

CITY AND BOROUGH OF WRANGELL
Wrangell Water Treatment Plant Project
Addendum No. 6

August 2, 2023

(19 pages)

The information in this Addendum modifies and changes the original bidding contract documents. In case of conflicts between this Addendum and previously issued documents, this Addendum shall take precedence.

Under Bid Forms for Construction Contract, Article 2, Attachments to This Bid, 2.01, B. and K., Bidder shall provide their current SAM.gov active registration and Unique Entity Identification (UEI) number. The Bidder's list of Proposed Subcontractors and their Sam.gov-issued Unique Entity Identification (UEI) number(s) shall be submitted to Owner within five days after the bid opening.

The Bid Due Date has been extended to August 11th, 2023 at 11:30 am. No further questions will be accepted.

Questions Received From Interested Parties/Bidders

Question 1: Please confirm Quake and Flood coverage is required as part of the Builders Risk Insurance. Also, the specifications list the deductible at \$5,000, which is pretty low. Would the Owner consider raising the deductible to \$25,000 to save a fair amount of money?

Answer: Flood coverage is not required as part of the Builders Risk Insurance. Quake coverage is required. The deductible shall remain at \$5,000.

Question 2: The Butler building specified cannot meet 100% BABAA requirements. It will be in the high 90% domestically produced. VP can match the compliance percentage of the Butler building, as Blue Scope Steel owns both Butler and VP and produces both in the same factory. Will the proposed systems at 90% domestically produced for the pre-engineered metal building (PEMB) and its components be acceptable under the BABAA?

Answer: EDA (the Federal funding agency) considers the PEMB a manufactured product, not just iron/steel. Therefore, the PEMB would have to exceed 55 percent components manufactured in the United States.

*“(2) all manufactured products used in the Project be produced in the United States – this means the manufactured product was manufactured in the United States; **and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product**, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation....”*

Question 3: Please clarify whether 'Panel C' in the Pipe Galley/Clearwell Sheet E31 is existing or new? Panel C is not shown on the one-line nor do I see it referred to anywhere else. From where is this panel feed? Is existing panel 'Comms Panel (E)' shown on Sheet E28 to be left in place, and is it to be re-fed from one of our new panels? If so, from which panel and what is the feeder breaker size? Please clarify.

Answer: Panel C is not required. Provide 6"x6"x4" (HxWxD), stainless steel, Nema 4x Junction box in location shown for Panel C.

Re-feed any existing lights or receptacles located in Pipe Galley / Clearwell with circuits provided from Panel B-1. Field verify required circuits. Contractor to provide additional 2ea, 1" underground conduits from Panel B-1 in Admin building to new stainless steel junction box located in Pipe Galley / Clearwell.

Comms Panel E is currently located in the office area of the Admin building. Comms Panel E is to be relocated to the location shown on sheet E28. Comms Panel E is to be re-fed from panel B-1 with single pole 20-amp circuit breaker.

Contractor to coordinate with the Owner and systems integrator to ensure minimal disruption in SCADA communications.

Contractor to re-feed all existing circuits in Admin building that are not removed during the demolition phase of the contract.

Question 4: Will the City and Borough of Wrangell supply vacuum truck services, and if so, what is the cost? Will the City and Borough of Wrangell be willing to rent the pipe welder?

Answer: CBW will not supply a vacuum truck. The City and Borough of Wrangell will make the Water Department-owned McElroy 412E HDPE Fusion Machine available to the project at no cost. The Contractor shall be responsible for operating it with qualified personnel. In accordance the specifications, the Contractor shall provide proof of operator qualifications.

Question 5: Can the contract between the Borough and AWC be made available for the equipment pre-selection?

Answer: The City and Borough of Wrangell underwent an equipment pre-selection process for the selection of AWC. The contract was executed and administered as a subcontract to DOWL for the delivery of the equipment shop drawings which have been included. The selected bidder shall enter into contract with AWC for the agreed upon bid price, Bid Item 104, for the delivery of the agreed upon equipment. The agreement will be between the selected bidder and AWC. The equipment pre-selection documents may be viewed at:

<https://www.wrangell.com/capital-facilities/packaged-water-treatment-plant-equipment-preselection>

Question 6: HW 4 is incorrect for the fire rated door openings noted on the door schedule. I believe the Occupancies would require fire exit hardware on the electrical room and probably the others, as well as required door closers and smoke gasketing.

Answer: We will revise Doors 1002A, 1003A, 1004A and 1005A to be HW-5.

HW-5: Interior/Exit Doors (Fire-rated Doors)			
Butts	---	ST	FBB199
Exit Device	1	VON	98L-F-#06 (Lever)
Closer	1	LCN	4111 (Parallel)
Wall Stop	1	IVE	WS402CCV/CVX, where applicable
Floor Stop	1	IVE	FS436
Head/Jamb Seals	1 set	ZER	328AA

Question 7:

- a) Spec 46 33 83 2.4.D Chemical Transfer Tubing and detail 4/M-906 may have some constructability issues related to the secondary containment piping shown as 3" PVC Schedule 80 elbows and tees and the use of 1/2" continuous tubing. The exterior chemical containment piping shown on civil page C-104 is illustrated as swept PVC conduit which would lend itself well to pulling in 1/2" continuous tubing. On drawing M-700 it is illustrated as 3" PVC changing to HDPE containment pipe with molded HDPE water pipe elbows which is very hard on the tubing. Construction note 2 on M-700 indicates the use of swept bends underground which is interpreted as using 3" coiled HDPE rather than multi segment fabricated HDPE elbows. Installing continuous tubing (reinforced PVC hose) inside tight radius PVC schedule 80 water pipe fittings as depicted at the above ground locations on this and other M drawings seems impossible and may shorten the working life of the tubing. This is especially true where the chemical lines have multiple elbows to route the tubing from the Base and Acid rooms to and in the piping trenches to reach the various injection points. What is the intended containment pipe supposed to be in spec 46 33 83? How are the tees depicted on M-906 intended to facilitate the installation and maintenance of the chemical tubing? Are the tee branches intended to be fitted with removeable caps or plugs?
- b) Spec 46 33 83 indicates the IBC totes and 55-gallon drums are to be "suitable for use with" the listed chemicals. It is not clear in the specs that these totes and drums are to be provided pre-filled with the listed chemicals. Is the intent to provide pre-filled totes and drums?
- c) The double door 1001A at the east end of the new WTP appears to be the only access point to handle and load the filter media. Or, has architectural modeling confirmed that a warehouse style forklift can transit along the south wall of the plant from the large loading dock doors while carrying filter media pallets and turn the corner where the 1006 Storage closet is located? Is the designed metal grating at the trenches able to handle the weight of filter media pallets while carried with a forklift or a pallet jack? We typically see 36 bags of filter media per pallet so each pallet weighs 3,600 pounds. For access to construct the plant, and for future access by plant personnel to maintain or repair the plant, would a different door be appropriate for opening 1001A? Like a roll up door that is 6' wide by 8' tall?

Answer:

- a) Any new chemical tubing inside the new WTP and existing control room shall be 1/2" reinforced PVC tubing inside 3" or larger PVC conduit with swept bends. Fittings shall be socket type with solvent welds. All chemical transfer tubing shall be continuous with no joints. Please see the updated drawings and specifications for clarification.
Regarding constructability, larger nominal diameter swept bends and fittings (4" and larger) may be used with reducing bushings or reducers as necessary to facilitate easier installation. Per the notes on the M-drawings, the chemical tubing and containment pipe is to be field routed. Bends should be minimized and adequately spaced.
The access tees on M-906 were intended to allow the contractor to access the chemical tubing if the contractor elected to install all the containment pipe prior to installing the tubing. When using PVC conduit, the tees are not required. If tubing access is necessary during construction, 2-inch diameter holes may be drilled in the secondary containment pipe periodically. These holes are not required if installation and maintenance can be performed without.
All below grade containment piping shall be continuous 3" or larger HDPE with swept bends (i.e. coiled HDPE) per the construction note 2 on M-700. Molded HDPE bends or multi segment fabricated bends should not be used and were not the design intent. Joints in the below grade containment pipe are not permitted.
- b) The IBC totes and 55 gal drums are to be pre-filled with chemical(s) from Wrangell's preferred chemical supplier.

- c) The double door near the southeast corner of the building will remain a double door. Media can be brought in through the roll-up doors on the west wall (Door 1001H) and transported to the filters or storage area using a pallet jack or small forklift at the contractor's or plant operator's choosing. Transporting media over bar grating is to be done with caution and may require bridging or trench plates to avoid overloading the bar grating which is rated for a uniform live load of 125 psf.

Question 8:

- a) 10 28 24 3.1.A indicates the new tempered water line extending from tempered water valve to both new and existing safety shower/eye wash stations. Drawings M-501 and M-503 illustrate the two new safety shower stations in the new WTP. Drawing M-700 appears to illustrate a safety shower/eyewash station that may be existing in the existing shop in the admin building. Does the Contractor need to extend the tempered water from the new WTP to the existing safety shower in the admin building?
- b) Drawing PL-500 details the emergency shower/eyewash station as receiving tempered water but drawings PL-101 and PL-102 show each of the two stations with cold water, hot water, and recirculating hot water back to the water heater. Does each safety shower station have a tempering valve located nearby?

Answer:

- a) Tempered water already extends to the admin building. Contractor does not need to extend tempered water to the admin building.
- b) Correct, each shower will receive a tempering valve. The specific valve type is called out under the EES accessories in the plumbing fixture schedule. Detail 3 on sheet PL-600 would also apply to this mixing valve, however I see the detail title is mislabeled.

Question 9: The bid documents for the Filtration Plant do not call out the size of the conductors for the ground ring. Can you please provide the engineer's desired conductor size for all grounding conductors, specifically for the three ground rings between ground rods?

Answer:

- Provide #2 bare copper wire for ground ring shown on sheet E16
- Provide #2 bare copper wire for grounding jumpers from ground ring to:
 - Filter steel structure
 - DAF system steel structure
 - Mixer steel structure
- Use exothermic welds to connect ground ring to ground rods, and ground ring to ground jumpers

Question 10: Should the contractor salvage the existing hypochlorite generation system in the existing Admin building?

Answer: Yes, the contractor shall salvage the existing hypochlorite generation system and provide to the owner, at a specified location on site, in working condition.

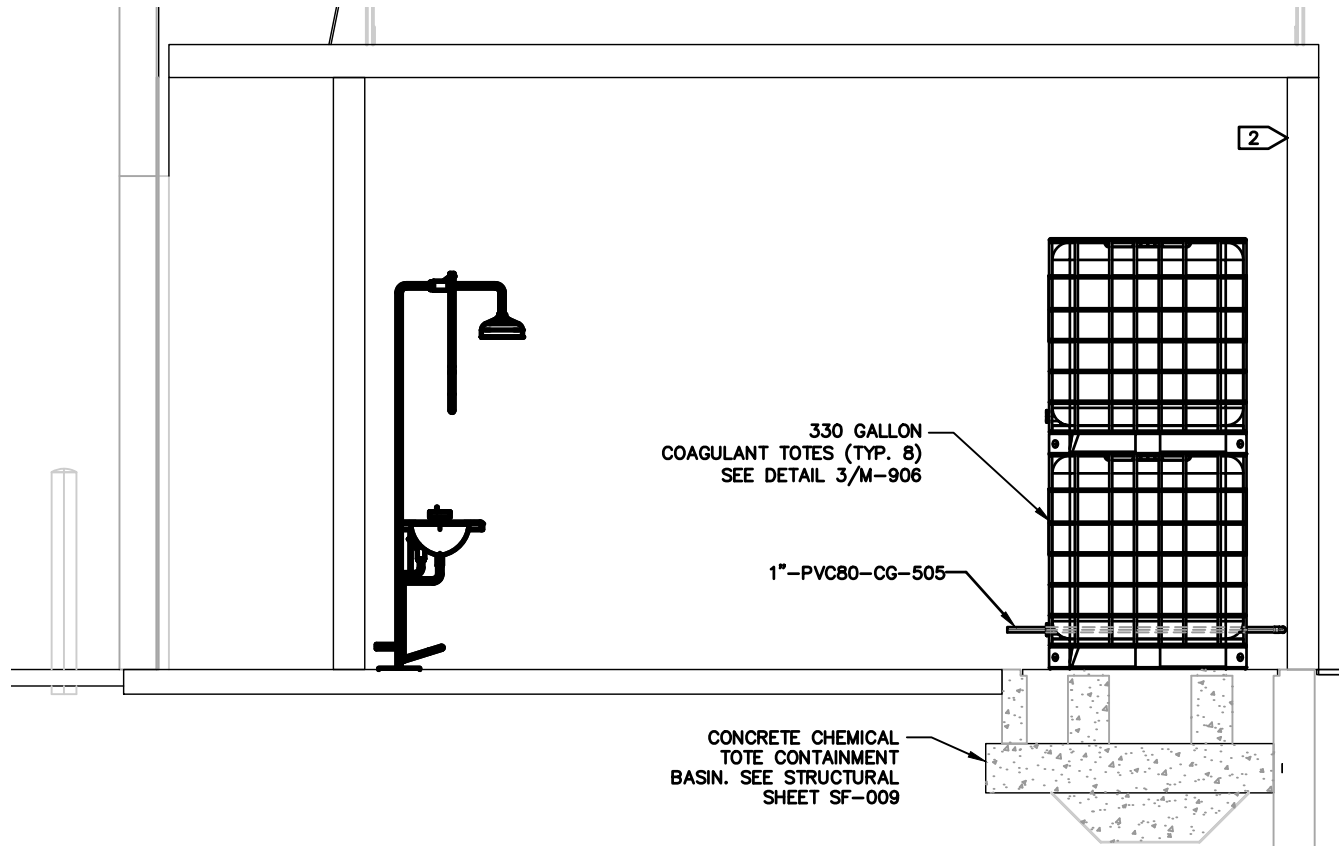
End of Addendum No. 6

Attachments:

