

1355 Capital Blvd. • P.O. Box 30013 • Reno, NV 89520-3013  
P 775.834.8080 • F 775.834.8003

## **Addendum No. 2**

### **REBID TRUCKEE CANYON WATER SYSTEM EXPANSION**

**PWP Bid No. WA-2016-158**  
**June 8, 2016**

The following information, clarifications, changes and modifications are by reference incorporated into the bid documents for the above referenced project. Any work item or contract provision not changed or modified will remain in full force and effect. The bid date and time and construction schedule has not changed.

#### **QUESTIONS AND RESPONSES**

**Question No. 1:** Per section 09900/Painting, 1.1 Description, B., it states to coat exposed surfaces of concrete...are we to paint the new concrete slab under the new filter tank? Is there an existing floor coating?

**Response to Question No. 1: The new filter pad will not require coating. The existing floor will also not be recoated as part of the Rebid Truckee Canyon Water System Expansion Project.**

**Question No. 2:** Per section 09900/Painting, 3.3 Finish Schedule, D., 9. Existing Mechanical piping, equipment, and filter vessels that remain in service. These surfaces are called out to be painted with System D/Polyamidoamine Epoxy, Polyurethane Topcoat, which requires an SP6/Commercial Blast per the spec, is the intention of the spec to sandblast prep the existing piping and equipment within the existing WTP Building?

**Response to Question No. 2: No. Surface prep for existing mechanical equipment and piping shall conform to Specification 09900, section 3.5.**

#### **TECHNICAL SPECIFICATIONS**

<b>Section</b>	<b>Page(s)</b>	<b>Description of amendment</b>
09900	09900-1	The requirement to coat all exposed concrete surfaces was removed. See attached specification.
11405	11405-4, 11405-8, 11405, 10	Please see attached specification 11405 for changes to the NSF requirements.

## DRAWINGS

Sheet Number	Page(s)	Description of amendment
M101	27	Please see attached M101 for changes to the Well 3 tie in ARV.
M102	28	Please see attached M102 for changes to the Well 3 tie in ARV.
S100	32	Please see attached S100 for changes to the basis of design.
S102	34	Please see attached S102 for changes to detail 3/S102.

## DETAILS

Section	Page(s)	Description of amendment
M351/TYP	21	The 1 inch air valve assembly in Detail M351/TYP was replaced with a typical air valve assembly. Please see attached.

**PLEASE NOTE: QUESTION CUT-OFF DATE IS JUNE 09, 2016 AT 5 P.M.**

## SECTION 09900

### PAINTING

#### PART 1 GENERAL

##### 1.1 DESCRIPTION

- A. The work of this Section consists of furnishing and applying paint for architectural, structural, mechanical and miscellaneous work as scheduled herein.
- B. The work comprises the painting of all exposed surfaces of ~~concrete~~, sheet metal, iron and steel, process equipment, electrical equipment, process piping ducts and other miscellaneous items.
- C. This section shall also apply to painting all existing interior piping and existing mechanical equipment. Additionally, all exposed exterior piping tied into the system will also need to be repainted.

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##### 1.2 SUBMITTALS

- A. A materials list and samples shall be submitted as required by Section 01300 and as follows:
  - 1. Materials list naming each product to be used identified by manufacturer and type number.
  - 2. Volatile organic compound (VOC) level (gm/L) and manufacturer's certification of compliance with applicable air quality limits for each coating.
  - 3. Manufacturer's application recommendations for each product submitted.
  - 4. The Contractor shall submit a current chart of the Manufacturer's available colors for selection by the Owner, forty five (45) days prior to the start of coating and painting.

##### 1.3 DEFINITION

The term "paint" as used herein includes enamels, paints, sealers, emulsions and other coatings used as prime intermediate or finish coats for protection or decoration.

##### 1.4 COMPLIANCE WITH VOLATILE ORGANIC COMPOUND (VOC) LIMITS

All paint and coating products shall comply with the applicable limits on volatile organic compounds (VOC) as established by the United States Environmental Protection Agency and by State and local air quality regulating agencies. It shall be the Contractor's responsibility to verify compliance of all paints and coatings. In the event that any paint or coating listed herein is found to be non-compliant, the Contractor shall notify the Owner and the Owner will select a substitute coating or paint, at no additional cost to the Owner.

6. Provide detailed descriptions of each piece of equipment specified.
7. Provide hydraulic calculations verifying criteria described in the Performance Requirements of Part 1.04.
8. Provide sizing calculation for the Automatic Air and Vacuum Relief Valve and Pressure Relief Valve described in Part 2.3.B.1.a and 2.3.B.1.b.
9. Provide specifications and installation procedures for interior media support and underdrain system:
  - a. Support media specifications and gradation criteria.
10. Provide installation instructions for vessel, including for the underdrain encasement using flowable grout.
11. Provide NSF/ANSI 60/61, **and when applicable, NSF 372** Certification for Vessel Internal Coating System.
12. For the Filtration Media provide:
  - a. Loading and unloading instructions.
  - b. Sieve analysis, in accordance with ASTM C136, as modified and supplemented by ANSI/AWWA B102-10 (before supporting media shipment).
  - c. Uniformity Coefficient.
  - d. NSF 60/61, **and when applicable, NSF 372** Certification.
  - e. Certificate of Compliance stating that the supporting media furnished complies with the applicable provisions of ANSI/AWWA B102-10 and this Specification (before supporting media shipment).

**Addendum 2**

**Addendum 2**

C. Operation and Maintenance Manual

1. Provide prior to delivery of the vessel.
2. Fulfill all requirements of Section 01780, Operation and Maintenance Data.
3. Submit complete manuals, to include:
  - a. Copies of all approved Shop Drawings;
  - b. Test reports;
  - c. Maintenance data and schedules;
  - d. Description of operation;
  - e. Magnified views of interior piping configuration;
  - f. Support gravel specification and removal;
  - g. Condition assessment of internals.
  - h. Electronic copy of the completely functional filter control program code with full documentation and notations.

1.6 COORDINATION

- A. Coordination as required in Section 16010, Part 1.10 – COORDINATION MEETINGS.
- B. Coordination as required in Section 16910, Part 1.5 – SOFTWARE MEETINGS.

