

**CITY OF TURLOCK
STANISLAUS COUNTY, CALIFORNIA**



ADDENDUM NO. 2

TO

**CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF THE
TURLOCK REGIONAL WATER QUALITY CONTROL FACILITY
CHEMICAL SYSTEM UPGRADES PROJECT AT RWQCF**

CITY PROJECT NO. 20-032

May 3, 2021



ADDENDUM NO. 2

Turlock Regional Water Quality Control Facility CHEMICAL SYSTEM UPGRADES PROJECT AT RWQCF

Project No. 20-032

City of Turlock, California

THIS ADDENDUM IS NOW INCORPORATED AS A PART OF THE CONTRACT DOCUMENTS AND MODIFIES THE ORIGINAL PLANS AND SPECIFICATIONS AS NOTED HEREIN. BY SUBMISSION OF A BID FOR THIS PROJECT, THE BIDDER IS ACKNOWLEDGING THAT THE BIDDER HAS CONFIRMED THAT HE OR SHE HAS RECEIVED ALL ADDENDA ISSUED FOR THAT PROJECT AND HAS INCLUDED COSTS FOR SUCH IN THE BID SUBMITTED.

While we believe the plans and specifications to be accurate, they are disseminated in accordance with law and are to be relied upon only at user's risk. The user should be advised to contact the City for updates on any material they receive to ensure that they have the latest/most current information.

It shall be the responsibility of the prime bidder to inform any affected sub bidder of the content of this Addendum.

SPECIFICATIONS (VOLUME 1 OF 3 – DIVISIONS 0 THROUGH 9)

1. DOCUMENT 00451C – CONSTRUCTION CONTRACTOR'S QUALIFICATION STATEMENT FOR ENGINEERED CONSTRUCTION

A. Replace Document 00451C in its entirety with the attached.

2. DOCUMENT 01140 – WORK RESTRICTIONS

A. Replace Document 01140 in its entirety with the attached.

3. DOCUMENT 01355A - STORMWATER POLLUTION PREVENTION CONSTRUCTION ACTIVITIES: BEST MANAGEMENT PRACTICES

A. Replace Document 01355A and Attachment A in its entirety with the attached. Attachment A can be filled out and turned into the City, in lieu of a SWPPP if the total disturbed area is less than 1 acre.

SPECIFICATIONS (VOLUME 2 OF 3 – DIVISIONS 09 THROUGH 17)

1. DOCUMENT 13852A – FIRE PROTECTION SYSTEM
 - A. Add attached quote to back of specification.
2. DOCUMENT 15052 – COMMON WORK RESULTS FOR GENERAL PIPING
 - A. Replace Document 15052 in its entirety with the attached.
3. DOCUMENT 15118 – PRESSURE REDUCING AND PRESSURE RELIEF VALVES
 - A. Replace Document 15118 in its entirety with the attached.
4. Appendix B
 - A. Insert the Record Drawings for the Chlorine Building, Chemical Storage Facility, and the Dechlorination Facility into Appendix B.

DRAWINGS (VOLUME 3 OF 3)

1. Sheet Number 13 of 97, Drawing No. TM02
 - A. Replace the drawing with the attached drawing.
2. Sheet Number 23 of 97, Drawing No. CBD01
 - A. Replace the drawing with the attached drawing.
3. Sheet Number 28 of 97, Drawing No. CBD06
 - A. Replace the drawing with the attached drawing.
4. Sheet Number 37 of 97, Drawing No. CSD01
 - A. Replace the drawing with the attached drawing.
5. Sheet Number 45 of 97, Drawing No. DFD01
 - A. Replace the drawing with the attached drawing.
6. Sheet Number 74A of 97, Drawing No. ECSE03
 - A. Insert attached NEW drawing into drawing set.

ATTACHMENTS:

1. DOCUMENT 00451C – CONSTRUCTION CONTRACTOR'S QUALIFICATION STATEMENT FOR ENGINEERED CONSTRUCTION
 2. DOCUMENT 01140 – WORK RESTRICTIONS
 3. DOCUMENT 01355A - STORMWATER POLLUTION PREVENTION CONSTRUCTION ACTIVITIES: BEST MANAGEMENT PRACTICES
 4. DOCUMENT 01355A - Attachment
 5. DOCUMENT 13852A - Attachment
 6. DOCUMENT 15052 – COMMON WORK RESULTS FOR GENERAL PIPING
 7. DOCUMENT 15118 – PRESSURE REDUCING AND PRESSURE RELIEF VALVES
 8. Appendix B – Existing Record Drawings
 9. Sheet Number 13 of 97, Drawing No. TM02
 10. Sheet Number 23 of 97, Drawing No. CBD01
 11. Sheet Number 28 of 97, Drawing No. CDB06
 12. Sheet Number 37 of 97, Drawing No. CSD01
 13. Sheet Number 45 of 97, Drawing No. DFD01
 14. Sheet Number 74A of 97, Drawing No. ECSE03
-

This Addendum No. 2 shall become part of the Contract and all provisions of the Contract shall apply thereto. This addendum has been prepared by or under, the direction of the following Registered Engineers:

Digitally signed by Ryan M. Sellman
Contact Info: Carollo Engineers
Date: 2021.04.30 12:16:22 -0700



04/30/2021

Ryan Sellman, P.E. California Civil C-76650

CIVIL ENGINEERING

Carollo Engineers, Inc., 2795 Mitchell Drive

Walnut Creek, CA 94598, Telephone: 925-932-1710

DOCUMENT 00451C

CONSTRUCTION CONTRACTOR'S QUALIFICATION STATEMENT
FOR ENGINEERED CONSTRUCTION

Issue Date: _____ Effective Date: _____
Owner: City of Turlock Owner's Contract No.: 20-032
Contractor: _____
Project: Turlock Water Quality Control Facility, Chemical System Upgrades Project at RWQCF
Contract Name: _____

Qualifications Statement	
THE INFORMATION SUPPLIED IN THIS DOCUMENT IS CONFIDENTIAL TO THE EXTENT PERMITTED BY LAWS AND REGULATIONS	
1. FIRM INFORMATION: Official Name of Firm: _____ Address: _____	
2. TYPE OF WORK: _____	
3. CONTRACTOR'S CONTACT INFORMATION Contact Person; _____ Title: _____ Phone: _____ Email: _____	
4. AFFILIATED COMPANIES: Name: _____ Address: _____	
5. TYPE OF ORGANIZATION: <input type="checkbox"/> <u>SOLE PROPRIETORSHIP</u> Name of Owner: _____ Doing Business As: _____ Date of Organization: _____	

Qualifications Statement

☐

PARTNERSHIP

Date of Organization:

Type of Partnership:

Name of General
Partner(s):

☐

CORPORATION

State of Organization:

Date of Organization:

Executive Officers:

President:

Vice President(s):

Treasurer:

Secretary:

☐

LIMITED LIABILITY COMPANY

State of Organization:

Date of Organization:

Members:

Qualifications Statement

☐ JOINT VENTURE

State of Organization: _____

Date of Organization: _____

Form of Organization: _____

JV Managing Partner: _____

Name: _____

Address: _____

JV Managing Partner: _____

Name: _____

Address: _____

6. LICENSING:

Jurisdiction: _____

Type of License: _____

License Number: _____

Jurisdiction: _____

Type of License: _____

License Number: _____

7. CERTIFICATIONS

CERTIFIED BY:

Disadvantaged Business Enterprise: _____

Minority Business Enterprise: _____

Woman Owned Business Enterprise: _____

Small Business Enterprise: _____

Other: (_____):

Qualifications Statement

8. BONDING INFORMATION

Bonding Company: _____
Address: _____
Bonding Agent: _____
Address: _____
Contact Name: _____
Phone: _____
Aggregate Bonding Capacity: _____
Available Bonding Capacity as of date of this
submittal: _____

9. FINANCIAL INFORMATION

Financial Institution: _____
Address: _____
Account Manager: _____
Phone: _____

INCLUDE AS AN ATTACHMENT A FINANCIAL STATEMENT AUDITED OR REVIEWED BY AN
INDEPENDENT CERTIFIED PUBLIC ACCOUNTANT FOR ~~THE LAST YEAR. EACH OF THE LAST 3~~
~~YEARS~~^{AD2}

10. CONSTRUCTION EXPERIENCE

Current Experience:

List on a **Schedule A** all uncompleted projects currently under contract (If Joint Venture, list each participant's projects separately).

Bidder authorizes Owner's representative to verify any and all information contained in the Qualification Statement from references contained herein and hereby releases all those concerned providing information as a reference from any liability in connection with any information they give.

Previous Experience:

List on **Schedule B** all projects completed within the last 5 years (If Joint Venture, list each participant's projects separately).

Bidder authorizes Owner's representative to verify any and all information contained in the Qualification Statement from references contained herein and hereby releases all those concerned providing information as a reference from any liability in connection with any information they give.

Qualifications Statement

Key Personnel:

List on **Schedule C** qualifications and experience of Bidder's key personnel who will be directly involved in this project (If Joint Venture, list each participant's projects separately).

Bidder authorizes Owner's representative to verify any and all information contained in the Qualification Statement from references contained herein and hereby releases all those concerned providing information as a reference from any liability in connection with any information they give.

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

☐ Yes ☐ No

If YES, attach as an Attachment details including Project Owner's contact information.

Has any Corporate Officer, Partner, Joint Venture participant or Proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

☐ Yes ☐ No

If YES, attach as an Attachment details including Project Owner's contact information.

Are there any judgments, claims, disputes or litigation pending or outstanding involving the firm listed in Section 1 or any of its officers (or any of its partners if a partnership or any of the individual entities if a joint venture)?

☐ Yes ☐ No

If YES, attach as an Attachment details including Project Owner's contact information.

11. SAFETY PROGRAM

Name of Contractor's Safety Officer: _____

Include the following as attachments:

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) (CAL-OSHA)^{AD2} OSHA No. 300- Log of Work-Related Injuries and Illnesses for the past 5 years.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all OSHA Citations & Notifications of Penalty (monetary or other) received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide as an Attachment Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) list of all safety citations or violations under any state all received within the last 5 years (indicate disposition as applicable) - IF NONE SO STATE.

Provide the following for the firm listed in Section 5 (and for each proposed Subcontractor furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) the following (attach additional sheets as necessary):

Qualifications Statement

Workers' compensation Experience Modification Rate (EMR) for the last 5 years:

Year _____	EMR _____
Year _____	EMR _____
Year _____	EMR _____
Year _____	EMR _____
Year _____	EMR _____

Total Recordable Frequency Rate (TRFR) for the last 5 years.

Year _____	TRFR _____
Year _____	TRFR _____
Year _____	TRFR _____
Year _____	TRFR _____
Year _____	TRFR _____

Total number of man hours worked for the last 5 years.

Year _____	TOTAL NUMBER OF MAN HOURS _____
Year _____	TOTAL NUMBER OF MAN HOURS _____
Year _____	TOTAL NUMBER OF MAN HOURS _____
Year _____	TOTAL NUMBER OF MAN HOURS _____

Provide Contractor's (and Contractor's proposed Subcontractors and Suppliers furnishing or performing Work having a value in excess of 10 percent of the total amount of the Bid) Days Away From Work, Days of Restricted Work Activity or Job Transfer (DART) incidence rate for the particular industry or type of Work to be performed by Contractor and each of Contractor's proposed Subcontractors and Suppliers) for the last 5 years:

Year _____	DART _____
Year _____	DART _____
Year _____	DART _____
Year _____	DART _____

12. EQUIPMENT:

MAJOR EQUIPMENT

List on **Schedule D** all pieces of major equipment available for use on Owner's Project.

Qualifications Statement

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HERewith, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME:

THIS _____ DAY
OF _____, 20

NOTARY PUBLIC – STATE OF _____

MY COMMISSION EXPIRES: _____

REQUIRED ATTACHMENTS

1. Schedule A (Current Experience).
2. Schedule B (Previous Experience).
3. Schedule C Project Key Personnel).
4. Schedule D (Major Equipment).
5. Financial statement audited or reviewed by an independent certified public accountant for ~~the last year each of the last 3 years~~^{AD2} for firm named in Section 1.
6. Evidence of authority for individuals listed in Section 5 to bind organization to an agreement.
7. Resumes of officers and key individuals (including Safety Officer) of firm named in Section 1.
8. Required safety program submittals listed in Section 11.
9. Additional items as pertinent.

SCHEDULE A CURRENT EXPERIENCE (UNCOMPLETED PROJECTS)

Project Name	Owner's Contact Person	Design Engineer	Contract Dates	Type of Work	Status	Cost of Work	Liquidated Damages (yes/no)
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				

SCHEDULE B PREVIOUS EXPERIENCE (Include ALL Projects Completed Within Last 5 Years)							
Project Name	Owner's Contact Person	Design Engineer	Contract Dates	Type of Work	Status	Cost of Work	Liquidated Damages (yes/no)
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				

SCHEDULE B PREVIOUS EXPERIENCE (Include ALL Projects Completed Within Last 5 Years)							
Project Name	Owner's Contact Person	Design Engineer	Contract Dates	Type of Work	Status	Cost of Work	Liquidated Damages (yes/no)
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				
	Name: Address: Phone:	Name: Address: Phone:	Start: Stop:				

SCHEDULE C – PROJECT KEY PERSONNEL				
NAME	POSITION	NUMBER OF YEARS OF CONSTRUCTION EXPERIENCE ON SIMILAR CONSTRUCTION PROJECTS	DATE STARTED WITH THIS ORGANIZATION	EXPERIENCE ON SIMILAR CONSTRUCTION PROJECTS (Name the projects)
	Project Manager			
	Project Superintendent			
	Quality Control Manager			
	Scheduler			

SECTION 01140
WORK RESTRICTIONS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Requirements for scheduling the Work affected by existing site and facility, work restrictions, and coordination between construction operations and plant operations.

1.02 SUBMITTALS

- A. Baseline Schedule with MOP tasks.
- B. Method of Procedure (MOP) Form.
- C. Method of Procedure (MOP) Log.
- D. Progress Schedule with MOP tasks.

1.03 GENERAL CONSTRAINTS ON WORK AND SCHEDULING OF WORK

- A. Plant access for Contractor will be provided at the Kilroy Road gate.
- B. Perform abandoned pipe Work as specified in Section 01738 - Selective Alterations and Demolition.
- C. Wastewater projects:
 - 1. The City of Turlock's Regional Water Quality Control Facility is the City's only means of treating domestic and industrial wastewater prior to discharging to the San Joaquin River or Delta Mendota Canal. Impairing the operational capabilities of this treatment plant will result in serious environmental damage and monetary fines.
 - 2. Conduct Work in a manner that will not impair the operational capabilities of essential elements of the treatment process or reduce the capacity of the entire treatment plant below levels sufficient to treat the quality of raw wastewater to the water quality limitations specified in the discharge permit.
 - 3. Conduct commissioning activities as specified in Section 01756 - Commissioning in a manner that will not impair the operational capabilities of essential elements of the treatment process or reduce the capacity of the entire treatment plant below levels sufficient to treat the quality of raw wastewater to the water quality limitations specified in the discharge permit.
 - 4. PCIS Optimization and Fine-Tuning as specified in Section 01756 - Commissioning.
 - 5. The status of the treatment plant shall be defined as "operational" when it is capable of treating the entire quantity of wastewater received to the water quality limits specified in the discharge permit.

1.04 SHUTDOWN AND CONSTRUCTION CONSTRAINTS

- A. General shutdown constraints:
 - 1. Execute the Work while the existing facility is in operation.
 - 2. Some activities may be accomplished without a shutdown.
 - 3. Apply to activities of construction regardless of process or work area.
 - 4. Activities that disrupt plant or utilities operations must comply with these shutdown constraints.
 - 5. Organize work to be completed in a minimum number of shutdowns.
 - 6. Provide thorough advanced planning, including having required equipment, materials, and labor on hand at time of shutdown.
 - 7. Where required to minimize treatment process interruptions while complying with specified constraints, provide temporary pumping, power, lighting, controls, instrumentation, and safety devices.
 - 8. Final determination of the permitting of shutdowns will be the sole judgment of the Owner.
 - 9. Owner maintains the ability to abort on the day of the scheduled shutdown.
- B. General maximum plant flow work limitations:
 - 1. Activities that disrupt plant operations are prohibited during the following flow conditions, unless otherwise approved in writing by the Owner and Engineer.
 - a. Flow condition: Influent flow greater than 17 mgd:
 - 1) This usually can occur during wet weather and rain events between October 31st and May 15th.
- C. Unit process availability work limitations:
 - 1. Shutdowns and tie-ins or other activities that disrupt plant operations are prohibited unless the following unit process availability conditions exist and unless otherwise approved in writing by the Owner and Engineer.
 - a. Emergency Storage Pond is empty.
- D. Shutdown activities:
 - 1. Scheduling:
 - a. Perform between the hours of 3 a.m. and 7 a.m. or as approved by Owner.
 - 2. Unplanned shutdowns due to emergencies are not defined in this Section.
- E. Process area construction constraints:
 - 1. The following constraints shall be observed while working in and around each of the following process areas:
 - a. Coagulant Storage Area (Alum):
 - 1) One tank and 1 pump skid (2 pumps) can be removed at a time. This facility must remain partially online (i.e 1 skid and 1 tank online, as well as the capability to fill the tank online and discharge coagulant to the treatment process).
 - 2) Once 1 tank, pump skid, and associated piping is online and tested it must run for a minimum of 7 days before Contractor can demolish the 2nd tank and pump skid.
 - 4) ~~This area can be removed from service in its entirety during construction, as the City is currently not using the facility.~~^{AD2}
 - 2)3) Coordination with tie-ins for water and the existing coagulant lines will require an MOP and coordination with the City.

- b. Dechlorination Storage Area (Sodium Bisulfite):
 - 1) One tank and 1 pump can be removed at a time. This facility must remain partially online (i.e 1 pump and 1 tank online, as well as the capability to fill the tank online and discharge Sodium Bisulfite to the flume).
 - 2) Once 1 tank, pump, and associated piping is online and tested it must run for a minimum of 14 days before Contractor can demolish the 2nd tank and pump.
 - 3) Water lines and tie-ins to existing chemical piping will require an MOP and coordination with the City. As this will require a plant shutdown.
- c. Chlorination Facility (Sodium Hypochlorite):
 - 1) Contractor to provide a temporary sodium hypochlorite facility during the demolition of the chlorine gas equipment and construction of the Sodium Hypochlorite equipment. Contractor will provide temporary tanks (minimum 8,000 gallons storage) and a contract to provide the chemical during the temporary disinfection period. City will order chemical as needed when tanks are getting low. City will provide temporary pumps and provide all piping and dosing from the tanks to the chlorine contact basin. Quote for work is attached as an appendix.
 - 2) The City will allow 6 months for the facility to be shutdown and the cost associated with this is part of the allowance. If the time exceeds 6 months, the Contractor is required to pay for the additional tank rental and chemical costs during this extension.
 - 3) An MOP and coordination with the City will be required for the chemical and water tie-in to existing.
 - 4) Any shutdowns for electrical shall be maximum 24 hours long, and can only have 1 shutdown every two weeks, to allow the emergency storage pond to be pumped down, and any plant upsets addressed.
- d. Material hauling operations:
 - 1) Contractor shall comply with restrictions regarding Contractor's use of site and premises as specified in Section 01110 - Summary of Work.
 - 2) All truck and personnel access will be through the gate on Kilroy Road.

1.05 METHOD OF PROCEDURE (MOP)

- A. MOP Instructions: See Appendix A.
- B. Prepare MOP for the following conditions:
 - 1. Shutdowns, diversions, and tie-ins to the existing facility.
 - 2. Process start-up activities.
 - 3. Power interruption and tie-ins.
 - 4. Switch over between temporary and permanent facilities, equipment, piping, and electrical and instrumentation systems.
 - 5. Process constraints requiring interruption of operating processes or utilities.
- C. Other Work not specifically listed may require MOPs as determined necessary by the Contractor, Owner, or Engineer.

- D. Submit Baseline Schedule, as specified in Section 01321 - Schedules and with proposed MOPs.
- E. Submit MOP Log at construction progress meetings.
- F. No consideration will be given to claims of additional time and cost associated to preparing MOPs required by the Owner and Engineer to complete this work in a manner that facilitates proper operation of the facility and compliance with effluent discharge criteria.
- G. Where required to minimize treatment process interruptions while complying with specified constraints, provide temporary pumping, power, lighting, controls, instrumentation, and safety devices.

1.06 COMPLIANCE WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

- A. The existing facility is operating under the terms of a National Pollutant Discharge Elimination System permit issued by the Central Valley Regional Water Quality Control Board. This permit specifies the water quality limits that the plant must meet prior to discharge of effluent.
- B. Perform work in a manner that will not prevent the existing facility from achieving the finished water quality requirements established by regulations.
- C. Bear the cost of penalties imposed on the Owner for discharge violations caused by actions of the Contractor.

1.07 REQUIREMENTS FOR OPERATION OF PLANT AND MAINTAINING CONTINUOUS OPERATION OF EXISTING FACILITIES

- A. Facilities or conditions required to keep the existing plant operational include, but are not limited to, the following:
 - 1. Electrical power including transformers, distribution wiring, and motor control centers.
 - 2. Piping for conveyance of raw wastewater to the facility.
 - 3. All existing wastewater pumping and treatment process facilities. These existing facilities include:
 - a. Raw Wastewater Treatment Pumping Stations No. 1 and 2.
 - b. Preliminary Treatment (fine screening).
 - c. Primary Influent Flume Nos. 1, 2, and 3.
 - d. Primary Flotator Nos. 1, 2 and 3.
 - e. Grit Removal and Handling Facilities.
 - f. Primary Sludge Pumping Stations No. 1 and No. 2.
 - g. Primary Effluent Overflow Piping and Holding Ponds.
 - h. Biotower Pump Station.
 - i. Biotowers No. 1 and No. 2.
 - j. Mixed Liquor Splitter Boxes.
 - k. Aeration Basins No. 1 through No. 7.
 - l. Blower Building No. 1 and No. 2.
 - m. RAS Flumes.
 - n. Secondary Clarifiers No. 1 through No. 4.
 - o. RAS Pump Station (adjacent to Secondary Clarifier No. 4).

- p. Chlorine Building and associated scrubber and sprinkler system.
- q. Chemical Feed System.
- r. Densadeg High Rate Flocculation/Sedimentation Processes.
- s. Disk Filters.
- t. Chlorine Contact Tank.
- u. Plant No. 2 Water Pump Station.
- v. Dechlorination Facility.
- w. WAS Pumping Facilities.
- x. Gravity Belt Thickener.
- y. Digesters Control Buildings (including digested sludge heating, boilers 1,2 and 3, heat exchangers, recirculation and mixing pumps, and waste gas flare).
- z. Acid Phase Digester No. 1 and associated pumping and heating equipment.
- aa. Anaerobic Digesters No. 1 through No. 6.
- bb. Administration and Laboratory Buildings.
- cc. Plant No. 1 and No. 2 water distribution system, and plant drain lines.
- 4. Piping for conveyance of untreated and treated water between the influent pumping stations, throughout the entire treatment process, and of treated effluent to the San Joaquin River.
- 5. All means of measuring and controlling the wastewater treatment processes at the existing WWTP.
- 6. All existing treatment equipment, piping, controls, pumps, and accessories.
- 7. All existing chemical feed systems (dry and liquid), metering, conveyance, and control facilities.
- 8. Piping for conveyance of wastewater, chemicals, and utilities between treatment units.
- 9. Chlorinators and associated equipment; chlorine residual analyzers; chemical solution piping at various locations in the plant. Plant No. 2 water is required at all times to permit chlorination.
- 10. Plant air.
- 11. Laboratory facilities.
- 12. Office, toilets, and washrooms.
- 13. Sludge Disposal: Existing digested sludge piping between Anaerobic Digester No. 4 and sludge drying beds to the south of the facility.
- 14. Fencing and gates.
- 15. Lighting.
- 16. Heating, ventilation, and air conditioning.
- 17. Instrumentation, meters, controls, and telemetry equipment.
- 18. Safety equipment and features.
- 19. Parking for City employees and vehicles required for operation and maintenance of the wastewater treatment plant (WWTP).
- 20. Telephone system.
- 21. Storm drainage.
- 22. Natural gas service.
- B. Conduct the Work and provide temporary facilities required to keep the existing plant continuously operational.
- C. Do not remove or demolish existing facilities required to keep the existing plant operational at the capacities specified until the existing facilities are replaced by temporary, new, or upgraded facilities or equipment.

1. Test replacement facilities to demonstrate operational success prior to removing or demolishing existing facilities.

1.08 OPERATIONS AND MAINTENANCE ACCESS

- A. Provide safe, continuous access to process control equipment for plant operations personnel.

1.09 UTILITIES

- A. Provide advance notice to and utilize services of Underground Services Alert (U.S.A.) for location and marking of underground utilities operated by utility agencies other than the Owner.
- B. Maintain electrical, telephone, water, gas, sanitary facilities, and other utilities within existing facilities in service. Provide temporary utilities when necessary.
- C. New yard utilities were designed using existing facility drawings.
 1. Field verification of utilities locations was not performed during design.
 2. Services crossed or located nearby by new yard utilities may require relocation and possible shutdowns.
 3. Pipe alignments as indicated on the Drawings.

1.10 PLANT ACCESS

- A. Maintain restricted access to the treatment plant at all times through the use of gates, fences, or other approved means.
- B. Plant access gates shall normally stay closed.
- C. On-site parking area for Contractor is only within staging area designated in Contract Documents.

1.11 WORK ON OWNER'S EXISTING FACILITIES

- A. Dewatering/Cleaning of existing process facilities or equipment and disposal of residue:
 1. Costs for dewatering, disposal of solids and residuals, and preparation of surfaces of existing tanks and pipelines for the Work are Contractor's responsibility.
 2. When the Owner has turned a process unit over to the Contractor for modification or temporary use, the Contractor is responsible for costs and procedures required to dewater and dispose of liquids and solids contained in the process unit.
 3. Drainage and disposal of process unit liquids, solids, etc. into another treatment process unit on the plant site may be allowed if approved in advance by the Engineer and Owner and if work is done in accordance with Owner's requirements.
 4. Include tipping fees for the removal and disposal of the grit/debris/chemical accumulated in the bottom of tanks, pipeline, and other existing facilities.
 5. Dewatering of grit/debris to meet landfill requirements is the responsibility of the Contractor.

6. Contractor shall provide adequate time in schedules for draining and cleanup of tanks, pipelines, and similar facilities.

1.12 TEMPORARY FACILITIES

- A. Locate temporary facilities in a manner that minimizes interference to Owner's operation and maintenance personnel.
- B. Temporary piping:
 1. Unless otherwise specified, install temporary pipe of the same size as its connection to the existing facility at the downstream end of the pipeline.
 2. Provide piping material compatible with the material being conveyed.
- C. Provide submittals on proposed temporary electrical and instrumentation components necessary to maintain existing facilities.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 COORDINATION OF WORK

- A. Maintain overall coordination of execution of work.
- B. Obtain schedules from subcontractors and suppliers and assume responsibility for correctness.
- C. Incorporate schedules from subcontractors and suppliers into Progress Schedule to plan for and comply with sequencing constraints.

3.02 WORK BY OTHERS

- A. Where proper execution of the Work depends upon work by others, inspect and promptly report discrepancies and defects.

3.03 GENERAL REQUIREMENTS FOR EXECUTION OF WORK

- A. Dimensions for all existing structures, piping, paving, and other nonstructural items are approximate. The Contractor shall field verify all dimensions and conditions and report any discrepancies to the Engineer a minimum of 14 days in advance of any construction in the area.
- B. Inspection of installed piping:
 1. After completing installation of piping and before placing piping in service, inspect all piping 30 inches in diameter or larger using closed circuit television for review and record keeping. Submit video logs to Engineer on CD-ROM in a commonly viewable format pre-approved by the Owner.
 2. Clean all debris from piping prior to placing new or modified pipelines in service.

3. Protect downstream equipment from potential damage caused by construction debris during startup.

3.04 WORK SEQUENCE AND CONSTRAINTS

A. General:

1. Utilize description of critical events in work sequence in this Section as a guideline for scheduling and undertaking the Work.
2. Work sequence and constraints presented do not include all items affecting completion of the Work, but are intended to describe critical events necessary to minimize disruption of the existing facilities and to ensure compliance with water quality permit requirements.
3. The following general suggested work sequence is provided to the Contractor by the Engineer as a possible sequence and is included solely as a general guideline and for informational purposes only:
 - a. The Work Sequence listed in this section is not intended to dictate means, methods of construction, or direct construction activities.
 - b. The general work sequence is a conceptual general construction sequence that was reviewed with the Owner to provide minimum outage, shutdowns, and state the minimum operating units to be maintained in service.
 - c. This outline is not intended to be all-inclusive and does not list all required work elements or details that may be required to complete the work, complete treatment processes, or place unit processes in service.
 - d. Contractor shall be responsible for implementing any additional details required, including temporary piping, bypass pumping, or temporary construction at no additional cost to Owner.
4. Contractor may propose alternate sequence or modifications to this work sequence. Owner will review the proposed modifications and determine if such proposed modifications of the work sequence interferes with the activities associated with proper operation of the wastewater treatment. Any modifications shall be submitted by the Contractor in writing and shall be approved by Owner in writing prior to their implementation.

B. Field Verification of Existing Utilities:

1. Prior to proceeding with any excavation or ordering fabrication shop drawings for the yard piping, Contractor shall proceed with field verification of the location of existing utilities and yard piping.
2. Information shown on yard piping drawings is based on the best available information at the time these drawings were prepared. However, the yard piping drawings should not be construed as portraying an accurate and complete representation of actual delineation of underground facilities. Not all existing piping and utilities are shown. Locations, depth of bury, sizes, and types of existing underground piping shown are approximate.
3. Prior to commencement of any work, Contractor shall perform potholing exploration to field verify both vertical and horizontal alignment and locations of existing piping and underground utilities shown crossing or tying into new piping and underground utilities.
4. See Section 01210 for Unanticipated Existing Underground Utilities and Yard Piping Location Allowance addressing existing utilities and yard piping that are not recorded on the contract documents.

5. Contractor shall notify Owner in advance of intent and schedule time and location for each potholing exploration to avoid interference with plant operation.
6. Once the exact locations of existing yard piping and utilities have been determined by Contractor, the Contractor shall determine if any modifications are required to the yard piping drawings.
7. Contractor shall notify Owner and Engineer of potential conflicts between existing yard piping as field located and new piping shown on the drawings as soon as they are uncovered so they can be remedied in a timely manner.
8. Engineer will review each conflict on a case-by-case basis and propose modifications to the yard piping to meeting field conditions, as required. If required, Engineer will provide revised drawings based on these field conditions within 30 days following completion of the "potholing" work and after receiving field data from the Contractor.
9. Once the Contractor receives the revised yard piping drawings, Contractor will then have 15 days to review the revised yard piping drawings and determine if a change in contract price is required to complete the work based on the revised drawings. No time extension to the Contract time shall be granted unless Engineer cannot provide revised drawings within the time allotted and stated above.

C. Paving:

1. New asphalt paving shall not be completed until all heavy equipment work and all underground work has been completed, and Contractor's heavy equipment has been moved off-site.

D. Coagulant Storage Area (Alum):

1. Process Connection and Shutdown Constraints:
 - a. 1W and 2W shutdowns will be required to tie-in to existing piping.
 - b. Isolation of the existing coagulant lines will be required prior to tie-in to existing piping.
 - c. This facility is currently ~~not~~^{AD2} in-use and therefore ~~can be demolished and constructed at one time, without keeping a portion of the system online~~must remain online and operational. Half of the facility can be taken down at one time. The maximum length of time for a complete shutdown of this facility is 24-hours.^{AD2}
2. Suggested Work Sequence:
 - a. Provide Temporary eyewash/shower station any time that 1W system is offline.
 - b. Isolate 1W and 2W system and drain all water.
 - c. Isolate water and chemical lines with existing valves where they leave/enter the containment area. Isolate 1 tank, fill line, suction line, and pump discharge line through 1 skid. Drain and dispose of all chemical and liquid from that system.
 - d. Confirm that City is still operating system and no isolation/changes have affected operations.
 - e. Once confirmed, Contractor can demolish half of system that is isolated.
 - f. Repair all damaged coatings/concrete will be covered by new equipment on the isolated side.
 - g. Install new equipment, piping, electrical, and instrumentation that has been demolished.
 - h. Test piping, tanks, and equipment that have been installed.

- i. Install new Vendor Control Panel.
- j. Request shutdown to tie-in new system to existing discharge piping and water system tie-in.
- k. Commission new half of system.
- l. Run for a minimum of 14 days prior to starting demo of second half of system. Once new system has run for 14 days with no issues, Contractor can start on second half.
- m. Flush, rinse, and dispose of all chemical in second half of system.
- n. Contractor can now demolish second half of system that is isolated.
- o. Repair all damaged coatings/concrete will be covered by new equipment on the isolated side.
- p. Install new equipment, piping, vendor control panel, electrical, and instrumentation that has been demolished.
- q. Test piping, tanks, and equipment that have been installed.
- r. Request shutdown to tie-in new system to existing discharge piping
- s. Commission second half of system.
- ~~a. Flush and properly dispose of all chemical and water from system.~~
- ~~b. Demolish all equipment that is required to be removed.~~
- ~~c. Repair all damaged coatings/concrete.~~
- ~~d. Install new equipment, piping, electrical, and instrumentation~~
- ~~e. Test all piping and Tanks.~~
- ~~f. Request shutdown of chemical and water line to tie in new to existing at edge of containment.~~^{AD2}
- g.t. Commission Facility.

E. Dechlorination Storage Area (Sodium Bisulfite):

- 1. Process Connection and Shutdown Constraints:
 - a. 1W and 2W shutdowns will be required to tie-in to existing piping.
 - b. Isolation of the existing Sodium Bisulfite lines will be required prior to tie-in to existing piping.
 - c. This facility is currently in-use and therefore must remain online and operational. Half of the facility can be taken down at one time. Any complete shutdown of this facility requires a complete plant shutdown. The maximum plant shutdown is 24-hours.
- 2. Suggested Work Sequence:
 - a. Provide Temporary eyewash/shower station any time that 1W system is offline.
 - b. Isolate 1W and 2W system and drain all water.
 - c. Isolate 1 tank, fill line, suction line, and pump discharge line. Drain and dispose of all chemical and liquid from that system.
 - d. Confirm that City is still operating system and no isolation/changes have affected operations.
 - e. Once confirmed, Contractor can demolish half of system that is isolated.
 - f. Repair all damaged coatings/concrete will be covered by new equipment on the isolated side.
 - g. Install new equipment, piping, electrical, and instrumentation that has been demolished.
 - h. Test piping, tanks, and equipment that have been installed.
 - i. Install new Vendor Control Panel.
 - j. Request shutdown to tie-in new system to existing discharge piping and water system tie-in.
 - k. Commission new half of system.

- l. Run for a minimum of 14 days prior to starting demo of second half of system. Once new system has run for 14 days with no issues, Contractor can start on second half.
- m. Contractor can now demolish second half of system that is isolated.
- n. Repair all damaged coatings/concrete will be covered by new equipment on the isolated side.
- o. Install new equipment, piping, electrical, and instrumentation that has been demolished.
- p. Test piping, tanks, and equipment that have been installed.
- q. Request shutdown to tie-in new system to existing discharge piping
- r. Commission second half of system.
- s. Request shutdown of chemical and water line to tie in new to existing at edge of containment.
- t. Commission Facility.

F. Chlorination Storage Area (Sodium Hypochlorite):

- 1. Process Connection and Shutdown Constraints:
 - a. 1W and 2W shutdowns will be required to tie-in to existing piping.
 - b. Isolation of the existing Chlorine lines will be required prior to tie-in to existing piping at Chlorine Contact Basin.
 - c. City will install a temporary chlorination facility when this facility is taken down. City will provide contractor 7 months of shutdown time to complete all demo work, install, testing, and commissioning.
- 2. Suggested Work Sequence:
 - a. Provide 30 days' notice to City prior to shutdown.
 - b. Purge all chlorine gas lines and equipment.
 - c. Personnel shall wear chlorine gas monitors when demolishing equipment.
 - d. Isolate 1W and 2W systems that need to be removed/tied into.
 - e. Demolish all equipment as indicated on the plans.
 - f. Demolish all structural items as indicated on the plans.
 - g. Excavate and install new tank pads and other equipment pads.
 - h. Coat all concrete required to be coated.
 - i. Install all new equipment, piping, electrical, and instrumentation.
 - j. Remove existing chlorine gas line to chlorine contact basin and install new sodium hypochlorite line.
 - k. Test all piping and Tanks.
 - l. Request shutdown of chemical and water line to tie in new system.
 - m. Commission Facility.

