

## GENERAL NOTES

- UNLESS SHOWN OR OTHERWISE STATED ON THESE DRAWINGS, MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS.
- THE TOPS OF INLETS AND MANHOLES AS NOTED ON THE PLANS MAY VARY SO AS TO MEET PROPOSED TOP OF CURB ELEVATIONS OR PAVEMENT ELEVATIONS. THE FIELD ENGINEER SHALL LOCATE INLETS AND MANHOLES WITH REFERENCE TO PROPOSED PAVING PLANS OF THE PERTINENT STREETS.
- ALL CONCRETE SHALL BE STANDARD PAVING MIX UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR SHALL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.
- TREES TO BE REMOVED ARE MARKED . ALL TREES WHICH IN THE OPINION OF THE FIELD ENGINEER CAN BE SAVED, SHALL BE SAVED.
- CONTRACTOR SHALL NOTIFY UTILITY COMPANIES OF CONSTRUCTION SCHEDULING.
- EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS COMPANIES AND IS EITHER FROM COMPANY UTILITY DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE PLAN LOCATIONS SHOWN ARE NOT GUARANTEED. ADDITIONAL EXISTING UTILITIES MAY ALSO BE ENCOUNTERED.
- CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM ADVANCE NOTICE OF SEVENTY-TWO (72) HOURS TO UTILITY COMPANIES TO STARTING ANY EXCAVATION AS FOLLOWS:  
  

KANSAS ONE-CALL	800-344-7233
	OR 687-2470 (LOCAL WICHITA)

THE CONTRACTOR MUST NOTIFY THE FOLLOWING IN CASE OF EMERGENCY:

COX COMMUNICATIONS (CABLE)	262-0661
WESTAR (ELECTRIC)	261-6512
KANSAS GAS SERVICE (GAS)	832-3101
SBC (TELEPHONE)	800-870-8390
CITY OF WICHITA WATER & SEWER	262-6000
BLACK HILLS ENERGY (GAS)	800-303-0357
- RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR. THESE SITES SHALL BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.
- CONTRACTOR SHALL RESEED AND MULCH ALL DISTURBED AREAS. COST SHALL BE CONSIDERED SUBSIDIARY TO SITE RESTORATION.
- CONTRACTOR TO COORDINATE CONSTRUCTION OF STORM WATER SEWER WITH OTHER CONSTRUCTION ACTIVITIES ON SITE. THIS INCLUDES WATER, SANITARY SEWER AND MASS GRADING PROJECTS.
- THE WORK ON THIS PROJECT IS SUBJECT TO THE CITY OF WICHITA REQUIREMENTS FOR "CONSTRUCTION OF INFRASTRUCTURE IMPROVEMENTS BY PRIVATE CONTRACT". THE CONTRACTOR SHALL FAMILIARIZE HERSELF/HIMSELF WITH, AND COMPLY WITH ALL THE REQUIREMENTS, INCLUDING BONDING, INSPECTION, TESTING, NOTIFICATION, PROVIDING AS-BUILT DRAWINGS, PAYING ALL NECESSARY CONNECTION AND/OR STREET REPAIR FEES, AND PROVIDING PIPE MATERIALS AND OTHER CERTIFICATIONS AS NEEDED.
- THE SITE UTILITY PLAN SHEETS SHOW THE PROPOSED LOCATIONS, SIZES AND CONNECTIONS OF THE ROOF LEADER AND ROOF DOWNSPOUT PIPING COLLECTION SYSTEMS TO THE PROPOSED ON SITE PRIVATE STORM WATER SEWER SYSTEM. THE PROPOSED CONNECTION LOCATIONS TO THE ON SITE PRIVATE STORM WATER SEWER SYSTEM SHOULD NOT BE CHANGED UNLESS SUCH CONNECTION POINTS ARE MOVED TO DOWNSTREAM PIPE OR STORM WATER SEWER STRUCTURES, AS STORM WATER SEWER PIPING SIZES WERE CALCULATED BASED ON THE ASSUMED CONNECTION POINTS.

