STANDARD DRAWING SHEET INDEX

#	DRAWING NAME	DESIGN SECTION	APPROVED
1.	SIGNATURE BLOCK	DESIGN	APR 2010
2.	STANDARD CONSTRUCTION NOTES	DESIGN	APR 2010
3.	GRAVITY PIPE INSTALLATION	GRAVITY	APR 2010
4.	MANHOLE TYPE 1	GRAVITY	APR 2010
5.	MANHOLE TYPE 2	GRAVITY	APR 2010
6.	MANHOLE TYPE 3	GRAVITY	APR 2010
7.	MANHOLE OUTSIDE DROP	GRAVITY	APR 2010
8.	MANHOLE LATERAL CONNECTION	GRAVITY	APR 2010
9.	STANDARD MANHOLE FRAME & COVER	GRAVITY	APR 2010
10.	MANHOLE STEPS	GRAVITY	APR 2010
11.	MANHOLE GRADE ADJUSTMENT	GRAVITY	APR 2010
12.	TONING WIRE IN MANHOLE	GRAVITY	APR 2010
13.	CLEANOUTS	GRAVITY	APR 2010
14.	RESIDENTIAL SERVICE CONNECTION	GRAVITY	APR 2010
15.	RESIDENTIAL SIDE SEWER	GRAVITY	APR 2010
16.	RESIDENTIAL CLEANOUT IN DRIVEWAY	GRAVITY	APR 2010
17.	ALTERNATE RESIDENTIAL CLEANOUT IN DRIVEWAY	GRAVITY	APR 2010
18.	CONCRETE TO PVC OR DIP TRANSITION	GRAVITY	APR 2010
19.	CLAY DAMS	GRAVITY	APR 2010
20.	GREASE INTERCEPTOR	GRAVITY	APR 2010
21.	HAIR / LINT INTERCEPTOR	GRAVITY	APR 2010
22.	RESIDENTIAL RV DISPOSAL STATION	RV	APR 2010
23.	COMMERCIAL RV DISPOSAL STATION	RV	APR 2010
24.	BOLLARD DETAIL	RV	APR 2010
25.	GATE VALVE	FORCE MAIN	APR 2010
26.	AIR / VACUUM VALVE	FORCE MAIN	APR 2010
27.	LOCATE STATION	FORCE MAIN	APR 2010
28.	ADJUSTABLE VALVE STAND	FORCE MAIN	APR 2010
29.	PRESSURE GAUGE	FORCE MAIN	APR 2010
30.	THRUST BLOCK	FORCE MAIN	APR 2010
31.	SITE PLAN	PUMP STATION	APR 2010
32.	LANDSCAPE PLAN	PUMP STATION	APR 2010
33.	4" REMOVABLE BOLLARD DETAIL	PUMP STATION	APR 2010
34.	WET WELL	PUMP STATION	APR 2010
35.	ULTRASONIC TRANSDUCER	PUMP STATION	APR 2010
36.	VALVE VAULT	PUMP STATION	APR 2010
37.	VALVE VAULT ACCESS HATCH & CORING PLAN	PUMP STATION	APR 2010
38.	CONTROL PANEL COVER / PANEL LAYOUT	PUMP STATION	APR 2010
39.	CONTROL PANEL COVER CROSS SECTIONS	PUMP STATION	APR 2010
40.	CONTROL PANEL COVER FOOTING / POST CONNECTION	PUMP STATION	APR 2010
41.	CONTROL PANEL CONDUIT LAYOUT	PUMP STATION	APR 2010
42.	CONTROL PANEL ENCLOSURE	PUMP STATION	APR 2010
43.	SWING / SUB PANEL DETAIL	PUMP STATION	APR 2010
44.	PUMP DISCONNECT PANEL	PUMP STATION	APR 2010
45.	RESIDENTIAL CONCRETE S.T.E.P. TANK	S.T.E.P.	APR 2010
46.	RESIDENTIAL FIBERGLASS S.T.E.P. TANK	S.T.E.P.	APR 2010
47.	COMMERCIAL FIBERGLASS S.T.E.P. TANK	S.T.E.P.	APR 2010
48.	COMMERCIAL S.T.E.P. SITE PLAN	S.T.E.P.	APR 2010
49.	COMMERCIAL S.T.E.P. DUPLEX VALVE BOX	S.T.E.P.	APR 2010
50.	RESIDENTIAL GRINDER / S.T.E.P. SITE PLAN	S.T.E.P. / GRINDER	APR 2010
51.	RESIDENTIAL GRINDER / S.T.E.P. FLOAT ASSEMBLY	S.T.E.P. / GRINDER	APR 2010
52.	RESIDENTIAL GRINDER / S.T.E.P. VALVE BOX	S.T.E.P. / GRINDER	APR 2010
53.	RESIDENTIAL PRESSURE SERVICE CONNECTION	S.T.E.P. / GRINDER	APR 2010
54.	RESIDENTIAL GRINDER / S.T.E.P. FORCE MAIN EXTENSION	S.T.E.P. / GRINDER	APR 2010
55.	RESIDENTIAL GRINDER / S.T.E.P. FORCE MAIN CLEAN OUT	S.T.E.P. / GRINDER	APR 2010
56.	RESIDENTIAL GRINDER PUMP TANK	GRINDER	APR 2010
57.	GRINDER DISCHARGE HOSE & VALVE ASSEMBLY	GRINDER	APR 2010
58.	PRESSURE TO GRAVITY SERVICE CONNECTION	GRINDER	APR 2010

CLARK REGIONAL WASTEWATER DISTRICT
PLANS PREPARED BY:
CLARK REGIONAL WASTEWATER DISTRICT
ENGINEERING DEPARTMENT
8000 NE 52ND COURT, P.O. BOX 9879
VANCOUVER, WA 98668-9879
PHONE (360) 750-5876 / FAX (360) 750-7570

STANDARD DRAWING INDEX

STANDARD DRAWING

I

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:49pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010

SANITARY SEWER SYSTEM

CLARK REGIONAL WASTEWATER DISTRICT

APPROVED FOR CONSTRUCTION:

DATE

STANDARD CONSTRUCTION NOTES

1. All sanitary sewer construction will conform to the current adopted Construction Specifications of the District.

2. All work in Clark County right-of-way will conform to the requirements of the Clark County utility permit , City of Vancouver, City of Battle Ground, applicable railroad permits, WSDOT Franchise, or District requirements, whichever are more restrictive.

3. Contractor shall contact the NW Utility Notification Center at 1-800-424-5555 at least two (2) working days before but not more than (10) ten working days before the start of construction of the work and shall comply with State requirements for utility locating.

4. All survey monumentation shall be protected from damage unless otherwise permitted by Department of Natural Resources.

5. A preconstruction conference shall be held prior to the start of construction of the project.

6. Gravity sanitary sewer pipe materials for lines six (6) inches inside diameter and larger shall be:

a. AWWA C-900 or C-905 SDR 18 PVC pipe at depths of cover from three (3) feet to less than five (5) feet in a vehicle-traveled area; or

b. PVC pipe at depths of cover of five (5.0) feet to depths of cover of twenty (20.0) feet; or

c. AWWA C-900 or C-905 or Class 50 ductile iron pipe at depths of cover greater than 20.0'.

7. Gravity sanitary sewer pipe materials for lines four (4) inches inside diameter and smaller shall be:

a. AWWA C-900 or C-905 PVC pipe at depths of cover from three (3) feet to less than five (5) feet in vehicle traveled areas; or

b. Schedule 40 ABS or Schedule 40 solvent weld joint PVC at depths of cover from three (3) feet to less than five (5) feet in non-vehicle traveled areas; or

c. Schedule 40 ABS or Schedule 40 Solvent Joint PVC at depths of cover of five (5) feet or more.

8. Connections for side sewers (laterals) shall be:

a. Wyes for new sanitary sewers.

b. District Installed Taps for Existing Lines Note: A "Request for Tap" form must be completed by the contractor and a two (2) working day notice be given to the District to allow the tap to be scheduled.

9. The ends of side sewers (laterals) shall be:

a. Back-filled only after District inspection and approval and the Design Engineer or surveyor has obtained record drawing information.

b. Marked with a 2"x4"x10' wrapped with a14 gauge wire not connected to the toning wire and at a 90-degree angle from the end of the lateral. The marker will extend at least three (3) feet above the finished ground surface. Two (2) feet of each end of the 2"x4"x10' shall be painted green. If the 2"x4" is not ten (10) feet long, the contractor shall mark the actual length on the 2"x4" within six inches of the top and on both sides.

10. All manhole joints shall be externally sealed with NPC External-Seal [eight (8) inch nominal width], or approved equal.

11. Manholes shall not have edges of manhole casting and cover within three (3) feet of the curb gutter. Where determined by the District, inflow dishes shall be installed in manholes.

12. All testing shall be in accordance with the District's Construction Specifications.

a. At the preconstruction conference, the contractor must state if they intend to use an approved private television inspection subcontractor or the District.

13. The Design Engineer or surveyor will submit pre-paving record drawings prior to testing.

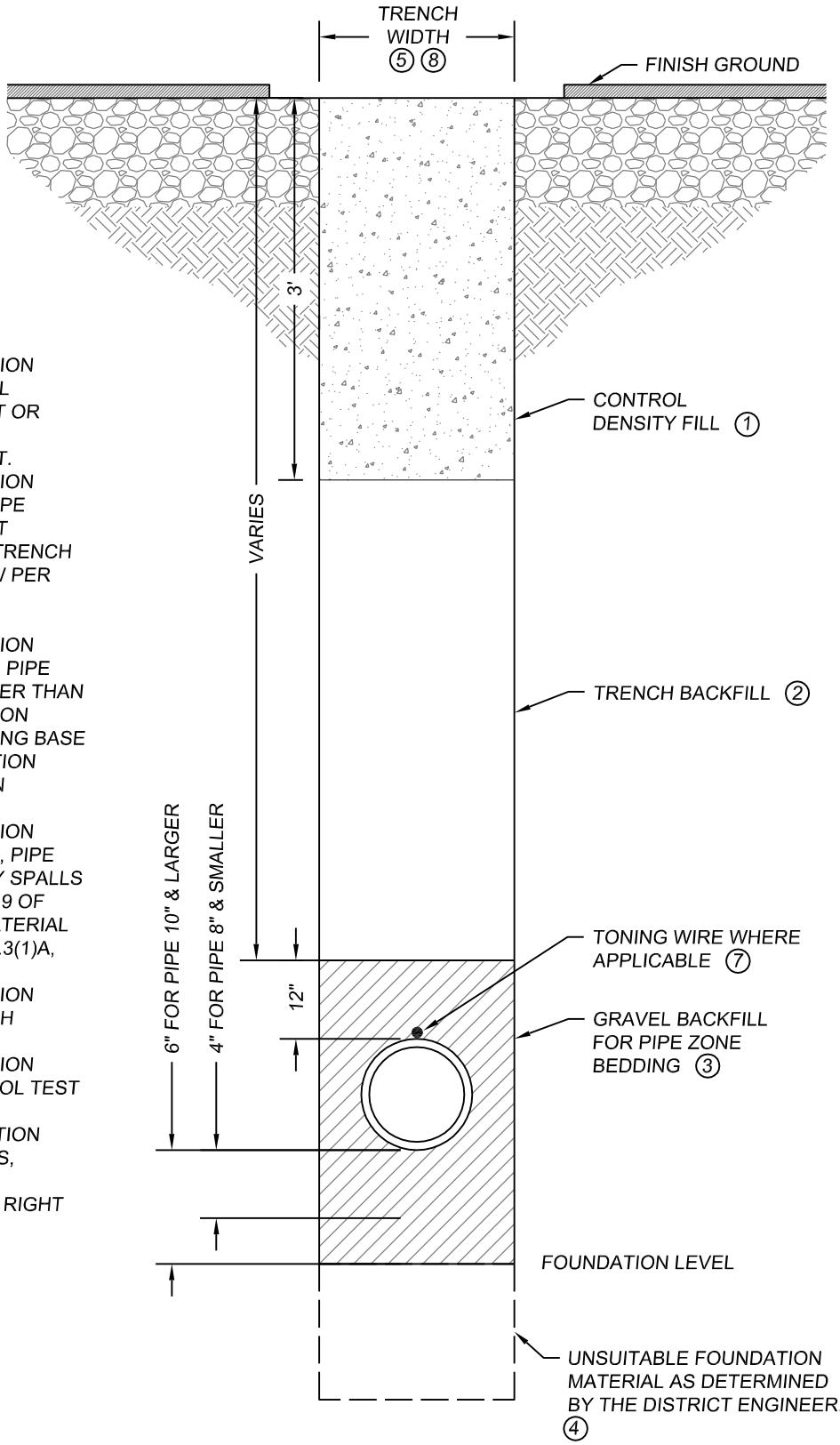
14. All existing septic tanks shall be decommissioned in accordance with Clark County Public Health and District requirements.

15. Record Drawings shall be submitted to the District prior to final acceptance.

16. All lateral lines shall be installed with toning wire. Toning wire shall be installed on main lines where shown on the plans.

17. Owners engineer shall verify cleanout invert elevations prior to backfilling.

Plotted on Apr 13, 2010 - 2:50pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NOTES:

1. SEE STANDARD SPECIFICATION SECTION 2-09.3(1)E FOR CONTROL DENSITY FILL WHERE REQUIRED BY UTILITY PERMIT OR WHERE SHOWN ON THE PLANS AND SPECIFIED BACKFILL WHERE IT IS NOT.
2. SEE STANDARD SPECIFICATION SECTION 7-08.3(3) FOR BACKFILL ABOVE THE PIPE ZONE AND COMPACTION (95-PERCENT MAXIMUM DENSITY). MATERIAL FOR TRENCH BACKFILL SHALL BE GRAVEL BORROW PER SEC 9-03.14(1) UNLESS OTHERWISE APPROVED.
3. SEE STANDARD SPECIFICATION SECTION 9-03.12(3) FOR GRAVEL BACKFILL FOR PIPE ZONE BEDDING. FOR DEPTHS GREATER THAN 13 FEET, SEE STANDARD SPECIFICATION SECTION 9-03.9(3) CRUSHED SURFACING BASE COURSE. SEE STANDARD SPECIFICATION SECTION 7-08.3(1)C FOR COMPACTION (90-PERECENT MAXIMUM DENSITY).
4. SEE STANDARD SPECIFICATION SECTION 7-08.3(1)A. MATERIAL SHALL BE CSBC, PIPE ZONE BEDDING, BALLAST OR QUARRY SPALLS AS FURTHER DESCRIBED IN DIVISION 9 OF THE STANDARD SPECIFICATIONS. MATERIAL SHALL BE IN ACCORDANCE WITH 7-08.3(1)A, 9-03.9(1) OR 9-13.6.
5. SEE STANDARD SPECIFICATION SECTION 2-09.4 FOR MEASUREMENT OF TRENCH WIDTH.
6. SEE STANDARD SPECIFICATION SECTION 2-03.3(14)D FOR COMPACTION CONTROL TEST FOR ALL BACKFILL MATERIAL.
7. SEE STANDARD SPECIFICATION SECTION 9-30.7 FOR TONING WIRE AND SPLICES, WHERE REQUIRED.
8. TRENCH RESTORATION PER UTILITY / RIGHT OF WAY PERMIT.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

GRAVITY PIPE INSTALLATION

STANDARD DRAWING

3

APPROVED: APR 2010

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SECTION VIEW
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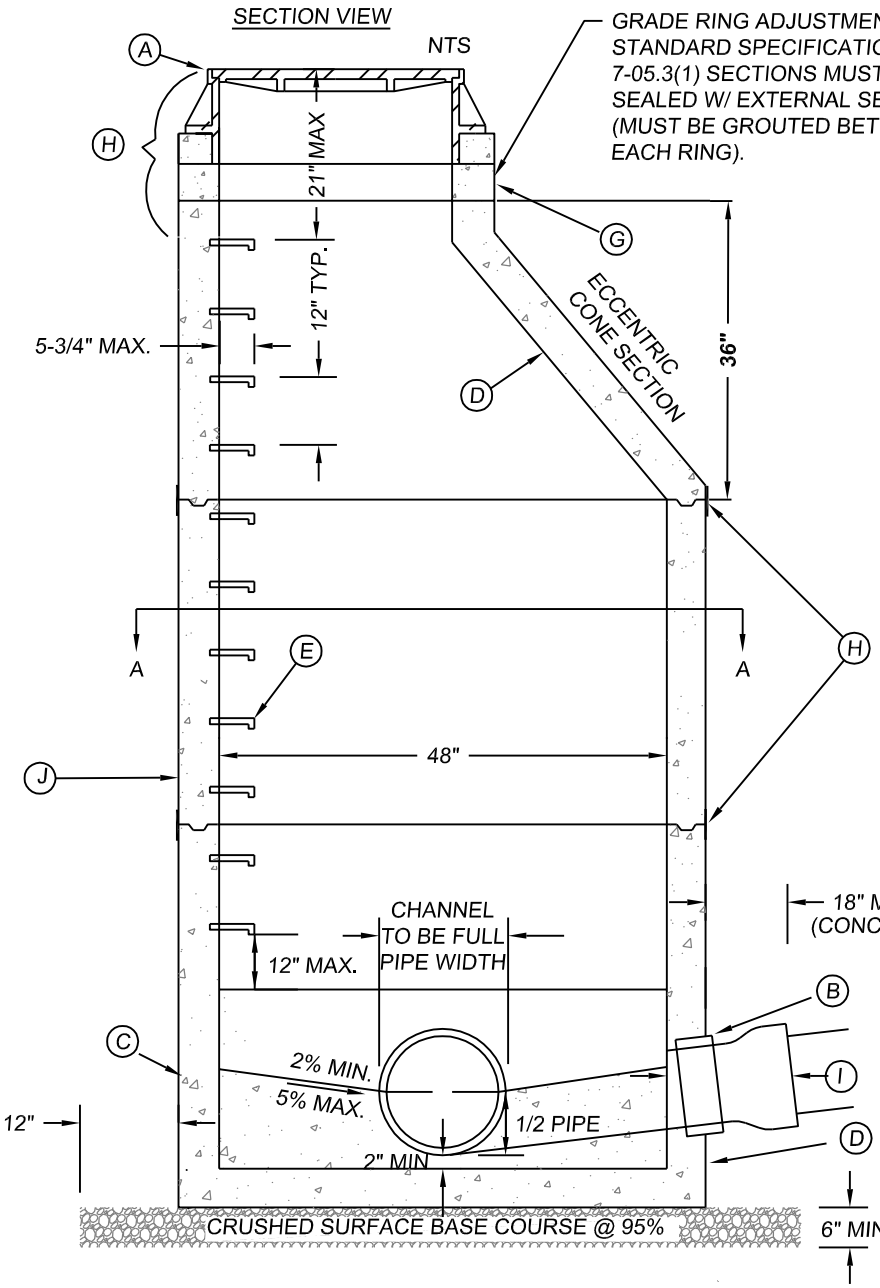
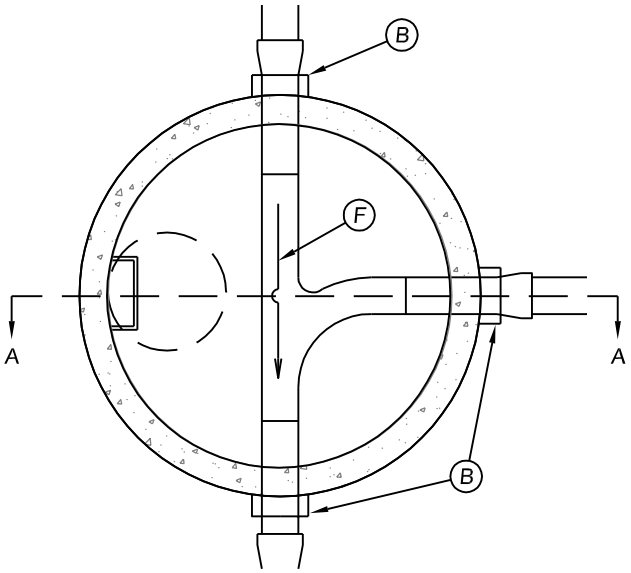


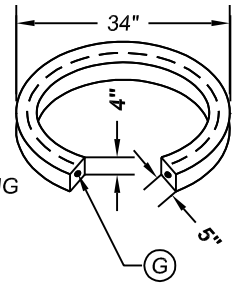
GRADE RING ADJUSTMENT PER STANDARD SPECIFICATION 7-05.3(1) SECTIONS MUST BE SEALED W/ EXTERNAL SEALANT (MUST BE GROUTED BETWEEN EACH RING).

FRAME & COVER SIZES	
PIPE DIA	COVER SIZE
8"-21"	2'-0"

PLAN VIEW SECTION A-A
NTS



CONCRETE GRADE RING ADJUSTMENT SECTION



NOTE:
METAL GRADE RING ADJUSTERS NOT ALLOWED.

MANHOLE DIMENSION TABLE					
DIA.	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL SQ. IN/FT EACH DIRECTION
					INTEGRAL BASE
48"	5"	6"	36"	8"	0.15

A. STANDARD MANHOLE FRAME & COVER, SEE STANDARD DRAWING #9.
B. ALL MANHOLE PENETRATIONS SHALL BE CORED AND BOOTED PER STANDARD SPECIFICATIONS SECTION 7-05.3
C. WALL SECTION TO BE INTEGRAL PART OF BASE AND COMPLETELY WATER TIGHT.
D. BASE, CONE & SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATION 9-12.4
E. STEPS PER STANDARD DRAWING #10. STEPS NOT ALLOWED IN RISER RINGS.
F. UNIFORM SLOPE PER PLAN, 5% MIN.
G. ONE LOOP OF #4 REBAR CENTERED IN CONCRETE GRADE RINGS. CONCRETE SHALL BE CL 4000
H. EXTERNAL MANHOLE SEAL TO BE NPC PER STANDARD SPECIFICATIONS SECTION 7-05.3 REQUIRED AT EVERY SECTION.
I. STUB 18" LONG MAX. AT EACH BOOT.
J. MANUFACTURER SHALL SUPPLY A LETTER OF CERTIFICATION VERIFYING MANHOLE SECTIONS MEET CRWWD SPECIFICATIONS.
K. SEE STANDARD DRAWING #12 FOR TONING WIRE IF SHOWN ON PLANS

CLARK REGIONAL WASTEWATER DISTRICT
GRAVITY

MANHOLE TYPE 1

STANDARD DRAWING

4

APPROVED: APR 2010

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SECTION VIEW

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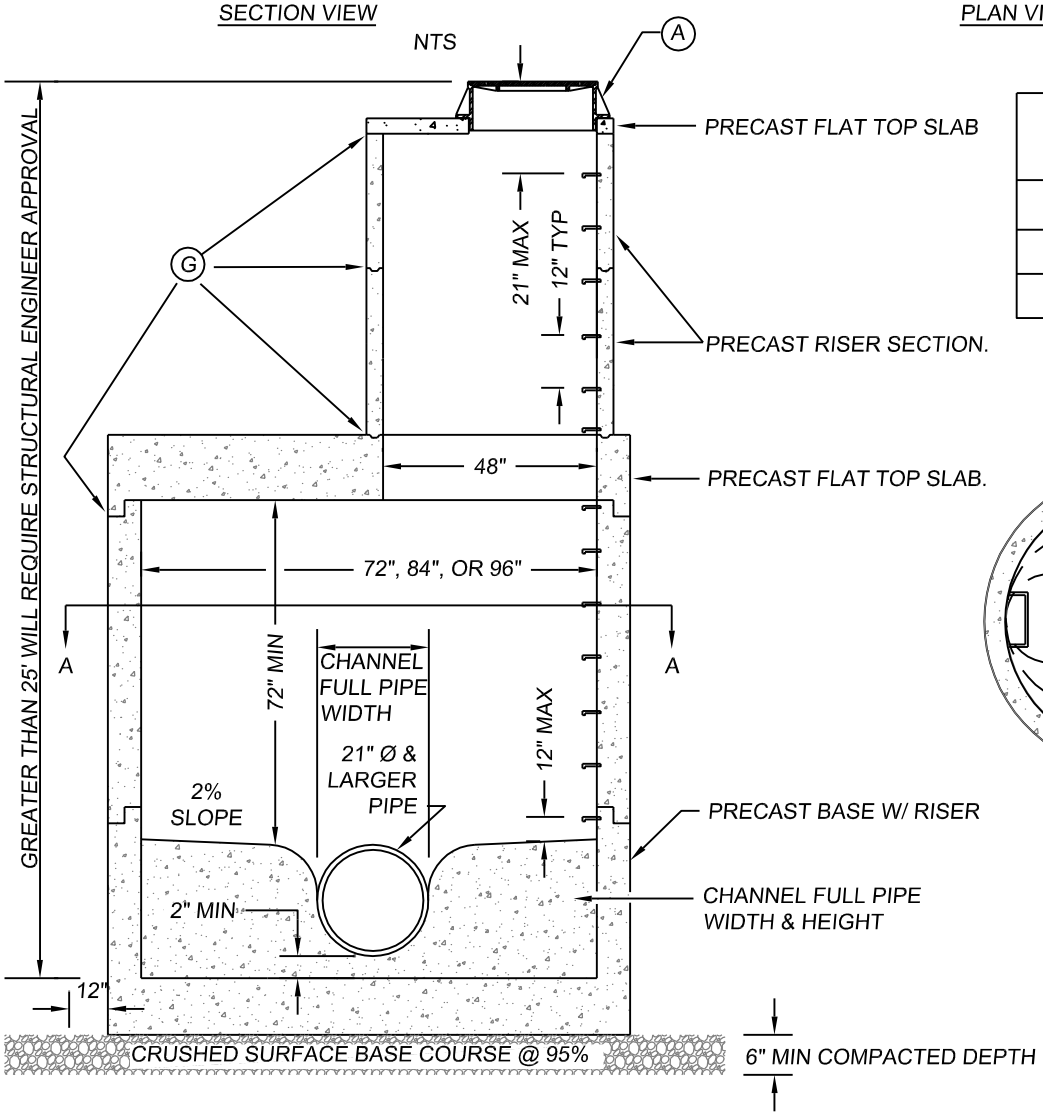
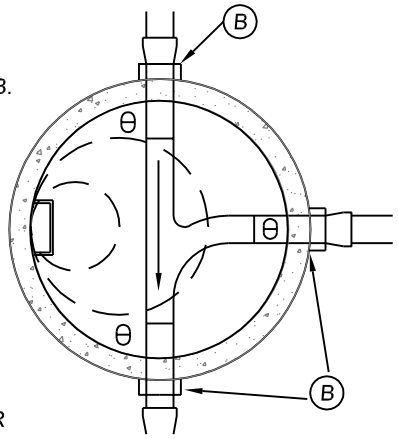


PLAN VIEW SECTION A-A

NTS



FRAME & COVER SIZES

PIPE DIA	COVER SIZE
21" -30"	2'-6"
> 30"	3'-0"

MANHOLE DIMENSION TABLE

DIA	WALL THICKNESS	BASE THICKNESS	MAX KNOCKOUT SIZE	MIN DISTANCE BETWEEN KNOCKOUTS	INTEGRAL BASE (BASE REINFORCING STEEL SQ INCH PER FOOT IN EACH DIRECTION)
72"	6"	8"	48"	8"	0.25
84"	8"	8"	60"	12"	0.24
96"	12"	12"	84"	12"	0.29

A. STANDARD MANHOLE FRAME & COVER, SEE STANDARD DRAWING #9.
B. ALL MANHOLE PENETRATIONS SHALL BE CORED AND BOOTED PER STANDARD SPECIFICATIONS SECTION 7-05.3
C. WALL SECTION TO BE INTEGRAL PART OF BASE AND COMPLETELY WATER TIGHT.
D. BASE, CONE & SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATION 9-12.4
E. STEPS PER STANDARD DRAWING #10. STEPS NOT ALLOWED IN RISER RINGS.
F. UNIFORM SLOPE PER PLAN 5% MIN.
G. EXTERNAL MANHOLE SEAL TO BE NPC PER STANDARD SPECIFICATIONS SECTION 7-05.3 REQUIRED AT EVERY SECTION.
H. STUB 18" LONG MAX. AT EACH BOOT.
I. MANUFACTURER SHALL SUPPLY A LETTER OF CERTIFICATION VERIFYING MANHOLE SECTIONS MEET CRWWD SPECIFICATIONS.
J. SEE STANDARD DRAWING #12 FOR TONING WIRE IF SHOWN ON PLANS

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

MANHOLE TYPE 2

STANDARD DRAWING

5

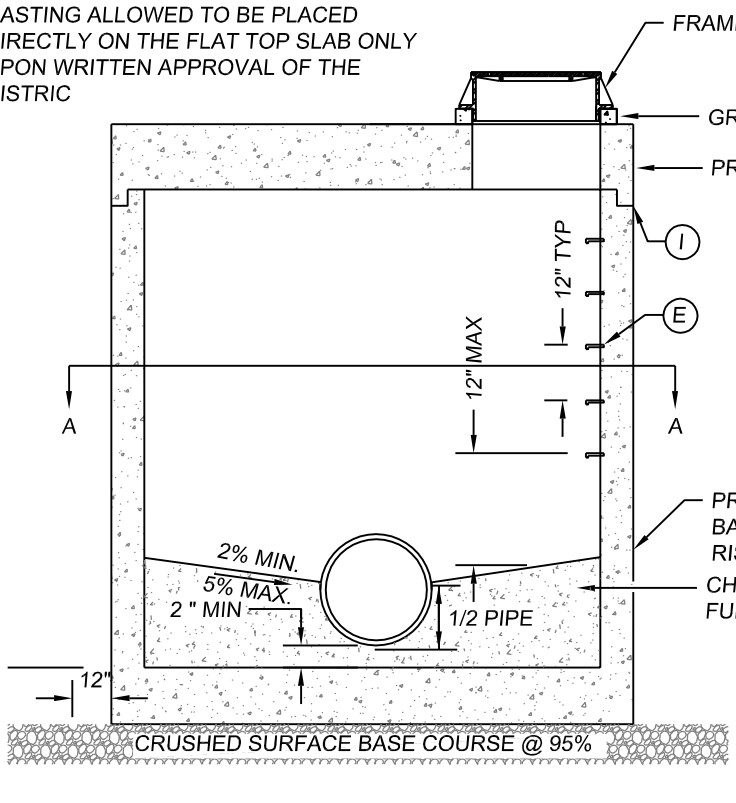
APPROVED: APR 2010

FRAME & COVER SIZES	
PIPE DIA	COVER SIZE
8-21"	2'-0"

SECTION VIEW

NOTE: NTS

CASTING ALLOWED TO BE PLACED DIRECTLY ON THE FLAT TOP SLAB ONLY UPON WRITTEN APPROVAL OF THE DISTRIC



PLAN VIEW SECTION A-A

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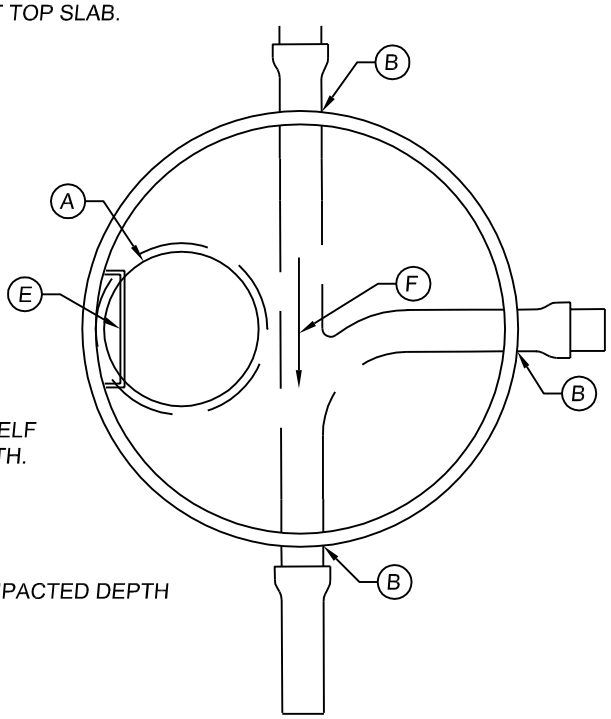


MANHOLE DIMENSION TABLE					
DIA.	WALL THICKNESS	BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS	BASE REINFORCING STEEL SQ. IN/FT EACH DIRECTION
					INTEGRAL BASE
48"	5"	6"	36"	8"	0.15

A. STANDARD MANHOLE FRAME & COVER, SEE STANDARD DRAWING #9.
B. ALL MANHOLE PENETRATIONS SHALL BE CORED AND BOOTED PER STANDARD SPECIFICATIONS SECTION 7-05.3
C. WALL SECTION TO BE INTEGRAL PART OF BASE AND COMPLETELY WATER TIGHT.
D. BASE, CONE & SECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATION 9-12.4
E. STEPS PER STANDARD DRAWING #10. STEPS NOT ALLOWED IN RISER RINGS.
F. UNIFORM SLOPE PER PLAN 5% MIN.
G. EXTERNAL MANHOLE SEAL TO BE NPC PER STANDARD SPECIFICATIONS SECTION 7-05.3 REQUIRED AT EVERY SECTION.
H. STUB 18" LONG MAX. AT EACH BOOT.
I. MANUFACTURER SHALL SUPPLY A LETTER OF CERTIFICATION VERIFYING MANHOLE SECTIONS MEET CRWWD SPECIFICATIONS.
J. SEE STANDARD DRAWING #12 FOR TONING WIRE IF SHOWN ON PLANS

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

MANHOLE TYPE 3

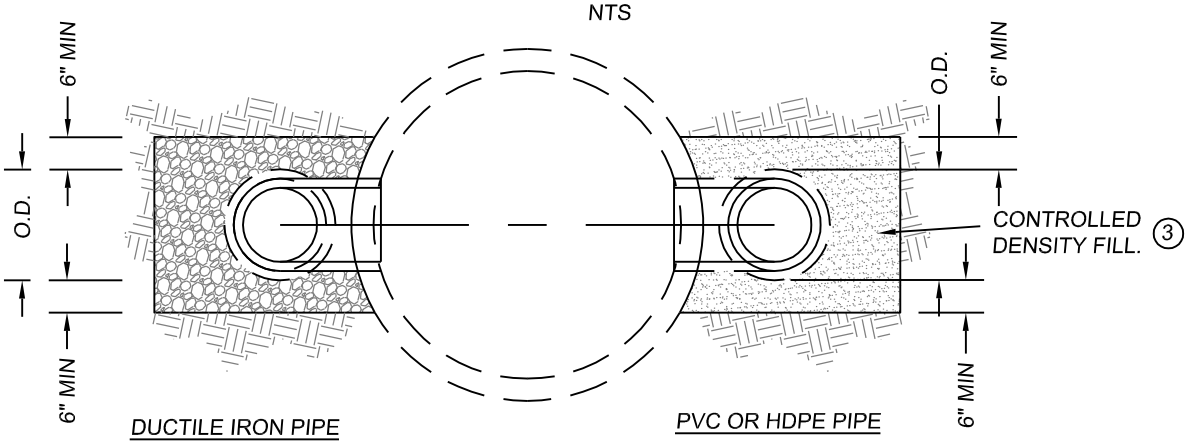
STANDARD DRAWING

6

APPROVED: APR 2010

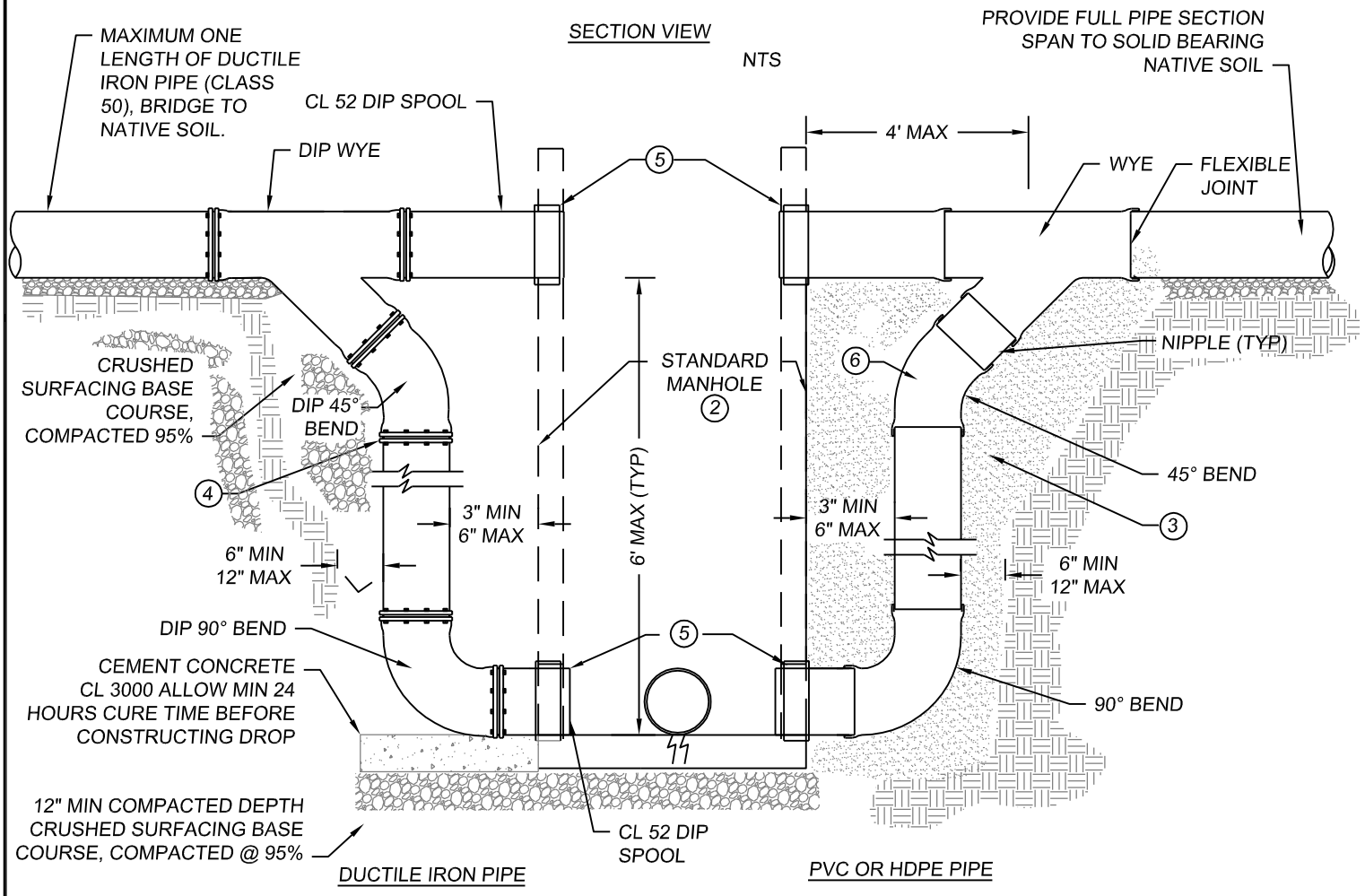
PLAN VIEW

NTS



SECTION VIEW

NTS



NOTE:

1. WRITTEN APPROVAL REQUIRED TO USE DROP MANHOLES
2. SEE STANDARD DRAWINGS #4 & #5 FOR ADDITIONAL MANHOLE REQUIREMENTS
3. SHALL BE ENCASED IN CONTROLLED DENSITY FILL TO NATIVE SOIL (ALL PIPE EXCEPT DUCTILE IRON PIPE).
4. JOINTS MAY BE FLANGED OR RESTRAINED MECHANICAL JOINTS
5. ALL MANHOLE PENETRATIONS SHALL BE CORED AND BOOTED PER STANDARD SPECIFICATIONS SECTION 7-05.3 .
6. MATCH PIPE SIZE AND MATERIALS TO MAIN.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

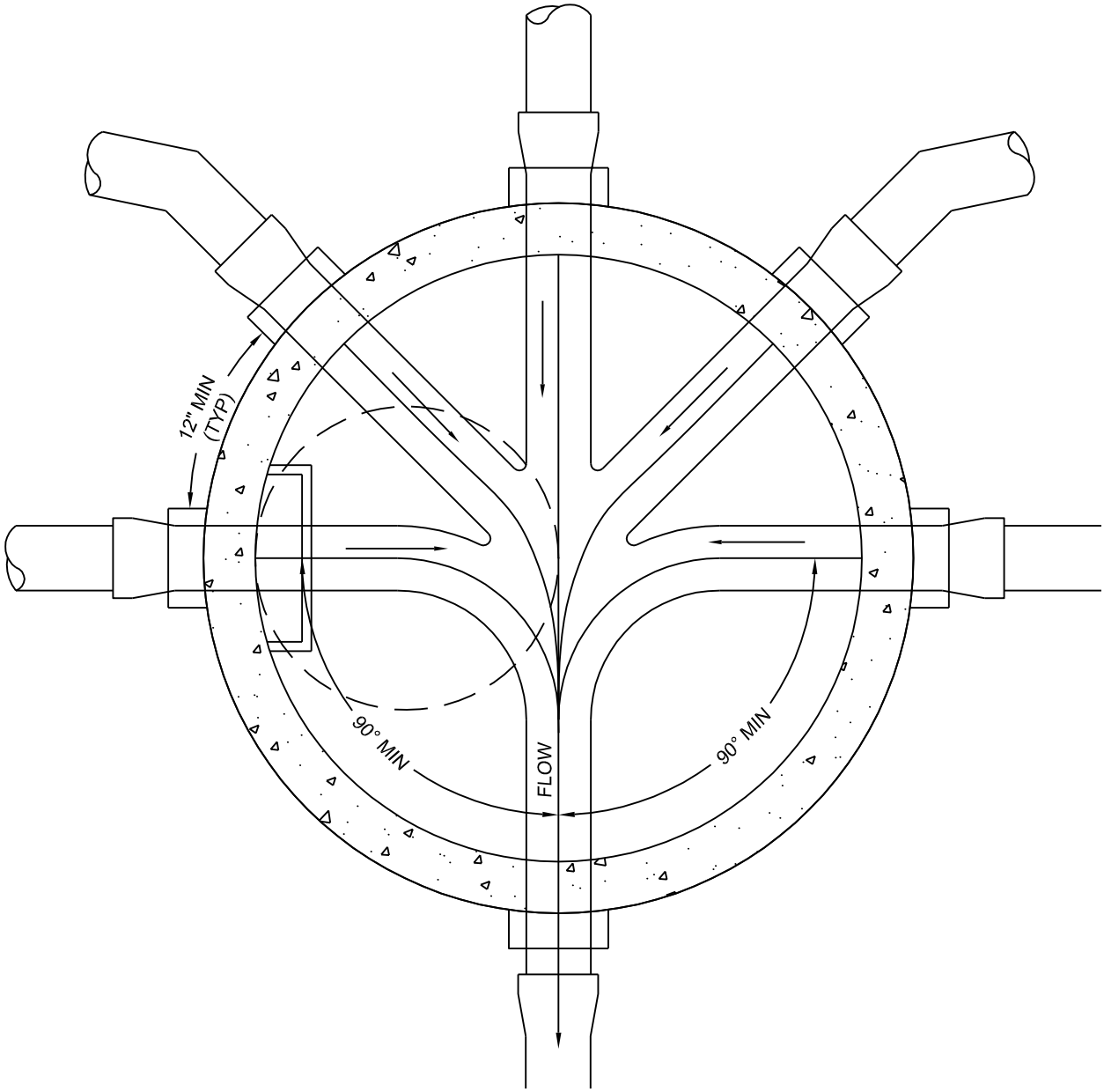
MANHOLE OUTSIDE DROP

STANDARD DRAWING

7

APPROVED: APR 2010

PLAN VIEW
NTS



1. SEE STANDARD DRAWING #4 FOR ADDITIONAL DETAILS.
2. MAXIMUM OF FIVE (5) 4" RESIDENTIAL LATERALS PER MANHOLE
3. 0.3' MINIMUM DROP FROM LATERAL INVERT TO MANHOLE OUTLET.
4. ALL PENETRATIONS SHALL BE CORED AND BOOTED PER SPEC.
5. ENSURE CHANNELS ARE STRUCK SMOOTH
6. ALL MANHOLES WITH THREE (3) OR MORE LATERALS SHALL BE VACUUM TESTED
7. INTERNAL MANHOLE SEAL MAY BE REQUIRED.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

MANHOLE LATERAL CONNECTION

STANDARD DRAWING

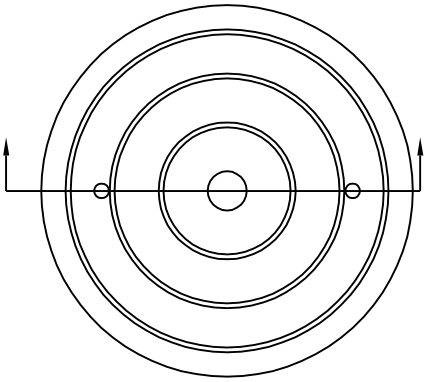
8

APPROVED: APR 2010

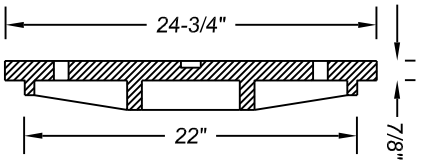
NOTE: ALL HOLES NO LARGER THAN 3/4" DIAMETER.