END OF SECTION

APPENDIX A
“Method of Procedure” (MOP)
Instructions and Forms

Definition and Purpose

“Method of Procedure” (MOP) is a detailed document submitted by the Contractor to request process shutdown(s), utility tie-in(s), work in areas that may risk unanticipated outages, or flow diversions to accommodate site construction activities during a project. Such activities may include (but are not limited to) new tie-ins to utilities or structures, mechanical modifications to process piping or equipment, demolition, bulkhead installation, and cleaning processes.

The MOP provides a detailed plan to the Owner and Engineer that describes specific aspects of the work including purpose, time of execution, and anticipated impacts on treatment processes. The MOP also includes contingency measures and provisions for rapid closure in the event that shutdown or work progress difficulties are encountered. Information from relevant trades associated with the requested shutdown, diversion, or tie-in is also included.

The Owner should use the information within the MOP to define operational procedures and methods to safely and successfully assist the Contractor.

MOP Process Summary

WHO	STEP	TIMING
Contractor	1. Identify MOPs needed on MOP Log and Baseline Schedule.	No later than 7 days prior to Preconstruction Scheduling Meeting
Contractor, Owner, Engineer	2. Pre-MOP Meeting.	More than 28 days prior to work
Contractor	3. Submits MOP.	No later than 28 days prior to work
Owner	4. Reviews MOP.	
Owner	5. MOP finalized.	No later than 7 days prior to work
Contractor	6. Complete Readiness Checklist.	No later than 5 days prior to work
Contractor	7. Complete Safety Checklist.	Immediately prior to commencing work
Contractor	8. Complete Work.	
Contractor	9. Update MOP Log and Progress Schedules.	Monthly

MOP Process Detail

STEP 1. Identifies MOPs needed on MOP Log and Baseline Schedule.

Contractor submits a preliminary list of anticipated project MOPs on MOP Log. MOPs identified but not limited to those shutdowns, diversions, or tie-ins described in the Contract Documents. Incorporate MOPs as tasks in Baseline Schedule. Date scheduled MOPs to coincide with the appropriate construction activities.

STEP 2. Pre-MOP Meeting.

Contractor requests a Pre-MOP Meeting with the Owner and Engineer to discuss the nature of the shutdown, diversion, or tie-in, and to gather the information necessary to complete the MOP Form. The pre-MOP meeting may be waived by the Owner or Engineer if the work is deemed to be minor.

STEP 3. Submits MOP.

Contractor completes the MOP Form and submit 3 copies for approval to the Owner's Project Manager (OPM).

STEP 4. Reviews MOP.

OPM distributes MOP Form for review by the Owner's Construction Coordinator, O&M Representative, and Engineer's Project Representative. Review MOP Form for completeness, accuracy, compliance with both the construction schedule, constraints defined in contract documents, and to ensure that the requested work does not negatively impact plant operations or other concurrent project activities. Additional information may be requested to better understand the nature of and method for completing the Work.

STEP 5. MOP finalized.

Once the MOP is agreed to by all parties, the MOP will be finalized by signature. Copies are distributed to the Owner, Engineer, and Contractor.

STEP 6. Complete Readiness Checklist.

Contractor verifies everything is ready for the work.

STEP 7. Complete Safety Checklist.

Contractor ensures safety.

STEP 8. Complete work.

Contractor complete work.

STEP 9. Update MOP Log and Progress Schedules.

Contractor updates MOP Log weekly and distributes at the regularly scheduled construction progress meetings.



METHOD OF PROCEDURE (MOP) FORM

Owner: _____ Date: _____
Contractor: _____ Carollo Project No.: _____
Project Name: _____ Submittal No.: _____
Submittal Title: _____ Spec/Dwg. Reference: _____

MOP #	Task Title (Provide <10 word title):	Submittal Date: (No later than 28 days prior to work)
-------	--------------------------------------	---

SCHEDULE OF WORK ACTIVITY START: (Date/Time) _____ END: (Date/Time) _____

REQUESTOR: _____

PRIMARY POINT OF CONTACT: _____ PHONE/PAGER: _____

SECONDARY POINT OF CONTACT: _____ PHONE/PAGER: _____

NOTIFY ☐ Control Room, Phone ☐ Security, Phone

BUILDING: _____ LOCATION OF WORK FLOOR/LEVEL: _____

DESCRIPTION OF WORK: (Provide sufficient details on process isolation, work sequencing, and safety (i.e., control of significant hazards unique to the work) to demonstrate an understanding of the work and how it will be completed within the constraints, and its impact on the processes and facility.)

Task Summary: _____

Processes Affected: _____

Trades Affected: _____

WORK PLAN: _____

Work Sequencing: _____

Process Isolation: _____

Spill Prevention Plan: _____

Contingency Plans: _____

CRITICAL EQUIPMENT/TOOLS: (pumps and discharge hoses with correct fittings, blind flanges and pipe plugs, no-hub fittings, properly sized electrical service components, generators, portable lighting, chlorine for potable water pipe breaks, etc.)

☐ Acoustic Ceiling/or Walls Access ☐ Excavation Permit ☐ Lock Out/Tag Out

☐ Chemical Use Approval ☐ Fire Sprinkler Impairment ☐ Life Safety Systems

☐ Confined Space Permit ☐ Flammable Materials ☐ Roof Protocol

☐ Critical Lift Plan ☐ Flush / Discharge ☐ Work After Dark

☐ Energized Electrical Work ☐ High Pressure Test ☐

☐ Elect. Panel Schedules ☐ Hot Work/Open Flame ☐

EXISTING SERVICE(S) AT RISK:

☐ Breathing Air ☐ Elect Normal ☐ Process Access ☐ Telephones

☐ Chemical Distribution ☐ Fire Protection ☐ Safety Showers ☐ UPS

☐ City Water ☐ HVAC ☐ SCADA ☐ VAX/DATA

☐ Communication ☐ Inert Gas ☐ Security ☐

☐ Domestic Drain ☐ Instrument - Air ☐ Solvent Drain ☐

☐ Elect-Bus Duct ☐ Life Safety System ☐ Specialty Gases ☐

☐ Elect Emergency ☐ Natural Gas ☐ Storm Drain ☐

REVIEWER'S INSTRUCTIONS /				
COMMENTS: _____				
<input type="checkbox"/> PREJOB BRIEFING MUST BE COMPLETED PRIOR TO COMMENCING WORK:				
	Full Name (printed)	Signature	Phone	Date
Submitted By				
System Owner				
Reviewer (if needed)				
Reviewer (if needed)				
Reviewer (if needed)				
Reviewer (if needed)				

READINESS CHECKLIST
(5 days prior to work)

Checklist provided as a guide but is not all inclusive.

1. Confirm all parts and materials are on site: _____

2. Review work plan: _____

3. Review contingency plan: _____

SAFETY CHECKLIST
(Just prior to commencing work)

Checklist provided as a guide but is not all inclusive.

1. Location awareness:
 - a. Emergency exits: _____
 - b. Emergency shower and eyewash: _____
 - c. Telephones and phone numbers: _____
 - d. Shut-off valve: _____
 - e. Electrical disconnects: _____
2. Inspect work area:
 - a. Take time to survey the area you are working in. Ensure that what you want to do will work. Do you have enough clearance? Is your footing secure? Do you have adequate lighting and ventilation? Are surrounding utilities out of the way for you to perform your work?
3. SDS (Safety Data Sheets):
 - a. Understand the chemicals and substances in the area you are working in by reading the SDS.
4. Lockout/Tagout Procedure:
 - a. Lockout/tagout energy sources before beginning work.
 - b. Make sure all valves associated with the work are locked out and tagged out on each side of the penetration.
 - c. Make sure the lines are depressurized.
5. Overhead work:
 - a. Use appropriate personal protective equipment; i.e., safety harness, lifeline, etc.
 - b. Select appropriate tie-off points; i.e., structurally adequate, not a pipe or conduit, etc.
 - c. Spotter assigned and in position.
 - d. Pipe rack access; i.e., check design capacity, protective decking or scaffolding in place, exposed valves or electrical switches identified and protected.
6. Safety equipment:
 - a. Shepherd's hook.
 - b. ARC flash protection.
 - c. Fire extinguisher.
 - d. Other: _____.
7. Accidents:
 - a. Should accidents occur, do not shut off and do not attempt to correct the situation, unless you are absolutely positive that your action will correct the problem and not adversely affect other people or equipment.
8. Review process start-up documents:
 - a. In the event the system is shutdown, the Control Center should have a working knowledge of the process start-up procedures in order to deal effectively with unforeseen events.
9. Evacuation procedures:
 - a. Do not obstruct evacuation routes.
 - b. Take time to survey the area for evacuation routes.

Method of Procedure (MOP) Log
Sample

MOP Number	Task Title	Date Requested	Date Approved	Date Work Planned	Work Completed (yes/no)
001					
002					
003					

AD2 Addendum No. 2

SECTION 01355A

STORMWATER POLLUTION PREVENTION CONSTRUCTION ACTIVITIES: BEST MANAGEMENT PRACTICES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Requirements for the preparation and implementation of the Stormwater Pollution Prevention Plan (SWPPP) for the Contractor's construction activities. This document (and other identified in this Section will be used for the purpose of applying for and obtaining a State of California General Construction Activity Stormwater Permit. This permit authorizes the discharge of stormwater associated with construction activities from the construction site. If the total disturbed area is less than 1 acre the City's Erosion and Sediment Control Plan Worksheet (attached to back of specification) can be completed in lieu of a SWPPP.^{AD2}

1.02 REFERENCES

- A. National Pollutant Discharge Elimination System (NPDES).
- B. State of California, State Water Resources Control Board, Regional Water Quality Control Board (SWRCB).
- C. United States Code of Federal Regulation (CFR):
 - 1. 40 - Protection of Environmental:
 - a. 117 - Determination of reportable quantities for hazardous substance.
 - b. 302 - Designation, reportable quantities, and notification.

1.03 SUBMITTALS

- A. Construction General Permit:
 - 1. The Contractor shall prepare and submit all Permit Registration Documents (PRD's) to the Engineer for review, approval, and certification by the Legally Responsible Person (LRP) prior to start of work and mobilization:
 - a. The LRP will electronically submit the PRDs to the Stormwater Multiple Application and Report Tracking System (SMARTS) to obtain approval of the Construction General Permit (CGP).
 - 2. The PRD's shall include but are not limited to the Notice of Intent (NOI), Risk Determination Worksheet, Site Maps, Stormwater Pollution Prevention Plan (SWPPP), Annual Fee's and Owner Certification. It shall also include all other reports, calculations, studies, exhibits, and documentation required to obtain the CGP.
 - 3. The Contractor shall provide a Qualified SWPPP Practitioner (QSP), who will be responsible for maintaining the existing CGP active throughout the duration of the project:

- a. The Contractor shall be responsible for providing all reports required by the CGP (monitoring, inspection, Rain Event Action Plans, sampling, exceedance reports, annual reports, etc.) to the Engineer for review.
- b. Upon approval, the Contractor's QSP shall upload the information to SMARTS.
- c. Time sensitive reports involving monitoring data shall be provided as soon as the information is made available.
- d. All other reports shall be provided to the Engineer a minimum of 2 weeks prior to their deadline for submittal to the SWRCB through SMARTS.
- e. All CGP documents shall be submitted to the Owner for reference and a copy shall be located on site at all times.

B. Pollution Prevention Plan:

1. Prepare and submit a site-specific Stormwater Pollution Prevention Plan (SWPPP) in accordance with Section A of the General Construction Activity Stormwater Permit to the Owner for reference.
2. Prepare and submit a monitoring program and reporting plan in accordance with Section B of the General Construction Activity Stormwater Permit to the Owner for reference.
3. Submit to the Owner for reference a Stormwater Pollution Prevention Plan detailing the placement of physical Best Management Practices (BMPs) required for installation and the methods used to comply with those BMPs directed at operational procedures, Monitoring Program, and Reporting Plan.
4. The plan shall specifically address and detail changes from the alternatives called out in this Section. The Contractor's preferred techniques shall show how it will comply with the stated objectives of the program.
5. The SWPPP shall be prepared and amended by a Qualified SWPPP Developer (QSD), as defined by the CGP.

C. Erosion and Sediment Control Plan Worksheet (Attached to back of specification section) if the total disturbed area is less than 1 acre. This would be used in lieu of a SWPPP.^{AD2}

C-D. The Contractor shall submit a copy of the BMP Handbook with each BMP to be utilized check marked to show compliance or marked to show deviation.

D-E. The entire plan shall be kept and maintained by the Contractor on the construction site during the duration of the project.

E-F. The Contractor shall be responsible for taking the proper actions to prevent contaminants and sediments from entering the storm sewer drainage system should any unforeseen circumstance occur. The Contractor shall take immediate action if directed by the Engineer, or if the Contractor observes contaminants and/or sediments entering the storm drainage system, to prevent further stormwater from entering the system.

1.04 REGULATORY REQUIREMENTS

- A. The Contractor shall comply with the State Water Resources Control Board, Regional Water Quality Control Board, county, city, and other local agency requirements regarding stormwater discharges and management.

- B. The Contractor shall not begin any construction work until the Owner receives the State of California General Construction Activity Stormwater Permit. The Contractor shall allow the Owner 30 days to obtain this permit after receipt of the information listed in this Section.
- C. The Contractor shall comply with the following prohibitions and limitations, which are contained in the Stormwater Permit:
 - 1. Discharge prohibitions:
 - a. Discharges of materials other than stormwater, which are not otherwise regulated by a NPDES permit, to a separate stormwater sewer system or water of the nation are prohibited.
 - b. Stormwater discharges shall not cause or threaten to cause pollution, contamination (including sediment), or nuisance.
 - c. Stormwater discharges regulated by this general permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR 117 and 40 CFR 302.
 - 2. Receiving water limitations:
 - a. Stormwater discharges to any surface or groundwater shall not adversely impact human health or the environment.
 - b. Stormwater discharge shall not cause or contribute to a violation of any applicable water quality standards contained in the California Ocean Plan, Inland Surface Waters and Enclosed Bays and Estuaries Plan, or the applicable Regional Water Board's Basin Plan.
- D. Requirements:
 - 1. In order to comply with the permit mandates the Stanislaus County has developed a County-Wide Stormwater Pollution Prevention Program and summary of Best Management Practices (BMPs) that are suggested to be utilized by the Contractor. BMPs are measures or practices used to reduce the amount of pollution entering surface water. BMPs may take the form of a process, activity, or physical structure. Some BMPs are simple and can be put into place immediately, while others are more complicated and require extensive planning or space. They may be inexpensive or costly to implement. No additional compensation shall be made for implementation of BMPs.
 - 2. The Stanislaus County-Wide Stormwater Pollution Prevention Program and Summary of BMPs are available for review at the Owner's Water Quality Control Plant.

1.05 STORMWATER POLLUTION PREVENTION PLAN IMPLEMENTATION

- A. The Contractor's QSP shall implement all activities required by the General Permit and as detailed in the Stormwater Pollution Prevention Plan, Monitoring Program, and Reporting Plan.

1.06 NON-STORMWATER MANAGEMENT

- A. The Stormwater Pollution Prevention Plan shall discuss any non-stormwater sources (i.e., landscaping irrigation, pipe flushing, street washing, and dewatering). In addition, the Plan shall include standard observation measures and best management practices, including best available technologies economically achievable and best conventional pollutant control technologies that are to be implemented in order to reduce the pollutant loading to the waters.

1.07 AMENDMENTS

- A. The Contractor's QSP shall amend the Stormwater Pollution Prevention Plan, Monitoring Program, and Reporting Plan whenever there is a change in construction or operations which may affect the discharge of pollutants to stormwater.
- B. The Stormwater Pollution Prevention Plan shall also be amended if it is in violation of any conditions of the general permit or has not achieved the general objective of reducing pollutants in stormwater discharges.
- C. All amendments shall be completed at no additional cost to the Owner.

1.08 ANNUAL SUMMARY

- A. Contractor:
 - 1. Prepare an annual summary report (annual report) in accordance with all Regional Water Quality Control Board requirements.
 - 2. Utilize the annual report form available in the SMARTS, and submit it to the Engineer a minimum of 2 weeks prior to the deadline for submittal.
 - 3. Upon approval of the report by the Engineer, the LRP will review and certify the report for final submittal via SMARTS.

1.09 NOTICE OF TERMINATION

- A. The Contractor shall provide all necessary information for the completion of a Notice of Termination (NOT) upon completion of all construction activities (refer to Section C of the General Construction Activity Stormwater Permit for general requirements). Upon review of the information submitted, the LRP will certify and submit the NOT via SMARTS.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Nonhazardous material/waste management:
 - 1. Designated area: The Contractor shall propose designated areas of the project site, for approval by the Engineer, suitable for material delivery, storage, and waste collection that, to the maximum extent practicable, are near construction entrances and away from catch basins, gutters, drainage courses, and creeks.
 - 2. Granular material:
 - a. The Contractor shall store granular material at least 50 feet away from catch basin and curb returns.
 - b. The Contractor shall not allow granular material to enter storm drains, creeks, or rivers.
 - c. When rain is forecast within 24 hours or during wet weather, the Engineer may require the Contractor to cover granular material with a tarpaulin and to surround the material with sandbags:

- 1) All stockpiles are required to be protected immediately if they are not scheduled to be used within 14 days.
 3. Dust control: The Contractor shall use reclaimed water to control dust on a daily basis or as directed by the Construction Manager.
 4. Street sweeping and vacuuming:
 - a. At the end of each working day or as directed by the Engineer, the Contractor shall clean and sweep roadways and on-site paved areas of all materials attributed to or involved in the work.
 - b. The Contractor shall not use water to flush down streets in place of street sweeping.
 - c. Additionally, the Contractor shall not use kick brooms or sweeper attachments.
- B. Spill prevention and control:
1. The Contractor shall keep a stockpile of spill cleanup materials, such as rags or absorbents, readily accessible on-site.
 2. The Contractor shall immediately contain and prevent leaks and spills from entering storm drains, and properly clean up and dispose of the waste and cleanup materials:
 - a. If the waste is hazardous, the Contractor shall dispose of hazardous waste only at authorized and permitted treatment, storage, and disposal facilities, and use only licensed hazardous waste haulers to remove the waste off-site, unless quantities to be transported are below applicable threshold limits for transportation specified in State and Federal regulations.
 3. The Contractor shall not wash any spilled material into streets, gutters, storm drains, creeks, or rivers and shall not bury spilled hazardous materials.
 4. The Contractor shall immediately report any hazardous materials spill to the Owner and Engineer for reporting to all applicable regulatory agencies.
- C. Vehicle/equipment cleaning:
1. The Contractor shall not perform vehicle or equipment cleaning on-site or in the street using soaps, solvents, degreasers, steam cleaning equipment, or equivalent methods.
 2. The Contractor shall perform vehicle or equipment cleaning, with water only, in a designated, bermed area that will not allow rinse water to run off-site or into streets, gutters, storm drains, creeks or rivers.
- D. Vehicle/equipment maintenance and fueling:
1. The Contractor shall perform maintenance and fueling of vehicles or equipment in designated, bermed area(s) or over a drip pan that will not allow run-on of stormwater or runoff of spills.
 2. The Contractor shall use secondary containment, such as a drip pan, to catch leaks or spills any time that vehicle or equipment fluids are dispensed, changed, or poured.
 3. The Contractor shall keep a stockpile of spill cleanup materials, such as rags or absorbents, readily accessible on-site.
 4. The Contractor shall clean up leaks and spills of vehicle or equipment fluids immediately and dispose of the waste and cleanup materials as hazardous waste, as described in section "Spill prevention and control" above.
 5. The Contractor shall not wash any spilled material into streets, gutters, storm drains, creeks, or rivers and shall not bury spilled hazardous materials.

6. The Contractor shall report any hazardous materials spill to the Owner and Engineer and all applicable regulatory agencies.
7. The Contractor shall inspect vehicles and equipment arriving on-site for leaking fluids and shall promptly repair leaking vehicles and equipment. Drip pans shall be used to catch leaks until repairs are made.
8. The Contractor shall recycle waste oil and antifreeze, to the maximum extent practicable.
9. The Contractor shall comply with Federal, State, and City requirements for aboveground storage tanks.

E. Contractor training and awareness:

1. Contractor's QSP shall train all employees/subcontractors on the stormwater pollution prevention requirements contained in these specifications.
2. Contractor's QSP shall inform subcontractors of the stormwater pollution prevention contract requirements and include appropriate subcontract provisions to ensure that these requirements are met.
3. Contractor shall post warning signs in areas treated with chemicals.
4. Contractor shall paint new, reset or raised catch basins, constructed as part of the project, with a "No Dumping" stencil.

3.02 SPECIFIC REQUIREMENTS

A. Paving operations:

1. Project site management:
 - a. When rain is forecast within 24 hours or during wet weather, the Engineer may prevent the Contractor from paving.
 - b. The Engineer may direct the Contractor to protect drainage courses by using control measures, such as earth dike, straw bale, and sandbag, to divert runoff or trap and filter sediment in addition to those already shown on the construction plan sheets.
 - c. The Contractor shall place drip pans or absorbent material under paving equipment when not in use.
 - d. The Contractor shall cover catch basins and manholes when paving or applying seal coat, tack coat, slurry seal, or fog seal.
 - e. If the paving operation includes an on-site mixing plant, the Contractor shall comply with applicable Federal, State, and local General Industrial Activities Stormwater Permit requirements.
2. Paving waste management:
 - a. The Contractor shall not sweep or wash down excess sand (placed as part of a sand seal or to absorb excess oil) into gutters, storm drains, or creeks:
 - 1) Instead, the Contractor shall either collect the sand and return it to the stockpile, or dispose of it in a trash container.
 - b. The Contractor shall not use water to wash down fresh asphalt concrete pavement.

B. Saw cutting:

1. During saw cutting, the Contractor shall cover or barricade catch basins using control measures, such as filter fabric, straw bales, sand bags, and fine gravel dams, to keep slurry out of the storm drain system. When protecting a catch basin, the Contractor shall ensure that the entire opening is covered.

2. The Contractor shall vacuum saw cut slurry and pick up the waste prior to moving to the next location or at the end of each working day, whichever is sooner.
3. If saw cut slurry enters catch basins, the Contractor shall remove the slurry from the storm drain system immediately.

C. Concrete, grout, and mortar waste management:

1. Material management: The Contractor shall store concrete, grout, and mortar away from drainage areas and ensure that these materials do not enter the storm drain system.
2. Concrete truck/equipment washout:
 - a. The Contractor shall not washout concrete trucks or equipment into streets, gutters, storm drains, creeks, or rivers:
 - 1) Washout areas should be located at least 50 feet from storm drains, open ditches, or water bodies.
 - b. The Contractor shall perform washout of concrete trucks or equipment in a designated area:
 - 1) Washout site should be lined so there is no discharge into the underlying soil.
3. Exposed aggregate concrete wash water:
 - a. The Contractor shall avoid creating runoff from washing of exposed aggregate concrete. The Contractor shall collect and return sweepings from exposed aggregate concrete to a stockpile or dispose of the waste in a trash container.

END OF SECTION

AD2 Addendum No. 2

City of Turlock



EROSION AND SEDIMENT CONTROL PLAN WORKSHEET

FOR

SMALL CONSTRUCTION PROJECTS



Serving the public interest in partnership with developers, homeowners, and contractors, in order to build a better community to ensure the safety, health and welfare of the citizens of Turlock.

What is this document for?

The City's Phase II MS4 NPDES General Permit issued by the State Water Board to the City, requires the City to develop and maintain a program to assure that sediment and other pollutants from construction activities do not flow into the City's storm water drainage system and, subsequently, impact local receiving waters. The City's Permit requires the City to require the owner of any construction project having soil disturbance to submit an Erosion and Sediment Control Plan (ESCP). The ESCP must identify potential sources of erosion and sedimentation associated with the project and identify the control measures (best management practices or BMPs) used to prevent erosion and control sedimentation within the project. This document is a worksheet to assist owners of small projects to determine appropriate control measures for their project.

Who is required to complete this document?

All construction projects that have soil disturbance and pass through plan check or the City's permitting process must develop an ESCP. Projects having more than 1 acre of soil disturbance or those projects that are part of a larger common plan may be required to comply with the State Water Board's Construction General Permit (CGP), which requires the development of a Storm Water Pollution Prevention Plan (SWPPP). For these larger projects, the CGP-required SWPPP may be submitted in lieu of the ESCP. For all other projects (small projects) having less than 1 acre of soil disturbance or those that qualify for a waiver or exemption from the CGP, they must submit an ESCP using this worksheet.

What is required in this document?

This worksheet requires basic project and contact information, as well as, basic site information including location, status, approximate start and end dates and the area of soil disturbance.

The Best Management Practices (BMPs) that will be used during construction are also required to be identified.

A basic site map showing the project boundaries, adjacent streets, storm drain inlets, placement of BMPs, and where construction work will be occurring is required to be included.

BMPs, as defined on the EPA's website, is *"a term used to describe a type of water pollution control. Storm water BMPs are techniques, measures or structural controls used to manage the quantity and improve the quality of storm water runoff. The goal is to reduce or eliminate the contaminants collected by storm water as it moves into streams and rivers."*

For more details on BMPs please visit the California Storm Water Quality Association's website at:

www.casqa.org/resources/bmp-handbooks

or Caltrans's website at:

www.dot.ca.gov/hq/construc/stormwater/manuals.htm

1 Project Information

Project Name:	
Project Address:	
Project Size: (sq. ft. or acres)	
Anticipated Construction Start Date:	
Anticipated Construction End Date:	
Soil Disturbance Area (sq. ft. or acres):	
Number of Storm Drain Inlets within 50 ft. of the soil disturbance.	
Does project require other permits or requirements? Check all that apply.	<input type="checkbox"/> NPDES General Construction Permit (NOI & SWPPP required) <input type="checkbox"/> NPDES Industrial General Permit <input type="checkbox"/> MS Phase II Permit (ESCP and/or Post Construction BMP) <input type="checkbox"/> 404 Permit (Clean Water Act) <input type="checkbox"/> 401 Permit (Water Quality Certification) <input type="checkbox"/> 1600 Agreement (Streambed Alteration) <input type="checkbox"/> Waste Discharge Requirements (non-federal State Waters) <input type="checkbox"/> Irrigated Lands Regulatory Program (Commercial Ag) <input type="checkbox"/> Low or Limited Threat NPDES Permit (Dewatering Groundwater)

2 Owner Information

Name:	
Address:	
Phone Number:	
Email:	

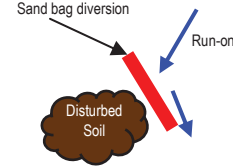
3 Contractor Information

Name:	
Company Name:	
Address:	
Phone Number:	
Email:	

4 Best Management Practices

4.1 Run-On Control BMPs

When surface flow of storm water runoff is allowed to pass through disturbed soils at an active construction project it can mobilize sediment and carry it into the municipality's storm drainage system and into the local receiving waters. This results in deposition of sediment in the municipal drainage system which causes more frequent maintenance and can cause flooding. The sediment is also harmful to the local waterways.



Does storm water have the potential to run-on to the construction site?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, will storm water surface flow be diverted around any disturbed soil areas? Show how it will be diverted on the site map.	<input type="checkbox"/> Yes <input type="checkbox"/> No

4.2 Erosion Control BMPs

The definition of erosion is the detachment of soil particles. These particles can become detached by rain, wind, or construction activity. Although construction, by nature, disturbs soil. It is vital to place a temporary or permanent covering over disturbed soil as soon as possible. Projects are not allowed to leave areas of exposed soil that do not have a cover. On the table below and on the site map show how you will prevent erosion at your project.

CASQA Fact Sheet	BMP Name	BMP Selected? (Check Box)	Describe the BMP to be implemented. If not used, state the reason why.
EC-1	Scheduling (work will be conducted during the dry season)		
EC-2	Preservation of Existing Vegetation (existing vegetated areas will not be disturbed)		
EC-4	Area to be vegetated with landscaping, turf, or hydroseeding		
EC-7	Temporary Erosion Control using an erosion control blanket or geotextile		
EC-6 & EC-8	Area covered with a temporary or permanent mulch including straw, wood, compost, hydromulch, or equivalent		
EC-16	Non-Vegetated Stabilization (covered with aggregate, paving, permanent structures / surfaces)		
WE-1	Wind Erosion Control (kept moist to prevent wind erosion)		

4.3 Temporary Sediment Control BMPs

Sediment control is accomplished by two ways. First, giving sediment every opportunity to settle out of storm water runoff while still on the project. Second, remove sediment from surfaces that has been carried or tracked off site before it enters the municipal drains. Each project must have effective perimeter sediment control. Drain inlets within 50 feet of the project must be protected. Any visible track out or sedimentation onto municipal property must be removed as soon as possible. On the table below and on the site map show how you will control sediment at your project.

CASQA Fact Sheet	BMP Name	BMP Selected? (Check Box)	Describe the BMP to be implemented. If not used, state the reason why.
SE-1	Temporary Silt Fence		
SE-2 or SE-3	Sediment basin or trap (all or some of the storm water drains to a retention pond or basin where sediment can settle out)		
SE-5	Temporary Fiber Rolls / Straw Wattles		
SE-6 or SE - 8	Temporary Gravel Bag Berm or Sand Bag Barrier		
SE-7	Street Sweeping (inspect roads and sidewalks daily and sweep as necessary)		
MS4 Standard	Curb cutback (maintain a minimum of 4 inches of elevation difference between the disturbed soil and the top of the existing curb, sidewalk, or paved surface)		
SE-10	Temporary Drain Inlet Protection (mandatory for any DI's within 50 feet of the project)		
SE-13	Compost Socks / Biofilter Bags		
MS4 Standard	Stabilized Construction Exit – Constructed with aggregate at the project owner's specification, but it must be effective in controlling trackout.		
TC-2	Stabilized Construction Roadways		
WM-03	Stockpile Management (stockpiles that have not been actively used in the last 14 days must be covered with an erosion control blanket or plastic sheeting and contained with a fiber roll or gravel bag berm)		

4.4 Non-Storm Water Pollution Control BMPs

The City ordinances prohibit the discharge to its municipal drainage system of any wash water, unpermitted construction site dewatering, saw-cutting or grinding slurries, unpermitted hydrotest water, chlorinated swimming pool or fountain water, concrete or paint wash out, or spills of hazardous materials or other substances. On the table below, list any of the activities that may apply to your project; and on the site map show the location of these activities.

CASQA Fact Sheet	BMP Name	Activity Planned? (Yes/No)	Describe the BMP to be implemented. If not used, state the reason why.
NS-3	Paving, Sealing, Saw-cutting, Coring, and Grinding Operations		
NS-7	Potable Water / Irrigation Testing and Discharge to the Municipal Drainage System		
NS-8	Vehicle and Equipment Cleaning Performed on Site		
NS-9 & WM-04	Vehicle and Equipment Fueling Performed on Site		
NS-10	Vehicle and Equipment Maintenance Performed on Site		
NS-12/13 & WM-08	Concrete, Stucco, Plaster, Tile, or Masonry Work		
WM-09	Temporary Sanitary Waste Facilities (port-a-potties)		
WM-01	Storage of Hazardous Materials on the Project Site (paints, solvents, acids, fuel, lubricants, etc.)		

5 Site Map (draw map below or attach another map)

A large rectangular area filled with a light gray grid, intended for drawing a site map. The grid consists of small squares, providing a scale for the drawing.

ATTACHMENT A

QUOTE #Q20098 LEA15302, THE BROWN COMPANY^{AD2}

^{AD2} Addendum No. 2



The Brown Company

10/21/2020

5418 Pirrone Road

Salida, CA 95368

Contractor License: CA C-16, C-61 715370

NV C41A-0085145

Ph) 510-886-5260

Fx) 510-537-7707

www.thebrownco.net

Carollo Engineers
2795 Mitchell Drive
Walnut Creek, CA 94598

Attention: Kourtnie Sicam

Re: Turlock WWTP

Quote: #Q20098 LEA15302

Dear Kourtnie:

We are pleased to offer material per description below:

500 GPM at 50 psi, suction pressure at 40 psi, Driver HP: 30, site elevation of 100 (estimated) feet, site temperature of 100 (estimated) degrees fahrenheit, 1770 RPM, 460/3/60 Volts, 125/125# Flanges, Left-Hand Rotation

Qty Product

- | | |
|---|---|
| 1 | Aurora, 4-481-11A, Fire Pump, UL Listed, FM Approved, Horizontal Splitcase fire pump, with suction and discharge gauges, air valve base mounted to a |
| 1 | Factory Choice, 30 HP TEFC, Electric Fire Pump Motor, UL Listed, TEFC |
| 1 | Tornatech, GPA-460/30/3/60/D12/D5/D39/D26A, Across-the-Line Start Fire Pump Controller, NEMA 4X (SS-304) enclosure, rated for 131°F ambient temperature |
| 1 | Aurora, As Required - TEFC, Jockey Pump, with mounted TEFC motor |
| 1 | Tornatech, JP3-480/0.75/3/60/D10/D11D, Jockey Pump Controller, NEMA 4X (304SST) enclosure |
| 1 | Crating, , Factory Skeleton Crating, |
| 1 | LTL, Ground, Delivery - Standard, |
| 1 | One startup trip, acceptance test per NFPA 20 Ch. 14 with test report, |

Total Price, FOB Factory, Ground Freight Included, Not Including Sales Tax \$19,860.00

Price does not include sales tax. Sales tax will be added to order unless a valid resale card is

provided at time of order. Price reflects a cash or check discount. If using a credit card, other terms apply. Attached terms and conditions shall apply. The Brown Company represents fire pump manufacturers. The Brown Company and its employees look forward to working with you with respect to the purchase of fire pumps and related products as well as assisting you in project consultation. The employees are not authorized to install or repair the products.

Payment Terms to be Net 30.

Prices valid 30 days.

Shipment is 7-10 weeks after release of order to production, not including holidays.

Purchase orders are to The Brown Company.

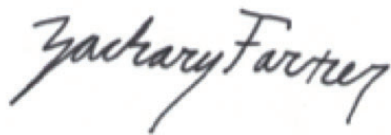
For fire water flow to test the fire pump, there must be a safe, clear area for the water to travel. We are not responsible for water damage, dechlorination or disposal.

Diesel fuel, if required, is by others. Off-loading, installation, all permits by others. Pump to be installed per NFPA 20 requirements or as local jurisdiction allows.

Notes:

Old 25HP controller cannot be used with this pump and motor combination per UL448. New 30HP controller must be used.

Very Truly Yours,

A handwritten signature in cursive script that reads "Zachary Farmer". The signature is written in dark ink and is positioned below the "Very Truly Yours," text.

