

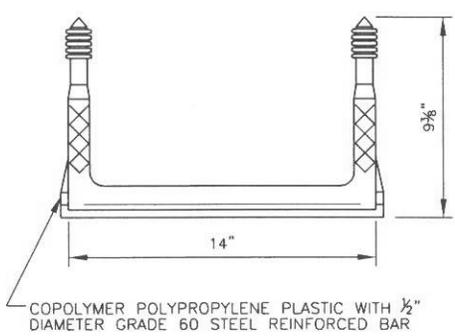
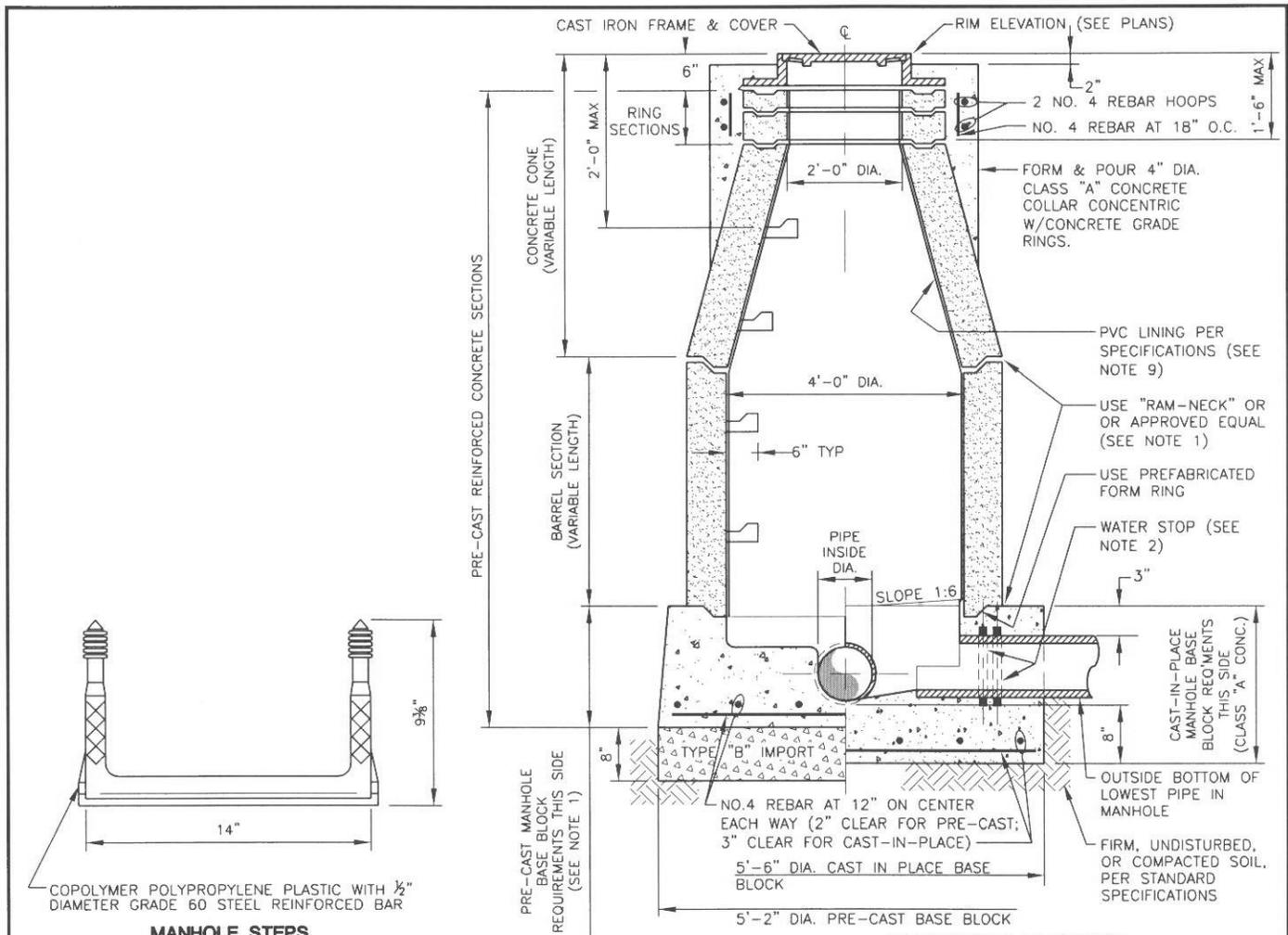
# STANDARD DETAILS



UNION SANITARY DISTRICT  
2014

**STANDARD DETAILS**  
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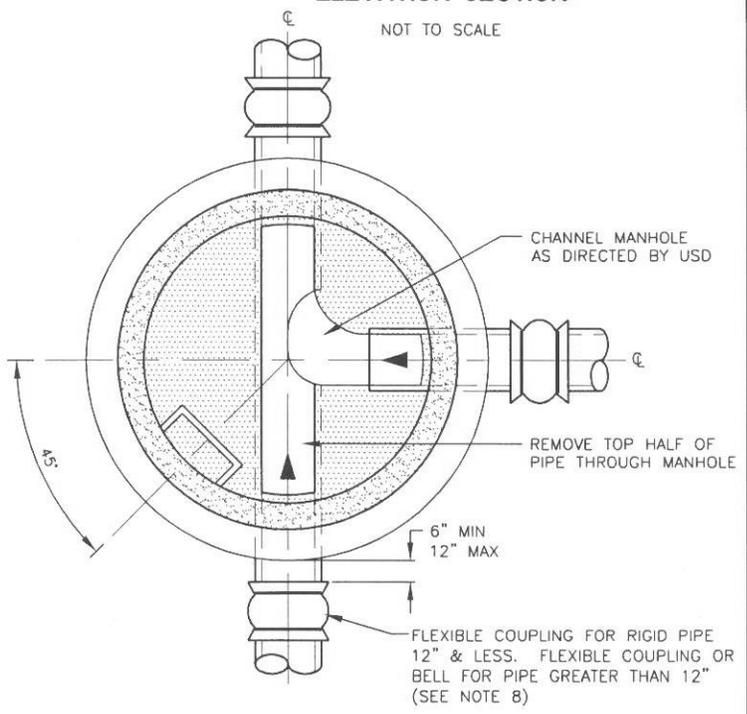
**MANHOLE STEPS**

**ELEVATION SECTION**

NOT TO SCALE

**NOTES:**

1. PRECAST MANHOLE BASE BLOCKS SHALL BE AS MANUFACTURED BY CENTRAL PRECAST CONCRETE, INC., ONE HANSON CT., MILPITAS, CA 95035, OR APPROVED EQUAL. PRECAST MANHOLE BASE BLOCKS SHALL ONLY BE USED AFTER PRIOR APPROVAL HAS BEEN RECEIVED FROM USD AND CITY FOR EACH LOCATION TO BE USED.
2. FLEXIBLE PIPE ONLY - AN APPROVED WATER STOP, SUCH AS TWO O-RINGS OR A BANDED RUBBER COUPLING, SHALL BE INSTALLED ON ALL FLEXIBLE PIPE ENTERING OR LEAVING A MANHOLE AND CENTERED UNDER THE MANHOLE WALL AS SHOWN.
3. INSTALL "RAM-NECK" OR APPROVED EQUAL BETWEEN EACH JOINT OF THE CONE AND BARREL SECTIONS TO MAKE A FLEXIBLE WATER-TIGHT JOINT. AFTER JOINT IS MADE, TRIM JOINT SMOOTH ON THE INSIDE OF MANHOLE.
4. ALL STEPS SHALL BE INSTALLED IN PRE-CAST SECTIONS BY MANUFACTURER AND SPACED 10"-15" APART.
5. PRECAST SECTIONS SHALL BE INSTALLED SO THAT STEPS ARE ALIGNED VERTICALLY AND AS SHOWN IN THE PLAN SECTION.
6. IF THE DISTANCE FROM THE MANHOLE RIM TO THE TOP OF THE BASE BLOCK IS LESS THAN 4'-0", ORDER PRE-CAST SECTIONS WITHOUT STEPS.
7. CEMENT MORTAR SHALL BE USED BETWEEN ALL GRADE RINGS.
8. FLEXIBLE COUPLING NOT REQUIRED FOR FLEXIBLE PIPE OR IF MANHOLE IS INSTALLED OVER EXISTING SANITARY SEWER.
9. PVC LINE STANDARD MANHOLES WHERE REQUIRED BY THE ENGINEER.
10. ALL CONCRETE GRADE RINGS, CONES AND BARREL SECTIONS SHOWN ABOVE ARE PRECAST AS MANUFACTURED BY CENTRAL PRECAST CONCRETE INC., ONE HANSON CT., MILPITAS, CA. OR AN APPROVED EQUAL.



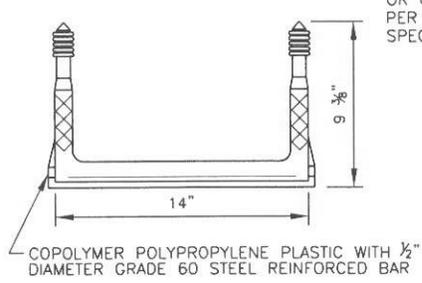
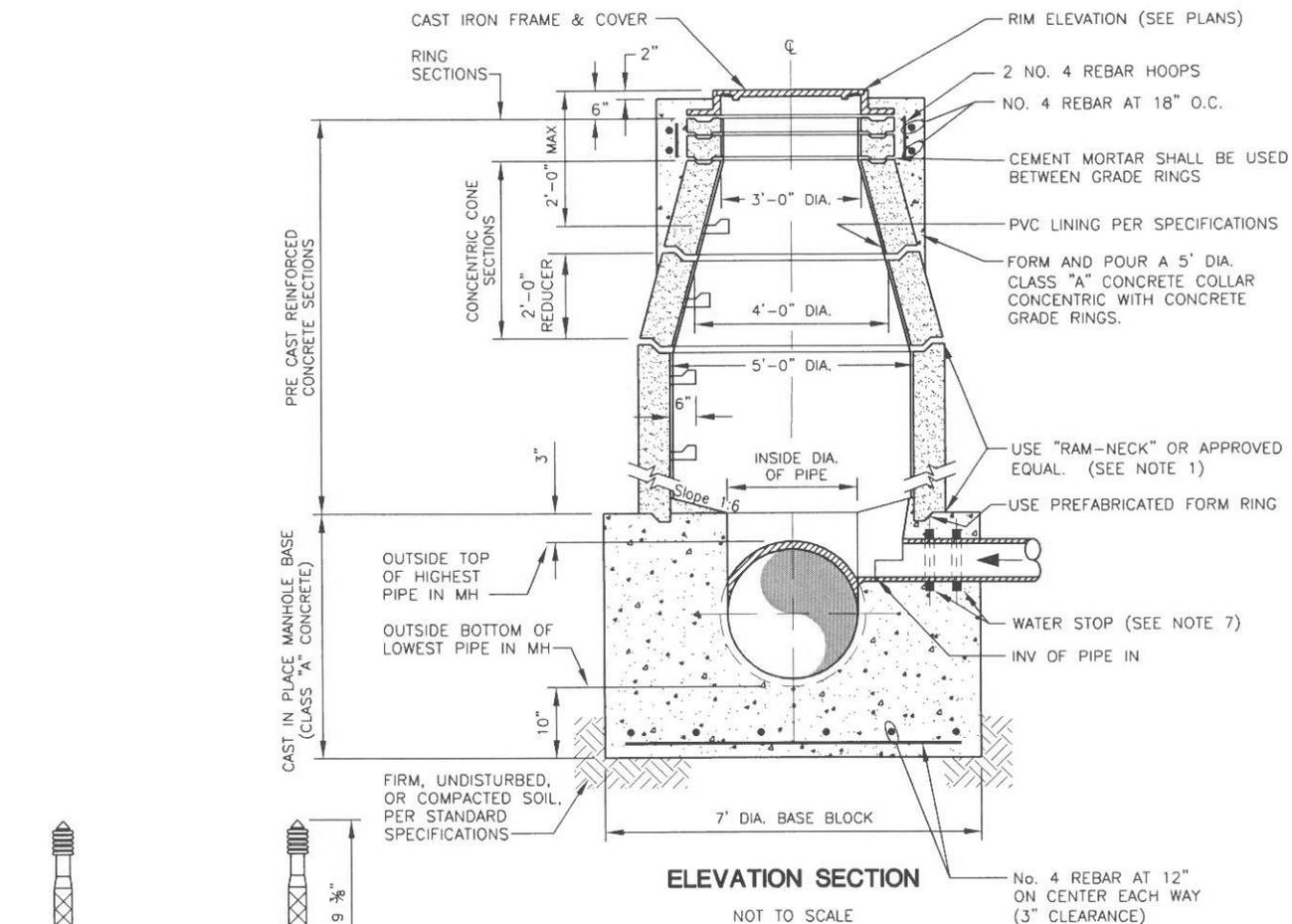
**PLAN SECTION**

NOT TO SCALE

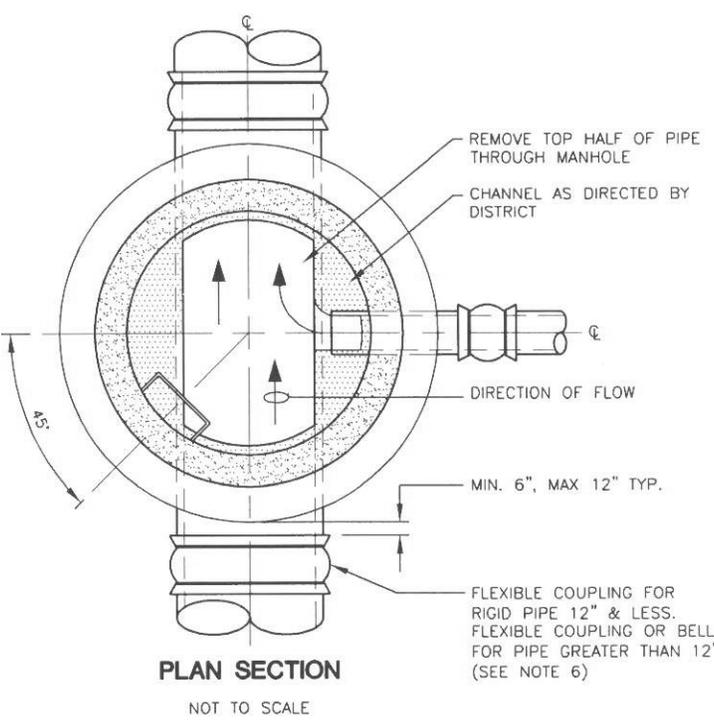
Date 5-12-06 Detail No. 1  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587

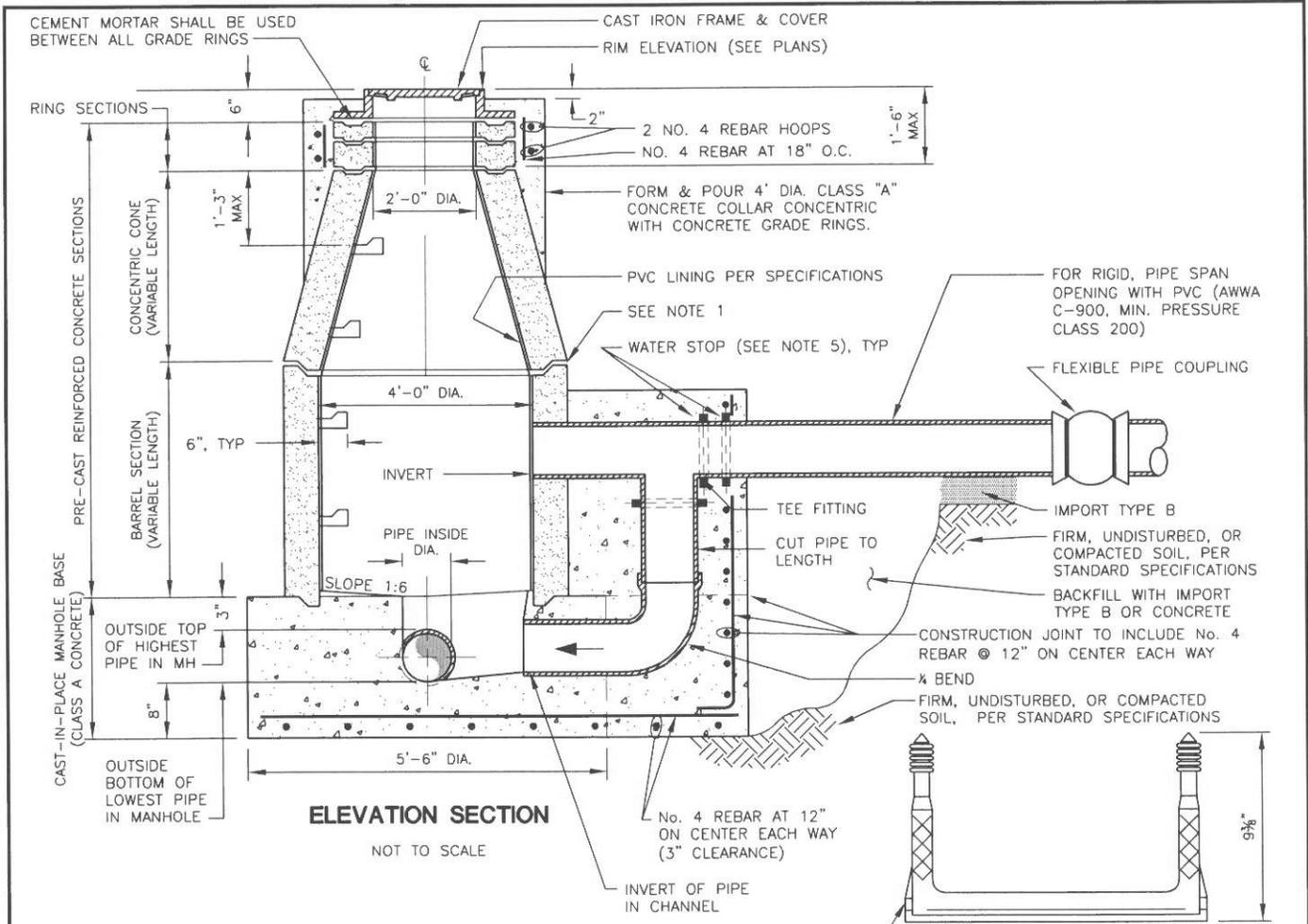
**USD** UNION SANITARY DISTRICT

**STANDARD MANHOLE**

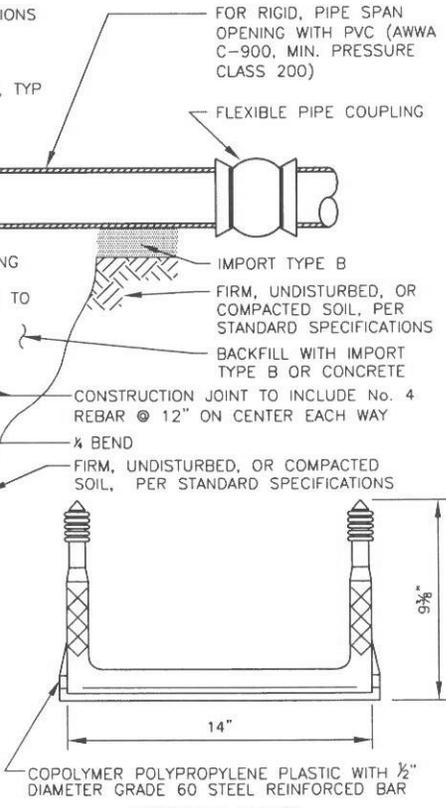


- NOTES:**
1. INSTALL "RAM-NECK" OR APPROVED EQUAL BETWEEN EACH JOINT OF THE CONE AND BARREL SECTIONS TO MAKE A FLEXIBLE WATER-TIGHT JOINT. AFTER JOINT IS MADE, TRIM JOINT SMOOTH ON THE INSIDE OF MANHOLE.
  2. ALL STEPS SHALL BE INSTALLED IN PRECAST SECTIONS BY MANUFACTURER AND SPACED 10"-15" APART.
  3. PRECAST SECTIONS SHALL BE INSTALLED SO THAT STEPS ARE ALIGNED VERTICALLY AND AS SHOWN IN THE PLAN SECTION.
  4. IF DISTANCE FROM MANHOLE RIM TO TOP OF BASE BLOCK IS LESS THAN 4'-0", ORDER PRE-CAST SECTIONS WITHOUT STEPS.
  5. TRUNK MANHOLES ARE REQUIRED WHEN THE SEWER LINE IS 24" OR LARGER IN DIAMETER.
  6. FLEXIBLE COUPLING NOT REQUIRED FOR FLEXIBLE PIPE OR IF MANHOLE IS INSTALLED OVER EXISTING SANITARY SEWER.
  7. FLEXIBLE PIPE ONLY - AN APPROVED WATER STOP, SUCH AS TWO O-RINGS OR A BANDED RUBBER COUPLING, SHALL BE INSTALLED ON ALL FLEXIBLE PIPE ENTERING OR LEAVING A MANHOLE AND CENTERED UNDER THE MANHOLE WALL AS SHOWN.
  8. CEMENT MORTAR SHALL BE USED BETWEEN ALL GRADE RINGS.
  9. ALL CONCRETE GRADE RINGS, CONES AND BARREL SECTIONS SHOWN ABOVE ARE PRECAST AS MANUFACTURED BY CENTRAL PRECAST CONCRETE INC., ONE HANSON CT., MILPITAS, CA. OR AN APPROVED EQUAL.