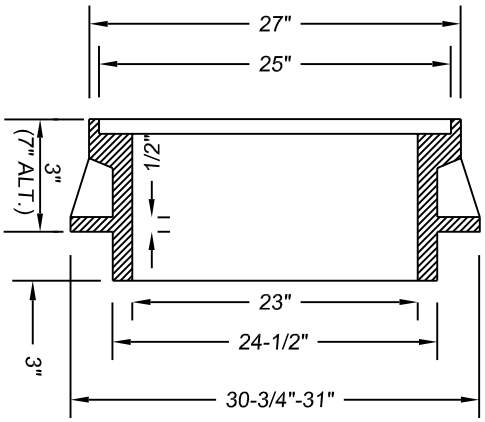
* MANUFACTURED BY VAN RICH CASTING CORP., VANCOUVER, WA. 98660 OR VARICAST, PORTLAND, OR. 97217 OR APPROVED EQUAL.

STANDARD

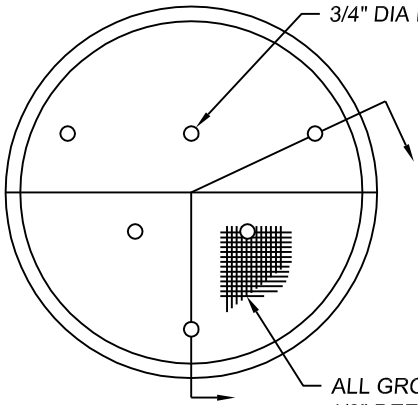


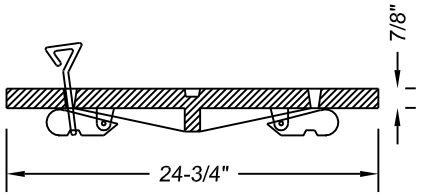
* 2 HOLE COVER, SANITARY SEWER

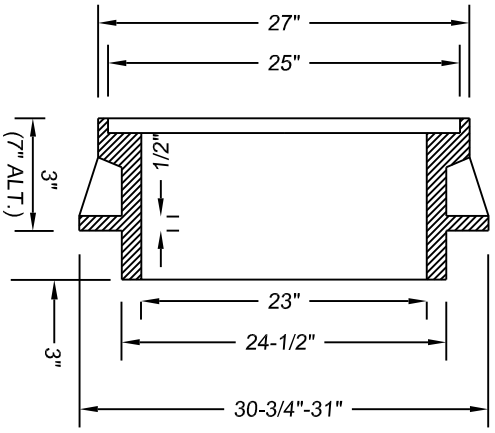




* LOCKING



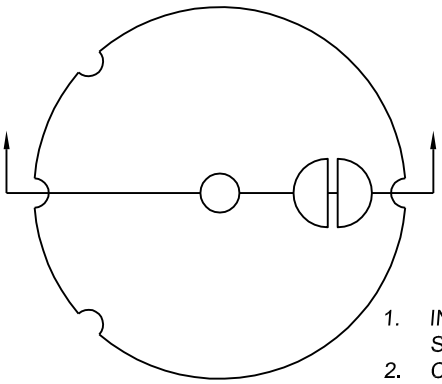


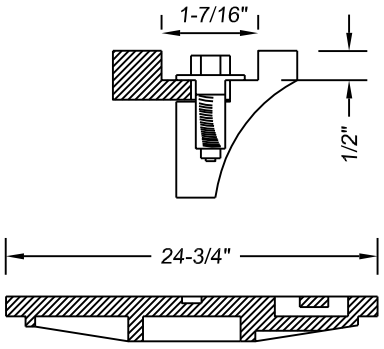


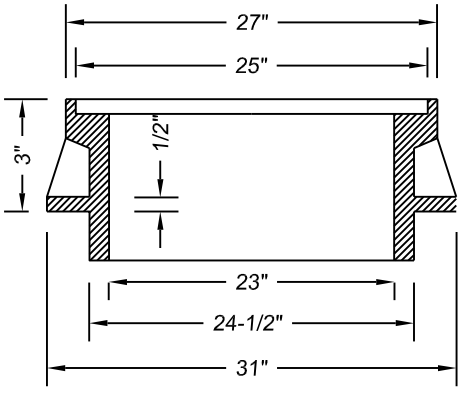
CAP SCREWS

3 REQUIRED 1/2" X 1-1/4" HEX HEAD (STAINLESS STEEL)

WATERTIGHT







1. INCLUDE 1/16" RUBBER GASKET PUNCHED FOR CAP SCREWS AND LOCATING STUD.
2. CONTRACTOR TO PROVIDE ONE ADDITIONAL GASKET FOR EVERY TWO INSTALLED, MIN 1 ADDITIONAL GASKET.
3. FRAME SHALL BE TAPPED AND THREADED TO MATCH COVER.
4. LARGER FRAME/COVERS REQUIRED FOR TYPE 2 MANHOLES WILL BE REVIEWED BY SUBMITTAL PROCESS STANDARD SPECIFICATION 1-06.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

STANDARD MANHOLE FRAME & COVER

STANDARD DRAWING

9

APPROVED: APR 2010

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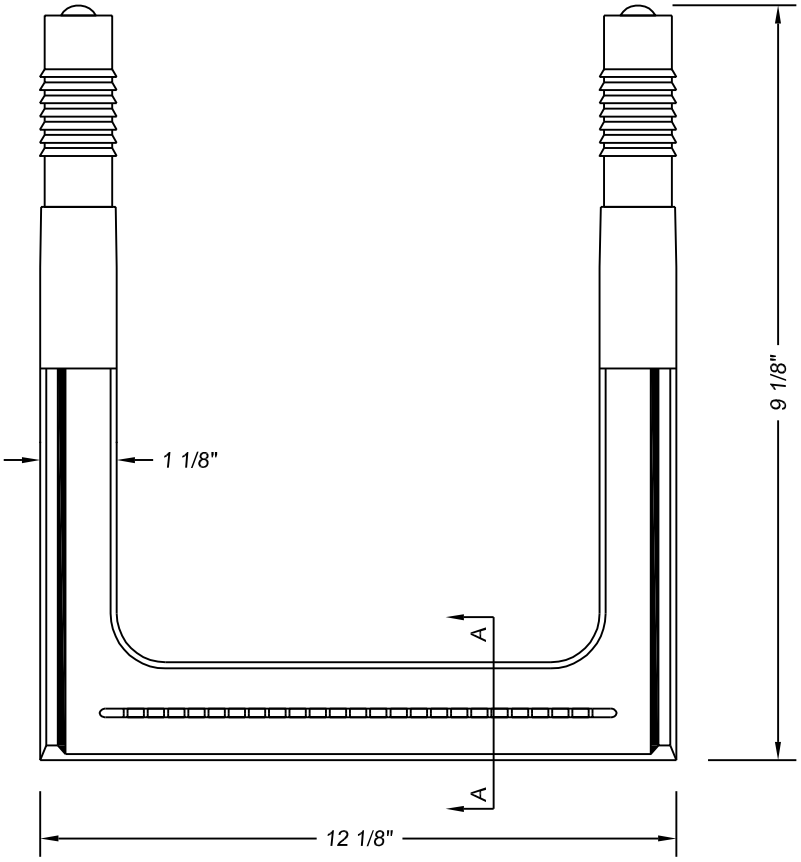
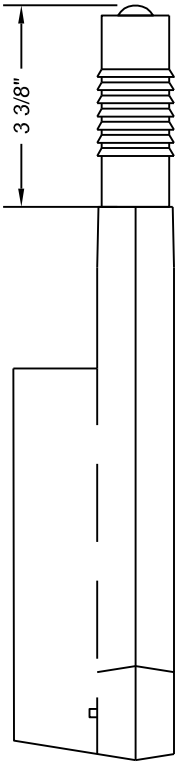
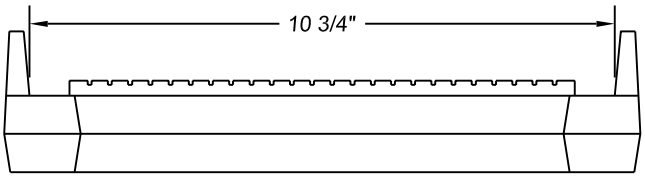
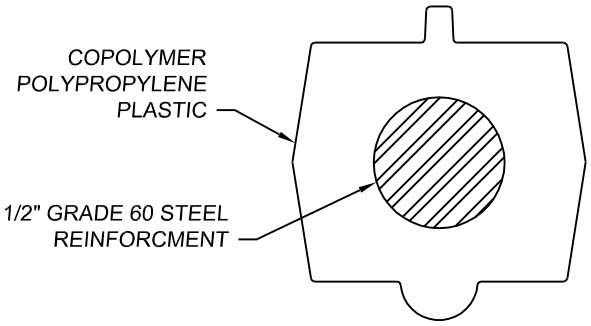
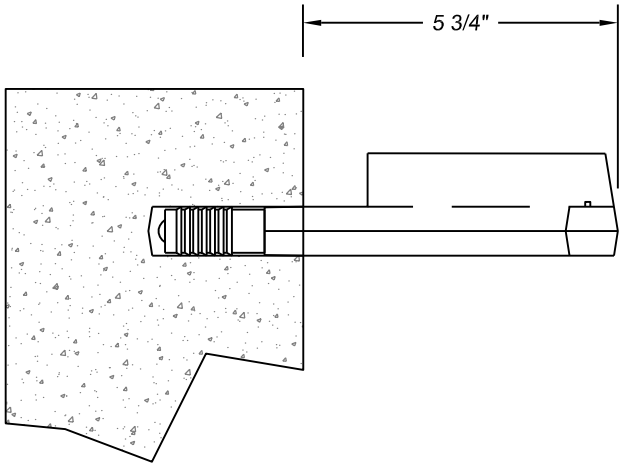








SECTION A



NOTE:
MANHOLE STEPS SHALL MEET: ASTM C478, AASHTO-M-199, & ALL WISHA REQUIREMENTS. STEPS SHALL BE INSTALLED PER 7-05.3.

CLARK REGIONAL WASTEWATER DISTRICT

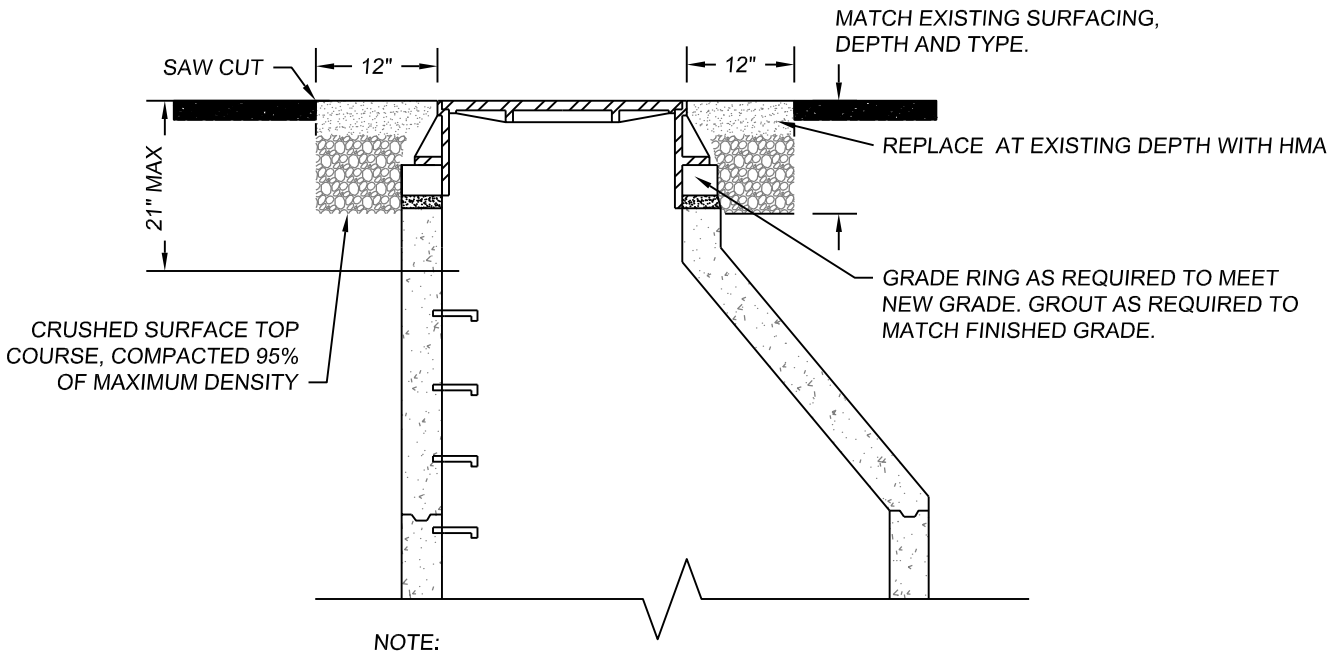
GRAVITY

MANHOLE STEPS

STANDARD DRAWING

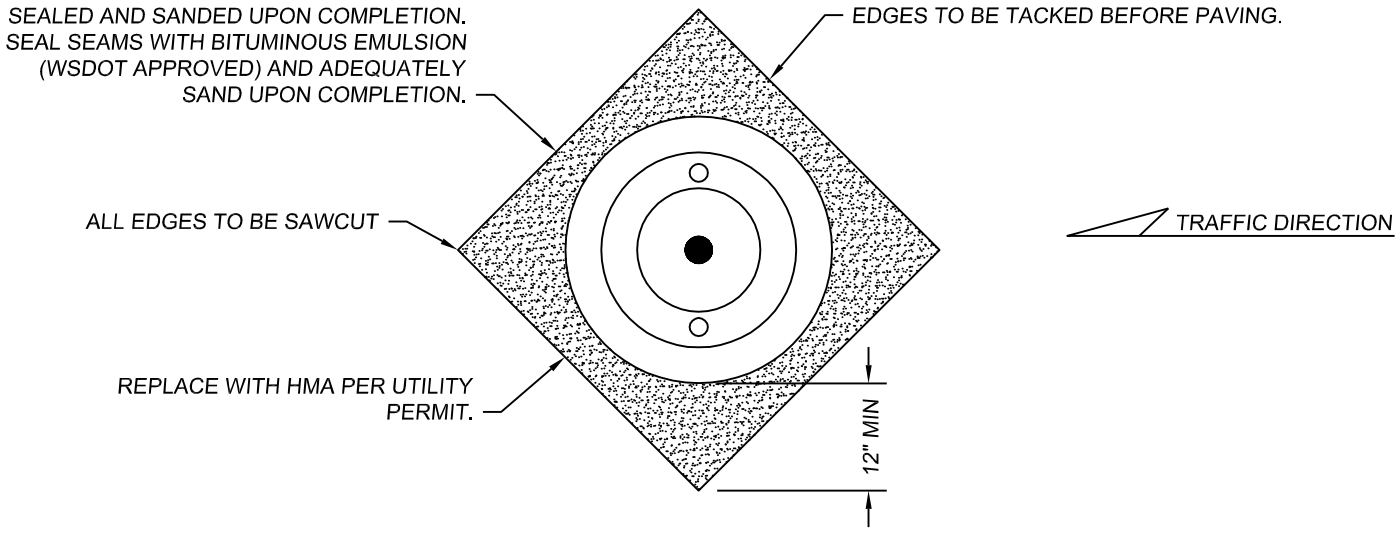
10

APPROVED: APR 2010



NOTE:

1. STEPS NOT ALLOWED IN GRADE RINGS. IF GRADE RINGS RAISE DISTANCE BETWEEN 1ST STEP & TOP OF LID TO MORE THAN 21", A NEW PRECAST MANHOLE SECTION MUST BE INSTALLED BELOW THE CONE.
2. PAVEMENT TO BE SAWCUT IN A DIAMOND SHAPE TO RAISE MANHOLE CASTING TO NEW FINISHED GRADE.
3. METAL GRADE RINGS ARE NOT ALLOWED.
4. GRADE RINGS TO BE EXTERNALLY SEALED.
5. SLOPES TO MATCH EXISTING PAVMENT
6. GRADE ADJUSTMENT SHALL BE PER STANDARD SPRCIFICATION 7-05.3(1) AND RIGHT-OF-WAY / UTILITY PERMIT.



PLAN VIEW

PATTERN FOR PAVEMENT CUTTING TO RAISE MANHOLE CASTING.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

MANHOLE GRADE ADJUSTMENT

STANDARD DRAWING

11

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PLAN VIEW SECTION A-A

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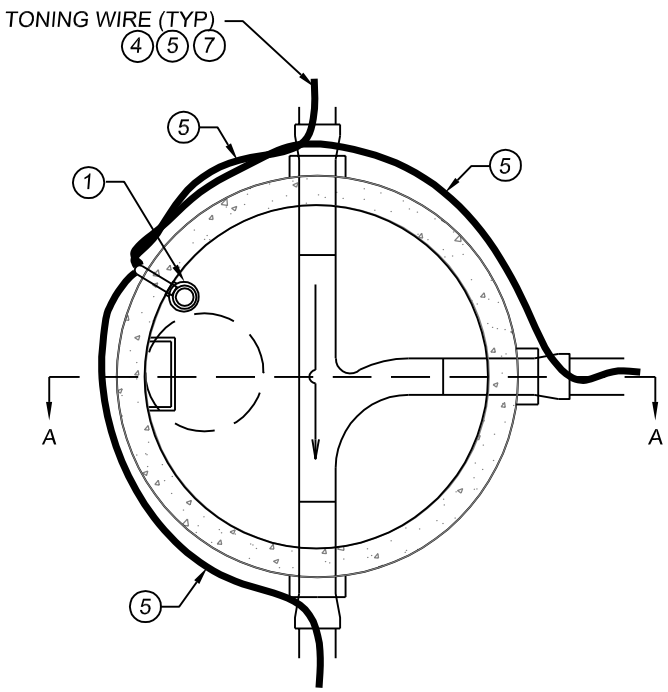
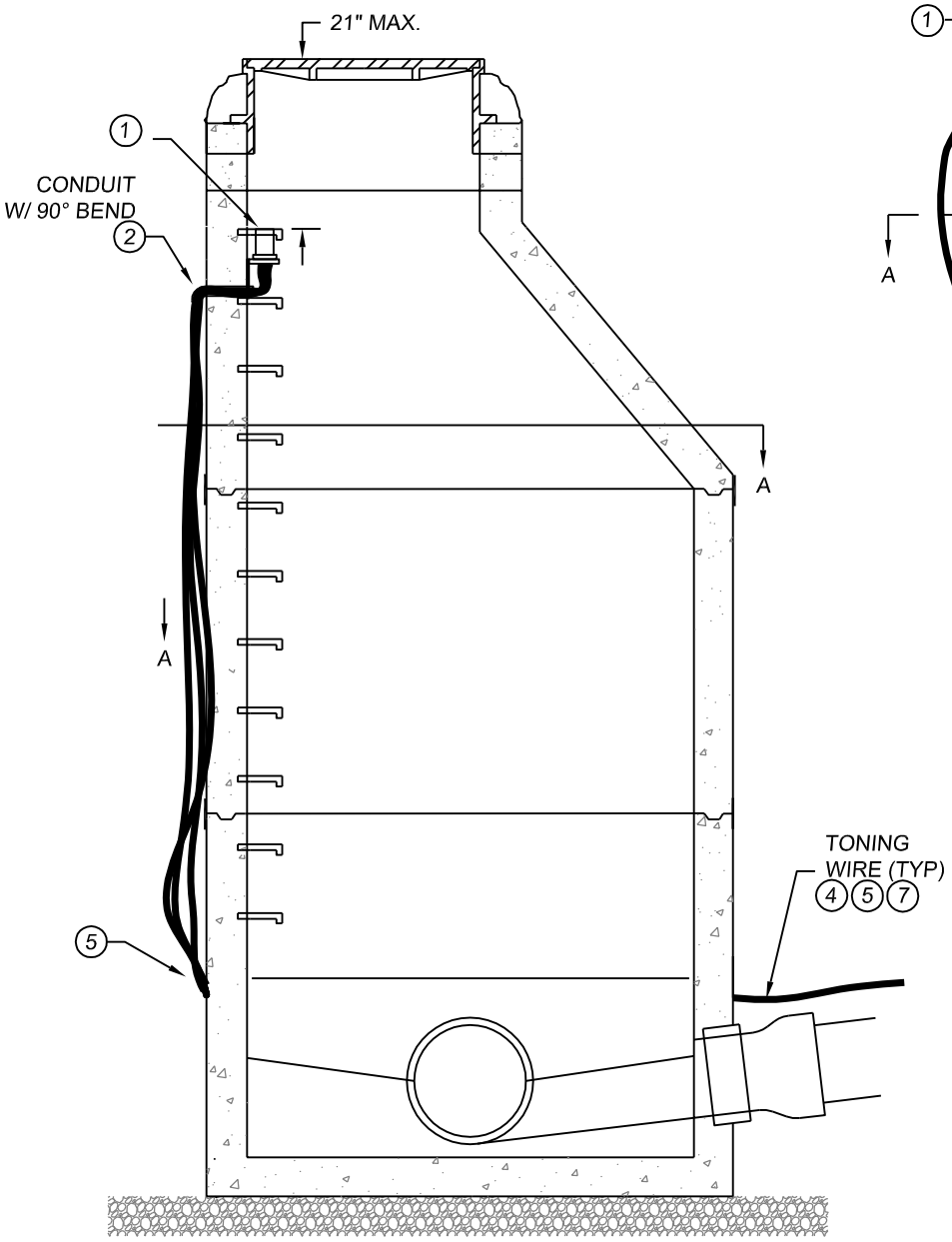


SECTION VIEW

NTS



NOTE:

1. FLANGEFINK (FIVE LEAD) LOCATOR STATION MANUFACTURED BY COTT MANUFACTURING OR APPROVED EQUAL.
2. TESTING STATION TO BE INSTALLED FLUSH WITH THE FIRST STEP OF MANHOLE WITH STAINLESS STEEL BRACKET, BOLTS AND ANCHORS ADJACENT TO THE SIDE OF STEP AT TOP OF MANHOLE PER MANUFACTURERS RECOMMENDATIONS
3. CONDUIT TO BE LINK SEALED AND WIRES TO BE SEALED IN CONDUIT
4. SEE STANDARD SPECIFICATIONS SECTION 9-30.7 FOR TONING WIRE & SPLICE
5. TONING WIRE FROM EACH PIPE SHALL BE ROUTED AROUND MANHOLE THEN VERTICALLY TOGETHER INTO CONDUIT
6. WIRE TO BE INSTALLED ONLY WHEN REQUIRED BY THE DISTRICT.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

TONING WIRE IN MANHOLE

STANDARD DRAWING

12

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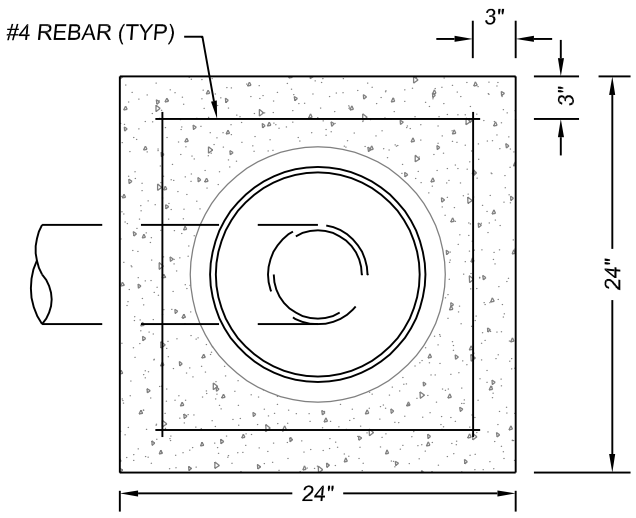

PLAN
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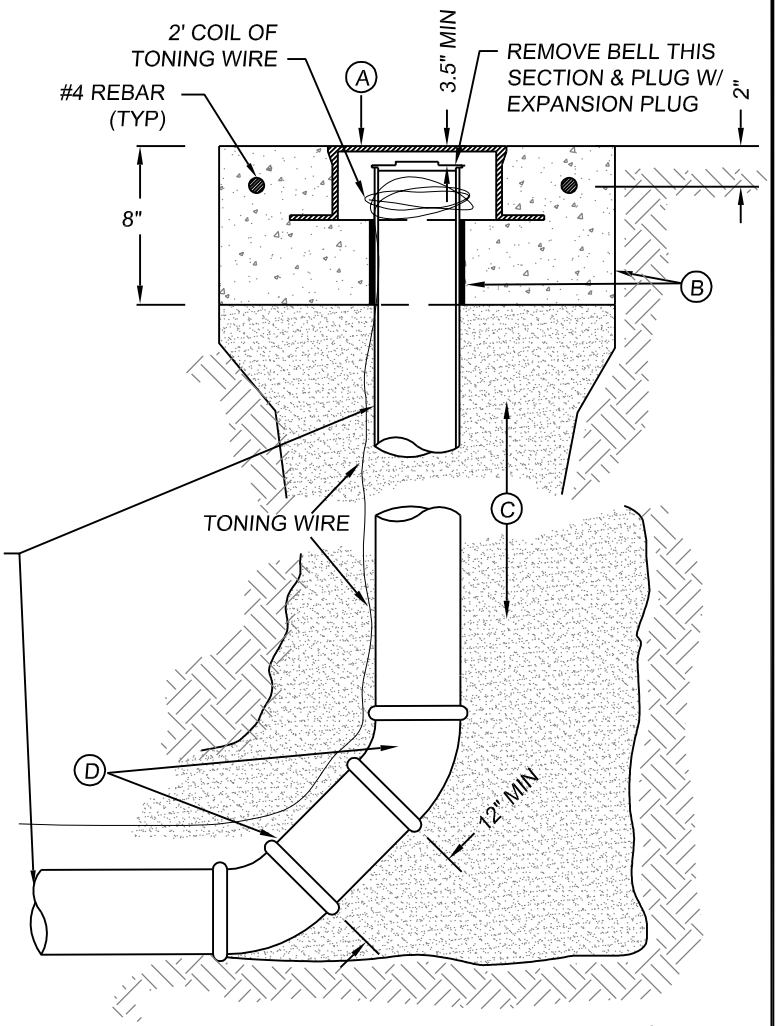
STAND PIPE DIAMETER SHALL BE THE SAME AS MAINLINE DIAMETER

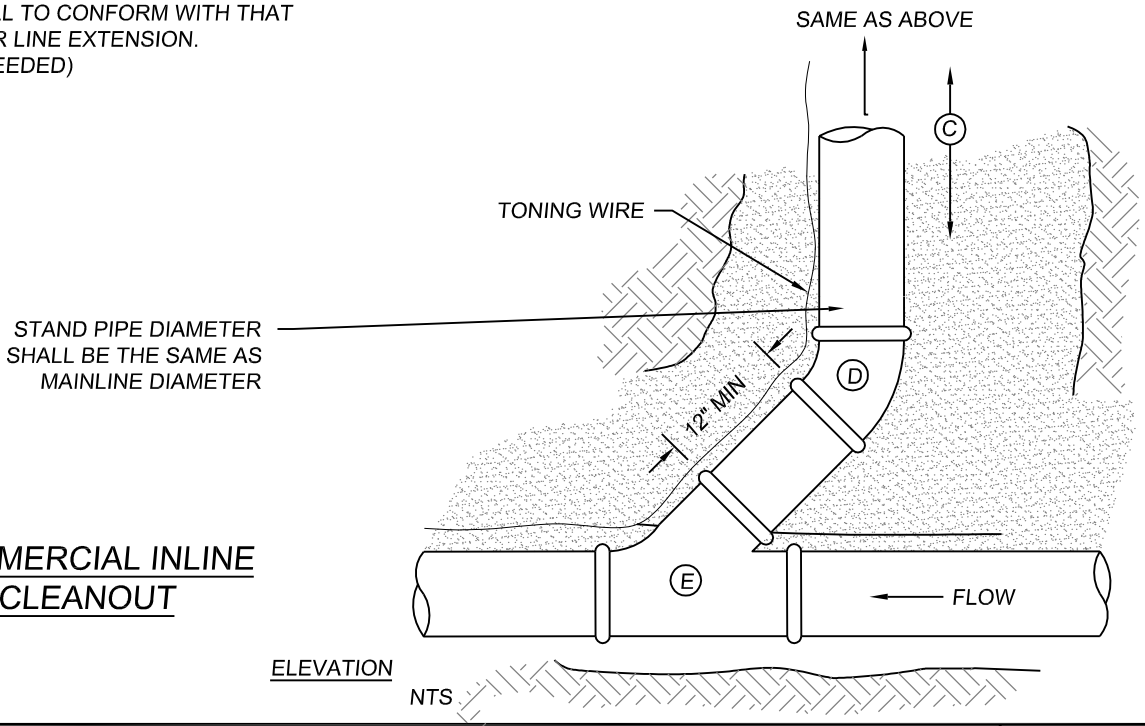


MAINLINE CLEANOUT

ELEVATION
NTS

NOTE:

A. STANDARD ADJUSTABLE CLEANOUT CAST IRON FRAME AND COVER MANUFACTURED BY VAN RICH CASTING CORP. OR VARICAST, PORTLAND OR APPROVED EQUAL. MUST CONFORM TO THE REQUIREMENTS OF AASHTO M105 GRADE 30B.
   1. PIPES GREATER THAN 10" DIA REQUIRE STANDARD MANHOLE FRAME AND COVER.
   2. COMMERCIAL CLEANOUTS TO HAVE "SEWER" EMBOSSED IN LID.
   3. CONFORM TO THE REQUIREMENTS OF AASHTO M 105, GRADE 30B.
B. CONCRETE CL 3000 COLLAR (TO BE INSTALLED WHEN LOCATED OUTSIDE OF PAVED AREAS) W/ 50# FELT BETWEEN PIPE & CONCRETE.
C. BEDDING AND BACKFILL TO CONFORM WITH THAT SPECIFIED FOR SEWER LINE EXTENSION.
D. 2-45° BENDS (OR AS NEEDED)
E. WYE



COMMERCIAL INLINE CLEANOUT

ELEVATION
NTS

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

CLEANOUTS

STANDARD DRAWING

13

APPROVED: APR 2010

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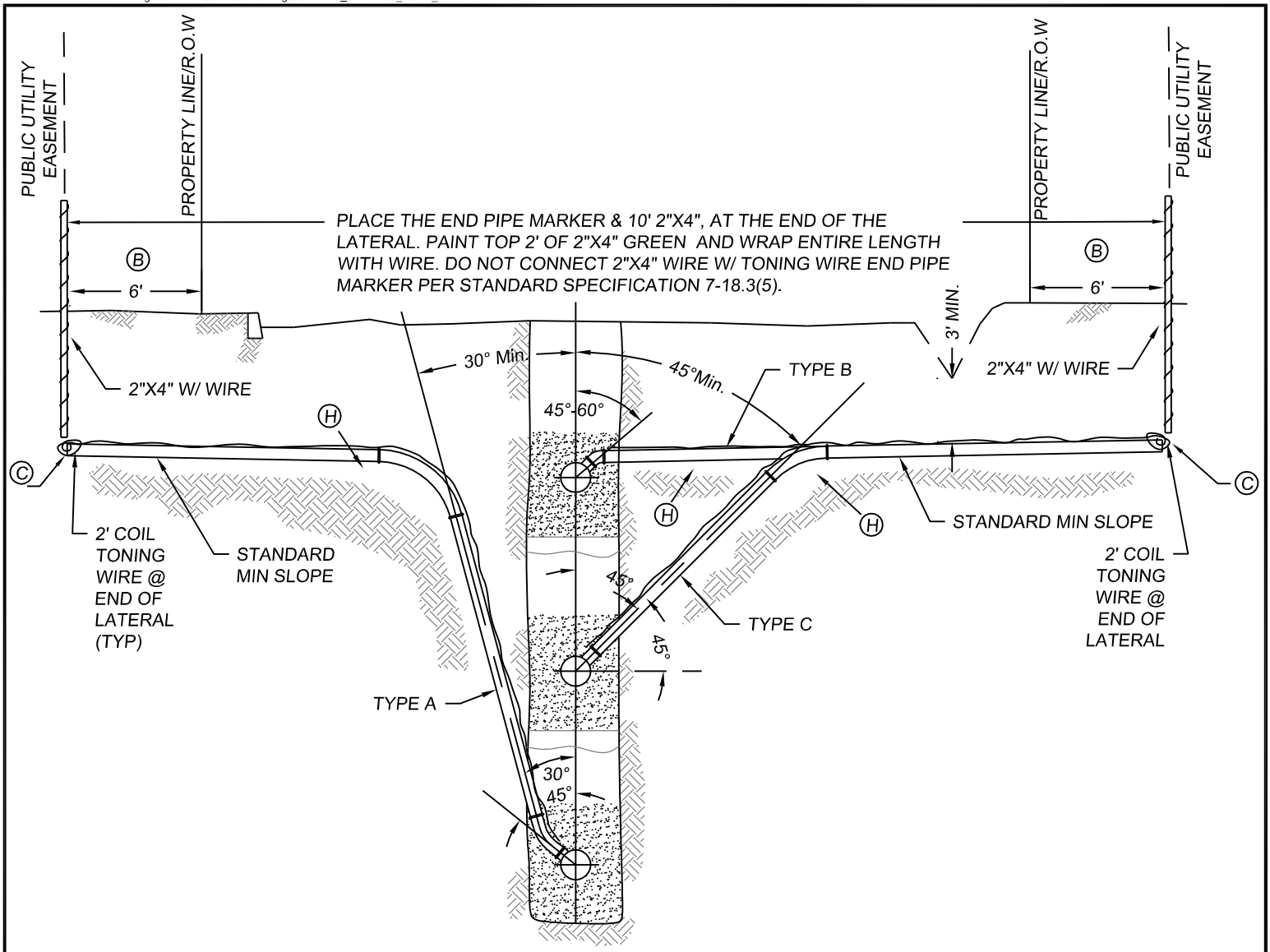
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NOTE:

A. ALL RESIDENTIAL SERVICE LINES SHALL BE 4" MIN DIA.
B. ALL SERVICE LINES SHALL TERMINATE AT THE PROPERTY LINE, WITH THE EXCEPTION OF NEW SUBDIVISIONS, WHICH SHALL TERMINATE 6' BEYOND THE PROPERTY LINE OR AS SHOWN ON PLANS.
C. DEPTHS OF SERVICE LINES AT THE PROPERTY LINE SHALL BE DETERMINED AS FOLLOWS:
    1. SET TO THE ELEVATION AS NOTED ON PLANS.
    2. WHEN THE GROUND SURFACE AT THE PROPERTY LINE IS HIGHER THAN THE EDGE OF PAVEMENT, THE SERVICE ELEVATION SHALL BE A MIN. OF 6' LOWER THAN THE EDGE OF PAVEMENT ELEVATION.
    3. WHEN THE GROUND SURFACE ELEVATION AT THE PROPERTY LINE IS LOWER THAN THE EDGE OF PAVEMENT THE SERVICE LINE SHALL HAVE MINIMUM 6' OF COVER AT THE PROPERTY LINE. LATERALS WITH COVER OF LESS THAN 5' MUST BE PRE-APPROVED.
D. CONTRACTOR SHALL USE THE MOST APPROPRIATE TYPE OF CONNECTION (A,B OR C) AS DIRECTED BY THE ENGINEER.
E. ALL SERVICE CONNECTIONS SHALL BE STANDARD WYE BRANCH FITTINGS OR DISTRICT INSTALLED TAP.
F. INSPECTION REQUIRED PRIOR TO BACKFILLING OF ALL SIDE SEWERS.
G. USE MULTI-PURPOSE GLUE WHEN TRANSITIONING FROM PVC TO ABS.
H. BEDDING AND BACKFILL SHALL MATCH THAT OF THE MAIN LINE.