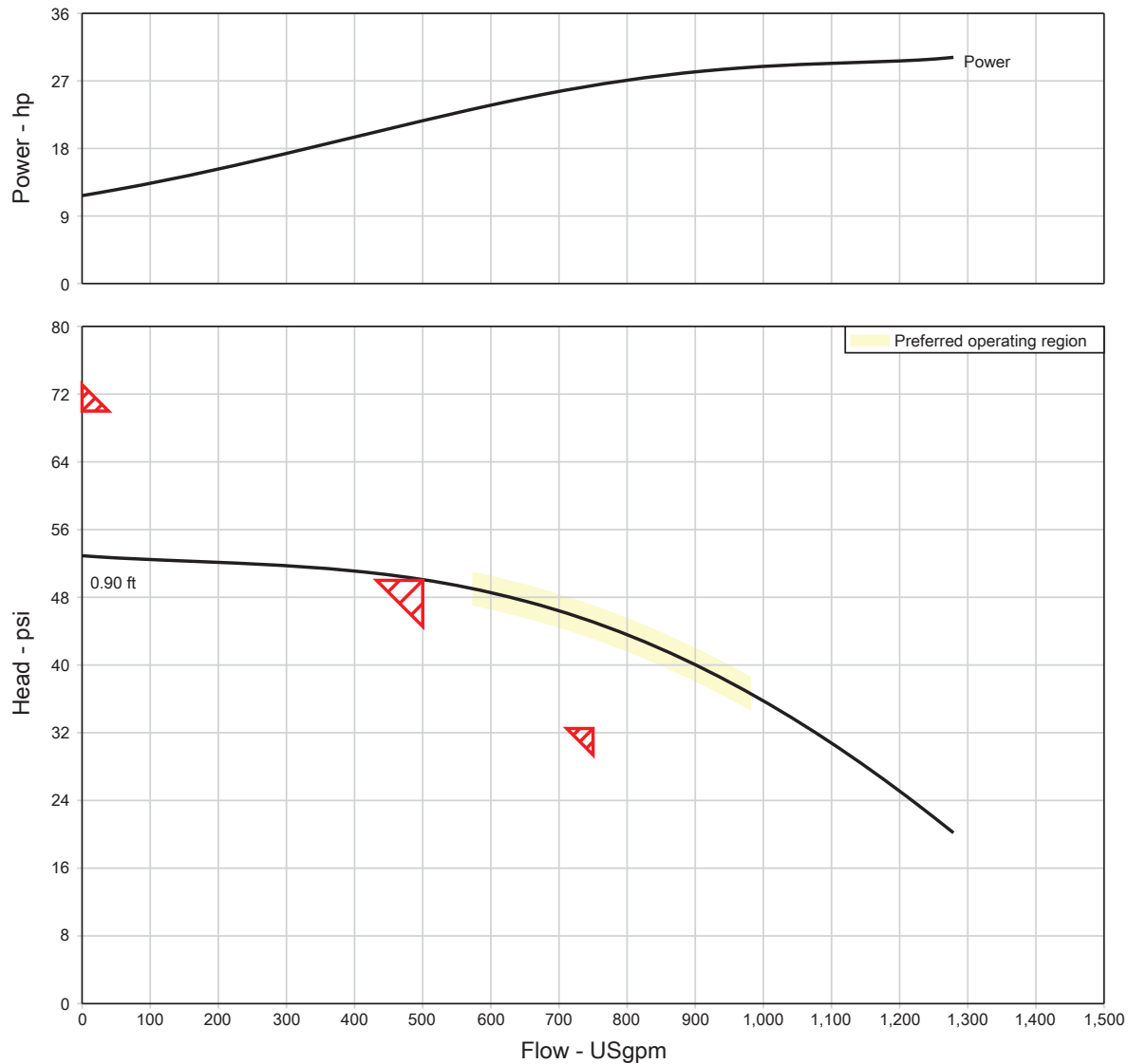
Zack Farmer, The Brown Company, Manufacturers' Representative for Aurora, Fairbanks-Nijhuis, Tigerflow, and Ruhrpumpen.



Customer : THE BROWN
COMPANY INC
Project name : TURWWTP

Pump Performance Curve

Encompass 2.0 - 20.4.0



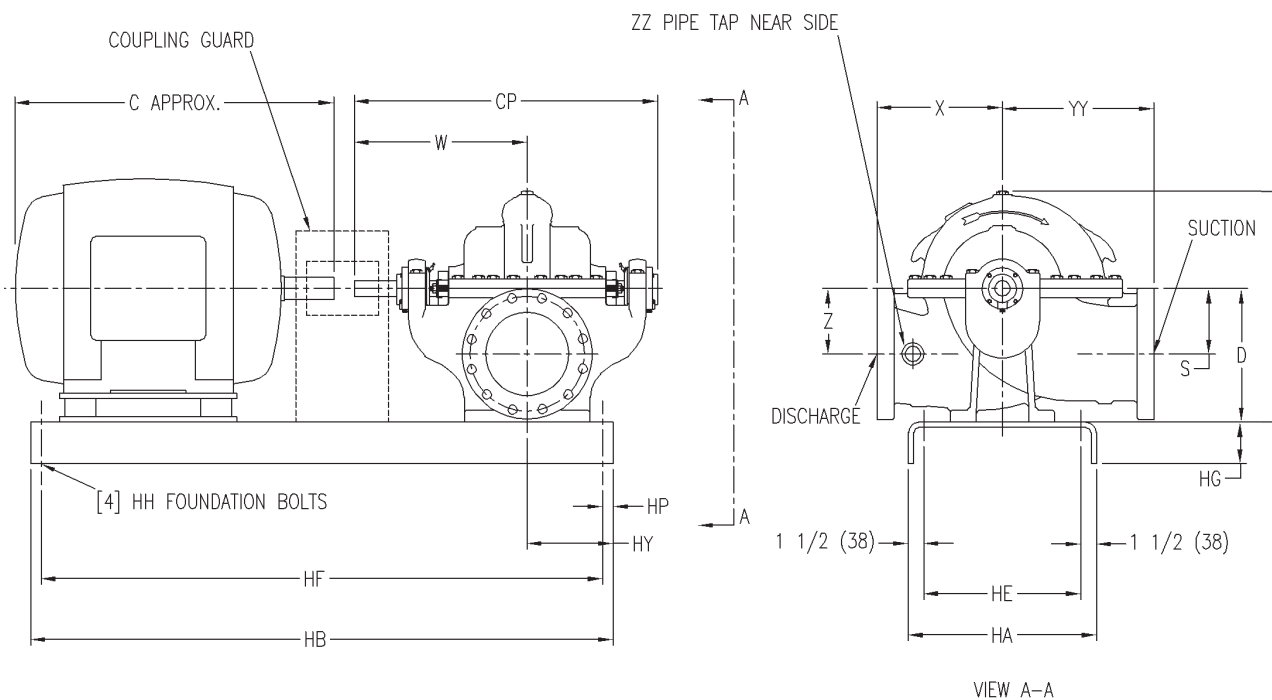
Item number	: 001	Size	: 4-481-11A
Service	:	Stages	: 1
Quantity	: 1	Driver type	: Motor
Quote number	: 20098	Frequency	: 60 Hz
Date last saved	: 10/20/2020 11:32	Speed, rated	: 1770 rpm
Flow, rated	: 500.0 USgpm	Based on curve number	: 184-4X5X11A-1770
Differential head / pressure, rated	: 50.00 psi	Efficiency	: 67.31 %
Flange rating (suction / discharge)	: 125/125	Max working pressure, allowable	: 175.0 psi.g
Secondary Point (150% of rated flow)	: 750.0 USgpm	Shutoffhead, Typical	: 52.91 psi
Secondary Point (65% of rated head)	: 32.50 psi	Max suction pressure, allowable	: 122.1 psi.g
Max Shutoff per NFPA	: 70.00 psi	Suction pressure, max (user specified)	: 40.00 psi.g
		Pump shutoff w/ suction pressure	: 92.91 psi.g
		Power driver, minimum	: 30.00 hp

Curve performance is typical. Contact factory for guaranteed performance curve.

General Arrangement

WARNING

DO NOT OPERATE THIS MACHINE WITHOUT PROTECTIVE GUARD IN PLACE. ANY OPERATION OF THIS MACHINE WITHOUT PROTECTIVE GUARD CAN RESULT IN SEVERE BODILY INJURY.



CP	W	X	YY	D	Z	S	HY	ZZ
2.17	1.21	0.94	1.06	0.83	0.42	0.42	0.50	0.10

C	HA	HB	HE	HF	HG	HH	HP	O
2.00	1.50	4.00	1.25	3.83	0.33	0.05	0.08	1.53

NOTES:

Not for construction, installation, or application purposes unless certified.

All dimensions are in ft

Dimensions may vary $\pm 1/2"$ (13mm) due to normal manufacturing tolerances.

Bases are designed to be completely filled with grout.

Coupling gap may vary $1/8"$ (3mm) through $2 1/16"$ (52mm)

See configuration for estimated total weight.

Pump Data

Series	Horizontal Splitcase
Model	4-481-11A
Size	4x5x11A
Flow	500.0 USgpm
Rated Pressure	50.00 psi.g
RPM	1770 rpm
Rotation	Left handed
Liquid Type	Water
Discharge Size	0.33 ft
Suction Size	0.42 ft
Impeller Diameter	0.90 ft
Connection Type	125/125
Base Type	Steel bent form base
-	-

Pump Materials of Construction

Pump	Bronze fitted with Cast Iron casing
Shaft	Carbon Steel AISI C1045

Motor Data

Power	30.00 hp
Phase	3
Frequency	60 Hz
Volts	230/460 V
RPM	1800
Frame	286TS
Service Factor	1.15
Enclosure	TEFC
Manufacturer	USEM

Site Information

Elevation	300.0 ft
Temperature	100.0 deg F

Estimated Weights

Pump	570.0 lb
Driver	350.0 lb

Quote Information

Customer	THE BROWN COMPANY INC
Customer Quote	1257690
Job Name	TURWWTP
Market	-

	Quote Item	001
	Quote Date	10/20/2020



TORNATECH

Project: TURLOCK WWTP

Customer: CAROLLO ENGINEERS

Engineer: ZACHARY FARMER

Pump Manufacturer: AURORA

Technical Data Submittal Document

Model GPA

Full Service Full Voltage
Across the Line Start
Electric Fire Pump Controller



Contents:

Data Sheets
Dimensional Data
Wiring Schematics
Field Connections

Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.



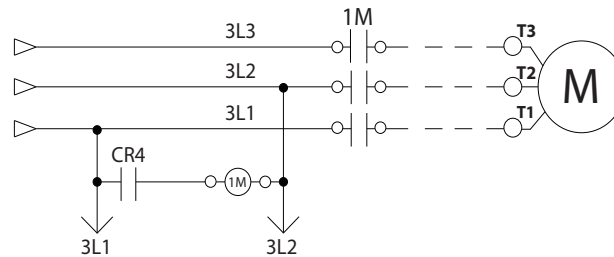
N.Y.C.
APPROVED



August 2020



From normal incoming power through Disconnecting Means (IS/CB)*



N.Y.C.
APPROVED



OPTIONAL



Standard, Listings, Approvals and Certifications	Built to NFPA 20 (latest edition)	
	Underwriters Laboratory (UL)	UL218 - Fire Pump Controllers
	FM Global	Class 1321/1323
	New York City	Accepted for use in the City of New York by the Department of Buildings
	Seismic Certification	See page 6 for details
	Optional	
	<input type="checkbox"/> CE Mark	Various EN, IEC & CEE directives and standards
Enclosure	Protection Rating	
	<input type="checkbox"/> Standard: NEMA 2	
	Optional	
	<input type="checkbox"/> NEMA 12	<input checked="" type="checkbox"/> NEMA 4X-304 sst painted <input type="checkbox"/> IP54
	<input type="checkbox"/> NEMA 3	<input type="checkbox"/> NEMA 4X-304 sst brushed finish <input type="checkbox"/> IP55
Enclosure	<input type="checkbox"/> NEMA 3R	<input type="checkbox"/> NEMA 4X-316 sst painted <input type="checkbox"/> IP65
	<input type="checkbox"/> NEMA 4	<input type="checkbox"/> NEMA 4X-316 sst brushed finish <input type="checkbox"/> IP66
	Accessories	
	<ul style="list-style-type: none"> • Bottom entry gland plate • Lifting Lugs • Keylock handle 	
	Paint Specifications	
	<ul style="list-style-type: none"> • Red RAL3002 • Powder coating • Glossy textured finish 	

Shortcircuit Withstand Rating	200V to 208V 60Hz	220V to 240V 60Hz	380V to 415V 50 Hz / 60Hz	440V to 480V 60Hz	575V to 600V 60Hz
HP (kw)					
<input checked="" type="checkbox"/> Standard 100kA	5 - 150 (3.7 - 110)	5 - 200 (3.7 - 149)	5 - 300 (3.7 - 223)	5 - 400 (3.7 - 298)	N/A
<input type="checkbox"/> Optional 150kA					
<input type="checkbox"/> Standard 50kA	200 (149)	250 (186)	350 - 450 (261 - 335)	450 - 500 (335 - 373)	5 - 500 (3.7 - 373)
<input type="checkbox"/> Optional 100kA	N/A	N/A	350 - 500 (261 - 373)	450 - 500 (335 - 373)	
<input type="checkbox"/> Optional 200kA	5 - 150 (3.7 - 110)	5 - 200 (3.7 - 149)	5 - 300 (3.7 - 223)	5 - 400 (3.7 - 298)	N/A

*Please see Disconnecting Means details on page 3



Ambient Temperature Rating	Standard: <input type="checkbox"/> 4°C to 40°C / 39°F to 104°F Optional: <input checked="" type="checkbox"/> 4°C to 55°C / 39°F to 131°F Controllers built in Dubai, UAE (Tornatech FZE) are supplied standard with 55°C rating.
Surge Suppression	Surge arrestor rated to suppress surges above line voltage
Disconnecting Means	<ul style="list-style-type: none"> Isolating switch and circuit breaker assembly: <ul style="list-style-type: none"> Door interlocked in the ON position Isolating switch rated not less than 115% of motor full load current Circuit breaker continuous rating not less than 115% of motor full load current Overcurrent sensing non-thermal type, magnetic only Instantaneous trip setting of not more than 20 times the motor full load current Common flange mounted operating handle
Service Entrance Rating	Suitable as service entrance equipment
Emergency Start Handle	<ul style="list-style-type: none"> Flange mounted Integrated limit switch Pull and latch activation Across the line start (direct on line)
Locked Rotor Protector	<ul style="list-style-type: none"> Operate shunt trip to open circuit breaker Factory set at 600% of motor full load current Trip between 8 and 20 seconds
Electrical Readings	<ul style="list-style-type: none"> Voltage phase to phase (normal power) Amperage of each phase when motor is running
Pressure Readings	<ul style="list-style-type: none"> Continuous system pressure display Cut-in and Cut-out pressure settings
Pressure and Event recorder	<ul style="list-style-type: none"> Pressure readings with date stamp Event recording with date stamp Under regular maintained operation, events are stored in memory for the life of the controller. Data viewable on operator interface display screen Downloadable by USB port to external memory device
Pressure Sensing	<ul style="list-style-type: none"> Pressure transducer and run test solenoid valve assembly for fresh water application Pressure sensing line connection 1/2" Female NPT Drain connection 3/8" Rated for 0-500PSI working pressure (standard display at 0-300PSI) Externally mounted with protective cover



Audible Alarm	4" alarm bell - 85 dB at 10ft. (3m)		
Visual Indications	<ul style="list-style-type: none"> • Power available • Motor run • Periodic test • Manual start 	<ul style="list-style-type: none"> • Deluge valve start • Remote automatic start • Remote manual start • Emergency start 	<ul style="list-style-type: none"> • Pump on demand/Automatic start • Pump room temperature (°F or °C) • Lockout
Visual & Audible Alarms	<p>Visual</p> <ul style="list-style-type: none"> • Control voltage not healthy • Invalid cut-in • Lock rotor current • Loss of power • Low ambient temperature • Low water level • Motor trouble • Phase reversal (normal power) <p>Visual and audible</p> <ul style="list-style-type: none"> • Fail to start <p>Overcurrent</p> <ul style="list-style-type: none"> • Overcurrent • Overvoltage • Phase loss L1 • Phase loss L2 • Phase loss L3 • Phase unbalanced • Pressure transducer fault detected <p>Pump on demand</p> <ul style="list-style-type: none"> • Pump on demand • Pump room alarm • Service required • Undercurrent • Undervoltage • Check weekly test solenoid • Weekly test cut-in reached 		
Remote Alarm Contacts	<p>DPDT-8A-250V.AC</p> <ul style="list-style-type: none"> • Power available • Phase reversal • Motor run • Common pump room alarm (field re-assignable)** <ul style="list-style-type: none"> • Overvoltage • Undervoltage • Phase unbalance • Low pump room temperature • High Pump room temperature • Common motor trouble (field re-assignable)** <ul style="list-style-type: none"> • Overcurrent • Fail to start • Undercurrent • Ground fault • Free (field programmable)** 		

**Tornatech reserves the right to use any of these three alarm points for special specific application requirements.

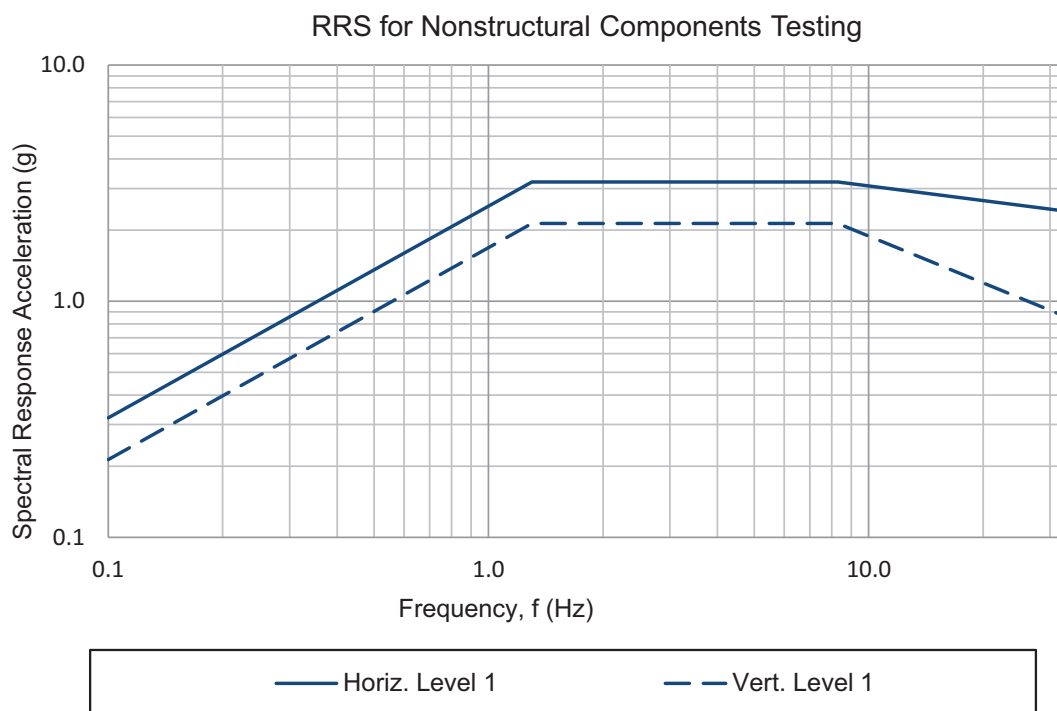


ViZiTouch V2 Operator Interface	<ul style="list-style-type: none"> • Embedded microcomputer with software PLC logic • 7.0" color touch screen (HMI technology) • Upgradable software • Multi-language 		
Communication Protocol Capability	<ul style="list-style-type: none"> • Protocol: Modbus • Connection type: Shielded female connector RJ45 • Frame Format: TCP/IP • Addresses: See bulletin MOD-GPx 		
Operation	Automatic Start	<ul style="list-style-type: none"> • Start on pressure drop • Remote start signal from automatic device • Deluge valve start 	
	Manual Start	<ul style="list-style-type: none"> • Start pushbutton • Run test pushbutton • Remote start from manual device 	
	Stopping	<ul style="list-style-type: none"> • Manual with Stop pushbutton • Automatic after expiration of minimum run timer *** 	
	Timers	Field Adjustable & Visual Countdown	<ul style="list-style-type: none"> • Minimum run timer *** (off delay) • Sequential start timer (on delay) • Periodic test timer
	Actuation	Visual Indication	<ul style="list-style-type: none"> • Pressure • Non-pressure
	Mode		<ul style="list-style-type: none"> • Automatic • Non-automatic

***Can only be used if approved by the AHJ



Seismic Certification	Seismic Certification Company	TRU Compliance, LLC A Tobalski Watkins Affiliate					TWEI Project No.: 15014				
	Mounting details	Rigid base and wall mounting									
	Seismic Information	Building Code	Test Criteria	Seismic Parameters	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
		IBC 2015, CBC 2016	ICC-ES AC156	ASCE 7-10 Chapter 13	2.0	1.0	1.5	3.20	2.40	1.33	0.53
					3.2	0.0	1.5	3.20	1.28	2.13	0.85

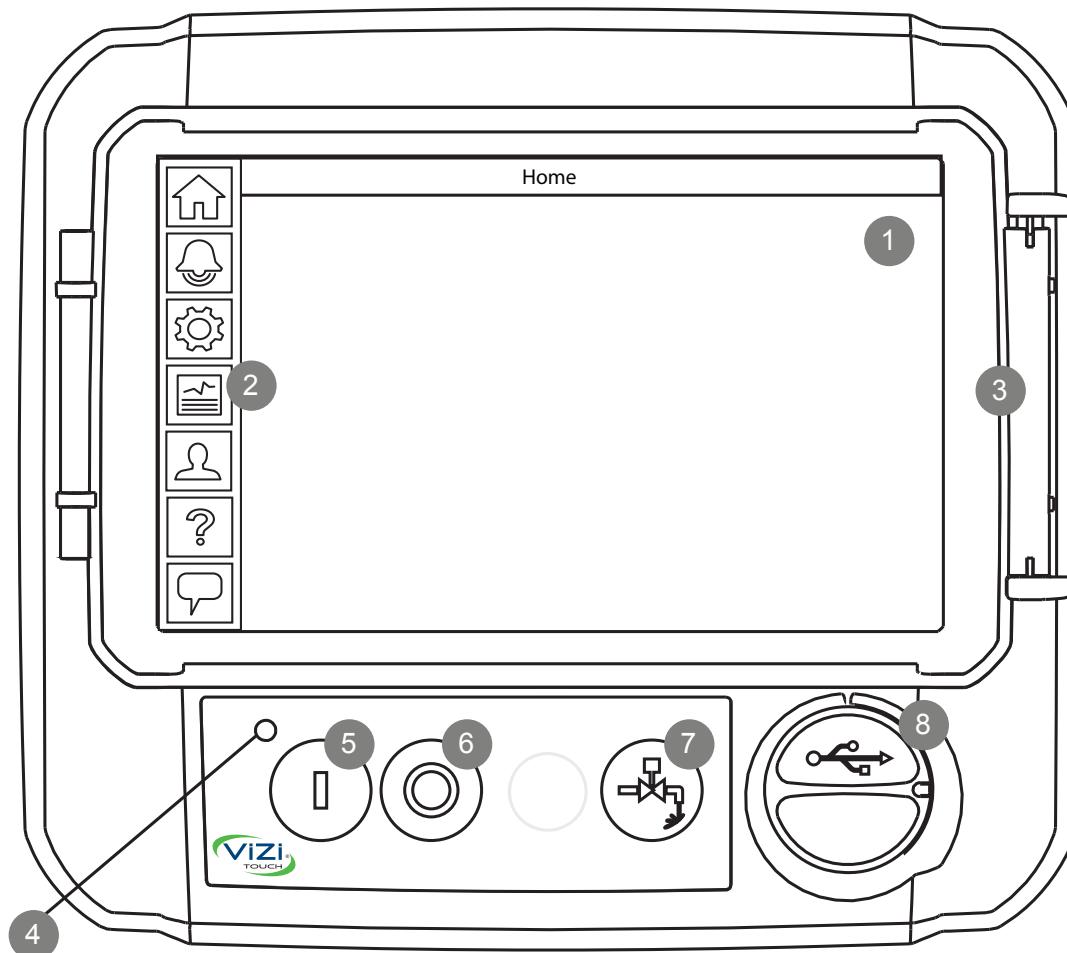


Notes:

- Components are tested in accordance with ICC-ES AC156, IBC 2015 & CBC 2016.
- OSHPD Special Seismic Certification Preapproval (OSP)



ViZiTouch V2 Operator Interface



1 - Color touch screen

2 - Onscreen menu

- HOME page
- ALARM page
- CONFIGURATION page
- HISTORY page
- SERVICE page
- MANUAL page
- LANGUAGES page

3 - Screen protector

4 - Power LED (3 colors)

5 - START button

6 - STOP button

7 - RUN TEST button

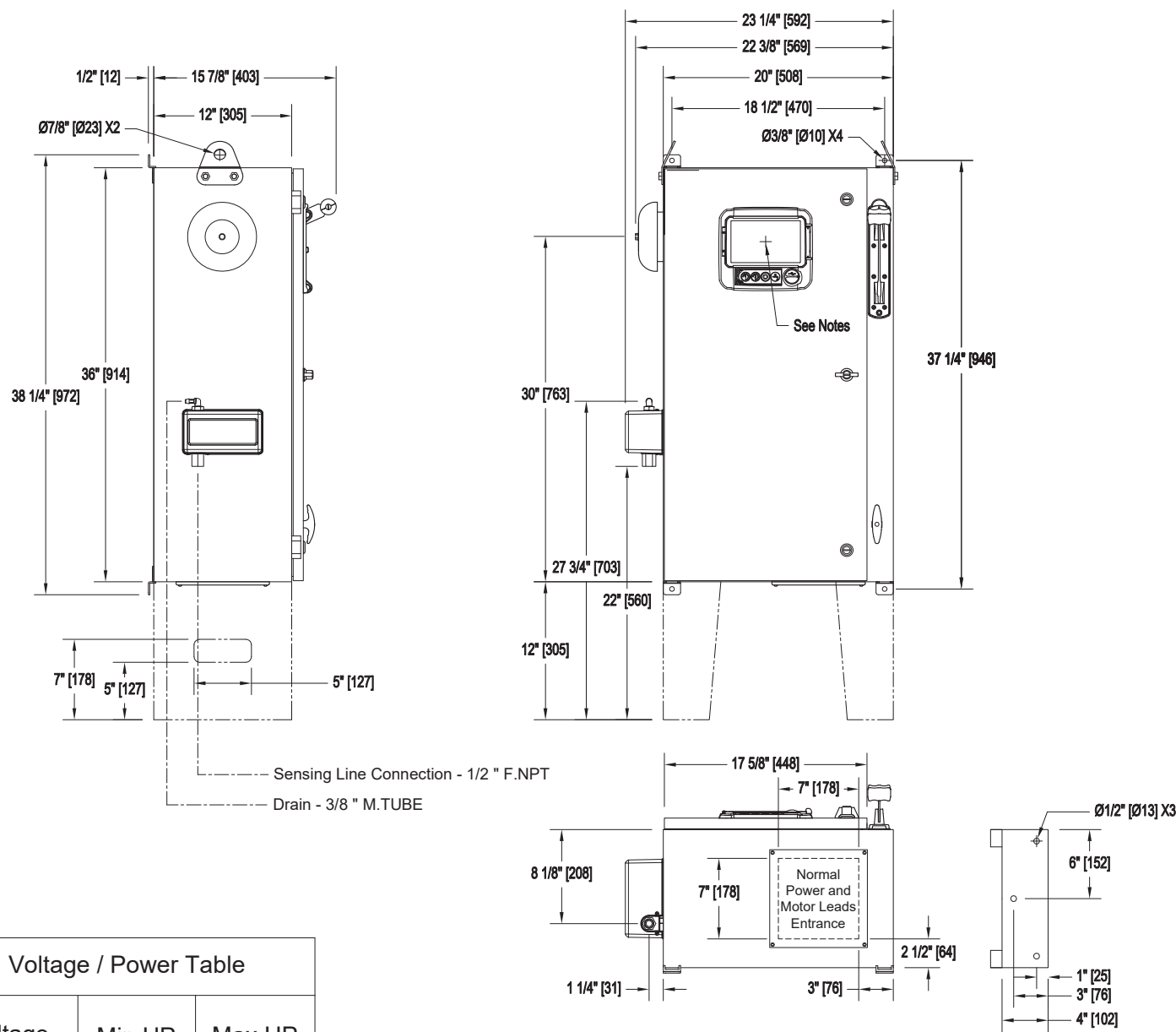
8 - USB port

Electric Fire Pump Controller

Model:GPA/GPP/GPY

Dimensions

Built to the latest edition of the NFPA 20 standard



Voltage / Power Table		
Voltage	Min HP	Max HP
208	5	30
220 - 240	5	30
380 - 400 - 415	5	60
440 - 480	5	60
600	5	75

Notes:

- Standard NEMA: NEMA 2
- Standard paint : textured red RAL 3002.
- All dimensions are in inches [millimeters].
- Center of ViZiTouCh screen: 29-5/8" [751] from bottom (no feet).
- Bottom conduit entrance through removable gland plate recommended.
- Use watertight conduit and connector only.
- Protect equipment against drilling chips.
- Door swing equal to door width.
- Seismic mounting to be rigid wall and base only.

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.



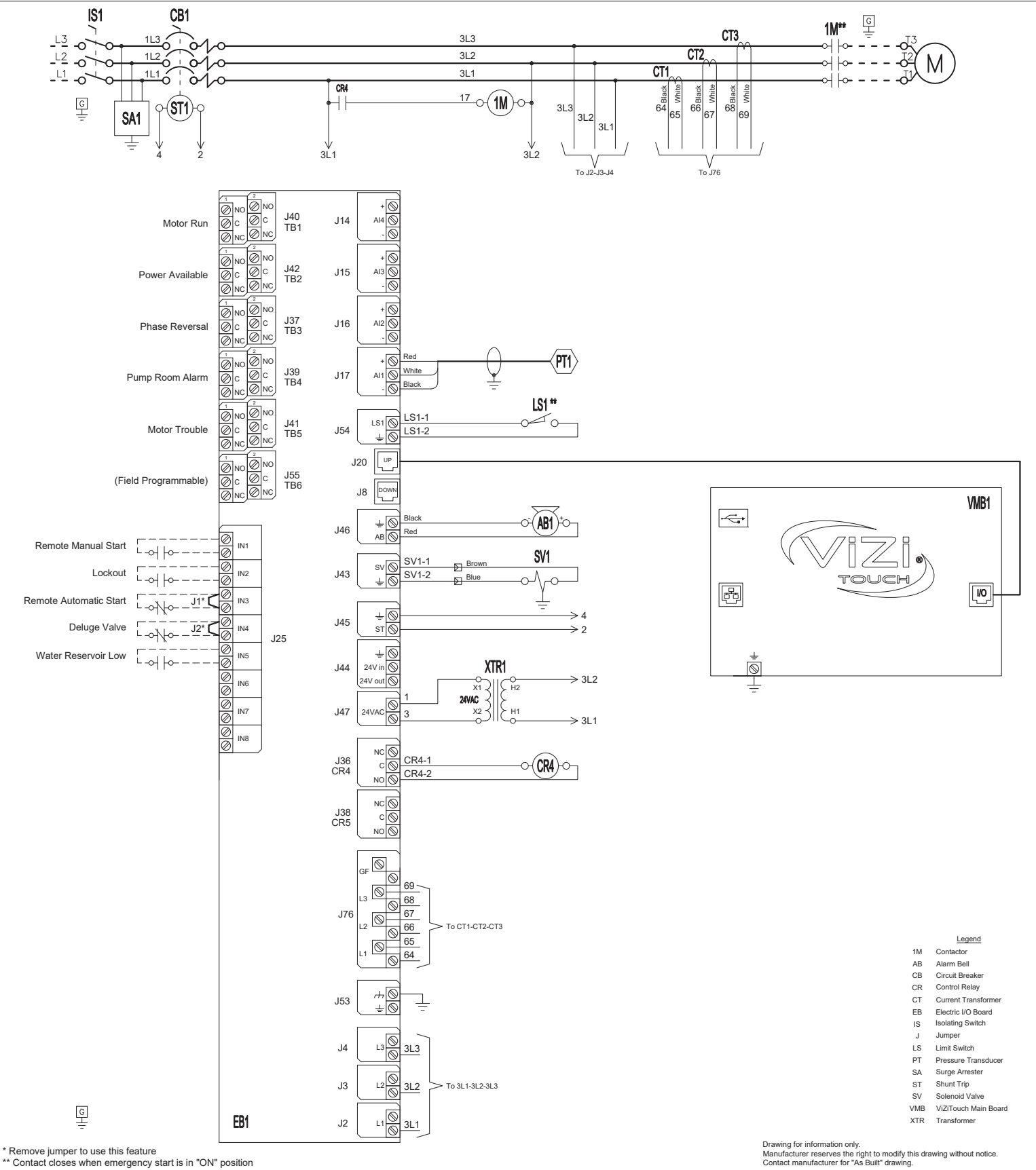
REV.	DESCRIPTION	DD/MM/YY	Drawing number
2.	Revised logo	18/06/18	GPX-DI161 / E
1.	Valve Change	21/11/17	
0.	First issue	16/11/16	

Electric Fire Pump Controller
Full Voltage / Across the Line

Model: GPA

Wiring schematic

Built to the latest edition of the NFPA 20 standard



* Remove jumper to use this feature
** Contact closes when emergency start is in "ON" position

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.

REV.	DESCRIPTION	DD/MM/YY	Drawing number
2	Update Logo	23/04/18	GPA-WS600 /E
1	Removed (fail safe) text from Power Available relay	20/02/17	
0	First issue	10/11/16	

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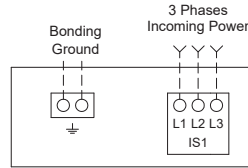
Electric Fire Pump Controller

Model: GPX

Terminal Diagram and Sizing for Isolating Switch

Built to the latest edition of the NFPA 20 standard

Power Terminals



Notes:

- 1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
- 2 - Controller suitable for service entrance in USA.
- 3 - For more accurate motor connections refer to motor manufacturer or motor nameplate.
- 4 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.

COPPER CONDUCTORS for Isolating Switch (IS1).

Field Wiring According to Bending Space (AWG or MCM). Terminals L1 - L2 - L3

Bending Space	5 " (127 mm)							8 " (203 mm)		
HP Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)
220 to 240	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300 to 500)	1x (500)	2x (4/0 to 500)	2x (250 to 500)	2x (400 to 600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 500)	2x (4/0 to 500)	2x (350 to 500)	2x (500 to 600)	-----	-----	-----	-----	-----
380 to 416	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (400 to 600) 2x (400 to 500)	2x (500 to 600)	2x (600)	-----
440 to 480	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (300 to 500)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 250)	1x (2/0 to 250)	1x (3/0 to 250)	1x (250 to 500)	1x (350 to 500)	2x (3/0 to 250)	2x (4/0 to 500)	2x (250 to 500)	2x (300 to 500)	2x (350 to 500)
Bending Space	5 " (127 mm)		8 " (203 mm)		12 " (305 mm)						

ALUMINUM CONDUCTORS for Isolating Switch (IS1).

Field Wiring According to Bending Space (AWG or MCM). Terminals L1 - L2 - L3

Bending Space	5 " (127 mm)							8 " (203 mm)		10 " (254 mm)
HP Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 1/0)	1x (1/0)	1x (3/0 to 250)	1x (4/0 to 250)	1x (300) ** or 1x (250) 90°C *
220 to 240	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)	1x (2/0 to 250)	1x (4/0 to 250)	1x (250)
380 to 416	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)	1x (1/0)
440 to 480	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)
600	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (10 to 1/0)	1x (8 to 1/0)	1x (6 to 1/0)	1x (6 to 1/0)	1x (4 to 1/0)	1x (4 to 1/0)	1x (2 to 1/0)

Bending Space	12 " (305 mm)				16 " (406 mm)						
HP Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (400 to 500)	1x (500) 90°C * 2x (4/0 to 250) **	2x (300 to 500)	2x (350 to 500)	2x (600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (350 to 500)	1x (500)	2x (250 to 500)	2x (300 to 500)	2x (500)	2x (600) 90°C *	-----	-----	-----	-----	-----
380 to 416	1x (3/0 to 250)	1x (250)	1x (350) ** N/A **	1x (400 to 500)	2x (4/0 to 250)	2x (300 to 500)	2x (400 to 500)	2x (500 to 600) 2x (500)	2x (600) 90°C *	2x (600) 90°C *	-----
440 to 480	1x (1/0 to 250)	1x (3/0 to 250)	1x (250)	1x (300) ** or 1x (250) 90°C *	1x (500)	2x (250)	2x (300 to 500)	2x (400 to 500)	2x (500)	2x (600)	2x (600) 90°C *
600	1x (1 to 1/0)	1x (2/0 to 250)	1x (3/0 to 250)	1x (4/0 to 250)	1x (350 to 500)	1x (500)	2x (4/0 to 250)	2x (300 to 500)	2x (350 to 500)	2x (400 to 500)	2x (500)
Bending Space	5 " (127 mm)		8 " (203 mm)		12 " (305 mm)						

*For standard enclosure, use 90°C aluminium wire. Consult Factory for Use of Conductors Rated Lower than 90°C.

** Consult Factory

Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.



REV.	DESCRIPTION	DD/MM/YY	Drawing number
2	Revised logo	18/06/18	GPX-TD601 1/2 /E
1	General Revision (added AL coverage)	10/07/17	
0	First issue	16/03/17	

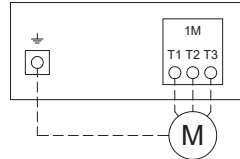
Electric Fire Pump Controller

Model: GPX

Terminal Diagram and Sizing For GPA,GPR & GPS

Built to the latest edition of the NFPA 20 standard

Motor Terminals



Models : GPA,
GPR & GPS

Notes:

- 1 - For proper wire sizing, refer to NFPA70 and NEC (USA) or CEC (Canada) or local code.
- 2 - Controller suitable for service entrance in USA.
- 3 - For more accurate motor connections refer to motor manufacturer or motor nameplate.
- 4 - Controller is phase sensitive. Incoming lines must be connected in ABC sequence.

