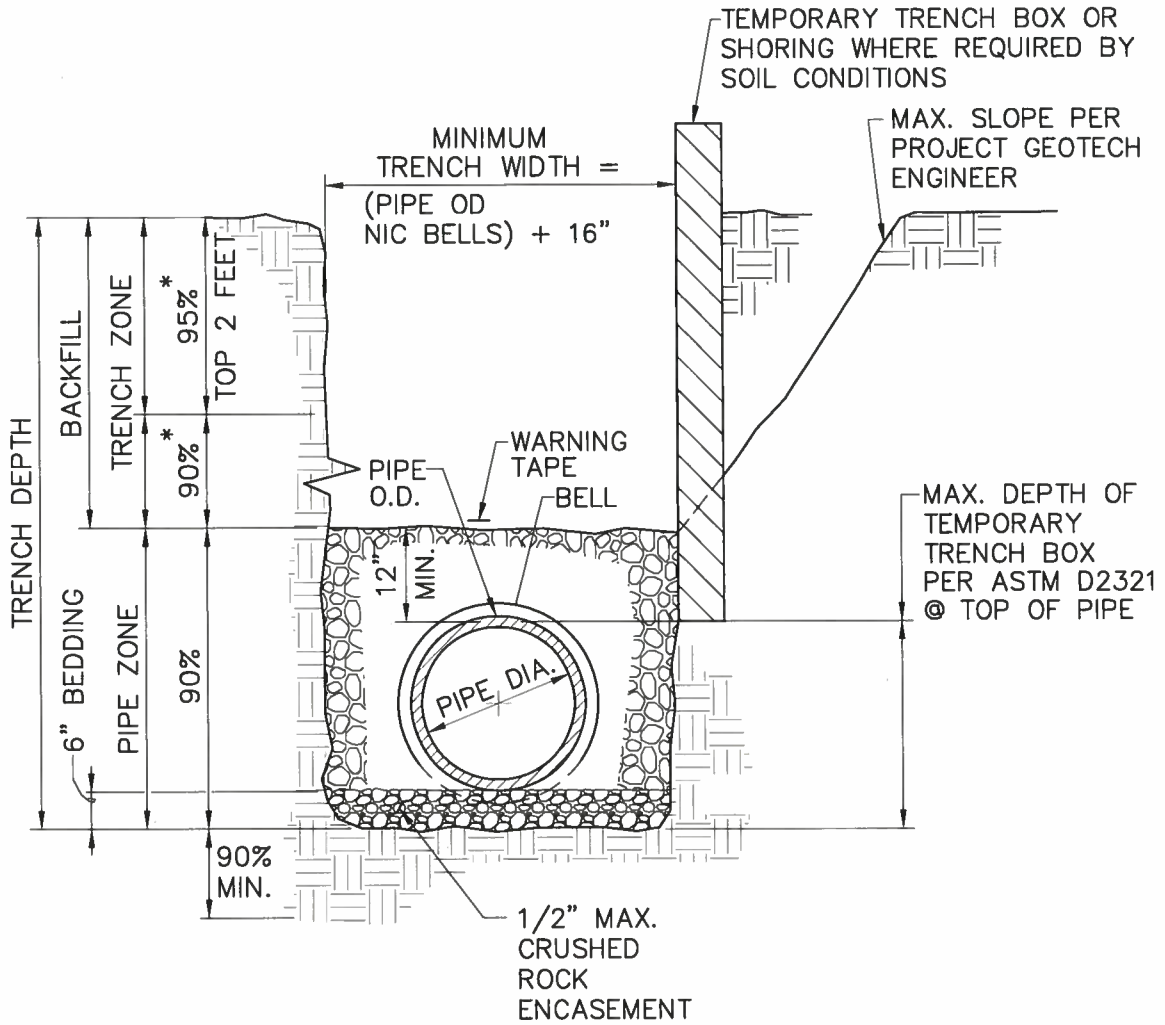


SANITARY SEWER FACILITIES

STANDARD DRAWINGS



NOTES:

1. ALL PIPING SHALL BE INSTALLED IN ACCORDANCE W/ ASTM D2321 (STD PRACTICE FOR UG INSTALLATION OF PIPE FOR SEWERS & OTHER GRAVITY-FLOW APPLICATIONS.)
2. FOR TRENCHING IN IMPROVED STREETS, RESTORE PAVEMENT TO THE JURISDICTIONAL AGENCY'S STANDARDS.
3. (*) INDICATES MINIMUM RELATIVE COMPACTION. RELATIVE COMPACTION UNDER STREETS SHALL BE IN ACCORDANCE WITH LOCAL CITY OR JURISDICTIONAL REQUIREMENTS.



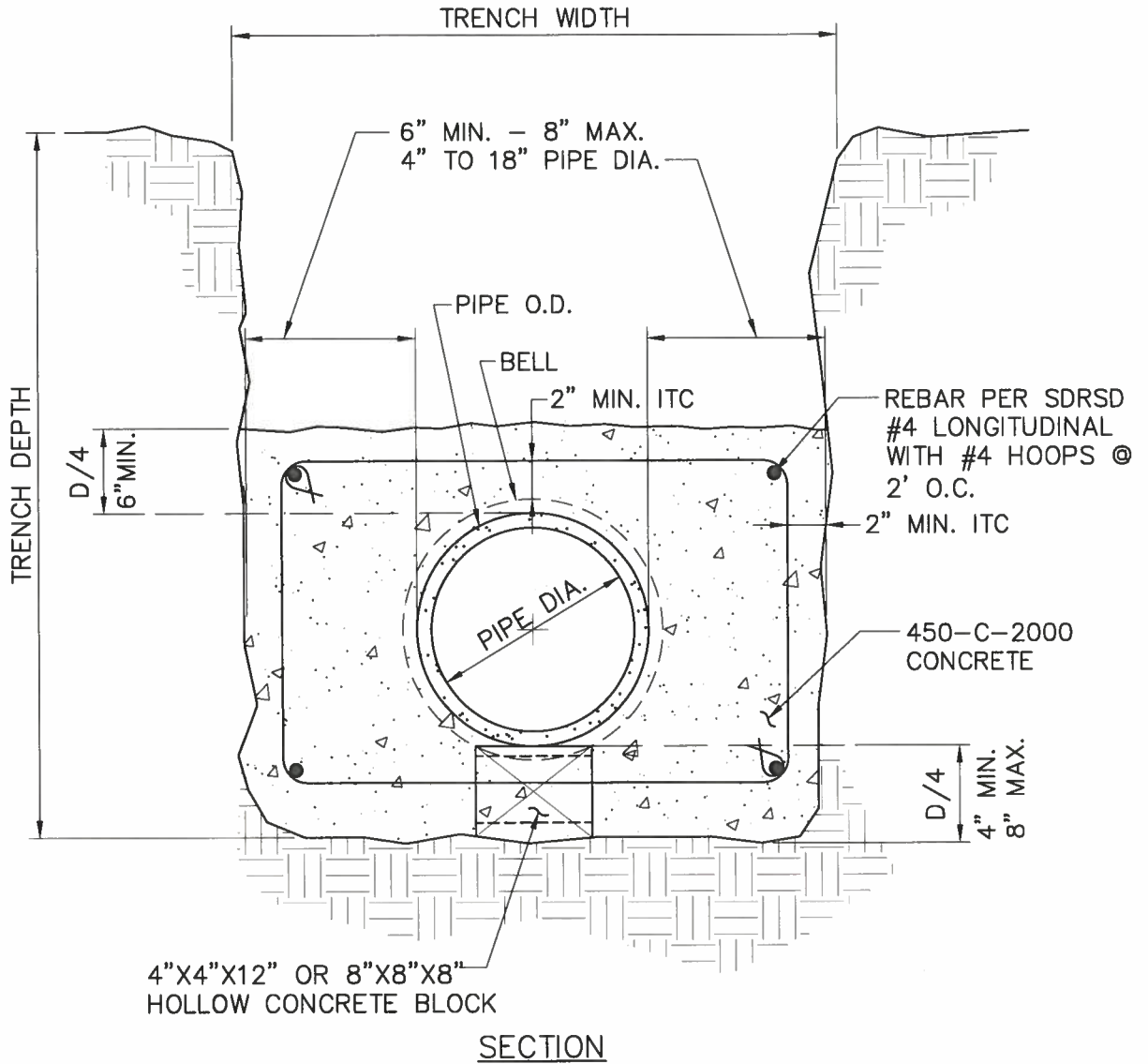
RAINBOW MUNICIPAL WATER DISTRICT

APPROVED: <i>[Signature]</i>		
RCE # 55790 EXP. 12/31/2012		
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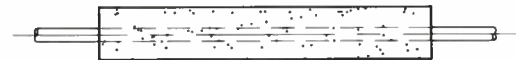
**STANDARD PIPE ZONE
AND TRENCH BACKFILL**