NTS

CLARK REGIONAL WASTEWATER DISTRICT

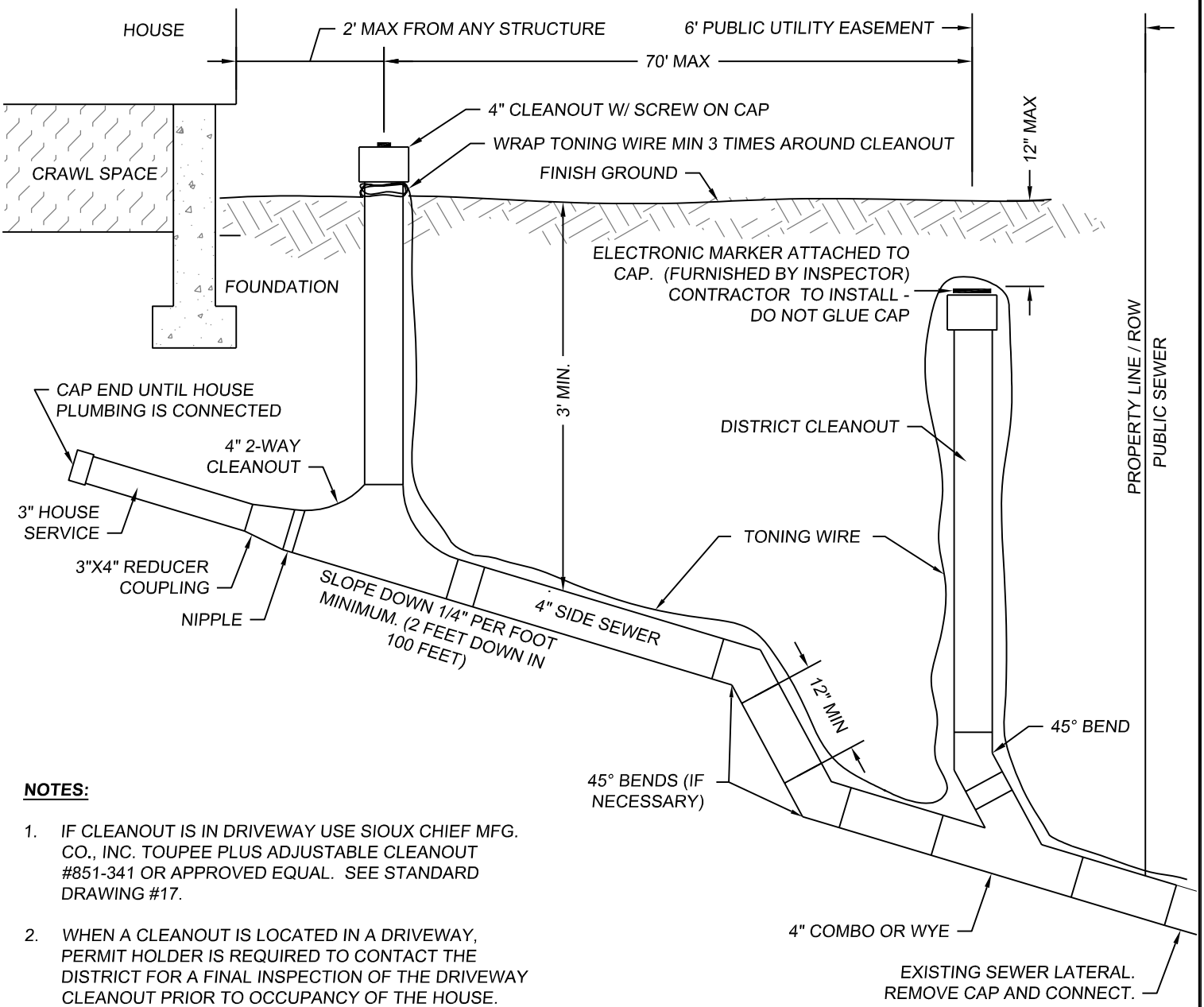
GRAVITY

RESIDENTIAL SERVICE CONNECTION

STANDARD DRAWING

14

APPROVED: APR 2010



NOTES:

1. IF CLEANOUT IS IN DRIVEWAY USE SIOUX CHIEF MFG. CO., INC. TOUPEE PLUS ADJUSTABLE CLEANOUT #851-341 OR APPROVED EQUAL. SEE STANDARD DRAWING #17.
2. WHEN A CLEANOUT IS LOCATED IN A DRIVEWAY, PERMIT HOLDER IS REQUIRED TO CONTACT THE DISTRICT FOR A FINAL INSPECTION OF THE DRIVEWAY CLEANOUT PRIOR TO OCCUPANCY OF THE HOUSE. (SEE STANDARD DRAWING #17)
3. CLEANOUT REQUIRED FOR EVERY 135° CHANGE IN DIRECTION AND / OR EVERY 70 FEET. NO 90° BENDS ALLOWED.
4. PIPE MATERIAL SHALL MATCH EXISTING LATERAL.
5. PROVIDE 24" HORIZONTAL AND 18" VERTICAL SEPARATION FROM WATER, GAS, POWER, PHONE, OR CABLE SERVICE LINES.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

RESIDENTIAL SIDE SEWER

STANDARD DRAWING

15

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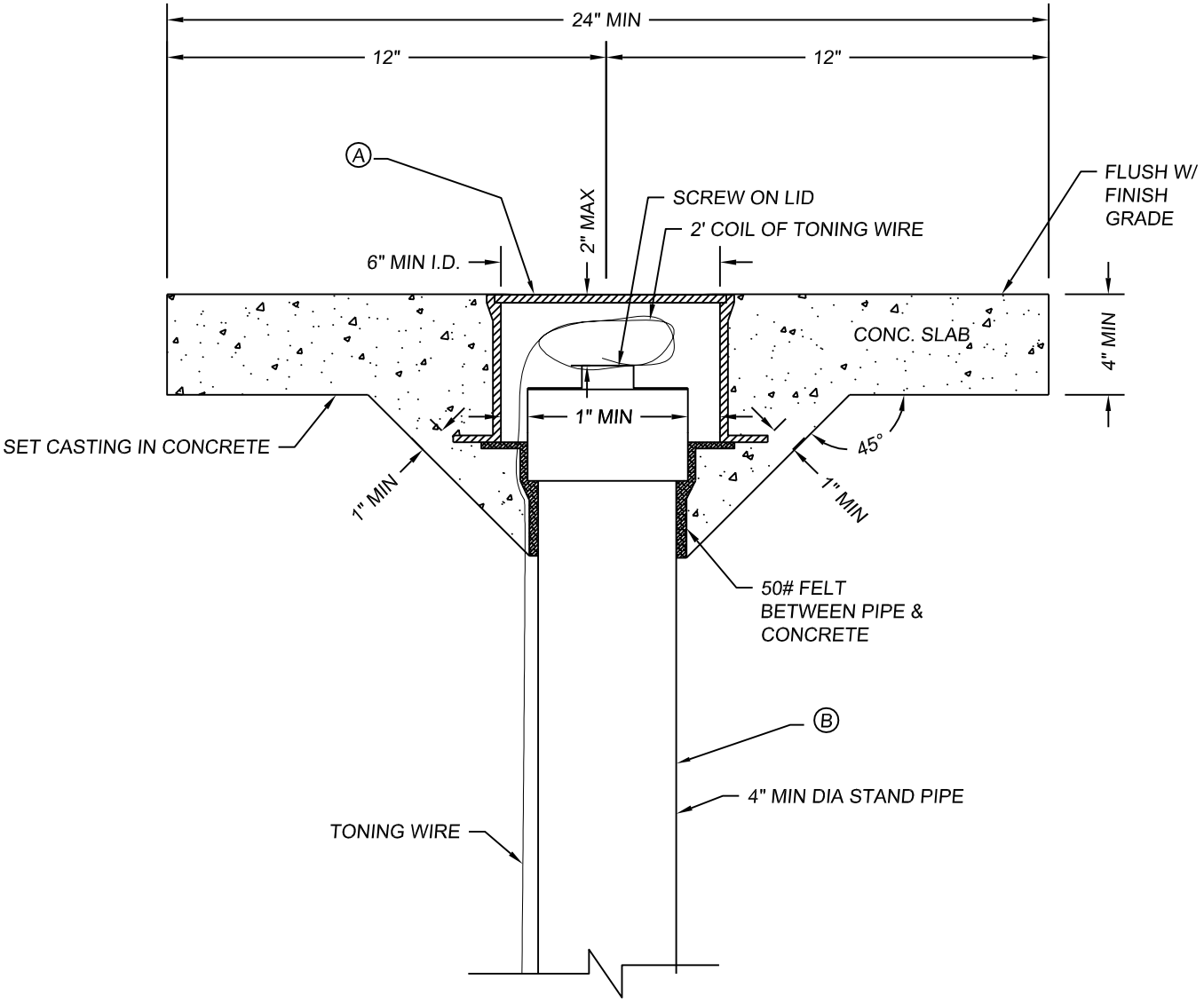

Ⓐ STANDARD CAST IRON FRAME SIOUX CHIEF MFG. CO., INC. ADJUSTABLE CLEANOUT #851-341 CONFORM TO THE REQUIREMENTS OF AASHTO M 105, GRADE 30B. CLEANOUT MUST HAVE "SEWER" EMBOSSED IN LID.

Ⓑ CLEANOUT PER STANDARD DRAWING #16

Ⓒ CONCRETE SHALL BE CLASS 3000 PSI.

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

RESIDENTIAL CLEANOUT IN DRIVEWAY

STANDARD DRAWING

16

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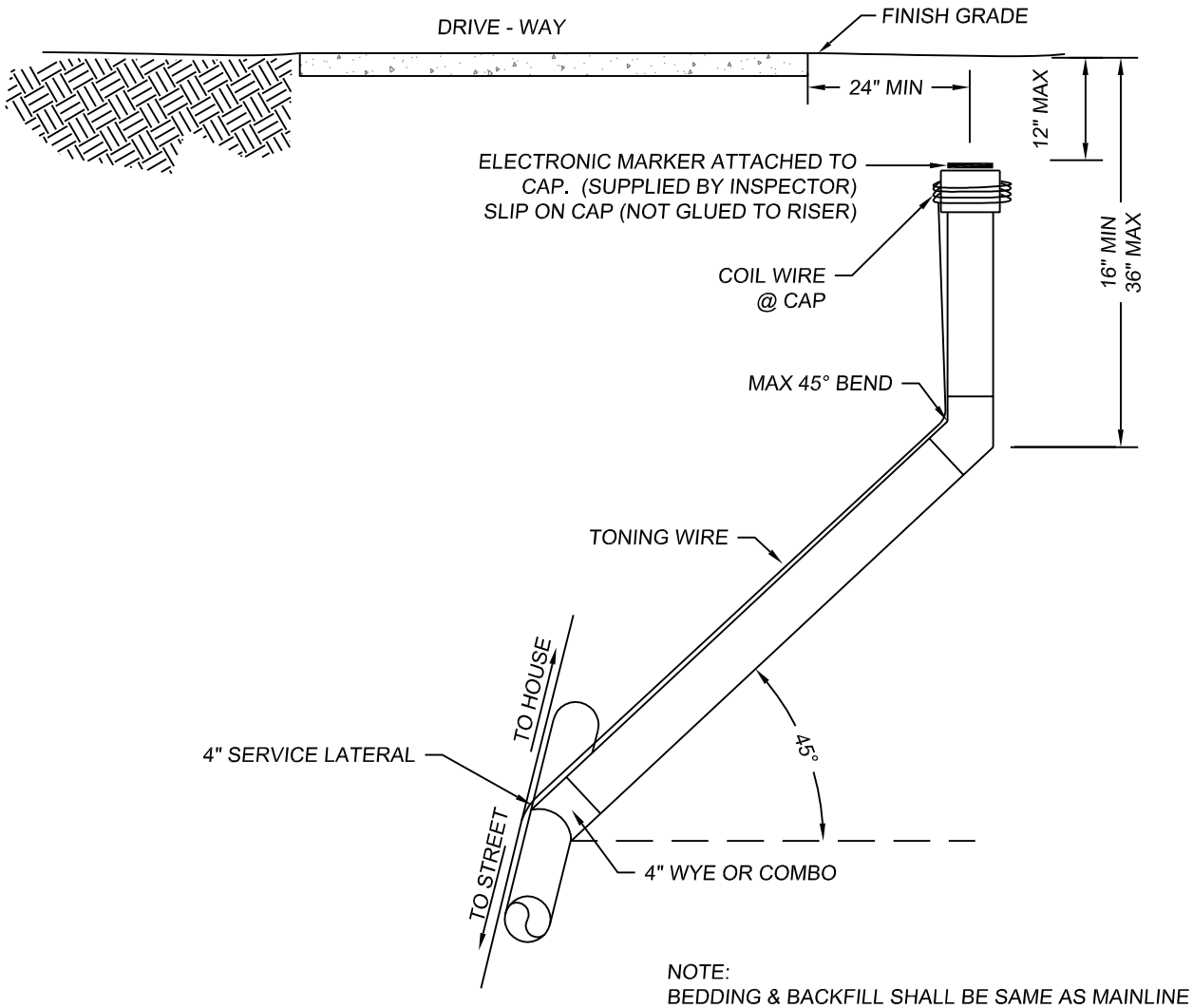

NOTE:
BEDDING & BACKFILL SHALL BE SAME AS MAINLINE

NTS

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

ALTERNATE RESIDENTIAL CLEANOUT IN DRIVEWAY

STANDARD DRAWING

17

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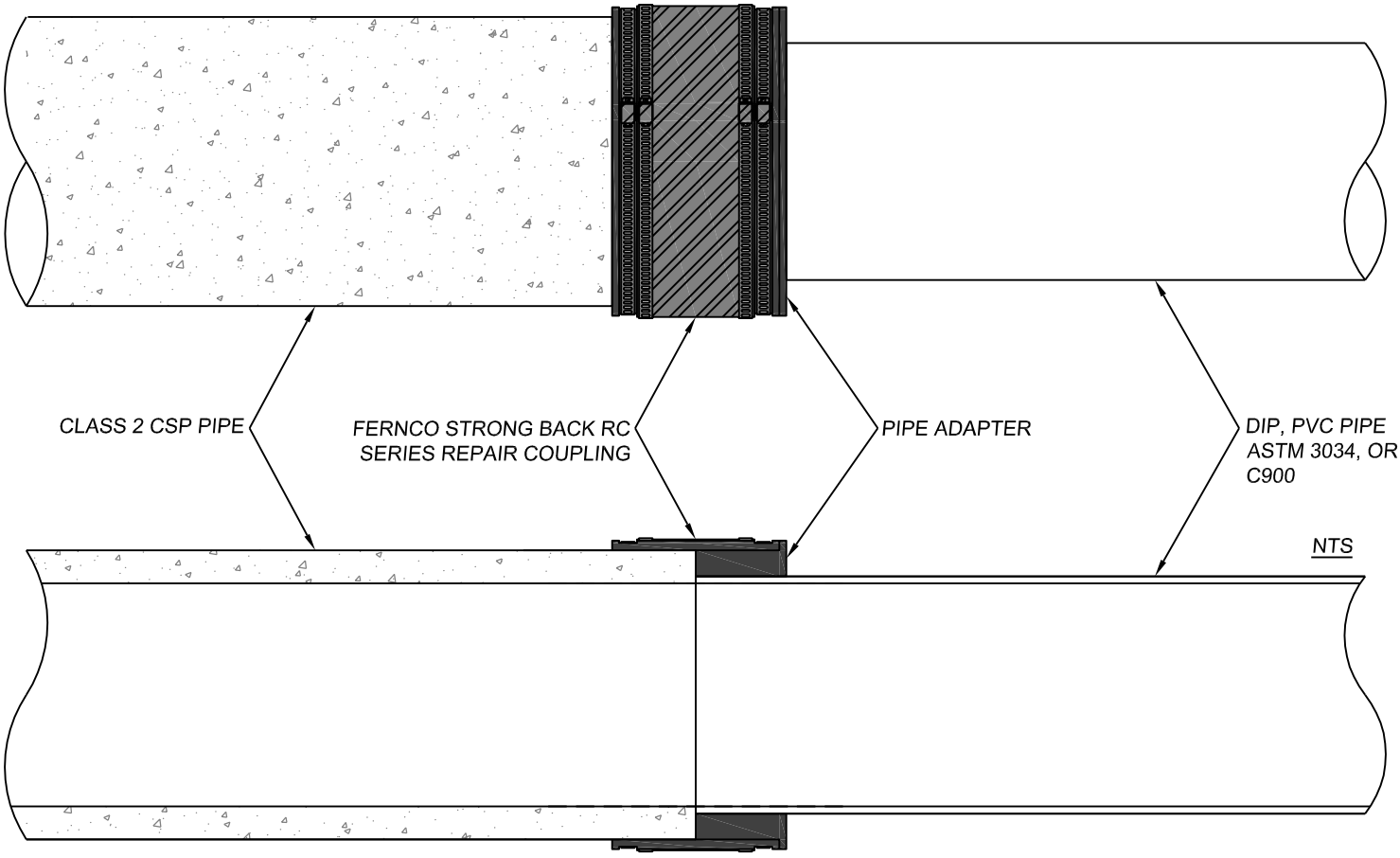

USE FERNCO STRONG BACK - RC SERIES REPAIR COUPLINGS		
	FROM	TO
	4" CLASS 2 CONCRETE	4" DUCTILE IRON, OR C900
	6" CLASS 2 CONCRETE	6" DUCTILE IRON, ASTM 3034 OR C900
	8" CLASS 2 CONCRETE	8" DUCTILE IRON, ASTM 3034 OR C900
	12" CLASS 2 CONCRETE	12" DUCTILE IRON, ASTM 3034 OR C900

NOTE: FERNCO REPAIR / CONNECTION APPROVED FOR CLASS 2 CONCRETE PIPE ONLY

NTS

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

CONCRETE TO PVC OR DIP PIPE TRANSITION

STANDARD DRAWING

18

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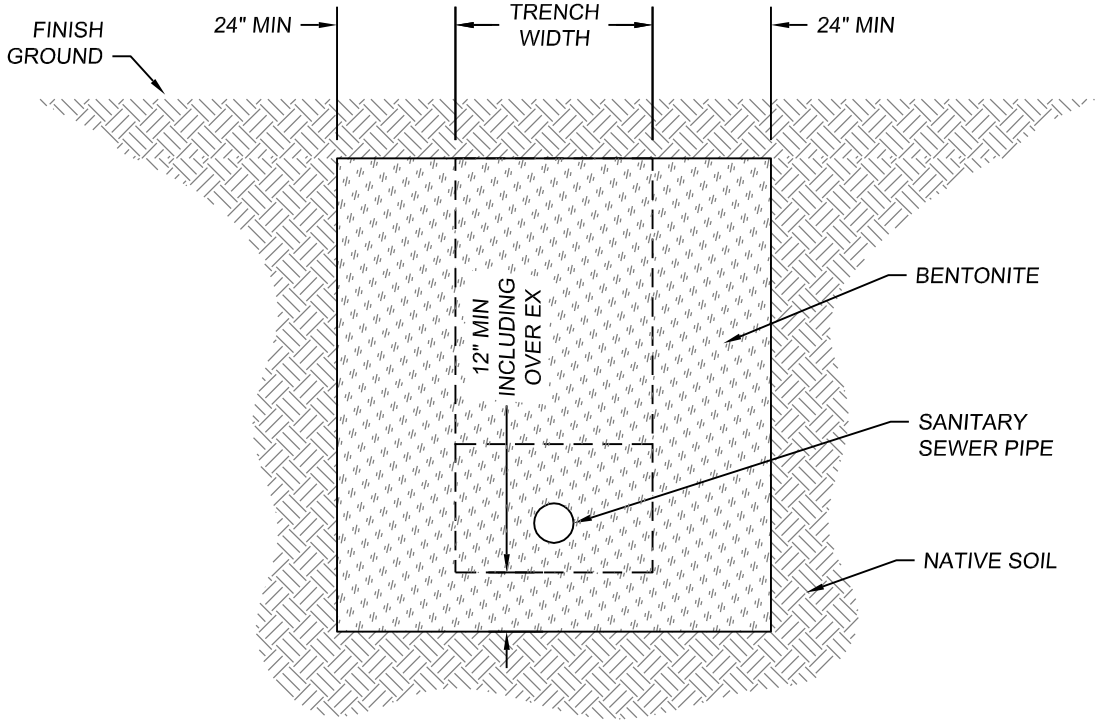
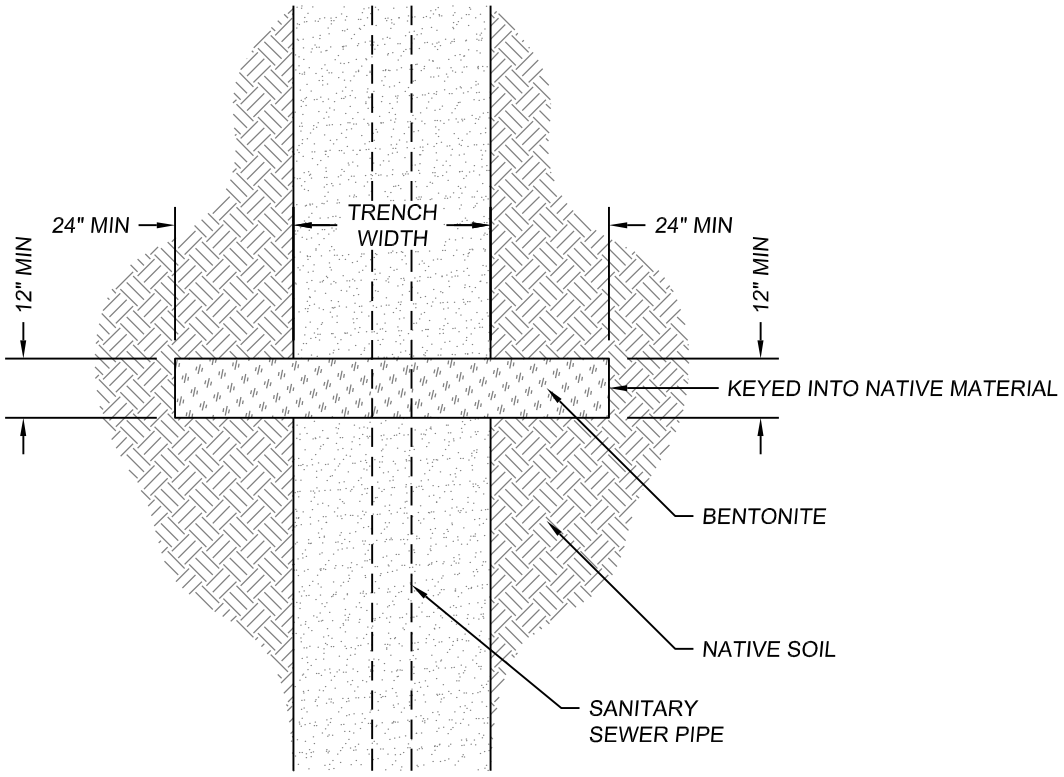


SECTION VIEW
NTS



INSTALLED IN ACCORDANCE WITH STANDARD SPECIFICATION SEC. 7-08.3(3)

PLAN VIEW
NTS

CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

CLAY DAMS

STANDARD DRAWING

19

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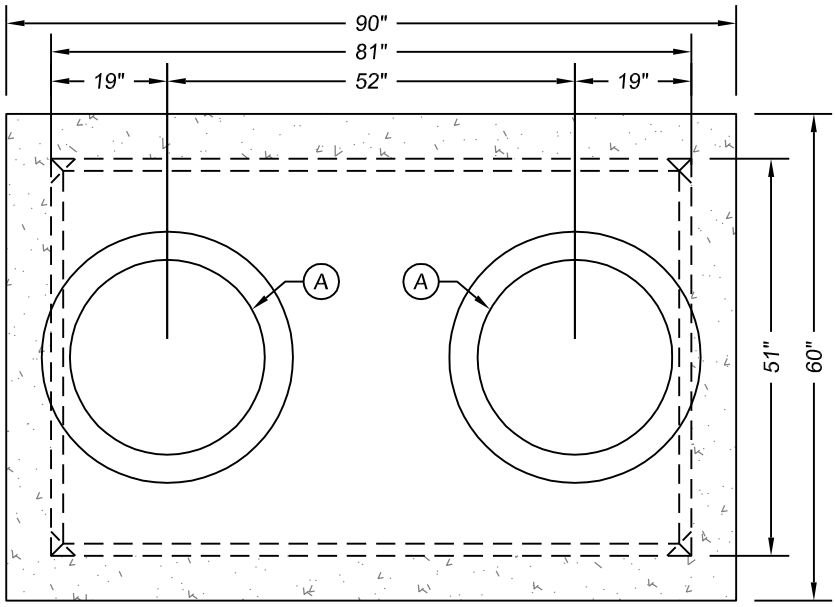
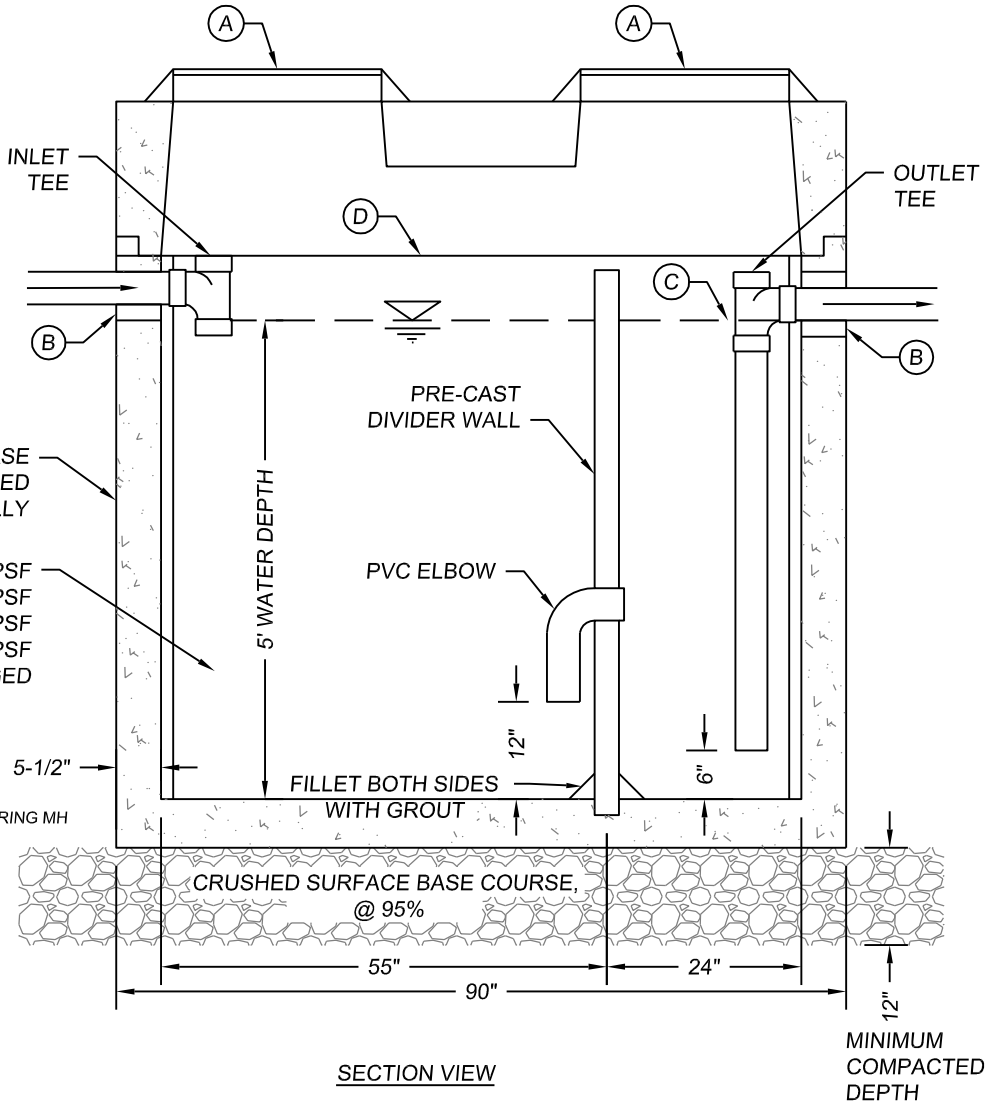
- FILL W/ CLEAN WATER PRIOR TO START-UP OF SYSTEM.
- CONTRACTOR TO SUPPLY & INSTALL ALL PIPING & SAMPLING TEES.
- GRAY WATER ONLY. BLACK WATER SHALL BE CARRIED BY SEPARATE SIDE SEWER (SEE DETAIL).
- ALL PIPING SIZES TO BE SHOWN ON PLANS, INCLUDING PIPE THROUGH CENTER SECTION.
- PIPING THROUGH TANK SHALL BE THE SAME SIZE AS LARGEST LINE SERVING IT IN OR OUT.
- SUBMITTALS WILL BE REQUIRED FOR ALL INSTALLATIONS.
- TANKS WILL BE TESTED FOR INFILTRATION / EXFILTRATION PER SPEC 7-10.3(2).

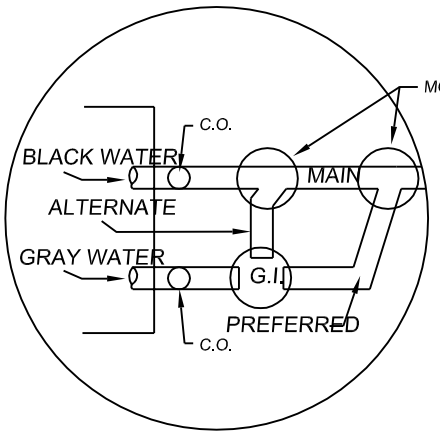


NOTE:

A. DESIGNED TO WITHSTAND LOADS: H-20 TRUCK W/ 30% IMPACT PER AASHTO.
B. ALL PENETRATIONS ARE TO BE CAST IN PLACE WITH APPROVED WATER STOPS OR CORED AND BOOTED WITH KOR 'N SEAL OR APPROVED EQUAL PER SPEC 7-05.3.
C. OUTLET TO BE 1" MIN. LOWER THAN INLET.
D. IF MULTI SECTION TANKS ARE USED, EXTERNAL SEAL ALL JOINTS WILL BE REQUIRED PER STANDARD SPECIFICATION SECTION 7-05.3 AND 9-04.12. RISERS SHALL BE SEALED WITH THE SAME MATERIALS.



SECTION VIEW



CLARK REGIONAL WASTEWATER DISTRICT

GRAVITY

GREASE INTERCEPTOR

STANDARD DRAWING

20

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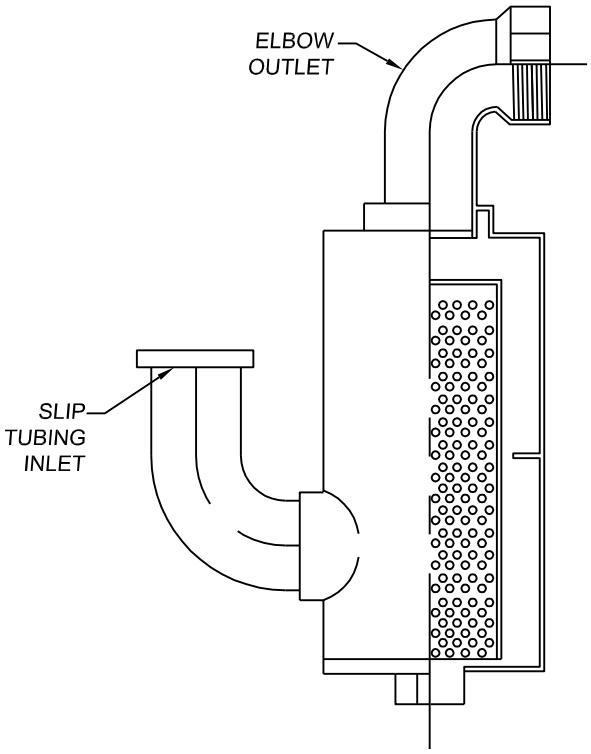
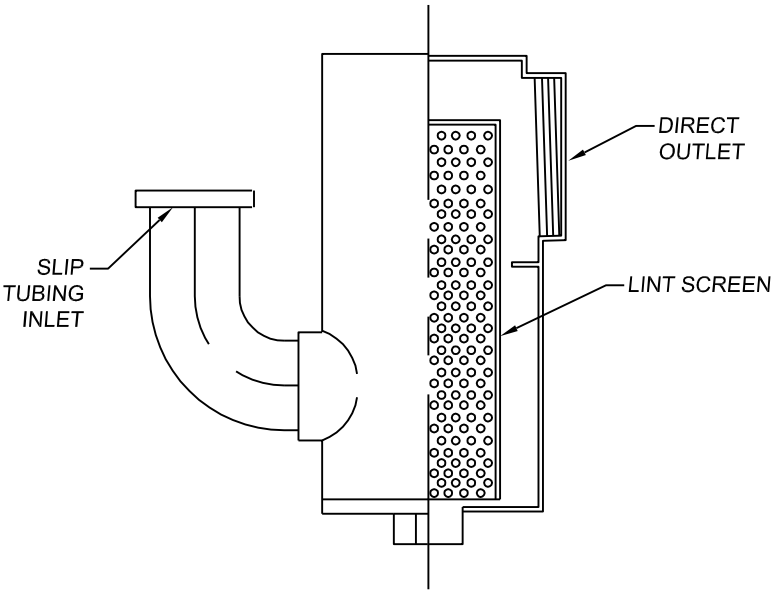
JR SMITH MODELS 8750T / 8760T

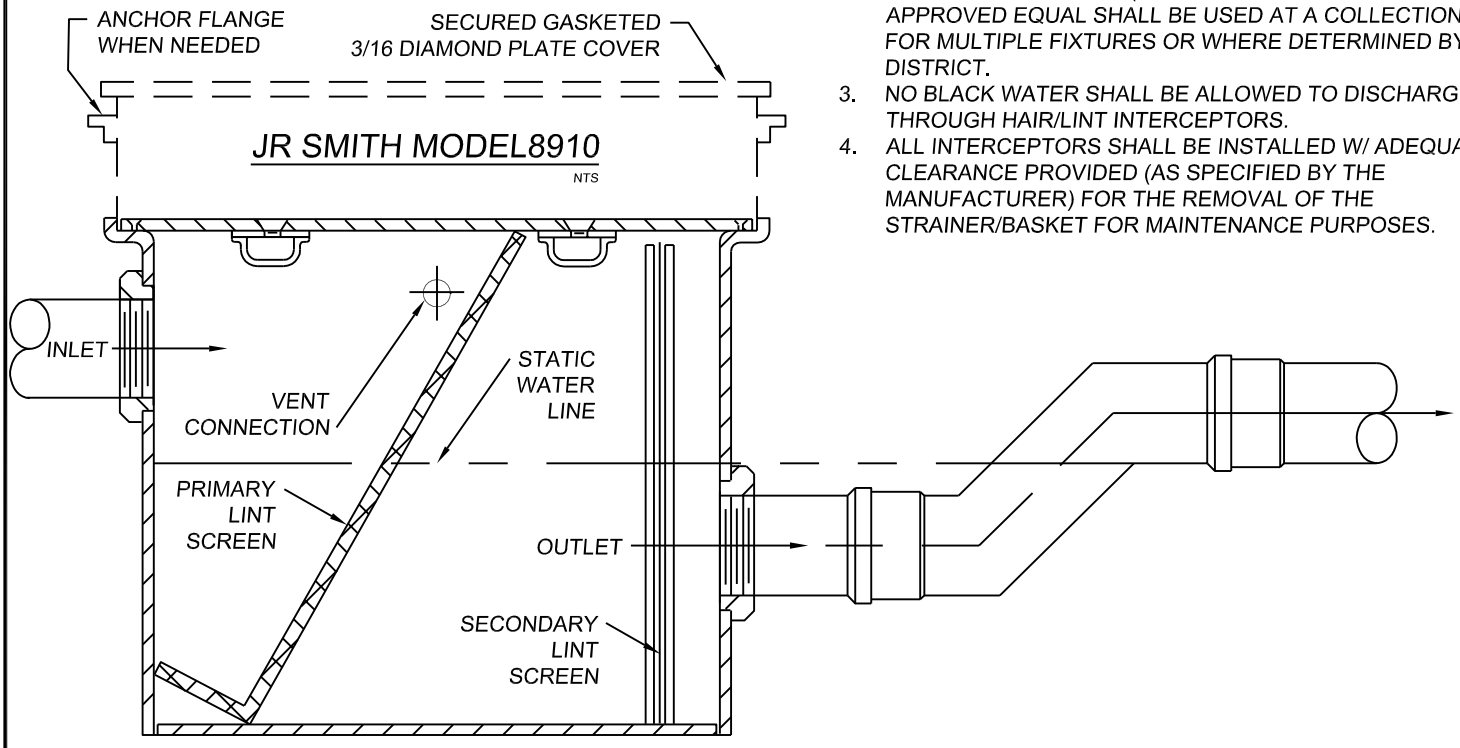
NTS





NOTE:

1. JR SMITH MODELS 8750T / 8760T OR AN APPROVED EQUAL SHALL BE USED UNDER SINKS AND WASH TUBS/BASINS IN BEAUTY PARLORS, BARBER SHOPS, VET CLINICS, GROOMERS, KENNELS, AND LAUNDROMATS OR WHERE DETERMINED BY THE DISTRICT.
2. JR SMITH MODEL 8910 (OF AN ADEQUATE GPM RATING) OR APPROVED EQUAL SHALL BE USED AT A COLLECTION POINT FOR MULTIPLE FIXTURES OR WHERE DETERMINED BY THE DISTRICT.
3. NO BLACK WATER SHALL BE ALLOWED TO DISCHARGE THROUGH HAIR/LINT INTERCEPTORS.
4. ALL INTERCEPTORS SHALL BE INSTALLED W/ ADEQUATE CLEARANCE PROVIDED (AS SPECIFIED BY THE MANUFACTURER) FOR THE REMOVAL OF THE STRAINER/BASKET FOR MAINTENANCE PURPOSES.