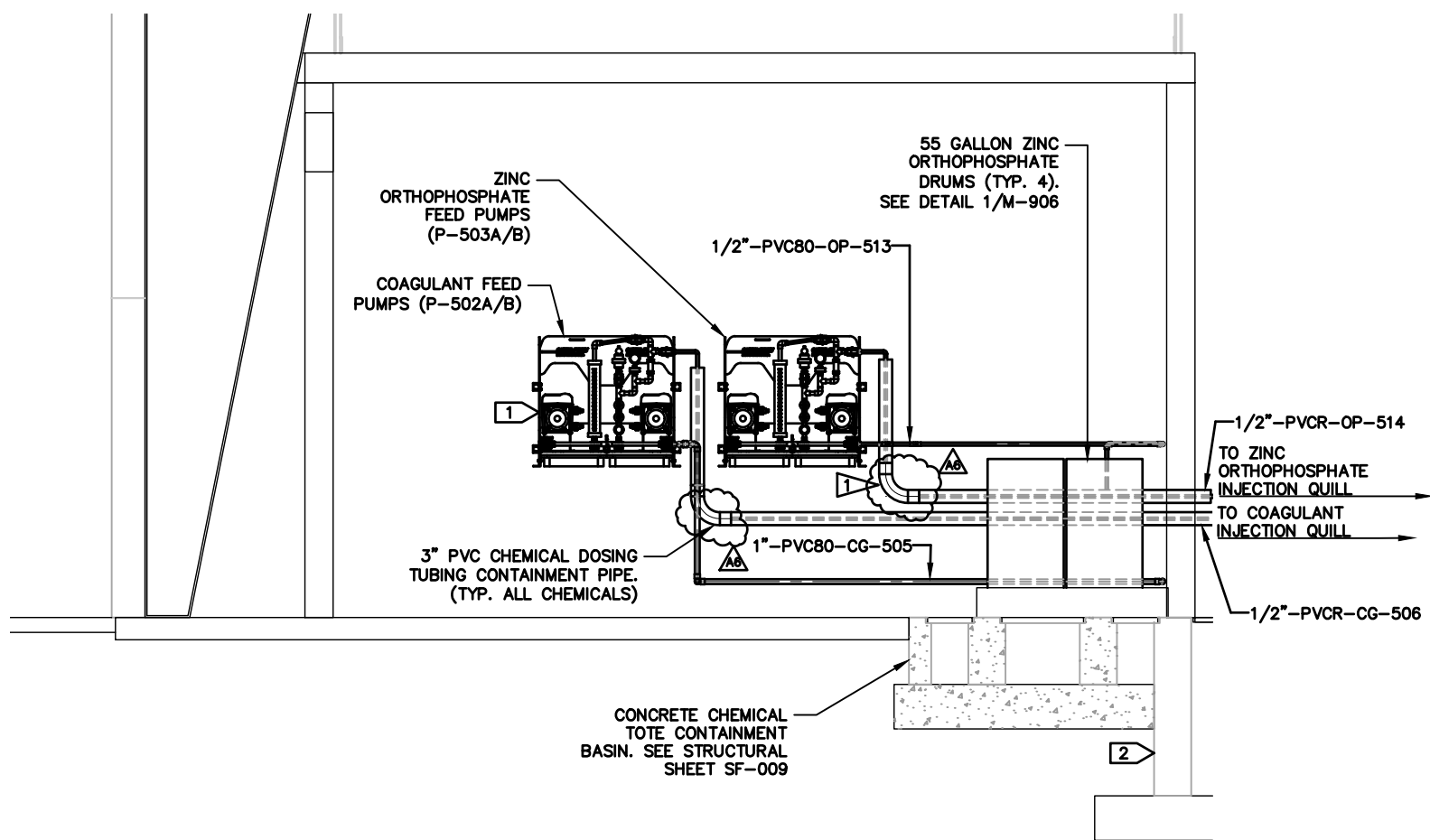
1. Revised Drawings M-502, M-503, M-504, M-701, M-702, M-703, M-906
2. Revised Specification 46 33 83

Attachment 1

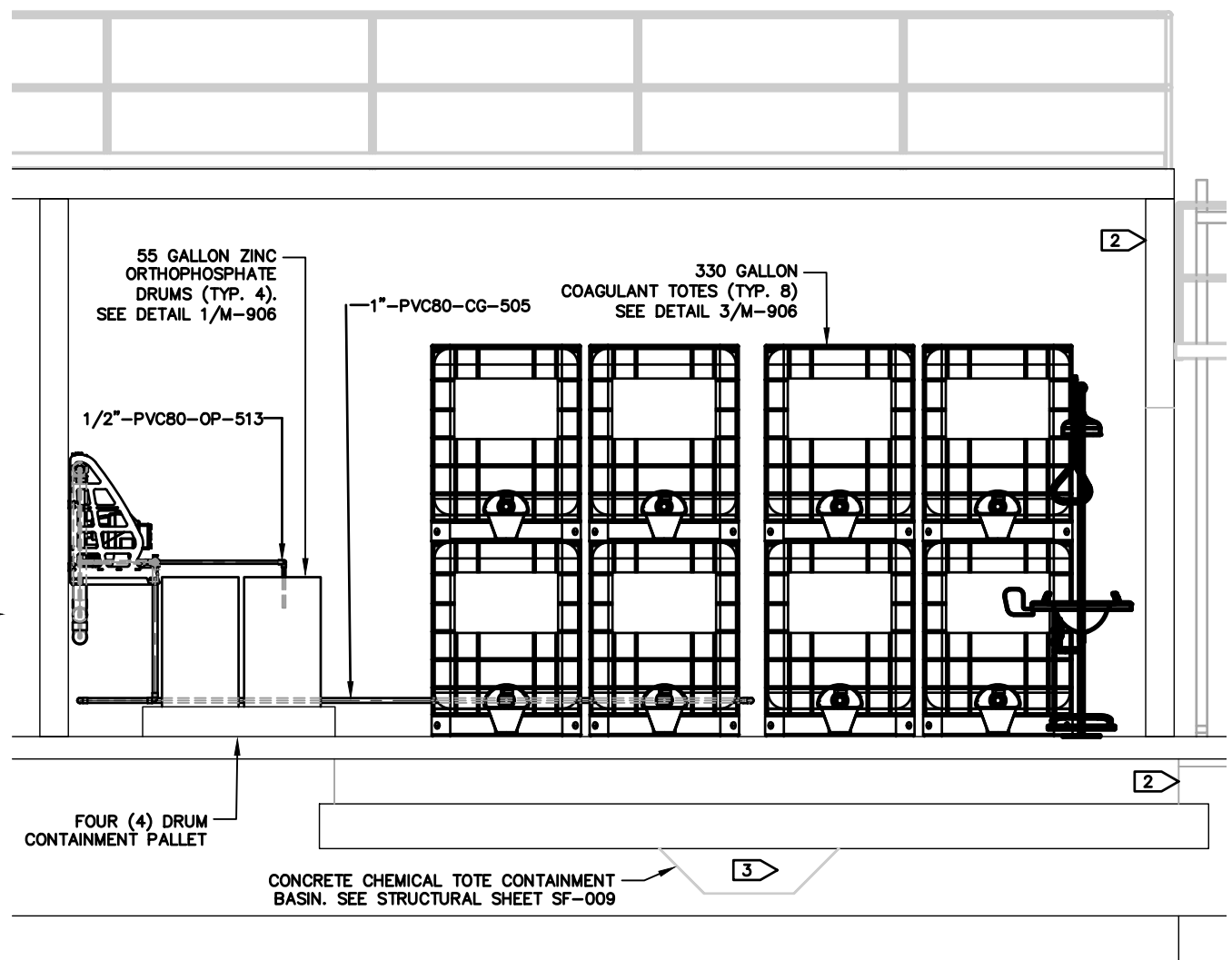
\\bil-gis\BIL-Projects\28_50206-01\PlantSD\OBW-WTP_Orthos\DWGs\1P22-C-OP-S-CHEM-COAG.dwg PLOT DATE 2023-8-1 17:23 SAVED DATE 2023-08-01 16:20 USER: gplatt



A-A ACID ROOM - SECTION
M-501 1/2" = 1'-0"



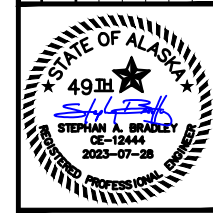
B-B ACID ROOM - SECTION
M-501 1/2" = 1'-0"



C-C ACID ROOM - SECTION
M-501 1/2" = 1'-0"

- GENERAL NOTES:**
- SEE PROCESS AND INSTRUMENT DIAGRAMS (PI SHEETS) AND SPECIFICATIONS FOR PERISTALTIC METERING PUMP SKID REQUIREMENTS.
 - STRUCTURAL ELEMENTS SHOWN FOR REFERENCE ONLY. SEE STRUCTURAL SHEETS FOR DETAILS.
 - CONTRACTOR SHALL SUPPLY THREE (3) PORTABLE SUMP PUMPS CAPABLE OF FITTING INSIDE SECONDARY CONTAINMENT SUMP: ONE (1) FOR ACID SERVICE, ONE (1) FOR BASE SERVICE, AND ONE (1) FOR GENERAL WATER/WASTEWATER SERVICE.
- CONSTRUCTION NOTES:**
- FIELD ROUTE CHEMICAL TUBING THROUGH MAIN PROCESS TRENCH TO CHEMICAL INJECTION POINTS. SEE PROCESS AND INSTRUMENT DIAGRAMS (PI SHEETS). ALL PVC CONTAINMENT PIPE BENDS SHALL BE SWEPT.