THE SIX ROOF UNDER SLAB RAIN LEADER PIPES SIZES ARE ASSUMED TO BE 6". EXITING THE BUILDING AT THE LOCATIONS SHOWN, BASED ON INFORMATION SUPPLIED BY THE PROJECT ARCHITECT. THE LOCATION AND SIZES OF THE ROOF LEADER AND ROOF DOWNSPOUT CONNECTION AND CONVEYANCE SYSTEM IS SHOWN SCHEMATICALLY ON THE UTILITY PLANS. THE EXACT LOCATION AND SIZES OF THE ROOF DRAINAGE CONNECTION AND CONVEYANCE SYSTEM SHOULD BE DETERMINED BY THE DESIGN/BUILD M/E/C CONTRACTOR. THE ON SITE PRIVATE STORM WATER SEWER PLANS SHOW CONNECTION POINTS, SIZES AND STUBS FOR CONNECTING TO THE ROOF DRAINAGE CONNECTION AND CONVEYANCE SYSTEM. THE FINAL DESIGN OF THE ROOF DRAINAGE CONNECTION AND CONVEYANCE SYSTEM SHOULD BE SUBMITTED FOR REVIEW BY THE APPROPRIATE OWNER'S REPRESENTATIVE.

### AS BUILT PLANS

Contractor: Mies Const.

Inspector: Schwab-Eaton

pdf by: BDB 9-13-10

Project was constructed as shown on as built plans.

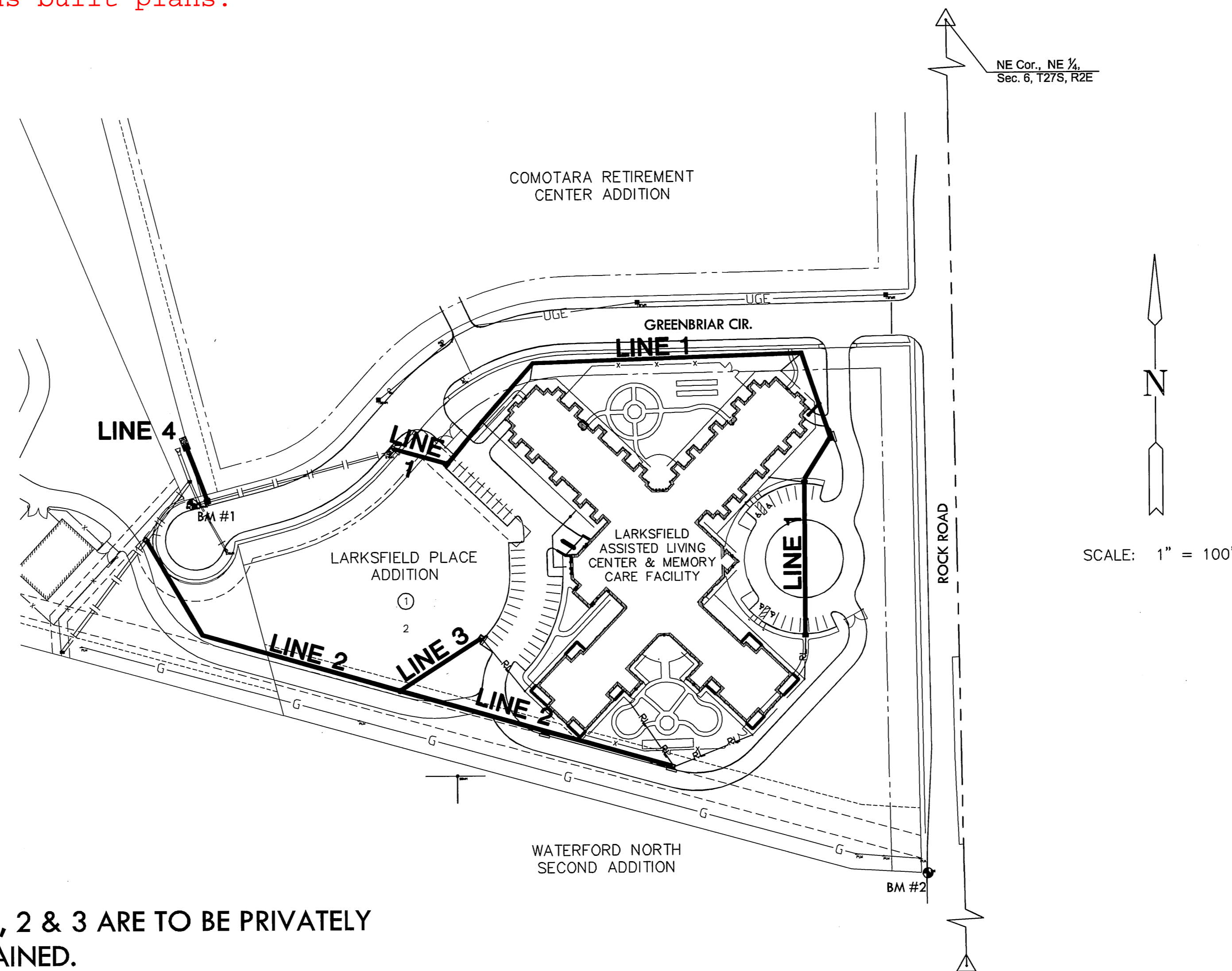
**NOTE:**  
 LINES 1, 2 & 3 ARE TO BE PRIVATELY MAINTAINED.  
 LINE 4 IS TO BE PUBLICLY MAINTAINED.