COPPER CONDUCTORS for Motor Connection (1M).

Field Wiring According to Bending Space (AWG or MCM). Terminals T1 - T2 - T3

HP Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1/0 to 3/0)	1x (3/0)	1x (4/0 to 300)
220 to 240	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (1 to 3/0)	1x (2/0 to 3/0)	1x (3/0)
380 to 416	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 1/0)	1x (4 to 1/0)	1x (3 to 1/0)	1x (3 to 1/0)
440 to 480	1x (14 to 10)	1x (14 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (3 to 1/0)
600	1x (14 to 10)	1x (14 to 10)	1x (14 to 10)	1x (10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)

HP Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300)	2x (2/0 to 300)	2x (4/0 to 300)	2x (250 to 300)	2x (400 to 600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (250 to 300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (350 to 500)	2x (500 to 600)	-----	-----	-----	-----	-----
380 to 416	1x (1/0 to 3/0)	1x (3/0)	1x (250 to 300)	1x (300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (400 to 500)	2x (500 to 600)	2x (600)	-----
440 to 480	1x (1 to 1/0)	1x (2/0 to 3/0)	1x (3/0)	1x (4/0 to 300)	2x (1/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (350 to 500)	2x (400 to 600)	2x (500 to 600)
600	1x (3 to 1/0)	1x (1 to 1/0)	1x (2/0 to 3/0)	1x (3/0)	1x (250 to 300)	2x (2/0 to 300)	2x (3/0 to 300)	2x (4/0 to 300)	2x (250 to 300)	2x (300)	2x (350 to 500)

ALUMINUM CONDUCTORS for Contactor (1M).

Field Wiring According to Bending Space (AWG or MCM). Terminals T1 - T2 - T3

HP Voltage	5	7.5	10	15	20	25	30	40	50	60
208	1x (10)	1x (10) 90°C *	1x (6 to 2)	1x (4 to 2)	1x (2 to 1/0)	1x (1 to 1/0)	1x (1/0)	1x (2/0) 90°C *	Consult Factory	1x (300)
220 to 240	1x (10)	1x (10) 90°C *	1x (8 to 2)	1x (4 to 2)	1x (3 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)	1x (2/0)	1x (3/0) 90°C *	Consult Factory
380 to 416	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 1/0)	1x (2 to 1/0)	1x (1 to 1/0)	1x (1/0)
440 to 480	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (10)	1x (8 to 2)	1x (6 to 2)	1x (6 to 2)	1x (4 to 2)	1x (2 to 1/0)	1x (1 to 1/0)
600	1x (12 to 10)	1x (12 to 10)	1x (12 to 10)	1x (10)	1x (10)	1x (8 to 2)	1x (8 to 2)	1x (4 to 2)	1x (4 to 2)	1x (2 to 1/0)

HP Voltage	75	100	125	150	200	250	300	350	400	450	500
208	1x (300) 90°C *	2x (4/0 to 300)	2x (300)	2x (300) 90°C *	2x (600)	-----	-----	-----	-----	-----	-----
220 to 240	1x (300) 90°C *	2x (3/0 to 300)	2x (250 to 300)	2x (300)	2x (500)	2x (600)	-----	-----	-----	-----	-----
380 to 416	1x (3/0)	Consult Factory	1x (300) 90°C *	Consult Factory	2x (4/0 to 300)	2x (300)	Consult Factory	2x (600)	2x (600) 90°C *	2x (600) 90°C *	-----
440 to 480	1x (1/0)	1x (3/0)	Consult Factory	1x (300)	2x (3/0 to 300)	2x (250 to 300)	2x (300)	2x (300) 90°C *	2x (500)	2x (600)	2x (600) 90°C *
600	1x (1 to 1/0)	Consult Factory	1x (3/0) 90°C *	Consult Factory	1x (300) 90°C *	2x (3/0 to 300)	2x (4/0 to 300)	2x (300)	2x (300) 90°C *	2x (300) 90°C *	Consult Factory

* For standard enclosure, use 90°C aluminium wire. Consult Factory for Use of Conductors Rated Lower than 90°C.

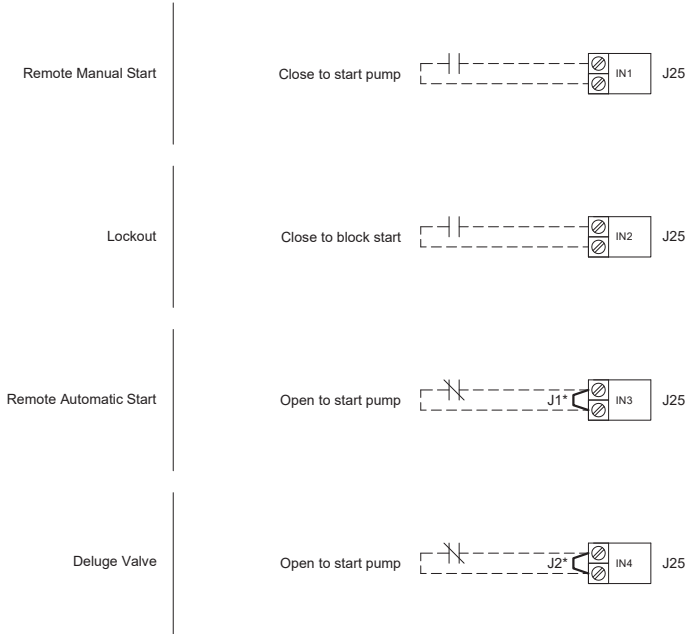
Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.



REV.	DESCRIPTION	DD/MM/YY	Drawing number
2	Revised logo	18/06/18	GPX-TD601 2/2 / E
1	General Revision (added AL coverage)	10/07/17	
0	First issue	16/03/17	

Control Terminals (EB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm



Alarm Inputs (EB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm



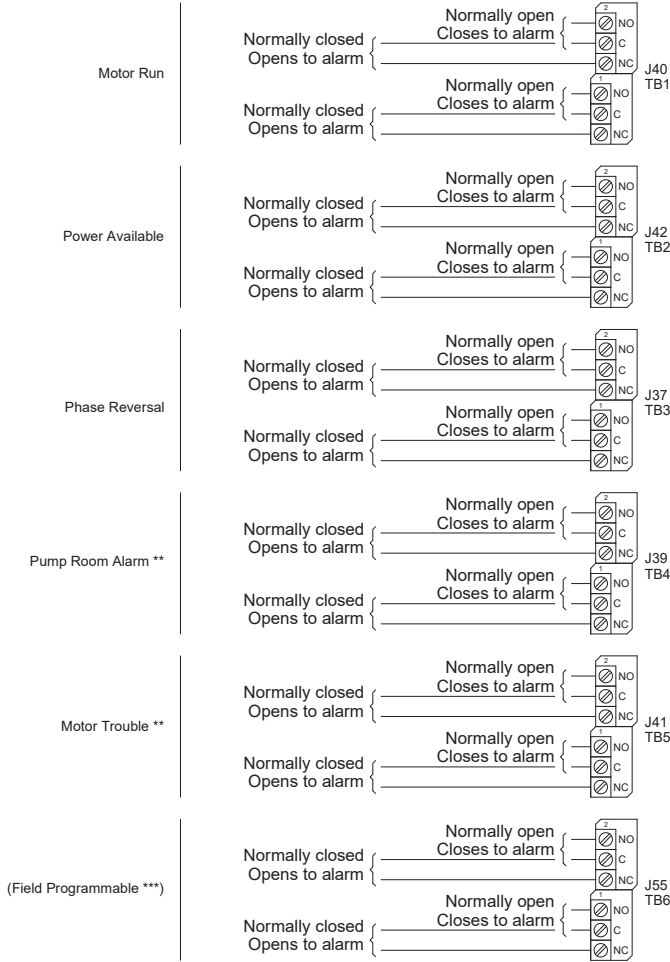
Network Connection (VMB1)

Shielded Female Connector RJ45

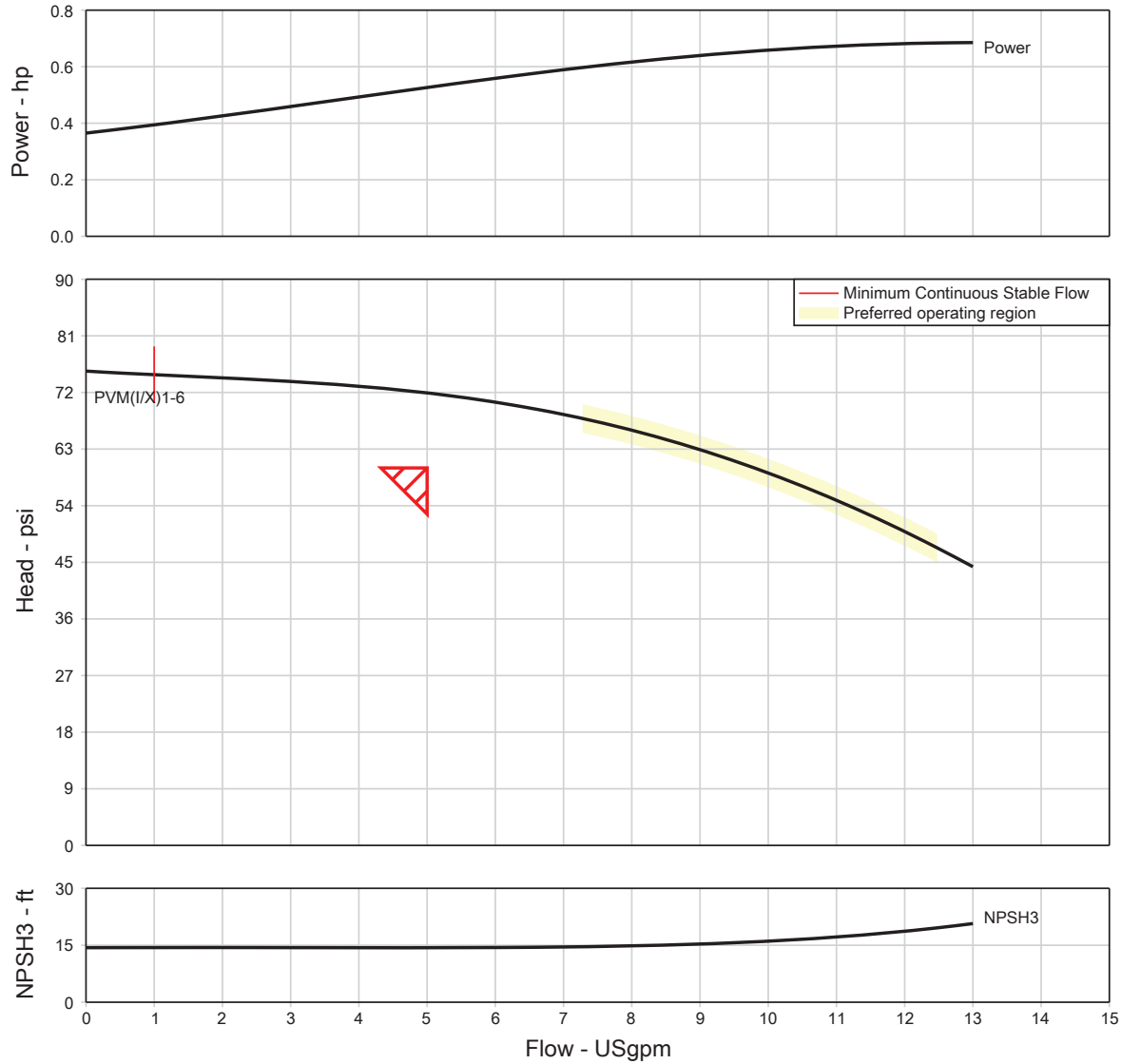


Remote Alarm Terminals (EB1)

Terminals Wire Size:
24 - 12 AWG
0.5 Nm

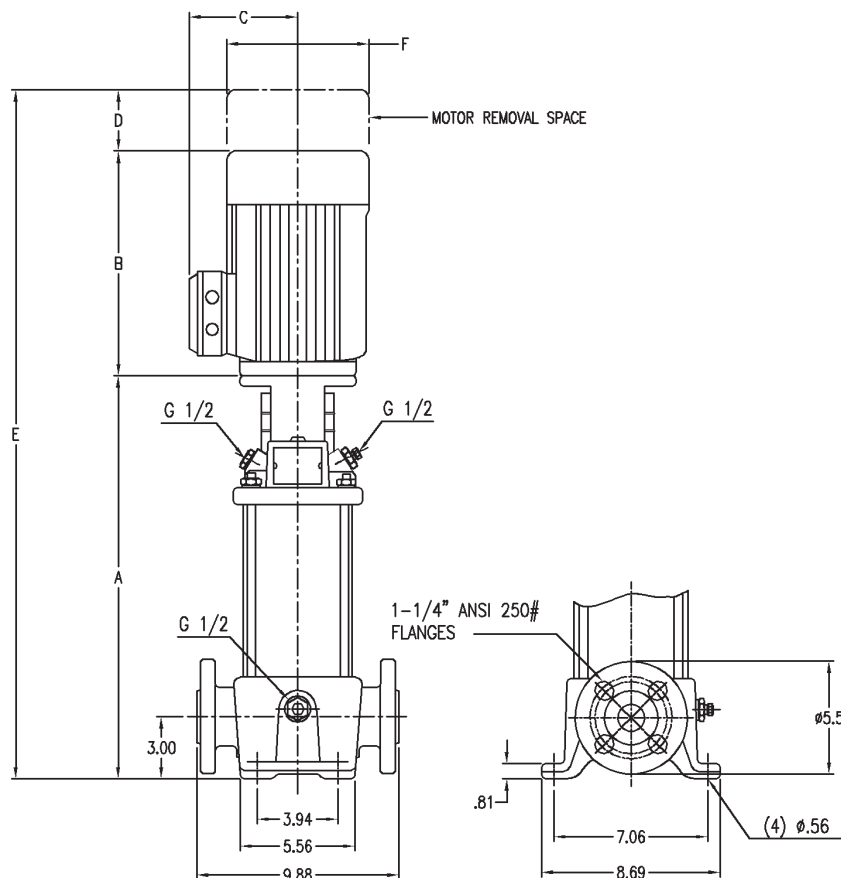


Curve efficiencies are typical. For guaranteed values, contact factory



Item number	: 001	Size	: PVM(X)1-6
Service	:	Stages	: 6
Quantity	: 1	Speed, rated	: 3500 rpm
Quote number	: 20098	Based on curve number	: PVM(X)1-6
Date last saved	: 10/20/2020 11:32	Efficiency	: 39.85 %
Flow, rated	: 5.00 USgpm	Power, rated	: 0.53 hp
Differential head / pressure, rated	: 60.00 psi	NPSH required	: 14.35 ft
Fluid density, rated / max	: 62.302 / 62.302 lb/ft3	Viscosity	: 0.00 ft2/s
		Cq/Ch/Ce/Cn [ANSI/HI 1.1-1.5-1994]	: 1.00 / 1.00 / 1.00 / 1.00

General Arrangement



A	B	C	D	E	F
1.09	0.85	0.55	0.18	2.11	0.55

NOTES:

All dimensions are in ft.

Dimensions may vary $\pm 1/4"$ (6mm) due to normal manufacturing tolerances

-
-

Pump Data

Model	PVM1-6
Stages	6
Flow	5.00 USgpm
Head	60.00 psi
Rotation	Right Hand
Suc/Disch Size	0.00 ft
Connection Suc/Disch	1.25" ANSI 250# flg w/ 1.25" NPT female

Motor Data

Power	0.75 hp
Phase	3
Frequency	60 Hz
Voltage	208-230/460
Speed	3500
Frame Size	56CZ
Efficiency	premium
Enclosure	TEFC

Pump Materials of Construction

Pump Material	Cast Iron
Elastomer	-

Estimated Weights

Pump	73.00 lb
Motor	0.00 lb

Additional Options

Quote Information

Customer	THE BROWN COMPANY INC
Customer Quote	1257690
Job Name	TURWWTP
Market	-



Quote Item	001
Quote Date	10/20/2020



TORNATECH

Project: TURLOCK WWTP

Customer: CAROLLO ENGINEERS

Engineer: ZACHARY FARMER

Pump Manufacturer: AURORA

Technical Data Submittal Document

Model JP3

Across the Line Start
Jockey Pump Controller



Contents:

Data Sheets

Dimensional Data

Wiring Schematics

Field Connections

Note: The drawings included in this package are for controllers covered under our standard offering. Actual AS BUILT drawings may differ from what is shown in this package.



N.Y.C.
APPROVED



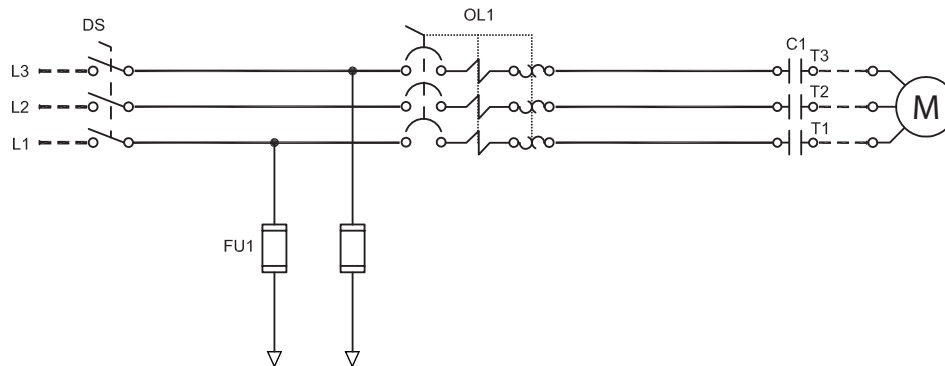
August 2020



TORNATECH

Technical Data

Model JP3 Jockey Pump Controller



N.Y.C.
APPROVED



Listing	Underwriters Laboratory (UL)	UL508A - Industrial Pump Controllers
	New York City	Accepted for use in the City of New York by the Department of Buildings
	Seismic Certification	See page 4 for details
	Optional	
	<input type="checkbox"/> CE Mark	Various EN, IEC & CEE directives and standards
Enclosure	Protection Rating <input type="checkbox"/> Standard: NEMA 2 Optional <input type="checkbox"/> NEMA 12 <input checked="" type="checkbox"/> NEMA 4X-304 sst painted <input type="checkbox"/> NEMA 3 <input type="checkbox"/> NEMA 4X-304 sst brushed finish <input type="checkbox"/> NEMA 3R <input type="checkbox"/> NEMA 4X-316 sst painted <input type="checkbox"/> NEMA 4 <input type="checkbox"/> NEMA 4X-316 sst brushed finish	
	Accessories • Wall mounting lugs (x4)	Paint Specifications • Red RAL3002 • Powder coating • Glossy textured finish

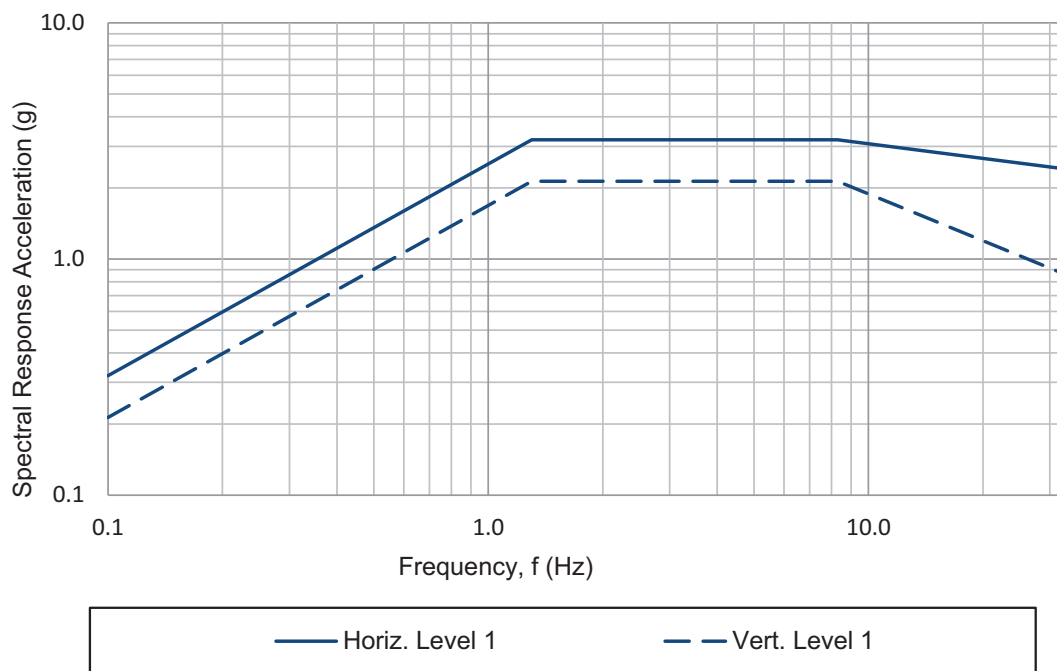


Fuseless Motor Starter	<ul style="list-style-type: none"> • Main disconnect – padlockable – rotary type handle – door interlocked • Thermo-magnetic motor protector • Contactor 		
Control Circuit	<ul style="list-style-type: none"> • 24V.AC 		
iPD+ Operator Interface	<ul style="list-style-type: none"> • Solid state controls • All adjustments on door front • Navigation pushbuttons 		
Pressure Sensing	<ul style="list-style-type: none"> • Pressure transducer for fresh water application 316 stainless steel construction • Rated for 0-600psi working pressure • Pressure sensing line connection 1/2" brass Male NPT 		
Visual Indications	<ul style="list-style-type: none"> • Manual motor start/run LED • Automatic motor start/run LED • Motor overload • Pressure reading <ul style="list-style-type: none"> • Start pressure • Stop pressure • System pressure • System pressure diagnostic LED's <ul style="list-style-type: none"> • Green: system pressure at or above stop pressure • Yellow: system pressure between start and stop pressure • Red: system pressure at or below start pressure • AUTO mode • OFF mode 		
Timers	<ul style="list-style-type: none"> • Minimum run timer (off delay) • Delay start timer (on delay) • Visual countdown 		
Counters	<ul style="list-style-type: none"> • Pump start counter • Elapsed timer meter (hours / non-resettable) 		
Operators	<ul style="list-style-type: none"> • OFF-AUTO pushbutton • Start and Stop pushbutton 		
Operation	Automatic Start	Start on pressure drop	
	Manual Start	Start pushbutton	
	Stopping	Stop pushbutton	
	Timers	Field adjustable & visual countdown	<ul style="list-style-type: none"> • Minimum run timer (off delay) • Delay start timer (on delay)



Seismic Certification	Seismic Certification Company	TRU Compliance, LLC A Tobalski Watkins Affiliate					TWEI Project No.: 15014				
	Mounting details	Rigid wall mounting									
	Seismic Information	Building Code	Test Criteria	Seismic Parameters	S _{Ds}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
		IBC 2015, CBC 2016	ICC-ES AC156	ASCE 7-10 Chapter 13	2.0	1.0	1.5	3.20	2.40	1.33	0.53
					3.2	0.0	1.5	3.20	1.28	2.13	0.85

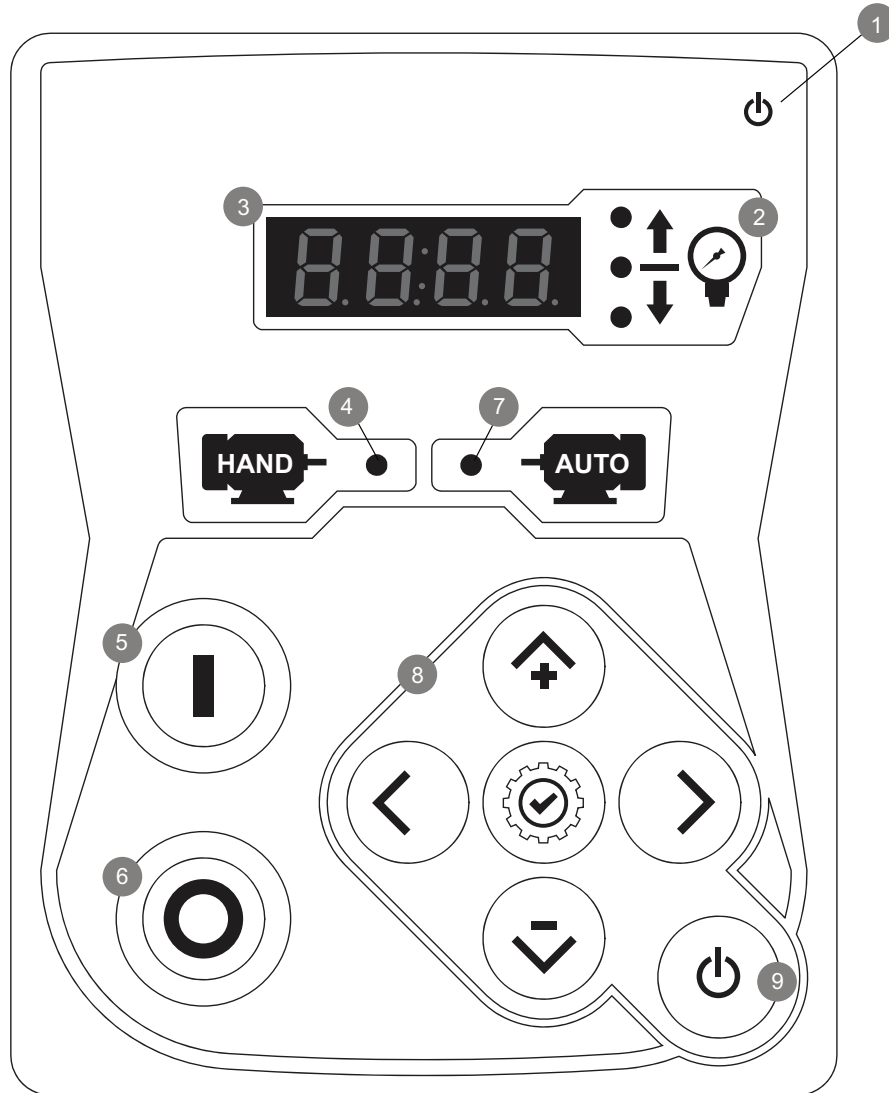
RRS for Nonstructural Components Testing



Notes:

- Components are tested in accordance with ICC-ES AC156, IBC 2015 & CBC 2016.
- OSHPD Special Seismic Certification Preapproval (OSP)

iPD+ Operator Interface



- | | |
|-----------------------|-------------------------|
| 1 - Power on LED | 6 - STOP pushbutton |
| 2 - System status LED | 7 - Auto start LED |
| 3 - Digital display | 8 - Navigation keypad |
| 4 - Hand start LED | 9 - ON - OFF pushbutton |
| 5 - START pushbutton | |

Jockey Pump Controller

Across the Line / 3 Phase

Model:JP3

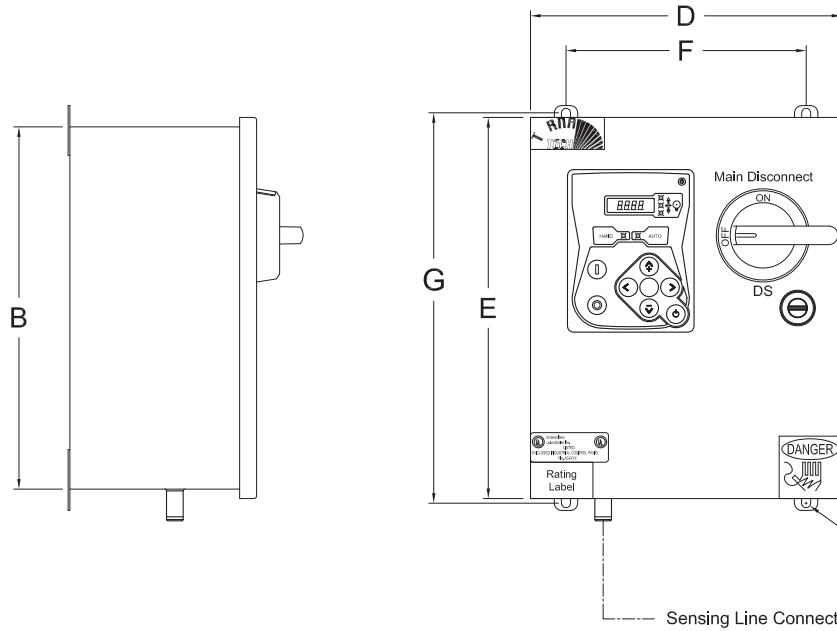
Dimensions

PER QUOTE DRAWING No.



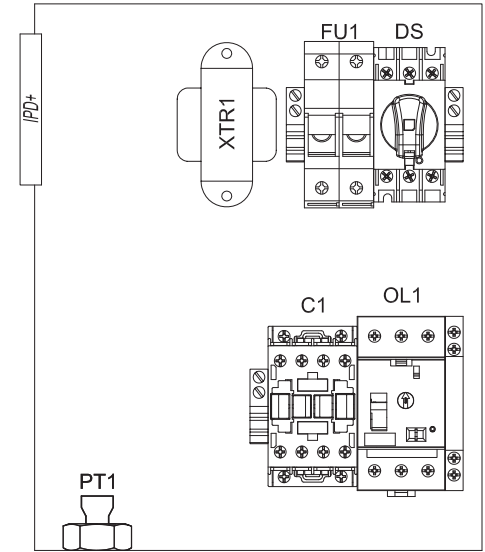
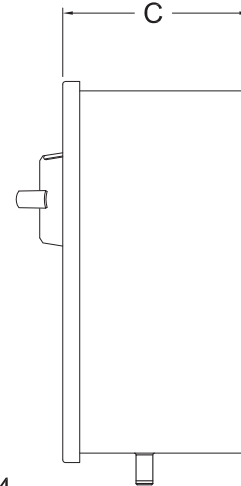
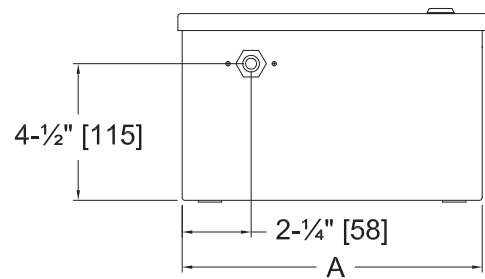
REV.	DESCRIPTION	DD/MM/YY
7	Revised logo	18/06/18
8	Sensing line connection changed	25/03/25
9	UL logo updated CSA logo removed	14/07/20

Drawing No:
JP3-DI500/E



Ø $\frac{3}{8}$ " [9] x4

Sensing Line Connection 1/2" M.NPT



Standard Internal Layout

Dimensions*

Maximum Motor Horsepower					Enclosure Dimensions	Door Dimensions	Anchor Dimensions
200-208V	220-240V	380-416V	440-480V	575-600V	A X B X C	D X E	F X G
10HP	10HP	15HP	20HP	25HP	10"X12"X6-1/2"	10-3/4"X12-3/4"	8"X12-3/4"
20HP	30HP	40HP	60HP	60HP	16"X16"X7-1/2"	16-1/2"X16-1/2"	14"X16-3/4"

Notes:

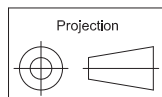
- Standard NEMA: NEMA 2
- Standard Paint: Textured Red RAL 3002.
- All Dimensions are in Inches [Millimeters]
- Use Watertight Conduit and Connector Only.
- Protect Equipment Against Drilling Chips.
- Door Swing Equal to Door Width

Drawing for information only.

Manufacturer reserves the right to modify this drawing without notice.

Contact manufacturer for "As Built" drawing.

*Dimensions may change depending on option required. Consult Factory for exact dimensions.



Jockey Pump Controller

Across the Line / 3 Phase

Model:JP3

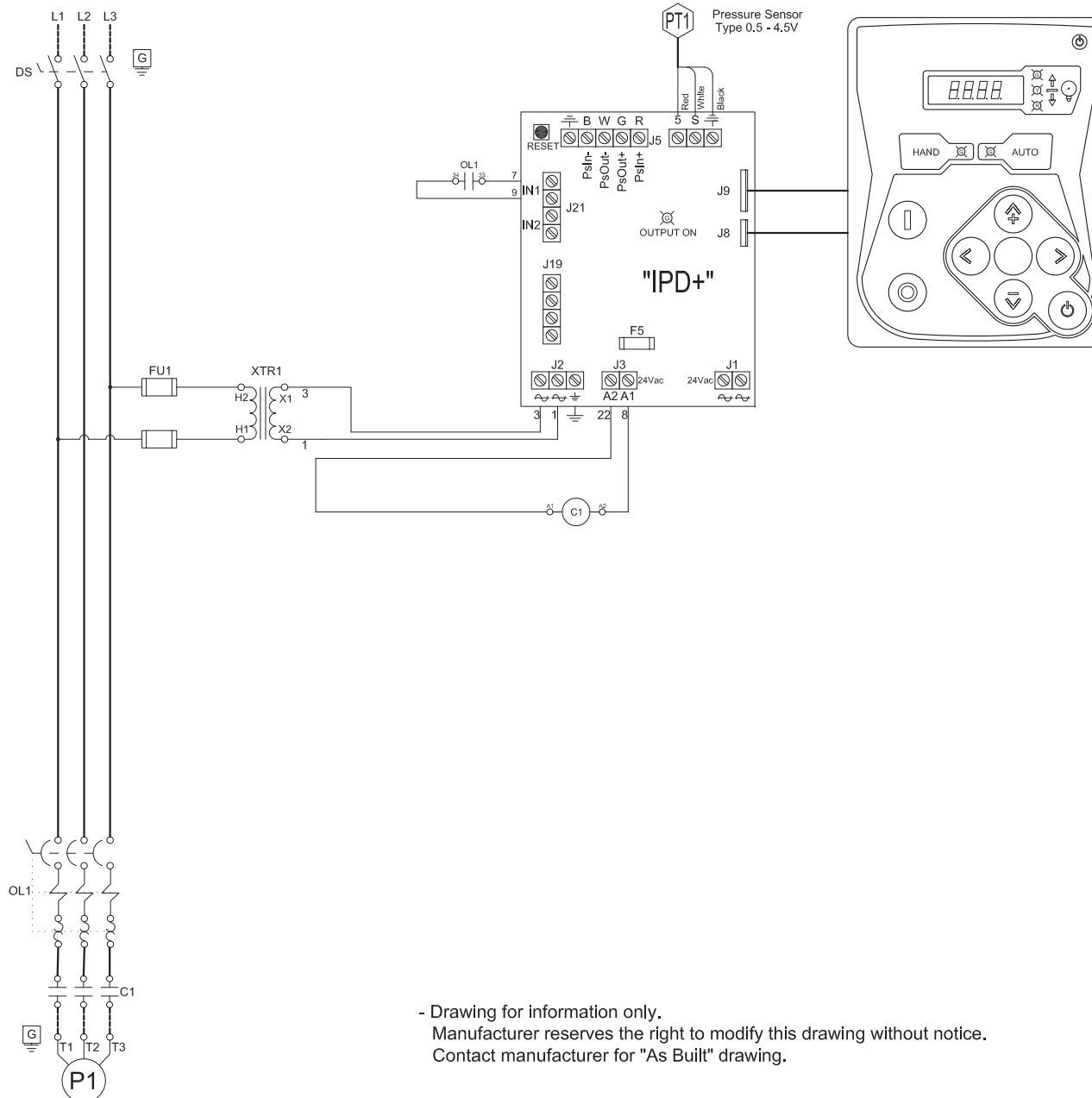
Wiring schematic

PER QUOTE DRAWING No.



REV.	DESCRIPTION	DD/MM/YY
6	Modified J19 Outputs ID	10/06/16
7	Revised logo	18/06/18
8	UL logo updated CSA logo removed	14/07/20

Drawing No:
JP3-WS500/E







- Drawing for information only.
Manufacturer reserves the right to modify this drawing without notice.
Contact manufacturer for "As Built" drawing.

