



STANDARD DRAWINGS FOR SANITARY SEWERS

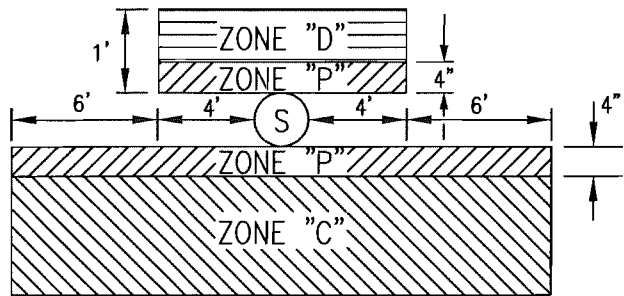
SPECIAL DISTRICTS DEPARTMENT
WATER AND SANITATION DIVISION
ENGINEERING AND CONSTRUCTION DIVISION

COUNTY OF SAN BERNARDINO
SPECIAL DISTRICTS DEPARTMENT

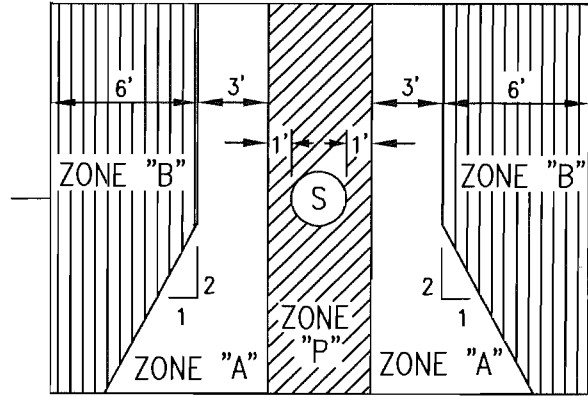
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STANDARD DRAWINGS
SEWERS

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CROSSING
SANITARY SEWERS AND
UTILITY WATER LINES



PARALLEL
SANITARY SEWERS AND
UTILITY WATER LINES

ZONE "P"	WATER MAIN CONSTRUCTION IN THIS ZONE IS PROHIBITED.
ZONE "A"	NO WATER MAINS SHALL BE CONSTRUCTED IN THIS ZONE WITHOUT APPROVAL FROM THE HEALTH AGENCY.
ZONE "B"	WATER MAINS IN THIS ZONE SHALL BE CONSTRUCTED OF SPECIAL PIPE AS LISTED BELOW.
ZONE "C"	WATER MAINS SHALL HAVE NO JOINTS WITHIN ZONE "C" AND SHALL BE CONSTRUCTED OF SPECIAL PIPE AS LISTED BELOW.
ZONE "D"	WATER MAINS SHALL HAVE NO JOINTS WITHIN ZONE "D" AND SHALL BE CONSTRUCTED OF SPECIAL PIPE AS LISTED BELOW.

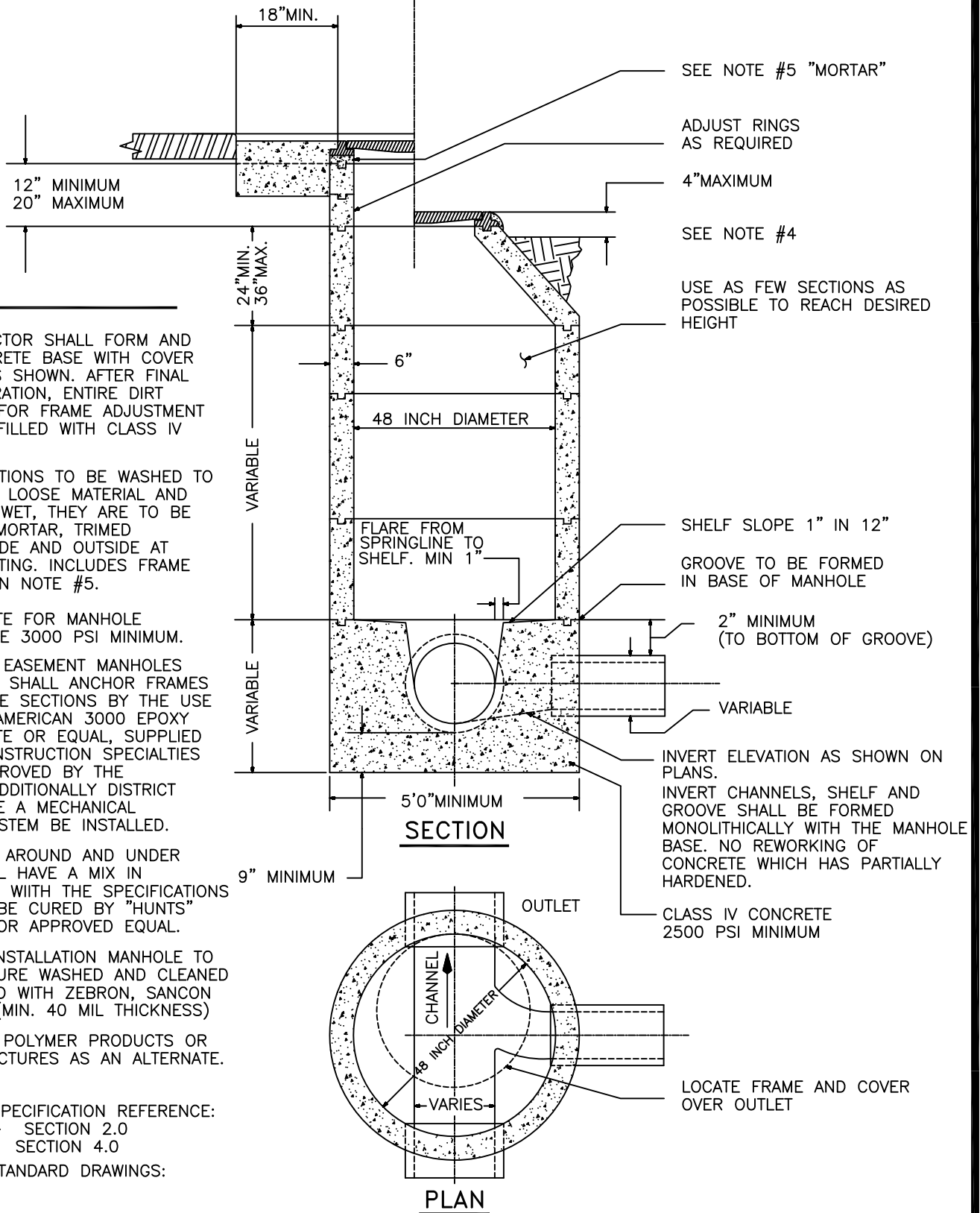
SPECIAL PIPE ALTERNATIVES:

1. DUCTILE IRON PIPE WITH HOT DIP BITMINOUS COATING.
2. DIPPED AND WRAPPED ONE-FOURTH INCH THICK WELDED STEEL PIPE.
3. CLASS 200 PRESSURE RATED PLASTIC WATER PIPE (DR 14 PER AWWA C900) OR EQUIVALENT.
4. REINFORCED CONCRETE PRESSURE PIPE, STEEL CYLINDER TYPE, PER AWWA (C300-74 OR C301-79 OR C303-70).

REVISIONS	PROTECTION OF UTILITY WATER LINES FROM GRAVITY SEWERS		DRAWING NUMBER
	Approved: <u>Gary Martin</u> Date: <u>1/27/12</u>		
			E-1

DETAIL FOR MANHOLES IN PAVED AREAS

DETAIL FOR MANHOLES IN EASEMENTS



NOTES:

1. CONTRACTOR SHALL FORM AND POUR CONCRETE BASE WITH COVER ADJUSTED AS SHOWN. AFTER FINAL PAVING OPERATION, ENTIRE DIRT EXCAVATION FOR FRAME ADJUSTMENT TO BE BACKFILLED WITH CLASS IV CONCRETE.
2. ALL SECTIONS TO BE WASHED TO REMOVE ANY LOOSE MATERIAL AND WHILE STILL WET, THEY ARE TO BE SET IN 1:3 MORTAR, TRIMED SMOOTH INSIDE AND OUTSIDE AT TIME OF SETTING. INCLUDES FRAME EXCEPT AS IN NOTE #5.
3. CONCRETE FOR MANHOLE SECTIONS ARE 3000 PSI MINIMUM.
4. ON ALL EASEMENT MANHOLES CONTRACTOR SHALL ANCHOR FRAMES TO CONCRETE SECTIONS BY THE USE OF EPOXY, AMERICAN 3000 EPOXY BINDER PASTE OR EQUAL, SUPPLIED BY HUB CONSTRUCTION SPECIALTIES INC. AS APPROVED BY THE ENGINEER. ADDITIONALLY DISTRICT MAY REQUIRE A MECHANICAL RESTRAINT SYSTEM BE INSTALLED.
5. MORTAR AROUND AND UNDER FRAME SHALL HAVE A MIX IN ACCORDANCE WITH THE SPECIFICATIONS AND SHALL BE CURED BY "HUNTS" COMPOUND OR APPROVED EQUAL.
6. AFTER INSTALLATION MANHOLE TO HIGH PRESSURE WASHED AND CLEANED THEN COATED WITH ZEBRON, SANCON OR EQUAL. (MIN. 40 MIL THICKNESS)
7. GENEVA POLYMER PRODUCTS OR EQUAL STRUCTURES AS AN ALTERNATE.

TECHNICAL SPECIFICATION REFERENCE:
 CONCRETE - SECTION 2.0
 MANHOLE - SECTION 4.0
 ALSO SEE STANDARD DRAWINGS:
 E-6

NO SCALE

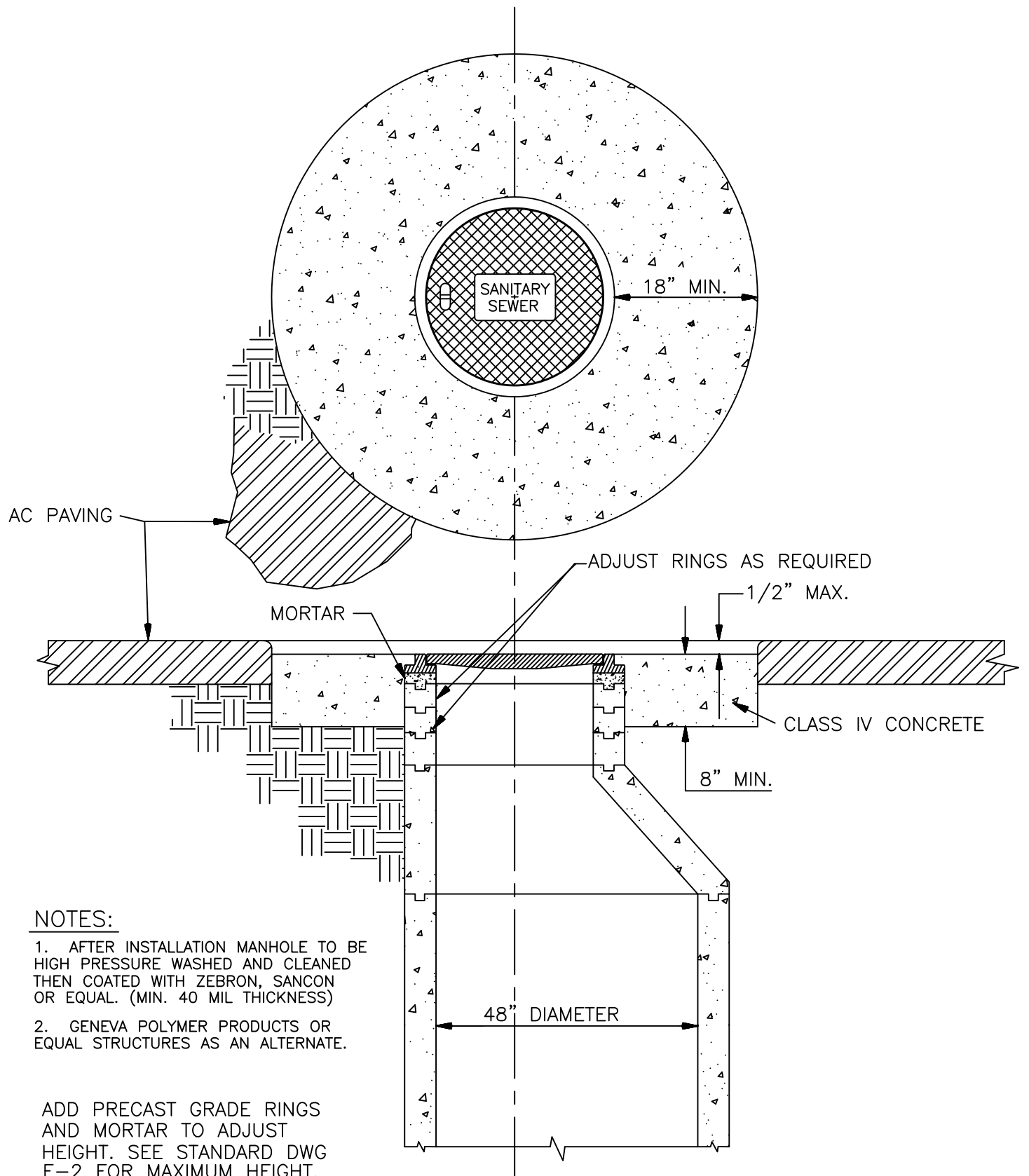
REVISIONS

PRECAST MANHOLE

Approved: _____
 GARY MARTIN

Date: NOV-14-2012

DRAWING NUMBER
 E-2



NOTES:

1. AFTER INSTALLATION MANHOLE TO BE HIGH PRESSURE WASHED AND CLEANED THEN COATED WITH ZEBRON, SANCON OR EQUAL. (MIN. 40 MIL THICKNESS)
2. GENEVA POLYMER PRODUCTS OR EQUAL STRUCTURES AS AN ALTERNATE.

ADD PRECAST GRADE RINGS AND MORTAR TO ADJUST HEIGHT. SEE STANDARD DWG E-2 FOR MAXIMUM HEIGHT.

NO SCALE

REVISIONS
12/01

MANHOLE ADJUSTMENT TO GRADE

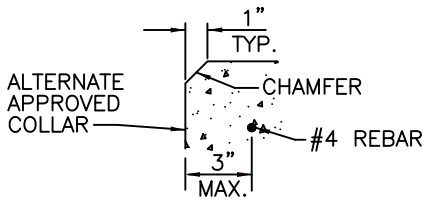
Approved: _____
GARY MARTIN

Date: NOV-14-2012

DRAWING NUMBER

E-3

NOTE: FOR UNTRAVELED AREAS ONLY.
FOR UNPAVED ROADS COLLAR TO BE AT GRADE.



DETAIL "A"

N.T.S.

NOTES:

1. CONTRACTOR SHALL FORM AND POUR CONCRETE BASE WITH COVER ADJUSTED AS SHOWN. AFTER FINAL PAVING OPERATION, ENTIRE DIRT EXCAVATION FOR FRAME ADJUSTMENT TO BE BACKFILLED WITH CLASS IV CONCRETE.

2. ALL SECTIONS TO BE WASHED TO REMOVE ANY LOOSE MATERIAL AND WHILE STILL WET, THEY ARE TO BE SET IN 1:3 MORTAR, TRIMED SMOOTH INSIDE AND OUTSIDE AT TIME OF SETTING. INCLUDES FRAME EXCEPT AS IN NOTE #5.

3. CONCRETE FOR MANHOLE SECTIONS ARE 3000 PSI MINIMUM.

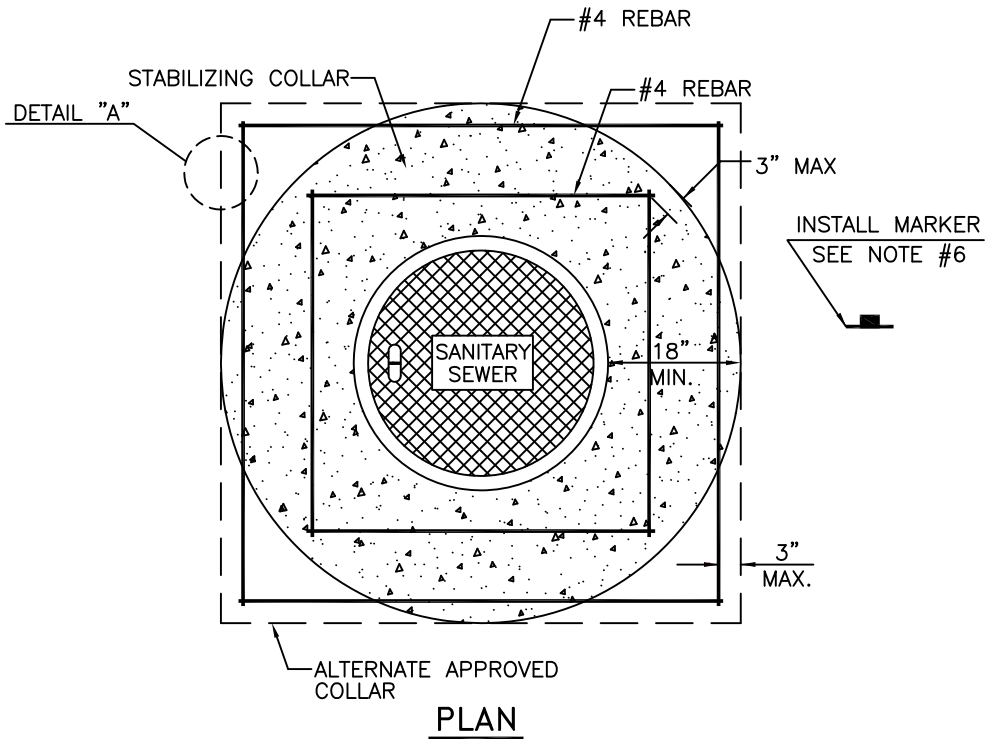
4. ON ALL EASEMENT MANHOLES CONTRACTOR SHALL ANCHOR FRAMES TO CONCRETE SECTIONS BY THE USE OF EPOXY, AMERICAN 3000 EPOXY BINDER PASTE OR EQUAL, SUPPLIED BY HUB CONSTRUCTION SPECIALTIES INC. AS APPROVED BY THE ENGINEER. ADDITIONALLY DISTRICT MAY REQUIRE A MECHANICAL RESTRAINT SYSTEM BE INSTALLED.

5. MORTAR AROUND AND UNDER FRAME SHALL HAVE A MIX IN ACCORDANCE WITH THE SPECIFICATIONS AND SHALL BE CURED BY "HUNTS" COMPOUND OR APPROVED EQUAL.

