New Brighton City Council
Business Meeting Agenda
New Brighton City Hall | Council Chambers
803 Old Highway 8 NW, New Brighton, MN 55112
6:30 PM January 27, 2026

Members of the City Council will attend the meeting in person unless eligible to attend remotely per MN Stat. 13D.02

To participate in this meeting, members of the public may:

- **Attend the meeting in person.**
- **Watch the meeting electronically.** Tune into CTV Channel 8023 (CenturyLink) or Channel 16 (Comcast). To observe the meeting as a livestream or a webcast, visit NBMN.info/View-A-Meeting
- **Join the meeting electronically.** Members of the public who need to interact with our public officials about agenda items, City Administration, and matters that are otherwise of public concern to the City Council but are unable to or not comfortable attending the meeting in person, may join the meeting electronically at: *https://newbrightonmn.gov/zoom* (no app needed), by scanning the QR Code on the right, or by using their Zoom app to join and entering: Meeting ID 898 6240 2361, Passcode 867530

I. Call to Order and Roll Call

____Mayor Kari Niedfeldt-Thomas
____Councilmember Graeme Allen
____Councilmember Emily Dunsworth
____Councilmember Jeanne Vint Frischman
____Councilmember Jason Steffenhagen

II. Pledge of Allegiance

III. Public Comment Forum

IV. Approval of Agenda

V. Special Order of Business

1. Hansen Park - 2025 MN Association of Floodplain Managers Project of the Year

VI. Consent Agenda

1. Consider Approval of Payments

2. Consider Approval of City Council Minutes
    a. 2026.01.13 City Council Meeting Minutes
    b. 2026.01.13 City Council Work Session Meeting Minutes
3. Accept Receipt of Commission Minutes
4. Resolution to Consider Accepting a Minnesota Department of Health Source Water Protection Grant
5. Consider Approval of Ordinance 918, Parks and Recreation Chapter 24 Update
6. Consider Resolution Approving Summary Publication for Ordinance 918
7. Consider Resolution Approving Personal Service Massage License for Xiaocai Song (Brighton Wellness)
8. Consider Approval of Plans and Specifications and Authorize Bidding for City Project 25-11, Well #16 Well House Construction
9. Consider Approval of Ordinance 925: An Ordinance to Amend the City of New Brighton Zoning Ordinance by Making Multiple Small Corrections Deemed Needed Following Adoption and Implementation of the New Zoning Code
10. Consider a Summary Publication Resolution for Ordinance 925
11. Consider Easements with M T Properties as required for Jones Lake Access

VII. Public Hearings

VIII. Council Business

IX. Commission Liason Reports, Announcements, and Updates

City Manager Devin Massopust
Councilmember Graeme Allen
Councilmember Emily Dunsworth
Councilmember Jeanne Vint Frischman
Councilmember Jason Steffenhagen
Mayor Kari Niedfeldt-Thomas

X. Adjournment

Agenda Section:	**Special Order of Business**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Hansen Park - 2025 MN Association of Floodplain Managers Project of the Year

Action Requested: **Informational**
Form of Action: N/A
Votes Needed: N/A

Summary Statement:	The Hansen Park Project in New Brighton, MN, is a multipurpose water management project that provides flood risk reduction and water quality improvement. Located along Ramsey County Ditch 2, an urbanized watershed prone to flooding and poor water quality, the project transformed Hansen Park's pond and dam system into a multi-functional infrastructure solution. Led by the Rice Creek Watershed District (RCWD) with the collaboration of the City of New Brighton and engineering support from Houston Engineering, Inc. (HEI), the project included a three-stage dam and outlet design that optimized flow release timing and enhanced flood protection downstream while preventing upstream increases in flood risk to vulnerable structures and infrastructure. The project resulted in nearly a foot decrease in downstream flood elevations in one of the most vulnerable communities in the watershed. In addition to the flood control benefits, the project targeted the removal of sediment and phosphorus from a local subwatershed with very little surface water quality treatment. This was accomplished by dredging highly organic sediment, creating a forebay, and constructing a first-of-its-kind pumped iron-enhanced sand filter system. Other project benefits included habitat restoration, removal of invasive species, and park amenities. As a follow up to the project, the RCWD collaborated with the City of New Brighton to initiate a Letter of Map Revision (LOMR) that will remove numerous structures and

	properties from the mapped floodplain in FEMA's flood insurance rate mapping. The remapping was enabled by the RCWD's commitment to developing a highly detailed Districtwide Model, which was further modified with the change in infrastructure from the Hansen Park Project. The model not only enabled the LOMR application but also provides clarity for landowners and floodplain managers who are within the Ramsey County Ditch 2 watershed area to better understand their flood risk.

Recommendations:	Acknowledge Award

Applicable Deadlines:	N/A

Community Impact:	N/A

Legislative History:	N/A

Strategic Priority:	N/A

Fiscal Impact:

Financial Consideration?	No
Revenue/Expenditure Amount:	$
Financing Source:	Budgeted Budget Modification Revenue Other N/A
Notes:	

Attachments:	

Agenda Section:	Consent Agenda
Meeting Date:	January 27, 2026

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Approval of Payments

Action Requested:

Motion

Form of Action:

Other

Votes Needed:

3 Votes

Summary Statement:	The following summary of claims have been submitted to the City's Finance Department for payment. A detailed listing is also attached.

EFT:	$883,574.65
ACH:	$2,003,210.87
Check:	$315,086.26
Total:	**$3,201,871.78**

Recommendations:	To approve the payment of invoices as listed in the attachment.

Applicable Deadlines:	The Council Meeting immediately following the disbursement of funds.

Community Impact:	All payments of claims are accounted for in the City's budgets and/or long-term financial plans and may be funded by the community through the property tax levy, user fees or other charges.

Legislative History:	Minnesota Statute 412.271 requires the City Council to approve all payments of claims. Per the City's Purchasing Policy, the City Council delegates to the City Manager or his/her designee its authority to pay claims prior to obtaining Council approval. A list of all payments are to be provided to the City Council at the next available Council meeting, and earlier payment does not affect the right of the City Council or any taxpayer to challenge the validity of a claim.

Strategic Priority:	**Operational Effectiveness**

Fiscal Impact:

Financial Impact: Is there a financial consideration?	No	Yes: $ 3,201,871.78

Financing Sources:	Budgeted	Budget Modification
New Revenue	Use of Reserves	Other

Attachments:

1.	VI_1 Consider Approval of Payments

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	10K LAKES - CC	AHMED TRAINING	200.00
12/10/2025	10K LAKES - CC	JEREMY & AHMED TRAINING	400.00
12/10/2025	10K LAKES - CC	JEREMY TRAINING	200.00
			800.00
12/10/2025	A-1 VACUUM CLEANER-CC	VACUUM PARTS	41.88
12/10/2025	Ace Waste-cc	NOVEMBER WASTE DISPOSAL SERVICES	352.39
12/10/2025	Ace Waste-cc	NOVEMBER WASTE DISPOSAL SERVICES	1,090.26
12/10/2025	Ace Waste-cc	NOVEMBER WASTE DISPOSAL SERVICES	2,047.79
12/10/2025	Ace Waste-cc	NOVEMBER WASTE DISPOSAL SERVICES	734.49
12/10/2025	Ace Waste-cc	NOVEMBER WASTE DISPOSAL SERVICES	1,277.26
12/10/2025	Ace Waste-cc	NOVEMBER WASTE DISPOSAL SERVICES	350.13
			5,852.32
12/10/2025	ACUSHNET COMPANY-CC	SPECAIL ORDER WIND JACKET	56.75
12/10/2025	ADAGIO'S PIZZA FACTORY - CC	FOOD FOR STAFF MEETING (TAKES PLACE OVER DINNER TIME)	318.84
12/10/2025	ALL SEASONS RENTALS - CC	PARK DISCOVERY NIGHT HEATERS	41.61
12/10/2025	ALL SEASONS RENTALS - CC	PARK DISCOVERY NIGHT HEATERS	529.96
			571.57
12/10/2025	ALLSTREAM - CC	HOSTED PHONE SYSTEM	3,537.94
12/10/2025	ALTA - CC	SHADOWBOX FOR KIM BOYD	85.50
12/10/2025	ALTA - CC	SHADOWBOX FOR KIM BOYD	300.00
			385.50
12/10/2025	AMAZON	CONTAINER FOR SHARPS, BAGS FOR EVIDENCE ROOM	92.94
12/10/2025	AMAZON WEB SERVICES - CC	HOSTED WEB SERVICES	5.00
12/10/2025	AMAZON.COM-cc	ADVIL FOR FIRST AID KIT	17.61
12/10/2025	AMAZON.COM-cc	CALCULATOR	18.38
12/10/2025	AMAZON.COM-cc	PHONE CASE	20.99
12/10/2025	AMAZON.COM-cc	PHONE CASE	1.76
12/10/2025	AMAZON.COM-cc	PHONE CASE	24.99
12/10/2025	AMAZON.COM-cc	PHONE CASE	2.09
12/10/2025	AMAZON.COM-cc	PHONE CASE	27.99
12/10/2025	AMAZON.COM-cc	PHONE CASE	2.27
12/10/2025	AMAZON.COM-cc	TRAILER ADAPTER PLUG	24.98
12/10/2025	AMAZON.COM-cc	SHOP TOOL- WIRE CRIMPER- SHOP	24.88
12/10/2025	AMAZON.COM-cc	RED WYPALL TOWELS PUBLIC SAFETY	259.96
12/10/2025	AMAZON.COM-cc	CLIPBOARDS FOR RESERVES AND EXPLORERS	58.80
12/10/2025	AMAZON.COM-cc	COMPUTER MOUSE PAD	12.75
12/10/2025	AMAZON.COM-cc	LABELS FOR LABEL MAKER, HEATER, MEDICAL SUPPLIES	72.36
12/10/2025	AMAZON.COM-cc	DISH SOAP FOR PUBLIC SAFETY KITCHEN	11.60
12/10/2025	AMAZON.COM-cc	SANTA COP - SUPPORT STAFF - RAQUEL GARCIA	24.14
12/10/2025	AMAZON.COM-cc	SANTA COP - SUPPORT STAFF - RAQUEL GARCIA FAMILY	14.00
12/10/2025	AMAZON.COM-cc	PHONE CASE- ADAM	36.94
12/10/2025	AMAZON.COM-cc	TREE STRAP	141.84
12/10/2025	AMAZON.COM-cc	PHONE CASE- JIM	31.31
12/10/2025	AMAZON.COM-cc	FORESTRY SUPPLIES	216.96
12/10/2025	AMAZON.COM-cc	SANTA COP - SINGER - XISONG FAMILY	64.95
12/10/2025	AMAZON.COM-cc	SANTA COP SHIRTS FOR SUPPORT STAFF, PHONE CASE	17.83
12/10/2025	AMAZON.COM-cc	SANTA COP SHIRTS FOR SUPPORT STAFF, PHONE CASE	24.98
12/10/2025	AMAZON.COM-cc	UPS REPLACEMENT BATTERIES	67.68
12/10/2025	AMAZON.COM-cc	PHONE, CABLES, AND CHARGING ACCESSORIES	175.50
12/10/2025	AMAZON.COM-cc	LUBE	14.95
12/10/2025	AMAZON.COM-cc	MONITOR ARM	132.30
12/10/2025	AMAZON.COM-cc	BATTERIES	81.78
12/10/2025	AMAZON.COM-cc	BATTERIES	6.85
12/10/2025	AMAZON.COM-cc	EAGLES NEST FLOOR PAD	129.99

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	AMAZON.COM-cc	NBCC BABY CHANGING TABLES	827.40
12/10/2025	AMAZON.COM-cc	NBCC BABY CHANGING TABLES	284.32
12/10/2025	AMAZON.COM-cc	PROJECTOR LAMP	153.13
12/10/2025	AMAZON.COM-cc	WATER FILTER	37.40
12/10/2025	AMAZON.COM-cc	PARK DISCOVERY NIGHT SUPPLIES	35.99
12/10/2025	AMAZON.COM-cc	PARK DISCOVERY NIGHT SUPPLIES	3.01
12/10/2025	AMAZON.COM-cc	HARD HAT	49.99
12/10/2025	AMAZON.COM-cc	PARK DISCOVERY NIGHT SUPPLIES	3.26
12/10/2025	AMAZON.COM-cc	PARK DISCOVERY NIGHT SUPPLIES	38.98
12/10/2025	AMAZON.COM-cc	ADAPTIVE BOWLING SUPPLIES	53.98
12/10/2025	AMAZON.COM-cc	OFFICE SUPPLIES	52.30
12/10/2025	AMAZON.COM-cc	OFFICE SUPPLIES	36.98
12/10/2025	AMAZON.COM-cc	KINGHTON FAMILY SANTA COP SHOPPING	124.00
12/10/2025	AMAZON.COM-cc	OFFICE SUPPLIES	49.98
12/10/2025	AMAZON.COM-cc	REFILL WALL CALENDAR FOR THE LICENSE BUREAU	31.89
12/10/2025	AMAZON.COM-cc	WALL CALENDAR FOR ALANNA HANSON IN UTILITY BILLING	21.23
12/10/2025	AMAZON.COM-cc	2 BLACK EASEL STANDS FOR DCAD	46.59
12/10/2025	AMAZON.COM-cc	2 BLACK EASEL STANDS FOR DCAD	16.25
12/10/2025	AMAZON.COM-cc	PRINTABLE POST CARDS FOR BEN GOZOLA IN DCAD	9.98
12/10/2025	AMAZON.COM-cc	PRINTABLE POST CARDS FOR BEN GOZOLA IN DCAD	24.97
12/10/2025	AMAZON.COM-cc	PLOTTER PAPER FOR DCAD	77.59
12/10/2025	AMAZON.COM-cc	CORRECT WALL CALENDAR FOR JACKIE ZILLMER	28.54
12/10/2025	AMAZON.COM-cc	TYLENOL FOR CITY HALL	57.18
12/10/2025	AMAZON.COM-cc	IBUPROFEN FOR CITY HALL	56.79
12/10/2025	AMAZON.COM-cc	3 - HP CF289YC TONER CARTRIDGES	1,167.09
12/10/2025	AMAZON.COM-cc	LABEL MAKER TAPE	32.52
12/10/2025	AMAZON.COM-cc	XOCHILT, MIA, AND EZRA SANTA COP SHOPPING	79.90
12/10/2025	AMAZON.COM-cc	I ORDERED WRONG CALENDAR 2025 INSTEAD OF 2026	(15.79)
			5,148.86
	VOID		
12/10/2025		VOID CHECK	** VOIDED **
12/10/2025	ANCOM COMMUNICATIONS INC-cc	NEW BATTERIES FOR RADIOS	289.42
12/10/2025	ANCOM COMMUNICATIONS INC-cc	BATTERIES FOR TRUCK 2 WAY RADIOS	289.42
12/10/2025	ANCOM COMMUNICATIONS INC-cc	BATTERIES FOR RADIOS	289.42
			868.26
12/10/2025	APA MN - CC	AICP BEN GOZOLA APA PASSPORT	66.08
12/10/2025	APPLE SPICE - CC	INTERVIEW PANEL LUNCH	166.90
12/10/2025	Aramark-cc	COFFEE SUPPLIES - PAID TWICE	460.04
12/10/2025	Aspen Mills-cc	STOCK UNIFORMS FOR EXPLORERS	856.45
12/10/2025	Aspen Mills-cc	A. SONTERRE MACE HOLDER	194.70
12/10/2025	Aspen Mills-cc	A. GRIFFIN INITIAL UNIFORM	1,391.14
12/10/2025	Aspen Mills-cc	J. BERGER JACKET	132.65
12/10/2025	Aspen Mills-cc	A. GRIFFIN SHIRTS	273.80
			2,848.74
12/10/2025	ASTLEFORD INTERNATIONAL-cc	#1405 COOLANT PIPE	340.94
12/10/2025	ATLASSIAN - CC	HOSTED KNOWLEDGEBASE	10.00
12/10/2025	AUDIO VIDEO ELECTRONICS - CC	FINAL PAYMENT AV IN CR & 224	2,485.88
12/10/2025	Batteries Plus-cc	BATTERIES FOR FITNESS MACHINE	55.90
12/10/2025	BCA TRAINING EDUCATION-cc	SLACK DMT RECERTIFICATION	75.00
12/10/2025	BEACH'S LONG LAKE SERVICE - CC	#2009 PROPANE	39.30
12/10/2025	BEACH'S LONG LAKE SERVICE - CC	PROPANE GOLF COURSE	43.24
			82.54
12/10/2025	BEISSWENGERS HARDWARE-cc	SHOVELS	291.95
12/10/2025	BEISSWENGERS HARDWARE-cc	BOLTS SHOP SUPPLIES	3.56
12/10/2025	BEISSWENGERS HARDWARE-cc	NUTS & BOLTS SHOP SUPPLIES	30.16

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	BEISSWENGERS HARDWARE-cc	NUTS & BOLTS SHOP STOCK	68.32
12/10/2025	BEISSWENGERS HARDWARE-cc	LIME AWAY FOR CLEANING DRINKING FOUNTAINS	7.99
12/10/2025	BEISSWENGERS HARDWARE-cc	DRYWALL SUPPLIES	16.58
12/10/2025	BEISSWENGERS HARDWARE-cc	DRYWALL SUPPLIES	1.39
12/10/2025	BEISSWENGERS HARDWARE-cc	12PT SOCKET FOR CURB STOPS	8.59
			428.54
12/10/2025	BLINDS.COM - CC	BLINDS FOR FITNESS STUDIO	1,412.08
12/10/2025	BLINDS.COM - CC	BLINDS FOR FITNESS STUDIO	118.27
			1,530.35
12/10/2025	BLUUM OF MINNESOTA - CC	PROJECTOR FOR SQUAD ROOM	4,276.61
12/10/2025	BURLINGTON - CC	SANTA COP - YANG FAMILY	106.92
12/10/2025	BURLINGTON - CC	SANTA COP YANG FAMILY	42.97
			149.89
	CAMDEN FOOD - CC		
12/10/2025		MEAL AT NATIONAL TRAINING	14.47
12/10/2025	CAMPION BARROW & ASSOCIATES-CC	M. MOORE TESTING	483.60
12/10/2025	CAMPION BARROW & ASSOCIATES-CC	PSO TESTING A. GRIFFIN, L. NIEBELING	967.20
12/10/2025	CAMPION BARROW & ASSOCIATES-CC	TESTING FOR B. COOK	483.60
			1,934.40
12/10/2025	CARHARTT RETAIL - CC	CLOTHING- KEVIN	178.49
12/10/2025	CARHARTT RETAIL - CC	CLOTHING- KOTTA	209.99
12/10/2025	CARHARTT RETAIL - CC	BIBBS- MICKEY	178.49
			566.97
12/10/2025	CDW GOVERNMENT-cc	ADOBE LICENSE RENEWAL	7,649.73
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	261.60
12/10/2025	CENTURYLINK - CC	INTERNET SERVICE	1,602.38
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	70.16
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	88.02
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	64.96
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	141.24
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	457.80
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	196.20
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	64.96
12/10/2025	CENTURYLINK - CC	PHONE SERVICE	64.96
			3,012.28
12/10/2025	CINTAS - CC	NBCC MAT CLEANING	574.64
12/10/2025	CINTAS - CC	MATS & SUPPLIES	452.80
			1,027.44
12/10/2025	CLEVERBRIDGE - CC	CORELDRAW GRAPHICS	357.05
12/10/2025	COMCAST CABLE-cc	NBCC FITNESS CENTER CABLE TV	130.21
12/10/2025	COMCAST CABLE-cc	CABLE TV	149.53
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	130.94
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	106.87
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	75.40
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	75.40
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	173.35
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	131.31
12/10/2025	COMCAST CABLE-cc	PHONE SERVICE	167.31
			1,140.32
12/10/2025	COMMERS CONDITIONED WATER-cc	NBCC SALT FOR WATER SOFTENER	39.00
12/10/2025	Continental Research Corporation-cc	PAPER TOWELS	900.00

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	CORE & MAIN - CC	1.5" METER REPLACE 1135 SLR	3,451.66
12/10/2025	CORE & MAIN - CC	2" METER REGISTER & SOCKET	538.88
			3,990.54
12/10/2025	COREMARK METALS - CC	SNOWPLOW TRACKLESS DRILL CUTTER	66.68
12/10/2025	COSTCO WHOLESALE-CC	HEALTHY SNACKS FOR WELLNESS COMMITTEE	83.76
12/10/2025	COSTCO WHOLESALE-CC	WRAPPING PAPER FOR SANTA COP	7.53
12/10/2025	COSTCO WHOLESALE-CC	WRAPPING PAPER FOR SANTA COP	89.94
12/10/2025	COSTCO WHOLESALE-CC	CAKE FOR KIMS RETIREMENT	27.99
12/10/2025	COSTCO WHOLESALE-CC	DISHWASHER SOAP AND DISH SOAP FOR PUBLIC SAFETY KITCHEN	2.38
12/10/2025	COSTCO WHOLESALE-CC	DISHWASHER SOAP AND DISH SOAP FOR PUBLIC SAFETY KITCHEN	28.47
12/10/2025	COSTCO WHOLESALE-CC	BASKETBALLS	74.95
12/10/2025	COSTCO WHOLESALE-CC	BASKETBALLS	6.09
12/10/2025	COSTCO WHOLESALE-CC	SODAS FOR RESALE	35.98
			357.09
12/10/2025	CRAGUNS LODGE AND GOLF RE-cc	MCPA FALL LEADERSHIP SUMMIT BREAKFAST	19.33
12/10/2025	CRAGUNS LODGE AND GOLF RE-cc	KREBSBACH DINING CHARGE AT MCPA LEADERSHIP SUMMIT	19.33
			38.66
12/10/2025	CUB FOODS-cc	SANTA EVENT COOKIES FOR ATTENDEES	44.87
12/10/2025	CUB FOODS-cc	EMPLOYEE RECOGUNITION EVENT 12/3/25	165.31
12/10/2025	CUB FOODS-cc	BOOK CLUB TREATS	26.21
12/10/2025	CUB FOODS-cc	BREAKFAST AND BINGO DONUTS	115.99
			352.38
12/10/2025	DALCO ENTERPRISES, INC-cc	CLEANING SUPPLIES FOR HECTOR @ CITY HALL	569.91
12/10/2025	DAVIS LOCK & SAFE - CC	COPIES OF KEYS FOR PUBLIC SAFETY	34.00
12/10/2025	DEPARTMENT OF LABOR AND INDUSTRY-cc	NOVEMBER SURCHARGE 2025	491.61
12/10/2025	DEPARTMENT OF LABOR AND INDUSTRY-cc	NOVEMBER SURCHARGE 2025	(25.00)
12/10/2025	DEPARTMENT OF LABOR AND INDUSTRY-cc	NOVEMBER SURCHARGE 2025	(3.75)
			462.86
12/10/2025	DETROIT INDUSTRIAL TOOL - CC	MANIAC SAW BLADE	195.47
12/10/2025	DIRTROAD APP - CC	NBPR EV CHARGE - VEHICLE 2506	5.00
12/10/2025	DIRTROAD APP - CC	NBPR EV CHARGE - VEHICLE 2506	3.00
12/10/2025	DIRTROAD APP - CC	NBPR EV CHARGE - VEHICLE 2506	5.17
12/10/2025	DIRTROAD APP - CC	NBPR EV CHARGE - VEHICLE 2206	3.00
12/10/2025	DIRTROAD APP - CC	NBPR EV CHARGE - VEHICLE 2206	6.40
			22.57
12/10/2025	DIRTROAD APP - CC	ELECTRIC CAR	3.00
12/10/2025	DIRTROAD APP - CC	ELECTRIC CAR	3.73
12/10/2025	DIRTROAD APP - CC	ELECTRIC CAR	4.09
12/10/2025	DIRTROAD APP - CC	ELECTRIC CAR	1.58
12/10/2025	DIRTROAD APP - CC	ELECTRIC CAR	5.56
12/10/2025	DIRTROAD APP - CC	DIRTROAD - ELECTRIC VEHICLE CHARGING AND MONTHLY SUBSCRIPTION	5.49
12/10/2025	DIRTROAD APP - CC	DIRTROAD - ELECTRIC VEHICLE CHARGING AND MONTHLY SUBSCRIPTION	3.00
12/10/2025	DIRTROAD APP - CC	DIRTROAD - ELECTRIC VEHICLE CHARGING AND MONTHLY SUBSCRIPTION	4.84
12/10/2025	DIRTROAD APP - CC	DIRTROAD - ELECTRIC VEHICLE CHARGING AND MONTHLY SUBSCRIPTION	5.09
12/10/2025	DIRTROAD APP - CC	DIRTROAD - ELECTRIC VEHICLE CHARGING AND MONTHLY SUBSCRIPTION	4.83
12/10/2025	DIRTROAD APP - CC	DIRTROAD - ELECTRIC VEHICLE CHARGING AND MONTHLY SUBSCRIPTION	5.18

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	DIRTROAD APP - CC	CITY EV CHARGING	4.98
12/10/2025	DIRTROAD APP - CC	MONTHLY EV CHARGE SUBSCRIPTION	3.00
			54.37
12/10/2025	DOLLAR TREE-cc	SANTA COP WRAPPING SUPPLIES	52.50
12/10/2025	DOLLAR TREE-cc	SANTA COP FAMILY #69	23.25
			75.75
12/10/2025	E.G. RUD & SONS INC - CC	OLD HWY 8- 3 LANE CONVERSION SURVEYING	1,541.50
12/10/2025	E.G. RUD & SONS INC - CC	2025 STREET REHAB CONSTRUCTION STAKING	1,079.50
12/10/2025	E.G. RUD & SONS INC - CC	LOCATE TREES AND OTHER IMPROVEMENTS	1,032.00
			3,653.00
12/10/2025	EBAY - CC	#2401 TAILGATE	550.49
12/10/2025	EBAY - CC	#2401 TAILGATE	46.06
			596.55
12/10/2025	ELECTRO WATCHMAN INC-cc	FIRE SYSTEM MONITORING- WARM STORAGE	200.85
12/10/2025	ELECTRO WATCHMAN INC-cc	FIRE SYSTEM MONITORING - MAINT. BUILDING	200.85
12/10/2025	ELECTRO WATCHMAN INC-cc	FIRE SYSTEM MONITORING - COLD STORAGE	200.85
12/10/2025	ELECTRO WATCHMAN INC-cc	NBCC SECURITY MONITORING	528.00
12/10/2025	ELECTRO WATCHMAN INC-cc	FIRE ALARM MONITORING FOR CITY HALL	269.85
12/10/2025	ELECTRO WATCHMAN INC-cc	FIRE ALARM MONITORING FOR CITY HALL	269.85
			1,670.25
12/10/2025	Emergency Auto Tech, Inc-cc	GHOST CAR BUILD	6,784.30
12/10/2025	EVIDENT INC-cc	TAPE FOR EVIDENCE ROOM	240.00
12/10/2025	EVIDENT INC-cc	SHIPPING FOR EVIDENCE TAPE	28.42
			268.42
12/10/2025	Fastenal-cc	NUTS, MARKERS, BOLTS, CABLE TIES, AND UTILITY KNIVES	235.61
12/10/2025	FIRE SAFETY USA-cc	FIREFIGHTON CLASS A FOAM	857.25
12/10/2025	FIRSTNET / AT&T - CC	PUBLIC SAFETY PHONE BILL NOVEMBER 2025	3,211.42
12/10/2025	FIRSTNET / AT&T - CC	CELLULAR SERVICE	3,390.10
			6,601.52
12/10/2025	FLEET FARM - CC	SANTA COP - M. NUNDAHL TEAM - RADHIKA KATEL FAMILY	67.98
12/10/2025	FLEET FARM - CC	#2503 POWER CONVERTER	1.30
12/10/2025	FLEET FARM - CC	#2503 POWER CONVERTER	15.99
12/10/2025	FLEET FARM - CC	#2503 TRAILER BRAKE CONVERTER	5.37
12/10/2025	FLEET FARM - CC	#2503 TRAILER BRAKE CONVERTER	62.99
12/10/2025	FLEET FARM - CC	SANTA COP - TEAM SYPNIEWSKI - CANDACE BEAMON FAMILY	202.87
			356.50
12/10/2025	FULL SLATE - CC	2025 DECEMBER APPOINTMENT SCHEDULING SUBSCRIPTION	49.95
12/10/2025	FUN EXPRESS - CC	PARK DISCOVERY NIGHT CRAFT SUPPLIES	209.50
12/10/2025	G & B ENVIRONMENTAL - CC	NBCC HVAC FILTERS	1,168.88
12/10/2025	GALLS-cc	SUPPLIES FOR RESERVES/ EXPLORERS	484.09
12/10/2025	GALLS-cc	SUPPLIES FOR RESERVES/ EXPLORERS	385.09
			869.18
12/10/2025	GFOA - CC	2026 CITY MEMBERSHIP	500.00
12/10/2025	GIFTOGRAM - CC	NOVEMBER 2025 ANNIVERSARIES	40.00
12/10/2025	GIFTOGRAM - CC	NOVEMBER 2025 ANNIVERSARIES	100.00
12/10/2025	GIFTOGRAM - CC	NOVEMBER 2025 ANNIVERSARIES	100.00
			240.00
12/10/2025	GOPHER SPORTS - CC	STORAGE RACK FOR SNOW SHOES	521.31

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	GOPHER SPORTS - CC	STORAGE RACK FOR SNOW SHOES	43.67
			564.98
12/10/2025	GRAFIX SHOPPE-cc	#2503 DOOR DECALS	239.48
12/10/2025	Grainger-cc	#2503 RUBBER STEP	273.79
12/10/2025	Grainger-cc	NEW PARTS FOR DRINKING FOUNTAINS	81.96
12/10/2025	Grainger-cc	RUBBER BOOTS- JEREMY	149.46
12/10/2025	Grainger-cc	BATTERIES	51.54
12/10/2025	Grainger-cc	AA BATTERIES	8.39
			565.14
12/10/2025	H & L MESABI COMPANY - CC	CURB RUNNER FOR ZACKS WING	947.20
12/10/2025	HACH COMPANY-cc	IRON TESTING	565.70
12/10/2025	HALARA - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	54.85
12/10/2025	HARBOR FREIGHT TOOLS-cc	GLOVES	44.97
12/10/2025	HARBOR FREIGHT TOOLS-cc	GLOVES	3.65
			48.62
12/10/2025	HERITAGE LANDSCAPE SUPPLY GROU - CC	IRRIGATION PARTS	189.36
12/10/2025	HILTON HOTELS-cc	LODGING ABS 2025 SHOW/MEAL AT ABS SHOW	1,736.91
12/10/2025	HILTON HOTELS-cc	LODGING ABS 2025 SHOW/MEAL AT ABS SHOW	49.80
			1,786.71
12/10/2025	HOLIDAY STATIONSTORE - CC	DIESEL 2016	78.40
12/10/2025	HOLLY JOLLY SANTA VISITS - CC	PARK DISCOVERY NIGHT SANTA	600.00
12/10/2025	HOLLY JOLLY SANTA VISITS - CC	PARK DISCOVERY NIGHT SANTA BENCH RENTAL	75.00
			675.00
12/10/2025	HOME DEPOT - CC	TIRE INFLATOR FOR RESERVES/ EXPLORERES	25.04
12/10/2025	HOME DEPOT - CC	TIRE INFLATOR FOR RESERVES/ EXPLORERES	299.00
12/10/2025	HOME DEPOT - CC	BINS FOR X-MAS STUFF	239.90
12/10/2025	HOME DEPOT - CC	PAINT SUPPLIES	18.02
12/10/2025	HOME DEPOT - CC	PAINT SUPPLIES	1.46
12/10/2025	HOME DEPOT - CC	TOOLS	310.08
12/10/2025	HOME DEPOT - CC	TOOLS	15.68
12/10/2025	HOME DEPOT - CC	TOOLS	77.91
12/10/2025	HOME DEPOT - CC	SUPPLY LINE	15.90
12/10/2025	HOME DEPOT - CC	SUPPLY LINE	1.29
			1,004.28
	HORTON GRAND HOTEL - CC		
12/10/2025		ROOM AT NATIONAL TRAINING	139.15
12/10/2025	HULU - CC	TV SERVICE FOR PSC	113.77
12/10/2025	IAFC-INT'L ASSOC OF FIRE CHEIFS-CC	2026 MEMBER RENEWAL FEE	235.00
12/10/2025	IMPERIALDADE - CC	GARBAGE BINS AND RECYCLING FOR PSC	126.58
12/10/2025	Innovative Office Solutions-cc	COPY PAPER, PENS, HIGHLIGHTER	53.25
12/10/2025	Innovative Office Solutions-cc	GENERAL OFFICE SUPPLIES	222.90
12/10/2025	Innovative Office Solutions-cc	FURNITURE INSTALLATION FOR SQUAD ROOM	355.36
12/10/2025	Innovative Office Solutions-cc	GYM WIPES	202.00
12/10/2025	Innovative Office Solutions-cc	BATHROOM SUPPLIES	148.02
12/10/2025	Innovative Office Solutions-cc	BATHROOM SUPPLIES	462.87
12/10/2025	Innovative Office Solutions-cc	BATHROOM SUPPLIES	42.88
12/10/2025	Innovative Office Solutions-cc	BATHROOM SUPPLIES	441.89
12/10/2025	Innovative Office Solutions-cc	COPY PAPER FOR THE LICENSE BUREAU	521.00
12/10/2025	Innovative Office Solutions-cc	COUNTERFEIT DETECTOR PENS FOR THE LB, ADDRESS LABELS, POSTCARDS	149.34
12/10/2025	Innovative Office Solutions-cc	CLEAR PACKING TAPE	19.13
			2,618.64

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	INTERNATIONAL ENVIROGUARD - CC	SHOE COVERS	86.99
12/10/2025	JOE'S SPORTING GOODS - CC	SANTA COP - M. NUNDAHL TEAM - RADHIKA KATEL FAMILY	89.98
12/10/2025	JOHNSON FIT WELL - CC	BARBELL PAD	21.00
12/10/2025	JOHNSON FIT WELL - CC	NBCC FITNESS CENTER SCALE	527.00
			548.00
12/10/2025	KIDCREATE STUDIO - CC	ONE KID CREATE REGISTRATION	38.00
12/10/2025	KOHL'S - CC	TEAM 1 - SINGER - XISONG FAMILY SANTA COP	527.15
12/10/2025	KOHL'S - CC	SANTA COP - COEI - CASTRO FAMILY	739.52
12/10/2025	KOHL'S - CC	SANTA COP - COEI - BURKS FAMILY	852.45
12/10/2025	KOHL'S - CC	SANTA COP - COEI - FLORES-OLIVERIA FAMILY	435.07
12/10/2025	KOHL'S - CC	SANTA COP - COEI - STONE	496.15
12/10/2025	KOHL'S - CC	SANTA COP - KINGSLIEN TEAM - THULIN FAMILY	593.68
12/10/2025	KOHL'S - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	2.10
12/10/2025	KOHL'S - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	140.45
12/10/2025	KOHL'S - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	2.84
12/10/2025	KOHL'S - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	241.94
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL ROBB FAMILY	97.50
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL ROBB FAMILY	293.00
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL ROBB FAMILY	102.97
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL ROBB FAMILY	146.98
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL ROBB FAMILY	25.59
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL ROBB FAMILY	120.53
12/10/2025	KOHL'S - CC	SANTA COP - SINGER TEAM - XISONG	0.55
12/10/2025	KOHL'S - CC	SANTA COP - SINGER TEAM - XISONG	71.99
12/10/2025	KOHL'S - CC	SANTA COP - SUPPORT STAFF - RAQUEL GARCIA FAMILY	60.00
12/10/2025	KOHL'S - CC	SANTA COP - TEAM WODNICK - FAITH ROTT FAMILY	998.45
12/10/2025	KOHL'S - CC	SANTA COP - TEAM EMERSON - SANDRA WALTON FAMILY	390.88
			6,339.79
12/10/2025	L & S SERVICE SOLUTION - CC	NBCC CLEANING CONTRACT	5,995.00
12/10/2025	LACROSSE TECHNOLOGY - CC	PSC TEMPERATURE MONITORING FOR EVIDENCE ROOM SYSTEM	371.24
12/10/2025	LEARN FIRST AID & CPR - CC	WSI CERTIFICATION TRAINING	675.00
12/10/2025	LHB, INC - CC	HANSEN WEST PROFESSIONAL SERVICES THROUGH 10.24.25	15,000.00
12/10/2025	Loffler Companies, Inc-cc	P & R MONTHLY COPIER CHARGE	260.28
12/10/2025	LOWE'S - CC	WATER FILTER	15.79
12/10/2025	LOWE'S - CC	WATER FILTER	1.28
			17.07
	M HEALTH FAIRVIEW		
12/10/2025		PERSONAL PURCHASE - WILL BE REFUNDED	517.28
12/10/2025	MacQueen Equipment-cc	SCBA FLOW TEST	3,745.00
12/10/2025	MARATHON GAS - CC	DIESEL	87.65
12/10/2025	MARIE RIDGEWAY & ASSOC - CC	THERAPY RETAINER AND SESSION	770.00
12/10/2025	MCDONALD HOPKINS - CC	PROFESSIONAL SERVICES THROUGH SEPTEMBER 30 2025	3,049.20
12/10/2025	MCDONALD HOPKINS - CC	PROFESSIONAL SERVICES THROUGH OCTOBER 2025	1,117.80
12/10/2025	MCDONALD HOPKINS - CC	PROFESSIONAL SERVICES THROUGH OCTOBER 2025	4,984.20
			9,151.20
12/10/2025	Menards-cc	MOUSE TRAP MATERIAL, PEG HOOKS	17.00
12/10/2025	Menards-cc	TV MOUNT, PAINT BRUSHES	86.94
12/10/2025	Menards-cc	NAILS FOR CROSSWALK	8.49
12/10/2025	Menards-cc	CURB STOP CAP BUILD 2" PIPE	6.26
			118.69
12/10/2025	METROPOLITAN COUNCIL ENVIRO - CC	PARTIAL PAYMENT FOR DECEMBER WASTE WATER SERVICES	19,999.00
12/10/2025	MIDWAY FORD - CC	#2014 SWITCH	27.50
12/10/2025	MINNEAPOLIS FINANCE DEPT - CC	WATER FIXED CHARGE - OCT. 2025	5,256.12
12/10/2025	MINNESOTA CHIEFS OF POLICE-cc	2026 RENEWAL FEE	528.39

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	MINNESOTA EQUIPMENT-cc	PARTS FOR JD TRACTOR "I MATCH"	61.61
12/10/2025	MN ASIAN PEACE OFFICERS ASSC - CC	MEMBERSHIP RENEWAL	46.80
12/10/2025	MN ASIAN PEACE OFFICERS ASSC - CC	MEMBERSHIP RENEWAL T. XIONG	40.00
			86.80
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	INSPECTION OF PRESSURE VESSELS @ WTP #1	75.00
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	INSPECTION OF PRESSURE VESSELS @ WELL 12	25.00
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	INSPECTION OF PRESSURE VESSELS @ WELL #10	25.00
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	INSPECTION OF PRESSURE VESSELS @ WELL #11	25.00
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	INSPECTION OF PRESSURE VESSELS @ MAINTENANCE FACILITY	25.00
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	MN DEPT OF LABOR UM PRESSURE VESSEL	25.00
12/10/2025	MN DEPT OF LABOR & INDUSTRY-CC	BOILER INSPECTION	100.00
			300.00
12/10/2025	MN LEAP - CC	2026 MEMBERSHIP RENEWAL K. MCFEE	50.00
12/10/2025	MN LEAP - CC	2026 MEMBERSHIP RENEWAL J. MINWEGEN	50.00
12/10/2025	MN LEAP - CC	2026 MEMBERSHIP RENEWAL E. NUNDAHL	50.00
			150.00
12/10/2025	MN PARK AND SPORTS FIELD MAN - CC	SPORTS TURF MANAGEMENT TRAINING	110.00
12/10/2025	MN SECRETARY OF STATE - CC	2026 NOTARY RENEWAL TIFFANY ALEXANDER SUSENS	120.00
12/10/2025	MN STATE FIRE CHIEF ASSOC - CC	2026 MEMBERSHIP RENEWAL HAMDORF, KREBSBACH, PAETZNICK, SCHUTE	308.00
12/10/2025	MN STATE FIRE CHIEF ASSOC - CC	ALEXANDRIA FIRE SCHOOL A. BARTE	285.00
			593.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	658.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	458.25
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	VOLLEYBALL LEAGUE FACILITY FEE	522.50
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	217.50
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	VOLLEYBALL LESSON FACILITY FEE	418.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	493.50
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	458.25
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	658.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	SWIM LESSON FACILITY FEE	329.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	VOLLEYBALL LESSON FACILITY FEE	313.50
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	VOLLEYBALL LESSON FACILITY FEE	209.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	GYMNASTICS GYM FEE	365.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	FALL GYMNASTICS GYM FEE	1,415.00
12/10/2025	MOUNDS VIEW PUBLIC SCHOOL-cc	GYMNASTICS GYM FEE	660.00
			7,175.50
12/10/2025	MPPOA - CC	2026 MEMBER RENEWAL FEES	156.85
12/10/2025	MPPOA - CC	2026 REGULAR MEMBERSHIP DUES	72.40
			229.25
12/10/2025	MRPA - CC	JAMIE MASS MEMBERSHIP	40.00
12/10/2025	NAPA AUTO PARTS - CC	#1305 VENT VALVE	4.65
12/10/2025	NAPA AUTO PARTS - CC	#1305 VENT VALVE	67.67
			72.32
12/10/2025	NATIONAL REC AND PARKS ASSC - CC	VIRTUAL TRAINING - SERVICE ANIMALS -JH	12.00
12/10/2025	NATIONAL REC AND PARKS ASSC - CC	MEMBERSHIP DUES NRPA - JF	700.00
			712.00
12/10/2025	NATIONAL REGISTRY OF EMERCENCY - CC	EMT RENEWAL FEE	25.00
12/10/2025	NATIONAL REGISTRY OF EMERCENCY - CC	EMT RECERT- BRIAN CROCKER	25.00
			50.00

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	NETTRANSCRIPTS.COM - CC	TRANSCRIPT OF 911 CALL	15.33
12/10/2025	NEW BRIGHTON FORD-cc	#20071 CHARGING SYSTEM REPAIR	927.02
12/10/2025	NORDEAST COFFEE COMPANY, INC - CC	PUBLIC SAFETY COFFEE	398.05
12/10/2025	NORDEAST COFFEE COMPANY, INC - CC	SENIOR ROOM COFFEE SUPPLIES	311.55
			709.60
12/10/2025	NORM'S TIRE SALES -CC	TIRES- SQUAD CARS SHOP STOCK	1,104.00
12/10/2025	North American Safety -cc	M HALLETT CLOTHES	356.77
12/10/2025	North American Safety -cc	UNIFORMS-HALLIE	177.49
			534.26
12/10/2025	NORTHERN TOOL EQUIPMENT-cc	TRAILER WIRE CONNECTORS SHOP STOCK	73.13
12/10/2025	OFFICE DEPOT-cc	OFFICE SUPPLIES	43.98
12/10/2025	OFFICE SUPPLIES - CC	COPY PAPER	325.45
12/10/2025	OFFICE SUPPLIES - CC	COPY PAPER	27.21
12/10/2025	OFFICE SUPPLIES - CC	ALCOHOL WIPES FOR EYE MACHINE IN THE LICENSE BUREAU	33.04
12/10/2025	OFFICE SUPPLIES - CC	ALCOHOL WIPES FOR EYE MACHINE IN THE LICENSE BUREAU	394.97
			780.67
12/10/2025	OLD NAVY - CC	SANTA COP FAMILY #69	46.60
12/10/2025	OLD NAVY - CC	SANTA COP FAMILY #69	25.18
12/10/2025	OLD NAVY - CC	SANTA COP FAMILY #69	9.99
12/10/2025	OLD NAVY - CC	SANTA COP	50.97
			132.74
12/10/2025	Orkin -cc	NOVEMBER ORKIN 2025	122.00
12/10/2025	Orkin -cc	PEST CONTROL- DECEMBER PW	150.00
12/10/2025	Orkin -cc	NBCC PEST CONTROL	144.00
12/10/2025	Orkin -cc	BRIGHTWOOD HILLS PEST CONTROL	102.96
			396.96
12/10/2025	OXYGEN SERVICE COMPANY -cc	OXYGEN REFILL	20.39
12/10/2025	PAPER ROLL PRODUCTS-cc	PRINTING PAPER FOR SQUADS	319.90
12/10/2025	PEACH JAR - CC	ADAPTIVE BOWLING PEACH JAR	25.00
12/10/2025	PERFORMANCE PLUS - CC	MICHAEL HALLET MEDICAL EXAM	273.00
12/10/2025	PERFORMANCE PLUS - CC	S. BONCZEK MEDICAL EXAM	413.00
12/10/2025	PERFORMANCE PLUS - CC	ANNUAL FIRE PHYSICALS	9,408.00
			10,094.00
12/10/2025	PITNEY BOWES-CC	SUPPLIES FOR POSTAGE MACHINE - SHIPPING LABELS	174.02
12/10/2025	POLICE EXECUTIVE RESEARCH FORUM-CC	2026 MEMBERSHIP RENEWAL	250.00
12/10/2025	RAFFERTY'S PIZZA - CC	MCPA FALL LEADERSHIP SUMMIT LUNCH	25.81
12/10/2025	RAPID RADIOS - CC	ANNUAL RAPID RADIO SUBSCRIPTION	300.00
12/10/2025	RED WING SHOES - CC	WINTER BOOTS- ASHER	30.00
12/10/2025	RED WING SHOES - CC	NEW HIRE BOOTS- MICKEY	549.38
			579.38
12/10/2025	REMARKABLE - CC	REMARKABLE SUBSCRIPTION	2.99
12/10/2025	REMARKABLE - CC	REMARKABLE SUBSCRIPTION	0.25
			3.24
12/10/2025	REPUBLIC SERVICES - CC	REPUBLIC SERVICES OCTOBER 2025	29,854.87
12/10/2025	REPUBLIC SERVICES - CC	SWEEPINGS DISPOSAL	1,871.82
12/10/2025	ROSENQUIST CONSTRUCTION INC - CC	ROOF LEAK REPAIR	655.00
12/10/2025	ROSENQUIST CONSTRUCTION INC - CC	EPDM PATCHES FOR ROOF LEAK	760.00
			1,415.00
12/10/2025	Ruffridge Johnson-cc	TROMMEL RENTAL	2,266.00
12/10/2025	Ruffridge Johnson-cc	TROMMEL RENTAL	80.34

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
			2,346.34
12/10/2025	SAFEGUARD - CC	DEPOSIT BAGS AND TICKETS	160.33
12/10/2025	SAFEGUARD - CC	DEPOSIT BAGS AND TICKETS	125.90
			286.23
12/10/2025	SCHINDLER ELEVEATOR CORP - CC	QUARTERLY BILLING 11/01/2025-1/31/2026	564.78
12/10/2025	SHERWIN-WILLIAMS - CC	PAINT FOR CROSSWALKS	337.00
12/10/2025	SHERWIN-WILLIAMS - CC	PAINT FOR CROSSWALKS	84.25
			421.25
12/10/2025	SHUTTERFLY - CC	EMPLOYEE REOGNITION EVENT	357.77
12/10/2025	SLOAN MARKETPLACE LLC - CC	HAND SOAP FOR RESTROOMS AT CITY HALL	334.92
12/10/2025	SMARTDRAW - CC	SMART DRAW ROOM LAYOUT SOFTWARE	81.29
12/10/2025	SPS WORKS - CC	2026 NOTARY STAMP CLAUDIA MORA	31.65
12/10/2025	STORM TRAINING GROUP - CC	PISTOL INSTRUCTOR COURSE S. KINGSLIEN	499.00
12/10/2025	STREICHER'S-cc	AMMUNITION	54.98
12/10/2025	SUMMIT FIRE PROTECTION-cc	EXTINGUISHER RECHARGE	344.10
12/10/2025	SUPERIOR SAND AND GRAVEL - CC	DISPOSAL OF RUBBLE	50.00
12/10/2025	TARGET-cc	SANTA COP - SUPPORT STAFF - GARCIA FAMILY	87.96
12/10/2025	TARGET-cc	SANTA COP - COMMAND STAFF - JUNTUNEN (GIFTS FOR 17 YOUR OLD)	291.76
12/10/2025	TARGET-cc	SANTA COP - COMMAND STAFF - JUNTUNEN (GIFTS FOR MOM AND 6 YEAR OLD)	331.66
12/10/2025	TARGET-cc	FOOD FOR WELLNESS COMMITTEE MEAL PREP ACTIVITY	220.89
12/10/2025	TARGET-cc	SANTA COP - FARMER - SARGENT FAMILY	335.96
12/10/2025	TARGET-cc	SANTA COP - FARMER - YANEZ FAMILY	686.93
12/10/2025	TARGET-cc	SANTA COP - COEI - KORTU FAMILY	607.77
12/10/2025	TARGET-cc	SANTA COP - COEI - DAYE	863.43
12/10/2025	TARGET-cc	SANTA COP	788.72
12/10/2025	TARGET-cc	SANTA COP- GIFTS FOR FAMILIES, WRAPPING SUPPLIES FOR STAFF	1,294.24
12/10/2025	TARGET-cc	GIFT BAGS FOR SANTA COP AND TREATS FOR VIPS WRAPPING	19.29
12/10/2025	TARGET-cc	GIFT BAGS FOR SANTA COP AND TREATS FOR VIPS WRAPPING	42.00
12/10/2025	TARGET-cc	SANTA COP FAMILY GIFTS	1,202.81
12/10/2025	TARGET-cc	SANTA COP - TEAM BARTE - DESTINY JOHNSON FAMILY	1,164.40
12/10/2025	TARGET-cc	SANTA COP - TEAM SYPNIEWSKI - CANDACE BEAMON FAMILY	56.59
12/10/2025	TARGET-cc	SANTA COP - TEAM SYPNIEWSKI - CANDACE BEAMON FAMILY	633.38
12/10/2025	TARGET-cc	SANTA COP - TEAM SYPNIEWSKI - CANDACE BEAMON FAMILY	39.99
12/10/2025	TARGET-cc	JASMINE KINGHTEN - SANTA COP	22.00
12/10/2025	TARGET-cc	PARK DISCOVERY NIGHT SUPPLIES	13.07
12/10/2025	TARGET-cc	PARK DISCOVERY NIGHT SUPPLIES	4.02
12/10/2025	TARGET-cc	PARK DISCOVERY NIGHT SUPPLIES	87.90
12/10/2025	TARGET-cc	SCHOOL RELEASE DAY SUPPLIES	69.06
12/10/2025	TARGET-cc	SANTA COP - YANG FAMLIY	1.29
12/10/2025	TARGET-cc	SANTA COP - YANG FAMLIY	62.37
12/10/2025	TARGET-cc	SANTA COP - YANG FAMILY	15.10
12/10/2025	TARGET-cc	SANTA COP - YANG FAMILY	32.99
12/10/2025	TARGET-cc	EMPLOYEE RECOGNITION EVENT	95.43
12/10/2025	TARGET-cc	EMPLOYEE RECOGNITION EVENT	9.54
12/10/2025	TARGET-cc	EMPLOYEE RECGONITION EVENT	52.02
12/10/2025	TARGET-cc	SANTA COP	39.63
12/10/2025	TARGET-cc	SANTA COP	0.64
12/10/2025	TARGET-cc	SANTA COP	8.86

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	TARGET-cc	SANTA COP	12.78
12/10/2025	TARGET-cc	SANTA COP	1.07
12/10/2025	TARGET-cc	SANTA COP - KINGHTEN	145.99
12/10/2025	TARGET-cc	SANTA COP - TEAM EMERSON - SANDRA WALTON FAMILY	200.00
12/10/2025	TARGET-cc	SANTA COP 2025 - COMMAND STAFF - ERICA JUNTUNEN FAMILY	209.97
12/10/2025	TARGET-cc	RETURN OF EXTRA PARK DISCOVERY NIGHT SUPPLIES	(1.51)
12/10/2025	TARGET-cc	RETURN OF EXTRA PARK DISCOVERY NIGHT SUPPLIES	(18.00)
			9,732.00
12/10/2025	Terminal Supply Co-cc	CABLE TIE SHOP SUPPLIES	35.05
12/10/2025	Terminal Supply Co-cc	SHOP SUPPLIES/ SHOP STOCK	227.49
			262.54
12/10/2025	TESSMAN COMPANY-cc	GOLF COURSE FERTELIZER	49.22
12/10/2025	TESSMAN COMPANY-cc	GOLF COURSE FERTELIZER	1,303.89
			1,353.11
12/10/2025	TEXT-EM-ALL - CC	MONTHLY TEXT-EM-ALL SUBSCRIPTION	19.00
12/10/2025	THE FORMIDABLE GENEALOGIST - CC	GENEALOGY CLASS FEE	20.00
12/10/2025	THE MPX GROUP - CC	BUSINESS CARDS FOR STEPHANIE COUGHLIN	138.26
12/10/2025	THOMSON REUTERS- WEST-CC	ONLINE SOFTWARE SUBSCRIPTION CHARGE	407.47
12/10/2025	THRYV - CC	BRIGHTWOOD HILLS DIGITAL MARKETING	109.00
12/10/2025	THRYV - CC	BRIGTHWOOD HILLS DIGITAL CHARGES	109.00
12/10/2025	THRYV - CC	PRINT CHARGES	18.75
			236.75
12/10/2025	TOFTS OUTDOOR SUPPLY LLC - CC	DISPOSAL OF LOGS	200.00
12/10/2025	TRANE - CC	NBCC HVAC REPAIRS	260.00
12/10/2025	TRANSLATE LIVE, LLC - CC	TRANSLATION DEVICE	2,499.00
12/10/2025	TRANSWEST TRUCKS LAUDERDALE - CC	#2503 NEW KEYS	62.80
12/10/2025	TRI-STATE BOBCAT - CC	GRANDSTAND PARTS	199.72
12/10/2025	TRUGRIT TRACTION INC - CC	NEW WHEELS FOR SEWER CAMERA	427.88
12/10/2025	ULINE-CC	URINAL CAKES FOR BATHROOMS AT CITY HALL	146.23
12/10/2025	UNIVERSITY OF MN - CC	2026 MNDOT ADA CONSTRUCTION RECERTIFICATION	150.00
12/10/2025	UNIVERSITY OF MN - CC	2026 MNDOT ADA CONSTRUCTION RECERTIFICATION	150.00
			300.00
12/10/2025	USPS-cc	PACKAGED MAIL FOR J, BERGER	5.21
12/10/2025	USPS-cc	FOR 1 BOOK OF POSTAGE STAMPS FOR FRONT COUNTER @ CITY HALL	15.60
			20.81
12/10/2025	USTA NORTHERN - CC	USTA SUMMER ADULT TENNIS 2025	540.00
12/10/2025	Verizon-cc	CELLULAR SERVICE	120.03
12/10/2025	VERTEX UNMANNED SOLUTIONS - CC	PART 107 DRONE CLASS J. BURTON	299.00
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	22.16
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	3.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	65.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	22.16
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	3.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	65.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	24.35
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	3.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	65.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	62.52
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	3.97
12/10/2025	VESTIS - CC	CLEANING & UNIFORMS	25.61
			370.59

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
12/10/2025	WALGREENS-cc	PARK DISCOVERY SIGNS	31.99
12/10/2025	WALGREENS-cc	PARK DISCOVERY SIGNS	2.68
			34.67
12/10/2025	WALLRAFF ELECTRIC - CC	ELECTRICIAN WORK	462.00
12/10/2025	WALLRAFF ELECTRIC - CC	ELECTRICIAN WORK	925.00
			1,387.00
12/10/2025	WALMART.COM - CC	SANTA COP - M. NUNDAHL TEAM - RADHIKA KATEL FAMILY	1,636.11
12/10/2025	WALMART.COM - CC	SANTA COP - M. NUNDAHL TEAM - RADHIKA KATEL FAMILY	23.34
12/10/2025	WALMART.COM - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	0.61
12/10/2025	WALMART.COM - CC	SANTA COP - VIPS - LORENZO ROBB FAMILY	26.82
12/10/2025	WALMART.COM - CC	PRESCHOOL PLAYTIME EQUIPMENT	9.20
12/10/2025	WALMART.COM - CC	PRESCHOOL PLAYTIME EQUIPMENT	109.94
12/10/2025	WALMART.COM - CC	PRESCHOOL PLAYTIME EQUIPMENT	79.97
12/10/2025	WALMART.COM - CC	PRESCHOOL PLAYTIME EQUIPMENT	6.69
12/10/2025	WALMART.COM - CC	AIR PUMP	49.99
12/10/2025	WALMART.COM - CC	AIR PUMP	4.19
12/10/2025	WALMART.COM - CC	JASMINE KINGHTEN - SANTA COP	196.49
12/10/2025	WALMART.COM - CC	JASMINE KINGHTEN - SANTA COP	50.32
12/10/2025	WALMART.COM - CC	JASMINE KINGHTEN - SANTA COP	4.09
12/10/2025	WALMART.COM - CC	COMMUNITY LUNCH SERVING SUPPLIES	24.29
12/10/2025	WALMART.COM - CC	SANTA COP YANG FAMILY	62.49
12/10/2025	WALMART.COM - CC	SANTA COP YANG FAMILY	1.54
12/10/2025	WALMART.COM - CC	XOCHILT, MIA, AND EZRA SANTA COP SHOPPING	6.35
12/10/2025	WALMART.COM - CC	XOCHILT, MIA, AND EZRA SANTA COP SHOPPING	316.94
			2,609.37
12/10/2025	Warning Lites of Minnesota-cc	TRAFFIC CONTROL FOR BP GAS STATION	684.00
12/10/2025	ZAHL PETROLEUM MAINTENANCE CO - CC	REMOVE OLD FUEL FROM OLD GENERATER @ NBCC	1,027.50
12/10/2025	ZOLA - CC	ZOLA WEDDING AD	99.00
12/10/2025	ZORO TOOLS INC-cc	PRESCHOOL PLAYTIME EQUIPMENT	159.40
12/10/2025	ZORO TOOLS INC-cc	BINS, FORKS AND GUARD FOR FIRE ALARM IN GYM	117.50
12/10/2025	ZORO TOOLS INC-cc	ZIPTIES	7.04
			283.94
01/05/2026	XCEL ENERGY	ELECTRICITY TOTEM POLE 11/11-12/10/25	52.42
01/05/2026	XCEL ENERGY	500 13TH AVE NW 11/12-12/15/25	128.69
01/05/2026	XCEL ENERGY	OLD HWY 8 STREET LIGHTS AND MAINT GARAGE GAS 11/13-12/16/25	2,549.19
01/05/2026	XCEL ENERGY	OLD HWY 8 STREET LIGHTS AND MAINT GARAGE GAS 11/13-12/16/25	209.98
01/05/2026	XCEL ENERGY	CITY HALL/PSB 11/12-12/15/25	2,227.81
01/05/2026	XCEL ENERGY	CITY HALL/PSB 11/12-12/15/25	2,215.91
01/05/2026	XCEL ENERGY	CITY HALL/PSB 11/12-12/15/25	3,925.56
01/05/2026	XCEL ENERGY	CITY HALL/PSB 11/12-12/15/25	5,381.21
01/05/2026	XCEL ENERGY	NBCC/BHGC 11/13-12/16/25	6,401.89
01/05/2026	XCEL ENERGY	NBCC/BHGC 11/13-12/16/25	4,815.65
01/05/2026	XCEL ENERGY	NBCC/BHGC 11/13-12/16/25	584.82
01/05/2026	XCEL ENERGY	NBCC/BHGC 11/13-12/16/25	357.79
01/05/2026	XCEL ENERGY	PARKS 11/13-12/16/25	1,828.83
01/05/2026	XCEL ENERGY	PARKS 11/13-12/16/25	337.07
01/05/2026	XCEL ENERGY	STREET LIGHTS 11/12-12/15/25	3,404.70
01/05/2026	XCEL ENERGY	STREET LIGHTS 11/12-12/15/25	3,710.74
01/05/2026	XCEL ENERGY	STREET LIGHTS 11/12-12/15/25	13.19
			38,145.45
08/01/2025	2299 PALMER LLC	TIF NOTE PAYMENT 2299 PALMER	120,753.69

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
08/01/2025	NEW BRIGHTON LEASED HOUSING ASSOCIA	TIF NOTE PAYMENT OAK LANDINGS	13,273.00
08/01/2025	NEW BRIGHTON LEASED HOUSING ASSOCIA	TIF NOTE PAYMENT OAK LANDINGS	30,820.00
			44,093.00
08/01/2025	NEW BRIGHTON LHA III, LLLP	TIF NOTE PAYMENT BRIGHTON OAKS	3,730.00
08/01/2025	NEW BRIGHTON LHA III, LLLP	TIF NOTE PAYMENT BRIGHTON OAKS	26,781.00
			30,511.00
01/09/2026	EFTPS	Remittance Check	46,903.53
01/09/2026	EFTPS	Remittance Check	19,498.70
01/09/2026	EFTPS	Remittance Check	19,498.70
01/09/2026	EFTPS	Remittance Check	6,935.23
01/09/2026	EFTPS	Remittance Check	6,935.23
			99,771.39
01/09/2026	HSA	Remittance Check	15,341.75
01/09/2026	HSA	Remittance Check	8,696.30
			24,038.05
01/09/2026	MISSIONSQUARE	Remittance Check	12,203.71
01/09/2026	MISSIONSQUARE	Remittance Check	103.01
01/09/2026	MISSIONSQUARE	Remittance Check	2,070.00
			14,376.72
01/09/2026	MN CHILD SUPPORT	Remittance Check	308.72
01/09/2026	MN DCP	Remittance Check	1,825.00
01/09/2026	PERA	Remittance Check	20,213.19
01/09/2026	PERA	Remittance Check	20,213.19
01/09/2026	PERA	Remittance Check	19,994.78
01/09/2026	PERA	Remittance Check	29,992.12
01/09/2026	PERA	Remittance Check	58.34
01/09/2026	PERA	Remittance Check	58.34
01/09/2026	PERA	Remittance Check	3,109.76
			93,639.72
01/09/2026	RETIREMENT HEALTH SAVINGS PLAN	Remittance Check	2,630.84
01/09/2026	ROTH IRA	Remittance Check	2,452.63
01/09/2026	STATE TAXES	Remittance Check	20,324.28
01/15/2026	VANCO PAYMENT SOLUTIONS	MONTHLY VANCO FEES DECEMBER 2025	35.18
01/15/2026	VANCO PAYMENT SOLUTIONS	MONTHLY VANCO FEES DECEMBER 2025	35.18
01/15/2026	VANCO PAYMENT SOLUTIONS	MONTHLY VANCO FEES DECEMBER 2025	17.59
			87.95
12/31/2025	FISERV	GOLF DECEMBER 2025 CC FEES	15.00
12/31/2025	FISERV	NBCC DEC 2025 CC FEES	736.98
12/31/2025	FISERV	NBCC DEC 2025 CC FEES	1,105.48
			1,842.46
12/31/2025	FISERV	WEB DEC 2025 CC FEES	1,089.47
12/31/2025	FISERV	WEB DEC 2025 CC FEES	1,634.20
			2,723.67
01/12/2026	XCEL ENERGY	STREETLIGHTS 12/03-01/02/26	11,155.40
12/31/2025	FISERV	NBCC DEC 2025 ACH FEES	43.58
12/31/2025	FISERV	NBCC DEC 2025 ACH FEES	65.36
			108.94
01/12/2026	BETTER HEALTH COLLECTIVE	SOURCEWELL HEALTH INSURANCE FOR JANUARY	124,636.00
01/12/2026	BETTER HEALTH COLLECTIVE	SOURCEWELL HEALTH INSURANCE FOR JANUARY	3,870.00
01/12/2026	BETTER HEALTH COLLECTIVE	SOURCEWELL HEALTH INSURANCE FOR JANUARY	523.00

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
			129,029.00
01/09/2026	AMRIZE MIDWEST INC	CONCRETE FOR WATERMAIN BREAK PATCH	1,308.35
01/09/2026	ANCHOR SOLAR INVESTMENTS, LLC	SOLAR POWER PAYMENT - JANUARY	412.22
01/09/2026	ANCHOR SOLAR INVESTMENTS, LLC	SOLAR POWER PAYMENT - JANUARY	412.22
01/09/2026	ANCHOR SOLAR INVESTMENTS, LLC	SOLAR POWER PAYMENT - JANUARY	343.40
01/09/2026	ANCHOR SOLAR INVESTMENTS, LLC	SOLAR POWER PAYMENT - JANUARY	1,271.30
01/09/2026	ANCHOR SOLAR INVESTMENTS, LLC	SOLAR POWER PAYMENT - JANUARY	1,674.27
			4,113.41
01/09/2026	BARR ENGINEERING COMPANY	PROFESSIONAL SERVICES 11/01/2025-11/28/2025	46,874.00
01/09/2026	BARR ENGINEERING COMPANY	23/62-0210.00 ARMY REMEDIATION, SYSTEM MONITORING, MAINTENANCE PROJECTS	481.55
01/09/2026	BARR ENGINEERING COMPANY	23/62-0210.00 ARMY REMEDIATION, SYSTEM MONITORING, MAINTENANCE PROJECTS	127.50
01/09/2026	BARR ENGINEERING COMPANY	23/62-0210.00 ARMY REMEDIATION, SYSTEM MONITORING, MAINTENANCE PROJECTS	126.25
01/09/2026	BARR ENGINEERING COMPANY	23/62-0210.00 ARMY REMEDIATION, SYSTEM MONITORING, MAINTENANCE PROJECTS	126.25
			47,735.55
01/09/2026	BARR ENGINEERING COMPANY	PROFESSIONAL SERVICES FROM 11.29.2025-12.26.2025	2,669.00
01/09/2026	BOLTON & MENK, INC	NEW BRIGHTON 2023 MS4 ADMINISTRATIOIN	342.50
01/09/2026	BOLTON & MENK, INC	NEW BRIGHTON 2025 SANITARY SEWER MODEL	7,333.00
01/09/2026	BOLTON & MENK, INC	10TH STREET NW CULVERT REPLACEMENT	7,153.50
			14,829.00
01/09/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 OCTOBER	1,103.45
01/09/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 OCTOBER	414.71
01/09/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 OCTOBER	3,301.53
01/09/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 OCTOBER	3,301.53
01/09/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 OCTOBER	1,650.77
			9,771.99
01/09/2026	CHESS, INC	MAINTENANCE PLAN + DECEMBER 2025	2,190.00
01/09/2026	CHET'S SHOES LLC	JIMS 2025 BOOTS	280.50
01/09/2026	COLLINS ELECTRICAL CONSTRUCTION CO	FIBER OPTIC EQUIPMENT REFRESH	5,809.06
01/09/2026	COMPASS PEER GROUPS, LLC	2026 COMPASS PEER GROUP MEMBERSHIP - JEN	1,800.00
01/09/2026	COMPASS PEER GROUPS, LLC	MEMBERSHIP FOR 1 MEMBER	1,800.00
01/09/2026	DAIKIN APPLIED	INSPECTION ONLY SERVICE LEVEL 1326.26-3.31.2026	2,142.00
01/09/2026	ELECTRO WATCHMAN INC	SECURITY CAMERA REPLACEMENT	3,282.68
01/09/2026	ESS BROTHERS & SONS INC.	SEALANT FOR SEWER RINGS	204.00
01/09/2026	FACTORY MOTOR PARTS CO	#071 BATTERY	154.44
01/09/2026	FACTORY MOTOR PARTS CO	#2113 BATTERY / #1507 WIPER BLADES	190.36
01/09/2026	FACTORY MOTOR PARTS CO	#1710 BATTERY	117.25
01/09/2026	FACTORY MOTOR PARTS CO	#1605 STAB LINKS	53.04
01/09/2026	FACTORY MOTOR PARTS CO	#1902 BATTERY CORE RETURN	(36.00)
01/09/2026	FACTORY MOTOR PARTS CO	BATTERY CORE RETURN	(18.00)
01/09/2026	FACTORY MOTOR PARTS CO	#071 BATTERY CORE RETURN	(10.00)
01/09/2026	FACTORY MOTOR PARTS CO	#1710 BATTERY CORE	(16.00)
			435.09
01/09/2026	FOREST LAKE CONTRACTING, INC	LIGHT POLE ACCESS COVERS	449.64

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
01/09/2026	GECK, DUEA & OLSON, PLLC	LEGAL COSTS	7,515.00
01/09/2026	GOPHER STATE ONE-CALL	LOCATE TICKETS- DECEMBER 2025	54.00
01/09/2026	GOPHER STATE ONE-CALL	LOCATE TICKETS- DECEMBER 2025	54.00
01/09/2026	GOPHER STATE ONE-CALL	LOCATE TICKETS- DECEMBER 2025	54.00
			162.00
01/09/2026	HARTMAN, JESSE	INTERNET REIMBURSEMENT	797.51
01/09/2026	HAWKINS, INC.	AZONE/ FLUORIDE/ LPC-4/ SODIUM PERMANGANATE	17,987.80
01/09/2026	HAWKINS, INC.	AZONE/ FLUORIDE/ LPC-4/ SODIUM PERMANGANATE	5,326.69
			23,314.49
01/09/2026	IN CONTROL, INC	TRANSFER SWITCH MAINTENANCE	521.10
01/09/2026	KRAUS-ANDERSON CONSTRUCTION COMPANY	HANSEN PARK WEST CONSTRUCTION	824,717.99
01/09/2026	LOFFLER COMPANIES, INC	TONER FOR MACHINES 633324 & 633067 UPSTAIRS AT CITY HALL	224.62
01/09/2026	MANSFIELD OIL COMPANY OF GAINSVILLE	UNLEADED 502 GALLONS SPOT PRICING	1,139.98
01/09/2026	MANSFIELD OIL COMPANY OF GAINSVILLE	DIESEL 501 GALLONS	1,207.67
			2,347.65
01/09/2026	MARCO TECHNOLOGIES, LLC	SHRED BINS	52.50
01/09/2026	MC TOOL & SAFETY SALES	FLAGS TO MARK SIDEWALKS	236.29
01/09/2026	METROPOLITAN COUNCIL	JANUARY WASTE WATER SERVICES	180,430.35
01/09/2026	METROPOLITAN COURIER CORPORATION	SERVICES FOR THE MONTH OF DECEMBER	688.25
01/09/2026	NCPERS GROUP LIFE INS	PERA LIFE INS FOR JANUARY	224.00
01/09/2026	NEW LOOK CONTRACTING, INC	PROJECT 21-9 10TH STREET CULVERT REPLACEMENT	557,448.22
01/09/2026	NORTH SUBURBAN ACCESS CORPORATION	2025-DEC MONTHLY MUNICIPAL MEETING AV SERVICES CITY OF NEW BRIGHTON	1,302.50
01/09/2026	NORTH SUBURBAN ACCESS CORPORATION	VIDEO RECORDING FOR YCC	560.00
			1,862.50
01/09/2026	NUSS TRUCK & EQUIPMENT	#1616 ACTUATOR	25.42
01/09/2026	PATCHIN MESSNER VALUATION COUNSELOR	SERVICE RENDERED: 91 1ST STREET SE & 77 2ND ST SE	4,000.00
01/09/2026	RAMSEY COUNTY EMCOM	911 DISPATCH SERVICES FOR NOVEMBER 2025	10,744.33
01/09/2026	SPRINGER, GEORGE	INTERNET REIMBURSEMENT	105.26
01/09/2026	STREET FLEET	2025 LB COURIER STREET FLEET DECEMBER 2025 (12/17/2025) REPORT COURIER	25.16
01/09/2026	STREET FLEET	2025 LB COURIER STREET FLEET DECEMBER 2025 (12/24/2025) REPORT COURIER	25.16
01/09/2026	STREET FLEET	2025 LB COURIER STREET FLEET OCTOBER 2025 (10/01/2025) REPORT COURIER	25.16
			75.48
01/09/2026	THE PARTNERS GROUP LLC	CONSULTANT SERVICES DEC 2025	3,300.00
01/09/2026	VOLK, ERIC	INTERNET REIMBURSEMENT	105.22
01/09/2026	WSB & ASSOCIATES INC	VERMONT PARK PRE-DESIGN PROFESSIONAL SERVICES FROM NOV 1-30, 2025	9,133.50
01/09/2026	WSB & ASSOCIATES INC	HANSEN SHADE GRANT PROFESSIOANL SERVICES FROM NOV 1-30, 2025	163.50
			9,297.00
01/16/2026	A.E.M ELECTRICAL SERVICES INC	REPLACE MONUMENT LIGHT @ CTY D & OLD 8	388.30
01/16/2026	A.E.M ELECTRICAL SERVICES INC	REPLACE CONTACTORS IN COLD STORAGE	299.41
			687.71
01/16/2026	ALEXANDER-SUSENS, TIFFANY	DEC 25 DEALER RUN	12.67
01/16/2026	BROADWAY AWARDS INC	ELEMENTARY FIRE POSTER CONTEST TROPHIES	398.00
01/16/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 DECEMBER - POSTING DATE 12.31.25	969.05

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
01/16/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 DECEMBER - POSTING DATE 12.31.25	157.70
01/16/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 DECEMBER - POSTING DATE 12.31.25	4,941.34
01/16/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 DECEMBER - POSTING DATE 12.31.25	4,941.34
01/16/2026	BS & A SOFTWARE	BS&A INTEGRATED PAYMENTS ABSORBED FEES 2025 DECEMBER - POSTING DATE 12.31.25	2,470.66
			13,480.09
01/16/2026	CENTRALSQUARE TECHNOLOGIES, LLC	ANNUAL MAINTENANCE 03/25/2026-03/24/2027	33,534.68
01/16/2026	CPOF INC	MAIL SORTERS- NBCC	1,165.00
01/16/2026	CRAWFORD, LEIGH	2025 DECEMBER DEALER RUNS	224.63
01/16/2026	CRYSTEEL TRUCK EQUIPMENT	#1305 UNDERBODY CUTTING EDGES	941.50
01/16/2026	DAIKIN APPLIED	1- FLAME ROD 2- IGNITORS	90.63
01/16/2026	FACTORY MOTOR PARTS CO	#2414 BATTERY	177.96
01/16/2026	FACTORY MOTOR PARTS CO	#2410 BATTERY	177.96
01/16/2026	FACTORY MOTOR PARTS CO	#048 BREAK MASTER CYLINDER	90.81
			446.73
01/16/2026	FERGUSON ENTERPRISES, LLC	CURB STOP WRENCH	138.06
01/16/2026	GREAT NORTHERN ENVIRONMENTAL, LLC	LABOR FOR UV LAMP CHANGEOUT	8,585.00
01/16/2026	HOSE PROS LLC	PRESSURE WASHER HOSE AND FITTINGS	164.78
01/16/2026	HOSE PROS LLC	PRESSURE WASHER HOSE	164.78
			329.56
01/16/2026	HUNT ELECTRIC CORPORATION	HOCKEY RINK LIGHTS REPLACED TO LED	12,875.00
01/16/2026	IDENTISYS INCORPORATED	MEMBERSHIP CARDS - STICKI CARDS	250.83
01/16/2026	INFOSEND, INC	DEC 2025 UB MAILING PRINTING, POSTAGE, MAILING. RCVD INV 01.13.26	184.00
01/16/2026	INFOSEND, INC	DEC 2025 UB MAILING PRINTING, POSTAGE, MAILING. RCVD INV 01.13.26	184.00
01/16/2026	INFOSEND, INC	DEC 2025 UB MAILING PRINTING, POSTAGE, MAILING. RCVD INV 01.13.26	92.01
01/16/2026	INFOSEND, INC	DEC 2025 UB MAILING PRINTING, POSTAGE, MAILING. RCVD INV 01.13.26	324.83
01/16/2026	INFOSEND, INC	DEC 2025 UB MAILING PRINTING, POSTAGE, MAILING. RCVD INV 01.13.26	324.83
01/16/2026	INFOSEND, INC	DEC 2025 UB MAILING PRINTING, POSTAGE, MAILING. RCVD INV 01.13.26	162.41
			1,272.08
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	325.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	1,325.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	450.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	375.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	325.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	375.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	325.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	312.50
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	312.50
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	325.00
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	312.50
01/16/2026	INSTRUMENTAL RESEARCH, INC	WATER TESTING	312.50
			5,075.00
01/16/2026	INTELLICENTS INC	MONTHLY HEALTH CONSULTING	1,250.00
01/16/2026	KATH FUEL OIL SERVICE	FLOOR DRY SHOP	1,010.00
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	97.00

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	727.50
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	708.10
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	360.50
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	824.50
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	174.60
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	194.00
01/16/2026	KENNEDY & GRAVEN CHARTERED	LEGAL COSTS	1,706.55
			4,792.75
01/16/2026	L.E.L.S	POLICE/SERG UNION DUES FOR JANUARY	1,533.00
01/16/2026	L.E.L.S	POLICE/SERG UNION DUES FOR JANUARY	438.00
01/16/2026	L.E.L.S	POLICE/SERG UNION DUES FOR JANUARY	146.00
			2,117.00
01/16/2026	LEHMANN, JENNIFER	WELLBEING COMMITTEE ACTIVITY & PROF DEV	450.00
01/16/2026	LEHMANN, JENNIFER	WELLBEING COMMITTEE ACTIVITY & PROF DEV	150.00
			600.00
01/16/2026	LOFFLER COMPANIES, INC	PUBLIC SAFETY PRINTER OVERAGE DECEMBER 2025	81.92
01/16/2026	LOFFLER COMPANIES, INC	PUBLIC SAFETY TONER	203.76
01/16/2026	LOFFLER COMPANIES, INC	CONTRACT OVERAGE CHARGE FOR THE 12/9/25 TO 01/8/26 PERIOD	185.46
			471.14
01/16/2026	LORENZ BUS SERVICE, INC	TRANSPORTATION FOR SENIOR TRIP 11-18-2026 CHANHASSEN CHARTER ID 42190	1,215.50
01/16/2026	MANSFIELD OIL COMPANY OF GAINSVILLE	UNLEADED 805 GALLONS	2,052.25
01/16/2026	MANSFIELD OIL COMPANY OF GAINSVILLE	UNLEADED 1002 GALLONS	2,554.46
			4,606.71
01/16/2026	MC TOOL & SAFETY SALES	BALACLAVAS	200.30
01/16/2026	MC TOOL & SAFETY SALES	MARKING PAINT	60.00
			260.30
01/16/2026	METROPOLITAN COUNCIL	DECEMBER SAC 2025	2,485.00
01/16/2026	METROPOLITAN COUNCIL	DECEMBER SAC 2025	(24.85)
			2,460.15
01/16/2026	MINUTE MAKER SECRETARIAL	PROFESSIONAL SERVICES ON 12/18/25	219.50
01/16/2026	NEW BRIGHTON/MOUNDSVIEW ROTARY CLUB	JANUARY THROUGH MARCH 2026 ROTARY DUES	330.00
01/16/2026	OXYGEN SERVICE COMPANY, INC.	OXYGEN TANK RENTAL	182.82
01/16/2026	RAMSEY COUNTY	2026 ELECTION SERVICES 1ST QTR	24,262.00
01/16/2026	ST CROIX RECREATION FUN PLAYGROUNDS	HANSEN PARK WEST SHADE STRUCTURE	62,395.14
01/16/2026	STREET FLEET	2025 LB COURIER STREET FLEET DECEMBER 2025 (12/24/2025) REPORT COURIER	25.16
01/16/2026	STREET FLEET	2026 LB COURIER STREET FLEET JANUARY 2026 (01/07/2026) REPORT COURIER	25.16
			50.32
01/16/2026	THE MPX GROUP	ENVELOPES FOR PUBLUC SAFETY	389.49
01/16/2026	TINYMOBILEROBOTS US LLC	TINY MOBILE ROBOT	37,460.00
01/16/2026	TOKLE INSPECTIONS INC	DECEMBER 2025 TOKLE INSPECTIONS	5,864.94
01/16/2026	TOTAL MECHANICAL SERVICES, INC	WTP #1 HEATER REPLACEMENT	37,726.00
01/16/2026	WATER CONSERVATION SERVICE, INC.	LEAK DETECTION	639.75
01/16/2026	WINTER SERVICES, LLC	TREATED SALT FOR 2025	8,384.74
01/08/2026	4 SEASONS TREE CARE	REMOVAL OF ASH TREE (1533 2ND ST SW)	1,000.00
01/08/2026	ABLE HOSE & RUBBER LLC	HOSE FOR THE WATER TANKER	199.50

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
01/08/2026	CITY OF EDEN PRAIRIE	DUES FOR ANNUAL FENCING CONSORTIUM	8,669.00
01/08/2026	CORPORATE 4 INSURANCE AGENCY	AGENT OF RECORD FEE FOR 2026	11,000.00
01/08/2026	DEANS PROFESSIONAL PLUMBING	REFUND PERMIT PROJECT CANCELED	103.00
01/08/2026	IAP2 USA MIDWEST CHAPTER	CONFERENCE REGISTRATION	325.00
01/08/2026	LMCIT	CLAIM 465483	401.24
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	264.49
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	289.46
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	225.93
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	149.04
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	8.24
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	1,073.20
01/08/2026	LMCIT	CLAIM 523757, 524744, 524837, 524866, 521937, 525076, 525306	617.35
			3,028.95
01/08/2026	LMCIT	2026 WORKERS COMP PREMIUM	230,449.00
01/08/2026	MCMA SECRETARIAT	MCMA/APMP MEMBERSHIP JEN	260.00
01/08/2026	MN METRO NORTH TOURISM BUREAU	NOVEMBER LODGING TAX	7,903.31
01/08/2026	MN METRO NORTH TOURISM BUREAU	NOVEMBER LODGING TAX	(395.17)
			7,508.14
01/08/2026	MOUNDS VIEW, CITY OF	LINEN RENTAL FOR HOLIDAY TEA PARTY DECEMBER 2025	93.00
01/08/2026	QUARSTAD, JEANNE	REFUND FOR CANCELLED SELF COMPASSION CLASS	5.00
01/08/2026	RAMSEY COUNTY	NOTARY REGISTRATION E. NUNDAHL	20.00
01/08/2026	RUSSELL MOORE	CTY D & OLD 8 MONUMENT SIGN PAINTING	367.00
01/08/2026	SAINT CROIX COFFEE & TEA COMPANY	COFFEE	215.50
01/08/2026	SHARDLOW, JANICE	REFUND FOR CANCELLED SELF COMPASSION CLASS	10.00
01/08/2026	ST PAUL, CITY OF	WRAPPING HIGH IRON	226.47
01/15/2026	4 SEASONS TREE CARE	TREE TRIMMING AND BRUSH REMOVAL	12,625.00
01/15/2026	BARE, SHAWN	LINEN REFUND CHECK	81.29
01/15/2026	BOE, JEFFREY	REFUND FOR OVERPAYMENT	15.50
01/15/2026	BOURASSA, TRISHA	SECURITY DEPOSIT REFUND	250.00
01/15/2026	CHERNAEV, LORA	UB REFUND FOR ACCOUNT: 314310-01	67.08
01/15/2026	FIDUCIARY FOUNDATOIN	REFUND FOR OVERPAYMENT	22.50
01/15/2026	FLEETPRIDE, INC	HYDRAULIC HOSE SHOP STOCK	207.30
01/15/2026	FRIENDLY CHEVROLET, INC.	#1513 REAR SHOCKS	407.18
01/15/2026	GANDHI, YOGINI	SECURITY DEPOSIT REFUND	300.00
01/15/2026	HEBL, RICHARD AND LEANNE	UB REFUND FOR ACCOUNT: 306613-01	250.00
01/15/2026	LAKE COUNTRY PASTEL SOCIETY ATTN: SUSAN WARNER	LAKE COUNTRY PASTEL SOCIETY REFUND CHECK #1 (SEE NOTES)	300.00
01/15/2026	LAKE COUNTRY PASTEL SOCIETY ATTN: SUSAN WARNER	SECURITY DESPOSIT REFUND CHECK #2	300.00
			600.00
01/15/2026	LEAGUE OF MINNESOTA CITIES	DUES FOR LMC FROM 1/1/26 TO 12/31/26	23,817.00
01/15/2026	LULOFF, BRYCE	SECURITY DEPOSIT REFUND CHECK	300.00
01/15/2026	MADDEN GALANTER HANSEN LLP	LEGAL SERVICES 12/1/25-12/31/25; LABOR RELATIONS SERVICES	94.00
01/15/2026	METRO CITIES ASSOCIATION	METRO CITIES 2026 MEMBERSHIP DUES	8,513.00
01/15/2026	SHEPPARD MOTORS LTD	REFUND FOR OVERPAYMENT	3,456.19
01/15/2026	TC TINT LLC	TINT FOR UNMARKED FORD FUSION	40.00
01/15/2026	TWIN CITIES NORTH CHAMBER COMMERCE	DUES FOR MEMBERSHIP PERIOD: 2/2026 - 1/2027	525.00
01/15/2026	WAHL, JASON	UB REFUND FOR ACCOUNT: 318980-01	35.66

VI_1 APPROVAL OF PAYMENTS

CHECK DISBURSEMENT REPORT FOR CITY OF NEW BRIGHTON

Check Date	Payee	Description	Amount
	TOTAL PAYMENTS		**$ 3,201,871.78**

COUNCIL PROCEEDINGS
THE CITY OF NEW BRIGHTON

Pursuant to notice thereof, a regular meeting of the New Brighton City Council was held Tuesday, January 13, 2026 at 6:30 pm in the New Brighton Council Chambers.

Present: **Mayor Niedfeldt-Thomas, Councilmembers Allen, Dunsworth, Frischman and Steffenhagen**

Absent:

Also Present: Devin Massopust-City Manager, Sarah Sonsalla-City Attorney (attending remotely)

Call to Order

Call to Order

Mayor Niedfeldt-Thomas called the meeting to order at 6:30 pm.

Pledge of Allegiance

Pledge of Allegiance

Mayor Niedfeldt-Thomas led the Council in the Pledge of Allegiance.

Public Comment Forum

Public Comment Forum

Mayor Niedfeldt-Thomas made a statement to the public. She explained she has received comments from the public regarding the immigration enforcement activity in and around New Brighton. She reported she wanted every resident feeling comfortable calling 911 and for residents to seek emergency help, if needed. She stated no one should ever hesitate to ask for help because of who they are or where they come from. She indicated this was important because the New Brighton Public Safety Department exists to protect, serve and educate in partnership with the community. She reported the department's officers are focused on local public safety, responding to emergencies, keeping neighborhoods safe and building trust with the people they serve. This trust has been built over many years of service. She stated New Brighton staff do not take part in any federal immigration enforcement, nor have they ever. She indicated the City has a policy in place, that was posted on the City's website, that states there is not a single city in Minnesota that has signed a 287G form stating a city will cooperate with DHS on immigration enforcement. She reported the City does not know when immigration enforcement arrives in the community, does not know who they are talking to or when they leave the community. This information is not shared with the City. She explained if an individual has a need to verify the authenticity of someone who is showing up for an immigration enforcement action, or an individual fears for the safety of someone else, please call 911. She reported the City's team does not ask immigration status questions, but rather is there to support individuals. She commented that the City Council wants the community to understand they take all concerns very seriously. She indicated the immigration enforcement activity was raising questions about safety, clarity and community impact. She noted the Council was requesting operational changes to better align activity in and around New Brighton that will align with constitutional principles and respect for human dignity. While the City cannot control federal operations, the City believes public safety depends on trust and approaches that create fear or confusion make communities less safe. She hoped meaningful changes could come from federal decision makers. She encouraged residents to reach out to their federal representatives if they wish to see changes. She indicated the City would continue to advocate within its role and authority to protect community trust. She explained everyone was working to protect public safety and to maintain trust within the community. She asked the community to support Ralph Reeder as this organization helped those in need and noted there was a list of immigration resources available on the City's website. She stated New Brighton was a diverse and welcoming City that remains committed to transparency, accountability and public safety that was rooted in trust. She noted these commitments would continue to guide how the City Council leads and guides this community. She thanked the community for their

continued support over the public safety team and outreach. She encouraged the public be patient as the City Council has received a large number of phone calls and emails and the Council would be in touch.

Mayor Niedfeldt-Thomas opened the Public Forum for comments from the public.
Rachel Taszen, 2655 Rice Creek Road Apt. 207, explained she has been a resident of New Brighton for the past two years. She thanked the mayor for her comments. She indicated there is a lot that goes into the increased ICE presence in Minnesota. She asked that New Brighton consider putting regulations in place similar to Minneapolis that would ensure all City properties cannot be used for civil immigration enforcement operations. She asked that the New Brighton Public Safety Department not assist with serving fake warrants or warrants that are not signed by a judge. She encouraged the City to find new ways to communicate with the public and to not just use the City's website. She stated she was concerned for her neighbors in New Brighton and she wanted to ensure their safety.

Approval of Agenda
Approval of the January 13, 2026 Council Agenda.

Approval of Agenda
Approval of the January 13, 2026 Agenda.

Motion by Councilmember Steffenhagen, seconded by Councilmember Dunsworth to approve the agenda as submitted.

5 Ayes, 0 Nays-Motion Carried

Special Order of Business

Special Order of Business

None.

Consent Agenda

Consent Agenda

1. Consider Approval of Payments.
2. Approve City Council Minutes:
    a. December 9, 2025 City Council Meeting Minutes.
    b. December 9, 2025 Worksession Meeting Minutes.
    c. January 1, 2026 Worksession Meeting Minutes.
3. Accept Receipt of Commission Minutes:
    a. September 8, 2025 Public Safety Commission Meeting Minutes.
    b. November 10, 2025 Public Safety Commission Meeting Minutes.
    d. November 20, 2025 Economic Development Commission Meeting Minutes.
4. Consider Authorization to Purchase a 2026 GMC 3500 Pickup.
5. Consider Authorization to Purchase a 2026 GMC 2500 Pickup with a Plow.
6. Consider Resolution Returning Firefighter George Springer to Active Service with the SVF.
7. Consider Authorization to Purchase Two Toro GrandStand Mowers.

8. Consider Authorization to Purchase a Toro – D 7500 96" Wide Area Zero Turn Mower.

9. Consider Authorization to Purchase a 2026 Ford F150 "Fire".

10. Consider Authorization to Purchase a 2026 Ford F150 "Police".

11. Consider Authorization to Purchase 3 – Toolcats.

12. Consider Update to City Manager's Employment Agreement between the City of New Brighton and Devin Massopust.

13. Authorize Staff to Enter into Agreements with Federal Signal and Readywatt Electric to Replace four Outdoor Warning Siren Heads.

14. Backflow Prevention Tracking with Brycer Advisory Group, L.P.

15. Resolution Authorizing Submission of Application for the Metropolitan Council 2025 Municipal Inflow and Infiltration Grant Program.

16. Resolution Authorizing Acceptance of a Grant for the Metropolitan Council 2026 Private Property Inflow and Infiltration Grant Program.

17. Consider Approval of Plans and Specifications and Authorization to Advertise for Bids for City Project 26-28, 2026 Mill and Overlay.

18. Consider Purchase of a 2026 Ford Police Interceptor Utility Hybrid to replace unit 2014.

19. Consider purchase of a 2026 Ford Police Interceptor Utility Hybrid to replace unit 2107.

20. Consider purchase of a 2026 Ford Police Interceptor Utility Hybrid to replace unit 2108.

21. Consider purchase of a 2026 GMC Acadia to replace unit 1506.

22. Consider Approval of Plans and Specifications and Authorization to Advertise for Bids for City Project 26-4, 2026 Sanitary Sewer Lining.

23. Consider Resolution Designating Institution as Depositories of City Funds for Investment Purposes and Naming the Primary Depository for 2026.

24. Consider Resolution Delegating Authority to make Electronic Funds Transfers to the Finance Director and their designees for 2026.

25. Consider a Resolution Acknowledging and Accepting Change for the Better Donations Received in 2025.

26. Consider Approval of Agreement with City of St. Paul for Ramsey County Traffic Safety Initiative (RCTSI).

27. Consider Resolution Reappointing the Twin Cities Pioneer Press as the City's Legal Newspaper.

28. Consider Approval of the Eighth Amended Joint Powers Agreement for the Ramsey County Violent

Crime Enforcement Team (RCVCET).

Motion by Councilmember Dunsworth, seconded by Councilmember Steffenhagen to approve the Consent Agenda as presented.

5 Ayes, 0 Nays - Motion Carried

Public Hearing

Public Hearing

None.

Council Business

Council Business

None.

Commission Liaison Reports, Announcements and Updates

Commission Liaison Reports, Announcements and Updates

Devin Massopust

City Manager Massopust reported the City would continue to work to provide the best services possible to the residents of New Brighton.

Graeme Allen

Councilmember Allen reported PREC did not meet in January. He noted PREC would meet next on Wednesday, February 4. He stated it had been a very tough week for many residents of Minnesota. He spoke to the racial profiling that was occurring in the metro area. He indicated this was a danger for the community, noting the non-white residents in the community were terrified to leave their homes. He explained he had full faith in the New Brighton Public Safety Department but he had zero confidence in ICE agents and the various other agencies that were terrorizing the community. He feared the ICE agents were poorly trained and were not properly carrying out their tasks. He expressed concern with how the ICE agents were not able to deescalate situations. He was of the opinion New Brighton did not need ICE agents in the community causing terror. He discussed how two State prosecutors have resigned their positions and this was due to resources being pulled from the fraud investigation in order to perform the illegal immigration activities. He stated use of force was a critical issue when law enforcement has an interaction with an individual. He explained he has witnessed terrible examples of use of force. He reported the good in this situation is that there are scores of residents in the community that are asking how they can help and there are people who are concerned about strangers and their neighbors. He was heartened by the number of the regular folks in this community being willing to help. He stated the City was not able to do as much as it would like and he encouraged the public to lean in, become aware of what was happening and find ways to help.

Emily Dunsworth

Councilmember Dunsworth reported she had nothing to add at this time.

Jeanne Frischman

Councilmember Frischman reported she was the public safety liaison and noted the Public Safety Commission did not meet in January. She reminded residents that the New Brighton Public Safety Department had officers that were highly trained to protect, serve and educate the community. She indicated this organization values and promotes respect for human dignity by ensuring a common goal of a safe community. She understood there was fear, frustration and agitation in the community. She noted the City's police officers were feeling this on the front line. She asked that residents of New Brighton take a moment to thank a New Brighton officer for the work they do on behalf of the community and to find a way to support the New Brighton Public Safety Department.

Jason Steffenhagen

Councilmember Steffenhagen thanked Councilmember Allen and Councilmember Frischman for their comments. He explained this was a unique moment where he gets to wear many unique hats as he was a father of two boys that came from different countries, he was a husband, neighbor, pastor and City Councilmember. He stated moments like this require a more prophetic voice in order to speak honesty and hope. He reported he wrote words to his congregation that he wanted to share. He stated as with most moments in the country, residents were hearing different accounts of how the death of Renee Nicole Good was being framed. The simple truth was that a women died while trying to help protect her neighbors from the escalating tactics and growing enforcement of a masked federal law enforcement agency. He stated this loss of life was not necessary. He indicated all people were experiencing emotions, grief, sadness and anger are bound to well up. This grief should lead to empathy, sadness should lead to presence and the anger should lead to action. He explained empathy was not weakness but the appropriate first step as a human being. Presence is the only way towards understanding and any form of reconciliation. Action that is non-violent yet clear and determined is the only way towards systemic change. He stated systemic change happens when enough people and enough communities take action. This will not happen overnight and it will not happen all at once, rather it will be slow, incremental and slow. Sometimes this change will be frustrating and livening, seeped in grief and hopefully there will also be moments of pure joy. He urged people to be ready to learn about the manner in which they can care for others and to be ready to give a gift card for those who need groceries or gas, or to accompany someone afraid to leave their house. He encouraged residents to be ready to vote, to call legislators, and to pray. He reported the death of Renee Good was because she saw the hurting, pain and injustice being done to people who were different from her. He asked that her name not be the only one that we recall. He then named several individuals that were unlawfully detained and or removed from the country, noting these actions were unlawful.

Mayor Niedfeldt-Thomas

Mayor Niedfeldt-Thomas reported her sister got her a t-shirt a number of years ago that says: I'm not bossy, I'm aggressively helpful. She stated people who know her, know that she wants to help. She indicated it was really hard for her not to be able to help right now. She explained everyone on this Council and on the City was speaking up in the ways that they can to help and advocate. She encouraged residents reaching out to the Council to be kind because the Council was doing the best they can. She stated the Council needed a word of thanks every once in a while too because the work they were doing was hard. She encouraged protestors to be safe. She explained to those who have yet to reach out to the City Council, this can be done and the Council was available to listen. She stated the most important calls the public can make at this time were to federal legislators. She reiterated that the City's public safety team was available to support and keep the community safe and not to get into arguments with ICE. She encouraged the public to not challenge the City, but rather to see how the City and Public Safety Department was conducting law enforcement properly. She urged the residents in New Brighton to bring the temperature down in the City. She wanted to see the City continuing to do things the right way for the betterment of the community. She indicated she did not want to see division in the community, but rather wanted to see kindness and asked that those who wanted to point fingers to contact her directly. She thanked the leaders in the community who were doing work to support the young people in the community. She thanked the teachers who were working with students to teach them what democracy was all about. She thanked the City's local representatives for finding ways to support New Brighton. She thanked the public safety teams around the State for working amidst this difficult situation. She thanked the City of St. Charles Fire Department for supporting her family after having a spin out and rollover of a vehicle. She thanked the local business owners noting some may be facing challenges because there were a people who were fearful to leave their home. She noted the City Council discussed its 2026 legislative priorities at the January 6 worksession meeting. She noted the next New Brighton farmers market would be held on Wednesday, January 14. She explained the City Council would meet next on Tuesday, January 27. She stated the City Council would be holding a worksession meeting on Tuesday, February 3. She indicated caucuses would be held that same night and encouraged residents to show up at these events.

Adjournment

Mayor Niedfeldt-Thomas adjourned the meeting at 7:10 p.m.

_____
Kari Niedfeldt-Thomas, Mayor

ATTEST:_____
Terri Spangrud, City Clerk

Adjournment
The meeting adjourned at 7:10 p.m.

Council Worksession
January 13, 2026
5:02 pm

Present: Mayor Kari Niedfeldt-Thomas
Councilmember Graeme Allen
Councilmember Emily Dunsworth
Councilmember Jeanne Frischman
Councilmember Jason Steffenhagen

Absent:

Staff in Attendance: Devin Massopust, Jen Lehmann, Tony Paetznick

Guests in Attendance:

Closed Meeting to Discuss the City's Public Safety Department's Emergency Response Procedures and Protocols related to Immigration Enforcement

After a motion and second, the City Council met in a closed session pursuant to Minnesota Statutes Section 13D.05, subdivision 3 (d) to discuss the City's Public Safety Department's emergency response procedures and protocols related to immigration enforcement.

Mayor Niedfeldt-Thomas closed the worksession meeting at 5:05 p.m.

After a motion and second, the City Council reconvened the worksession meeting.

Mayor Niedfeldt-Thomas reconvened the worksession meeting at 6:24 p.m.

Worksession adjourned at 6:24 pm

Respectfully submitted,

Terri Spangrud
City Clerk

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Resolution to Consider Accepting a Minnesota Department of Health Source Water Protection Grant

Action Requested: Motion
Form of Action: Contract/Agreement
Votes Needed: 3 Votes

Summary Statement:	• Staff has applied for and received a Source Water Protection Grant from the Minnesota Department of Health. • The grant will cover four objectives included in our Wellhead Protection Plan. • The objectives are required to be completed to remain current on our Wellhead Protection Plan. • The grant is a non-matching grant, the Minnesota Department of Health will cover $11,528.00 of the work that needs to be completed.

Recommendations:	Authorize staff to accept the Source Water Protection Grant from the Minnesota Department of Health.

Applicable Deadlines:	Contract expires February 26, 2027

Community Impact:	The ability to continue to provide safe and reliable drinking water to our community.

Legislative History:	None

Strategic Priority:	**City Assets**

Fiscal Impact:	

Financial Consideration?	**No**
Revenue/Expenditure Amount:	$0
Financing Source:	**N/A**
Notes:	

Attachments:	

1.	Resolution Authorizing Acceptance of a SWP Grant from the MDH
2.	Minnesota Department of Health Source Water Protection Grant Agreement

Resolution No. 2026-

State of Minnesota
County of Ramsey
City of New Brighton

RESOLUTION AUTHORIZING ACCEPTANCE OF A SOURCE WATER PROTECTION IMPLEMENTATION GRANT FROM THE MINNESOTA DEPARTMENT OF HEALTH

WHEREAS, the City of New Brighton submitted an application for a Source Water Protection Plan Implementation Grant on October 14, 2025; and

WHEREAS, the City of New Brighton indicated potential contaminant source locations within the City's DWSMA will be updated and mailing of information packets will be prepared and distributed to educate property owners on how to maintain and secure storage tanks; and

WHEREAS, the Minnesota Department of Health (MDH) notified the City of New Brighton that February 2, 2026 will be the effective date in which it is eligible to receive grant dollars up to $11,528.00 for costs incurred; and

WHEREAS, the grant agreement between the MDH and the City of New Brighton has been drafted by MDH with an end date of February 26, 2027; and

WHEREAS, New Brighton will work with Barr Engineering to complete the tasks eligible for grant funding and desires to enter into the Grant Agreement to finalize the reimbursement process.

NOW THEREFORE, BE IT RESOLVED by the City Council of the City Council of the City of New Brighton, Minnesota:

1. The City Council hereby approves the Grant Agreement between the Minnesota Department of Health and the City of New Brighton and authorizes the Public Works Superintendent to execute the Grant Agreement, subject to minor modifications and final review by the City Attorney.

Adopted this 27th day of January, 2026, by the New Brighton City Council with a vote of _____ ayes and _____ nays.

_____
Kari Niedfeldt-Thomas, Mayor

ATTEST: _____
Devin Massopust, City Manager

_____
Terri Spangrud, City Clerk

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

Minnesota Department of Health
Grant Agreement Cover Sheet

You have received a Grant Agreement from the Minnesota Department of Health (MDH). Information about the Grant Agreement, including funding details, are included below. Contact your MDH Grant Manager if you have questions about this cover sheet.

Attachment: Grant Agreement
Contact for MDH: Eddie Wojski, 651-201-4576, eddie.wojski@state.mn.us

Grantee SWIFT Information	Grant Agreement Information	Program & Funding Information
Name of MDH Grantee (as it appears in SWIFT)**:** City of New Brighton	**SWIFT Contract Number:** 281717	**MDH Program Name:** Drinking Water Protection
SWIFT Vendor Number: 0000197701 **SWIFT Vendor Location Code:** 005	**Effective Date:** February 2, 2026, OR the date all signatures are collected, and the agreement is fully executed, whichever is later. **Expiration Date:** February 26, 2027	**Total State Grant Funds: $**11,528.00 **Total Federal Grant Funds:** $0 **Total Grant Funds *(all funds)*:** $11,528.00

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

Minnesota Department of Health

Grant Agreement

This Grant Agreement is between the State of Minnesota, acting through its Commissioner of the Department of Health ("MDH") and City of New Brighton ("Grantee"). Grantee's address is 803 Old Highway 8 NW, New Brighton, MN 55112-2792.

Recitals

1. MDH is empowered to enter into this Grant Agreement under Minn. Stat. §§ 144.05, 144.0742 and §114D.50 Clean Water Fund.

2. MDH is in need of assisting public water suppliers to protect the source of drinking water.

3. The vision of MDH is for health equity in Minnesota, where all communities are thriving and all people have what they need to be healthy. Health equity is achieved when every person has the opportunity to attain their health potential. Grantee agrees, where applicable, to perform its work with advancing health equity as a goal.

4. Grantee represents that it is duly qualified and will perform all the activities according to the terms of this Grant Agreement.

Grant Agreement

1. Term of Agreement

1.1. ***Effective Date***
February 2, 2026, or the date MDH obtains all required signatures under Minn. Stat. § 16B.98, subd. 5, whichever is later. Per Minn. Stat. § 16B.98, subd 7, no payments will be made to the Grantee until this Grant Agreement is fully executed. Grantee must not begin work until this Grant Agreement is fully executed and MDH's Authorized Representative has notified Grantee that work may commence. No costs may be incurred prior to the Grant Agreement being fully executed.

1.2. ***Expiration Date***
February 26, 2027, or until all obligations have been fulfilled to the satisfaction of MDH, whichever occurs first.

1.3. ***Survival of Terms***
The following clauses survive the expiration or cancellation of this Grant Agreement: Liability; Financial Examinations; Government Data Practices; Tax Compliance Verification;

Ownership of Equipment and Supplies; Intellectual Property; Publicity and Endorsement; and Governing Law, Jurisdiction, and Venue.

2. Activities

2.1. ***MDH's Activities***

MDH activities, in accordance with the Minnesota Department of Administration's Office of Grants Management's policies and federal regulations, may include but are not limited to financial reconciliations, site visits, programmatic monitoring of activities performed, and grant activity evaluation.

2.2. ***Grantee's Activities***

Grantee, who is not a state employee, shall conduct the activities specified in Exhibit A, which is attached and incorporated into this Grant Agreement.

3. Time

Grantee is required to perform all of the activities stated in this Grant Agreement, and any incorporated exhibits, within the Grant Agreement period. MDH is not obligated to extend the Grant Agreement period. Failure to meet a deadline may be a basis for a determination by MDH's Authorized Representative that Grantee has not complied with the terms of the Grant Agreement.

4. Award and Payment

MDH will award funds to Grantee for all activities performed in accordance with this Grant Agreement.

4.1. ***Grant Award***

Reimbursement will be in accordance with the agreed upon budget contained in Exhibit B, which is attached and incorporated into this Grant Agreement.

4.2. ***Administrative Costs.***

Grantee agrees that administrative costs must be necessary and reasonable as a condition of this Grant Agreement pursuant to Minn. Stat. § 16B.98, subd 1. Administrative costs will be reimbursed in accordance with the agreed upon budget.

4.3. ***Travel Expenses***

Grantee will be reimbursed for mileage at the current IRS rate in effect at the time the travel occurred; meals and lodging expenses will be reimbursed in the same manner and in no greater amount than provided in the current "Commissioner's Plan" promulgated by the Commissioner of Minnesota Management and Budget ("MMB"); or, at the Grantee's established rate (for all travel related costs), whichever is lower, at the time travel occurred. Grantee will not be reimbursed for travel and subsistence expenses incurred outside Minnesota unless Grantee has received MDH's prior written approval for out-of-state travel. Minnesota will be considered the home state for determining whether travel is out-of-state.

4.4. ***Budget Modifications***

Grantee may modify any line item in the most recently agreed-upon budget by up to 10 percent without prior written approval from MDH. Grantee must notify MDH of any modifications up to 10 percent in writing no later than the next invoice. Grantee must obtain prior written approval from MDH for line-item modifications greater than 10 percent. Grantee's failure to obtain MDH's prior approval may result in denial of modification request, loss of funds, or both. The total obligation of MDH for all compensation and reimbursements to Grantee shall not exceed the total obligation listed under "Total Obligation."

4.5. Total Obligation

The total obligation of MDH for all compensation and reimbursements to Grantee under this Grant Agreement will not exceed $11,528.00.

4.6. Terms of Payment

4.6.1. *Invoices*

MDH will promptly pay Grantee after Grantee presents an itemized invoice for the activities actually performed and MDH's Authorized Representative accepts the invoiced activities. Invoices must be submitted at least quarterly or according to a schedule agreed upon by the Parties. The final invoice is due 30 calendar days after the expiration date of the Grant Agreement.

4.7. Contracting and Bidding Requirements

4.7.1. *Municipalities*

A grantee that is a municipality, as defined in Minn. Stat. § 471.345, subd. 1, is subject to the contracting requirements set forth under Minn. Stat. § 471.345. Projects that involve construction work are subject to the applicable prevailing wage laws, including those under Minn. Stat. § 177.41, et. seq.

4.7.2. *Non-municipalities*

Grantees that are not municipalities must adhere to the following standards in the event that activities assigned to Grantee are to be subcontracted out to a third party:

i. Any services or materials that are expected to cost $100,000 or more must undergo a formal notice and bidding process.

ii. Services or materials that are expected to cost between $25,000 and $99,999 must be competitively awarded based on a minimum of three verbal quotes or bids or awarded to a targeted vendor.

iii. Services or materials that are expected to cost between $10,000 and $24,999 must be competitively awarded based on a minimum of two verbal quotes or bids or awarded to a targeted vendor.

iv. Grantee must take all necessary affirmative steps to assure that targeted vendors from businesses with active certifications through the following entities are used when possible:

1) Minnesota Department of Administration's Certified Targeted Group, Economically Disadvantaged and Veteran-Owned Vendor List

(https://mn.gov/admin/osp/government/procuregoodsandgeneralservices/tgedvo-directory/);

2) Metropolitan Council's Targeted Vendor list: Minnesota Unified Certification Program (https://mnucp.metc.state.mn.us/); or
3) Small Business Certification Program through Hennepin County, Ramsey County, and City of St. Paul: Central Certification Program (https://cert.smwbe.com/).

v. Grantee must maintain written standards of conduct covering conflicts of interest and governing the actions of its employees engaged in the selection, awarding and administration of contracts.

vi. Grantee must maintain support documentation of the purchasing or bidding process utilized to contract services in their financial records, including support documentation justifying a single/sole source bid, if applicable.

vii. Notwithstanding parts (i) through (iv) above, MDH may waive the formal bidding process requirements when:

- Vendors included in response to a competitive grant request for proposal process were approved and incorporated as an approved work plan for the Grant Agreement or
- There is only one legitimate or practical source for such materials or services and Grantee has established that the vendor is charging a fair and reasonable price.

viii. Projects that involve construction work of $25,000 or more, are subject to applicable prevailing wage laws, including those under Minn. Stat. §§ 177.41 through 177.50.

ix. Grantee must not contract with vendors who are suspended or debarred by the State of Minnesota or the federal government. The list of debarred vendors in Minnesota is available at: Suspended/Debarred Vendors (https://mn.gov/admin/osp/government/suspended-debarred/). The list of suspended and debarred entities by the federal government is available at www.sam.gov.

5. Conditions of Payment

All activities performed by Grantee pursuant to this Grant Agreement must be performed in accordance with the terms of this Grant Agreement, as determined in the sole discretion of MDH's Authorized Representative. Furthermore, all activities performed by Grantee must be in accordance with all applicable federal, state, and local laws, ordinances, rules, and regulations. Applicable state laws include, but are not limited to, the Minnesota Human Rights Act (Minn. Stat. ch. 363A) which prohibits discrimination on the basis of race, color, creed, religion, national origin, sex, gender, identity, sexual orientation, age, marital status, public assistance status, familial status, and disability. MDH will not pay Grantee for work that MDH determines is noncompliant with the terms and conditions of this Grant Agreement or performed in violation of federal, state, or local law, ordinance, rule, or regulation.

6. Requirements for Other Legal Agreements

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

6.1. Grantee must utilize a formal legal agreement if it engages with another party to carry out a portion of the activities listed in this Grant Agreement. Grantee must provide timely notice to MDH of any such agreement prior to the other party/ies performing work under this Grant Agreement. Such notice must include the name of the other party; description of the activities to be performed; dates activities will be performed; and the total budget.

6.2. Grantee must monitor the activities of the other party/ies to ensure funds are used for authorized purposes; is in compliance with the terms and conditions of the legal agreement, Minn. Stat. § 16B.97, subd. 4(a)(1), and other relevant statutes and regulations; and that performance goals are achieved.

6.3. If MDH becomes aware of unsatisfactory performance and or noncompliance, MDH reserves the right to require Grantee to terminate the legal agreement with the other party.

6.4. No legal agreement with any other party shall terminate or in any way affect the legal responsibility of the Grantee to MDH for timely and satisfactory performance of the Grant Agreement.

6.5. Grantee and the other party must not enter into a legal agreement with vendors who are suspended or debarred by the State of Minnesota or the federal government. The list of debarred vendors in Minnesota is available at: Suspended/Debarred Vendors (https://mn.gov/admin/osp/government/suspended-debarred/). The list of suspended and debarred entities by the federal government is available at www.sam.gov.

7. Authorized Representatives

7.1. ***MDH's Authorized Representative***

MDH's Authorized Representative for purposes of administering this Grant Agreement is Eddie Wojski, SWP Grant Coordinator, 625 Robert Street N., PO Box 64975, St. Paul, MN 55164-0975, 651-201-4576, and eddie.wojski@state.mn.us, or their successor, and has the responsibility to monitor Grantee's performance and the final authority to accept the activities performed under this Grant Agreement. If the activities performed are satisfactory, MDH's Authorized Representative will certify acceptance on each invoice submitted for payment.

7.2. ***Grantee's Authorized Representative***

Grantee's Authorized Representative is Eric Volk, Public Works Superintendent, 803 Old Highway 8 NW, New Brighton, MN 55112-2792, 651-638-2119, and eric.volk@newbrightonmn.gov, or their successor. Grantee's Authorized Representative has full authority to represent Grantee in fulfillment of the terms, conditions, and requirements of this Grant Agreement. If Grantee selects a new Authorized Representative at any time during this Grant Agreement, Grantee must immediately notify MDH's Authorized Representative in writing, via e-mail or letter.

8. Assignment, Amendments, Waiver, and Grant Agreement Complete

8.1. ***Assignment***

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

Grantee shall neither assign nor transfer any rights or obligations under this Grant Agreement.

8.2. ***Amendments***
If there are any amendments to this Grant Agreement, they must be in writing. Amendments will not be effective until they have been executed and approved by MDH and Grantee.

8.3. ***Waiver***
If MDH fails to enforce any provision of this Grant Agreement, that failure does not waive the provision or MDH's right to enforce it.

8.4. ***Grant Agreement Complete***
This Grant Agreement, and any incorporated exhibits, contains all the negotiations and agreements between MDH and Grantee. No other understanding regarding this Grant Agreement, whether written or oral, may be used to bind either party.

9. Liability
Grantee must indemnify and hold harmless MDH, its agents, and employees from all claims or causes of action, including attorneys' fees incurred by MDH, arising from the performance of this Grant Agreement by Grantee or Grantee's agents or employees. This clause will not be construed to bar any legal remedies Grantee may have for MDH's failure to fulfill its obligations under this Grant Agreement. Nothing in this clause may be construed as a waiver by Grantee of any immunities or limitations of liability to which Grantee may be entitled pursuant to Minn. Stat. ch. 466, or any other statute or law.

10. Financial Examinations
The relevant books, records, documents, and accounting procedures and practices of Grantee and any entity with which Grantee has engaged in carrying out the purpose of this Grant Agreement are subject to examination under Minn. Stat. § 16B.98, subd. 8. Examinations may be conducted by MDH, the Minnesota Commissioner of Administration, the Minnesota State Auditor, Attorney General, or and the Minnesota Legislative Auditor, as appropriate, for a minimum of six years from the end of this Grant Agreement, receipt and approval of all final reports, or the required period of time to satisfy all state and program retention requirements, whichever is later.

11. Government Data Practices
MDH, Grantee, and any other entity that the Grantee has contracted with to fulfill the purpose of this Grant Agreement, must comply with the Minnesota Government Data Practices Act, Minn. Stat. ch. 13, as it applies to all data provided by MDH under this Grant Agreement, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by Grantee under this Grant Agreement pursuant to Minn. Stat. § 13.05, subd. 11(a). The civil remedies of Minn. Stat. § 13.08 apply to the release of the data referred to in this clause by either Grantee or MDH.

If Grantee receives a request to release the data referred to in this clause, Grantee must immediately notify MDH. MDH will give Grantee instructions concerning the release of the data to

the requesting party before any data is released. Grantee's response to the request must comply with the applicable law.

12. Tax Compliance Verification

Pursuant to Minn. Stat. § 270C.65, subd. 3, and all other applicable laws, Grantee consents to disclosure of its Social Security Number (SSN), Individual Tax Identification Number (ITIN), Employer Identification Number (EIN), and Minnesota Tax Identification Number (TIN), all of which have already been provided to MDH, federal and state tax agencies, and state personnel involved in the payment of state obligations. As may be applicable, these identification numbers may be used in the enforcement of federal and state tax laws which could result in action requiring the Grantee to file tax returns and pay delinquent tax liabilities, if any, or pay other state liabilities.

13. Ownership of Equipment and Supplies

13.1. ***Equipment***

"Equipment" is defined as tangible personal property having a useful life of more than one year and a per-unit acquisition cost which equals or exceeds $10,000. MDH shall have the right to require transfer of all Equipment purchased with grant funds (including title) to MDH or to an eligible non-State party named by MDH. MDH may require the transfer of Equipment if the grant program is transferred to another grantee. At the end of this Grant Agreement, grantee must contact MDH's Authorized Representative for further instruction regarding the disposition of Equipment.

13.2. ***Supplies***

"Supplies" is defined as all tangible personal property other than those described in the definition of Equipment. Grantee must notify MDH's Authorized Representative regarding any remaining Supplies with an aggregate market value of $10,000 or more for further instruction regarding the disposition of those Supplies. For the purpose of this section, Supplies includes but is not limited to computers and incentives.

14. Ownership of Materials and Intellectual Property Rights

14.1. ***Ownership of Materials***

"Materials" is defined as any inventions, reports, studies, designs, drawings, specifications, notes, documents, software, computer-based training modules, and other recorded materials in whatever form. Grantee shall own all rights, title, and interest in all of the materials conceived, created, or otherwise arising out of the performance of this Grant Agreement by it, its employees, or subgrantees, either individually or jointly with others.

Grantee hereby grants to MDH a perpetual, irrevocable, no-fee license and right to reproduce, modify, distribute, perform, make, have made, and otherwise use the Materials for any and all purposes, in all forms and manners that MDH, in its sole discretion, deems appropriate. Grantee shall, upon the request of MDH, execute all papers and perform all other acts necessary to document and secure this right and license to the Materials by MDH. At the request of MDH, Grantee shall permit MDH to inspect the original Materials and provide a copy of any of the Materials to MDH, without cost, for use by MDH in any manner MDH, in its sole discretion, deems appropriate.

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

14.2. ***Intellectual Property Rights***

Grantee represents and warrants that Materials produced or used under this Grant Agreement do not and will not infringe upon any intellectual property rights of another including but not limited to patents, copyrights, trade secrets, trade names, and service marks and names. Grantee shall indemnify and defend MDH, at Grantee's expense, from any action or claim brought against MDH to the extent that it is based on a claim that all or parts of the materials infringe upon the intellectual property rights of another. Grantee shall be responsible for payment of any and all such claims, demands, obligations, liabilities, costs, and damages including, but not limited to, reasonable attorney fees arising out of this Grant Agreement, amendments and supplements thereto, which are attributable to such claims or actions. If such a claim or action arises or in Grantee's or MDH's opinion is likely to arise, Grantee shall at MDH's discretion either procure for MDH the right or license to continue using the materials at issue or replace or modify the allegedly infringing materials. This remedy shall be in addition to and shall not be exclusive of other remedies provided by law.

15. Workers' Compensation

Grantee certifies that it is in compliance with Minn. Stat. § 176.181, subd. 2, which pertains to workers' compensation insurance coverage. Grantee's employees and agents, and any contractor hired by Grantee to perform the work required by this Grant Agreement and its employees, will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees, and any claims made by any third party as a consequence of any act or omission on the part of these employees, are in no way MDH's obligation or responsibility.

16. Publicity and Endorsement

16.1. ***Publicity***

Any publicity given to the program, publications, or activities performed resulting from this Grant Agreement, including but not limited to, websites, social media platforms, notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for Grantee or its employees individually or jointly with others, or any subgrantees, must identify MDH as the sponsoring agency. If publicity is not specifically authorized under this Grant Agreement, Grantee must obtain prior written approval from MDH's Authorized Representative. If federal funding is being used for this Grant Agreement, the federal program must also be recognized.

16.2. ***Endorsement***

Grantee must not claim that MDH endorses its products, services, or activities.

17. Governing Law, Jurisdiction, and Venue

This Grant Agreement, amendments and supplements to it, shall be governed by the laws of the State of Minnesota. Venue for all legal proceedings arising out of this Grant Agreement, or for breach thereof, must be in the state or federal court with competent jurisdiction in Ramsey County, Minnesota.

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

18. Clerical Error

Notwithstanding Clause "Assignment, Amendments, Waiver, and Grant Agreement Complete" of this Grant Agreement, MDH reserves the right to unilaterally fix clerical errors, defined as misspellings, minor grammatical or typographical mistakes or omissions, that do not have a substantive impact on the terms of the Grant Agreement without executing an amendment. MDH must inform Grantee of clerical errors that have been fixed pursuant to this paragraph within a reasonable period of time.

19. Lobbying

19.1. Grantee must ensure that grant funds are not used for lobbying, which includes paying or compensating any person for influencing or attempting to influence legislators or other public officials on behalf or against proposed legislation, in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

19.2. In accordance with the provisions of 31 USC § 1352, if Grantee uses any funds other than federal funds from MDH to conduct any of the aforementioned activities, Grantee must complete and submit to MDH the disclosure form specified by MDH. Further, Grantee must include the language of this section in all contracts and subcontracts, and all contractors and subcontractors must comply accordingly.

19.3. Providing education about the importance of policies as a public health strategy, however, is allowed. Education includes providing facts, assessment of data, reports, program descriptions, and information about budget issues and population impacts, but stopping short of making a recommendation on a specific piece of legislation. Education may be provided to legislators, public policy makers, other decision makers, specific stakeholders, and the general community.

19.4. By signing this Grant Agreement, Grantee certifies that it will not use any funds received from MDH to employ, contract with, or otherwise coordinate the efforts of a lobbyist, as defined in Minn. Stat. § 10A.01, subd. 21. This requirement also applies to any subcontractors or subgrantees that Grantee may engage for any activities pertinent to this Grant Agreement.

20. Voter Registration Requirement

Grantee will comply with Minn. Stat. § 201.162, by providing voter registration services for its employees and for the public served by Grantee.

21. Debarment, Suspension and Responsibility Certification

Federal regulation 2 CFR § 200.214 prohibits MDH from purchasing goods or services with federal money from any party that has been suspended or debarred by the federal government. Similarly, Minn. Stat. §§ 16C.03, subd. 2, and 16B.97, subd. 3, provides the Commissioner of Administration with the authority to debar and suspend any party that seeks to contract with MDH.

Anyone may be suspended or debarred when it is determined, through a duly authorized hearing process, that they have abused the public trust in a serious manner. In particular, the federal

government expects MDH to have a process in place for determining whether a vendor has been suspended or debarred, and to prevent such vendors from receiving federal funds.

By signing this Grant Agreement, Grantee certifies that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from transacting business by or with any federal, state or local governmental department or agency;

b) Have not within a three-year period preceding this Grant Agreement: a) been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (federal, state or local) transaction or contract; b) violated any federal or state antitrust statutes; or c) committed embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;

c) Are not presently indicted or otherwise criminally or civilly charged by a governmental entity for: a) commission of fraud or a criminal offense in connection with obtaining, attempting to obtain or performing a public (federal, state of local) transaction; b) violating any federal or state antitrust statutes; or c) committing embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statement or receiving stolen property; and

d) Are not aware of any information and possess no knowledge that any subcontractor(s) that will perform work pursuant to this Grant Agreement are in violation of any of the certifications set forth above.

22. Incentives

When included in the approved Work Plan or Budget, the following language applies.

22.1. ***Handling of Incentives***

Grantee is required to have policies and procedures in place addressing the purchasing, security, distribution, and asset tracking of incentives. All grantee staff involved in the purchase, distribution, security, and reconciling of incentives must be trained on the grantee's policies and procedures prior to the grantee placing any order for incentives. Those policies and procedures must, at a minimum, include the provisions outlined in this section.

22.2. ***Separation of duties***

More than one Grantee staff person must be involved in the management and handling of the incentives. The Grantee staff who authorizes the purchase of incentives must not have sole physical access to the incentives. The Grantee staff who will have physical access to the incentives cannot have sole access to modify the incentives records. Handoff of incentive from one person to another must be documented.

22.3. ***Distribution of Incentives***

Incentives may only be used for approved purposes by MDH.

a) Only one incentive can be given to an individual per occurrence/event.

b) Undistributed incentives must always be kept in a secure location. Incentive instruments must never be stored in any personal homes, they must always be securely stored in the grantee's business space.

c) Grantee will purchase and have on hand no more than three months' worth of incentives at any given time. The three months' worth must be based off the most currently approved workplan. All incentives must be distributed prior to grantee purchasing additional incentives.

d) Grantee will be responsible for the costs of any incentives that remain undistributed at the end of the Grant Agreement.

e) If MDH provided the grantee with the incentives, the return of undistributed incentives to MDH must occur in person with the MDH's Authorized Representative within 30 calendar days of the grant expiration date. If in-person return is not possible, the grantee must return undistributed incentives via courier or via US Mail that requires signatures and a tracking number within 30 calendar days of the grant expiration date.

f) The tracking log must be returned separately from the physical cards. Electronic return is the preferred method for the tracking log.

22.4. ***Incentive tracking documentation***

The tracking documentation the Grantee is required to maintain must not contain any private data. The tracking system must record the following:

a) Number of incentives on hand, including starting balance and any additional incentives purchased;
b) description of the incentives;
c) quantity of incentive(s) distributed to each participant;
d) the last four digits of any pre-paid card number;
e) value/amount;
f) a unique non-identifiable data point for each participant (e.g. case number, file number);
g) date participant received incentive(s); and
h) signature of Grantee staff member providing incentive(s) to participant(s).

22.5. ***Reconciliation***

At least two different Grantee staff must reconcile the incentives at least quarterly. The Grantee staff conducting the reconciliation must not also be the handlers of the incentives. The reconciliation must include the dates and signature of the two people who perform the reconciliation. Grantee must submit the reconciliation documentation to MDH's Authorized Representative no less than two weeks after each reconciliation.

22.6. ***Subcontracting/Subgranting***

The Grantee must communicate and verify that their subcontracts/subgrants will only use incentives for MDH approved purposes. The Grantee will be responsible for monitoring, oversight, and reconciliation of any incentives that its subcontractors or subgrantees

purchase and distribute and will include this same language in any of its subgrants or subcontracts that it enters as part of its work for MDH.

22.7. ***Lost or stolen incentives***
The Grantee bears all financial responsibility for any unaccounted for, lost, or stolen incentives.

22.8. ***Invoicing***
If the Grantee purchased the incentives themselves, the Grantee must only invoice MDH for the incentives after they've been distributed.

22.9. ***Failure to Comply***
For grantees who do not have effective written policies and procedures in place before purchasing incentives, MDH reserves the right to withhold payment and or request reimbursement in the amount equal to the unallowable costs. Withheld payments will be released when the grantee provides documentation to MDH that it has written effective policies and procedures in place. Grantees who do not comply with this requirement may be subject to increased monitoring and will be offered technical assistance. MDH also reserves the right to terminate a Grant Agreement for failure to comply with these requirements.

23. Conflict of Interest
Grantee will notify MDH's Authorized Representative when they become aware of any potential, perceived, or actual conflict of interests as it relates to this Grant Agreement.

24. Mandatory Disclosures
An applicant, recipient, or subrecipient of funding under this Grant Agreement must promptly disclose whenever, in connection with this Grant Agreement (including any activities or subawards thereunder), it has credible evidence of the commission of a violation of criminal law involving fraud, conflict of interest, bribery, or gratuity violations found in Title 18 of the United States Code or Minn. Stat., ch. 609, or a violation of the civil False Claims Act (31 U.S.C. 329–3733) or Minn. Stat. § 609.465 (prohibiting the presentation of false claims to a public officer or body). The disclosure must be made in writing to the Federal agency (if applicable), the Federal agency's Office of Inspector General (if applicable), and MDH. Applicants, recipients, and subrecipients are also required to report matters related to recipient integrity and performance in accordance with Appendix XII of 2 CFR § 200. Failure to make required disclosures can result in any of the remedies described in 2 CFR § 200.339. (See also 2 CFR § 180, 31 U.S.C. 3321, and 41 U.S.C. 2313.)

25. Whistleblower Protections
An employee of a recipient or subrecipient must not be discharged, demoted, or otherwise discriminated against as a reprisal for disclosing to a representative of MDH or a person or body described in paragraph (a)(2) of 41 U.S.C. 4712 information that the employee reasonably believes is evidence of gross mismanagement of a Federal or state contract or grant, a gross waste of Federal or state funds, an abuse of authority relating to a Federal or state contract or grant, a substantial and specific danger to public health or safety, or a violation of law, rule, or regulation related to a Federal or state contract (including the competition for or negotiation of a contract) or

grant. The recipient and subrecipient must inform their employees in writing of employee whistleblower rights and protections under 41 U.S.C. 4712 and Minn. Stat. §§ 15C.145 and 181.932 - .935. See statutory requirements for whistleblower protections at 10 U.S.C. 4701, 41 U.S.C. 4712, 41 U.S.C. 4304, and 10 U.S.C. 4310.

26. Suspension for Insufficient Funding

In the event of temporary lack of funding or appropriation, MDH may suspend its obligations under this Grant Agreement without terminating it. This suspension will be for the duration of the lack of funding or appropriation and shall not be considered a termination of the Grant Agreement. MDH will not be assessed any penalty if the Grant Agreement is terminated because of the decision of the Minnesota Legislature, or other funding source, not to appropriate funds.

26.1. Grantee will be notified in writing of the temporary suspension, and Grantee's ability to perform under the Grant Agreement will be suspended during this period. MDH will provide reasonable notice to Grantee of the lack of funding or appropriation and shall notify Grantee once funding is restored or appropriated, and at MDH's discretion, performance under the Grant Agreement may resume.

26.2. MDH may convert the suspension for insufficient funding to termination under clause 27.3. upon written notice to Grantee.

26.3. Grantee may reject MDH's suspension for insufficient funding by written response to the notice of suspension. If Grantee rejects suspension, the notice of suspension shall be effective as a notice of termination under clause 27.3 with the same effective date as was provided for the suspension.

27. Termination

27.1. ***Termination by MDH or Grantee***

MDH or Grantee may terminate this Grant Agreement without cause, with at least 21 calendar days' written notice (i.e., by mail, email, or both) to the other party. Upon termination, Grantee will be entitled to payment, determined on a pro rata basis, for activities satisfactorily performed.

27.2. ***Termination for Cause***

MDH may immediately terminate this Grant Agreement if MDH finds there has been a failure to comply with the provisions of this Grant Agreement, that timely progress has not been made, or that the purposes for which the funds were granted have not been or will not be fulfilled. MDH may take action to protect the interests of the State of Minnesota, including the refusal to disburse additional funds and requiring the return of all or part of the funds already disbursed.

27.3. ***Termination for Insufficient Funding***

MDH may immediately terminate this Grant Agreement if it does not obtain funding from the Minnesota Legislature or other funding sources; or if funding cannot be continued at a level sufficient to allow for the payment of the work scope covered in this Grant Agreement. Termination must be by written notice to Grantee; i.e., mail, email, or both. MDH is not obligated to pay for any work performed after notice and effective date of the termination.

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

However, Grantee will be entitled to payment, determined on a pro rata basis, for activities satisfactorily performed to the extent that funds are available.

MDH will not be assessed any penalty if this Grant Agreement is terminated because of the decision of the Minnesota Legislature, or other funding source, not to appropriate funds. MDH must provide Grantee notice of the lack of funding within a reasonable time of MDH receiving notice of the same.

27.4. ***Termination by Commissioner of Administration***
The Commissioner of Administration may immediately and unilaterally terminate this Grant Agreement if further performance under the Grant Agreement would not serve MDH's purposes or performance under the Grant Agreement is not in the best interests of the State of Minnesota.

Exhibits

The following Exhibits are attached and incorporated into this Grant Agreement. In the event of a conflict between the terms of this Grant Agreement and its Exhibits, or between Exhibits, the order of precedence is first the Grant Agreement, and then in the following order:

1. Exhibit A – Grantee's Activities / Scope of Work
2. Exhibit B – Grantee's Budget

[Signatures on following page]

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

APPROVED:

1. State Encumbrance Verification

Individual certifies that funds have been encumbered as required by Minn. Stat. §§ 16A.15 and 16C.05.

Signature: Rachel LeBlanc Digitally signed by Rachel LeBlanc Date: 2026.01.09 13:14:19 -06'00'

SWIFT Contract & Initial PO: 281717/3000129552/REQ 3850_17

2. Grantee

Grantee certifies that the appropriate persons(s) have executed the Grant Agreement on behalf of Grantee as required by applicable articles, bylaws, resolutions, or ordinances.

Signature: _____ Signature: _____

Title: Public Works Superintendent Title: _____

Date: _____ Date: _____

Signature: _____ Signature: _____

Title: _____ Title: _____

Date: _____ Date: _____

3. Minnesota Department of Health

Grant agreement approval and certification that State funds have been encumbered as required by Minn. Stat. §§ 16A.15 and 16C.05.

Signature:
(with delegated authority) _____

Title: _____

Date: _____

Distribution:
All parties on the DocuSign envelope will receive a copy of the fully executed Grant Agreement.

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

Exhibit A – Grantee's Activities / Scope of Work

Grantee is expected to perform the following activities. Modifications to Exhibit A must be discussed with MDH. MDH will communicate, in writing, with Grantee as to whether modifications are approved or require a formal grant amendment.

Activity/Work Plan	Anticipated Outcome
1. Mail well sealing reminders to well owners identified as unused, unmaintained, damaged, and abandoned wells.	The proper sealing of wells will continue to protect the Drinking Water Supply Management Area (DWSMA) from contamination from unused, unmaintained, damaged, and abandoned wells.
2. A letter will be sent to active storage tank property owners in the Primary DWSMA directing them to Minnesota Pollution Control Agency (MPCA) publications and guidance on proper operation and maintenance of storage tanks.	The proper operation of storage tanks will continue to protect the DWSMA from contamination by irresponsible tank owners.
3. A letter will be sent to owners of chemical storage and hazardous waste generator properties in the DWSMA.	This item will continue to protect the DWSMA by providing waste generators the proper materials for operating within the DWSMA.
4. Distribute public education information regarding the wellhead protection program that can be included in the City's newsletter, the City's annual water quality report, or on the City's website.	The distribution of information about the City of New Brighton's wellhead protection program will help educate the general public about the efforts and importance of the local wellhead protection plan.

Terms and Conditions	Additional Notes/Requirements
1. Grantee agrees that work shall take place only in the MDH approved Drinking Water Supply Management Area (DWSMA). Grantee will be reimbursed only for work that takes place in the DWSMA.	In Compliance with MDH standards
2. Grantee shall use the Clean Water Land and Legacy Amendment logo provided by MDH on all materials purchased or produced under this Grant Agreement (equipment, reports to the public, publications, displays, videos). Failure to display the logo may render the Grantee ineligible for reimbursement.	In Compliance with MDH standards

Terms and Conditions	Additional Notes/Requirements
3. Grantee shall pay in full any licensed contractor or consultant hired for the purpose of completing any work under this Grant Agreement.	In Compliance with MDH standards
4. On or before the end date of this Agreement, the Grantee shall provide MDH with one electronic copy of all final products produced under this Grant Agreement, including reports, publications, software and videos. If required by the nature of the project, data collected during the project shall be reported in a format acceptable to MDH.	In Compliance with MDH standards
5. In the event the Grantee is unable to satisfactorily complete all the duties specified in this grant agreement, the Grantee will forfeit payment. A Grantee who has not satisfactorily fulfilled the grant obligations, including but not limited to paying the contractor in full for all work performed by the contractor, will be denied participation in the next grant cycle.	In compliance with MDH standards
6. In accordance with Minn. Stat. § 16B.98, subd. 5(d), Grantee must clearly post on Grantee's website the names of, and contact information for, the Grantee's leadership and the employee or other person who directly manages and oversees this Grant Agreement on behalf of the Grantee.	In compliance with MDH standards
7. Any digital materials created, and shared outside of the grantee's organization, Grantee is required to comply with State of Minnesota's Digital Accessibility Standard. This requirement flows down to any subcontractors and or any third-party entity the Grantee may utilize and compensate with MDH grant funds. The statewide Standard can be viewed online at Accessibility | Policies & Standards / Minnesota IT Services	In compliance with MDH standards

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

Grantee is subject to a variety of compliance activities, as outlined below.

Report Type	Reporting Period / Due Date	Due Date
Grant Narrative Report	Upon completion of the project, Grantee shall complete and submit an itemized Grant Invoice and a Grant Narrative Report to MDH SWP in the Fluxx portal system. The Grant Narrative Report and the Grant Invoice shall be due no later than the expiration day of this Grant Agreement.	2/26/2027

Docusign Envelope ID: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608

Exhibit B – Grantee's Budget

The budget shown below is for reference only and is non-binding.

Category	Budget Period	Total
Contractual	2/2/2026 to 2/26/2027	$11,528.00

Grantee's Indirect Cost Rate for this Grant Agreement is as follows:

Indirect costs are not allowed by Funder.

Permitting fees payable to MDH (i.e. well construction fee; well sealing fee) are not eligible and will be deducted from the final invoice, before reimbursement.

Pressure tanks are grant eligible, as part of a new well construction and pump system project. The pressure tank must be appropriately sized for the pump being proposed for the new well and not sized for additional water storage. Pressure tank designed to serve the purpose of water storage, as well as the replacement or maintenance of pressure tanks, remains ineligible for grant reimbursement.

Water lines may be reimbursed only from the well to the pressure tank or to the building, whichever comes first.

Certificate Of Completion

Envelope Id: D5050EE1-CBE1-4FF2-AB38-6DA360A4A608
Status: Sent
Subject: Complete with Docusign: 281717_REQ_3850_17_GA_New_Brighton.pdf
Source Envelope:
Document Pages: 20
Signatures: 0
Envelope Originator:
Certificate Pages: 2
Initials: 0
Eddie Wojski
AutoNav: Enabled
625 Robert St. N
EnvelopeId Stamping: Enabled
PO Box 64975
Time Zone: (UTC-06:00) Central Time (US & Canada)
St. Paul, MN 55164
eddie.wojski@state.mn.us
IP Address: 156.98.136.30

Record Tracking

Status: Original
1/10/2026 9:05:02 AM
Holder: Eddie Wojski
eddie.wojski@state.mn.us
Location: DocuSign
Security Appliance Status: Connected
Pool: StateLocal
Storage Appliance Status: Connected
Pool: Department of Health
Location: Docusign

Signer Events	Signature	Timestamp
Eric Volk eric.volk@newbrightonmn.gov Public Works Superintendent Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign		Sent: 1/10/2026 9:10:09 AM Viewed: 1/12/2026 6:52:02 AM
MDH Delegated health.Delegated_Signature@state.mn.us Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign		

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
health.encumbrance@state.mn.us health.encumbrance@state.mn.us Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign		
Eric Volk eric.volk@newbrightonmn.gov Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign		

Carbon Copy Events	Status	Timestamp
Abby Shea abby.shea@state.mn.us Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via Docusign		

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	1/10/2026 9:10:09 AM

Payment Events	Status	Timestamps

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Approval of Ordinance 918, Parks and Recreation Chapter 24 Update

Action Requested: Approve enactment of Ordinance 918 for Chapter 24: Parks and Recreation, effective July 1, 2026

Form of Action: **Motion**

Votes Needed: **4**

Summary Statement:	During the ongoing recodification process, City Code Chapter 24 was identified for updates and revisions. Chapter 24 (Old Chapter 19), which outlines the rules and policies for public park usage in New Brighton, has not undergone a comprehensive revision in over two decades. The current section of City Code includes outdated references, uses overly technical or legalistic language, and does not address many modern park uses or enforcement realities. To address this, staff drafted a full repeal and replacement of Chapter 24. This process was informed by: • A move toward plain language to improve understanding and accessibility for residents. • A desire to align more closely with Ramsey County's Parks Ordinance, fostering consistency and clarity across the region. • The need to include current recreational trends, such as e-bikes, drones, cannabis use, and inclusive language. • A goal of making the ordinance easier to interpret and enforce for

	both the public and City staff. Key Revisions Include: • Updated Definitions for modern terminology, including THC beverages, cannabis products, drones, and dangerous weapons. • Simplified language throughout, removing legal jargon and making the code more user-friendly. • Expanded sections on permits, prohibited acts, and enforcement. • Clear guidance on acceptable conduct related to alcohol, THC, commercial photography, sound amplification, and group events. • New sections cover emerging uses like fat tire biking, winter sports, e-scooters, and drones. • Reinforced accessibility and equity, emphasizing that City parks are open to all people regardless of identity or background.

Recommendations:	Approve enactment of Ordinance 918 for Chapter 24: Parks and Recreation, effective July 1, 2026

Applicable Deadlines:	**None.**

Community Impact:	By making improvements to Chapter 24 of the ordinance, staff believes that this will make the ordinance easier to interpret and enforce for both the public and City staff.

Legislative History:	This proposed draft ordinance has been reviewed by PREC, City Council, the City attorney and Public Safety.

Strategic Priority:	**Community Belonging**

Fiscal Impact:	**None**

Attachments:	1.	20260115_New Brighton Park and Rec Ordinance DRAFT

ORDINANCE NO. 918

STATE OF MINNESOTA
COUNTY OF RAMSEY
CITY OF NEW BRIGHTON

AN ORDINANCE REPEALING CHAPTER 24 OF THE NEW BRIGHTON CITY CODE RELATING TO PARKS AND RECREATION AND REPLACING IT WITH A NEW CHAPTER RELATING TO PARKS AND RECREATION

THE CITY COUNCIL OF THE CITY OF NEW BRIGHTON ORDAINS as follows:

Section 1. Chapter 24, Article 1 of the New Brighton City Code is repealed in its entirety.

Section 2. The New Brighton City Code is amended to add the following new Chapter 24, Article 1 "Parks and Recreation" as follows:

Chapter 24. Parks and Recreation

Article 1. General Conditions 24-1 – 24-7

Section 24-1. Purpose.

The New Brighton City Council is authorized to enact ordinances to govern the conduct of members of the public during their use and enjoyment of the City of New Brighton Parks and Recreation system including waters and public lakeshore within the system and not more than 300 feet of the waterfront immediately abutting such public lakeshore. This Chapter is enacted to promote the health, safety, welfare, and enjoyment of all persons, and to protect park property and resources for future generations.

City of New Brighton parks and recreation facilities are open to all persons regardless of race, gender, gender identity, age, creed, national origin, sexual or affectional orientation, color, ancestry, disability, marital status, religion, familial status, or status with regard to public assistance.

Section 24-1.1 Definitions

For purposes of this Chapter, the following definitions apply, unless the context clearly indicates a different meaning. Any term that is not defined will be interpreted as the commonly understood meaning.

(1) ***Alcohol.*** Any beverage containing more than one-half of one percent alcohol by volume, including intoxicating liquor, wine, beer, or malt liquor, and 3.2 percent malt liquor and strong beer.

(2) ***Cannabis Product.***

(a) cannabis concentrate;

(b) a product infused with cannabinoids, including but not limited to tetrahydrocannabinol, extracted or derived from cannabis plants or cannabis flower; or

(c) any other product that contains cannabis concentrate.

Cannabis product includes adult-use cannabis products, including but not limited to edible cannabis products and medical cannabinoid products. Cannabis product does not include cannabis flower, artificially derived cannabinoid, lower-potency hemp edibles, hemp-derived consumer products, or hemp-derived topical products.

(3) ***City.*** The City of New Brighton.

(4) ***Council.*** The New Brighton City Council.

(5) ***Dangerous Weapon.*** Any firearm, whether loaded or unloaded, or any device designed as a weapon and capable of producing death or great bodily harm, including bows and arrows, sling shots, bowie knives, razors, and switchblades. Dangerous weapons also include any combustible or flammable liquid or other device or instrumentality that, in the manner it is used or intended to be used, is calculated or likely to produce death or great bodily harm, or any fire that is used to produce death or great bodily harm.

(6) ***Department.*** The City of New Brighton Parks and Recreation Department.

(7) ***Director.*** The City of New Brighton Parks and Recreation Department Director or their designee to whom specific duties have been assigned by the Director or the City Manager.

(8) ***Fireworks.*** Any composition or device for the purpose of producing a visible or an audible effect by combustion, deflagration, or detonation, including firecrackers, bottle rockets, roman candles, sparklers, snakes, and smoke devices.

(9) ***Motor Vehicle.*** Any self-propelled vehicle or vehicle propelled or drawn by a self-propelled vehicle which is operated on a highway, on the ground, or in the air.

(10) ***Park*** **or** ***Parks.*** Any park, open space, arena, golf course, special-use area, trail corridor, or any other area owned, improved, maintained, operated or otherwise controlled by the City. “Park” or “Parks” also includes any lake, pond, river, stream, or other body of water located wholly within the boundaries of a City park or any public shoreline owned by or under the authority of the City, including those waters lying within 300 feet of the waterfront immediately abutting City park lakeshore.

(11) ***Permit.*** Written permission that must be obtained from the Department to carry out certain activities or to obtain exclusive use of all or portions of specific areas, buildings, and other city park facilities for conducting special events. Fees may apply and are specified in the City's fee schedule.

(12) ***Person.*** Any individual, firm, partnership, corporation, company, or association of persons.

(13) ***THC Beverage.*** A beverage that:

A. is intended to be consumed as a beverage by humans;

B. contains hemp concentrate or an artificially derived cannabinoid, in combination with food ingredients;

C. is not a drug;

D. consists of servings that contain no more than five milligrams of delta-9 tetrahydrocannabinol, 25 milligrams of cannabidiol, 25 milligrams of cannabigerol, or any combination of those cannabinoids that does not exceed the identified amounts;

E. does not contain more than a combined total of 0.5 milligrams of all other cannabinoids per serving;

F. does not contain an artificially derived cannabinoid other than delta-9 tetrahydrocannabinol;

G. does not contain a cannabinoid derived from cannabis plants or cannabis flower; and

H. is a type of product approved for sale by the Office of Cannabis Management or is substantially similar to a product approved by the Office of Cannabis Management.

Section 24-2. Regulations.

(1) ***Park Hours.***

A. City parks are open daily from 5:00 a.m. to 11:00 p.m. Individuals who are traveling on regional trails within the City at 11:00 p.m. may promptly complete their travel to their destination without penalty.

B. The Department may close parks or areas within parks to the public at the Department's discretion in order to protect public safety or property.

C. Members of the public are prohibited from entering or remaining in any locked park building or any park area that is closed to the public.

D. Parks are subject to curfew hours which are set forth in Chapter 22-4 of the City Code.

(2) ***Permits.***

A. Permits are required for the exclusive use of all or a portion of a park or a park facility for special events, parades, public gatherings, for conducting private

lessons or classes for commercial gain, or for conducting any business enterprise within a park.

B. Some activities that are otherwise prohibited in this Chapter may be permitted with written approval from the Department.

C. Permit holders must follow all rules outlined in the permit.

D. Permit holders cannot transfer their permits to another person or entity.

E. Permit holders are responsible for any damage or injury that occurs as a result of the event or activity for which a permit was granted.

F. The Department may revoke a permit at any time.

(3) ***Prohibited Acts.***

A. Harassing or interfering with a permit holder, their event, property, or equipment is prohibited.

B. Damaging, vandalizing, altering, or removing any park property is prohibited. Park property includes: park buildings, grounds, signs, and equipment.

C. Dumping or littering of trash, yard waste, liquids, furniture, or construction materials is prohibited in all parks.

D. The use of, or encroachment on park property for personal or private use, such as storing equipment, erecting structures, installing objects, posting signs, or placing utilities, is prohibited.

E. All posted rules and regulations on park signs and barriers must be followed at all times.

F. Found items may be turned into the Department or the Department of Public Safety to be disposed of according to Minnesota Statutes Section 471.195.

(4) ***Protecting Natural Resources.***

A. Removing, altering, or damaging any plant, animal, or nest is prohibited. However, fruits, nuts, and mushrooms on park property may be foraged and harvested for personal use.

B. Planting any plants or releasing an animal into any park is prohibited unless in a designated area.

C. Digging or excavating land in any park is prohibited.

D. Feeding, hunting, trapping, or disturbing any animal in a park is prohibited, however, fishing is allowed so long as it is compliance with the Department of Natural Resources Minnesota Fishing Regulations.

(5) ***Conduct.***

A. Park patrons must follow all rules posted in park areas.

B. Threats, fighting, harassment, or bullying others in the park is prohibited.

C. All trash created within the park, such as food containers for a picnic or decorations for a party, must be deposited in trash or recycling containers provided in the park or carried out for disposal off-site.

D. Wine and beer (3.2 percent malt liquor and strong beer) are allowed in parks. All other types of alcohol are prohibited. Kegs, barrels, or taps of beer require a permit. Selling wine or beer requires a permit, and sales must comply with liquor licensing regulations for the City.

E. THC beverages, lower-potency hemp edibles, and cannabis edibles are allowed in parks. Selling cannabis products requires a permit from the City and a license as required by Minnesota Statutes Chapter 342.

F. Any lawful gambling activities within parks must be duly authorized by the Minnesota Gambling Control Board and are allowed only upon receiving a permit approved by the City Council.

G. Soliciting donations or money or selling anything in Parks without a permit is prohibited.

H. Posting, displaying, pasting, fastening, painting, or affixing any bill, notice, or sign upon any structure, tree, stone, fence, or enclosure in a park is prohibited unless authorized by the Director or designee.

I. Commercial photography that has a crew of more than one photographer and one photographer's assistant requires a permit.

J. Fires are allowed only in approved fire rings in the park and must be monitored at all times. Any fire must be completely extinguished when unattended. Cooking fires are allowed only in grills provided by the Department or small private grills. Smokers or oversized grills require a permit. The Director may prohibit fires when necessary for the protection of park property and resources. Park patrons must follow any posted notice prohibiting fires.

K. Noise levels in parks shall not exceed 80 decibels (dBA), measured at a distance of 50 feet from the source of the sound. The use of amplified sound (such as loudspeakers, public address systems, and amplified musical instruments) is allowed only if it does not exceed 80 dBA and does not interfere with the enjoyment of other park users. A permit is required for any event where amplified sound is likely to exceed 80 dBA or be heard beyond 100 feet.

L. Enforcement & Complaints
   - Park staff or law enforcement may request volume reduction if sound is deemed disruptive.
   - Violations may result in a warning, citation, or revocation of a sound permit.

M. Any large amusement equipment, including a bounce house, dunk tank, or portable climbing wall requires a permit.

N. Obstructing or interfering with a City employee or agent of the City in the performance of their duties is prohibited.

O. Advertising is prohibited in any park except with permission of the Director.

(6) ***Firearms and Dangerous Weapons.***

A. Dangerous weapons, with the exception of firearms are prohibited in parks. Firearms shall not be discharged in parks.
B. Bows and arrows are allowed only in archery ranges. Crossbows are allowed at archery ranges only for adaptive needs.
C. Firing any dangerous weapon in or into a park is prohibited.

(7) ***Fireworks.***

A. Possessing or igniting fireworks in a park is prohibited.

(8) ***Pets.***

A. Pets must be on a leash no more than six feet long at all times, except dogs within designated dog park areas.
B. Pets are prohibited from entering any park buildings, picnic areas, beach areas, playgrounds, or golf or courses without authorization from the Director or their designee. This prohibition does not apply to service animals as defined by Americans with Disabilities Act.
C. Leaving pets unattended or allowing them to disturb others in a park is prohibited.
D. Pet feces in parks must be picked up and properly disposed of.

(9) ***Picnicking.***

A. All park shelters, buildings, and pavilions require a permit for exclusive use.
B. 10'x10' canopies may be used in the picnic table area of a park. Canopies used for this purpose must be weighted down and cannot be staked into the ground or tied to trees or other Park property without permission from the Director.

(10) ***Swimming.***

A. Swimming is allowed only in designated swimming areas.

(11) ***Fishing.***

A. The Department of Natural Resources' Minnesota Fishing Regulations must be followed at all times when fishing in a park.
B. Fishing is not allowed in designated prohibited areas in a park.
C. Spearing, netting, and trapping any aquatic animals is prohibited.
D. The owner or user of an ice-fishing house must use boat launches to access the water for placement of the house. The house must not be stored on park property.

(12) ***Boating.***

A. Boats must be launched only in designated areas in park, such as boat launches.
B. Boats must not be left unattended.
C. Boats, including boats towing people (i.e. water skiers, towable tubes), must be operated at least 100 feet away from any swimming areas.

D. Boat operators are prohibited from creating a wake that could damage, injure, or disturb people or park property.

E. All watercraft must be inspected and any invasive aquatic plants or animals must be removed according to guidelines at : https://www.dnr.state.mn.us/invasives/preventspread_watercraft.html

(13) Bicycles.

A. Bicyclists must operate bicycles in a safe manner at all times and must stay as close to the right-hand side of the trail as safe conditions allow.
B. Bicyclists and off-road cyclists must yield to pedestrians and pass with care.
C. Bicycles must be operated only on paved trails, except for designated off-road biking trails.
D. Bicyclists must follow all Minnesota state statutes regarding bicycles.
E. Electric bicycles are allowed on paved trails and must be operated safely at speeds below 20 mph.

(14) ***Skating: Roller-Skating, In-Line Skating, Skateboarding, Scootering.***

A. Skaters must skate only on paved trails and in a safe manner. Skaters must stay as close to the right-hand side as safe conditions allow.
B. Skating is prohibited in any park building or shelter.
C. Electric scooters and similar electric skate equipment are allowed only on paved trails and must be operated safely at speeds below 20 mph.

(15) ***Winter Activities.***

A. Cross-country skiing is allowed only on designated trails in parks.
B. Snowshoeing is allowed in park areas open to the public.
C. Snowshoers and skiers must not damage any park vegetation.
D. Snowmobiles are only allowed in parks in winter at boat launch parking lots as a way to get the snowmobile slowly and safely from a trailer directly to the lake.
E. Other winter activities, including but not limited to, skating, sledding, and fat tire biking, are allowed only in designated areas in the park.

(16) ***Golf.***

A. Golf is allowed only at Brightwood Hills Golf Course.
B. Entering or exiting a golf course is allowed only through a designated entrance or exit area.

(17) ***Horseback Riding.***

A. Horseback riding is prohibited in parks.

(18) ***Camping.***

A. Setting up a tent or other temporary shelter or maintaining a campsite or temporary lodging or sleeping place is prohibited in any park, with the exception of the use of up to a 10' x 10' canopies. Canopies should be weighted down and not staked so as to avoid damage to irrigation.

(19) ***Geocaching.***

A. Is allowed in parks.

B. Caches must be more than 1/10th of a mile apart and are not allowed in buildings.

C. Dangerous, hazardous, or illegal materials must not be placed in a cache.

(20) ***Aviation.***

A. Aviation takeoffs or landings, including toy planes, drones, hot air balloons, and rockets are prohibited in any park without a permit.

B. The operation of fuel or battery-powered model aircraft, drones, rockets, or similar devices is prohibited without a permit or outside designated areas.

(21) ***Motorized Vehicles.***

A. Motorized recreational vehicles, such as ATVs or UTVs are prohibited in any park, except for snowmobiles as allowed in Section 24-2 (15)(D)of this Chapter. Power-driven mobility devices used by people with disabilities are allowed in parks.

B. Motorized vehicles must be operated in parks only on roadways and in parking areas.

C. Motorized vehicles must be operated in parks at speeds that are less than 15 miles per hour, or at the posted speed limit.

D. Drivers of motorized vehicles must follow all Minnesota state statutes and operate the vehicles in a safe manner.

E. Motorized vehicles must not be used to access private property through park property.

F. Motorized vehicles must not emit excessive noise, fumes, or other pollutants.

G. Drivers of motorized vehicles must yield to pedestrians and bicycles.

H. Washing, greasing, changing oil, servicing, or repairing any motorized vehicle is prohibited in any park except in an emergency situation.

I. Motorized vehicles may be parked only in designated parking areas in a park.

J. The parking of a motorized vehicle in any spot with yellow-painted curbs or no parking signs is prohibited.

K. Handicapped-accessible parking for motorized vehicles is reserved only for persons with a handicapped vehicle license or permit.

L. Boat trailers may only be parked in parking spots and lots designated for boat trailers.

M. Construction equipment or materials cannot be parked or staged on park property without a permit.

N. Vehicles, trailers, and equipment that are parked in illegal areas may be towed and impounded at the owner's expense.

Section 24-3. Enforcement.

Where appropriate, the preferred method of enforcement of this Chapter is voluntary compliance. Patrons who refuse to voluntarily comply with these regulations may be asked to leave the park and may be subject to criminal prosecution.

Failure to comply with this Chapter may also result in the loss of park or recreation facility use privileges for 24 hours or longer, at the Department or law enforcement's discretion. Responding park Department staff or law enforcement will exercise appropriate enforcement discretion as circumstances warrant, including enforcement pursuant to applicable state statutes.

Adopted this _____ day of _____, 2026, by the New Brighton City Council with a vote of _____ ayes and _____ nays.

_____
Kari Niedfeldt-Thomas, Mayor

_____
Devin Massopust, City Manager

ATTEST:

_____
Terri Spangrud, City Clerk

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Resolution Approving Summary Publication for Ordinance 918

Action Requested:

Public Hearing:	**Motion: X**
Discussion:	Informational:

Form of Action:

Resolution: X	Ordinance:
Contract/Agreement:	N/A or Other:

Votes Needed:

3 Votes:	**4 Votes: X**
5 Votes:	N/A:

Summary Statement:	MN State Statutes section 412.191, subdivision 4 requires approved ordinances to be published in the City's legal newspaper before they become effective. However, this statute also allows publication by title and summary in the case of lengthy ordinances or those containing maps or charts. This resolution authorizes publication of Ordinance 24: Parks and Recreation by title and summary.

Recommendations:	Approval of the summary publication resolution.

Applicable Deadlines:	None

Community Impact:	Saves the City significant dollars in publication costs. This ordinance revision has been reviewed by the Parks, Recreation, and Environmental Commission (PREC), the City Attorney, and the Public Safety Department. Their feedback helped shape a document that is clear, enforceable, and aligned with the needs of our community. The ordinance uses plain language to ensure accessibility and understanding, promotes inclusion, and aligns with regional best practices by referencing elements from the Ramsey County parks ordinance. These updates will make it easier for residents to engage with and enjoy our parks while protecting these vital public spaces for future generations. Copies of Ordinance 918: Parks and Recreation will be available for inspection at New Brighton City Hall in its entirety.

Legislative History:	The City Council reviewed the proposed ordinance and provided feedback. PREC reviewed the proposed ordinance and provided feedback.

Strategic Priority:

Financial Sustainability	Staff Capabilities
Economic Development	**Community Engagement & Belonging: X**
City Assets	N/A

Fiscal Impact:

Financial Impact: Is there a financial consideration?	**No: X**	Yes: $

Financing Sources:	Budgeted	Budget Modification
New Revenue	Use of Reserves	Other

Attachments:

1.	Resolution for ordinance 918 publication

RESOLUTION NO. _____
STATE OF MINNESOTA
COUNTY OF RAMSEY
CITY OF NEW BRIGHTON

RESOLUTION APPROVING A SUMMARY PUBLICATION FOR ORDINANCE NO. 918

WHEREAS, the City Council of the City of New Brighton has adopted the above referenced ordinance repealing and replacing Chapter 24 of the New Brighton City Code relating to Parks and Recreation; and

WHEREAS, Minnesota Statutes, section 412.191, subdivision 4 allows publication by title and summary in the case of lengthy ordinances or those containing maps or charts; and

WHEREAS, the City Council believes that the following summary would clearly inform the public of the intent and effect of Ordinance No. 918;

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of New Brighton that the following summary of Ordinance No. 918 shall be published in the official newspaper in lieu of the entire ordinance:

SUMMARY PUBLICATION

Ordinance No. 918
An Ordinance Repealing and Replacing Chapter 24 of the New Brighton City Code Relating to Parks and Recreation

Ordinance No. 918 was adopted by the City Council of the City of New Brighton on January 27, 2025. The updated chapter modernizes park regulations, clarifies permitted and prohibited activities, incorporates state law changes related to cannabis and THC products, and establishes clear rules to promote public safety, equitable access, and the protection of park resources. The full ordinance is available for review at New Brighton City Hall, 803 Old Highway 8 NW, New Brighton, Minnesota, 55112 during regular office hours or by contacting City Clerk Terri Spangrud at terri.spangrud@newbrightonmn.gov or 651-638-2045.

ADOPTED this 27th day of January, 2025 by the New Brighton City Council with a vote of _____ ayes and _____ nays.

_____
Kari Niedfeldt-Thomas, Mayor

ATTEST:

_____
Devin Massopust, City Manager

_____
Terri Spangrud, City Clerk

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Resolution Approving Personal Service Massage License for Xiaocai Song (Brighton Wellness)

Action Requested: Motion
Form of Action: Resolution
Votes Needed: 3 Votes

Summary Statement:	• Xiaocai Song has submitted all required fees and paperwork for a Personal Service Massage License in New Brighton. • A full background check was conducted on the applicant, which had no findings that would prevent her from obtaining a massage license. • The applicant, has completed 650 hours of professional massage therapist training at the Greater DFW International Massage Academy in Plano, Texas, a program that is nationally recognized by the National Certification Board for Therapeutic Massage & Bodywork. The number of training hours also exceeds the City required minimum of 500 hours (Sec. 10-304). • This license will be tied to "Brighton Wellness" at 2633 Innsbruck Dr. Suite D under ownership of Hongman Li. This will be Mrs. Li's second employee with a massage license.

Recommendations:	Authorize issuance of Personal Service Massage License via Resolution to Xiaocai Song, employee of Brighton Wellness.

Applicable Deadlines:	None

Community Impact:	Brighton Wellness provides valuable benefits to New Brighton and supports the City's commitment to a diverse and thriving business community. The owner, Hongman Li, immigrated from China and brings cultural and economic diversity that strengthens our local business environment. Xiaocai Song, the applicant, has completed 650 hours of professional massage therapist training at the Greater DFW International Massage Academy in Plano, Texas. The business will offer traditional massage along with other wellness services such as infrared lamp therapy, infrared hot stone therapy, yoga stretching, and traditional scraping therapy. These services give residents more options for stress relief, pain management, and overall wellness, and adding a second masseuse to Brighton Wellness will allow them to provide these services to even more residents and visitors of New Brighton.

Legislative History:	City Code Chapter 10, Article 9 regulates licenses for therapeutic massage.

Strategic Priority:	NA

Fiscal Impact:

Financial Impact: Is there a financial consideration?	**No**	
Financing Sources:	Budgeted	Budget Modification
New Revenue	Use of Reserves	Other

Attachments:

1.	Resolution Approving Personal Service Massage License for Xiaocai Song

RESOLUTION NO. _____
STATE OF MINNESOTA
COUNTY OF RAMSEY
CITY OF NEW BRIGHTON

RESOLUTION APPROVING PERSONAL SERVICE MASSAGE LICENSE FOR XIAOCAI SONG

WHEREAS, the applicant, Xiaocai Song, employee of Brighton Wellness located at 2633 Innsbruck Dr. Suite D, New Brighton MN, 55112 has applied for a Personal Service Massage License; and

WHEREAS, applicant Xiaocai Song has met and exceeded the personal service training requirements under Sec. 10-311; and,

WHEREAS, the applicant submitted complete applications consistent with Sec. 10-295 and Sec. 10-296; and,

WHEREAS, the applicant meets all eligibility criteria under Sec. 10-305; and,

WHEREAS, the employer (Brighton Wellness) is in good standing with the City with no violations; and

WHEREAS, all required fees, including investigation fees under Sec. 10-298 have been paid,

NOW THEREFORE, BE IT RESOLVED that the City Council of the City of New Brighton approves Xiaocai Song's application for a Personal Use Massage License allowing her to perform massage at Brighton Wellness located at 2633 Innsbruck Dr. Suite D, New Brighton MN, 55112. The licensee is required to follow all federal, state and local laws. This license will be effective from January 1, 2026 to December 31, 2026 and will require annual renewal by the applicant.