STANDARD DRAWING NO.
S-1
DECEMBER 2011

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NOTE:
 ENCASE PIPE TO NEAREST
 FLEXIBLE JOINT



LEGEND ON PLANS



RAINBOW MUNICIPAL WATER DISTRICT

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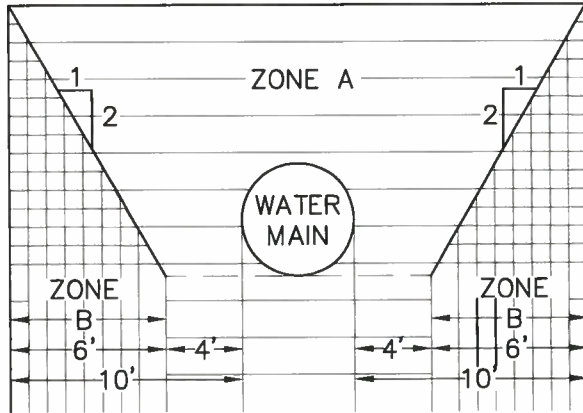
CONCRETE ENCASEMENT

STANDARD DRAWING NO.
S-2
DECEMBER 2011

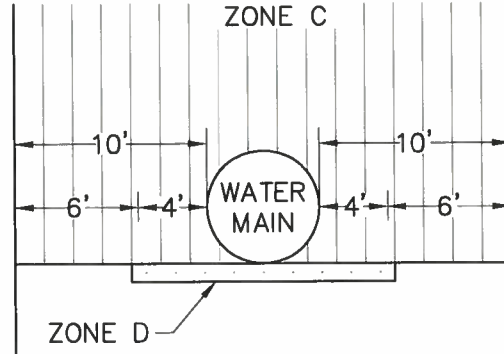
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WATER & SEWER MAINS SHALL BE INSTALLED IN SEPARATE TRENCHES.
 SEWERS SHALL BE INSTALLED AT LEAST 10- FEET HORIZONTALLY FROM
 EXISTING OR NEW WATER MAINS.

PARALLEL
 CONSTRUCTION



PERPENDICULAR
 CONSTRUCTION



NOTES: DIMENSIONS ARE FROM OUTSIDE OF WATER MAIN TO OUTSIDE OF SEWER

SANITARY SEWERS ARE NOT PERMITTED WITHIN ANY OF THE ABOVE
 INDICATED ZONES UNLESS CONSTRUCTED IN CONFORMANCE WITH THE
 SPECIAL REQUIREMENTS AS SHOWN BELOW.

ZONE	SPECIAL SEWER CONSTRUCTION REQUIREMENTS
------	---

 A SEWER LINES WILL NOT BE PERMITTED IN THIS ZONE WITHOUT
 SPECIAL WRITTEN PERMISSION FROM THE DEPARTMENT OF HEALTH.

 B RUBBER GASKETED PLASTIC PIPE.

 C CONCRETE ENCASED SEWER PIPE; OR ANY SEWER PIPE WITHIN A
 CONTINUOUS STEEL CASING, WHICH CASING SHALL HAVE A THICK-
 NNESS OF NOT LESS THAN ONE-FOURTH INCH AND WITH ALL VOIDS
 BETWEEN SEWER PIPE AND CASING PRESSURE GROUTED WITH SAND
 CEMENT GROUT.

OR
 D



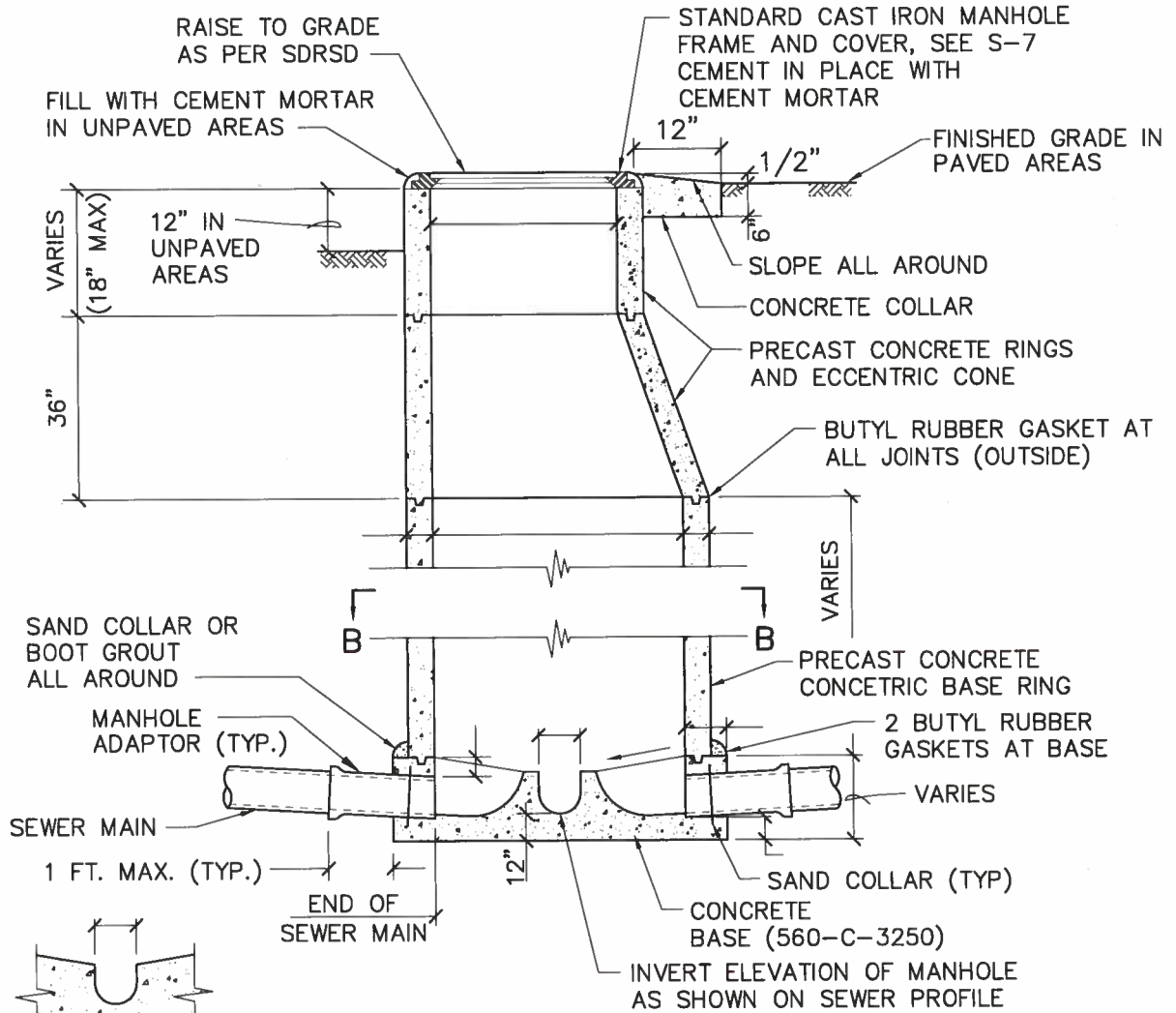
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REVISION	APPROVED	DATE

**PIPELINE SEPARATION
 REQUIREMENTS**

STANDARD DRAWING NO.
S-3
DECEMBER 2011

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SECTION C-C

SECTION A-A

SECTION B-B

NOTES:

1. CONCRETE TO BE 560-C-3250
2. ALL JOINTS SHALL BE FILLED W/ 2"X2" BUTYL RUBBER GASKET
3. ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478, LATEST EDITION.
4. VERTICAL WALL OF CONE SHALL BE UPSTREAM SIDE OF MANHOLE.
5. NO MANHOLE STEPS ALLOWED.
6. ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478.



