SANITARY SEWER

STANDARD DRAWINGS

FOR

A PUBLIC AGENCY

PROTECTING PUBLIC HEALTH AND THE ENVIRONMENT

APPROVED BY
GENERAL MANAGER/DISTRICT ENGINEER:

KAMIL S. AZOURY, P.E.

2/1/08
DATE

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12/30/2005

PLEASE CONTACT THE GOLETA SANITARY DISTRICT
IF YOU HAVE ANY QUESTIONS
ONE WILLIAM MOFFETT PLACE, GOLETA CA, 93117 (805) 967-4519

STANDARD DRAWING NUMBER	DRAWING TITLE
1	STANDARD PLAN SIZE & LAYOUT
2	SEWER LOCATION IN PUBLIC ROADS
3	SYMBOLS AND ABBREVIATIONS
4	TRENCH BACKFILL REQUIREMENTS
5	CASED CROSSING
6	SIDE SEWER CLEANOUT
7	36" MANHOLE FRAME AND COVER
8	REMOTE AREA MANHOLE JACKET
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11	STANDARD DROP MANHOLE
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13	SAMPLING WELL
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16	WYE INSTALLATION IN EXISTING SEWER MAIN
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19	WATER-SEWER SEPARATION (TEXT)
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21	SEWER-WATER SEPARATION (DETAILS)
22	WATER-SEWER SEPARATION (DETAILS)
23	PIPE ANCHORS AND BACKFILL STABILIZERS TYPE 1
24	PIPE ANCHORS AND BACKFILL STABILIZERS TYPE 2
25	SAND INTERCEPTOR/GREASE INTERCEPTOR

GOLETA SANITARY DISTRICT

2/1/08
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GENERAL MANAGER/
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STANDARD DRAWING INDEX

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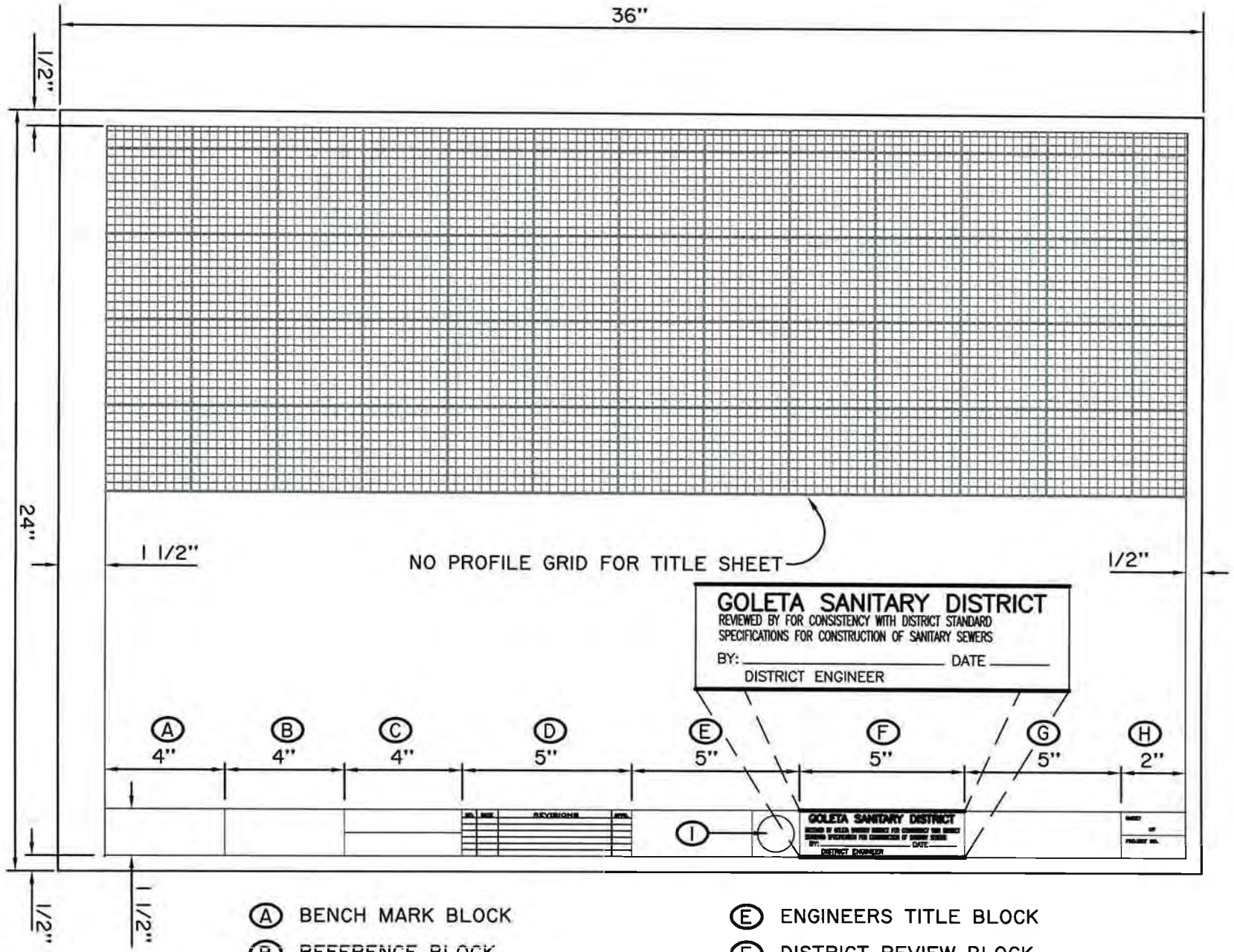
2/1/07
DATE

STANDARD PLAN SIZE & LAYOUT

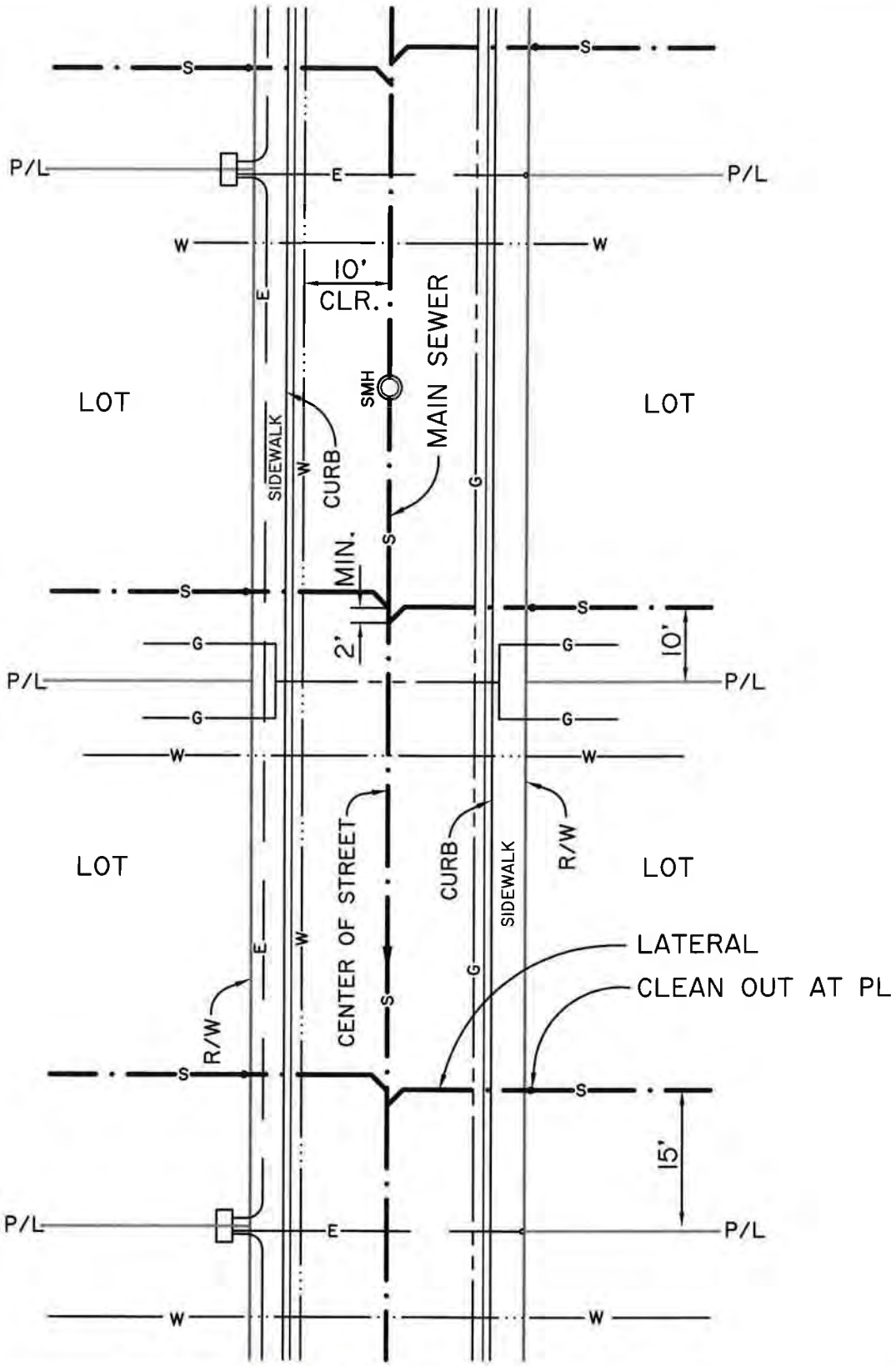
REVISIONS	BY	APP	DATE

STANDARD DRAWING

NO. 1



- (A) BENCH MARK BLOCK
- (B) REFERENCE BLOCK
- (C) OTHER AGENCIES APPROVAL BLOCK
- (D) REVISION BLOCK
- (E) ENGINEERS TITLE BLOCK
- (F) DISTRICT REVIEW BLOCK
- (G) PROJECT TITLE BLOCK
- (H) SHEET NUMBER BLOCK
- (I) ENGINEER'S SEAL



GOLETA SANITARY DISTRICT

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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

SEWER LOCATION IN PUBLIC ROADS

STANDARD DRAWING

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NO. 2

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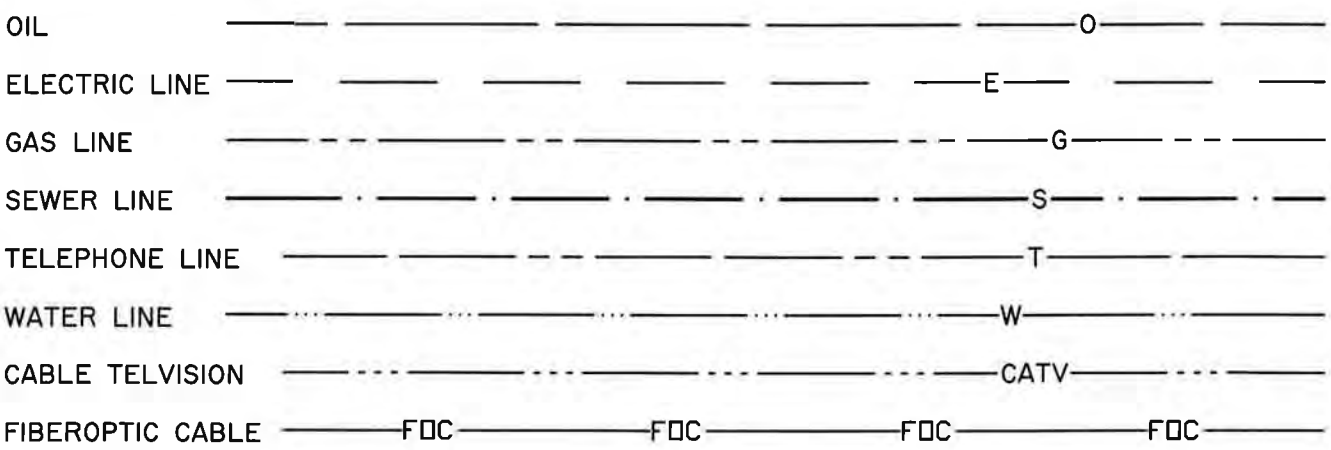
UTILITY LINES



EQUIPMENT DESIGNATIONS

DEFINITION	ABBREVIATION	SYMBOL EXISTING	SYMBOL PROPOSED
GUY POLE	GP		
POWER POLE	PP	PP	
UTILITY POLE	UP	UP	
PULL BOX	PB	pb	
SEWER MANHOLE	SMH		
WATER METER	WM	W	
WATER VALVE	WV	W	
GAS METER	GM	G	
GAS VALVE	GV	G	
LIGHT POLE	LP		
TRAFFIC SIGNAL STANDARD	TS		
CLEANOUT	C.O.		