## PART 2 MATERIALS

### 2.1 PRESSURE (FILTRATION) VESSEL COMPONENTS

The following items shall be provided by one manufacturer.

#### A. Pressure (Filtration) Vessel

1. One (1) new vertical pressure vessel is to be provided. The vessel is to be sized for an aggregate flow of 100 GPM flow at a 4.0-6.0 GPM/ft<sup>2</sup> flux rate when combined with the existing 42-inch diameter filter. During filter backwash periods, 40-60 GPM is expected to occur using one filter. The physical size of the new vessel, as scaled from the Contract Drawings, necessary to meet this criteria is expected to be 4'-0" dia. x 5'-0" straight side shell.
2. The vessel shall be of welded steel construction using SA-516 Grade 70 steel, rated for a maximum working pressure of 150 psi and design pressure of not less than 120 psi. It shall be designed, fabricated, inspected and tested in accordance with the latest ASME Section VIII, Division 1 Code Standard for the Construction of Pressure Vessels.
3. The vessel is to bear the appropriate ASME Code stamp to verify conformance.
4. Pressure vessel are to include the following features:
  - a. Provide one access manway at top of the tank. The following types of manways can be supplied:
    - 1) 14" x 18" elliptical;
  - b. Three(3) lifting lugs of 8000lbs capacity each.
  - c. Connections
    - 1) Inlet connection One (1)
    - 2) Effluent connection: One (1)
    - 3) Drain down connection: One (1)
  - d. A sufficient number of structural steel supports as required by the manufacturer; not less than 4.
5. Underdrain
  - a. Lower header manifold system shall be Schedule 10 316L stainless steel as shown on installation drawing and shall have a velocity of less than 9 ft./sec.
  - b. Laterals to be 316L stainless steel pipe, "wedge-wire" wrapped pipe, to be Sch. 40 threaded one end, with a continuously welded 12 gauge cap on the other end. "Wedge-wire" to be 60/93 construction with end bands. End bands to be "TIG" welded to wedge flow longitudinal (93) wire. "Wedge-wire"/end band assembly to be continuously welded to pipe at each end.
  - c. Lateral-pipe orifice drilling and pattern to be designed to accommodate flow and insure even distribution of backwash-water and collection. Saw cut, laser cut or punched rectangular slits are not acceptable methods for manufacturing the laterals orifices; quoting such shall be considered non-complying and reason for disqualification as a bidder.
  - d. Welding to be per ASME code by qualified welders using S/S316ELC weld rod.

- e. All welded stainless steel shall be passivated per specification QQ-P-35C, except no salt spray test required.
  - f. The 316L stainless steel wedge-wire laterals will be installed in the filter after concrete filler has been installed by the contractor into the bottom head. (The concrete shall be installed per the manufactures drawings.) They shall be threaded into the header at one end and be held in place at the other end mounted upon stainless steel angle and stainless steel U-bolts. The installation of the laterals will be by the general Contractor. NOTE; each lateral is marked to locate its TOP, with a stamped mark for reference on the top of each lateral on the threaded end. The contractor shall install each lateral after the concrete has been placed, so that each stamp is located on the top.
  - g. The complete underdrain system shall be designed to provide a near perfect feed distribution.
6. Inlet Distributor/Backwash Collector
- a. Each filter shall be provided with an influent distributor/backwash collector of the central manifold type consisting of an appropriately sized diameter schedule 10-316L stainless steel or SCH 80 PVC pipe extending the length of the filter along the upper portion of the vessel at the vertical centerline.
  - b. The distributor/collector manifold shall be properly sized and spaced such that the water is distributed to, or collected from, the vessel in a uniform manner.
  - c. The influent distributor and wash water collector shall be fabricated as an integral part of the filter vessel and shall receive the same coating as the interior of the filter vessel.
7. Media Supporting Gravel
- a. The support gravel should be furnished and installed per the Supplier's recommendations to ensure performance and warranty, but a basic description is as follows:
    - 1) Media supporting gravel in the bottom of each filter shall be provided 12 inches in depth consisting of four layers from a bottom layer graded 1" x 5/8" to a top layer graded to approximately 1/8" x 1/16".
    - 2) The supporting bed shall be free from foreign materials such as dirt or clay loam, and shall be basically composed of rounded and/or angular particles with little or no flat or elongated particles.
    - 3) Each size of gravel shall be furnished in marked burlap or plastic bags to simplify handling and installation.
    - 4) Gravel material shall be provided in sufficient volume by grade to assure the following layers:
      - a) 3 inch depth 1" x 5/8" (bottom layer)
      - b) 3 inch depth 1/2" x 1/4"
      - c) 3 inch depth 1/4" x 1/8"
      - d) 3 inch depth 1/8" x 1/16" (top layer)
8. Manufacturer of filtration system to be:
- a. Pureflow© Filtration Division of California Environmental Controls, Inc.
  - b. Loprest Water Treatment Co.

- c. Engineer approved equivalent.

## 2.2 NAMEPLATES AND CODE STAMPS

Design, fabricate, and test vessels in accordance with the ASME Code. Each tank shall bear a stainless steel ASME nameplate. Each nameplate shall bear the applicable code symbol. The Manufacturer shall be authorized by ASME to apply the applicable code symbols.

## 2.3 FILTRATION VESSEL ACCESSORIES

- A. In addition to items listed in Part 2.01 above, each filtration vessel shall be equipped with the following accessories:
  - 1. One (1) - Combination Air Release and Air/Vacuum Valves (CAV) - CAVs shall be float actuated, shall be sized and rated per ASME Section VIII Division 1 requirements and shall meet the following:
    - a. A large orifice to exhaust air during filling or admit air during drainage to break vacuum.
    - b. A small venting orifice to discharge accumulated air or vapor to atmosphere with the system under pressure.
    - c. Sizing shall be by the Pressure Filter Supplier, but not less than 1".
  - 2. Construction
    - a. Body, Cover: Cast Iron, per ASTM A126 Grade B.
    - b. Float: Type 316 Stainless Steel, per ASTM A240.
    - c. Seat: Buna-N or Type 316 Stainless Steel.
    - d. Trim: Type 316 Stainless Steel, per ASTM A240.
    - e. Suitable for pressures up to 150 psi.
  - 3. Each CARV shall incorporate an isolation valve to allow removal of the valve without shutting down the equipment.
  - 4. Product and Manufacturer - provide one of the following:
    - a. A.R.I.;
    - b. Val-Matic;
    - c. APCO, as manufactured by Valve and Primer Corporation;
    - d. Crispin, as manufactured by Multiplex Manufacturing Company; or
    - e. Approved equivalent.
- B. One (1) - Pressure Relief Valve, sized and rated per ASME Section VIII Division 1 requirements and the following:
  - 1. Pressure Relief Setting: Adjustable, factory set to 130 psi.
  - 2. Relief Capacity: 100 GPM.
- C. One (1) - 2-inch threaded outlet for vessel drain.
- D. Three (3) Sample Cocks.