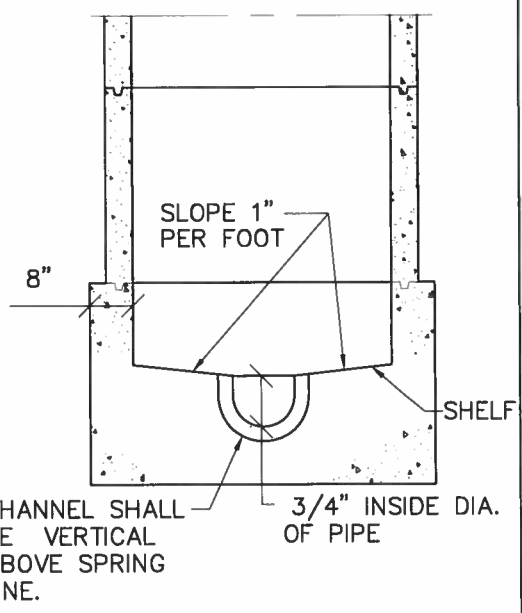
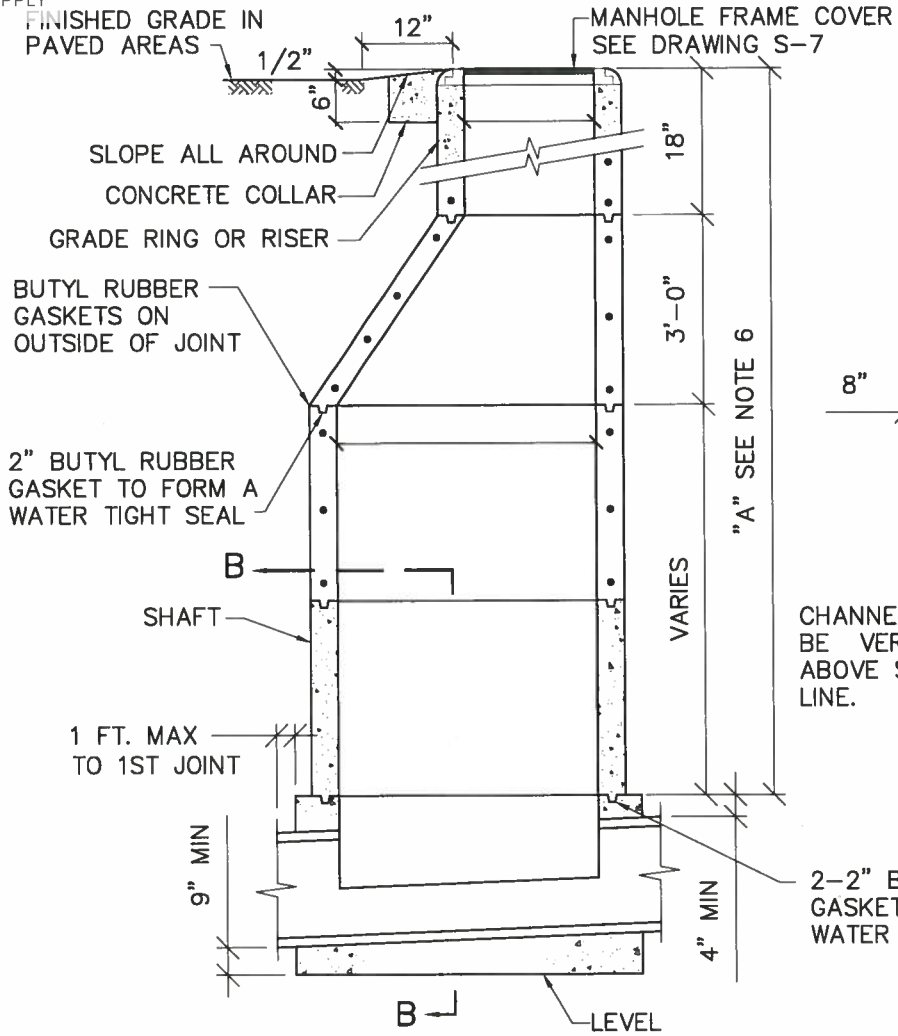
RAINBOW MUNICIPAL WATER DISTRICT

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REVISION	APPROVED	DATE

**STANDARD PRECAST CONCRETE
 MANHOLE (4' DIA.)**

STANDARD DRAWING NO.
S-4
DECEMBER 2011

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SECTION A-A

SECTION B-B

NOTES:

1. MANHOLE FRAME SHALL BE SET IN CLASS "C" MORTAR.
2. ALL PRECAST COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C-478.
3. VERTICAL WALL OF CONE SHALL BE ON THE UPSTREAM SIDE OF THE MANHOLE.
4. CONCRETE BASE SHALL BE 560-C-3250.
5. "SAND COLLAR" MH ADAPTORS SHALL BE PROVIDED FOR ALL MH CONNECTIONS.
6. PRECAST SECTIONS SHALL BE USED WITHIN DIMENSION "A" AS REQUIRED, IN ORDER OF PREFERENCE LISTED:
 - A. CONE (NOTCHED FOR PIPE IF DIMENSION "A" IS LESS THEN 3').
 - B. 6" TO 18" OF 3' DIAMETER GRADE RINGS/AND/OR RISERS.
 - C. 5' DIAMETER SHAFT VARIABLE HEIGHT.
7. ALL PATCHING WITHIN MANHOLE BASE SHALL BE EPOXY MORTAR.
8. PRIOR APPROVAL OF PRECAST BASE IS REQUIRED BY THE DISTRICT ENGINEER.
9. MAXIMUM ALLOWABLE CHANGE OF DIRECTION AT MH = 45°.
10. PROVIDE SPECIFIC DETAIL FOR REVIEW AND APPROVAL BY DISTRICT ENGINEER FOR MH'S W/ MORE THAN ONE INLET OR OUTLET, 18" OR LARGER.

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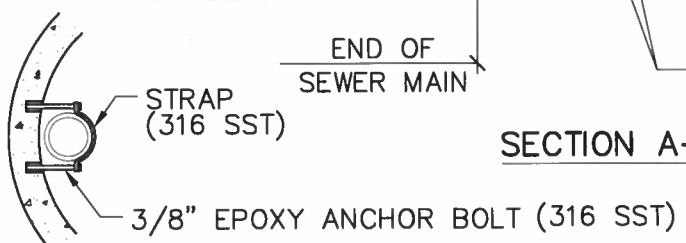
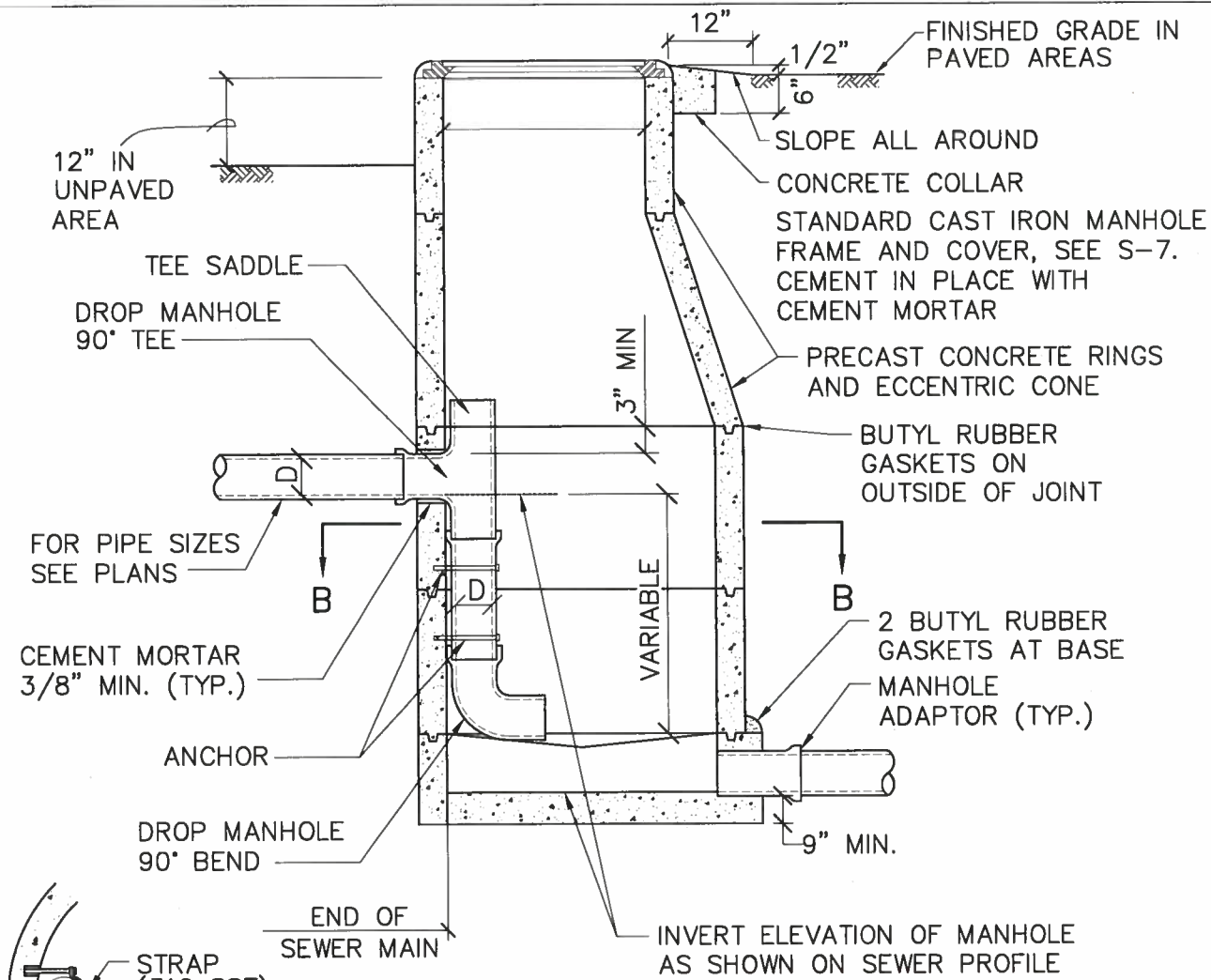


