

ADDENDUM NO. 1
TO THE CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF THE
N. CHICAGO LIFT STATION IMPROVEMENTS
CITY OF SOUTH MILWAUKEE, WISCONSIN

DATE: 15 May 2018

BID DATE: 2:00 P.M. Local Time, May 17th, 2018 (UNCHANGED)

TO ALL BIDDERS ON THE ABOVE PROJECT:

The following changes, additions and deletions are hereby made a part of the Contract Documents for the N. Chicago Lift Station Improvements as fully and completely as if the same were fully set forth therein.

Bidders shall acknowledge receipt of this Addendum by inserting the number and date in the space provided in the Bid Form.

SPECIFICATIONS

SECTION 00200 – INSTRUCTIONS TO BIDDERS

1. Paragraph 23.3
Delete this paragraph in its entirety.

SECTION 00410 – BID FORM

1. Replace Bid Form in its entirety with the attached, revised Bid Form.

SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS

1. Paragraph 1.4.A.1
Revise this section to read as follows:
 1. *The Contractor shall maintain a minimum of one lane of traffic in each direction on streets at all times. Roads shall be maintained in a safe condition throughout the duration of the project. The Contractor shall take all precautions necessary to safely warn the public of the probable increased danger to travel due to construction of the Work. The Contractor shall prepare a traffic control plan and submit to the City Engineer's office for approval prior to the commencement of the work.*

SECTION 03300 – CAST-IN-PLACE CONCRETE

1. Paragraph 2.2.F.

Revise this section to read as follows:

- F. Integral waterproofing admixture: Hydrophilic, crystalline admixture for waterproofing concrete. Admix C-500 by Xypex; Penetron by W.R. Grace; Kystol Internal Membrane by Kryton; ADI-CON Plus by W.R. Meadows; or Hycrete W500 by Hycrete, Inc.; MasterLife 300D by BASF Corporation or approved equal. Add admixture to concrete in accordance with manufacturer's recommendations.*

SECTION 11316 – SUBMERSIBLE PUMPS

1. Paragraph 1.5.B.4

Revise this section to read as follows:

- 4. Factory Performance Test*
- a. Factory performance tests are required on all pumps in accordance with Hydraulic Institute Standards.*
 - b. Conduct tests using the pumps and motors actually furnished for the project.*
 - c. Provide pump performance curves for 70 %, 85% and 100% speeds required to meet the hydraulic requirements specified in paragraph 1.4.B. Each performance curve shall include at least five data points for each pump, including shutoff and maximum flow without exceeding motor rating.*
 - d. Complete factory test shall include:*
 - 1) Flow capacity*
 - 2) Head*
 - 3) Pump efficiency*
 - 4) Brake horsepower requirements*

2. Paragraph 2.4.D.2

Revise this section to read as follows:

- 2. Guide rails:*
 - a. Number of guide rails per pump: 2.*
 - b. Length, feet: See Drawings.*
 - c. Construction: 3-inch, 316 stainless steel.*
- 3. Include upper and intermediate guide rail supports for each pump.*
- 4. Pump lifting system:*
 - a. Provide 316 stainless steel guide rope and a short length of stainless steel chain for each pump to allow removal with a chain grip.*
 - b. Provide stainless steel cable holders for each pump.*
 - c. Provide a carbon steel "Grip-Eye" chain grip.*

SECTION 14600 – HOIST AND MONORAIL SYSTEMS

1. Paragraph 2.4.B.4.

Revise this paragraph to read as follows:

4. *Hoisting rope: Flexible plow steel wire rope made for hoist service or stainless steel chain suitable for explosion proof service.*

SECTION 15020 – DETAIL PIPING SPECIFICATION – POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

1. Add the attached specification to the contract documents.

SECTION 16483 – ADJUSTABLE SPEED CONTROLLERS (ASC)

1. Paragraph 2.1.C

Immediately after this paragraph, add the following:

- D. *ABB, 18-pulse (ABB, 6 pulse, if HP is less than 50).*

DRAWINGS

DRAWING 10-E-1 – ELECTRICAL LEGEND

1. Add the attached drawing to the contract documents.

DRAWING 20-G-1 – PROJECT LOCATIONS

1. Revise the callout pointing to the South Milwaukee Water Tower from “**SOUTH MILWAUKEE WATER TOWER SEE STANDARD DETAIL 13960**” to “**SOUTH MILWAUKEE WATER TOWER SEE STANDARD DETAIL 13962**”.