- E. Turbidimeter sample port on effluent piping
- F. Each Filtration Vessel shall be equipped to be fully functional units, and shall include manifold piping and automatically operated butterfly valves, with electric actuators, flow meters, and Hach 1720E filter effluent turbidimeters for the following functions:
  - 1. Inlet.
  - 2. Outlet.
  - 3. Backwash Inlet.
  - 4. Backwash Outlet.
  - 5. Rinse.
  - 6. Butterfly valves and actuators shall be manufactured per Specification 15100 and shall come equipped with remote control, positive open/close contact reporting, position indication and reporting capability.
  - 7. Filter effluent water quality monitoring.
  - 8. Filter effluent flow control and monitoring, per Specification 17137.

#### 2.4 FILTRATION VESSEL INSTRUMENTATION AND APPURTENANCES

- A. Each Filtration Vessel shall be equipped with a pressure differential indicator (transmitter) that is equipped with 4-20 mA signal outputs that are connected to the central control panel.
- B. Butterfly valves and actuators shall be manufactured shall be manufactured per Specification 15100 and come equipped with remote control and reporting capability.
- C. The filter system shall be equipped with a Hach 1720E turbidimeter that is capable of outputting a 4-20 mA signal to the central control panel for the combined filter effluent.
- D. Each Filtration Vessel shall be equipped with a magnetic flow meter that is capable of outputting a 4-20 mA signal to the central control panel for both the treated service flow and filter to waste.

#### 2.5 FILTRATION MEDIA

- A. ***The Contractor is responsible for removal of existing filter and filter media. The existing media is not expected to contain any hazardous materials and should be able to be taken to a regular landfill location. However, the Contractor will need a TCLP analysis performed to prove that the media meets landfill requirements prior to disposal.***
- B. The filtration media provided is to be a manganese greensand (i.e. manganese dioxide), conforming to ANSI/AWWA Standard B102-10 for Manganese Greensand for Filters.
- C. The filtration media shall allow for a hydraulic loading rate of 3-10 GPM/ft<sup>2</sup> and a backwash loading rate of 12-20 GPM/ ft<sup>2</sup>. The media shall be NSF/ANSI 60/61, **and when applicable, NSF 372** certified and approved for potable water use at the hydraulic loading rates as designed. See Part 1.05 above for filtration media submittal requirements.
- D. Quantities of filtration media that will be required are to be determined by the supplier.
- E. Product and Manufacturer – provide one of the following:

#### Addendum 2



1. GreensandPlus™ manganese dioxide filter media, as manufactured by Inversand Company;
2. Pureflow PM-200™ manganese dioxide filter media, as manufactured by Pureflow© Filtration Division of California Environmental Controls, Inc.; or
3. Approved equivalent.
  - a. In order to be approved as an equivalent media to the two approved medias listed, All testing and performance indicators will need to meet or exceed the performance of the Greensand Plus™ or PM-200™ media, including, but not limited to:
  - b. Arsenic, iron, and manganese removal
  - c. Equivalent chemical feed rates for all chemicals
  - d. pH
  - e. Filtration rate
  - f. Filter run times (Equivalent Bed Volumes per run time)
  - g. Backwash rates and volumes
  - h. Media hardness
  - i. Warranty on media life
    - 1) The proposed equivalent media supplier will be required to perform the pilot testing to prove the media equivalence at no cost to TMWA, and with no impacts to the proposed construction schedule.

### PART 3 EXECUTION

#### 3.1 VESSEL FABRICATION

##### A. Welding

1. Weld reinforcement shall be in accordance with ASME Code. Excessive reinforcement shall be ground down to within the ASME Code requirements, and as required to install the lining systems.

##### B. Welder Qualification

1. All welders and welding operators shall be qualified, at the Supplier's sole expense, by an ASME-approved testing laboratory before performing any welding under this Section. Qualification tests shall be in accordance with Section IX, Article III of the ASME Boiler and Pressure Vessel Code.

