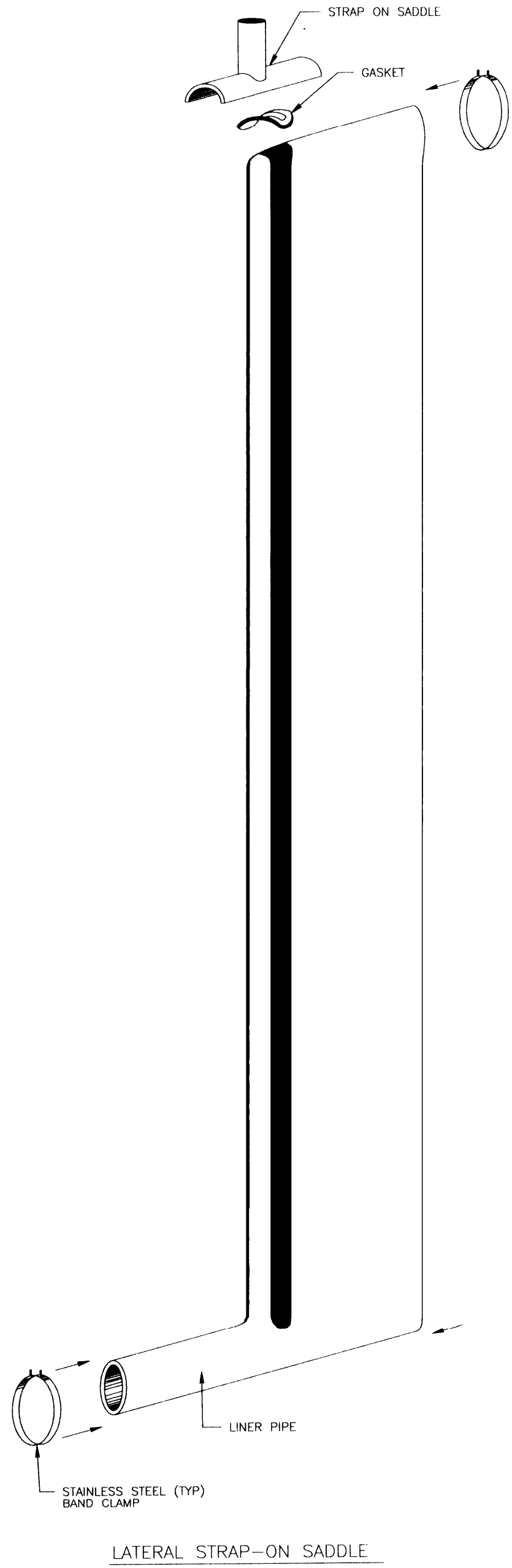
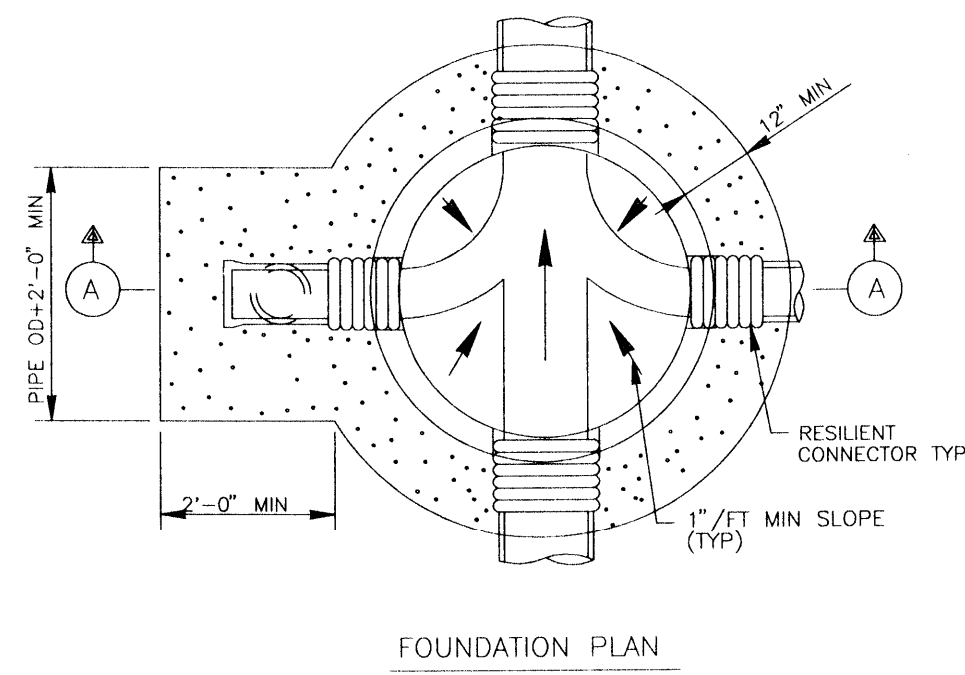