ADOPTED this _____ day of _____ 2025 by the New Brighton City Council with a vote of _____ ayes and _____ nays.

_____
Kari Niedfeldt-Thomas, Mayor

ATTEST:

_____
Devin Massopust, City Manager

_____
Terri Spangrud, City Clerk

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Approval of Plans and Specifications and Authorize Bidding for City Project 25-11, Well #16 Well House Construction

Action Requested: Motion
Form of Action: Motion
Votes Needed: 3 Votes

Summary Statement:	• The well house for Well #16 will be constructed once the drilling of Well #16 is completed. • We are estimating a start date for the well house in August 2026.

Recommendations:	• Approve plans and specifications for City Project 25-11, Well #16 Well House Construction • Authorize staff to advertise for bids for City Project 25-11, Well #16 Well House Construction

Applicable Deadlines:	None

Community Impact:	Continued production of safe and reliable drinking water.

Legislative History:	None

Strategic Priority:	**City Assets**

Fiscal Impact:	

Financial Consideration?	Yes
Revenue/Expenditure Amount:	$ TBD
Financing Source:	**Budgeted (Fund 206)**
Notes:	

Attachments:	

1.	Wellhouse 16 Project Manual 20260120

Project Manual City Project No. 25-11
Wellhouse 16
Technical Specifications

Prepared for
City of New Brighton, MN

Prepared by
Barr Engineering Co.

January 2026

4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.832.2600

barr.com

Division 00

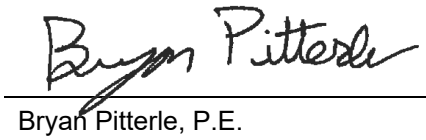
Procurement and Contracting Requirements

Wellhouse 16
City of New Brighton, MN
Project Manual

SECTION 00 01 05

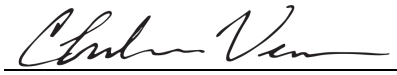
CERTIFICATIONS

I hereby certify that these specifications were prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Responsible for Divisions 01, 02, 31, 32 and 33.

Bryan Pitterle, P.E.
License Number: 55568
Date: January 20, 2026



Responsible for Divisions 03, 04 (Except Section 04 20 10), and 05.

Charlie Vermace, P.E.
License Number: 58689
Date: January 20, 2026



Responsible for Divisions 22 and 23.

David Mickelson, P.E.
License Number: 40997
Date: January 20, 2026



Responsible for Divisions 26, 27, 28 and 40.

Neil Oftelie, P.E.
License Number: 61655
Date: January 20, 2026



Responsible for Division 43 and Section 09 97 00.

Dan Nesler, P.E.
License Number: 47523
Date: January 20, 2026

I hereby certify that these specifications were prepared by me or under my direct supervision and that I am a duly Licensed Architect under the laws of the State of Minnesota.



Responsible for Divisions 06, 07 08, 09 (Except Section 09 97 00), and 10 and Section 04 20 10.

Ellen Luken, AIA
License Number: 15929
Date: January 20, 2026

END OF SECTION 00 01 05

Project Manual Wellhouse 16
City of New Brighton, MN
Project Manual

SECTION 00 01 10

TABLE OF CONTENTS

Section	Title
Division 00	**Procurement and Contracting Requirements**
00 01 05	Certifications
00 01 10	Table of Contents
00 11 13	Advertisement for Bids
00 20 00	Instructions to Bidders
00 41 00	Bid Form
00 41 10	Non-Collusion Affidavit
00 41 20	Equal Employment Opportunity Affidavit
00 41 30	Responsible Contractor Certificate
00 52 00	Form Agreement
00 61 13	Performance Bond
00 61 14	Payment Bond
00 70 00	General Conditions
00 73 00	Supplementary Conditions
Division 01	**General Requirements**
01 11 00	Summary of Work
01 14 19	Use of Site
01 29 00	Measurement and Payment
01 31 00	Project Coordination and Meetings
01 33 00	Submittal Procedures
01 35 00	Special Provisions
01 40 00	Quality Requirements
01 50 00	Temporary Facilities and Controls
01 73 29	Cutting and Patching
01 75 00	Starting and Adjusting
01 77 00	Closeout Procedures
Division 02	**Existing Conditions**
02 41 00	Demolition
Division 03	**Concrete**
03 10 00	Concrete Forms and Accessories

Section	Title
03 20 00	Concrete Reinforcement
03 30 00	Cast-in-Place Concrete
03 41 00	Precast Structural Concrete
03 60 00	Grouting
Division 04	**Masonry**
04 05 13	Mortar
04 05 16	Masonry Grout
04 05 23	Masonry Accessories
04 20 00	Unit Masonry
04 20 10	Natural Stone Masonry
Division 05	**Metals**
05 12 00	Structural Steel Framing
05 40 00	Cold-Formed Metal Framing
05 50 00	Metal Fabrication
Division 06	**Woods, Plastics, and Composites**
06 10 00	Rough Carpentry
06 16 00	Cementitious Sheathing Assemblies
Division 07	**Thermal and Moisture Protection**
07 13 00	Below Grade Membrane Waterproofing
07 20 00	Building Insulation
07 25 00	Weather Barriers
07 48 00	Rainscreen Cladding System
07 53 00	Fully Adhered EPDM Membrane Roofing
07 62 00	Sheet Metal Flashing & Trim
07 90 00	Joint Sealants
Division 08	**Openings**
08 10 10	Hollow Metal Doors and Frames
08 63 00	Unit Skylights
08 70 00	Finish Hardware
Division 09	**Finishes**
09 90 00	Painting
09 97 00	Special Coatings
Division 10	**Specialties**
10 14 50	Signage
10 44 00	Fire Protection Specialties

Section	Title
Division 22	**Plumbing**
22 00 00	Mechanical Provisions
Division 23	**Heating, Ventilating, and Air Conditioning (HVAC)**
23 33 15	Louver and Dampers
23 34 00	HVAC Fans
23 81 00	Split System Heat Pump
23 82 39	Electrical Unit Heaters
Division 26	**Electrical**
26 00 00	Electrical General Provisions
26 05 00	Common Work Results for Electrical
26 05 10	Motors
26 20 00	Low Voltage Electrical Transmission
26 24 19	Starters-Motor Control
26 50 00	Lighting
Division 27	**Communications**
27 00 00	Communications
Division 28	**Electronic Safety and Security**
28 00 00	Building Security System
Division 31	**Earthwork**
31 01 00	Site Preparation
31 10 00	Clearing and Grubbing
31 23 00	Excavation and Fill
31 23 19	Dewatering
31 25 00	Erosion and Sedimentation Control
Division 32	**Exterior Improvements**
32 16 00	Roadway and Sidewalk Pavements
32 92 00	Site Restoration
Division 33	**Utilities**
33 05 23	Horizontal Directional Drilling
33 05 28	Trenching and Backfilling for Utilities
33 10 00	Water Utilities
33 30 00	Sanitary Sewer Utilities
Division 40	**Process Interconnections**
40 90 00	Instrumentation and Control for Process Systems

Section	Title
Division 43	**Process Gas and Liquid Handling, Purification, and Storage Equipment**
43 20 00	Process Piping and Appurtenances
43 22 24	Deep Well Pump and Motor

Attachments

Attachment A	2500 Watermains (City of New Brighton Standard Specification)

PUBLISH PIONEER PRESS; FINANCE & COMMERCE JANUARY 29, 2026

PUBLISH QUESTCDN.COM JANUARY 29, 2026

CITY OF NEW BRIGHTON
803 Old Highway 8 NW
New Brighton, MN 55112

SECTION 00 11 13

ADVERTISEMENT FOR BIDS

CITY OF NEW BRIGHTON

CITY PROJECT 25-11

WELLHOUSE 16

Sealed bids are solicited for furnishing of the necessary labor, materials, and equipment for the construction of the Wellhouse 16. The Project generally consists of the construction of a new wellhouse and raw watermain utilities to connect to existing raw water utilities. The Project also includes alternate exterior improvement items at existing Wellhouses 8 and 9. The Project includes the following elements, among others:

- 14' x 30' Wellhouse 16 Building
- Process piping including ductile iron pipe, valves, and appurtenances;
- Mechanical (HVAC and plumbing) systems
- New control system hardware including PLCs, operator interfaces, instrumentation, and wiring;
- Skylights and windows;
- Painting and special coatings including new and refurbishment of existing;
- Miscellaneous bituminous and concrete pavement;
- Approximately 575' Raw Watermain Utilities (open trench and horizontal directional drilling)
- Site grading, specialty landscaping, and site restoration;
- Erosion and sediment control;
- Miscellaneous and incidental work as described in the Bidding Documents.

Digital copies of the Bidding Documents are available at http://www.QuestCDN.com for a fee of $40.00. The documents may be downloaded by selecting this project from the "Browse Projects" page or by entering **eBid-Doc #10022484** on the "Search Projects" page. For assistance and free membership registration, contact QuestCDN at 952.233.1632 or info@questcdn.com.

A mandatory pre-bid conferences will be held at Water Treatment Plant 1, 3001 South 5th Street NW, New Brighton. The pre-bid conference will occur at 9:00 a.m. on Thursday, February 12, 2026 and will address topics related to the overall Work. Bids will be considered unresponsive unless Bidder's authorized representative(s) has attended the required pre-bid meeting as evidenced by representative's signature on the attendance roster for the pre-bid meeting.

Electronic proposals will be received online only, until 1:00 p.m., on Thursday, February 26, 2026. Immediately following expiration of the time for receiving bids, the engineer will publicly view bids at City Hall in the City of New Brighton.

Each Bid Form shall be accompanied by a Non-Collusion Affidavit; a Responsible Contractor Certificate; an Equal Employment Opportunity Affidavit; Bidder's Qualifications; and a certified check or bid bond made payable to the City of New Brighton in the amount of 5% of the bid as a guarantee that Bidder will enter into a contract with City, in accordance with the terms of the Bidding Documents, in the event that Bidder is selected by City.

No Bids may be withdrawn for a period of sixty (60) days from the date of opening of Bids. City reserves the right to accept any Bid, or to reject any or all Bids.

END OF SECTION 00 11 13

00 20 00

INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

Page

ARTICLE 1: Defined Terms 1

ARTICLE 2: Copies of Bidding Documents 1

ARTICLE 3: Qualifications of Bidders 1

ARTICLE 4: Site and Other Areas; Existing Site Conditions; Examination of Site; Owner's Safety Program; Other Work at the Site 2

ARTICLE 5: Bidder's Representations 4

ARTICLE 6: Pre-Bid Conference 5

ARTICLE 7: Interpretations and Addenda 5

ARTICLE 8: Bid Security 5

ARTICLE 9: Contract Times 5

ARTICLE 10: Liquidated Damages 6

ARTICLE 11: Substitute and "Or-Equal" Items 6

ARTICLE 12: Subcontractors, Suppliers, and Others 6

ARTICLE 13: Preparation of Bid 7

ARTICLE 14: Basis of Bid 8

ARTICLE 15: Submittal of Bid 8

ARTICLE 16: Modification and Withdrawal of Bid 8

ARTICLE 17: Opening of Bids 9

ARTICLE 18: Bids to Remain Subject to Acceptance 9

ARTICLE 19: Evaluation of Bids and Award of Contract 9

ARTICLE 20: Contract Security and Insurance 10

ARTICLE 21: Signing of Agreement 10

ARTICLE 22: retainage 10

ARTICLE 1 – DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions (2013 Edition) and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office* – The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

ARTICLE 2 – COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents may be obtained as stated in the advertisement or invitation to bid.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not authorize or confer a license for any other use.

2.04 Owner and Engineer shall have no responsibility with respect to Bidder's use of digital data files obtained from Owner or Engineer. Because the information set forth in the digital data files can be modified unintentionally or otherwise, the use of digital data files provided by Owner or Engineer does not in any way negate Bidder's responsibility for coordination with trades or others or for the proper checking and coordination of dimensions, details, member sizes and gauge, and quantities of materials as required to facilitate complete and accurate fabrication, erection, and construction of the Work. In the event of a conflict between sealed documents and digital data files, the sealed documents shall govern. It is the Bidder's responsibility to determine if any conflicts exist.

ARTICLE 3 – QUALIFICATIONS OF BIDDERS

3.01 Bidder shall submit a completed Non-Collusion Affidavit and Equal Opportunity Affidavit with its Bid.

3.02 A Bidder responding to the bid solicitation shall comply with Minn. Stat. § 16C.285. A Bidder must verify that it meets the minimum criteria specified in Minn. Stat. § 16C.285 by submitting the Responsible Contractor Certificate, signed under oath by an owner or officer, at the time it responds to the bid solicitation. Bidder shall include in its verification of compliance a list of all first-tier subcontractors that it intends to retain for the Work. THE COMPLETED CERTIFICATE MUST BE SUBMITTED WITH THE BID. Each Bidder or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that it meets all of the minimum criteria in Minn. Stat. § 16C.285, subd. 3, prior to execution of a contract with each subcontractor. At Owner's request, a Bidder must submit a signed Responsible Contractor Certificate for each subcontractor. Each subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in Minn. Stat. § 16C.285, subd. 3, prior to execution of a contract with each subcontractor.

Any Bidder that does not submit or does not meet the minimum criteria in the Responsible Contractor Certificate, or fails to verify that it meets those criteria, is not a responsible Bidder and is not eligible to be awarded a contract for the Work. Any of Bidder's subcontractors that do not meet the minimum criteria in the Responsible Contractor Certificate are ineligible to perform work and Bidder must propose a qualifying replacement subcontractor at no change in the prices set forth in the Bid. A false statement under oath verifying compliance with any of the minimum

criteria shall render the Bidder or subcontractor that makes the false statement ineligible to be awarded a contract, and may result in termination of a contract awarded to a Bidder or subcontractor that submits a false statement.

3.03 To demonstrate Bidder's qualifications to perform the Work, Bidder shall submit with its Bid the following additional information:

A. Subcontractor and Supplier qualification information.

B. A list of projects currently under contract and not yet complete, including a summary of the dollar volume of each project.

C. A list of bankruptcy claims filed by Contractor within the past five years.

D. A description of Bidder's equipment, key personnel, and resources which demonstrate Bidder's ability to successfully complete the Work

E. A list of claims or complaints filed against and by Contractor and settled through litigation or the courts or through a mediated or arbitrated dispute resolution process in the past 10 years. Describe the nature of the claim, the court of jurisdiction, the mediator or arbitrator and the general resolution.

F. An OSHA log and summary of injuries and illnesses (OSHA Form 300 or equivalent) from the five most recent calendar years.

3.04 The Bidder's qualifications statement shall be enclosed in a separate sealed envelope that is clearly marked with Bidder's name and the words "BIDDER QUALIFICATIONS"

3.05 A Bidder's failure to submit required qualification information within the times indicated may disqualify Bidder from receiving an award of the Contract.

3.06 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

3.07 Bidder is advised to carefully review those portions of the Bid Form requiring Bidder's representations and certifications.

3.08 Owner may require Bidder to submit additional information regarding its qualifications to perform the work after Bids are opened.

ARTICLE 4 – SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE

4.01 Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

4.02 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify:

a. Those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site.

b. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

d. Technical Data contained in such reports and drawings.

2. Copies of reports or drawings referenced in Paragraph 4.02 may be provided with the Bidding Documents. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, if any, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. The definition of Technical Data has been modified in the Supplementary Conditions.

B. Underground Facilities: Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site are set forth in the Contract Documents and are based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others.

C. Adequacy of Data: Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions, and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated subsurface or physical conditions appear in Paragraphs 5.03, 5.04, and 5.05 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work, appear in Paragraph 5.06 of the General Conditions.

4.03 Site Visit and Testing by Bidders

A. If Bidder is interested in visiting the Site, please contact Eric Volk (651-638-2119) at least 24 hours in advance.

B. Bidder shall conduct Site visits during normal working hours, and shall not disturb any ongoing operations at the Site.

C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

D. On request, and to the extent Owner has control over the Site, and schedule permitting, Owner will provide Bidder access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site.

E. Bidder shall comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

F. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.04 Owner's Safety Program

A. Site visits and work at the Site may be governed by an Owner safety program. As the General Conditions indicate, if an Owner safety program exists, it will be noted in the Supplementary Conditions.

4.05 Other Work at the Site

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 5 – BIDDER'S REPRESENTATIONS

5.01 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, and any data and reference items identified in the Bidding Documents;

B. visit the Site, conduct a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfy itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;

C. become familiar with and satisfy itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work;

D. carefully study all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings;

E. consider the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings, if any, identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs;

F. agree, based on the information and observations referred to in the preceding paragraph, that at the time of submitting its Bid no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder;

I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work; and

J. agree that the submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the

Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 6 – PRE-BID CONFERENCE

6.01 A pre-Bid conference will be held at the time and location stated in the invitation or advertisement to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are required to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 7 – INTERPRETATIONS AND ADDENDA

7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all parties recorded as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.02 Addenda may be issued to clarify, correct, supplement, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 – BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 5 percent of Bidder's Lump Sum Bid and in the form of a certified check, bank money order, or a Bid bond issued by a surety meeting the requirements of Paragraphs 6.01 and 6.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited. Such forfeiture shall be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 – CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be substantially completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 – LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 11 – SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract for the Work, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or "or-equal" items. In cases in which the Contract allows Contractor to request that Engineer authorize the use of a substitute or "or-equal" item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

11.02 All prices that Bidder sets forth in its Bid shall be based on the presumption that Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of "or-equal" or substitution requests are made at Bidder's sole risk.

ARTICLE 12 – SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 A Bidder shall be prepared to retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of the Work if required by the Bidding Documents (most commonly in the Specifications) to do so. If a prospective Bidder objects to retaining any such Subcontractor, Supplier, or other individual or entity, and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

12.02 Subsequent to the submittal of the Bid, Owner may not require the Successful Bidder or Contractor to retain any Subcontractor, Supplier, or other individual or entity against which Contractor has reasonable objection.

12.03 Bidder shall submit to Owner a list of the Subcontractors proposed for the following portions of the Work with its Bid:

A. Electrical

B. Mechanical HVAC and Plumbing

C. Masonry

D. Painting and Special Coatings

E. Utilities

F. Earthwork / Grading

If requested by Owner, such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, or other individual or entity. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, without an increase in bid price.

12.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, or other individuals or entities. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent

revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 7.0 6 of the General Conditions.

12.05 Minnesota Responsible Contractor Verification Prior to and After Contract Execution

A. Prior to execution of the contract and as a condition precedent to execution of a contract, the successful Bidder shall submit the Responsible Contractor Verification and Certification of Compliance Part B as supplemental verification confirming compliance with subdivision 3, clause (7) of Minn. Stat. § 16C.285 and a complete list of all its first-tier subcontractors that it intends to retain for work on the project.

B. Prior to execution of a construction contract with each subcontractor, each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3, clause (7) of Minn. Stat. § 16C.285.

C. If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7) (Part C), within 14 days of retaining the additional subcontractors

ARTICLE 13 – PREPARATION OF BID

13.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form shall be completed in ink and the Bid Form signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid,” “No Change,” or “Not Applicable.”

13.02 A Bid by a corporation shall be executed in the corporate name by the president, vice-president, or secretary. Other corporate officer (whose title must appear under the signature), may execute the Bid if accompanied by evidence of authority to sign. The corporate seal, if any, shall be affixed. The registered corporate address, federal EIN, and state of incorporation shall be shown.

13.03 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The federal EIN and registered address of the partnership shall be shown.

13.04 A Bid by a limited liability company shall be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm, federal EIN, and the registered address of the firm shall be shown.

13.05 A Bid by an individual shall show the Bidder’s name and official address.

13.06 A Bid by a joint venture shall be executed by an authorized representative of each joint venture in the manner indicated on the Bid Form. The official address of the joint venture shall be shown.

13.07 All names shall be printed in ink below the signatures.

13.08 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.

13.09 Postal and e-mail addresses and telephone number for communications regarding the Bid shall be shown.

13.10 The Bid shall contain evidence of Bidder’s authority and qualification to do business in the state where the Project is located, or Bidder shall covenant in writing to obtain such authority and

qualification prior to award of the Contract and attach such covenant to the Bid. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 – BASIS OF BID

14.01 Lump Sum - Base Bid with Alternates

A. Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate.

B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form.

14.02 Allowances

A. For cash allowances the Bid price shall include such amounts as the Bidder deems proper for Contractor's overhead, costs, profit, and other expenses on account of cash allowances, if any, named in the Contract Documents, in accordance with Paragraph 13.02.B of the General Conditions.

ARTICLE 15 – SUBMITTAL OF BID

15.01 The Bid Form shall be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 7 of the Bid Form.

15.02 A Bid shall be received no later than the date and time prescribed and at the place indicated in the advertisement or invitation to bid and shall be enclosed in a plainly marked package with the Project title (and, if applicable, the designated portion of the Project for which the Bid is submitted), the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed as stated in the Advertisement for Bids

15.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 16 – MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be withdrawn without prejudice to the Bidder by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. The request must be signed in the same manner and by the same person or persons who signed the bid and should not reveal the amount of the bid. Requests shall be clearly marked "Request for Withdrawal of Bid" and labeled with the project name. Upon receipt of such notice, the unopened Bid will be returned to the Bidder. If such request for withdrawal is not explicit or if it is in any sense subject to misinterpretation, the Bid shall be subject to either acceptance or rejection, as may be in the best interest of Owner, and in its discretion.

16.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 16.01 and submit a new Bid prior to the date and time for the opening of Bids.

16.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid,

and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 – OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. Bidders or their authorized agents are invited to be present. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 – BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible. If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, then Owner will reject the Bid as nonresponsive; provided that Owner also reserves the right to waive all minor informalities not involving price, time, or changes in the Work, and to negotiate contract terms with the Successful Bidder.

19.02 If Owner awards the contract for the Work, such award shall be to the responsible Bidder submitting the lowest responsive Bid.

19.03 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.04 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. For comparison purposes, only the base bid prices will be used to select the Successful Bidder. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

19.05 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Bidding Documents.

19.06 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work in accordance with the Contract Documents.

ARTICLE 20 – CONTRACT SECURITY AND INSURANCE

20.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by required bonds and insurance certificates.

ARTICLE 21 – SIGNING OF AGREEMENT

21.01 When Owner issues a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement along with the other Contract Documents as identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall execute and deliver the required number of counterparts of the Agreement, attached documents, and any other required submittals to Owner.

21.02 Owner or Engineer will review required submittals and may require Successful Bidder to make revisions. Within ten days after final receipt of all acceptable materials, Owner shall deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 22 – RETAINAGE

22.01 Provisions concerning retainage are set forth in the Agreement.

END OF SECTION 00 20 00

00 41 00

BID FORM

TABLE OF CONTENTS

Page

ARTICLE 1 – Bid Recipient 1
ARTICLE 2 – Bidder's Acknowledgements 1
ARTICLE 3 – Bidder's Representations 1
ARTICLE 4 – Bidder's Certification 2
ARTICLE 5 – Basis of Bid 2
ARTICLE 6 – Time of Completion 3
ARTICLE 7 – Attachments to this Bid 3
ARTICLE 8 – Defined Terms 4
ARTICLE 9 – Bid Submittal 4

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of New Brighton
City Hall
803 Old Hwy 8 NW
New Brighton, MN 55112

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques,

sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 A systems integrator has been selected for this project based on that firm's history and experience with Owner's current system, its involvement with Owner's ongoing SCADA upgrades, and its role as software programmer (under separate contract directly with Owner) for control system upgrades that will be coordinated with the Work. Bidder must include the price provided by this systems integrator in Bidder's Lump Sum Price.

Bidder may propose an alternate systems integrator by indicating an alternate below, and indicating the deduction in Bidder's Lump Sum Price. Alternate systems integrators may be considered by Owner and Engineer after award of the Contract. See Section 40 90 00 Instrumentation and Control for Process Systems for information to be submitted if Owner/Engineer choose to consider alternate systems integrator. Award will be made on the basis of the Base Bid. If an alternate systems integrator is selected, the Contract Price will be adjusted by Change Order after the Agreement has been signed.

Specification Section	System Integrator (Basis of Bid)	Name of Alternate	Deduct Amount
40 90 00	In Control, Inc.		$

5.02 A fiber optic contractor has been selected for this project based on that firm's history and experience with Owner's current system and its involvement with Owner's ongoing fiber optic upgrades. Bidder must include the price provided by this systems integrator in Bidder's Lump Sum Price.

Bidder may propose an alternate systems integrator by indicating an alternate below, and indicating the deduction in Bidder's Lump Sum Price. Alternate fiber optic contractors may be considered by Owner and Engineer after award of the Contract. Award will be made on the basis of the Base Bid. If an alternate systems integrator is selected, the Contract Price will be adjusted by Change Order after the Agreement has been signed.

Fiber Optic Contractor (Basis of Bid)	Name of Alternate	Deduct Amount
Collins Electrical Construction Co.		$

5.03 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Lump Sum Bid Price for Base Bid (Wellhouse 16)	$
Utility Company Allowance	$20,000.00
Access Control System Allowance	$20,000.00
Alternate A (Wellhouse 8 Improvements)	$
Alternate B (Wellhouse 9 Improvements)	$

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Non-Collusion Affidavit (Section 00 41 10).

B. Equal Employment Opportunity Affidavit (Section 00 41 20).

C. Responsible Contractor Certificate with List of First-tier Subcontractors (Section 00 41 30).

1. Include list of Subcontractors as described in the Instructions to Bidders.

D. Bidder's qualifications / project experience as described in the Instructions to Bidders.

E. Required Bid security in the form of _____.

F. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids.

G. Contractor's License No.: _____

H. Required Bidder Qualification Statement with supporting data.

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
[Signature] _____

[Printed name] _____

Title: _____

Submittal Date: _____

Address for giving notices:

_____

_____

_____

Telephone Number: _____

Fax Number: _____

Contact Name and e-mail address: _____

_____

Bidder's License No.: _____

(where applicable)

END OF SECTION 00 41 00

00 41 10

NON-COLLUSION AFFIDAVIT

I hereby swear (or affirm) under the penalty for perjury:

1. That I am the Bidder (if the Bidder is an individual), a partner of the Bidder (if the Bidder is a partnership) or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);

2. That the attached Bid has been arrived at by the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding, or planned common course of action with, any other vendor of materials, supplies, equipment or services described in the invitation to bid, designed to limit independent bidding or competition;

3. That the content of the Bid has not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the Bid, and will not be communicated to any such person prior to the official opening of the Bid; and

4. That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed _____

Firm Name _____

Subscribed and sworn to before me

this _____ day of _____, 20_____.

_____

Notary Public

My Commission expires _____, 20____.

Bidder's E.I. Number: _____

(Number used on Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941)

00 41 20

EQUAL EMPLOYMENT OPPORTUNITY AFFIDAVIT

Pursuant to Minn. Stat. § 181.59, Seller agrees as follows:

a. That, in hiring of common or skilled labor for the performance of any work under this Contract, or any subcontract hereunder, no contractor, material supplier, or vendor shall, by reason of race, creed, or color, discriminate against any person or persons who are citizens of the United States who are qualified and available to perform the work to which such employment relates;

b. That no contractor, material supplier or vendor shall, in any manner, discriminate against, or intimidate, or prevent the employment of any such persons or persons, or on being hired, prevent, or conspire to prevent, any such person or persons from the performance of work under this contract on account of race, creed or color;

c. That any violation of this section shall be a misdemeanor; and

d. That this contract may be canceled or terminated by the Buyer, and all money due, or to become due hereunder, may be forfeited for a second or any subsequent violation of the terms or conditions of this contract.

BIDDER	Date
SUBCONTRACTOR	Date
SUBCONTRACTOR	Date
SUBCONTRACTOR	Date

END OF SECTION 00 41 20

00 41 30

STATE OF MINNESOTA

RESPONSIBLE CONTRACTOR CERTIFICATE

CONTRACTOR RESPONSE

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

The term Responsible Contractor as used herein means a contractor as defined in Minn. Stat. § 16C.285, subd. 3.

The undersigned understands that any prime contractor or subcontractor that does not meet the minimum criteria in Minn. Stat. § 16C.285, subd. 3, or fails to verify that it meets those criteria is not a Responsible Contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project.

The undersigned understands that a false statement under oath verifying compliance with any of the minimum criteria shall make the undersigned, or its subcontractor that makes the false statement, ineligible to be awarded a construction project and may result in termination of a contract awarded to the undersigned or its subcontractor that submits a false statement.

CERTIFICATION

By signing this document, I certify that I am an owner or officer of the company named below, and I swear under oath that:

1. My company meets each of the Minimum Criteria to be a Responsible Contractor as defined and is in compliance with Minn. Stat. § 16C.285, subd. 3.
2. If my company is awarded a contract, I or another owner or officer will also submit certificates or verifications of compliance for any subcontractor or motor carrier of any tier as required.

Contractor Company Name	Date
Authorized Signature of Owner or Officer	Printed Name
Title	

PART C-1: FIRST-TIER SUBCONTRACTOR LIST
(INITIAL LIST)

SUBMIT WITH CONTRACTOR SOLICITATION RESPONSE

As required under Minn. Stat. § 16C.285, subd. 5, a prime contractor or subcontractor shall include in its certificate of compliance a list of all of its first-tier subcontractors that it intends to retain for work on the project.

NAMES OF FIRST TIER SUBCONTRACTORS (Legal name of company as registered with the Secretary of State)	Company Address

END OF SECTION 00 41 30

00 52 00

FORM OF AGREEMENT

THIS AGREEMENT is by and between City of New Brighton ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents may be the whole or only a part, is generally described Specification Section 01 11 00, Part 1.04.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Barr Engineering Co.

3.02 Owner has retained Barr Engineering Co. ("Engineer") to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents. The duties and responsibilities and rights and authority of Engineer cannot be extended without written consent of Owner and Engineer.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits are of the essence.

4.02 *Contract Times: Dates*

A. The Work will be substantially completed on or before November 30, 2026, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before June 1, 2027.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract Documents. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: Contractor shall pay Owner $2,500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly

adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $1,000.00 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents the amounts that follow, subject to adjustment under the Contract:

A. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions, as may be modified by the Supplemental Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment in accordance with Paragraph 6.02.A.1 below, provided that such Applications for Payment meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions.

1. Progress payments shall be made and retainage shall be held in accordance with MN Statutes 429.041, Subd. 6.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest as stated in MN Statutes 429.041 Subd. 6.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Contract, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data and reference items identified in the Bidding Documents.

B. Contractor has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Contractor is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any,

that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (3) Contractor's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

1. This executed Agreement.
2. Performance bond.
3. Payment bond.
4. General Conditions.
5. Supplementary Conditions.
6. Specifications.
7. Drawings consisting of the sheets listed on the index on Drawing G001, with each sheet bearing the following general title: Wellhouse 16.
8. Addenda (numbers ___ to ___, inclusive).
9. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's completed Bid.
    b. Documentation submitted by Contractor prior to Notice of Award.
10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:

a. Notice to Proceed.

b. Work Change Directives.

c. Change Orders.

d. Field Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

A. Owner stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the Engineers Joint Contract Documents Committee®, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

B. This Agreement shall be governed by the laws of the State of Minnesota.

C. There are no other provisions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on [_____] (which is the Effective Date of the Contract).

OWNER:	CONTRACTOR:
City of New Brighton	
By:	By:
Title:	Title:
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	Attest:
Title:	Title:
Address for giving notices:	Address for giving notices:
	License No.: *(where applicable)*

END OF SECTION 00 52 00

00 61 13

PERFORMANCE BOND

CONTRACTOR (name and address):

SURETY (name and address of principal place of business):

OWNER *(name and address)*:

CONSTRUCTION CONTRACT
Effective Date of the Agreement:
Amount:
Description *(name and location)*:

BOND
Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction

Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

00 61 14

PAYMENT BOND

CONTRACTOR (name and address):

SURETY (name and address of principal place of business):

OWNER *(name and address)*:

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description *(name and location)*:

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ *(seal)*

Contractor's Name and Corporate Seal

By: _____

Signature

_____

Print Name

_____

Title

Attest: _____

Signature

_____

Title

SURETY

_____ *(seal)*

Surety's Name and Corporate Seal

By: _____

Signature *(attach power of attorney)*

_____

Print Name

_____

Title

Attest: _____

Signature

_____

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. In the event of a claim on this Bond by a person furnishing labor and materials, no action shall be maintained on the payment bond unless:

   5.1 Within 120 days after completion, delivery, or provision by the person of its last item of labor and materials, for the public work, the person serves written notice of claim under the payment bond personally or by certified mail upon the surety that issued the bond and the contractor on whose behalf the bond was issued at their addresses as stated in the bond specifying the nature and amount of the claim and the date the claimant furnished its last item of labor and materials for the public work.

6. When a Claimant has satisfied the conditions of Paragraph 5.1, the Surety shall promptly and at the Surety's expense take the following actions:

   6.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

   6.2 Pay or arrange for payment of any undisputed amounts.

   6.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

7. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. An action to enforce a claim against the surety under the Bond must be commenced within one year from the date of completion, delivery, or provision by the claimant of its last item of labor and materials for the public work stated in its notice of claim. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. **Definitions**

    15.1 **Claim:** A written statement by the Claimant including at a minimum:

    1. The name of the Claimant;
    2. The name of the person for whom the labor was done, or materials or equipment furnished;
    3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
    4. A brief description of the labor, materials, or equipment furnished;
    5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
    6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
    7. The total amount of previous payments received by the Claimant; and
    8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

    15.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

    15.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

    15.4 **Owner Default**: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    15.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

16. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

17. Modifications to this Bond are as follows:

Standard General Conditions (EJCDC 2013 Edition)

EJCDC

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

License Agreement

Before you use this EJCDC document:

1. **Read this License Agreement in its entirety.** As purchaser, you agree to comply with and are bound by the License Agreement's terms, conditions, and instructions when you use the attached EJCDC document. **Commencement of use of the attached document indicates your acceptance of these terms, conditions, and instructions.** If you do not agree to them, you should promptly return the materials to the vendor.

2. **This License Agreement applies to the attached document only. Other licensing terms and instructions may apply to other EJCDC documents.**

3. The Engineers Joint Contract Documents Committee ("EJCDC") provides **EJCDC Design and Construction Related Documents (including but not limited to the EJCDC document that is attached, and all other documents in the EJCDC Construction Series, Engineering Series, Design-Build Series, Remediation Series, Procurement Series, and Narrative Series)** and licenses their use worldwide. You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use, and results obtained from **EJCDC Design and Construction Related Documents**.

4. You acknowledge that you understand that the text of the **EJCDC Design and Construction Related Documents** has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You further acknowledge that EJCDC documents are protected by the copyright laws of the United States.

5. Make sure that you have the correct word processing software for the attached EJCDC document, which is distributed in Microsoft Word (.doc) format.

6. EJCDC allows the end user wide discretion in using and editing the attached document, subject to the provisions of the License Agreement. You are advised, however, that EJCDC documents contain numeric and other cross-references, and that changes to one part of the document may affect other parts. It is solely your responsibility to assure the adequacy and consistency of the final document for your purposes.

How to Use This Document:

1. Although EJCDC has made reasonable efforts to achieve uniformity of formatting, some document controls (e.g., bold, underline, font size, indentation, numbering, pagination, table of contents) may be affected by software versioning and translators, user settings, changes during editing, and other factors, and may require user intervention to restore intended format and appearance.

2. The term "Standard EJCDC Text" for the attached document generally refers to all text prepared by EJCDC in the main body of the document, and does not include covers, logos, footers, instructions, license agreement, copyright notices, Notes to Users, or text options. The content of document exhibits (if any) is not Standard EJCDC Text for this purpose.

2. If you do not alter the Standard EJCDC Text of the attached document, you may use it as published, with all EJCDC logos, footers, and copyright notices retained.

3. If you modify the Standard EJCDC Text of the attached document, you must follow the following instructions that address if, when, and how to show the changes to other parties.

4. During the drafting or negotiating process for the document, it is important that the two contracting parties are both aware of any changes that have been made to the Standard EJCDC Text. Thus if a draft of the document purports to be or appears to be an EJCDC document, the user must plainly show all changes to the Standard EJCDC Text, using "Track Changes" (redline/strikeout), highlighting, or other means of clearly indicating additions and deletions.

5. As between contracting parties, once the document is ready to be finalized (and if applicable executed by the contracting parties), it is no longer necessary to continue to show changes to the Standard EJCDC Text. The parties may produce a final version of the document in a format in which all changes are accepted, and the document at that point does not need to include any "Track Changes," redline/strikeout, highlighting, or other indication of additions and deletions to the Standard EJCDC Text.

6. If the attached document is revised or altered and then presented to others (such as potential bidders, grant agencies, lenders, or sureties) as an EJCDC document, then the changes to the Standard EJCDC Text must be shown, or the third parties must receive access to a

version that shows the changes.

7. The attached EJCDC document may contain "Notes to User," bracketed comments, or prompts that provide instructions for filling in project-specific information, selecting the appropriate clause from a list of options, or making additions or deletions, or that give background information regarding a particular provision. The user may (and in most cases should) delete these notes, comments, and prompts during the drafting process. Deletion of such notes, comments, and prompts is not subject to the License Agreement requirement that additions or deletions to Standard EJCDC Text be shown clearly, and therefore does not need to be shown with "Track Changes," redline/strikeout, highlighting, or other means of indicating changes, at any point in the drafting process.

8. The attached EJCDC document may contain exhibits that are to be used to set out project-specific provisions, such as scope of services, compensation, and insurance requirements. These exhibits are meant to be revised, supplemented, and altered by the user, or discarded if not applicable to the specific project. The text of the various exhibits is not considered Standard EJCDC Text and is not subject to the License Agreement requirement that additions or deletions to the Standard EJCDC Text be shown clearly, and therefore does not need to be shown with "Track Changes," redline/strikeout, highlighting, or other means of indicating changes, at any point in the drafting process.

9. In a few instances the EJCDC Notes to User will instruct the user of a document to choose one of two or more text options in the main body of the document. In such cases the options that are not selected should be discarded or deleted, and not included in the final version of the document. Such discarding or deletion of text options is not subject to the License Agreement requirement that additions or deletions to Standard EJCDC Text be shown clearly, and therefore does not need to be shown with highlighting, redline/strikeout, or other means of tracking changes, at any point in the drafting process. Note, however, that the text that **is** selected (which in this scenario is in the main body of the document and not in an exhibit) is Standard EJCDC Text, and any revision or alteration of the text that **is** selected is subject to the License Agreement requirement that additions or deletions to Standard EJCDC Text be shown clearly.

10. The License Agreement typically is removed when a document is being prepared for use on a specific project. Such removal is not subject to the License Agreement requirement that additions or deletions to Standard EJCDC Text be shown clearly, and therefore does not need to be shown with highlighting, redline/strikeout, or other means of tracking changes, at any point in the drafting process. The terms of the License Agreement remain in effect regardless of whether it has been removed or remains attached to the document.

11. When a document is being prepared for use on a specific project, some users remove the EJCDC front cover page, and the "inside front cover page" containing specific information regarding the EJCDC sponsoring organizations. Such removal is not subject to the License Agreement requirement that additions or deletions to Standard EJCDC Text be shown clearly, and therefore does not need to be shown with highlighting, redline/strikeout, or other means of tracking changes, at any point in the drafting process.

12. As purchaser of the attached document, you may choose to use it as the basis or platform for creating purchaser's own custom version. In such case you must remove all EJCDC logos, footers, and other items that might create the false impression that the document remains an EJCDC standard document, and the requirements regarding the need to show additions and deletions to the Standard EJCDC Text no longer apply. Note, however, that the copyright requirements of the License Agreement continue to apply.

13. A purchaser may choose to select clauses or sections of the attached document for inclusion in other non-EJCDC documents. When this occurs, do not use any EJCDC logos, footers, or other items that would imply that the receiving document is an EJCDC document. Note, however, that the copyright requirements of the License Agreement continue to apply.

Limited License:

As purchaser, you have a limited nonexclusive license to:

1. Use the attached EJCDC document on any number of machines owned, leased, or rented by your company or organization.

2. Use the attached EJCDC document for bona fide contractual and project purposes. Such purposes expressly include controlled distribution to bona fide bidders and proposers, either through direct transmittal in printed or electronic format or posting on a website or other electronic distribution point to which access is limited to bona fide bidders and proposers or others having direct interest in the contract or project.

3. Copy the attached EJCDC document into any machine-readable or printed form for backup or modification purposes in support of your use of the document.

You further agree:

1. To comply with all terms, conditions, and instructions in this License Agreement.

2. That all proprietary and intellectual property rights in the attached EJCDC document and all other **EJCDC Design and Construction Related Documents** are and shall remain the property of EJCDC and its sponsoring organizations.

3. To include the appropriate EJCDC copyright notice (selected from the versions below) on any copy, modified or finalized version, or portion of the attached EJCDC document. For this document, at a minimum one of the following EJCDC copyright notices must appear in a prominent location:

   If the standard EJCDC text is not altered, then use the copyright that is already stated in the published document:

   - Copyright © [EJCDC document date] National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

   If the standard EJCDC text has been altered, or if only portions of the EJCDC document have been used, then use the following copyright notice:

   - **This document is a MODIFIED version of EJCDC® Z-xxx, Copyright © 20xx by the National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers, or is based in part on excerpts from copyrighted EJCDC documents. Those portions of the text that originated in copyrighted EJCDC documents remain subject to the copyright.**

4. To not use, copy, modify, or transfer the attached EJCDC document or any other **EJCDC Design and Construction Related Documents**, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of the attached EJCDC document, or any other **EJCDC Design and Construction Related Document**, in printed or machine-readable format for resale, and any resale of this document in any format, are expressly prohibited. **Making the attached EJCDC document or any other EJCDC Design and Construction Related Document, in whole or in part, available or accessible on an uncontrolled, public-access website or other uncontrolled electronic distribution point—in any format whatever, whether with or without watermarks, as a Microsoft Word document or in portable document format (PDF)—is expressly prohibited.**

5. As an EJCDC limited licensee you may seek advance written permission from the EJCDC Copyright Administrator to use the attached EJCDC document for educational purposes, subject to terms and conditions to be established by the Copyright Administrator for the specific educational use.

Term:

This license is effective for three years after date of purchase, or six years after the last day of the year of issuance for the attached document (shown in the copyright notice), whichever occurs later, and shall terminate at that time, unless earlier terminated as provided herein, or unless EJCDC extends the term of this license to you, in writing, or publishes on the ejcdc.org website or the websites of the National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers, an applicable extension of the term of license for a certain period of time for bona fide contractual and project or other authorized uses. You agree upon termination to destroy the attached **EJCDC Design and Construction Related Document** along with all copies, modifications and merged portions in any form (except those copies already in actual project or contract use, or maintained in files or records of completed projects).

EJCDC reserves the right during the term of this agreement to provide access to the purchased document through alternative means, based on improvements or changes in technology, or to transition the document to secure document platforms or other formats, while maintaining user's access privileges.

EJCDC from time to time publishes new, updated editions of the **EJCDC Design and Construction Related Documents.** EJCDC highly recommends the use of the most current editions of its documents. EJCDC may, at its sole discretion, withdraw from authorized use any document that has been subsequently updated and for which the license has expired.

You may terminate the license at any time by destroying the attached EJCDC document together with all copies, modifications and merged portions in any form (except those copies already in actual project or contract use, or maintained in files or records of completed projects). It will also terminate upon conditions set forth elsewhere in this License Agreement or if you fail to comply with any term or condition of this License Agreement.

Limited Warranty:

If EJCDC has distributed this document on a compact disc, then EJCDC warrants the CD on which this document is furnished to be free from physical defects in materials and workmanship under normal use for a period of ninety (90) days from the date of delivery to you as evidenced by a copy of your receipt.

There is no other warranty of any kind, either express or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. You may also have other rights which vary from state to state.

EJCDC does not warrant that the functions contained in **EJCDC Design and Construction Related Documents** will meet your requirements or that the operation of **EJCDC Design and Construction Related Documents** will be uninterrupted or error free.

Limitations of Remedies:

EJCDC's entire liability and your exclusive remedy shall be:

1. the replacement of the CD (if any) distributed by EJCDC, containing this document, provided such CD does not

meet EJCDC's "Limited Warranty" and is returned to EJCDC's selling agent with a copy of your receipt, or

2. if EJCDC's selling agent is unable to deliver a replacement CD which is free of defects in materials and workmanship, you may terminate this Agreement by returning EJCDC Document and your money will be refunded.

As purchaser, you assume full responsibility for determining the suitability of this document to your purposes, and for the application and use of this document for contract or project purposes. To the fullest extent permitted by law, in no event will EJCDC, its sponsoring organizations, its committee members, attorneys, consultants, authorized vendors, or advisors, or their respective staff members, employees, agents, or contractors, be liable to you or any other party for any damages, including any lost profits, lost savings, contractual liabilities, disappointed commercial expectations, economic loss, or other direct, incidental, or consequential damages arising out of the content, unenforceability, insufficiency, inadequacy, use or inability to use the attached EJCDC document or any other **EJCDC Design and Construction Related Documents,** even if EJCDC has been advised of the possibility of such damages, or for any claim by any other party.

Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so portions of the above limitation or exclusion may not apply to you.

General:

You may not sublicense, assign, or transfer this license except as expressly provided in this License Agreement. Any attempt otherwise to sublicense, assign, or transfer any of the rights, duties, or obligations hereunder is void. **If you transfer or purport to transfer such rights, duties, or obligations to another party, your license is automatically terminated.**

This License Agreement shall be governed by the laws of the State of Virginia. If you have any questions concerning this License Agreement, or any requests or inquiries regarding the EJCDC copyright, you may contact EJCDC by writing to:

EJCDC Copyright Administrator
c/o National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314
Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this License Agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the License Agreement and supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this License Agreement.

Information regarding the content of the attached EJCDC document and other **EJCDC Design and Construction Related Documents** may be obtained at ejcdc.org or from the following EJCDC sponsoring organizations:

National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314-2794
(703) 684-2882
www.nspe.org

American Council of Engineering Companies
1015 15th Street N.W., Washington, D.C. 20005
(202) 347-7474
www.acec.org

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400
(800) 548-2723
www.asce.org

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by



Issued and Published Jointly by







EJCDC® C-700, Standard General Conditions of the Construction Contract.
Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

Copyright © 2013:

National Society of Professional Engineers

1420 King Street, Alexandria, VA 22314-2794

(703) 684-2882

www.nspe.org

American Council of Engineering Companies

1015 15th Street N.W., Washington, DC 20005

(202) 347-7474

www.acec.org

American Society of Civil Engineers

1801 Alexander Bell Drive, Reston, VA 20191-4400

(800) 548-2723

www.asce.org

The copyright for this document is owned jointly by the three sponsoring organizations listed above. The National Society of Professional Engineers is the Copyright Administrator for the EJCDC documents; please direct all inquiries regarding EJCDC copyrights to NSPE.

NOTE: EJCDC publications may be purchased at www.ejcdc.org, or from any of the sponsoring organizations above.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

Page

Article 1 – Definitions and Terminology 1

1.01 Defined Terms 1

1.02 Terminology 5

Article 2 – Preliminary Matters 6

2.01 Delivery of Bonds and Evidence of Insurance 6

2.02 Copies of Documents 6

2.03 Before Starting Construction 6

2.04 Preconstruction Conference; Designation of Authorized Representatives 7

2.05 Initial Acceptance of Schedules 7

2.06 Electronic Transmittals 7

Article 3 – Documents: Intent, Requirements, Reuse 8

3.01 Intent 8

3.02 Reference Standards 8

3.03 Reporting and Resolving Discrepancies 8

3.04 Requirements of the Contract Documents 9

3.05 Reuse of Documents 10

Article 4 – Commencement and Progress of the Work 10

4.01 Commencement of Contract Times; Notice to Proceed 10

4.02 Starting the Work 10

4.03 Reference Points 10

4.04 Progress Schedule 10

4.05 Delays in Contractor's Progress 11

Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions 12

5.01 Availability of Lands 12

5.02 Use of Site and Other Areas 12

5.03 Subsurface and Physical Conditions 13

5.04 Differing Subsurface or Physical Conditions 14

5.05 Underground Facilities 15

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5.06 Hazardous Environmental Conditions at Site 17
Article 6 – Bonds and Insurance 19
6.01 Performance, Payment, and Other Bonds 19
6.02 Insurance—General Provisions 19
6.03 Contractor's Insurance 20
6.04 Owner's Liability Insurance 23
6.05 Property Insurance 23
6.06 Waiver of Rights 25
6.07 Receipt and Application of Property Insurance Proceeds 25
Article 7 – Contractor's Responsibilities 26
7.01 Supervision and Superintendence 26
7.02 Labor; Working Hours 26
7.03 Services, Materials, and Equipment 26
7.04 "Or Equals" 27
7.05 Substitutes 28
7.06 Concerning Subcontractors, Suppliers, and Others 29
7.07 Patent Fees and Royalties 31
7.08 Permits 31
7.09 Taxes 32
7.10 Laws and Regulations 32
7.11 Record Documents 32
7.12 Safety and Protection 32
7.13 Safety Representative 33
7.14 Hazard Communication Programs 33
7.15 Emergencies 34
7.16 Shop Drawings, Samples, and Other Submittals 34
7.17 Contractor's General Warranty and Guarantee 36
7.18 Indemnification 37
7.19 Delegation of Professional Design Services 37
Article 8 – Other Work at the Site 38
8.01 Other Work 38
8.02 Coordination 39
8.03 Legal Relationships 39

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Article 9 – Owner's Responsibilities 40
9.01 Communications to Contractor 40
9.02 Replacement of Engineer 40
9.03 Furnish Data 40
9.04 Pay When Due 40
9.05 Lands and Easements; Reports, Tests, and Drawings 40
9.06 Insurance 40
9.07 Change Orders 40
9.08 Inspections, Tests, and Approvals 41
9.09 Limitations on Owner's Responsibilities 41
9.10 Undisclosed Hazardous Environmental Condition 41
9.11 Evidence of Financial Arrangements 41
9.12 Safety Programs 41
Article 10 – Engineer's Status During Construction 41
10.01 Owner's Representative 41
10.02 Visits to Site 41
10.03 Project Representative 42
10.04 Rejecting Defective Work 42
10.05 Shop Drawings, Change Orders and Payments 42
10.06 Determinations for Unit Price Work 42
10.07 Decisions on Requirements of Contract Documents and Acceptability of Work 42
10.08 Limitations on Engineer's Authority and Responsibilities 42
10.09 Compliance with Safety Program 43
Article 11 – Amending the Contract Documents; Changes in the Work 43
11.01 Amending and Supplementing Contract Documents 43
11.02 Owner-Authorized Changes in the Work 44
11.03 Unauthorized Changes in the Work 44
11.04 Change of Contract Price 44
11.05 Change of Contract Times 45
11.06 Change Proposals 45
11.07 Execution of Change Orders 46
11.08 Notification to Surety 47
Article 12 – Claims 47

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

12.01 Claims 47
Article 13 – Cost of the Work; Allowances; Unit Price Work 48
13.01 Cost of the Work 48
13.02 Allowances 50
13.03 Unit Price Work 51
Article 14 – Tests and Inspections; Correction, Removal or Acceptance of Defective Work 52
14.01 Access to Work 52
14.02 Tests, Inspections, and Approvals 52
14.03 Defective Work 53
14.04 Acceptance of Defective Work 53
14.05 Uncovering Work 53
14.06 Owner May Stop the Work 54
14.07 Owner May Correct Defective Work 54
Article 15 – Payments to Contractor; Set-Offs; Completion; Correction Period 55
15.01 Progress Payments 55
15.02 Contractor's Warranty of Title 58
15.03 Substantial Completion 58
15.04 Partial Use or Occupancy 59
15.05 Final Inspection 59
15.06 Final Payment 59
15.07 Waiver of Claims 61
15.08 Correction Period 61
Article 16 – Suspension of Work and Termination 62
16.01 Owner May Suspend Work 62
16.02 Owner May Terminate for Cause 62
16.03 Owner May Terminate For Convenience 63
16.04 Contractor May Stop Work or Terminate 63
Article 17 – Final Resolution of Disputes 64
17.01 Methods and Procedures 64
Article 18 – Miscellaneous 64
18.01 Giving Notice 64
18.02 Computation of Times 64
18.03 Cumulative Remedies 64

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

18.04 Limitation of Damages 65
18.05 No Waiver 65
18.06 Survival of Obligations 65
18.07 Controlling Law 65
18.08 Headings 65

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. *Bidder*—An individual or entity that submits a Bid to Owner.

6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. *Change Order*—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5501 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.

13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.

14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .

15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.

17. *Cost of the Work*—See Paragraph 13.01 for definition.

18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.

20. *Engineer*—The individual or entity named as such in the Agreement.

21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.

23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.

26. *Notice of Award*—The written notice by Owner to a Bidder of Owner's acceptance of the Bid.

27. *Notice to Proceed*—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

29. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.

31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.

32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative.

33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer's review of the submittals and the performance of related construction activities.

35. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

37. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands furnished by Owner which are designated for the use of Contractor.

38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

39. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

40. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.

42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.

43. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.

45. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

46. *Unit Price Work*—Work to be paid for on the basis of unit prices.

47. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 *Terminology*

A. The words and terms discussed in the following paragraphs are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives*:

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. *Day*:

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*:

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or 15.04).

E. *Furnish, Install, Perform, Provide*:

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. *Bonds*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.

C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 *Before Starting Construction*

A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.03.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

2.06 *Electronic Transmittals*

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.

B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.

D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.

E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.02 *Reference Standards*

A. Standards Specifications, Codes, Laws and Regulations

1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard specification, manual, reference standard, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*:

1. *Contractor's Verification of Figures and Field Measurements*: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents*: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies*:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Requirements of the Contract Documents*

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.

B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

3.05 *Reuse of Documents*

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.02 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to such date.

4.03 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Times and Contract Price. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. abnormal weather conditions;

3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and

4. acts of war or terrorism.

D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.

E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*:

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. *Removal of Debris During Performance of the Work*: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning*: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading of Structures*: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or adjacent to the Site;

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and

3. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor*: If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site either:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate; or

2. is of such a nature as to require a change in the Drawings or Specifications; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review*: After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

D. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise; or

b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or

c. Contractor failed to give the written notice as required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.05 *Underground Facilities*

A. *Contractor's Responsibilities*: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;

c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. *Notice by Contractor*: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

C. *Engineer's Review*: Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. *Owner's Statement to Contractor Regarding Underground Facility*: After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

E. *Possible Price and Times Adjustments*:

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

    a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;

    b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

    c. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times; and

    d. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5.06 *Hazardous Environmental Conditions at Site*

A. *Reports and Drawings*: The Supplementary Conditions identify:

1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

2. Technical Data contained in such reports and drawings.

B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.

H. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.H shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 6 – BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.

B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.

D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the bond and surety requirements above.

E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.

F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.

F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.

H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.

I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.

J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

A. *Workers' Compensation*: Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).

3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

4. Foreign voluntary worker compensation (if applicable).

B. *Commercial General Liability—Claims Covered*: Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:

1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.

2. claims for damages insured by reasonably available personal injury liability coverage.

3. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom.

C. *Commercial General Liability—Form and Content*: Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:

1. Products and completed operations coverage:

a. Such insurance shall be maintained for three years after final payment.

b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.

2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.

3. Broad form property damage coverage.

4. Severability of interest.

5. Underground, explosion, and collapse coverage.

6. Personal injury coverage.

7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.

8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.

D. *Automobile liability*: Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. *Umbrella or excess liability*: Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

F. *Contractor's pollution liability insurance*: Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds; and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.

H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.

I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:

1. include at least the specific coverages provided in this Article.

2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.

3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.

5. be appropriate for the Work being performed and provide protection from claims that may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable.

J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

6.04 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."

2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.

3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).

6. extend to cover damage or loss to insured property while in transit.

7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

8. allow for the waiver of the insurer's subrogation rights, as set forth below.

9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.

10. not include a co-insurance clause.

11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.

12. include performance/hot testing and start-up.

13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.

B. *Notice of Cancellation or Change*: All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.

C. *Deductibles*: The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.

D. *Partial Occupancy or Use by Owner*: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.

E. *Additional Insurance*: If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

6.06 *Waiver of Rights*

A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.

D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.04 *"Or Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or equal" item is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) it has a proven record of performance and availability of responsive service; and

4) it is not objectionable to Owner.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. *Contractor's Expense*: Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.

C. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

D. *Effect of Engineer's Determination*: Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.

E. *Treatment as a Substitution Request*: If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.05 *Substitutes*

A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.

3. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

a. shall certify that the proposed substitute item will:

1) perform adequately the functions and achieve the results called for by the general design,

2) be similar in substance to that specified, and

3) be suited to the same use as that specified.

b. will state:

1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,

2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

c. will identify:

1) all variations of the proposed substitute item from that specified, and

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2) available engineering, sales, maintenance, repair, and replacement services.

d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. *Engineer's Evaluation and Determination*: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. *Special Guarantee*: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

D. *Reimbursement of Engineer's Cost*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

E. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute at Contractor's expense.

F. *Effect of Engineer's Determination*: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.

B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.

F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

G. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.

H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions.

J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.

K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.

L. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.

N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

O. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier, or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 *Permits*

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

7.09 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.10 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 7.12.A.2 or 7.12.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and protection shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

7.14 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements*:

1. Before submitting a Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that submittal, and that Contractor approves the submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

B. *Submittal Procedures for Shop Drawings and Samples*: Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings*:

a. Contractor shall submit the number of copies required in the Specifications.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

provide and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.D.

2. *Samples*:

   a. Contractor shall submit the number of Samples required in the Specifications.

   b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 7.16.D.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Other Submittals*: Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

D. *Engineer's Review*:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto.

3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will document any such approved variation from the requirements of the Contract Documents in a Field Order.

5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.

6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

E. *Resubmittal Procedures*:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal;

6. the issuance of a notice of acceptability by Engineer;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by Owner.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 7.18.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

7.19 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable Laws and Regulations.

B. If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, and other submittals prepared by such professional. Shop

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this paragraph, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 7.16.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.01 *Other Work*

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.

D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

8.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. an itemization of the specific matters to be covered by such authority and responsibility; and

3. the extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.

C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.

B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.

C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

9.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

9.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.

B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 10.08. Particularly, but without limitation, during

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 *Project Representative*

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent, or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

10.04 *Rejecting Defective Work*

A. Engineer has the authority to reject Work in accordance with Article 14.

10.05 *Shop Drawings, Change Orders and Payments*

A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.

B. Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, are set forth in Paragraph 7.19.

C. Engineer's authority as to Change Orders is set forth in Article 11.

D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.06 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.07 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.08 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 15.06.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.08 shall also apply to the Resident Project Representative, if any.

10.09 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.01 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

1. *Change Orders*:

a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.

b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.

2. *Work Change Directives*: A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders*: Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.02 *Owner-Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.03 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.04 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

C. *Contractor's Fee*: When applicable, the Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 13.01.B.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01.C.2.a and 11.01.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.05 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.

B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.06 *Change Proposals*

A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures*: Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.

2. *Engineer's Action*: Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

3. *Binding Decision*: Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

B. *Resolution of Certain Change Proposals*: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.07 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and

4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.08 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

ARTICLE 12 – CLAIMS

12.01 *Claims*

A. *Claims Process*: The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:

1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and

3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.

B. *Submittal of Claim*: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. *Review and Resolution*: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.

D. *Mediation*:

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.

E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 *Cost of the Work*

A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or

2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, and vacation and holiday pay applicable

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof, whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

    e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

    f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 6.05), provided such losses and damages have resulted from causes

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*: When the Work as a whole is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 11.04.C.

E. *Documentation*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

13.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. *Cash Allowances*: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance*: Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

13.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of the following paragraph.

E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement;

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that it is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price, and the parties are unable to agree as to the amount of any such increase or decrease.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

14.02 *Tests, Inspections, and Approvals*

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.

B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. *Notice of Defects*: Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

A. Engineer has the authority to require special inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, then Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 *Progress Payments*

A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. *Applications for Payments*:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens, and evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*:

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the money paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due*:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner*:

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:

a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;

b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;

f. the Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. the Contract Price has been reduced by Change Orders;

i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;

j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

l. there are other items entitling Owner to a set off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, and promptly pay Contractor any amount

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 15.01.C.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.03 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through E for that part of the Work.

2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.05 regarding builder's risk or other property insurance.

15.05 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *Final Payment*

A. *Application for Payment*:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

inspection, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;

   b. consent of the surety, if any, to final payment;

   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.

   d. a list of all disputes that Contractor believes are unsettled; and

   e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. *Engineer's Review of Application and Acceptance*:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to the provisions of Paragraph 15.07. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due*: Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.07 *Waiver of Claims*

A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.08 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents), any Work is found to be defective, or if the repair of any damages to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. correct the defective repairs to the Site or such other adjacent areas;

2. correct such defective Work;

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

E. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule);

2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;

3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or

4. Contractor's repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and

2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

expenses or damage directly attributable to Contractor's stopping the Work as permitted by this paragraph.

ARTICLE 17 – FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

A. *Disputes Subject to Final Resolution*: The following disputed matters are subject to final resolution under the provisions of this Article:

1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and

2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.

B. *Final Resolution of Disputes*: For any dispute subject to resolution under this Article, Owner or Contractor may:

1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or

2. agree with the other party to submit the dispute to another dispute resolution process; or

3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.02 *Computation of Times*

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

18.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

18.04 *Limitation of Damages*

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

18.07 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Copyright © 2013 National Society of Professional Engineers, American Council of Engineering Companies, and American Society of Civil Engineers. All rights reserved.

00 73 00

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition) hereinafter referred to as the "General Conditions," and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below or elsewhere in the Contract Documents, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC-*1.01 Defined Terms*

SC-1.01 Add to the list of definitions in Paragraph 1.01.A by inserting the following as numbered items in their proper alphabetical positions:

Bid Proposal; Bid Form; Bid Proposal Form **-** The prescribed form on which bidder submits bidder's offer or proposal setting forth the bidder's prices for the Work to be performed.

General Conditions – Standard General Conditions of the Construction Contract (EJCDC C-700, 2013 Edition). Any reference to the General Conditions shall also be a reference to the Supplementary Conditions.

Technical Specifications – The Specifications.

SC-1.01 Delete Paragraph 1.01.A.20 in its entirety and insert the following in its place:

Engineer – Barr Engineering Company, 4300 MarketPointe Drive, Suite 200, Minneapolis, Minnesota, 55435 (Phone: 952-832-2600; Fax: 952-832-2601).

SC-1.01 Delete Paragraph 1.01.A.28 in its entirety and insert the following in its place:

Owner – City of New Brighton with whom Contractor has entered into the Agreement and for whom the Work is to be provided.

SC-1.01 Delete Paragraph 1.01.A.44 in its entirety and insert the following in its place:

Technical Data—Those items identified in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site including without limitation the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor. **Any use of the Technical Data made available to Contractor is entirely at Contractor's own risk and at its own discretion.**

ARTICLE 2 – PRELIMINARY MATTERS

SC-*2.01 Delivery of Bonds and Evidence of Insurance*

SC-2.01 Delete Paragraphs 2.01 B and C in their entirety and insert the following in their place:

B. Evidence of Contractor's Insurance: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner copies of the policies of insurance (including all endorsements, and identification of applicable self-insured retentions and deductibles) required to be provided by Contractor in Article 6. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

C. Evidence of Owner's Insurance: After receipt from Contractor of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor copies of the policies of insurance to be provided by Owner under Article 6 (if any). Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

SC-*2 .02 Copies of Documents*

SC-2.02 Delete the first sentence of Paragraph 2.02.B and insert the following in its place:

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications bearing the certification or seal of Engineer and other design professionals.

SC-*2 .06 Electronic Transmittals.*

SC-2.06 Add the following new paragraph immediately after Paragraph 2.06.C:

Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance test or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party, except those errors resulting from the use of software application package, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

SC-*3.01 Intent*

SC-3.01 Add the following language at the end of the second sentence of Paragraph 3.01.B:

Any item or items shown on the Drawings or described in the Specifications, but not specifically included in any of the unit prices, shall be considered incidental to the other work.

SC-*3.05 Reuse of Documents*

SC-3.05 Delete Paragraph 3.05.A.1 in its entirety and insert the following in its place:

"have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the certification or seal of Engineer or its consultants, including electronic media editions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project

or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer; or"

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC-*5.01* *Availability of Lands*

SC-5.01 Delete Paragraph 5.01C in its entirety and insert the following in its place:

Contractor shall provide for all additional lands and access thereto that Contractor may require for performance of the Work.

5.03 *Subsurface and Physical Conditions*

SC-5.03 Delete Paragraph 5.03B in its entirety and insert the following in its place:

B. Reliance by Contractor on Technical Data Not Authorized: Contractor may not rely upon the accuracy of the Technical Data identified in the Supplementary Conditions with respect to such reports and drawings, and such reports and drawings are not Contract Documents. Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.
4. the accuracy of the Technical Data (as defined in Article 1) contained in any reports and drawings prepared for the Project and made available to Contractor.

Add the following new paragraphs immediately after Paragraph 5.03.B:

C. The following reports of explorations and tests of subsurface conditions at or adjacent to the Site are known to Owner:

1. Report dated January 24, 2022, prepared by Arcadis U.S., Inc., Minneapolis, MN., entitled: "*Phase II Geophysics Field Summary Report*"

D. Contractor may examine copies of reports and drawings identified in SC 5.03.C that were not included with the Bidding Documents at Barr Engineering Co. during regular business hours, or may request copies from Engineer.

SC-*5.06* *Hazardous Environmental Conditions*

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

A. The Site is underlain by a groundwater plume emanating from Twin Cities Army Ammunition Plant (TCAAP) and is contaminated with volatile organic compounds (VOCs) in detectable concentrations. TCAAP is a superfund site and WTP1 treats this groundwater to remove the following compounds:

1. 1,1-Dichloroethane

2. 1,1-Dichloroethylene

3. Trichloroethylene

4. 1,1,1-Trichloroethane

5. 1,4-Dioxane

Upon request, Owner or Engineer will provide additional water quality data and other information as is relevant to the Work.

B. *Reliance by Contractor on Technical Data Not Authorized*: Contractor may not rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, and such reports and drawings are not Contract Documents. Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information;

4. the accuracy of the Technical Data (as defined in Article 1) contained in any reports and drawings prepared for the Project and made available to Contractor.

ARTICLE 6 – BONDS AND INSURANCE

SC-*6.01* *Performance, Payment, and Other Bonds*

SC-6.01 Amend the first sentence of Article 6.01.A to read as follows:

Contractor shall furnish performance bond and payment bond, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract. The Contract Price shall include the price of the assigned contract.

SC-6.01 the following sentence to the end of Article 6.01.A of the General Conditions:

Contractor shall furnish such additional Bonds as may be required by any permitting authority as a condition of any such permit.

SC-*6.03* *Contractor's Liability Insurance*

SC-6.03 Amend the first sentence of Paragraph 6.03.C.2 to read as follows:

2. Blanket contractual liability coverage, to the extent permitted by law, covering all of Contractor's contractual indemnity obligations.

SC-6.03 Add the following new Paragraphs immediately after Paragraph 6.03.C:

9. Where applicable, claims arising out of blasting, elevators, aviation, and marine exposures.

SC-6.03 Add the following sentence to the end of Paragraph 6.03.G:

Such additional insured coverage shall be provided by Additional Insured – Engineers, Architects or Surveyors Not Engaged by the Named Insured endorsement CG 2032 04 13, or other comparable endorsement.

SC-6.03 Amend the first sentence of Paragraph 6.03.I.3 to read as follows:

contain a provision or endorsement that the coverage afforded will not be canceled, or coverages or limits reduced, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.

SC-6.03 Add the following subparagraph to the end of Paragraph 6.03.I:

6. The coverage shall include all property under the care, custody, or control of Contractor.

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	Statutory
Federal, if applicable (e.g., Longshoreman's):	Statutory
Employer's Liability:	Statutory

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	$ 2,000,000
Each Occurrence (Bodily Injury and Property Damage)	$ 1,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Combined Single Limit of	$ 2,000,000

4. Excess or Umbrella Liability:

Per Occurrence	$ 5,000,000
General Aggregate	$ 5,000,000

6. Additional Insureds: Owner (City of New Brighton), Engineer (Barr Engineering Co.) and its subcontractors (Luken Architecture, P.A.)

7. Each of the Commercial General Liability, Automobile Liability and Umbrella policies shall include cross liability coverage so that the insurance applies separately to each insured against whom claim is made or suit is brought, even in instances where one insured claims against or sues another insured and provide that its insurance provider shall waive all rights of subrogation against Owner and Engineer and their agents and employees, and shall waive any setoff

or counterclaim or any other deduction whether by attachment or otherwise as applicable.

SC-*6.05* *Property Insurance*

SC 6.05 Delete the first sentence of Paragraph 6.05.A and insert the following sentence in its place:

Owner shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations).

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

SC-*7.02* *Labor; Working Hours*

SC-7.02 Amend the first and second sentences of Paragraph 7.02.B to state "…all Work at the Site shall be performed during the times set forth in the Contract Documents. Contractor will not perform Work on a Sunday or any legal holiday."

SC-*7.06* *Concerning Subcontractors, Suppliers, and Others*

SC 7.06.P Add a new paragraph immediately after Paragraph 7.06.O:

In accordance with Minnesota Statute 471.425, Contractor shall pay any Subcontractor within ten days of receipt of payment from the municipality for undisputed services provided by the Subcontractor in accordance with Laws and Regulations. Contractor shall pay interest of 1-1/2 percent per month or any part of a month to the Subcontractor on any undisputed amount not paid on time to the subcontractor. The minimum monthly interest penalty payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, Contractor shall pay the actual penalty due to the Subcontractor.

SC-*7.12* *Safety and Protection*

SC-7.12 In the second sentence of Paragraph 7.12.C, replace the words "Supplementary Conditions" with the words "Contract Documents."

SC-7.12 Add the following Paragraphs after Paragraph 7.12.H:

H. The requirements of Paragraph 7.12 shall apply continuously and not be limited to normal work hours.

I. Observation of Contractor's performance by Engineer is not intended to include review of the adequacy of Contractor's safety measures on or near the Site.

J. Contractor shall be responsible for any safety violation and/or fine that may occur because of any neglect by Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them, or any third party.

K. Unless otherwise specified, Contractor has responsibility for the design and safety of excavations. Engineer and Owner will not provide any excavation design, nor should excavation design be presumed to be contained in the Contract Documents. Engineer and Owner will not assist Contractor in classifying soils or interpreting applicable regulations.

L. Additional provisions regarding Contractor's responsibilities for health, safety, and protection may be included in Division 01 (General Requirements) of the Technical Specifications.

M. Contractor shall require its Subcontractors and all lower-tier subcontractors to comply with all applicable safety Laws and Regulations and safety programs applicable to the work.

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 Coordination

SC-8.02 Add the following paragraphs after Article 8.02.B:

C. Owner intends to contract with a software programmer (In Control, Inc.) for the development and implementation of software to be installed on control system hardware provided by Contractor. Contractor shall coordinate with In Control, Inc. as stated in Specification Section 40 90 00 Instrumentation and Control for Process Systems.

D. Owner intends to contract with a camera surveillance contractor for installation and implementation of cameras at the locations indicated on the Drawings. Contractor shall run cable and conduit to these locations as shown on the Drawings.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-*10.03 Project Representative*

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

Contractor shall observe the following additional instructions as to reporting and authority over the Work:

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
4. Liaison:
    a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
    b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
    c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

6. Shop Drawings and Samples:

    a. Record date of receipt of Samples and Contractor-approved Shop Drawings.

    b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

    c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

8. Review of Work and Rejection of Defective Work:

    a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

    b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

9. Inspections, Tests, and System Start-ups:

    a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

    b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

10. Records:

    a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

    b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

    c. Maintain records for use in preparing Project documentation.

11. Reports:

    a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.

    b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.

    c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

    a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.

    b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

    c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in the Contract Documents, including, but not limited to, issuing clarification or interpretation of the requirements of the Contract Documents.

3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

SC-*13.01 Cost of the Work*

SC 13.01 Delete Paragraph 13.01.B.5.c in its entirety and insert the following in its place:

c. Construction Equipment and Machinery:

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor will be paid at a rate shown for such equipment in the "Rental Rate Blue Book" published by Dataquest, Inc. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs. Costs will include the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, shall cease to accrue when the use thereof is no longer necessary for the changed Work. Equipment or machinery with a value of less than $1,000 will be considered small tools.

ARTICLE 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

SC-*14.01 Access to Work*

SC -14.01 Add the following new Paragraph immediately after Paragraph 14.01.A.

B. Said access shall conform to all requirements of the regulatory agency or agencies who claim jurisdiction over the safety of the project site. Contractor shall provide, at its non-reimbursed cost, all scaffolding, fall protection, ventilation, and similar items needed for required third-party observation and testing, not including personal protective gear of others. Failure by Contractor to provide safe access for the above parties will be a default of the provisions of the Contract Documents as provided for in Paragraph 16.02.A.4.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-*15.01 Progress Payments*

SC-15.01 Delete the first sentence in Paragraph 15.01.B.1 in its entirety and insert the following in its place:

Not more than once per month, Contractor shall submit to Engineer for review an Application for Payment, on forms furnished by Engineer or otherwise acceptable to Engineer, filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

SC-15.01 Delete the word "Ten" in Paragraph 15.01.D.1 and replace with "Thirty"]

SC-*15.03 Substantial Completion*

SC 15.03 Add the following new subparagraph immediately after Paragraph 15.03.B:

If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

SC-*15.07 Waiver of Claims*

SC-15.07 Delete the word “Owner” from Paragraph 15.07.B and replace with the following:

“Owner and Engineer and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each”

END OF SECTION 00 73 00

Division 01

General Requirements

01 11 00

SUMMARY OF WORK

PART 1: GENERAL

1.01 CONTRACT DOCUMENTS

A. The Contract Documents are defined in the Agreement. The terms of the Contract Documents apply to these Specifications as though fully repeated herein.

B. The format of these Specifications is based upon the CSI MASTERFORMAT; however differences in format and subject matter location do exist. It is Contractor's sole responsibility to thoroughly read and understand these Specifications and request written clarification of those portions that are unclear.

C. The division of the Work as described in these Contract Documents is for the purpose of specifying and describing work that is to be completed. There has been no attempt to make a classification according to trade or agreements that may exist between Contractor, Subcontractors, trade unions, or other organizations. Such division and classification of the Work shall be Contractor's sole responsibility.

1.02 PROJECT INFORMATION

A. Project Description: The Work generally consists of the following: construction of new Wellhouse 16, new raw waterline using Horizontal Directional Drilling (HDD) from Well 16 to Water Treatment Plant 1, and waterline connection at Water Treatment Plant 1. Alternative bid items include architectural upgrades at existing Wellhouses 8 and 9.

B. Project Identification: Wellhouse 16.

C. Project Locations:

1. Wellhouse 8: 609 Silver Lake Rd NW, New Brighton, MN 55112.

2. Wellhouse 9: 2705 5th St NW, New Brighton, MN 55112.

3. Wellhouse 16: 2705 5th St NW, New Brighton, MN 55112.

4. Water Treatment Plant 1: 3001 5th St NW, New Brighton, MN 55112.

1.03 PERMITS

A. Perform Work in accordance with applicable Laws and Regulations.

B. Secure all licenses and permits necessary for the execution of the Work.

C. Contractor shall obtain and pay for all fees for the required permits, unless otherwise noted below. Work cannot begin until all permits are received. The regulatory requirements for construction of the work shall include, but are not limited to:

1. City of New Brighton

a. Plan Review (there will be no fee)

b. Building Permits (there will be no fee)

2. Minnesota Department of Health (MDH)

a. Plan Review (Owner will submit). Approval required prior to construction.

3. City of New Brighton and Ramsey County

a. Traffic Control Review

1.04 WORK COVERED BY CONTRACT DOCUMENTS

A. The overall scope of the Work, which is more fully described in these Contract Documents, includes, but is not necessarily limited to, furnishing all labor, tools, equipment, and materials necessary for Contractor to:

1. Obtain all permits necessary to complete the Work.

2. Mobilize and demobilize labor, equipment, and materials.

3. Provide erosion and sedimentation control.

4. Provide temporary facilities and utilities.

5. Provide traffic control.

6. Remove existing pavement as shown on Drawings.

7. Provide new Wellhouse 16 building, including but not limited to:

a. Cast-in-place concrete foundations, slabs, and pads,

b. Process piping,

c. Valves and actuators,

d. Air relief valves,

e. Flowmeter,

f. Mechanical (HVAC and plumbing) systems,

g. Controls system hardware including radios, PLCs, operator interfaces, and instrumentation,

h. Electrical power, control and communication systems and equipment.

8. Provide electrical power, control and communication systems and equipment.

9. Provide seepage pit manhole, process piping, and appurtenances.

10. Provide raw waterline, including but not limited to, the following:

a. Waterline piping,

b. Gate valves, and

c. Hydrant.

11. Install waterline using Horizontal Directional Drilling (HDD) from Well 16 to Water Treatment Plant 1.

12. Perform demonstration testing, commissioning, and acceptance testing.

13. Disinfect all waterline piping and equipment.

14. Conduct hydrostatic pressure testing on all piping installed under this contract,

15. Perform bacteria sampling for potable water systems.

16. Provide bituminous and concrete paving.

17. Regrade site to maintain and improve drainage.

18. Provide site restoration, clean-up, and demobilization.

19. Perform quality requirements described in the Project Manual, including testing and surveying.

20. Other Work as shown on Drawings.

B. It is the intent of the Contract Documents to cover all aspects of the Project. Should there be some item or items not shown on the Drawings or not described in these Specifications which are required for the Work, providing those items shall be considered incidental to the Work at no additional cost to Owner.

C. Equipment furnished shall be in safe operating condition and of adequate size, capacity, and condition for the performance of the Work.

D. Obtain all measurements necessary for the Work and be responsible for establishing all dimensions, levels, and layout of the Work. Where Work of one trade joins to or is part of other Work, there shall be no discrepancy or incompleteness in the finished Work.

E. Supervise, inspect and direct the Work competently and efficiently, devoting such attention and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Means, methods, techniques, sequences, and procedures of construction are solely Contractor's responsibility. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

F. All work shall be done in accordance with applicable Laws and Regulations.

1.05 WORK COVERED BY OTHERS

A. Owner will perform the following tasks related to the Work:

1. Coordinate operation of isolation valves within its water distribution system.

2. Furnish water for equipment, pump, and pipe testing.

3. Assist with start-up of each system after Work has been substantially completed.

4. Attend new equipment training provided by Contractor.

B. Electrical utility provider will perform the following tasks related to the Work:

1. Provide associated services as indicated on the Drawings, in Specification Section 26 20 00, and as required by utility standards.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 11 00

SECTION 01 14 19

USE OF PREMISES

PART 1: GENERAL

1.01 SUMMARY

A. Section includes:

1. Contractor use of Site, including remote Sites
2. Work hours
3. Disruption of utilities

1.02 SUBMITTALS

A. No submittals are required from this Section.

1.03 CONTRACTOR USE OF SITE

A. Coordinate with Engineer and Owner to limit operations, including materials and equipment storage, to the areas agreed upon prior to performance of the Work.

B. Coordinate with Engineer and Owner to identify property limits at the Site prior to commencement of any construction activity.

C. When unfavorable weather, soil, drainage, or other unsuitable construction conditions exist, confine operations to tasks that will not be adversely affected by such conditions. Construct no portion of the Work under conditions that would adversely affect the quality of the Work, unless special means or precautions are taken to perform the Work in a proper and satisfactory manner.

D. Confine hours of operation to between 7 AM and 7 PM local time Monday through Friday and 9 AM to 5 PM local time Saturday. No Work shall be allowed outside of these hours or on legal holidays without written approval by Owner. This includes staging and operation of machinery; delivery of equipment, materials and machinery to the Site; construction activity; and any other activity that, in the opinion of Owner, may be disrupting to the surrounding community or the operations of Owner.

1. For portions of the project that require water supply disruption (if required), coordinate timing of these tasks with Owner. These tasks may be required to be performed during off-peak or overnight hours.

E. Coordinate with Engineer and Owner to identify project Site access, parking, and staging areas. If additional access is desired, submit plan to Owner for review and approval. Access shall not disturb traffic on city streets. Any damage to existing pavements or ground surfaces caused by access shall be restored to pre-construction conditions prior to demobilization.

F. Owner approval is required prior to storing any materials on Site.

1.04 UTILITIES

A. Immediately resolve any disruptions caused by Contractor activity or inactivity that result in shut down of any utility service, other than those service disruptions scheduled and approved by Owner.

B. Contractor shall be responsible for any costs associated with the unscheduled facility or utility service shutdown and its resolution to bring the services back to normal operation, including, but not limited to, cost for storage; piping; pumping; trucking; cleanup; or labor costs, fees, fines, or penalties incurred by Owner related to the service disruption.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 14 19

SECTION 01 29 00

MEASUREMENT AND PAYMENT

PART 1: GENERAL

1.01 SUMMARY

A. This Section describes the measurement and payment for the Work to be done under the items listed in the Bid Proposal.

B. Each unit or lump sum price stated on the Bid Proposal shall constitute full compensation as specified herein for each item of Work completed in accordance with the requirements of the Contract Documents including the Drawings and Specifications, including all cleanup and restoration.

C. All costs in connection with the Work, including furnishing all materials, machinery, supplies and appurtenances; providing all construction equipment and tools; and performing all necessary labor, coordination, supervision, and management to fully complete the Work shall be included in the unit or lump sum prices quoted on the Bid Proposal. All Work not specifically set forth as a separate item shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the amounts and prices submitted in the Bid Proposal.

D. Payment for Work shall be in accordance with the terms and conditions set forth in the Contract Documents and Contractor's prices set forth in Contractor's conformed Bid Proposal.

1.02 RELATED SECTIONS

A. Section 01 33 00 Submittals

B. Section 01 77 00 Closeout Procedures

1.03 ESTIMATED QUANTITIES

A. All estimated quantities for unit price items in the Bid Proposal are approximate and are to be used only as a basis for estimating the Total Contract Price. The actual amount of Work completed or materials furnished under the unit price items may differ from the estimated quantities. The basis of payment for Work or materials furnished or placed will be the actual amount of Work completed or material furnished and placed. Contractor agrees to make no claim for damages, anticipated profits, or otherwise that are due to any difference between the amounts of Work actually performed or materials furnished and placed and the estimated amounts included in the Bid Proposal. The unit prices in the Bid Proposal shall not be adjusted if actual quantities of Work vary from estimated quantities in the Bid Proposal. Owner reserves the right to adjust estimated quantities (including removing the item completely) based on testing and field conditions.

1.04 INTENT OF BID PROPOSAL ORGANIZATION

A. The Bid items set forth in the Bid Proposal are intended to represent the entire and complete Project as set forth in the Contract Documents.

B. Where Bid items are based on Lump Sum Prices, partial progress payment for those items shall be made in accordance with monthly estimates of percent completed for each item included in the breakdown in Contractor's approved Schedule of Values, unless noted otherwise.

C. Where Bid items are based on Unit Prices, progress payments shall be based on the actual quantities of each item of Work completed in accordance with the Contract Documents. The procedures for submitting and processing progress payments are set forth elsewhere in the Contract Documents.

D. Partial progress payment for Work shall be in accordance with the terms and conditions set forth elsewhere in the Contract Documents and the Contractor's Bid prices set forth in Contractor's conformed Bid Proposal.

E. The paragraphs below describe the materials, equipment, labor, and supplies that are included in each of the Bid items.

1.05 BASE BID ITEMS

A. Wellhouse 16

1. Method of measurement: Wellhouse 16 shall be measured on a single Lump Sum (LS) unit.

2. Basis of Payment: Contractor shall be paid a Lump Sum (LS) Price for Wellhouse 16. The lump sum price shall constitute full compensation for all Work completed in accordance with the Contract Documents, including furnishing all materials, machinery, supplies and appurtenances, except when noted; providing all construction equipment and tools; and performing all necessary labor, coordination, supervision, management, overhead and profit to fully complete the Work. All Work not specifically set forth as a separate bid item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the lump sum price submitted in the Bid Form.

B. Utility Company Allowance

1. Method of measurement: Utility Company Allowance shall be measured on a single Lump Sum (LS) unit.

2. Basis of Payment: Contractor shall be paid a Lump Sum (LS) Price for Utility Company Allowance, as specified in Paragraph 1.06 of this Section, all complete as specified.

C. Access Control System Allowance

1. Method of measurement: Access Control System Allowance shall be measured on a single Lump Sum (LS) unit.

2. Basis of Payment: Contractor shall be paid a Lump Sum (LS) Price for Access Control System Allowance, as specified in Paragraph 1.06 of this Section, all complete as specified.

1.06 ALLOWANCES

A. Allowances shall be included in Contractor’s Utility Company Allowance Lump Sum Price listed on the Bid Proposal, see Paragraph 1.05B for additional information. Contractor’s cost for

overhead and profit shall be excluded in the allowance. Upon completion of allowance Work, provide receipts to Engineer. The Contract Price will be adjusted by Change Order if the actual cost is more than or less than the cost as specified in the allowance listed below.

B. Schedule of allowances:

Allowance	Amount	Description
1	$20,000	Utility company charges allowance: • Xcel Energy charges to provide associated services to Wellhouse 16 as indicated on the Drawings and Specifications.
2	$20,000	Access control system allowance: • Access control system charges to provide associated equipment and services to Wellhouse 16 as indicated on the Drawings and Specifications.
Total	$40,000	

1.07 ALTERNATE BID ITEMS

A. Wellhouse 8 Improvements

1. Method of measurement: Wellhouse 8 Improvements shall be measured on a single Lump Sum (LS) unit.

2. Basis of Payment: Contractor shall be paid a Lump Sum (LS) Price for Wellhouse 8 Improvements, The lump sum price shall constitute full compensation for all Work completed in accordance with the Contract Documents, including furnishing all materials, machinery, supplies and appurtenances, except when noted; providing all construction equipment and tools; and performing all necessary labor, coordination, supervision, management, overhead and profit to fully complete the Work. All Work not specifically set forth as a separate bid item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the lump sum price submitted in the Bid Form.

B. Wellhouse 9 Improvements

1. Method of measurement: Wellhouse 9 Improvements shall be measured on a single Lump Sum (LS) unit.

2. Basis of Payment: Contractor shall be paid a Lump Sum (LS) Price for Wellhouse 9 Improvements, The lump sum price shall constitute full compensation for all Work completed in accordance with the Contract Documents, including furnishing all materials, machinery, supplies and appurtenances, except when noted; providing all construction equipment and tools; and performing all necessary labor, coordination, supervision, management, overhead and profit to fully complete the Work. All Work not specifically set forth as a separate bid item in the Bid Form shall be considered a subsidiary obligation of Contractor and all costs in connection therewith shall be included in the lump sum price submitted in the Bid Form.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 29 00

SECTION 01 31 00

PROJECT COORDINATION AND MEETINGS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes required meetings.

1.02 SUBMITTALS

A. No submittals are required from this Section.

1.03 COORDINATION

A. Coordinate all aspects of the Work and assure that the Work of the various Specification Sections is completed in an orderly sequence incorporating all interdependent elements.

1.04 PRECONSTRUCTION MEETING

A. Engineer will schedule a preconstruction conference that shall be attended by Contractor and Subcontractors. Representatives of Owner and Engineer will also attend. The meeting will be scheduled prior to the beginning of any Work at the Site. The purpose of the meeting will be to ensure that all parties understand their responsibilities and the procedures that will be used to assure efficient and proper completion of the Work.

B. The agenda for the preconstruction conference is anticipated to include the following topics:

1. Designation of responsible personnel;
2. Role of Owner, Engineer, and Contractor;
3. Communications;
4. Scope of Work;
5. Critical Work sequencing;
6. Distribution and discussion of the tentative construction schedule;
7. List of major subcontractors;
8. Procedures for processing Change Orders;
9. Distribution of Contract Documents;
10. Use of Site (including remote Sites) including equipment and material storage;
11. Erosion control, tree protection, and turf establishment;

12. Procedures for submittal;

13. Record documents and reporting; and

14. Site safety and security procedures.

1.05 PROGRESS MEETINGS

A. Progress meetings will be scheduled by Engineer at a frequency, time, and location mutually agreeable to Owner, Contractor and Engineer.

B. Each Application for Payment may be reviewed during one Progress Meeting each month prior to Contractor's submittal.

C. Attend all meetings and coordinate the attendance of subcontractors whose Work may be in progress at the time, or whose presence may be required for any purpose.

1.06 PRE-INSTALLATION MEETINGS

A. Pre-installation meetings (when required) will be scheduled by Contractor a minimum of 2 weeks prior to Work requiring such meetings being performed.

B. Attendees at these meetings shall include Contractor, installing contractor, material supplier, Owner, and Engineer/Architect.

C. Meeting agenda items will include, but are not limited to, schedule and sequence, mock-up construction, product delivery and storage, material compatibility, Site restrictions, and coordination of any required testing and observation.

1.07 UNSCHEDULED MEETINGS

A. Attend unscheduled meetings that may be reasonably requested by Engineer or Owner.

1.08 AFTER HOUR CONTACTS

A. Prior to beginning any Work at the Site, submit to Engineer the names of at least three (3) employees of Contractor who may be contacted after normal working hours in the event of an unanticipated condition requiring immediate attention.

B. At least one person should be available at all times for immediate response to the Site within 2 hours of being called. That person shall have authority to make field decisions for Contractor.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 31 00

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1: GENERAL

1.01 SUMMARY

A. Section includes submittal procedures.

1.02 GENERAL SUBMITTAL PROCEDURES

A. Transmit via email a PDF copy of each submittal labeled in sequential number order with the Project name, name of the submittal, and Specification Section and page number of these Contract Documents in which the submittal was requested. Indicate the type or purpose of the submittal, as more fully described elsewhere in this Section with regard to the Schedule of Submittals. A transmittal letter stating the same information shall accompany each submittal.

B. Transmit all submittals to Engineer at the email address given below:

1. Bryan Pitterle - BPitterle@barr.com

C. Apply Contractor's stamp, signed or initialed certifying that review and verification of products required, field dimensions, adjacent construction activities, and coordination of information, is in accordance with the requirements of the Work and Contract Documents. Unstamped or unsigned submittals and submittals that have not been thoroughly checked by Contractor will be returned without action. Submittals from Subcontractors or vendors will be returned without action.

D. Schedule submittals to expedite Project, and in accordance with the Schedule of Submittals to be prepared by Contractor. Coordinate submission of related items.

E. Identify all variations or deviations from the Contract Documents and identify alternative products or system limitations that may be detrimental to successful performance of the completed Work.

F. Provide an area for Contractor and Engineer review, stamps and comments.

G. Revise and resubmit submittals as required. Identify all changes made since previous submittal. Completion date extensions will not be granted for required submittal revisions.

H. Promptly distribute reviewed submittals to Subcontractors, Suppliers, and other concerned parties. Instruct parties to promptly report any inability to comply with provisions.

I. Do not proceed with any Work requiring review by Engineer until submittals have been reviewed and returned to Contractor.

J. All submittals that are made that are not specifically required by the Contract Documents will be returned without action.

1.03 SCHEDULE OF OPERATIONS

A. Submit Schedule of Operations as described below within 10 days of Notice of Award.

B. The Schedule of Operations shall be a detailed progress schedule indicating the starting and completion dates of the various stages of the Work. Include adequate contingencies for unanticipated conditions such as resubmittals, bad weather and material shortages.

C. The Schedule of Operations shall be in the form of a horizontal bar chart (Gantt chart) with a separate line for each detailed portion of the Work. The chart shall have vertical lines showing the first work day of each week. Indicate early and late start dates, early and late finish dates, and duration of tasks. Sufficiently annotate the bar chart to define all symbols and abbreviations used.

D. The Schedule of Operations shall be based on an assumption that Work will proceed within 30 calendar days following Bid opening. Within 7 calendar days following Notice to Proceed, resubmit the Schedule of Operations using Contractor's actual starting date.

E. If an extension in the Contract Time is granted in accordance with the terms of the Contract Documents, revise and resubmit the Schedule of Operations within 7 calendar days following the execution of the Change Order authorizing the change in Contract Time.

F. The Schedule of Operations will be reviewed by Engineer to determine if adequate detail has been presented for Engineer and Owner to schedule their activities. Engineer's review is not intended to include the adequacy of the schedule to meet the contract terms between Contractor and Owner. It is Contractor's sole responsibility to schedule its operations and provide all resources necessary to complete the Work in accordance with the approved Schedule of Operations. If Engineer requests additional detail in the Schedule of Operations, correct such deficiencies and resubmit the Schedule.

1.04 SCHEDULE OF VALUES

A. Submit an electronic copy of Schedule of Values as described below within 10 days of Notice of Award.

B. The Schedule of Values shall be a detailed cost breakdown for all of the Work and shall include quantities and unit prices of items aggregating the Contract Price. This schedule shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such unit prices shall include an appropriate amount of overhead and profit applicable to each item of Work.

C. The Schedule of Values shall be organized in a tabular format with the following columns (clearly labeled) as a minimum:

1. ITEM NUMBER: Number items according to the Section of these Specifications to which it corresponds.

2. ITEM DESCRIPTION: Written description of what the item consists of.

3. UNIT: The unit of measure upon which the unit price is based.

4. NUMBER OF UNITS: The number of units upon which the total price for the item will be based.

5. TOTAL UNIT PRICE: Sum of unit material price, unit labor price, and unit overhead and profit price.

6. EXTENSION: The total price for the item is determined by multiplying the number of units by the total unit price.

D. The Schedule of Values shall include a row labeled TOTAL EXTENSION that shall be the sum of the extension column for each of the individual items. The dollar value shown as the total extension shall match exactly the Contract Price as shown in the Agreement.

E. Progress payments will not be made for shop-fabricated materials prior to delivery to the Site.

F. The Schedule of Values shall be accompanied by a schedule of anticipated monthly payment requests, based on the Schedule of Operations and Schedule of Values.

G. The Schedule of Values is subject to the review and approval of Engineer and Owner. If, in the opinion of Engineer or Owner, the Schedule of Values does not contain sufficient detail or appears to be unbalanced, Engineer (or Owner) may ask Contractor to revise and resubmit the Schedule of Values and/or provide documentation to justify Contractor's distribution. Correct such deficiencies and resubmit.

1.05 SCHEDULE OF SUBMITTALS

A. Submit an electronic copy of Schedule of Submittals as described below within 10 days of Notice of Award.

B. The Schedule of Submittals shall be in tabular form listing all submittals required by the Contract Documents and the date on which Contractor will make submittal. As a minimum, the Schedule of Submittals shall consist of the following columns:

1. SUBMITTAL NUMBER: Number consecutively.

2. SECTION NO.: Section number or description of location in Contract Documents where submittal is requested.

3. PAGE NO.: Page number of the section in the Contract Documents where the submittal is requested.

4. ITEM: Description of item or items to which submittal pertains.

5. SUBMITTAL TYPE: A letter code indicating what type of submittal was requested. The type key shall be as follows:

a. Test Results and/or Certificates

b. Manufacturers Product Data (Informative only)

c. Shop Drawings

d. Record Documents

e. Samples

f. Operation and Maintenance Instructions

g. Administrative, such as schedules

h. Product Warranties

6. DEFICIENCIES: The Manner in which the submittal or proposed alternate product does not meet the requirements of the Contract Documents.

7. ANTICIPATED SUBMITTAL DATE: Date on which Contractor anticipates submittal to be delivered to Engineer.

8. RESPONSE REQUIRED: Indicate “yes” if Contractor anticipates a response from Engineer and “no” if no response is anticipated.

C. **Do not list or submit submittals not called for in the Contract Documents.** Include all items for which Contractor proposes to use substitute or “or equal” products and for which these Specifications require approval for substitution.

D. Engineer will review the Schedule of Submittals and respond in writing, listing deficiencies. Correct deficiencies and resubmit Schedule of Submittals prior to beginning any Work.

1.06 SUBMITTAL OF TEST RESULTS AND CERTIFICATES (TYPE A)

A. When required in individual sections of these Specifications, or when required by reference specification, submit manufacturer's certificates and/or test results.

B. Indicate that material or product conforms to or exceeds the specified requirements and submit supporting data and affidavits.

C. When material or product meets Specifications, no action by Engineer is necessary.

1.07 SUBMITTAL OF MANUFACTURER'S PRODUCT DATA WHEN REQUESTED FOR INFORMATIONAL PURPOSES (TYPE B)

A. When required in individual sections of these Specifications, submit manufacturer's product data requested.

B. Mark each copy neatly to identify applicable products, models, options, and other data. Identify conflicts between manufacturer's instructions and Contract Documents.

C. When material or product meets requirements of Contract Documents, no action by Engineer is necessary.

1.08 SUBMITTAL OF SHOP DRAWINGS (TYPE C)

A. When required in these Specifications, submit Shop Drawings in accordance with the Schedule of Submittals.

B. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer that the materials and equipment Contractor proposes to provide meet the requirements of the Contract Documents and to enable Engineer to review the information for the limited purposes indicated below.

C. Before submitting each Shop Drawing:

1. Determine, verify, and note all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information;

2. Determine all issues regarding fitness for intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the Work;

3. Determine all information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

4. Review and coordinate each Shop Drawing with other Shop Drawings and with the requirements of the Work and the Contract Documents. Any disclaimers on Contractor's stamp or otherwise stated by Contractor on Shop Drawings shall not limit Contractor's responsibilities.

D. Engineer will review, make notations as appropriate, stamp, and return submittals to Contractor. Engineer's stamp and Contractor's required action are described below:

1. APPROVED. Contractor may proceed without further action.

2. APPROVED AS NOTED:

a. RESUBMITTAL NOT REQUIRED. Contractor shall review Engineer's notations and revise subject of submittal as required to conform to the requirements of the Drawings and Specifications before proceeding with the Work. Then, Contractor may proceed without further action.

b. REVISE AND RESUBMIT. Contractor shall review Engineer's notations and revise subject of submittal as required to conform to the requirements of the Drawings and Specifications before proceeding with the Work. Then, Contractor shall submit a revised copy of the submittal and may proceed without further action.

3. NOT APPROVED (RESUBMIT). Contractor shall review Engineer's notations, revise subject of submittal as required to conform to the requirements of the Drawings and Specifications, and resubmit to Engineer for additional action.

4. NOT REVIEWED. Engineer has not reviewed the submittal but will keep the submittal with the project records.

E. No Work shall be performed in connection with the fabrication or manufacture of equipment and materials until the data therefor have been reviewed by Engineer except at Contractor's own risk and responsibility. Work may proceed when submittals have been returned marked APPROVED or APPROVED AS NOTED, provided the Work is performed in accordance with Engineer's notations.

F. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer's review will not extend to those areas that Contractor is responsible for above. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Engineer's review and

approval of Shop Drawings shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents.

G. Engineer will review and return via email to Contractor within fourteen (14) calendar days following receipt. Do not proceed with related Work until approved submittal is returned.

H. If Engineer's comments require resubmittal, make the revisions indicated and resubmit as for an original submittal. Engineer will review as for an original submittal.

I. If Engineer's comments do not require resubmittal, make the revisions indicated and transmit to Engineer, via email, one clean first generation copy suitable for reproduction. This original shall bear Contractor's certification in accordance with the requirements of the General Conditions.

J. Following preparation and submittal of final corrected reproducible, Contractor shall reproduce and distribute to Subcontractors and/or Suppliers.

K. If actual installation does not conform to approved Shop Drawings, notify Engineer immediately on discovery. Revise approved shop drawings to note revisions and date discovered and submit with record documents.

1.09 RECORD DOCUMENT (TYPE D)

A. Submit all record documents (or clearly legible copies) prior to Final Completion.

B. Record documents consist of all Drawings, Specifications, Addenda, Change Orders, and Shop Drawings legibly annotated to reflect all changes made during construction.

C. Submit all record documents per Specification Section 01 77 00 Closeout Procedures.

D. Engineer will not review the submittal, but will keep the submittal with the project records.

1.10 SUBMITTAL OF SAMPLES (TYPE E)

A. When required in individual sections of these Specifications, submit the number of samples of materials, finishes, colors, as required.

B. Submit samples to illustrate functional and aesthetic characteristics of product, with integral parts and attachment devices. Coordinate with submittals for interfacing Work.

C. Submit samples of finishes from the full range of manufacturer's standard colors (or in custom colors if required), textures, and patterns for Engineer or Owner selection.

D. Engineer will return one sample of selected material or finish or will provide written comment on submitted material.

1.11 SUBMITTAL OF OPERATION AND MAINTENANCE INSTRUCTIONS (TYPE F)

A. Submit operation and maintenance instructions for all equipment and systems furnished.

B. Operating instructions shall be prepared specifically for each system or piece of equipment installed under this contract and shall consider the specific equipment and controls included.

C. All references, pictures, and diagrams regarding items not part of furnished equipment and systems shall be deleted. Instructions shall be complete for each separate system and shall cover:

1. Equipment functions, normal operating characteristics, and limiting conditions.

2. Assembly, installation, alignment, adjustment, and checking instructions.

3. Operating instructions for start-up routine and normal operation: regulations and control; shutdown; and emergency conditions.

4. Lubrication and maintenance schedules and instructions.

5. Guide to “troubleshooting.”

6. Parts list with manufacturer’s part numbers and parts diagrams.

7. Outline, cross sections, and assembly drawings; engineering data; and wiring diagrams.

8. Test data and performance curves, where applicable.

D. Submittal of operation and maintenance instructions shall be made prior to Final Completion.

E. When operation and maintenance instructions meet requirements of Contract Documents, no action by Engineer is necessary.

1.12 PRODUCT WARRANTY SUBMITTAL REQUIREMENTS (TYPE H)

A. Manufacturer’s product warranty submittals shall be submitted in conformance with the applicable requirements of this Section and the individual specification Sections.

1.13 ALTERNATE PRODUCTS

A. If Contractor proposes to use substitute products, then Contractor shall submit written application as required by the General Conditions. Alternate products or substitutions will not be pre-approved during bidding process, but can be evaluated after award of contact.

B. Submit copies of literature, drawings, and any other data necessary to substantiate that proposed substitute is equivalent or equal to the item named, and otherwise meets the conditions established in the General Conditions.

C. Do not proceed with product installation or use until written approval by Engineer is received in accordance with the General Conditions.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 33 00

SECTION 01 35 00

SPECIAL PROCEDURES AND SAFETY

PART 1: GENERAL

1.01 SUMMARY

A. Section includes:

1. Health, safety, and security requirements

2. Sequence of operations and special procedures

1.02 SUBMITTALS

A. Health and Safety Plan

B. Safety data sheets for all products brought to the Site

1.03 HEALTH AND SAFETY REQUIREMENTS

A. Contractor shall be solely and completely responsible for job-site conditions and safety procedures and programs on the Site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours. Observation of the Work by Owner or Engineer is not intended to include review of the adequacy of Contractor's safety procedures and programs on or near the Site.

B. Comply with all relevant OSHA standards.

C. Implement and enforce health and safety requirements, take necessary precautions, and provide protection for the following:

1. Personnel working on or visiting Site, irrespective of employer.

2. Work and materials or equipment to be incorporated in Work area (on-site or off-site).

3. Other property at or adjacent to Site.

4. Public exposed to job-related operations or potential release of toxic or hazardous materials.

D. Submit site-specific Health and Safety Plan (HASP)

1. Contractor shall be solely responsible for adequacy, preparation, monitoring, management, and enforcement of the HASP.

2. Submit for information copies of HASP within 5 days after Notice to Proceed. Work shall not proceed until HASP has been received.

a. Submittal of Contractor's HASP is to inform Owner and Engineer so they can comply with HASP during performance of their on-site responsibilities.

b. Submittal of Contractor's HASP shall neither impose on Owner's or Engineer's responsibility for adequacy of HASP nor relieve Contractor from full responsibility therefore.

3. HASP to address, at a minimum, the following:

a. Site description.

b. Project activities and coordination.

c. Hazard evaluation.

d. On-site safety responsibilities.

e. Work zones, if applicable.

f. Personnel training.

g. Atmospheric monitoring, if applicable.

h. Personal protective equipment (PPE)

i. Emergency procedures, phone numbers, emergency vehicle routes, and nearest medical assistance.

j. First aid and fire protection equipment and supply

k. Site visitors.

l. Site security, Site access, and Site control.

E. Contractor is responsible for its Subcontractors and Suppliers and shall ensure they follow Contractor's HASP.

F. Appoint a responsible person familiar with legislated requirements for construction safety. Responsible person shall be familiar with such safety requirements as well as Owner's safety requirements and ensure that they are enforced. The responsible person shall be dedicated to site safety and have a project site presence.

G. Inform Owner immediately of accidents, near misses, and potential hazards and be responsible for giving the required notice of accidents to government authorities as required by law.

H. Contractor shall be responsible for general safety and conduct of employees and ensure that:

1. Equipment is operated and maintained only by persons qualified by adequate training and experience.

2. Employees do not trespass beyond boundaries established for work of this Contract unless required to do so in pursuance of work of this Contract.

3. All protective personnel safety equipment is worn or used in keeping with the hazards of work being carried out and as required by Owner.

4. Ensure employees are familiar with safety rules and regulations on the site.

I. Provide suitable barricades around all excavations, openings and other potentially dangerous areas and remove the barricades when they are no longer necessary.

J. Provide adequate lighting at all excavations, openings and other potential dangerous areas during the hours of darkness.

K. Remove snow as necessary for safe and adequate performance of the work.

L. Provide and use Ground Fault Interrupters (GFI's) in any damp, wet, or any conditions requiring such protection.

M. Provide locks for each employee for the purpose of locking out equipment.

1.04 EMERGENCIES

A. In emergencies affecting the safety or protection of persons, the Work, or any property adjacent to the Work, Contractor, without special instruction from Owner or Engineer, is obligated to act to prevent threatened damage, injury, or loss. Give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been created by such emergency. If Engineer or Owner determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Order will be issued to document the consequences of such action.

1.05 FUEL STORAGE AND SPILLS

A. Contractor shall be responsible for safe and proper fuel storage in accordance with the material data sheet, legal requirements, and Owner requirements.

B. Contractor shall be responsible for safe and proper refueling and fuel handling in accordance with the material data sheet, legal requirements, and Owner requirements.

C. All spills shall be contained and reported immediately in compliance with the material data sheet, legal requirements, and Owner requirements.

1.06 SEQUENCE OF OPERATIONS AND SPECIAL PROCEDURES

A. All arrangements, measurements, and planning shall be done in advance of taking any existing facilities that are operating out of service.

B. All materials shall be onsite and ready for installation prior to start of any Work requiring service interruption of Owner’s water treatment or distribution system.

C. Notify Owner and Engineer of a planned equipment shutdown or other interruption of service at least 7 calendar days prior to commencement of planned shutdown.

1. Submit to Engineer a written description of the procedure and schedule of the Work proposed 7 calendar days prior to commencement of planned shutdown.

2. The schedule and procedure shall be reviewed by Engineer and coordinated with Owner prior to commencement of planned shutdown.

D. Maintain access to the Site at all times.

E. Perform disinfection of all new and existing process piping, appurtenances, and tanks in accordance with Section 43 20 00. Schedule disinfection procedures not sooner than two weeks prior to Substantial Completion, or as approved by Engineer.

F. Conduct the Work required in such a manner as to minimize interference with Owner's:

1. Operation of the existing water treatment and distribution system.

G. Cooperate with Owner's operating personnel, and accommodate all reasonable requests for assistance in providing for the continuation of system operations.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 35 00

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes general quality control, including workmanship, manufacturer's instructions and certificates, and code compliance.

1.02 GENERAL

A. Maintain quality control over Suppliers, manufacturers, products, services, Site conditions, and workmanship to produce Work of the specified quality.

B. Maintain records of tests and results for reference by Engineer and Owner at any time.

C. Furnish copies of all test results and quality control procedures as part of Record Documents.

D. Comply fully with manufacturer's instructions, including each step in sequence.

E. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

F. Obtain copies of, and meet the requirements of, reference specifications. Should specified reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

G. Comply with specified reference standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

H. Perform Work by persons qualified to produce workmanship of specified quality. Use persons licensed to perform Work where required by these Specifications or Laws and Regulations.

I. Secure products and Work in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

J. Materials furnished and finished, or intermediate stages of the Work shall be sampled, tested and inspected as specified in the individual Specification Sections and as required by reference specifications.

K. Performance of tests or observations by Engineer or Owner are for the sole benefit of Engineer and Owner, and are not intended to replace Contractor's quality control program. Contractor is solely responsible for establishing and implementing a quality control program to ensure that the Work is in accordance with the Contract Documents.

L. It is Contractor's responsibility to notify Engineer when Contractor believes Work (or intermediate stages or parts of Work) is of specified quality, and to permit Engineer to perform independent tests or analyses.

M. The contractual relationship of the parties to the Agreement shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.03 MILL TESTS

A. Mill or shop tests shall be conducted, and test results, certificates and/or affidavits shall be submitted, as required in the individual Specification Sections. Make submittals in accordance with the requirements of Specification Section 01 33 00 Submittal Procedures. Mill tests refer to those tests typically performed as part of the manufacturer's standard quality control program, and not specifically performed for this Project.

B. Mill or shop tests shall be accomplished by the manufacturer, fabricator, or Supplier of the product. Mill tests may be conducted by an independent testing laboratory, and shall be conducted in accordance with specific or standard procedures as specified. Applicable ASTM procedures shall be used if other procedures are not specifically required.

C. The cost of mill tests shall be incidental, and no additional compensation will be provided.

1.04 FACTORY TESTS AND OBSERVATION

A. Factory tests shall be conducted and test results, certificates and/or affidavits shall be submitted as required in the individual Specification Sections. Make submittals in accordance with the requirements of Specification Section 01 33 00 Submittal Procedures. Test results shall be submitted prior to the shipment of the tested equipment.

B. Factory tests shall be conducted to establish the performance, capacity, rating, efficiency, or function of process, mechanical, electrical, or other equipment or materials. Factory tests refer to those tests made by manufacturers, fabricators, Suppliers, or Contractor specifically for this Project.

C. Factory tests shall be conducted in the factory or shop where the item is being fabricated. The test shall be set up and accomplished by the equipment manufacturer who shall provide all shop space, tools, equipment, instruments, personnel, and other facilities required for the satisfactory completion of each test.

D. Factory tests may be witnessed by Owner, or Engineer, or their representatives. Notify Engineer at least 10 working days in advance of testing to allow Engineer or Owner opportunity to witness. Failure of Contractor to notify will be grounds for rejection of the test results, and Contractor may be required to repeat testing and/or replace affected Work.

E. The cost of factory tests shall be incidental, and no additional compensation will be provided.

1.05 LABORATORY TESTS

A. Laboratory tests shall be conducted, and test results, certificates, and/or affidavits shall be submitted, as required in the individual Specification Sections. Make submittals in accordance with the requirements of Specification Section 01 33 00 Submittal Procedures. Laboratory tests refer to those tests made by manufacturers, fabricators, Suppliers, or Contractor specifically for this Project and conducted by an independent testing laboratory.

B. All laboratory tests shall be made by an independent testing laboratory approved by Owner or Engineer. Those tests shall be performed in accordance with the specified procedures or in accordance with applicable ASTM procedures if no reference is included.

C. Laboratory tests may be witnessed by Owner, or Engineer, or their representatives. Notify Engineer at least 2 working days in advance of testing to allow Engineer opportunity to witness. Failure of Contractor to notify will be grounds for rejection of the test results and may require Contractor to repeat testing and/or replace affected Work.

D. Contractor shall conduct routine testing of materials used in the Work to satisfy itself that the quality of the Work meets the requirements of the Contract Documents. Owner or Engineer may also conduct routine sampling and analysis to ascertain the same. Where laboratory testing or material specifications or quality control requirements are specified in the individual Specification Sections, Contractor shall not proceed with phases of the Work until Owner or Engineer have had opportunity to collect samples or conduct testing necessary to establish the specified quality of the Work. Such instances may include, but are not limited to, soil compaction control, soil gradation testing, moisture content testing, testing of finishes, testing for chlorine residual or other water quality parameters, testing of roofing samples, or any other specified tests.

E. Contractor shall pay for all specified laboratory testing. Owner will pay for testing Owner desires other than that required by these Specifications. If testing by Owner identifies defective Work, Contractor shall pay for all subsequent sample collection and testing costs performed by Owner or Engineer that are required by Engineer or Owner to convince Owner that the defective Work has been repaired or replaced.

1.06 FIELD TESTS

A. Conduct field tests and submit test results, certificates, and/or affidavits as required in the individual Specification Sections. Make submittals in accordance with the requirements of Specification Section 01 33 00 Submittal Procedures.

B. Conduct field tests in accordance with the individual Specification Sections to establish the quality of complete systems or individual components of process, mechanical, and electrical equipment including, but not limited to, piping systems, electrical systems, control systems, ventilation systems, heating systems, water mains, sewers and drains, tanks and vessels, and similar facilities.

C. Conduct field tests to establish the performance, capacity, function, efficiency, tightness, leakage, operating characteristics, or other special requirements. Conduct tests in accordance with specified procedures or standards. Use applicable standards or codes where none are specified.

D. Field tests shall be set up and conducted by party responsible for performing the test. Provide all tools, equipment, instruments, personnel and other facilities required for the satisfactory completion of each test, and observation of such tests by Owner or Engineer.

E. Field tests may be witnessed by Owner, or Engineer, or their representatives. Notify Engineer at least 4 working days in advance of testing to allow Owner or Engineer opportunity to witness. Failure of Contractor to notify will be grounds for rejection of test results and Contractor may be required to repeat testing and/or replace affected Work.

1.07 SURVEYING

A. Contractor shall furnish quality control surveys of the Work including record survey and shall set construction stakes establishing lines, slopes, and elevations for grading.

B. Contractor shall conduct operations so as to preserve benchmarks and survey reference point. Contractor will be charged the expense of repairing or replacing survey markers and shall be responsible for mistakes or lost time that result from damage or destruction of survey markers due to Contractor's operations.

C. Contractor may conduct additional surveys for any reason at their own expense.

1.08 WHOLE-BUILDING AIR LEAKAGE TEST

A. An independent Testing Agency retained and paid for by Owner will verify that the completed building enclosure meets the air-leakage performance criteria required by the Minnesota Energy Code and the contract documents.

B. If the building fails the Whole-Building Air Leakage Test, Contractor shall perform additional air-sealing at no additional cost to Owner. Additional tests or inspections to be paid for by Contractor.

1.09 TESTING SCHEDULE

A. The following table includes, but is not limited to, tests to be performed as part of this Project. Additional information regarding these tests can be found in the individual Specification Sections. Additional tests or inspections may be requested by Owner.

B. Coordinate all testing to be paid for by Owner with Owner's Representative or Engineer/Architect.

Specification Section	Specification Title	Test Description	Responsible for Performing	Responsible for Payment
03 30 00	Cast-in-Place Concrete	Air, slump, temperature, and compressive strength	Independent Testing Agency	Owner
04 05 13	Masonry Mortar	Mortar water retentivity, slump, compressive strength, and composition	Independent Testing Agency	Owner
04 05 16	Masonry Grouting	Slump, compressive strength	Independent Testing Agency	Owner
04 20 00	Unit Masonry	CMU Prisms and compressive strength	Contractor	Owner
23 33 15	Louver and Dampers	HVAC adjusting and balancing	Independent Testing Agency	Contractor
31 23 00	Excavation and Fill	Compaction for utilities and structures	Independent Testing Agency	Owner
33 10 00	Water Utilities	Pressure/leakage test	Contractor	Contractor
		Conductivity	Contractor	Contractor
		Disinfection and Bacteriological testing	Contractor	Contractor
43 20 00	Process Piping and Appurtenances	Pressure test	Contractor	Contractor
		Disinfection	Contractor	Contractor
43 22 24	Deep Well Pump, Motor	Well pump motor testing results	Contractor	Contractor
		Test pump of final pumps and motors installed	Contractor	Contractor
Drawing S003	Structural Notes and Specifications	Special Inspections	Independent Testing Agency	Owner

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 40 00

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes temporary utilities, access, traffic control, structures, and clean-up.

1.02 SUBMITTALS

A. Traffic Control Plan

1. Submit traffic control plan to the City of New Brighton and Ramsey County (if necessary) for approval and to Engineer for documentation prior to implementation. Plan shall include proposed signage and proposed location of all signage, flagmen and detours. Plan must be approved by the City and County (if necessary) prior to implementation.

1.03 UTILITIES

A. Water

1. Coordinate with Owner for water use for activities related to the Work.

2. All service connections will be made by Contractor at their own expense.

3. Owner will provide water at no additional fee.

4. Water will be used only to the extent required by construction.

B. Sanitary Facilities

1. Provide sanitary facilities for use by Contractor’s employees, Subcontractors, and Suppliers working on the Site.

2. Provide sanitary facilities with lockable doors when in use.

3. Maintain in a clean and useable condition.

4. Maintain until completion of the Work, unless Engineer or Owner approves earlier removal.

C. Electricity and Lighting

1. Contractor shall arrange for and furnish all electric power as necessary for completion of the Work. Should Contractor need electric power service for Contractor's purposes, it shall be the Contractor's responsibility to arrange for and pay for such service. Contractor shall include costs for electric power in Contract Price and no additional compensation will be provided.

2. Provide temporary lighting to sufficiently illuminate Work areas. Protect lights with guard cages.

1.04 TEMPORARY ENCLOSURES AND HEAT

A. Provide secure, weathertight temporary enclosures and closures as required to retain heat so that specified temperatures can be maintained for the performance of the Work and to protect previously completed Work.

B. Unless specifically stated otherwise, temperatures inside the enclosures shall be not less than 60°F for 48 hours prior to and during the time when concrete work, cement finishing, masonry work, or painting or sealing are being done or being cured, and not less than 50°F where any personnel are working or where pipes contain water or other fluids that could freeze.

C. Provide temporary closures over wall and floor openings.

1.05 EROSION AND SEDIMENT CONTROL

A. See Specification Section 31 25 00 Erosion and Sedimentation Control.

1.06 CLEANING

A. Clean the working area each day, remove all trash and waste materials, and maintain the Site in a neat and orderly condition throughout the construction period.

B. Remove all garbage, litter, debris, and other materials, attributable to the Work or construction activities, that accumulates in the vicinity of the Site.

C. See Specification Section 01 77 00 Closeout Procedures for additional cleaning information.

1.07 ROADS/DUST CONTROL

A. Maintain roads to provide access to the Work and all of Owner's and other's facilities for the entire duration of the construction. Roads shall be passable for their intended use at all times in all weather conditions and shall be maintained in a graded and rut-free condition.

B. As required, provide temporary surfacing of roads and driveways necessary to maintain those in passable condition under all weather conditions by typical passenger vehicles. Temporary surfacing shall consist of graded rock and granular material as required to provide a stable driving surface.

1.08 SIGNS, FENCES, BARRICADES, TRAFFIC, AND WATCHMEN

A. No signs, billboards, or other advertisements shall be erected on the premises by Contractor without Owner's written permission.

B. Furnish and maintain all warning lights, barricades, informational signs, and watchmen as needed for the execution of the Work as required by the Contract Documents, Laws and Regulations, for the protection of persons and property, and control of traffic in accordance with applicable manuals for Uniform Traffic Control Devices. Barricades shall be painted a color visible at night, and shall consist of, at a minimum, snow fence or a similar material securely anchored to prevent entry of small children or unknowing persons.

C. Contractor shall coordinate with Engineer and Owner on the use of all barricades, warning lights, and traffic control signage on all public roadways.

D. At a minimum, barricades shall be required at all excavations that have potential to contain standing water and at all excavations more than 18 inches deep with side slopes on any exposure steeper than 3 units of horizontal run to 1 unit of vertical rise.

1.09 TRAFFIC AND PEDESTRIAN SAFETY CONTROL MEASURES

A. In accordance with generally accepted construction practices, Contractor is responsible for job-site conditions and safety procedures and programs, including safety and health of all persons and property, on those portions of the project area affected by or used by Contractor, employees, subcontractors, agents, and others during performance of the work. This requirement will apply continuously and not be limited to normal working hours. Contractor is responsible for the protection of property and the safety and health of its employees, subcontractors, suppliers, agents and others within the project area.

B. Contractor shall be responsible for keeping the site perimeter, crosswalks and trail crossings safe for the public on or adjacent to site for the duration of the work. Contractor shall be responsible for all site safety precautions.

1.10 TRAFFIC PERMITS

A. Contractor shall obtain any permits from federal, state or local agencies necessary for traffic control or road closings necessary for completion of the Work. Contractor shall perform Work in accordance to requirements of all permits.

1.11 TRAFFIC PUBLIC NOTICE

A. Contractor shall be responsible for any public notice regarding work in the right of way, road closings or detours as required by federal, state, or local agencies.

1.12 ACCESS

A. Contractor shall limit access to each work area as shown on the Drawings unless other arrangements are approved by Owner.

B. All public roadways and private driveways not shown as closed shall remain in service during construction, unless noted otherwise.

C. Contractor shall inspect and sweep paved surfaces to prevent dirt and mud from being tracked off site.

1.13 SITE SECURITY

A. As a minimum, provide temporary fencing around the full perimeter of the Work when the well is not secured, or whenever a safety hazard exists.

1.14 FIELD OFFICE

A. Field Office

1. Contractor may provide a weather-tight field office for use by Contractor and Subcontractors.

2. Coordinate Field Office location with Owner.

1.15 WATER CONTROL

A. See Specification Section 31 23 19 Dewatering.

1.16 COORDINATION

A. Coordinate any required utility connections with Owner and utility companies.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 DISSCONNECT AND REMOVAL

A. Disconnect any temporary power and water supply upon project completion and remove Contractor-supplied sanitary facilities upon project completion.

END OF SECTION 01 50 00

SECTION 01 73 29

CUTTING AND PATCHING

PART 1: GENERAL

1.01 SUMMARY

A. Section includes cutting and patching of existing products and building systems.

B. Requirements of this Section shall apply only to the extent that they do not conflict other specifications in these Contract Documents.

1.02 SUBMITTALS

A. Submit written request 48 hours in advance of cutting or alteration that affects:

1. Integrity of all weather-exposed or moisture resistant elements.

2. Efficiency, maintenance, or safety of any operational element.

3. Visual qualities of sight exposed elements.

4. Work of Owner or other contractors.

B. Include in request:

1. Identification of Project.

2. Location and description of affected Work.

3. Necessity for cutting or alteration.

4. Description of proposed Work and products to be used.

5. Alternatives to cutting and patching.

6. Date and time Work will be executed.

PART 2: PRODUCTS

2.01 MATERIALS

A. Use products that are new and identical to existing products. If identical products are not available or cannot be used, match existing adjacent surfaces to the fullest extent possible with products whose performance will meet or exceed the existing products.

B. Whole, sound, undamaged products that are removed during cutting may be reused only if approved by Engineer.

PART 3: EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Plan demolition Work in a professional manner such that the completed product is representative of quality workmanship.

B. Remove existing Work to no more than the extent required to construct new or alteration Work.

C. Carefully remove items to be reinstalled or salvaged.

D. Do not cut or patch structural elements in a manner that will reduce their load-carrying capacity or load-deflection ratio.

E. Do not cut or patch operating elements or safety related components in a manner that will result in reducing their capacity to perform as intended, result in increased maintenance, or result in decreased operational life or safety.

F. Inspect existing conditions and ensure that they are suitable for Work to begin, prior to commencement of cutting and patching Work.

G. Protect existing facilities from damage due to Work activities, equipment and worker traffic, and exposure to the elements:

1. Provide temporary supports, shoring, and bracing adequate to ensure structural integrity of the Work and to prevent damage of existing materials and systems.

2. Provide enclosures as necessary to protect areas of the Work from exposure to the elements.

3. Maintain excavations free of water.

H. Confine ingress and egress to access route(s) designated by Owner.

I. Secure openings in existing buildings and structures to prevent unauthorized entry.

3.02 CUTTING AND REMOVAL

A. Remove existing Work by cutting down in pieces without tumbling, throwing, or dropping, and in such a manner as will minimize damage to features to remain.

B. Execute Work by methods to avoid damage to other new and existing Work and prepare surfaces as required to receive patching and finishing.

C. Cut rigid materials using masonry saw or core drill.

D. Remove products consistent with the following requirements:

1. Concrete: Cut with power saw before removing. Chip only where sawing is impracticable. Cut reinforcing bars or mesh and coat ends with epoxy in accordance with ASTM D3963.

3.03 PATCHING AND REFINISHING

A. Prepare surfaces prior to patching, as follows:

1. Abrasive blast surfaces as required for proper preparation of surfaces to receive specified finish.

B. Patch and refinish products consistent with the following requirements:

1. Concrete:

a. Roughen and clean existing concrete surfaces to expose a sound concrete surface.

b. Trim edges of openings square and straight. Provide reinforcing steel where required to match existing Work.

c. Dampen existing concrete and scrub with Portland cement grout or epoxy concrete adhesive just prior to placing new concrete.

d. Use minimum 4,000 psi concrete.

e. Where use of concrete is impractical, fill openings with non-shrink grout.

f. Where cut edges are to remain exposed, finish edges with cement mortar at least 3/4-inch thick applied over epoxy adhesive.

g. Finish new concrete to match existing adjoining Work.

C. Provide air-tight fit to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

D. At penetrations in fire rated walls, partitions, ceilings, or floors, seal voids with fire rated material to full thickness of the penetrated element.

E. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

F. Wash existing paint with neutral soap or detergent, rinse, and sandpaper when dry. Remove defective or damaged paint and feather remaining edges smooth.

END OF SECTION 01 73 29

SECTION 01 75 00

STARTING AND ADJUSTING

PART 1: GENERAL

1.01 SUMMARY

A. Section includes

1. Starting systems.

2. Demonstration and instructions.

3. Testing, adjusting, and balancing.

B. Coordinate and plan the start-up of the individual pieces of equipment and systems and to demonstrate that the entire completed Work meets the requirements of these Contract Documents.

1.02 SUBMITTALS

A. Testing reports

1.03 INITIAL START-UP OF EQUIPMENT

A. Coordinate the schedule for start-up of individual pieces of equipment with the necessary controls, piping, wiring, and other related Work so that start-up is attempted only after Work has progressed and additional installation or modification will not be required after start-up.

B. Notify Engineer 7 calendar days prior to start-up of each piece of equipment or system.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, pressure relief, wiring, operating speed, and any other conditions that may cause damage to the equipment, personnel, or other portions of the Work.

D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer. Verify that wiring and support components for equipment are complete and tested.

E. Execute start-up of equipment in accordance with requirements of relevant individual Specification Sections and, in the absence of other instructions, in accordance with manufacturer's instructions. Review manufacturer's instructions prior to start-up and inform Engineer of any conflicts or discrepancies with the Contract Documents.

F. Execute the start-up under the supervision of qualified tradesmen experienced in the installation, operation, and repair of equipment of the type being started.

1.04 DEMONSTRATION TESTING AND OPERATION

A. In addition to the tests required in the individual Specification Sections, conduct a test or tests as necessary to demonstrate that the individual systems or pieces of equipment function together as a whole to meet the design concept.

B. Furnish all labor, equipment, and materials necessary for demonstration testing, initial setting and balancing, debugging, and other operations needed to make the entire system operational for its intended use. Personnel shall be experienced tradesmen familiar with the equipment and its installation, operation, and repair.

C. Complete all demonstration testing prior to Substantial Completion. If initial demonstration testing reveals defective Work, correct Work and repeat perform demonstration testing.

D. All process, mechanical, and electrical equipment, including related control systems, shall be subjected to preliminary operation and demonstration testing by Contractor before the individual facilities and systems are put into operation. Tests shall be conducted to determine whether the equipment has been properly assembled, aligned, adjusted, wired, or connected. Upon completion of the checking and adjustment, demonstrate that each separate piece of equipment in each system operates in accordance with the requirements of the Contract Documents and that the individual systems operate together as required. Where no specific performance requirements are stated, the demonstration test shall show that the equipment operates in accordance with normal application practice for the equipment. The demonstration test shall show that the equipment and systems:

1. operate smoothly and without excessive noise and vibration,

2. are free from leaks,

3. are responsive to manual and automatic controls,

4. control and protective devices are properly set,

5. will run on a controlled or intermittent basis when either operation is intended, and

6. valves seat fully and provide tight shutoff.

The demonstration test for each piece of equipment shall include checkout from each remote control point. All alarm systems and safety lockout systems shall also be demonstrated for proper function, as well as all process instrumentation and controls.

E. Schedule the demonstration tests for performance in the presence of Owner and Engineer. Owner and Engineer shall be notified at least 7 calendar days in advance of all tests.

F. During the testing of equipment, arrange for the presence of qualified representatives of the manufacturers, fabricators, or authorized distributors of all the various pieces of equipment and instrumentation.

G. Within 5 calendar days following completion of each test, submit a written report describing the test, test conditions, results, instrument settings and all other relevant information. The report shall be submitted in accordance with the requirements of Specification Section 01 33 00 Submittal Procedures. Engineer will review and will either require Contractor to correct deficiencies and make additional tests, or recommend acceptance of the equipment to Owner.

H. Any equipment placed into temporary operation following its demonstration testing but prior to Substantial Completion shall be adjusted and recalibrated immediately prior to Substantial Completion.

I. Equipment accepted by Owner may be put into use following Substantial Completion.

1.05 INSTRUCTION OF OWNER'S EMPLOYEES

A. Provide competent personnel who fully understand the operation of the equipment to instruct Owner's employees and Engineer in the operation, maintenance, and repair of each item and system. Such instruction shall take place following demonstration and commissioning testing and prior to Substantial Completion and at such a time or times that are acceptable to Owner and Engineer. Training shall be of the on-the-job type, and shall cover all areas of operation and maintenance. Training shall, unless otherwise approved, be by factory representatives. Owner's personnel shall be allowed to video tape the instructions by equipment representatives. Length of training shall be as required to provide complete information to Owner's personnel to operate the equipment, or as specified in the individual Sections of the Specifications.

B. At least 7 calendar days prior to training described in this Section, deliver to Owner all operating and maintenance instructions required under the Contract Documents.

1.06 SUBSTANTIAL COMPLETION AND SYSTEM START-UP

A. Following demonstration, commissioning, and acceptance testing acceptable to Owner and training of Owner's employees as set forth in these Specifications, Engineer will furnish Contractor with a written notice of Substantial Completion of the Work, subject to the terms and conditions of the Contract Documents.

B. Following Substantial Completion, the entire Work may be put into service by Owner. While being operated, Owner will perform all routine operating procedures such as reading gauges, adjusting valves and operating controls.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 75 00

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1: GENERAL

1.01 SUMMARY

A. Section includes procedures for Substantial Completion, final completion (final acceptance), and Project closeout.

1.02 SUBSTANTIAL COMPLETION

A. The Project shall be considered substantially complete when the Work is available for its intended use and meets the conditions of Substantial Completion as defined within the General Conditions.

1.03 RECORD DOCUMENTS

A. Maintain at the Site (or in Contractor's possession) one set of record documents including all Drawings, Specifications, Change Orders, field test records (if applicable), associated permits, redline record drawings, and documentation of construction activities as required, in good condition and legibly annotated to show changes made during construction. Store record documents separate from documents used for construction and clearly mark them and make accessible to Engineer and Owner at all times.

B. Record information on record documents concurrent with construction progress. Make record documents accessible to Engineer and Owner at all times; Engineer and Owner may require Contractor to improve its performance with regard to recording information during the duration of the Project.

C. Record for each product listed in the Specifications, a description of the actual products installed, including the following:

1. Manufacturer's name and product model number.

2. Product substitutions or alternates used.

3. Changes made by Change Order.

4. Quality control procedures and test results.

D. At a minimum, the following items shall be legibly marked on the record drawings to record actual construction:

1. Relevant information from approved Shop Drawings.

2. Measured depths or elevations of foundations in relation to a clearly defined, reproducible datum.

3. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements or survey markers.

4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

5. Changes made by Change Order and all minor field changes of dimension and detail.

6. Details not shown on original Drawings.

E. Do not conceal Work until required information is recorded.

F. Submit record documents, and all operations and maintenance manuals and other submittals required by Specification Section 01 33 00 Submittal Procedures.

1.04 SITE CLEANUP

A. Keep the Site free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, remove all waste materials, rubbish and debris from the premises as well as all tools, construction equipment and machinery, temporary facilities, and surplus materials. Leave the Site clean and ready for occupancy by Owner.

B. Prior to final acceptance, provide final cleaning of the Sites, including, but not limited to the roads, sidewalks, structures and Site improvements, so that the Project will be ready for use by Owner without further cleaning.

1.05 INTERIOR CLEANUP

A. Prior to final acceptance, provide cleaning of all surfaces, systems and fixtures, grates and drains, including removal of labels, tags, grease, oil, dirt, dust, and stains.

B. The scope of final interior cleaning includes, but is not limited to:

1. Windows:

a. Clean inside and outside window surfaces throughout buildings.

2. Buildings:

a. Wipe down horizontal surfaces throughout.

b. Light scrub or mop hard surface floors throughout.

c. Wipe down dehumidifier units, ducting, and other equipment where appropriate.

1.06 FINAL ACCEPTANCE

A. When Contractor considers that the Work is complete and ready for final acceptance, provide written notice to Engineer.

B. Certify by written notice to Engineer that:

1. Contract Documents have been thoroughly reviewed and work has been inspected by Contractor and complies with the Contract Documents.

2. Work is completed and ready for final acceptance.

C. Upon receipt of such notice, Engineer and Owner will make a final review of the Work with Contractor and will notify Contractor in writing (punch list) of all particulars in which this review reveals that the Work is incomplete or defective. Contractor shall take such measures as are necessary to remedy such deficiencies.

D. Upon remedy of all such defects and deficiencies noted in the punch list, Engineer will issue a recommendation for final acceptance to Owner.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, and maintenance materials in quantities specified in each Specification Section, in addition to that required for completion of the Work. Coordinate with Engineer and deliver to facility prior to Final Application for Payment.

1.08 GUARANTIES AND WARRANTIES

A. Contractor shall guarantee all Work and material against all defects as specified in the General Conditions (and Supplementary Conditions), or as otherwise required for specific items in these Specifications. Warranty requirements noted in individual Specification Sections that exceed the minimum correction period prescribed in the General Conditions shall apply for the stipulated time for both material and labor.

B. Standard product warranties are defined as preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to Owner.

C. Special Warranties are defined as written warranties required by, or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for Owner.

D. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

E. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether Owner has benefited from use of the Work through a portion of its anticipated useful service life.

1. Repair or replace any such defective Work to conform to the provisions of the Contract and without expense to Buyer, within ten (10) working days after notification in writing by Buyer or Engineer of such defective Work.

2. If the noted repairs are not made by Contractor, or it has not made arrangements for the correction thereof within the period specified above, Owner may do so, and may charge the cost of same to Contractor.

3. Contractor shall perform repair Work so as to cause Owner a minimum of inconvenience and interruption of services.

F. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

G. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of warranty on the Work that incorporates the products.

H. Written warranties made to Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which Owner can enforce such other duties, obligations, rights or remedies. Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

I. Owner reserves the right to refuse to accept Project Work where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

J. Submit duplicate, notarized copies of written warranties to Engineer prior to the date certified for Substantial Completion in accordance with the requirements of Specification Section 01 33 00 Submittal Procedures. Engineer's certificate of Substantial Completion shall be the commencement date for warranties. When a designated portion of the Work is completed and occupied or used by Owner, by separate agreement with Contractor during the construction period, submit properly executed warranties to Engineer within 15 days of completion of that designated portion of the Work. For items of Work delayed beyond the date of Substantial Completion, provide updated submittal within ten days of acceptance by Owner, listing date of acceptance as start of warranty period.

K. When a special warranty is required to be executed by Contractor, or Contractor and a Subcontractor, Supplier, or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to Owner through Engineer for approval prior to final acceptance.

1. Execute and assemble documents from Subcontractors, Suppliers, and manufacturers.

2. Refer to individual Specification Sections for specific content requirements, and particular requirements for submittal of special warranties.

L. At final acceptance, compile two copies of each required warranty and bond properly executed by Contractor, or by Contractor, Subcontractor, Supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

M. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-inch by 11-inch paper.

1. Identify each binder on the front and the spine with the typed or printed title "Warranties and Bonds," the Project title or name, and the name of Contractor and Subcontractor.

2. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

1.09 FINAL APPLICATION FOR PAYMENT

A. Final Application for Payment shall be accompanied by a written Final Statement of Account. The Final Statement of Account shall reflect all adjustments to Contract Price including, but not limited to:

1. The original Contract Price.

2. Additions and deductions resulting from:

    a. Previous change orders,

    b. Allowances,

    c. Unit prices,

    d. Deductions for uncorrected Work,

    e. Deductions for liquidated damages,

    f. Deductions for re-inspection payments, or

    g. Other adjustments.

3. Total Contract Price, as adjusted.

4. Previous payments.

5. Sum remaining due.

B. Final Application for Payment shall be submitted in accordance with the procedures and accompanied by the other materials described in Specification Section 01 33 00 Submittal Procedures.

C. Complete items on the list of items to be completed (punch list), and correct items related to deficiencies that become apparent following demonstration, commissioning, or acceptance testing.

D. Submit the required construction records, including record drawings, to Engineer.

E. Contractor and all Subcontractors shall furnish a certificate showing that they have complied with the provisions of M.S.A. 290.92 requiring withholding of income tax on wages at the source. Said certificates shall be executed by the Commissioner of Taxation. IC-134 forms for certifications may be obtained from the Department of Revenue, Centennial Building, 658 Cedar Street, St. Paul, Minnesota 55155.

F. Seller shall submit Consent of Surety for final payment.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION (NOT USED)

END OF SECTION 01 77 00

Division 02

Existing Conditions

SECTION 02 41 00

DEMOLITION

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all supervision, labor, equipment, and materials necessary to:

1. Remove bituminous materials as shown on the Drawings.

2. Load, transport, and dispose off-site all other demolition materials, debris, and rubble.

1.02 RELATED SECTIONS

A. Section 01 35 00 Special Procedures and Safety.

B. Section 01 73 29 Cutting and Patching.

C. Section 31 10 00 Clearing and Grubbing.

D. Section 32 16 00 Roadway and Sidewalk Pavements.

1.03 DEFINITIONS

A. *Demolish* – is to completely remove a specified pipe, fitting, housing, feature, or structure without regard for the conditions of the item after being removed.

B. *Salvage* – is to remove an item in a condition that allows its reuse for a similar purpose.

C. *Abandon* – is to leave in place with appropriate measures taken to prevent disturbance of the surrounding Work.

D. *Protect* – is to take necessary precautions to leave an item unharmed by the Work.

E. *Reuse* – is to allow specific suitable items be reused in the Work after salvage.

1.04 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. Minnesota Pollution Control Agency's Pre-Demolition Environmental Checklist and Guide (http://www.pca.state.mn.us/publications/w-sw4-20.pdf)

2. American National Standards Institute (ANSI)

a. ANSI A10.6 – Safety and Health Requirements for Demolition Operations.

3. 29 CFR 1910, Occupational Safety & Health Administration (OSHA)

4. Minnesota Department of Health (MDH) Rules

1.05 JOB CONDITIONS

A. Contractor shall be solely responsible for evaluating existing facilities and Site conditions and considering all factors that may affect the progress or performance of the Work.

B. Contractor shall become the owner of materials generated by the demolition efforts and shall dispose or recycle all of the demolition debris in accordance with all applicable law and regulations.

1.06 SUBMITTALS

A. No submittals are required from this Section.

1.07 SEQUENCING AND SCHEDULING

A. Coordinate demolition activities with Owner to provide adequate site access for Work.

B. Coordinate demolition activities to avoid damaging any portion of the Work.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 GENERAL

A. Site Verification of Conditions

1. Inspect existing conditions and note dimensions, clearances, access, utilities and protections required.

2. Provide required protective measures before beginning demolition.

B. Protection

1. Perform demolition in such a manner as to:

a. Eliminate hazards to persons and property,

b. Minimize interferences with adjacent spaces, and

c. Minimize interruption of existing utilities.

2. Provide dust control as required to avoid hazardous or nuisance conditions in the surrounding area.

3. Do not use water for dust control if it results in hazardous conditions such as ice, flooding, or pollution.

C. Demolish and remove existing construction only to the extent required by new construction and as indicated on the Drawings.

D. If unforeseen conditions are encountered, or if additional hazardous materials are suspected, obtain instruction from Engineer before proceeding with demolition.

E. In the event of demolition of items not scheduled to be demolished, promptly replace to the approval of Engineer at no additional cost to Owner.

F. Demolition debris shall become the property of Contractor.

3.02 PAVEMENT

A. Saw cut to a full depth, all extents of bituminous pavement to be removed.

B. Bituminous pavement may be milled for reuse in recycled base.

3.03 DEMOLITION DEBRIS (NON-HAZARDOUS) DISPOSAL

A. At least weekly, remove demolition debris to maintain suitable site access.

B. Transport and dispose of demolition debris at a suitable location off-site in compliance with applicable regulations.

C. On completion of demolition and after removal of all debris, leave site in a clean condition satisfactory to Engineer.

END OF SECTION 02 41 00

Division 03

Concrete

03 10 00

CONCRETE FORMS AND ACCESSORIES

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Form work.

B. Shoring.

C. Form accessories.

D. Form coatings.

1.02 RELATED SECTIONS

A. Section 03 20 00 Concrete Reinforcement.

B. Section 03 30 00 Cast-in-place Concrete.

1.03 REFERENCES

A. Current editions of the following standards and publications.

1. ACI SPEC-117, Specifications for Tolerances for Concrete Construction and Materials and Commentary
2. ACI PRC-347, Guide to Formwork for Concrete
3. ACI SP-4, Formwork for Concrete

1.04 SUBMITTALS

A. No submittals are required for materials and supplies covered under this section which comply with the applicable specifications.

1.05 QUALITY ASSURANCE

A. Design and engineering of formwork:

1. Responsibility of Contractor.
2. Designed for loadings, lateral pressures and allowable stresses in accordance with ACI PRC-347 and ACI SP-4.
3. Designed, erected, supported, and maintained to safely support all vertical and lateral loads that might be applied, including construction loads and loads resulting from the placement and vibration of concrete.
4. Formwork supported on ground: Provide satisfactory foundations to carry the loads imposed during and after construction without appreciable settlement.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protected from deterioration, weather and shrinkage prior to concreting by proper storage, oiling, wetting, or other appropriate methods.

B. Keep free of rust, rot, or other detrimental forms of deterioration.

1.07 SEQUENCING

A. Forms designed so they may be removed in proper sequence and without damage to the concrete.

B. Sequence form erection and removal to match any concrete pours, curing, and any other adjacent or related work which may affect the placement, removal or availability of any concrete formwork.

PART 2: PRODUCTS

2.01 MATERIALS

A. Forms: Wood, metal, or other approved material providing a smooth continuous surface in contact with concrete.

B. Chamfer Strips:

1. Uniform in cross-section dimensions without rounded corners.
2. Smooth on all sides.
3. ¾ inch sides, unless noted otherwise on Drawings.

C. Form Accessories:

1. Commercially manufactured ties and hangers embedded in the concrete.
2. Type which leaves no metal closer than 1 inch from the surface of the finished concrete.

D. Form Release Agent:

1. Non-staining chemical release agent which prevents bonding to concrete.
2. Compatible with the type of form materials used.
3. Acceptable agents include:
   a. Master Builders Solutions, MasterFinish RL Series.
   b. Eucoslip Form Release
   c. Nox-Crete form coating
   d. Approved equal

2.02 FABRICATION

A. Type: pre-manufactured or constructed on-site.

PART 3: EXECUTION

3.01 PREPARATION

A. Thoroughly clean of all dirt, mortar, sawdust, and other foreign matter prior to use. Bottoms of forms inaccessible from within to be provided with access panels to permit removal of extraneous materials before placing concrete.

B. Forms for exposed concrete:

1. Treated with non-staining release agent per manufacturer's recommendation.
2. Avoid placement of release agent on reinforcing steel, embedded anchorages, anchor bolts, bearing plates, or other items which require bonding to concrete.

C. Openings in formwork:

1. Provide to accommodate any conduits, fixtures, or other appurtenances extending through the formwork.
2. Accurately locate, securely support, level, plumb, and straight items directly embedded into concrete.
3. Provide inspection hole as requested by Engineer to verify consolidation of concrete.

3.02 INSTALLATION

A. Conform to the shape, lines, and dimensions of the components shown on the Drawings, true to line, plumb and level as required in ACI SPEC-117.

B. Construct forms for exposed concrete to minimize deflection in order to eliminate bulges, off-sets, or other unsightly features in the finished surfaces.

C. Provide camber to compensate for anticipated deflections in the formwork due to the weight and pressure of the plastic concrete and construction loads.

D. Provide forms tight to prevent leakage of grout or cement paste.

E. Chamfer above grade exposed joints, edges, and external corners of concrete 0.75 inch. Place chamfer strips in corners of formwork to produce beveled edges on permanently exposed surfaces.

3.03 FORMWORK REMOVAL

A. Forms shall be removed in a manner to ensure complete safety of the structure.

B. Minimum time before removal after placing concrete, unless permitted otherwise:

1. Footings and slab edges: 24 hours
2. Walls and piers: 48 hours (24 hours for metal-lined form)
3. Beams: 14 days, or 7 days without disturbing shores
4. One-way floor slabs: 7 days, or 3.5 days without disturbing shores
5. Time specified above represents cumulative time during which temperature of concrete is maintained above 50 degrees F.

C. In any event, do not remove forms or shoring until concrete has acquired sufficient strength to safely support its own weight and construction loads.

D. Avoid hammering or prying against concrete surfaces to prevent damage to concrete.

E. Do not place live loads on concrete structures prior to completion of the specified 28-day curing time without approval.

F. Procedures for re-shoring shall follow the recommendations outlined in ACI PCR-347.

END OF SECTION 03 10 00

03 20 00

CONCRETE REINFORCMENT

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel.

B. Prestressing tendons.

C. Welded wire fabric.

D. Tie wire.

E. Reinforcing support.

1.02 RELATED SECTIONS

A. Section 03 10 00 Concrete Forms and Accessories

B. Section 03 30 00 Cast-in-Place Concrete.

C. Section 03 41 00 Structural Precast Concrete

1.03 REFERENCES

A. Current editions of the following standards and publications.

1. ACI SPEC-117, Specifications for Tolerances for Concrete Construction and Materials and Commentary
2. ACI PCR-315, Guide to Presenting Steel Design Details
3. ACI CODE-318, Building Code Requirements for Structural Concrete and Commentary
4. ASTM A1064 / A1064M, Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
5. ASTM A416/A416M, Standard Specification for Low-Relaxation, Seven-Wire Steel Strand for Prestressed Concrete
6. ASTM A615/A616M, Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement
7. ASTM A706/A706M, Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
8. ASTM A970/970M, Standard Specification for Headed Steel Bars for Concrete Reinforcement
9. ASTM A996/A996M, Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
10. CRSI, Manual of Standard Practice

1.04 SUBMITTALS

A. Shop Drawings

1. Submit at least 15 days prior to start of work.
2. Show fabrication dimensions, bar sizes, location for placing reinforcing, and lap locations.

B. Manufacturer's mill certificates:

1. Properties of the steel (i.e., mill tests).

1.05 QUALITY ASSURANCE

A. Identify bar bundles with waterproof mark numbers on tags.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store above the surface of the ground on platforms, skids or other supports.

B. Protect from injury and surface deterioration caused by exposure to conditions producing rust.

1.07 SEQUENCING AND SCHEDULING

A. Schedule placement and securing of reinforcing steel and formwork so that reinforcing work may be reviewed by Engineer before it becomes inaccessible.

PART 2: PRODUCTS

2.01 MATERIALS

A. Reinforcing bars: ASTM A615 Grade 60.

B. Welded wire fabric: ASTM A1064.

C. Prestressing tendons: ASTM A416.

D. Bar supports: CRSI Manual of Standard Practice

1. Cold-drawn steel wire.

2. Type C plastic protected or type E stainless steel protected.

3. Precast concrete block.

E. Tie wire: black annealed wire, 16 gauge or heavier.

2.02 FABRICATION

A. Bent cold to the dimensions required before placing.

B. Diameter of hooks and bends: ACI PCR-315.

PART 3: EXECUTION

3.01 PREPARATION

A. Prior to placement of new concrete, clean reinforcement of loose rust and mill scale, earth, ice, cement, mortar, and other materials which reduce or prevent complete bond with concrete.

3.02 INSTALLATION

A. Do not install bars with kinks or bends not shown on Drawings.

B. Provide adequate chairs, ties, etc. to prevent bars or welded wire fabric from sagging or deflecting and to hold the reinforcement rigidly against displacement of the concrete.

C. Precast concrete blocks may be used for concrete placed against ground.

D. Tie reinforcing with wire at all cross points.

E. Placement tolerance: ACI SPEC-117.

F. Minimum concrete cover (unless otherwise specified):

1. Concrete subject to high water flow and abrasion: 6 inches.
2. Concrete cast against and permanently exposed to earth: 3 inches
3. Concrete exposed to weather: 2 inches.
4. Concrete not exposed to weather or in contact with ground: 1½ inches.

G. Tack welding of reinforcement is not permitted.

H. Tension lap splices: ACI CODE-318, Class B, unless noted otherwise on Drawings.

3.03 INSPECTION AND ACCEPTANCE

A. Do not place concrete until reinforcing steel has been directly observed and accepted by Engineer or Owner's representative for general conformance with the contract documents.

B. Notify Engineer 24 hours minimum prior to scheduled pour.

END OF SECTION 03 20 00

03 30 00

CAST-IN-PLACE CONCRETE

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Concrete curing

B. Expansion joint material

C. Joint sealer

D. Vapor barrier Cutting and coring

1.02 RELATED SECTIONS

A. Section 03 10 00 Concrete Forming and Accessories

B. Section 03 20 00 Concrete Reinforcement.

C. Section 03 60 00 Grouting

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of October, 2025.

B. Code and Standards:

4. ASTM A283/283M, Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
5. ASTM C31/C31M, Standard Practice for Making and Curing Concrete Test Specimens in the Field
6. ASTM C33/C33M, Standard Specifications for Concrete Aggregates
7. ASTM C39/C39M, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
8. ASTM C94/C94M, Standard Specification for Ready Mixed Concrete
9. ASTM C138/C138M, Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
10. ASTM C143/C143M, Standard Test Method for Slump of Hydraulic-Cement Concrete
11. ASTM C150/C150M, Standard Specification for Portland Cement
12. ASTM C157/C157M, Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
13. ASTM C171, Standard Specification for Sheet Materials for Curing Concrete
14. ASTM C172/C172M, Standard Practice for Sampling Freshly Mixed Concrete.
15. ASTM C231/C231M, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
16. ASTM C260/C260M, Standard Specification for Air Entraining Admixtures for Concrete
17. ASTM C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
18. ASTM C494/C494M, Standard Specification for Chemical Admixtures for Concrete

19. ASTM C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
20. ASTM C989, Standard Specification for Slag Cement for Use in Concrete and Mortars.
21. ASTM C1064/C1064M, Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
22. ASTM C1116, Standard Specification for Fiber-Reinforced Concrete.
23. ASTM C1240, Standard Specification for Silica Fume Used in Cementitious Mixtures.
24. ASTM C1602, Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete.
25. ASTM C1611/C1611M, Standard Test Method for Slump Flow of Self-Consolidating Concrete.
26. ASTM D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
27. ASTM E96/E96M, Standard Test Methods for Water Vapor Transmission of Materials
28. ASTM E1745, Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
29. ACI SPEC-117, Specifications for Tolerances for Concrete Construction and Materials and Commentary
30. ACI PCR-224.1, Causes, Evaluation, and Repair of Cracks in Concrete Structures.
31. ACI SPEC-301, Specifications for Concrete Construction.
32. ACI PCR-302.1, Guide to Concrete Floor and Slab ConstructionACI PCR-304, ACI PCR-304, Guide for Measuring, Mixing, Transporting and Placing Concrete
34. ACI SPEC-305.1, Specification for Hot Weather Concreting.
35. ACI SPEC-306.1, Standard Specification for Cold Weather Concreting.
36. ACI SPEC-308.1, Specification for Curing Concrete.
37. ACI PCR-309, Guide for Consolidation of Concrete.
38. ACI PCR-311, Recommended Practice for Concrete Inspection.
39. ACI CODE-318, Building Code Requirements for Structural Concrete and Commentary.
40. ACI SPEC-336.1, Specification for the Construction of Drilled Piers.
41. ACI PCR-347, Guide to Formwork for Concrete.
42. CSRI Manual of Standard Practice.
43. DOT Standard Specifications for Construction.International Building Code (IBC)
45. Local Building Code

1.04 SUBMITTALS

A. Manufacturer’s descriptive literature and product specifications for each product.

B. Shop Drawings:

1. Steel reinforcing (see Section 03 20 00)

C. Batch Plant Qualifications per section 2.09

1. Plant’s name

2. Address
3. Phone number
4. Distance and travel time to site

D. Concrete Mix Design

1. Submit for each mix at least 30 days prior to scheduled placement date.
    a. Manufacturer's data and product information relating to all concrete material products
    b. Certificates of material properties signed by the material producer or processor and Contractor verifying compliance with Contract material specifications. Include Project name and number, date of report, name of Contractor, source of material, manufacturer or processor, and brand name for proprietary products.
    c. Certified mix design by Professional Engineer licensed in the project state.
    d. Basis for mix design (by concrete production facility or laboratory trial mixes in accordance with ACI SPEC-301)
    e. Identification of aggregate source and compliance test to ASTM requirements
    f. Compressive strength at 28 days
    g. Scale weights of each aggregate
    h. Absorbed water in each aggregate
    i. Brand, type, and amount of cementitious material in mix
    j. Proportions of each material required per cubic yard
    k. Water/Cement ratio
    l. Weather protection plan in accordance with 3.04.C.
2. Do not change mix designs and supplier unless new batch plant qualifications and mix designs are submitted.
3. Load tickets.

F. Shrinkage performance documentation: Contractor submit for documentation shrinkage test results for the concrete intended for use on the project.

G. Curing Compound: If a sprayed-on membrane is used for curing, Submit manufacturer's certification as documentation, verifying that the material furnished has been tested and conforms to the required tests as described in the appropriate Sections below.

H. QA Program: Submit for review a concrete production quality assurance program.

I. Construction Joints: Submit a plan for approval indicating locations and details of any construction joints not shown on the drawings.

1.05 QUALITY ASSURANCE

A. Contractor Qualifications: 5 years minimum experience on comparable concrete projects.

B. Workmen Qualifications:

1. Competent and experienced foreman in placing the types of concrete specified.
2. Trained and experienced concrete finishers.

C. Contractor:

1. For each batch of concrete delivered to the jobsite provide one signed copy of the delivery ticket in accordance with ASTM C94 to Owner's Representative as proof of acceptance or rejection of concrete.

D. Independent Testing Agency:

1. Trial mix
    a. Obtain samples
    b. Perform laboratory testing
    c. Provide reports on materials, concrete design mixed, and testing performed
2. Field testing: see Part 3

PART 2: PRODUCTS

2.01 CEMENTITIOUS MATERIAL

A. Portland Cement: ASTM C150, ASTM C595 or ASTM C1157, Type II or Type III

1. Free from water-soluble salts or alkalies, which will cause efflorescence on exposed surfaces.

B. Pozzolanic Mineral Admixture

1. Fly Ash: ASTM C618, Class C or F
2. Minimum amount (if used): 15%, by weight, of total cementitious material.
3. Silica fume: ASTM C1240.
    a. MasterLife SF 100 by Master Builders Solutions
    b. Approved equal.
4. Slag cement: ASTM C989, Grade 80, 100 or 120.
5. Natural Pozzolans: Natural Pozzolans will conform to ASTM C618 Type N.
    a. MasterLife MK828 by Master Builders Solutions
    b. Approved equal.

C. Use only one brand and type of cementitious materials.

2.02 AGGREGATES

A. Fine Aggregates: ASTM C33 for grading.

B. Coarse Aggregates: ASTM C33 for grading.

1. Maximum size in accordance with ACI SPEC-301.
2. Gradation must be in accordance with ASTM C33 and class designation 4S.
3. New or unproven aggregate sources must undergo petrographic examination or other procedures to ensure that they do not have potential alkali reactivity.

C. Aggregates: Crushed quarry or mine trap rock (basalt, diabase, gabbro, or other related igneous rock types), quartzite, gneiss, or granite. Other igneous or metamorphic quarry or mine rock may be used only with Engineer's specific approval. Limestone aggregate will not be acceptable.

D. Wear-Resistant Aggregates: Pending Information

2.03 WATER

A. ASTM C1602. Clean, potable, and free from injurious amounts of oils, acids, alkalies, salts, organic materials, or other substances that may be deleterious to concrete or steel.

2.04 ADMIXTURES

A. No admixtures, except air-entraining agent and water reducing admixture without approval of Engineer. Do not use calcium chloride.

B. Air-entraining admixture: ASTM C260

1. AEA-2 by Euclid Chemical Co.
2. Darex II by W.R. Grace
3. MasterAir Series by Master Builders Solutions.
4. Approved equal.

C. Water-reducing admixture: ASTM C494, Type A or Type C

1. Eucon WR 91 by Euclid Chemical Co.
2. WRDA-82 by W.R. Grace
3. MasterPozzolith Series or MasterPolyheed Series by Master Builders Solutions
4. Approved equal.

D. Retarding Admixture: ASTM C494, Type B.

1. MasterSet R Series or MasterSet DELVO Series by Master Builders Solutions US LLC
2. Approved equal.

E. Accelerating Admixture: ASTM C494, Type C.

1. MasterSet AC 534 or MasterSet FP 20 by Master Builders Solutions US LLC.
2. Approved equal.

F. Water-Reducing and Retarding Admixture: ASTM C494, Type D.

1. MasterSet R Series or MasterSet DELVO Series by Master Builders Solutions US LLC.
2. Approved equal.

G. Hydration Control Admixture: ASTM C494, Type D.

1. MasterSet DELVO Series by Master Builders Solutions
2. Approved equal.

H. Water-Reducing and Accelerating Admixture: ASTM C494, Type E.

1. MasterSet FP 20 by Master Builders Solutions
2. Approved equal.

I. High-Range Water-Reducing Admixture: ASTM C494, Type F.

1. MasterGlenium Series or MasterRheobuild 1000 by Master Builders Solutions
2. Approved equal.

J. High-Range Water-Reducing and Retarding Admixture: ASTM C494, Type G.

K. Workability-Retaining Admixture: ASTM C494, Type S. Retain concrete workability without affecting time of setting or early-age strength development.

1. MasterSure Z-60 by Master Builders Solutions

2. Approved equal.

L. Strength-Enhancing Admixture: ASTM C494, Type S. Liquid crystalline CSH nanoparticle admixture that increases both early- and late-age strength development without affecting concrete setting time.

1. Master X-Seed 55 by Master Builders Solutions US LLC.

2. Approved equal.

M. Permeability Reducing Admixture for Hydrostatic Conditions ASTM C494, Type S. Permeability reducing admixture for hydrostatic conditions with hydrophilic crystalline concrete admixture. Dosage rate determined in accordance with the manufacturer's recommendations. Permeability reducing admixture for hydrostatic conditions delivered, handled, stored and used in strict accordance with the manufacturer's instructions.

1. Admix C-500/C-500 NF/C-1000/C-1000 NF by Xypex

2. MasterLife 300 Series by Master Builders Solutions

3. Approved equal.

N. Corrosion-Inhibiting Admixture: A nominal 30 percent solution of calcium nitrite or an amine/ester-based organic corrosion-inhibiting admixture.

1. MasterLife CI 30 or MasterLife CI 222 by Master Builders Solutions

2. Approved equal.

O. Shrinkage-Reducing Admixture: ASTM C494, Type S.

1. MasterLife SRA 035 or MasterLife CRA 007 by Master Builders Solutions

2. Approved equal.

P. Viscosity-Modifying Admixture: ASTM C494, Type S.

1. MasterMatrix VMA Series by Master Builders Solutions

2. Approved equal.

Q. Anti-Washout Admixture: CRD-C661.

1. MasterMatrix UW 450 by Master Builders Solutions

2. Approved equal.

R. Color Pigment: Colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.

1. Master Builders Solutions

2. Approved equal.

3. Color: As selected by Architect from manufacturer's full range.

2.05 FIBERS

A. Provide fibers that have a specific gravity of 0.9, a minimum tensile strength of 70 ksi, graded per manufacturer, and specifically manufactured to an optimum gradation for use as concrete secondary reinforcement. Add fibers at the batch plant. Follow manufacturers' recommendations and instructions for mixing.

B. Synthetic Microfibers: Monofilament or fibrillated polypropylene microfibers engineered and designed for use in concrete, complying with ASTM C 1116, Type III.

1. MasterFiber M Series or F Series by Master Builders Solutions

2. Approved equal.

C. Synthetic Macrofibers: Synthetic macrofibers engineered and designed for use in concrete as temperature and shrinkage reinforcement, complying with ASTM C1116, Type III.

1. Approved products:

a. MasterFiber MAC Series by Master Builders Solutions

b. Approved equal.

2.06 MIXES

A. Base proportioning of materials on previous field experience of concrete production facility or by laboratory trial mixes in accordance with ACI SPEC-301 or ACI CODE-318.

B. Minimum 28-day specified compressive strength and required average compression: ASTM C39.

Class of Concrete	Maximum w/cm	Compressive Strength & Test Age	Freezing and Thawing (F)	Sulfate (S)	Water Contact (W)	Corrosion Protection (C)
Footings	0.55	4000	F0	S1	W0	C1
Foundation Walls	0.45	4000	F2	S1	W0	C1
Pavement/Stoop Slab	0.40	5000	F3	S1	W1	C2
Interior Concrete	0.55	4000	F0	S0	W0	C1

C. Required average compressive strength: produce concrete of average compressive strengths unless documented test results substantiate a lower permissible average strength based on the standard deviation established in ACI SPEC-301 or ACI CODE-318.

D. Air-Entrainment

1. For concrete exposed to freezing and thawing:

Nominal Max. Size Coarse Aggregate	Total Air Content
¾ inch	6% + 1.5
1 inch	6% + 1.5
1½ inch	5½% + 1.5

E. Slump: At the point of discharge from the transport vehicle, provide concrete slump as required for Contractor's means of placement and as indicated on the submitted mix design proportions, so long as there is no visual segregation. The concrete has a Visual Stability Index (VSI) of no more than 1 as measured and defined in ASTM C1611.