RAINBOW MUNICIPAL WATER DISTRICT

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REVISION	APPROVED	DATE

**STANDARD PRECAST CONCRETE
 MANHOLE (5' DIA.)**

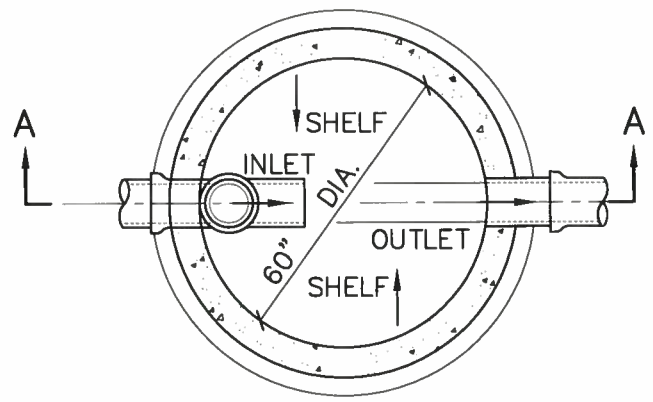
STANDARD DRAWING NO.
S-5
DECEMBER 2011



SECTION A-A

NOTES:

1. DROP MANHOLE SHALL BE IDENTICAL TO STANDARD CONCRETE MANHOLE, EXCEPT FOR PIPE DETAILS AS SHOWN.
2. THE DROP MANHOLE TEE SHALL ENTER THE 5' DIA. RING
3. CLEAN AND ROUGHEN OUTSIDE SURFACE OF RINGS AND APPLY NEAT CEMENT PAST PRIOR TO POURING SUPPORT FOR DROP SECTION.
4. NO MANHOLE STEPS ALLOWED.



SECTION B-B



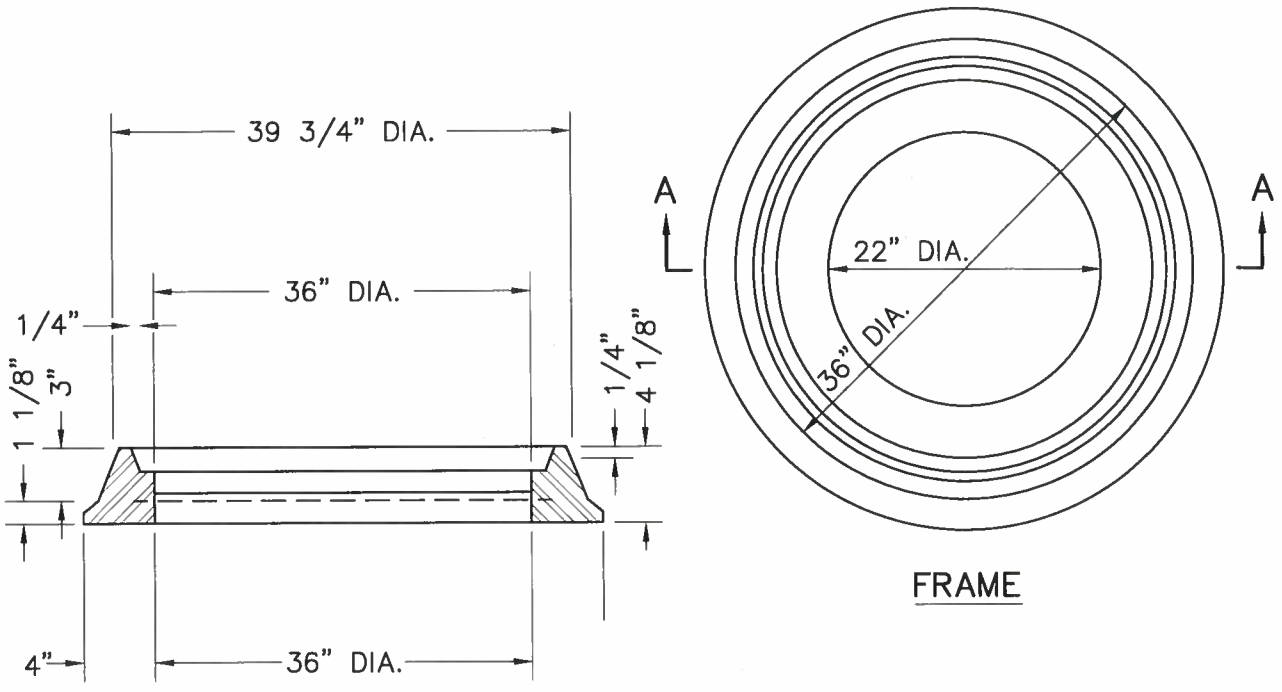
RAINBOW MUNICIPAL WATER DISTRICT

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REVISION	APPROVED	DATE

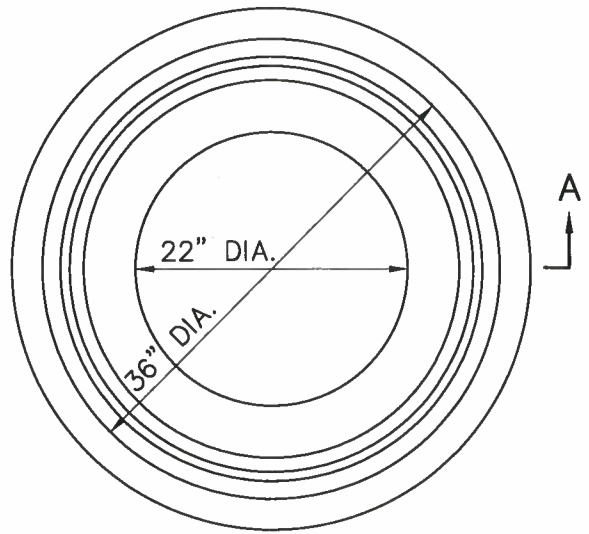
**STANDARD PRECAST
 CONCRETE INSIDE
 DROP MANHOLE**

STANDARD DRAWING NO.
S-6
DECEMBER 2011

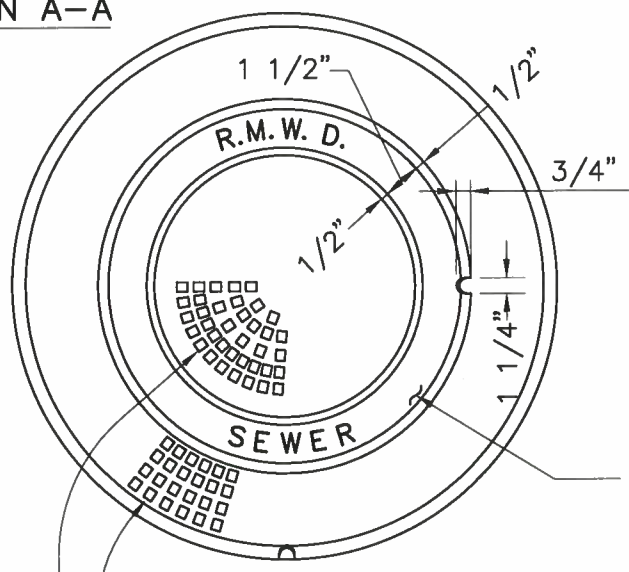
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SECTION A-A