Jockey Pump Controller

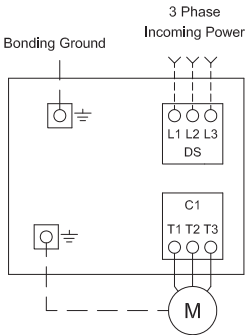
Across the Line / 3 Phase

Model:JP3

Line and Motor Terminal Size

PER QUOTE DRAWING No.					
REV.	DESCRIPTION	DD/MM/YY			Drawing No. JP3-TD500/E
6	Modified J19 Outputs ID	10/06/16			
7	Revised logo	18/06/18			
8	UL logo updated CSA logo removed	14/07/20			

Power Connections and Motor Connections



Line Terminals (L1,L2,L3,GND)							
Maximum Motor Horsepower					Wire Size Copper Only	Torque	Wire Size Ground Copper Only
200-208V	220-240V	380-416V	440-480V	575-600V			
10HP	10HP	20HP	20HP	25HP	#14 AWG - #6 AWG	2 Nm	#14 AWG - #2 AWG
20HP	30HP	40HP	60HP	60HP	#12 AWG - #1 AWG	6 Nm	#6 AWG - #2 AWG

Motor Terminals (T1,T2,T3,GND)							
Maximum Motor Horsepower					Wire Size Copper Only	Torque	Wire Size Ground Copper Only
200-208V	220-240V	380-416V	440-480V	575-600V			
5HP	7.5HP	10HP	15HP	20HP	#14 AWG - #10 AWG	1.8 Nm	#14 AWG - #2 AWG
10HP	10HP	15HP	20HP	25HP	#14 AWG - #6 AWG	2.5 Nm	#12 AWG - #2 AWG
15HP	20HP	30HP	50HP	50HP	#10 AWG - #3 AWG	5 Nm	#12 AWG - #2 AWG
20HP	30HP	40HP	60HP	60HP	#10 AWG - #2 AWG	11.3 Nm	#12 AWG - #2 AWG

Item number	001	Size / Stages	/
Quote number	20098	Pump speed	

Pump

Qty Description

1 *Aurora - Horizontal Splitcase 4-481-11A*

COS

Conditions of service

Flow: 500 USgpm (114 m3/h)

Pressure rated: 50 psi

Speed: 1770 rpm

Suction pressure: 40 psi

Impeller diameter: 10.8125

Shutoff head: 53 psi

Elevation: 100 ft

Temperature: 100° F

Country of origin: United States

Fire pump configuration

Pump

Materials of construction: Bronze fitted with Cast Iron casing

Pump rotation: Left handed

Flange rating (Suction/Discharge): (Suction 5 / Discharge 4) 125/125 LB

Pump base: Steel bent form base

Pump shaft material: Carbon Steel AISI C1045

Casing relief valve: UL listed & FM approved, Cla-Val

Weights

Shipping Skid Details

Photograph required before crating : No

Driver

Qty Description

1 **Driver**

Driver type

Motor: USEM - 30HP 286TS TEFC 1800rpm 60Hz 230/460V, Across-The-Line

Fire Pump Controller

Qty Description

1 **Fire pump controller**

Fire pump controller

Fire pump controller: Tornatech GPA, Across-The-Line, 460V, 3Phase, 60Hz, 30 HP - Manufacturer model number GPA-460/30/3/60/, D12, D5, D39, , , D26A

Transfer Switch: No

Ship controller before pump: No

Do you want controller to be shipped direct: Yes – Ship direct to shipping address

Fire pump controller - alarm and indicators

Standard digital text indications for fire pump controller

Phase loss

Phase unbalance

Incoming over voltage

Incoming under voltage

Motor over current

Motor under current

Fire Pump Controller

Qty	Description
	Motor run Fail to start Standard high luminous LED's Power available Phase reversal Pump on demand Weekly test Fire pump controller - additional option selections Enclosure for Standard Controller: NEMA 4X (SS-304 Painted) Pressure transducer: Pressure transducer and run test solenoid valve for fresh water, 0-500 PSI Suction pressure transducer: Not required Controller Rated Temperature: Controller rated for 55°C ambient temperature Anti condensation heater: None Withstand rating for controller: Standard Withstand Rating, 100,000 Amps Pump control function: None Label language: English Modbus Modbus TCP/IP provision Export packing: No

Remote Alarm Panel

Qty	Description
1	Remote Alarm Panel Remote Alarm Panel Remote Alarm Panel: None

Jockey Pump

Qty	Description
1	Jockey pump Pump and Motor Pump type: Stackable cast iron Flow rate: 5 USgpm TDH: 60 psi: 60.00 psi Jockey Pump (price includes selected motor): PVM1-6, Stackable Cast Iron, NPT Threaded / Flanged Jockey Pump Motor: 0.75 Hp, 3 Ph, 208-230/460V, premium Eff. Motor Jockey Pump Motor frame size: 56CZ Motor enclosure: Totally Enclosed Fan Cooled Frequency: 60 Hz Phase: Three Motor Voltage: 460 Volt Jockey pump relief valve: None Jockey pump companion flange kit: None

Jockey Pump Controller

Qty	Description
1	Jockey pump Controller JP controller details: Tornatech Model JP3, Across-The-Line, 460V, 3 Phase, 60 Hz, 0.75 Hp - Manufacturer model number JP3-480/0.75/3/60/ , D10, D11D, Manufacturer: Tornatech

Jockey Pump Controller

Qty	Description
	<p>Starting method: Across-The-Line</p> <p>Voltage: 460 V</p> <p>Horsepower: 0.75Hp</p> <p>Jockey pump controller options</p> <p>Enclosure: NEMA / UL / CSA 4X 304SST painted enclosure</p> <p>Pressure switch: Pressure transducer 0-600psi 316SST</p> <p>Wetted parts: None</p> <p>Labeling language: English</p> <p>Withstand rating: 5,000 Amp standard short circuit withstand rating</p>

Engineering Tests

Qty	Description
1	<p>Testing</p> <p>Engineering Tests</p> <p>Driver to be used for engineering tests: Calibrated test lab motor</p>

Weight, Freight, Boxing

Qty	Description
1	<p>Weights</p> <p>Shipping Skid Details</p> <p>Skid weight: 70 lb (31.75 kg)</p> <p>Weight / Freight</p> <p>Approximate total weight for Qty shown</p> <p>Fire pump weight: 570 lb (258.55 kg)</p> <p>Driver weight: 350 lb (158.76 kg)</p> <p>Fire pump controller weight: 235 lb (106.59 kg)</p> <p>Jockey pump weight: 73 lb (33.11 kg)</p> <p>Jockey pump controller weight: 40 lb (18.14 kg)</p> <p>Skid weight: 70 lb (31.75 kg)</p> <p>Total weight: 1338 lb (606.91 kg)</p> <p>Export boxing: Skeleton crating</p>

Skid

Qty	Description
1	<p>Weights</p> <p>Shipping Skid Details</p> <p>Pump and drive skid</p> <p>Pallet, 36" W x 66" L, Floor area per skid 16.5 sq.ft (1.53 sq.m)</p> <p>Controller skid</p> <p>Pallet 22 " W x 30 " L, Floor area per skid 4.58 sq.ft (0.43 sq.m)</p> <p>Jockey pump skid</p> <p>Pallet, 36" W x 36" L, Floor area per skid 9 sq.ft (0.84 sq.m)</p> <p>Shipping comments</p> <p>Pentair does not recommend stacking skids. Please use the estimated dimensions to calculate shipping container requirements, as floor load only.</p> <p>Total floor area 30.08 sq.ft (2.8 sq.m)</p>

RedHot/QuickShip

Qty	Description
1	Shipping: Standard



Customer : THE BROWN
COMPANY INC
Project name : TURWWTP

Customer Technical Offer
Encompass 2.0 - 20.4.0

The Equipment referenced in the attached quote or proposal is specifically designed and dimensioned for, and intended only to be installed in Large Scale Fixed Installations (LSFI) as that term is defined in RoHS (EU Directive 2011/65) as such Directive may be amended from time to time.

The Buyer by placing its order warrants and represents, and shall ensure that any customer of the Buyer to whom the Buyer resells or otherwise assigns the Equipment warrants and represents, that (i) the Equipment will be solely and exclusively installed in combination with other equipment, sub-systems, apparatus and/or devices which are intended to be a part of a "large scale" installation (*Examples of "large scale" installations may include but are not limited to installations which (a) are too large to be moved in an ISO 20 foot container because the total sum of its parts as transported is larger than 5,71m x 2,35m x 2,39m; (b) are too heavy to be moved by a 44 tonne road truck; (c) have a rated power greater than 375 kW; and/or (d) require cranes to be completely installed); (ii) the installation in which the Equipment will be utilized will be assembled, installed, and de-installed by professionals holding the requisite knowledge, experience, and licenses necessary to undertake and complete the work related to the installation; and (iii) the overall system in which the Equipment will be included will be used permanently in a pre-defined and dedicated location.

The Buyer further acknowledges and agrees that Pentair is relying on the above warranties and representations by Buyer as a material inducement to sell the Equipment to Buyer, and Buyer will defend, indemnify, and hold Pentair harmless from and against any and all claims, losses, fines, decrees, penalties, and/or causes of action arising out of or related to breach of the above warranties and representations, including but not limited to those brought by any governmental or quasi-governmental authority.



SECTION 15052

COMMON WORK RESULTS FOR GENERAL PIPING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Basic materials and methods for metallic and plastic piping systems.

1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
 - 1. B16.5 - Pipe Flanges and Flanged Fittings: NPS 1/2 Through 24.
- B. ASTM International (ASTM):
 - 1. A193 - Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.
 - 2. A194 - Standard Specification for Carbon Steel, Alloy Steel, and Stainless Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.
 - 3. A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
 - 4. A563 - Standard Specification for Carbon and Alloy Steel Nuts.
 - 5. F37 - Standard Test Methods for Sealability of Gasket Materials.
 - 6. F2329 - Standard Specification for Zinc Coating, Hot-Dip, Requirements of Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners.
- C. California Health and Safety Code.
- D. NSF International (NSF).

1.03 DEFINITIONS

- A. Buried pipes: Pipes that are buried in the soil with or without a concrete pipe encasement.
- B. Exposed pipe: Pipes that are located above ground, or located inside a structure, supported by a structure, or cast into a concrete structure.
- C. Underground pipes: Buried pipes - see A. above.

PART 2 PRODUCTS

2.01 GENERAL

- A. Materials as specified in Section 01600 - Product Requirements including special requirements for materials in contact with drinking water.

2.02 FLANGE BOLTS AND NUTS

A. General:

1. Washer:
 - a. Provide a washer for each nut.
 - b. Washer shall be of the same material as the nut.
2. Nuts: Heavy hex-head.
3. Cut and finish flange bolts to project:
 - a. Face of the bolt shall exceed face of nut by 1/16-inch minimum.
 - b. A maximum of 1/4-inch beyond outside face of nut after assembly.
4. Tap holes for cap screws or stud bolts when used.
5. Lubricant for stainless steel bolts and nuts:
 - a. Chloride-free.
 - b. Manufacturers: One of the following or equal:
 - 1) Huskey FG-1800 Anti-Seize.
 - 2) Weicon Anti-Seize High-Tech.
6. On buried pipes:
 - a. Bolts: ASTM A193, Grade B8M.
 - b. Nuts: ASTM A194, Grade 8M for nuts.
 - c. Bolts: ASTM A307, Grade B.
 - d. Nuts: ASTM A563, Grade A.
 - e. Encase in 2 layers of loose polyethylene wrap in accordance with AWWA C105.
 - f. Bolts and nuts: Hex head Hastelloy C276.

B. Plastic pipe:

1. On exposed pipes:
 - ~~a. Bolts: ASTM A307, Grade B.~~
 - ~~b. Nuts: ASTM A563, Grade A.~~
 - ~~c. Bolts and Nuts: Hot dip galvanized in accordance with ASTM F2329.~~
 - a. Bolts: ASTM A193, Grade B8M.
 - b. Nuts: ASTM A194, Grade 8M for nuts.^{AD2}

2.03 GASKETS

A. General:

1. Gaskets shall be suitable for the specific fluids, pressure, and temperature conditions.
2. Capable of being applied on surface of piping with cavities to provide for an improved seal with the internal piping pressure.

B. Gaskets for flanged joints in chlorinated polyvinyl chloride:

1. Suitable for pressures equal to and less than 150 pounds per square inch gauge, with low flange bolt loadings, temperatures equal to and less than 120 degrees Fahrenheit, and polymer, chlorine, caustic solutions, and other chemicals, except chemicals which liberate free fluorine including fluorochemicals and gaseous fluorine.
2. Material:
 - a. Chemical systems: 0.125-inch thick Viton™ rubber.
 - b. Sewer and water: 0.125-inch thick SBR.

3. Manufacturers: One of the following or equal:
 - a. Garlock.
 - b. John Crane, similar product.

PART 3 EXECUTION

3.01 INSTALLATION

A. General:

1. Piping drawings:
 - a. Except in details, piping is indicated diagrammatically. Not every offset and fitting, or structural difficulty that may be encountered has been indicated on the Drawings. Sizes and locations are indicated on the Drawings.
 - b. Perform minor modifications to piping alignment where necessary to avoid structural, mechanical, or other type of obstructions that cannot be removed or changed:
 - 1) Modifications are intended to be of minor scope, not involving a change to the design concept or a change to the Contract Price or Contract Times.
2. Piping alternatives:
 - a. Provide piping as specified in this Section, unless indicated on the Drawings or specified otherwise.
 - b. Alternative pipe ratings:
 - 1) Piping with greater pressure rating than specified may be substituted in lieu of specified piping without changes to the Contract Price.
 - 2) Piping of different material may not be substituted in lieu of specified piping.
 - c. Valves in piping sections: Capable of withstanding specified test pressures for piping sections and fabricated with ends to fit piping.
 - d. Grooved joints: Use couplings, flange adapters, and fittings of the same manufacturer:
 - 1) Manufacturer's factory trained representative:
 - a) Provide on-site training for Contractor's field personnel.
 - b) Periodically visit the jobsite to verify Contractor is following best recommended practices.
 - 2) Distributor's representative is not considered qualified to conduct the training or jobsite visits.
 - e. Flanged joints: where 1 of the joining flanges is raised face type, provide a matching raised face type flange for the other joining flange.
3. Unless otherwise indicated on the Drawings, piping at pipe joints, fittings, couplings, and equipment shall be installed without rotation, angular deflection, vertical offset, or horizontal offset.

B. Wall and slab penetrations:

1. Provide sleeves for piping penetrations through aboveground masonry and concrete walls, floors, ceilings, roofs, unless specified or otherwise indicated on the Drawings.

2. For piping 1 inch in nominal diameter and larger, provide sleeves with minimum inside diameters of 1 inch plus outside diameter of piping. For piping smaller than 1 inch in nominal diameter, provide sleeve of minimum twice the outside diameter of piping:
 - a. Arrange sleeves and adjacent joints so piping can be pulled out of sleeves and replaced without disturbing the structure.
 - b. Cut ends of sleeves flush with surfaces of concrete, masonry, or plaster.
 - c. Conceal ends of sleeves with escutcheons where piping runs through floors, walls, or ceilings of finished spaces within buildings.
 - d. Seal spaces between pipes and sleeves with link-type seals when not otherwise specified or indicated on the Drawings.
 - e. Seal openings around piping running through interior walls and floors of chlorine/hypochlorite rooms and chlorine/hypochlorite storage rooms gastight with synthetic rubber sealing compound.
 3. Provide flexibility in piping connecting to structures to accommodate movement due to soil settlement and earthquakes. Provide flexibility using details indicated on the Drawings.
 4. Core drilled openings:
 - a. Do not damage or cut existing reinforcing bars, electrical conduits, or other items embedded in the existing concrete without acceptance by Engineer.
 - b. Determine location of reinforcing bars or other obstructions with a non-destructive indicator device.
 - c. Remove dust and debris from hole using compressed air.
- C. Exposed piping:
1. Install exposed piping in straight runs parallel to the axes of structures, unless otherwise indicated on the Drawings:
 - a. Install piping runs plumb and level, unless otherwise indicated on the Drawings:
 - 1) Slope plumbing drain piping with a minimum of 1/4-inch per foot downward in the direction of flow.
 2. Install exposed piping after installing equipment and after piping and fitting locations have been determined.
 3. Support piping: As specified in Sections 15061 - Pipe Supports, 15062 - Preformed Channel Pipe Support System, and 15063 - Non-Metallic Pipe Support System:
 - a. Do not transfer pipe loads and strain to equipment.
 4. In addition to the joints indicated on the Drawings, provide unions, flexible couplings, flanged joints, flanged coupling adapters, and other types of joints or means which are compatible with and suitable for the piping system, and necessary to allow ready assembly and disassembly of the piping.
 5. Assemble piping without distortion or stresses caused by misalignment:
 - a. Match and properly orient flanges, unions, flexible couplings, and other connections.
 - b. Do not subject piping to bending or other undue stresses when fitting piping.
 - c. Do not correct defective orientation or alignment by distorting flanged joints or subjecting flange bolts to bending or other undue stresses.
 - d. Flange bolts, union halves, flexible connectors, and other connection elements shall slip freely into place.

- e. Alter piping assembly to fit, when proper fit is not obtained.
 - f. Install eccentric reducers or increasers with the top horizontal for pump suction piping.
- D. Buried piping:
- 1. Bury piping with minimum 3-foot cover without air traps, unless otherwise indicated on the Drawings.
 - 2. Where 2 similar services run parallel to each other, piping for such services may be laid in the same trench:
 - a. Lay piping with sufficient room for assembly and disassembly of joints, for thrust blocks, for other structures, and to meet separation requirements of public health authorities having jurisdiction.
 - 3. Laying piping:
 - a. Lay piping in finished trenches free from water or debris. Begin at the lowest point with bell ends up slope.
 - b. Place piping with top or bottom markings with markings in proper position.
 - c. Lay piping on an unyielding foundation with uniform bearing under the full length of barrels.
 - d. Where joints require external grouting, banding, or pointing, provide space under and immediately in front of the bell end of each section laid with sufficient shape and size for grouting, banding, or pointing of joints.
 - e. At the end of each day's construction, plug open ends of piping temporarily to prevent entrance of debris or animals.
- E. Venting piping under pressure:
- 1. Lay piping under pressure flat or at a continuous slope without air traps, unless otherwise indicated on the Drawings.
 - 2. Install plug valves as air bleeder cocks at high points in piping:
 - a. Provide 1-inch plug valves for water lines, and 2-inch plug valves for sewage and sludge lines, unless otherwise indicated on the Drawings.
 - 3. Provide additional pipe taps with plug cocks and riser pipes along piping as required for venting during initial filling, disinfecting, and sampling.
 - 4. Before piping is placed into service, close plug valves and install plugs. Protect plugs and plug valves from corrosion in as specified in Section 09960 – High-Performance Coatings.
- A. Restraining buried piping:
- 1. Restrain piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
 - a. When piping is underground, use concrete thrust blocks, mechanical restraints, or push-on restraints.
 - b. Determine thrust forces by multiplying the nominal cross-sectional area of the piping by design test pressure of the piping.
 - c. Provide restraints with ample size to withstand thrust forces resulting from test pressures.
 - d. During testing, provide suitable temporary restraints where piping does not require permanent restraints.
 - 2. Place concrete thrust blocks against undisturbed soil.
 - 3. Place concrete so piping joints, fittings, and other appurtenances are accessible for assembly and disassembly.
 - 4. Provide underground mechanical restraints where specified in the Piping Schedule.

- B. Restraining above ground piping:
 - 1. Restrain piping at valves and at fittings where piping changes direction, changes sizes, and at ends:
 - a. When piping is aboveground or underwater, use mechanical or structural restraints.
 - b. Determine thrust forces by multiplying the nominal cross-sectional area of the piping by design test pressure of the piping.
 - 2. Provide restraints with ample size to withstand thrust forces resulting from test pressures:
 - a. During testing, provide suitable temporary restraints where piping does not require permanent restraints.
- F. Connections to existing piping:
 - 1. Expose existing piping to which connections are to be made with sufficient time to permit, where necessary, field adjustments in line, grade, or fittings:
 - a. Protect domestic water/potable water supplies from contamination:
 - 1) Make connections between domestic water supply and other water systems in accordance with requirements of public health authorities.
 - 2) Provide devices approved by Owner of domestic water supply system to prevent flow from other sources into the domestic supply system.
 - 2. Make connections to existing piping and valves after sections of new piping to be connected have been tested and found satisfactory.
 - 3. Provide sleeves, flanges, nipples, couplings, adapters, and other fittings needed to install or attach new fittings to existing piping and to make connections to existing piping.
 - 4. For flanged connections, provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.
- G. Connections to in-service piping:
 - 1. As specified in Section 01140 - Work Restrictions.
- H. Connections between ferrous and nonferrous metals:
 - 1. Connect ferrous and nonferrous metal piping, tubing, and fittings with dielectric couplings especially designed for the prevention of chemical reactions between dissimilar metals.
 - 2. Nonferrous metals include aluminum, copper, and copper alloys.
- I. Flanged connections between dissimilar metals such as ductile iron pipe and steel pipe:
 - 1. Provide stainless steel bolts with isolation bushings and washers, and full-face flange gaskets.

3.02 CLEANING

- A. Piping cleaning:
 - 1. Upon completion of installation, clean piping interior of foreign matter and debris.
 - 2. Perform special cleaning when required by the Contract Documents.

- B. Cleaning potable water piping:
 - 1. Flush and disinfect potable water piping as specified in Section 01757 - Disinfection.
- C. Conduct pressure and leak test, as specified.

3.03 PIPING SCHEDULE

PIPING SCHEDULE											
Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/ Fittings	Test Pressure/ Method	Lining	Coating	Service Conditions	Comments
COAG	Coagulant (Aluminum Sulfate)										
	Inside of Containment Area	4 and Less	CPVC	SCH 80	15259 - CPVC Pipe	SW/FL	100 psig/HH	None	EPP	20° F to 120°F	
	Outside of Containment Area and Underground	4 and less	Double contained, CPVC carrier pipe/ CPVC containment pipe	SCH 80	15259 - CPVC Pipe and 15293 - Double Containment Piping	SW	100 psig/HH	None	None	20° F to 120°F	
D	Drain (ALL)	4 and Less	PVC	SCH 80	15249	SW	10 feet/ GR	None	EPP	20° F to 120°F	
PD	Pumped Drain (ALL)	4 and Less	PVC	SCH 80	15249	SW	50 psig / HH	None	EPP	20° F to 120°F	
FW	Fire Water										
	Underground	2-10	DIP	150	N/A	Mech Rest. MJ	200 psig/HH	None	2 layers of PEE		
	Aboveground	3-10	DIP	CL 53	N/A	FL	200 psig/HH	None	EPP	20° F to 120°F	
	Aboveground	1-2	Steel	Sch 40	15278 - Steel Pipe	GE/SCR D	200 psig/HH	None	EPP	20° F to 120°F	

PIPING SCHEDULE											
Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/Fittings	Test Pressure/Method	Lining	Coating	Service Conditions	Comments
SBS	Sodium Bisulfite										
	Inside Containment Area	4 and Less	CPVC	SCH 80	15259 - CPVC Pipe	SW/FL	100 psig/HH	None	EPP	20° F to 120°F	Insulate per Section 15082 and heat trace per Section 15772.
	Outside Containment Area and Underground	1	Double contained, CPVC carrier pipe/ CPVC containment pipe	SCH 80	15259 - CPVC Pipe and 15293 - Double Containment Piping	SW	100 psig/HH	None	None	20° F to 120°F	Double Contained
SHS	Sodium Hypochlorite Solution										
	Aboveground	4 and less	CPVC	SCH 80	15259 - CPVC Pipe	SW/FL	100 psig/HH	None	EPP	20° F to 120°F	
	Belowground	4 and less	Double contained, Reinforced PVC Tubing carrier pipe/ CPVC containment pipe	SCH 80	15259 - CPVC Pipe and 15293 - Double Containment Piping	SW	100 psig/HH	None	None	20° F to 120°F	Double Contained, Containment pipe to be minimum 4-inch

PIPING SCHEDULE											
Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/ Fittings	Test Pressure/ Method	Lining	Coating	Service Conditions	Comments
1W	Potable Water, Aboveground	2 and less	Copper	Type L	15281 - Copper Water Tube: Seamless	Soldered	125 psig /HH	None	EPP	20° F to 120°F	Insulated per 15082
1W	Potable Water, Belowground	2 and less	PVC	SCH80	15249	SW	125 psig /HH	None	None	20° F to 120°F	Tracer Wire & Warning Tape Pipe to be blue
2W	Non-Potable Water, Aboveground	2 and less	Copper	Type L	15281 - Copper Water Tube: Seamless	Soldered	125 psig /HH	None	EPP	20° F to 120°F	Insulated per 15082
2W	Non-Potable Water, Belowground	2 and less	PVC	SCH80	15249	SW	125 psig /HH	None	None	20° F to 120°F	Tracer Wire & Warning Tape Pipe cannot be blue
V/OVF	Vent/Overflow	6 and less	CPVC	SCH 80	15259 - CPVC Pipe	SW	20 psig/GR	None	EPP	20° F to 120°F	

PIPING SCHEDULE											
Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/ Fittings	Test Pressure/ Method	Lining	Coating	Service Conditions	Comments
Abbreviations: 1. The following abbreviations used in the column of test method refer to the respective methods as specified in Section 15956 - Piping Systems Testing. AM Air method GR Gravity method HH High head method LH Low head method SC Special case 2. Abbreviations to designate piping include the following: B&SP Bell and spigot CI Cast iron CISP Cast iron soil pipe CL Class, followed by the designation CM Cement mortar CTP Coal tar pitch DIP Ductile iron piping EPP Epoxy polyurethane coating FLFlange GA Gauge, preceded by the designation						GE Grooved end joint GL Glass lined GSP Galvanized steel pipe MJ Mechanical joint NPS Nominal pipe size, followed by the number in inches psi pounds per square inch psig pounds per square inch gauge PE Polyethylene PEE Polyethylene encasement PTW Polyethylene tape wrap PVC Polyvinyl Chloride SCH Schedule, followed by the designation SCRD Screwed-On SST Stainless steel SW Solvent welded VCP Vitrified clay piping WLD Weld					

END OF SECTION

AD2 Addendum No. 2

SECTION 15118

PRESSURE REDUCING AND PRESSURE RELIEF VALVES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Pressure reducing and pressure relief valves for water, air, sludge and chemical service.
- B. As specified in Section 15110 - Common Work Results for Valves.

1.02 REFERENCES

- A. American Society of Mechanical Engineers (ASME):
 - 1. B16.42 - Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300.
- B. ASTM International (ASTM):
 - 1. A48 - Standard Specification for Gray Iron Castings.
 - 2. A536 - Standard Specification for Ductile Iron Castings.
- C. Underwriters Laboratories, Inc. (UL).

1.03 SUBMITTALS

- A. Submit as specified in Section 01330 - Submittal Procedures.
- B. Product data: As specified in Section 15110 - Common Work Results for Valves.
- C. Commissioning submittals:
 - 1. Provide Manufacturer's Certificate of Installation and Functionality Compliance as specified in Section 01756 - Commissioning.

1.04 WARRANTY

- A. Provide warranty as specified in Section 01783 - Warranties and Bonds.

PART 2 PRODUCTS

2.01 PRESSURE RELIEF VALVES FOR CHEMICAL SERVICE

- A. Manufacturers: One of the following or equal:
 - 1. Plast-O-Matic, Series RVT, RVDT or TRVDT.
 - 2. Asahi/America.
 - 3. Georg Fischer Piping Systems.
- B. Materials:
 - 1. Valve body: CPVC or PVC.

2. U-cup seals:
 - a. Polymer service: Viton™.
 - b. Hypochlorite service: Viton™.
 - c. Caustic service: EPDM.
 - d. Sodium Bisulfite: EPDM.
 3. Adjusting bolt, locknut, control spring and fasteners: stainless steel.
- C. Design:
1. Pressure rating: Not less than 150 pounds per square inch.
 2. In-line or angle pattern design, size as indicated on the Drawings.
 3. End connections:
 - a. 1 inch and smaller: Threaded.
 - b. Larger than 1 inch: Flanged.
 4. Relief set point:
 - a. Externally adjustable without removing valve from piping system.
 - b. Set valve to open at 10 pounds per square inch more than pump discharge pressure at operating point.

2.02 DIAPHRAGM BACKPRESSURE VALVES:

A. Manufacturers: One of the following or equal:

1. Wallace and Tiernan.
2. Pulsafeeder.
3. Griffco.
4. Milton Roy Co.

B. Materials:

1. Valves shall be of suitable materials for the pumped liquid (Sodium Hypochlorite).

C. Characteristics:

1. Valves shall be furnished and installed on each chemical metering pump's discharge lines as indicated on the Drawings.
2. Valves shall have an adjustable spring range of 15-50 pounds per square inch. Valves shall be factory adjusted for the backpressure recommended by the pump manufacturer.
3. Valves shall produce a back pressure no greater than 10 pounds per square inch above valve set pressure when metering pumps are operating at full capacity.^{AD2}

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install as specified in Section 15110 - Common Work Results for Valves.

3.02 FIELD APPLIED COATING OF VALVE EXTERIOR

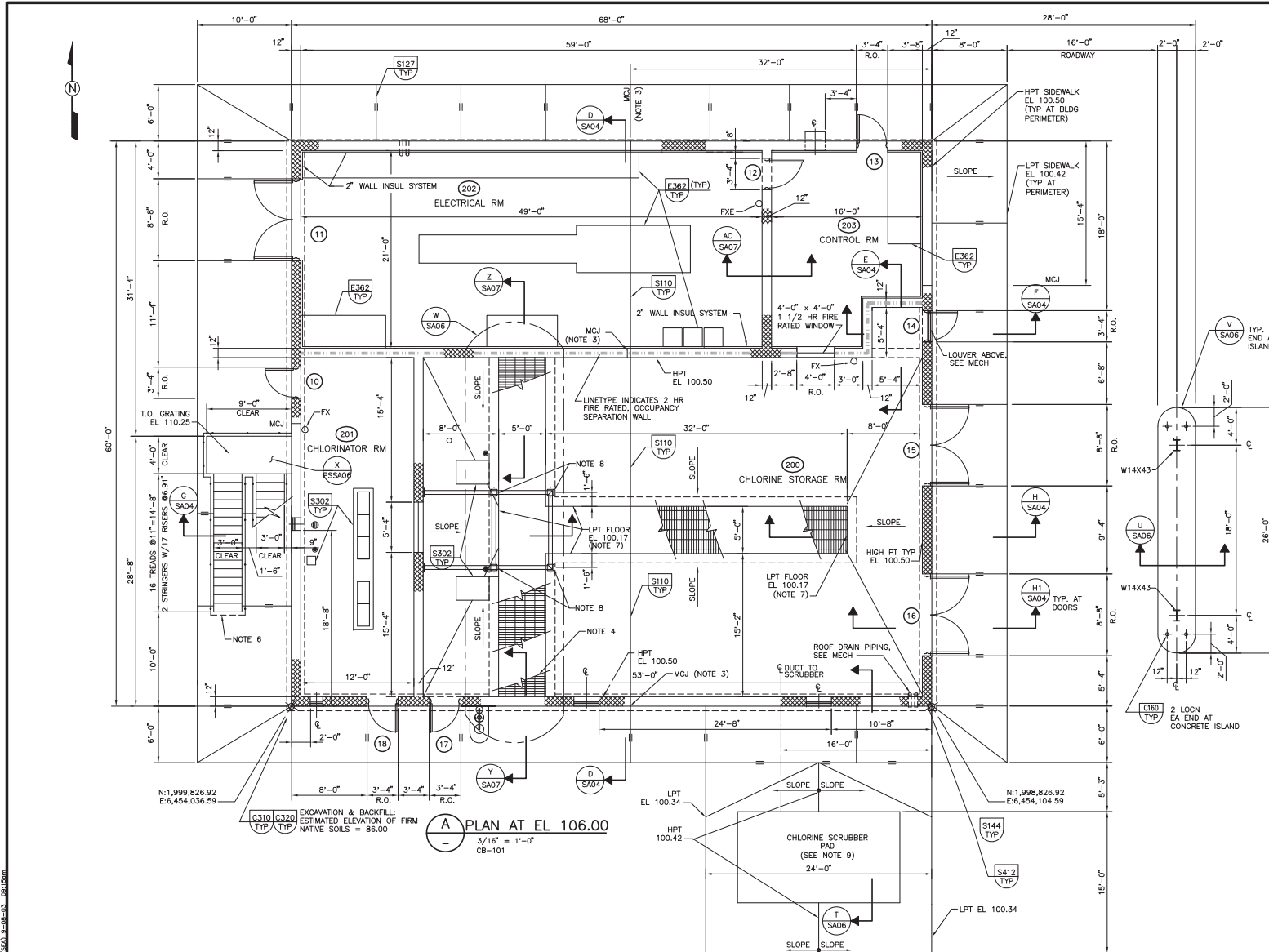
- A. Match color and be compatible with manufacturer's coating system and as specified in Section 09960 - High-Performance Coatings:
 - 1. When shop applied finish coating matches field applied coating on adjacent piping, touch up shop coating in damaged areas in accordance with instructions recommended by the paint manufacturer.
 - 2. When shop applied coating does not match field coating on adjacent piping, or when damage has occurred to the shop applied coating that requires more than touchup, blast clean valve surfaces or utilize other surface preparation recommended by the manufacturer of the coating material and apply the coating system used for coating adjacent piping.

3.03 COMMISSIONING

- A. As specified in Section 01756 - Commissioning and this Section.
- B. Manufacturer services:
 - 1. Provide certificates:
 - a. Manufacturer's Certificate of Installation and Functionality Compliance.
- C. Functional testing:
 - 1. Valves:
 - a. Test witnessing: Witnessed.
 - b. Conduct pressure and leak test as specified in Section 15110 - Common Work Results for Valves.

END OF SECTION

^{AD2} Addendum No. 2

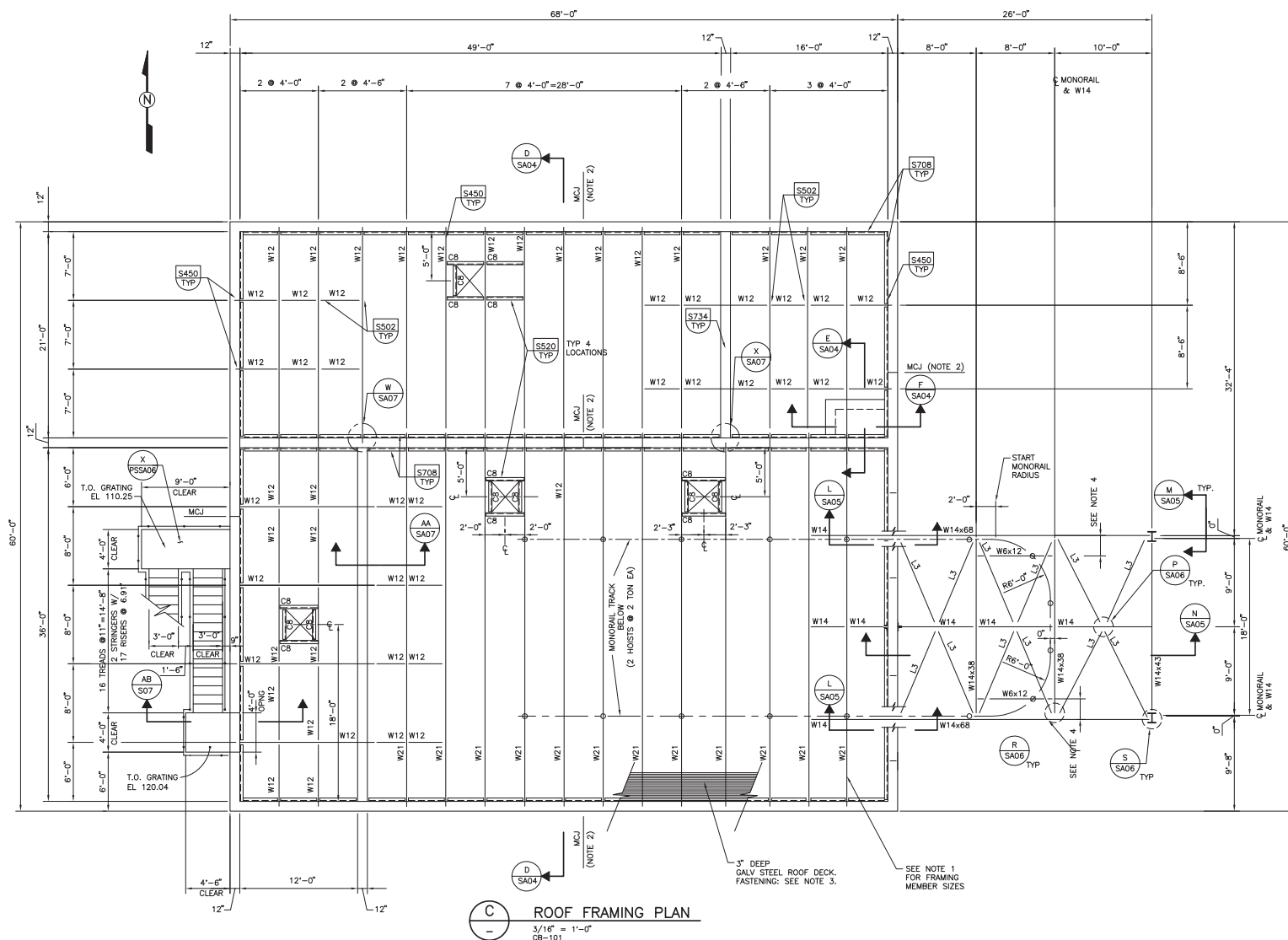


NOTES

- DESIGN CRITERIA
1998 CALIFORNIA BUILDING CODE (MODIFIED 1997 UBC)
ROOF LIVE LOAD: 20 PSF
WIND: 70 MPH/EXPOSURE C
SEISMIC: ZONE 3
SOIL PROFILE S_D
 $C_g=0.36$ $C_v=0.54$
 $N=1.0$ $N=1.0$
 $R=4.5$ (MASONRY BEARING/SHEAR WALLS)
IMPORTANCE FACTOR=1.5
- MCJ = MASONRY CONTROL JOINT PER TYPICAL DETAIL S430.
- MCJ LOCATION SHOWN ON NORTH WALL IS TYPICAL FOR 3 EAST/WEST WALLS IN BUILDING.
- PROVIDE 24" WIDE REMOVABLE GRATING PANEL ADJACENT TO SOUTH WALL.
- DENOTES TOOLED SLAB JOINT PER S127/TYP.
- PROVIDE SAFETY CHAIN W/ SIGNAGE: "AUTHORIZED PERSONNEL ONLY."
- FLOOR ELEVATIONS NOTED REFER TO SLAB ON GRADE SHOWN.
FOR ELEVATIONS AT CONTAINMENT PIT, SEE PARTIAL PLAN, SHEET SA-06
- SEE SHEET CB-M02 FOR CHLORINE PIPING SUPPORT FRAME. CENTER COLUMNS ON NORTH/SOUTH WALLS BELOW.
- CONFIRM SIZE OF EQUIPMENT BEFORE CONSTRUCTING SCRUBBER PAD.
- CONCRETE SEALANTS FOR JOINTS BELOW ELEVATION 100.50 SHALL BE POLYSULFIDE RUBBER SEALING COMPOUND. SEE SECTION 07900.