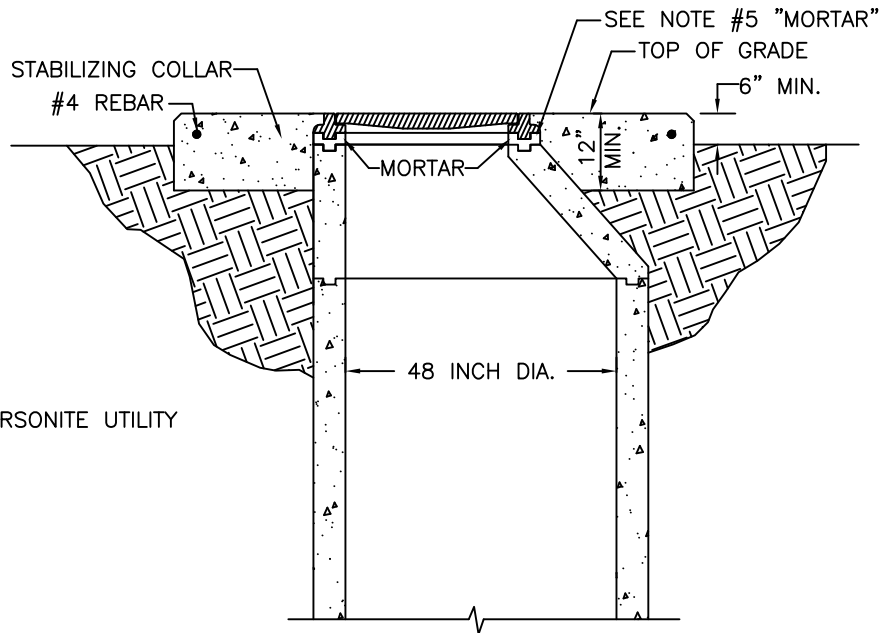
6. INSTALL (66"x4") FLEXIBLE BROWN CARSONITE UTILITY MARKER POST.

7. AFTER INSTALLATION MANHOLE TO BE HIGH PRESSURE WASHED AND CLEANED THEN COATED WITH ZEBRON, SANCON OR EQUAL. (MIN. 40 MIL THICKNESS)

8. GENEVA POLYMER PRODUCTS OR EQUAL STRUCTURES AS AN ALTERNATE.



PLAN



SECTION

TECHNICAL SPECIFICATION REFERENCE:
CONCRETE - SECTION 2.0
MANHOLE - SECTION 4.0

ALSO SEE STANDARD DRAWINGS:
E-6

NO SCALE

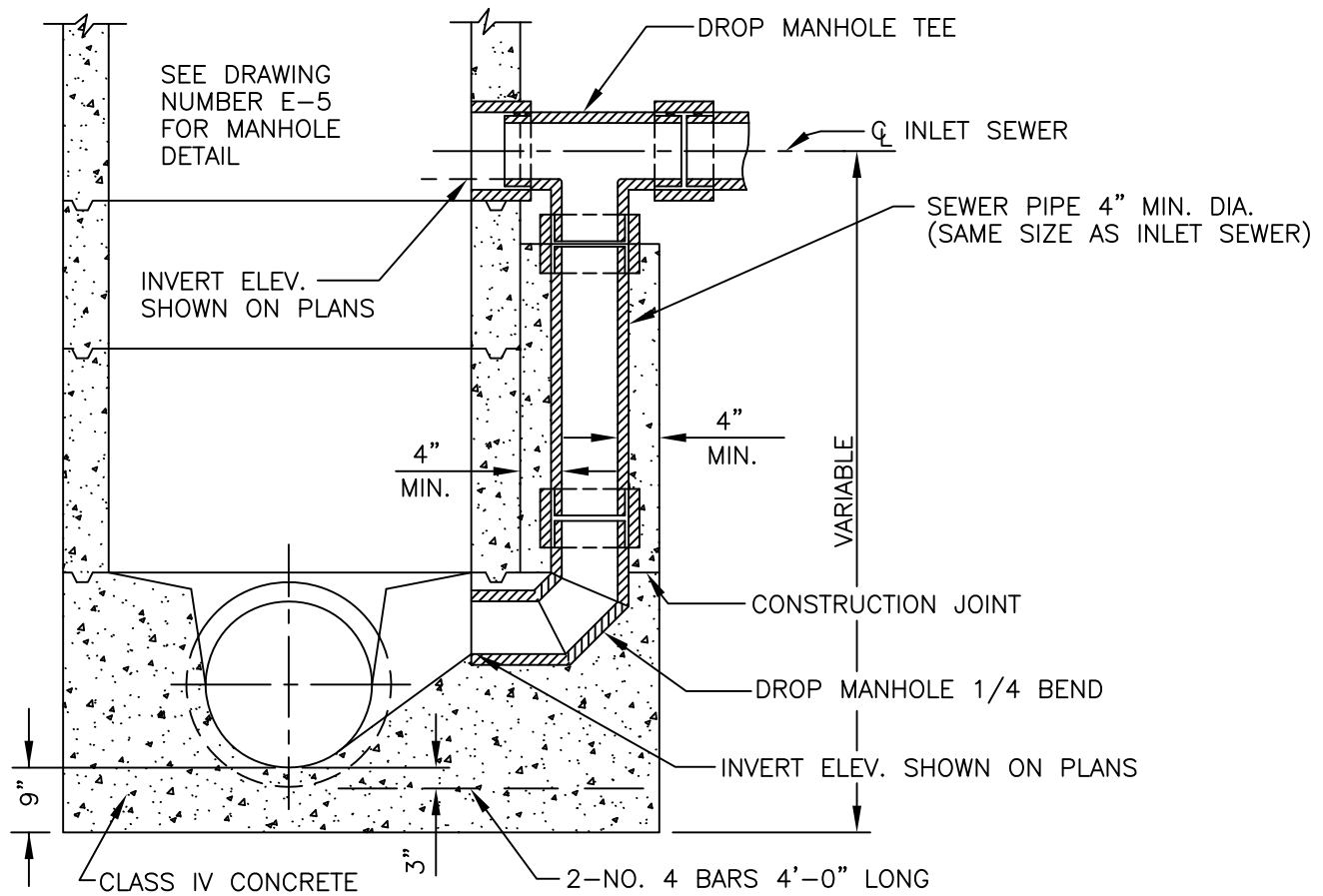
REVISIONS

**PRECAST MANHOLE
UNPAVED AREA**

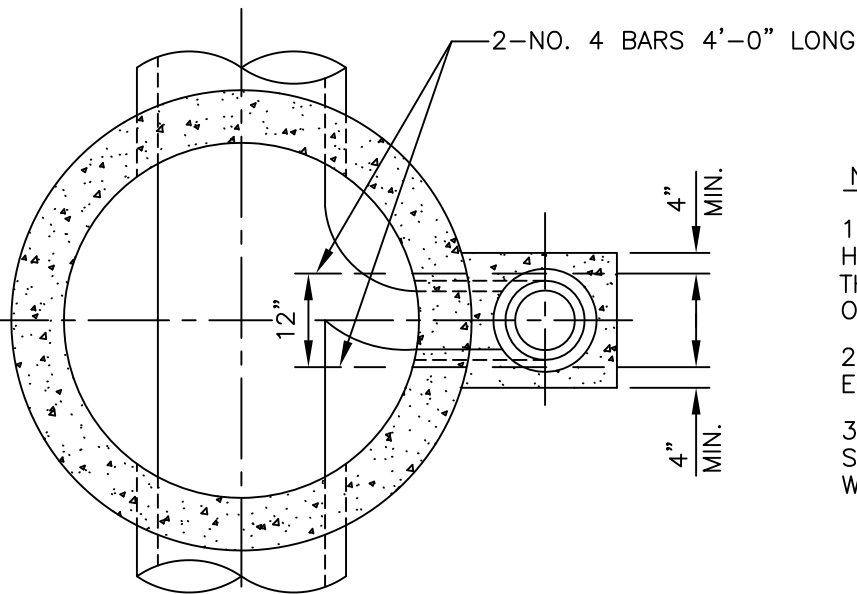
Approved: GARY MARTIN Date: NOV/14/12

DRAWING
NUMBER

E-3A



SECTION



PLAN

NOTES:

1. AFTER INSTALLATION MANHOLE TO BE HIGH PRESSURE WASHED AND CLEANED THEN COATED WITH ZEBRON, SANCON OR EQUAL. (MIN. 40 MIL THICKNESS)
2. GENEVA POLYMER PRODUCTS OR EQUAL STRUCTURES AS AN ALTERNATE.
3. FOUNDATION FOR DROP SECTION SHALL BE POURED MONOLITHICALLY WITH MANHOLE BASE.

TECH. SPEC. REFERENCE
 CONCRETE SECTION 2.0
 MANHOLE SECTION 4.0

REVISIONS

DROP MANHOLE

DRAWING NUMBER

Approved: GARY MARTIN Date: NOV-15-2012

E-4

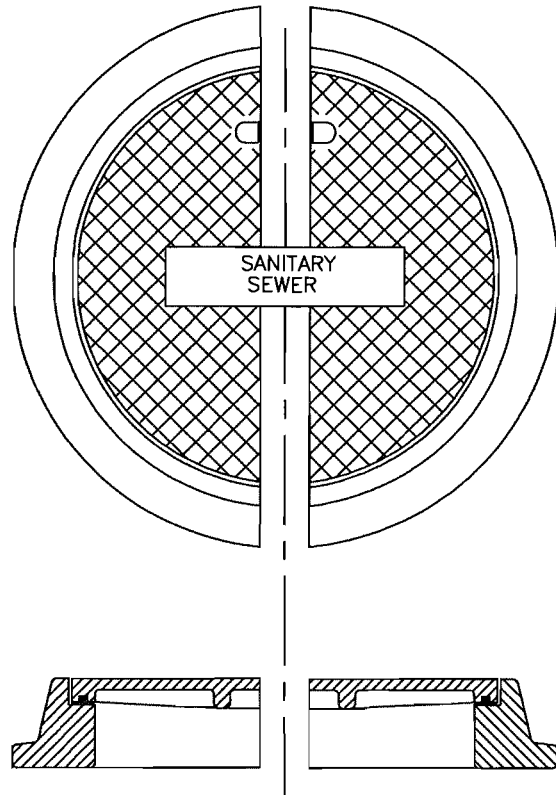
NOTES:

1. FRAME AND COVER SHALL BE NEENAH FOUNDRY COMPANY R-1916-F FRAME AND PLATEN LID BOLTED AND GASKETED W/"T" SEAL OR APPROVED EQUAL WITH LIFTING RECEPTACLE CAST INTO THE COVER AS PER DETAIL SHOWN. COVER SHALL HAVE DIAMOND TREAD AND THE WORDS "SANITARY SEWER" CAST INTO THE COVER.

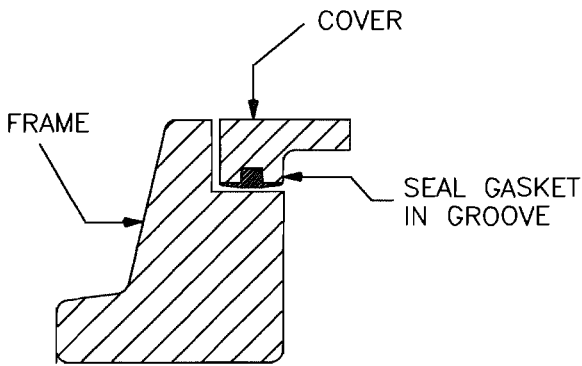
2. BOLT-DOWN COVERS ARE REQUIRED IN ALL LOCATIONS AND ARE DENOTED THUSLY  ON THE PLANS.

3. TWO, ONE-HALF INCH STAINLESS STEEL OR MONEL STEEL HEXHEAD BOLTS REQUIRED FOR EACH BOLT DOWN COVER. BOLT HOLES SHALL BE DRILLED COMPLETELY THROUGH THE FRAME AND SHALL BE AMERICAN NATIONAL COARSE THREAD. COVER SHALL BE COUNTER BORED TO ALLOW BOLTS TO FINISH FLUSH WITH THE TOP OF THE COVER.

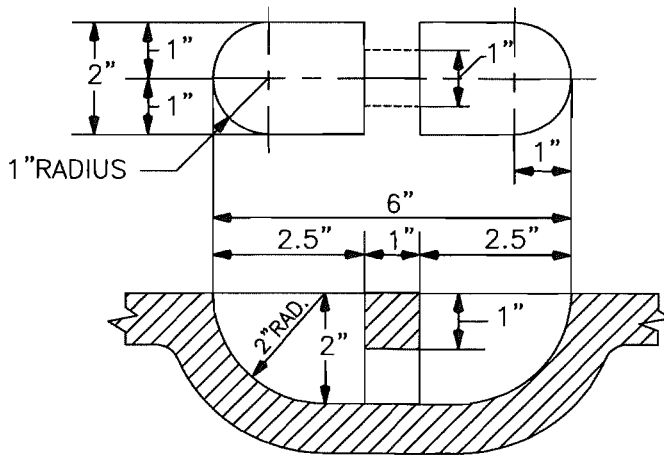
4. NO MANHOLE RING AND COVER SET SHALL BE LESS THAN TWENTY FOUR (24) INCHES INSIDE DIAMETER.



FRAME AND COVER DETAIL



SEAL DETAIL

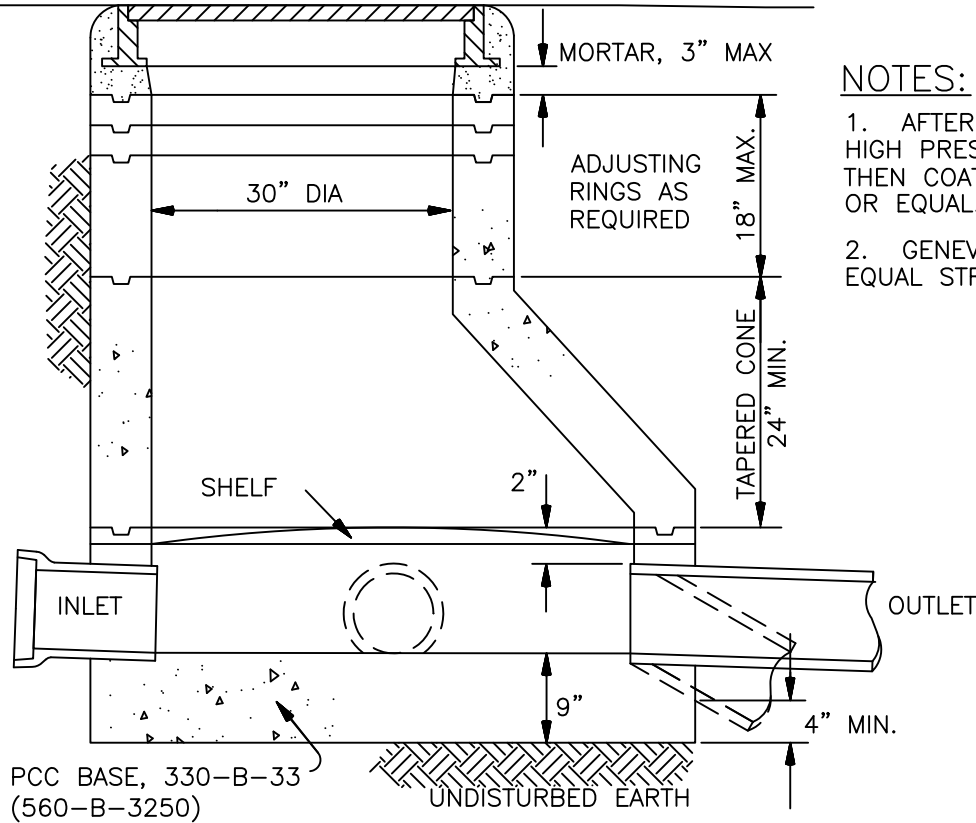


LIFTING RECEPTACLE DETAIL

NO SCALE
TECH. SPEC. REF:
SECTION 4.9

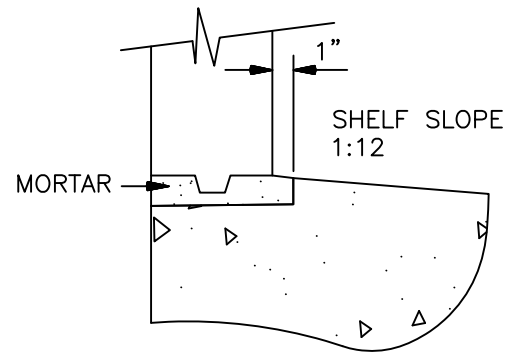
	REVISIONS	MANHOLE FRAME AND COVER	DRAWING NUMBER
		Approved: <u>Gary Martin</u> Date: <u>1/27/12</u>	

FRAME & COVER PER SPPWC 632

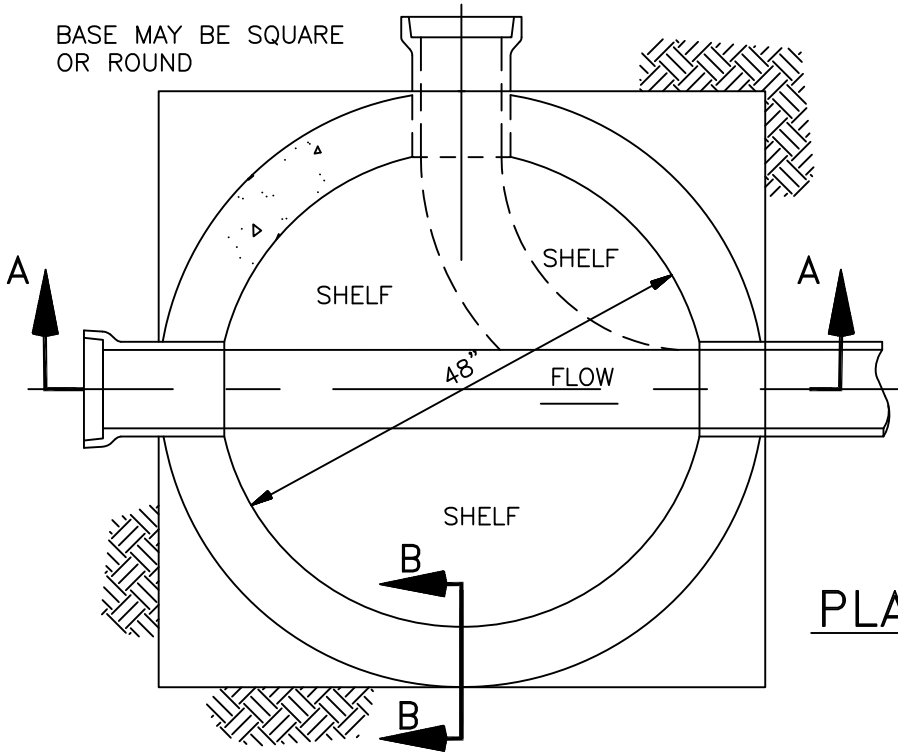


SECTION A-A

- NOTES:**
1. AFTER INSTALLATION MANHOLE TO BE HIGH PRESSURE WASHED AND CLEANED THEN COATED WITH ZEBRON, SANCON OR EQUAL. (MIN. 40 MIL THICKNESS)
 2. GENEVA POLYMER PRODUCTS OR EQUAL STRUCTURES AS AN ALTERNATE.