REVISIONS	BY	DATE	DESCRIPTION
AS	CP	08/02/23	ADDENDUM 6



DOWL
AECL848

WWW.DOWL.COM
3535 College Road, #100
Fairbanks, Alaska 99709
907-374-0275

WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
WRANGELL, ALASKA

ACID ROOM - SECTIONS

SEC. 31; TOWNSHIP 62S; RANGE 84E
CITY AND BOROUGH OF WRANGELL, ALASKA

PROJECT 1528.50206.01
DATE 06/02/23

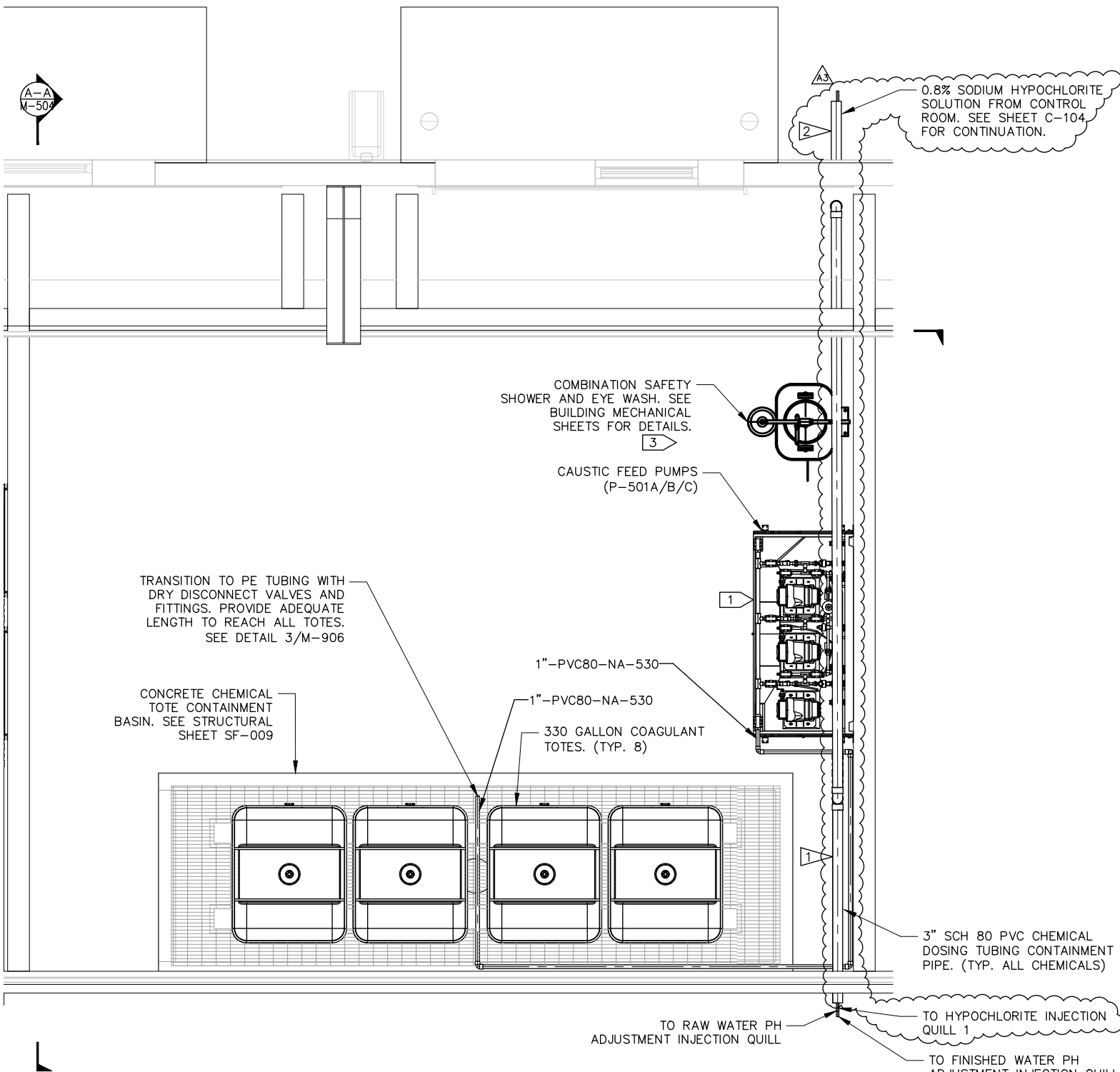
© DOWL 2023
SHEET

M-502

\\bil-gis\BIL-Projects\28\50206-01\Plant\3D\CAD\WTP\Orthos\DWGs\P22-C-OP-P-CHEM-NAOH.dwg PLOT DATE: 2023-07-26 16:20 SAVED DATE: 2023-07-26 16:19 USER: gpjctt



B-B
M-504



BASE ROOM - PLAN VIEW
1/2" = 1'-0"

GENERAL NOTES:

- 1 SEE PROCESS AND INSTRUMENT DIAGRAMS (PI SHEETS) AND SPECIFICATIONS FOR PERISTALTIC METERING PUMP SKID REQUIREMENTS.
- 2 STRUCTURAL ELEMENTS SHOWN FOR REFERENCE ONLY. SEE STRUCTURAL SHEETS FOR DETAILS.
- 3 SEE STRUCTURAL SHEETS AND BUILDING PLUMBING SHEETS FOR FLOOR DRAIN AND SAFETY SHOWER DETAILS.

CONSTRUCTION NOTES:

- 1 FIELD ROUTE CHEMICAL TUBING THROUGH MAIN PROCESS TRENCH TO CHEMICAL INJECTION POINTS. SEE PROCESS AND INSTRUMENT DIAGRAMS (PI SHEETS) AND DETAIL 4/M-906 FOR ROUTING DETAILS.
- 2 ROUTE NEW HYPOCHLORITE TUBING FROM CONTROL ROOM TO NEW WTP BUILDING. TRANSITION CONTAINMENT PIPE MATERIAL FROM HDPE TO PVC UPON ENTERING NEW WTP BUILDING. SEE CIVIL SHEETS, PROCESS AND INSTRUMENT DIAGRAMS, AND M-700 FOR CONTINUATION DETAILS. ALL BELOW GRADE HDPE BENDS SHALL BE SWEPT.

REV	DATE	DESCRIPTION
A3	07/11/23	ADDENDUM 3



DOWL
AECL848
WWW.DOWL.COM
3535 College Road, #100
Fairbanks, Alaska 99709
907-374-0275

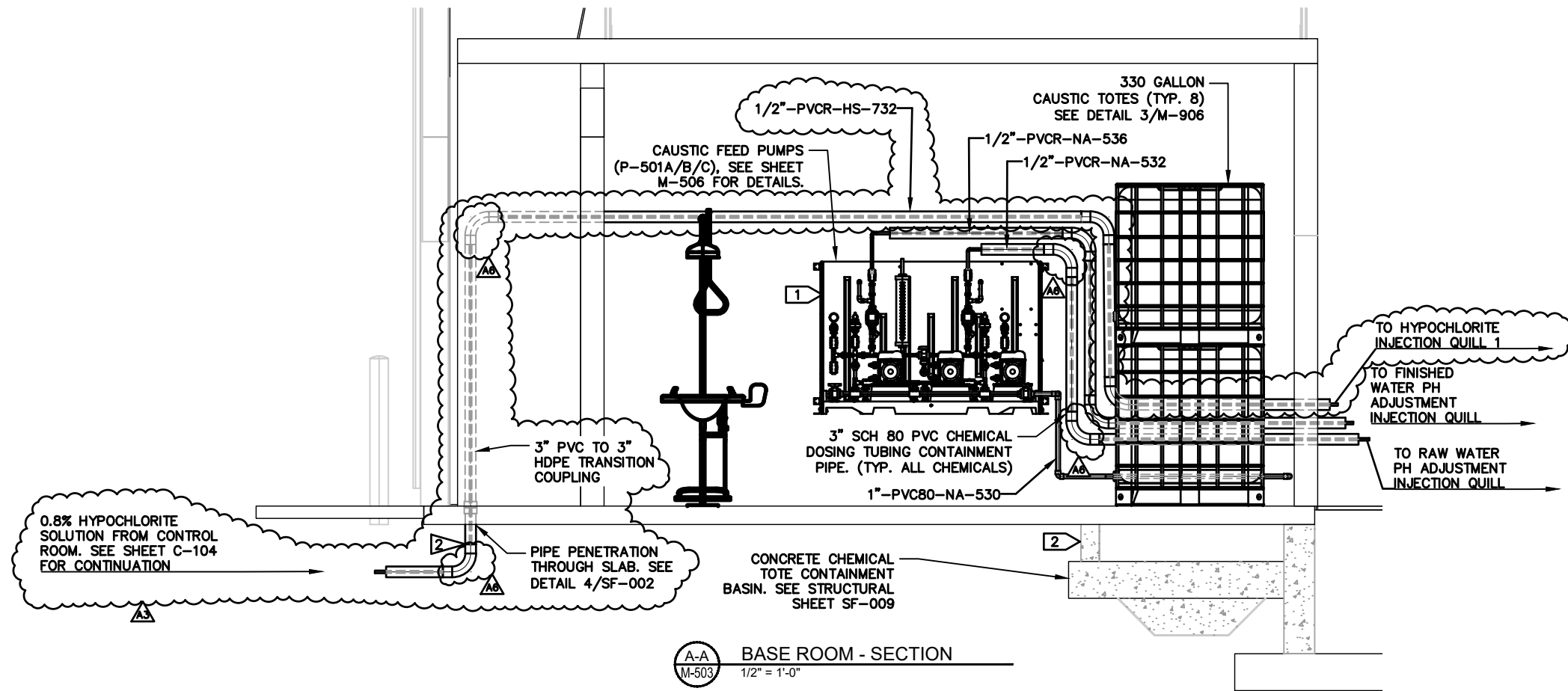
WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
WRANGELL, ALASKA
BASE ROOM - PLAN

PROJECT 1528.50206.01
DATE 06/02/23

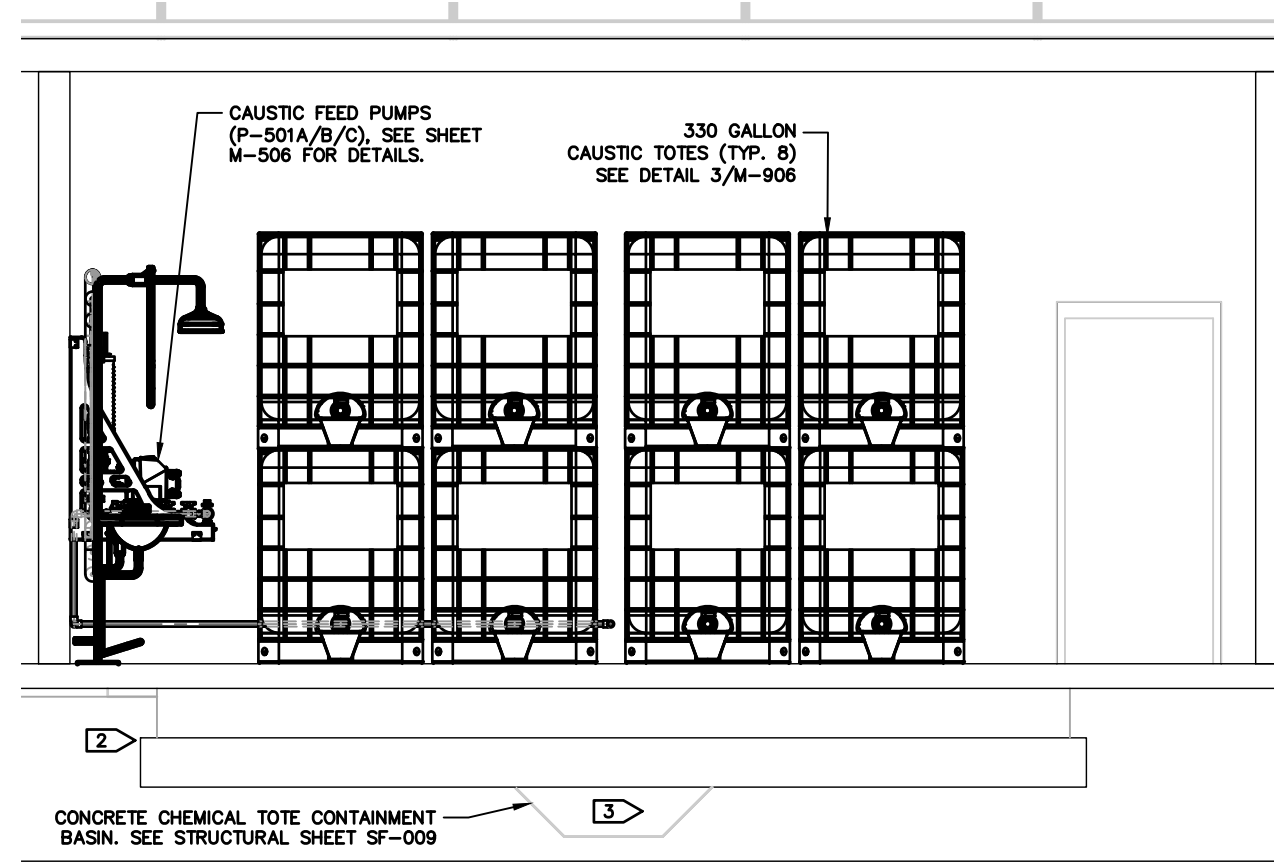
© DOWL 2023
SHEET

M-503

\\bil-gis\BIL-Projects\28_50206-01\PlantSD\OBW_WTP_Orthos\DWGs\122-C-OP-S-CHEM-NAOH.dwg PLOT DATE 2023-08-01 17:24 SAVED DATE 2023-08-01 16:59 USER: gpiott



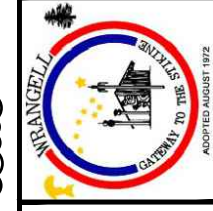
A-A
M-503
BASE ROOM - SECTION
1/2" = 1'-0"



B-B
M-503
BASE ROOM - SECTION
1/2" = 1'-0"

- GENERAL NOTES:**
- SEE PROCESS AND INSTRUMENT DIAGRAMS (PI SHEETS) AND SPECIFICATIONS FOR PERISTALTIC METERING PUMP SKID REQUIREMENTS.
 - STRUCTURAL ELEMENTS SHOWN FOR REFERENCE ONLY. SEE STRUCTURAL SHEETS FOR DETAILS.
 - CONTRACTOR SHALL SUPPLY THREE (3) PORTABLE SUMP PUMPS CAPABLE OF FITTING INSIDE SECONDARY CONTAINMENT SUMP: ONE (1) FOR ACID SERVICE, ONE (1) FOR BASE SERVICE, AND ONE (1) FOR GENERAL WATER/WASTEWATER SERVICE.
- CONSTRUCTION NOTES:**
- FIELD ROUTE CHEMICAL TUBING THROUGH MAIN PROCESS TRENCH TO CHEMICAL INJECTION POINTS. SEE PROCESS AND INSTRUMENT DIAGRAMS (PI SHEETS). ALL BENDS SHALL BE SWEEP.
 - ROUTE NEW HYPOCHLORITE TUBING FROM CONTROL ROOM TO NEW WTP BUILDING. TRANSITION CONTAINMENT PIPE MATERIAL FROM HDPE TO PVC UPON ENTERING NEW WTP BUILDING. SEE CIVIL SHEETS, PROCESS AND INSTRUMENT DIAGRAMS, AND M-700 FOR CONTINUATION DETAILS. ALL BELOW GRADE HDPE BENDS SHALL BE SWEEP.