##### C. Shop Inspection

1. The Engineer/Owner reserves the right to witness all factory tests conducted on equipment under this Section.

##### D. Execute the Work per Division 1, General Requirements.

#### 3.2 VESSEL SURFACE PREPARATION AND PAINTING

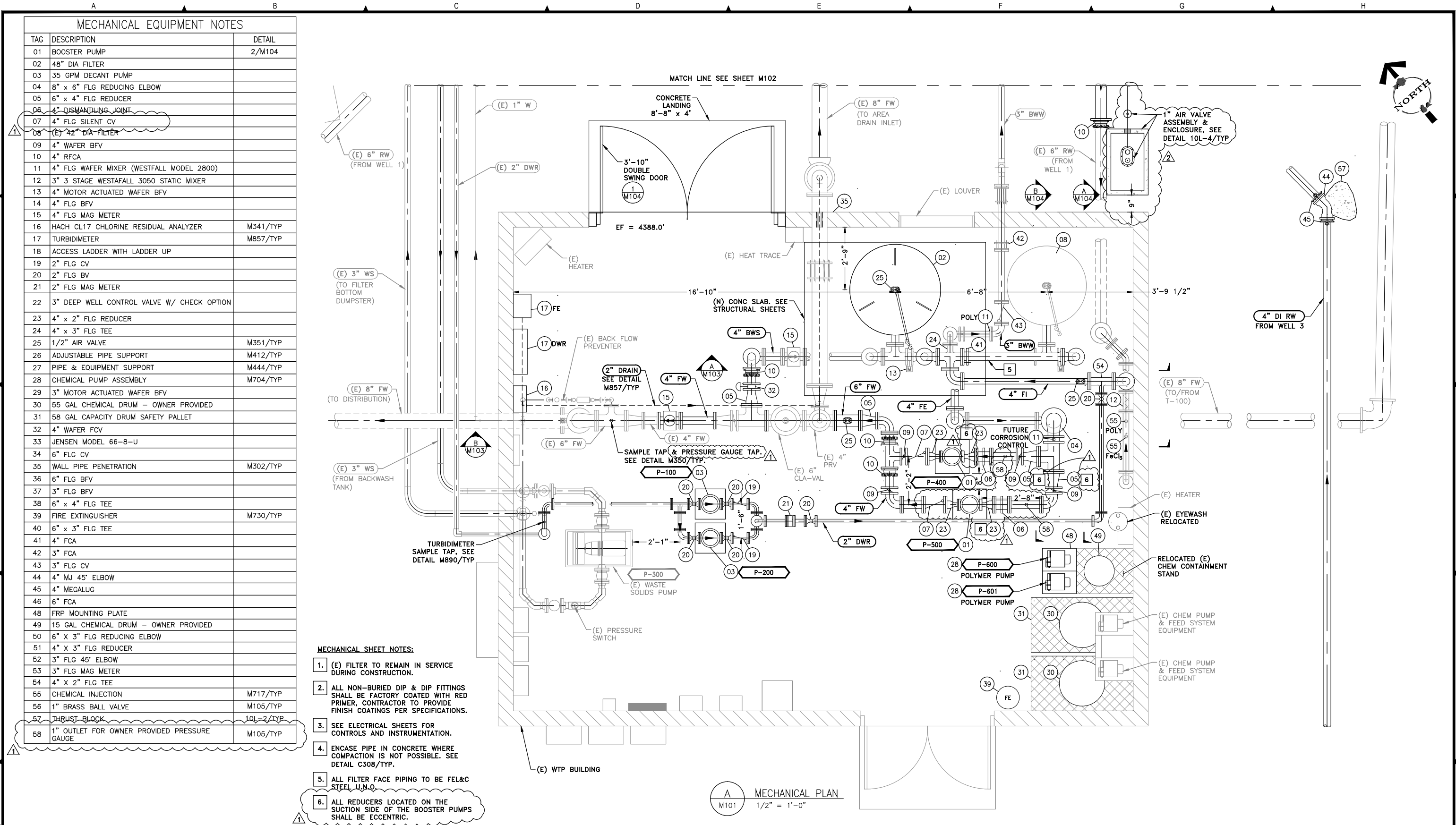
- ##### A. Surface preparation and paint application shall follow the requirements of the coating manufacturer's recommendations.

## Addendum 2

- B. The vessel interior and other ferrous metal surfaces in contact with the water being treated shall receive a shop-applied coating system in conformance with the requirements of NSF/ANSI 60/61, **and when applicable, NSF 372** and AWWA D102-97 (Inside Coating System No. 1). Provide the following:
1. Surface Preparation: SSPC-SP 5 White Blast Cleaning.
  2. Product and Manufacturer - provide the following:
    - a. Tnemec Primer: Series 140F-15BL (Tank White) Polyamidoamine Epoxy - 1 coat, 5-6 mils DFT.
    - b. Tnemec Finish: Series 140F-15BL (Tank White) Polyamidoamine Epoxy - 1 coat, 5-6 mils DFT.
    - c. Total System DFT: 14-16 mils.
    - d. Or approved equivalent.
- C. Exterior Steel
1. Surface Preparation: SSPC-SP6 Commercial Abrasive Blast Cleaning.
  2. "Exterior steel surfaces" applies to:
    - a. All surfaces on the exterior of the filter tank.
    - b. Structural saddles.
    - c. Lifting lugs.
    - d. All exterior attachments.
    - e. Filter piping
  3. Product and Manufacturer - provide one of the following:
    - a. Tnemec Primer: 66 H.B. Epoxoline - 2 coats, 2-3 dry mils per coat.
    - b. Tnemec Intermediate: 69 H.B. Epoxoline II - 1 coat, 4-5 dry mils.
    - c. Tnemec Finish: 1075 Endura-Shield II - 2 coats, 1.5-2 dry mils per coat.
    - d. Or approved equivalent.

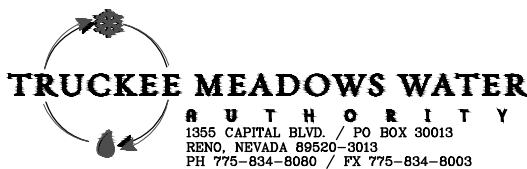
### 3.3 SHIPPING

- A. Filtration Vessels
1. Tank interiors are to be thoroughly cleaned removing all dirt, grease, etc. prior to shipment. The internal and external vessel surfaces shall be prepared according to Part 3.02 above, Surface Preparation and Painting, prior to shipment.
- B. Filtration Media
1. Marking for Shipping: Each bag of manganese greensand (material) shall be marked clearly with the following information:
    - a. Material composition;
    - b. Gradation;
    - c. Source; and
    - d. Lot or stockpile identification.



REVISION	DESCRIPTION	BY	APP	DATE
1	ADDENDUM #1	MSW	MSW	5/27/16
2	ADDENDUM #2	MSW	MSW	5/31/16

WORK ORDER NO.	
DESIGNED	EHP
DRAWN	AAA
DATE	APRIL 2016
CHECKED	MSW
SUBMITTED	
RECOMMENDED	
APPROVED	



**NOT REPRODUCIBLE**  
PROPERTY OF  
TRUCKEE MEADOWS WATER  
AUTHORITY, RETURN UPON  
COMPLETION OF PROJECT  
(Per Homeland Security Act)