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SYMBOLS AND ABBREVIATIONS

STANDARD DRAWING

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NO. 3

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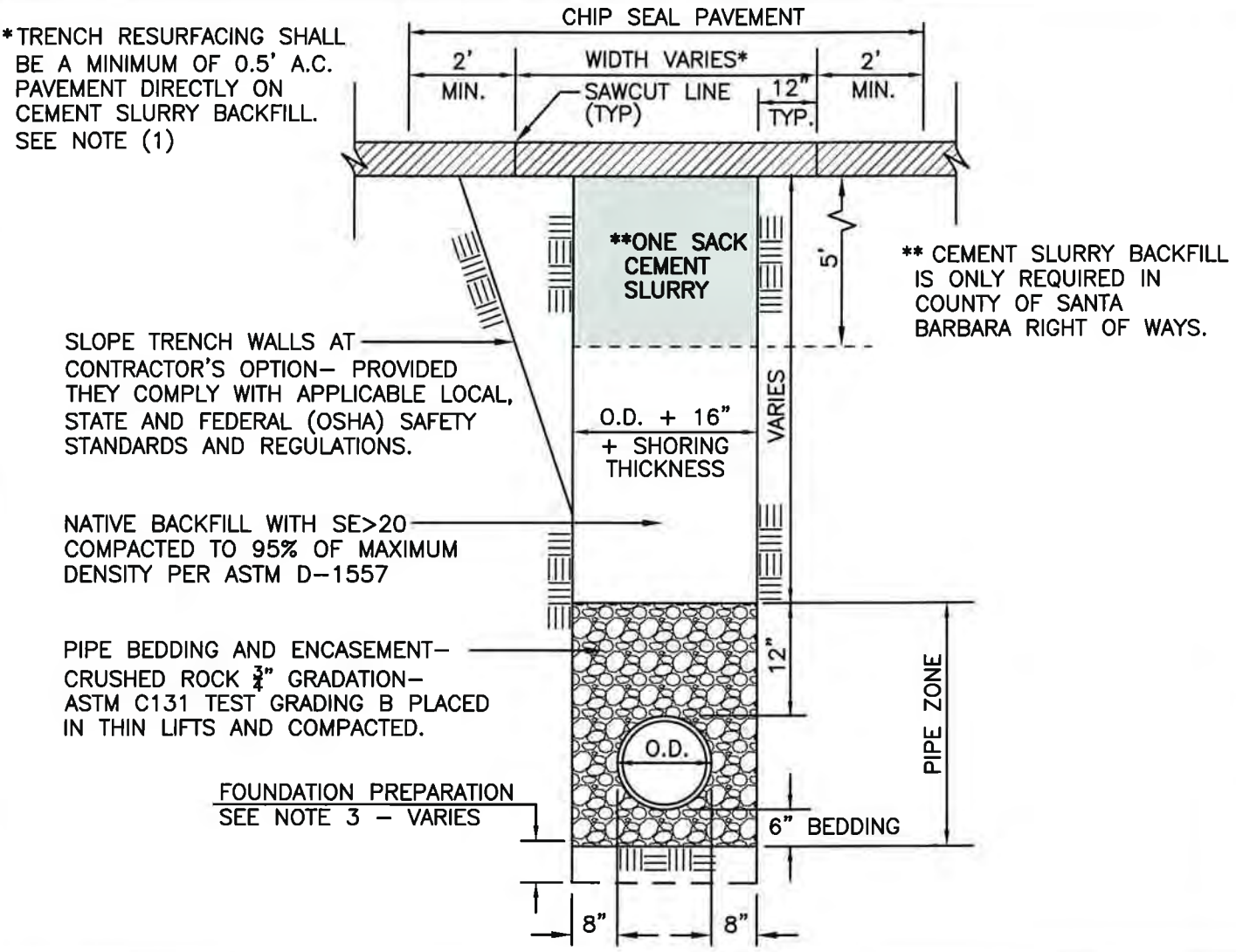

NOTES

1. THE STRUCTURAL SECTION OF ASPHALTIC CONCRETE REPLACEMENT SHALL BE EQUAL TO THE EXISTING SECTION PLUS 1" OR 6" MINIMUM THICKNESS, WHICHEVER IS GREATER UNLESS OTHERWISE NOTED.
2. COUNTY OF SANTA BARBARA STANDARD DETAILS 1–020 AND 1–030 SHALL SERVE AS GUIDELINES FOR TRENCHING OPERATIONS.
3. FOUNDATION PREPARATION IS REQUIRED WHEN THE TRENCH BOTTOM IS UNSTABLE. REMOVE SOFT, SPONGY OR OTHERWISE UNSUITABLE MATERIAL. OVEREXCAVATION BEYOND 2 FEET REQUIRES ADDITIONAL ENGINEERING. BACKFILL OVEREXCAVATIONS WITH CRUSHED ROCK BEDDING.
4. THE FIRST LIFT SHALL BE WORKED UNDER THE PIPE AND FITTINGS TO ENSURE A COMPLETE AND CONTINUOUS BEARING SURFACE FREE OF VOIDS.
5. BACKFILL MATERIAL AND COMPACTION ABOVE THE "PIPE ZONE" SHALL MEET THE CITY OR COUNTY JURISDICTION'S REQUIREMENTS.

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TRENCH BACKFILL REQUIREMENTS

STANDARD DRAWING

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NO. 4

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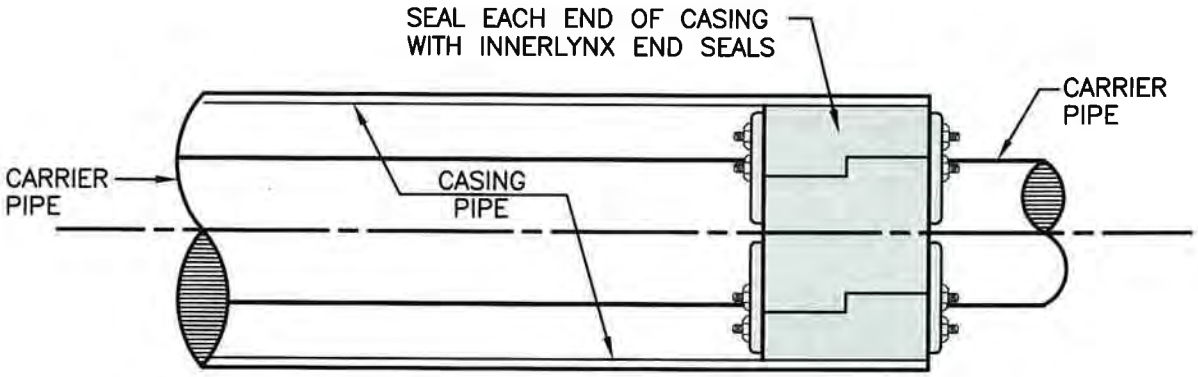
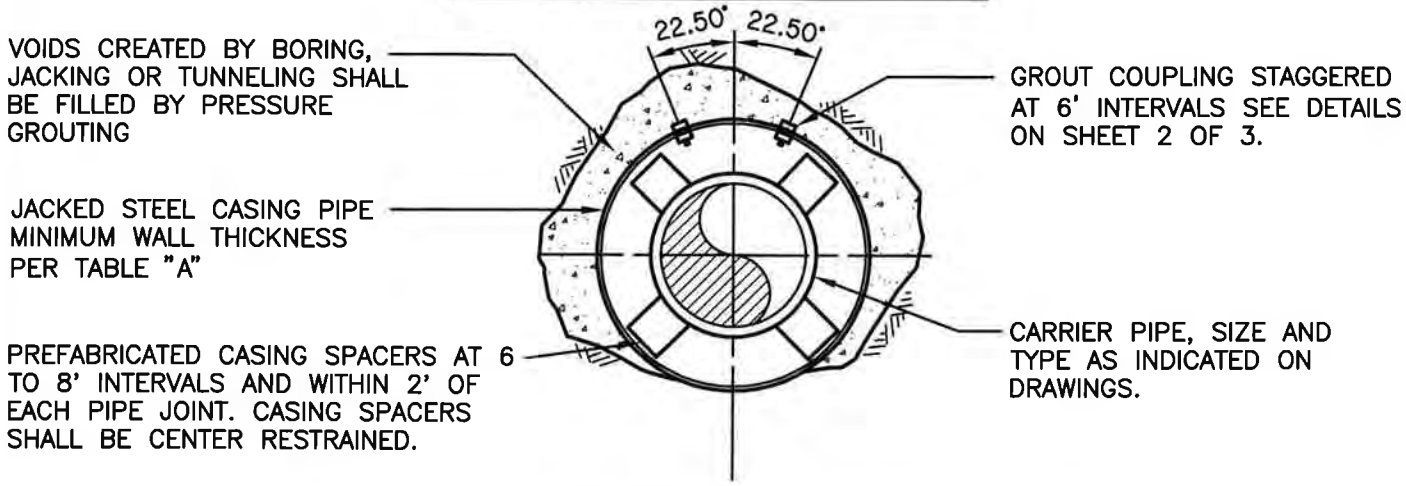


TABLE "A"

STEEL CASING WALL THICKNESS CHART		
MINIMUM THICKNESS		DIAMETER OF CASING PIPE
.2500"	1/4"	12" OR LESS
.3125"	5/16"	OVER 12"–18"
.3750"	3/8"	OVER 18"–22"
.4375"	7/16"	OVER 22"–28"
.5000"	1/2"	OVER 28"–34"
.5625"	9/16"	OVER 34"–42"
.6250"	5/8"	OVER 42"–48"



NOTES

1. CASING PIPE SHALL BE SIZED TO ALLOW A MINIMUM 4" ANNULAR SPACE BETWEEN THE CARRIER PIPE AND CASING PIPE.
2. TABLE "A" IS ONLY FOR SMOOTH STEEL CASING PIPES WITH A MINIMUM YIELD STRENGTH OF 35,000 PSI.

BORED AND JACKED CASED CROSSING

N.T.S.

GOLETA SANITARY DISTRICT

2/1/08
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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

CASED CROSSING

STANDARD DRAWING

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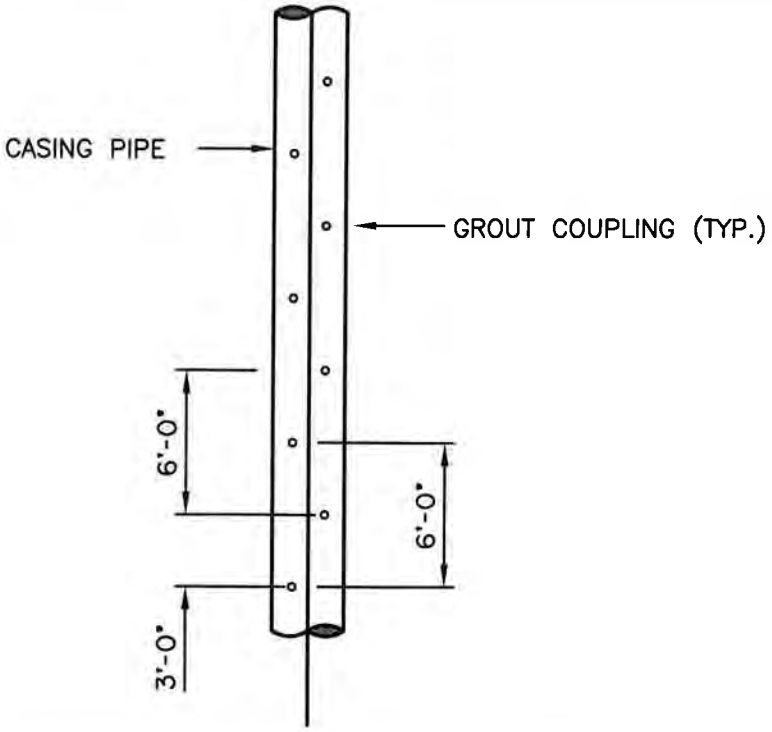
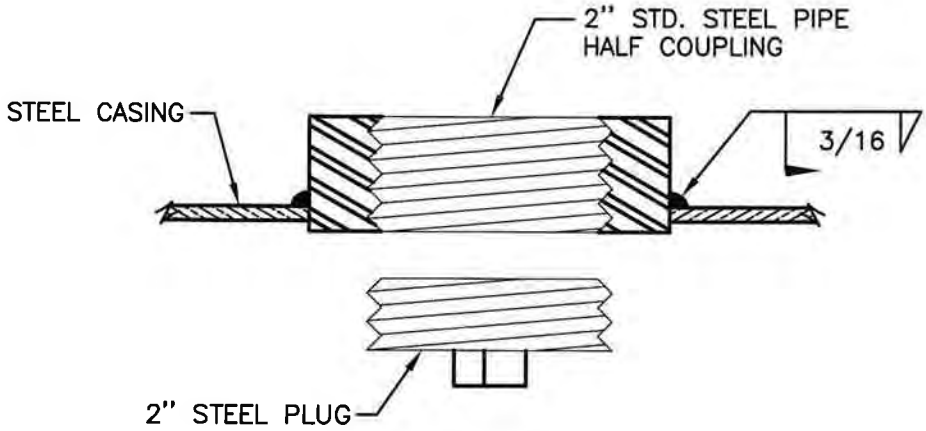


GROUT COUPLING SPACING

N.T.S.



GROUT COUPLING

N.T.S.

BORED AND JACKED CASED CROSSING

GOLETA SANITARY DISTRICT

2/11/08
DATE

KAMIL S. AZOURY,P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

CASED CROSSING

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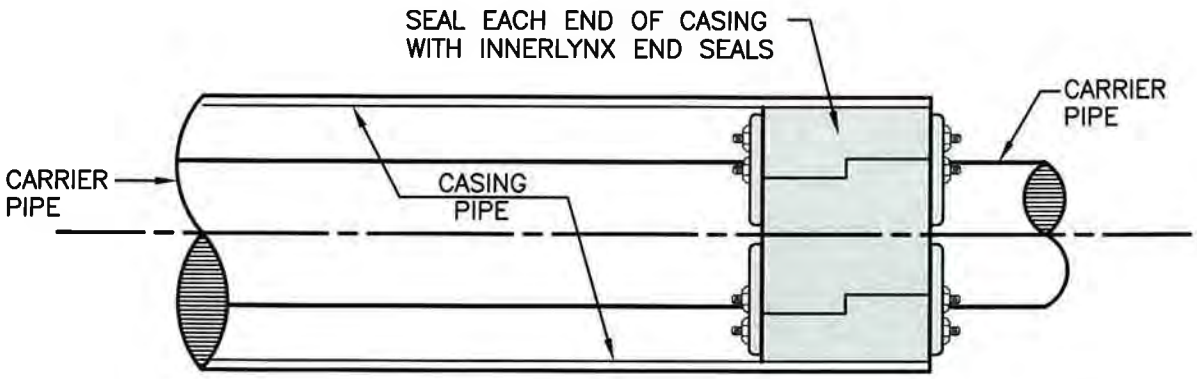

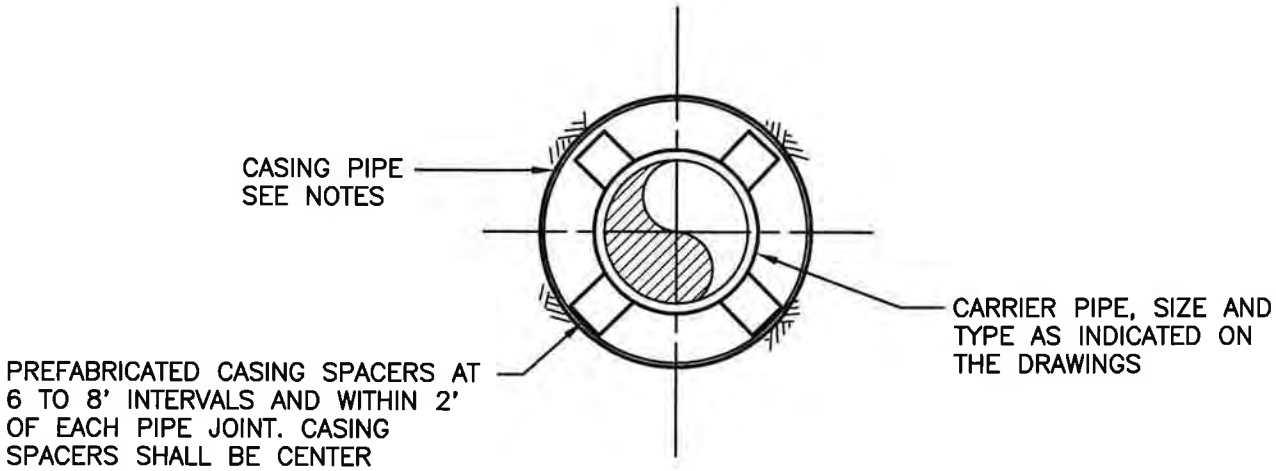

NOTES

1. CASING PIPE SHALL BE SIZED TO ALLOW A MINIMUM 4" ANNULAR SPACE BETWEEN THE CARRIER PIPE AND CASING.
2. CASING PIPE MAY BE DUCTILE IRON, HDPE (SDR17) OR PVC (C905) AS APPROVED BY THE DISTRICT.