DRAWING 30-AS-5 – ARCHITECTURAL/STRUCTURAL PLAN

1. Revise Section C by adding the following callout to the building roof:

“PROVIDE FLASHING FOR 4” V, SEE DRAWING 30-M-3 AND STANDARD DETAIL 07616.”

DRAWING 30-M-1 – MECHANICAL PLAN

1. Revise the callout in the Pump Room from “**8”x12” TEE**” to “**10”x12” TEE**”.

DRAWING 30-E-3 ELECTRICAL PLAN

1. Revise the Drawing by adding the following note:
“7. NEMA 7 JUNCTION BOXES FOR FIELD INSTRUMENTATION SHALL INCLUDE TWO EXPLOSION PROOF SEALOFFS AND SEALING COMPOUND, SIMILAR TO DETAIL 16261.

DRAWING 90-I-3 – NETWORK RISER REMOVAL DIAGRAM

1. Revise the network riser removal diagram by showing the *EXISTING WONDERWARE SCADA COMPUTER SYSTEM* to be removed by contractor.

DRAWING 90-I-4 – NETWORK RISER INSTALL DIAGRAM

1. Revise the network riser install diagram by changing the label of the EXISTING WONDERWARE SCADA COMPUTER SYSTEM to NEW WONDERWARE SCADA COMPUTER SYSTEM.
2. Revise the network riser install diagram by changing the lineweight of the WWTF Wonderware SCADA computer system from existing to new construction.

DRAWING 99-I-1 – I&C DETAILS

1. Revise standard detail 13362 by changing the note to the junction box from “*NEMA 4 TERMINAL JUNCTION BOX REQUIRED*” to “*NEMA 4X TERMINAL JUNCTION BOX AS REQUIRED*”.

DRAWING 95-M-1 – MECHANICAL SCHEDULES

1. Revise the Pipe Schedule by changing the specification section for the “Vent” service from 15030 to 15020.

DRAWING 99-E-1 ELECTRICAL DETAILS

1. Revise the Drawing per the attached Drawing.

END OF ADDENDUM

BID FORM

NOTE: Use Black Ink Or Typewriter For Completing This Bid Form

PROJECT IDENTIFICATION: North Chicago Lift Station Improvements

THIS BID IS SUBMITTED TO: City of South Milwaukee
City Clerk
2424 15th Avenue
South Milwaukee, WI 53172

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for the period of time specified in the Invitation to Bid after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within 15 days after the date of Owner's Notice of Award.
3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
 - (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda, receipt of all which is hereby acknowledged:

<u>Number</u>	<u>Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

- (b) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.
- (c) Bidder has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Article 5 of the General Conditions and accepts the determination set forth in Article 5 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.

If the Contract is to be awarded, it will be awarded to the lowest, qualified, responsive and responsible Bidder based on the TOTAL BASE BID whose evaluation by Owner indicates that the award will be in the best interests of the Project.

5. Bidder agrees that the Work will be substantially completed within 270 days from the date when the Contract Time commences to run as provided in Articles 4 and 15 of the General Conditions, and completed and ready for final payment in accordance with Article 15 of the General within 300 days from the date when the Contract Time commences to run.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

6. The following documents are attached to and made a condition of this Bid:

- (a) Required Bid Security in the form of _____
- (b) Schedule A - Major Equipment Schedule
- (c) Schedule B - Subcontractor Listing
- (d) Statement of the Bidder's qualification to do business in the state where the Project is located; or in the absence of such evidence, this bid constitutes Bidder's covenant to obtain such qualification prior to the award of the Contract.
- (e) DBE Program Performance and Utilization Forms (EPA Forms 6100-4)

7. Communications concerning this Bid shall be addressed to:

Name: _____

Company Name: _____

Address: _____

Telephone No.: _____

8. The terms used in this Bid, which are defined in the General Conditions of the Construction Contract included as part of the Contract Documents, have the meanings assigned to them in the General Conditions.