**TRUCKEE CANYON WATER SYSTEM EXPANSION (REBID)**

**TREATMENT BUILDING  
MECHANICAL PLAN**

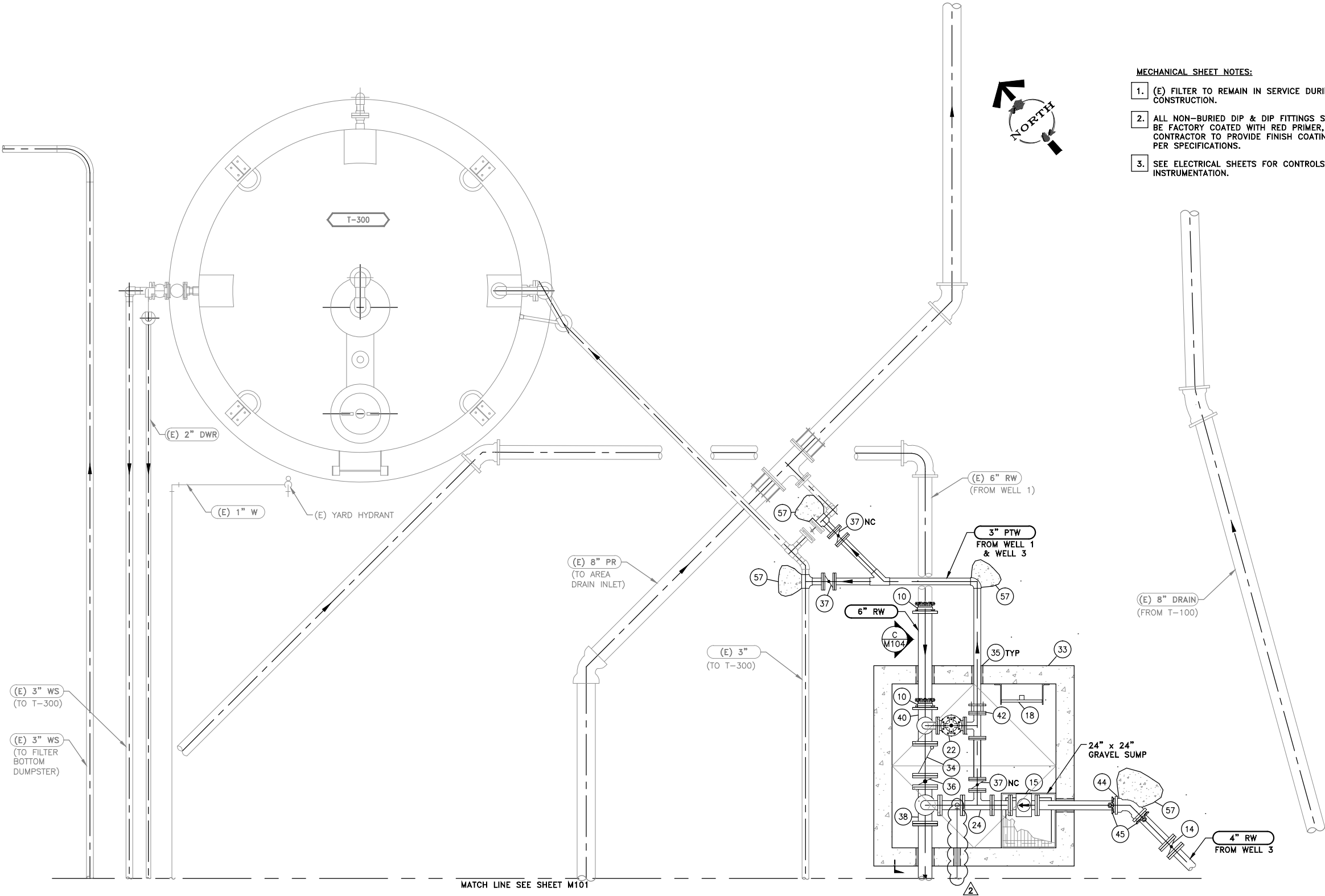


SHEET NUMBER

**M101**

27 OF 53

MECHANICAL EQUIPMENT NOTES		
TAG	DESCRIPTION	DETAIL
01	BOOSTER PUMP	2/M104
02	48" DIA FILTER	
03	35 GPM DECANT PUMP	
04	8" x 6" FLG REDUCING ELBOW	
05	6" x 4" FLG REDUCER	
06	4" DISMANTLING JOINT	
07	4" FLG SILENT CV	
08	(E) 42" DIA FILTER	
09	4" WAFER BFV	
10	4" RFCA	
11	4" FLG WAFER MIXER (WESTFALL MODEL 2800)	
12	3" 3 STAGE WESTAFALL 3050 STATIC MIXER	
13	4" MOTOR ACTUATED WAFER BFV	
14	4" FLG BFV	
15	4" FLG MAG METER	
16	HACH CL17 CHLORINE RESIDUAL ANALYZER	M341/TYP
17	TURBIDIMETER	M857/TYP
18	ACCESS LADDER WITH LADDER UP	
19	2" FLG CV	
20	2" FLG BV	
21	2" FLG MAG METER	
22	3" DEEP WELL CONTROL VALVE W/ CHECK OPTION	
23	4" x 2" FLG REDUCER	
24	4" x 3" FLG TEE	
25	1/2" AIR VALVE	M351/TYP
26	ADJUSTABLE PIPE SUPPORT	M412/TYP
27	PIPE & EQUIPMENT SUPPORT	M444/TYP
28	CHEMICAL PUMP ASSEMBLY	M704/TYP
29	3" MOTOR ACTUATED WAFER BFV	
30	55 GAL CHEMICAL DRUM - OWNER PROVIDED	
31	58 GAL CAPACITY DRUM SAFETY PALLET	
32	4" WAFER FCV	
33	JENSEN MODEL 66-8-U	
34	6" FLG CV	
35	WALL PIPE PENETRATION	M302/TYP
36	6" FLG BFV	
37	3" FLG BFV	
38	6" x 4" FLG TEE	
39	FIRE EXTINGUISHER	M730/TYP
40	6" x 3" FLG TEE	
41	4" FCA	
42	3" FCA	
43	3" FLG CV	
44	4" MJ 45' ELBOW	
45	4" MEGALUG	
46	6" FCA	
48	FRP MOUNTING PLATE	
49	15 GAL CHEMICAL DRUM - OWNER PROVIDED	
50	6" X 3" FLG REDUCING ELBOW	
51	4" X 3" FLG REDUCER	
52	3" FLG 45' ELBOW	
53	3" FLG MAG METER	
54	4" X 2" FLG TEE	
55	CHEMICAL INJECTION	M717/TYP
56	1" BRASS BALL VALVE	M105/TYP
57	THRUST BLOCK	10L-2/TYP
58	1" OUTLET FOR OWNER PROVIDED PRESSURE GAUGE	M105/TYP



- MECHANICAL SHEET NOTES:
- (E) FILTER TO REMAIN IN SERVICE DURING CONSTRUCTION.
  - ALL NON-BURIED DIP & DIP FITTINGS SHALL BE FACTORY COATED WITH RED PRIMER. CONTRACTOR TO PROVIDE FINISH COATINGS PER SPECIFICATIONS.
  - SEE ELECTRICAL SHEETS FOR CONTROLS AND INSTRUMENTATION.