CLARK REGIONAL WASTEWATER DISTRICT

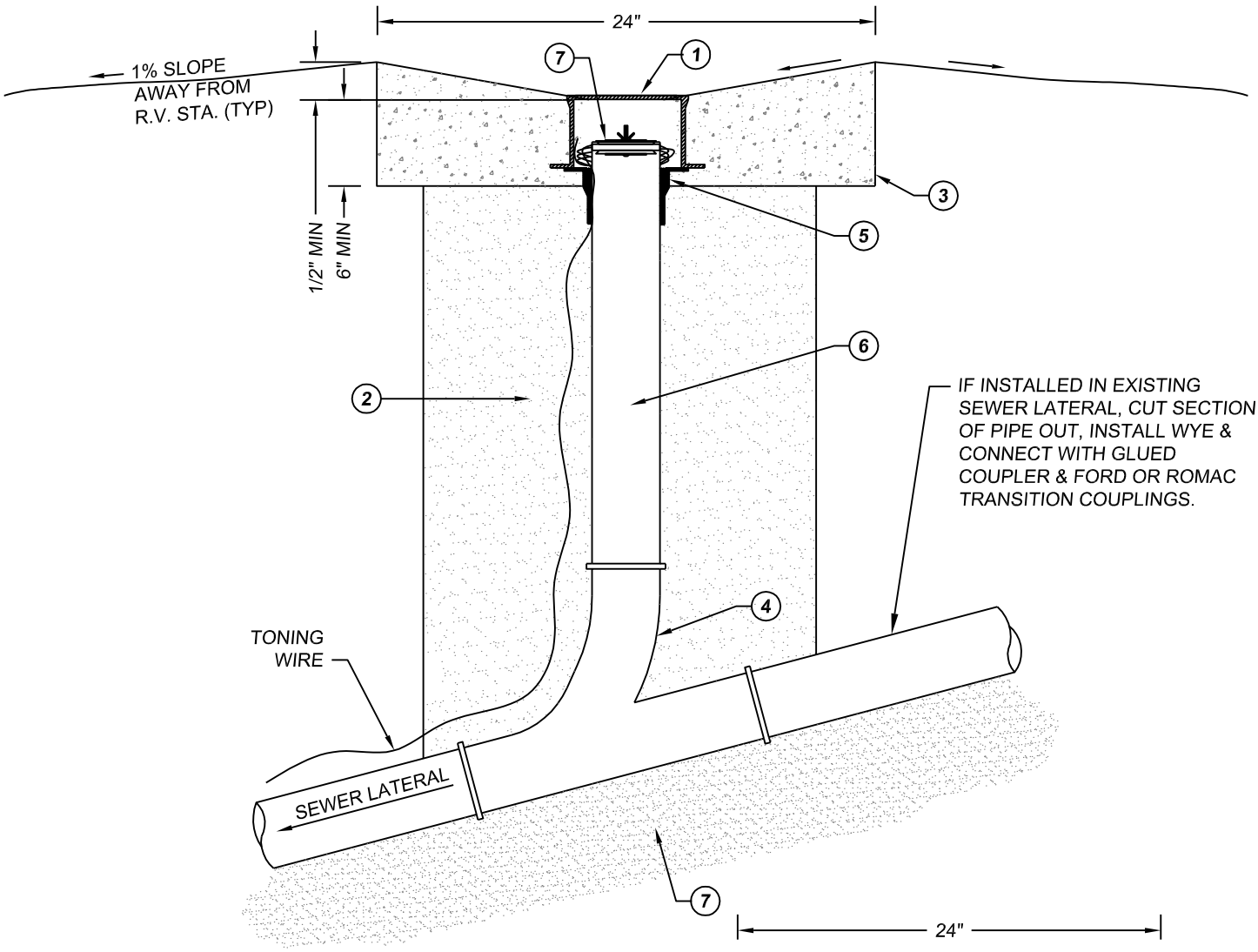
GRAVITY

HAIR / LINT INTERCEPTOR

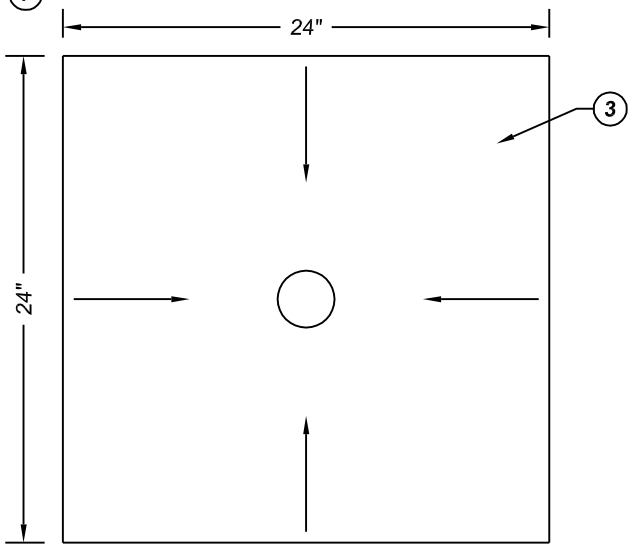
STANDARD DRAWING

21

APPROVED: APR 2010



SECTION VIEW
NTS



PLAN VIEW
NTS

1. SIOUX CHIEF MFG. CO., INC. ADJUSTABLE CLEANOUT #851-34I OR APPROVED EQUAL. MUST HAVE "SEWER" EMBOSSED IN LID.
2. CRUSHED SURFACING BASE COURSE COMPACTED TO 95% MAXIMUM DENSITY.
3. CL 3000 CONCRETE PAD SLOPED TO CENTER.
4. COMBO OR WYE.
5. INSTALL 50# FELT BETWEEN PIPE AND CONCRETE.
6. ALL PIPE MATERIAL SHALL MATCH LATERAL PIPE MATERIAL.
7. COMPRESSION / EXPANSION PLUG

CLARK REGIONAL WASTEWATER DISTRICT

RV

RESIDENTIAL RV DISPOSAL STATION

STANDARD DRAWING

22

APPROVED: APR 2010

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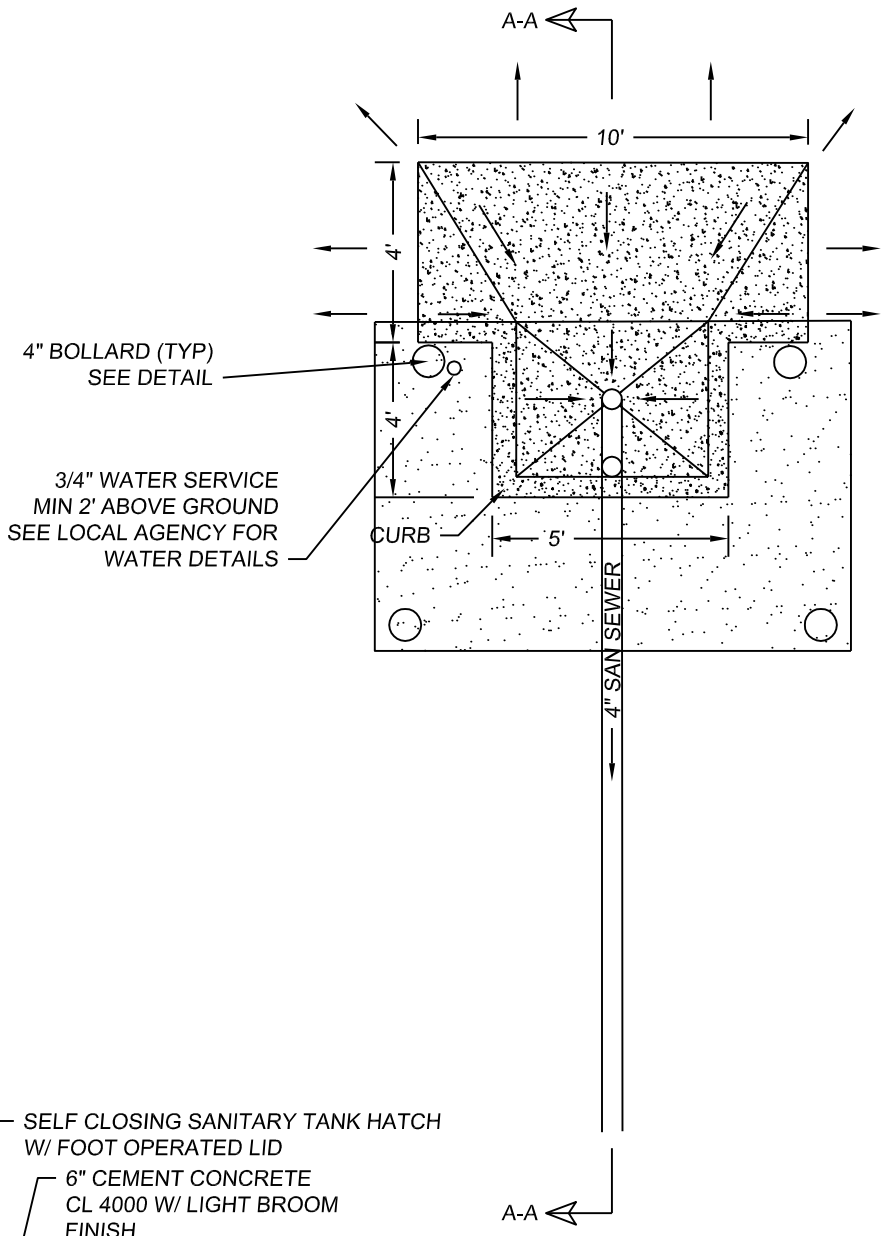
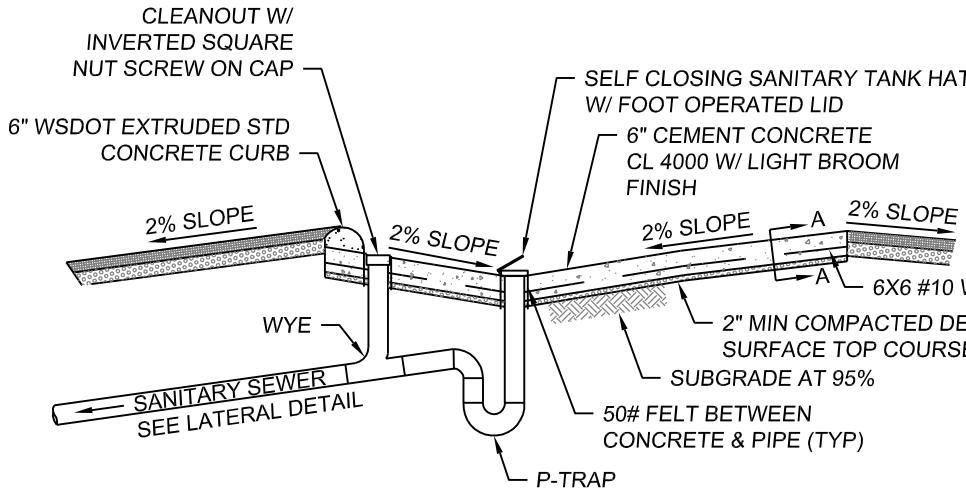
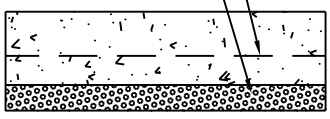
PLAN VIEW
NTS





SECTION A-A
NTS



SECTION A
NTS

CLARK REGIONAL WASTEWATER DISTRICT

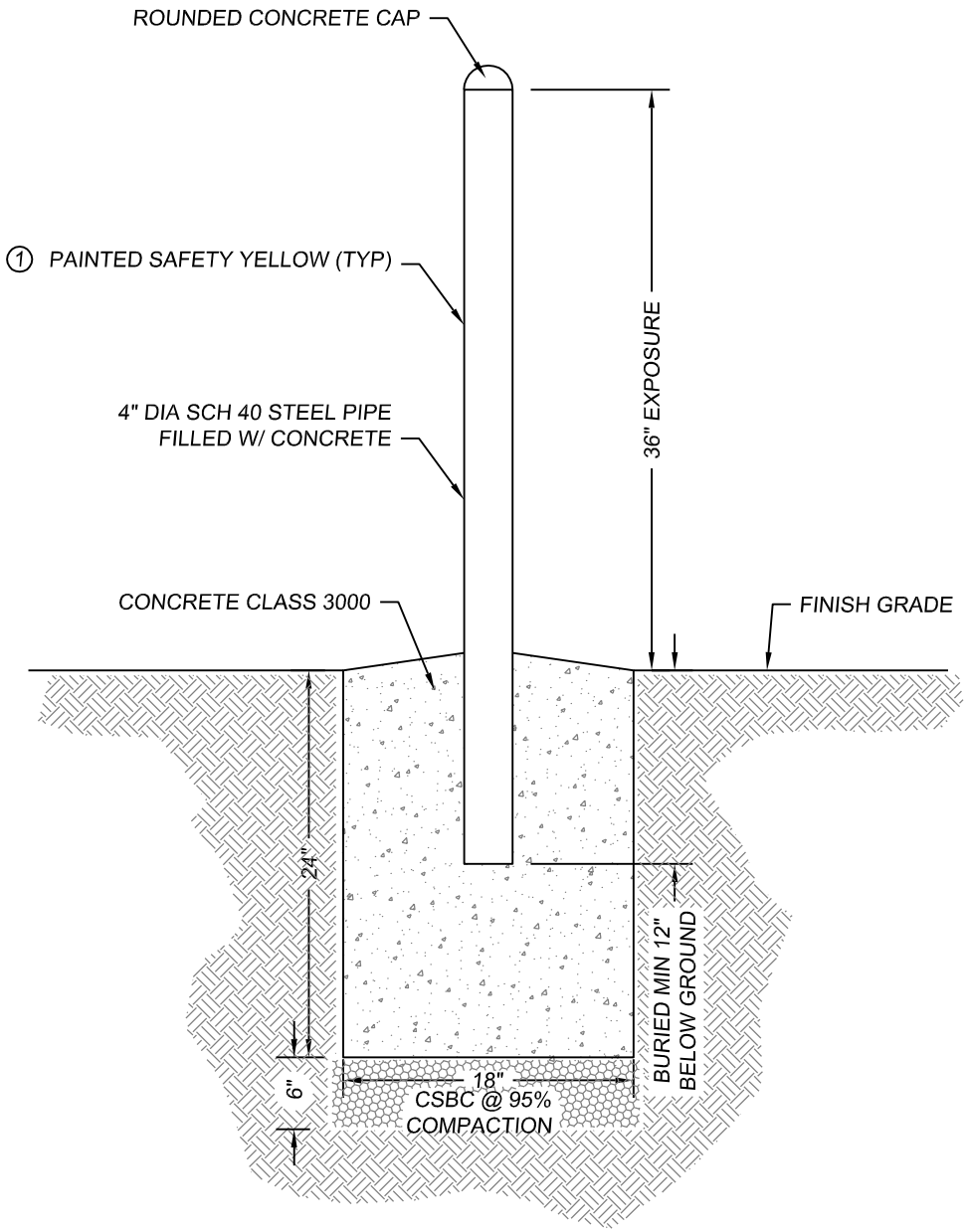
RV

COMMERCIAL RV DISPOSAL STATION

STANDARD DRAWING

23

APPROVED: APR 2010



① NOTE:
BOLLARD SHALL BE CLEANED AND PRIMERED WITH RUST BLOCKING ALKYD METAL PRIMER OR APPROVED EQUAL AND THEN PAINTED WITH A HEAVY DUTY ALKYD YELLOW ENAMEL OR APPROVED EQUAL.
SEE ALSO: REMOVABLE BOLLARD DETAIL #

CLARK REGIONAL WASTEWATER DISTRICT

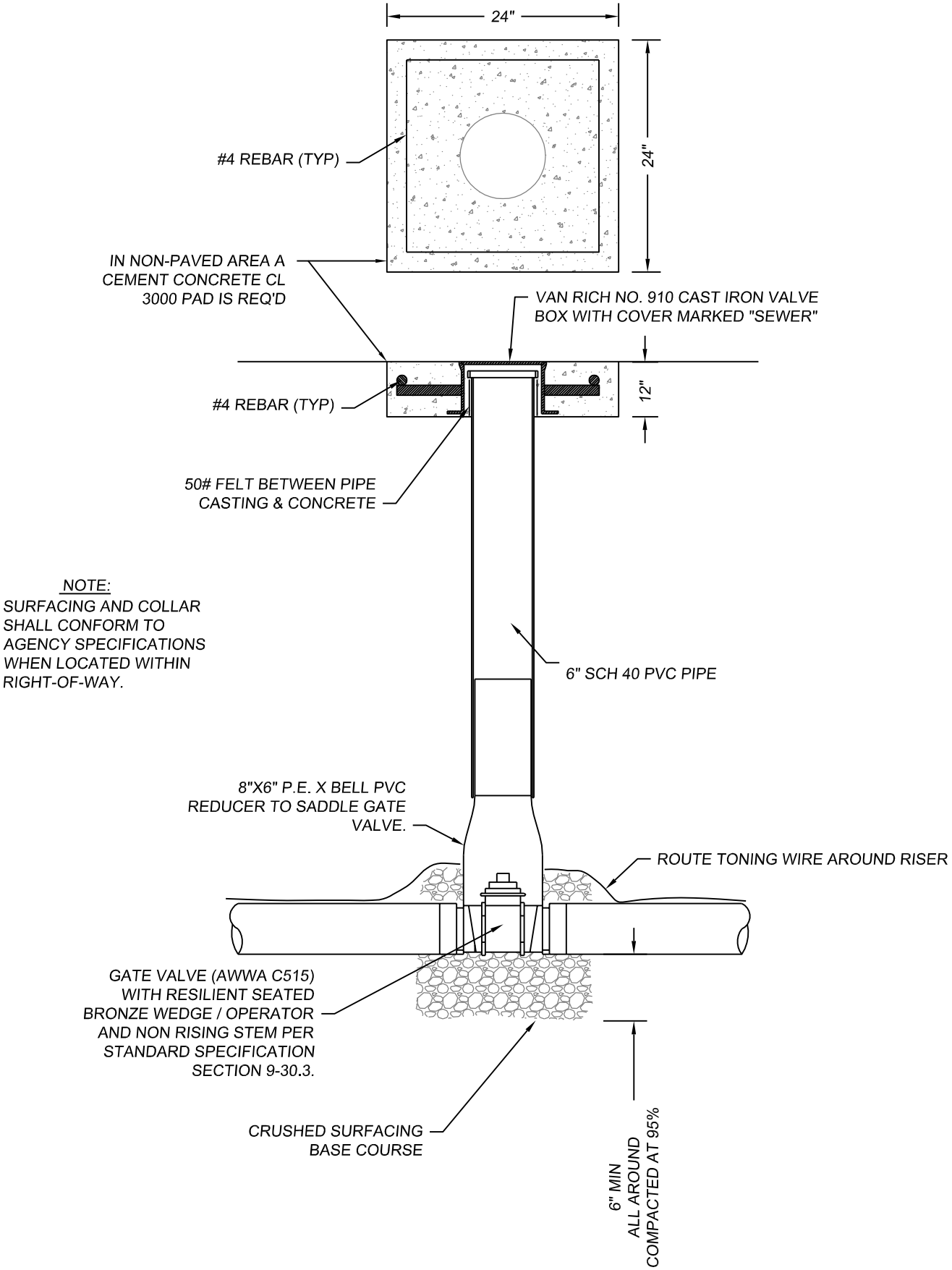
RV

BOLLARD DETAIL

STANDARD DRAWING

24

APPROVED: APR 2010



NTS

CLARK REGIONAL WASTEWATER DISTRICT

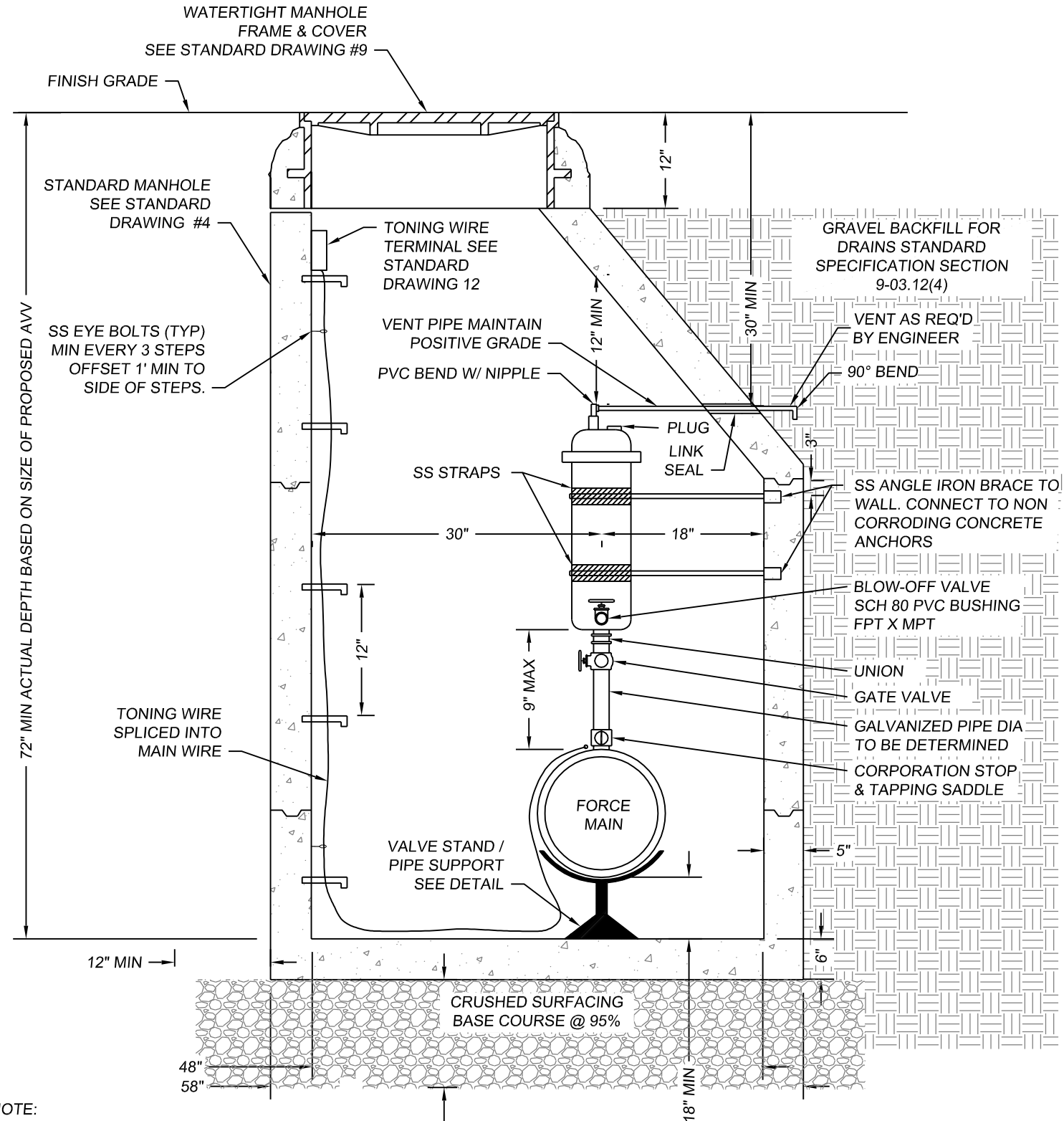
FORCE MAIN

GATE VALVE

STANDARD DRAWING

25

APPROVED: APR 2010



NOTE:

1. KOR-N-SEAL BOOT REQ'D ON ALL MANHOLE PENETRATIONS PER STANDARD SPECIFICATION SECTION 7-05.3.
2. BACKFILL SHALL BE THE SAME AS SHOWN ON THE PLANS FOR THE MAINLINE
3. A/VV & PIPING TO BE SIZED BY THE DESIGN ENGINEER

NTS

CLARK REGIONAL WASTEWATER DISTRICT

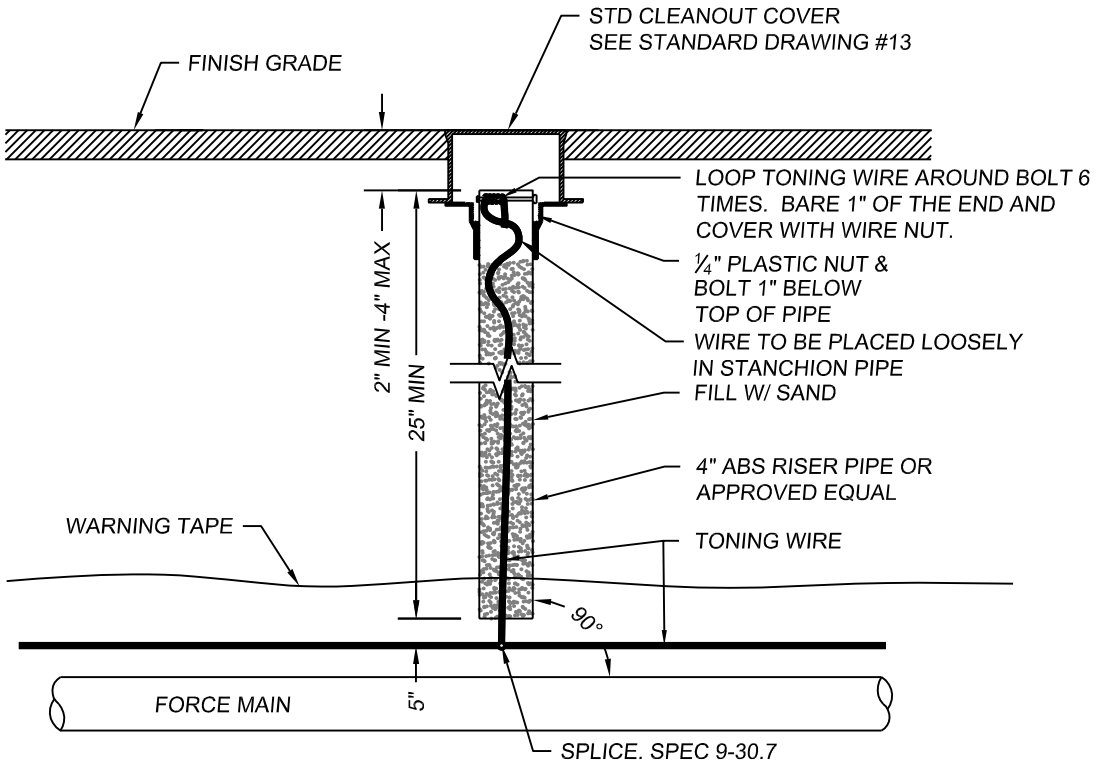
FORCE MAIN

AIR / VACUUM VALVE

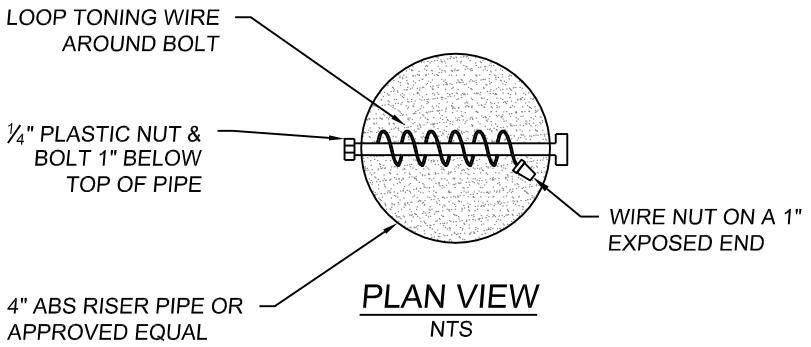
STANDARD DRAWING

26

APPROVED: APR 2010



SECTION VIEW
NTS



PLAN VIEW
NTS

CLARK REGIONAL WASTEWATER DISTRICT
FORCE MAIN

LOCATE STATION

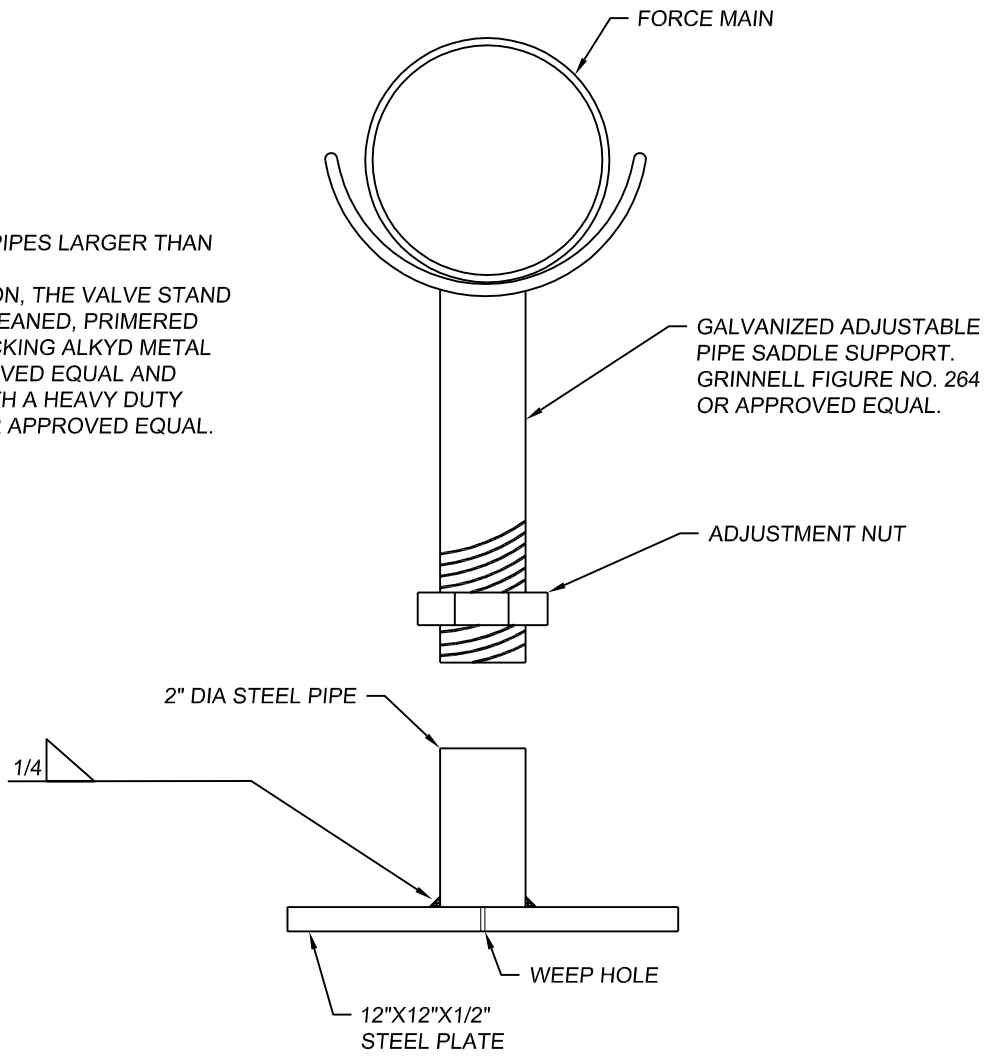
STANDARD DRAWING

27

APPROVED: APR 2010

NOTE:

1. NOT FOR USE ON PIPES LARGER THAN 8" IN DIAMETER.
2. AFTER FABRICATION, THE VALVE STAND BASE SHALL BE CLEANED, PRIMERED WITH A RUST BLOCKING ALKYD METAL PRIMER OR APPROVED EQUAL AND THEN PAINTED WITH A HEAVY DUTY ALKYD ENAMEL OR APPROVED EQUAL.



NTS

CLARK REGIONAL WASTEWATER DISTRICT

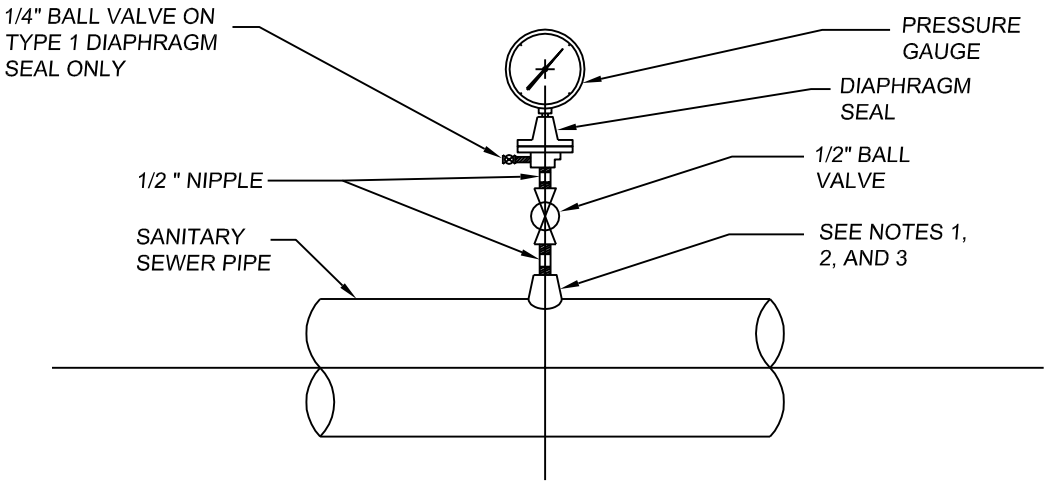
FORCE MAIN

ADJUSTABLE VALVE STAND

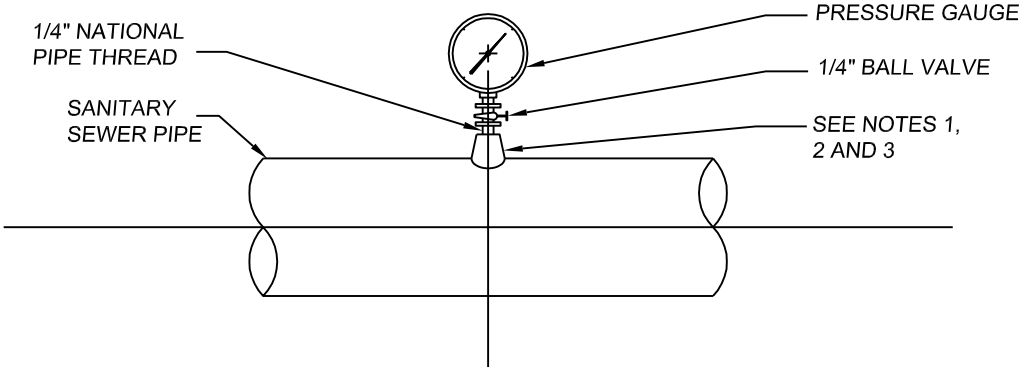
STANDARD DRAWING

28

APPROVED: APR 2010



DIAPHRAGM PRESSURE GAUGE
NTS



PRESSURE GAUGE
NTS

NOTES

1. FOR STEEL, GALVANIZED STEEL, AND PVC 2 1/2" AND SMALLER USE A BUSHING IN A TEE.
2. FOR DUCTILE IRON AND FIBERGLAS REINFORCED PLASTIC PIPE, ALL SIZES, USE PIPE SADDLE WITH BUSHING.
3. PRESSURE VESSELS, USE THRED-O-LET AS SHOWN.

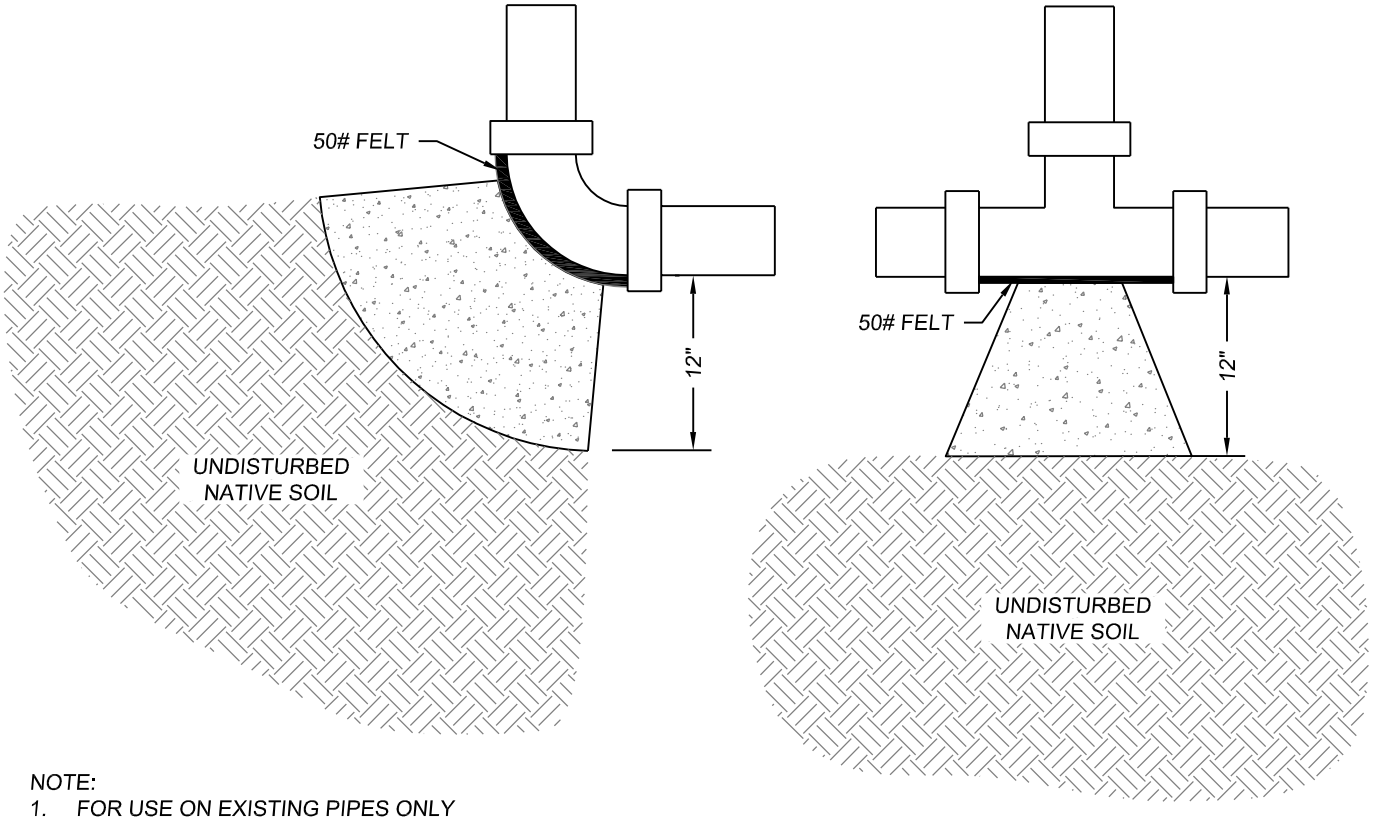
CLARK REGIONAL WASTEWATER DISTRICT
PUMP STATION

PRESSURE GAUGE

STANDARD DRAWING

29

APPROVED: APR 2010



NOTE:
1. FOR USE ON EXISTING PIPES ONLY
2. MECHANICALLY RESTRAINED JOINTS REQUIRED ON NEW INSTALLATIONS
3. NO BOLTS , JOINTS, FOLLOWERS, GLANDS, ETC. ARE TO BE COVERED W/ CONCRETE

MIN SOIL BEARING AREA TABLE (SQ FT)

PIPE DIA	TEE	90°	45°	22-1/2°	11-1/2°
2"	0.30	0.50	0.30	0.20	--
2 1/2"	0.50	0.70	0.04	0.20	--
3"	0.70	1.00	0.60	0.30	0.20
4"	1.30	1.80	1.00	0.50	0.30
6"	2.90	4.00	2.20	1.20	0.60
8"	5.00	7.30	3.80	2.00	1.00
10"	7.90	11.00	6.00	3.10	1.60

SOIL = 1,000 PSF - PRESSURE <= 100 PSI

NTS

CLARK REGIONAL WASTEWATER DISTRICT

FORCE MAIN

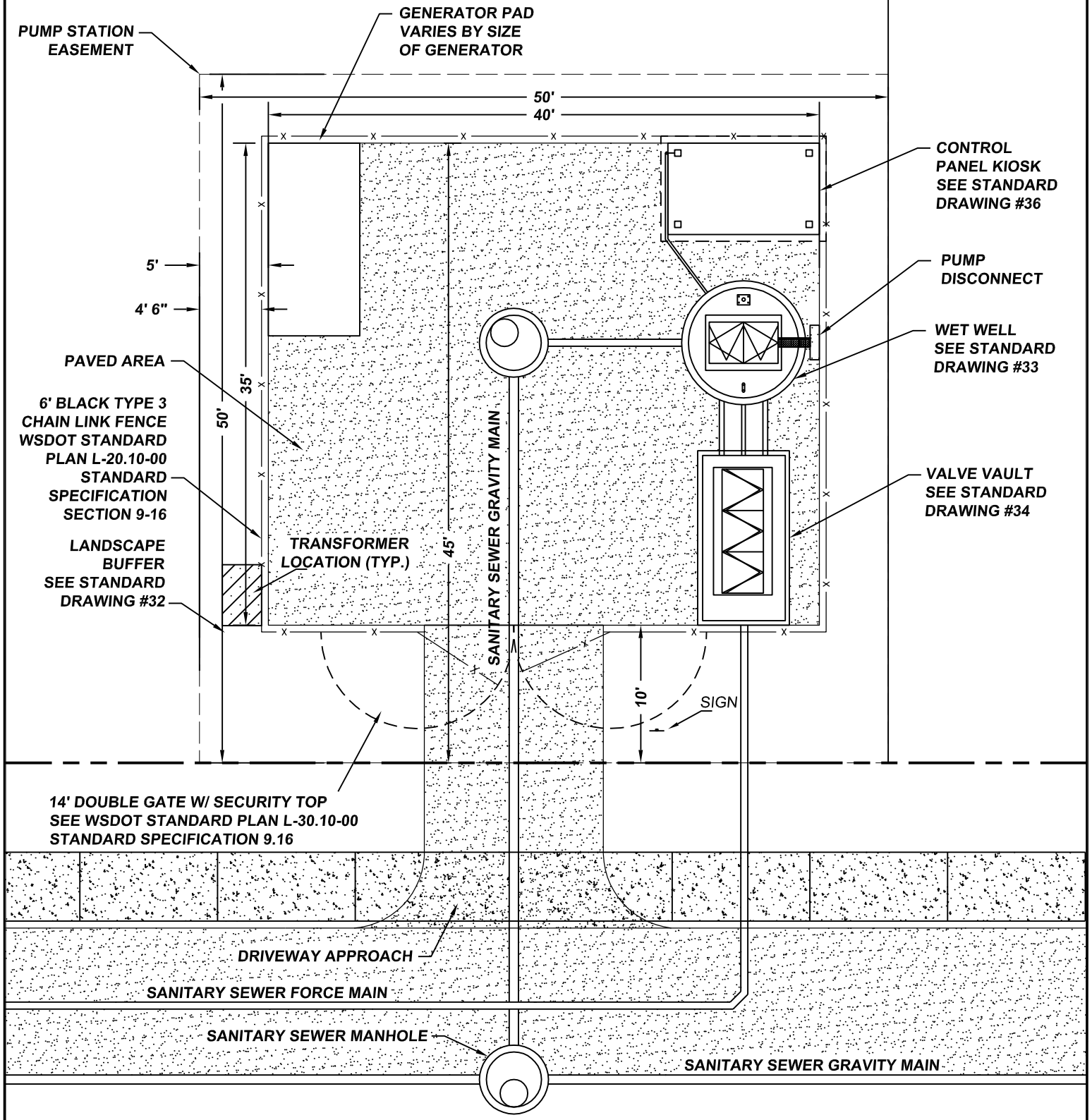
THRUST BLOCK

STANDARD DRAWING

30

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:54pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NTS

