CHEMEKETA PARK MUTUAL WATER COMPANY

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CHEMEKETA PARK WATER STORAGE
AND
DROUGHT RELIEF PROJECT

~

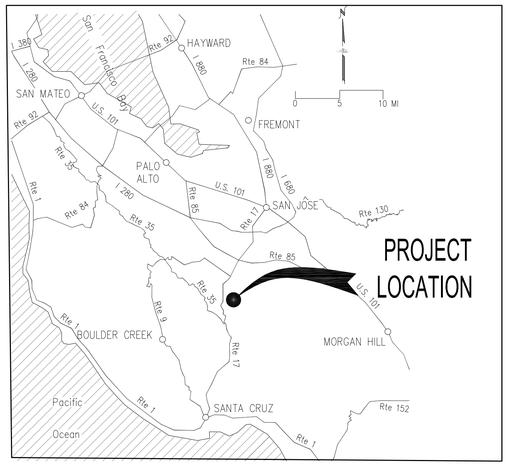
Department of Water Resources
Agreement No. 4600014993

~

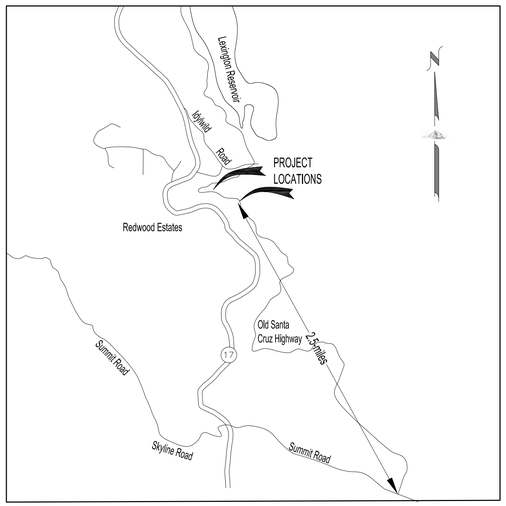
Funding by California Department of Water Resources
under the
Small Community Drought Relief Program

~

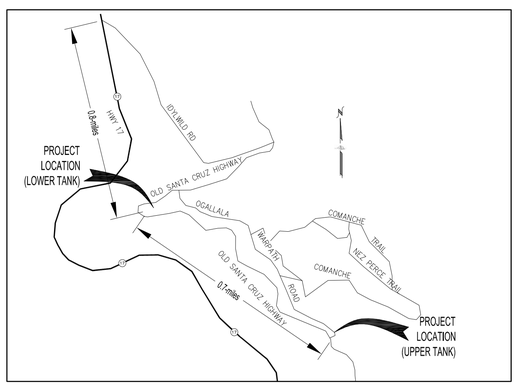
Lower Tank - 18000 Ogallala Warpath Road Parcel subject to Application Request
Upper Tank - 17680 Ogallala Warpath Road Included for Reference Only



REGIONAL MAP



VICINITY MAP



LOCATION MAP

CHEMEKETA PARK MUTUAL WATER CO.

REGISTERED PROFESSIONAL ENGINEER
DOUGLAS R. ALLEN
No. C43774
Exp. 6/30/25
CIVIL
STATE OF CALIFORNIA

Designed under the supervision of: Douglas R. Allen, PE
Wyeast Engineering

1/22/24
Date

C:\Chemeketa\Sheet 0 Cover Sheet 2000.dwg, Sheet 0 - Cover Sheet

Chemeketa Park Mutual Water Company
Potable Water Storage Tank Replacement Project
General Notes (2024)

1. All work herein shall be in accordance with Chapter 16, Title 22 of the California Code of Regulations (California Waterworks Standards (CWS)), Santa Clara County Department of Planning and Building, the standards of the American Waterworks Association (AWWA), the California Electrical Code (CEC), the California Building (CBC), the California Plumbing Code (CPC), the Wy'east Engineering Standard Specifications and Standard Plans (Wy'east Standards) and these Project Plans and Details;
2. All materials in contact with water except drainage and sanitary shall be NSF 61 and NSF 374 approved for potable water contact. Chemicals in contact with potable water shall be NSF 60 approved;
3. Existing utility location, size and materials are unknown except as shown hereon. Wy'east Engineering makes no warranty, expressed or implied, as to the accuracy or sufficiency of such information. The Contractor shall thoroughly examine the site of the work and thoroughly review these Project Plans and details prior to preparing his proposal. The submittal of a proposal shall be evidence upon which the Owner may rely that the Contractor has undertaken adequate measures to familiarize himself with the work and the site of the work;
4. The Contractor shall field verify all existing conditions at the time of commencing work;
5. All topographic, utility and parcel data has been provided by Cross Land Surveying, Inc. Wy'east Engineering and the Owner offers no warranty, expressed or implied, as to the currency accuracy, sufficiency, or adequacy of said information. Should the Contractor discover an apparent discrepancy between the information shown hereon and actual field conditions, the Contractor shall immediately notify the Engineer of said apparent discrepancy and seek the direction of the Engineer as appropriate; Time shall be of the essence in the execution of the work. The Contractor shall make every effort to commence work at the earliest opportunity and complete the work as expeditiously as possible without compromising the integrity of the work or the goals of the project;
6. The Contractor shall contact Underground Service Alert (811) prior to commencing work including subsurface exploration;
7. The Contractor shall undertake subsurface exploration prior to commencing work. Subsurface exploration shall be conducted at a minimum to include but not be limited to, points of connection, tie-ins and apparent or potential conflicts with other underground utilities;
8. The Contractor shall coordinate with the Owner to locate insofar as possible existing underground facilities;
9. The Contractor shall provide a minimum of 5-working days notice to the Engineer, the Owner and Agencies of Jurisdiction prior to commencing work and a minimum of 3-working days notice for inspection of construction;
10. The Contractor shall coordinate all work on existing facilities with the Owner including but not limited to, connection to existing structures, temporary storage facilities, demolition of existing tanks, abandonment or realignment of existing water lines and control systems. The Contractor shall provide a minimum of 5-working days notice to the Owner prior to commencing work on any such existing facilities;
11. The details and fitting layouts shown hereon are for the convenience of the Contractor in preparing his proposal. Except where specifically cited as "... No Substitute ...", the words "... or Approved Substitute ..." may be assumed included in the citation of a product, process, or method whether included or not. The Contractor is encouraged to submit alternatives wherever an improvement in efficiency, expediency, or expense may be possible. The submittal of alternatives shall be in accordance with the provisions of Section 1-07.10, "Submittals" of the Wy'east Standards. It shall be the Contractor's responsibility to demonstrate to the Engineer's satisfaction that the requested alternative meets or exceeds the goal, purpose, efficacy and/or efficiency of the cited product, process or method. The Engineer's opinion regarding the equivalency of the requested substitution to the goals, process, efficacy, and/or efficiency of the cited product, process or method shall be final;
12. All components of the potable water system shall be analyzed for bacteriological quality in accordance with Chapter 15, Title 22 of the California Code of Regulations. A negative or absent analysis shall be achieved prior to placing any system component in service;
13. All buried water pipelines shall be polyvinyl chloride (PVC) manufactured in accordance with AWWA C900, Class 235. Solvent weld pipe and fittings shall not be permitted;
14. All pipelines transitioning from buried to above grade shall be ductile iron pipe (DIP) manufactured in accordance with AWWA C150, Class 51 or welded epoxy coated steel;
15. Changes in alignment shall be made with DIP fittings supplied with mechanical joint (MJ) ends equipped with approved restraining glands. Where the required deflection exceeds the range of one fitting, two fittings equipped with combination MJ by Flange ends may be combined into one unit to achieve the required deflection. Solvent weld fittings shall not be permitted;
16. Deflection at pipe fittings may be used to achieve slight deviations in alignment necessary for the construction of the work. Deflection shall only occur at the fittings and joints and shall not exceed 3° per fitting end. Deflection by bending the barrel of the pipe (roping) will not be permitted;
17. All buried pipeline fittings shall be DIP in accordance with AWWA C153 or C110 or epoxy coated fitings (HYMAX);
18. All buried gate valves shall be resilient seat gate valves manufactured in accordance with AWWA C509 and shall be UL and FM listed;
19. All above grade piping shall be Type 304 stainless steel. Schedule 40 welded and/or grooved stainless steel pipe and fittings may be substituted for Schedule 40 threaded stainless steel pipe and fittings;
20. All buried drainage pipelines and fittings shall be PVC, SDR35 push on gasketed pipe. Solvent weld PVC pipe and fittings shall not be permitted;
21. The Contractor shall maintain a record of actual locations of buried systems as part of the As-Built documentation. The Contractor shall include ties to permanent objects and buried components and prepare an intersection detail for each valve location. Acceptable reference points shall include but not be limited to, curb returns, end of concrete curbs, asphalt dikes, and building foundations. Where suitable permanent reference points are not readily available, the Contractor shall provide suitable visual markings at such locations and request that the Owner have such locations surveyed for the record;
22. The Contractor shall coordinate his work and the delivery and the erection of the new tanks with the suppliers thereof such that said products are available for installation at the time required by the Contractor's execution of the work. No extension in contract time or additional compensation will be permitted for the failure of the Contractor to adequately schedule the delivery of these products.

Chemeketa Park Mutual Water Company
Upper Storage Tank Replacement
Order of Work

The Contractor shall be responsible for determining the specific order of work pursuant to Section 1-06.06, Schedule of the Standard Specifications;

The Contractor is hereby advised of certain considerations that must be addressed in his scheduling and order of work:

1. Service interruptions shall be kept to the minimum required to prosecute the work;
2. A minimum storage shall be maintained at all times;
3. Demolition of the existing storage tanks and attendant pipelines and appurtenances shall be staged to ensure storage throughout the work with Tank 1 being the first demolished;
4. The new 10-inch pipeline shall be constructed and connected to the existing supply system as shown on the Project Plans;
5. The temporary storage tank shall be installed and connected to the existing supply system as shown on the Project Plans;
6. Tanks 2 and 3 and attendant pipelines and PCC pad shall be demolished once the temporary storage tank is approved for use;
7. Subexcavation and new tank erection construction and erection may proceed once demolition is compete.

LEGEND

Electric Power
Signal
Chlorine
Joint Trench [Example] (E)6"ø PVC (E)2-ea 2"ø PVC Conduits
2"ø PET
2"ø PVC
4"ø PVC
10"ø PVC
Storm Drain
Property Line
Easement Line
(E)Edge of Pavement
Centerline Creek
Top of Slope
Toe of Slope
P1 Retaining Wall Pile Number

CROSS SURVEYORS LEGEND

SET MAG NAIL, UNLESS OTHERWISE NOTED
FD. MAG NAIL, UNLESS OTHERWISE NOTED
FD. MONUMENT AS NOTED
PROPERTY OWNERSHIP PARCEL ID
CC CONCRETE
CONCRETE RETAINING WALL SUPPORT PILLAR SIZE RANGES FROM 14" DIA. TO 18" DIA.
FH FIRE HOOKUP
H HATCH OPENING
HB HOSE BIB
L LADDER
MB MAIL BOX
SIGN
1182.47 SPOT ELEVATION
SOIL BORING-APPROXIMATE LOCATION
2" SUPPORT PIPE
14" TREE AS NOTED
RDWD. REDWOOD TREE AS NOTED
WM WATER METER
WV WATER VALVE
WP 4" X 4" WOOD POST WITH CONDUIT
BOUNDARY LINE
BUILDING LINE
CENTERLINE
FENCE LINE AS NOTED
METAL POLE BARRIER
SURVEY CONTROL LINE
TOE OF SLOPE
TOP OF SLOPE

Sheets to support Application Request

Sheets included for reference only

Chemeketa Park Mutual Water Company
Tank Replacement Project
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Sheet Index

ABBREVIATIONS

Agencies and Standards			
CPMWC	Chemeketa Park Mutual Water Company (Owner)	ACP	Asbestos Cement Pipe
AWWA	American Waterworks Association	IP	Iron Pipe Size
NFPA	National Fire Protection Association	MIPT	Male Iron Pipe Thread
NEMA	National Electrical Manuifacturer's Association	FIPT	Female Iron Pipe Thread
CBC	California Building Code	PJ	Pack Joint
CPC	California Plumbing Code	PTDF	Pressure Treated Douglas Fir (Structural Grade 1)
CEC	California Electrical Code	DF	Douglas Fir
CFC	California Fire Code	AC	Asphalt Cement Pavement
SP	Standard Plan (Wy'east Engineering)	MH	Manhole
DWR	Department of Water Resources	PCC	Portland Cement Concrete
DDW	Division of Drinking Water (DWR)	CLSM	Controlled Low Strength Material
County	Santa Clara County Building and Planning	FH	Fire Hydrant
Units		DG	Decomposed Granite
PSI	Pounds per Square Inch	AB	Aggregate Base (Class 2)
PSF	Pounds per Square Foot	DI	Drainage Inlet
CF	Cubic Feet	HB	Hose Bib
CY	Cubic Yard	MJ	Mechanical Joint
Gal	Gallons	FL	Flange
CFM	Cubic Feet per Minute	PJ	Pack Joint Coupling
GPM	Gallons per Minute	PE	Plain End
FT/S	Feet per Second	CB	Catch Basin
LF	Linear Feet or Foot	**Miscellaneous**	
SCFM	Standard Cubic Feet per Minute	TW	Top of Wall
mg/l	milligrams per liter (ppm)	Hp	Height of Retaining Wall Panel
ppm	Parts per Million (mg/l)	Hr	Height of Retained Soil
µg/l	Micrograms per liter (ppb)	Dp	Depth of Pile
ppb	Parts per Billion (ug/l)	IE	Invert Elevation
Sta	Station (100-feet) (X + YY.ZZ)	FF	Finished Floor Elevation
Materials and Fittings		FG	Finished Grade Elevation
PVC	Polyvinyl Chloride (Pipe or Valve)	FH	Fire Hydrant (Steamer)
ACP	Asbestos Cement Pipe	WH	Wharf Head Hydrant
DIP	Ductile Iron Pipe	(E)XXXX	Existing Condition, Facility, Equipment, Material
GIP	Galvanized Iron Pipe	EP	Edge of Pavement
SS	Stainless Steel (Pipe or Valve)	GB	Grade Break
PE or PET	Polyethylene (Pipe or Tank)	TBD	To Be Determined
CPEP	Corrugated Polyethylene Pipe	OF	Overflow
HDPE	High Density Polyethylene Pipe	RDWD	Redwood
CMP	Corrugated Metal Pipe	Map	Maple
CP	Concrete Pipe	Syc	Sycamore
RCP	Reinforced Concrete Pipe	Oak	Oak
ADS	Advance Draniange Systems (CPEP)	RD	Road
GV	Resilient Wedge Gate Valve (AWWA C509)	ST	Street
BFV	Butterfly Valve (AWWA C504)	HWY	Highway
BV	Ball Valve	CULV	Culvert
GFTS	Glass-Fused-To-Steel Tank (AWWA D103)	Grate	Inlet Grate
Slip	Solvent Weld Slip Fitting (Existing Only)	Rim	Manhole or Inlet Rim
GR or VIC	Victaulic Groove Pipe or Fitting	Inv	Invert
		Crown	Crown of Pipe (Top of Pipe)

Chemeketa Park Mutual Water Company System
Table of Major Quantities

Item No.	Description	Unit	Quantity
1	Mobilization	LS	1
2	Installation of Temporary Storage including Connection to (E)Upper Tank Supply System	LS	1
3	Demolition of (E)Upper Storage Tanks including PCC pad	LS	1
4	Construct (N)Soldier Pile Retaining Wall at Lower Tank Site	SF	1 545
5	Lower Tank Site Grading - Cut (Overexcavation) plus Retaining Wall Excavation	CY	115
6	Lower Tank Grading -Backfill	CY	113.6
	including Controlled Low Strength Material and Retaining Wall Backfill		
	Lower Contact Tank Grading Total	CY	222.6
7	Erect New Lower Tank: 88,000-gallon (net) Potable Water Storage Tank with Piping	LS	1
8	Upper Tank Site Grading - Cut (Overexcavation)	CY	140
9	Upper Tank Grading -Foundation Backfill (Controlled Low Strength Material)	CY	140
	Upper Tank Grading Total	CY	280
10	Erect New Upper Tank: 157,000-gallon (net) Potable Water Storage Tank with Piping	LS	1
11	New 10"ø PVC (AWWA C900) Pipeline with Valves and Fittings	LF	85
12	Reconnection to Supplying Water System	LS	1
13	New 4"ø CPEP Drain Line (ADS N12)	LF	40
14	Service Reconnection to 17680 Ogallala Warpath Road	LS	1

Revision	Date:
1 Updated Grading Qty to Inc. Wall	dra - 2/24

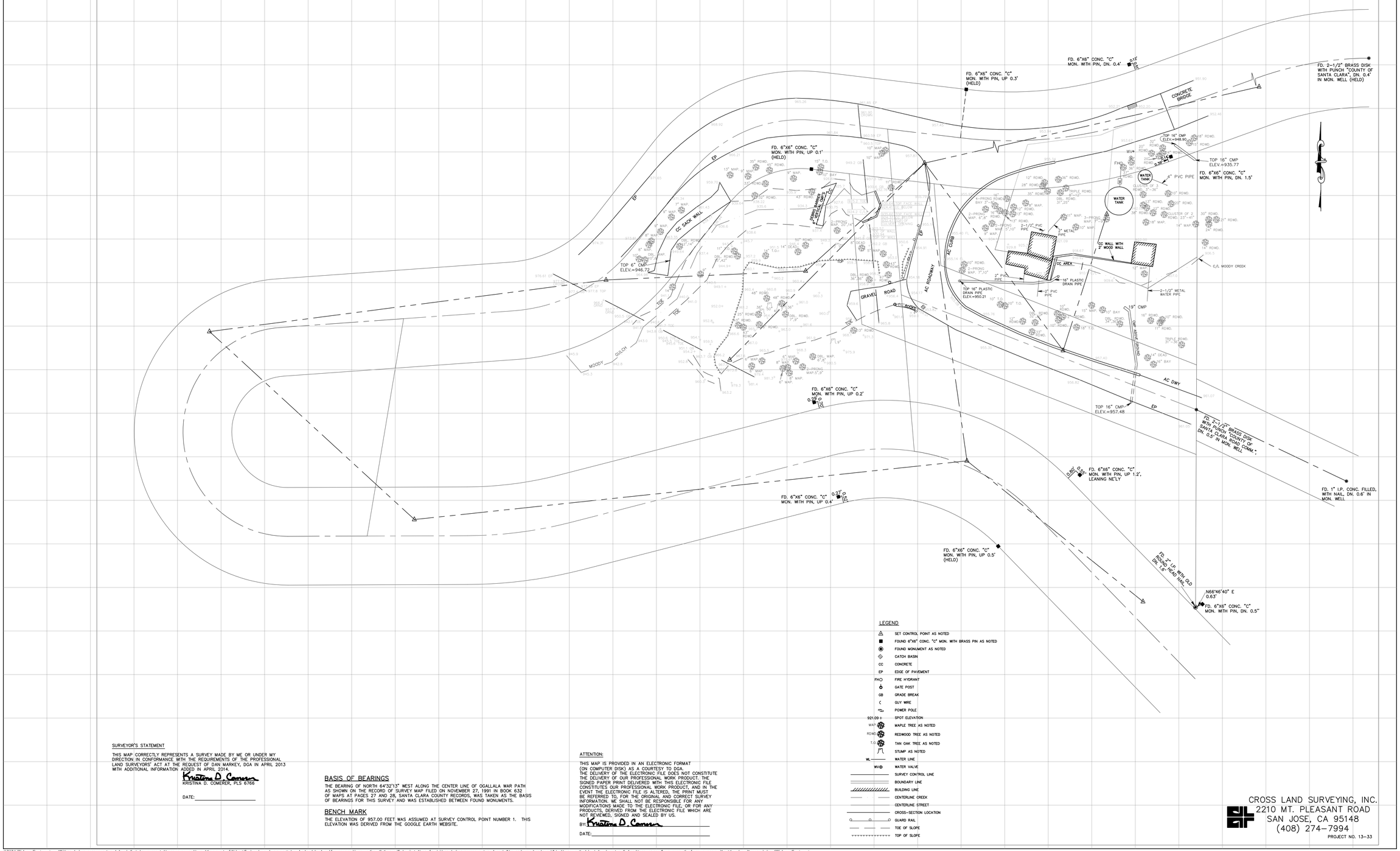
CHEMEKETA PARK MUTUAL WATER COMPANY
~
Tank Replacement Project
General Notes, Sheet Index, Table of Major Quantities

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: None
Drawn: DRA
Job: 22-002
Sheet C1

TOPOGRAPHIC SURVEY
CHEMEKETA PARK
MUTUAL WATER COMPANY
OLD SANTA CRUZ HIGHWAY
MAY 2013
UPDATED: APRIL 2014
SCALE: 1" = 20'
CONTOUR INTERVAL = 1 FOOT



LEGEND

- SET CONTROL POINT AS NOTED
- FOUND 6"X6" CONC. "C" MON. WITH BRASS PIN AS NOTED
- FOUND MONUMENT AS NOTED
- CATCH BASIN
- CC CONCRETE
- EP EDGE OF PAVEMENT
- FH FIRE HYDRANT
- GATE POST
- GB GRADE BREAK
- GUY WIRE
- POWER POLE
- 921.09+ SPOT ELEVATION
- MAP MAPLE TREE AS NOTED
- RDWD REDWOOD TREE AS NOTED
- T.O. TAN OAK TREE AS NOTED
- STUMP AS NOTED
- WL WATER LINE
- WV@ WATER VALVE
- SURVEY CONTROL LINE
- BOUNDARY LINE
- BUILDING LINE
- CENTERLINE CREEK
- CENTERLINE STREET
- CROSS-SECTION LOCATION
- GUARD RAIL
- TOE OF SLOPE
- TOP OF SLOPE

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF DAN MARKEY, DGA IN APRIL 2013 WITH ADDITIONAL INFORMATION ADDED IN APRIL 2014.

Kristina D. Comeer

KRISTINA D. COMEER, PLS 6766

DATE: _____

BASIS OF BEARINGS

THE BEARING OF NORTH 64°32'13" WEST ALONG THE CENTER LINE OF OGALLALA WAR PATH AS SHOWN ON THE RECORD OF SURVEY MAP FILED ON NOVEMBER 27, 1991 IN BOOK 632 OF MAPS AT PAGES 27 AND 28, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK

THE ELEVATION OF 957.00 FEET WAS ASSUMED AT SURVEY CONTROL POINT NUMBER 1. THIS ELEVATION WAS DERIVED FROM THE GOOGLE EARTH WEBSITE.

ATTENTION:

THIS MAP IS PROVIDED IN AN ELECTRONIC FORMAT (ON COMPUTER DISK) AS A COURTESY TO DGA. THE DELIVERY OF THE ELECTRONIC FILE DOES NOT CONSTITUTE THE DELIVERY OF OUR PROFESSIONAL WORK PRODUCT. THE SIGNED PAPER PRINT DELIVERED WITH THIS ELECTRONIC FILE CONSTITUTES OUR PROFESSIONAL WORK PRODUCT, AND IN THE EVENT THE ELECTRONIC FILE IS ALTERED, THE PRINT MUST BE REFERRED TO, FOR THE ORIGINAL AND CORRECT SURVEY INFORMATION. WE SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THE ELECTRONIC FILE, OR FOR ANY PRODUCTS DERIVED FROM THE ELECTRONIC FILE WHICH ARE NOT REVIEWED, SIGNED AND SEALED BY US.

BY: Kristina D. Comeer

DATE: _____

CROSS LAND SURVEYING, INC.
2210 MT. PLEASANT ROAD
SAN JOSE, CA 95148
(408) 274-7994
PROJECT NO. 13-33

Revision	Date:

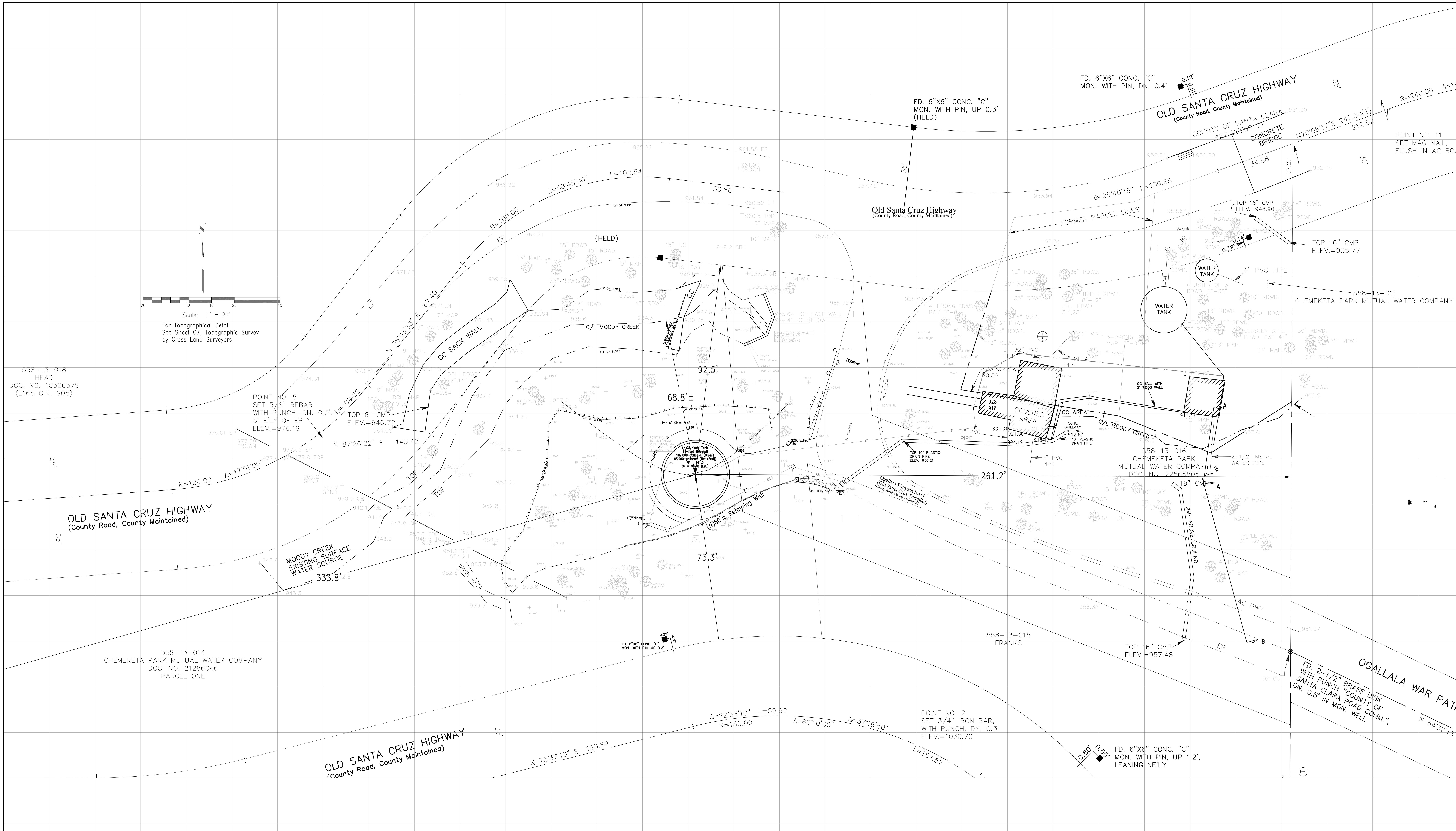
CHEMEKETA PARK MUTUAL WATER COMPANY
~
Lower Tan Site
Cross Land Surveying Topographic and Boundary Survey

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)603-6126

Date:	9/23
Scale:	N'TS
Drawn:	DRA
Job:	22-002
Sheet	C2 of 24

C:\Chemeketa\Lower Tank\Cross Lower Topo.dwg, Sheet C2 - Cross Lower Topographic and Boundary Survey



1 – LOWER CONTACT TANK SITE PLAN with BOUNDARIES and OFFSETS

SCALE: 1" = 20'

C:\Chemeketa\Lower Tank\Lower Tank Site Plan.dwg,, Sheet C3 - Lower Tank Boundary Offsets

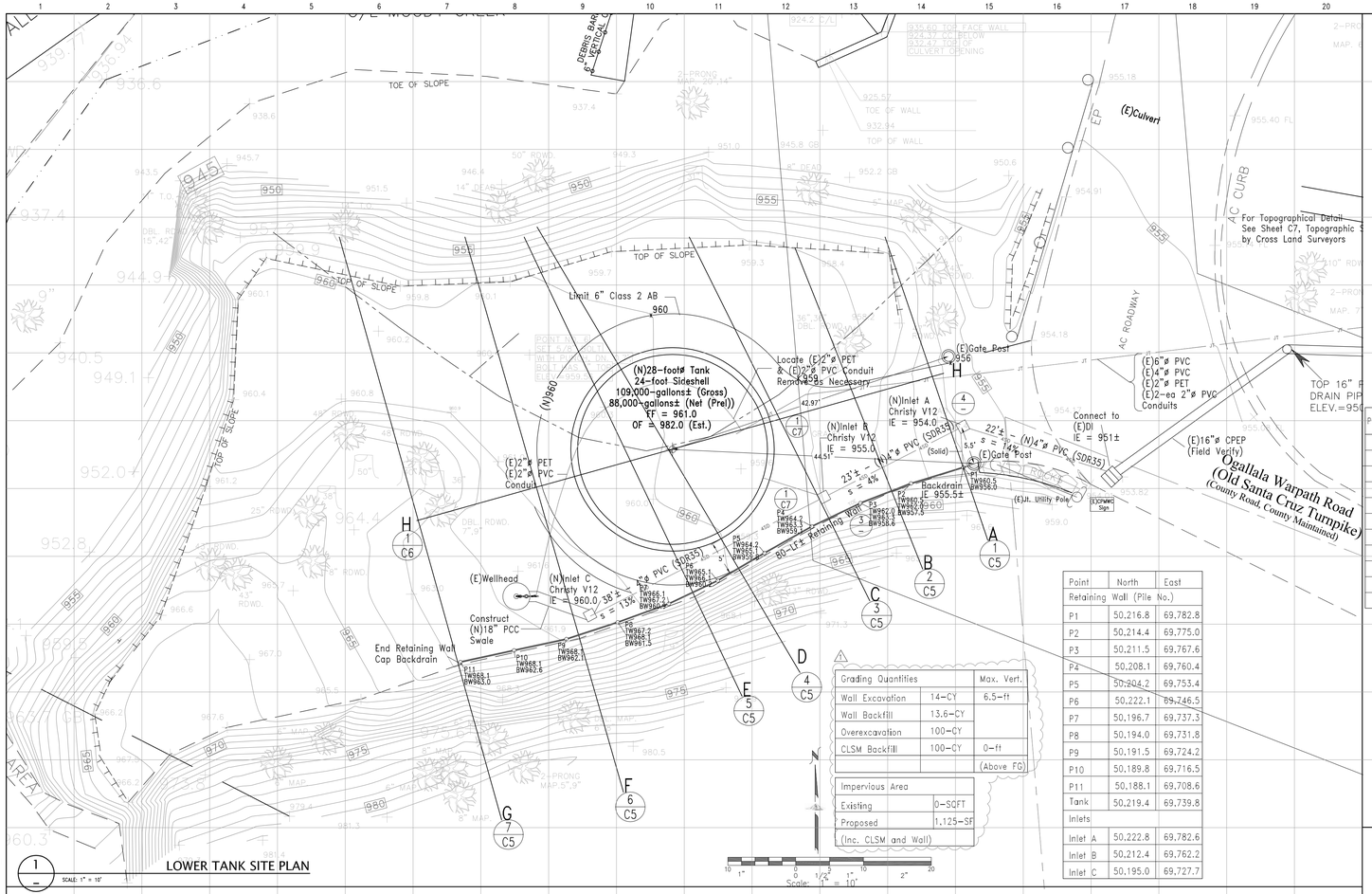
Revision	Date:

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Lower Contact Tank Site
Site Plan with Boundaries and Offsets

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: 1" = 20'
Drawn: DRA
Job: 22-002
Sheet C3 of 24



1 — LOWER TANK SITE PLAN
SCALE: 1" = 10'

Grading Quantities		Max. Vert.
Wall Excavation	14-CY	6.5-ft
Wall Backfill	13.6-CY	
Overexcavation	100-CY	
CLSM Backfill	100-CY	0-ft
		(Above FG)

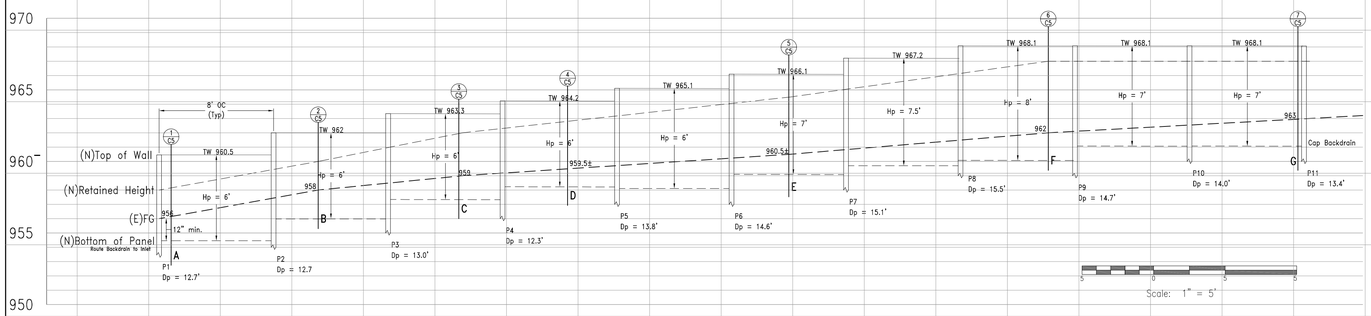
Impervious Area	
Existing	0-SQFT
Proposed	1,125-SF
(Inc. CLSM and Wall)	

Scale: 1" = 10'

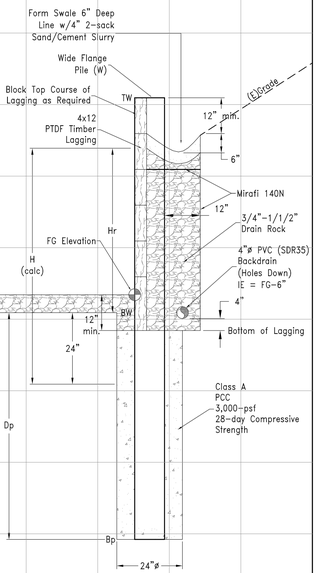
Point	North	East
Retaining Wall (Pile No.)		
P1	50,216.8	69,782.8
P2	50,214.4	69,775.0
P3	50,211.5	69,767.6
P4	50,208.1	69,760.4
P5	50,204.2	69,753.4
P6	50,222.1	69,746.5
P7	50,196.7	69,737.3
P8	50,194.0	69,731.8
P9	50,191.5	69,724.2
P10	50,189.8	69,716.5
P11	50,188.1	69,708.6
Tank	50,219.4	69,739.8
Inlets		
Inlet A	50,222.8	69,782.6
Inlet B	50,212.4	69,762.2
Inlet C	50,195.0	69,727.7

RETAINING WALL NOTES

1. The plans and details shown hereon are intended to demonstrate the intent of the work required to construct the retaining wall at the Lower Tank site;
2. The dimensions and elevations shown hereon are provided solely for the Contractor's convenience in preparing his proposal;
3. The Contractor shall be responsible for field verifying all conditions and for determining the means and methods for executing the work;
4. Soldier piles shall be W-section wide flange beams;
5. Soldier piles shall be A36 mild steel (Fy = 36-ksi);
6. Retaining wall lagging shall be 4x12 pressure treated Structural Grade No 1 Douglas Fir (PTDF);
7. Lagging shall be blocked against the front flange of the pile until backfilling is complete;
8. Pile spacing shall be a nominal 8-feet OC. Exact spacing shall be determined in the field to minimize field cutting of PTDF materials;
9. Hp = Panel (Lagging) Height (min.);
10. Dp = Depth of Pile Below (E)FG (min.);
11. Hr = Retained Height of soil
12. H = Hr + 2-feet for calculation purposes;
13. TW = Top of Panel (may be stepped);
14. BW = (E)Finish Grade;
15. Bp = Bottom of Pile;
16. Embed lagging 12" min. below (E)FG;
17. Cut ends of lagging shall be soaked in a copper napthante solution (Cuprinol or approved substitute) and coated with bitumastic prior to installation.



2 — LOWER TANK- RETAINING WALL PROFILE
SCALE: 1" = 5' Hor & Vert



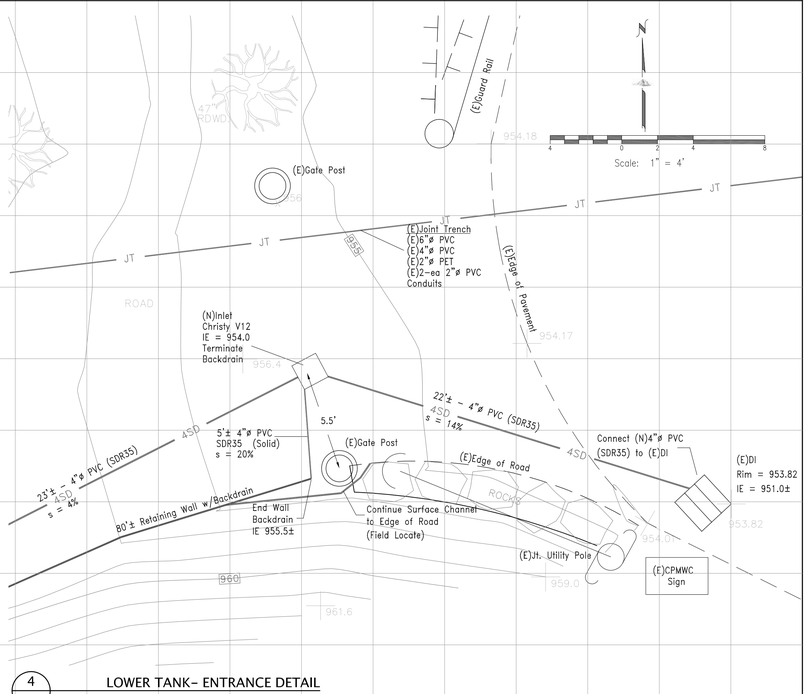
Chemeketa Park Mutual Water Company
Lower Tank Site
Retaining Wall Data

Pile No.	North	East	TW (MSL)		BW (MSL) (E)FG	Hr (ft)	H (Hr + 2)	W Section (min.)	Dp (ft) (min.)	Bp (MSL)	Pile Length (ft - min.)
P1	50,216.8	69,782.8	960.5		956.0	2.0	4.0	8x10	9.4	946.6	13.9
P2	50,214.4	69,775.0	960.5	962.0	957.5	2	4.0	8x10	9.4	948.1	13.9
P3	50,211.5	69,767.6	962.0	963.3	958.6	2.5	4.5	8x10	10.0	948.6	14.7
P4	50,208.1	69,760.4	963.3	964.2	959.1	3.1	5.1	8x10	10.8	948.3	15.9
P5	50,204.2	69,753.4	964.2	965.1	959.8	3.5	5.5	8x13	11.4	948.4	16.7
P6	50,222.1	69,746.5	965.1	966.1	960.2	3.8	5.8	8x13	11.8	948.4	17.7
P7	50,196.7	69,737.3	966.1	967.2	960.9	4.2	6.2	8x15	12.3	948.6	18.6
P8	50,194.0	69,731.8	967.2	968.1	961.5	4.6	6.6	8x21	12.8	948.7	19.4
P9	50,191.5	69,724.2	968.1		962.1	4.9	6.9	8x21	13.2	948.9	19.2
P10	50,189.8	69,716.5	968.1		962.6	4.5	6.5	8x21	12.7	949.9	18.2
P11	50,188.1	69,708.6	968.1		963.0	4.0	6.0	8x13	12.0	951.0	17.1

Grading Quantities	
Wall Excavation	14-CY±
Wall Backfill	13.6-CY±
Overexcavation	100-CY±
CLSM Backfill	100-CY±

Notes
1. Geotechnical Report: Lower Tank E5074 Chemeka Park Tank Rpt 2014 Cotton Shires April 2014;
2. Calculation software: Cantilever Shoring V1.18 by SoilStructure Software
3. All piles shall be W-section A36 steel;
4. All lagging shall be 4x12 Structural Grade No. 1 PTDF;
5. Pile spacing shall be a nominal 8-feet on center;
6. Equivalent Fluid Pressure (Lateral Load) 80-psf;
7. Equivalent Fluid Pressure (Passive Resistance) 450-psf;
8. Diameter of Pile Bore = 24";
9. Hr = height above (E)FG;
10. Calculated H = Hr + 2' for calculation purposes;

3 — LOWER TANK- RETAINING WALL SECTION
SCALE: NTS



4 — LOWER TANK- ENTRANCE DETAIL
SCALE: 1" = 4'

Revision	Date:
Update Wall Table	drn - 2/24
Add Quantities	drn - 2/24

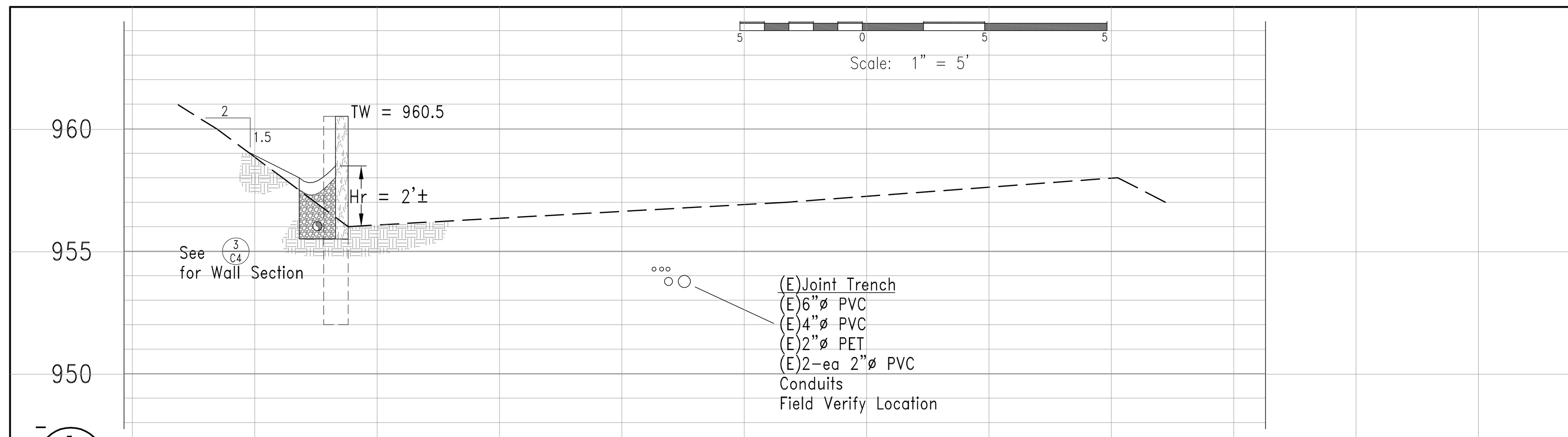
CHEMEKETA PARK MUTUAL WATER COMPANY
~
Lower Contact Tank Site
Site Plan, Profile and Wall Section

Wyeast Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

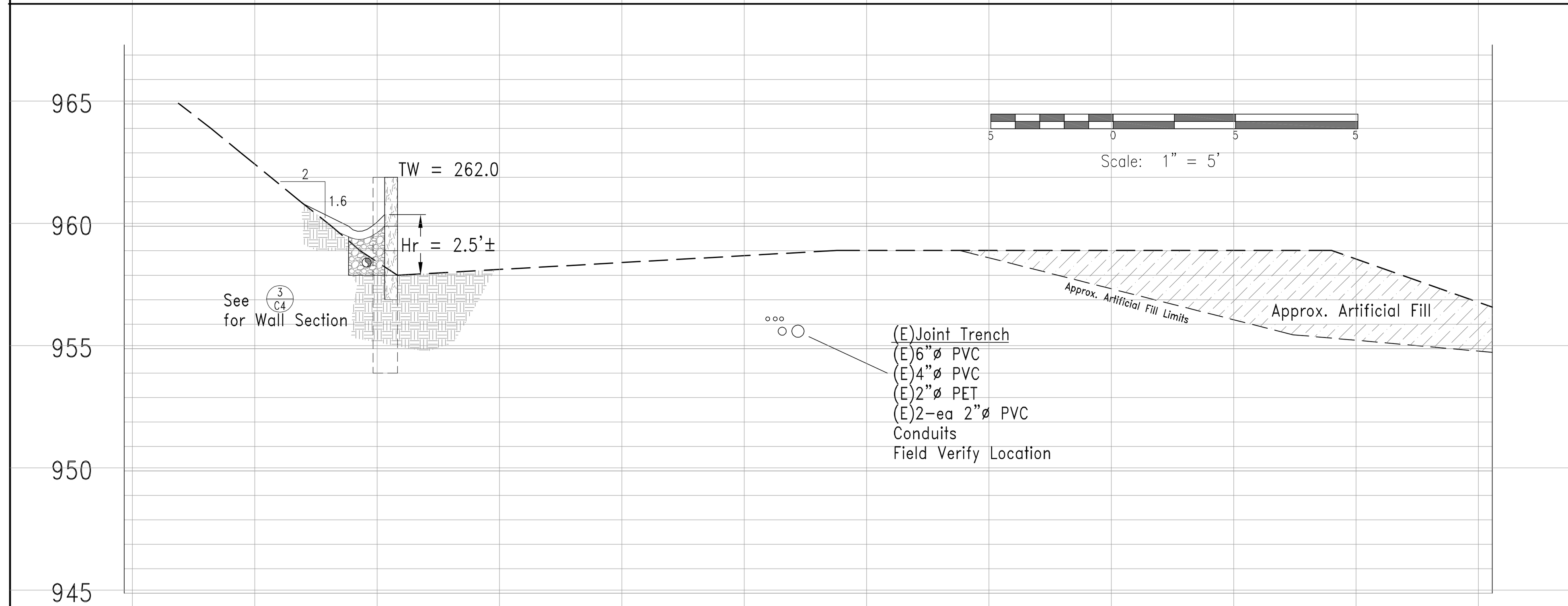
CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588 95044
Los Gatos, California
(650)859-1833

Date: 8/23
Scale: As Shown
Drawn: DRA
Job: 22-002
Sheet C4 of 24

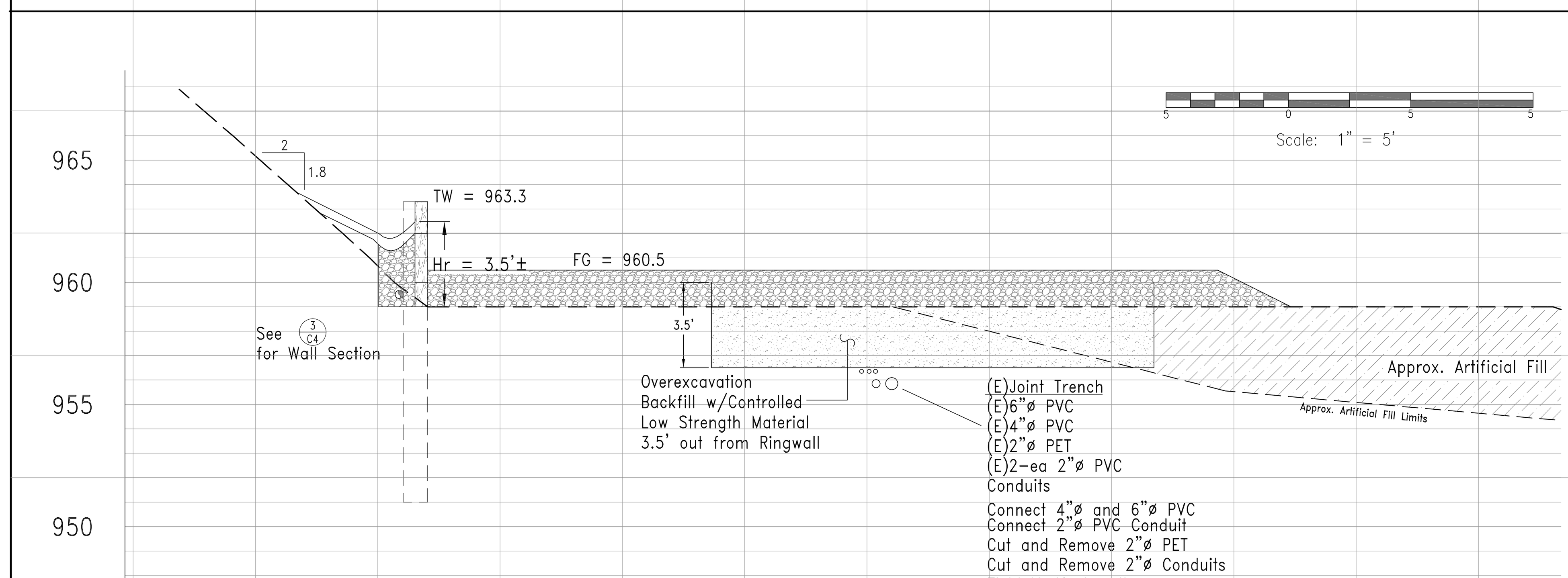
C:\Chemeketa\Lower Tank\Lower Tank Site Plan.dwg, Sheet C4 - Lower Tank Site Plan