CASED CROSSING INSTALLED BY OPEN CUT

N.T.S.

GOLETA SANITARY DISTRICT

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CASED CROSSING

STANDARD DRAWING

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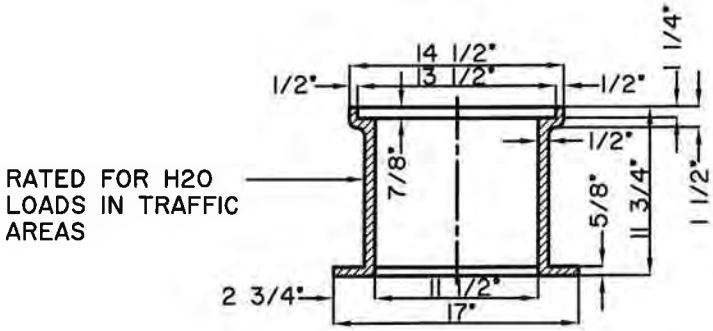
ACCESS COVER



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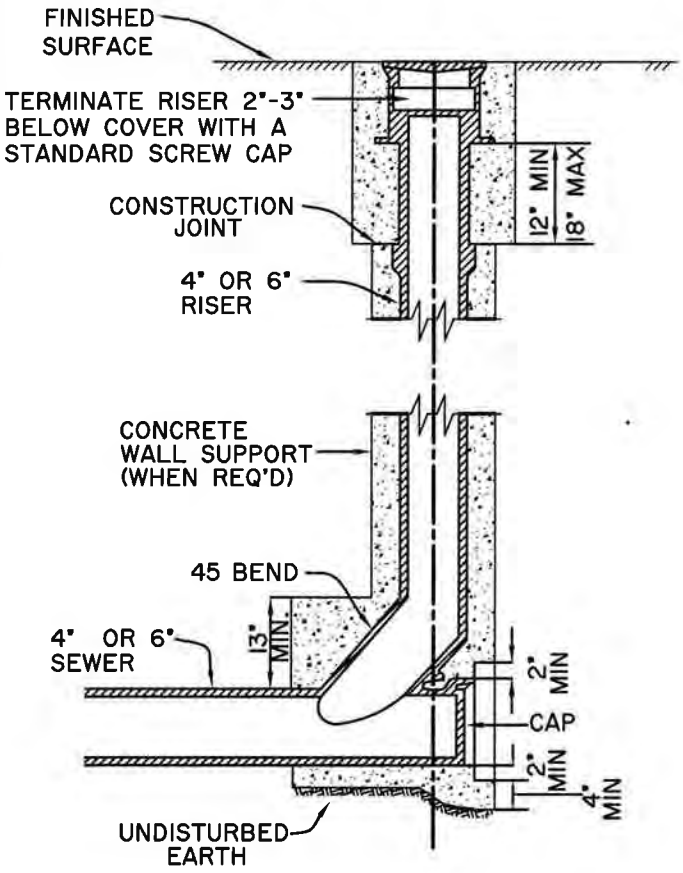

SECTION

NOTES

1. SEWER CLEANOUTS SHALL BE LOCATED A MAXIMUM OF EVERY 100 LINEAR FEET ALONG A SEWER LATERAL.
2. SEWER CLEANOUTS SHALL BE LOCATED AT CHANGES IN DIRECTION OF THE LATERAL PIPE INCLUDING FITTINGS AND BENDS.
3. SEWER CLEANOUTS SHALL BE LOCATED WITHIN 18 INCHES OF BUILDING FOUNDATIONS.
4. CLEANOUT SHALL BE PROTECTED WITH A CONCRETE BOX AND A METAL LID EMBOSSED WITH "SEWER" OR A CAST IRON FRAME AND COVER IN TRAFFIC AREAS.
5. IF REQUIRED, CONCRETE FOR BEDDING AND ENCASEMENT SHALL BE CLASS 420-C-2000. THE VERTICAL ENCASEMENT MAY BE EITHER CIRCULAR OR SQUARE AND SHALL BE PLACED UNIFORMLY AROUND THE RISERS TO MAINTAIN PROPER ALIGNMENT.

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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
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SIDE SEWER CLEANOUT

STANDARD DRAWING

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NO. 6

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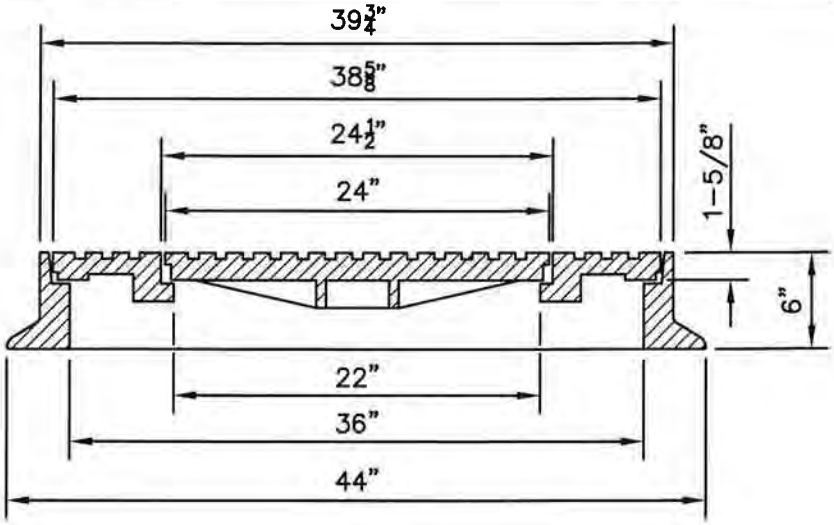
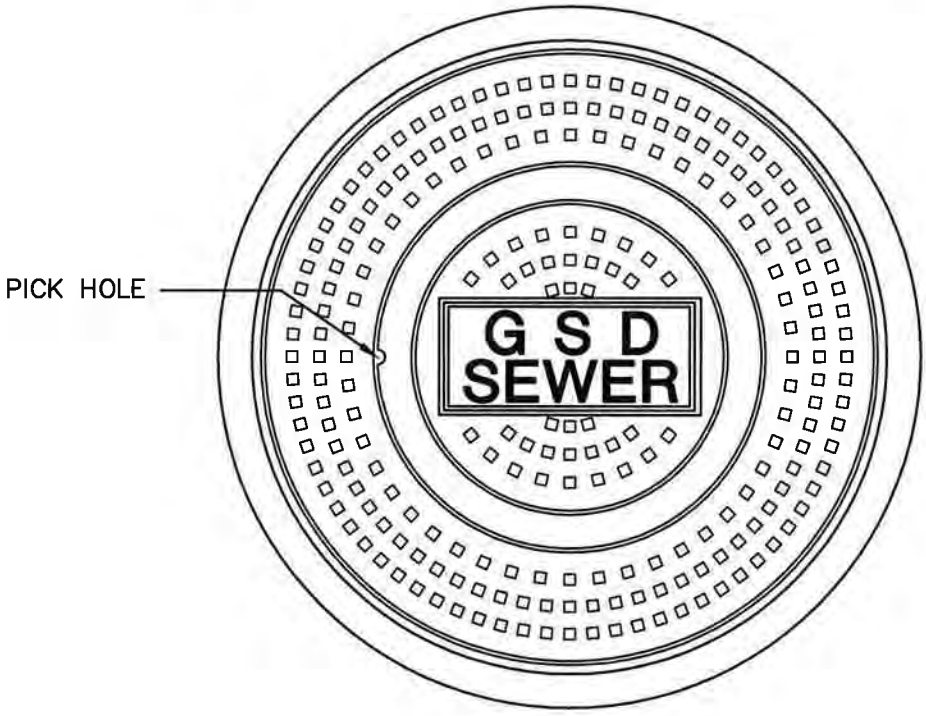


COVER



FRAME

NOTES

1. FRAME AND COVER MATERIALS SHALL CONFORM TO ASTM 48, CLASS 35B.
2. FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO SEAT UNIFORMLY, WITHOUT ROCKING AND ENSURE A QUIET FIT.
3. CASTINGS SHALL BE DIPPED IN BLACK BITUMINOUS PAINT.
4. FRAME AND COVER SHALL EXCEED H-20 WHEEL LOADING.
5. THE COVER SHALL BE MARKED "GSD SEWER" WITH 2"-3" DIAMETER LETTERS.

MANUFACTURER

SOUTH BAY FOUNDRY
SANTEE, CA
(619) 956-2780

GOLETA SANITARY DISTRICT

2/1/08
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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

36" MANHOLE FRAME & COVER

STANDARD DRAWING

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NO. 7

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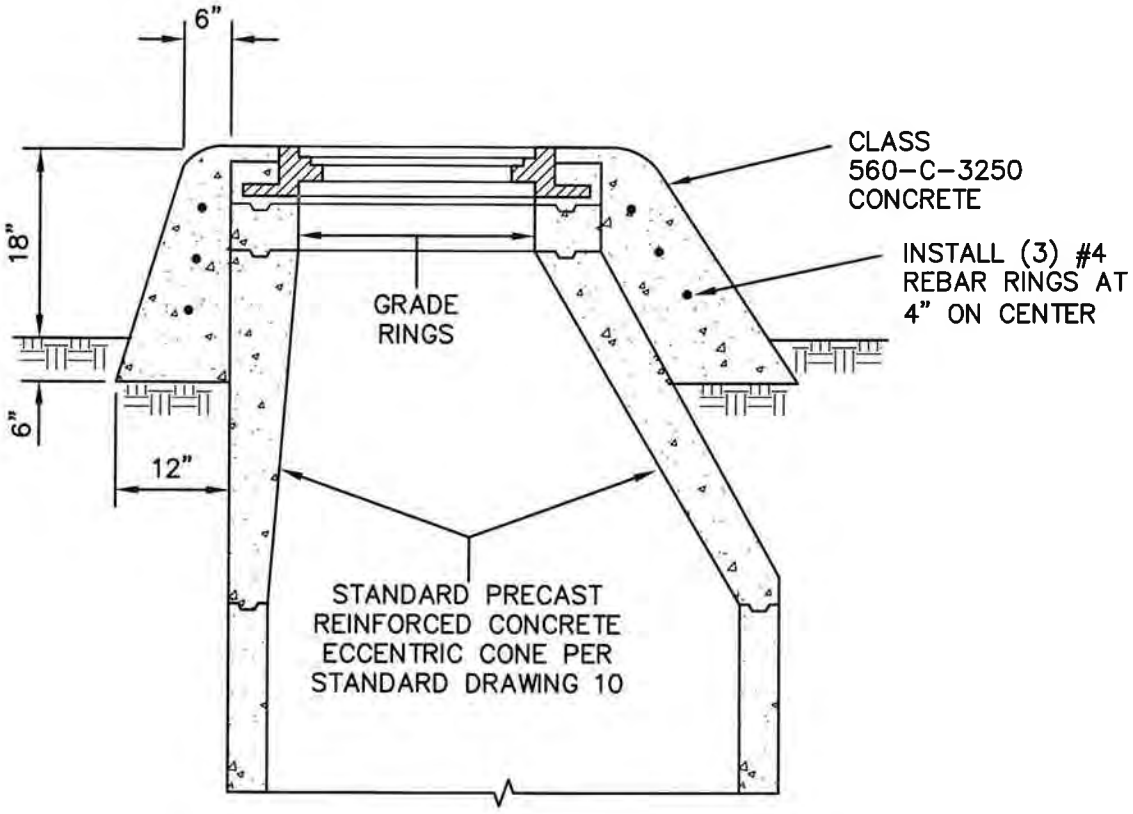

NOTES

1. MANHOLES IN UNIMPROVED RIGHTS OF WAY SHALL BE 18" ABOVE FINISHED GRADE AND PROTECTED FROM DAMAGE AS REQUIRED WITH MARKERS AND/OR BOLLARDS.
2. MANHOLES IN MAINTAINED LANDSCAPED AREAS SHALL BE 6" ABOVE FINISHED GRADE AND PROTECTED FROM DAMAGE AS REQUIRED WITH MARKERS AND/OR BOLLARDS.
3. REFER TO STANDARD DRAWING NO. 10 "STANDARD MANHOLE" FOR ADDITIONAL DETAILS.