REVISIONS	BY	DATE	DESCRIPTION
	GP	07/11/23	ADDENDUM 3
	GP	08/02/23	ADDENDUM 6
	A3		
	A6		



DOWL
AECL848

3535 College Road #100
Fairbanks, Alaska 99709
907-374-0275

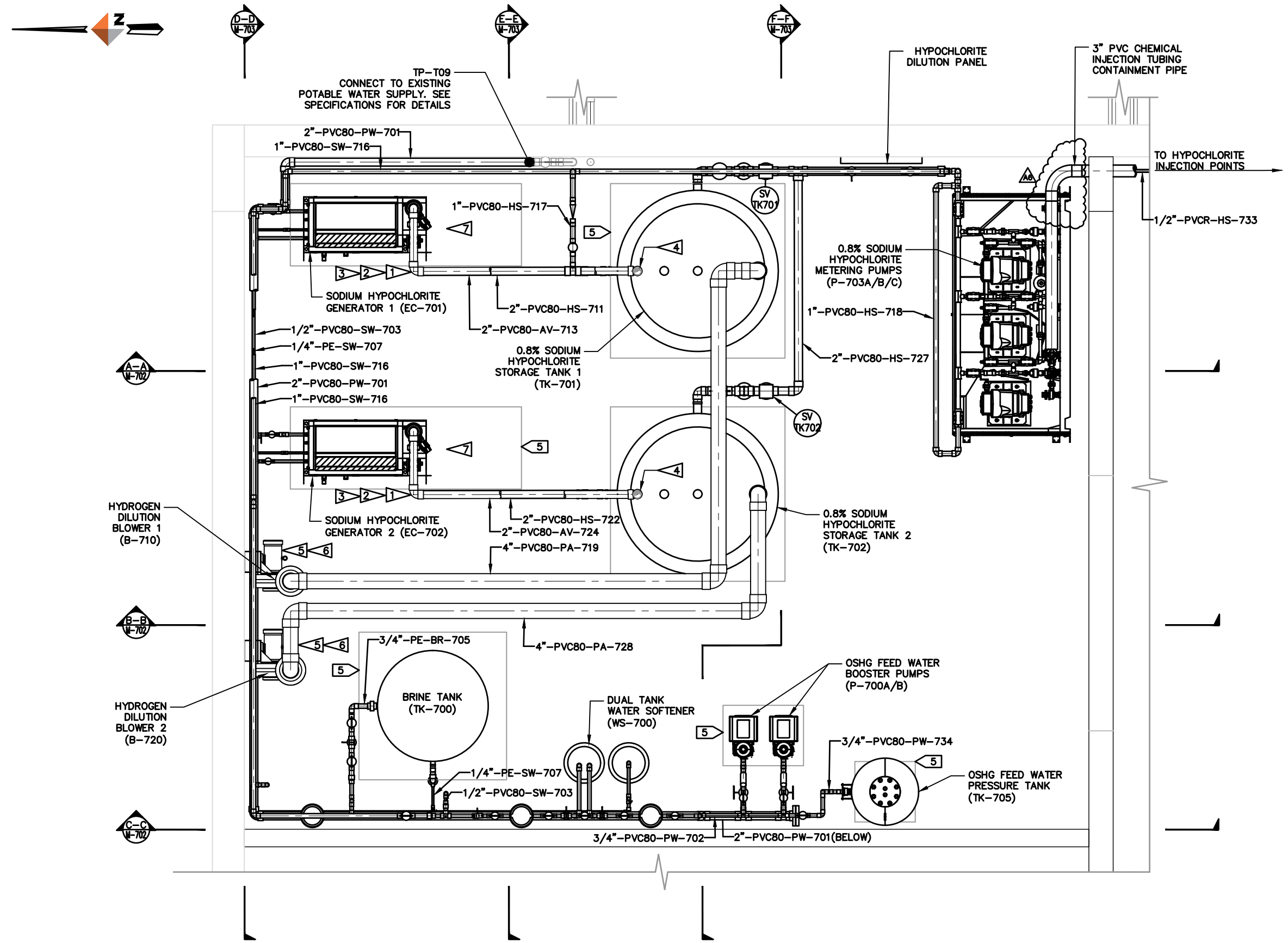
WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
WRANGELL, ALASKA

BASE ROOM - SECTIONS

PROJECT 1528.50206.01
DATE 06/02/23

SEC. 31; TOWNSHIP 62S; RANGE 84E
CITY AND BOROUGH OF WRANGELL, ALASKA

\\bil-gis\BIL-Projects\28_50206-01\PlantSD\OBW_WTP_Orthos\DWGs\P22-C-OP-P-OSG-CHLORINE.dwg PLOT DATE: 2023-08-01 17:08 USER: gplatt



HYPOCHLORITE GENERATION ROOM - PLAN VIEW
3/4" = 1'-0"

GENERAL NOTES:

- 1 SEE PROCESS AND INSTRUMENT DIAGRAMS FOR VALVES, INSTRUMENTS, AND SPECIALTY PIPING ITEMS. CONTRACTOR SHALL INSTALL ALL DRAINS SAMPLE TAPS, AND INSTRUMENTS AS INDICATED ON THE PROCESS AND INSTRUMENT DIAGRAMS.
- 2 SEE MECHANICAL DETAILS AND SPECIFICATIONS FOR PIPE SUPPORT REQUIREMENTS.
- 3 CONTRACTOR SHALL DESIGN AND INSTALL EQUIPMENT PADS FOR ALL OSHG SYSTEM EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. SEE SPECIFICATIONS.
- 4 CONTRACTOR SHALL FIELD LOCATE EQUIPMENT AS REQUIRED. EQUIPMENT SHALL BE INSTALLED PER VENDOR REQUIREMENTS AND THE PROJECT SPECIFICATIONS.
- 5 CONTRACTOR SHALL FIELD ROUTE ALL INTERCONNECTING PIPING, VALVES, INSTRUMENTS, AND FITTINGS IN ACCORDANCE WITH VENDOR REQUIREMENTS AND THE PROJECT SPECIFICATIONS.
- 6 EXISTING STRUCTURAL STEEL HIDDEN FOR CLARITY.

CONSTRUCTION NOTES:

- 1 48" MINIMUM VERTICAL SEPARATION BETWEEN VENT HEADER (MEASURED FROM LOW POINT) AND HYPOCHLORITE OUTLET (MEASURED FROM HIGH POINT). CONSULT VENDOR SHOP DRAWINGS FOR DETAILS. CONTRACTOR SHALL VERIFY OVERHEAD CLEARANCE PRIOR TO EQUIPMENT INSTALLATION.
- 2 HYPOCHLORITE OUTLET PIPING SHALL HAVE A MINIMUM DOWNWARD SLOPE TOWARD THE HYPOCHLORITE STORAGE TANK OF APPROXIMATELY 1/8" PER LINEAR FOOT. CONSULT VENDOR FOR SLOPE REQUIREMENTS FOR UNITS WITH A HEAT EXCHANGER.
- 3 HYDROGEN VENT PIPING SHALL HAVE A MINIMUM UPWARD SLOPE TOWARD THE VENT OUTLET OF APPROXIMATELY 1/8" PER LINEAR FOOT.
- 4 VENT TO ATMOSPHERE OUTDOORS. VENT STACK OUTLETS MUST BE AT LEAST TWO (2) FEET ABOVE THE ROOF LINE FOR AT LEAST FIFTEEN FEET IN ALL DIRECTIONS. VENT OUTLET MUST NOT TERMINATE ANYWHERE PEOPLE CAN PASS BY OR CONGREGATE. THERE MUST BE NO AIR INLETS, HEATERS, WINDOWS, AIR CONDITIONS, OR OTHER SOURCES OF IGNITION WITHIN 15 FEET OF THE OUTLET. A SCREENED VENT CAP MUST BE USED TO TERMINATE THE HYDROGEN VENT STACKS TO THE ATMOSPHERE.
- 5 BLOWER SHALL BE MOUNTED 24" MAXIMUM ABOVE BASE OF HYPOCHLORITE TANK.
- 6 BLOWER REQUIRES 32" OF STRAIGHT PIPE ON OUTLET BEFORE ANY ELBOWS OR VALVES.
- 7 PROVIDE ADEQUATE CLEARANCE FOR VENDOR SUPPLIED HEAT EXCHANGER (NOT SHOWN). HEAT EXCHANGER SHALL BE LOCATED ON OSHG SKID. CONSULT VENDOR SHOP DRAWINGS FOR EQUIPMENT CLEARANCE REQUIREMENTS.

REVISIONS	DESCRIPTION	DATE	BY	APP
AS	ADDENDUM 6	08/02/23	CP	

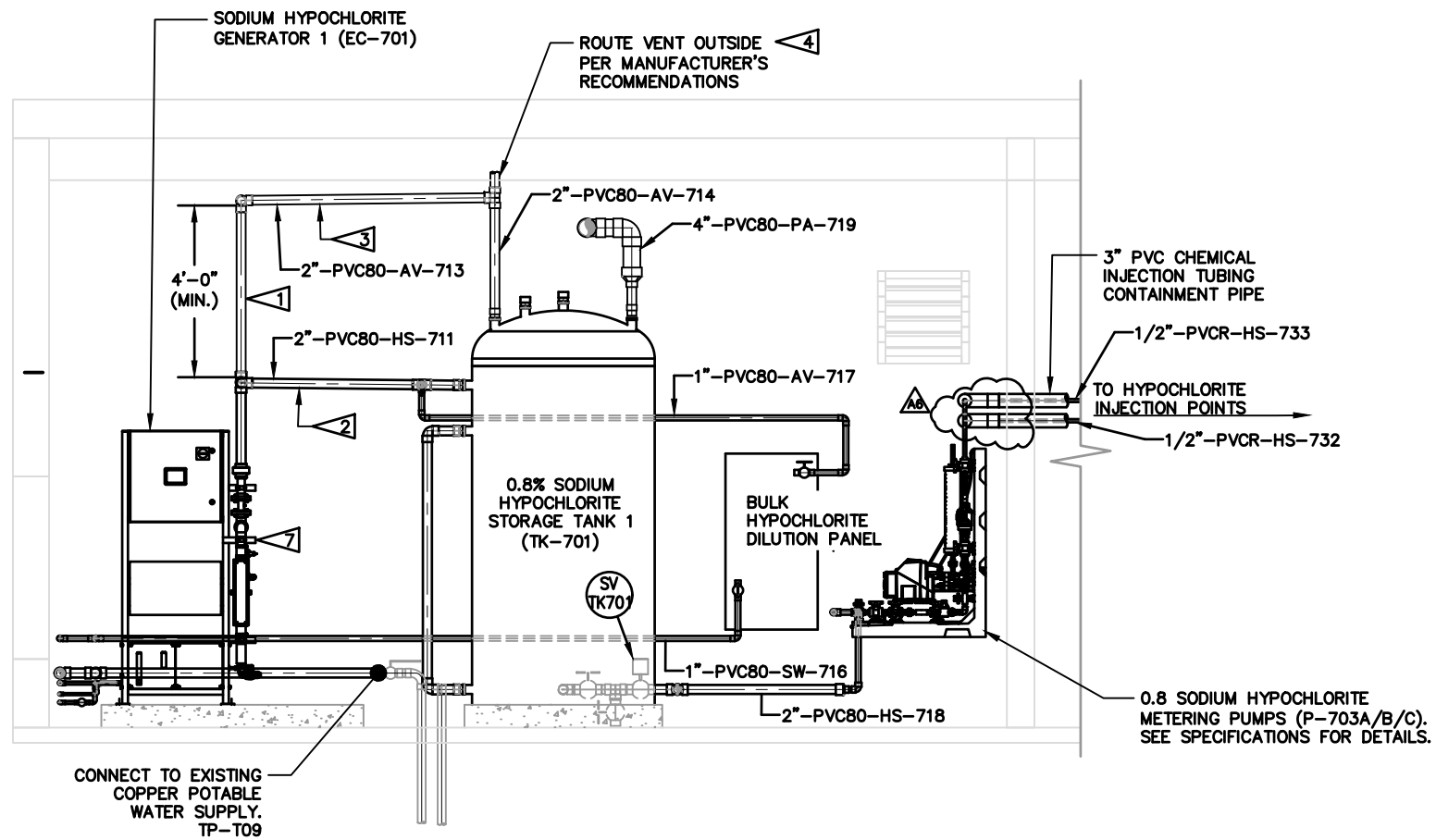


DOWL
 AECL848
 WWW.DOWL.COM
 3535 College Road, #100
 Fairbanks, Alaska 99709
 907-374-0275