A MECHANICAL PLAN  
M102 1/2" = 1'-0"

REVISION	DESCRIPTION	BY	APP	DATE
2	ADDENDUM #2	MSW	MSW	5/31/16

WORK ORDER NO.	EHP
DESIGNED	AAA
DRAWN	AAA
DATE	APRIL 2016
CHECKED	MSW
SUBMITTED	
RECOMMENDED	
APPROVED	

**TRUCKEE MEADOWS WATER AUTHORITY**  
1355 CAPITAL BLVD. / PO BOX 80013  
RENO, NEVADA 89520-3013  
PH 775-834-8080 / FX 775-834-8003

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AUTHORITY, RETURN UPON  
COMPLETION OF PROJECT  
(Per Homeland Security Act)


**TRUCKEE CANYON WATER SYSTEM EXPANSION (REBID)**  
**YARD PIPING MECHANICAL PLAN**



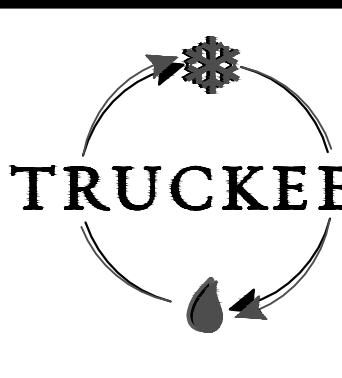
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**M102**  
28 OF 53

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REVISION	DESCRIPTION	BY	APP	DATE
	ADDENDUM #2	PR	PR	6/3/16

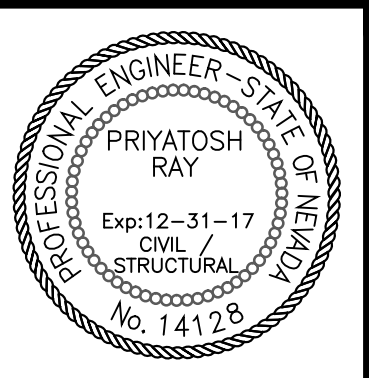
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DESIGNED _____ PR
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DATE _____ APRIL 2016
CHECKED _____
SUBMITTED _____
RECOMMENDED _____
APPROVED _____



**TRUCKEE MEADOWS WATER**  
**A U T H O R I T Y**  
1355 CAPITAL BLVD. / PO BOX 30013  
RENO, NEVADA 89520-3013  
PH 775-834-8080 / FX 775-834-8003

**NOT REPRODUCIBLE**  
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AUTHORITY. RETURN UPON  
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**TRUCKEE CANYON WATER SYSTEM EXPANSION (REBID)**  
  
**STRUCTURAL GENERAL  
NOTES**



PRIYATOSH RAY  
Exp: 12-31-17  
CIVIL / STRUCTURAL  
No. 14122

SHEET NUMBER

**S100**

32

OF

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BASIS OF DESIGN

- A. Codes: International Building Code – IBC–2012, ASCE 7–10, AISC–13th & ACI 318–11
- B. Seismic Data: EQ Ground Motion: Spectral Response Acceleration, Short Period  $S_s=145.90\% g$   
Spectral Response Acceleration, 1 Sec. Period  $S_1=48.60\% g$   
Seismic Design Category SDC 'D', Site Class 'C',  $I=1.5$
- C. Soils Soil foundation shall be constructed in accordance with the recommendation contained in the Geotechnical Report by CME, Dated November 2015, Proj 1808
- D. Wind: Basic Wind Ultimate Speed 140 mph, ULT guest wind speed, Exposure C
- E. Materials:
- Concrete:  $F'_c = 4000$  psi min. @ 28 days compressive strength
  - Reinforcing Steel: ASTM A615, Grade 60 – #4 and larger, Grade 40 – #3.
  - Masonry: CMU,  $F'_m = 1500$  psi, Solid grouted with Sp. Inspection
  - Structural Steel: Plates and Shapes ASTM A36, Grade 36 min, Tube ASTM A500, grade B, Pipe ASTM A53
  - Bolts All machine bolts ASTM A36  
All anchor bolts ASTM A36 or A307.
  - Epoxy Adhesive Use Simpson Set–XP Epoxy Adhesive per ESR 2508

STRUCTURAL NOTES

- A) All work shall be in accordance with these specifications, the International Building Code, IBC–2012/ASCE 7–10 and the requirement of the City of Sparks/Reno.
- B) The Contractor shall verify all conditions and dimensions shown on the drawings prior to beginning work. Discrepancies shall be called to the attention of the Engineer immediately. The contractor shall work with all dimensions and slopes as specified on plans.
- C) Details noted as "Typical" shall be used whenever applicable. Specific details or notes take precedence over typical details and notes. Structural features, which are not fully described on the drawings or in the specifications, shall be constructed in a similar manner as those shown on the drawings or described in these specifications.
- D) The contract drawings and specifications represent the finished structure and do not indicate methods, procedures, or sequence of construction.
- E) The general contractor shall verify all existing structure dimensions with our plans before start the project
- F) Structural design or review of temporary shoring, additional bracing, formwork, scaffolding, erection method, etc. required for proper construction of any components of the project shall be the responsibility of the contractor. All temporary shoring shall be removed after reaching of full concrete strength at foundations.

FOUNDATION

- A) All foundations shall be constructed in accordance with recommendations contained in the geotechnical investigation report by CME, Dated November 2915, Project No. 1808.
- B) Compact subgrade to 90% of maximum relative compaction. Compact aggregate base to 95% of laboratory maximum. All grading, filling, slab base material, compaction, and all foundation requirements shall be in accordance with above–referenced geotechnical report..