- NOTES:
1. THE ENTIRE EXPOSED SERVICE CONNECTION SHALL BE ENCASED IN CEMENT STABILIZED SAND AS SHOWN ABOVE.
 2. EXCAVATE ENTIRE EXPOSED SERVICE CONNECTION SHALL BE ENCASED IN CEMENT STABILIZED SAND AS SHOWN ABOVE.

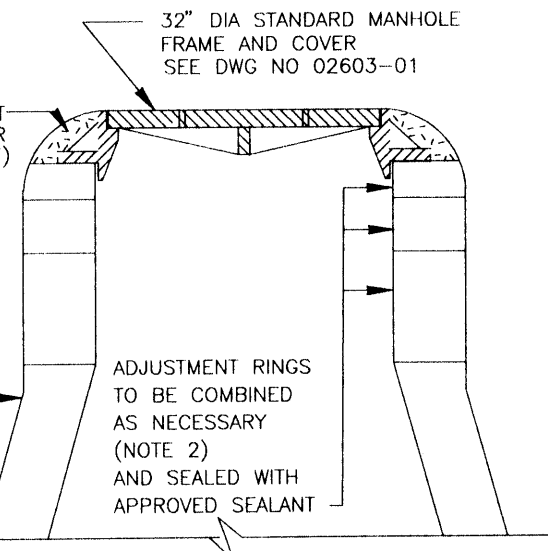


LATERAL STRAP-ON SADDLE

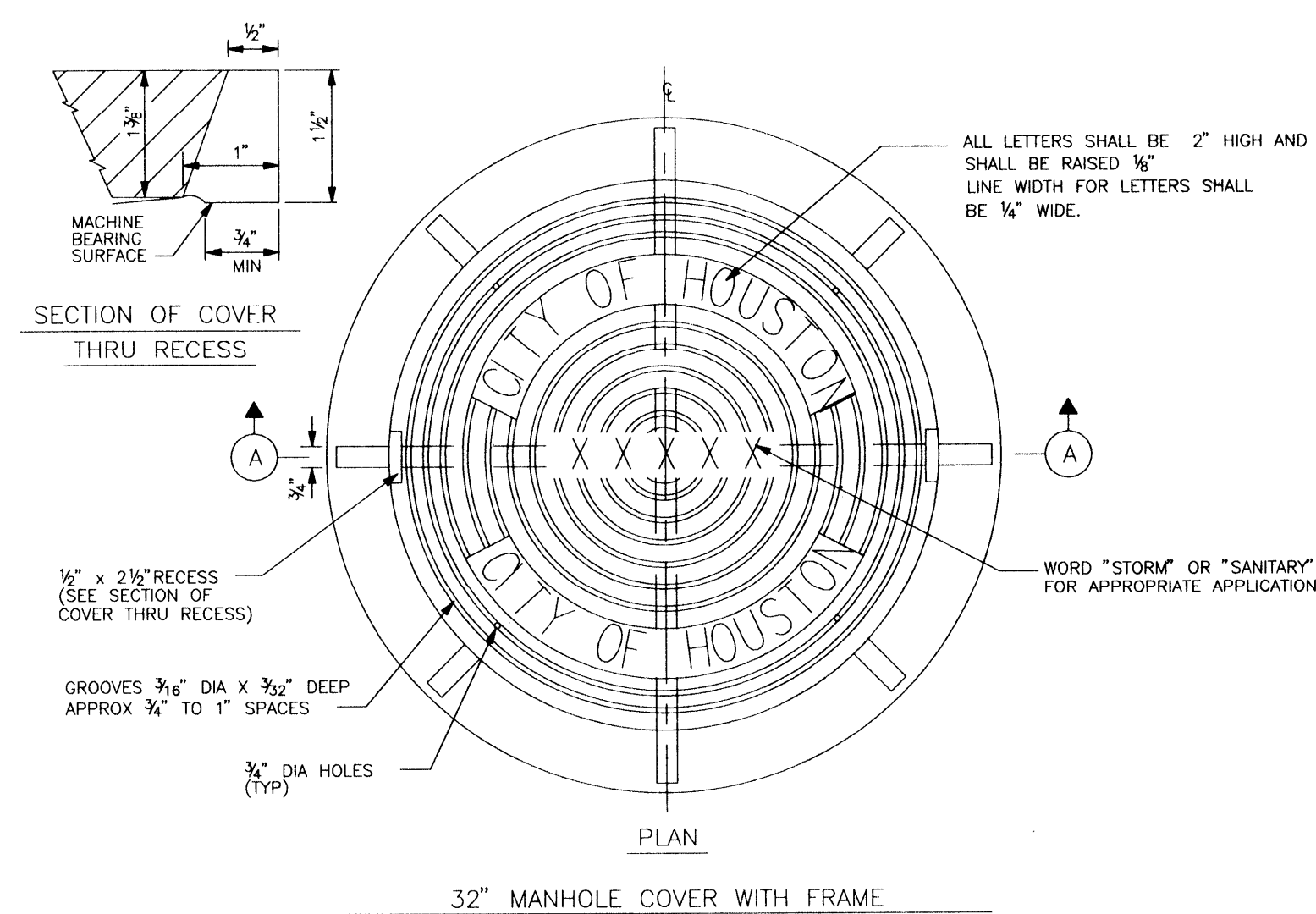
SANITARY SEWER SERVICE RECONNECTION FOR LINER PIPE
02531-01
(NOT TO SCALE)