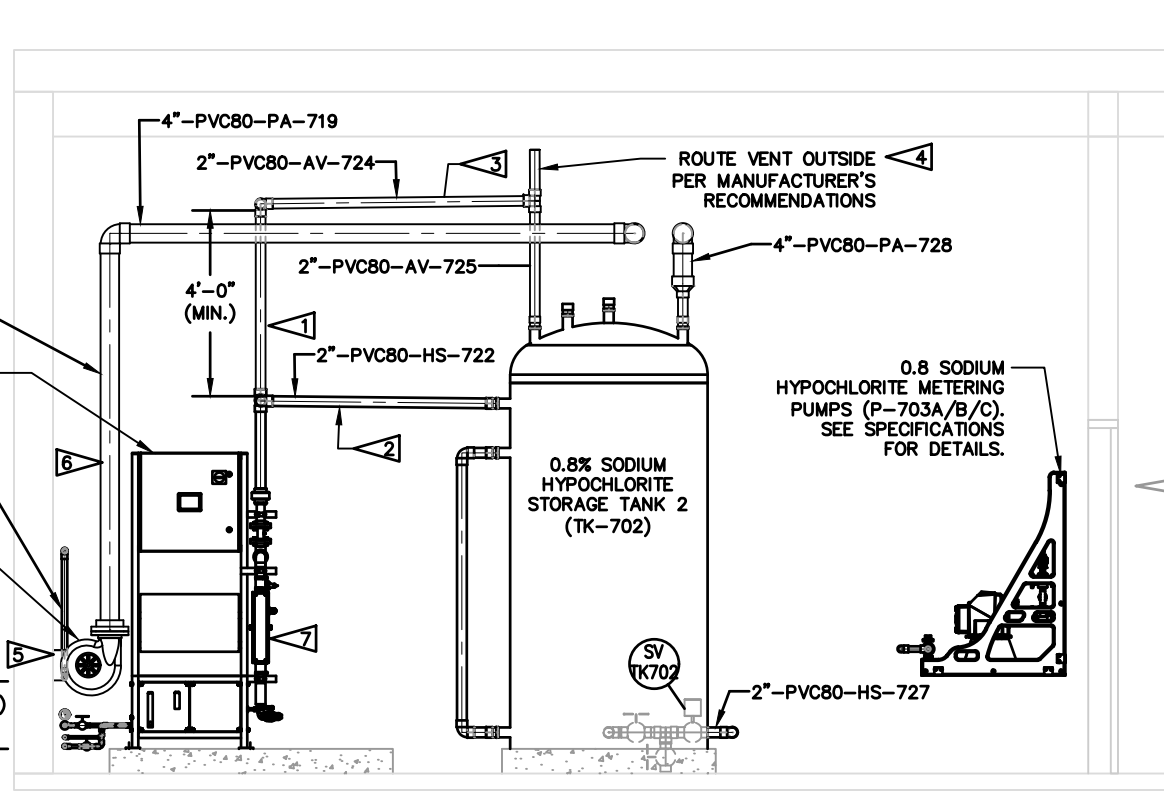
WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
 WRANGELL, ALASKA
HYPOCHLORITE OSG ROOM - PLAN
 PROJECT 1528.50206.01
 DATE 06/02/23

© DOWL 2023
 SHEET

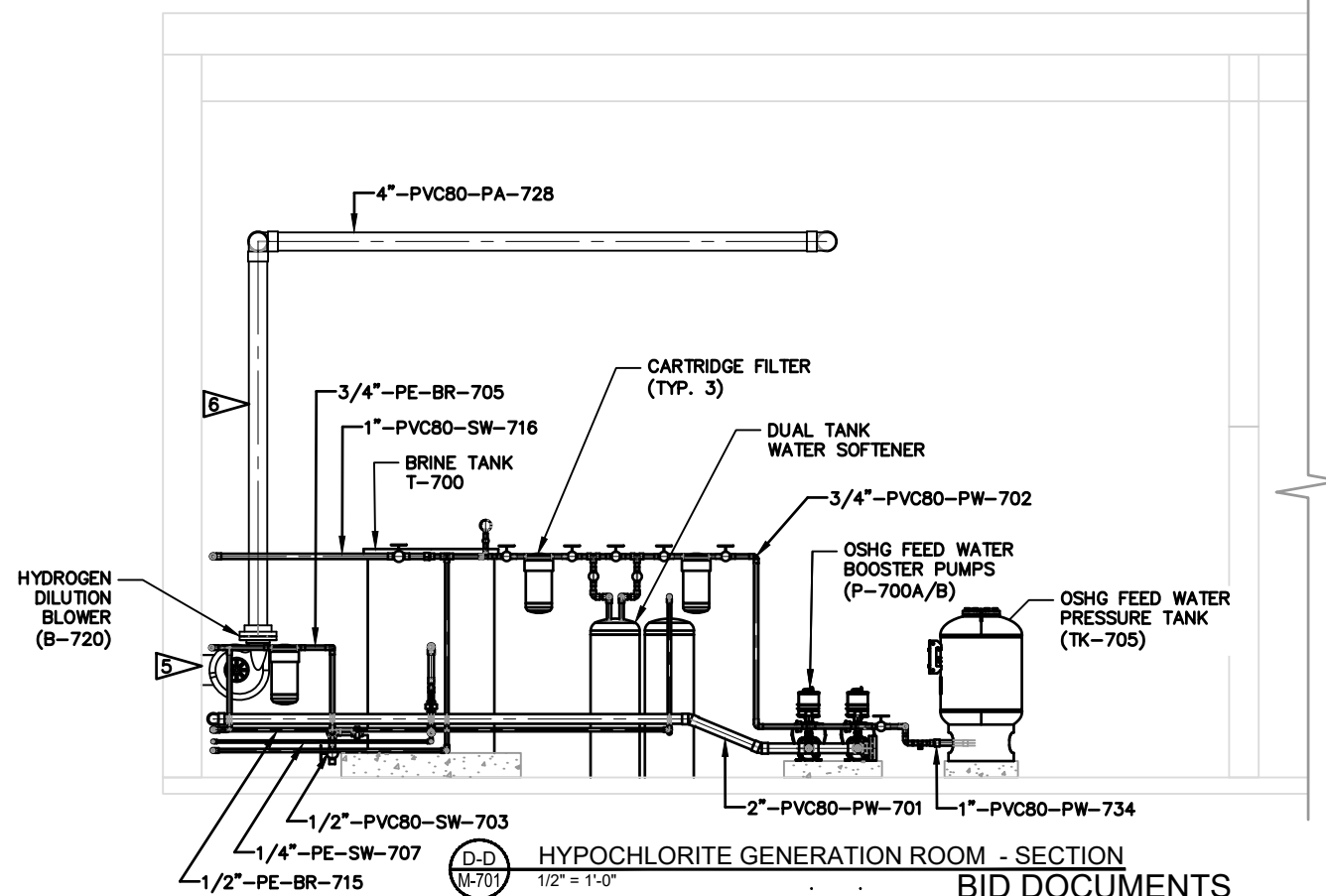
M-701



A-A
M-701
HYPOCHLORITE GENERATION ROOM - SECTION
1/2" = 1'-0"



B-B
M-701
HYPOCHLORITE GENERATION ROOM - SECTION
1/2" = 1'-0"



D-D
M-701
HYPOCHLORITE GENERATION ROOM - SECTION
1/2" = 1'-0"

CONSTRUCTION NOTES:

- 1 48" MINIMUM VERTICAL SEPARATION BETWEEN VENT HEADER (MEASURED FROM LOW POINT) AND HYPOCHLORITE OUTLET (MEASURED FROM HIGH POINT). CONSULT VENDOR SHOP DRAWINGS FOR DETAILS. CONTRACTOR SHALL VERIFY OVERHEAD CLEARANCE PRIOR TO EQUIPMENT INSTALLATION.
- 2 HYPOCHLORITE OUTLET PIPING SHALL HAVE A MINIMUM DOWNWARD SLOPE TOWARD THE HYPOCHLORITE STORAGE TANK OF APPROXIMATELY 1/8" PER LINEAR FOOT. CONSULT VENDOR FOR SLOPE REQUIREMENTS FOR UNITS WITH A HEAT EXCHANGER.
- 3 HYDROGEN VENT PIPING SHALL HAVE A MINIMUM UPWARD SLOPE TOWARD THE VENT OUTLET OF APPROXIMATELY 1/8" PER LINEAR FOOT.
- 4 VENT TO ATMOSPHERE OUTDOORS. VENT STACK OUTLETS MUST BE AT LEAST TWO (2) FEET ABOVE THE ROOF LINE FOR AT LEAST FIFTEEN FEET IN ALL DIRECTIONS. VENT OUTLET MUST NOT TERMINATE ANYWHERE PEOPLE CAN PASS BY OR CONGREGATE. THERE MUST BE NO AIR INLETS, HEATERS, WINDOWS, AIR CONDITIONS, OR OTHER SOURCES OF IGNITION WITHIN 15 FEET OF THE OUTLET. A SCREENED VENT CAP MUST BE USED TO TERMINATE THE HYDROGEN VENT STACKS TO THE ATMOSPHERE.
- 5 BLOWER SHALL BE MOUNTED 24" MAXIMUM ABOVE BASE OF HYPOCHLORITE TANK.
- 6 BLOWER REQUIRES 32" OF STRAIGHT PIPE ON OUTLET BEFORE ANY ELBOWS OR VALVES.
- 7 PROVIDE ADEQUATE CLEARANCE FOR VENDOR SUPPLIED HEAT EXCHANGER (NOT SHOWN). HEAT EXCHANGER SHALL BE LOCATED ON OSHG SKID. CONSULT VENDOR SHOP DRAWINGS FOR EQUIPMENT CLEARANCE REQUIREMENTS.

GENERAL NOTES:

- 1 SEE PROCESS AND INSTRUMENT DIAGRAMS FOR VALVES, INSTRUMENTS, AND SPECIALTY PIPING ITEMS. CONTRACTOR SHALL INSTALL ALL DRAINS, SAMPLE TAPS, AND INSTRUMENTS AS INDICATED ON THE PROCESS AND INSTRUMENT DIAGRAMS.
- 2 SEE MECHANICAL DETAILS AND SPECIFICATIONS FOR PIPE SUPPORT REQUIREMENTS.
- 3 SEE STRUCTURAL SHEETS FOR EQUIPMENT PAD DETAILS.
- 4 CONTRACTOR SHALL FIELD LOCATE EQUIPMENT AS REQUIRED. EQUIPMENT SHALL BE INSTALLED PER VENDOR REQUIREMENTS AND THE PROJECT SPECIFICATIONS.
- 5 CONTRACTOR SHALL FIELD ROUTE ALL INTERCONNECTING PIPING, VALVES, INSTRUMENTS, AND FITTINGS IN ACCORDANCE WITH VENDOR REQUIREMENTS AND THE PROJECT SPECIFICATIONS.
- 6 EXISTING STRUCTURAL STEEL HIDDEN FOR CLARITY.