CONCRETE

- A) All concrete and component materials used in this project shall conform to the following criteria: 28–day compressive strength (min) 4000 psi unless noted otherwise, Use  
Cement ASTM A 150, Type II  
Concrete Aggregate ASTM C 33 (hardrock)  
Maximum Aggregate Size ¾ inch diameter  
Water Cement Ratio 0.45 minimum
- B) Except as above itemized, all concrete work shall be produced, placed, consolidated, cured, and finished in conformance with American Concrete Institute Standard 301 "Specifications for Structural Concrete for Buildings", Standard 305 "Hot Weather Concreting", and Standard 306 "Cold Weather Concreting". Calcium chloride, salt, or other materials creating a corrosive environment in the concrete shall not be used for any reason.

REINFORCING STEEL

- A) Reinforcing steel shall conform to ASTM A 615, Grade 60, unless noted otherwise. Lap bars as shown on plans, 30 bar diameters in concrete. All bars shall be lapped 2'–0" minimum. Reinforcing steel shall be fabricated in conformance with ACI Standard 318.
- B) The following minimum concrete cover shall be provided for reinforcement (unless noted otherwise):
- |    |   |                        |
|----|---|------------------------|
| 1) | Concrete cast against earth                               | Min. Cover<br>3 inches |
| 2) | Concrete exposed to earth or weather                      | 2 inch                 |
| 3) | Concrete not exposed to weather or in contact with ground | 1½ inch                |

STRUCTURAL STEEL

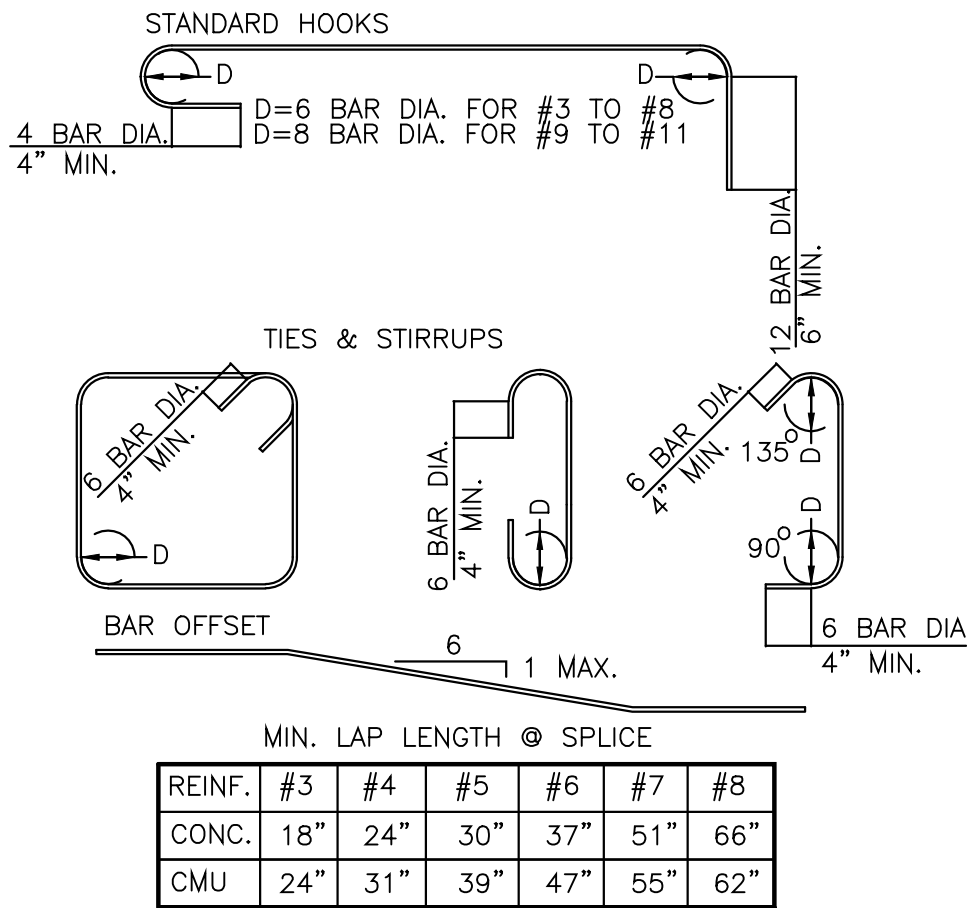
- A) All works shall be in accordance with the 'Specifications for the design fabrication and erection of the structural steel for buildings' as adopted by The American Institute of Steel Construction.
- B) Structural steel plates & shapes shall confirm to ASTM A36, & SS 304 / 304L, Steel pipes ASTM A53, grade B, Steel tubes ASTM A500, grade B,  $F_y=46$ ksi
- C) Welding materials and procedures shall be on conformance with The American Welding Code AWS D1.1. All weld electrodes shall be E70XX. All welds shall be done by certified welder.
- D) Machine bolt holes shall be 1/16" larger than the nominal diameter of the bolt and shall be punched and/or drilled. Gas cut holes will not be allowed.
- E) Drilling (cutting, punching, etc.) of holes in beam flanges unless otherwise shown is not permitted for any purpose. Support methods for suspended soffit/equipment (including any mechanical equipment, etc.) shall be approved by the structural engineer.
- F) All structural steel shall be thoroughly cleaned of all loose mill scale, loose rust, dirt and other foreign matter.
- G) Shop drawings shall be submitted for review by the Design Engineer.
- H) Structural design or review of temporary shoring, additional reinforcing, bracing, form work, scaffolding, erection methods, etc. required for proper construction of the project shall be the responsibility of the contractor.
- I) All works shall be accordance with the 'Specification for the design, fabrication and erection of the structural steel for building' as adopted by the American Institute of Steel Construction.