**NOTES:**  
 1. CONTRACTOR TO VERIFY DEPTH & LOCATION OF EXISTING UTILITIES AND SANITARY LINES PRIOR TO CONSTRUCTION.

# STORM WATER SEWER PLANS FOR LARKSFIELD EAST

2727 N. ROCK ROAD, WICHITA, KANSAS  
 JAMES L. ARMOUR, P.E. - CITY ENGINEER

CITY OF WICHITA PRIVATE PROJECT  
 NO. 2060PPS (607861)

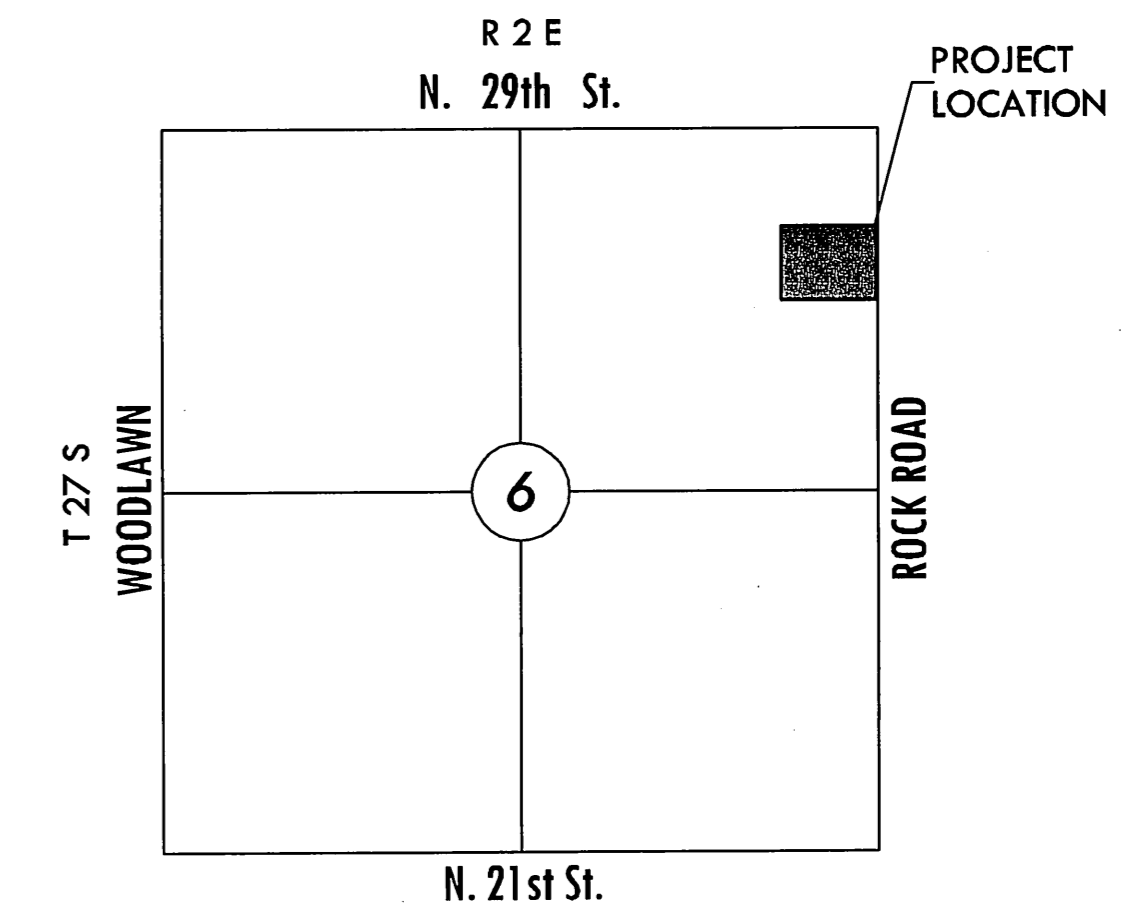


### LEGEND

- EXISTING STORM WATER SEWER
- PROPOSED PRIVATE STORM WATER SEWER

### BENCHMARKS

- BM #1 — SQUARE CUT ON NORTHWEST CORNER OF STORM INLET NORTH SIDE OF CUL-DE-SAC ON GREENBRIAR CIRCLE.  
Elevation=1394.58 (NAVD 88)
- BM #2 — SQUARE CHISELED ON TOP OF CURB.  
Elevation=1408.91 (NAVD 88)



VICINITY MAP

### INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2-6	LINES 1-4
7-11	DETAILS

SCALE: 1" = 100'

**APPROVED AS NOTED**  
 BY CITY ENGINEER OF WICHITA,  
 BY WICHITA WATER & SEWER DEPARTMENT,  
 & BY WICHITA FIRE DEPARTMENT

Storm Water  
 (Public Works)

*Julianne Kallman, 7-22-10*