SUBMITTED ON _____, 20____

I hereby certify that as Bidder I/We have examined and carefully prepared this Bid from the Bidding Documents and have checked the same in detail before submitting this Bid, and that all statements herein are made on behalf of:

An Individual

By (Individual's Signature) _____ (SEAL)

Individual's Name (Print) _____

Doing business as (Firm Name) _____

Business address: _____

Phone No.: _____

A Partnership

By (Firm Name) _____ (SEAL)

Signature of General Partner _____

Name of General Partner (Print) _____

Business Address: _____

Phone No.: _____

A Corporation

By (Corporation Name) _____

State of Incorporation _____

Signature of Authorized Representative _____

Name of Authorized Rep. (Print) _____

Title _____ (SEAL)

Attest (Signature) _____

Name of Attester (Print) _____

Business address: _____

Phone No.: _____

A Joint Venture

By (Representative's Signature) _____ (SEAL)

Representative's Name & Title (Print) _____

Doing business as (Firm Name) _____

Business address: _____

Phone No.: _____

By (Representative's Signature) _____ (SEAL)

Representative's Name & Title (Print) _____

Doing business as (Firm Name) _____

Business address: _____

Phone No.: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above).

Sworn and subscribed to before me this

_____ day of _____, 20_____.

Notary or Other Officer Authorized To
Administer Oaths

My commission expires: _____

**SCHEDULE A
MAJOR EQUIPMENT SCHEDULE**

Specification Section	Equipment Description	Named Manufacturers and Suppliers Included in Base Bid (Circle the One Selected)	Dollar Amount Included in Base Bid to Furnish Equipment/material (Use Figures for the Selected One)	Alternate (“Or Equal”) Manufacturers and Suppliers (Fill in names)	Dollar Amount To Be Deducted From Base Bid if Alternative (“Or Equal”) Is Chosen (Use Figures)
11316	Submersible Pumps	A. Flygt, Xylem	A.	B.	B.
13320	General Instrumentation and Controls	A. Allen-ICS B. Altronex C. Energenecs	A. B. C.	D.	D.
16483	Adjustable Speed Controllers	A. Allen-Bradley B. Siemens C. Square-D D. ABB	A. B. C. D.	E.	E.
16621	Automatic Transfer Equipment	A. Russelectric, Inc. B. ASCO	A. B.	C.	C.

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SECTION 15020

DETAIL PIPING SPECIFICATION – POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polyvinyl chloride (PVC) pipe and fittings.

1.2 RELATED SECTION

- A. Section 15000 - Plant Piping - General: See Section for additional requirements.

1.3 SUBMITTALS

- A. As specified in Section 15000.

PART 2 PRODUCTS

2.1 PIPE

- A. Less than 4-inches: PVC, Schedule 80, Class 12454-B, (Type I, Grade 1), conforming to ASTM D 1784 and ASTM D 1785.
- B. 4-inch and larger: PVC, Schedule 40, Class 12454-B, (Type I, Grade 1), conforming to ASTM D 1785 and ASTM D 2466.

2.2 NIPPLES

- A. Same as pipe, except threaded nipples shall be Schedule 80.

2.3 JOINTS

- A. Socket-weld, except where connecting to unions, valves, and equipment with threaded connections that may require future disassembly.

2.4 FITTINGS

- A. Schedule 80, as specified under PIPE. Fittings shall conform to the requirements of ASTM D 2467 for socket type and ASTM D 2464 for threaded type.

2.5 FLANGES

- A. One-piece, molded hub type flat-faced flanges, 125-pound standard.

2.6 GASKETS

- A. Full-faced, 1/8-inch thick, fabricated from ethylene propylene rubber (EPR).
- B. When mating flange has raised face, use flat ring gasket and provide filler gasket between OD of raised face and flange OD to protect PVC flange from bolting moment.

2.7 BOLTING

- A. Bolts shall be fabricated in accordance with ANSI B18.2 and provided with washers of the same material as the bolts.
- B. With Flat Ring Gaskets: Carbon steel, ASTM A 307, Grade B square head bolts & ASTM A 563, Grade A heavy hex head nuts
- C. With Full Face Gaskets or in Corrosive Areas or Outside Locations: Type 316 stainless steel, ASTM A 193, Grade B8M hex head bolts and ASTM A 194, Grade 8M hex head nuts.

2.8 SOLVENT CEMENT

- A. All socket connections shall be joined with primer and PVC solvent cement conforming to ASTM D 2564. Manufacture and viscosity shall be as recommended by the pipe and fitting manufacturer to assure compatibility.

2.9 THREAD LUBRICANT

- A. Teflon tape.