F. The amount of fly ash allowed in mass concrete mixes will be based on demonstrations that the mix design meets the required strength per ACI CODE-318. The mix meets the minimum required concrete density and allow for appropriate cure times that do not adversely delay form removal, subsequent placements, or backfilling operations. It should be clarified that exposure class F2 does not contain a limitation on pozzolan content, and the ternary and quaternary blends of cement, flyash, slag, or type N pozzolan are acceptable.

G. Workability

1. Mix workability and handling characteristics demonstrated by past field experience or through a trial slab as suggested in ACI SPEC-301.

H. Shrinkage Potential:

1. Perform ASTM C157 on trial mix to determine length change of concrete with 7 days of moist curing followed by 21 days of drying.
2. Change in length does not exceed 0.05%.

2.07 READY-MIX CONCRETE

A. Provide concrete from an established, certified ready-mix plant.

B. National Ready Mixed Concrete Association (NRMCA) certified ready-mix plant.

2.08 CURING MATERIALS

A. Waterproof paper (non-staining): ASTM C171, regular or white.

B. Burlap: commercial quality and non-staining.

C. Polyethylene Sheeting: ASTM C171 (4 mil minimum thickness).

D. Membrane Curing Compound: ASTM C309.

1. CS-309 Curing & Sealing Compound (VOC) as manufactured by W. R. Meadows, Inc.
2. MasterKure CC 180 WB (formerly Kure-N-Seal) by Master Builders Solutions
3. Approved equal.

2.09 EXPANSION JOINT MATERIAL

A. Expansion and isolation material used for interior applications with a sealant. Polyethylene closed-cell joint filler. ASTM D994, Asphalt-impregnated; ASTM D1751 Fiber; or D1752 Type 1 sponge rubber.

1. Ceramar as manufactured by W. R. Meadows, Inc.
2. Approved equal

B. Expansion and isolation material used for exterior applications without a sealant. Fiber expansion joint filler conforming to ASTM D1751.

2.10 JOINT SEALER

A. Sealant for use in floor slab isolation and contraction joints: 2-component polyurethane sealant conforming to ASTM 920, Sonolastic SL2 Sealant as manufactured by Sonneborn, or approved equal.

B. Sealant for use in wall joints conforming to ASTM 920:

1. MasterSeal NP 1 (formerly Sonolastic NP1) by Master Builders Solutions
2. Sikaflex-1a as manufactured by Sika
3. Approved equal

C. Primer: As recommended by the sealant manufacturer.

2.11 BONDING

A. Polymer bonding agent

1. Acceptable products:
   a. Weldcrete” by Larsen Products Corporation.
   b. “Intralok” by W.R. Meadows.

c. Or approved equal.

2. Use to bond surfaces of existing concrete to new concrete.

2.12 UNDERSLAB VAPOR BARRIER

A. Vapor barrier: ASTM E1745, Class C

1. Reinforced polyethylene vapor barrier with a perm rating of less than 0.1 (ASTM E96, Procedure A).

2. Rufco 400 SSB by Raven Industries.

3. Stego Wrap 15-mil by Stego

4. Approved equal.

PART 3: EXECUTION

3.01 PREPARATION

A. Remove water from excavations before concrete is deposited. Divert any flow of water through proper side drains and remove without flowing over freshly deposited concrete.

B. Do not place concrete on frozen ground.

C. Apply form coating on formwork (see Section 031000). Apply prior to placing reinforcing steel, anchoring devices, and embedded items.

D. Prior to concrete placement, install, prepare, and inspect concrete reinforcement per Section 032000.

E. Subgrade to be well drained, free of frost, and moisture at the time of concrete placement. If necessary, dampen with water in advance of concrete placement, but no free water standing on either the subgrade or any muddy or soft spots when the concrete is placed.

F. Screeds: Properly support to maintain required thickness of slabs. Place bulkheads to construction joint limits.

3.02 TRANSPORTING CONCRETE: ASTM C94

A. Discharge and place in its final position concrete delivered to the site in watertight revolving-drum trucks within 90 minutes, or before the drum has revolved 300 revolutions, whichever comes first, after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates.

B. Truck operator to provide a copy of each ticket to the Purchaser by the at the time of delivery. Tickets indicate the mix identification, the number of yards delivered, the quantities of each material in the batch, the outdoor temperature in the shade, the time at which the cement was added, the maximum amount of water that can be added at the site, and the numerical sequence of the delivery.

3.03 JOINTS

A. Locate and install construction joints indicated in the drawings so they do not impair strength or appearance of the structure, as acceptable to Engineer.

B. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise.

C. Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Protect exposed waterstops during progress of Work according to the

manufacturer’s instructions. Field-fabricate joints in waterstops according to manufacturer's printed instructions.

D. Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as foundation walls, and other locations, as indicated.

E. Place concrete in horizontal or vertical strips between construction joints. Adjacent strips allowed to cure before a new strip is placed against a previously placed strip, to reduce construction joint shrinkage gaps.

F. All lift joint surfaces of mass concrete cleaned and freed of loose materials, mud, laitance, puddles, or ponds of free surface water, coatings, and any detrimental materials. High-volume low-pressure water washing and/or water jetting may be used for removal of loose materials. High-pressure water jetting and/or wet sand blasting followed by mild high-volume, low-pressure washing used on all hardened concrete surfaces as necessary for the removal of laitance, coating, and stains.

3.04 PLACING CONCRETE

A. Remove hardened concrete debris and foreign materials from the inner surfaces of conveying equipment.

B. Clean and free existing concrete surfaces receiving new concrete from loose concrete, debris, or other materials that might interfere with bond between existing and new concrete.

C. Weather Protection

1. Cold Weather

a. Applies to concrete placed when the ambient temperature is below 40 degrees F.

b. Conform to recommendations and requirements of ACI SPEC-306.1.

c. Concrete damaged by freezing to be removed and replaced at Contractor’s expense.

2. Hot Weather

a. Applies to concrete placed when the ambient temperature exceeds 90 degrees F.

b. Conform to recommendations and requirements of ACI SPEC-305.1.

c. Concrete not properly amalgamated due to hot weather to be removed and replaced at Contractor’s expense.

D. Place concrete continuously in each section until complete. Concrete surfaces not permitted to stand more than 30 minutes before new concrete is placed against them.

E. Avoid segregation during placement. Place in uniform lifts not to exceed 18 inches.

F. Do not drop concrete more than 5 feet. When greater drops are required, employ drop chutes or other approved means.

G. Pre-wet surfaces with water with no standing water before concrete is placed.

H. Prevent splashing of the forms or reinforcement with concrete. Any splashes or accumulations of hardened concrete on the forms or on any items to be embedded in the concrete above the general level of the concrete already in place must be removed before the Work proceeds.

I. Placement Time Limitations

1. Complete discharge of concrete within 90 minutes after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates. This limitation may be waived by the purchaser if the concrete is of such slump or slump flow after the 90 minutes time has been reached that it can be placed, without the addition of water to the batch. In hot weather, or under conditions contributing to rapid

stiffening of the concrete, a time less than 90 minutes is permitted to be specified by the purchaser.

2. For all concrete containing less than 250 pounds per cubic yard of ASTM C150 Portland cement, the concrete must be placed within 120 minutes after batching. Concrete which is showing signs of rapid setting, as determined by Owner, Owner's Representative, or Engineer, may be rejected.

J. Consolidation

1. Consolidate concrete by vibration so that concrete is worked around the reinforcement, around embedded items, and into corners of forms.

2. Use internal vibrators of the largest size and the most powerful that can be properly used in the Work, per ACI SPEC-301.

3. Vibrators to be operated by competent workmen.

4. Do not use vibrators to transport concrete within forms.

K. Underwater (tremie) Concrete PlacementPlace concrete underwater by the use of a positive displacement pump.

2. Provide an adequate number of pipes or make provisions to easily move pipes to ensure acceptable distribution of concrete. Do not remove pipes horizontally during placement.

3. When concrete placement is begun, place the bottom of the pipe as near as practicable to the bottom of the concrete section to be poured or the top of the previous lift and not raised until a proper seal has been established.

4. Do not lift the pipe more than two feet at any one-time during placement.

5. In the event the seal is broken, remove the pipe from the concrete, improperly placed concrete removed, and establish a new seal.

6. Check the maintenance of a seal during concrete placement continuously checked and proper steps taken immediately in the event of a loss of seal.

7. Measure flows and slopes regularly during placement with a sounding line.

8. Move pipes to any low areas as placement of a lift nears completion, and the seals reestablished, as required, to bring the lift to final elevation.

9. As soon as placement is completed, use an air-lift pump to remove scum and latence that have collected on the surface of the placement. Removal must be done in a manner which will minimize disturbance of the coarse aggregate particles in the surface. In addition, just prior to placing concrete on a previous lift, use an air-lift pump to remove any sediment from the surface of the lift.

10. Utilize divers to verify placement of concrete, progress of the work, and adherence to the technical specifications. Video record all final inspections of work to document the conditions of the concrete placement.

3.05 FINISHING

A. All exposed corners of walls that are cast to their permanent height must have a ¾ inch chamfer (i.e., those walls that will be extended in the future structure raises, if applicable, do not have chamfers). Alternately, match the chamfer dimension of adjacent or in line wall edges.

B. Unformed Surface

1. Top of Walls and Other Unformed Surfaces: Strike smooth and float to a texture consistent with finish of adjacent formed surface.

C. Formed Surface

1. Patch tie holes. Repair surface defects according to ACI SPEC-301.
2. Rough form finish of concrete not exposed: Chip off or rub off fins exceeding ½ inch in height.
3. Smooth form finish of exposed concrete: Remove fins exceeding 1/8 inch in height.

D. Exterior Concrete Walks and Parking Areas: ACI PCR-302.1, Class 3

1. Screed with straight edge immediately after placing concrete, bring surface to required elevations.
2. Initial Floating: Bull float by hand, before any excess moisture or bleeding water is present on surface.
3. Waiting: no subsequent operations performed until concrete is stiff enough to sustain foot pressure with approximately ¼ inch indentation.
4. Edge joints for contraction joints not saw-cut, provide joint ¼ of depth of slab.
5. Final Floating: Use either hand float or power float, cut down any ridges and fill troughs with mortar. Remove excess material.
6. Steel-trowel concrete surfaces, immediately after final floating, to a smooth, dense, uniform surface free of blemishes, ripples, and trowel marks.
7. Final finish: lightly broom, non-slip finish of freshly troweled concrete.
8. Finish slabs to a surface tolerance of not more than 1/4 inch in 10 feet as determined by a 10foot straightedge placed anywhere on the slab in any direction.

E. Slab-on-Ground Flatwork: ACI PCR-302.1, Class 4

1. Screed with straight edge immediately after placing concrete, bring surface to required elevations.
2. Initial Floating: Bull float by hand, before any excess moisture or bleeding water is present on surface.
3. Waiting: no subsequent operations performed until concrete is stiff enough to sustain foot pressure with approximately ¼ inch indentation.
4. Final Floating: Use either hand float or power float, cut down any ridges and fill troughs with mortar. Remove excess material.
5. Steel-trowel concrete surfaces, immediately after final floating, to a smooth, dense, uniform surface free of blemishes, ripples, and trowel marks.
6. Provide second and third trowelings.
7. Floor Flatness/Levelness Numbers: F_F25, F_L20.
8. Protect finished concrete surfaces from damage.

F. Crack Repair:

1. The evaluation and repair of cracks must conform to recommendations set forth in ACI 224.1R. Perform crack sealing as a part of the crack repair plan and requirements referenced in 2.16.
2. Seal any shrinkage cracks in excess of 0.012 inches (0.3mm) in width with *Roadware 10 Minute Concrete Mender* or other approved product.

G. Repair of Surface Defects: ACI SPEC-301

1. Surface defects include tie holes, honeycombed areas, and spalled and pitted areas resulting from concrete sticking to the forms.
2. Fill tie holes with patching mortar after being cleaned and thoroughly dampened.
3. Repair of surface defects other than tie holes:
    a. Provide ½ inches to ¾ inch deep saw cut around perimeter
    b. Remove unsound concrete
    c. Dampen patch area plus an additional 6 inches beyond perimeter
    d. Apply bonding agent by thoroughly brushing into surface
        1) Bonding Grout: One part cement, one-part fine sand with water to consistency of thick cream.
    e. Apply patching mortar when bond coat loses water sheen.
    f. Patching mortar
        1) Same materials as concrete to be patched with no coarse aggregate.
        2) Do not use more than one part cement to 2½ parts sand by loose volume.
        3) For exposed surfaces, make trial batch to check color compatibility with repair surface. Substitute white cement if color is too dark.
        4) Use mortar at a stiff consistency. Add no more mixing water than required for handling and placing.
    g. Do not use proprietary compounds for adhesion or as patching ingredients without approval.

3.06 CURING AND PROTECTION: ACI SPEC-301 AND SPEC-308.1

A. General: Protect all concrete against mechanical damage until the completion of Work.

B. Curing: Cure concrete in accordance with ACI SPEC-301 and 308.1, using either wet cure or curing compound.

C. Start curing as soon as free water has disappeared from unformed surfaces or immediately after forms are removed.

D. Accomplish curing and protection by preventing loss of moisture, rapid temperature change, mechanical injury, or damage from rain, frost, or flowing water for at least 7 days.

E. Formed surfaces may be cured by leaving forms in place.

F. Unformed surfaces, slab surfaces, and surfaces from which forms have been removed: Cure by one of the following application methods:

1. Absorptive mats or fabric kept continuously wet.
2. Waterproof sheet materials.
3. Curing compound.
    a. Apply the compound according to manufacturer’s directions
    b. Apply immediately after finishing operations are completed or after forms are removed.
    c. Apply sufficient quantity to ensure the formation of a continuous unbroken film over the entire area of the exposed surface. Re-spray surfaces damaged by subsequent construction operations during the curing period.

d. Keep surfaces coated with curing compound free of foot and vehicular traffic and other sources of abrasion during the curing period.

e. Do not use of any membrane material which will impart a slippery surface to the concrete or alter its natural color.

f. If the concrete surfaces, which are to receive curing compound, are expected to be exposed to freezing temperatures within 5 days, do not use the membrane-curing compound.

3.07 FLOOR HARDENER

A. Treat interior concrete floor areas exposed in the finished work with floor hardener applied in accordance with manufacturer's instructions. Before treatment application, thoroughly cure and free of oil, grease, or other foreign materials which might interfere with penetration of the hardener into the pores of the cement surface.

B. Areas to receive carpet, resilient flooring, or other types of finish-floor material will not require a floor-hardening treatment.

3.08 CAST-IN-PLACE CONCRETE TOLERANCES: ACI SPEC-117

3.09 FIELD TESTING

A. Performed by an Independent Testing Agency retained and paid for by Contractor or Owner, and to be completed prior t submittal installation milestones. :

B. Obtain composite samples of fresh concrete according to ASTM C172. Test samples will be taken at the point of placement.

C. Test Frequency

Test	Frequency
Air Content (ASTM C231)	Pre-test first load before unloading and test each time a set of compressive strength test cylinders are cast. In addition at least two air content tests on randomly selected batches for each class of concrete produced during each 8-hour or less period of concrete production each day.
Slump (ASTM C143)	Pre-test first load before unloading and test each time a set of compressive strength test cylinders are cast. In addition at least two slump tests on randomly selected batches for each class of concrete produced during each 8-hour or less period of concrete production each day.
Temperature (ASTM C1064)	Each time set of compressive strength test cylinders are cast and hourly when air temperature is less than 40°F and greater than 80°F.
Density (ASTM C138)	Each time air content is measured.
Concrete Cylinders (ASTM C31)	Set of four 6-by-12 in. cylinders or set of five 4-by-8 in. cylinders for each class of concrete, for initial 50 cy, and then for every subsequent 150 cy each day or one set each day. If total volume of concrete is such that frequency of testing required provide less than five strength tests for a given

Test	Frequency
	class of concrete, sample from at least five randomly selected batches or from each batch if fewer than five batches are used.
Compressive Strength (ASTM C39)	One cylinder break at 7 days Two 6-by-12 in or three 4-by-8 in cylinder breaks at 28 days One cylinder retained for future break
Shrinkage (ASTM C157*)	Samples cast during first placement of each class of concrete (eg, Piers, Walls, Baffles, etc.) for each construction season.
* Shorten wet curing period to 7 days.	

D. Perform additional tests when excessive variation in workability is observed.

E. In the event that tests indicate that concrete placed does not conform to specifications, take corrective measures to correct the deficiency at no additional cost to Owner.

F. When the slump is greater than the range stated in the mix design and the Visual Stability Index (VSI) is higher than 1 per ASTM C1611, Owner or Owner's Representative will reject the concrete and Contractor must remove the concrete from the Site. Addition of water to compensate for stiffening of the concrete before placing will not be allowed.

G. Air content determinations will be made by Owner or Owner's Representative. If the measured air content falls outside of the specified limits, the placing of concrete must immediately be stopped, and Owner or Owner's Representative will immediately make another air content determination from the same batch. Additional air-entraining admixture may be added at the Site to compensate for loss of air-entrainment provided the concrete is then rotated in the mixer or ready mix truck a minimum of 30 revolutions and is retested for air and slump. In the event of a second failure, the concrete is considered to have failed to comply with the Specifications, and Contractor must remove all of the concrete of that batch from the Site.

H. Concrete not meeting specification requirements to be rejected and removed from the site at Contractor's expense.

I. Laboratory-cured Test Cylinders

1. Cover and keep at air temperature between 60 degrees and 80 degrees F for the first 24 hours. At end of 24 hours, carefully transport cylinders to testing laboratory.
2. Acceptance test results are the strengths of the two specimens tested at 28 days.

J. Field-cured Test Cylinder (if Contractor or Owner requests)

1. Use for determination of form removal
2. Check adequacy of curing
3. Provide additional confirmation of 28-day strength
4. Place the cylinder as near as possible to the final location of the concrete from which the sample was taken.
5. Provide the same curing and protection as the adjacent concrete.

K. In the event that tests indicate that concrete placed does not conform to specifications, take corrective measures to correct the deficiency at no additional cost to Owner.

L. Shrinkage

1. Samples will be cast from concrete delivered to the site and tested for shrinkage using the method described in Section 2.03.C “Concrete Shrinkage Performance” by Owner’s Representative and test results reported to Owner and Engineer at an age of 14, 21 and 35 days.

2. If the shrinkage result is higher than 0.045 percent, or will, in the opinion of Engineer, be exceeded after 7 days of wet curing and 28 days of drying (total 35 days from casting), concrete operations halt and ready-mix producer must adjust mixture or batching operations to bring shrinkage back within tolerance. All costs associated with the disposition of non-conforming concrete must paid by Contractor, up to and including removal of the concrete, as determined by Engineer and Owner.

M. Cracks: Cast-in-place concrete will be inspected for cracks by Engineer. Contractor must provide Owner or Engineer safe access to the Work and coordinate project schedule to allow inspections to take place prior to removal of cofferdams.

3.10 EXISTING CONCRETE REMOVAL, CUTTING OR CORING

A. See specification 02 41 00 for removal of existing concrete.

B. Sawcut concrete along straight lines to a depth of a minimum 2 inch or to a depth shown on the drawings. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break out the remainder of the concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete. Provide square, straight edges and corners. Where existing adjoins new work.

C. Remove sawcut slabs from the project site unless it is going to be re-used.

D. Control and dispose of wastewater from saw cutting and cleanup in accordance with local or state environmental requirements.

E. Drill cores by any approved standard and accepted method of rotary rock core wireline drilling using diamond-set coring bits by means of which continuous and complete cores of standard diameter for the specified bit size obtained. Use the core drill product of one of the standard core drill manufacturing companies designed primarily for this type of work. Use a ball-bearing, swivel-type, double-tube NX core barrel or manufacturers' equivalent. Capacity of barrels does not exceed 15 feet of core, and must equipped with diamond-set core bits and standard core lifters. Supplies for core drilling must include all casing, drill rods, core barrels, diamond-set coring bits, piping, pumps, water, tools, core boxes, and power required for drilling. Set bits with the proper size stones for drilling the concrete and bed rock.

F. Disposition of core samples is Contractor’s responsibility.

G. Upon completion of core drilling, the holes must be backfilled with portland cement grout or mortar.

3.11 CLEANUP

A. After completion of concrete Work, leave the structure and surrounding area clean and neat for commencement of subsequent construction or equipment installation.

END OF SECTION 03 30 00

03 41 00

PRECAST STRUCTURAL CONCRETE

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Precast and precast-prestressed structural construction, including product design not shown on the Drawings, manufacture, transportation, erection, and other related items such as anchorage, bearing pads, inserts, storage, and protection of precast concrete.

B. Products furnished but not installed under this Section.

1. Placement of anchorage and connection devices on foundations.

1.02 RELATED SECTIONS

A. Section 01 35 00 Special Provisions.

B. Section 03 10 00 Concrete Forming and Accessories.

C. Section 03 20 00 Concrete Reinforcing.

D. Section 03 30 00 Cast-in-Place Concrete.

E. Section 03 60 00 Grouting.

F. Section 05 12 00 Structural Steel Framing

G. Section 09 97 00 Special Coatings

1.03 REFERENCES

A. Currently adopted editions of the following standards and publications.

1. American Society for Testing and Materials (ASTM)

a. ASTM A36: Standard Specification for Carbon Structural Steel.

b. ASTM A153: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

c. ASTM A276: Standard Specification for Stainless Steel Bars and Shapes.

d. ASTM A416: Specifications for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete.

e. ASTM A666: Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.

f. ASTM F593: Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

2. American Welding Society (AWS)

a. AWS D1.1: Structural Welding Code-Steel.

b. AWS D1.4: Structural Welding Code-Reinforced Steel.

3. American Concrete Institute (ACI)

a. ACI SPEC-301: Specifications for Structural Concrete for Building.

b. ACI CODE-318: Building Code Requirements for Reinforced Concrete.

4. Prestressed Concrete Institute (PCI)
    a. PCI MNL-116: Manual for Quality Control for Plants and Production for Precast and Prestressed Concrete Products.
    b. PCI Design Handbook, Precast and Prestressed Concrete, 5th edition.
    c. PCI Committee on Tolerances, “Tolerances for Precast and Prestressed Concrete,” PCI Journal, January-February, 1985, V. 30, No. 1.
    d. PCI MNL-120: Design Handbook-Precast and Prestressed Concrete.
    e. PCI MNL-123: Manual on Design of Connections for Precast Prestressed Concrete.
    f. PCI MNL-124: PCI Design for Fire Resistance of Precast Prestressed Concrete.
    g. PCI MNL-135 – Tolerance Manual for Precast and Prestressed Concrete Construction.
5. American Institute of Steel Construction (AISC)
    a. AISC Steel Construction Manual
6. American Association of State Highway and Transportation Officials (AASHTO)
7. International Building Code (IBC).
8. Local Building Code

1.04 SUBMITTALS

A. Shop Drawings
1. Production and erection drawings for Engineer’s approval
    a. Certified by a Professional Engineer licensed in the state of Minnesota responsible for its preparation.
    b. Indicate member sizes, sections, surface finishes, assembly methods, connections, stud layout, openings, inserts, and other necessary data for fabrication and installation.
    c. Indicate and number each facing unit. Each unit delivered to the job to bear the corresponding number clearly marked on the panel.
2. Shop drawings to include:
    a. Separately elevate and dimension each type of unit. Indicate location of each unit on overall layout by using the same identification mark placed on the actual unit.
    b. Indicate welded connections by AWS standard symbols and show size, length, and type of each weld.
    c. Indicate locations of and detail hardware and anchorage devices to be cast -into precast units with relationship to structure.
    d. Indicate locations of and detail hardware and anchorage devices to be embedded into or attached to structure or other construction with relationship to structure.
    e. Schedule loose hardware and anchorage devices to be installed by others; include in schedule: identification marks, item descriptions, and total quantities.
    f. All dead, live, and other applicable loads used in the design.
    g. Criteria of deflections and cambers, bearing requirements, and special conditions used in the design.

B. Product Design Criteria: Submit for review product design criteria utilized by the manufacturer in the manufacturing of components included in this Section.

C. Test Reports: Submit upon request reports of tests on concrete and other materials used in the manufacturing of components included in this Section.

D. Plant Quality Control: Outline of plant quality control program.

E. Samples: Provide Owner/Engineer with samples representing the finish color and texture of exposed surfaces when requested. Samples to be a minimum of 12 by 12 by 2 inches in size. Owner/Engineer to verify finish meets or exceeds the expectation of the design intent.

1.05 SEQUENCING AND SCHEDULING

A. Provide a schedule for designing, casting, curing, transporting, and erecting the precast concrete and in addition to a drawing and table indicating the erection sequence.

1.06 WARRANTIES AND GUARANTEES

A. Furnish precast products free from chipping, cracking, spalling, or any other unsightly blemishes.

B. For a period of 24 months from the date of acceptance of installation precast concrete manufacturer to guarantee the workmanship, material, and satisfactory performance of all members provided, including spalling, visible cracking, or excessive deflection due to inferior materials or workmanship.

1.07 QUALITY ASSURANCE

A. Qualified precast concrete manufacturer to provide the structural precast concrete and direct the installation.

1. Demonstrate the capability to produce the components and quality specified.

2. Show experienced personnel, physical facilities, established quality control procedures and management capabilities.

3. When requested by Engineer, submit written evidence of the above.

B. Single Source Requirement: Provide precast concrete of this section and the following sections by one manufacturer: Precast Hollow Core Planks, Precast Non-Architectural Insulated and Non-insulated Wall Panels, Precast Double T Roof Panels, Precast Beams and Columns.

C. Designer Qualifications: Precast concrete units to be designed under the direct supervision of a Professional Structural Engineer licensed in the state of (insert state).

D. Fabricator Qualifications: A firm that specializes in manufacturing the types of precast concrete specified in good standing in the PCI Plant Certification Program, and that complies with the following requirements: No Exceptions. No other plant certification will be accepted.

1. Assumes responsibility for engineering precast concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings and Comprehensive Engineering analysis by a qualified Professional Engineer.

2. Participates in PCI's Plant Certification program at the time of bidding and through the construction process.

3. Has sufficient production capacity to produce required units without delaying the Work.

4. Is registered with and approved by authorities having jurisdiction.

E. Erector Qualifications: PCI Certified, approved by the precast concrete manufacturer, and having a minimum of 5 years' experience in the erection of precast concrete similar to the

requirements of this project. Erector's workman shall be properly trained to handle and erect precast units.

F. Design Standards: Comply with ACI CODE-318 and the design recommendations of PCI MNL 120, "PCI Design Handbook – Precast and Prestressed Concrete," applicable to types of structural precast concrete units indicated.

G. Quality-Control Standard: For manufacturing procedures and testing requirements and quality control recommendations for types of units required, comply with PCI MNL 116, "Manual for Quality Control for Plants and Production of Structural Concrete Products."

1. Comply with camber and dimensional tolerances of PCI MNL 135, "Tolerance Manual for Precast and Prestressed Concrete Construction."

H. Welder Qualifications: AWS Certified, approved by the precast concrete manufacturer, and having a minimum of 5 years' experience in the erection of precast concrete similar to the requirements of this project. Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code – Steel"; and AWS D1.4, "Structural Welding Code – Reinforcing Steel."

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Wells Concrete Products: www.wellsconcrete.com

B. Gage Brothers: www.gagebrothers.com

C. Molin Concrete Products: www.molin.com

D. Substitutions: Product Requirements including the following:

1. Manufacturer and plant must be PCI Certified. No Exceptions.

2. Manufacturer must submit product information including typical details, proposed product construction, handling information, etc. for approval by Engineer.

3. Manufacturer must obtain written approval of Engineer prior to submitting bid.

4. Manufacturer must obtain written approval of General Contractor prior to submitting bid.

2.02 PRECAST UNITS

A. Columns, Haunches and Beams:

1. Size/Shape/Profile: As indicated on the drawings.

2. Screed Side: Match Form Side.

3. Form Sides: Grade A (PCI), refer to description below.

4. Concrete Color: Gray.

B. Flat Solid and Insulated Wall Panels:

1. Size/Shape/Profile: As indicated on the drawings.

2. Panel Width: 8'-0" unless noted otherwise on the Drawings. Panel width can be changed with Engineer's approval.

3. Overall Thickness:

a. Insulated Wall Panels; XX inch total thickness. Thickness may change per design requirements.

b. Non-Insulated Wall Panels; X inch thick solid.

4. Form Side Finish: Grade A (PCI), refer to description below.
5. Form Side Color: Gray.
6. Screed Side Finish: Standard Float (Warehouse Grade), refer to description below.
7. Screed Side Color: Gray.
8. Minimum insulation R value: R-XX

C. Exterior Roof Panels.

1. Size/Shape/Profile: As indicated on the drawings.
2. Top: Suitable surface for application of fully adhered roofing system.
3. Bottom and End/Edge: Manufacturer's standard. Visible surface are subject to approval by Owner/Architect.
4. Concrete Color: Gray.

D. Interior Roof Panels for Electrical and Chemical Rooms.

1. Size/Shape/Profile: As indicated on the drawings.
2. Top: Suitable surface for application of concrete topping.
3. Bottom and End/Edge: Manufacturer's standard. Visible surface are subject to approval by Owner/Engineer.
4. Concrete Color: Gray.

2.03 MATERIALS

A. Form Materials – See Section 03 10 00

B. Reinforcing Materials – See Section 03 20 00

C. Strand: Strand used for prestressing of precast members:

1. Uncoated, 7-wire, low-relaxation strand meeting the requirements of ASTM A416 Grade 250K or 270K.

D. Concrete – See Section 03 30 00, with the exception that the 28-day compressive strength to be at least 5,000 psi.

E. Anchors and Inserts

1. ASTM A36 carbon steel plates, angles, items cast into concrete, and inserts confined to PCI MNL-123.
2. All exposed anchors and inserts to be hot dipped galvanized in accordance with ASTM A153, except surfaces requiring field welding.

F. Grout – See Section 03 60 00

G. Bearing Pads:

1. High density plastic or Neoprene (chloroprene) and smooth both sides.
2. Neoprene conforming to Division II, Section 25 of AASHTO Standard Specifications for Highway Bridges.
3. High-density plastic pads with multi-monomer plastic strips to be non-leaching and support construction loads with no visible overall expansion for plank bearing.
4. Use PCI Design Handbook, Second Edition, Part 5.1 through Part 5.5 for design of bearing pads.

H. Structural Steel: Conform to Section 05 12 00. Exposed steel to be coated as set forth in Section 09 97 00.

I. Welded Studs: In accordance with AWS D1.1.

J. Cement Grout

1. Type I (ASTM C150 / C150M), “Dry Pack,” portland cement, sand and water having a minimum of 3,000 psi compressive strength at 28 days (approximately 3 to 1 sand/cement ratio).

2. Use “Cement Grout” unless “Non-Shrink Cement Grout” is specifically indicated by precast or structural engineer.

K. Non-Shrink Cement Grout: Per ASTM C1107/C1107M, Type III (ASTM C150 / C150M), “Dry Pack”, portland cement, sand, and water having a minimum of 10,000 psi compressive strength at 28 days.

L. Sealants:

1. Tremco; Dymeric 240 FC: www.tremcosealants.com

2. MasterSeal NP2 by Master Builders Solutions: https://www.master-builders-solutions.com

3. Approved equal.

M. Backer Rod: Denver Foam or equivalent. www.backerrod.com. open cell polyurethane, unless noted otherwise.

N. Welding Materials: Per AWS D1.1/D1.1M, “Structural Welding Code – Steel”; compatible with materials being welded.

O. Welded Studs: Per AWS D1.1/D1.1M, “Structural Welding Code – Steel”; compatible with materials being welded.

P. Anchor Bolts: As designed by precast manufacturer, cast-in place by others.

Q. Attachment Plates: As designed by precast manufacturer, cast-in place by others.

R. Other Load Bearing Loose Steel Items: As designed by precast manufacturer.

2.04 SOURCE QUALITY CONTROL

A. Maintain a source quality control program to ensure that materials conform to the Specifications. Provide each type of material from one source to the fullest extent practical. Maintain records regarding the source of all materials and submit to Owner.

2.05 MANUFACTURE

A. Design Standards and Methods

1. Design of all concrete components included in this Section in accordance with ACI CODE-318.

2. Use design method and procedures set forth in the PCI Design Handbook, PCI MNL-120, PCI MNL-123, and PCI MNL-124 where appropriate.

3. Welded connections in accordance with AWS D1.1 and D1.4.

4. Design of all structural steel in accordance with the AISC Steel Construction Manual and specifications.

B. Loadings for Design: Design all structural precast and precast, prestressed construction components for the following loading conditions:

1. Initial handling and erection stresses.

2. All dead loads including those noted on the plans.

3. All live loads (wind, snow, etc.) as set forth in Chapter 16 IBC

4. All other loads specified for members where they are applicable or specified on the drawings.

C. Design: Design calculations of products such as precast planks, beams, columns, wall panels, and connections not completed on the Contract Drawings to be performed by a registered Engineer licensed in (insert state) and experienced in precast, prestressed concrete design and submitted for approval upon request.

D. Permissible Design Deviations

1. Design deviations will be permitted only with Owner's approval and after Engineer's review of the manufacturer's proposed design, supported by complete design calculations and Drawings.

2. Design deviations to provide an installation equivalent to the basic intent without incurring additional cost to Owner.

E. Manufacturing Procedures: In general compliance with PCI MNL-116 and MNL-135.

F. Manufacturing Tolerances: Comply with PCI MNL-116 and MNL-135. Specific applicable products are building beam, columns, hollow core slabs, double tees, insulated wall panels, and solid wall panels.

G. From Side Finishes: Use PCI specifications for finishes. For components manufactured under this Section of the Specifications provide a Commercial Finish. All faces to have true, well-defined surfaces. Correct any exposed ragged edges by rubbing and grinding.

Grade A (PCI): Consider all formed finishes of structural components Grade A resulting from the process of power washing all formed surfaces to expose latent pinholes, then rubbing the surfaces with a cement paste to fill in all pinholes. Allow discoloration at form joints. Grind smooth all form joints. This surface is suitable for painting (especially with a textured or "sand" paint). However, some surface blemishes will be visible. Fill all air pockets and holes over ¼ inch in diameter with a sand-cement paste. Grind smooth all form offsets or fins over 1/8 inch.

Recess strands at the exposed vertical ends. Sack finish the ends of the member.

H. Screed Side Finishes "By Description": 1. Standard Float (Warehouse Grade): Screed or float finish uniformed surfaces: Strike off and consolidate concrete with vibrating screeds to a uniform finish, float finish, if required. Hand screed at projections. Normal color variations, minor indentations, minor chips, and spalls are permitted. No major imperfections, honeycombing, or defects are permitted.

I. Openings: Manufacturer to provide for those openings 12-inch round or square or larger as shown on the Drawings. Coordinate final opening locations and sizes during the shop drawings review process. Locate and field drill other openings or cut by the trade requiring them after the precast, prestressed products have been erected. All openings to be approved by Engineer and the precast manufacturer before forming, drilling or cutting.

J. Patching: Patching will be acceptable providing the structural adequacy of the member and the appearance is not impaired.

K. Fasteners: Manufacturer to cast in structural inserts, bolts, plates, and any other items as detailed by the Drawings.

L. All reinforcing steel to have a minimum cover as required by code and be accurately located as indicated on the approved shop drawings. Metal chairs, with or without coatings, are not be permitted in the finished face.

M. Fabrication procedures to be carried out under a fully protective overhead and sidewall covering, with a constant temperature of between 50 to 80°F being maintained except during the curing cycle.

N. Plant Quality Control: The precast concrete manufacturer to have an established quality control program in effect prior to letting of the contract. Submit an outline of this program.

Prior to start of production, submit certified test reports of materials.

Keep plant records of production and quality control in accordance with PCI MNL 116. Such records to be available to Engineer upon request.

The quality control program and records to include:

1. Qualified personnel including a trained concrete technician. Such personnel should report to management or engineering and be independent of production.

   If the manufacturer has contracted for his plant quality control to be performed by an outside concrete laboratory, that laboratory should be accredited by the Cement and Concrete Reference Laboratory of the National Bureau of Standards, or otherwise be able to prove its capability.

2. Plant records of component materials, concrete and production operation as follows:

   a. Component Materials

      1) Aggregates – Suppliers test reports including abrasion (or petrographic analysis), absorption, gradation and specific gravity. Plant tests for organic impurities and sieve analysis as follows: Fine aggregates (back-up mixes) - every 2 weeks or for each 200 cubic yards of aggregate. Coarse aggregates (back-up mixes) - every 2 weeks or for each 400 cubic yards of aggregate.

      2) Cement – Certified test reports or special arrangement with Supplier. Age of cement in storage.

      3) Water – Analysis and strength test not older than 6 months for non-potable water.

      4) Reinforcing Steel – Certified test reports for each grade, size, and shipment.

      5) Hardware – Certified test report for grades; weld certification, if structural, and product information of inserts.

      6) Admixtures – Product information and/or certified test reports.

      7) All other materials – Product information.

   b. Concrete

      1) Date of cast.

      2) Mix proportions by weight.

      3) Mixing water corrections and/or aggregates corrections due to surface moisture.

      4) Yardage, anticipated and actual yield.

      5) Identification of casting area, mold, or unit.

      6) Cylinder identification.

      7) Concrete temperature.

      8) Air temperature, weather conditions, and any measures taken for cold or hot weather concreting.

      9) Slump – Daily if more than 2 inches.

10) Air content – Daily.

11) Continuous inspection of batching, mixing, conveying, placement, consolidation, and finishing of concrete.

12) Method and duration of curing. Temperature charts for accelerated curing.

13) Twenty-eight day strength – Daily, per mix design.

14) Unit weight, dry and fresh – Weekly for normal weight; daily for lightweight.

15) Strengths at release or stripping, if required for structural reasons.

16) Determination of absorption on architectural concrete exposed to weathering.

17) Detailed information on architectural concrete mixes.

c. Other production operations

1) Marking of all units with date cast and identification number; alternatively consecutive numbering for date identification as part of production records.

2) Inspection of molds prior to concreting.

3) Checking on dimensions of units, position and amount of reinforcement, other incorporated materials, openings, block-outs, etc.

4) Inspection of stripping from mold, handling, and storage.

5) General observation of plant, equipment, working conditions, weather, and other items affecting production.

6) Test of concrete coverage over steel for a minimum 5 percent of production.

7) Final inspection of finished products and subsequent marking of them to this effect.

8) Inspection of architectural finish to ensure that the product matches the approved Project sample.

9) Final inspection of product during loading for proper procedures and possible defects developed during storage.

10) Inspection of products following any repair.

11) Calibration of testing equipment every 6 months to 1 percent accuracy.

12) Calibration of batching scales every 4 months to 1 percent accuracy.

13) Records should be kept for a minimum of 2 years after final acceptance.

O. Fire Resistance Ratings per International Building Code.

1. 3-hour fire rating for the walls of the Chemical Room.

P. Coordination: Coordinate openings sizes and locations, attachment of related items, and other work related to the fabrication and installation of precast concrete units.

Q. Sequencing: Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction without delaying the work. Provide setting diagrams, templates, instructions, and directions, as required, for installation.

R. Preinstallation Meeting: Conduct a preinstallation meeting a minimum of two weeks prior to installation of precast concrete. Require attendance of related trades and structural engineer. Review the following items:

1. Review shop drawings and installation details.

2. Anchor and weld plate locations.
3. Opening locations including those cut in the field.
4. Limitations on field cutting and core drilling.
5. Site access requirements and obstructions including but not limited to:
    a. Access roads and maintenance thereof.
    b. Protection and repair of existing paving.
    c. Dewatering of footing trenches.
    d. Job site snow removal.
    e. Job site debris removal.
    f. Overhead obstructions including power lines.
6. Cold weather grouting requirements and expectations.
7. Cleaning responsibilities and expectations.

PART 3: EXECUTION

3.01 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Delivery and Handling: Lift and support precast concrete members during manufacturing, stockpiling, transporting, and erection only at the lifting or supporting points, or both, as shown on the Contract and Shop Drawings., Do not use embedded strand which causes surface spalling when utilized to handle the precast members on wall panels or roof planks.

Perform transportation, site handling and erection with acceptable equipment and methods, and by qualified personnel.

B. Storage: Store all precast members above the ground surface. Store members so that identification marks are easily discernable. Label each unit with date of production and mark indicating unit location on the shop drawings. Separate stacked members by battens across the full width of each bearing point. Stack members so that lifting devices are accessible and undamaged. Do not use the upper member of stacked tiers as storage area for shorter members or heavy equipment.

C. Transportation and Delivery: Transport units in accordance with manufacturer requirements.

D. Identification: Label each unit with date of production and mark indicating unit location on the shop drawings.

E. Coordinate delivery of the precast members with the General Contractor and Owner.

3.02 ERECTION

A. General: Erect precast, pre-stressed concrete members a minimum of 14 days after manufacture and connected in accordance with approved Shop Drawings.

B. Verify site is free of obstructions and ready to receive the work. Obstructions include but are not limited to dewatering of footing trenches, jobsite snow removal, site debris, overhead obstructions, including power lines.

C. Verify access roads have been prepared to handle all weather conditions and are acceptable to precast concrete installer.

D. Verify erection equipment meets the FAA provisions listed in Section 01 35 00 Special Provisions.

E. Do not begin the work of this section unless preparations by the site contractor are complete and the site contractor understands and agrees to maintain acceptable conditions until precast installation is complete. Beginning the work of this section is acceptance of existing conditions.

F. Preparation: General Contractor is responsible for the following items:

1. Removal of all obstructions including but not limited to power lines and wires that may be hazardous to precaster's personnel and other items required for precast installation.
2. All-weather access roads for precaster's trucks and cranes. Refer to precaster's proposal/quotation for more defined access requirements.
3. Grid locations, building corners, finish floor elevations, top of door elevations and other survey points/lines/elevations for accurate installation of precast units.
4. True and level bearing surfaces on all field-placed bearing walls and other field-placed supporting units.
5. Placement and accurate alignment of anchor bolts, plates, or dowels in column footings, grade beams, and other field-placed supporting units.
6. All shoring required for composite beams and slabs. Shoring shall have a minimum load factor of 1.5 x (dead load plus construction loads).
7. Repair all concrete and bituminous surfaces damaged during precast installation. Examine surfaces with precaster before and after precast installation and coordinate efforts to minimize damage.

G. Erection: Erection is defined as including:

1. Placing, aligning, leveling and grouting the members in final positions in the structure on the designated supporting faces.
2. Connection of precast members to each other, or to supporting structural members, as shown on the Shop Drawings.
3. Removal of lifting hooks, if necessary.
4. Cleaning, caulking, and sealing of "Precast" to "Precast" joints. Joints include:
    a. Precast to precast including joints between interior and exterior units.
    b. Precast to bearing.

H. Installation: Manufacturer or competent erector to install precast, prestressed concrete members. Lift members by means of suitable lifting devices at points provided by the manufacturer. Temporary shoring and bracing, if necessary, to comply with the manufacturer's recommendations.

I. Alignment: Properly align and level members as required by the approved Shop Drawings. Variations between adjacent members to be reasonably leveled out by jacking, loading, or other feasible methods as recommended by the manufacturer and reviewed by Engineer.

Erect all precast concrete members level, plumb, square, and true within the allowable tolerances. Position so that dimensional error does not accumulate. Correctly align horizontal and vertical joints and maintain a uniform joint width as erection progresses. Saw cutting which produces a square and smooth edge along the precast plank is allowed for aligning planks in field. Planks that are saw cut longitudinally to not be less than 1/2 the standard manufacturer's width as indicated on the Drawings. In no case will breaking or chipping plank edges be allowed as a method of alignment.

J. Joints: If the space between flanges of adjacent roof plank exceeds 3/4 inch, cover with a minimum 3-inch wide 20-gage galvanized sheet metal cover adhered on each side with plastic flashing cement. Do not run cement into joints.

K. Field Welding: Field welding is to be done by qualified welders as set forth in AWS D1.1 using equipment and materials compatible to the base material.

L. Erection Tolerances:

1. Erect precast units level, plumb, square, true, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 135. Position units so that dimensional errors do not accumulate and so joints remain aligned and uniform as erection progresses. Level out variations between adjacent units by jacking, loading, or any other feasible method as recommended by the manufacturer and acceptable to Engineer.

2. In the event that precast units cannot be adjusted to conform to design or tolerance criteria, cease work and advise Architect. Execute modifications as directed by Architect prior to resuming work.

M. Grouting:

1. Pack grout between bottom of precast walls and their bearing surfaces filling the entire area free of voids. Rake joints back at locations where backer rod and sealant is to be installed.

2. General Contractor Responsibility: Provide “shelters/tarps” and “temp heat” for grouting when temperatures are below 40 degrees for a 24-hour period.

N. Cold Weather Grouting: Provide written procedures to address cold weather grouting to Owner/Engineer prior to the erection process.

3.03 ATTACHMENTS

A. General: Subject to the approval of Engineer, precast, prestressed concrete products may be drilled or “shot” provided no contact is made with the prestressing steel. Repair any spalling that occurs.

3.04 SEALANT INSTALLATION

A. General Contractor/Owner to coordinate with the precast erector sealing of precast joints where required. The general Contractor accepts responsibility if the precast joints above the roof deck and below grade are not sealed due to poor coordination/site conditions. The precast erector to accept responsibility if precast joints are not sealed but were coordinated in a timely fashion by the General Contractor/Owner.

B. Install backer rod and sealant according to product manufacturer’s instructions.

3.05 FIELD REPAIR AND CLEANING OF PRECAST UNITS

A. Repairs by Precast Erector: Repair chipping, spalling, cracking, and other damages to precast units after delivery to the jobsite. After installation and repairs are completed, all further damage is the responsibility of, and at the cost of, the General Contractor. Consult with precaster for repairs of structural precast units.

B. Cleaning by General Contractor: Clean exposed surfaces that are soiled during shipping, installation, and remaining construction operations, prior to Substantial Completion. Clean in accordance with precast manufacturer’s recommendations.

3.06 INSPECTION AND ACCEPTANCE

A. General: Engineer to conduct final inspection and acceptance of erected precast, prestressed concrete members to verify conformance with Drawings and Specifications.

3.07 FIELD QUALITY CONTROL

A. Establish and maintain quality control for work covered under this Section of the Specifications to assure compliance with Contract requirements. Maintain records, available to Owner and Engineer, regarding quality control measures.

3.08 PROTECTION

A. General Contractor to protect precast units from remaining construction operations.

END OF SECTION 03 41 00

03 60 00

GROUTING

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Cement grout.

B. Non-shrink grout.

C. Epoxy grout.

1.02 RELATED SECTIONS

A. Section 03 10 00 Concrete Forms and Accessories.

B. Section 03 20 00 Concrete Reinforcement.

C. Section 03 30 00 Cast-in-place Concrete.

1.03 REFERENCES

A. Current editions of the following standards and publications.

1. ASTM C109/C109M, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (using 2 inch or 50 mm cube specimens)
2. ASTM C1107/C1107M, Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink)

1.04 SUBMITTALS

A. Manufacturer's literature:

1. Cement grout.
2. non-shrink grout.
3. Epoxy grout.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver in original, unopened containers with manufacturer's name, labels, product identification, and batch numbers. Store as recommended by manufacturer.

PART 2: PRODUCTS

2.01 MATERIALS

A. Cement Grout:

1. Portland cement, sand, and water sufficient for placement and hydration.
2. Minimum compressive strength (28 days): 5000 psi

B. Non-Shrink Grout: ASTM C1107

1. Premixed, packaged ferrous or non-ferrous aggregate shrink-resistant grout.
2. Non-metallic, non-gas forming, and free of corrosive-type material.
3. Minimum compressive strength (28 days), ASTM C109: 7,000 psi

4. Acceptable products:
    a. Five-Star non-shrink, non-metallic grout
    b. MasterFlow 928 Grout by Master Builders Solutions
    c. Crystex by L&M Construction Chemicals, Inc.
    d. Approved equal.

C. Epoxy Grout
1. To be placed below equipment base plates where high precision, higher compressive strength, or higher torques, impacts or vibrations are expected
2. Acceptable products:
    a. MasterFlow 648 by Master Builders Solutions
    b. Five-Star DP Epoxy Grout by Five Star Products
    c. Or approved equal

D. Epoxy Adhesive
1. For the post installation of adhesive anchoring systems.
    a. Or approved equal

2.02 EQUIPMENT

A. Grouting Equipment: Capable of continuous mechanical mixing that will produce grout free of lumps and undispersed cement.

B. Clean oil, ice, or other deleterious substances from grouting equipment.

PART 3: EXECUTION

3.01 PREPARATION

A. Remove all debris, standing water, ice, and any loose or deleterious materials from the surfaces where grout is to be applied before grouting.

3.02 INSTALLATION

A. Do not grout if it is raining or snowing, or if rain or snow appears imminent and the area of application is not adequately protected.

B. Protect surface near work area due to the mixing, handling, and application of grout material.

C. Place grout in a neat and orderly fashion in the designated areas.

END OF SECTION 03 60 00

Division 04

Masonry

SECTION 04 05 13

MORTAR

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Mortar material for project masonry work.

B. Masonry grout, masonry accessories and unit masonry are not included in this Section.

1.02 RELATED SECTIONS:

A. Section 03 30 00 - Cast-In-Place Concrete

B. Section 04 15 16 - Masonry Grout

C. Section 04 05 23 - Masonry Accessories

D. Section 04 20 00 - Unit Masonry

1.03 REFERENCES

A. Current editions of the following standards and publications.

1. ASTM C91, Standard Specification for Masonry Cement
2. ASTM C144, Standard Specification for Aggregate for Masonry Mortar
3. ASTM C150/C150M, Standard Specification for Portland Cement
4. ASTM C207, Standard Specification for Hydrated Lime for Masonry Purposes
5. ASTM C270, Standard Specification for Mortar for Unit Masonry
6. ASTM C780, Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry
7. ASTM C979/C979M, Standard Specification for Pigments for Integrally Colored Concrete

1.04 SUBMITTALS

A. Design mix, indicating proportion or property method used and required environmental conditions.

B. Field method of measuring volumes of materials to be used for design mix.

C. Test reports on mortar indicating conformance to ASTM C270.

D. Samples of available colored mortar for use with face brick. Demonstrate color (hue and tone) and texture. Engineer to select color to use from these available samples.

1.05 DELIVERY, STORAGE AND HANDLING

A. Protect mortar materials from the elements and other damage during delivery. Store cement and lime in watertight enclosures with elevated floors. Protect sand from rainfall.

1.06 SEQUENCING AND SCHEDULING

A. Schedule production of mortar material to coincide with masonry erection work.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Follow recommended practices set forth in Section 04200 of these Specifications.

1.08 BASIS FOR COMPENSATION

A. Compensation for all work covered by this Section of these Specifications will be included under the lump sum Contract Price bid.

PART 2: PRODUCTS

2.01 MATERIALS

A. Mortar materials:

1. Portland Cement: ASTM C150, Type 1, Gray Color
2. Hydrated Lime: ASTM C207, Type S
3. Sand: ASTM C144
4. Water: Clear, potable and free of deleterious amounts of acid, alkaline and organic materials.
5. Coloring at Face Brick: ASTM C979, Pigments for integrally colored, concrete, finely milled (95 to 99% minus 325 mesh) inert, stable to atmospheric conditions, weather resistant, alkali resistant and free of fillers and extenders.

B. General: Use only those materials specified in this section of the Specifications for mortar for unit masonry. Use Type M mortar for all unit masonry mortar below or in contact with ground on this project. Use Type S or Type M at all other locations. Do not use admixtures, calcium chloride, salts or anti-freeze compounds, except for acceptable coloring additive.

C. Reinforced Concrete Masonry: Mortar for use in reinforced concrete masonry: ASTM Designation C270.

D. Mortar for repointing defective mortar joints in unit masonry: same type as originally used to lay up the work.

2.02 TESTING MORTAR

A. Determine the water retentivity and compressive strength of mortar in accordance with the test procedures described in ASTM C91.

B. Mix mortar for testing in the laboratory from representative samples of mortar materials and proportions to be used in the construction.

C. Testing for mortar composition and mortar properties: ASTM C780.

PART 3: EXECUTION

3.01 APPLICATION

A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270.

B. Mixing: Accurately measure mortar materials such that the specified proportions are controlled and accurately maintained. Mix sand, lime and cement dry to a uniform color, with water being added to bring the mortar to proper consistency for use. Workability or consistency of mortar on the board shall be such that mortar is sufficiently wet to be worked under trowel. Mix the mortar at least 3 minutes after the water is added in a drum-type mechanical mixer. Thoroughly clean the mixer after discharging each batch. Perform mixing to assure uniform color throughout exterior.

C. Placement: Used mortar within 2½ hours of initial mixing. Discard mortar not used within this time. Retemper mortar by adding water and remixing at any time within 2 hours after initial mixing to restore its workability.

1. Before any masonry units are laid, clean the top surface of the concrete foundation or wall. If the concrete surface is soiled and not clean, at Engineer's discretion, sandblasting, chipping or scarifying may be required, at Contractor's expense, to ensure a good bond of the masonry and concrete.

D. Mortar Bedding and Joints: Lay hollow units with full mortar coverage on horizontal and vertical face shells. Bed webs in the starting course on footings and solid foundation walls, and where adjacent to cores to be reinforced and/or filled with grout or concrete. Mortar bedding for the first course of blocks to be grouted shall not fill the area under the block cores; grout shall come into direct contact with the concrete foundation or wall.

1. Lay solid units with full head and bed joints.
2. Horizontal and vertical face joints: uniform in width and 3/8-inch-thick unless otherwise indicated.
3. Tool horizontal joints before vertical joints.
4. Compress all exposed masonry joints with a jointing tool to form a dense, smooth, concave joint. Compress all non-exposed masonry joints with the mason's trowel to form a struck joint.
5. Clean mortar from exposed faces immediately and keep the faces free from droppings.
6. Remove mortar protrusions extending into cavities or cells to be reinforced and grouted.
7. Spread mortar at cavity walls or cells to be reinforced so that it is back ½ inch from the edge or trowel the mortar forming a beveled bed to prevent the mortar from protruding or falling into the grout space or cavity.
8. When patching or pointing must be done after the mortar has hardened, chisel out the joint to a depth of ½ inch, thoroughly wet, and repoint with fresh mortar.
9. The method of measuring materials for mortar shall be such that proportions of the materials can be controlled.

3.02 FIELD QUALITY CONTROL

A. Establish and maintain quality control for work covered under this section of the Specifications to assure compliance with contract documents and maintain records of quality for all operations including, but not limited to the following:

1. A copy of design mix on-site
2. Keep onsite a copy of method of measuring materials.

END OF SECTION 04 05 13

SECTION 04 05 16

MASONRY GROUT

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Bond beams, lintels, wall cores with reinforcing, and cavity walls.

B. Mortar, unit masonry and masonry accessories are not included in this Section.

1.02 RELATED SECTIONS:

A. Section 04 05 13 - Mortar

B. Section 04 05 23 - Masonry Accessories

C. Section 04 20 00 - Unit Masonry

1.03 REFERENCES

A. Current editions of the following standards and publications:

1. ASTM Designation C39, Specification for Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens
2. ASTM Designation C94, Specification for Ready-Mix Concrete
3. ASTM Designation C143, Standard Method of Test For Slump of Portland Cement Concrete
4. ASTM Designation C144, Specification for Aggregate for Masonry Mortars
5. ASTM Designation C150, Specification for Portland Cement
6. ASTM Designation C404, Specification for Coarse Aggregate
7. ASTM Designation C476, Specification for Grout for Masonry
8. ASTM Designation C1019, Specification for Sampling and Testing Grout

1.04 SUBMITTALS

A. Design mix, indicating proportions used, required environmental conditions and admixture limitations.

B. Field method of measuring volumes of materials to be used for the design mix for grout batched on-site.

1.05 DELIVERY, STORAGE AND HANDLING

A. Protect grout material not mixed and delivered by a ready-mix plant from the elements and other damage during construction. Store cement in a watertight enclosure with an elevated floor. Protect aggregate from rainfall.

1.06 SEQUENCING AND SCHEDULING

A. Coincide with the related work and adjacent work areas to correspond with required set and cure times of grout material, material surfaces to which grout is applied, and to correspond with the erection schedule of attached and adjacent hardware items.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Follow recommended practices set forth in Section 04 20 00 of these Specifications.

1.08 BASIS FOR COMPENSATION

A. Compensation for all work covered under this Section of these Specifications will be included under the lump sum Contract Price bid.

PART 2: PRODUCTS

2.01 MATERIALS

A. Masonry grout:

1. Portland Cement: ASTM C150, Type 1, Gray Color
2. Fine Aggregate: ASTM C144
3. Coarse Aggregate: ASTM C404
4. Water: Clear, potable and free of deleterious amounts of acid, alkaline and organic materials

B. Proportion grout fill required at all bond beams, lintels and wall locations as shown on the Drawings according to Table 1 of ASTM C476 for fine grout. If the minimum horizontal dimension of the space to be grouted is 4 inches, coarse grout may be used.

1. Mix and deliver grout in accordance with the requirements for ready-mix concrete under ASTM C94 or mixed on-site in quantities needed for immediate use in accordance with ASTM C476 for fine grout.
2. Fluid consistency grout but only fluid enough to pour or pump without segregation.

C. In no case will mortar be accepted as a substitute for grout, except where indicated on the Contract Drawings.

2.02 TESTING GROUT

A. Measure consistency of grout using a slump test in accordance with ASTM C143.

B. Test grout mix in accordance with ASTM C1019.

C. Perform compressive strength test in a damp condition in accordance with ASTM C39.

D. Minimum 28-day compressive strength of 2,000 psi with a slump of 7 to 8 inches.

PART 3: EXECUTION

3.01 APPLICATION

A. Surface Preparation: Before grout is placed, remove all debris, standing water, excess mortar, ice and any loose or deleterious materials from the surfaces where grout is to be applied.

B. Environmental Conditions: Do not apply grout if it is raining or snowing, or if rain or snow appears imminent and the area of application is not adequately protected.

C. Mixing Equipment: When a batch mixer is used on the job site, thoroughly mix all materials for a minimum of 5 minutes. Discard grout not placed within 1½ hours after water is first added to the batch. The method of measuring materials for grout shall be such that proportions of the materials can be controlled.

1. Clean equipment used to mix and apply the grout material of oil, ice or other deleterious substances.

D. Protection: Take precautions to avoid damage to any surface near the work area due to the mixing, handling and application of grout material.

E. Workmanship: Apply grout to the designated areas in a neat and orderly fashion, free from voids and spillage. Level Finish, with reinforcement, inserts, and accessories firmly supported during placement.

F. Placement: Place grout by low lift grouting methods only.

1. For low lift grouting, do not build the wall to a height exceeding 5 feet before grout is pumped or poured into the cores. Do not drop grout through space any distance more than necessary and in no case more than 4 feet. Consolidated grout in accordance with Section 03 30 00 of these Specifications. Stop the level of grout at least ½ inch from the top of masonry at intermediate pours. Project steel reinforcing a sufficient height to provide a lap splice as indicated in Section 04 05 23 of these Specifications.

2. Do not displace reinforcement while placing grout. Mechanically vibrate or rod spaces containing grout during placement to ensure complete filling of the grout spaces.

3. Use metal lath under bond beams or other blocks to confine the grout to flow in the required cores only.

4. Complete the grouting of any section of wall in one day with no interruptions greater than one hour.

3.02 FIELD QUALITY CONTROL

A. Establish and maintain quality control for work covered under this section to assure compliance with the Contract Documents and maintain records of quality for all operations including, but not limited to, the following:

1. A copy of design mix on-site

2. Record of grout pours: locations, dimensions and volume of pours.

END OF SECTION 04 05 16

SECTION 04 05 23

MASONRY ACCESSORIES

PART 1: GENERAL

1.01 DESCRIPTION

A. Metal ties, steel reinforcement, control joints, weep holes and plastic flashing for concrete masonry work.

B. Mortar, grout, and unit masonry are not included in this Section.

1.02 RELATED SECTIONS:

A. Section 04 05 13 - Mortar

B. Section 04 05 16 - Masonry Grout

C. Section 04 20 00 - Unit Masonry

D. Section 07900 - Joint Sealers

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION:

A. Furnished under Section 05500 - Termination Bar

1.04 REFERENCES

A. Current editions of the following standards and publications:

1. ASTM Designation A82, Specification for Steel Wire, Plain, for Concrete Reinforcement
2. ASTM Designation A116, Specification for Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric
3. ASTM Designation A153, Specification for Zinc-Coated (Hot Dip) on Iron and Steel Hardware
4. ASTM Designation A185, Specification for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement
5. ASTM Designation A615, Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
6. ASTM Designation A616, Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement
7. ASTM Designation A617, Specification for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement
8. ASTM Designation B227, Specification for Hard-Drawn Copper-Clad Steel Wire

1.05 SUBMITTALS

A. No submittals are necessary for materials and supplies covered under this Section which comply with the applicable specifications.

1.06 DELIVERY, STORAGE AND HANDLING

A. Store steel reinforcing and metal ties above the ground surface on platforms, skids or other supports, and reasonably protect from injury and surface deterioration caused by exposure to conditions producing rust.

B. When placed in the Work, reinforcement to be free of injurious seams, flaws, cracks, scale, rust or other foreign materials.

1.07 SEQUENCING AND SCHEDULING

A. Schedule installation of masonry accessories to coincide with masonry erection work.

1.08 BASIS FOR COMPENSATION

A. Compensation for all work covered under this section of these Specifications will be included under the lump sum Contract Price bid.

PART 2: PRODUCTS

2.01 MATERIALS

A. Metal Ties and Anchors: Minimum tensile stress of 30,000 psi.

1. Wire which serves as lateral ties in multi-wythe masonry walls: corrosion-resistant metal (ASTM A82) or coated with a corrosion-resistant metal, such as copper, zinc, or other metal having equivalent or better corrosion-resistant qualities. Coatings for multi-wythe reinforcement: meet or exceed the coatings listed for single wythe reinforcement listed later in this Section.
2. Lateral metal ties: not less than No. 9 gage thickness or be crimped. Adjustable and part of a prefabricated joint reinforcement which includes lateral and longitudinal ties. Only ladder or truss type joint reinforcement, with ties spaced at 16 inches o.c., will be allowed. Do not restrain transverse movement of the two wythes.
    a. Furnished joint material: AA wire product AA525 or AA625 or an approved equal.
3. Use continuous ladder or truss-type joint reinforcement for single wythe construction. Furnished joint material: AA wire product AA500 or AA600 or an approved equal. Coat material by one of the following:
    a. Zinc coatings on iron or steel: Class B-1, B-2, or B-3 of ASTM A153-73.
    b. Zinc coating on wire: Class 2 or Class 3 of ASTM A116-73.
    c. Copper-coated wire: Grade 30HS of ASTM B227-70(76).
4. Dovetail anchor slots: AA wire product AA100 or an approved equal.
5. Dovetail anchors: AA wire product AA200 (3/16-inch wire tie, galvanized) or an approved equal.
6. Adjustable ties: AA wire product AA302 or an approved equal.

B. Steel Reinforcing Bars: ASTM A82-76; ASTM A185-73; ASTM A615-76A; ASTM A616-76; ASTM A617-76.

C. Control Joint: Control joints as indicated on the Drawings and sealed with a material which meets the specifications under Section 07900 and matches the color of the concrete mortar.

1. Concrete masonry unit control joints consisting of either a control block unit or a Michigan type control joint as shown on the Drawings, using 30-pound asphalt saturated felt building paper.
2. Brick face veneer control joint consisting of a backing rod and waterproof seal as shown on the Drawing with material properties as specified under Section 07900.
3. Provide horizontal slip plane, on at least one end of the lintel or both ends of lintel if indicated on Drawings, where reinforced lintel beam terminates at a control joint. Use plastic flashing or bituminous sheets for a slip plane.

4. Continuous bond beams across control joints. Provide a dummy groove to control location of anticipated crack.

D. Weep Holes: 3/8-inch diameter nylon rope or sash cord which can be left in place to act as a wick.

E. Plastic Flashing: 30 mil thick where not exposed, 62 mil where detail exposes part or all of flashing; B.F. Goodrich vinyl water barrier, ″Nevastral″ or ″Nu-Flex″ by Sandell Mfg. Co. Use for through wall flashing applications, and elsewhere where flashing is built into concealed masonry.

F. Metal Tie Bars: Corrosion-resistant rigid steel anchors with a minimum section of 1¼ inches by ¼ inch by 30 inches with 3-inch right angle bends at each end.

PART 3: EXECUTION

3.01 ERECTION

A. General: Accurately cut all reinforcement to length and bent by such methods as will prevent injury to the material. Straighten out all kinks or bends in the bars caused by handling incident to delivery without injury to the material before placing it in the masonry. Wall ties connecting the facing veneer wythe with the backup wythe consisting of prefabricated joint reinforcement.

B. Metal Ties in Cavity Wall and Single Wythe Construction:

1. Place prefabricated joint reinforcement in horizontal mortar joints so that longitudinal wires are located over face-shell mortar beds and are fully embedded in mortar for their entire length with minimum mortar cover of 5/8 inch on exterior side of walls and ½ inch at other locations. Reinforcement not continuous through a control joint. Do not exceed 16 inches for vertical spacing of the reinforcement. Ties in alternate courses must be staggered. Lap reinforcement 6 inches or more. Install factory fabricated sections at all corners.

2. For cavity wall construction, one cross wire serving as a tie for not more than each 2 square feet of wall area. Provide additional ties at all openings as indicated on the Drawings.

3. Embed dovetail anchor slots horizontally at 16 inches o.c. in concrete retaining walls and where shown on Drawings for precast members. Attach dovetail anchors at 16 inches c.c. vertically.

C. Steel Reinforcing Bars: Position reinforcement bars accurately at locations shown on the Drawings. Support and secure vertical and horizontal bars against displacement prior to grouting by wire positioners or other suitable devices at intervals not exceeding 200 bar diameters nor 10 feet. Provide required cover and bar lap as indicated in these Specifications.

1. Splices may be made only at such points and in such manner that the structural strength of the member will not be reduced. Lapped splices to provide sufficient lap to transfer the working stress of the reinforcement by bond and shear.

a. Minimum lap: 48 bar diameters, but not less than 24 inches.

b. If welded or mechanical connections are used, they shall develop the strength of the reinforcement.

2. Place reinforcement bars prior to grouting.

3. Completely grout cells containing vertical or horizontal reinforcement bars or dowels in accordance with Section 04125 of these Specifications.

4. Tolerances for the placement of steel bars in walls and flexural elements: plus or minus ½ inch for ″d″ equal to 8 inches or less, plus or minus 1 inch for ″d″ equal to 24 inches or

less but greater than 8 inches, and plus or minus 1-1/4 inches for ″d″ greater than 24 inches. Where ″d″ is equal to the distance from the top of the grouted masonry beam or face of masonry unit to the center of the steel.

5. Tolerance for longitudinal location of reinforcement: plus or minus 2 inches.

D. Protection for Reinforcement: Completely embed all bars and joint reinforcing in mortar or grout. Reinforcement coverage of masonry not less than:

1. 3 inches for bottom of footings.

2. 2 inches on vertical members where masonry is exposed to action of weather or soil for bars larger than 5/8 inch and 1½ inches for bars 5/8 inch or less.

3. 3/4 inch from the faces of all walls not exposed to action of weather or soil.

4. 1-bar diameter over all bars, but not less than 3/4 inch at the upper faces on any member, except where exposed to weather or soil in which cases the minimum coverage shall be 2 inches or 3 inches, respectively.

5. Reinforcement consisting of bars or wire 1/4 inch or less in diameter embedded in the horizontal mortar joints: not less than 5/8 inch mortar coverage at exposed face of wall.

6. Thickness of grout or mortar between masonry units and reinforcement: not less than ¼ inch and No. 6 gage or smaller wires may be laid in 3/8 inch horizontal joints.

E. Control Joints: Do not place control joints through bond beams, unless indicated on Drawings. Rake control joints out ¾ inch and leave ready for sealing.

F. Weep Holes: Place weep holes in a head joint of the outer wythe immediately above the flashing and space 16 inches on center with rope or sash cord extending out ½ inch beyond the exterior face.

G. Plastic Flashing: Extend flexible flashing ½ inch beyond outside of shelf angle or masonry veneer wythe to from a drip. Cut flashing leaving an exposed uniform line of flashing.

1. Where flashing is to be continuous, all lapped joints at the end of sections must be thoroughly sealed with the proper adhesive per manufacturer's recommendation. At heads of masonry openings, carry head flashing at least 6 inches beyond ends of shelf angle and turn up ends 4 inches minimum to form an end-dam at the masonry head joint, with corners folded, not cut.

2. Reseal penetration of the flashing, either unintentionally or to accommodate a shelf angle bolt, nut, or metal tie, per manufacturer's recommendation, to prevent water passage.

3. Attach flashing to masonry with an aluminum termination bar as covered in Section 07135.

H. Steel Anchor Bars: 4-foot o.c. vertically at wall intersections.

3.02 FIELD QUALITY CONTROL

A. Establish and maintain quality control for work covered under this section of the Specifications to assure compliance with Contract documents and maintain records of quality for all operations.

END OF SECTION 04 05 23

SECTION 04 20 00

UNIT MASONRY

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Unit masonry.

B. Cavity wall masonry system.

1.02 RELATED SECTIONS:

A. Section 03 41 00 - Structural Precast Concrete: Anchors

B. Section 04 05 13 - Mortar

C. Section 04 05 16 - Masonry Grout

D. Section 04 05 23 - Masonry Accessories

E. Section 05500 - Steel and Iron Fabrication: Anchor Bolts and Shelf Angles for Masonry

F. Section 06 10 00 - Rough Carpentry

G. Section 07212 - Board Insulation: Insulation for Cavity System

H. Section 07900 - Joint Sealers

1.03 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION:

A. Furnished under Section 05550 - Anchor Bolts

B. Furnished under Section 07212 - Board Insulation

1.04 REFERENCES

A. Current editions of the following standards and publications.

1. ASTM Designation C33, Specifications for Concrete Aggregate
2. ASTM Designation C90, Specification for Hollow Load Bearing Concrete Units
3. ASTM Designation C140, Specification for Sampling and Testing Concrete Masonry Units
4. ASTM Designation C216, Facing Brick (Solid Masonry Units Made from Clay or Shale)
5. ASTM Designation E447-84, Compressive Strength of Masonry Prisms
6. U.B.C., Uniform Building Code 1988 Edition, Standard No. 24-7 and Chapter 24 ″Masonry″
7. OSHA U.S. Occupational Safety and Health Administration, Section 1926.700(a)

1.05 SUBMITTALS

A. Product Data

1. Manufacturer′s specifications and product information for each type of concrete masonry and brick veneer unit proposed, prior to start of masonry work.
2. Include manufacturer′s test data indicating the net area compressive strength of concrete masonry units as determined in accordance with U.B.C. Standard No. 24-7.

1.06 DELIVERY, STORAGE AND HANDLING

A. Protect concrete masonry units and clay brick against the elements, wetting and other damage prior to use.

B. Stockpile concrete block and clay brick on supports free from contact with the ground and cover with a waterproof covering. Masonry units to be free from soil, ice and frost when laid in the wall.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Follow recommended practice set forth by the U.B.C. Section 2404, Part C, “Cold Weather Construction.”

1.08 BASIS FOR COMPENSATION

A. Compensation for all work covered under this Section of these Specifications will be included under the lump sum Contract Price bid.

PART 2: PRODUCTS

2.01 MATERIALS

A. Concrete Block: ASTM C33

1. Of the size shown on the Contract Drawings and normal weight, with sand and gravel aggregate, conforming to the latest.
2. Hollow concrete block: ASTM Designation C90, Grade N (exposed to moisture penetration or weather), Type 1 (moisture controlled units).
    a. Specified compressive strength of masonry f′m: greater than or equal to 1,750 psi as interpolated from Table No. 24-C of the U.B.C.
3. Each unit to be produced by the same manufacturer and of uniform size, shape, color and texture for each continuous area and visually related areas. Do not utilize irregular, unsound or broken units.
4. Size: Manufacturer′s standard units with nominal face dimensions of 16 inches long x 8 inches high (15-5/8 inches by 7-5/8 inches actual), with a nominal width as indicated on the Drawings.
5. Special Shapes: Provide where indicated and where required for bond beams, lintels, corners, jambs, control joints, and other special conditions. Utilize corner blocks and other standard shapes as necessary so that walls will be smooth and free of voids and depressions. Where horizontally reinforced masonry beams, bond beams and lintels are indicated on Drawings, provide special formed U-shaped masonry units or knock-out bond beams as required. Provide for reinforcement at the indicated locations and continuous grout fill of indicated depth.
6. Curing: Cure units in an autoclave at normal pressure and temperature.
7. Weight Classification: Normal weight units unless otherwise indicated, oven dry weight of concrete of 125 pounds per cubic foot or more.

B. Face Brick: Clay brick conforming to the latest ASTM Designation C216, Grade SW, Type FBX.

1. Golden rose, with antique texture, as manufactured by Sioux City Brick and Tile Company.
2. Size: Modular manufacturer′s standard units. Special units and solid units to have nominal face dimensions of 8 inches long by 8 inches high by 3-3/4 inches wide.

C. Mortar: See Section 04 05 13.

D. Grout: See Section 04 05 16.

E. Masonry Accessories: See Section 04 05 23.

PART 3: EXECUTION

3.01 ERECTION

A. General: Concrete masonry units and clay brick to be dry when laid. Lay all masonry in running bond unless otherwise indicated on the Drawings. Adjust each unit to final position in the wall while mortar is still soft and plastic. Remove and re-lay any unit disturbed after mortar has stiffened with fresh mortar. Align vertical cells to be filled with grout to provide a continuous unobstructed opening of the dimensions shown. Chases to be built in and not cut in. Chases to be plumb and minimum one-unit length from jambs of openings. Install anchor bolts, weep holes, accessories and other items to be built-in as the masonry work progresses.

1. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and properly located openings, movement-type joints, returns and offsets. Do not use units of less-than-half-size unit length except as may be required at wall corners and openings provided the masonry unit coursing was accurately installed.
2. Cut units as required to provide pattern indicated on Drawings and to fit adjoining work neatly. Utilize full units without cutting wherever possible. Cut masonry units with saw designed to cut masonry to provide clean, sharp, unchipped edges.
3. In exposed work, do not utilize masonry units with chips, cracks, voids, discolorations, or other defects which may be visible or cause staining in the finished work.
4. Support masonry bond beams by shoring or an adequate bracing system for a minimum of 7 days after grouting.
5. Do not remove forms and shores until reinforced masonry members have cured sufficiently to carry their own weight and other loads that may be placed on them during construction.
6. Wall Intersections: Place steel tie bar shall in accordance with Section 04 05 23 of these Specifications; or place joint reinforcement, strips of metal lath, or ¼-inch mesh galvanized hardware cloth across the joint between the two walls in alternating courses. Fill the appropriate cores with mortar or grout to embed the tie bar or selected reinforcement type. Metal lath may be placed under the cores to support the filling.
7. Stopping and Resuming Work: Rake back 1/2 masonry unit length in each course. Clean exposed surfaces of set masonry and remove loose masonry units and mortar prior to laying fresh masonry.

B. Mortar: See Section 04 05 13.

C. Masonry Grout: See Section 04 05 16.

D. Tolerances for Concrete Masonry Construction Based on Actual Dimensions:

Variation from the Plumb:

1. In the lines and surfaces of columns, walls and arises
   a. In 10 feet - 1/4 inch
   b. In any story or 20 feet maximum - 3/8 inch
   c. In 40 feet or more - 1/2 inch

2. For external corners, control joints and other conspicuous lines

   a. In any story or 20 feet maximum - 1/4 inch

   b. In 40 feet or more -1/2 inch

Variation from the Level or the Grades Indicated on the Drawings:

1. For exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines

   a. In any bay or 20 feet maximum: 1/4 inch

   b. In 40 feet or more: 1/2 inch

Variation of the Linear Building Lines from Established Position in Plan and Related Portion of Columns, Walls and Partitions:

1. In any bay or 20 feet maximum: 1/2 inch

2. In 40 feet or more: 3/4 inch

Variation in Cross-Sectional Dimensions of Columns and in the Thickness of Walls:

1. Minus 1/4 inch; plus 1/2 inch.

E. Anchorage: Anchor precast planks (Section 03410), steel shelf angles (Section 05 50 00), and wood nailers (Section 06100) to the concrete masonry walls as shown on the Contract Drawings.

   1. Locate anchor bolts embedded in masonry as indicated on the Drawings and to meet the requirements of Section 05 50 00. Field drill masonry blocks which require anchor bolts to pass through face shells to the corresponding bolt diameter plus 1/8-inch. Use rigid templates to hold the anchor bolts at the required spacing and location shown on the Contract Drawings during grouting. Prior to grout pour, place templates and rigidly attach. Do not use expansion anchors in any masonry.

F. Protection of Masonry: When rain or snow is imminent and work is discontinued, cover the tops of exposed masonry walls with a well secured, nonstaining, waterproof cover. Extend membrane at least 2 feet down both sides of wall and anchor securely in place. Contractor is responsible for following applicable OSHA standards for providing temporary shoring and bracing for masonry walls until the designed lateral strength is reached, to prevent collapse due to wind or other force. Where necessary, temporarily brace foundation walls to prevent damage from backfilling operations.

G. Embedments and Accessories: Install all anchors, ties, steel reinforcement, anchor bolts, metal frames and other similar items as the work progresses. Solidly fill door frames with mortar as the laying of block progresses. Place sealant around all door frames and where noted on the Contract Drawings according to Section 07900 of these Specifications.

H. Reinforcing Bars: See Section 04 05 23.

I. Building Insulation: At cavity wall locations, firmly attach board insulation meeting the requirements of Section 07210 to the masonry backup wall as shown on the Contract Drawings and according to Section 07210.

J. Built-In Work: As work progresses, built-in items indicated on the Drawings and items in this and other sections of Contract Documents.

   1. Cut units as required to build in conduits, switch boxes, grounds, anchors, nailing strips, plumbing fixtures, mechanical and electrical systems, pipes, brackets, and accessories. Form chases, slots, cut outs, and patch masonry work as required by other trades. Set bucks, blocking and anchoring as required for accurate installation.

   2. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core to fill voids.

3. Fill space between hollow metal frames and masonry solidly with mortar.

4. Fill cores with grout three (3) courses, or 24 inches, under bearing plates, beams, lintels, posts, and similar conditions unless otherwise indicated on Drawings.

K. Finish: At completion of the Work, point all holes and defective mortar joints where necessary as covered in Section 04100 of these Specifications.

1. Thoroughly clean exposed masonry. Before applying any cleaning agent to entire wall, apply to sample wall area of approximately 20 s.f. in approved location. Do not proceed with cleaning work until sample area is approved. Use approved cleaning material, method on remaining wall area.

2. If stiff brushes, water do not suffice clean the surface on which no green efflorescence appears with Sure-Klean Vana-Trol as manufactured by Pro So Co., Inc.

3. Remove ″problem″ stains as follows with the as-specified formulations of Pro So Co., Inc.:

a. Green Efflorescence - ″No. 800 Stain Remover.″

b. Tar, Asphalt - ″Asphalt and Tar Remover.″

c. Ferrous Stains - ″Ferrous Stain Remover.″

d. Do not use acid solutions for cleaning masonry units unless specifically approved by Architect.

e. Clean off loose mortar, remove stains from concrete masonry units.

3.02 FIELD QUALITY CONTROL

A. Masonry Testing: If requested by the Owner, build, at Contractor′s expense, three sets of prisms, in accordance with ASTM E447-84, Part 5, Test Specimen, to be tested in a laboratory at Owner′s expense. Construct the prisms during construction of the masonry work. Cure the prisms for 28 days and test in accordance with the latest ASTM Designation C140.

1. Compressive strength calculated by dividing the test load by the net cross sectional area of the prism: at least 1,750 psi.

B. Establish and maintain quality control for work covered under this Section to assure compliance with the Contract Documents and maintain records of Contractor′s quality for all operations including, but not limited to, the following:

1. Records of the location, dimensions and the quantity of block placed.

END OF SECTION 04 20 00

SECTION 04 20 10

NATURAL STONE MASONRY

PART 1: GENERAL

1.01 SUMMARY

A. Section includes:

1. Full depth, natural stone masonry units in cavity wall configuration. (Wellhouse 16)
2. Natural stone veneer masonry, including lath and attachment system with integral outside corners. (Wellhouse 8 and Wellhouse 9)
    a. Exterior surface preparation at existing Wellhouse 8 and Wellhouse 9.
3. Natural stone materials shall match the existing New Brighton Water Treatment Plant-1 AOP Addition and Remodeling constructed in 2017-2018 and Distribution Control Station (DCS) building constructed in 2016-2017. Product substitutions are not allowed.
4. Cutting of stone:
    a. At doors windows and louver openings for weather tight fit to opening perimeter and transitions.
    b. At control joints for continuous appearance of stone units.
5. Flashing and all related accessories.
6. Outside corner shapes
7. Natural stone sealer.

1.02 RELATED SECTIONS

A. Section 04 05 13 Mortar

B. Section 04 05 16 Masonry Grout

C. Section 04 05 23 Masonry Accessories

D. Section 04 20 00 Unit Masonry

E. Section 05 50 00 Metal Fabrications

F. Section 06 16 00 Cementitious Sheathing Assemblies

G. Section 07 20 00 Building Insulation

H. Section 07 25 00 Weather Barriers

I. Section 07 62 00 Sheet Metal Flashing and Trim

J. Section 07 90 00 Joint Sealants

K. Section 08 10 10 Hollow Metal Doors and Frames

L. Section 23 33 15 Louver and Dampers

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

B. American Concrete Institute (ACI)

1. ACI 530 - Building Code Requirements for Masonry Structures.

2. ACI 530.1 - Specifications for Masonry Structures.

C. American Society of Testing and Materials (ASTM)

1. ASTM C568 - Standard Specification for Limestone Dimension Stone.
2. ASTM C666 - Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
3. ASTM A167 – Standard Specification for Stainless & Heat Resisting Chromium Nickel
4. ASTM C216 – Standard Specification for Facing Brick
5. ASTM C847 – Standard Specification for Metal Lath
6. ASTM C1063 – Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Base Mortar and Plaster
7. ASTM C270 – Standard Specification for Mortar Unit Masonry

D. ANSI A41.1 - Building Code Requirements for Masonry

E. ACI 530.1/ASCE 6-88 - Specifications for Masonry Structures

F. Masonry Standards Joint Committee (MSJC):

1. Specification for Masonry Structures (TMS 602/ACI 530.1/ASCE 6)

1.04 QUALITY ASSURANCE

A. Stone Supplier/Manufacturer shall be a single source responsibility for both full depth and veneer systems throughout duration of project. Obtain stone masonry units within uniform allowable texture, color, blend and ranges acceptable for these characteristics of the specified product. Stone shall be quarried from the same part of the quarry bed during the relative same time period for a uniform matching appearance of the full depth and veneer systems.

1. Stone materials shall be pre-blended in the selected pattern.
2. Product Mock-Up: See Part 1.08 Pre-Construction Meeting and Mock-up.

B. Installer shall have a minimum of five years successful experience in comparable stone masonry projects with similar scope and type of unit masonry, and shall employ personnel skilled in the masonry work process, handling of this specific unit masonry, and operations indicated.

1. A competent foreman shall be in charge of the Work at all times. The same foreman shall be in charge from start to completion of the Project.

C. Work not specifically noted on the drawings or in the specifications shall be in accordance with the current recommendations of:

1. Masonry Standards Joint Committee (MSJC).
2. Stone Industry Association.
3. National Concrete Masonry Association.

1.05 PROJECT CONDITIONS

A. General:

1. Provide heat for cold weather work.
2. Maintain materials and surrounding air temperature above 40°F prior to, during and 48 hours after completion of the work.
3. No stone masonry work is permitted during days of rain or high winds.

4. Cover tops of walls at the end of each day's work. Protect finish from damage.

B. Preparation:

1. Protection of materials and equipment: Materials and equipment necessary to protect masonry work during freezing temperatures shall be at the site in advance of work proceeding.

2. Building upon frozen or snow-covered work is prohibited. Proceed only after specified environmental conditions are met and surface is dry.

3. Frozen or damaged work: Remove and replace any frozen mortar. Walls not developing adequate bond because of freezing shall be removed and rebuilt.

C. Products:

1. Mortar: Keep mortar temperature between 70°F and 120°F.

2. Mixing water: Do not heat mixing water above 120°F to avoid a flash set. To avoid a flash set when water is heated above 100°F, water and aggregate shall be brought together first.

3. Sand: Heat slowly and evenly to prevent scorching. Scorched sand shall not be used.

4. Stone masonry units: Use only dry stone masonry units. Use of wet or frozen units is prohibited. Maintain temperature of units to a minimum of 40°F.

5. Grout: Place in masonry at minimum temperature of 70°F and maximum temperature of 120°F. Maintain grouted masonry above 40°F for 48 hours following placement of grout.

D. Hot and Cold Weather Requirements: According to MSJC Specification for Masonry Structures (TMS 602/ACI 530.1/ASCE 6). Additionally:

1. Ambient Air Temperatures 90°F and above: Maintain mortar between 70° and 120°F. Spread of mortar bed shall not exceed 4'-0" and place units within 1 minute of spreading mortar. Proceed only with the approval of Engineer/Architect.

2. Ambient Air Temperatures 40° to 90°F: Standard procedures.

3. At or above 40°F during the day and will drop below 40°F at night: Cover area of work to maintain a minimum of 40°F.

4. Below 40°F or will drop below 40°F within 48 hours: Do not lay stone masonry units, tuck point mortar joints, wash down or wet surfaces without a heated enclosure set-up and operational. The temperature of the enclosure shall be maintained above 40°F for a minimum of 48 hours after completing any of this Work. The heat source must be on both sides of the Work in new construction or additions.

5. Below 40°F: Maintain area of work, masonry materials, equipment, and mortar batching area in a heated enclosure prior to and during the Work. Do not heat water or components for mortar or grout to above 140°F.

6. Exceeds 90°F: Fog spray newly constructed masonry until damp, at least three times a day for 72 hours after completing masonry work.

E. Heated Enclosure (If required)

1. Monitor carbon monoxide levels. Immediately correct the environment when carbon monoxide is beyond a safe level for workers.

2. Periodically conduct safety checks of the enclosure and contents and continuous, safe operation of the heat source during overnight hours on work days and during daytime hours on non-work days, weekends, and holidays. Include two checks overnight and three checks during the daytime, at equally spaced intervals. Report the date, time, inside

and outside temperatures, weather conditions, and status of the site for each safety check.

F. Protection:

1. Brace walls as necessary during construction.
2. Protect exposed stone masonry with wind breaks when wind velocities exceed 15 mph.
3. Protect exterior veneer against staining.
4. Cover top of walls continuously with non-staining weighted waterproof coverings when work is not in progress and before precipitation.
5. Protect trees, shrubs, lawns, and other features remaining as a portion of final landscaping.
6. Protect surrounding surfaces from damage by covering, masking, sealing, or other means of protection. Immediately remove mortar which contacts surfaces which are not to receive mortar.
7. Protect all through-wall flashing installations from damage during construction, including at the stone ledge.
8. Provide 19 mm (3/4 in.) plywood over 25 mm (1 in.) expanded polystyrene insulation and loose EPDM for protection of the existing roof membrane a minimum of 3.6 m (12 ft.) from adjacent walls; on traffic paths; and under staging equipment.
9. Provide EPDM membrane over newly installed roof for directing the runoff from the masonry cleaning process. Direct the runoff to the roof drains or scuppers with a temporary downspout.
10. Immediately report any damage to Owner and Engineer/Architect.

1.06 DELIVERY, STORAGE AND HANDLING

A. Masonry units shall be delivered and handled, strapped or tied together on pallets or other suitable cartons to prevent chipping and breakage. Units shall be covered from wetting by waterproof tarp.

B. Keep masonry units, accessories, and reinforcing dry, clean and free of scale, rust, ice, or other harmful coatings.

C. Store masonry units and packaged materials off ground, under cover, and under cover from wetting by capillary action, rain or snow, and protected from mud, dust, or other materials and contaminants.

1.07 SUBMITTALS

A. General:

1. All Submittals must be reviewed and approved prior to all pre- construction testing and mock-up construction meetings.

B. Test results and certifications including:

1. Certifications: Submit manufacturer's certificate of compliance to specified material standards for each stone masonry utilized.
2. Test Results: All test results from pre-construction testing shall be submitted and certified from the testing agency.
3. Contractor's Reports: Proposed construction procedures for hot and cold weather, when applicable.

C. Product Data including:

1. Submit product data for all materials necessary for masonry construction and restoration, including but not limited to stone, stone ties, joint & other miscellaneous reinforcing, termination bars and fasteners, thru-wall flashing membrane, rope wicks, cavity drainage material, masonry cleaner, flashing sealant, drip edge and mortar net.

D. Shop Drawings including:

1. Sheet Metal Drip Edge

2. Mock-up: Plan and elevation locations with acknowledgment of corresponding details.

E. Samples including:

1. Stack of six face stone, minimum, with artificial mortar joint and a sample board of face stone color blended.

1.08 PRE-CONSTRUCTION CONFERENCE AND MOCK-UPS

A. General:

1. Purpose of mock-ups are to illustrate construction and workmanship including the unit(s) installation and color, stone color blending, mortar color, mortar joint tooling, weather barrier installation and details, masonry tie installation, through-wall flashing with sheet metal and end dams, joint sealant and backer rod installation, cavity drainage material, vents, and continuous rope weeps for approval by Engineer/Architect and Owner Representative.

2. Mock-ups shall be placed in a location near the existing Plant building where color tones can be compared for compatibility.

a. Full depth natural stone and stone veneer mock-up shall be located adjacent to one another for comparison.

3. All written submittals shall be approved before scheduling the mock-up construction.

a. Personnel Performing Work: Must be constructed with actual field personnel that will be installing the materials during the project.

b. Materials Included: Construct with stone units from the same as the Project. All other materials included within the mock-ups must be approved prior to the inclusion in the mock-up.

4. Coordination:

a. Coordinate mock-up material delivery, construction, and testing with the masonry observer, testing agency, and field personnel installing the materials during the project for the weather barrier, masonry ties, through-wall flashing and accessories, and weeps.

b. Schedule full-time stone masonry observation of the mock-up construction.

c. Schedule a mock-up review meeting for approval by Engineer/Architect.

d. Coordinate mock-ups with Rainscreen mock-up.

5. Acceptance of Work: No work shall proceed until the mock-up is approved by Engineer/Architect and Owner Representative.

a. When accepted, the mock-ups shall become the project standard for quality of work, methods of installation, and appearance. Leave mock-ups in place until all masonry work is complete and has been accepted.

6. Pre-Installation Meeting and both conditions of masonry required Mock-ups shall be part of one meeting to review all conditions prior to any approval of work starting.

a. Schedule a minimum of two weeks prior to the masonry work commencement.

B. Pre-Construction Meeting:

1. Meeting Agenda: Construction schedule and sequence, mock-up construction, product delivery and storage, material compatibility, site restrictions, coordination of any required testing and observation, and other project specific topics.

2. Attendance by General Contractor, installing masonry contractor, natural stone material supplier(s), Owner's Representative, and Engineer/Architect are required.

C. Mock-Up Panel – Stone Full Depth Building System:

1. Contractor shall furnish one 6' wide x 6' high mock-up panel for Engineer/Architect and Owner review and acceptance. 4'x6' continuous stone full-depth section required.

2. Mock-up shall be representative of all building systems and material transition points inclusive of stone cavity wall construction, rainscreen and an opening.

3. Natural Stone Sealer: Following approval of stone mock-up, install sealer on half of panel after the mock-up has fully cured.

D. Mock-Up Panel – Stone Veneer Masonry Building System:

1. Contractor shall furnish one 6' wide x 6' high mock-up panel for Engineer/Architect and Owner review and acceptance. 4'x6' continuous stone veneer section required.

2. Mock-up shall be representative of all building systems and material transition points inclusive of rainscreen and an opening.

3. Natural Stone Sealer: Following approval of stone mock-up, install sealer on half of panel after the mock-up has fully cured.

E. Compatibility: Installing contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1. Including but not limited to: Air weather barrier, building insulation, cementitious wall assemblies, natural stone, architectural precast concrete, unit masonry, sheet metal flashing trim, and waterproofing.

1.09 ATTIC STOCK

A. Attic Stock: Each type of masonry veneer unit to Owner at the completion of the project. Minimum of 50 stones per mix.

1.10 WARRANTY

1. Laticrete Thin Veneer System: 15 Year Material Warranty For The Exterior Cement Board Supported Adhered Masonry Veneer

PART 2: PRODUCTS

2.01 STONE MASONRY UNITS

A. General:

1. Stone masonry materials shall be cut from single source quarry for both full depth and veneer systems throughout the duration of the project in range of dimensions, textures, color, blends and characteristics acceptable for the specified product. Materials shall be quarried in the same area of the quarry bed as the veneer masonry during relatively the same time span to achieve a uniform appearance between systems.

2. Natural stone materials shall match the existing New Brighton Water Treatment Plant-1 AOP Addition and Remodeling constructed in 2017-2018 and Distribution Control Station (DCS) building constructed in 2016-2017. Product substitutions are not allowed.

3. Provide special shapes where required on the drawings or otherwise required for a complete installation.

   a. Window, door and louver returns require minimal variation in stone facing: 0.25" tolerance maximum.

B. Stone Masonry Units (Wellhouse 16):

1. Material Basis of Design & Detailing: 'Aspen Park Blend' (75% 'Aspen Hills' & 25% 'Kettle Creek') as furnished by Hedberg Supply, 1125 Nathan Lane North, Plymouth, MN 55441. Product Representative: Dan Onasch; donasch@hedbergsupply.com; 612.366.3263.

   a. Stone: 'Aspen Hills', Fond du Lac, WI quarry.

   b. Stone: 'Kettle Creek' from Fond du Lac, WI quarry.

   c. Stone masonry shall be pre-blended.

   d. Product substitutions are not allowed.

2. Size: Full-depth stone in random heights and lengths. Top termination, end dams, and corners.

3. Stone Pattern: Ashlar

4. Mortar Joint: 3/8" raked joint; joint tolerance between 1/4" to 1/2" max.

2.02 STONE MASONRY VENEER

A. Stone Masonry Veneer (Wellhouse 8 and Wellhouse 9):

1. Material Basis of Design & Detailing: 'Aspen Park Blend' (75% 'Aspen Hills' & 25% 'Kettle Creek') as furnished by Hedberg Supply, 1125 Nathan Lane North, Plymouth, MN 55441. Product Representative: Dan Onasch; donasch@hedbergsupply.com; 612.366.3263.

   a. Stone: 'Aspen Hills', Fond du Lac, WI quarry.

   b. Stone: 'Kettle Creek' from Fond du Lac, WI quarry.

   c. Stone masonry shall be pre-blended.

   d. Product substitutions are not allowed.

2. Size: Varies; Below lists general range parameters and (average).

   a. Length: 6" to 24" (12")

   b. Height: 1/2" to 8"

   c. Depth: 3/4" to 1-1/4" (1")

   d. Corner Returns: 3" to 5"

   e. Stone shall not vary in height more than 1/2" in a 12" span.

3. Stone Pattern: Ashlar

4. Mortar Joint: 3/8" raked joint; joint tolerance between 1/4" to 1/2" max.

2.03 ANCHORAGE, MORTAR SYSTEM AND ACCESSORIES

A. Full Depth Masonry (Wellhouse 16): See Section 04 05 13 Mortar for stone mortar.

1. Mortar: See Section 04 05 13 Mortar for stone mortar

2. Masonry Ties: See Section 04 05 23 Masonry Accessories for stone masonry anchors.

3. Masonry Accessories: See 2.05.

B. Stone Veneer (Wellhouse 8 and Wellhouse 9): Full stone veneer system shall be supplied as recommended by Manufacturer and specified herein complying with.

1. Source Quality Control: A single Manufacturer shall provide all products necessary for stone veneer installation, including water resistive barrier, scratch coat, brown coat, and mortar.

2. Warranty: Manufacturer shall provide total system warranty of twenty-five (25) years for natural stone adhesion to existing and new back-up wall conditions against product deterioration and other defects that cause delamination from substrate.

3. Approved Manufacturer:

a. Laticrete International, Inc.; www.laticrete.com

1) Product Representative Contact: Bill Lange, phone: 203.980.7884; email: bglange@laticrete.com.

4. Wall Preparation Wellhouse 8 & Wellhouse 9: See 2.04.

5. Exterior Wall Sheathing: See Section 06 16 00 Cementitious Sheathing Assemblies.

a. PermBase Plus cementitious reinforced exterior wall sheathing.

6. Waterproofing Crack Isolation Membrane (WB-2): Single component, water resistive Barrier load bearing, vapor permeable, fluid applied, waterproofing and crack isolation, air barrier membrane for existing precast concrete preparation in applied stone veneer system. Product includes all components necessary for complete system application, including but not limited to, primer and transition flashing and/or tape.

a. Approved Product: “MVIS Air & Water Barrier”

7. Setting Bed Mortar: High performance mortar bed for adhering stone to the wall

a. Approved Product: “MVIS Veneer Mortar Bed”

8. Pointing Mortar: High performance, fast setting masonry pointing mortar that provides a dense and hard mortar joint material for stone veneer.

a. Approved Product: “MVIS Pointing Mortar”

b. Color to match full depth masonry mortar. See 2.03, A.

9. Sealer: See Item 2.07.

10. Wellhouse 8 Contractor Option: Reference 2.04 Wall Preparation.

a. Lath Galvanized, flat expanded diamond metal lath; weighing not less than 3.2 lb. per yd2 (1.4 kg/m2); Self-furring, 3/8” ribbed corrosion resistant metal lath, meeting ASTM C847.

1) Fastening: All fastening to secure lath, flashing, and other anchored components must be corrosion resistant, meeting ASTM C1063 for application and veneer requirements.

b. Thick Bed Scratch Coat and Brown Coat: Polymer-Modified, non-sagging blend of cementitious materials for high performance structural coating of stone veneer units that exceeds Type N & S mortars and complies with ASTM C270 for compressive strength requirements for masonry veneer installation. Inhibits the growth of stain-causing mold and mildew with antimicrobial technology.

1) Approved Product: “MVIS Premium Mortar Bed”

c. Waterproof/crack: See 2.03, B.6.

d. Setting Bed: See 2.03, B.7

e. Pointing Mortar: See 2.03, B.8.

f. Sealer: See Item 2.07.

2.04 WELLHOUSE 8 AND WELLHOUSE 9 EXTERIOR WALL PREPARATION

A. Existing Surface Finishes:

1. Wellhouse 8: Painted exposed stone aggregate stucco system over CMU back-up wall.

2. Wellhouse 9: Painted corduroy ribbed textured CMU.

B. Surface Preparation: Contractor shall level existing textured surfaces in preparation for direct applied exterior sheathing. Contractor's option to grind, parge coat and/or shim in combination as required enough to provide a suitable plumb surface for the application of the thin veneer stone system.

1. Wellhouse 8: See 2.03, B10 for Contractor's alternative option to wall preparation.

2.05 FLASHING AND ACCESSORIES

A. Flashing: Full sheet of copper in 5oz. sheet copper laminated with non-asphaltic polymer or fiberglass fabric on both sides.

1. Multi-Flash 500 by York Manufacturing.

2. Copper Seal-tite 2000 by Advanced Building Products.

B. Flashing Sealants: Great Seal, LT-100 & UniverSeal, US-100 by York; Sonolastic 150 (York Manufactured Flashings only) by Sonneborn; Sealtite Sealant by Advanced Building Products.

C. Rope wicks: 3/8-inch diameter 100% cotton rope wicks, including core.

D. Termination bar: 1/16" x $1^1/_2$" stainless steel bar, ASTM A167, Type 304, with predrilled holes at 6-inch centers. Holes shall be no more than 2-inch form ends of termination bar.

E. Termination Bar Fasteners: Zamac Nailin stainless steel anchors with an alloy body ¼-inch diameter by 1½-inch long, manufactured by Powers Fasteners, Brewster, New York.

F. Flashing Drip Edge: ASTM A167, Type 304, 0.0625" (16 gauge) stainless steel, soft temper, mill finish, extend minimum of 1/2" beyond face of exterior wall with a hemmed edge.

G. Mortar Net: High density polyethylene or nylon, 90% open woven mesh, dovetail notched shape, verify thickness for cavity size. Approved: Mortar Net manufactured by Mortar Net USA Ltd., Burns Harbor, Indiana.

H. Compressible joint filler: See Section 07 92 00 Joint Sealants for requirements.

I. Stone Veneer Terminations & Transitions:

1. Edge/End Terminations: Provide from prefinished sheet metal; see Section 07 62 00 Sheet Metal Flashing and Trim. Locations include all stone veneer base, opening and vertical end terminations.

2. Pre-Manufactured Corners and Trims: Provide corrosion resistant exterior grade finish.

a. Approved Manufacturer: All by Fry Reglet Corporation; www.fryreglet.com. "Stucco Reveals and Moldings" line.

b. Outside Corners: Offset double "J" Trim molding.

c. Inside Corners: "W" molding inside corner lap trim.

d. Pre-Cast Expansion Joints: Stucco Reveal, 2-Piece Plaster Expansion Joint in smallest reveal joint available (3/4” maximum; at all pre-cast panel to panel joints, an expansion joint must be installed.

3. Corrugated Weep Lath Strip: Water resistant, 3/16” high, non-corrosive lath strip for use in weeping the drainage plane created by the textured CMU surfaces behind the cementitious sheathing at Wellhouse 8 and Wellhouse 9. See Details for location.

a. Approved manufacturers include MTIdry https://www.mtidry.com/mti-product/corrugated-lath-strip, or equal.

J. Stone Cleaner: Where required for newly installed stone masonry washing. Minimum 14-day setting time required for new mortar prior to use. Protect roof membrane and surfaces as necessary in the area of cleaning to prevent cleaner from contacting the roof membrane.

1. Manufacturer: ProSoCo Inc., manufacturer's representative is Tri-G Products, Inc., Anoka, MN. Product - Stone Masonry: Sure Klean No. 600; VanaTrol.

K. Masonry Grouting: For back-up fill, see Section 04 05 16 Masonry Grout.

2.06 NATURAL STONE SEALER

A. Product: SureKlean ‘Weather Seal Natural Stone Treatment WB Plus’.

1. Description: Water based, permeable, penetrating, invisible sealer for natural stone.

2. Properties:

a. VOC Content: ,100 g/L

b. Active Content/Total Solids: 15%

c. pH: 11.20

d. Installation Surface Temperature: Between 50-90°F.

PART 3: EXECUTION

3.01 PREPARATION

A. Verify that surfaces to be cleaned and restored are ready for Work of this Section.

B. Beginning of installation means acceptance of existing surfaces and conditions.

C. Protect elements surrounding the Work of this Section from damage or disfiguration.

D. Comply with Section 09 20 10 Gypsum Board Assemblies.

E. Comply with Section 07 25 00 Weather Barriers.

3.02 WETTING STONE

A. IRA greater than 1gram/sq. in./min.: Wet stone with clean water 24 hours prior to placement until units are nearly saturated. Permit units to surface dry before laying.

B. During cold weather, sprinkle units with warm or hot water and protect from freezing as specified in "Project Conditions."

3.03 CONSTRUCTION TOLERANCES

A. Mortar Joint Thickness: Bed Joints = +1/8"; Head joints: -1/4", +1/8".

B. Variation from level: Bed Joints +1/4" in 10feet; +1/2" max.

C. Variation from plumb: +/- 1/4" in 10 feet.

D. Across face of adjacent unit: +/- 1/16".

3.04 PLACING STONE UNITS

A. Lay stone plumb and true to line and dimension of pattern. Erection tolerances for masonry work shall be as specified in ACI 530.1-88 and/or ASCE 6-88, *Specifications for Masonry Structures,* Section 2.3.3.2.

B. Scaffold to lay face stone from face side.

C. Do not install replacement units that are cracked, broken, or chipped in excess of ASTM C216 allowances for facing stone.

D. Cutting units: Make cuts with a masonry saw suitable for stone. No broken units shall be exposed in the finished work.

1. If cutting is required, use motor-driven saw designed to cut masonry with clean, sharp, unchipped edges.

2. Install with cut surfaces and edges concealed.

E. Mix units for exposed stone unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

F. Stopping and Resuming Work:

1. Rack back one half unit length in each course.

2. Join fresh masonry to set or partially set masonry by removing loose units and mortar. Brush clean and lightly wet exposed surfaces of set masonry prior to laying fresh masonry.

G. Lay units plumb and true to line and dimensions of pattern with corners plumb and true.

H. Place units in final position while mortar is soft and plastic. If units are displaced after initial set, remove, clean of mortar, and lay new units with fresh mortar.

I. Remove extruded mortar to provide flush mortar joints facing cavity. Prevent mortar droppings from falling in cavity.

3.05 FULL DEPTH STONE INSTALLATION

A. Joint Reinforcement, Anchors, And Ties:

1. Set joint reinforcement in full bed of mortar.

2. Embed stone ties at least 1½ inches in the mortar bed with a minimum ¾-inch mortar cover to the face of wall.

3. Start stone ties a maximum of 8 inches horizontally and 9 inches vertically from terminations, such as top of wall, stone ledges, lintels, expansion joints, through-wall flashings, window, door, and louver openings, corners, or other interruptions.

4. At masonry and concrete beams, drill hole in backup and install ties spaced maximum of 16 inches on-center vertically and horizontally.

5. Wall ties shall be installed so that the outer edge of wall tie is a minimum of 5/8 inch from exterior face stone, and no more than T/2 inch from exterior face of stone where T equals the thickness of the stone.

B. Through-Wall Flashing:

1. Thru-wall flashings set in mastic shall be set by masons. Masons shall also install stone tie; stone tie anchors through the thru-wall flashings to have outer surface sealed with the flashing bedding waterproofing mastic material after anchors are installed.

2. Remove dust, dirt, debris, grease, oils, and other contaminants from surface to receive new materials.

3. Existing construction:

    a. Remove stone courses as indicated. Provide shoring of the remaining masonry as necessary.

    b. Remove excess mortar and patch holes, voids, or spalls on the concrete and CMU back-up wall to provide a smooth and dry substrate to receive the through-wall flashing.

    c. Carefully fit flashing around projections and columns in the cavity.

    d. Existing construction without weather barrier: Coat backer wall with flashing lap sealant for the entire vertical leg of the flashing from 2 inches below the stone tie plate to slightly beyond the top edge of the flashing.

4. Place thru-wall flashing sections in full lengths, with as few laps as possible. Flashings above windows and door openings shall be continuous. Extend flashing minimum 4 inches beyond all wall openings at lintels, unless otherwise shown on the Drawings. Extend flashing beyond exterior stone or stone face and cut off flashing not to exceed 1/8 inch past face of mortar.

5. Form flashing membrane to profile shown in the Drawings, without wrinkles or buckles. Protect from punctures and tears.

6. Single layer: Located at shelf angles, above doors and louvers, above and below windows, wall-to-foundation waterproofing tie-in, and other specified locations.

    a. Extend flashing membrane 12 inches minimum up vertical wall. Install top edge of flashing set in flashing lap sealant.

    b. Install preformed corners or fold inside and outside through-wall flashing corners. Limit cutting or trimming through-wall flashing membrane. Install additional membrane at outside corner, lapping 6 inches over adjacent pieces. Install a reinforcement piece at the corner between the horizontal and vertical legs. Seal in-between the lap of the additional membrane and reinforcement piece to the through-wall flashing membrane.

    c. Install termination bar over top edge of flashing membrane. Mechanically fasten 6-inches-on-center. Coat the termination bar and fasteners with flashing lap sealant.

    d. Seal the bottom horizontal termination to the sheet metal drip edge with a bead of flashing lap sealant. Seal the sheet metal drip edge to the lintel or stone below with a bead of flashing lap sealant.

    e. Extend the sheet metal drip edge out from the face of the wall as shown.

    f. Install flashing membrane in one piece, wherever possible, to eliminate laps. Where laps must occur, provide minimum 6-inch laps to adjacent flashing pieces. Seal in-between flashing laps and over the cut edge with flashing lap sealant.

    g. Turn flashing up 2 inches minimum or one stone course height at terminations to provide folded end dams. Seal end dams with flashing lap sealant. Install flashing lap sealant at adjacent substrate and embed end dam.

    h. Install stone ties at 16 inches on-center horizontally and cover plates with flashing lap sealant as indicated.

    i. Install and extend rope weeps at end dam corners and through head joints at a maximum of 16 inches on-center. Lay approximately 16 inches horizontally along cavity, interlacing with adjacent rope weep, and extend up to and tie to stone ties. See detail isometric on Drawings.

j. Install cavity drainage material and insulation.

k. Reinstall stone over flashing.

7. Trim exposed through-wall flashing membrane without sheet metal drip and rope weeps to ¼ inch past the exterior face.

C. Expansion and Control Joints:

1. Expansion joints in exterior stone units.

a. Prior to installation, stone units shall be field-cut at vertical joint locations such that a single stone unit runs through/across the joint for a continuous stone appearance.

b. Contractor has the option to field-cut the joints after installation of stone units at full depth stone locations.

c. Provide horizontal expansion joints below shelf angles and roof edges.

d. Install compressible joint filler, backer rod, and joint sealant.

2. Do not continue horizontal joint reinforcement through expansion and control joints.

3. Maintain clear expansion and control joints during construction until installing detailed joint materials.

3.06 STONE VENEER

A. Surface Preparation:

1. Poured-in-place concrete walls, and precast concrete panels must be free of dirt, waterproofing, paint, oil, or any other substance that could inhibit the mortar bond. These surfaces must have a rough texture to ensure a mortar bond.

2. Existing masonry surfaces must be evaluated for mortar and face integrity and must be free of dirt, waterproofing, paint, or any other substance that could inhibit the mortar bond. Surfaces shall be cleaned by pressure washing, acid washing, sand/bead blasting, or a combination of these methods to achieve a bondable surface and remove existing pre-cast surface sealer.

B. Water Resistive Barrier:

1. Install the vapor permeable air and water barrier in compliance with current revisions of manufacturer's written installation instructions.

2. Joint Treatment:

a. Cracks and Joints: Pre-treat substrate joints and seams up to 1/8 inch by applying a liberal coat of barrier membrane approximately 6 inches wide over seam using a paint roller, brush or trowel. While still wet, embed 6 inches wide anti-fracture fabric pressing the fabric in firmly to solidly adhere, then immediately apply another liberal coat of barrier membrane over the fabric. For substrate joints and seams greater than 1/8 inch, fill seams to a smooth finish with a polymer fortified veneer mortar. Allow mortar to set 24 hours, then treat seams by applying a liberal coat of barrier membrane approximately 6 inches wide over seam and follow procedure listed above.

b. Coves and Floor/Wall Intersections: Fill all substrate coves and floor/wall transitions to a smooth finish and changes in plane using a fortified thin-set. Follow Cracks and joint treatment as listed above.

c. Movement Joint / Slip Joint Treatment: Apply a liberal coat of barrier membrane, approximately 6 inches wide over the areas. Then immediately embed and loop the 6 inches wide anti-fracture fabric into the substrate movement joint and allow to bleed through. Repeat process to ensure that all movement joints receive two layers of anti-fracture fabric.

3. Main Application: Allow any pre-treated areas to dry to the touch. Apply a liberal coat of barrier membrane using a paint roller (heavy napped) or paint brush over substrate including pre-treated areas and allow to dry. Apply a second liberal coat barrier membrane; let topcoat dry to the touch. When last coat has dried to the touch, inspect final surface for pinholes, voids, thin spots or other defects and re-apply as necessary.

   a. Check application thickness with a wet film gauge periodically as recommended by the Manufacturer to ensure that the appropriate thickness and coverage is achieved. The coating shall be free from pinholes and air bubbles. Bring application up to all penetrations through the membrane. Do not back roll the spray applied coating. Allow the barrier to cure in accord with the instructions prior to the installation of finish materials.

4. Protection: Provide protection for newly installed membrane, until schedule coverage with next steps.

C. Lath:

1. Metal lath should be applied horizontally per manufacturer's instructions, and should overlap a minimum of one inch on the horizontal and vertical seams.

2. Ends of adjoining lath places should be staggered and installed with the lath "cups" facing up. With the cups up, the lath feels rough when sliding the hand up the lath, and feels smooth when sliding the hand down the lath.

3. Lath should be wrapped around inside and outside corners to the next solid attachment surface.

4. Lath should be fastened every six inches vertically on the pre-cast wall surface. Comply with Manufacturer's recommendations if spacing is required to be tighter.

5. Lath shall terminate at all transition points onto specified transition members. All terminations shall be fully anchored, with spacing not more than 6" vertically against the terminations.

   a. Transitions include, but are not limited to, all existing pre-cast expansion joints, pre-cast wall openings, and all other locations where back-up wall is not continuous.

6. Flashings, Joints, and Terminations: The weep screed should be corrosion resistant metal minimum 0.019-inch or No. 26 galvanized sheet gage, with a minimum vertical attachment flange of 3 ½" wide.

   a. All flashing and metal detail pieces should be manufactured of corrosion resistant material. Verify that all flashing, including roofing kickout flashing, has been properly installed.

   b. Although roof flashings are not part of the wall cladding system, they are necessary for proper moisture management. Flashing material should extend above horizontal terminations, roofing material, and drainage planes or drainage products.

   c. All flashing material should be integrated with water resistive barriers to prevent moisture penetration into structure. The WRB should overlap the weep screed flange.

D. Mortar Scratch Coat and Brown Coat:

1. After the lath is installed, apply a nominal 1/2" thick layer of mortar ensuring the lath is completely encapsulated with mortar. The mortar should be applied with sufficient pressure and thickness to fully embed the lath in mortar. Once the mortar is thumbprint hard, scratch (score) the surface horizontally to create the mortar scratch coat.
2. Moist curing the mortar scratch coat will help reduce cracking and ensure proper hydration during curing. Before applying adhered masonry veneer, the mortar scratch coat should be dampened so that the surface appears wet but free of standing water.
3. Manufacturer shall approve application of scratch and/or brown coat prior to installation of adhered masonry veneer.

E. Adhered Natural Stone Masonry Veneer:

1. Prior to commencing installation of masonry veneer:
   a. Ensure that the WRB and flashing are properly installed and integrated with each other. Refer to the flashing details, referenced in this guide, for detailing around windows, doors, through-wall penetrations, and AMSV terminations.
   b. Lay out a minimum of 25 square feet (2.3 m2) at the jobsite so there is a variety of sizes, shapes, and colors from which to choose. Mixing AMSV sizes, shapes, textures and color will allow for variety and contrast in the design to achieve the desirable finished project. Follow Manufacturers recommendations regarding mixing of product to achieve desired results as demonstrated by mock-up.
2. For application of stone with the specified polymer modified mortar, the Manufacturer’s installation recommendations must be reviewed and followed due to the working properties and installation techniques that vary from conventional Type N or Type S mortars.
3. The back of each stone veneer unit should be entirely buttered with mortar to a nominal thickness of 1/2 inches. Cover the entire back of the stone veneer unit, not just the perimeter. Buttered stoner veneer shall then be firmly worked onto the scratch coat and slid slightly back and forth or with a slight rotating motion to set the stone veneer tightly and securely.
   a. Polymer modified mortars, complying with ANSI A118.4, may have a different adhesion "feel" than common mortars. Installer shall ensure that the adhesion is in line with the Manufacturer’s direction for setting.
4. Achieve mortar squeeze out in a volume that results in a full setting bed covering the scratch coat completely.
   a. As an alternative to the back-butter only method, mortar may be troweled onto the scratch coat, completely covering the scratch coat, OR both mortar application techniques may be combined.
   b. The resulting thickness of the scratch coat and setting bed should be nominally 1 inch measured from the outer surface of the barrier membrane to the back surface of the unit.
5. With the proper preparation, Installer shall feel the mortar start to grab within a few seconds of the setting movement process. At this point, no further movement of the stone veneer unit shall be made as bonding will be broken.
   a. If the stone veneer unit is inadvertently moved after initial set has begun, it should be removed, mortar scraped off the back of the unit and scratch coat, and then reinstalled following the application process.

F. Stone Returns:

1. Mason shall utilize stone with minimal face variation or provide cut sections that allow for minimal face variation at returns.
2. Variation shall equal less than 1/4" variation over the total height of the stone return at all locations for full height of return.
3. Locations include, but are not limited to locations of all door, louver, window, material transition and other conditions that require a sufficient and flat surface (within 1/4" maximum over return height).

G. Masonry Pointing and Grouting:

1. The joints should be completed only after there is sufficient cure time of the installed stone veneer units and when mild contact with stone veneer units will not break the bond to the backup system.
2. Grouting may be done with a grout bag, or tuckpointing style with a trowel and pointing tools to fill joints to a minimum of 2/3 the overall depth of the unit.
3. Installer shall ensure that mortar is forced into all voids. Gaps, openings, or other voids shall be continuously filled and will not be allowed.
4. Grout should be “thumbprint hard” before tooling the joints. The curing time required before the grout is ready will vary significantly with temperature and humidity. Use the proper masonry joint tooling or pointing tool to tool the joints to the desired depth.
5. Extra precaution should be taken while tooling so the surface of the stone veneer units are not damaged. Clean off remaining grout debris on the stone veneer surface with a dry, soft-bristled brush immediately.
    a. Mortar that is left and not removed by standard washing will be required to be manually removed by the Installer until Architects approval.
6. To prevent mortar smearing, DO NOT use a wet brush to treat uncured mortar joints.

H. Expansion and Control Joints:

1. Expansion and Control Joints in Masonry Stone Veneer: Open full depth of exterior veneer.
    a. Prior to installation, stone units shall be field-cut at vertical joint locations such that a single stone unit runs through/across the joint for a continuous stone appearance.

3.07 OPENINGS

A. Door, window and louver openings, transitions, recessed devices and other exterior wall penetrations shall have all stone square cut to ensure continuous flat surface transition to terminations and penetrations, and aesthetically flat surface for sealant application.

3.08 FIRE DEPARTMENT LOCK BOX

A. Provide lock box and trim ring from local fire department. Securely fasten and install the lock box and trim ring to the exterior building wall. Seal perimeter for watertight application.

3.09 REPAIR AND CLEANING

A. During stone masonry work:

1. Remove excess mortar and smears.

2. Dry brush surfaces after mortar has set at the end of each work day and after final pointing.

B. At completion of stone masonry work:

1. Remove and replace stone masonry units that are loose, damaged, or do not match adjoining units. Install new units to match adjoining units in fresh mortar and tuck point to match surrounding area.

2. Remove defective joints, holes, and cracks in new mortar joints to a depth of ¾ inch with a square back and repaint.

C. Clean minimum 4-foot by 4-foot test panel prior to beginning full scale cleaning operation to determine effectiveness of cleaning compound and manufacturer's cleaning procedures.

1. Review test panels with Engineer/Architect and Owner Representative for inspection and approval.

D. Clean stone masonry in an orderly manner, making sure that all surfaces are clean and a uniform appearance is obtained.

E. Clean only after mortar has cured to its full strength, not less than 14 days. If new roof is installed, protect the roof from the area of work to the drains with flashing membrane during the cleaning and rinsing process.

F. Remove mortar particles with water, nonmetallic scrapers, and fiber bristle brushes. Sandblasting, wet aggregate blasting, or use of other abrasive materials will not be allowed.

G. Provide an adequate water supply during the cleaning process to assure a thorough presoaking and rinsing of the surfaces.

H. Protect adjacent non-masonry surfaces, including trees, shrubs, plantings, lawn, glass, and metal and painted surfaces, from exposure to cleaning compounds. Use polyethylene sheet to cover and seal window glass and frames.

I. Beware of wind drift onto auto and pedestrian traffic.

J. Use cleaning compounds in strict accordance with manufacturer's printed instructions.

K. Remove mortar from surfaces not specified to receive mortar; such as walls, windows, curbs, sidewalks, etc.

L. Cut out and re-point defective mortar joints.

M. Upon completion of the work, clean exposed masonry to remove laitance, excess mortar, efflorescence and stains. Do not use muriatic acid or proprietary cleaning compounds without the prior approval of Engineer/Architect. Do not use metal cleaning tools and brushes or abrasive powders.

3.10 MASONRY SEALING

A. After complete masonry veneer and full depth masonry surface curing has commenced, Installer shall apply the natural stone sealer continuously to the surface of the natural stone veneer and cavity wall stone for the entire extents of new installation.

B. Sealer Manufacturer's recommendations for installation and curing shall be closely followed to ensure full acceptance of sealer to natural stone units, including all protection necessary for complete system curing.

3.11 FIELD QUALITY CONTROL

A. All materials, which are subject to definite specification requirements, may be sampled, tested, and inspected at any time prior to, or during installation of the Work.

B. Any work determined not to be in compliance with the specifications, Manufacturer's recommendation and standards of the industry, which are unacceptable to Architect and Owner shall be removed and replaced until acceptable at no cost to Owner.

1. This includes improper mixing of stone units, placing and pointing, transitions not installed properly and other failures to comply with the Construction Documents.

C. Construction observation

1. Owner Representative or Architect will conduct full-time observation of the through-wall flashing installation.

END OF SECTION 04 20 10

Division 05

Metals

05 12 00

STRUCTURAL STEEL FRAMING

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Structural steel.

B. Steel fabrication.

C. Hot-Dip galvanizing.

D. Concrete fasteners.

1.02 RELATED SECTIONS

A. Section 03 30 00 – Cast-In-Place Concrete

B. Section 03 60 00 – Grouting

C. Section 05 50 00 – Metal Fabrications

D. Section 09 90 00 – Painting and Coating

E. Section 01 45 33 – Code–Required Special Inspections and Procedures

1.03 REFERENCES

A. The following are governing codes related to this Section:

1. ANSI/AISC 303-16, Code of Standard Practice for Steel Buildings and Bridges
2. ANSI/AISC 360-16, Specification for Structural Steel Buildings
3. International Building Code 2018 (IBC 2018)
4. Minnesota Building Code 2020

B. The following are complete titles of references related to this Section. Current editions of the following standards and publications:

1. ASME B18.2.1, Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)
2. ASME B18.2.2, Nuts for General Applications: Machine Screw Nuts, Hex, Square, Hex Flange, and Coupling Nuts (Inch Series)
3. ASME B18.21.1, Washers: Helical Spring-Lock, Tooth Lock, and Plain Washers (Inch Series)
4. ASTM A36/A36M, Standard Specification for Carbon Structural Steel
5. ASTM A108, Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
6. ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
7. ASTM A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
8. ASTM A563/A563M, Standard Specification for Carbons and Alloy Steel Nuts
9. ASTM A673/A673M, Standard Specification for Sampling Procedure for Impact Testing of Structural Steel

10. ASTM A780/A780M, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
11. ASTM A992/A992M, Standard Specification for Structural Steel Shapes
12. ASTM F436/F436M, Standard Specification for Hardened Steel Washers
13. ASTM F959/F959M, Standard Specification for Compressible Washer Type Direct Tension Indicators for Use with Structural Fasteners
14. ASTM F1554, Standard Specification for Anchor Bolts, Steel, 36, 55, and 105 KSI Yield Strength
15. AWS D1.1, Structural Welding Code – Steel
16. AWS A2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination
17. Research Council on Structural Connections (RCSC), Specification for Structural Joints Using High-Strength Bolts

1.04 SUBMITTALS

A. Shop and Erection Drawings

1. Show all working points indicated on the Drawings.
2. Provide information necessary for the fabrication of the component parts of the structure.
    a. ASTM material designation
    b. Size and weight of members
3. Connections
    a. Type
    b. Location
    c. Working points
    d. Details
    e. Welded Connections
        1) Type and size of electrodes
        2) Extent of welds
        3) Welding sequence when required
        4) Welding symbols: AWS A2.4
    f. Bolted Connections
        1) Type, size, and grade
        2) Shop and field bolts
        3) Bearing, pretensioned and slip-critical connection designations
        4) Tightening procedures

1.05 QUALITY ASSURANCE

A. Qualifications of Suppliers and Personnel

1. Fabricator minimum experience: 5 years continuous in the fabrication of structural steel.

a. Maintain a documented quality control program conforming to AISC 360, “Specification for Structural Steel Buildings” and AISC 303, “Code of Standard Practice for Steel Buildings and Bridges.”

2. Erector minimum experience: 5 years continuous in the erection of structural steel.

3. Welder qualifications: passed qualification tests, in accordance with the requirements of AWS “Structural Welding Code” (D1.1), within 6 months prior to start of fabrication.

B. Materials

1. For fasteners to be accepted, certification numbers must appear on the product containers and correspond to identification numbers on mill test reports (manufacturer’s inspection certificate).

2. Manufacturer’s symbol and grade markings must appear on all bolts and nuts.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect structural steel during fabrication, delivery, and unloading. Store clear of ground and in a manner to eliminate excessive handling and protect from rusting and other damage.

B. Replace or repair bent, or deformed members as directed by Owner.

PART 2: PRODUCTS

2.01 MATERIALS

B. Structural Shapes and Sections

1. M, S, HP, and L shapes: ASTM A572/A572M, Grade 50, Fy = 50 ksi

2. Pipe: ASTM A53/A53M, Grade B, Schedule 40, Fy = 35 ksi

3. Steel plates and bars: ASTM A572/572M, Grade 50, Fy = 50 ksi

C. Fasteners

1. High strength bolts :

a. ASTM F3125/F3125M, Grade A325, Type 1

b. ASTM F3125/F3125M, Grade A490, Type 1

c. ASTM F3125/F3125M, Grade F1852, Type 1

d. ASTM F3125/F3125M, Grade F2280, Type 1

2. Nuts: ASTM A563/A563M, heavy hex, Grade C

3. Washers: ASTM F436/F436M

4. Common bolts (other than high strength): ASTM A307, Grade A

5. Threaded Rods: ASTM A36/A36M

6. Concrete fasteners:

a. Adhesive Anchors: Hilti HVA capsule adhesive anchoring system with a galvanized HAS threaded rod which meets the requirements of ASTM A36 or approved equal.

b. Mechanical Anchors: Hilti Ultimate Kwik Bolt KB-TZ-2 or Hilti KH-EX Concrete screw anchor or approved equal.

c. Cast-in-place Anchors: Anchor rods ASTM F1554, Grade 50.

D. Filler Material for Welded Connections

1. Filler material for welding A36: minimum tensile strength of 70,000 psi (E70XX electrodes) unless noted otherwise on the Drawings.

2. Filler material for welding grades of steel other than A36: AWS D1.1.

2.02 FABRICATION

A. Structural steel items: fabricated from standard rolled structural shapes, bars, and plates in accordance with AISC 303, “Code of Standard Practices for Steel Building and Bridges” and approved Shop Drawings.

1. Members and sub-assemblies: fabricated in the largest possible pieces to minimize field erection time.

2. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

3. Properly mark and match-mark materials for field assembly and for identification as to structure and Site for which intended. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.

4. Where finishing is required, complete the assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in the final structure free of markings, burrs, and other defects.

B. Shop Connections

1. Bolted connection: Contractor shall submit for documentation fabricator’s quality control program that identifies installation and tightening procedures, inspection, and method of confirmation that bolts have been tightened to the specified tension.

2. Welded construction: Comply with AWS Code for procedures, appearance, quality of welds, and methods used in correcting welded work.

3. Assemble and weld built-up sections by methods that will produce true alignment of axis without warp.

2.03 SURFACE COATINGS

1. Hot dipped galvanized: ASTM A123

2.04 SOURCE QUALITY CONTROL

A. Fabricator Quality Control Procedures shall address inspection of the following as a minimum, as applicable, and in accordance with AISC 360 “Specification for Structural Steel Buildings” and AISC 303 “Code of Standard Practice for Steel Buildings and Bridges”.

1. Shop welding, high-strength bolting, and details in accordance with AISC 360, Section N5

2. Shop cut and finished surfaces in accordance with AISC 360, Section M2

3. Shop heating for cambering, curving, and straightening in accordance with AISC 360, Section M2.1

4. Tolerances for shop fabrication in accordance with AISC 303, Section 6.4

PART 3: EXECUTION

3.01 ERECTION

A. Structural steel: per the approved Erection Drawings and AISC 303, “Code of Standard Practices for Steel Building and Bridges.”

B. Provide erecting tools, hoisting equipment, cranes, erection bolts, shims, scaffolding, supports, temporary bracing, guys, bolts, and all other items needed for the complete erection of the steelwork.

C. Erect accurately to the lines and levels shown on the Drawings. Plumb columns and other vertical members. Level horizontal members before permanent connections are made.

D. Bolt up work, as erection progresses, to take care of all dead load and erection stresses.

E. Provide temporary floors and railings which meet the requirements of state and federal safety regulations.

F. Handle in such a manner as to minimize damage to finished paint, by using nylon slings, chokers, or other protective lifting devices as required.

G. Field drill holes not provided as indicated on the erection drawings. Additional holes shall be drilled only with approval of Engineer. Burning of holes is not permitted.

H. Field cutting structural steel members in the field will not be allowed unless approved by Owner.

I. Anchor rods in accordance with Section 03 30 00.

3.02 FIELD WELDING

A. Field welding on structural members only permitted where shown on the Drawings.

B. Obtain written approval of Owner for undetailed field welded connections.

1. Follow Owner safety requirements for field weld procedures such as fire watch and required safety equipment.

C. No welding when the ambient temperature is lower than 0 degrees F (minus 18 degrees C), when surfaces are wet or exposed to rain, snow, or high wind velocities, or when welding personnel are exposed to inclement conditions.

D. Preheat and interpass temperatures: Not less than those listed in AWS D1.1.

E. Install shear stud connectors per AWS D1.1.

F. After welding is complete, remove all excess weld materials and scale by grinding, chipping, or brushing, and leave welded areas in smooth, clean, acceptable condition.

3.03 FIELD TOUCH UP

A. Restore finishes damaged during installation and construction.

B. Painted Surfaces: After steel erection is complete, clean and touch-up all shop-coated surfaces damaged during transportation and erection per Section 09 90 00.

C. Galvanized Surfaces:

1. Repair galvanized surfaces damaged by transport, erection, welding, or other operations

2. Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A780

D. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

3.04 QUALITY CONTROL

A. Erector Quality Control Procedures shall address inspection of the following as a minimum, as applicable, and in accordance with AISC 360 “Specification for Structural Steel Buildings” and AISC 303 “Code of Standard Practice for Steel Buildings and Bridges”.

B. Field welding, high-strength bolting, and details in accordance with AISC 360, Section N5

C. Steel deck in accordance with SDI Standard for Quality Control and Quality Assurance for Installation of Steel Deck

D. Headed steel stud anchor placement and attachment in accordance with AISC 360, Section N5.4

E. Field cut surfaces in accordance with AISC 360, Section M2.2

F. Field heating and straightening in accordance with AISC 360, Section M2.1

G. Tolerances for field erection in accordance with AISC 303, Section 7.13

H. Contractor is responsible for visual inspection of all welds and necessary correction of all deficiencies in materials and workmanship in accordance with AWS D1.1.

I. Owner reserves the right to have any and all shop- and field-welded and high strength bolted connections tested to ensure compliance with the Drawings and Specifications.

J. Tests will be paid for by Owner; however, in the event that Work is defective, Contractor to pay for the tests and any additional testing required to confirm that Contractor has corrected the defective Work to comply with this Specification.

END OF SECTION 05 12 00

05 40 00

COLD FORMED METAL FRAMING

PART 1: GENERAL

1.01 SUMMARY

A. Section Includes

1. Exterior non-load bearing wall cold formed steel framing

B. Related Requirements

1. Section 05 50 00 Metal Fabrications - for miscellaneous steel shapes and connections used with cold-formed metal framing

1.02 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. All revisions of standards and publications are current editions in effect at the date of this document shall apply unless noted otherwise.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preconstruction Meeting: to be conducted at Project site.

1. Prior to the start of the cold-formed steel framing work, and at the Contractor's direction, meet at the site and review the installation procedures and coordination with other work.

2. Include Contractor, Owner, Owners Testing and Inspection Agency, as well as any subcontractors or material technical service representatives whose work, or products, must be coordinated with the cold formed framing work.

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00 Submittal Procedures:

1. Product Data: For each type of product

a. Manufacturer's printed technical data indicating products provided comply with requirements of the drawings.

2. Sustainable Design Submittals: Submit published documentation for each product.

a. Provide documentation for recycle material content.

b. Environmental Product Declaration (EPD): For each product.

c. Construction and Demolition Waste Management: For each product

3. Shop Drawings

a. Include layout, spacing, sizes, thickness, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.

b. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

4. Qualification Data: For testing agency

5. Welding Certificates.

6. Product Certificates

   a. Studs and Tracks

   b. Anchor Clips

   c. Angles

7. Evaluation Reports: For cold-formed steel framing and accessories

8. Products to be certified under an independent qualified third-party inspection program administered by an agency accredited by IAS to ICC-ES AC98 Accreditation Criteria for Inspection Agencies

   a. Mechanical Fasteners

   b. Vertical deflection clips

   c. Miscellaneous structural clips and accessories

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Member in god standing of the Steel Framing Industry Association (SFIA).

B. Provide framing members that are certified in accordance with the "Code Compliance Certification Program" implemented by the Steel Framing Industry Association (SFIA).

C. Provide anchor clips that are certified in accordance with the "Code Compliance Certification Program" implemented by the Steel Framing Industry Association (SFIA).

D. Installer Qualifications: Provide documentation that the installing contractor of the cold-formed framing system has 5 years of experience on similar work and a project specific manufacturer approval letter from steel stud manufacturer or installing contractor is recognized in Steel Framing Industry Associations (SFIA) "Contractor Certified Program".

E. Product Tests: Mill certificates or data from a qualified independent testing agency or in-house testing with calibrated test equipment, indicating steel sheet complies with requirements, including base-steel thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness. Manufacturer inclusion in the "SFIA Code Compliance Certification Program" meets this requirement.

F. Weld Qualifications: Qualify procedures and personnel according to the following:

   1. AWS D1.1/D1.1M, "Structural Welding Code – Steel."

   2. AWS D1.3/D1.3M, "Structural Welding Code – Sheet Steel."

1.06 DELIVERY, STORAGE, AND HANDLING

1. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling, as required in AISI S202 "Code of Standard Practice."

PART 2: PRODUCTS

2.01 SYSTEMS/ASSEMBLIES/MANUFACTURED UNITS/EQUIPMENT/COMPONENTS/PRODUCT TYPES/MATERIALS

A. Manufacturers

1. Manufacturer List

a. Olympic Steel

b. National Steel Fabricators

B. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:

1. Minimum Base-Steel Thickness: 0.0428 inches
2. Depth: 6 inches
3. Minimum Flange Width: 2 ½ inches

C. Steel Z-Furring: Manufacturer's standard Z-shape for furring or rafters

1. Minimum Base-Steel Thickness: 0.0428 inches
2. Depth: 6 inches
3. Minimum Flange Width: 2 ½ inches

D. Performance/Design Criteria

1. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 Quality Requirements, to design cold-formed steel framing
2. Structural Performance: Provide cold-formed steel framing capable of withstanding design wind loads within limits and under conditions indicated.

a. Design Loads: See drawings for components and cladding pressures.

b. Deflection Limits

1) Exterior Non-Load-Bearing Framing: Horizontal Deflection of 1/240 of the wall height under a horizontal load of 10 psf.

c. Design framing system to maintain clearance s at openings, to allow for construction tolerances, and to accommodated live load deflection of primary building structure as follows:

1) Upward and downward movement of 1/2".

E. Materials

1. Framing – including Studs, Tracks, and Channel Cap

a. Members of 12, 14, 1 Gage Steel: Galvanized, structural quality sheet steel; ASTM A653, Grade D (minimum yield 50 ksi).

b. Members of 18 and 20 Gage Steel: Galvanized, structural quality sheet steel, ASTM A653, Grade A (minimum yield 33 ksi).

2. Accessories and Fasteners

a. Bracing, bridging, strapping, reinforcement, stiffeners, plates, gussets, clip angles, and hangers: Unless otherwise indicated, metal framing manufacturer's standard products formed from ASTM A653 galvanized, structural quality sheet steel. Thickness and grade shall be determined by application requirements, with a minimum thickness of 20 gage and a minimum yield of 33 ksi.

b. Self-Drilling Fasteners: Cadmium plated, No 12-14 x ¾ inch, hex washer head, self-drilling, self-tapping fasteners with pilot point.

3. Galvanizing: Hot-dip process complying with ASTM A653, Coating Designation G60.

4. Galvanized Repair Paint: High-zinc-dust content paint complying with SSPC Paint 20 and compatible with paints specified to be used over it.

F. Assembly and Fabrication

1. Fabricate metal framing in accordance with "Approved" or "Approved as Noted" fabrication drawings only.

a. When fabrication drawings are "Approved as Noted", progress fabrication in strict accordance with the marks and notes thereon.

2. Pre-fabricated panels shall be not more than 1/8 inch out of square within the length of the panel, and shall be in compliance with the tolerances specified in Part 3.

3. Repairing Galvanizing: Clean shop welded an abraded surfaces, and repair them with a 2 mil (dry) minimum thick coating of galvanized repair paint. Comply with paint manufacturer's application instructions.

4. For metal framing indicated to receive insulation, install full width insulation in voids which will be inaccessible after fabrication.

G. Finishes

1. Galvanizing:

a. Hot-dip process complying with ASTM A653, Coating Designation G 60.

2. Touchup

a. High-zinc-dust content paint comply with SSPC – Paint 20 and compatible with paints specified to be used over.

PART 3: EXECUTION

3.01 EXAMINATION

A. Verification of Conditions

1. Examine surfaces to receive metal framing for defects that will adversely affect the execution and quality of the work. Do not proceed until unsatisfactory conditions are corrected.

B. Surface Preparation

1. Clean surfaces that support the Work of this Sections

C. Installation:

1. Install metal framing and accessories in accordance with approved shop drawings, and with the metal framing manufacturer's printed installation instructions.
2. Provide temporary bracing to ensure stability of the wall hanging members during construction.
3. Repair Galvanizing: Clean welded and abraded surfaces. See Part 2.E.3 of this Section
4. Tolerances
    a. Vertical Alignment (Plumbness) of studs: Within 1/8 inch in 10 feet of height.
    b. Horizontal Alignment (Levelness) of Walls: Within 1/8" in 10 feet of their respective lengths
    c. Stud Spacing: Not more than + 1/8 inch from the designed spacing providing that the cumulative error does not exceed the requirements of the finishing materials.
5. For metal framing indicated to receive insulation, install full width insulation in voids which will be inaccessible after erection.
6. Installation of Runner Tracks:
    a. Install continuous bottom and top tracks of size and gage shown on shop drawings. Align track accurately and, unless otherwise shown, attach to supporting structure with power-driven fasteners at 16 inches on center. Install fasteners at corners and ends of tracks.
    b. At track butt joints, securely attach abutting pieces of track to a common structural element, or splice them with a welded butt joint.
7. Installation of Z-Firring or Studs:
    a. Install shapes of size and gage shown. Space studs 16 inches maximum on center, unless otherwise shown.
    b. Install additional studs at wall corners, adjacent to wall openings, at wall ends, and at both sides of control joints.
    c. Install full length studs, without splices, between runner tracks.
    d. Plumb and align studs and, unless otherwise shown, provide positive attachment to runner tracks using self-drilling fasteners or welds on both flanges of studs.

e. Install lintels at wall openings wider than the stud spacing as shown or scheduled, or if not shown or scheduled, as recommended by the metal building manufacturer for the opening spans and loads involved.

f. Unless otherwise shown, install rough framing at openings using full length studs.

g. At door openings, install rough framing as specified in f above.

END OF SECTION 05 40 00

SECTION 05 50 00

METAL FABRICATIONS

GENERAL

1.01 SECTION INCLUDES

A. Miscellaneous stairs

B. Ladders

C. Handrails

D. Grating

1.02 RELATED SECTIONS

A. Section 05 12 00 – Structural Steel Framing

B. Section 05 40 00 – Cold-Formed Metal Framing

1.03 REFERENCES

A. Current editions of the following standards and publications.

1. ASTM A36/A36M, Standard Specification for Carbon Structural Steel
2. ASTM A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless
3. ASTM A108, Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished
4. ASTM A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
5. ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
6. ASTM A500/A500M, Standard Specification for Cold Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
7. ASTM A563, Standard Specification for Carbons and Alloy Steel Nuts
8. ASTM A780/A780M, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
9. ASTM A992/A992M, Standard Specification for Structural Steel Shapes
10. ASTM F3125- Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength
11. ASTM F436, Standard Specification for Hardened Steel Washers
12. AISC 360, Specification for Structural Steel Buildings
13. AISC 303, Code of Standard Practice for Steel Buildings and Bridges
14. AISC Steel Construction Manual, sixteenth edition
15. AWS D1.1, Structural Welding Code – Steel
16. National Association of Architectural Metal Manufacturers (NAAMM), Heavy Duty Metal Bar Grating Manual

1.04 SUBMITTALS

A. Shop Drawings.

1. General: Provide fabrication and installation plans, elevations, sections, details of components, anchorage and accessory items.

2. Brick Bearing Angles

B. Product data

1. Manufacturer's clips and anchorage devices for Z-Furring and cold-formed studs rails.

1.05 QUALITY ASSURANCE

A. Qualifications of Suppliers and Personnel

1. Fabricator:

a. Minimum experience: 5 years continuous in the fabrication of metal components shown on Drawings.

b. Maintain a documented quality control program. The quality control program shall conform to the AISC 360, “Specification for Structural Steel Buildings” and AISC 303, “Code of Standard Practice for Steel Buildings and Bridges.”

c. A qualified fabricator who participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant.

d. Welder qualifications: passed qualification tests, in accordance with the requirements of AWS, “Structural Welding Code” (D1.1), within 6 months prior to start of fabrication.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect metal components during fabrication, delivery, storage, and handling to minimize scratches, bends, warping, or other damage.

B. Use nylon slings, chokers, or other protective lifting devices as required.

C. Store above ground on level timbers or other material which will not stain, corrode, scratch, or damage the components.

PRODUCTS

1.07 MATERIALS

A. Structural Shapes and Sections

1. Angles: ASTM A36, Fy = 36 ksi

2. Steel plates and bars: A572 Grade 50, Fy = 50 ksi

B. Fasteners

1. Bolts: ASTM A307, Grade B or ASTM A325, Type 1 Hot Dipped Galvanized

2. Nuts: ASTM A563, heavy hex, Grade C Hot Dipped Galvanized

3. Washers: ASTM F436 [Hot Dipped Galvanized]

4. Threaded Rods: ASTM A36 Hot Dipped Galvanized

5. Shear Stud Connectors: ASTM A108

6. Concrete fasteners: Hilti HVA capsule adhesive anchoring system with a HAS rod which meets the requirements of ASTM F593 (304/316).

C. Surface Coatings

1. Hot dipped galvanized: ASTM A123

1.08 FABRICATION

A. General: fabricated in accordance with the Drawings.

B. Welded construction: Comply with AWS Code for procedures, appearance, and quality of welds, and methods used in correcting welded work.

C. Finish: Provide surface finish after fabrication

EXECUTION

1.09 ERECTION

A. General: Erect plumb, horizontal or at the designated slope, and square.

B. Cold-Formed Metal Framing – Section 05 40 00

C. Anchor Rods: Drill Hilti HVA anchor bolt system into hardened concrete and fastened in accordance with manufacturer's recommendations.

D. Remove protective coverings at completion of work.

1.10 FIELD TOUCH UP

A. Restore finishes damaged during installation and construction.

B. Galvanized Surfaces:

1. Repair galvanized surfaces damaged by transport, erection, welding, or other operations

2. Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780

C. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

1.11 FIELD CONTROL QUALITY

A. Contractor is responsible for visual inspection of all welds and necessary correction of all deficiencies in materials and workmanship in accordance with AWS D1.1.

B. Owner reserves the right to have any and all shop and field welded and high strength bolted connections tested to ensure compliance with the Drawings and Specifications.

C. Tests will be paid for by Owner; however, in the event that Work is defective, Contractor to pay for the tests and any additional testing required confirming that the defective Work has been corrected by Contractor to comply with this Specification.

END OF SECTION 05 50 00

Division 06

Woods, Plastics, and Composites

SECTION 06 10 00

ROUGH CARPENTRY

PART 1: GENERAL

1.01 SUMMARY

A. Section includes: Installation of permanent wood members not exposed to view at completion of Project, unless specified elsewhere, to include, but not be limited to, dimension lumber, timber, plywood, and plywood sheathing for:

1. Wood Roof Members
2. Blocking and Nailers
3. Roof Equipment Bases, and Supports
4. Miscellaneous Blocking and Backing Panels

B. Wood Roof Members:

1. Provide wood members related to installation of roofing membrane system, as indicated on Drawings.
2. Coordinate wood roof members with requirements of Roofing System Contractor.
3. Wood members related to roofing system shall not be preservative treated. Install polyfoam or sill sealer as a separator between wood members which are in direct contact with concrete or masonry material.

C. Roof Expansion Joints: Provide plastic air stop at top of roof expansion joint framing and fill void between roof expansion joint members and between roof expansion joint member and wall construction as noted on Drawings and specified.

1.02 RELATED SECTIONS

A. Section 07 53 00 Fully EPDM Adhered Membrane Roofing

B. Section 07 62 00 Sheet Metal Flashing and Trim

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

B. American Plywood Association (APA):

1. Plywood Design Specification

C. American Wood Preservers Association (AWPA): Contractor shall comply with Standards for all materials provided, in accordance with the following standards.

1. Manual of Recommended Practices for Wood Preservation
2. C20 – Structural Lumber Fire Retardant Treatment by Pressure
3. C1 – All Timber Products – Preservative Treatment by Pressure

D. American Society of Testing and Materials (ASTM):

1. ASTM A307: Specification for Carbon Steel Bolts and Studs

E. American National Standards Institute (ANSI):

1. ANSI B18.2.1: Fasteners.

F. NFPA (National Forest Products Association)

1.04 SUBMITTALS

A. Shop drawings including: all fabricated connections and hardware.

1. Show all pertinent dimensions, sizes, weld symbols, finishes, load carrying capacities and types of fasteners.

1.05 PRODUCT HANDLING

A. Store lumber so it is properly ventilated, held straight, well drained, and protected from the weather.

1.06 QUALITY ASSURANCE

A. All wood material to bear a visible grade stamp of agency certified by NFPA.

1.07 DELIVERY, STORAGE AND PROTECTION

A. Store in weather protected, ventilated areas with a constant, minimum temperature of 60 degrees F, maximum relative humidity of 25 to 55 percent.

PART 2: PRODUCTS

2.01 LUMBER

A. All lumber for framing, blocking, furring, and miscellaneous carpentry work: Douglas Fir, Larch No. 2 or better.

1. Treated Lumber: Southern Pine No. 2 or better.
2. Kiln dried to an average moisture content of 15% and a maximum of 19%.
3. Surfaced on four sides.

2.02 CONSTRUCTION PLYWOODS AND SHEATHINGS

A. Plywood Backing Panels: Mounting electrical, computer, and telephone equipment. Fire-retardant treated plywood panels with grade designation APA C-D Plugged INT. Exterior type moisture resistant glue.

1. Thickness: Not less than 5/8 inch unless noted otherwise.

B. Roof Sheathing: APA rated Structural 1 sheathing, EXP-1. Contractor has option to use either of the following.

1. Plywood sheathing: APA rated (plywood) sheathing, span index of 32/16.
   a. Thickness: 23/32 or 3/4 inch depending upon availability.
   b. Edge detail: Tongue and groove edges.
2. Exposure: Exterior.

2.03 FIRE RETARDANT TREATED WOOD MATERIALS

A. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers shall be as follows or Owner-approved equal:

1. Hickson Corporation, Dricon FRT; as defined in this Section, is standard of quality required.

2. Equivalent Products of the Following Manufacturers Are Acceptable:

a. Hoover Treated Wood Products, Inc., Pyro-Guard

b. Osmose Wood Preserving, Inc., Flame Proof LHC

B. General Requirements:

1. Flame Spread Classification: ASTM E84, NFPA 255, OR UL 723, Class 1 (25 or less).

2. Moisture Content After Treatment: Kiln or air dried to a maximum moisture content of:

a. Lumber: 19 Percent

b. Plywood: 15 Percent

3. AWPA Standard C20 for lumber and C27 for plywood.

4. Corrosive Properties: Carbon steel, galvanized steel, aluminum, copper and red brass shall exhibit corrosion rates less than 1 mil per year when tested in accordance with Military Specification MIL L 19140, Paragraph 4.6.5.2.

5. Fire retarding chemicals shall be free of halogens, sulfates, and ammonium phosphates.

6. Fire retarding chemicals shall provide protection against termites and fungal decay and shall be registered for use as a wood preservative by the U. S. Environmental Protection Agency.

7. Testing on fire performance, strength and corrosive properties of the fire retardant treated wood shall be recognized by issuance of a National Evaluation Services Report.

2.04 ACCESSORIES

A. Provide anchor bolts, headed bolts and strap anchors as indicated on Drawings or otherwise required to attach wood members to masonry or concrete.

B. Anchor Bolts with Nuts and Washers: ASTM A307, 1/2 inch diameter, unless otherwise indicated, threaded one end with 1-1/2 inches right angle bend opposite end. Determine bolt length by the following embedment requirements:

1. Not less than 7 inches embedment into concrete or horizontal masonry joints.

2. Not less than 15 inches embedment into vertical masonry joint.

3. Metal Connectors/Acceptable Manufacturers:

a. KC Metals (ICBO #2894)

b. Silver Metal Products (ICBO #2039)

c. Simpson Company

C. Nails: common wire nails, unless noted otherwise. Galvanize for exterior locations.

D. Bolts: conform to ASTM A307. Galvanize for exterior locations.

E. Lag Screws: conform to ANSI B18.2.1. Galvanize for exterior locations.

F. Expansion Bolts:

1. Masonry conditions: Parasleeve by Emhart Corporation/Molly Division.

2. Concrete conditions: Parabolt by Emhart Corporation/Molly Division.

G. Adhesive Anchors: Heavy duty vinylester resin adhesive anchors sized by manufacturer for specific application and substrate.

1. Acceptable Anchor manufacturers and products:

a. Hilti Corp. HVA Anchor Series.

b. Comparable products by The Rawlplug Company Inc.

H. Plastic Air Stop: PVC flexible sheet, 20 mils thick.

1. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or Owner-approved equal:

a. B.F. Goodrich Company, “BFG Vinyl Water Barrier”

b. Rubber and Plastics Compound Co., “Nervastral Seal-Pruf HD”

c. BASF Building Systems, “Hydrocide-Vinylseal”

d. York Manufacturing, Inc., “Wascoseal Type 20”

PART 3: EXECUTION

3.01 ERECTION

A. Install all work plumb, level, true and square.

B. Use appropriate nails, connectors, and glue for materials to be installed.

C. Do not notch, bore, or cut members for pipes, ducts, conduits or other reasons except as shown on the drawings or as approved by Owner.

D. Apply preservative treatment at all field cuts, drilled holes, or other areas where pretreatment has been damaged.

E. Use common wire nails (galv.) of the size and quantity specified in the relevant Building Code, unless shown otherwise.

F. Remove all split wood and replace with new.

G. Drill bolt holes 1/16 inch larger in diameter that the bolts being used.

H. Use washers under head and nut of all bolts.

I. Pre-bore holes for lag screws the same diameter as the root of the thread.

J. Screw all lag screws and wood screws into position. Do not drive.

3.02 INSTALLATION OF MECHANICAL EQUIPMENT ROOF CURBS & RAILS

A. Install roof curbs which support rooftop installed equipment that is currently in place.

B. Provide mechanical equipment roof curbs which are not prefabricated curbs furnished by mechanical contractor.

C. Install top surface of roof curbs to be level and at same elevation on all sides. When roof structure slopes, provide continuous tapered wood members under curb construction, including prefabricated curbs, to uniformly distribute load of equipment installed on curb down to roof structure.

D. Provide mechanical equipment roof rail system for support of roof mounted mechanical equipment as noted and shown on drawings.

E. Install mechanical rails parallel to one another; top surface of rails shall be level and at same elevation at all points between both adjacent parallel rails. Compensate for sloping roof structure. Height noted on drawings is minimum height above roof surface.

F. Verify and coordinate with mechanical contractor, the size and location of curbs and rails.

3.03 INSTALLATION OF ROOF WOOD BLOCKING

A. Anchor blocking required to support cants to metal decking or framing as detailed with 1/2-inch bolts set a maximum of 4 feet on center.

B. Where blocking is more than 6 inches wide, anchor with 1/2-inch bolts set at 2'-6" on center and stagger alignments.

C. Where blocking is required on roof deck, build-up, shim, or cut as required to set top of blocking flush with top of adjacent insulation.

D. Nail wood cants to adjacent blocking surface, whether vertical or horizontal or both; cement to insulation at remaining surface, if any. Space 8-foot lengths 1/4 inch apart at ends for venting.

E. Cover wood cants and blocking with temporary waterproof covering until permanent flashing is installed.

3.04 SITE TREATMENT OF WOOD MATERIAL

A. Brush apply two coats of preservative treatment for wood in contact with cementitious materials, roofing, and related metal flashing.

B. Treat site-sawn ends. Allow preservative to cure prior to placing members.

3.05 FIRE RETARDANT SITE TREATMENT

A. Field Cuts: Do not rip or mill fire retardant treated lumber. Only end cuts, drilling holes, and joining cuts are permitted unless the material carries a ULI approved milling after treatment classification. Cuts on plywood are considered end cuts due to the nature of the product.

B. Application: Use graded or span-rated material for fire retardant treated wood used in structural applications, that has been applied using the design adjustments provided in NER-303. Use a corrosion resistant fastener, such as hot-dipped galvanized nails or better.

C. Fastening: Comply with nailing schedules and panel spacing per American Plywood Association’s Design and Construction Guide for Residential and Commercial Uses (latest edition). Use ply-clips where specified by APA. APA does not permit the use of staples for untreated plywood. Nail, do not staple, fire retardant treated plywood.

END OF SECTION 06 10 00

SECTION 06 16 00

CEMENTITIOUS SHEATHING ASSEMBLIES

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Exterior cementitious wall sheathing for exterior and interior applications,

B. See Section 04 20 10 Natural Stone Masonry for thin stone veneer assembly.

C. See Section 05 40 00 Cold Formed Metal Framing for exterior metal framing.

D. See Section 07 48 00 Rainscreen Cladding System for composite panel veneer assembly.

E. Furnish all labor, materials, equipment, and incidentals required to install cementitious sheathing systems shown on the Drawings and as specified herein.

1.02 RELATED SECTIONS

A. Section 04 20 00 Unit Masonry

B. Section 04 20 10 Natural Stone Masonry

C. Section 05 40 00 Cold Formed Metal Framing

D. Section 07 20 00 Building Insulation

E. Section 07 25 00 Weather Barriers

F. Section 07 48 00 Rainscreen Cladding System

G. Section 07 62 00 Sheet Metal Flashing & Trim

1.03 REFERENCES

A. American Iron and Steel Institute (AISI)

1. LRFD Design Manual

B. American Society for Testing and Materials (ASTM)

1. ASTM A446 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
2. ASTM C36 - Standard Specification for Gypsum Wallboard
3. ASTM C473 - Standard Test Methods for Physical Testing of Gypsum Panel Products
4. ASTM C1325 - Standard Specification for Non Asbestos Fiber Mat Reinforced Cementitious Backer Units
5. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
6. ASTM E72 - Standard Test Methods of Conducting Strength Test of Panels for Building Construction
7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

C. ICC - International Code Council Evaluation Service (ICC-ES):

1. ICC-ES AC 376: Acceptance Criteria for Reinforced Cementitious Sheets Used as Wall Sheathing and Floor Underlayment

1.04 DESIGN REQUIREMENTS

A. General: Design, fabricate and install exterior cementitious wall assembly and sub-structure to withstand normal loads from wind, gravity, movement of building structure, and thermally induced movement, as well as to resist deterioration under conditions of normal use including exposure to weather, without failure to support rainscreen framing system.

B. Engineering Calculations: See Section 05 40 00 Cold Formed Metal Framing for requirements.

1. Retain the services of a wall systems engineer registered in the State in Minnesota to design the cladding support and retention system. Cladding engineer will prepare engineering calculations for the justification of all principal rainscreen and stonework, units, fasteners, and anchorage components for compliance with the performance criteria established herein.

2. Design, detail and fabricate connections to provide allowance for fabrication tolerances, erection tolerances and structural deflections. Refer to ASTM C1242.

C. Control of Corrosion: Prevent galvanic and other forms of corrosion by insulating metals and other materials from direct contact with non-compatible materials, or by suitable coating.

D. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1.05 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

1. Shop Drawings: Indicate layout of sizes and profiles, unit dimensions and locations, configuration, unit identification marks, reinforcement, connection details, support items, and relationship to adjacent materials.

2. Single Source: Sheathing boards, trim accessories, studs, adhesives, and joint treatment shall be the products of single manufacturer, or from manufacturers recommended by the prime manufacturer of the gypsum board products.

B. Pre-Installation Conference:

1. Convene in coordination with 04 20 10 Natural Stone Masonry thin veneer and 07 48 00 Rainscreen Cladding.

C. Manufacturer Warranty: Submit project specific letter of intent to provide specified warranty of installation system.

D. Product Data: Submit current product literature for each product used in assembly.

E. Samples: Masonry and Mortar selection.

F. Reports:

1. Third party building code evaluation report indicating cement board is approved for use in exterior application in accordance with ICC-ES AC 376.

G. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1. Including but not limited to: Air weather barrier, building insulation, cementitious wall assemblies, natural stone, architectural precast concrete, unit masonry, sheet metal flashing trim, and waterproofing.

1.06 QUALITY ASSURANCE

A. Mock-ups

1. Adhered masonry mock-up shall incorporate surrounding construction, including wall assembly, fasteners, flashing, and other related accessories installed in accordance with manufacturer's installation method:

a. Mock-up size: 4' x4' or as agreed to in field.

b. Mock-up may remain as part of the work provided it is located in a discrete area.

1.07 DELIVERY, STORAGE AND HANDLING

A. Follow Manufacturer's instruction for storage and protection of materials.

B. Protect masonry to prevent staining, chipping, spalling or contamination caused by water, freezing, foreign matter, and other adverse conditions.

C. Store installation materials in a dry location, in accordance with manufacturers' recommendations.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature to comply with manufacturers requirements, during installation and for a minimum of seven days after completion of adhered masonry work.

B. Vent temporary heaters to the exterior to prevent carbon dioxide damage to cementitious products.

1.09 WARRANTY

A. Provide manufacture's 15 Year Material Warranty For The Exterior Cement Board Supported Adhered Masonry Veneer wall assembly.

PART 2: PRODUCTS

2.01 MATERIALS

A. All components shall be manufactured by PermBase Building Products, LLC, service provider National Gypsum Company.

1. Product: PermaBase Plus (Basis of Design)

a. No Substitutions behind thin stone veneer assemblies (Welhouse 8 and Wellhouse 9).

B. Description: Cementitious Fiberglass Mesh/Mat Reinforced Sheathing: Water resistive, durable, mold resistant, non-combustible cement backer board for exterior applications. Rot, warp and delaminate resistant, reinforced edge technology.

1. Thickness: 1/2 IN or as indicated on Drawings.

2. Properties: www.permabase.com

a. PermaBase Plus Cement Board Technical Data:

TECHNICAL DATA

Property	Method	Results
Thickness, Nominal	ASTM C473	1/2" (12.7 mm)
Weight, Nominal		2.5 lbs./sq. ft.
Flexural Strength	ASTM C947	≥ 750 psi
Fastener Holding (Wet and Dry)	ASTM D1037	≥ 90 lbs.
Freeze/Thaw Cycles	ASTM C666	> 100
Compressive Strength	ASTM D2394	1250 psi
Bending Radius		5' (1,524 mm)
Thermal Resistance	ASTM C518	R = .37, K = 2.7
Permeance	ASTM E96	> 10 perms
Water Absorption (% of Weight)	ASTM C473	< 8%
Falling Ball Impact (12' drop)	ASTM D1037	Pass
Linear Expansion with Change Moisture	ASTM D1037	≤ 0.07%
Mold Resistance	ASTM D3273	Score of 10
Mold Resistance	ASTM G21	Score of 0
Shear Bond Strength 7 Days (psi)		
Dry-Set Portland Cement Mortar	ANSI A118.1	Pass
Latex-Portland Cement Mortar	ANSI A118.4	Pass
Organic Adhesives Type 1	ANSI A136.1	Pass
Product Standard Compliance	ASTM C1325	
Fire-Resistance Characteristics		
Core Type		N/A
UL Type Designation		PermaBase PLUS
Surface Burning Characteristics		Class A
Flame Spread		0
Smoke Development		0

C. Accessories:

1. Tape: 4 inch (102 mm) wide polymer-coated (alkali resistant) meshtape, or as recommended by Manufacturer for applications(s).
2. Casing Beads: Where gypsum terminates and is not closed off, provide casing beads.
3. Fasteners: Drill point screws (No. 8) wafer head, corrosion-resistant, Type S-12 screws or equivalent, complying with ASTM C1002. Minimum 1-5/8 inches (41mm) long, or as recommended by Manufacturer for applications(s).

D. Metal Framing: See Section 05 40 00 Cold Formed Metal Framing.

E. Stone Veneer Assembly: See Section 04 201 0 Natural Stone Masonry.

PART 3: EXECUTION

3.01 GENERAL

A. Follow Manufacturer's recommendations.

B. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

C. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.

D. Coordinate wall sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

F. All installation shall be performed by workmen experienced in exterior sheathing installation in strict accordance with the details shown on the Drawings, the shop drawings and the manufacturer's recommendations.

G. The work of the section shall be carefully coordinated with the work of all other related trades, including materials to be built adjacent to or applied on directly on the exterior sheathing.

3.02 INSTALLATION

A. General: A continuous vapor barrier must be installed over the masonry with the adjacent flashing lapping over it. Weeps must be provided to allow water drainage out of the system at all horizontal terminations; refer to Section 07 25 00 Weather Barriers for product information:

1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.

B. Apply flexible flashing where indicated to comply with manufacturers written instructions or as shown on the Drawings.

1. Prime substrates as recommended by flashing manufacturer.

2. Lap seams and junctures with other materials at least 4 inches, except that at flashing flanges of other construction, laps need not exceed flange width.

3. Lap flashing over weather-resistant building paper at bottom and sides of openings.

4. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

C. Apply barrier to cover vertical flashing with a minimum 4-inch overlap, unless otherwise indicated. Cement Board assemblies shall be continuous to meet adjacent or closest exterior finish material.

1. Where cement board sheathing abuts other exterior construction materials, such as precast panels or the rainscreen finished face, the horizontal cement board sheathing shall extend beyond the finished face of the vertical panel to "close" off the corner. All terminating ends of the cement board shall be trimmed with a "J" bead; if the "J" bead meets against an adjacent finish, the joint shall be sealed with an approved synthetic rubber base perimeter sealant.