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

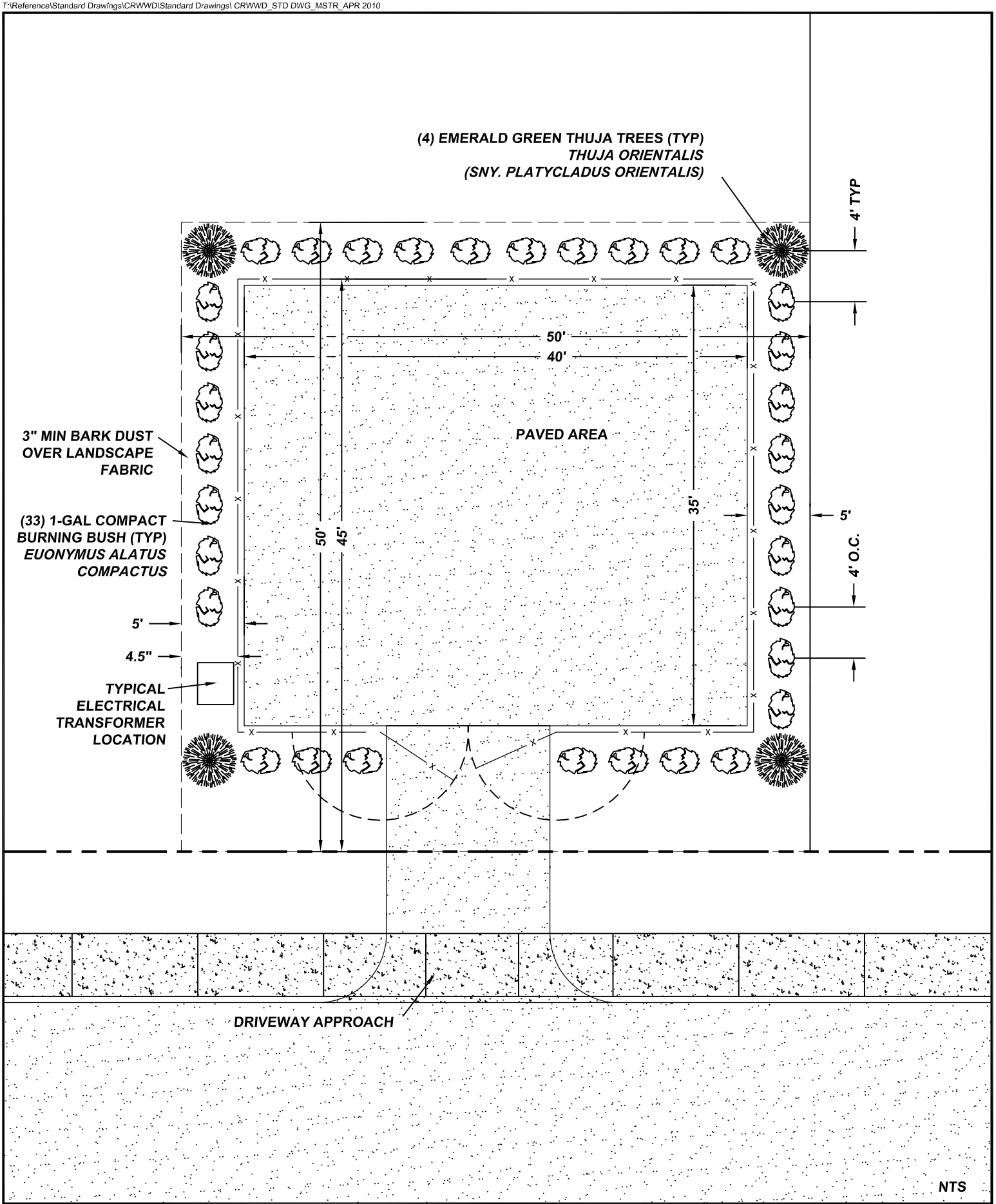
TYPICAL PUMP STATION SITE PLAN

STANDARD DRAWING

31

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:55pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NTS

CLARK REGIONAL WASTEWATER DISTRICT

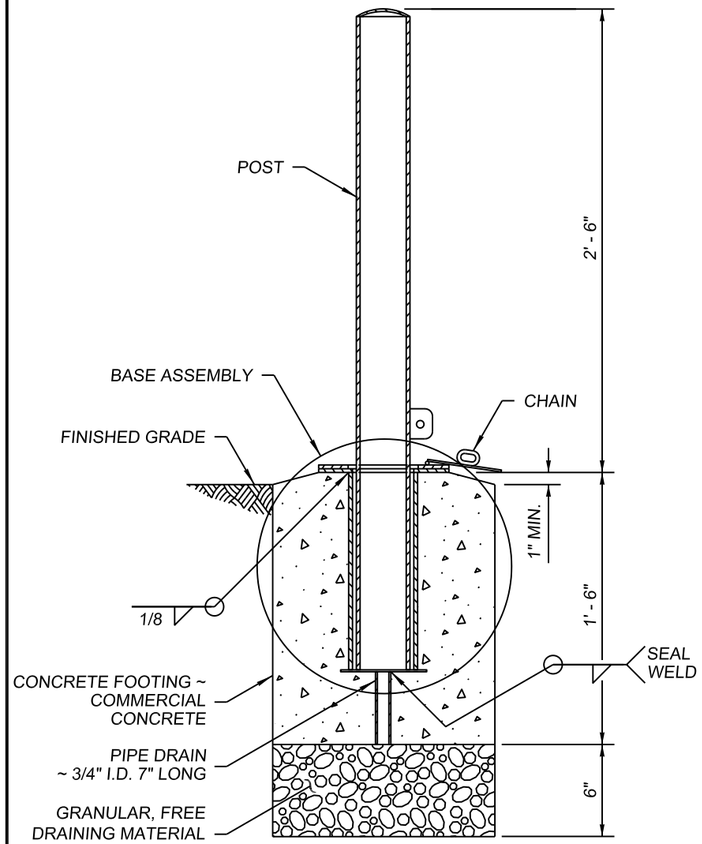
PUMP STATION

TYPICAL PUMP STATION LANDSCAPE PLAN

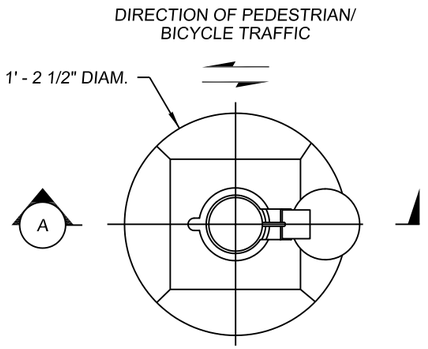
STANDARD DRAWING

32

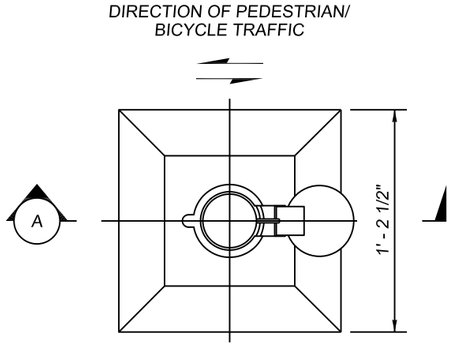
APPROVED: APR 2010



SECTION (A)

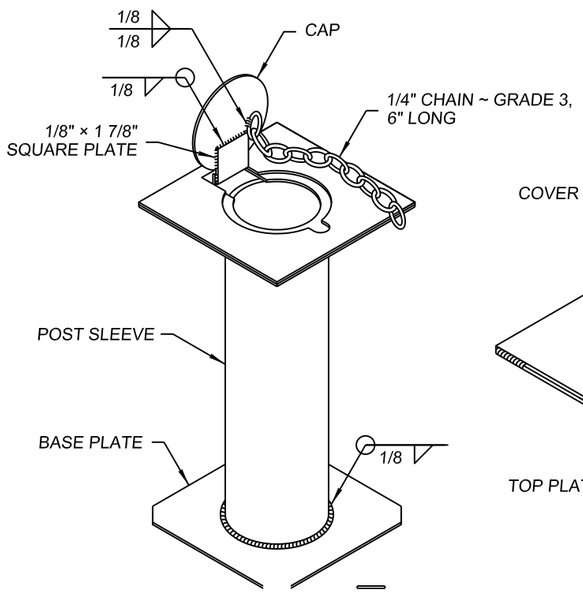


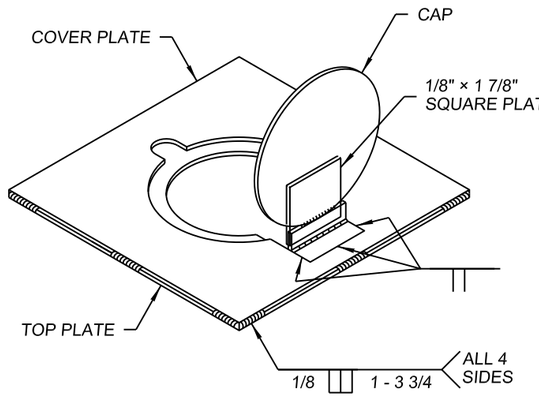
ROUND FOOTING



SQUARE FOOTING

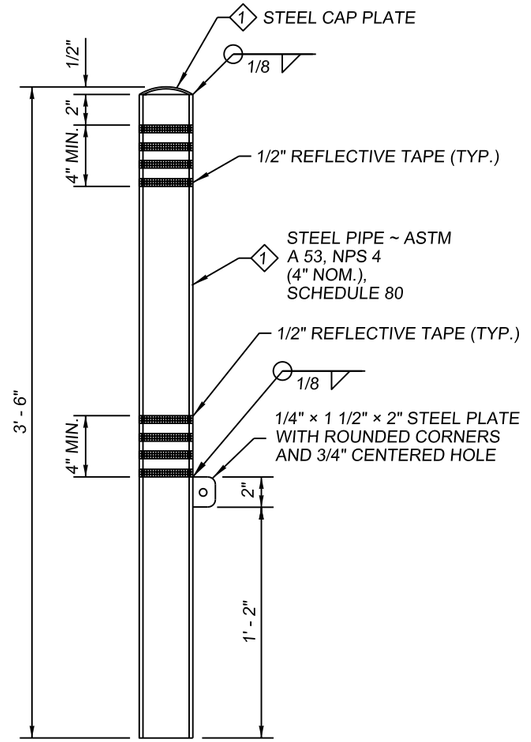
PLAN VIEW





① BASE ASSEMBLY

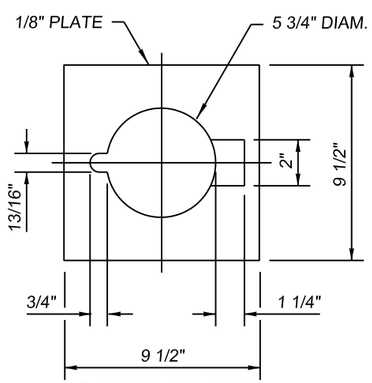
① PAINT ASSEMBLY WITH A "HIGHLY VISIBLE" COLOR. (SAFETY YELLOW IS ACCEPTABLE)



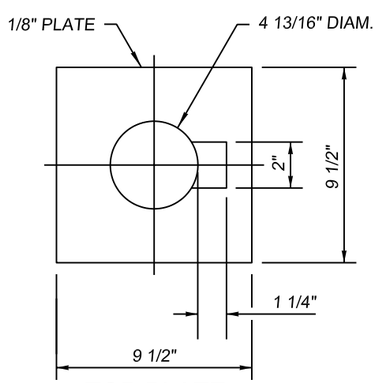
POST

NOTE

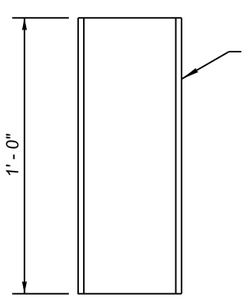
This bollard does not have an effective breakaway design feature and cannot be installed within the Design Clear Zone.



COVER PLATE

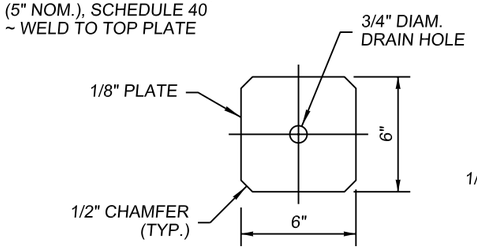


TOP PLATE

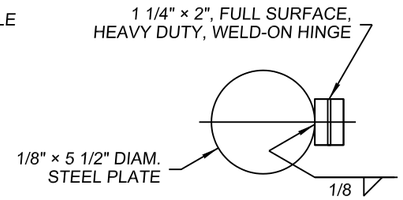


STEEL PIPE ~ ASTM A 53, NPS 5 (5" NOM.), SCHEDULE 40 ~ WELD TO TOP PLATE

POST SLEEVE



BASE PLATE



CAP AND HINGE

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

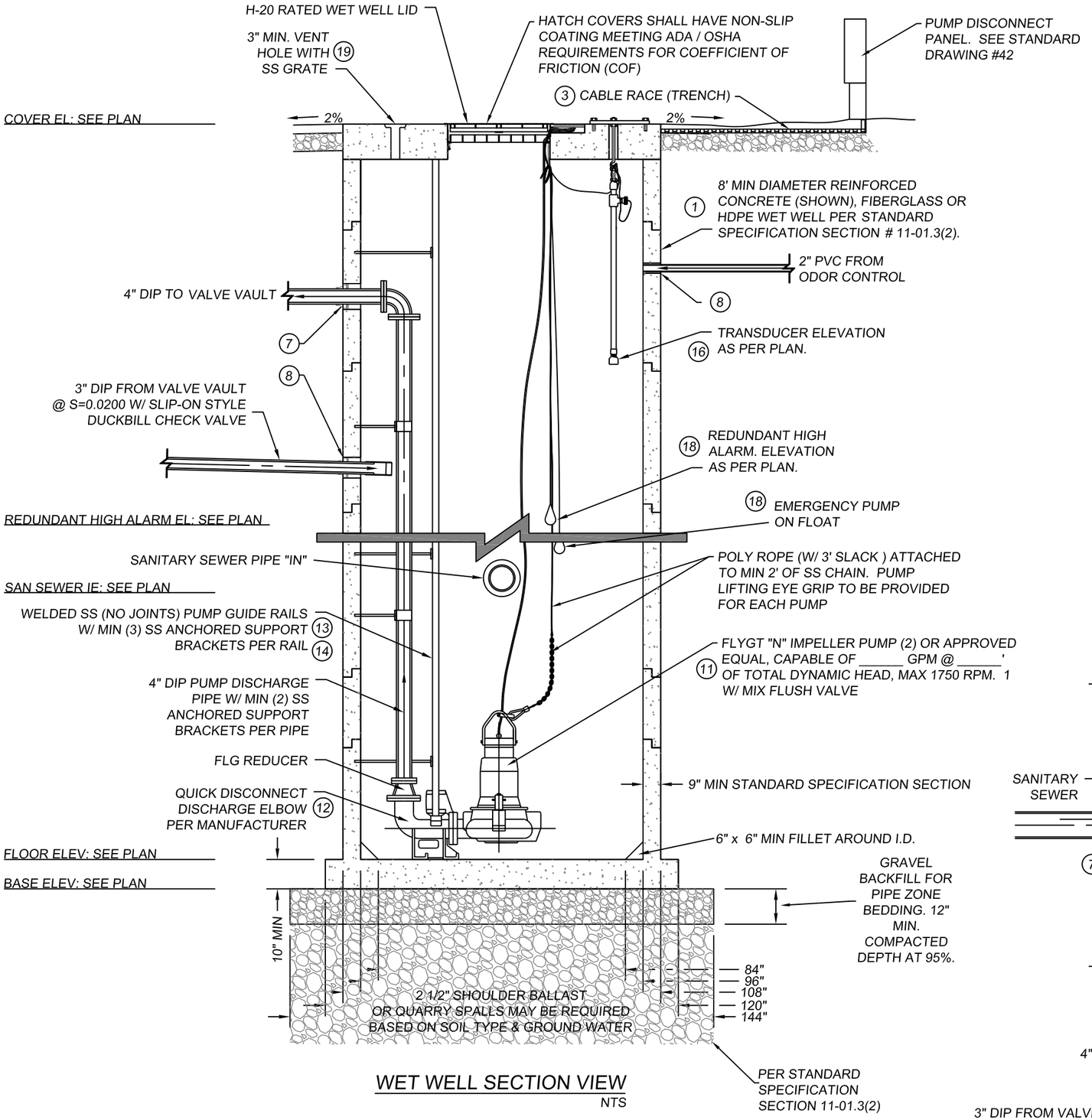
4" REMOVABLE BALLARD DETAIL

STANDARD DRAWING

33

APPROVED: APR 2010

Plotted on: Apr 13, 2010 - 2:55pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD.DWG_MSTR_APR 2010

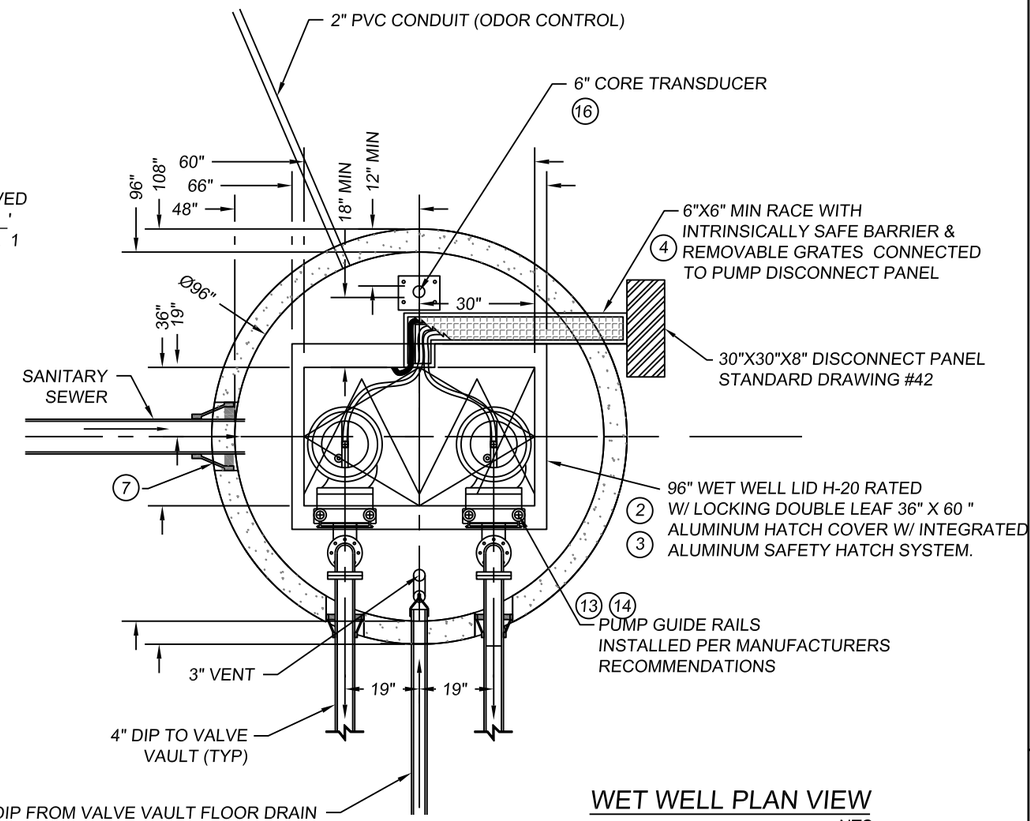


WET WELL SECTION VIEW

NTS

NOTE:

1. WET WELL SHALL BE 96" DIA MIN
2. WET WELL LID SHALL BE 12" MIN THICKNESS - RATED H-20
3. ACCESS HATCH SHALL BE SYRACUSE CASTING MODEL ECD-HD-36X60AOSG-RPC-CT-CH-12" HEAVY DUTY (H-20) DOUBLE LEAF SAFE HATCH W/ ANGLE STYLE FRAME WITH CABLE RACE, RECESSED PADLOCK CLIP, SLAMLOCK SKIRT, SAFETY GRATES & SAFETY CHAINS OR APPROVED EQUAL
4. HATCH & CABLE RACE SHALL BE CAST INTO WET WELL LID
5. HATCH COVERS SHALL HAVE NON-SLIP COATING MEETING ADA / OSHA REQUIREMENTS FOR COEFFICIENT OF FRICTION (COF)
6. ALL PENETRATIONS SHALL BE CORE DRILLED.
7. ALL PENETRATIONS 4" & LARGER SHALL BE BOOTED USING KOR-N-SEAL CONNECTORS W/ SS WEDGE & PIPE CLAMPS PER STANDARD SPECIFICATION SECTION # 11-01.3(2).
8. ALL PENETRATIONS SMALLER THAN 4" SHALL BE SEALED USING LINK SEAL MODEL S-316 MODULAR SEAL.
9. ALL PIPES AND FITTING SHALL BE FLANGED CEMENT LINED CLASS 150 DIP EXCEPT WHERE SPECIFIED
10. ALL WET WELL HARDWARE SHALL BE 304 SS.
11. PUMPS SHALL BE FLYGT PUMPS W/ "N" IMPELLERS OR APPROVED EQUAL PER STANDARD SPECIFICATION SECTION # 11-01.3(4).
12. PUMP DISCHARGE ELBOW SHALL BE PER PUMP MANUFACTURER
13. PUMP GUIDE RAIL BRACKETS SHALL BE SS PER PUMP MANUFACTURER
14. PUMP GUIDE RAILS SHALL BE 304 SS W/ WELDED JOINTS
15. WET WELL SHALL BE COATED W/ RAVEN 405 OR APPROVED EQUAL WHEN SPECIFIED BY THE DISTRICT PER STANDARD SPECIFICATION SECTION #7-05.3(6).
16. ULTRASONIC LEVEL MEASUREMENT TRANSDUCER
17. ONE COMPLETE ADDITIONAL (SPARE) PUMP & MOTOR ASSEMBLY SHALL BE SUPPLIED TO THE DISTRICT BEFORE FINAL ACCEPTANCE OF THE SYSTEM.
18. MERCURY FLOAT SWITCH PER STANDARD SPECIFICATION SECTION #11-01.3(5).
19. 3" MINIMUM VENT WITH STAINLESS STEEL GRATE SHALL BE CAST INTO FLAT TOP.



WET WELL PLAN VIEW

NTS

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

WET WELL

STANDARD DRAWING

34

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:55pm, Modified 04-13-10
T:\References\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010

Plotted on Apr 13, 2010 - 2:55pm, Modified 04-13-10
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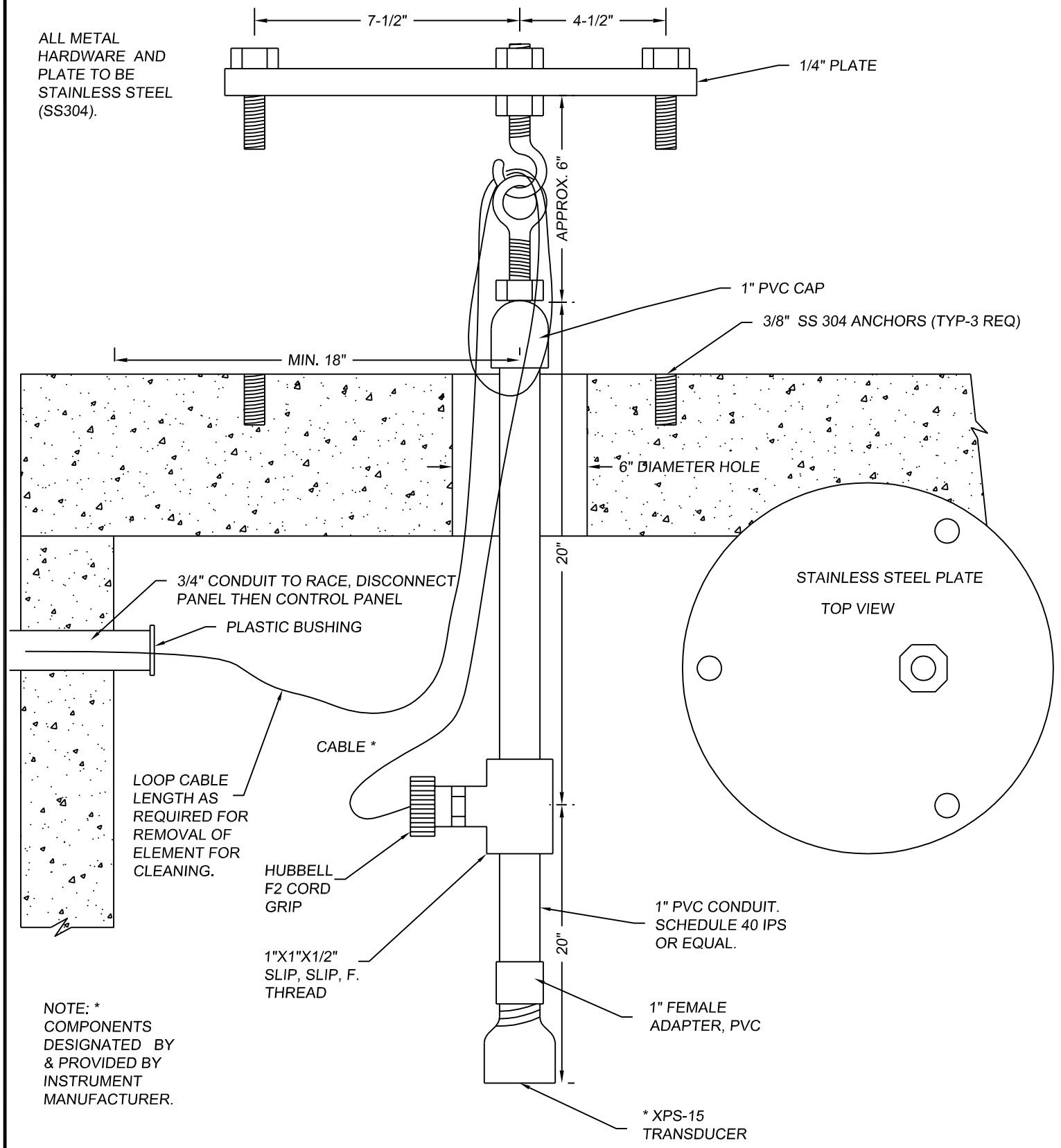


CLARK REGIONAL WASTEWATER DISTRICT

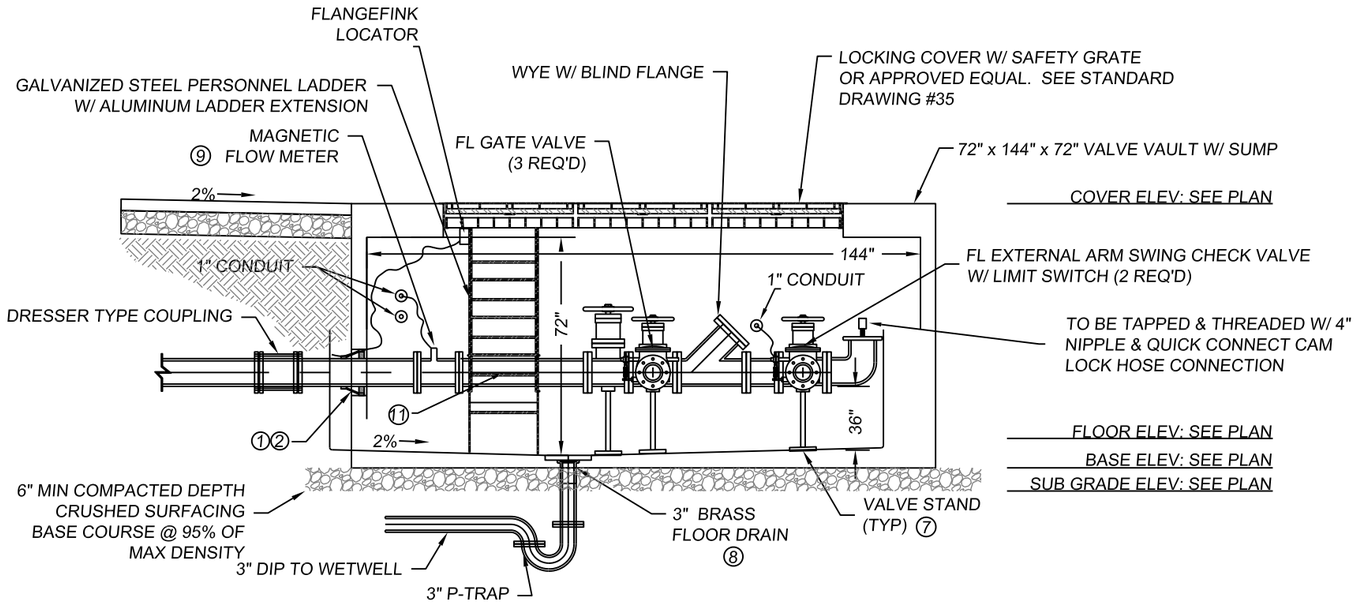
PUMP STATION

ULTRASONIC TRANSDUCER

STANDARD DRAWING

35

APPROVED: APR 2010



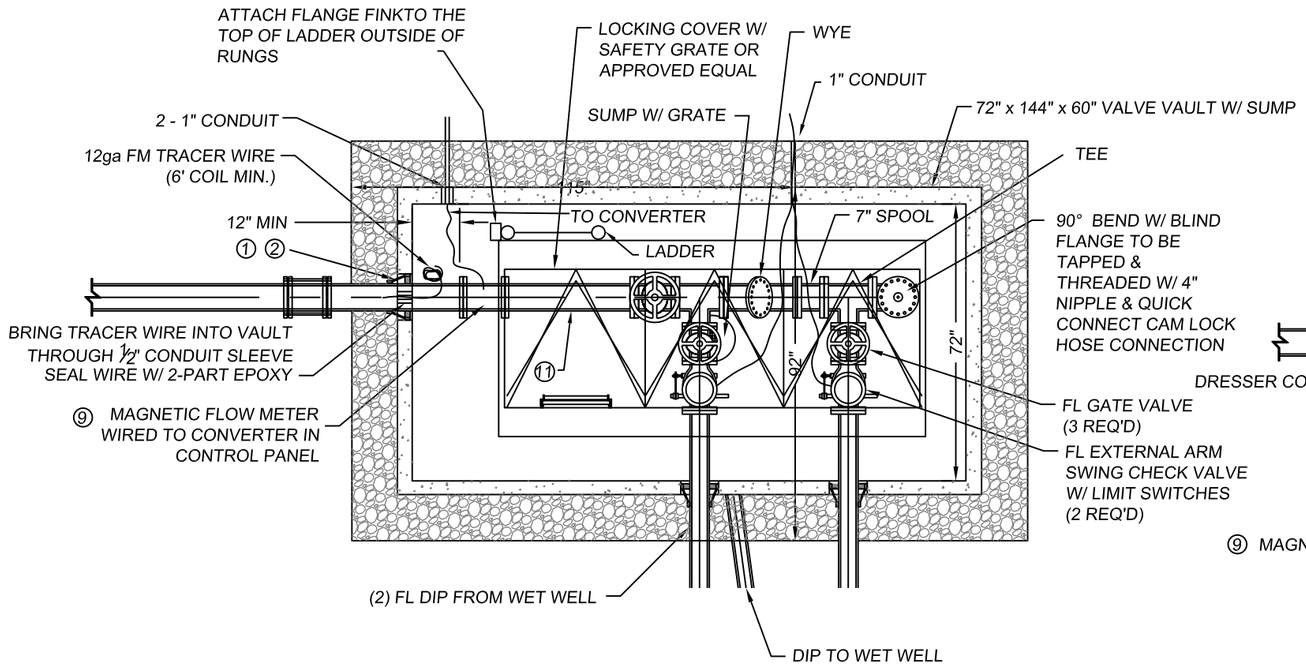
VALVE VAULT ELEVATION

SIDE OUTLET

NTS

NOTE:
UNLESS OTHERWISE NOTED:

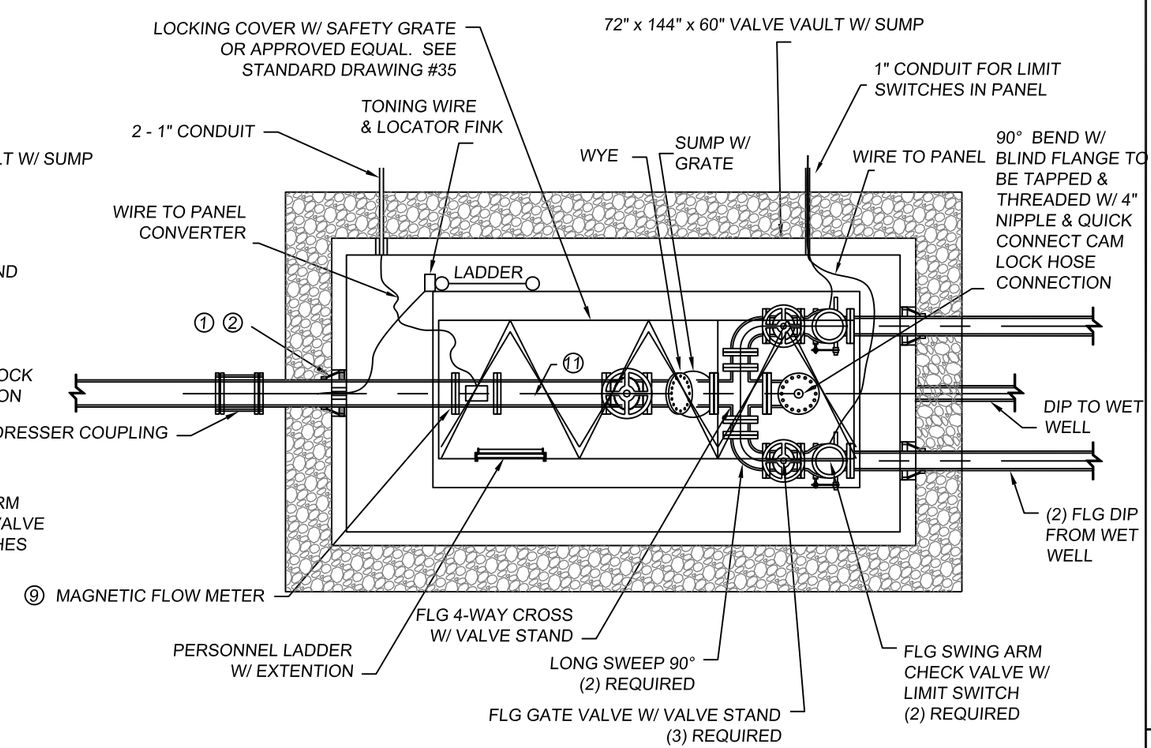
1. ALL PENETRATIONS SHALL BE CORE DRILLED.
2. ALL PENETRATIONS 4" & LARGER SHALL BE SEALED USING KOR-N-SEAL BOOTS W/ SS WEDGE & PIPE CLAMPS OR APPROVED EQUAL.
3. ALL PENETRATIONS SMALLER THAN 4" SHALL BE SEALED USING LINK SEAL MODEL S-316 MODULAR SEAL OR APPROVED EQUAL.
4. ALL PIPES AND FITTING SHALL BE FLANGED CEMENT LINED CLASS 50 DIP EXCEPT WHERE SPECIFIED
5. ALL HARDWARE SHALL BE 304 SS
6. VALVE VAULT SHALL BE 6' X 12' X 7' (UV NO. 612-LA OR APPROVED EQUAL). VAULT SHALL BE MONOLITHICALLY CAST WITH TOP SLAB SECTION ONLY.
7. VALVE STANDS SHALL BE ADJUSTABLE
8. VALVE VAULT FLOOR SHALL BE SLOPED @ MIN. 2% TO SUMP DRAIN w/ 3" BRASS FLOOR DRAIN
9. MAGMETER SHALL BE TOSHIBA MODEL # LF434KBCBDCAAB (6") / LF434LBCBDCAAB (8") MAG FLOW TUBE W/ TOSHIBA MODEL # LF602FBC211E MAG CONVERTER CONNECTED BY TOSHIBA 2A SIGNAL CABLE & TOSHIBA 3A EXCITATION CABLE OR APPROVED EQUAL.
10. GENERIC PIPE SIZING SHOWN - ACTUAL PIPE SIZE TO BE SPECIFIED ON PLAN.
11. PRESSURE GAUGE PER STANDARD DRAWING #
12. FLANGE FINK (FIVE LEAD) LOCATOR STATION MANUFACTURED BY COTT MANUFACTURING OR APPROVED EQUAL.