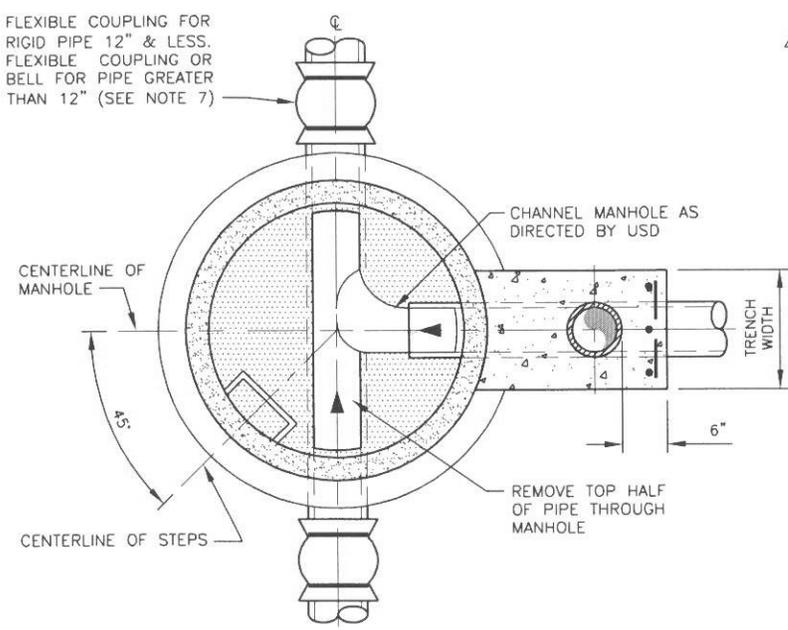




**ELEVATION SECTION**  
NOT TO SCALE



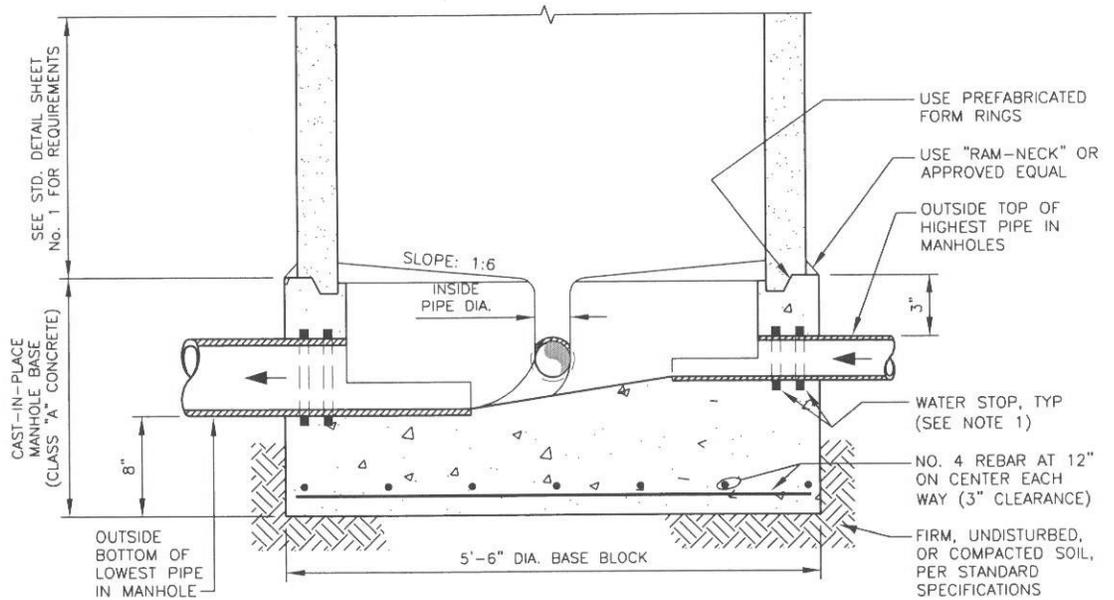
**MANHOLE STEPS**



**PLAN SECTION**  
NOT TO SCALE

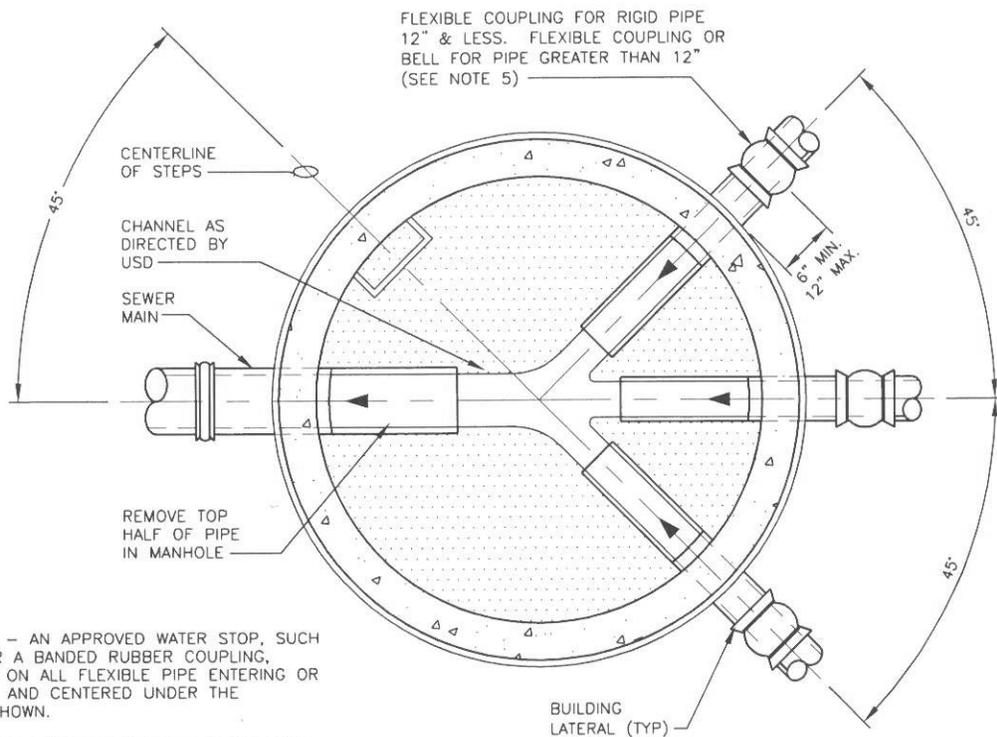
- NOTES:
1. INSTALL "RAM-NECK" OR APPROVED EQUAL BETWEEN EACH JOINT OF THE CONE AND BARREL SECTIONS. AFTER JOINT IS MADE, TRIM JOINT SMOOTH ON THE INSIDE OF MANHOLE.
  2. ALL STEPS SHALL BE INSTALLED IN PRE-CAST SECTIONS BY MANUFACTURER AND SPACED APART BY 10"-15".
  3. PRE-CAST SECTIONS SHALL BE INSTALLED SO THAT STEPS ARE ALIGNED VERTICALLY AND AS SHOWN IN THE PLAN SECTION.
  4. IF DISTANCE FROM MANHOLE RIM TO TOP OF BASE BLOCK IS LESS THAN 4'-0", ORDER PRE-CAST SECTION WITHOUT STEPS.
  5. FLEXIBLE PIPE ONLY - AN APPROVED WATER STOP, SUCH AS TWO O-RINGS OR A BANDED RUBBER COUPLING, SHALL BE INSTALLED ON ALL FLEXIBLE PIPE ENTERING OR LEAVING A MANHOLE, AND CENTERED UNDER THE MANHOLE WALL AS SHOWN.
  6. CEMENT MORTAR SHALL BE USED BETWEEN ALL GRADE RINGS.
  7. FLEXIBLE COUPLING NOT REQUIRED FOR FLEXIBLE PIPE OR IF MANHOLE IS INSTALLED OVER EXISTING SANITARY SEWER.
  8. ALL CONCRETE GRADE RINGS, CONES AND BARREL SECTIONS SHOWN ABOVE ARE PRECAST AS MANUFACTURED BY CENTRAL PRECAST CONCRETE INC., ONE HANSON CT., MILPITAS, CA. OR AN APPROVED EQUAL.

Date 5-12-06 Detail No. 3  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587



**ELEVATION SECTION**

NOT TO SCALE



**PLAN SECTION**

NOT TO SCALE

**NOTES:**

1. FLEXIBLE PIPE ONLY - AN APPROVED WATER STOP, SUCH AS TWO O-RINGS OR A BANDED RUBBER COUPLING, SHALL BE INSTALLED ON ALL FLEXIBLE PIPE ENTERING OR LEAVING A MANHOLE, AND CENTERED UNDER THE MANHOLE WALL AS SHOWN.
2. ALL PIPES IN MANHOLE BASE BLOCK SHALL MATCH TOPS.
3. MAXIMUM NUMBER OF LATERALS TO BE CONNECTED TO A DEAD END MANHOLE IN A CUL-DE-SAC IS THREE (3).
4. INSTALL "RAM-NECK" OR APPROVED EQUAL BETWEEN EACH JOINT OF THE CONE AND BARREL SECTIONS TO MAKE A FLEXIBLE WATER-TIGHT JOINT. AFTER JOINT IS MADE, TRIM JOINT SMOOTH ON THE INSIDE OF MANHOLE.
5. FLEXIBLE COUPLING NOT REQUIRED FOR FLEXIBLE PIPE OR IF MANHOLE IS INSTALLED OVER EXISTING SANITARY SEWER.

Date 10-25-05 Detail No. 4  
 Approved By Richard B. Currie  
 RICHARD B. CURRIE, RCE 31587



**UNION SANITARY DISTRICT**

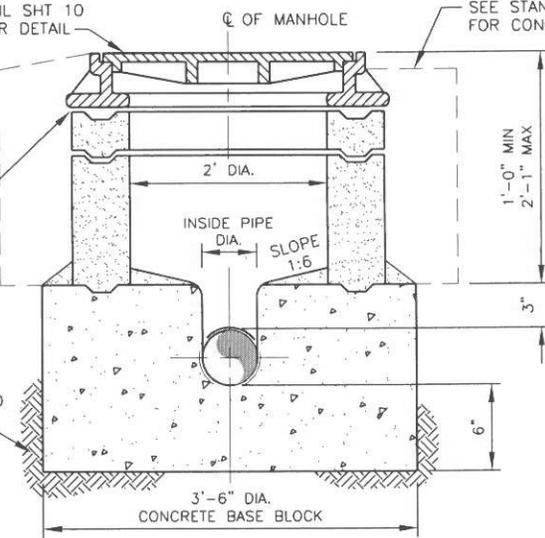
**SPECIAL MANHOLE BASE FOR DEAD END MANHOLES IN CUL-DE-SACS**

SEE STANDARD DETAIL SHT 10 FOR FRAME & COVER DETAIL

SEE STANDARD DETAIL SHT 6 FOR CONCRETE COLLAR DETAIL

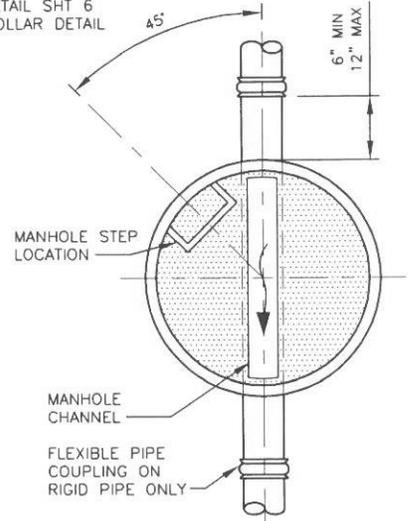
CEMENT MORTAR SHALL BE USED BETWEEN GRADE RINGS, TYP.

FIRM, UNDISTURBED, OR COMPACTED SOIL, PER STANDARD SPECIFICATIONS



**TYPE "A" MANHOLE**

NOT TO SCALE



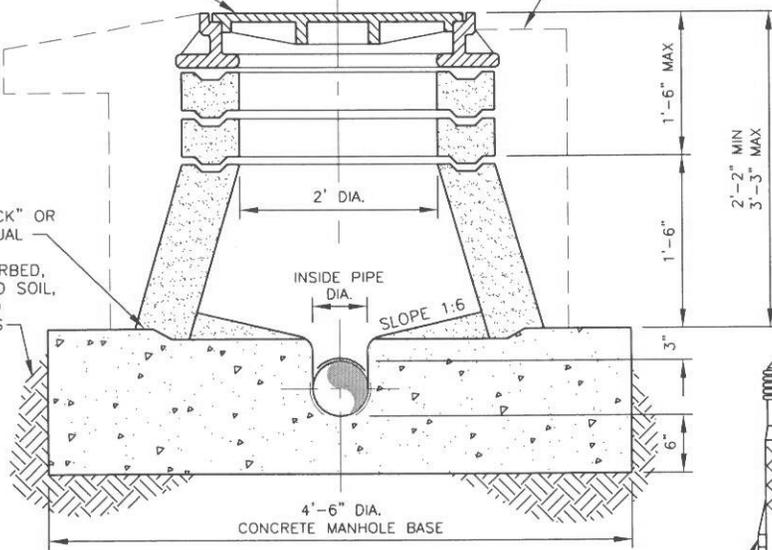
**TYPICAL PLAN SECTION**

NOT TO SCALE

SEE STANDARD DETAIL NO. 10 FOR FRAME & COVER DETAIL

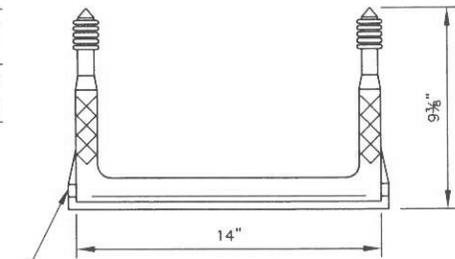
SEE STANDARD DETAIL SHT 6 FOR CONCRETE COLLAR DETAIL

USE "RAM-NECK" OR APPROVED EQUAL  
FIRM, UNDISTURBED, OR COMPACTED SOIL, PER STANDARD SPECIFICATIONS



**TYPE "B" MANHOLE**

NOT TO SCALE



COPOLYMER POLYPROPYLENE PLASTIC WITH 1/2" DIAMETER GRADE 60 STEEL REINFORCED BAR

**MANHOLE STEPS**

**NOTES:**

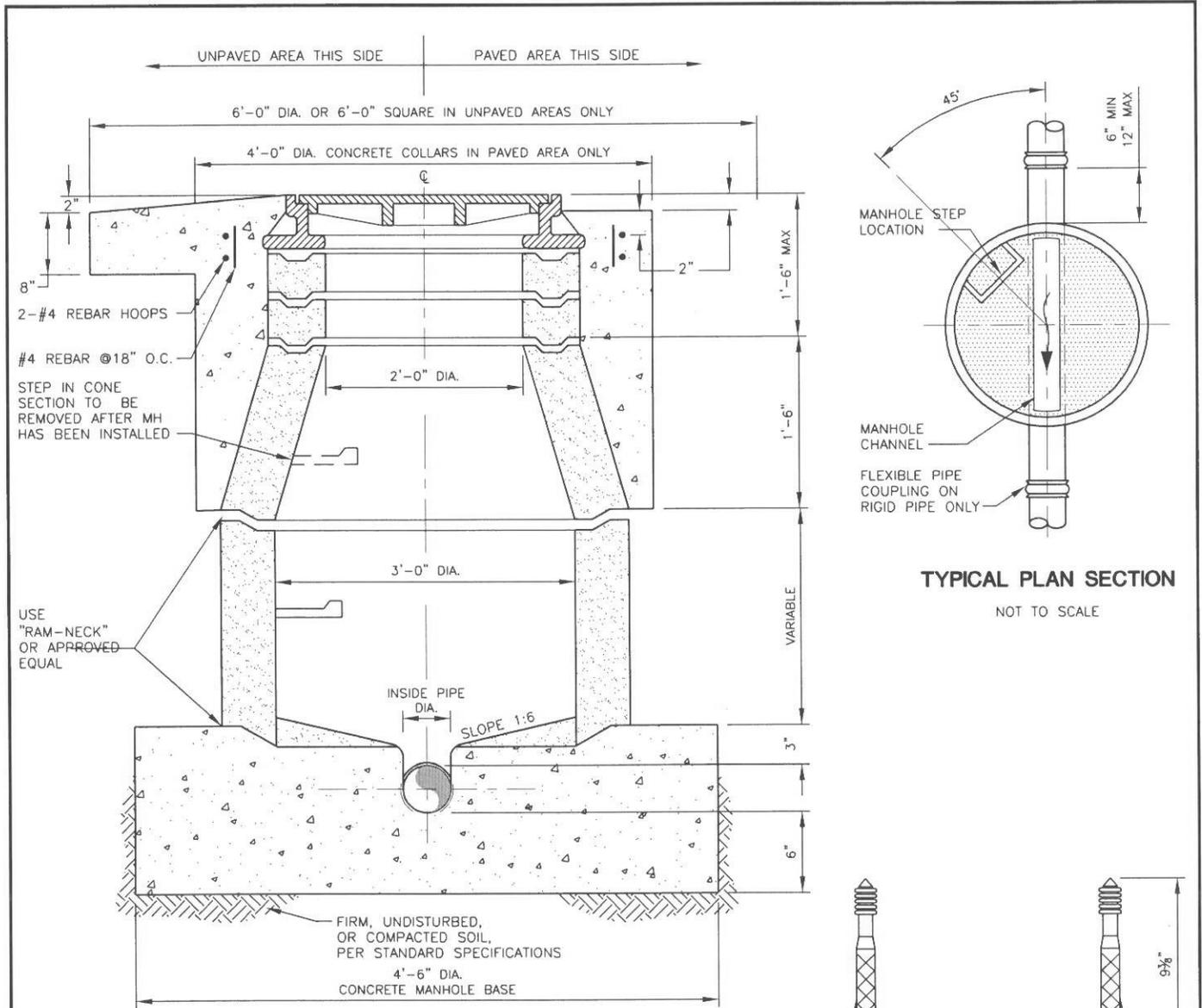
1. TYPE "C" PRIVATE CONTROL MANHOLE (DETAIL NO. 6) SHALL BE USED IN MOST CIRCUMSTANCES. TYPE "A" & "B" SHALL BE USED ONLY WITH SPECIAL PERMISSION BY THE ENGINEER.
2. INSTALL "RAM-NECK" OR APPROVED EQUAL BETWEEN EACH JOINT OF THE CONE AND BARREL SECTIONS TO MAKE A FLEXIBLE, WATER-TIGHT JOINT. AFTER JOINT IS MADE, TRIM JOINT SMOOTH ON THE INSIDE OF MANHOLE.
3. DO NOT INSTALL STEPS IN MANHOLE NECKS OR IN A MANHOLE THAT IS LESS THAN 4 (FOUR) FEET DEEP. IF MANHOLE IS GREATER THAN 4 (FOUR) FEET DEEP, STEPS SHALL BE INSTALLED AND EQUALLY SPACED AT INTERVALS FROM 10"-16" APART AND ALIGNED VERTICALLY.
4. COLLAR AND MANHOLE BASE SHALL BE CLASS "A" CONCRETE POURED IN PLACE.
5. INSTALL PRIVATE CONTROL MANHOLE FRAME AND COVER AS SHOWN ON DETAIL NO. 10 OF USD STANDARD SPECIFICATIONS.
6. ALL CONCRETE GRADE RINGS, CONES AND BARREL SECTIONS SHOWN ABOVE ARE PRECAST AS MANUFACTURED BY CENTRAL PRECAST CONCRETE, INC., ONE HANSON CT., MILPITAS, CA, OR AN APPROVED EQUAL.
7. FOR FLEXIBLE PIPE ONLY - AN APPROVED WATER STOP, SUCH AS BANDED RUBBER COUPLING, SHALL BE INSTALLED ON ALL FLEXIBLE PIPE ENTERING OR LEAVING A MANHOLE AND CENTERED UNDER THE MANHOLE WALL.

Date 5-12-06 Detail No. 5  
Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587



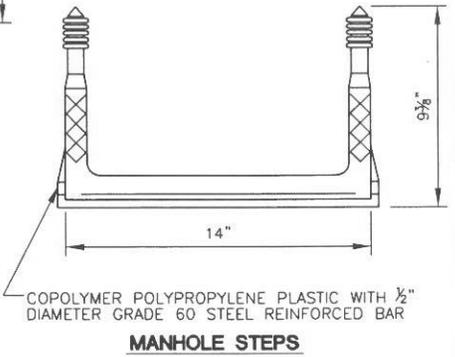
**UNION SANITARY DISTRICT**

**PRIVATE CONTROL MANHOLE  
TYPES "A" & "B"**



**TYPE "C" MANHOLE**  
NOT TO SCALE

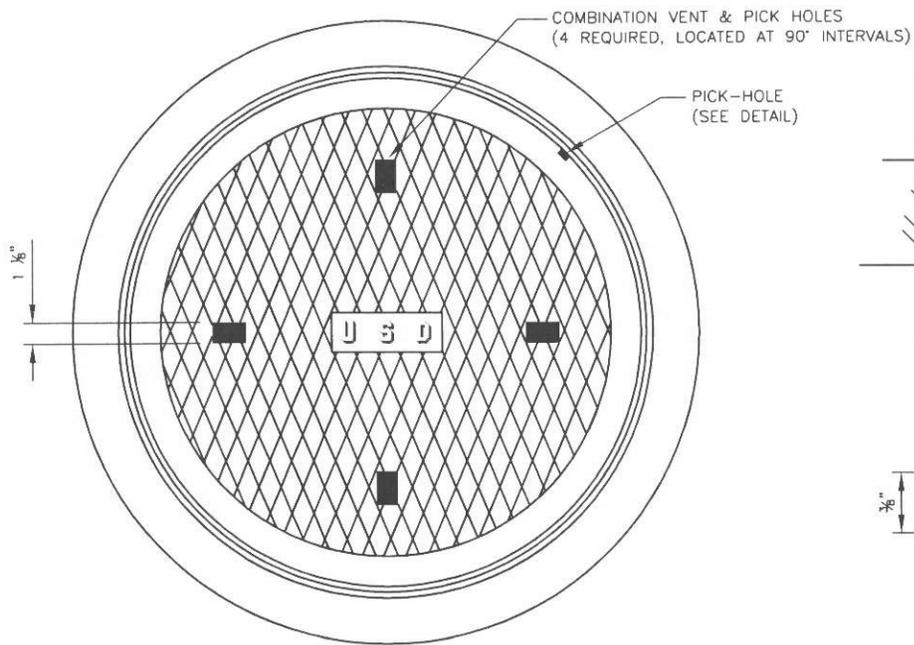
**TYPICAL PLAN SECTION**  
NOT TO SCALE



**MANHOLE STEPS**  
COPOLYMER POLYPROPYLENE PLASTIC WITH 1/2" DIAMETER GRADE 60 STEEL REINFORCED BAR

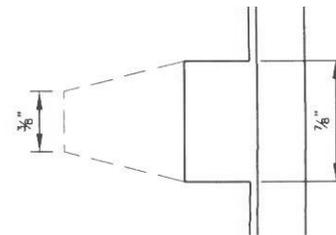
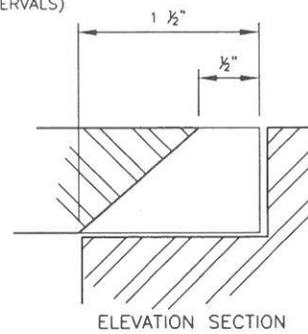
**NOTES:**

1. INSTALL "RAM-NECK" OR APPROVED EQUAL BETWEEN EACH JOINT OF THE CONE AND BARREL SECTIONS TO MAKE A FLEXIBLE, WATER-TIGHT JOINT. AFTER JOINT IS MADE, TRIM JOINT SMOOTH ON THE INSIDE OF MANHOLE.
2. DO NOT INSTALL STEPS IN MANHOLE NECKS OR IN A MANHOLE THAT IS LESS THAN 4 (FOUR) FEET DEEP. IF MANHOLE IS GREATER THAN 4' DEEP, STEPS SHALL BE INSTALLED AND EQUALLY SPACED AT INTERVALS FROM 10"-16" APART AND ALIGNED VERTICALLY.
3. COLLAR AND MANHOLE BASE SHALL BE CLASS "A" CONCRETE POURED IN PLACE.
4. INSTALL PRIVATE CONTROL MANHOLE FRAME AND COVER AS SHOWN ON STANDARD DETAIL NO. 10.
5. ALL CONCRETE GRADE RINGS, CONES AND BARREL SECTIONS SHOWN ABOVE ARE PRE CAST AS MANUFACTURED BY CENTRAL PRECAST CONCRETE, INC., ONE HANSON CT., MILPITAS, CA, OR AN APPROVED EQUAL.
6. FLEXIBLE PIPE ONLY - AN APPROVED WATER STOP, SUCH AS BANDED RUBBER COUPLING, SHALL BE INSTALLED ON ALL FLEXIBLE PIPE ENTERING OR LEAVING A MANHOLE, AND CENTERED UNDER THE MANHOLE WALL.