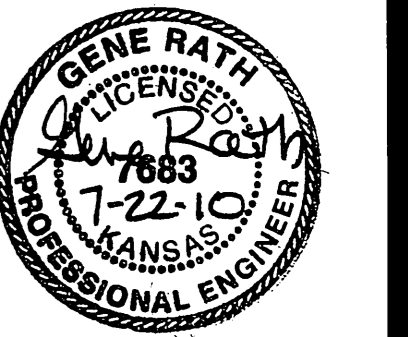
#### NOTE TO CONTRACTORS

#### Public Property:

Inspection and testing for the storm water sewer line is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita Standard Construction Engineering Practices and certified by a Professional Engineer licensed in the state of Kansas. No work shall be performed in dedicated easements or public rights-of-way by the Contractor without such inspection, nor shall any work be commenced without written authorization by the City Engineer. All construction and materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

**MKEC**  
 ENGINEERING  
 CONSULTANTS, INC.

411 N. WEBB ROAD  
 WICHITA, K.S. 67206  
 316-684-9600



PRIVATE STORM WATER SEWER PLANS FOR  
**LARKSFIELD EAST**  
 LARKSFIELD PLACE ADDITION, WICHITA, KS

### TITLE SHEET

SHEET TITLE  
 PROJECT NUMBER

10043

DESIGNED DRAWN CHECKED

ISSUED  
 July 10

REVISED

SHEET NO.