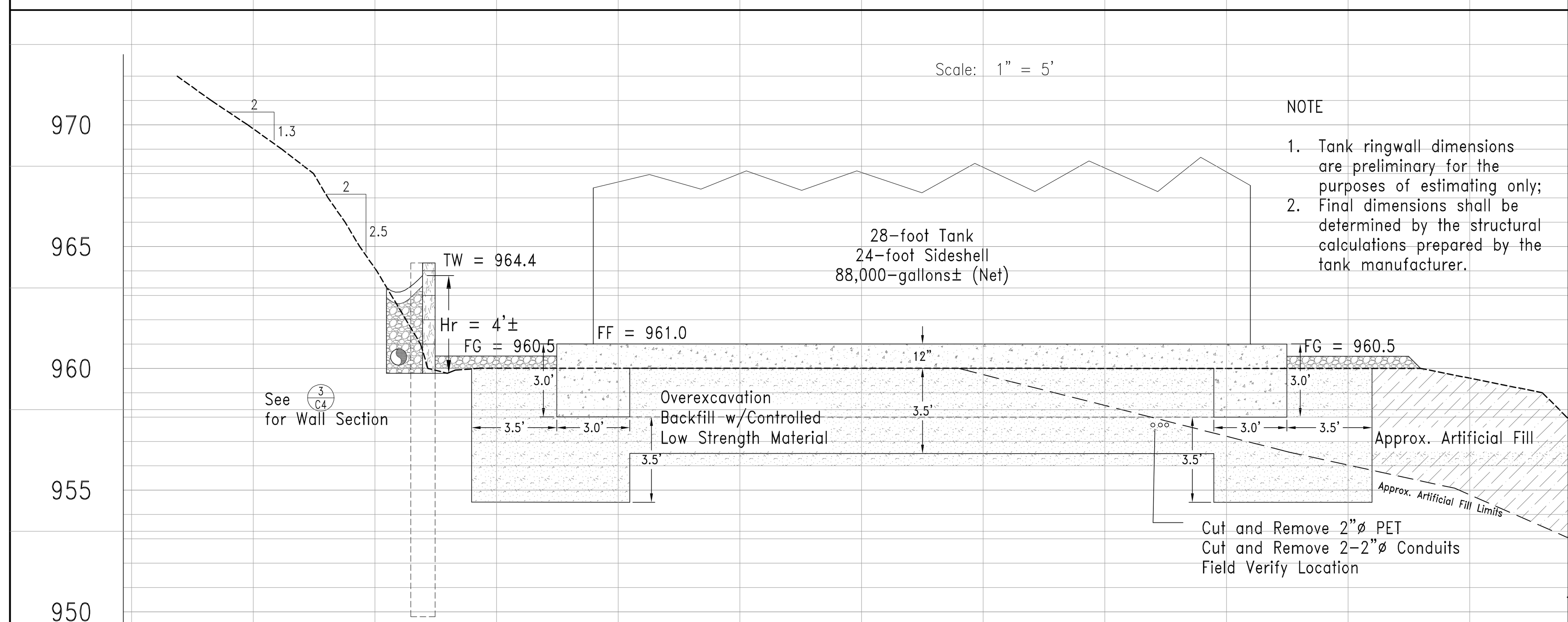
1 LOWER TANK- RETAINING WALL PROFILE
SECTION A-A
SCALE: 1" = 5' Hor & Vert



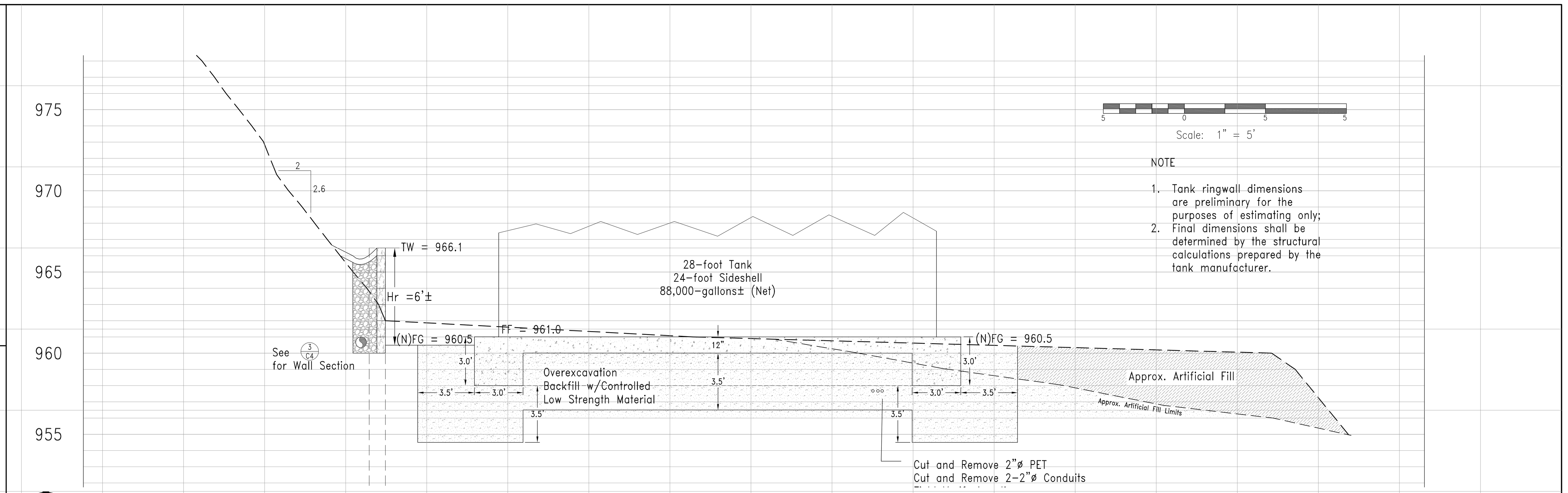
2 LOWER TANK- RETAINING WALL PROFILE
SECTION B-B
SCALE: 1" = 5' Hor & Vert



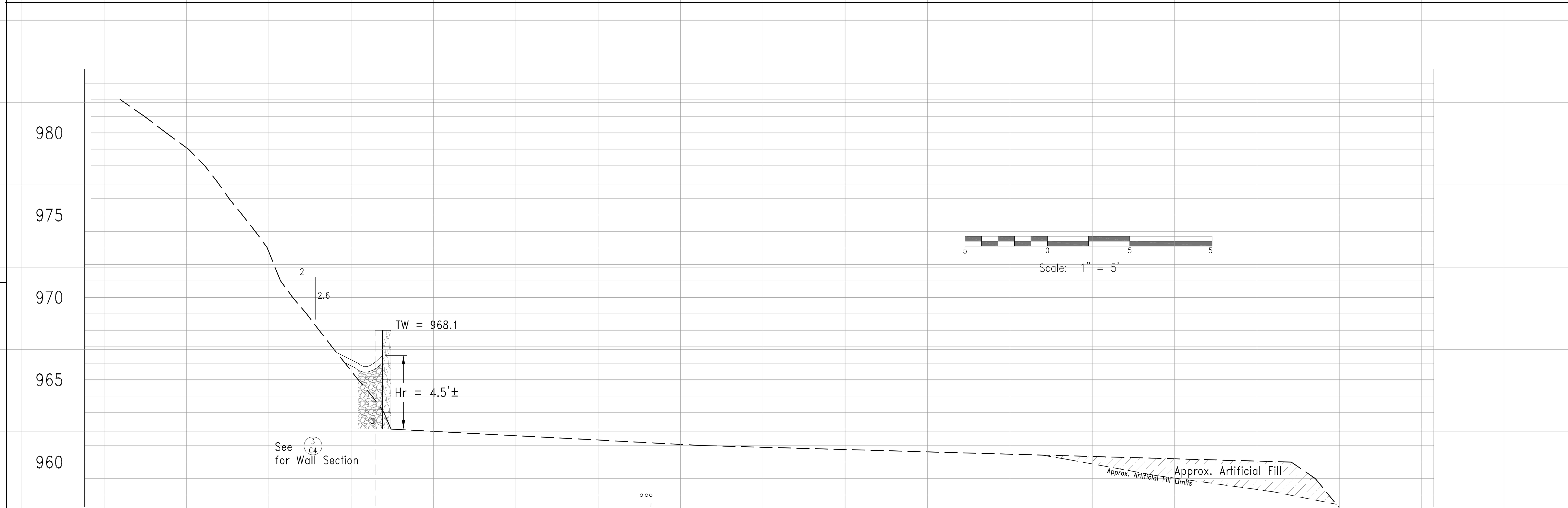
3 LOWER TANK- RETAINING WALL PROFILE
SECTION C-C
SCALE: 1" = 5' Hor & Vert



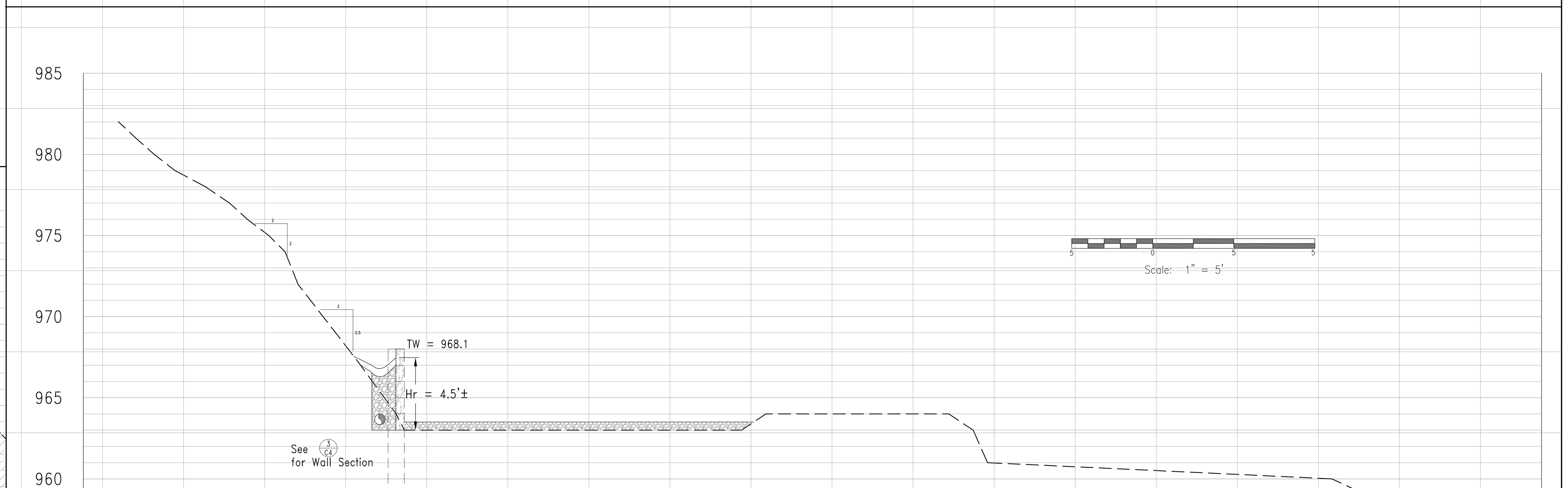
4 LOWER TANK- RETAINING WALL PROFILE
SECTION D-D
SCALE: 1" = 5' Hor & Vert



5 LOWER TANK- RETAINING WALL PROFILE
SECTION E-E
SCALE: 1" = 5' Hor & Vert



6 LOWER TANK- RETAINING WALL PROFILE
SECTION F-F
SCALE: 1" = 5' Hor & Vert



7 LOWER TANK- RETAINING WALL PROFILE
SECTION G-G
SCALE: 1" = 5' Hor & Vert

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Lower Contact Tank Site
Cross Sections A through G

Revision | Date:

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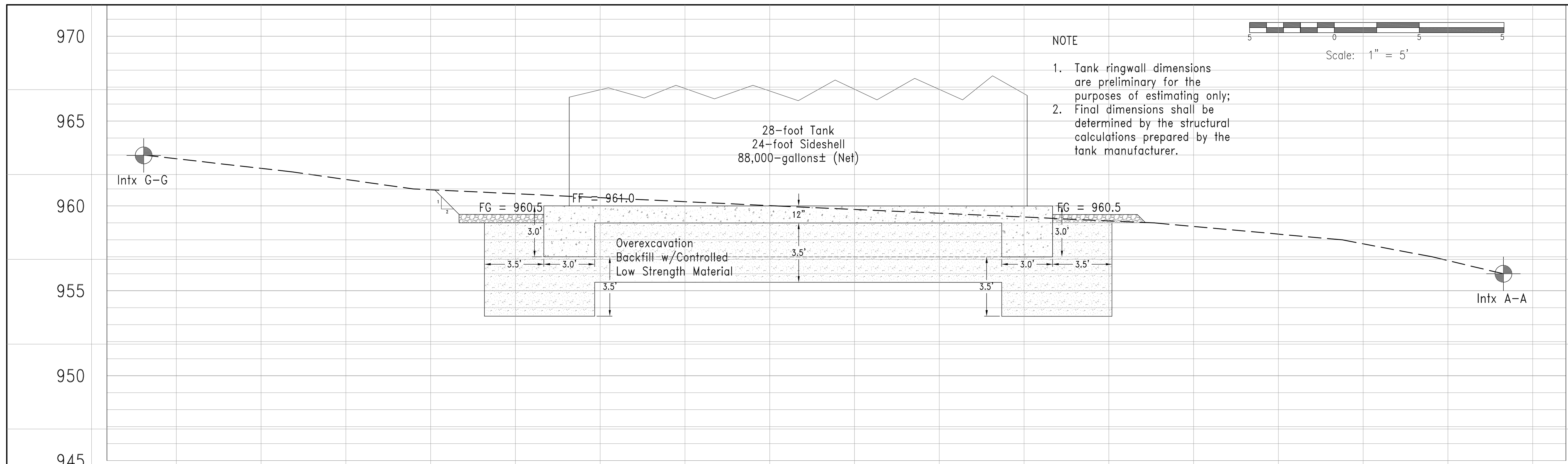
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: As Shwon
Drawn: DRA
Job: 22-002
Sheet C5 of 24



NOTE

1. Tank ringwall dimensions are preliminary for the purposes of estimating only;
2. Final dimensions shall be determined by the structural calculations prepared by the tank manufacturer.

1 LOWER TANK- SITE CROSS SECTION
SCALE: 1" = 5' Hor & Vert
SECTION H-H

Revision	Date:

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Lower Contact Tank Site
Cross Section H-H

Wy'east Engineering
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Salinas, CA 93906
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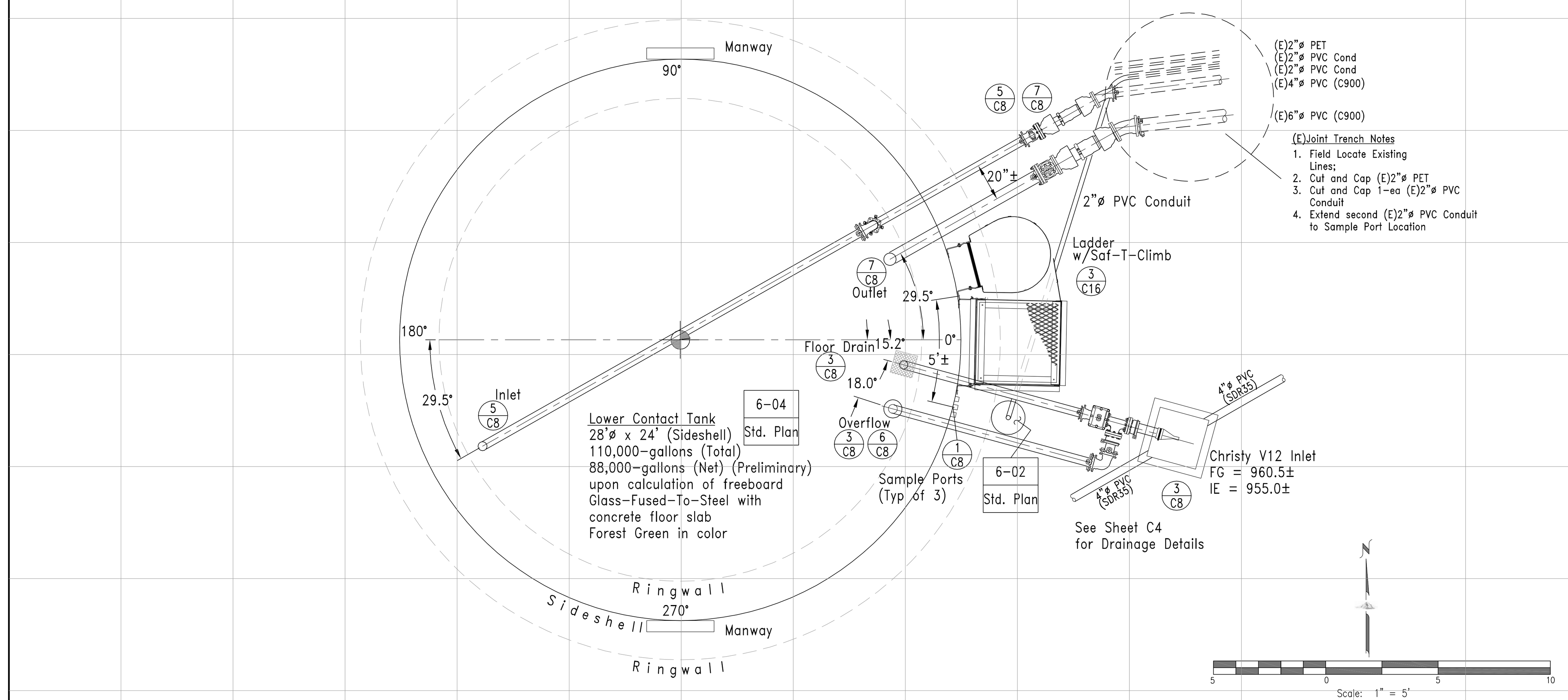
CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: As Shown
Drawn: DRA
Job: 22-002
Sheet C6 of 24

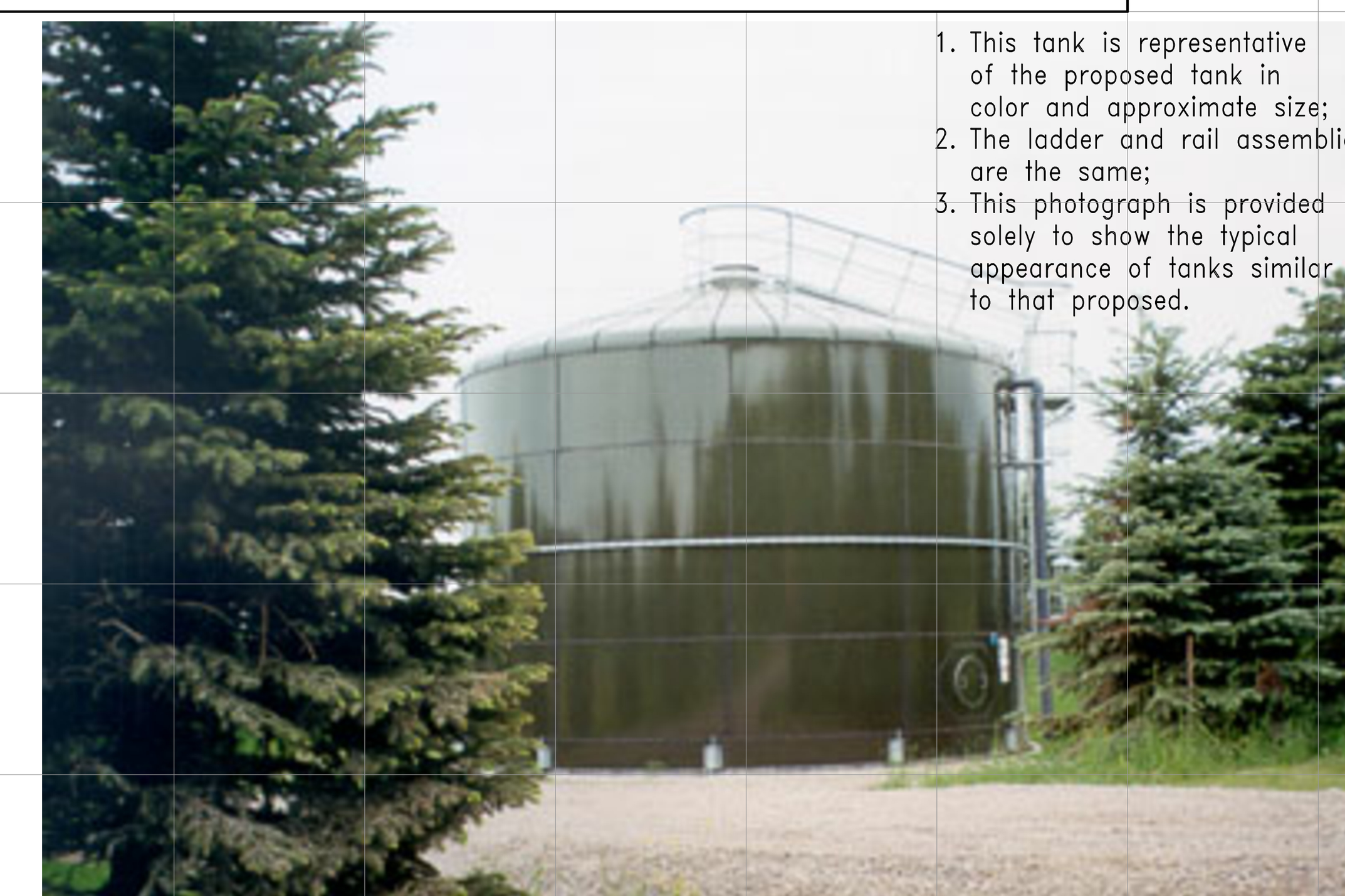


1 - LOWER TANK LAYOUT

SCALE: 1" = 5'

TANK GENERAL NOTES

1. The tank shall be Glass-Fused-To-Steel manufactured in accordance with AWWA D103;
2. The tank manufacturer shall provide plans, details and calculations signed and stamped by an engineer licensed to practice in the State of California;
3. Structural and seismic design of the tank and foundation shall refer to that geotechnical report prepared by Cotton Shires and Associates dated May 2014 and the Supplemenatal Report dated April 2023;
4. Special Inspection per CBC may be required by the design cited in 2 above;
5. The documents in 2 above will be submitted for review as a deferred submittal upon ordering the tank;
6. The tank shall be 110,000-gallon nominal capacity;
7. Tank side shell shall be 23.84-feet including freeboard (4-feet max);
8. Tank diameter shall be 28-feet;
9. Floor shall be Class A portland cement concrete, w/XYPEX C500 added as designed in 2 above;
10. Site piping for inlet, outlet, and overflow discharge shall be as provided for on Sheet C8 of 23;
11. Coatings shall be NSF61 Compliant;
12. Tank vents shall be screened with 1/8" or smaller mesh insect screen;
13. No logo sheet will be permitted;
14. Level indication shall be a dual read pressure gauge installed on one sample tap per Standard Plan 6-04;
15. The tank floor slab shall be cured by ponding for a minimum of 7-days or that method recommended by the manufacturer;
16. Upon completion of the leak test, the tank shall be disinfected in accordance with AWWA C652, Method 3.
17. Wherever herein the word Contractor is used, it shall mean the General Contractor and any specialty subcontractors for which this proposal is solicited;
18. The Tank Contractor as herein defined shall be responsible for all work within 3-feet of the ringwall including but not limited to, foundation excavation, piping, valving, floor penetrations, all concrete work, ladders and tank erection;
19. All work outside 3-feet outside the ringwall shall be the responsiblity of the General Engineering contractor.



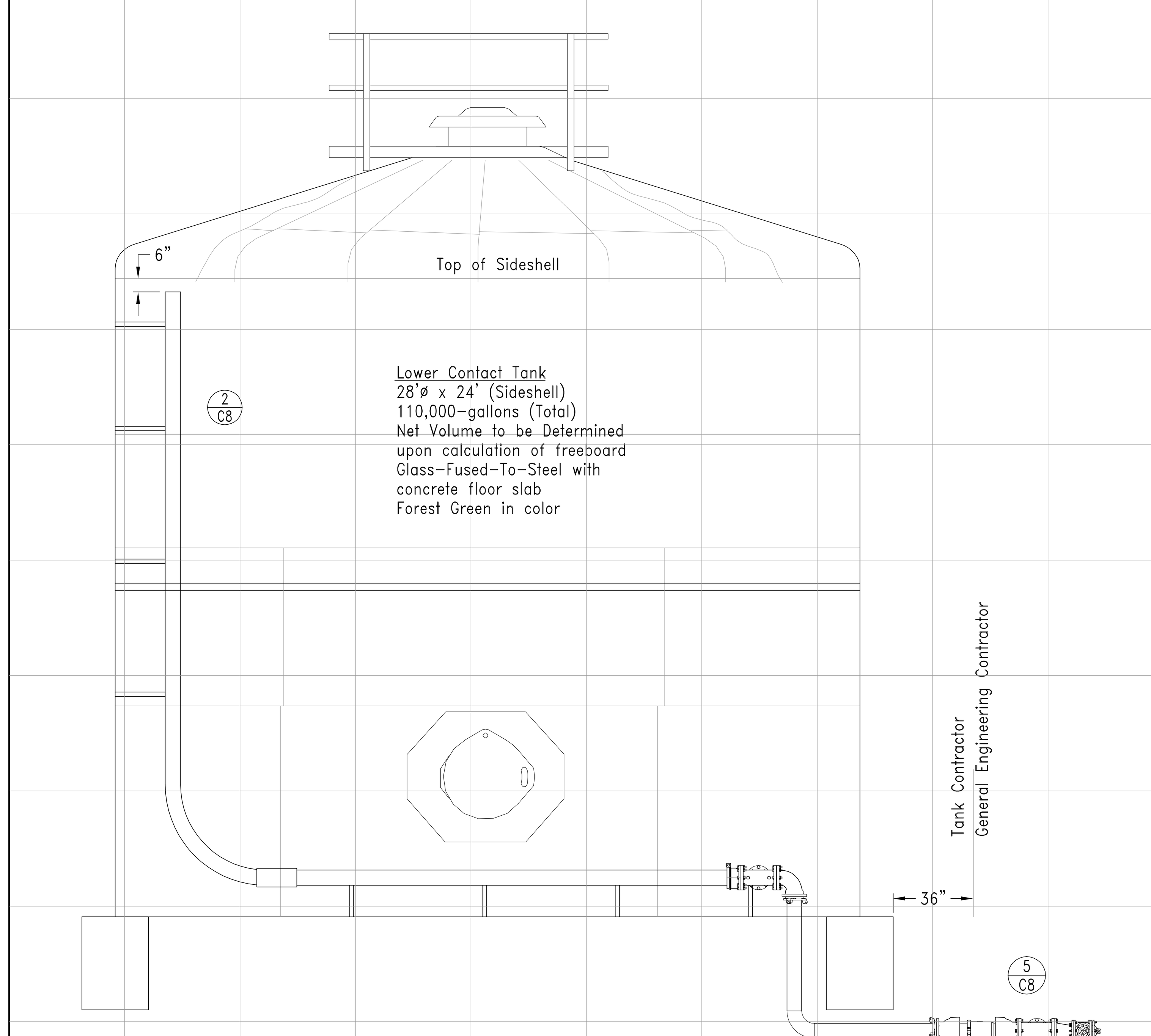
1. This tank is representative of the proposed tank in color and approximate size;
2. The ladder and rail assemblies are the same;
3. This photograph is provided solely to show the typical appearance of tanks similar to that proposed.

Water Storage Tank
Information to Bidders Checklist
Chemeketa Park Mutual Water Company
Lower Tank

Date: 8/1/2023

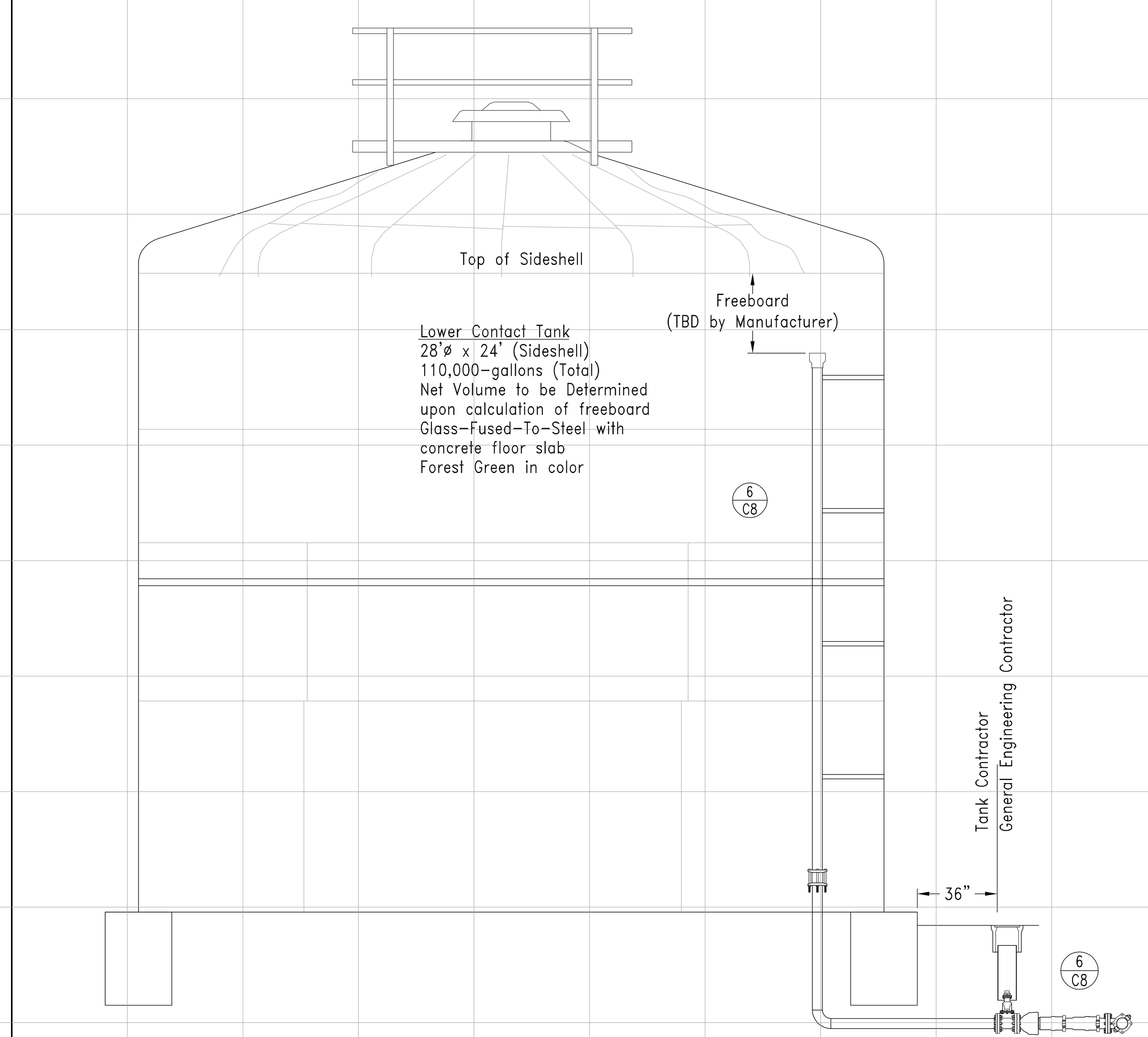
#		Item	Value	
1		**Tank Identification**	Chemeketa Lower Tank	
2		**Owner**		
	A	Name	Chemeketa Park Mutual Water Company	
	B	Address	P.O. Box 588	
			Redwood Estates, CA 95044	
	C	Telephone	(408)859-1833	
	D	FAX		
	E	E-mail	gbruder@gmail.com	
	F	Prevailing Wage	Yes	
4		**Tank Location**		
5	A	Address	18000 Ogallala Warpath Road	
	B	Latitude	N37.1639	
	C	Longitude	W121.9867	
	D	Access	AC Pavement	
	E	Staging Area	Unpaved	
	F	Nearest City	Los Gatos, CA	
	G	Nearest Railhead	San Jose, CA	
	H	On-site Power	Yes per Details	
	I	On-site Pneumatic	No	
6		**Schedule**		
		Bid Opening Date	TBD	
		Assumed Notice to Proceed	TBD	
		Resulting Completion Date	TBD	
7		**Geotechnical Report**	Cotton Shires & Associates E5074 and E5074B	
		Soil Bearing Load	2000-psf	
8		Shop Inspection Required	No	
17		**Tank Geometry**		
		Net Capacity (after freeboard)	88,000-gallon net (preliminary)	
		Diameter (max. allow.)	28' nominal	
		Sideshell Height (max. allow.)	24' nominal	
		Min. Foundation Exposure	6"	
		Tank Color	Forest Green Green	Interior N/A
23		**Appurtenances**		
	A	Interior Ladder	Yes per Manufacturer	
	B	Exterior Ladder	Yes per Manufacturer	
	C	Landing Platform	Yes per Manufacturer	
	D	Anti-Climb	Yes per Manufacturer	
	E	Safety Climb	Yes	
	F	Vent Access w/Hand Rails	Locking Roof Hatch	
	G	Vent Capacity	500-CFM minimum	
	H	Manways	2-ea 24-inch	
	I	Sampling Ports		
	i	Size	2-inch	
	ii	No.	3-each per Details	
24		**Piping Requirements**		
	I	Inlet	4-inch per Details	
	J	Outlet	6-inch per Details	
	K	Overflow	4-inch per Details	
	L	Removable Silt Stop	No	
	M	Drain	4-inch floor drain per Details	
	N	Vent Screening	Yes per Details	
27		**Shop Drawings Required**		
	A	Structural Calculations		
	i	Loads for the Shell and Roof		
	ii	Loads Imposed on Foundation		
	iii	Moment and Shear under Seismic & Wind Loading		
	iv	Shell, roof and anchorage calculations		
		Structural calculations shall be prepared, signed and stamped		
		by an Engineer licensed to practice in the the state of California		

#		Item	Value			
3		**Engineer**				
	A	Name	Wy'east Engineering			
	B	Address	1245 Kari Lane			
			Nipomo, California 93444			
	C	Tele.	(831)443-5514			
	D	Mobile	(831)594-2660			
	E	E-mail	Doug.Allen@wyeasteng.com			
9		**Life Cycle Cost Analysis**				
	A	Inspection & Touch Up Schedule	N/A			
	B	Recoating Schedule	N/A			
	C	Replacement Schedule	N/A			
	D	Present Worth Rate	N/A			
	E	Annual Inflation Rate	N/A			
10		Tank Function	Surface Water Treatment Contact Tank			
11		NSF61 Compliant Required	Yes			
12		Site Specific Health Requirements	None			
13		Tank Structure Type	AWWA D103 Bolted Steel GFTS			
14		Applicable Standards				
	A	General	NFPA 22, AWWA D103			
	B	Structure	NFPA 22, AWWA D103			
	C	Coating	Glass-Fused-To-Steel (GFTS)			
15		Cathodic Protection Required	Yes			
16		Warranty	5-year			
18		Piping Requirements	Supply by Others; Connection by Contractor			
19		Piping Depth of Cover	See Project Plans			
20		Roof Type	GFTS			
21		Floor Type	Reinforced concrete with embedded starter sheet			
22		Special Inspection Req'd	Provided by Owner			
25		**Design Criteria**				
	A	Seismic Design				
	i	Seismic Risk Categ.	IV	Design Categ.	F	
	ii	Site Specific Spectral Response				
		S_S =	2.78	$S_{MS} = F_a S_s$ =	2.89	PGA_M = 1.02
		S_1 =	1.07	$S_{M1} = F_V S_1$ =	1.53	V_{S30} = 530
		TL =	12-sec	S_{DS} = (2/3)S_{MS} =	1.93	
		Site Class =	C	S_{D1} = (2/3)S_{M1}	1.02	
	B	Wind Loading				
		V3s =	85-mph			
		VFM =	71-mph			
	C	Snow Loading	25-psf			
	D	Special Loadings	No			
26		Foundation (inc. Seismic Restraint as Required)				
	A	Designed By	Contractor			
	B	Constructed By	Contractor			
	B	Dimensioned Drawings Required				
	i	Foundation	viii			
	ii	Tank Shell				
	iii	Tank Roof				
	iv	Seismic Restraint				
	v	Piping Details				
	vi	Shell Penetrations				
	vii					



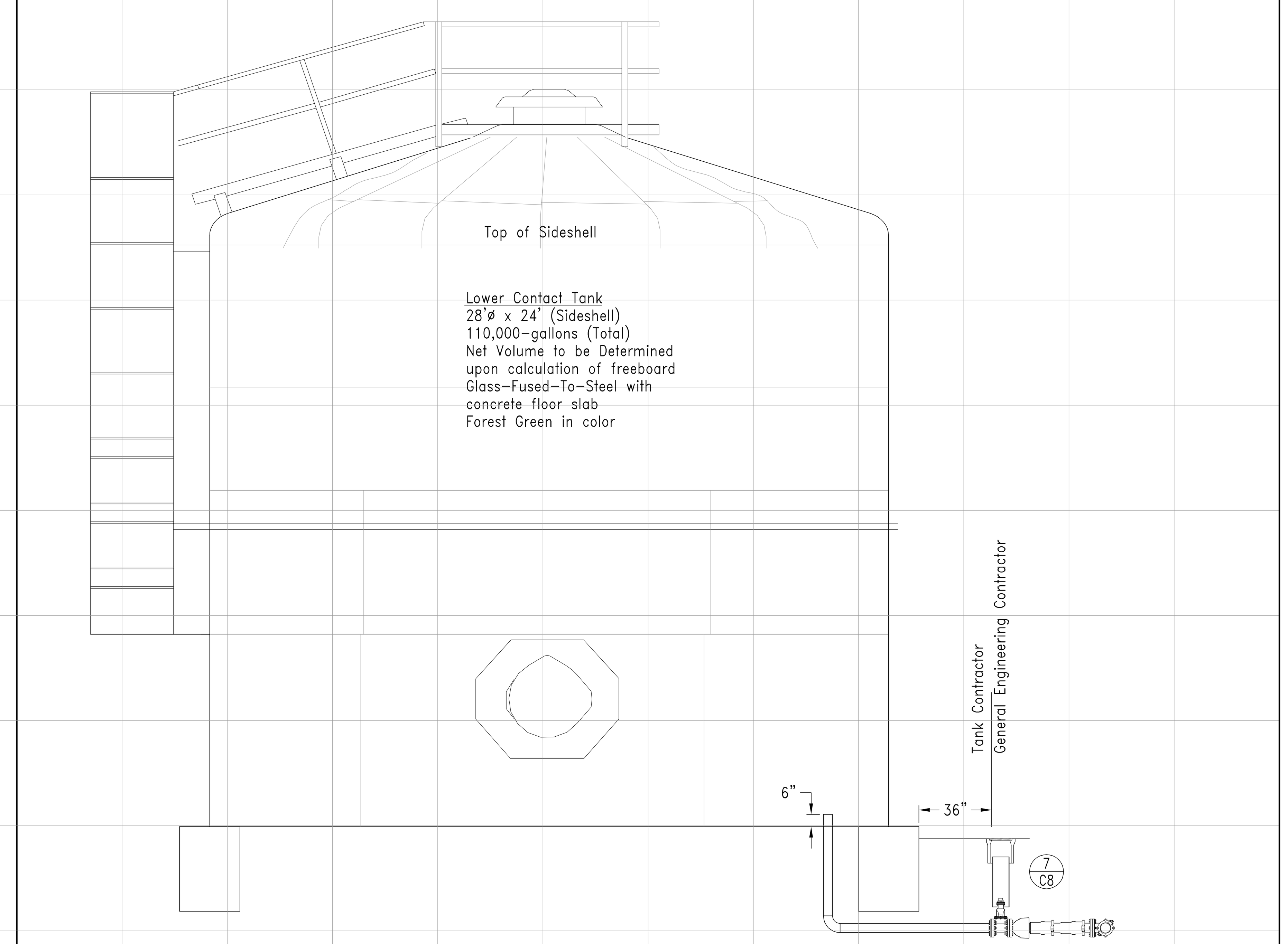
2 - LOWER TANK - INLET ELEVATION

SCALE: NTS



3 - LOWER TANK - OVERFLOW ELEVATION

SCALE: NTS



4 - LOWER TANK - OUTLET ELEVATION

SCALE: NTS

Revision	Date:
Add Tank Photo	dra - 2/24

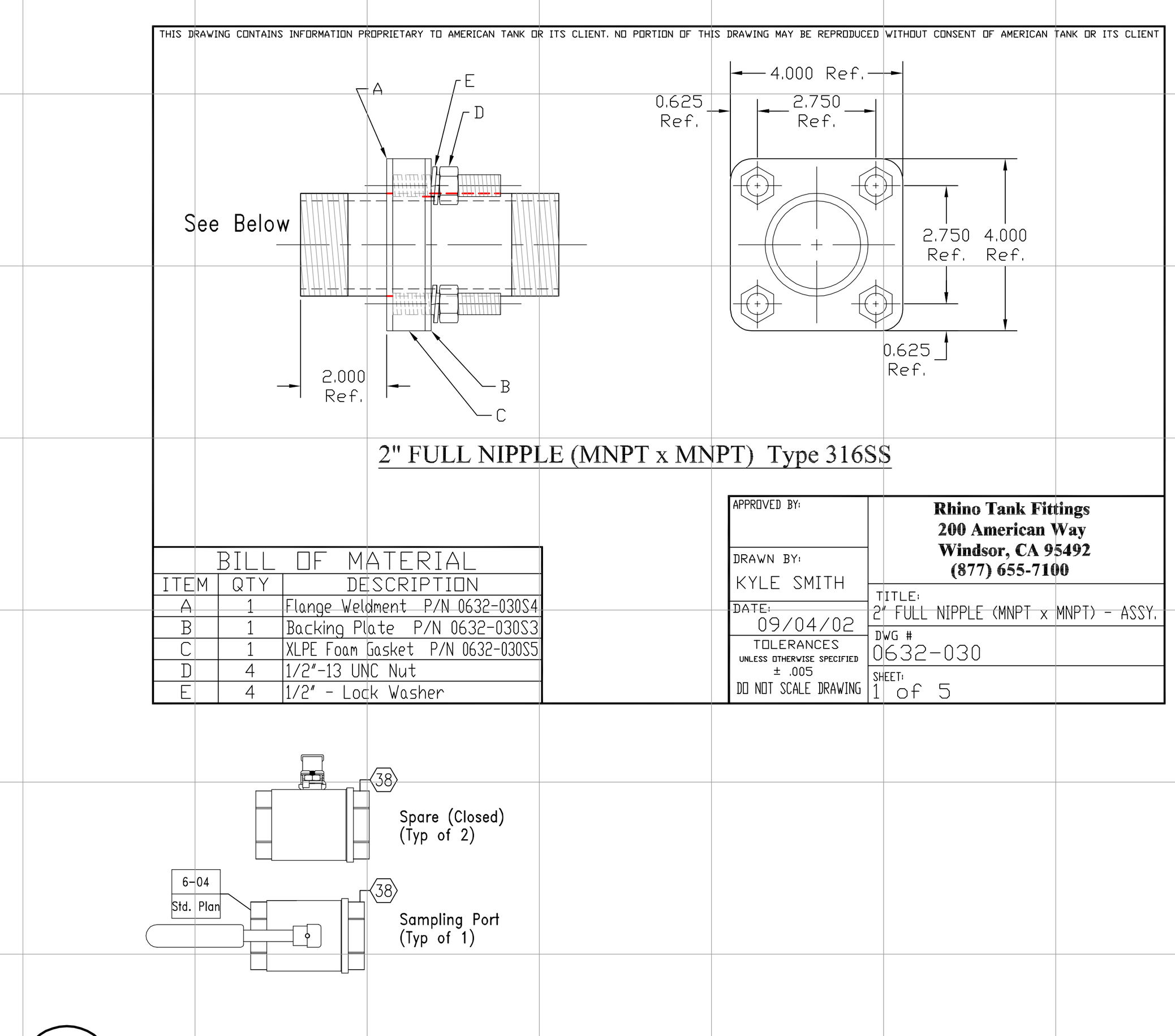
CHEMEKETA PARK MUTUAL WATER COMPANY
~
Lower Contact Tank Site
Tank Plan and Elevations

REGISTERED PROFESSIONAL ENGINEER · DOUGLAS ALLEN · No. C43774 · Exp. 6/30/25 · CIVIL · STATE OF CALIFORNIA

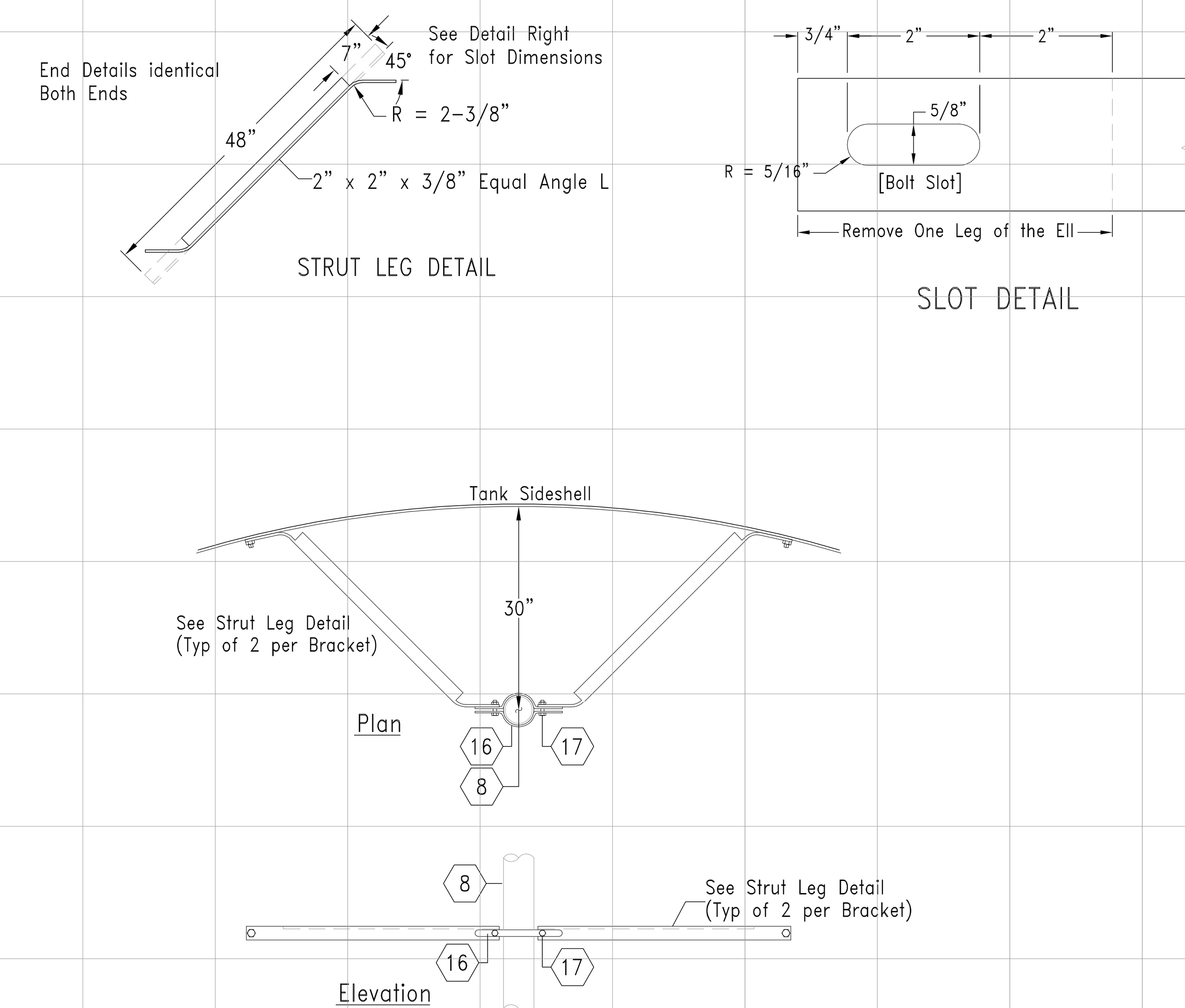
Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)603-6126