RECORD DRAWING THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE				DESIGNED GLS	DRAWN DPR CHECKED CAG DATE SEPTEMBER, 2003	REGISTERED ENGINEER ORIGINAL STAMPED BY GARY L. SAGEHORN PROJECT ENGINEER	PARTNER ORIGINAL STAMPED BY MICHAEL J. BRITTEN			WATER QUALITY CONTROL FACILITY TREATMENT FACILITIES IMPROVEMENT PROJECT STRUCTURAL & ARCHITECTURAL CHLORINE BUILDING FOUNDATION & FLOOR PLAN			VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 6324A.10 DRAWING NO. CB-SA01 SHEET NO. 161 OF 397
REV	DATE	BY	DESCRIPTION											

FILENAME: H:\Client\Turlock_WCD\6324A.10\Drawings\Conform_Dwg\SA-14SA01C 4-19-07 10:15am NPapa XREFS: CB-109; CB-101; GLS; G-BDR; Mjb GSagehorn.Sig



NOTES

1. TYPICAL ROOF FRAMING (UNO).
W12 = W12x22 UNO.
W14 = W14x26 UNO.
W21 = W21x57 UNO.
C8 = C8x11.5 UNO.
L3 = L3x5x3/8 UNO.
2. MCJ = MASONRY CONTROL JOINT PER DETAIL S430. SEE SHEET CB-SA01 FOR LOCATION.
3. STEEL DECK PROPERTIES:
3" TYPE N, MINIMUM 18 GAGE, Fy=36KSI
I_{min}=1.334 IN⁴/FT
S_{min}=0.688 IN³/FT
S_{min}=0.749 IN³/FT
MINIMUM DIAPHRAGM SHEAR = 420 PLF (SERVICE LOAD AT FASTENING SPECIFIED)
- STEEL DECK FASTENING:
SUPPORT BEAMS, CHANNELS, AND ANGLES:
5/8" (EFFECTIVE) PUDDLE WELDS @6"OC (24/4 PATTERN).
- SIDLAPS:
5/8" (EFFECTIVE) PUDDLE WELDS 3/8" 1/4 ARC SEAM WELDS @24"OC (MIN 2 WELDS BETWEEN SUPPORTS).
4. LOCATE W6 CURVE SUPPORT BEAM AS REQ'D BY MONORAIL TRACK MANUFACTURER. PROVIDE ADDITIONAL SUPPORT BEAMS, (W6x12) AT RADIUS IF REQ'D FOR TRACK SELECTED.

C ROOF FRAMING PLAN
3/16" = 1'-0"
CB-101

RECORD DRAWING

THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS
THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE

DESIGNED
GLS
DRAWN
DPR
CHECKED
CAG
DATE
SEPTEMBER, 2003

DISCIPLINE ENGINEER
** ORIGINAL
STAMPED BY
GARY L. SAGEHORN
**
PROJECT ENGINEER

PARTNER
** ORIGINAL
STAMPED BY
MICHAEL J. BRITTEN
**

carollo
engineers

Turlock
INC 1998

STANISLAUS COUNTY, CALIFORNIA

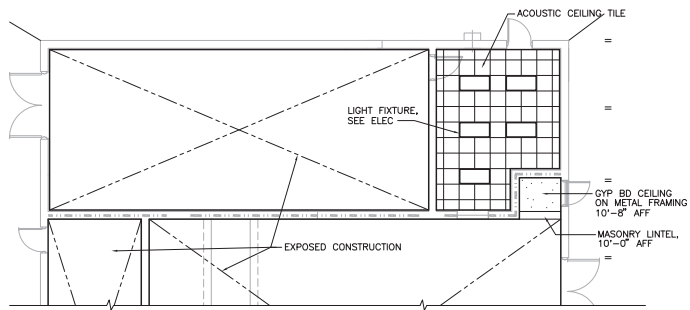
WATER QUALITY CONTROL FACILITY
TREATMENT FACILITIES IMPROVEMENT PROJECT

STRUCTURAL & ARCHITECTURAL
CHLORINE BUILDING
ROOF FRAMING PLAN

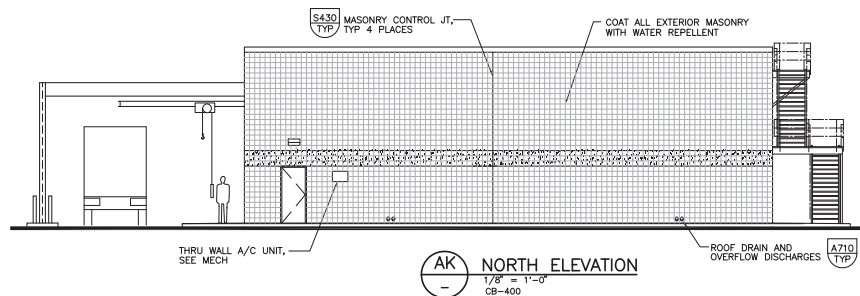
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0 1" 2"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

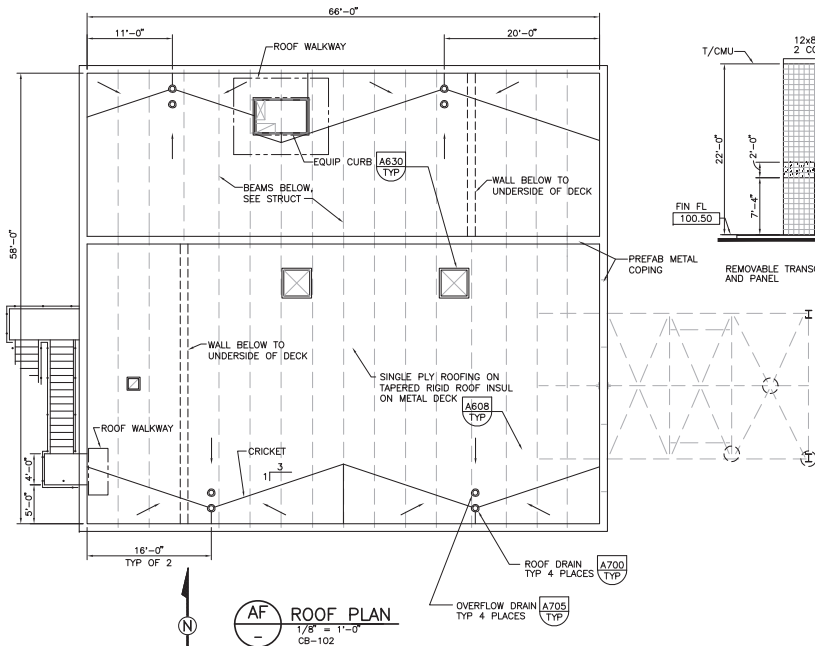
JOB NO.
6324A.10
DRAWING NO.
CB-SA02
SHEET NO.
162 OF 397



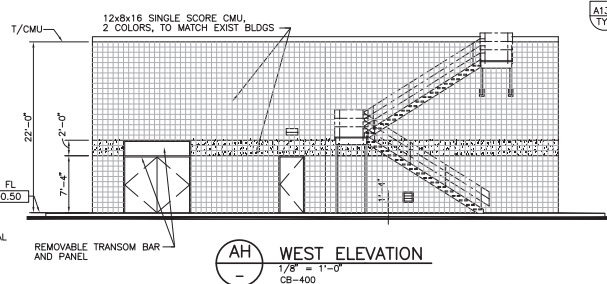
AL REFLECTED CEILING PLAN
1/8" = 1'-0"
CB-107



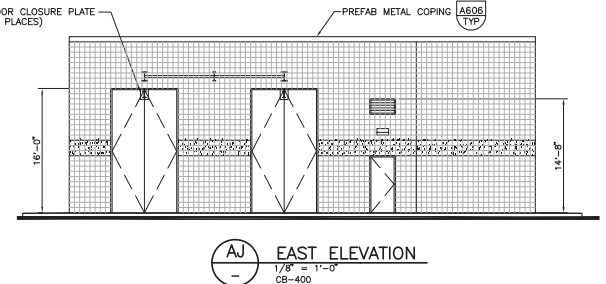
AK NORTH ELEVATION
1/8" = 1'-0"
CB-400



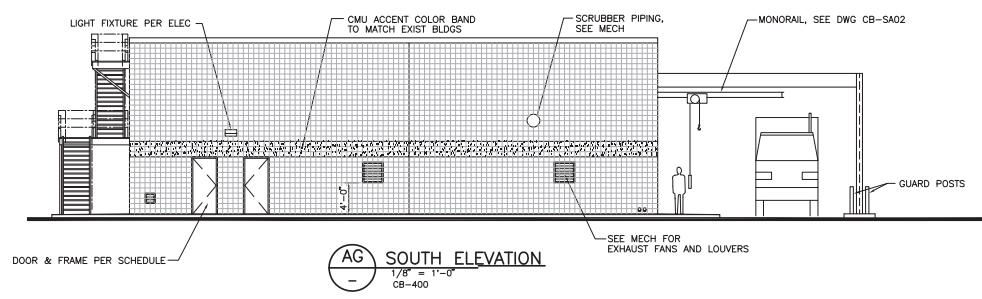
AF ROOF PLAN
1/8" = 1'-0"
CB-102



AH WEST ELEVATION
1/8" = 1'-0"
CB-400



AJ EAST ELEVATION
1/8" = 1'-0"
CB-400

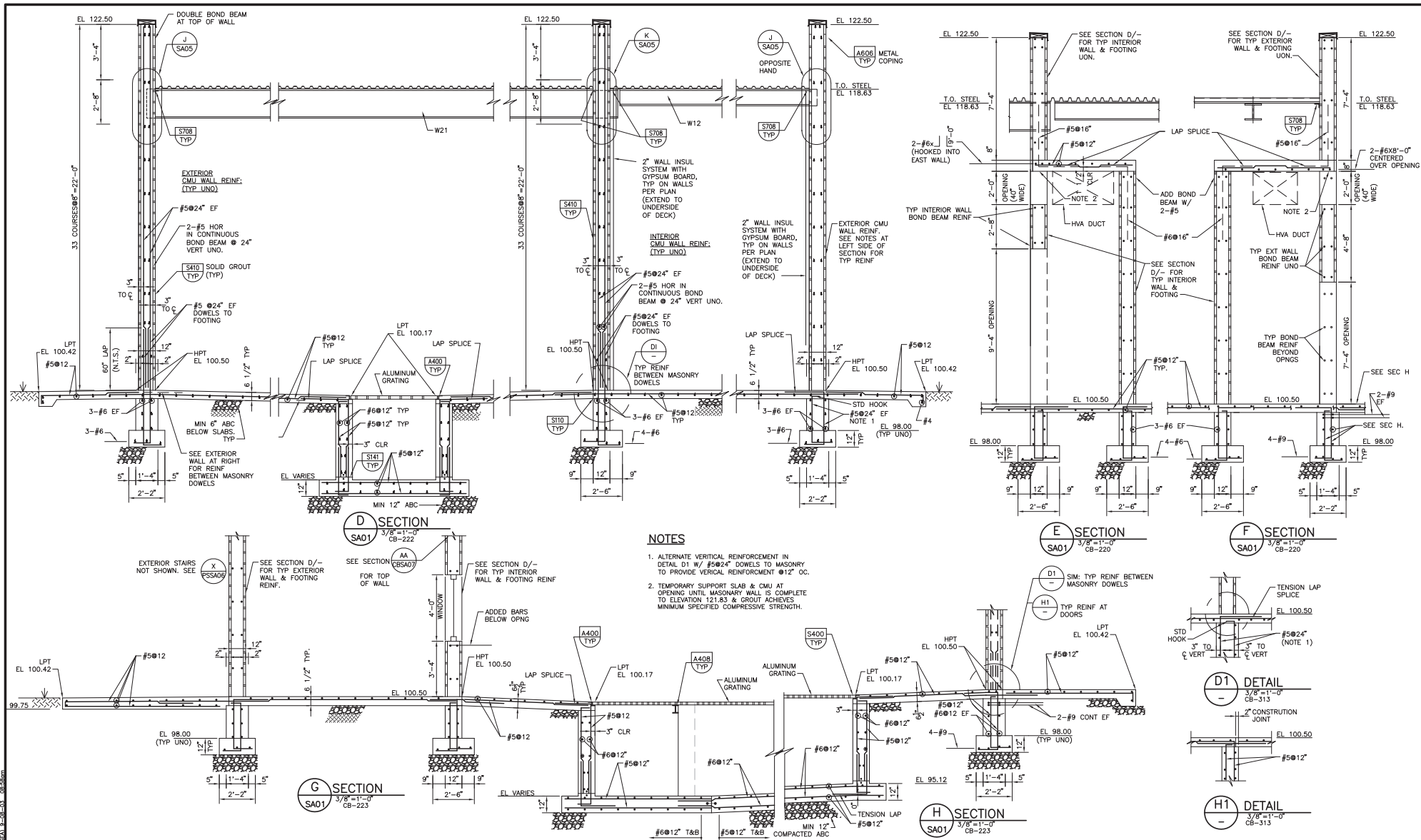


AG SOUTH ELEVATION
1/8" = 1'-0"
CB-400

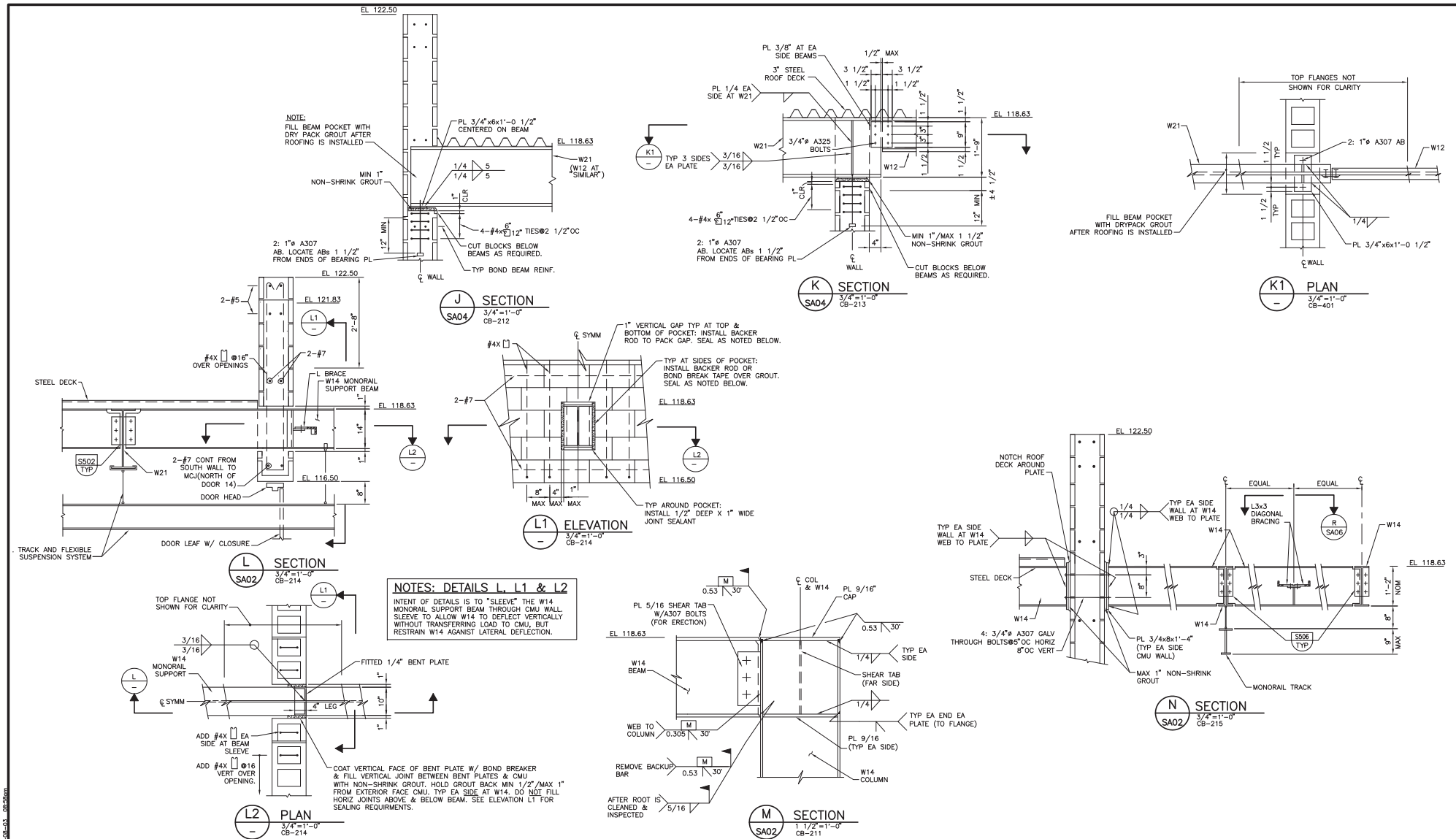
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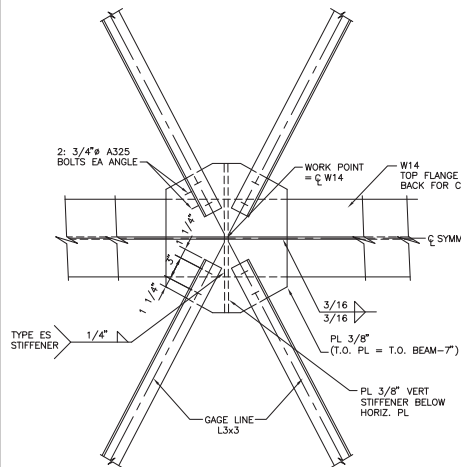


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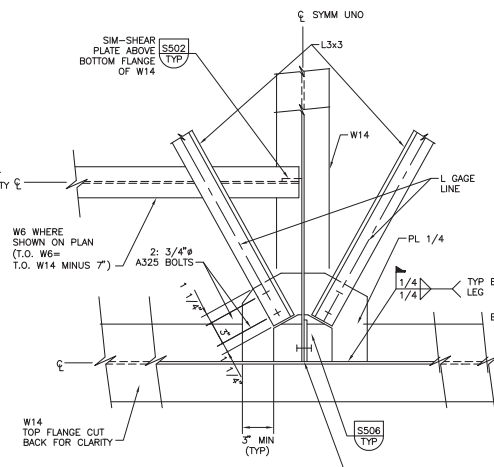


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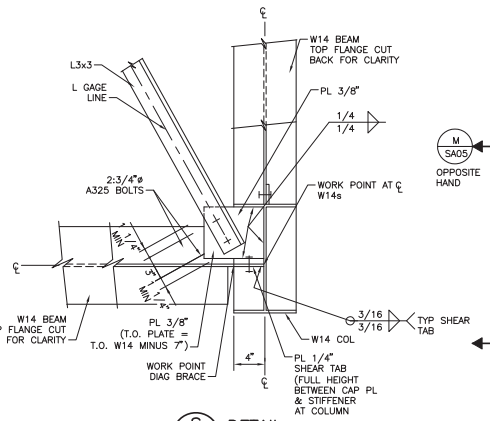
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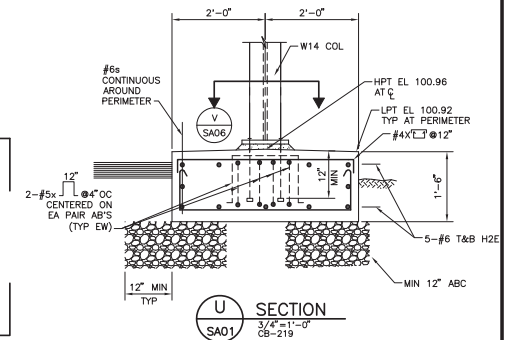
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SA02
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CB-312



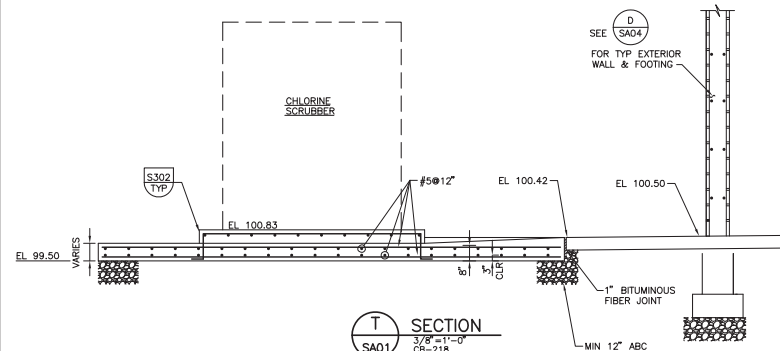
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CB-310



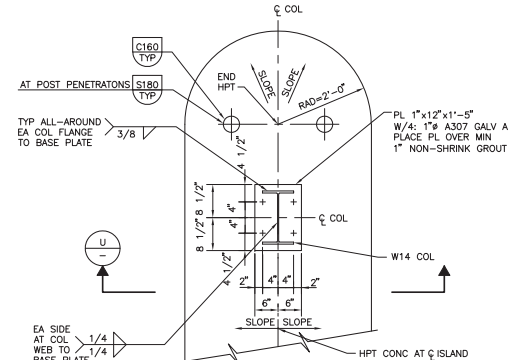
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CB-311



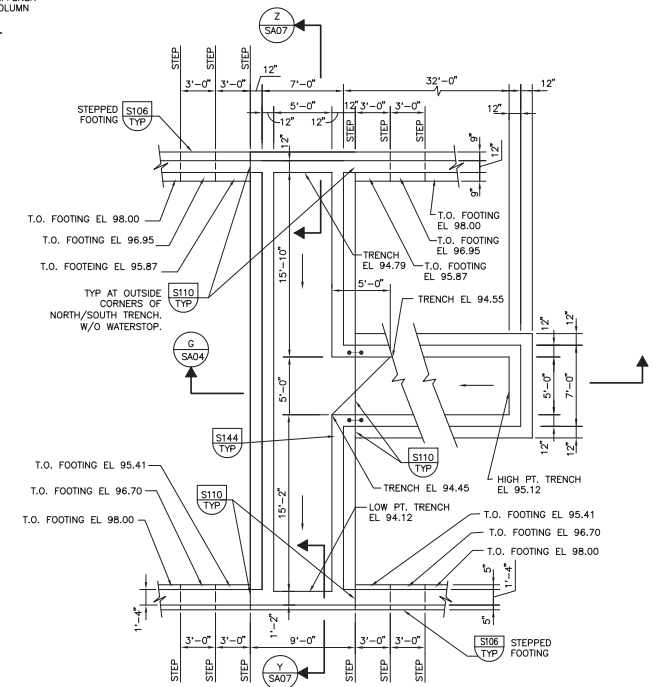
U
SA01
3/4" = 1'-0"
CB-219



T
SA01
3/8" = 1'-0"
CB-218



V
SA01
3/2" = 1'-0"
CB-309

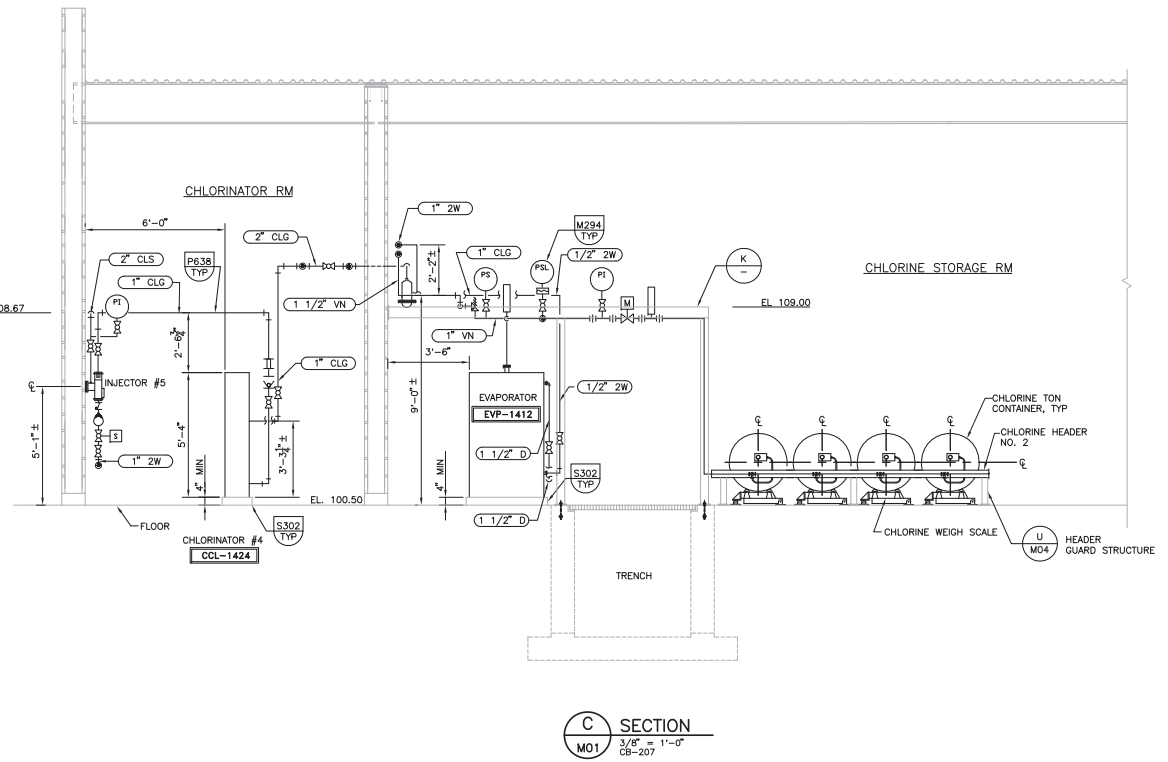





W
SA01
3/16" = 1'-0"
CB-103

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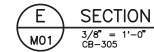
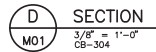
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1. NOT ALL VALVES AND FITTINGS SHOWN FOR CLARITY. CONTRACTOR SHALL REFER DRAWINGS CB-M05 AND CB-M06 FOR ADDITIONAL INFO AND SHALL PROVIDE AS REQ'D.
2. ALL CHLORINE LIQUID PIPING SHALL BE SCH 80 SEAMLESS STEEL.
3. ALL CHLORINE GAS VACUUM PIPING AND SOLUTION PIPING SHALL BE SCH 80 CPVC.
4. NO. 2 WATER PIPING SHALL BE CPVC.
5. CONTRACTOR TO PROVIDE PIPE SUPPORTS FOR ALL PIPING.

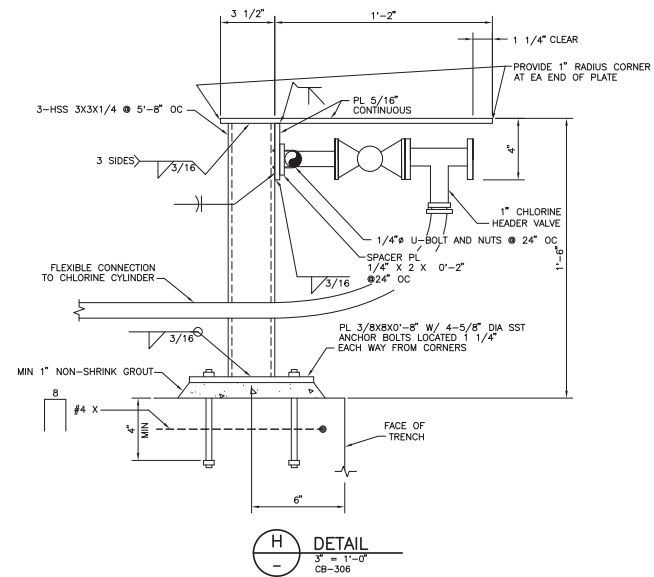
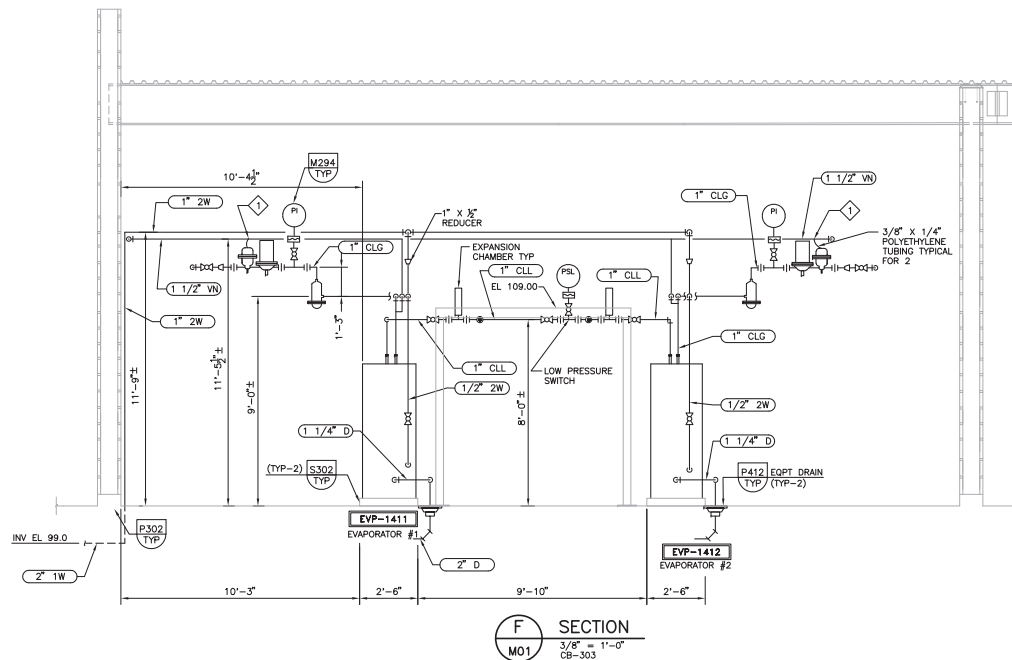
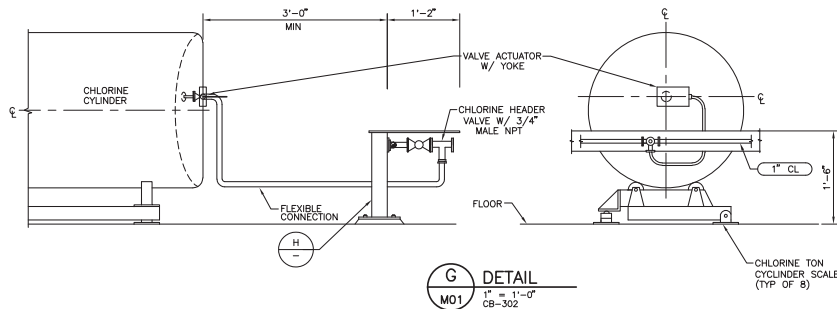


			RECORD DRAWING THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS. THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE.		DESIGNED MJS DRAWN DPR CHECKED SPK/WMP DATE	DISCIPLINE ENGINEER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **	PROJECT ENGINEER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **	PARTNER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **			WATER QUALITY CONTROL FACILITY TREATMENT FACILITIES IMPROVEMENT PROJECT MECHANICAL CHLORINE BUILDING SECTION AND DETAILS - 1	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING  1" IF NOT ONE INCH ON THIS DATE, ADJUST SCALES ACCORDINGLY	JOB NO. 6324A.10 DRAWING NO. CB-M02 SHEET NO. 169 OF 397	
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1. NOT ALL VALVES AND FITTINGS SHOWN FOR CLARITY, CONTRACTOR SHALL REFER DRAWINGS CB-M05 AND CB-M06 FOR ADDITIONAL INFO AND SHALL PROVIDE AS REQ'D.
2. ALL CHLORINE GAS VACUUM PIPING AND SOLUTION PIPING SHALL BE SCH 80 CPVC.
3. NO. 2 WATER PIPING SHALL BE CPVC.
4. CONTRACTOR TO PROVIDE PIPE SUPPORTS FOR ALL PIPING.



			RECORD DRAWING THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED ON THE INFORMATION PROVIDED BY OTHERS. THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE.		DESIGNED M/S DRAWN DPR CHECKED SPR/MP DATE SEPTEMBER, 2003		DISCIPLINE ENGINEER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **		PROJECT ENGINEER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **		PARTNER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **		 carollo engineers		117 OF 120 sheets		STANISLAUS COUNTY, CALIFORNIA		WATER QUALITY CONTROL FACILITY TREATMENT FACILITIES IMPROVEMENT PROJECT		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS DATE, ADJUST SCALES ACCORDINGLY		JOB NO. 6324A.10 DRAWING NO. CB-M03 SHEET NO. 170 OF 397	
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NOTES

1. NOT ALL VALVES, PIPING AND CONNECTIONS ARE SHOWN FOR CLARITY. CONTRACTOR SHALL REFER TO THE DRAWINGS CB-M05 AND CB-M06 FOR ADDITIONAL INFORMATION, AND SHALL PROVIDE AS REQUIRED.
2. ALL CHLORINE LIQUID AND GAS VACUUM PIPING SHALL BE SCH-80 SEAMLESS STEEL WITH 3,000 LB. FORGED STEEL FITTING.
3. ALL CHLORINE SOLUTION PIPING SHALL BE SCH 80 CPVC.
4. NO. 2 WATER PIPING SHALL BE COPPER PIPING.
5. CONTRACTOR TO PROVIDE PIPE SUPPORTS FOR ALL PIPING.

KEY NOTES

- ◇ POLYETHYLENE TUBING TIES INTO PVC VENT PIPE.

RECORD DRAWING

THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS. THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE.