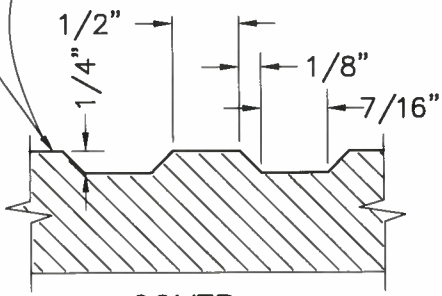
FRAME



FOR INNER COLLAR
 SEE STANDARD
 DRAWING S-6

NOTE:

1. LOCKING FRAMES
 AND COVERS ARE
 REQUIRED IN REMOTE
 AREAS OR AS
 DETERMINED BY THE
 D.E.



COVER

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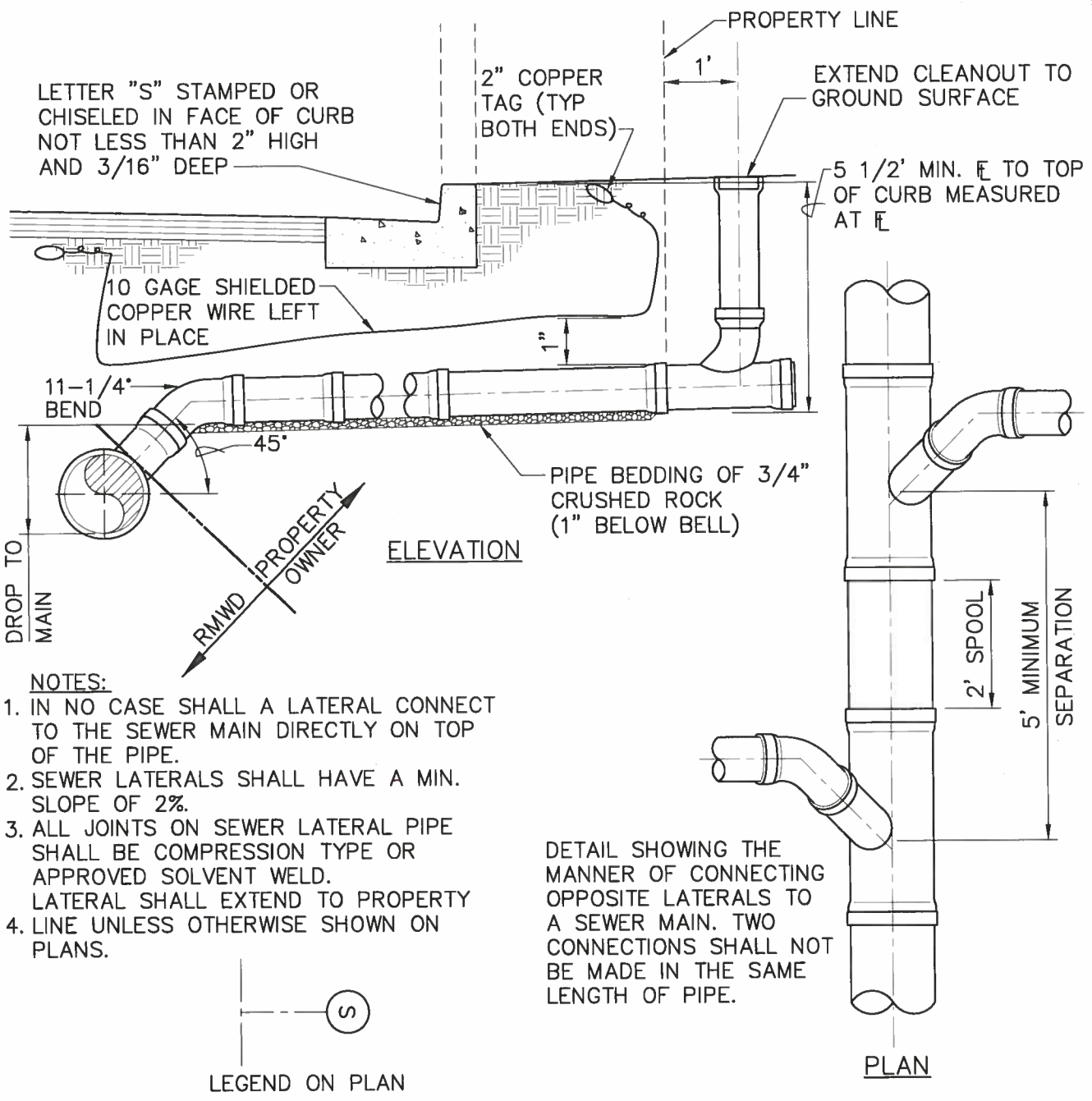
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RCE # 55790	EXP. 12/31/2012
REVISION	APPROVED
	DATE

**36" MANHOLE FRAME AND
 TWO CONCENTRIC COVERS**

STANDARD DRAWING NO.
S-7
DECEMBER 2011

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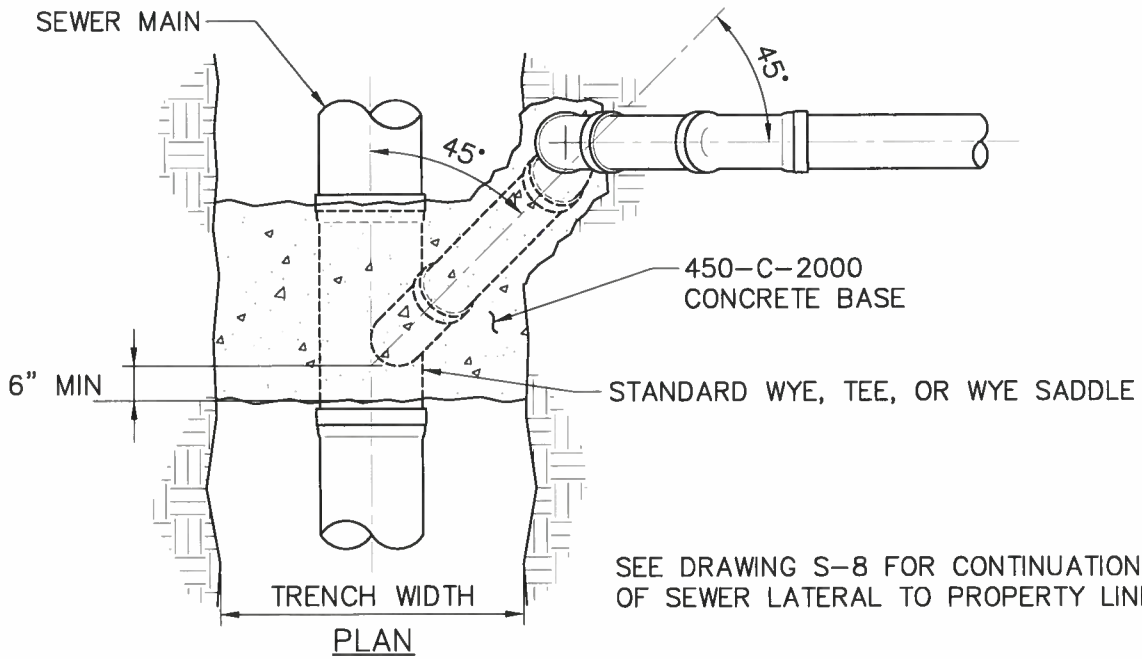