GOLETA SANITARY DISTRICT

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GENERAL MANAGER/
DISTRICT ENGINEER

REMOTE AREA MANHOLE JACKET

STANDARD DRAWING

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NO. 8

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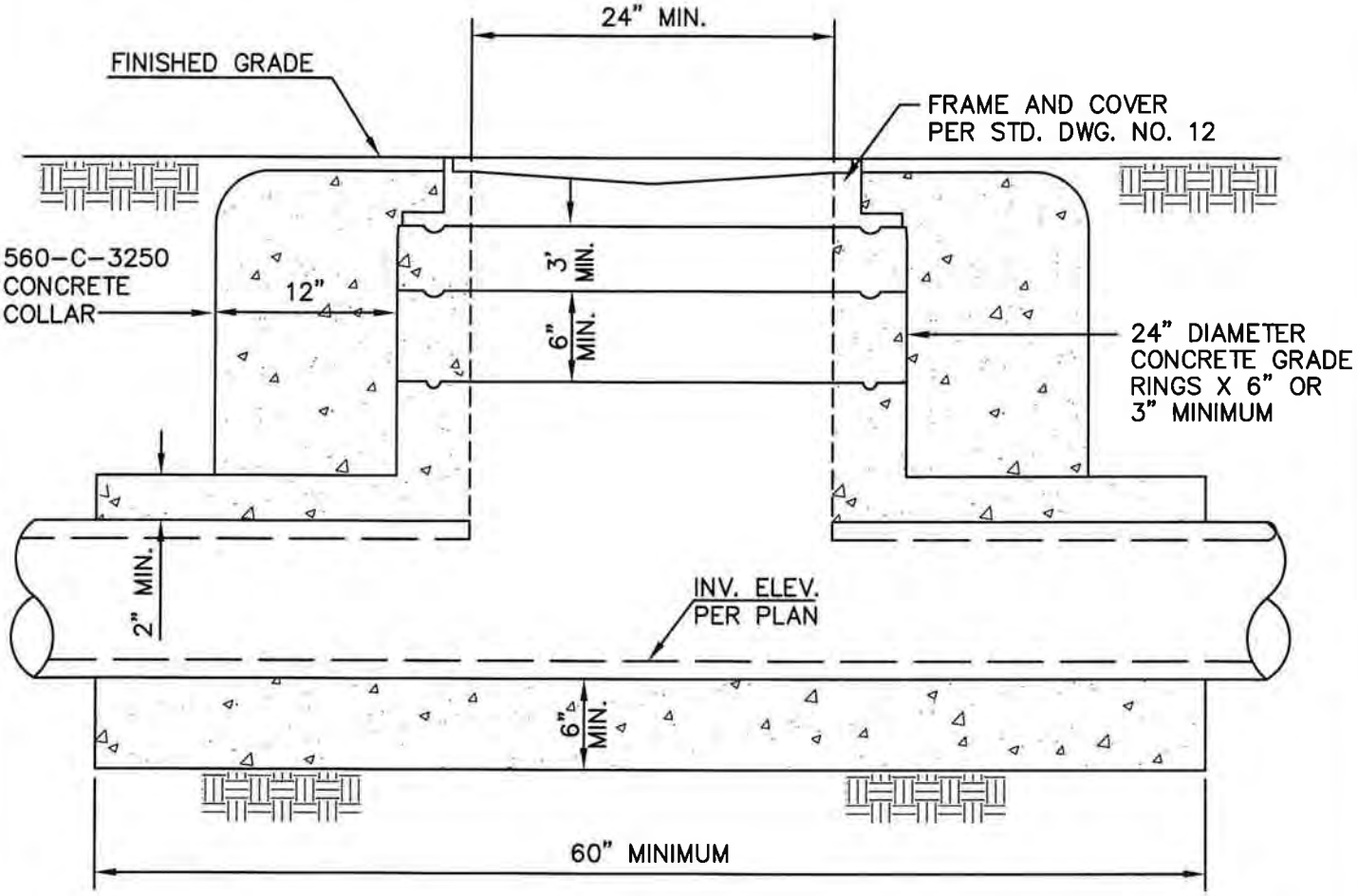

NOTES

1. REFER TO STANDARD DRAWING NO. 10 "STANDARD MANHOLE" FOR ADDITIONAL DETAILS.
2. SAMPLING MANHOLE COVER SHALL BE STAMPED "SAMPLING MH". DO NOT STAMP G.S.D.
3. NO COATING REQUIRED
4. DISTRICT APPROVAL IS REQUIRED.

GOLETA SANITARY DISTRICT

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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

SAMPLING MANHOLE LESS THAN 3' DEEP

STANDARD DRAWING

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NO. 9

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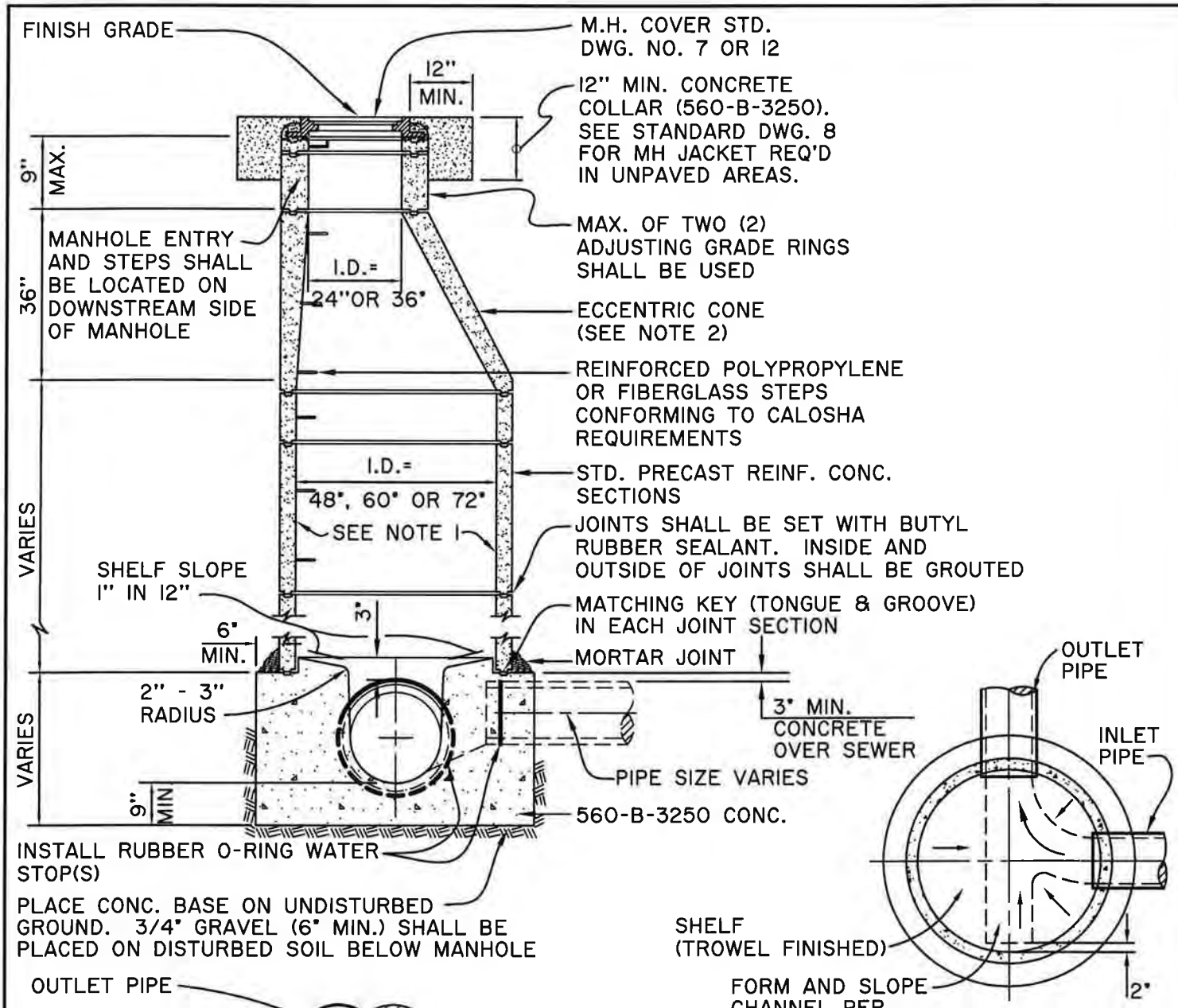

NOTES

1. COMPLETELY SEAL THE INSIDE OF THE MANHOLE WITH DISTRICT APPROVED PROTECTIVE COATING WITH HIGH BONDING STRENGTH AND RESISTANCE TO WATER AND SEWER GASES. THE COATING APPLICATION SHALL BE PER THE MANUFACTURER'S REQUIREMENTS.
2. CONCENTRIC CONES SHALL BE USED WHEN MANHOLES ARE LESS THAN 4' IN DEPTH.
3. PRE-CAST CONCRETE M.H. BASES MAY BE PERMITTED WITH APPROVAL FROM THE DISTRICT GENERAL MANAGER/DISTRICT ENGINEER.
4. CHANNELS, IN THE BASE OF A MANHOLE LOCATED ON A BEND SHALL BE FORMED AND SLOPED AS SHOWN ABOVE TO ALLOW BETTER ACCESS FOR TV INSPECTION UNITS AND OTHER TYPES OF MAINTENANCE EQUIPMENT.

GOLETA SANITARY DISTRICT

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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

STANDARD MANHOLE

STANDARD DRAWING

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NO. 10

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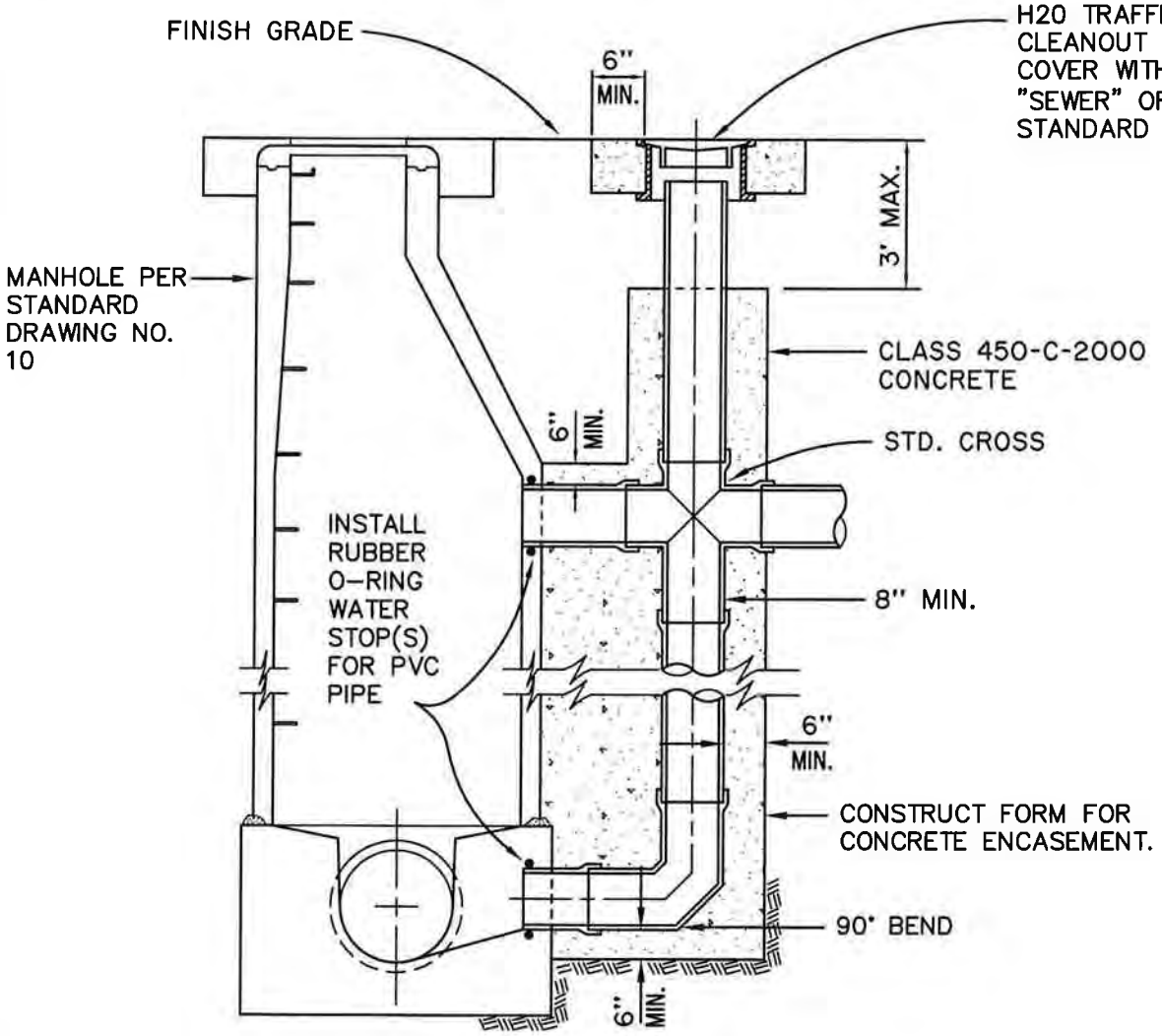

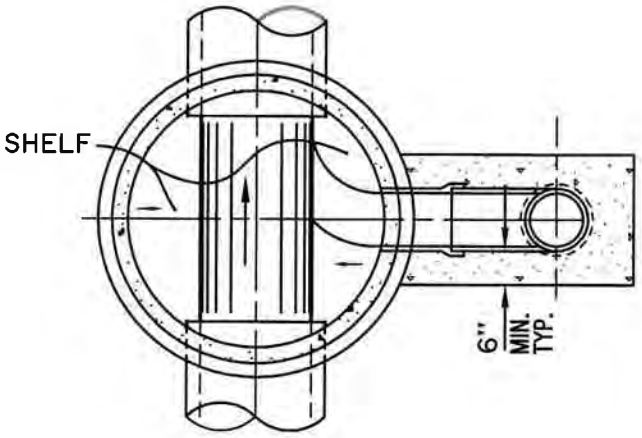

PLAN

NOTES

1. DROP MANHOLES REQUIRE APPROVAL BY THE DISTRICT MANAGER/ENGINEER.

GOLETA SANITARY DISTRICT

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GENERAL MANAGER/
DISTRICT ENGINEER

STANDARD DROP MANHOLE

STANDARD DRAWING

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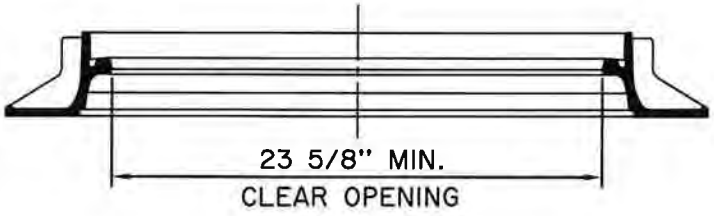
COVER



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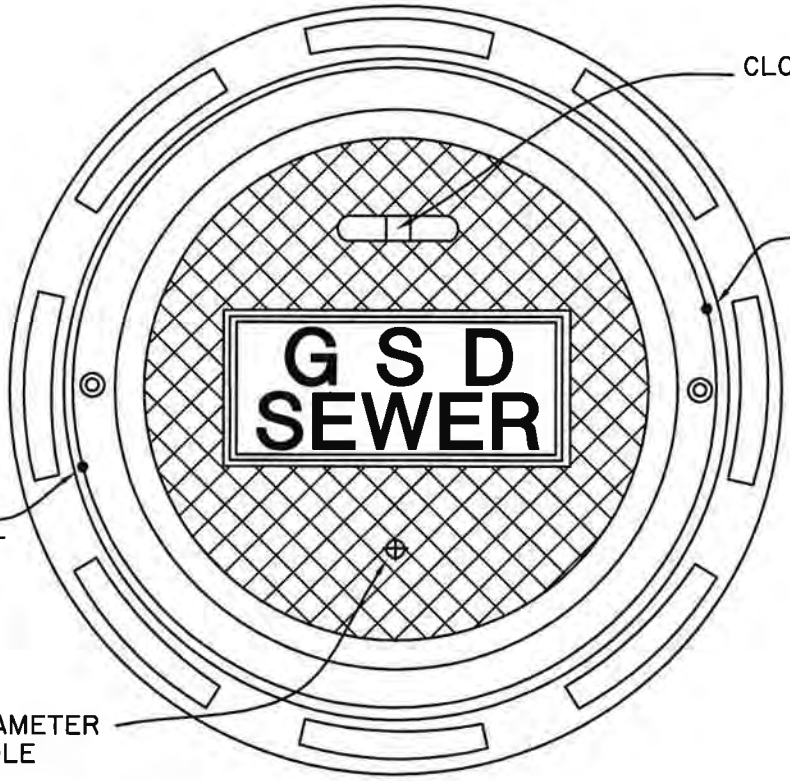

NOTES

1. FRAME AND COVER SHALL BE MADE OF LIGHT WEIGHT DUCTILE IRON MATERIAL AND RATED FOR H-20 LOADS.
2. COVER SHALL BE LOCKING TYPE WITH STAINLESS STEEL NUTS AND BOLTS.
3. THE COVER SHALL BE MARKED "GSD SEWER" (LETTERS SHALL BE 2"-3" DIAMETER).