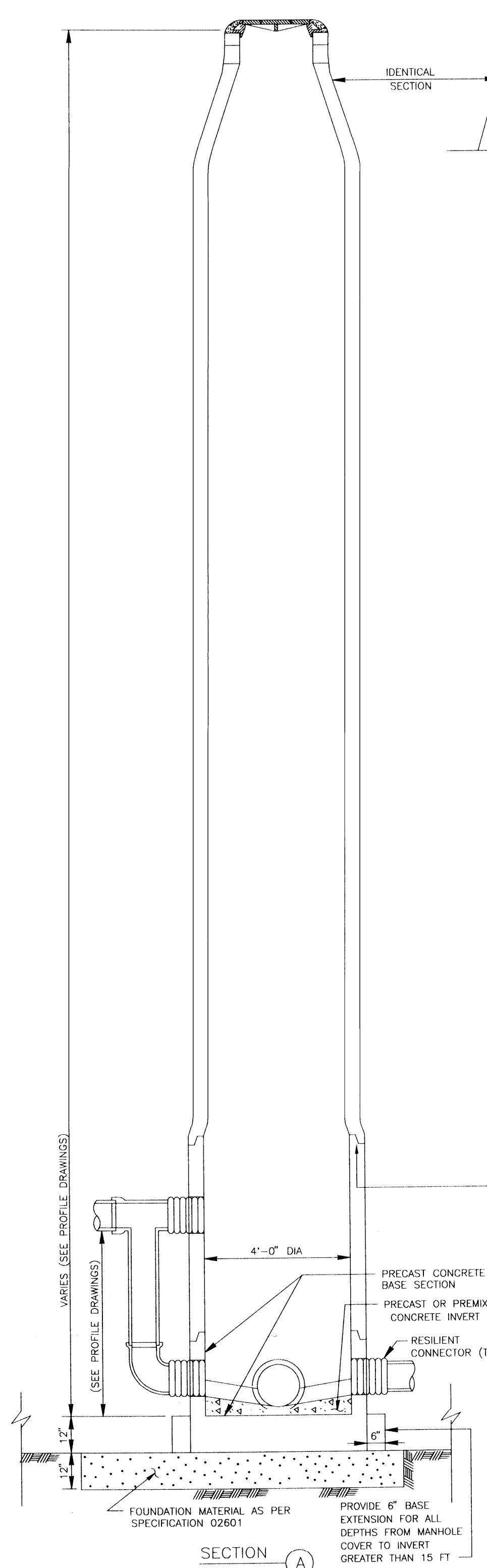
FOUNDATION PLAN



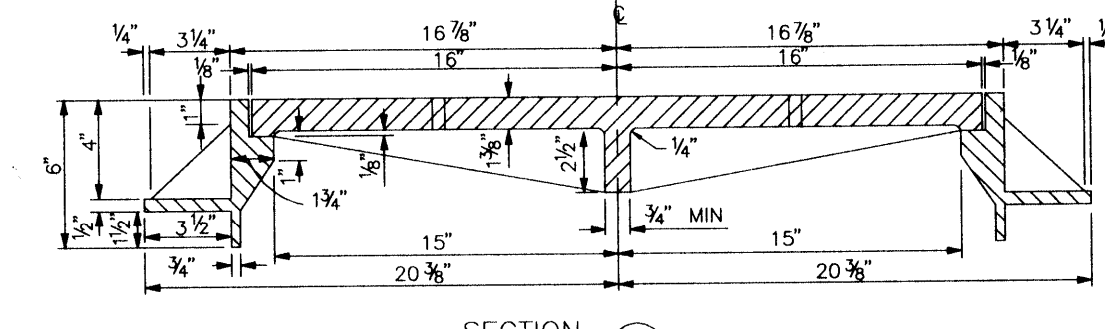
- NOTES:
1. DEPTH OF MANHOLE DETERMINES SECTIONS REQUIRED.
 2. PRECAST CONCRETE RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 12".
 3. MANHOLE WALL THICKNESS FOR DEPTH EXCEEDING 12'-0" SHALL BE DETERMINED TO MEET LOADING CONDITIONS. MIN THICKNESS 9".
 4. MANHOLE DROP AND INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
 5. SEAT MANHOLE FRAME IN SEALANT PER SPECIFICATION SECTION 02601.
 6. ECCENTRIC PRECAST CONCRETE MANHOLE MAY BE USED.
 7. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
 8. MIN REINFORCING IN THE PRECAST CONCRETE BASE SHALL BE # 5 @ 8 EW.
 9. PROVIDE BACKFILL TO MATCH ADJACENT PIPE TRENCH BACKFILL PER SPECIFICATION SECTION 02261.