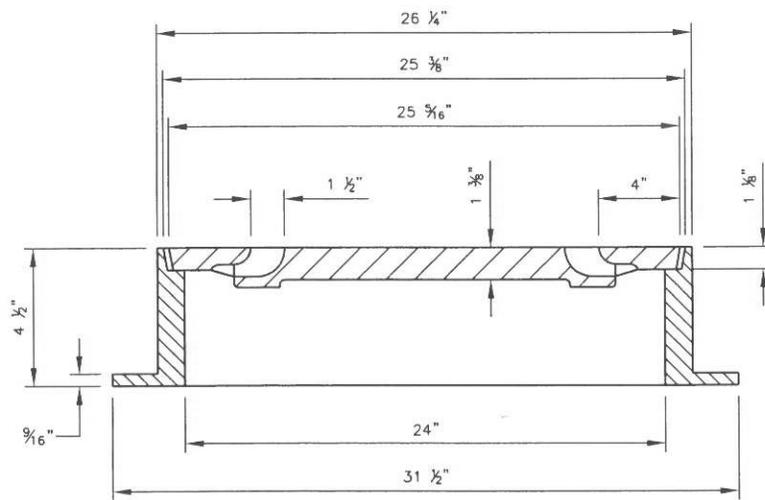
**PLAN SECTION**

NOT TO SCALE



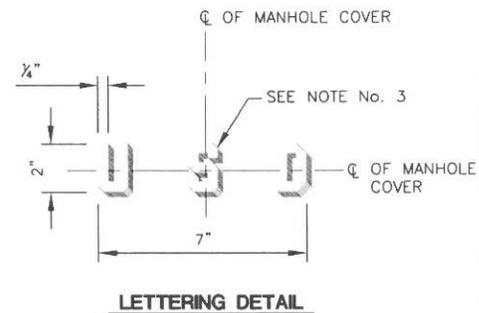
**PICK HOLE DETAIL**

NOT TO SCALE



**ELEVATION SECTION**

NOT TO SCALE



**NOTES:**

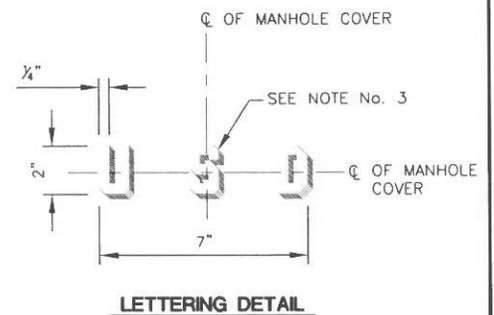
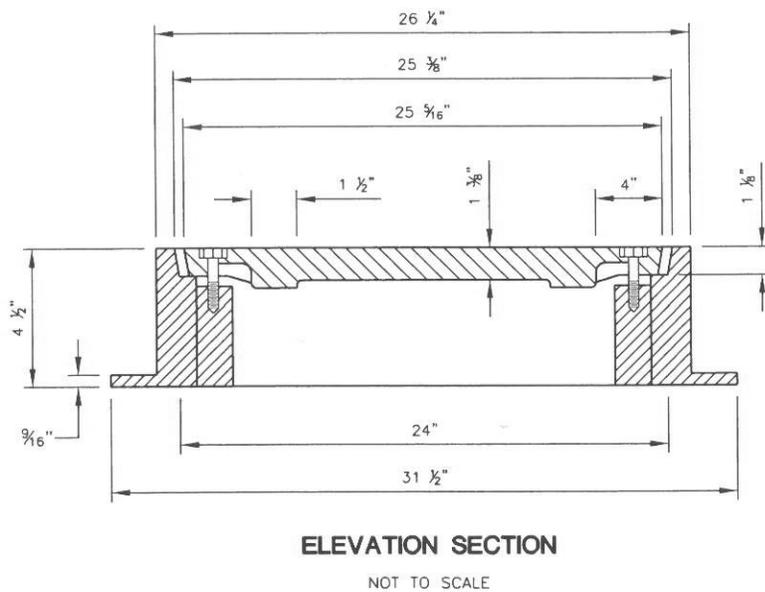
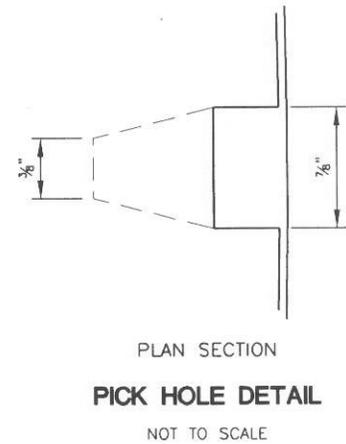
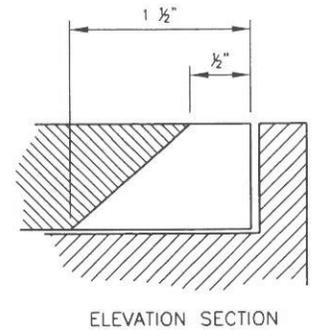
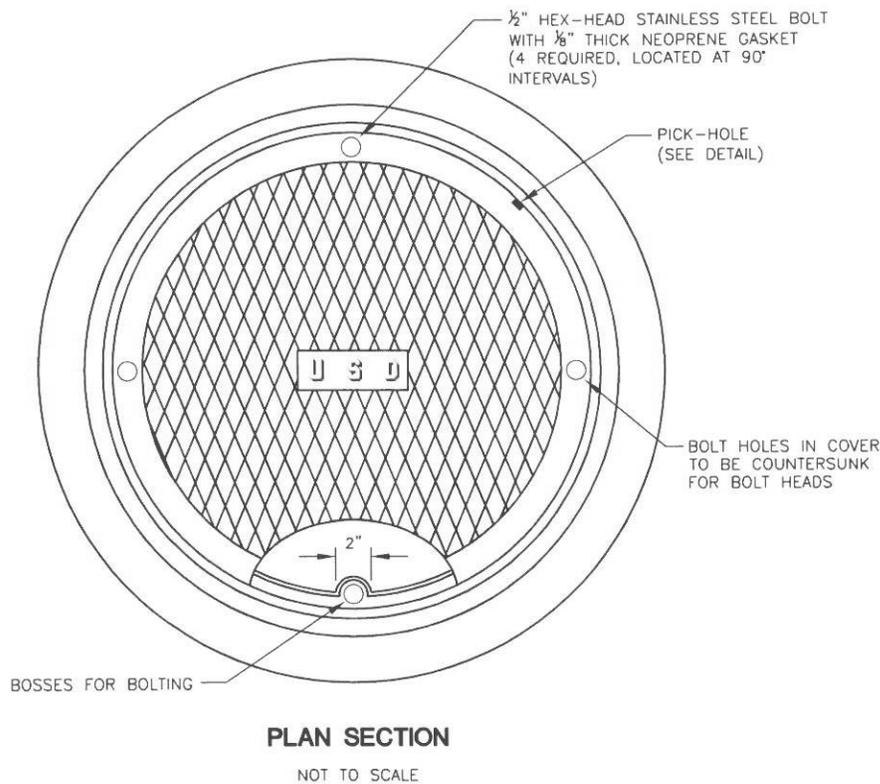
1. MINOR MODIFICATIONS IN ABOVE DIMENSIONS AND MANUFACTURING CONFIGURATIONS ARE PERMISSIBLE SUBJECT TO DISTRICT APPROVAL.
2. CAST IRON FOR FRAME AND COVER SHALL BE CLASS 30 MINIMUM AS PER ASTM A-48.
3. RAISED LETTERS 1/4" HIGH TO BE CAST IN CENTER OF MANHOLE COVER.
4. BEFORE LEAVING THE FOUNDRY, THE FRAME AND COVER SHALL BE PAINTED OR DIPPED IN ASPHALT PAINT.
5. MANHOLE FRAME AND COVER SHALL BE AS MANUFACTURED BY SOUTH BAY FOUNDRY, 42 N. CLUFF AVE., LODI, CA 95420, OR APPROVED EQUAL.
6. FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO ASSURE CLOSE, QUIET FIT.

Date 5-12-06 Detail No. 7  
 Approved By Richard B. Currie  
 RICHARD B. CURRIE, RCE 31587



**UNION SANITARY DISTRICT**

**MANHOLE FRAME AND COVER**



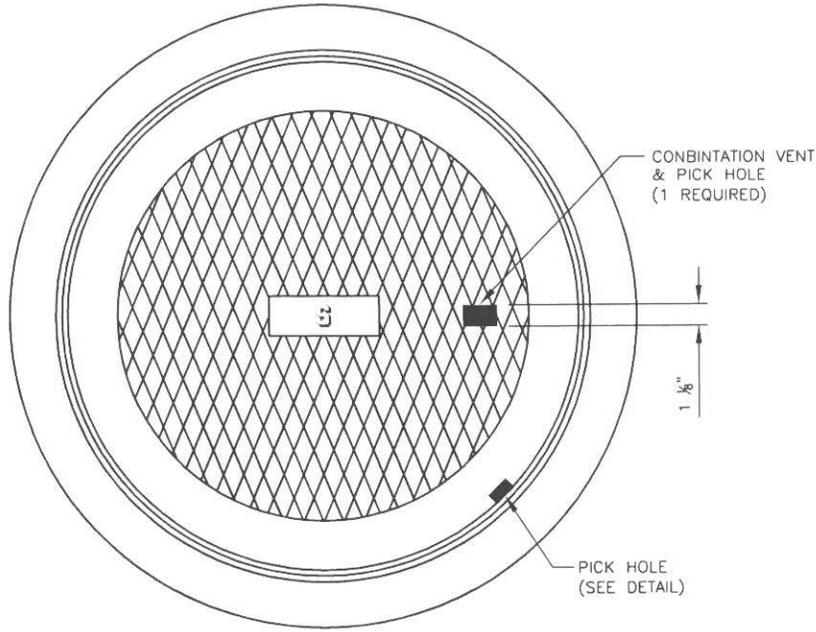
NOTES:

- MINOR MODIFICATIONS IN ABOVE DIMENSIONS AND MANUFACTURING CONFIGURATIONS ARE PERMISSIBLE SUBJECT TO DISTRICT APPROVAL.
- CAST IRON FOR FRAME AND COVER SHALL BE CLASS 30 MINIMUM AS PER ASTM A-48.
- RAISED LETTERS 1/4" HIGH TO BE CAST IN CENTER OF MANHOLE COVER.
- BEFORE LEAVING THE FOUNDRY, THE FRAME AND COVER SHALL BE PAINTED OR DIPPED IN ASPHALT PAINT.
- MANHOLE FRAME AND COVER SHALL BE AS MANUFACTURED BY SOUTH BAY FOUNDRY, 42 N. CLUFF AVE., LODI, CA 95420, OR APPROVED EQUAL.
- FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO ASSURE CLOSE, QUIET FIT.

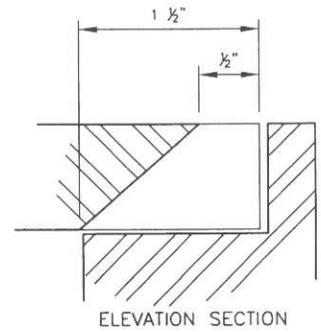
Date 5-12-06 Detail No. 8  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587

**US D** UNION SANITARY DISTRICT

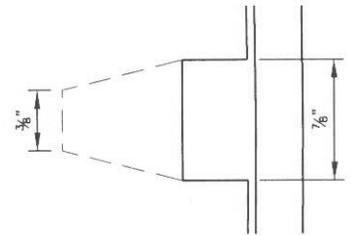
**BOLT-DOWN MANHOLE  
 FRAME AND COVER**



**PLAN SECTION**  
NOT TO SCALE

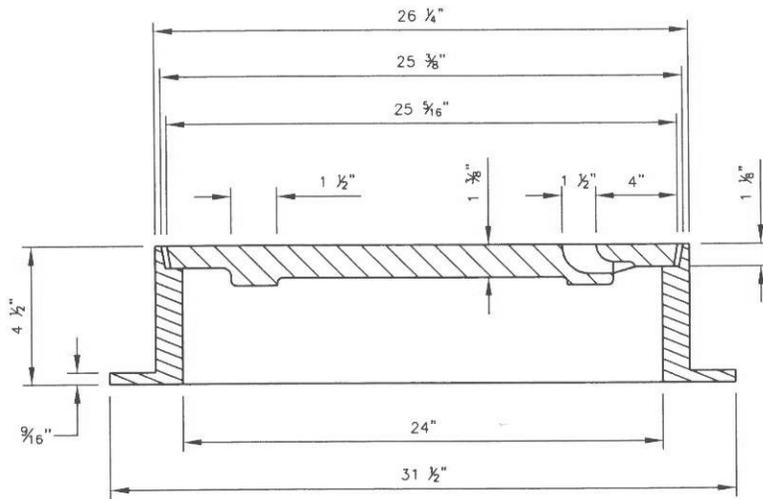


**ELEVATION SECTION**

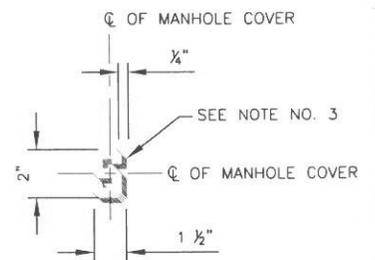


**PLAN SECTION**

**PICK HOLE DETAIL**  
NOT TO SCALE



**ELEVATION SECTION**  
NOT TO SCALE



**LETTERING DETAIL**

**NOTES:**

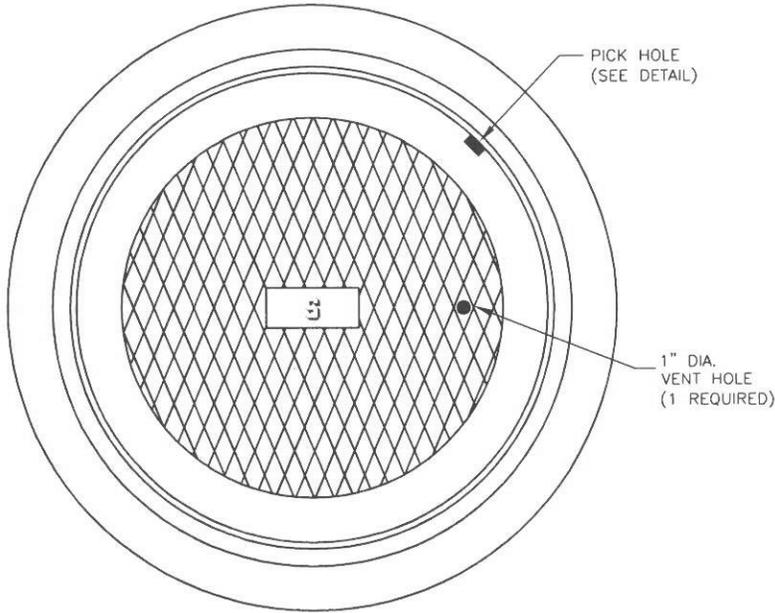
1. MINOR MODIFICATIONS IN ABOVE DIMENSIONS AND MANUFACTURING CONFIGURATIONS ARE PERMISSIBLE SUBJECT TO DISTRICT APPROVAL.
2. CAST IRON FOR FRAME AND COVER SHALL BE CLASS 30 MINIMUM AS PER ASTM A-48.
3. RAISED LETTERS 1/4" HIGH TO BE CAST IN CENTER OF MANHOLE COVER.
4. BEFORE LEAVING THE FOUNDRY, THE FRAME AND COVER SHALL BE PAINTED OR DIPPED IN ASPHALT PAINT.
5. MANHOLE FRAME AND COVER SHALL BE AS MANUFACTURED BY SOUTH BAY FOUNDRY, 42 N. CLUFF AVE., LODI, CA 95420, OR APPROVED EQUAL.
6. FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO ASSURE CLOSE, QUIET FIT.

Date 5-12-06 Detail No. 9  
 Approved By Richard B. Currie  
 RICHARD B. CURRIE, RCE 31587



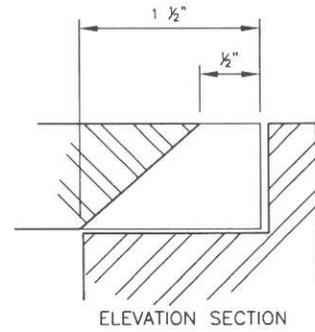
**UNION SANITARY DISTRICT**

**PRIVATE MANHOLE  
FRAME AND COVER**

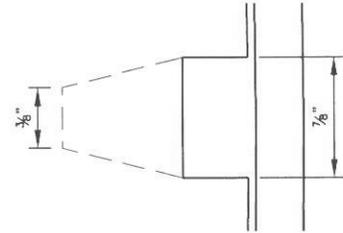


**PLAN SECTION**

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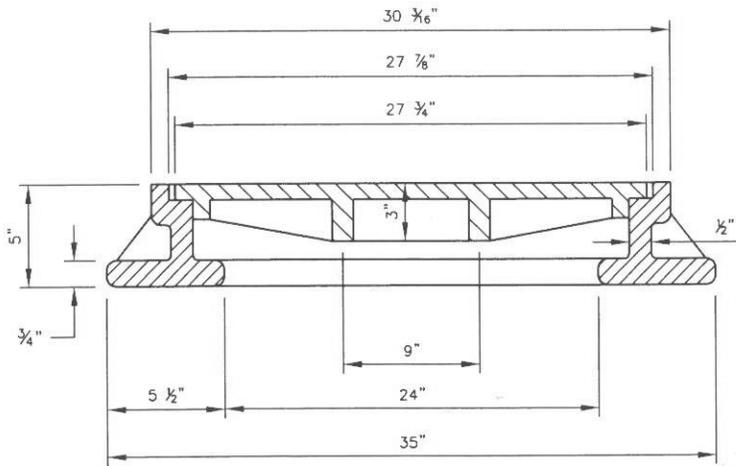
**ELEVATION SECTION**



**PLAN SECTION**

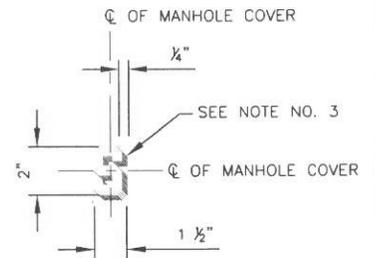
**PICK HOLE DETAIL**

NOT TO SCALE



**ELEVATION SECTION**

NOT TO SCALE



**LETTERING DETAIL**

**NOTES:**

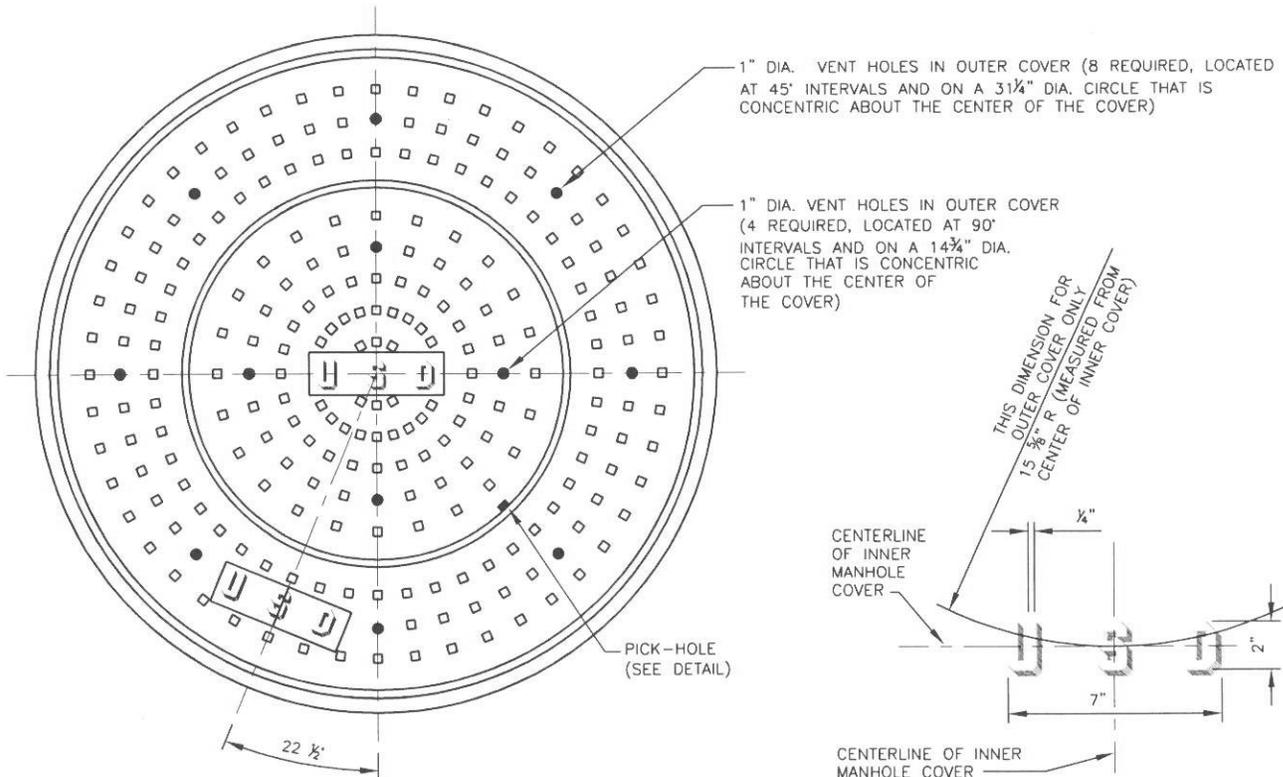
1. MINOR MODIFICATIONS IN ABOVE DIMENSIONS AND MANUFACTURING CONFIGURATIONS ARE PERMISSIBLE SUBJECT TO DISTRICT APPROVAL.
2. CAST IRON FOR FRAME AND COVER SHALL BE CLASS 30 MINIMUM AS PER ASTM A-48.
3. RAISED LETTERS 1/4" HIGH TO BE CAST IN CENTER OF MANHOLE COVER.
4. BEFORE LEAVING THE FOUNDRY, THE FRAME AND COVER SHALL BE PAINTED OR DIPPED IN ASPHALT PAINT.
5. MANHOLE FRAME AND COVER SHALL BE AS MANUFACTURED BY SOUTH BAY FOUNDRY, 42 N. CLUFF AVE., LODI, CA 95420, OR APPROVED EQUAL.
6. FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO ASSURE CLOSE, QUIET FIT.