MANUFACTURER

SOUTH BAY FOUNDRY
SANTEE, CA
(619) 956-2780

GOLETA SANITARY DISTRICT

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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

MANHOLE FRAME & COVER

STANDARD DRAWING

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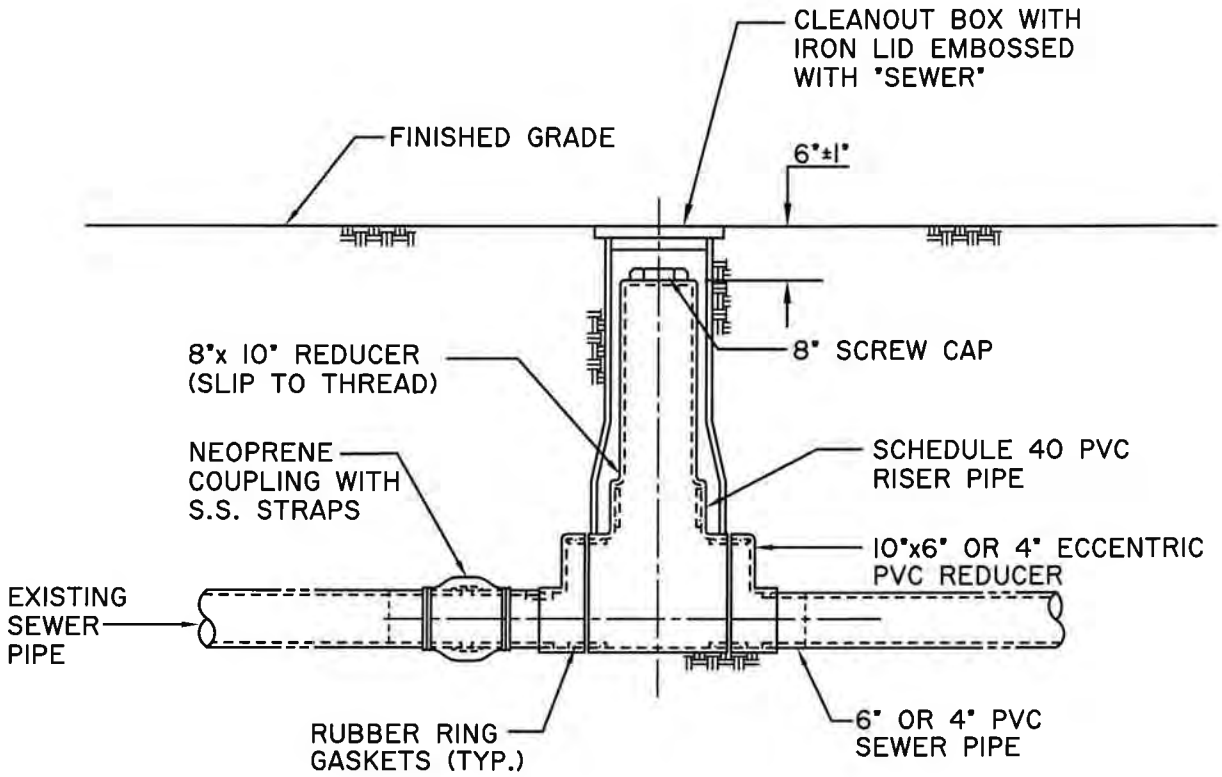

SAMPLING WELL

NOTES

1. ON EXISTING BUILDING SEWER, INSTALL APPROVED STANDARD TWO-WAY CLEANOUT TEE WITH BANDED RUBBER COUPLINGS.
2. THE SAMPLING WELL SHALL BE LOCATED ON THE BUILDING SEWER, DOWNSTREAM OF ALL BUILDING DRAIN CONNECTIONS, SO THE ENTIRE COMBINED BUILDING WASTE WATER FLOW CAN BE SAMPLED.
3. CONTACT THE DISTRICT ENGINEER FOR LOCATION OF SAMPLING WELL IF LOCATION IS NOT SHOWN ON APPROVED DRAWINGS.

MANUFACTURER

FITTINGS FROM FAMCON (OR EQUAL)
(805) 485-4350

GOLETA SANITARY DISTRICT

2/1/08
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

SAMPLING WELL
(DISTRICT APPROVAL IS REQUIRED)

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STANDARD DRAWING

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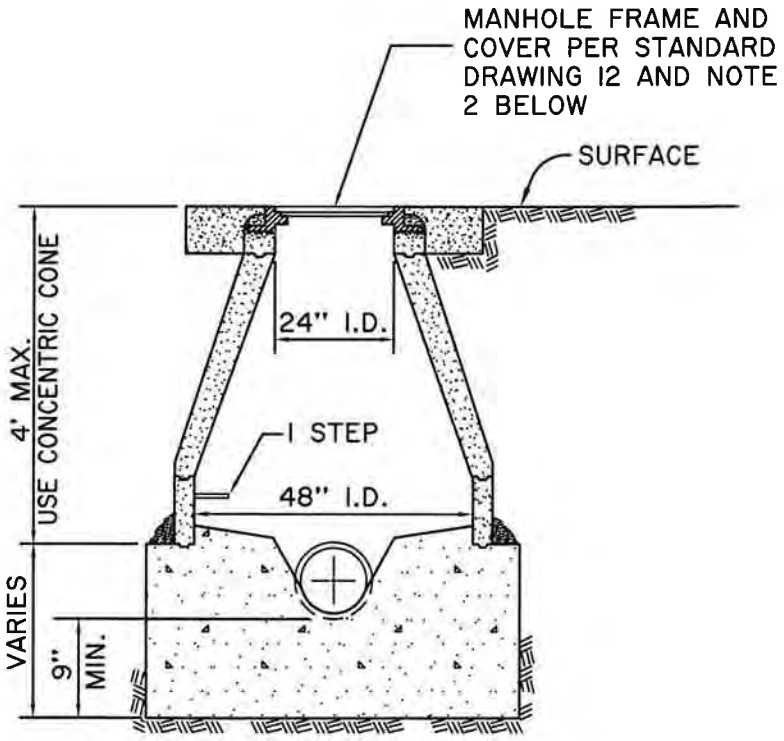

SECTION

NOTES

1. REFER TO STANDARD DRAWING NO. 10 "STANDARD MANHOLE" FOR ADDITIONAL DETAILS.
2. SAMPLING MANHOLE FRAME AND COVER SHALL BE PER STANDARD DRAWING 12 - EXCEPT DO NOT STAMP G.S.D.
3. NO COATING REQUIRED.
4. DISTRICT APPROVAL REQUIRED.

GOLETA SANITARY DISTRICT

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SAMPLING MANHOLE

STANDARD DRAWING

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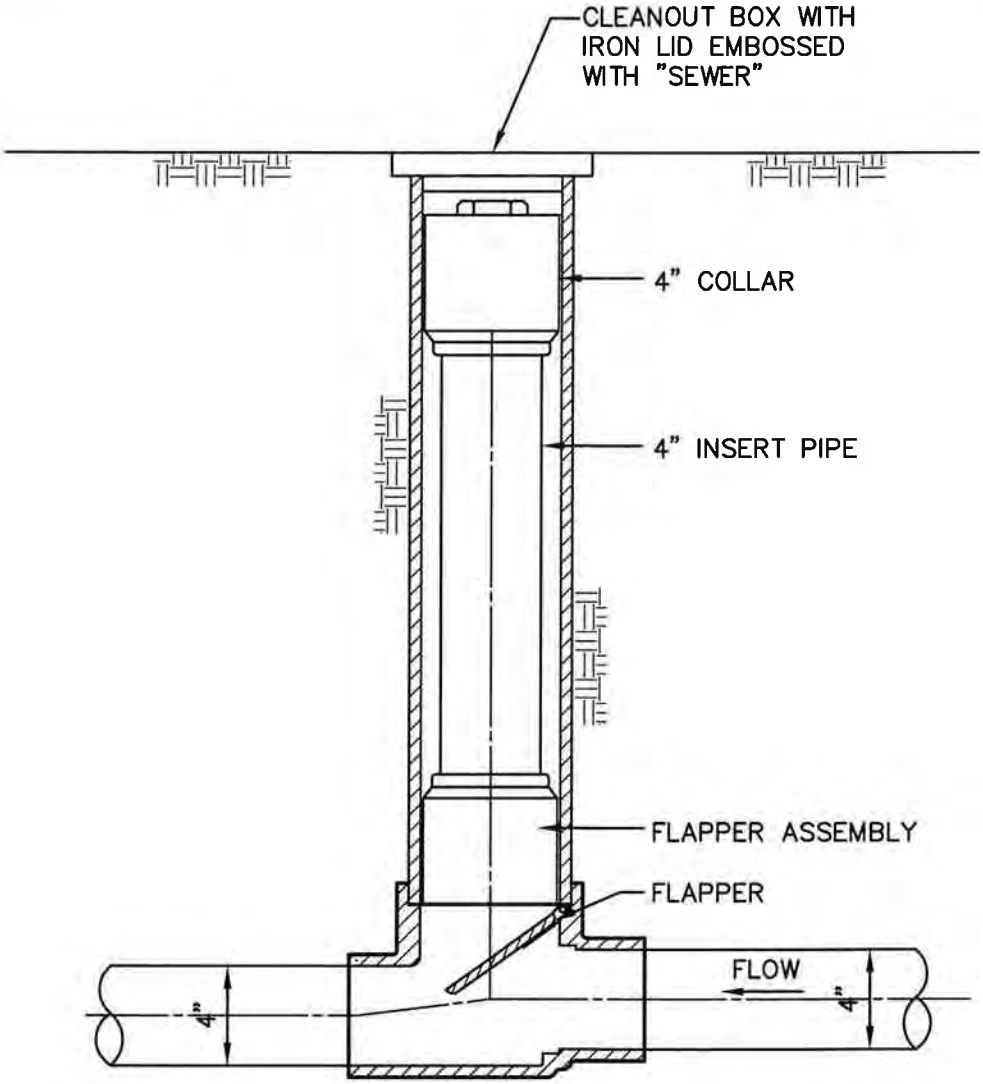

TYPICAL SECTION

NOTES

1. A BACKWATER VALVE WILL BE REQUIRED WHENEVER THE LEVEL OF THE LOWEST FLOOR THAT HAS PLUMBING FIXTURES IS LOWER IN ELEVATION THAN THE UPSTREAM MANHOLE OR CLEANOUT ON THE SEWER MAIN TO WHICH THE LATERAL CONNECTS.

2. THE BACKWATER VALVE SHALL BE INSTALLED AT THE JUNCTION OF THE BUILDING DRAIN AND BUILDING SEWER. UNLESS OTHERWISE AUTHORIZED BY DISTRICT MANAGER/DISTRICT ENGINEER.

GOLETA SANITARY DISTRICT

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DISTRICT ENGINEER

BACKWATER VALVE

STANDARD DRAWING

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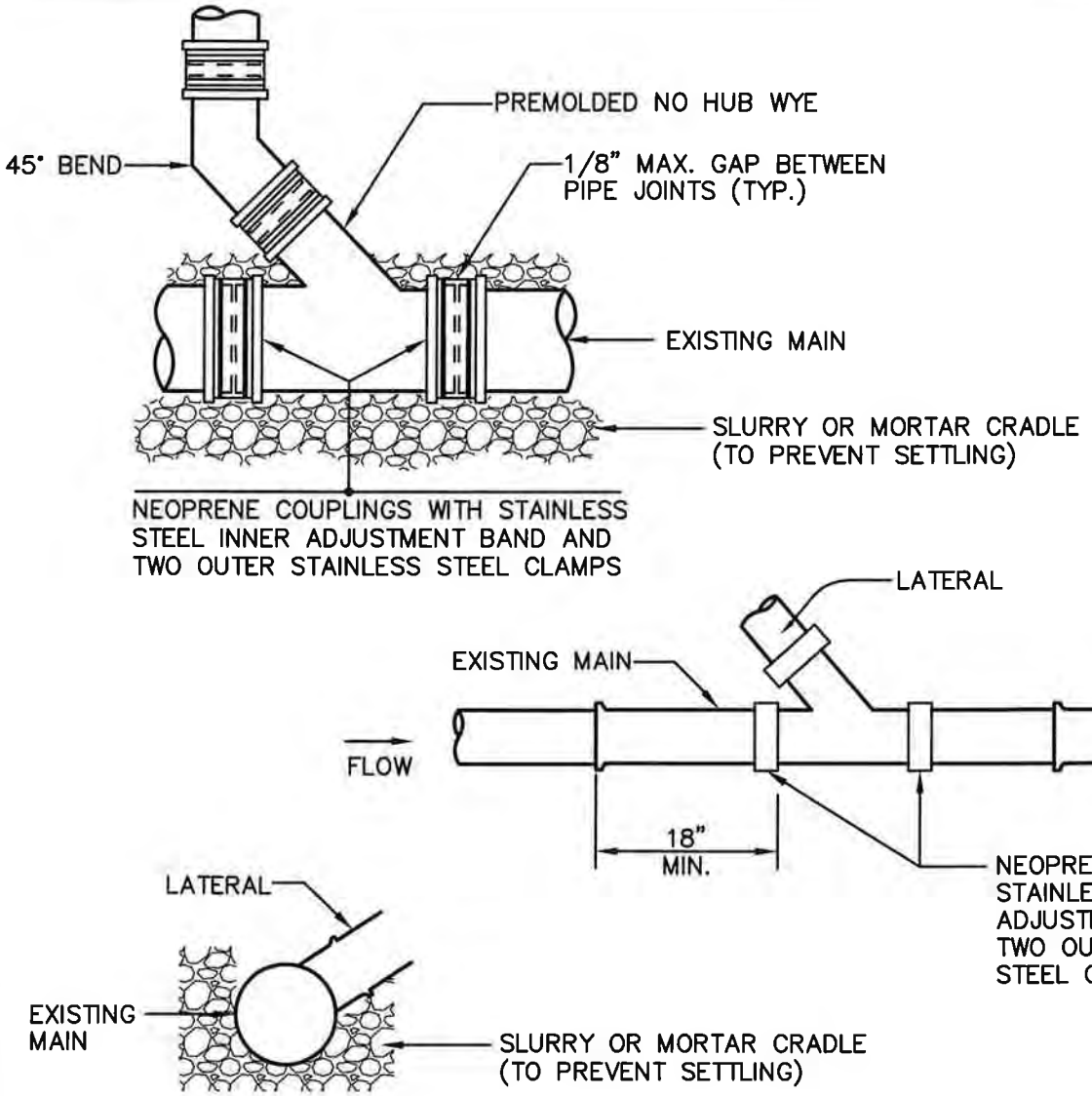

NOTES

1. ON EXISTING SEWERS INSTALL APPROVED PREMOLDED NO HUB WYE AND COUPLINGS. TAPPING TYPE OR SADDLE WYES ARE NOT PERMITTED.
2. LATERAL SHALL BE PERPENDICULAR TO MAIN WHENEVER POSSIBLE.
3. OVEREXCAVATE A MINIMUM OF 6" AROUND COUPLINGS. BACKFILL TO A MINIMUM OF 12" ABOVE SEWER MAIN PIPE WITH APPROVED BEDDING AND PIPE ZONE MATERIAL.
4. A DISTURBED OR OVEREXCAVATED BELL AND SPIGOT JOINT ON EXISTING VCP PIPE SHALL BE REMOVED AND REPLACED WITH A PIPE SECTION AND COUPLING.
5. WYES SHALL NOT BE INSTALLED WITHIN 18" OF A VCP JOINT.