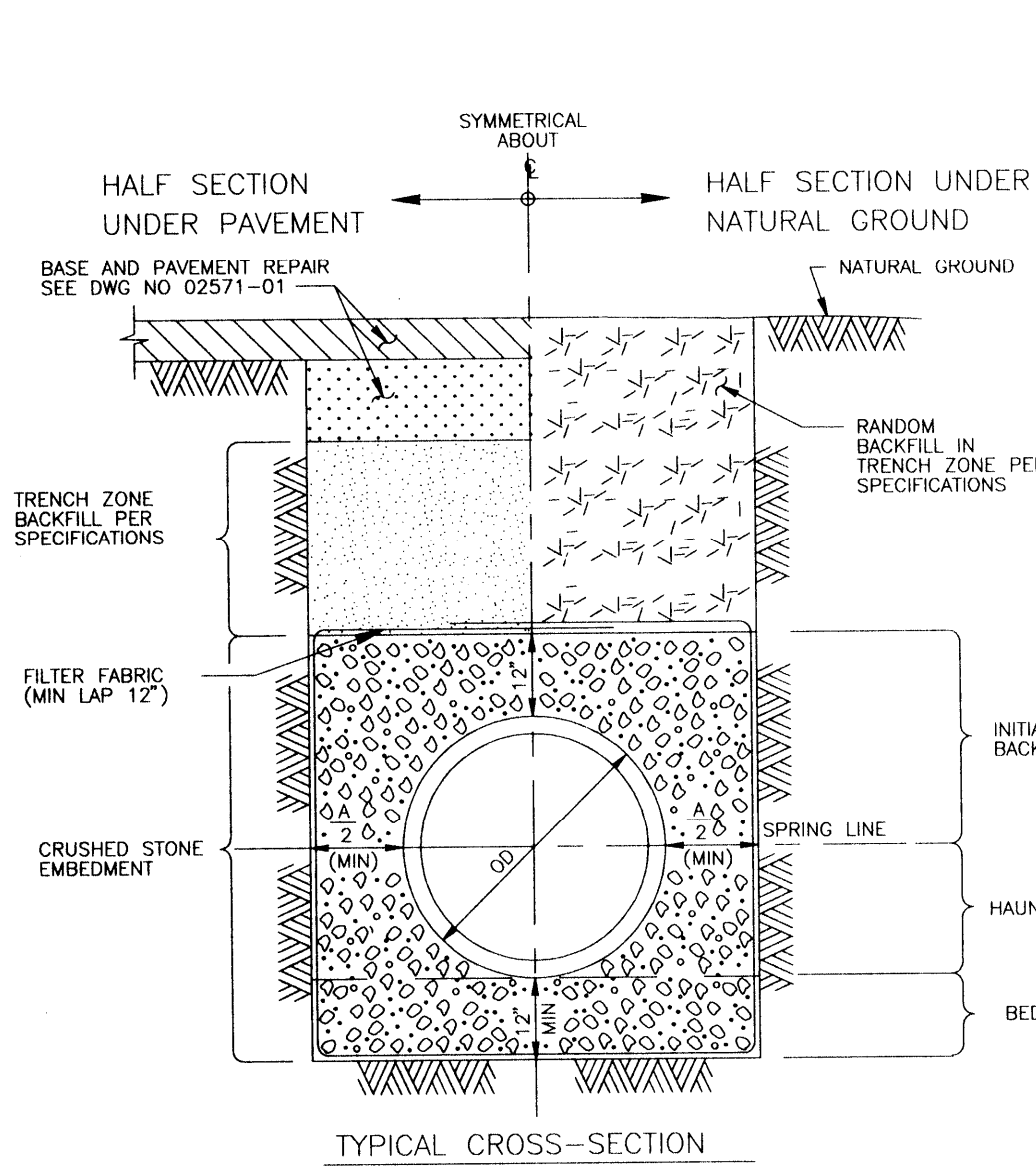
MANHOLE FRAME AND COVER
(NOT TO SCALE)
02084-01