Date 5-12-06 Detail No. 10  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587

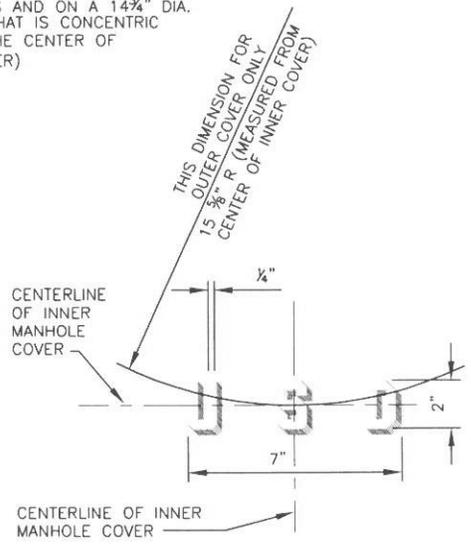


**UNION SANITARY DISTRICT**

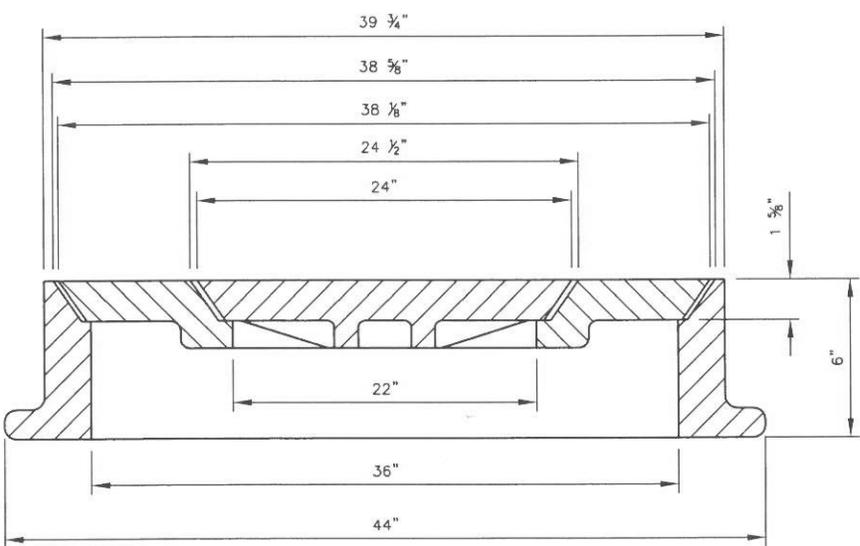
**PRIVATE CONTROL MANHOLE  
 FRAME AND COVER**



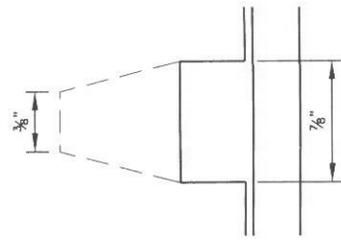
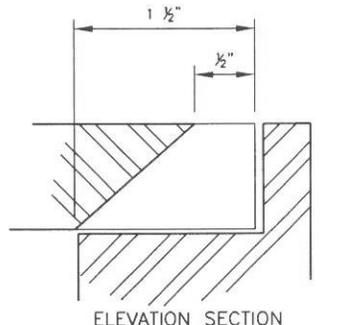
**PLAN SECTION**  
NOT TO SCALE



**LETTERING DETAIL**



**ELEVATION SECTION**  
NOT TO SCALE



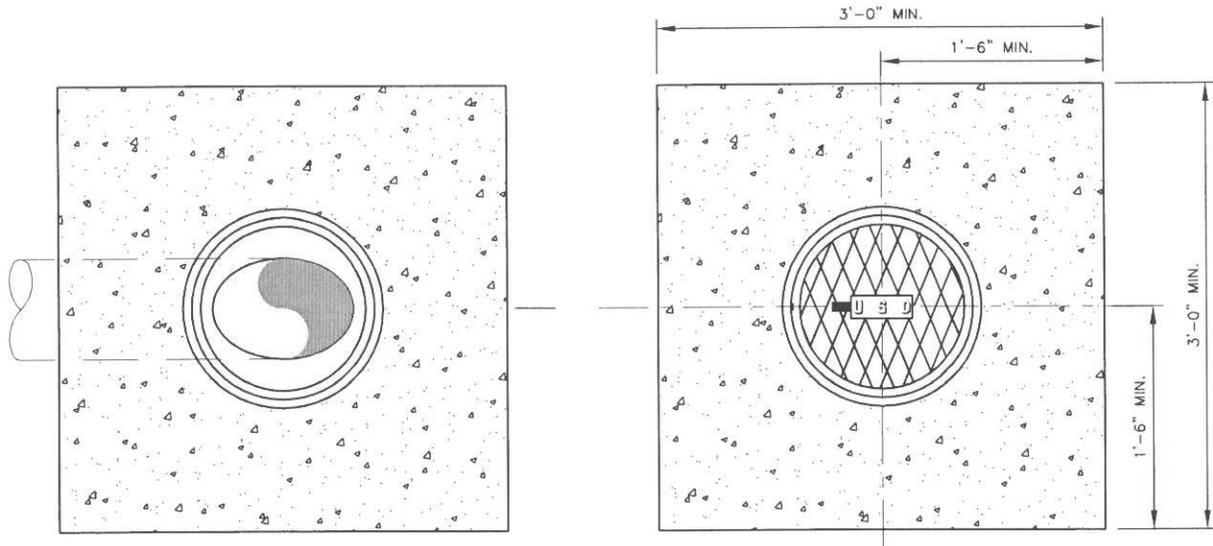
**PICK HOLE DETAIL**  
NOT TO SCALE

- NOTES:
1. CAST IRON FOR FRAME AND COVER SHALL BE CLASS 30 MINIMUM AS PER ASTM A-48.
  2. RAISED LETTERS 1/4" HIGH TO BE CAST IN CENTER OF MANHOLE COVER.
  3. MINOR MODIFICATIONS IN ABOVE DIMENSIONS AND MANUFACTURING CONFIGURATIONS ARE PERMISSIBLE SUBJECT TO DISTRICT APPROVAL.
  4. BEFORE LEAVING THE FOUNDRY, THE FRAME AND COVERS SHALL BE PAINTED OR DIPPED IN ASPHALT PAINT.
  5. MANHOLE FRAME AND COVER SHALL BE AS MANUFACTURED BY SOUTH BAY FOUNDRY, 42 N. CLUFF AVE., LODI, CA 95420, OR APPROVED EQUAL.
  6. FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO ASSURE CLOSE, QUIET FIT.

Date 5-12-06 Detail No. 11  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587

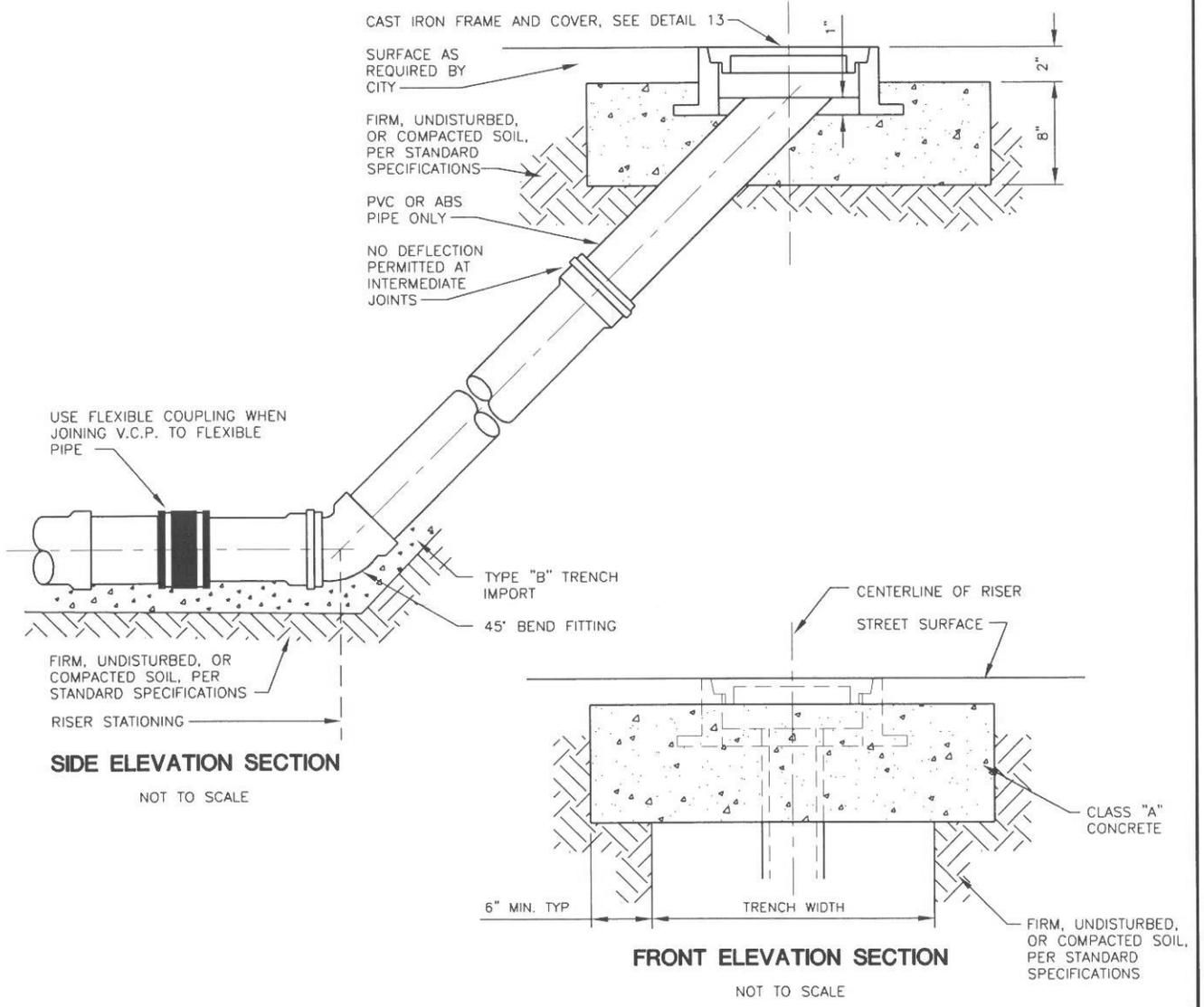
 **UNION SANITARY DISTRICT**

**36" DIAMETER MANHOLE  
 FRAME AND COVER**



**PLAN SECTION WITHOUT LID**  
NOT TO SCALE

**PLAN SECTION**  
NOT TO SCALE



**SIDE ELEVATION SECTION**  
NOT TO SCALE

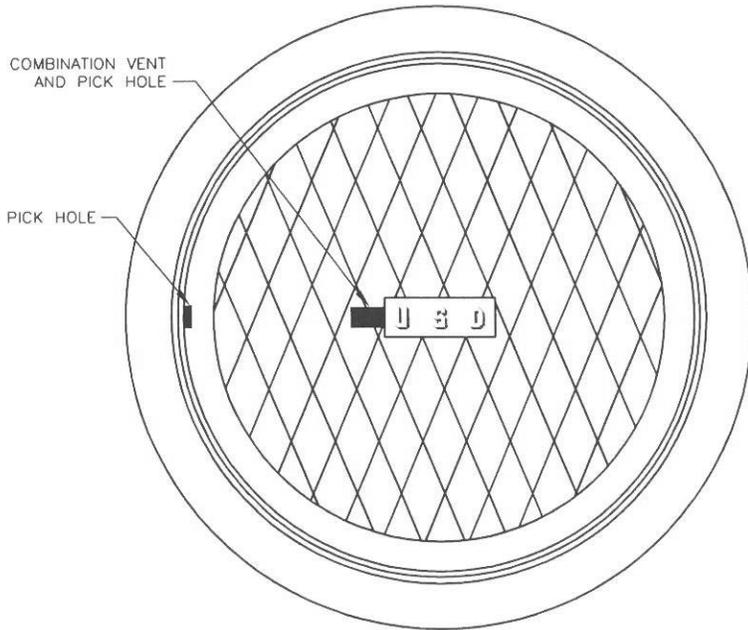
**FRONT ELEVATION SECTION**  
NOT TO SCALE

Date 10-25-05 Detail No. 12  
Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587

**USD** UNION SANITARY DISTRICT

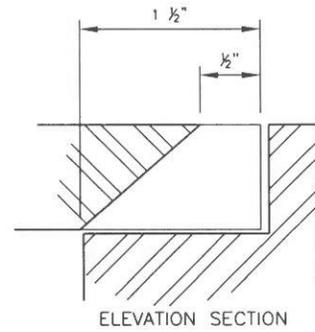
**RISER**

**12**

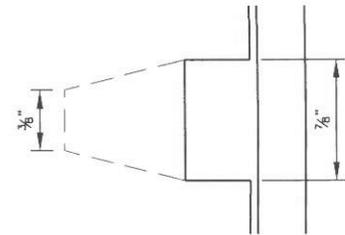


**PLAN SECTION**

NOT TO SCALE



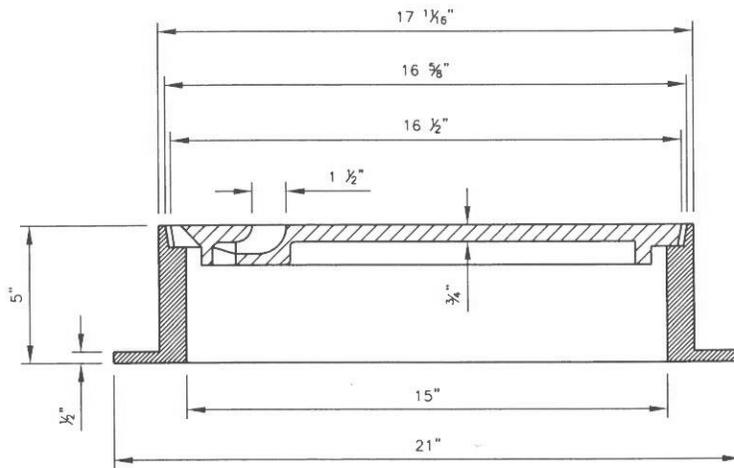
**ELEVATION SECTION**



**PLAN SECTION**

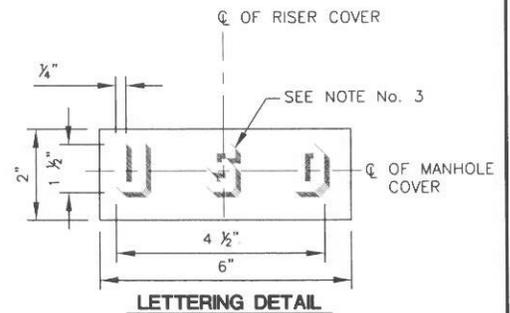
**PICK HOLE DETAIL**

NOT TO SCALE



**ELEVATION SECTION**

NOT TO SCALE



**LETTERING DETAIL**

**NOTES:**

1. MINOR MODIFICATIONS IN ABOVE DIMENSIONS AND MANUFACTURING CONFIGURATIONS ARE PERMISSIBLE SUBJECT TO DISTRICT APPROVAL.
2. CAST IRON FOR FRAME AND COVER SHALL BE CLASS 30 MINIMUM AS PER ASTM A-48.
3. RAISED LETTERS 1/4" HIGH TO BE CAST IN CENTER OF MANHOLE COVER.
4. BEFORE LEAVING THE FOUNDRY, THE FRAME AND COVER SHALL BE PAINTED OR DIPPED IN ASPHALT PAINT.
5. SEE UNION SANITARY DISTRICT STANDARD DETAIL NO. 12 FOR INSTALLATION REQUIREMENTS.
6. MANHOLE FRAME AND COVER SHALL BE AS MANUFACTURED BY SOUTH BAY FOUNDRY, 42 N. CLUFF AVE., LODI, CA 95240, OR APPROVED EQUAL.
7. FRAME AND COVER BEARING SURFACES SHALL BE MACHINED TO ASSURE CLOSE, QUIET FIT.

Date 10-25-05 Detail No. 13

Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587

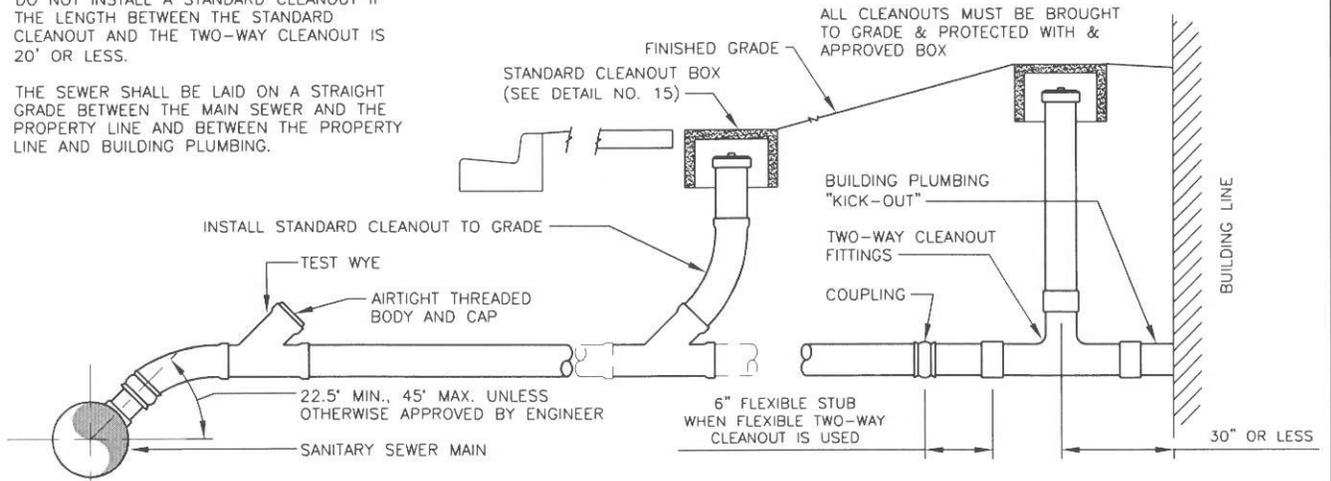


**UNION SANITARY DISTRICT**

**RISER FRAME & COVER FOR  
6", 8" & 10" DIAMETER PIPE**

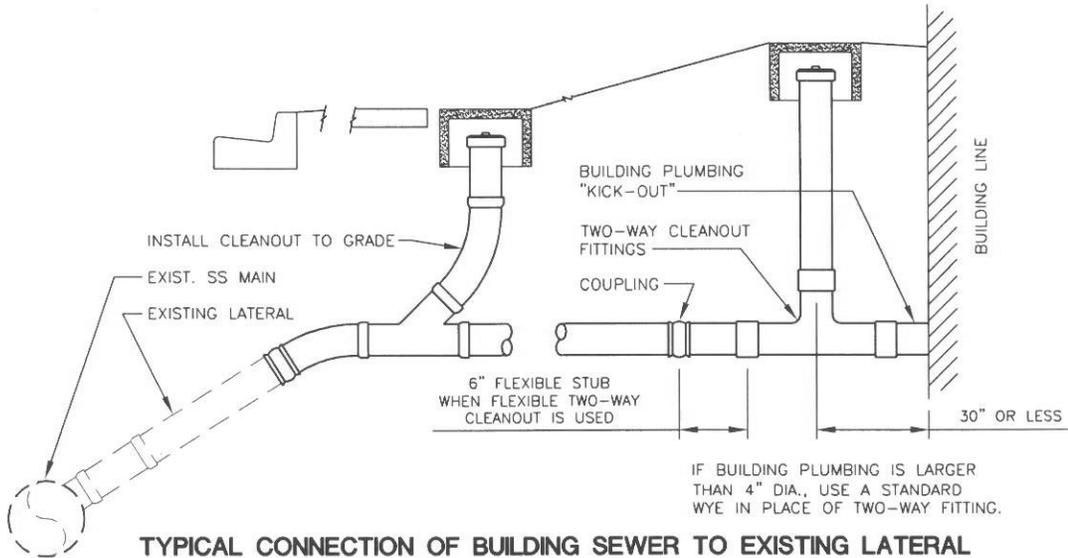
**NOTES:**

- DO NOT INSTALL A STANDARD CLEANOUT IF THE LENGTH BETWEEN THE STANDARD CLEANOUT AND THE TWO-WAY CLEANOUT IS 20' OR LESS.
- THE SEWER SHALL BE LAID ON A STRAIGHT GRADE BETWEEN THE MAIN SEWER AND THE PROPERTY LINE AND BETWEEN THE PROPERTY LINE AND BUILDING PLUMBING.