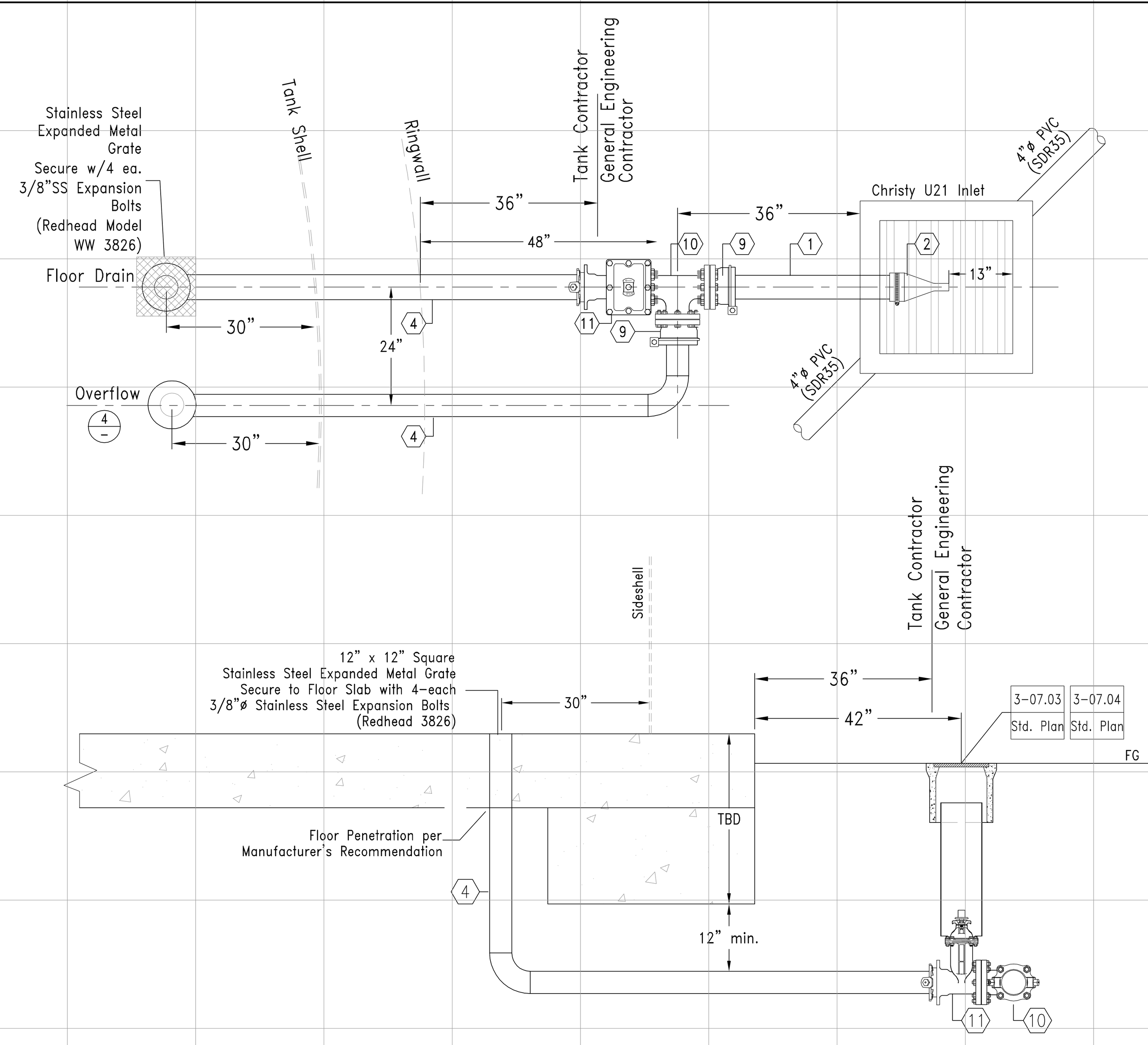
Date: 8/23
Scale: None
Drawn: DRA
Job: 15-010
Sheet C7 of 24



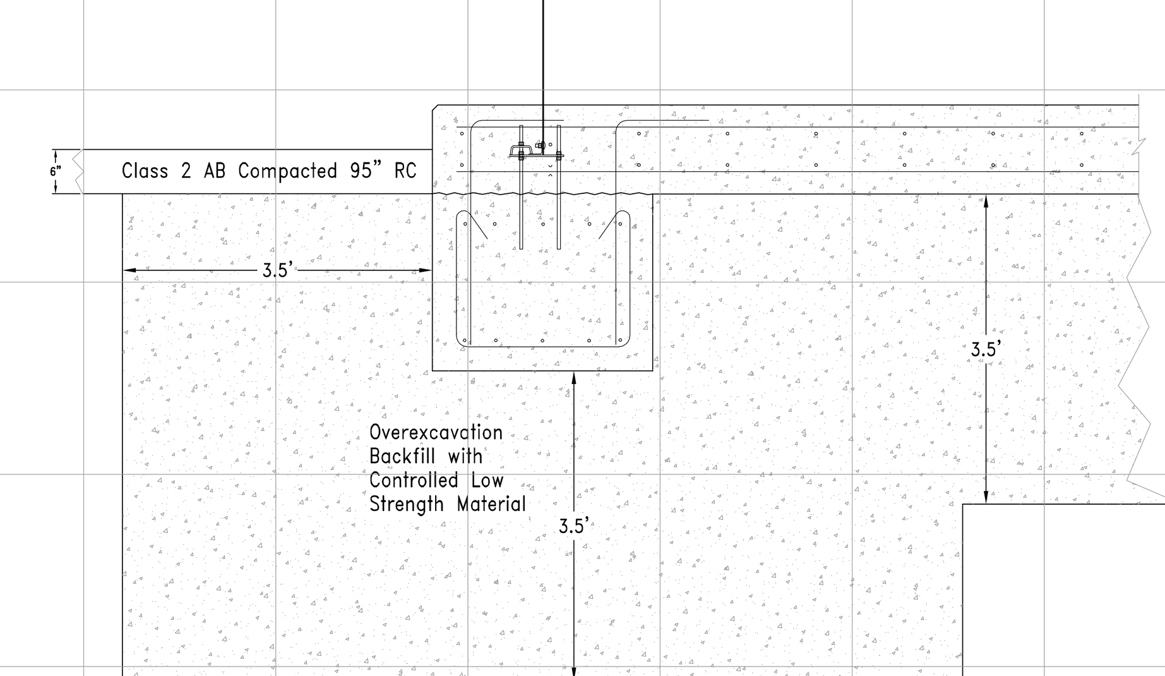
1 SAMPLE PORT DETAIL (Typical of 3)
SCALE: NTS



2 INTERIOR PIPE SUPPORT BRACKET DETAIL
SCALE: NTS



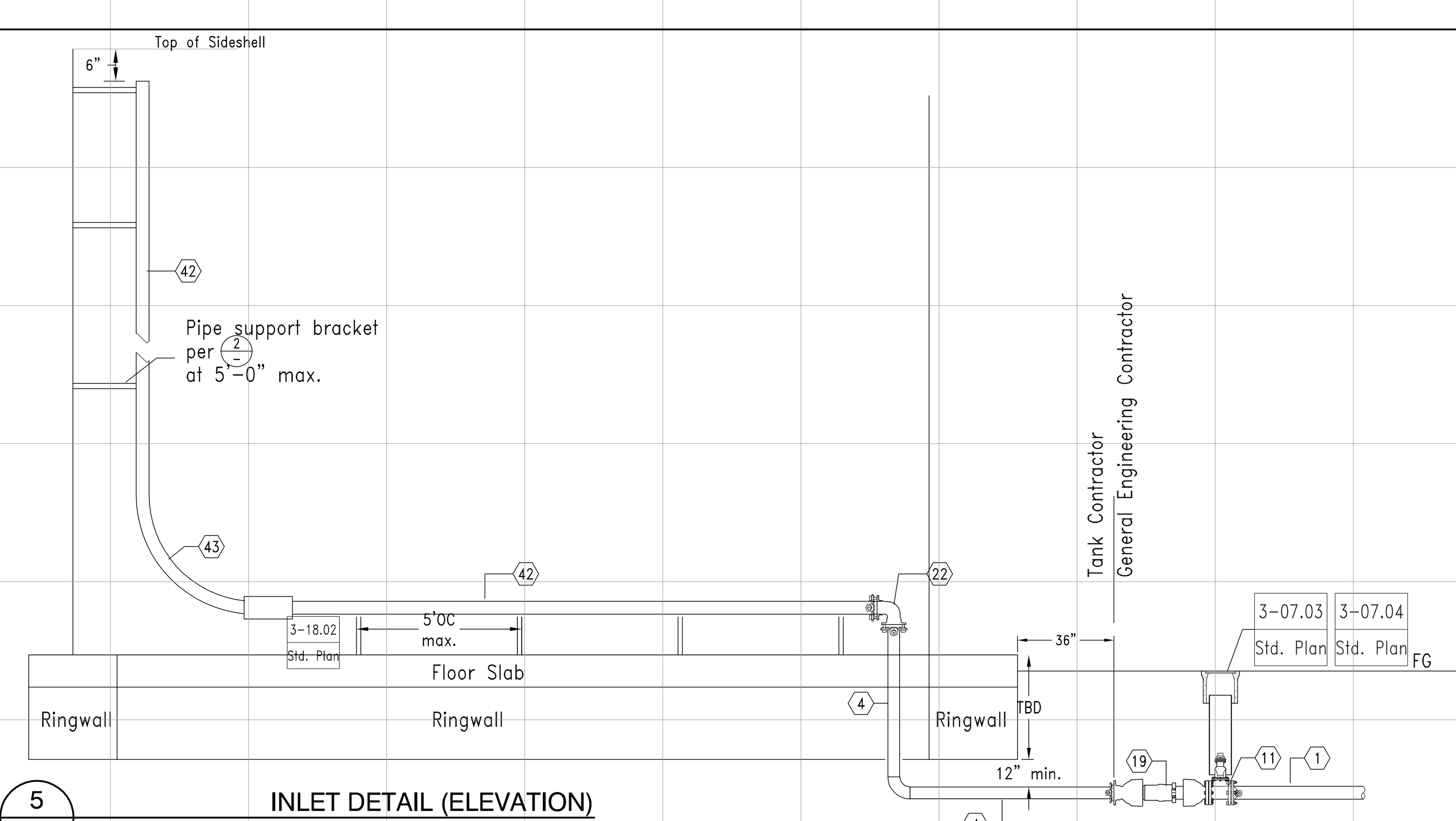
3 OVERFLOW/DRAIN DETAIL
SCALE: NTS



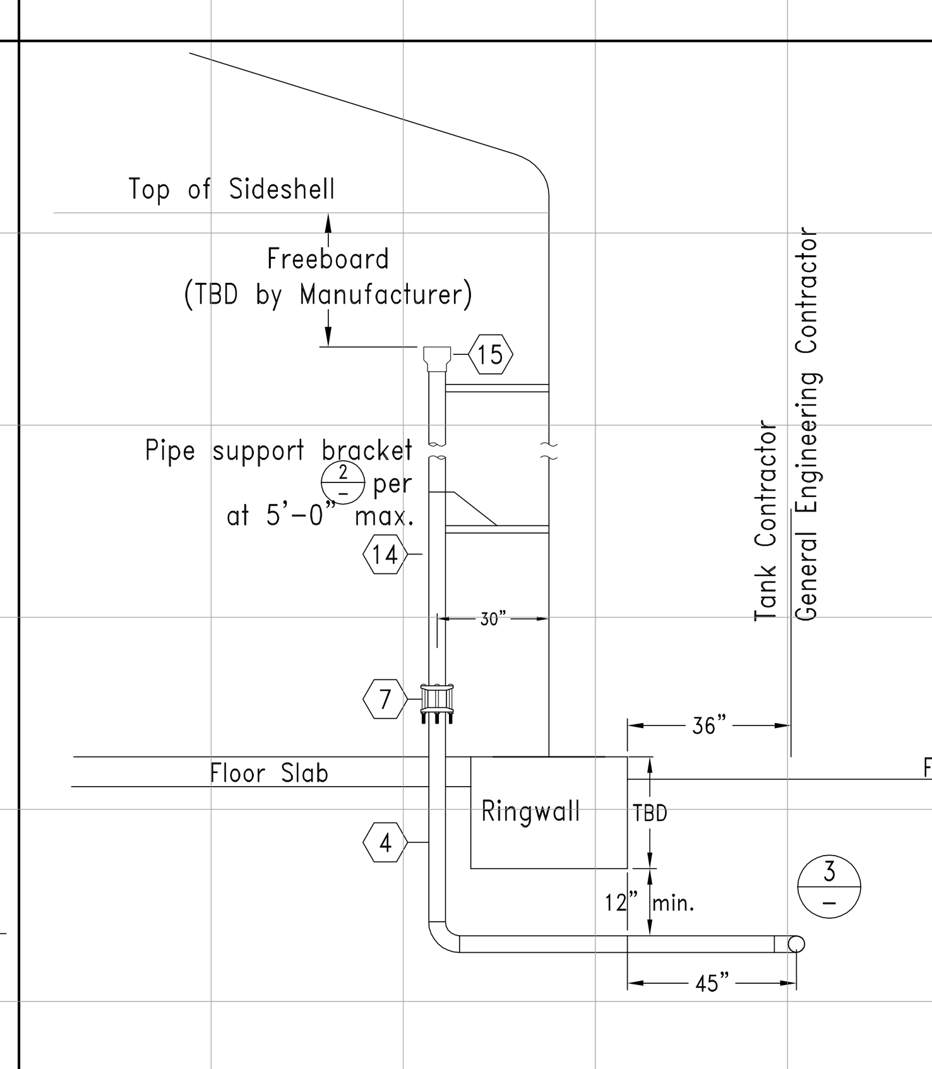
Note:

1. The tank manufacturer shall provide plans and details for the tank foundation and floor slab and shall submit same to the Engineer for review prior to initiating manufacturing and erection;
2. The tank foundation including ringwall and floor slab shall be designed by a registered civil engineer licensed to practice in the State of California;
3. The tank contractor shall be responsible for constructing the ringwall and floor slab;
4. The dimensions of the ringwall and floor slab shall be as determined by the design cited in 2. above;
5. The dimensions shown hereon are solely for the tank contractor's convenience in preparing his proposal and reflect the recommendations of the geotechnical engineer, Cotton-Shire and Associates in their report entitled E5074 dated May 2014 and their supplemental report entitled E5074B dated April 2023.

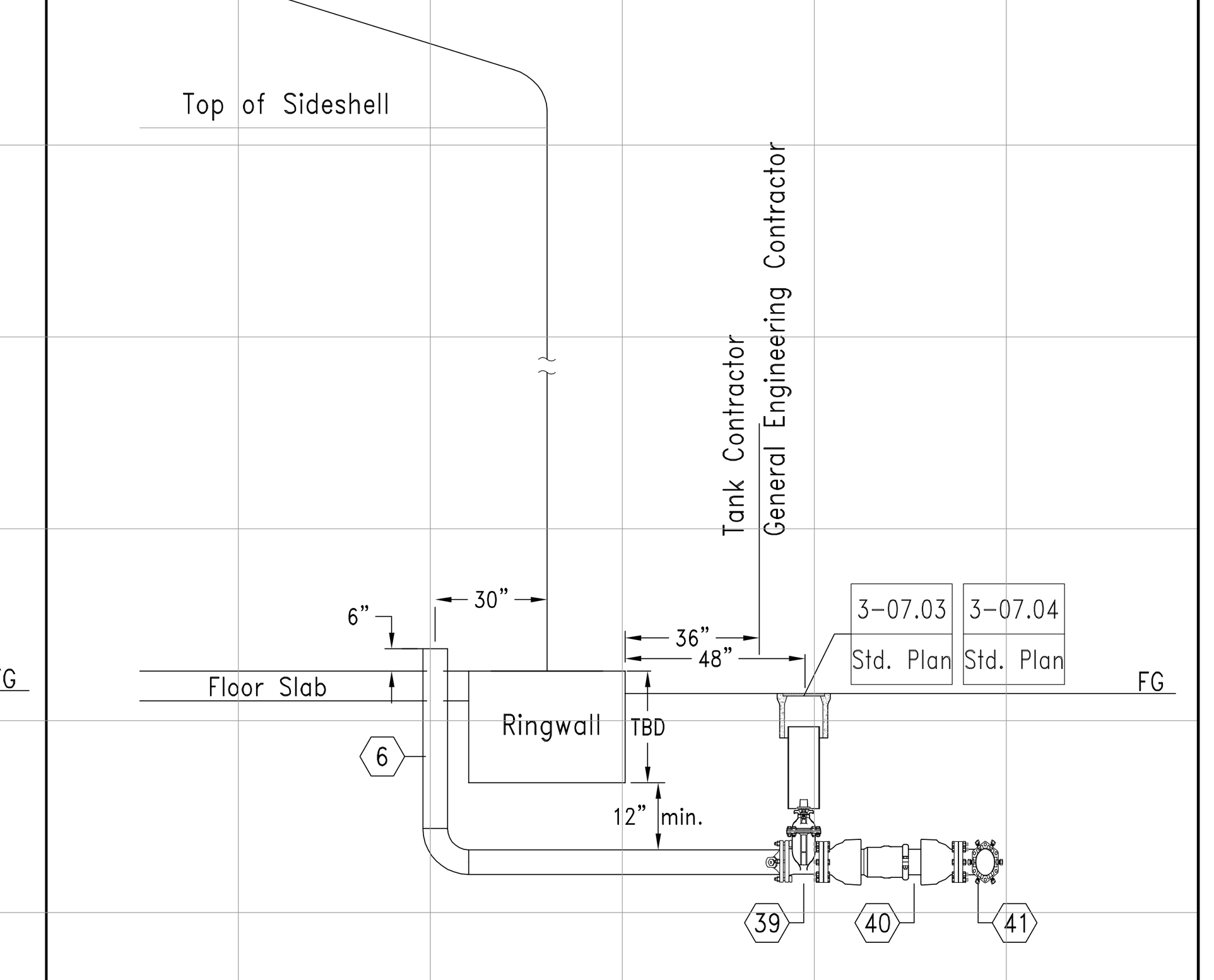
4 FOUNDATION OVEREXCAVATION DETAIL
SCALE: NTS



5 INLET DETAIL (ELEVATION)
SCALE: NTS



6 OVERFLOW/DRAIN ELEVATION DETAIL
SCALE: NTS



7 OUTLET ELEVATION DETAIL
SCALE: NTS

TANK MECHANICAL SCHEDULE

ID	DESCRIPTION
1	4"ø PVC (C900)
2	4"ø Duckbill Check Valve (Tideflex Series 39 w/Hypalon or EPDM Duckbill)
3	4"ø Gate Valve (MJxFL)
4	4"ø Welded Stainless Steel (Type 304, Sch. 40 PE x PE - Fabricated, Ames IBR2 Fire Riser or Approved Substitute)
5	4"ø x 90° (MJxFL)
6	6"ø Welded Stainless Steel (Type 304, Sch. 40 PE x PE - Fabricated, Ames IBR2 Fire Riser or Approved Substitute)
7	4"ø Coupling (Smith-Blair 413-4.50-4.80 Grade 30 Gaskets Epoxy Coated)
8	Carrier Pipe (Size As Shown)
9	4"ø Flange Coupling Adapter (HYMAX Standard Body)
10	4"ø x 4"ø x 4"ø Tee (All FL)
11	4"ø Resilient Seat Gate Valve (MJ x FL)
12	4"ø DIP
13	4"ø x 4"ø x 4"ø PVC Tee (Slip x Slip x Slip - Orient horizontally)
14	4"ø PVC (Sch. 40)
15	8"ø x 4"ø PVC Reducer (Sch. 40 - SxS Specified Fittings Model 3260084, Spears 829-582F or approved substitute)
16	Stainless Steel Clamp Hanger (B-Line 3373 or approved subsitute) (Size as Shown)
17	1/2"ø Clamp Hanger Bolt (Confirm size before fabricating strut)
18	Stainless Steel Strut (2" x 2" 3/8" Equal Leg L per detail)
19	4"ø Double Ball Expansion Fitting (EBAA Iron Flex Tend - FL x MJ)
20	(N)4"ø x 45° (MJxMJ) w/MegaLug 1104 Restraining Gland
21	4"ø Double Ball Expansion Fitting (EBAA Iron Flex Tend - FL x FL)
22	4"ø x 90° (MJ x MJ w/ EBAA Iron MegaLug 1106 Restraining Gland)
23	Overflow Spool per Detail
24	4"ø Welding Flange
25	4"ø Welded Steel Pipe (Sch. 20)
26	4"ø x 90° Weld Ell (Sch. 20)
27	4" Gate Valve (MJxMJ w/MegaLug 2004)
28	4"ø Flange Coupling Adapter (EBAA Iron MegaFlange Series 2104)
29	4"ø Adaptor (SxG)
30	4"ø Victaulic Coupling (Style 77)
31	4"ø Stainless Steel Nozzle (Sch. 40)
32	1/8" Stainless Steel Backing Plate (Type 304 or 316)
33	4"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FLxMJ)
34	8"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FL x MJ)
35	4"ø Flange Coupling Adapter (EBAA Iron MegaFlange 2104)
36	8"ø x 8"ø x 4"ø Tee (All FL)
37	2"ø Staiinless Steel Nozzle (Sch. 40)
38	2"ø Stainless Steel Ball Valve w/Locking Lug
39	6"ø Resilient Seat Gate Valve (FL x MJ)
40	6"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FLxFL)
41	6"ø x 45° DIP Ell (FL x MJ w/MegaLug 2006)
42	4"ø PVC (CertaLok RJ900)
43	4"ø x 90° PVC Ell (CertaLok RJ900)
44	2"ø x 8" Stainless Steel Nipple (MIPT x MIPT) (Type 304)
45	2"ø Reslient Seat Gate Valve (FIPT x FIPT)
46	2"ø Coupling (PJ x MIPT) (FORD C84-77-NL)
47	2"ø PET (SDR9)
48	10"ø x 10"ø x 10"ø x 4"ø x 4"ø DIP Cross (All FL)
49	4"ø Blind FLange Tapped 2"ø FIPT
50	10"ø Resilient Seat Gate Valve (FL x MJ w/MJ Cap)
51	(F)10"ø PVC (AWWA C900, Class 235 - NIC)
52	10"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FLxMJ)
53	10"ø Welded Epoxy Coated Steel
54	~
55	~

Wy'east Engineering
Circular Weir Calculator

Project: Chemeketa Park Mutual Water Company
Tank OVerflow Calculation
Date: 8/2/2023
Q=CLH^3/2 (cfs)

H=	0.25 -feet	Height above Crest
h=	20.00 -feet	Height of Weir
C= 3.27+0.40*(H/h)		
=	3.28	
N=	0	
D=	8.66 -inches	8-inch x 4-inch Reducer
=	0.72 -feet	
L'= Pi*D		
=	2.27 -feet	
L=	2.267183	
Q = 0.93 -cfs		
416.54-gpm	OK	Qmax = 50-gpm

Where:
L= L'-0.1NH
N= Number of Contractions
C= 3.27+0.40*(H/h) H/h<5
5.68*((1+Hc/H)^1.5) H/h>15

Ven Te Chow
Open Channel Hydraulics - 1959
Page 361

CHEMEKETA PARK MUTUAL WATER COMPANY
Lower Contact Tank Site Plan ~ Tank Details

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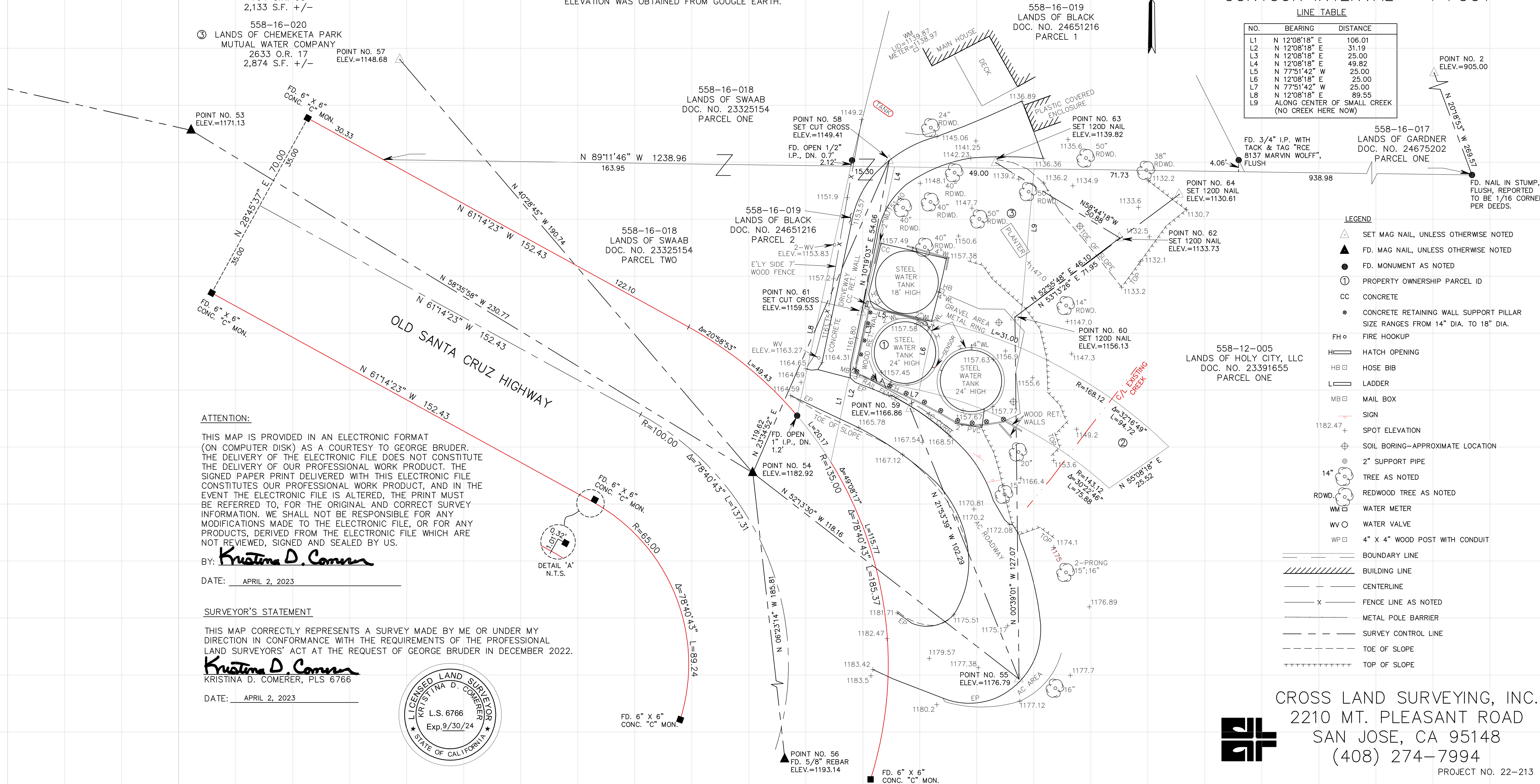
CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)603-6126

Date: 8/23
Scale: None
Drawn: DRA
Job: 15-010
Sheet C8 of 24

Revision | Date:

BOUNDARY AND TOPOGRAPHIC SURVEY
15201 CAMELOT DRIVE
SAN JOSE, CALIFORNIA
FEBRUARY 6, 2023
SCALE: 1" = 20'
CONTOUR INTERVAL = 1 FOOT



LINE TABLE

NO.	BEARING	DISTANCE
L1	N 12°08'18" E	106.01
L2	N 12°08'18" E	31.19
L3	N 12°08'18" E	25.00
L4	N 12°08'18" E	49.82
L5	N 77°51'42" W	25.00
L6	N 12°08'18" E	25.00
L7	N 77°51'42" W	25.00
L8	N 12°08'18" E	89.55
L9	ALONG CENTER OF SMALL CREEK (NO CREEK HERE NOW)	

OWNERSHIP TABLE

558-16-020
① LANDS OF CHEMEKETA PARK MUTUAL WATER COMPANY
664 O.R. 544
625 S.F. +/-

558-16-020
② LANDS OF CHEMEKETA PARK MUTUAL WATER COMPANY
794 O.R. 95
2,133 S.F. +/-

558-16-020
③ LANDS OF CHEMEKETA PARK MUTUAL WATER COMPANY
2633 O.R. 17
2,874 S.F. +/-

BASIS OF BEARINGS

THE BEARING OF NORTH 53° 45' 24" WEST ALONG THE CENTERLINE OF COMANCHE TRAIL, AS SHOWN ON THE RECORD OF SURVEY FILED ON NOVEMBER 9, 2021 IN BOOK 943 OF MAPS AT PAGE 28, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK

THE ELEVATION OF 905.00 WAS ASSUMED ON POINT NO. 2. THE ELEVATION WAS OBTAINED FROM GOOGLE EARTH.

LEGEND

- SET MAG NAIL, UNLESS OTHERWISE NOTED
- FD. MAG NAIL, UNLESS OTHERWISE NOTED
- FD. MONUMENT AS NOTED
- PROPERTY OWNERSHIP PARCEL ID
- CC — CONCRETE
- CONCRETE RETAINING WALL SUPPORT PILLAR SIZE RANGES FROM 14" DIA. TO 18" DIA.
- FH — FIRE HOOKUP
- H — HATCH OPENING
- HB — HOSE BIB
- L — LADDER
- MB — MAIL BOX
- SIGN
- 1182.47 — SPOT ELEVATION
- SOIL BORING—APPROXIMATE LOCATION
- 2" SUPPORT PIPE
- 14" — TREE AS NOTED
- RDWD. — REDWOOD TREE AS NOTED
- WM — WATER METER
- WV — WATER VALVE
- WP — 4" X 4" WOOD POST WITH CONDUIT
- BOUNDARY LINE
- BUILDING LINE
- CENTERLINE
- FENCE LINE AS NOTED
- METAL POLE BARRIER
- SURVEY CONTROL LINE
- TOE OF SLOPE
- TOP OF SLOPE

ATTENTION:

THIS MAP IS PROVIDED IN AN ELECTRONIC FORMAT (ON COMPUTER DISK) AS A COURTESY TO GEORGE BRUDER. THE DELIVERY OF THE ELECTRONIC FILE DOES NOT CONSTITUTE THE DELIVERY OF OUR PROFESSIONAL WORK PRODUCT. THE SIGNED PAPER PRINT DELIVERED WITH THIS ELECTRONIC FILE CONSTITUTES OUR PROFESSIONAL WORK PRODUCT, AND IN THE EVENT THE ELECTRONIC FILE IS ALTERED, THE PRINT MUST BE REFERRED TO, FOR THE ORIGINAL AND CORRECT SURVEY INFORMATION. WE SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THE ELECTRONIC FILE, OR FOR ANY PRODUCTS, DERIVED FROM THE ELECTRONIC FILE WHICH ARE NOT REVIEWED, SIGNED AND SEALED BY US.

BY: Kristina D. Comerer

DATE: APRIL 2, 2023

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF GEORGE BRUDER IN DECEMBER 2022.

Kristina D. Comerer
KRISTINA D. COMERER, PLS 6766

DATE: APRIL 2, 2023

LICENSED LAND SURVEYOR
KRISTINA D. COMERER
L.S. 6766
Exp. 9/30/24
STATE OF CALIFORNIA

CROSS LAND SURVEYING, INC.
2210 MT. PLEASANT ROAD
SAN JOSE, CA 95148
(408) 274-7994

PROJECT NO. 22-213

Sheet Included for Reference Only

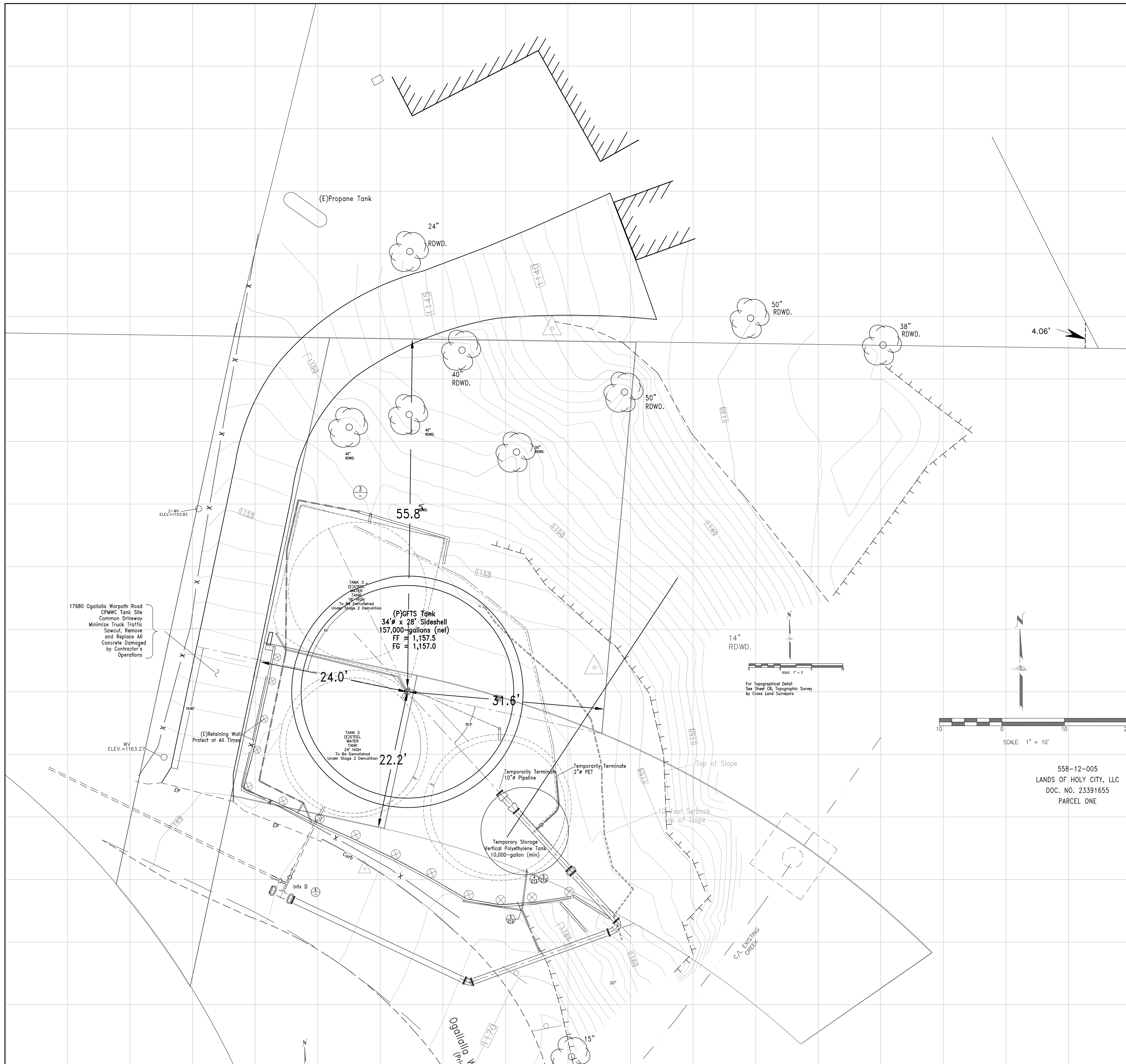
Revision	Date:

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Cross Land Surveying Topographic and Boundary Survey

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 9/23
Scale: 1" = 20'
Drawn: DRA
Job: 22-002



1 TEMPORARY STORAGE PLAN

SCALE: 1" = 10'

Sheet Included for Reference Only

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Site Plan with Boundaries and Offsets

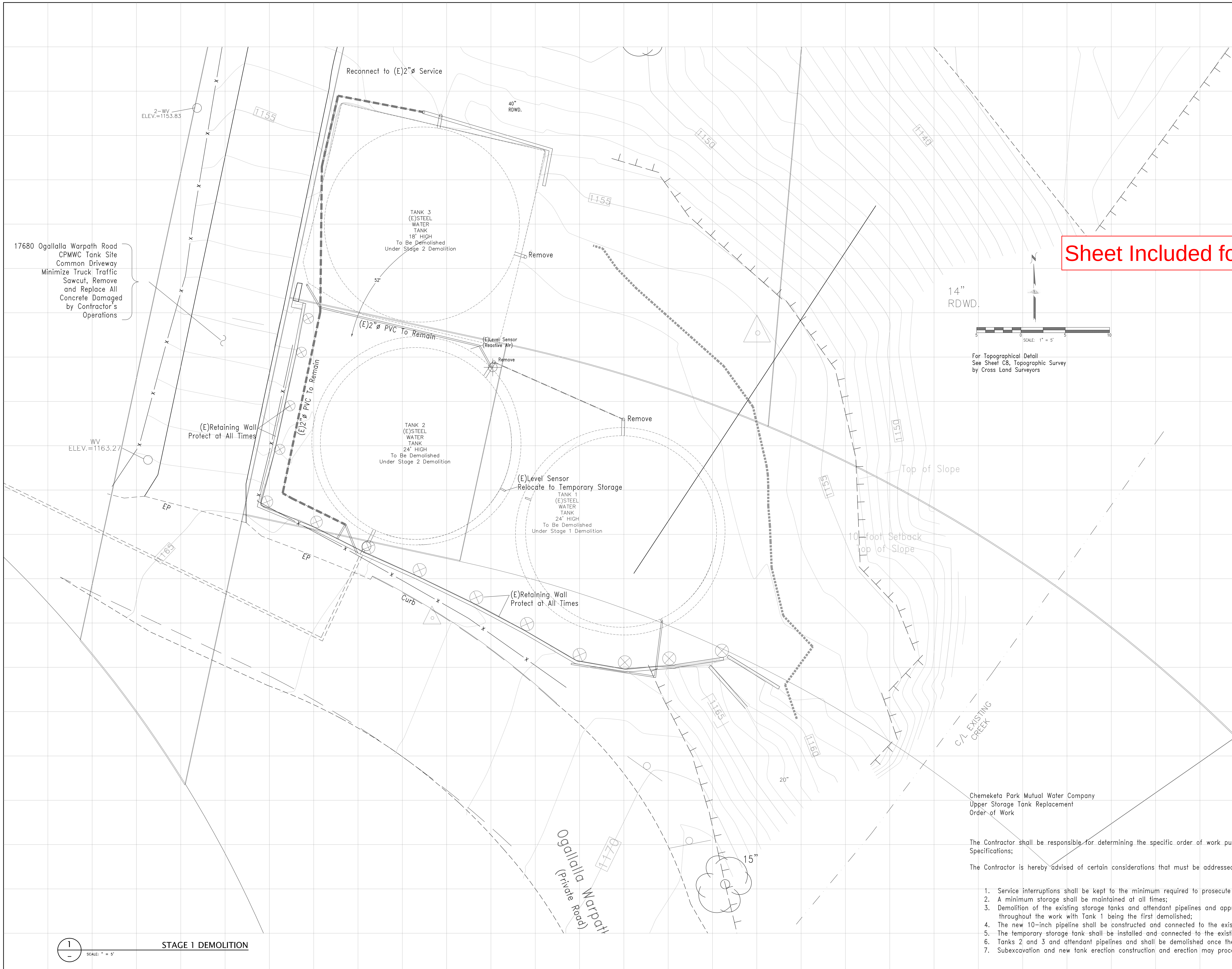
Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: 1" = 10'
Drawn: DRA
Job: 22-002
Sheet C10 of 24

Revision | Date:

Sheet Included for Reference Only



1
STAGE 1 DEMOLITION

Chemeketa Park Mutual Water Company
Upper Storage Tank Replacement
Order of Work

The Contractor shall be responsible for determining the specific order of work pursuant to Section 1-06.06, Schedule of the Standard Specifications;

The Contractor is hereby advised of certain considerations that must be addressed in his scheduling and order of work:

1. Service interruptions shall be kept to the minimum required to prosecute the work;
2. A minimum storage shall be maintained at all times;
3. Demolition of the existing storage tanks and attendant pipelines and appurtenances shall be staged to ensure storage throughout the work with Tank 1 being the first demolished;
4. The new 10-inch pipeline shall be constructed and connected to the existing supply system as shown on the Project Plans;
5. The temporary storage tank shall be installed and connected to the existing supply system as shown on the Project Plans;
6. Tanks 2 and 3 and attendant pipelines and shall be demolished once the temporary storage tank is approved for use;
7. Subexcavation and new tank erection construction and erection may proceed once demolition is compete.

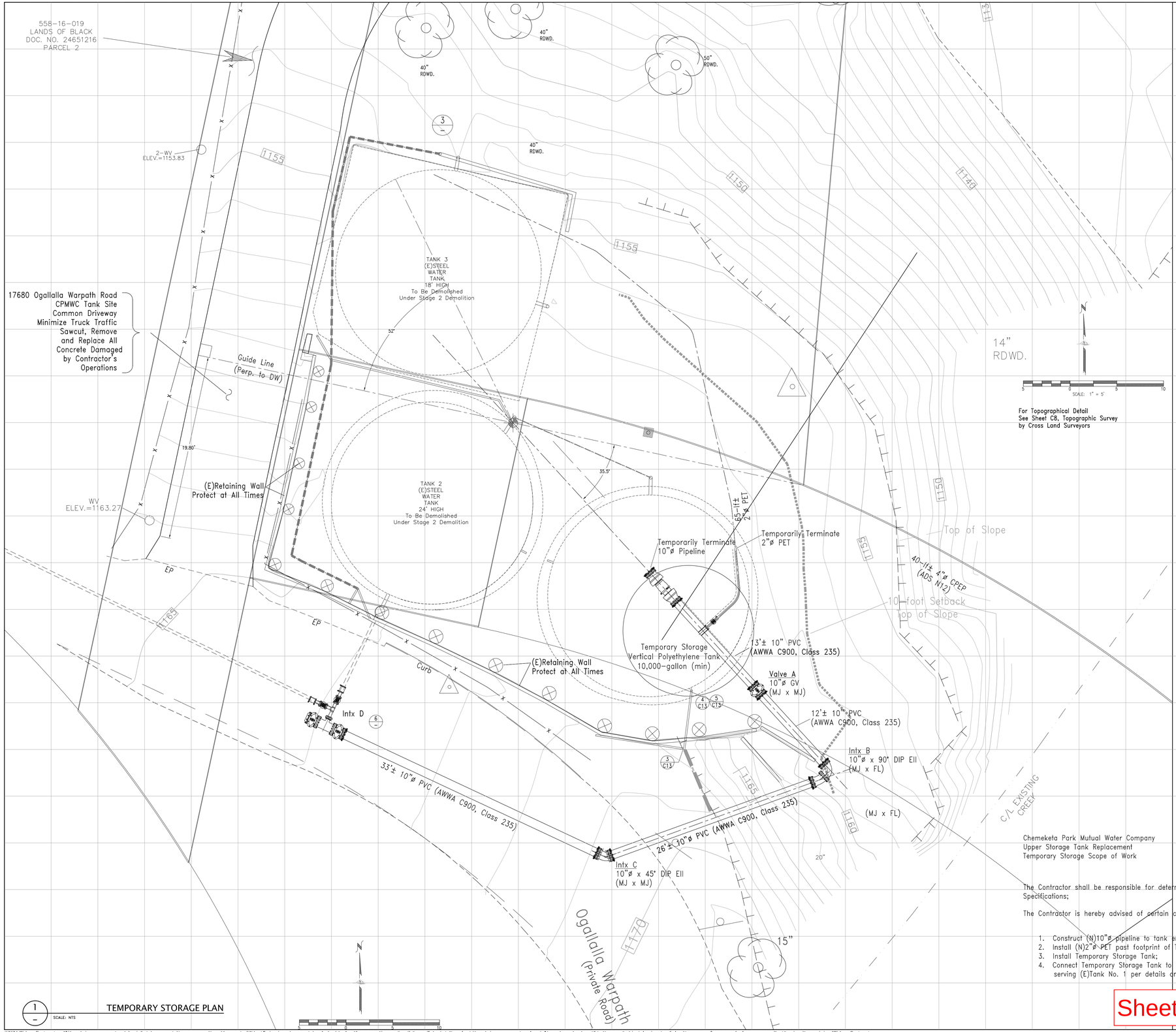
Revision | Date:

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Stage 1 Demolition Plan

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: 1" = 5'
Drawn: DRA
Job: 22-002
Sheet C11 of 24



TEMPORARY STORAGE MECHANICAL SCHEDULE

ⓘ	DESCRIPTION
1	(N)4"ø PVC (C900)
2	4"ø x 4"ø x 4"ø DIP Tee (All FL)
3	4"ø Resilient Wedge Gate Valve (MJxFL)
4	4"ø x 3"ø Stainless Steel Reducing Flange
5	3"ø Resilient Wedge Gate Valve (All FL)
6	(E)3"ø GIP
7	(E)3"ø PVC
8	3"ø Coupling (HYMAX Grip)
9	3"ø x 8"ø Stainless Steel Toe Nipple (Type 304, Sch. 40)
10	4"ø x 3"ø Stainless Steel Reducing Flange
11	2"ø PET (SDR9)
12	2"ø Coupling (PJ x MIPT) (FORD CL-84-NL)
13	(E)2"ø PVC (Sch. 40)
14	(E)2"ø PVC Ball Valve (Sch. 80)
15	(E)2"ø x 90° PVC Ell (Sch. 40)
16	(N)2"ø PVC Coupling (SCh. 80 – Slip x FIPT)
17	(N)2"ø x 6" PVC (Sch. 80 – MIPT x MIPT)
18	(N)2"ø PVC True Union Ball Valve (Sch. 80 – FIPT x FIPT)
19	(N)2"ø x 2"ø x 2"ø PVC Tee (Sch. 80 – All Thread)
20	(N)2"ø PVC Cap (Sch. 80 – Slip)
21	(N)2"ø x 18" Flexible Stainless Steel Hose (Swivel Female x Swivel Female) (Falcon SWC218, Charman 173218)
22	4"ø MJ Cap Tapped 2"ø FIPT with EBAA Iron MegaLug 2004
23	(N)4"ø PVC (CertaLok RJ900 – Class 235)
24	(N)4"ø PVC (AWWA C900, Class 235)
25	(N)2"ø x 90° PVC Ell (Sch. 80 – FIPT x FIPT)
26	(N)2"ø PVC True Union Ball Check Valve (Sch. 80 – FIPT x FIPT)
27	(N)2"ø PVC Bulkhead Fitting (Sch. 80 – FIPT)
28	(N)4"ø x 4"ø x 4"ø x 4"ø DIP Cross (MJ x MJ x MJ x MJ with EBAA Iron Mega Lug 2004 (2-each))
29	(N)2"ø x 12" PVC (Sch. 80 – MIPT x MIPT)
30	(N)2"ø PVC Coupling (Sch. 80 – Slip x FIPT)
31	(N)2"ø PVC (Sch. 80 – Length to Fit)
32	(N)4"ø x 4"ø x 4"ø DIP Tee (MJ x MJ x MJ with EBAA Iron Mega Lug 2004 (1-each))
33	(N)10"ø PVC (AWWA C900, Class 235)
34	(N)10"ø x 10"ø x 4"ø DIP Tee (All FL)
35	(N)10"ø DIP MJ Cap Tapped 3"ø FIPT
36	(N)3"ø x 10" Stainless Steel Nipple (MIPT x MIPT)
37	(N)10"ø Resilient Wedge Gate Valve (FL x MJ)

1

Chemeketa Park Mutual Water Company
Upper Tank Site
Point Table

Point	North	East
Pipeline		
Valve A	49,572.7	59,167.0
Pipeline Intx B	49,563.2	59,175.3
Pipeline Intx C	49,555.7	59,153.1
Tie In D	49,570.6	59,121.5
(N)Tank	49,607.4	59,140.9
Temporary Tank	49,579.1	59,159.6
Inlets		
Inlet A	49,598.2	59,167.8

Chemeketa Park Mutual Water Company
Upper Storage Tank Replacement
Temporary Storage Scope of Work

The Contractor shall be responsible for determining the specific order of work pursuant to Section 1-06.06, Schedule of the Standard Specifications;

The Contractor is hereby advised of certain considerations that must be addressed in his scheduling and order of work:

1. Construct (N)10"ø pipeline to tank end of flexible fitting;
2. Install (N)2"ø PET past footprint of Temporary Storage Tank;
3. Install Temporary Storage Tank;
4. Connect Temporary Storage Tank to (E)2"ø PVC serving (E)Tank No. 1 serving (E)Tank No. 1 per details on Sheect C13.