SANITARY SEWER 4'-0" DIA PRECAST CONCRETE MANHOLE
(NOT TO SCALE)
02082-02

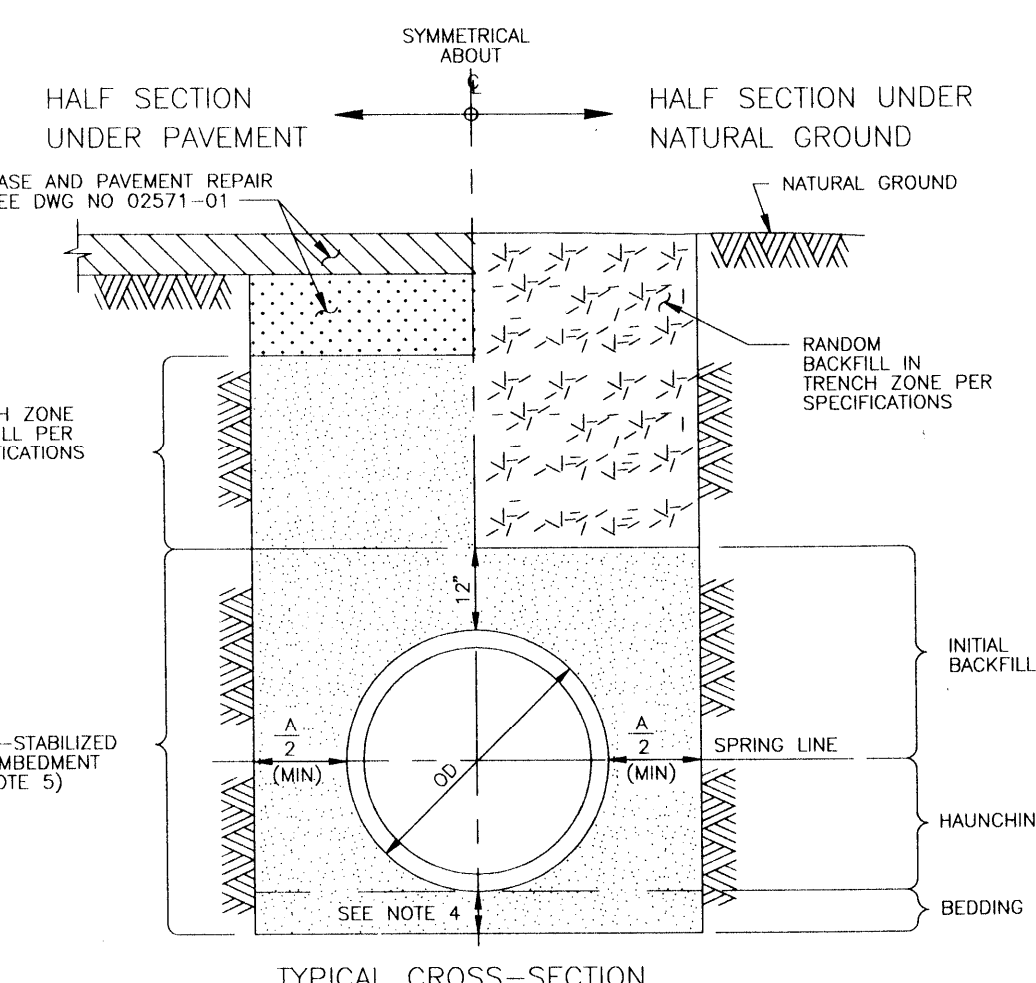


SECTION A
32" MANHOLE COVER WITH FRAME



TYPICAL CROSS-SECTION

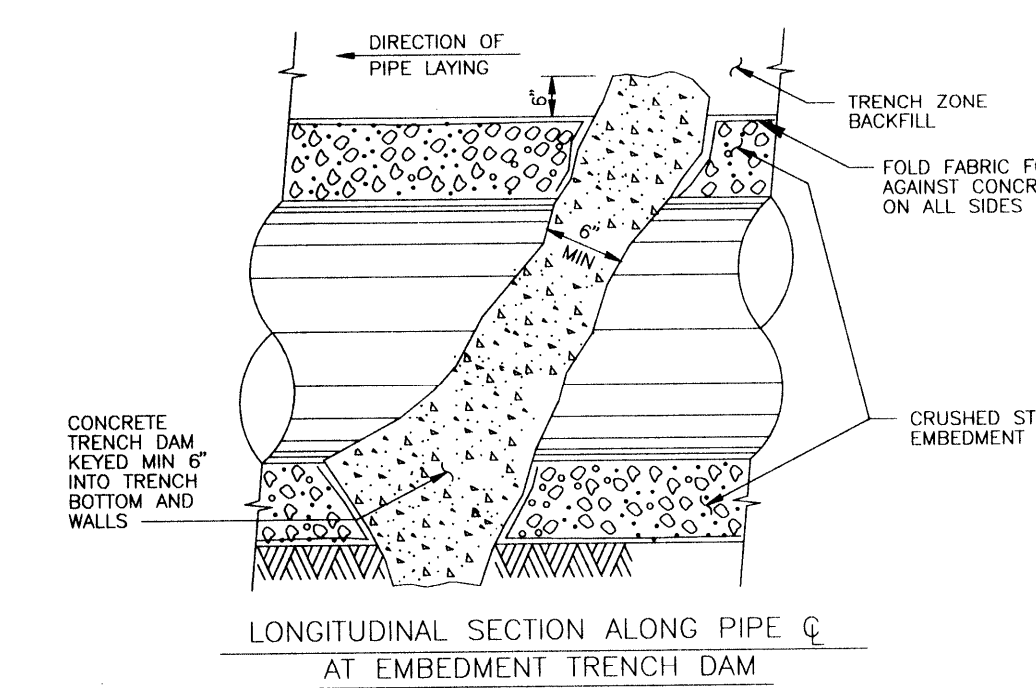
- NOTES:
1. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "X" FOR THE NOMINAL PIPE SIZE:
NOMINAL PIPE SIZE "X"
LESS THAN 18" 15"
18" TO 30" 24"
OVER 30" 36"
 2. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
 3. TRENCH DAM MAY BE FORMED OR UNFORMED. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
 4. TRENCH DAM SHALL BE PLACED AT LEAST 0.5 FT AWAY FROM ANY PIPELINE STRUCTURE. SEE SECTION 02227 FOR OTHER REQUIREMENTS.