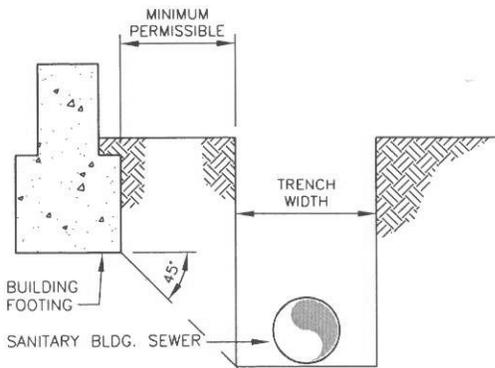
**TYPICAL CONNECTION OF BUILDING SEWER TO EXISTING MAIN SEWER**

NOT TO SCALE



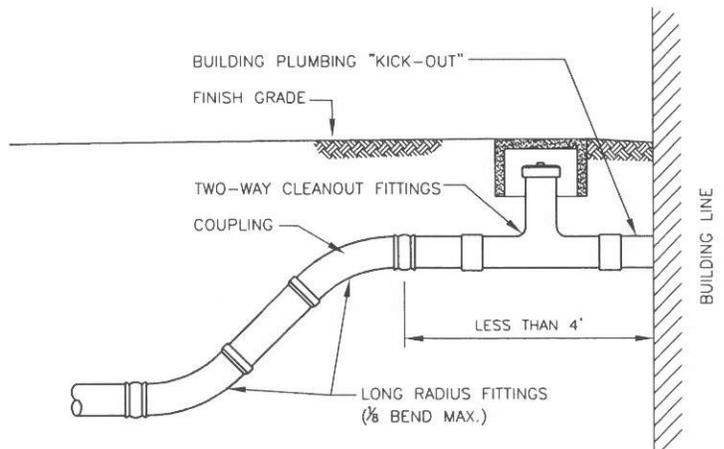
**TYPICAL CONNECTION OF BUILDING SEWER TO EXISTING LATERAL**

NOT TO SCALE



**DETAIL - BUILDING SEWER ADJACENT TO BUILDING FOOTING**

NOT TO SCALE

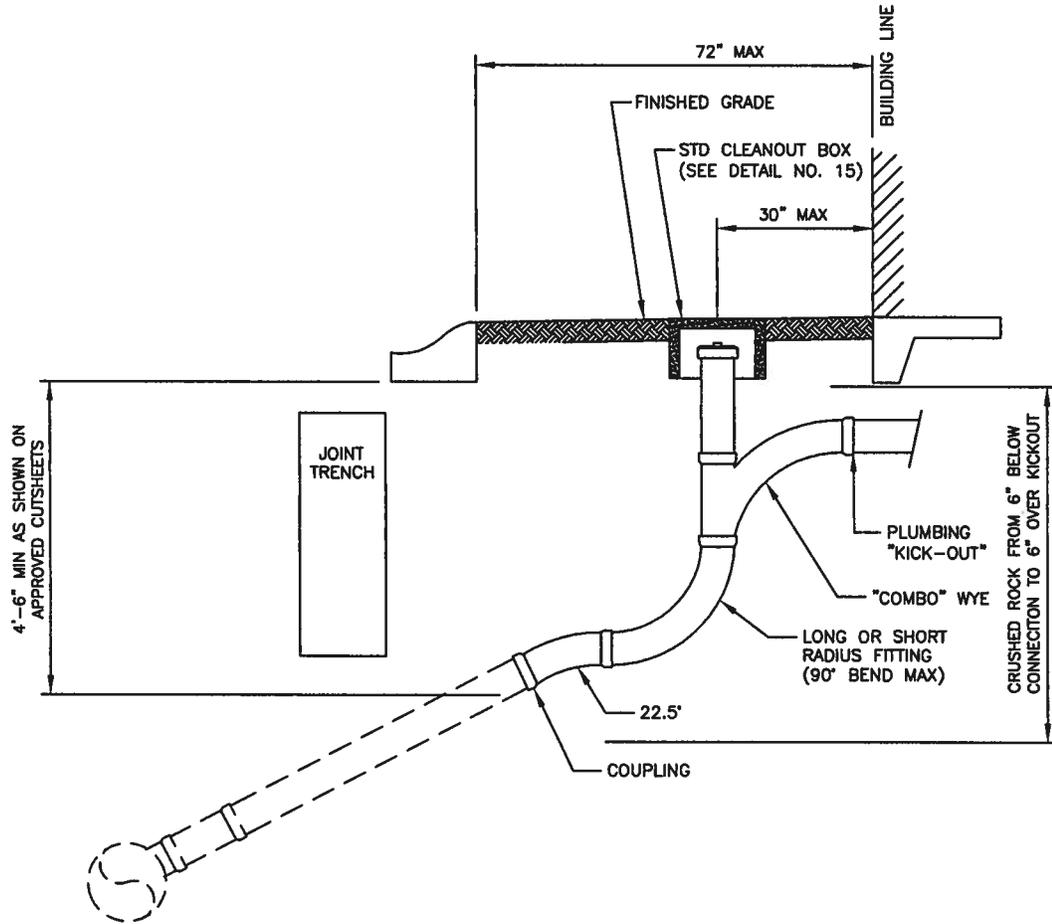


**TYPICAL CONNECTION TO BUILDING SEWER FOR SHALLOW BUILDING PLUMBING "KICK-OUT"**

NOT TO SCALE

**NOTES:**

1. THIS DETAIL MAY APPLY WHEN PROPERTY LINE IS 6' OR LESS FROM BUILDING AND THERE IS AN END RUN CLEANOUT IN THE BUILDING PLUMBING.
2. THE SEWER SHALL BE LAID ON A STRAIGHT GRADE BETWEEN THE MAIN SEWER AND THE PROPERTY LINE.
3. DO NOT INSTALL A PROPERTY LINE CLEANOUT IF THE LENGTH BETWEEN THE PROPERTY LINE AND THE COMBO WYE IS 20' OR LESS.



**BUILDING SEWER CONNECTION  
FOR ZERO LOT LINE BUILDING PLUMBING "KICK-OUT"**

NOT TO SCALE

Date 04-08-14 Detail No. 14B

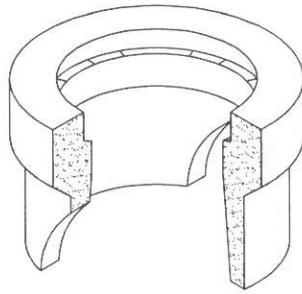
Approved By RICHARD B. CURRIE, RCE 31587



**UNION SANITARY DISTRICT**

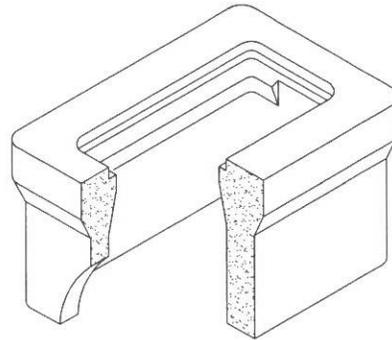
**BUILDING SEWER DETAILS  
ZERO LOT LINE CONNECTION**

**14B**



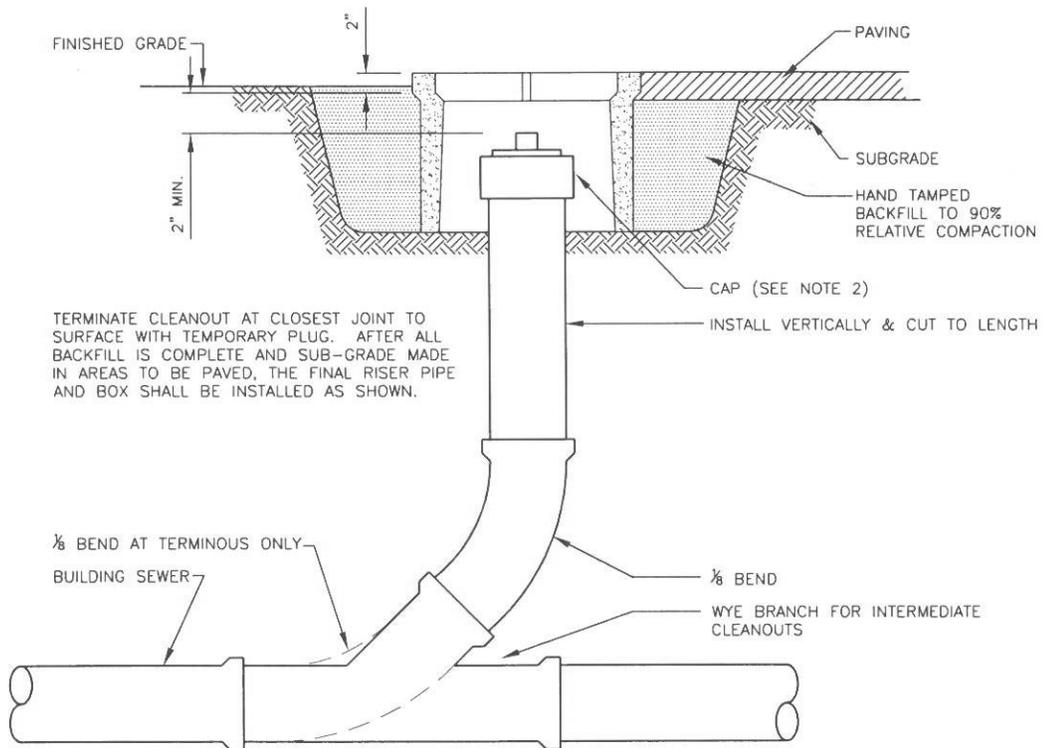
**CIRCULAR CONCRETE BOX**

NOT TO SCALE



**RECTANGULAR CONCRETE BOX**

NOT TO SCALE



**ELEVATION**

NOT TO SCALE

**NOTES:**

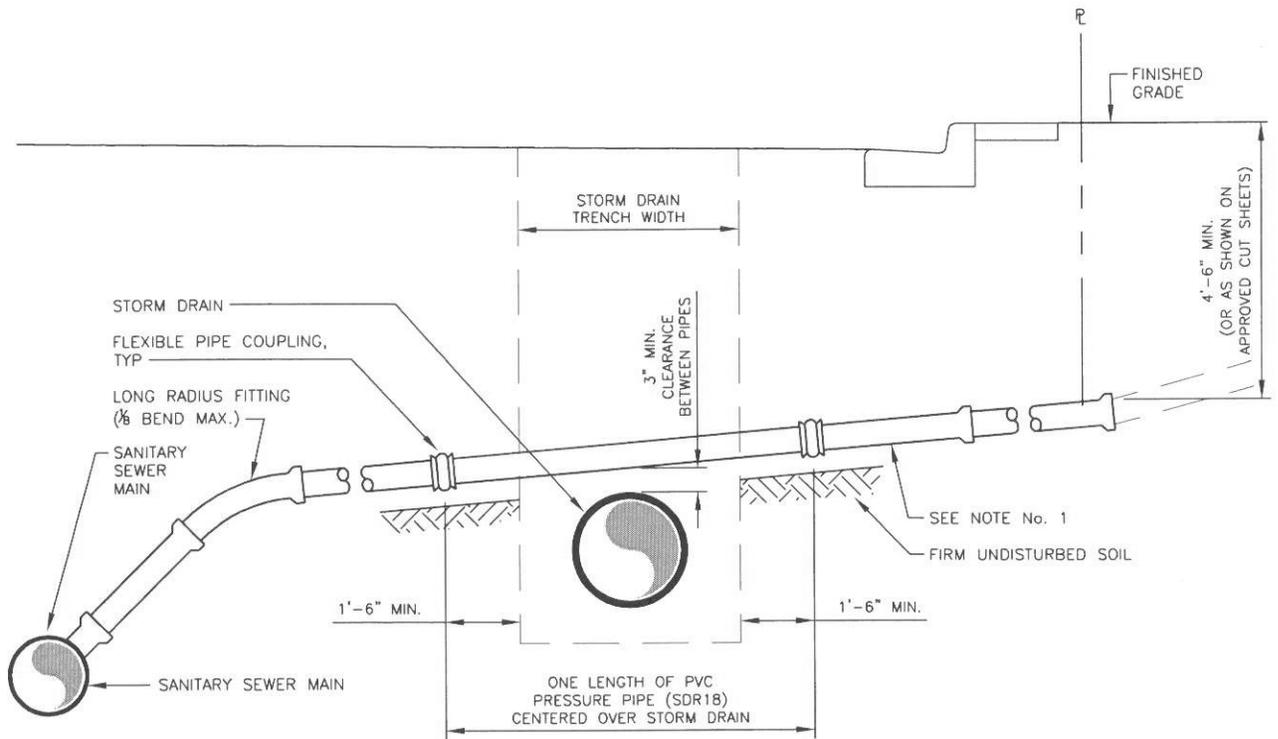
1. RECTANGULAR OR CIRCULAR BOXES ARE PERMITTED.
2. CLEANOUT CAPS SHALL CONSIST OF AN AIRTIGHT THREADED BODY AND CAP.
3. CIRCULAR BOXES INSTALLED IN SIDEWALK AREAS SHALL HAVE A SOLID COVER WITHOUT HOLES.
4. APPROVED RECTANGULAR BOXES ARE:
  - a) CHRISTY CONCRETE PRODUCTS: B3 BOX WITH A B3D CONCRETE LID OR A B3C METAL LID OR
  - b) BROOKS PRODUCTS, INC.: No. 3 METER BOX WITH A No. 3 HEAVY DUTY CONCRETE LID OR A No. 3 CAST IRON TRAFFIC LID. OR AN APPROVED EQUAL.
5. CONCRETE LIDS ARE ACCEPTABLE FOR USE IN NON-VEHICULAR TRAFFIC AREAS, WHILE METAL LIDS MUST BE USED ELSEWHERE. BOLT-DOWN LIDS MAY BE REQUIRED IN CONCRETE WALKWAYS OR DRIVEWAYS.
6. ALL CLEANOUT BOX LIDS SHALL BE MARKED WITH A LETTER "S" OR THE WORD "SEWER".
7. CLEANOUT PIPE SHALL BE THE SAME DIAMETER AS BUILDING SEWER DIAMETER.

Date 5-12-06 Detail No. 15  
 Approved By Richard B. Currie  
 RICHARD B. CURRIE, RCE 31587



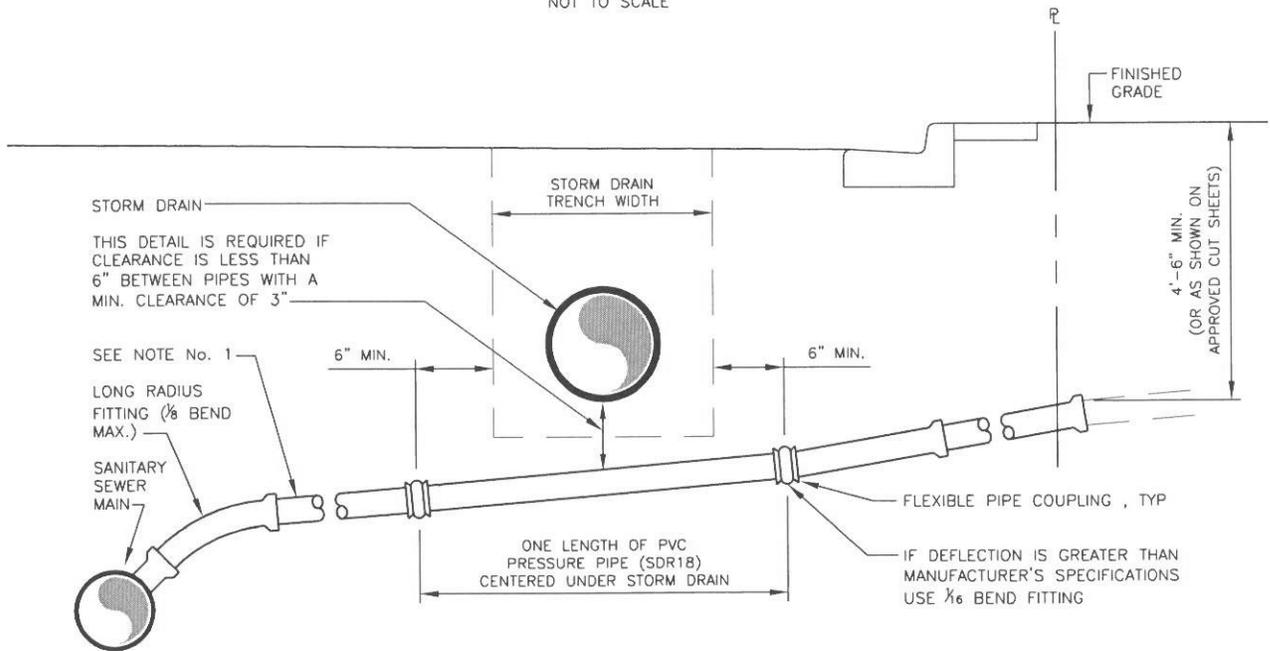
**UNION SANITARY DISTRICT**

**BUILDING SEWER  
 CLEANOUT TO GRADE**



**TYPICAL CROSSING OVER STORM DRAIN**

NOT TO SCALE



**TYPICAL CROSSING UNDER STORM DRAIN**

NOT TO SCALE

**NOTES:**

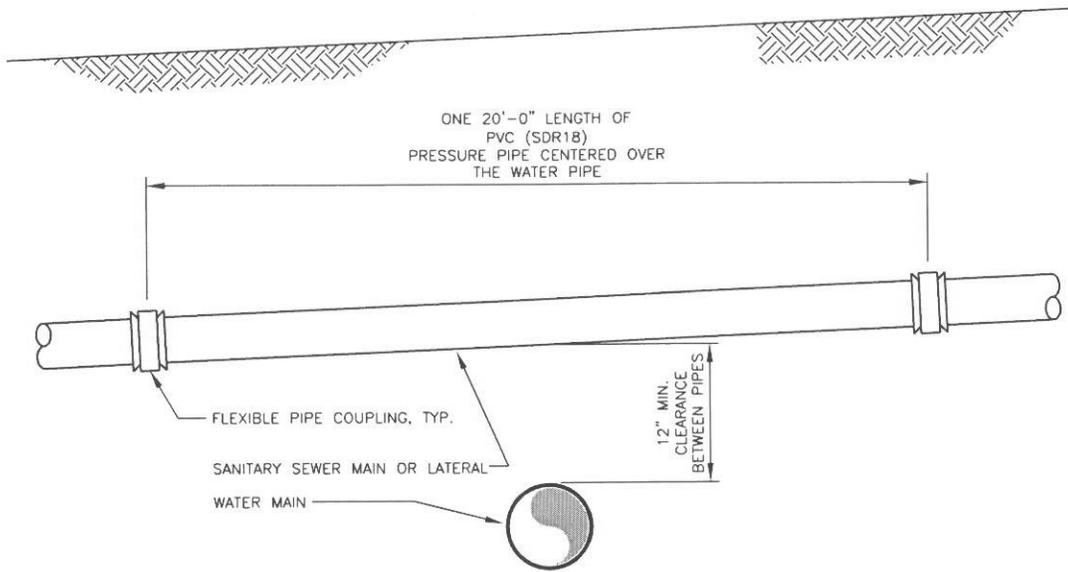
1. THE ABOVE DETAILS ARE TYPICAL FOR MAIN AND BUILDING SEWER WHEN VCP PIPE MATERIAL IS USED.
2. THIS TYPE OF CROSSING MAY BE REQUIRED BY UNION SANITARY DISTRICT WHEN CROSSING CERTAIN OTHER UTILITIES.
3. THE BOTTOM DETAIL IS TYPICAL FOR MAIN AND BUILDING SEWER WHEN PVC PIPE IS USED UNDER STORM SEWER PIPE 48 INCHES IN DIAMETER OR LARGER.