1 TEMPORARY STORAGE PLAN
SCALE: NTS

Sheet Included for Reference Only

Revision	Date:
Add Point Table	dra - 2/24

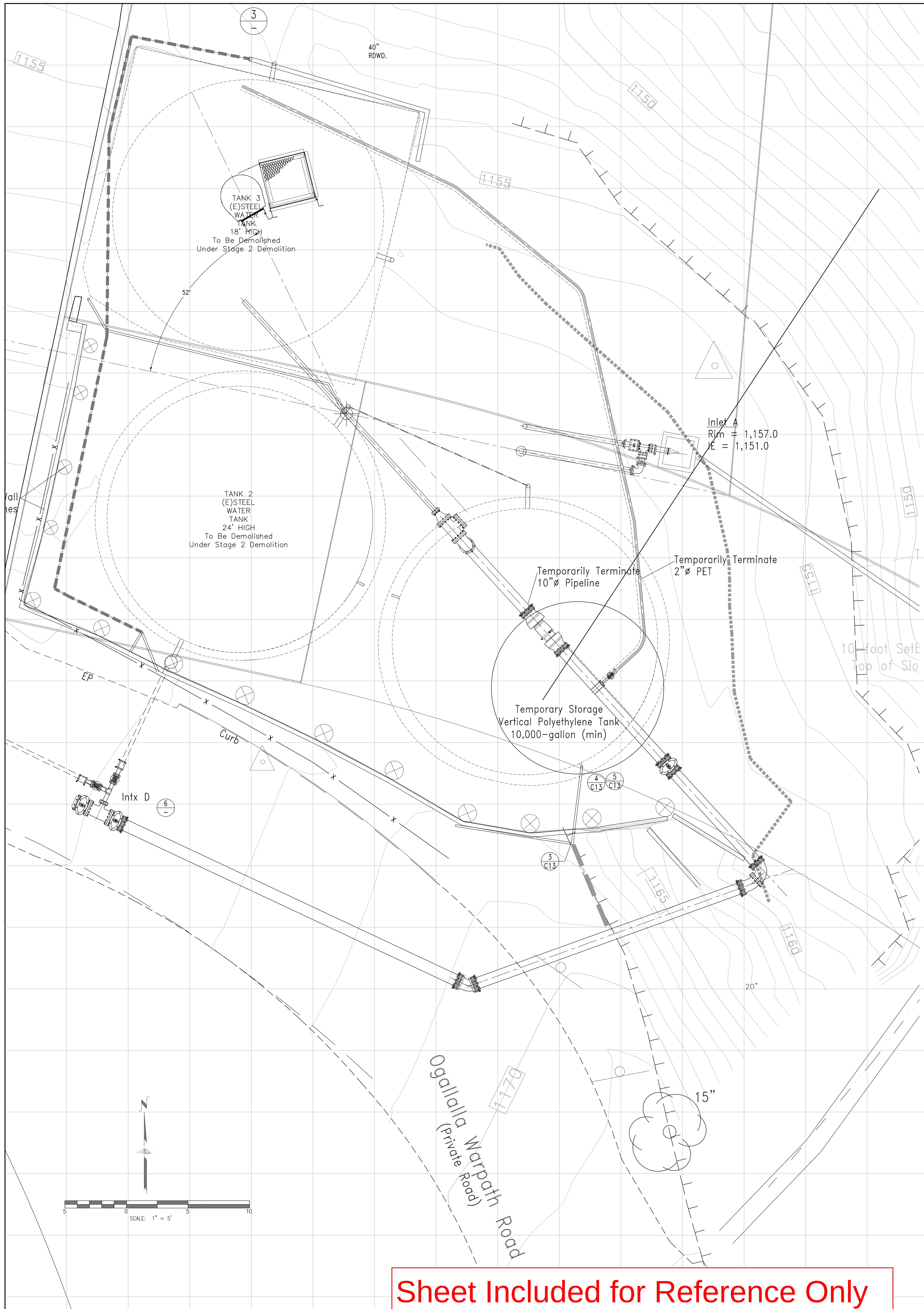
CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Temporary Storage Plan

Wyeast Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: 1" = 10'
Drawn: DRA
Job: 22-002
Sheet C12 of 24

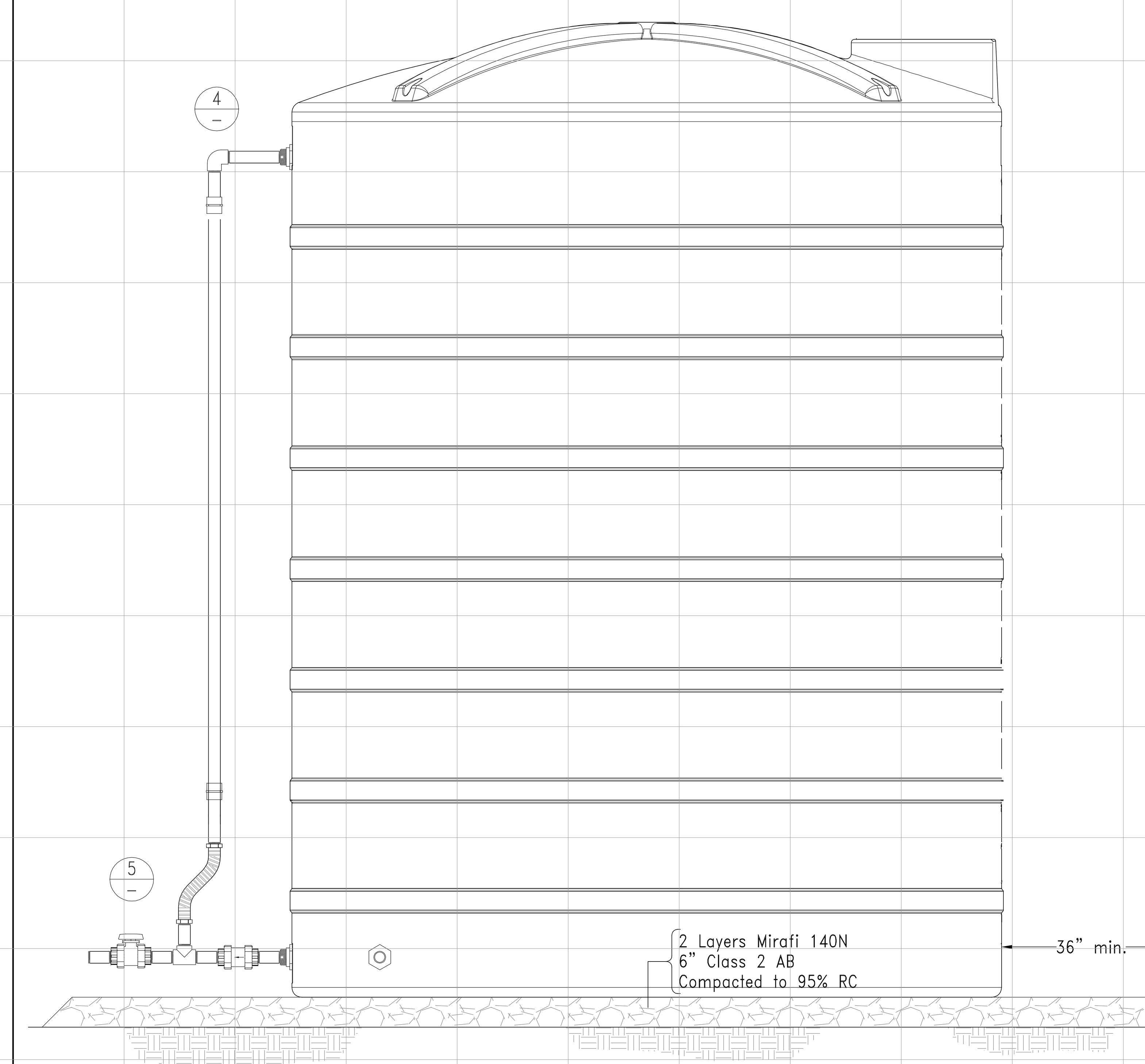
C:\Chemeketa Park\Upper Tank\Upper Tank Site.dwg, Sheet C12 - Temporary Storage



1 TEMPORARY STORAGE LAYOUT

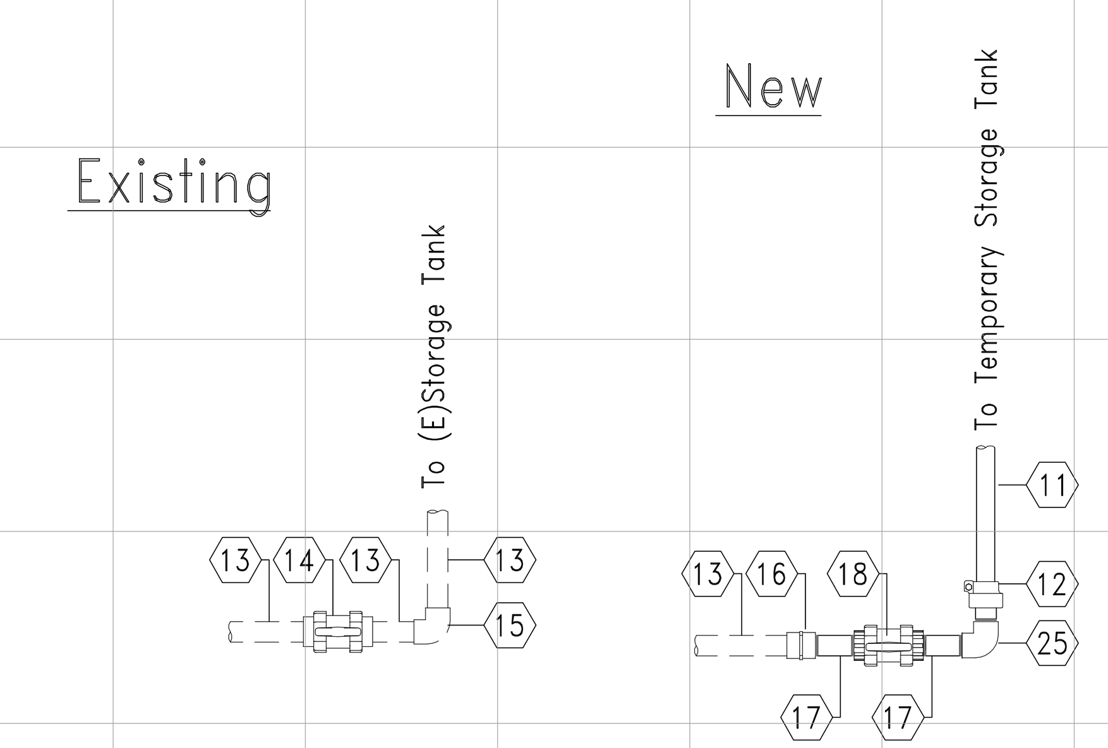
SCALE: 1" = 5'

Sheet Included for Reference Only



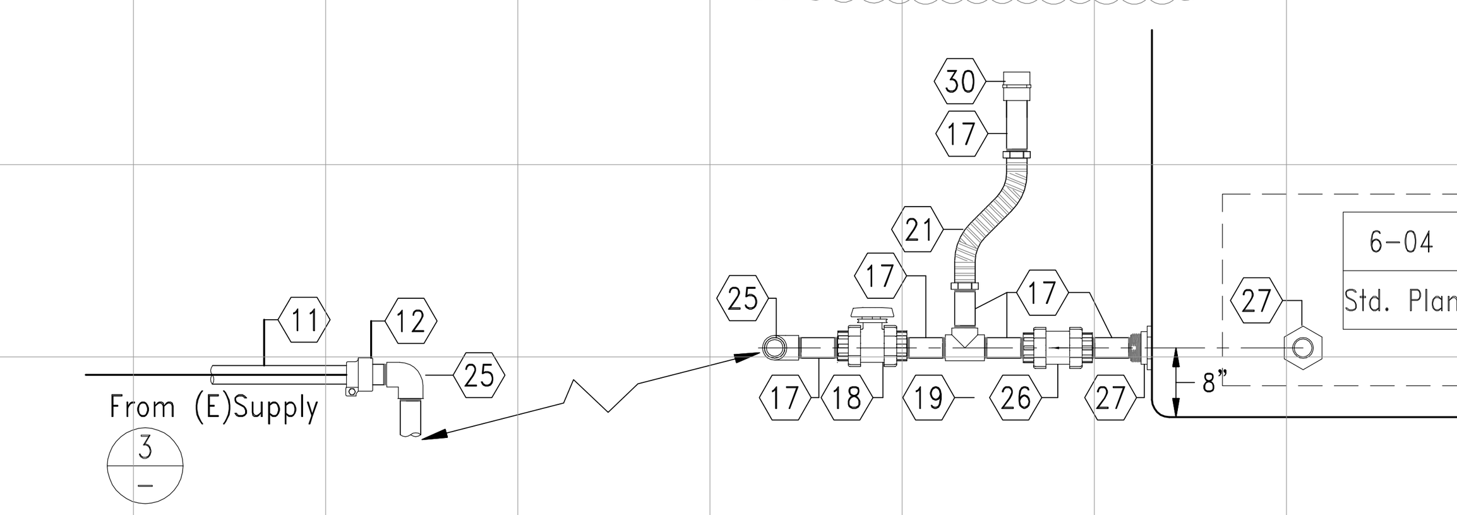
2 TEMPORARY STORAGE TANK ELEVATION

SCALE: NTS



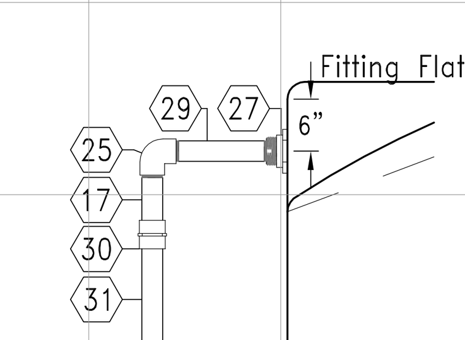
3 TEMPORARY STORAGE TANK CONNECTION TO (E)SUPPLY

SCALE: NTS



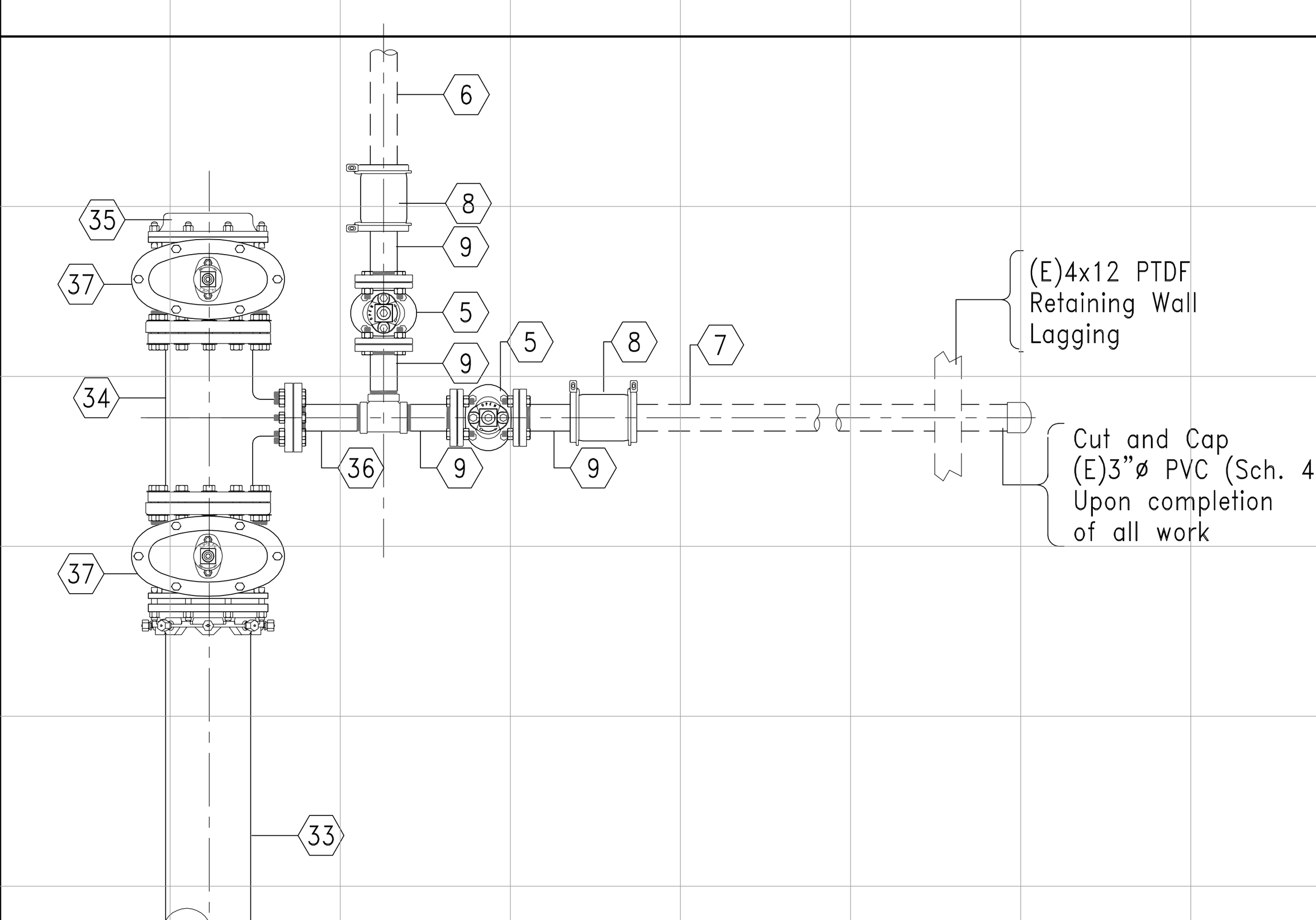
5 TEMPORARY STORAGE TANK OUTLET DETAIL

SCALE: NTS



4 TEMPORARY STORAGE TANK INLET DETAIL

SCALE: NTS



6 CONNECTION TO EXISTING 3"∅ GIP SUPPLY

SCALE: NTS

TEMPORARY STORAGE MECHANICAL SCHEDULE

ID	DESCRIPTION
1	(N)4"ø PVC (C900)
2	4"ø x 4"ø x 4"ø DIP Tee (All FL)
3	4"ø Resilient Wedge Gate Valve (MJxFL)
4	4"ø x 3"ø Stainless Steel Reducing Flange
5	3"ø Resilient Wedge Gate Valve (All FL)
6	(E)3"ø GIP
7	(E)3"ø PVC
8	3"ø Coupling (HYMAX Grip)
9	3"ø x 8"ø Stainless Steel Toe Nipple (Type 304, Sch. 40)
10	4"ø x 3"ø Stainless Steel Reducing Flange
11	2"ø PET (SDR9)
12	2"ø Coupling (PJ x MIPT) (FORD CL-84-NL)
13	(E)2"ø PVC (Sch. 40)
14	(E)2"ø PVC Ball Valve (Sch. 80)
15	(E)2"ø x 90° PVC Ell (Sch. 40)
16	(N)2"ø PVC Coupling (SCh. 80 - Slip x FIPT)
17	(N)2"ø x 6" PVC (Sch. 80 - MIPT x MIPT)
18	(N)2"ø PVC True Union Ball Valve (Sch. 80 - FIPT x FIPT)
19	(N)2"ø x 2"ø x 2"ø PVC Tee (Sch. 80 - All Thread)
20	(N)2"ø PVC Cap (Sch. 80 - Slip)
21	(N)2"ø x 18" Flexible Stainless Steel Hose (Swivel Female x Swivel Female) (Falcon SWC218, Charman 173218)
22	4"ø MJ Cap Tapped 2"ø FIPT with EBAA Iron MegaLug 2004
23	(N)4"ø PVC (CertaLok RJ900 - Class 235)
24	(N)4"ø PVC (AWWA C900, Class 235)
25	(N)2"ø x 90° PVC Ell (Sch. 80 - FIPT x FIPT)
26	(N)2"ø PVC True Union Ball Check Valve (SCh. 80 - FIPT x FIPT)
27	(N)2"ø PVC Bulkhead Fitting (Sch. 80 - FIPT)
28	(N)4"ø x 4"ø x 4"ø x 4"ø DIP Cross (MJ x MJ x MJ x MJ with EBAA Iron Mega Lug 2004 (2-each))
29	(N)2"ø x 12" PVC (Sch. 80 - MIPT x MIPT)
30	(N)2"ø PVC Coupling (Sch. 80 - Slip x FIPT)
31	(N)2"ø PVC (Sch. 80 - Length to Fit)
32	(N)4"ø x 4"ø x 4"ø DIP Tee (MJ x MJ x MJ with EBAA Iron Mega Lug 2004 (1-each))
33	(N)10"ø PVC (AWWA C900, Class 235)
34	(N)10"ø x 10"ø x 4"ø DIP Tee (All FL)
35	(N)10"ø DIP MJ Cap Tapped 3"ø FIPT
36	(N)3"ø x 10" Stainless Steel Nipple (MIPT x MIPT)
37	(N)10"ø Resilient Wedge Gate Valve (FL x MJ)

Chemeketa Park Mutual Water Company
Upper Tank Site
Point Table

Point	North	East
Pipeline		
Valve A	49,572.7	59,167.0
Pipeline Intx B	49,563.2	59,175.3
Pipeline Intx C	49,555.7	59,153.1
Tie In D	49,570.6	59,121.5
(N)Tank	49,607.4	59,140.9
Temporary Tank	49,579.1	59,158.3
Inlets		
Inlet A	49,598.2	59,167.8

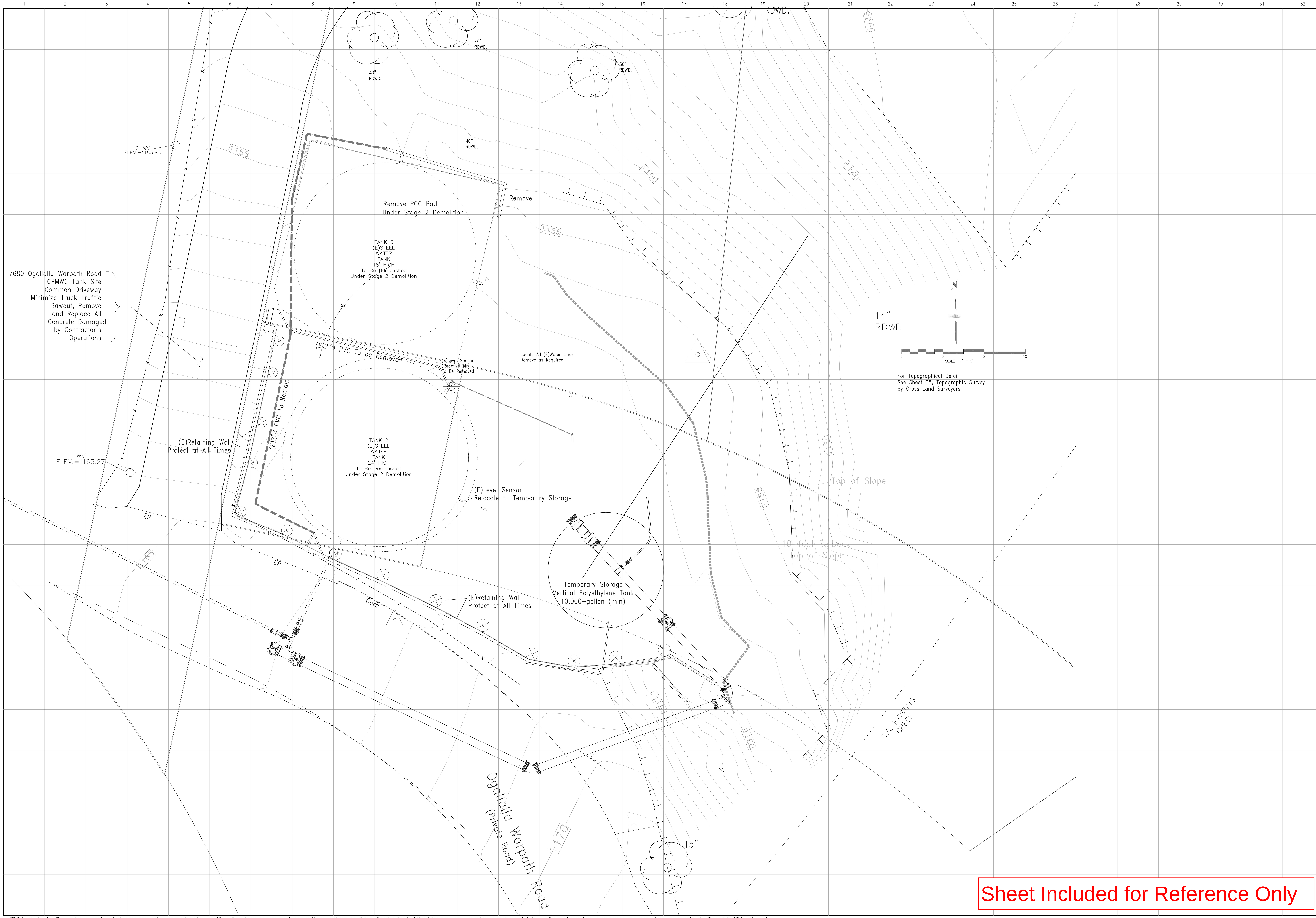
Revision	Date:
Add Point Table	dra - 2/24

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Temporary Storage and Tie In Details

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: As Shown
Drawn: DRA
Job: 22-002
Sheet C13 of 24



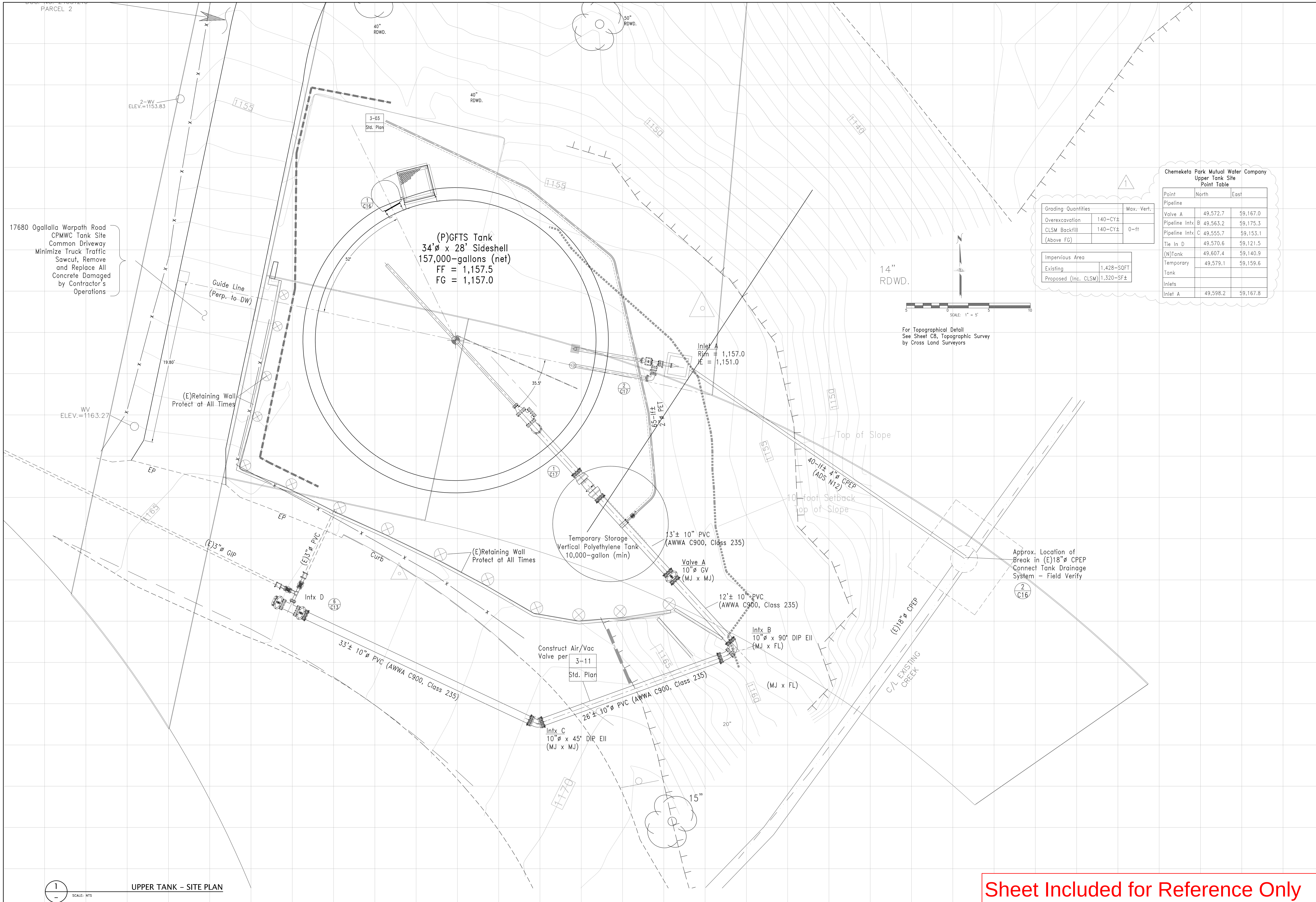
Revision | Date:

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Stage 2 Demolition Plan

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: 1" = 5'
Drawn: DRA
Job: 22-002
Sheet C14 of 24



PARCEL 2
17680 Ogallalla Warpath Road
CPMWC Tank Site
Common Driveway
Minimize Truck Traffic
Sawcut, Remove
and Replace All
Concrete Damaged
by Contractor's
Operations
2-WV
ELEV.=1153.83
WV
ELEV.=1163.27
Guide Line
(Perp. to DW)
(E)Retaining Wall
Protect at All Times
(P)GFTS Tank
34'ø x 28' Sideshell
157,000-gallons (net)
FF = 1,157.5
FG = 1,157.0
Inlet A
Rim = 1,157.0
IE = 1,151.0
65-lf±
2"ø PET
40-lf± 4"ø CPEP
(ADS N12)
Top of Slope
10-foot Setback
Top of Slope
Temporary Storage
Vertical Polyethylene Tank
10,000-gallon (min)
13'± 10" PVC
(AWWA C900, Class 235)
Valve A
10"ø GV
(MJ x MJ)
12'± 10" PVC
(AWWA C900, Class 235)
Intx B
10"ø x 90° DIP Ell
(MJ x FL)
(MJ x FL)
Approx. Location of
Break in (E)18"ø CPEP
Connect Tank Drainage
System – Field Verify
(E)18"ø CPEP
C/L EXISTING
CREEK
(E)3"ø GIP
(E)3"ø PVC
Intx D
EP
Curb
(E)Retaining Wall
Protect at All Times
Construct Air/Vac
Valve per
3-11
Std. Plan
3-03
Std. Plan
33'± 10"ø PVC (AWWA C900, Class 235)
26'± 10"ø PVC (AWWA C900, Class 235)
Intx C
10"ø x 45° DIP Ell
(MJ x MJ)
14"
RDWD.
40"
RDWD.
50"
RDWD.
15"
20"
For Topographical Detail
See Sheet C8, Topographic Survey
by Cross Land Surveyors
SCALE: 1" = 5'
UPPER TANK – SITE PLAN
SCALE: NTS

Grading Quantities		Max. Vert.
Overexcavation	140-CY±	
CLSM Backfill	140-CY±	0-ft
(Above FG)		

Impervious Area	
Existing	1,428-SQFT
Proposed (Inc. CLSM)	1,320-SF±

Chemeketa Park Mutual Water Company
Upper Tank Site
Point Table

Point	North	East
Pipeline		
Valve A	49,572.7	59,167.0
Pipeline Intx B	49,563.2	59,175.3
Pipeline Intx C	49,555.7	59,153.1
Tie In D	49,570.6	59,121.5
(N)Tank	49,607.4	59,140.9
Temporary Tank	49,579.1	59,159.6
Inlets		
Inlet A	49,598.2	59,167.8

Sheet Included for Reference Only

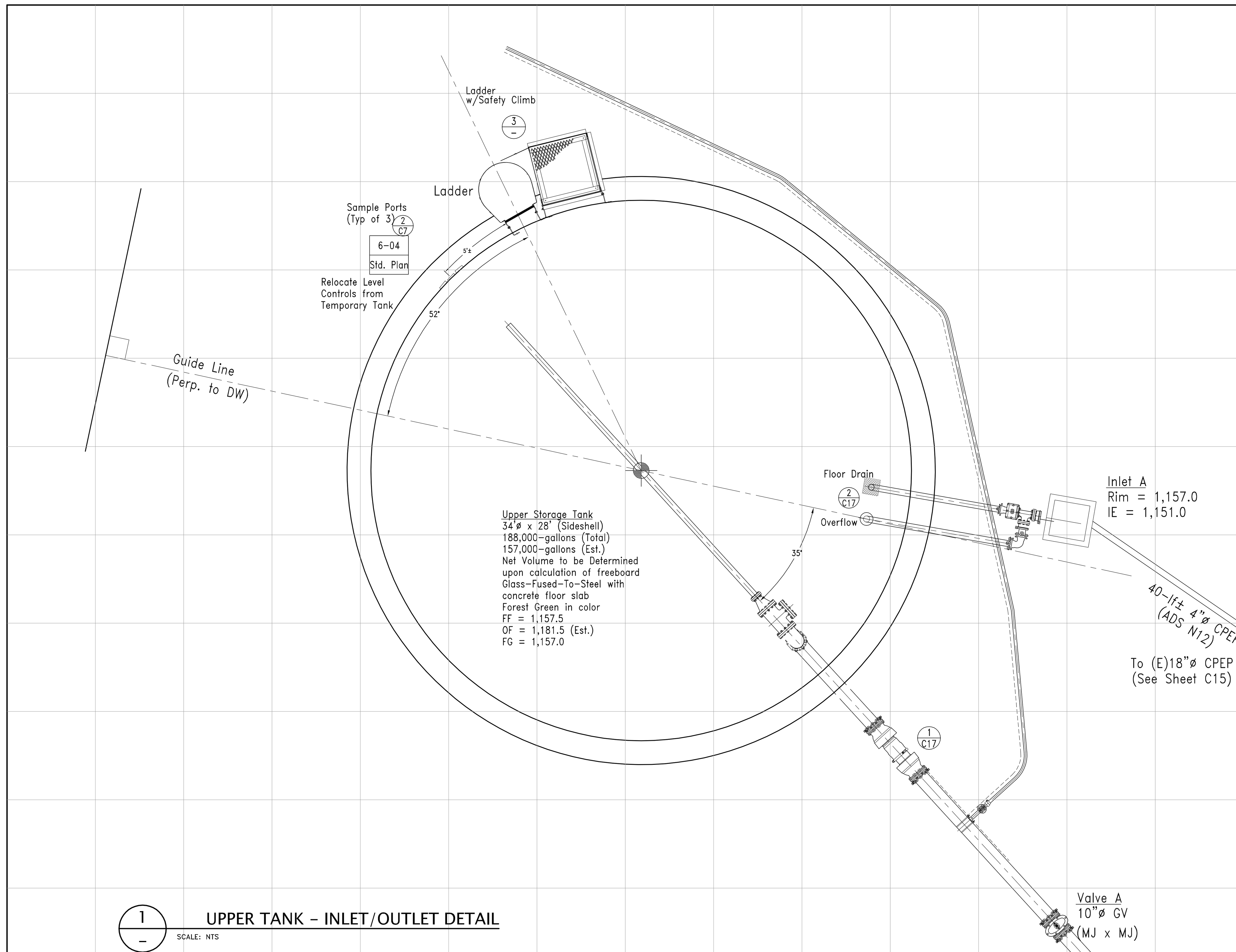
Revision	Date:
1 Add Quantities and Point Table	dra - 2/24

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Site Plan

Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: 1" = 10'
Drawn: DRA
Job: 22-002
Sheet C15
of 24



1 UPPER TANK – INLET/OUTLET DETAIL

SCALE: NTS

TANK GENERAL NOTES

1. The tank shall be Glass-Fused-To-Steel manufactured in accordance with AWWA D103;
2. The tank manufacturer shall provide plans, details and calculations signed and stamped by an engineer licensed to practice in the State of California;
3. Structural and seismic design of the tank and foundation shall refer to that geotechnical report prepared by Cotton Shires and Associates dated May 2014 and the Supplemenatal Report dated April 2023;
4. Special Inspection per CBC may be required by the design cited in 2 above;
5. The documents in 2 above will be submitted for review as a deferred submittal upon ordering the tank;
6. The tank shall be 188,000-gallon nominal capacity;
7. Tank side shell shall be 28.43-feet including freeboard (4-feet max);
8. Tank diameter shall be 34-feet;
9. Floor shall be Class A portland cement concrete, w/XYPEX C500 added as designed in 2 above;
10. Site piping for inlet, outlet, and overflow discharge shall be as provided for on Sheet C13 of X;
11. Coatings shall be NSF61 Compliant;
12. Tank vents shall be screened with 1/8" or smaller mesh insect screen;
13. No logo sheet will be permitted;
14. Level indication shall be a dual read pressure gauge installed on one sample tap per Standard Plan 6-04;
15. The tank floor slab shall be cured by ponding for a minimum of 7-days or that method recommended by the manufacturer;
16. Upon completion of the leak test, the tank shall be disinfected in accordance with AWWA C652, Method 3.
17. Wherever herein the word Contractor is used, it shall mean the and any specialty subcontractors for which this proposal is solicited;
18. The Contractor as herein defined shall be responsible for all work within 3-feet of the ringwall including but not limited to, foundation excavation, piping, valving, floor penetrations all concrete work and and tank erection;
19. All work outside 3-feet outside the ringwall shall be the responsiblity of the general engineering contractor;

Chemeketa Park Mutual Water Company
Upper Tank Site
Point Table

Point	North	East
Pipeline		
Valve A	49,572.7	59,167.0
Pipeline Intx	B 49,563.2	59,175.3
Pipeline Intx	C 49,555.7	59,153.1
Tie In D	49,570.6	59,121.5
(N)Tank	49,607.4	59,140.9
Temporary Tank	49,579.1	59,159.6
Inlets		
Inlet A	49,598.2	59,167.8

Water Storage Tank
Information to Bidders Checklist
Chemeketa Park Mutual Water Company
Upper Tank

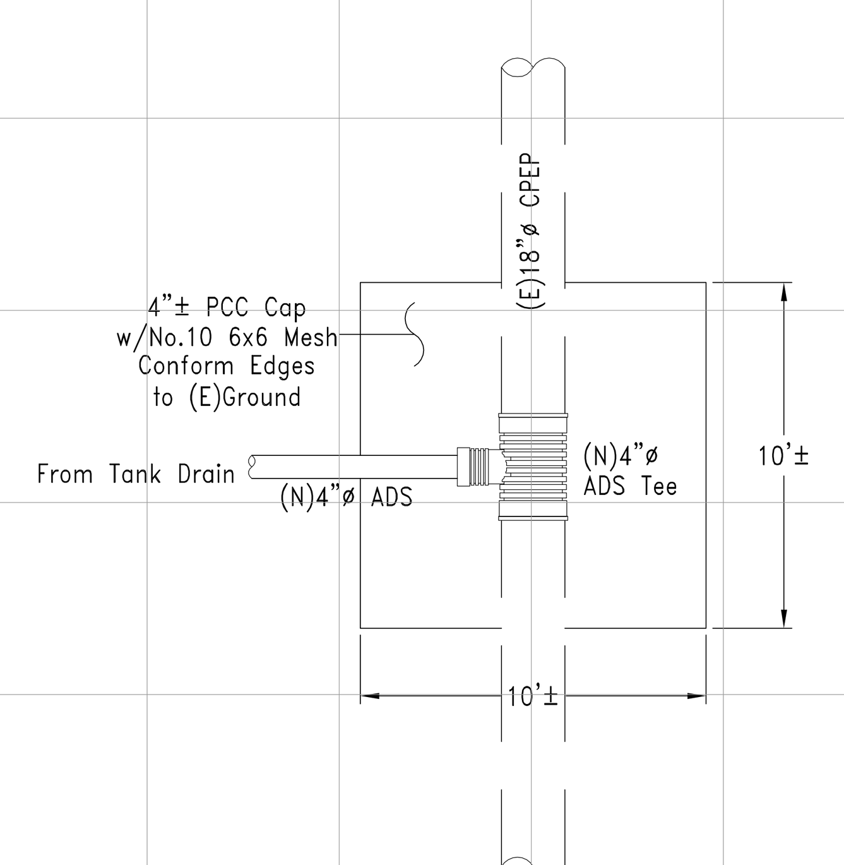
Date: 8/1/2023

No.		Item	Value
1		**Tank Identification**	Chemeketa Upper Tank
2		**Owner**	
	A	Name	Chemeketa Park Mutual Water Company
	B	Address	P.O. Box 588 Los Gatos, CA 95044
	C	Telephone	(408)859-1833
	D	FAX	
	E	E-mail	gbruder@gmail.com
	F	Prevailing Wage	Yes
4		**Tank Location**	
5	A	Address	17680 Ogallala Warpath Road
	B	Latitude	N37.1597
	C	Longitude	W121.9800
	D	Access	AC Pavement
	E	Staging Area	Unpaved
	F	Nearest City	Los Gatos, CA
	G	Nearest Railhead	San Jose, CA
	H	On-site Power	No
	I	On-site Pneumatic	No
6		**Schedule**	
		Bid Opening Date	TBD
		Assumed Notice to Proceed	TBD
		Resulting Completion Date	TBD
7		**Geotechnical Report**	Cotton Shires & Associates E5074B
		Soil Bearing Load	2000-psf Dead + Live Loads; 3,000-psf Total Loads
8		Shop Inspection Required	No
17		**Tank Geometry**	
		Net Capacity (after freeboard)	157,000-gallon net (preliminary)
		Diameter (max. allow.)	34' nominal
		Sideshell Height (max. allow.)	28' nominal
		Min. Foundation Exposure	6"
		Tank Color	Forest Green Green
23		**Appurtenances**	
	A	Interior Ladder	Yes per Manufacturer
	B	Exterior Ladder	Yes per Manufacturer
	C	Landing Platform	Yes per Manufacturer
	D	Anti-Climb	Yes per Manufacturer
	E	Safety Climb	No
	F	Vent Access w/Hand Rails	Locking Roof Hatch
	G	Vent Capacity	500-CFM minimum
	H	Manways	2-ea 24-inch
	I	Sampling Ports	
	i	Size	2-inch
	ii	No.	3-each per Details
24		**Piping Requirements**	
	I	Inlet	10-inch per Details
	J	Outlet	10-inch per Details
	K	Overflow	4-inch per Details
	L	Removable Silt Stop	No
	M	Drain	4-inch floor drain per Details
	N	Vent Screening	Yes per Details

No.		Item	Value
3		**Engineer**	
	A	Name	Wy'east Engineering
	B	Address	1245 Kari Lane Nipomo, California 93444
	C	Tele.	(831)443-5514
	D	Mobile	(831)594-2660
	E	E-mail	Doug.Allen@wyeasteng.com
9		**Life Cycle Cost Analysis**	
	A	Inspection & Touch Up Schedule	N/A
	B	Recoating Schedule	N/A
	C	Replacement Schedule	N/A
	D	Present Worth Rate	N/A
	E	Annual Inflation Rate	N/A
10		Tank Function	Potable Water Storage Tank
11		NSF61 Compliant Required	Yes
12		Site Specific Health Requirements	None
13		Tank Structure Type	AWWA D103 Bolted Steel GFTS
14		Applicable Standards	
	A	General	NFPA 22, AWWA D103
	B	Structure	NFPA 22, AWWA D103
	C	Coating	Glass-Fused-To-Steel (GFTS)
15		Cathodic Protection Required	Yes
16		Warranty	5-year
18		Piping Requirements	Supply by Others; Connection by Contractor
19		Piping Depth of Cover	See Project Plans
20		Roof Type	GFTS or Geodesic Dome
21		Floor Type	Reinforced concrete with embedded starter sheet
22		Special Inspection Req'd	Provided by Owner
		Interior	N/A
25		**Design Criteria**	
	A	Seismic Design	
	i	Seismic Risk Categ.	IV; Design Categ. F
	ii	Site Specific Spectral Response	
		S_S = 2.80	$S_{MS} = F_a S_s$ = 2.91; PGA_M = 1.02
		S_1 = 1.07	$S_{M1} = F_v S_1$ = 1.54; V_{S30} = 530
		TL = 12-sec	$S_{DS} = (2/3) S_{MS}$ = 1.94
		Site Class = C	$S_{D1} = (2/3) S_{M1}$ = 1.02
	B	Wind Loading	
		V3s =	85-mph
		VFM =	71-mph
	C	Snow Loading	25-psf
	D	Special Loadings	No
26		Foundation (inc. Seismic Restraint as Required)	
	A	Designed By	Contractor
	B	Constructed By	Contractor

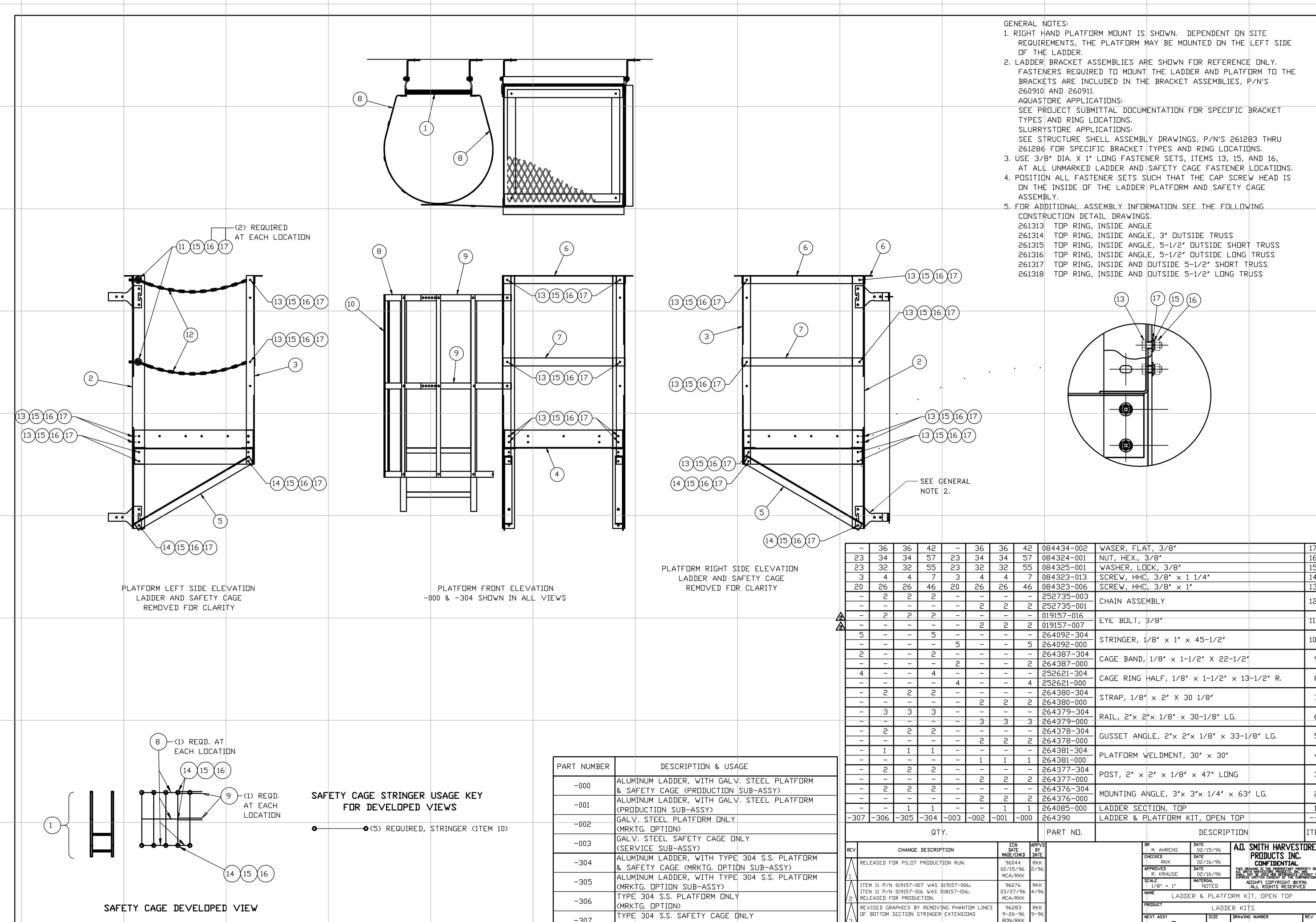
No.		Item	
27		**Shop Drawings Required**	
	A	Structural Calculations	
	i	Loads for the Shell and Roof	
	ii	Loads Imposed on Foundation	
	iii	Moment and Shear under Seismic & Wind Loading	
	iv	Shell, roof and anchorage calculations	
		Structural calculations shall be prepared, signed and stamped by an Engineer licensed to practice in the the state of California	
	B	Dimensioned Drawings Required	
	i	Foundation	viii
	ii	Tank Shell	
	iii	Tank Roof	
	iv	Seismic Restraint	
	v	Piping Details	
	vi	Shell Penetrations	
	vii	Mixing system	
28		**Miscellaneous**	
	A	Tideflex Mixing System required	

Note
Wherever herein the word Contractor is used, it shall mean the tank manufacturer, his approved erector, and any specialty subcontractors for which this proposal is solicited.