VALVE VAULT PLAN VIEW

SIDE INLET

NTS



VALVE VAULT LAYOUT PLAN VIEW

END INLET - PREFERRED

NTS

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

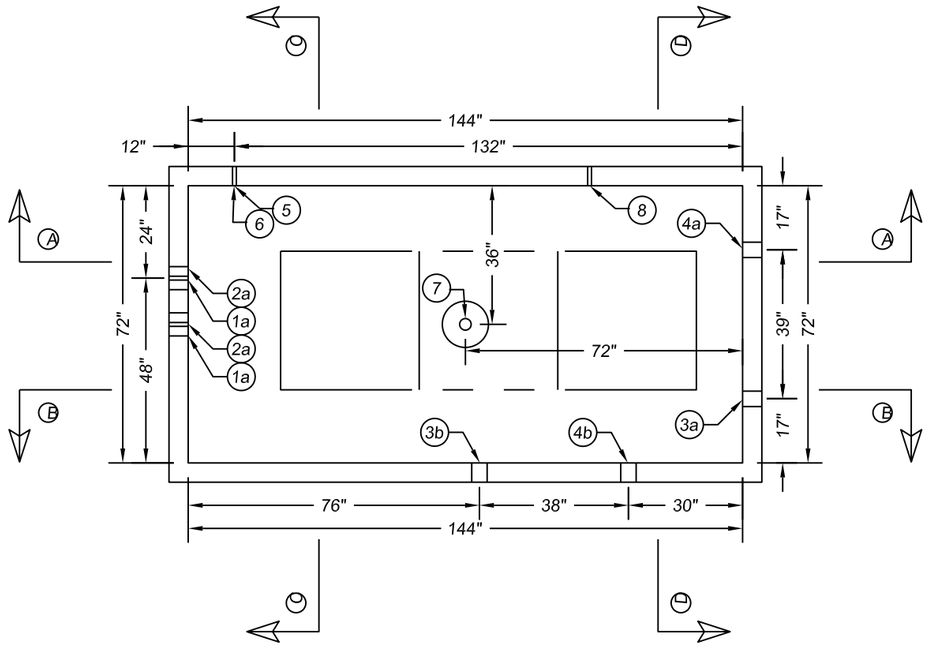
VALVE VAULT

STANDARD DRAWING #

36

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:55pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010

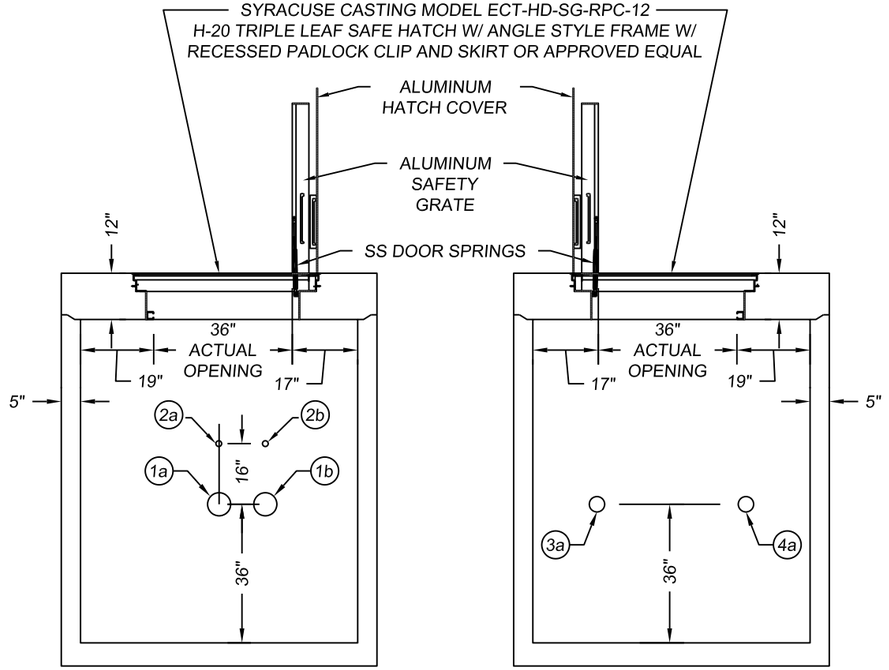


VALVE VAULT CORING PLAN VIEW
NTS

CORE REFERENCE TABLE

1. CORE FOR BOOTED 6" DIP - TO FM
2. 1" CONDUIT SLEEVE CAST IN PLACE
3. CORE FOR BOOTED 4" DIP - FROM WET WELL
4. CORE FOR BOOTED 4" DIP - FROM WET WELL
5. CORE FOR LINK SEALED 1" CONDUIT - TO PANEL
6. CORE FOR LINK SEALED 1" CONDUIT - TO PANEL
7. CORE FOR BOOTED 3" DIP - TO WET WELL
8. CORE FOR LINK SEALED 1" CONDUIT - TO PANEL

NOTE:
a - END INLET VAULT LAYOUT (PREFERRED)
b - SIDE INLET VAULT LAYOUT

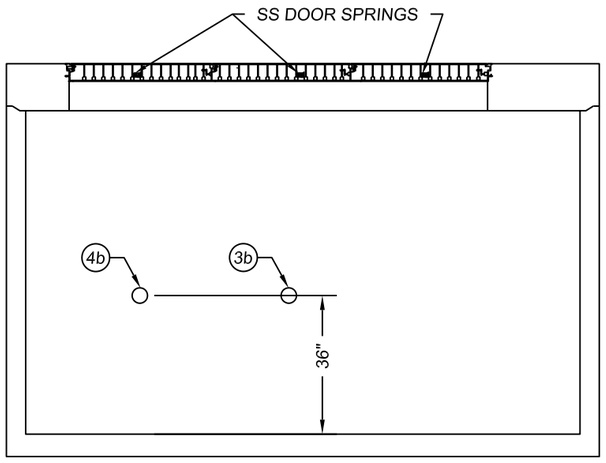


CROSS SECTION C-C
NTS

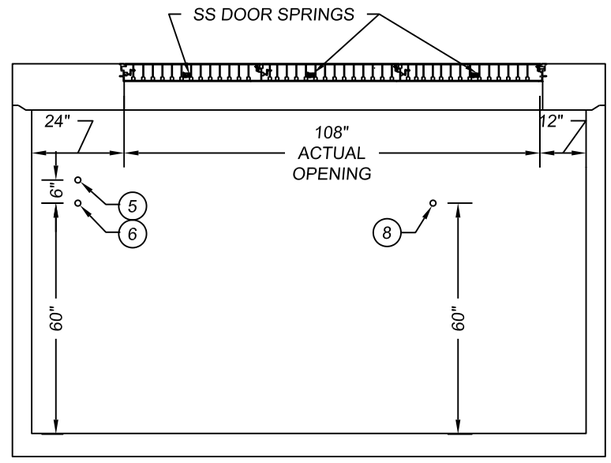
CROSS SECTION D-D
NTS

UNLESS OTHERWISE NOTED:

- VALVE VAULT HATCH OPENING SHALL BE SYRACUSE CASTING MODEL UV 612-TL-3-332P HEAVY DUTY (H-20) TRIPLE LEAF SAFE HATCH W/ ANGLE STYLE FRAME, STAINLESS STEEL DOOR SPRINGS, RECESSED PADLOCK CLIP, SLAMLOCK SKIRT, SAFETY GRATES OR APPROVED EQUAL
- HATCH COVERS SHALL HAVE NON-SLIP COATING MEETING ADA / OSHA REQUIREMENTS FOR COEFFICIENT OF FRICTION (COF)
- ALL PENETRATIONS SHALL BE CORE DRILLED.
- ALL PENETRATIONS 4" & LARGER SHALL BE SEALED USING KOR-N-SEAL BOOTS W/ SS WEDGE & PIPE CLAMPS
- ALL PENETRATIONS SMALLER THAN 4" SHALL BE SEALED USING LINK SEAL MODEL S-316 MODULAR SEAL.



CROSS SECTION B-B
NTS



CROSS SECTION A-A
NTS

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

VALVE VAULT CORING PLAN

STANDARD DRAWING

37

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:55pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010

NOTE :
USE OF A PREFABRICATED METAL COVER MAY BE REQUESTED.

THE PREFABRICATED CONTROL SHELTER SHALL CONSIST OF THE FOLLOWING FACTORY ASSEMBLED COMPONENTS:

ANGLE IRON:
- 3" X 2" X 1/8" PURLINS @12"O.C
- 3" X 2" X ¼" TRUSS @EA. SIDE OF COLUMN

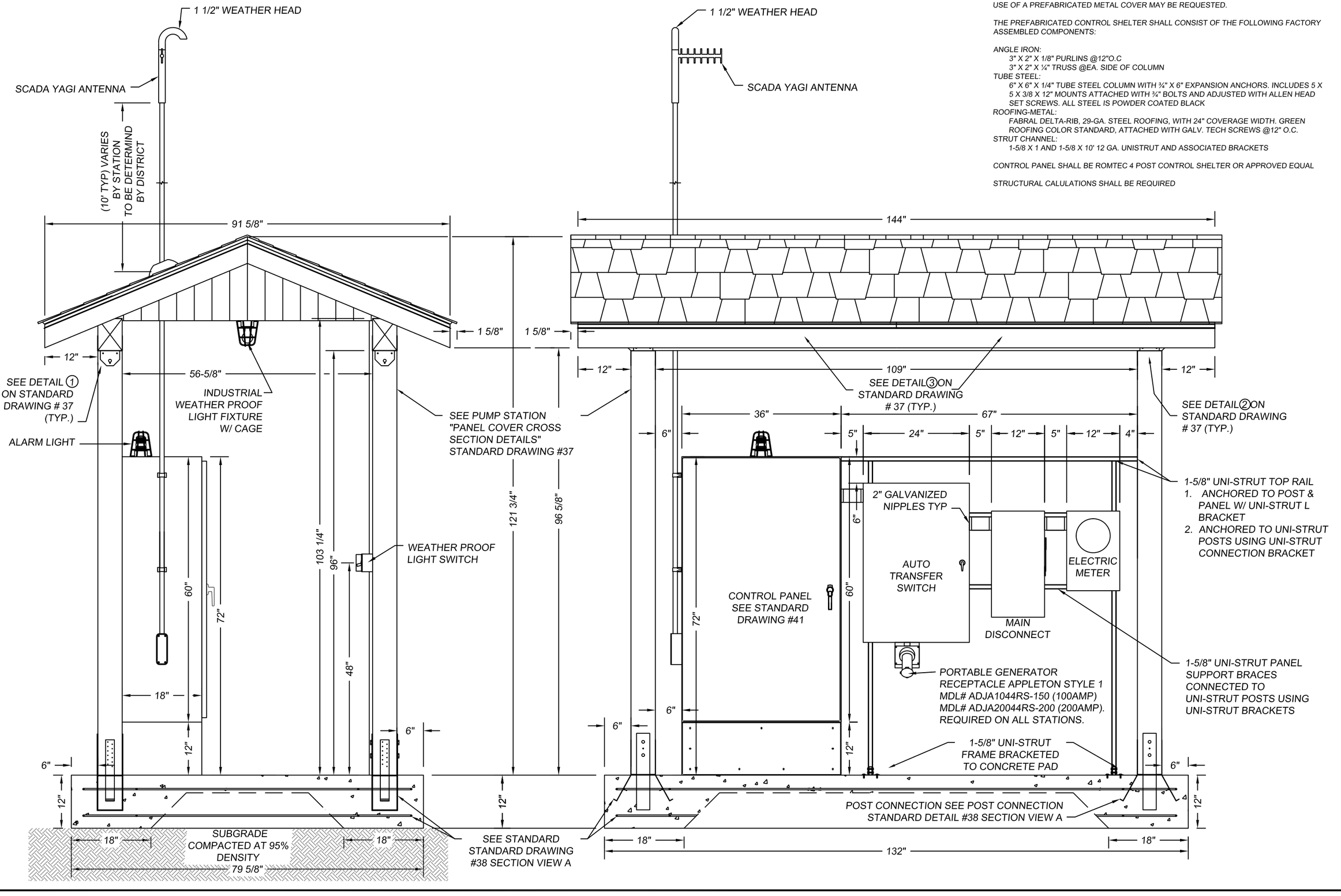
TUBE STEEL:
- 6" X 6" X 1/4" TUBE STEEL COLUMN WITH ¾" X 6" EXPANSION ANCHORS. INCLUDES 5 X 5 X 3/8 X 12" MOUNTS ATTACHED WITH ¾" BOLTS AND ADJUSTED WITH ALLEN HEAD SET SCREWS. ALL STEEL IS POWDER COATED BLACK

ROOFING-METAL:
- FABRAL DELTA-RIB, 29-GA. STEEL ROOFING, WITH 24" COVERAGE WIDTH. GREEN ROOFING COLOR STANDARD, ATTACHED WITH GALV. TECH SCREWS @12" O.C.

STRUT CHANNEL:
- 1-5/8 X 1 AND 1-5/8 X 10' 12 GA. UNISTRUT AND ASSOCIATED BRACKETS

CONTROL PANEL SHALL BE ROMTEC 4 POST CONTROL SHELTER OR APPROVED EQUAL

STRUCTURAL CALULATIONS SHALL BE REQUIRED



CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

CONTROL PANEL COVER / PANEL LAYOUT

STANDARD DRAWING

38

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:56pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD.DWG, MSTR, APR 2010

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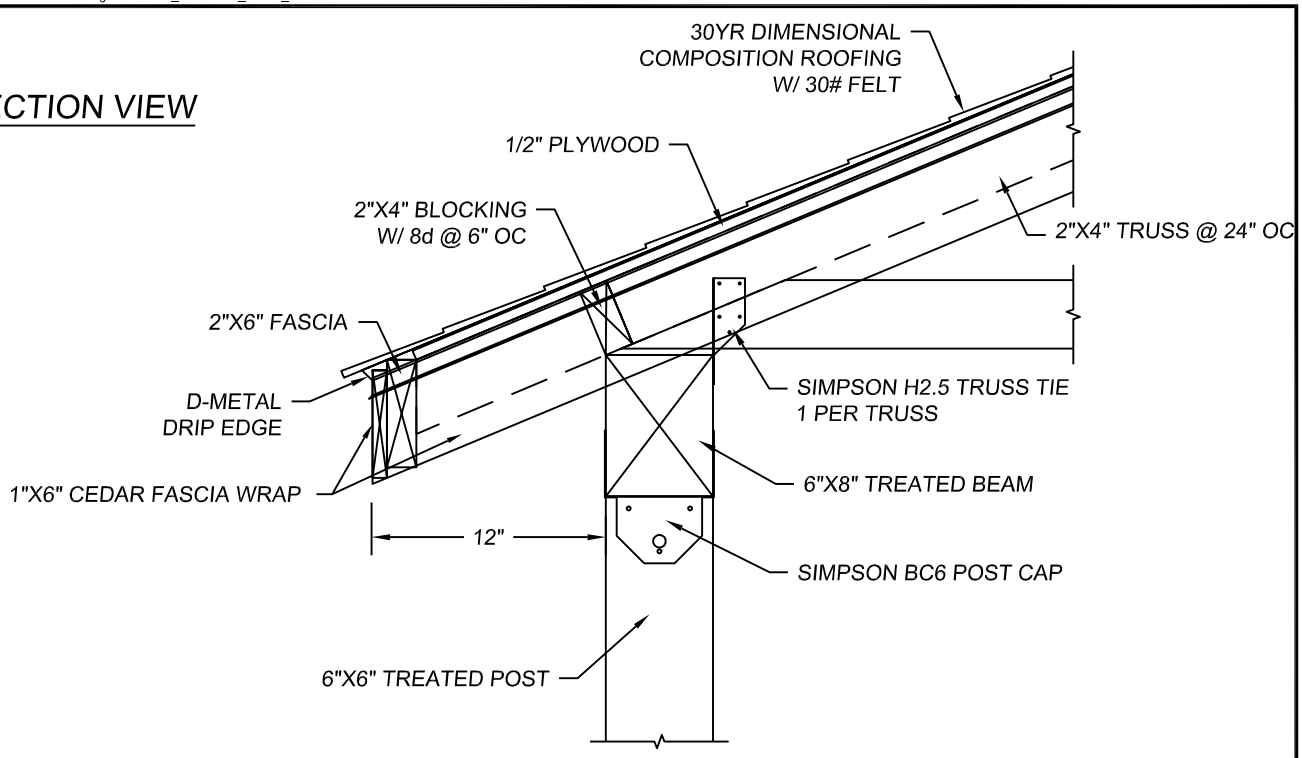
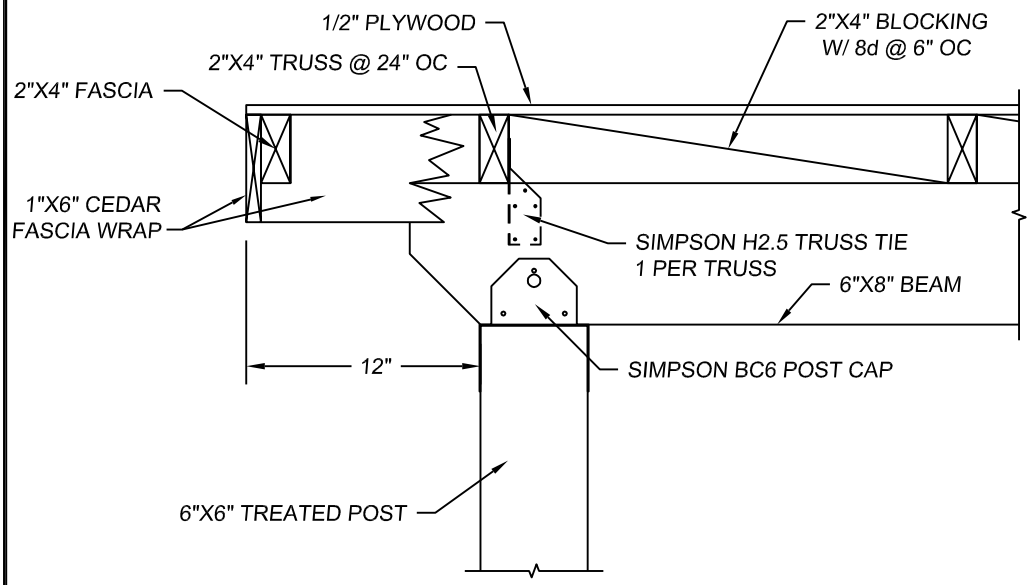
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010

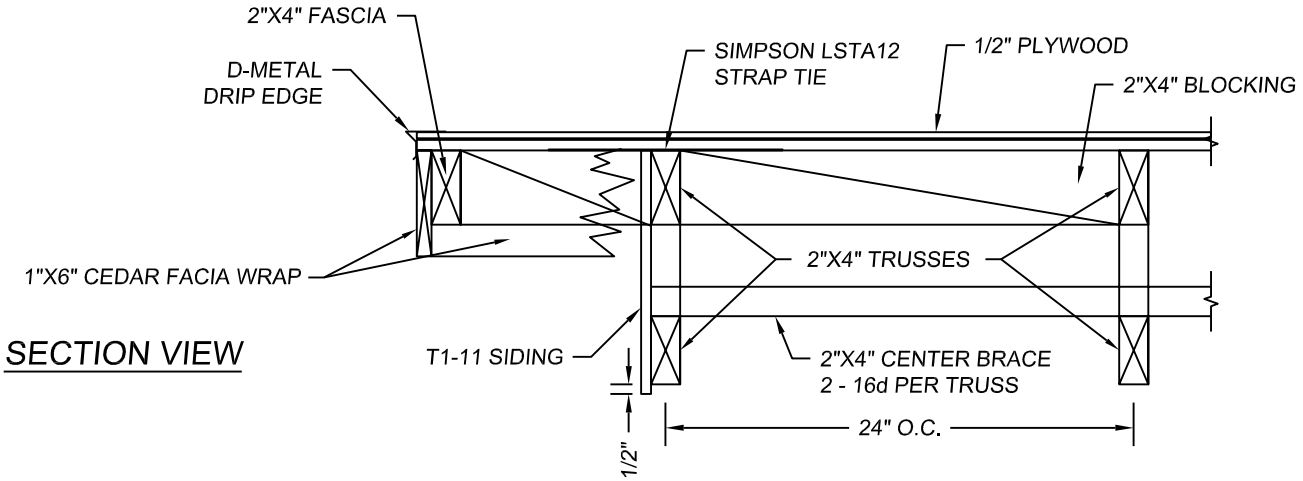
1 SECTION VIEW



2 SECTION VIEW



3 SECTION VIEW



CLARK REGIONAL WASTEWATER DISTRICT
PUMP STATION

CONTROL PANEL COVER CROSS SECTIONS

STANDARD DRAWING

39

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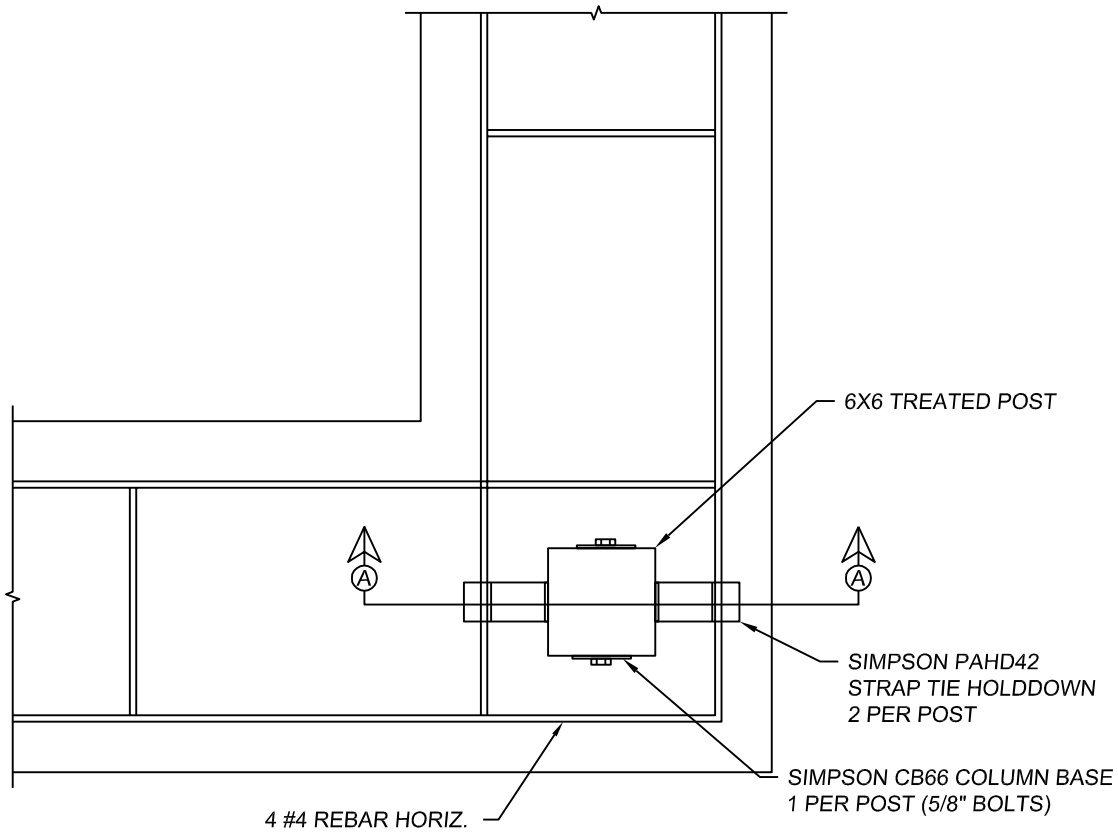
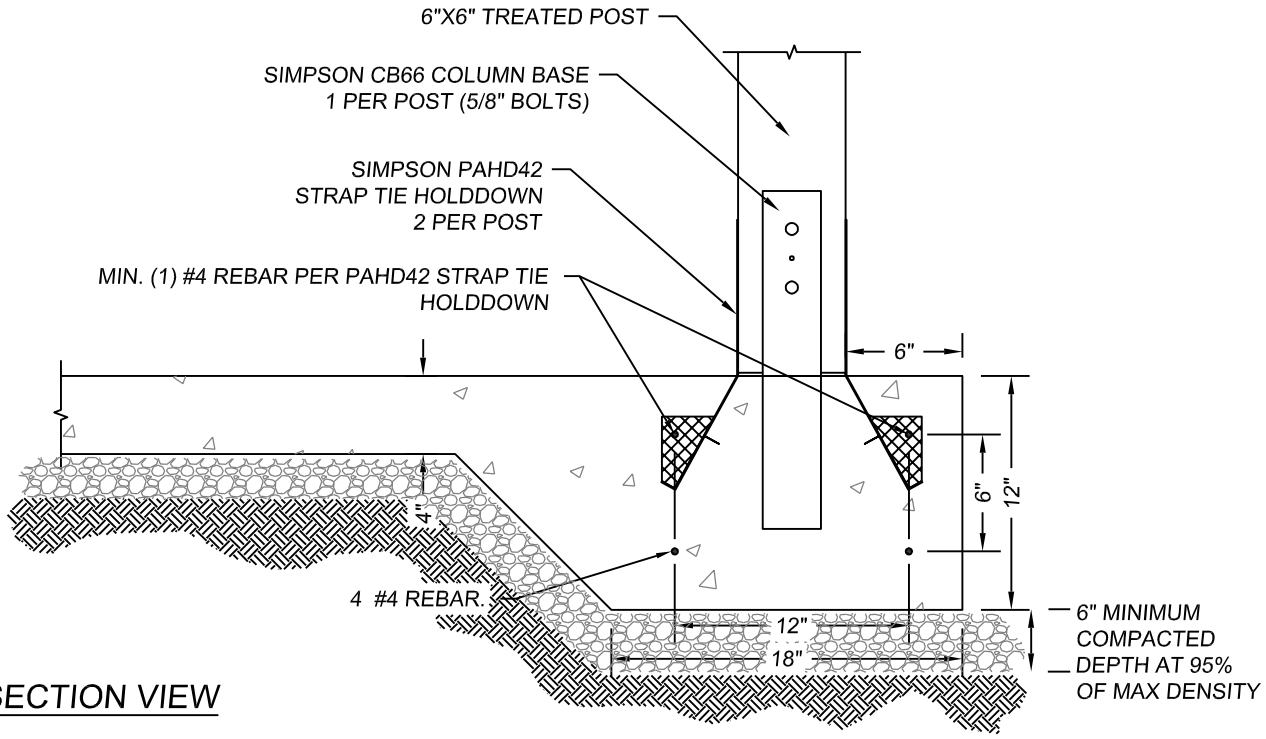
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



PLAN VIEW



(A) SECTION VIEW

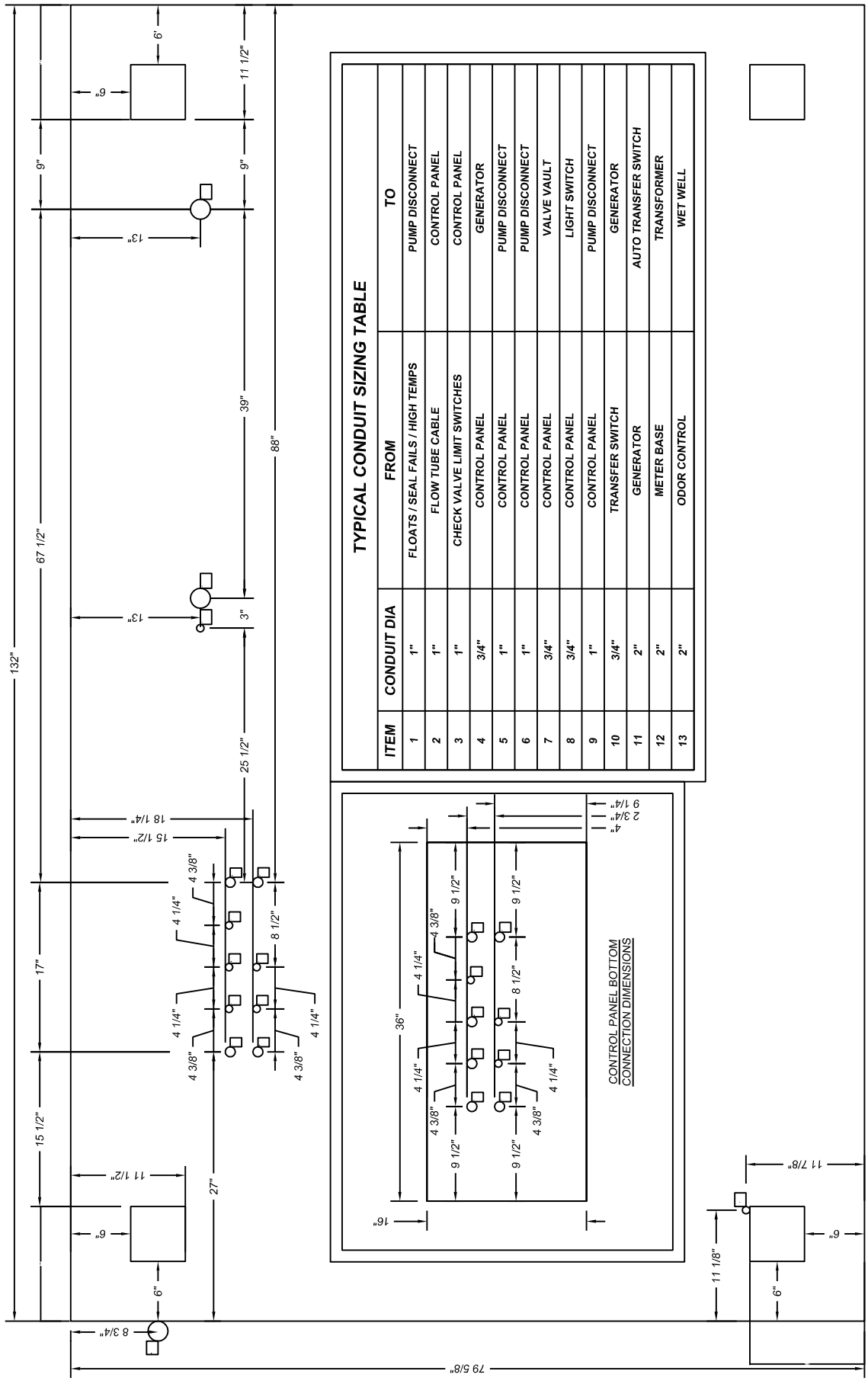
CLARK REGIONAL WASTEWATER DISTRICT
PUMP STATION

CONTROL PANEL COVER FOOTING / POST CONNECTION

STANDARD DRAWING

40

APPROVED: APR 2010



TYPICAL CONDUIT SIZING TABLE

ITEM	CONDUIT DIA	FROM	TO
1	1"	FLOATS / SEAL FAILS / HIGH TEMPS	PUMP DISCONNECT
2	1"	FLOW TUBE CABLE	CONTROL PANEL
3	1"	CHECK VALVE LIMIT SWITCHES	CONTROL PANEL
4	3/4"	CONTROL PANEL	GENERATOR
5	1"	CONTROL PANEL	PUMP DISCONNECT
6	1"	CONTROL PANEL	PUMP DISCONNECT
7	3/4"	CONTROL PANEL	VALVE VAULT
8	3/4"	CONTROL PANEL	LIGHT SWITCH
9	1"	CONTROL PANEL	PUMP DISCONNECT
10	3/4"	TRANSFER SWITCH	GENERATOR
11	2"	GENERATOR	AUTO TRANSFER SWITCH
12	2"	METER BASE	TRANSFORMER
13	2"	ODOR CONTROL	WET WELL

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

CONTROL PANEL CONDUIT LAYOUT

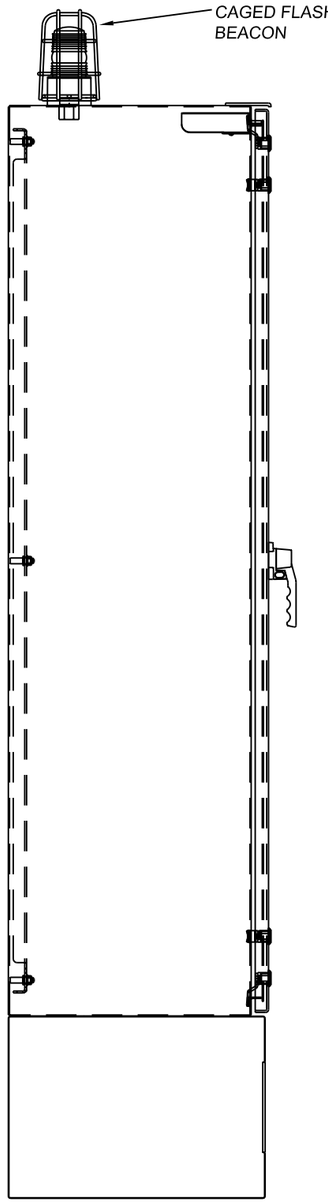
STANDARD DRAWING

41

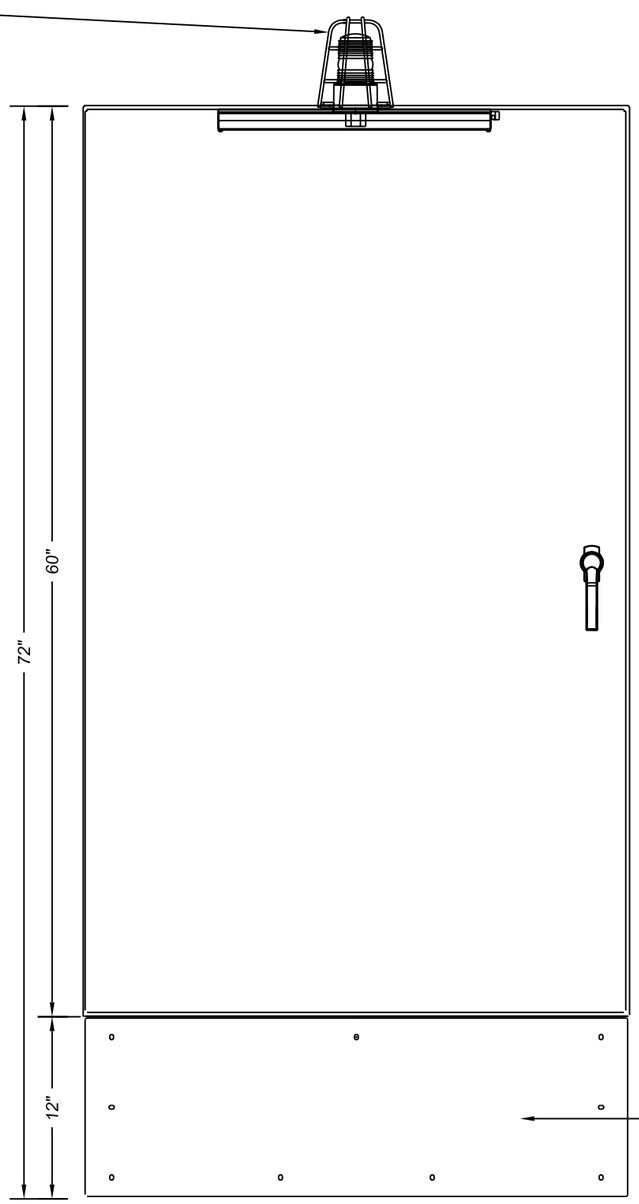
APPROVED: APR 2010

NOTE:

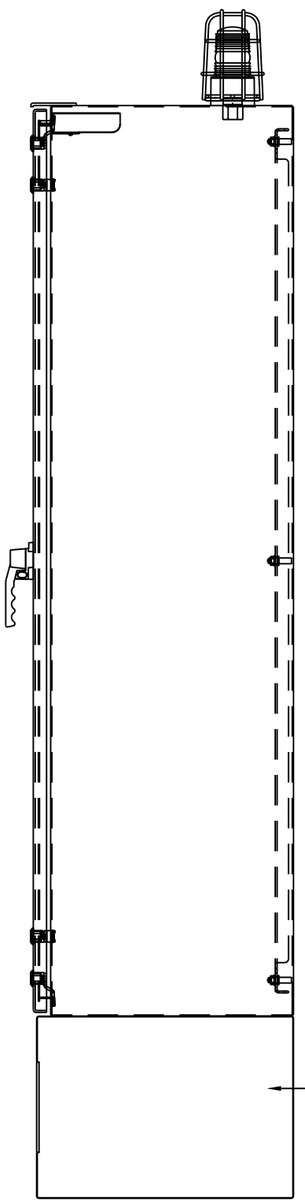
1. PANEL ENCLOSURE SHALL BE MIN 60"H X 36"W X 16"DP HOFFMAN NEMA 4 ENCLOSURE MODEL # A60H3616LP3PTOR APPROVED EQUAL
2. PANEL SHALL HAVE LIGHT WITH MANUAL SWITCH HOFFMAN A-LTMB1 OR APPROVED EQUAL
3. PANEL OUTER DOOR TO HAVE ONE 1/4 TURN HANDLE THAT CAN BE PADLOCKED.
4. PANEL OUTER DOOR SHALL HAVE A DOCUMENT SLEEVE ON THE INSIDE
5. PANEL SHALL BE DELIVERED W/ WIRING SCHEMATIC & DIAGRAM IN DOCUMENT SLEEVE
6. WIRING SCHEMATIC & DIAGRAM SHALL BE LAMINATED FOR WEATHER RESISTANCE
7. WIRING SCHEMATIC & DIAGRAM SHALL ALSO BE PROVIDED TO THE DISTRICT IN AN ELECTRONIC .DWG FILE FORMAT
8. ALL COPIES PROVIDED OF THE WIRING SCHEMATIC & DIAGRAM SHALL BECOME PROPERTY OF THE DISTRICT
9. COMPLETE PLC DOCUMENTATION REQUIRED IN BOTH BOTH PAPER & ELECTRONIC FORMAT. ALL COPIES SUBMITTED BECOME PROPERTY OF THE DISTRICT.



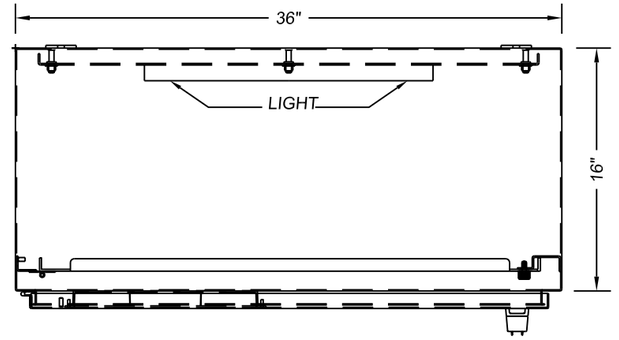
LEFT SIDE
NTS



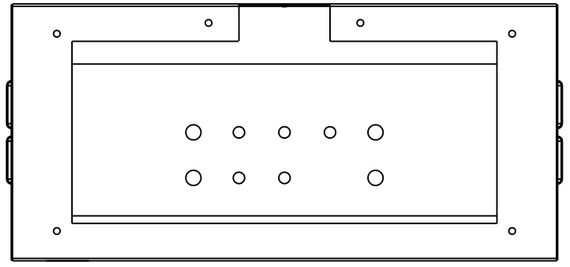
ELEVATION
NTS



RIGHT SIDE
NTS



TOP VIEW
NTS



BOTTOM
NTS

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

CONTROL PANEL ENCLOSURE

STANDARD DRAWING

42

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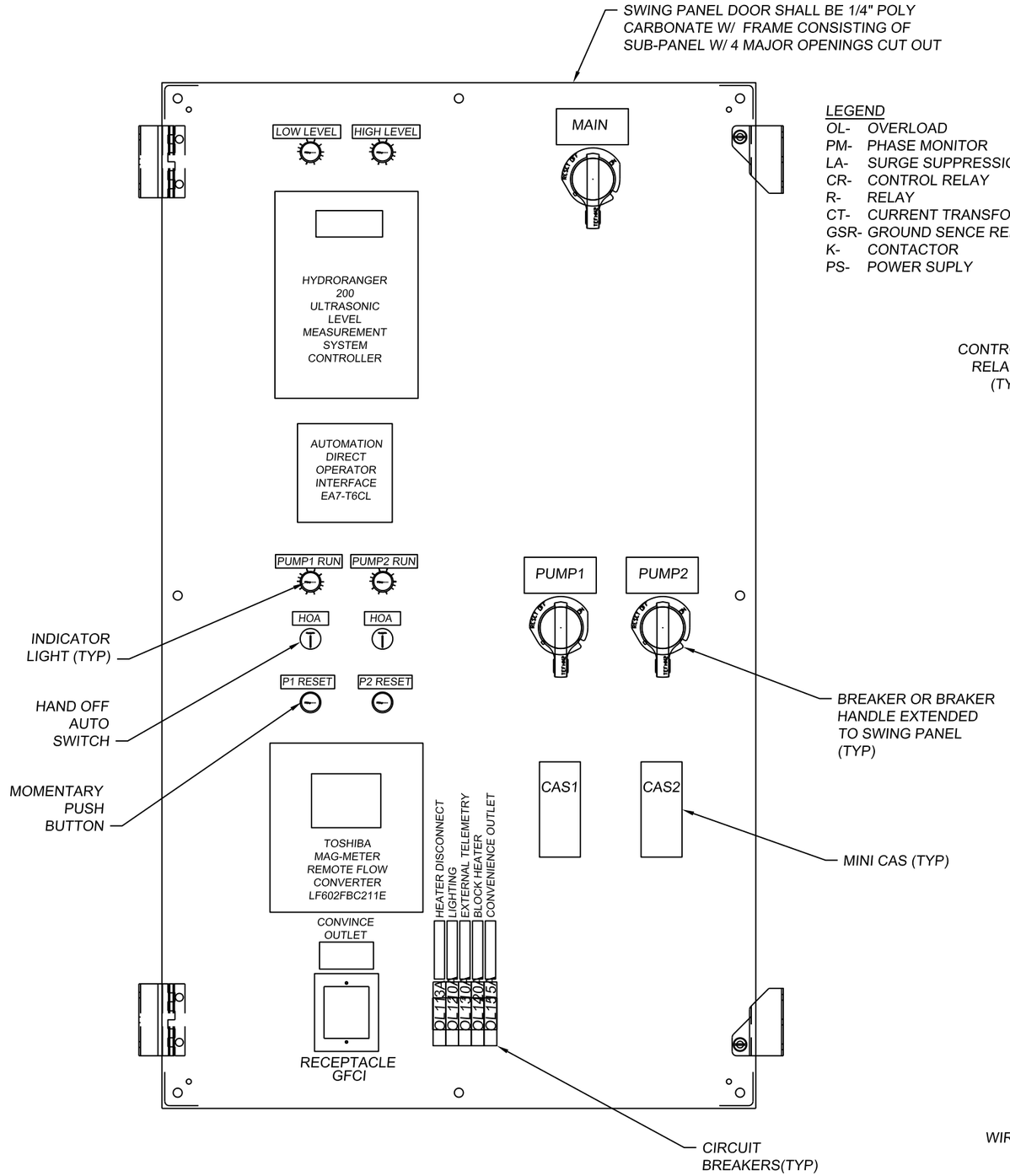
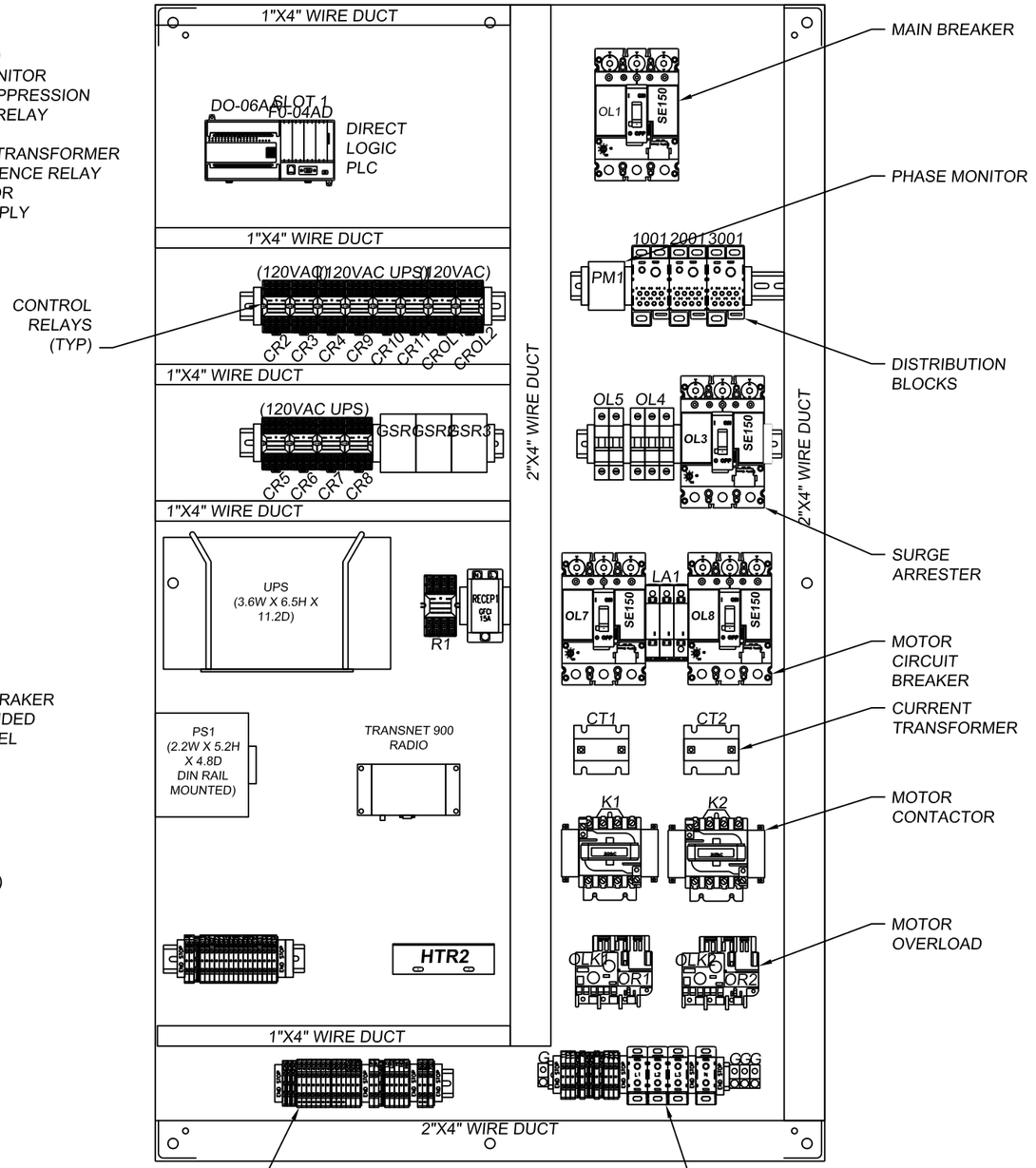
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



LEGEND

OL- OVERLOAD
PM- PHASE MONITOR
LA- SURGE SUPPRESSION
CR- CONTROL RELAY
R- RELAY
CT- CURRENT TRANSFORMER
GSR- GROUND SENCE RELAY
K- CONTACTOR
PS- POWER SUPLY



SWING PANEL FRONT VIEW

NTS

NOTE:
TYPICAL LAYOUT SHOWN
ACTUAL LAYOUT TO BE SUBMITTED FOR DISTRICT REVIEW PRIOR TO INSTALLATION.