REVISIONS	DESCRIPTION	DATE	BY	APP
REV 01	ADDENDUM 6	08/02/23	AS	



DOWL
AECL848

WWW.DOWL.COM

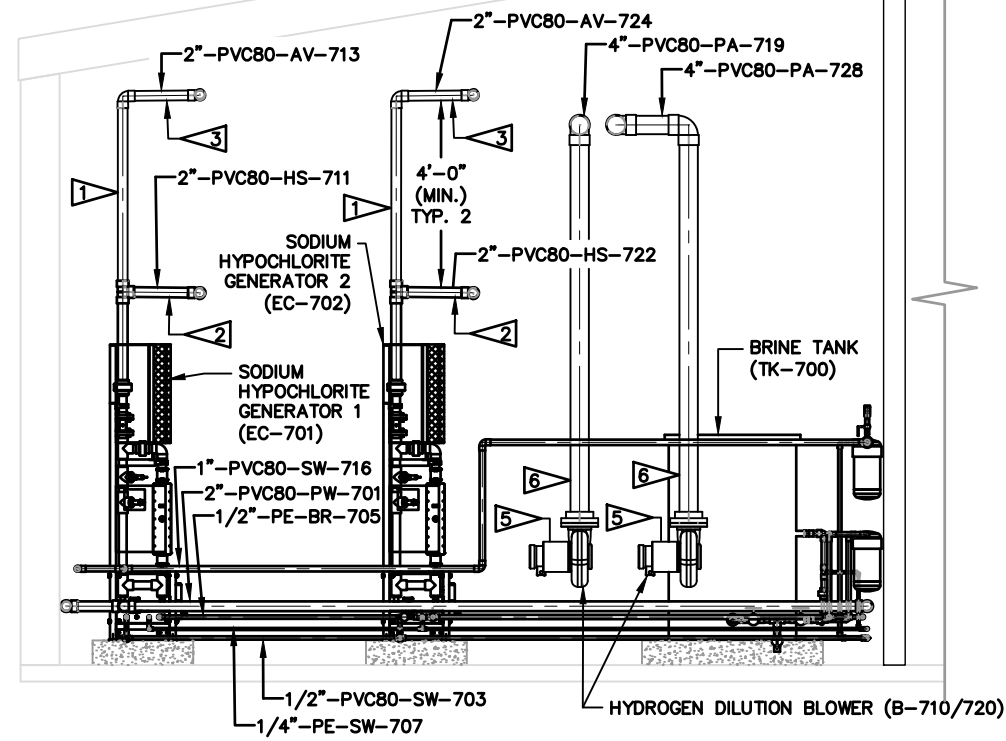
3535 College Road, #100
Fairbanks, Alaska 99709
907-374-0275

WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
WRANGELL, ALASKA

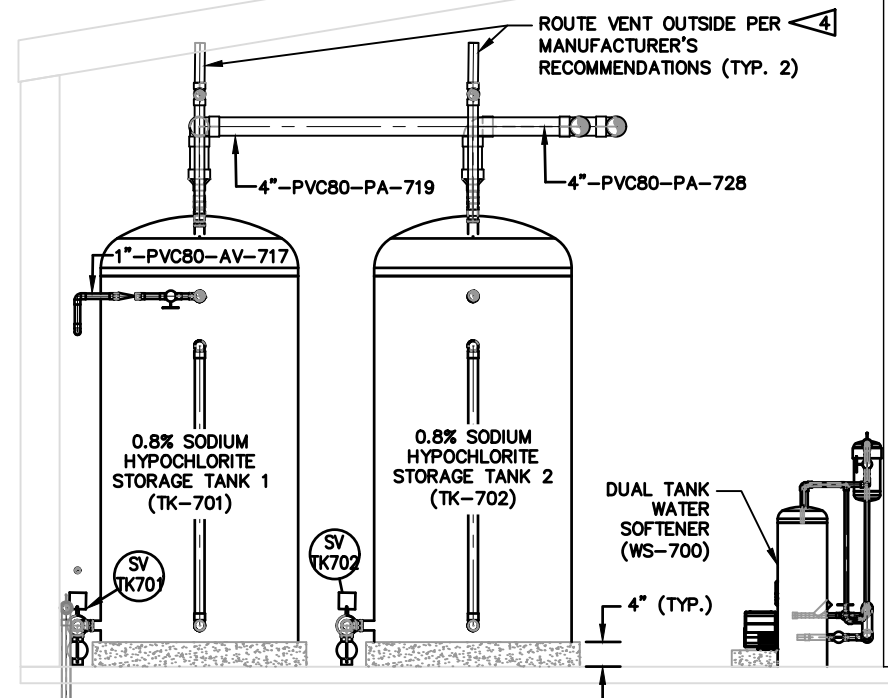
HYPOCHLORITE OSG ROOM - SECTIONS

SEC. 31; TOWNSHIP 62S; RANGE 84E
CITY AND BOROUGH OF WRANGELL, ALASKA

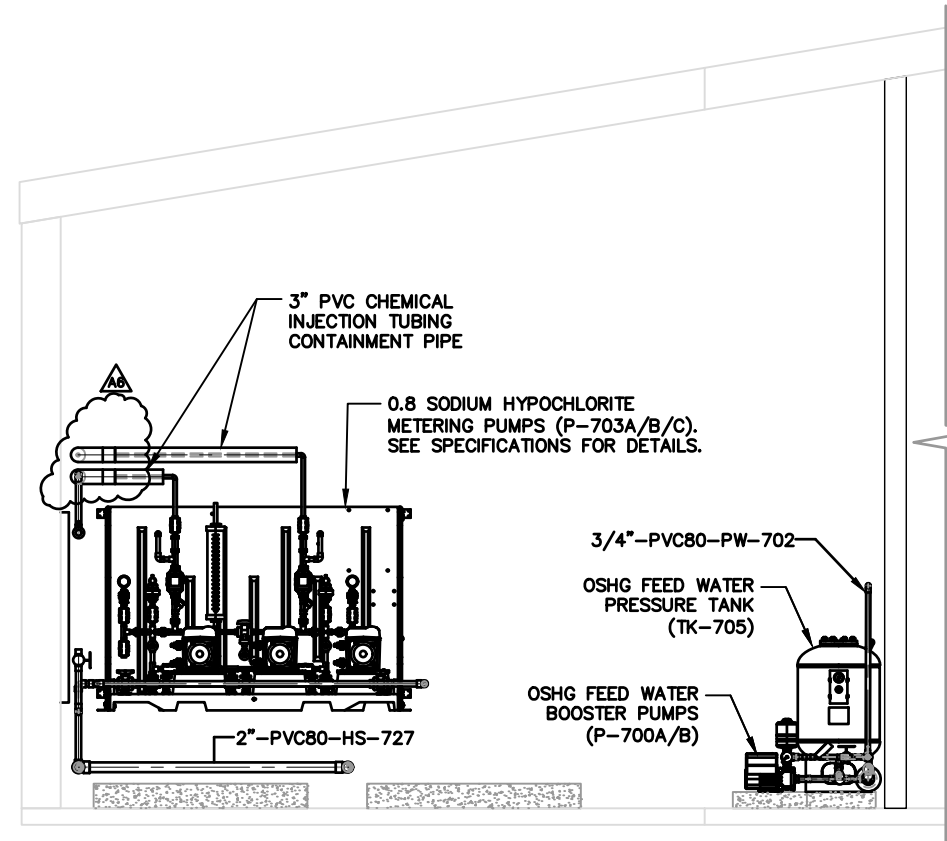
PROJECT 1528.50206.01
DATE 06/02/23



D-D HYPOCHLORITE GENERATION ROOM - SECTION
 M-701 1/2" = 1'-0"



E-E HYPOCHLORITE GENERATION ROOM - SECTION
 M-701 1/2" = 1'-0"



F-F HYPOCHLORITE GENERATION ROOM - SECTION
 M-701 1/2" = 1'-0"

- CONSTRUCTION NOTES:**
- 1 48" MINIMUM VERTICAL SEPARATION BETWEEN VENT HEADER (MEASURED FROM LOW POINT) AND HYPOCHLORITE OUTLET (MEASURED FROM HIGH POINT). CONSULT VENDOR SHOP DRAWINGS FOR DETAILS. CONTRACTOR SHALL VERIFY OVERHEAD CLEARANCE PRIOR TO EQUIPMENT INSTALLATION.
 - 2 HYPOCHLORITE OUTLET PIPING SHALL HAVE A MINIMUM DOWNWARD SLOPE TOWARD THE HYPOCHLORITE STORAGE TANK OF APPROXIMATELY 1/8" PER LINEAR FOOT. CONSULT VENDOR FOR SLOPE REQUIREMENTS FOR UNITS WITH A HEAT EXCHANGER.
 - 3 HYDROGEN VENT PIPING SHALL HAVE A MINIMUM UPWARD SLOPE TOWARD THE VENT OUTLET OF APPROXIMATELY 1/8" PER LINEAR FOOT.
 - 4 VENT TO ATMOSPHERE OUTDOORS. VENT STACK OUTLETS MUST BE AT LEAST TWO (2) FEET ABOVE THE ROOF LINE FOR AT LEAST FIFTEEN FEET IN ALL DIRECTIONS. VENT OUTLET MUST NOT TERMINATE ANYWHERE PEOPLE CAN PASS BY OR CONGREGATE. THERE MUST BE NO AIR INLETS, HEATERS, WINDOWS, AIR CONDITIONS, OR OTHER SOURCES OF IGNITION WITHIN 15 FEET OF THE OUTLET. A SCREENED VENT CAP MUST BE USED TO TERMINATE THE HYDROGEN VENT STACKS TO THE ATMOSPHERE.
 - 5 BLOWER SHALL BE MOUNTED 24" MAXIMUM ABOVE BASE OF HYPOCHLORITE TANK.
 - 6 BLOWER REQUIRES 32" OF STRAIGHT PIPE ON OUTLET BEFORE ANY ELBOWS OR VALVES.

- GENERAL NOTES:**
- 1 SEE PROCESS AND INSTRUMENT DIAGRAMS FOR VALVES, INSTRUMENTS, AND SPECIALTY PIPING ITEMS. CONTRACTOR SHALL INSTALL ALL DRAINS, SAMPLE TAPS, AND INSTRUMENTS AS INDICATED ON THE PROCESS AND INSTRUMENT DIAGRAMS.
 - 2 SEE MECHANICAL DETAILS AND SPECIFICATIONS FOR PIPE SUPPORT REQUIREMENTS.
 - 3 SEE STRUCTURAL SHEETS FOR EQUIPMENT PAD DETAILS.
 - 4 CONTRACTOR SHALL FIELD LOCATE EQUIPMENT AS REQUIRED. EQUIPMENT SHALL BE INSTALLED PER VENDOR REQUIREMENTS AND THE PROJECT SPECIFICATIONS.
 - 5 CONTRACTOR SHALL FIELD ROUTE ALL INTERCONNECTING PIPING, VALVES, INSTRUMENTS, AND FITTINGS IN ACCORDANCE WITH VENDOR REQUIREMENTS AND THE PROJECT SPECIFICATIONS.
 - 6 EXISTING STRUCTURAL STEEL HIDDEN FOR CLARITY.