2 UPPER TANK – DRAIN CONNECTION DETAIL

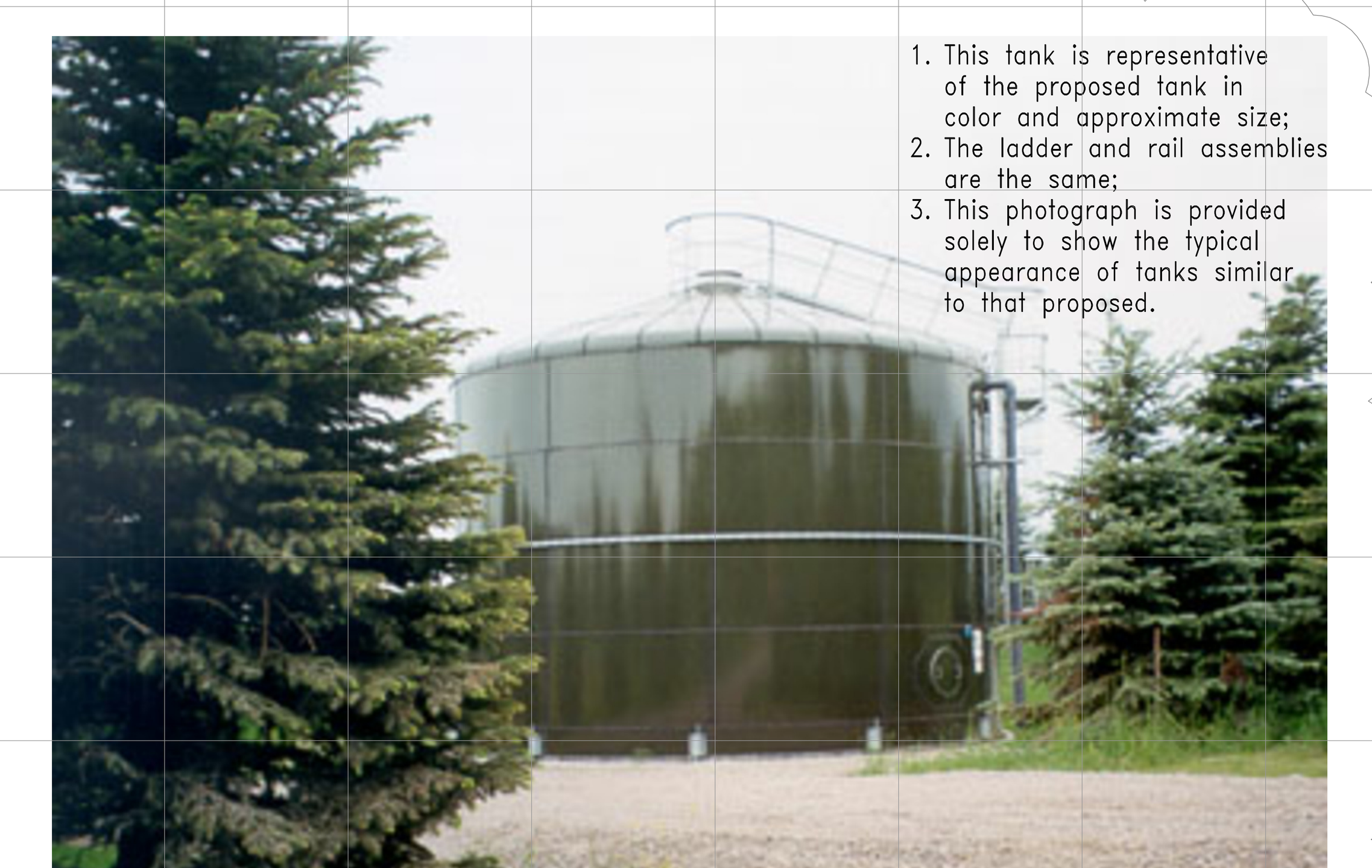
SCALE: NTS



3 UPPER TANK – EXTERIOR LADDER DETAIL

SCALE: NTS

By CST Aquastore



1. This tank is representative of the proposed tank in color and approximate size;
2. The ladder and rail assemblies are the same;
3. This photograph is provided solely to show the typical appearance of tanks similar to that proposed.

Sheet Included for Reference Only

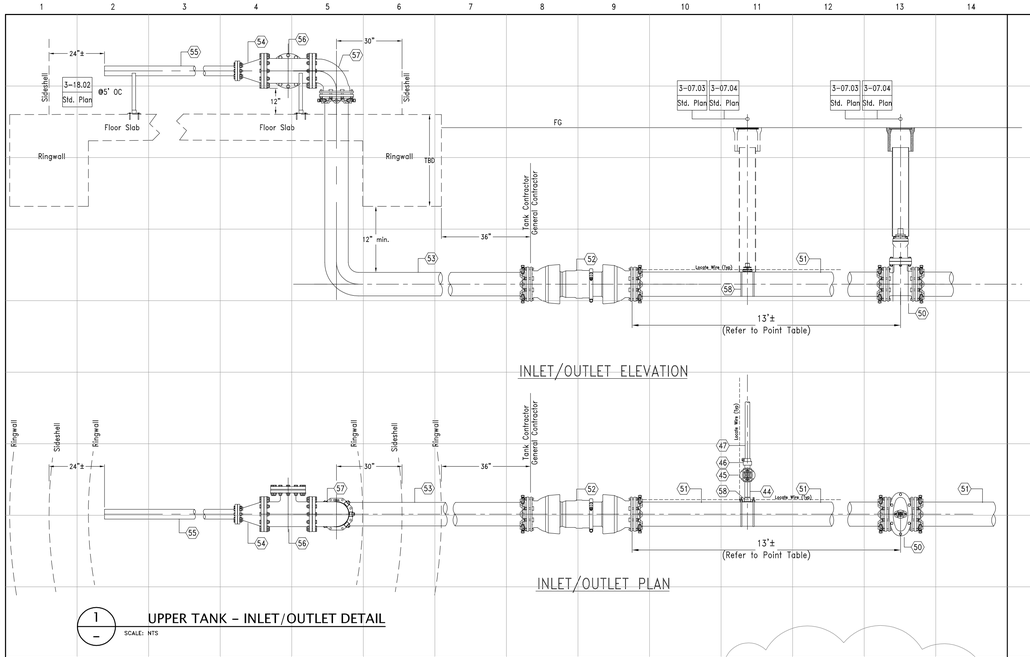
Revision	Date:
Add Tank Photo	dra - 2/24

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Tank Layout and Details

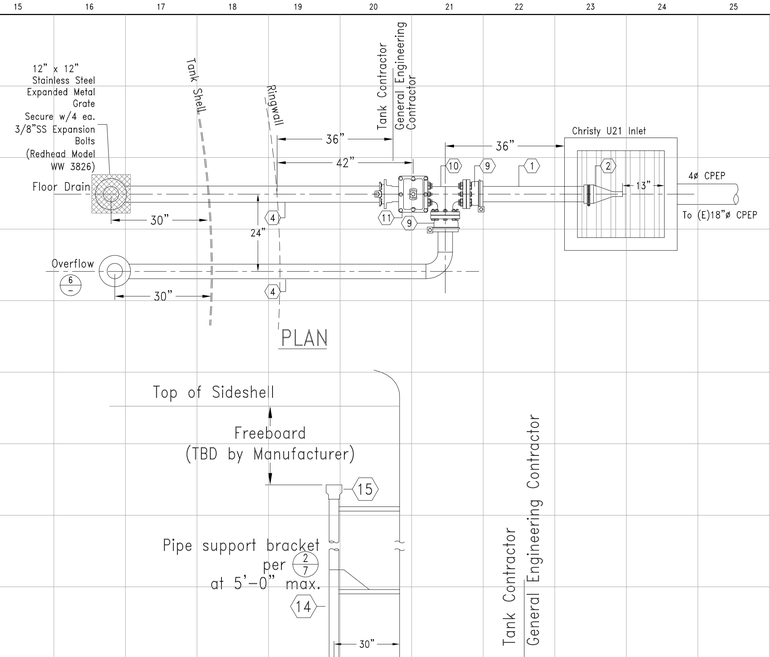
Wy'east Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: 1" = 10'
Drawn: DRA
Job: 22-002
Sheet C16 of 24



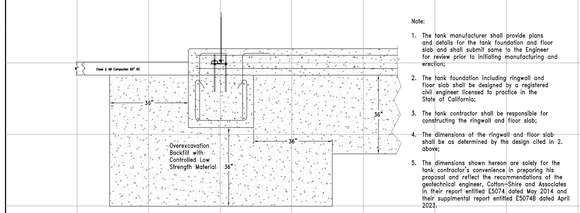
1 — UPPER TANK – INLET/OUTLET DETAIL
SCALE: NTS



2 — UPPER TANK – OVERFLOW/DRAIN DETAIL
SCALE: NTS

TANK MECHANICAL SCHEDULE

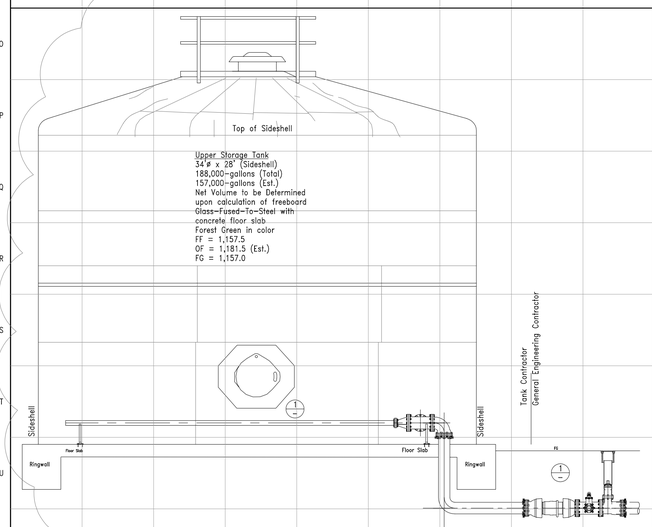
ID	DESCRIPTION
1	4"ø PVC (C900)
2	4"ø Duckbill Check Valve (Tideflex Series 39 w/Hypalon or EPDM Duckbill)
3	4"ø Gate Valve (MJxFL)
4	4"ø Stainless Steel (Type 304, Sch. 40 – PE x PE – Fabricated, Ames Fire Riser IBR2 or Approved Substitute)
5	4"ø x 90° (MJxFL)
6	6"ø Stainless Steel (Type 304, Sch. 40 – PE x PE – Fabricated, Ames Fire Riser IBR2 or Approved Substitute)
7	4"ø Coupling (Smith-Blair 413-4.50-4.80 Grade 30 Gaskets Epoxy Coated)
8	Carrier Pipe (Size As Shown)
9	4"ø Flange Coupling Adapter (HYMAX Standard Body)
10	4"ø x 4"ø x 4"ø Tee (All FL)
11	4"ø Resilient Seat Gate Valve (MJ x FL)
12	4"ø DIP
13	4"ø x 4"ø x 4"ø PVC Tee (Slip x Slip x Slip – Orient horizontally)
14	4"ø PVC (Sch. 40)
15	8"ø x 4"ø PVC Reducer (Sch. 40 – SxS Specified Fittings Model 3260084, Spears 829-582F or approved substitute)
16	Stainless Steel Clamp Hanger (B-Line 3373 or approved substitute) (Size as Shown)
17	1/2"ø Clamp Hanger Bolt (Confirm size before fabricating strut)
18	Stainless Steel Strut (2" x 2" 3/8" Equal Leg L per detail)
19	4"ø Double Ball Expansion Fitting (EBAA Iron Flex Tend – FL x MJ)
20	(N)4"ø x 45° (MJxMJ) w/MegaLug 1104 Restraining Gland
21	4"ø Double Ball Expansion Fitting (EBAA Iron Flex Tend – FL x FL)
22	4"ø x 90° (MJ x MJ w/ EBAA Iron MegaLug 1106 Restraining Gland)
23	Overflow Spool per Detail
24	4"ø Welding Flange
25	4"ø Welded Steel Pipe (Sch. 20)
26	4"ø x 90° Weld Ell (Sch. 20)
27	4" Gate Valve (MJxMJ w/MegaLug 2004)
28	4"ø Flange Coupling Adapter (EBAA Iron MegaFlange Series 2104)
29	4"ø Adaptor (SxG)
30	4"ø Victaulic Coupling (Style 77)
31	4"ø Stainless Steel Nozzle (Sch. 40)
32	1/8" Stainless Steel Backing Plate (Type 304 or 316)
33	4"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FLxMJ)
34	8"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FL x MJ)
35	4"ø Flange Coupling Adapter (EBAA Iron MegaFlange 2104)
36	8"ø x 8"ø x 4"ø Tee (All FL)
37	2"ø Stainless Steel Nozzle (Sch. 40)
38	2"ø Stainless Steel Ball Valve w/Locking Lug
39	6"ø Resilient Seat Gate Valve (FL x MJ)
40	6"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FLxFL)
41	6"ø x 45° DIP Ell (FL x MJ w/MegaLug 2006)
42	4"ø PVC (CertaLok RJ900)
43	4"ø x 90° PVC Ell (CertaLok RJ900)
44	2"ø x 8" Stainless Steel Nipple (MIPT x MIPT) (Type 304)
45	2"ø Resilient Seat Gate Valve (FIPT x FIPT)
46	2"ø Coupling (PJ x MIPT) (FORD C84-77-NL)
47	2"ø PET (SDR9)
48	(E)3"ø GIP
49	3"ø Coupling (HYMAX Grip)
50	10"ø Resilient Seat Gate Valve (FL x MJ w/MegaLug 2010 Gland)
51	10"ø PVC (AWWA C900, Class 235)
52	10"ø Double Ball Flexible Expansion Joint (EBAA Iron FlexTend FLxMJ)
53	10"ø Stainless Steel (Type 304, Sch. 40 – PE x PE – Fabricated, Ames Fire Riser IBR2 or Approved Substitute)
54	10"ø x 4"ø DIP Reducer (All FL)
55	Tideflex Mixing System including 10"ø WF-2 Check Valve
56	10"ø x 10"ø x 10"ø DIP Tee (All FL)
57	10"ø x 90° DIP Ell (FL x MJ)
58	10"ø x 2"ø Saddle Tap (FORD 202)
59	2"ø x 3" Stainless Steel Nipple (MIPT x MIPT) (Type 304)
60	2"ø x 90° Stainless Steel Ell (Type 304)
61	2"ø x 2"ø x 2"ø Stainless Steel Tee (Type 304)
62	10"ø MJ Cap Tapped 3"ø FIPT
63	3"ø x 12" Stainless Steel (MIPT x PE – Sch. 40 Type 304)



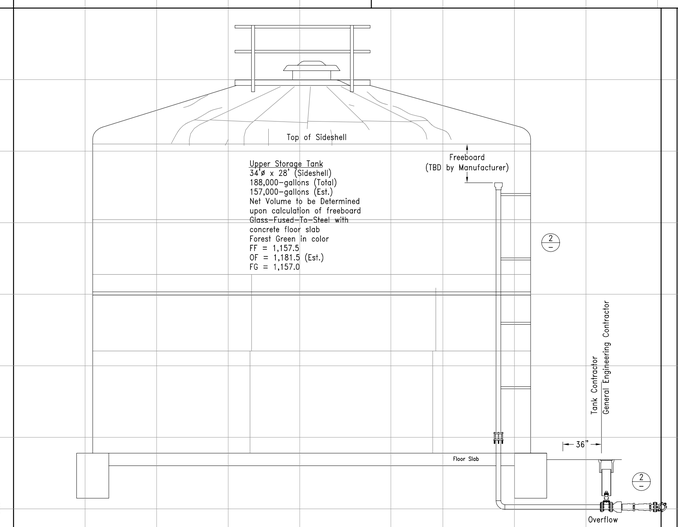
Note:
1. The tank manufacturer shall provide plans and details for the tank foundation and floor slab and shall submit same to the Engineer for review prior to initiating manufacturing and erection;
2. The tank foundation including ringwall and floor slab shall be designed by a registered civil engineer licensed to practice in the State of California;
3. The tank contractor shall be responsible for constructing the ringwall and floor slab;
4. The dimensions of the ringwall and floor slab shall be as determined by the design cited in 2. above;
5. The dimensions shown hereon are solely for the tank contractor's convenience in preparing his proposal and reflect the recommendations of the geotechnical engineer, Cotton-Shire and Associates in their report entitled ES074 dated May 2014 and their supplimental report entitled ES074B dated April 2023.

3 — UPPER TANK – FOUNDATION DETAIL
SCALE: NTS

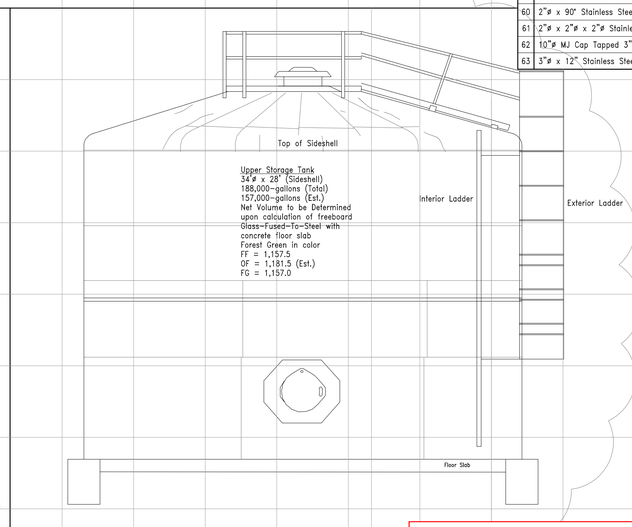
4 — UPPER TANK – TIDEFLEX MIXING SYSTEM
SCALE: NTS



5 — UPPER TANK – IN:ET/OUTLET ELEVATION
SCALE: NTS



6 — UPPER TANK – OVERFLOW ELEVATION
SCALE: NTS



7 — UPPER TANK – LADDER ELEVATION
SCALE: NTS

Chemeketa Park Mutual Water Company
Upper Tank Site
Point Table

Point	North	East
Pipeline		
Valve A	49,572.7	59,167.0
Pipeline Intx B	49,563.2	59,175.3
Pipeline Intx C	49,555.7	59,153.1
Tie-In D	49,570.6	59,121.5
(N)Tank	49,607.4	59,140.9
Temporary	49,579.1	59,159.6
Tank		
Inlets		
Inlet A	49,598.2	59,167.8

Sheet Included for Reference Only

Revision	Date:
Add Tank Elevations and Mixing System	dtm - 2/24

CHEMEKETA PARK MUTUAL WATER COMPANY
~
Upper Tank Site
Tank Elevations and Details

Wyeast Engineering
784 Northridge Center, Suite 229
Salinas, CA 93906
(831)443-5514 (FAX)444-9490

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 2/24
Scale: None
Drawn: DRA
Job: 22-002
Sheet C17 of 24

C:\Chemeketa Park\Upper Tank\Upper Tank Site .dwg, Sheet:C17 - Upper Tank Details

UTILITY MARKING SYSTEMS

PRODUCT	COLOR	EQUIVALENT COLOR STANDARD		
		Ameron	Carboline	Rust–Oleum
Raw Water	Light Machine Gray	GR–2	2713	V2183
Potable Water	OSHA Safety Blue	BL–6	S150	V2124
Recycled Wastewater	OSHA Safety Purple			V2167
Backwash Water	Tan	BR–3	G243	V2171
Chlorine, Sodium Hypochlorite, Mixed Oxidants	Bright Green	GN–5	2369	V2134
Caustic (NaOH)	Industrial Yellow	YE–4	5607(LF)	V2147
Meta–Bisulfite (H2SO2)	Semi–Flat Black	BK–2	C900	V2177
Poly Orthophosphate (PO)	Gloss White	WH–2	S800	V2192
Gaseous Product	OSHA Safety Yellow	YE–3	S625	V2143
(Gas, Oil, Diesel, Steam, Chemical)				
Electric Power	OSHA Safety Red	RD–2	S525	V2163
Communications	OSHA Safety Orange	OR–2	S401	V2155
(Telephone, CATV, Fiber Optic, Signal)				
Wastewater, Storm Drain	OSHA Safety Green	GR–6	S375	V2133
Compressed Air	Almond	YE–2	0857(LF)	V2170
(LF = Lead Free)				
Fire Hydrant Head or Bonnet	Reflective Hydrant Paint (Color per Flow Code)			
Fire Hydrant Flow Code				
Class AA (1,500–gpm or greater)	OSHA Safety Blue	BL–6	S150	V2124
Class A (1,000–1,500 gpm)	OSHA Safety Green	GR–6	S375	V2133
Class B (500–1,000 gpm)	OSHA Safety Orange	OR–2	S401	V2155
Class C (less then 500–gpm)	OSHA Safety Red	RD–2	S525	V2163
Public Fire System Hydrant Barrel	OSHA Safety Yellow	YE–3	S625	V2143
Private Fire System Hydrant Barrel	OSHA Safety Red	RD–2	S525	V2163

Reflective Coatings shall be Seymour Reflective Hydrant Spray Paint, Rust–oleum Specialty Fluorescent or Ames Research Laboratories Reflective Safety Paint

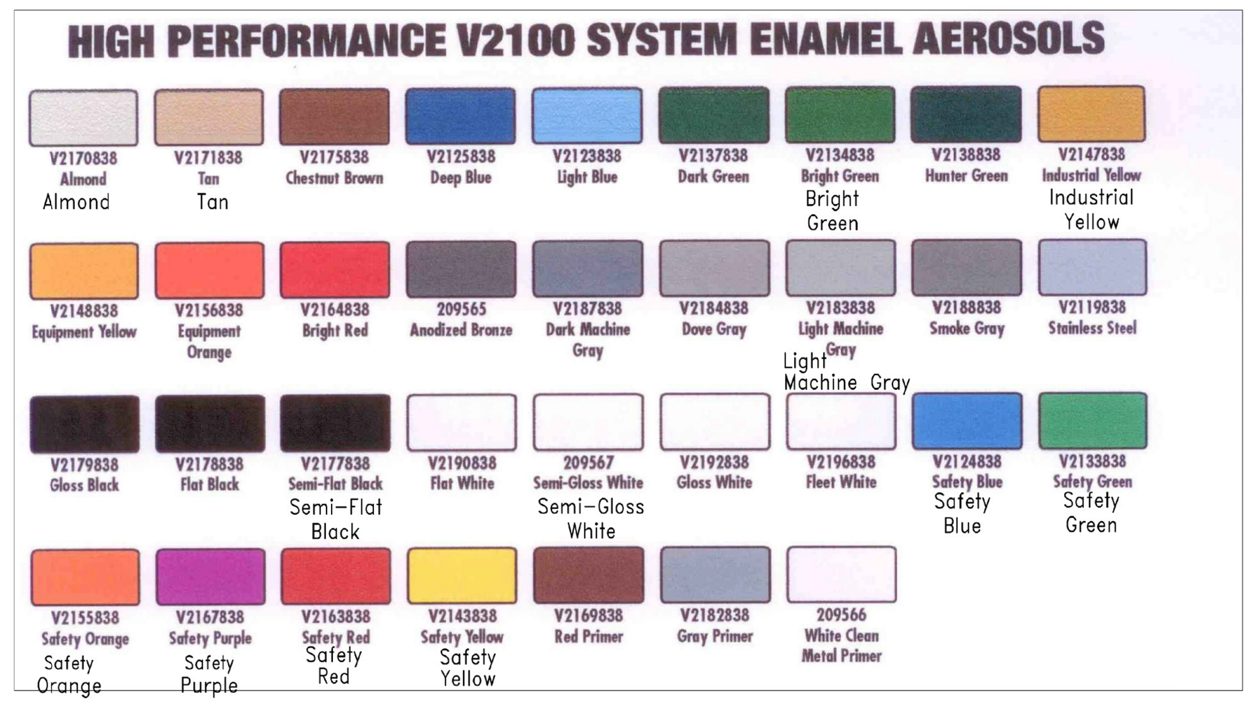
UTILITY MARKING SYSTEMS
~

Standard Plan No. 2–01.01

DESIGN: DRA	DATE: 8/17
CAD: DRA	DATE: 8/17
CHECKED: DRA	DATE: 8/17
APPROVED: DRA	DATE: 8/17

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443–5514 ~ (Mobile)594–2660

Revisions



NOTES

1. This color chart is provided solely as a reference and as a convenience to teh contractor;
2. Wy'east Engineering makes no endorsement or warranty, expressed or implied, as to the adequacy, sufficency, applicability or suitability of any coating manufacturer by providing this reference;
3. The contractor shall be solely responsible for providing coatings of the type and color suitable for the work and shall submit color sampls and material data sheets in accordance with Wy'east Engineering Standard Plans and Specifications.

UTILITY MARKING SYSTEMS
~
Color Reference Chart

Standard Plan No. 2–01.02

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443–5514 ~ (Mobile)594–2660

NOTE:

1. Pursuant to Section 1–06.07 of the Wy'east Engineering Standard Specifications, the Contractor shall notify the One Call Service USA North, at 811 or (800)227–2600 or USA South at 811 or (800)422–4133 a minimum of 2–working days in advance of commencing work;
2. The Contractor is reminded that, pursuant to California Business and Professions Code Section 7110, California Code, Section 4216 and CalOSHA Regulation Title 8, Chapter 4, Subchapter 4, Article 6, Section 1541, all Contractors are required to call for underground utility locations a minimum of two (2) working days in advance of commencing construction on underground facilties or facilities related thereto;
3. The provided color codes, facility identifiers and infrastructure material tables are provided solely for the Contractor's convenience;
4. The Contractor is referred to USA North's California Excavation Manual for additional details;
5. Wy'east Engineering assumes no responsibility, expressed or implied, as to the accuracy, adequacy or sufficiency of any utility locations determined by others.

TYPICAL UTILITY MARKINGS

Owner/Facility Identifier/Infrastructure Material/Size
Typical underground utility location field markings will follow one of two protocols, horizontal and vertical as shown below:

Horizontal
Owner/Facility Identifier/Infrastructure Material/Size Example: PGE/G/PLA/2"

Vertical

	Example:	
Owner		PGE
Facility Identifier		G
Infrastructure Material		PLA
Size		2"

Would be read as a 2"ø Plastic Gas Line owned by PG&E

UTILITY MARKING SYSTEMS
One Call Utility Marking Systems
Sheet 1 – Notes and Descriptions

Standard Plan No. 2–01.03A

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443–5514 ~ (Mobile)594–2660

ONE CALL UTILITY MARKING SYSTEMS

PRODUCT	COLOR		
Proposed Excavation	White	Temporary Survey Markings	Pink
Potable Water	Blue	Electric Power	Red
Recycled Wastewater	Purple	Communications	Orange
Gaseous Product	Yellow	(Telephone, CATV, Fiber Optic, Signal)	
(Gas, Oil, Diesel, Steam, Chemical)		Wastewater, Storm Drain	Green

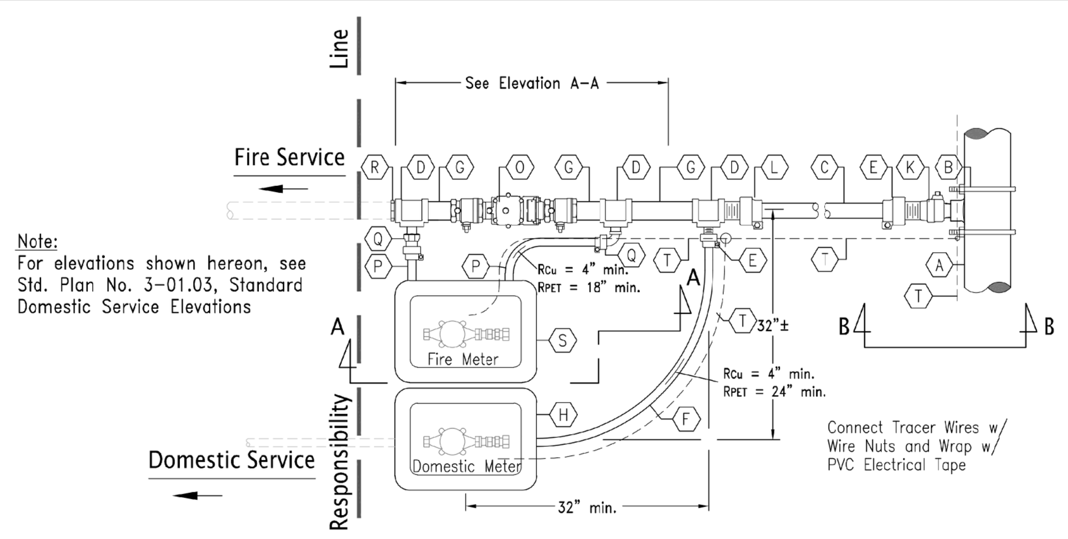
COMMON ABBREVIATIONS

FACILITY IDENTIFIER				INFRASTRUCTURE MATERIAL			
CH	Chemical	SS	Storm Sewer	ABS	Acrylontrile–Butadiene–	PVC	Polyvinyl Chloride
E	Electric	SL	Street Lighting		Styrene		Pipe
FO	Fiber Optic	STM	Steam	ACP	Asbestos Cement Pipe	RCB	Reinforced
G	Gas	SP	Slurry System	CI	Cast Iron		Concrete Box
LPG	Liquefied	TEL	Telephone	CMC	Cement Mortar Coated	RCP	Reinforced
	Petroleum Gas	HH	Hand Hole	CML	Cement Mortar Lined		Concrete Pipe
C	Conduit	MH	Manhole	CPP	Corrugated Plastic Pipe	RF	Reinforced Fiberglass
CDR	Corridor	PB	Pull Box	CMP	Corrugated Metal Pipe	SCCP	Steel Cylinder
D	Distribution	R	Radius	CWD	Creosote Wood Duct		Concrete Pipe
	Facility	STR	Structure	DIP	Ductile Iron Pipe	STL	Steel
DB	Direct Bury	T	Transmission	FRP	Fiber Reinforced Plastic	VCP	Vitrified Clay Pipe
DE	Dead End		Facility	GIP	Galvanized Iron Pipe		
JT	Joint Trench	WW	Wastewater	HDPE	High Density		
HP	High Pressure				Polyethylene Pipe		
				MTD	Multiple Tile Duct		
				PET	Polyethylene Tubing		
				PLA	Plastic (Pipe or Conduit)		

UTILITY MARKING SYSTEMS
One Call Utility Marking Systems
Sheet 2 – Color Code, Facility Identifiers, Infrastructure Material Details

Standard Plan No. 2–01.03B

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443–5514 ~ (Mobile)594–2660



MECHANICAL SCHEDULE	
ID	DESCRIPTION
A	Water Main
B	2"ø Bronze Service Saddle (Ford Series 202B or 202BSS – 2"ø FIPT Outlet)
C	2"ø Service Tubing (PET or Cu Type K)
D	2"ø x 2"ø x 2"ø Brass Tee w/Bushings as Required or 2"ø x 2"ø x Size Brass Tee
E	Coupling (Ford C84–44–NL (1"ø PJ x 1" MIPT))
F	1"ø Service Tubing (PET or Cu Type K)
G	2"ø Brass Nipple (Length as Required – 4" min.)
H	5/8"ø x 3/4"ø Domestic Meter Installation per Standard Plan No. 3–02
J	2"ø Brass Ball Valve or Ball Valve Curb Stop (Ford B11–777 (FIPT x FIPT))
K	2"ø Ball Type Corporation Stop (Ford FB1100–7–NL (MIPT Inlet x FIPT Outlet))
L	Coupling (Ford C84–44–NL (2"ø PJ x 2" MIPT))
M	3/4"ø Angle Valve Curb Stop (Ford BA43–332W (PJ x 5/8"/3/4" Meter))
N	3/4"ø Angle Cartridge Dual Check Valve (Meter Swivel x PJ – Ford HHCA34–323)
O	2"ø Double Check Valve (Watts 007 QT, Febco 805/807 or approved substitute)
	Remove 1/4"ø Sample Cocks and Plug with 1/4"ø Brass Pipe Plugs
P	3/4"ø Service Tubing (PET or Cu Type K)
Q	Coupling ((3/4"ø PJ x 3/4" MIPT) Ford C84–3–NL or L84–34–NL)
R	2"ø PVC Pipe Plug Hand Tight Until Service is Extended
S	Meter Box (Christy B9) w/5/8" x 3/4" Meter; Location per Standard Plan No. 3–02
T	#14AWG Cu Tracer Wire (THHN or THWN)
U	5/8"ø x 3/4"ø Meter (Supplied and Installed by Water Agency)

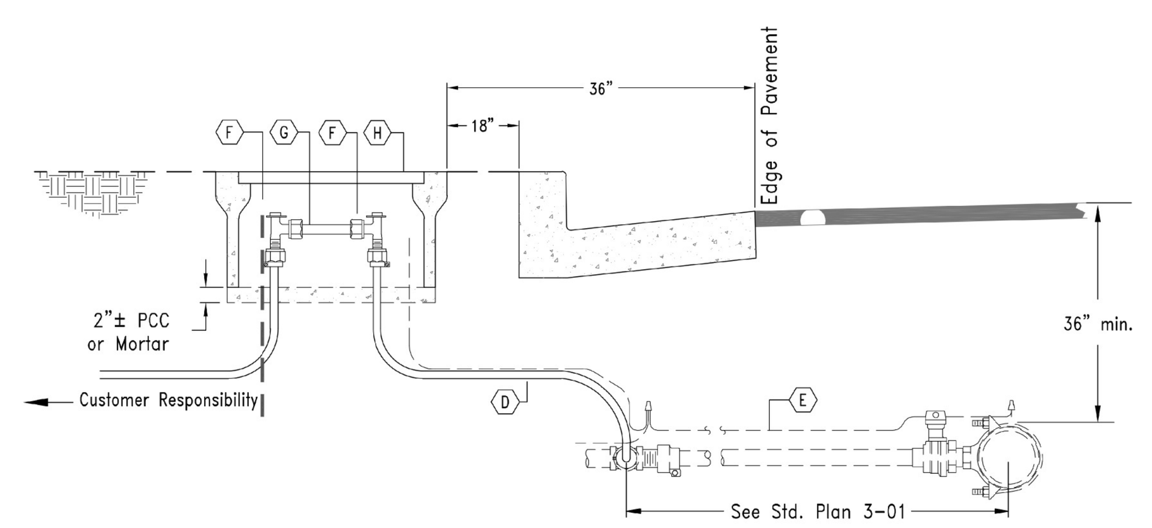
NOTES

1. Field verify pipe size and type;
2. All buried fittings shall be liberally coated with a bitumastic compound (Permatex 81833, 3M 3584, T. Christy HD50 or approved subsitute);
3. Overall length to fit;
4. All work left of the Responsibility Line shall be the responsibility of the Customer to install and maintain in accordance with Agency Standards.

STANDARD DOMESTIC COMBINATION SERVICE
2–inch Fire or Irrigation and Domestic Combined Installation
Below Grade Backflow Device Installation

Standard Plan No. 3–01.01

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443–5514 ~ (Mobile)594–2660



MECHANICAL SCHEDULE	
ID	DESCRIPTION
A	Water Main (New or Existing) per Std. Plan No. 3–01
B	Tapping Saddle per Std. Plan 3–01
C	2"ø Corporation Stop per Std. Plan 3–01
D	2"ø Service Tubing
E	#14 AWG Tracer Wire – THHN, THWN
F	2"ø Angle Meter Stop w/Ford A24–NL Adapter
G	Install Meter Idler Spool (Ford Idler – 2)
H	Meter Box – Christy B9

APPROVED FITTINGS

Condition	Service Tubing: PET	Service Tubing: Type K Copper	Tapping Saddle: Ford 101B	Tapping Saddle: Ford 101BS	Tapping Saddle: Ford 202BS	Corporation Stop: Ford F1100–4–NL	Corporation Stop: Ford FB700–4–NL	Angle Meter Stop: Ford KV43–342W–NL	Angle Meter Stop: Ford KV23–342W–NL
Standard Domestic Service	●		●	●	●	●		●	
Service Pressure > 150–psi		●	●	●	●	●	●	●	●

NOTES

1. All PET services using Pack Joint fittings shall be equipped with stainless steel inserts at all fittings;
2. A Ford A24–NL adapter shall be installed at the meter stops;
3. When installing a new service at an existing location, the customer plumbing
4. shall be replumbed as necessary to conform with this plan. If PVC piping is used, all pipe and fittings shall be Sch. 80;
5. Irrigation meters and domestic fire services shall be equipped with a backflow device in accordance with Wy'east Engineering Std. Plan No. 3–03;
6. New installations at existing service locations shall be relocated into the Right–of–Way;
7. Minimum bending radius for PET (SDR 9) shall be 20 x D where D = PET nominal diameter;
8. Minimum bending radius for copper tubing (Type K, L) shall be 4";
9. Copper tubing shall be bent using a tube bending device as recommended by the Copper Development Association, Copper Tubing Handbook. Free hand bending will not be permitted;
10. Copper or PET tubing evidencing crimping as a result of bending shall be removed and replaced at the Contractor's expense.

STANDARD DOMESTIC SERVICE
~
Unmetered Installation

Standard Plan No. 3–02.02

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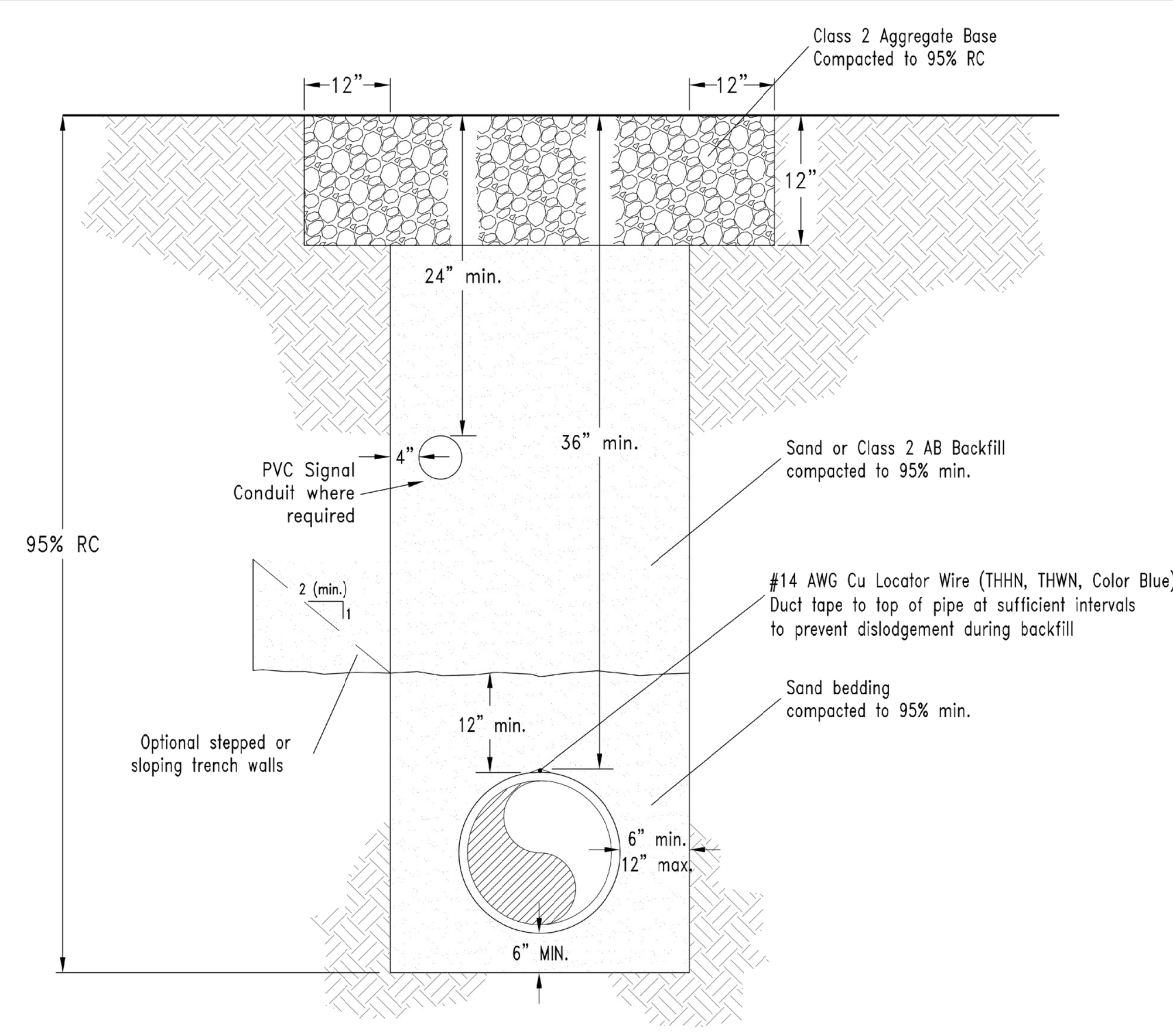

NOTES:

1. Trench construction standards are applicable to private property construction only. Within a public right of way or parcel, the requirements of the Agency of Jurisdiction may supercede these standards;
2. Class 2 AB may be continued to 12" above pipe with sand bedding as shown;
3. Trenches within a paved area or road Right–Of–Way shall be constructed in accordance with Standard Plan 3–04.01A.

TRENCH DETAIL – SAND BACKFILL
~
Unpaved Areas

Standard Plan No. 3–04.01B

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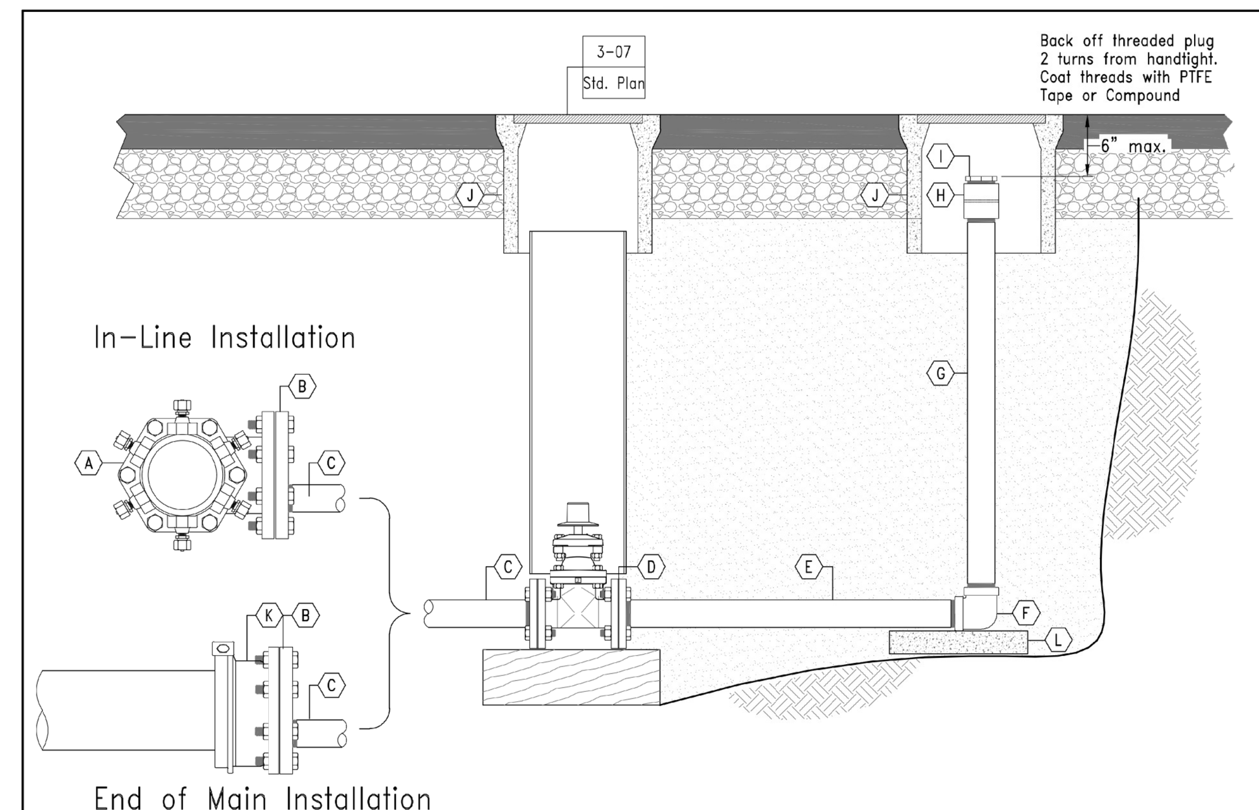
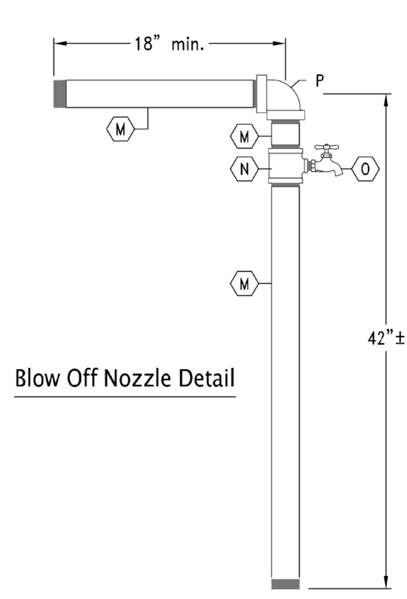


MECHANICAL SCHEDULE	
ID	DESCRIPTION
A	In–Line Tee (MJ x MJ x FL – Run and branch same size)
B	Stainless steel blind flange tapped for BO – match inverts of main and blowoff
C	12" stainless steel nipple – Size as required
D	Gate valve (FL x FL)
E	30" stainless steel nipple – Size as required
F	90° stainless steel ell – size as required
G	Stainless steel nipple – size and length as required
H	PVC Coupling (Sch. 80 FIPT x FIPT – Size as required)
I	PVC Plug (Sch. 80 MIPT – Size as required)
J	Valve Box marked BLOWOFF (Christy G5)
K	Flange Coupling Adapter (HYMAX Grip Standard Body – Size as required)
L	12" x 12" x 2" PCC paving block
M	Galvanized iron pipe nipple – Size and length as required
N	Galvanized iron pipe tee with bushings – Size as required
O	No thread hose bibb – Matco Norca, Arrowhead or approved substitute
P	Galvanized iron pipe ell – Size as required

Main Size	Blowoff Size
4"ø – 6"ø	2"ø
6"ø –12"ø	4"ø
12"ø – 18"ø	6"ø
>18"ø	As Required



Blow Off Nozzle Detail

NOTES:

1. All blowoff pipe and fittings shall be Type 304 Stainless Steel. The Contractor may substitute fabricated fittings of stainless steel or epoxy coated steel in lieu of threaded fittings;
2. Backfill shall be that of the adjacent pipeline trench;
3. Blowoffs shall be sized such that the minimum flushing velocity of the main shall be 2.5–fps and the maximum velocity of the blowoff shall be 20–fps;
4. Thrust restraint on new pipelines shall in accordance with Std. Plan No. 3–08.02;
5. Thrust restraint on existing pipelines shall in accordance with Std. Plan No. 3–08.01.