PART 3 EXECUTION

3.1 GENERAL

- A. All rigid PVC pipe shall be cut, made up, and installed in accordance with the pipe manufacturer's recommendations. Offset shall be as recommended by the manufacturer for the maximum temperature variation between time of solvent welding and during operation.
- B. Only strap wrenches shall be used for tightening threaded plastic joints, and care shall be taken not to over-tighten these fittings. Pipe shall not be laid when the temperature is below 40° F, nor above 90° F when exposed to direct sunlight. Ends to be joined shall be shielded from direct sunlight before and during the laying operation.
- C. Provide adequate ventilation when working with pipe joint solvent cement.

3.2 TESTING

- A. All lines shall be hydrostatically tested at the pressures listed in the Piping Schedule. Test procedures shall be as specified in Section 15000.

3.3 SUPPORTS AND HANGERS

- A. Supports and hangers shall be as specified in Section 15000, except spacing shall be in accordance with the pipe manufacturer's recommendations.

END OF SECTION

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	PLAN NOTE REFERENCE
	CONNECTION POINT TO EQUIPMENT SPECIFIED. FURNISHED AND INSTALLED UNDER OTHER DIVISIONS. RACEWAY, CONDUCTOR AND CONNECTION IN DIVISION 16.
	MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.
	BRANCH CIRCUIT PANEL, BRANCH POWER PANEL
	UNIT HEATER NO.1 SEE SCHEDULE
	TELEPHONE TERMINAL CABINET
	TERMINAL JUNCTION BOX
	GENERATOR
	SAME AS , BUT SPECIFICALLY A SQUIRREL CAGE INDUCTION MOTOR, X = HORSEPOWER
	LUMINAIRE - SEE SCHEDULE
	LUMINAIRE, FLUORESCENT - SEE SCHEDULE
	LUMINAIRE AND POLE - SEE SCHEDULE
	WALL MOUNTED LUMINAIRE - SEE SCHEDULE
	FLOOD LIGHTS - SEE SCHEDULE
	EXIT LIGHTS - SEE SCHEDULE
	OCCUPANCY SENSOR
	PHOTOCELL
	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER AT LUMINAIRE INDICATES CIRCUIT IN PANELBOARD.
	WALL SWITCH 2- DOUBLE POLE 3- THREE WAY 4- FOUR WAY WP- WEATHERPROOF BLANK-SINGLE POLE
	PILOT LIGHT KEY OPERATED DIMMER INTEGRAL MOTION DETECTION CORROSION RESISTANT
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED AS SHOWN
	CABLE TRAY - SEE SPECIFICATIONS
	BUS DUCT - SEE SPECIFICATIONS
	TRENCHING FOR UTILITY COMPANY PRIMARY POWER CUTS
	TRENCHING FOR TELEPHONE COMPANY CIRCUITS
	CONCRETE ENCASED CONDUIT
	DIRECT BURIED CONDUIT
	DATA RECEPTACLE (SCADA)
	DATA RECEPTACLE (LAN)
	TELEPHONE RECEPTACLE
	HOME RUN, WITH DESTINATION "LP-30". EACH HOME RUN REPRESENTS ONE CONDUIT. CONDUCTORS; POWER OR INSTRUMENTATION. FOR INSTRUMENTATION WIRING, SEE WIRING LEGEND BELOW.

ABBREVIATION	DESCRIPTION
Ax	2C#16 SHIELDED CABLE (x = NUMBER OF CABLES)
Dx	#14 THHN WIRE (x = NUMBER OF WIRES)
M	1" CONDUIT FOR CABLE SUPPLIED BY MANUFACTURER
Rx	3C#16 SHIELDED CABLE (x = NUMBER OF CABLES)
RTD	WIRE Cx CAT 5E ETHERNET CABLE (x = NUMBER OF CABLES)
SIZE EACH CONDUIT PER NEC; MIN. SIZE 3/4"	