DESIGNED
MJS
DRAWN
DPR
CHECKED
SPR/IMP
DATE
SEPTEMBER, 2003

DISCIPLINE
ENGINEER

PROJECT ENGINEER

PARTNER

ORIGINAL
STAMPED BY
MICHAEL J. BRITTEN

carollo
engineers

Turlock
INC 1908

STANISLAUS COUNTY, CALIFORNIA

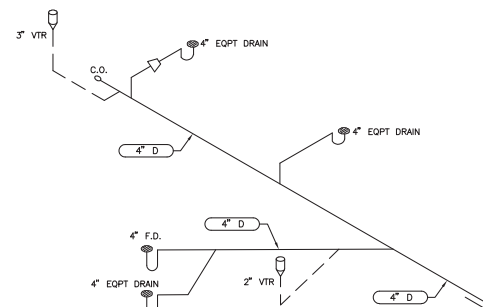
WATER QUALITY CONTROL FACILITY
TREATMENT FACILITIES IMPROVEMENT PROJECT
MECHANICAL
CHLORINE BUILDING
SECTIONS AND DETAILS - 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

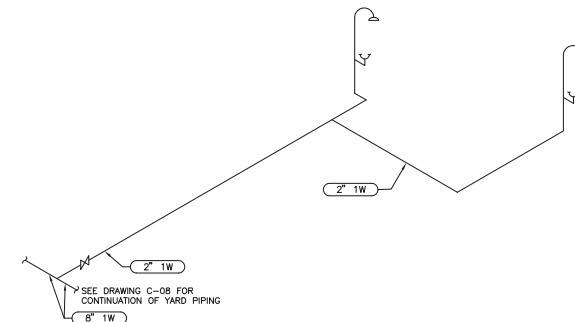
JOB NO.
6324A.10
DRAWING NO.
CB-M04
SHEET NO.
171 OF 397

NOTES

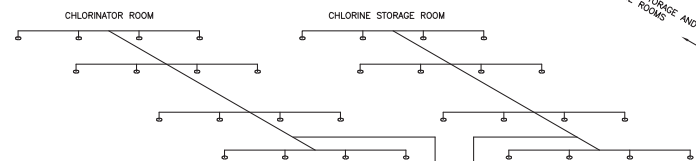
CONTRACTOR SHALL INSTALL PLUMBING IN ACCORDANCE WITH ALL APPLICABLE PLUMBING CODES.



SANITARY FLOOR DRAIN PLUMBING SCHEMATIC
N.T.S.



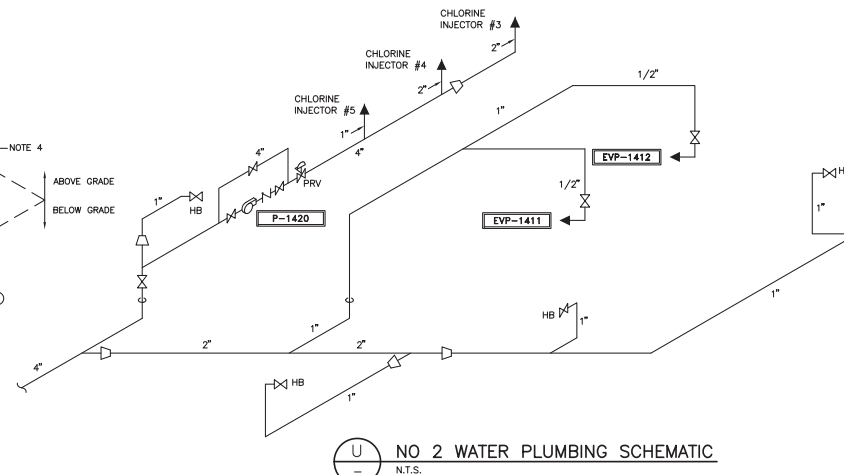
NO. 1 WATER PLUMBING SCHEMATIC
N.T.S.



NOTES

- CONTRACTOR IS RESPONSIBLE TO DESIGN, FINISH, INSTALL, AND MAKE OPERABLE A COMPLETE FIRE SPRINKLER SYSTEM FOR THE CHLORINE BUILDING. SEE SPEC. SECTION 13852A, FIRE SYSTEM PROTECTION.
- FIRE PROTECTION WILL BE SUPPLIED TO THE ENTIRE CHLORINE STORAGE ROOM AND CHLORINATOR ROOM.
- THE SYSTEM SHALL CONFORM TO THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
- INSTALL EQUIPMENT ON A 16' X 20' X 12" THICK CONCRETE PAD PROVIDED #5@12" E.W., T&B REINFORCEMENT.

AUTOMATIC FIRE SPRINKLER PIPING SCHEMATIC
N.T.S.



NO. 2 WATER PLUMBING SCHEMATIC
N.T.S.

RECORD DRAWING

THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS
THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE

DESIGNED
MJS
DRAWN
DPR
CHECKED
JMP
DATE
SEPTEMBER, 2003

DISCIPLINE
ENGINEER

PROJECT ENGINEER
PARTNER
ORIGINAL
STAMPED BY
MICHAEL J. BRITTEN
**

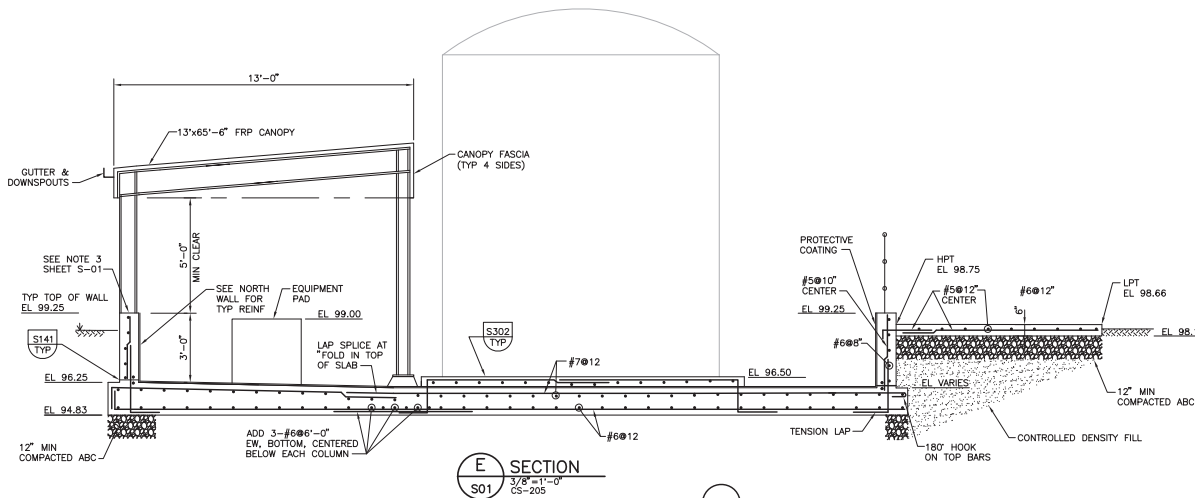


STANISLAUS COUNTY, CALIFORNIA

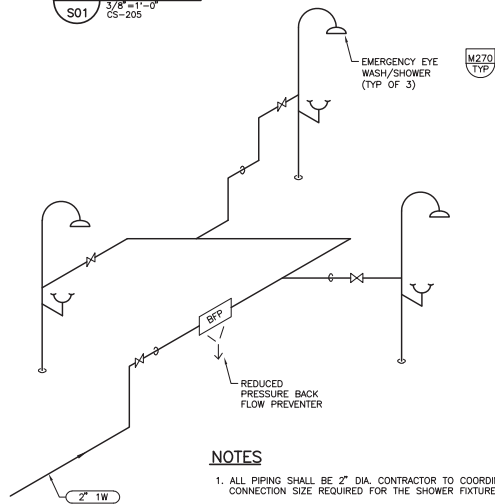
WATER QUALITY CONTROL FACILITY
TREATMENT FACILITIES IMPROVEMENT PROJECT
MECHANICAL
CHLORINE BUILDING
PLUMBING ISOMETRIC SCHEMATIC DIAGRAMS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1" 2"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
6324A.10
DRAWING NO.
CB-M08
SHEET NO.
175 OF 397



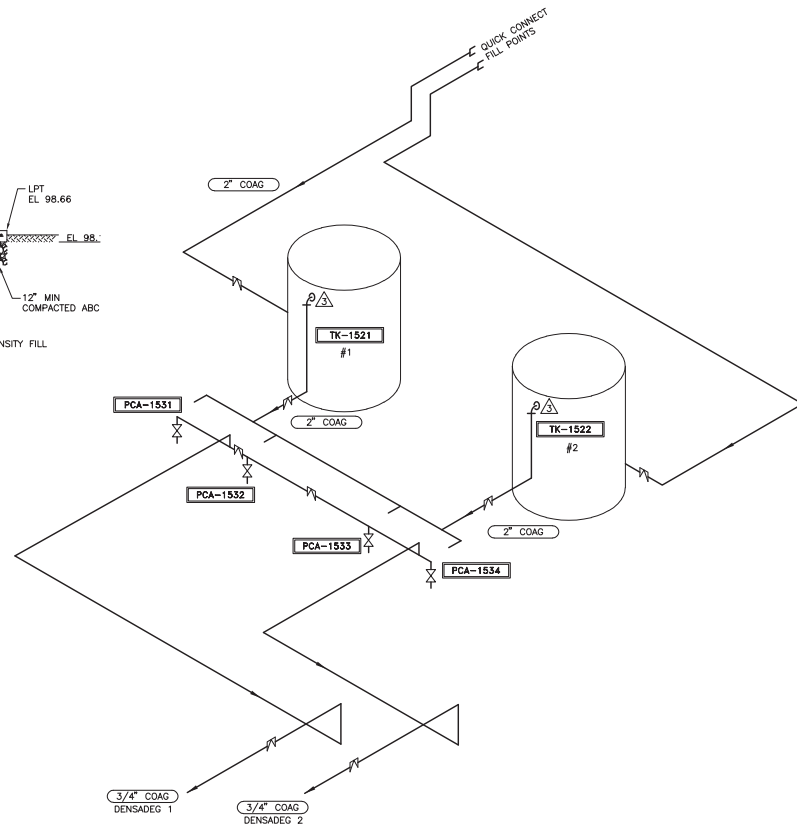
E SECTION
S01
3/8"=1'-0"
CS-205



F
M01
N.T.S.
CS-106

NOTES

1. ALL PIPING SHALL BE 2" DIA. CONTRACTOR TO COORDINATED CONNECTION SIZE REQUIRED FOR THE SHOWER FIXTURE.
2. ALL EXPOSED 1W PIPING SHALL BE INSULATED AND PAINTED.



G
M01
N.T.S.
CS-108

COAGULANT FEED SYSTEM ISOMETRIC DIAGRAM

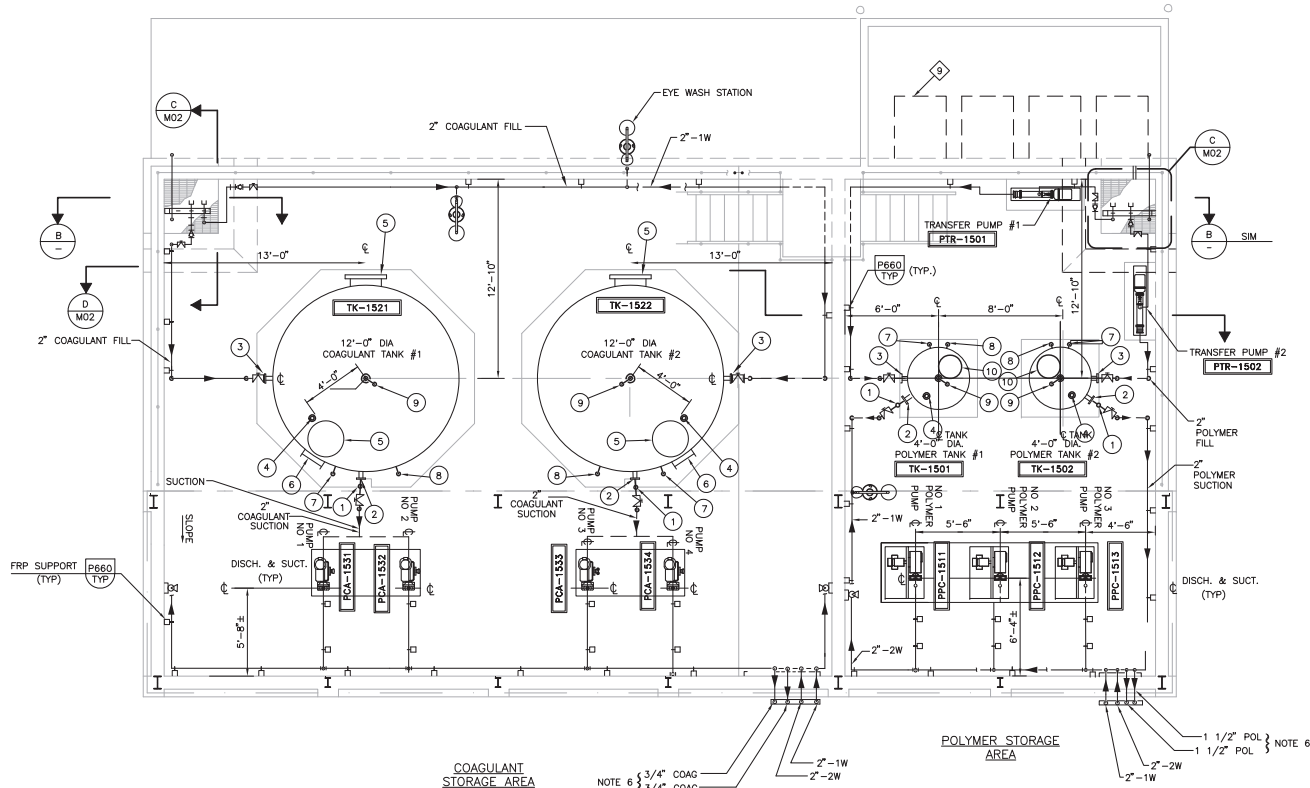
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THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS				GLS				SLS				CAG/IMP				SEPTEMBER, 2003			
THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE				DESIGNED BY				DRAWN BY				CHECKED BY				DATE			
REV				DATE				BY				DESCRIPTION							



STANISLAUS COUNTY, CALIFORNIA

WATER QUALITY CONTROL FACILITY
TREATMENT FACILITIES IMPROVEMENT PROJECT
STRUCTURAL AND MECHANICAL
CHEMICAL STORAGE FACILITY
SECTIONS

VERIFY SCALES		JOB NO.	
BAR IS ONE INCH ON ORIGINAL DRAWING		6324A.10	
0 1"		DRAWING NO.	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		CS-S02	
		SHEET NO.	
		177 OF 397	



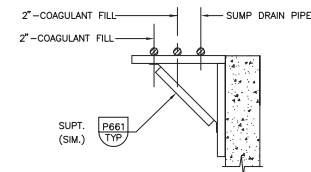
(A) CHEMICAL STORAGE FACILITY -- PLAN
1/4" = 1'-0"
PB-100

KEY NOTES

- 1 NOT ALL VALVING, PIPING, AND FLUSHING CONNECTIONS ARE SHOWN. CONTRACTOR SHALL REFER TO THE SCHEMATIC DWGS FOR ADDITIONAL INFORMATION, AND SHALL PROVIDE AS REQUIRED.
- 2 TANKS FITTINGS SHALL BE PER TYPICAL DETAIL **M002 TYP**.
- 3 ALL SUPPORTS INSIDE THE CONTAINMENT AREAS SHALL BE FRP.
- 4 SEE DRAWING C-08 FOR CONTINUATION OF PIPING LEAVING AND ENTERING THE CONTAINMENT AREAS.
- 5 SLOPE COAGULANT SUCTION LINES TOWARDS THE PUMPS SUCTION 1/8" PER FOOT.
- 6 ALL CHEMICAL SOLUTION PIPING UNDER GROUND SHALL BE DOUBLE-WALL.
- 7 SEE **(E) M02** FOR 2W SUPPLY PIPING ISOMETRIC.
- 8 SEE **(F) S02** FOR 1W SUPPLY PIPING ISOMETRIC.
- 9 POLYMER TOTE ARE FURNISHED BY OWNER.
- 10 SEE **(G) S02** FOR COAGULANT FEED SYSTEM ISOMETRIC DIAGRAM.

COAGULANT TANK FITTINGS

- 1 DRAIN
- 2 SUCTION
- 3 FILL
- 4 ULTRASONIC LEVEL SENSOR
- 5 SIDEWALK MANWAY
- 6 LADDER
- 7 SIGHT LEVEL GAUGE
- 8 OVERFLOW
- 9 MUSHROOM TYPE VENT
- 10 ROOF MANWAY

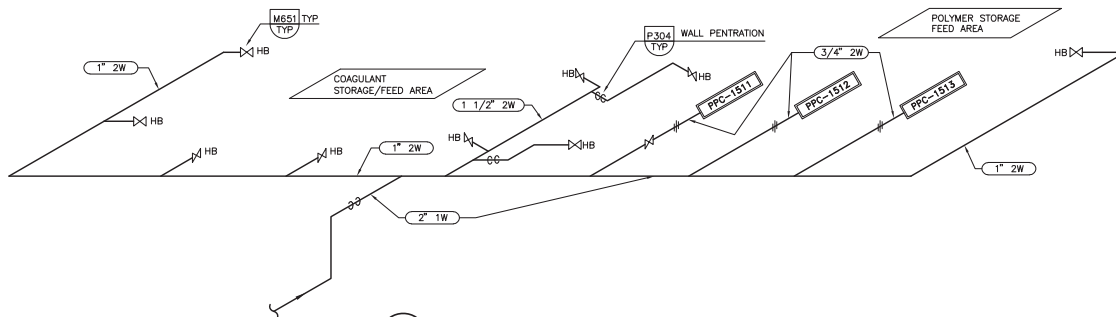


NOTE : NOT ALL PIPING SHOWN FOR CLARITY

(B) SECTION--PIPE SUPPORT
N.T.S.

\\sls-swamp-bu-john.chapman (SEA) 8-28-03 09:24am

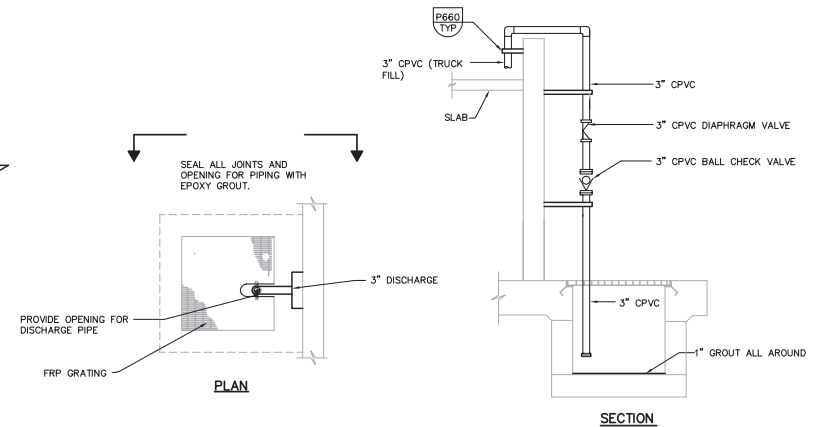
RECORD DRAWING				DESIGNED				DRAWN				CHECKED				DATE				DESCRIPTION			
THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS				SMV				DPR				JMP				SEPTEMBER, 2003				THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE			
REV	DATE	BY		DESIGNED	SMV	DRAWN	DPR	CHECKED	JMP	DATE	SEPTEMBER, 2003	DESCRIPTION											
FILENAME: H:\Client\Turlock_WCD\6324A.30\Drawings\Conform_Dwg\M-15M01C 4-19-07 10:53am NPaper XREFS: CS-104; PB-100; M02; G-BDRG				PROJECT ENGINEER				PARTNER				ORIGINAL STAMPED BY MICHAEL J. BRITTEN				CAROLLO ENGINEERS				CITY OF TURLOCK INC 1998			
																				WATER QUALITY CONTROL FACILITY			
																				TREATMENT FACILITIES IMPROVEMENT PROJECT			
																				MECHANICAL			
																				CHEMICAL STORAGE FACILITY			
																				PLAN & SECTION			
																				VERIFY SCALES			
																				JOB NO. 6324A.10			
																				DRAWING NO. CS-M01			
																				SHEET NO. 178 OF 397			



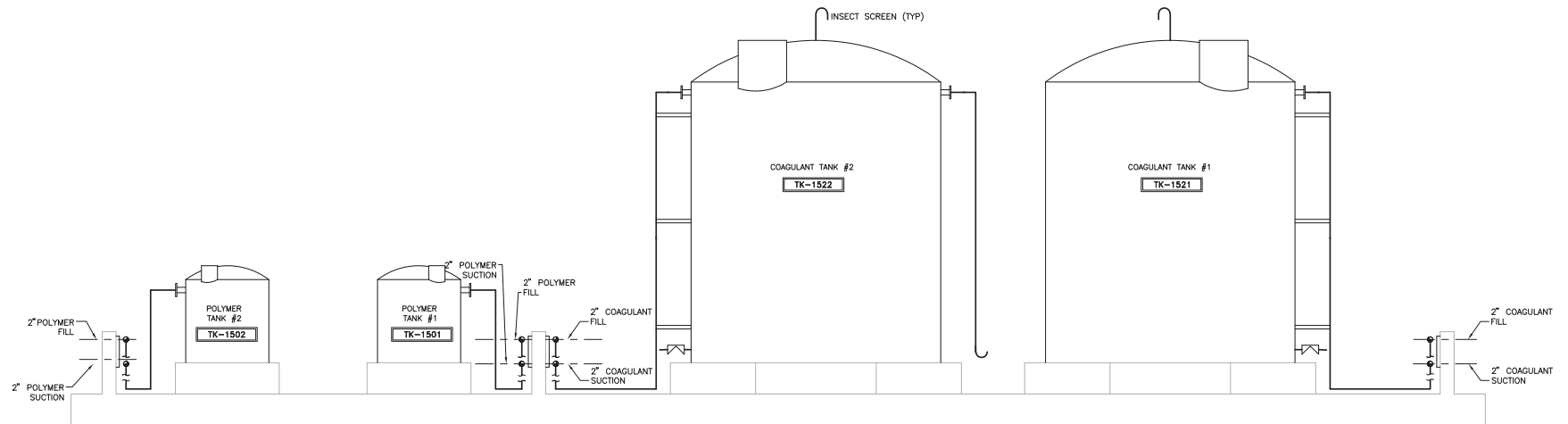
E 2W PIPING - ISOMETRIC SCHEMATIC
N.T.S.
CS-107

NOTES:



1. PUMP ASSEMBLY TO BE PRE-ASSEMBLED AND INSTALLED BY CONTRACTOR.
2. FINAL CONFIGURATION OF SKID COMPONENTS MAY BE DIFFERENT ARRANGEMENT.

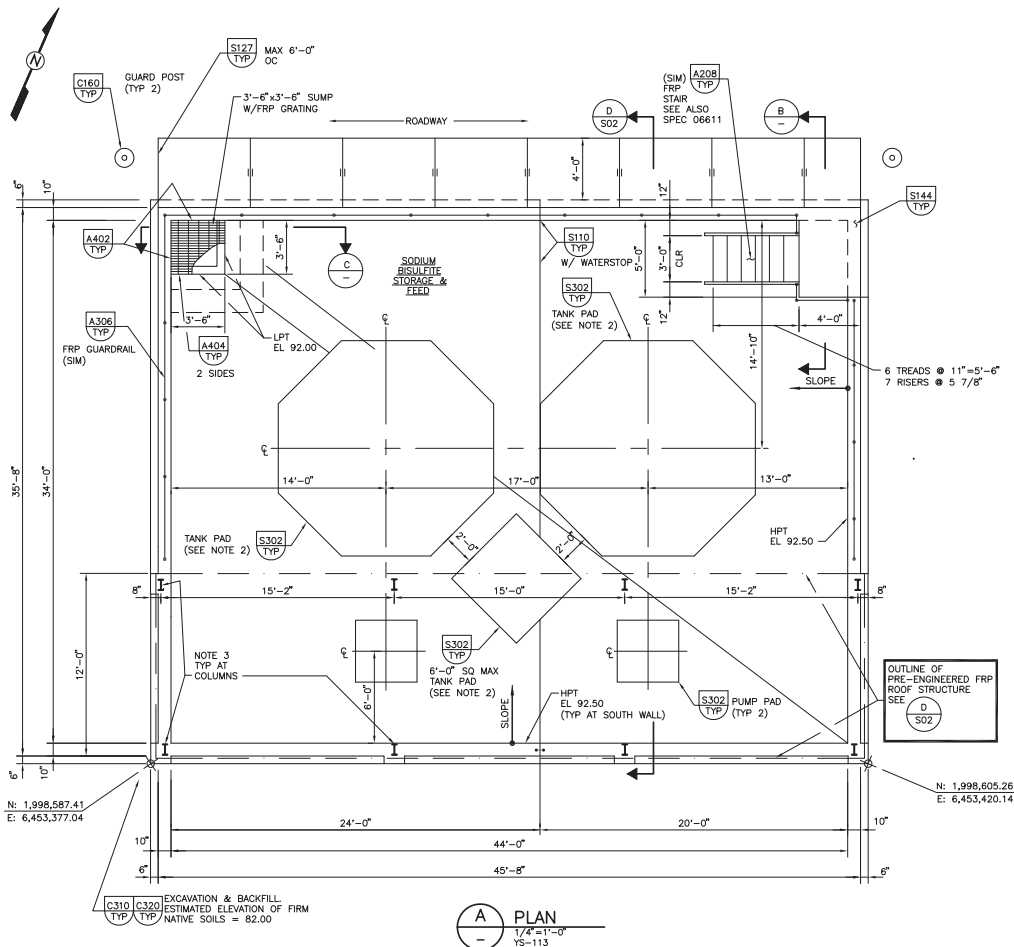


C SUMP DRAIN DETAIL
M01 N.T.S.
CS-102

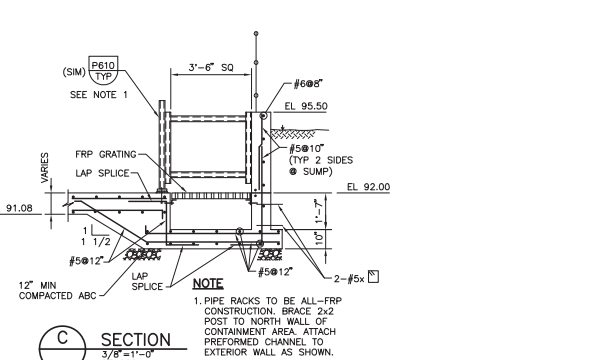
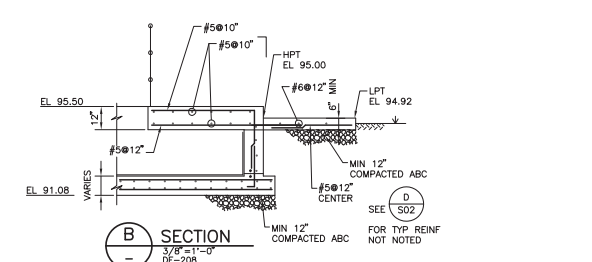


D SECTION
M01 N.T.S.
CS-202

<div>RECORD DRAWING</div> <div>THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS</div> <div>THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE</div>			<div>DESIGNED</div> <div>MJS</div> <div>DRAWN</div> <div>NLG</div> <div>CHECKED</div> <div>JMP</div> <div>DATE</div> <div>SEPTEMBER, 2003</div>	<div>DISCIPLINE ENGINEER</div> <div>** ORIGINAL</div> <div>STAMPED BY</div> <div>MICHAEL J. BRITTEN</div> <div>**</div>	<div>PROJECT ENGINEER</div>	<div>PARTNER</div> <div>** ORIGINAL</div> <div>STAMPED BY</div> <div>MICHAEL J. BRITTEN</div> <div>**</div>	<div></div> <div>carollo</div> <div>engineers</div>	<div></div> <div>STANISLAUS COUNTY, CALIFORNIA</div>	<div>WATER QUALITY CONTROL FACILITY</div> <div>TREATMENT FACILITIES IMPROVEMENT PROJECT</div> <div>MECHANICAL</div> <div>CHEMICAL STORAGE FACILITY</div> <div>SECTIONS & DETAILS 1</div>	<div>VERIFY SCALES</div> <div>BAR IS ONE INCH ON ORIGINAL DRAWING</div> <div>0 1"</div> <div>IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY</div>	<div>JOB NO.</div> <div>6324A.10</div> <div>DRAWING NO.</div> <div>CS-M02</div> <div>SHEET NO.</div> <div>179 OF 397</div>
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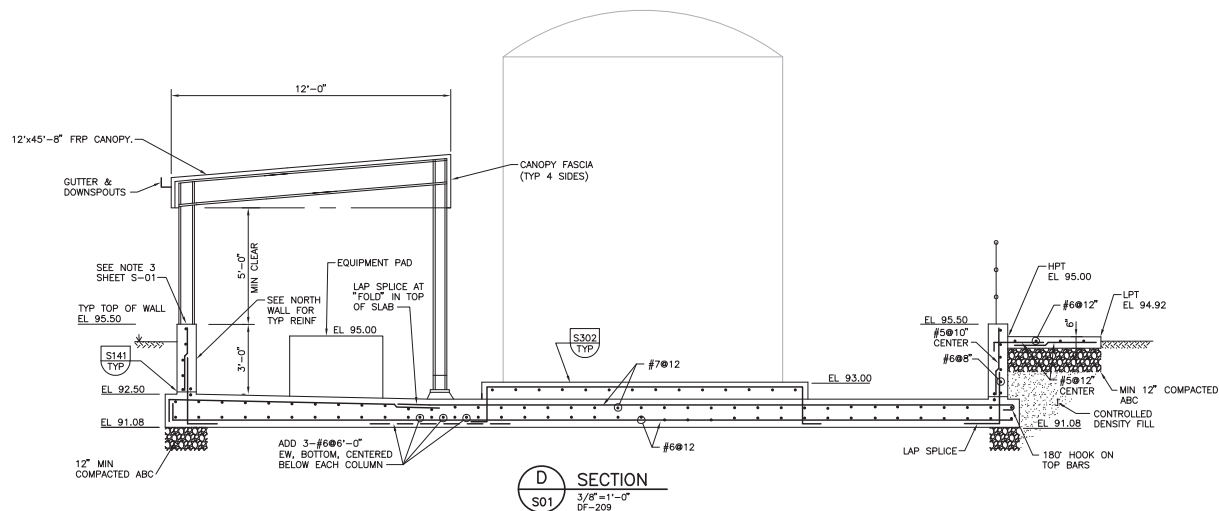
- ### NOTES
- DESIGN CRITERIA:
1998 CALIFORNIA BUILDING CODE (MODIFIED UBC)
WIND: 70 MPH, EXPOSURE C
SEISMIC: ZONE 3
SOIL PROFILE: S_D
C_u=0.38 C_v=0.54
IMPORTANCE FACTOR I=1.0
 - TANK PADS MAY EXCEED MAXIMUM DIMENSIONS INDICATED. ACTUAL TANK PAD DIMENSIONS SHALL BE AS RECOMMENDED BY TANK MANUFACTURER AND SIZED TO PROVIDE REQUIRED ANCHOR BOLT EDGE DISTANCES.
 - CONFIRM COLUMN BASE REQUIREMENTS FOR PRE-ENGINEERED FRP CANOPY. CONCRETE PILASTERS AND FOOTING EXTENSIONS MAY BE REQUIRED TO PROVIDE ADEQUATE COLUMN BEARING & ANCHOR BOLT EDGE DISTANCE. CONTACT ENGINEER FOR DETAILS IF REQD (PILASTER TO PROJECT FROM OUTSIDE FACE OF CONTAINMENT).
 - CONCRETE SEALANTS FOR JOINTS BELOW ELEVATION 99.50 SHALL BE POLYSULFIDE RUBBER SEALING COMPOUND. SEE SECTION 07900.