BLOW–OFF ASSEMBLY

Standard Plan No. 3–06

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Standard Plans Sheet 1

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Date: 8/23
Scale: None
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Job: 22–002
Sheet SP–1 of 24

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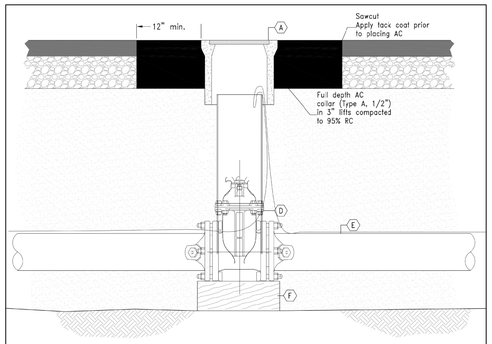

MECHANICAL SCHEDULE	
ⓘD	DESCRIPTION
A	Valve Box (Christy G5 – Lid marked 'WATER')
B	8# PVC (SDR35) or 8"ø CPEP (ADS N12)
C	#14AWG Cu Tracer wire (Color per Std. Plan 2-01) (Route outside barrel as shown)
D	Buried Valve (Gate, BFV, Ball – Center valve box over operating nut)
E	Water main size as shown on Project Plans
F	6" x 6" Block (PTDF, Redwood or Concrete – Extend past valve flanges)

NOTE:
Valve box shall be brought to finish grade prior to placing AC collar

BURIED VALVE ASSEMBLY
~
Existing Pavement Installation

Standard Plan No. 3-07.01

DESIGN:	DRA	DATE:	8/17
CAD:	DRA	DATE:	8/17
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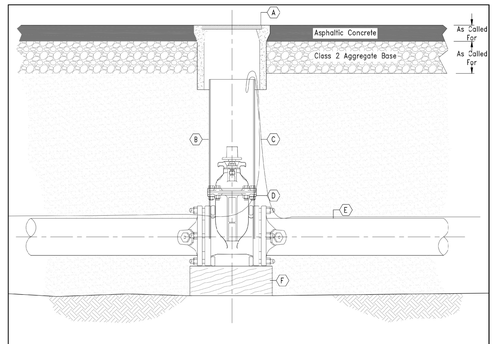

MECHANICAL SCHEDULE	
ⓘD	DESCRIPTION
A	Valve Box (Christy G5 – Lid marked 'WATER')
B	8" ø PVC (SDR35) or 8" ø CPEP (ADS N12)
C	#14AWG Cu Tracer wire (Color per Std. Plan 2-01) (Route outside barrel as shown)
D	Buried Valve (Gate, BFV, Ball – Center valve box over operating nut)
E	Water main size as shown on Project Plans
F	6" x 6" Block (PTDF, Redwood or Concrete – Extend past valve flanges)

NOTE:
The valve box shall be brought to finish grade prior to placing the finel lift of AC paving;

In multiple lift pavements, the valve box may be brought up in each lift or once for the final lift with a full depth AC collar.

BURIED VALVE ASSEMBLY
~
New Pavement Installation

Standard Plan No. 3-07.02

DESIGN:	DRA	DATE:	8/17
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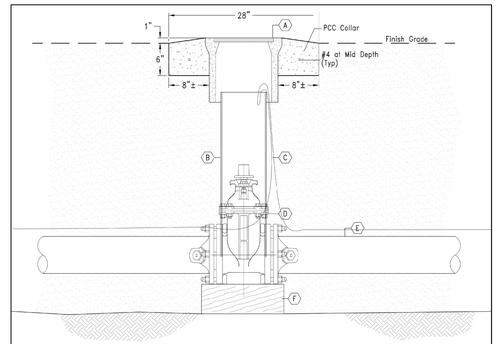

MECHANICAL SCHEDULE	
ⓘD	DESCRIPTION
A	Valve Box (Christy G5 – Lid marked 'WATER')
B	8"ø PVC (SDR35) or 8"ø CPEP (ADS N12)
C	#14AWG Cu Tracer wire (Color per Std. Plan 2-01) (Route outside barrel as shown)
D	Buried Valve (Gate, BFV, Ball – Center valve box over operating nut)
E	Water main size as shown on Project Plans
F	6" x 6" Block (PTDF, Redwood or Concrete – Extenc past valve flanges)

NOTE:
The valve box shall be brought to finish grade prior to placing the final lift of AC paving;

In multiple lift pavements, the valve box may be brought up in each lift or once for the final lift with a full depth AC collar.

BURIED VALVE ASSEMBLY
~
Unpaved Installation

Standard Plan No. 3-07.03

DESIGN:	DRA	DATE:	8/17
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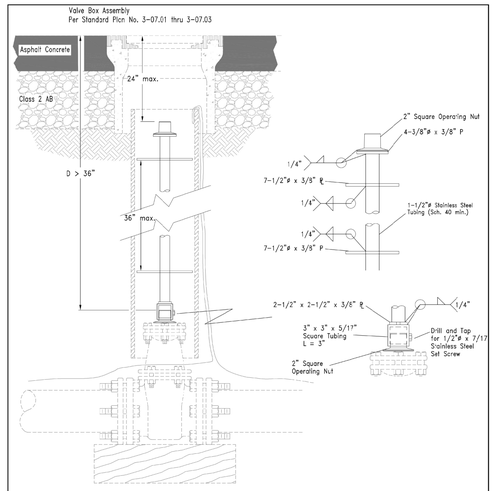

NOTES

1. Valve box assembly per Standard Plans 3-9.01 thrcugh 3-9.04;
2. Where the depth to the top of the valve operating not exceeds 36", an extension shall be fabricated in accordance with this Standard Plan 3-09.04;
3. The Contractor shall field verify the dimensions prior fabrication;
4. The extension assembly shall be fabricated of Type 304 or Type 316 stainless steel

BURIED VALVE ASSEMBLY
~
Valve Operator Extension Assembly

Standard Plan No. 3-07.04

DESIGN:	DRA	DATE:	8/17
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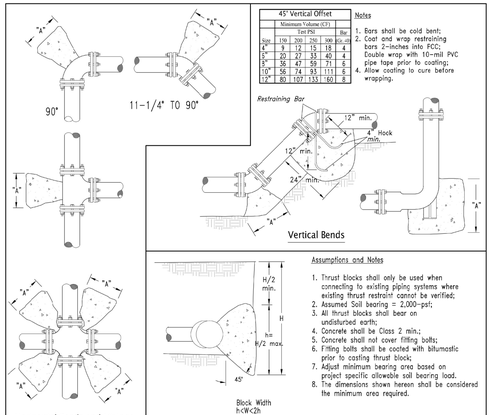

Typical Block Dimensions and Notes

45° Vertical Offset					
	Minimum Volume (CY)				
	Test PSI				Bar
Size	150	200	250	300	Rod
4"	3	12	15	18	4
6"	20	27	33	40	4
8"	36	47	59	71	5
10"	56	74	93	111	6
12"	80	107	133	160	8

Notes
1. Bars shall be cold bent;
2. Coat and wrap restraining bars 2-inches into FCC; Double wrap with 10-mil PVC pipe tape prior to coating;
4. Allow coating to cure before wrapping.

Assumptions and Notes
1. Thrust blocks shall only be used when connecting to existing piping systems where existing thrust restraint cannot be verified;
2. Assumed Soil bearing = 2,000-psf;
3. All thrust blocks shall bear on undisturbed earth;
4. Concrete shall be Class 2 min.;
5. Concrete shall not cover fitting bolts;
6. Fitting bolts shall be coated with bitumastic prior to casting thrust block;
7. Adjust minimum bearing area based on project specific allowable soil bearing load.
8. The dimensions shown hereon shall be considered the minimum area required.

MINIMUM BEARING AREA (A-SqFt)

Size	4"ø				6"ø				8"ø				10"ø				12"ø			
Test PSI / Fitting	150	200	250	300	150	200	250	300	150	200	250	300	150	200	250	300	150	200	250	300
90°	1.3	1.3	1.3	2.2	2.7	3.4	4.0	5.0	5.3	7.1	8.9	10.7	8.3	11.1	13.9	16.7	12.0	16.0	20.0	24.0
45°	1.3	1.5	1.5	1.5	1.6	2.2	2.7	3.3	2.9	3.8	4.8	5.8	4.5	6.0	7.5	9.0	6.5	8.7	10.8	13.0
22-1/2°	1.3	1.5	1.5	1.5	0.8	1.1	1.5	1.7	1.5	2.0	2.5	3.0	2.3	3.1	3.8	4.6	3.3	4.4	5.5	6.6
11-1/4°	1.3	1.5	1.5	1.5	0.4	1.5	1.5	1.5	0.9	1.50			1.3	1.5	1.5	1.9	2.1	2.7	2.2	2.8	3.4
Cross*	1.3	1.5	1.5	2.7	3.2	4.0	5.0	6.0	2.89	7.1			10.7	8.3	11.1	13.9	16.7	12.0	16.0	20.0	24.0
Tee*	1.3	1.5	1.5	2.7	3.2	4.0	5.0	6.0	2.89	7.1			10.7	8.3	11.1	13.9	16.7	12.0	16.0	20.0	24.0
Dead End	1.3	1.5	1.5	1.6	1.9	2.1	2.8	3.5	4.3	5.4	5.0	6.3			5.9	7.9	9.8	11.8	8.5	11.3	14.1	17.0

*Note: Unbalanced crosses shall be restrained as tees, 90° bends or dead ends as appropriate
*Note: Unbalanced tees shall be restrained as 90° bends or dead ends as appropriate

SOIL BEARING STRENGTH FACTOR

Bearing Strength	1,000-psf	1,500-psf	2,000-psf	2,500-psf	3,000-psf
Factor	2.00	1.33	1.00	0.80	0.67

THRUST RESTRAINT
~
Thrust Blocking Details

Standard Plan No. 3-08.01

DESIGN:	DRA	DATE:	8/17
CAD:	DRA	DATE:	8/17
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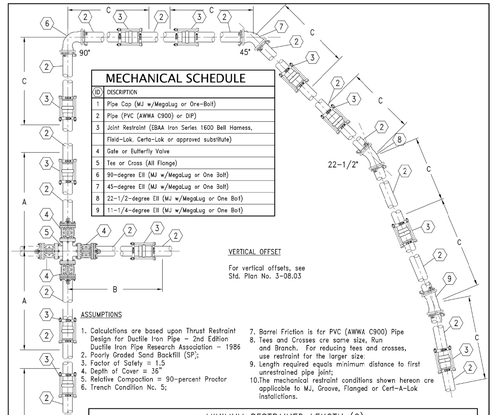

MECHANICAL SCHEDULE	
ⓘD	DESCRIPTION
1	Pipe Cap (MJ w/MegaLug or Ore-Bolt)
2	Pipe (PVC (AWWA C900) or DIP)
3	Joint Restraint (EBAA Iron Series 1600 Bell Harness, Field-Lok, Certa-Lok or approved substitute)
4	Gate or Butterfly Valve
5	Tee or Cross (All Flange)
6	90-degree Ell (MJ w/MegaLug or One Bolt)
7	45-degree Ell (MJ w/MegaLug or One Bolt)
8	22-1/2-degree Ell (MJ w/MegaLug or One Bolt)
9	11-1/4-degree Ell (MJ w/MegaLug or One Bolt)

VERTICAL OFFSET

For vertical offsets, see Std. Plan No. 3-08.03

1. Calculations are based upon Thrust Restraint Design for Ductile Iron Pipe – 2nd Edition Ductile Iron Pipe Research Association – 1986
2. Poorly Graded Sand Backfill (SP);
3. Factor of Safety = 1.5
4. Depth of Cover = 36"
5. Relative Compaction = 90-percent Proctor
6. Trench Condition No. 5;
7. Barrel Friction is for PVC (AWWA C900) Pipe
8. Tees and Crosses are same size, Run and Branch. For reducing tees and crosses, use restraint for the larger size.
9. Length required equals minimum distance to first unrestrained pipe joint;
10. The mechanical restraint conditions shown hereon are applicable to MJ, Groove, Flanged or Cert-A-Lok installations.

MINIMUM RESTRAINED LENGTH (C)

Size	4"ø				6"ø				8"ø				10"ø				12"ø			
Test PSI / Fitting	150	200	250	300	150	200	250	300	150	200	250	300	150	200	250	300	150	200	250	300
90°	13	17	21	25	17	23	29	35	22	30	37	45	27	36	44	54	31	42	52	63
45°	5	7	9	11	7	10	12	15	9	12	16	19	11	15	18	23	13	17	22	26
22-1/2°	5	5	5	5	5	6	7	7	5	7	9	9	5	7	9	11	6	8	10	13
11-1/4°	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	7
Cross* A=1N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Tee* A=1N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	5	5	5	5	5	5	5	5	5	5	5	5	5	15	26	5	5	5	51	5	15	46	78
Dead End A=1R	5	5	5	5	5	5	5	5	5	5	5	5	15	26	5	5	5	51	5	15	46	78
Dead End	58	50	63	76	53	70	88	106	69	92	116	139	83	111	139	167	98	131	164	197
Vertical	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Offset	5	7	9	11	8	10	12	15	10	13	16	19	12	15	19	23	13	18	22	26
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	16	21	26	32	22	30	37	44	29	39	48	58	35	46	58	69	41	55	68	82

*Note: Unbalanced crosses shall be restrained as tees or 90° bends
*Note: Unbalanced tees shall be restrained as 90° bends

THRUST RESTRAINT
Mechanical Restraint – Horizontal Alignment
Minimum Required Restrained Length

Standard Plan No. 3-08.02

DESIGN:	DRA	DATE:	8/17
CAD:	DRA	DATE:	8/17
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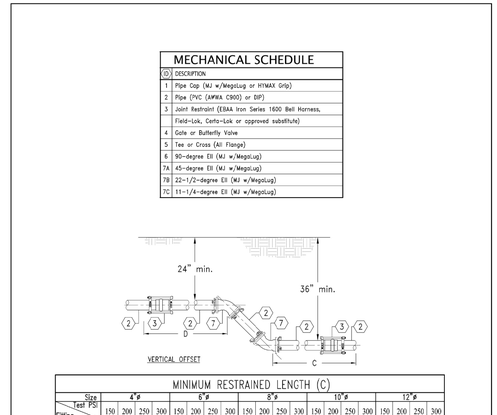

MECHANICAL SCHEDULE	
ⓘD	DESCRIPTION
1	Pipe Cap (MJ w/MegaLug or HYMAX Grip)
2	Pipe (PVC (AWWA C900) or DIP)
3	Joint Restraint (EBAA Iron Series 1600 Bell Harness, Field-Lok, Certa-Lok or approved substitute)
4	Gate or Butterfly Valve
5	Tee or Cross (All Flange)
6	90-degree Ell (MJ w/MegaLug)
7A	45-degree Ell (MJ w/MegaLug)
7B	22-1/2-degree Ell (MJ w/MegaLug)
7C	11-1/4-degree Ell (MJ w/MegaLug)

MINIMUM RESTRAINED LENGTH (C)

Size	6"ø				8"ø				10"ø				12"ø			
Test PSI / Fitting	150	200	250	300	150	200	250	300	150	200	250	300	150	200	250	300
90°	13	17	21	25	17	23	29	35	22	30	37	45	27	36	44	54
45°	5	7	9	11	7	10	12	15	9	12	16	19	11	15	18	23
22-1/2°	5	5	5	5	5	6	7	7	5	7	9	9	5	7	9	11
11-1/4°	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6
Cross* A=1N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Tee* A=1N	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
	5	5	5	5	5	5	5	5	5	15	26	5	5	5	51	5	15	46	78
Dead End A=1R	5	5	5	5	5	5	5	5	15	26	5	5	5	51	5	15	46	78
Dead End	58	50	63	76	53	70	88	106	69	92	116	139	83	111	139	167	98	131	164	197
Vertical	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Offset	5	7	9	11	8	10	12	15	10	13	16	19	12	15	19	23
	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	16	21	26	32	22	30	37	44	29	39	48	58	35	46	58	69

*Note: Unbalanced crosses shall be restrained as tees or 90° bends
*Note: Unbalanced tees shall be restrained as 90° bends

THRUST RESTRAINT
Mechanical Restraint – Vertical Offset
Minimum Required Restrained Length

Standard Plan No. 3-08.03

DESIGN:	DRA	DATE:	8/17
CAD:	DRA	DATE:	8/17
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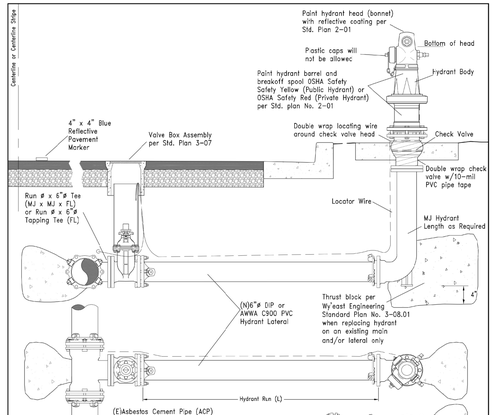

NOTES:

1. Steamer port shall be 4-1/2"ø or as directed by the Fire Agency of Jurisdiction;
2. Where the local Fire Agency of Jurisdiction has a color standard or coding system, the hydrant color, including reflective section shall be painted in accordance with that standard. Clear reflective coating may be substituted for colored reflective coatings in any installation;
3. Hydrant shall be covered with a burlap sack or bag marked NOT IN SERVICE until put into service;
4. Where the length of run (L) exceeds 20-ft, increase lateral run to 8"ø and reduce at hydrant.

MANUFACTURER	HYDRANT TYPE	
	6" Steamer	
OUTLETS	1 – 2-1/2" 2 – 2-1/2" 1-Steamer 1-Steamer	
Clow	2050	2060
Jones	J-3740	J-3760
Long Beach	3125	B130
Mueller	A481	A481
CHECK VALVES		
Jones	J5000 or J5005	
Clow	#600	

- For Placement and Clearances (Plan) See Std. Plan 3-10.02
- For Placement anc Clearances (Elevation) See Std. Plan 3-10.03
- For Wharf Head Hydrants See Std. Plan 3-10.04
- For Dry Barrel Hydrants See Std. Plan 3-10.05

GENERAL FIRE HYDRANT ASSEMBLY DETAILS
Wet Barrel Hydrant Assemblies
General Details and Notes

Standard Plan No. 3-10.01

DESIGN:	DRA	DATE:	8/17
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Tank Replacement Project
Standard Plans Sheet 2

Revision | Date:

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(831)443-5514 ~ (Mobile)594-2660

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: None
Drawn: DRA
Job: 22-002
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Sheet Included for Reference Only

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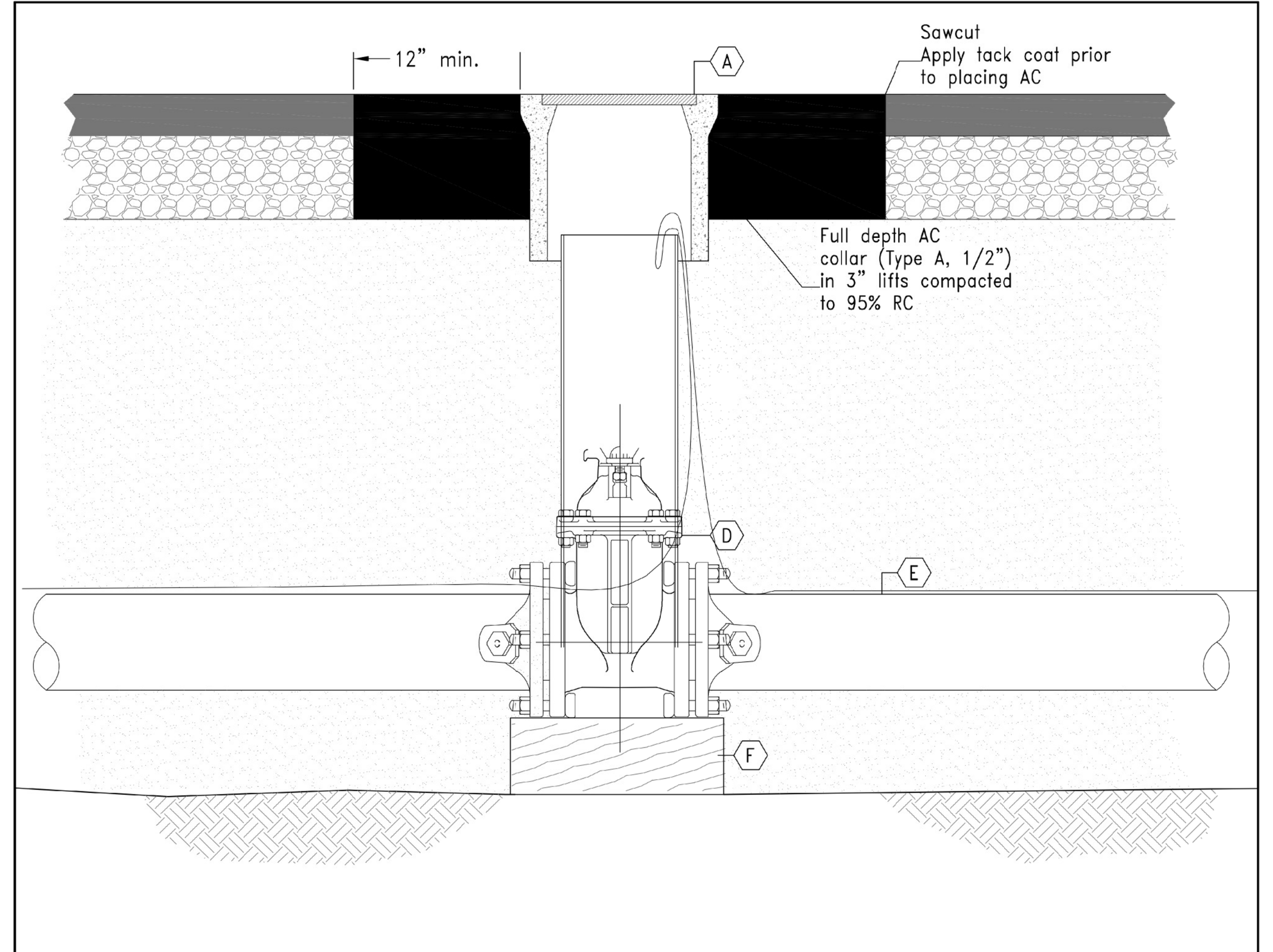


⟨ID⟩	DESCRIPTION
A	Valve Box (Christy G5 – Lid marked WATER)
B	8ø PVC (SDR35) or 8"ø CPEP (ADS N12)
C	#14AWG Cu Tracer wire (Color per Std. Plan 2-01) (Route outside barrel as shown)
D	Buried Valve (Gate, BFV, Ball – Center valve box over operating nut)
E	Water main size as shown on Project Plans
F	6" x 6" Block (PTDF, Redwood or Concrete – Extend past valve flanges)

MECHANICAL SCHEDULE

NOTE:

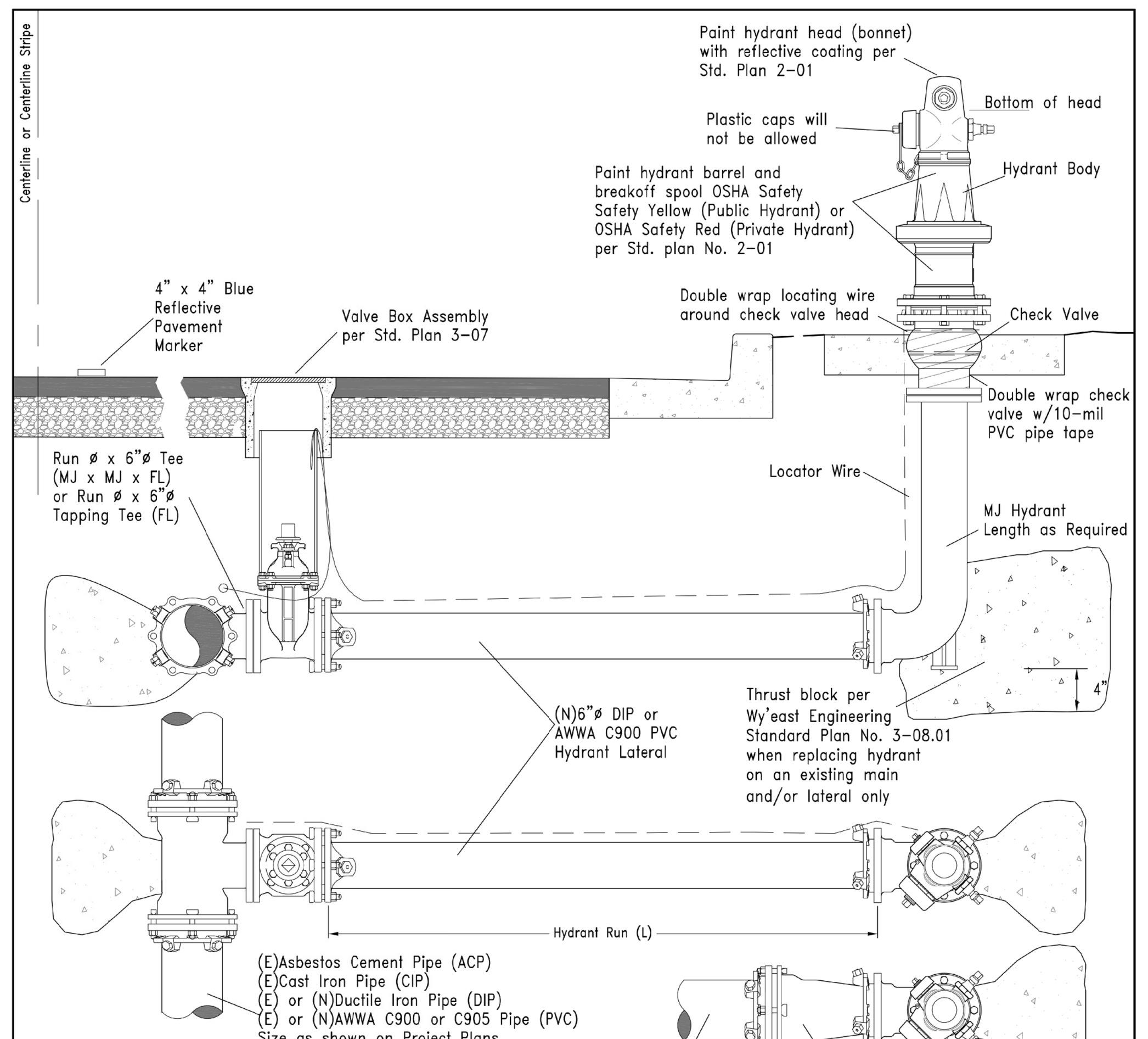
Valve box shall be brought to finish grade prior to placing AC collar

BURIED VALVE ASSEMBLY
~
Existing Pavement Installation

Standard Plan No. 3-07.01

DESIGN: DRA DATE: 8/17 · CAD: DRA DATE: 8/17 · CHECKED: DRA DATE: 8/17 · APPROVED: DRA DATE: 8/17
Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443-5514 ~ (Mobile)594-2660

Revisions



NOTES:

1. Steamer port shall be 4-1/2"ø or as directed by the Fire Agency of Jurisdiction;
2. Where the local Fire Agency of Jurisdiction has a color standard or coding system, the hydrant color, including reflective section shall be painted in accordance with that standard. Clear reflective coating may be substituted for colored reflective coatings in any installation;
3. Hydrant shall be covered with a burlap sack or bag marked NOT IN SERVICE until put into service;
4. Where the length of run (L) exceeds 20-lf, increase lateral run to 8"ø and reduce at hydrant.

MANUFACTURER	HYDRANT TYPE	
	6" Steamer	
OUTLETS	1 – 2-1/2" 1-Steamer	2 – 2-1/2" 1-Steamer
Clow	2050	2060
Jones	J-3740	J-3760
Long Beach	B125	B130
Mueller	A481	A481
CHECK VALVES		
Jones	J5000 or J5000S	
Clow	#400	

- For Placement and Clearances (Plan) See Std. Plan 3-10.02
- For Placement anc Clearances (Elevation) See Std. Plan 3-10.03
- For Wharf Head Hydrants See Std. Plan 3-10.04
- For Dry Barrel Hydrants See Std. Plan 3-10.05

GENERAL FIRE HYDRANT ASSEMBLY DETAILS
Wet Barrel Hydrant Assemblies
General Details and Notes

Standard Plan No. 3-10.01

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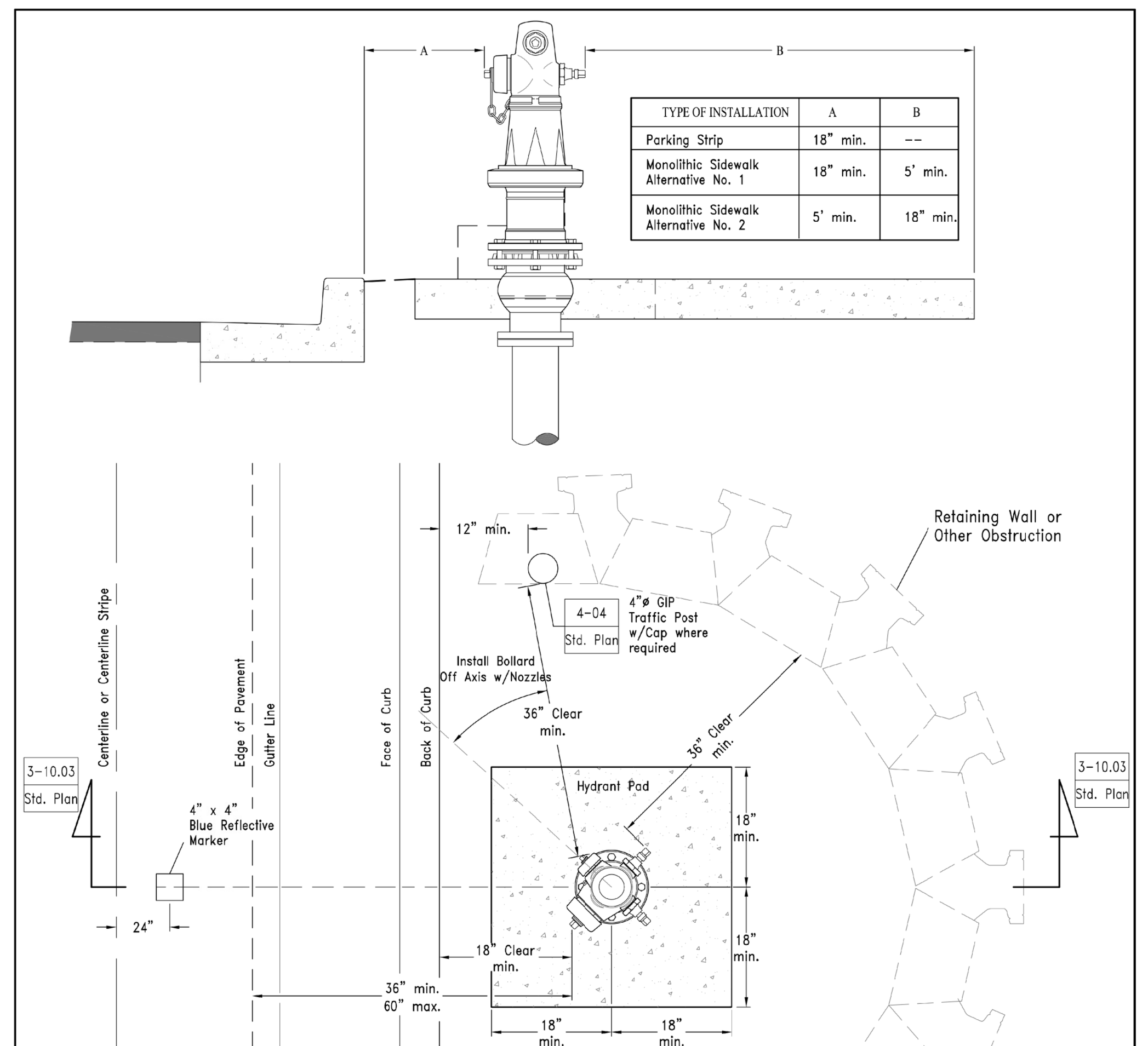

NOTES:

1. Steamer port shall be 4-1/2"ø or as directed by the Fire Agency of Jurisdiction;
2. Where the local Fire Agency of Jurisdiction has a color standard or coding system, the hydrant color, including reflective section shall be painted in accordance with that standard. Clear reflective coating may be substituted for colored reflective coatings in any installation;
3. Hydrant shall be covered with a burlap sack or bag marked NOT IN SERVICE until put into service;
4. Where the length of run (L) exceeds 20-lf, increase lateral run to 8"ø and reduce at hydrant.

GENERAL FIRE HYDRANT ASSEMBLY DETAILS
Placements and Clearances
Plan View

Standard Plan No. 3-10.02

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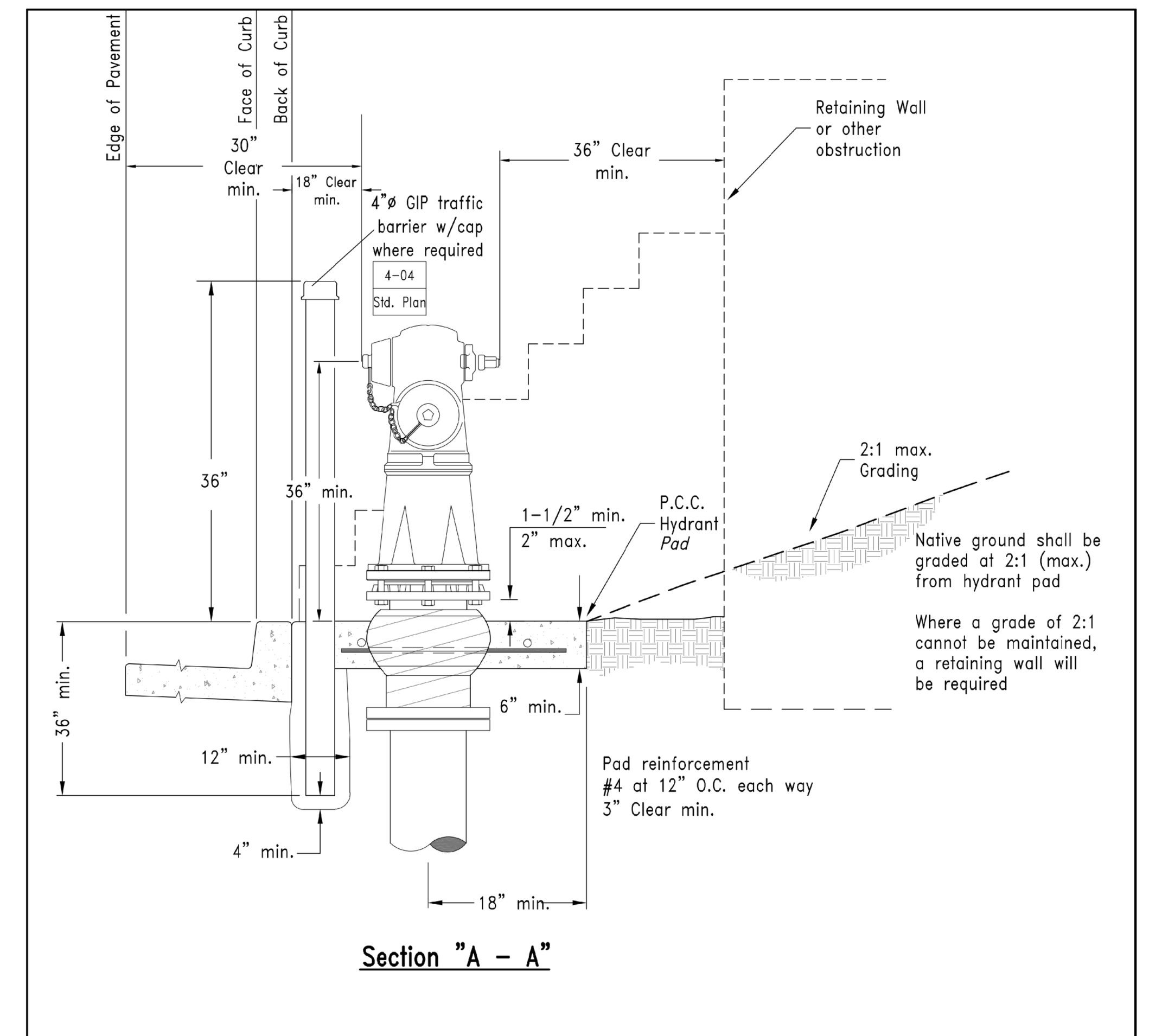

Section "A – A"

NOTES:

1. Steamer port shall be 4-1/2"ø or as directed by the Fire Agency of Jurisdiction;
2. Where the local Fire Agency of Jurisdiction has a color standard or coding system, the hydrant color, including reflective section shall be painted in accordance with that standard. Clear reflective coating may be substituted for colored reflective coatings in any installation;
3. Hydrant shall be covered with a burlap sack or bag marked NOT IN SERVICE until put into service;
4. Where the length of run (L) exceeds 20-lf, increase lateral run to 8"ø and reduce at hydrant.

GENERAL FIRE HYDRANT ASSEMBLY DETAILS
Placements and Clearances
Elevation View

Standard Plan No. 3-10.03

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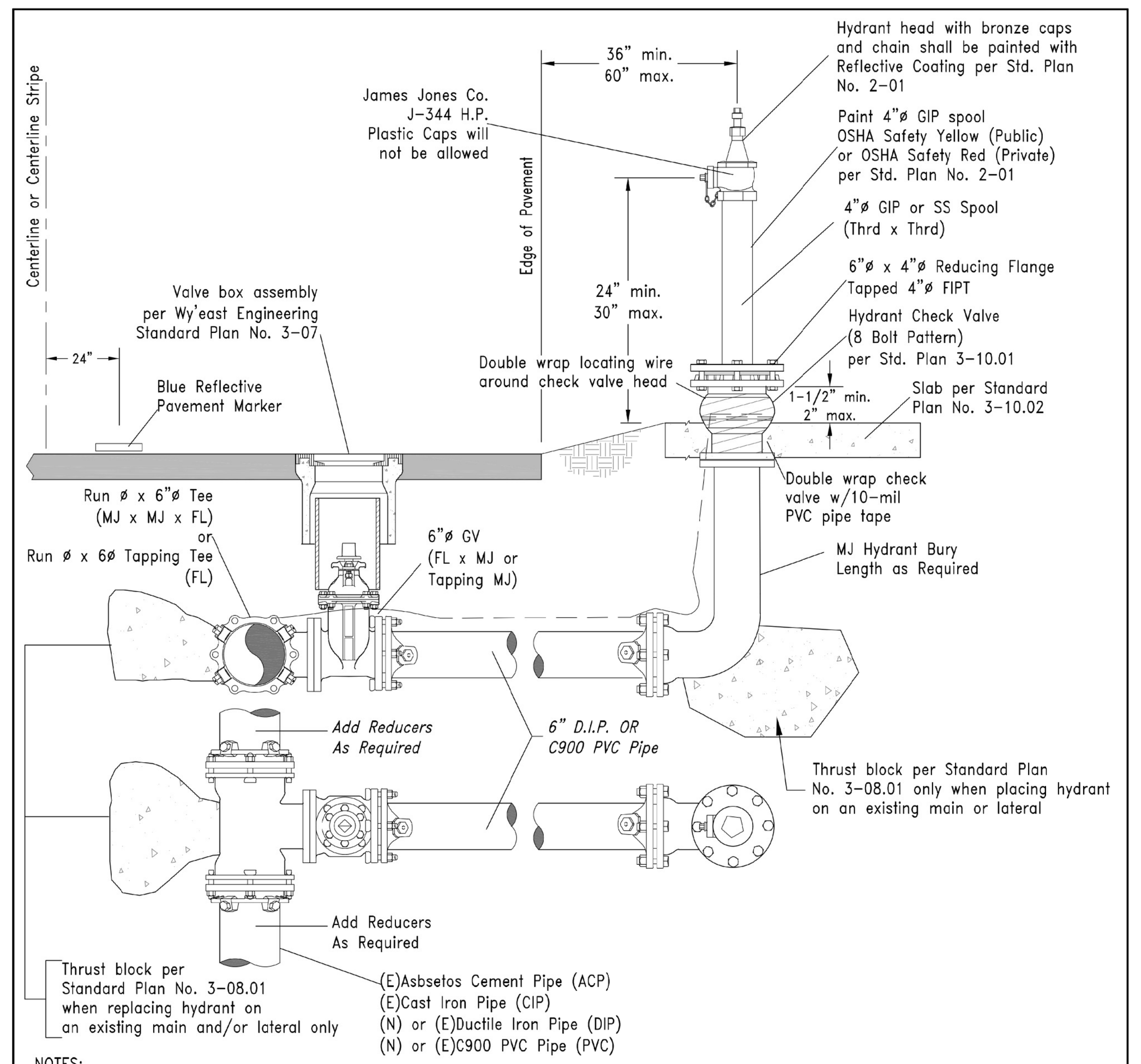

NOTES:

1. Wharf head hydrants shall only be constructed with the prior approval of the Fire Agency of Jurisdiction;
2. Where the local Fire Agency of Jurisdiction has a color standard or coding system, the hydrant color, including reflective section shall be painted in accordance with that standard. Clear reflective coating may be substituted for colored reflective coatings in any installation;
3. Hydrant shall be covered with a burlap sack or bag marked NOT IN SERVICE until put into service;
4. Where the length of run (L) exceeds 20-lf, increase lateral run to 8"ø and reduce at hydrant.
5. Wharf head hydrants shall be constructed in general conformance with Std. Plan 3-10, Sheets 1 through 3 and this Sheet 4;
6. MJ fittings shall be restrained by the use of MegaLug Series 1100 or 2000 restraining glands except for installations on existing lines.
7. Bollards shall be installed in accordance with Std. Plan 3-10 in installations without curbs or as otherwise directed or shown on the Project Plans.

GENERAL FIRE HYDRANT ASSEMBLY DETAILS
~
Wharf Head Hydrants

Standard Plan No. 3-10.04

Wy'east Engineering
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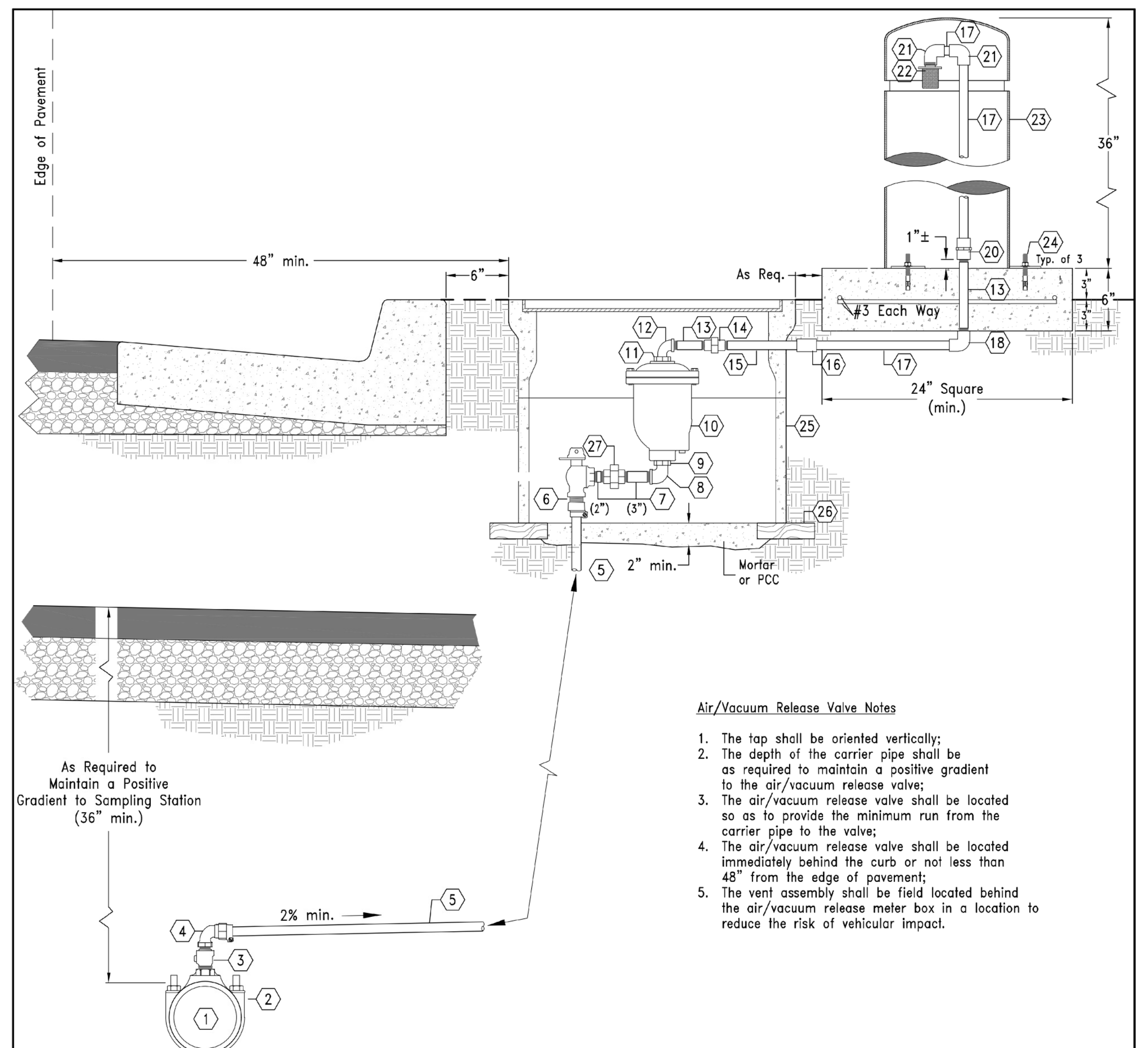


Air/Vacuum Release Valve Notes

1. The tap shall be oriented vertically;
2. The depth of the carrier pipe shall be as required to maintain a positive gradient to the air/vacuum release valve;
3. The air/vacuum release valve shall be located so as to provide the minimum run from the carrier pipe to the valve;
4. The air/vacuum release valve shall be located immediately behind the curb or not less than 48" from the edge of pavement;
5. The vent assembly shall be field located behind the air/vacuum release meter box in a location to reduce the risk of vehicular impact.