D. Boards shall be of such length so as to eliminate end joints and installed with vertical joints only in the first 8-ft of height. Boards shall be brought into contact with each other but shall not be forced into place. Joints on opposite sides of a partition shall not occur on the same stud. Boards shall be applied using screws as recommended by the manufacturer. Provide expansion joints as shown, recommended by Manufacturer or as directed.

1. Screws shall be spaced not to exceed 12-in on center

E. Comply with ASTM C 1280, GA-253 and manufacturer's written instructions.

1. Fasten sheathing to cold-formed metal framing with screws.

2. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.

3. Install boards with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.

F. Apply fasteners so heads bear tightly against face of sheathing boards but do not cut into facing.

G. Provide corner beads on external corners or as shown on the drawings. Joint treatment shall be provided at re-entrant angles and sheathing trim where sheathing abuts other materials.

1. Corner beads shall be screwed with exterior grade screws spaced no greater than 9-in apart on each flange of the bead with the screws opposite.

H. Horizontal Installation: Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

I. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.

1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

2. For sheathing under stone cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

END OF SECTION 06 16 00

Division 07

Thermal and Moisture Protection

SECTION 07 13 00

BELOW GRADE MEMBRANE WATERPROOFING

PART 1: GENERAL

1.01 SUMMARY

A. Scope: The work under this Section includes all materials, labor, equipment and related incidental services necessary for the complete application of the following

1. Hot Applied Asphalt waterproofing at the exterior face of the foundation walls, which shall extend to above grade through-wall flashing, as shown on the Drawings and specified herein.
2. Installation of new termination bar at removed existing waterproofing locations above excavated grade removal to cap new finished elevation of existing system, as shown on the Drawings.
3. Stainless steel, waterproofing terminations, continuous at grade and all conditions shown on the Drawings.
4. Installation of under slab vapor barrier – See Section 03 30 00 Cast-in-Place Concrete.

1.02 RELATED SECTIONS

A. Section 04 20 00 Unit Masonry

B. Section 04 20 10 Natural Stone Masonry

C. Section 07 20 00 Building Insulation

D. Section 07 62 00 Sheet Metal Flashing & Trim

1.03 APPLICATOR QUALIFICATIONS

A. Foundation Waterproofing

1. The membrane waterproofing work shall be performed by a single firm experienced and specializing in applying American Hydrotech's Monolithic Membrane 6125 as shown and specified. The membrane waterproofing installation firm shall be an American Hydrotech approved and trained Applicator.
2. Foreman/Crew Qualifications: The lead foreman shall have a minimum of 3 years' experience with American Hydrotech's Monolithic Membrane 6125 on a minimum of three projects of comparable size and complexity. The lead foreman shall be on site for the duration of the waterproofing installation. The crew shall also have experience with Hydrotech's Monolithic Membrane 6125. The experience of both the lead foreman and crew shall be documented and submitted to the A/E for approval prior to the start of the waterproofing work.

1.04 SUBMITTALS

A. Test Results and certificates including:

1. Manufacturer's Review of Membrane Waterproofing System: Before delivering waterproofing materials to the Project site, submit a written statement signed by Contractor, membrane waterproofing Applicator and manufacturer's representative stating that the A/E's Project Drawings and Specifications have been reviewed by the American Hydrotech's regional manager, and that the representative is in agreement that the selected materials and system for membrane waterproofing are proper and adequate for the application shown. This submittal shall also to be submitted to Owner.

B. Manufacturer's product data including:

1. Submit manufacturer's printed instructions for installation of membrane, including procedures and materials for flashing, splicing and bonding.

2. Submit copies of manufacturer's application instructions for the membrane waterproofing work. Indicate by transmittal form that copies of the Project Specifications and application instructions have been distributed to the membrane waterproofing Applicator.

C. Shop Drawings including:

1. Submit showing layouts of sheets, locations of field splices, typical splices, terminations and antipodal details. Shop drawings shall include a construction protection plan. Provide descriptions and drawings of materials and methods to protect waterproofing system from damage by subsequent construction activities.

1.05 QUALITY ASSURANCE

A. The membrane waterproofing Applicator shall meet with the manufacturer's representative, Contractor, A/E and Owner's Representatives at the Project site to review the membrane waterproofing procedures, acceptance of surfaces, special details and coordination of other trades. Contractor shall provide notice to attendees prior to convening the Pre-Installation Conference as specified in Section 01 31 00 Project Coordination and Meetings. Review methods and procedures related to this Work, including, but not necessarily limited to the following:

1. Tour job site areas to be waterproofed. Inspect and discuss conditions of substrate(s), existing conditions, drains, curbs, penetrations and other preparatory work performed by other trades.

2. Review required submittals, both completed and yet to be completed. Read the entire Specification line item by line item.

3. Review and finalize the Construction Schedule related to waterproofing work and verify availability of materials, Applicator's personnel, equipment and facilities needed to make progress and avoid delays.

4. Review manufacturer's guidelines with respect to weather conditions.

5. Review required inspections and testing.

1.06 INSPECTION AND TESTING

A. Full time inspection is required for Work specified in this Section.

B. Cooperate with any inspection and testing firm engaged by Owner to perform on-site inspection of the membrane waterproofing work. Comply with the inspector's request in connection with specific test samples, and provide any additional testing that may be requested to confirm that the Work complies with the requirements. Contractor shall notify Owner's inspection and testing firm, A/E and Owner five (5) working days in advance of start of any waterproofing work to be performed on-site, and three (3) working day notice per inspection trip thereafter.

C. To determine whether the substrates are dry, there shall be two tests performed and paid for by Contractor and observed by Engineer/Architect. If test methods 1 or 2 fail, then the application of waterproofing shall not proceed until the surface is dried and the test passes.

1. Test 1: A 3-foot by 3-foot piece of clear poly shall be applied to the concrete surface and left for 3 hours. If moisture shows up on the underside of the poly, the concrete is not ready for application of waterproofing.

2. Test 2: If test 1 passes using the poly system, then the substrate shall be primed and a 4-foot by 4-foot area of AHM Membrane 6125 applied. If either bubbles or moisture are apparent during the application, then the substrate is not dry enough and not ready for

the application of AHM Membrane 6125. During both tests, the inspection personnel shall be on the site, and if either test fails, material shall not be applied.

1.07 DELIVERY, STORAGE AND HANDLING

A. Store all materials for membrane waterproofing work in accordance with the manufacturer's recommendations, as approved, and in accordance with the requirements herein specified.

B. Deliver materials in manufacturer's unopened containers fully identified with brand, type, class, grade and all other qualifying and product information.

C. Store membrane no more than one pallet high. Provide cover on top and all sides, allowing for adequate ventilation. The membrane shall be stored off the ground or concrete surfaces.

D. Store primer, mastic, protection board adhesive and liquid membrane in a dry area away from high heat, flames, or sparks.

E. Store protection board flat and off the ground, preferably on wood platforms. Provide tarpaulin cover on top and all sides.

F. Store only as much material at point of use as required for each day's work.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not apply waterproofing materials if ambient, material, and/or substrate temperatures are lower than 0 degrees F.

1.09 WARRANTY

A. Manufacturer's Warranty: Submit to the A/E for transmittal to Owner two (2) original copies of manufacturer's standard warranty on all materials used on the Project for a period of fifteen (15) years from the date of Substantial Completion.

B. Membrane Guarantee: Submit to the A/E for transmittal to Owner two (2) original copies of an unqualified guarantee for a period of fifteen (15) years on all materials, workmanship and water-tightness, signed by the membrane waterproofing Applicator and Contractor on the complete membrane waterproofing installation for the Project and that any defects in the installation because of materials or workmanship shall be properly corrected during the guarantee period at no cost to Owner. Upon written notification within the guarantee period of any such defects, the necessary repairs and replacement shall be properly made at the convenience of Owner.

PART 2: PRODUCTS

2.01 FOUNDATION WATERPROOFING

A. System Products

1. Manufacturer: American Hydrotech, Inc.

a. All other products are subject to compliance with specifications of basis of design product and their requirements, provide following products or Engineer/Architect approved equal prior to bid.

B. Surface Conditioner/Primer: Pre-mixed surface conditioner as recommended by Manufacturer.

C. Liquid Waterproofing Membrane: American Hydrotech Liquid Membrane 6125 supplied in 50-pound cakes, ten cakes per drum, meeting manufacturer's specifications, ready for melting and application.

D. Sheet Reinforcing Membrane: Hydrotech Flex-Flash UN supplied in uncut rolls, 60 mils thick, for overall coverage of the liquid membrane. Additional reinforcement strips of Flex-Flash UN shall be used for additional reinforcement at inside/outside comers, construction joints, at comer

intersections between vertical and horizontal surfaces, construction joints and cracks. Also use Flex-Flash UN at expansion joints to 1/2" in width and with a design total movement of less than 50%. For joints 1/2" to 2" in width with a design total movement of less than 50%, the sheet shall be looped down into the joint to a depth equal to the width of the joint at its maximum opening with a backer rod (1" greater in diameter than the maximum joint opening) set into the joint. Then a second sheet of reinforcement shall be looped over the backer rod and set into and top coated with the membrane. For other expansion joints, refer to Drawings details by A/E.

E. Joint and Lap Cement: American Hydrotech's Monolithic Membrane 6125 shall be used for sealing of all laps and edges of the sheet membrane.

F. Cap Flashings: Fry Reglet Corporation, Thickness 0.020, Type 304 - Stainless Steel, 6" high, surface mounted with sealant trough along upper edge, complete with all fastenings.

1. Approved Product Profile: “STX” Reglet with “SpringLok” Flashing lower.
2. Furnished prefabricated exterior and interior comer units. Such reglets shall be non-magnetic (nickel) stainless steel. Ferrous stainless steel is not acceptable.

G. Brick Ledge Flashing: 20 gauge stainless steel fabricated and formed to fit brick ledge construction.

1. Product required at locations of exposed brick ledge above grade and other exterior exposed waterproofing conditions, including but not limited to door thresholds.

H. Protection Board: Semi-rigid, synthetic fiber-reinforced, asphalt impregnated sheet.

1. Type 1: For horizontal use over field membrane as recommended by Manufacturer.
2. Type 2: For vertical use; PC-2 by WR Meadows in 4'x8' sheets.
3. Type 3: For use at waterproofed brick ledges, and through wall flashings as recommended by waterproofing manufacturer.

I. Bituminous Mastic Cement: Conform with Federal Specifications SS-C-15C, Type 1.

J. Backer Rod: "Sof Rod" as manufactured by Nomaco, Inc., a reticulated, closed cell, non-gassing backer rod.

K. Termination Bar: 1/16" thick by 1 1/2" high, type 304 stainless steel bar, with pre-drilled holes starting at 2" from each end and continue with a 1 '-0" on center spacing therein.

L. Anchors For Termination Bar: 1/4" diameter by 1 1/2" long, Powers Nylon Nailin #2548 with mushroom head and type 304 stainless steel nail.

M. Insulation: See Section 07 20 00 for more information.

N. Sealant: See Section 07 90 00 for acceptable exterior sealants and recommendations of system Manufacturer in conjunction with system.

2.02 BELOW SLAB TREATMENT

A. See Section 03 30 00 - Cast-In-Place Concrete.

PART 3: EXECUTION

3.01 GENERAL

A. All Work performed under this Section shall be in accordance with the Specifications, Drawings and the manufacturer's instructions and recommendations. In the event of a conflict, the stricter requirement shall prevail.

3.02 WEATHER CONDITIONS

A. Do not proceed with membrane waterproofing work during inclement weather, or when weather forecasts are unfavorable. Do not proceed with waterproofing for a minimum of 24 hours of drying time after the surface to be waterproofed has become completely wetted. If surface dryness remains in question, refer to Part 3.4 and 3.5, Paragraph 3.5 G, and Part 1.5 of this Section.

3.03 PROTECTION

A. Protect all finish surfaces from damage resulting from spillage, dripping and dropping of materials. Prevent waterproofing materials from entering or clogging drains and water conductors. Repair and restore or replace other Work that is soiled or damaged in connection with performance of the membrane waterproofing work.

3.04 FOUNDATION WATERPROOFING

A. Manufacturer Review: Prior to commencing the waterproofing work, the membrane waterproofing Applicator shall inspect the entire area to be waterproofed or through-wall flashed. Defects and improper conditions affecting installation shall be brought to the attention of the general Contractor, in writing, for correction before proceeding with the waterproofing work.

1. The American Hydrotech's representative shall be on site for the first two days of a new installation to ensure the waterproofing Applicator gets started properly. American Hydrotech's representative shall be available, as needed, throughout the installation.

B. Preparation of New Concrete and Masonry Surfaces: All new concrete and masonry surfaces on which American Hydrotech Liquid Membrane 6125 is to be applied shall be air-dried for a minimum of 14 days after forms have been stripped. All surfaces shall be thoroughly clean and additional drying shall be accomplished with torches, if necessary. All surfaces shall be dry, clean and free of other foreign materials detrimental to its performance. Any concrete form release agent or curing compound present shall be removed or approved to remain in writing by American Hydrotech, Inc. All concrete and masonry surfaces shall be completely covered with surface conditioner primer to receive the liquid membrane.

1. Examine surface conditions of all substrates and adjoining construction to which the membrane is to be applied. Work shall not proceed until any unsatisfactory conditions detrimental to the proper and timely completion of the waterproofing work have been corrected.

2. Surface(s) shall be free of spalling, voids, loose material and projections, with no coarse aggregate exposed. Remove all oil, grease and other contaminants. Remove all dirt, dust and debris. Clean all expansion joints back a minimum of 1" from the surface of the joint in a manner acceptable to American Hydrotech, Inc.

C. Priming

1. Apply the Surface Conditioner Primer to the surface scheduled to receive the American Hydrotech's Monolithic Membrane 6125, using a Hudson-type sprayer or with a roller at a rate of approximately one gallon of Primer per 300 to 600 square feet and allowed to dry. The primed surface shall be browned, but not blackened.

a. Primer shall dry until tack-free. The Primer shall be applied so that all surfaces and voids in the primed area are coated.

b. Primer shall be applied to only the area which can be covered with liquid membrane that day. However, if the primed area is protected by tenting, etc., so that it remains clean, frost-free, dry and free of other foreign materials detrimental to its performance, the primed area may be left three days before the liquid membrane application.

D. Liquid Membrane Application

1. Melt cakes of American Hydrotech's Monolithic Membrane 6125 in a American Hydrotech, Inc. approved double-shell kettle under continuous agitation until the material can be drawn free-flowing and lump-free at a temperature between 350-400 degrees F, but not exceeding 425 degrees F and not less than 350 degrees F. Membrane shall be applied evenly at a rate to provide a continuous coating averaging 3/16" thick, but not less than 1/8" thick.

   a. At all construction joints and cracks in the concrete over 1/16" and less than 1/4" in width, apply a continuous strip of liquid membrane not less than 1/8" thick and embed a continuous strip of Flex-Flash UN membrane, 6" wide for the full length of the crack and pressed down into the warm, tacky liquid membrane, 3" on each side of the crack. A second coating of liquid membrane not less than 1/8" thick shall be applied over the Flex-Flash UN membrane immediately and carried a minimum of3" beyond the edges of the Flex-Flash UN.

   b. For any cracks, excluding expansion joints, exceeding 1/4" wide, the A/E and Owner's Representative shall be notified for inspection and direction for water-proofing requirements and/or corrective work.

   c. At vertical intersections with horizontal slabs, apply a layer of Flex-Flash UN membrane between two coats of liquid membrane in the same manner as described above for crack reinforcement. The sheet membrane reinforcing shall be extended 6" horizontally and vertically.

   d. Cover all inside and outside vertical comers with a pre-strip layer of Flex-Flash UN sheet membrane a minimum of 6" wide applied at the axis of the comer. This reinforcing sheet shall be installed between two coatings of liquid membrane in the same manner as described above for crack repair.

   e. At brick ledge conditions to be waterproofed, liquid membrane shall be applied evenly to the entire ledge and provide a continuous coating of a target thickness as close to 125 mils as possible without exceeding 125 mils.

   f. Over the entire area to be waterproofed, liquid membrane shall be applied evenly at a rate to provide a continuous coating averaging 3/1 6" thick, but not less than 1/8" thick over the total area. This application shall be applied over all required reinforcement membrane work, and only after said work has been completed.

   g. At projecting sleeves, apply Flex-Flash UN sheet top and bottom of pipe penetration point, flanging the membrane onto the wall surface. Then apply single sheet with hole, over sleeve pipe, bonding, over the flanged edges, to the wall. Wrap pipe once around with final sheet, bonding around the seams of the two pieces. Seal sleeves upon completion of piping through sleeve.

   h. While the liquid membrane is still warm and tacky, cover the entire surface of the liquid membrane, including all work at joints and cracks, with (Flex-Flash UN) uncured neoprene sheet, lapping seams 6" and sealing laps and all edges of the neoprene membrane with the liquid membrane. Where vertical waterproofed walls interface footings, both liquid and sheet membranes shall cover the footing horizontal surface and extend 6" down the footing vertical face. After this application has been completed, install a small section of Flex-Flash UN sheet membrane sized to cover each of the inside and outside comers. This sheet membrane shall be installed between two coatings of liquid membrane in the same manner as described above for crack repair.

   i. All horizontal terminations shall be secured to the substrate with a continuous termination bar, anchored not less than 12” OC and 2” from the end of each termination bar length. The entire termination bar shall be coated in hot asphalt product application coat.

j. Inspect the membrane surface for bulges, fish-mouths, bubbles and roll-over seams which shall be cut back, repaired with additional coatings of liquid membrane, and an additional section of neoprene membrane installed, lapping at least 6" beyond any affected area. After any entrapped air is relieved, the neoprene membrane shall be set between layers of liquid membrane as described above for crack repair. All comers shall be smooth, free of sharp edges with a smooth dense surface. All repairs shall be made immediately.

k. Cover the membrane waterproofing completely with waterproofing protection board (except in cavity wall) as soon as possible while the membrane is still warm, refer to Drawing details. Form a continuous over-all protective layer over the membrane waterproofing. Cut and fit extruded insulation tightly, any pieces necessary, and butt edges tightly. Protection board shall start a minimum of 2" below and beyond, bottom and sides of waterproofing membranes.

1) Lap protection board 4 inches minimum.

2) Membrane shall be covered at the end of each day's work. Disallow and otherwise prevent damaging traffic and subsequent construction activities until the waterproofing system is covered with the permanent material of the Project design.

l. The protection board shall be protected to eliminate debris of any type from becoming lodged between insulation or protection board and subsequent membranes.

m. Install and maintain construction protection systems such that construction activities cause no damage to the waterproofing system. Refer to Article 1.06 of this Section.

E. Insulation

1. Do not deliver rigid insulation to the Project prior to time of its installation. Protect material during delivery, handling and installation from fire. As soon as practical after the installation of an area of rigid insulation work, protect the material with the other specified Work so that it will not remain exposed longer than necessary.

a. Do not install rigid insulation that has become wet or soiled, or covered with ice, frost or snow. Protect rigid insulation from exposure to high ambient temperatures, excessive exposure to sunlight or contact with hot surfaces and materials which are in excess of the safe temperature above the sublimation temperature indicated by the manufacturer.

b. The membrane waterproofing Applicator shall examine all parts of the supporting substrate and the condition under which the rigid insulation work is to be performed, and notify Contractor in writing of any conditions detrimental to the proper and timely completion of the rigid insulation work. Do not proceed with the installation until all conditions have been corrected in a manner acceptable to the membrane waterproofing Applicator.

c. Apply the insulation with staggered joints. Extend insulation at full thickness over the entire area to be covered. Cut and fit rigid insulation tightly around projections. Do not leave any voids.

F. Stainless Steel Cap Flashing

1. Over the membrane waterproofing along foundation walls at finish grade, install the stainless steel cap flashing vertical leg to cover the top edges of the waterproofing, protection board and insulation down approximately 6" below grade. Anchor the metal cap flashing securely in place in accordance with the manufacturer's directions. Lap joints tightly and set in a bed of sealant. Where possible, use through-wall flashings for the terminations at the top of the waterproofing of vertical walls.

a. Close and seal all ends to maintain water-tightness and fill top through with sealant to provide a water-tight, surface mounted cap flashing.

G. Temporary Protection

1. If there are any delays in the Work, such that materials will not be properly protected because the specified sequence of Work will not be performed in a timely manner, Installing Sub-Contractor shall provide all necessary temporary protection and remove the temporary protection when the Work is resumed.

END OF SECTION 07 13 00

SECTION 07 20 00

BUILDING INSULATION

PART 1: GENERAL

1.01 SUMMARY

A. Perimeter foundation insulation, exterior wall insulation, fill at miscellaneous exterior wall conditions, including but not limited to opening perimeters, exterior door and window conditions.

B. Exterior wall system materials furnished under this section, installed under Section 07 48 00 Rainscreen Cladding Systems (RCS) and Section 06 16 00 Cementitious Sheathing Assemblies.

1.02 RELATED SECTIONS

A. Section 03 41 00 Precast Structural Concrete

B. Section 04 20 00 Unit Masonry

C. Section 04 20 10 Natural Stone Masonry

D. Section 05 50 00 Cold Formed Metal Framing

E. Section 06 16 00 Cementitious Sheathing Assemblies

F. Section 07 13 00 Below Grade Membrane Waterproofing

G. Section 07 25 00 Weather Barriers

H. Section 07 48 00 Rainscreen Cladding System (RCS)

I. Section 07 53 00 Fully Adhered EPDM Membrane Roofing

J. Section 07 62 00 Sheet Metal Flashing and Trim

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

B. American Society for Testing and Materials (ASTM):

1. C578 - Preformed Cellular Polystyrene Thermal Insulation.

2. C665 - Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

3. D2842 - Test Method for Water Absorption of Rigid Cellular Plastics.

1.04 SUBMITTALS

A. Submit the following items consistent with Section 01 33 00 Submittal Procedures:

1. Product Data: Complete manufacturer’s data on insulation to be installed.

2. Samples: Two samples of each insulating material to be installed.

B. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1. Including but not limited to: Air weather barrier, cementitious wall assemblies, natural stone, architectural precast concrete, unit masonry, sheet metal flashing trim, and waterproofing.

1.05 PRODUCT SUBSTITUTIONS

A. Exterior Wall Insulation:

1. Substitutions shall comply with non-combustible and flame spread ratings required for exposed insulation as tested under NFPA 285 exterior wall assemblies.

2. All products must be approved by Engineer/Architect prior to bid commencement.

1.06 DELIVERY, STORAGE AND PROTECTION

A. Deliver products in original unopened packaging.

B. Store all materials to avoid damage and moisture absorption.

C. Protect insulation and keep completely dry while in storage. If insulation is stored outdoors, stack on pallets at least four inches above ground and cover with a tarpaulin or other similar opaque waterproof covering.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Extruded Polystyrene Foam Plastic (XPS) Board: Provide for installation at foundation and exterior wall conditions.

1. Dow Chemical Company product Extruded Polystyrene, ‘Styrofoam’.

2. Owens Corning.

B. Glass Fiber Blanket / Batt Insulation (Unfaced): Provide within steel stud cavity at exterior wall.

1. CertainTeed Corporation, Commercial Blanket Insulation.

2. Johns Manville, Formaldehyde-free Fiber Glass Insulation.

3. Owens-Corning Fiberglass Corp., Unfaced Thermal Batt FIBERGLAS Insulation.

C. Continuous Spray Foam Insulation: Provide at roof skylight support wall conditions as shown on the Drawings.

1. "CertaSpray" Closed Cell Foam by CertainTeed.

2. "Styrofoam" Spray Polyurethane foam by Dow.

D. Miscellaneous Spray Foam Insulation: Provide spray foam insulation for gaps between the aluminum window framing and perimeter masonry openings. Fill all voids and gaps within the shim space to prevent air infiltration through the masonry wall cavity. Used also in FRP and exterior hollow metal door frames required to be filled solid.

1. Dow “Great Stuff”

2. Hilti CS 812 Spray Foam

E. Mineral Wool Blankets: Provide behind rainscreen system between 'Z' furring supports.

1. ThermaFiber “Rain Barrier 45”, Standard Density.

2. Roxul “CavityRock”.

2.02 INSULATION

A. General: Provide insulating materials that comply with requirements and with referenced standards.

1. (INSUL-1) Type IV, 1.60 PCF (26 kg/cu. m), Extruded Polystyrene Drainage Board unless otherwise indicated in Section 07 13 00, typically used for waterproofing protection board.
    a. Termite and mold resistant
    b. Thickness: 2.0 inches unless indicated otherwise on Drawings.
    c. Thermal Resistance: R-5.0 per inch.
    d. Water Absorption: In accordance with ASTM D2842, 0.1 percent by volume maximum
2. (INSUL-2) Extruded Polystyrene unless noted otherwise, Type IV, 1.60 PCF (26 kg/cu. m) typically used for exterior wall cavity insulation.
    a. Termite and mold resistant.
    b. Thickness: 2.5 inches unless indicated otherwise Indicated on Drawings.
    c. Thermal Resistance: R-5.0 per inch thickness.
    d. Water Absorption: In accordance with ASTM D2842, 0.1 percent by volume maximum
3. (INSUL-3) Mineral Wool Blanket Insulation in flat semi-rigid material:
    a. 90% recycled content product with sound dampening properties that is unfaced, mold, UV and termite, bug and rodent resistant containing zero flame and smoke spread per ASTM E84.
    b. Compliance Standards; ASTM C-665 Non-Corrosive, ASTM C-612, ASTM E-136, ASTM E-96, ASTM C-1104, ASTM C-356, ASTM E-84.
    c. R-Value: Improved performance 4.2 per inch at 70 degrees Fahrenheit; 5.4 per inch at 20 degrees Fahrenheit.
    d. Density: 4.5 pcf density board.
    e. Thickness: As shown on the drawings for material application.
    f. Color: Standard dark fiber.
4. (INSUL-4): Glass Fiber Blanket/Batt Insulation (Unfaced):
    a. ASTM C665, Type I, preformed glass fiber blanket without facers, formaldehyde-free.
    b. Location: Exterior Metal Stud Back-up Wall; see Drawings for additional locations.
5. (INSUL-5) Polyisocyanurate Board insulation and Tapered Insulation.
    a. See Section 07 53 00 – Fully Adhered EPDM Membrane Roofing for product information.
6. (INSUL-6) Miscellaneous Foamed-In-Place Insulation: Spray polyurethane foam, medium density.
    a. Closed Cell, 2.0psf nominal minimum weight capable of providing Class 2 vapor retarder at less than thickness shown within contract documents.

2.03 INSULATION SUB-STRUCTURE FRAMING

A. All accessories or components required to support insulation shall be provided unless listed.

1. Mineral Wool Blanket: Rainscreen sub-structure framing shall act as support for mineral wool blanket insulation hanging system at all exterior envelope conditions scheduled for

installation; refer to Section 07 48 00 Rainscreen Cladding System (RCS), Section 09 20 10 Gypsum Board Assemblies, and the Drawings for more information.

2.04 ACCESSORIES

A. Adhesive: As recommended by manufacturer.

B. Tape: Polyethylene self-adhering type with mesh reinforcement, 2 inch wide.

C. Baffles and Stops: As recommended for application.

D. Friction Clips: Stainless Steel required for installation of batt insulation in vertical wall conditions.

E. Impaling Pins: Stainless Steel

F. Fasteners: ALL fasteners must be designed to support the weight of the insulation per conditions indicated.

G. Backer Rod: Pre-compressed backer rod used to infill face gaps in existing concrete block (Wellhouse 9) and miscellaneous applications.

1. Product: EmSeal ‘ ColorSeal’

PART 3: EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation boards are dry and ready for installation.

B. Verify substrate surface is flat, free of honeycomb fins, irregularities, and materials and substances that may impede adhesive bonding.

3.02 INSTALLATION

A. Foundation Perimeter: Follow manufacturer’s recommendations for adhering board to substrate. Coordinate with below grade membrane installer; see Section 07 13 00 Below Grade Membrane Waterproofing.

1. Adhere boards to foundation wall perimeter horizontally. Place board in a method to maximize contact bedding. Stagger end joints and butt tightly to adjacent boards and to protrusions.

2. Extend boards over control joints unbonded to foundation 6 inches on one side of the joint.

3. Take necessary precautions on backfill of foundation to avoid damage to insulation board.

4. Take necessary precautions to not damage waterproofing.

5. Coordinate applications with waterproofing installer. Take necessary precautions to not damage waterproofing.

6. All Other Locations:

a. Follow manufacturer’s recommendations for continuous thermal barrier protection.

7. Tape and seal all joints.

8. Avoid thermal bridging within to the exterior within all wall and roof assemblies.

9. Insulation to be a truly continuous application. Avoid thermal bridging from the exterior within all wall and roof assemblies.

B. Rainscreen & Exterior Wall Insulation: Coordinate with Section 07 48 00 Rainscreen Cladding System (RCS), 09 20 10 Gypsum Board Assemblies, and the Drawings for integration and installation at exterior wall systems.

C. Spray Foam Insulation: Comply with all Manufacturer's requirements for installation of spray foam insulation at all conditions.

1. Wire cut back to level surface at exterior applications.

END OF SECTION 07 20 00

SECTION 07 25 00

WEATHER BARRIERS

PART 1: GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. Vapor permeable, fluid-applied air and vapor membrane barrier.
2. Self-adhered air and vapor sheet membrane barrier and integral components.
3. Manufacturer's sealants, primers, and integral components.

1.02 RELATED SECTIONS

1. Section 04 20 10 Natural Stone Masonry
2. Section 07 20 00 Building Insulation
3. Section 06 16 00 Cementitious Sheathing Assemblies
4. Section 07 48 00 Rainscreen Cladding System (RCS)
5. Section 07 53 00 Fully Adhered EPDM Membrane Roofing
6. Section 07 62 00 Sheet Metal Flashing and Trim
7. Section 07 90 00 Joint Sealants

1.03 REFERENCE

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. Air Barrier Association of America (ABAA)
2. American Society of Testing and Materials (ASTM)
    a. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
    b. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants
    c. ASTM C1193 - Standard Guide for Use of Joint Sealants
    d. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating
    e. ASTM D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
    f. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials
    g. ASTM E162 - Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source
    h. ASTM E779 - Standard Test Method for Determining Air Leakage Rate by Fan Pressurization.
    i. ASTM E1186 - Standard Practices for Air Leakage Site Detection in Building Envelops and Air Barrier Systems
    j. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials

3. Air Barrier Assembly: The collection of air barrier materials and auxiliary materials applied to an opaque wall, including joints and junctions to abutting construction, to control air movement through the wall.

1.04 PERFORMANCE REQUIREMENTS

A. General: Air barrier shall be capable of performing as a continuous vapor-permeable OR vapor retarder air barrier and as a liquid-water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration.

B. Air barrier assemblies shall be capable of accommodating substrate movement and of sealing substrate expansion and control joints, construction material changes, and transitions at perimeter conditions without deterioration and air leakage exceeding specified limits.

1. Support the air barrier so as to withstand the maximum positive and negative air pressure to be placed on the building without displacement, or damage, and transfer the load to the structure. Seal all penetrations of the air barrier. If any unavoidable penetrations of the air barrier by electrical boxes or conduit, plumbing, and other assemblies are not air tight, make them air tight by sealing the assembly and the interface between the assembly and the air barrier or by extending the air barrier over the assembly.

C. Air Barrier Assembly Air Leakage Criteria: Not to exceed 0.25 cfm x sq. ft. of surface area at 1.57 psf; when tested in accordance with the following standards:

1. ASTM E779

2. ASTM E1186

1.05 SUBMITTALS

A. Test Results and Certificates including:

1. Manufacturer's letters certifying test results for listed performance requirements in Part 1.04 as performed by the Manufacturer.

B. Product Data including:

1. Manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of air barrier.

C. Shop Drawings including:

1. Show locations and extent of air barrier. Include details for substrate joints and cracks, counterflashing strip, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.

2. Include details of interfaces with other materials that form part of air barrier.

D. Samples including:

1. Material sample on 6"x6" board showing mil thickness, color, and texture.

1.06 QUALITY ASSURANCE

A. Applicator Qualifications: A firm experienced in applying air barrier materials similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

1. Installer must be an ABAA-licensed contractor, who employs certified and registered installers, and complies with ABAA's Quality Assurance Program.

B. Pre-Installation Conference: Conduct conference at Project site.

1. Include installers of other construction connecting to air barrier, including roofing, waterproofing, masonry, sealants, windows, sheathing and door frames.

2. Review air barrier requirements including surface preparation, substrate condition and pretreatment, minimum substrate curing period, forecasted weather conditions, special details and sheet flashings, mockups, installation procedures, sequence of installation, testing and inspecting procedures, and protection and repairs.

C. Field Inspections:

1. Manufacturer's Inspections: Manufacturer shall provide field inspections and subsequent letter of certification for system installation stating compliance with the standard recommended practices of the Manufacturer for total system installation and application.

2. Installer's Inspections: Installer shall provide letter certifying system installation stating compliance with the Manufacturer's standard recommended practices and those of the ABAA Quality Assurance Program as part of the system warranty.

D. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1. Including but not limited to: Air weather barrier, building insulation, gypsum board assemblies, unit and natural stone masonry, sheet metal flashing trim, built-up asphalt roofing, and waterproofing.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store liquid materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by air barrier manufacturer.

B. Remove and replace liquid materials that cannot be applied within their stated shelf life.

C. Store rolls according to manufacturer's written instructions.

D. Protect stored materials from direct sunlight.

1.08 PROJECT CONDITIONS

A. Environmental Limitations: Apply air barrier within the range of ambient and substrate temperatures recommended by air barrier manufacturer. Protect substrates from environmental conditions that affect performance of air barrier. Do not apply air barrier to a damp or wet substrate or during snow, rain, fog, or mist.

1.09 WARRANTY

A. Ten (10) Year Warranty:

1. Manufacturer’s product warranty for material application and labor in event of failure due to material.

2. Installer warranty for installation defects, including material costs associated with failure due to installation.

3. System water-tightness warranty held by Section 07 48 00 Rainscreen Cladding System installer for penetrations made through weather barrier to install rainscreen framing components.

PART 2: PRODUCTS

2.01 PERMEABLE MEMBRANES (WB-1) FOR USE IN MASONRY WALLS AND ON EXTERIOR SHEATHING BEHIND RAINSCREEN ASSEMBLY

A. Physical and Performance Properties:

1. Membrane Air Permeance: Not to exceed 0.004 cfm x sq. ft. of surface area at 1.57 psf pressure differential; ASTM E 2178.
2. Membrane Vapor Permeance: Class III Vapor Retarder - not to exceed 10 perms and greater than 1.0 perm per ASTM E 96.
3. UV Stable; Finished Color: Black or Dark Gray.
4. Contractor's option to use fluid applied or sheet applied system(s).

B. Fluid-Applied, Vapor Permeable, Air Barrier Membrane:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:
   a. Synthetic Polymer Membrane or Elastomeric Membrane:
      1) Carlisle Coatings & Waterproofing, Barritech VP.
      2) Henry Company; Air-Bloc 33MR.
      3) Meadows, W. R., Inc.; Air-Shield LM.
      4) W. R. Grace & Co.; Perm-A-Barrier Liquid VP
      5) Polyguard Airlok Flex VP
      6) Tremco Incorporated: ExoAir 230

C. Sheet Applied, Vapor Permeable Air and Vapor Membrane:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following products.
2. Products: Subject to compliance with requirements, provide one of the following:
   a. Self-Adhering Membrane:
      1) WR Grace "Perm-A-Barrier VPS"
      2) Henry Blueskin VP16

2.02 PERMEABLE MEMBRANES (WB-2) FOR USE ON EXTERIOR SHEATHING BEHIND NTURAL STONE VENEER ASSEMBLY

A. See Section 04 20 10 Natural Stone Masonry

2.03 AUXILIARY MATERIALS

A. General: Accessory materials shall be supplied by the Manufacturer to supply a complete system for each type of membrane and application specified. Products shall be recommended by weather barrier manufacturer for intended use and compatible with base weather barrier membrane.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

B. Primer: Liquid primer as recommended for substrate by Manufacturer of weather barrier material.

C. Joint Reinforcing Strip: Weather barrier manufacturer's glass-fiber-mesh tape.

D. Substrate Patching Membrane: Manufacturer's standard trowel-grade substrate filler.

E. Modified Bituminous Transition Strip: Compatible with physical and performance properties of the base system. Smooth-surfaced, self-adhering; consisting of 36 mils of rubberized asphalt laminated to a 4-mil thick polyethylene film with release liner backing.

F. Adhesive and Tape: Weather barrier manufacturer's standard adhesive and pressure-sensitive adhesive tape.

G. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, 0.0187 inch thick, and Series 300 stainless-steel fasteners.

H. Adhesive-Coated Transition Strip: Vapor-permeable, 17-mil thick, self-adhering strip consisting of an adhesive coating over a permeable laminate with a permeance of 37 perms.

I. Joint Sealant: See Section 07 90 00 - Joint Sealants and system Manufacturer recommended products.

2.04 PERMEABLE WATER RESISTIVE BARRIER (WB-2) FOR USE ON EXTERIOR SHEATHING BEHIND VENEER STONE. SEE SECTION 04 20 10 – NATURAL STONE MASONRY.

PART 3: EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.

1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
2. Verify that concrete has cured and aged for minimum time period recommended by air barrier manufacturer.
3. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
4. Verify that masonry joints are flush and completely filled with mortar.
5. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

A. Clean, prepare, treat, and seal substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application.

B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids in concrete with substrate patching membrane.

E. Remove excess mortar from masonry ties, shelf angles, and other obstructions.

F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.03 JOINT TREATMENT

A. Concrete and Masonry: Prepare, treat, rout, and fill joints and cracks in substrate according to ASTM C 1193 and air barrier manufacturer's written instructions. Remove dust and dirt from joints and cracks complying with ASTM D 4258 before coating surfaces.

1. Prime substrate and apply a single thickness of preparation coat strip extending a minimum of 3 inches along each side of joints and cracks. Apply a double thickness of air barrier membrane and embed a joint reinforcing strip in preparation coat.

B. Gypsum Sheathing: Fill joints greater than 1/4 inch with sealant according to ASTM C 1193 and with air barrier manufacturer's written instructions. Apply first layer of fluid air barrier membrane at joints. Tape joints with joint reinforcing strip after first layer is dry. Apply a second layer of fluid air barrier membrane over joint reinforcing strip.

3.04 TRANSITION STRIP INSTALLATION

A. Install strips, transition strips, and auxiliary materials according to air barrier manufacturer's written instructions to form a seal with adjacent construction and maintain a continuous air barrier.

1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.

2. Install modified bituminous strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates.

3. Install modified bituminous strip at expansion joints against existing building. Seal to surfaces on each side of joint using primers recommended by manufacturer.

B. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by air barrier sheet in same day. Reprime areas exposed for more than 24 hours.

1. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.

C. Connect and seal exterior wall air barrier membrane continuously to roofing membrane air barrier, concrete below-grade structures, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings, using accessory materials as indicated.

D. At end of each working day, seal top edge of strips and transition strips to substrate with termination mastic.

E. Apply joint sealants forming part of air barrier assembly within manufacturer's recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

F. Wall Openings: Prime concealed perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply the butyl based transition strip so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates. Maintain 3 inches (75 mm) of full contact over firm bearing to perimeter frames with not less than 1 inch (25 mm) of full contact.

1. Butyl based Transition Strip: Roll firmly to enhance adhesion.

2. Elastomeric Flashing Sheet: Apply adhesive to wall, frame, and flashing sheet. Install flashing sheet and termination bars, fastened at 6 inches (150 mm) o.c. Apply lap sealant over exposed edges and on cavity side of flashing sheet.

3. Preformed Silicone-Sealant Extrusion: Set in full bed of silicone sealant applied to walls, frame, and membrane.

G. Fill gaps in perimeter frame surfaces of windows, curtain walls, storefronts, and doors, and miscellaneous penetrations of air barrier membrane with foam sealant.

H. Seal strips and transition strips around masonry reinforcing or ties and penetrations with termination mastic.

I. Seal top of through-wall flashings to air barrier with an additional 6-inch- (150-mm-) wide, counterflashing strip as recommended by air barrier Manufacturer.

J. Seal exposed edges of strips at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

K. Repair punctures, voids, and deficient lapped seams in strips and transition strips. Slit and flatten fishmouths and blisters. Patch with transition strips extending 6 inches (150 mm) beyond repaired areas in strip direction.

3.05 FLUID APPLIED MEMBRANE INSTALLATION

A. Apply weather barrier membrane to form a seal with strips and transition strips and to achieve a continuous air barrier according to air barrier manufacturer's written instructions.

B. Apply weather barrier membrane within manufacturer's recommended application temperature ranges.

C. Apply primer to substrates, if required, at required rate and allow to dry. Limit priming to areas that will be covered by air barrier sheet in same day. Re-prime areas exposed for more than 24 hours.

1. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.

D. Apply a continuous unbroken air barrier to substrates in thickness as recommended by the manufacturer to achieve required permeances. Apply membrane in full contact around all protrusions.

E. Apply strip and transition strip over cured air membrane overlapping 3 inches onto each surface according to air barrier manufacturer's written instructions.

F. Do not cover air barrier until it has been tested and inspected by Engineer/Architect.

G. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

3.06 SHEET APPLIED MEMBRANE INSTALLATION

A. Apply weather barrier membrane to form a seal with strips and transition strips and to achieve a continuous air barrier according to air barrier manufacturer's written instructions.

B. Continuously apply membrane primer at a rate recommended by Manufacturer to all areas to receive sheet applied membrane installation.

C. Pre-treat all inside and outside corners, and all transitions (structural components, floor slabs, walls, roofing systems, parapets, etc.) according to the Manufacturer's recommendations.

D. Apply self-adhering water resistive air barrier membrane complete and continuous to substrate in a sequential overlapping weatherboard method starting at bottom or base of wall and working up in accordance with manufacturer's recommendations and written instructions. Stagger all vertical joints.

1. Cut to manageable sections, align and position self-adhering membrane to substrate, remove top panel of protective release film and press firmly into place.

2. Ensure alignment, hold membrane in place to avoid wrinkles and sequentially remove remaining panels of protective film and press firmly into place.

3. Ensure minimum 3-inch overlap at all ends and 2-inch side laps of subsequent membrane applications.

4. Pressure roll all membrane surfaces, laps and flashings with a counter top roller or 'J-roller' to ensure appropriate surface adhesion.

5. At the end of each day's work, seal the top edge of the membrane where it meets the substrate with termination sealant. Trowel-apply a feathered edge to seal termination and shed water.

E. Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, around penetrations, duct work, electrical and other apparatus extending through the primary water resistive air barrier membrane and around the perimeter edge of membrane terminations at window and door frames with specified termination sealant.

1. Seal the leading edge of membrane terminations and reverse laps.

F. Exposure: Water resistive air barrier membranes are not designed for permanent exposure. Follow Manufacturer's recommendations for UV exposure. Good practice calls for covering as soon as possible, not to exceed 150 days.

3.07 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Inspections: Air barrier materials and installation are subject to inspection for compliance with requirements. Inspections may include the following:

1. Continuity of air barrier system has been achieved throughout the building envelope with no gaps or holes.

2. Continuous structural support of air barrier system has been provided.

3. Masonry and concrete surfaces are smooth, clean and free of cavities, protrusions, and mortar droppings.

4. Site conditions for application temperature and dryness of substrates have been maintained.

5. Maximum exposure time of materials to UV deterioration has not been exceeded.

6. Surfaces have been primed, if applicable.

7. Laps in strips and transition strips have complied with minimum requirements and have been shingled in the correct direction (or mastic has been applied on exposed edges), with no fishmouths.

8. Termination mastic has been applied on cut edges.

9. Strips and transition strips have been firmly adhered to substrate.

10. Compatible materials have been used.

11. Transitions at changes in direction and structural support at gaps have been provided.

12. Connections between assemblies (membrane and sealants) have complied with requirements for cleanliness, preparation and priming of surfaces, structural support, integrity, and continuity of seal.

13. All penetrations have been sealed.

C. Tests: Testing to be performed will be determined by Owner's testing agency from among the following tests:

1. Qualitative Testing: Air barrier assemblies will be tested for evidence of air leakage according to ASTM E 1186, smoke pencil with pressurization or depressurization; ASTM E 1186, chamber pressurization or depressurization with smoke tracers; ASTM E 1186, chamber depressurization using detection liquids, according to field conditions and the direction of Architect and Testing Agent. Other quantitative tests may include ASTM E 779; CAN/CGSB 149.10, "Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method"; and CAN/CGSB 149.15, "Determination of the Overall Envelope Airtightness of Office Buildings by the Fan Depressurization Method Using the Building's Air Handling System."

2. Quantitative Air Leakage Testing: Testing not to exceed the test pressure differential, positive and negative, indicated in "Performance Requirements" Article for air barrier assembly air leakage according to ASTM E 283 or ASTM E 783, depending on the field conditions and determination by Architect and Testing Agent.

D. Remove and replace deficient air barrier components and retest as specified above.

3.08 CLEANING AND PROTECTION

A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.

1. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed for more than 60 days.

2. Protect air barrier from contact with creosote, uncured coal-tar products, TPO, EPDM, flexible PVC membranes, and sealants not approved by air barrier manufacturer.

B. Clean spills, stains, and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

C. Remove masking materials after installation.

END OF SECTION 07 25 00

SECTION 07 48 00

RAINSCREEN CLADDING SYSTEM (RCS)

PART 1: GENERAL

1.01 SUMMARY

A. Exterior, solid phenolic panel cladding system with sub-framing system, moisture barrier, insulation and other accessories as required for a complete drained and back-ventilated phenolic panel rainscreen system, including:

1. Exterior Wall Panels:

a. Exposed Fastening System at existing construction.

2. Weather Barrier.

3. Exterior Wall Insulation and Sub-Framing.

4. Fiber Mesh Screen.

5. Exterior openings trim and closures.

6. Fire Department Lock Box: recessed mount.

1.02 RELATED SECTIONS

A. Section 04 20 00 Unit Masonry

B. Section 04 20 10 Natural Stone Masonry

C. Section 05 50 00 Matal Fabrications

D. Section 05 40 00 Cold Formed Metal Framing

E. Section 06 16 00 Cementitious Sheathing Assemblies

F. Section 07 20 00 Building Insulation

G. Section 07 25 00 Weather Barriers

H. Section 07 62 00 Sheet Metal Flashing and Trim

I. Section 08 10 00 Hollow Metal Doors & Frames

J. Section 23 33 15 Louver and Dampers

1.03 MATERIALS FURNISHED UNDER OTHER SECTIONS AND CONTRACTED BY RAINSCREEN CONTRACTOR

A. General: The work included becomes part of the Rainscreen Total System Warranty.

B. Section 07 20 00 Building Insulation.

C. Section 07 25 00 Weather Barriers.

1. Installer certification required. Each penetration shall thru WB be sealed to maintain the continuity of weather barrier.

1.04 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

B. ASTM International (ASTM):

1. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus.
2. ASTM D 635 - Standard Test Method for Small Scale Burning.
3. ASTM D 1929 - Standard Test Method for Ignition Temperature.
4. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
5. ASTM D 2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
6. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
7. ASTM E 119 - Standard Test Method for Fire Rated or Fire Resistive Construction.
8. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors Under the Influence of Wind Loads.

C. European Standards (EN):

1. EN 438-2 - decorative High Pressure Laminate (HPL) Sheets Based on Thermosetting Resins - Determination of Properties.
2. EN 12524 - Building Materials and Products, Hygrothermal Properties, Tabulated Design Values.

D. International Organization for Standardization (ISO):

1. ISO 105 A02-93 - Tests for Color Fastness -- Part A02: Grey scale for assessing change in color.
2. ISO 178 - Determination of Flexural Properties.
3. ISO 527-3 - Determination of Tensile Properties.
4. ISO 846 - Evaluation of the Action of Organisms.

E. National Fire Protection Association (NFPA):

1. NFPA 268 - Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Heat Energy Source.
2. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

1.05 SUBMITTALS

A. Test results and certifications including:

1. Code Compliance: Documents showing product compliance with local building code shall be submitted prior to the bid. These documents shall include, but not be limited to, appropriate Evaluation Reports and/or test reports supporting the use of the product.
    a. Product Substitutions for Exterior Wall Assembly: Substitutions shall comply with non-combustible and flame spread ratings and provisions required for exposed insulation as tested under NFPA 285 exterior wall assemblies.
2. Engineering Calculations: Submit engineering calculations as required by the local building code, showing that the installed panels and attachments system meets the wind load requirements for the project.

B. Product Data including:

1. Manufacturer's data sheets on each product to be used, which state all preparation instructions and recommendations, installation methods and storage and handling requirements and recommendations.

2. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system; including but not limited to: Weather barrier, waterproofing, gypsum wall assemblies, natural stone, building insulation, and sheet metal flashing trim.

C. Shop Drawings including:

1. Submit plan, section, elevation and perspective drawings necessary to describe and convey the layout, profiles and product components, including edge conditions, panel joints, fixture location, anchorage, accessories, finish colors, patterns and textures.

D. Samples including:

1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns. Please note that samples are only representative for color and pattern and not for thickness or edge finish. Metallic colors may also show a slight fluctuation in appearance do to the metal flake orientation from batch to batch.

2. Verification Samples: For each finish product specified, two samples a minimum of 12 inch by 12 inch representing actual product, color, and patterns. Sample edges may vary from field panel edges.

E. Operation and Maintenance Data including:

1. Submit operation, maintenance, and cleaning information for products covered under this section.

1.06 PRE-INSTALLATION CONFERENCE AND MOCK-UP

A. Mock-Up: Construct a 6’ x 6’ mock-up panel of building conditions using all materials, components, panel joining, joints, opening and material transitions of the phenolic panel rainscreen system for review and approval by Engineer/ Architect and Owner. Coordinate the mock-up installation with the Natural Stone mock-up.

1. Do not proceed with remaining work until workmanship, color, and sheen are approved by Engineer/Architect and Owner.

B. Pre-Installation Conference: Conduct pre-installation conference to verify project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: All primary panel products specified in this section will be supplied by a single manufacturer with a minimum of ten years’ experience.

1. Products covered under the Work listed in this section are to be manufactured in an ISO 9001 certified facility.

2. Periodic inspections by manufacturer’s representative is required. Reports documenting observation inspections shall be submitted to Engineer/Architect and Owner for review and record.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer trained and approved by the manufacture or panel system representative.

1. Installer: Minimum five (5) years' experience in similar materials and installations required.
2. Provide references.

C. Field Observation and Testing:

1. Engineer/Architect shall make periodic inspections of the rainscreen system installation to ensure that a weather tight application and continuous vapor barrier are maintained, and that the rainscreen the assembly meets the requirements of the manufacture's recommendations and details.

D. Mock-Up: See Part 1.05 Submittals.

1.08 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. During transportation, use stable, flat pallets that are at least the same dimension as the sheets.
2. Materials shall be packaged to minimize or eliminate the possibility of damage during shipping. Items such as wooden side boards, wooden lid, and spacers or protective sheeting between panels shall be used to protect the panels from surface and/or edge damage.

B. Storage:

1. Store products in an enclosed area protected from direct sunlight, moisture and heat. Maintain a consistent temperature and humidity.
2. Store products in manufacturer's unopened packaging until ready for installation.
3. Stack panels using protective dividers to avoid damage to decorative surface.
4. For horizontal storage, store sheets on pallets of equal or greater size as the sheets with a protective layer between the pallet and sheet and on top of the uppermost sheet.
5. Do not store sheets, or fabricated panels vertically.

C. Handling:

1. Remove protective film within 24 hours of the panels being removed from the pallet.
2. When moving sheets, lift evenly to avoid dragging panels across each other and scratching the decorative surface.
3. Remove all labels and stickers immediately after installation.

1.09 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Field Measurements: Verify actual measurements/openings by field measurements performed by the installer prior to release for fabrication. Recorded measurements to be indicated on shop drawings based on field measurements provided by the installer. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.10 WARRANTY

A. Phenolic Panel Product Warranty:

1. Minimum twenty (20) year manufacturer's product warranty required inclusive of labor and material covering all defects in materials and installation.

2. Material colorfastness required throughout the duration of the project warranty.

B. Rainscreen Total System Warranty: Fully warranted system inclusive of all materials and workmanship from face of sheathing or precast concrete, condition dependent, through phenolic panel cladding inclusive of all wall system components as follows: weather barrier, exterior insulation framing, insulation, and rainscreen framing and cladding.

1. Minimum ten (10) year warranty required inclusive of labor and material covering all defects in materials and installation.

2. Section 07 25 00 Weather Barriers System warranty shall be held by Section 07 48 00 Rainscreen Cladding System installer for watertightness and any penetrations made through weather barrier to install rainscreen framing components. Provide certification letter for weather tightness and vapor barrier integrity.

1.11 ATTIC STOCK

A. Phenolic Panels:

1. RCS-1 'Tambora': Six (6) full size panels with vertical pattern direction.

B. Touch-Up Repair Kit.

C. Attic Stock: Refer to Part 2.03 Extra Materials for requirements.

PART 2: PRODUCTS

2.01 PHENOLIC WALL PANEL CLADDING SYSTEM (RCS)

A. General:

1. Panels shall be UV stable and graffiti resistant through duration of warranty.

2. Panels shall be two-sided finished.

3. Panels shall be fabricated such that the pattern direction is uniform on all panels on the entire project. Pattern Direction: Vertical.

4. RCS concealed and exposed fastening mounting systems shall have integral panel-to-rail locking means to prevent panels from shifting/loosening and to maintain the uniformity of the joint spacing.

5. RCS system shall have integral framing members for square outside corners and other end panel terminations.

6. Total System Warranty is required inclusive of all components from weather barrier through face of RCS panel.

B. Solid Phenolic Wall Panels:

1. Material: Solid composite panel manufactured using a combination of high pressure and temperature to create a flat panel created from thermosetting resins, homogenously reinforced with wood-based fibers and an integrated decorative surface or printed décor.

2. Manufacturer:

a. FunderMax, F-Quality as represented by FunderMax North America, Inc.

1) Contact Information: FunderMax North America, Inc., 2015 Ayrsley Town Blvd., Suite 202, Charlotte, NC 27273; Phone: 980.299.0035; Contact: Larry Potvin.

b. Rainscreen veneer cladding shall match the existing New Brighton Water Treatment Plant-1 AOP Addition and Remodeling constructed in 2017-2018 and Distribution Control Station (DCS) building constructed in 2016-2017. Product substitutions are not allowed.

3. Finish/Composition: Double Hardened Acrylic U.V. resistant surface comprised of high-pressure laminates consisting of layers of cellulose fibrous material impregnated with thermosetting resins and bonded together by the high pressure process.

   a. Laminated finish surface not acceptable.

   b. Melamine finish surface not acceptable.

   c. Graffiti resistance required without damaging panel surface.

4. Color:

   a. RCS: FunderMax F-Quality No. 0798 NT ‘Tambora’, Matte Finish. Location: All areas except as noted in RCS-B.”

5. Pattern Direction: All panels shall be installed with the pattern in a uniform direction:

   a. Pattern Direction: Vertical unless noted otherwise.

6. Edge: Eased edge.

7. Panel Core: Fire retardant (FR) black-brown core.

8. Panel Thickness: 3/8 inch (10 mm)

9. Panel Size(s): Random sizes. See Drawings.

10. Physical Properties:

    a. Density: ca. 1,40 g/cm3 9.1.2

    b. Solubility: Insoluble in water, oil, organic solvents.

    c. Calorific Value: 18-20 MJ/kg 9.1.4

    d. Ignition Temperature: ca. 400 °C 9.1.5

    e. Thermal Decomposition: Above 250°. Depending upon burning conditions (lack of oxygen, temperature) toxic substances may be emitted; hpl do not melt

    f. Dangerous Reactions: None

    g. Heavy Metals: None.

    h. Modulus of Elasticity: 9,000 MPa, EN ISO 178.

    i. Flexural Strength: 80 MPa, ISO 178.

    j. Coefficient of Thermal Conductivity: 18 x 10^{-6}, DID 52328.

    k. Thermal Conductivity: W/mK 0.3

    l. Structural Performance (ASTM E330):

       1) Panels shall be designed to withstand the Design Wind Load based upon the local building code, but in no case less than 15 pounds per square foot (psf). Wind load testing shall be done in accordance with this standard to obtain the following results:

2) Normal to the plane of the wall, the maximum panel deflection shall not exceed L/175

3) Normal to the plane of the wall between supports, deflection of the aluminum sub-framing members shall not exceed L/175 or 3/4 inch, whichever is less.

a) At 1-1/2 times design pressure, permanent deflection of framing members shall not exceed L/100 of span length and components shall not experience failure or gross permanent distortion.

b) If system tests are not available, mock ups shall be constructed and tests performed under the direction of an independent third party laboratory which show compliance to the minimum standards listed above.

11. Fire Performance:

a. Flame Spread: Class A, ASTM E 84.

b. Smoke Development: Less than 450, ASTM E 84.

c. Ignition Temperature: Greater than 650 degree F (350 degree C) above ambient, ASTM D1929.

d. Burning Classification: CC1 or CC2, ASTM D635.

e. When required for compliance with local building codes, the wall cladding assembly shall show no degradation of the rating of Fire Resistant Assemblies, ASTM E119.

f. When required for compliance with local building codes, the wall cladding assembly shall meet the performance requirements for Multi Story construction, NFPA 285.

g. When required for compliance with local building codes, the wall cladding assembly shall not ignite when exposed to a radiant heat energy source, NFPA 268.

12. Finish Performance: Double Hardened Acrylic U.V. resistant surface in conformance with the following general requirements:

a. Color: As specified.

b. Humidity Resistance: No formation of blisters when subjected to condensing water fog at 100% relative humidity and 100 degree F (38 degree C) for 3000 hours, ASTM D 2247.

c. Salt Spray Resistance: Corrosion creepage from scribe line (1/16 inch (1.6 mm) max.) and minimum blister rating of 8 within the test specimen field, ASTM B117.

d. Weather Exposure: Accelerated - 3000 hours in Atlas Type Weatherometer using cycle of 90 minutes light and 30 minutes diminished light and demineralized water with a maximum color change of 5 Delta E units from the original color according to ASTM D-2244, with the exception of Uni-Colors A12.3.7 / A18.3.5 / A04.1.7, which will not deviate more than 10 Delta E units from original color according ASTM D-2244.

e. Color Stability: The decorative surface comply with, classification, 4 - 5 measured with the grey scale according to ISO 105 A02-93 according to test method EN ISO 4892-2 3000 h or EN ISO 438-2:29.

f. Microbial Characteristics: Will not support micro-organic growth (ISO 846).

2.02 PANEL MOUNTING SYSTEM

A. Sub Structure:

1. Wellhouse 8 and Wellhouse 9: See Section 06 16 00 Cementitious Sheathing Assemblies for sub-structure assembly.

2. Wellhouse 16: See Section 04 20 00 Unit Masonry, Section 05 40 00 Cold Formed Framing and Section 06 16 00 Cementitious Sheathing Assemblies for sub-structure assembly.

B. Concealed Fastening System Manufacturers:

C. Exposed Fastener System Manufacturers:

1. Manufacturers: – Exposed fastening on fixed depth aluminum sub-framing.

a. Universe 7000.

b. Trespa TS110.

c. Cladding Corporation F2.10.

d. Other installation systems: Include test documentation showing compliance with the performance criteria set forth in the specification and in accordance with the local Building Code.

D. Spot Adhesive Adhered Attachment System:

1. Locations: At opening head and jamb opening returns on New and Existing Building Construction

E. Additional Components:

1. All system components, including but not limited to 'J-channels', 'hat channels', vent screens, corner closures and other system specific items not listed as provided by Manufacturer's standard system components.

2. Extrusions, including corner closures, joint closures and vent screens, formed members, sheet, and plate shall be provided by the Manufacturer of the system to provide a complete system.

3. Horizontal Panel Attachment Rails shall be continuous and vented along length of RCS.

4. Corner Closure at Outside Panel-to-Panel Corners: Required

a. Dimensions: 143.70 inches by 11.81 inches by 11.81 inches (3650 by 300 by 300 mm) with a 5/16 inch (8 mm) thick by 3/4 inch (19 mm) radius.

5. Color: All visible framing and sub-system components shall be ‘Black’.

6. Vent Screens: Continuous vent screen at the bottom of the wall panel system and along window and door heads to prevent critter migration.

2.03 SYSTEM ACCESSORIES

A. General:

1. All exposed to view visible elements behind the RCS shall be ‘black’.

B. Weather Barriers: Specified under Section 07 25 00 Weather Barriers, and installed under this Section.

C. Insulation: Specified under 07 20 00 Building Insulation (INSUL-3) and installed under this Section.

D. Metal framing and back-up wall assemblies specified in Section 05 40 00 Cold Formed MetaL Framing and Section 06 16 00 Cementitious Sheathing Assemblies and installed under this Section. See drawings for detailing.

1. Provide for support framing at panel mounted mechanical and electrical systems.

E. Fiber Mesh Screen: UV stable, rip resistant water resistive, vapor permeable air barrier mesh with integrated tape.

1. Exposed Fastening System:

a. Products: Vapro Shield ‘Reveal Shield IT’ for mechanical fastening.

b. Location: Existing Building Construction (Plant Building and Wellhouses).

F. Sheet Metal Flashing and Trims: See Section 07 62 00 Sheet Metal Flashing and Trim.

1. Provide for separation of dissimilar materials and galvanic action.

G. Self-Healing Compression Gasket: High density, closed cell neoprene self-adhering, self-sealing gasket; resistant to chemicals, water and water vapor w/ pressure sensitive adhesive.

1. Locations: Install behind all vertical Z-furring and mounting rails attached through the weather barrier for secure, thermally broken, vapor resistant, weather tight fit.

2. Product: Hohmann & Barnard, Inc. Neoprene Sill Seal www.h-b.com.

a. Color: Black/Dark Gray.

b. Properties:

1) Polymer: Neoprene/SBR

2) ASTM D1056-91: SCE 41/2A1

3) Tensile Strength PSI ASTM D3575: 65

4) Density (pcf) apprx: 2-5

5) Elongation ASTM Method 3575: 350

6) Temperature Resistance: Low: -90° F ; High Constant: +155° F; High Intermittent +210° F

7) Compression Set (max) ASTM 3575/1056: 12% / 25%

8) Compression Deflection (psi): 5-12

9) Accelerated Aging: Minimal Effects

10) Water Absorption by Weight: 5%

2.04 FABRICATION

A. Panels: Solid phenolic impregnated kraft paper wall panels with no voids, air spaces or foamed insulation in the core material. Accessory items in accordance with manufacturer's recommendations and approved submittals

B. Panel Joints: Width of panel joint to be uniform in appearance across entire length of wall surfaces. Joints are to be sized to allow for thermal expansion and contraction in project conditions and geographic location.

1. Joint Tolerance: Joints spacing shall range between 5/16” – 7/16”.

C. Panels shall be fabricated as individual segments in pattern indicated on Drawings. Scored joints are not allowed.

D. Panel Dimensions: See Drawings for joint spacing. Field cutting of panels is not allowed without prior approval of Engineer/Architect.

1. Fabricator shall order panel materials in widths required such that the pattern direction is uniform for a consistent pattern appearance on all RCS surfaces on the entire project.

    a. Pattern Direction: Vertical.

E. Panel Weight: 10 mm (3 lb/ ft2).

F. Panel Bow: = 2 mm / m (= 0.079 inch/39.38 inches).

G. Appearance: Panel lines, breaks, and angles shall be sharp, true, and surfaces free from warp and buckle.

PART 3: EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Surfaces to receive panel system shall be even, smooth, dry, and free from defects detrimental to the installation of the panel system. Notify Contractor in writing of conditions detrimental to proper and timely completion of the work.

C. Confirm exterior sheathing is plumb and level, with no deflection greater than 1/4 inch (6 mm) in 20 feet (6096 mm).

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding. Do not proceed with installation until unsatisfactory conditions have been corrected.

E. All scrap of reasonable size shall be retained and given to Owner for their construction of interior signage.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install air and weather barrier in accordance with manufacturer’s instructions and as specified.

B. Install opening perimeter trim closures as specified.

C. Install insulation and sub framing in accordance with manufacturer’s instructions and as specified and detailed on drawings.

1. All Fastening Systems: Self-sealing, compressible gasket required at all penetrations through the back-up wall weather barrier for weather tight, vapor resistant application.

2. All penetrations through the WB shall be additionally sealed to maintain the continuity of the weather barrier.

D. Rainscreen Manufacturer and installer must approve all installed substrate conditions prior to rainscreen installation. Proceeding with installation of rainscreen is acceptance of back-up and installed conditions.

E. Mechanically fasten fiber mesh systems to conceal all visible elements behind the rainscreen.

1. Install materials flat and taut as recommended by Manufacturer for application.

2. Install full sheet membrane behind concealed fastening systems taut as recommended by Manufacturer to prevent insulation from sagging.

F. Install solid phenolic wall panels and sub-frame system in accordance with manufacturer's instructions.

1. Field cutting of panels is not allowed without prior approval of Engineer/Architect and Owner.

G. Install panel rail system with fasteners approved for use with supporting substrate and/or sub-framing.

1. Self-sealing, compressible gasket required at all penetrations through the back-up wall weather barrier for weather tight, vapor resistant application.

2. All penetrations through the WB shall be additionally sealed to maintain the continuity of the weather barrier.

H. Install solid phenolic wall panels plumb and level and accurately spaced in panel pattern in accordance with manufacturer's recommendations and approved submittals and drawings.

1. Panel Joints: Width of panel joint to be uniform in appearance across entire length of wall surfaces. Joints are to be sized to allow for thermal expansion and contraction in project conditions and geographic location.

2. Joint Tolerance: Joints spacing shall range between 5/16” – 7/16”.

I. Install solid phenolic wall panels with pattern in a uniform direction on all RCS surfaces unless indicated otherwise in the Drawings.

1. Pattern Direction: Vertical.

J. Anchor panels and sub-framing securely per engineering recommendations and in accordance with approved shop drawings to allow for necessary movement and structural support.

K. Install/Fasten solid phenolic wall panels with fasteners approved for use with supporting substrate.

L. Do not install panels or component parts which are observed to be defective or damaged including, but not limited to: warped, bowed, abraded, scratched, and broken members.

M. Do not cut or trim component parts during installation in a manner that would damage the finish, decrease the strength, or result in visual imperfection or a failure in performance. Return component parts with require alteration to the shop for re-fabrication or replacement.

N. Install corner and termination profiles and trim with fasteners appropriate for use with adjoining construction as indicated on the Contract Drawings and as recommended by manufacturer.

O. Card Access Operator: Provide wall framing, metal strapping and extension ring to securely fasten and install the card access operator. See Drawings for location.

P. For additional information regarding installation, go to individual sections for fluid and sheet applied air/weather barriers, insulation, aluminum framing, aluminum trim, and all other applicable sections for related scopes of work.

3.04 ADJUSTING AND CLEANING

A. Remove masking or panel protection as soon as possible after installation. Any masking intentionally left in place after panel installation on an elevation, shall become the responsibility of the General Contractor to remove.

B. Adjust final panel installation so that all joints are true and even throughout the installation. Panels out of plane shall be adjusted with the surrounding panels to minimize any imperfection.

C. Repair panels with minor damage. Remove and replace panels damaged beyond repair as a direct result of the panel installation. After installation, panel repair and replacement shall become the responsibility of the General Contractor.

D. Clean finished surfaces as recommended by panel manufacturer. After installation cleaning, cleaning during construction shall become the responsibility of the General Contractor.

END OF SECTION 07 48 00

07 53 00

FULLY ADHERED EPDM MEMBRANE ROOFING

PART 1: GENERAL

1.01 SECTION INCLUDES

A. Fully adhered elastomeric membrane roofing system, vapor retarder and roof insulation for existing construction – 30 year total system warranty.

B. Preparation of roof substrate to receive scheduled work.

C. Coordination with the work of all appropriate Sections of this project.

1.02 RELATED SECTIONS

A. Section 03 41 00 Structural Precast Concrete

B. Section 04 20 00 Unit Masonry

C. Section 06 10 00 Rough Carpentry

D. Section 07 20 00 Building Insulation

E. Section 07 62 00 Sheet Metal Flashing and Trim

F. Section 08 63 00 Skylights

1.03 SUBMITTALS

A. Comply with the provisions Section 01 33 00 - Submittals.

B. Product Data: For each type of product indicated.

1. Letters from roofing, insulation, adhesive and wood manufacturers that materials are compatible with each other.

C. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Base flashings and membrane terminations.

2. Tapered insulation, including slopes.

3. Insulation fastening patterns.

D. Samples for Verification: For the following products:

1. 12-by-12-inch square of sheet roofing, of color specified, including T-shaped side and end lap seam.

2. 12-by-12-inch square of roof insulation.

3. 12-by-12 inch roof paver.

E. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

F. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified.

1. Submit evidence of meeting performance requirements.

G. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.

H. Maintenance Data: For roofing system to include in maintenance manuals.

I. Warranties: Special warranties specified in this Section.

J. Pre-Installation Conference: Copy of meeting minutes from pre-installation meeting.

K. Inspection Reports:

1. Copies of periodic inspections during construction by roofing manufacturer.

2. Copy of roofing system manufacturer's final inspection report of completed roofing installation.

L. Certifications for final closeout:

1. Certification from roofing manufacturer's representative that roofing materials have been installed properly.

M. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1. Including but not limited to: Air weather barrier, building insulation, metal decking, sheet metal flashing trim and asphalt shingles.

1.04 QUALITY ASSURANCE

A. Referenced Standards:

1. ASTM International (ASTM):

C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

D4637 Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.

E96 Standard Test Methods for Water Vapor Transmission of Materials.

2. The roofing assembly must be compliant with an assembly that has been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to one of the following methods based on ASCE:

a. American Society of Civil Engineers (ASCE 7)

b. International Building Code

c. SPRI's 'Windload Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems".

3. Underwriters Laboratories, Inc. (UL): Building Materials Directory.

B. The membrane roofing system must achieve a UL Class A.

C. The manufacturer must have a minimum of 20 years' experience in the manufacturing of vulcanized thermal set sheeting.

D. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.

E. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (5) years successful experience installing single-ply EPDM roofing systems and having installed at least one (1) roofing application or several similar systems of equal or greater size within one year.

F. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and an experienced superintendent on the job at all times roofing work is in progress.

G. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the Owner. Any deviation from the manufacturer's installation procedures must be supported by written certification on manufacturer's letterhead and presented for the Owner's consideration.

H. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the Owner's Representative seventy-two (72) hours prior to the manufacturer's final inspection.

I. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class A; ASTM E108, for application and roof slopes indicated.

2. Fire-Resistance Ratings: ASTM E119, for fire-resistance-rated roof assemblies of which roofing system is a part.

J. Pre-Installation Conference: Conduct conference at Project site. Comply with requirements in Section 01310 - Project Management and Coordination. Review methods and procedures related to roofing system including the following:

K. Meet with Owner's Representative; field inspection testing agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose Work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.

L. Review methods and procedures related to roofing installation, including manufacturer's written instructions.

M. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

N. Examine roof substrate conditions and finishes for compliance with requirements, including flatness and fastening.

O. Review structural loading limitations of roof substrate during and after roofing.

P. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

Q. Review governing regulations and requirements for insurance and certificates if applicable.

R. Review temporary protection requirements for roofing system during and after installation.

S. Review roof observation and repair procedures after roofing installation.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

E. Comply with the manufacturer's written instructions for proper material storage.

1. Store materials in a dry area.

2. Store other materials between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.

3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.

F. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.

G. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.06 PROJECT CONDITIONS, CAUTIONS AND WARNINGS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Material Safety Data Sheets (MSDS) must be on location at all times during the transportation, storage and application of materials.

C. Do not apply FAST 100 Adhesive when surface and/or ambient temperatures are below 25°F. Drums of FAST 100 Adhesive must be a minimum of 70□F at the time of use.

D. The contractor must exercise caution during adhesive spraying to avoid overspray.

E. Use a non-atomizing spray tip and/or reduce spray pressure to 500 – 800 psi to increase adhesive droplet size and reduce airborn mist. Maintain hand held wind screens on-site for use as necessary.

F. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.

G. When loading materials onto the roof, the installer must comply with the requirements of the building Owner’s Representative to prevent overloading and possible disturbance to the building structure.

H. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.

I. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.

J. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.

K. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.

L. New roofing shall be complete and weather tight at the end of the work day.

M. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.07 WARRANTY

A. Provide Manufacturer's 30-Year Total System Warranty (Carlisle Golden Seal) covering both labor and materials with no dollar limitation for specified system signed by roofing material's manufacturer and applicator.

1. Warranty to include provision to allow Owner to make emergency repairs.
2. Warranty shall cover maximum wind speed of 90mph measured at 10 meters above ground level. Certification is required with bid submission that manufacturer has reviewed and agreed to such wind coverage.
3. Follow Manufacturer’s redundant details required for 30-year warranty.

B. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing accessories, roof insulation, fasteners, cover boards, substrate board, vapor retarder, walkway products, and other components of membrane roofing system.
2. Warranty Period: 30 years from date of Substantial Completion.
3. Provide roofing manufacturer's 30 Year Total System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 90 mph measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Carlisle SynTec Incorporated, Sure-Seal™ Fully Adhered EPDM Roofing, as basis of design or the equivalent products of:

1. Firestone Building Products
2. GAF Materials Corporation
3. GenFlex Corporation
4. CentiMark, Inc.
5. Versaco, Inc.

B. Roof System Requirements:

1. Fire Resistance: UL Class A roof covering.

2. The roofing assembly shall be compliant with an assembly that has been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to one of the following methods based on ASCE:
    a. American Society of Civil Engineers (ASCE 7).
    b. International Building Code.
    c. SPRI's "Windload Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems".
3. Warranty: 30 Year Total System Warranty (Carlisle Syntec Systems Golden Seal).
4. Elastomeric Sheet Membrane (EPDM) – 90 mil minimum thickness.
5. Fully Adhered System from structural metal decking through EPDM membrane.
    a. Spray adhesive over 100% surface area.
    b. Mechanical fastening not allowed.
6. Wind Speed: 90 mph.
7. Polyisocyanurate Insulation in 20 psi.
    a. Apply insulation using 2 component spray applied adhesive over entire surface using products acceptable to roof manufacturer capable of meeting requirements for uplift rating and 30 year warranty.
    b. See Item 2.4.
8. Protection boards, matts, vapor retarders, walkways, etc.
    a. See Item 2.6.
9. Details as recommended by Manufacturer for Total System Warranty.
    a. Follow manufacturer's redundant detailing for 30 year Total System Warranty.
10. Installation Supervision of roofing system by Manufacturer.

2.02 EPDM ROOFING MEMBRANE

A. EPDM Roofing Membrane: ASTM D4637-96, Type III, uniform, flexible sheet made from EPDM, and as follows:
    1. Manufacturers: Carlisle SynTec Incorporated.
    2. Product: Sure-Seal 90-mil Fully Adhered Roofing System with FAST 100 Adhesive.
    3. All components of specified roofing system shall be products of Carlisle SynTec Incorporated or accepted by Carlisle as compatible.
    4. Unless otherwise approved by the Owner and accepted by the membrane manufacturer, all products (including insulation, fasteners, fastening plates and edgings) must be manufactured and supplied by the roofing system manufacturer and covered by the warranty.
    5. Membrane Sheets: Sheets shall be 10 wide and 100 feet long with 3" Factory Applied Tape.
    6. Thickness: 90 mils, nominal.
    7. Exposed Face Color: Black

2.03 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

B. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

C. Sheet Flashing: 60-90-mil thick EPDM, partially cured or cured, according to application and as recommended by Manufacture to meet conditions of warranty.

D. Metal Termination Bars: Manufacturer's standard predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

2.04 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated and acceptable to the membrane manufacturer.

B. (INSUL-3) Polyisocyanurate Board Insulation & Tapered Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.

1. Polyisocyanurate R-Values

a. Test Method – CAN/ULC-S770 adopted by PIMA

b. See Drawings for layouts.

c. Tapered Systems: Meet existing roof thicknesses and slopes and drains and scuppers.

d. R-Value: Maximum R-value for existing conditions continuous above roof deck, as required by energy and building code.

e. PSI: 20 psi.

f. Roof Slope: See Drawings.

2.05 ADHESIVES AND CLEANERS

A. All products shall be furnished by Carlisle and specifically formulated for the intended purpose.

B. Foam Adhesive: Sure-Seal FAST 100 Adhesive

C. Splice Tape and Primer: Sure-Seal SecureTAPE and HP-250 or LV-600 Primer

D. Splicing Cement Splicing Cement

E. Cleaning Solvent: Splice Cleaner

F. Internal seam sealant: Sure-Seal In-Seam Sealant (used with adhesive splices only)

G. External seam sealant: Lap Sealant

2.06 OTHER PRODUCTS

A. Vapor Retarder: Carlisle's 725 TR and Carlisle 702 Primer.

B. Protection Board: Carlisle HP Recovery Board: ½" high density fiber board.

C. Thermal Barrier Substrate: Georgia Pacific ½" DensDeck attached with adhesive.

1. Primer: CCW 702 quick drying. Solvent based primer.

D. Walkway Pavers/Protection Matts:

1. Protective surfacing for roof traffic shall be Sure-Seal Walkway Pads with interlocking molded black rubber with factory rounded corners.
    a. Minimum 24 x 24 x 2 IN adhered to membrane with Splicing Cement or Splice Tape.
    b. See Drawings for location and layout.

PART 3: EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
    1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
    2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
    3. Verify that surface plane flatness and condition meet manufacturer’s standards for warranty.
    4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp objects, level roof and make needed modifications necessary to install roofing to meet standards of warranty. projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no Work is taking place or when rain is forecast.

C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning Work on adjoining roofing.

3.03 VAPOR RETARDER INSTALLATION

A. Coordinate installing of vapor retarder system components so material is not exposed to precipitation or left exposed at the end of the workday.

B. Install sheet material following manufacturer’s instructions sealing all seams to completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into the EPDM roofing.

C. Carry material a minimum of 12” up vertical surfaces, or as shown on the Drawings.

3.04 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Install 1 or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

C. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

D. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.

1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

E. Adhered Insulation: Install each layer of insulation to deck using 100% coverage of FAST 100 adhesive.

1. Install all layers of insulation in a 100% coverage of FAST 100 adhesive.

2. Mechanical fasteners are not allowed.

3.05 ADHERED ROOFING MEMBRANE INSTALLATION

A. Position and unroll successive sheets and align to provide for a minimum 3 inch wide splice.

B. Fold adjacent sheets in half lengthwise to expose an approximate 10 foot wide by 50 foot or 100 foot long (the length of the sheet) substrate area.

1. Note: Fold selvage sheet edges (along the length of the sheets) under the membrane to prevent overspray onto the splice area.

2. Membrane which will have the adjacent sheet spliced over it should be adhered to the substrate first. In this fashion, selvage edge splice area will not be contaminated by setting splice edge into the FAST 100 Adhesive.

C. Spray FAST 100 Adhesive with 100% coverage onto the substrate and allow to foam up approximately 1/8 inch.

D. Place the membrane into adhesive and roll the membrane with a weighted rubber coated roller, approximately 30 inches wide weighing 100 – 150 pounds, to set the membrane into the adhesive.

E. Apply FAST 100 Adhesive with 100% coverage to the substrate and continue process described above until all sheets are fully bonded.

3.06 MEMBRANE SPLICING

A. General:

1. Minimum: 6 inches.

2. Follow manufacture’s recommendations to meet conditions of warranty.

B. Membrane Slicing with Factory Applied SpliceTape (FAT)

1. Overlap adjacent sheets and mark a line 1/2 inch out from the top sheet.

2. Fold the top sheet back and clean the dry splice area (minimum 2-1/2 inches wide) of non-factory applied splice tape membrane sheets with Sure-Seal Primer as required by the membrane manufacturer.

3. Apply SecurTAPE to bottom sheet with the edge of the release film along the marked line. Press tape onto the sheet using hand pressure. Overlap tape roll ends a minimum of 1 inch.

4. Remove the release film and press the top sheet onto the tape using hand pressure.

5. Roll the seam toward the splice edge with a 2 inch wide steel roller.

6. Install a 6 inch wide section of Pressure-Sensitive Flashing or Elastoform Flashing over all field splice intersections and seal edges of flashing with Lap Sealant.

7. The use of Lap Sealant with tape splices is optional except at tape overlaps where Lap Sealant is required.

3.07 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

1. Follow manufacturer’s redundant detailing for the 30 year total system warranty.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.08 FIELD QUALITY CONTROL

A. Testing Agency: Owner may engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

1. Notify Owner’s Representative 48 hours in advance of date and time of inspection.

C. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

3.09 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 07 53 00

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1: GENERAL

1.01 SUMMARY

A. Section includes the complete installation of sheet metal flashing and trim at the following locations, and as shown on the Drawings:

1. Flashings, counterflashings and copings at new roof system installation locations.
2. Flashings, counterflashings, and copings at
3. Scupper and downspout components for all roof drainage items.
4. Exterior wall opening surrounds, including but not limited to doors, louvers and mechanical/electrical penetrations.
5. Rainscreen to natural stone transitions.

1.02 RELATED SECTIONS

A. Section 04 20 10 Natural Stone Masonry

B. Section 05 50 00 Metal Fabrications

C. Section 05 40 00 Cold Formed Metal Framing

D. Section 06 10 00 Rough Carpentry

E. Section 07 13 00 Below Grade Waterproofing

F. Section 07 48 00 Rainscreen Cladding System

G. Section 07 53 00 Fully Adhered Membrane Roofing

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. American Society for Testing and Standards (ASTM)
   a. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated or Zinc-Iron Alloy Coated by the Hot Dip Process.
   b. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 1996.
2. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
   a. Architectural Sheet Metal Manual (ASMM).

1.04 SUBMITTALS

A. Product Data including:

1. Submit complete material list of all items proposed to be furnished and installed under this section and submit the most recent copy of Manufacturer's literature applicable to the products and specifications to be used, including the following:
   a. Product literature and standard color chart for pre-finished metal.
   b. Shop drawings indicating type, thickness, and profile of sheet metal.

1) Submit soffit layout indication panel spacing, venting and seam splices.

c. Product literature on all caulking and sealants used on this work.

d. Material and Safety Data Sheets for all components used on this work.

B. Operations and Maintenance Data including:

1. Warranty: Signed Warranty as described in Part 1.07.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.

B. Documents and Samples at Site: Maintain one set of record documents on site for Owner.

C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with minimum three years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials which may cause discoloration or staining.

C. In the event of damage, immediately make all necessary repairs and replacements subject to the approval of and at no additional cost to Owner.

1.07 WARRANTY

A. Roofing and Flashing Warranty: Sheetmetal work shall be of materials, fabricated and installed in a manner to provide total roofing system warranty specified in Section 07 51 13 Built-Up Asphalt Roofing.

B. Finish Warranty For Prefinished Galvanized Steel Sheet Metal: Provide a 20-year written warranty covering color fade, chalk, and film integrity of the prefinished galvanized steel sheet metal to include, but not limited to, the following:

1. Color fading more than 5 Hunter units when tested in accordance with ASTM D2244.

2. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

3. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

C. Sheet Metal Contractor's Installation Warranty: Prior to acceptance of the Work, provide a written 5 year warranty.

PART 2: PRODUCTS

2.01 SHEET MATERIALS

A. Pre-Finished Galvanized Sheet Metal: for all locations unless otherwise noted.

1. Base Material: G90 hot dip zinc-coated (galvanized) ASTM 653, 24 gauge (0.0217 inch) thick, unless otherwise noted; primed.

2. Surface Texture: Smooth.

3. Exposed Surface Finish: High performance organic finish.

a. Prepare, pretreat, and apply coating on metal surfaces to accordance with coating and resin manufacturer's written instructions.

b. Fluoropolymer 2-Coat System: Manufacturer's standard 2 coat thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; in accordance with physical properties and coating performance requirements of AAMA 2605; factory applied over pretreated base metal by the coil-coating process in accordance with ASTM A755.

4. Protective Film: Provide strippable film on top side of coated sheet metal to protect finish during fabrication, shipping, and field handling. Strippable film will be removed just before installation of sheet metal.

5. Exposed Surface Color: Architect will select from manufacturer's full range of standard and custom colors.

6. Approved Products:

a. Berridge Industries, Inc. "Prefinished Galvalume"

b. Peterson Aluminum Corporation, "PAC-CLAD"

c. Firestone Metal Products / UNA-CLAD, "Una-Clad Painted Steel"

B. Galvanized Steel: ASTM A653/A653M, with G90 zinc coating; mill phosphatized for painting.

C. Gauges: Provide not less than the following gauges of each metal as applicable to the each item of work.

1. Cap Flashing: 16 gauge (0.0508 inch thick).

2. Coping: 16 gauge (0.0508 inch thick).

3. Flashing and Counter Flashing: 20 gauge (0.0320 inch thick).

4. Keeper Strips: 22 gage thick steel.

5. Flashing Reglets/Inserts: 20 gauge (0.0320 inch thick).

6. Downspouts and Scuppers: 14 gauge (0.0641 inch thick).

7. Rainscreen Opening Surrounds: 12 gauge (0.1046 inch thick).

8. Natural Stone to Rainscreen Transitions: 14 gauge minimum (0.0641 inch thick).

2.02 ACCESSORIES

A. Fasteners:

1. General:

a. Provide types of fasteners and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal unless otherwise indicated.

b. Provide wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.

2. Fasteners: Provide blind fasteners or self-drilling screws, gasketed, with hex washer head.

a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory applied coating. Provide metal backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.

b. Blind Fasteners: High strength aluminum or stainless steel rivets suitable for metal being fastened.

3. Nails:
    a. Flat head nails barbed at least 1/2 of length, no smaller than No. 12 stubs gauge (0.109 inch), and of sufficient length to penetrate into wood not less than 7/8 inch.
    b. Nails for Fastening Galvanized Steel Sheet Metal: Galvanized steel in accordance with ASTM A153/A153M or ASTM F2329, or Series 300 Stainless Steel.
    c. Nails for Fastening Aluminum Sheet Metal: Series 300, Stainless Steel.
4. Screws and Bolts:
    a. General Requirements: Wood screws not less than 12 gauge. Machine screws and bolts not less than 1/4 inch diameter. Provide neoprene washers at wood screws. Provide metal washers of same material as screws and bolts at machine screws and bolt connections.
    b. Screws and Bolts for Fastening Galvanized Steel Sheet Metal: Galvanized steel in accordance with ASTM A153/A153M or ASTM F2329, or Series 300 Stainless Steel.
    c. Screws and Bolts for Fastening Aluminum Sheet Metal: Series 300, Stainless Steel.
5. Products:
    a. Sheet metal to wood: No.8 minimum size screw with 1¼" penetration into wood. Minimum 150 lbs. per screw installed withdrawal resistance.
    b. Sheet metal to sheet metal: Self-tapping screws of ½" length and a minimum #3 diameter.
    c. Sheet metal to concrete or masonry: Tapcon of Gripcon, specially threaded anchors, ¼" minimum diameter, length to penetrate masonry 1". Minimum 300 lb. per anchor installed withdrawal resistance.
    d. Neoprene washers: Neoprene laminated to metal washer, Weath-R-Seal manufactured by FABCO.
    e. Keeper strips to wood: Annular threaded nail with minimum 3/16" diameter head with minimum 1¼" penetration.
6. Expansion Joint Assemblies: Pre-manufactured, expandable neoprene gasketed expansion joint assembly as approved by Manufacturer for applicable roofing system and warranty.

B. Sealant:
1. Sealant shall be a multi-component, non-sagging, polyurethane type, capable to continuous water immersion.
    a. See Section 07 90 00 Joint Sealants.
2. General Requirements: Use the following sealants in conjunction with sheet metal materials:
    a. Galvanized and Prefinished Galvanized Steel: 1 component polyurethane sealant.
    b. Aluminum: Silicone or 1 component polyurethane sealant.
3. 1-Component Polyurethane Sealant:
    a. Applicable Standards: A 1 component sealant, in accordance with ASTM C920, Type S, Grade NS, Class 25, Use M, A, and O as applicable to joint substrates indicated.
        1) Use O Joint Substrates: Aluminum coated with a high performance coating.

b. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or Owner approved equal:

1) Bostik, “Chem-Calk 900”

2) Pecora Corporation, “Dynatrol 1-XL”

3) Sika Corporation, “Sikaflex-1a”

4) Sonneborn Building Products, Div. of BASF Building Systems, “NP 1”

5) Tremco, Inc., Sealant/Weatherproofing Division, “Dymonic” or “Vulkem 116”

c. Sealant Colors: Architect will select and has the option to select from products of all acceptable manufacturers to obtain colors desired.

4. Silicone Sealant: For joints related to panels and column covers.

a. Applicable Standards: Silicone sealing meeting requirements of ASTM C920, Type S, Grade NS, Class 25, use NT, M, G, A, and O.

b. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or Owner approved equal:

1) Dow Corning Corporation, “756"

c. Sealant Colors: As selected by Architect.

d. Sealant Related Accessory Materials:

1) Joint Cleaner, Joint Primer, or Bond Breaker Tape: As recommended and approved by sealant manufacturer and panel system manufacturer.

2) Sealant Backer Rod (Sealant Back Up) (Cylindrical Sealant Backings): Saf rod or Owner-approved equal.

PART 3: EXECUTION

3.01 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

C. Coordinate installation of sill cap and through wall flashing with other trades.

3.02 INSTALLATION

A. General Requirements:

1. Workmanship:

a. Form to shapes and dimensions shown, free from defects that impair strength or mar appearance.

b. Form planes and lines to true alignment.

2. Joining and Fastening:

a. Joints shall be strong and weathertight. Hide fastenings so far as practical.

b. Make every effort to prevent buckling or oil canning.

c. Fastenings shall provide anchorage and freedom for thermal expansion and shall be made in a manner that will not impair watertightness or visual affect.

3. Soldering:

    a. Avoid soldering of joints.

    b. If certain conditions dictate, soldering may be used in order to ensure weathertightness.

    c. Blind solder joints with no solder visible, except that in a hairline joint.

    d. Wipe soldered joints and wash clean to remove traces of acid from flux immediately after joints are made.

4. Protection at Dissimilar Metals: Coat contacting dissimilar metals with asphaltic compound, 7 1/2 mil dry film thickness minimum, applied to each contacting metal face.

B. Installation of Roof Edge Cap Flashing and Fascia:

1. Provide watertight slip joints with 4 inch wide cover plates in continuous runs of sheet metal cap flashing and fascia at intervals of not more than 10 feet to allow expansion without buckling.

2. Fasten cap flashing and fascia to face of wood cant using (2) nails through slotted or oversize holes at ends of each length of flashing.

3. Provide a 1/2 inch space between lengths of flashing beneath joint cover.

4. Provide a bead of sealant along both edges of joint covers between fascia and cover plate.

5. Fasten cap flashing and fascia to wood at roof edge using a wood screw and washer over a neoprene washer at center of each length of flashing near top of cant.

6. Fasten joint cover to wood cant between lengths of flashing, near top of cant, using a wood screw and washer over a neoprene washer.

C. Installation of Counterflashing at Vertical Walls:

1. Form counterflashings in lengths not to exceed 10 feet.

2. Flash up vertical surface as shown on Drawings.

3. Furnish counterflashing and counterflashing insert with positive slope outward to prevent water being carried into wall.

4. Provide “S” slips at joints.

5. Form metal to provide a spring action against the base flashing.

6. If exposed screws cannot be avoided, use neoprene washers under heads.

7. Provide masonry anchors and screws when fastening to a masonry wall.

D. Installation of Counterflashing Insert With Reglet Saw Cut Into Existing Wall Construction:

1. Saw cut with an abrasive cutting blade to provide a reglet 1 inch deep.

2. Clean and prime reglet surfaces to ensure proper bond of sealant.

3. Install a bead of sealant in reglet, before counterflashing insert is installed, which is sufficient to ensure reglet will be full of sealant after installation of the insert.

4. Design, fabricate, and install counterflashing insert in reglet so it will shed water to exterior face of wall.

5. After counterflashing insert has been secured in place, tool sealant smooth and tight to insert and to adjacent surfaces of reglet so water will not penetrate into adjacent wall construction.

E. Installation of Copings:

1. Secure outside face of coping over continuous hook strip which is nailed 24 inches on center to wood blocking.
2. Anchor inside face of coping to wood blocking using wood screws with washer over neoprene washer spaced 30 inches on center.
3. Provide a 4 inch wide cover plate at each coping joint, located at intervals of not more than 10 feet, unless otherwise indicated, to allow expansion without buckling.
4. Secure cover plates by hooking onto continuous hook strip and anchoring into wood blocking at inside face of coping using one wood screw with washer over neoprene washer. Locate screw through cover at joint between lengths of coping.
5. Provide bead of sealant along both edges of cover plates between coping and cover plates.

F. Installation of Counterflashing at Roof Opening Curbs: Counterflash to make watertight around curbs at openings through roof, including skylights and rooftop mounted mechanical equipment support curbs, unless counterflash materials are provided by Mechanical Contractor.

G. Installation of Scuppers: Set scupper flange in plastic roofing cement and build into roofing membrane as recommended by membrane manufacturer.

H. Installation of Through Parapet Wall Overflow Scuppers: Set scupper flange in plastic roofing cement and build into roofing membrane as recommended by membrane manufacturer.

I. Installation of Downspouts:

1. Provide downspouts of size and shape indicated on Drawings.
2. Provide open face downspouts of size and shape indicated on Drawings.
3. Fit downspouts with elbows at bottom.
4. Fabricate bottom of downspouts to match existing downspouts.
5. Secure downspouts to walls with concealed metal strips of same material as downspout. Space strips not more than 8 feet on center.
6. Secure downspouts to walls as indicated on Drawings.
7. Secure downspouts to walls using materials and methods to match existing downspouts.
8. Lap and rivet joints to make as watertight as possible.
9. Solder joints to make as watertight as possible.
10. Fabricate joints in downspouts and joints to scuppers/leader heads above to match joints in existing downspouts. Make joints as watertight as possible.

J. Installation of Sleeves for Pipe Penetrations in Built Up Roofing:

1. Provide a sleeve in lieu of a pitch pocket for each pipe, conduit, and other components penetrating/protruding through built-up roofing system.
2. Build roof flange of sleeve into roofing system as follows, unless otherwise recommended by roofing system manufacturer.
    a. Set sleeve roof flange over roofing felts in a solid troweled coat of plastic roofing cement and mechanically anchor 1 inch back from edges, spaced 4 inches on center.
    b. Strip in roof flange with (2) layers of felt set in hot roofing bitumen.
    c. First ply of felt shall extend onto roof flange 3 inches, overlapping head of anchors by 2 inches and over roofing felts a minimum of 3 inches.

d. Second ply of felt shall extend over entire roof sleeve flange and over roofing felts a minimum of 4 inches beyond edges of first ply of felt.

K. Installation of Umbrella Hood for Pipe Penetrations in Built Up Roofing:

1. Provide an umbrella hood above top of sleeve around pipes/conduits penetrating built up roofing system(s).

2. Tighten draw band on umbrella hood to snug up hood tight around penetrating item.

3. Caulk joint at top of hood watertight with polyurethane sealant.

3.03 REPAIRING AND CLEANING

A. Repairing: Repair damaged work, and work where appearance has been marred, or remove and install new as determined by Architect.

B. Cleaning: Remove scrap material and debris from Project site. At the completion of the contract, Contractor is to remove from the project site all equipment, debris, and materials related to his contract.

C. Protective Film Removal: Remove strippable protective film from prefinished galvanized steel sheet metal just before or promptly after installation of each sheet metal member.

D. Painting of Exposed Fasteners For Prefinished Galvanized Steel Sheet Metal: Paint fasteners, including screws, washers, rivets, bolts, and other similar components used to fasten prefinished galvanized steel sheet metal, with a touch up paint which matches color of prefinished sheet metal.

END OF SECTION 07 62 00

SECTION 07 90 00

JOINT SEALANTS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes:

1. Installation of interior and exterior perimeter sealant joints around all windows, doors, louvers, control/expansion joints, exterior framing assemblies, penetrations, material transitions and adjacent construction, as scheduled and shown on the drawings.

1.02 RELATED SECTIONS:

1. Section 04 20 10 Natural Stone Masonry
2. Section 07 25 00 Weather Barriers
3. Section 07 62 00 Sheet Metal Flashings & Trim
4. Section 08 10 10 Hollow Metal Doors and Frames
5. Section 08 63 00 Skylights

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

B. ASTM International:

1. ASTM C920-14a - Standard Specification for Elastomeric Joint Sealants
2. ASTM C1193 - Standard Guide for Use of Joints Sealants
3. ASTM C1521-13 Standard Practice for Evaluating Adhesion of Installed Weatherproofed Sealant Joints
4. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants

1.04 SUBMITTALS

A. Samples: Submit three (3) color samples of sealants exposed to view in the finished work to Architect upon request. Sealant colors shall be selected from Manufacturer's standard range of color options.

B. Manufacturer's Technical Data: Submit sealant Manufacturer's technical data in duplicate to Architect. Data shall include Manufacturer's recommendations for joint size, joint preparation and recommended primers, back-up material and sealant storage, mixing and application instructions.

C. Manufacturer's Approvals: Joint sealant manufacturer to provide written approvals of sealant application to Architect, and Owner prior to start of sealant work.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site in original, unopened, containers with labels informing about manufacturer, product name and designation, color, expiration period for use, pot-life, curing time and mixing instructions for multi-component materials.

B. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.06 PROJECT CONDITIONS

A. Do not apply sealants at temperatures below 40° F., during rain or snow, or to damp or frosted surfaces, as recommended by Manufacturer.

B. Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer for application indicated.

1.07 QUALITY ASSURANCE

A. Installer shall be a firm with a minimum of five (5) years' experience specializing in the installation of sealants with a level of a Journeyman trade experience.

B. Comply with recommendations of ASTM C1193 for use of joint sealants.

C. Compatibility: Installing Contractor responsible for coordinating any components that may present compatibility issues with overall exterior wall system, including those not stated within the current specification section.

1. Including but not limited to: Weather barrier, building insulation, natural stone and unit masonry, sheet metal flashing & trim, aluminum window & doors and waterproofing.

PART 2: PRODUCTS

2.01 MATERIALS

A. Exterior Sealant Primer: Primer required at all exterior sealant joints. Use primer recommended by the sealant Manufacturer; primers shall be specifically applied for each type of substrate, masonry and/or aluminum and/or steel. Do not apply masonry primers to aluminum faces of windows, doors, and fixtures.

1. All concrete and masonry joints scheduled to receive sealant are primed after other preparations are completed.

2. If a staining primer is used, apply material in a manner that will prevent exposed stain residue.

B. Exterior Polyurethane Sealant: Three-component, high performance polyurethane sealant, complying with ASTM C920-14a for a Type M, Class NS, Class 25. Provide decorative polyurethane sealant bead in a color to match other exterior sealant beads at perimeters of windows.

1. Sonolastic NP-2 by BASF

2. Dymeric 240FC by Tremco

C. Interior Polyurethane Sealant: Single-component, complying with ASTM C920-14a, Type S, Grade NS, Class 35.

1. Sonneborn NP1 by Sonneborn/Chemrex.

2. Dymonic by Tremco.

3. Provide decorative polyurethane sealant bead in a color to match other exterior sealant beads at perimeters of windows.

D. Silicone Sealant: Provide decorative silicone sealant bead in a color to match other exterior sealant beads at perimeters of windows and sill applications.

1. General Application: One-part, cold-applied, non-sagging silicone material that cures to a medium modulus silicone rubber upon exposure to atmospheric moisture.

a. Approved Product: Dow Corning 795 Silicone Sealant; colored to match adjacent substrate material color.

2. Exterior Stone Surfaces: Medium modulus elastomeric sealant designed for porous stone and metal panel substrates; resistant to rundown, dirt pick up and substrate staining.

a. Approved Product: Dow Corning 756 SMS Building Sealant; colored to match adjacent substrate material color.

3. Interior Wet Applications: Moisture resistant, permanently flexible without shrinking or cracking, resists color changes or staining, 100% Rubber Silicone.

a. Approved Product: Dow Corning 786 sealant; clear.

E. Joint-backer: Compliant with ASTM C1330, Type B, reticulated, bi-cellular, open cell, non-gassing, polyolefin. Furnished in thicknesses and full widths required to completely isolate the window frames from the existing construction and recessed at the exterior to provide a back-up for a proper sealant joint installation.

1. Sofrod, manufactured by Construction Foam Products, Inc.

2. ITP Soft Type Backer Rod 104, manufactured by Industrial Thermo Polymers

3. Sonolastic Soft Backer Rod, manufactured by Sonneborn.

F. Solvents and cleaning agents: As recommended by the sealant Manufacturer. Cleaning required prior to application of primer.

2.02 MIXING

A. Prepare and mix sealants strictly according to the Manufacturer's instructions. Do not thin or adulterate the material.

B. Use multi-component sealants within the maximum period of time after mixing recommended by the sealant Manufacturer for the specific material and job conditions, and discard sealants not used within this time.

PART 3: EXECUTION

3.01 PREPARATION

A. Surfaces to be sealed shall be sound, thoroughly dry, clean and free of oil, grease, laitance, dust, rust and other foreign material that would prevent proper adhesion. All openings shall be thoroughly wiped clean prior to installation.

B. Masonry cleaning and similar operations shall be completed before surface preparation is to begin.

C. Clean and prepare joints and surfaces to receive sealants strictly according to sealant Manufacturer's instructions. Rake and clean out joints to the proper depth and width for the sealant installation.

D. Clean concrete, masonry and other porous materials by brushing, grinding, sand-blasting or other mechanical means as necessary to provide a sound clean surface. Remove dust, dirt and loose particles resulting from mechanical cleaning by vacuuming joints or blowing out joints with compressed air.

E. Clean metal and other non-porous surfaces. Remove protective coatings on metal using a solvent that leaves no residue. Use clean, white cloths or lint-free paper towels to apply solvent, and wipe surfaces dry with dry cloth or paper towels. Do not allow solvent to air-dry without wiping.

F. Mask joints as necessary to protect adjacent surfaces. Apply masking tape in continuous strips and carefully align with edge of joint. Remove masking tape immediately after joints have been sealed and tooled.

3.02 APPLICATION OF SEALANTS

A. Joints to receive sealant shall not be less than $^{1}/_{4}$" wide and maximum of 5/8” wide. Maintain proper joint depth ratio at $^{1}/_{2}$ width of the joint, with a maximum depth of $^{5}/_{8}$" and a minimum of $^{1}/_{4}$".

B. Prime surface strictly according to the sealant Manufacturer's instructions. Do not prime back-up foam material.

C. Material shall be gun-applied using a nozzle of sufficient size to fill the joint completely. Caulk wide joints with 3 passes. Run a bead along the inside of each corner, and fill the joint on the third pass.

D. Tool joints immediately after application of material to insure full contact with adjacent surfaces. Strike off excess material. The finished bead shall be flush with adjoining surfaces, unless otherwise indicated on the Drawings.

1. At all interior window sills, fill the exposed joint between any new snap trim and the finish sill with decorative sealant.

E. Remove masking, excess material and smears as the work progresses, and leave adjacent surfaces clean and free of sealant and primer.

END OF SECTION 07 90 00

Division 08

Openings

SECTION 08 10 10

HOLLOW METAL DOORS AND FRAMES

PART 1: GENERAL

1.01 SUMMARY

A. Provide the following products manufactured in accordance with SDI Recommended Standards:

1. Doors: Seamless, hollow or composite construction standard steel doors for interior and exterior locations.

2. Frames: Pressed steel frames for doors, transoms, mullions, interior glazed windows, and other interior and exterior openings of following type:

a. Welded unit type.

3. Assemblies: Provide standard steel door and frame assemblies as required for the following:

a. Thermal rated door panel and frame construction. All exterior door frames shall be field filled with spray foam insulation. See Section 07 20 00 Building Insulation.

b. Interior windows shall be atmospherically sealed.

4. Provide factory primed and finished doors and frames.

1.02 RELATED SECTIONS

A. Section 04 20 00 Unit Masonry

B. Section 04 20 10 Natural Stone Masonry

C. Section 05 40 00 Cold Formed Metal Framing

D. Section 06 16 00 Cementitious Sheathing Assemblies

E. Section 07 13 00 Below Grade Membrane Waterproofing

F. Section 07 20 00 Building Insulation

G. Section 07 25 00 Weather Barriers

H. Section 07 48 00 Rainscreen Cladding System

I. Section 07 90 00 Joint Sealants

J. Section 08 70 00 Finish Hardware

K. Section 08 80 00 Glazing

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. American National Standards Institute (ANSI) / Steel Door Institute (SDI):

a. ANSI/SDI 100 - Specification for Standard Steel Doors and Frames

b. ANSI/SDI 117-13 - Manufacturing Tolerances for Standard Steel Doors and Frames

c. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.

d. ANSI/SDI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames.

e. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

f. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames (Formerly SDI-105).

2. American Society for Testing and Materials

a. ASTM A36 - Standard Specification for Carbon Structural Steel

b. ASTM A108-13 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished

c. ASTM A153 - Standard Specification for Zinc Coating on Iron and Steel Hardware

d. ASTM A283 - Standard Specification for Low and Tensile Strength Carbon Steel Plates

e. ASTM A366 - Standard Specification for Commercial Steel Sheet, Carbon Cold-Rolled

f. ASTM A525 - Standard Specification for Steel Sheet, Zinc-Coated by the Hot-Dip Process

g. ASTM A526 - Standard Specification for Steel Sheet, Zinc-Coated by the Hot Dip Process, Commercial Quality

h. ASTM A568 - Standard Specification for Steel, Sheet, Carbon and Structural High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled

i. ASTM A569 - Standard Specification for Steel, Carbon, Hot-Rolled Sheet and Strip Commercial Quality

j. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

k. ASTM C236 - Standard Test Method for Steady-State Thermal Performance of Building Assemblies by means of Guarded Hot Box

l. ASTM C976 - Standard Test Method for Thermal Performance of Building Assemblies by Means of calibrated Hot Box

3. National Fire Protection Association (NFPA):

a. NFPA 80, Standard for Fire Doors and Windows

1.04 SUBMITTALS

A. Test Results and certifications including:

1. Provide all Manufacturer’s test results and certification documenting compliance with applicable codes, UL listings and fire ratings, and fabrication requirements.

B. Manufacturer’s Product Data including:

1. Product data for each type of door and frame specified, including details of construction, materials, dimensions, hardware preparation, core, label compliance, sound ratings, profiles, and finishes.

C. Shop Drawings including:

1. Shop drawings showing fabrication and installation of standard steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of door and frame

hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

a. Provide schedule of doors and frames using same reference numbers for details and openings as those on the Contract Documents.

b. Indicate coordination of glazing frames and stops with glass and glazing requirements.

D. Samples including:

1. If requested by Architect, submit a sample of each door type showing edge, top and bottom construction, core construction and typical reinforcements for hardware.

2. If requested by Architect, submit a sample of each frame type showing corner joint, typical reinforcements for hardware, plaster guards (mortar guards), and floor anchors.

E. Operation and Maintenance instructions including:

1. Provide Manufacturer's operation, maintenance, and cleaning instructions for each type of door and frames.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Not less than 5 years' experience in production of specified products.

B. Product Qualifications: Provide steel doors and frames manufactured by a single firm specializing in production of this type of work.

1. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI-100 and as herein specified.

C. Finish Hardware Coordination: Coordinate with hardware supplier, the proper placement and preparation for hardware items with door and frame fabrication. Secure necessary hardware templates and hardware information from hardware supplier.

D. Fire Rated Assemblies: Fire rated assemblies to be tested by and meet requirements of Underwriters Laboratories, Inc. (UL), and bear UL labels for ratings required.

1.06 DELIVERY, STORAGE AND PROTECTION

A. General Requirements: Deliver, store, and handle hollow metal work in a manner to prevent damage.

1. Protect doors and frames with resilient packaging sealed with heat shrunk plastic.

2. Break seal on-site to permit ventilation.

B. Packing and Shipping: Properly package items to protect against damage in shipping. Include all fastenings for each item.

C. Storage and Protection:

1. Store doors upright in a protected dry area at least 1 inch or more off ground or floor and at least 1/4 inch between individual pieces.

2. Store steel doors and frames to not be exposed to adverse environmental elements.

D. Marking: Mark each item with appropriate heading and door number in accordance with Drawings and approved Hardware Schedule.

1.07 WARRANTY

A. Hollow Metal Doors and Frames: Manufacturer shall warranty door against defects in material and workmanship for a period of 5 years from date of Substantial Completion.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Hollow metal doors and frames will be heavy duty, full-flush, seamless type. Products manufactured by the following companies complying with these specifications will be acceptable:

1. Amweld Building Products, LLC.
2. Ceco Door & Curries Company; an Assa Abloy Group company; model 747T.
3. Fenestra Corp.
4. Pioneer Industries
5. Trussbilt, “Stocklin” model.
6. Precision Metals.
7. Republic Doors and Frames

2.02 MATERIALS

A. Structural Steel Shapes: ASTM A36.

B. Steel Bars: ASTM A108-13.

C. Steel Plate: ASTM A283.

D. Hot-Rolled Sheet Steel and Strips: ASTM A569 and A568, commercial quality carbon steel, pickled and oiled.

E. Cold-Rolled Sheet Steel: ASTM A366 and A568 commercial quality carbon steel, stretcher leveled.

F. Galvanized Steel Sheets:

1. Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A526, and with ASTM A525, G60 zinc coating, mill phosphatized.

G. Supports and Anchors: Fabricate of not less than 18-gauge galvanized sheet steel.

H. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASSTM A153-82 (1987), Class C or D as applicable.

I. Finish:

1. Finish Coating: PVDF / Kynar 500 FSF resin coating by Arkema. No substitutions; provide custom color match to window coating.
2. Primer: Provide rust inhibitive type, gray, red or beige as standard with finish coating system by the Manufacturer.

2.03 FABRICATION

A. General

1. Fabricate hollow metal doors and frames, and frames for wood doors as shown on the Drawings and in accordance with best shop practices. Frames shall be rigid, neat in appearance, and free from defects (warp or buckle). Field measurements shall be taken as required for coordination with adjoining work.
2. Form exposed surfaces free from warp, wave and buckle, with corners square, unless otherwise shown. Set each member in proper alignment and relationship to other members with surfaces straight and in a true plane.

3. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI-100 requirements.
4. Clearances: Not more than 1/8 inch at jambs and heads except between non-fire-rated pairs of doors not more than 1/4 inch. Not more than 3/4 inch at bottom.
5. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
6. Reinforce members and joints with steel plates, bars, rods or angles for rigidity and strength.
7. Conceal fastenings unless otherwise shown or specified.
8. Doors and Frames shall be mortised and reinforced for hardware in accordance with the hardware manufacturer's instructions and templates. The reinforcing shall be drilled and tapped to receive hinges, locks, strikes, closers, and other hardware requiring reinforcing.
9. Grade:
    a. Grade III - Extra Heavy Duty, Model 2 - Core 20 ga vertical steel stiffeners 6 inches apart: For interior and exterior doors.
    b. All frames over 36” wide shall have full length 12-gauge hinge reinforcement.

B. Frames

1. Provide combination type hollow metal doorframes to be used as both door buck and trim, formed to profiles.
2. Interior frames shall be of 16-gauge galvanized steel.
3. Exterior frames shall be of 14-gauge galvanized steel.
4. All joints to be die-mitered with integral tabs for reinforcement and interlocking of the jambs to the head. All face joints shall be continuously welded and ground smooth. All frames to be mortised, reinforced, drilled and tapped for all mortise finish hardware.
5. Frame Reinforcing:
    a. All frames to be reinforced for surface-mounted hardware as specified by template requirements
    b. Blocking shall be provided behind all hardware cutouts where frames at exterior doors are filled with mortar or insulation.
    c. Cover boxes shall be provided for hardware cutouts.
    d. Hinge reinforcements (each location) shall be 7-gauge, 1-5/8" x 10" long and welded to frame.
    e. Lock strike reinforcement shall be 14-gauge x template requirements.
    f. Closer and holder reinforcements shall be 12-gauge, 1-3/4" x 20" long welded to frame.
    g. Angle floor clips shall be 16-gauge welded to frames or shipped loose, and each drilled for two 3/8" anchors.
6. Furnish at least three metal anchors in each jamb of frames up to 84" high and 1 (one) additional anchor for each 24" in height above 84", in shapes, sizes and spacing shown or required for anchorage into adjoining wall construction. Fabricate joint anchor of steel no lighter than gauge used for the frame, unless otherwise shown.
7. Except where frames are set in masonry, and in steel stud walls where studs extend to supporting construction above, equip frames with vertical steel struts, 3/8" x 2" minimum

size, extending from top of frame at each jamb to supporting construction above by bolting, welding or other suitable anchorage. Provide bolted attachment of struts to frame jambs to permit height adjustment during installation.

8. Terminate bottom of frames at the indicated finished floor level.
9. Furnish removable steel spreaders attached at the bottom of 3-sided frames.
10. Provide 18-gauge channel-glazing stops for borrowed lites and sidelites. One (1) stop shall be fixed and one (1) stop shall be removable to facilitate glazing and re-glazing.
11. Mark frame number on the jamb of each frame in butt recess for identification at the job site.
12. Door Silencers: Except on weather-stripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.
13. Plaster Guards: Provide minimum 26-gauge steel plaster guards or mortar boxes at back of hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
14. Glazing Stops: Minimum 20-gauge steel or .040-inch-thick aluminum.
    a. Provide non-removable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
    b. Provide screw applied removable glazing beads on inside of glass, louvers, and other panels in doors.
    c. Perform grouting without clogging spaces or cavity in areas (transoms, sidelights and borrowed lights), where mortar will impede application of glazing beads. This should be accomplished by using a ¾-inch piece of wood or foam filler. This work should be performed by Contractor.
15. Fabricate exterior doors, panels, and frames from galvanized sheet steel in accordance with SDI-100.
16. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts. Contractor shall conceal all exposed fasteners with body putty and sand smooth.
17. Thermal-Rated (Insulating) Assemblies: At exterior locations and elsewhere as shown or scheduled, provide doors fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C236 or ASTM C976 on fully operable door assemblies.
    a. Unless otherwise indicated, provide thermal-rated assemblies with U factor of 0.41 Btu/(hr x sq. ft x deg F.) or better.
18. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware in accordance with final Door Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 Series Specifications for door and frame preparation for hardware.
19. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site.
20. Locate hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames", published by Door and Hardware Institute.
21. Hinges shall be located at the following dimensions from the top of door to the top of hinge:
    a. Top: 5"

b. Middle: 37-3/16"

c. Bottom: 69-1/2"

C. Doors

1. Flush hollow metal doors shall be fabricated with face sheets each formed of 18-gauge steel for interior doors and 16-gauge galvanized steel for exterior doors.

2. Glazed doors (50 percent or more, glass) shall be fabricated from 14-gauge steel.

3. Doors shall be 1-3/4" thick unless otherwise noted. Doors with small glazed and louvered openings shall be constructed similarly.

4. Doors shall be full flush-type construction and have continuous one-piece, 20-gauge vertical steel rib stiffeners spaced not to exceed 6 inches apart.

5. Lock rail to be one piece full height 14-gauge channel. Hinge rail to be one-piece, full height, 12-gauge, channel-formed and tapped for hinges. Both channels to be continuously arc-welded to face sheets full height. All spaces between ribs shall be insulated with fiberglass insulation. Both top and bottom of doors are to receive 16-gauge closure channels.

6. Doors shall be beveled (1/8” in 2”) on lock edge. Provide continuous reinforcing members welded to face sheets at the top and bottom of door. For vertically reinforced doors, place mineral wool board, in the spaces between reinforcing members. Provide removable stops of 18-gauge steel for glazed openings; fasten with oval head, counter-sunk screws at not more than 12" o.c.

   a. Interior Doors: ANSI/SDI-100, Grade III, Model 2, Core Design 20 ga vertical steel stiffeners, extra heavy duty, 18-gauge cold-rolled sheet steel faces.

   b. Exterior Doors: ANSI/SDI-100, Grade III, Model 2, Core Design 20 ga vertical steel stiffeners, extra heavy-duty 16-gauge galvanized steel faces.

   c. Internal Construction: Manufacturer's standard polyurethane, polystyrene, 20-gauge continuous vertical steel stiffeners spaced no more than 6 inches apart, and welded to door faces 6 inches on center. Provide continuous reinforcement members welded to face sheets at the top and bottom of door.

   d. Fabricate exposed faces of doors and panels, including stiles and rails of nonflush units, from only cold-rolled steel. There shall be no exposed "joints" on door edges. All steams to be welded and groomed smooth.

7. Door Hardware Reinforcing

   a. Closer reinforcement shall be 12-gauge channel, 5" x full width of door.

   b. Overhead holder reinforcement shall be 12-gauge channel, 5" x full width of door.

   c. Rim panic reinforcement shall be 14-gauge plate, 5" x 18" long.

   d. Provide other reinforcements as governed by template requirements. Exterior doors will have top caps made of vinyl or galvanized steel fit in place, filled and ground smooth. All door seams will be wire-welded full length and ground smooth. Exterior doors will be made of 14-gauge steel. Interior doors will be made of 18-gauge steel. All glazed doors will be made of 14-gauge steel.

   e. Hinge rail shall be one-piece full height of door, 12-gauge channel formed and tapped for hinges.

8. Top and bottom edges of doors shall be closed with a continuous flush inverted channel not less than 16-gauge, extending full width of door and spot welded to both faces. Exterior doors shall have flush galvanized steel channel top or top cap as standard with the manufacturer. Both vertical edges of doors shall be flush and beveled 1/8" in 2".

9. Provide clearances for hollow metal doors of 3/32" at jambs and heads, 1/8" at meeting stiles for pairs of doors and 3/8" at bottom where no threshold is required. Where a threshold is shown, provide 1/8" clearance above threshold.

10. Exterior non-fire rated hollow metal doors shall be insulated with polystyrene or polyurethane spray foam insulation as specified in Section 07 20 00 Building Insulation.

2.04 SHOP PAINTING

A. Thoroughly clean metal surfaces of loose scale, shavings, filings, dirt and other deleterious materials by use of wire brushes or other effective means. Remove grease and oil by solvent cleaning. Paint exposed surfaces of steel door and frame units, including galvanized.

B. Prepare, prime and finish doors and frames in accordance with Manufacturer's requirements for Kynar coating.

C. Coating shall be continuous for entirety of system.

1. Paint inside surface of removable stops and the frame area covered by such stops.

2. Paint after hardware preparation of doors and frames. Site touch-ups will not be accepted unless provided by Manufacturer to maintain system coating.

2.05 ACCESSORIES

A. Glazing Stops: Rolled steel channel shape, mitered or butted corners; prepared for countersink style tamperproof screws. Construct glazing stops of not less than 18-gauge steel. Fit and install stops in the factory. Form neat hairline joints.

B. Rubber Silencers: Resilient rubber.

2.06 FABRICATION

A. Fabricate frames fully welded with corners fully mitered, including stop, to hairline accuracy with face joints continuously welded and ground smooth and flush.

B. Provide frames of required throat depth for wall thickness.

C. Fabricate frames and doors with hardware reinforcement plates welded in place. Comply with ANSI/SDI A250.8 for minimum hardware reinforcing requirements. Provide mortar guard boxes.

D. Fabricate doors without seams on faces or vertical edges of door. Continuously weld vertical edge seams, and grind smooth.

E. Reinforce frames wider than 48" with roll formed steel channels fitted tightly into frame head, flush with top.

F. Prepare frame for silencers. Provide three single rubber silencers on strike jamb for single doors, and two single silencers on frame head at double doors.

G. Attach fire rated label to each frame and door unit, where required.

H. Reinforce top and bottom edges with a 14-gauge channel welded to face sheets.

I. Close top edge of exterior door flush with inverted 16-gauge steel channel closure. Seal joints watertight.

J. Provide fixed glazing stops on outside of exterior doors and on secure side of interior doors.

K. Provide floor clips for frames. Provide jamb anchors spaced not over 30" on center for frames. Furnish temporary spreader bars and bracing.

L. Provide extended stops at door sidelites and window frames to prevent vision into the room infilling the gap at the edges of recessed window blinds.

M. Thoroughly clean, phosphate treat, and apply one coat of rust inhibitive primer containing at least 50% rust inhibitive pigments complying with ANSI/SDI A250.10 acceptance criteria, recommended by primer manufacturer for substrate, compatible with substrate and field-applied paint despite prolonged exposure. Prime frames under removable glazing stops and prime backside of removable stops.

PART 3: EXECUTION

3.01 INSTALLATION

A. Examine the substrate and conditions under which hollow metal work is to be installed and notify the Construction Manager in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

B. Install frames in accordance with ANSI/SDI A250.11 "Recommended Erection Instructions For Steel Frames," unless otherwise indicated.

1. Except for frames located at in-place concrete and masonry and at drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.

a. In masonry construction, locate three (3) wall anchors per jamb at hinge and strike levels. Frames shall be grouted full of mortar at jambs and anchors shall be built into the joints as walls are laid up.

b. At concrete or masonry construction, provide three (3) completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb, set frames and secure to adjacent construction with bolts and masonry anchorage devices.

c. In stud partitions, install at least three (3) wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws.

d. Set all exterior doorframes so hinge pivot will allow door to swing 180 degrees.

C. Owner will install doors in accordance with DHI "The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames, and Builders Hardware".

1. Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI-100-91 and as indicated in this Section.

D. Coordinate with masonry and wallboard wall construction for anchor placement.

1. Masonry Construction: Install frames up to 60" high in masonry construction with minimum 2 jamb anchors each jamb; add an additional anchor for every 30" or fraction thereof.

2. Wallboard Construction: Install frames up to 60" high in wallboard construction with minimum 3 jamb anchors each jamb; add an additional anchor for every 24" or fraction thereof.

E. Coordinate installation of glass and glazing.

3.02 TOLERANCES

A. Maximum Diagonal Distortion: 1/16" measured with straight edge, corner to corner.

3.03 ADJUSTING AND CLEANING

A. Remove dirt and excess sealants from exposed surfaces.

B. Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply same paint as used for the prime coat.

C. Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper smooth operating condition.

D. Remove debris from project site.

END OF SECTION 08 10 10

08 63 00

UNIT SKYLIGHTS

PART 1: GENERAL

1.01 SUMMARY

A. Polycarbonate unit skylight with formed curb counterflashing for mounting on roof curbs for flat roofing applications.

1. Unit shall be easily removable to allow for removal of well equipment through it.

1.02 RELATED SECTIONS

A. Section 05 50 00 Metal Fabrications

B. Section 06 10 00 Rough Carpentry

C. Section 07 20 00 Building Insulation

D. Section 07 53 00 Fully Adhered EPDM Membrane Roofing

E. Section 07 62 00 Sheet Metal Flashing and Trim

F. Section 07 90 00 Joint Sealants

1.03 REFERENCE STANDARDS

A. General: Applicable edition of references cited in this Section is current edition published on date of issue of Project specifications, unless otherwise required by building code in force.

B. American Architectural Manufacturers Association (www.aama.net), Window & Door Manufacturers Association (www.wdma.com), Canadian Standards Association (www.csagroup.org/us/en/services)

1. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/ Specification for Windows, Doors, and Skylights (NAFS)

2. CSA A440S1 – Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440

3. AAMA 502 – Voluntary Specification for Field Testing of Newly Installed Fenestration Products

4. AAMA 2603 – Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum and Panels

C. ASTM International: www.astm.org:

1. ASTM D1003 – Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics

2. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings

3. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen

4. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference

5. ASTM E408 - Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques

6. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials

7. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

D. Code of Federal Regulations:

1. 29 CFR 1910.29 - Occupational Safety and Health Standards: Fall protection systems and falling object protection – criteria and practices.

E. Factory Mutual (FM): www.fmglobal.com

1. FM 4431 - Approval Standard for Skylights

F. Illuminating Engineering Society of North America (IESNA): www.ies.org:

1. IESNA – The Lighting Handbook.

G. Leadership in Energy and Environmental Design (LEED): www.usgbc.org/leed

H. National Fenestration Rating Council: www.nfrccommunity.org:

1. NFRC 100 - Procedure for Determining Fenestration Product U-factors

2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence

I. National Fire Protection Association: www.nfpa.org:

1. NFPA 70 - National Electrical Code

1.04 COORDINATION

A. Coordinate dimensions, locations, and details of unit skylight curbs with opening flashings and interior surround finishing. Verify requirements for roofing system terminations.

1.05 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site prior to delivery of unit skylight and installation of roof deck.

1.06 SUBMITTALS

A. Product Data: Include standard construction details, product performance characteristics, and material descriptions, dimensions of individual components and profiles, and finishes.

1. Include test reports of qualified independent testing agency or third party certificates verifying compliance with performance requirements.

B. Shop Drawings: Include plans, elevations, sections, details, and connections to supporting structure and other adjoining work.

C. Warranty: Sample of commercial warranty.

D. Closeout Submittals: Operation and Maintenance Data.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer listed in this Section with minimum twenty (20) years' experience in the US manufacturing similar products in successful use on similar projects and able to provide unit skylights meeting requirements.

1. Approval of Manufacturers and Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:
    a. Product data, including independent test data indicating compliance with requirements.

B. Installer Qualifications:
1. Installer demonstrating ten (10) years experience installing skylights of similar style and complexity.
2. Manufacturer's letter indicating installer is approved to install their products.

1.08 WARRANTY

A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of skylights that fail in materials or workmanship under normal use within specified warranty period.
1. Failures include, but are not limited to, the following:
    a. Deterioration of metals, metal finishes, dome, and other materials beyond normal weathering.
    b. Breakage of polycarbonate glazing.
    c. Product leaks.
2. Warranty Period:
    a. Fifteen (15) Years: Polycarbonate dome skylights including water penetration and hail breakage for hailstones 2 inches and less in diameter. Mill finished aluminum skylight frames.
        1) Ten (10) Years: Yellowing of polycarbonate skylight domes.
        2) Five (5) Years: Domed skylights, skylight model CDS with polycarbonate dome.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. VELUX America LLC (Basis of Design)
1. Location: Greenwood, SC 29648, www.veluxusa.com .
    a. Local Contact: T-Fin Building Solutions, 202 N Cedar Avenue, Owatonna, MN 55060; Steve Grubish, 507.363.1629, steve@tfinbuild.com .
2. Subject to compliance with requirements:
    a. Wasco
    b. Marco Skylights
    c. Sun-Tek

B. Product Substitutions: Subject to compliance with requirements, provide products as permitted under Section 00 20 00 Instructions to Bidders substitution procedures.

C. Source Limitations: Obtain unit skylights through single source from single manufacturer.

2.02 SYSTEM DESCRIPTION

A. Polycarbonate dome, curb mounted fixed skylight utilizing extruded aluminum frame counter-flashing with welded corners, a PVC inner frame allowing condensation drainage, structural sealant, and accessories, as required to meet installation and performance requirements indicated.

1. Dynamic Dome Unit Skylight Curb Mount Model CMD3 curb mounted triple dome skylight with aluminum frame. (Basis of Design)

B. Polycarbonate Dome: Height 30% of skylight width, vacuum formed with precise repeating geometric patterns, and overall shape to maximize strength and daylight at low solar elevation angles 10 to 40 degrees. Outer dome shall be formed from smooth sheet and not prismatic in order to transmit all incident daylight through outer dome. Initial rise of the dome shall be at an angle of at least 60 degrees to horizontal in order to harvest daylight at low solar elevation angles 10 through 40 degrees.

1. Triple Dome:

a. Polycarbonate (LuxGuard) - Outer dome clear polycarbonate, 0.118 inches in thickness with UV blocking cap layer. Middle dome clear polycarbonate 0.118 inches in thickness. Inner dome white prismatic polycarbonate, 0.118 inches in thickness. Aluminum Frame Counter-flashing: Maintenance-free, extruded aluminum, grade 6063-T6, 0.08 inch (2.0 mm) thick with mill finish. Counter-flashing frames completely welded in corners and counter flashes curb a minimum of 1.625 inches (41 mm). Provide aluminum frame with at least 0.5 inch (12 mm) continuous ledge on each side of the skylight that is a pinch free access for stacking, manual transportation and mounting of skylights.

b. Unit Size: 48” x 48” Minimum clear inside dimension. 51”x 51” exterior dimension.

C. 100% Thermally Broken PVC inner-frame for Condensation Drainage: Factory applied white PVC inner-frame assembly providing a thermal break weather seal and drainage for condensation. The inner-frame design allows positive condensation to the exterior of the curb without exposed drainage openings in the aluminum frame that can introduce air infiltration into the skylight. The PVC inner-frame construction consists of coextruded fins allowing for a dry installation of skylight to the curb, eliminating weather seal strips or caulking at the top of the curb.

D. Structural Sealant: Factory applied InstantGlaze sealant, bonding the dome to the aluminum frame and suitable for external exposure.

2.03 PERFORMANCE REQUIREMENTS

A. Unit Skylight Standard, Dynamic Dome model CMD3 certified to AMA/WDMA/CSA 101/I.S.2/A440 (NAFS-17 or previous) as follows:

1. Design Pressure (DP): Minimum DP = +/- 55 psf (+/- 2.15 KPa). Dome shall not invert at positive design pressure.

2. Water Test Pressure: Minimum 15 psf (720 Pa) with no leakage at 5 gallons per minute spray rate.

3. Air Leakage Rate: Maximum 0.013 cfm/ft^2 (0.3 L/s/m^2)

B. Dome Smoke Density Rating: Testing in accordance with ASTM D 2843 with a documented performance value less than or equal to 75.

C. Dome Self-Ignition Temperature: Tested in accordance with ASTM D 1929 with a documented performance value greater than or equal to 650 degrees Fahrenheit.

D. Energy Performance ratings for any size commercial [CMD- curb] mounted unit skylight with dynamic dome as follows:

1. Thermal Transmittance: NFRC 100 maximum U-factor: 0.52.

2. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum SHGC: 0.41.

3. Visible Light Transmittance (VLT) 60.6% and Percent Haze: ASTM D 1003: 100%.

E. Fall Protection Standard Compliance: 29 CFR 1910.29: Skylight dome tested to support a minimum of 400 pounds over 1 square foot of the surface.

2.04 MATERIALS

A. Joint Sealants: As specified in Section 07 90 00 Joint Sealants.

B. Mastic Sealants: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

2.05 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3: EXECUTION

3.01 EXAMINATION

A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with unit skylight installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install unit skylights in accordance with manufacturer's written instructions and approved shop drawings. Coordinate installation of units with installation of substrates, air and vapor retarders, roof insulation, roofing membrane, and flashing as required to ensure that each element of the Work performs properly and that finished installation is weather tight.

1. Anchor unit skylights securely to supporting substrates.

2. Install unit skylights on curbs specified in another section with tops of curbs parallel to finished roof slope.

B. Where metal surfaces of unit skylights will contact incompatible metal or corrosive substrates, including preservative-treated wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation recommended in writing by unit skylight manufacturer.

C. For custom flashings, install unit skylight curb counter-flashing to produce weatherproof seal with curb and overlap with roofing system termination at top of curb.

3.03 FIELD QUALITY CONTROL

A. Work will be considered defective if it does not pass inspections.

B. Additional testing and inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

C. Prepare inspection reports.

3.04 CLEANING AND PROTECTION

A. Clean exposed unit skylight surfaces according to manufacturer's written instructions. Touch up damaged metal coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

B. Replace glazing that has been damaged during construction period.

C. Protect unit skylight surfaces from contact with contaminating substances resulting from construction operations.

END OF SECTION 08 63 00

SECTION 08 70 00

FINISH HARDWARE

PART 1: GENERAL

1.01 SUMMARY INCLUDES

A. Hardware for hollow metal doors and frames.

B. Items of miscellaneous finish hardware.

C. Furnish templates to Section 08 10 00 Hollow Metal Doors and Frames.

D. All locks to be compatible with Best lock cylinder cores.

1. Best Lock cylinder cores to match those at New Brighton Water Treatment Plant #1.

2. Owner will provide final cylinder cores.

E. Coordination: Coordinate with all of the Sections of this Project.

1.02 RELATED SECTIONS

A. Section 07 62 00 Sheet Metal Flashing and Trim

B. Section 07 90 00 Joint Sealants

C. Section 08 10 00 Hollow Metal Doors and Frames

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. American National Standards Institute (ANSI):

a. A117.1 Usable and Accessible Buildings and Facilities

b. A156.18 Materials and Finishes.

2. National Fire Protection Association (NFPA):

a. NFPA 80 - Fire Doors and Windows.

b. NFPA 101 - Life Safety Code.

3. Door Hardware Institute (DHI):

a. Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames.

1.04 SUBMITTALS

A. Test Report and certifications including:

1. Manufacturer's certificate that fire rated hardware meets or exceeds specified requirements.

B. Shop Drawings: Indicate locations and mounting heights of each type of hardware.

C. Product Data including:

1. For specified hardware.

2. Manufacturer's parts lists, templates, and installation instructions.

D. Operation and maintenance data including:

1. Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
2. Provide special tools required for installation.
3. Provide special wrenches and tools applicable to each different or special hardware component.
4. Provide maintenance tools and accessories supplied by hardware component manufacturer.

1.05 QUALITY ASSURANCE

A. Conform to NFPA 80 and NFPA 101 requirements for fire rated doors and frames, as applicable.

B. Furnish UL listed hardware for openings in conformance with requirements for the class of opening scheduled.

C. NFPA and UL requirements shall take precedence over this specification where a conflict exists.

D. Supplier: Company specializing in the builders' hardware industry.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify package with door opening code to match hardware schedule.

B. Deliver keys to Owner by registered mail direct from hardware supplier.

C. Protect hardware from theft by cataloging and storing in secure area.

1.07 SEQUENCING AND SCHEDULING

A. Coordinate work of this section with other directly affected sections involving manufacturer of any internal reinforcement for door hardware.

1.08 WARRANTY

A. Manufacturer’s Warranty: Provide Manufacturer’s warranty against workmanship, defects, and material failures for a period of five (5) years from date of Substantial Completion.

PART 2: PRODUCTS

2.01 MANUFACTURERS

A. Door hardware, as manufactured by companies listed below, and which meet these specifications:

1. Continuous Hinges: Ives, Markar, McKinney, Stanley.
2. Flushbolts: DCI, Hager, Ives, McKinney, Trimco.
3. Locks: Best
4. Pulls and Push Plates/Bars: Burns, Hager, Hiawatha, Ives, McKinney, Trimco.
5. Closers: LCN, Norton, Sargent, Yale.
6. Protective Plates: Burns, Hager, Hiawatha, Ives, McKinney, Trimco.
7. Overhead Stops: Glynn-Johnson, Rixson, Sargent.
8. Wall Stops and Holders: Burns, Hager, Hiawatha, Ives, McKinney, Trimco.

9. Thresholds, Weatherstrip: National Guard, Reese, Pemko, Hager, Zero.

2.02 MATERIALS

A. Continuous Hinges:

1. Manufacturers and respective catalog numbers:

Ives	Markar	McKinney	Stanley
700	FM-300	MCK-FM300	651

2. Provide continuous hinges at all openings.

B. Flushbolts, Coordinators, Accessories:

1. Manufacturers and respective catalog numbers:

DCI	Hager	Ives	McKinney	Trimco
842	292D	FB31P	FB06M	3810
82	280X	DP2	DPS3	3911
600 Series	297D	COR7G	CSM500	3094

2. Provide stop-mounted coordinators as listed in hardware sets. Provide coordinators complete with necessary closer brackets, filler bars and accessories as necessary to complete the opening.

C. Locks:

1. Manufacturers and respective catalog numbers:

a. Best Lock cylinder cores to match those at New Brighton Water Treatment Plant #1.

Best
45H 15H
9K 15D
40HTK 15
93KW 15

2. Provide lock types and functions specified in the hardware schedule, with the following provisions:

a. Provide locks compatible to Best Lock cylinder cores matching those at New Brighton Water Treatment Plant #1. Owner to provide final cylinder cores. Key cylinders to existing key system as specified below.

b. Provide temporary keyed construction cylinders.

c. Provide free-clutching levers in all locking functions for cylindrical locks.

d. Provide ¾-inch projection latchbolt for pairs of doors.

e. Where interior hardware is an exit device from a different manufacturer, provide exterior trim kit to match typical exterior best hardware.

f. Exterior electric locks to fail secure.

D. Closers:

1. Manufacturers and respective catalog numbers:

LCN	Norton	Sargent	
4011	R7500	351	
4111 EDA	PR7500	351 P10	

2. Where closers are listed in the hardware schedule, provide closer series listed above unless other functions/series are specified in the hardware groups.
3. Provide extra heavy duty arm (EDA) when closer is to be installed using parallel arm mounting. Provide complete with all mounting brackets, drop plates and special shoes as may be required by the door and frame conditions.
4. Provide through bolt attachments for closers specified for mineral core doors.
5. Provide in type and function as specified in Hardware Sets.
6. Install closers on the room side of corridor doors, stair side of stairways and interior side of exterior doors.
7. Provide rust inhibiting (SRI) pretreatment primer and powder coat top coat finish on all closers for additional corrosive resistance.

E. Protective Plates:

1. Protective plates (kick plates) shall be 16 gauge, 0.050 inch, plates with the following dimensions:
   a. Width: 2 inches less than door width (push side of door), 1 inch less than door width (pull side of door).
   b. Height: 10 inches.
   c. Beveled 4 edges.
   d. Countersunk screws.
2. Provide kick plates for both sides of all interior doors, and interior side of exterior doors.

F. Wall Stops and Holders:

1. Manufacturers and respective catalog numbers:

Burns	Hager	DCI	McKinney	Trimco
570	236W	3210	WS01	1270WX
575	232W	3211	WS02	1270WV
531	256W	3267X	DS22	1207

G. Thresholds, Sweeps, Weatherstrips and Jamb Gaskets:

1. Manufacturers and respective catalog numbers:

National Guard	Reese	Pemko	Zero
425 Alum	S205A	171A	8655
700NA	755	2891 APK	429
16A	R201C	346C	142
2525	797	S88D	188
B606	964	345_N	8192
423N	320	4131	321

2. Provide Thresholds, Sweeps, Weatherstrip and Gaskets as listed above. Provide in size sufficient for opening. Material to be field-cut to length. Replace all existing thresholds.

3. Provide jamb gasket Pemko S88 for the head and jambs of doors at labeled openings.

H. Exit Devices:

1. Interior Exit device manufacturers. Manufacturers and respective catalog numbers:

Corbin Russwin	Sargent	Von Duprin	
ED5000	80-Series	98	

2. Provide exit device series and functions specified in the hardware schedule.

3. Provide hex bolt attachments for devices specified for mineral core door application.

I. Electric Strikes:

1. Exit device manufacturers and respective catalog numbers:

Hager	Securitron	Von Duprin
2925	UNL-12	6211 FSE

2. Provide electric strikes with their associated power supplies and functions specified in the hardware schedule.

3. Exterior electric strikes to fail secure. Interior to fail safe.

J. Card Readers

1. See Divisions 26 Electrical and 27 Communications for Card readers.

2. Furnish card readers with their associated power supplies and functions compatible with Owner's existing system.

K. Pulls:

1. Manufacturers and respective catalog numbers:

Hiawatha	Hager
536B	4J

2.03 ACCESSORIES AND ATTACHMENTS

A. Provide all necessary hardware accessories such as wood or machine screws, bolts, nuts, anchors, toggle bolts, and other fasteners, each of the type, size, material and finish for its intended purpose and each according to the material to which the hardware is being applied.

2.04 FINISH AND BASE METALS

A. Finishes shall conform to ANSI A156.18.

B. Finish and Base Metal Table:

1. Continuous Hinges: 630-US32D on stainless steel
2. Exit devices: 626-US26D on brass or bronze / 630-US32D on stainless steel
3. Locks: 626-US26D on brass or bronze
4. Pulls and push plates/bars: 630-US32D on stainless steel
5. Closers: SRI Base Coat with 689-Sprayed AL on cast iron/aluminum
6. Protective plates: 630-US32D on stainless steel
7. Overhead stops: 626-US26D on brass, bronze or steel
8. Wall stops and holders: 626-US26D on brass or bronze, or Holders 630-US32D on stainless steel
9. Thresholds: Mill Aluminum
10. Weatherstrips & sweeps: 628-Clear anodized aluminum
11. Miscellaneous: 626-US26D on brass or bronze

2.05 KEYING

A. All locks and cylinders shall accommodate Best interchangeable cores.

1. Best Lock cylinder cores to match those at New Brighton Water Treatment Plant #1.

B. All locks shall be furnished with combinated brass cores and shall be keyed alike for use during construction. Exterior doors without cylinders that are to be secured by card readers must be temporarily secured during construction.

C. Permanent cores and keys shall be provided by Owner.

D. Permanent cylinder cores shall be installed by Owner or Owner’s Representative. Temporary cylinders and cores shall be returned to the distributor once permanent cores have been installed.

E. Provide 10 each temporary construction keys. Construction keys shall be delivered to Contractor.

PART 3: EXECUTION

3.01 EXAMINATION

A. Verify that doors and frames are ready to receive work and dimensions are as instructed by manufacturer.

B. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions. Refer to DHI Publication “Recommended Locations for Architectural Hardware for Steel Doors and Frames” for mounting locations.

B. Install hardware on UL labeled openings in accordance with manufacturer's requirements, so as to maintain the label.

C. Mortise and cut to close tolerance and conceal evidence of cutting the finished work.

D. Remove, cover or protect hardware after fitting until paint or other finish is applied; permanently install hardware after finishing operations are complete.

E. Install closers on the room side of corridor doors, stair side of stairways, and interior side of exterior doors. Install closers to have a maximum opening force of 8 pounds of pressure at exterior doors and 5 pounds of pressure at interior doors. Closers on fire doors shall have adequate closing and opening force as allowable by the appropriate administrative authority, to accomplish positive latching of the door assembly.

F. When kickplates are furnished on exterior doors, seal underside of all four (4) sides with clear silicone caulking.

G. Mounting heights:

1. Install hardware at mounting heights conforming to the recommended mounting locations of the Builders' Hardware Manufacturers Association.

2. Install wall holders to strike near top of doors, but not more than 78 inches from the finished floor line; install wall stops to engage knobs, levers or pulls.

3.03 ADJUSTING AND CLEANING

A. At final completion, adjust and test hardware for function and performance and leave in good operating condition.

B. Clean hardware to restore the original finish.

C. Approximately 30 days after balancing of HVAC equipment and start-up of process equipment, re-adjust closures for proper closing operation. This adjustment is in addition to that indicated in paragraph A. above.

3.04 PROTECTION

A. Protect the finished installation until acceptance of the Project.

B. Provide final adjustment and cleaning where necessary.

3.05 SCHEDULE

A. Refer to Door and Frame Schedule on the Drawings for hardware group locations.

B. The following schedule of hardware groups are intended to describe opening function. The hardware supplier is cautioned to refer to the preamble of this specification for a complete description of all materials and services to be furnished under this section:

1. HW SET: 01

   a. Provide for the following doors: Single Doors at Wellhouses 8, 9 & 16 w/ Card Access.

1	EA	CONTINUOUS HINGE	700	IVE
1	EA	PANIC HARDWARE	LD-99-NL	VON
1	EA	CYLINDER	AS REQUIRED	
1	EA	INTERCHANGEABLE CORE	PERMANENT CORE AS REQUIRED (Provided By Owner)	BES
1	EA	INTERCHANGEABLE CORE	CYLINDER HOUSING AS REQUIRED	BES
1	EA	INTERCHANGEABLE CORE	TEMPORARY CORE AS REQUIRED	BES
1	EA	OH STOP & HOLDER	90H	GLY
1	EA	ELECTRIC STRIKE	6300 FSE	VON
1	EA	CARD READER	SEE ELECTRICAL	
1	EA	POWER SUPPLY	PS902 x 2RS	VON
1	EA	SURFACE CLOSER	4111 EDAW/62G/ST2730 SRI	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E CS	IVE
1	EA	RAIN DRIP	142	ZER
1	SET	WEATHERSTRIPPING	429	ZER
1	EA	DOOR SWEEP	8192	ZER
1	EA	DOOR CONTACT	SEE ELECTRICAL	
1	EA	THRESHOLD	8655	ZER

   b. FUNCTION: Night latch panic hardware. Fixed outside trim - latch retracted by key. Inside push pad retracts latch for egress. Electric strike unlocked by electronic access control system for push/pull operation.

2. HW SET: 02

   a. Provide for the following doors: Single Doors at Wellhouses 8, 9 & 16 w/out Card Access.

1	EA	CONTINUOUS HINGE	700	IVE
1	EA	PANIC HARDWARE	LD-99-NL	VON
1	EA	CYLINDER	AS REQUIRED	
1	EA	INTERCHANGEABLE CORE	PERMANENT CORE AS REQUIRED (Provided By Owner)	BES
1	EA	INTERCHANGEABLE CORE	CYLINDER HOUSING AS REQUIRED	BES
1	EA	INTERCHANGEABLE CORE	TEMPORARY CORE AS REQUIRED	BES
1	EA	OH STOP & HOLDER	90H	GLY
1	EA	SURFACE CLOSER	4111 EDAW/62G/ST2730 SRI	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E CS	IVE
1	EA	RAIN DRIP	142	ZER
1	SET	WEATHERSTRIPPING	429	ZER
1	EA	DOOR SWEEP	8192	ZER
1	EA	DOOR CONTACT	SEE ELECTRICAL	
1	EA	THRESHOLD	8655	ZER

   b. FUNCTION: Night latch panic hardware. Fixed outside trim - latch retracted by key. Inside push pad retracts latch for egress.

3. HW SET: 03

a. Provide at the following doors: Double Doors at Wellhouse 8, 9 & 16

2	EA	CONTINUOUS HINGE	700	IVE
1	EA	REMOVEABLE MULLION	KR-4954	VON
1	EA	PANIC HARDWARE	LD-99-NL	VON
1	EA	PANIC HARDWARE	LD-99-DT	VON
2	EA	CYLINDER	AS REQUIRED	
2	EA	INTERCHANGEABLE CORE	PERMANENT CORE AS REQUIRED (Provided By Owner)	BES
2	EA	INTERCHANGEABLE CORE	CYLINDER HOUSING AS REQUIRED	BES
2	EA	INTERCHANGEABLE CORE	TEMPORARY CORE AS REQUIRED	BES
2	EA	OH STOP & HOLDER	90H	GLY
2	EA	SURFACE CLOSER	4111 EDAW/62G/ST2730 SRI	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW B4E CS	IVE
1	EA	RAIN DRIP	142	ZER
2	SET	WEATHERSTRIPPING	429	ZER
2	EA	DOOR SWEEP	8192	ZER
2	EA	DOOR CONTACT	SEE ELECTRICAL	
1	EA	THRESHOLD	8655	ZER

b. FUNCTION: Night latch panic hardware. Fixed outside trim - latch retracted by key. Inside push pad retracts latch for egress.

END OF SECTION 08 70 00

Division 09

Finishes

SECTION 09 90 00

PAINTING

PART 1: GENERAL

1.01 SUMMARY

A. Perform all Work included in this Section in accordance with the following paragraphs.

B. The Work required under this Section includes providing all materials, equipment, and labor necessary for surface preparation and coating system application of exposed surfaces in accordance with the schedule included herein.

1. This Work includes the application of coating systems to all exposed surfaces as scheduled, including surface preparation, priming, and topcoats.

2. Paint systems are defined as those types of materials and applications requiring more than normal skills and techniques for mixing, handling, and application.

3. “Exposed Surfaces” is defined to include areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation grilles, etc., are in place in areas scheduled to be coated. However, extend paintings in these areas as required to maintain the painting system integrity and provide the desired protection.

C. List of items included: Without restricting the generality of the above, the work to be performed under this Section includes, but is not limited to the following:

1. Painting for interior concrete CMU walls, and ceilings.

2. Painting for interior structural steel and miscellaneous metals.

3. Painting for interior gypsum sheathing.

4. Painting for interior and exterior hollow metal doors and frames.

5. Painting for exterior miscellaneous metals.

D. Where items or surfaces are not specifically mentioned, apply paintings to these the same as adjacent similar materials or areas after verification with Engineer/Architect that surface is to receive coating.

E. Leave surfaces not to receive specialty coatings completely free of drippings and accidentally applied materials resulting from the work of this Section.

1.02 RELATED SECTIONS

A. Section 03 30 00 Cast-In-Place Concrete

B. Section 03 41 00 Precast Structural Concrete

C. Section 04 20 00 Concrete Masonry Units

D. Section 05 50 00 Miscellaneous Metals

E. Section 08 10 10 Hollow Metal Doors and Frames

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

B. ANSI/NSF 61, Drinking Water System Components

C. The Society for Protective Coatings, Current Editions, hereafter referred to as SSPC:

1. SSPC-SP1, “Solvent Cleaning”
2. SSPC-SP3, “Power Tool Cleaning”
3. SSPC-SP6, “Commercial Blast Cleaning”
4. SSPC-SP7, “Brush-off Blast Cleaning”
5. SSPC-SP11, “Power Tool Cleaning to Bare Metal”
6. SSPC-SP13, “Surface Preparation of Concrete”
7. ICRI 310.2R “Selecting and Specifying concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair”

1.04 SUBMITTALS

A. Manufacturer’s Certification: Submit letter from manufacturer stating the following:

1. Verification that the coatings subcontractor is trained and approved for use of the products supplied for this project.
2. Verification of direct knowledge that the coatings subcontractor has successfully used its products for projects of similar size and scope to this project.
3. Certification that the submitted products are suitable for the uses indicated in these Specifications.

B. For Approval: For Sherwin-Williams paint systems, submit detailed systems schedule for the approved products listed in article 2.04 and containing surface preparation and coating thickness detail in the format of article 2.05.

C. For Approval: Where manufacturer recommends an alternative product to the one specified for a particular use, submit detailed technical information for review and approval.

D. For Approval: Product data for chemical resistant coating system for chemical room floors.

E. Product Data: For all products, including pre-approved products listed in article 2.04, submit manufacturer's technical information including basic materials analysis and installation instructions for each material specified, including details of surface preparation. List each material and cross-reference to the specific coating and finish system and application. Identify by manufacturer’s catalog number and general classification. Include filler/resurfacer and primer products recommended and approved by coatings manufacturer.

F. Technical Data: Submit manufacturer’s recommended details for termination of coatings around penetrations through concrete for immersed applications.

G. Samples and Mock-ups:

1. Submit color samples for color selection by Owner and Engineer/Architect in locations where standard colors are permitted.

H. Test Results: SSPC- SP13 Concrete Moisture Test Results for Backwash Tanks

1.05 QUALITY ASSURANCE

A. Qualifications

1. Upon request, provide the following documentation in describing the qualifications of the coatings subcontractor:

a. References for two (2) projects of similar size and scope for water or wastewater treatment facilities completed within the past 10 years which involve coatings on new construction.

b. References for two (2) projects of similar size and scope for water or wastewater treatment facilities completed within the past 10 years which involve recoating of existing facilities. Projects may be the same projects as listed in item 1 if work involved both new and existing construction.

c. Documentation of NACE CIP or SSPC Level 2 certification or higher for at least one supervisor assigned to this project during coatings preparation and application by coatings subcontractor.

d. Documentation of NACE CIP or SSPC Level 3 certification or higher to perform Quality Control inspections, and oversee and advise regarding the Work on a weekly basis, at a minimum.

2. Provide only workers with training in the use of the procedures and materials specified for this project.

3. Provide only workers who are direct employees of the coatings subcontractor.

B. Provide primers, intermediate coats, and finish coats produced by a single manufacturer. Use only thinners approved by paint manufacturer and within recommended limits.

C. Notify Engineer/Architect if any anticipated problems using painting systems which are specified.

D. Where painting materials are in contact with sealants in the finish work, verify that all materials are compatible.

E. Surface preparation procedures stated in this Specification are minimum requirements. Where significant discrepancies occur between this Specification and manufacturer's recommendations for surface preparation and application, notify Engineer/Architect, and follow the more stringent requirements. Final surface preparation and coatings quality are the responsibility of Contractor.

1.06 DELIVERY AND STORAGE

A. Deliver materials in original, new, and unopened packages and containers bearing manufacturer's name and label, and following information:

1. Name or title of material

2. Fed. Spec. number if applicable

3. Manufacturer's stock number and date of manufacture

4. Manufacturer's name

5. Contents by volume, for major pigment and vehicle constituents

6. Thinning and mixing instructions

7. Application instructions

8. Color name and number

B. Take precautions to ensure that workers and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing, and application of special coatings.

C. Store materials not in actual use in tightly covered containers. Maintain containers in storage of coatings in a clean condition, free of foreign materials and residue.

D. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions required to prevent fires.

1.07 JOB CONDITIONS

A. Do not apply paintings when the temperature of surfaces to be coated and the surrounding air temperatures are below 50 degrees F (10 degrees C), unless otherwise permitted by coating manufacturer's printed instructions.

B. Do not apply paintings in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or to damp or wet surfaces; unless otherwise permitted by coating manufacturer's printed instructions.

1. Do not apply coatings unless surface temperature is a minimum of 5 degrees F above dew point.

C. Paint systems work may be continued during inclement weather only if areas and surfaces to be coated are enclosed and heated within temperature and humidity limits specified by paint manufacturer during application and curing periods.

D. Protect all surfaces not to be coated to absolutely ensure that those surfaces are not stained or otherwise adversely affected by Work under this Section or other Work performed. This specifically includes, but it not limited to, covering concrete floor surfaces to prevent stains and damage from paintings, traffic, or other Work during any of the coating process or other Work related activities.

PART 2: PRODUCTS

2.01 MATERIAL QUALITY

A. Provide the best quality grade of the various types of paintings as regularly manufactured by approved coating materials manufacturers. Do not use materials not displaying the manufacturer's identification as a standard, best-grade product.

B. Provide undercoat recommended by the manufacturer of the finish coats.

C. Provide top quality coating that is not badly settled, caked or thickened in the container; that is readily dispersed with a paddle to a smooth consistency; and has excellent application properties.

D. Use thinning and tinting materials recommended by coating manufacturer for the particular material thinned or tinted and only within the recommended limits.

E. Provide products that do not contain of listed metals as defined in Minnesota Statutes 115A.9651 and are in compliance with applicable portions of the Statute.

2.02 COLORS AND FINISHES

A. Proprietary names used to designate colors or materials are not intended to imply that products of the manufacturers are required to the exclusion of equivalent products of other manufacturers, subject to approval by Engineer.

B. Provide paints that are color-mixed prior to delivery except for tinting of undercoats and possible thinning.

2.03 FILLER/RESURFACER

A. Use products for repair of concrete surfaces that are approved by paint manufacturer and compatible with the paint systems provided.

B. Prepare substrate and apply in strict accordance with manufacturer's recommendations to provide secure bonding and appearance similar to adjacent surfaces. Prime as required by manufacturer prior to application of top coat.

2.04 SYSTEM PRODUCTS

A. Products and systems of the following manufacturers are approved as acceptable. Confirm compatibility for application with manufacturer prior to use.

System Schedule	Tnemec	Sherwin Williams
PT-1	Series 66HS Hi-Build Epoxiline II (73 Endurashield)	Macropoxy 646 Fast Cure Epoxy (Arcrolon 218 HS)
PT-2	Series 66HS Hi-Build Epoxiline II (73 Endurashield)	Macropoxy 646 Fast Cure Epoxy (Arcrolon 218 HS)
PT-3	Series 66HS Hi-Build Epoxiline II (73 Endurashield)	Macropoxy 646 Fast Cure Epoxy (Arcrolon 218 HS)

2.05 SYSTEMS SCHEDULE

A. Paint systems listed are based on products manufactured by Tnemec Company.

1. Paint system thickness measure: mils dry film thickness (dft).

B. For paint systems supplied by Sherwin-Williams or other approved paint manufacture, follow manufacturer's recommendations for dft for each product. Dft listed for Tnemec may not be in accordance with alternative product manufacturer's recommendations for the products and applications listed.

C. Refer to Article 3.02 for detailed procedures of surface preparation.

1. PT-1: Interior concrete surfaces not in contact with potable water including concrete masonry walls, cast-in-place concrete walls, concrete plank ceilings, concrete columns, concrete beams, patched existing concrete surfaces, and painted existing concrete surfaces.

a. Surface Preparation:

1) New surfaces: remove all oil, dust, grease, dirt, loose rust, and other foreign material followed by abrasive blast SSPC-SP13, ICRI CSP 2-4.

2) Allow minimum 28 days cure time prior to coating new concrete surfaces.

3) Tightly adhered existing surfaces: surface is considered tightly adhered if it cannot be removed with a dull putty knife. Thoroughly and uniformly de-gloss by power tool methods, SSPC-SP3. Surface must be clean, dry and free of contaminants. Consult manufacturer for additional recommendations for recoating of existing painted surfaces.

4) Poorly adhered existing surfaces: Remove existing coating to bare substrate in areas with poorly adhered or cracked coating. Patch to match adjacent surfaces with filler/re-surfacer per manufacturer's recommendations and feather edges to make a smooth transition. Prepare as for new surface or in accordance with manufacturer's recommendations.

b. Finish:

1) First/Prime Coat: Series 66HS Hi-Build Epoxoline 6.0 mils:

2) Second Coat: Series 66HS Hi-Build Epoxoline 6.0 mils

2. PT-2: Interior gypsum sheathing.
   a. Surface Preparation:
      1) Sand smooth and remove dust.
   b. Finish:
      1) First/Prime Coat: Series 66HS Hi-Build Epoxoline 6.0 mils:
      2) Second Coat: Series 66HS Hi-Build Epoxoline 6.0 mils
3. PT-3: New exterior hollow metal frames and doors, bollards, lintels and miscellaneous metals.
   a. Surface Preparation:
      1) Remove protective coating(s) and dust.
   b. Finish:
      1) Primer:Factory primed
      2) First Coat: Series 66HS Hi-Build Epoxoline 6.0 mils:
      3) Second Coat: Series 66HS Hi-Build Epoxoline 6.0 mils

2.06 ACCESSORY MATERIALS AND EQUIPMENT

A. Provide all accessory materials and equipment required to perform the work and achieve the results herein specified, including, but not limited to, lifts, ladders, scaffolding, safety equipment (harnesses and rigging), drop cloths, maskings, scrapers, tools, dusters, respiratory equipment, and cleaning solvents.

PART 3: EXECUTION

3.01 PRE-WORK INSPECTION

A. Examine the areas and conditions related to the painting work. Before proceeding with the painting work, correct conditions detrimental to its proper and timely completion.

3.02 SURFACE PREPARATION

A. General
   1. Perform preparation and cleaning procedures in compliance with the coating manufacturer's instructions for the particular substrate conditions and as herein specified. Where manufacturer’s instructions differ from specifications, follow the more stringent requirements.
   2. Remove dust and grit generated from surface preparation from item to be coated and adjacent items by vacuuming prior to painting. Do not allow activities that may cause dust to become airborne in the facility during application and curing of paint systems.
   3. Do not apply paint systems over dirt, rust, scale, grease, moisture, scuffed surfaces, overspray, or conditions otherwise detrimental to formation of a durable coating film. Remove using appropriate methods and repair or patch undercoats as required before proceeding using methods and/or materials approved by the manufacturer of the top paint coat.
   4. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Remove mildew and neutralize the surface per the paint manufacturer’s recommendations. Correct efflorescence and stains on any areas before coating.

5. Program the cleaning and application so dust and other contaminants from the surface preparation and cleaning process will not fall on wet, newly coated surfaces.

B. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items which are not to be painted or provide surface-applied protection prior to surface preparation and painting operations

C. Remove existing sealant in floor joints, cracks, and between floor and wall prior to painting.

D. Tape sealant and caulking prior to coating of adjacent surfaces.

E. Remove and protect name plates, hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items or provide ample in-place protection. Upon completion of each space, carefully replace all removed items.

3.03 MATERIALS PREPARATION

A. General

1. Carefully mix and prepare materials in compliance with manufacturer's directions.

2. Do not mix paint materials produced by different manufacturers.

3. Store materials in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.

4. Stir materials before application to produce a mixture of uniform density and as required during application. Do not stir film, which may form on surfaces, into material. Remove film and, if necessary, strain material before using.

B. Tinting

1. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.04 WORKMANSHIP - GENERAL

A. Employ only skilled painters.

B. Application methods: spray or brush/roller.

C. Furnish Engineer a schedule showing when Contractor expects to have completed the respective coats for the various areas and surfaces. Keep schedule current as the job progresses.

D. Protect the work at all times, and protect all adjacent work and materials by suitable covering or other method during progress of work.

E. Remove all overspray from surfaces prior to subsequent painting. Overspray on finish surfaces will not be acceptable.

F. Provide complete coverage and hide. When color, stain, dirt, roller fibers, or undercoats show through final coat, cover the surface by additional coats until the coating film is of uniform finish, color, appearance, and coverage, at no additional cost to Owner.

G. To the extent possible, feather edges of patches to minimize visibility.

3.05 APPLICATION

A. General:

1. Apply painting systems in accordance with the manufacturer's printed directions.

2. Do not apply paint systems to concrete prior to complete curing in accordance with manufacturer's printed directions.

3. Do not apply succeeding coats until the previous coat has cured as recommended by the coating manufacturer. Sand between coat applications where required to produce an even, smooth surface in accordance with the coating manufacturer's directions. Completely remove sanding dust from surface and surrounding area prior to applying paint.

4. Apply additional coats when undercoats or other conditions show through the final coat until the coating film is of uniform finish, color, and appearance.

B. Minimum Paint Thickness: Apply each material at not less than the manufacturer's printed recommended spreading rate. Provide a total dry film thickness of the entire coating system as specified.

C. Prime Coats:

1. Before application of finish coats, apply a prime coat to surfaces that have not been prime coated by others.

2. Recoat primed and sealed substrates where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Mechanical Applications:

1. Wherever spray application is used, do not double-back with spray equipment for the purpose of building-up film thickness of two coats in one pass.

E. Completed Work: Match approved samples for color, texture, and coverage. Remove refinish work not in compliance with specified requirements.

3.06 JOINTS AND CRACKS

A. Fill joints and cracks in accordance with manufacturer's recommendations and Section 03 30 00 Cast-in-Place Concrete.

B. Do not paint over joint filler in floor joints.

3.07 FIELD QUALITY CONTROL

A. Establish and maintain quality control for work under this Section to assure compliance with Contract requirements. Maintain records of all certification of surface preparation and mil thickness.

B. Owner will retain an independent NACE or SSPC certified coating inspector to provide regular inspection of surface preparation and coatings applied to existing and new surfaces. Owner will reject coatings identified by the independent inspector as not meeting these Specifications and coating manufacturer's requirements. Remove and replace rejected coatings at no additional cost to Owner.

C. Owner reserves the right to invoke the following material testing procedure at any time and any number of times during the period of coating.

1. Owner may engage the service of an independent testing laboratory to sample the materials being used. Samples of materials delivered to the project site will be taken, identified and sealed, and certified in the presence of Contractor.

2. The testing laboratory may perform appropriate tests for any or all of the following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance, and quantitative materials analysis.