REVISIONS	DESCRIPTION	DATE	BY	CP
REV	AS	08/02/23		
ADDITION 6				



DOWL
 AECL848
 WWW.DOWL.COM
 3535 College Road, #100
 Fairbanks, Alaska 99709
 907-374-0275

WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
 WRANGELL, ALASKA
 HYPOCHLORITE OSG ROOM -
 SECTIONS
 SEC. 31; TOWNSHIP 62S; RANGE 84E
 CITY AND BOROUGH OF WRANGELL, ALASKA

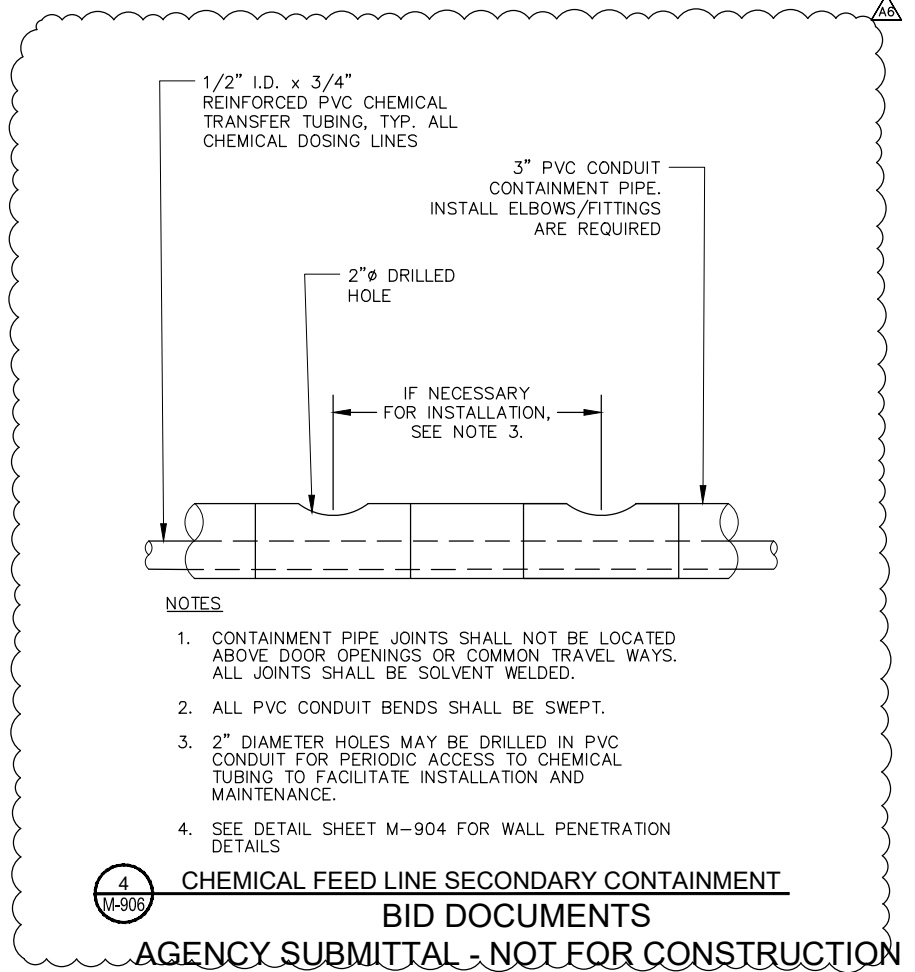
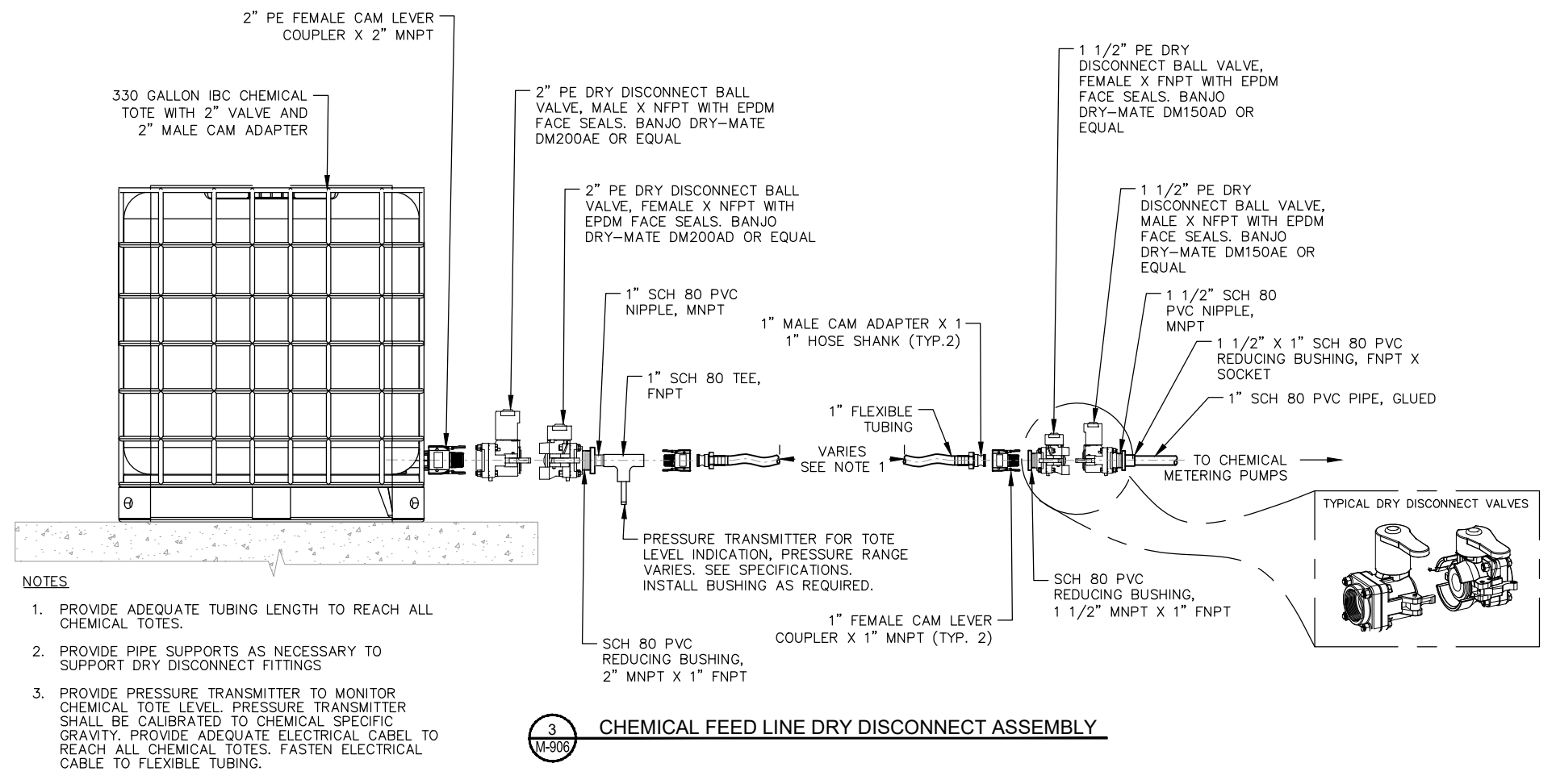
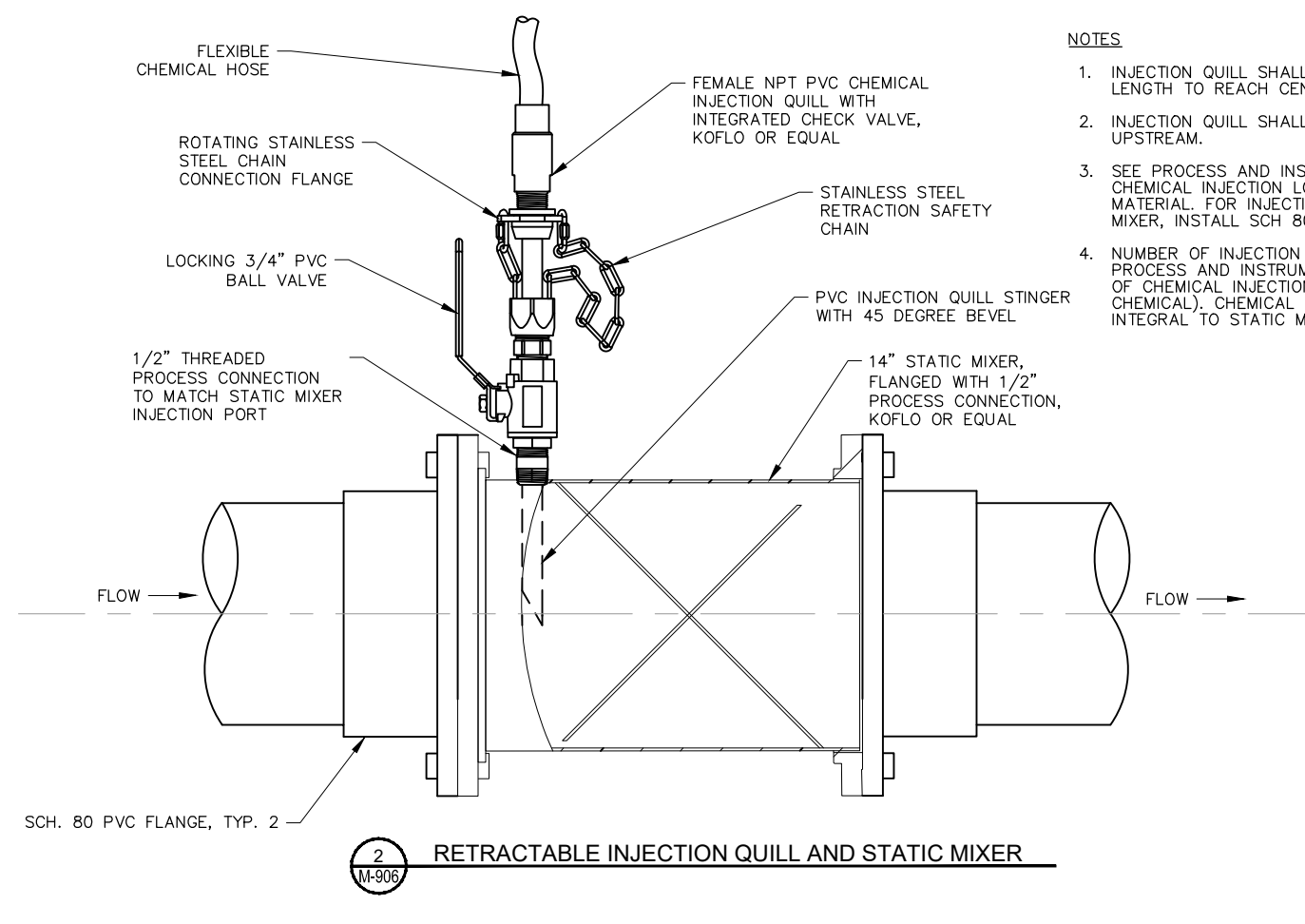
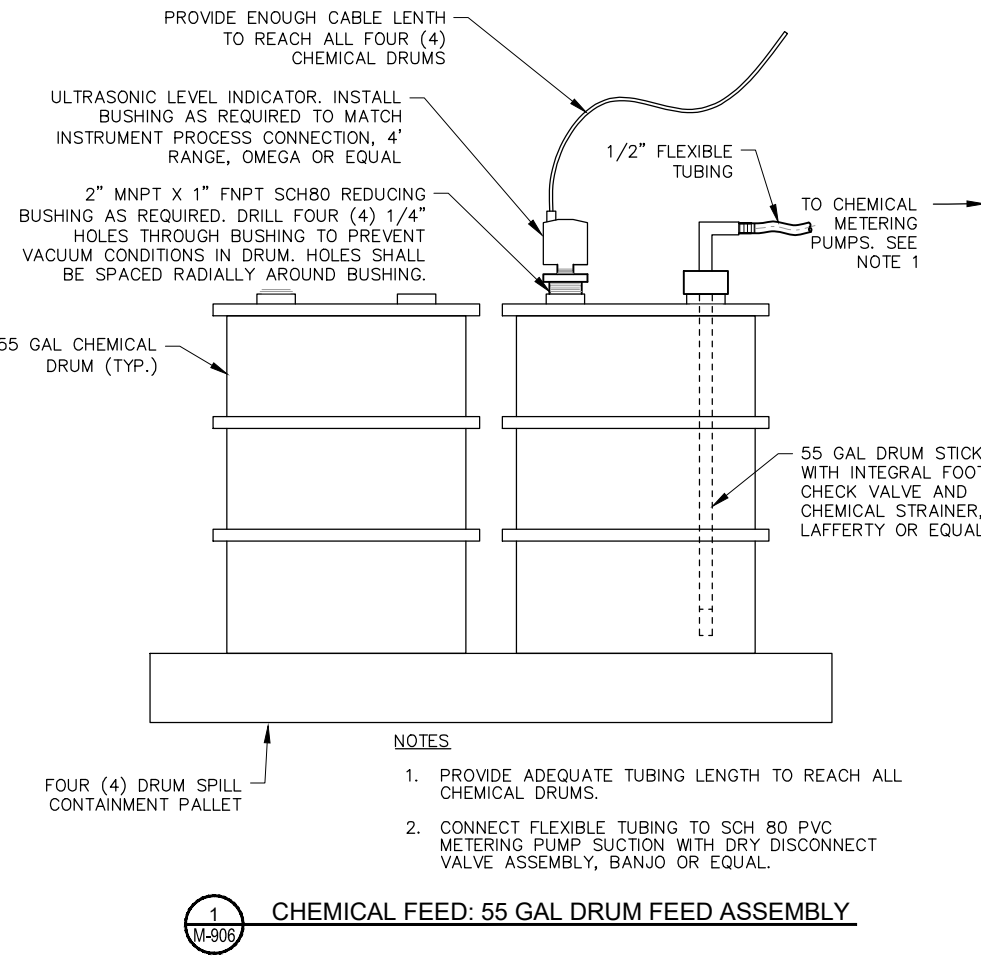
PROJECT 1528.50206.01
 DATE 06/02/23