MECHANICAL SCHEDULE

⟨ID⟩	DESCRIPTION
1	Carrier Pipe
2	3/4"ø Service Saddle per Std. Plan 3-01
3	3/4"ø Corporation Stop per Std. Plan 3-01
4	3/4"ø x 90° Coupling (PJ x MIPT – FORD Meter Box L84-33)
5	3/4"ø PET (SDR9)
6	3/4"ø Angle Ball Service Valve (FORD Meter Box BA41-33W-NL PJ x FIPT)
7	3/4"ø Brass Nipple (Length to Fit)
8	3/4"ø x 90° Brass Street Ell
9	1"ø x 3/4"ø PVC Reducer Bushing (Sch. 80 – MIPT x FIPT)
10	Air/Vacuum Release Valve (ClaVal Series 35 or Approved Substitute)
11	1"ø x 1/2"ø PVC Reducer Bushing (Sch. 80 – MIPT x FIPT)
12	1/2"ø x 90° Street Ell (Brass or Stainless Steel)
13	1/2"ø Brass or Stainless Steel Nipple (Length to Fit)

MECHANICAL SCHEDULE

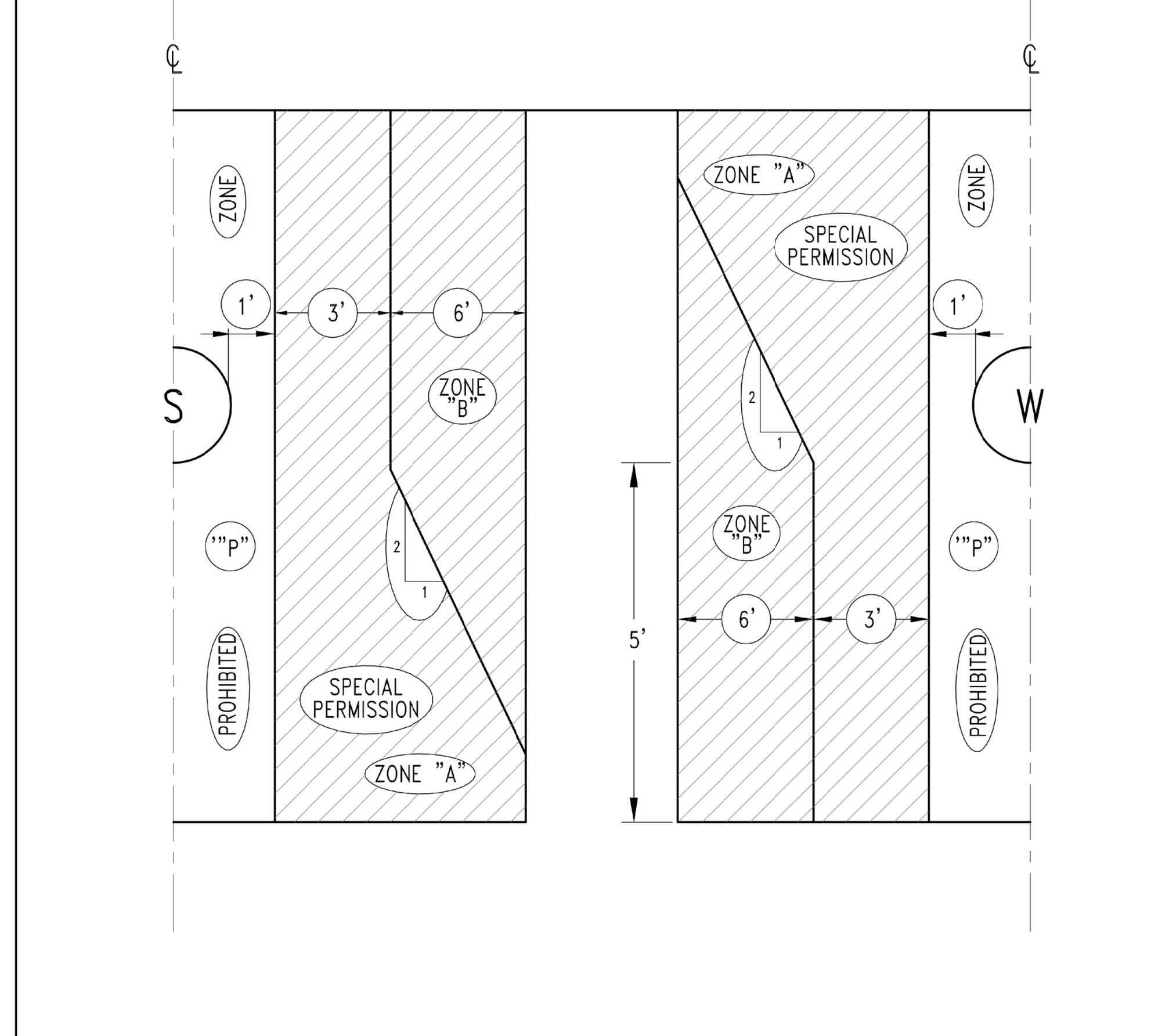
⟨ID⟩	DESCRIPTION
14	1/2"ø Brass or Stainless Steel Union
15	1/2"ø PVC Toe Nipple (Sch. 80 – Length to Fit)
16	1/2"ø PVC Coupling (Sch. 80 – Slip x Slip)
17	1/2"ø PVC Nipple (Sch. 40 (min.) – Length to Fit)
18	1/2"ø x 90° PVC Ell (Sch. 40 (min.) – Slip x FIPT)
19	1/2"ø Brass or Stainless Steel Nipple (Length to Fit)
20	1/2"ø PVC Coupling (Sch. 40 (min.) – Slip x FIPT)
21	1/2"ø x 90° PVC Ell (Sch. 40 (min.) – Slip x Slip)
22	1/2"ø Vent Screen (Northtown HYTECH MIPT – 16 mesh)
23	12"ø Air/Vacuum Release Enclosure (Armorcast P6002003)
24	3/8"ø x 3-1/2" Stainless Steel Anchor Bolt (Storn-Tie SSB STB2-373126SS)
25	Meter Box (Christy B30)
26	2" x 4" Redwood Block (Continuous)
27	3/4"ø Brass Union

AIR/VACUUM RELEASE VALVE ASSEMBLY

Standard Plan No. 3-11

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443-5514 ~ (Mobile)594-2660

Revisions
6/19 Added Incoming Union



NOTES:

1. See Wy'east Engineering Standard Plan No. 3-12.02 for crossing installations;
2. See Wy'east Engineering Standard Plan No. 3-12.03 for pipe materials to be used in each zone shown on Wy'east Engineering Standard Plans 3-12.01 and 3-12.02.

CRITERIA FOR SEPARTION OF MAINS
Water, Wastewater, Recycled Wastewater and Stormwater
Parallel Construction

Standard Plan No. 3-12.01

Wy'east Engineering
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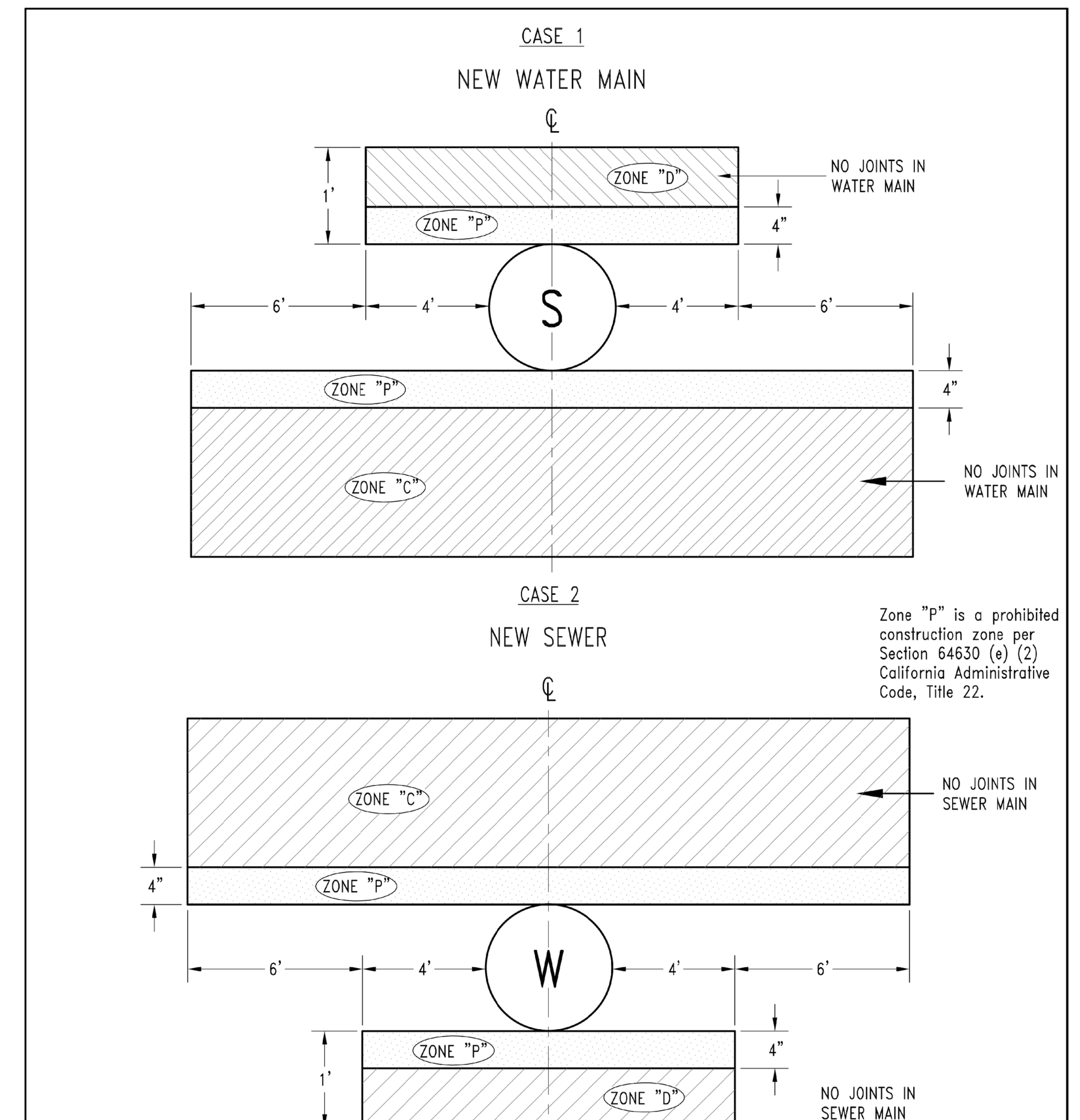
(831)443-5514 ~ (Mobile)594-2660



NOTES:

1. See Wy'east Engineering Standard Plan No. 3-12.01 for parallel installations;
2. See Wy'east Engineering Standard Plan No. 3-12.03 for pipe materials to be used in each zone shown on Wy'east Engineering Standard Plans 3-12.01 and 3-12.02.

CRITERIA FOR SEPARATION OF MAINS
Water, Wastewater, Recycled Wastewater and Stormwater
Crossing Construction

Standard Plan No. 3-12.02

Wy'east Engineering
1245 Kari Lane ~ Nipomo, California 93444
(831)443-5514 ~ (Mobile)594-2660

Sheet Included for Reference Only

Chemeketa Park Mutual Water Company
Tank Replacement Project
Standard Plans Sheet 3

Wy'east Engineering
1245 Kari Lane
Nipomo, California 93444
(831)443-5514 ~ (Mobile)594-2660

CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: None
Drawn: DRA
Job: 22-002
Sheet SP-3 of 24

WHEN WATER AND SEWER MAINS MUST BE CONSTRUCTED WITH LESS THAN 10-LF OF SEPARATION, THE FOLLOWING MATERIALS SHALL BE USED FOR THE NEW MAIN CONSTRUCTION.

CONSTRUCTION	PARALLEL		CROSSING	
CASE \ ZONE	A	B	C	D
CASE 1 NEW WATER MAIN	SPECIAL PERMISSION ONLY	PVC AWWA – C900 CLASS 305	PVC AWWA – C900 CLASS 305	PVC AWWA – C900 CLASS 305
		DUCTILE IRON PIPE AWWA – C151 CLASS 50	DUCTILE IRON PIPE AWWA – C151 CLASS 50	
CASE 2 NEW SEWER MAIN	SPECIAL PERMISSION ONLY	PVC AWWA – C900 CLASS 305	PVC AWWA – C900 CLASS 305 (20-LF CENTERED)	PVC AWWA – C900 CLASS 305 (20'-LF CENTERED)
		DUCTILE IRON PIPE AWWA – C151 CLASS 50	PVC AWWA – C900 CLASS 305 (20-LF CENTERED)	PVC AWWA – C900 CLASS 305 (20-LF CENTERED)
		VITRIFIED CLAY PIPE EXTRA-STRENGTH	CASING INSTALLATION (20'-LF CENTERED)	CASING INSTALLATION (20'-LF CENTERED)
				CAP 10' X 10' X 4" CLASS "B" PCC

NOTES:

1. See Wy'east Engineering Standard Plan No. 3-12.02 for crossing installations;
2. See Wy'east Engineering Standard Plan No. 3-12.03 for pipe materials to be used in each zone shown on Wy'east Engineering Standard Plans 3-12.01 and 3-12.02.

CRITERIA FOR SEPARATION OF MAINS

Water, Wastewater, Recycled Wastewater and Storm Water Materials Selection

Standard Plan No. 3-12.03

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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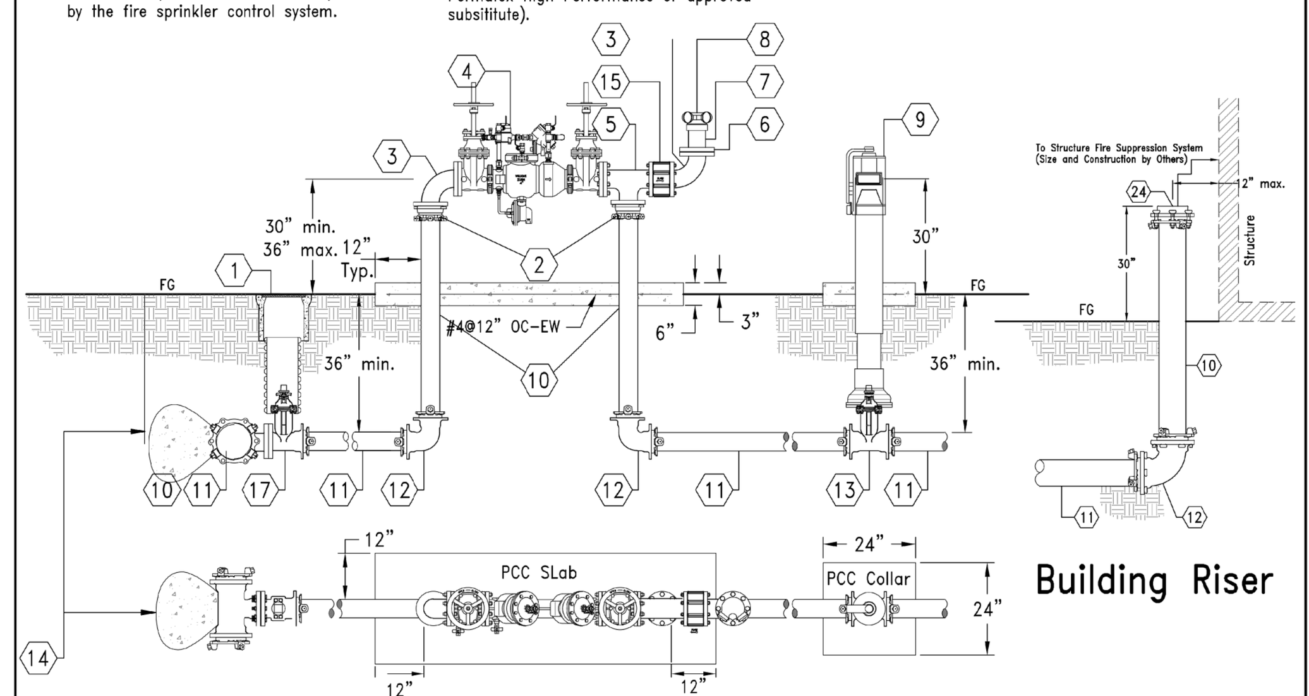
Revisions

NOTES

1. Verify approved device with local health agency of jurisdiction;
2. Verify orientation of siamese and post-indicator with agency of jurisdiction;
3. Paint assembly OSHA Safety Red per Std. Plan 2-01;
4. Lock gate valves on assembly open with a 1/4" chain threaded through the handwheels and padlocks per the local fire department.
5. The assembly shall be electronically monitored by the fire sprinkler control system.
6. Coat and wrap all pipe penetrations with 10-mil PVC pipe tape and bitumastic;
7. Rubberized bitumastic compounds may be Permatex 81833, 3M 3584, T. Christy H50, or approved substitute;
8. Bitumastic compounds shall be allowed to cure to tack free before initiating backfilling operations;
9. All bolts threads shall be liberally with an anti-sieze compound (Jet-Lube V-2 Multi-Purpose Thread Sealant, Permatex High Performance or approved subsititute).



MECHANICAL SCHEDULE

ID	DESCRIPTION
1	Valve Assembly per Standard Plan No. 3-07.01 through 3-07.03
2	Flange Coupling Adapter (EBAA Iron Series 2100 MegaFlange)
3	Size x 90° (FL x FL)
4	Reduced Pressure Detector Backflow Prevention Assembly (Wilkens Model 375ADA)
5	Size Tee (All FL)
6	Reducing Companion Flange Threaded 4"ø FIPT
7	4"ø x 6" GIP Nipple
8	2-1/2"ø x 2-1/2"ø x 4"ø Siamese Clapper Snoot (Kidde Fire 6704 or approved substitute)
9	Post Indicator Valve (Size as called for on Project Plans)
10	Ductile Iron Pipe (Size as provided for on Project Plans)
11	PVC Pipe (AWWA C900 – Size as provided for on Project Plans)
12	Size x 90° (MJ x MJ w/MegaLug Restraining Gland)
13	Gate Valve (MJ x MJ w/MegaLug Restraining Glands)
14	Thrust Block per Standard Plan No. 3-10 on Existing Pipelines only
15	Silent (Spring) Check Valve (APCO Series 300, ClaVal Series 581 or approved subsitute)
16	Gate Valve (FL x MJ – Size as provided for on Project Plans)
17	Ductile Iron Cap (MJ with MegaLug 1104 or 1106 as shown on the Project Plans

FIRE SERVICE ASSEMBLY – 4"ø AND LARGER

~ Reduced Pressure Zone Installation

Standard Plan No. 3-13

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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Revisions

PRESSURE TESTING

1. The pressure test shall be conducted in such a manner as to bring the pipeline to the test pressure gradually without generating a water hammer in the pipeline. The pressure test shall be conducted in accordance with the provisions of Section 3-02.05E, "Hydrostatic Testing" of the Wy'east Engineering Standard Specifications;
2. Allowable Leakage – The allowable leakage will be calculated by the following formula:

   La = [L*D*(P^1/2)]/173,200

   where: La = Allowable leakage (gallons/hour)
   L = Length of the pipe run (ft)
   D = Nominal diameter of the pipe (in)
   (P^1/2) = Square root of test pressure (psi)
3. Duration of the test shall be 2-hours or as specified;
4. Minimum test pressure shall be 150-psi or 150-percent of the static pressure whichever is the greater unless otherwise directed by the Fire Agency of Jurisdiction.

ALLOWABLE LEAKAGE per 1,000-LF

Avg. Test Pressure	Nominal Pipe Diameter (in.) 4	6	8	10	12	14	16	18	20
150-psi	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84
175-psi	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.99
200-psi	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12
225-psi	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25
250-psi	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37
275-psi	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49
300-psi	0.52	0.78	1.04	130	1.56	1.82	2.08	2.34	2.60
325-psi	0.54	0.81	1.08	1.35	1.62	1.89	2.17	2.44	2.71
350-psi	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81

HYDROSTATIC PRESSURE TESTING

Standard Plan No. 3-14

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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Revisions

FLUSHING AND DISINFECTION NOTES

1. Flushing and disinfection of pipelines shall be in accordance with AWWA C651, "Disinfecting Water Mains" and the Wy'east Engineering Standard Specifications and Standard Plans;
2. All pipelines shall be flushed at a minimum velocity of 2.5-fps;
3. Disposal of flushing water shall be routed to a safe discharge point. The Contractor shall be responsible for controlling the discharge of flushing water to a safe discharge point including but not limited to, energy dissipators, diking, berms, and erosion control;
4. Disposal of chlorinated water shall include neutralizing the water by the use of sodium ascorbate, ascorbic acid or other approved means prior to release to receiving waters;
5. The water in the pipeline shall be brought to a concentration of 25-mg/l;
6. Slug disinfection shall only be used with the express prior written permission of the Engineer;
7. The Contractor shall be responsible for providing a means of injecting disinfectant to the pipelines including but not limited to, tablet chlorination or direct feed hypochlorite injection.
8. If the Contractor opts for direct feed of hypochlorite, the Contractor shall construct a chlorination tap in accordance with Std. Plan No. 3-05, Chlorination Tap of the Wy'east Engineering Standard Specifications and Standard Plans;
9. The chlorinated solution shall be held in the pipeline a minimum of 24-hours and a maximum of 48-hours with the permission of the Engineer;
10. Upon completion of the residence time, the pipeline shall be thoroughly flushed prior to sampling for bacteriological analysis;
11. Flushing and disinfection shall be so scheduled that samples may be taken by the Engineer no later than 1200 for delivery to the laboratory;
12. No samples will be taken for analysis after 1200, Thursday except for emergency conditions;
13. The pipeline shall not be put into service until a satisfactory result is obtained from laboratory analysis.

FLUSHING AND DISINFECTION

Flushing and Disinfection Notes

Standard Plan No. 3-15.01

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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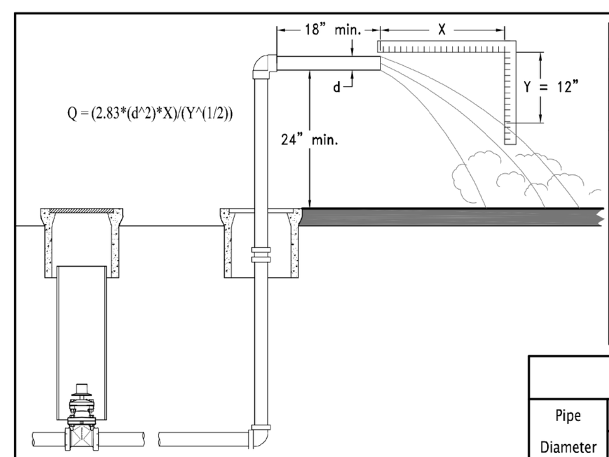
Revisions



APPROXIMATE FLOW (GPM) Y = 12-inches

Pipe Diameter (inches)	X (Inches) 12"	14"	16"	18"	20"	22"	24"	26"	28"	30"	32"	34"	36"
2	39	46	52	59	65	72	78	85	91	98	105	111	118
4	157	183	209	235	261	288	314	340	366	392	418	444	471
6	353	412	471	529	588	647	706	765	823	882	941	1,000	1,059
8	627	732	837	941	1,046	1,150	1,255	1,359	1,464	1,569	1,673	1,778	1,882
10	980	1,144	1,307	1,471	1,634	1,797	1,961	2,124	2,287	2,451	2,614	2,778	2,941
12	1,412	1,647	1,882	2,118	2,353	2,588	2,823	3,059	3,294	3,529	3,765	4,000	4,235

DISINFECTANT REQUIRED PER 100-lf OF PIPE (25-mg/l)

Pipe Diameter	5-G* Tabs	Disinfectant Concentration (Percent) 12.5		5.25		1.0		0.8		0.4	
(Inches)	Ea.	Gal.	Liter	Gal.	Liter	Gal.	Liter	Gal.	Liter	Gal.	Liter
4	1	0.0128	0.0485	0.0305	0.1155	0.1600	0.6057	0.2000	0.7571	0.4000	1.5142
6	1	0.0288	0.1090	0.0686	0.2597	0.3600	1.3627	0.4500	1.7034	0.9000	3.4069
8	2	0.0520	0.1968	0.1238	0.4686	0.6500	2.4605	0.8125	3.1892	1.6250	6.1513
10	3	0.0816	0.3089	0.1943	0.7355	1.0200	3.8611	1.2750	4.8264	2.5500	9.6528
12	4	0.1152	0.4361	0.2743	1.0383	1.4400	5.4510	1.8000	6.8137	3.6000	13.6275
16	7	0.2080	0.7874	0.4952	1.8745	2.6000	9.8421	3.2500	12.3026	6.5000	24.6052

* Tablets/20-lf pipe spool based on 3.25-g available Cl per tablet

ASCORBIC ACID NEUTRALIZER REQUIRED PER 100-LF

Pipe Diameter (inches)	Flushing (2.5-fps) (gpm)	Disinfectant Concentration (Percent) 1.0 Lb./170-lf	1.0 Feed (gpm)	2.0 Lb./170-lf	2.0 Feed (gpm)	5.0 Lb./170-lf	5.0 Feed (gpm)	10.0 Lb./170-lf	10.0 Feed (gpm)	25.0 Lb./170-lf	25.0 Feed (gpm)	50.0 Lb./170-lf	50.0 Feed (gpm)
4	100	0.0128	0.04	0.0305	0.07	0.0305	0.18	0.1600	0.37	0.1600	0.92	0.1600	1.83
6	220	0.0288	0.08	0.0686	0.16	0.0686	0.40	0.3600	0.81	0.3600	2.02	0.3600	4.03
8	400	0.0520	0.15	0.1238	0.29	0.1238	0.73	0.6500	1.47	0.6500	3.67	0.6500	7.33
10	625	0.0816	0.23	0.1943	0.46	0.1943	1.15	1.0200	2.29	1.0200	5.73	1.0200	11.46
12	900	0.1152	0.33	0.2743	0.66	0.2743	1.65	1.4400	3.30	1.4400	8.25	1.4400	16.50
16	1600	0.2080	0.59	0.4952	1.17	0.4952	2.93	2.6000	5.87	2.6000	14.67	2.6000	29.33

SODIUM ASCORBATE NEUTRALIZER REQUIRED PER 100-LF

Pipe Diameter (inches)	Flushing (2.5-fps) (gpm)	Disinfectant Concentration (Percent) 1.0 Lb./170-lf	1.0 Feed (gpm)	2.0 Lb./170-lf	2.0 Feed (gpm)	5.0 Lb./170-lf	5.0 Feed (gpm)	10.0 Lb./170-lf	10.0 Feed (gpm)	25.0 Lb./170-lf	25.0 Feed (gpm)	50.0 Lb./170-lf	50.0 Feed (gpm)
4	100	0.0128	0.04	0.0305	0.09	0.0305	0.22	0.1600	0.43	0.1600	1.08	0.1600	2.17
6	220	0.0288	0.10	0.0686	0.19	0.0686	0.48	0.3600	0.95	0.3600	2.38	0.3600	4.77
8	400	0.0520	0.17	0.1238	0.35	0.1238	0.87	0.6500	1.73	0.6500	4.33	0.6500	8.67
10	625	0.0816	0.27	0.1943	0.54	0.1943	1.35	1.0200	2.71	1.0200	6.77	1.0200	13.54
12	900	0.1152	0.39	0.2743	0.78	0.2743	1.95	1.4400	3.90	1.4400	9.75	1.4400	19.50
16	1600	0.2080	0.69	0.4952	1.39	0.4952	3.47	2.6000	6.93	2.6000	17.33	2.6000	34.67

FLUSHING AND DISINFECTION

~ Flushing and Disinfection Tables

Standard Plan No. 3-15.02

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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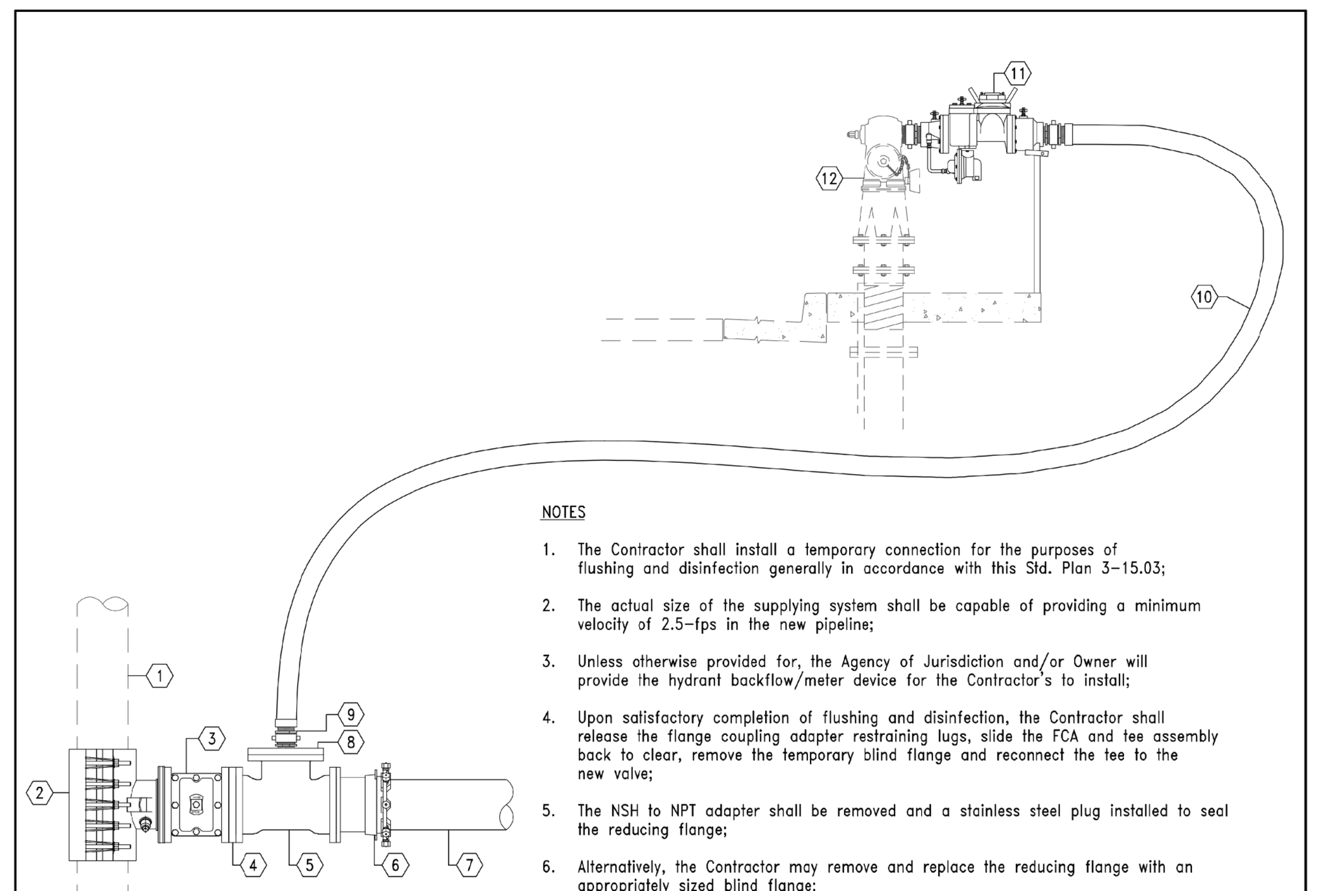

NOTES

1. The Contractor shall install a temporary connection for the purposes of flushing and disinfection generally in accordance with this Std. Plan 3-15.03;
2. The actual size of the supplying system shall be capable of providing a minimum velocity of 2.5-fps in the new pipeline;
3. Unless otherwise provided for, the Agency of Jurisdiction and/or Owner will provide the hydrant backflow/meter device for the Contractor's to install;
4. Upon satisfactory completion of flushing and disinfection, the Contractor shall release the flange coupling adapter restraining lugs, slide the FCA and tee assembly back to clear, remove the temporary blind flange and reconnect the tee to the new valve;
5. The NSH to NPT adapter shall be removed and a stainless steel plug installed to seal the reducing flange;
6. Alternatively, the Contractor may remove and replace the reducing flange with an appropriately sized blind flange;
7. Upon completion of flushing and disinfection and final connection to the system as provided for herein, the Contractor shall remove all components of the temporary supply connection and conduct a pressure test of the final connection in accordance with Std. Plan No. 3-14;
8. Unless otherswise provided for, the installation and removal of the temporary supply shall be considered included in the contract unit or lump sum price for other items of work and no additional compensation allowed therefore.

MECHANICAL SCHEDULE

ID	DESCRIPTION
1	(E)Waterline (Size as shown on Project Plans)
2	AWWA Tee, Hot Tap Tee or Saddle Tee
3	New valve (gate or butterfly) as provided for on the Project Plans
4	Temporary Blind Flange
5	New tee (Size as shown on Project Plans – All Flange)
6	(N)Flange Coupling Adapter (Size as shown on Project Plans – Romac Series RFCA, HYMAX Grip
	or approved substitute)
7	(N)Waterline (Size as shown on Project Plans)
8	Stainless Steel Reducing Flange (Size as shown on Project Plans)
9	(N)NSH to NPT adapter
10	Temporary Fire Hose Connection (3"ø min.)
11	Hydrant backflow device and meter (Supplied by Agency of Jurisdiction)
12	(E)Fire Hydrant

FLUSHING AND DISINFECTION

~ Temporary Supply Connection for Flushing and Disinfection

Standard Plan No. 3-15.03

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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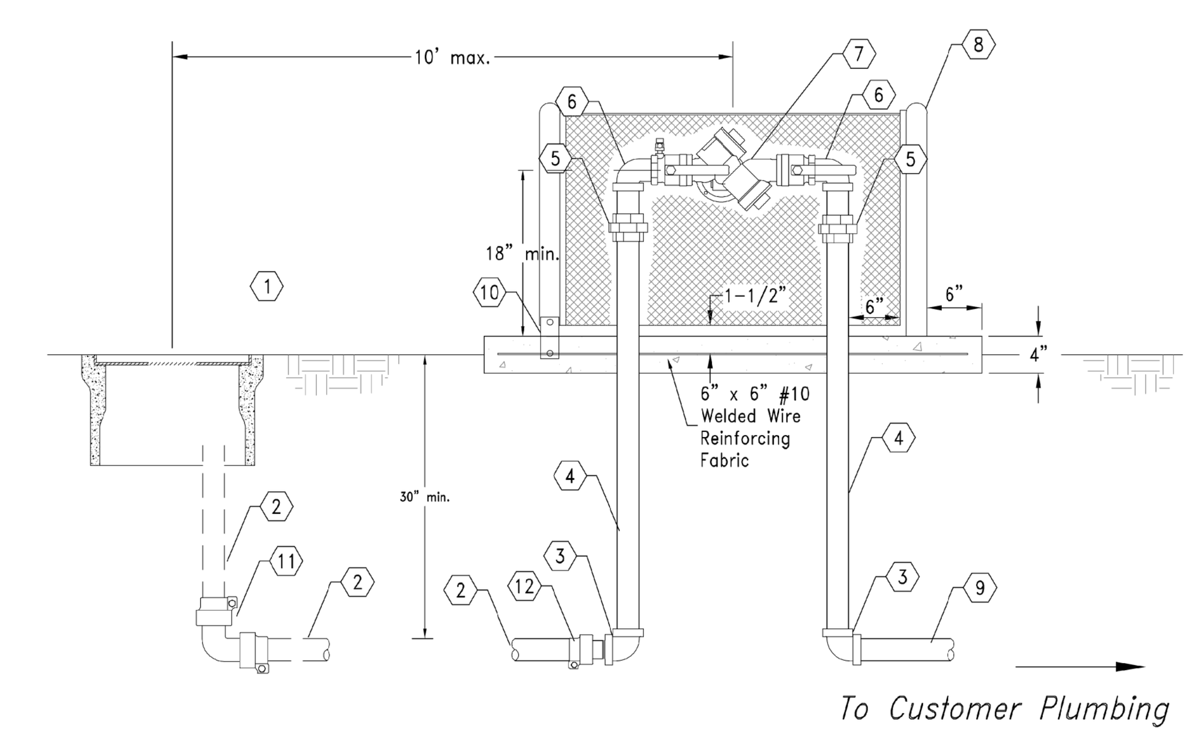

MECHANICAL SCHEDULE

ID	DESCRIPTION
1	Standard Domestic Water Service per Standard Plan No. 3-01
2	Polyethylene tubing (SDR 9) (Size as shown on Project Plans)
3	90° Bronze Ell (Size as shown on Project Plans)
4	Brass or bronze pipe (GIP Size) (Size as shown on Project Plans)
5	Bonze union (GIP Size) (Size as shown on Project Plans)
6	90° bronze street ell (GIP Size) (Size as shown on Project Plans)
7	Reduced pressure principal backflow prevention assembly (FEBCO 825Y or approved substitute)
8	GuardShack Enclosure (GS-3) with FrostGuard blanket
9	Customer plumbing
10	Hinge detail as shown on Standard Plan No. 3-18, Sheet 2 of 2
11	90° Pack Joint Ell (Ford L66 Series)
12	Pack Joint Coupling (PJxMIPT) (Ford C68 Series)

3/4-INCH TO 2-INCH REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

Standard Plan No. 3-16

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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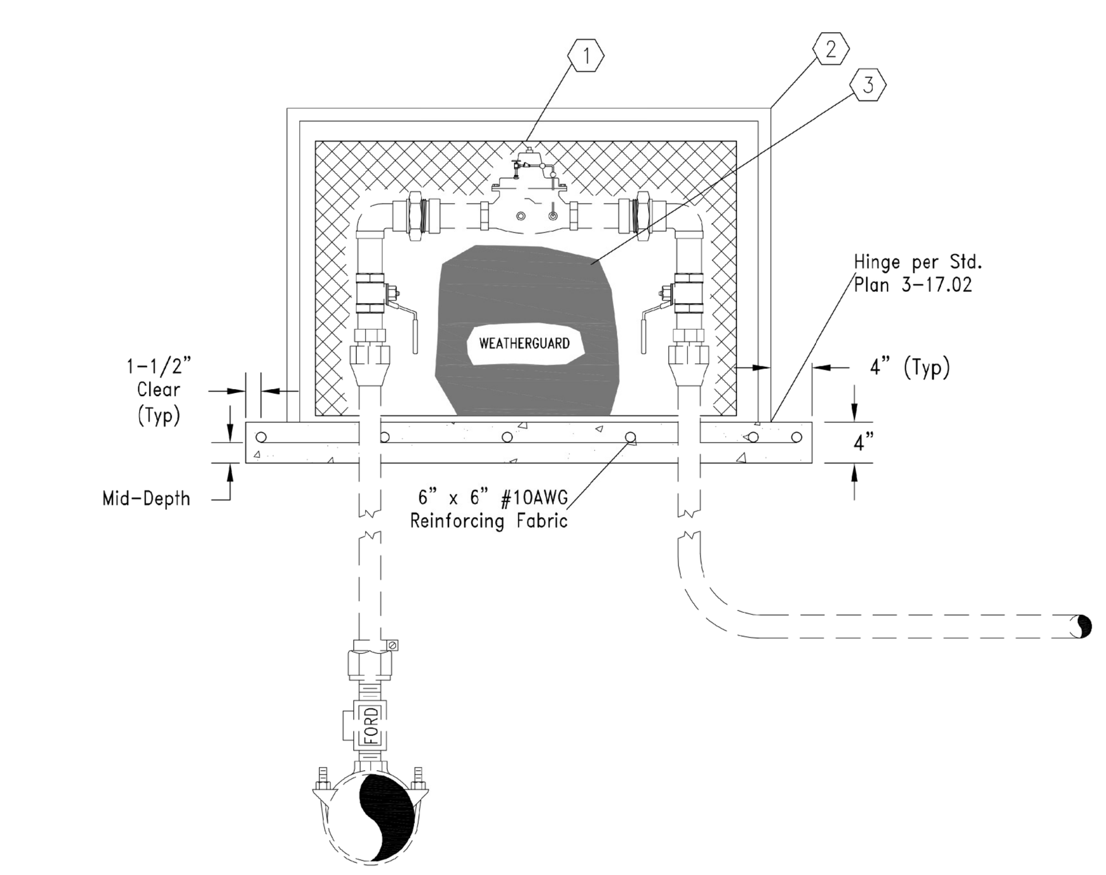

MECHANICAL SCHEDULE

ID	DESCRIPTION
1	Pipe Assembly (PRV, Backflow Prevention, Meter, etc.)
2	Pipe Assembly Enclosure (GuardShack Model as required)
3	Weatherguard Insulating Blanket

PIPE ASSEMBLY ENCLOSURE

~ General Layout and Dimensions

Standard Plan No. 3-17.01

Design: DRA Date: 8/17 · CAD: DRA Date: 8/17 · Checked: DRA Date: 8/17 · Approved: DRA Date: 8/17

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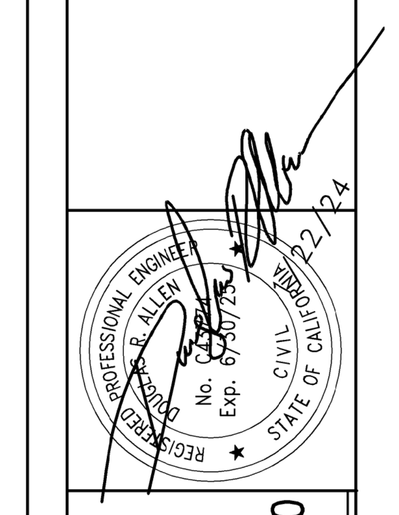
Sheet Included for Reference Only

Revision | Date:

Chemeketa Park Mutual Water Company
Tank Replacement Project
Standard Plans Sheet 4



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CHEMEKETA PARK MUTUAL WATER COMPANY
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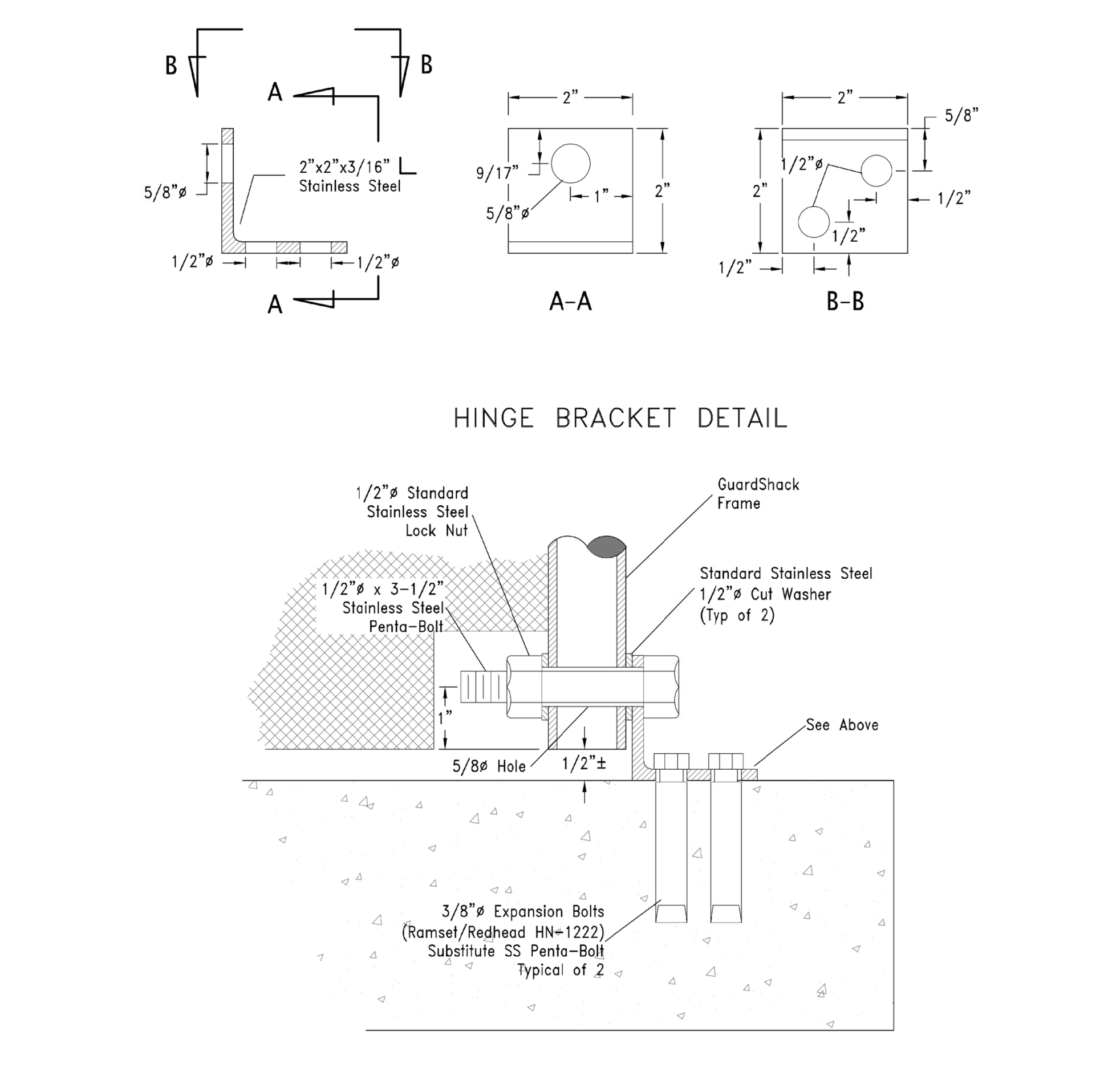
Los Gatos, California 95044
(650)859-1833

Date: 8/23
Scale: None
Drawn: DRA
Job: 22-002
Sheet SP-4 of 24



NOTE

Guardshack standard stainless steel hardware kits may be substituted for the detail shown herein.

All anchor bolts, eye bolts, washers and hinge pins shall be Type 304 stainless steel minimum.

All exposed bolts, including anchor bolts and hinge pins shall be penta-head tamperproof style.

PIPE ASSEMBLY ENCLOSURE
~
Hinge Details

Standard Plan No. 3-17.02

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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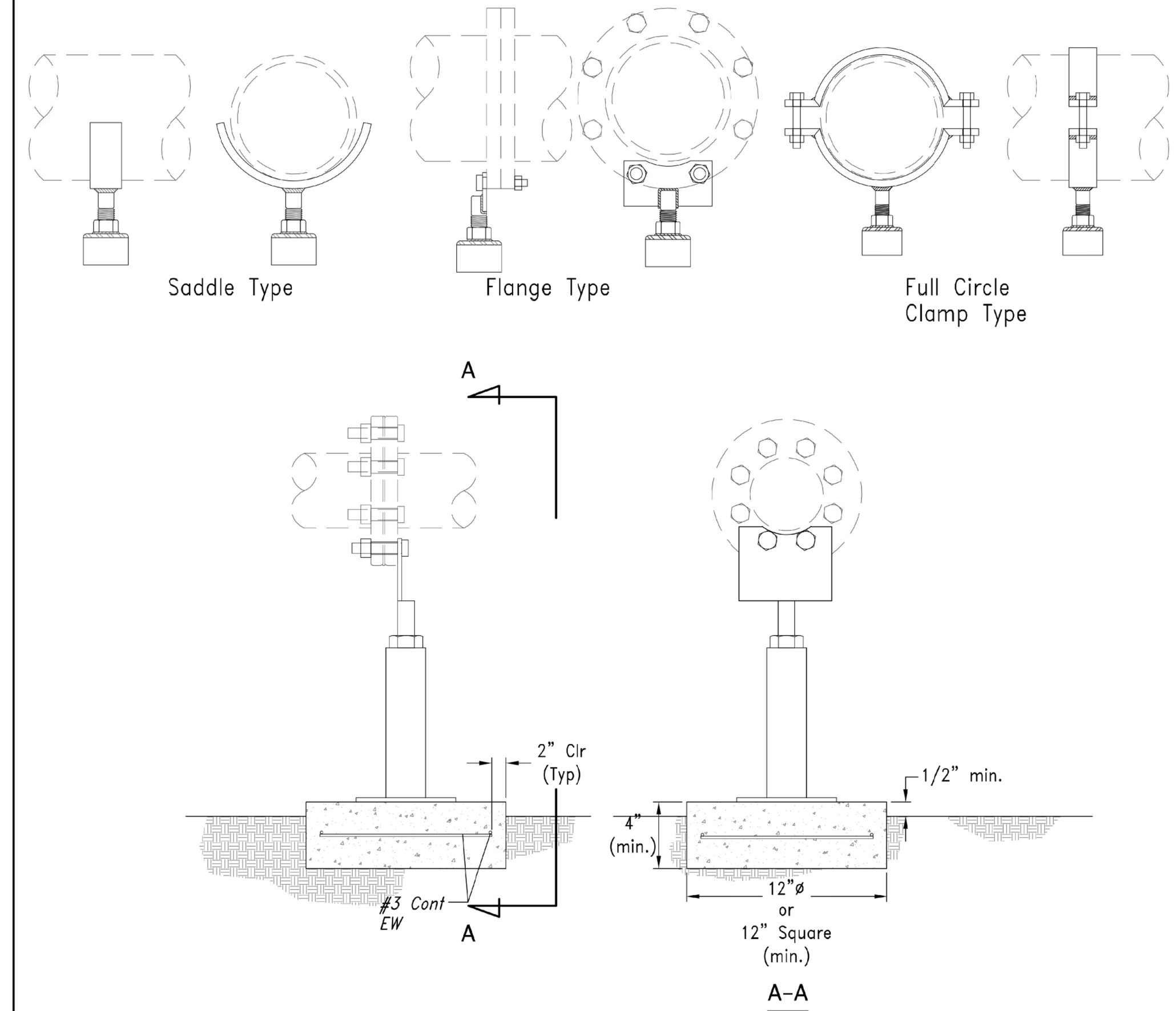
NOTES

1. The type of pipe support shall be as provided for on the Project Plans;
2. Pipe supports shall be factory fabricated;
3. No field fabricated supports shall be used;
4. Unless otherwise specified, all materials shall be A36 galvanized steel designed and tested to a minimum compressive load of 10,000-lbs;
5. Risers shall be fabricated of 2"ø Galvanized Iron Pipe;
6. Stainless steel (Type 304) may be substituted for GIP pipe, fittings and galvanized plate wherever shown hereon;
7. The pipe support shall be bolted to the concrete slab or pad with 4-ea. 3/8"ø stainless steel expansion anchors (Red Head WW-3825);
8. The pipe support may be painted to match the assembly being supported.