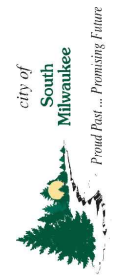
SYMBOL	DESCRIPTION
	CONVENIENCE RECEPTACLE - DUPLEX UNLESS SPECIFIED OTHERWISE WP WEATHERPROOF TL TWIST LOCK IG ISOLATED GROUND GFI GROUND FAULT INTERRUPTER C CLOCK HANGER CRE CORROSION RESISTANT SS SURGE SUPPRESSION
	ABOVE COUNTER RECEPTACLE-DUPLEX UNLESS SPECIFIED OTHERWISE
	CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE
	RECEPTACLE - 240V, 1φ, AMPERAGE INDICATED
	RECEPTACLE, SPECIAL PURPOSE-AMPERAGE AS INDICATED VERIFY PLUG CONFIGURATION PRIOR TO ORDERING
	DUPLEX CONVENIENCE RECEPTACLE-FLUSH IN FLOOR
	MULTI OUTLET ASSEMBLY
	GENERAL CONTROL OR WIRING DEVICE. NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE.
	PUSH-BUTTON STATION, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. (WP = NEMA 4 ENCLOSURE) SEE CONTROL DIAGRAMS FOR TYPE PUSH BUTTON REQUIRED.
	NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE, NEMA 1 ENCLOSURE, WP = WEATHERPROOF (NEMA 4X)
	FUSED DISCONNECT SWITCH, SIZE INDICATED (60/40, 60 = SWITCH RATING; 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 1 ENCLOSURE, WP = WEATHERPROOF (NEMA 4X)
	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED, NEMA 1 ENCLOSURE, UNLESS INDICATED OTHERWISE.
	LIGHTING CONTACTOR. CURRENT RATING INDICATED, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM FOR NUMBER OF POLES.
	STARTER MAGNETIC NEMA SIZE INDICATED, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM.
	COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED) MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 1 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM.
	MULTI-PARTY DESK TOP COMMUNICATIONS SYSTEM STATION WITH REMOTE AMPLIFIER
	MULTI-PARTY WALL MOUNTED COMMUNICATIONS SYSTEM STATION WITH INTEGRAL AMPLIFIER
	CONE TYPE PAGING SPEAKER, CEILING MOUNTED
	INTERIOR PAGING TRUMPET SOUND REPRODUCER WITH REMOTE AMPLIFIER, SURFACE MOUNTED.
	OUTDOOR PAGING TRUMPET SOUND REPRODUCER WITH REMOTE AMPLIFIER, SURFACE MOUNTED.
	TERMINAL CABINET FOR COMMUNICATIONS SYSTEM
	ADJUSTABLE SOLID STATE OR STATIC TRIP CIRCUIT BREAKER, 3 POLE-CONTINUOUS CURRENT TRIP INDICATED
	TYPICAL EQUIPMENT TAG NAME. SEE I&C LEGEND OR ELECTRICAL ABBREVIATIONS FOR EXPLANATION.

SYMBOL	DESCRIPTION
	FIRE ALARM HORN
	FIRE ALARM MANUAL PULL STATION
	FIRE ALARM AUDIO-VISUAL DEVICE
	FIRE ALARM SYSTEM HEAT DETECTOR
	FIRE ALARM SMOKE DETECTOR
	FIRE ALARM SMOKE DETECTOR, IN DUCT

SYMBOL	DESCRIPTION															
	CONTACT - NORMALLY OPEN WITH NEMA SIZE INDICATED AS APPLICABLE															
	CONTACT - NORMALLY CLOSED WITH NEMA SIZE INDICATED AS APPLICABLE															
	OVERLOAD RELAY HEATER															
	MAGNETIC STARTER WITH NEMA SIZE INDICATED															
	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, FRAME SIZE SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.															
	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE. FRAME SIZE & TRIP RATING SHOWN, IF ADJUSTABLE.															
	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.															
	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.															
	SWITCH - CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.															
	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE															
	LIGHTNING ARRESTER WITH SURGE CAPACITOR															
	FUSE															
	CAPACITOR - KVAR INDICATED															
	METER WITH SWITCH - SCALE RANGE SHOWN															
	GROUND															
	TRANSFORMER, SECONDARY VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE															
	PICK-UP SETTING															
	TIME CURRENT CHARACTERISTIC															
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN															
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED															
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK															
	3 POSITION SELECTOR SWITCH MAINTAINED CONTACT															
	TIME DELAY RELAY CONTACT (TIME ACTION INDICATED)															
	REMOTE DEVICE															
	SELECTOR SWITCH - MAINTAINED CONTACT CHART IDENTIFIES OPERATION:															
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CKT.	POSITION															
	HAND	OFF	AUTO													
1	X	O	O													
2	O	O	X													
	CURRENT TRANSFORMER, NUMBER INDICATED															
	INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR															
	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE															
	SOFT-START WITH BYPASS CONTACTOR															