Date 10-25-05 Detail No. 16  
 Approved By Richard B. Currie  
 RICHARD B. CURRIE, RCE 31587



**UNION SANITARY DISTRICT**

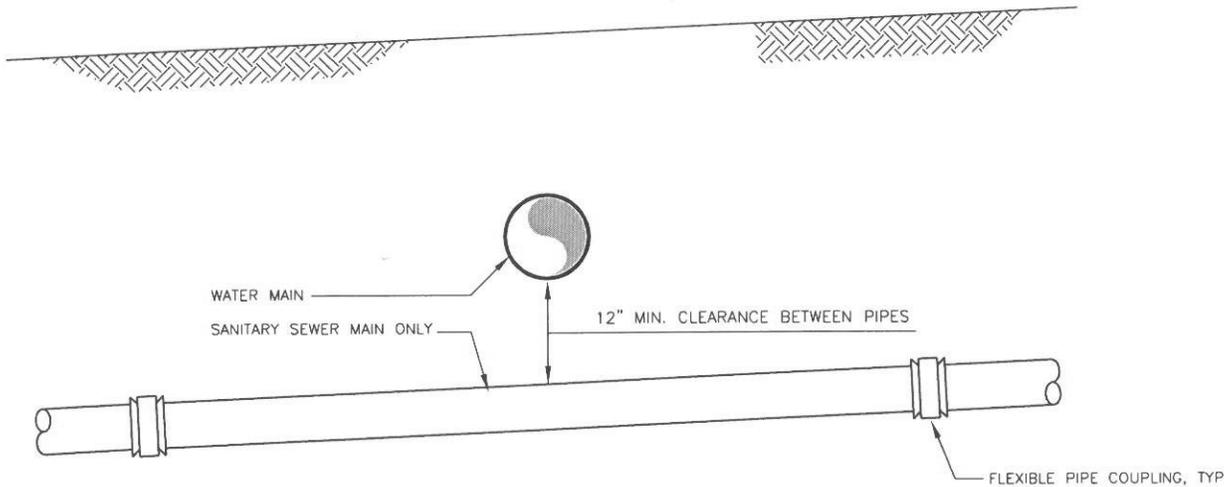
**VCP SANITARY SEWER/STORM  
DRAIN CROSSING**



**TYPICAL CROSSING OVER WATER MAIN**

NOT TO SCALE

NOTE: REQUIRED WHENEVER A SANITARY SEWER MAIN OR LATERAL CROSSES OVER A WATER MAIN



**TYPICAL CROSSING UNDER WATER MAIN**

NOT TO SCALE

Date 10-25-05 Detail No. 17

Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587

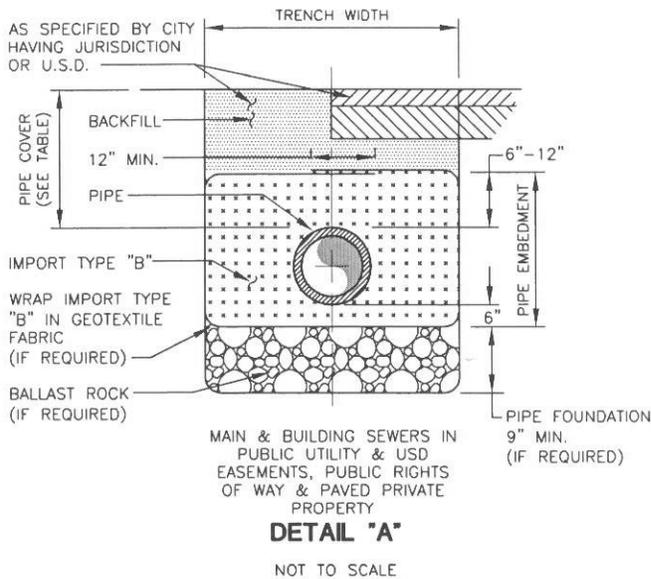


UNION SANITARY DISTRICT

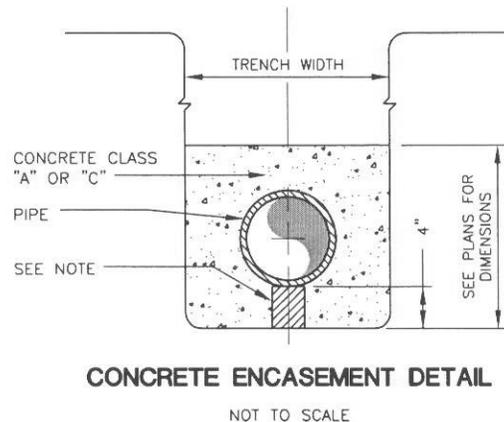
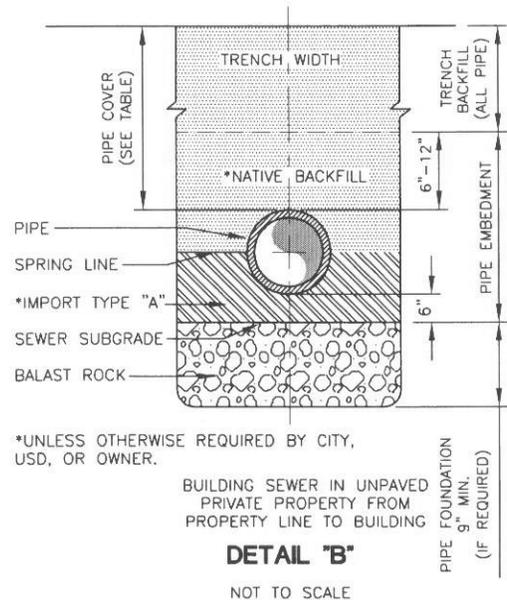
SANITARY SEWER/WATER  
MAIN CROSSING

PIPE COVER LIMITATION TABLE			
PIPE SPECIFICATION - SEE SEC. 5		COVER IN FEET MIN - MAX**	
MATERIAL	TYPE AND MINIMUM CLASS	DETAIL A	DETAIL B
<b>BUILDING SEWERS</b> FROM PROPERTY LINE TO BUILDING IN UNPAVED PRIVATE PROPERTY			
4"-6" VCP		-	2.0 - 30
4"-6" ABS	SOLID WALL	-	2.0 - 30
4"-6" CIP	SOIL PIPE	-	1.0 - 30
4"-6" CIP	DUCTILE (CLASS 50 & 51)	-	0.5 - 30
4"-6" PVC	SOLID WALL (CLASS SDR 18)	-	1.0 - 30
4"-6" PVC	SOLID WALL (CLASS SDR 26)	-	2.0 - 30
<b>BUILDING SEWERS</b> IN PUBLIC UTILITY & U.S.D. EASEMENTS, PUBLIC RIGHTS OF WAY & PAVED PRIVATE PROPERTY			
4"-6" VCP		3.0 - 19	-
4"-6" DIP	DUCTILE (Class 50 & 51)	0.5 - 30	-
4"-6" ABS	SOLID WALL	3.0 - 30	-
4"-6" PVC	SOLID WALL (Class SDR 26)	3.0 - 30	-
<b>MAIN SEWERS</b> IN PUBLIC UTILITY & U.S.D. EASEMENTS, PUBLIC RIGHTS OF WAY & PAVED PRIVATE PROPERTY			
8"-Larger VCP		3.0 - 14	-
8"-Larger DIP	DUCTILE (Class 50 & 51)	0.5 - 30	-
8"-Larger PVC	SOLID WALL (Class SDR 26)	3.0 - 30	-

\*\*WHEN MAXIMUM COVER IS EXCEEDED, APPROVAL BY U.S.D. OF SPECIAL BEDDING REQUIREMENTS IS NECESSARY.



MINIMUM SIZE AND SLOPE LIMITATION TABLE			
SPECIFICATION - SEE SEC. 21 & 22			
PIPE DIAMETER	MINIMUM SLOPE (FT. PER FT.)	COMMENTS	MAXIMUM FIXTURE UNITS
<b>BUILDING SEWER</b> FROM SEWER MAIN TO BUILDING			
4"	0.020	IF MAIN IS NOT OF ADEQUATE DEPTH 0.01 FT/FT IS MINIMUM.	200
6"	0.005		600
6"	0.006		700
6"	0.007		800
6"	0.008		900
6"	0.009		1000
6"	0.010		1200
<b>MAIN SEWERS</b>			
8"	0.0034		---
10"	0.0026		---
12"	0.0020		---
15"	0.0015		---
18"	0.0012		---



NOTE:  
CONCRETE BLOCK OR BRICK ON FIRM UNDISTURBED GROUND BEFORE CONCRETE ENCASUREMENT IS Poured.

Date 10-25-05 Detail No. 18  
Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587



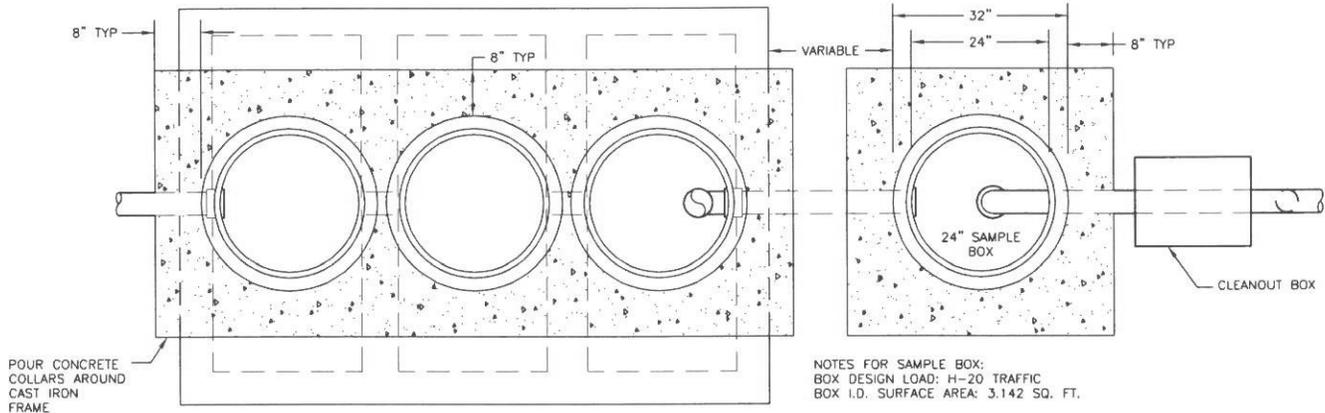
UNION SANITARY DISTRICT

SEWER PIPE INSTALLATION (COVER, SLOPE, SPECIAL BEDDING AND ENCASUREMENT REQUIREMENTS)

18

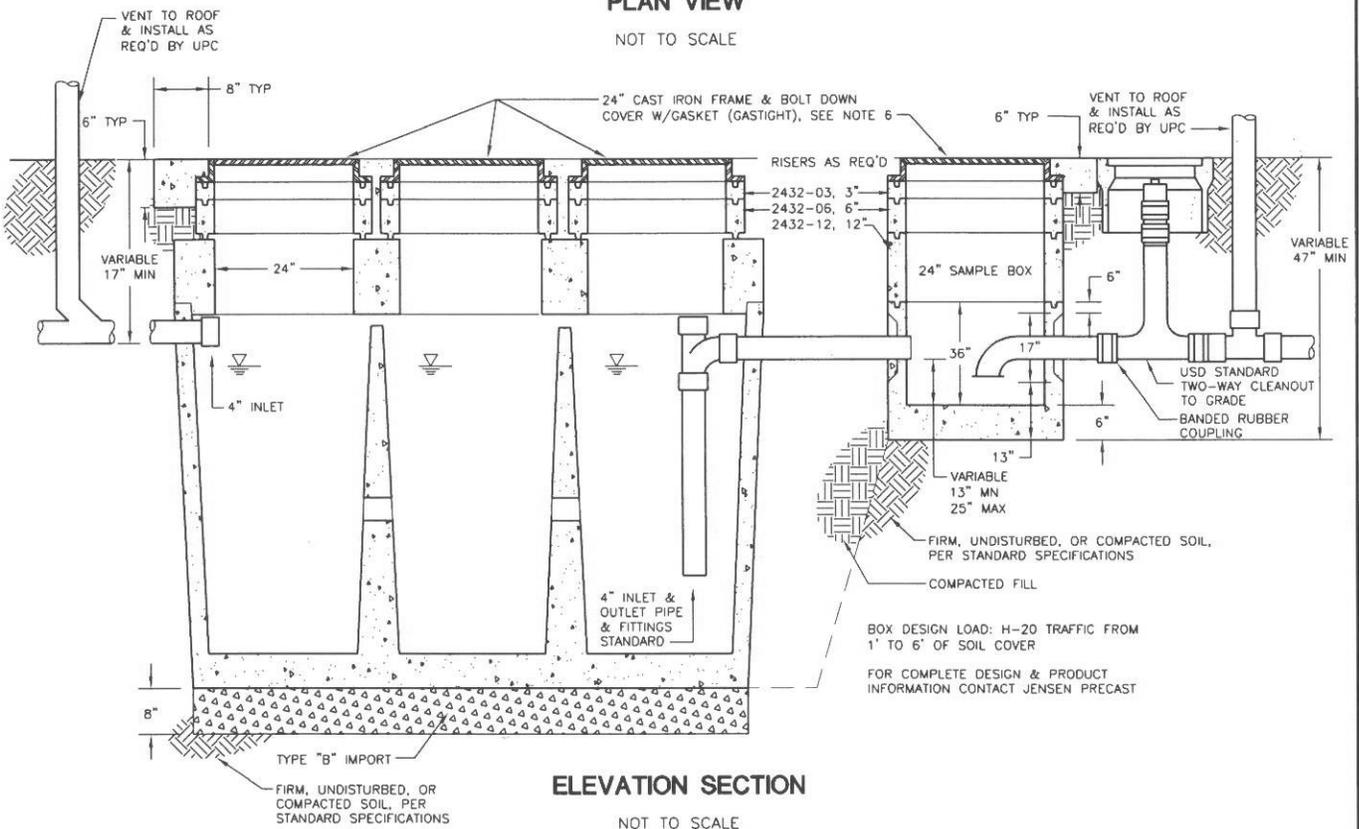
**NOTE TO ENGINEER OR ARCHITECT**

PROVIDE 4" ELEVATION DROP BETWEEN INLET AND OUTLET PIPES THROUGH BOX. SHOW PIPE INVERT ELEVATIONS AT INLET AND OUTLET PLAN.



**PLAN VIEW**

NOT TO SCALE



**ELEVATION SECTION**

NOT TO SCALE

**NOTES:**

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. CIRCULAR LIDS SHALL BE SOUTH BAY FOUNDRY 1900-BD OR APPROVED EQUAL, WITH RAISED "S" OR "SANITARY SEWER".
3. TANK TO BE PLACED ON TYPE "B" IMPORT.
4. HEIGHT OF TANK ABOVE FITTINGS IS VARIABLE, 6 OR 12 INCH SECTIONS MAY BE ADDED TO REACH THE REQUIRED FINISHED GRADE. MORTAR AND BAND BOTH SIDES IN FIELD.
5. ALL CONCRETE JOINTS SHALL BE CLEANED, WETTED AND MORTARED PRIOR TO SETTING NEXT SECTION. THE JOINTS SHALL BE PACKED, TROWELED AND BANDED SMOOTH ON BOTH SIDES OF THE BOX.
6. BOLT EACH OF THE THREE (3) COMPARTMENT COVERS DOWN TO FRAME WITH NOT LESS THAN TWO (2) 7/16" HEX HEAD STEEL BOLTS.
7. UNLESS OTHERWISE APPROVED BY THE CITY OF JURISDICTION, A VENT WILL BE REQUIRED ON THE INLET SIDE OF THE INTERCEPTOR WHEN ITS DISTANCE FROM THE VENT SYSTEM WITHIN THE BUILDING IS GREATER THAN 10 FEET. VENT PIPES ON THE INLET SIDE AND THE OUTLET SIDE MAY BE INSTALLED SEPARATELY OR COMBINED IN CONFORMANCE WITH THE UNIFORM PLUMBING CODE.
8. STRUCTURE SHALL BE MANUFACTURED BY JENSEN PRECAST OR APPROVED EQUAL.
9. PLUMBING THROUGH THE INTERCEPTOR SHALL MATCH LATERAL SIZE.
10. SEE JENSEN PRECAST, OR APPROVED EQUAL, FOR DIMENSIONS OR EQUIVALENT TANK WITH PRIOR APPROVAL OF THE ENGINEER. MAXIMUM TANK SIZE SHALL BE 3,000 GALLONS. MULTIPLE TANKS SHALL BE USED FOR INTERCEPTORS REQUIRING MORE THAN 3,000 GALLON VOLUME.

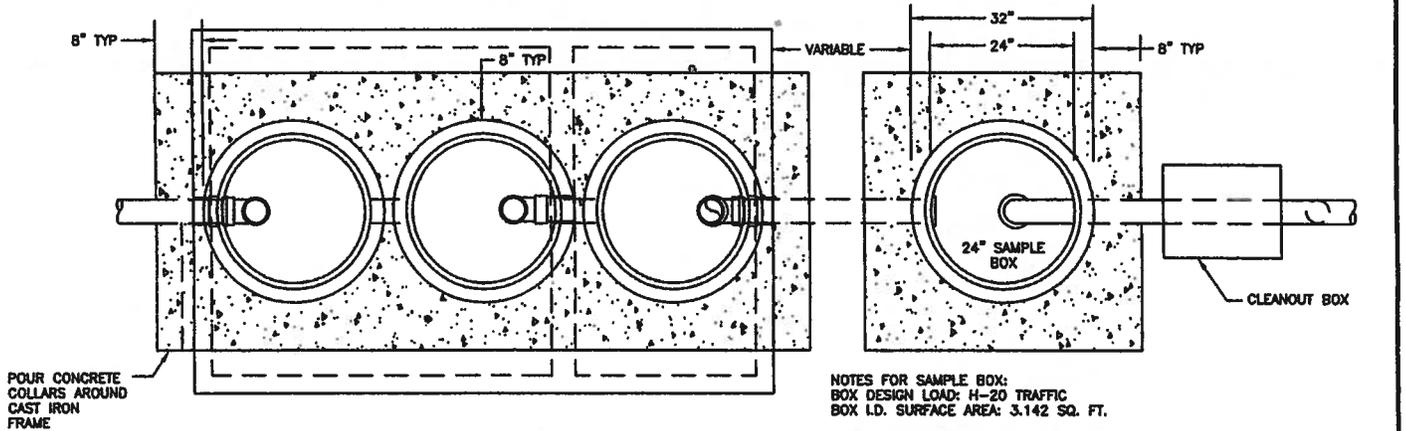
Date 10-25-05 Detail No. 19  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587

**US** UNION SANITARY DISTRICT

**THREE COMPARTMENT SAND & GREASE INTERCEPTOR** 19

**NOTE TO ENGINEER OR ARCHITECT**

PROVIDE 4" ELEVATION DROP BETWEEN INLET AND OUTLET PIPES THROUGH BOX. SHOW PIPE INVERT ELEVATIONS AT INLET AND OUTLET PLAN.

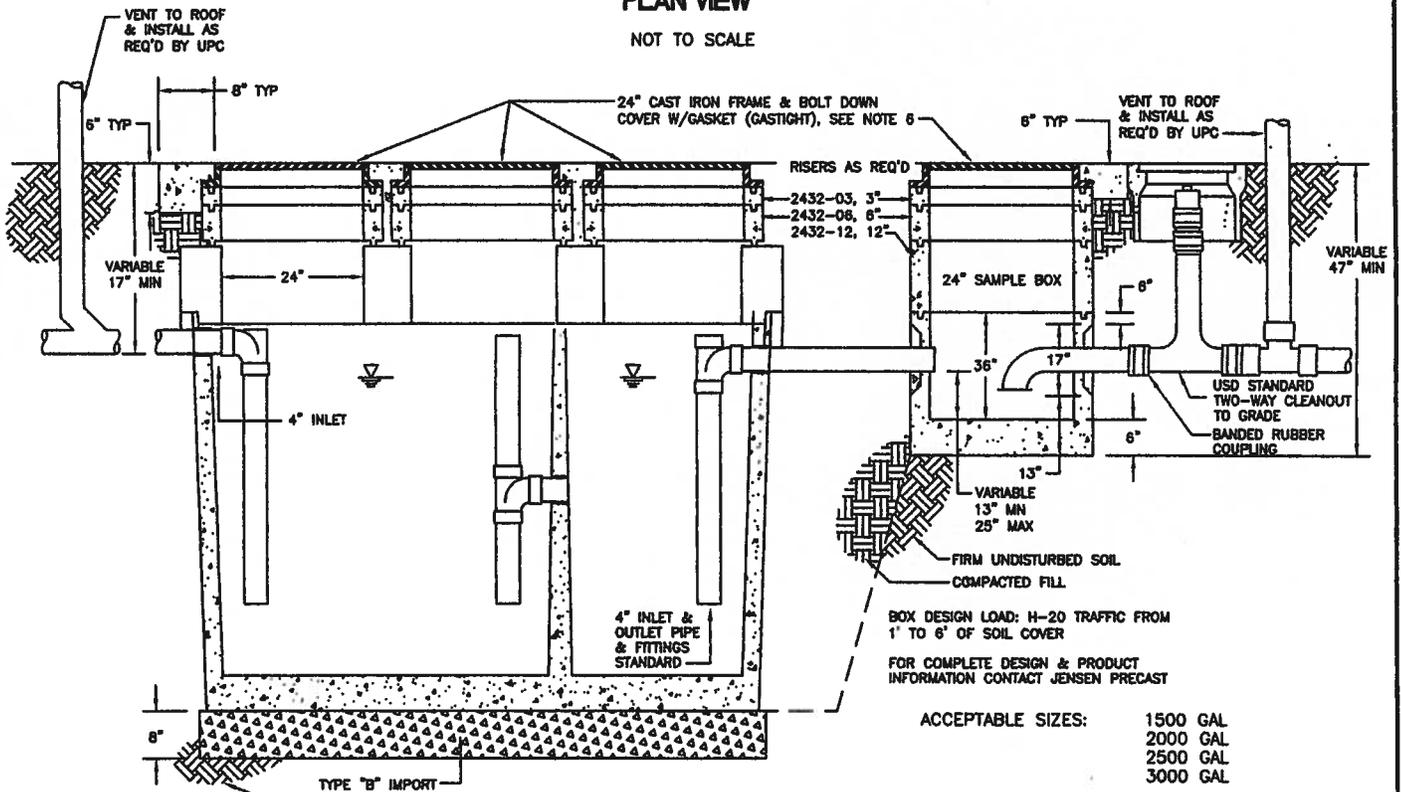


**PLAN VIEW**

NOT TO SCALE

NOTES FOR SAMPLE BOX:  
BOX DESIGN LOAD: H-20 TRAFFIC  
BOX I.D. SURFACE AREA: 3.142 SQ. FT.