PIPE SUPPORT DETAILS
~
Stand Type Support

Standard Plan No. 3-18.01

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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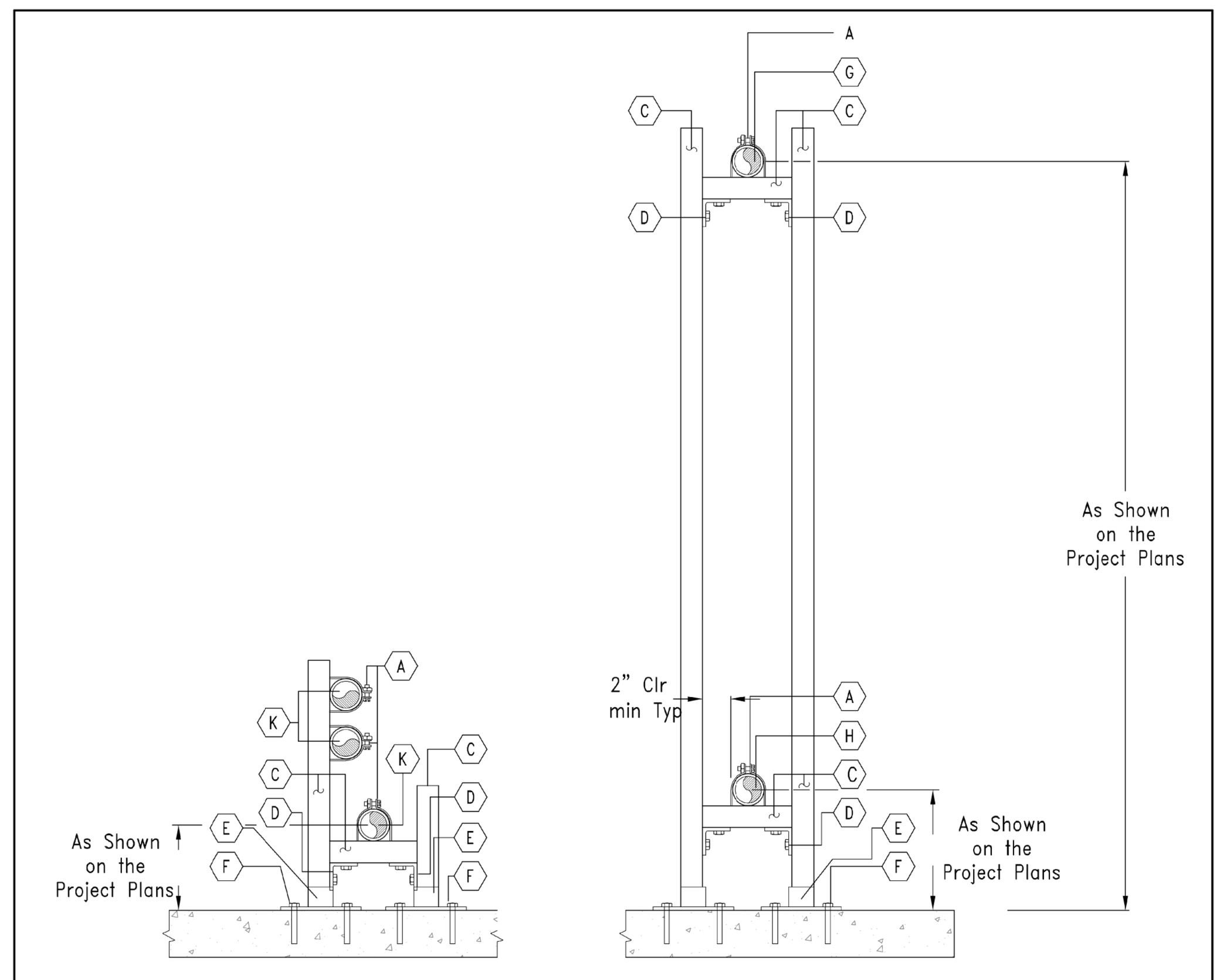

PIPE SUPPORT MECHANICAL SCHEDULE	
ID	DESCRIPTION
A	Pipe Clamp (Cooper B-Line Series B2000) (Where Shown on Project Plans)
B	Carrier Pipe or Conduit (Size As Shown on Project Plans)
C	Support Strut (Cooper B-Line B22)
D	Angle Bracket (Cooper B-Line B230)
E	Base Plate (Cooper B-Line B279SQ)
F	3/8"ø x 2-3/4" Stainless Steel Expansion Anchor
	(Red Head WW-3826 Typ of 4 per Base Plate)
G	Carrier Pipe or Conduit (Size As Shown on Project Plans)
H	Carrier Pipe or Conduit (Size As Shown on Project Plans)
I	Carrier Pipe or Conduit (Size As Shown on Project Plans)
J	Carrier Pipe or Conduit (Size As Shown on Project Plans)
K	Carrier Pipe or Conduit (Size As Shown on Project Plans)

NOTES

1. All pipe support materials shall be hot-dip galvanized A36 steel unless stainless steel is provided for on the Project Plans;
2. All field cut strut ends shall be liberally coated with an acrylic based sacrificial zinc coating (CRC Zinc-It Instant Cold Galvanize or approved substitute).

PIPE SUPPORT DETAILS
~
Alternative Pipe Supports

Standard Plan No. 3-18.02

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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NOTES

1) All work constructing wells shall be in accordance with the State of California Department of Water Resources Bulletin 74-81 and 74-90, the California Waterworks Standards, AWWA A100, the California Electrical Code, and the Wy'east Engineering Standard Specifications and Standard Plans;
2) Unless otherwise provided for, the Contractor shall acquire the requisite permits from the Agencies of Jurisdiction prior to commencing work on the well construction and keep the permit on-site during well construction;
3) Specific details of well construction including but not limited to, final depth, bore diameter, casing and screen selection and intervals, seal depth and filter pack will be determined by the Engineer upon completion of the test well;
4) Final pump selection and related piping and electrical details will be determined by the Engineer upon completion of the well construction and the results of a pump test;
5) Dimensions shown hereon shall be considered the minimum acceptable;
6) No potential entry to the well casing including but not limited to the well casing vent, top of the well casing extension or the electrical and piping penetrations shall be less than 18-inches above finish grade;
7) The Contractor shall ensure that the top of the concrete seal is thoroughly cleaned of all deleterious material and that a firm bond can be made between the seal and the wellhead pedestal concrete;
8) The finish grade surrounding the well shall be graded to drain away from the well and sheet flow from adjacent areas shall be directed away from the well;
9) Livestock and other potentially contaminating activities shall be kept a minimum of 100-feet from the well at all times;
10) Wells and septic systems shall have a minimum clearance of 100-feet from the edge of the bore hole to the edge of any leach line or seepage pit;
11) In-line check valves shall be installed in the drop pipe at intervals not to exceed 200-feet. The non-return valve in the pump shall be considered the first check valve. If the pump is not equipped with a non-return valve, an in-line check valve shall be installed immediately after the adapter spool;
12) The tag line (safety line) shall be fabricated of stainless steel wire rope (6x19 Type 304 minimum). Safe working load shall be no greater than 20-percent of breaking strength. Tag lines shall be sized as follows:

    Wl = 1.5 x (Wp + Wd + Ww)

    Where: Wl = Safe Working Load
    Wp = Weight of the Pump
    Wd = Weight of Drop Pipe
    Ww = Weight of Water Column in Drop Pipe
    (L = Projected dynamic level + 10%)
13) The tag line shall be secured to the pump/motor assembly by shackling the eye to the lifting eye on the assembly. Where a lifting eye is not provided, the tag line shall be attached by forming an eye tightly around the adapter spool such that the eye cannot ride past the first drop pipe coupling under load;
14) The tag line shall be secured to the well seal or discharge plate by shackling the tag line to the pad eye on the seal or plate;
15) Eyes in the tag line shall be formed using swage or wire rope clips in accordance with Standard Plan 4-05, Miscellaneous Wire Rope Details. Alternatively, an eye may be formed by laying up a Flemish Eye splice around the adapter spool with wire rope clips securing the bitter end to the standing part;
16) Care shall be taken such that no part of a wire rope clip, swage or the bitter end of the wire rope contacts the casing and screens during installation and removal of the pump/motor assembly and drop pipe.

WELLHEAD DETAILS - SUBMERSIBLE PUMP
~
Well Construction General Notes

Standard Plan No. 3-19.01

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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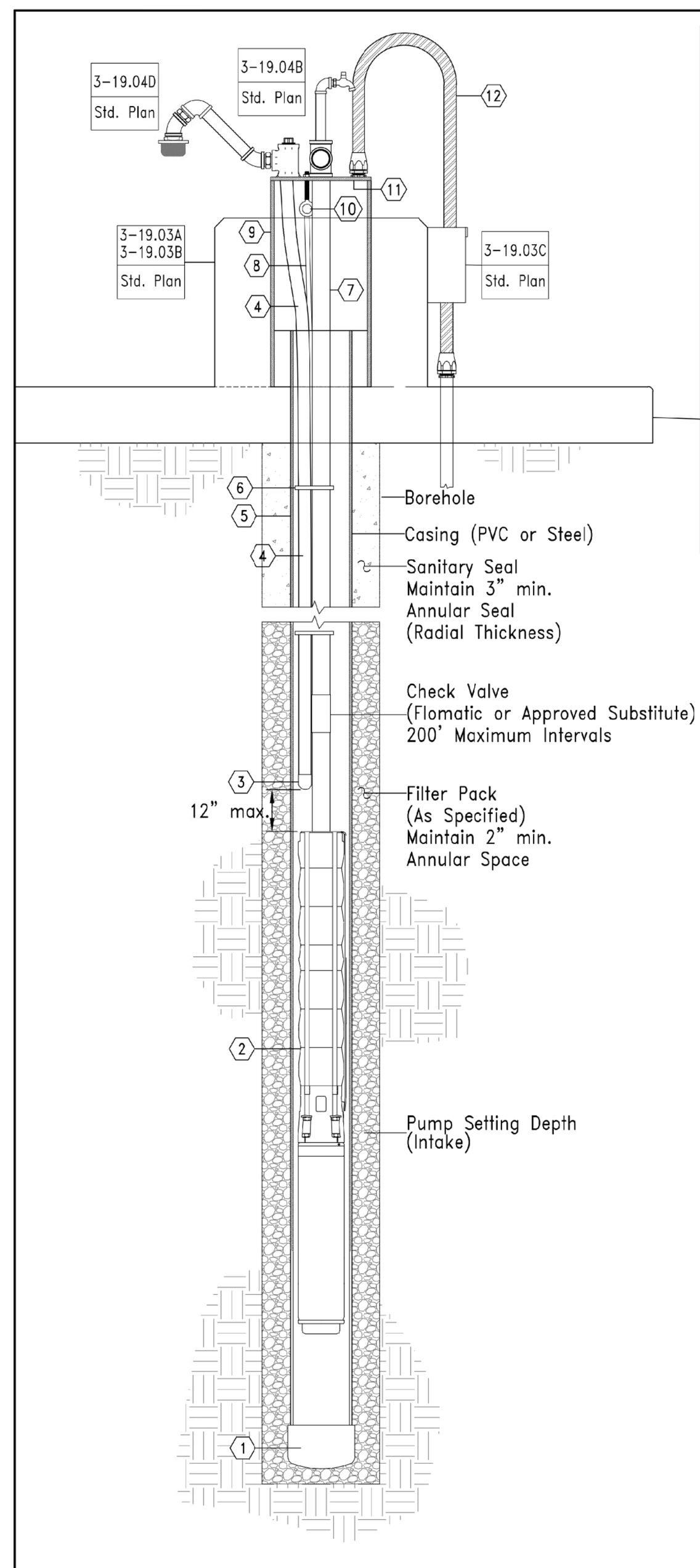

DOWNHOLE MECHANICAL SCHEDULE	
ID	Description
1	Casing Cap
2	Submersible Pump and Motor Assembly
3	Sounding Tube Cap (1"ø min. Sch. 10 or Sch. 40 PVC)
4	PVC Sounding Tube (1"ø min. Sch. 10 or Sch. 40)
	Bore 1/4"ø Holes at 10' min. intervals and terminate at
	surface within tee per Standard Plan 3-19.04C
5	Well Casing and Screens
6	Cable Tie or Stainless Steel Strap (10' max. Spacing)
7	Drop Pipe (Certa-Lok, Sch. 120 PVC or approved substitute)
8	Stainless Steel Tag Line (Size as shown on the Project Plans)
9	10"ø Steel Transition Casing per Std. Plan 3-19.03
10	Pad Eye for Tag Line
11	10"ø Expansion Casing Seal
12	Liquid Tight NMC Conduit (CarFlex or approved substitute)
13	~

WELL DETAILS - SUBMERSIBLE PUMP
~
Downhole Details

Standard Plan No. 3-19.02

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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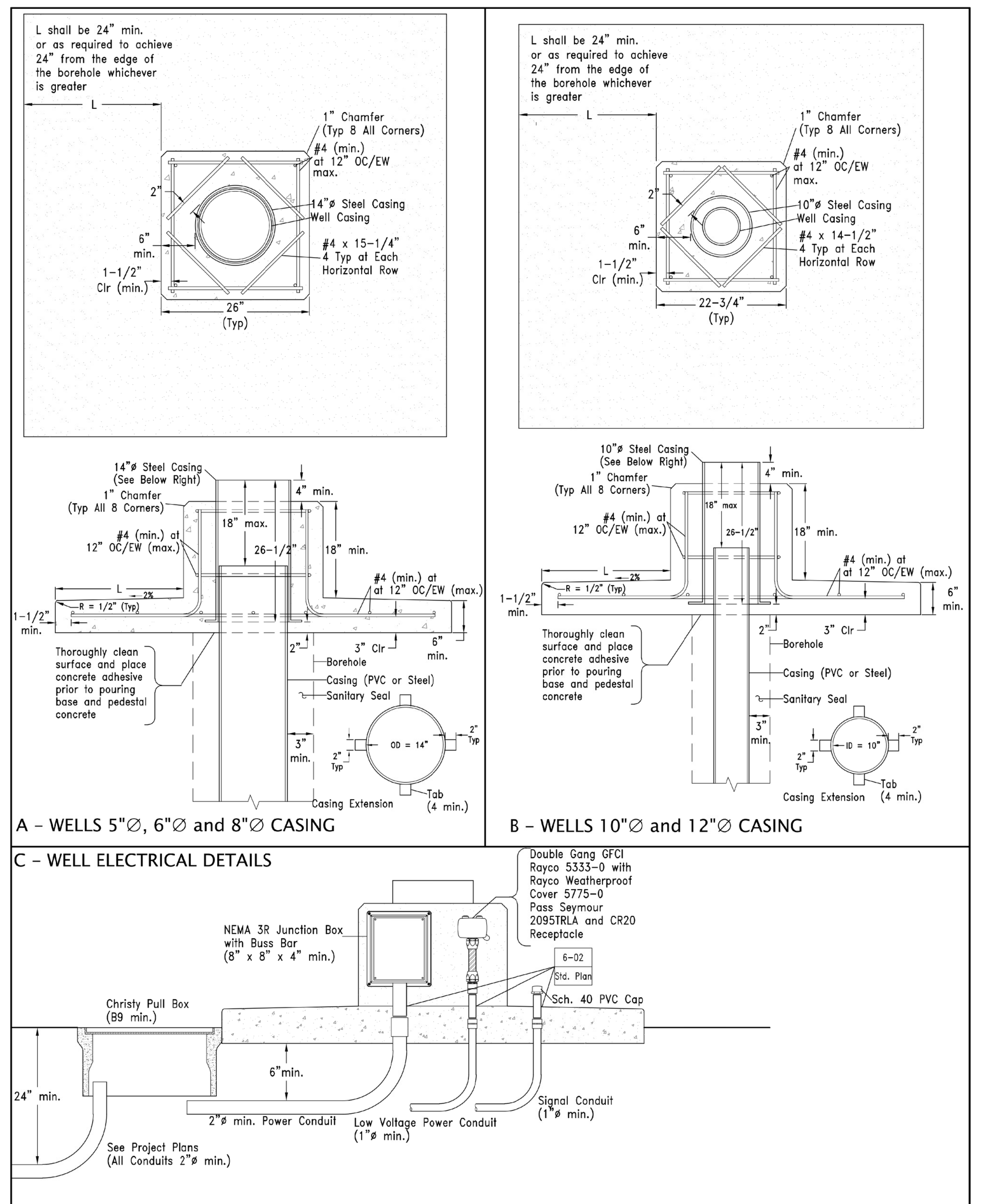

A - WELLS 5"∅, 6"∅ and 8"∅ CASING

B - WELLS 10"∅ and 12"∅ CASING

C - WELL ELECTRICAL DETAILS

WELL DETAILS - SUBMERSIBLE PUMP
Well Pedestal
Construction and Incoming Electrical Details

Standard Plan No. 3-19.03

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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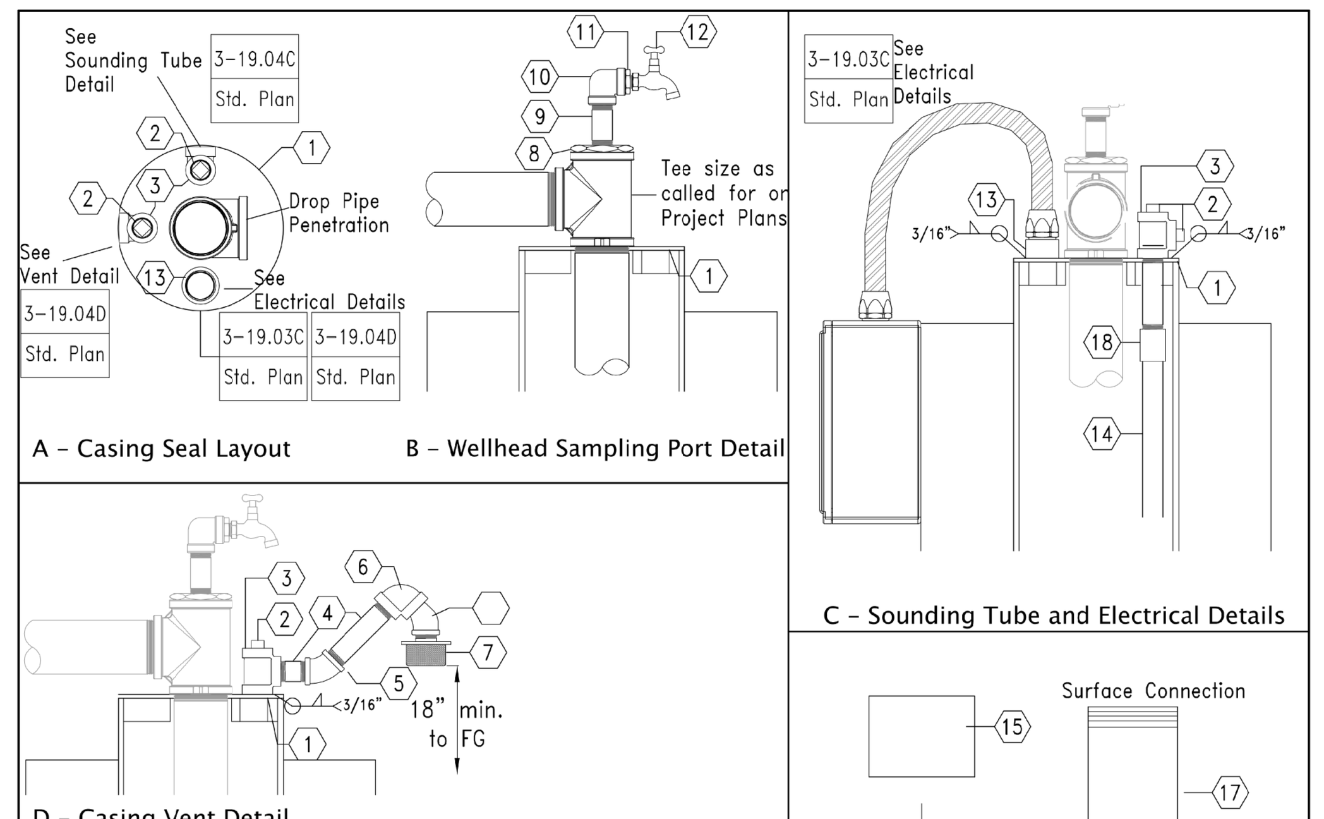
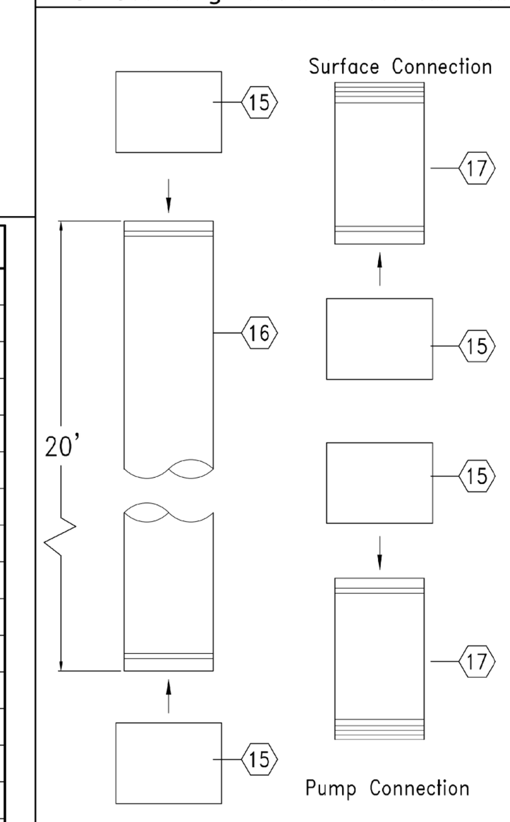


A - Casing Seal Layout

B - Wellhead Sampling Port Detail

C - Sounding Tube and Electrical Details

D - Casing Vent Detail



E - Drop Pipe Details

MISCELLANEOUS DETAIL MECHANICAL SCHEDULE	
ID	Description
1	10"ø Casing Seal
2	1"ø GIP Plug
3	1"ø GIP Tee
4	1"ø GIP Nipple (Length to Fit)
5	1"ø 45° GIP Ell or Street Ell
6	1"ø 90° Stainless Steel Ell
7	1"ø Vent Screen (Hytech MIPT with No. 16 SS Mesh)
8	[Size]ø x 1"ø Stainless Steel Reducer Bushing
9	1"ø Stainless Steel Nipple (Length to Fit)
10	1"ø x 90° Stainless Steel Ell
11	1"ø x 1/2"ø PVC Reducer Bushing (Sch. 80)
12	1/2"ø No Thread Hose Bib (Arrowhead, Matco Norca Loose Key)
13	1-1/2"ø GIP Half Coupling
14	PVC Sounding Tube (1"ø min.)
15	PVC Drop Pipe Coupling (Certa-Loc)
16	PVC Drop Pipe (Certa-Loc)
17	Stainless Steel Adapter (MIPT x Groove - Certa-Loc)
18	1"ø PVC Coupling (Sch. 40 - Slip x FIPT)

Note: The size of piping components not otherwise cited hereon shall be those provided for on the Project Plans

WELLHEAD DETAILS - SUBMERSIBLE PUMP
Wellhead Piping
Miscellaneous Details

Standard Plan No. 3-19.04

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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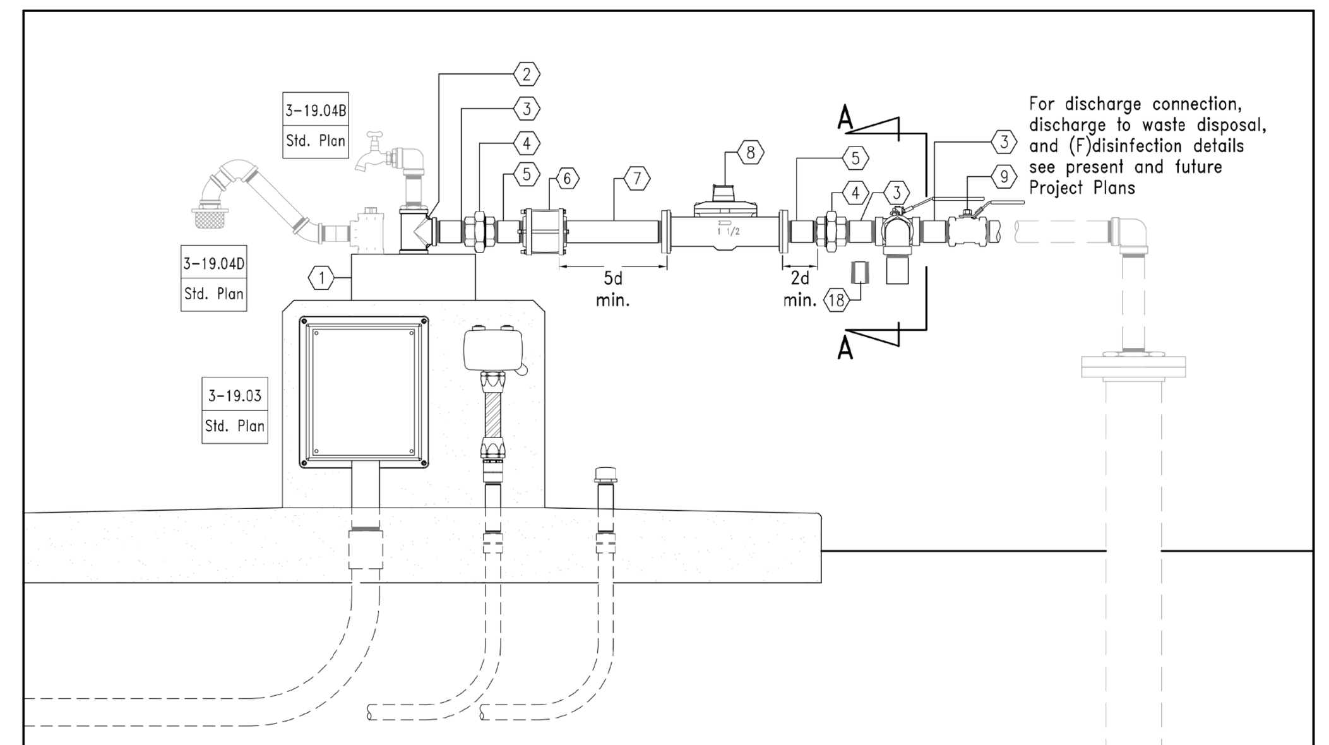
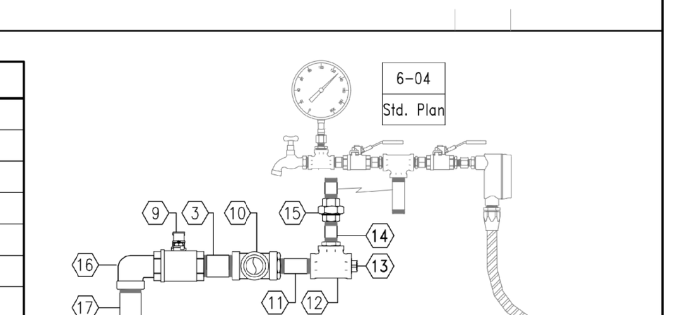


Elevation

MECHANICAL SCHEDULE - DROP PIPE UP TO 2"∅	
ID	Description
1	10"ø Steel Casing Extension
2	Stainless Steel Tee
3	Stainless Steel Nipple (MIPT x MIPT - Length to Fit)
4	Stainless Steel Union
5	Stainless Steel Spool (MIPT x FL - Length to Fit)
6	Silent Check Valve (ClaVal Series 580, Apco Series 600)
7	Stainless Steel Spool (FL x FL - Length to Fit)
8	Flowmeter (Neptune HD Series or Approved Substitute)
9	Stainless Steel Ball Valve
10	Stainless Steel Cross with Reducer Bushing
11	3/4"ø Stainless Steel Nipple (MIPT x MIPT - Length to Fit)
12	3/4"ø x 3/4"ø x 3/4"ø Stainless Steel Tee with Reducer Bushing
13	3/4"ø Stainless Steel Plug (Remove for (F)Disinfectant Injection)
14	1/2"ø Stainless Steel Nipple (MIPT x MIPT - Length to Fit)
15	1/2"ø Stainless Steel Union
16	Stainless Steel Street Ell
17	Stainless Steel Toe Nipple (Length to Fit)
18	Rate of Flow Valve Where Required (Dole FRGT or Approved Substitute)
	(Size, Rate of Flow and Pressure As Specified)

Note:
The size of piping components not specifically cited hereon shall be those provided for on the Project Plans



Section A-A

WELLHEAD DETAILS
Wellhead Piping Details
Details For Up To 2"ø Drop Pipe

Standard Plan No. 3-19.05

DESIGN: DRA DATE: 8/17 — CAD: DRA DATE: 8/17 — CHECKED: DRA DATE: 8/17 — APPROVED: DRA DATE: 8/17

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Revisions

Revision	Date:

Chemeketa Park Mutual Water Company
Tank Replacement Project
Standard Plans Sheet 5

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Date: 8/23
Scale: None
Drawn: DRA
Job: 22-002
Sheet SP-5
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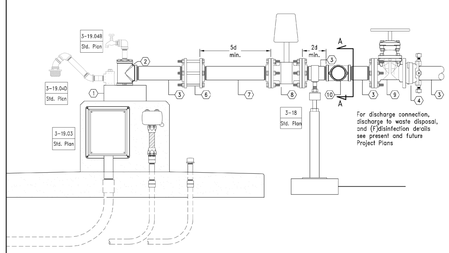
Sheet Included for Reference Only



MECHANICAL SCHEDULE - DROP PIPE 3"Ø and 4"Ø	
ⓘ	Description
1	10"ø Casing Seal
2	Stainless Steel Tee
3	Stainless Steel Nipple (MPT x MPT - Length to Fit)
4	Flange Coupling Adapter (EBAA Iron MegaFlange Series 2100))
5	Stainless Steel Spool (MPT x FL - Length to Fit)
6	Silent Check Valve (Cla-Val Series 590, Apco Series 600)
7	Stainless Steel Spool (FL x FL - Length to Fit)
8	Flowmeter (Siemens MAG5100 with MAG5000 Transmitter)
9	Gate Valve (FL x FL - NRS with Handwheel)
10	Stainless Steel Cross with Reducer Bushing
11	1"ø Stainless Steel Nipple (MPT x MPT - Length to Fit)
12	1"ø x 1"ø x 1"ø Stainless Steel Tee with Reducer Bushing
13	1"ø Stainless Steel Plug (Remove for (F)Disinfectant Injection)
14	1/2"ø Stainless Steel Nipple (MPT x MPT - Length to Fit)
15	1/2"ø Stainless Steel Union
16	Ductile Iron Ell (FL x FL)
17	Duckbill Check Valve (Tideflex Series 35)

Notes

1. The size of piping compcnents not specifically cited hereon shall be those provided for on the Project Plans
2. Epoxy coated welded steel specials may be substituted for stainless steel and DIP spools and fittings

WELLHEAD DETAILS – SUBMERSIBLE PUMP

Wellhead Piping
Details for 3"ø and 4"ø Drop Pipe Installation

Standard Plan No. 3-19.06

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
APPROVED:	DRA	8/17

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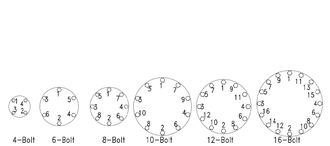

AWWA C600 Mechanical Joint T-Bolts			
Pipe Size	Bolt ø	Number	Torque (ft-lb)
3"ø	5/8"ø	4	45-60
4"ø	3/4"ø	4	75-90
6"ø	3/4"ø	6	85-100
8"ø	3/4"ø	6	45-60
10"ø	3/4"ø	8	45-60
12"ø	3/4"ø	8	45-60
14"ø	3/4"ø	10	75-90
16"ø	3/4"ø	10	85-100

Flange Bolt Torque (Pmax = 350-psi)			
Pipe Size	Bolt	Number	Torque (ft-lb)
2-3"ø	5/8"ø	4	100
4-8"ø	3/4"ø	8	150
10-14"ø	7/8"ø	12	200
16"ø	7/8"ø	16	250

NOTES

1. Fitting bolts shall be tightened in opposing succession following the pattern shown above;
2. Fitting bolts shall be tightened sequentially in increments not to exceed 20-ft-lb until the desired torque is achieved;
3. Fitting bolts shall not be brought to full torque in one operation;
4. Flange bolt kits shall be Type 304 or Type 316 Stainless Steel unless otherwise noted;
5. Where flanges are of dissimilar metals a flange insulation kit shall be provided;
6. Mechanical joint bolts shall be manufactured manufactured in accordance with AWWA C111;
7. All buried bolts and nuts and those otherwise specified shall be coated with a rubberized bitumastic compound prior to backfilling;
8. Rubberized bitumastic compounds may be Permatex 81833, 3M 3584 T. Christy H50or approved substitute;
9. Bitumastic compounds shall be allowed to cure to tack free before initiating backfilling operations;
10. All bolts threads shall be liberally coated with an anti-sieze compound (Jet-Lube V-2 Multi-Purpose Thread Sealant, Permatex High Performance or approved substitute).

BOLTING OPERATIONS

Standard Plan No. 3-20

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
APPROVED:	DRA	8/17

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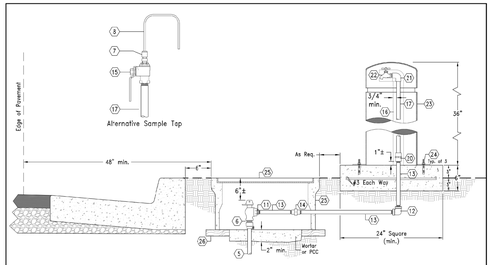
Revisions



Sampling Station Notes

1. The tap shall be oriented vertically;
2. The depth of the carrier pipe shall be as required to maintain a positive gradient to the sampling station;
3. The sampling station shall be located so as to provide the minimum run from the carrier pipe to the station;
4. The sampling station shall be located 18" behind the curb or not less than 48" from the edge of pavement;
5. The sampling station assembly shall be field located adjacent to the meter box in a location to reduce the risk of vehicular impact;
6. The interior riser shall be wrapped in a 3/4" (min.) closed cell elastomeric foam insulation including 90° fitting (K-Flex InsulTube, K-Fit or approved substitute).

MECHANICAL SCHEDULE	
ⓘ	DESCRIPTION
1	Carrier Pipe
2	3/4"ø Service Saddle per Std. Plan 3-01
3	3/4"ø Corporation Stop per Std. Plan 3-01
4	3/4"ø x 90° Coupling (PJ x MIPT - FORD Meter Box LB4-33)
5	3/4"ø PET (SDR9)
6	3/4"ø Angle Ball Service Valve (FORE Meter Box BA41-33W-NL PJ x FIPT)
7	1/4"ø Stainless Stee Compression Coupling (Comp x MIPT)
8	1/4"ø Stainless Stee Tubing (Length to Fit)
9	~
10	~
11	3/4"ø x 1/2"ø PVC Reducer Bushing (Sch. 80 - MIPT x FIPT)
12	1/2"ø x 90° Brass Ell
13	1/2"ø Brass Nipple (Length to Fit)

MECHANICAL SCHEDULE	
ⓘ	DESCRIPTION
14	1/2"ø Brass Union
15	1/2"ø Stainless Steel Ball Valve w/1/4"ø Recucer Bushing
16	Elastomeric Foam insulation (K-flex or approved substitute)
17	1/2"ø PVC Nipple (Sch. 80 (min.) - Length to Fit)
18	1/2"ø x 90° PVC Ell (Sch. 80 (min.) - Slip x FIPT)
19	~
20	1/2"ø PVC Coupling (Sch. 80 (min.) - Slip x FIPT)
21	1/2"ø x 90° PVC Ell (Sch. 80 (min.) - Slip x FIPT)
22	1/2"ø No Thread Hose Bibb (Arrowhead or Mateo Norco)
23	12"ø Sampling Station Enclosure (Armorcast F6002010-Hinged)
24	5/8"ø x 3-1/2" Stainless Steel Anchor Bolt (Strong-Tie SSB 5782-37512655)
25	Meter Box (Christy B16)
26	2" x 4" Redwood Block (Continuous)

SAMPLING STATION

Standard Plan No. 3-21

DESIGN:	DRA	8/17
CAD:	DRA	8/17
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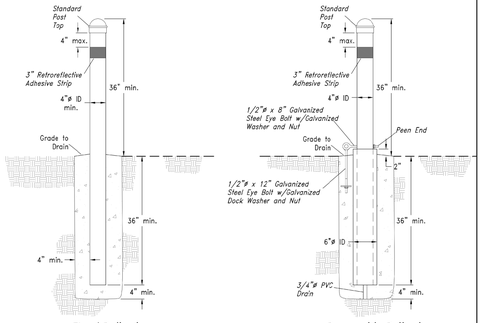
NOTES

1. Bollard shall be fabricated from galvanized iron pipe (GIP), Sch. 40 steel pipe or ductile iron pipe;
2. Bollard shall be a minimum of 4"ø inside diameter
3. Bollards shall be provided with a standard, malleable iron post top;
4. Bollard shall be set a minimum of 36" into concrete post footing;
5. Bollard shall be filled with concrete prior to installing post cap. Removable bollards shall not be concrete filled;
6. Concrete shall be classed as Minor Concrete in accordance with Section 90-1.01, "Description" of the Caltrans Standard Specifications.
7. Bollard shall be painted OSHA Safety Yellow in accordance with Wy'east Engineering Standard Plan 2-01, "Utility Marking Systems";
8. Where provided for in the Contract Documents, the bollard shall be coated with a reflective coating otherwise conforming with said Standard Plan 2-01;
9. Alternatively, where provided for in the Contract Documents, a retroreflective stripe shall be placed around the top of the bollard within 4-inches of the cap and of the color provided for;
10. Where a removable bollard is called for, the Owner will provide a padlock to secure the bollard to the anchor eye bolt.



Fixed Bollard

Removable Bollard

STANDARD TRAFFIC BOLLARD

Standard Plan No. 4-03

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
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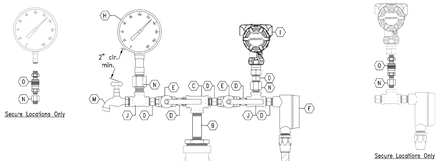

MECHANICAL SCHEDULE	
ⓘ	DESCRIPTION
A	Process Connection w/Stainless Steel Bushings As Required
B	3/4"ø Stainless Steel Nipple (Hex Nipple or Length to Fit)
C	3/4ø Stainless Steel Tee w/Stainless Steel Bushings As Required
D	1/2"ø Stainless Steel Nipple (Hex Nipple or Length to Fit)
E	1/2"ø Stainless Steel Ball Valve w/1/4"ø Bushing
F	1/2"ø Aluminum Conduit Body (FIPT x FIPT)
G	1/2"ø Liquid-Tight Flexible Conduit
H	Liquid-Filled Pressure Gauge per Schedule
I	Pressure Transducer per Schedule
J	1/2"ø Stainless Steel Tee w/Bushings as Required
K	~
L	~
M	1/2"ø No Thread Hose Bib (Exterior Locations - Loose Key Model) (Arrowhead 301NTLK, Matco-Norca FY-691)
N	1/2" Stainless Steel Pulsation dampener for pump installations (Ashcroft 25-11065, WIKA 4201663 or approved substitute)
O	1/2" Stainless Steel Quick Disconnect (ISO 6150 C Profile) (Parker Series 303 - SST-MM/SST-MM No Substitute)
P	~

Notes

1. The configuration shown hereon may be adapted to fit field conditions;
2. All materials in contact with potable water shall be lead free and NSF 61, Annex G or NSF 372 certified;
3. Sampling hose bib or tubing shall not have threads on the outlet.
4. Gauges for monitoring gravity tank levels shall be equipped with a dual reading dial marked in psig and feet of water;
5. Range as provided for on Project Plans;
6. Gauges for use in tank levels shall be WIKA model 233.34, Ashcroft 127945 or approved substitute;
7. Gauges for use in monitoring system pressure shall be WIKA model 213.53, Ashcroft 1010 or approved substitute;
8. Pressure transducers shall be provided with a 1/2"ø MPT electrical end and 3' pigtail for connection to a conduit body and signal conductors;
9. Pressure transducers shall be provided with a 1/4"ø MPT process connection.
10. Connection to process equipment including tanks shall include such bushings, adapters and fittings as may be required. The cost of pressure transducer assemblies and such bushings, adapters and fittings shall be considered as included in and incidental to the contract price for other items of work and no additional compensation will be allowed therefore unless otherwise specified.

TRANSDUCER AND GAUGE SCHEDULE						
	APPLICATION	Ashcroft		WIKA		Rosemount
		Gauge	Transducer	Gauge	Transducer	Transducer
a	Gravity Tank: H = 0-10'	127945	A2-S-4-WG4-E2-10#-C-XX8	233.34	S-10-A-P-CP-ND-ZGZXYAZ-ZZZ	100-10-2-1-6
b	Gravity Tank: H = 0-25'	127945	A2-S-4-WG4-E2-15#-C-XX8	233.34	S-10-A-P-BC-ND-ZGZXYAZ-ZZZ	100-15-2-1-6
c	Gravity Tank: H = 0-35'	127945	A2-S-4-WG4-E2-15#-C-XX8	233.34	S-10-A-P-BC-ND-ZGZXYAZ-ZZZ	100-15-2-1-6
d	Gravity Tank: H = >35'	127945	Range As Specified	233.34	Range As Specified	Range As Specified
e	System Pressure P = 0-50 psig	1010	A2-S-4-WG4-E2-100#-C-XX8	213.53	S-10-A-P-BF-ND-ZGZXYAZ-ZZZ	100-100-2-1-6
f	System Pressure P = 0-100 psig	1010	A2-S-4-WG4-E2-200#-C-XX8	213.53	S-10-A-P-BH-ND-ZGZXYAZ-ZZZ	100-200-2-1-6
g	System Pressure P = 0-150 psig	1010	A2-S-4-WG4-E2-300#-C-XX8	213.53	S-10-A-P-BI-ND-ZGZXYAZ-ZZZ	100-300-2-1-6
h	System Pressure P = 0-230 psig	1010	A2-S-4-WG4-E2-500#-C-XX8	213.53	S-10-A-P-DI-ND-ZGZXYAZ-ZZZ	100-500-2-1-6
i	System Pressure P = 0-320 psig	1010	A2-S-4-WG4-E2-500#-C-XX8	213.53	S-10-A-P-DI-ND-ZGZXYAZ-ZZZ	100-500-2-1-6

PRESSURE TRANSDUCER ASSEMBLIES

Standard Plan No. 6-04

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
APPROVED:	DRA	8/17

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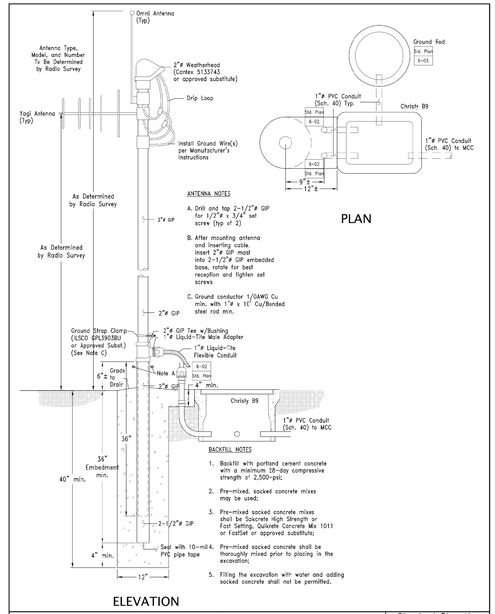
Revisions
4/18 Revise transducer and gauge schedule



ANTENNA NOTES

A. Drill and tap 2-1/2"ø GIP for 1/2"ø x 3/4" set screw (typ of 2)

B. After mounting antenna and inserting cable. Insert 2"ø GIP mast into 2-1/2"ø GIP embedded base, rotate for best reception and tighten set screws

C. Ground conductor 1/0AWG Cu min. with 1"ø x 10' Cu/Bonded steel rod min.

BACKFILL NOTES

1. Backfill with portland cement concrete with a minimum 28-day compressive strength of 2,500-psi;
2. Pre-mixed, sacked concrete mixes may be used;
3. Pre-mixed sacked concrete mixes shall be Sakcrete High Strength or Fast Setting, Quikcrete Concrete Mix 1011 or FastSet or approved substitute;
4. Pre-mixed sacked concrete shall be thoroughly mixed prior to placing in the excavation;
5. Filling the excavation with water and adding sacked concrete shall not be permitted.

ANTENNA DETAILS

Standard Plan No. 6-05

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
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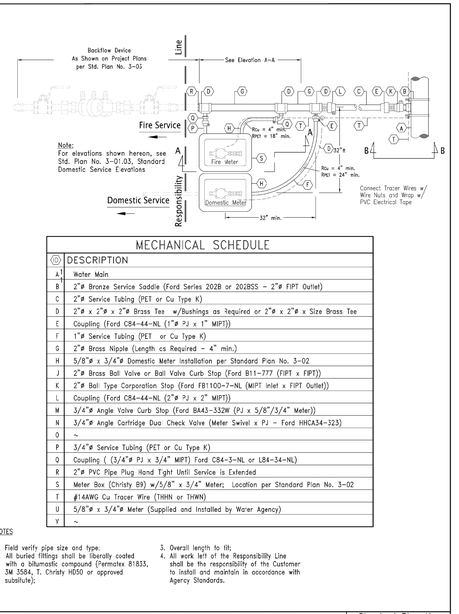

MECHANICAL SCHEDULE	
ⓘ	DESCRIPTION
A	Water Main
B	2"ø Bronze Service Saddle (Ford Series 202B or 202BSS - 2"ø FIPT Outlet)
C	2"ø Service Tubing (PET or Cu Type K)
D	2"ø x 2"ø x 2"ø Brass Tee w/Bushings as Required or 2"ø x 2"ø x Size Brass Tee
E	Coupling (Ford CB4-44-NL (1"ø PJ x 1" MIPT))
F	1"ø Service Tubing (PET or Cu Type K)
G	2"ø Brass Nipple (Length cs Required - 4" min.)
H	5/8"ø x 3/4"ø Domestic Meter Installation per Standard Plan No. 3-02
J	2"ø Brass Ball Valve or Ball Valve Curb Stop (Ford B11-777 (FIPT x FIPT))
K	2"ø Ball Type Corporation Stop (Ford FB1100-7-NL (MIPT Inlet x FIPT Outlet))
L	Coupling (Ford CB4-44-NL (2"ø PJ x 2" MIPT))
M	3/4"ø Angle Valve Curb Stop (Ford B1443-332W (PJ x 5/8"/3/4" Meter))
N	3/4"ø Angle Cartridge Duo Check Valve (Meter Swivel x PJ - Ford HHCA34-323)
O	~
P	3/4"ø Service Tubing (PET or Cu Type K)
Q	Coupling ((3/4"ø PJ x 3/4" MIPT) Ford CB4-3-NL or LB4-34-NL)
R	2"ø PVC Pipe Plug Hand Tight Until Service is Extended
S	Meter Box (Christy B9) w/5/8" x 3/4" Meter; Location per Standard Plan No. 3-02
T	#14AWG Cu Tracer Wire (THHN or TWHN)
U	5/8"ø x 3/4"ø Meter (Supplied and Installed by Water Agency)
V	~

NOTES

1. Field verify pipe size and type;
2. All buried fittings shall be liberally coated with a bitumastic compound (Permatex 81833, 3M 3584, T. Christy H050 or approved subsitute);
3. Overall length to fit;
4. All work left of the Responsibility Line shall be the responsibility of the Customer to install and maintain in accordance with Agency Standards.

STANDARD DOMESTIC COMBINATION SERVICE

2-inch Fire or Irrigation and Domestic Combined Installation
Above Grade Backflow Device installation

Standard Plan No. 3-01.02

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
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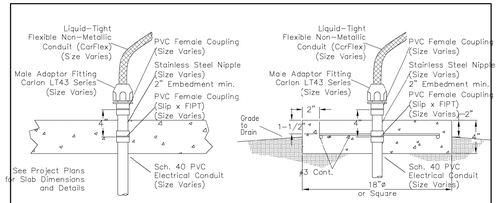

SLAB INSTALLATION

PAD INSTALLATION

CONDUIT RISER NOTES

1. All work shall be done in accordance with the California Electrical Code, the California Building Code, the Wy'east Engineering Standard Specifications and Standard Plans and these details;
2. Liquid Tight Flexible Metallic Conduit (Type LFMC) with appropriate fittings shall be substituted for Liquid Tight Non-metallic Conduit (Type LFNC) in installations where the conduit is exposed to an increased risk of damage;
3. Stainless steel nipples shall be a minimum of Type 304;
4. These conduit riser details shall be used for both electrical power and signal conductor installations connecting equipment and instrumentation as provided for on the Project Plans.
5. Conduit riser construction shall be considered as incidental to other unit or lump sum items of work unless otherwise specified. The cost of fittings, adapters, nipples, pad construction, conduit and conductors shall be considered as included in and incidental to the contract unit or lump sum price for other items of work and no additional compensation will be allowec therefore unless otherwise specified.

CONDUIT RISER DETAILS

Standard Plan No. 6-02

DESIGN:	DRA	8/17
CAD:	DRA	8/17
CHECKED:	DRA	8/17
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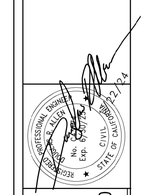
Revisions

Sheet Included for Reference Only

Revision | Date:

Chemeketa Park Mutual Water Company
Tank Replacement Project
Standard Plans Sheet 6



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CHEMEKETA PARK MUTUAL WATER COMPANY
P.O. Box 588 95044
Los Gatos, California
(650)859-1833

Date: 8/23
Scale: None
Drawn: DRA
Job: 22-002
Sheet SP-6 of 24

C:\Chemeketa Park\Sheet SP1-SP6.dwg\Standard Plan Sheet 6