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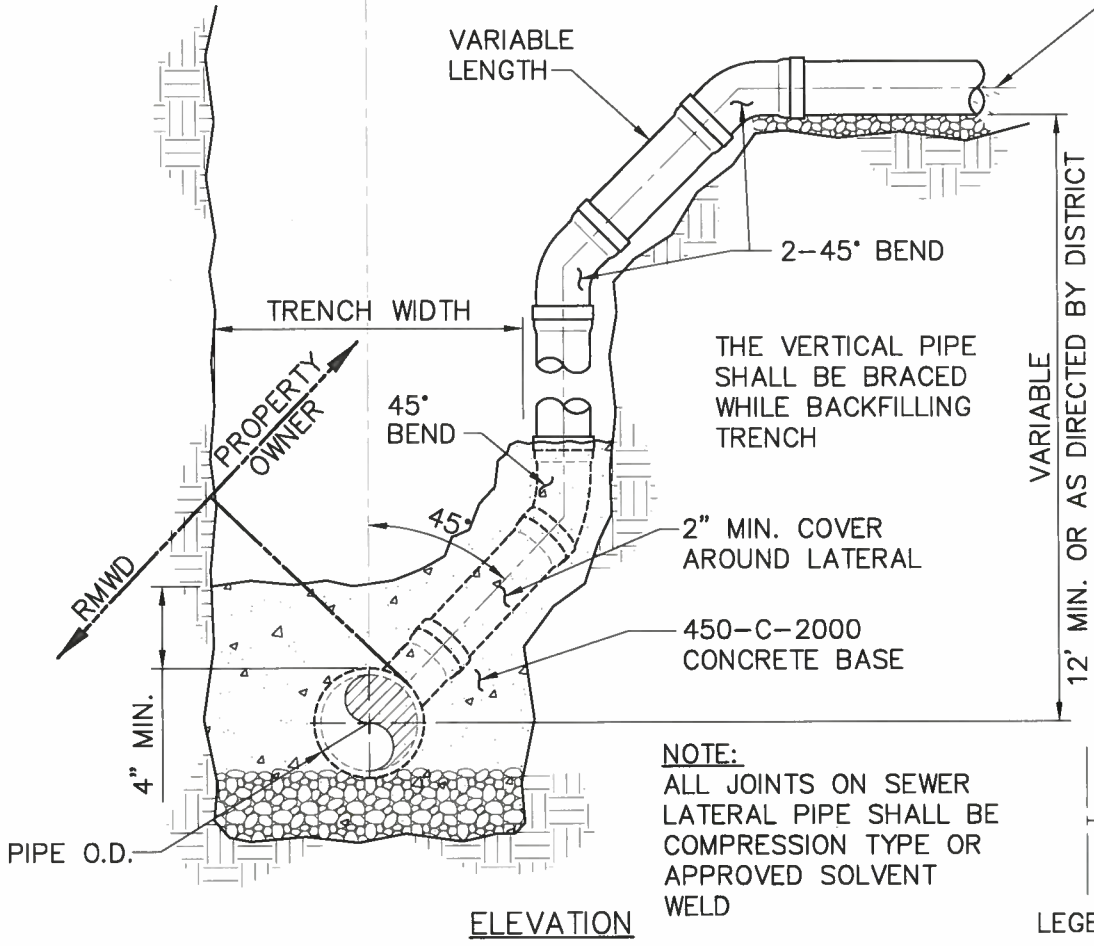
APPROVED: <i>Jim C. Lee</i>		
RCE # 55790 EXP. 12/31/2012		
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**NEW INSTALLATION
 PVC SEWER LATERAL**

STANDARD DRAWING NO.
S-8
DECEMBER 2011

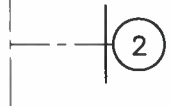


SEE DRAWING S-8 FOR CONTINUATION OF SEWER LATERAL TO PROPERTY LINE



NOTE:
 ALL JOINTS ON SEWER LATERAL PIPE SHALL BE COMPRESSION TYPE OR APPROVED SOLVENT WELD

VARIABLE
 12' MIN. OR AS DIRECTED BY DISTRICT



LEGEND ON PLAN

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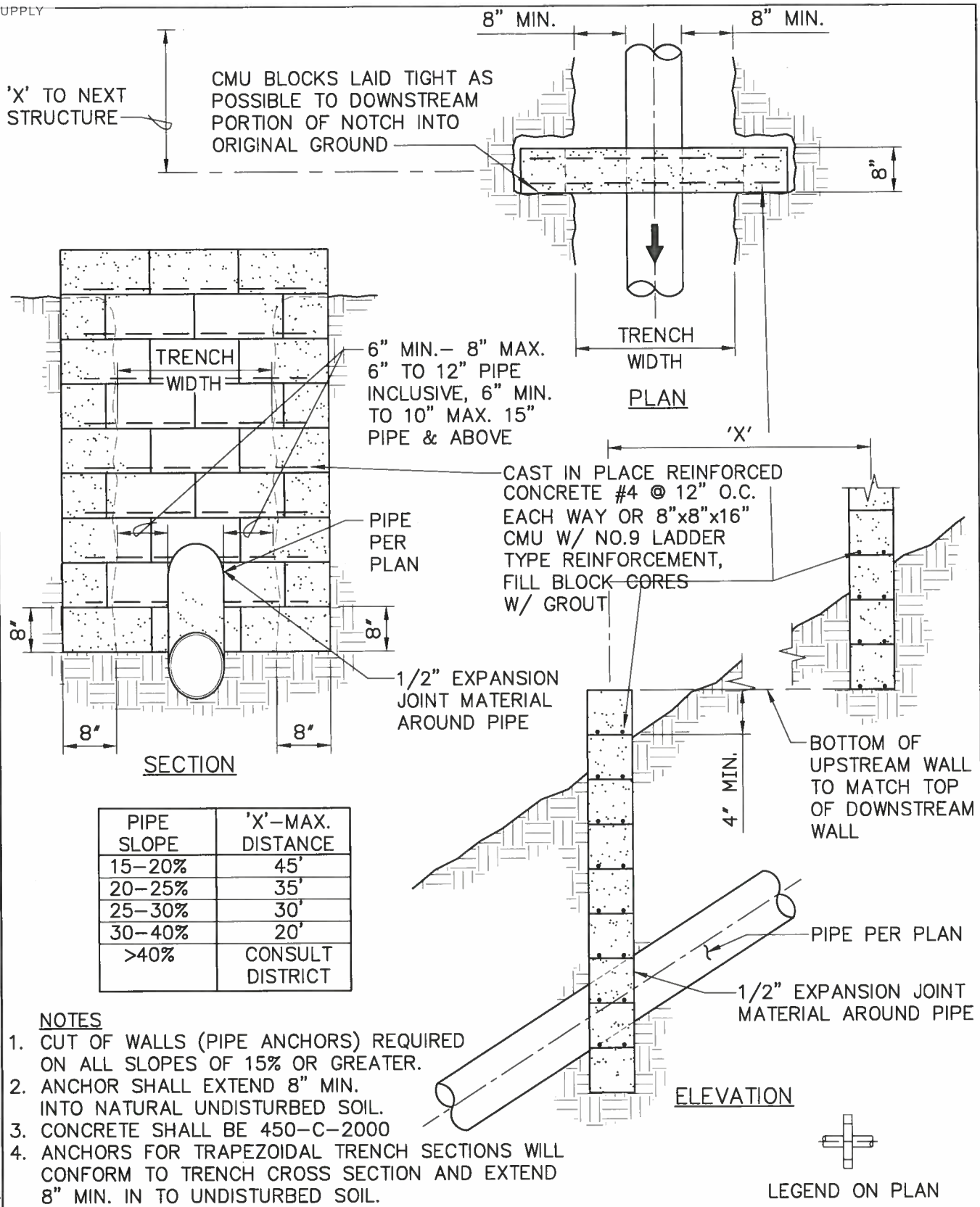
RAINBOW MUNICIPAL WATER DISTRICT