SAMPLE BOX MUST BE PLACED ON SUITABLE EARTH IN TRAFFIC CONDITION. FOR COMPLETE DESIGN & PRODUCT INFORMATION CONTACT JENSEN PRECAST



**ELEVATION SECTION**

NOT TO SCALE

ACCEPTABLE SIZES: 1500 GAL  
2000 GAL  
2500 GAL  
3000 GAL

REFER TO STANDARD SPECIFICATIONS SECTION 11.11 FOR SIZING GUIDELINES

**NOTES:**

- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
- CIRCULAR LIDS SHALL BE SOUTH BAY FOUNDRY 1900-BD OR APPROVED EQUAL, WITH RAISED "S" OR "SANITARY SEWER".
- TANK TO BE PLACED ON TYPE "B" IMPORT.
- HEIGHT OF TANK ABOVE FITTINGS IS VARIABLE, 6 OR 12 INCH SECTIONS MAY BE ADDED TO REACH THE REQUIRED FINISHED GRADE. MORTAR AND BAND BOTH SIDES IN FIELD.
- ALL CONCRETE JOINTS SHALL BE CLEANED, WETTED AND MORTARED PRIOR TO SETTING NEXT SECTION. THE JOINTS SHALL BE PACKED, TROWELED AND BANDED SMOOTH ON BOTH SIDES OF THE BOX.
- BOLT EACH OF THE THREE (3) COMPARTMENT COVERS DOWN TO FRAME WITH NOT LESS THAN TWO (2) 3/8" HEX HEAD STEEL BOLTS.
- UNLESS OTHERWISE APPROVED BY THE CITY OF JURISDICTION, A VENT WILL BE REQUIRED ON THE INLET SIDE OF THE INTERCEPTOR WHEN ITS DISTANCE FROM THE VENT SYSTEM WITHIN THE BUILDING IS GREATER THAN 10 FEET. VENT PIPES ON THE INLET SIDE AND THE OUTLET SIDE MAY BE INSTALLED SEPARATELY OR COMBINED IN CONFORMANCE WITH THE UNIFORM PLUMBING CODE.
- STRUCTURE SHALL BE MANUFACTURED BY JENSEN PRECAST OR APPROVED EQUAL.
- PLUMBING THROUGH THE INTERCEPTOR SHALL MATCH LATERAL SIZE.
- SEE JENSEN PRECAST, OR APPROVED EQUAL, FOR DIMENSIONS OR EQUIVALENT TANK WITH PRIOR APPROVAL OF THE ENGINEER. MAXIMUM TANK SIZE SHALL BE 3,000 GALLONS. MULTIPLE TANKS SHALL BE USED FOR INTERCEPTORS REQUIRING MORE THAN 3,000 GALLON VOLUME.

Date 6-02-08 Detail No. 19B

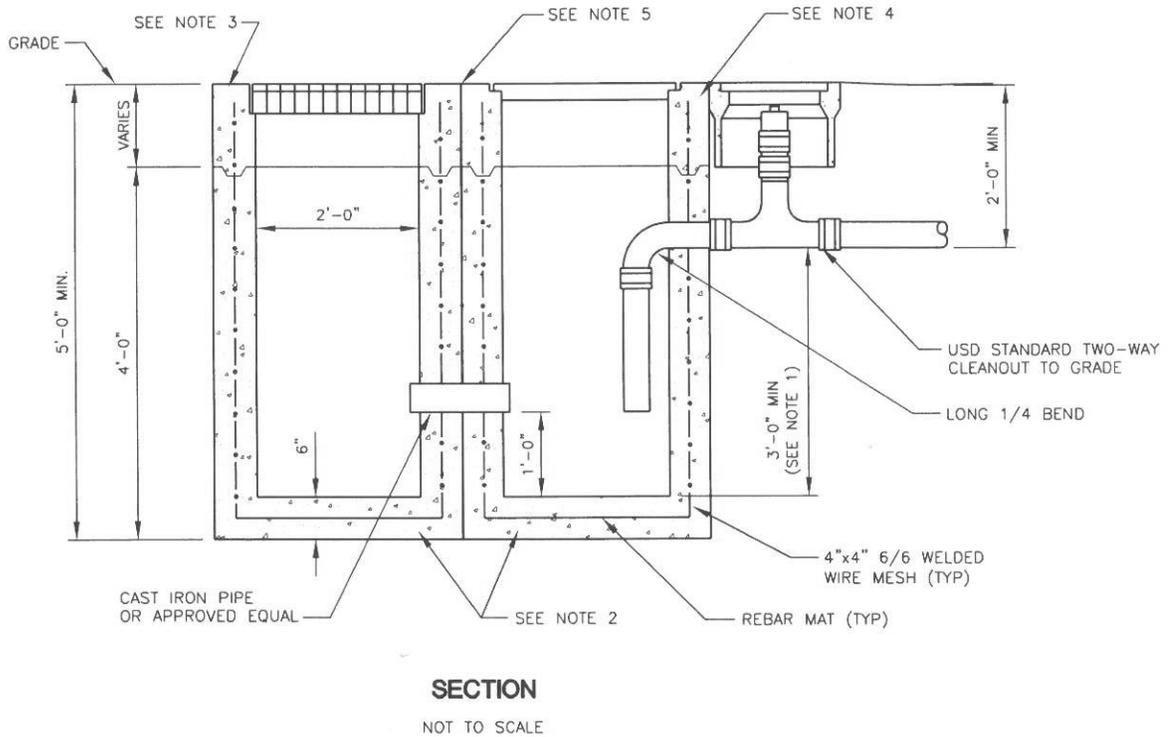
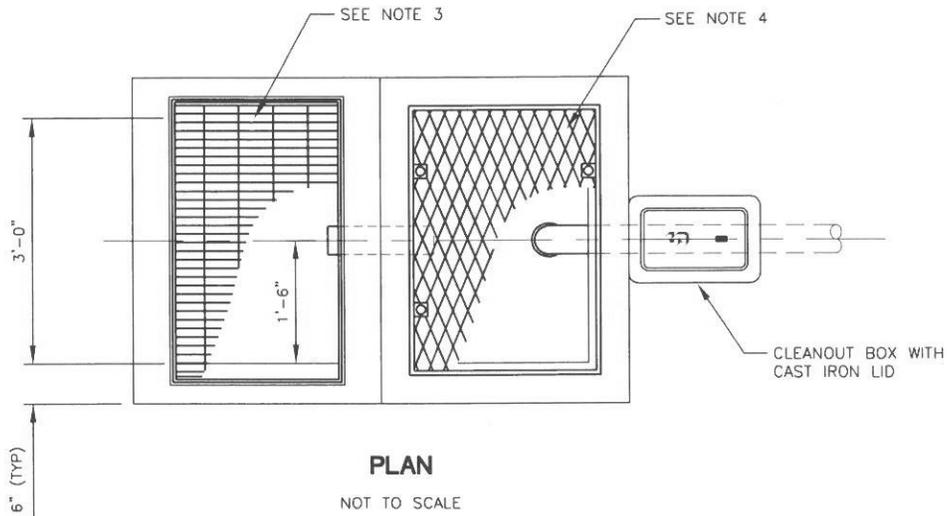
Approved By RICHARD B. CURRIE, RCE 31587



UNION SANITARY DISTRICT

TWO COMPARTMENT GREASE INTERCEPTOR

19B



**NOTES:**

1. DIMENSION AS SHOWN UNLESS OTHERWISE SPECIFIED BY USD.
2. TWO (2) U32 CATCH BASIN BOXES AS MANUFACTURED BY CHRISTY CONCRETE PRODUCTS, INC., 44100 CHRISTY STREET, FREMONT, CA 94538 OR AN APPROVED EQUAL.
3. ONE (1) U32 CATCH BASIN GRADE RING WITH A FRAME NO. U32 CAST IN PLACE WITH A WELDED STEEL GALVANIZED GRATE NO. U32 HT (HIGH TRAFFIC) AS MANUFACTURED OR SUPPLIED BY THE COMPANY IN NOTE NO. 2 OR AN APPROVED EQUAL.
4. ONE (1) U32 CATCH BASIN GRADE RING WITH A VAULT FRAME CAST IN PLACE AND A GALVANIZED STEEL VAULT COVER NO. T32-51JH (H-20, GALV.) BOTH WITH BOLT DOWN PROVISIONS AS MANUFACTURED OR SUPPLIED BY THE COMPANY IN NOTE NO. 2 OR AN APPROVED EQUAL.
5. EPOXY BOTH BOXES TOGETHER IN THE FIELD WITH A TWO-COMPONENT, 100% SOLIDS EPOXY RESIN.
6. PLUMBING THROUGH SUMP SHALL MATCH LATERAL SIZE.

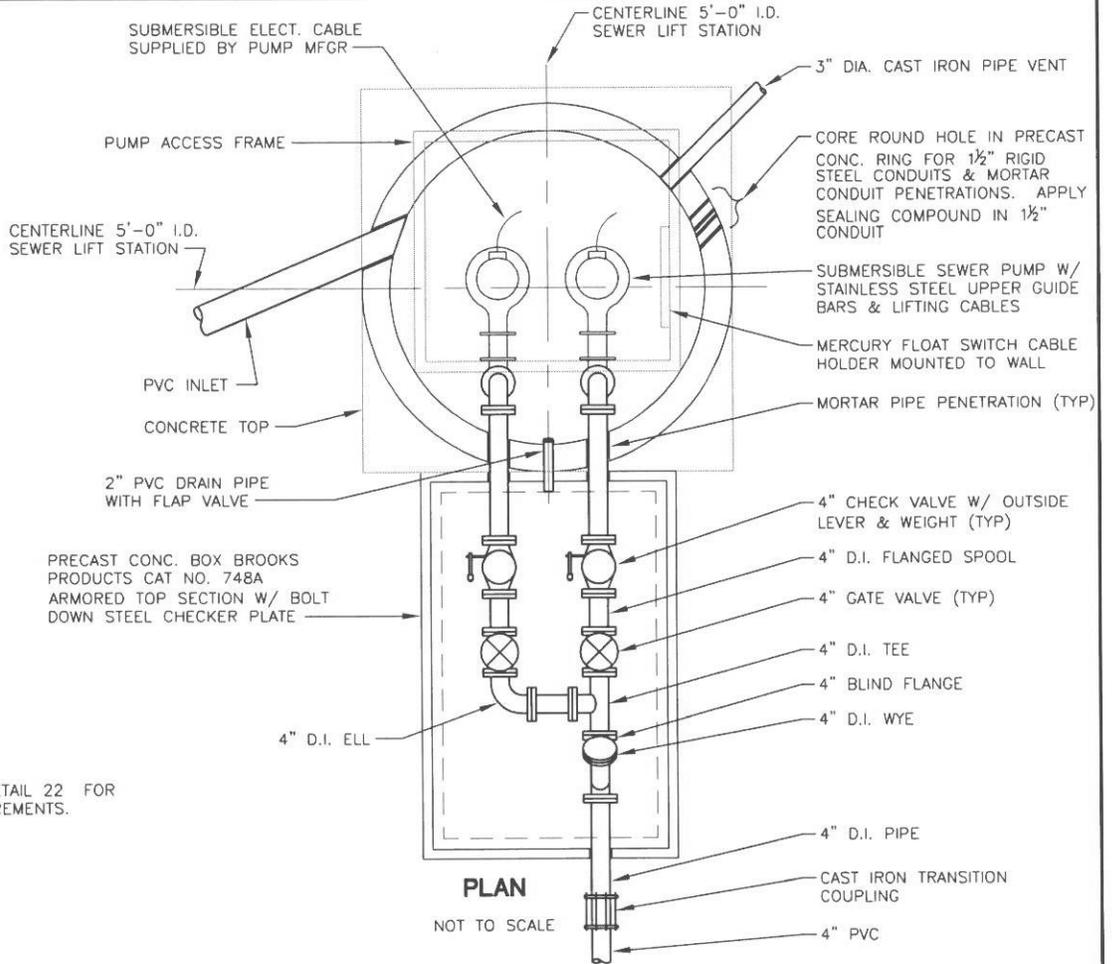
Date 10-25-05 Detail No. 20  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587



**UNION SANITARY DISTRICT**

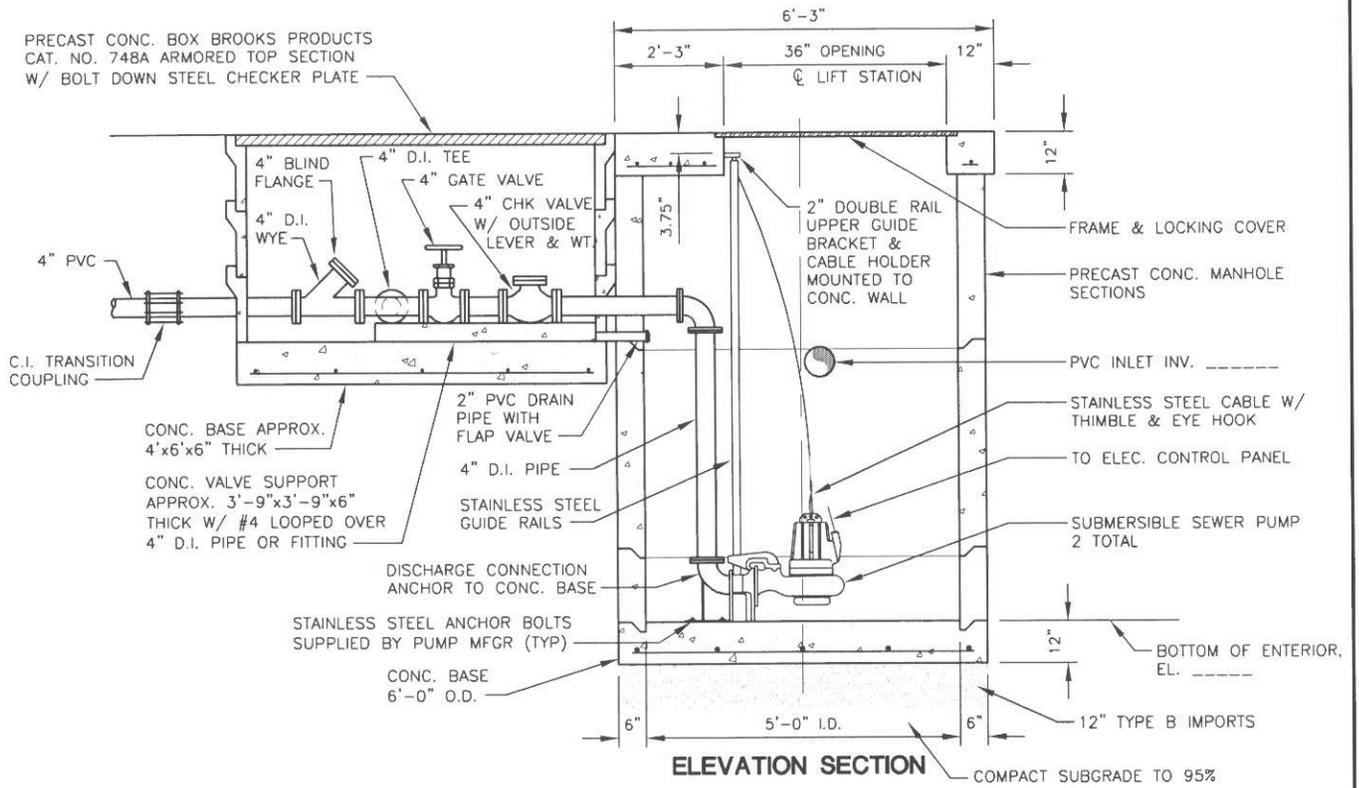
**TWO COMPARTMENT SUMP**

**20**



NOTE: SEE NOTES ON DETAIL 22 FOR ADDITIONAL REQUIREMENTS.

**PLAN**  
NOT TO SCALE



**ELEVATION SECTION**  
NOT TO SCALE

Date 5-12-06 Detail No. 21

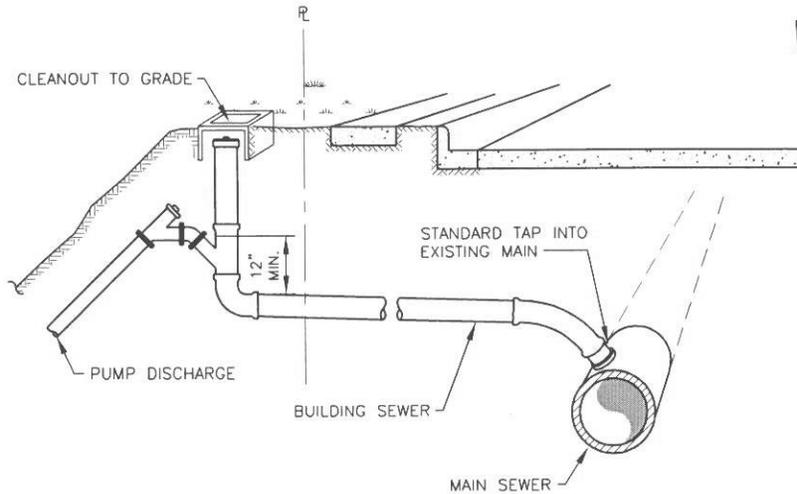
Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587



UNION SANITARY DISTRICT

PRIVATE PUMPING STATION  
PLAN AND ELEVATION SECTION

21



### ELEVATION SECTION

NOT TO SCALE

**NOTES:**

1. THE MINIMUM REQUIREMENTS FOR A PRIVATE PUMPING SYSTEM CONNECTING TO THE DISTRICT'S SYSTEM ARE SPECIFIED IN THE FOLLOWING PARAGRAPHS.
2. THE DISTRICT ACCEPTS NO RESPONSIBILITY FOR THE DESIGN, OPERATION OR MAINTENANCE OF SUCH PRIVATELY-OWNED AND OPERATED SYSTEMS.
3. ALL EQUIPMENT AND ACCESSORIES SHALL BE STANDARD MANUFACTURED ITEMS AND THOSE COMING IN DIRECT CONTACT WITH SEWAGE SHALL BE SPECIFICALLY MANUFACTURED FOR SEWAGE USE.
4. WHEN INSTALLED OUTSIDE OF A BUILDING, THE MOTOR, CONTROLS AND VALVES SHALL BE READILY ACCESSIBLE FOR MAINTENANCE YET PROTECTED AND SHELTERED BY A WEATHER-PROOF, WELL VENTILATED ENCLOSURE SECURED AGAINST TAMPERING.

**PUMPS:**

THE PUMPS SHALL BE A CENTRIFUGAL, SUBMERSIBLE, NON-CLOG TYPE. THE IMPELLER SHALL BE CAPABLE OF PASSING A TWO (2) INCH SPHERE. THE MINIMUM PUMP DISCHARGE SHALL BE THREE (3) INCHES IN DIAMETER. THE PUMP CAPACITY AGAINST THE REQUIRED HEAD SHALL BE APPROVED BY THE DISTRICT.

SUBMERSIBLE PUMPS MUST BE U.L. RATED AS EXPLOSION PROOF. PUMP REQUIREMENTS INSOFAR AS SOLIDS HANDLING CAPACITY AND PUMP RATE AND HEAD, MUST CONFORM TO BASIC STANDARDS REQUIRED FOR STANDARD WET PIT INSTALLATIONS.

PUBLIC USAGE INSTALLATIONS (AS DEFINED IN THE UNIFORM PLUMBING CODE) WILL REQUIRE DUAL PUMPS MEETING ABOVE DESIGN STANDARDS AND ARRANGED TO FUNCTION INDEPENDENTLY IN CASE OF OVERLOAD OR MECHANICAL FAILURE.

**PUMP SUMP:**

THE PUMP SUMP TANK SHALL BE SIXTY (60) INCHES IN DIAMETER AND THE DEPTH SHALL BE AS REQUIRED TO EXTEND SIX (6) INCHES ABOVE GROUND AND THREE (3) FEET BELOW THE INLET PIPE (UNLESS OTHERWISE APPROVED BY THE DISTRICT). THE PUMP SUMP SHALL BE REINFORCED CONCRETE.

**ELECTRIC POWER SERVICE:**

THE POWER REQUIREMENTS SHALL BE AS RECOMMENDED BY THE PACIFIC GAS AND ELECTRIC COMPANY. THE NAME PLATE HORSEPOWER SHALL BE GREATER THAN THE BRAKE HORSEPOWER NECESSARY TO OPERATE THE PUMP AT THE TOTAL REQUIRED HEAD AND SHALL NOT OVERLOAD IF OPERATING HEAD SHOULD DROP 30%.

**ELECTRICAL WORK AND CONTROL:**

ALL ELECTRICAL WORK AND CONTROLS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY HAVING JURISDICTION. THE ELECTRICAL CONTROLS SHALL PROVIDE ADEQUATE PROTECTION FOR THE MOTOR AND EQUIPMENT.

**FLOAT SWITCH ASSEMBLY:**

THE LEVEL CONTROL SWITCH SHALL HAVE GAS TIGHT MOUNTINGS WITH A NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION ONE (1) SWITCH ENCLOSURE.

**VENT FOR PUMP SUMP:**

WHERE SYSTEM IS LOCATED WITHIN THE DWELLING, A VENT SHALL BE PROVIDED AS REQUIRED BY LOCAL CODES. WHERE SYSTEM IS LOCATED OUTSIDE THE DWELLING, A THREE (3) INCH OR LARGER VENT SHALL BE EXTENDED TO A POINT TEN (10) FEET ABOVE THE PUMP SUMP COVER AND HAVE A RETURN BEND AT TOP.

**DISCHARGE LINE:**

THE PRESSURE PORTION OF THE DISCHARGE LINE, INCLUDING THE CHECK VALVE, GATE VALVE AND FLEXIBLE COUPLINGS SHALL BE EQUAL IN SIZE TO THE PUMP DISCHARGE. THE PIPE SHALL BE DUCTILE IRON OR APPROVED EQUAL SUITABLE FOR DESIGN PRESSURES. THE CHECK VALVE SHALL BE A STOCKHAM G-927 OR APPROVED EQUAL. THE GATE VALVE SHALL BE A STOCKHAM G-608 OR APPROVED EQUAL. THE FLEXIBLE COUPLING SHALL BE A STYLE 38 DRESSER COUPLING OR APPROVED EQUAL.