3. If the test results show that the materials being used do not perform in accordance with the manufacturer's published standards for the products specified, Contractor will be

directed to stop the work, and remove noncomplying materials; pay for testing; recoat surfaces painted with the rejected materials; remove rejected materials from previously painted surfaces if, upon recoating with the specified materials, the two coatings are incompatible.

3.08 CLEANUP AND PROTECTION

A. Cleanup:

1. During the progress of the Work, remove from the project all discarded paint materials, rubbish, cans, and rags resulting from the work. Confine dust and fumes to the immediate work area to the extent possible. Regularly clean the work area to prevent contamination of newly painted surfaces.

2. Upon completion of Work, clean all spattered surfaces. Remove spattered materials by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces. Remove all coating spots from floors, glass, and other surfaces. Remove from the premises all rubbish and accumulated materials of whatever nature and leave the work in clean, orderly and acceptable condition.

3. Upon completion of the Work, clean and remove all dust, abrasive material, or other residuals from surface preparation and paint operations from all surfaces in the facility.

4. Following cleaning, reinstall the removed items, using workers skilled in the trades involved.

B. Protection:

1. Protect work of other trades, whether to be painted or not, against damage by the work. Correct damage by cleaning, repairing or replacing, and repainting, as directed by Engineer. Leave all work in undamaged condition.

2. Provide “Wet Paint” signs as required to protect finishes. After paint application, remove temporary protective wrappings provided by Contractor and by others for protection of the work during painting operation.

3. Take precautions to ensure that workers and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing, and application of paint and special coatings.

3.09 AREAS TO BE COATED

A. Existing Surfaces

1. Existing surfaces to be painted are generally described in Table 09 97 00. Existing painted surfaces generally epoxy, unless noted otherwise.

2. Reference drawings from the original construction plan set are provided. Field verify all surfaces and locations.

3. Quantities listed are approximate and are for reference only. Field verify dimensions of locations to receive coatings.

B. New Surfaces

1. Coat all new surfaces in accordance with the coatings system schedule.

END OF SECTION 09 90 00

SECTION 09 97 00

SPECIAL COATINGS

PART 1: GENERAL

1.01 SUMMARY

A. The Work required under this Section includes providing all materials, equipment, and labor necessary for surface preparation and coating system application of process piping and appurtenances in accordance with the schedule included herein.

1. This Work includes the application of paint systems and special coating systems to all process piping and appurtenances, including surface preparation, priming and topcoats.

2. Special coatings are defined as those types of materials and applications requiring more than normal skills and techniques for mixing, handling, and application.

B. List of items included: Without restricting the generality of the above, the work to be performed under this Section shall include, but not be limited to the following:

1. Special coating system for process piping, appurtenances, and associated flanges, including stenciling.

C. Where items or surfaces are not specifically mentioned, apply special coatings to these the same as adjacent similar materials or areas.

D. Surfaces not to receive specialty coatings shall be left completely free of drippings and accidentally applied materials resulting from the work of this Section.

1.02 RELATED SECTIONS

A. Section 43 20 00 Process Piping and Appurtenances

1.03 REFERENCES

A. Work covered under this Section shall be in accordance with the latest available version of the following references unless otherwise noted:

B. The Society for Protective Coatings, Current Editions, hereafter referred to as SSPC:

1. SSPC-SP1, “Solvent Cleaning”

2. SSPC-SP6, “Commercial Blast Cleaning”

3. SSPC-SP7, “Brush-off Blast Cleaning”

4. SSPC-SP11, “Power Tool Cleaning to Bare Metal”

C. American Society for Testing Materials (ASTM)

1. ASTM D523: Standard Test Method for Specular Gloss

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's technical information including basic materials analysis and installation instructions for each material specified. List each material and cross-reference to the specific coating and finish system and application. Identify by manufacturer’s catalog number and general classification.

B. Samples: Prior to beginning work, submit samples for review of color.

1.05 QUALITY ASSURANCE

A. Provide primers, intermediate coats and finish coats produced by a single manufacturer. Use only thinners approved by coating manufacturer and within recommended limits.

B. Upon request, furnish information on characteristics of specified special coating system, to ensure that compatible prime coats are used. Notify Engineer if any anticipated problems using coating systems which are specified.

C. Where coating materials are in contact with sealants in the finish work, verify that all materials are compatible.

1.06 DELIVERY AND STORAGE

A. Deliver materials in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

1. Name or title of material
2. Fed. Spec. number if applicable
3. Manufacturer's stock number and date of manufacture
4. Manufacturer's name
5. Contents by volume, for major pigment and vehicle constituents
6. Thinning and mixing instructions
7. Application instructions
8. Color name and number.

B. Take precautions to ensure that workers and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of special coatings.

C. Store materials not in actual use in tightly covered containers. Maintain containers in storage of coatings in a clean condition, free of foreign materials and residue.

D. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions required to prevent fires.

1.07 JOB CONDITIONS

A. Do not apply coatings when the temperature of surfaces to be coated and the surrounding air temperatures are below 50 degrees F (10 degrees C), unless otherwise permitted by coating manufacturer's printed instructions.

B. Do not apply coatings in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or to damp or wet surfaces, unless otherwise permitted by coating manufacturer's printed instructions.

1. Do not apply coatings unless surface temperature is a minimum of 5 degrees F above dew point.

C. Coating work may be continued during inclement weather only if areas and surfaces to be coated are enclosed and heated within temperature and humidity limits specified by coating manufacturer during application and curing periods.

D. Protect all surfaces not to be coated to absolutely ensure that those surfaces are not stained or otherwise adversely affected by Work under this Section or other Work performed. This specifically includes, but it not limited to, covering concrete floor surfaces to prevent stains and damage from coatings, traffic, or other Work during any of the coating process or other Work-related activities.

PART 2: PRODUCTS

2.01 MATERIAL QUALITY

A. Provide the best quality grade of the various types of coatings as regularly manufactured by approved coating materials manufacturers. Do not use materials that do not display the manufacturer's identification as a standard, best-grade product.

B. Provide undercoat recommended by the manufacturer of the finish coats.

C. Provide coating that is not badly settled, caked or thickened in the container; that is readily dispersed with a paddle to a smooth consistency; and has excellent application properties.

D. Use thinning and tinting materials recommended by coating manufacturer for the particular material thinned or tinted and only within the recommended limits.

E. Provide products that do not contain listed metals as defined in Minnesota Statutes 115A.9651. Products shall be in compliance with applicable portions of the Statute.

2.02 MANUFACTURERS

A. Proprietary names used to designate colors or materials are not intended to imply that products of the manufacturers named are required to the exclusion of equivalent products of other manufacturers, subject to approval by Engineer.

2.03 SYSTEM PRODUCTS

A. Products and systems of the following manufacturers are approved as acceptable. Confirm compatibility for application with manufacturer prior to use.

System Schedule	Sherwin Williams	Tnemec
SC-1	Macropoxy 646 Fast Cure Epoxy	Series N69 Hi-Build Epoxoline II
SC-2	Macropoxy 646 Fast Cure Epoxy	Series 27 F.C. Typoxy Series N69 Hi-Build Epoxoline II
SC-3	Macropoxy 646 Fast Cure Epoxy Acrolon 218 HS Polyurethane (exterior only)	Series N69 Hi-Build Epoxoline II

2.04 SYSTEMS SCHEDULE

A. Coatings listed are based on products manufactured by Sherwin Williams.

1. Coating thickness measure: mils dry film thickness (DFT).

B. For coatings supplied by other engineer-approved coatings manufacturer, follow manufacturer's recommendations for DFT for each product. DFT listed for Sherwin Williams and Tnemec may not be in accordance with alternative product manufacturer's recommendations for the products and applications listed.

C. Refer to Part 3.02 for detailed procedures of surface preparation.

1. **SC-1**: All new piping containing water (ductile iron, steel, or copper), appurtenances, and flanges at all locations.

a. Surface Preparation:

1) Remove all oil, dust, grease, dirt, loose rust, and other foreign material followed by SSPC-SP WJ-3 / NACE WJ-3L.

b. Finish:

Coat	Sherwin Williams		Tnemec	
	Product	Thickness	Product	Thick-ness
Prime Coat	Macropoxy 646 Fast Cure Epoxy	3.0 – 5.0 mils	Series N69 Hi-Build Epoxoline II	3.0 – 5.0 mils
Finish Coat	Macropoxy 646 Fast Cure Epoxy	4.0 – 6.0 mils	Series N69 Hi-Build Epoxoline II	4.0 – 6.0 mils

c. Label the pipe with the name and flow direction every 15 ft on pipes greater than 3 inches. Coordinate names and flow direction with the Engineer.

2. **SC-2:** New factory-primed equipment such as electric motors, compressors, and pumps. Does not apply to factory-finished equipment.

a. Verify the suitability of factory applied primer with specified intermediate and finish coats.

b. Surface Preparation:

1) Sand surfaces that are sound, fully adhered, not rusty and compatible with the subsequent coatings to provide adhesion for subsequent finish coats. Clean and dry prior to installing coatings.

2) Prepare all other surfaces per manufacturer's recommendations.

c. Finish:

Coat	Sherwin Williams		Tnemec	
	Product	Thickness	Product	Thickness
Shop Primer	Factory Primed			
Intermediate Coat	Macropoxy 646 Fast Cure Epoxy	2.0 – 3.0 mils	Series 27 F.C. Typoxy	2.0 – 3.0 mils
Finish Coat (field or shop)	Macropoxy 646 Fast Cure Epoxy	2.0 – 3.0 mils	Series N69 Hi-Build Epoxoline II	2.0 – 4.0 mils

3. **SC-6**: Pipe supports, insulation around service water pipe, fabricated pipe supports.

a. Surface Preparation:

1) Remove all oil, dust, grease, dirt, loose rust, and other foreign material followed by SSPC-SP6/NACE 3.

b. Finish:

Coat	Sherwin Williams		Tnemec	
	Product	Thickness	Product	Thickness
Prime Coat	Macropoxy 646 Fast Cure Epoxy	3.0 – 5.0 mils	Series N69 Hi-Build Epoxoline II	3.0 – 5.0 mils
Finish Coat (Interior)	Macropoxy 646 Fast Cure Epoxy	3.0 – 5.0 mils	Series N69 Hi-Build Epoxoline II	4.0 – 6.0 mils
Finish Coat (Exterior)	Acrolon 218 HS Polyurethane	3.0 – 5.0 mils	Series N69 Hi-Build Epoxoline II	4.0 – 6.0 mils

2.05 STENCILING

A. Place stencils on pipe together with arrow indicating direction of flow, located not more than 10 feet apart and in general at each valve and piece of equipment. Stencils shall be worded as directed by Engineer.

Outside Diam. of Pipe or Covering	Size of Letters
2" to 6"	1"
8” to 12”	2"

2.06 COLORS AND FINISHES

A. Provide coating that is color-mixed prior to delivery except for tinting of undercoats and possible thinning.

B. In general, color selection shall be compatible with 10 State Standards recommendations.

C. Provide Owner with a color card for final color selection. Color cards shall contain a minimum of 100 standard colors for Owner selection at no additional cost.

2.07 APPLICATION EQUIPMENT

A. Provide application equipment in serviceable condition adequate for the work and workmanship required herein.

2.08 ACCESSORY MATERIALS AND EQUIPMENT

A. Provide all accessory materials and equipment required to perform the work and achieve the results herein specified, including, but not limited to, lifts, ladders, scaffolding, safety equipment (harnesses and rigging), drop cloths, maskings, scrapers, tools, dusters, respiratory equipment, and cleaning solvents.

PART 3: EXECUTION

3.01 INSPECTION

A. Examine the areas and conditions related to the coating work. Before proceeding with the coating work, correct conditions detrimental to its proper and timely completion.

3.02 SURFACE PREPARATION

A. General

1. Perform preparation and cleaning procedures in compliance with the coating manufacturer's instructions for the particular substrate conditions, and as herein specified. Where manufacturer’s instructions differ from specifications, follow the more stringent requirements.

2. Remove dust and grit generated from surface preparation from item to be coated and adjacent items by vacuuming prior to coating. Do not allow activities that may cause dust to become airborne in the facility during application and curing of coatings.

3. Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, overspray, or conditions otherwise detrimental to formation of a durable coating film. Remove using appropriate methods and repair or patch undercoats as required before proceeding using methods and/or materials approved by the manufacturer of the top coating.

4. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Remove mildew and neutralize the surface per the coating manufacturer’s recommendations. Correct efflorescence and stains on any areas before coating.

5. Program the cleaning and application so dust and other contaminants from the surface preparation and cleaning process will not fall on wet, newly coated surfaces.

B. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items which are not to be coated, or provide surface applied protection prior to surface preparation and coating operations.

C. Tape sealant and caulking prior to coating of adjacent surfaces.

D. Remove and protect name plates, hardware, accessories, device plates, lighting fixtures, factory finished work, and similar items, or provide ample in-place protection. Upon completion of each space, carefully replace all removed items.

E. Process Pipes

1. Remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1 “Solvent Cleaning.”

2. Remove any loose coating as specified in SSPC-SP6 “Commercial Blast Cleaning.”

3. Pipes shall be free of corrosion-producing contaminants and also free of oil, grease, or other deleterious contaminants.

4. After cleaning and prior to application of the coating system:

a. Remove visible deposits of oil, grease, or other contaminants per SSPC-SP1.

b. Remove dust and loose residue.

c. Rectify all surface imperfections which become visible.

3.03 MATERIALS PREPARATION

A. General

1. Carefully mix and prepare materials in compliance with manufacturer’s directions.

2. Do not mix coating materials produced by different manufacturers.

3. Store materials in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue.

4. Stir materials before application to produce a mixture of uniform density, and as required during application. Do not stir film, which may form on surfaces, into material. Remove film and, if necessary, strain material before using.

B. Tinting

1. Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

3.04 WORKMANSHIP - GENERAL

A. Employ only skilled painters.

B. Application methods: spray or brush/roller.

C. Furnish Engineer a schedule showing when Contractor expects to have completed the respective coats for the various areas and surfaces. Keep schedule current as the job progresses.

D. Protect the work at all times, and protect all adjacent work and materials by suitable covering or other method during progress of work.

E. Remove all overspray from surfaces prior to subsequent coating. Overspray on finish surfaces will not be acceptable.

F. Coverage and hide shall be complete. When color, stain, dirt, or undercoats show through final coat, cover the surface by additional coats until the coating film is of uniform finish, color, appearance, and coverage, at no additional cost to Owner.

3.05 APPLICATION

A. General:

1. Apply special coatings in accordance with the manufacturer's printed directions.

2. Do not apply special coatings to concrete prior to complete curing in accordance with manufacture's printed directions.

3. Do not apply succeeding coats until the previous coat has cured as recommended by the coating manufacturer. Sand between coat applications where required to produce an even, smooth surface in accordance with the coating manufacturer's directions. Completely remove sanding dust from surface and surrounding area prior to applying paint.

4. Apply additional coats when undercoats or other conditions show through the final coat until the coating film is of uniform finish, color and appearance.

B. Minimum Coating Thickness: Apply each material at not less than the manufacturer's printed recommended spreading rate. Provide a total dry film thickness of the entire coating system as specified.

C. Prime Coats:

1. Before application of finish coats, apply a prime coat to surfaces that have not been prime coated by others.

2. Recoat primed and sealed substrates where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

D. Mechanical Applications:

1. Wherever spray application is used, do not double-back with spray equipment for the purpose of building-up film thickness of two coats in one pass.

E. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish work not in compliance with specified requirements.

3.06 FIELD QUALITY CONTROL

A. Establish and maintain quality control for work under this Section to assure compliance with Contract requirements. Maintain records of all certification of surface preparation and mil thickness.

B. The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during the period of coating.

1. Owner may engage the service of an independent testing laboratory to sample the materials being used. Samples of materials delivered to the project site will be taken, identified and sealed, and certified in the presence of Contractor.

2. The testing laboratory may perform appropriate tests for any or all of the following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance, and quantitative materials analysis.

C. If the test results show that the materials being used do not comply with the specified requirements, Contractor will be directed to stop the work, and remove noncomplying materials; pay for testing; recoat surfaces painted with the rejected materials; remove rejected materials from previously painted surfaces if, upon recoating with the specified materials, the two coatings are noncompatible.

D. Contractor shall establish and maintain quality control for work under this section to assure compliance with Contract requirements. Maintain records of all certification of surface preparation and mil thickness.

3.07 CLEANUP AND PROTECTION

A. Cleanup:

1. During the progress of the Work, remove from the project all discarded paint materials, rubbish, cans, and rags resulting from the work.

2. Upon completion of Work, clean all spattered surfaces. Remove spattered materials by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces. Remove all coating spots from floors, glass and other surfaces. Remove from the premises all rubbish and accumulated materials of whatever nature and leave the work in clean, orderly and acceptable condition.

3. Upon completion of the Work, clean and remove all dust, abrasive material, or other residuals from surface preparation and coating operations from all surfaces in the facility.

4. Following coating completion in each space or area, reinstall the removed items, using workers skilled in the trades involved.

B. Protection:

1. Protect work of other trades, whether to be coated or not, against damage by the work. Correct damage by cleaning, repairing or replacing, and repainting, as directed by Engineer. Leave all work in undamaged condition.

2. Provide “Wet Paint” signs as required to protect finishes. After coating application, remove temporary protective wrappings provided by Contractor and by others for protection of the work during coating operation.

a. Take precautions to ensure that workers and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paint and special coatings.

END OF SECTION 09 97 00

Division 10

Specialties

SECTION 10 14 50

SIGNAGE

PART 1: GENERAL

1.01 SUMMARY

A. Exterior-Mounted Signage:

1. Building identification.

B. Interior Signage:

1. Equipment and Piping identification.

1.02 RELATED SECTIONS

A. Section 04 10 00 Natural Stone Masonry

B. Section 07 48 00 Rainscreen Cladding System.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. International Code Council (ICC)/American National Standards Institute (ANSI)

a. ICC/ANSI A117.1 - Standard on Accessible and Usable Buildings and Facilities.

1.04 SUBMITTALS

A. Shop Drawings including:

1. Listing of sign types, lighting, lettering and locations, to be attached along with overall dimension of each sign.

B. Samples including:

1. One full size sample sign, of each type, style and color specified, proposed lettering style showing spacing, and including method of attachment.

PART 2: PRODUCTS

2.01 GENERAL

A. Meet the requirements of ICC/ANSI A117.1, U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines where located at pedestrian level.

2.02 EXTERIOR SIGNAGE

A. Acceptable Manufacturers:

1. Serigraphics, Inc.

2. Scenic Signs Company.

B. SIGN S-1: Exterior Building Identification

1. Description: Individual Cast Aluminum Letters

a. Depth: 3/4”

b. Height: See Text Section below.

2. Anchorage: Post mount on stand-offs.
3. Finish: Baked enamel finish.
4. Typeface: Helvetica Medium.
5. Text:
   a. Wellhouse 8:
      1) Line 1: **CITY OF NEW BRIGHTON**, 6” high letters.
      2) Line 2: **WELLHOUSE NO. 8**, 10” high letters.
      3) Location: See Drawings.
   b. Wellhouse 9:
      1) Line 1: **CITY OF NEW BRIGHTON**, 6” high letters.
      2) Line 2: **WELLHOUSE NO. 9**, 10” high letters.
      3) Location: See Drawings.
   c. Wellhouse 16:
      1) Line 1: **CITY OF NEW BRIGHTON**, 6” high letters.
      2) Line 2: **WELLHOUSE NO. 16**, 10” high letters.
      3) Location: See Drawings.

C. SIGN S-2: Address Identification

1. Description: Individual Cast Aluminum Letters
   a. Size: 3/4” Thick x 4” High, Cast aluminum.
2. Anchorage: Post mount on stand-offs.
3. Finish: Baked enamel finish.
4. Typeface: Helvetica Medium.
5. Text:
   a. Wellhouse 8: **609**
   b. Wellhouse 9: **2507**
   c. Wellhouse 16: **XXXX**

PART 3: EXECUTION

3.01 EXAMINATION

A. Verify locations are ready to receive work.

3.02 INSTALLATION

A. Install signs after surfaces are painted and finished, in locations indicated.

B. Install centered and level, in line, and in accordance with manufacturer’s instructions.

C. Install building mounted letters using non-spalling, non-chipping anchoring devices.

D. Mount signs plumb, square, level and true to line, adhering with foam tape and securing with screws to wall surfaces adjacent to room/door openings as indicated.

E. See Drawings for location of exterior signage and room identification signs.

F. Field verify final locations of signage with Engineer/Architect.

3.03 CLEAN AND POLISH

A. Clean surfaces promptly after installation of components, exercising care to avoid damage of the protective coating, if any. Remove dirt and other substances, Verify locations are ready to receive work.

END OF SECTION 10 14 50

SECTION 10 44 00

FIRE PROTECTION SPECIALTIES

PART 1: GENERAL

1.01 SUMMARY

A. Section Includes:

1. Provide fire extinguishers in fire extinguisher cabinets.
2. Apply silk-screened letters to face of door which indicate "FIRE EXTINGUISHER".

1.02 SUBMITTALS

A. General Requirements: Provide submittals in accordance with Section 01 33 00.

B. Product Data: Submit manufacturer's technical data and installation instructions for portable fire extinguishers required.

C. Shop Drawings:

1. Indicate cabinet type, trim style, and materials; and door construction, style, and materials, including hardware.
2. Furnish information on extinguisher chemical composition(s) suitable to the project application.

D. Samples: Provide color charts showing from full range of manufacturer's custom colors and designs available.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Fire protection specialties shall meet regulations of State Fire Marshal and be listed with Underwriters Laboratories Inc. (UL).
2. Installed fire protection specialties shall meet requirements of ADA. Notify Architect, before starting installation, if there are conditions which will not meet ADA requirements.

PART 2: PRODUCTS

2.01 HEAVY DUTY DETENTION QUALITY FIRE EXTINGUISHER CABINET

A. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or approved equal:

1. J. L. Industries, Model Security Series
2. Larson's Manufacturing Company, Model DEC2409-R
3. Nystrom Building Products, Model DC-1704
4. Potter-Roemer, Division of Smith Industries, Inc., Model DC-1704

B. Fabrication of Cabinet:

1. Tub:
   a. Size: 10 inches wide by 24 inches high by 8 inches deep.
   b. Material: Not less than 14 gauge steel.

c. Finish: Manufacturer’s standard paint finish.

2. Door:

a. Material: Not less than 12 gauge steel.

b. Finish: White paint finish.

c. Lettering: Red paint finish which indicates “FIRE EXTINGUISHER”.

d. Hinge: Heavy-duty continuous hinge.

e. Locking: No locking required; provide friction catch.

f. Pull: Recessed flush cup pull.

3. Trim:

a. Material: Not less than 14 gauge steel.

b. Trim Style: Recessed box with flush trim.

c. Finish: White paint finish.

4. Color: To be selected by Engineer/Architect from full range of manufacturer’s custom colors.

5. Door Lettering: Apply silk-screened red letters to face of door which indicate "FIRE EXTINGUISHER".

2.02 FIRE EXTINGUISHERS

A. Multi-Purpose Dry Chemical (ABC) Fire Extinguisher: Specially fluidized and siliconed mono ammonium phosphate powder in a red-coated cylinder having a chrome valve and pressure-indicating gauge.

1. Acceptable Manufacturers: Subject to compliance with requirements of the Contract Documents, acceptable manufacturers are as follows or approved equal:

a. Amerex Corporation

b. J. L. Industries, Cosmic Series

c. Kidde Fire Extinguisher Company

d. Larsen's Manufacturing Company, MP Series

e. Nystrom Building Products, Model EX-3000 Series

f. Potter-Roemer, Division of Smith Industries, Inc., Model 3000 Series

g. Profile International, Inc.

2. Nominal Capacity and Underwriters Laboratories Inc. (UL) Rating: Provide 10-pound extinguishers type 4A-60B:C

3. Nominal Capacity and Underwriters Laboratories Inc. (UL) Rating: Provide UL rating as applicable for the nominal capacities indicated on Drawings for extinguishers being provided under this Contract as follows:

a. 10-Pound Extinguisher: 4A-60B:C

4. Confirm chemical composition(s) are suitable to the project conditions and application.

PART 3: EXECUTION

3.01 CHARGING EXTINGUISHERS

A. General Requirements:

1. Provide extinguishers fully charged and ready for use.
2. Provide each extinguisher with an attached tag indicating charging date and current 12-month inspection time period date.

3.02 INSTALLATION

A. Installation of Cabinets:

1. Install cabinets in accordance with manufacturer's recommendations.
2. Install cabinets at indicated height(s) except consult with Architect if indicated height will make top of extinguisher in cabinet more than 4'-6" above floor.
   a. Install cabinets at heights above floor as indicated on Drawings.
   b. Surface Mounted Fire Extinguisher Cabinets: Install top of cabinet 4'-8" above floor.

B. Installation of Fire Extinguishers:

1. Fire Extinguishers in Cabinets: Place fire extinguishers within installed cabinets.
2. Surface Mounted Fire Extinguishers: Install Underwriters Laboratories Inc. approved bracket, provided with fire extinguisher. Bracket shall hold fire extinguisher at top and bottom. Secure bracket to wall using fasteners appropriate for wall construction conditions. Install bracket to locate top of fire extinguisher not more than 4'-6" above floor.

END OF SECTION 10 44 00

Division 22

Plumbing

SECTION 22 00 00

MECHANICAL PROVISIONS

PART 1: GENERAL

1.01 SUMMARY

A. The conditions of the Construction Contract and Division 1—General Requirements apply to the Work specified in this section.

B. Work under Division 22 and 23—Mechanical Work shall include furnishing and installing all materials resulting, upon completion, in functioning systems in compliance with performance requirements specified, and any modifications resulting from reviewed Shop Drawings and the field- coordinated drawings.

C. In general, the Work includes, but is not limited to, the systems as described in the following sections:

1. 22 00 00 Mechanical Provisions
2. 23 81 00 Split System Heat Pump

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. The conditions of the Contract between Owner and Contractor, and Division 1, General Requirements, shall apply to all portions of Division 22 and 23.

1.03 SCHEDULING OF WORK AND TIME OF COMPLETION

A. TIME IS AN ESSENTIAL CONDITION OF THIS CONTRACT. Contractor shall organize his Work in such a way as to be able to enter upon the site at the scheduled date for the start of the Work and shall perform the Work diligently and expeditiously to complete the various phases within the allotted time.

1.04 EXAMINATION OF SITE OF WORK

A. It will be required and expected that each Contractor, before submitting a proposal for Work required under this specification, visit the site, make a thorough examination of conditions, and become familiar with all existing conditions and all the limitations pertaining to the Work herein contemplated, including work incidental to the proper completion of the Work required on the Contract.

B. Do not allow additional compensation or time because of Contractor’s misunderstanding as to the amount of Work involved or a lack of knowledge of any of the conditions pertaining to the Work based on a neglect or failure to visit or make an examination of the sites.

C. It is also expected that if any of this specification is not clear or in the event there are any discrepancies, these will be brought to the attention of Engineer, and a decision in writing will be rendered as soon as possible.

1.05 DRAWINGS USE AND INTERPRETATION

A. The drawings are diagrammatic and indicate the general arrangement of systems and equipment, unless indicated otherwise by dimensions or Detail Drawings. For exact locations of building elements, refer to field measurements. The installation of all systems and equipment is subject to clarification as indicated in reviewed Shop Drawings and field-coordinated drawing requirements specified herein.

B. Piping and ductwork plans are intended to show size, capacity, approximate location, direction, and general relationship of one work phase to another, but not the exact detail or arrangement.

C. Generally, layout pipelines requiring drainage first followed by large pipe mains, ductwork, and electrical conduit. Follow this procedure for an orderly installation but not to establish precedence of one trade over another.

D. Equipment outlines shown on Detail Drawings or dimensions indicated anywhere on the drawings are limiting dimensions. Equipment exceeding approximate dimensions indicated by equipment outlines on Detail Drawings and any equipment or arrangements that reduce indicated clearances or exceed specific equipment dimensions may not be used.

E. This Contractor shall notify all other Contractors of any deviations or special conditions necessary for the Work's installation. Owner reserves the right to make minor modifications to the Work at no additional cost to Owner.

1.06 WARRANTY

A. Contractor warrants to Owner and Engineer that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications, not executed by Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by Engineer, Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

B. Contractor shall be responsible for correcting defective work for a period of 1 year from the date of final acceptance by Owner.

1.07 PERMITS, FEES, AND NOTICES

A. Unless otherwise provided in the Contract Documents, Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or negotiations concluded.

B. Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.

1.08 SUBMITTALS

A. Contractor shall submit copies of Shop Drawings, test reports, operating and maintenance instruction (manuals and data), and maintenance materials to Owner and Engineer for acceptance as required by the individual Division 23 Sections.

1.09 EXISTING CONDITIONS

A. Active Services. Protect, brace, and support existing active sewers, gas, electric, or other services where encountered during execution of Work. If existing active services are encountered that require relocation, make request in writing for determination. Do not proceed with Work until written directions are received.

B. Interruption of Services. Where Work makes temporary shutdown of services unavoidable, shutdown at night or at such times as approved by Owner, which will cause least interference with established operating routine. Arrange to Work continuously, including overtime, if required to assure that services will be shut down only during time actually required to make necessary connections to existing Work.

1.10 SHIPMENT OF MATERIALS

A. Before making any shipment of materials to the Project site, Contractor shall ascertain whether the Project site is available to receive the shipment. Where this provision is neglected, and material is delivered to the Project site when the latter is not available to receive it, such materials shall be removed and properly stored elsewhere at the expense of Contractor and adequate insurance coverage provided for all offsite storage.

1.11 PROTECTION

A. Contractor shall provide covering and shielding for all equipment provided under Division 23, stored and set in place on the job to protect from mortar, paint, and debris during construction. A polyethylene covering tied securely around the equipment will be acceptable for this purpose.

B. Use an equipment storage location that has been designated by Owner.

C. Any material or equipment damaged as a result of inadequate handling or protection may be ordered taken out and replaced to the satisfaction of Owner.

1.12 USE OF THE SITE DURING CONSTRUCTION

A. Do not block means of ingress or egress in building or site for any reason or hamper the normal traffic of the area in any way unless permission is first obtained from Owner.

B. Contractor's materials, tools, supplies, or debris shall not be stored or allowed to accumulate in a manner disruptive to the use of the site as in a manner that jeopardizes the safety of the site and those occupants. Owner assumes no liability or responsibility whatsoever or any damage, destruction, theft, or other acts which may occur to Contractor's material or equipment as a result of his negligence.

C. Remove debris from the site on a daily basis and dispose of properly.

1.13 CODES AND STANDARDS

A. The entire installation shall meet or exceed the requirements of the current edition of the Minnesota State Building Code, Minnesota Mechanical Code, Minnesota Fire Code, Minnesota Energy Conservation Code, Minnesota Plumbing Code, and all national, state, and local codes and regulations having jurisdiction and as applicable including:

1. American National Standards Institute (ANSI)
2. American Society for Testing and Materials (ASTM)
3. Underwriters Laboratories (UL)
4. National Fire Protection Association (NFPA)
5. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE)
6. Air Movement and Control Association (AMCA)
7. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)
8. National Electric Code (NEC)
9. American Welding Society, Inc. (AWS)
10. American Society of Mechanical Engineers (ASME)
11. American Standards Association (ASA)
12. Thermal Insulation Manufacturer's Association (TIMA)
13. Occupational Safety and Health Administration (OSHA)

14. American Gas Association (AGA)

15. National Electrical Manufacturers Association (NEMA)

1.14 MATERIALS AND EQUIPMENT

A. Equipment and materials shall be new without blemish or defect. Equipment shall bear labels to indicate type, ratings, and manufacturer.

B. Reference to specific manufacturers within this specification is to describe the quality of materials, equipment, and results desired and not to limit competition. Contractor may substitute products of manufacturers other than those listed in the specification if Owner in writing approves such substitution. Substitution by Contractor without such approval shall be at the risk of subsequent rejection, and Contractor may be required to replace items installed without approval, at his expense.

1.15 RECORD DRAWINGS

A. Contractor shall keep a complete set of all Mechanical Drawings in the jobsite office for showing record installation of mechanical systems and equipment. Use this set of drawings for no other purpose.

B. Where any material, equipment, or system components are installed different from that shown, show such differences clearly and neatly using ink or indelible pencil. At Project completion, submit the record set of drawings to Owner.

1.16 DEMOLITION

A. Demolition work includes, but is not limited to, the demolition of mechanical equipment, piping, ductwork, and accessories as indicated on the Design Drawings.

B. Contractor shall comply with all requirements of regulatory agencies such as the Building Code, OSHA, etc.

C. Notify Owner at least 1 week prior to any demolition work.

D. Protection

1. Repair any damage to areas not scheduled for work to original condition at no expense to Owner.

2. Care must be taken to keep the building site clear of debris.

3. Set up barriers, as required to protect the building employees and occupants.

4. Care must be taken when working inside of the buildings to minimize dust and worker traffic.

E. Salvageable Items

1. Existing equipment removed are the property of Owner and shall be stored onsite in a location acceptable to Owner.

2. Other salvage is the property and responsibility of Contractor to remove from the site and dispose of properly.

F. Unsalvageable Items

1. Unsalvageable items shall mean materials, components, or equipment which have no application to this Project or are of no value to Owner.

2. A representative list of such items include:

a. Miscellaneous piping, ductwork, and accessories

b. Miscellaneous building rubble

3. Remove unsalvageable items from the site and dispose of legally away from the site.

G. Asbestos Insulation

1. If asbestos insulating materials are encountered and need to be removed during the course of this Contractor's work, Contractor shall immediately notify Owner.

2. Asbestos insulation will be removed by Owner.

3. Contractor shall coordinate his Work with Owner's asbestos removal work.

1.17 CLEANING AND PAINTING

A. Clear away debris, surplus materials, etc., resulting formwork or operations, leaving the job and equipment in a clean first-class condition. Where new work occurs in existing areas, clean and restore to original condition.

B. Thoroughly clean air surfaces of coils, fans (including fan wheels and motors), air handler plenums, and air filter frames. Clean or replace all air filter media as required.

C. Clean equipment surfaces such as motors, etc.

D. Refinish and restore to the original conditions and appearance, mechanical equipment which has sustained damage to the manufacturer's prime and finish coats of paint. Materials and workmanship to be equal to the original finish.

E. Paint mechanical work in accordance with Protective Coating System Specifications.

1.18 ACCESSIBILITY OF EQUIPMENT

A. Contractor shall locate apparatus motors, valves, and traps requiring adjustment, packing, cleaning, or similar attention in a position whereby they will be accessible. Turn oil cups on motors and/or equipment for proper oiling. Grease fittings and any other lubrication devices, if not readily accessible, are to be brought out to a point requested by Engineer. Oil and grease motors before final acceptance.

B. Provide permanent data nameplate on each item of power-operated mechanical equipment located in an accessible position, indicating manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data.

C. Contractor shall provide access doors and coordinate locations and sizes with the General Contractor.

D. Contractor shall provide equipment pads and shall coordinate related information with the General Contractor.

1.19 BRACKETS, BRACES, AND SUPPORTS

A. Contractor shall furnish and install brackets, braces or reinforcing angles as may be required to support piping and equipment included in this Contract.

B. Use toggle or through bolts of proper design and number, securing this work to structure.

1.20 MOTORS AND CONTROLS

A. Manufacturers of equipment shall be responsible for furnishing motors having proper horsepower, torques, speed characteristics, and enclosures for the duty for which they are required. Locate motors in such a manner that the nameplates can be read without removing piping, appurtenances, guards, or enclosures other than an inspection plate without removing or rotating motor.

B. Contractor shall furnish motors and controls as specified herein or listed on the drawings. Controls of a similar type for motors shall be of the same manufacturer, except where a

specialty control is required; the controls may be of other manufacturer. Unless apparatus requires momentary contacts, starters shall have maintained contact type start-stop stations and three overload trips for 3-phase motors. Flush or surface-mount magnetic starters as required. Pilot lights shall be of the neon lamp type.

1.21 ELECTRICAL CONNECTIONS

A. Wiring to be done by Contractor shall be accomplished in accordance with the National Electric Code and Division 26—Electrical.

B. Contractor shall be responsible for proper operation of all systems prior to final approval.

PART 2: PRODUCTS [NOT USED]

PART 3: EXECUTION [NOT USED]

END OF SECTION 20 00 00

Division 23

Heating, Ventilating, and Air Conditioning (HVAC)

SECTION 23 33 15

LOUVER AND DAMPERS

PART 1: GENERAL

1.01 SUMMARY

A. The conditions of the Construction Contract and Division 1—General Requirements apply to the Work specified in this section.

B. The Work covered by this section includes furnishing labor, equipment, materials, and accessories, and performing all operations necessary for the installation of all sheet metal ductwork and accessories.

1.02 SUBMITTALS

A. Contractor shall submit Shop Drawings of the following products in accordance with the General Requirements, Section 01 33 00.

1. Motorized Combination Louver Dampers

PART 2: PRODUCTS

2.01 INTAKE LOUVERS (L-1)

A. Provide stationary blade intake louvers as shown in the design drawings and meeting the following requirements.

1. Louvers shall be tested and rated in accordance with AMCA Standard 500.
2. Louvers shall be factory-assembled roll formed steel.
3. Louvers shall have 4” deep weatherproof 18 gage J-style blades positioned at 45 deg.
4. Louver shall include bird screen attached to inside surface.
5. Finish coat louver with baked acrylic enamel following thorough cleaning and pre-treatment of the metal. Color to be selected by owner.
6. Louvers shall be Ruskin, L811 Stationary Louver, or Greenheck Model FSJ-402, or approved equal.

2.02 MOTORIZED INSULATED CONTROL DAMPERS (MCD-1)

A. Provide motorized insulated control dampers including frames, blades, blade axle, bearings, and accessories as described below and shown in the drawings.

B. Provide motorized insulated control dampers meeting the following performance requirements.

1. Performance ratings shall have been established by tests meeting the requirements in ASNI/AMCA Standard 500-D and 500-L.
2. Dampers shall be low leakage.
3. Dampers shall be sized for the flowrates specified on the design drawings.

C. Provide motorized insulated control dampers with the following accessories.

1. Blade and jamb seals constructed of flexible metal.
2. Blade stops at the top and bottom of the frame.
3. 120V, 2-position, fail closed actuators.

a. Actuators shall meet the requirements specified in UL 325 and the NEC.

D. Provide motorized insulated control dampers meeting the following construction requirements.

1. Motorized insulated control dampers shall be factory assembled and finished to the fullest extent permissible by shipping.
2. Blades shall be thermally insulated and of extruded aluminum airfoil construction.
3. Frame shall be 1/8" aluminum and thermally broken to minimize heat transfer and condensation.
4. Blades shall be opposed action type.

E. Motorized insulated control dampers shall be Greenheck ICD-45 or approved equal.

PART 3: EXECUTION

3.01 INSTALLATION

A. Erect and install items in strict accordance with the drawings, specification, manufacturer's recommendations and referenced standards. Make all Work square, plumb, straight, and true. Joints and intersections of metal shall be tight-fitting.

B. Drill holes required for the attachment of Work and for bolted connections. Punching or burning holes in the ductwork will not be allowed.

C. Close duct openings as soon as installed, until registers or grilles are set to prevent entrance of dirt and debris.

D. Seal flanged joints with red rubber or silicone rubber sealer.

E. Vibration Isolation

1. Support related fans and air-handling equipment on vibration isolator supports or hangers.
2. Provide flexible duct connections at equipment inlets and outlets to reduce transmission of fan vibration and noise to ductwork.
3. Fabricate smooth transitions and branch take offs to minimize air turbulence and resulting noise generation.
4. Install turning vanes in square duct elbows.
5. Use equalizing grid on room diffusers connected directly to the supply duct to equalize neck velocity and reduce sound power level.

F. Low pressure ductwork must be sealed in accordance with Seal Class C as defined by the SMACNA low-pressure duct construction standards.

G. Engineer reserves the right to slightly change the run of certain ducts without extra cost to Owner, if necessary, to avoid unforeseen interference.

3.02 CLEANING

A. Before final acceptance of the duct systems, thoroughly clean them of dust and debris.

B. Open devices and enclosures and thoroughly clean.

C. Protect ductwork at all times to prevent dust or dirt from accumulating.

3.03 TESTING, ADJUSTING, AND BALANCING (TAB)

A. Contractor shall provide manually operated volume dampers in each branch takeoff after leaving main duct.

B. Contractor shall furnish labor, materials, and equipment necessary for testing, adjusting, and balancing of duct systems including, but not limited to, the following:

1. Examine each air distribution system to see that it is free from obstructions. Determine that dampers, registers, and valves are in a set or fully open position, that moving equipment is lubricated and that the required filters are clean and functioning. Perform any adjustments necessary for proper functioning of the system.
2. Verify that equipment performs as specified. Adjust variable type drives, volume dampers, control dampers, balancing valves, and control valves as required by the TAB work.
3. Adjust each register, diffuser, and terminal unit to handle and properly distribute the design airflow within plus or minus 10 percent of the specified quantities.
4. Document the results of testing on standard report forms and submit 2 copies to Engineer prior to final approval.

END OF SECTION 23 33 15

23 34 00

HVAC FANS

PART 1: GENERAL

1.01 SUMMARY

A. The conditions of the Construction Contract and Division 1—General Requirements apply to the Work specified in this section.

B. The Work covered in this section includes furnishing and installing axial fans, centrifugal fans, and power ventilators as shown on the drawings and as specified herein.

1.02 SUBMITTALS

A. Contractor shall submit Shop Drawings of all fans and accessories in accordance with General Requirements.

1.03 CODES AND STANDARDS

A. Fans shall meet or exceed the minimum requirements of all national, state, and local codes and regulations as applicable including:

1. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc. (ASHRAE)
2. Air Movement and Control Association (AMCA)
3. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

1.04 DUTY

A. Fans and accessories shall be heavy-duty industrial type capable of continuous operation in an industrial environment containing chemical fumes at the conditions specified.

PART 2: PRODUCTS

2.01 POWER WALL VENTILATOR (EF-1)

A. Power wall ventilator shall be of the centrifugal belt drive, horizontal discharge type, and shall be 100 percent weatherproof. Housing shall consist of heavy-gage aluminum construction.

B. The fan wheel shall be all aluminum, centrifugal blower-type with backward inclined blades and a tapered inlet shroud. Statically and dynamically balance wheels.

C. Enclose motor and drives in a weathertight compartment, separate from the exhaust airstream. Motors shall be of the heavy-duty, permanently lubricated, sealed ball-bearing type.

D. Fan shaft shall be of steel construction. Bearings shall be flanged and of the permanently lubricated, permanently sealed, ball-bearing type.

E. The entire drive assembly and wheel shall be removable, as a complete unit, from the support structure without disassembling the external fan housing. Mount the complete drive assembly on rubber vibration isolators.

F. License fan to bear the AMCA ratings seal for air and sound performance. Show fan size and capacity as on the Design Drawings.

G. Accessories shall include an automatic gravity damper.

H. Power wall ventilator shall be Greenheck Model CUBE or approved equal from Penn, Aerovent, Twin City Fan, or Loren Cook.

PART 3: EXECUTION

3.01 ASSEMBLY

A. Contractor shall be responsible for items required to provide the exhaust fan as specified herein and as shown on the drawings and no defective products will be allowed for installation.

3.02 INSTALLATION

A. Contractor shall assemble fans in accordance with manufacturer's instructions, including all accessories, motor, drive, and guard.

B. Contractor shall install all systems and accessories as per manufacturer's recommendations and as shown on the drawings.

3.03 ELECTRICAL CONNECTIONS

A. Mechanical Contractor shall furnish and install all ventilation equipment including motors, thermostats, temperature controls, etc. required for the Work.

B. Electrical Contractor shall furnish and install power wiring to equipment as shown on the Design Drawings unless specified otherwise. This Work by Owner.

C. Mechanical Contractor shall be responsible for proper operation of system prior to final approval.

3.04 TESTING AND ACCEPTANCE

A. Contractor shall be onsite to assist Owner during fan startup.

B. Balance system to provide the correct air quantity and to demonstrate the correct system performance.

C. When Work has been completed to the satisfaction of Owner and tests have been successfully met, the Work will be accepted by Owner subject to the guarantees in force after acceptance.

END OF SECTION 23 34 00

SECTION 23 81 00

SPLIT SYSTEM HEAT PUMP

PART 1: GENERAL

1.01 SUMMARY

A. The conditions of the Construction Contract and Division 1—General Requirements apply to the Work specified in this section.

B. Work required under this section includes furnishing and installation of all products necessary for the installation of split system heat pump units as specified herein and as shown on the drawings. Split systems shall consist of a wall mounted indoor fan coil section with wired remote controller, and a horizontal fan discharge outdoor heat pump unit.

C.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. 22 00 00 Mechanical Provisions

1.03 SUBMITTALS

A. Contractor shall submit manufacturer's Shop Drawings and operating and maintenance instructions for all products in accordance with the General Requirements, Section 01 33 00.

1. Submit unit performance data, including capacity, nominal, and operating performance.
2. Submit Mechanical Specifications for unit and accessories describing construction, components, and options.
3. Submit Shop Drawings, indicating overall dimensions as well as installation, operation, and service clearances. Indicate lift points and recommendations and center of gravity. Indicate unit shipping, installation, and operating weights, including dimensions.
4. Submit data on electrical requirements and connection points. Include recommended wire and fuse sizes or MCA, sequence of operation, safety, and start-up instructions.

1.04 PERFORMANCE

A. System efficiency shall meet or exceed 21 SEER.

PART 2: PRODUCTS

2.01 DUCTLESS SYSTEM INDOOR UNIT (MS-1A, MS-2A)

A. General

1. Unit shall function as the indoor component of an air-to-air electric heat pump system.
2. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, control circuit board, fan and fan motor. The unit shall have a self-diagnostic function, 3-minute time delay mechanism, and an auto restart function after power interruption. Indoor unit shall be purged with dry air before shipment from factory.
3. Unit must be designed with a R-410A refrigerant circuit with a matching air-cooled condensing unit, for matched systems approved by the manufacturer.
4. Fan shall be statically and dynamically balanced. Fan motor bearings shall be permanently lubricated.

5. Unit shall include washable return air filter.
6. Coil shall be brazed copper tubing coil with plate fins. A sloped corrosion condensate pan shall be included under the coil.
7. The system shall be capable of starting and operating cooling down to -16°F (-27°C) up to 122°F (50°C) ambient outdoor temperature with integral low ambient control.
8. The system shall be capable of heating with ambient outdoor temperatures from -22°F (-30°C) up to 86°F (30°C)
9. Unit shall be constructed in accordance with UL standards and shall carry the UL label.
10. Unit insulation and adhesive shall comply with NFPA-90A requirements for flame spread and smoke generation. Insulation shall be treated with an immobilized antimicrobial agent to inhibit the growth of bacteria and fungi on the insulation as proven by tests in accordance with ASTM standards.
11. Unit shall be manufactured in a facility registered to the ISO 9001 manufacturing quality standard.
12. Direct-expansion coils shall be leak tested at150 psig and pressure tested at 650 psig and qualified to UL burst test at 1980 psig.
13. Unit shall be shipped with a dry air holding charge.
14. Unit shall be provided with a separate wall-mounting plate.

2.02 DUCTLESS SYSTEM OUTDOOR HEAT PUMP UNIT (MS-1B, MS-2B)

A. General

1. Outdoor-mounted, electrically controlled, air-cooled split system heat pump suitable for wall installation. Unit shall consist of a scroll air-conditioning compressor assembly, an air-cooled coil, propeller-type condenser fans, and a control box. Unit shall function as the outdoor component of an air-to-air electric heat pump system.
2. Enclosure shall be designed for outdoor installation and have a thermally fused powder coated finish.
3. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, R-410A holding charge, and any special features required prior to field start-up.
4. Unit shall use R-410A refrigerant circuit to match packaged heat pump air handling unit.
5. Unit shall be constructed in accordance with UL standards and shall carry the UL label.
6. Air-cooled outdoor coils shall be leak tested at 150 psig and pressure tested at 650 psig and qualified to UL burst test at 1980 psig.
7. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
8. Unit shall include a base pan heater.

B. Fans

1. Fan shall be horizontal propeller type driven by a direct-drive DC motor with permanently lubricated bearings. Fan shall be provided with protective guarding.
2. Fan blades shall be statically and dynamically balanced.
3. Condenser fan discharge openings shall be equipped with PVC coated steel wire safety guards.
4. Condenser fan and motor shaft shall be corrosion resistant.

C. Compressor

1. Compressor shall be of the inverter driven, variable speed, dual rotary type hermetic scroll type.
2. The compressor motor shall be direct current (DC) type equipped with a factory supplied and installed inverter drive package.
3. Compressor shall be mounted on vibration isolators.
4. Compressor shall include overload protection, crankcase heater, and internal high discharge temperature protection.

D. Coils

1. Coil shall be constructed of aluminum fins mechanically bonded to internally grooved seamless copper tubes which are then cleaned, dehydrated, and sealed.
2. The coil shall be protected with an integral metal guard.
3. Refrigerant flow from the outdoor unit shall be regulated by means of an electronically controlled, precision, linear expansion valve.

E. Refrigeration Components

1. Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, holding charge of refrigerant, and loose shipped refrigerant filter drier (one per circuit).
2. Precision-sized suction line accumulator on each refrigerant circuit shall protect from oil being removed from the scroll compressor rotating orbiter and plate during the activation of the defrost mode and switching back and forth from cooling and heating operations.

F. Electrical

1. Unit shall include a factory installed, unit mounted disconnect switch, power convenience outlet with weatherproof cover.

2.03 THERMOSTAT CONTROLS

1. Wall mounted remote controller shall be capable of 7-day scheduling and include ON/OFF, operation mode, temperature setting, fan speed setting, airflow direction, error display, and auto lockout.

2.04 REFRIGERANT PIPING

A. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated in twin-tube, flexible, closed-cell, CFC-free (ozone depletion potential of zero), elastomeric material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU-inch/hour per Sq Ft / °F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insulation will not contribute significantly to fire and up to 1” thick insulation shall have a Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102. All refrigerant connections between outdoor and indoor units shall be flare type using flare connectors for R410 refrigerant.

B. Install in accordance with manufacturer’s recommendations.

PART 3: EXECUTION

3.01 Contractor shall be responsible for items required to provide indoor and outdoor heat pump units as specified herein and as shown on the drawings and no defective products will be allowed for installation.

3.02 INSTALLATION

A. Contractor shall install all systems and accessories as per manufacturer's recommendations and as shown on the drawings.

B. Joining together of individual pieces shall be done in a neat and easily serviceable manner.

C. Provide connection to refrigeration piping system and evaporators.

D. Install indoor and outdoor units on wall brackets provided by Mechanical Contractor.

3.03 ELECTRICAL CONNECTIONS

A. Mechanical Contractor shall furnish and install all refrigerant and condensing units required for his work.

B. Electrical Contractor shall furnish and install power wiring to equipment as shown on the Design Drawings, unless specified otherwise.

C. Mechanical Contractor shall be responsible for proper operation of system prior to final approval.

END OF SECTION 23 81 00

23 82 39

ELECTRICAL UNIT HEATERS

PART 1: GENERAL

1.01 SUMMARY

A. The conditions of the Construction Contract and Division 1—General Requirements apply to the Work specified in this section.

B. Work required under this section includes furnishing and installation of all products necessary for the installation of electric unit heaters as specified herein and as shown on the drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 26 Electrical

1.03 SUBMITTALS

A. Contractor shall submit manufacturer's Shop Drawings, operating, and maintenance instructions, and parts list for all electric unit heaters and accessories in accordance with the General Requirements.

1.04 CODES AND STANDARDS

A. The installation shall meet or exceed the minimum requirements of all national, state, or local codes and regulations as applicable including:

1. American National Standards Institute (ANSI)
2. National Electric Code (NEC)
3. National Fire Protection Association (NFPA)
4. Underwriter Laboratories, Inc. (UL)

PART 2: PRODUCTS

2.01 ELECTRIC UNIT HEATER (EUH-1)

A. Furnish and install electric unit heaters with capacities and located as shown on the design drawings.

B. EUH cabinet shall be made of minimum 22 gauge steel, welded, and phosphate coated.

C. Side, front, and back panels shall be removable permitting full access to the elements and fan motor areas.

D. Individual adjustable discharge louvers.

E. All heater and control wiring shall terminate inside the control compartment.

F. The heater shall be provided with wall bracket.

G. The cabinet shall be finished in a neutral grey polyester powder paint.

H. The heating elements shall be 80/20 nickel-chromium resistance wire, embedded in magnesium oxide and enclosed in a metal sheath to which metal plated fins are copper brazed. The elements shall be painted with aluminized paint.

I. The heating elements shall be warranted for five years.

J. The fan motor shall be totally enclosed, permanently lubricated, impedance protected, and of unit bearing design.

K. The fan blade shall be aluminum and directly connected to the fan motor.

L. The fan control shall be of the bimetallic snap-action type and shall activate fan motor after heating elements reach operating temperature and continue to operate the fan motor after thermostat is satisfied and until the heating elements cool.

M. A thermal cutout shall be included to automatically shut off the heater in the event of overheating and reactivate when temperature returns to normal.

N. The heater shall be provided with a factory installed, heavy duty, 3-pole contactor.

O. Heaters shall be IUH Series as manufactured by QMark, or approved equivalent from Trane, Modine, Dayton, or Reznor.

PART 3: EXECUTION

3.01 INSPECTION

A. Contractor shall be responsible for all materials required to provide the products as specified and no damaged products will be allowed for installation.

B. Contractor shall inspect each unit heater for defects which would prevent a safe and approved installation and notify Owner of any unsafe conditions.

3.02 INSTALLATION

A. Mount heaters as shown on the drawings and in accordance with manufacturer's instructions.

B. Install suspended unit heaters no less than 7 feet above the floor.

3.03 TEST

A. Check out the safety controls and verify that they are functioning properly.

B. Set the operating controls for the proper temperature.

END OF SECTION 23 82 39

Division 26

Electrical

SECTION 26 00 00

ELECTRICAL GENERAL PROVISIONS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes general provisions relating to the electrical Work.

B. The Work included in the Project shall include providing all required labor and materials for a complete and operable electrical system as indicated on the accompanying Drawings and as required by the Project Manual inclusive of all appurtenances not specifically shown or covered by the specifications but required for complete operation of the electrical system as defined in the documents. The Work shall also include the testing, adjustment, start-up and troubleshooting of the electrical equipment and the training of Owner's operating personnel in its operation and maintenance.

C. It shall be the responsibility of Contractor to provide a complete and fully operating system. Contractor shall be responsible for all details that may be necessary to properly install, adjust and place in operation the complete installation. Contractor shall assume full responsibility for additional costs that may result from unauthorized deviations from the contract documents.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA)

a. NFPA 70: National Electrical Code (NEC) 2023.

1.03 VERIFICATION OF DRAWINGS

A. The Drawings indicate the required size of conduit and cable for wiring. The locations of equipment shall be verified in the field by Contractor. In the event it should become necessary to change the location of any work due to interference with other work, consult with Engineer before making any changes. Contractor shall determine and be responsible for the proper location and character of all anchor bolts, inserts, hangers, sleeves, etc. for the electrical equipment, unless specifically detailed otherwise.

1.04 ALTERNATES, SUBSTITUTIONS

A. See General and Supplemental Conditions and Division 01.

1.05 NAMEPLATES

A. Each piece of equipment shall have a standard nameplate securely affixed in a conspicuous place, showing the manufacturer, model number and serial number as is applicable. The nameplate of the distributing agent only will not be acceptable.

1.06 QUALITY

A. All work shall be installed by skilled mechanics in a neat and workmanlike manner and shall be approved by Engineer before final acceptance by Owner.

B. If equipment is furnished having power and control requirements other than as specified, make all necessary changes and furnish a complete set of drawings for installing the alternate equipment. The installation shall comply with the requirements of the 2023 edition of the National Electrical Code, local and state codes and ordinances. Where the contract documents

call for workmanship or materials in excess of code requirements, the project manual shall take precedence. Electrical equipment and materials shall be Underwriter's Laboratory approved, where UL standards for such products exist.

C. All equipment to be installed on the project shall be new and unused. Existing equipment, if applicable, shall be reused only after obtaining written permission from Engineer.

1.07 GUARANTEE

A. See General and Supplemental Conditions and Division 01.

1.08 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 GENERAL

A. The following items shall be included in the work to be done:

1. All work shall be under the direct supervision of a master electrician.
2. Furnish permits as required for electrical construction. Pay all electrical inspection charges for the construction.
3. Provide all power, control, and signal conduit and cable.
4. Provide the ground system and complete all grounding connections.
5. Provide electrical equipment as specified in accordance with the manufacturer's recommendations, instructions and directions. All equipment shall be properly protected during construction.
6. Complete all connections and test-operate the equipment in cooperation with Owner, Engineer and others working on the project.
7. Provide temporary wiring for construction use including ground fault protection in accordance with the 2023 National Electrical Code.

3.02 INSPECTION

A. Inspect all the electrical equipment and notify Engineer in writing before the equipment is installed if the equipment appears to be deficient in fit, form or function.

3.03 CONSTRUCTION

A. Contractor, under this portion of the contract, shall be responsible for all cutting, patching, excavation, backfill, sleeves, chases, openings, etc. for equipment specified in this portion of the contract documents or for cable and conduit and associated electrical equipment that is specified in this portion of the contract documents to serve equipment that is provided by a different portion of these documents. If Contractor provides equipment that has power and control requirements that are different from those specified, then that Contractor shall be responsible for any additional costs incurred for engineering, construction, and all wiring changes required to make the alternate equipment perform per the intent of the contract documents.

B. All patching, cutting, etc. shall have a finish that is compatible with the final finish of the remainder of the surface and shall meet with the approval of Engineer.

3.04 EXISTING EQUIPMENT

A. Any existing equipment that is removed, abandoned or disconnected shall remain the property of Owner unless Owner directs, in writing, that the equipment be surrendered to another party.

B. Dispose of any equipment at Owner's direction. The disposal of the equipment shall be to an Owner's vehicle, or Contractor shall promptly remove the equipment from the site if Owner surrenders it to Contractor.

END OF SECTION 26 00 00

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment and labor to construct a complete wiring system including conductors, cable, conduit, boxes, fittings, devices and related equipment.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA):
    a. NFPA 70: National Electrical Code (NEC) 2023.
2. Underwriter's Laboratories (U.L.)
    a. UL6: Electrical Rigid Metal Conduit – Steel.
    b. UL83: Thermoplastic Insulated Wire.
    c. UL360: Liquid-Tight Flexible Steel Conduit.
    d. UL514: Outlet Boxes and Fittings.
    e. UL797: Electrical Metallic Tubing
3. National Electrical Manufacturer's Association (NEMA)
    a. NEMA 250: Enclosures for Electrical Equipment.
    b. NEMA WD-1: Wiring Devices.

1.03 QUALITY ASSURANCE

A. All material shall meet the requirements of the National Electrical Code (N.E.C.), National Electrical Manufacturers Association (NEMA) specifications and local codes and ordinances, and shall be Underwriter's Laboratories listed, where U.L. standards for such products exist.

1.04 SUBMITTALS

A. Manufacturer’s product data including:

1. Conductors (all kinds)
2. Signal cable
3. Conduit, boxes and fittings (all kinds)
4. Devices
5. Wire identification

1.05 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS

2.01 CONDUCTORS - COPPER - 600V

A. Conductors shall be of soft drawn, annealed copper, having a conductivity of not less than 98% of pure copper. Conductors shall be NEMA Class B stranded. The conductors shall conform to ICEA and NEMA standards.

B. The minimum size for power wiring shall be #12 AWG copper, unless shown otherwise. The minimum size for control circuit wiring shall be #14 AWG copper. All conductor sizes are based on copper with THWN insulation rated at not less than 75 deg C and suitable for wet and dry locations unless noted otherwise.

C. All circuits shall be installed using wire with 600V insulation, unless wire with a different voltage rating is indicated. The insulation, as a minimum, shall have a conductor rating of not less than 75 deg C in both wet and dry locations. All cable shall have the same type of insulation by the same manufacturer throughout the project. Insulation shall meet all applicable NEMA and ICEA standards.

D. All conductors shall be stranded.

E. Cable used to connect the variable frequency drive output with the load shall be 1000V UL flexible motor supply cable and shall include three stranded, tinned copper conductors with grounding conductor. Cable #1AWG and larger shall have three symmetrical bare copper grounding conductors. Cable shall have XLPE insulation, sun and oil-resistant PVC jacket. VFD cable #2AWG and smaller shall have one spiral copper tape shield with 100% coverage plus a tinned copper braid with 85% coverage. Cable #1AWG and larger shall have two spiral copper tape shields with 100% coverage. All terminations shall per cable manufacturer's instructions.

2.02 SIGNAL CABLE

A. Signal cable shall meet the following requirements: The conductors shall be not less than 16 gauge, 7 strand min., Class B, tin coated concentric bare copper wire with a 15 mil (nominal) 90 deg. C PVC primary insulation. The conductors shall be shielded with .35x5 mil (min.) 100% coverage aluminum or copper mylar tape shield, or equal, and an 18 gauge strand copper wire drain wire. The outer jacket shall be 20 mils (nominal) 75 deg. C PVC suitable for wet or dry locations.

2.03 WIRE IDENTIFICATION

A. Each power, control and signal conductor shall be identified by plastic tags permanently attached to the cable. The tags shall be attached to each cable at each termination and wherever the cable is accessible in junction or pull boxes. Tags shall be marked with printing showing:

1. The Circuit Number
2. The terminal number as assigned by the equipment manufacturer.

B. The cable marking system shall use transparent tape with a white area where the numbering shall be typed using a typewriter, as manufactured by:

1. Raychem
2. Thomas & Betts
3. Brady

2.04 CONDUITS, FITTINGS, BOXES AND DEVICES

A. Contractor shall supply conduit, couplings, connectors, junction boxes, fittings and all other required items for a complete raceway system. The conduit fills indicated in the contract

documents are based on copper conductors with THWN insulation suitable for 75 deg C insulation in both wet and dry locations. Contractor shall resize conduits for other conductor and/or insulation systems, if approved. The conduit shall be reamed and cleaned and made free of burrs. Exposed conduit runs shall be straight and true with the building lines and elbows, bends and offsets shall be uniform and symmetrical. All conduit runs shall be installed with adequate means for drainage provided at the low points.

B. Rigid Steel Conduit:

1. All conduit shall be galvanized rigid steel unless specifically noted otherwise.
2. The conduit used shall be hot dipped galvanized, including the threads. Unless specified otherwise the conduit shall not be smaller than 3/4". The conduit shall bear the U.L. label.
3. Job site threading need not be galvanized. However, job site threading shall be painted with oil base primer to prevent oxidation of the threads.
4. The use of threadless connectors with rigid steel conduits is not acceptable.
5. Intermediate metal conduit shall not be acceptable.
6. All supporting hardware, clamps, anchors, etc. shall be hot-dip galvanized.

C. PVC Conduit:

1. Where shown, Contractor shall furnish and install Schedule 80 PVC conduit. The conduit shall be supported as recommended by the manufacturer or as required by applicable codes and ordinances, whichever is the more stringent. The conduit shall be composed of high impact PVC and shall be rated for 90 deg C wire. The conduit shall be listed for underground, encased, and exposed applications. The PVC conduit system shall contain fittings for connecting the system to junction boxes and other devices as required.
2. Wherever a PVC conduit system is used Contractor shall furnish and install copper ground conductors. The conductors shall be continuous with no splices or joints unless permitted by the National Electrical Code. The size of the ground conductor shall be as required by the National Electrical Code or as shown on the drawings, whichever is more stringent.
3. The duct shall bear the U.L. label.
4. The conduit shall not be smaller than 3/4″.
5. Underground conduit banks shall use Schedule 80 PVC for certain power and control circuits. See Part 3.
6. PVC conduit is permitted only where specifically shown. All other areas must be wired utilizing rigid steel or as required by the contract documents.
7. All supporting hardware, clamps, anchors, etc., shall be PVC or Type 316 stainless steel.

D. Continuous Polyethylene (PE) Duct:

1. Continuous high-density polyethylene (HDPE) duct may be used in place of Schedule 80 PVC underground duct where conduits are to be installed using directional boring method. See Part 3 of this Section.
2. PE duct shall have Schedule 80 (nominal) wall thickness, and shall bear U.L. label for use as underground electrical duct.

E. EMT Conduit:

1. Where specifically shown, Contractor may use galvanized type EMT conduit. EMT conduit is only permitted where specifically shown. All other areas must be wired utilizing rigid steel or as required by the contract documents.
2. EMT conduit shall bear the UL label.

F. Flexible Sections:

1. Unless equipment is factory wired, the conduit system shall be joined to the equipment with waterproof flexible metallic conduit. The conduit shall be cold rolled steel, galvanized strip shall meet the requirements of a one minute Preece dip test. The galvanized flexible conduit shall be covered with 40 mils ±5 PVC coating. The tensile strength of the PVC shall exceed 1600 psi. The flexible conduit shall be connected to the equipment and conduit system with waterproof, oil proof and dustproof connectors which are designed for use with the flexible conduit installed. All flexible conduit and fittings shall be U.L. approved. The minimum and maximum lengths of flexible connectors shall be sixteen (16) and thirty (30) inches respectively. The flexible conduit shall not be used for grounding equipment. A separate conductor in accordance with N.E.C. Section 250 shall be installed inside the flexible section.

2. Flexible sections in Class I, Division 1 areas shall be U.L. labeled for this application; Crouse-Hinds Type "EC" or equal. Explosion-proof flexible connectors shall be corrosion-resistant type with stainless steel braid.

G. Boxes - Cast:

1. Outlet and junction boxes shall be of the weatherproof, galvanized cast, ferrous alloy type with threaded hubs for use with rigid steel conduit. The boxes shall bear the U.L. label.

2. Manufacturer/Style:

   a. Crouse-Hinds Type FS

   b. Or equal.

H. Boxes – PVC

1. Where Schedule 80 PVC conduit is required, outlet and junction boxes shall be of high-impact molded PVC construction. Outlet and switch boxes shall be "FS" series with cast hubs. Junction boxes and larger boxes shall be of high-impact PVC molded construction, with cork or neoprene gasket. Boxes shall be as manufactured by Carlon Company, or equal.

2. The boxes shall be sufficiently large for the equipment and number of conductors as dictated by the National Electrical Code.

3. PVC boxes are permitted only where PVC conduit is required.

I. Boxes – Stamped Steel

1. Stamped steel boxes may be used only where EMT conduit is permitted.

J. Wiring Devices - Specification Grade:

1. Wiring devices shall be AC quiet, NEMA specification grade, heavy duty unless otherwise specified. All devices shall meet Federal Specification W-G-596E and W-S-896E NEMA standard WD 1-4, and shall be listed by the Underwriter's Laboratories. The voltage rating shall be as required for the application. The devices shall have an ampacity of not less than 20 amps.

2. Where shown on the Drawings, wall switches shall include 0-10V dimming capability, and have line-voltage on-off switching capability of minimum 600W; Cooper SF10P-W or approved equal.

3. Wall plates shall be Type 316 stainless steel. All switches, other than lighting switches, shall have an engraved label identifying the function of the switch and switch positions.

4. Verify device colors with Owner and Engineer during construction. Choose colors from standard white, ivory, brown, gray products.

5. Where applicable, devices located in hazardous areas or areas where adverse conditions exist, shall meet NEMA and National Electrical Code requirements for those areas.

K. Switch Labels

1. All switches, other than lighting switches, shall have an engraved label identifying the function of the switch and switch positions. Labels shall be Type 316 stainless steel, or engraved laminated plastic, attached with screws.

PART 3: EXECUTION

3.01 UNDERGROUND WORK

A. Contractor shall be responsible for all excavating, concrete work where applicable, and backfilling. The underground conduit shall be at least 30 inches below the finished grade.

B. Backfill shall be earth or sand tamped into place. The trench shall be filled to the top and the surface restored to a finished condition. All excess earth shall be removed.

3.02 UNDERGROUND CONDUIT

A. Provide underground conduit as shown on the Drawings. The top of the finished conduit runs shall not be less than thirty (30) inches below the finished grade. The trench shall be dug to the required depth without pockets or dips. All stones shall be removed from the bottom of the trench. Trenching and conduit bank foundation shall be compacted sand per Divisions 31 through 33 requirements.

B. The following conduit types shall be used for underground conduits:

1. Galvanized Rigid Steel:

a. Shielded signal circuits

b. Motor feeders powered by variable frequency drives (VFDs)

c. Telephone/LAN circuits

2. Schedule 80 PVC Conduit:

a. All other power and control circuits

b. Fiber optic cables

C. Provide vinyl cable warning tapes to identify the outer edges of conduits as detailed on Drawings. Tape shall be red or yellow, with the words “Caution – Buried Electric Lines Below” or similar language. Tape shall be six inches (6") wide.

D. Where the Drawings indicate that underground conduits are to be installed using the directional boring method, continuous polyethylene (PE) duct may be used. Unless shown otherwise, the duct shall be installed at 30” minimum burial depth.

3.03 INSTALLATION

A. Provide, wire and start-up equipment as required by the Contract Documents. The manufacturer's installation recommendations shall be observed and the completed assembly shall meet applicable code requirements.

3.04 CONDUCTOR INSTALLATION

A. Install conductors using industry accepted techniques as defined by Underwriter's Laboratories, National Electrical Code, NEMA, ICEA, and other applicable standards. Use approved pulling compound where applicable.

B. No splices shall be made in power wiring except in junction boxes. Conductors shall be continuous from outlet to outlet. Wiring shall be terminated as required in the contract documents.

C. No splices shall be made in signal or control conductors. The wiring shall be continuous from device to device.

D. All wire and cable shall be tested for grounds and continuity before the circuit is energized. Contractor shall assume full responsibility for damage done to the equipment due to circuit grounds or open circuits.

3.05 CABLE SPLICES

A. Power cables or control circuit cables that are spliced in locations that are subject to damp or wet locations shall be spliced using 3M cast splice kits, or equal.

END OF SECTION 26 05 00

SECTION 26 05 10

MOTORS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes process equipment, ventilation and general purpose motors.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. Anti-Friction Bearing Manufacturers Association (AFBMA)
    a. AFBMA 9: Load Ratings and Fatigue Life for Ball Bearings.
2. Institute of Electrical and Electronic Engineers (IEEE)
    a. IEEE 112A: Test Code for Polyphase Induction Motors and Generators.
3. National Fire Protection Association (NFPA)
    a. NFPA 70: National Electrical Code (NEC), 2023.
4. National Electrical Manufacturer's Association (NEMA)
    a. NEMA MG-1: Motors and Generators.
    b. NEMA 250: Enclosures for Electrical Equipment.

1.03 SUBMITTALS

A. Manufacturer’s product data including:

1. Dimension drawings
2. Wiring diagrams
3. Equipment mechanical and electrical specification sheets
4. Efficiency information

B. Operation and maintenance instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. Motors shall be covered and stored in a dry, warm (50°F) location prior to installation.

B. Once installed, the space shall be heated and kept dry. The motor shall be covered until ready for service. Covering shall not trap moisture in the motor.

1.05 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS

2.01 MOTORS

A. Motors shall conform to applicable NEMA, IEEE, and ANSI standards. Motors using non-standard frames or otherwise of special characteristics will be permitted only by special permission of Engineer, the intent being to confine such usage to cases of absolute necessity.

B. Motor ratings shall be based on current NEMA design standards for continuous duty and/or multiple starts per hour on motors through 100 horsepower. On motors larger than 100 horsepower starting shall be based on NEMA MG1-20.43 number of starts. Horsepower, torque, and speed characteristics shall be suitable for the full normal range of operating conditions of the driven equipment without exceeding 95% of the nameplate FLI and temperature rise ratings regardless of size. Nameplate FLI shall be based on nameplate HP and shall not include the 15% S.F. In addition, all motors 1 horsepower and larger shall have a 1.15 service factor. Wherever horsepower ratings of motors proposed differ from those shown or specified, this fact shall be prominently noted on the shop drawings submitted, or otherwise brought to the attention of Engineer.

C. Process and major equipment drive motors shall be 3-phase, squirrel-cage induction type NEMA Design B, dual voltage in all sizes and types where this rating is standard. Larger motors and special motors where dual voltage construction is not available shall be furnished in ratings consistent with the nominal system voltage. Where process drives of fractional horsepower are required, standard frame 56 units shall be supplied. Such drives requiring limited power input shall employ overload heaters undersized accordingly.

D. General purpose single phase motors, 1/3 HP and smaller, shall be 115 volt capacitor start type designed for continuous duty. Light duty motors of the domestic appliance variety will not be acceptable in this work. Bearings on frame 56 fractional horsepower motors shall be of the anti-friction or sleeve type.

E. The division furnishing motors, or equipment containing or including motors, shall be responsible for delivery, handling and setting regardless of local agreements as to actual work jurisdiction. Further, this responsibility shall include checking of lubrication, drive alignment and condition, indication of proper rotation, and any or all other matters relating to operative readiness. When all checks are satisfactorily accomplished, the readiness of the unit for operation shall be indicated by a conspicuous and legible tag installed by the responsible individual.

F. As part of the operational test the responsible Division shall arrange for checking and recording of load current and verification of rating of overload heaters. No unattended operation of the equipment shall be permitted until completion of this procedure.

G. Motor frames shall be totally enclosed fan cooled unless otherwise specified.

H. All motors larger than NEMA 56 frame shall have anti-friction (ball or roller) bearings, sized for a B-10 life of at least 30,000 hours under normal loading conditions. Bearing shall be AFBMA standard sizes. Motors shall be equipped with endshield-mounted ball bearings made to AFBMA standards, and be of ample capacity for the motor rating. The bearing housing shall be large enough to hold sufficient lubricant to minimize the need for frequent relubrication, but facilities shall be provided for adding new grease and draining out old grease without major motor disassembly. The bearing housing shall have long, tight, running fits or rotating seals to protect against the entrance of foreign matter into the bearings, or leakage of grease out of the bearing cavity.

I. Balance and Vibration:

1. The vibration in any direction, as measured at the bearing housings, with the motors running at normal voltage and frequency, the shaft axis in normal position, and with one-half of a standard key in the keyway shall conform to the following:

VIBRATION LIMITS
Maximum Permissible Total Amplitude
Peak to Peak (In.)

Frame Diameter Series	SYNCHRONOUS SPEED (RPM)		
	Below 1700	1700-3499	3500 & Above
180,210,220	0.002	0.0015	0.001
250,280,320	0.002	0.0015	0.001
360,400,440	0.002	0.0015	0.001

2. If balancing weights are added to the rotor, they shall be permanently secured by welding, peening, or other method approved by Engineer.

J. Materials:

1. Stator Frames and Endshields as Follows:

   a. Dripproof and Standard Duty -TEFC: Stator frames and endshields may be cast aluminum, steel, or cast iron, whichever is manufacturer's standard.

   b. Severe Duty - TEFC and Explosion-Proof: Frames and endshields shall be cast iron for all frame sizes. Extruded aluminum frames will be considered with prior approval.

2. Other External Parts as Follows:

   a. Dripproof and Standard Duty - TEFC: Fan covers and conduit boxes may be cast iron, aluminum or steel, depending on manufacturer's standard.

   b. Severe Duty - TEFC and Explosion-Proof: Fan covers and conduit boxes shall be cast iron.

K. Conduit Boxes:

1. Conduit box mountings shall be arranged so conduit can be brought in from top, bottom or either side. Cast iron conduit boxes for all severe duty motors shall be tapped or threaded conduit connection. Conduit hole size shall conform to NEC Standards, depending on motor rating.

L. Eyebolts:

1. All motors weighing more than 50 lbs. shall be drilled and tapped for a lifting eyebolt.

M. Motor Leads:

1. Motor leads into conduit box shall have same insulation class as the winding, and be equipped with a numbered brass or copper terminal staked or otherwise mechanically fastened to the lead sufficient to resist 15 lbs. pull. Leads shall be marked throughout the entire length to provide identification after terminals are taped or clipped.

N. Ventilating Fans:

1. Dripproof and TEFC: The fans forcing ventilating air through or over a motor may be steel, aluminum, or molded plastic, whichever is manufacturer's standard.

2. Severe Duty - TEFC and Explosion Proof: Ventilating fans shall be non-sparking, abrasion and chemical resistant, cast brass or polypropylene.

O. Shaft Seals:

1. All severe duty motors and TEFC motors, 254 frame and larger, shall have a rotating seal or slinger located on the shaft at the drive end endshield opening to prevent moisture or other foreign material from entering the bearing cavity.

P. Nameplates:

1. Aluminum nameplates may be used on dripproof and standard TEFC motors. Severe duty enclosed motors shall have nameplates of stainless steel. Nameplates shall be stamped to include the following information:

   a. Horsepower (not including 15% S.F.)

   b. Speed

   c. Time Rating

   d. Frequency

   e. Phases

   f. Model Number

   g. Rated Voltage

   h. Service Factor (1.15 on all motors 1 HP and larger)

   i. Full Load Amps (based on nameplate HP, not including 15% S.F.)

   j. Insulation Class

   k. NEMA Design

   l. NEMA Code Letter

   m. Maximum Ambient

   n. Bearing Identification

Q. Connection Diagrams

1. The motor connection diagram shall be permanently attached to the motor either inside the conduit box or on the motor frame in a readable location from the conduit box side.

R. Locked Rotor Characteristics:

1. Unless shown otherwise, motors with a nameplate rating of 5 to 20 horsepower shall have a locked rotor characteristic not exceeding Code H. Motors with a nameplate rating of 25 through 50 horsepower shall not exceed NEMA Code G locked rotor characteristics. Motors larger than 50 horsepower shall not exceed NEMA Code F locked rotor characteristics.

S. Severe Duty:

1. Motors designated for severe duty shall have the following characteristics in addition to those designated in the specification:

   a. Stainless steel nameplate.

   b. Cast iron housing, bearing brackets, fan guard.

   c. Cast iron conduit box.

   d. Cast brass or polypropylene fan.

   e. Zinc plated hardware.

   f. Minimum of two extra epoxy varnish, or equal, dips and bakes on windings.

T. Inverter Duty:

1. Motors designated for inverter duty within the associated equipment Section shall have the following characteristics in addition to those designated in this Specification:

a. Specifically designed for use with a solid-state inverter variable frequency drive (VFD).

b. Minimum service factor of 1.00 when operating from a VFD.

c. 1600V insulation system designed for inverter duty.

d. Insulated bearing on the non-drive end to eliminate circulating currents for motors 150 hp and larger.

e. Thermal switch embedded in the motor windings to stop the VFD on motor overtemperature condition. Normally-closed contacts rated 5A at 120 VAC, nominal.

U. Heater:

1. Where specified in the process equipment section, motors shall contain internal heaters to operate on 120 VAC to minimize condensation inside the motors. Unless otherwise required, the nominal heater size shall be 150 VA.

V. External Finish:

1. All motors shall be prime painted with corrosion resisting metal primer, and finish painted with a durable machinery gray enamel, manufacturer's standard unless otherwise specified.

2. All bolts, screws, and other external hardware shall be treated by zinc with irridite or zinc chromate for resistance to corrosion.

W. Testing:

1. Motor testing procedure shall be in accordance with the American Standard Test Code for polyphase induction motors and generators, IEEE 112A. All motors shall be given routine test to determine that they are free from electrical or mechanical defects. The routine test shall, as a minimum, conform to MG1-12.51.

X. Preparation for Shipment:

1. Before shipment, the shaft extension and any other bare exposed metal parts of each motor shall be coated with an easily removable rust preventative.

2. All motors shall be securely fastened to a hardwood skid or pallet for fork truck handling, and be covered for protection against dirt and moisture during transit and for short time outdoor storage.

Y. Operating Characteristics:

1. Motors shall meet or exceed the starting locked rotor and maximum breakdown torques specified by NEMA for the NEMA design. The locked rotor starting currents shall not exceed NEMA maximum values for the specified NEMA design and rating. The current density and heating characteristics shall be such that the motors will not suffer damage if subjected to a maximum of ten (10) seconds stall at six times full load current. Except as noted, the services factor of the motor shall be in accordance with NEMA Standards. The insulation system of the motor shall be designed for 40,000 hours operation under usual service conditions as described under NEMA 1-14.02. The motor manufacturer shall use IEEE standards to establish the suitability of the insulation system to meet these requirements.

Z. Energy Efficiency:

1. Motors 1 horsepower and larger shall be of the energy efficient type. Energy efficient motors shall have a 1.15 service factor rating.

2. Efficiency shall be defined as the “NEMA Nominal Efficiency” at full load, as detailed in NEMA MG-1-12.54.1, and shall meet or exceed the values in the following tables. If a

higher value is specified in the respective equipment section, then the higher value shall apply.

FULL LOAD EFFICIENCIES OF ENERGY EFFICIENT MOTORS

Open Motors			HP	Closed Motors		
1200 rpm	1800 rpm	3600 rpm		1200 rpm	1800 rpm	3600 rpm
82.5	85.5	77.0	**1.0**	82.5	85.5	77.0
86.5	86.5	84.0	**1.5**	87.5	86.5	84.0
87.5	86.5	85.5	**2.0**	88.5	86.5	85.5
88.5	89.5	85.5	**3.0**	89.5	89.5	86.5
89.5	89.5	86.5	**5.0**	89.5	89.5	88.5
90.2	91.0	88.5	**7.5**	91.0	91.7	89.5
91.7	91.7	89.5	**10.0**	91.0	91.7	90.2
91.7	93.0	90.2	**15.0**	91.7	92.4	91.0
92.4	93.0	91.0	**20.0**	91.7	93.0	91.0
93.0	93.6	91.7	**25.0**	93.0	93.6	91.7
93.6	94.1	91.7	**30.0**	93.0	93.6	91.7
94.1	94.1	92.4	**40.0**	94.1	94.1	92.4
94.1	94.5	93.0	**50.0**	94.1	94.5	93.0
94.5	95.0	93.6	**60.0**	94.5	95.0	93.6
94.5	95.0	93.6	**75.0**	94.5	95.4	93.6
95.0	95.4	93.6	**100.0**	95.0	95.4	94.1
95.0	95.4	94.1	**125.0**	95.0	95.4	95.0
95.4	95.8	94.1	**150.0**	95.8	95.8	95.0
95.4	95.8	95.0	**200.0**	95.8	96.2	95.4
95.4	95.8	95.0	**250.0**	95.8	96.2	95.8
95.4	95.8	95.4	**300.0**	95.8	96.2	95.8
95.4	95.8	95.4	**350.0**	95.8	96.2	95.8
95.8	95.8	95.8	**400.0**	95.8	96.2	95.8
96.2	96.2	95.8	**450.0**	95.8	96.2	95.8
96.2	96.2	95.8	**500.0**	95.8	96.2	95.8

PART 3: EXECUTION

3.01 START-UP

A. Check lubrication, drive alignment and condition, indication of proper rotation, and other matters relating to operative readiness. When all checks are satisfactorily accomplished, the readiness of the unit for operation shall be indicated by a conspicuous and legible tag.

B. Arrange for checking and recording of load current and verification of rating of overload heaters. No unattended operation of equipment shall be permitted until completion of this procedure.

END OF SECTION 26 05 10

SECTION 26 20 00

LOW-VOLTAGE ELECTRICAL TRANSMISSION

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor for construction of panelboards and transformers.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Associates (NFPA)
    a. NFPA 70: National Electrical Code (NEC), 2023.
2. National Electrical Manufacturer's Association (NEMA):
    a. NEMA 250: Enclosures for Electrical Equipment.
    b. NEMA PB1: Panelboards.
    c. NEMA ST-20: Dry-Type Transformers for General Applications.
3. Underwriter's Laboratories (U.L.):
    a. UL 50: Cabinets and Boxes.
    b. UL 67: Panelboards.
    c. UL508C: Requirements for Power Conversion Equipment.
    d. UL 1561: Dry-Type General Purpose and Power Transformers.
4. American National Standards Institute (ANSI):
    a. ANSI IEEE Std. 519: Harmonic limits.
    b. ANSI IEEE STD C62.41: Surge Withstand Capacity.

1.03 MAIN SERVICE

A. Contractor shall coordinate the installation of the new main service. The system voltages and ampacities shall be as shown. It shall be the responsibility of Contractor to contact the utility serving the project site and coordinate the details of the service entrances.

B. Responsibilities of the Utility and Contractor are as follows:

1. Utility will:
    a. Furnish and install any pad-mount transformers.
    b. Furnish and install primary conductors and primary terminations.
    c. Make primary and secondary terminations at transformer.
    d. Furnish and install utility metering current transformers, meter, and meter wiring.
2. Contractor shall:
    a. Construct any transformer pad(s) and related conduits as indicated on Drawings. Pad shall be constructed in accordance with Utility Company requirements.

b. Furnish and install utility connection / metering cabinet(s) where indicated on Drawings.

c. Furnish and install secondary conduits and cables from transformer to connection / metering cabinet to building service entrance as indicated on Drawings.

C. **Utility company charges to provide the services indicated will be paid under an Allowance. See Section 01 29 00 Measurement and Payment**.

D. The local electrical utility is:

Xcel Energy
Scott Tomford
763-439-3418

1.04 SUBMITTALS

A. Shop drawings and technical data in conformance with Section 01 33 00 and including:

1. Enclosed Circuit Breaker
2. Main Distribution Panel.
3. Utility Connection / Metering Cabinet.
4. Panelboards (include schedule of circuit breakers).
5. Transformers.

PART 2: PRODUCTS

2.01 MAIN CIRCUIT BREAKER (ENCLOSED)

A. Main circuit breaker shall be 100% rated, electronic, adjustable trip-type circuit breaker with LSIG (long-time, short-time, instantaneous and ground fault settings). Main circuit breaker shall be enclosed in a NEMA 1 wall-mounted enclosure that's lockable in the OFF position. Enclosed Main Circuit Breaker shall be listed as "suitable for use as service equipment". See drawings for kAIC ratings.

B. Approved Manufacturers:

1. Eaton
2. Square D
3. Or approved equal

2.02 PANELBOARDS

A. Unless shown otherwise, the bussing shall be suitable for 225 amps, minimum. The number of circuits shall be not less than indicated on the schedules shown on the Drawings. Unless shown otherwise, panelboards shall be NEMA 1. All panelboards on the project shall be by the same manufacturer, shall bear the U.L. label, and listed as "suitable for use as service equipment" where applicable.

B. Cabinet rough-in boxes shall be code gauge steel, zinc galvanized, on both inside and outside surfaces, with an in-turned flange on all sides of the front. The front covers shall be sheet steel, with a rust-inhibitor primer and a baked enamel finish for surface-mounted panels. The front covers shall be fitted with a door with a continuous butt type hinge concealed and welded to the back of the door. The other three sides shall have door stops. Doors over 48 inches high shall have auxiliary fasteners at the top and bottom. The doors shall have locks with two keys per lock. When the front cover and door assembly is removed, access to the wiring gutters shall be

provided. The sub-plate shall be fastened to the panelboard with screws. The entire panelboard shall be of dead-front construction. The trim shall be adjustable.

C. Where no main overcurrent protective device is scheduled, Contractor shall provide panelboards with main lugs only. Panelboard bussing shall be braced at equal to the interrupting rating of the largest branch overcurrent device in panelboards with main lugs only. The panelboard neutral shall have solderless connectors numbered not less than the number of branch circuits and available spaces in the panelboard. All spaces shall be connected to alternate phases.

D. Unless otherwise shown, main and branch circuit breakers rated at 208 or 240 volts shall have an interrupting rating of not less than 14,000 amps, r.m.s., sym. Unless otherwise shown, main and branch circuit breakers rated at 480 volts shall have an interrupting rating of not less than 42,000 amps. r.m.s., sym. Where panelboards and breakers are UL labeled for the application, series rated main and branch breakers may be used. Circuit breakers shall indicate open, closed, or trip conditions by handle position. Circuit breakers shall be quick-make, quick-break with thermal-magnetic trips having long-time and instantaneous tripping characteristics. Multi-pole breakers shall have one handle with internal trip bar with the circuit breaker cases fastened together. Panelboards with breakers with an interrupting rating of 14,000 amps or less may be plug-in. Other panelboards are to be of bolt-on circuit breaker construction.

E. Where required the panelboards shall contain ground fault interrupting circuit breakers. The breakers shall have an interrupting rating of not less than 10,000 amps, r.m.s., sym. The breakers shall have a sensing circuit capable of tripping the breaker in not more than 30 milliseconds at a current imbalance of 5 mA. The breaker shall contain a sensing circuit test feature.

F. Install closure plates in each space not occupied by a breaker where the knockout has been removed. Accurately list the circuit numbers on the panelboard schedule utilizing a typewriter.

2.03 DISTRIBUTION TRANSFORMERS

A. Transformers shall be dry type suitable for indoor or outdoor service as shown on the Drawings. Transformers shall have a basic impulse level of not less than 10 kV. Transformers shall have not less than two 2-1/2% full capacity above normal primary voltage and two 2-1/2% full capacity below normal primary voltage taps. Sound level may not exceed 45 dB determined in accordance with procedures outlined with NEMA and ANSI standards. The transformers shall have a kVA rating as shown on the Drawings. The transformers shall have the insulations suitable for NEMA Class H, 150 deg C. The transformer, at full load, shall have a temperature rise not exceeding 115 deg C over a 40 deg C ambient. The transformers shall be U.L labeled for 115 deg C operation.

B. Transformers shall be constructed in accordance with NEMA and ANSI standards. The transformers shall be finished with one coat of rust-inhibiting primer and two finish coats of paint.

C. Transformers shall be energy-efficient per NEMA Standard TP-1, latest edition, and applicable US Department of Energy (DOE) requirements.

2.04 GROUNDING MATERIALS

A. The entire installation shall be grounded in accordance with the National Electrical Code and as otherwise detailed.

PART 3: EXECUTION

3.01 PANELBOARDS

A. Panelboards shall be mounted with the top of the panelboard at 72 inches above finish floor.

END OF SECTION 26 20 00

SECTION 26 24 19

STARTERS AND MOTOR CONTROL

PART 1: GENERAL

1.01 SUMMARY

A. Section includes variable frequency drives, harmonic filters, control devices, field-mounted control devices, and disconnect switches.

B. Contractor shall provide, complete, variable frequency drives, control switches, limit switches, etc. as required. All internal buswork and wiring shall be completed by the manufacturer and where connections must be completed between equipment sections in the field, the wiring or buswork, shall be terminated in each section of equipment in a manner to facilitate field connections. Contractor shall furnish, properly sized and coordinated, connectors for the conductors entering the equipment. All equipment shall meet the requirements of NEMA standards and the latest edition of the National Electrical Code, where applicable.

C. **All equipment and services provided under this Section shall be supplied by the supplier of Section 40 90 00 Instrumentation and Control for Process Systems**.

D. Final size and rating of equipment under this section is subject to the approved pump and motor submittal for each site. Additional costs are considered the Contractor's responsibility.

1.02 RELATED SECTIONS

A. Section 40 90 00 Instrumentation and Control for Process Systems.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA):
    a. NFPA 70: National Electrical Code (NEC).
2. National Electrical Manufacturer's Association (NEMA):
    a. NEMA ICS 1: General Standards for Industrial Control and Systems.
    b. NEMA ICS 2: Industrial Control Devices, Controllers and Assemblies.
    c. NEMA 250: Enclosures for Electrical Equipment.
    d. NEMA CP-1: Capacitors

1.04 SUBMITTALS

A. Shop drawings including:

1. Variable Frequency Drives and components indicated on the Drawings.
2. Harmonic Filters and components indicated on the Drawings.
3. System schematic drawings, component schematic drawings, dimension drawings, layout drawing and nameplate schedule for:
    a. Variable Frequency Drives
4. Field-mounted control devices.
5. Disconnect switches.

B. Operation and Maintenance instructions including:

1. Variable Frequency Drives, including "as-built" schematic drawings.

2. Harmonic Filters, including “as-built” schematic drawings.

1.05 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS

2.01 CONTROL DEVICES

A. Where required Contractor shall supply all control devices including, but not limited to, selector switches, push button switches, limit switches, and indicating lights. All control devices shall be of the heavy duty, oil tight type. The contacts shall meet NEMA rating designation A600. Each control device shall be supplied complete with escutcheon and nameplate. Each control device shall have its function permanently marked on the escutcheon. Raised letters on plastic adhesive tape is not acceptable.

B. Device enclosures shall be NEMA 4X, minimum. Where explosion-proof zones are indicated on the Drawings, the device enclosures shall comply with the applicable zone.

C. Furnish and install engraved plastic type label designating equipment served. Embossed raised letter type labels shall not be acceptable. Letters shall be 3" high and white in color on a black background.

2.02 MOTOR CONTROL DEVICES

A. Variable Frequency Drives:

1. Variable frequency drive (VFD) unit shall be pulse width modulated (PWM) type incorporating volts per Hertz control. Unit shall bear the U.L. label.

2. Input characteristics and requirements:

a. 480 volt (nominal) $\pm$10%, 3 phase, 60 Hz $\pm$1.0 Hz.

b. VFD to be mounted in NEMA 12 MCC construction.

c. Enclosure shall have main disconnecting means with external operating handle and padlock-off provisions.

d. Efficiency, 97.0% at full speed, input to output; input line pf, 0.95 minimum.

e. Drive shall automatically shut down on input power abnormalities and shall automatically restart upon restoration of "normal" power.

f. Surge protection, arresters and surge capacitors, minimum.

g. VFD input circuitry shall employ 3% (nominal, per unit) internal bus choke impedance, and 6-pulse (minimum) rectifier circuitry.

h. VFD shall enclosure shall also include a 3% (per unit) series line reactor for total line-side impedance of 6%.

3. Ambient conditions:

a. Temperature: 0-40ºC.

b. Humidity: 5-95% non-condensing.

4. Output conditions:
    a. 480 volt, 3 phase.
    b. Operate 480 volt, nominal 3-phase, Design B, motor with NEMA Code G locked rotor characteristics. Size VFD for not less than motor nameplate full-load ampacity.
    c. Rated for 110% of drive amperage rating overload for one minute, minimum.
    d. Reset PWM pulse output frequency from the factory default to the lowest possible setting (2000 Hz), nominal. Confirm.
    e. Coordinate minimum equipment rotating speed with the equipment supplier, and program the VFD accordingly.
5. Features:
    a. Front-door mounted micro-processor-based unit with digital programming panel. Panel shall have programming keys and alpha-numeric display to allow operator to view and modify drive parameters, alarms, and operating conditions.
    b. Programmable parameters:
        1) Acceleration time
        2) Deceleration time
        3) Frequency range
        4) Skip frequency ranges
        5) Number of restart attempts
        6) Overload protection (Confirm full-load rating with motor manufacturer and program VFD to limit speed such that motor is not overloaded.)
    c. Programmable displays:
        1) Frequency
        2) Voltage
        3) Percent load
        4) Percent power
    d. Protection features (with separate indications for each event):
        1) Undervoltage trip
        2) Overvoltage trip
        3) Drive overcurrent trip
        4) Drive overtemp trip
        5) Motor overcurrent trip
        6) Motor overtemp trip (monitor normally-closed thermal switch in motor)
        7) Output ground fault trip
6. Front-Panel Components and Control Configuration:
    a. Display motor running hours on the VFD keypad/display unit. If this feature is not available, then provide six-digit, non-resettable running time meter. Record running time in hours and tenths.

b. Provide Local-Off-Remote control selection via the VFD keypad/display unit. These modes shall provide the following functions:

1) Local - Start up and run based on keypad speed setting.

2) Off - Drive does not operate under any condition.

3) Remote (Auto) - Drive runs when remote required contacts are closed. Drive speed shall be based on a 4-20mAdc input signal.

c. Generate 4-20 mAdc isolated signal proportional with drive speed from 0 to 100%.

d. Lockout - Where shown, prevent drive operation when remote contacts are open.

e. Auxiliary Contacts - Provide SPDT contacts for remote monitoring.

1) Running (two sets of SPDT contacts)

2) Alarm (any alarm condition)

3) Motor Hot

4) HOA in AUTO Position

5) Drive in Bypass Mode

6) Other contacts where indicated on Drawings.

f. Bypass System Controls:

1) “Drive-Off-Bypass” selector switch.

2) “Automatic Bypass ON/OFF” selector switch.

3) “Drive Running” press-to-test indicator light.

4) “Drive Fault” press-to-test indicator light.

5) “Bypass Running” press-to-test indicator light.

g. “Speed Select 2” Input: When energized, force drive to a predetermined speed.

7. Manufacturer/Model

a. ABB ACQ580 Series

b. Allen-Bradley PowerFlex 750 Series

c. Or approved equal.

2.03 HARMONIC FILTER

A. Provide all labor, materials, equipment, and incidentals as shown on the drawings, specified, and required to furnish and install the harmonic filter to limit harmonic voltage and current to acceptable levels as defined by IEEE Std 519-2022.

B. The filter shall be designed to filter all characteristic low-frequency harmonics (5th, 7th, 11th, 13th, etc.), generated from three-phase diode rectifier loads such as variable frequency drives (VFD), while improving the system power factor.

C. The harmonic filter shall be installed on the front end of the VFD as indicated on the Drawings.

D. The harmonic filter shall be UL 508A listed and labeled.

E. The filter shall have a labeled SCCR of 1000kA per UL 508A.

F. The filter shall be warranted free from defects both in materials and in workmanship for a period of three years from date of shipment, when applied in accordance with the manufacturer’s recommended procedures.

G. The filter shall not adversely react with or resonate with the power system or attract harmonics from other sources.

H. Input Power:

1. 480VAC, 3ph, 3W.

2. 60 Hz

3. The filter HP rating shall be determined based on the final well pump and VFD selection.

I. Output Power:

1. Harmonic Correction:

a. The Total Demand Distortion (TDD) of the current at the input terminals of the filter, in combination with the variable frequency drive shall not exceed 5% THID at full rated load and given the filter is correctly applied.

b. The Total Harmonic Voltage Distortion (THVD) at the input terminals of the filter in combination with the variable frequency drive shall not exceed the limits defined in IEEE-519-2022.

J. Enclosure

1. The enclosure shall be UL Type 12.

2. Enclosure shall have a hinged, lockable door cover for ease of scheduled inspection and maintenance.

3. Unit shall be provided with grounding lug.

K. Communications/Controls:

1. The harmonic filter shall be equipped with communication capability and shall provide access, via EtherNETIP, to real-time system performance data. The data shall be accessible via SCADA system interface, or Bluetooth.

L. Manufacturer:

1. Allient TCI HGP

2. Or approved equal.

2.04 DISCONNECT SWITCH

A. Disconnect switches shall be fused or non-fused as required and shall be of the "heavy-duty" type. Voltage, horsepower, ampacity and NEMA enclosure rating shall be as indicated.

B. Furnish and install engraved plastic type label designating equipment served. Embossed raised letter type labels shall not be acceptable. Letters shall be 3" high and white in color on a black background.

PART 3: EXECUTION

3.01 SUPPLIES

A. At Final Completion, Contractor shall furnish the following expendable items:

1. Twenty (20) percent spare fuses and lamps of each type furnished under this Section, but not less than six (6) of each type.

3.02 STARTUP AND TRAINING SERVICES

A. Provide factory-authorized startup engineering or technician who shall place the equipment in service, enter setpoints and parameters, verify proper operation of features and functions,

provide a written startup report, and provide training to Owner's personnel on operation and maintenance of the equipment.

B. This requirement shall apply to the equipment listed below, and shall include the minimum training hours as listed:

1. Variable Frequency Drives, including two (2) hours operator training.

END OF SECTION 26 24 19

SECTION 26 50 00

LIGHTING

PART 1: GENERAL

1.01 SUMMARY

A. Section includes lighting fixtures, lamps and appurtenances.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA)

a. NFPA 70: National Electrical Code (NEC)

2. Underwriter's Laboratories (UL)

1.03 SUBMITTALS

A. Manufacturer’s product data including:

1. Fixture specification sheets

2. Footcandle distribution curves

1.04 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS

2.01 FIXTURES

A. All fixtures shall bear the seal of the Underwriter's Laboratories (UL). The seal shall be for the type of area the fixture is to be located in.

B. On all fluorescent, H.I.D., LED, or other fixtures that utilize ballasts or drivers, the entire assembly shall have a power factor of not less than 0.90 at its designated voltage. All ballasts/drivers shall be of the type where the starting current does not exceed the operating current. Ballasts/drivers on fixtures that are located outside the building envelope shall be suitable for starting and operating at -20 deg. F.

C. All fixtures shall be complete with lamps, starters, diffusers, guards, clips, retainers, etc. in accordance with the drawings, specifications and ordinances governing the installation of the fixtures.

2.02 SOLID STATE / LIGHT-EMITTING DIODE (LED) SOURCES

A. Light Source: Where identified as LED, the following applies:

1. Light source shall be high-output LEDs with color temperature as indicated in Luminaire Schedule on the Drawings and a minimum of 80 CRI.

2. The LEDs shall be mounted in such a way to maximize heat transfer to a heat-sink surface to which the boards are mounted.

3. The LEDs shall be protected from moisture by a conformal coating up to 3 mils.

4. The LEDs shall have individual acrylic, refractor type optics applied to produce the required light distribution as indicated on the Drawings.

5. The LED and printed circuit board construction shall not contain lead, mercury or any other hazardous substances and be 100% recyclable.

6. The LED life rating shall be determined in accordance with LM-80-08, with life expectancy of 70,000 hours with not less than 70% original brightness.

7. LEDs and LED driver shall operate over a temperature range of -40 to 122 degrees F.

B. Driver

1. The LED drivers shall be securely mounted within the fixture base.

2. Drivers shall have overload as well as short circuit protection.

3. The driver shall pass the IEC 61000-4-5 lightning test and isolate the LEDs from power line transients.

4. The driver shall have DC Voltage output, current limiting design.

5. The driver shall have a minimum efficiency of 90%.

6. The driver shall be rated at full load with line-side total harmonic distortion of less than 20% and power factor greater than 0.9.

7. The driver shall have a universal 120 through 277 Volt AC input range, with plus or minus 10% tolerance above or below the stated voltage range without damage to the driver.

8. Drivers shall be dimmable via 0-10VDC control signal unless otherwise indicated via the Luminaire Schedule on the Drawings.

PART 3: EXECUTION

3.01 GENERAL

A. Prior to ordering the fixtures, verify that the fixture bears the UL label and meets the requirements for the location where the fixtures are to be installed.

B. Install fixtures in accordance with the manufacturer's recommendations and shall be mounted carefully and rigidly. The mounting of the fixtures shall be uniform in height and shall present a neat and workmanlike appearance.

C. Examine the contract documents for the ceiling system into which the fixtures will be installed. If additional supporting material, wire, channels, or bars are required for the installation, other than the equipment supplied with the ceiling system, Contractor, under this Division, shall provide such devices at no change in the contract price.

D. The fixtures shall be connected into the power distribution system per the requirements of the National Electrical Code, the manufacturer's requirements, or the contract documents, whichever is more stringent.

END OF SECTION 26 50 00

Division 27

Communications

SECTION 27 00 00

COMMUNICATIONS

PART 1: GENERAL

1.01 SUMMARY

A. Construction of the new fiber optic system raceways, cabling, and coordination with the City for the new fiber optic service between Water Treatment Plant 1 and Wellhouses 16 and 9 (Wellhouse 9 work is Bid Alternate 2).

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA)

a. NFPA 70: National Electrical Code (NEC)

2. Telecommunication Industry Association (TIA), Electronic Industries Association (EIA)

a. TIA/EIA-568-C: Commercial Building Wire Standard including all addenda.

b. TIA/EIA-606: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.

c. TIA/EIA-607: Commercial Building Grounding/Bonding Requirements.

3. Telecommunication Systems Bulletins

a. TSB-67: Transmission Performance Specifications for Field Testing of Twisted Pair Cabling Systems.

1.03 QUALITY ASSURANCE/BASIS OF BID

A. The data system installer shall have a minimum of 5 years documented experience in the installation and service of voice/data cabling systems.

B. If requested, provide 5 references of projects of comparable size and scope that have been completed within the last 2 years.

C. Provide certificates of training for Voice and Data Cabling per EIA/TIA for supervisors and installation personnel. Certificates from manufacturer of the equipment listed and/or independent training company are acceptable. Include a description of the training program.

D. Acceptable Vendors are:

1. Collins Electrical Construction Co., St. Paul, MN.

2. Prior-approved named.

1.04 INTERNET SERVICES

A. The Contractor shall coordinate the installation of a new internet service from the City-owned networking equipment located within the Water Treatment Plant to Wellhouses 16 and 9 (Wellhouse 9 is Bid Alternate 2) via Fiber Optic communications. The service locations shall be as shown. It shall be the responsibility of the Contractor to coordinate with the service provider and coordinate the details of the various services.

1. The City of New Brighton is the local internet services provided for these systems.

B. Confirm the required number of fiber pairs with Owner.

C. Confirm type and quantity of new networking equipment (ethernet switches) that are to be provided by the City for installation by Contractor within the Water Treatment Plant and Wellhouses 16 and 9 (Wellhouse 9 equipment is Bid Alternate 2).

1.05 SUBMITTALS

A. Submit technical data in conformance with Section 01 33 00 and including:

1. Material list identifying manufacturers, model numbers, quantities, and description of items being furnished.
2. Drawings showing port and terminal layouts.
3. A riser diagram showing all distribution equipment.
4. Catalog data sheets with complete technical information for each item.

1.06 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS

2.01 FIBER OPTIC CABLE, PATCH PANELS, AND TESTING

A. Fiber optic cables:

1. All-dielectric design, suitable for installing in duct, direct-buried, or lashed to aerial messenger.
2. Number of fibers as indicated on Drawings. Single-mode or multi-mode fibers as indicated on Drawings. Multi-mode fibers shall have 62.5 micron core, 125 micron cladding, and 250 micron buffer.
3. Multi-tube design with six (6) fibers per tube. Color-coded fibers and color-coded tubes. Fillers shall be provided in place of tubes depending on fiber count, for round overall cable.
4. Maximum optical attenuation of fibers shall not exceed the following values:

Fiber Type	Wavelength (nm)	Attenuation (dB/km)
Multi-mode (62.5/125µm)	850	4.0
Multi-mode (62.5/125µm)	1300	2.0
Single mode	1310	0.50
Single mode	1550	0.40

5. Binder layer with strength member, and black medium-density or high-density polyethylene outer jacket with rip cord.
6. Operating temperature range of -40 degrees C to 70 degrees C.
7. Install all cable in strict accordance with manufacturer instructions. Do not exceed maximum allowable pulling tension. Do not allow cable to bend sharper than minimum bending radius required by manufacturer.
8. Provide cable in sufficient lengths for splicing only in locations shown on the Drawings.
9. Lubricate cables prior to installation in duct in accordance with manufacturer requirements.

10. Tag all cables in each building entrance, handhole and termination point. Tags shall be plastic imprinted with cable type, number and fiber number designations as indicated on Drawings, and covered with a clear plastic outer jacket.

B. Splicing and Testing

1. Contractor shall employ an experienced organization that is normally-engaged in testing and repairing fiber optic cables for all splicing and testing. Utilize materials and methods that strictly comply with the manufacturers of the fiber optic cable and splicing equipment.

2. Splices shall be made using a precision fusion splicer resulting in splice performance that meets or exceeds the following specifications:

   a. Loss (single-mode fiber) - less than 0.05dB.

   b. Loss (multi-mode fiber) - less than 0.03dB.

   c. Reflection - Less than -60dB

   d. Apply nylon-reinforced heat-shrink protective sleeve over each fusion splice.

3. Handhole splices shall be enclosed in a two-piece, non-metallic tubular splice closure unit. The splice closure shall contain splice trays in quantity as required by the splice location, and shall be waterproof when closed and sealed. Splice closure diameter shall be as required by the minimum fiber cable bending radius. Maximum length shall be 22 inches.

4. Provide test equipment, labor and materials for testing all project fibers after splicing is complete. Submit test records for each fiber, identifying the following information:

   a. Date and time of test.

   b. Name of test technician and company.

   c. Name of test witnesses.

   d. Location of test.

   e. Location of fiber ends.

   f. Recorded test results:

   g. Fiber distance (measured using test instrumentation).

   h. Loss (attenuation) in dB at 850nm, 1300nm and 1550nm wavelengths.

   i. Reflection in dB at 850nm, 1300nm and 1550nm wavelengths.

5. Fibers having test results that do not meet the requirements of this Specification shall be re-spliced or replaced at Contractor’s expense, and re-tested until the fiber meets specification requirements. Minimum requirements shall be determined by adding total allowable losses and reflectances for the number of splices and 'SC' connectors in each run.

C. Patch Panels:

1. Wall-mount, two-door design with separate locking covers for each door.

2. Include bulkheads with fiber optic connectors as required by application. Verify connector type (ST, SC, etc.) with Owner prior to ordering.

3. Corning, or equal.

2.02 CONDUIT AND BOXES

A. Conduit and boxes shall be as described in Division 26.

PART 3: EXECUTION

3.01 WIRING

A. All cable shall be installed in a conduit system according to Section 26 05 00 requirements.

3.02 INSTALLATION

A. All installers shall be trained in the proper installation of fiber optic cable and equipment.

B. The installation of the cable and components shall be properly coordinated with the work of other trades.

C. Contractor shall be responsible for fire-stopping of all wall and floor penetrations to provide the same rating as the wall or floor itself.

END OF SECTION 27 00 00

Division 28

Electrical Safety and Security

SECTION 28 00 00

BUILDING SECURITY SYSTEM

PART 1: GENERAL

1.01 SUMMARY

A. Section includes Construction of the building security/door access control system and building security camera system.

B. All raceway and cable needed for connecting system components.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA)

a. NFPA 70: National Electrical Code (NEC)

2. Telecommunication Industry Association (TIA), Electronic Industries Association (EIA)

a. TIA/EIA-568-C: Commercial Building Wire Standard including all addenda.

b. TIA/EIA-606: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings.

c. TIA/EIA-607: Commercial Building Grounding/Bonding Requirements.

3. Telecommunication Systems Bulletins

a. TSB-67: Transmission Performance Specifications for Field Testing of Twisted Pair Cabling Systems.

1.03 VENDOR QUALIFICATIONS

A. The Vendor shall have a minimum of 5 years documented experience in the installation and service of building security and door access control systems.

B. Upon request, provide 5 references of projects of comparable size and scope that have been completed within the last 2 years.

C. Provide certificates of training for systems installation for supervisors and installation personnel. Certificates from manufacturer of the equipment listed or an independent training company are acceptable. Include a description of the training program.

D. Acceptable Vendors are:

1. Pro-Tec Design, Minnetonka, MN.

2. Prior-approved named.

1.04 SUBMITTALS

A. The Contractor shall submit complete shop drawings, instruction manuals, and record drawings to the Engineer for review, approval, and forwarding to the Owner. The general format shall be in accord with Division 1. The information shall include:

1. Title sheet with system vendor’s name, address, and phone number and submittal date.

2. Material list identifying manufacturers, model numbers, quantities, and description of items being furnished.

3. Drawings showing port and terminal numbers.
4. A riser diagram showing all equipment.
5. Catalog data sheets with complete technical information for each item.
6. Any other information helpful in understanding and maintenance of system.

B. After installation and before final acceptance of the system, submit bound books containing record drawings and equipment, together with detailed parts list and updated drawings.
1. Fixture specification sheets
2. Footcandle distribution curves

1.05 BASIS FOR COMPENSATION

A. A Bid Allowance for access control system is provided in Division 1. The allowance covers hardware, hardware installation, and system integration. It does not include conduit which is shown on the Drawings.

PART 2: PRODUCTS

2.01 ACCESS CONTROL SYSTEM

A. Access control system shall be AC-series by Verkada. Coordinate system features with Owner.

2.02 CAMERA SYSTEMS

A. Camera systems shall be PTZ series by Verkada. Coordinate system features with Owner.

PART 3: EXECUTION

3.01 GENERAL

A. The system installers shall be trained in the proper installation of all equipment being provided.

B. The cable type and installation as required for a completely operational system shall be provided and installed. All cable shall be installed in conduit.

C. The installation of all cable and components shall be properly coordinated with the work of other trades.

END OF SECTION 28 00 00

Division 31

Earthwork

31 01 00

SITE PREPARATION

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to prepare the Site for construction, including, but not limited to:

1. Removal of all trash, debris, rocks, and foreign materials necessary to access the work area and perform the work.

2. Removal, salvage and replacement of any traffic signs within the Work areas.

3. Relocation or protection of all existing utilities and coordination with utility companies relocating any electrical, gas or communications lines.

4. Coordination with utilities companies for all removals, relocations, or replacements of existing utilities.

5. Coordination with other contractors working within or near project areas.

1.02 RELATED SECTIONS

A. Section 02 41 00 Demolition.

B. Section 31 10 00 Clearing and Grubbing.

C. Section 31 25 00 Erosion and Sediment Control.

1.03 SUBMITTALS

A. No submittals are required from this Section.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 GENERAL

A. Take necessary measures to prepare the Site access and Site conditions necessary to perform the Work, all in accordance with the Drawings and these Specifications.

B. Take necessary measures to secure the Project Site from public access to protect Contractor's materials and equipment, and Project Work areas.

C. Take necessary measures to protect Work areas from public access that may pose danger or hazard to the public.

3.02 UTILITY LOCATIONS

A. Locate all utilities and resolve any utility conflicts with utility company prior to any excavation work. Coordination between Contractor and utility companies shall be incidental to the Work.

3.03 DISPOSITION OF MATERIALS

A. Dispose of demolished materials at a suitable location for off-site disposal in accordance with Laws and Regulations. Transport all debris, rubbish, and other materials, including all vegetation removed during clearing and grubbing activities, from the site weekly (at a minimum).

B. Burning of materials will not be permitted on the site.

END OF SECTION 31 01 00

SECTION 31 10 00

CLEARING AND GRUBBING

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete site clearing, including, but not limited to:

1. Clearing and grubbing that includes: cutting and/or removing all trees, shrubs, and herbaceous plants (including stumps) as shown on Drawings.

2. Protecting all remaining trees and vegetative materials located within and adjacent to the construction limits and as directed by Engineer.

3. Proper composting and/or disposal of vegetative materials cleared and grubbed from the site in accordance with Laws and Regulations.

4. Topsoil stripping.

1.02 RELATED SECTIONS

A. Section 02 41 00 Demolition.

B. Section 31 01 00 Site Preparation.

C. Section 31 25 00 Erosion and Sediment Control.

1.03 SUBMITTALS

A. No submittals are required from this Section.

1.04 SEQUENCING AND SCHEDULING

A. Coordinate sequencing and scheduling of Work on the site with Owner and Engineer.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 CLEARING AND GRUBBING

A. Clear and grub areas indicated on Drawings or as directed by Owner.

B. Remove stumps, roots, and buried logs.

C. Protect trees not marked to be removed.

D. Composting and/or chipping of cleared vegetation are incidental to the Work.

3.02 TOPSOIL

A. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other objectionable material; remove heavy growths of grass from areas before stripping.

B. Stockpile topsoil in storage piles for use during site restoration in areas shown on the Drawings or approved by Owner and Engineer. Construct storage piles to provide free drainage of surface water and provide and maintain erosion control.

3.03 DISPOSITION OF MATERIALS

A. Dispose of demolished materials at a suitable location for off-site disposal in accordance with Laws and Regulations. Transport all debris, rubbish, and other materials, including all vegetation removed during clearing and grubbing activities, from the site weekly (at a minimum).

B. Burning of materials will not be permitted on the site.

END OF SECTION 31 10 00

SECTION 31 23 00

EXCAVATION AND FILL

PART 1: GENERAL

1.01 SUMMARY

A. Work covered under this Section includes providing all materials, equipment, and labor to complete all general or miscellaneous excavation and fill operations at the site including, but not limited to:

1. General excavation of soil materials. Specific requirements for trenching are described in Section 33 05 28 Trenching and Backfilling for Utilities.

2. Placement of excavation and embankment to complete Work shown on the Drawings.

3. Hauling, placing, and compacting soils.

1.02 RELATED SECTIONS

A. Section 31 23 19 Dewatering

B. Section 31 25 00 Erosion and Sediment Control

C. Section 32 92 00 Site Restoration

D. Section 33 05 28 Trenching and Backfilling for Utilities

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

1. American Society for Testing and Materials (ASTM)

a. ASTM D 698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

b. ASTM D1556: Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.

c. ASTM D2922: Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

2. Minnesota Department of Transportation Standard Specifications for Construction, 2025 Edition, hereafter referred to as Mn/DOT Standard Specifications.

1.04 SUBMITTALS

A. Submit a list of all off-site and on-site sources of materials specified in this Section for documentation.

B. Test results and certificates including:

1. Submit test results and/or certificates upon completion of each test, but no later than two weeks prior to delivery to the site.

2. Submit, for documentation, certificates for materials, including gradation test results, obtained from off-site sources indicating compliance of materials with Specifications.

a. Imported common fill

b. Structural fill

c. Granular pipe bedding

3. Engineer may take random samples of the material during the progression of the Work to verify compliance with the Specifications. Materials not meeting the Specifications shall be removed and replaced at Contractor's expense, including the cost for testing.

PART 2: PRODUCTS

2.01 GENERAL

A. Radon-free material free of wood, organic soils, topsoil, debris, roots, sticks, brush, non-soil materials, and other unsuitable materials which in the opinion of Engineer will have a deleterious effect on the Work.

B. Boulders larger than 6-inch diameter shall not be allowed.

2.02 TOPSOIL

A. See Section 32 92 00 Site Restoration for topsoil requirements.

2.03 COMMON FILL

A. All soil materials except organic soils and shall be free of vegetation, debris, roots, sticks, brush, non-soil materials, and other materials which in the opinion of Engineer will have a deleterious effect on the Work.

B. Excavated onsite materials SM, SC, SP, SP-SM or more granular, free of organic matter or debris, rocks greater than 4 inches in diameter, and have a Liquid Limit and Plasticity Index less than 45 and 20, respectively may be used as common fill.

C. Do not use high plasticity silt or clay (MH, CH) soils as common fill.

2.04 STRUCTURAL FILL

A. Soil materials specified, except organic soils, and free of vegetation, debris, roots, sticks, brush, non-soil materials, and other materials which in the opinion of Engineer will have a deleterious effect on the Work. Certain excavation material may be acceptable for structural fill provided it meets the Specifications.

B. Structural Fill to meet the requirements of Mn/DOT Standard Specification 3149.2 D2.

2.05 GRANULAR PIPE BEDDING

A. Granular Pipe Bedding to meet the requirements of Mn/DOT Standard Specification 3149.2 F.

PART 3: EXECUTION

3.01 EXCAVATION

A. See Section 33 05 28 for additional specifications related trenching and backfilling for utilities.

B. Construct excavations in accordance with applicable Laws and Regulations.

C. Excavate to the lines, elevations, slopes, and dimensions shown on the Drawings, or as necessary to complete the Work shown on the Drawings. Finish grading of areas excavated shall be incidental to the excavation work.

D. At the end of each day, mark and protect excavated areas from accidental access.

3.02 MAINTENANCE OF EXCAVATIONS AND SLOPES:

A. Excavate and remove material outside the limits of the excavation that is unstable and constitutes potential slides, and material which falls or rolls into excavations for any reason.

B. Maintain slopes until substantial completion and acceptance of the work. Promptly repair slides, slip-outs, washouts, settlements, and subsidences that occur for any reason, and refinish the slope to the lines and grades indicated on the Drawings.

3.03 BACKFILL AND FILL

A. Place backfill and fill materials in layers not more than 8 inches in loose depth, except as noted. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content. Compact each layer to required percentage of maximum density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Scarify, remoisten, and recompact surfaces that have been dried, weathered, or loosened between lifts.

B. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift. Protect insulation by hand placement if necessary. Notify Engineer of any damage and repair as approved before proceeding.

C. Do not place frozen soil or any material containing organic matter, trash, debris, large rocks, or other deleterious substances.

3.04 COMPACTION

A. General:

1. Furnish equipment suitable for soil conditions and compactive effort required to meet compaction criteria specified herein.

B. Moisture Content and Density

1. Control moisture content.

a. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil to prevent free water appearing on surface during or subsequent to compaction operations. Disc or otherwise thoroughly mix to distribute added water.

b. Remove and replace soil material that is too wet to permit compaction as specified.

c. Compaction by flooding or other means that involve saturation or over-wetting the soil will not be permitted.

2. Place common fill to minimum 95% of standard proctor (ASTM D698) and within +/- 3% of optimum moisture content.

3. Place structural fill compacted to minimum 100% of standard Proctor (ASTM D698) and within +/- 2% of optimum moisture content for structure subgrades of footings, slabs on grade, and pads.

4. Utility backfill:

a. Place granular pipe bedding to a minimum 95% of standard Proctor (ASTM D698) for utility bedding.

b. Place common fill compacted to a minimum 95% of standard Proctor (ASTM D698) taking care not to damage or misalign any pipe.

5. Place any material within 3 feet of finished ground surface under pavements compacted to Minimum 100% of standard proctor and within +/- 2% of optimum moisture content.

3.05 GRADING

A. General:

1. Uniformly grade areas within limits shown on the Drawings, including adjacent transition areas. Smooth finished surface and compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Grading outside site feature limits:

1. Grade Site so that it drains away from all Buildings, Pads, and Structures and to prevent ponding.

2. Ensure no pooling water within 50’ from well.

3.06 TESTING

A. Arrange and pay for soil sampling and testing by a qualified testing agency, acceptable to Owner and independent of Contractor.

B. Test soil materials for suitability for intended purpose using standard, recognized procedures. Determine mechanical analysis, liquid and plastic limit, and moisture-density curve (ASTM D698) for each type of soil encountered.

C. Perform at least one field density test on subgrade and in each 2 foot (or less) of compacted fill for every 1,000 square yards of fill to be placed. Randomly select density test locations and in accordance with ASTM D1556 (sand cone method) or ASTM D2922 (nuclear method). Where field testing indicates that soils are below specified density, provide additional compaction and testing at no additional cost to Owner.

3.07 TOLERANCES

A. Construct the excavation and backfill Work within the dimensional tolerances given below. Elevation and thickness tolerances are acceptable deviations from the elevations and material thicknesses shown on the Drawings.

B. Tolerances

1. Construct trench or ditch excavations to elevations minus 0.05, plus 0.05 feet in accordance with the Drawings to provide proper drainage.

2. Construct common or structural fill to +/- 0.1 feet in accordance with the Drawings.

3.08 MAINTENANCE

A. Protect newly graded areas from traffic and erosion, and keep free of trash and debris. Maintain erosion control.

B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.

C. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

3.09 TOPSOIL PLACEMENT AND GRADING

A. See Section 32 92 00 Site Restoration for topsoil placement grading.

3.10 FIELD QUALITY CONTROL

A. Utilize equipment, materials and procedures that are anticipated to meet the quality requirements specified.

B. Quality Control Testing During Construction: Permit Engineer to observe, sample, and test subgrades and fill layers before further construction work is performed thereon. Notify Engineer when phases of Work are completed and ready for testing.

C. Establish and maintain quality control for Work under this Section to assure compliance with the Contract Documents and maintain records of Contractor's quality for all operations, including, but not limited to, the following:

1. Weight tickets for imported material used,

2. Monitoring of lift thickness and uniformity during backfill,

3. Compaction tests and density tests to verify compliance with Specifications,

4. Locations and elevations of all tests and material tested.

3.11 DISPOSITION OF MATERIALS

A. Dispose of unsuitable materials at a suitable location for off-site disposal in accordance with Laws and Regulations. Transport all debris, rubbish, and other materials resulting from excavation.

B. Burning of materials will not be permitted on the Site.

END OF SECTION 31 23 00

SECTION 31 23 19

DEWATERING

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete excavation dewatering at the site including, but not limited to:

1. Collection and treatment for solids removal.

2. Discharge of treated water from the excavation area.

3. Management of solids generated during water treatment.

B. Water discharge associated with the Well is not included under this Section.

1.02 RELATED SECTIONS

A. Section 31 23 00 Excavation and Fill.

B. Section 31 25 00 Erosion and Sediment Control.

C. Section 33 05 28 Trenching and Backfilling for Utilities.

1.03 SUBMITTALS

A. Work plan including:

1. Dewatering plan describing the means and methods that will be used to successfully accomplish water collection, treatment, and discharge of dewatering water during the Work. Information in the dewatering plan shall include, but not be limited to, the following:

a. Description of key equipment components (i.e., tanks, pumps, filters, flow meters, etc.) including supplier and model name, operational characteristics and expected performance for solids removal.

b. Plans showing the layout of the water collection, treatment, and conveyance system.

c. Description of operation of the collection, treatment, and conveyance equipment (estimated flow-rates and standard operating procedures [SOPs]).

d. Site stormwater system tie-in location.

e. Start and end dates of dewatering.

2. Submit plan a minimum of one week prior to the initiation of dewatering activities.

B. Test results and certificates including:

1. Records of the discharge rate and total volume and duration of treated water discharge.

1.04 QUALITY ASSURANCE

A. Dewatering crew qualifications:

1. Crew leader: minimum five years of experience with dewatering equipment.

1.05 PERMITS

A. Obtain a Minnesota DNR Water Appropriation Permit for use with groundwater dewatering activities, as necessary.

PART 2: PRODUCTS (NOT USED)

PART 3: EXECUTION

3.01 COORDINATION OF WORK

A. Contractor shall be solely responsible for managing and coordinating related work that affects the quality and quantity of the water that is discharged from the excavation area. Continuously restrict stormwater runoff from entering the excavation area to minimize the volume of water to be managed.

B. Sequence and coordinate work so that the dewatering system is operational prior to beginning operations that will generate water including but not limited to: dewatering of excavation areas, precipitation into earthwork areas, and decontamination activities.

C. Continuously maintain the dewatering system and continue all water treatment efforts until all of the on-site operations that could potentially generate water have been completed.

D. Operate dewatering system so that effects of dewatering do not adversely affect structures and facilities.

3.02 DEWATERING SYSTEM EQUIPMENT OPERATION

A. Operate the collection and treatment equipment in conformance to the approved Water Collection, Treatment, Discharge, and Monitoring Plan. It is anticipated that treatment will involve the following processes:

1. Water generated during excavation and dewatering activities at the site will be directed to a sump or other control areas within the excavation.

2. Solids removal will be accomplished either by pump intake screening, silt fencing or other suitable means to remove suspended solids.

B. At a minimum, treat the water to remove solids to below 50 mg/L total suspended solids (TSS) prior to discharging.

3.03 MONITORING OF WATER TREATMENT AND DISCHARGE

A. Monitor water discharges from the dewatering system in accordance with the monitoring plan submitted.

B. Discharge should include energy dissipation at outlet.

3.04 MANAGEMENT OF WATER TREATMENT SOLIDS

A. Recover, dewater, and manage any solids that are removed by or accumulated in water treatment equipment as described for the water collection, treatment, discharge, and monitoring plan prepared by Contractor.

END OF SECTION 31 23 19

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROL

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete erosion and sediment control at the site including, but not limited to:

1. Provide temporary erosion control to meet the requirements of all federal, state and local agencies.

2. Prevent transport of soil and removed sediment materials from the sites of the Work in compliance with this Section of the Specifications.

1.02 RELATED SECTIONS

A. Section 02 41 00 Demolition.

B. Section 31 01 00 Site Preparation.

C. Section 31 10 00 Clearing and Grubbing.

D. Section 31 23 00 Excavation and Fill.

E. Section 31 23 19 Dewatering.

F. Section 33 05 28 Trenching and Backfilling for Utilities.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise:

1. Minnesota Department of Transportation Standard Specifications for Construction, 2025 Edition, hereafter referred to as Mn/DOT Standard Specifications.

1.04 SUBMITTALS

A. No submittals are required from this Section.

1.05 QUALITY ASSURANCE

A. Owner may stop work on the project if Contractor is operating in violation of these Specifications. Commence to diligently restore the project to conform to the conditions of these Specifications within 24 hours. If, in Owner's opinion, Contractor has not, within 24 hours after work stoppage, commenced to diligently restore the project to conform to the conditions of the permit, then Owner may, without further notice to Contractor, take actions to immediately restore the project to the conditions of these Specifications. The cost of actions by Owner required to restore the project to conditions of these Specifications will be paid by Contractor.

1.06 SEQUENCING AND SCHEDULING

A. Install BMP's and erosion control measures specified in this Section or as directed by Owner prior to commencing demolition activities.

B. Maintain and replace the erosion controls for the duration of the Project as necessary in accordance with this Section of the Specifications and as directed by Owner.

PART 2: PRODUCTS

2.01 CONSTRUCTION ENTRANCE/EXIT

A. Construction Entrance/Exit shall be as specified on the Drawings.

2.02 SILT FENCE

A. Silt Fence shall be Machine Sliced as specified in Mn/DOT Standard Specification 3886, except that support posts shall be no further than 4 feet apart.

2.03 SEDIMENT CONTROL LOG

A. Sediment control log shall be straw as specified in Mn/DOT Standard Specification 3897.

2.04 EROSION CONTROL BLANKET

A. Erosion control blanket shall be Category 25 as specified in Mn/DOT Standard Specification 3885.

2.05 INLET PROTECTION

A. Contractor shall provide inlet protection as shown on the Drawings or as approved by Engineer. The protection measures shall be approved devices and methods to prevent the transportation of sediments into the storm sewer system.

B. Contractor responsible for cleaning out sediment from inlets within work area.

PART 3: EXECUTION

3.01 TEMPORARY EROSION AND SEDIMENT CONTROL

A. Sweep roads free of all sediment which is transported onto them as a result of construction. Sweep weekly if sediment is on the streets or more frequently if requested by Owner. The cost for sweeping shall be at Contractor's expense.

B. Temporary protect or permanently cover all exposed soil areas within 7 days.

C. Construct temporary erosion controls where there is evidence that sediment is being transported from the work area, where drainageways flow from the work area, and elsewhere as required to control erosion.

D. Schedule operations to minimize the amount of area disturbed and thus susceptible to erosion at any given time.

E. Remove and dispose of all temporary erosion controls when turf has been fully established or when earthwork has eliminated the possibility of sediment transport from the work area.

3.02 CONSTRUCTION ENTRANCE/EXIT

A. Clean and maintain at the end of each work day.

3.03 SILT FENCE

A. Install in accordance with Mn/DOT Standard Specification 2573. Four-foot maximum post spacing. 24 inches minimum post embedment below grade.

3.04 SEDIMENT CONTROL LOG

A. Install, anchor, and maintain in accordance with Mn/DOT Standard Specification 2573 and manufacturer's recommendations.

3.05 EROSION CONTROL BLANKET

A. Install in accordance with Mn/DOT Standard Specification 2573 and manufacturer's recommendations.

3.06 INLET PROTECTION

A. Install as shown on Drawings and in accordance with manufacturer's recommendations.

END OF SECTION 31 25 00

Division 32

Exterior Improvements

32 16 00

ROADWAY AND SIDEWALK PAVEMENTS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete sidewalks and pavement at the site including, but not limited to:

1. Curb and gutters.

2. Concrete sidewalks.

3. Bituminous pavement.

1.02 RELATED SECTIONS

A. Section 03 10 00 Concrete Forms and Accessories.

B. Section 03 20 00 Concrete Reinforcement.

C. Section 03 30 00 Cast-in-Place Concrete.

D. Section 31 23 10 Excavation and Fill.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

1. American Society for Testing and Materials (ASTM)

a. ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort.

2. Minnesota Department of Transportation Standard Specifications for Construction, 2025 Edition, hereafter referred to as Mn/DOT Standard Specifications.

1.04 SUBMITTALS

A. Test results and certificates including:

1. Prior to placement, submit signed certification that materials furnished and mixture designs to be used for this Work have been tested and conform to the applicable requirements of these Specifications.

a. Indicate source of materials, mixture designations and proportions, name and address of testing laboratory, and dates of tests.

1.05 SEQUENCING AND SCHEDULING

A. Do not proceed with paving activities until testing of subgrade materials and/or observation of subgrade preparation has been completed by Engineer or Owner.

B. Do not proceed with paving activities until grading of subgrade material has been completed in accordance with Section 31 23 00 Excavation and Fill. Touch up or regrade as necessary to provide surface free of ruts, rills, depressions, and other undesirable features.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Only materials meeting requirements of Specifications at time of placement (temperature, etc.) will be accepted.

B. Immediately remove from Site all materials not meeting requirements.

C. Store materials and stage equipment within construction limits and staging.

D. Do not block access to each well with delivery of materials and equipment staging.

PART 2: PRODUCTS

2.01 AGGREGATE BASE

A. 100% crushed quarry rock (limestone or dolostone) Class 5 as specified in Mn/DOT Standard Specifications 3138.

2.02 BITUMINOUS PAVEMENT

A. Bituminous Base Course:

1. Shall conform to the requirements of Mn/DOT Standard Specification 2360 for Plant Mixed Asphalt Pavement, Type SPWEB340C, or an Owner-approved equal.

B. Bituminous Tack Coat:

1. Shall conform to the requirements of Mn/DOT Standard Specification 2357 for Bituminous Tack Coat, Type MC-250 and 3151 for Bituminous Material.

C. Bituminous Wear Course:

1. Shall conform to the requirements of Mn/DOT Standard Specification 2360 for Plant Mixed Asphalt Pavement, Type SPWEB340C, or an Owner-approved equal.

2. The use of recycled materials in bituminous mixtures for wear course will not be allowed.

D. Asphalt Binder Material:

1. Shall conform to the requirements of Mn/DOT Standard Specification 3151 for Performance Grade Asphalt Binder.

E. All bituminous mixtures shall incorporate an approved coating and anti-stripping additive.

2.03 CONCRETE PAVEMENT, SIDEWALK, CURB AND GUTTER

A. Refer to Sections 03 10 00 Concrete Forms and Accessories, 03 20 00 Concrete Reinforcement, and 03 30 00 Cast-in-Place Concrete for requirements.

PART 3: EXECUTION

3.01 SUBGRADE COMPACTION

A. See Specification 31 23 00 Excavation and Fill.

3.02 PROOF ROLLING

A. Perform proof rolling with a fully loaded tandem axle dump truck having a minimum gross weight of 25 tons. Proof rolling should be performed in the presence of Engineer or Owner. If any soft or weak zones are identified during the proof roll, the material should be subcut a minimum of 3 feet and replaced with suitably compacted fill material.

3.03 AGGREGATE BASE

A. Place Aggregate Base material to the compacted thicknesses required as shown on the Drawings. Compact to minimum 100% of standard Proctor (ASTM D698) and within +/- 2% of optimum moisture content.

3.04 BITUMINOUS PAVEMENT

A. Install bituminous pavement in accordance with MN/DOT Standard Specification 2360 and to the compacted thickness in lifts as shown on the Drawings.

B. Non-wearing course:

1. Place within 72 hours of completion of Aggregate Base course.

2. Prior to base course paving, tack material shall be applied to existing construction joints adjoining to new base course mat. Tack coat shall be applied at an application rate of 0.05 gallons per square yard.

3. Verify that all structures are properly plated with a metal plate prior to paving.

4. Prior to paving areas with previously installed utilities, verify that those utilities were not damaged during construction.

C. Wearing course:

1. Prior to paving, base surface must be cleaned and tack material applied.

2. Prior to paving, adjust castings and remove a diamond cut with a minimum of 2 feet (0.6m) of bituminous base course around any structure to allow approved mechanical recompaction of aggregate base. Recompaction of aggregate base shall be accomplished with a Wacker J-Tamper or approved equal (vibratory pads are not allowed). Refill and compact resulting gap with bituminous to level of surrounding course prior to paving the next course. Tack or reheat all edges prior to patching.

3. Paving wear course before June 1 or after October 15 requires (written) permission from Engineer. Confirmation shall be in written form.

4. Tack Coat: Excess fuel oil or similar substances should be removed from any surface after the tack coat has been applied. Tack coat shall be applied as close as possible to paving time. Tack coat shall be reapplied at the discretion of Engineer. Tack coat shall be applied at an application rate of 0.05 gallons per square yard.

5. Pneumatic roller for finishing wear course is required except as may be prohibited by Engineer adjacent underground structures.

6. Construction joints: the contact surface of all fixed structures shall be tacked prior to paving. The edge of any cold in-place pavement shall also be tacked prior to paving.

3.05 CONCRETE PAVEMENT, SIDEWALK, CURB AND GUTTER

A. Refer to Sections 03 10 00 Concrete Forms and Accessories, 03 20 00 Concrete Reinforcement, and 03 30 00 Cast-in-Place Concrete for requirements.

3.06 TOLERANCES

A. Line and grade (+/– 0.2 foot horizontally, +/– 0.05 feet vertically)

END OF SECTION 32 16 00

32 90 00

SITE RESTORATION

PART 1: GENERAL

1.01 SUMMARY

A. Section includes restoring all disturbed areas, and includes soil preparation, seeding, erosion control blanket and all other work as may be necessary including, but not limited to:

1. Placing topsoil for sodding, seeding and planting.

2. Restoring all areas disturbed.

3. Installing native seed mix.

4. Mulching and fertilizing.

5. Placing erosion control blankets.

6. Establishing and maintaining native seeding and sod.

B. Sod shall be installed in disturbed areas. Per Owner approval, seed may be installed in select locations of minor disturbance.

1.02 RELATED SECTIONS

A. Section 31 23 00 Excavation and Fill.

B. Section 31 25 00 Erosion and Sedimentation Control.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

1. Minnesota Department of Transportation Standard Specifications for Construction, 2025 Edition, hereafter referred to as Mn/DOT Standard Specifications.

1.04 SUBMITTALS

A. Submit for information all requested submittals a minimum of two weeks prior to the Work, except as noted.

B. Test results and certificates:

1. Seed mixture guarantee that the mixture and ratios meets the specified percentage or weight in the Seed and Plant Lists.

2. Seed testing indicating an 80% or higher viability prior to final payout.

1.05 QUALIFICATIONS

A. General Site Restoration

1. Foreman qualifications:

a. Minimum of five years of experience in landscape installation and restoration.

b. Horticultural or ecological restoration training.

2. Crew qualifications:

a. Familiar with planting procedures.

b. Under the supervision of a qualified foreman.

1.06 QUALITY ASSURANCE

A. Inspection: Owner reserves the right to inspect all seeds at their place of growth and upon delivery for conformity to specification requirements. Approval of material at those times does not preclude the right of inspection and rejection during progress of the planting work.

B. Seed analysis shall be attached to the seed bags showing species, germination, purity, name of certified testing agency, and date of test. No seed will be accepted unless test date is within 12 months of planting date.

C. Communication between Contractor and Owner:

1. Notify Engineer or Owner at least (3) three days in advance of any Work to be performed at Site, or of any inspections necessary to conform to Specifications.

1.07 DELIVERY, STORAGE, HANDLING

A. Furnish standard products in unopened manufacturer’s containers.

B. Ship and store seed and mulch with protection from weather or other conditions that would damage the product or impair it effectiveness. Contractor shall inspect materials and items that have become wet, moldy, or otherwise damaged in transit or in storage shall be rejected.

1.08 SEQUENCING AND SCHEDULING

A. Coordinate the planting work with site grading work and any other restoration work, with the goal of minimizing lag time between completion of grading and restoration work.

B. Contact the local utility companies for verification of the location of all underground utility lines in the area of work.

C. Turf establishment shall conform to the planting Season of Planting requirements of Mn/DOT Standard Specification 2575.3 A.

D. Contractor shall plant seed during non-frozen dormant seasons or growing seasons.

1. Dormant seeding shall conform to MN/DOT Standard Specifications 2575.3 B.7 as approved by Engineer. Snow seeding is not allowed.

1.09 EROSION CONTROL

A. Contractor is required to continue erosion control methods and maintain previously installed materials, and to install, where necessary, additional protection to control erosion and sedimentation during their work on the site.

B. Verify that conditions on the Site are suitable to receive work prior to commencing.

C. Contractor will be responsible to repair all subsequent soil erosion after site condition verification extending for a period of three months after receipt of preliminary acceptance.

D. Repair all erosion rills greater than 1 inch deep. Repair all eroded areas within 48 hours of receipt of notification from Engineer or Owner. Additional erosion control repairs and/or measures shall be considered incidental to the plant installation.

PART 2: PRODUCTS

2.01 SOILS

A. All soil materials except organic soils. Free of vegetation, debris, roots, sticks, brush, non-soil materials, and other materials which in the opinion of Engineer will have a deleterious effect on the Work.

2.02 TOPSOIL

A. Loam Topsoil as specified in MnDOT Standard Specification 3877.2.B.

2.03 MULCH

A. Type 3 mulch as specified in Mn/DOT Standard Specification 3882.2.

B. All Mulch material must be MCIA-Certified Noxious Weed Seed-Free.

2.04 SOD

A. Salt Tolerant Sod as specified in Mn/DOT Standard Specification 3878.2.B.

2.05 SEED

A. Low Maintenance Turf (seed mix 25-131) as specified in Mn/DOT Standard Specification 3876.2.A.1.

2.06 FERTILIZER:

A. Type 3 Fertilizer as specified in Mn/DOT Standard Specification 3881.2.B.3.

B. Contain minimum percentage by weight of: 10-10-10: Nitrogen, Phosphorus, Potash

2.07 WATER

A. Water for irrigation is not available on the site. Contractor must furnish and supply water for plant irrigation during the required Maintenance period specified herein.

B. If permits are required, all costs will be borne by Contractor.

C. Supply all hoses, pumps, electrical supply, and other appurtenances for water supply.

PART 3: EXECUTION

3.01 GENERAL

A. Cover all disturbed areas with topsoil to a minimum depth of 4 inches. Install sod, seed, mulch, fertilize, and erosion control blanket in accordance with Mn/DOT Standard Specification 2575 and as specified herein.

B. Coordinate the vegetation establishment work with the grading and finishing operations to provide protection as soon as possible after areas have been prepared.

3.02 TOPSOIL PLACEMENT AND GRADING

A. Place topsoil uniformly over entire area to be planted to a minimum depth of 6 inches. In the event that topsoil has been disturbed or is not of acceptable depth prior to application of sod, planting, or seed, add supplement topsoil in area to bring it up to the required depth. Work all areas receiving seed until the soil is completely fined and in a mellow condition, and to a smooth, even finish grade. Fill all holes, depressions and rivulets to ensure no disruption of established drainage patterns. Remove all rubble, sticks, branches, or stones and extraneous material over ¾-inch diameter on the surface, which will interfere with the seeding.

B. Immediately prior to sodding, seeding, or planting, loosen topsoil to a depth of 3 inches on all areas using discs, harrows, tiller rakes, or hand tools as needed to produce fine grade and incorporate the compost into the soil.

C. Prepare ground so top of newly sodded, seeded, or planted areas will be flush with adjacent soil, adjacent walks, and permanent surfacing.

3.03 SEEDING

A. Uniformly spread and sow specified seed mixture at specified rate by means of mechanical equipment. Operate all mechanical equipment used in the seeding operation at right angles to the direction of surface drainage. Use markers or other means to ensure that the successive seeded strips will overlap. Complete seeding before the soil prepared for seeding becomes eroded, crusted over, or dried out. Suspend or alter seeding activities, as directed by Engineer, when soil conditions are excessively wet or dry.

B. Perform seeding mechanically with equipment designed for even distribution of seed. Apply seed with: (1) a tractor-drawn rotary spreader or seed drill (except that tractor-drawn equipment will not be permitted on previously seeded and mulched areas), or (2) a hand-operated or manually pushed mechanical spreader. Hand-operated or manually pushed mechanical spreaders are permitted in areas where it is inaccessible for other equipment. No hydro-seeding devices can be used for native seed mixes.

C. Hand rake hand seeded areas to ensure good seed-to-soil contact.

D. Firm seed bed after seeding and prior to mulching using a corrugated cultipacker or other Engineer -approved soil-firming equipment. Firm soil the same day the seed is applied.

3.04 EROSION CONTROL BLANKET

A. Use erosion control blanket on all seeded areas with slopes greater than 4:1 and as designated by the Engineer following seeding operations.

B. Install erosion control blanket in all areas as shown on Drawings in accordance with Mn/DOT Standard Specification 2575.3. Install blankets vertically on the slope. Use a minimum two inch overlap, where more than one width is required. Secure the outer most stitch of each blanket with a common row of staples. Trench blanket at the head of the slope if the blanket cannot be extended three feet over the slope crest or if overland flow is anticipated from upslope areas.

C. Take precautions to prohibit pedestrian or vehicular traffic over the blanketed area. Replace at once, blanket displaced by such activities, but only after the work preceding the blanketing, which may have been damaged as a result of the displacement, has been acceptably repaired. Suspend or alter blanketing activities, as directed by Engineer, when soil conditions are excessively wet or dry.

3.05 MULCH

A. Install mulch on all seeded areas following seeding operations

B. Install mulch in accordance with Mn/DOT Standard Specification 2575.3. Spread mulch to provide 90 percent uniform soil coverage at a rate of two tons per acre.

C. Disk anchor mulch in accordance with Mn/DOT Standard Specification 2575.3D.

3.06 CLEAN UP

A. Clean-up the entire area around planting operations and restore to its original condition.

B. Restore existing turf damaged by Contractor’s planting operations by seeding.

3.07 FIELD CONTROL QUALITY

A. Establish and maintain quality control for work under this section to assure compliance with contract requirements and maintain records of this quality control for all construction operations.

3.08 INSPECTION AND ACCEPTANCE

A. Notify Engineer when restoration work is completed and ready for inspection.

B. Sod shall be inspected 60 days after installation and shall be growing vigorously.

1. Any dead or dying sod shall be replaced immediately.

C. Following the inspection, Engineer will provide Contractor with a punch list noting all repairs, replacements, or work completion required. Upon completion of all work identified on the punch list, notify Engineer that completed punch list work is ready for inspection.

D. Re-inspection and punch list generation will continue until all items are corrected. Such procedure will continue until all items of the punch list are corrected. Upon completion of a satisfactory inspection, Engineer will provide Contractor with an acceptance notification.

END OF SECTION 32 92 00

Division 33

Utilities

33 05 23

HORIZONTAL DIRECTIONAL DRILLING

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete Horizontal Directional Drilling.

B. Various methods will be considered, provided they can generally follow the design profile in constructing the pipeline from the starting access point to the ending access point.

1.02 RELATED SECTIONS

A. Section 31 23 19 Dewatering.

B. Section 32 16 00 Roadway and Sidewalk Pavements

C. Section 32 92 00 Site Restoration

D. Section 33 10 00 Water Utilities.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

1. American Petroleum Institute (API)

a. API Bulletin D20: Directional Drilling Survey Calculation Methods and Terminology

b. API RP 13B-1: Recommended Practice for Field Testing Water-based Drilling Fluids.

2. American Society for Testing Materials (ASTM)

a. ASTM A240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

1.04 SUBMITTALS

A. Installation Plan including:

1. Experience and qualifications information including the following:

a. A list of at least 10 similar projects completed by the company, including the name of owner, location, project environment (i.e. urban work, waterbody crossing), pipeline and/or casing diameter(s), length of installation, and contact names and phone numbers.

b. A list of key personnel assigned to the project including title, experience, and personal references.

1) The field supervisor shall have at least 3 years of experience and shall be at the site at all times during the boring/drilling installation.

2. Site access requirements.

3. Major Equipment including the following:

a. Type and capacity of drilling rig to be used for the project, including thrust and rotary torque.

b. Type and capacity of the mud mixing system.

c. A list of any specialized support equipment required.

4. A detailed plan and profile of the bores indicating the location and footprints of all equipment, staging areas, pipe storage areas, location of entry and exit pits, and location of drilling fluids containment pits (as applicable) to be plotted at a scale no smaller than 1 inch equals 20 feet horizontal and vertical.

5. A detailed installation plan including the following:

a. Depiction of Contractor's proposed plan and profile of pipeline to be installed including denoted entry and exit points, entry and exit angles, bend radiuses, and points of intersection (PIs).

b. Construction methods, including diameter of pilot holes, number and size of pre-reams, use of rollers, baskets, and side booms to suspend and direct pipelines during pullback, and number and sections in which the pipelines are to be installed.

c. Description of installation sequencing, including pilot hole, reaming, and pullback for pipeline.

d. Type, operating range, and degree of accuracy of tracking equipment.

e. Drilling fluid mix design.

f. Pipeline joining methods.

g. Measures to be employed and monitoring to be performed to prevent overstressing of pipeline during installation.

6. A Quality Control Plan detailing personnel and associated responsibilities, inspections, and organization for insuring the quality of construction required by these Specifications. The plan shall include a table listing methods, frequencies, and acceptable conditions and tolerances. The plan shall explain the methods and locations for obtaining samples for testing and reporting schedules. Copies of quality control forms shall be submitted for review and approval.

7. A plan describing drilling fluid and cuttings management methods including:

a. Method(s) of drilling fluid and slurry containment

b. Method(s) of recycling drilling fluids and spoils

c. Method(s) of transporting drilling fluids and spoils off the site

d. Disposal plan for drilling mud and spoils

e. A spill plan in the event of a spill of drilling fluids, hydraulic fluids, and/or any other fluids or substances other than potable water. The plan shall include measures to communicate the spill to Owner or Owner's Representative and a plan to contain and clean the affected area.

8. A description of measures to be employed to prevent hydraulic fracturing of overburden soils and drilling fluid migration. A plan of action in the event of hydraulic fracturing and/or drilling fluid migration from the drill alignment shall also be included.

9. A plan for leak testing installed pipeline.

10. A plan of action to be followed in the event of a failed pipeline installation and/or failed post-installation leak test.

11. Televising records.

12. Traffic management plan.

13. Submit Installation Plan at least 7 days prior to mobilizing equipment.

B. Manufacturer's product data including:

1. Technical product data and installation instructions for all water system materials and products.

C. Shop drawings including:

1. Piping materials, size, locations, and elevations. Include details of underground structures, valves, connections, restrained joints, and anchors. Show interface and spatial relationship between piping and proximate structures.

D. Test results and certificates including:

1. For each fusion joint provide all process information, time, temperature and pressure in the form of a written log

2. Leakage Test and Hydrostatic Pressure Test. Submit for approval 1 copy of results of leakage and hydrostatic pressure test upon completion of backfilling operations.

3. Conductivity Test. Submit for approval 1 copy of results of conductivity test upon completion of backfilling operations.

4. Bacteriological Tests. Submit for approval 1 copy of results of bacteriological tests upon completion.

E. Operation and maintenance instructions including:

1. Include O&M data, product data, shop Drawings in O&M manual.

F. Record Drawings:

1. At Project closeout, submit for information Record Drawings of installed piping and products including locations and elevations.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications. Firms regularly engaged in manufacture of water systems materials and products, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer's Qualifications. Installer shall have at least five years experience in horizontal directional drilling and have installed horizontal directional drilled pipe at least as large as 8 inches in diameter for a minimum of 10 projects within the last 5 years.

1. Installers shall have equipment capable of installing pipeline in segments of up to 1,300 LF. It is the intent of the pipeline layout that access pits will be located only in the locations shown on the Drawings (e.g., no intermediate access pits along Paul Parkway or Oak Park Blvd).

1.06 DELVIERY AND STORAGE

A. Materials delivered and placed in storage shall be protected from weather, contamination, degradation, and damage.

PART 2: PRODUCTS

2.01 HIGH DENSITY POLYETHYLENE PIPE (HDPE)

A. See Section 33 10 00 Water Utilities for HDPE requirements.

2.02 TRACER WIRE FOR HDPE

A. Solid copper No. 10 or stainless steel No 10 tracer wire.

B. Splicing tracer wire for horizontal directional drilling will not be allowed.

2.03 DRILLING FLUID (SLURRY)

A. Stable colloidal suspension of bentonite in water and shall be controlled in accordance with API RP 13B-1.

B. Admixtures may be incorporated into the drilling fluid if approved by Owner or Owner’s Representative.

PART 3: EXECUTION

3.01 LOCATION OF WORK

A. The Work shall be located as shown on the Drawings. In general, boring pits may be located within roadway right-of-way and easements as authorized by Owner.

B. It may be necessary for the Owner or Owner's Representative to shift lines a reasonable amount to avoid an obstruction to the construction work or to reduce right of way difficulties. The Contractor will not be allowed any additional compensation due to minor shift of lines. Additional compensation will be allowed only for lengthening of lines greater than 2% of the overall length, or for providing additional fittings.

C. HDD installations used for potable water shall be laid at least 10 feet horizontally from any sanitary or storm sewer, as measured edge to edge. At crossings, potable water pipe shall be at least 18-inches vertically separated from sanitary or storm infrastructure. Deviations from these separation distances shall be approved by MDH.

3.02 EXAMINATION

A. Examine the area and conditions for performing pipeline installation via HDD methods. If unsatisfactory conditions occur during Work, notify Owner or Owner's Representative and do not proceed with Work until unsatisfactory conditions have been corrected.

B. It shall be Contractor's responsibility to determine to its own satisfaction the location and nature of all surface and subsurface obstacles and the soil and water conditions that will be encountered during construction.

C. Provide Owner and Owner's Representative with access to Contractor's work areas at all time, and provide Owner or Owner's Representative with the location and profile of all drilled alignments.

3.03 PREPARATION

A. Contractor shall make arrangements to locate all existing utilities and underground facilities in the areas of Work. If any are to remain in place, Contractor shall provide adequate means of protection during HDD installation operations.

B. Contractor shall protect existing structures, utilities, roads, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by HDD pipeline installation.

C. Surface water shall be controlled sufficiently to permit HDD pipeline installation.

3.04 GENERAL

A. All polyethylene pipe shall be cut, fabricated, and installed in strict conformance with the pipe manufacturer's recommendations. Joining, laying, and pulling of polyethylene pipe shall be accomplished by personnel experienced in working with polyethylene pipe. The pipe supplier shall certify in writing that the Contractor is qualified to join, lay, and pull the pipe or representative of the pipe manufacturer shall be on site to oversee the pipe joining. Expense for the representative shall be paid for by the Contractor.

B. Storage

1. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects which could damage the pipe. Stacking of the polyethylene pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature condition. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such widths as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

C. Handling Pipe

1. The handling of the joined pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. Ropes, fabric, or rubber-protected slings and straps shall be used when handling pipes. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe. Pipe or fittings shall not be dropped onto rocky or unprepared ground. Slings for handling the pipeline shall not be positioned at butt-fused joints. Sections of the pipes with cuts and gouges exceeding 10 percent of the pipe wall thickness or kinked sections shall be removed and the ends rejoined.

2. The open ends of all sections of joined and/or installed pipe (not in service) shall be plugged at night to prevent animals or foreign material from entering the pipe line or pipe section.

3. Waterproof nightcaps of approved design may be used but they shall also be so constructed that they will prevent the entrance of any type of natural precipitation/ into the pipe and will be fastened to the pipe in such a manner that the wind cannot blow them loose.

4. The practice of stuffing cloth or paper in the open ends of the pipe will be considered unacceptable.

5. Where possible, the pipe shall be raised and supported at a suitable distance back from the open end such that the open end will be below the level of the pipe at the point of support.

3.05 EXCAVATIONS

A. Entry and exit pits shall be excavated to a depth allowing the top of pipeline sections beyond the pipeline entry and exit points to be located a minimum of 7.5 feet below grade.

B. All excavations shall be in accordance with applicable OSHA requirements.

3.06 INSTALLATION

A. Install pipelines by means of horizontal directional drilling. Assemble, support, and pretest the pipeline prior to installation in the directional drill tunnel.

B. Horizontal directional drilling shall consist of the drilling of a small diameter pilot hole from one end of the alignment to the other, followed by enlarging the hole diameter for the pipeline insertion. The exact method and techniques for completing the directionally drilled installation will be determined by the Contractor, subject to the requirements of these Specifications.

C. Monitor the route taken by the drilling unit utilizing the downhole survey calculation methods discussed in API Bulletin D20. A surface monitoring system may be allowed in lieu of the downhole calculation method. Approval of surface monitoring shall be at the discretion of the Owner or Owner's Representative based on the Owner or Owner's Representative's evaluation of the particular system proposed for use.

D. Drilling fluid consisting of a bentonite slurry shall be using during drilling and back-reaming operations. Drilling fluid consisting solely of water will not be permitted.

E. Drilling fluid shall remain in the annular space between the pipeline and the borehole upon completion of the installation.

F. The required piping shall be assembled in a manner that does not obstruct adjacent roadways or public activities. Erect temporary fencing around the entry and exit pipe staging areas.

G. Joining Pipe Sections

1. Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately prior to joining.

2. Pipes shall be joined to one another by means of thermal butt-fusion. Polyethylene pipe lengths to be joined by thermal butt-fusion shall be of the same type, grade, and class of polyethylene compound and supplied from the same raw material supplier.

3. Mechanical connections of the polyethylene pipe to auxiliary equipment shall be through flanged connections which shall consist of the following:

   a. A polyethylene "stub end" shall be thermally butt-fused to the ends of the pipe.

   b. Provide ASTM A240, Type 304 stainless steel backing flange, 125-pound, ANSI B16.1 standard, and gaskets as required by the manufacturer.

   c. Stainless Steel bolts and nuts of sufficient length to show a minimum of three complete threads when the joint is made and tightened to the manufacturer's standard. Retorque the nuts after 4 hours.

   d. Butt-Fusion Joining: Butt-fusion of pipes shall be performed in accordance with the manufacturer's recommendations as to equipment and technique. Butt-fusion joining shall be 100% efficient offering a joint weld strength equal to or greater than the tensile strength of the pipe.

H. Allow a minimum 8 to 24 hour relaxation period as specified by the manufacturer or industry standards prior to connecting or attaching any appurtenances to or restraining the inserted HDPE pipe.

I. Testing

1. The pipe shall be hydrostatically tested after joining into continuous lengths prior to installation and again after installation as specified Section 33 10 00 Water Utilities. Pressure and temperature shall be monitored with certified instruments during the test. After this test, the water will be removed with pigs. Erosion prevention procedures will be used during removal and discharge of the water.

2. Hydrostatic testing shall be performed in accordance with manufacturer's recommendations.

J. Tolerances

1. Pipe installed by the directional drilled method must be located in plan as shown on the Drawings, must be no shallower than shown on the Drawings, and must be no closer than minimum offsets shown on the Drawings, unless otherwise approved. Plot the actual horizontal and vertical alignment of the pilot bore at intervals not exceeding 30 feet. This "as built" plan and profile shall be updated as the pilot bore is advanced. At all times, provide and maintain instrumentation that will accurately locate the pilot hole and measure drilling fluid flow and pressure. Grant Owner or Owner's Representative access to all data and readout pertaining to the position of the bore head and the fluid pressures and flows.

2. Employ experienced personnel to operate the directional drilling equipment and, in particular, the position monitoring and steering equipment. No information pertaining to the position or inclination of the pilot bores shall be withheld from Owner or Owner's Representative.

3. Each exit point shall be indicated with an over-length tolerance of 5 feet for directional drills of 1,000 linear feet or less and 20 feet for directional drills of greater than 1,000 linear feet and an alignment tolerance of 5 feet left/right with due consideration of the position of the other exit points and the required permanent easement. For pressure pipe installations, high points in the pipeline shall not exceed 25 percent of the nominal pipe diameter. The alignment of each pilot bore must be approved by Owner or Owner's Representative before pipe can be pulled. If the pilot bore fails to conform to the above tolerances, Owner or Owner's Representative may, at their option, require a new pilot boring to be made.

4. After the pipe is in place, cleaning pigs shall be used to remove residual water and debris. After the cleaning operation, provide and run a sizing pig to check for anomalies in the form of buckles, dents, excessive out-of-roundness, and any other deformations. The sizing pig run shall be considered acceptable if the survey results indicate that there are no sharp anomalies (e.g. dens, buckles, gouges, and internal obstructions) greater than 2 percent of the nominal pipe diameter, or excessive ovality greater than 5 percent of the nominal pipe diameter. For gauging purposes, dent locations are those defined above which occur within a span of five feet or less. Pipe ovality shall be measured as the percent difference between the maximum and minimum pipe diameters. For gauging purposes, ovality locations are those defined above which exceed a span of five feet.

K. Ream and Pullback

1. Reaming: Reaming operations shall be conducted to enlarge the pilot after acceptance of the pilot bore. The number and size of such reaming operations shall be conducted at the discretion of Contractor.

2. Pulling Loads: The maximum allowable pull exerted on the HDPE pipelines shall be measured continuously and limited to the maximum allowed by the pipe manufacturer so that the pipe or joints are not over stressed.

3. Torsion and Stresses: A swivel shall be used to connect the pipeline to the drill pipe to prevent torsional stresses from occurring in the pipe.

4. The lead end of the pipe shall be closed during the pullback operation.

5. At all times, handle the HDPE pipe in a manner that does not over stress the pipe. Vertical and horizontal curves shall be limited so that wall stresses do not exceed 50% of

yield stress for flexural bending of the HDPE pipe. If the pipe is buckled or otherwise damaged, the damaged section shall be removed and replaced by Contractor at Contractor's expense. Take appropriate steps during pullback to ensure that the HDPE pipe will be installed without damage.

6. Tracer wire shall be pulled along with the HDPE pipe in order to locate it in the future. Conductivity between HDPE and ductile iron pipe shall be continuous.

L. Handling Drilling Fluids and Cuttings

1. During the drilling, reaming, or pullback operations, the Contractor shall make adequate provisions for handling the drilling fluids, or cuttings at the entry and exit pits. To the greatest extent practical, these fluids must not be discharged into a waterway. When Contractor's provisions for storage of the fluids or cuttings on site are exceeded, these materials shall be hauled away to a suitable legal disposal site. After completion of the directional drilling work, the entry and exit pit locations shall be restored to original conditions. Comply with all permit provisions.

2. Pits constructed at the entry or exit point area shall be so constructed to completely contain the drill fluid and prevent its escape. Excess drilling fluid shall be contained in a lined pit, a containment pond, or via another Owner approved containment method at exit and entry points until recycled or removed from the site.

3. Utilize drilling tools and procedures which minimize the discharge of any drill fluids. Comply with all mitigation measures listed in the required permits and elsewhere in these Specifications.

4. To the extent practical, maintain a closed loop drilling fluid system.

5. Minimize drilling fluid disposal quantities by utilizing a drilling fluid cleaning system which allows the returned fluids to be reused.

6. Make all diligent efforts to minimize the amount of drilling fluids and cuttings spilled during the drilling operation and provide complete clean-up of all drilling fluid overflows or spills.

7. As part of the installation plan specified herein before, submit a drilling fluid plan which details types of drilling fluids, cleaning and recycling equipment, estimated flow rates, and procedures for minimizing drilling fluid escape.

3.07 ENVIRONMENTAL PROVISIONS

A. The Horizontal Directional Drilling operation shall be operated in a manner to eliminate the discharge of water, drilling mud and cuttings to adjacent waters or land areas involved during the construction process. Provide equipment and procedures to maximize the recirculation or reuse of drilling mud to minimize waste. All excavated pits used in the drilling operation shall be lined by Contractor with heavy duty plastic sheeting with sealed joints to prevent the migration of drilling fluids and/or ground water.

B. Visit the site and become aware of all structures and site limitations at the directional drill locations and provide Owner or Owner's Representative with a drilling plan outlining procedures to prevent drilling fluid from adversely affecting the surrounding area.