GOLETA SANITARY DISTRICT

2/15/08
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

WYE INSTALLATION IN EXISTING SEWER MAIN

STANDARD DRAWING

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NO. 16

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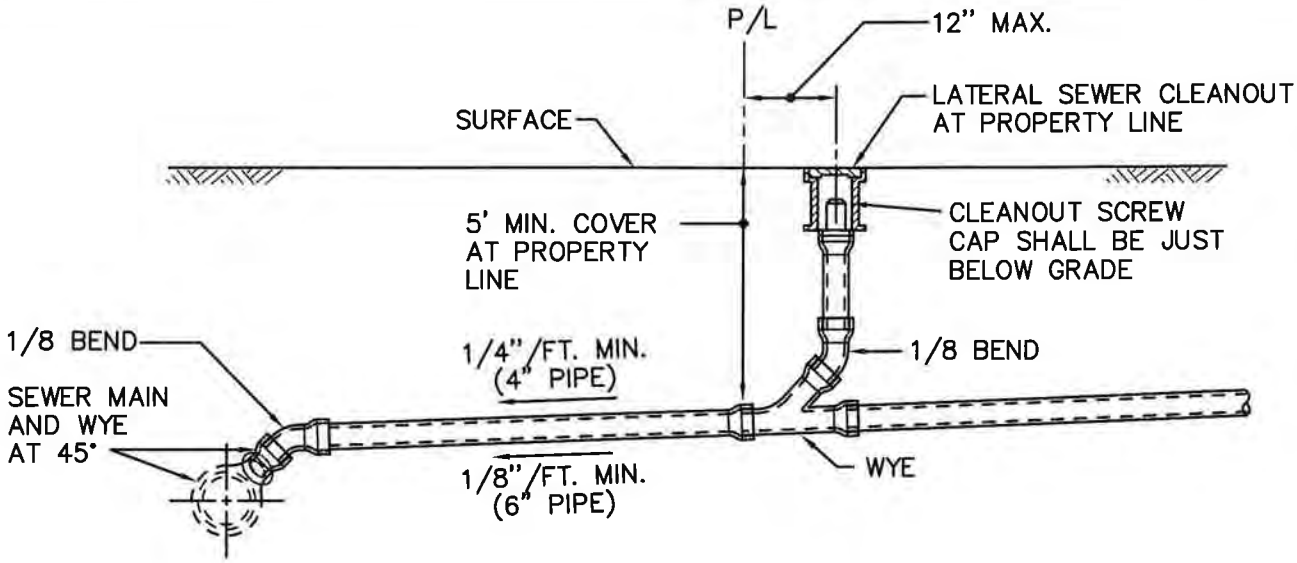
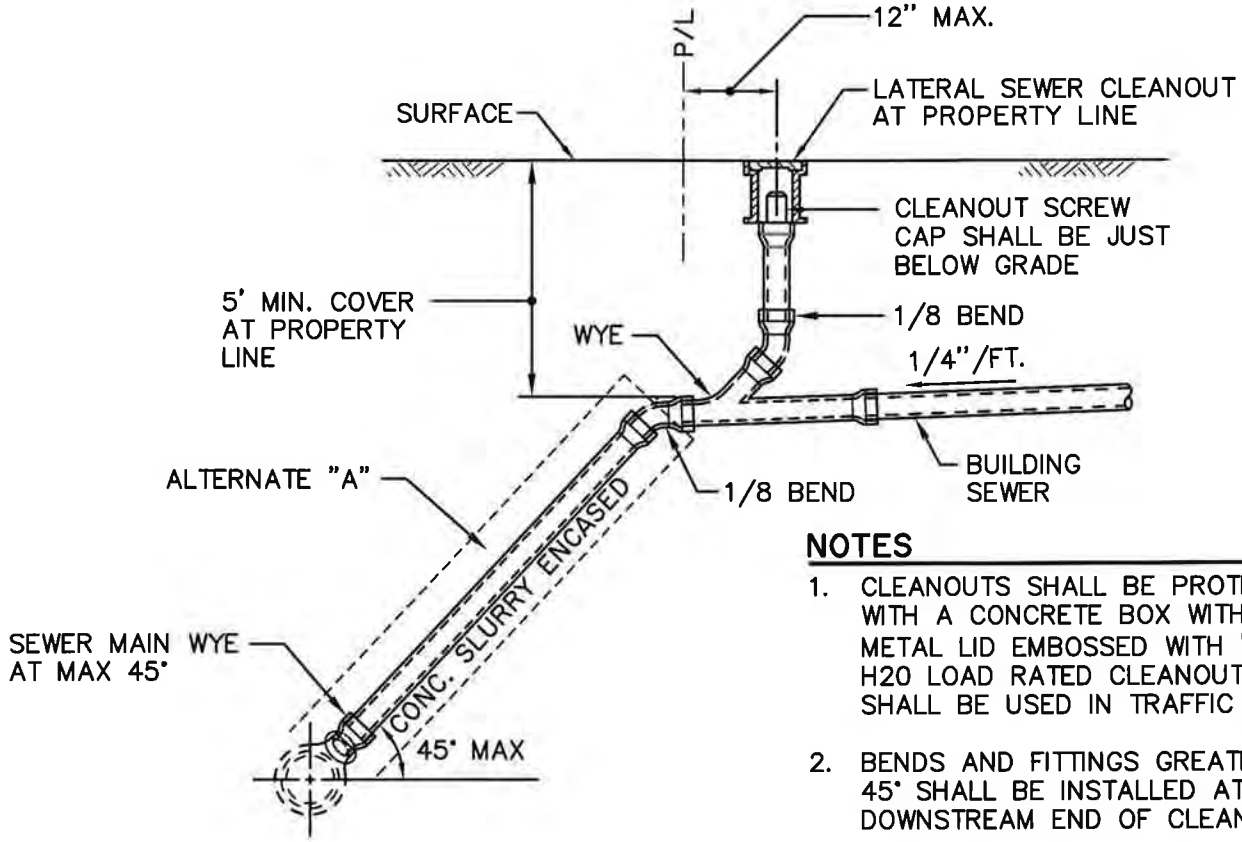


4" & 6" LATERALS AT TYPICAL DEPTH



4" & 6" DEEP LATERALS

NOTES

1. CLEANOUTS SHALL BE PROTECTED WITH A CONCRETE BOX WITH A METAL LID EMBOSSED WITH "SEWER". H20 LOAD RATED CLEANOUT BOXES SHALL BE USED IN TRAFFIC AREAS.
2. BENDS AND FITTINGS GREATER THAN 45° SHALL BE INSTALLED AT THE DOWNSTREAM END OF CLEANOUTS.
3. LATERALS SHALL BE INSTALLED PERPENDICULAR TO SEWER MAIN AND CONTINUE STRAIGHT TO THE PROPERTY OR EASEMENT LINE.

GOLETA SANITARY DISTRICT

2/15/08
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KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

LATERAL SEWER

STANDARD DRAWING

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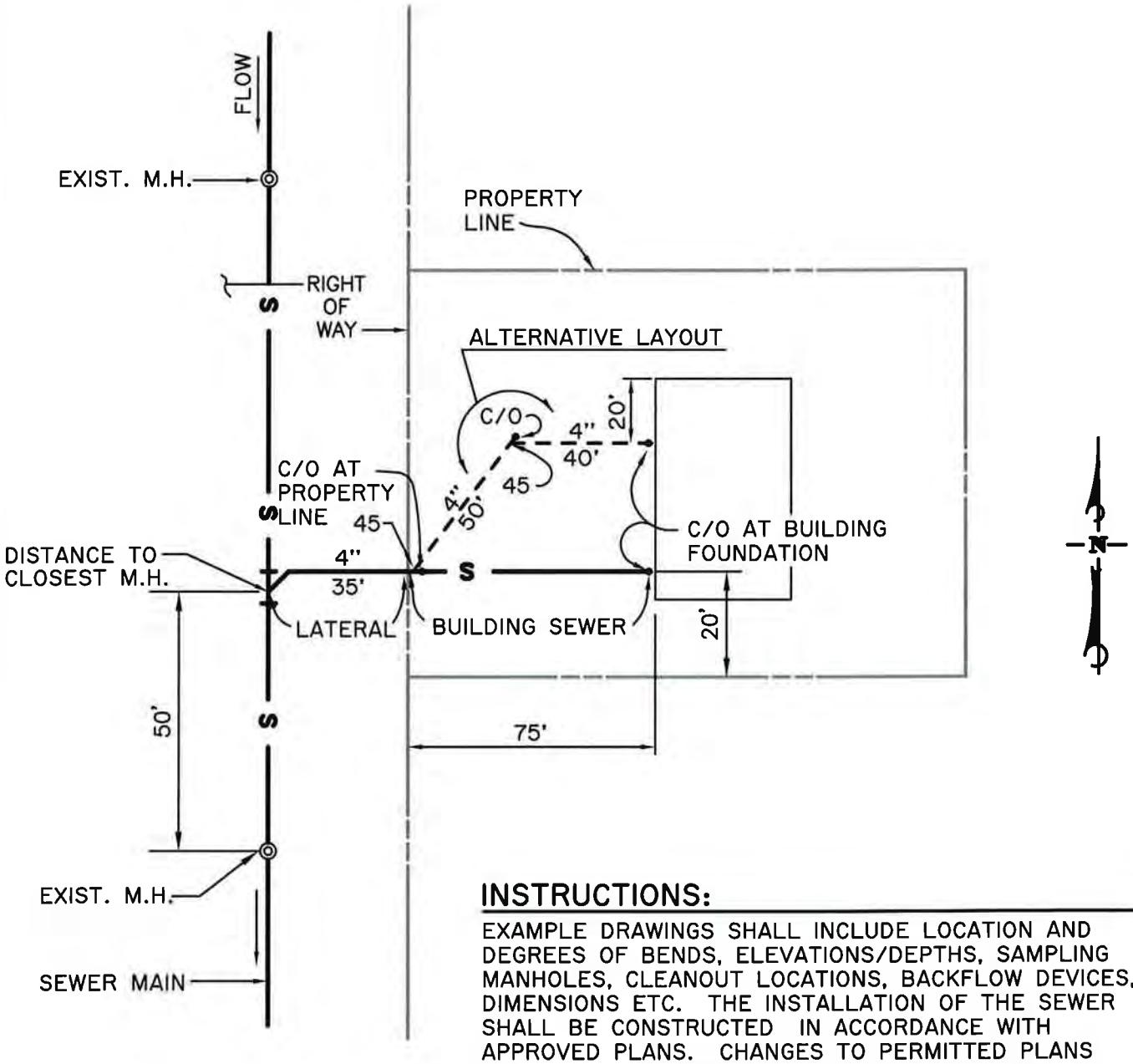

INSTRUCTIONS:

EXAMPLE DRAWINGS SHALL INCLUDE LOCATION AND DEGREES OF BENDS, ELEVATIONS/DEPTHS, SAMPLING MANHOLES, CLEANOUT LOCATIONS, BACKFLOW DEVICES, DIMENSIONS ETC. THE INSTALLATION OF THE SEWER SHALL BE CONSTRUCTED IN ACCORDANCE WITH APPROVED PLANS. CHANGES TO PERMITTED PLANS SHALL BE APPROVED IN ADVANCE BY THE DISTRICT'S INSPECTOR AND SHALL BE REFLECTED ON A FINAL LAYOUT DRAWING SUBMITTED BY THE CONTRACTOR OR PLUMBER PRIOR TO APPROVAL OF THE SEWER INSTALLATION.

* THE COMBINED LATERAL & BUILDING SEWER ARE DEFINED AS A SIDE SEWER

GOLETA SANITARY DISTRICT

2/1/08
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

NEW BUILDING & LATERAL SEWER "AS CONSTRUCTED" LAYOUT DRAWING EXAMPLE

STANDARD DRAWING

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DEFINITIONS

COMPRESSION JOINT - A push-on joint that seals by means of the compression of a rubber ring or gasket between the pipe and a bell or coupling.
DIMENSIONS - are from the outside of water main to outside of sewer line or manhole.
FUSED JOINT - The joining of pipe using thermal or chemical bonding processes.
GROUND WATER - Subsurface water found in the saturation zone.
HEALTH AGENCY - The State Department of Health Services. For those water systems supplying less than 200 service connections, the local health officer shall act for the Department of Health Services.
HOUSE LATERAL - A sewer pipe connecting the building drain and the main sewer line.
LOW HEAD WATER MAIN - Any water main which has a pressure of 5 psi or less at any point in the main.
MECHANICAL JOINT - Bolted joint.
RATED WORKING WATER PRESSURE or **PRESSURE CLASS** - A pipe classification system based upon internal working pressure of the fluid in the pipe, type of pipe material, and thickness of the pipe wall.
SLEEVE - A protective tube of steel with a wall thickness of not less than one-fourth inch into which a pipe is inserted.
WATER SUPPLY - Any person who owns or operates a public water system.

CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS

A. PUBLIC HEALTH CONSIDERATIONS

Waterborne disease outbreaks attributed to the entry of sewage-contaminated groundwater into the distribution systems of the public water supplies continue to be a problem in the United States. A community with its buried water mains in close proximity to sanitary sewers is vulnerable to waterborne disease outbreaks.

Sanitary sewers frequently leak and saturate the surrounding soil with sewage. This is caused primarily by structural failure of the sewer line, improperly constructed joints, and subsidence or upheaval of the soil encasing the conduit. A serious public health hazard exists when the water mains are depressurized and no pressure or negative pressures occur. The hazard is further compounded when, in the course of installing or repairing a water main, existing sewer lines are broken. Sewage spills into the excavation and, hence, enters into the water main itself. Additionally, if a water main fails in close proximity to a sewer line, the resultant failure may disturb the bedding of the sewer line and cause it to fail. In the event of and earthquake of man-made disaster, simultaneous failure of both conduits often occurs.

The water supplier is responsible for the quality of the water delivered to consumers and must take all practical steps to minimize the hazard of sewage contamination to the public water supply. Protection of the quality of the water in the public water system is best achieved by the barrier provided by the physical separation of the water mains and sewer lines.

This document sets forth the construction criteria for the installation of water mains and sewer lines to prevent contamination of the public water supplies from nearby sanitary sewers.

B. BASIC SEPARATION STANDARDS

The "California Waterworks Standards" sets forth the minimum separation requirements for water mains and sewer lines. These standards, contained in Section 64630, Title 22, California Administrative Code, specify:

(c) (1) Parallel Construction: The horizontal distance between pressure water mains and sewer lines shall be at least 10 feet.

(2) Perpendicular Construction (Crossing): Pressure water mains shall be at least one foot above sanitary sewer lines where these lines must cross.

(d) Separation distances specified in (c) shall be measured from the nearest edges of the facilities.

(e) (2) Common Trench: Water mains and sewer lines must not be installed in the same trench.

When water mains and sanitary sewers are not adequately separated, the potential for contamination of the water supply increases. Therefore, when adequate physical separation cannot be attained, an increase in the factor of safety should be provided by increasing the structural integrity of both the pipe materials and joints.

GOLETA SANITARY DISTRICT

2/1/05
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

WATER-SEWER SEPARATION
TEXT

STANDARD DRAWING

REVISIONS	BY	APP	DATE

NO. 19

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12/30/2005

C. EXCEPTIONS TO BASIC SEPARATION STANDARDS

Local conditions, such as available space, limited slope, existing structure, etc., may create a situation where there is no alternative but to install water mains or sewer lines at a distance less than that required by the Basic Separation Standards. In such cases, alternative construction criteria as specified in Section E should be followed, subject to the special provisions in Section D.

Water mains and sewers of 24 inches in diameter or greater may create special hazards because of the large volumes of flow. Therefore, installations of water mains and sewer lines 24 inches in diameter or larger should be reviewed and approved by the health agency prior to construction.

D. SPECIAL PROVISIONS

1. The Basic Separation Standards are applicable under normal conditions for sewage collection lines and water distribution mains. More stringent requirements may be necessary if conditions such as high groundwater exist.
2. Sewer lines shall not be installed within 25 feet horizontally of a low head (5 psi or less pressure) water main.
3. New water mains and sewers shall be pressure tested where the conduits are located ten feet apart or less.
4. In the installation of water mains or sewer lines, measures should be taken to prevent or minimize disturbances of the existing line. Disturbance of the supporting base of this line could eventually result in failure of this existing pipeline.
5. Special consideration shall be given to the selection of pipe materials if corrosive conditions are likely to exist. These conditions may be due to soil type and/or the nature of the fluid conveyed in the conduit, such as a septic sewage which produces corrosive hydrogen sulfide.
6. Sewer Force Mains
   a. Sewer force mains shall not be installed within ten feet (horizontally) of a water main.
   b. When a sewer force main must cross a water line, the crossing should be as close as practical to the perpendicular. The sewer force main should be at least one foot below the water line.
   c. When a new sewer force main crosses under an existing water main, all portions of the sewer force main within ten feet (horizontally) of the water main shall be enclosed in a continuous sleeve.
   d. When a new water main crosses over an existing sewer force main, the water main shall be constructed of pipe materials with a minimum rated working pressure of 200 psi or equivalent pressure rating.

E. ALTERNATE CRITERIA FOR CONSTRUCTION

The construction criteria for sewer lines of water mains where the Basic Separation Standards cannot be attained are shown in standard drawings 1 and 2 (on following pages). There are two situations encountered:

Case 1 - New sewer line (new or existing water main).

Case 2 - New water main (existing sewer line).

For case 1, the alternate construction criteria apply to the sewer line.

For case 2, the alternate construction criteria may apply to either or both the water main and sewer line.

The construction criteria should apply to the house laterals that cross above a pressure water main but not to those house laterals that cross below a pressure water main.

GOLETA SANITARY DISTRICT

2/1/05
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

WATER-SEWER SEPARATION
TEXT

STANDARD DRAWING

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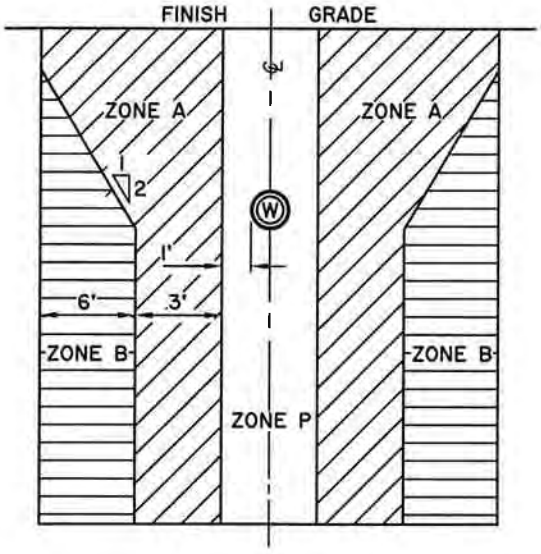
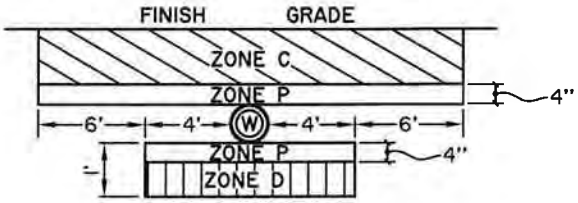


PARALLEL CONST.



PERPENDICULAR CONST.

ZONE	SEWER CONSTRUCTION REQUIREMENTS
A	Sewer lines parallel to water mains shall not be permitted in this zone without approval from the responsible health agency and water supplier.
B	A sewer line placed parallel to a water line shall be constructed of: 1. Extra strength vitrified clay pipe with compression joints. 2. Class 4000, Type II, asbestos-cement pipe with rubber gasket joints. 3. Plastic sewer pipe with rubber ring joints (per ASTM D3034) or equivalent. 4. Cast or ductile iron pipe with compression joints. 5. Reinforced concrete pressure pipe with compression joints (per AWWA C302-74).
C	A sewer line crossing a water main shall be constructed of: 1. Ductile iron pipe with hot dip bituminous coating and mechanical joints. 2. A continuous section of class 200 (DR 14 AWWA C900) plastic pipe, or equivalent, centered over the pipe being crossed. 3. A continuous section of reinforced concrete pressure pipe (AWWA C302-74) centered over the pipe being crossed. 4. Any sewer pipe with a continuous sleeve.
D	A sewer line crossing a water main shall be constructed of: 1. A continuous section of ductile iron pipe with hot dip bituminous coating. 2. A continuous section of Class 200 (DR 14 per AWWA C900) plastic pipe or equivalent, centered on the pipe being crossed. 3. A continuous section of reinforced concrete pressure pipe (per AWWA C302-74) centered on the pipe being crossed. 4. Any sewer pipe within a continuous sleeve. 5. Any sewer pipe separated by a ten-foot by ten-foot, four-inch thick reinforced concrete slab.

ZONE P Is a prohibited zone per section 64630(e)(2) California Administrative Code, Title 22.

GOLETA SANITARY DISTRICT

2/1/08
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

WATER-SEWER SEPARATION DETAILS

STANDARD DRAWING

REVISIONS	BY	APP	DATE

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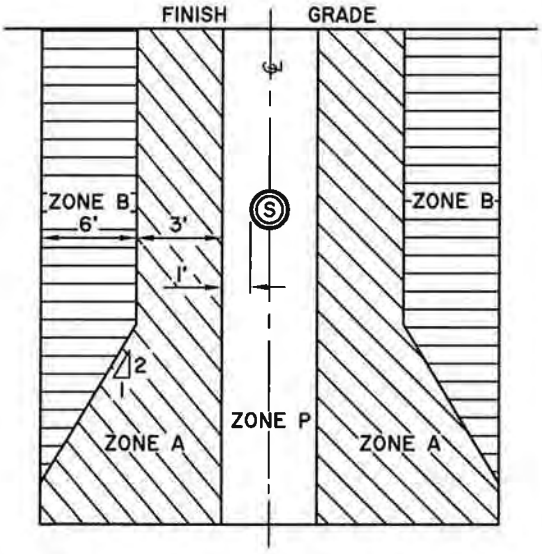
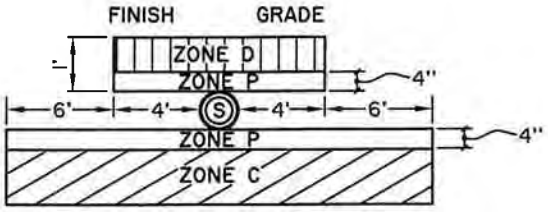
12/30/2005



PARALLEL CONST.



PERPENDICULAR CONST.

ZONE	WATER CONSTRUCTION REQUIREMENTS
A	No water mains parallel to sewers shall be constructed without approval from the health agency.
B	A water main placed parallel to a sanitary sewer shall be constructed of: 1. Dipped and wrapped one-quarter inch thick steel pipe. 2. Class 200 pressure rated PVC water pipe (DR-14 per AWWA C-900) or equivalent. 3. Reinforced concrete pressure pipe, steel cylinder type, per AWWA C-300-74, C-301-79 or C-303-70.
C	A water main crossing a sanitary sewer shall have no joints in this zone and shall be constructed of: 1. Dipped and wrapped one-quarter inch thick welded steel pipe. 2. Class 200 pressure rated PVC water pipe (DR-14 per AWWA C-900) or equivalent. 3. Reinforced concrete pressure pipe, steel cylinder type, per AWWA C-300-74, C-301-79 or C-303-70.
D	A water main crossing a sanitary sewer shall have no joints within four feet from either side of the sanitary sewer and shall be constructed of: 1. Dipped and wrapped one-quarter inch thick welded steel pipe. 2. Class 200 pressure rated PVC pipe (DR-14 per AWWA C-900) or equivalent.

ZONE P Is a prohibited zone per section 64630(e)(2) California Administrative Code, Title 22.

GOLETA SANITARY DISTRICT

2/1/08
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

WATER-SEWER SEPARATION DETAILS

STANDARD DRAWING

REVISIONS	BY	APP	DATE

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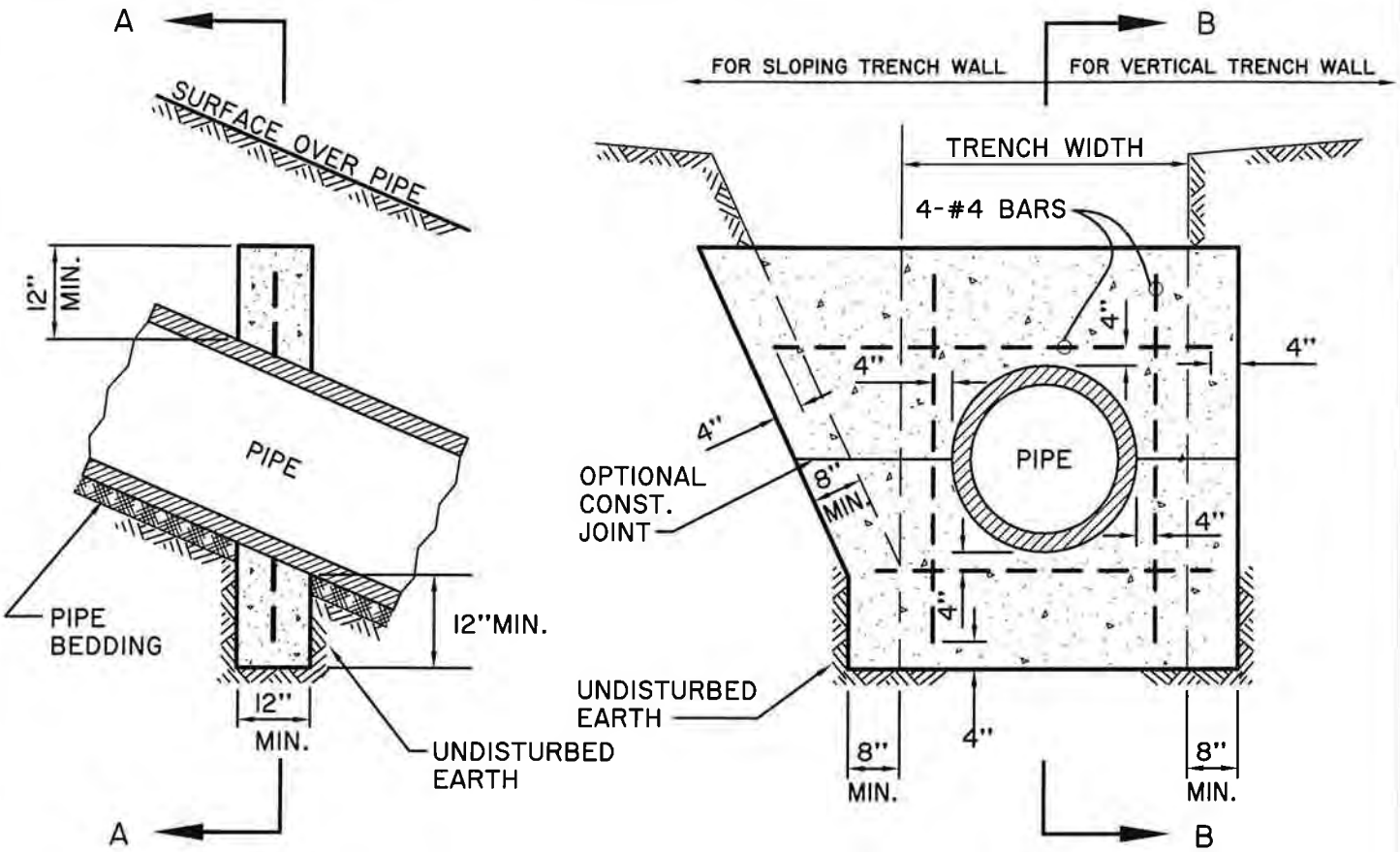

SECTION B-B

SECTION A-A

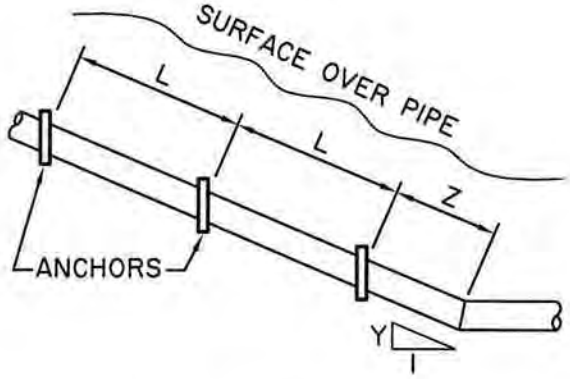

TABLE A

PIPE SLOPE(%) Y:1(100)	L DISTANCE (MAX.)	Z DISTANCE (MAX.)
100	12'	4'
67	14'	8'
50	16'	12'
40	18'	18'
33	20'	20'

ELEVATION PIPE ANCHORS

NOTES:

1. ANCHORS SHALL BE CLASS 420-C-2000 CONCRETE.
2. FOR CLAY PIPE, ANCHORS SHALL NOT BE PLACED WITHIN 6" OF A PIPE JOINT.
3. TRENCH BACKFILL SHALL BE CONSOLIDATED BY MECHANICAL COMPACTION. IN LIEU OF MECHANICAL COMPACTION, SOIL CEMENT MAY BE USED. HOWEVER, THE TOP 12" OF BACKFILL SHALL BE MECHANICALLY COMPACTED NATIVE SOIL.
4. SPACING OF ANCHORS FOR PIPE SLOPES BETWEEN VALUES SHOWN IN TABLE "A" MAY BE PROPORTIONED.