SUB-PANEL FRONT VIEW

NTS

CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

SWING / SUB PANEL

STANDARD DRAWING

43

APPROVED: APR 2010

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Plotted on Apr 13, 2010 - 2:57pm, Modified 04-13-10
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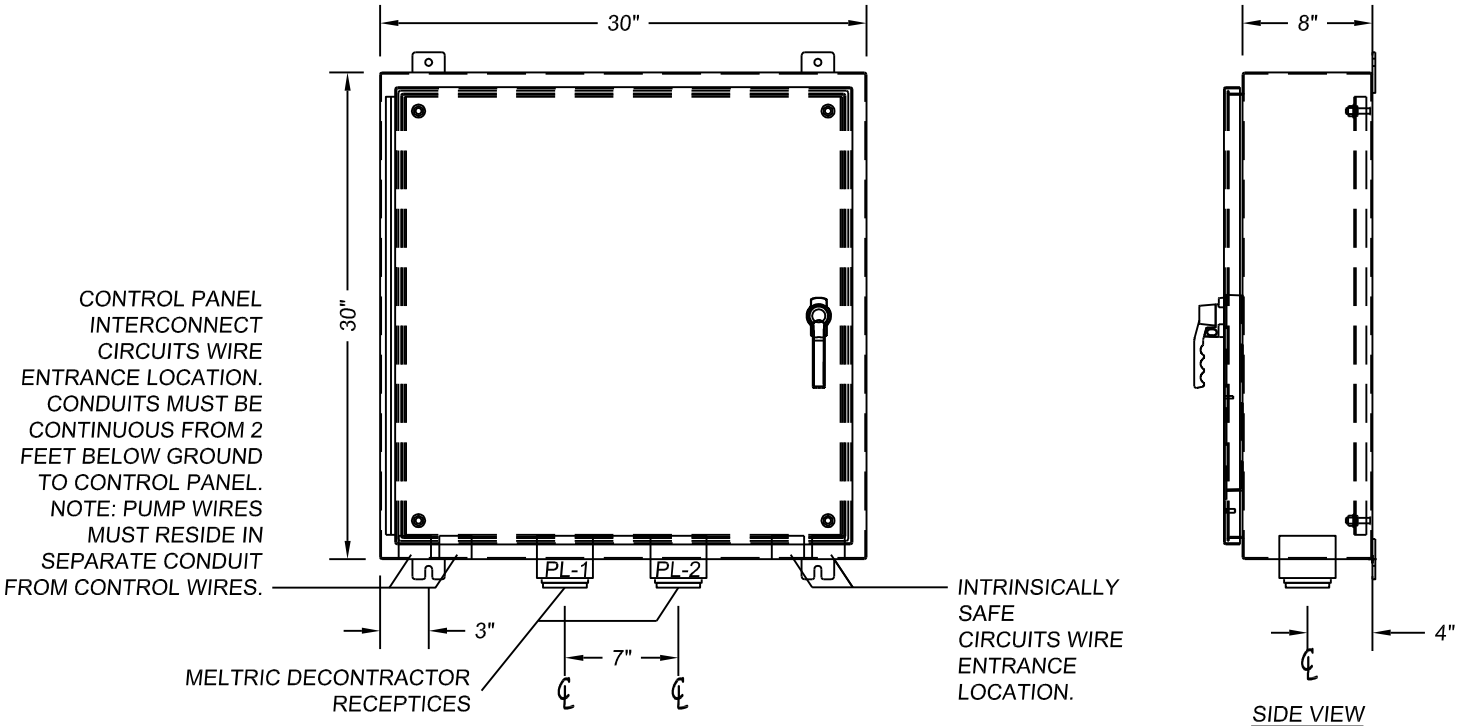
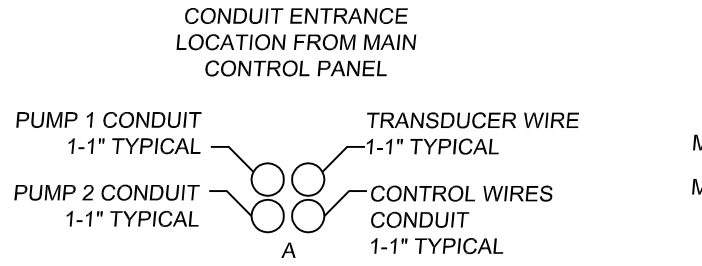
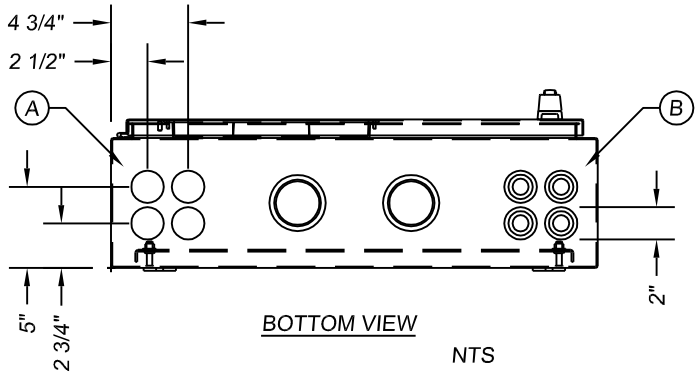
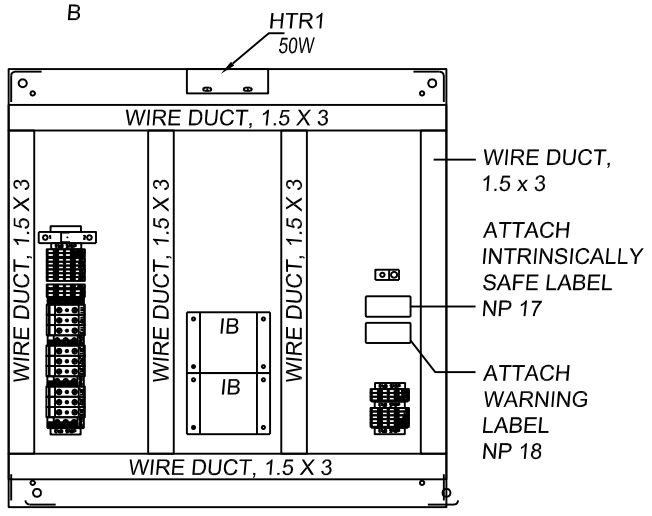








CLARK REGIONAL WASTEWATER DISTRICT

PUMP STATION

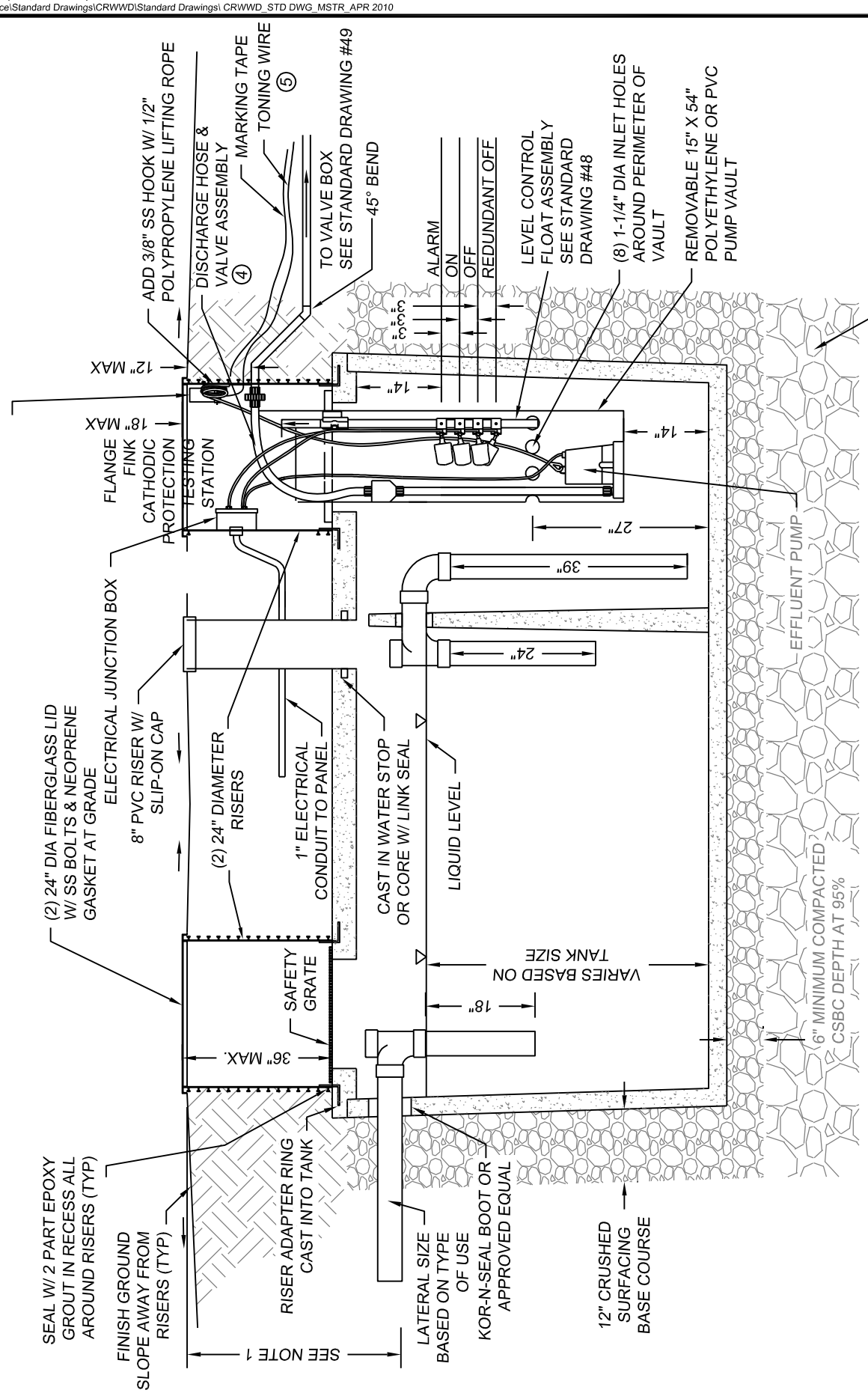
PUMP DISCONNECT PANEL

STANDARD DRAWING

44

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:57pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NOTES:

1. FIELD LOCATE EXISTING BUILDING SEWER & SET TANK ELEVATION TO DRAIN BUILDING SEWER AT MIN 1/4" PER FOOT. MAX DEPTH AS NEEDED TO LIMIT RISER DEPTH TO 3'.
2. SEE TYPICAL GRINDER / S.T.E.P. SITE PLAN DRAWING FOR APPROXIMATE TANK & PANEL LOCATIONS.
3. MIN SIZE SHALL BE 1500 GAL. LARGER TANKS MAY BE REQUIRED BASED ON USE. FLOW CALCULATIONS MAY BE REQUIRED.
4. DISCHARGE HOSE AND VALVE ASSEMBLY BY ORENCO MODEL # HV125CM
5. COIL 3' OF TONING WIRE INTO SIDE OR RISER.

CLARK REGIONAL WASTEWATER DISTRICT

S.T.E.P.

RESIDENTIAL CONCRETE S.T.E.P. TANK

STANDARD DRAWING

45

APPROVED: APR 2010

CLARK REGIONAL WASTEWATER DISTRICT

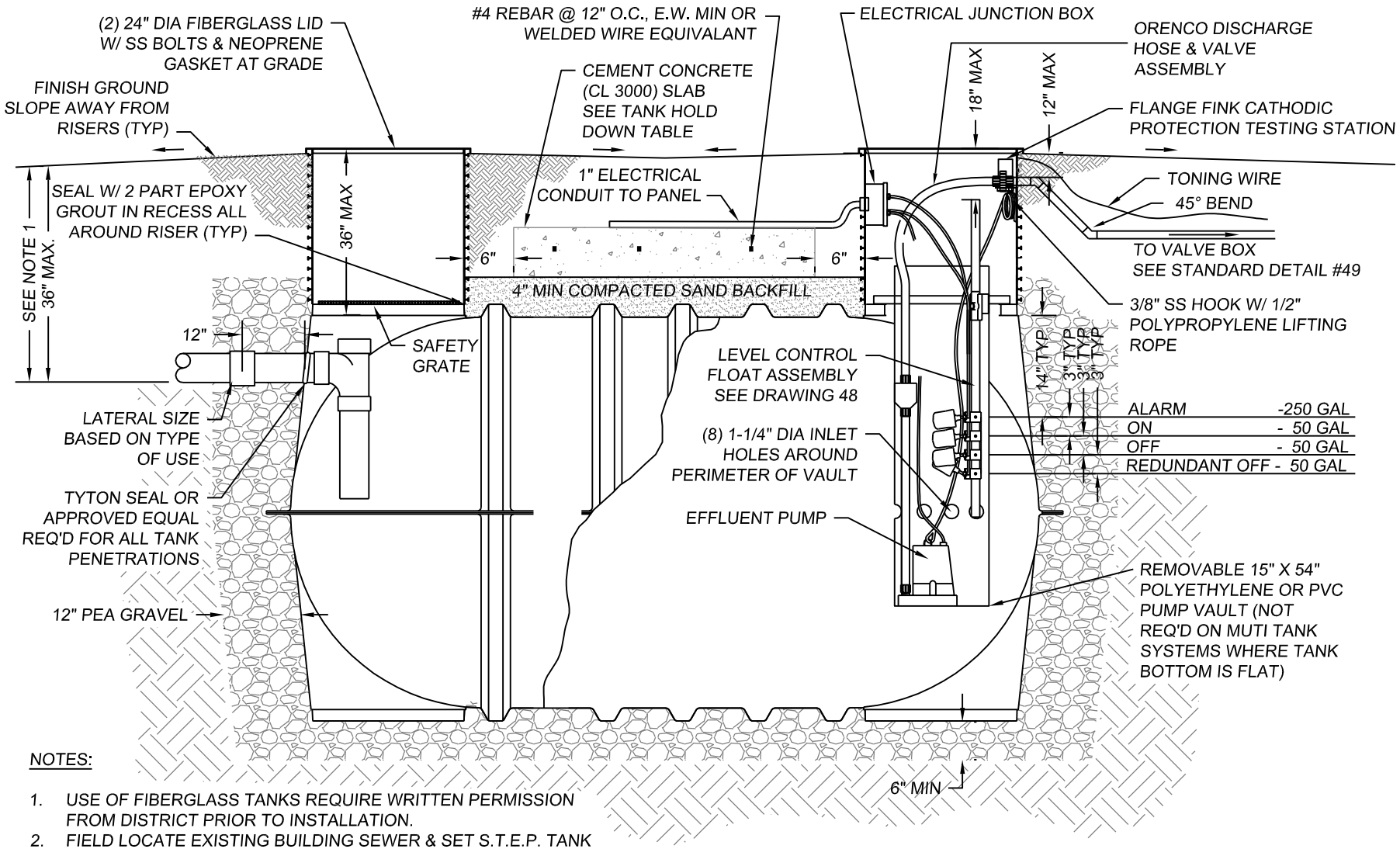
S.T.E.P.

RESIDENTIAL FIBERGLASS S.T.E.P. TANK

STANDARD DRAWING

46

APPROVED: APR 2010



NOTES:

1. USE OF FIBERGLASS TANKS REQUIRE WRITTEN PERMISSION FROM DISTRICT PRIOR TO INSTALLATION.
2. FIELD LOCATE EXISTING BUILDING SEWER & SET S.T.E.P. TANK ELEVATION TO ALLOW FOR GRAVITY FLOW FROM HOUSE AND STILL MEET MAX RISER DEPTH.
3. SEE TYPICAL GRINDER / S.T.E.P. SITE PLAN DRAWING FOR TANK & PANEL LOCATION REQUIREMENTS. MAX 3' DEPTH
4. RESIDENTIAL TANKS SHALL BE A MIN OF 1500 GAL. LARGER TANKS MAY BE REQUIRED BASED ON USE. FLOW CALCULATIONS MAY BE REQUIRED.
5. TANK BEDDING & BACKFILL MATERIAL SHALL BE PEA GRAVEL, CONSISTING OF CLEAN WASHED SAND AND GRAVEL, ROUNDED AND SUB-ROUNDED, NOT CRUSHED. MAXIMUM SIZE SHALL BE 1/4" WELL GRADED FROM COURSE TO FINE , WITH NOT MORE THAN 2% BY WEIGHT PASSING THE NO. 200 SIEVE.
6. THE DISTRICT WILL REQUIRE ANTI-FLOTATION CALCULATIONS BASED ON DEPTH OF COVER.
8. DISCHARGE ASSEMBLY ORENCO MODEL #HV125CM SHALL BE USED FOR STEP SYSTEMS.

TANK HOLD DOWN TABLE

HOLD DOWN SLAB AT DEPTH OF BURY *

TANK SIZE	THICKNESS "T"	WIDTH	LENGTH	
1500 MIN GAL	8"	5'-9"	13'-3"	DEPTH OF BURY < 3'
2000 GAL	12"	6'-0"	13'-0"	DEPTH OF BURY < 4'
3000 GAL	14"	6'-0"	19'-3"	DEPTH OF BURY < 4'

* BASED ON DEPTH OF COVER; FLOTATION TO BE REVIEWED FOR EACH INSTALLATION.

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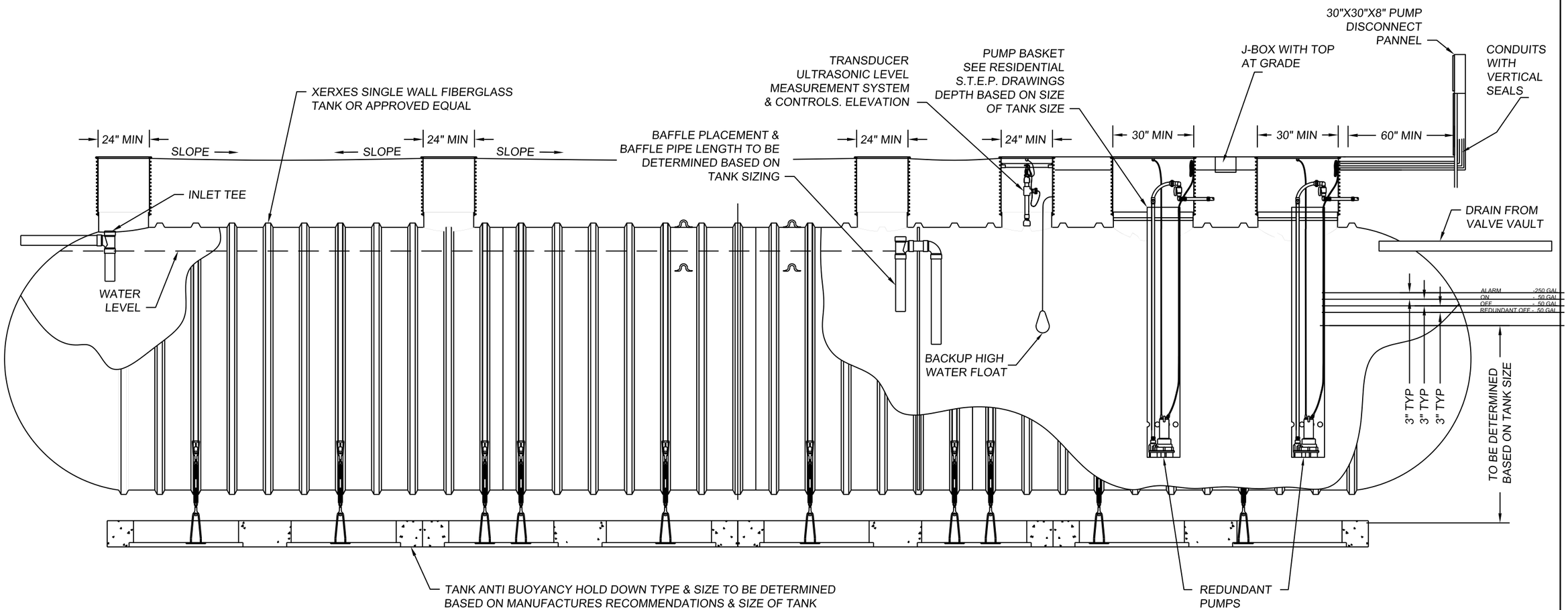
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010

CLARK REGIONAL WASTEWATER DISTRICT

COMMERCIAL S.T.E.P

COMMERCIAL FIBERGLASS S.T.E.P TANK

STANDARD DRAWING



47

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:57pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD.DWG_MSTR_APR 2010

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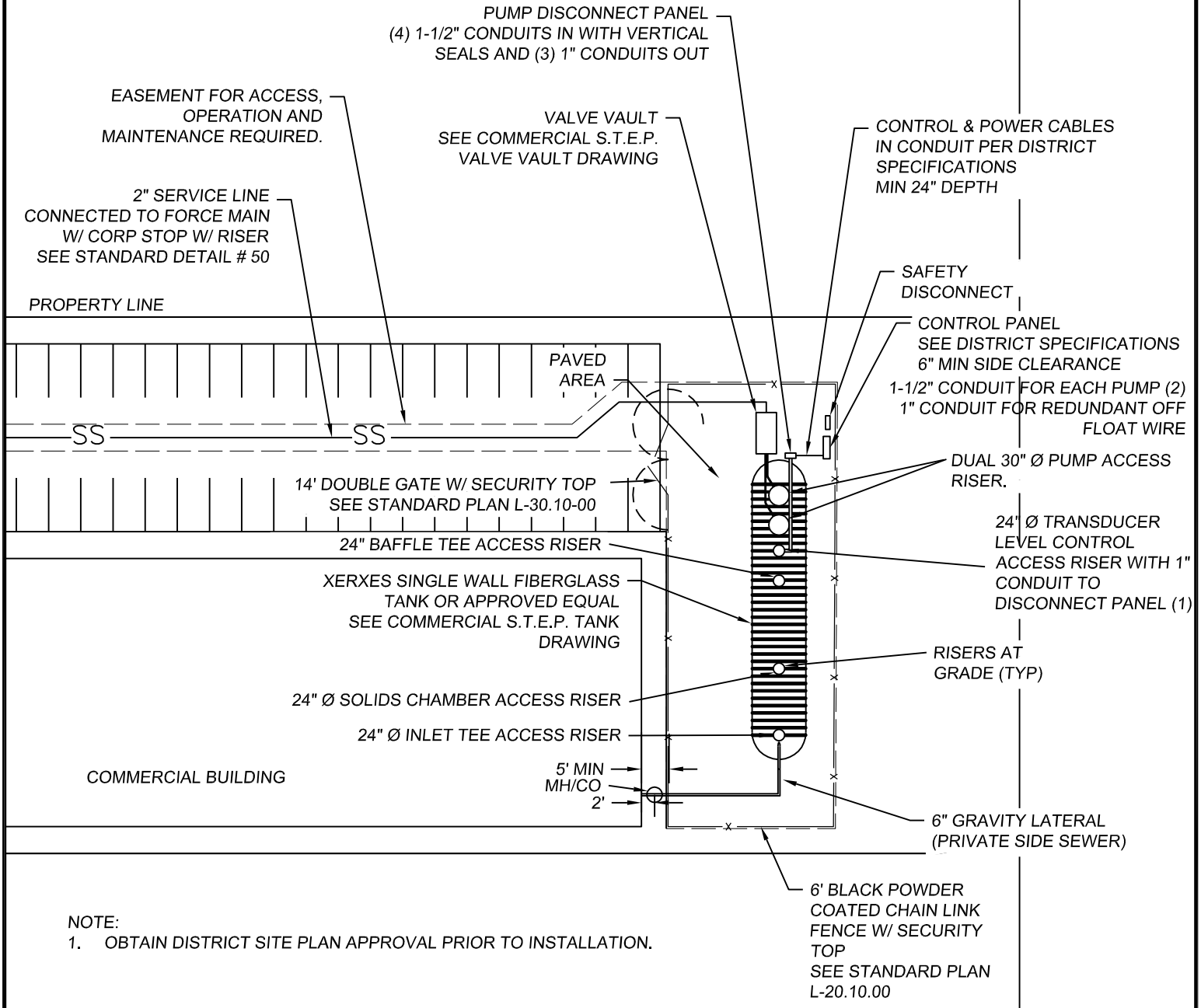


NOTE:
1. OBTAIN DISTRICT SITE PLAN APPROVAL PRIOR TO INSTALLATION.

CLARK REGIONAL WASTEWATER DISTRICT

S.T.E.P.
COMMERCIAL

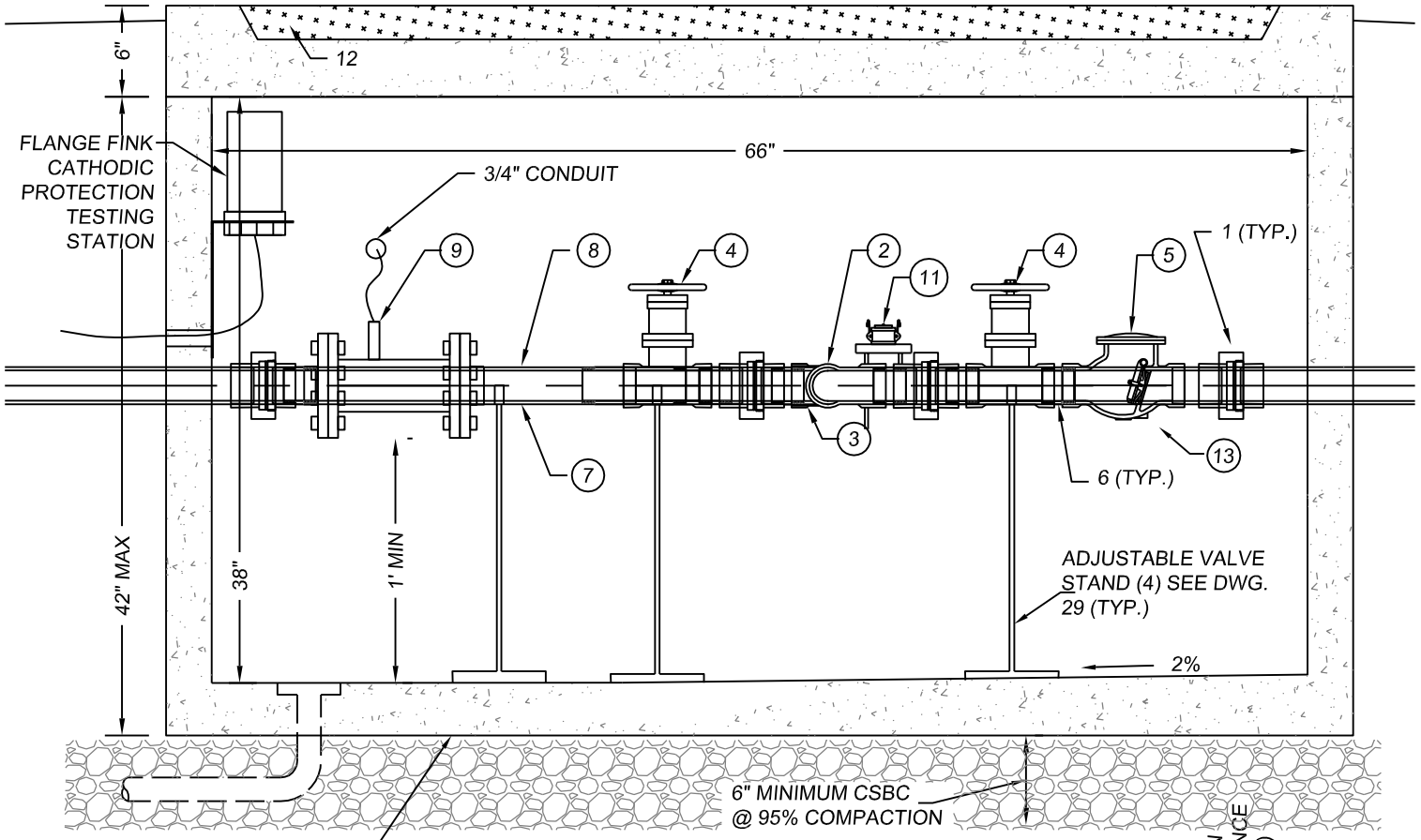
COMMERCIAL S.T.E.P DUPLEX SITE PLAN

STANDARD DRAWING

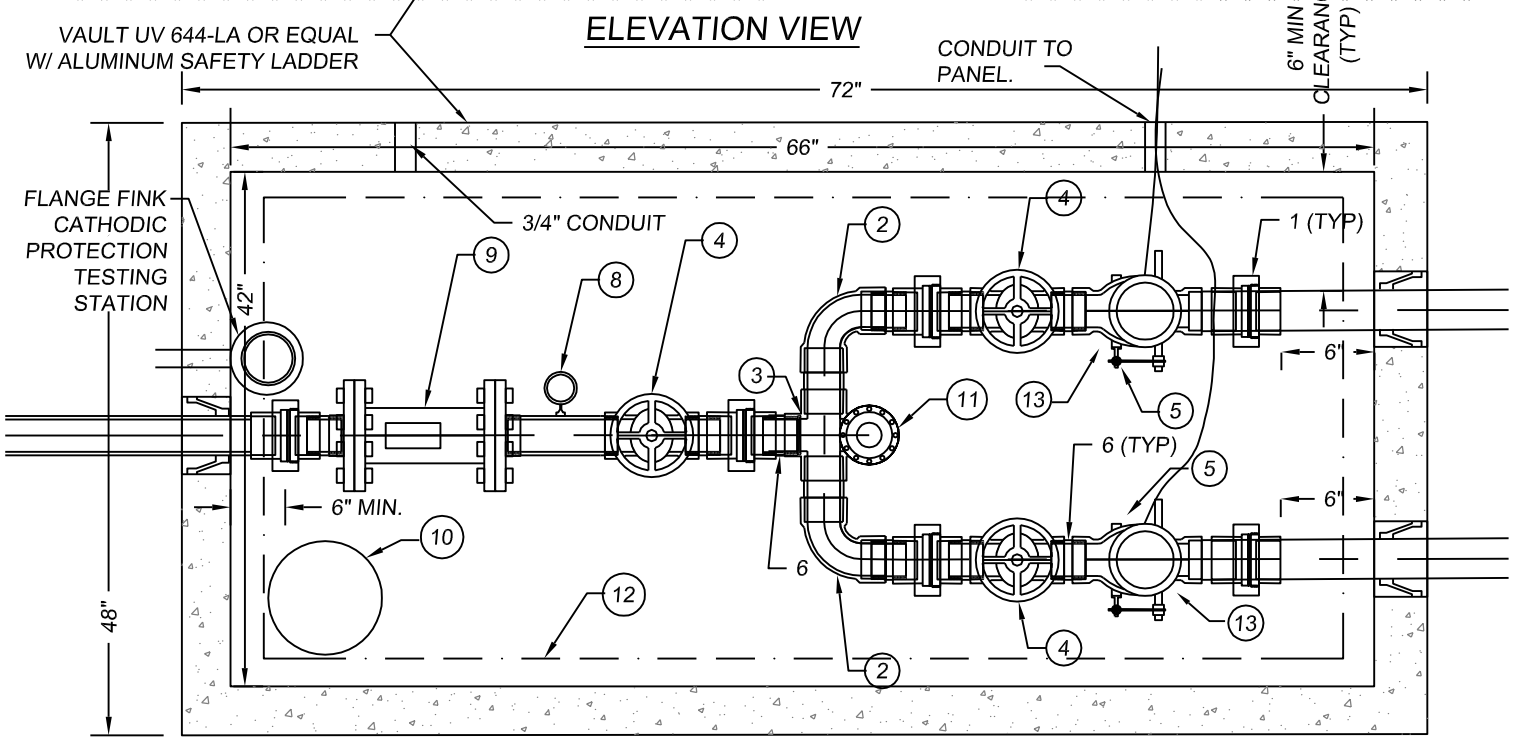
48

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:57pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



ELEVATION VIEW



PLAN VIEW

1. SCH 80 UNION
2. SCH 80 90° BEND
3. SCH 80 CROSS
4. BRONZE GATE VALVE
5. BRONZE CHECK VALVE
6. SCH 80 NIPPLE - SHOULDER (TYP.)
7. SCH 80 NIPPLE - 6" LONG
8. PRESSURE GAUGE SEE DRAWING #XX
9. TOSHIBA MAG METER
10. 5 GALLON SUMP DRAIN. NOTE: DRAIN TO SURFACE IF POSSIBLE
11. 90° BEND, BLIND FLANGE, THREADED NIPPLE AND CAM LOCK HOSE ASSEMBLY
12. SYRACUSE CASTING MODEL ECT-HD-SG 36"x60" HEAVY DUTY H-20 ALUMINUM HATCH
13. LIMIT SWITCH FOR CHECK VALVE POSITION INDICATOR.

CLARK REGIONAL WASTEWATER DISTRICT

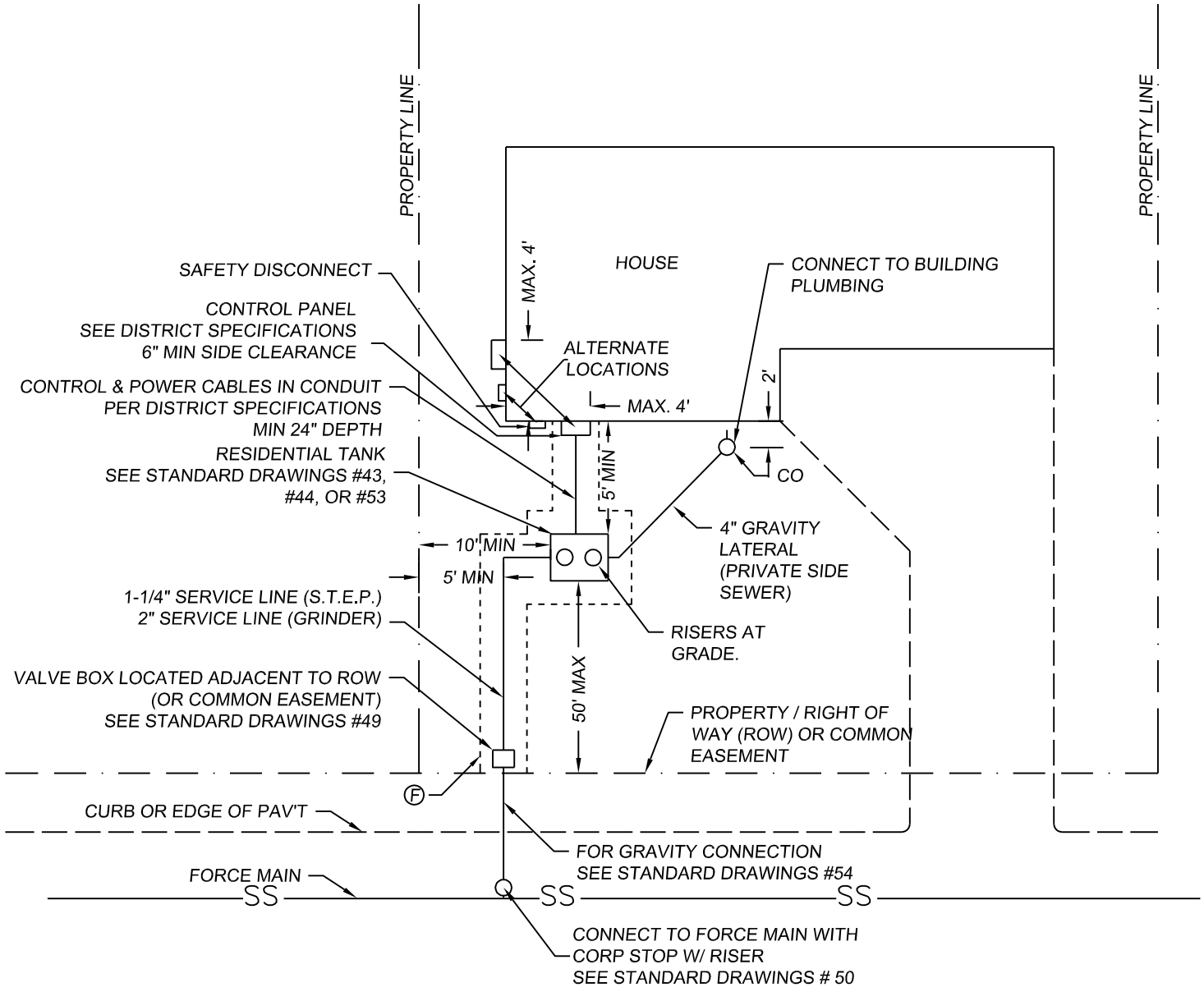
S.T.E.P. COMMERCIAL

COMMERCIAL S.T.E.P DUPLEX VALVE BOX

STANDARD DRAWING

49

APPROVED: APR 2010



NOTES:

A. LOCATE S.T.E.P. / GRINDER TANK MIN OF 5' FROM BUILDING & AS CLOSE TO PUBLIC RIGHT-OF-WAY AS POSSIBLE.
B. MAINTAIN DISTRICT ACCESS TO TANK, VALVE BOX, CONTROL PANEL, & SAFETY DISCONNECT.
C. CONTROL PANEL SHALL BE LOCATED WITH AN UNOBSTRUCTED LINE OF SIGHT TO THE STEP TANK PER DISTRICT SPECIFICATIONS
D. VALVE BOX OR TANK SHALL NOT BE LOCATED IN DRIVEWAY WITHOUT DISTRICT APPROVAL.
E. OBTAIN DISTRICT SITE PLAN APPROVAL PRIOR TO INSTALLATION.
F. EASEMENT FOR ACCESS, OPERATION AND MAINTENANCE REQUIRED.