THE GRAVITY PORTION OF THE DISCHARGE LINE SHALL BE FOUR (4) INCH MINIMUM DIAMETER PIPE AND SHALL MEET THE DISTRICT REQUIREMENTS FOR BUILDING SEWERS.

**SUBMITTAL REQUIRED FOR DISTRICT APPROVAL:**

THE OWNER OR CONTRACTOR SHALL SUBMIT TO THE DISTRICT FOR APPROVAL A COMPLETE DESIGN SUBMITTAL, INCLUDING HYDRAULIC CALCULATIONS, LIST OF EQUIPMENT AND ACCESSORIES TO BE INSTALLED AND PUMP CURVES PRIOR TO DISTRICT ISSUANCE OF A BUILDING SEWER PERMIT. SUBMITTAL SHALL BE STAMPED BY A LICENSED CIVIL OR MECHANICAL ENGINEER.

Date 10-25-05 Detail No. 22

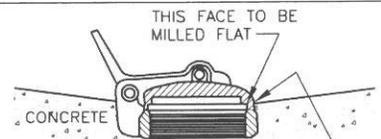
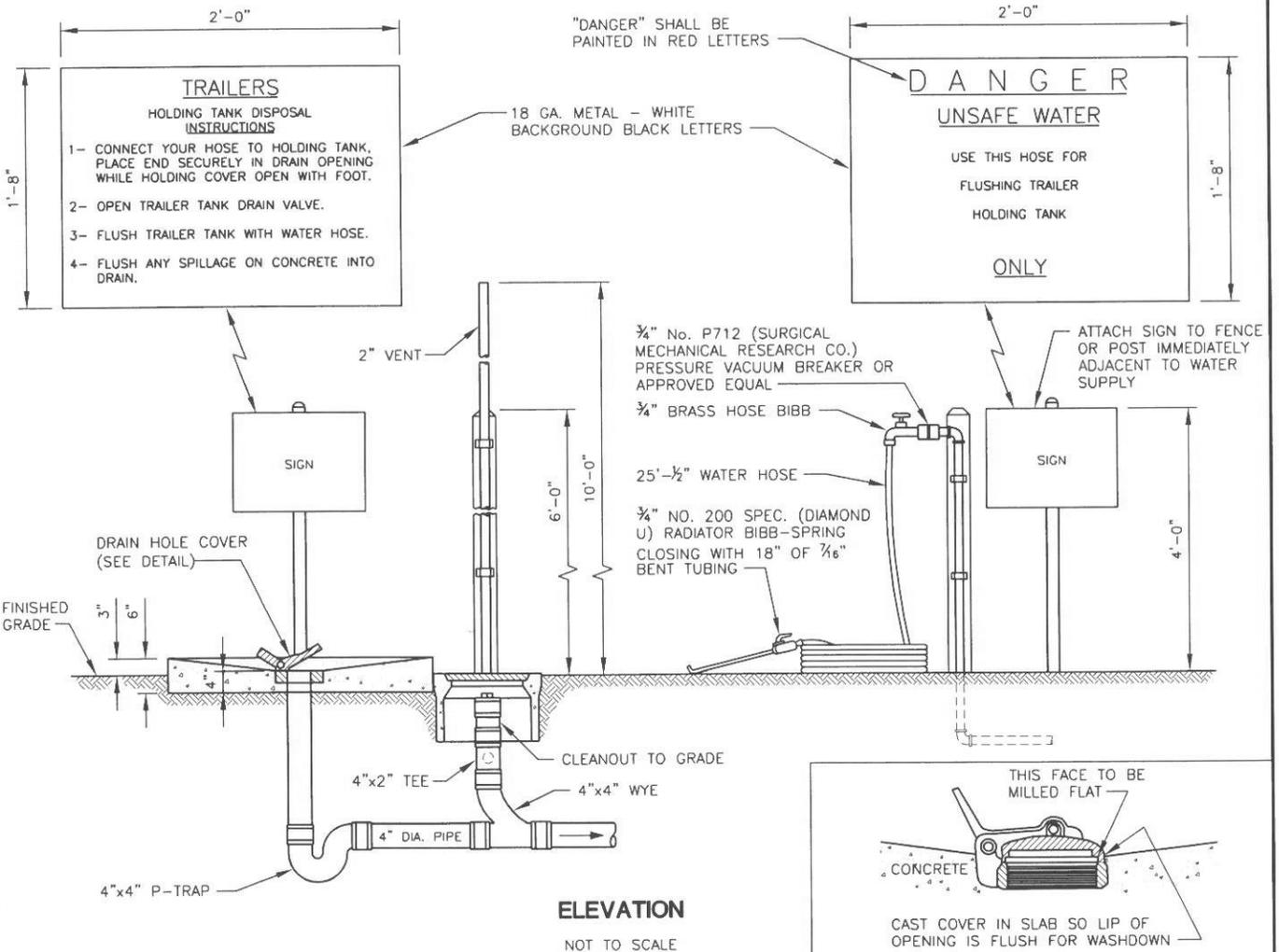
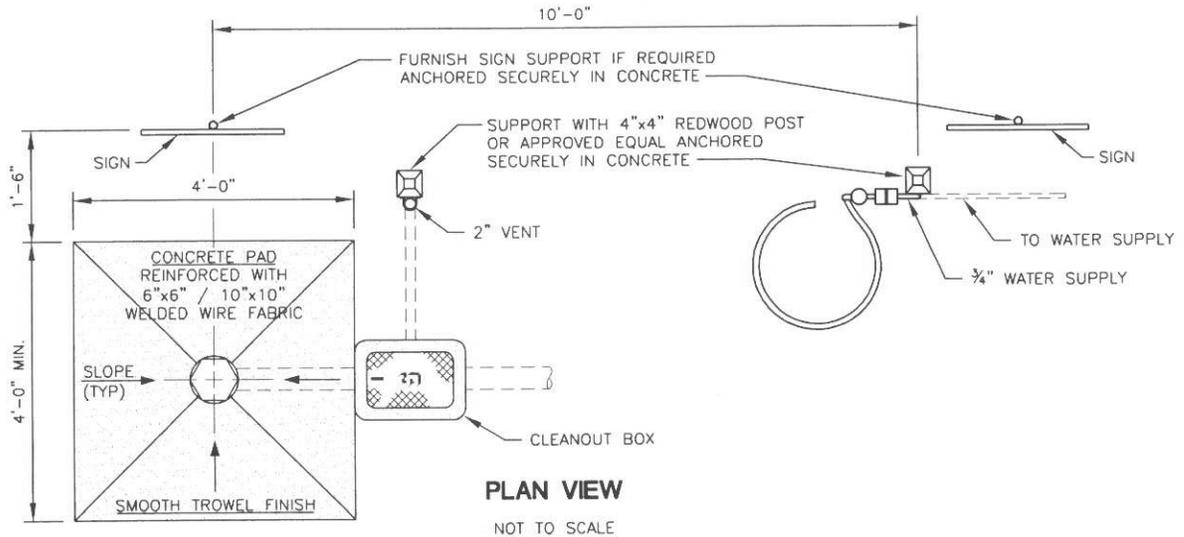
Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587



UNION SANITARY DISTRICT

PRIVATE PUMPING STATION  
CONNECTION TO MAIN AND NOTES

22



CAST COVER IN SLAB SO LIP OF OPENING IS FLUSH FOR WASHDOWN

VAREC FIG 46 MODIFIED DRAIN HOLE COVER FOOT OPERATED, CAST IRON BODY, BRONZE COVER, TIGHT AT 3.5 OZ. PRESSURE OR AN APPROVED EQUAL.

**DRAIN HOLE COVER DETAIL**  
NOT TO SCALE

Date 10-25-05 Detail No. 23

Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587



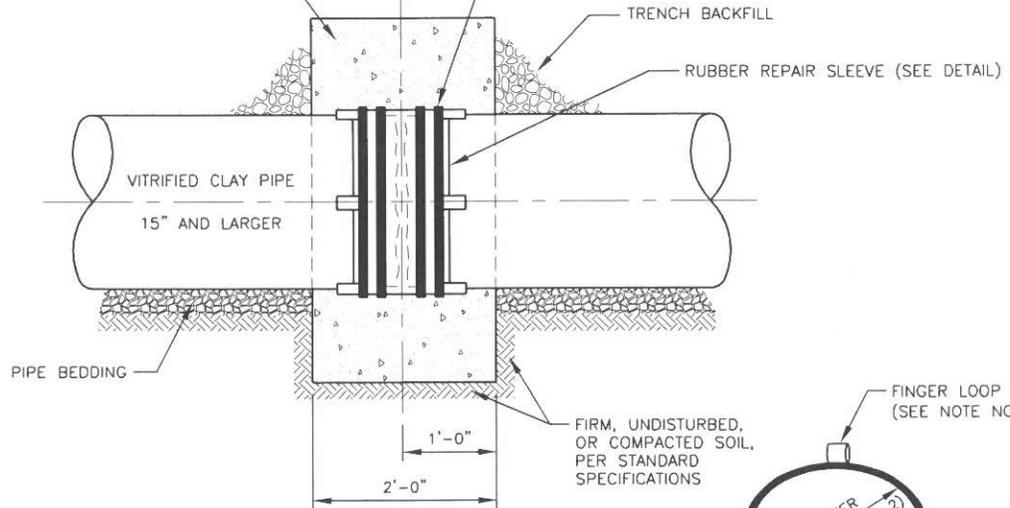
UNION SANITARY DISTRICT

MOBILE HOME HOLDING  
TANK DISPOSAL FACILITY

23

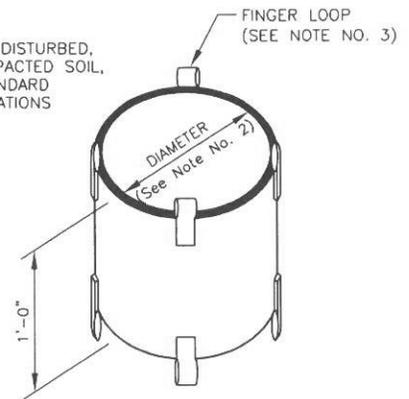
CLASS "A" CONCRETE FORMED & POURED IN PLACE (IF REQUIRED BY ENGINEER)

STAINLESS STEEL BANDING MATERIAL (4 REQUIRED)



**PLAN**

NOT TO SCALE



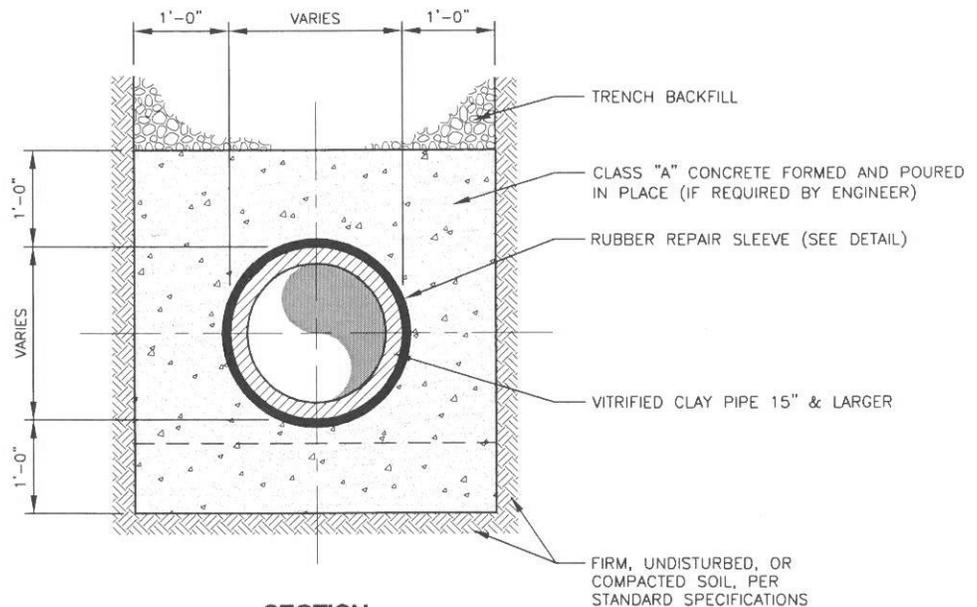
**RUBBER REPAIR SLEEVE**

**DETAIL**

NOT TO SCALE

**NOTES:**

1. REPAIR SLEEVE SHALL BE MADE OF RUBBER REINFORCED WITH ONE OR TWO PLYS OF TIRE CORD AS MANUFACTURED BY VANDELANS & SONS, P.O. BOX 758, 1320 SOUTH SACRAMENTO STREET, LODI, CA. 95241, OR APPROVED EQUAL.
2. THE INSIDE DIAMETER OF THE RUBBER REPAIR SLEEVE SHALL BE  $\frac{1}{8}$ " LARGER THAN THE OUTSIDE DIAMETER OF THE VITRIFIED CLAY PIPE.
3. FINGER LOOPS SHALL BE  $1 \frac{1}{2}$ " WIDE RUBBER REINFORCED WITH ONE PLY OF TIRE CORD AND THE FINGER LOOPS SHALL BE VULCANIZED TO THE RUBBER REPAIR SLEEVE. (4 REQUIRED EACH END AND EQUALLY SPACED AROUND THE CIRCUMFERENCE OF THE REPAIR SLEEVE).



**SECTION**

NOT TO SCALE

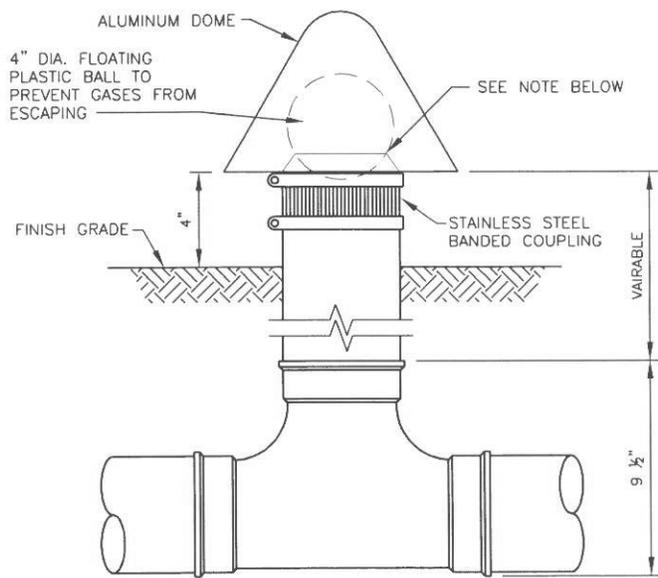
Date 10-25-05 Detail No. 24

Approved By *Richard B. Currie*  
RICHARD B. CURRIE, RCE 31587



UNION SANITARY DISTRICT

REPAIR COUPLING FOR VCP  
15" DIAMETER AND LARGER

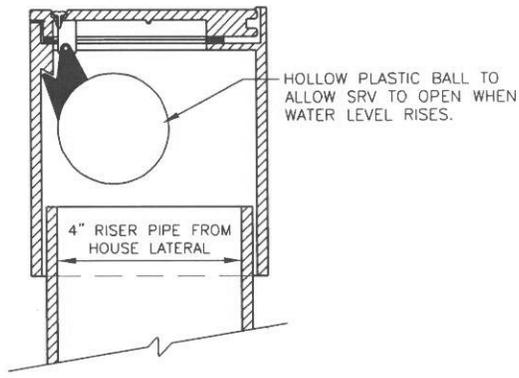


NOTE:  
INSTALL THE DEVICE SUCH THAT THE BALL SEAT IS LOWER THAN THE ELEVATION OF THE LOWEST PLUMBING FIXTURE ATTACHED TO THE BUILDING DRAINS.

**BACKWATER OVERFLOW DEVICE AND TWO-WAY CLEANOUT**



**PLAN**  
NOT TO SCALE



**SECTION A-A**  
NOT TO SCALE

NOTE:  
INSTALL THE SEWER RELIEF VALVE IN A LEVEL POSITION ABOVE A STANDARD TWO-WAY CLEANOUT SUCH THAT THE TOP OF THE RELIEF VALVE COVER IS LOWER THAN THE ELEVATION OF THE LOWEST PLUMBING FIXTURE ATTACHED TO THE BUILDING DRAINS.

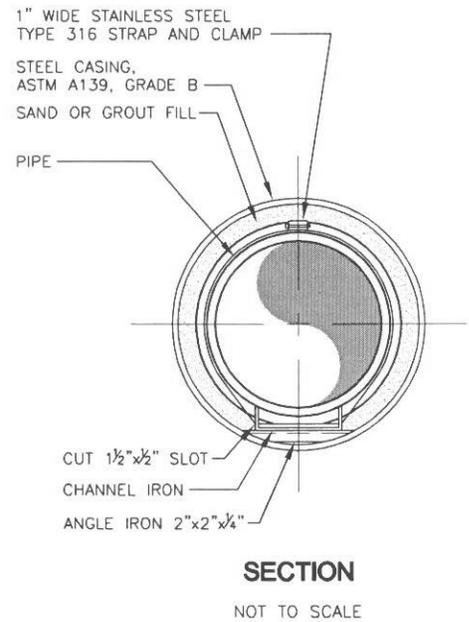
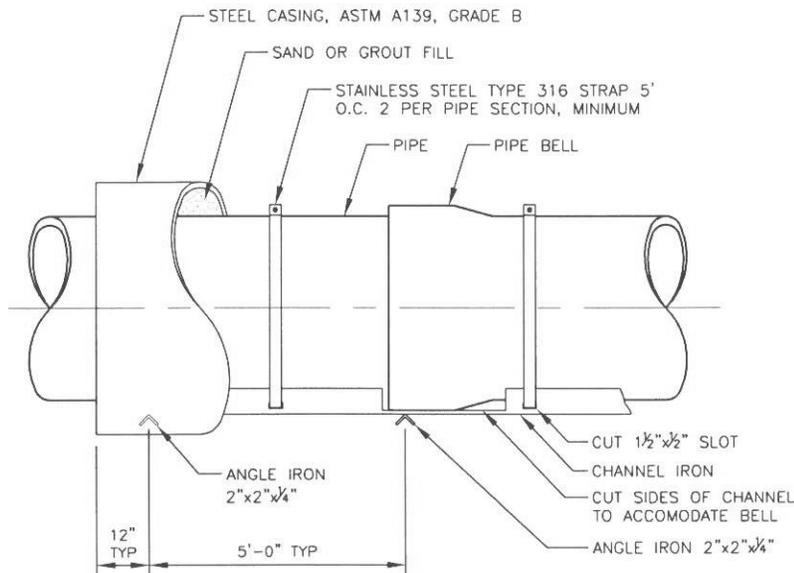
**SEWER RELIEF VALVE**

- NOTES:
1. WHEN AN OVERFLOW DEVICE IS REQUIRED AT THE PROPERTY LINE OR DRIVEWAY, THE SEWER RELIEF VALVE SHALL BE INSTALLED IN A CONCRETE BOX.
  2. APPROVED CONCRETE BOXES ARE:
    - a) CHRISTY CONCRETE PRODUCTS: V9 RECTANGULAR DRAIN BOX WITH V9-71C GRATE LID
    - b) CHRISTY CONCRETE PRODUCTS: V1 CIRCULAR DRAIN BOX WITH A V1-71C GRATE LID

Date 10-25-05 Detail No. 25  
Approved By Richard B. Currie  
RICHARD B. CURRIE, RCE 31587

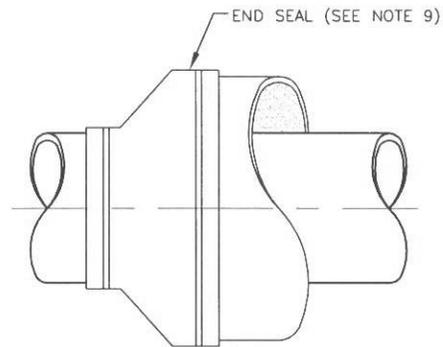
**UNION SANITARY DISTRICT**

**OVERFLOW DEVICE**



**TYPICAL CASING PIPE DETAIL**

NOT TO SCALE



**END SEAL**

NOT TO SCALE

**NOTES:**

1. CASING SHALL BE STEEL, ASTM A139, GRADE B, MINIMUM ½" NOMINAL THICKNESS. CASING INSIDE DIAMETER SHALL BE 30" OR 12" LARGER THAN OUTSIDE DIAMETER OF CARRIER PIPE BELL, WHICHEVER IS GREATER.
2. EACH CASING JOINT SHALL BE WELDED ALL AROUND.
3. CASING SHALL BE INSTALLED BY JACKING AND BORING.
4. ANNULAR SPACE BETWEEN INSIDE OF CASING AND OUTSIDE OF CARRIER PIPE SHALL BE COMPLETELY FILLED WITH CLEAN DRY SAND OR GROUT PER SPECS. PROVIDE 1" MINIMUM CLEARANCE BETWEEN CASING AND CARRIER PIPE.
5. CARRIER PIPE AND CHANNEL WILL BE SUPPORTED BY ANGLE IRON WELDED TO THE INNER WALL OF CASING. CARRIER PIPE SHALL BE LAID SUCH THAT AN EVEN GRADE IS PROVIDED.
6. CHANNEL SECTIONS SHALL BE WELDED TO FORM CONTINUOUS CHANNEL. MAX ALLOWABLE UNSUPPORTED LENGTH OF CHANNEL IN CASING IS 5'-0". CHANNEL SHALL BE WELDED TO ANGLE IRON AT ENDS OF CASING ONLY.
7. CHANNEL SIDES SHALL BE CUT TO PROVIDE MIN. ⅛" CLEARANCE BETWEEN CHANNEL AND BELL END OF PIPE. PIPE SHALL NOT BE SUPPORTED BY BELL END OF PIPE.
8. PROVIDE ANGLE IRON MAX. 1'-0" FROM ENDS OF CASING.
9. END SEAL SHALL BE ⅛" THICK NEOPRENE RUBBER WITH TYPE 316 STAINLESS STEEL STRAPS.

Date 5-12-06 Detail No. 26  
 Approved By *Richard B. Currie*  
 RICHARD B. CURRIE, RCE 31587



UNION SANITARY DISTRICT

STANDARD PIPE CASING

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