C. The general work areas on the entry and exit shall be enclosed by a berm to contain unplanned spills or discharge.

D. Waste cuttings and drilling mud shall be processed through a solids control plan, comprised as a minimum of sumps, pumps, tanks, centrifuges, material handlers, and haulers all in a quantity sufficient to perform the cleaning/separating operation without interference with the drilling program. The cuttings and excess drilling fluids shall be dewatered and dried by Contractor to the extent necessary for disposal in offsite landfills. Water from the dewatering process shall be treated by Contractor to meet permit requirements and disposed of locally. The cuttings and water for disposal are subject to being sampled and tested. The construction site and adjacent areas will be checked frequently for signs of unplanned leaks or seeps.

E. Equipment (graders, shovels, etc.) and materials (such as groundsheets, hay bales, booms, and absorbent pads) for cleanup and contingencies shall be provided in sufficient quantities by Contractor and maintained at all sites for use in the event of inadvertent leaks, seeps or spills.

F. Waste drilling mud and cuttings shall be dewatered, dried, and stock piled such that it can be loaded by a front end loader, transferred to a truck and hauled offsite to a suitable legal disposal site. The maximum allowed water content of these solids is 50% of weight.

G. Treatment of water shall satisfy regulatory agencies before it is discharged.

H. See Section 31 23 19, Dewatering for additional dewatering requirements.

3.08 POST-INSTALLATION TELEVISING

A. After completion of the Horizontal Directional Drilling operation, conduct a televised and videotaped inspection of the entire pipe with a skid mounted camera with sufficient light to completely illuminate the interior of the pipe within the range of the camera.

B. Pull the camera through the entire length of pipe at a maximum rate of thirty-five feet (35') per minute.

C. Provide a digital recording of the entire pipe with the linear footage of pipe integrated into the recording for ease of identification of pipe being viewed.

D. Provide a written report identifying pertinent data as shown on the video.

3.09 FIELD QUALITY CONTROL

A. See Section 33 10 00 Water Utilities for field quality control requirements.

B. Allow each pipeline to be inspected by Owner or Owner's Representative upon installation completion.

3.10 DISINFECTION

A. See Section 33 10 00 Water Utilities for disinfection requirements.

3.11 SITE RESTORATION

A. Restore all areas disturbed by construction in kind to existing grade.

1. See Section 32 92 00 Site Restoration for sodding and other site restoration requirements.

B. The ground surface along each drill path will be observed by Owner and/or Owner's Representative for signs of settlement, heave, hydraulic fracturing, or other indication of impact that appears to have occurred due to the HDD installation process. Contractor shall be responsible for the cost of measures required to quantify the affected area(s) and restore the site due to settlement, heave, hydraulic fracturing, or other impact that appears to have occurred due to the HDD process.

END OF SECTION 33 05 23

33 05 28

TRENCHING AND BACKFILLING FOR UTILITIES

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to excavate and backfill trenches for utilities including, but not limited to:

1. Excavating trenches for utilities from 5 feet outside building.

2. Compacted fill from top of utility bedding to subgrade elevations.

3. Backfilling and compaction.

1.02 RELATED SECTIONS

A. Section 31 01 00 Site Preparation.

B. Section 31 23 00 Excavation and Fill.

C. Section 33 10 00 Water Utilities.

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

1. Occupational Safety and Health Standards-Excavations (OSHA)

a. OSHA set forth in 29 CFR 1926, Subpart P.

1.04 SUBMITTALS

A. No submittals are required from this Section.

1.05 DEFINITIONS

A. *Utility* – any buried pipe, duct, conduit, or cable.

1.06 SEQUENCING AND SCHEDULING

A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities for gravity flow systems.

PART 2: PRODUCTS

2.01 FILL MATERIALS

A. See Section 31 23 00, Excavation and Fill.

PART 3: EXECUTION

3.01 LINES AND GRADES

A. Lay pipes to lines and grades indicated on Drawings.

1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

3.02 PREPARATION

A. Call Local Utility Line location service not less than 3 working days before performing Work to request underground utilities to be located and marked within and surrounding construction areas.

B. Locate private utility lines that may impact the Work.

C. Prepare the site in accordance with Section 31 01 00, Site Preparation.

3.03 TRENCHING

A. Excavate trenches sufficiently wide to enable installation and allow inspection and in accordance with OSHA requirements. Remove water or materials that interfere with Work.

B. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.

C. Excavate trenches to a sufficient depth to install pipes as indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.

D. Do not interfere with 45 degree bearing splay of foundations.

E. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered.

F. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.

3.04 SHEETING AND SHORING

A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.

B. Design sheeting and shoring to be left in place as part of the completed Work, cut off 24 inches above top of utility.

C. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.

3.05 BACKFILLING

A. Place and compact pipe bedding soil with hand-operated compaction equipment, thoroughly compacting the soil beneath the haunches of the pipe being laid.

B. Backfill trenches to contours and elevations with suitable fill materials.

C. Backfill and compact trenches as specified in Section 31 23 00, Excavation and Fill. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

D. Employ placement method that does not disturb or damage utilities in trench.

E. Protect open trench to prevent danger to Contractor's or other personnel.

3.06 FIELD QUALITY CONTROL

A. Perform laboratory material tests in accordance with Section 31 23 00 Excavation and Fill.

B. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

3.07 PROTECTION OF FINISHED WORK

A. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION 33 05 28

33 10 00

WATER UTILITIES

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete buried water pipe and appurtenances.

1.02 RELATED SECTIONS

A. Attachment A – 2500 Watermains (City of New Brighton Standard Specification)

B. Section 03 30 00 Cast-in-Place Concrete

C. Section 31 23 00 Excavation and Fill

D. Section 33 05 28 Trenching and Backfilling for Utilities

E. Section 43 20 00 Process Piping and Appurtenances

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

1. American Water Works Association (AWWA)/American National Standards Institute (ANSI):

a. AWWA C600: Standard for Installation of Ductile-Iron Water Mains and Their Appurtenances.

b. AWWA C651: Disinfecting Water Mains

c. AWWA C906: Standard for Polyethylene (PE) Pressure Pipe

2. American Society for Testing Materials (ASTM)

a. ASTM C478: Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.

b. ASTM D1248: Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable

c. ASTM D2657: Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings

d. ASTM F714: Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

e. ASTM F2164: Standard Practice for Field Leak Testing of Polyehylene (PE) and Crosslinked Polyethylene (PEX) Pressure Piping Systems Using Hydrostatic Pressure

3. City Engineers Association of Minnesota Standard Specifications, 2023 Edition, hereafter referred to as CEAM Standard Specifications

1.04 SUBMITTALS

A. Manufacturer's product data including:

1. Technical product data and installation instructions for all water system materials and products.

B. Shop drawings including:

1. Piping materials, size, locations, and elevations. Include details of underground structures, valves, connections, restrained joints, and anchors. Show interface and spatial relationship between piping and proximate structures. Provide calculations for secondary thrust restraint under the building slab.

C. Test results and certificates including:

1. Leakage Test and Hydrostatic Pressure Test. Submit for approval 1 copy of results of leakage and hydrostatic pressure test upon completion of water distribution backfilling operations.

2. Conductivity Test. Submit for approval 1 copy of results of conductivity test upon completion of water distribution backfilling operations.

3. Bacteriological Tests. Submit for approval 1 copy of results of bacteriological tests upon completion.

D. Operation and maintenance instructions including:

1. Include O&M data, product data, shop Drawings in O&M manual.

E. Record Drawings:

1. At Project closeout, submit for information Record Drawings of installed piping and products including locations and elevations.

1.05 QUALITY ASSURANCE

A. Manufacturer's Qualifications. Firms regularly engaged in manufacture of potable water systems materials and products, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installer's Qualifications. Firm with at least 3 years of successful installation experience on projects with potable water piping work similar to that required for project

1.06 SEQUENCING AND SCHEDULING

A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities for gravity flow systems.

PART 2: PRODUCTS

2.01 GENERAL

A. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Contractor to comply with installation requirements.

2.02 IDENTIFICATION

A. Underground-Type Plastic Line Markers. Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6 inches wide by 4 mils thick. Provide blue tape with black printing reading “CAUTION WATER LINE BURIED BELOW.”

2.03 PIPING AND FITTINGS

A. See Attachment A – 2500 Watermains for ductile iron pipe (DIP), fittings, joints, and restraining device requirements.

B. High Density Polyethylene Pipe (HDPE):

1. ASTM D3350 with a cell classification of 445474C, and a PPE rating of PE4710. The pipe produced from this material shall have the dimensions and wall thickness as set forth in ASTM F714 for the size and Dimension Ratio (DR) 11.

2. Each HDPE pipe length shall be marked with the manufacturer’s name or trademark, nominal size and DR, cell classification, and extrusion date, period of manufacture or lot number.

3. All HDPE pipe and fittings shall be from a single manufacturer, who is fully experienced, reputable and qualified in the manufacture of the HDPE pipe to be furnished. The pipe shall be designed, constructed, and installed in accordance with the best practices and methods and shall comply with these Specifications.

4. Contractor is responsible for compatibility between pipe materials, fittings, and appurtenances.

5. High Density Polyethylene (HDPE) pipe shall comply with AWWA Specifications C906.

C. DIP to HDPE buried restrained couplings shall be of the following devices or approved equal:

1. “Mega-Coupling” manufactured by EBAA Iron, Inc., Series 3800 Restrained Coupling.

2. “Megalug” manufactured by EBAA Iron, Inc., Series 2000PV Joint Restraint with Stiffener.

3. “Alpha Restrained Joint” manufactured by Romac Industries, Inc.

2.04 GATE VALVES AND VALVE BOXES

A. See Attachment A – 2500 Watermains for gate valves and valve boxes.

2.05 CONCRETE (FOR THRUST BLOCKING)

A. See Section 03 30 00 Cast-in-Place Concrete

2.06 HYDRANTS

A. See Attachment A – 2500 Watermains hydrant requirements.

2.07 INSULATION

A. Insulation to meet the requirements of CEAM Standard Specification 2600.2-B.

1. Insulation dimensions shall be 4 feet wide, 2 inches thick.

PART 3: EXECUTION

3.01 GENERAL

A. Install buried waterline in accordance with Attachment A – 2500 Watermains.

3.02 INSPECTION

A. Examine areas and conditions under which potable water system's materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.03 IDENTIFICATION

A. During backfilling of underground potable water piping, install continuous underground-type plastic line markers, located directly over buried lines at 18 inches to 24 inches below finished grade.

3.04 PIPE AND PIPE FITTINGS

A. Install ductile iron pipe and fittings in accordance with Attachment A – 2500 Watermains.

B. Provide minimum cover over piping as shown on the Drawings.

C. High Density Polyethylene (HDPE) Pipe Laying

1. All HDPE pipe shall be cut, fabricated, and installed in strict conformance with the pipe manufacturer's recommendations. Joining, laying, and pulling of polyethylene pipe shall be accomplished by personnel experienced in working with polyethylene pipe. The pipe supplier shall certify in writing that Contractor is qualified to join, lay, and pull the pipe, or representative of the pipe manufacturer shall be on site to oversee the pipe joining. Expense for the representative shall be paid for by Contractor.

2. Storage

   a. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects which could damage the pipe. Stacking of the polyethylene pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature condition.

3. Handling Pipe

   a. The handling of the joined pipeline shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. Ropes, fabric, or rubber-protected slings and straps shall be used when handling pipes. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe. Pipe or fittings shall not be dropped onto rocky or unprepared ground. Slings for handling the pipeline shall not be positioned at butt-fused joints. Sections of the pipes with cuts and gouges exceeding 10 percent of the pipe wall thickness or kinked sections shall be removed and the ends rejoined.

   b. The open ends of all sections of joined and/or installed pipe (not in service) shall be plugged at night to prevent animals or foreign material from entering the pipe line or pipe section.

   c. Waterproof nightcaps of approved design may be used but they shall also be so constructed that they will prevent the entrance of any type of natural precipitation/ into the pipe and will be fastened to the pipe in such a manner that the wind cannot blow them loose.

   d. The practice of stuffing cloth or paper in the open ends of the pipe will be considered unacceptable.

   e. Where possible, the pipe shall be raised and supported at a suitable distance back from the open end such that the open end will be below the level of the pipe at the point of support.

4. HDPE pipe shall be thermal butt fused in strict compliance with the manufacturer's recommendations by a factory qualified joining technician conforming to ASTM D2657.

5. General steps for butt fusion:

   a. Free contaminants from all surfaces of fusion tools, pipe, and fittings prior to use. Trim pipe ends as necessary prior to joining.

   b. Heat both pipe ends simultaneously at specified temperature for specified time.

   c. Remove heater and press melted surfaces together to form joint.

   d. Maintain uniform pressure until solidified. Prevent rough handling (testing, stress movements, pulling, or laying) until fully cooled to ambient material temperatures.

3.05 GATE VALVES AND VALVE BOXES

A. Install gate valves as indicated with stems pointing up and in accordance with Attachment A – 2500 Watermains.

3.06 JOINT RESTRAINT

A. Joints shall be mechanically restrained on both sides of all fittings and valves for the length of pipe equal to or greater than that shown on the Drawings.

B. In addition to mechanically restrained joint, provide a second means of restraint for pressure pipe installed under slabs in the form of tie-rod or concrete thrust block.

C. See Attachment A – 2500 Watermains for additional information.

3.07 FIELD QUALITY CONTROL

A. Site Tests

1. Compaction

a. Perform inspections prior to and immediately after placing bedding.

2. Piping (general):

a. Perform hydrostatic pressure test for water pipe installed below grade in accordance with Section 4 of AWWA C600 and Attachment A – 2500 Watermains.

b. Perform leakage test for water pipe installed below grade in accordance with Attachment A – 2500 Watermains.

c. Perform conductivity testing in accordance with Attachment A – 2500 Watermains.

d. Notify Engineering and Owner 48 hours prior to all pipe testing.

3. Piping (HDPE):

a. After HDPE has been backfilled, test all HDPE pipe by applying hydrostatic pressure according to ASTM F2164.

b. Correction factors for temperature should be taken per manufacturer's recommendation.

3.08 DISINFECTION

A. Disinfect potable water system with chlorine in accordance with Attachment A – 2500 Watermains and AWWA C651.

B. After disinfection, Contractor shall collect 2 consecutive days of water samples and bacteriological tests in accordance with AWWA specifications and Attachment A – 2500 Watermains. Provide 1 copy of results of bacteriological tests to Engineer and Owner upon completion. Do not place distribution system in service until approval is obtained from Owner. The samples shall be confirmed to be free of coliform organisms prior to the waterline being put into service.

END OF SECTION 33 10 00

33 30 00

SANITARY SEWER UTILITIES

PART 1: GENERAL

1.01 SUMMARY

A. Section includes providing all materials, equipment, and labor to complete buried water pipe and appurtenances.

1.02 RELATED SECTIONS

A. Section 31 23 00 Excavation and Fill

B. Section 33 05 28 Trenching and Backfilling for Utilities

C. Section 33 10 00 Water Utilities

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date, unless noted otherwise.

B. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. American Society for Testing and Materials (ASTM)

a. ASTM C443: Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.

b. ASTM C478: Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.

c. ASTM C891: Standard Practice for Installation of Underground Precast Concrete Utility Structures.

d. ASTM C923: Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

e. ASTM D2321: Standard Practice for Underground Installation of Thermoplastic pipe for Sewers and Other Gravity-Flow Applications.

f. ASTM D2564: Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.

g. ASTM D2665: Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.

h. ASTM D2855: Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Fittings.

i. ASTM D3311: Standard Specification for Drain, Waste, and Vent (DWV) Plastic Fittings Patterns.

1.04 SUBMITTALS

A. Manufacturer’s product data including:

1. Technical product data and installation instructions for sewage system materials and products.

B. Shop drawings including:

1. Piping materials, size, locations, and inverts. Include details of underground structures, connections, and manholes. Show interface and spatial relationship between piping and proximate structures.

C. Record Drawings:

1. At project closeout, submit for information record drawings of installed sanitary sewage piping and products including locations and elevations.

1.05 SEQUENCING AND SCHEDULING

A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities for gravity flow systems.

PART 2: PRODUCTS

2.01 GENERAL.

A. Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, and capacities as indicated. Where not indicated, provide proper selection as determined by Contractor to comply with installation requirements. Provide sizes and types matching piping; provide fittings of materials which match pipe materials used in sanitary sewer systems. Where more than one type of materials or products is indicated, selection is Contractor’s option.

2.02 IDENTIFICATION

A. Underground-Type Plastic Line Marker: Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide green tape with black printing reading "CAUTION SEWER LINE BURIED BELOW".

2.03 PIPING AND FITTINGS

A. Provide pipes of weight/class indicated. Provide pipe fittings and accessories of same material and weight/class as pipes, with joining method as indicated.

B. Polyvinyl Chloride (PVC) Pipe: Drain, Waste, and Vent (DWV) PVC Pipe, ASTM D2665.

1. Fittings: (DWV) PVC, ASTM D3311, solvent-cement joints complying with ASTM D2855 using solvent cement complying with ASTM D2564;

2.04 SEEPAGE PIT MANHOLES

A. General: Provide precast reinforced concrete sanitary manholes as indicated in drawings, and complying with ASTM C478.

B. Provide rubber joint gasket complying with ASTM C443 at joints of sections.

C. Top: Precast concrete, of concentric cone, eccentric cone, as indicated.

D. Base: Precast concrete, with base riser section with integral floor, as indicated.

E. Any structure greater than four (4) feet deep from invert to surface elevation shall have manhole steps included in the structure.

F. Frame and Cover: Ductile-iron, heavy-duty, indented top design, with lettering cast into top reading "SANITARY" or "SANITARY SEWER", diameter as indicated.

G. Pipe Connectors: Resilient, complying with ASTM C923.

2.05 INSULATION

A. See Specification Section 33 10 00 Water Utilities.

PART 3: EXECUTION

3.01 INSPECTION

A. Examine areas and conditions under which sanitary sewer system's materials and products are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.02 IDENTIFICATION

A. During backfilling of underground piping, install continuous underground-type plastic line markers, located directly over buried lines at 18 inches to 24 inches below finished grade.

3.03 PIPE AND PIPE FITTINGS

A. Install piping in accordance with governing authorities having jurisdiction, except where more stringent requirements are indicated.

B. Inspect piping before installation to detect apparent defects. Mark defective materials with white paint and promptly remove from site.

C. Lay piping beginning at low point of system, true to grades and alignment indicated, with unbroken continuity of invert.

D. Place bell ends or groove ends of piping facing upstream.

E. Install gaskets in accordance with manufacturer's recommendations for use of lubricants, cements, and other special installation requirements.

F. Plastic Pipe: Install in accordance with manufacturer's installation recommendations, and in accordance with ASTM D2321.

G. Cleaning Piping: Clear interior of piping of dirt and other superfluous material as work progresses. Maintain swab or drag in line and pull past each joint as it is completed.

1. Place plugs in ends of uncompleted conduit at end of day or whenever work stops.

2. Flush lines between manholes if required to remove collected debris.

H. Joint Adapters: Make joints between different types of pipe with standard manufactured adapters and fittings intended for that purpose.

I. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.

1. Make inspections after lines between manholes, or manhole locations, have been installed and approximately 2 feet of backfill is in place, and again at completion of project.

2. If inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects, correct such defects, and re-inspect.

3.04 SEEPAGE PIT MANHOLES

A. General: Place precast concrete sections as indicated. Where manholes occur in pavements, set tops of frames and covers flush with finish surface. Elsewhere, set tops of frames 3 inches above finish surface, unless otherwise indicated.

B. Install in accordance with ASTM C891.

END OF SECTION 33 30 00

Division 40

Process Interconnections

40 90 00

INSTRUMENTATION AND CONTROL FOR PROCESS SYSTEMS

PART 1: GENERAL

1.01 SUMMARY

A. Section includes:

1. New instrumentation and control system for Wellhouse 16 (W16).
2. Modifications to existing instrumentation and control systems at WTP1.

1.02 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. National Fire Protection Association (NFPA):
   a. NFPA 70: National Electrical Code (NEC) 2023.
2. National Electrical Manufacturers Association (NEMA):
   a. NEMA ICS-2: Industrial Control Devices, Controllers, and Assemblies.
   b. NEMA 250: Enclosures for Electrical Equipment.
3. Underwriters Laboratories (UL)
   a. UL 508: Industrial Control Equipment.
   b. UL 698A: Industrial Control Panels for Hazardous Locations.
   c. UL 913: Intrinsically-Safe Apparatus and Associated Apparatus for use in Class I, II and III, Division 1, Hazardous Locations.

1.03 SCOPE

A. **Supplier of equipment and services under this Section shall also provide all equipment and services specified in Section 26 24 19 – Starters and Motor Control**.

B. It is the intent of the Contract Documents that all equipment specified in this Section of the specification be supplied by a single-source supplier ("Systems Integrator"). The supplier shall assume full responsibility along with Contractor for furnishing, installing and start-up procedures so as to make the system operate per the intent of the Contract Documents.

C. The work specified in this Section includes providing, start-up, testing and adjusting of all required equipment, including instruments, equipment, hardware, wiring, accessory equipment, and training to provide a completely operational process instrumentation and control system.

D. It shall be the responsibility of Contractor to provide a complete and fully operating system. Contractor shall be responsible for all details that may be necessary to properly install, adjust and place in operation the complete installation. Contractor shall assume full responsibility for additional costs that may result from unauthorized deviations from the Contract Documents.

E. It shall be the responsibility of Contractor and supplier to examine all new and existing equipment that is transmitting a signal to, or receiving a signal from, equipment specified in this Section. Contractor shall be responsible for providing signal converters, buffer amplifiers, and isolation devices to make signal levels, reference to ground, etc. compatible between devices specified in this Section and existing equipment or equipment specified in other Sections.

1.04 SUPPLIER EXPERIENCE AND CAPABILITIES

A. The instrumentation and control system supplier (or “Systems Integrator”) shall be normally engaged in the assembly, installation, repair, and maintenance of control systems for water and wastewater treatment facilities.

B. The supplier shall have provided at least three (3) successful systems of similar or larger complexity in the State of Minnesota or contiguous states in the last three (3) years. Submit a detailed description for each of the projects, including project costs, customers name, customer contact person, engineering contact person and phone numbers.

C. The supplier shall provide the specified products, or approved equal equipment to fulfill the functional and technical requirements of the Drawings and this Section.

D. The supplier shall have a minimum of six (6) full time qualified, trained service personnel on staff who are capable of maintaining, adjusting, troubleshooting, and programming the system furnished under this contract. Submit personnel resumes and office locations for each personnel.

E. The supplier shall have a staffed service office within 50 miles of the project site. This office shall have at least three (3) of the staff members listed above.

F. The supplier shall be capable of offering an extended service contract after completion of the warranty period, including 24 hour, 7 day per week emergency services.

G. Supplier shall design, engineer, assemble, program, test, and support the system using its own facilities and employees.

H. Supplier shall produce all project drawings using computer aided drafting.

1.05 BASIS OF BID

A. All equipment and services specified in this Section shall be provided by:

1. In Control, Inc.; Blaine, Minnesota, telephone 763-783-9500.

2. Or approved alternate supplier.

B. Products and services from other suppliers with equal quality may be bid as a Contractor-proposed Alternate. See the Bid Form and Division 0 for requirements. Contractor shall provide the following information for consideration of an Alternate supplier:

1. Complete technical data on the proposed equipment.

2. Complete information on the supplier’s experience and capabilities, showing compliance with the requirements of Paragraph 1.04.

1.06 SUBMITTALS

A. Manufacturer’s product data including:

1. All equipment and components indicated on the Drawings and specified in Part 2 of this Section.

B. Shop Drawings including:

1. Panel drawings including system schematic drawings, terminal numbering, wire numbering, component schematic drawings, dimension drawings, layout drawing and nameplate schedule.

2. Provide complete new drawings for all existing panels that are modified under this Contract. Drawings shall include all existing components and circuitry, and shall include all proposed components and circuitry.

3. Overall system diagram showing all components, converters, cables, and connectors.

C. Operation and maintenance instructions including:

1. Panel equipment, field devices and instruments, including "as-built" system schematics.

2. Electronic version and paper version of final system record drawings, wiring diagrams and panel details. The electronic version shall be in .PDF format. Paper version shall be in the quantity required in Division 01.

D. Start-up report from systems supplier per requirements of Division 1.

E. Spare Equipment Lists - Provide a list of recommended spare parts and equipment that is considered crucial to the operation of the system. Include list of prices for each item.

F. All submittals shall be in PDF format with bookmarked tabs separating sections.

1.07 TESTING AGENCY CERTIFICATION

A. All new panels and subpanels furnished under this Section shall be constructed in accordance with Underwriter's Laboratories (UL) Standard 508 - "Industrial Control Equipment", and applicable portions of UL Standard 698A - “Industrial Control Panels for Hazardous Locations” and UL Standard 913 - "Intrinsically-Safe Apparatus and Associated Apparatus for use in Class I, II and III, Division 1, Hazardous Locations".

B. Each panel and subpanel shall be shop-inspected by UL or constructed in a UL-recognized facility. Each completed panel shall bear a serialized UL label indicating acceptance under Standards 508, 698A and 913.

1.08 SYSTEM PROGRAMMING SERVICES

A. Equipment specified under other Sections shall be programmed by the supplier under each respective separate Section.

B. Programmable field instruments supplied under this Section shall be programmed under this Section.

C. Programmable logic controllers (PLCs), operator interface units and computers that are new or modified under this Section shall be programmed under this Section.

D. See Division 1 and Part 3 of this Section for further requirements.

1.09 SYSTEM REQUIREMENTS – GENERAL

A. Control Panels – General

1. Provide equipment, components and programmable logic controllers (PLCs) as indicated. Equip each PLC with inputs and outputs as indicated, plus 10% live spares of each signal type. Provide each PLC with a rack having enough empty slots for addition of more input/output modules at each PLC as indicated on Drawings.

B. Fiber Optic Services to Wellhouse 16 Wellhouse 9 (Bid Alternate 2)

1. Provide fiber optic cables, patch panels and connectors for integrating the Wellhouse control panels into the existing SCADA system via the new fiber optic service to the wellhouses from the Water Treatment Plant.

1.10 SYSTEM REQUIREMENTS – PANEL ‘A1’ (WTP1)

A. General

1. Modify existing panel as indicated on Control System Configuration Diagram.

2. Add new input/output points, fuses, terminals and wiring as indicated on Drawings.

1.11 SYSTEM REQUIREMENTS – WELLHOUSE 16 CONTROL PANEL

A. General

1. Provide new Wellhouse 16 control panel with components and wiring as indicated on Drawings. Panel shall be NEMA 12, wall-mount, with hinged front door with locking stainless steel handle and 3-point latch mechanism.

2. Provide new input/output points, fuses, terminals and wiring as indicated on Drawings.

B. Room Temperature Monitoring

1. Provide wall-mounting, loop-powered temperature transmitters for monitoring ambient room temperatures (quantity as indicated on Drawings).

C. Floor Flood Monitoring

1. Provide floor flood float switch(es) to detect flooding condition (quantity as indicated on Drawings).

D. Flow Measurement

1. Provide one (1) magnetic flow metering system for measuring flow from Well 16. Unit shall include a magnetic flowmeter tube with integral transmitter.

Tag	Process Variable	Diameter	Range (GPM)
FT-XXXX	Well 16 Flow	12-inch	Confirm

1.12 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Section 01 29 00, Measurement and Payment.

PART 2: PRODUCTS

2.01 CONTROL PANEL FABRICATION - GENERAL

A. Enclosures for indoor control panels shall meet the following minimum requirements:

1. Steel frame, steel panels, NEMA12, unless otherwise specified.

2. 36 inches high, 12 inches deep, multiples of 36 inches wide, unless shown otherwise.

3. Panels shall be flanged, corners welded and ground smooth.

4. All inside and exterior surfaces treated to prevent oxidation and painted. White on interior, manufacturer's standard color on exterior.

B. All components labeled per shop drawings.

1. Engraved labels attached with screws.

C. All wiring terminated on barrier-type terminal strips. Terminal strips shall be labeled with engraved plastic labels.

1. Labels shall be attached with two-part epoxy adhesive.

2. 600 volt terminal strips.

3. Ring or spade type crimp connectors.

4. Wiring laced using plastic wire ties and plastic wiring troughs.

5. Wiring held down with straps attached to enclosure with screws.

6. Separate power, control and signal conductors.

7. Power wiring: #14 AWG, stranded, 600V copper minimum.
8. Control wiring: #18 AWG, stranded, 600V copper minimum.
9. Signal wiring: shielded, 300V, copper minimum.
10. Provide 15 amp, 10000 AIC breaker on power circuits using #14 wire.
11. Connections to instruments via terminal strip or connectors. Soldering wires to terminal strips not acceptable.

D. Tag all wires at each end with wire number matching shop drawings.

2.02 PROGRAMMABLE LOGIC CONTROLLER (PLC)

A. Allen-Bradley “CompactLogix 5380 Controller” Model #5069-L340ER, including options specified, #5069-Series Compact I/O input/output cards as required by Drawings, and manufacturer's programming software for compatibility with Owner’s existing system.

B. No substitutions.

2.03 OPERATOR INTERFACE UNIT

A. Allen-Bradley “Panelview Plus 7 Performance Terminal”, screen size and model number as indicated on Drawings for compatibility with Owner’s existing system.

B. No substitutions.

2.04 INDUSTRIAL ETHERNET SWITCH

A. Phoenix Contact, select model as required for application and configuration.

B. No substitutions.

2.05 SURGE PROTECTION

A. 120 VAC, 15 Amp rated in-line device. Listed for protection from ANSI/IEEE C62.41 Category A and B transients.

B. 300 V peak clamping voltage.

2.06 TERMINALS

A. NEMA-style, barrier type, 0.4-inch spacing, nominal.

B. 600V RMS, 55 amp rating.

C. UL listed.

D. Allen-Bradley 1492-CA1 series, or equal.

E. Terminals for larger power circuits shall be 600 VAC barrier-type, sized for the conductors.

2.07 DIRECT CURRENT POWER SUPPLY

A. Series pass semiconductor type, adjustable with ± 1.0% regulation, no load to full load from all causes, total.

B. Operating source: 120 VAC, 60 Hz.

C. Output protection: current limiting and "crowbar" circuit. Fuses not permitted.

D. At initial operation power supply loading shall not exceed 50% of rating under any condition.

E. Convection cooled.

F. All power supplies on the project shall be identical.

2.08 CONTROL SWITCHES

A. 30 millimeter nominal diameter. Oil-tight, NEMA 4 design (NEMA 7 in classified areas as noted on Drawings).

B. Electronic Circuits

1. Selector, momentary pushbutton or momentary selector as required. Positions as required for application.

2. Heavy duty, oil-tight type, contacts as required.

3. Gold flashed contacts; initial resistance, 0.01 ohms; 0.5 amps at 120 VAC, resistive.

C. Control Circuits

1. Selector, momentary pushbutton, or momentary selector as required. Positions as required for application.

2. Heavy duty, oil-tight type, contacts as required.

3. Contact rating shall conform to NEMA A-600 designation.

D. Allen-Bradley Series 800T/H, or approved equal.

2.09 INDICATING LIGHTS

A. 30 millimeter nominal diameter. Oil-tight, NEMA 4 design (NEMA 7 in classified areas as noted on Drawings).

B. LED light source.

C. Allen-Bradley Series 800T/H, or approved equal.

2.10 CONTROL RELAYS AND TIMING RELAYS

A. Plug-in type with dust cover, socket and locking spring when relay mounted horizontally.

B. Coil: continuous operation at 120 VAC $\pm$10% unless shown otherwise.

C. Contacts, 3 pole, double throw, minimum.

1. 10 amps, make-break, 120 VAC, resistive.

2. Insulation resistance: 1000 megohms at 500 VDC.

3. Dielectric: 2000 VAC, 60 Hz.

D. Operating time

1. 35 milliseconds (nominal) energization.

2. 100 milliseconds (nominal) de-energization.

E. Mechanical life: 10^6 operations

F. Temperature: 0 to 70 degrees C

G. Timing relays shall be of the same manufacturer and series as control relays. Provide electronic timers with range as indicated.

2.11 UNINTERRUPTIBLE POWER SUPPLY (UPS) - IN CONTROL PANELS

A. 120 VAC, 60 Hz single-phase input and output.

B. Size at 150% of connected panel load, or 700 VA capacity (continuous), whichever is larger, with 5-minute battery reserve time (at full-load).

C. Continuous on-line, double-conversion type that continuous rectifies, stores, re-creates the 120 VAC sinusoidal output waveform for the load. Include features that allow operation in critical environments and high-harmonic and/or noisy applications. Include adjustable input voltage parameters so that the input stage will accept low-quality input power.

D. Eaton Model 9130L700T, or approved equal.

2.12 ENCLOSURE HEAT

A. Industrial strip heater with rubber jacket.

B. UL labeled.

C. Provide quantity and size as required to meet temperature requirements specified.

2.13 FLOAT SWITCHES

A. Floor “Flood” Monitoring:

1. Float switch with Buna-N float and 304 stainless steel stem; 1½" maximum actuation liquid level.

2. Wall-mount bracket.

3. Single-pole, single-throw, magnetically-actuated switch.

4. Manufacturer/Model:

a. GEMS Sensors #A43980.

b. Or approved equal.

2.14 MAGNETIC FLOWMETER

A. Electro-magnetic induction type producing pulsed DC signal proportional to flow.

B. Stainless steel metering tube, ebonite hard rubber liner.

C. 150 pound ASA flanges.

D. 316 stainless steel or Hastelloy conical raised electrodes.

E. Flow tube shall be suitable for accidental submergence.

F. Minimum operating temperature: 0 - 60°C; relative humidity 20% to 100% condensing.

G. Stainless steel grounding rings shall be furnished and installed with all meters, regarding of pipe material.

H. All magnetic flowmeters on project shall be compatible and by same manufacturer.

I. Manufacturer/Model:

1. Badger M2000 Series

2. Or Approved Equal.

2.15 MAGNETIC FLOWMETER CONVERTER

A. Magnetic flow-to-current converter shall be micro-processor based, solid state type using a pulsed DC signal to determine flow.

B. Output shall be 4-20mAdc linear with flow into load of 0 to 1000 ohms, minimum, isolated signal. Where indicated on Drawings, provide open-collector output to indicate when “reverse flow” condition is occurring.

C. Operating source shall be 120 volts, 60 Hz, ± 3 Hz.

D. Pulsed DC type shall include inherent zero.

E. Minimum technical requirements:

1. Accuracy: ± 1.0% of calibrated span
2. Repeatability: ± 0.25% of calibrated span
3. Supply effect: ± 0.25% of calibrated span for ± 10% power supply vibration
4. Temperature: ± 50% of calibrated span over rated range

F. NEMA 4X construction. Provide interconnecting cables between flow tube and converter. Where indicated on Drawings, transmitter shall be rated for explosion-proof area classification.

G. Converter shall have an integral LCD display and pushbuttons to allow field selection of display range and units. Program unit to display flow in engineering units specified for each loop.

H. Manufacturer:

1. Badger M2000 Series
2. Or approved equal.

2.16 ROOM TEMPERATURE TRANSMITTER

A. Wall-mounting room temperature transmitter, 4-20mAdc loop-powered design.

B. Accuracy: 2% of range.

C. Integral LCD display showing temperature in degrees F.

D. Manufacturer/Model:

1. Dwyer #RHP2N44LCD.
2. Or approved equal.

2.17 PRESSURE TRANSMITTERS

A. Electronic generating 4-20 mAdc signal, linear with pressure, into 1000 ohms, isolated.

B. Type 316 stainless steel diaphragm. Span and zero adjustments

C. Two-wire device deriving operating power from 4-20 mAdc loop.

D. Process temperature: -40 to 250 deg F. Operating temperature: -20 to 60 deg F.

E. Accuracy: 0.5% of calibrated span

F. Manufacturer

1. Rosemount 2088
2. Foxboro IGP10
3. Or approved equal.

2.18 WIDE-GAP MAGNETIC SECURITY SWITCH

A. Enclosed magnetic type switch and matching magnet for security monitoring.

B. Designed for wide-gap use.

C. Switch housing shall include armored cable whip for connection to electrical junction box.

D. Form C contact.

E. Manufacturer/Model:

1. GE/Sentrol or equal.

PART 3: EXECUTION

3.01 LABELING

A. Label all field mounted control devices, instrumentation, switches, etc., with tag number and item description.

B. Labels shall be engraved laminated plastic with ¼" high lettering. Labels shall be attached with stainless steel screws to the device or nearby wall.

3.02 FIELD DEVICE PROGRAMMING, CALIBRATION, ADJUSTING AND TESTING

A. Devices requiring field programming and/or calibration shall be programmed/calibrated in the presence of Engineer's representative and documented. Submit certified startup report for each field instrument.

3.03 PROJECT MANAGEMENT

A. Supplier shall provide engineering and administrative services necessary to fulfill the requirements of this Specification.

B. Supplier shall provide the services of an experienced project manager as the overall coordinator during the course of the project.

3.04 STARTUP, CHECKOUT AND PROGRAMMING SERVICES

A. Program the programmable logic controllers (PLCs), operator interfaces, and computers as required by the functional descriptions.

B. Provide additional programming during start-up, training, and call-back periods as specified.

C. Supplier shall provide a skilled programmer/ instrumentation engineer or technician who shall complete troubleshooting and start-up to place the entire system into operation. The supplier's engineer or technician shall make the necessary inspection of the completed installation, make the necessary final field adjustments, and make field device programming revisions as required for start-up.

D. Coordinate on-site checkout procedures with Owner and Engineer. Provide a project engineer/technician who shall demonstrate proper operation of all components and wiring furnished under this Contract to the Owner and Engineer. Coordination shall include the following:

1. Give written notice to Owner and Engineer at least two (2) weeks in advance when each panel and associated field instruments are ready for checkout.
2. Meet on-site at times determined by Owner and Engineer to conduct checkout.
3. Prove satisfactory operation of all instruments, equipment and wiring.
4. Provide calibration and range of each analog instrument.
5. Document the startup and checkout process by using an ISA-style startup sheet for each instrument and each loop. The technician shall initial/sign for each instrument and each loop, and shall submit a written report of the checkout procedures for each project site. Include written certification that all hardware and wiring has been tested and proven operational.

3.05 ON-SITE SERVICES

A. In addition to other services specified, provide a competent programmer/instrumentation engineer or technician to perform the following services:

1. Training – Two (2) non-consecutive four (4) hour sessions on-site to train Owner's personnel on operation and maintenance of all equipment furnished under this Section.

B. All on-site service shall be at times approved by Owner.

3.06 SUPPLIES / SPARE PARTS

A. Provide all expendable items such as lamps, fuses, etc. for system startup, checkout, and during the acceptance test.

B. At Final Completion, furnish the following supplies and spares to Owner. All items shall be delivered in boxes labeled on the outside with manufacturer and part number identified on the box:

1. Fifty (50) percent spare fuses and lamps of each type furnished, but not less than six (6) of each type.
2. Two (2) PLC power supplies of each type furnished.
3. Two (2) PLC processor modules of each type furnished.
4. Two (2) each of every type of PLC analog and digital input and output module used on project.
5. Two (2) DC power supplies of each type furnished (as used in control panels).
6. Six (6) each of every type of control relay used in control panels.

3.07 MAINTAINING AUTOMATIC CONTROLS DURING CONSTRUCTION

A. Coordinate construction activities to keep the existing plant instrumentation and control system operational throughout the course of the project. Provide temporary controls and wiring as required to maintain automatic operation and remove such temporary controls and wiring once permanent controls and wiring are operational and accepted.

B. When existing panels or instruments are modified or replaced under this Contract, schedule the work in advance with Owner and Engineer, and perform the Work so as to minimize the impact on Owner’s operation of the facility. Controls shall only be removed from automatic operation during normal working hours, Monday through Friday.

C. For scheduled outages or cutovers, once the control system revisions begin, work continuously until automatic operation is restored.

END OF SECTION 40 90 00

Division 43

Process Gas and Liquid Handling, Purification, and Storage Equipment

43 20 00

PROCESS PIPING AND APPURTENANCES

PART 1: GENERAL

1.01 SUMMARY

A. The scope of work to be performed under this Section consists of providing all material, labor, incidental items, and time needed to construct the process piping and appurtenances interior to the wellhouse for Well 16 as shown on the Drawings.

1.02 RELATED SECTIONS

1. Section 09 97 00 Special Coatings
2. Section 33 10 00 Water Utilities
3. Division 26 Electrical
4. Division 40 Instrumentation and Control

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is in effect as of the certification date.

1. American Water Works Association (AWWA)/American National Standards Institute (ANSI)
    a. NSF/ANSI 61 Drinking Water System Components – Health Effects
    b. NSF/ANSI 372 Drinking Water System Components – Lead Content
    c. ANSI/ASME B1.20.1 Pipe Threads, General Purpose, Inch
    d. ANSI B2.1: Pipe Threads (Except Dryseal)
    e. ANSI/AWWA C104/A21.4 Cement-Mortar Lining for Ductile Iron Pipe and Fittings for Water
    f. ANSI/AWWA C110/A21.20: Ductile-Iron and Gray-Iron Fittings
    g. ANSI/AWWA C111/A21.11: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
    h. ANSI/AWWA C115/A21.15: Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
    i. ANSI/AWWA C150/A21.50: Thickness Design of Ductile-Iron Pipe
    j. ANSI/AWWA C151/A21.51: Ductile-Iron Pipe, Centrifugally Cast In Metal Molds or Sand Lined Molds for water or other liquids
    k. ANSI/AWWA C153/A21.53: Ductile-Iron Compact Fittings
    l. ANSI/AWWA C508: Swing-Check Valves for Waterworks Service
    m. ANSI/AWWA C600: Installation of Ductile-Iron Water Mains and Their Appurtenances
    n. AWWA C606 Grooved and Shoulder Joints
    o. AWWA C651: Standard for Disinfecting Water Mains

2. American Society for Testing Materials (ASTM)

   a. ASTM A-126: Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings

   b. ASTM A-153: Zinc Coating (Hot-Dip) on Iron and Steel Hardware

   c. ASTM A-197: Standard Specification for Cupola Malleable Iron

   d. ASTM F-1941: Standard Specification for Electrodeposited Coatings on Mechanical Fasteners

1.04 SUBMITTALS

A. Manufacturer's product data.

1. Submit technical data for interior process piping.

B. Shop drawings including:

1. Submit proposed piping layout including piping, fittings, valves, deep well air vacuum valve, and supports.

1.05 QUALITY ASSURANCE

A. Provide new products and materials only that conform to the specifications for class, type and size specified in Part 2 of this Section.

1.06 DELIVERY, STORAGE, HANDLING

A. Load and unload all pipe, fittings, and appurtenances by hoists of skidding. Use slings, hooks, and pipe tongs as required to prevent damage to products.

B. Keep stored products safe from damage or deterioration. Keep the interior of pipe, fittings, and appurtenances free from dirt or foreign matter.

C. Store gaskets and other products that will be deteriorated by sunlight in a cool location out of direct sunlight.

D. Store gaskets so that they do not come in contact with petroleum products.

E. Do not stack ductile iron pipe higher than the limits shown in ASNI/AWWA C600. Stacking of other pipe shall meet the requirements of the pipe manufacturer. Do not stack fittings and other appurtenances.

F. Promptly remove damaged products from the job site and replace with undamaged products.

1.07 SEQUENCING AND SCHEDULING

A. Coordinate Work performed in this Section with the Work performed in the related Sections. Assure products and equipment provided are totally compatible both in type and location with materials provided under related Sections.

1.08 BASIS FOR COMPENSATION

A. Compensation for all Work included under this Section shall be as set forth in Division 2 Special Provisions.

1.09 COORDINATION

A. Layout and dimensions shown on plans are general. Field verify, coordinate, and make all modifications required due to equipment size variation at no additional cost to Owner.

B. Variations in dimensions of specified equipment used as a basis for this design may exist. Make all modifications required due to equipment variation at no additional cost to Owner.

C. Coordinate start-up and testing of process piping with Owner.

PART 2: PRODUCTS

2.01 PIPE SCHEDULE

A. Provide pipe materials and valves as shown on the Drawings.

B. Process piping and appurtenances in contact with drinking water shall meet the requirements of:

1. NSF/ANSI 61 certified for contact with drinking water.

2. NSF/ANSI 372 certified lead-free.

C. Where more than one material is listed for a particular service, select a single material for that service.

Service	Material	Valves
Water (4 inch diameter and larger)	Ductile Iron (DI)	Butterfly
Water (less than 4 inch diameter)	Galvanized Steel (GS)	Ball
Drains	GS	Ball
ARV Outlet	GS	Ball

2.02 DUCTILE IRON (DI)

A. All buried piping should be installed in accordance with Section 33 10 00.

B. Material: ANSI/AWWA C150/A21.50 and C151/A21.51.

C. Lining: cement per ANSI/AWWA C104/A21.4.

D. Thickness: Class 52 or as noted otherwise on Drawings.

E. Joints:

1. Threaded flanges per ANSI/AWWA C115/A21.15.

2. Pressure rating: 250 psi minimum with full-face rubber gaskets per ANSI/AWWA C111/A21.11.

3. Nuts and bolts: Zinc-plated meeting the requirements of ASTM 1941 and ANSI/AWWA C110.

F. Fittings:

1. Flanged per ANSI/AWWA C110/A21.10 or C153/A21.53.

2. Nuts and bolts: Zinc-plated meeting the requirements of ASTM 1941 and ANSI/AWWA C110.

2.03 PIPE SLEEVE THROUGH SLAB

A. Provide embedded wall flange on steel and iron pipe sleeve passing through concrete slabs.

B. Fabricate wall sleeves to dimensions required.

C. Place embedded wall flange in center of cast-in-place concrete slab.

2.04 MODULAR PIPE SEAL

A. Fit annular space between the pipe and pipe sleeve with a mechanical type interlocking synthetic rubber link shaped to continuously fill the annular space between the pipe and sleeve.

B. Bolted to provide a watertight seal between pipe and sleeve.

C. Sized per seal manufacturer's recommendations for applicable pipe and sleeve size.

D. "Link-Seal" Model No. CS-316 or approved equal.

2.05 PRESSURE GAGE

A. Minimum pressure rating: 200 psi.

B. Design: Liquid filled bourdon tube, AISI Type 316 stainless steel.

C. Tube: Drawn C-tube.

D. ½-inch NPT connection.

E. Dial: 4.5-inch diameter and pressure range from 0 to 150 psi.

F. Supplied with ½-inch NPT lower stem connections.

2.06 RESTRAINED FLEXIBLE COUPLING

A. Provide restrained flexible coupling to protect piping and equipment from transmitted pipeline movement and flexing as shown on Drawings.

B. Design: AWWA C227.

C. Body: ASTM A36 or ASTM A1011.

2.07 MAGNETIC FLOWMETER

A. Refer to specification Section 40 90 00, Instrumentation and Control for Process Systems.

2.08 CHECK VALVES

A. Design: AWWA C508.

B. Body: Ductile iron body: ASTM A536, Grade 65-45-12, or ASTM A126, Class B.

C. Cover: Steel ASTM A36.

D. Furnished with outside lever, adjustable counterweight, and non-pivoting air-cushion chamber.

E. Manufacturers: Milliken, or Engineer-approved equal.

2.09 BUTTERFLY VALVES

A. Design: AWWA C504 Class 150B.

B. Materials:

1. Body: ASTM A126 Class B cast iron.
2. Seats: rubber body of one-piece construction.
3. Disc: stainless steel, or cast-iron with a stainless steel edge.
4. Shaft: 304 or 316 stainless steel.

C. Operators: Manual or electric as indicated on the Drawings.

D. Manufacturer: DeZurik, or Engineer-approved equal.

2.10 MANUAL VALVE OPERATORS

A. Designed as an integral part of the valve.

B. Torque capability: able to seat, unseat, and rigidly hold in any intermediate position the valve disc it controls under the pressure indicated by the valve manufacturer.

C. 4-inch and smaller: lever.

D. 6-inch and larger: handwheel.

2.11 DEEP WELL VACUUM RELEASE VALVE

A. The valve shall automatically release large volumes of air without shutting during the filling of the water main at well pump start-up and also allow air to re-enter the main whenever a negative pressure occurs. Supply a lever-actuated bronze ball valve with the valve. In addition, supply a throttle device for controlling air discharge rate and pressure.

B. Specifically designed for deep well service.

C. Size: 2-inch

D. Pressure rating: 200 psi minimum.

E. Cover and body material: ASTM A126, Class B.

F. Ball float material: stainless steel with replaceable resilient seat.

G. Model: APCO #146DAT with optional air throttling device, or Engineer-approved equal.

PART 3: EXECUTION

3.01 GENERAL

A. Make necessary field measurements to determine pipe laying lengths.

B. Use fittings as shown on the Drawings.

C. Provide sufficient flanged connections to permit easy dismantling of equipment and piping for maintenance.

3.02 JOINTS

A. Flanged Joints

1. Remove anti-rust coating from machined surfaces. Clean joint surfaces of the pipe and fittings being joined. Wipe surfaces clean of all dirt, oil, grease, and other foreign matter. Wipe surfaces dry. Wipe each gasket clean of all dirt, dust, and other foreign matter.

2. Align the flange of the pipe or fitting being installed with the flange of the receiving pipe or fitting. Support the pipe, fittings, and appurtenances being joined so the flanges are properly aligned. Lubricate bolts and nuts with a graphite and oil mixture prior to installation of bolts and nuts. Install gasket between the flanges. Loosely assemble bolts and nuts. Check gasket to ensure the gasket is in proper position. Evenly tighten bolts and nuts so the joint will not leak. Do not over torque bolts and nuts.

3.03 DISSIMILAR PIPE CONNECTIONS

A. Provide non-conducting connections or flange-insulating gaskets where dissimilar metal pipes are joined.

3.04 FIELD CLEANING

A. Completely remove foreign material from interior of pipe.

B. Repair or replace equipment damaged by foreign material left in pipe at no additional cost to Owner.

3.05 DISINFECTION

A. Disinfect fully assembled process piping, including valves and other appurtenances, in accordance with AWWA 651 and applicable regulations of the Minnesota Department of Health (MDH).

B. After disinfection, collect samples for bacteriological analysis. Collection and submittal of these samples shall meet the requirements of the MDH.

3.06 FIELD TESTS

A. Coordinate field testing and start-up with Engineer and Owner.

B. Pressure lines

1. Test liquid piping systems with water in accordance with ANSI/AWWA C600 for pressure piping.
2. Test all pressure piping lines at 150 psig.
3. Inspect all joints for leaks after piping has been under pressure for 24 hours.
4. Valve off or otherwise isolate instrumentation, controls or other piping accessories which may be damaged by test pressure.
5. Provide test pumps, test plugs, blind flanges, pipe and gauges, and make required pipe connections as required to conduct pressure tests.

C. Replace or repair defective pipe, fitting and valves disclosed during tests.

D. Retest piping showing leakage.

END OF SECTION 43 20 00

43 22 00

DEEP WELL PUMP AND MOTOR

PART 1: GENERAL

1.01 SUMMARY

A. This Specification Section covers all labor, equipment, and materials necessary to provide a deep well pump and motor for Well 16. The Work includes, but is not limited to, shortening or extending the existing well casings, providing a pump, motor, discharge column, and appurtenances.

B. The following products shall be furnished as specified in this Section:

1. Vertical turbine pump including pump bowl assembly, discharge column, and motor, and all other materials and equipment required for complete installation.

C. Pump and motor installation and well disinfection work described in this Specification Section shall be performed by Traut Companies, 32640 CO Rd 133, St. Joseph, MN 56374.

1.02 RELATED SECTIONS

A. Section 26 24 19 Starters and Motor Control

B. Section 40 90 00 Instrumentation and Control for Process Systems

C. Section 43 20 00 Process Piping and Appurtenances

1.03 REFERENCES

A. The following are complete titles of references cited in this Section. The date of the standard is that in effect as of the certification date.

1. American Water Works Association (AWWA)/American National Standards Institute (ANSI)

a. ANSI/AWWA C654, “Standard for Disinfection of Wells”

b. AWWA E101-77, “Standard for Vertical Turbine Pumps – Line Shaft and Submersible Types”

c. American Society for Testing Materials (ASTM)

d. ASTM A36, “Specification for Structural Steel”

e. ASTM A48, “Specification for Gray Iron Castings”

f. ASTM A53, “Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless”

g. ASTM A108, “Specification for Steel Bars, Carbon, Cold Finished, Standard Quality”

h. ASTM A276, “Specification for Stainless and Heat-Resisting Steel Bars and Shapes”

i. ASTM B584, “Specification for Copper Alloy Sand Castings for General Applications”

j. ASTM B505, “Specification for Copper-Base Alloy Continuous Castings”

k. ASTM A105, “Specification for Forgings, Carbon Steel, for Piping Components”

l. ASTM B62, “Specification for Composition Bronze or Ounce Metal Castings”

1.04 SUBMITTALS

A. Shop Drawings including:

1. Pumps/motors
2. Column pipe
3. Discharge head
4. Lineshaft and couplings
5. Lineshaft bearings and bearing retainers
6. Pump suction inlet assembly
7. Water level indicator
8. Well vent

B. Factory certified pump curve including:

1. Impeller number
2. Impeller diameter
3. Operating point
4. Efficiencies

C. Operation and Maintenance Manuals:

1. Pump/motor
2. Water level sensor

1.05 SEQUENCING AND SCHEDULING

A. Coordinate the Work of this Section with other Sections to obtain a complete installation as shown in the Drawings and described herein. This specifically includes but is not limited to coordinating work on the well casing and wellhead and verification of all elevations and dimensions prior to installation.

1.06 BASIS FOR COMPENSATION

A. Compensation for all work covered under this Section shall be as set forth in Division 2 Special Provisions.

PART 2: PRODUCTS

2.01 COLUMN PIPE

A. The column pipe shall meet the latest revision of ANSI/AWWA E101-8 Standards (Section B-4.5) and have a nominal diameter of 10-inches. It shall be ASTM A53, Grade B, Schedule 40 steel pipe or better. The first section below the well head and the last section above the pump may be shorter sections. The bottom of the column pipe shall be properly threaded to connect directly onto the bowl assembly. The top of the column pipe shall be properly adapted to connect to the discharge head. Only new, unused pipe will be accepted. The pipe shall be free of rust and pitting and shall be factory marked ASTM A53. The column pipe shall be connected with new and unused threaded sleeve type couplings. Provide enough column pipe to set the top bowl of the pump at the depth shown in the table in Paragraph 2.03. column pipe length to be confirmed with Engineer prior to installation.

B. The column pipe shall be supplied with two perforated 1-inch diameter PVC pipes and couplings for all but the bottom 10 feet of column pipe. One is intended to house the permanent water level gauge probe, and one is intended for manual water level probes.

2.02 VERTICAL TURBINE PUMP

A. General Description: The pump shall be deep well, closed impeller, multiple stage vertical turbine pump designed to operate at approximately 1,750 revolutions per minute (rpm). The combined bowl assembly shall be designed to mount directly onto a threaded 10-inch-diameter column pipe. Pump bowls, impellers, motors, and couplings shall meet AWWA E101 Section B-4 standards. Contractor shall be responsible for selecting a hydraulically acceptable pump based on the given TDH and flow requirements listed below. Provide the manufacturer's pump design information and characteristic curves to Engineer for approval. Also provide a manufacturer's certified curve based on a test run on the actual pump to be installed. The pump shall not be ordered until well operation characteristics are verified by test pumping and Engineer approves the manufacturer's curve.

B. Approximate Pump Performance Characteristics: The pump shall deliver a minimum discharge rate against the total dynamic head (TDH, including static head) value with the minimum pump efficiency listed below. The pump shall operate along a flat efficiency curve for the design discharge range (specified discharge in gpm plus or minus 20 percent). The proposed pump setting below the ground surface for the well is also listed. **Contractor to confirm the design points, efficiencies, and pump setting depth before acquiring the pump.**

Well No.	Primary Design Pt.	Secondary Design Pt.	Secondary Design Pt.	Pump Setting Depth (ft below grade)
16	1000 gpm @426 ft (81% eff.)	900 gpm @456 ft (83% eff.)	1100 gpm @400 ft (78% eff.)	300

The specified TDH value and pump setting depth will be verified at the time of test pumping.

C. Pump Bowls: The pump bowls shall be of close-grained ASTM A48, Class 30, cast iron; free from sand holes, blow holes, and all other defects. They shall have porcelain enamel coating of the water passages. Bowls shall have bronze sleeve type bushings to support and guide the shaft. Bushing material shall be bronze, ASTM B505. A sand collar of rubber, bronze, or polyethylene, ASTM B505, shall be provided to protect the suction bearing from abrasives in the liquid pumped. The intermediate stages shall be selected to provide the maximum efficiency with the least number of stages. However, the pump shall have no fewer than three stages.

D. Pump Impeller: The impeller shall be of the enclosed type, cast of stainless steel, ASTM B584, accurately cast, machined, polished, statically and dynamically balanced, and filed for optimum performance and minimum vibration. The impeller shall be securely fastened to the bowl shaft with taper collects of ASTM A582 Type 416 stainless steel or ASTM A108 mild steel.

E. Impeller Shaft: The impeller shaft shall be of sufficient diameter to transmit the pump horsepower with a liberal safety factor and rigidly support the impellers between the bowl or cast bearings. The bowl shaft material shall be ASTM A276 Type 410 or ASTM 582 Type 416 stainless steel.

F. Motor Coupling: The coupling connecting the pump bowls to the motor shall be ASTM A582 Type 416 stainless steel and shall be designed to withstand maximum motor torque plus a safety factor in either spinning direction. The coupling shall be rigid jaw-type, keyed, or splined to the pump shaft.

G. Suction Case: The suction case shall be constructed of close grained ASTM A48 Class 30, cast iron and be manufactured to serve as the suction inlet, lower bearing housing and motor adapter piece. The adapter shall prevent the entrance of abrasives into the top end of the motor and shall include a stainless steel strainer. The inlet area shall be equal to at least five times the impeller area.

H. Pump Base: The pump base shall be a heavy-duty cast-iron base to support the pump and driver. Integral cast iron flanged discharge elbow, 125 PSI rated.

I. State in the bid proposal the number of bowls needed to meet the approximate performance characteristics listed above; no fewer than three bowls will be allowed.

J. The pump shall be manufactured by FloWise, Flowserve, Peerless, or Goulds.

2.03 MOTOR

A. The motor shall be a high efficiency vertical hollow shaft (VHS) motor for use with 460 volt, 3 phase, 60 cycle power supply. The motor shall be designed to operate at between 1,750 and 1,800 rpm and shall not be loaded in excess of its nameplate rating at any condition from zero flow to the maximum capacity of the pump. The motor shall have a minimum horsepower rating of 150HP.

B. The thrust bearings shall have an average life expectancy of 5 years and shall be selected to accommodate all static and operating loads. The motor shall be provided with a ball type nonreversing ratchet which shall absolutely prevent the motor from being reversed by the back flow of water through the pump column. The motor shall accommodate the shaft adjusting nut at the top of the motor used for pump bowl adjustment.

C. The furnished motor shall have an open drip proof (ODP) enclosure and shall be of the across the line, squirrel cage induction type and shall conform to current NEMA Re-rate Requirements, Code F or better for motor starting requirements. The mounting and shaft diameter shall be compatible with the discharge head.

D. In addition, the motor furnished shall meet the following requirements:

1. The motor shall conform with all applicable NEMA (National Electrical Manufacturers Association), IEEE (Institute of Electrical and Electronic Engineers), and ANSI (American National Standards Institute) standards. Motors using nonstandard frames will not be permitted.

2. The motor rating shall be based on NEMA MG1-20.43 number of starts. Horsepower, torque, and speed characteristics shall be suitable for the full normal range of operating conditions of the driven equipment without exceeding 95 percent of the nameplate FLA (Full Load Amps) and temperature rise rating regardless of size. Nameplate FLA shall be based on nameplate horsepower and shall not include the 15 percent service factor. The motor shall have a 1.15 service factor. Horsepower rating shall not vary from that specified.

3. The supplier furnishing the motor shall be responsible for delivery, handling, and setting regardless of local agreements as to actual work jurisdiction. This responsibility shall include checking of lubrication, drive alignment and condition, indication of proper rotation, verification of proper rating of overload heaters, and any or all other matters relating to operative readiness. When all checks are satisfactorily accomplished, the readiness of the unit for operation shall be indicated by a conspicuous and legible tag installed by the responsible individual.

4. The motor bearings shall be ABMA (American Bearing Manufacturers) standard sizes. The motor shall be equipped with endshield mounted ball bearings made to ABMA standards and be of ample capacity for the motor rating. The bearing housing shall be large enough to hold sufficient lubricant to minimize the need for frequent relubrication, but facilities shall be provided for adding new grease and draining out old grease without major motor disassembly. The bearing housing shall have long, tight, running fits or rotating seals to protect against the entrance of foreign matter into the bearings, or leakage of grease out of the bearing cavity.

5. The vibration in any direction, measured at the bearing housings, with the motor running at normal voltage and frequency, the shaft axis in normal position, and with one-half of a

standard key in the keyway shall not be more than 0.0015 inches total amplitude peak to peak.

6. If balancing weights are added to the rotor, they shall be permanently secured by welding or peening.

E. The stator frame and endshield shall be of rigid cast iron construction. Extruded aluminum frames shall not be used. Fan covers and conduit boxes may be cast iron, aluminum or steel, depending on the manufacturer's standard.

F. Conduit box mountings shall be arranged so that conduit can be brought in from top, bottom or either side. Conduit hole size shall conform to NEC Standards depending on motor rating.

G. The motor shall be drilled and tapped for and furnished with a lifting eyebolt (or eyebolts).

H. Motor leads into the conduit box shall have the same insulation class as the winding and shall be equipped with a numbered brass or copper terminal staked or otherwise mechanically fastened to the lead sufficient to resist 15 pounds pull. Leads shall be marked throughout the entire length to provide identification after terminals are taped and clipped.

I. The fan forcing ventilating air through or over the motor may be steel, aluminum or molded plastic, whichever is the manufacturer's standard.

J. An aluminum or stainless steel nameplate shall be included. The nameplate shall be stamped to include the following information:

1. horsepower (not including service factor)
2. speed
3. time rating
4. frequency
5. phases
6. model number
7. rated voltage
8. service factor (1.15)
9. full load amps (based on nameplate HP, not including service factor)
10. insulation class
11. NEMA design
12. NEMA code letter
13. maximum ambient temperature
14. bearing identification

K. The motor connection diagram shall be permanently attached to the motor, either inside the conduit box or on the motor frame in a readable location from the conduit box side.

L. The motor shall be prime painted with a corrosion resisting metal primer, and finish painted with a durable machinery gray enamel, manufacturer's standard.

M. All bolts, screws, and other external hardware shall be treated by zinc with irridite or zinc chromate for resistance to corrosion.

N. The motor testing procedure shall be in accordance with the American Standard Test Code for polyphase induction motors and generators, IEEE 112. The motor shall be given a routine test to determine that they are free from electrical or mechanical defects. The routine test shall, as a minimum, conform to MGI-12.51.

O. Before shipment, the shaft extension and any other bare exposed metal parts of the motor shall be coated with an easily removable rust preventative.

P. The motor shall be securely fastened to a hardwood skid or pallet for fork truck handling and be covered for protection against dirt and moisture during transit and for short time outdoor storage.

Q. The motor shall meet or exceed the starting locked rotor and maximum breakdown torques specified by NEMA for the NEMA design. The locked rotor starting currents shall not exceed NEMA maximum values for the specified NEMA design and rating. The current density and heating characteristics shall be such that the motor will not suffer damage if subjected to a maximum of ten seconds stall at six times full load current. Except as noted, the service factor of the motor shall be in accordance with NEMA Standards. The insulation system of the motor shall be designed for 40,000 hours operation under usual service conditions as described under NEMA 1-14.02. The motor manufacturer shall use IEEE standards to establish the suitability of the insulation system to meet these requirements.

R. The motor shall have a 1.15 service factor. The minimum NEMA efficiency shall be 94 percent. Efficiency shall be as defined in the latest edition of IEEE Standard 112 and NEMA MG1-12.53a,b.

S. Motor Efficiencies. All permanently wired polyphase motors of 746 W (1 hp) or more shall meet the minimum full-load efficiencies as required the NEMA efficiency class identified. Motors of 746 W (1 hp) or more with open, drip-proof, or totally enclosed fan-cooled enclosures shall be classed as premium efficiency.

T. **Motors designated for inverter duty shall have the following characteristics:**

1. Specifically designed for use with a solid-state inverter variable frequency drive (VFD).
2. 1600V insulation system designed for inverter duty.
3. Insulated bearing on the non-drive end to eliminate circulating currents.

2.04 DISCHARGE HEAD

A. The discharge head shall be a new cast iron assembly, free of blow holes, sand holes and other defects and shall be accurately machined. The head shall be faced drilled to match the motor without use of an adapter plate.

B. The discharge head shall incorporate a discharge elbow having an above-ground flanged outlet designed for through bolting and to receive a 150-lb. ANSI 12-inch standard pipe flange.

C. The discharge head shall be furnished with the manufacturer's standard stuffing box arrangement with a protective steel mesh cage and base plate of cast iron or steel. The headshaft shall be AISI 416 stainless steel. The headshaft shall be of two (2) piece design with a coupling located above the stuffing box for ease of installation. An adjusting method shall be provided on the top of the headshaft to allow impeller adjustment. This method shall provide a positive locking device.

D. The discharge head shall be tapped and furnished with appropriate fittings for attachment of two perforated 1-inch PVC pipes, which will house the permanent water level indicator probe and manual water level probe. The tapped port for the permanent water level indicator shall provide for attachment of wiring connected to a wall-mounted gauge or display panel.

2.05 LINESHAFT AND COUPLINGS

A. The lineshaft shall be of AISI 416 stainless steel and coupled together with AISI 303 stainless steel shaft couplings. The lineshaft sections shall be interchangeable 10-foot sections.

B. The lineshaft and lineshaft couplings shall be commensurate with the load to be carried. The size of the shaft shall be no less than that determined by ANSI/AWWA E101-77, Section A4.3.3,

Table 3, and shall be such that elongation due to hydraulic thrust will not exceed the axial clearance of the impellers in the pump bowls.

C. The butting faces of the lineshaft sections shall be machined square to the axis of the shaft, with the maximum permissible axial misalignment of the thread axis with the shaft axis 0.002 inches in 6 inches.

2.06 LINESHAFT BEARINGS AND BEARING RETAINERS

A. The lineshaft bearings shall be of cutless rubber, spaced not more than 10 feet apart and shall be mounted in bronze bearing retainers threaded into the column couplings.

2.07 PUMP SUCTION INLET ASSEMBLY

A. The pump suction inlet assembly shall consist of a 5-foot section of 3/4 NPT tapered threaded steel pipe of the same material and nominal dimension as the discharge column. To the bottom of this shall be attached a 3/4 NPT tapered threaded double flapper check valve.. The check valve shall be designed to allow leakage back past the valve at a controlled rate. An appropriately sized strainer shall be fitted to the bottom of the inlet assembly. The strainer shall be of the cone type, corrosion resistant, and shall have a net inlet opening area equal to four times the area of the suction pipe. The maximum opening shall not be more than 75 percent of the minimum opening of the water passage through the bowls and impellers.

2.08 WATER LEVEL INDICATOR

A. Provide a submersible level transducer for continuously detecting static and pumping water levels in the well, and digital display units for the well inside the control panel. After electrical connections are made, set up and calibrate the digital display units, and instruct Owner in its operation.

B. All materials located in the well shall be compatible with municipal potable water drinking standards stated in the Minnesota Department of Health State Well Code. Contractor shall be responsible for coordinating the gauge and sensing element size so that they will be compatible with one of the ports on the well base.

C. The submersible level transducer housing shall be stainless steel with a snubnose end to protect the diaphragm. Range and span shall be selectable to optimize the application. Output shall be a 4 – 20 mAdc signal proportional to the measured depth of the liquid. The following specifications shall apply:

Span:	±0.1mA
Zero:	±0.1mA
Accuracy:	±0.5% of span
Stability:	±0.5% per annum

D. Surge protection shall be standard.

E. Provide cable to the junction box above the transducer as an integral part of the transducer assembly. The cable shall be submersible and approved for the application, with a vent tube and Kevlar or stainless steel support fiber to adequately support the transducer without stretching or breaking. The vent tube shall have a sealed bellows or desiccant filter at the top to prevent introduction of moisture into the vent tube. Confirm actual setting with Engineer at the time of construction. Provide sufficient cable length to accurately measure the water level in each well.

F. Provide a probe with an appropriate pressure rating based on the current static water level and the elevation at which the transducer is installed.

G. Submersible transducer shall be manufactured by Keller, KSPI, Druck, GE, E&H, or an approved equal.

2.09 WELL VENT

A. Casing vent shall be constructed of Schedule 40 steel pipe with welded connections and fittings. Provide smooth interior without protrusions or weld slag. Hot dip galvanize prior to field installation. Repair field welds with cold galvanize. Furnish removable vent cap complete with corrosion resistant brass or stainless steel 20 mesh screen. Furnish separate downhole access as shown on the Drawings.

2.10 SOURCE QUALITY CONTROL

A. In order to assure uniform quality and full compatibility, all pump components (bowl assembly, column, and discharge column) shall be supplied by the same manufacturer.

PART 3: EXECUTION

3.01 CONTRACTOR'S QUALIFICATIONS

A. All pump and motor installation and well disinfection work described in this Specification Section shall be performed by Traut Companies, 32640 CO Rd 133, St. Joseph, MN 56374. All electrical work related to pump motor and controls wiring shall be performed by persons meeting the requirements set forth in Division 26 of these Specifications.

3.02 WELL CASING WORK

A. Casing pipe shall be joined with welded joints made and inspected in accordance with the latest requirements of the American Water Works Association (AWWA) Standard for Fielding Welding of Steel Water Pipe, AWWA C206, full penetration, single groove, butt joint, arc weld with chamfers and other weld details in accordance with American Institute of Steel Construction. Final elevations of the extended 18-inch casing shall be per the Drawings.

3.03 PUMP, DISCHARGE COLUMN, AND LINESHAFT INSTALLATION

A. Install the inlet suction assembly, pump, discharge column, and lineshaft in accordance with the manufacturer's recommendations and printed instructions. The installation shall begin after the wellhouse addition (by others) encloses the well and shall meet all applicable codes stated in these Specifications. A suction inlet assembly as described in Section 2.07 of these Specifications shall be attached to the inlet of the pump. The pump shall be placed on the well. All discharge column, lineshaft, and lineshaft bearing retainers shall be placed in the well. The top of the top bowl of the pump shall be set at the elevation to be selected by the Engineer.

B. All lineshafts shall be checked for straightness in the wellhouse immediately prior to installation. The shafts shall be straightened to a tolerance specified by the shaft or pump manufacturer. The Contractor shall furnish the Owner's Representative with documentation showing the straightness criteria prior to beginning pump installation.

C. The pump discharge column shall be assembled to provide tight leak free joints. Lineshaft couplings shall be securely tightened and all bearings and shaft sleeves shall be placed in accordance with the manufacturer's recommendations. The perforated 1-inch PVC water level probe pipe shall be attached to each length of column pipe after it has been tightened onto the pipe below it. The PVC pipe shall be secured to the column pipe in a way that does not deform the PVC pipe but securely holds it to the column pipe. The PVC pipe shall be coupled to the PVC pipe below it on the pipe in the hole. The bottom of the PVC pipe shall be left open. The top shall connect to the discharge head to create a continuous water level tube running from the discharge head down to about 10 feet above the pump. All materials installed in the well shall be free of dirt, grease and other contaminants prior to placement.

3.04 PUMP INSTALLATION

A. Install the pump in the well at the elevation directed by Engineer in accordance with recommendations of the pump manufacturer and the pump setting called out earlier in these specifications. Prior to placement, ensure proper motor connection, impeller adjustment, lubrication, and all other checks required for pump and motor.

B. Pump installation includes providing the pump, motor, and power cable from the pump to the control panel. The power cable shall be attached to the column pipe by rubber straps at a minimum of 20-foot intervals. Coordinate installation of pump and level sensing conduits with Division 26.

C. Immediately prior to installation disinfect all parts internal to the well in accordance with Section 4 of AWWA C654.

3.05 COLUMN PIPE INSTALLATION

A. Install the column pipe per manufacturer's recommendations. Assemble column pipe to provide tight, leak free joints. Attach the perforated 1-inch PVC water level probe pipes to each length of column pipe after it has been tightened onto the pipe below it. Secure the PVC pipes to the column pipe in a way that does not deform the PVC pipe but securely holds it to the column pipe. Couple the PVC pipe to the PVC pipe below it on the pipe in the hole. Cap the bottom of the PVC pipes. Connect the top to the probe ports in the base to create a continuous water level tube running from the discharge elbow down to about 10 feet above the pump and motor.

B. Column pipe installation includes providing all column pipe, threaded sleeve couplings, two perforated 1-inch PVC water level pipes, and other appurtenances required from the pump to the discharge elbow.

C. Immediately prior to installation disinfect all parts internal to the well in accordance with Section 4 of AWWA C654.

3.06 PREPARATION OF MOTOR AND DISCHARGE HEAD BASE

A. The well contractor shall be responsible for preparation of the casing and construction of the pump base. The inner casing shall have an extension welded onto it and then be cut to the proper elevation for installation of the discharge head. Cut casings square using saw or torch. Grind edges smooth for subsequent welding operations. Take all measures necessary to prevent debris, tools, and equipment from entering well by using safety cords, packers, covers, etc. There shall be no protrusions of pipes, weld slag, or similar materials into the inside of the inner casing. Use continuous weld full perimeter of both pipes to prevent entrance of water. Place grout plate with machined surface up and protect machined surface during construction. Level plate precisely prior to welding to casing. Place grout to the dimensions shown on the drawings. Allow a minimum of 14 days before pump placement.

B. The well casing vent shall be installed as shown in the drawings. Verify existing portion of well casing vent is in good working condition and free of obstructions.

3.07 DISCHARGE HEAD INSTALLATION

A. The discharge head shall be installed on the prepared motor and discharge head base using 3/4" by 9-5/8" standard anchor bolts, epoxy grouted in place. The 1-inch perforated PVC pipe shall be securely attached to the discharge head.

3.08 MOTOR INSTALLATION

A. The motor meeting the material requirements stated in Section 2.03 of these Specifications shall be installed on the discharge head. All electrical connections shall be made by others.

3.09 DISINFECTION AND STARTUP

A. Following motor installation, make all necessary pre-startup checks and adjustments for the pump and motor. Disinfect the well and pump to waste in accordance with the requirements of the Minnesota Department of Health (MDH) Water Well Construction Code and AWWA C654, whichever is more stringent.

B. Field acceptance tests of the pumping equipment shall be conducted in the presence of Engineer and Owner after the installation is completed. Furnish the necessary personnel and other equipment for conducting the field test. Capacity measurement shall be by using the measuring device installed in the discharge line under this contract.

C. The pump shall be tested for a period of one hour at its design capacity and head, the test being conducted in the presence of the Engineer and a representative of the Owner. Readings of the instruments shall be taken at intervals of five (5) minutes for the drawdown, pumping head, flow rate and necessary data to determine the overall efficiency of the pumping unit, and recorded on log sheets. Four copies of the log sheets shall be turned over to Engineer. If Owner or Engineer is dissatisfied for any reason with the tests, additional ones shall be conducted as Engineer may direct.

D. In the event Contractor is unable to obtain the specified performance, Owner reserves the right to reject the pump or accept a reduction in the contract price for an amount satisfactory to Owner. Should the pump be rejected, proceed at once in securing and installing another pump that will meet the specified performance without cost to Owner. In the event repeat the pumping test as specified above, it shall be at no additional cost to Owner.

3.10 WATER LEVEL INDICATOR INSTALLATION

A. Install water level indicator per manufacturer’s recommendations. Coordinate the exact mounting locations with Engineer and Owner.

B. After electrical connections are made, set up and calibrate the digital display units, and instruct Owner in their operation. The units will not be accepted and paid for until it has been calibrated and proven to function correctly.

3.11 OPERATOR TRAINING

A. Provide a minimum of eight (8) hours of operator training at Owner’s convenience after equipment is operational.

3.12 FIELD QUALITY CONTROL

A. Establish and maintain procedures to assure quality control and compliance with the requirements of this Section. Record and furnish to Owner the following information:

1. Manufacturer, model number, serial number, and options identification for all materials supplied;
2. Length of discharge column actually placed;
3. Static water level at time of placement; and
4. Precise position of end of water level indicator tube with respect to discharge column.

END OF SECTION 43 22 24

ATTACHMENT A

2500 WATERMAINS

GENERAL
The work contracted for under this section of the specifications includes all labor, equipment and materials to construct and complete in place, the pipe mains and appurtenances. All pipe, fittings, and appurtenances shall be furnished and installed in place, connected-up, tested, sterilized, and ready for full operation before final payment will be made. This is a standard specification; refer to the plans for the appurtenances required for this particular project.

PIPE AND FITTINGS
All pipe and fittings shall be visually inspected in the field for specification conformance and shall be new and in first class condition.

DUCTILE IRON PIPE
Where called for on the plans and specifications, ductile iron pipe shall be new centrifugally cast, slip-on joint pipe conforming to the latest revision of ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.5. All ductile iron pipe shall be minimum Thickness Class 52, suitable for 8 foot cover and laying condition "B" or as stated on the plans or in the special provisions. The pipe joints shall be slip-on type joints with rubber gaskets such as Fastite, Tyton, or engineer pre-approved equal.

When specified on plan drawings or bid forms pressure class 350 ductile iron pipe shall conform to the latest revision of ANSI/AWWA C150/A21.50 and ANSI/AWWA C151/A21.51.

Each length of pipe shall be cement mortar lined on the interior in accordance with the latest revision of ANSI/AWWA C104/A21.04.

The exterior of all ductile iron pipe shall be asphaltic coated in accordance with the latest revision of ANSI/AWWA C151/A21.51.

Where specified ductile iron pipe shall have an exterior layer of arc-sprayed zinc per ISO 8179. The mass of the zinc shall be a minimum of 200g/m^2 with a finishing asphaltic coating and an interior cement lining in accordance with the latest ANSI Specification A-21.4.

PVC WATER PIPE
Where called for on the plans and specifications, PVC water pipe shall be new Polyvinyl Chloride Pipe conforming to AWWA Standard Specification C900 SDR 18. This pipe shall be bedded and installed in accordance with the requirements of ASTM-D-2321, Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe, except that compaction requirements surrounding the pipe, as referred to in paragraph 2.3 of ASTM-D-2321, shall be to 90 percent of maximum density rather than 95 percent and except that the maximum particle size allowed for backfill around the pipe shall be 1½ inches rather than ½ inch and allowable soil types used in backfill, as referred to in ASTM-D-2321, shall be expanded to include types SM and SC (silty sands and clayey sands) types ML and CL (inorganic silts and inorganic silts and inorganic

clays of low and medium plasticity, etc.), and type MG (gravelly silts). Pipe joints shall be "Ring-tite" type joints with rubber gaskets. A trace wire shall be installed. See Tracer Wire.

HDPE
Shall be installed per engineer's specifications.

TRACER WIRE
A trace wire shall be #12 AWG-Solid HS-30 mil HDPE jacket-Blue copper clad steel wire manufactured by Copperhead Industries LLC installed directly on top of all PVC water pipe for future location purposes. *Joining ends of trace wire.* Connections into existing trace wire, connections into trace wire used during water main bores, connections between one spool of trace wire to another, and other similar connections shall be made using a direct bury wire nut part #SCB-01 (Blue) manufactured by Copperhead Industries, LLC. Connect trace wires per manufactures instructions and then tie the wires in a knot approximately 6" from the wire nut (Fig.2). *Joining trace wire branch to main.* Connections of trace wires at tees, crosses, and at locations where the trace wire will be brought to the surface shall be conducted using a direct bury lug part #3WB-01 (Blue) manufactured by Copperhead Industries, LLC. Installation shall be made per manufactures instructions. All copper water services shall require a jumper wire made from the same Copperhead wire with a heat shrink, solder sleeve crimpable ring terminal, Terminal Supply #SSC-230-14 or approved equivalent connected to a bronze pipe grounding clamp Grainger # 2CNJ2 for 1" services or # 2CNJ3 for larger services (Fig. 3). When practical, tracer wire shall be terminated at each end in a flush mount access box. Access Box shall have a cast iron lid that can be locked and opened with a standard pentagon head key wrench. Tracer wires shall be stripped and attached to stainless steel screws mounted to the underside of the lid. Sufficient slack shall be left in wire length so cover can be lifted with wire intact. Tracer wire access box shall be located 180 degrees from the streamer nozzle of all fire hydrants or where indicated on drawings and be set to grade. Tracer wire access box shall be of domestic manufacture and be equal to Bingham and Taylor P200 NFG Tracer Wire Access Box (Fig.1). *Joining tracer wire to existing watermain.* When connecting to the existing water main, it shall be done so by connecting to the mechanical joint using a nylon crimpable ring terminal, Terminal Supply # E-959-34 or approved equivalent. Any exposed metal on ring terminals shall be coated with rust proofing under coating. Tracer wire shall be duct taped to the watermain no less than every fifteen feet.

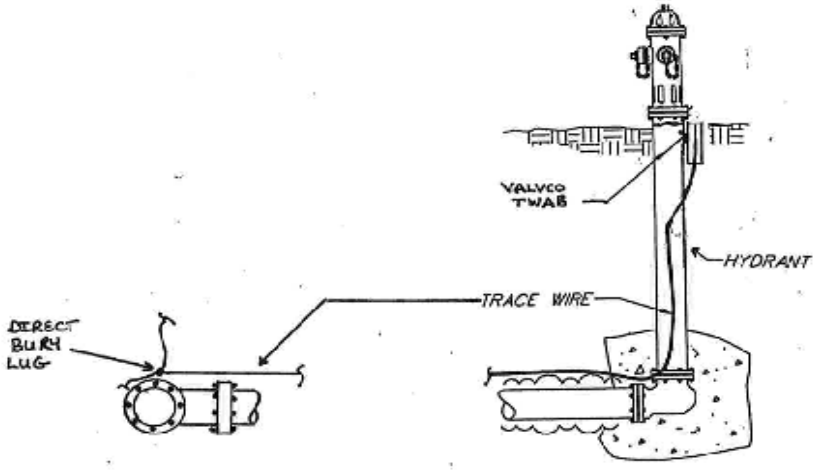


FIG. 1

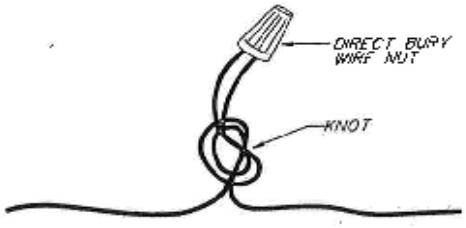


FIG 2

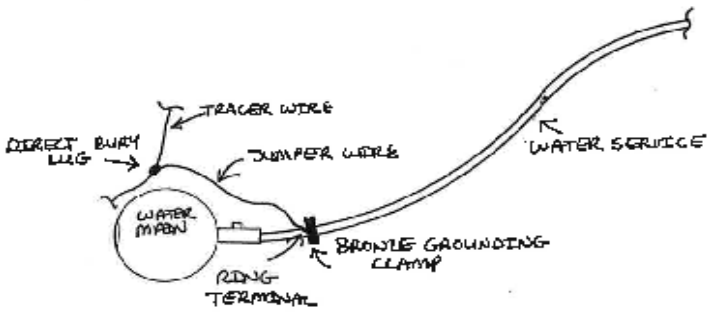


FIG. 3

FITTINGS
Fittings for ductile iron watermain and pvc watermain pipe shall conform to the latest revision of ANSI/AWWA C153/A21.53 or ANSI/AWWA C110/A21.10. All ductile iron fittings shall be mechanical joint fittings with at least 250 psi pressure rating and shall conform to the latest revision of ANSI/AWWA C111/A21.11.

All nuts and bolts to be the “Core Blue” type. All nuts and bolts to be sprayed with a rubberized undercoating spray after installation. Also, any nicks in the fittings, pipe and hydrant bodies to be sprayed.

All ductile iron fittings shall be encased in V-Bio Polyethylene Encasement conforming to latest revision of AWWA/ANSI C105/21.05 to include anti-microbial biocide and VCI on inside surface of three-layer co-extruded linear low-density polyethylene fused into a single layer no less than 8mils in thickness.

HYDRANTS
Hydrants shall be the Medallion model, manufactured by Clow Company with two base nozzle connections (3 1/31 inches O.D. with 7 threads per inch, T.P.-7031) and one pumper nozzle with 4½" National Standard Thread, 4 to the inch. Hydrants shall have a 6 inch mechanical joint inlet and 5 inch valve opening. Hydrants will be furnished with a bronze lower plate, stainless steel bolts, and the SBR valve rubber. The hydrant shall be painted TGIC Red. All hydrants shall be sufficient length to provide 7’-6" bury depth over the connecting pipe after final surface replacement and so that the centerline of nozzles shall be 20" above the finished grade. All hydrants shall be provided with a break-off traffic flange, installed one inch above finished grade. All hydrants to have “bury depth” tags. City only accepts current year or previous year dated hydrants.

VALVES FOR MAINS
Gate valves for distribution mains and service lines 12" and smaller shall be Clow model C509DI resilient wedge, non-rising stem type, with "o"-ring packing, suitable for a cold water working pressure of 250 pounds per square inch. Gate valves from 14” to 24” shall be Clow model C515DI. All gate valve bonnet bolts shall be stainless steel and the operating nut shall be bronze.

All valves shall be encased in V-Bio Polyethylene Encasement conforming to latest revision of AWWA/ANSI C105/21.05 to include anti-microbial biocide and VCI on inside surface of three-layer co-extruded linear low-density polyethylene fused into a single layer no less than 8mils in thickness. Each valve shall be provided with a valve box as specified herein.

Valves larger than 24 inches shall be butterfly valves as manufactured by Henry Pratt Company, Model 2 F-II with cast iron body, stainless steel shaft, Ni-Resist Type I, Resistoseal seat, drop-tight for 150 pounds fast pressure, with Type 18 operator suitable for direct burial, or Dresser "450" or equal. All ferrous parts shall be ductile iron.

All valves shall close in a clockwise direction. Valve box shall be 5 inch I.D. cast iron, for 7½ foot pipe cover, extensible not less than 10 inches upward from initial installed position, with a

cover having the word "WATER" cast thereon. Valve box bottom bonnet will be centered over valve using a gate valve #6 Base Adaptor-by Adaptor Inc.

AIR RELEASE MANHOLES
Air release manholes shall be constructed in the locations shown on the plans and as shown on the detailed plate. Air release valves shall be one inch Apco No. 143-6 or equal.

PRESSURE REDUCING VALVES
Pressure reducing valves shall be Clayton No. 90 or approved equal. The pressure reducing valves shall be installed where indicated on the plans and as shown on the detail plates.

HOUSE WATER SERVICE LINES
Service connections shall be of the sizes and in the locations directed by the Engineer. Stop boxes shall be set flush with the finished grade at 7½ foot cover. 1½ and 2 inch connections shall be made with a tapping saddle. See detail plates. All service connections into PVC watermain shall use a Smith Blair 372, JCM 133, or a Ford FS 303 tapping saddle.

The connections shall be constructed as detailed on the plans using the following materials:

Curb Box	8' Mueller H10300 with Stationary Rod (48”) 8' Ford EM 2-80-56 with Stationary Rod (48”) A.Y. McDonald 5614 with Stationary Rod (48”)
Curb Stops	Mueller HB25154 with MPLS Pattern Curb Box Threads Ford B-22-444 with MPLS Pattern Curb Box Threads A.Y. McDonald 6104
Corporations	Ford F B600 or Ford F 600 Mueller B25000 A.Y. McDonald 4701B
Service Pipe	Type "K" Copper Water Tube (ASTM Spec B88-58) HDPE 160 PSI SDR-11 EndoPure HDPE ASTM D2737
Wye Branches	Mueller H-15340
Saddles	Smith-Blair 372 Ford FS 303 JCM 133

MATERIAL FOR PIPE BEDDING
Material for pipe bedding shall be ¾ inch to 1½ inch binder stone and shall be 100% crushed stone. The Contractor will not be paid for binder rock where it is used only to facilitate dewatering of the trench. Haul slips showing tonnage of all aggregate materials delivered to the job site shall be submitted to the Engineer on a daily basis. No payment will be made for material when the haul slip is submitted later than one working day following delivery of the material.

PREPARATION OF FOUNDATIONS FOR PIPE

The bottom of the trench shall be shaped to conform as nearly as possible to the outside of the pipe, particular care being taken to recess the trench bottom in such a manner as to relieve the bell of the pipe of all load.

PIPE LAYING

Pipe shall be laid to a 7'6" minimum depth of cover or to the centerline or invert depth shown in the plans. Mains shall be installed in a thorough workmanlike manner, using proper specials and fittings to suit prevailing conditions.

The interiors of the pipes shall be thoroughly cleaned of all foreign matter before being lowered into the trench and shall be kept clean during laying operations by means of tight plugs or other approved methods. No trench water shall be allowed to enter the pipes or fittings. At all times when work is not in progress, all open ends of pipes and fittings shall be securely closed.

All pipe shall be visually inspected in the field for specification conformance and shall be rung with a light hammer to detect fine cracks before lowering into the trench.

Unless specified otherwise, pipe shall be laid and jointed in accordance with the pipe manufacturer's installation instructions.

When pipes with straight and/or un-tapered or un-beveled ends are encountered, such ends shall be beveled smooth before assembly. Such ends may occur when pipe is cut in the field or when the spigot end differs from the type of pipe joint being installed. When connecting to an existing pipe that has a greater wall thickness resulting in a larger outside diameter than the new pipe, the bell end of the new pipe or fitting shall be enlarged by machining and shall be considered incidental to the contract.

SEPARATION OF WATERMAINS AND SEWERS

Under normal conditions, watermains shall be laid at least 10 feet horizontally from sanitary sewers and storm drains; wherever possible, the distance shall be measured from edge to edge. When 10 feet of horizontal separation cannot be maintained, the bottom of the watermain shall be at least 18 inches above the top of the sanitary sewer or storm drain or the sewer or drain shall be constructed and tested to watermain standards.

Under normal conditions, watermains crossing house services, storm drains, or sanitary sewers shall be laid to provide a vertical separation of at least 18 inches between the bottom of the watermain and the top of the sewer. When 18 inches of vertical clearance cannot be maintained, the sewer service, storm drain, or sanitary sewer shall be constructed and tested to watermain standards. In addition, the watermain shall be protected by a vertical separation of at least 18 inches adequate support to protect the watermain from settlement and damage and centering the watermain such that the joints are equidistant and as far as possible from the sewer. Watermains and services shall not be constructed in contact with any sewer or sewer manhole.

PIPE JOINT RESTRAINT

All plugs, caps, tees, branches, and bends deflecting 22½ degrees or more shall be provided with thrust anchor or reaction backing against **undisturbed ground with concrete bulkheads**, or movement shall be prevented by attaching suitable clamps, adjustable tie rods, Amarillo Fast-Grip Gaskets for Fastite joint, Barracuda Restrained Joint Gasket for Tyton Joint, or Mega-Lugs for MJ joint restraint, rustproof treated. Reaction backing shall be so placed that the pipe and fitting joints will be accessible for repairs. Testing of mains shall not proceed until concrete thrust blocks or anchors have had sufficient time to attain design strength. High early strength concrete may be used. Where friction clamps and tie rods are used for restraint, all joints within the following minimum distances shall be tied.

Degree of Deflection	6" dia.	8" dia.	10" dia.	12" dia.	18" dia.	24" dia.	36" dia.
22½E	–	–	–	–	`7 LF	9 LF	13 LF
45E	5 LF	7 LF	10 LF	14 LF	26 LF	34 LF	49 LF
67½E	11 LF	15 LF	21 LF	28 LF	54 LF	71 LF	104 LF
90E	17 LF	23 LF	34 LF	46 LF	87 LF	114 LF	168 LF

All pipe joints within tunnel or jacked railroad or highway crossings shall be restrained using friction clamps and tie bars, Amarillo Fast-Grip Gaskets for Fastite joint, Barracuda Restrained Joint Gasket for Tyton Joint, or equal, to withstand 250 psi internal pressures.

Contractor shall apply standard methods used in sewer construction to maintain proper line and grade indicated on the plans. Minor grade changes to avoid conflict with existing utilities shall be considered incidental to the contract.

BACKFILLING AND GRADING

After the pipe has been laid, inspected, and blinded, the trench backfill shall be placed in the 12 inch lifts and compacted by pneumatic tampers, tamping rollers or vibrating rollers. Each lift shall be thoroughly compacted before succeeding lifts are placed. Backfill material shall be mineral soil free of sod, roots, topsoil, stones over 6 inches in greatest dimension, frozen lumps, and all other extraneous material.

Where granular soils are used for backfill, the thickness of lifts may be increased to limits determined by the Inspector.

Trenches shall be backfilled with select backfill material only in areas where indicated on the plans or by the Inspector.

After compaction of backfill is completed, the Contractor shall regrade the areas disturbed by his operations to the elevations existing or as directed on the plans or by the Inspector.

SETTING HYDRANTS, VALVES, AND VALVE BOXES — Hydrants, gate valves, and valve boxes shall be set plumb with valve boxes placed directly over valves. Top of valve boxes shall be set ¾" below finished grade unless otherwise noted on the plans.

Valves shall be installed over four cubic feet of crushed stone or coarse gravel to insure drainage. Hydrants shall be set at such elevations that the connecting pipe will have a minimum of 7'0" cover or as shown in the plans. Each hydrant shall be placed upon a slab of stone, brick, or concrete not less than 4" thick and 15" square. The back side of the hydrant opposite of the pipe connection shall be blocked using treated timbers against undisturbed soil. Hydrant shall also be restrained with rods, clamps, field lok gaskets or mega-lugs. Around the base of each hydrant shall be placed not less than seven cubic feet of crushed stone or coarse gravel to insure complete drainage of the hydrant when closed. The crushed stone will be covered with 8ml low density polyethylene film.

STERILIZATION AND BACTERIOLOGICAL TESTING

The Contractor shall provide all the materials and labor necessary for the introduction of the proper amount (see table) of chlorine solution directly into the mains after installation and all pressure tests are completed. The use of chlorine solution placed at each joint prior to jointing will not be allowed. Only fresh disinfectants shall be used.

The chlorine solution shall be left in the section of pipe being disinfected a minimum of twenty-four (24) hours. The disinfecting shall commence not more than fifteen (15) days before the residents are allowed to hook up to the system. The contractor shall follow the disinfecting procedures and bacteriological testing as described in the **Standard for Disinfecting Water Mains** prepared by the **AWWA**, C651. The contractor shall be thoroughly informed on the requirements of the above mentioned manual and shall maintain a sufficient number of copies of same on the job site.

After the bacteriological tests are completed and the absence of coliform organisms is confirmed, a “free chlorine” test will be performed by the City Water Department. If more than 1.0 PPM of free chlorine is detected, the contractor will flush that line again, until the free chlorine residual is below 1.0 PPM.

The following table indicates the amount of calcium hypochlorite (65% available chlorine) that shall be added to each 100 feet of pipe to furnish a solution containing the minimum amount of free chlorine.

Pipe Size	Calcium Hypochlorite (65% available chlorine)
6"	2.1 oz.
8"	4.0 oz.
12"	8.0 oz.
16"	14.4 oz.

BACTERIOLOGICAL TESTS
After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24 hours apart, shall be collected from the new main.

HYDROSTATIC TEST
Each section of completed pipeline between successive valves or other closure shall be thoroughly flushed at hydrants to remove all confined air or foreign matter before testing. Every section shall then be tested individually in the following manner:

Each section shall be subject to hydrostatic pressure of 150 pounds per square inch, measured by a gauge at the lowest hydrant, for a period of two hours. The Engineer will evaluate any drop in pressure to determine when the test has been successfully completed. A further test shall then be made as follows:

The quantity of water pumped into the pipe to maintain a constant pressure of eighty pounds at the lowest hydrant, for a period of not less than one-half hour, shall be accurately measured. The permissible leakage in a 24 hour period under this test shall be not more than 50 gallons per inch diameter per mile of pipe.

The above described tests shall be made under the Engineer's supervision and to his satisfaction. The Contractor shall discover all faulty pipe or other material and workmanship during the tests and shall replace the same at his own expense to the satisfaction of the Engineer. All leaks shall be made tight. The above tests to be repeated after any replacements have been made. All necessary pumps, appliances, and labor for these tests shall be furnished and all connections shall be made by the Contractor at his own expense. The Engineer shall be notified 24 hours before tests.

ELECTRICAL CONDUCTIVITY
The pipe and joints shall be connected in such a manner as to allow an uninterrupted flow of electric current through the pipe. This is to include hydrants, valves, and other mechanical joint fittings. Test to be 350 AMPS for a period of 5 minutes. Joint Conductivity shall be achieved by use of external copper straps or use of conductive gaskets. All conductive gaskets shall have a minimum manufacturing experience of 10 years.

PROTECTING UNDERGROUND AND SURFACE STRUCTURES
Temporary support, adequate protection, and maintenance of all underground and surface utility structures, drains, sewers, and other obstructions encountered in the progress of the work shall be furnished by the Contractor at his own expense. When necessary to determine the location of existing pipes, valves, or other underground structures, the Contractor, after an examination of available records, shall make all explorations and excavation for such purposes.

When existing utility structures, main sewers, drains or other conduits, ducts, pipes, or other structures present obstructions to the grade or alignment of the pipe, such structures shall be permanently supported, removed, relocated or reconstructed by the Contractor through cooperation with the owner of the structures involved. In those instances where relocation or reconstruction is impractical, a change in line and/or grade will be ordered by the Engineer and

the change shall be made in the manner directed. No deviation shall be made from the required line or grade except by written consent of the Engineer.

The Contractor shall promptly repair at his expense any break or damage to other utility mains, or to house service connections for water, sewer, and gas caused by his work.

METHOD OF MEASUREMENT, BASIS OF PAYMENT

All work as designated in the plans and specifications shall be paid for on the basis of unit prices as indicated on the proposal. This shall be considered compensation in full for furnishing and installing all materials and labor required to complete this project. The cost of any material and labor required to complete this work, but not specifically included as a pay item, shall be merged with the various unit prices.

Water Pipe

Water pipe shall be paid for on the basis of the contract unit price per foot for each type, strength classification, and diameter. All measurements shall be made horizontally from center to center of fittings, valves, and hydrants. Unit prices shall include excavation, dewatering, bracing, and pipe completely installed, and in the case of PVC watermain pipe shall include trace wire for location purposes. On 18 inch and larger watermains, fittings shall be considered incidental items with no direct compensation therefore, whether the pipe be ductile iron or concrete cylinder. Definition of fittings for the 18 inch and larger watermains shall include gaskets, glands, tie bars, bolts, and reaction bracing.

Fittings

Fittings for 4, 6, 8, 10, and 12 inch pipe shall be measured by weight of the body casting only. Glands, gaskets, reaction bracing, tie bars, bolts, and accessory items shall be considered incidental and no payment will be made therefore. Payment shall be on the basis of the contract unit price per pound which shall include furnishing, installing, and polyethylene film encasement. All plugs, caps, joints and sleeves required for this construction will be considered as incidental and not listed in the proposal as a pay item.

Hydrants

Hydrants shall be paid for on the basis of the contract unit price, including base and gravel, installed complete in place.

Valves

Valves shall be paid for on the basis of the contract unit price per valve for each type and size. This shall include furnishing and installing valve, polyethylene film encasement, box, and cover.

Services

Water services will be paid on the basis of the lineal feet of service pipe installed plus one service group. See detail plates.

Air-Release Manholes

Air release manholes will be paid for by the unit, including manhole, base, frame, cover, air valve, and piping installed complete in place.

Pipe Bedding
Pipe bedding will be paid for on the basis of the appropriate contract unit price per ton in place.

WELLHOUSE 16

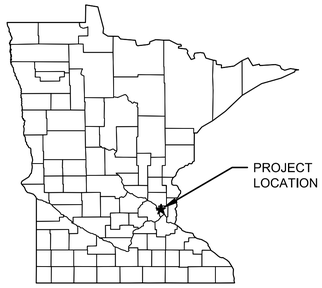
CITY OF NEW BRIGHTON

NEW BRIGHTON, MINNESOTA

CITY IMPROVEMENT NO. 25-11

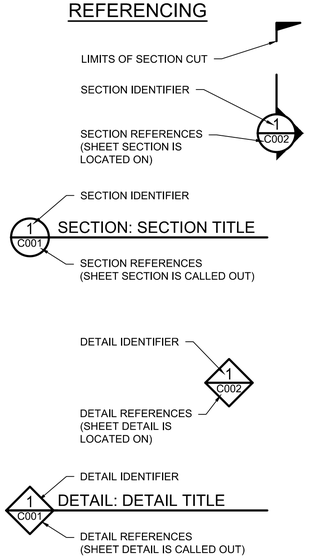


VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

REFERENCING



NOTES:

1. COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES, PERMITS, AND REGULATIONS.
2. VERIFY ALL QUANTITIES, GRADES, AND DIMENSIONS.
3. TOPOGRAPHIC INFORMATION BASED ON SITE SURVEY CONDUCTED BY BARR, 2015 AND 2024.
4. FIELD-LOCATE ALL SITE UTILITIES (PRIVATE AND PUBLIC) PRIOR TO STARTING THE WORK. ALL UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED TO THE SATISFACTION OF UTILITY OWNER AT CONTRACTOR'S COST.

811 Know what's **below.** **Call 811** before you dig.

ABBREVIATIONS AND SYMBOLS

APPROX	APPROXIMATE
CONC	CONCRETE
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
EL	ELEVATION
FFE	FINISHED FLOOR ELEVATION
HDD	HORIZONTAL DIRECTIONAL DRILLING
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
MAX	MAXIMUM
MIN	MINIMUM
NAVD	NORTH AMERICAN VERTICAL DATUM
OC	ON CENTER
PVC	POLYVINYL CHLORIDE
TBD	TO BE DETERMINED
TYP	TYPICAL
Ø	DIAMETER

SHEET INDEX

SHEET	TITLE
G001	COVER SHEET, INDEX AND VICINITY MAP
C001	EXISTING CONDITIONS, REMOVALS, SEDIMENT CONTROL, AND TRAFFIC CONTROL PLAN
C002	SITE PLAN
C003	GRADING PLAN
C004	RAW WATERMAIN PLAN AND PROFILE
C005	CIVIL PROFILE AND DETAILS
C006	PEDESTRIAN TRAFFIC CONTROL PLAN
C007	EROSION CONTROL DETAILS
A001	ARCH. GENERAL NOTES, SYMBOLS, & ABBREVIATIONS
A002	SCHEDULES AND TYPES
A101	ALTERNATE 1 WELLHOUSE 8 - PLANS & EXTERIOR ELEVATION
A102	ALTERNATE 2 WELLHOUSE 9 - PLANS & EXT. ELEVATIONS
A103	PLANS & EXT. ELEVATIONS - WELLHOUSE 16
A401	BUILDING SECTIONS - WELLHOUSE 16
A701	EXTERIOR WALL DETAILS - WELLHOUSE 16
A702	EXTERIOR WALL DETAILS - WELLHOUSE 16
A703	ALTERNATES 1 & 2 WELLHOUSE 8 & 9 - EXTERIOR DETAILS (SIMILAR)
A704	MISC DETAILS
S001	STRUCTURAL ABBREVIATIONS AND SYMBOLS
S003	STRUCTURAL NOTES AND SPECIAL INSPECTIONS
S100	WELLHOUSE FOUNDATION PLAN
S101	WELLHOUSE FLOOR PLAN
S102	WELLHOUSE FLOOR SLAB REINFORCING PLAN
S103	WELLHOUSE ROOF PLAN
S110	ELEVATIONS
S111	BUILDING SECTIONS
S200	FOUNDATION DETAILS
S201	MASONRY DETAILS
S202	PRECAST PLANK DETAILS
P001	PROCESS LAYOUT
P002	PROCESS SECTIONS AND DETAILS
M100	WELLHOUSE 16 FLOOR PLAN MECHANICAL PLAN
M101	WELLS 8 & 9 AND HVAC SCHEDULES
E001	ELECTRICAL SYMBOLS & ABBREVIATIONS
E002	WELLHOUSE 16 / WELL 9 ELECTRICAL SITE PLAN
E003	WELLHOUSE 16 LIGHTING AND GENERAL POWER PLAN
E004	WELLHOUSE 16 PROCESS ELECTRICAL PLAN
E005	WELLHOUSE 8 ELECTRICAL PLAN
E006	FIBER OPTIC ROUTING SITE PLANS
E007	FIBER OPTIC ROUTING PLAN WATER TREATMENT PLANT 1
E008	ONE-LINE DIAGRAM AND SCHEDULES
E009	ELECTRICAL DETAILS
E010	ELECTRICAL SCHEMATICS 1 OF 2
E011	ELECTRICAL SCHEMATICS 2 OF 2
E012	NETWORKING DIAGRAM
E013	CONTROL SYSTEM CONFIGURATION DIAGRAM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE
SIGNATURE Bryan Pitterle
DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

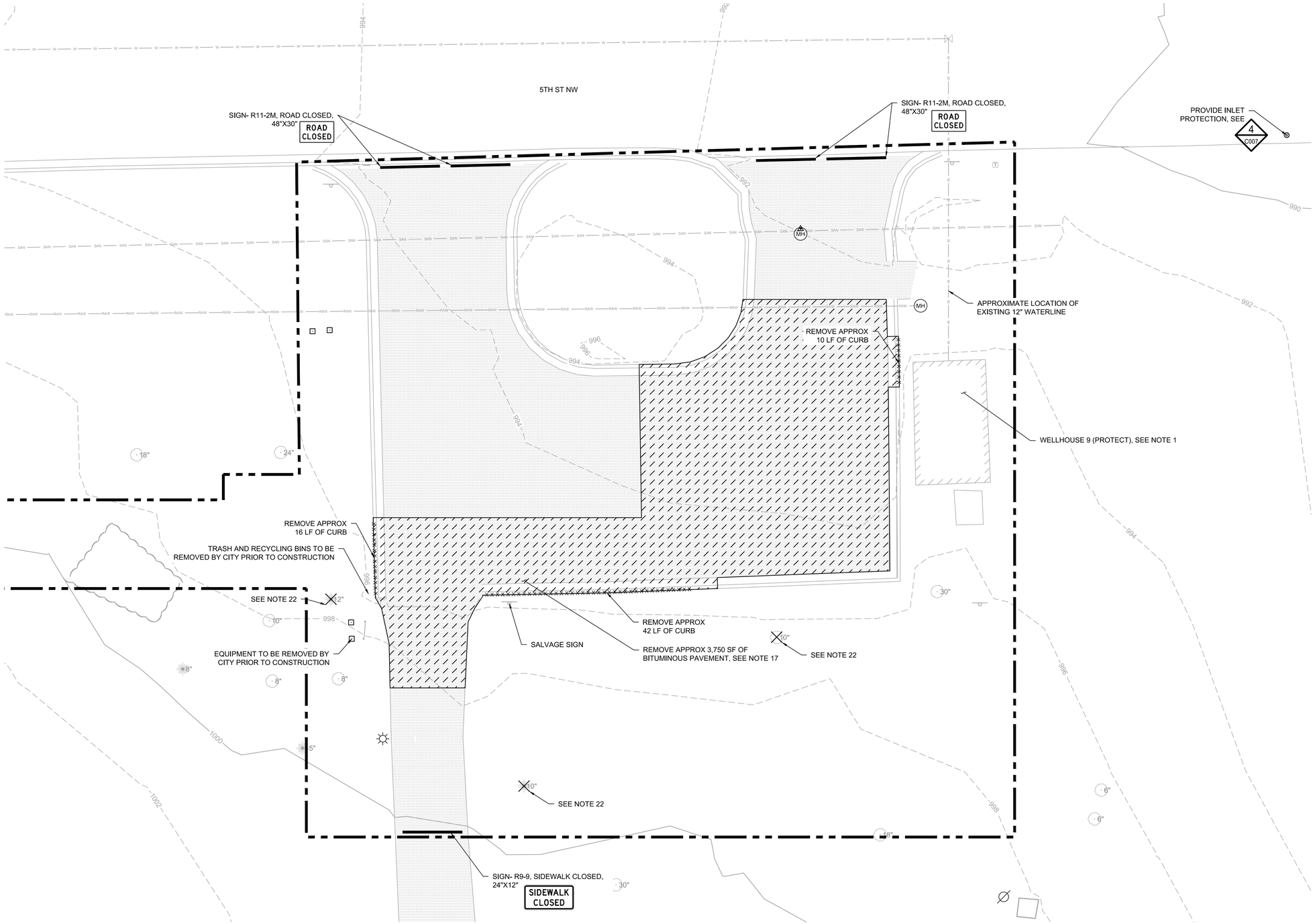
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

COVER SHEET, INDEX, AND VICINITY MAP

BARR PROJECT # 2362153400
DWG # G001
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 3:46 PM
CAD USER: EVE K. GARRY FILE: \\EDI-CAD\CADDESIGN\2362153400\CIVIL\2362153400_G001_TITLE SHEET.DWG



1 - PLAN: EXISTING CONDITIONS AND REMOVALS

0 10 20

SCALE IN FEET

PROJECT DATUM:

HORIZONTAL: MINNESOTA DOT: RAMSEY COUNTY, US FOOT
VERTICAL: NAVD88

LEGEND:

- 980 — EXISTING MAJOR CONTOUR
- 978 — EXISTING MINOR CONTOUR
- SAN — EXISTING SANITARY SEWER
- RAW — EXISTING RAW WATER
- W — EXISTING WATER
- EXISTING EDGE OF VEGETATION
- EXISTING BITUMINOUS PAVEMENT
- EXISTING STRUCTURE/EQUIPMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING SIGN
- MH — EXISTING MANHOLE
- EXISTING LIGHT POLE
- EXISTING COMM BOX
- EXISTING GATE VALVE
- REMOVE BITUMINOUS PAVEMENT
- REMOVE EXISTING TREE, SEE NOTE 22
- REMOVAL

NOTES:

1. FIELD VERIFY ALL UTILITIES AND FEATURES PRIOR TO CONSTRUCTION.
2. ALL UTILITIES SHOWN ARE CONSIDERED LEVEL D, UNLESS OTHERWISE NOTED, IN ACCORDANCE WITH ASCE STANDARD CI/ASCE38-02.
3. ALL CONSTRUCTION ACTIVITY MUST BE KEPT WITHIN CONSTRUCTION LIMITS. UNLESS PRE-APPROVED BY OWNER, DO NOT BLOCK ACCESS TO SITE WITHOUT COORDINATING WITH OWNER.
4. MAINTAIN ACCESS TO WELLHOUSE 9 THROUGHOUT CONSTRUCTION ACTIVITIES.
5. COORDINATE LOCATION OF CONTRACTOR STAGING/STORAGE WITH OWNER.
6. ALL TEMPORARY TRAFFIC AND PEDESTRIAN CONTROLS SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND REMOVED FROM SITE AT CONCLUSION OF THE WORK.
7. COORDINATE TRAIL AND SIDEWALK CLOSURES WITH CITY PRIOR TO CONSTRUCTION ACTIVITIES.
8. ALL SIGNAGE SHALL BE IN COMPLIANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES BY THE FEDERAL HIGHWAY ADMINISTRATION.
9. SIGN TO BE PLACED ON A TYPE 3 BARRICADE.
10. PROTECT TREES NOT INDICATED TO BE REMOVED.
11. INSTALL SILT FENCE IMMEDIATELY FOLLOWING TREE AND ROOT REMOVAL AND PRIOR TO ANY EARTHWORK ACTIVITIES.
12. BURNING IS NOT ALLOWED ONSITE.
13. INSTALL ALL TEMPORARY EROSION CONTROL FEATURES (INCLUDING CONSTRUCTION EXIT, SILT FENCE, INLET PROTECTION, AND SEDIMENT CONTROL LOG) PRIOR TO THE START OF CONSTRUCTION AND REMOVED FROM SITE AT CONCLUSION OF THE WORK. SEE C007 FOR DETAILS.
14. INSTALL SEDIMENT CONTROL LOG AROUND PERIMETER OF ALL STOCKPILED MATERIAL, SEE DETAIL 2 ON C007.
15. CONCRETE WASHOUT TO OCCUR AT THE BATCH PLANT.
16. PROTECT ALL EXISTING PAVEMENT, PIPING, EQUIPMENT, UTILITIES, AND STRUCTURES NOT INTENDED FOR DEMOLITION. REPAIR OR IF DAMAGED, REPLACE AT NO ADDITIONAL COST TO OWNER.
17. SAW-CUT PAVEMENT, FULL DEPTH, WHERE REMOVAL IS REQUIRED OR WHERE NEW PAVEMENT MEETS OLD PAVEMENT.
18. COORDINATE ALL DEMOLITION WORK WITH OTHER TRADES AND WITH OWNER.
19. HANDLE AND DISPOSE OF ALL SUSPECTED HAZARDOUS MATERIALS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS.
20. CITY TO COORDINATE OPERATION OF ALL VALVES.
21. COORDINATE WITH OWNER PRIOR TO ANY WORK AFFECTING THE EXISTING WATERLINES, SEWERS, OR OTHER UTILITIES.
22. CITY WILL REMOVE TREES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR CLEARING AND GRUBBING OF STUMPS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE
SIGNATURE Bryan Pitterle
DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

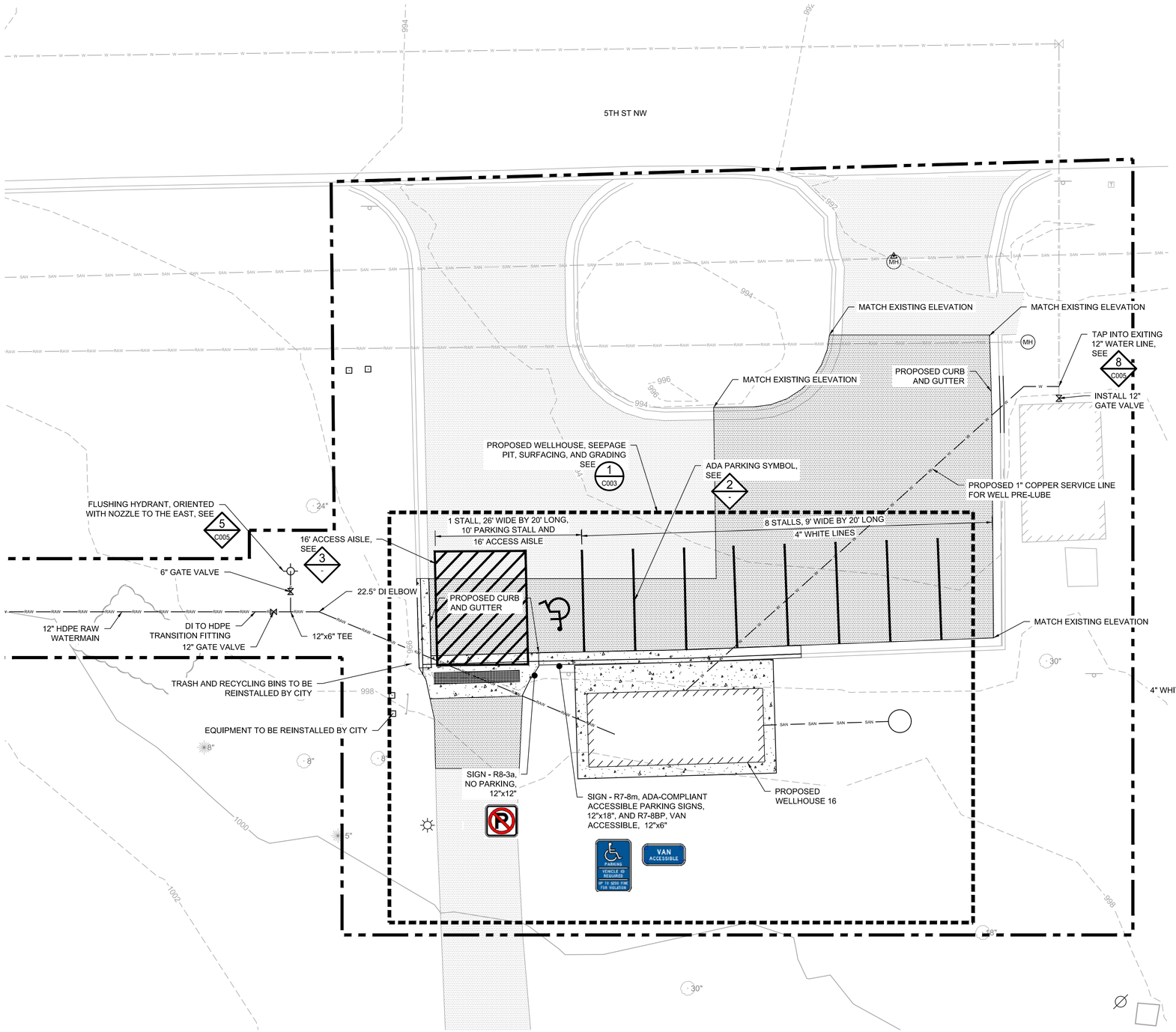
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
EXISTING CONDITIONS, REMOVALS, SEDIMENT CONTROL, AND TRAFFIC CONTROL PLAN

BARR PROJECT # 2362153400
DWG # C001
REV # 0

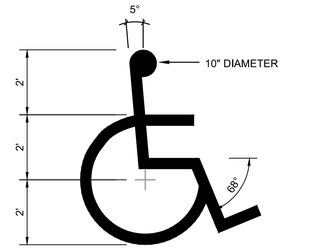
ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 2:14 PM
CADD USER: EVE A. GARRY FILE: \\EDI-FCAD\CADDESIGN\2362153400\CIVIL\2362153400_C001_EXISTING CONDITIONS.DWG



1 - PLAN: SITE PLAN

0 10 20

SCALE IN FEET

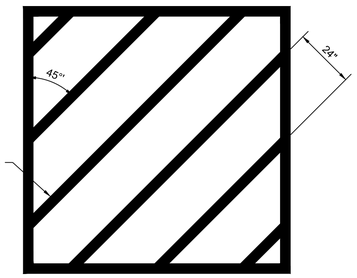


NOTES:

1. ALL LINES 4" WIDE WHITE
2. PAINTED ADA SYMBOL IS TO BE CENTERED IN EACH DESIGNATED ADA PARKING STALL
3. 6.42 SQUARE FEET OF PAINT PER SYMBOL

2 - DETAIL: ADA PARKING SYMBOL

NOT TO SCALE



3 - DETAIL: ACCESS AISLE

NOT TO SCALE

PROJECT DATUM:

HORIZONTAL: MINNESOTA DOT: RAMSEY COUNTY, US FOOT
VERTICAL: NAVD88

LEGEND:

- PROPOSED CONSTRUCTION LIMITS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER
- EXISTING RAW WATER
- EXISTING WATER
- EXISTING EDGE OF VEGETATION
- EXISTING BITUMINOUS PAVEMENT
- EXISTING STRUCTURE/EQUIPMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING SIGN
- EXISTING MANHOLE
- EXISTING LIGHT POLE
- EXISTING COMM BOX
- EXISTING GATE VALVE
- PROPOSED SANITARY SEWER
- PROPOSED RAW WATER
- PROPOSED WATER LINE
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED STRUCTURE/EQUIPMENT
- PROPOSED HYDRANT
- PROPOSED VALVE

NOTES:

1. FIELD VERIFY ALL UTILITIES AND FEATURES PRIOR TO CONSTRUCTION.
2. ALL UTILITIES SHOWN ARE CONSIDERED LEVEL D, UNLESS OTHERWISE NOTED, IN ACCORDANCE WITH ASCE STANDARD CI/ASCE38-02.
3. ALL CONSTRUCTION ACTIVITY MUST BE KEPT WITHIN CONSTRUCTION LIMITS. UNLESS PRE-APPROVED BY OWNER, DO NOT BLOCK ACCESS TO SITE WITHOUT COORDINATING WITH OWNER.
4. MAINTAIN ACCESS TO WELLHOUSE 9 THROUGHOUT CONSTRUCTION ACTIVITIES.
5. COORDINATE LOCATION OF CONTRACTOR STAGING/STORAGE WITH OWNER.
6. ALL TEMPORARY TRAFFIC AND PEDESTRIAN CONTROLS SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION AND REMOVED FROM SITE AT CONCLUSION OF THE WORK.
7. COORDINATE TRAIL AND SIDEWALK CLOSURES WITH CITY PRIOR TO CONSTRUCTION ACTIVITIES.
8. ALL SIGNAGE SHALL BE IN COMPLIANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES BY THE FEDERAL HIGHWAY ADMINISTRATION.
9. SIGN TO BE PLACED ON A TYPE 3 BARRICADE.
10. PROTECT TREES NOT INDICATED TO BE REMOVED.
11. INSTALL SILT FENCE IMMEDIATELY FOLLOWING TREE AND ROOT REMOVAL AND PRIOR TO ANY EARTHWORK ACTIVITIES.
12. BURNING IS NOT ALLOWED ONSITE.
13. INSTALL ALL TEMPORARY EROSION CONTROL FEATURES (INCLUDING CONSTRUCTION EXIT, SILT FENCE, INLET PROTECTION, AND SEDIMENT CONTROL LOG) PRIOR TO THE START OF CONSTRUCTION AND REMOVED FROM SITE AT CONCLUSION OF THE WORK. SEE C007 FOR DETAILS.
14. INSTALL SEDIMENT CONTROL LOG AROUND PERIMETER OF ALL STOCKPILED MATERIAL, SEE DETAIL 2 ON C007.
15. CONCRETE WASHOUT TO OCCUR AT THE BATCH PLANT.
16. PROTECT ALL EXISTING PAVEMENT, PIPING, EQUIPMENT, UTILITIES, AND STRUCTURES NOT INTENDED FOR DEMOLITION. REPAIR OR IF DAMAGED, REPLACE AT NO ADDITIONAL COST TO OWNER.
17. SAW-CUT PAVEMENT, FULL DEPTH, WHERE REMOVAL IS REQUIRED OR WHERE NEW PAVEMENT MEETS OLD PAVEMENT.
18. COORDINATE ALL DEMOLITION WORK WITH OTHER TRADES AND WITH OWNER.
19. HANDLE AND DISPOSE OF ALL SUSPECTED HAZARDOUS MATERIALS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS.
20. CITY TO COORDINATE OPERATION OF ALL VALVES.
21. COORDINATE WITH OWNER PRIOR TO ANY WORK AFFECTING THE EXISTING WATERLINES, SEWERS, OR OTHER UTILITIES.
22. CITY WILL REMOVE TREES PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR CLEARING AND GRUBBING OF STUMPS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE
SIGNATURE Bryan Pitterle
DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

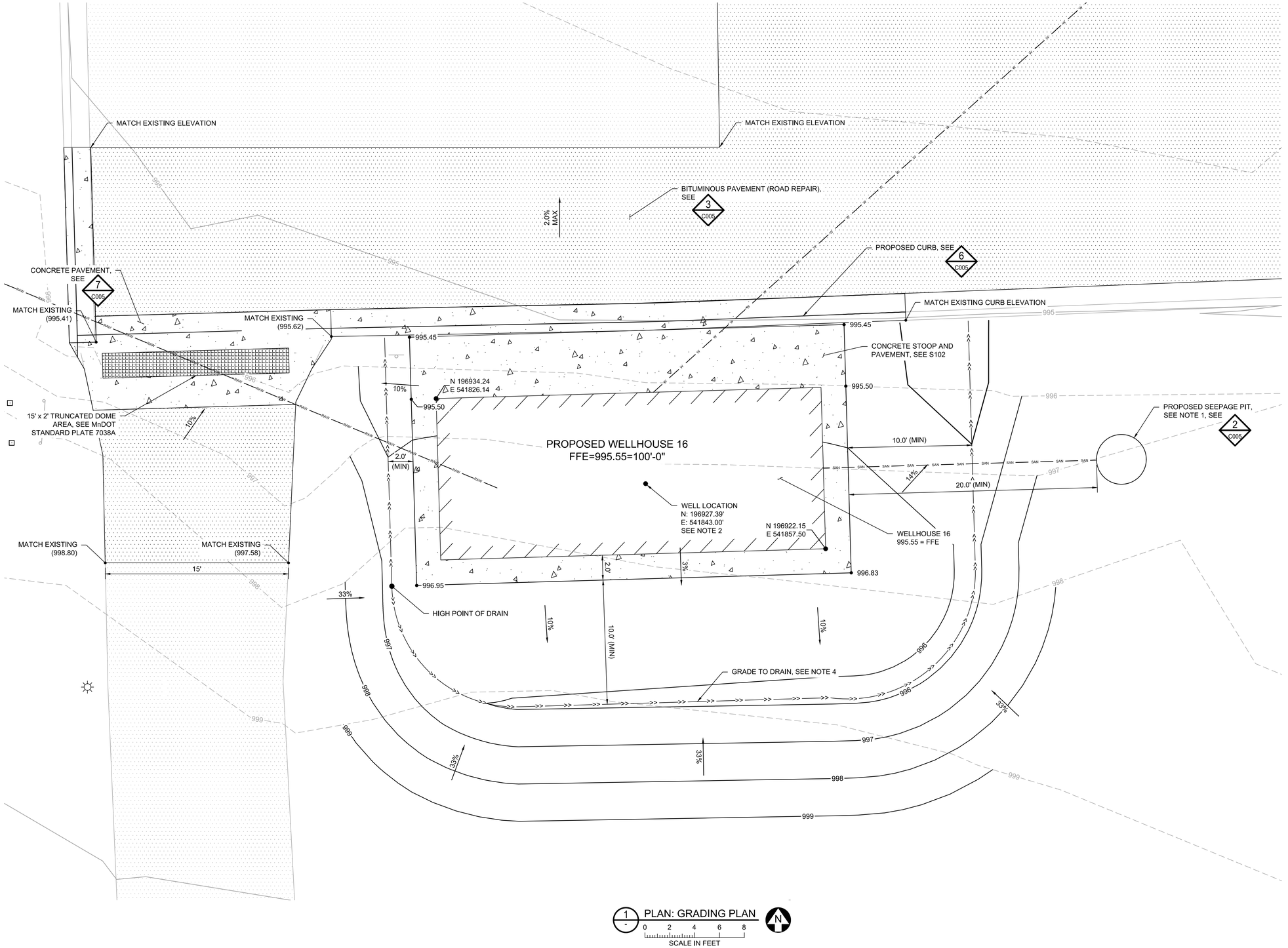
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

SITE PLAN

BARR PROJECT # 2362153400
DWG # C002
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00" X 22.00 INCHES) | PLOT SCALE: 1:1 | PLOT DATE: 1/19/2026 2:46 PM
CADD USER: EVE A, GARRY | FILE: \\EDI-CAD\CAD\DESIGN\2362153400\CIVIL\2362153400_C002_SITE PLAN.DWG



1 - PLAN: GRADING PLAN

0 2 4 6 8

SCALE IN FEET

PROJECT DATUM:

HORIZONTAL: MINNESOTA DOT: RAMSEY COUNTY, US FOOT
VERTICAL: NAVD88

LEGEND:

- PROPOSED CONSTRUCTION LIMITS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER
- EXISTING RAW WATER
- EXISTING EDGE OF VEGETATION
- EXISTING BITUMINOUS PAVEMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING SIGN
- EXISTING MANHOLE
- EXISTING LIGHT POLE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED SANITARY SEWER
- PROPOSED RAW WATER
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED STRUCTURE/EQUIPMENT
- PROPOSED TRUNCATED DOMES
- PROPOSED FLOW LINE

NOTES:

1. INSTALL SEEPAGE PIT A MINIMUM OF 20' FROM WELL.
2. FIELD VERIFY COORDINATES OF WELL AND COORDINATE WITH ENGINEER PRIOR TO COMMENCING PROPOSED WELLHOUSE 16 CONSTRUCTION, IF COORDINATES ARE DIFFERENT THAN WHAT IS LISTED.
3. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION IN KIND TO EXISTING GRADE.
4. GRADE SITE SO THAT IT DRAINS AWAY FROM ALL BUILDINGS, PADS, AND STRUCTURES. ENSURE NO POOLING WATER WITHIN 50' OF WELL.
5. DECOMPACT DISTURBED OR COMPACTED SURFACES TO A DEPTH OF 18" PRIOR TO SEEDING OR SODDING, PROTECT EXISTING VEGETATION, TREE ROOTS, AND UTILITIES.
6. SOD SHALL BE INSTALLED IN DISTURBED AREAS. PER OWNER APPROVAL, SEED MAY BE INSTALLED IN SELECT LOCATIONS OF MINOR DISTURBANCE.
7. COORDINATE WITH OWNER PRIOR TO ANY WORK AFFECTING THE EXISTING WATERLINES, SEWERS, OR OTHER UTILITIES.
8. MIN. BURY DEPTH OF 7.5' FOR WATERLINES.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE
SIGNATURE Bryan Pitterle
DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

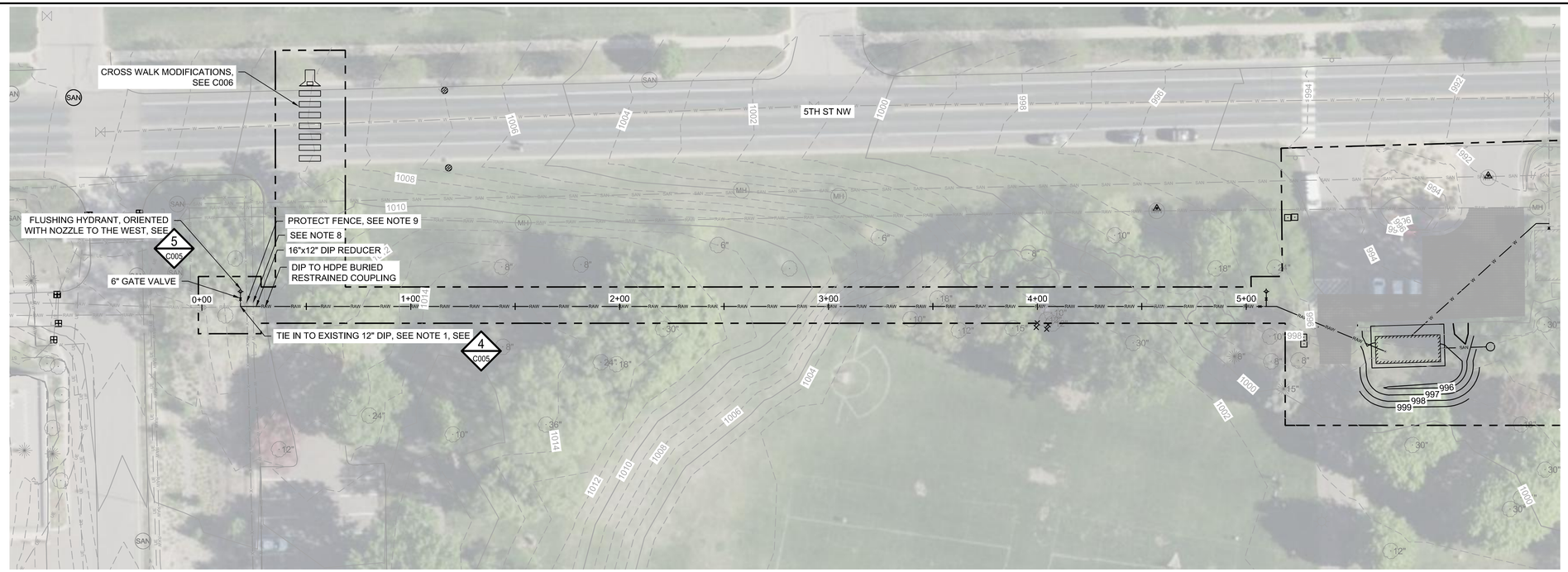
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

GRADING PLAN

BARR PROJECT # 2362153400
DWG # C003
REV # 0

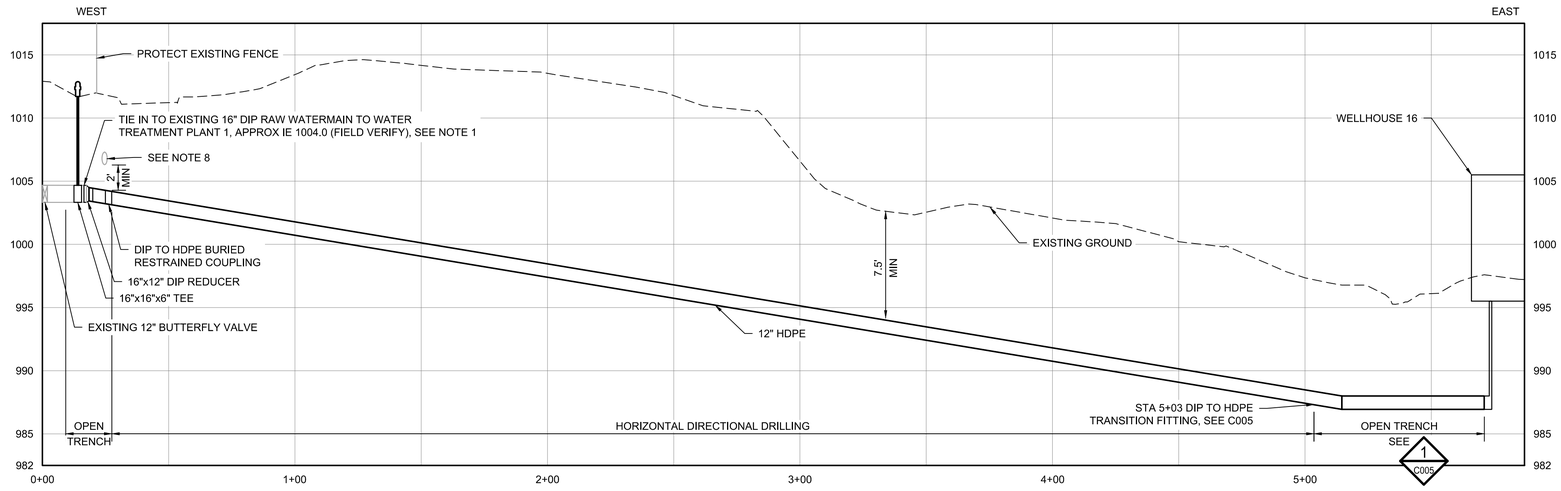
ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 3:36 PM
CADD USER: EVE A. GARRY FILE: \\EDI-CAD\CAD\ES\GN\2362153400\CIVIL\2362153400_C003_GRADING PLAN.DWG



1 - PLAN: RAW WATERMAIN

0 30 60

SCALE IN FEET



2 - PROFILE: RAW WATERMAIN

0 30 60 (HORIZONTAL SCALE IN FEET)

0 6 12 (VERTICAL SCALE IN FEET)

PROJECT DATUM:

HORIZONTAL: MINNESOTA DOT: RAMSEY COUNTY, US FOOT
VERTICAL: NAVD88

LEGEND:

- PROPOSED CONSTRUCTION LIMITS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER
- EXISTING RAW WATER
- EXISTING WATER
- EXISTING EDGE OF VEGETATION
- EXISTING BITUMINOUS PAVEMENT
- EXISTING STRUCTURE/EQUIPMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING SIGN
- EXISTING MANHOLE
- EXISTING LIGHT POLE
- EXISTING COMM BOX
- EXISTING GATE VALVE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED SANITARY SEWER
- PROPOSED RAW WATER
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED STRUCTURE/EQUIPMENT
- PROPOSED HYDRANT
- PROPOSED VALVE

NOTES:

1. ALL CONSTRUCTION ACTIVITY MUST BE KEPT WITHIN CONSTRUCTION LIMITS. UNLESS PRE-APPROVED BY OWNER, DO NOT BLOCK ACCESS TO SITE WITHOUT COORDINATING WITH OWNER.
2. MAINTAIN ACCESS TO WATER TREATMENT PLANT 1 AND WELLHOUSE 9 THROUGHOUT CONSTRUCTION ACTIVITIES.
3. PROTECT ALL EXISTING PAVEMENT, PIPING, EQUIPMENT, UTILITIES, AND STRUCTURES NOT INTENDED FOR DEMOLITION. REPAIR OR REPLACE AT NO ADDITIONAL COST TO OWNER.
4. SAW-CUT PAVEMENT, FULL DEPTH, WHERE REMOVAL IS REQUIRED OR WHERE NEW PAVEMENT MEETS OLD PAVEMENT.
5. NO INTERMEDIATE HDD ACCESS PITS (ONLY AT THE TWO ENDS).
6. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION IN KIND TO EXISTING GRADE.
7. ADDITIONAL CONSTRUCTION AREA MAY BE USED FOR STAGING MATERIAL AND EQUIPMENT DURING DRILLING AND PULLBACK OPERATIONS. COORDINATE WITH CITY A MINIMUM OF 48 HOURS PRIOR TO USING ADDITIONAL CONSTRUCTION AREA.
8. PROTECT EXISTING WATERMAIN, POTHOLE USING VACUUM EXCAVATION TO VERIFY ELEVATION OF PIPE, MAINTAIN 2' MIN BETWEEN EDGE OF PIPE AND EDGE OF PIPE.
9. TEMPORARY REMOVAL OF FENCE IS ACCEPTABLE AS LONG AS SITE IS SECURED AT THE END OF EACH SHIFT. IF REMOVED, REPLACE IN KIND UPON COMPLETION OF THE PROJECT.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE

SIGNATURE Bryan Pitterle

DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

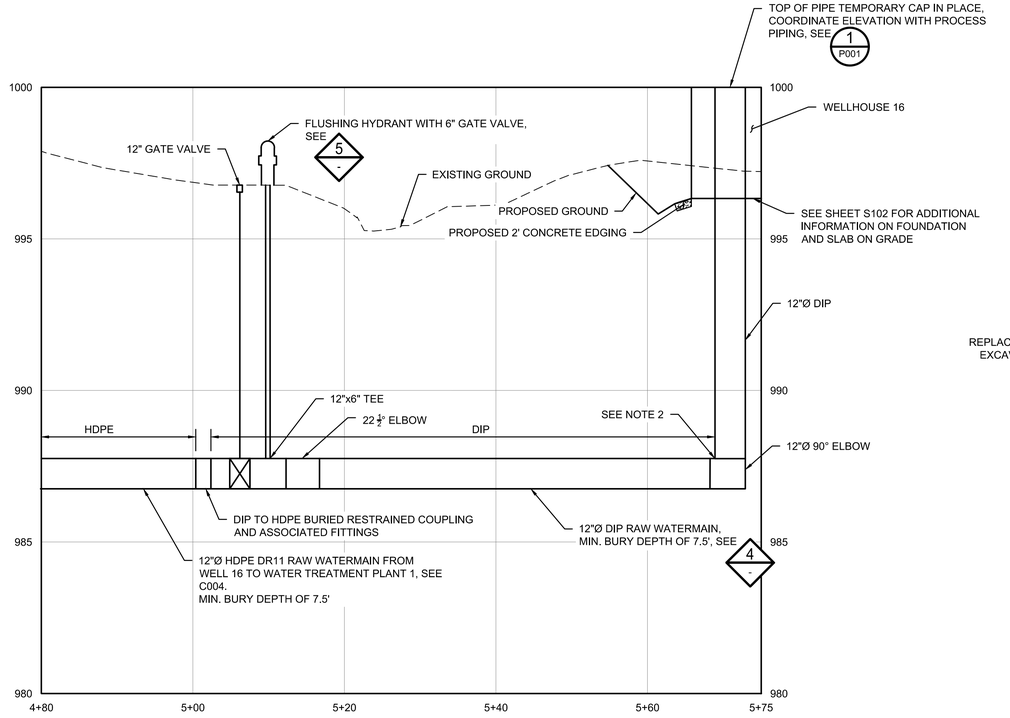
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

RAW WATERMAIN PLAN AND PROFILE

BARR PROJECT # 2362153400
DWG # C004
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 3:05 PM
CADD USER: EVE A. GARRY FILE: \\ED\CAD\CAD\DESIGN\2362\153400\CIVIL\2362153400_C004_FORCE MAIN PP 1 OF 2.DWG



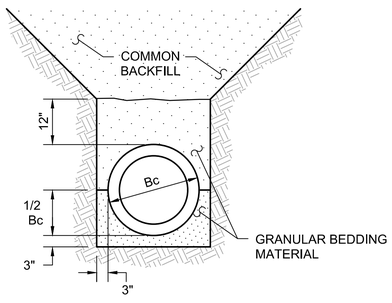
1/C004 PROFILE: RAW WATERMAIN

0 10 20 HORIZONTAL SCALE IN FEET

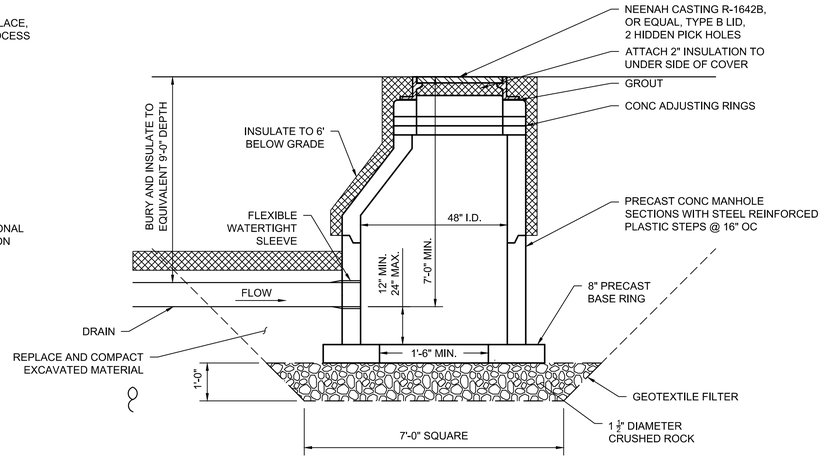
0 2.5 5 VERTICAL SCALE IN FEET

NOTES:

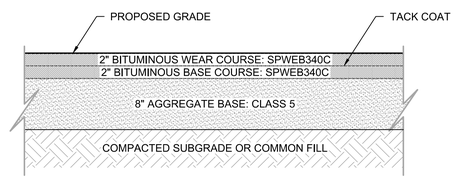
1. PROFILE VERTICAL SCALES EXAGGERATED BY A FACTOR OF 4 FOR CLARITY.
2. PROVIDE TWO FORMS OF RESTRAINT AT ELBOW. IN ADDITION TO RESTRAINED JOINT, SECOND RESTRAINT MAY BE TIE-ROD OR THRUST BLOCK.



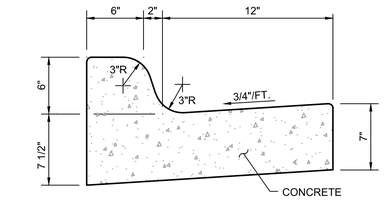
4/C004 DETAIL: PIPE BEDDING
NOT TO SCALE



2/C003 DETAIL: SEEPAGE PIT
NOT TO SCALE



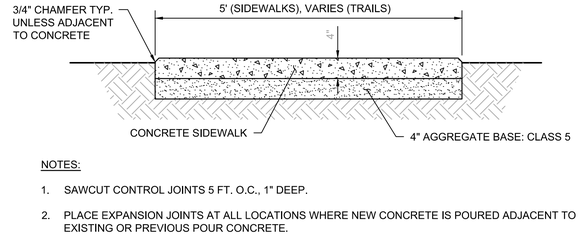
3/C003 DETAIL: BITUMINOUS PAVEMENT
NOT TO SCALE



NOTES:

1. BROOM FINISH ALL EXPOSED SURFACES.
2. SLOPE TO GUTTER LINE UNLESS NOTED OTHERWISE ON DRAWINGS.

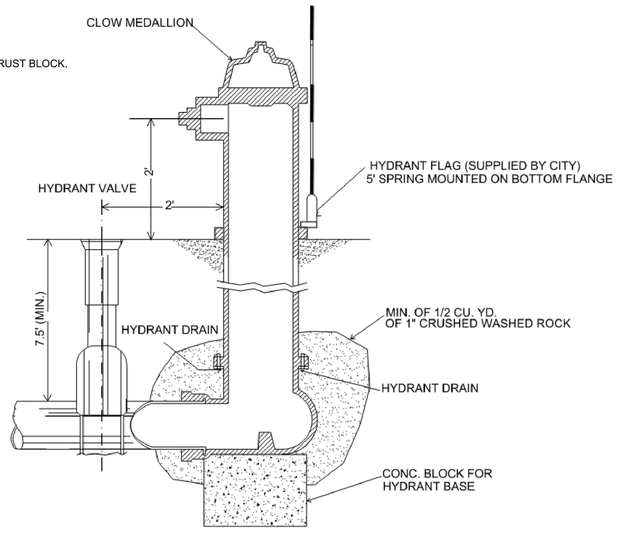
6/C003 DETAIL: B612 CURB AND GUTTER
NOT TO SCALE



NOTES:

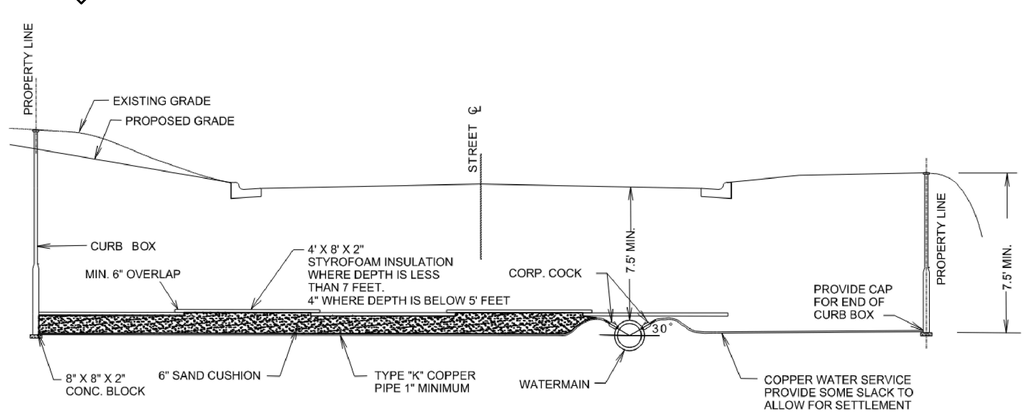
1. SAWCUT CONTROL JOINTS 5 FT. O.C., 1" DEEP.
2. PLACE EXPANSION JOINTS AT ALL LOCATIONS WHERE NEW CONCRETE IS POURED ADJACENT TO EXISTING OR PREVIOUS POUR CONCRETE.

7/C003 DETAIL: SIDEWALK
NOT TO SCALE



TYPICAL HYDRANT INSTALLATION

5/- DETAIL: FIRE HYDRANT (CITY DETAIL)
SCALE: N.T.S.



TYPICAL WATERMAIN & SERVICE INSTALLATION

NO SCALE

8/C002 DETAIL: WATERMAIN AND SERVICE INSTALLATION (CITY DETAIL)
SCALE: N.T.S.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE

SIGNATURE

DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

CIVIL PROFILE AND DETAILS

BARR PROJECT # 2362153400
DWG # C005
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 11/9/2026 3:49 PM
CADD USER: EVE A. GARRY FILE: \\ED\-CAD\CAD\DESIGN\2362153400\CIVIL\2362153400_C005_DETAILS.DWG



PROJECT DATUM:

HORIZONTAL: MINNESOTA DOT: RAMSEY COUNTY, US FOOT
VERTICAL: NAVD88

LEGEND:

- PROPOSED CONSTRUCTION LIMITS
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING SANITARY SEWER
- EXISTING RAW WATER
- EXISTING WATER
- EXISTING EDGE OF VEGETATION
- EXISTING BITUMINOUS PAVEMENT
- EXISTING STRUCTURE/EQUIPMENT
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING SIGN
- EXISTING MANHOLE
- EXISTING LIGHT POLE
- EXISTING COMM BOX
- EXISTING GATE VALVE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED SANITARY SEWER
- PROPOSED RAW WATER
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS PAVEMENT
- PROPOSED STRUCTURE/EQUIPMENT
- PROPOSED HYDRANT
- PROPOSED VALVE

NOTES:

1. ALL CONSTRUCTION ACTIVITY MUST BE KEPT WITHIN CONSTRUCTION LIMITS. UNLESS PRE-APPROVED BY OWNER, DO NOT BLOCK ACCESS TO SITE WITHOUT COORDINATING WITH OWNER.
2. MAINTAIN ACCESS TO WATER TREATMENT PLANT 1 AND WELLHOUSE 9 THROUGHOUT CONSTRUCTION ACTIVITIES.
3. PROTECT ALL EXISTING PAVEMENT, PIPING, EQUIPMENT, UTILITIES, AND STRUCTURES NOT INTENDED FOR DEMOLITION. REPAIR OR REPLACE AT NO ADDITIONAL COST TO OWNER.
4. SAW-CUT PAVEMENT, FULL DEPTH, WHERE REMOVAL IS REQUIRED OR WHERE NEW PAVEMENT MEETS OLD PAVEMENT.
5. NO INTERMEDIATE HDD ACCESS PITS (ONLY AT THE TWO ENDS).
6. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION IN KIND TO EXISTING GRADE.
7. ADDITIONAL CONSTRUCTION AREA MAY BE USED FOR STAGING MATERIAL AND EQUIPMENT DURING DRILLING AND PULLBACK OPERATIONS. COORDINATE WITH CITY A MINIMUM OF 48 HOURS PRIOR TO USING ADDITIONAL CONSTRUCTION AREA.
8. PROTECT EXISTING WATERMAIN, POTHOLE USING VACUUM EXCAVATION TO VERIFY ELEVATION OF PIPE, MAINTAIN 2' MIN BETWEEN EDGE OF PIPE AND EDGE OF PIPE.
9. TEMPORARY REMOVAL OF FENCE IS ACCEPTABLE AS LONG AS SITE IS SECURED AT THE END OF EACH SHIFT. IF REMOVED, REPLACE IN KIND UPON COMPLETION OF THE PROJECT.
10. ALL SIGNAGE SHALL BE IN COMPLIANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES BY THE FEDERAL HIGHWAY ADMINISTRATION.
11. SIGN TO BE PLACED ON A TYPE 3 BARRICADE.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE
SIGNATURE Bryan Pitterle
DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

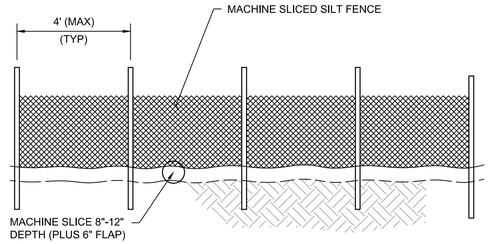
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

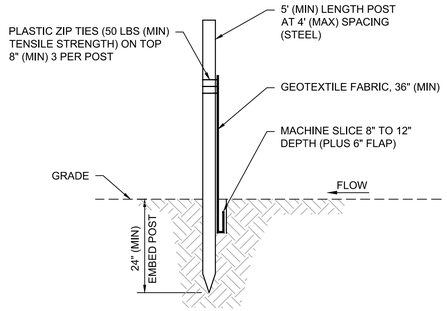
PEDESTRIAN TRAFFIC CONTROL PLAN

BARR PROJECT # 2362153400
DWG # C006
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 3:20 PM
CADD USER: EVE A. GARRY FILE: \\EDF-CAD\CAD\DESIGN\2362\153400\CIVIL\2362153400_C006_PEDESTRIAN TRAFFIC CONTROL PLAN.DWG



DOWNSTREAM VIEW

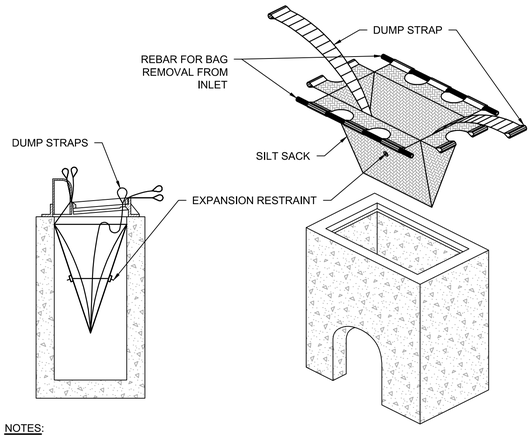


SECTION VIEW

NOTES:

1. INSTALL SILT FENCE PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD. REMOVE SILT FENCE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.
2. NO HOLES OR GAPS SHALL BE PRESENT IN/UNDER SILT FENCE. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. REMOVE ACCUMULATED SEDIMENT WHEN BUILD UP REACHES 1/2 OF FENCE HEIGHT. OR INSTALL A SECOND SILT FENCE DOWNSTREAM OF THE ORIGINAL FENCE AT A SUITABLE DISTANCE.
4. WHEN SPLICES ARE NECESSARY MAKE SPLICE AT POST ACCORDING TO SPLICE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INCH FLAP, THEN DRIVE BOTH POSTS AND BURY THE FLAP AND COMPACT BACKFILL.

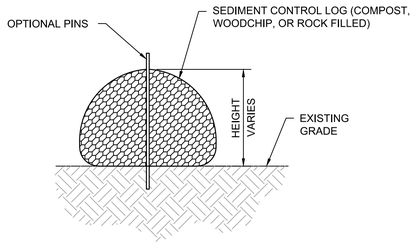
1 C001 DETAIL: SILT FENCE - MACHINE SLICED
NOT TO SCALE



NOTES:

1. INSTALL INLET PROTECTION PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED OR IMMEDIATELY FOLLOWING ANY CATCH BASIN INSTALLATION AND MAINTAIN THROUGHOUT THE CONSTRUCTION PERIOD.
2. MATERIALS SHALL BE SUFFICIENT TO ALLOW FLOW WHILE BLOCKING SEDIMENT. NO HOLES OR GAPS SHALL BE PRESENT IN/AROUND FILTER SACK.
3. CLEAN FILTER SACK AND REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO ALLOW FLOW INTO THE CATCH BASIN AND PREVENT SEDIMENT FROM LEAVING THE DEVICE.
4. REMOVE DEVICE AND ANY ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE FINAL GRADING AND SITE STABILIZATION.

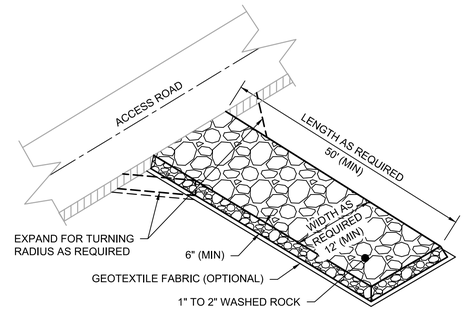
4 C001 DETAIL: INLET PROTECTION - FILTER SACK
NOT TO SCALE



NOTES:

1. STAKE FREE SEDIMENT CONTROL LOG TO BE USED IN AREAS THAT ARE RELATIVELY FLAT AND SHOULD BE INSTALLED ALONG CONTOURS (CONSTANT ELEVATION).
2. NO GAPS SHALL BE PRESENT UNDER SEDIMENT CONTROL LOG. PREPARE AREA AS NEEDED TO SMOOTH SURFACE OR REMOVE DEBRIS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN REACHING 1/2 OF LOG HEIGHT.
4. SEDIMENT CONTROL LOG SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIRED OR REPLACED AS REQUIRED.

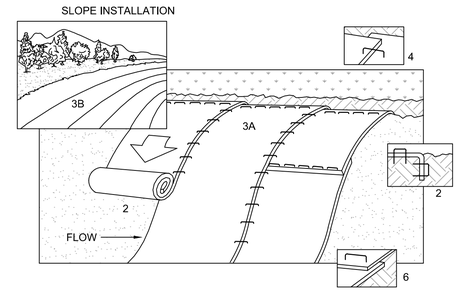
2 C001 DETAIL: SEDIMENT CONTROL LOG - STAKE FREE
NOT TO SCALE



NOTES:

1. MAINTAIN ENTRANCE/EXIT THROUGHOUT THE CONSTRUCTION PERIOD AND REPAIR OR REPLACE AS REQUIRED TO PREVENT TRACKING OFFSITE.
2. REMOVE ENTRANCE/EXIT IN CONJUNCTION WITH FINAL GRADING AND SITE STABILIZATION.

3 C001 DETAIL: CONSTRUCTION ENTRANCE/EXIT - ROCK
NOT TO SCALE



NOTES:

1. REFER TO MANUFACTURER RECOMMENDATIONS FOR STAPLE PATTERNS FOR SLOPE INSTALLATIONS.
2. PREPARE SOIL AND APPLY SEED (AND FERTILIZER WHERE REQUIRED) AS SPECIFIED PRIOR TO INSTALLING BLANKETS. GROUND SHOULD BE SMOOTH AND FREE OF DEBRIS. ENSURE UNDERLYING SOILS MAINTAIN CONTINUOUS CONTACT WITH BLANKET.
3. BEGIN (A) AT THE TOP OF THE SLOPE AND ROLL THE BLANKETS DOWN OR (B) AT ONE END OF THE SLOPE AND ROLL THE BLANKETS HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP, WITH THE UPHILL BLANKET ON TOP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. BLANKET MATERIALS SHALL BE AS SPECIFIED OR AS APPROVED BY OWNER'S REPRESENTATIVE.