SECTION B-B



PLAN

EXCEPT AS SHOWN HEREON, MANHOLES SHALL CONFORM TO SPPWC 200

REVISIONS

8/09

**PRECAST CONCRETE
SHALLOW MANHOLE**

**DRAWING
NUMBER**

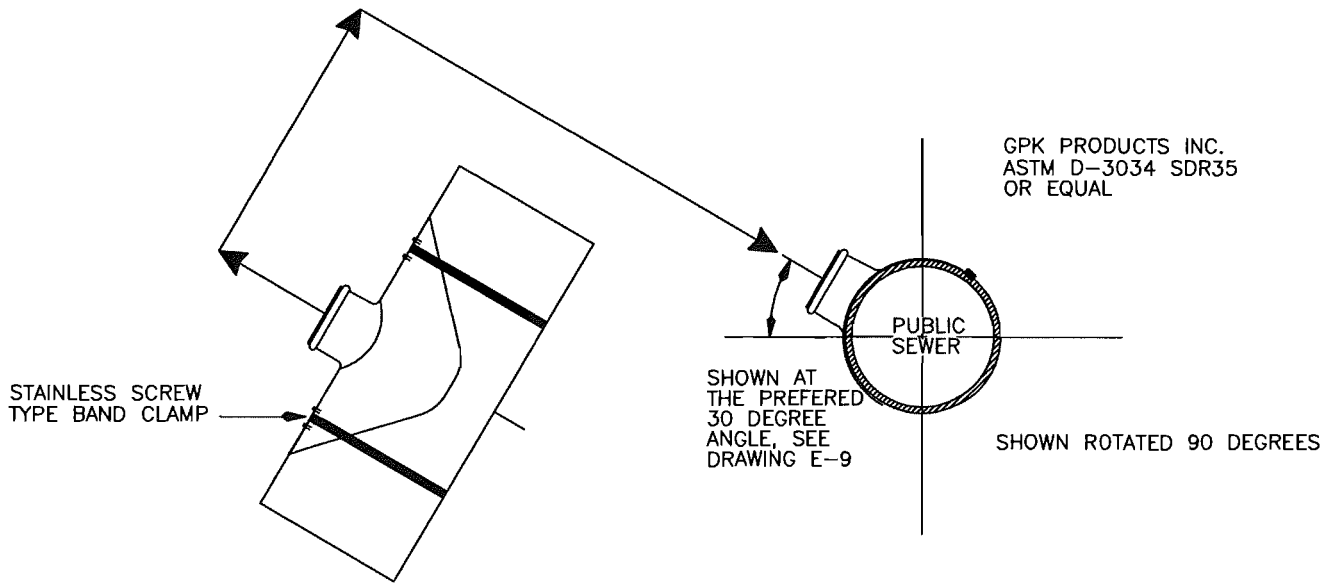
Approved:

GARY MARTIN

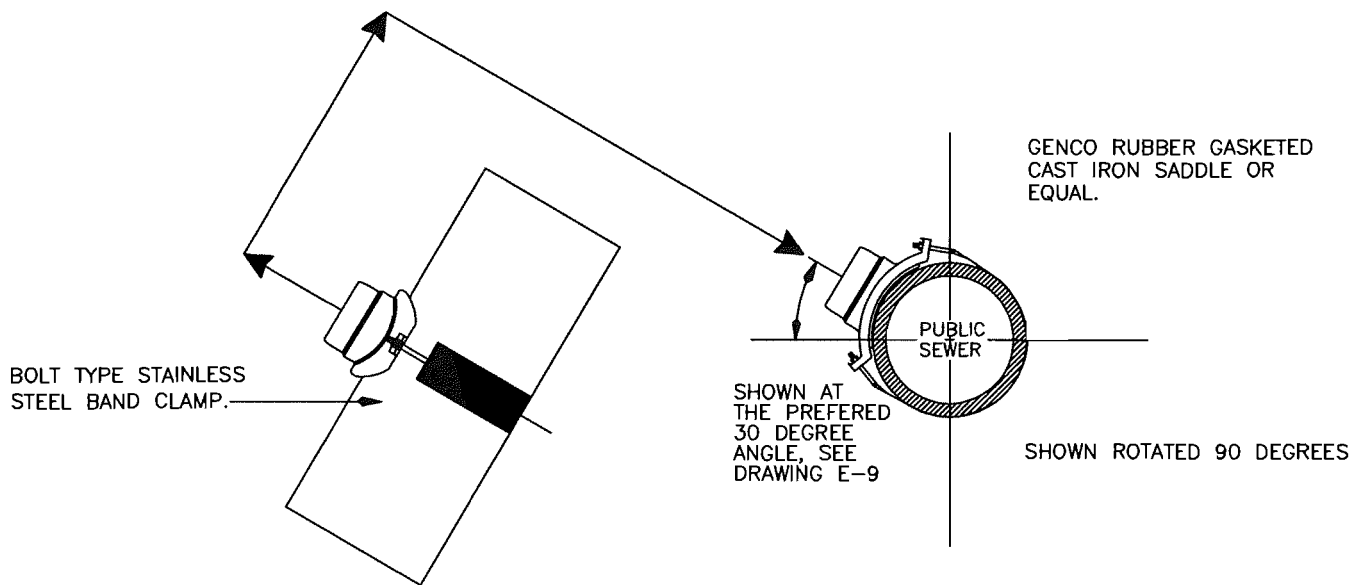
Date: NOV-15-2012

E-6

NOTE: WHEN CONSTRUCTING NEW ASSESMENT DISTRICTS.
 FOLLOW PIPE MANUFACTURERS RECOMENDADCTIONS FOR INSTALLATION OF A "Y" OR "T"

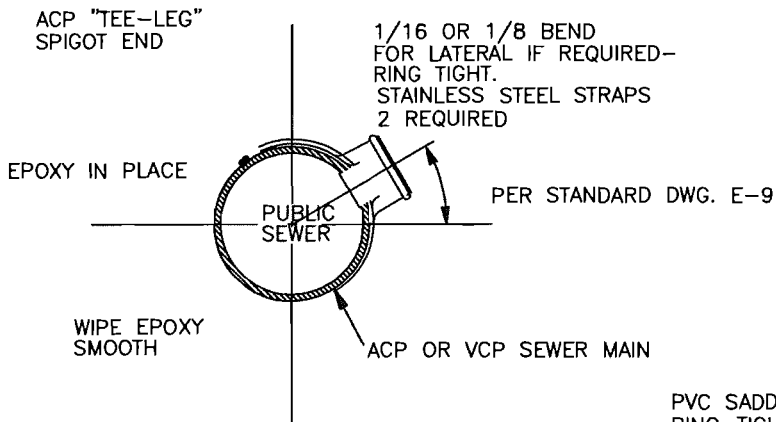


EXAMPLE INSTALLATION ON EXISTING "ABS" or "PVC" PIPE

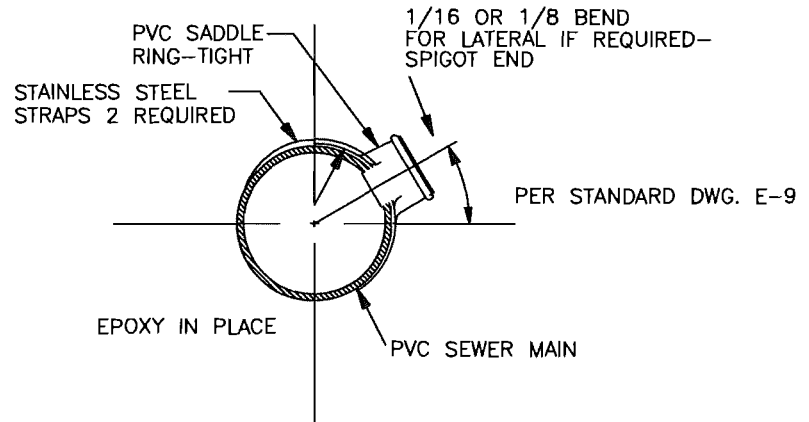


EXAMPLE INSTALLATION ON EXISTING "ABS TRUSS", "AC" PIPE,
 PVC AND VCP PIPE

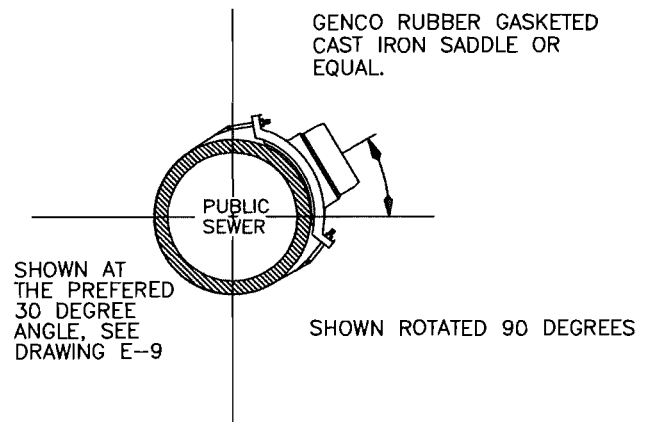
	REVISIONS	SADDLE INSTALLATION DETAIL	DRAWING NUMBER
		E-7	



A.C.P. OR V.C.P. PIPE
TYPE "A"



P.V.C. PIPE
TYPE "B"

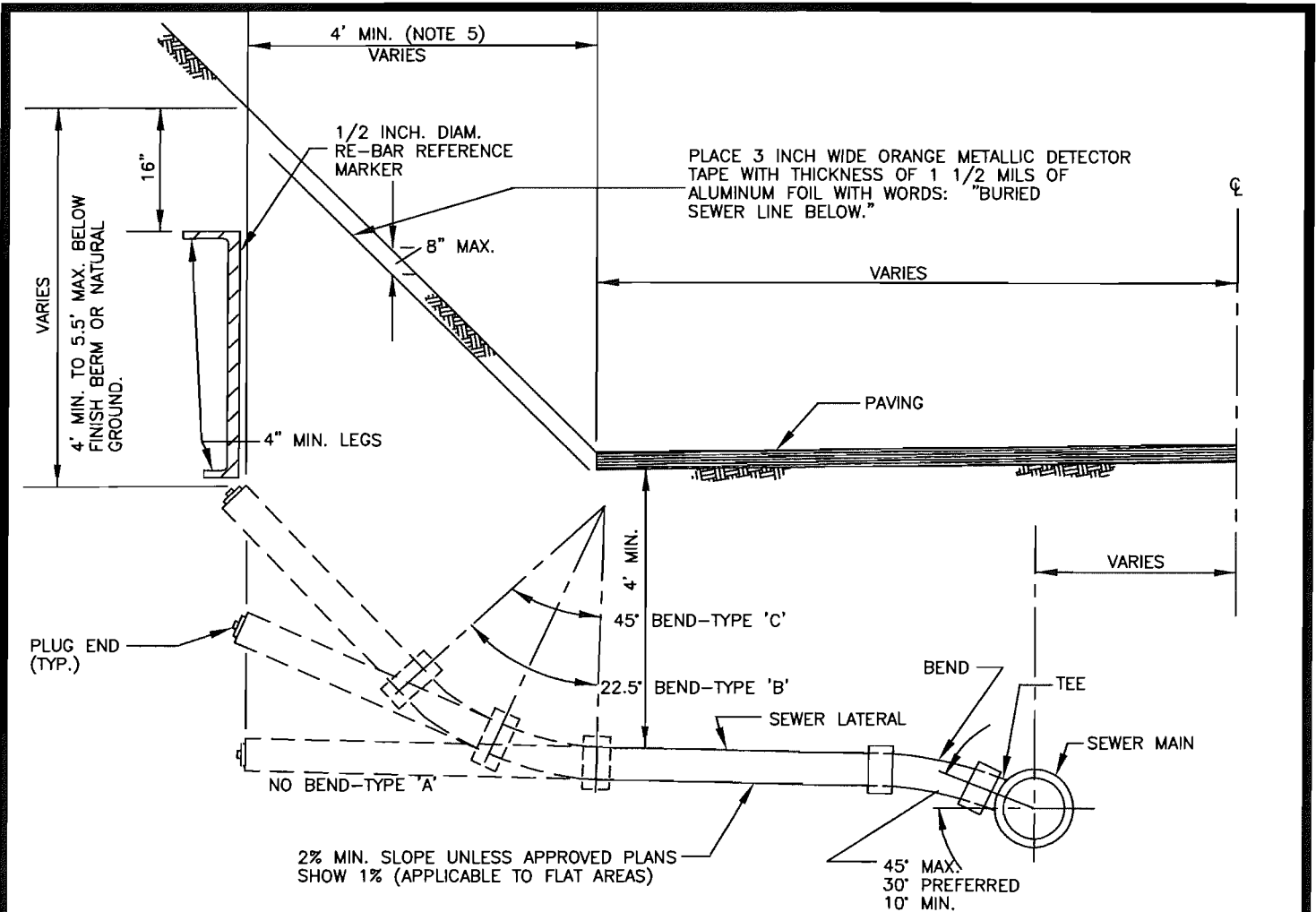


REVISIONS

TAP FOR A.C.P. OR V.C.P. PIPE

Approved: Gary Martin Date: 1/27/12

DRAWING NUMBER
E-8



NOTES:

1. 4" PIPE FOR SINGLE DWELLINGS. 6" MIN. FOR ALL OTHER LATERALS.
2. LATERAL LOCATIONS SHALL BE MEASURED AT RIGHT ANGLES TO STREET CENTERLINE FROM THE CENTERLINE OF THE NEAREST DOWNSTREAM MANHOLE COVER.
3. WHENEVER DEPTH OF COVER OVER LATERAL IS LESS THAN 4'-0", SPECIAL BEDDING OR CONCRETE CRADLE PER STANDARD DRAWING No. E-1B SHALL BE USED.
4. CONTRACTOR SHALL BE REFERENCE EACH LATERAL IN THE FIELD WITH A REFERENCE MARKER WHICH SHALL BE PLACED AT TIME OF BACKFILLING. MARKER SHALL BE VERTICAL.
5. END OF LATERAL SHALL BE AT PROPERTY LINE, BUT IN NO CASE SHALL IT BE LESS THAN 4' OUTSIDE EDGE OF PAVEMENT.

TECH. SPEC. REFERENCE
SECTIONS 3.15, 3.16

REVISIONS

5/82
6-81
9-80
9-75

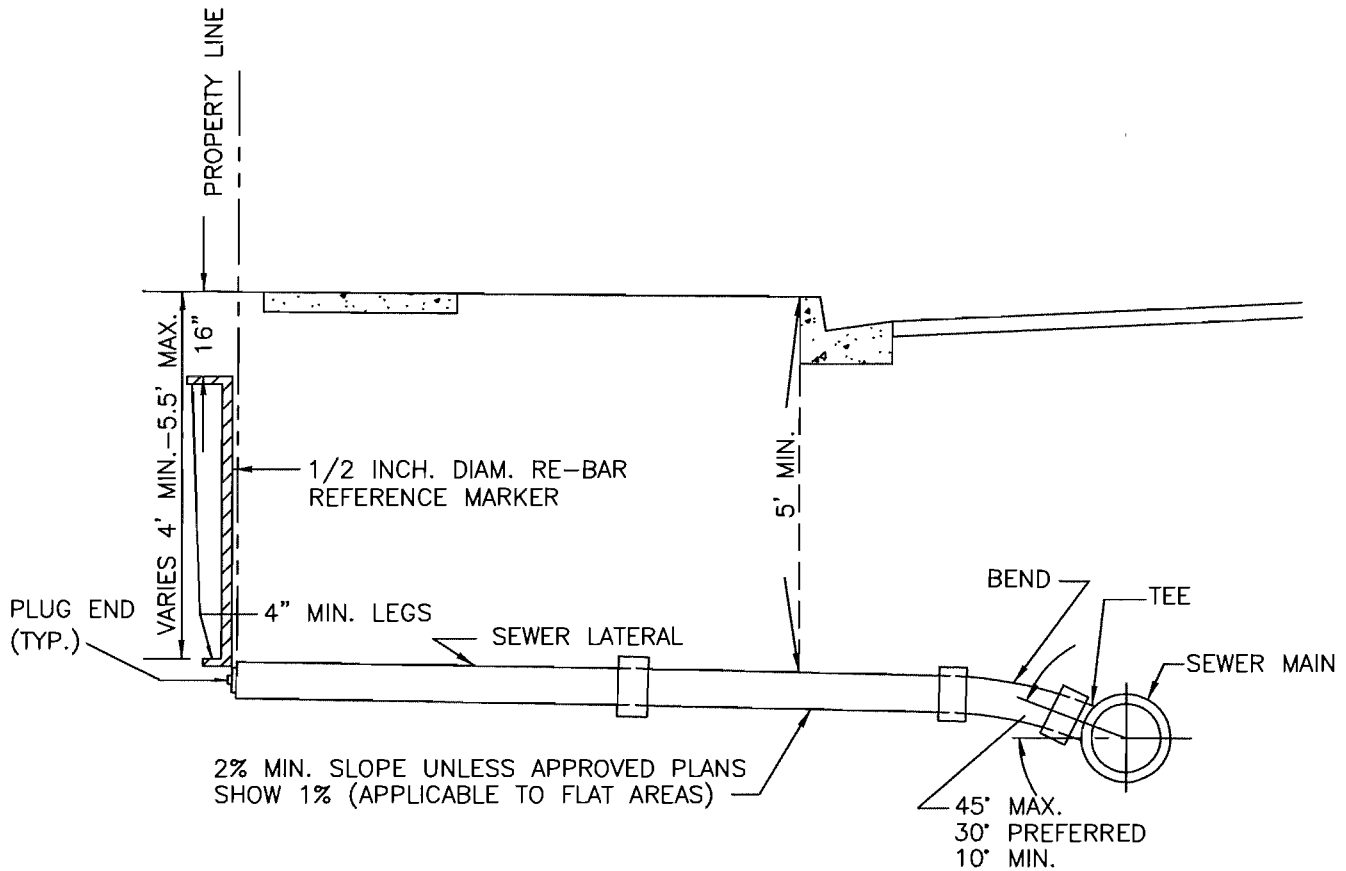
SEWER LATERAL NON CURBED
STREETS TYPES A, B AND C

Approved:

Gary Martin Date: 1/27/12

DRAWING
NUMBER

E-9



NOTES:

1. 4" PIPE FOR SINGLE DWELLINGS. 6" MIN. FOR ALL OTHER LATERALS.
2. LATERAL LOCATIONS SHALL BE MEASURED AT RIGHT ANGLES TO STREET CENTERLINE FROM THE CENTERLINE OF THE NEAREST DOWNSTREAM MANHOLE COVER.
3. WHENEVER DEPTH OF COVER OVER LATERAL IS LESS THAN 4'-0", SPECIAL BEDDING OR CONCRETE CRADLE PER STANDARD DRAWING No. E-18 SHALL BE USED.
4. CONTRACTOR SHALL REFERENCE EACH LATERAL IN THE FIELD WITH A REFERENCE MARKER WHICH SHALL BE PLACED AT TIME OF BACKFILLING. MARKER SHALL BE VERTICAL.