TYPICAL CROSS-SECTION

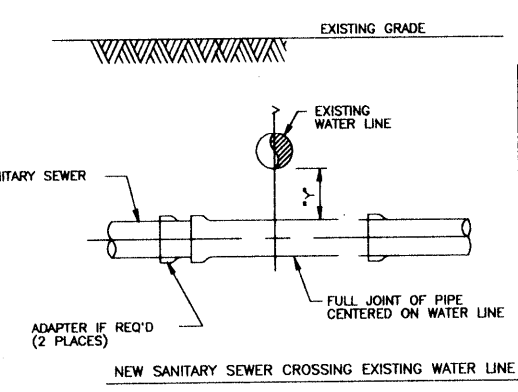
- NOTES:
1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS. PRECISE SECTION 02227 FOR REQUIREMENTS IN OTHER CONDITIONS.
 2. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "X" FOR THE NOMINAL PIPE SIZE:
NOMINAL PIPE SIZE "X"
LESS THAN 18" 15"
18" TO 30" 24"
OVER 30" 36"
 3. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
 4. MIN BEDDING DEPTH SHALL BE THE GREATER OF 4" OR 0.8 INCHES.
 5. SPECIFICATIONS MAY ALLOW ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS. SEE SPEC SECTION 02237.

SANITARY SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH
(NOT TO SCALE)
02227-08B



LONGITUDINAL SECTION ALONG PIPE @ AT EMBEDMENT TRENCH DAM

SANITARY SEWER EMBEDMENT AND TRENCH ZONE BACKFILL FOR STANDARD TRENCH
(NOT TO SCALE)
02227-01C



- INSTALLATION REQUIREMENTS
1. 6" DIA OR GREATER SHALL BE 6" MIN. 4" DIA SHALL BE 4" MIN. 2" DIA SHALL BE 2" MIN. 1.5" DIA SHALL BE 1.5" MIN. 1" DIA SHALL BE 1" MIN. 0.75" DIA SHALL BE 0.75" MIN. 0.5" DIA SHALL BE 0.5" MIN. 0.375" DIA SHALL BE 0.375" MIN.
 2. 4" DIA OR GREATER SHALL BE 4" MIN. 3" DIA SHALL BE 3" MIN. 2" DIA SHALL BE 2" MIN. 1.5" DIA SHALL BE 1.5" MIN. 1" DIA SHALL BE 1" MIN. 0.75" DIA SHALL BE 0.75" MIN. 0.5" DIA SHALL BE 0.5" MIN. 0.375" DIA SHALL BE 0.375" MIN.
 3. 1" DIA OR GREATER SHALL BE 1" MIN. 0.75" DIA SHALL BE 0.75" MIN. 0.5" DIA SHALL BE 0.5" MIN. 0.375" DIA SHALL BE 0.375" MIN.