5 C003 DETAIL: EROSION CONTROL BLANKET - INSTALLATION
NOT TO SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME BRYAN D. PITTERLE
SIGNATURE Bryan Pitterle
DATE 01/20/2026 LICENSE # 55568

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	RLB2	JMA	BDP	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN

EROSION CONTORL DETAILS

BARR PROJECT # 2362153400
DWG # C007
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 3:19 PM
CADD USER: EVE A. GARRY FILE: \\EDI-CAD\CAD\DESIGN\2362153400\CIVIL\C2362153400_C007_EROSION CONTROL DETAILS.DWG

CODE REVIEW

APPLICABLE CODES & GUIDELINES
2020 MN CONSERVATION CODE FOR EXISTING BUILDINGS
CHAPTER 3 – PRESCRIPTIVE COMPLIANCE
CHAPYER 4 - REPAIRS

2020 MN BUILDING CODE/AMENDMENTS (MBC) -
(2018 INTERNATIONAL BUILDING CODE)

2020 MN ACCESSIBILITY CODE (MAC) -
(2018 INTERNATIONAL BUILDING CODE)
(ANSI A-117.1 2009)

2020 MN STATE FIRE CODE (MFC) -
(2018 INTERNATIONAL FIRE CODE)

2020 MN MECHANICAL AND FUEL & GAS CODE (MMFGC) -
(2018 INTERNATIONAL MECHANICAL CODE &
2018 INTERNATIONAL FUEL GAS CODE)

2020 MN PLUMBING CODE (MPC) -
(2012 UNIFORM BUILDING CODE)

MN ELECTRIC CODE (MEC) -
(2020 NATIONAL ELECTRICAL CODE)

2024 MN COMMERCIAL ENERGY CODE (MCEG) -
(ANSI/ASHRAE/IES STANDARD 90.1-2019)

PROJECT DESCRIPTION
THE PROJECT INCLUDES CONSTRUCTION OF A NEW WELLHOUSE, AND DEFERRED MAINTENANCE REPAIRS AND EXTERIOR UPGRADES TO TWO EXISTING WELLHOUSES.
- WELLHOUSE 8 IS DECOMMISIONED, UNOCCUPIED, WAS CONSTRUCTED IN _____ AS U-OCCUPANCY CLASSIFICATION AND TYPE IIB CONSTRUCTION.
- WELLHOUE 9 IS OPERATIONAL, UNOCCUPIED, WAS CONSTRUCTED IN _____ AS U-OCCUPANCY CLASSIFICATION AND TYPE IIB CONSTRUCTION.
- WELLHIOUSE 16 IS A NEW UNOCCUPIED FACILITY FOR THE PURPOSE OF PROTECTING THE WELL PUMP AND SUPPORT MECHANICAL / ELECTRICAL EQUIPMENT

WELLHOUSE 16

OCCUPANCY CLASSIFICATIONS (IBC CHAPTER 3)
(IBC SECTION 306 AND 2018 IBC CODE & COMMENTARY SECTION 312)
U – UTILITY OCCUPANCY

AUTOMATIC FIRE SUPPRESSION SYSTEM (AFS)
NOT REQUIRED

HAZARDOUS MATERIALS
NONE STORED

REQUIRED OCCUPANCY SEPARATIONS
NONE REQUIRED

ATMOSPHERIC SEPARATION
ATMOSPHERIC SEPARATION PROVIDED AT ELECTRICAL ROOM

AREA / HEIGHT
(MBC TABLES 504.3, 504.4, & 506.2)

ALLOWABLE HEIGHT: 55'
ACTUAL: 11.33'

ALLOWABLE STORIES: 3
ACTUAL: 1

ALLOWABLE AREA: 8,500 SF
ACTUAL: 306 SF (GROSS) GRADE LEVEL

CONSTRUCTION TYPE
(MBC 602.3): TYPE II CONSTRUCTION (NON-COMBUSTIBLE

FIRE RESISTIVE REQUIREMENTS
(MBC TABLES 601 & 602)
DISTANCE TO ADJACENT BUILDINGS: GREATER THAN 30'

STRUCTURAL FRAME - 0-HOUR FIRE BARRIER
BEARING WALLS (INTERIOR) - 0-HOUR FIRE BARRIER
BEARING WALLS (EXTERIOR) - 0-HOUR FIRE BARRIER
NON-BEARING WALLS & PARTITIONS (INTERIOR) - 0-HOUR FIRE BARRIER
NON-BEARING WALLS & PARTITIONS (EXTERIOR) - 0-HOUR FIRE BARRIER
FLOOR CONSTRUCTION - 0-HOUR FIRE BARRIER
ROOF CONSTRUCTION - FIRE PROTECTION OF STRUCTURAL MEMBERS - 0-HOUR FIRE BARRIER

OCCUPANT LOAD
(MBC TABLE 1004.5)
EQUIPMENT AREAS @ 300SF/OCC:
GRADE LEVEL PUMP RM (213.4 SF NET) – 1
GRADE LEVEL ELECTICAL RM (96 SF NET) – 1
TOTAL BUILDING OCCUPANTS 2

BUILDING EGRESS
(MBC SECTION 1003.2) CEILING HEIGHT IN EXIT WAY
REQUIRED / PROVIDED: 7'-6"

(MBC SECTION 1010.1.1) EXITS - DOORS
REQUIRED: 32" CLEAR WIDTH MIN
OPENING REQUIRED
80" MIN DOOR HEIGHT
48" MAX DOOR LEAF

(MBC)
PROVIDED: LESS THAN 75'

(MBC TABLE 1006.2.1 & 1017.2) COMMON PATH OF EGRESS / TRAVEL DISTANCE TO EXIT
CPE ALLOWED W/O AFS / 75'
TRAVEL DSTANCE ALLOWED W/O AFS: 300'
PROVIDED: LESS THAN 20'

(NEC SECTION 110.26) OTHER REQUIREMENTS
ELECTRICAL ROOM: ONE EXIT REQUIRED WHEN LESS THAN 1200 AMP SERVICE

PLUMBING FIXTURES
(MBC TABLE 2902.0, EXCEPTION 1) INDUSTRIAL OCCUPANCY
REQUIRED: UNOCCUPIED / NONE

BUILDING ACCESSIBILITY
(MAC 1300.0040) PUBLIC ACCESS NOT ALLOWED
NONE REQUIRED, ACCESS PROVIDED AT MAIN ENTRANCE

ENERGY CODE TABLE

WELLHOUSE 16 CLIMATE ZONE 6 & U- UTILITY OCCUPANCY	2024 MN COMMERCIAL ENERGY CODE -			
ITEM	REQUIRED	PROVIDED	BID DOCUMENT REFERNECE	COMPLIANCE
COMPLIANCE PATH	PRESCRIPTIVE			
COMCHECK FORM	YES	AVAILBLE		
THERMAL ENVELOPE				
_____ R-VALUE FOUNDATION / SLAB EDGE	R-20	R-20	4 & 6/ A701	MEETS
_____ R-VALUE WALLS	R-13.3	R-15	1/ A002; SHEET - A701	EXCEEDS
_____ R-VALUE ROOF	R-30	R-36	6/ A002	EXCEEDS
_____ R-VALUE OPENINGS_DOORS	U -0.37	U -0.37	SECTION 08 10 10	MEETS
_____ R-VALUE OPENINGS_SKYLIGHTS	U -0.44	U -0.44	SECTION 08 63 00	MEETS
CONTINUOUS INSULATION	YES	YES	A002, A701-A704	MEETS
CONTINUOUS VAPOR RETARDER	YES	YES	A002, A701-A704	MEETS
CONTINUOUS AIR BARRIER	YES	YES	A002, A701-A704	MEETS
INDEPENDENT THIRD PARTY REVIEW	NO	NO		
WHOLE BUILDING AIR LEAKAGE TESTING	YES	BLOWER DOOR TEST		
HVAC	YES	SEE MECHANCIAL		–
LIGHTING	YES	SEE ELECTRICAL		–
ENVELOPE COMMISSIONING	NOT REQUIRED_LESS THAN 10,000 SF	NO		

ARCHITECTURAL GENERAL NOTES

1. FURNISH AND INSTALL LABOR AND MATERIALS NECESSARY TO COMPLETE THE WORK AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
2. ANY CONTRADICTIONS OF INTENT BETWEEN/WITHIN THE DRAWINGS AND SPECIFICATIONS MUST BE BROUGHT TO THE ATTENTION OF ARCHITECT FOR CLARIFICATION.DL
3. DO NOT SCALE DRAWINGS.
4. FIELD COORDINATE THE WORK OF ALL SUBCONTRACTORS AND TRADES. NOTIFY ARCHITECT OF ANY DISCREPANCIES IN THE WORK TO BE PERFORMED.
5. THE WORK SHALL CONFORM TO ALL APPLICABLE BUILDING CODES, ORDINANCES, AND REGULATIONS AS ADOPTED BY AUTHORITIES HAVING JURISDICTION.
6. DIMENSIONS, NOTES, DETAILS, AND SYMBOLS THAT APPLY TO ONE ITEM APPLY TO ALL ITEMS, IN LIKE CONDITION, UNLESS NOTED OTHERWISE.
7. ITEMS NOTED AS "TYPICAL" SHOULD APPLY TO ALL LIKE CONDITIONS UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE.
WHERE NO SPECIFIC DETAIL IS SHOWN, THE FRAMING OR CONSTRUCTION SHALL BE IDENTICAL OR SIMILAR TO THAT INDICATED FOR LIKE CONDITIONS.
8. REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
9. FIELD COORDINATE THE LOCATIONS OF THRU-WALL MECHANICAL AND ELECTRICAL PENETRATIONS IN RAINSCREEN CLADDING AND STONE VENEER.
10. ARCHITECTURAL DRAWINGS ARE REPRESENTATIVE OF STRUCTURAL, MECHANICAL, PROCESS & ELECTRICAL SYSTEMS. REFER TO ALL DISCIPLINE DRAWINGS FOR PROJECT INFORMATION AND COORDINATION.
11. DEMOLITION:
    a. REMOVE WALLS, DOORS/FRAMES AND OTHER ITEMS INDICATED FOR DEMOLITION. SALVAGE / REINSTALL THOSE ITEMS IDENTIFIED FOR OWNER'S USE.
    b. SEE SECTION 02 41 00 – SELECTIVE DEMOLITION.
    c. SEE SECTION 01 73 29 – CUTTING AND PATCHING FOR ADDITIONAL INFORMATION.
12. PAINTING IN AREAS OF REMODELING AND NEW CONSTRUCTION:
    a. SEE ROOM FINISH SCHEDULE AND SECTION 09 90 99 PAINTING FOR INFORMATION
    b. SEE SECTION 09 97 00 SPECIAL COATINGS FOR ADDITIONAL INFORMATION

ARCHITECTURAL SYMBOL LEGEND

- # — PARTITION TYPE
- ### — ROOM NUMBER
- L-## — LOUVER TYPE
- ## — WINDOW TYPE
- #### — DOOR NUMBER
- EXTERIOR LIGHT
- (FE) FIRE EXTINGUISHER @ 48" AFF (CL) - PLAN
- FLOOR DRAIN - PLAN
- CONCRETE WALL
- STONE
- CMU WALL
- RIGID INSULATION
- MINERAL WOOL INSULATION
- MECHANICAL OPENING
- G — STRUCTURAL GRID
- EXISTING WALL

ARCHITECTURAL ABBREVIATIONS

A B	ANCHOR BOLT	FRM	FRAME	PREFIN	PREFINISHED
ACT	ACOUSTICAL CEILING TILE	FRP	FIBERGLASS REINFORCED PLASTIC	PROT	PROTECTION
ACT CMU	ACOUSTICAL CMU	FT	FOOT	PRTV CTG	PROTECTIVE COATING
AFF	ABOVE FINISHED FLOOR	FUT	FUTURE	RBR	RUBBER
AHU	AIR HANDLING UNIT	F V	FIELD VERIFY	RCP	REFLECTED CEILING PLAN
ALUM	ALUMINUM	GALV	GALVANIZED	RECPT	RECEPTACLE
AP	ACOUSTICAL PANEL	GL	GLAZING	REINF	REINFORCED
BD	BOARD	GYP	GYPSUM BOARD	REQ'D	REQUIRED
BLDG	BUILDING	HB	HOSE BIB	REV	REVERSED
BM	BEAM	HC	HOLLOW CORE	RM	ROOM
BOT	BOTTOM	HM	HOLLOW METAL	R O	ROUGH OPENING
BRG	BEARING	HORIZ	HORIZONTAL	S A	SELF ADHERING
CL OR ℄	CENTERLINE	HR	HOUR	SC PNT	SPECIAL COATING
CLG	CEILING	IMPERM	IMPERMEABLE	SCHED	SCHEDULE
CMU	CONCRETE MASONRY UNITS	INSUL	INSULATED / INSULATION	SIM	SIMILAR
COL	COLUMN	INT	INTERIOR	SLR	SEALER
CONC	CONCRETE	JT	JOINT	SP	SCREEN PANEL
CONST	CONSTRUCTION	K O	KNOCK OUT	SP CTG	SPECIAL COATING
CONT	CONTINUOUS	LAV	LAVATORY	SS	STAINLESS STEEL
COORD	COORDINATE	LP	LOUVER PANEL	STL	STEEL
CR	CARD READER	LVR	LOUVER	STRUCT	STRUCTURAL
CPP	COMPOSITE PHENOLIC PANEL	MAX	MAXIMUM	T O	TOP OF
CT	CERAMIC TILE	MAS	MASONRY	TYP	TYPICAL
DBL	DOUBLE	MECH	MECHANICAL	U	URINAL
DET	DETAIL	MAT'L	MATERIAL	UH	UNIT HEATER
DIA	DIAMETER	MEMB	MEMBRANE	VB	VAPOR BARRIER
DN	DOWN	MIN	MINIMUM	VBS	VINYL BASE
DP	DOOR PANEL	M O	MASONRY OPENING	VERT	VERTICAL
DR	DOOR	MR	MOISTURE RESISTANT	VCT	VINYL COMPOSITION TILE
DS	DOWN SPOUT	MTL	MATERIAL	VIF	VERIFY IN FIELD
EA	EACH	MULL	MULLION	W/	WITH
EL	ELEVATION	NA	NOT APPLICABLE	WB	WEATHER BARRIER
ELEC	ELECTRIC	NG	NATURAL GAS LINE	WC	WATER CLOSET
ELST CTG	ELASTOMERIC COATING	NIC	NOT IN CONTRACT	WD	WOOD
ENT	ENTRANCE	NTS	NOT TO SCALE	WDW	WINDOW
EPNT	EPOXY PAINT	O C	ON CENTER	WH	WALL HYDRANT
EQUIP	EQUIPMENT	OH	OVERHEAD	WP	WATER PROOF
EW/ESH	EYE WASH/EMERGENCY SHOWER	OP	OPERATOR	WPS	WATER PROOF SYSTEM
EX	EXISTING	OTA	OPEN TO ABOVE		
EXH	EXHAUST	OZ	OUNCE		
EXP	EXPOSED STRUCTURE	PC	PRECAST		
EXT	EXTERIOR	PERIM	PERIMETER		
FD	FLOOR DRAIN	PERM	PERMEABLE		
FE	FIRE EXTINGUISHER	PL	PLATE		
FG	FIBERGLASS	PLG	PLUMBING		
FLSHNG	FLASHING	PLYWD	PLYWOOD		
FND	FOUNDATION	PNT	PAINT		

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME ELLEN A. LUKEN, AIA
SIGNATURE Ellen A. Luken
DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture, P.A.

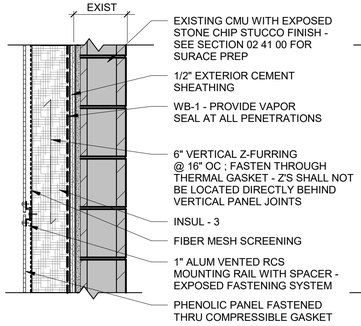
CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
ARCH. GENERAL NOTES, SYMBOLS, & ABBREVIATIONS

BARR PROJECT # 2362153400
DRAWING # A001
REVISION # 0

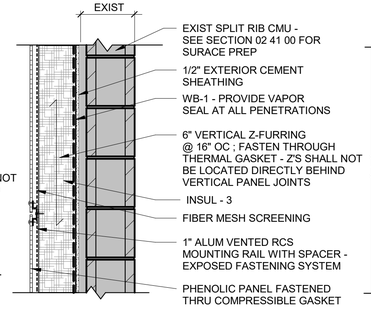
ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt
PLOT DATE: 1/20/2026 9:25:55 AM

WELLHOUSE 8



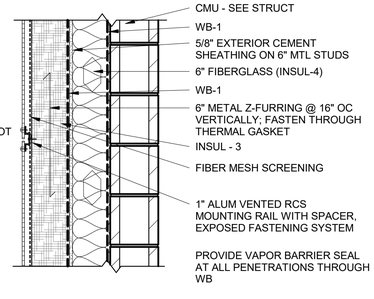
1 RAINSCREEN (RCS) ON 'Z' FURRING ON EXISTING CEMENT PLASTERED CMU WALL

WELLHOUSE 9

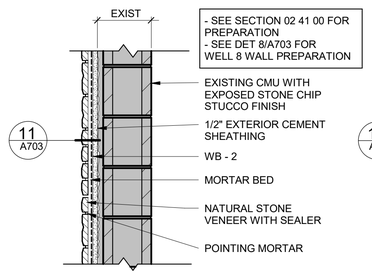


3 RAINSCREEN (RCS) ON 'Z' FURRING ON EXISTING SPLIT-RIBBED CMU WALL

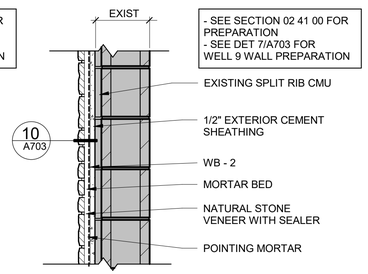
WELLHOUSE 16



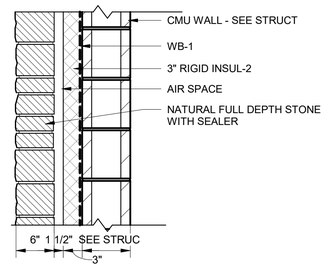
5 RAINSCREEN (RCS) ON 'Z' FURRING ON METAL STUDS ON CMU WALL



2 NATURAL STONE VENEER ON EXISTING CMU WALL

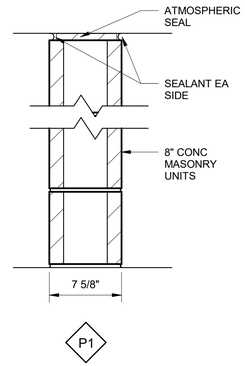


4 NATURAL STONE VENEER ON EXISTING CMU WALL

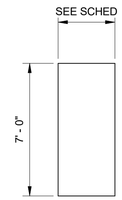


6 FULL DEPTH NATURAL STONE CAVITY WALL W/ CMU WALL

1 EXTERIOR WALL TYPES - WELLHOUSE 8_9_16
1" = 1'-0"

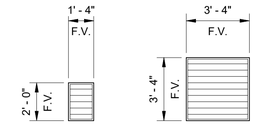


2 INTERIOR WALL TYPES - WELL 16
1 1/2" = 1'-0"



HM-1
HOLLOW METAL FLUSH PANEL EXTERIOR (INSUL) DOOR

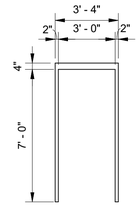
3 DOOR TYPES - WELLHOUSE 8_9_16
1/4" = 1'-0"



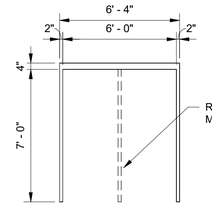
L1
EXTERIOR PREFIN METAL LOUVER

L2
EXTERIOR PREFIN METAL LOUVER

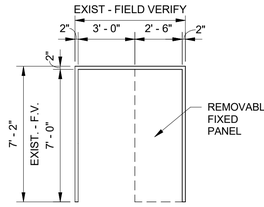
4 LOUVER TYPES - WELL 9
1/4" = 1'-0"



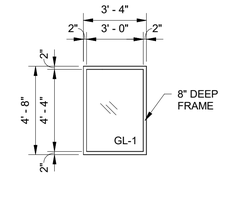
F1
INSULATED EXTERIOR HOLLOW METAL FRAME (4" HEAD)



F2
INSULATED EXTERIOR HOLLOW METAL FRAME WITH REMOVABLE MULLION

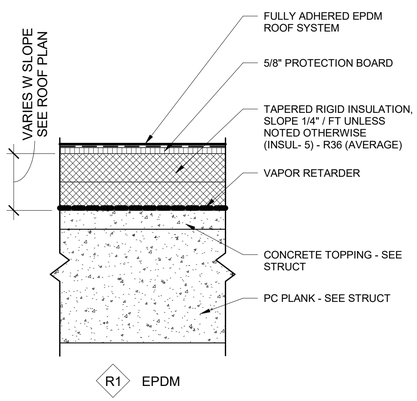


F2.1
INSULATED EXTERIOR HOLLOW METAL FRAME WITH REMOVABLE FLUSH PANEL



F3
HOLLOW METAL BORROWLITE

5 FRAME TYPES - WELLHOUSE 8,9,16
1/4" = 1'-0"



6 ROOF TYPE
1 1/2" = 1'-0"

DOOR SCHEDULE

DOOR NUMBER	DOOR WIDTH	DOOR HEIGHT	DOOR TYPE	FRAME TYPE	FIRE RATING	HARDWARE	NOTES
8-01	5' - 0"	7' - 0"	HM-1	F2.1		3	EXTERIOR UNEVEN DOUBLE DOOR ; PAINT; VERIFY EXISTING OPENING SIZE
8-02	3' - 0"	7' - 0"	HM-1	F1	- -	2	PAINT; VERIFY EXISTING OPENING SIZE
9-01	6' - 0"	7' - 0"	HM-1	F2		3	NOTES 3; DOUBLE DOOR; PAINT; VERIFY EXISTING OPENING SIZE
9-02	3' - 0"	7' - 0"	HM-1	F1	- -	2	NOTES 3 ;PAINT; VERIFY EXISTING OPENING SIZE
9-03	3' - 0"	7' - 0"	HM-1	F1	- -	2	NOTES 3 ;PAINT; VERIFY EXISTING OPENING SIZE
16-01	3' - 0"	7' - 0"	HM-1	F1	- -	1	NOTES 1, 2, 3 ; PAINT
16-02	6' - 0"	7' - 0"	HM-1	F2		3	NOTES 1, 3 ; (DOUBLE DOOR); PAINT
16-03	3' - 0"	7' - 0"	HM-1	F1	- -	2	NOTES 1, 3 ; PAINT

DOOR SCHEDULE NOTES:
1. PROVIDE PANIC HARDWARE
2. PROVIDE CARD READER
3. PROVIDE DOOR CONTACT

ROOM SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR FINISH	BASE FINISH	WALL FINISH	CEILING FINISH	NOTES
8-01	WELLHOUSE 8	-	-	-	-	EXIST FINISHES TO REMAIN; PATCH & REPAIR INSULATION AND GYP BD AT REPLACED DOOR HEAD AND JAMBS
9-01	WELLHOUSE 9					EXIST FINISHES TO REMAIN; PATCH & REPAIR INSULATION AND GYP BD AT REPLACED DOOR HEAD AND JAMBS
16-01	PUMP ROOM	CONC / SLR	CMU / EPNT	CMU / EPNT	HCU PLANK / EPNT	
16-02	ELECTRICAL	CONC / SLR	CMU / EPNT	CMU / EPNT	HCU PLANK / EPNT	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA
SIGNATURE Ellen A. Luken
DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

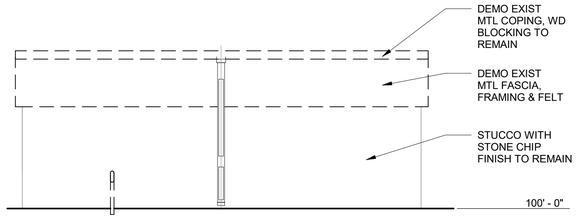
Luken Architecture, P.A.

CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
SCHEDULES AND TYPES

BARR PROJECT # 2362153400
DRAWING # A002
REVISION # 0

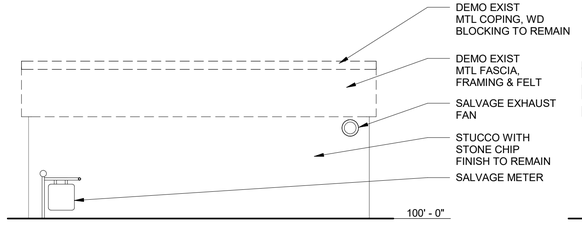
ORIGINAL DRAWING SIZE: 22X34
PLOT DATE: 1/20/2026 9:25:56 AM
REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt



1 A101 EAST DEMO ELEVATION - WELLHOUSE 8

3/16" = 1'-0"

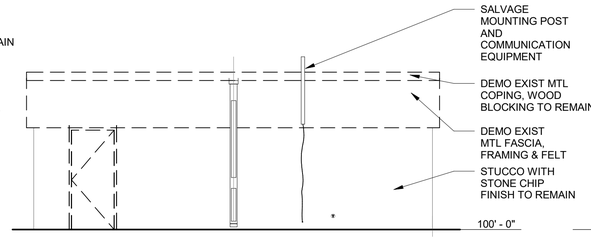
SCALE



2 A101 NORTH DEMO ELEVATION - WELLHOUSE 8

3/16" = 1'-0"

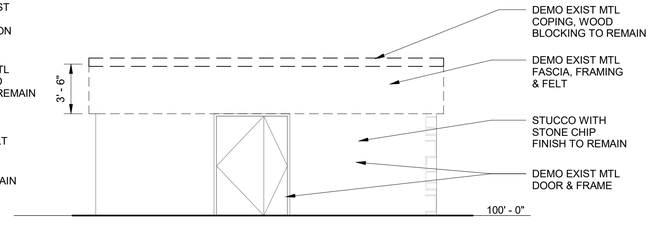
SCALE



3 A101 WEST DEMO ELEVATION - WELLHOUSE 8

3/16" = 1'-0"

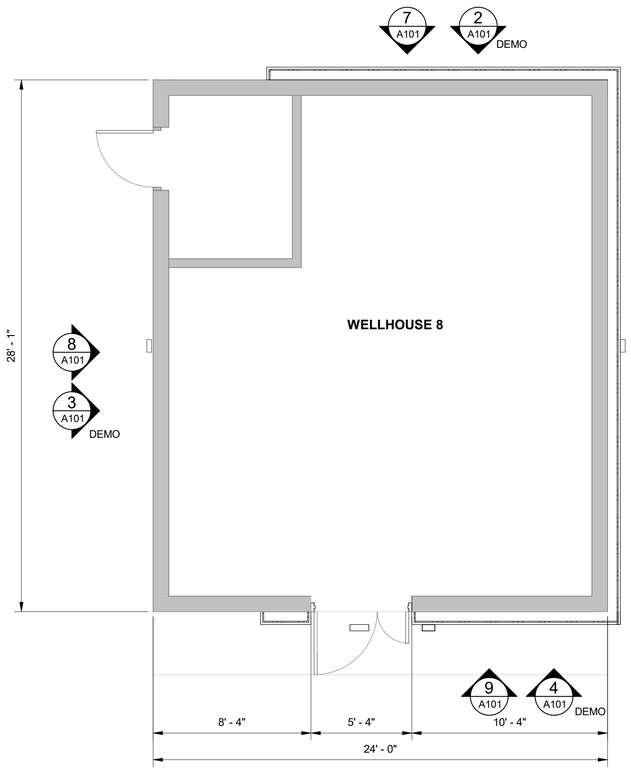
SCALE



4 A101 SOUTH DEMO ELEVATION - WELLHOUSE 8

3/16" = 1'-0"

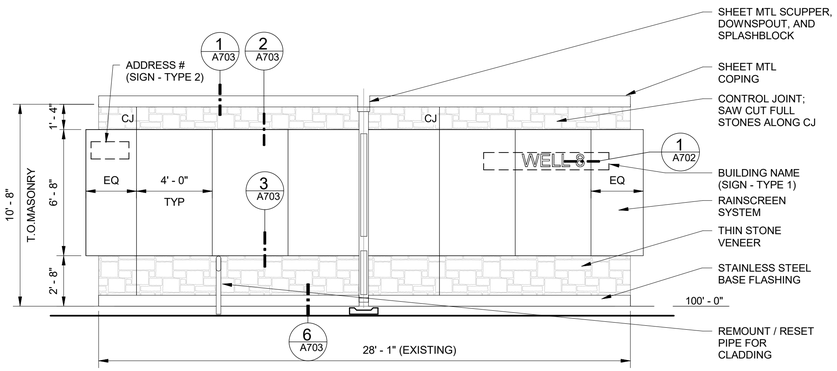
SCALE



5 A101 FLOOR PLAN - WELLHOUSE 8

1/4" = 1'-0"

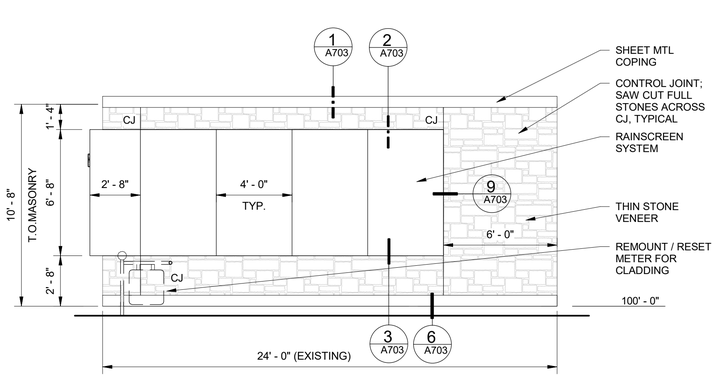
SCALE



6 A101 EAST ELEVATION - WELLHOUSE 8

1/4" = 1'-0"

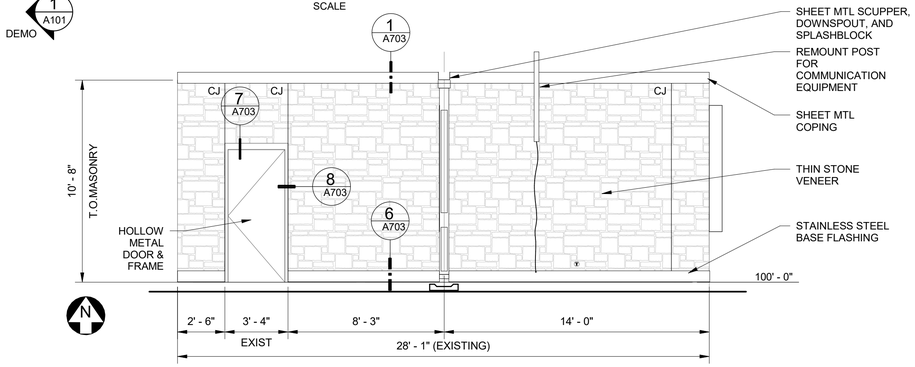
SCALE



7 A101 NORTH ELEVATION - WELLHOUSE 8

1/4" = 1'-0"

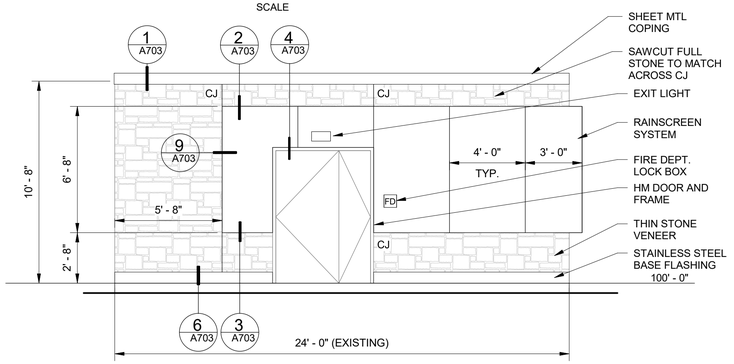
SCALE



8 A101 WEST ELEVATION - WELLHOUSE 8

1/4" = 1'-0"

SCALE



9 A101 SOUTH ELEVATION - WELLHOUSE 8

1/4" = 1'-0"

SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA

SIGNATURE Ellen A. Luken

DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture
Luken Architecture, P.A.

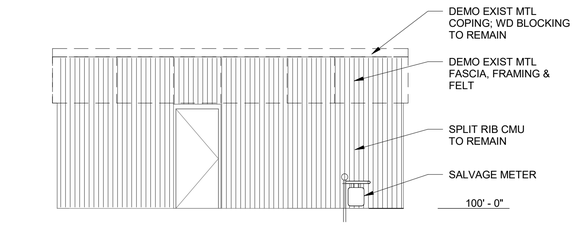
CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
ALTERNATE 1
WELLHOUSE 8 - PLANS & EXTERIOR ELEVATION

BARR PROJECT # 2362153400
DRAWING # A101
REVISION # 0

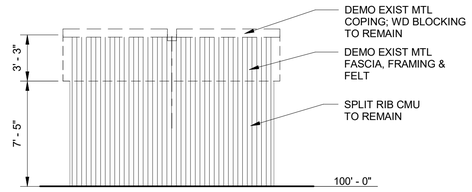
ORIGINAL DRAWING SIZE: 22X34
PLOT DATE: 1/20/2026 9:25:58 AM
REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt



1 A102 EAST DEMO ELEVATION - WELLHOUSE 9

3/16" = 1'-0"

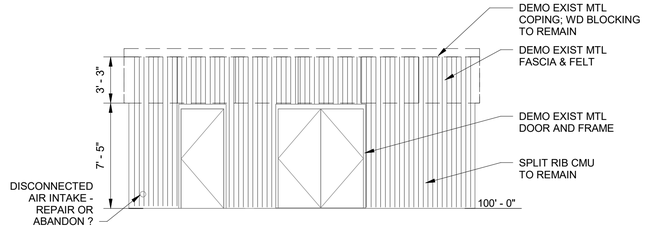
SCALE



2 A102 NORTH DEMO ELEVATION - WELLHOUSE 9

3/16" = 1'-0"

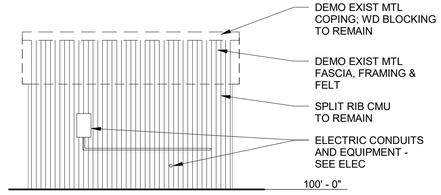
SCALE



3 A102 WEST DEMO ELEVATION - WELLHOUSE 9

3/16" = 1'-0"

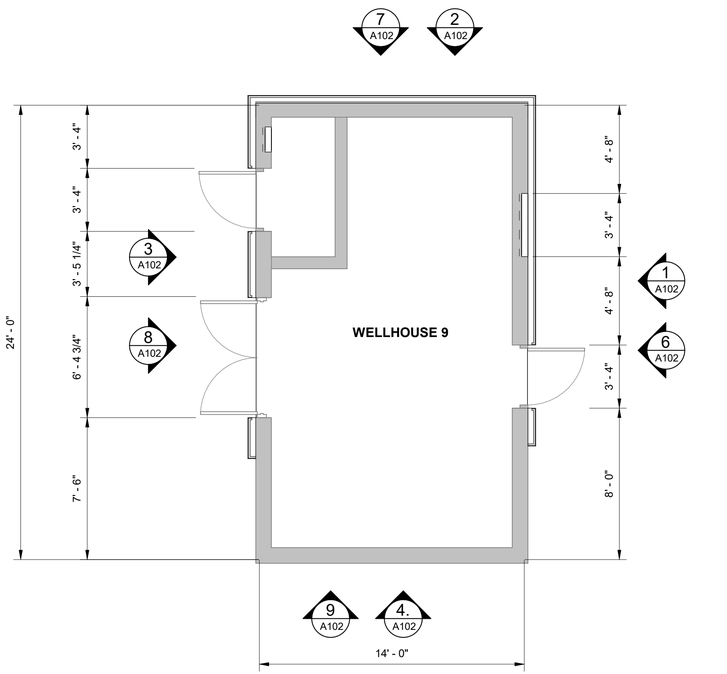
SCALE



4. A102 SOUTH DEMO ELEVATION - WELLHOUSE 9

3/16" = 1'-0"

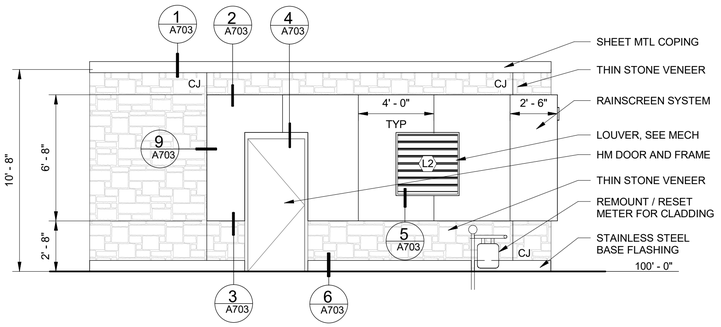
SCALE



5 A101 FLOOR PLAN - WELLHOUSE 9

1/4" = 1'-0"

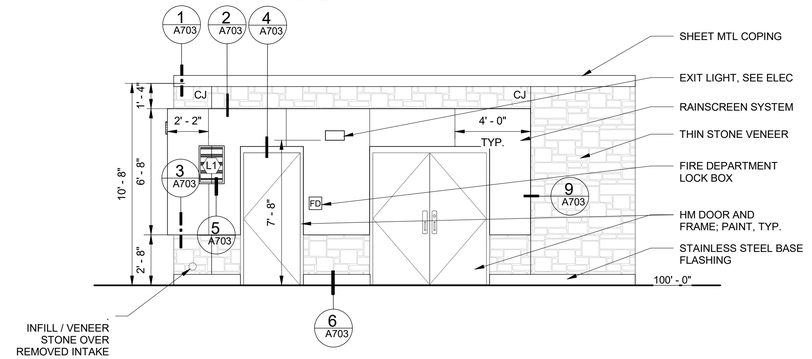
SCALE



6 A102 EAST ELEVATION - WELLHOUSE 9

1/4" = 1'-0"

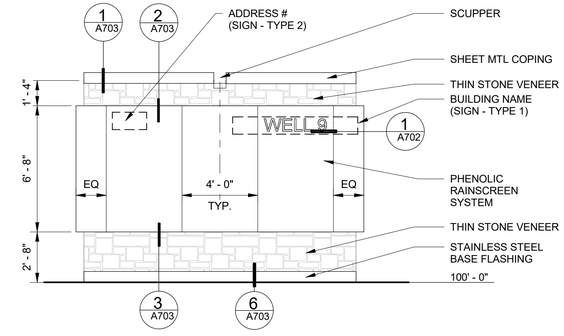
SCALE



8 A102 WEST ELEVATION - WELLHOUSE 9

1/4" = 1'-0"

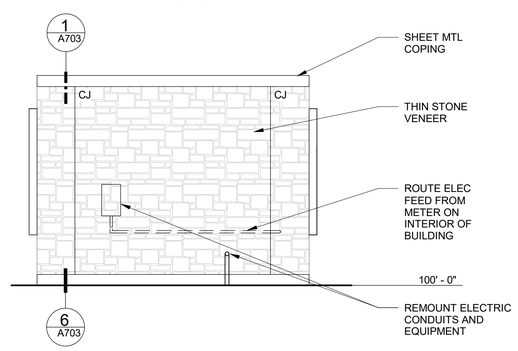
SCALE



7 A102 NORTH ELEVATION - WELLHOUSE 9

1/4" = 1'-0"

SCALE



9 A102 SOUTH ELEVATION - WELLHOUSE 9

1/4" = 1'-0"

SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA

SIGNATURE Ellen A. Luken

DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture
Luken Architecture, P.A.

CITY OF NEW BRIGHTON

NEW BRIGHTON, MINNESOTA

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

ALTERNATE 2

WELLHOUSE 9 - PLANS & EXT. ELEVATIONS

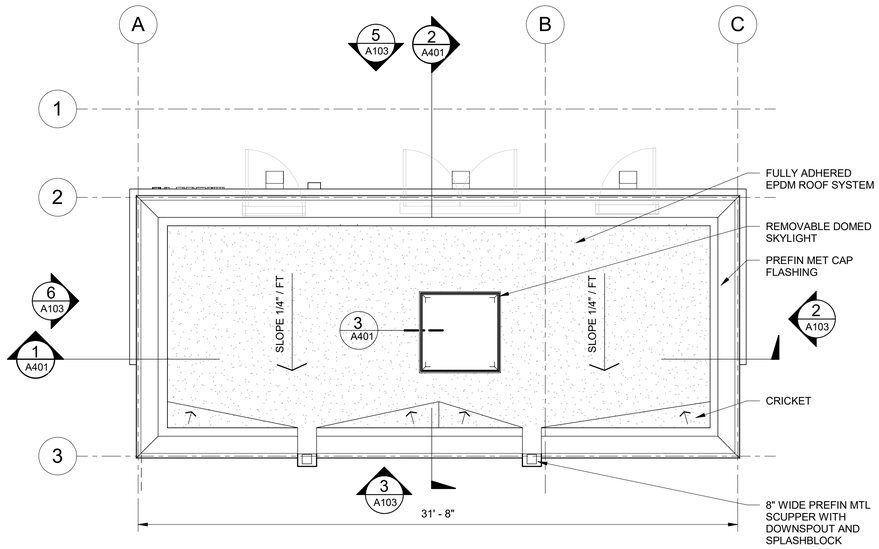
BARR PROJECT # 2362153400

DRAWING # A102

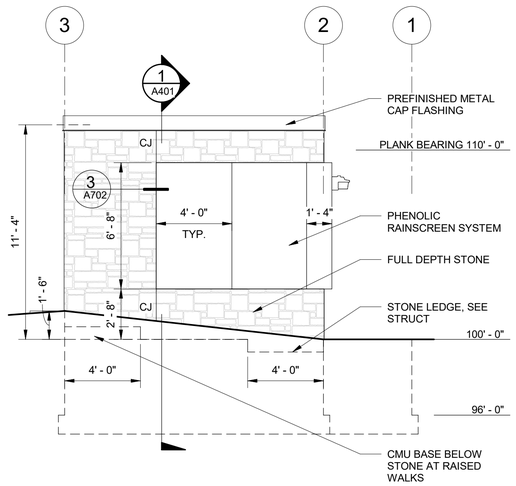
REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt

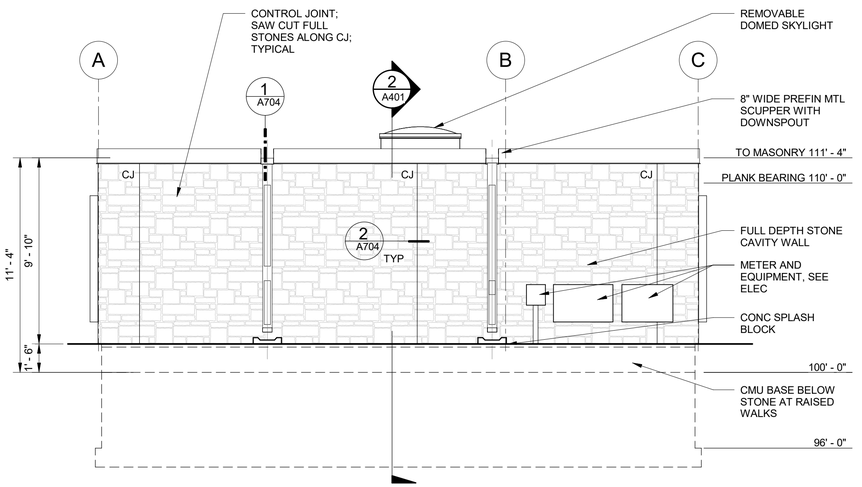
PLOT DATE: 1/20/2026 9:26:00 AM



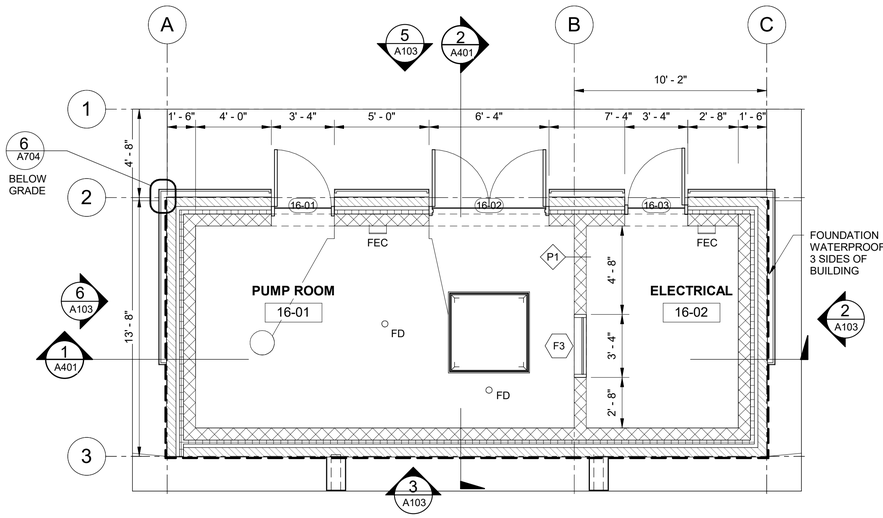
1. A103 ROOF PLAN
1/4" = 1'-0"
0 1 5 10
SCALE



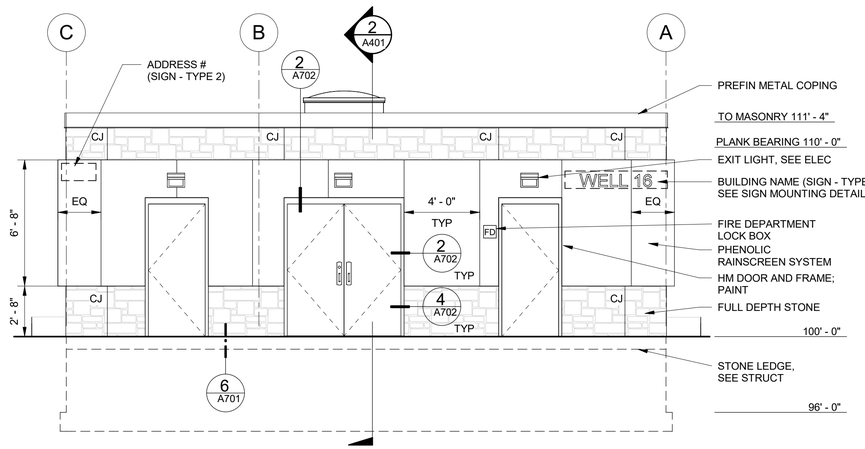
2 A103 EAST ELEVATION - WELLHOUSE 16
1/4" = 1'-0"
0 1 5 10
SCALE



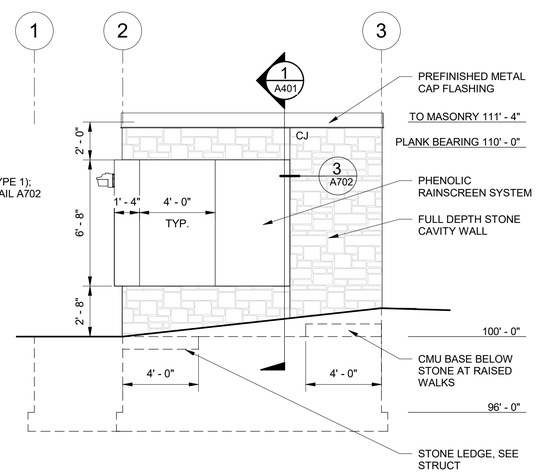
3 A103 SOUTH ELEVATION - WELLHOUSE 16
1/4" = 1'-0"
0 1 5 10
SCALE



4 A103 FLOOR PLAN - WELLHOUSE 16
0 1 5 10
SCALE



5 A103 NORTH ELEVATION - WELLHOUSE 16
1/4" = 1'-0"
0 1 5 10
SCALE



6 A103 WEST ELEVATION - WELLHOUSE 16
1/4" = 1'-0"
0 1 5 10
SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA
SIGNATURE Ellen A. Luken
DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture
Luken Architecture, P.A.

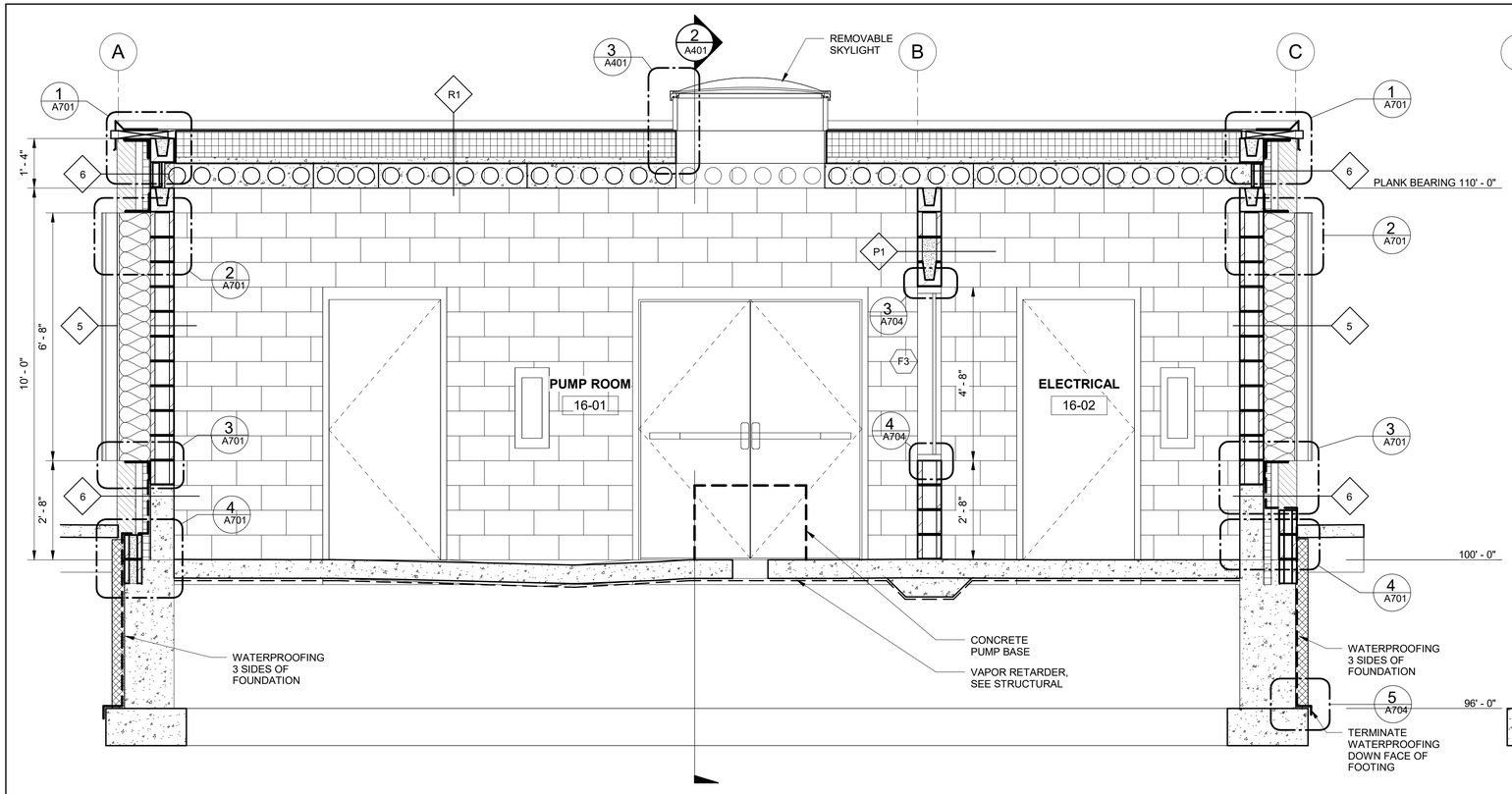
CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
PLANS AND EXT. ELEVATIONS - WELLHOUSE 16

BARR PROJECT # 2362153400
DRAWING # A103
REVISION # 0

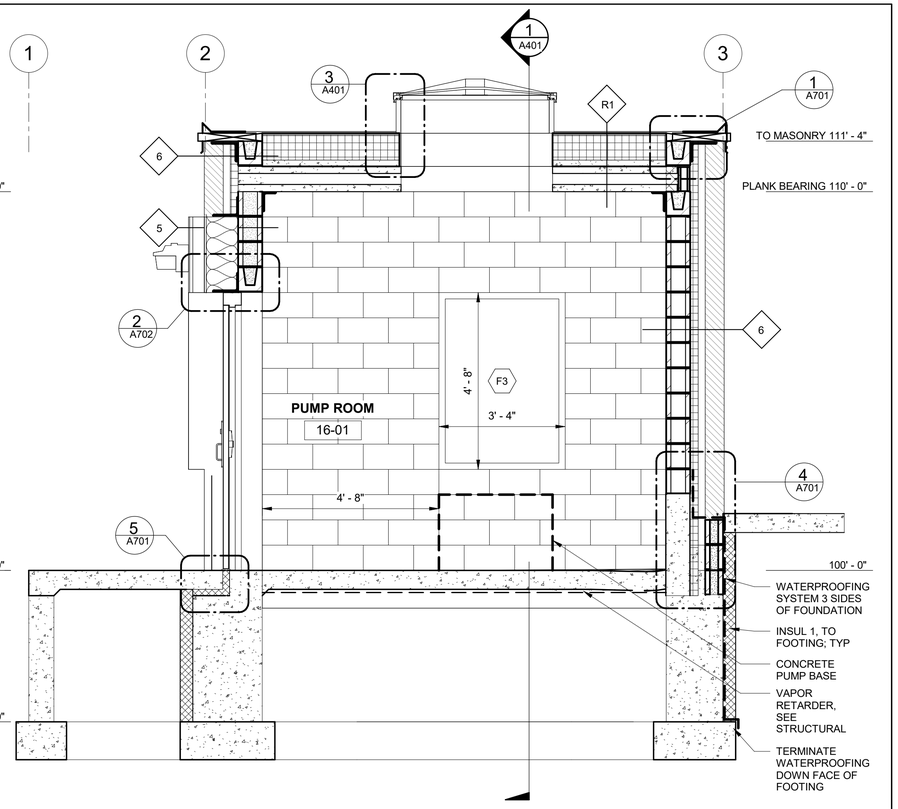
ORIGINAL DRAWING SIZE: 22X34
PLOT DATE: 1/20/2026 9:26:02 AM
REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_ 16_R24_tjordanT4DHQ.rvt



1 A103 BUILDING SECTION - LOOKING NORTH

1/2" = 1'-0"

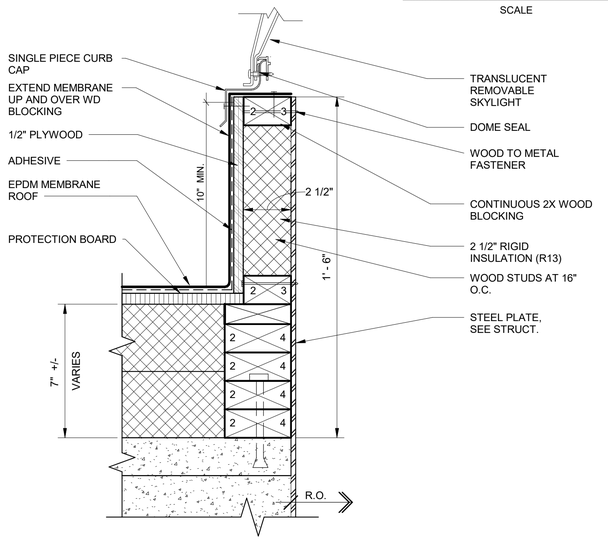
SCALE 0 1 2 3 4 5 6



2 A103 BUILDING SECTION - LOOKING EAST

1/2" = 1'-0"

SCALE 0 1 2 3 4 5 6



3 A103 SKYLIGHT CURB @ SINGLE-PLY ROOF

3" = 1'-0"

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt
PLOT DATE: 1/20/2026 9:26:04 AM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA

SIGNATURE Ellen A. Luken

DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

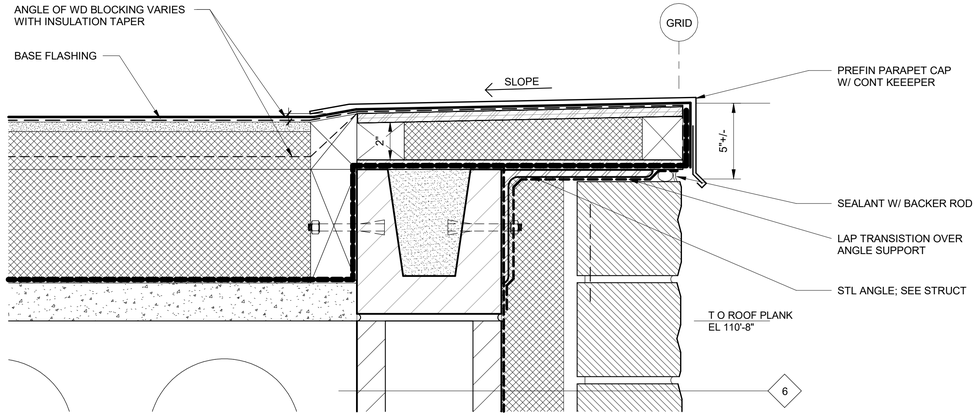
Luken Architecture
Luken Architecture, P.A.

CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA

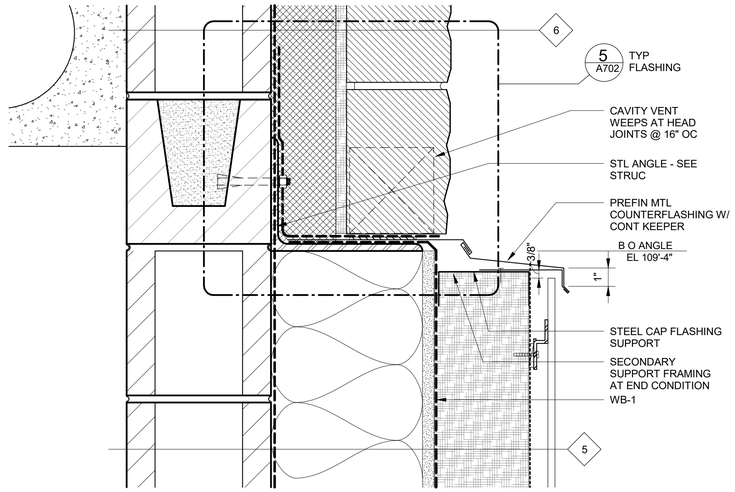
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
BUILDING SECTIONS - WELLHOUSE 16

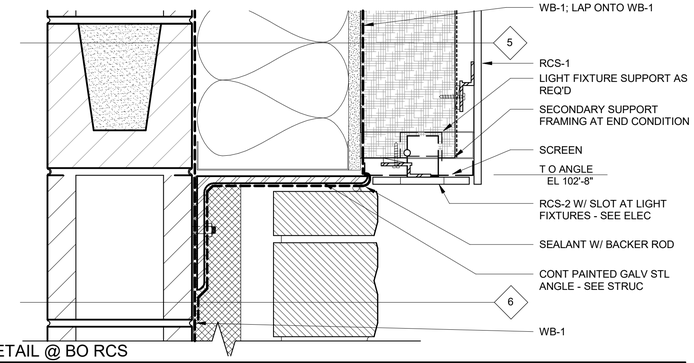
BARR PROJECT # 2362153400
DRAWING # A401
REVISION # 0



1 A401 SECTION DETAIL @ WALL CAP
3" = 1'-0"

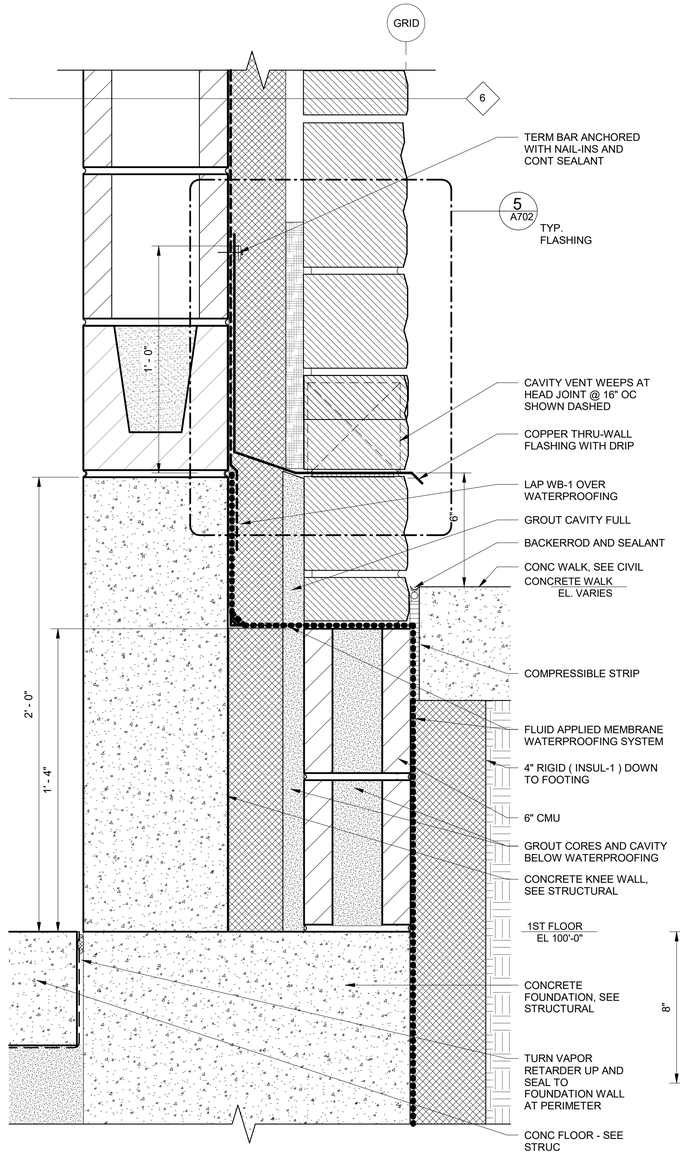


2 A401 SECTION DETAIL @ T.O. RCS
3" = 1'-0"



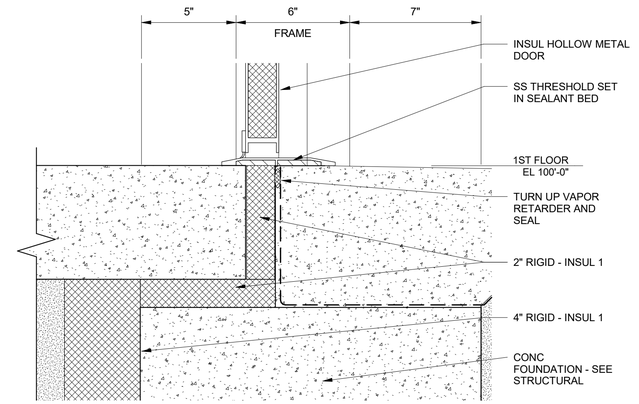
3 A401 SECTION DETAIL @ BO RCS
3" = 1'-0"

0 3 6 9 1
SCALE

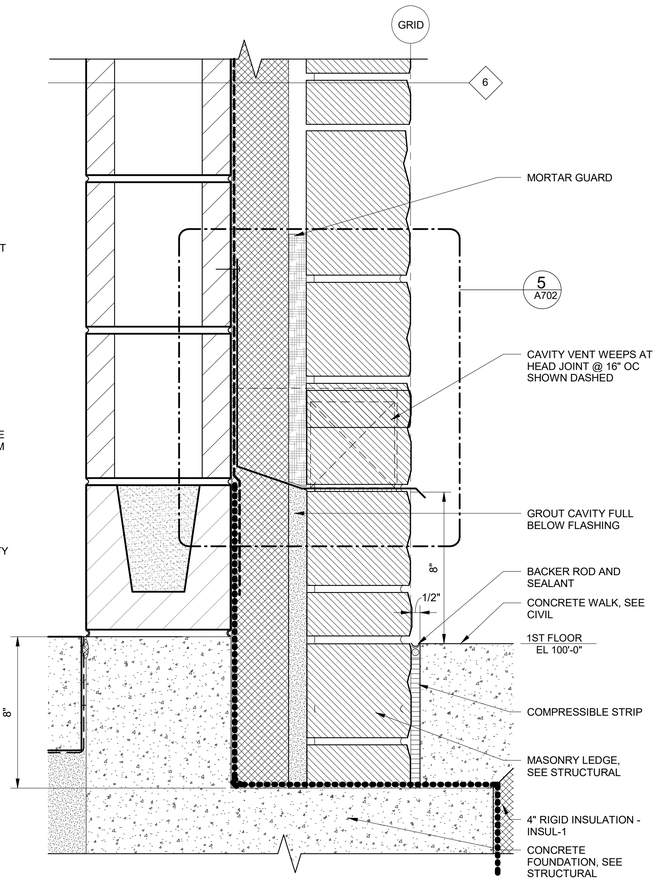


4 A401 SECTION DETAIL - STONE AT RAISED CONCRETE WALK
3" = 1'-0"

0 3 6 9 1
SCALE



5 A401 SECTION DETAIL AT DOOR SILL
3" = 1'-0"



6 A103 SECTION DETAIL @ STONE AT CONC WALK
3" = 1'-0"

0 3 6 9 1
SCALE

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt
PLOT DATE: 1/20/2026 9:26:06 AM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA
SIGNATURE Ellen A. Luken
DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

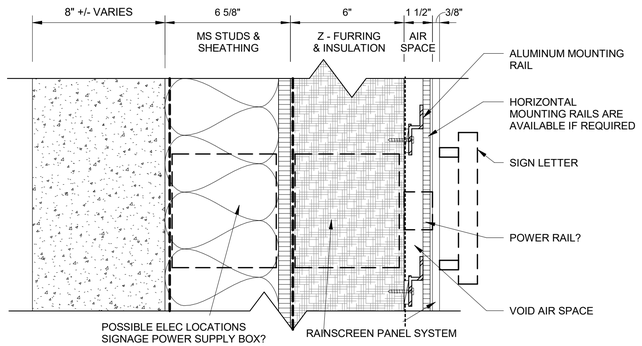
BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture
Luken Architecture, P.A.

CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
EXTERIOR WALL DETAILS - WELLHOUSE 16

BARR PROJECT # 2362153400
DRAWING # A701
REVISION # 0

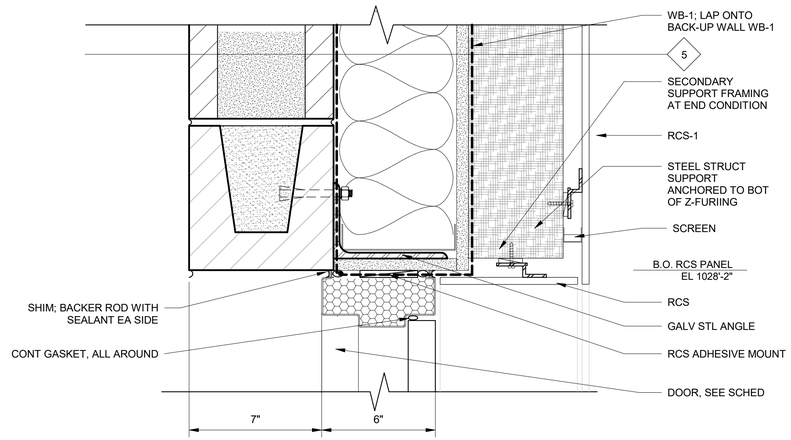


1 A101 RAINSCREEN SIGN MOUNTING DETAIL

3" = 1'-0"

0 3 6 9 1

SCALE

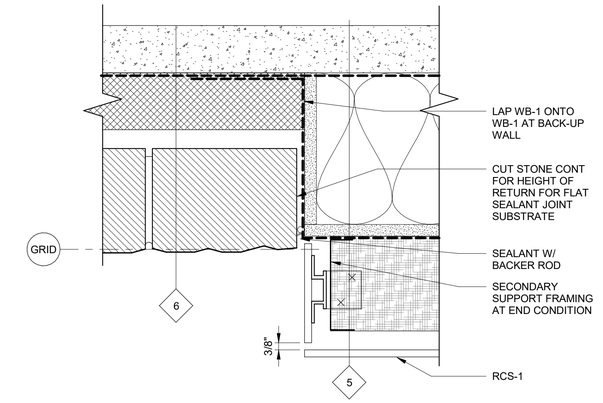


2 A103 HEAD DETAIL AT HOLLOW METAL DOOR FRAME AND RAINSCREEN

3" = 1'-0"

0 3 6 9 1

SCALE

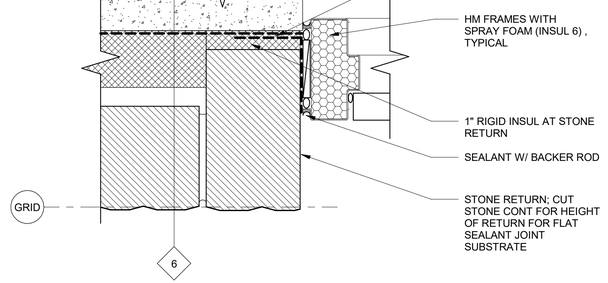


3 A103 PLAN DETAIL - RAINSCREEN RETURN AT STONE

3" = 1'-0"

0 3 6 9 1

SCALE

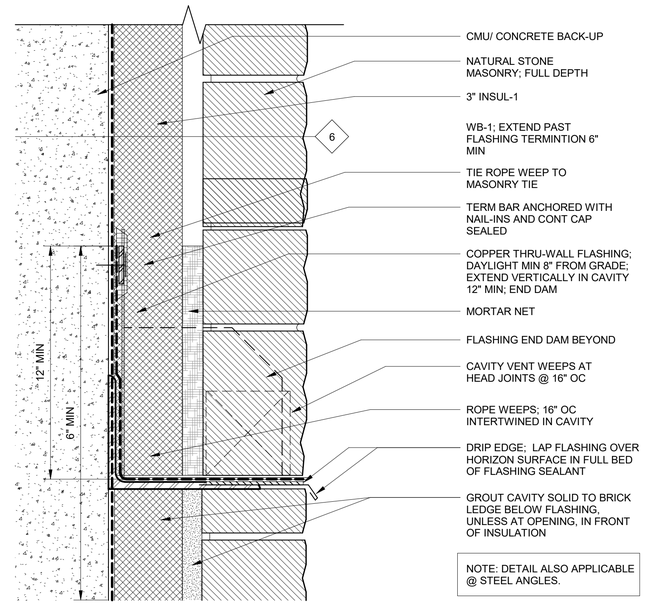


4 A103 PLAN DETAIL - DOOR JAMB AT FULL DEPTH STONE

3" = 1'-0"

0 3 6 9 1

SCALE



5 A701 SECTION DETAIL @ THROUGH-WALL FLASHING - TYPICAL

3" = 1'-0"

0 3 6 9 1

SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA

SIGNATURE Ellen A. Luken

DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture
Luken Architecture, P.A.

CITY OF NEW BRIGHTON

NEW BRIGHTON, MINNESOTA

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

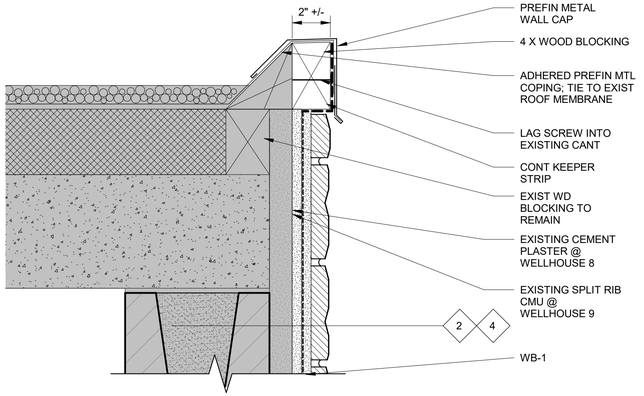
EXTERIOR WALL DETAILS - WELLHOUSE 16

BARR PROJECT # 2362153400

DRAWING # A702

REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt
PLOT DATE: 1/20/2026 9:26:07 AM

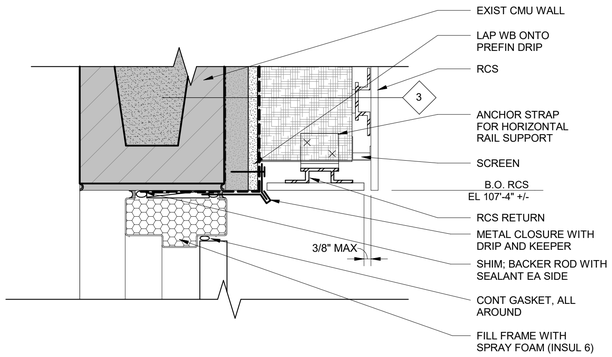


1 A101 SECTION DETAIL - STONE CLADDING OVER EXISTING

3" = 1'-0"

0 3 6 9 1

SCALE

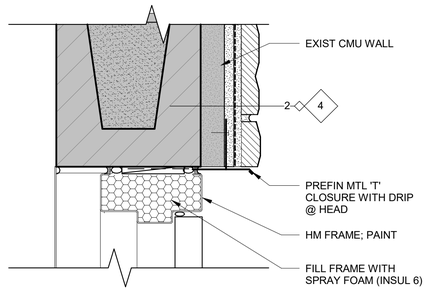


4 A101 DOOR HEAD AT RAINSCREEN (LOUVER & JAMB SIM.)

3" = 1'-0"

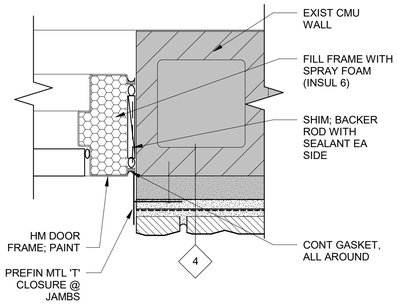
0 3 6 9 1

SCALE



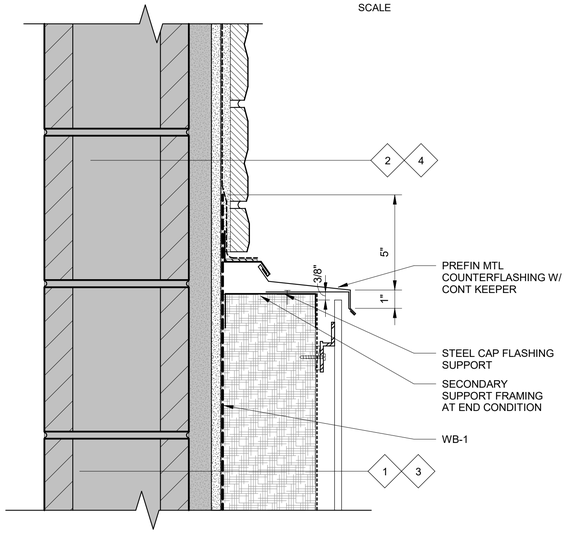
7 A101 HEAD DETAIL @ HM DOOR FRAME

3" = 1'-0"



8 A101 PLAN DETAIL - HM DOOR JAMB AT VENEER STONE

3" = 1'-0"

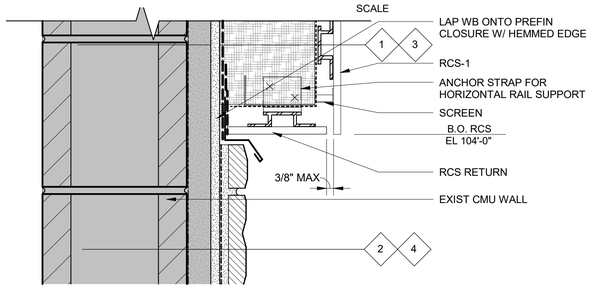


2 A101 SECTION DETAIL AT TOP OF RCS

3" = 1'-0"

0 3 6 9 1

SCALE

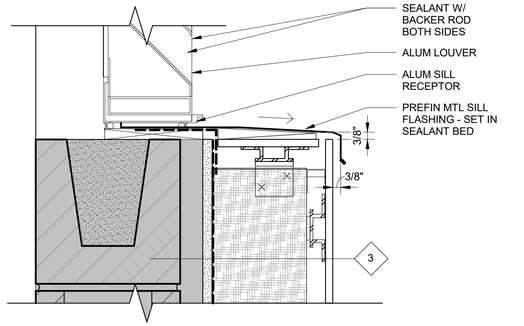


3 A101 SECTION DETAIL AT BOTTOM OF RCS

3" = 1'-0"

0 3 6 9 1

SCALE

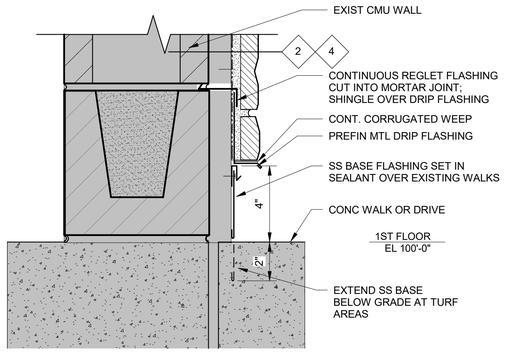


5 A102 SECTION DETAIL AT LOUVER SILL

3" = 1'-0"

0 3 6 9 1

SCALE

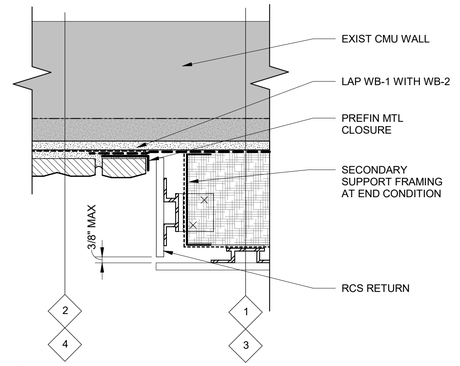


6 A101 SECTION DETAIL - BOTTOM OF STONE AT WALK

3" = 1'-0"

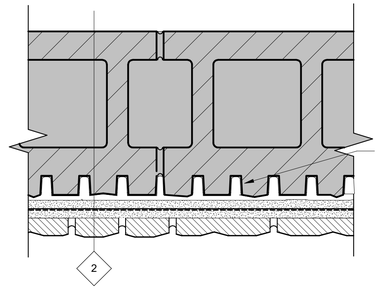
0 3 6 9 1

SCALE



9 A101 PLAN DETAIL -RETURN AT STONE VENEER

3" = 1'-0"

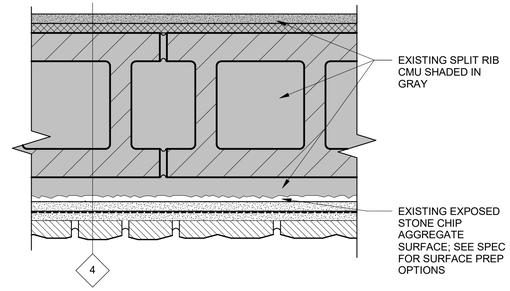


10 A002 PLAN DETAIL - STONE OVER EXIST. CMU - WELLHOUSE 9

3" = 1'-0"

0 3 6 9 1

SCALE



11 A002 PLAN DETAIL - STONE OVER EXIST. CMU- WELLHOUSE 8

3" = 1'-0"

0 3 6 9 1

SCALE

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt
PLOT DATE: 1/20/2026 9:26:10 AM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA

SIGNATURE Ellen A. Luken

DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Luken Architecture
Luken Architecture, P.A.

CITY OF NEW BRIGHTON

NEW BRIGHTON, MINNESOTA

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

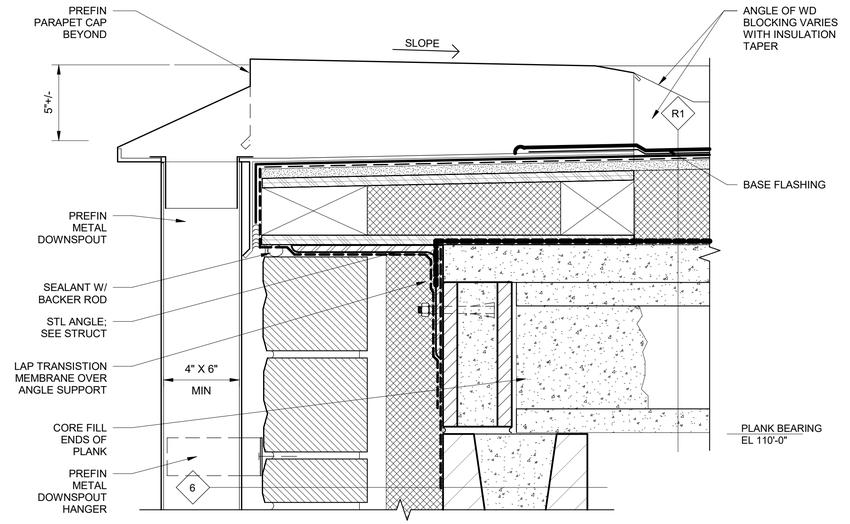
ALTERNATES 1 & 2

WELLHOUSE 8 & 9 - EXTERIOR DETAILS (SIMILAR)

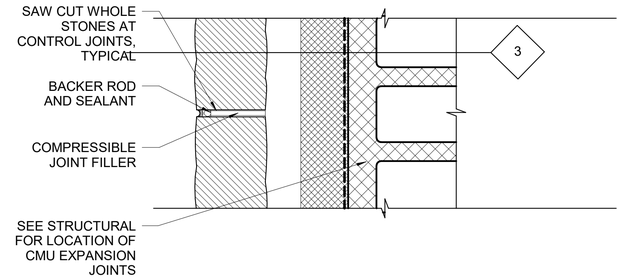
BARR PROJECT # 2362153400

DRAWING # A703

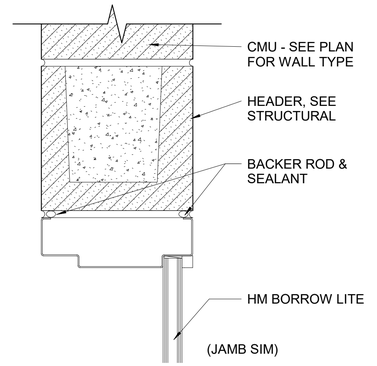
REVISION # 0



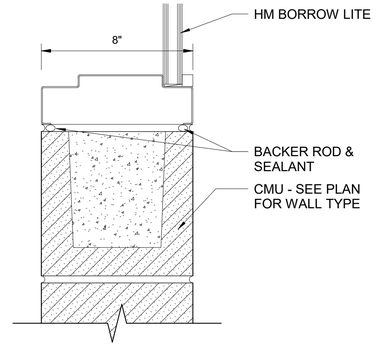
1 A103 SECTION DETAIL AT OPEN TOP SCUPPER
3" = 1'-0"



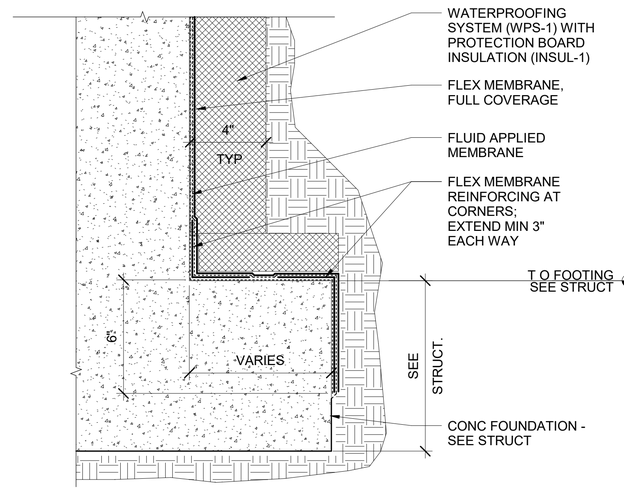
2 A103 CONTROL JOINT
3" = 1'-0"



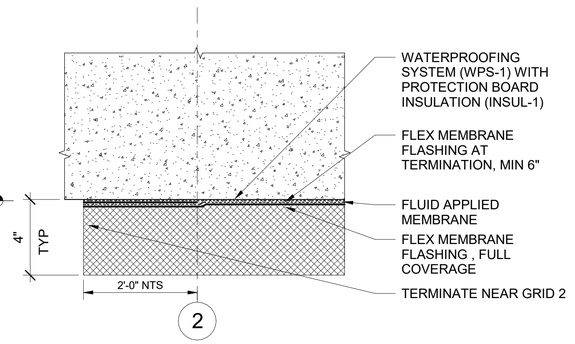
3 A401 INT WDW HEAD @ CMU
3" = 1'-0"



4 A401 INT WDW SILL @ CMU
3" = 1'-0"



5 A401 WATERPROOFING SYSTEM FOUNDATION DETAIL
3" = 1'-0"



6 A103 WATERPROOFING SYSTEM TERMINATION DETAIL
3" = 1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME ELLEN A. LUKEN, AIA
SIGNATURE Ellen A. Luken
DATE 01/20/2026 LICENSE# 15929

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	TLJ	TLJ	EAL	01/20/2026	ISSUED FOR CONSTRUCTION

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

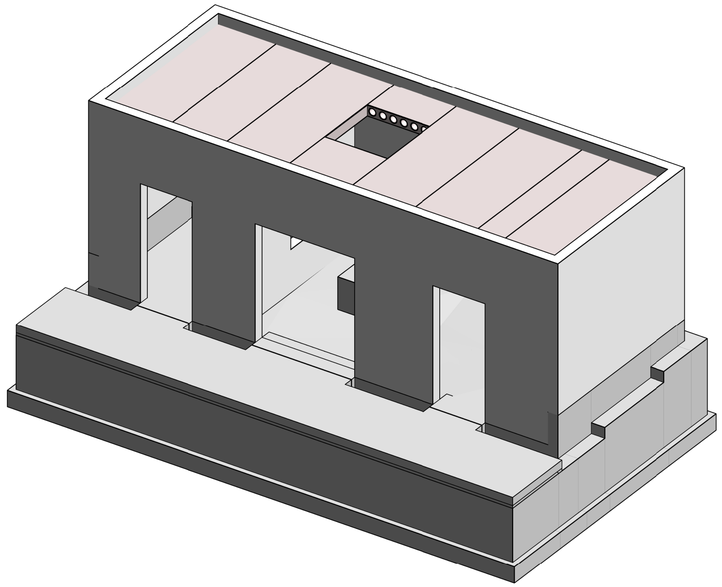
Luken Architecture
Luken Architecture, P.A.

CITY OF NEW BRIGHTON
NEW BRIGHTON, MINNESOTA
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
MISC DETAILS

BARR PROJECT # 2362153400
DRAWING # A704
REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /ARCHITECTURAL_BARR_WELL 8_9_16_R24_tjordanT4DHQ.rvt
PLOT DATE: 1/20/2026 9:26:11 AM



3D View

SYMBOLS

- FINAL GRADE
- ASPHALT
- CONCRETE
- DECK SPAN
- GROUT
- REINFORCING STEEL IN CONCRETE
- SLOPE (SLOPE)
- STEEL
- SAND
- SELECT FILL
- NORTH

ABBREVIATIONS

ABBREVIATION	ABBREVIATED
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
ADDM	ADDENDUM
ADH	ADHESIVE
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE
APPROX	APPROXIMATE/APPROXIMATELY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVG	AVERAGE
AWS	AMERICAN WELDING SOCIETY
BITUM	BITUMINOUS
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
CIP	CAST IN PLACE
CIRC	CIRCLE/CIRCULAR
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
CLKG	CAULKING
CLR	CLEAR/CLEARANCE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CTR(D)	CENTER(ED)
D	DEEP/DEPTH
DD	DOUBLE DOOR
DEG	DEGREE
DEMO	DEMOLISH
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DN	DOWN
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
EMB	EMBED/EMBEDMENT
ENGR	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATE/FABRICATION
FDN	FOUNDATION
FF	FAR FACE
FIN	FINISH
FLG	FLANGE
FLR	FLOOR
FO	FACE OF
FRMG	FRAMING
FS	FAR SIDE
FT	FEET
FTG	FOOTING
GA	GAUGE
GR	GRADE
HDG	HOT DIPPED GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
HK	HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HEADED STUD
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCHES
INCL	INCLUDE
INFO	INFORMATION
INV	INVERT
JST	JOIST
JT	JOINT
K	KIPS (1K = 1,000 LBS.)
K/FT	KIPS PER FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
L	ANGLE
LBS	POUNDS
LG	LONG
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONGIT	LONGITUDINAL
LP	LOW POINT
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MED	MEDIUM
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
N	NORTH
NA	NOT APPLICABLE
NF	NEAR FACE
NIC	NOT IN CONTACT
NO.	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
PED	PEDESTAL
PERP	PERPENDICULAR
PL	PLATE
PROJ	PROJECTION
PSF	POINDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R	RADIUS OR RISER
RCP	REINFORCED CONCRETE PIPE
REF	REFERENCE
REINF	REINFORCED
REQD	REQUIRED
REQMT	REQUIREMENT
REV	REVISION
SCHED	SCHEDULE
SD	SINGLE DOOR
SECT	SECTION
SF	SQUARE FEET
SIM	SIMILAR
SL	SNOW LOAD
SP	SPACE
SPCD	SPACED/SPECIFIED
SPCG	SPACING
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STAG	STAGGERED
STD	STANDARD
STIFF	STIFFENER
STIR	STIRRUP
STL	STEEL
STRUCT	STRUCTURAL
SYMM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
TBD	TO BE DETERMINED
TEMP	TEMPORARY
THK	THICKNESS
TL	TOTAL LOAD
TO	TOP OF
TOC	TOP OF CONRETE
TOS	TOP OF STEEL
TRANSV	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V OR VERT	VERTICAL
W/	WITH
W/O	WITHOUT
WL	WIND LOAD
WP	WORKING POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE
SIGNATURE
DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
STRUCTURAL - ABBREVIATIONS AND SYMBOLS

BARR PROJECT # 2362153400
DRAWING # S001
REVISION # 0

ORIGINAL DRAWING SIZE: 22X34
PLOT DATE: 1/20/2026 1:53:29 PM
REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFICATION.rvt
CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>

1.0 GENERAL REQUIREMENTS AND SUBMITTALS

A. GENERAL

1. THESE NOTES ARE COMPLEMENTARY TO THE SPECIFICATIONS AND DRAWINGS AND REPRESENT MINIMUM REQUIREMENTS. REFER TO SOECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. DO NOT SCALE DRAWINGS.
3. THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE AND, EXCEPT WHERE SPECIFICALLY SHOWN. DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION.
4. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR PREPARATION AND INSTALLATION OF PURCHASED MATERIALS AND EQUIPMENT.
5. TESTS WILL BE PAID FOR BY THE OWNER; HOWEVER, IN THE EVENT THAT WORK IS DEFECTIVE, THE CONTRACTOR WILL PAY FOR THE TESTS AND ANY ADDITIONAL TESTING AND WORK EQUIRED TO CONFIRM THAT THE DEFECTIVE WORK HAS BEEN CORRECTED AND COMPLIES WITH THIS SPECIFICATION.

B. GOVERNING CODES

1. PERFORM WORK IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES AND REGULATIONS.
   a. 2018 INTERNATIONAL BUILDING CODE AND REFERENCED STANDARDS WITH 2020 MINNESOTA BUILDING CODE AMENDMENTS.

C. SUBMITTALS

1. PROVIDE SUBMITTALS TO OWNER A MINIMUM OF TWO WEEKS PRIOR TO INCORPORATION INTO THE WORK.
2. ENGINEER'S ACCEPTANCE MUST BE SECURED FOR ALL STRUCTURAL SUBSTITUTIONS.
3. NGINEER'S REVIEW OF SHOP DRAWINGS ARE FOR GENERAL CONFORMANCE AND COMPLIANCE WITH DESIGN CONCEPTS, STRUCTURAL DRAWINGS AND SPECIFICATIONS. ANY ACTION NOTED DOES NOT WAIVE ANY REQUIREMENTS OF CONTRACT DOCUMENTS; COORDINATION OF TRADES AND SATISFACTORY PERFORMANCE OF THEIR WORK IS THE CONTRACTOR'S COMPLETE RESPONSIBILITY.
4. SHOP DRAWINGS WILL BE MARKED AS "NOT APPROVED (RESUBMIT)" IF CONTRACTOR HAS NOT REVIEWED THEM PRIOR TO SUBMITTING.

D. DESIGN LOADS

1. DEAD LOAD:
   a. COLLATERAL LOAD = 5 PSF
   b. MECHANICAL/PIPING = 10 PSF
   c. ROOF DEAD LOAD = 80 PSF
2. LIVE LOAD:
   a. FLOOR LIVE LOAD (EQUIPMENT AREAS): LL = 125 PSF OR CONCENTRATED LOAD OF 2,000 LBF
   b. FLOOR LIVE LOAD (ELECTRICAL ROOM): LL = 125 PSF
   c. ROOF LIVE LOAD = 20 PSF
3. SNOW LOAD:
   a. GROUND SNOW (Pg) = 58 PSF
   b. FLAT ROOF SNOW (Pf) = 46 PSF
   c. EXPOSURE FACTOR (Ce) = 1.0
   d. IMPORTANCE FACTOR (I) = 1.0
   e. THERMAL FACTOR (Ct) = 1.133
4. WIND LOAD:
   a. ULTIMATE DESIGN WIND SPEED (3-SECOND GUST) (VULT) = 110 MPH
   b. NOMINAL DESIGN WIND SPEED (VASD) = 85.2 PSF
   c. RISK CATEGORY = II
   d. EXPOSURE CATEGORY = C
   e. INTERNAL PRESSURE COEFFICIENT (GCpi) = +0.18/-0.18
   f. COMPONENTS AND CLADDING DESIGN WIND PRESSURE = SEE ROOF LOADING MAP

E. GEOTECHNICAL INFORMATION

1. BARR ENGINEERING COMPANY, "GEOTECHNICAL ENGINEERING REPORT, SPINNING SPUR III WIND PROJECT, OLDHAM COUNTY, TEXAS", SEPTEMBER 2014.

F. EXISTING CONDITIONS

1. PRIOR TO COMMENCING WORK AT THE SITE, CONTACT GOPHER STATE ONE AND HAVE ALL EXISTING UTILITIES FIELD LOCATED AND MARKED. PROJECT EXISTING UTILITIES UNLESS OTHERWISE INDICATED, REPAIR OR REPLACE ANY UTILITIES DAMAGED BY CONTRACTOR AT CONTRACTOR'S EXPENSE.
2. VERIFY ALL EXISTING CONDITIONS SHOWN ON DRAWINGS FOR ACCURACY. VERIFICATION OF FIELD DIMENSIONS ARE NOT PART OF THE ENGINEER'S RESPONSIBILITY.
3. NOTIFY OWNER IMMEDIATELY IF SITE CONDITIONS OR UTILITIES DIFFER SIGNIFICANTLY FROM THAT SHOWN.
4. DO NOT DISTURB EXISTING VEGETATION AREAS OUTSIDE OF CONSTRUCTION LIMITS.

G. SAFETY

1. CONTRACTOR IS RESPONSIBLE FOR JOB-SITE CONDITIONS AND SAFETY PROCEDURES AND PROGRAMS. THIS REQUIREMENT APPLIES CONTINUOUSLY AND IS NOT LIMITED TO NORMAL WORKING HOURS.
2. MEET ALL FEDERAL, STATE, AND LOCAL RULES AND REGULATIONS PERTAINING TO SAFETY INCLUDING OSHA AND MNOSHA RULES.
3. SECURE THE SITE FOR PUBLIC SAFETY FOR THE DURATION OF THE WORK.

H. PHASING

1. COORDINATE CONSTRUCTION PHASING WITH OWNER. COORDINATE CONSTRUCTION LIMITS FOR ALL PHASES OF WORK.
2. PHASE WORK TO MINIMIZE EXPOSED SOIL AND EROSION POTENTIAL.

I. GEOTECHNICAL INFORMATION

1. FOUNDATION DESIGN IS BASED ON THE PRECRIPTIVE ALLOWABLE BEARING PRESSURE PER THE IBC.
2. FOUNDATION DESIGN
   a. ALLOWABLE SOILD BEARING: 2000 PSF

2.0 DEFERRED SUBMITTALS

1. DEFERRED SUBMITTALS SHALL BE SUBMITTED TO THE ENGINEER OR RECORD AND THE AUTHORITY HAVING JURISDICTION FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION FOR:
   a. COLD FORM EXTERIOR FRAMING AT THE RAIN SCREEN SUPPORTS.
2. ALL DOCUMENTS FOR DEFERRED SUBMITTALS INCLUDING DRAWINGS, DETAILS, AND SUPPORTING CALCULATIONS SHALL BE SEALED BY A LICENSED DESIGN PROFESSIONAL IN THE STATE OF MINNESOTA.
3. ALL DEFERRED SUBMITTALS SHALL INCLUDE A QUALITY ASSURANCE PLAN IN ACCORDANCE IBC CHAPTER 17.

3.0 POST-INSTALLED CONCRETE ANCHORS AND REBAR

EMBEDMENT & SPLICE LAP TABLES - 4000 OR GREATER PSI

BAR SIZE	BASIC TABLE				ALTERNATE TABLE			
	MIN EMBEDMENT LENGTHS, INCHES CLASS A		MIN LAP LENGTHS, INCHES CLASS B		MIN EMBEDMENT LENGTHS, INCHES CLASS A		MIN LAP LENGTHS, INCHES CLASS B	
	TOP	OTHER	TOP	OTHER	TOP	OTHER	TOP	OTHER
#3	18	14	24	28	12	12	16	12
#4	25	15	32	25	15	12	19	15
#5	31	24	40	31	18	14	24	18
#6	37	28	48	37	22	17	29	22
#7	54	42	70	54	32	25	42	32

NOTES:
1. USE THE BASIC TABLE IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   A. CENTER TO CENTER BAR SPACING LATERALLY IS AT LEAST 3 BAR DIAMETERS
   B. DISTANCE FROM THE CENTER OF A BAR TO THE NEAREST CONCRETE SURFACE MUST BE AT LEAST 1.5 BAR DIAMETERS.
2. THE ALTERNATE TABLE MAY BE USED IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   A. CENTER TO CENTER BAR SPACING LATERALLY IS AT LEAST 5 BAR DIAMETERS.
   B. DISTANCE FROM THE CENTER OF A BAR TO THE NEAREST CONCRETE SURFACE MUST BE AT LEAST 2.5 BAR DIAMETERS.
3. IF CONCRETE COVER OR EDGE DISTANCE IS LESS THAN 1 BAR DIAMETER OR THE CENTER TO CENTER BAR SPACING LATERALLY IS LESS THAN 3 BAR DIAMETERS, SEE ACI 318 FOR APPROPRIATE GUIDANCE.
4. TOP BARS ARE HORIZONTAL BARS AND BARS INCLINED LESS THAN 45 DEGREES WITH RESPECT TO A HORIZONTAL PLANE WHICH ARE PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
5. THE TABLES SHOWN ARE FOR NORMAL WEIGHT CONCRETE AND UNCOATED REINFORCING BARS. IF EPOXY COATED BARS ARE USED, SEE ACI 318 FOR ADDITIONAL CONSIDERATIONS.

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFCATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFCATION.rvt
PLOT DATE: 1/20/2026 1:53:29 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE
SIGNATURE
DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
STRUCTURAL
GENERAL NOTES

BARR PROJECT # 2362153400
DRAWING # S002
REVISION # 0

1.0 STATEMENT OF SPECIAL INSPECTION

A. GENERAL

1. SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH THE 2006 IBC CHAPTER 17. OWNER SHALL ENGAGE THE SERVICES OF A QUALIFIED SPECIAL INSPECTOR, WHO SHALL PROVIDE ALL SERVICES NECESSARY TO MEET THE IBC SPECIAL INSPECTION REQUIREMENTS.

2. SPECIAL INSPECTIONS SHALL BE PROVIDED DURING ALL FABRICATION AND CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE FOLLOWING NOTES AND SCHEDULES.

B. DEFINITIONS

1. REFER TO SECTION 1702 AND CHAPTER 2 OF THE 2006 IBC FOR DEFINITIONS OF TERMS APPLICABLE TO SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS.

a. SPECIFIC OBSERVATIONS:
HIGH STRENGTH BOLTS - AN ASTM A325 OR A490 BOLT, AN ASTM F 1852 TWIST-OFF-TYPE TENSION-CONTROL BOLT OF AN ALTERNATE-DESIGN FASTENER THAT MEETS THE REQUIREMENTS IN AISC 360 SECTION 2.8.

2.0 CONCRETE CONSTRUCTION

A. REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

1. THE SPECIAL INSPECTIONS AND VERIFICATIONS FOR CONCRETE CONSTRUCTION SHALL BE AS REQUIRED BY IBC 2012 SECTION 705.3 AND THE FOLLOWING TABLE.

B. TABLE 1705.3 FROM IBC 2012

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCED STANDARD	IBC REFERENCED	PROJECT APPLICABILITY	QUANTITY
		CONTINUOUS	PERIODIC				
1.	INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT	-	X	ACI 318: 3.5, 7.1-7.7	1910.4	N/A	-
2.	INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2, ITEM 2B	-	-	AWS D1.4 ACI 318: 3.5.2	-	N/A	-
3.	INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED	-	X	ACI 318: 8.1.3, 21.2.8	1908.5, 1909.1		-
4.	INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS (b)	-	X	ACI 318: 3.8.6, 8.1.3, 21.2.8	1909.1		-
5.	VERIFYING USE OF REQUIRED DESIGN MIX	-	X	ACI 318: Ch. 4, 5.2, 5.4	1904.2, 1910.2, 1910.3		-
6.	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X	-	ASTM C172 ASTM C31 ACI 318: 5.6, 5.8	1910.10		-
7.	INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	X	-	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8		-
8.	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	-	X	ACI 318: 3.8.6, 5.11, 5.13	1910.9		-
9.	INSPECTION OF PRESTRESSED CONCRETE						
	a. APPLICATION OF PRESTRESSED FORCES	X	-	ACI 318: 18.20	-		-
	b. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC FORCE-RESISTING SYSTEM	X	-	ACI 318: 18.18.4	-	N/A	-
10.	ERECTION OF PRECAST CONCRETE MEMBERS	-	X	ACI 318: Ch. 16			-
11.	VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	X	ACI 318: 6.2	-	N/A	-
12.	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	ACI 318: 6.1.1	-		-
(b)	SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH ACI 355.2 OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.						

3.0 SOILS AND FOUNDATIONS

A. REQUIRED VERIFICATION AND INSPECTION OF SOILS

1. SPECIAL INSPECTIONS FOR EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT AND LOAD-BEARING REQUIREMENTS SHALL BE AS REQUIRED BY IBC 2012 SECTION 1705.6 AND THE FOLLOWING TABLE.

B. TABLE 1705.6 FROM IBC 2012

	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		PROJECT APPLICABILITY
		CONTINUOUS	PERIODIC	
1.	VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	-	X	
2.	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	-	X	
3.	PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS	-	X	
4.	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	X	-	
5.	PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	-	X	

4.0 INSPECTION OF WELDING

A. INSPECTION TASKS PRIOR TO WELDING

1. AS A MINIMUM, WELDING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH TABLES N5.4-1, N5.4-2 AND N5.4-3. THE INSPECTION TASKS ARE AS FOLLOWS:

O - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

P - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

B. TABLE N5.4-1 FROM AISC 360-10

	INSPECTION TASKS PRIOR TO WELDING	INSPECTION		AWS D.1/D1.1M REFERENCES	PROJECT APPLICABILITY
		QUALITY CONTROL	QUALITY ASSURANCE		
1.	WELDING PROCEDURE SPECIFICATIONS (WPSS) AVAILABLE	P	P	6.3	
2.	MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P	6.2000	
3.	MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O	6.2	
4.	WELDER IDENTIFICATION SYSTEM (1)	O	O	6.4	
5.	FIT-UP OF GROOVE WELDS (INCLUDING GEOMETRY)	O	O		
	- JOINT PREPARATION			6.5.2	
	- DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)			5.22	
	- CLEANINESS (CONDITION OF STEEL SURFACES)			5.15	
	- TACKING (TACK WELD QUALITY AND LOCATION)			5.18	
	- BACKING TYPE AND FIT (IF APPLICABLE)			5.10, 5.22.1.1	
6.	CONFIGURATION AND FINISH OF ACCESS HOLES	O	O	6.5.2, 5.17, AISC J1.6	N/A
7.	FIT-UP OF FILLET WELDS	O	O		
	- DIMENSIONS (ALIGNMENT, GAPS AT ROOT)			5.22.1	
	- CLEANLINESS (CONDITIONOF STEEL SURFACES)			5.15	
	- TACKING (TACK WELD QUALITY AND LOCATION)			5.18	
8.	CHECK WELDING EQUIPMENT	O	-	6.2, 5.11	
	(1) THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.				

C. INSPECTION TASKS DURING WELDING

D. TABLE N5.4-2 FROM AISC 360-10

	INSPECTION TASKS DURING WELDING	INSPECTION		AWS D.1/D1.1M REFERENCES	PROJECT APPLICABILITY
		QUALITY CONTROL	QUALITY ASSURANCE		
1.	USE OF QUALIFIED WELDERS	O	O	6.4	
2.	CONTROL AND HANDLING OF WELDING CONSUMABLES	O	O	6.2, 5.3.1, 5.3.2 (FOR SMAW), 5.3.3 (FOR SAW)	
	- PACKAGING				
	- EXPOSURE CONTROL				
3.	NO WELDING OVER CRACKED TACK WELDS	O	O	5.1800	
4.	ENVIROMENTAL CONDITIONS	O	O		
	- WIND SPEED WITHIN LIMITS			5.12.1	
	- PRECIPITATION AND TEMPERATURE			5.12.2	
5.	WPS FOLLOWED	O	O	6.3.3, 6.5.2, 5.5, 5.21	N/A
	- SETTINGS ON WELDING EQUIPMENT				
	- TRAVEL SPEED				
	- SELECTED WELDING MATERIALS				
	- SHIELDING GAS TYPE/FLOW RATE				
	- PREHEAT APPLIED			5.6, 5.7	
	- INTERPASS TEMPERATURE MAINTAINED (MIN/MAX)				
	- PROPER POSITION (F, V, H, OH)				
6.	WELDING TECHNIQUES	O	O	6.5.2, 6.5.3, 5.24, 5.30.1	
	- INTERPASS AND FINAL CLEANING				
	- EACH PASS WITHIN PROFILE LIMITATIONS				
	- EACH PASS MEETS QUALITY REQUIREMENTS				

E. INSPECTION TASKS AFTER WELDING

F. TABLE N5.4-3 FROM AISC 360-10

	INSPECTION TASKS AFTER WELDING	INSPECTION		AWS D.1/D1.1M REFERENCES	PROJECT APPLICABILITY
		QUALITY CONTROL	QUALITY ASSURANCE		
1.	WELDS CLEANED	O	O	5.30.1	
2.	SIZE, LENGTH AND LOCATION OF WELDS	P	P	6.6.1	
3.	WELDS MEET VISUAL ACCEPTANCE CRITERIA	P	P	6.5.3	
	- CRACK PROHIBITION			TABLE 6.1 (1)	
	- WELD/BASE-METAL FUSION			TABLE 6.1 (2)	
	- CRATER CROSS SECTION			TABLE 6.1 (3)	
	- WELD PROFILES			TABLE 6.1 (4), 5.24	
	- WELD SIZE			TABLE 6.1 (6)	
	- UNDERCUT			TABLE 6.1 (7)	
	- POROSITY			TABLE 6.1 (8)	
4.	K-AREA (1)	P	P	5.29	N/A
5.	ARC STRIKES	P	P	-	N/A
6.	BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P	5.10, 5.31	
7.	REPAIR ACTIVITIES	P	P	6.5.3, 5.26	
8.	DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P	6.5.4, 6.5.5	
	(1) WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 INCHES (75mm) OF THE WELD				

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE
SIGNATURE
DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

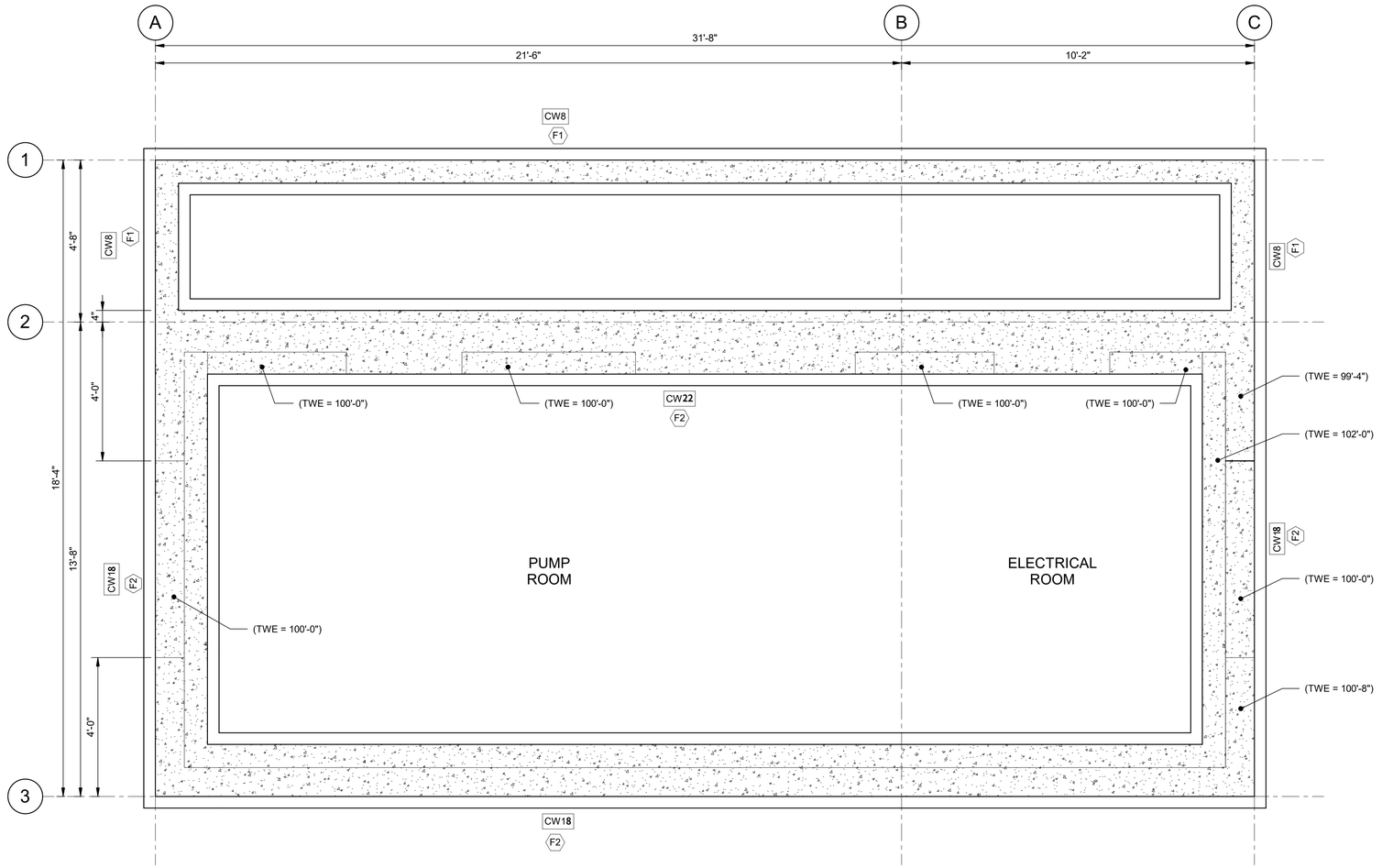
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
STRUCTURAL NOTES AND SPECIAL INSPECTIONS

BARR PROJECT # 2362153400
DRAWING # S003
REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFICATION.rvt
PLOT DATE: 1/20/2026 1:53:30 PM CENTRAL FILE PATH: <<CENTRAL FILE PATH HERE>>



1 PLAN: FOUNDATION
S100

SCALE: 1/2"=1'-0"

NOTES:

PLAN NOTES:

1. PROJECT DATUM ELEVATION 100'-0" = FFE 995.55. SEE CIVIL AND ARCHITECTURAL DRAWINGS.
2. TOP OF FOOTING ELEVATION (TFE) = 96'-0", UNLESS NOTED OTHERWISE ON PLAN AS (XX'-XX")
3. SEE TYPICAL FOUNDATION DETAILS FOR UTILITY PENETRATIONS THROUGH FOUNDATIONS. SEE PLAN FOR APPROXIMATE LOCATIONS. VERIFY LOCATIONS AND ELEVATIONS WITH MECHANICAL DRAWINGS.
4. TOP OF CONCRETE STEM WALL = 102'-0" UNLESS OTHERWISE NOTED ON PLAN AS (TWE = XX'-XX").
5. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION, INCLUDING LOCATIONS AND DIMENSIONS OF RAMPS, SLAB SLOPES, SLAB STEPS, AND SLAB DEPRESSIONS.
6. VERIFY SIZE, LOCATION, AND INVERT ELEVATIONS FOR ALL UTILITIES, SITE STRUCTURES, SUMPS, AND DRAINS WITH CIVIL, MECHANICAL, ELECTRICAL, AND ARCHITECTURAL DRAWINGS.
7. SEE CIVIL/LANDSCAPE DRAWINGS FOR PAVING AND SITE DETAILS AT THE BUILDING EXTERIOR.
8. REFERENCE THE FOLLOWING SHEETS FOR ADDITIONAL INFORMATION:
   A. S001 GENERAL STRUCTURAL NOTES
   B. S201 TYPICAL MASONRY DETAILS
9. EQUIPMENT SUPPORT DESIGN BASED ON PRELIMINARY EQUIPMENT DRAWINGS AND MAY BE SUBJECT TO CHANGE PENDING RECEIPT OF CERTIFIED EQUIPMENT DRAWINGS, REACTION REPORTS, AND OTHER RELEVANT VENDOR INFORMATION.
10. COORDINATE AND VERIFY FINAL EQUIPMENT LOCATIONS, ANCHORAGE DETAILS, PAD TOLERANCES, PERFORMANCE, AND INSTALLATION REQUIREMENTS WITH EQUIPMENT MANUFACTURER INSTRUCTIONS PRIOR TO BEGINNING WORK. PROVIDE CERTIFIED EQUIPMENT DRAWINGS TO FABRICATOR FOR DIMENSIONAL VERIFICATION OF EQUIPMENT ATTACHMENT POINTS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES WITH BASIS OF DESIGN EQUIPMENT INFORMATION OR DESIGNATED SUPPORT LOCATIONS.

FOUNDATION NOTES:

1. TOP OF INTERIOR SLAB ON GRADE SHALL BE 100'-0" TYPICAL, UNLESS NOTED OTHERWISE. SEE CIVIL FOR TOP OF EXTERIOR SLAB ON GRADE ELEVATIONS AND SLOPES.
2. MAINTAIN A MINIMUM OF 42" COVER (FINAL GRADE ELEVATION TO BOTTOM OF FOOTING) AT ALL EXTERIOR WALL FOOTINGS.
3. SEE 1/S200 FOR TYPICAL UNDERGROUND PIPING EXCAVATION.
4. CONCRETE SLAB-ON-GRADE SHALL BE 6" THICK WITH #4 AT 12" ON CENTER REINFORCEMENT EACH WAY OVER A 6" SAND BASE LAYER AND SUBGRADE PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE A VAPOR RETARDER AT ALL INTERIOR SLABS-ON-GRADE.

FOUNDATION SYMBOLS:

Fx — INDICATES WALL FOOTING PER WALL FOOTING SCHEDULE ON THIS SHEET AND BOTTOM OF FOOTING ELEVATION RELATIVE TO FINISHED FLOOR ELEVATION.

WALL SCHEDULE		
MARK	THICKNESS	REINFORCEMENT
CW8	**8"**	#4 @ 16" OC EW
CW**18**	**18"**	#4 @ 16" OC EW EACH FACE
CW22	**22"**	**#5 @ 16" OC EW EA FACE**

SPREAD/STRIP FOOTING SCHEDULE		
MARK	WIDTH	REINFORCEMENT
F1	**16"**	(3) #5 CONT
F2	**30"**	(4) #5 CONT

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE
SIGNATURE
DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR®
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

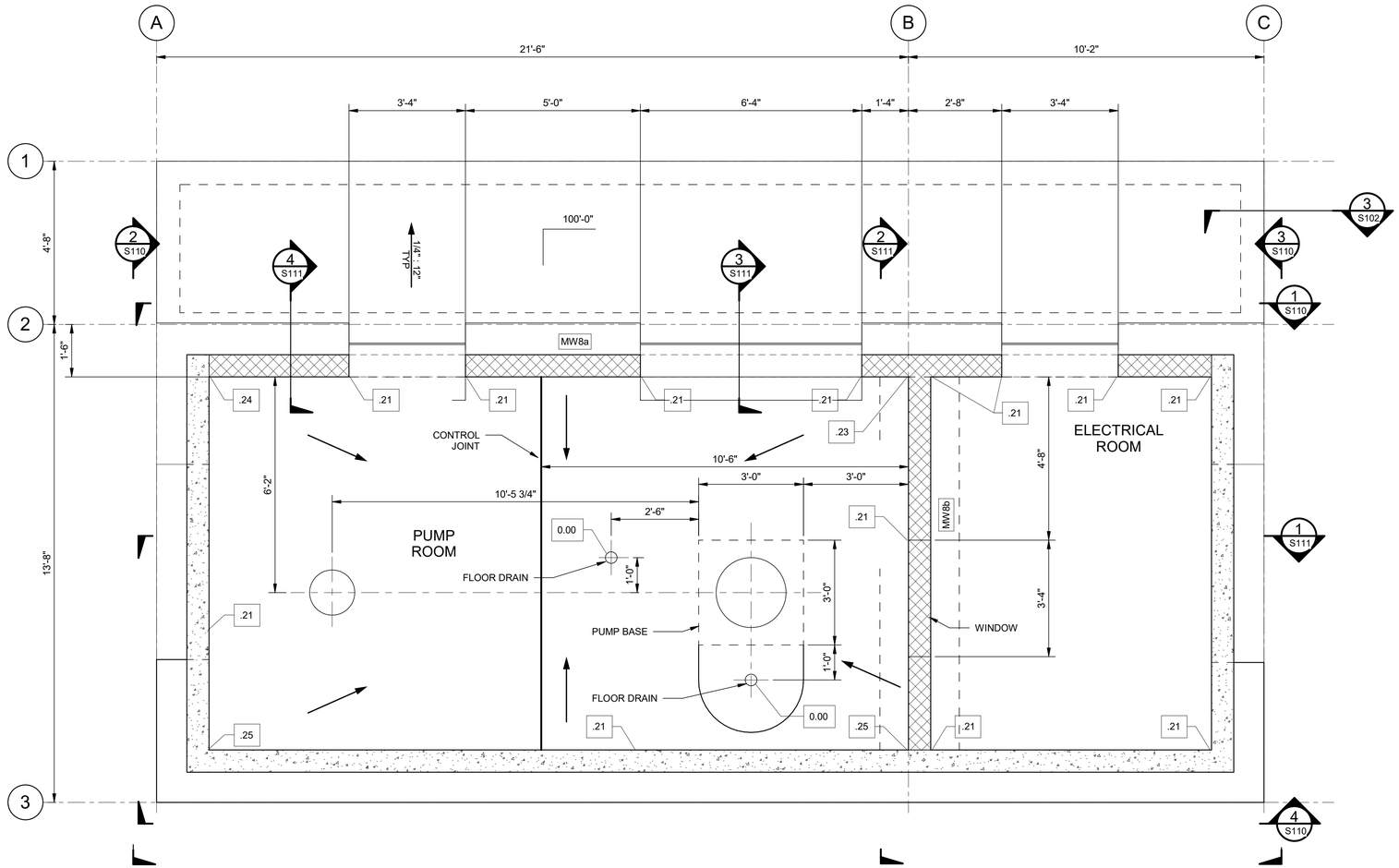
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
WELLHOUSE FOUNDATION PLAN

BARR PROJECT # 2362153400
DRAWING # S100
REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFCATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFCATION.rvt
PLOT DATE: 1/20/2026 1:53:30 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>



1 S101 PLAN: FLOOR AND WALL

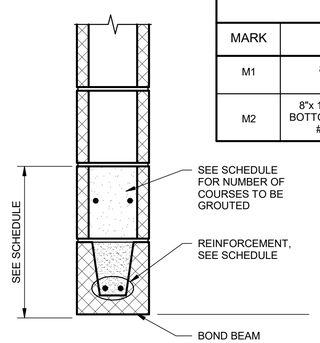
SCALE: 1/2"=1'-0"

CMU WALL REINFORCEMENT		
MARK	WALL TYPE	REINFORCEMENT
MW8a	8" CMU	#5 @ 32" OC; MIN (3) VERT BARS PER LENGTH OF WALL
MW8b	8" CMU	#5 @ 48" OC

SCHEDULE NOTES (TYPICAL UNLESS NOTED OTHERWISE)

1. PROVIDE TYPE MW8b REINFORCING FOR WALLS WHERE REINFORCING IS NOT NOTED.

2 CMU WALL REINFORCEMENT SCHEDULE



NOTE:
PRECAST BEAM CAN BE USED AS ALTERNATE TO CMU BOND BEAM

CMU LINTEL SCHEDULE			
MARK	LINTEL	BEARING LENGTH	PIER
M1	8"x8" W/ (2) - #5 CONTINUOUS	8"	GROUT JAMBS FOR (2) CORES EACH SIDE OF OPNG. PROVIDE (2) - #5 EACH CORE.
M2	8"x 16" DEEP W/ (2) - #6 BOTTOM AND (2) - #4 TOP; #3 TIES @ 8" OC	8"	GROUT JAMBS FOR (3) COURSES EACH SIDE OF OPNG. PROVIDE (2) - #5 EACH CORE.

SCHEDULE NOTES (TYPICAL UNLESS NOTED OTHERWISE)

1. SEE SPECIFICATIONS FOR ALL LINTELS IN NON-LOAD BEARING CMU WALLS.

3 DETAIL: TYPICAL DOOR LINTEL

1 1/2" = 1'-0"

NOTES:

PLAN NOTES:

1. REFERENCE THE FOLLOWING SHEETS FOR ADDITIONAL INFORMATION:
   A. S001 GENERAL STRUCTURAL NOTES
   B. S201 TYPICAL MASONRY DETAILS
2. EQUIPMENT SUPPORT DESIGN BASED ON PRELIMINARY EQUIPMENT DRAWINGS AND MAY BE SUBJECT TO CHANGE PENDING RECEIPT OF CERTIFIED EQUIPMENT DRAWINGS, REACTION REPORTS, AND OTHER RELEVANT VENDOR INFORMATION.
3. CONTRACTOR SHALL COORDINATE AND VERIFY FINAL EQUIPMENT LOCATIONS, ANCHORAGE DETAILS, PAD TOLERANCES, PERFORMANCE, AND INSTALLATION REQUIREMENTS WITH EQUIPMENT MANUFACTURER INSTRUCTIONS PRIOR TO BEGINNING WORK. CONTRACTOR SHALL PROVIDE CERTIFIED EQUIPMENT DRAWINGS TO FABRICATOR FOR DIMENSIONAL VERIFICATION OF EQUIPMENT ATTACHMENT POINTS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES WITH BASIS OF DESIGN EQUIPMENT INFORMATION OR DESIGNATED SUPPORT LOCATIONS.

SLAN ON GRADE NOTES:

1. TOP OF INTERIOR SLAB ON GRADE SHALL BE 100'-0" TYPICAL, UNLESS NOTED OTHERWISE. SEE CIVIL FOR TOP OF EXTERIOR SLAB ON GRADE ELEVATIONS AND SLOPES.
2. CONCRETE SLAB-ON-GRADE SHALL BE 6" THICK WITH #4 AT 12" ON CENTER REINFORCEMENT EACH WAY OVER A 6" SAND BASE LAYER AND SUBGRADE PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE A VAPOR RETARDER AT ALL INTERIOR SLABS-ON-GRADE, SEAMS TO BE SEALED. SEE SPECIFICATION 03 30 00 CAST IN PLACE CONCRETE.
3. SEE DETAIL 3/S201 FOR TYPICAL CMU CONTROL JOINT DETAIL

PLAN SYMBOLS:

MWxx | INDICATES CMU WALL PER CMU WALL REINFORCING SCHEDULE ON THIS SHEET.

0.A | INDICATES ELEVAION 99.79 + A

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE
SIGNATURE
DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

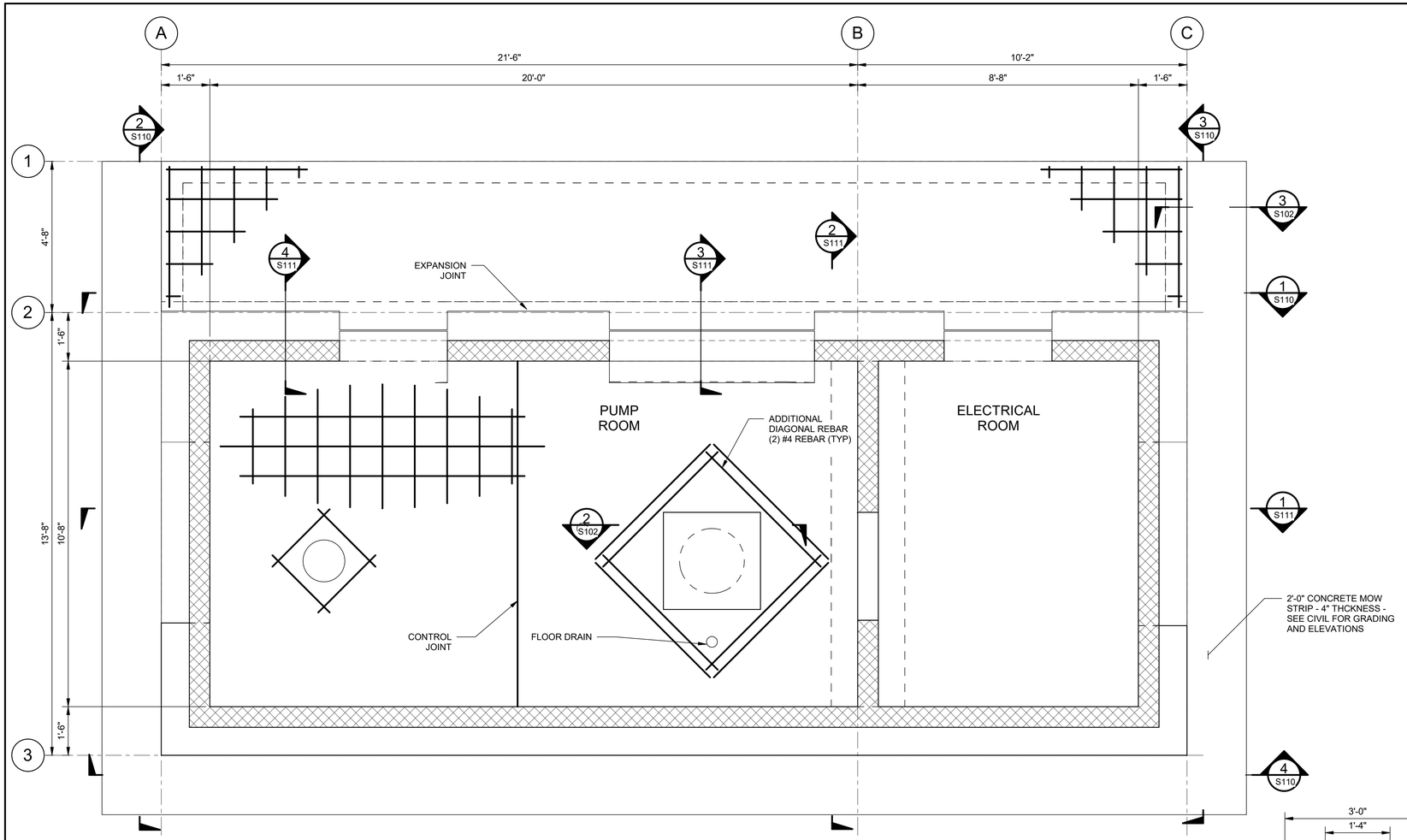
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
WELLHOUSE FLOOR PLAN

BARR PROJECT # 2362153400
DRAWING # S101
REVISION # 0

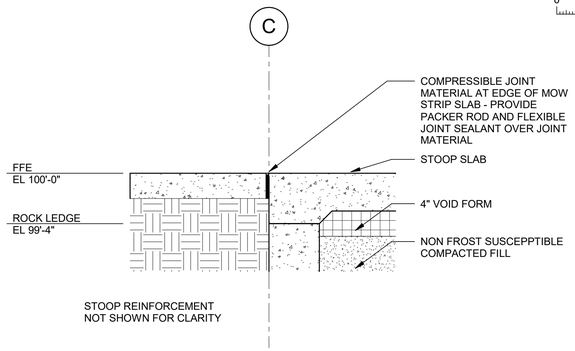
ORIGINAL DRAWING SIZE: 22X34
PLOT DATE: 1/20/2026 1:53:30 PM
REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION 2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFCATION.rvt
CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>



N 1 S102 PLAN: FLOOR SLAB REINFORCING

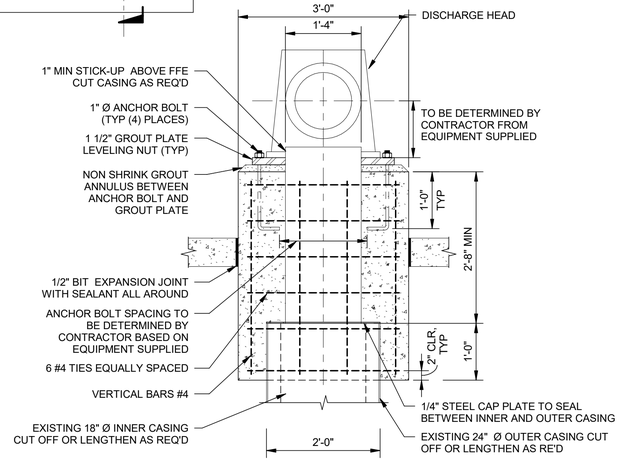
0 1 2 3 4 5

SCALE: 1/2"=1'-0"



3 S101 SECTION: SLAB JOINT AT MOW STRIP

1" = 1'-0"



2 S102 ELEVATION: PUMP BASE AND DISCHARGE HEAD

3/4" = 1'-0"

NOTES:

PLAN NOTES:

1. REFERENCE THE FOLLOWING SHEETS FOR ADDITIONAL INFORMATION:
   A. S001 GENERAL STRUCTURAL NOTES
   B. S201 TYPICAL MASONRY DETAILS
2. EQUIPMENT SUPPORT DESIGN BASED ON PRELIMINARY EQUIPMENT DRAWINGS AND MAY BE SUBJECT TO CHANGE PENDING RECEIPT OF CERTIFIED EQUIPMENT DRAWINGS, REACTION REPORTS, AND OTHER RELEVANT VENDOR INFORMATION.
3. CONTRACTOR SHALL COORDINATE AND VERIFY FINAL EQUIPMENT LOCATIONS, ANCHORAGE DETAILS, PAD TOLERANCES, PERFORMANCE, AND INSTALLATION REQUIREMENTS WITH EQUIPMENT MANUFACTURER INSTRUCTIONS PRIOR TO BEGINNING WORK. CONTRACTOR SHALL PROVIDE CERTIFIED EQUIPMENT DRAWINGS TO FABRICATOR FOR DIMENSIONAL VERIFICATION OF EQUIPMENT ATTACHMENT POINTS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES WITH BASIS OF DESIGN EQUIPMENT INFORMATION OR DESIGNATED SUPPORT LOCATIONS.

SLAB ON GRADE NOTES NOTES:

1. TOP OF INTERIOR SLAB ON GRADE SHALL BE 100'-0" TYPICAL, UNLESS NOTED OTHERWISE. SEE CIVIL FOR TOP OF EXTERIOR SLAB ON GRADE ELEVATIONS AND SLOPES.
2. CONCRETE SLAB-ON-GRADE SHALL BE 6" THICK WITH #4 AT 12" ON CENTER REINFORCEMENT EACH WAY OVER A 6" SAND BASE LAYER AND SUBGRADE PREPARED IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE A VAPOR RETARDER AT ALL INTERIOR SLABS-ON-GRADE.
3. SEE DETAIL 3/S201 FOR TYPICAL CMU CONTROL JOINT DETAIL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE

SIGNATURE

DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON

NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

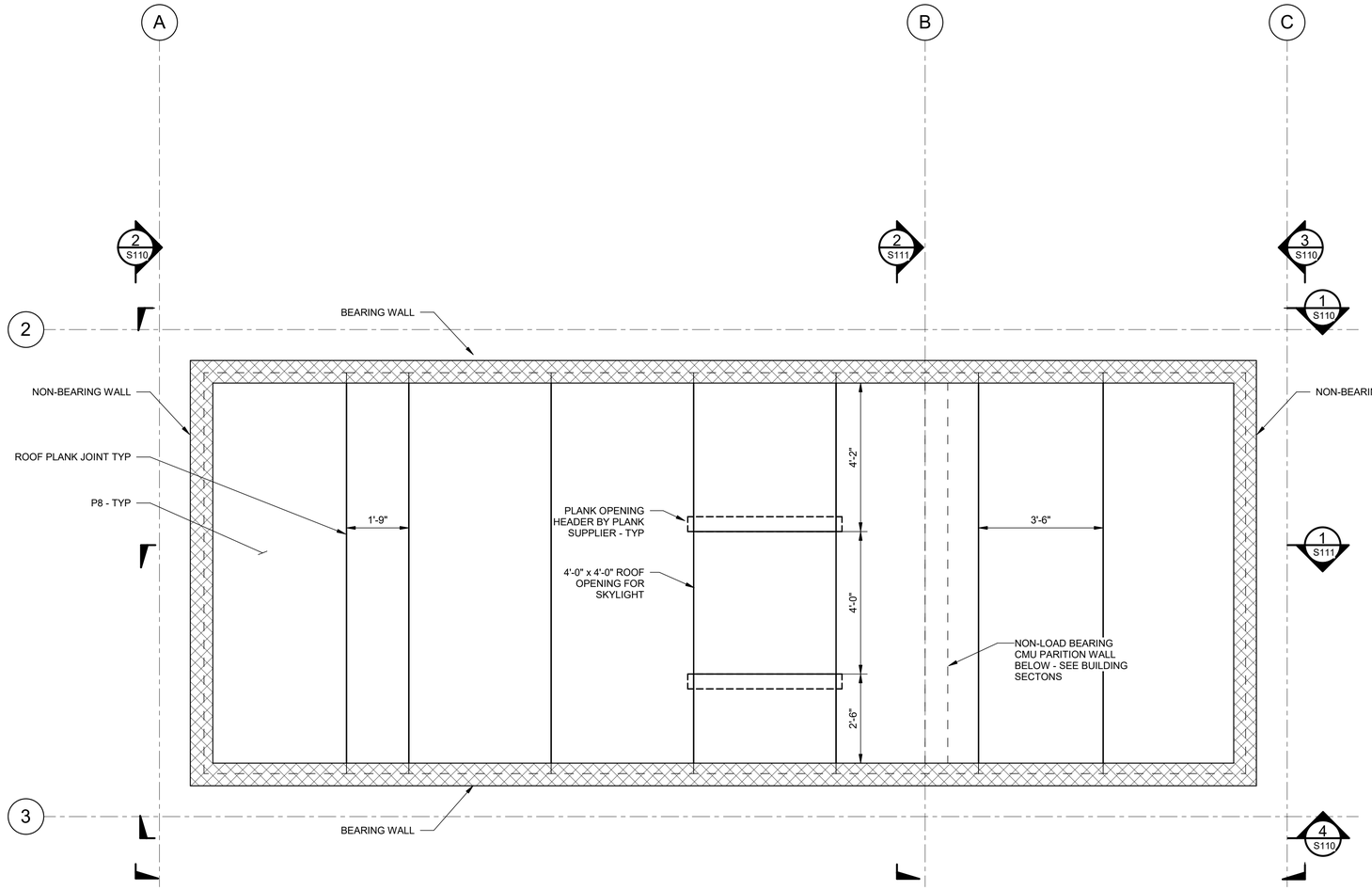
WELLHOUSE FLOOR SLAB REINFORCING PLAN

BARR PROJECT # 2362153400

DRAWING # S102

REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://MELL 16 WELLHOUSE MODIFICATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFCATION.rvt
PLOT DATE: 1/20/2026 1:53:31 PM CENTRAL FILE PATH: <<CENTRAL FILE PATH HERE>>



N 1 S110 PLAN: ROOF FRAMING

1/2" = 1'-0"

0 1 2 3 4 5

SCALE: 1/2"=1'-0"

NOTES:

PLAN NOTES:

1. REFERENCE THE FOLLOWING SHEETS FOR ADDITIONAL INFORMATION:
   A. S001 GENERAL STRUCTURAL NOTES
   B. S202 TYPICAL PRECAST CONCRETE DETAILS
2. EQUIPMENT SUPPORT DESIGN BASED ON PRELIMINARY EQUIPMENT DRAWINGS AND MAY BE SUBJECT TO CHANGE PENDING RECEIPT OF CERTIFIED EQUIPMENT DRAWINGS, REACTION REPORTS, AND OTHER RELEVANT VENDOR INFORMATION.
3. CONTRACTOR SHALL COORDINATE AND VERIFY FINAL EQUIPMENT LOCATIONS, ANCHORAGE DETAILS, PAD TOLERANCES, PERFORMANCE, AND INSTALLATION REQUIREMENTS WITH EQUIPMENT MANUFACTURER INSTRUCTIONS PRIOR TO BEGINNING WORK. CONTRACTOR SHALL PROVIDE CERTIFIED EQUIPMENT DRAWINGS TO FABRICATOR FOR DIMENSIONAL VERIFICATION OF EQUIPMENT ATTACHMENT POINTS PRIOR TO FABRICATION. NOTIFY ENGINEER OF ANY DISCREPANCIES WITH BASIS OF DESIGN EQUIPMENT INFORMATION OR DESIGNATED SUPPORT LOCATIONS.

PRECAST PLANK NOTES:

1. TOP OF PRECAST PLANK ELEVATION (TPCPE) = 109'-4". REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION
2. SUPERIMPOSED LOADS:
   A. DEAD LOAD: 15 PSF
   B. LIVE LOAD 20 PSF
   C. SNOW LOAD 46 PSF
3. PRECAST ENGINEER SHALL PROVIDE SOLID SLABS OR BEAMS AS REQUIRED TO SUPPORT LOADS PARALLEL TO HOLLOW CORE SLAB SPANS. IF BEAMS ARE USED, COORDINATE WITH ARCHITECTS AND MECHANICAL.
4. GRAVITY LOADS PROVIDED ARE UNFACTORED AND UNREDUCED, WORKING LOADS.
5. DESIGN PRECAST DIAPHRAGM FOR MINIMUM 1.0 KLF SHEAR (ULTIMATE). CHORD FORCES (ULTIMATE ARE NOTED AS "TC = XX KIPS" ON PLAN.
6. LATERAL FORCES SHOWN ARE REVERSIBLE. SPLIT LOAD EACH FACE WHERE PLANK OCCURS ON BOTH SIDES OF A WALL.
7. LATERAL FORCES SHOWN ARE CODE LEVEl (ULTIMATE) WIND FORCES, UNLESS NOTED OTHERWISE.
8. VERIFY LOCATION OF ROOF OPENINGS WITH ARCHITECTURAL DRAWINGS.
9. PC SUPPLIER TO COORDINATE REQUIRED SLEEVES WITH MEP.
10. PRECAST PLANKS MAY NOT EXCEED THE DEPTHS SHOWN.
11. CENTER THE ROOF OPENING ON THE WELL PUMP BELOW.

PRECAST ROOF FRAMING SCHEDULE		
MARK	SIZE	REMARKS
P8	8" PRECAST PLANK	WITH 1 1/2" TOPPING - SEE DETAILES FOR FASTENERS TO WALL BELOW

SCHEDULE NOTES (TYP UNLESS NOTED OTHERWISE):

1. 1 1/2" CONCRETE TOPPING (MINIMUM) W/ POLYPROPYLENE MACRO FIBER REINFORCEMENT (SEE STRUCTURAL NOTES).

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE

SIGNATURE

DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON

NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

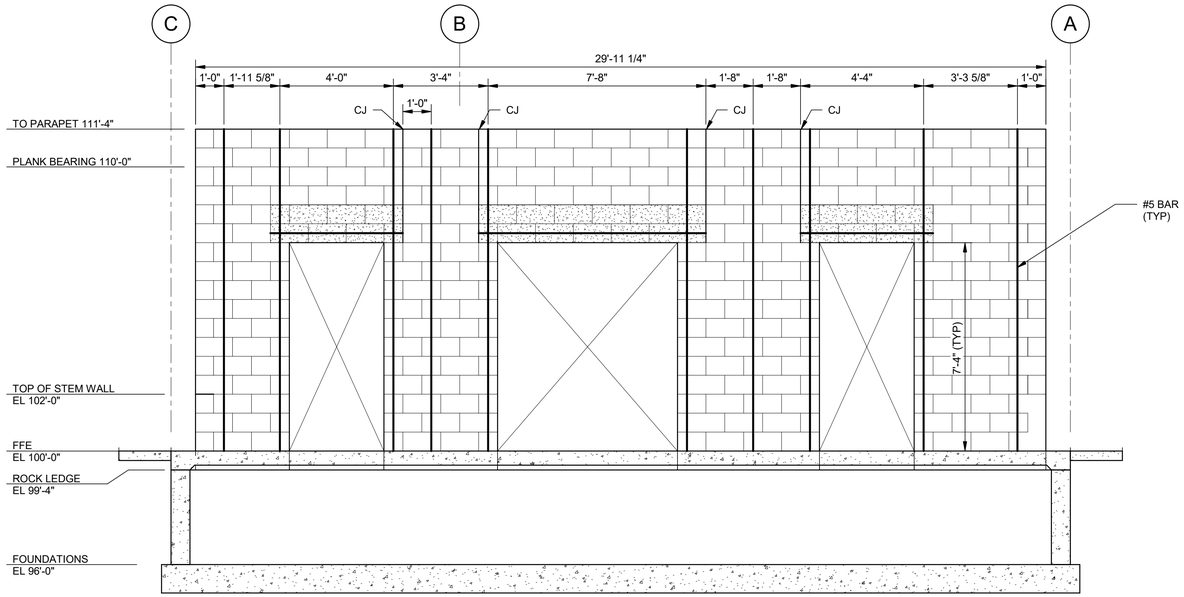
WELLHOUSE ROOF PLAN

BARR PROJECT # 2362153400

DRAWING # S103

REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://MELL-16 WELLHOUSE MODIFICATION/2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFCATION.rvt
PLOT DATE: 1/20/2026 1:53:31 PM CENTRAL FILE PATH: <<CENTRAL FILE PATH HERE>>

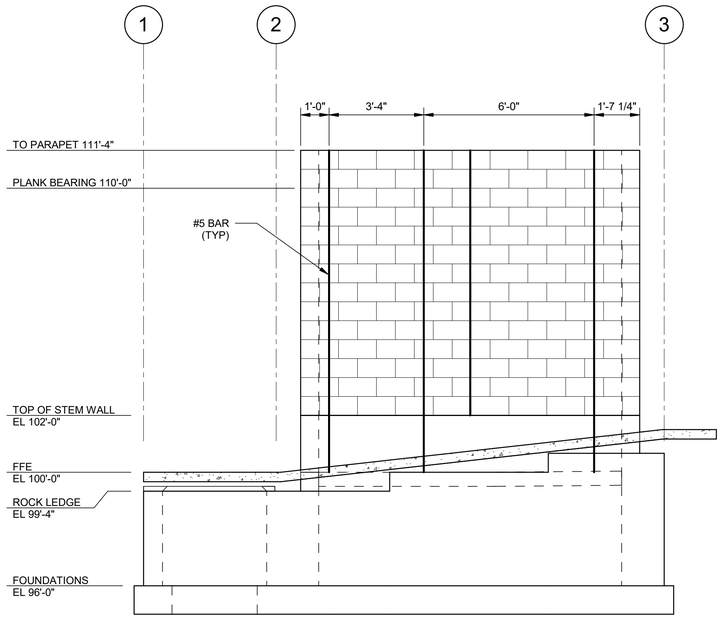


1 S101 ELEVATION: BUILDING FRONT

3/8" = 1'-0"

0 1 2 3 4 5 6

SCALE: 3/8"=1'-0"

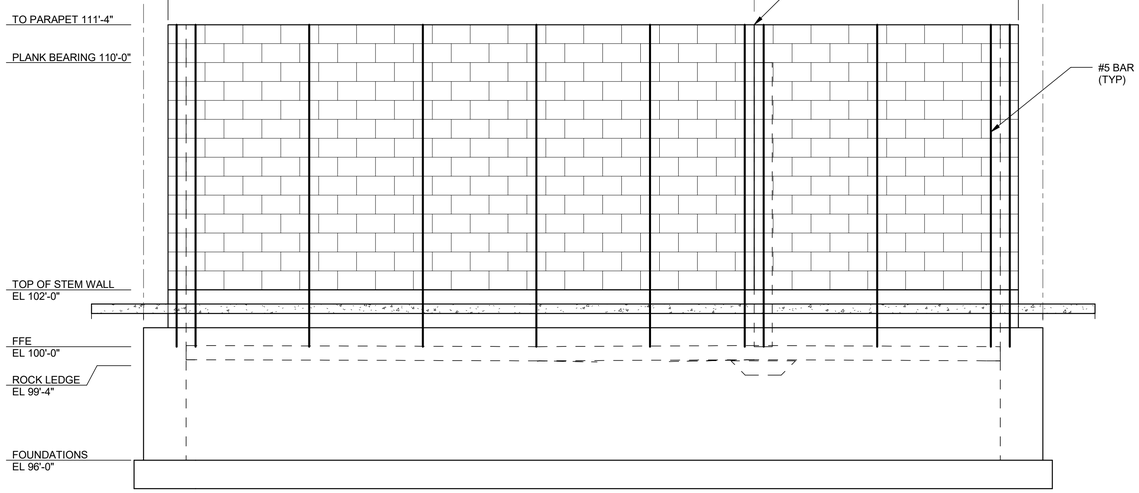


2 S101 ELEVATION: BUILDING EAST

3/8" = 1'-0"

0 1 2 3 4 5 6

SCALE: 3/8"=1'-0"

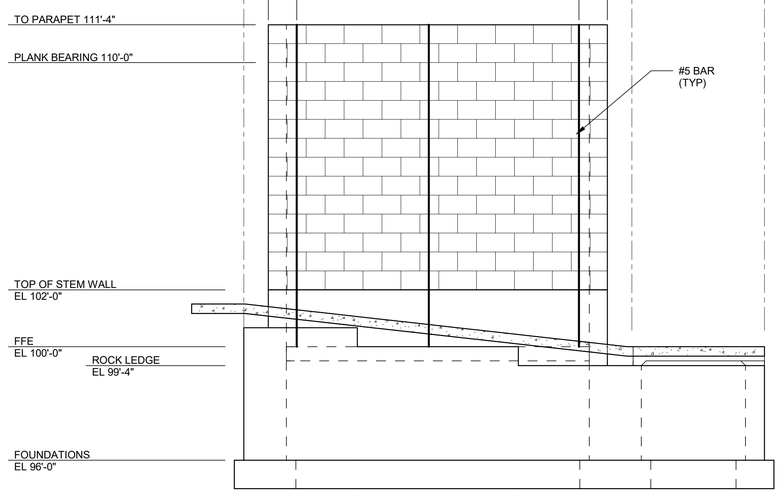


4 S101 ELEVATION: BUILDING BACK

3/8" = 1'-0"

0 1 2 3 4 5 6

SCALE: 3/8"=1'-0"



3 S101 ELEVATION: BUILING WEST

3/8" = 1'-0"

0 1 2 3 4 5 6

SCALE: 3/8"=1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE

SIGNATURE

DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON

NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

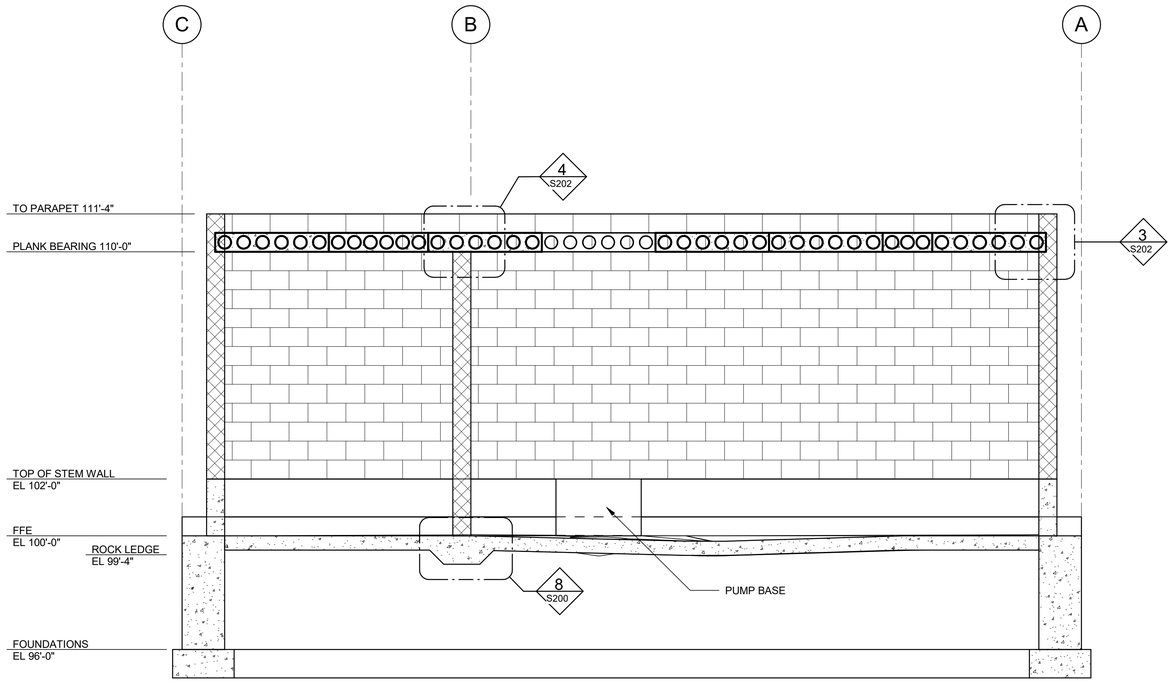
WELLHOUSE 16
NEW BRIGHTON, MN
ELEVATIONS

BARR PROJECT # 2362153400

DRAWING # S110

REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION 2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFCATION.rvt
PLOT DATE: 1/20/2026 1:53:31 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>

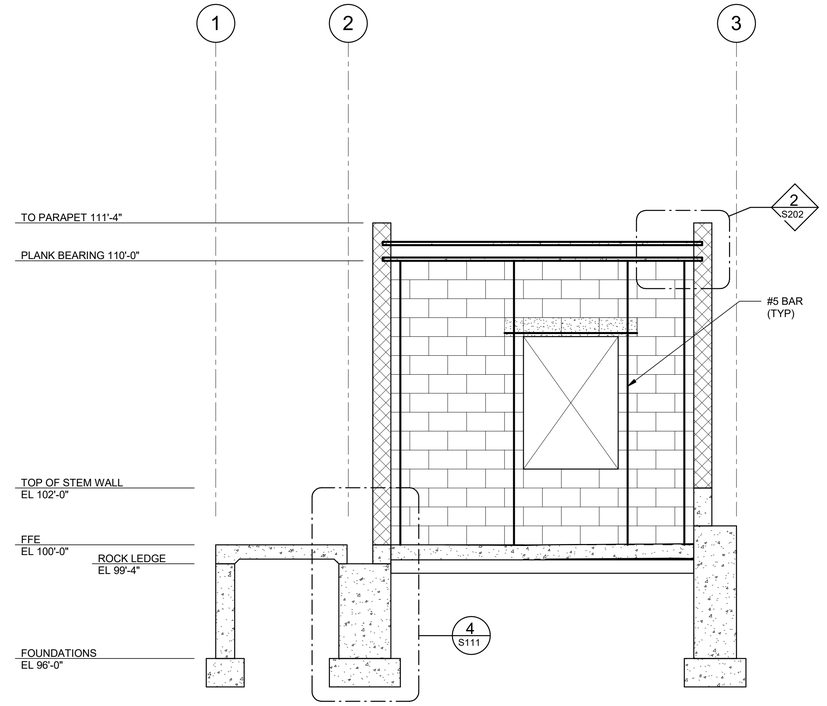


1 S101 BUILDING SECTION - LOOKING SOUTH

3/8" = 1'-0"

0 1 2 3 4 5 6

SCALE: 3/8"=1'-0"

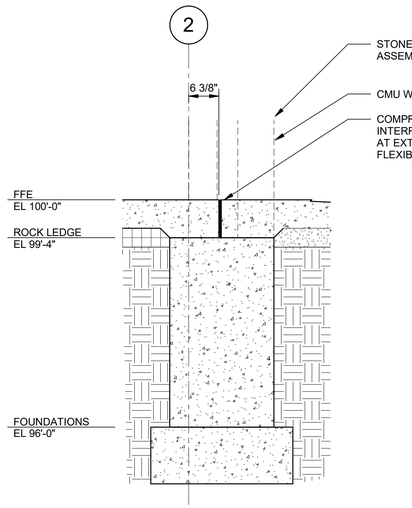


2 S101 BUILDING SECTION - LOOKING EAST

3/8" = 1'-0"

0 1 2 3 4 5 6

SCALE: 3/8"=1'-0"

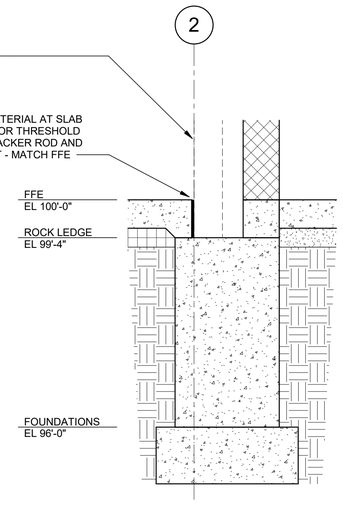


3 S101 SECTION - TYPICAL STOOP AT OPENING

3/4" = 1'-0"

0 1 2 3

SCALE: 3/4"=1'-0"



4 S101 SECTION - TYPICAL STOOP AT WALL

3/4" = 1'-0"

0 1 2 3

SCALE: 3/4"=1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE

SIGNATURE

DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON

NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

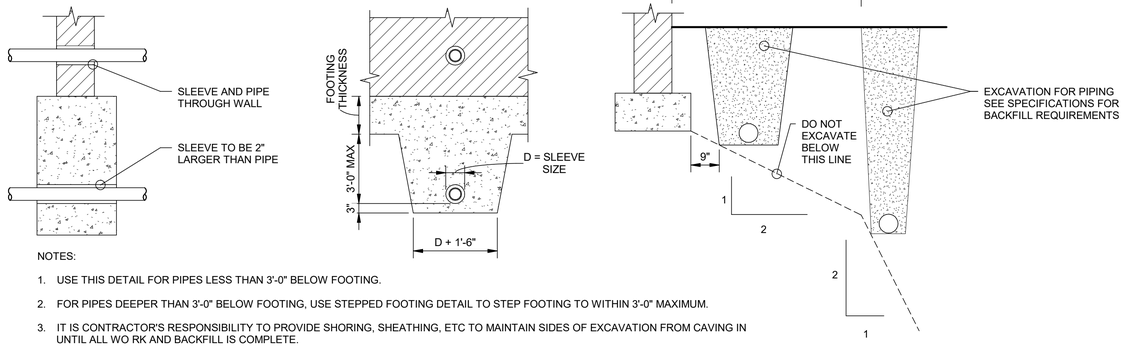
BUILDING SECTIONS

BARR PROJECT # 2362153400

DRAWING # S111

REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFICATION.rvt
PLOT DATE: 1/20/2026 1:53:31 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>



NOTES:

1. USE THIS DETAIL FOR PIPES LESS THAN 3'-0" BELOW FOOTING.
2. FOR PIPES DEEPER THAN 3'-0" BELOW FOOTING, USE STEPPED FOOTING DETAIL TO STEP FOOTING TO WITHIN 3'-0" MAXIMUM.
3. IT IS CONTRACTOR'S RESPONSIBILITY TO PROVIDE SHORING, SHEATHING, ETC TO MAINTAIN SIDES OF EXCAVATION FROM CAVING IN UNTIL ALL WO RK AND BACKFILL IS COMPLETE.

PIPES PERPENDICULAR TO FOOTINGS

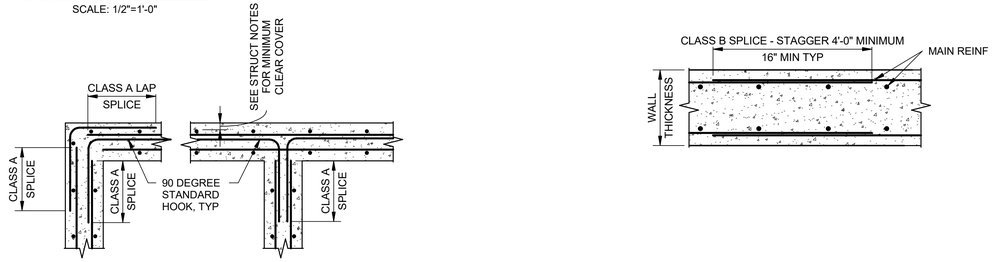
PIPES PARALLEL TO FOOTINGS

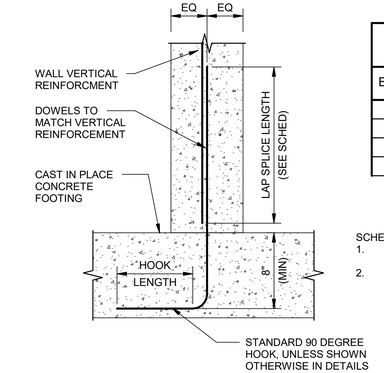
1 - DETAIL: TYPICAL UNDERGROUND PIPING EXCAVATION

1/2" = 1'-0"

0 1 2 3 4 5

SCALE: 1/2"=1'-0"





2 - DETAIL: TYP DOWELS AND SPLICES AT CONC WALLS

1 1/2" = 1'-0"

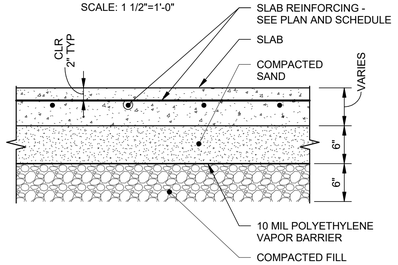
0 3 6 9 1 2

SCALE: 1 1/2"=1'-0"

MINIMUM BAR LAP SPLICE LENGTH IN CONC		
BAR SIZE	CENTERED	HOOK LENGTH
#4	24"	8"
#5	30"	10"
#6	36"	12"
#7	42"	14"

SCHEDULE NOTES:

1. INCREASE LAP LENGTH BY 50%FOR EPOXY COATED COATED BARS.
2. MECHANICAL SPLICE ALTERNATIVE MAY BE SUBMITTED TO ENGINEER OF RECORD FOR APPROVAL

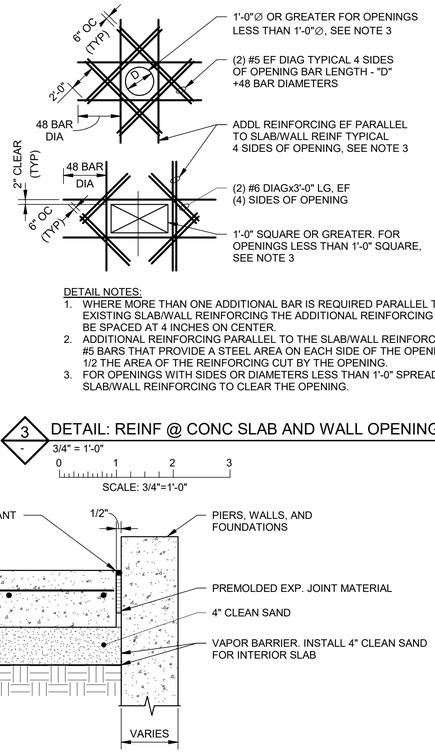


3 - DETAIL: REINF @ CONC SLAB AND WALL OPENINGS

3/4" = 1'-0"

0 1 2 3

SCALE: 3/4"=1'-0"



DETAIL NOTES:

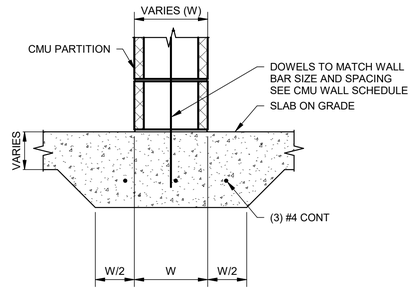
1. WHERE MORE THAN ONE ADDITIONAL BAR IS REQUIRED PARALLEL TO THE EXISTING SLAB/WALL REINFORCING THE ADDITIONAL REINFORCING BARS SHALL BE SPACED AT 4 INCHES ON CENTER.
2. ADDITIONAL REINFORCING PARALLEL TO THE SLAB/WALL REINFORCING SHALL BE #5 BARS THAT PROVIDE A STEEL AREA ON EACH SIDE OF THE OPENING EQUAL TO 1/2 THE AREA OF THE REINFORCING CUT BY THE OPENING.
3. FOR OPENINGS WITH SIDES OR DIAMETERS LESS THAN 1'-0" SPREAD THE SLAB/WALL REINFORCING TO CLEAR THE OPENING.

4 - DETAIL: WALL REINFORMENT - DOUBLE MAT - PLAN VIEW

3/4" = 1'-0"

0 1 2 3

SCALE: 3/4"=1'-0"

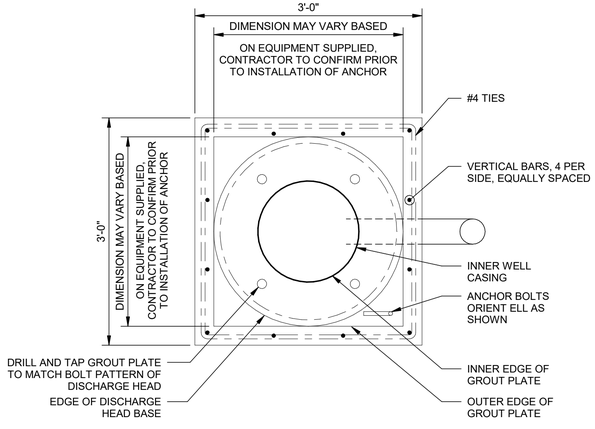


5 - DETAIL: REINFORCED CONCRETE WALL SPLICE

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

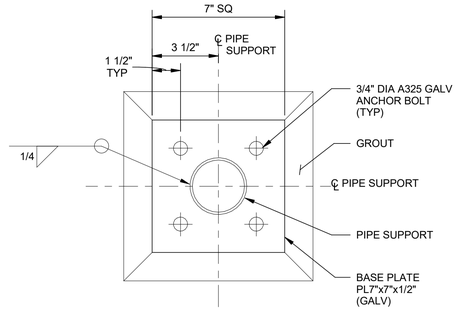


6 - DETAIL: SLAB ON GRADE

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

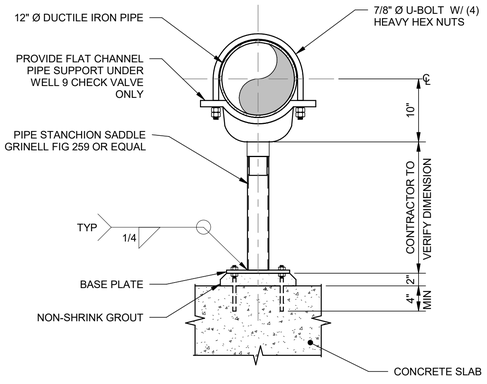


7 - DETAIL: ISOLATION/EXPANSION JOINT

1 1/2" = 1'-0"

0 3 6 9 1 2

SCALE: 1 1/2"=1'-0"



8 - DETAIL: THICKENED SLAB @CMU PARTITION

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

11 - ELEVATION: PIPE SUPPORT

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

10 - SECTION: PIPE SUPPORT BASE PLATE

3" = 1'-0"

0 3 6 9 1

SCALE: 3"=1'-0"

9 - ELEVATION: PIPE SUPPORT

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE

SIGNATURE

DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON

NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16

NEW BRIGHTON, MN

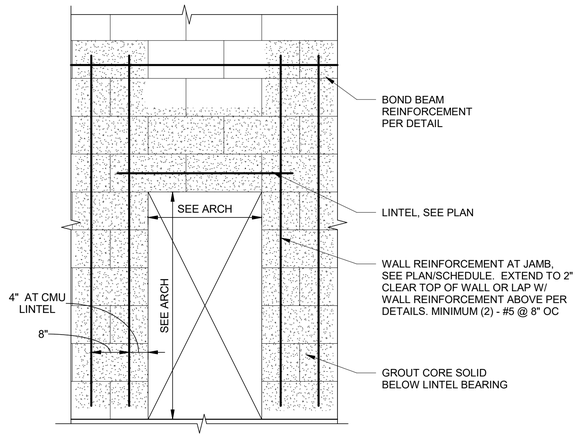
FOUNDATION DETAILS

BARR PROJECT # 2362153400

DRAWING # S200

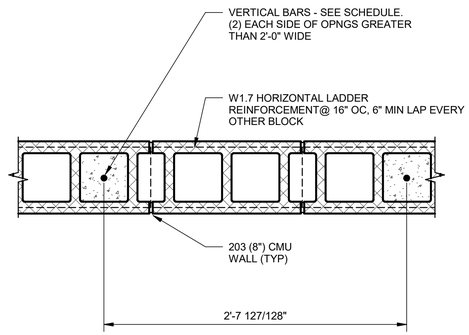
REVISION # 0

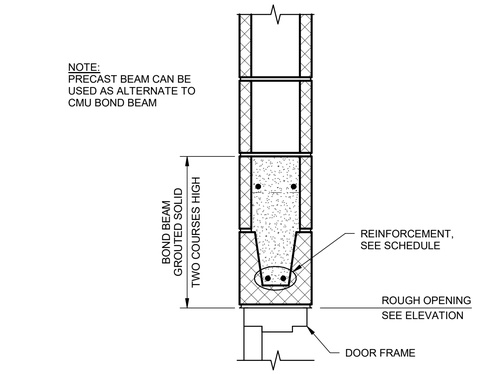
ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFICATION.rvt
PLOT DATE: 1/20/2026 1:53:32 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>



1 - TYPICAL REINF AND GROUTING AT CMU WALL OPENINGS - ELEVATION

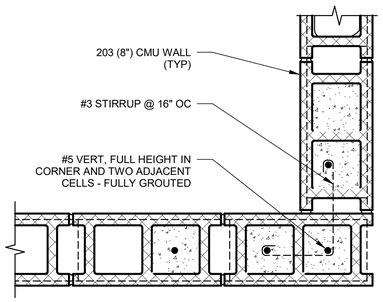
3/4" = 1'-0"
0 3 6 9 1 2
SCALE: 1 1/2"=1'-0"

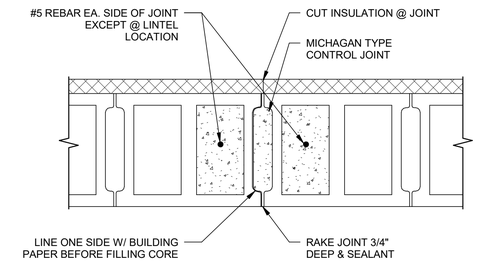




2 - DETAIL: TYPICAL DOOR LINTEL

1 1/2" = 1'-0"
0 3 6 9 1 2
SCALE: 1 1/2"=1'-0"





NOTES:

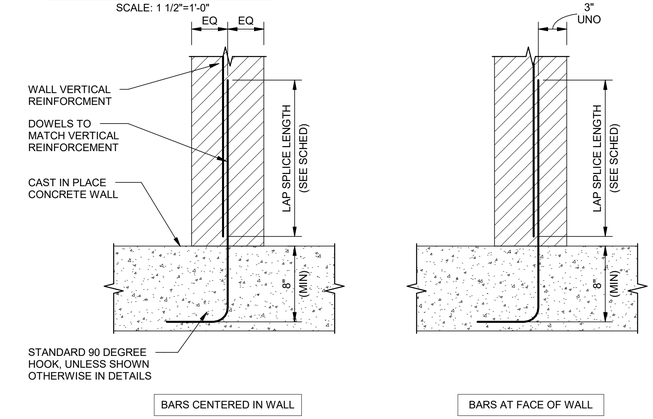
1.) TYPICAL FOR ALL CONTROL JOINTS IN BLOCK MASONRY

2.) CONTROL JOINT UNIT MAY BE USED IN LIEU OF MICHIGAN TYPE.