ABBREVIATION	DESCRIPTION
A	AMMETER, AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AM	AMMETER
AS	AMMETER SWITCH, AMPERE SENSOR
ASC	ADJUSTABLE SPEED CONTROLLER
ASU	AIR SUPPLY UNIT
AT	AMPERE TRIP
ATC	AUTOMATIC THROUOVER CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
B	BELL
BC	BARE COPPER
BOP	BRANCH CIRCUIT PANEL
BPP	BRANCH POWER PANEL
C	CONDUIT, CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CC	CONTROL CABLE
CKT	CIRCUIT
CL	CURRENT LIMIT
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRE	CORROSION RESISTANT
CRS	COATED RIGID STEEL CONDUIT
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIV	DIVISION
E	EMPTY
EF	EXHAUST FAN
EP	EXPLOSION PROOF
ETD	EXISTING TO BE REMOVED
ETM	ELAPSED TIME METER
ETR	EXISTING TO BE REPLACED
ETRL	EXISTING TO BE RELOCATED
EXST	EXISTING
FDR	FEEDER
F, FU	FUSE
FLUR	FLUORESCENT
G	GREEN, GROUND
GALV	GALVANIZED
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
GRS	GALVANIZED RIGID STEEL
H	HORN, HOWLER
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HPS	HIGH PRESSURE SODIUM
HS	HIGH SPEED
HT	HEAT TRACE
HV	HIGH VOLTAGE
IC	INTERRUPTING CAPACITY
I & C	INSTRUMENTATION AND CONTROL
INCAND	INCANDESCENT
INST	INSTANTANEOUS
IS	INTRINSICALLY SAFE
ISR	INTRINSICALLY SAFE RELAY
J, JB	JUNCTION BOX
K	KEY INTERLOCK
LC, L	LIGHTING CONTACTOR
LA	LIGHTNING ARRESTER
LS	LOW SPEED
LT FLEX	LIQUID TIGHT FLEX CONDUIT
M	MAGNETIC CONTACTOR COIL
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDC	MOTORIZED DAMPER CONTROL
MERC	MERCURY VAPOR
MH	MANHOLE, METAL HALIDE
MMP	MECHANICAL MOUNTING PANEL
MO	MOTOR OPERATOR
MS	MOTOR STARTER
MT, MTD	MOUNT, MOUNTED
N	NEUTRAL
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NP	NAMEPLATE
OL	OVERLOAD RELAY
ONT	OFF-NORMAL-TEST
OS	OCCUPANCY SENSOR
PB	PUSHBUTTON SWITCH
P	PHOTOCELL
PNL	PANEL
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RCPT	RECEPTACLE
RM	REMOTE MULTIPLEXER
RMS	ROOT MEAN SQUARE
RS	RIGID STEEL CONDUIT
RT	REMOTE TELEMETRY
S	SPARE
SC	SPEED CONTROL
SF	SUPPLY FAN
SH	SPACE HEATER
S/N	SOLID NEUTRAL
SPD	SPEED
ST	STANDBY POWER
SV	STATIC TRIP
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T	THERMOSTAT
TB	TERMINAL BOARD
TD	TEMPERATURE DETECTOR RELAY
TDR	TIME DELAY RELAY
TJB	TERMINAL JUNCTION BOX
TSP	TWISTED, SHIELDED PAIR
TYP	TYPICAL UH UNIT HEATER
UVR	UNDER VOLTAGE RELAY
V	VOLTMETER, VOLT
VAR	VARIATOR
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VS	VOLTMETER SWITCH
W	WATT, WATTMETER
WHD	WATTHOUR DEMAND METER
WHM	WATTHOUR METER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