- NOTES:
1. EXISTING COVER MUST BE BELOW WATER LINE UNLESS INDICATED OTHERWISE. WATER SYSTEMS IN TRENCH AND ADJACENT SEWER SHALL BE PROTECTED BY 6" MIN. THICKNESS.
 2. NEW UNPRESSURIZED SEWER IS REQUIRED.
 3. 4" DIA OR GREATER SHALL BE 4" MIN. 3" DIA SHALL BE 3" MIN. 2" DIA SHALL BE 2" MIN. 1.5" DIA SHALL BE 1.5" MIN. 1" DIA SHALL BE 1" MIN. 0.75" DIA SHALL BE 0.75" MIN. 0.5" DIA SHALL BE 0.5" MIN. 0.375" DIA SHALL BE 0.375" MIN.
 4. SPECIAL APPROVALS SHALL BE OBTAINED FOR ALL SPECIAL REQUIREMENTS.
 5. 4" DIA MUST ALWAYS BE GREATER THAN OR EQUAL TO 4" DIA.
 6. 4" DIA MUST ALWAYS BE GREATER THAN OR EQUAL TO 4" DIA.
 7. ALL TRENCHES SHALL BE PROTECTED BY 6" MIN. THICKNESS.
 8. SEWERAGE TREATMENT PLANTS TO ALLOW FOR 10% OF THE SPECIFIED REQUIREMENTS.

SEWER LINE CROSSING BELOW WATER LINE WITHIN 2 FT SEPARATION	MINIMUM COVER BELOW WATER LINE WITHIN 2 FT SEPARATION	ADAPTER REQUIRED
6" TO 12" (DATA D-30A)	12" TO 18" (DATA D-30A)	ADAPTER REQUIRED
12" TO 18" (DATA D-30A)	18" TO 24" (DATA D-30A)	ADAPTER REQUIRED
18" TO 24" (DATA D-30A)	24" TO 30" (DATA D-30A)	ADAPTER REQUIRED
24" TO 30" (DATA D-30A)	30" TO 36" (DATA D-30A)	ADAPTER REQUIRED
30" TO 36" (DATA D-30A)	36" TO 42" (DATA D-30A)	ADAPTER REQUIRED
42" AND LARGER	42" AND LARGER	ADAPTER REQUIRED
42" AND LARGER	42" AND LARGER	ADAPTER REQUIRED
42" AND LARGER	42" AND LARGER	ADAPTER REQUIRED
42" AND LARGER	42" AND LARGER	ADAPTER REQUIRED

- INSTALLATION REQUIREMENTS
1. 4" DIA OR GREATER SHALL BE 4" MIN. 3" DIA SHALL BE 3" MIN. 2" DIA SHALL BE 2" MIN. 1.5" DIA SHALL BE 1.5" MIN. 1" DIA SHALL BE 1" MIN. 0.75" DIA SHALL BE 0.75" MIN. 0.5" DIA SHALL BE 0.5" MIN. 0.375" DIA SHALL BE 0.375" MIN.
 2. 4" DIA OR GREATER SHALL BE 4" MIN. 3" DIA SHALL BE 3" MIN. 2" DIA SHALL BE 2" MIN. 1.5" DIA SHALL BE 1.5" MIN. 1" DIA SHALL BE 1" MIN. 0.75" DIA SHALL BE 0.75" MIN. 0.5" DIA SHALL BE 0.5" MIN. 0.375" DIA SHALL BE 0.375" MIN.

INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES

SANITARY SEWER INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES
(NOT TO SCALE)
02251-07

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS & ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP	
SECTION APPROVALS	
<i>[Signature]</i> WATER ENGINEERING	TRAFFIC AND SIGNAL ENGINEERING
<i>[Signature]</i> SANITARY ENGINEERING	STREET & BRIDGE ENGINEERING
<i>[Signature]</i> STORM SEWER ENGINEERING	CONSTRUCTION
OTHER DEPARTMENTS	
PLANNING AND DEVELOPMENT	SPONSOR DEPARTMENT
<i>[Signature]</i> CITY ENGINEER	DATE 4/15/98
<i>[Signature]</i> DIRECTOR OF PUBLIC WORKS & ENGINEERING	DATE 1-16-98
SUBMITTED:	DESIGNED BY: TIM
SCALE: N/A	DRAWN BY: TIM
DATE: AUGUST 1997	SHEET NO. 21 OF 27 SHEETS
SURVEY BY:	CITY DWG. NO:
F B NO:	

SANITARY SEWER DETAILS

PEI PROVIDENT ENGINEERS, INC.
11241 RICHMOND, SUITE E107
Houston, Texas 77082