© DOWL 2023
 SHEET

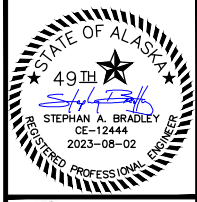
M-703

\\bil-gis\BIL-Projects\28_50206-01\PlantSD\OBW_WTP_Orthos\DWGs\122-C-Op-S-OSG-CHLORINE-2.dwg PLOT DATE: 2023-08-11 17:24 SAVED DATE: 2023-08-01 17:19 USER: gplatt

C:\dowl_pva\j0398775\MC-GN-DT-MECH-50206.dwg PLOT DATE 2023-08-2 10:37 SAVED DATE 2023-08-02 10:37 USER: gplatt



REV	DATE	DESCRIPTION	BY	CP
AB	08/02/23	ADDENDUM 6		



DOWL
AECL848
www.dowl.com
3535 College Road, #100
Fairbanks, Alaska 99709
907-374-0275

WRANGELL WATER TREATMENT PLANT IMPROVEMENTS
WRANGELL, ALASKA

PROCESS MECHANICAL DETAILS

SEC. 31: TOWNSHIP 62S; RANGE 84E
CITY AND BOROUGH OF WRANGELL, ALASKA

PROJECT 1528.50206.01
DATE 07/25/2023

© DOWL 2022
SHEET

M-906

AGENCY SUBMITTAL - NOT FOR CONSTRUCTION

Attachment 2

SECTION 46 33 83– LIQUID CHEMICAL FEED ACCESSORIES AND SAFETY EQUIPMENT

PART 1 -- GENERAL

1.1 REQUIREMENTS

- A. The CONTRACTOR shall provide chemical injection materials and accessories for use with 0.8% Sodium Hypochlorite solution, 30% (w/w) Sodium Hydroxide, KEMIRA PAX XL-19 Coagulant, and neat liquid Zinc Orthophosphate in accordance with the Contract Documents.
- B. The CONTRACTOR shall provide eight (8) 330-gallon Intermediate Bulk Container totes suitable for use with 30% (w/w) Sodium Hydroxide (NaOH).
- C. The CONTRACTOR shall provide eight (8) 330-gallon Intermediate Bulk Container totes suitable for use with Kemira PAX XL-19 Coagulant.
- D. The CONTRACTOR shall provide four (4) 55-gallon chemical drums with secondary containment suitable for use with neat, liquid Zinc Orthophosphate.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Submit data completely describing product, including detailed scope of supply, detailed bill of materials and annotated specification sheets of all components.
- B. Shop Drawings:
 - 1. Submit detailed specifications and shop drawings including dimensions and weights.
 - 2. Submit wiring, control schematics, and control logic diagrams for all electrical and control components furnished.
- C. Provide detailed Operations and Maintenance Manuals including storage, installation start-up and operating instructions. Provide safety precautions and warnings of all hazards operating equipment.

1.3 WARRANTY

- A. Warranty: CONTRACTOR shall provide equipment warranties as defined in Section 460100 – Equipment general Provisions.

PART 2 -- PRODUCTS

2.1 GENERAL - MATERIALS

- A. Materials used in the equipment shall be suitable for the intended application.
- B. Materials not specifically called for shall be of high-grade, standard commercial quality, free from defects and imperfections that might affect the serviceability of the product for the purpose for which it is intended.
- C. Corrosion Resistance
 - 1. Materials used in the construction of chemical feeding equipment shall be resistant to corrosive attack from the chemicals.
 - 2. The following table lists the most commonly used chemicals and some of the suitable materials for the construction of chemical feeding equipment.

3. Unless the manufacturer proposes more suitable materials, adhere to the materials listed in the table.

CHEMICAL	SUITABLE HANDLING MATERIAL
Kemira PAX XL-19	PVC, CPVC PFA Polypropylene PTFE
0.8% Sodium Hypochlorite	PVC, CPVC PFA Polypropylene Viton® EPDM Halar Tefzel® Teflon®
30% Sodium Hydroxide	PVC, CPVC PFA Polypropylene PTFE EPDM
Zinc Orthophosphate	PVC, CPVC PVDF PFA Polypropylene PTFE

2.2 CHEMICAL STORAGE

- A. The CONTRACTOR shall provide eight (8) 330-gallon Intermediate Bulk Container (IBC) totes suitable pre-filled with 30% (w/w) Sodium Hydroxide (NaOH) and eight (8) 330-gallon Intermediate Bulk Container totes pre-filled with Kemira PAX XL-19 Coagulant obtained from a certified chemical supplier.
- IBC totes shall be constructed of an internal high-density polyethylene (HDPE) internal tank that is containerized and supported by a galvanized steel protective cage.
 - High density polyethylene shall be blow-molded fabricated from virgin HDPE resin that is FDA certified food grade, ANSI/NSF 61 certified, BPA free, UV stabilized, and approved for potable water and consumable-based cargo.
 - IBC totes shall have a volume of 330 gallons. IBCs shall be fabricated to nominal tank thicknesses approved for storing dense liquids up to 1.9 specific gravity.
 - IBC totes shall measure 48”L x 40”W x 53” H.
 - IBC totes shall feature 4-way movement channels for multi-directional mobility by equipment such as pallet jacks and forklifts.

6. IBC totes shall have 6" vented, threaded screw cap inlet ports and 2" polypropylene discharge ball valves with male quick disconnect cam coupler.
 7. IBC totes shall be stackable to 2 high minimum.
 8. IBC totes shall be located above concrete secondary containment basins as indicated on the drawings. Concrete secondary containment basins shall be coated as indicated on the drawings and specifications.
 9. IBC totes shall be labeled by chemical supplier according to local, state, and federal regulations.
 10. For chemicals stored in IBC totes, The CONTRACTOR shall provide two (2) dry disconnect assemblies per chemical as indicated on the drawings.
- B. The CONTRACTOR shall provide four (4) 55-gallon chemical drums with secondary containment suitable for use with neat, liquid Zinc Orthophosphate obtained from a certified chemical supplier.
1. 55-gallon drums shall be constructed of FDA certified, food grade high-density polyethylene and be ANSI/NSF 61 certified.
 2. 55-gallon drums shall be tight lid.
 3. 55-gallon drums shall have standard dimensions.
 4. 55-gallon drums shall have two (2) 2-inch NPT connections.
 5. 55-gallon drums shall be labeled by chemical supplier according to local, state, and federal regulations.
 6. 55-gallon drums shall be located on top of a plastic secondary containment with a containment capacity suitable for four (4) 55-gallon drums.
 7. Containment Capacity shall be 66-gallons minimum.
- C. Bulkhead, Valves, and Fittings
1. All bulkheads, valves and fittings shall be provided by the storage tank manufacturer and shall be constructed of an appropriate material for the storage and transfer of the chemical stored.
 2. The tank connections shall allow for bulk chemical fill connections, tank venting, tank drain, and pump suction tubing.
 3. All connections shall be watertight, threaded connections shall be minimized.
 4. IBC tote to chemical metering pump suction piping connection assemblies shall be provided as indicated on the drawings.
 5. 55-gallon drum to chemical metering pump suction piping connection assemblies shall be provided as indicated on the drawings.

2.3 CHEMICAL STORAGE LEVEL INDICATION

- A. IBC Chemical Totes
1. The IBC tote connection assembly shall include a pressure transducer as indicated on the drawings and instrument list to continuously monitor the level in the duty IBC tote.
- B. 55-gallon Drums
1. 55-gallon drums shall have non-contact, ultrasonic drum level sensors as indicated on the drawings and instrument list to continuously monitor the level in the duty 55-gallon drum.

2.4 CHEMICAL TRANSFER TUBING

- A. Chemical transfer tubing shall be 1/2" ID x 3/4" OD reinforced, braided PVC tubing.
- B. Chemical transfer tubing shall have a minimum working pressure rating of 200 psig at 75°F.

- C. Chemical transfer tubing shall be clear, flexible, and continuous run.
- D. Chemical transfer piping shall be routed through 3" PVC conduit secondary containment piping. PVC chemical secondary containment piping shall be solvent welded. Joints in secondary containment piping shall not be located doorways or common travel ways. All secondary containment bends shall be swept. Chemical transfer tubing and containment piping shall be field routed in such a way that facilitates tubing removal and maintenance.

2.5 BACKPRESSURE AND ANTI-SIPHON VALVES

- A. Backpressure valves are not required for peristaltic pump operation.

2.6 CHEMICAL INJECTION QUILLS

- A. Retractable, PVC injection quills with integral check valve, and stainless-steel safety and retraction chains.
- B. Process Connection: ½" Male NPT standard or to match static mixer injection port.
- C. Inlet Connection Size: ½: Female NPT
- A. Quill Materials:
 - 1. Body: PVC
 - 2. Ball Valve: ½" PVC
 - 3. Check Valve:
 - a. Integral. Hastelloy C0276 Spring,
 - b. Ceramic ball
 - c. EPDM O-ring seal
 - d. Cracking pressure shall not exceed 5 psi.
 - 4. Seal Type: Viton
- D. Insertion Length: To centerline of flow path
- E. Stinger Tip: 45 Degree Bevel
- F. Manufacturer: Koflo QR-0.5P or equal.

2.7 SAFETY SPRAY SHIELD/GUARDS:

- A. All chemical tubing outside of secondary containment piping that is located above 5.0' shall have safety spray shield/guards on all couplings, fittings, and other connections to contain temporary leaks or sprays. The spray shields/guards shall be constructed of a material resistant to the chemical in the feed line, manufactured by Ramco, Drake Specialties or approved equal.

2.8 CHEMICAL FEED PIPE LABELING AND SIGNAGE

- A. All Chemical feed piping shall be identified with a label every ten (10) feet and with at least two labels in each room, closet, or pipe chase.

- B. The chemical feed area shall be equipped with proper warning signs requiring the use of goggles and personnel protective equipment near chemical pumps, chemical storage areas and uploading areas.

2.9 PORTABLE SUMP PUMPS

- A. Three portable sump pumps are required, one for the caustic room, one for the acid room, and one for the main treatment room. These pumps are “on the shelf” and not installed. Pumps shall be labeled for intended use as: ACID ONLY, BASE ONLY, W/WW ONLY.
- B. Pumps shall be bottom suction type, plastic or 316 SS construction suitable for chemical service, and sized to fit into the 12” diameter sump space as shown on the structural foundation drawings.
- C. Pumps shall be provided with 15 feet of minimum 1” discharge hose and all fittings required to attach to pump discharge. Hose shall be compatible with all chemicals at the facility. Hose shall include inline pump discharge check valve.
- D. Pumps shall be provided with a minimum of 20 feet of 120v power cord with NEMA 5-15 plug, sealed for use in a wet environment.
- E. Pumps shall be rated for a minimum of 1,200 gph at 15 ftTDH.
- F. Goulds LSP0311F or Engineer approved equal.

2.10 PERSONAL PROTECTIVE EQUIPMENT

- A. Three complete sets of the following items are required with one set located in each of the following: chlorine generation room, acid room, and caustic room.
- B. 1 pair of shoulder length, neoprene gloves, size XL
- C. 1 nitrile rubber apron, full coverage to shin length
- D. 1 Full face shield, 8 inch minimum.

PART 3 -- EXECUTION

3.1 INSTALLATION

- A. General installation requirements shall be in accordance with Section 460100 – Equipment General Provisions.
- B. All components of the respective chemical feed system should be supplied from the same supplier for an appropriately integrated and supported system.
- C. The chemical feed systems and related equipment will be installed by the CONTRACTOR in strict adherence with the manufacturer's instructions. The manufacturer shall also provide a qualified service representative for startup, testing and operator training. The representative’s services shall be retained until the equipment is operating to the satisfaction of the ENGINEER.
- D. CONTRACTOR shall pay strict attention to the installation of the pipe and fitting connections to the chemical feed pumps to prevent overtightening and damaging of the pump head and/or

fittings. Any such damage caused by the CONTRACTOR's installation shall be cause for replacement of the damaged materials at the CONTRACTOR's expense.

3.2 TESTING

- A. The CONTRACTOR shall completely fill the bulk chemical storage tank with potable water and allow the tank to set for a minimum of 4 hours. Over which time period, the tank connections shall be observed for leakage. If any leaks are observed, the CONTRACTOR shall repair or replace the defective pipes or fittings with sound material and complete the test again.
- B. Upon successful completion of the test, the CONTRACTOR shall remove all water from the chemical storage and fill the tank with the required amount of sodium hypochlorite solution. All fitting and connection shall again be observed for leakage and repair/replaced if necessary, by the CONTRACTOR.
- C. An acceptable leak test shall have zero leakage.
- D. The Engineer shall be notified at least 48-hours prior to testing and shall be present for the duration of the water and solution leak testing.

END OF SECTION