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER / S.T.E.P.

RESIDENTIAL GRINDER / S.T.E.P. SITE PLAN

STANDARD DRAWING

50

APPROVED: APR 2010

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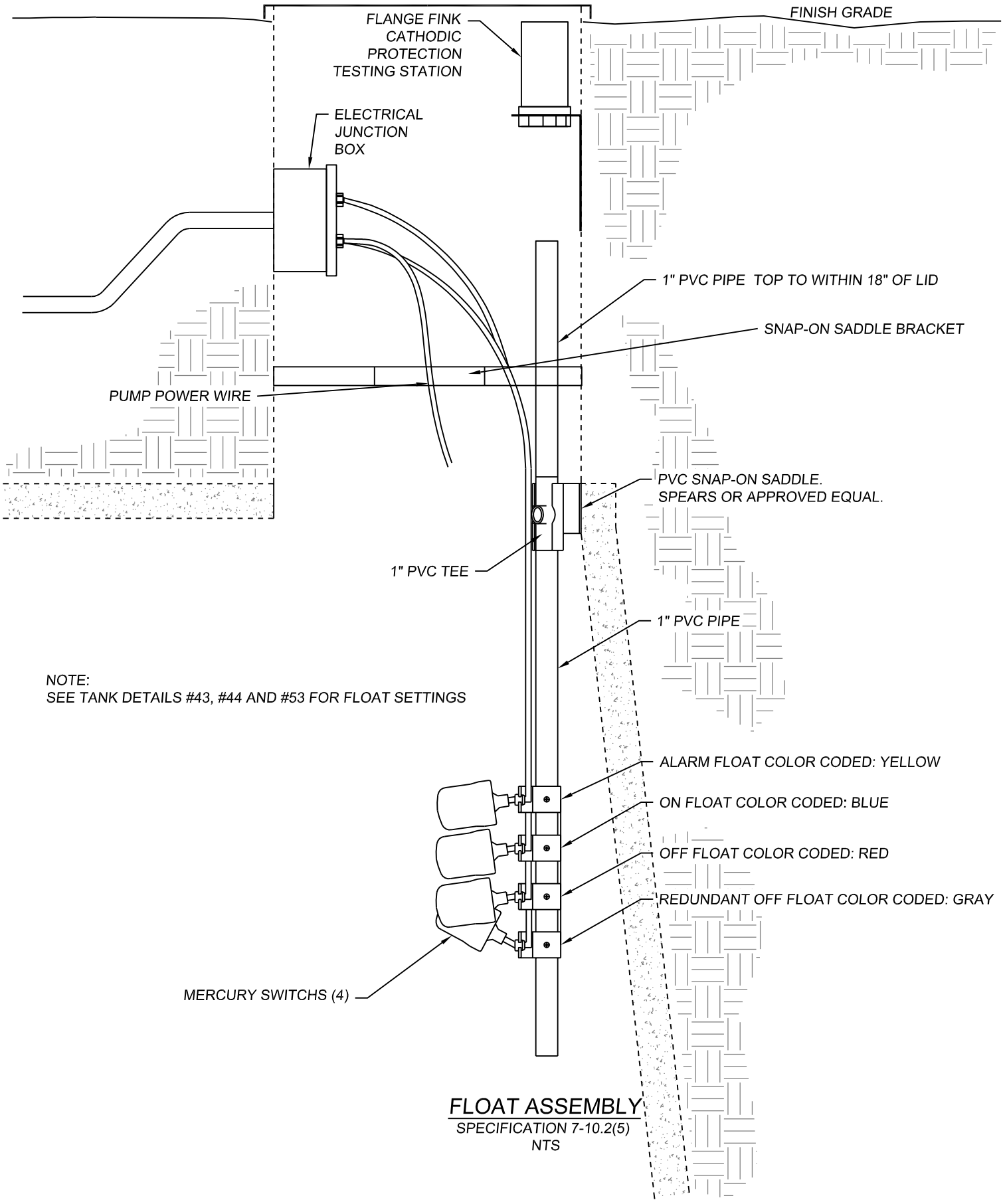
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



FLOAT ASSEMBLY
SPECIFICATION 7-10.2(5)
NTS

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER / S.T.E.P.

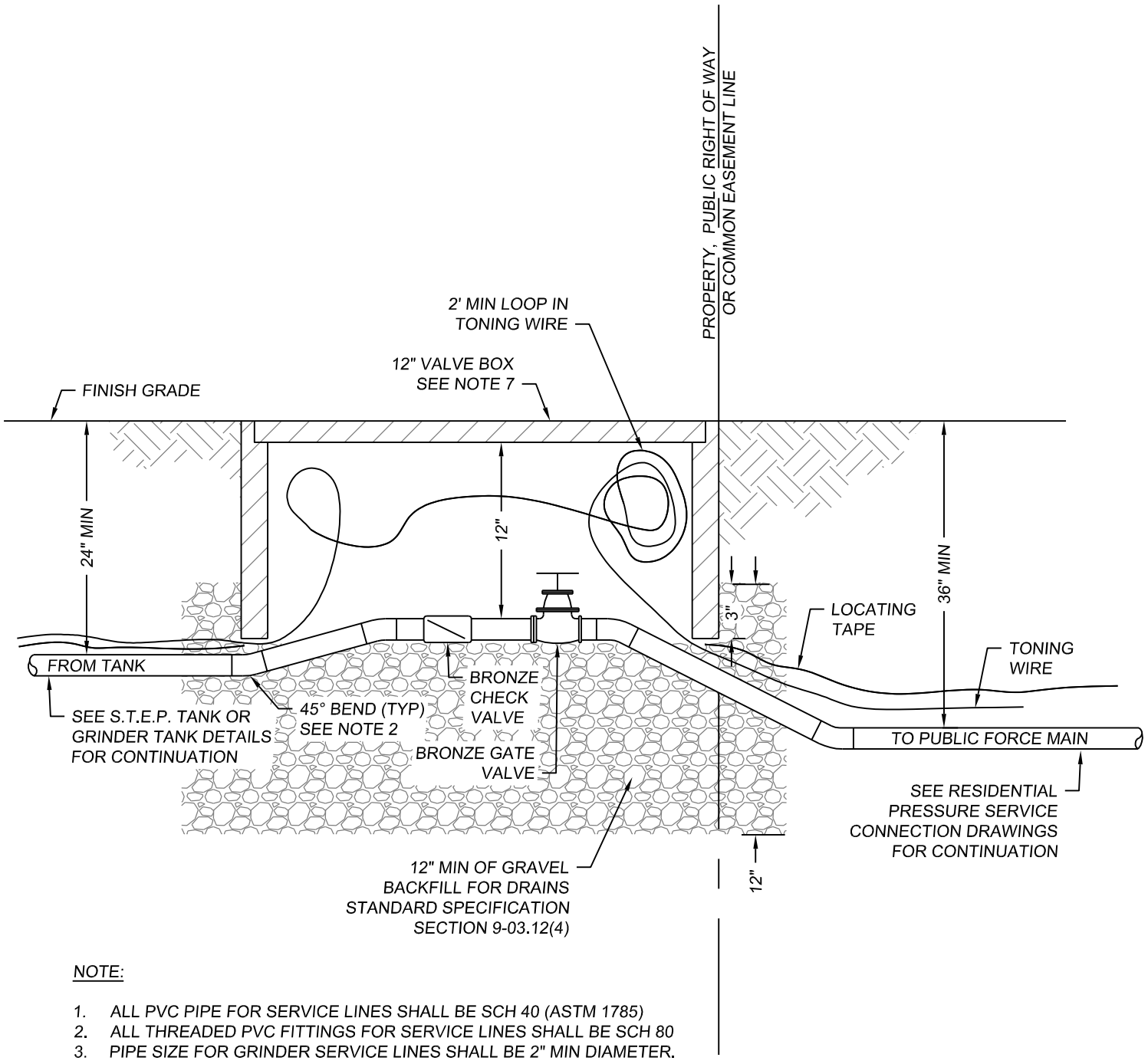
RESIDENTIAL GRINDER / S.T.E.P. FLOAT ASSEMBLY

STANDARD DRAWING

51

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:58pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NOTE:

1. ALL PVC PIPE FOR SERVICE LINES SHALL BE SCH 40 (ASTM 1785)
2. ALL THREADED PVC FITTINGS FOR SERVICE LINES SHALL BE SCH 80
3. PIPE SIZE FOR GRINDER SERVICE LINES SHALL BE 2" MIN DIAMETER.
4. PIPE SIZE FOR S.T.E.P. SERVICE LINES SHALL BE 1 1/4"
5. FITTINGS & VALVES SHALL MATCH PIPE SIZE
6. NO CLOSE NIPPLES
7. VALVE BOX SHALL BE CARSON IND. MOD# 1419 W/ BOLTED NON-HINGED COVER & A # 1419E EXTENSION.

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER / S.T.E.P.

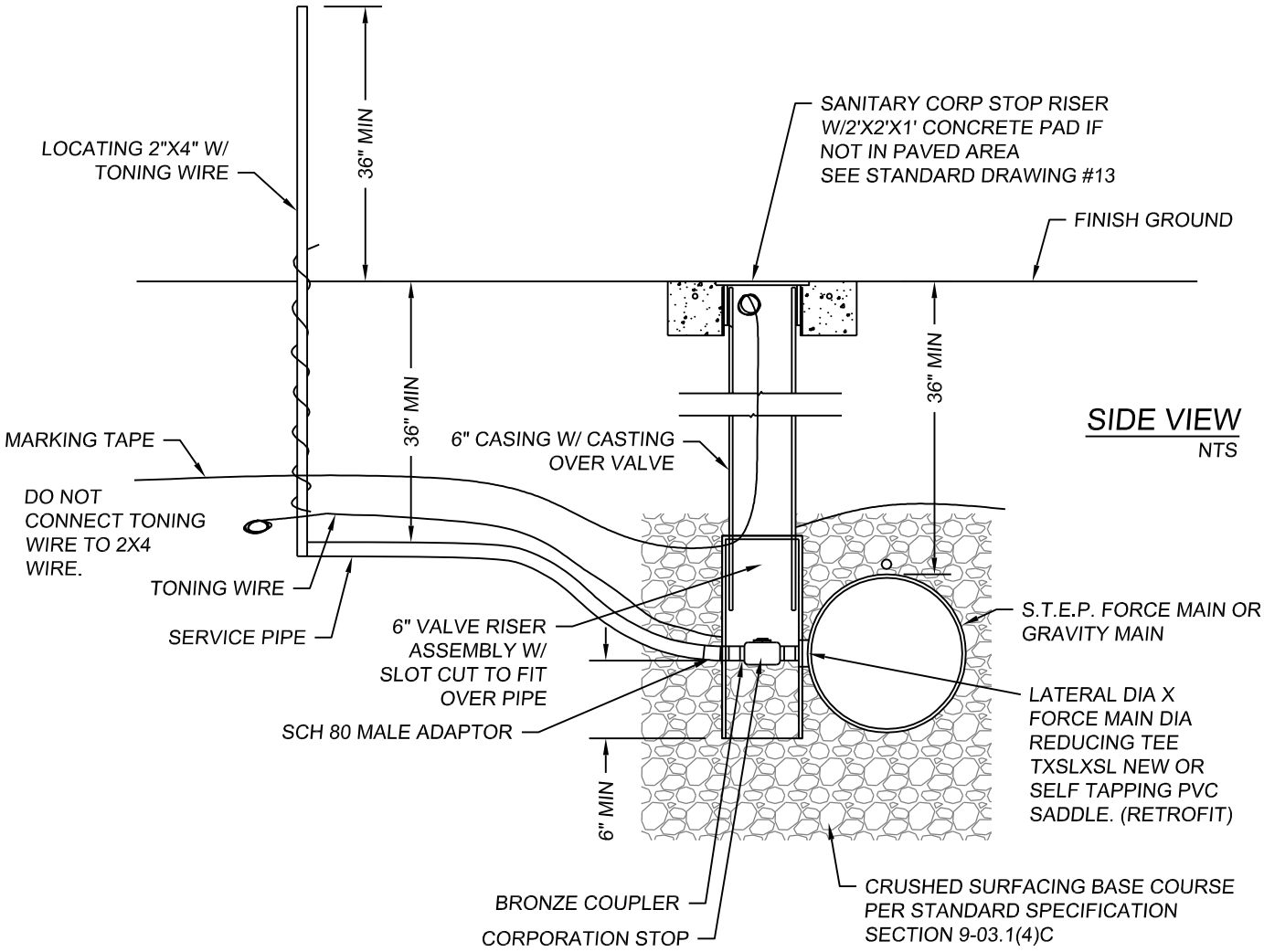
RESIDENTIAL GRINDER / S.T.E.P. VALVE BOX

STANDARD DRAWING

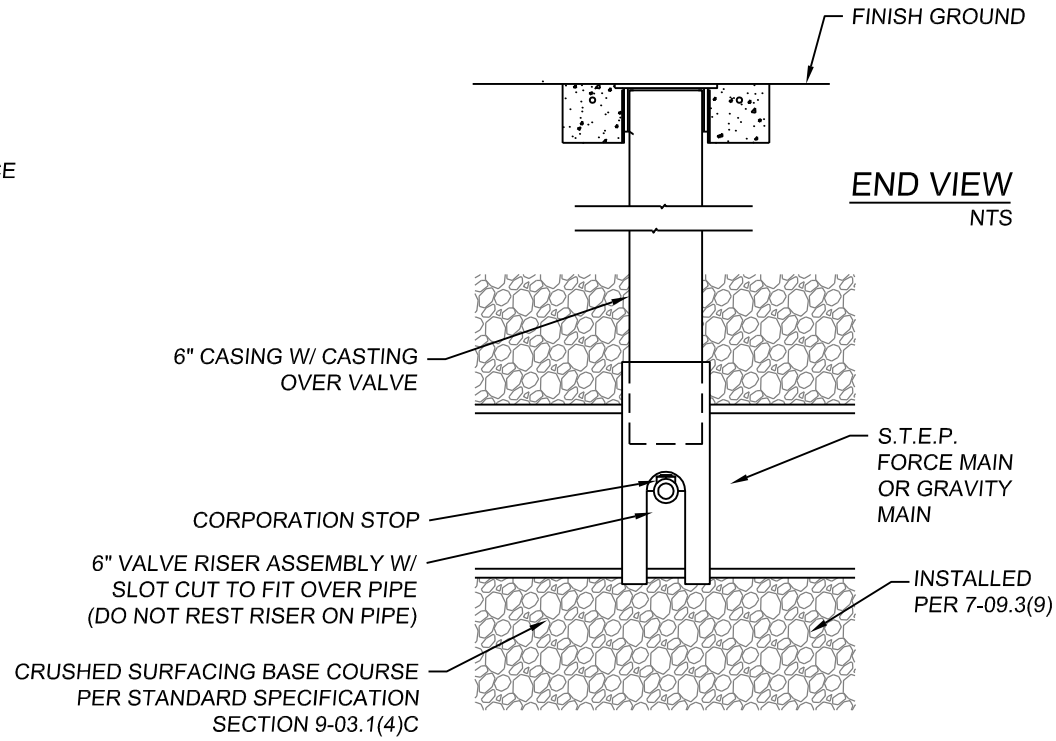
52

APPROVED: APR 2010

Plotted on Apr 13, 2010 - 2:58pm, Modified 04-13-10
T:\Reference\Standard Drawings\CRWWD\Standard Drawings\ CRWWD_STD DWG_MSTR_APR 2010



NOTE:
1. PIPE SIZE FOR GRINDER SERVICE LINES SHALL BE 2"
2. PIPE SIZE FOR S.T.E.P. SERVICE LINES SHALL BE 1 1/4"
3. ALL PVC PIPE FOR SERVICE LINES SHALL BE SCH 40
4. ALL THREADED PVC FITTINGS FOR SERVICE LINES SHALL BE SCH 80
5. ALL FEMALE FITTINGS FOR SERVICE LINES SHALL BE BRONZE



CLARK REGIONAL WASTEWATER DISTRICT

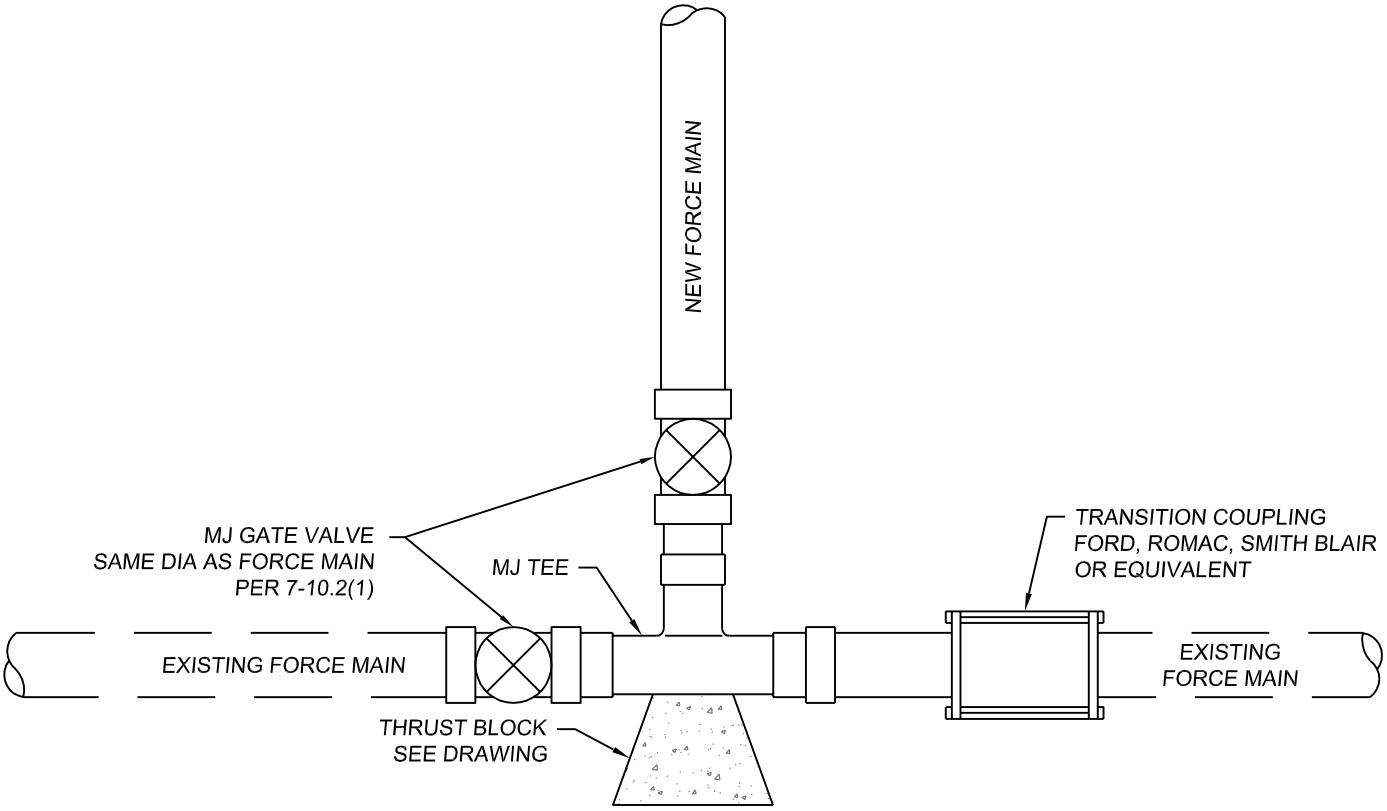
GRINDER / S.T.E.P.

RESIDENTIAL PRESSURE SERVICE CONNECTION

STANDARD DRAWING

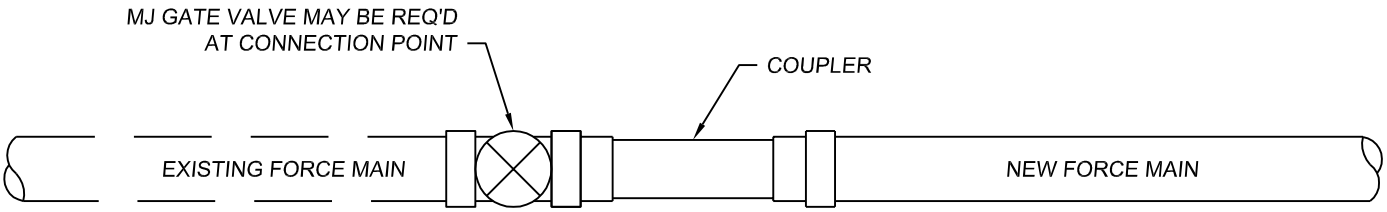
53

APPROVED: APR 2010



TEE CONNECTION DETAIL

NTS



IN LINE CONNECTION DETAIL

NTS

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER / S.T.E.P.

GRINDER / S.T.E.P.
FORCE MAIN EXTENSION

STANDARD DRAWING

54

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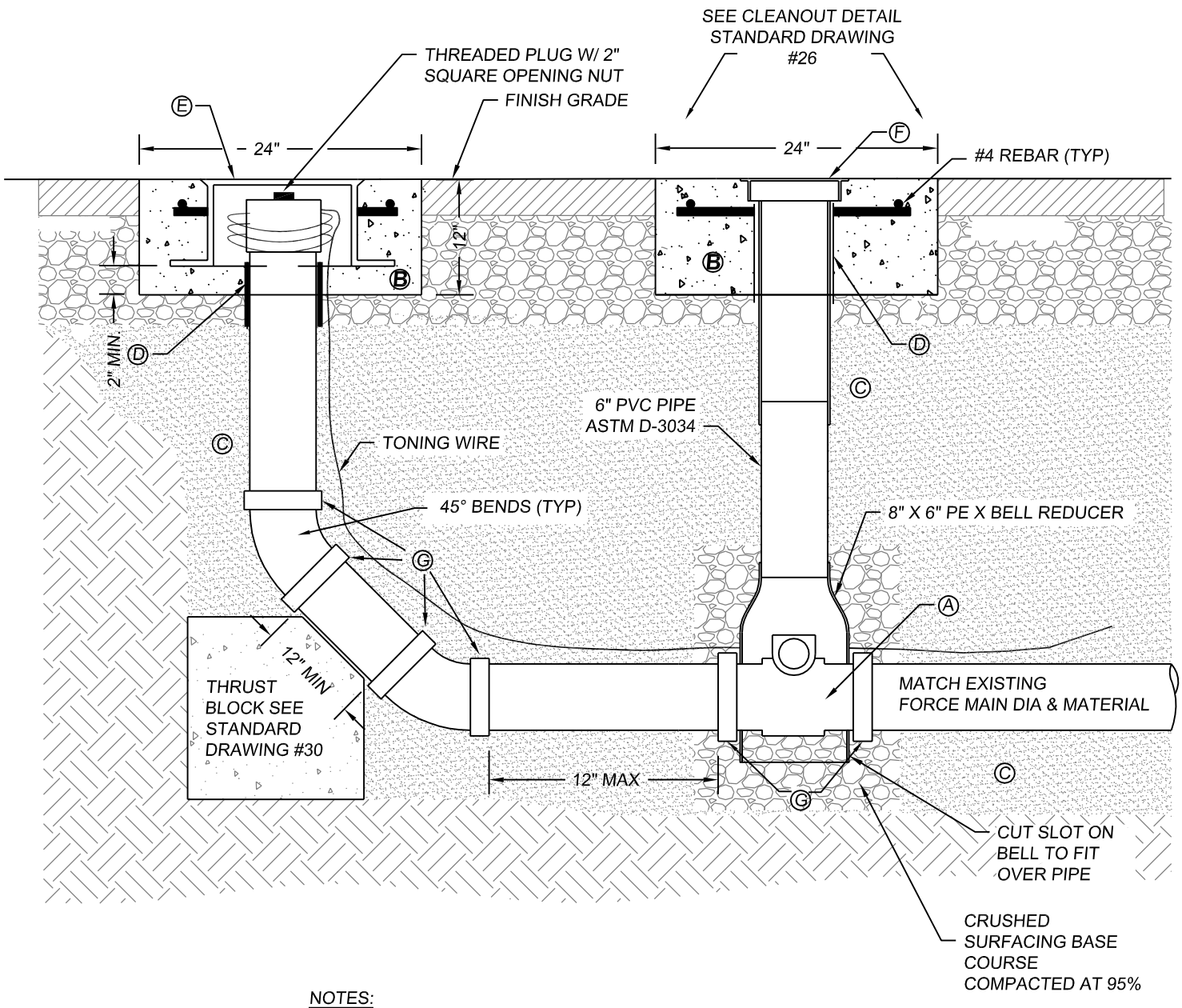

NOTES:

A. MJ GATE VALVE (AWWA C515) W/ NON RISING STEM W/ 2" SQUARE BRONZE OPERATOR W/ RESTRAINED JOINTS(EACH SIDE) (9-30.0).
B. CONCRETE (CL 3000)
C. BEDDING & BACKFILL TO CONFORM WITH MATERIALS. SPECIFIED IN THE SEWER LINE EXTENSION PLANS.
D. INSTALL 50# FELT BETWEEN CONCRETE & PIPE
E. CLEANOUT FRAME SHALL BE OLYMPIC FOUNDRY 11-1/2" X 7-5/8" W/ COVER PART # M-1035 TO READ "SEWER" OR APPROVED EQUAL.
F. VALVE BOX SHALL BE VAN RICH # 910 W/ COVER TO READ "SEWER".
G. THRUST BLOCKS ARE FOR EXISTING MAINS ONLY. USE JOINT RESTRAINTS ON NEW INSTALLATIONS

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER / S.T.E.P.

RESIDENTIAL GRINDER / S.T.E.P. FORCE MAIN CLEANOUT

STANDARD DRAWING

55

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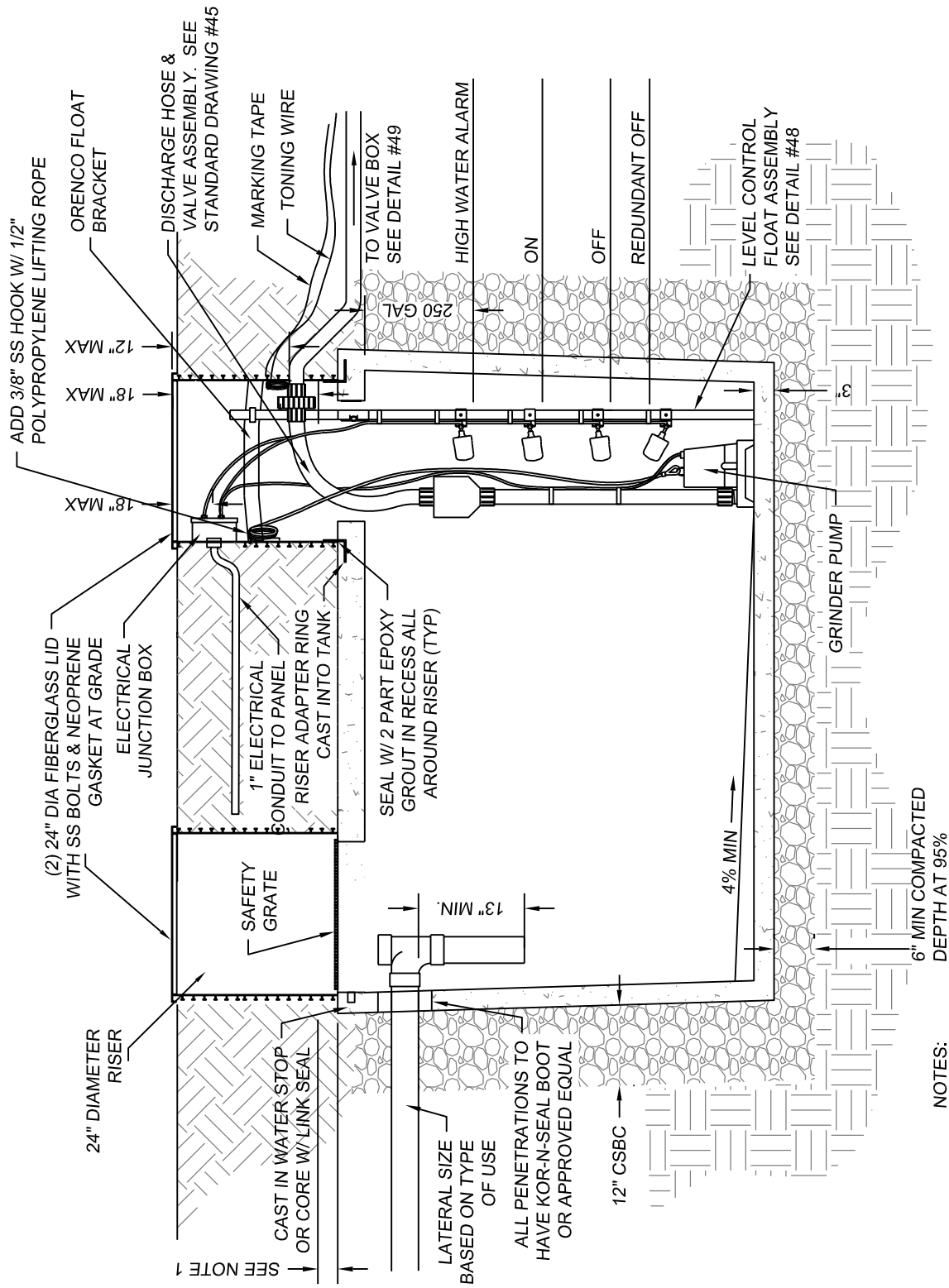

NOTES:

1. FIELD LOCATE EXISTING BUILDING SEWER & SET INTERCEPTOR TANK ELEVATION TO DRAIN BUILDING SEWER AT MIN 1/4" PER FOOT.
2. SEE TYPICAL GRINDER / S.T.E.P. SITE PLAN DRAWING FOR APPROXIMATE TANK & PANEL LOCATIONS.
3. DIMENSIONS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE DISTRICT SPECIFICATIONS.
4. MIN SIZE SHALL BE 500 GAL. PLACED ON STANDARDSPECIFICATION SECTION 9-03.9(3) CRUSHED SURFACE BASE COURSE.

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER

RESIDENTIAL GRINDER PUMP TANK

STANDARD DRAWING

56

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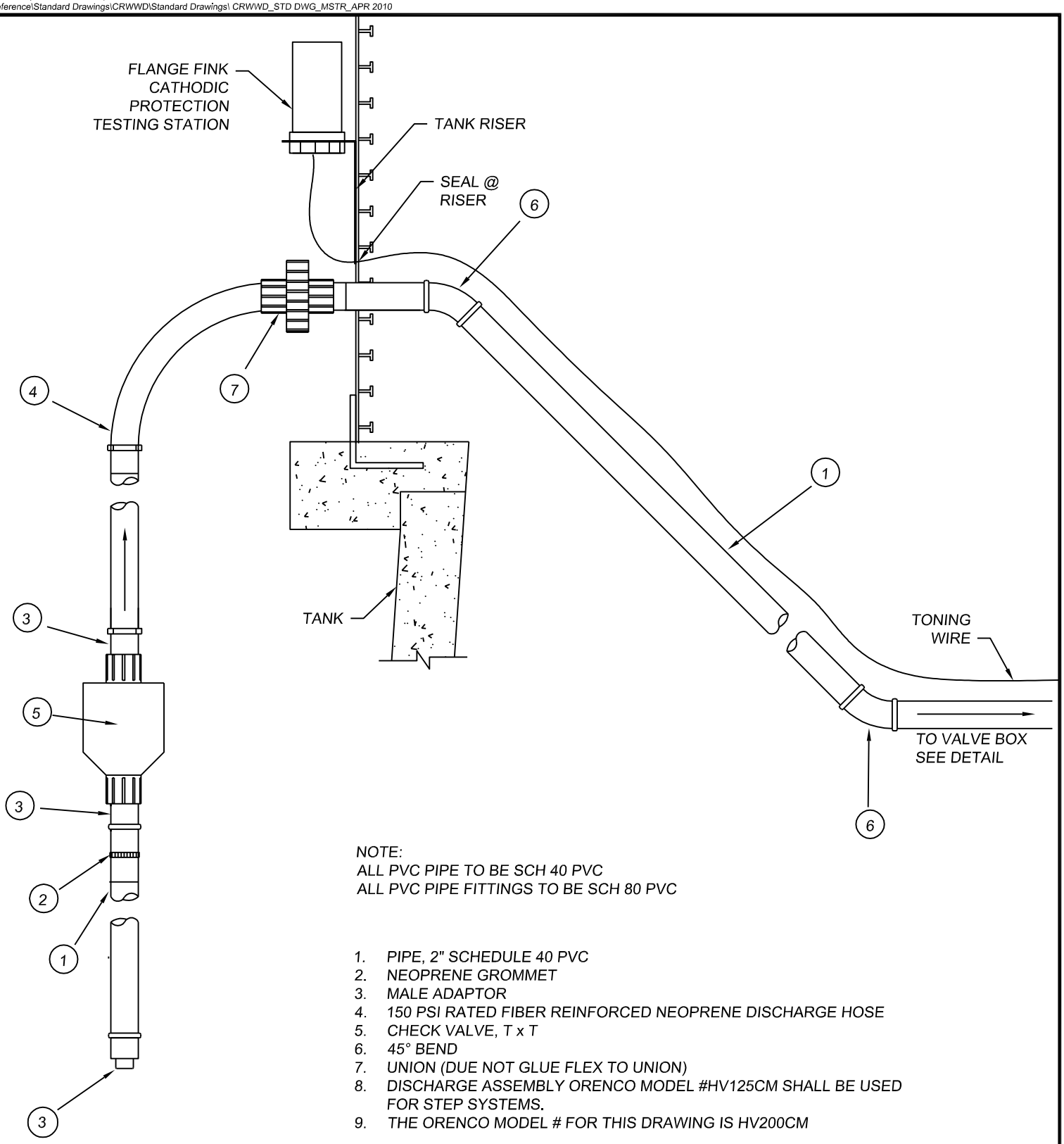

NOTE:
ALL PVC PIPE TO BE SCH 40 PVC
ALL PVC PIPE FITTINGS TO BE SCH 80 PVC

1. PIPE, 2" SCHEDULE 40 PVC
2. NEOPRENE GROMMET
3. MALE ADAPTOR
4. 150 PSI RATED FIBER REINFORCED NEOPRENE DISCHARGE HOSE
5. CHECK VALVE, T x T
6. 45° BEND
7. UNION (DUE NOT GLUE FLEX TO UNION)
8. DISCHARGE ASSEMBLY ORENCO MODEL #HV125CM SHALL BE USED FOR STEP SYSTEMS.
9. THE ORENCO MODEL # FOR THIS DRAWING IS HV200CM

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER

GRINDER DISCHARGE HOSE & VALVE ASSEMBLY

STANDARD DRAWING

57

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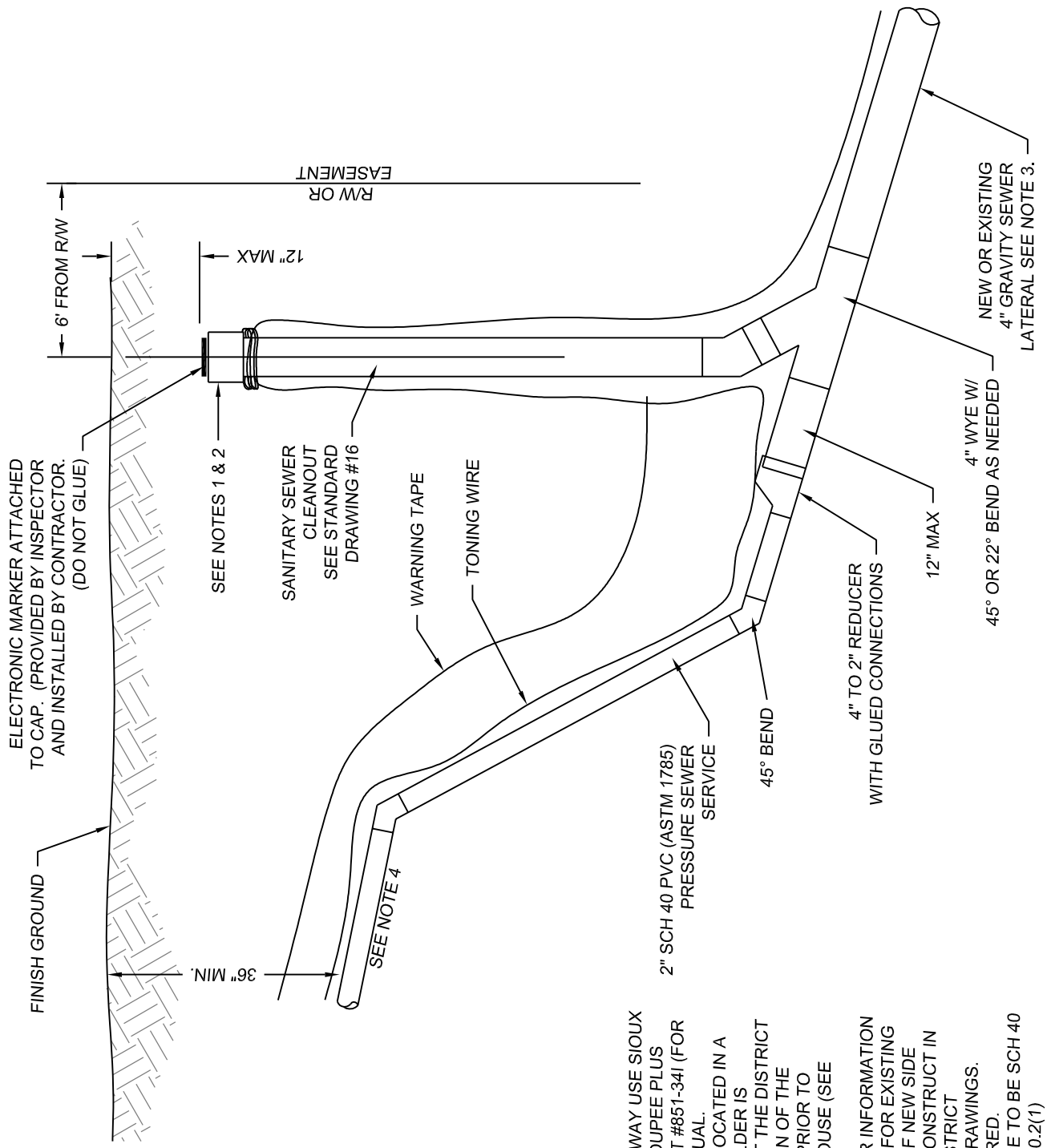

NOTES:

1. IF CLEAOUT IS IN DRIVEWAY USE SIOUX CHIEF MFG. CO., INC. TOUPEE PLUS ADJUSTABLE CLEANOUT #851-34I (FOR ABS) OR APPROVED EQUAL.
2. WHEN A CLEANOUT IS LOCATED IN A DRIVEWAY, PERMIT HOLDER IS REQUIRED TO CONTACT THE DISTRICT FOR A FINAL INSPECTION OF THE DRIVEWAY CLEANOUT PRIOR TO OCCUPANCY OF THE HOUSE (SEE DETAIL)
3. CONTACT DISTRICT FOR INFORMATION ON LOCATION & DEPTH FOR EXISTING GRAVITY SIDE SEWER. IF NEW SIDE SEWER IS REQUIRED, CONSTRUCT IN ACCORDANCE WITH DISTRICT SPECIFICATIONS AND DRAWINGS.
4. VALVE BOX NOT REQUIRED.
5. ALL PVC PRESSURE PIPE TO BE SCH 40 (ASTM 1785). SPEC #7-10.2(1)
6. ALL THREADED PVC PRESSURE FITTINGS TO BE SCH 80. SPEC #7-10.2(1)
7. GRAVITY SIDE SEWER MATERIAL MAY BE ABS OR PVC PLASTIC OR DUCTILE IRON PIPE.

CLARK REGIONAL WASTEWATER DISTRICT

GRINDER

PRESSURE TO GRAVITY SERVICE CONNECTION

STANDARD DRAWING

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APPROVED: APR 2010