3.) REINFORCEMENT CONTINUOUS THOUGH ALL BOND BEAMS, PROVIDE DUMMY JOINTS AT THESE LOCATIONS.

3 - DETAIL: WALL CONTROL JOINT

1 1/2" = 1'-0"
0 3 6 9 1 2
SCALE: 1 1/2"=1'-0"

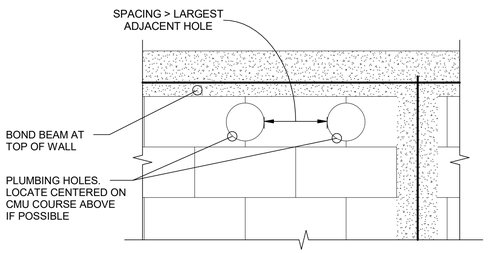


MINIMUM BAR LAP SPLICE LENGTH IN CMU		
BAR SIZE	CENTERED	AT FACE
#4	18"	18"
#5	20"	26"
#6	38"	50"
#7	52"	64"

SCHEDULE NOTES:
1. INCREASE LAP LENGTH BY 50%FOR EPOXY COATED COATED BARS.
2. MECHANICAL SPLICE ALTERNATIVE MAY BE SUBMITTED TO ENGINEER OF RECORD FOR APPROVAL

4 - DETAIL: TYPICAL WALL REINF

1 1/2" = 1'-0"
0 3 6 9 1 2
SCALE: 1 1/2"=1'-0"



NOTE:
- LOCATE PLUMBING HOLES TO AVOID WALL REINFORCING AND TO BE BELOW BOND BEAM AT TOP OF WALL.

5 - DETAIL: TYPICAL WALL CORNER REINF

1 1/2" = 1'-0"
0 3 6 9 1 2
SCALE: 1 1/2"=1'-0"

6 - DETAIL: TYP DOWELS AND SPLICES AT CMU WALLS

1 1/2" = 1'-0"
0 3 6 9 1 2
SCALE: 1 1/2"=1'-0"

7 - DETAIL: WALL PENETRATION DETAIL

1" = 1'-0"
0 3 6 9 1 2
SCALE: 1"=1'-0"

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE
SIGNATURE
DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR®
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

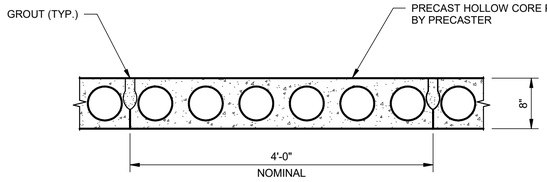
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
MASONRY DETAILS

BARR PROJECT # 2362153400
DRAWING # S201
REVISION # 0

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: Autodesk Docs://WELL 16 WELLHOUSE MODIFICATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE MODIFICATION.rvt
PLOT DATE: 1/20/2026 1:53:32 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>



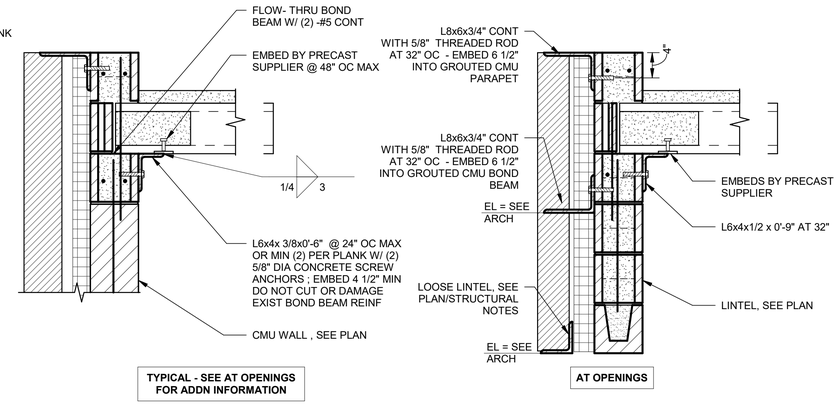
NOTE:
1. REINFORCING NOT SHOWN.
2. TOPPING (IF REQ) NOT SHOWN

1 - DETAIL: TYPICAL HC PLANK SECTION & JOINTS

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"



TYPICAL - SEE AT OPENINGS FOR ADDN INFORMATION

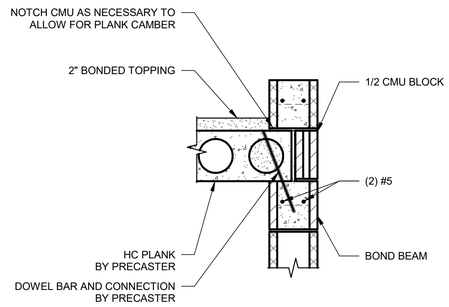
AT OPENINGS

2 - DETAIL: CMU ATTACHED TO PRECAST

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

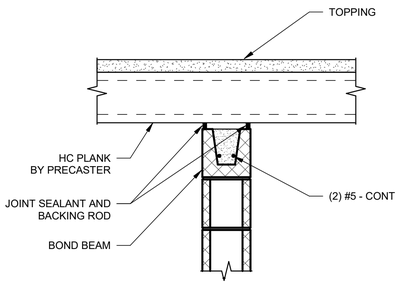


3 - DETAIL: HC PLANK-TO-CMU LAP CONNECTION

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"



4 - DETAIL: HC PLANK-OVER-CMU NON-LOAD BRG

1" = 1'-0"

0 3 6 9 1 2

SCALE: 1"=1'-0"

ORIGINAL DRAWING SIZE: 22X34 REVIT LOCAL FILE PATH: - Autodesk Docs://WELL 16 WELLHOUSE MODIFCATION /2362153400_S_R24_NEW BRIGHTON WELLHOUSE 16_CRV.rvt
PLOT DATE: 1/20/2026 1:53:33 PM CENTRAL FILE PATH: <CENTRAL FILE PATH HERE>

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME CHARLIE R. VERMACE

SIGNATURE

DATE 01/20/2026 LICENSE # 58689

#	BY	CHK	APP	DATE	RELEASE / REVISION DESCRIPTION
0	MES	RRR	CRV	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESTOA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON

NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16

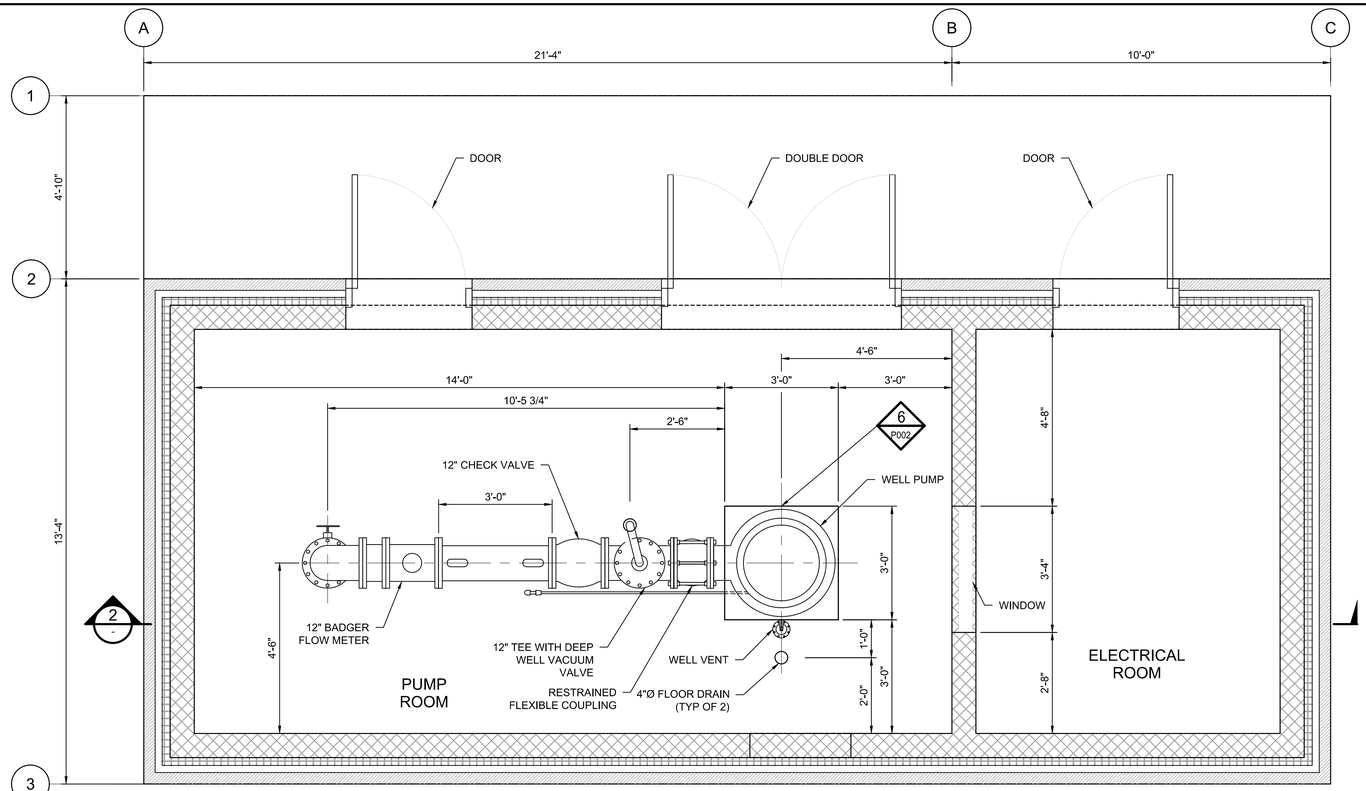
NEW BRIGHTON, MN

PRECAST PLANK DETAILS

BARR PROJECT # 2362153400

DRAWING # S202

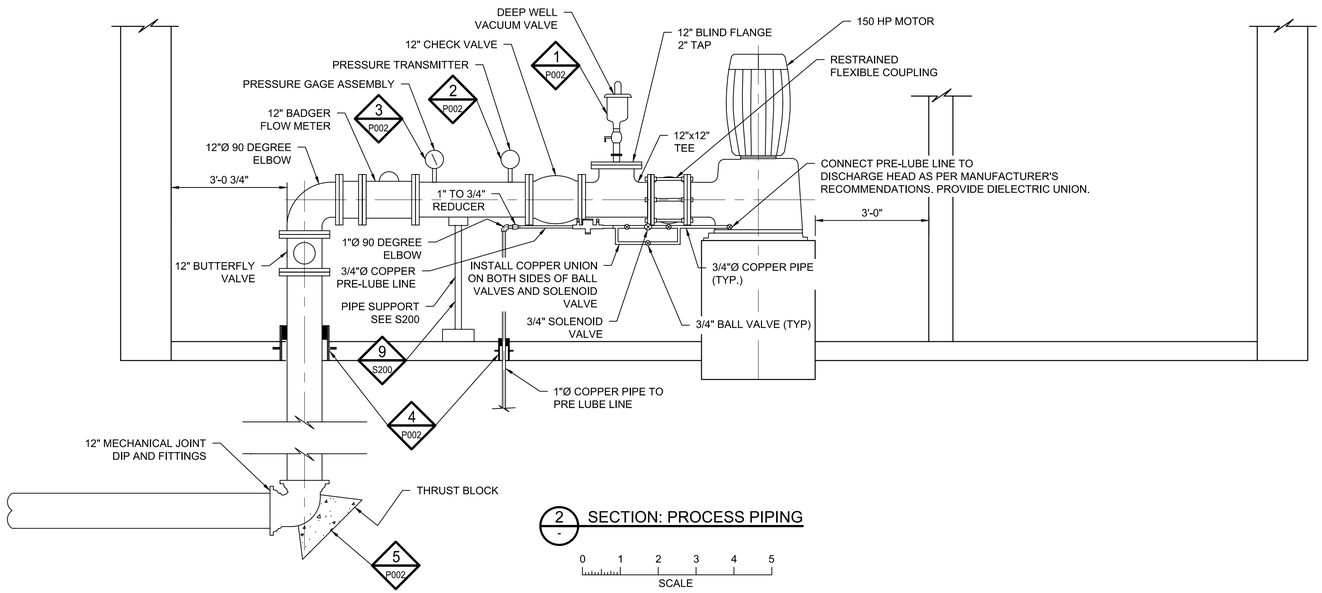
REVISION # 0



N

1 - PLAN: WELLHOUSE 16 GENERAL ARRANGEMENT

0 1 2 3 4 5
SCALE



2 - SECTION: PROCESS PIPING

0 1 2 3 4 5
SCALE

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/20/2026 12:33 PM
CADD USER: DAN A. NESLER FILE: M:\DES\GIS\2026\2010.00\2362153400_P001.DWG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME DANIEL ADAM NESLER
SIGNATURE
DATE 01/20/2026 LICENSE # 47523

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	APP	SLN	DAN	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

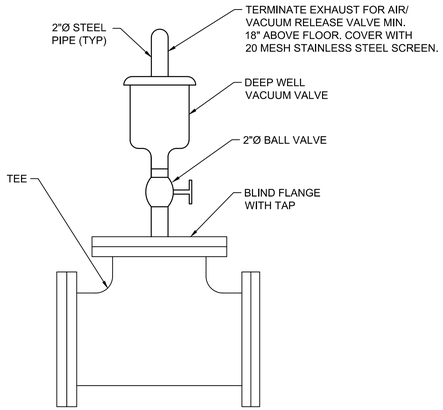
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

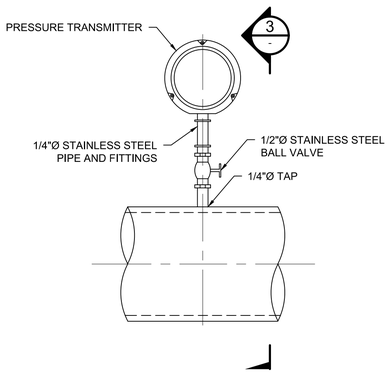
WELLHOUSE 16
NEW BRIGHTON, MN
PROCESS LAYOUT

BARR PROJECT # 2362153400
DWG # P001
REV # 0

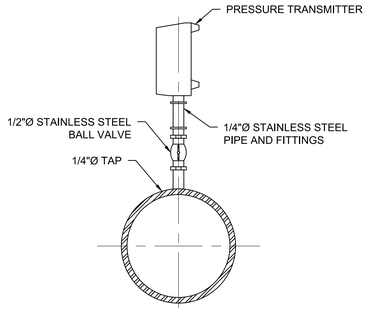


1 P001 DETAIL: DEEP WELL AIR VACUUM VALVE
NOT TO SCALE

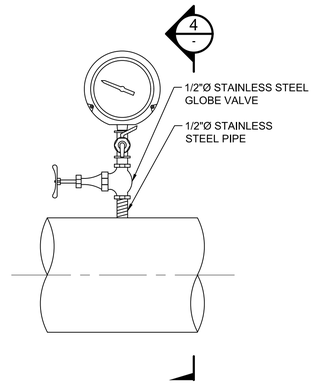
NOTE: ORIENT 2" EXHAUST PIPING AS SHOWN ON PLAN/SECTION OR TO NEAREST FLOOR DRAIN



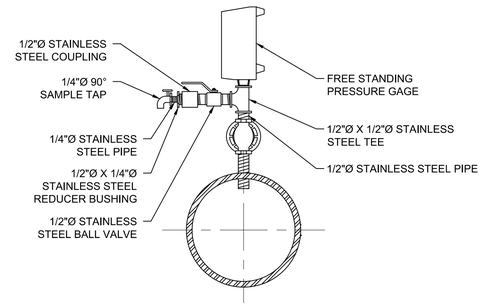
2 P001 DETAIL: PRESSURE TRANSMITTER
NOT TO SCALE



3 - SECTION: PRESSURE TRANSMITTER
NOT TO SCALE

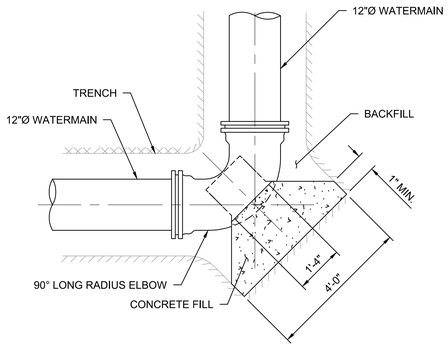


3 P001 DETAIL: PRESSURE GAGE/SAMPLE TAP
NOT TO SCALE

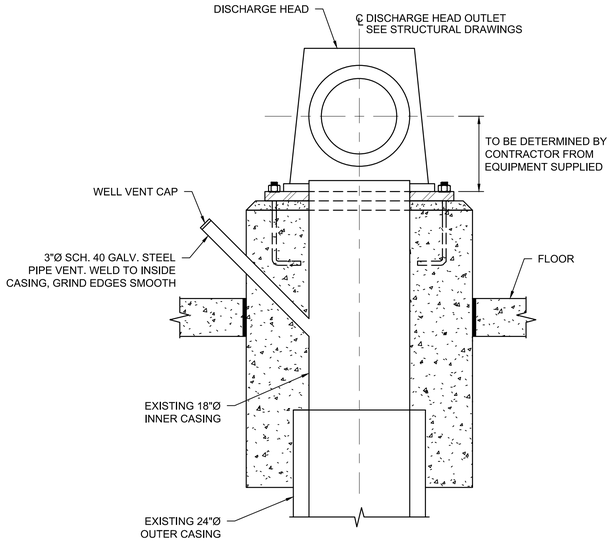


4 - SECTION: PRESSURE GAGE/SAMPLE TAP
NOT TO SCALE

4 P001 DETAIL: PIPE FLOOR PENETRATION
NOT TO SCALE



5 P001 DETAIL: THRUST BLOCK
NOT TO SCALE



6 P001 DETAIL: PUMP BASE AND DISCHARGE HEAD
NOT TO SCALE

NOTES:

1. CONTRACTOR TO FURNISH AND INSTALL PUMP, MOTOR, AND APPURTENANCES AS SPECIFIED. SECTION 43 22 24
2. FOR STRUCTURAL COMPONENTS OF PUMP BASE SEE DETAIL 6 ON DRAWING S-102.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME DANIEL ADAM NESLER

SIGNATURE

DATE 01/20/2026 LICENSE # 47523

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	APP	SLN	DAN	01/20/2025	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

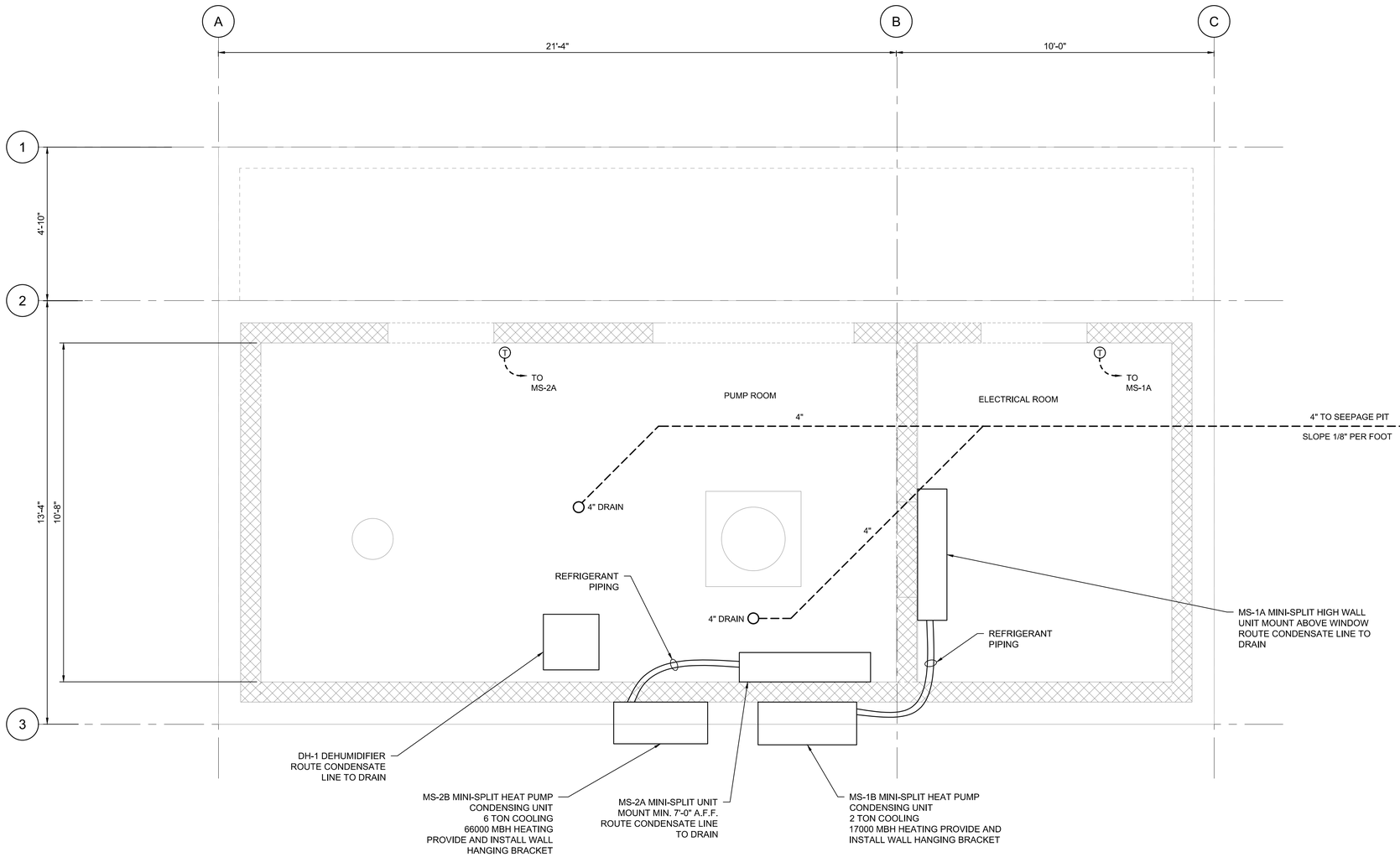
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
PROCESS
SECTIONS AND DETAILS

BARR PROJECT # 2362153400
DWG # P002
REV # 0

ORIGINAL DRAWING SIZE: ANSI E/PANO D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/20/2026 10:45 AM
CADD USER: DAN A. NESLER FILE: M:\DES\2362\400\2021\01\P002-S152400_P002.DWG



N

1 PLAN: HVAC AND DRAIN PIPING

0 1 2 3 4 5

SCALE

MECHANICAL NOTES:

1. INSTALL ALL SYSTEMS IN ACCORDANCE WITH THE MINNESOTA BUILDING CODE, MINNESOTA ENERGY CODE, AND MINNESOTA MECHANICAL CODE.
2. EQUIPMENT AND PIPING SHOWN IS DIAGRAMMATIC AND INDICATES THE GENERAL ARRANGEMENT OF THE SYSTEM.
3. DRAINS SHALL BE ZURN SERIES Z415B OR EQUAL FROM WATTS OR JOSAM. CAST IRON BODY, BOTTOM NO-HUB OUTLET, NICKEL BRONZE STRAINER.
4. DRAIN PIPING SHALL BE POLYVINYL CHLORIDE (PVC) PLASTIC PIPE AND FITTINGS, SCHEDULE 40 UNTHREADED, ASTM D2665, SOCKET TYPE FITTINGS. PROVIDE TRAP AT DRAIN OUTLET.
5. INSTALL HVAC EQUIPMENT AND MATERIALS MEETING REQUIREMENTS IN SPECIFICATION SECTIONS 22 00 00 AND 23 81 00
6. SEAL ALL PENETRATIONS THROUGH WALL WEATHERTIGHT. PROVIDE FLASHING AND PAINT TO MATCH FINAL ARCHITECTURAL SCHEMES.
7. MOUNT INSIDE TERMINAL HVAC UNITS A MINIMUM OF 7'=0" ABOVE THE FINISHED FLOOR.
8. HVAC UNITS SHALL MAINTAIN 55 DEG F INDOOR TEMPERATURE IN THE WINTER AND 80 DEG F IN THE SUMMER.
9. PROVIDE HANGERS, STEEL AND CONCRETE FASTENERS, MISCELLANEOUS STEEL AND ALL OTHER HARDWARE TO SUPPORT THE EQUIPMENT PROPERLY.
10. INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME DAVID S. MICKELSON

SIGNATURE

DATE 01/20/2026 LICENSE # 40997

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	KAL2	DSM	DSM	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEWBRIGHTON, MN
WELLHOUSE 16 FLOOR PLAN
MECHANICAL PLAN

BARR PROJECT # 2362153400
DWG # M100
REV # 0

ORIGINAL DRAWING SIZE: ANSI E/VPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/14/2026 3:45 PM
CADD USER: KEITH.LEHMAN FILE: P:\MPLS\23\MA\2362153\02\100\KRFILES\WELL INFORMATION_WELL #16\WELL SITE DESIGN\MECHANICAL\HVAC\2362210_M-100.DWG

SPLIT SYSTEM HEAT PUMP											
TAG	DESCRIPTION	LOCATION	SERVICE	MANUFACTURE	MODEL NO.	COOLING OUTPUT MBH	HEATING OUTPUT MBH	CFM	ELECTRICAL		REMARKS
									V/Hz/Ph	MCA	
MS-1A	INDOOR WALL UNIT	WALL	ELEC. ROOM	CARRIER	40MPHAQ24XA3	22	19.8	360-925	208/60/1	0.5	
MS-1B	OUTDOOR HEAT PUMP UNIT	EXTERIOR WALL	ELEC. ROOM	CARRIER	38MPRAQ24AA3	22	19.8	-	208/60/1	20	HEAT PUMP WITH PAN HEATER, LOW AMBIENT KIT
MS-2A	INDOOR WALL UNIT	WALL	PUMP ROOM	CARRIER	40MBFQ58-3	58	66	796-1385	208/60/1	1.48	
MS-2B	OUTDOOR HEAT PUMP UNIT	EXTERIOR WALL	PUMP ROOM	CARRIER	38MBRBQ58A-3	54	60	-	208/60/1	35	HEAT PUMP WITH PAN HEATER, LOW AMBIENT KIT

DEHUMIDIFIER									
TAG	DESCRIPTION	LOCATION	SERVICE	MANUFACTURE	MODEL NO.	WATER REMOVAL PINTS/DAY	CFM	ELECTRICAL		REMARKS
								V/Hz/Ph	MCA	
DH-1	DEHUMIDIFIER	FLOOR	PUMP ROOM	QUEST HI-E DRY 195	4046400	195	610	120/60/1	17	



REMOVE EXISTING WALL FAN

EXTEND HOSE BIBB PIPING TO ACCOMODATE NEW WALL THICKNESS

REMOVE NG METER AND REGULATOR. ADJUST PIPING FOR NEW WALL THICKNESS AND REINSTALL.

1 - WELL 8 MECHANICAL



REMOVE NG METER AND REGULATOR. ADJUST PIPING FOR NEW WALL THICKNESS AND REINSTALL.

2 - WELL 9 MECHANICAL

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME DAVID S. MICKELSON

SIGNATURE

DATE 01/20/2026 LICENSE # 40997

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	KAL2	DSM	DSM	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEWBRIGHTON, MN

WELLS 8 & 9 AND HVAC SCHEDULES

BARR PROJECT # 2362153400
DWG # M101
REV # 0

ORIGINAL DRAWING SIZE: ANSI E/VPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/14/2026 12:39 PM
CADD USER: KEITH.LEHMAN FILE: P:\MPLS\23 MN\62\2362153400\WORKFILES\WELL INFORMATION_WELL 4\REVWELL SITE DESIGN\MECHANICAL\HVAC\2362210_M-101.DWG

LUMINAIRE & DEVICE LEGEND

LETTER DESIGNATES FIXTURE TYPE. SEE NUMBERED NOTES

NUMBER DESIGNATES BRANCH CIRCUIT

WALL MOUNTED LUMINIARE. ALL LUMINAIRES: LOWERCASE LETTER INDICATES SWITCHLEG

C1 / 3 — LUMINAIRE.

C1 / 3 — LUMINAIRE WITH EMERGENCY BACKUP.

E / 3 — EMERGENCY FIXTURE. AIM FOR MAXIMUM COVERAGE OF EGRESS PATHS.

X / 3 — COMBINATION EXIT WITH HEADS. ARROWS, IF ANY, INDICATE CHEVRON ARROWS WHERE REQUIRED. AIM HEADS FOR MAXIMUM COVERAGE OF EGRESS PATHS.

3way a — SWITCH WITH NO MARKING IS SINGLE POLE, 2P=DOUBLE POLE, 3 IS 3way, 4=4way, M=MOTOR RATED DISC SW, D=DIMMER, SMALL LETTER INDICATES SWITCH LEG.

V / D — TELEPHONE/DATA OUTLET (OR PROVISION). V=VOICE LINE, D=DATA. 4"x 4" DEEP BOX W/ SINGLE GANG MUD RING & 1" CONDUIT TO DESTINATION.

OS TYPE 1 — OCCUPANCY SENSOR FOR LIGHTING CONTROL, WALL-MOUNTED, ARROW INDICATES DIRECTIONALITY. SEE SPECIFICATION FOR TYPE.

OS TYPE 2 — OCCUPANCY SENSOR FOR LIGHTING CONTROL, CEILING-MOUNTED, SEE SPECIFICATION FOR TYPE.

D — DAYLIGHT SENSOR, SEE SPECIFICATIONS.

2 / 48" / GFI / WP — ISO / EP — DUPLEX CONVENIENCE RECEPTACLE. NUMERAL INDICATES BRANCH CIRCUIT, INCHES ABOVE FLOOR IF OTHER THAN PER SPECIFICATION. TEXT INDICATES SPECIAL CONDITIONS: WP=WEATHERPROOF, GFI=GROUND FAULT INTERRUPTER, EP=EXPLOSIONPROOF, ISO=ISOLATED GROUND. TYPICAL.

2 / GFI — ISO / EP — DOUBLE DUPLEX CONVENIENCE RECEPTACLE.

J — SURFACE OR WALL JUNCTION BOX.

T — SURFACE OR WALL THERMOSTAT.

F D — FIRE ALARM DAMPER SUPERVISORY CONNECTION.

F F — FIRE ALARM FLOW SWITCH CONNECTION.

F T — FIRE ALARM TAMPER SWITCH CONNECTION.

F M — FIRE ALARM MANUAL STATION.

48" — NEMA CONFIG 6-30R — 3 #10AWG-3/4" — SPECIAL PURPOSE RECEPTACLE. NEMA CONFIGURATION DEVICE AND HOMERUN SIZE WHERE INDICATED.

MD — 2hp — MOTOR, PROVIDE DISCONNECT AS INDICATED. MD=MOTORIZED DAMPER.

EQUIP CONN'S — EQUIPMENT CONNECTION, AS NOTED ON DRAWINGS

NEMA 3R — DISCONNECT SWITCH IN NEMA ENCLOSURE

NEMA 1 — COMBINATION STARTER IN NEMA ENCLOSURE

STRUT MOUNTING STAND, SHOWN W/ DISC AND CONTROL STATION. SEE TYPICAL MOUNTING DETAIL.

LP1 — ELECTRICAL PANEL. SEE PANEL SCHEDULE.

CIRCUITRY - EXPOSED, SURFACE MOUNTED

CIRCUITRY - BELOW GRADE OR UNDERFLOOR

CIRCUITRY - CONCEALED IN WALLS OR CEILING

SOLID SLASHES INDICATE NUMBER OF #12 AWG WIRES IN CONDUIT. i INDICATES AN INSULATED GROUND CONDUCTOR, 'N' INDICATES OVERSIZED NEUTRAL CONDUCTOR (#10AWG).

EXISTING CIRCUITRY

SCHEMATIC SYMBOLS

PRESS TO TEST LAMP-LETTER DENOTES COLOR

RUN / OFF / AUTO — SELECTOR SWITCH

TORQUE SWITCH - NC, NO

SHEAR PIN SWITCH - NC, NO

CIRCUIT BREAKER

MAGNETIC TRIP

THERMAL TRIP

RTM — RUNNING TIME METER

CONTACT - NC, NO

52 / M — OPERATING COIL, LETTER OR NUMBER DENOTES DEVICE

PLUG AND RECEPTACLE

PUSHBUTTON CONTACT - NC, NO

PUSHBUTTON SWITCH, MUSHROOM HEAD - NC, NO

DOUBLE CIRCUIT PUSHBUTTON SWITCH

MAINTAINED CONTACT PUSHBUTTON SWITCH

ENERGIZED TIMER CONTROL - NC, NO

DE-ENERGIZED TIMER CONTROL - NC, NO

FLOW SWITCH - NC, NO

LIQUID LEVEL SWITCH - NC, NO

TEMPERATURE SWITCH - NC, NO

PRESSURE SWITCH - NC, NO

LIMIT SWITCH - NC, NO

FUSE

DISCONNECT SWITCH

FUSED SWITCH

GROUND CONNECTION

CHASSIS GROUND

R — INDICATING LIGHT - LETTER DENOTES COLOR

CONTROL TRANSFORMER

THERMAL OVERLOAD TRIP UNITS

STABS

DEVICE MOUNTED IN MOTOR CONTROL CENTER (MCC)

DEVICE MOUNTED IN FIELD

DEVICE MOUNTED IN CONTROL PANEL

ONE-LINE DIAGRAM SYMBOLS

52 — AIR CIRCUIT BREAKER - DRAW OUT TYPE WITH OPERATING MECHANISM

DISCONNECT SWITCH

FUSED SWITCH

LA — LIGHTNING ARRESTER - GENERAL

30A — FUSE - NUMBER DENOTES RATING

GROUND CONNECTION

VS — CONTROL OR INSTRUMENT SWITCH - LETTERS DENOTES FUNCTION

M / 52 — RELAY OR CONTROL DEVICE - NUMBER DENOTES FUNCTION, AMERICAN NATIONAL STANDARD (ANSI)

POTENTIAL TRANSFORMER - DRAW OUT TYPE WITH PRIMARY FUSES

CT — CURRENT TRANSFORMER

CS — CONTROL STATION

AM — INSTRUMENT - LETTER DENOTES TYPE

R — INDICATING LIGHT - LETTER DENOTES COLOR

20 — MOTOR - NUMBER DENOTES HORSEPOWER

MOTOR CIRCUIT PROTECTOR (MCP)

MOLDED CASE CIRCUIT BREAKER

CONTROL TRANSFORMER

RTM — RUNNING TIME METER

THERMAL OVERLOAD TRIP UNITS

STABS

POWER TRANSFORMER

SURGE CAPACITORS

POWER FACTOR CAPACITORS WITH FUSING AND INDICATING LIGHTS

51N — RELAY WITH SHORTING CONTACTS

CIRCUIT LEGEND

NUMBER OF CABLES
QUANTITY OF CONDUCTORS PER CABLE
CONDUCTOR SIZE OR TYPE
CONDUIT SIZE & TYPE

2-1/C-#12-3/4" GRS

ABBREVIATIONS

A	AMPERES
ACK	ACKNOWLEDGE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
AM	AMMETER
ANN	ANNUNCIATOR
AS	AMMETER SWITCH
AWG	AMERICAN WIRE GAGE
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CKT	CIRCUIT
℄	CENTER LINE
CO	CONVENIENCE OUTLET
CONN	CONNECTIONS
CONTR	CONTRACTOR
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
DE	DUAL ELEMENT
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
F & I	FURNISH AND INSTALL
FU	FUSE OR FUSIBLE
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
HD	HEAVY DUTY
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HZ	HERTZ (CYCLES/SECOND)
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IND	INDICATING OR INDICATOR
JB	JUNCTION BOX
J-BOX	JUNCTION BOX
kVA	KILOVOLT-AMPERES
kVAR	KILOVOLT-AMPERES REACTIVE
kW	KILOWATTS
LT	LIGHT
LMF	LIQUID-TIGHT METALLIC CORE FLEXIBLE CONDUIT
M	MOTOR STARTER OPERATING COIL
MAX	MAXIMUM
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MECH	MECHANICAL
MFR	MANUFACTURER
MH	METAL HALIDE
MIN	MINUTE OR MINIMUM
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NF	NON-FUSED
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTC	NOT CONNECTED
OL(S)	OVERLOAD RELAY CONTACT(S)
PF	POWER FACTOR
PVC	POLYVINYLCHLORIDE CONDUIT
REQ'D	REQUIRED
RS	RIGID STEEL CONDUIT
RTM	RUNNING TIME METER
SDS	SPECIFIED IN OTHER DIVISION OF SPECIFICATIONS
SE	SERVICE ENTRANCE
SEC	SECOND OR SECONDARY
SIG XXXX	SIGNAL
SOL XXXX	SOLENOID VALVE
SP	SINGLE POLE
SPECS	SPECIFICATIONS
SSNR	"SOFT START" NON-REVERSING
SSR	"SOFT START" REVERSING
SW	SWITCH
S.S.	STAINLESS STEEL (TYPE 316)
TD	TIME DELAY
TEMP	TEMPERATURE
T'STAT UH	THERMOSTAT UNIT HEATER
U.N.O.	UNLESS NOTED OTHERWISE
V	VOLTS
VM	VOLTMETER
VS	VOLTMETER SWITCH
Vv	VALVE
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS OR WIRE
W/	WITH
WHM	WATT-HOUR METER
WM	WATT METER
WW	WIREWAY
WP	WEATHERPROOF
XDCR	TRANSDUCER
XFMR	TRANSFORMER
XFR	TRANSFER

COLORS

A	AMBER	O	ORANGE
BK	BLACK	R	RED
BR	BROWN	V	VIOLET
BU	BLUE	W	WHITE
GRN	GREEN	Y	YELLOW
GY	GRAY		

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

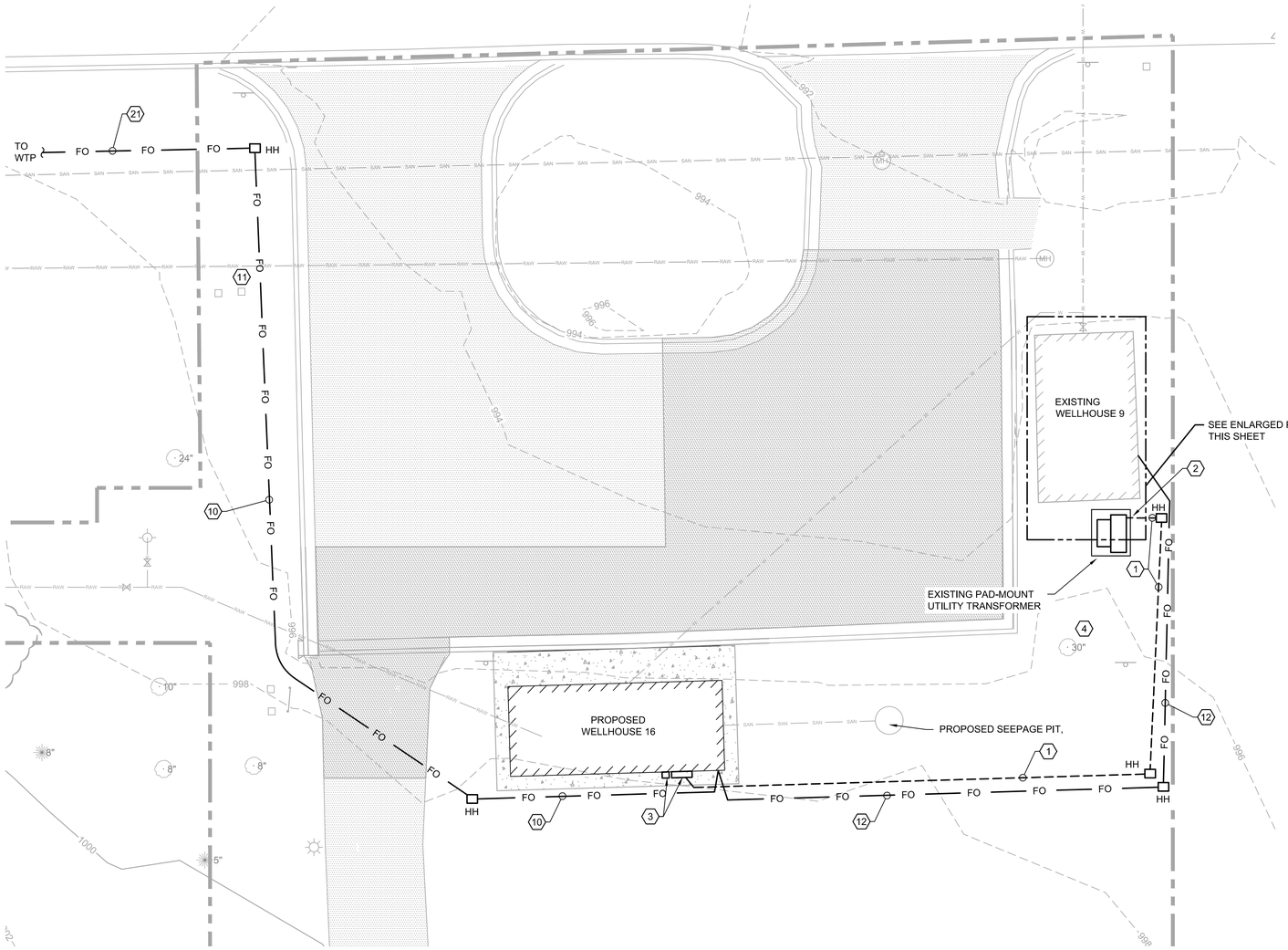
BARR®
3128 14TH AVENUE EAST
HIBBING, MN 55746
PH: 1-800-225-1966
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
ELECTRICAL SYMBOLS & ABBREVIATIONS

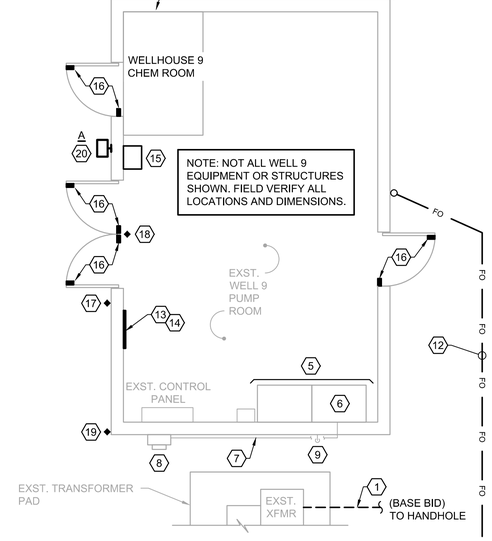
BARR PROJECT # 2362153400
DWG # E001
REV # 0

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:48 PM
CADD USER: CHAD J. MOSE FILE: M:\DES\GN\2362153400\ELECTRICAL\2362153400_E001_ELECTRICAL SYMBOLS & ABBREVIATIONS.DWG



1 - PLAN: WELL 16/ WELL 9 ELECTRICAL SITE

0 10 20
SCALE IN FEET



2 - PLAN: ENLARGED WELLHOUSE 9 (ALTERNATE 2)

0 1 5
SCALE

NOTES:

1. REMOVE ALL CONDUIT, CABLE AND ELECTRICAL COMPONENTS THAT ARE ABANDONED UNDER THIS CONTRACT.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, PROCESS AND STRUCTURAL CONSTRUCTION.
4. FIELD CONFIRM AND COORDINATE CONDUIT ROUTING.
5. CORE DRILL EXISTING STRUCTURE AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH ENGINEER. COORDINATE WITH ARCHITECTURAL.
6. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.
7. COORDINATE ALL ELECTRICAL UTILITY SERVICES WITH THE SERVING ELECTRICAL UTILITY, XCEL ENERGY.

KEYED NOTES: (#)

1. UNDERGROUND SERVICE CABLES AND CONDUIT. SEE ONE-LINE DIAGRAM. FIELD VERIFY ALL ROUTING.
2. HAND DIG AROUND EXISTING TRANSFORMER. ROUTE THE NEW CONDUITS INTO EXISTING TRANSFORMER LOW VOLTAGE COMPARTMENT. COORDINATE WITH UTILITY.
3. FURNISH AND INSTALL UTILITY APPROVED, NEMA 3R CT METERING CABINET PER UTILITY REQUIREMENTS. INSTALL UTILITY FURNISHED METERING SOCKET. COORDINATE LOCATION AND MOUNTING ON BUILDING WITH STRUCTURAL AND ARCHITECTURAL. SEE WELLHOUSE 16 BUILDING PLANS AND ONE-LINE DIAGRAM FOR ADDITIONAL REQUIREMENTS.
4. EXISTING TREE, TO REMAIN. FIELD VERIFY CONDUIT ROUTING AROUND TREE FOOTPRINT TO AVOID DAMAGE TO ROOT SYSTEM. COORDINATE WITH CIVIL.
5. EXISTING MCC IN WELL 9 ELECTRICAL ROOM, TO REMAIN.
6. UTILITY METERING CURRENT TRANSFORMERS LOCATED IN LOWER SECTION OF MCC, TO REMAIN.
7. EXISTING WELL BUILDING 9 TO RECEIVE NEW EXTERIOR CLADDING. DISCONNECT AND REMOVE EXISTING CABLES, CONDUIT AND METER SOCKET DURING EXTERIOR UPGRADES. RE-INSTALL EXISTING METER SOCKET IN SAME LOCATION ONCE NEW CLADDING HAS BEEN INSTALLED. FURNISH AND INSTALL NEW 1" GRC CONDUIT FROM METER SOCKET TO EXISTING WELLHOUSE 9 MCC FOR RE-CONNECTION OF METERING CTs. ROUTE NEW CONDUIT INSIDE OF WELLHOUSE 9, FIELD VERIFY ROUTING AND CONNECTION TO EXISTING MCC. COORDINATE ALL REMOVALS, OUTAGES, ANY TEMPORARY METERING PROVISIONS, AND NEW SERVICE DETAILS WITH OWNER AND UTILITY COMPANY.
8. EXISTING WELL BUILDING 9 UTILITY METERING SOCKET, TO BE DISCONNECTED AND REMOVED DURING INSTALLATION OF NEW WELL 9 EXTERIOR CLADDING AND RE-INSTALLED ONCE FINISHED. COORDINATE WITH OWNER, UTILITY, AND ARCHITECTURAL.
9. EXISTING CONDUIT ENTRANCE ON EXTERIOR OF WELL BUILDING 9. FIELD VERIFY CIRCUITRY AND EXTEND CABLE AND CONDUIT AS REQUIRED TO ACCOMODATE NEW WELL 9 EXTERIOR CLADDING. COORDINATE ALL WORK AND OUTAGES WITH OWNER, ARCHITECTURAL, AND UTILITY IF REQUIRED.
10. ROUTE NEW FIBER OPTIC CABLE IN 2" SCH. 80 PVC CONDUIT INTO FROM HANDHOLE TO WELLHOUSE 16 ELECTRICAL ROOM.
11. EXISTING FIBER OPTIC HANDHOLE, TO REMAIN.
12. FIBER OPTIC CABLE ROUTED IN 2" SCH. 80 PVC CONDUIT FROM W16 CONTROL PANEL TO WELL 9 FOR SECURITY SYSTEM. FIELD COORDINATE ROUTE AND FIELD VERIFY PENETRATIONS AT WELL 9 WITH ARCHITECTURAL. ROUTE FIBER OPTIC CABLE IN 2" GRC CONDUIT ONCE INSIDE TO NEW PLYWOOD NETWORK/SECURITY PANEL. SEE NETWORK DIAGRAM.
13. FURNISH AND INSTALL 2'x2'x3/4" FIRE-RETARDANT PLYWOOD ON WALL FOR MOUNTING OF NETWORKING/SECURITY EQUIPMENT. PLYWOOD TO BE PAINTED TO WALL COLOR AND TO RETAIN FIRE RATING. VERIFY FINAL PANEL SIZE WITH FINAL EQUIPMENT SELECTION.
14. NETWORKING EQUIPMENT MOUNTED ON NEW PLYWOOD PANEL. FIELD VERIFY MOUNTING LOCATION AND CONNECTIONS. SEE NETWORK DIAGRAM. ROUTE 2-1/C-#12 & 1-1/C-#12GND 120VAC POWER CIRCUIT IN 3/4"C FROM 20A/1P CIRCUIT BREAKER IN MCC LIGHTING PANEL AND INSTALL NEW 20A, QUADPLEX RECEPTACLE.
15. SECURITY/ACCESS CONTROL PANEL, FURNISHED BY VENDOR, MOUNTED AND FED WITH 120VAC 1-PHASE POWER BY CONTRACTOR. ROUTE 2-1/C-#12 & 1-1/C-#12GND IN 3/4"C FROM 20A/1P CIRCUIT BREAKER IN MCC LIGHTING PANEL. FIELD VERIFY. SEE NETWORK DIAGRAM. COORDINATE WITH CARD ACCESS VENDOR.
16. ANTICIPATED SECURITY SYSTEM DOOR CONTACTS (FURNISHED BY VENDOR). ROUTE 1"C FROM DOOR TO SECURITY ACCESS PANEL. SEE NETWORK DIAGRAM AND SPECIFICATIONS. COORDINATE WITH CARD ACCESS VENDOR.
17. ANTICIPATED SECURITY SYSTEM CARD READER (FURNISHED BY VENDOR). CONTRACTOR TO INSTALL BACK BOX AND ROUTE 1"C TO SECURITY ACCESS CONTROL PANEL OR JUNCTION BOX. COORDINATE REQUIREMENTS WITH CARD ACCESS VENDOR. COORDINATE MOUNTING WITH ARCHITECTURAL AND OWNER.
18. ROUTE 1"C FROM ACCESS CONTROL PANEL FOR POWER FOR SECURITY SYSTEM ELECTRIC DOOR STRIKE. COORDINATE REQUIREMENTS AND DOOR HARDWARE WITH CARD ACCESS VENDOR, ARCHITECT, AND OWNER.
19. ANTICIPATED VIDEO CAMERA DROP LOCATION, COORDINATE LOCATION AND MOUNTING HEIGHT WITH SYSTEM VENDOR, ARCHITECT, AND OWNER. ROUTE CAT6 CABLE IN 1" CONDUIT TO CITY IT RACK.
20. NEW EXTERIOR LIGHT WITH BATTERY BACKUP, PER FIXTURE SCHEDULE. EXTEND CABLE AND CONDUIT FROM EXISTING PUMP ROOM LIGHTING CIRCUIT, FIELD VERIFY. COORDINATE MOUNTING WITH ARCHITECTURAL.
21. FIBER OPTIC CABLE ROUTED IN 2" SCH. 80 PVC FROM WATER TREATMENT PLANT TO WELLHOUSE 16 FOR COMMUNICATIONS. SEE SPECIFICATIONS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

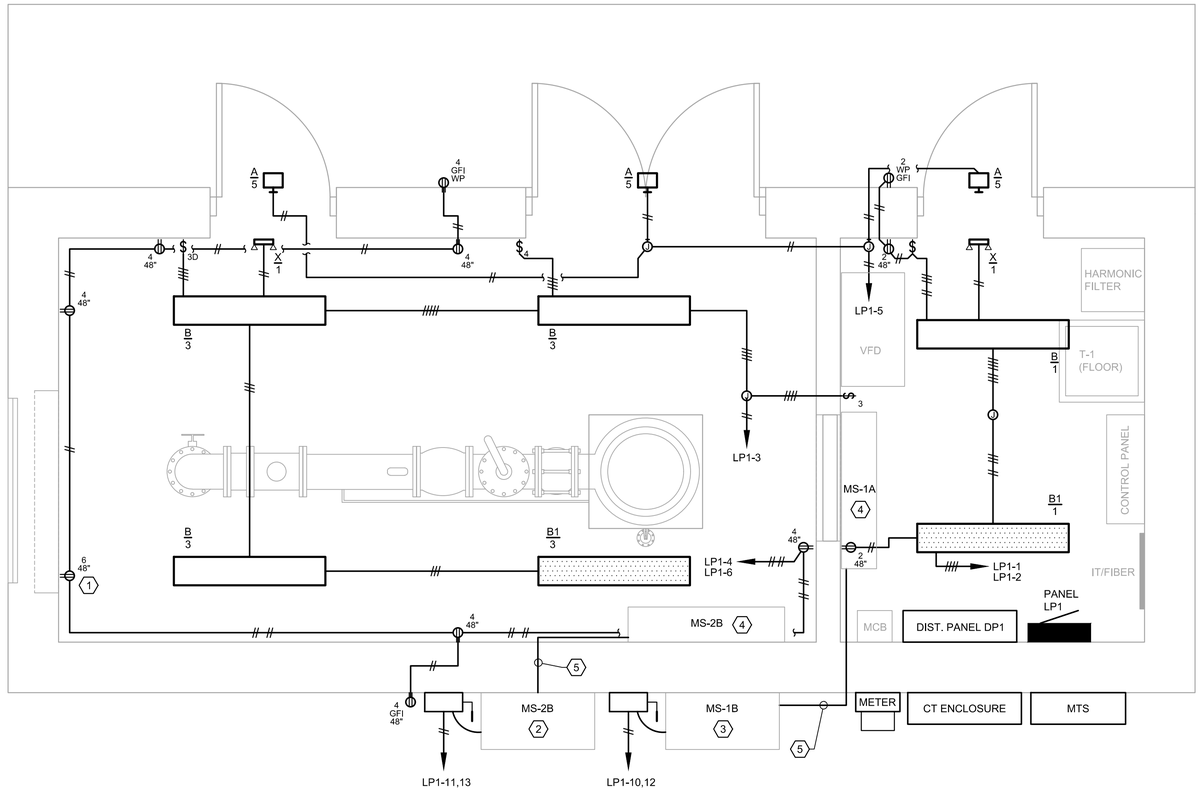
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
WELLHOUSE 16/ WELL 9
ELECTRICAL SITE PLAN

BARR PROJECT # 2362153400
DWG # E002
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:49 PM
CADD USER: CHAD LAKOSKE FILE: M:\DESIGN\2362\153400\ELECTRICAL\2362153400_E002_ELECTRICAL SITE PLAN.DWG



1/- PLAN: WELLHOUSE 16 LIGHTING AND GENERAL POWER

0 1 2 3 4 5
SCALE

N

NOTES:

1. FIELD CONFIRM ALL EQUIPMENT LOCATIONS AND COORDINATE CONDUIT ROUTING. DO NOT ROUTE CONDUIT EXPOSED ON BUILDING EXTERIOR.
2. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.
3. COORDINATE ALL ELECTRIC UTILITY SERVICES WITH THE SERVING ELECTRIC UTILITY, XCEL ENERGY.
4. CIRCUITRY BETWEEN COMPONENTS IS NOT ALL SHOWN ON PLANS. SEE ONE-LINE DIAGRAM, SCHEMATICS, AND CABLE AND CONDUIT SCHEDULE FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
5. CONTRACTOR RESPONSIBLE FOR FINAL DESIGN OF CABLE AND CONDUIT SYSTEMS FOR LIGHTING AND RECEPTACLES. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG COPPER. MINIMUM CONDUIT SIZE SHALL BE 3/4"C.
6. COORDINATE LIGHT FIXTURE LOCATIONS WITH PIPING, HVAC, ROOF PENETRATIONS, ETC.
7. COORDINATE LIGHT SWITCH LOCATIONS WITH DOOR SWINGS. CONFIRM BEFORE INSTALLATION.
8. EXPOSED EMT CONDUIT & STAMPED STEEL BOXES MAY BE USED IN THE ELECTRICAL ROOM.
9. CONTRACTOR SHALL PROVIDE UNSWITCHED EMERGENCY CONDUCTOR TO ALL EXIT SIGNS AND EMERGENCY FIXTURES AS REQUIRED.
10. DIMMING CONDUCTORS ARE NOT INDICATED ON DRAWING. CONTRACTOR SHALL PROVIDE ALL DIMMING CONDUCTORS AS REQUIRED FOR FIXTURES INDICATED AS DIMMING ON FIXTURE SCHEDULE.

KEYED NOTES: (#)

1. DEDICATED RECEPTACLE FOR 120V, 1-PHASE DEHUMIDIFIER. PROVIDE LABEL. COORDINATE WITH MECHANICAL.
2. 208V, 1-PHASE OUTDOOR HEAT PUMP, AS INDICATED BY TAG. MATCHED TO INDOOR UNIT. COORDINATE WITH MECHANICAL. FURNISH AND INSTALL 60A/2P, NEMA 3R, 240V, HEAVY-DUTY, NON-FUSED DISCONNECT SWITCH.
3. 208V, 1-PHASE OUTDOOR AIR COOLED CONDENSING UNIT, AS INDICATED BY TAG. MATCHED TO INDOOR UNIT. COORDINATE WITH MECHANICAL. FURNISH AND INSTALL 30A/2P, NEMA 3R, 240V, HEAVY-DUTY, NON-FUSED DISCONNECT SWITCH.
4. 208V, 1-PHASE INDOOR WALL UNIT, MOUNTED HIGH-WALL. MATCHED TO OUTDOOR UNIT. COORDINATE WITH MECHANICAL. MAKE UNIT CONNECTIONS PER MFG'S INSTRUCTIONS.
5. PROVIDE 1" EMPTY CONDUIT BETWEEN INDOOR AND OUTDOOR UNITS FOR USE BY MECHANICAL CONTRACTOR.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE

SIGNATURE

DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

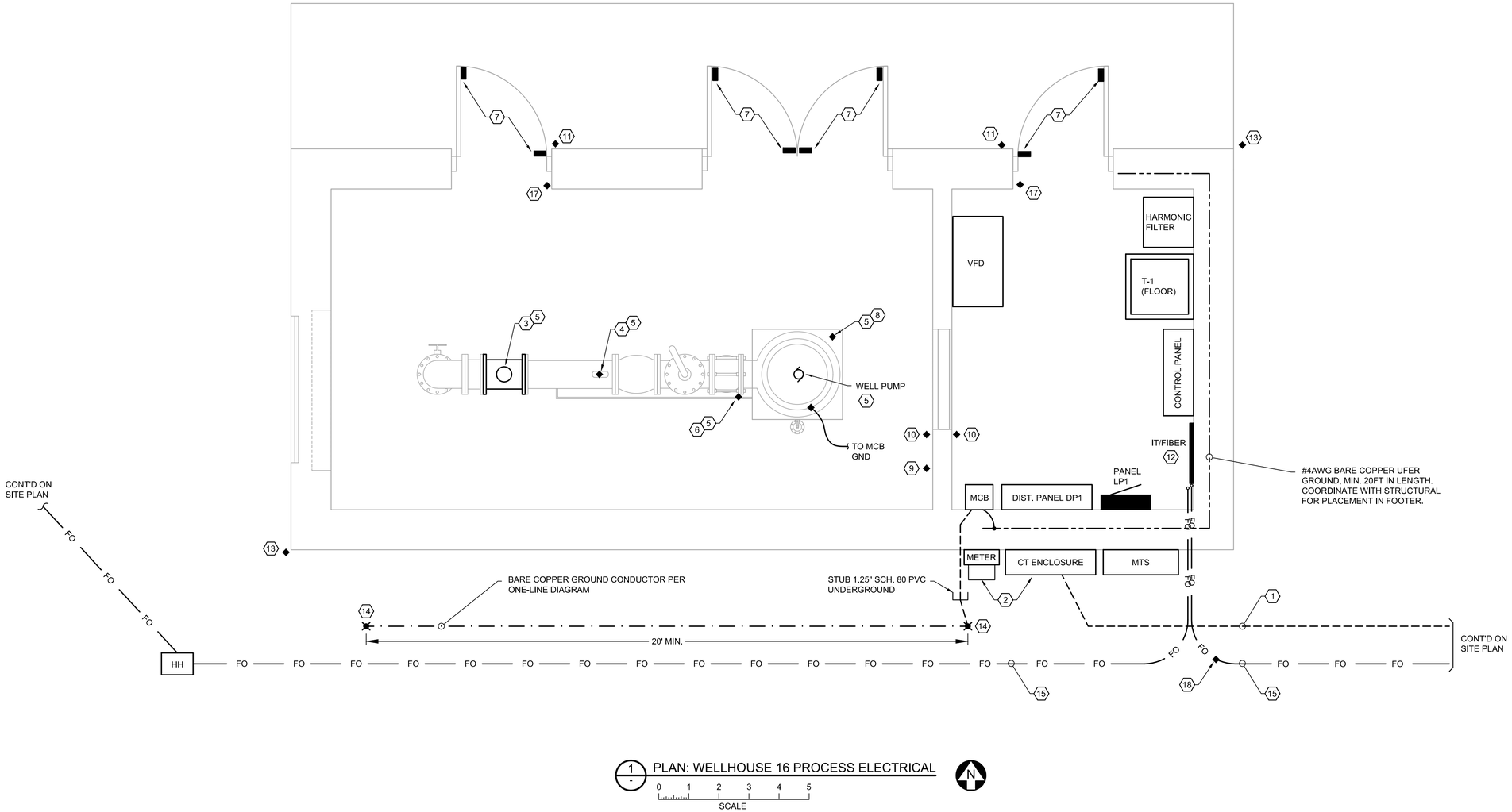
BARR®
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
WELLHOUSE 16
LIGHTING AND GENERAL POWER PLAN

BARR PROJECT # 2362153400
DWG # E003
REV # 0

ORIGINAL DRAWING SIZE: ANSI E/EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:49 PM
CADD USER: CHAD LAKOSKE FILE: M:\DES\GN\C\2362153400\ELEC\TRICAL\2362153400_E003_LIGHTING AND GENERAL POWER PLAN.DWG



1 - PLAN: WELLHOUSE 16 PROCESS ELECTRICAL

SCALE 0 1 2 3 4 5

NOTES:

1. FIELD CONFIRM ALL EQUIPMENT LOCATIONS AND COORDINATE CONDUIT ROUTING. DO NOT ROUTE CONDUIT EXPOSED ON BUILDING EXTERIOR.
2. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.
3. COORDINATE ALL ELECTRIC UTILITY SERVICES WITH THE SERVING ELECTRIC UTILITY, XCEL ENERGY.
4. CIRCUITRY BETWEEN COMPONENTS IS NOT ALL SHOWN ON PLANS. SEE ONE-LINE DIAGRAM, SCHEMATICS, AND CABLE AND CONDUIT SCHEDULE FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
5. CONTRACTOR RESPONSIBLE FOR FINAL DESIGN OF CABLE AND CONDUIT SYSTEMS FOR LIGHTING AND RECEPTACLES. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG COPPER. MINIMUM CONDUIT SIZE SHALL BE 3/4"C.
6. COORDINATE LIGHT FIXTURE LOCATIONS WITH PIPING, HVAC, ROOF PENETRATIONS, ETC.
7. COORDINATE LIGHT SWITCH LOCATIONS WITH DOOR SWINGS. CONFIRM BEFORE INSTALLATION.
8. EXPOSED EMT CONDUIT & STAMPED STEEL BOXES MAY BE USED IN THE ELECTRICAL ROOM.

KEYED NOTES: (#)

1. UNDERGROUND SERVICE CABLES AND CONDUIT, SEE ONE-LINE DIAGRAM. COORDINATE INSTALLATION WITH UTILITY. SEE SITE PLAN FOR ADDITIONAL INFORMATION.
2. FURNISH AND INSTALL NEW NEMA 3R UTILITY CT CABINET AND METER SOCKET PER UTILITY REQUIREMENTS.
3. MAGNETIC FLOWMETER (DIV. 40), SEE SCHEMATICS FOR CABLE AND CONDUIT DETAILS.
4. PRESSURE TRANSMITTER (DIV. 40) SEE SCHEMATICS FOR CABLE AND CONDUIT DETAILS.
5. ROUTE CONDUITS BELOW FLOOR AND DAYLIGHT THROUGH FLOOR IN RIGID STEEL CONDUIT. MAKE TRANSITION USING RIGID STEEL ELBOW BELOW GRADE AND PROVIDE MINIMUM 6" VERTICAL CONDUIT ABOVE FINISHED FLOOR. COORDINATE CONDUIT INSTALLATION WITH STRUCTURAL AND CONCRETE FLOOR INSTALLATION. PROVIDE FLEXIBLE CONDUIT TO EQUIPMENT CONNECTIONS.
6. WELL PUMP PRE-LUBE SYSTEM SOLENOID VALVE (DIV. 22). SEE SCHEMATICS FOR CABLE AND CONDUIT DETAILS.
7. ANTICIPATED SECURITY SYSTEM DOOR CONTACTS (FURNISHED BY VENDOR), ROUTE 1"C FROM DOOR TO SECURITY ACCESS PANEL. SEE NETWORK DIAGRAM AND SPECIFICATIONS. COORDINATE WITH CARD ACCESS VENDOR.
8. WELL LEVEL TRANSDUCER (DIV. 43). SEE SCHEMATICS FOR CABLE AND CONDUIT DETAILS.
9. FLOOR FLOOD SWITCH (DIV. 40). SEE SCHEMATICS FOR CABLE AND CONDUIT DETAILS.
10. ROOM TEMPERATURE TRANSMITTER (DIV. 40). SEE SCHEMATICS FOR CABLE AND CONDUIT DETAILS.
11. ANTICIPATED SECURITY SYSTEM CARD READER (FURNISHED BY VENDOR), CONTRACTOR TO INSTALL BACK BOX AND ROUTE 1"C TO SECURITY ACCESS CONTROL PANEL OR JUNCTION BOX. COORDINATE REQUIREMENTS WITH CARD ACCESS VENDOR. COORDINATE MOUNTING WITH ARCHITECTURAL AND OWNER.
12. FURNISH AND INSTALL 2'x2'x3/4" FIRE-RETARDANT PLYWOOD ON WALL FOR MOUNTING OF NETWORKING/SECURITY EQUIPMENT. PLYWOOD TO BE PAINTED TO MATCH WALL COLOR AND RETAIN FIRE RATING. VERIFY FINAL REQUIRED PANEL SIZE BASED ON FINAL EQUIPMENT SELECTION. ROUTE 2-1/C-#12 & 1-1/C-#12GND IN 3/4"C FROM LIGHTING PANEL LP1 TO NEW DEDICATED QUADPLEX RECEPTACLE FOR NETWORKING EQUIPMENT.
13. ANTICIPATED VIDEO CAMERA DROP LOCATION, COORDINATE LOCATION AND MOUNTING HEIGHT WITH SYSTEM VENDOR, ARCHITECT, AND OWNER. ROUTE CAT6 CABLE IN 1" CONDUIT TO NETWORKING EQUIPMENT.
14. 3/4" x 10' COPPER-CLAD STEEL GROUND ROD, EXOTHERMICALLY WELDED TO CONDUCTOR(S) SHOWN. SET TOP 12" BELOW GRADE.
15. FIBER OPTIC CABLE ROUTED IN 2" SCH. 80 PVC CONDUIT, SEE NETWORK AND CONTROL DIAGRAMS AND SITE PLANS.
16. SECURITY/ACCESS CONTROL PANEL, FURNISHED BY VENDOR, MOUNTED AND FED WITH 120VAC 1-PHASE POWER BY CONTRACTOR. SEE NETWORK DIAGRAM. COORDINATE WITH CARD ACCESS VENDOR. MOUNTED ON RACK BY NETWORKING EQUIPMENT.
17. ROUTE 1"C FROM ACCESS CONTROL PANEL FOR POWER FOR SECURITY SYSTEM ELECTRIC DOOR STRIKE. COORDINATE REQUIREMENTS AND DOOR HARDWARE WITH CARD ACCESS VENDOR, ARCHITECT, AND OWNER.
18. FIBER OPTIC AND NETWORKING UPGRADES AT WELLHOUSE 9 ARE BID ALTERNATE 2. BASE BID SHALL INCLUDE STUBBING 2" SCH. 80 PVC CONDUIT UNDERGROUND TO APPROXIMATE LOCATION SHOWN AND CAPPING FOR FUTURE CONNECTION. MARK LOCATION ON RECORD DRAWINGS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE

SIGNATURE

DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR®
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

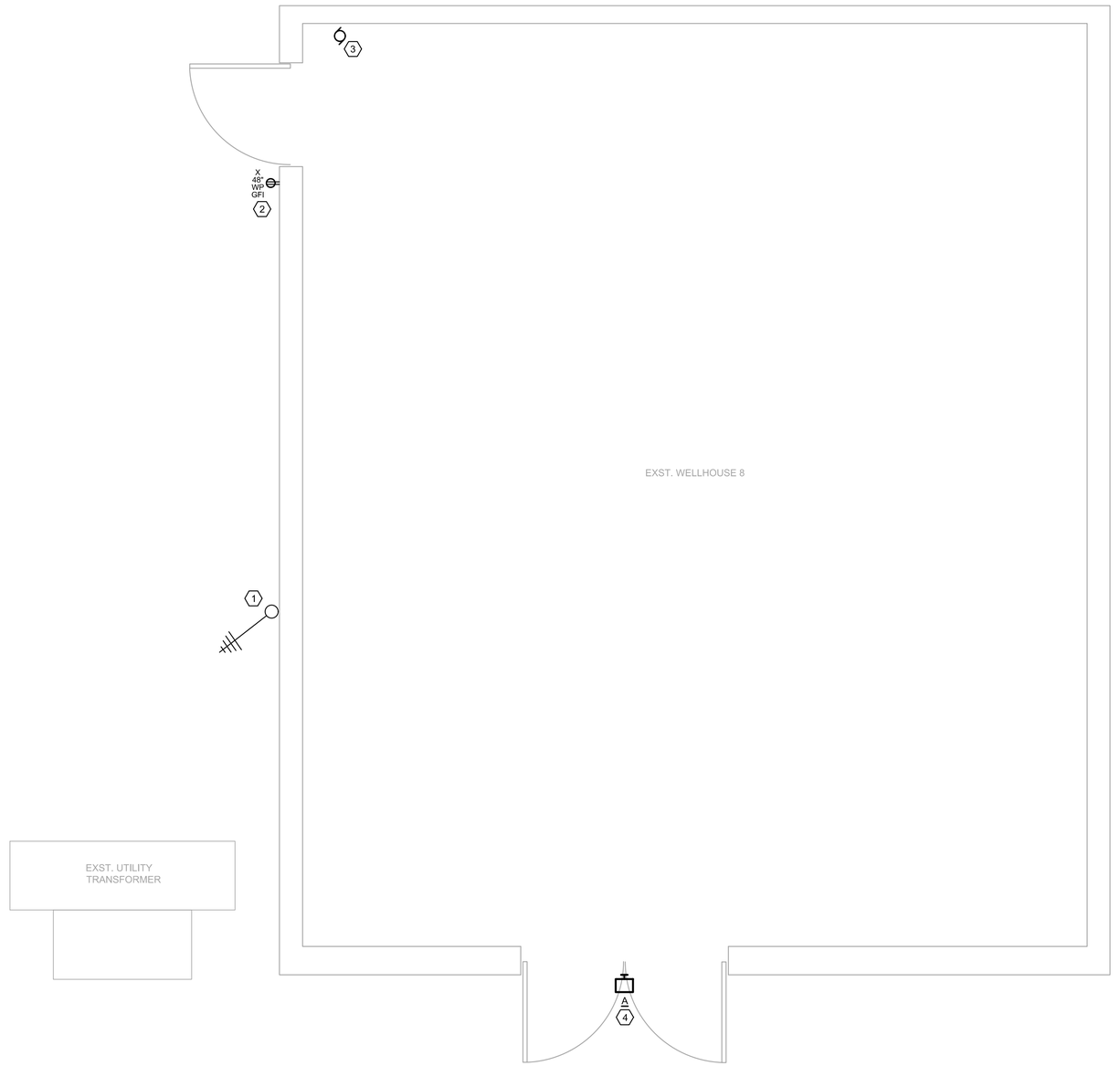
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
WELLHOUSE 16
PROCESS ELECTRICAL PLAN

BARR PROJECT # 2362153400
DWG # E004
REV # 0

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:50 PM
CADD USER: CHAD LARCHER FILE: M:\DESIGN\2362\153400\ELECTRICAL\2362153400_E004_PROCESS ELECTRICAL PLAN.DWG



1 - PLAN: WELLHOUSE 8 ELECTRICAL (ALTERNATE 1)

0 1 2 3 4 5
SCALE

N

NOTES:

1. FIELD CONFIRM ALL EQUIPMENT LOCATIONS AND COORDINATE CONDUIT ROUTING. DO NOT ROUTE CONDUIT EXPOSED ON BUILDING EXTERIOR.
2. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.
3. COORDINATE ALL ELECTRIC UTILITY SERVICES WITH THE SERVING ELECTRIC UTILITY, XCEL ENERGY.
4. CIRCUITRY BETWEEN COMPONENTS IS NOT ALL SHOWN ON PLANS. SEE ONE-LINE DIAGRAM, SCHEMATICS, AND CABLE AND CONDUIT SCHEDULE FOR ADDITIONAL CIRCUITRY REQUIREMENTS.
5. CONTRACTOR RESPONSIBLE FOR FINAL DESIGN OF CABLE AND CONDUIT SYSTEMS FOR LIGHTING AND RECEPTACLES. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG COPPER. MINIMUM CONDUIT SIZE SHALL BE 3/4"C.
6. COORDINATE LIGHT FIXTURE LOCATIONS WITH PIPING, HVAC, ROOF PENETRATIONS, ETC.
7. COORDINATE LIGHT SWITCH LOCATIONS WITH DOOR SWINGS. CONFIRM BEFORE INSTALLATION.
8. EXPOSED EMT CONDUIT & STAMPED STEEL BOXES MAY BE USED IN THE ELECTRICAL ROOM.

KEYED NOTES: ⟨#⟩

1. EXISTING SCADA ANTENNA, ANTENNA CABLE, AND ANTENNA MOUNTING MAST, TO REMAIN. DISCONNECT ANTENNA AND CABLE FROM RADIO, REMOVE AND PROTECT MAST AND ANTENNA FOR RECONNECTION TO BUILDING ON NEW CLADDING. FURNISH AND INSTALL NEW ANTENNA CABLE IF EXISTING LENGTH TOO SHORT.
2. EXISTING WEATHERPROOF RECEPTACLE TO BE DISCONNECTED AND REMOUNTED ON NEW CLADDING. EXTEND EXISTING CABLE AND CONDUIT TO NEW LOCATION AS REQUIRED.
3. EXISTING EXHAUST FAN TO BE DISCONNECTED AND REMOUNTED ON NEW CLADDING. EXTEND EXISTING CABLE AND CONDUIT TO NEW LOCATION AS REQUIRED.
4. NEW EXTERIOR LIGHT WITH BATTERY BACKUP, PER FIXTURE SCHEDULE. EXTEND CABLE AND CONDUIT FROM EXISTING PUMP ROOM LIGHTING CIRCUIT, FIELD VERIFY. COORDINATE MOUNTING WITH ARCHITECTURAL.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE

SIGNATURE

DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

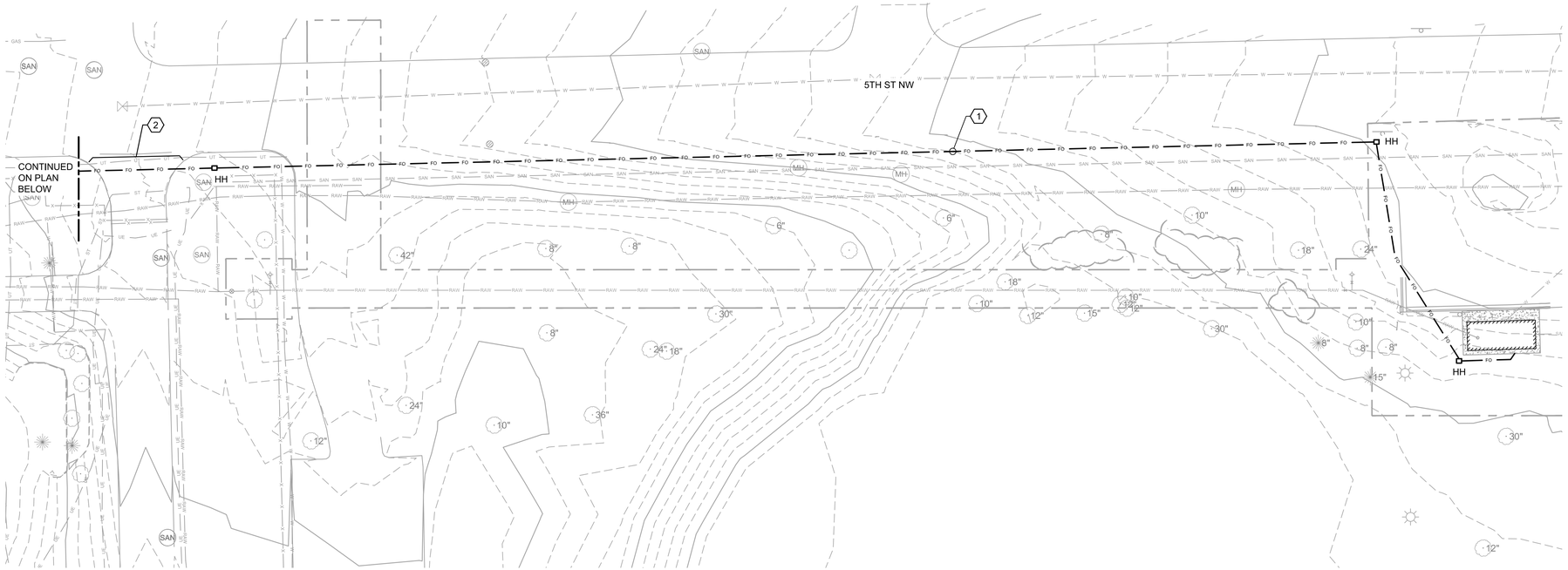
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

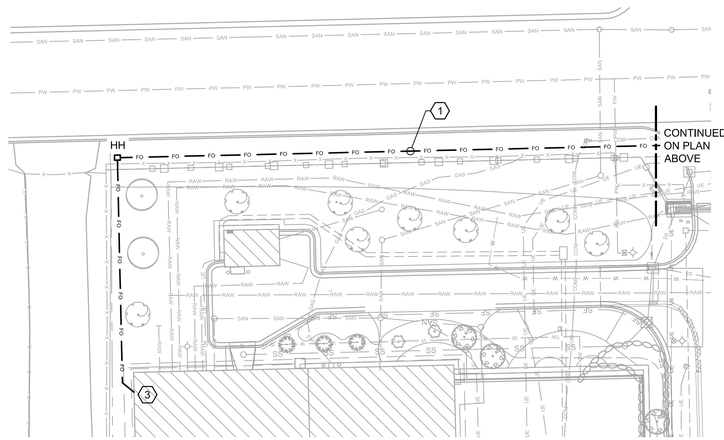
WELLHOUSE 16
NEW BRIGHTON, MN
WELLHOUSE 8 ELECTRICAL PLAN

BARR PROJECT # 2362153400
DWG # E005
REV # 0

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00" X 34.00" INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:59 PM
CADD USER: CHAD LAKOSE FILE: M:\DES\KM\2362\2153400\ELECTRICAL\2362153400_E005_WELL 8 ELECTRICAL PLAN.DWG



1 PLAN: FIBER OPTIC ROUTING (DRIFTWOOD PARK)
0 30 60
SCALE IN FEET



2 PLAN: FIBER OPTIC ROUTING (WATER TREATMENT PLANT)
0 30 60
SCALE IN FEET

LEGEND:

1. REMOVE ALL CONDUIT, CABLE AND ELECTRICAL COMPONENTS THAT ARE ABANDONED UNDER THIS CONTRACT.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, PROCESS AND STRUCTURAL CONSTRUCTION.
4. FIELD CONFIRM AND COORDINATE CONDUIT ROUTING.
5. CORE DRILL EXISTING STRUCTURE AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH ENGINEER. COORDINATE WITH ARCHITECTURAL.
6. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

NOTES:

1. PROVIDE NEW FIBER OPTIC INSTALLED IN 2" SCHEDULE 80 PVC OR HDPE AT LEAST 42" BELOW GRADE. PROVIDE YELLOW WARNING TAPE 12" ABOVE, READING "FIBER OPTIC". ROUTE FIBER FROM EXISTING WATER TREATMENT PLANT SERVER ROOM TO NEW WELLHOUSE 16 BUILDING. FOR BIDDING PURPOSES PROVIDE MINIMUM (4) HANDHOLES DISTRIBUTED ALONG ROUTE TO FACILITATE PULLING.
2. DIRECTIONALLY BORE UNDER EXISTING DRIVEWAYS. COORDINATE ALL ROUTING WITH CITY R.O.W.
3. FIELD VERIFY FIBER CONDUIT ROUTING, DAYLIGHTING AND PENETRATION INTO WATER TREATMENT PLANT.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

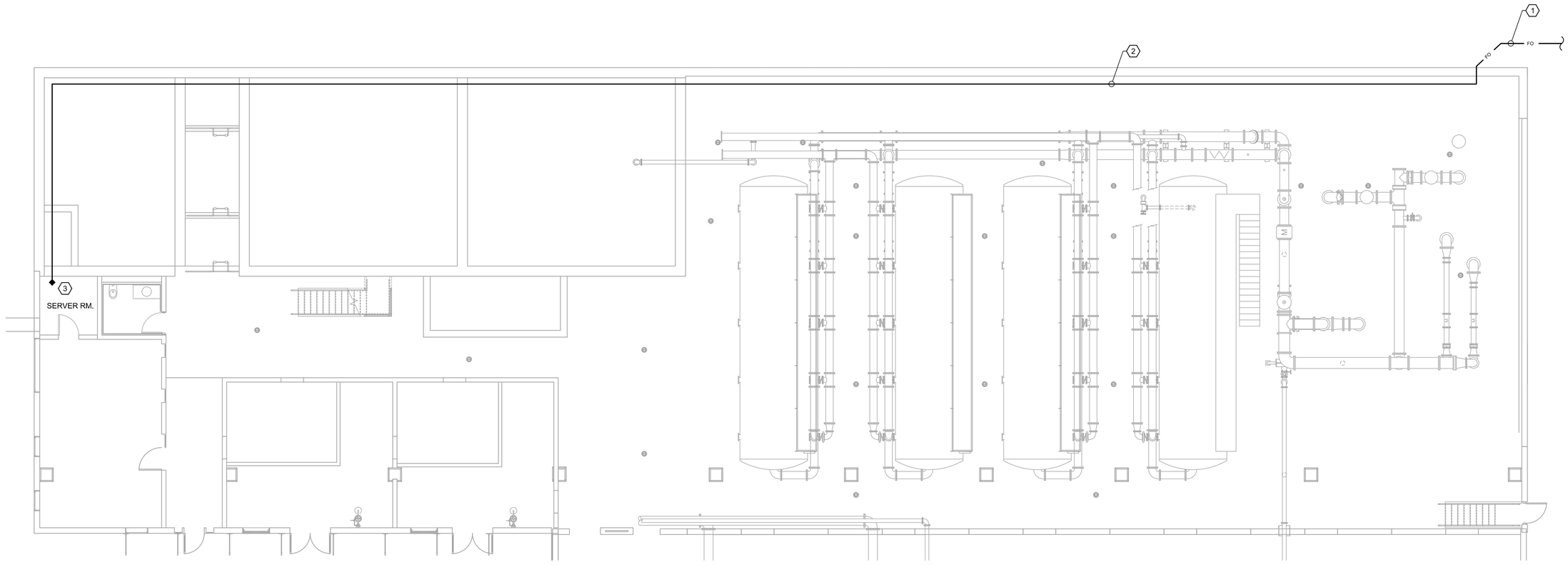
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
FIBER OPTIC ROUTING SITE PLANS

BARR PROJECT # 2362153400
DWG # E006
REV # 0

ORIGINAL DRAWING SIZE: ANSI FULL BLEED D (34.00 X 22.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:51 PM
CADD USER: CHAD LAKOSKE FILE: M:\JOB\SIGN\2362\153400\ELECTRICAL\2362153400_E006_FIBER OPTIC ROUTING SITE PLANS.DWG



1 PLAN: FIBER OPTIC ROUTING (WATER TREATMENT PLANT)

0 1 2 3 4 5
SCALE

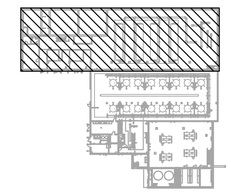
N

GENERAL NOTES:

1. REMOVE ALL CONDUIT, CABLE AND ELECTRICAL COMPONENTS THAT ARE ABANDONED UNDER THIS CONTRACT.
2. FIELD CONFIRM LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES, CABLES, CONDUITS, ETC. PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPAIR SUCH ITEMS AT NO COST IF DAMAGED BY CONTRACTOR.
3. PROVIDE TEMPORARY SUPPORT FOR EXISTING FACILITIES THAT WILL BE EXPOSED DUE TO GENERAL, PROCESS AND STRUCTURAL CONSTRUCTION.
4. FIELD CONFIRM AND COORDINATE CONDUIT ROUTING.
5. CORE DRILL EXISTING STRUCTURE AS REQUIRED FOR NEW CONDUIT INSTALLATION. PATCH ALL SURFACES TO MATCH EXISTING. ALL CORE DRILL LOCATIONS SHALL BE VERIFIED WITH ENGINEER. COORDINATE WITH ARCHITECTURAL.
6. SEAL ALL CONDUITS TO EXTERIOR USING DUCTSEAL OR 1/2" THICKNESS SILICONE CAULK.

NUMBERED NOTES:

1. UNDERGROUND FIBER OPTIC CABLE AND CONDUIT. FIELD VERIFY ROUTING, SEE SITE PLANS.
2. ROUTE 2" GRC CONDUIT ONCE INSIDE OF PLANT ALONG BUILDING WALLS TO SERVER ROOM IN OFFICE AREA. FIELD VERIFY ROUTING AND ROOM PENETRATIONS.
3. NEW FIBER OPTIC CONDUIT AND CABLE TO TERMINATE WITHIN PLANT SERVER ROOM. COORDINATE MOUNTING AND CONDUIT PENETRATIONS INTO ROOM. COORDINATE WITH OWNER ON EQUIPMENT CONNECTIONS.



N KEY PLAN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

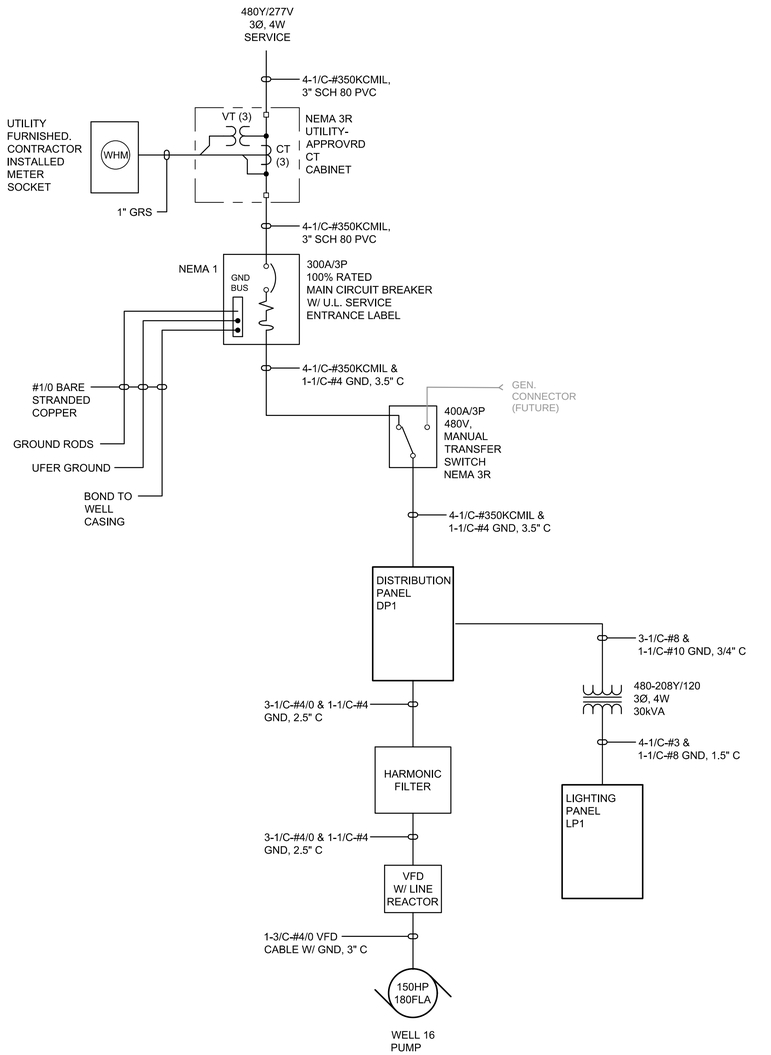
BARR®
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
FIBER OPTIC ROUTING PLAN - WATER TREATMENT PLANT 1

BARR PROJECT # 2362153400
DWG # E007
REV # 0

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00" X 34.00" INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:50 PM
CADD USER: CHAD LAKOSE FILE: M:\MPLS\NG\2362\153400\ELECTRICAL\2362153400_E007_FIBER OPTIC ROUTING PLAN - WATER TREATMENT PLANT 1.DWG



WELL 16 ONE-LINE DIAGRAM

NO SCALE

DISTRIBUTION PANEL DP1

VOLTAGE/PHASE/WIRE: 480Y/277V, 3PH, 4W	PANEL LOCATION (BUILDING): WELL 16	FED FROM: MAIN CIRCUIT BREAKER MCB
BUS AMPS: 400A	PANEL LOCATION: ELECTRICAL ROOM	PANELBOARD NOTES:
MAINS: MAIN LUGS ONLY	MOUNTING: SURFACE	INTEGRAL 80kA SPD
AIC: 42KAIC	ENCLOSURE: NEMA 12	

DESCRIPTION	CAT	VA/PHASE A	VA/PHASE B	VA/PHASE C	BKR	CKT	CKT	BKR	VA/PHASE A	VA/PHASE B	VA/PHASE C	CAT	DESCRIPTION
WELL PUMP VFD	M (L)	50000.0			225A	1	2	50A	10000.0			MISC	TRANSFORMER T-1
" "	M (L)		50000.0		/	3	4	/		10000.0		MISC	" "
" "	M (L)			50000.0	3P	5	6	3P			10000.0	MISC	" "
SPARE		0.0			20A	7	8						
" "			0.0		/	9	10						
" "				0.0	3P	11	12						
						13	14						
						15	16						
						17	18						
						19	20						
						21	22						
						23	24						
						25	26						
						27	28						
						29	30						
						31	32						
						33	34						
						35	36						
						37	38						
						39	40						
						41	42						
SUBTOTALS		50000.0	50000.0	50000.0					10000.0	10000.0	10000.0		

LOAD	DF	DEMAND VA	LOAD	DF	DEMAND VA
HVAC - HEATING	1	0	SUPPLEMENTAL HEAT	1	0
HVAC - COOLING	0	0	KITCHEN EQUIP.	1	0
REFRIGERATION	1	0	SHOW WINDOW	1.25	0
MOTORS	1	0	HEAT TRACE	1.25	0
MOTOR - LARGEST	1.25	150000	LIGHTING	1.25	0
RECEPTACLES	1.0/0.5	0	TRACK LIGHTING	1	0
MISC.	1	30000	EXISTING	1	0

CONNECTED TOTALS		
PH. A	VA	60000
	AMPS	216.6
PH. B	VA	60000
	AMPS	216.6
PH. C	VA	60000
	AMPS	216.6
TOTAL	VA	180000
	AMPS	216.51

DEMAND TOTAL		
TOTAL	VA	180000.0
	AMPS	216.51

LIGHTING PANEL LP1

VOLTAGE/PHASE/WIRE: 208Y/120V, 3PH, 4W	PANEL LOCATION (BUILDING): WELL 16	FED FROM: DISTRIBUTION PANEL DP1 VIA T1
BUS AMPS: 125	PANEL LOCATION: ELECTRICAL ROOM	PANELBOARD NOTES:
MAINS: 100A MCB	MOUNTING: SURFACE	
AIC RATING: 22KAIC	ENCLOSURE: NEMA 12	

DESCRIPTION	CAT	VA/PHASE A	VA/PHASE B	VA/PHASE C	BKR	CKT	CKT	BKR	VA/PHASE A	VA/PHASE B	VA/PHASE C	CAT	DESCRIPTION
LIGHTING - ELECTRICAL ROOM	L	59.7			20A/1P	1	2	20A/1P	540.0			R	RECEPTACLES - ELECTRICAL ROOM/EXTERIOR
LIGHTING - PUMP ROOM	L		112.5		20A/1P	3	4	20A/1P		1080.0		R	RECEPTACLES - PUMP ROOM/EXTERIOR
LIGHTING - EXTERIOR	L			45.8	20A/1P	5	6	20A/1P			1800.0	MISC	DEHUMIDIFIER D-1
FLOW/METER FE-1	MISC	40.0			20A/1P	7	8	20A/1P	1800.0			MISC	CONTROL PANEL
IT NETWORKING CABINET	MISC		1200.0		20A/1P	9	10	20A/		1664.0		H	OUTDOOR HEAT PUMP MS-1A/1B
OUTDOOR HEAT PUMP MS-2A/2B	H			3640.0	35A/	11	12	2P			1664.0	H	" "
" "	H	3640.0			2P	13	14	20A/1P					SPARE
SPARE					20A/1P	15	16	20A/1P					SPARE
SPARE					20A/1P	17	18	20A/1P					SPARE
SPARE					20A/1P	19	20	20A/1P					SPARE
SPARE					20A/1P	21	22	20A/1P					SPARE
SPARE					20A/1P	23	24	20A/1P					SPARE
SPARE					20A/1P	25	26	20A/1P					SPARE
SPARE					20A/1P	27	28	20A/1P					SPARE
SPARE					20A/1P	29	30	20A/1P					SPARE
SPARE					20A/1P	31	32	20A/1P					SPARE
SPARE					20A/1P	33	34	20A/1P					SPARE
SPARE					20A/1P	35	36	20A/1P					SPARE
SPARE					20A/1P	37	38	20A/1P					SPARE
SPARE					20A/1P	39	40	20A/1P					SPARE
SPARE					20A/1P	41	42	20A/1P					SPARE
SUBTOTALS		3739.7	1312.5	3685.8					2340.0	2744.0	3464.0		

LOAD	DF	DEMAND VA	LOAD	DF	DEMAND VA
HVAC - HEATING	1	10608	SUPPLEMENTAL HEAT	1	0
HVAC - COOLING	1	0	KITCHEN EQUIP.	1	0
REFRIGERATION	1	0	SHOW WINDOW	1.25	0
MOTORS	1	0	HEAT TRACE	1.25	0
MOTOR - LARGEST	1.25	0	LIGHTING	1.25	218
RECEPTACLES	1.0/0.5	1620	TRACK LIGHTING	1	0
MISC.	1	4840	EXISTING	1	0

CONNECTED TOTALS		
PH. A	VA	6079.7
	AMPS	50.7
PH. B	VA	4056.5
	AMPS	33.8
PH. C	VA	7149.8
	AMPS	59.6
TOTAL	VA	17286
	AMPS	47.98

DEMAND TOTAL		
TOTAL	VA	17286.0
	AMPS	47.98

FIXTURE SCHEDULE

FIXTURE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMPS	VOLTAGE	REMARKS
A	LED EXTERIOR WALLPACK W/ BATT BACKUP	LITHONIA	ARC2 LED-P1-40K-MVOLT-E8WC-PE-DDBTXD	BY MFR	MVOLT	1
B	4' WALL MTD LED VAPORTIGHT	LITHONIA	FEM L48 3000LM IMFLA WD MVOLT GZ10 40K 80CR1	BY MFR	MVOLT	
B1	4' WALL MTD LED VAPORTIGHT W/ BATT BACKUP	LITHONIA	FEM L48 3000LM IMFLA WD MVOLT GZ10 40K 80CR1	BY MFR	MVOLT	
X	LED EXIT/EMERGENCY COMBO	LITHONIA	LHQM LED R HO SD	BY MFR	MVOLT	1,3

REMARKS

1 WALL MOUNT LIGHT FIXTURE 7'-6" ABOVE FINISHED FLOOR.
2 WALL MOUNT LIGHT FIXTURE 7'-6" ABOVE FINISHED FLOOR.
3 COORDINATE ARROW DIRECTION DURING MOUNTING.

NOTES

1 PROVIDE LIGHTING FIXTURES OF THE SIZE, TYPE AND RATING INDICATED IN SCHEDULE COMPLETE WITH LAMPS, LAMP HOLDERS, REFLECTORS, BALLASTS, STARTERS, WIRING AND OTHER EQUIPMENT REQUIRED FOR A COMPLETE WORKING INSTALLATION.
2 FIXTURE CATALOG NUMBERS DO NOT NECESSARILY INCLUDE ALL ACCESSORIES REQUIRED TO COMPLETE THE INSTALLATION. CATALOG NUMBERS USED IN THE SCHEDULE ARE USED TO DESIGNATE THE FIXTURE SERIES, SIZE, AND LAMPING REQUIREMENTS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

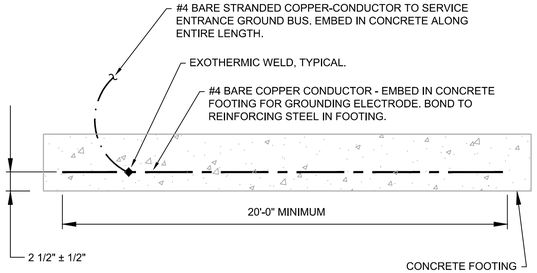
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

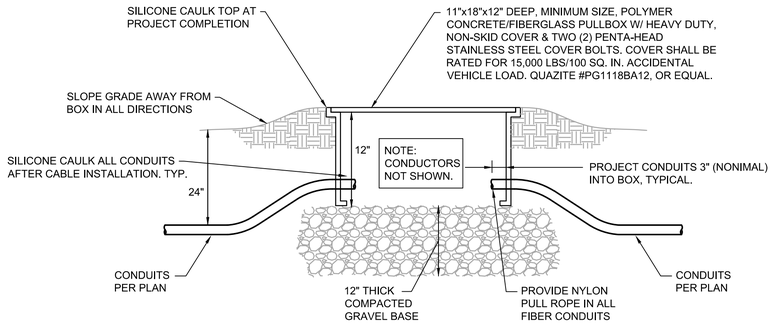
WELLHOUSE 16
NEW BRIGHTON, MN
ONE-LINE DIAGRAM AND SCHEDULES

BARR PROJECT # 2362153400
DWG # E008
REV # 0

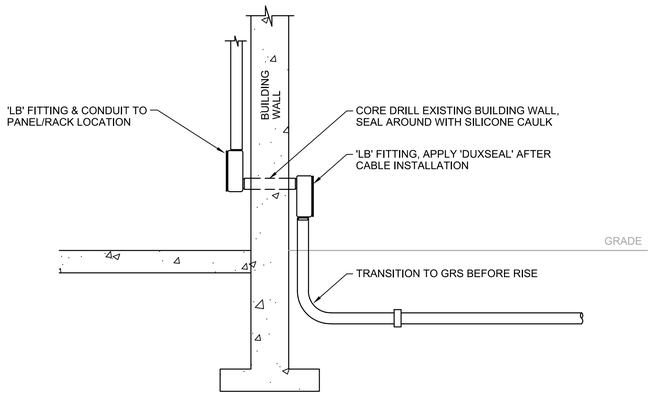
ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 5:03 PM
CADD USER: CHAD LARCHER FILE: M:\MES\GIS\2362\153400\ELECTRICAL\2362153400_E008_ONE LINE DIAGRAM AND SCHEDULES.DWG



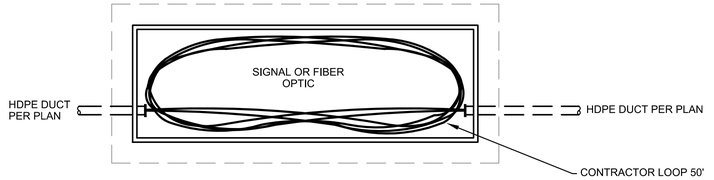
1 DETAIL: UFER GROUNDING ELECTRODE
NTS TYPICAL: WELLHOUSE 16



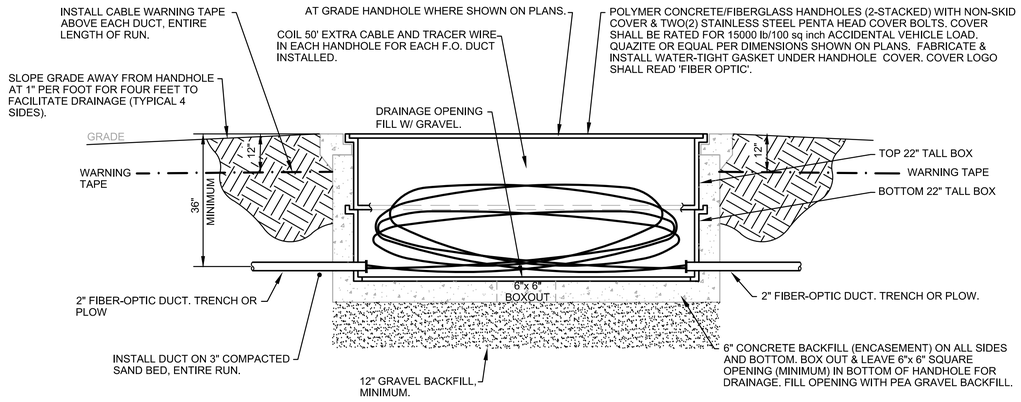
2 DETAIL: AT-GRADE HANDHOLE
NTS



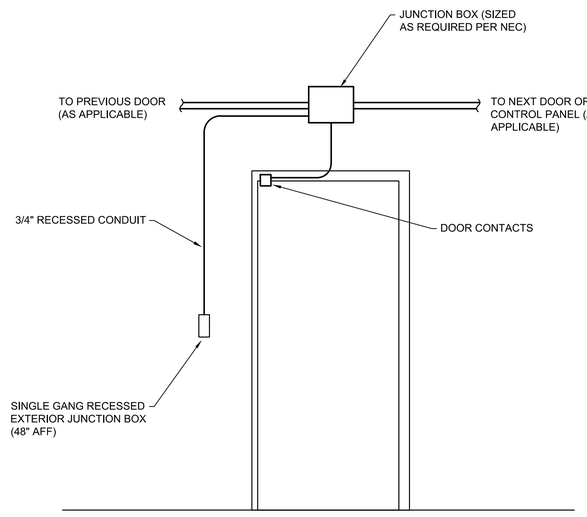
3 DETAIL: BUILDING ENTRY DETAIL
NTS



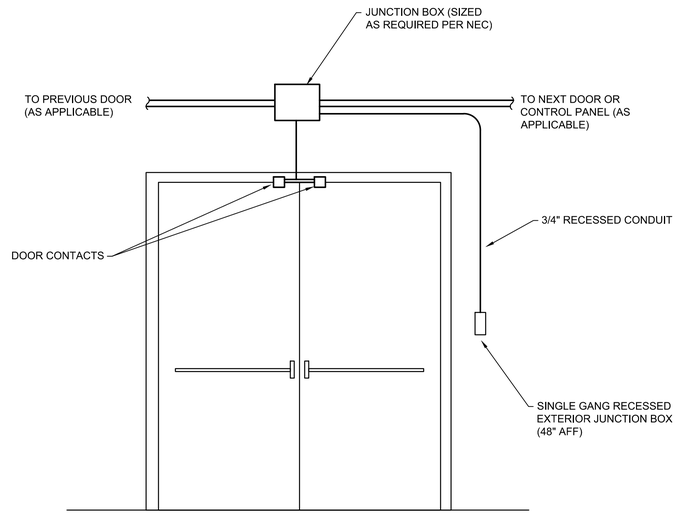
FIBER OPTIC HANDHOLE PLAN
NO SCALE TYPICAL



4 DETAIL: FIBER OPTIC HANDHOLE DETAIL
NTS



5 DETAIL: SINGLE DOOR W/ ACCESS CONTROL
NTS



6 DETAIL: DOUBLE DOOR W/ ACCESS CONTROL
NTS

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

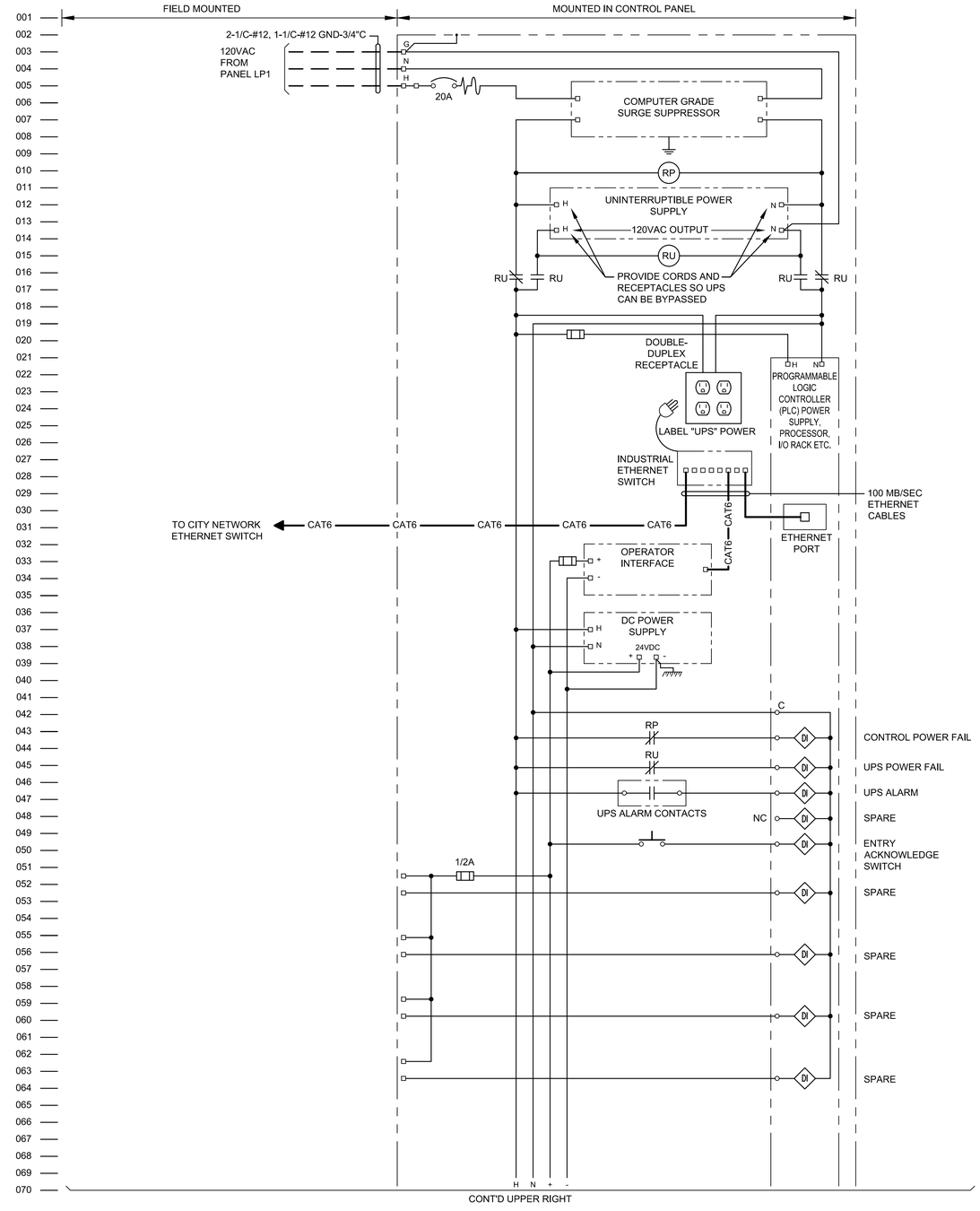
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

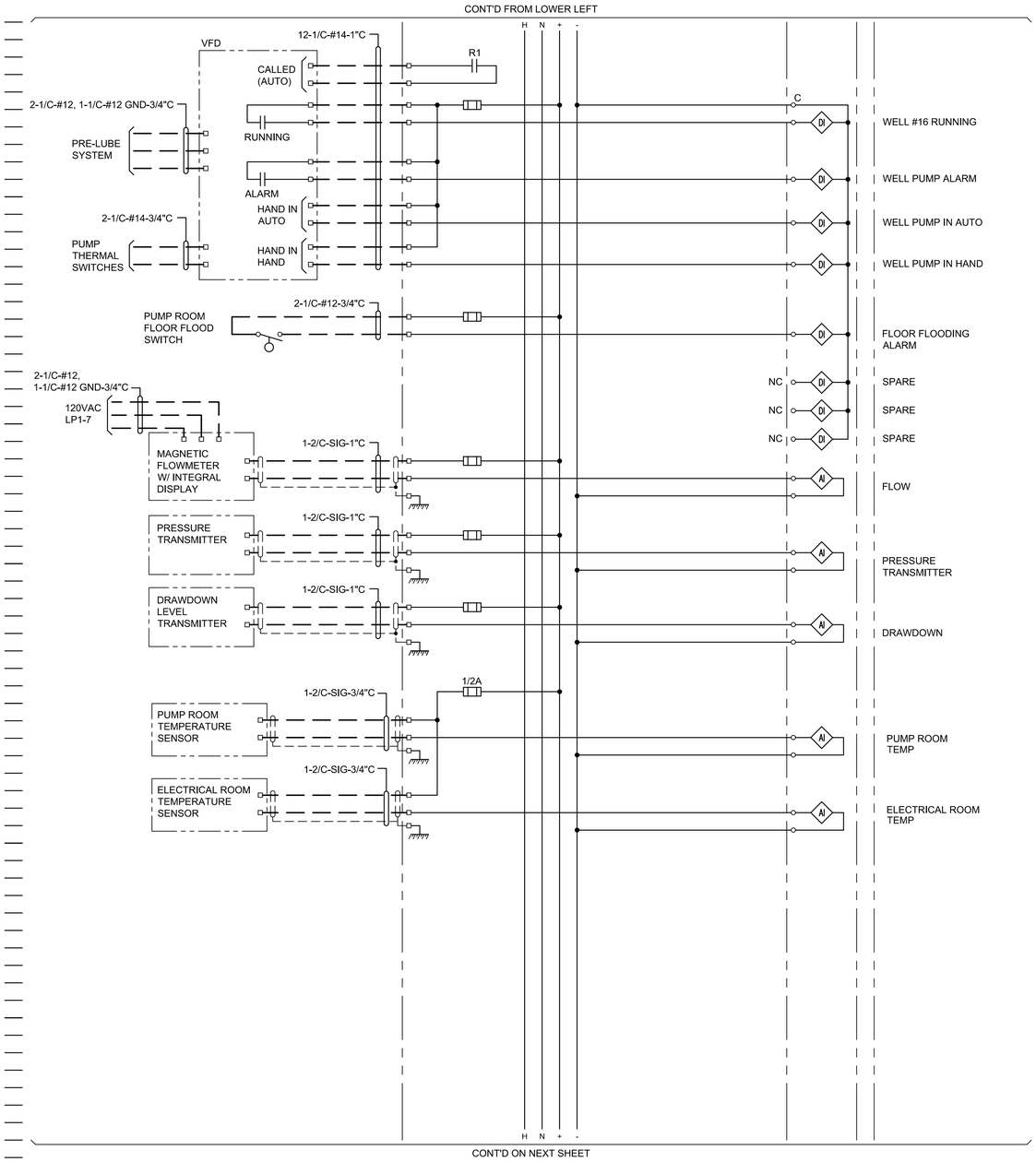
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
ELECTRICAL DETAILS AND SCHEMATICS

BARR PROJECT # 2362153400
DWG # E009
REV # 0

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:53 PM
CADD USER: CHAD LAKOSKE FILE: M:\DESIGN\2362\153400\ELECTRICAL\2362153400_E009_ELECTRICAL_DETAILS.DWG





LEGEND	
SYMBOL	DESCRIPTION
	EXISTING EQUIP. & CIRCUITRY
	NEW EQUIP. & CIRCUITRY UNDER THIS CONTRACT

CONTROL PANEL GENERAL NOTES:

1. MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 40 90 00.
2. ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.

WELLHOUSE 16 ELECTRICAL SCHEMATIC

NO SCALE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE

SIGNATURE

DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

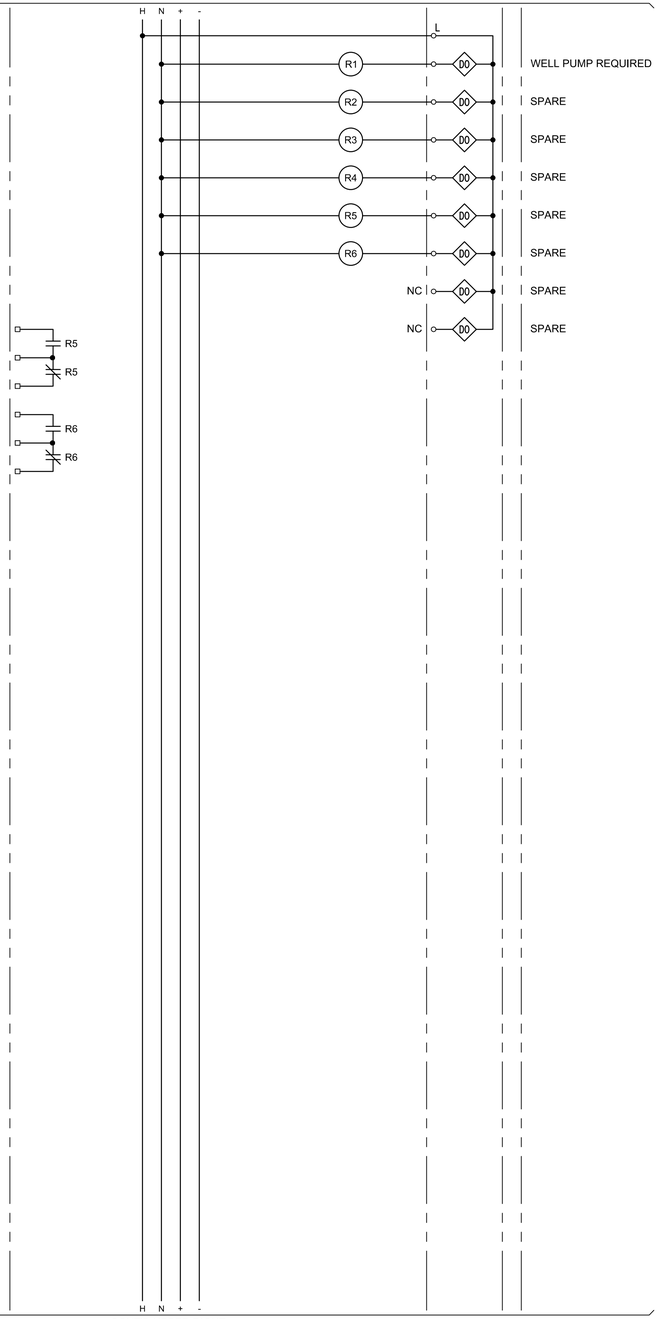
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
ELECTRICAL SCHEMATICS
1 OF 2

BARR PROJECT # 2362153400
DWG # E010
REV # 0

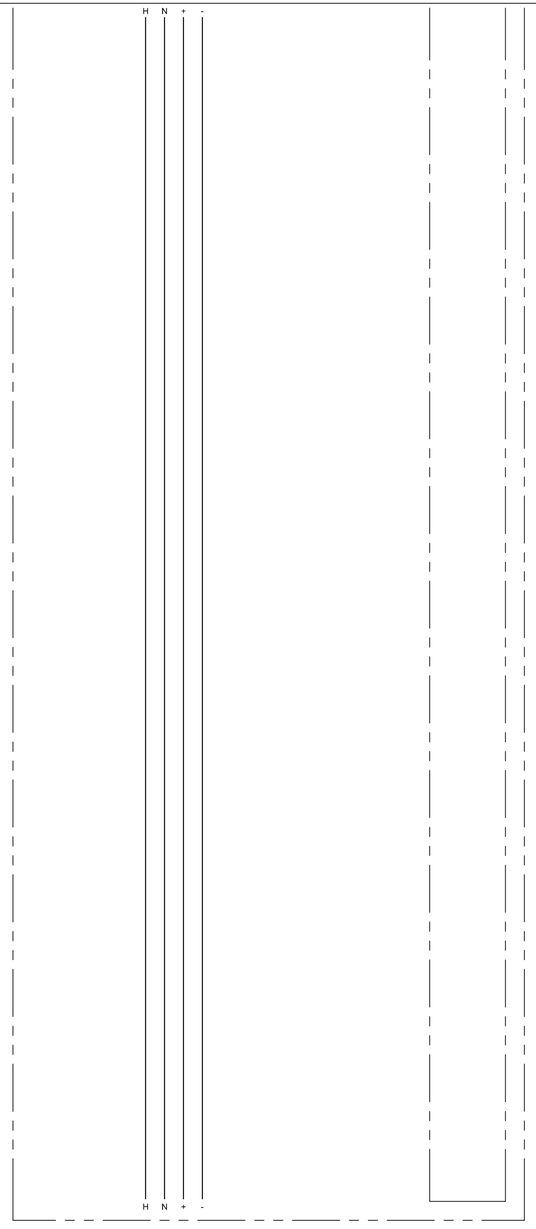
ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 5:54 PM
CADD USER: CHAD LAKOSKE FILE: M:\MES\NAO\2021\2362153400\ELECTRICAL\2362153400_E010_ELECTRICAL SCHEMATICS.DWG

CONT'D FROM PREVIOUS SHEET



CONT'D UPPER RIGHT

CONT'D FROM LOWER LEFT



LEGEND	
SYMBOL	DESCRIPTION
	EXISTING EQUIP. & CIRCUITRY
	NEW EQUIP. & CIRCUITRY UNDER THIS CONTRACT

CONTROL PANEL GENERAL NOTES:

1. MODIFY SCHEMATICS AS REQUIRED FOR UL508 LABEL AT NO ADDITIONAL COST TO THE OWNER. SEE SPECIFICATION SECTION 40 90 00.
2. ORGANIZE & LACE ALL WIRING USING NYLON CABLE TIES.

WELLHOUSE 16 ELECTRICAL SCHEMATIC
NO SCALE

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/19/2026 5:54 PM
CADD USER: CHAD LAKOSE FILE: M:\MES\ENG\2362\153400\ELECTRICAL\2362153400_E011_ELECTRICAL SCHEMATICS.DWG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

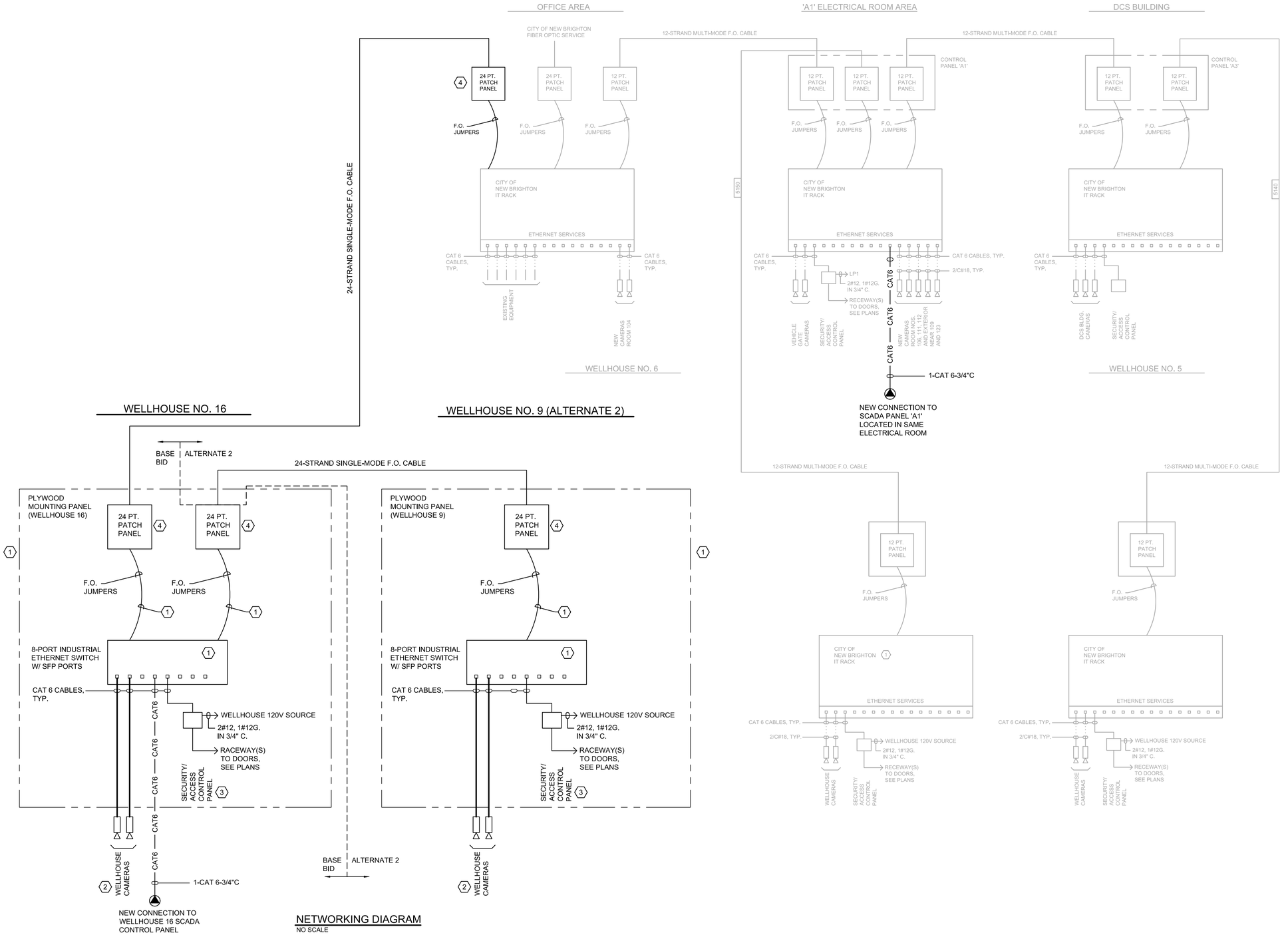
#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR®
BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435
PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN
CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
ELECTRICAL SCHEMATICS
2 OF 2

BARR PROJECT # 2362153400
DWG # E011
REV # 0



NETWORKING DIAGRAM
NO SCALE

NOTES:

1. PROVIDE CABLE AND CONDUIT AS INDICATED IN THE PLAN SHEET OR DARK LINE-TYPE. INSTALL WITHIN 3/4" MINIMUM SIZE CONDUIT UNLESS A LARGER SIZE IS INDICATED ON REQUIRED DUE TO PULLING CONDITIONS OR CONDUCTOR FILL.
2. CAT 6 CABLE TESTING BY OTHERS, PULL NEW CABLE IF NECESSARY IF DOCUMENTED TEST RESULT INDICATES CABLE FAILURE.
3. REFER TO SPECIFICATION SECTION 40 90 00 REGARDING FIBER OPTIC SPECIFICATIONS AND WORK.

KEYED NOTES: (#)

1. PROVIDED BY CITY, MOUNTED BY CONTRACTOR, COORDINATE EXACT LOCATION.
2. PROVIDED AND MOUNTED BY CITY'S CAMERA VENDOR, COORDINATE CONDUIT/CABLE LENGTH AS NECESSARY AT EACH CAMERA DROP LOCATION, SEE PLANS.
3. NEW SECURITY ACCESS CONTROL PANEL, PROVIDED BY VENDOR, MOUNTED AND FED W/ 120V POWER BY CONTRACTOR.
4. REFER TO SPECIFICATION SECTION 40 90 00.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE
SIGNATURE
DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

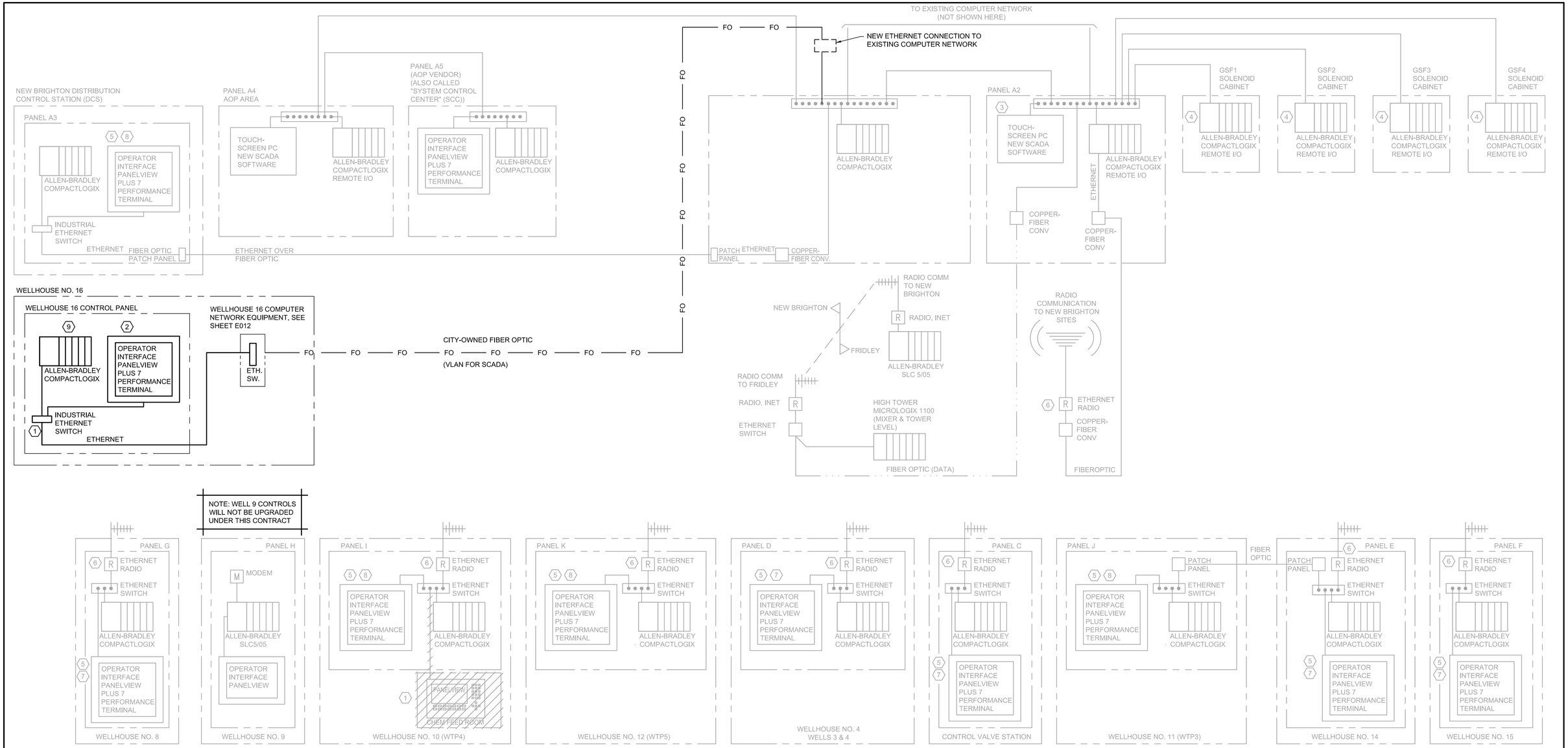
CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
NETWORKING DIAGRAM

BARR PROJECT # 2362153400
DWG # E012
REV # 0

ORIGINAL DRAWING SIZE: ANSI EXPAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/13/2026 5:56 PM
CADD USER: CHAD LAROSE FILE: M:\DESIGN\2362\153400\ELECTRICAL\2362153400_E012_NETWORKING DIAGRAM.DWG



CONTROL SYSTEM CONFIGURATION DIAGRAM

NO SCALE

GENERAL NOTES:

1. DRAWING IS DIAGRAMMATIC AND DOES NOT SHOW ALL PANEL COMPONENTS. SEE PANEL SCHEMATICS AND SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

NUMBERED NOTES:

1. FURNISH AND INSTALL NEW ETHERNET SWITCH HAVING PORTS AS REQUIRED, PLUS 50% SPARE PORTS. PROVIDE POWER SUPPLY, COMPONENTS AND WIRING AS REQUIRED.
2. NEW ALLEN-BRADLEY PANELVIEW MOUNTED IN FRONT DOOR. ALLEN-BRADLEY PANELVIEW PLUS 7 PERFORMANCE TERMINAL, 7-INCH, MODEL #2711P-T7C22D9P.
3. EXISTING DOOR-MOUNTED TOUCH-SCREEN COMPUTER WITH DESKTOP PC (MOUNTED INSIDE CONTROL PANEL) AND WIDE-FORMAT TOUCH-SCREEN MOUNTED IN FRONT DOOR.
4. EXISTING COMPACTLOGIX ETHERNET REMOTE I/0 IN EXISTING FILTER SOLENOID PANEL. INCLUDE RACK, POWER SUPPLY, COMMUNICATION COMPONENTS AND INPUT/OUTPUT MODULES.
5. EXISTING ALLEN-BRADLEY PANELVIEW WITH NEW WIDE-FORMAT PANELVIEW MOUNTED IN FRONT DOOR.
6. EXISTING ETHERNET RADIO.
7. ALLEN-BRADLEY (ROCKWELL) "PANELVIEW PLUS 7 PERFORMANCE TERMINAL", 7-INCH, MODEL #2711P-T7C22D9P, OR APPROVED EQUAL.
8. ALLEN-BRADLEY (ROCKWELL) "PANELVIEW PLUS 7 PERFORMANCE TERMINAL", 12-INCH, MODEL #2711P-T12W22D9P, OR APPROVED EQUAL.
9. NEW ALLEN-BRADLEY COMPACTLOGIX PLC. INCLUDE RACK POWER SUPPLY, PROCESSOR, COMMUNICATION COMPONENTS AND ALL INPUT/OUTPUT MODULES AS REQUIRED. SEE SPECIFICATIONS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME NEIL A. OFTELIE

SIGNATURE

DATE 01/20/2026 LICENSE # 61655

#	BY	CHK	APP	DATE	RELEASE/REVISION DESCRIPTION
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	CML2	ZMN	NAO	01/20/2026	ISSUED FOR CONSTRUCTION

BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN 55435

PH: 1-800-632-2277
WWW.BARR.COM
MINNESOTA ENGINEERING FIRM
NUMBER 10104111545

CITY OF NEW BRIGHTON
NEW BRIGHTON, MN

CLIENT PROJECT # 25-11

WELLHOUSE 16
NEW BRIGHTON, MN
CONTROL SYSTEM CONFIGURATION DIAGRAM

BARR PROJECT # 2362153400
DWG # E013
REV # 0

ORIGINAL DRAWING SIZE: ANSI E/PAND D (22.00 X 34.00 INCHES) PLOT SCALE: 1:1 PLOT DATE: 1/12/2026 5:55 PM
CAAD) USER: CHAD.JAKOSE FILE: M:\DES\GN\2362\153400\ELECTRICAL\2362153400_E013_CONTROL SYSTEM CONFIGURATION DIAGRAM.DWG

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Approval of Ordinance 925: An Ordinance to Amend the City of New Brighton Zoning Ordinance by Making Multiple Small Corrections Deemed Needed Following Adoption and Implementation of the New Zoning Code

Action Requested: Motion
Form of Action: Ordinance
Votes Needed: 3 Votes

Summary Statement:	Ordinance 925 will make several small corrections to the new zoning ordinance to address minor issues identified following adoption and use of the new Zoning Code.

Recommendations:	**The Planning Commission is unanimously recommending approval of Ordinance 925. Staff concurs with this recommendation.**

Applicable Deadlines:	None (city-driven process)

Community Impact:	Changes will bring clarity to the new code to ensure current rules are consistent with past regulations.

Legislative History:	- The new Zoning Code was adopted in October 2025, and went into effect on 11/3/25 - Two months of use has allowed staff to identify the need for these proposed minor updates.

Strategic Priority:	Community Engagement & Belonging

Fiscal Impact:	**Financial Consideration?**	**No**
	Revenue/Expenditure Amount:	$0
	Financing Source:	N/A
	Notes:	none

Attachments:	1.	Staff Report
	2.	ORD 925

STAFF Memorandum

Ordinance 925: AN ORDINANCE TO AMEND THE CITY OF NEW BRIGHTON ZONING ORDINANCE BY MAKING MULTIPLE SMALL CORRECTIONS DEEMED NEEDED FOLLOWING ADOPTION AND IMPLEMENTATION OF THE NEW ZONING CODE

To: **City Council**

From: Ben Gozola, *Assistant Director DCAD*

Meeting Date: **1-27-26**

INTRODUCTION

Upon completion of the new zoning code in 2025, staff informed all parties that the new code would be monitored over the course of the first year, and that staff would return with minor updates as needed to address issues as they arose. Ordinance 925 includes the first slate of minor updates recommended by staff.

SECTION 1:

- This section of Ordinance 925 would amend Table 3-5 which is the table containing zoning standards for RS-1 properties (formerly the R-1 zoning district).
- Footnote #3 in this table includes language from our previous code that allows for special setbacks on corner lots when a home was built before August 21, 1981.
- In moving this language into the new code, staff eliminated a sentence which stated all construction after August 21, 1981, had to meet the 30-foot setback requirement as we thought that requirement was already apparent in the table. Subsequent reading of this language though has convinced us that the deleted sentence must be reinstated within the new code to retain consistency with the prior regulation. Without this language, one could read the footnote language and come to the conclusion that the side yard setback on these lots is only 15 feet, and that has never been the intent of code.

SECTIONS 2 & 3:

- These sections would update Tables 4-4 and 4-5 which deal with freestanding sign heights, areas, and setbacks.
- Within these tables, staff accidentally left some special setback requirements in Table 4-4 that should be in Table 4-5. These two sections will relocate the misplaced language and make all requirements consistent with the former code.

SECTION 4:

- This section would update Section 5.3(D)(27) Retail Commercial Uses.
- The Business Neighborhood district (formerly B-1 & B-2) previously included a list of specific commercial uses that could only locate in this district. Upon creating the use tables, staff thought this specialty list of uses was now unnecessary as the tables could apply, but subsequent use of the tables indicates that greater specificity for the BR and BN districts is necessary.
- Section 4 of this ordinance would simply reinstate the former list of specialty uses to guide what can and cannot locate within a BR or BN district. This would prevent things like a liquor store from locating in these areas, and ensure future uses are more appropriate given their proximity to nearby residential homes.

SECTION 5:

- Proper oversight of group residential facilities continues to be a concern in the community, so after working with the City's new Fire Marshal, staff are proposing two new requirements for these homes:
    1. That all group residential facilities obtain and maintain a valid state license to be in operation. This will give us a specific city provision to cite and enforce should an active group residential facility fail to obtain their yearly license from the State or County; and
    2. That all group residential facilities register with the City on a yearly basis indicating the type of license being implemented, the number of residents being cared for, the number of on-site staff at peak shift, and up-to-date contact information (must provide a minimum of three points of contact including names, phone numbers, email addresses, and mailing addresses).
- These updates will provide the city with needed leverage and information to address any problems should they occur.

SECTION 6:

- The easiest and most straight-forward update in Ordinance 925 is in Section 6 which will update Zoning Code, Section 5.3(D)(32)(a).
- There are two references in this section that must be updated from "3.8" to "5.3" to ensure the reader is directed to the right location for the noted information.

RECOMMENDATIONS

The Planning Commission reviewed the proposed updates to code and determined that none were substantial, and all will either bring consistency between the new code and old code, or in the case of group homes, will add a needed informational standard for yearly operation. The commission unanimously recommended approval of the ordinance as presented, and staff concurs with this recommendation.

ATTACHMENTS:

1. *Ordinance 925*

ORDINANCE NO. 925

STATE OF MINNESOTA
COUNTY OF RAMSEY
CITY OF NEW BRIGHTON

AN ORDINANCE TO AMEND THE CITY OF NEW BRIGHTON ZONING ORDINANCE BY MAKING MULTIPLE SMALL CORRECTIONS DEEMED NEEDED FOLLOWING ADOPTION AND IMPLEMENTATION OF THE NEW ZONING CODE

THE CITY OF NEW BRIGHTON ORDAINS:

SECTION 1. The City Council of the City of New Brighton hereby amends New Brighton Zoning Code, Table 3-5, as follows:

TABLE 3-5: RS-1 DEVELOPMENT STANDARDS

	REQUIRED YARDS (in feet) [1]				Max Height (stories / feet)	Maximum Gross Impervious Surface Coverage	Maximum Gross Building Coverage
	Front [2]	Interior Side	Street Side [3]	Rear [4]			
All Structures and Buildings	30	5	30	5	Lesser of 2.5 stories or 30 feet	50%	30%

[1]: Any principal structure or building other than a single-family residence shall be located at least 30 feet from all property boundary lines.

[2]: A required front yard setback may be reduced to 24' for a portion of a principal dwelling. The portion of the dwelling within the standard setback shall:

a) Not exceed 35 percent of the dwelling width (excluding an attached garage) or shall be no more than 12 feet in width, whichever is less.

b) Include a base that is consistent in appearance with the base of the rest of the dwelling.

c) Include a roof that is properly proportioned to and integrated with the roof of the larger dwelling.

d) Utilize the same exterior structure materials and colors as the principal structure and accessories

[3]: A side street yard on a corner lot shall not be less than thirty feet in width for any construction after August 21, 1981. Any property already improved on August 21, 1981, by construction of a principal structure with a 15 foot side street yard setback shall not be considered nonconforming in regard to side street yard setback. In all cases, where adjacent properties are already improved, the City Council can grant special permission to change the setback requirements on a corner lot based on the criteria of visual compatibility with the surrounding properties.

[4]: Rear yard setbacks for lakeshore lots shall be as outlined in Section 3.8(C)(10).

The remainder of Table 3-5 is incorporated herein unchanged.

SECTION 2. **The City Council of the City of New Brighton hereby amends New Brighton Zoning Code, Table 4-4, as follows:**

TABLE 4-4: MAXIMUM FREESTANDING SIGN AREA AND HEIGHT		
ZONING DISTRICT	Area (Square Feet) [1]	Height (feet) [1]
RS-1, RS-2, RM-1, and MHC ~~[1]~~	**6 sq ft** ~~[2]~~	**4 ft**
RM-2, RM-3, BR	**35 sq ft**	**12 ft**
BN	**36 sq ft**	**20 ft**
BG [2]	**64 sq ft** [3] ~~[3] [4]~~	**20 ft**
IR, IL, IH [2]	**36 sq ft** [3] ~~[3] [4]~~	**20 ft**
DT, NBE, MUN, MUR, MUE	See Section 4.5(K)	

~~**[1]:** Residential freestanding signs may not be located closer than seven feet to the paved portion of a street and must be at least five feet from any other privately owned property.~~

[1]: Institutional and Governmental uses may have one freestanding sign not to exceed 32 square feet in area, and not to exceed 10 feet in height~~, and be no closer than 10 feet from any street right-of-way.~~

[2]: Freestanding signs that qualify as a freeway sign in these districts shall not exceed 170 square feet in area and not exceed 35 feet in height.

[3]: On each street side of less than 100 feet, a single ground sign not exceeding 12 square feet in area shall be permitted.

SECTION 3. **The City Council of the City of New Brighton hereby amends New Brighton Zoning Code, Table 4-5, as follows:**

TABLE 4-5: FREESTANDING SIGN MINIMUM SETBACK			
ZONING DISTRICT	STREET [1]	SIDE	REAR
RS-1, RS-2, RM-1, RM-2, RM-3, MHC, ~~BR, BN, BG~~	**7' ~~10'~~**	**5'**	**5'**
BR, BN, BG	**10'**	**5'**	**5'**
IR, IL, IH	**13.5'**	**5'**	**5'**
DT, NBE, MUN, MUR, MUE	**No minimums, but placement is subject to approval by the Department of Community Assets & Development. Proposed locations may be denied if the proposed location is deemed unsafe to the general public, or the location would interfere with the site's use or future development.**		

[1]: Institutional and Governmental signs shall be no closer than 10 feet from any street right-of-way

SECTION 4. The City Council of the City of New Brighton hereby amends New Brighton Zoning Code, Section 5.3(D)(27) Retail Commercial Uses as follows:

(27) Retail Commercial Uses

~~None.~~ Retail commercial uses in the BN and BR districts shall be limited to the following uses, or similar uses as determined by the Department of Community Assets and Development:

(a) Specialty Eating Establishments and Delicatessens in permanent buildings only.

(b) Restaurants with a maximum gross floor area of 5000 square feet.

(c) Eating places, lunchrooms, restaurants, and cafeterias of any size when housed and used in conjunction with other businesses permitted in the District.

(d) The sale of dry goods and variety merchandise.

(e) The sale of books, magazines, newspapers, cigars, drugs, flowers, gifts, music, photographic goods, sporting goods, and stationery.

(f) Personal & Professional Services.

(g) Service establishments, barber or beauty shops, custom tailors, laundry facilities, and shoe repair.

SECTION 5. The City Council of the City of New Brighton hereby amends New Brighton Zoning Code, Section 5.3(A)(9) Group Residential Facilities as follows:

(9) Group Residential Facilities

~~All group residential facilities shall be issued and must maintain a valid state license to be in operation.~~

(a) All group residential facilities shall obtain and maintain a valid state license to be in operation.

(b) All group residential facilities must register with the City on a yearly basis indicating the type of license being implemented, the number of residents being cared for, the number of on-site staff at peak shift, and must provide a minimum of three points of contact including names, phone numbers, email addresses, and mailing addresses.

SECTION 6. The City Council of the City of New Brighton hereby amends New Brighton Zoning Code, Section 5.3(D)(32)(a) as follows:

(a) Conditional Use

Wireless telecommunication towers/antenna shall be subject to approval of a conditional use permit. A conditional use permit shall be considered provided it is determined that the location and size of the use and type of operation involved therein shall not be injurious to the public health, safety, convenience, or general welfare and shall not injure or adversely affect the adjacent area or property values. The Planning Commission, in making a recommendation, and the City Council, in acting upon the conditional use permit, shall consider the following factors:

(i) The application for conditional use permit shall be processed according to Section 2.4(D) of the Zoning Code.

(ii) Applications for conditional use permits must meet the standards of Section 2.4(D) of the Zoning Code.

(iii) Wireless telecommunication towers/antenna may be constructed to a height that exceeds the required setback up to 33 percent. As a condition of approval, the City must be provided with a licensed professional engineer's certification that the tower is designed to collapse or fail within a distance or zone shorter than the required setback distance as determined by the height of the structure or telecommunication tower. The required setback is specified in Section ~~3.8~~ 5.3(D)(32)(b)(i & ii).

(iv) Certain telecommunication towers/antenna may be exempt from the setback requirement of Section ~~3.8~~ 5.3 (D)(32)(b) and instead subject to a 10 foot setback by authorization of the City Council and when all of the following criteria are met:

1. The tower/antenna is erected on a parcel zoned IL or IH.
2. The tower/antenna is located in a side or rear yard.
3. The reduced setback is measured only from the I-35W right-of-way.
4. The applicant submits a fall zone letter stating that tower is engineered to fall in a distance not impeding traffic on I-35W.

SECTION 7. Effective Date

This ordinance shall take effect upon its adoption by the city council, its publication in the city's official newspaper, and the completion of the listed conditions.

ADOPTED this 27th day of January 2026, by the New Brighton City Council with a vote of ___ ayes and ___ nays.

_____
Kari Niedfeldt-Thomas, Mayor

_____
Devin Massopust, City Manager

ATTEST:

_____
Terri Spangrud, City Clerk

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider a Summary Publication Resolution for Ordinance 925

Action Requested: Motion
Form of Action: Resolution
Votes Needed: 4 Votes

Summary Statement:	The summary publication resolution for Ordinance 925 will allow for publication of this lengthy ordinance with tables at a significantly reduced cost to the City.

Recommendations:	Approval of the summary publication resolution.

Applicable Deadlines:	None.

Community Impact:	Zoning updates in Ordinance 925 will simply make the new code easier to understand and consistent with the prior zoning code.

Legislative History:	- The new Zoning Code was adopted in October 2025, and went into effect on 11/3/25. - Two months of use allowed staff to identify the need for the proposed minor updates in Ord 925. - The Planning Commission reviewed the proposed updates and held a public hearing on 1/20/26.

Strategic Priority:	**Community Engagement & Belonging**

Fiscal Impact:	**Financial Consideration?**	**No**
	Revenue/Expenditure Amount:	$
	Financing Source:	N/A
	Notes:	

Attachments:	1.	Summary Publication Res for Ord 925

RESOLUTION _____
CITY COUNCIL
CITY OF NEW BRIGHTON

RESOLUTION AUTHORIZING PUBLICATION OF ORDINANCE NO. 925 BY TITLE AND SUMMARY

WHEREAS, the city council of the City of New Brighton has adopted Ordinance No. 925 an ordinance to amend the City of New Brighton zoning ordinance by making multiple small corrections deemed needed following adoption and implementation of the new zoning code; and

WHEREAS, the ordinance is lengthy and includes tables; and

WHEREAS, Minnesota Statutes, section 412.191, subd. 4, allows publication by title and summary in the case of lengthy ordinances or those containing charts or maps; and

WHEREAS, the City Council believes that the following summary would clearly inform the public of the intent and effect of the ordinance.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of New Brighton, that the City Clerk shall cause the following summary of Ordinance No. 925 be published in the official newspaper in lieu of the entire ordinance:

Public Notice

The City Council of the City of New Brighton has adopted Ordinance No. 925 which makes several minor updates to the City's new Zoning Ordinance put into effect on November 3, 2025. Changes include adding of language to ensure street side setbacks on corner lots remain consistent with the previous code, the relocation of sign setback information into the proper table within the new code, adding restrictions to uses in the Business Residential (BR) and Business Neighborhood (BN) districts, requiring the yearly registration of group residential facilities, and amending two references to ensure code users are directed to the correct information. All changes are for clarity, or to ensure that new rules are consistent with the previous code.

_____
Mayor Kari Niedfeldt-Thomas

BE IT FURTHER RESOLVED by the City Council of the City of New Brighton that the City Clerk keeps a copy of the ordinance at city hall for public inspection, and that a full copy of the ordinance be posted in a public place within the city.

Adopted this _____ day of _____, 2026 by the City of New Brighton City Council with voting as follows:

Mayor Kari Niedfeldt-Thomas: _____ Jeanne Vint Frischman: _____

Graeme Allen: _____ Jason Steffenhagen: _____

Emily Dunsworth: _____

_____
Kari Niedfeldt-Thomas, Mayor

_____
Devin Massopust, City Manager

ATTEST:

_____
Terri Spangrud, City Clerk

Agenda Section:	**Consent Agenda**
Meeting Date:	**January 27, 2026**

REQUEST FOR COUNCIL CONSIDERATION – EXECUTIVE SUMMARY

ITEM DESCRIPTION: Consider Easements with M T Properties as required for Jones Lake Access

Action Requested: Motion
Form of Action: Contract/Agreement
Votes Needed: 3

Summary Statement:	• In 2013, the Cities of New Brighton, Roseville and St. Anthony Village entered into a petition with Rice Creek Watershed District to address regional stormwater needs. • The City has acquired property in and around Jones Lake to facilitate future stormwater improvement projects. • Portions of adjacent properties include wetland and stormwater storage areas. • The City worked with these landowners to acquire the necessary easements to allow for future work within these easements to facilitate planned improvements. • The easements were reviewed and approved by the City and the landowners. • The enclosed signed easement documents will be submitted to the county for recording. • This easement will specifically allow for better access from 1st Street SW along the adjacent RR to Jones Lake,

Recommendations:	To approve and accept the attached easement with signatures from the

	Mayor and City Manager.

Applicable Deadlines:	NA

Community Impact:	**Reliable Infrastructure:** For over two decades, the City of New Brighton has engaged in a slow process to both appraise and acquire all lands directly surrounding Lake Jones as the basin serves as a key node within the community's stormwater management system. **Environment & Sustainability:** Future work around Lake Jones will improve drainage conditions in the SE portions of the City, and will seek to protect and strengthen habitat for wildlife in this area.

Legislative History:	• July 9, 2013, the City Council approved a petition to the Watershed District for a Basic Water Management Project to address stormwater management and flooding within the Cities of New Brighton, Saint Anthony, Roseville. • November 13, 2018, City Council Authorized Staff to Prepare Purchase Agreement for Baptist Seminary Property. • January 9, 2024, Resolution to Support Rice Creek Watersheds State Bonding Request for Jones Lake Improvements and City Council Support of Purchase Agreement with Fulford Family Partnership LP for upland in the southeast corner of Jones Lake.

Strategic Priority:	City Assets

Fiscal Impact:	Yes $3,000

Attachments:	1.	2025 New Brighton 1051663-v1-Access Easement Agreement DRAFT-196654818-v3

ACCESS EASEMENT AGREEMENT

This Access Agreement (this "Agreement') is made this _____ day of _____, 2026, by and between the City of New Brighton, a Minnesota municipal corporation (the "City") and M T Properties, Inc. (formerly the Minnesota Transfer Railway), a Minnesota corporation (the "Railway").

Recitals

A. The Railway is the fee owner of the property legally described in the attached Exhibit A ("Railway Property"); and

B. The City is the owner of the property legally described on the attached Exhibit B (the "City Property"); and

C. The City is in need of access to the City Property so that it can construct and maintain the City Property. The City is in need of an access easement so that it can cross the Railway Property with maintenance vehicles and personnel in order to access the City Property to maintain the City Property, said maintenance activities including but not limited to; performing tree, dirt, and vegetation removal; performing pipe maintenance and repair; removing garbage and debris (the "Permitted Activities").

Terms of Access Easement

1. Grant of Access Easement. For good and valuable consideration, receipt and sufficiency of which are acknowledged by the Railway, the Railway grants to the City a non-exclusive access easement over and across the Railway Property in the location described on Exhibit C and depicted on Exhibit D ("Access Easement Area") for the purposes of accessing the City Property and performing the Permitted Activities. The City hereby accepts said access easement to perform the Permitted Activities.

2. Scope of Easement. The above-described access easement permits the City, its contractors, agents, and employees (collectively, the "City Authorized Parties") to utilize the Access Easement Area, with maintenance vehicles, personnel, and equipment, in order to access the City Property to perform the Permitted Activities during normal business hours; provided, however, except in the event of emergency, the City shall notify the Railway at least forty-eight hours in advance of accessing the Railway Property. The City shall not permit the general public to utilize the Access Easement Area. The City agrees to install a locking gate on the Railway Property that will limit access by the public to the Access Easement Area. Only authorized City and Railway personnel shall have access through the gate.

3. Warranty of Title. The Railway warrants that it is the fee owner of the Railway Property and that it has the right, title, and capacity to grant the access easement herein to the City.

4. Indemnification. The City agrees to indemnify, save harmless, and defend the Railway and its officers, employees, contractors, and agents from and against any and all claims, actions, damages, liability and expense in connection with personal injury or damage to the Railway Property arising from or out of any occurrence in, upon or at the Railway Property caused by the act or omission of the City Authorized Parties in conducting the Permitted Activities on the City Property, except to the extent caused by the gross negligence, willful misrepresentation or any willful or wanton misconduct by the Railway, its officers, employees, agents, or contractors.

5. Insurance. The City will provide and maintain or cause to be maintained at all times and, from time to time at the request of the Railway, furnish the Railway with proof of payment of premiums on insurance of amounts and coverage normally held by the Railway and reasonably acceptable to the Railway.

6. Restoration of the Railway Property. In the event that there is damage to the Railway Property that was caused by the Permitted Activities, the City shall be responsible for promptly repairing the damage at its expense. The City shall restore the Railway Property to the condition that it existed prior to this easement prior to the termination of this Agreement.

7. Notices. All notices required under this Agreement shall be either personally delivered, delivered by a professional courier service, or be sent by U.S. certified mail, postage prepaid, return receipt requested and addressed as follows:

(a) As to the City:
City of New Brighton
803 Old Highway 8 NW
New Brighton, MN 55112
Attn: City Manager

(b) As to the Railway:
M T Properties, Inc.
970 Raymond Avenue, Suite 101
St. Paul, MN 55114
Attn: Kelly Scanlan

In the event that the Railway Property or the City Property is conveyed to a third party, the conveying party shall notify the other party to this Agreement of the name of the new owner of the property.

8. Amendments. This Agreement may be modified only through written amendments signed by both parties to this Agreement.

9. Counterparts. This Agreement may be executed simultaneously in any number of counterparts, all of which shall constitute one and the same instrument.

10. Choice of Law. This Agreement shall be governed by and construed in accordance with the laws of the state of Minnesota. Any disputes, controversies, or claims arising out of this Agreement shall be heard in the state or federal courts of Minnesota, and all parties to this Agreement waive any objection to the jurisdiction of these courts, whether based on convenience or otherwise.

11. Not a Public Dedication. Nothing herein contained shall be deemed to be a gift or dedication of any portion of Railway Property to the general public, or for any public use or purpose whatsoever, except as expressly contemplated herein.

12. No Interference: The City shall at all times conduct all of its activities within the Access Easement Area in such a manner as not to interfere with or impede in any manner whatsoever the operation of the Railway Property and any related activities of Railway. If at any time Railway, in its sole discretion, determines that the safety, operation, or maintenance of the Railway Property is adversely affected by the City, Railway may take any and all necessary action to protect the Railway Property from such adverse condition, and the City shall promptly reimburse Railway for its reasonable costs incurred in protecting or modifying the Railway Property from, or to eliminate, such adverse condition.

13. Binding Effect. The terms and conditions of this Agreement shall run with the land and be binding on the parties and their successors and assigns.

[Signature Pages Follow]

IN WITNESS OF THE FOREGOING, each of the parties has executed this Agreement as of the date first written above.

CITY OF NEW BRIGHTON

By:_____
Kari Niedfeldt-Thomas
Its: Mayor

By: _____
Devin Massopust
Its: City Manager

STATE OF MINNESOTA }
ss.
COUNTY OF RAMSEY

The foregoing instrument was acknowledged before me this ____ day of _____, 2025, by Kari Niedfeldt-Thomas and Devin Massopust, the Mayor and City Manager, respectively, of the City of New Brighton, a Minnesota municipal corporation on behalf of the City.

_____
Notary Public

M T Properties, Inc.

By:_____
Kelly Scanlan

Its: __Executive Vice President _____

STATE OF MINNESOTA }
ss.
COUNTY OF _____

The foregoing instrument was acknowledged before me this ____ day of _____, 2026, by _____ the _____ of M T Properties, Inc., a _____, in the state of Minnesota on behalf of the _____.

_____
Notary Public

THIS INSTRUMENT DRAFTED BY:

Kennedy & Graven, Chartered (SJS)
Fifth Street Towers
150 South Fifth Street
Minneapolis, MN 55402
(612) 337-9300

EXHIBIT A

Legal Description of the Railway Property

Parcel 6 (on map):

That part of said rail road that lies in the Northeast Quarter of the Northeast Quarter of Section 32, Township 30, Range 23, Ramsey County, Minnesota, described as follows: That part of the South Half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE ¼) of Section Thirty-two (32), in said Township Thirty (30) North, Range Twenty-three (23), West described as follows, to-wit: Being a strip of land One Hundred (100) feet in width across the South half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE ¼) of Section Thirty-two (32), Township Thirty (30) North, Range Twenty-three (23) West, Ramsey County, Minnesota. Said One Hundred (100) foot strip of land being a strip Fifty (50) feet wide on each side of the located center line of the Railway of the Minnesota Belt Line Railway and Transfer Company as said Railway is now located across said South half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE 1/4). Said center line of said Railway being further described as follows: Commencing at a point on the West line of said South half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE ¼) of Section Thirty-two (32). Said point being Two Hundred Forty-seven and Five tenths (247.5) feet South from the Northwest corner of said South half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE ¼) of Section Thirty-two (32); thence in a Southeasterly direction a distance of Four Hundred and Ninety-six and five Tenths (496.5) feet to a point on the South line of said South half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE ¼) of Section Thirty-two (32). Said point being Ten Hundred and Forty-five (1045) feet West of the Southeast corner of said South half of the Northeast Quarter of the Northeast Quarter (S ½ of NE ¼ of NE ¼) of Section Thirty-two (32). Said strip of land containing One and Thirteen Hundredths (113) acres. Excepting and reserving across all of said lands hereby conveyed rights of way for such streets as when continued from their present Section on the Plats of New Brighton and First Addition to New Brighton shall cross said strip or strip of land.

AND

That part of said railroad that lies in the Northwest Quarter of the Northeast Quarter of Section 32, Township 30, Range 23, Ramsey County, Minnesota, described as follows: That portion of the Northwest Quarter of the Northeast Quarter of Section Thirty-two (32) in Township Thirty (30) of Range Twenty-three (23), subdivided and platted as “Sault Ste. Marie Park”, according to the recorded plat thereof in the office of the Register of Deeds for said county; said parcel of land being a strip One Hundred (100) feet in width, lying Fifty (50) feet upon each side of the center line of the railroad of the second party as now constructed and operated upon said land.

Also described as:

A strip of land One Hundred (400) feet in width, being Fifty (50) feet in width on each side of the center line of the line of railway now constructed and operated by the party of the second part, upon, over and across, Block Numbered Two (2), Seven (7), Eight (8), Nine (9), Ten (10), Sixteen (16) and Seventeen (17) in Sault Ste. Marie Park, according to the plat thereof of record in the

office of the Register of Deeds in and for said county; or any part of said block lying within said One Hundred feet strip.

AND

Parcel 3: Only that part of said railroad that lies in the Southeast Quarter of the Northeast Quarter of Section 32, Township 30, Range 23, Ramsey County, Minnesota of the following described legal:

The East Half (E ½) of the Northeast Quarter (NE ¼) of Section Thirty-two (32), Township Thirty (30), Range No. Twenty-three (23), according to Government Survey thereof.

AND

Only the North 60 feet of that part of said railroad that lies in the Northeast Quarter of the Southeast Quarter of Section 32, Township 30, Range 23 of the following described legal:

A strip of land One Hundred (100) feet in width through the East One-half of the Southeast One Quarter (E ½ of SE ¼) of Section Thirty-two (32), Township Thirty (30) North Range Twenty-three (23) West being Fifty (50) feet wide on each side of the following described line. Beginning at a point on the North line of said Southeast One Quarter (SE ¼) of said point being Six Hundred and Eighty-five (685) feet West of the Quarter post on the East line of said Section Thirty-two (32); thence Southwesterly on the located center line of the Railroad of the Minnesota Belt Line Railway and Transfer Company by a Three degree (3°) curve, a distance of Two Hundred and Fifty-one and Three Tenths (251 3/10) feet; thence by a straight line a distance of Twenty-four Hundred and Forty-two (2442) feet to a point on the South line of said Section Thirty-two (32), said point being Twelve Hundred and Seventy- four and Four Tenths (1274 4/10) feet West from the Southeast corner of said Section Thirty-two (32).

All in Ramsey County, Minnesota.

Parcel ID No.: 32-30-23-14-0001
Abstract Property

Parcel 7 (on map):

EXCEPT the North 60 feet of that part of said railroad that lies in the Northeast Quarter of the Southeast Quarter of Section 32, Township 30, Range 23 of the following described legal:

A strip of land One Hundred (100) feet in width through the East One-half of the Southeast One Quarter (E ½ of SE ¼) of Section Thirty-two (32), Township Thirty (30) North Range Twenty-three (23) West being Fifty (50) feet wide on each side of the following described line. Beginning at a point on the North line of said Southeast One Quarter (SE ¼) of said point being Six Hundred and Eighty-five (685) feet West of the Quarter post on the East line of said Section Thirty-two

(32); thence Southwesterly on the located center line of the Railroad of the Minnesota Belt Line Railway and Transfer Company by a Three degree (3°) curve, a distance of Two Hundred and Fifty-one and Three Tenths (251 3/10) feet; thence by a straight line a distance of Twenty-four Hundred and Forty-two (2442) feet to a point on the South line of said Section Thirty-two (32), said point being Twelve Hundred and Seventy-four and Four Tenths (1274 4/10) feet West from the Southeast corner of said Section Thirty-two (32), Ramsey County, Minnesota.

Parcel ID No.: 32-30-23-44-0001
Abstract Property

EXHIBIT B

Legal Description of the City Property

Parcel 1

That part of Lot 1, Block 1, Lakes Run Apartments, which lies easterly of the east line of the west 450 feet of the Southwest Quarter of the Northeast Quarter of Section 32, Township 30, Range 23, Ramsey County, Minnesota.

PID No.: 32-30-23-13-0012
Torrens Property; Certificate No. 648956

Parcel 2

That part of the Northwest Quarter of the Northeast Quarter Section 32, Township 30, Range 23, lying Westerly of Minnesota Transfer Railway Company's Right-of-Way and between the centerline and North line of First Street, S.W., except the West 140 feet thereof, and also except the East 350 feet of the West 810 feet thereof, Ramsey County, Minnesota.

PID No.: 32-30-23-11-0001
Torrens Property; Certificate No. 256378

Parcel 3

That part of the Southeast Quarter of the Northeast Quarter of Section 32, Township 30, Range 23 lying Westerly of Minnesota Belt Line Railway Company, except the South 10 acres thereof, Ramsey County, Minnesota.

Parcel ID No: 32-30-23-14-0005
Abstract Property

Parcel 4
Lot 1, Block 1 and Lot 1 Block 2, Jones Lake Overlook, according to the plat thereof, Ramsey County, Minnesota.

Parcel ID No.: 32-30-23-14-0020
Abstract Property

Parcel 5

That part of the South 10 acres of the Southeast Quarter of the Northeast Quarter of Section 32, Township 30, Range 23, lying westerly of the railway right-of-way, which lies within a distance of 45 feet on each side of the following described line:

From a point on the south line of said Section 32, distant 677.15 feet west of the southeast comer thereof, run northeasterly at an angle of 82 degrees 22 minutes 53 seconds with said south Section line for 1677.79 feet; thence deflect to the left at an angle of 81 degrees 04 minutes 30 seconds for 557 feet; thence deflect to the right at an angle of 86 degrees 36 minutes for 856.94 feet; thence deflect to the left at an angle of 73 degrees 30 minutes 15 seconds for 537 .34 feet to the point of beginning of the line to be described; thence run southeasterly along the last described course for 700 feet and there terminating;

Together with all that part of the above described tract adjoining and southwesterly of the above described strip which lies southeasterly of a line run parallel with and distant 70 feet northwesterly of the following described line; Beginning at a point on the above described line, distant 537 .34 feet southeasterly of its point of beginning; thence run southwesterly at an angle of 73 degrees 30 minutes 15 seconds with said line (measured from a southeasterly to a southwesterly direction) for 100 feet and there terminating;

in Ramsey County, Minnesota.

Parcel ID No.: 32-30-23-14-0022
Abstract Property

EXHIBIT C

Legal Description of the Access Easement Area

A perpetual easement for ingress and egress purposes over and across that part of the west 30.00 feet of the 100 foot wide Minnesota Transfer Railway Company's right of way which lies in the East Half of Section 32, Township 30, Range 23, Ramsey County, Minnesota and which lies south of the southerly right of way line of First Street SW and north of the northerly right of way line of Trunk Highway No. 8.

EXHIBIT D

Depiction of the Easement Area