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**DEEP CUT
 SEWER LATERAL**

STANDARD DRAWING NO.
S-9
DECEMBER 2011

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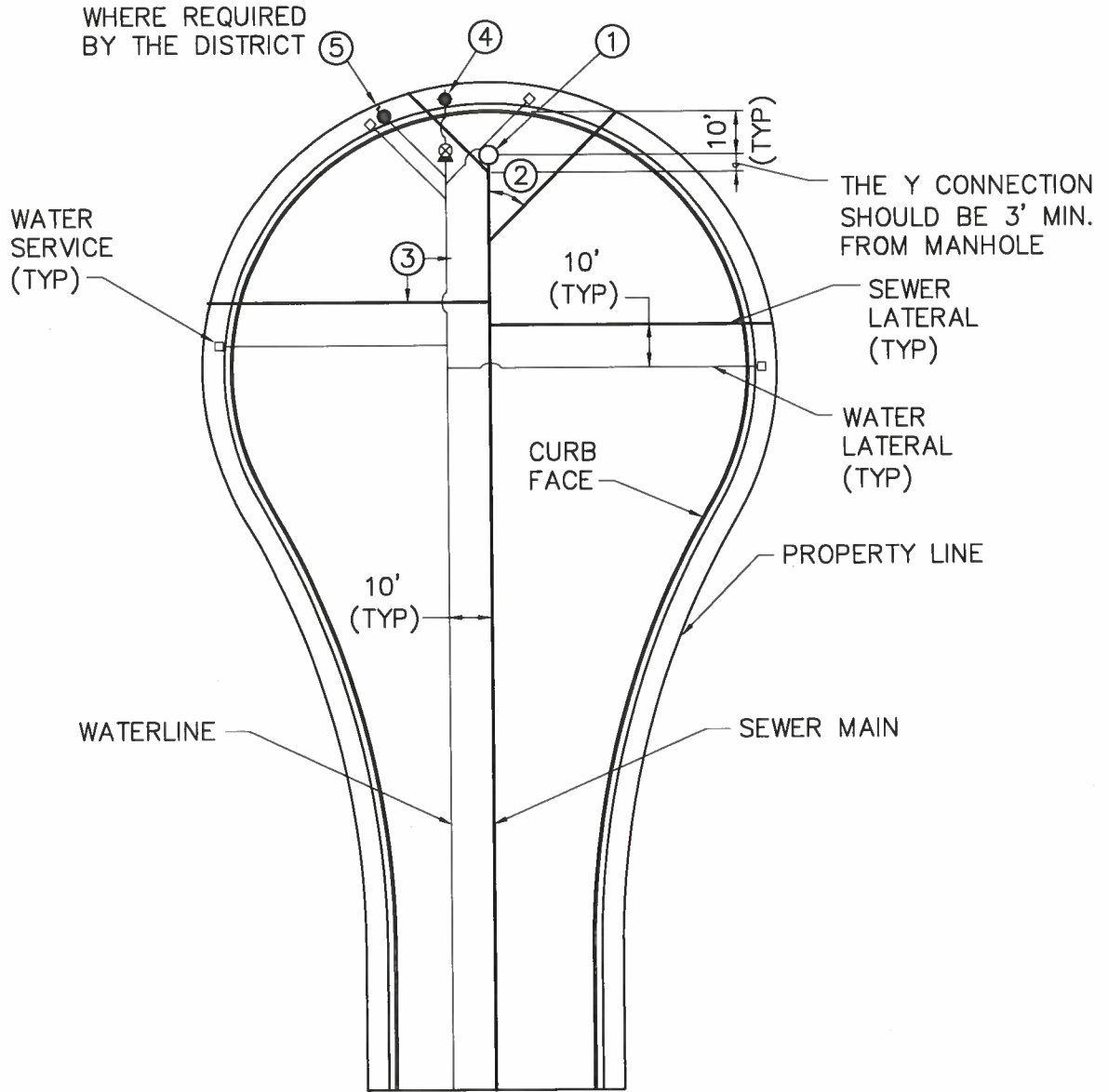
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**STANDARD CUTOFF WALL
(ANCHOR)**

STANDARD DRAWING NO.
S-10
DECEMBER 2011



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ITEM	DESCRIPTION
1	USE WATER-TIGHT MANHOLE COVER WHERE CUL-DE-SAC CREATES LOW POINT
2	45° ANGLE ONLY IF NECESSARY TO SERVE REAR LOTS (WATER & SEWER)
3	90° ANGLE (STANDARD) (WATER & SEWER)
4	END OF MAIN FIRE HYDRANT (TO SERVE AS A BLOWOFF). LOCATE TO CLEAR DRIVEWAYS
5	END OF MAIN A.V.A.R. (WHERE CUL-DE-SAC CREATES A HIGH POINT).



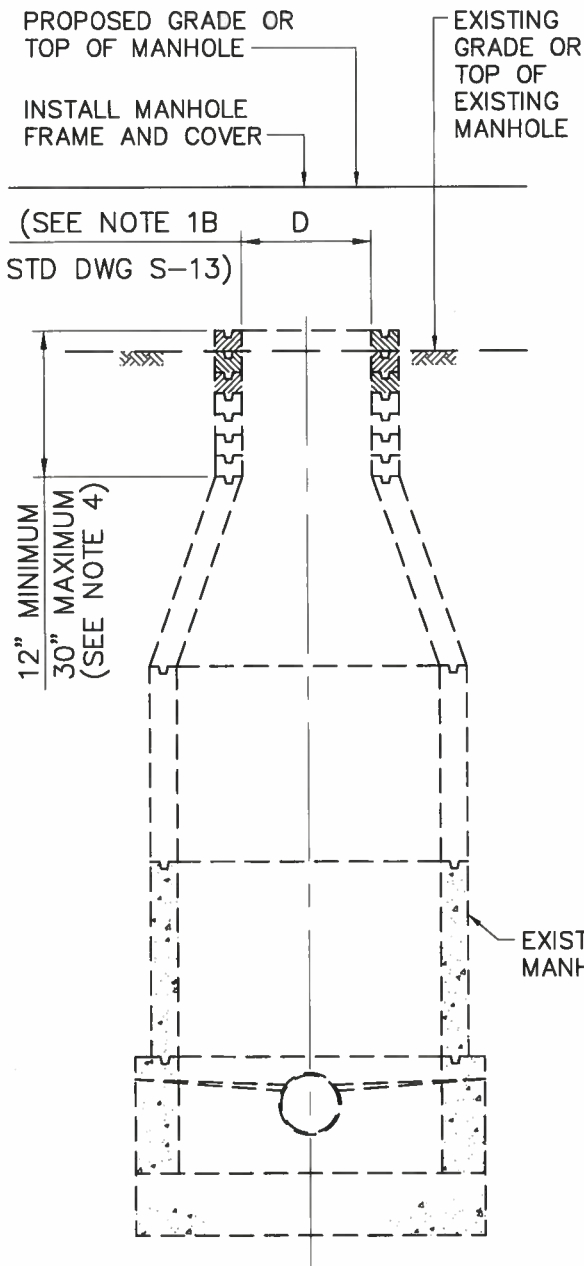
RAINBOW MUNICIPAL WATER DISTRICT

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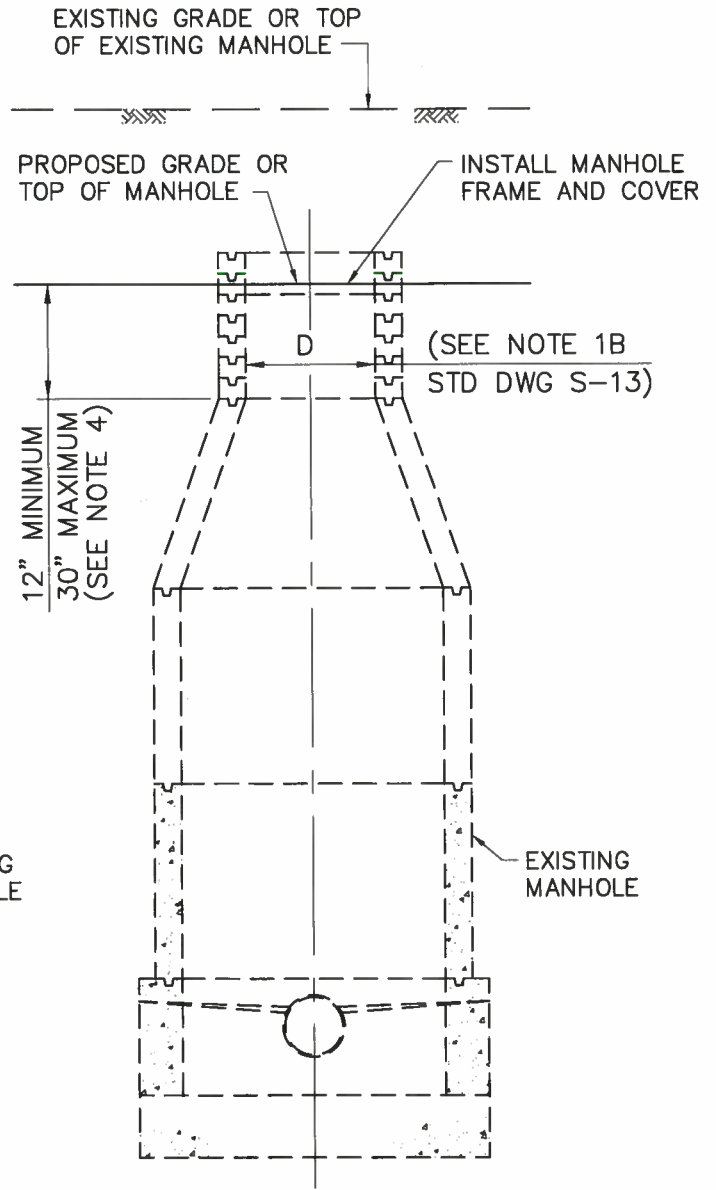
**STANDARD CUL-DE-SAC
SEWER LATERALS**

STANDARD DRAWING NO.
S-11
DECEMBER 2011

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RAISING EXISTING
 PRECAST CONCRETE
 SEWER MANHOLES



LOWERING EXISTING
 PRECAST CONCRETE
 SEWER MANHOLES

PRECAST CONCRETE SEWER MANHOLES



RAINBOW MUNICIPAL WATER DISTRICT

APPROVED <i>Tom C. Lee</i>		
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SEWER MANHOLE ADJUSTMENT

STANDARD DRAWING NO.
S-12
DECEMBER 2011

NOTES:

1. GENERAL
 - A. DIMENSION "D" SHALL BE THE SAME AS THE SIZE OF MANHOLE FRAME AND COVER TO BE USED.
 - B. THE CONTRACTOR MAY REUSE THE EXISTING MANHOLE FRAME AND COVER, UNLESS DAMAGED BY HIM DURING HIS CONSTRUCTION OPERATIONS OR WHEN OTHERWISE INDICATED ON THE PROJECT PLANS. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH IDENTICAL NEW ITEMS AT NO EXPENSE TO THE AGENCY.

2. RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES
 - A. PRECAST CONCRETE MANHOLES TO BE RAISED LESS THAN 3 INCHES MAY BE RAISED BY APPLYING CLASS "D" MORTAR TO THE TOP OF THE EXISTING MANHOLE, PROVIDED THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED DOES NOT EXCEED 3 INCHES.
 - B. WHERE THE PRECAST CONCRETE MANHOLE IS TO BE RAISED 3 INCHES OR MORE, OR WHERE THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED, WOULD EXCEED 3 INCHES, GRADE RINGS SHALL BE UTILIZED. CLASS "D" MORTAR MAY BE USED FOR FINAL ADJUSTMENT, BUT NOT MORE THAN 3 INCHES IN HEIGHT. WHERE RAISING THE MANHOLE WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING MORE THAN 30 INCHES IN HEIGHT, REMOVE THE REDUCER AND THE UPPER SEGMENT OF THE SHAFT. INSTALL ADDITIONAL RINGS OR PIPE TO THE LOWER SEGMENT OF THE SHAFT AND REINSTALL THE REDUCER AND GRADE RINGS AS REQUIRED.

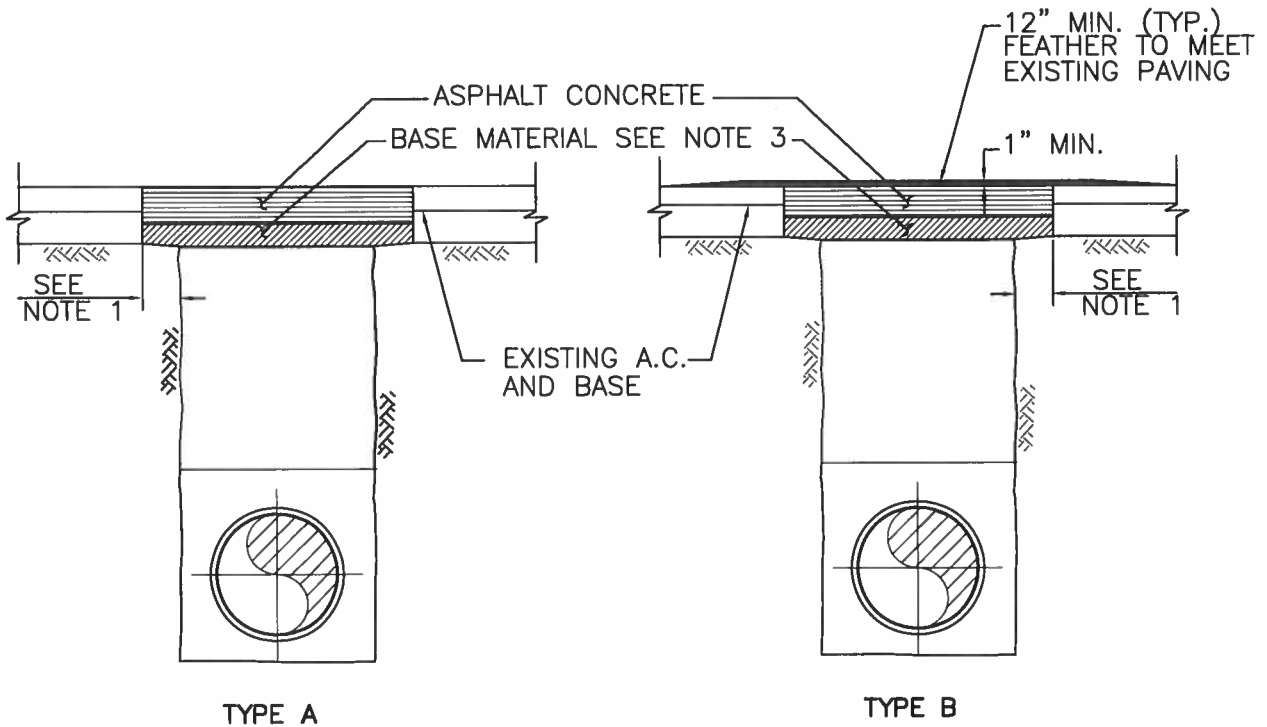
3. LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES
 - A. REMOVE SUFFICIENT GRADE RINGS TO LOWER THE MANHOLES AS REQUIRED. APPLY CLASS "D" MORTAR TO A HEIGHT NOT EXCEEDING 3 INCHES FOR ADJUSTMENT TO FINAL GRADE.
 - B. WHERE REMOVAL OF GRADE RINGS WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING LESS THAN 12 INCHES IN HEIGHT, REMOVE THE REDUCER AND SUFFICIENT SECTIONS OF THE LOWER SEGMENT OF THE SHAFT AND REINSTALL ANY NECESSARY SEGMENT OF THE LOWER SHAFT, THE REDUCER, AND THE GRADE RINGS TO CONFORM TO THE REQUIREMENTS OF THIS PLAN.
 - C. EXISTING GRADE RINGS NEED NOT BE REMOVED IF EXISTING MORTAR IS REMOVED AND AT LEAST 1 1/2 INCHES OF MORTAR MAY BE PLACED ON TOP OF THE EXISTING GRADE RINGS TO RESEAT THE FRAME.

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APPROVED: <i>Tim C. Lee</i> RCE # 55790 EXP. 12/31/2012			SEWER MANHOLE ADJUSTMENT NOTES	STANDARD DRAWING NO.
REVISION	APPROVED	DATE		S-13
				DECEMBER 2011



NOTES:

- 1) TRENCH EDGES TO BE CUT A MINIMUM OF 6" WIDER THAN TRENCH FOR TRENCHES 3' WIDE OR LESS, AND 12" WIDER FOR TRENCHES OVER 3' WIDE.
- 2) EXISTING AC SHALL BE CUT AND REMOVED IN SUCH A MANNER SO AS NOT TO TEAR, BULGE OR DISPLACE ADJACENT PAVEMENT. EDGES SHALL BE CLEAN AND VERTICAL. ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO STREET CENTERLINE, WHEN PRACTICAL.
- 3) BASE MATERIAL TO BE REPLACED TO DEPTH OF EXISTING BASE OR 6" MINIMUM, AC MAY BE SUBSTITUTED FOR BASE MATERIAL.
- 4) A TACK COAT OF ASPHALT EMULSION OR PAVING ASPHALT SHALL BE APPLIED TO EXISTING AC OR P.C.C. CONTACT SURFACES, PRIOR TO RESURFACING.
- 5) ASPHALT CONCRETE RESURFACING:
 - A) MINIMUM TOTAL THICKNESS SHALL BE ONE INCH GREATER THAN EXISTING AC OR 3" MINIMUM,
 - B) AC SHALL BE HOT PLANT MIX CALTRANS SPEC GRADE C2-PG-64-10
 - C) FINISH COURSE FOR TYPE B RESURFACING SHALL BE LAID DOWN USING A SPREADER BOX.
- 6) ALL AC RESURFACING SHALL BE SEAL COATED WITH AN EMULSIFIED ASPHALT AND COVERED WITH SAND. CHIP SEALING TO BE APPLIED AS REQUIRED BY AGENCY.
- 7) TYPE B SHALL NOT BE USED ON LATERAL CROSSINGS.
- 8) SLOUGHING OF TRENCH UNDER PAVEMENT SHALL BE CAUSE FOR REQUIRING ADDITIONAL PAVEMENT AND BASE.

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**TRENCH RESURFACING
 TYPES A & B**

STANDARD DRAWING NO.
S-14
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