TECH. SPEC. REFERENCE
SECTIONS 3.15, 3.16

NO SCALE

REVISIONS

5/82

6-81

9-75

SEWER LATERAL
CURBED STREETS

Approved:

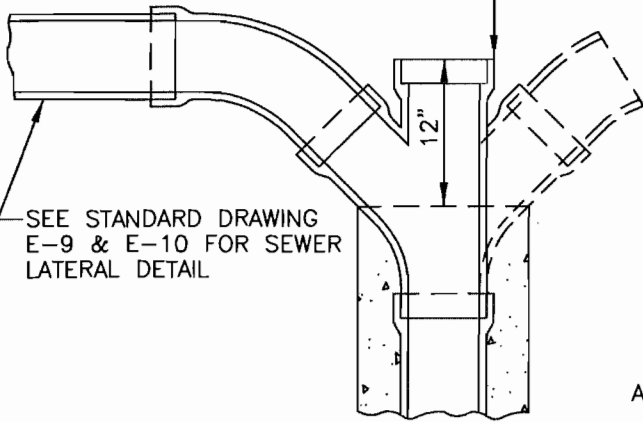
Gary Martin

Date: 1/27/12

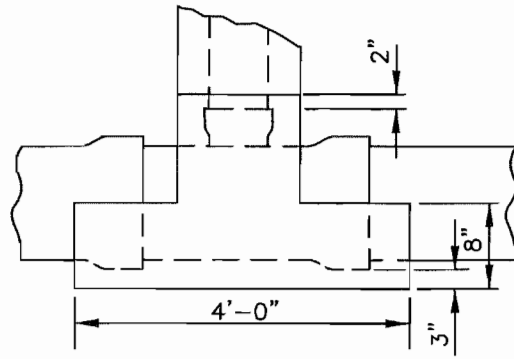
DRAWING
NUMBER

E-10

WYE OR DOUBLE WYE, SEE PLANS FOR INDIVIDUAL REQUIREMENTS



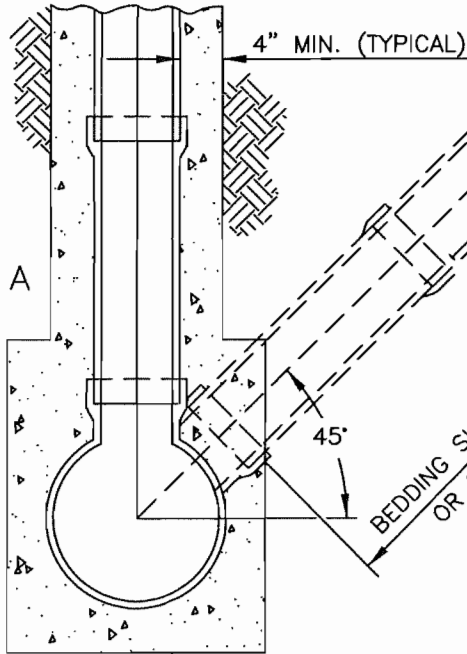
SEE STANDARD DRAWING E-9 & E-10 FOR SEWER LATERAL DETAIL



SECTION A-A

SEE STANDARD DRAWING E-9 & E-10 FOR SEWER LATERAL DETAIL

ALTERNATE METHOD



CLASS IV CONCRETE

NOTE:
EXTEND ALL LATERALS TO ABOVE KNOWN GROUND WATER LEVELS

SEE CONSTRUCTION DRAWINGS FOR LOCATION AND SIZE OF LATERALS AND CHIMNEYS.
NO SCALE

TECH. SPEC. REFERENCE
CONCRETE- SECTION 2.0
LATERALS- SECTIONS 3.15, 3.16

REVISIONS

5/82
9-75

CHIMNEY AND DEEP LATERAL

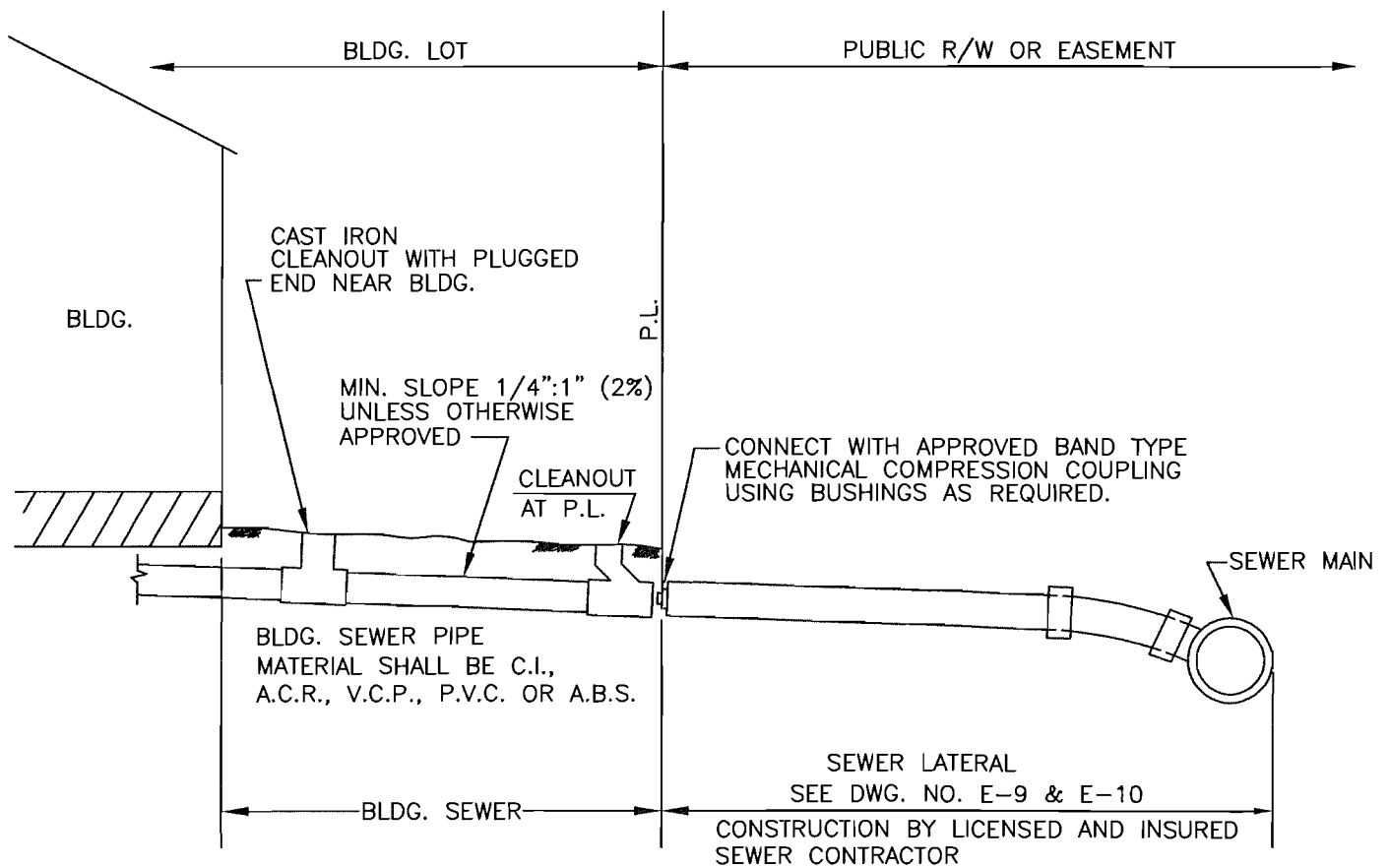
Approved:

Gary Martin

Date: 1/27/12

DRAWING NUMBER

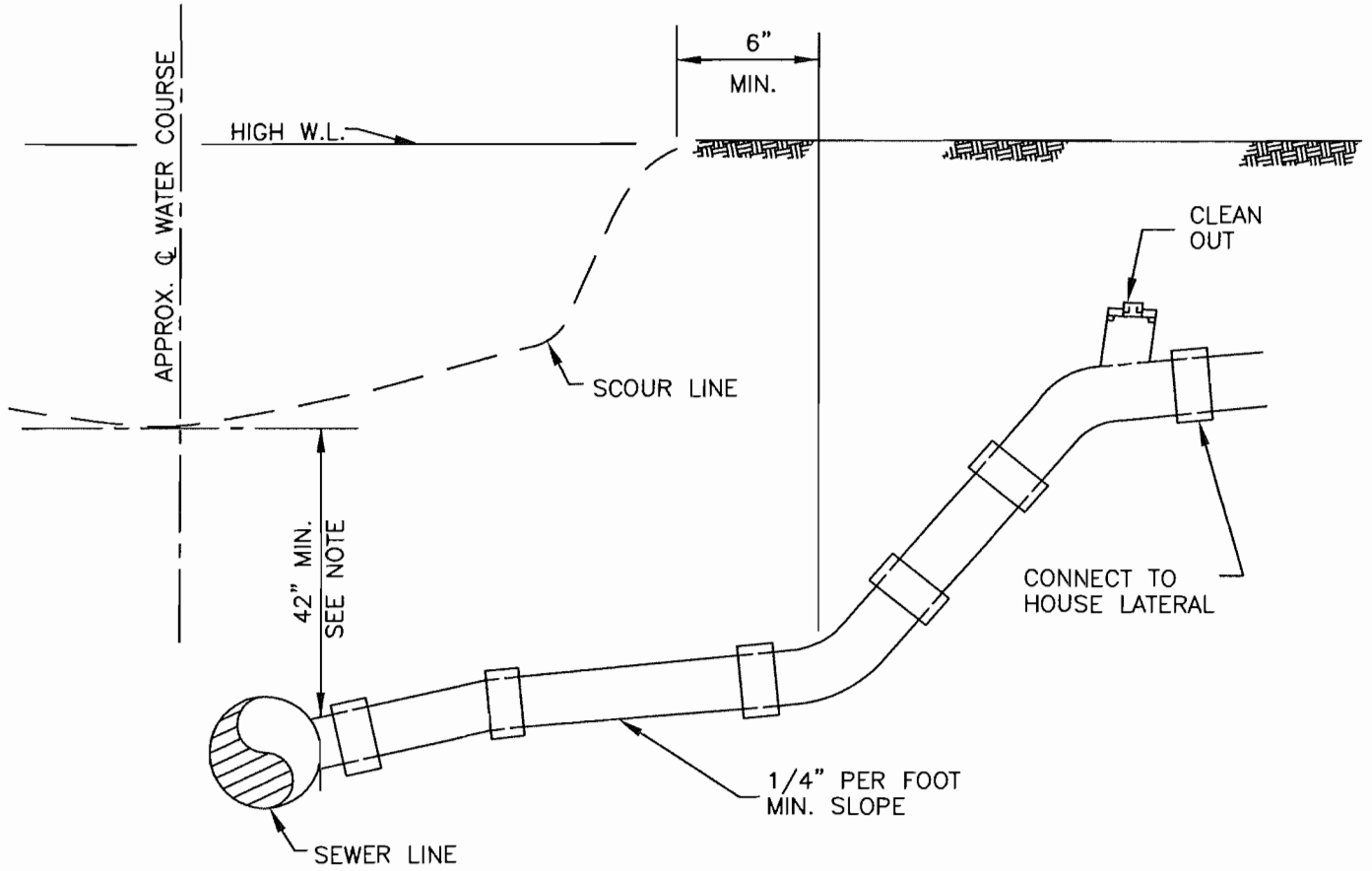
E-11



NOTES:

1. CONNECTION OF BUILDING SEWER TO DISTRICT'S SEWER SYSTEM REQUIRES A DISTRICT PERMIT WITH PAYMENT OF REQUIRED FEES, INSPECTION AND AFFIXING OF AN APPROVAL TAG BY THE DISTRICT.
2. CONSTRUCTION OF BUILDING SEWER REQUIRES A DEPARTMENT OF BUILDING AND SAFETY PERMIT AND INSPECTION.

	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">REVISIONS</td> </tr> <tr> <td style="text-align: center;">5/82</td> </tr> <tr> <td style="height: 20px;"> </td> </tr> <tr> <td style="height: 20px;"> </td> </tr> <tr> <td style="height: 20px;"> </td> </tr> </table>	REVISIONS	5/82				<h2 style="margin: 0;">BUILDING LATERAL</h2> <p style="margin: 0;">Approved: <u>Gary Martin</u> Date: <u>11/27/12</u></p>	<p style="margin: 0;">DRAWING NUMBER</p> <p style="margin: 0;">E-12</p>
REVISIONS								
5/82								



NOTE: IF LESS THAN 42" DEEP LATERAL MUST BE BLANKETED OR MADE OF CAST IRON.

REVISIONS

5/82

LATERAL CONNECTION
ADJACENT TO WATERWAYS

DRAWING
NUMBER

Approved:

Gary Martin

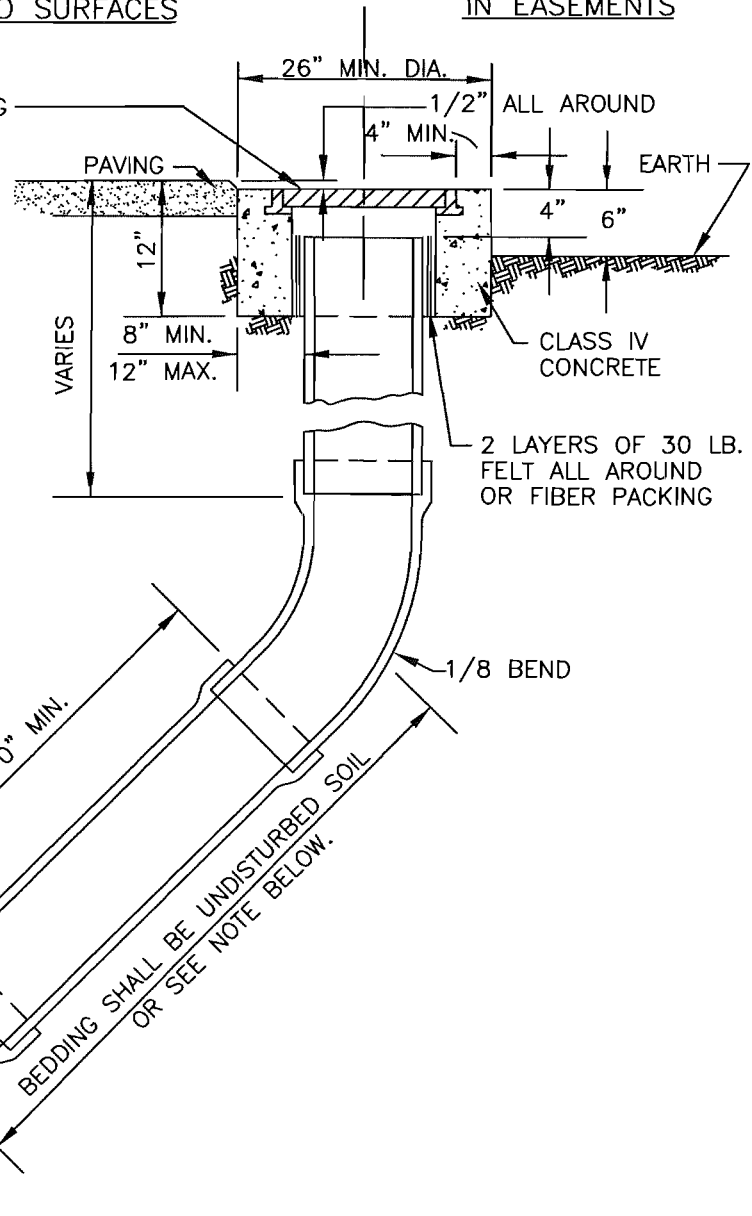
Date: 1/27/12

E-13

DETAIL FOR CLEANOUTS
IN PAVED SURFACES

DETAIL FOR CLEANOUTS
IN EASEMENTS

CAST IRON FRAME AND COVER PER LONG BEACH IRON WORKS No. X-508B, OR APPROVED EQUAL, WITH 12" DIAMETER COVER MARKED PER SPECIFICATIONS. WITH ONE 3/4"x3/4" ALLEN SET SCREW TAP SHALL BE DRILLED THROUGH FRAME FOR SELF CLEANING.



DEAD END AS SHOWN
ON PROFILE (D.E.)

NOTE:

CLEAN-OUT LINE TO BE OF THE SAME MATERIAL & SIZE AS SEWER MAIN. THE SEWER MAIN SHALL BE LAID FOR THE FULL LENGTH & DEPTH SHOWN ON THE PLAN & PROFILE TO THE STATION MARKED DEAD END (D.E.). THE TRENCH FOR A DEAD END SHALL BE EXCAVATED ONLY TO SUBGRADE WHICH IS THE BOTTOM OF THE SLOPING PIPE AND FITTINGS. SHOULD THE EXCAVATION FOR ANY REASON BE CARRIED BELOW SUBGRADE, IT SHALL BE REFILLED TO SUBGRADE WITH ROCK OR GRAVEL WHICH SHALL BE TAMPED UNTIL FIRM AND UNYIELDING. SHOULD A FIRM AND UNYIELDING FOUNDATION BE UNOBTAINABLE BY THIS METHOD A CONCRETE PIPE CRADLE SHALL BE USED.