SPECIAL INSPECTION REQUIREMENTS

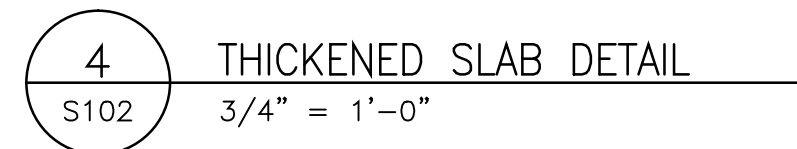
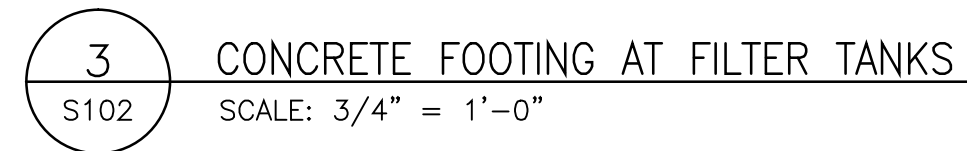
The following tests and inspections as indicated below will be required as detailed in applicable project plans, specifications and The International Building Code 2012, Section 1701.

SPECIAL INSPECTION


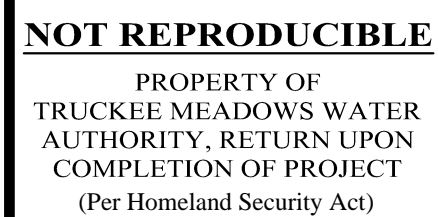
- A) Concrete: During the taking of test specimens and placing of reinforced concrete.
- B) Reinforcing Steel: During the placing of reinforcing steel and tendons.
- C) Epoxy anchor: Installation of all epoxy adhesive anchors shall be inspected as per ESR 2508 requirement or EQ
- D) Soil compaction test



A TYPICAL REBAR DETAIL  
S100 1/8" = 1'–0"



WORK ORDER NO. \_\_\_\_\_  
DESIGNED \_\_\_\_\_ PR  
DRAWN \_\_\_\_\_ AAA  
DATE \_\_\_\_\_ APRIL 2016  
CHECKED \_\_\_\_\_  
SUBMITTED \_\_\_\_\_  
RECOMMENDED \_\_\_\_\_  
APPROVED \_\_\_\_\_

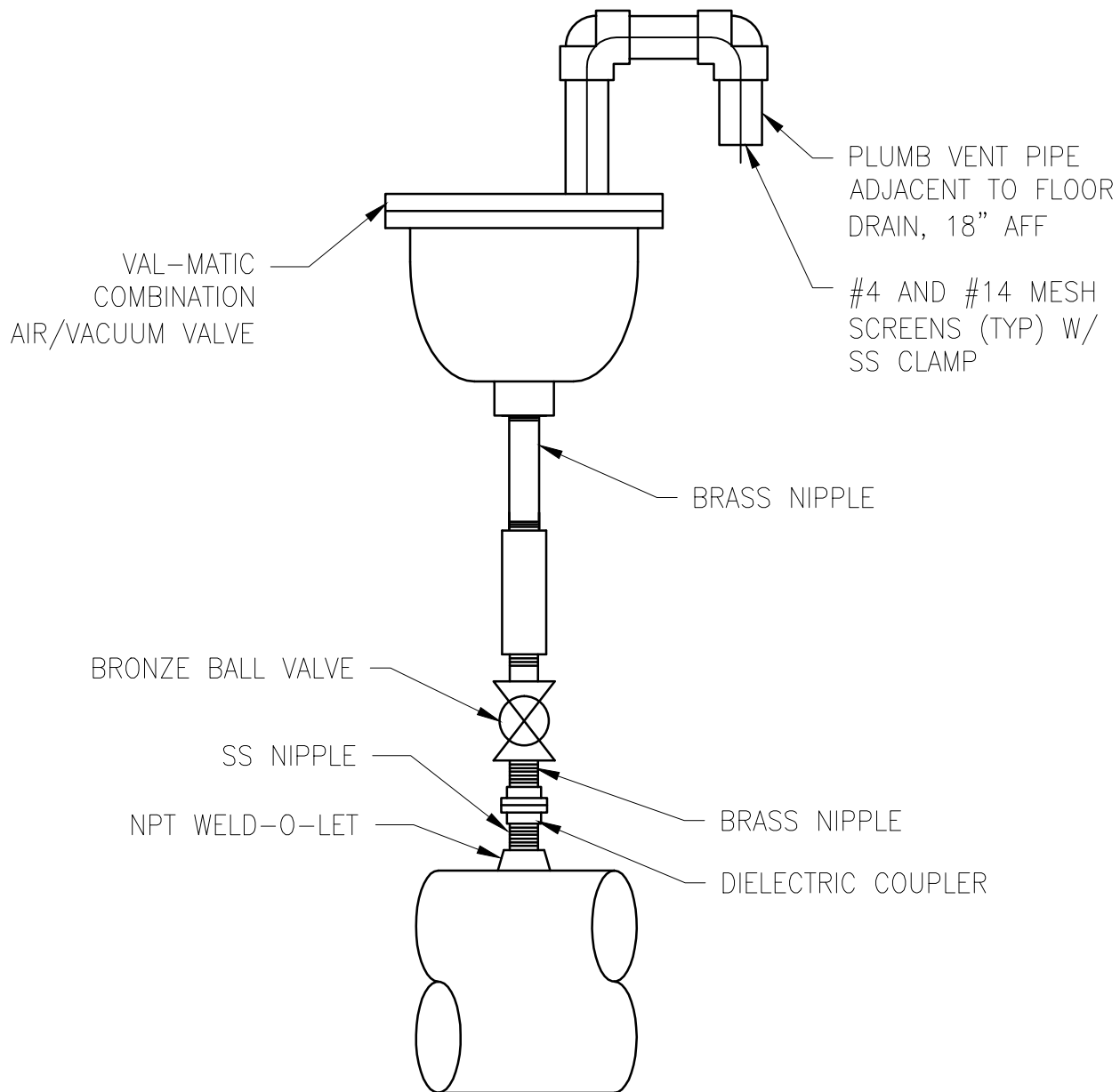


PROFESSIONAL ENGINEER - STATE OF NEVADA  
PRIYATOSH RAY  
Exp: 12-31-17  
CIVIL / STRUCTURAL  
No. 14128

SHEET NUMBER

**6102**

34 OF 53



TYPICAL AIR VALVE ASSEMBLY

N.T.S.