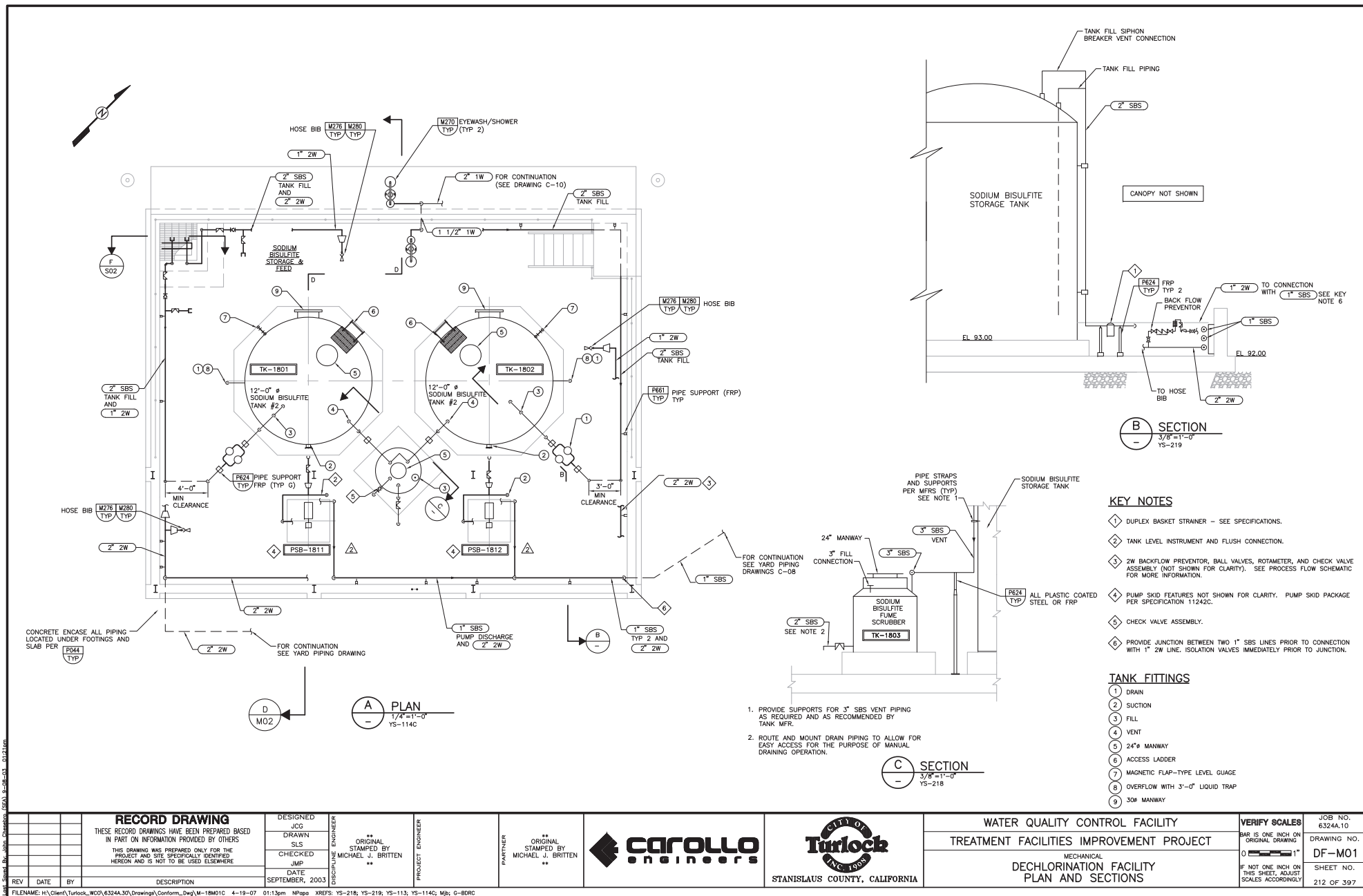
A PLAN
1/4"=1'-0"
YS-113

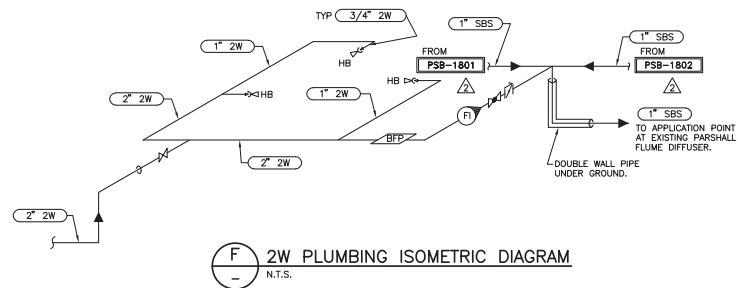
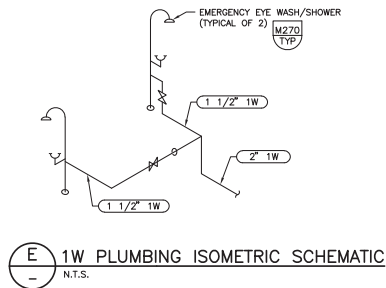
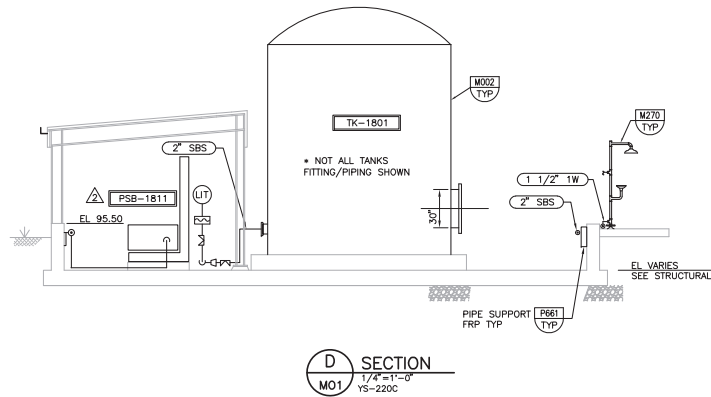
RECORD DRAWING THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE				DESIGNED JDG DRAWN SLS CHECKED GAG DATE SEPTEMBER, 2003	DESIGNER ENGINEER ** ORIGINAL STAMPED BY GARY L. SAGEHORN **	PROJECT ENGINEER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **	PARTNER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **			WATER QUALITY CONTROL FACILITY TREATMENT FACILITIES IMPROVEMENT PROJECT STRUCTURAL DECHLORINATION FACILITY PLANS AND SECTIONS	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 63244.10 DRAWING NO. DF-S01 SHEET NO. 210 OF 397
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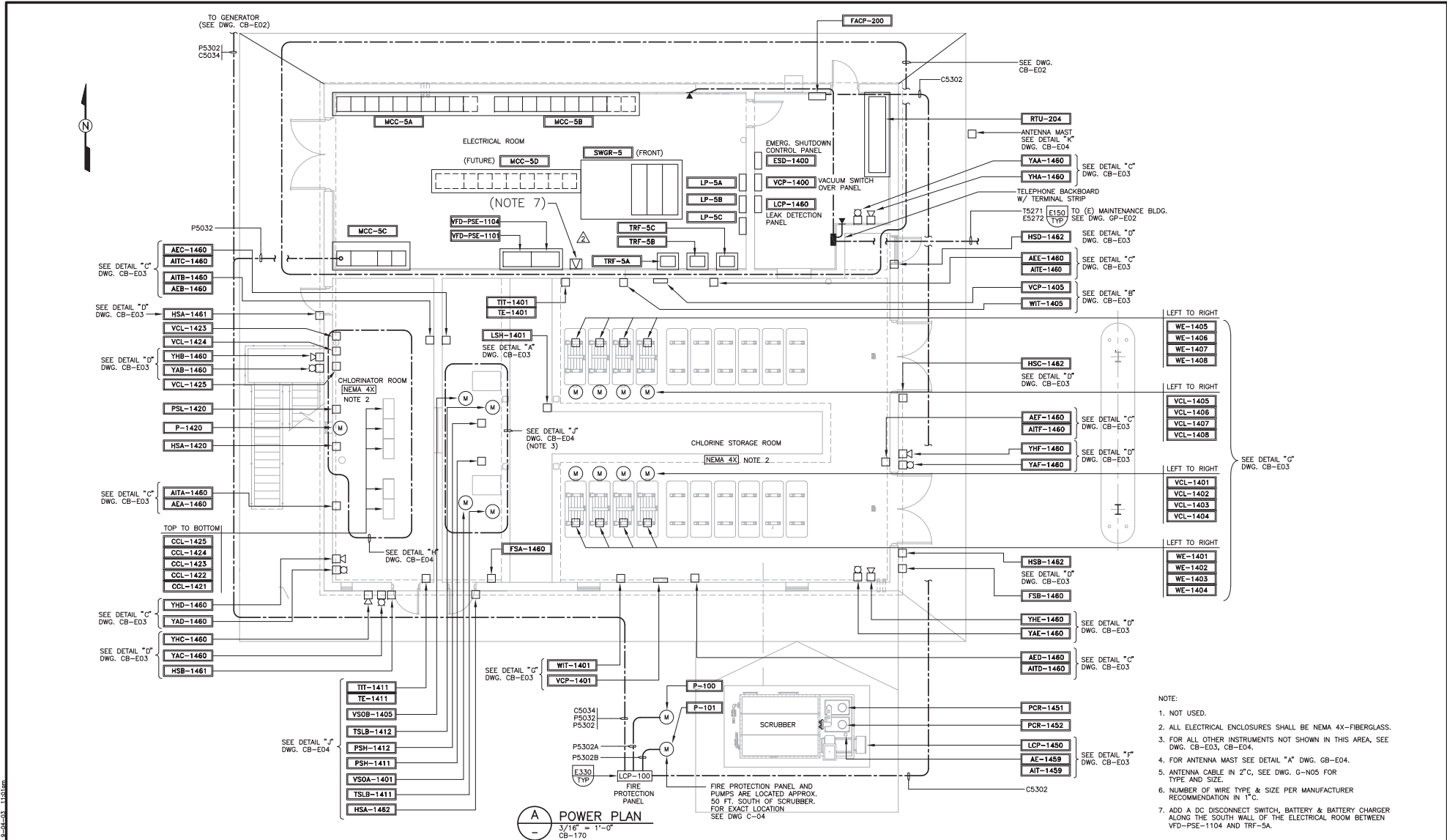


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<div><div>RECORD DRAWING</div><div>THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS</div><div>THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE</div></div>				<div>DESIGNED JCG</div> <div>DRAWN DMM</div> <div>CHECKED JMP</div> <div>DATE SEPTEMBER, 2003</div>	<div>DISCIPLINE ENGINEER</div> <div>** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **</div>	<div>PROJECT ENGINEER</div> <div>** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **</div>	<div>PARTNER</div> <div>** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **</div>	<div></div> <div>CAROLLO ENGINEERS</div>	<div></div> <div>STANISLAUS COUNTY, CALIFORNIA</div>	<div>WATER QUALITY CONTROL FACILITY</div> <div>TREATMENT FACILITIES IMPROVEMENT PROJECT</div> <div>MECHANICAL</div> <div>DECHLORINATION FACILITY SECTIONS AND DETAILS</div>	<div>VERIFY SCALES</div> <div>BAR IS ONE INCH ON ORIGINAL DRAWING</div> <div>0 1"</div> <div>IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY</div>	<div>JOB NO. 6324A.10</div> <div>DRAWING NO. DF-M02</div> <div>SHEET NO. 213 OF 397</div>
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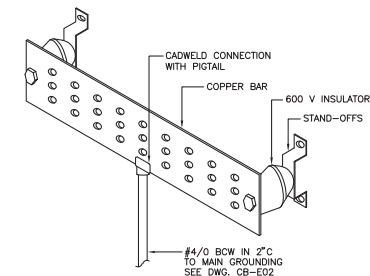
- NOTE:
1. NOT USED.
 2. ALL ELECTRICAL ENCLOSURES SHALL BE NEMA 4X-FIBERGLASS.
 3. FOR ALL OTHER INSTRUMENTS NOT SHOWN IN THIS AREA, SEE DWG. CB-E03, CB-E04.
 4. FOR ANTENNA MAST SEE DETAIL "A" DWG. GB-E04.
 5. ANTENNA CABLE IN 2" C, SEE DWG. G-N05 FOR TYPE AND SIZE.
 6. NUMBER OF WIRE TYPE & SIZE PER MANUFACTURER RECOMMENDATION IN 1" C.
 7. ADD A DC DISCONNECT SWITCH, BATTERY & BATTERY CHARGER ALONG THE SOUTH WALL OF THE ELECTRICAL ROOM BETWEEN VFD-PSE-1104 AND TRF-5A.

RECORD DRAWING THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE				DESIGNED CC DRAWN DPR/BOG CHECKED RP/RJB DATE SEPTEMBER, 2003	DISCIPLINE ENGINEER ** ORIGINAL STAMPED BY RICHARD J. BORKE	PROJECT ENGINEER	PARTNER ** ORIGINAL STAMPED BY MICHAEL J. BRITTEN			WATER QUALITY CONTROL FACILITY TREATMENT FACILITIES IMPROVEMENT PROJECT ELECTRICAL CHLORINE BUILDING AND SCRUBBER FACILITY POWER PLAN	VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0" = 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 6324A.10 DRAWING NO. CB-E01 SHEET NO. 298 OF 397
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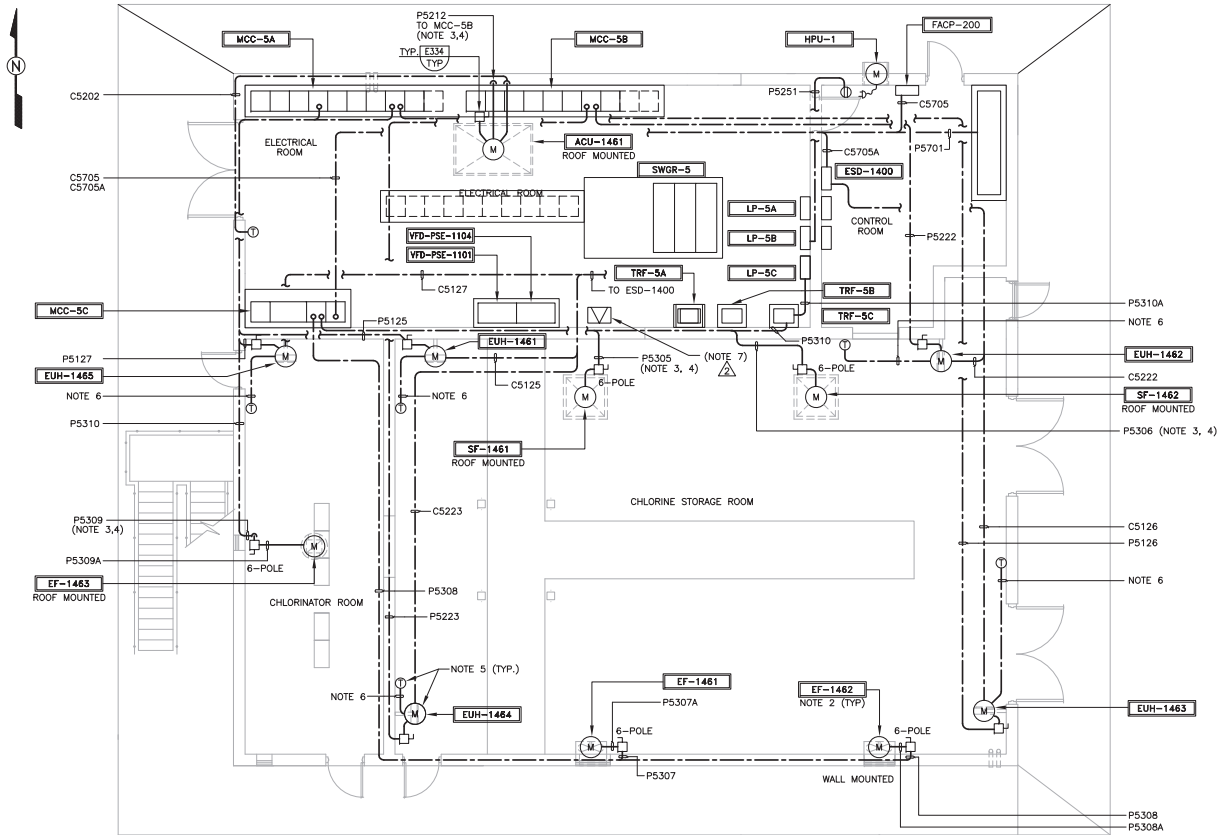
CHLORINE LEAK DETECTORS DETAIL



 BUILDING GROUND BUS ASSEMBLY
NTS

Printed On: Sat, 04 Apr 2003 02:20:00





L HVAC POWER PLAN (NEMA 4X)
 3/16" = 1'-0"
 CB-172

NOTES:

1. PROVIDE CONDUIT OPENING, SEAL AND PAINT TO MATCH ROOF SURFACE.
2. FOR EXACT LOCATION OF EQUIPMENT SEE MECHANICAL DRAWINGS.
3. PROVIDE CONDUIT OPENING, PATCH, SEAL AND PAINT TO MATCH NEW ROOF.
4. ROUTE CONDUIT WITH THE DUCT SYSTEM AND PROVIDE SUPPORT.
5. FOR THERMOSTAT EXACT LOCATION SEE DWG. CB-M08.
6. NUMBER OF WIRES, TYPE AND SIZE PER MANUFACTURER RECOMMENDATION.
7. ADD A DC DISCONNECT SWITCH, BATTERY AND BATTERY CHARGER ALONG THE SOUTH WALL OF THE ELECTRICAL ROOM BETWEEN VFD-PSE-1104 AND TRF-5A.

1444_Sheet_Rev_005_4-17-07 10:30am

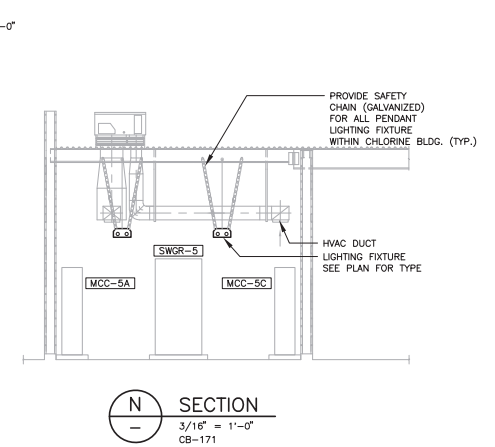
RECORD DRAWING				DESIGNED				DRAWN				CHECKED				DATE				DESCRIPTION			
THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS. THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE.				CC				PMT/BOG				RP/RJB				SEPTEMBER, 2003							
REV				DATE				BY				DESCRIPTION											

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WATER QUALITY CONTROL FACILITY
TREATMENT FACILITIES IMPROVEMENT PROJECT
 ELECTRICAL
CHLORINE BUILDING
HVAC POWER PLAN

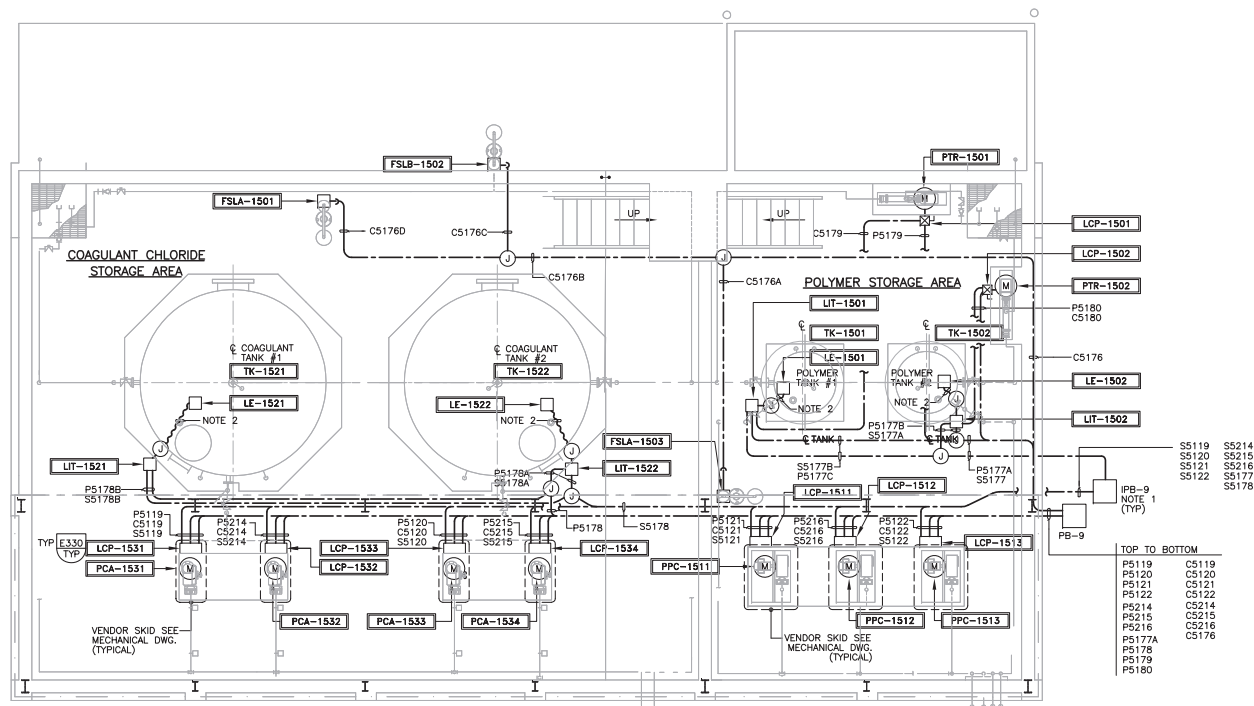
VERIFY SCALES	JOB NO.
BAR IS ONE INCH ON ORIGINAL DRAWING	63244.10
0" = 1"	DRAWING NO. CB-E05
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 302 OF 397



SECTION
3/16" = 1'-0"
CB-171

1. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATION OF HVAC DUCT SYSTEM BEFORE INSTALLATION OF LIGHTING FIXTURE, SEE DWG. CB-M08. LIGHTING FIXTURE SHALL BE MOVED FOR ANY OBSTRUCTION.
2. ANY OBSTRUCTION WITHIN SCRUBBER AREA, MOVE POLE LIGHTING FIXTURE TO A SUITABLE LOCATION.

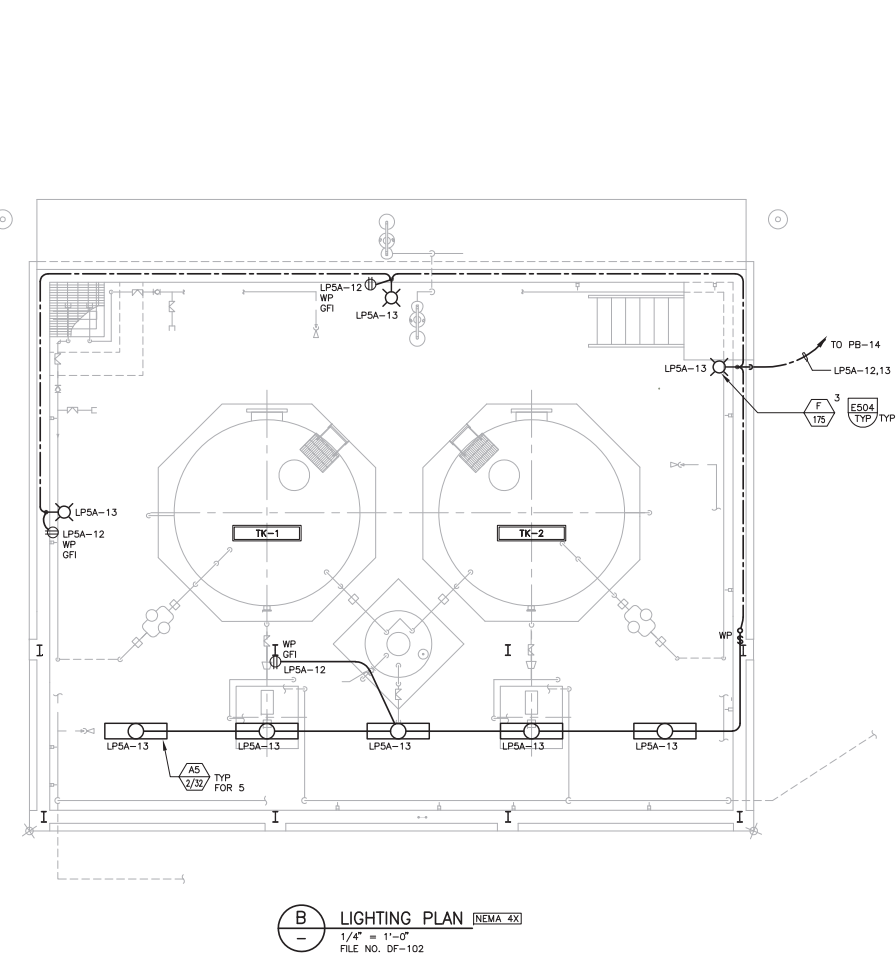
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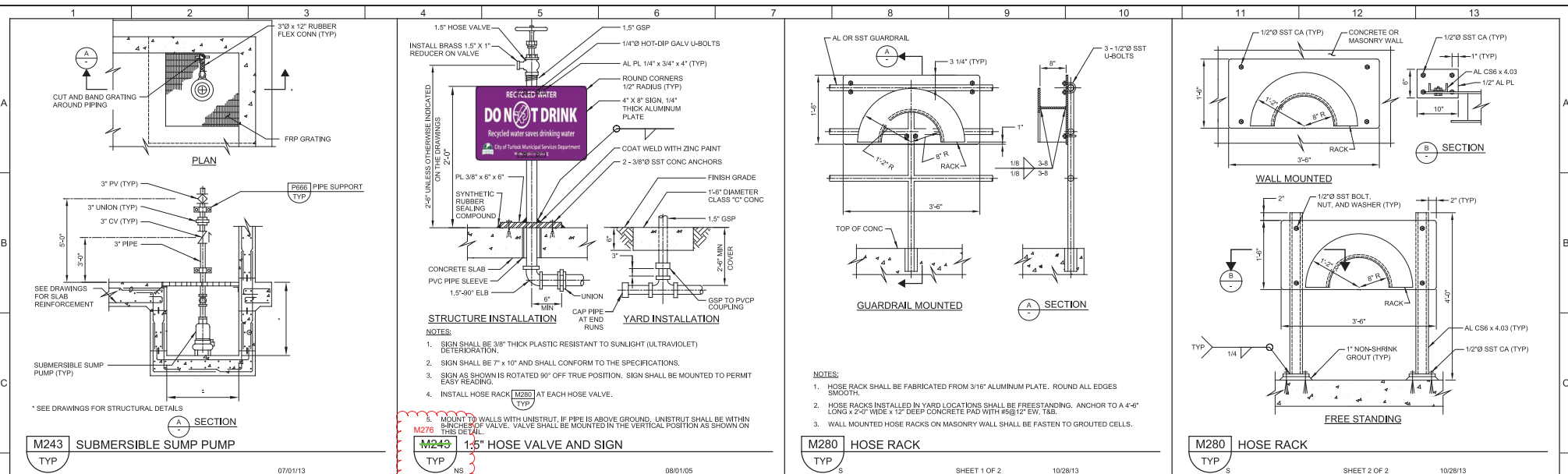
A POWER PLAN (NEMA 4X)
1/4"=1'-0"
CS-171

- NOTES:
1. FOR EXACT LOCATION OF PULL BOXES SEE DWG GP-E03.
 2. NUMBER OF WIRE AND SIZE PER MANUFACTURER RECOMMENDATION IN 1".
 3. ALL ELECTRICAL ENCLOSURES SHALL BE NEMA 4X NON-METALLIC.

<div>RECORD DRAWING</div> <div>THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS</div> <div>THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE</div>										<div>DESIGNED</div> <div>CC</div> <div>DRAWN</div> <div>PMT/BOG</div> <div>CHECKED</div> <div>RP/RJB</div> <div>DATE</div> <div>SEPTEMBER, 2003</div>		<div>DISCIPLINE</div> <div>ENGINEER</div> <div>ORIGINAL</div> <div>STAMPED BY</div> <div>RICHARD J. BORKE</div> <div>**</div>		<div>PROJECT ENGINEER</div> <div>PARTNER</div> <div>ORIGINAL</div> <div>STAMPED BY</div> <div>MICHAEL J. BRITTEN</div> <div>**</div>		<div> carollo engineers</div>		<div> Turlock INC 1908</div>		<div>WATER QUALITY CONTROL FACILITY</div> <div>TREATMENT FACILITIES IMPROVEMENT PROJECT</div> <div>ELECTICAL</div> <div>CHEMICAL STORAGE FACILITY</div> <div>POWER PLAN</div>		<div>VERIFY SCALES</div> <div>BAR IS ONE INCH ON ORIGINAL DRAWING</div> <div>0" = 1"</div> <div>IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY</div>		<div>JOB NO.</div> <div>6324A.10</div> <div>DRAWING NO.</div> <div>CS-E01</div> <div>SHEET NO.</div> <div>306 OF 397</div>	
REV	DATE	BY	DESCRIPTION																						
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<div>RECORD DRAWING</div> <div>THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS</div> <div>THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE</div>				<div>DESIGNED CC DISCIPLINE ENGINEER</div> <div>DRAWN JBG/BOG</div> <div>CHECKED RPJ/RJB</div> <div>DATE September, 2003</div>		<div>** ORIGINAL STAMPED BY RICHARD J. BORKE **</div>		<div>PROJECT ENGINEER</div>		<div>** ORIGINAL STAMPED BY MICHAEL J. BRITTEN **</div>		<div>PARTNER</div>		<div></div>		<div></div>		<div>WATER QUALITY CONTROL FACILITY</div> <div>TREATMENT FACILITIES IMPROVEMENT PROJECT</div> <div>ELECTRICAL</div> <div>DECHLORINATION FACILITY</div> <div>POWER AND LIGHTING PLAN</div>				<div>VERIFY SCALES</div> <div>BAR IS ONE INCH ON ORIGINAL DRAWING</div> <div>0  1"</div> <div>IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY</div>		<div>JOB NO. 6324A.10</div> <div>DRAWING NO. DF-E01</div> <div>SHEET NO. 308 OF 397</div>	
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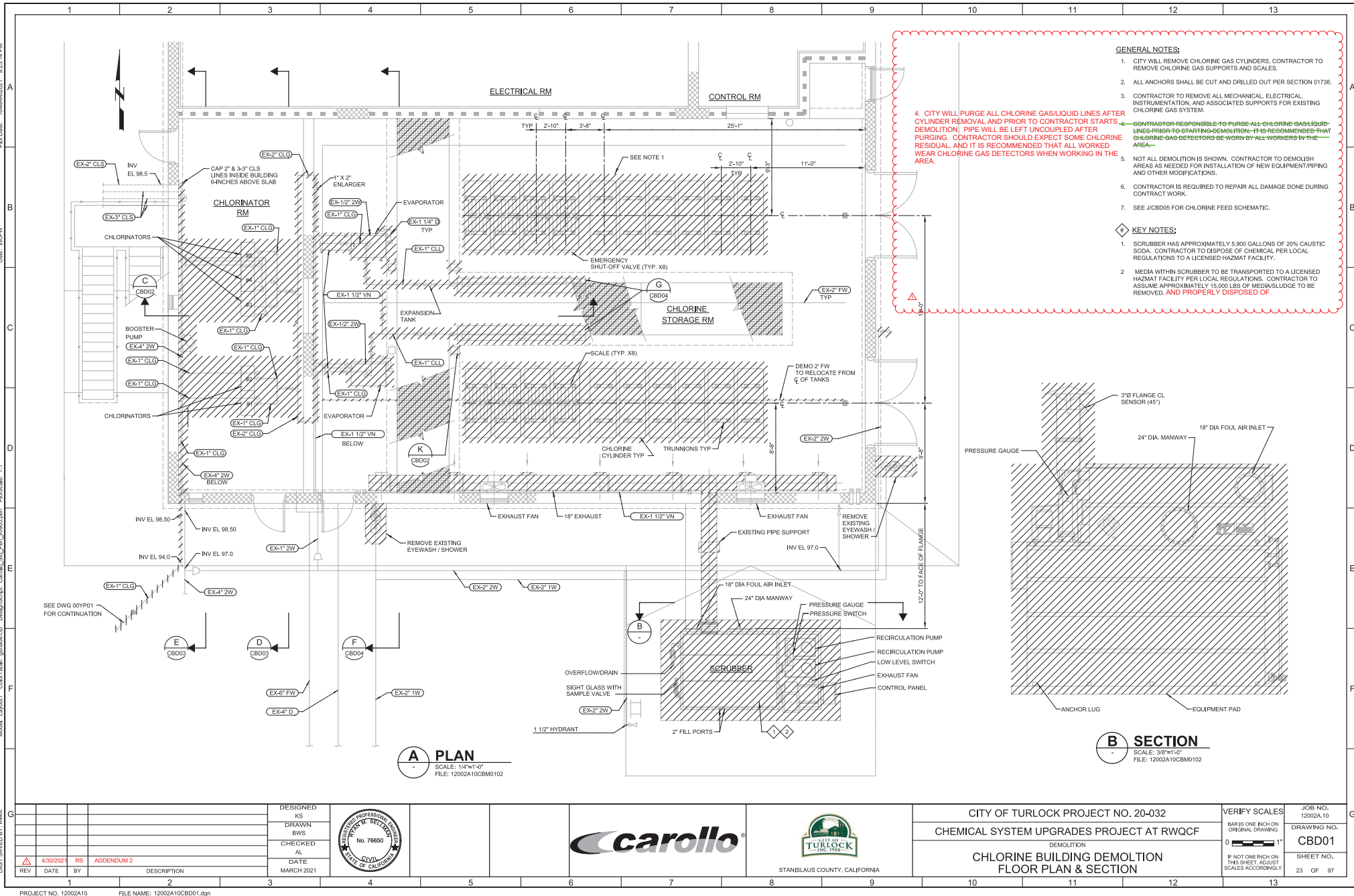


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User: ssp/PW

Model: Layout ColorTable: gds/ncs.ctb Design/Subject: Carollo-Sta-Pro-00005.dgn Plot/Scale: 1:1

LAST SAVED BY: hahz



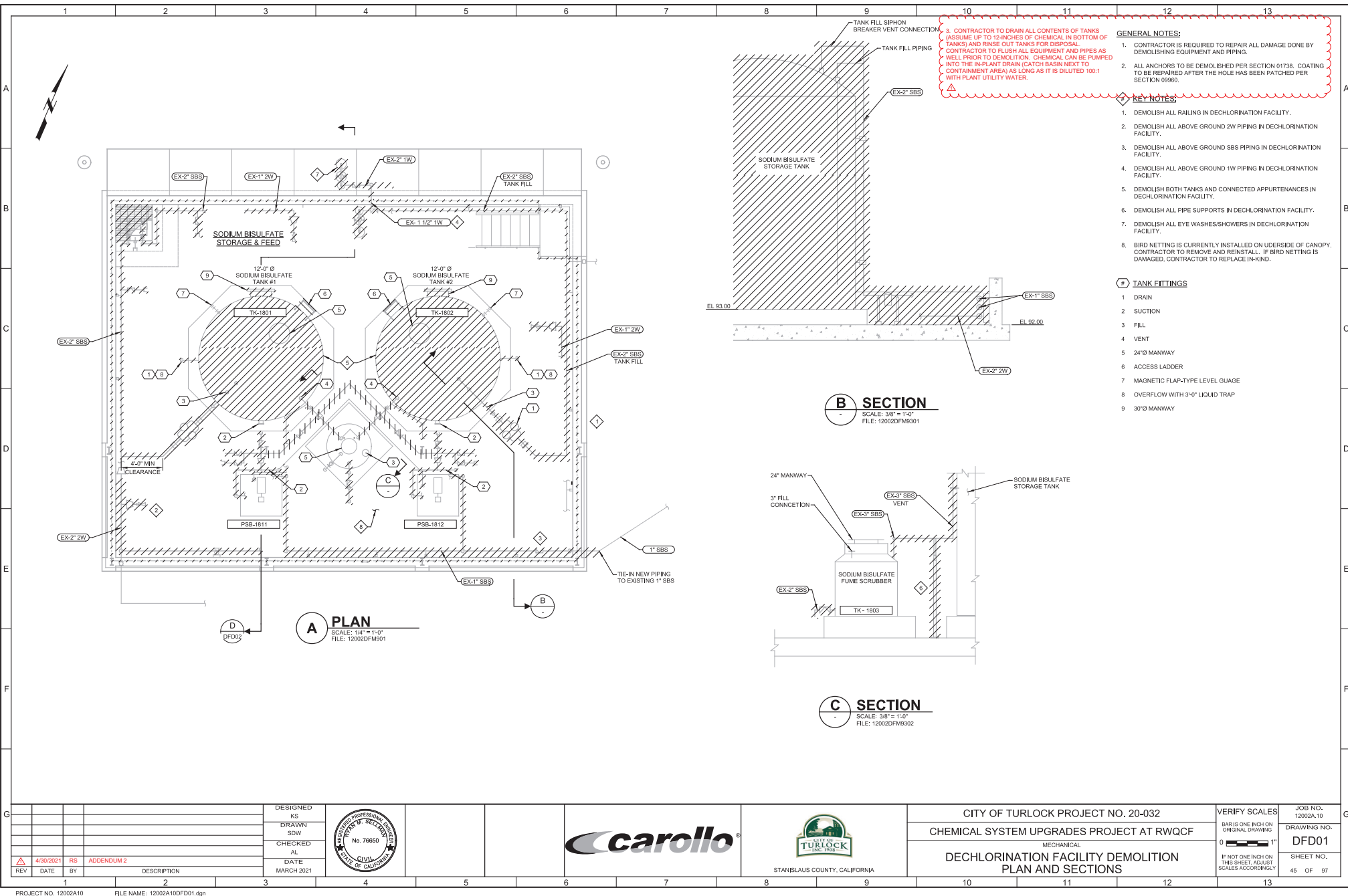


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User: sap/PW

Model: Layout Color/Title: carollo Std Plot: v0905.dgn PlotScale: 1:1

LAST SAVED BY: heloz



Plot Date: 22-MAR-2021 8:51:25 PM

User: rwpw

Model: Layout1 ColorTable: galside.ctb Design/Script: Carullo-Sta-Pro_v0905.dgn PlotScale: 1:1

LAST SAVED BY: jhandowl

CONDUIT SCHEDULE

CHEMICAL SYSTEM UPGRADES PROJECT AT RWQCF

3/22/21

CONDUIT			CONDUCTORS			GROUND			DESCRIPTION	CONNECTING SEGMENTS
NUMBER	DWG	SIZE	#	SIZE	TYPE	#	SIZE	TYPE		
S1404	SHSE11	0.75"	2	2/CS-#16		1	#14	XHHW-2	FR: PIT-1404 TO: J-BOX 2 2/CS-#16 >> PIT-1404 ANALOG CABLES	S1407
S1405	SHSE11	1.5"	4	2/CS-#16		1	#14	XHHW-2	FR: J-BOX TO: J-BOX 2 2/CS-#16 >> PIT-1402 ANALOG CABLES 2 2/CS-#16 >> PIT-1401 ANALOG CABLES	S1408 S1402 S1401
S1407	SHSE11	1.5"	4	2/CS-#16		1	#14	XHHW-2	FR: J-BOX TO: J-BOX 2 2/CS-#16 >> PIT-1404 ANALOG CABLES 2 2/CS-#16 >> PIT-1403 ANALOG CABLES	S1408 S1404 S1403
S1408	SHSE11	2"	8	2/CS-#16		1	#14	XHHW-2	FR: J-BOX TO: PLC-D5 2 2/CS-#16 >> PIT-1404 ANALOG CABLES 2 2/CS-#16 >> PIT-1403 ANALOG CABLES 2 2/CS-#16 >> PIT-1402 ANALOG CABLES 2 2/CS-#16 >> PIT-1401 ANALOG CABLES	S1407 S1407 S1405 S1405
S1521	CSE02	0.75"	1	MFR	CABLE	1	#14	XHHW-2	FR: LE-1521 TO: LIT-1521 Nbr J-BOX 1 MFR >> MFR CABLE FOR LE-1521	
S1522	CSE02	0.75"	1	MFR	CABLE	1	#14	XHHW-2	FR: LE-1522 TO: LIT-1522 Nbr J-BOX 1 MFR >> MFR CABLE FOR LE-1522	
C5176D	CSE02	0.75"	2	#14	XHHW-2	1	#14	XHHW-2	FR: EXISTING J-BOX TO: FSH-1511 2 #14 >> FSH-1511 CONTROL CABLE	

END OF CONDUIT SCHEDULE

REV	DATE	BY	DESCRIPTION

DESIGNED RD
DRAWN JJS
CHECKED EB
DATE MARCH 2021



STANISLAUS COUNTY, CALIFORNIA

CITY OF TURLOCK PROJECT NO. 20-032
CHEMICAL SYSTEM UPGRADES PROJECT AT RWQCF
ELECTRICAL
CONDUIT SCHEDULE - 3

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1'
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 12002A.10
DRAWING NO. ECSE03
SHEET NO. OF 97