1 of 11

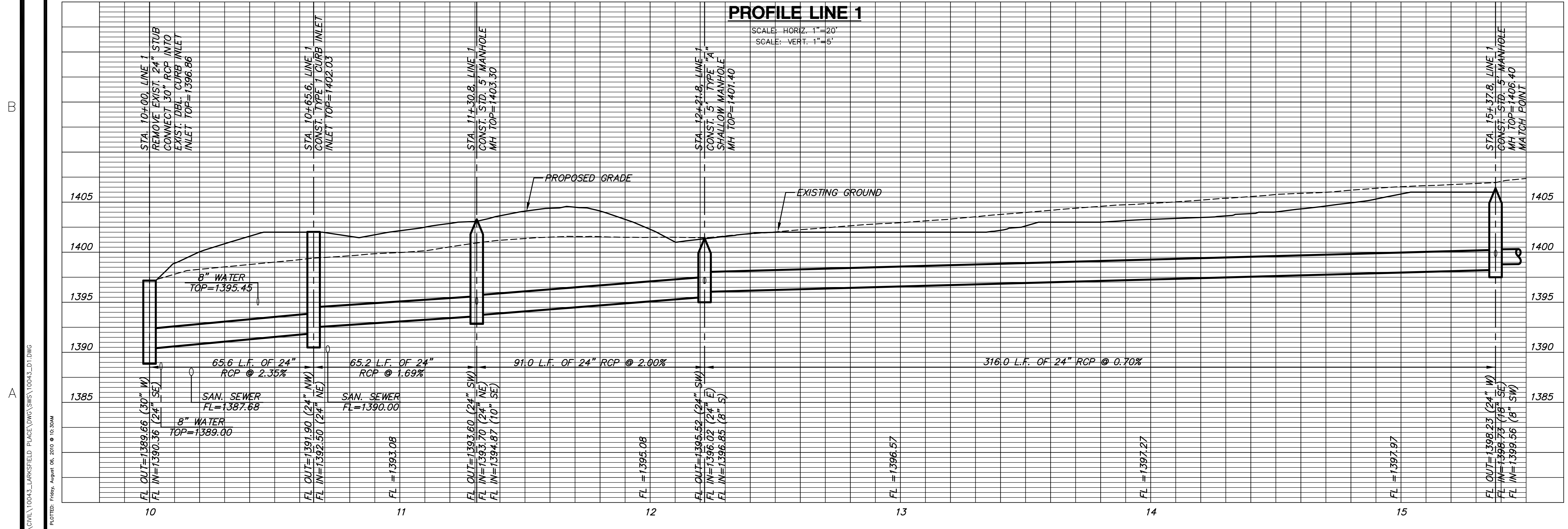
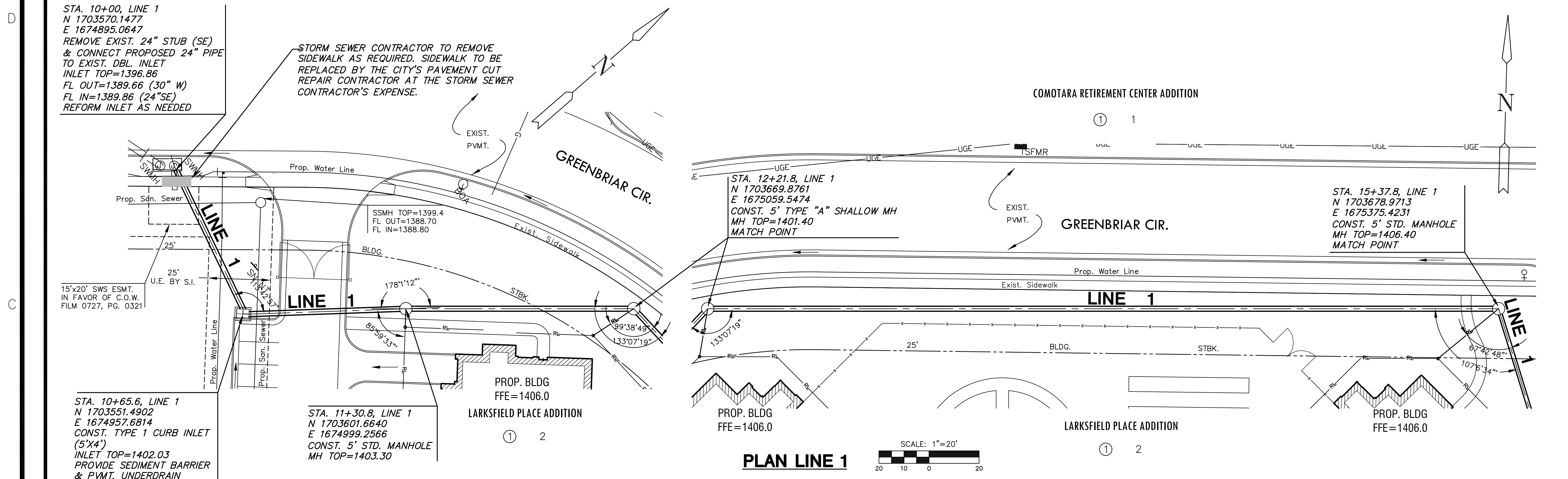
**PRIVATE STORM WATER SEWER PLANS FOR  
LARKSFIELD PLACE - EAST  
LARKSFIELD PLACE ADDITION, WICHITA, KS**