TECH. SPEC. REFERENCE
CONCRETE SECTION 2.0
CLEANOUT SECTIONS 3.13, 4.8

NO SCALE

REVISIONS

5/82

9-80

9-75

SEWER MAIN END OF LINE CLEANOUT

Approved:

Gary Martin

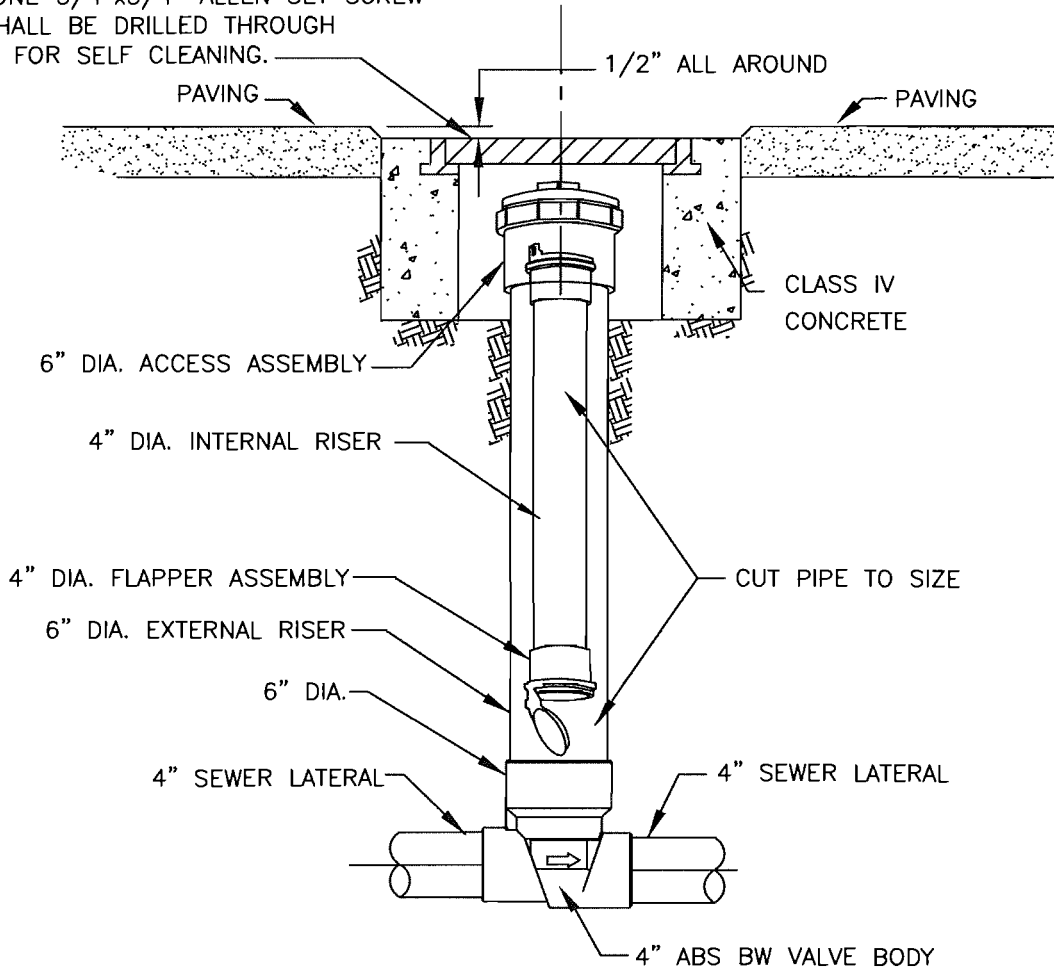
Date: 1/27/12

DRAWING
NUMBER

E-14

CAST IRON FRAME AND COVER PER LONG BEACH IRON WORKS No. X-508B, OR APPROVED EQUAL, WITH 12" DIAMETER COVER MARKED PER SPECIFICATIONS. WITH ONE 3/4"x3/4" ALLEN SET SCREW TAP SHALL BE DRILLED THROUGH FRAME FOR SELF CLEANING.

NOTE: IF IN DIRT, CAST IRON NOT REQUIRED LEAVE 6" ACCESS ASSEMBLY 3" ABOVE GRADE.



DETAIL FOR BACKWATER VALVE
IN PAVED SURFACES

CLEANCHECK, INC.
P.O. BOX 2437
HAYDEN, ID 83835-2437
PHONE TOLL FREE 866-288-2583
TOLL FREE FAX: 866-288-5636
WWW.CLEANCHECK.NET

CAN BE PURCHASED AT NATIONAL WATERWORKS
CORONA, CA 951-340-0170

REVISIONS

8/09

BACKWATER VALVE DETAIL "A"

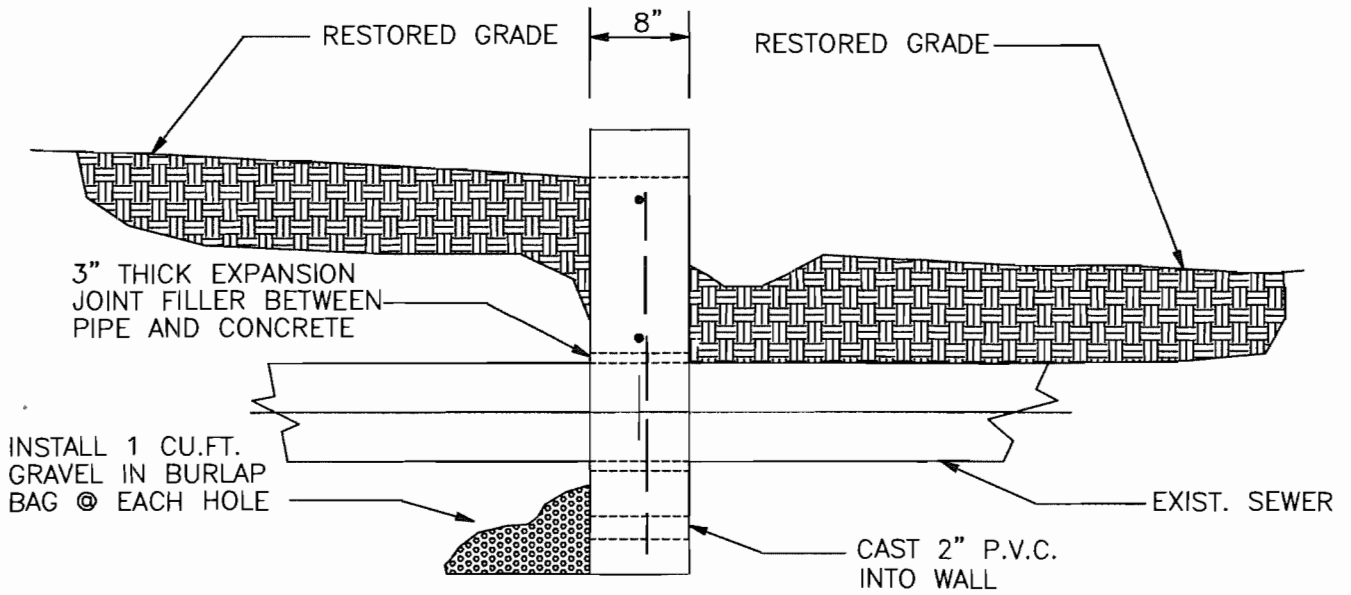
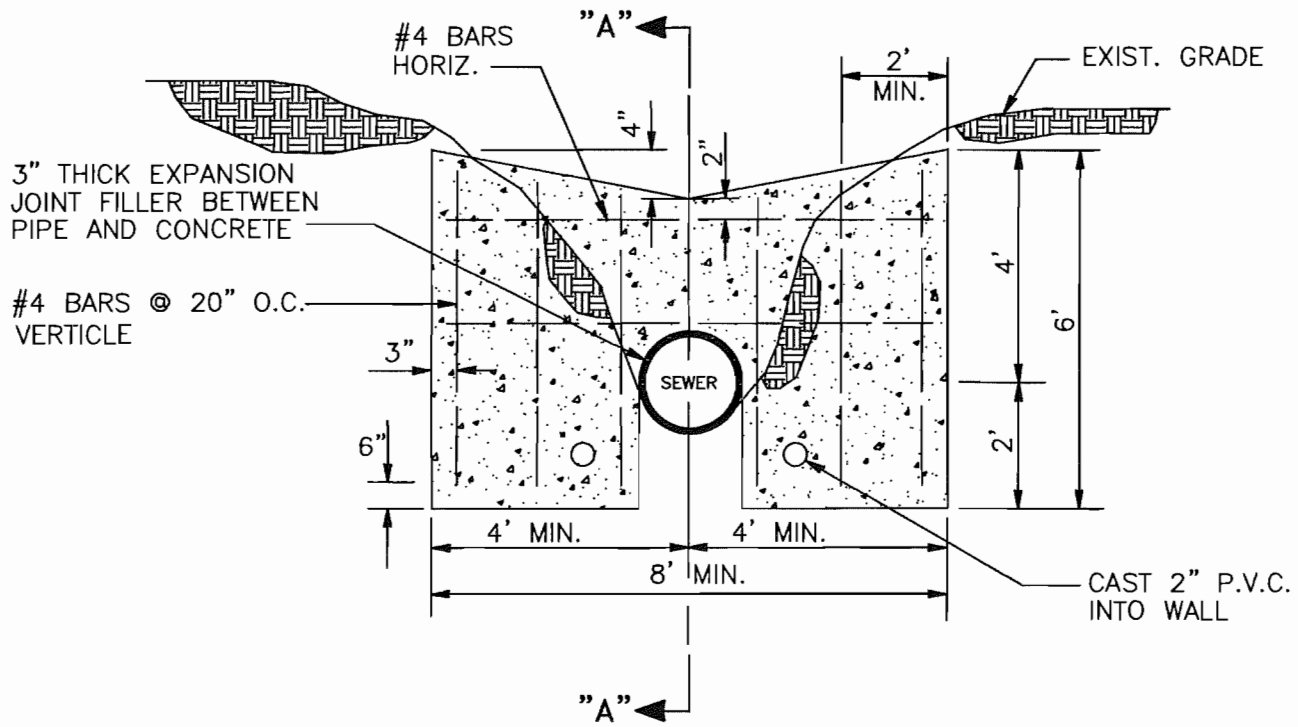
DRAWING
NUMBER

Approved:

Gary Martin

Date: 1/27/12

E-15



SECTION "A - A"

NO SCALE

REVISIONS

CUT-OFF WALL FOR MOUNTAIN SLOPES

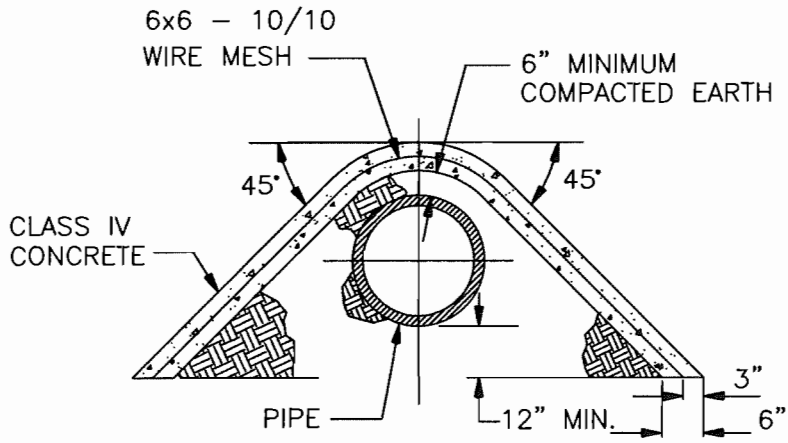
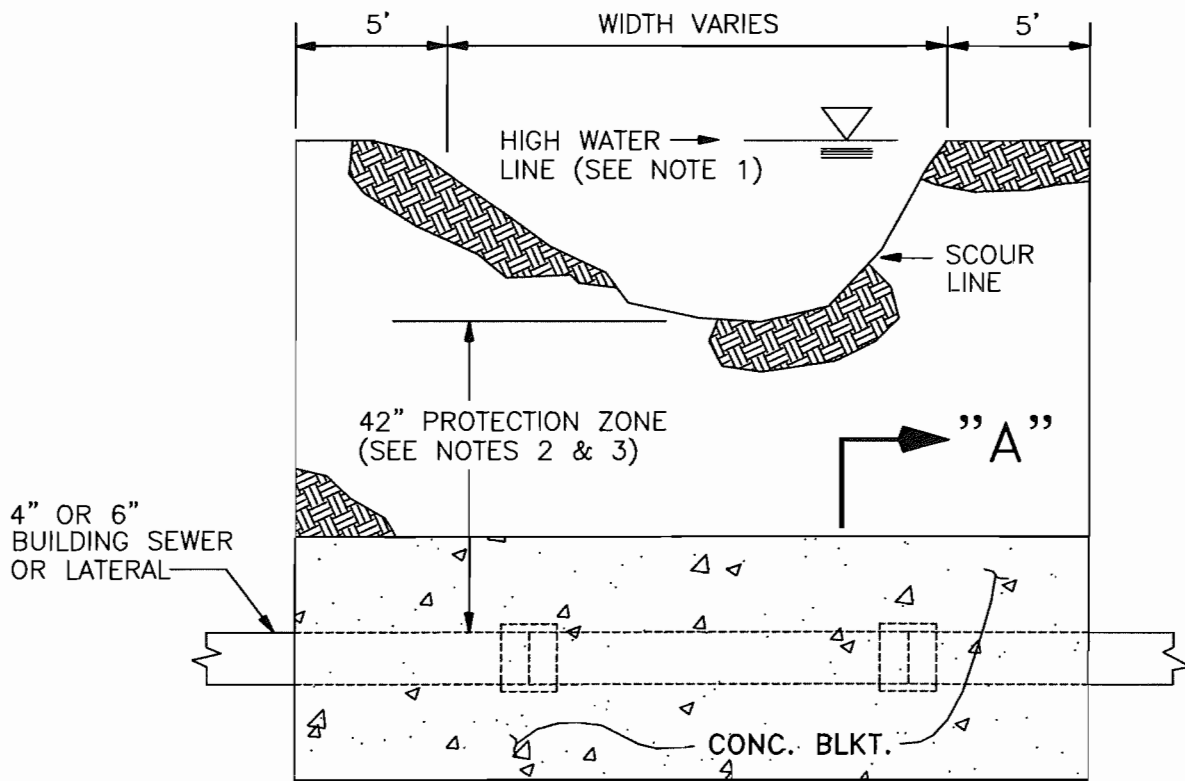
DRAWING NUMBER

Approved:

Gary Martin

Date: 1/27/12

E-16



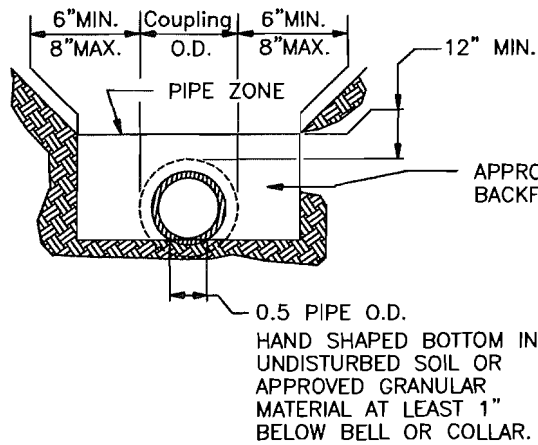
NO SCALE

SECTION "A-A"

NOTES:

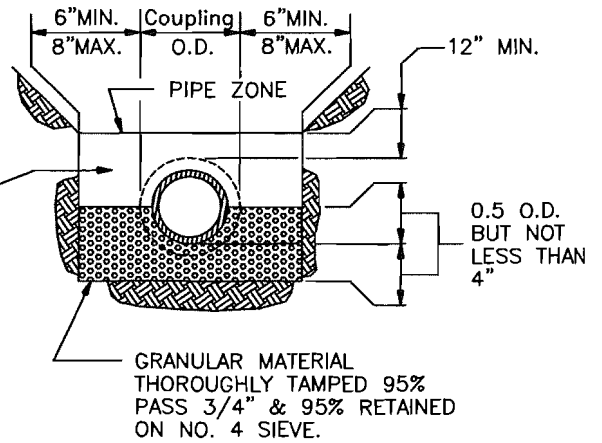
1. HIGH WATER LINE TO BE DETERMINED IN THE FIELD BY THE DISTRICT.
2. BUILDING SEWER OR LATERAL DEEPER THAN 42" BELOW SCOUR LINE DO NOT REQUIRE A CONCRETE BLANKET.
3. SPECIAL DESIGN IS REQUIRED IF BUILDING SEWER OR LATERAL IS ABOVE SCOUR LINE.

	REVISIONS	CONCRETE BLANKET FOR BUILDING SEWER OR LATERAL CROSSING UNDER WATER COURSE OR CROSSING	DRAWING NUMBER
		Approved:	E-17
		Date: 1/27/12	



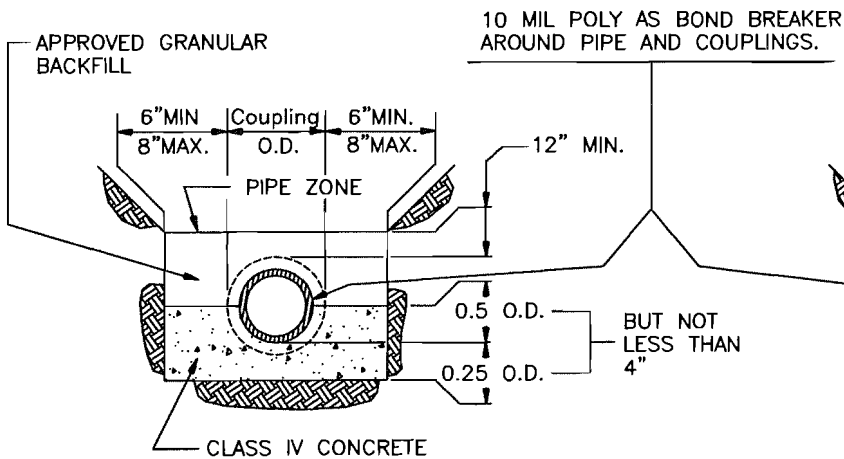
NORMAL BEDDING

(LOAD FACTOR = 1.5)



SPECIAL BEDDING

(LOAD FACTOR = 1.9)



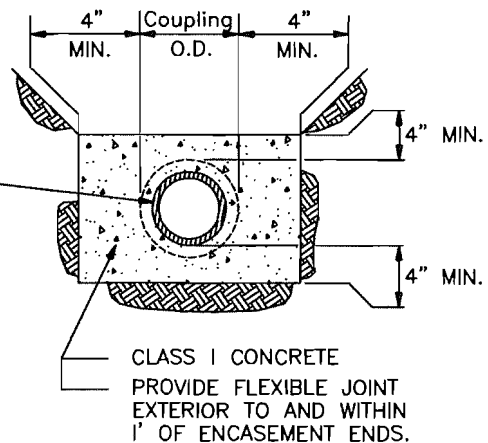
CONCRETE CRADLE

(LOAD FACTOR = 3.0)

NOTE:

DO NOT USE ENCASEMENT FOR A.B.S. or P.V.C. PIPE.