ABBREVIATION	DESCR.
A	AMMETER, AMPERE
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AM	AMMETER
AS	AMMETER SWITCH, AMPERE SENSOR
ASC	ADJUSTABLE SPEED CONTROLLER
ASU	AIR SUPPLY UNIT
AT	AMPERE TRIP
ATC	AUTOMATIC THROUOVER CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
B	BELL
BC	BARE COPPER
BOP	BRANCH CIRCUIT PANEL
BPP	BRANCH POWER PANEL
C	CONDUIT, CONTACTOR
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CC	CONTROL CABLE
CKT	CIRCUIT
CL	CURRENT LIMIT
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRE	CORROSION RESISTANT
CRS	COATED RIGID STEEL CONDUIT
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIV	DIVISION
E	EMPTY
EF	EXHAUST FAN
EP	EXPLOSION PROOF
ETD	EXISTING TO BE REMOVED
ETM	ELAPSED TIME METER
ETR	EXISTING TO BE REPLACED
ETRL	EXISTING TO BE RELOCATED
EXST	EXISTING
FDR	FEEDER
F, FU	FUSE
FLUR	FLUORESCENT
G	GREEN, GROUND
GALV	GALVANIZED
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
GRS	GALVANIZED RIGID STEEL
H	HORN, HOWLER
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HPS	HIGH PRESSURE SODIUM
HS	HIGH SPEED
HT	HEAT TRACE
HV	HIGH VOLTAGE
IC	INTERRUPTING CAPACITY
I & C	INSTRUMENTATION AND CONTROL
INCAND	INCANDESCENT
INST	INSTANTANEOUS
IS	INTRINSICALLY SAFE
ISR	INTRINSICALLY SAFE RELAY
J, JB	JUNCTION BOX
K	KEY INTERLOCK
LC, L	LIGHTING CONTACTOR
LA	LIGHTNING ARRESTER
LS	LOW SPEED
LT FLEX	LIQUID TIGHT FLEX CONDUIT
M	MAGNETIC CONTACTOR COIL
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDC	MOTORIZED DAMPER CONTROL
MERC	MERCURY VAPOR
MH	MANHOLE, METAL HALIDE
MMP	MECHANICAL MOUNTING PANEL
MO	MOTOR OPERATOR
MS	MOTOR STARTER
MT, MTD	MOUNT, MOUNTED
N	NEUTRAL
NA	NON-AUTOMATIC
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NP	NAMEPLATE
OL	OVERLOAD RELAY
ONT	OFF-NORMAL-TEST
OS	OCCUPANCY SENSOR
PB	PUSHBUTTON SWITCH
P	PHOTOCELL
PNL	PANEL
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RCPT	RECEPTACLE
RM	REMOTE MULTIPLEXER
RMS	ROOT MEAN SQUARE
RS	RIGID STEEL CONDUIT
RT	REMOTE TELEMETRY
S	SPARE
SC	SPEED CONTROL
SF	SUPPLY FAN
SH	SPACE HEATER
S/N	SOLID NEUTRAL
SPD	SPEED
ST	STANDBY POWER
SV	STATIC TRIP
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T	THERMOSTAT
TB	TERMINAL BOARD
TD	TEMPERATURE DETECTOR RELAY
TDR	TIME DELAY RELAY
TJB	TERMINAL JUNCTION BOX
TSP	TWISTED, SHIELDED PAIR
TYP	TYPICAL UH UNIT HEATER
UVR	UNDER VOLTAGE RELAY
V	