GOLETA SANITARY DISTRICT

2/11/08
DATE

KAMIL S. AZOURY, P.E.
GENERAL MANAGER/
DISTRICT ENGINEER

PIPE ANCHORS AND BACKFILL STABILIZERS
TYPE 1

STANDARD DRAWING

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NO. 23

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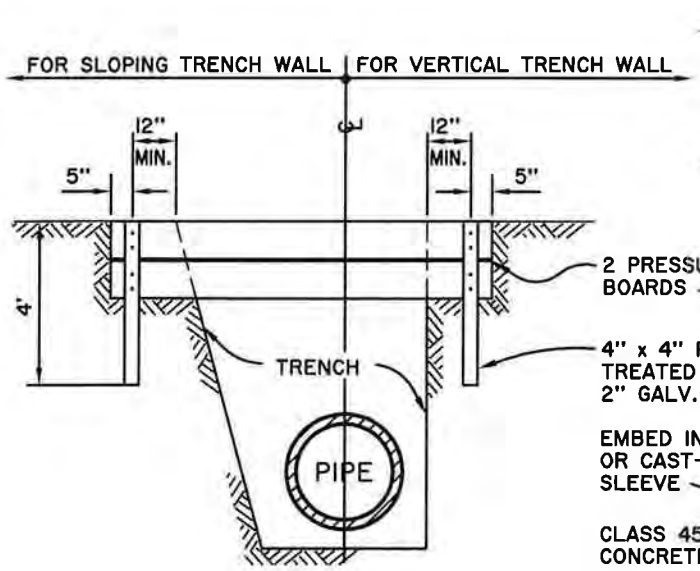
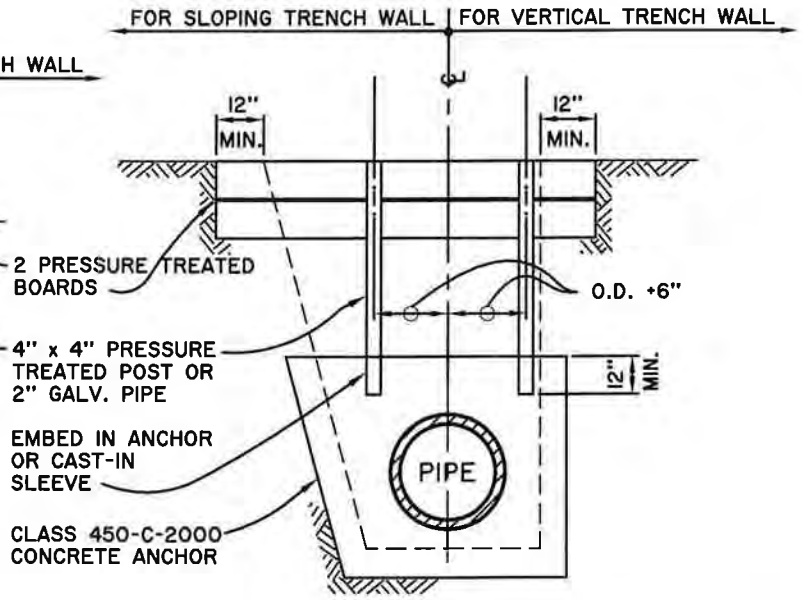
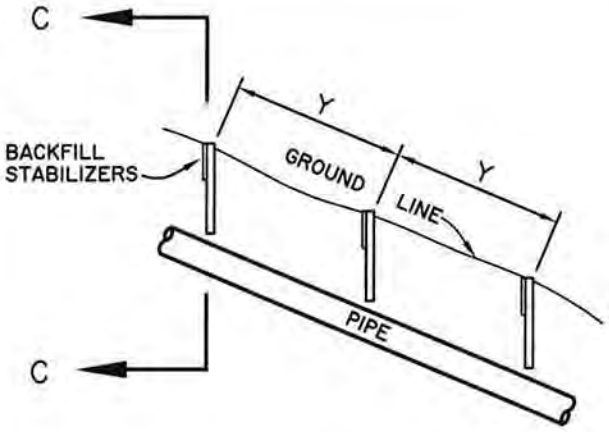


ALTERNATE 1



ALTERNATE 2

SECTION C-C



ELEVATION BACKFILL STABILIZERS

TABLE B

GROUND SLOPE X:1	Y SPACING (MAX.)
1:1	5'
1 1/2:1	9'
2:1	12'
2 1/2:1	16'
3:1	20'

NOTES:

1. PRESSURE TREATED BOARDS SHALL BE 2"x 12" WHERE DEPTH OF COVER OVER PIPE PERMITS. OTHERWISE USE 2"x 8".
2. BOARDS SHALL BE PLACED ON THE HIGH GROUND SIDE OF THE POSTS.
3. EACH BOARD SHALL BE FASTENED BY USING 2-16d NAILS TO EACH POST OR A 3/8 INCH BOLT AND NUT WITH WASHERS TO EACH GALVANIZED PIPE. ALL HARDWARE SHALL BE GALVANIZED.
4. TRENCH BACKFILL SHALL BE CONSOLIDATED BY MECHANICAL COMPACTION. IN LIEU OF MECHANICAL COMPACTION, SOIL CEMENT MAY BE USED. HOWEVER, THE TOP 12" OF BACKFILL SHALL BE MECHANICALLY COMPACTED NATIVE SOIL.
5. SPACING OF STABILIZERS FOR GROUND SLOPES BETWEEN VALUES SHOWN IN TABLE "B" MAY BE PROPORTIONED.

GOLETA SANITARY DISTRICT

2/1/08
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GENERAL MANAGER/
DISTRICT ENGINEER

PIPE ANCHORS AND BACKFILL STABILIZERS
TYPE 2

STANDARD DRAWING

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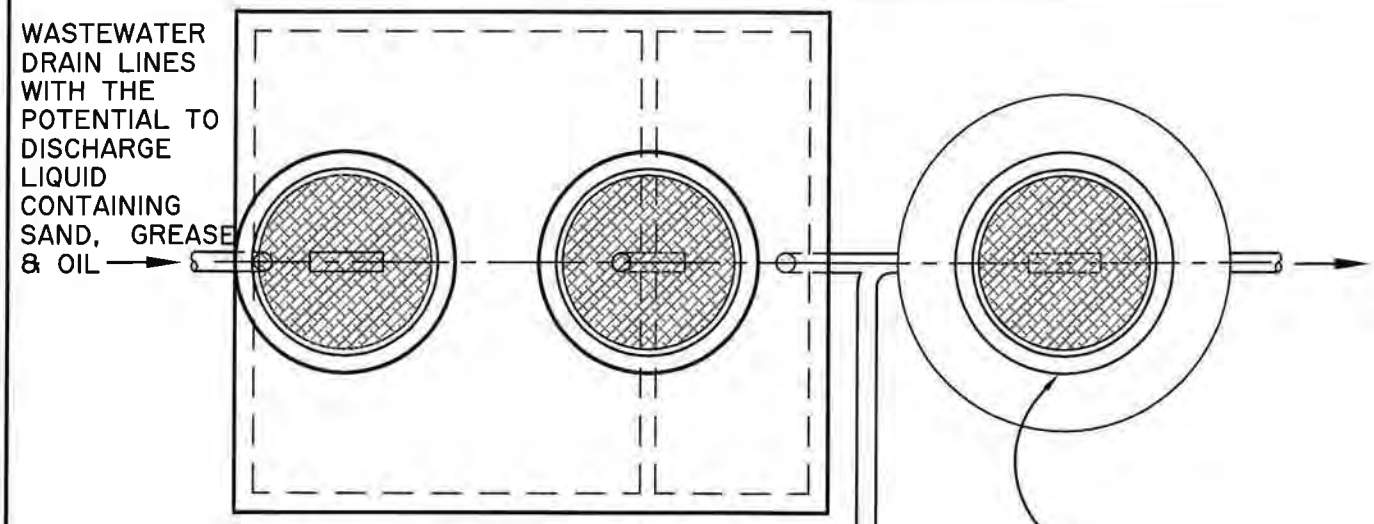
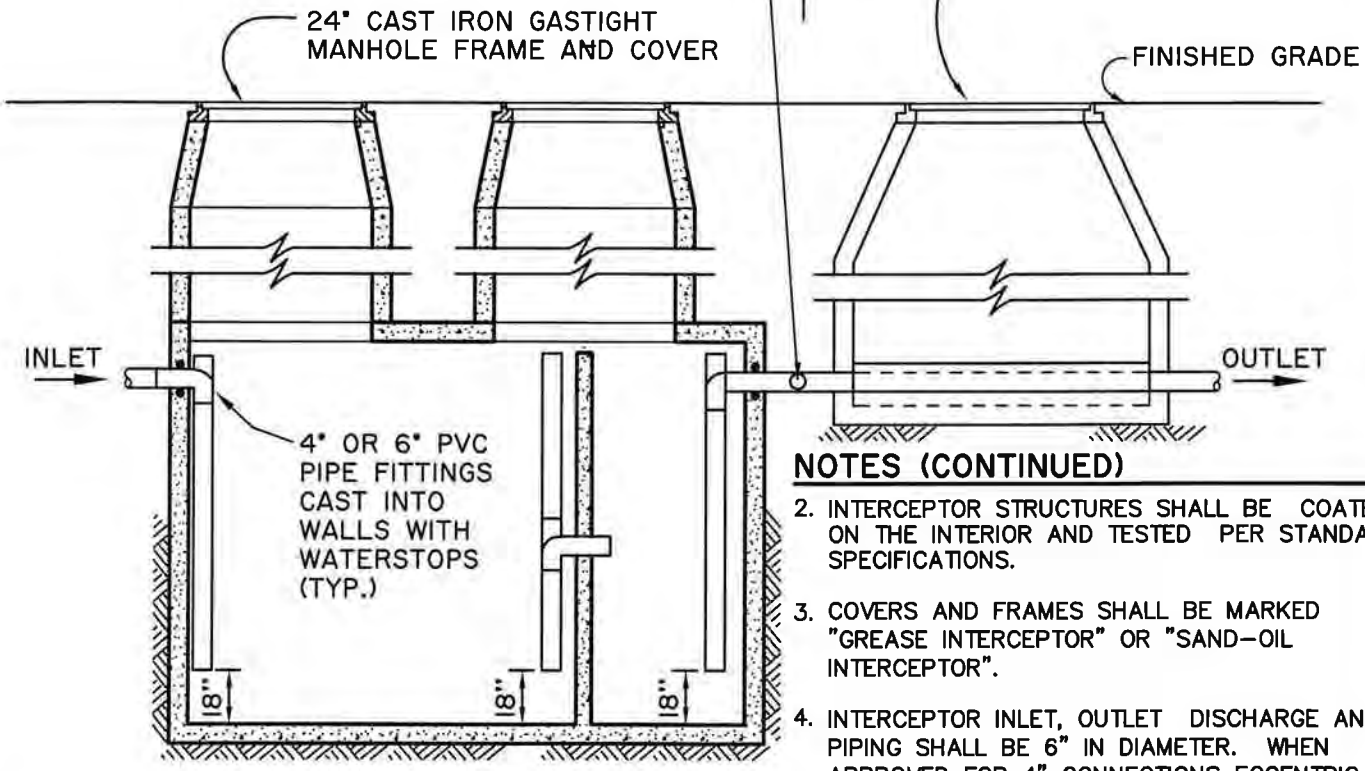


PLAN

SAMPLING MANHOLE SEE STD. DWG. NO. 14

ALL REMAINING BUILDING WASTEWATER DRAIN LINES WITH NO POTENTIAL TO DISCHARGE LIQUID CONTAINING GREASE & OIL



SECTION

NOTES

1. GREASE INTERCEPTORS SHALL BE SIZED IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE REQUIREMENTS. THE MINIMUM GREASE INTERCEPTOR SIZE SHALL BE A 500 GAL. UNIT.

NOTES (CONTINUED)

2. INTERCEPTOR STRUCTURES SHALL BE COATED ON THE INTERIOR AND TESTED PER STANDARD SPECIFICATIONS.
3. COVERS AND FRAMES SHALL BE MARKED "GREASE INTERCEPTOR" OR "SAND–OIL INTERCEPTOR".
4. INTERCEPTOR INLET, OUTLET DISCHARGE AND PIPING SHALL BE 6" IN DIAMETER. WHEN APPROVED FOR 4" CONNECTIONS ECCENTRIC 6"x 4" REDUCERS SHALL BE USED.
5. ALL INTERCEPTORS SHALL BE VENTED PER PLUMBING CODE.

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2/1/08
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INTERCEPTORS

STANDARD DRAWING

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