ALL BACKFILL SHALL BE PLACED IN ACCORDANCE WITH THE SPECIFICATIONS.



CONCRETE ENCASEMENT

(LOAD FACTOR = 4.5)

(PIPE OVER 15" REQUIRES SPECIAL DESIGN)

TECH. SPEC. REFERENCE:

CONCRETE -- SECTION 2.0
BEDDING -- SECTION 3.16

REVISIONS

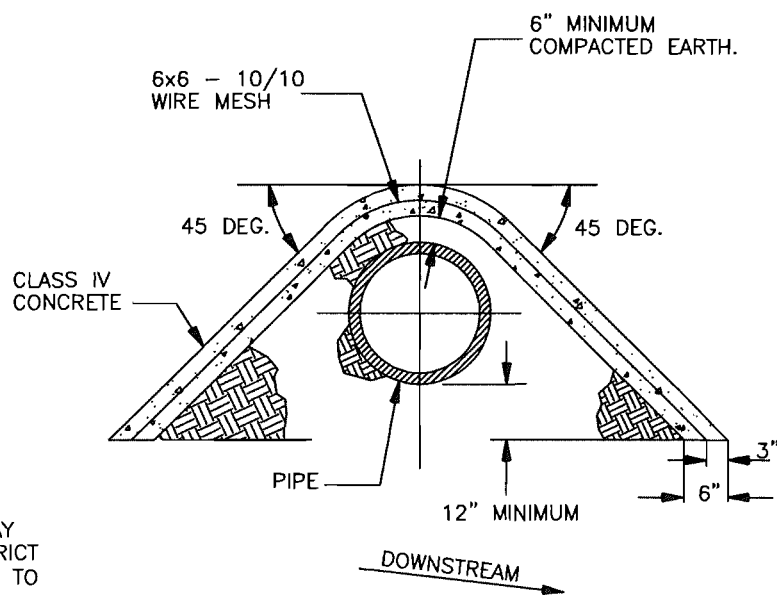
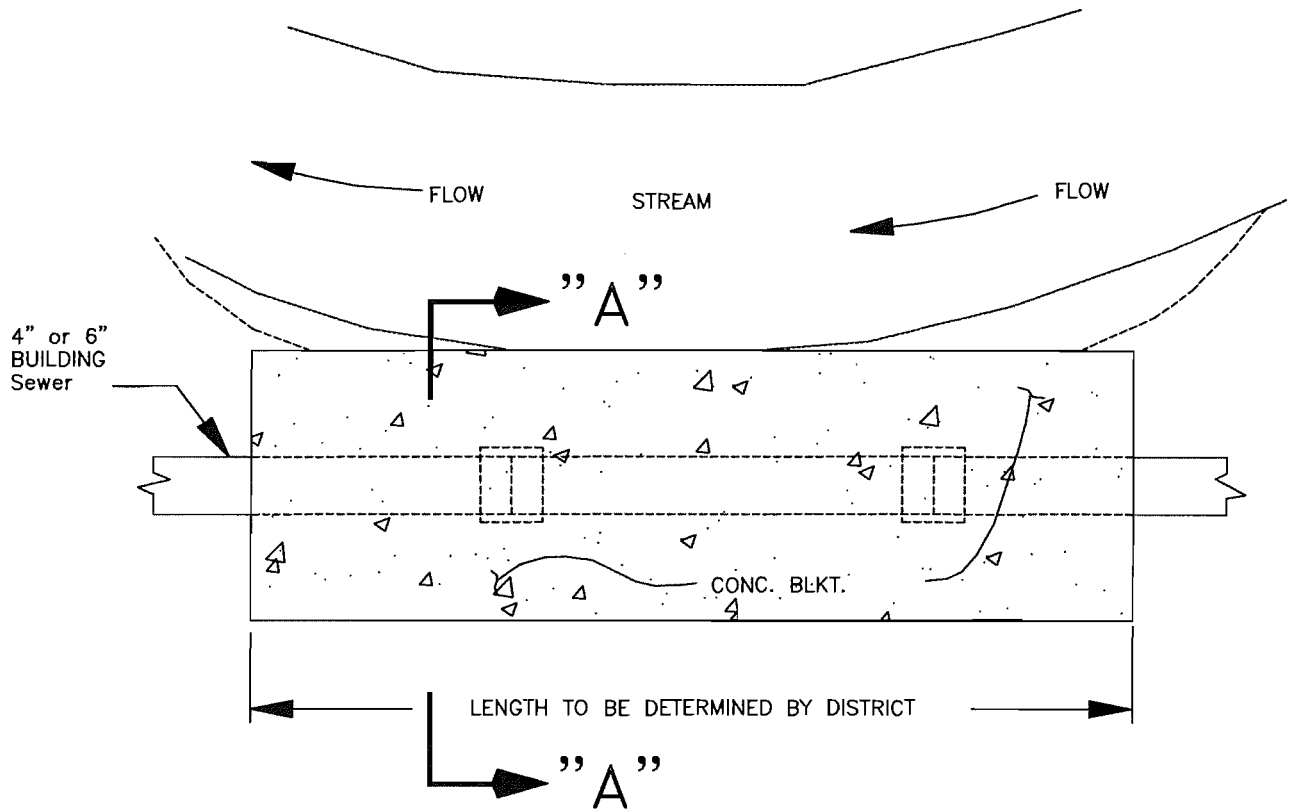
PIPE BEDDING

DRAWING NUMBER

Approved:

Gary Martin Date: 1/27/12

E-18

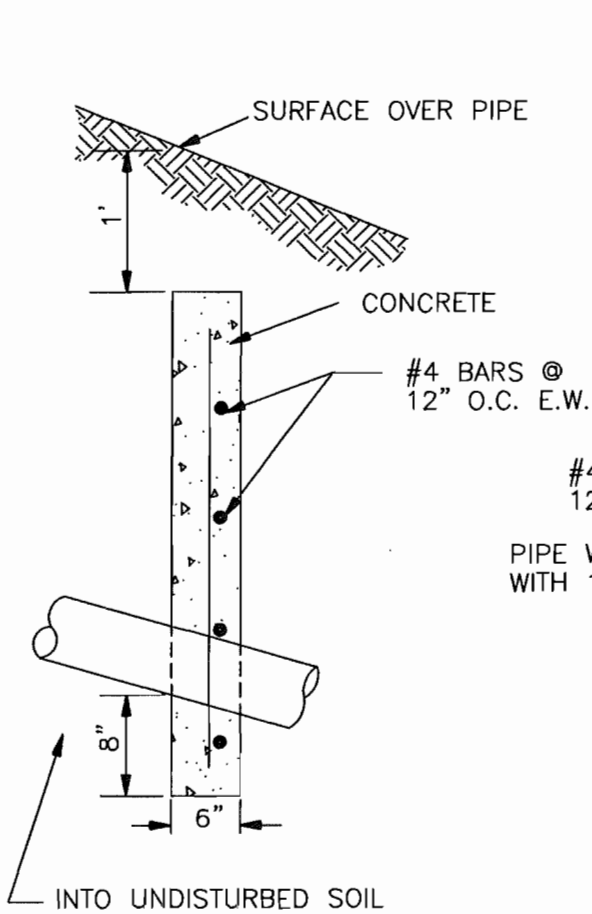


NOTES:
 OTHER PROTECTION MAY
 BE REQUIRED BY DISTRICT
 IN (LIEU OR ADDITION)
 TO CONCRETE BALANKET.

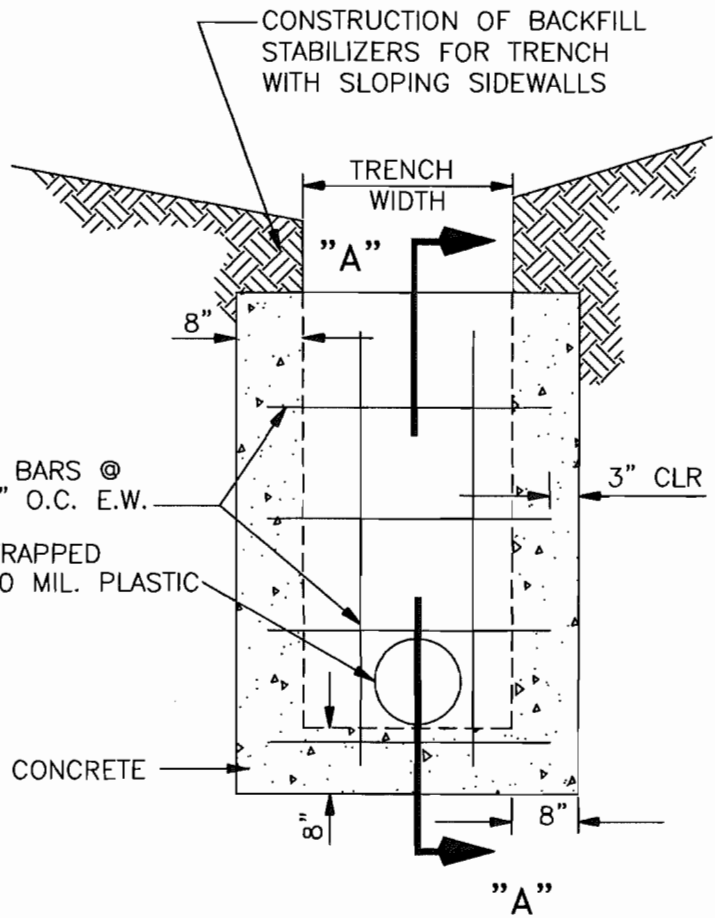
SECTION "A-A"

NO SCALE

	REVISIONS	BUILDING SEWER OR LATERAL PARALLEL WITH WATER COURSE	DRAWING NUMBER
		E-19	



SECTION "A-A"
N.T.S.



TRENCH SECTION
N.T.S.

REVISIONS

BACKFILL STABILIZER

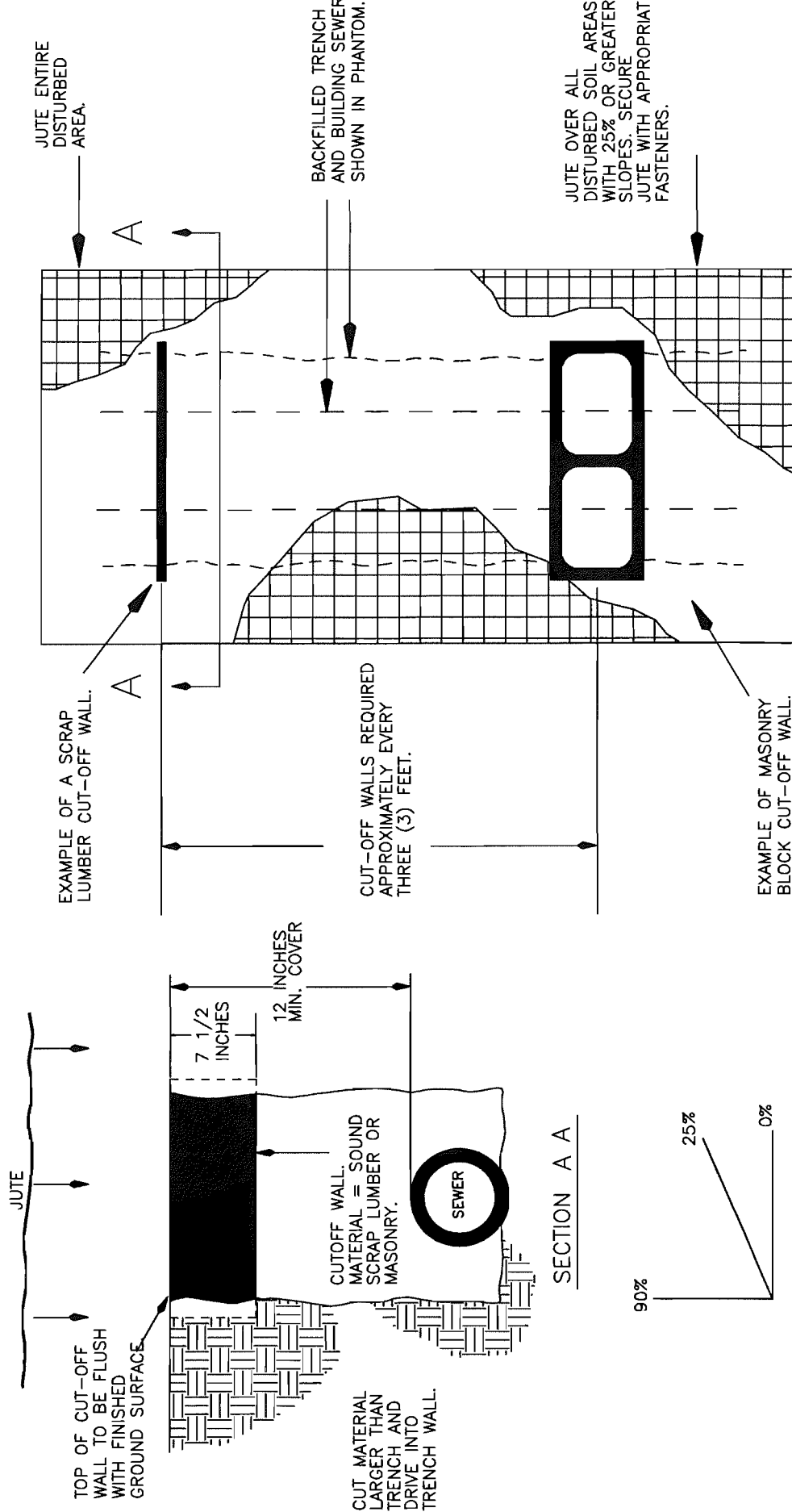
DRAWING NUMBER

Approved:

Gary Martin

Date: 1/27/12

E-20

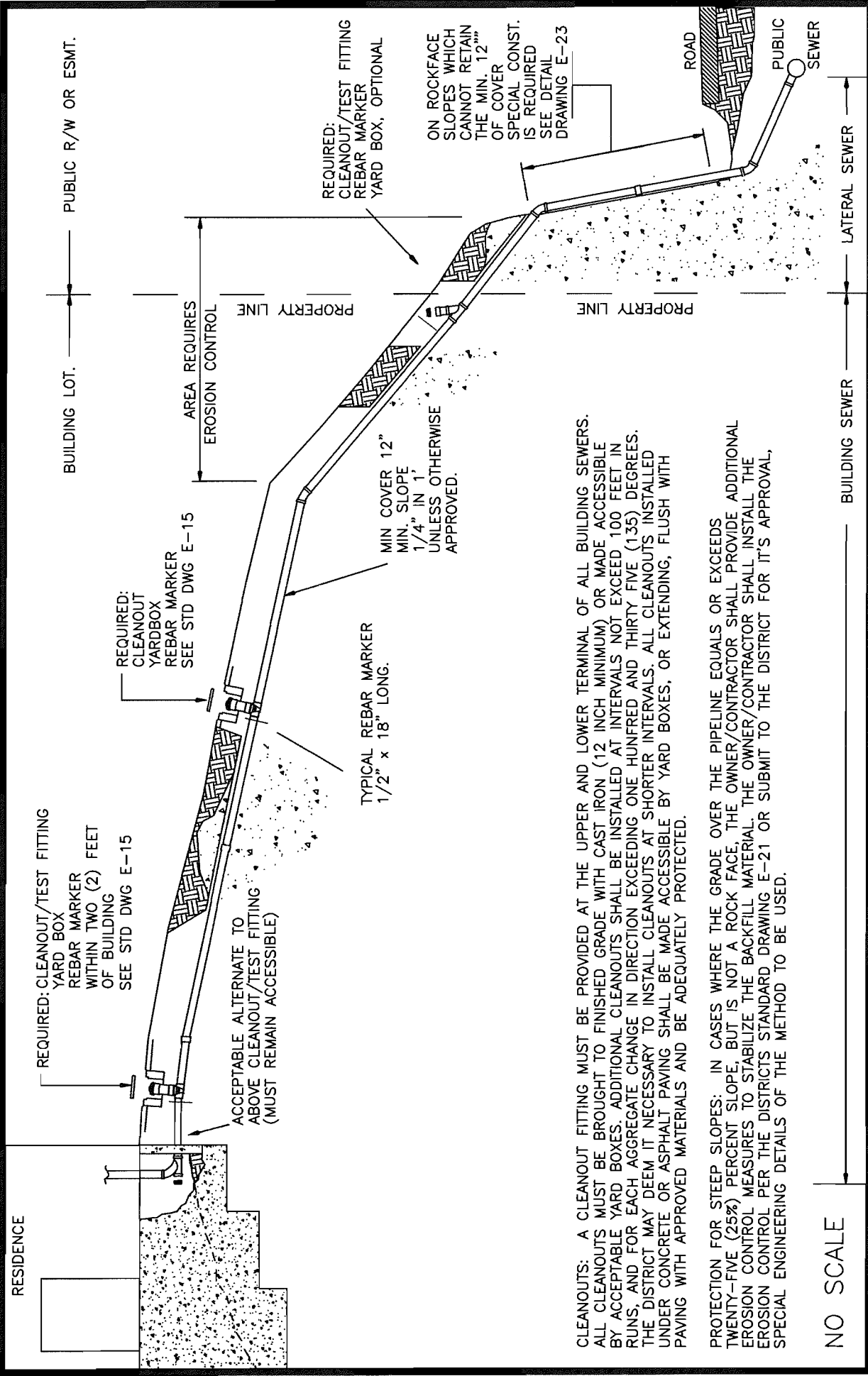


DRAWING NUMBER
E-21

EROSION CONTROL, BUILDING AND ON SITE SEWERS

Approved: *Gary Martin* Date: 1/27/12

REVISIONS



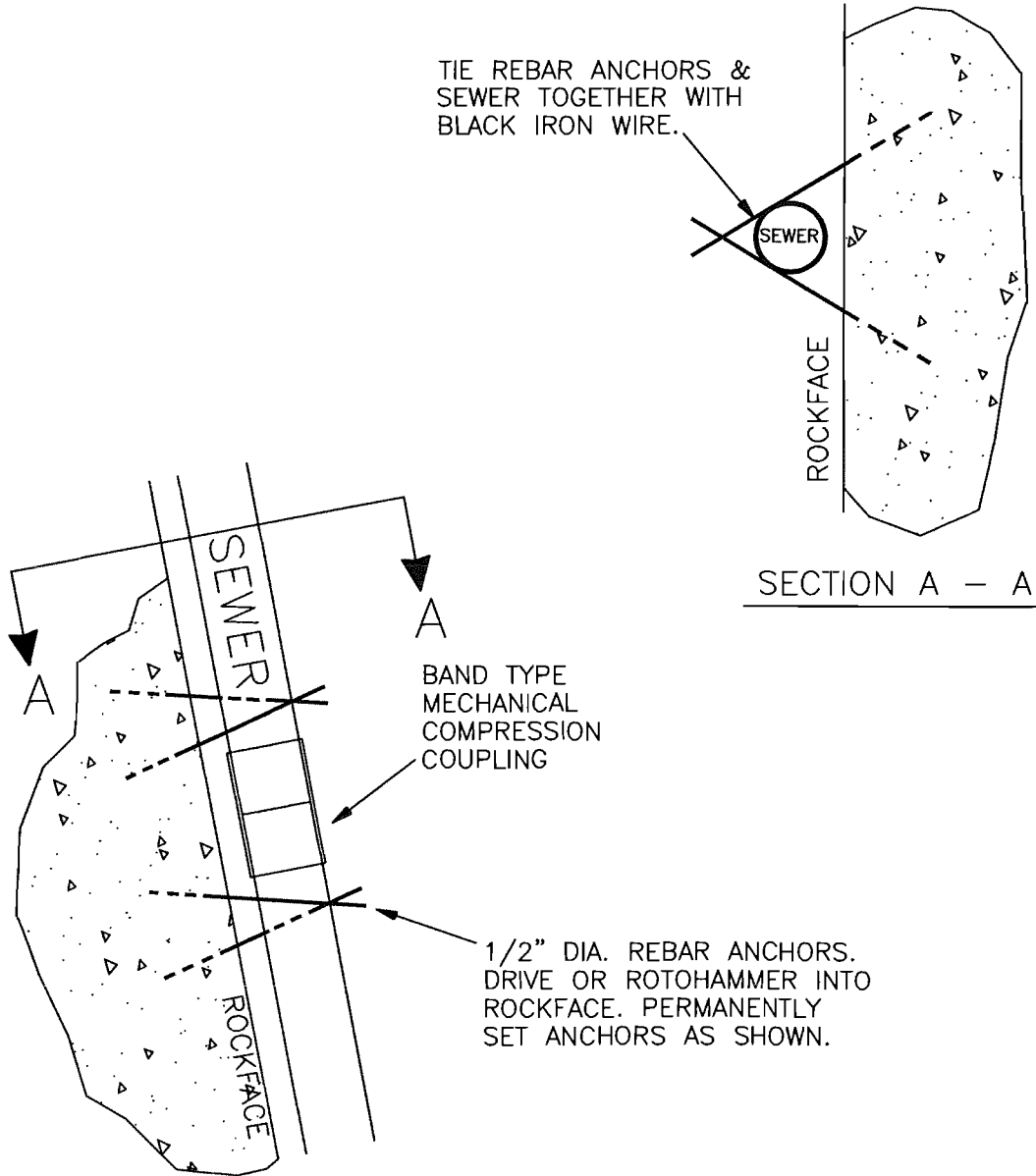
CLEANOUTS: A CLEANOUT FITTING MUST BE PROVIDED AT THE UPPER AND LOWER TERMINAL OF ALL BUILDING SEWERS. ALL CLEANOUTS MUST BE BROUGHT TO FINISHED GRADE WITH CAST IRON (12 INCH MINIMUM) OR MADE ACCESSIBLE BY ACCEPTABLE YARD BOXES. ADDITIONAL CLEANOUTS SHALL BE INSTALLED AT INTERVALS NOT EXCEED 100 FEET IN RUNS, AND FOR EACH AGGREGATE CHANGE IN DIRECTION EXCEEDING ONE HUNDRED AND THIRTY FIVE (135) DEGREES. THE DISTRICT MAY DEEM IT NECESSARY TO INSTALL CLEANOUTS AT SHORTER INTERVALS. ALL CLEANOUTS INSTALLED UNDER CONCRETE OR ASPHALT PAVING SHALL BE MADE ACCESSIBLE BY YARD BOXES, OR EXTENDING, FLUSH WITH PAVING WITH APPROVED MATERIALS AND BE ADEQUATELY PROTECTED.

PROTECTION FOR STEEP SLOPES: IN CASES WHERE THE GRADE OVER THE PIPELINE EQUALS OR EXCEEDS TWENTY-FIVE (25%) PERCENT SLOPE, BUT IS NOT A ROCK FACE, THE OWNER/CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL MEASURES TO STABILIZE THE BACKFILL MATERIAL. THE OWNER/CONTRACTOR SHALL INSTALL THE EROSION CONTROL PER THE DISTRICTS STANDARD DRAWING E-21 OR SUBMIT TO THE DISTRICT FOR IT'S APPROVAL, SPECIAL ENGINEERING DETAILS OF THE METHOD TO BE USED.

NO SCALE

REVISIONS 		BUILDING SEWER INSTALLATION (OPEN SYSTEM GRAVITY)		DRAWING NUMBER E-22
NOTICE: THIS DRAWING ILLUSTRATES A TYPICAL INSTALLATION YOUR SITE AND INSTALLATION MAY REQUIRE THE ADDITION OR DELETION OF SITE SPECIFIC DETAILS.		Approved: <u>Gary Martin</u> Date: <u>1/27/12</u>		

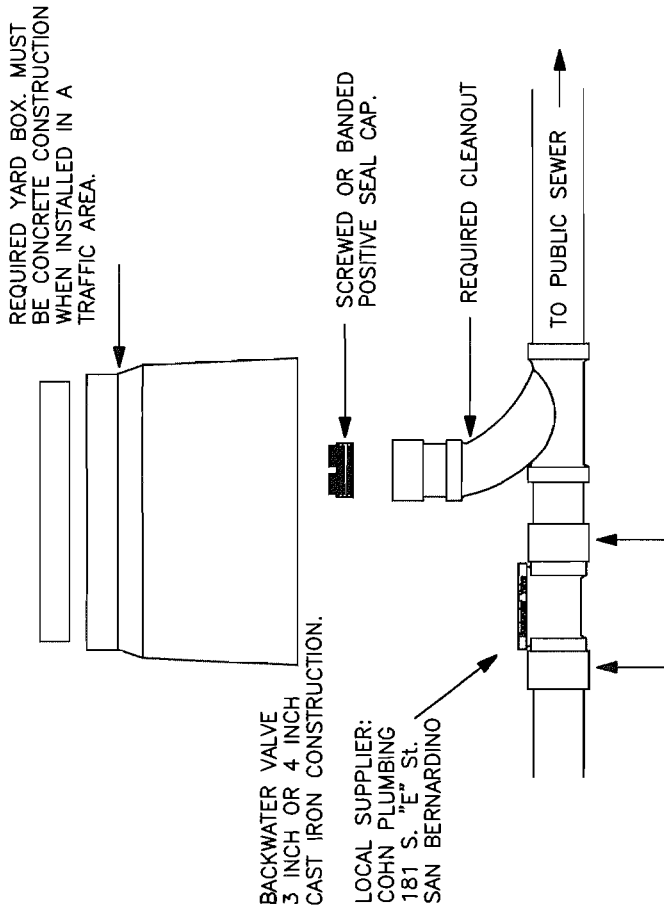
ROCKFACE CONST. DETAIL



NO SCALE

	REVISIONS	BUILDING SEWER DETAIL (OPEN SYSTEM GRAVITY)	DRAWING NUMBER
	8/09		
		E-23	

BACKWATER VALVE DETAIL



"CP" 33 OR 44 COUPLING, DEPENDING ON SIZE OF BACKWATER VALVE.

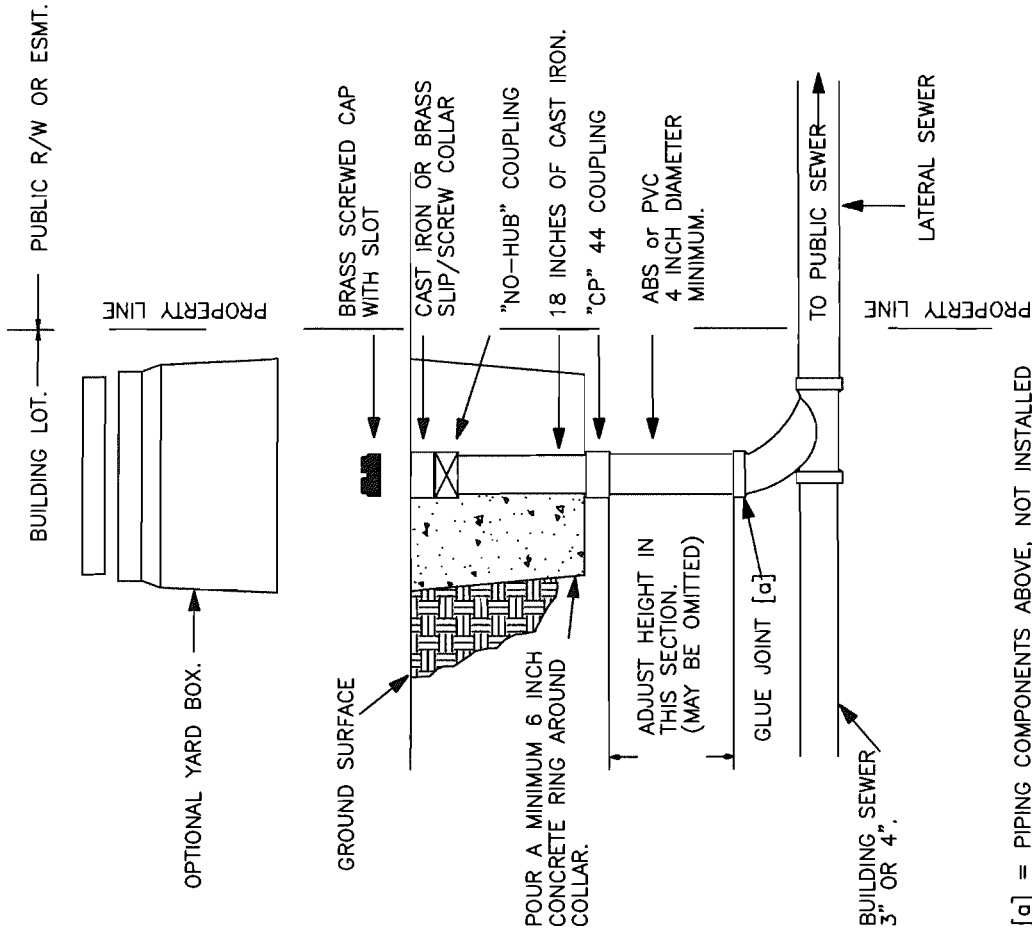
NOTE: THE BACKWATER VALVE WILL BE INSPECTED FOR LEVEL WITH THE TOP COVER REMOVED. IT MUST BE INSTALLED LEVEL IN BOTH THE LINE AND TRANSVERSE DIRECTIONS.

NO SCALE

NOTICE: THIS DRAWING ILLUSTRATES A TYPICAL INSTALLATION. YOUR SITE AND INSTALLATION MAY REQUIRE THE ADDITION OR DELETION OF SITE SPECIFIC DETAILS.

REVISIONS

CLEANOUT DETAIL



[ø] = PIPING COMPONENTS ABOVE, NOT INSTALLED UNTIL AFTER A SUCCESSFUL WATER TEST IS COMPLETED. "CP" MEANS, CAST IRON TO PLASTIC COUPLING.

NO SCALE

BUILDING SEWER INSTALLATION DETAILS
(CLOSED SYSTEM, GRAVITY)

Approved: Gary Martin Date: 1/27/12

DRAWING NUMBER

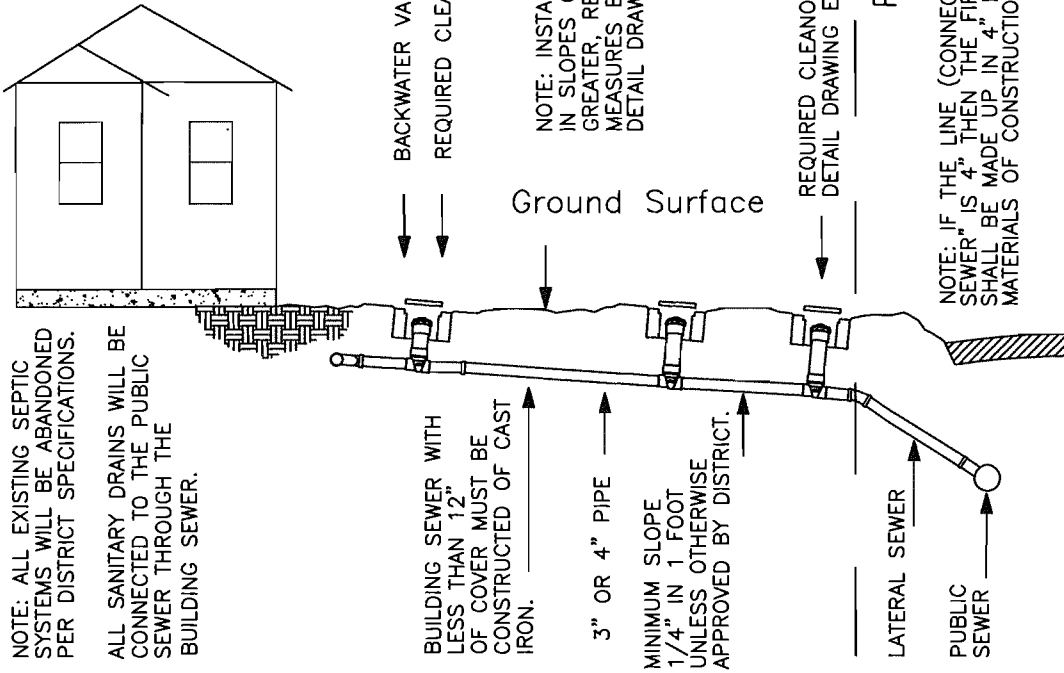
E-23B

ELEVATION

NO SCALE

NOTE: ALL EXISTING SEPTIC SYSTEMS WILL BE ABANDONED PER DISTRICT SPECIFICATIONS.

ALL SANITARY DRAINS WILL BE CONNECTED TO THE PUBLIC SEWER THROUGH THE BUILDING SEWER.



NOTE: INSTALLATIONS CONSTRUCTED IN SLOPES OF 25% GRADE OR GREATER, REQUIRE EROSION CONTROL MEASURES BE COMPLETED. SEE DETAIL DRAWING E-15.

REQUIRED CLEANOUT SEE DETAIL DRAWING E-15

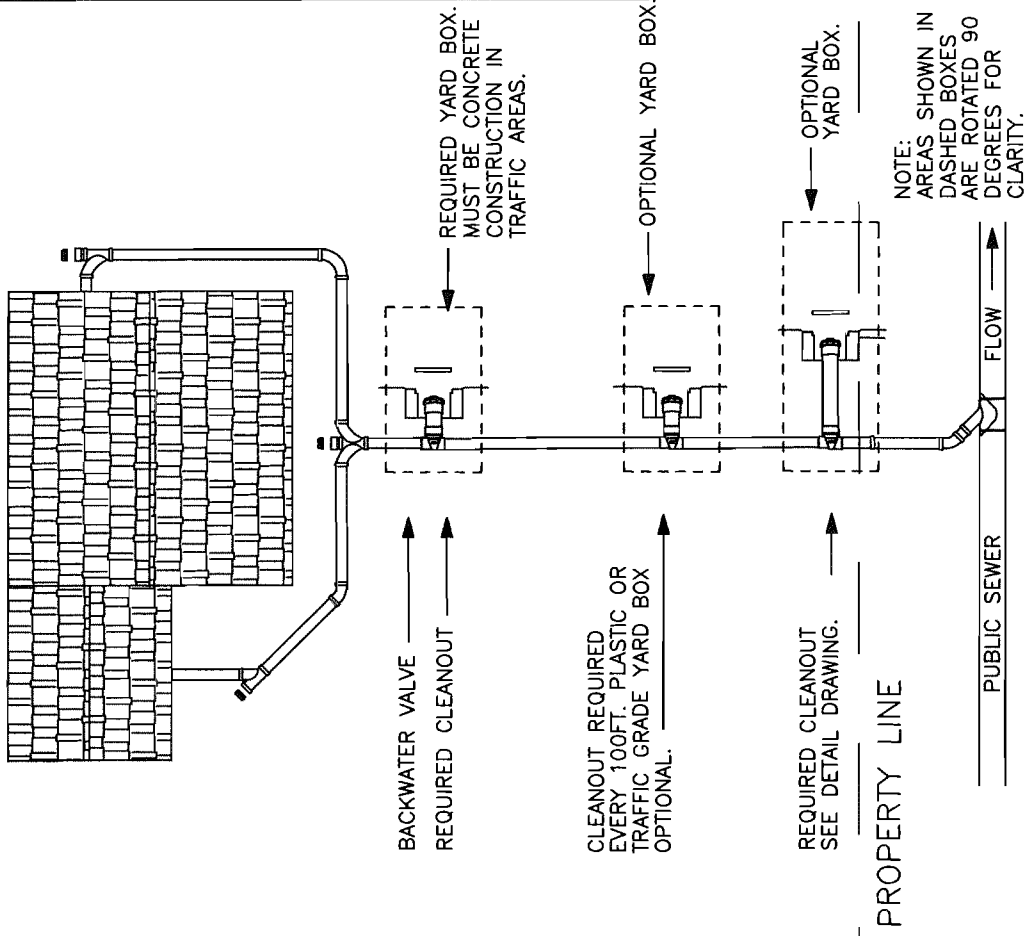
NOTE: IF THE LINE (CONNECTION) AT THE "PUBLIC SEWER" IS 4" THEN THE FIRST UPSTREAM CLEANOUT SHALL BE MADE UP IN 4" MATERIALS. IF 6", THE MATERIALS OF CONSTRUCTION WILL BE 6".