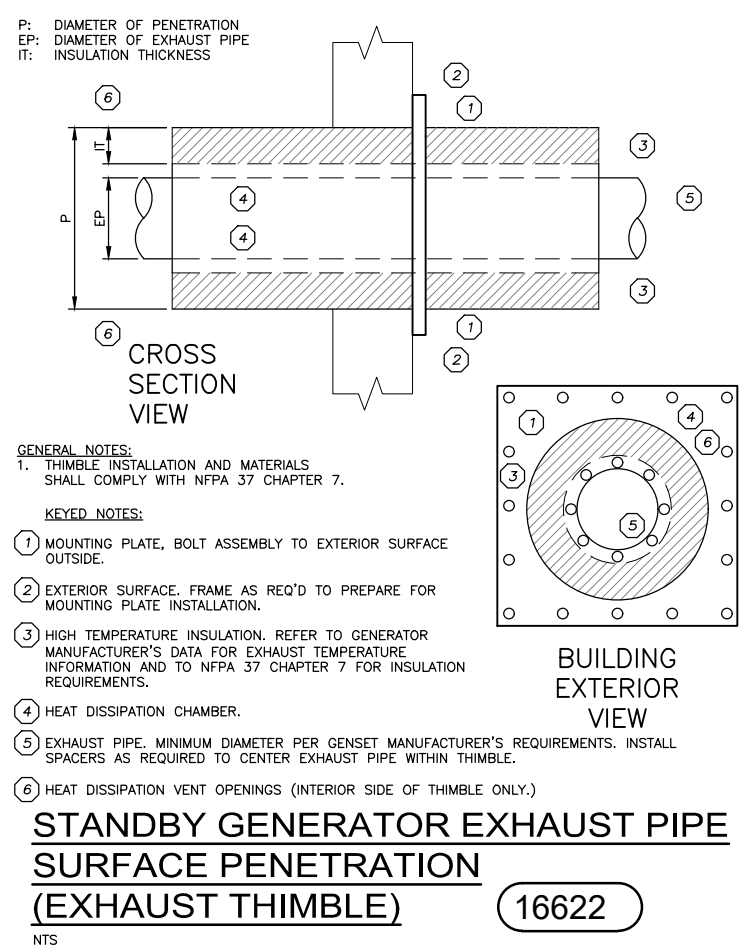
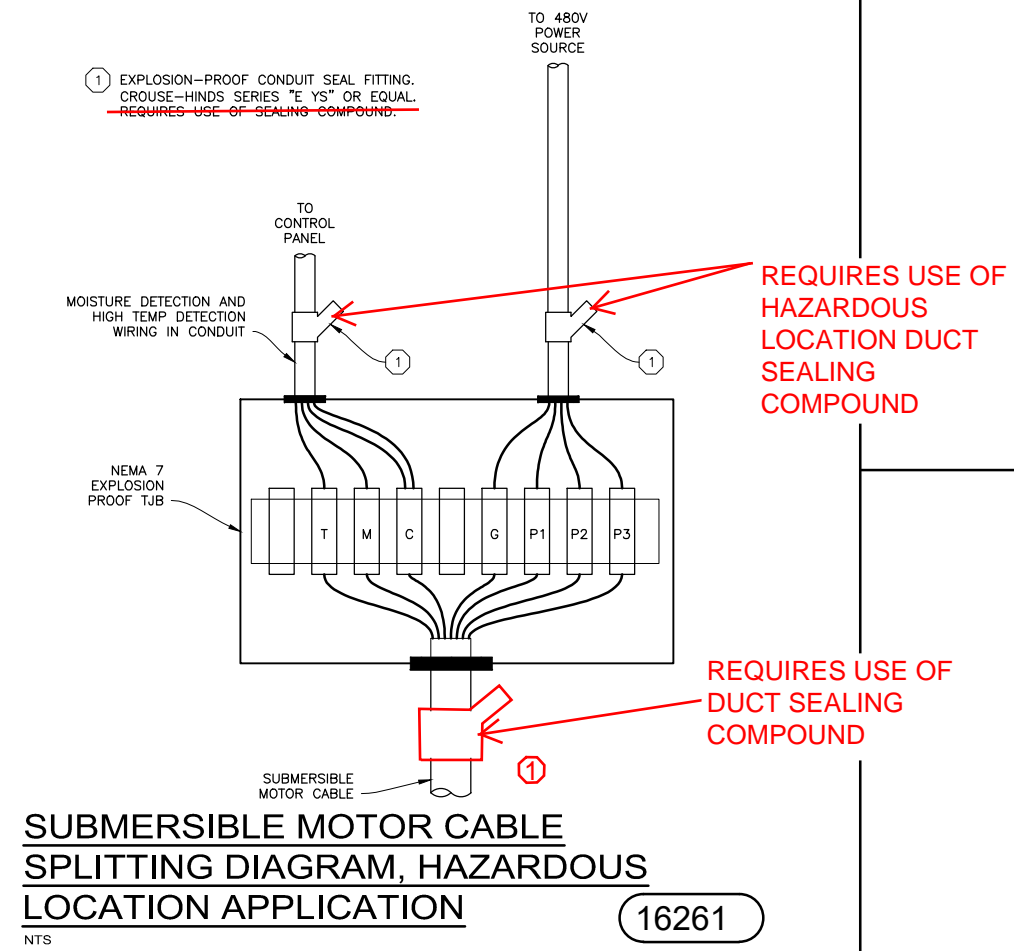


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NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	APVD
1	5/15/18	ADDENDUM NO. 1		

CITY OF SOUTH MILWAUKEE
NORTH CHICAGO LIFT STATION
IMPROVEMENTS
SOUTH MILWAUKEE, WISCONSIN
STANDARD DETAILS
ELECTRICAL
DETAILS

VERIFY SCALES LENGTH OF BAR IS 1" ON ORIGINAL DRAWING
1:2 PLOT SCALE, ADJUST SCALE(S) ACCORDINGLY
DESIGNED BY: N.A.O.
DRAWN BY: J.T.H.
CHECKED BY: F.X.T.
APPROVED BY: W.A.E.
PROJECT NO. 5795
DATE APRIL 2018
DRAWING NO. 99-E-1



PLOTSCALE: 1 L1SCALE: 1
 J:\5795 - S. Mike GERARDI\DRAWINGS\99-E-1 DETAILS.dwg
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