NOTICE: THIS DRAWING ILLUSTRATES A TYPICAL INSTALLATION. YOUR SITE AND INSTALLATION MAY REQUIRE THE ADDITION OR DELETION OF SITE SPECIFIC DETAILS.

REVISIONS

PLAN VIEW

NO SCALE



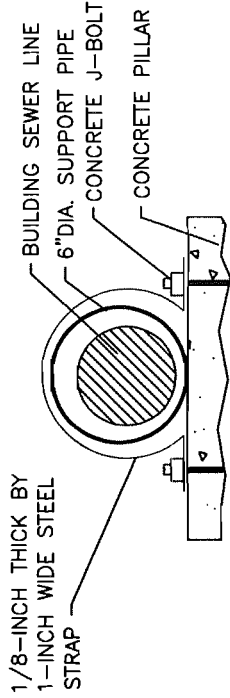
NOTE: AREAS SHOWN IN DASHED BOXES ARE ROTATED 90 DEGREES FOR CLARITY.

BUILDING SEWER INSTALLATION (CLOSED SYSTEM, GRAVITY)

Approved: George Martin Date: 1/27/12

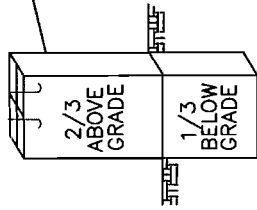
DRAWING NUMBER

E-24

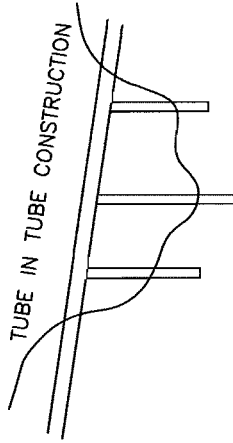


PIPE SECTION & ANCHOR DETAIL

RECTANGULAR POURED IN PLACE PIER, 1 FOOT x 1 FOOT MIN. WITH J-BOLTS. 4-#3 REBAR REQUIRED INSPECTION REQUIRED PRIOR TO CONCRETE POUR. SONATUBE FORMS ARE ACCEPTABLE.



PIER DETAIL



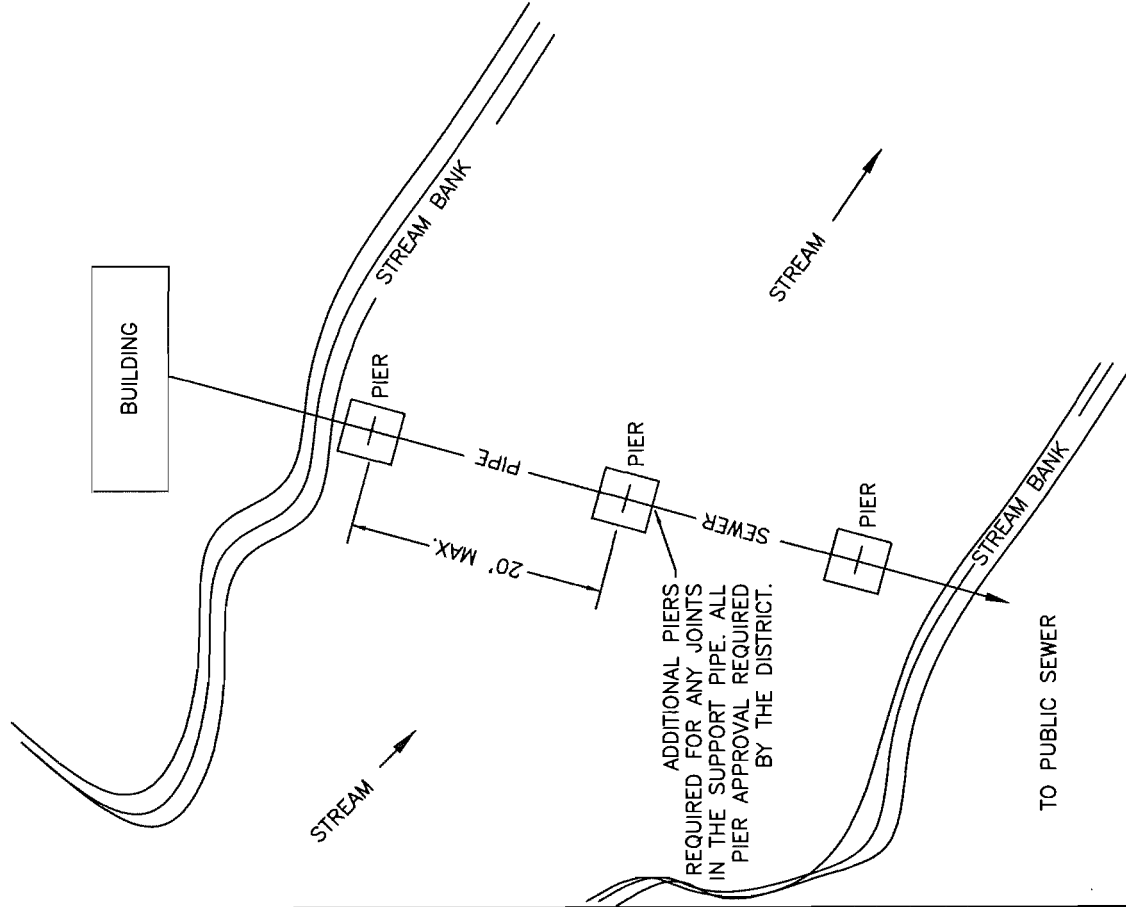
1. JOINTS OF SUPPORT PIPE MUST BE ON PIER.
2. PIER HEIGHT MUST BE APPROVED BY DISTRICT.
3. ONE FOOT MINIMUM DEPTH OF PIPE REQUIRED AT STREAM BANK.
4. ALL CROSSINGS REQUIRE PRIOR SITE APPROVAL.

STREAM CROSSING SECTION

NOTICE: THIS DRAWING ILLUSTRATES A TYPICAL INSTALLATION. YOUR SITE AND INSTALLATION MAY REQUIRE THE ADDITION OR DELETION OF SITE SPECIFIC DETAILS.

REVISIONS

NO.	DESCRIPTION



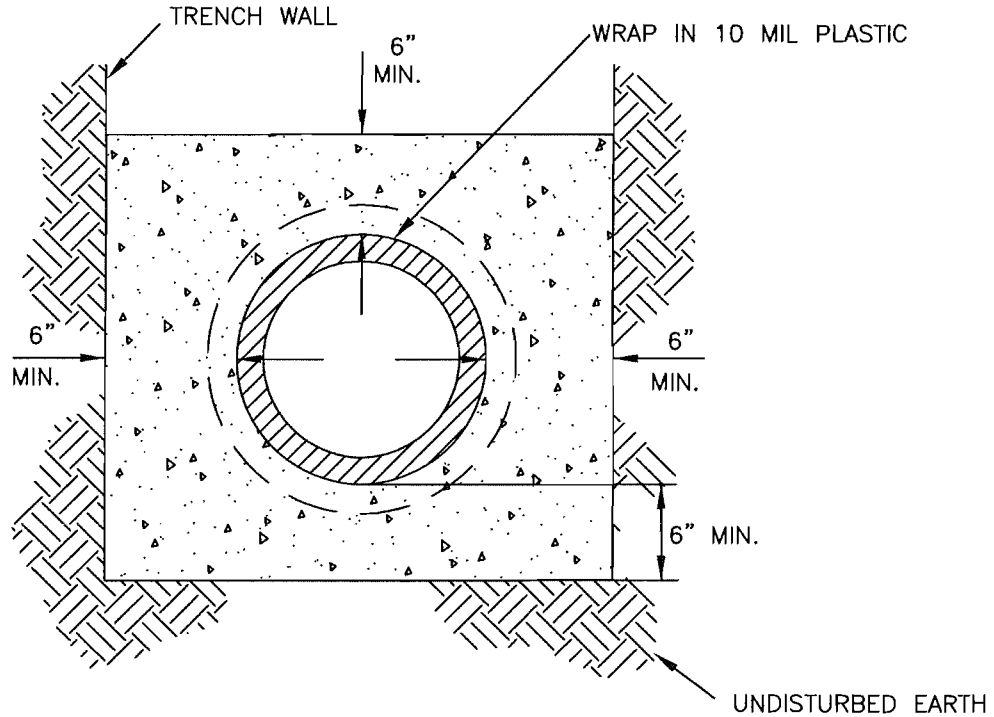
NO SCALE

ELEVATED STREAM CROSSING PLAN

DRAWING NUMBER

Approved: Gary Masten 1/27/12

E-25

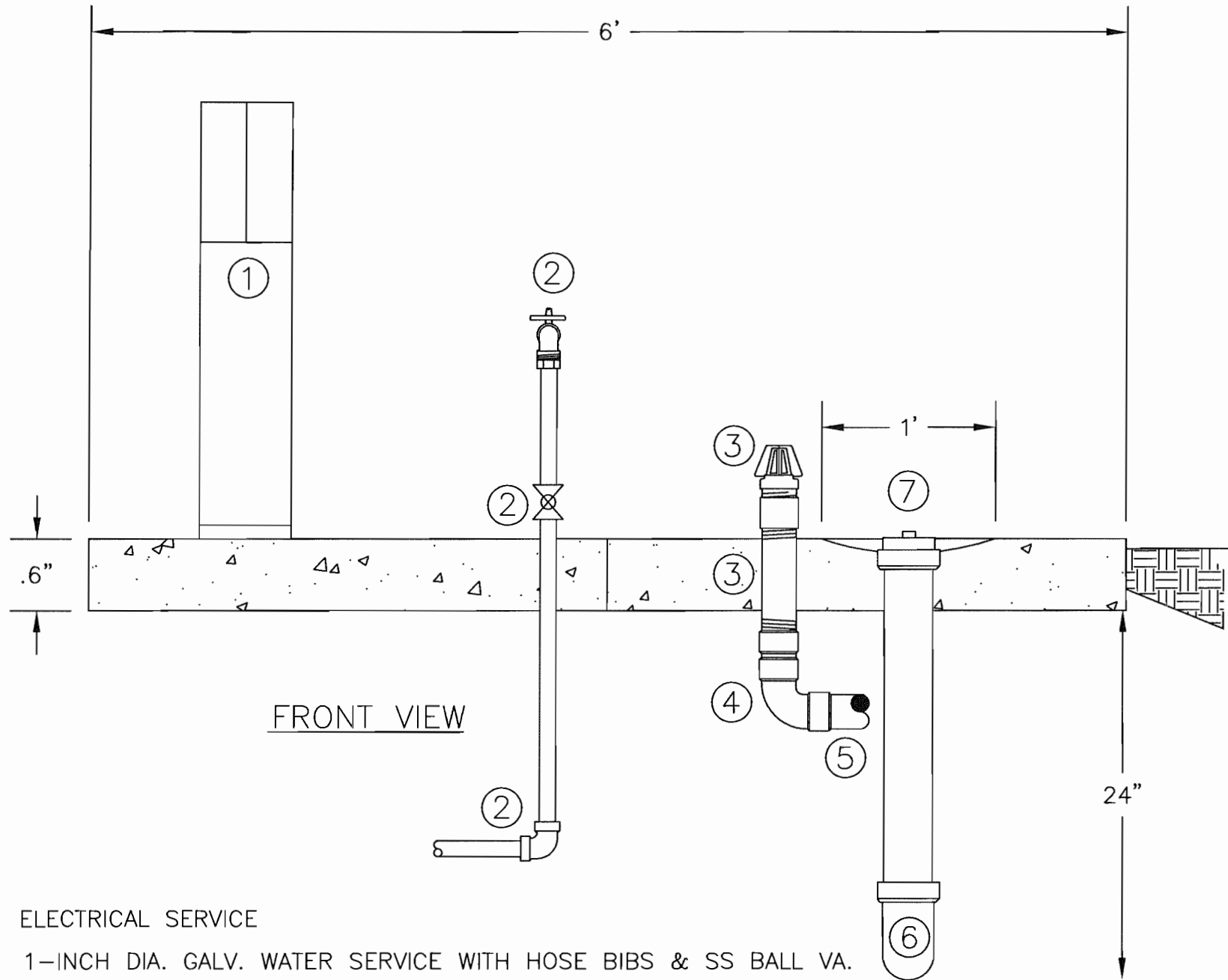


NOTES:

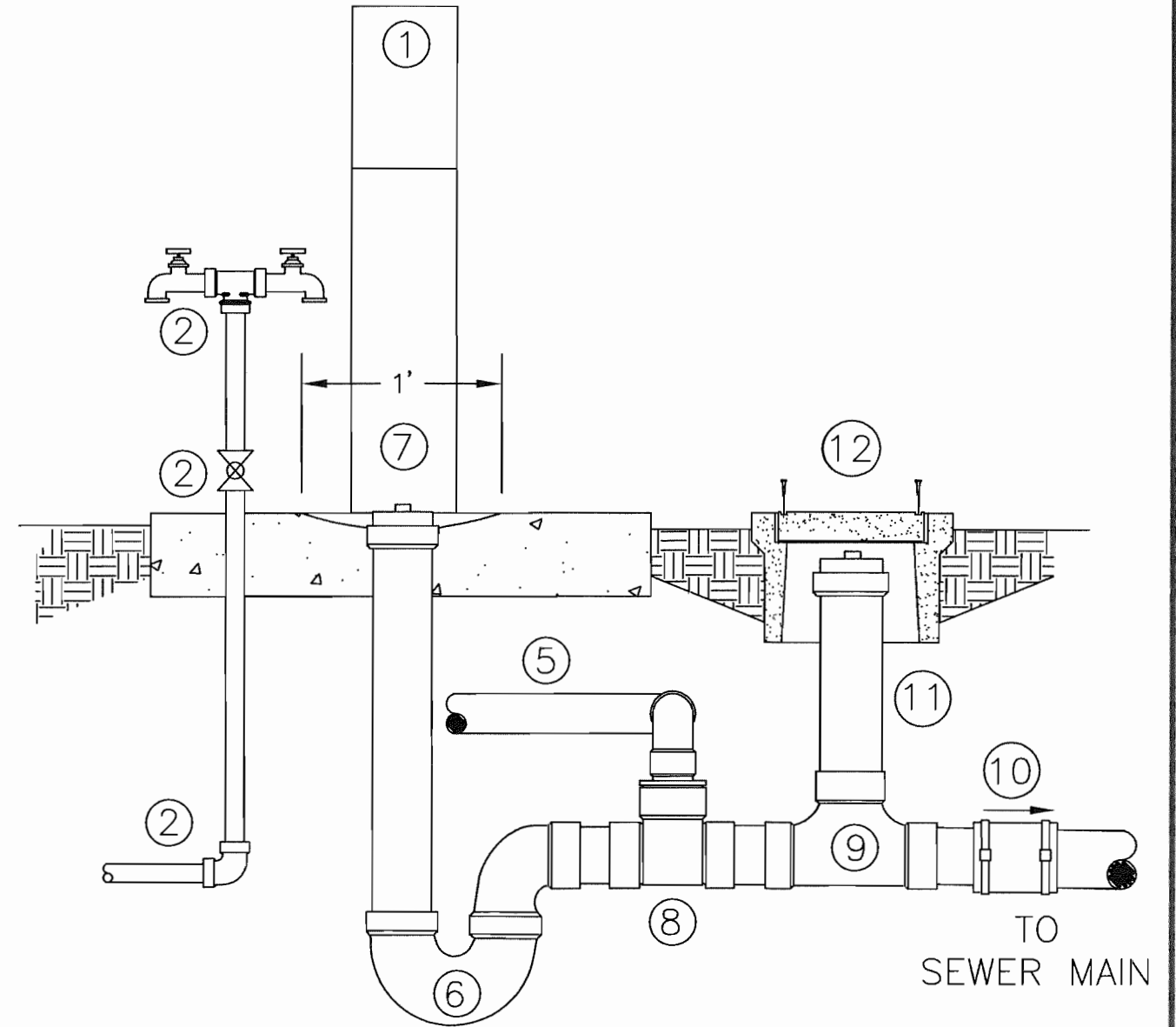
1. CONCRETE ENCASEMENT SHALL BE INSTALLED AS REQUIRED BY THE SPECIFICATIONS OR DIRECTED BY THE ENGINEER.
2. CONCRETE SHALL BE CLASS 2 SACK SAND SLURRY

	REVISIONS	CONCRETE ENCASEMENT	DRAWING NUMBER
	10/09		
		Approved: <u>Gary Martin</u> Date: <u>1/27/12</u>	E-26

A. ALL PLUMBING TO BE INSTALLED TO THE LATEST UNIFIED PLUMBING CODES.
 B. ELECTRICAL SERVICE BOX TO BE INSTALLED PER EDISON AND LATEST EDITION OF THE NEC ELECTRICAL CODES.



FRONT VIEW



SIDE VIEW

- ① ELECTRICAL SERVICE
- ② 1-INCH DIA. GALV. WATER SERVICE WITH HOSE BIBS & SS BALL VA.
- ③ 2" GALVANIZED THREADED RISER WITH 2" GALVANIZED UNION AND TOPPED WITH JOSAM IRON VANDAL PROOF 2-INCH VENT CAP MODEL 26700
- ④ 2"DIA ABS MALE ADAPTER FOR GALV. NIPPLE & 2" 90 ELL TO 2" ABS VENT PIPING
- ⑤ 2-INCH ABS VENT PIPE TO 90 DEG ELBOW
- ⑥ 3-INCH ABS P-TRAP DWV WITH 3" STREET ELBOW
- ⑦ 3-INCH DIA. ABS SEWER RISER WITH THREADED CAP WITH 1-FT DIA.x 1-1/2" DEEP DEPRESSION FOR BASIN
- ⑧ 3-INCH ABS TEE WITH 3"x2" BUSHING & 2-90 DEG ABS ELBOWS
- ⑨ 3-INCH ABS TEE-CLEANOUT 2-WAY
- ⑩ 3-INCH FERNCO COUPLING
- ⑪ 3-INCH ABS PIPE CLEANOUT RISER
- ⑫ 8-INCH DEEPx12-INCH DIA. TRAFFIC RATED CONCRETE CURB BOX WITH BOLTED LID

	OFFICE OF SPECIAL DISTRICTS COUNTY OF SAN BERNARDINO	
	CAMP SITE SEWER AND UTILITY CONNECTION	
	APPROVAL <i>Gary Martin</i> DISTRICT ENGINEER	1-26-12 DATE
		DRAWING NUMBER E-27