**PLAN & PROFILE  
LINE 1**  
SHEET TITLE  
10043  
PROJECT NUMBER

DESIGN BY: DACR  
DRAWN BY: DACR  
CHECKED BY: MAB

ISSUED: July 10  
REVISED:

SHEET NO.  
**2 of 11**



J:\DWG\10043\_LARKSFIELD\_PLACE\DWG\SW\10043\_01.DWG  
PLOTTED: Friday, August 05, 2016 @ 10:30AM

**PRIVATE STORM WATER SEWER PLANS FOR  
LARKSFIELD PLACE - EAST  
LARKSFIELD PLACE ADDITION, WICHITA, KS**

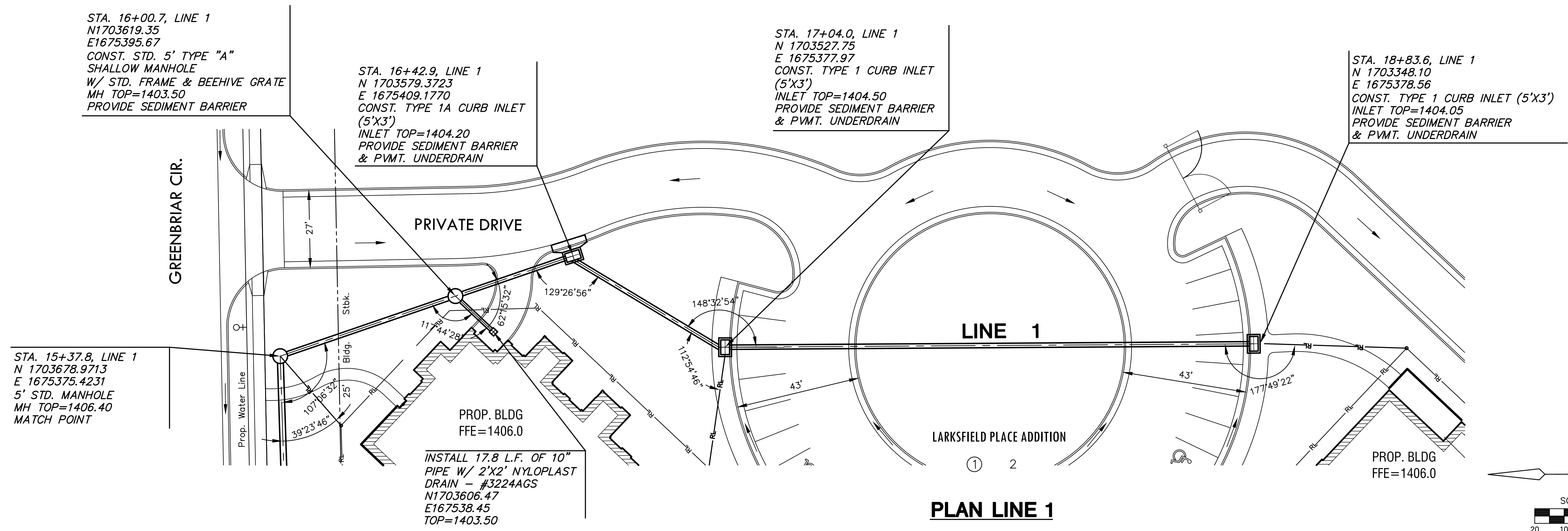
**PLAN & PROFILE  
LINE 1**

SHEET TITLE  
**10043**  
PROJECT NUMBER

DESIGN BY DACR  
DRAWN BY DACR  
CHECKED BY MAB

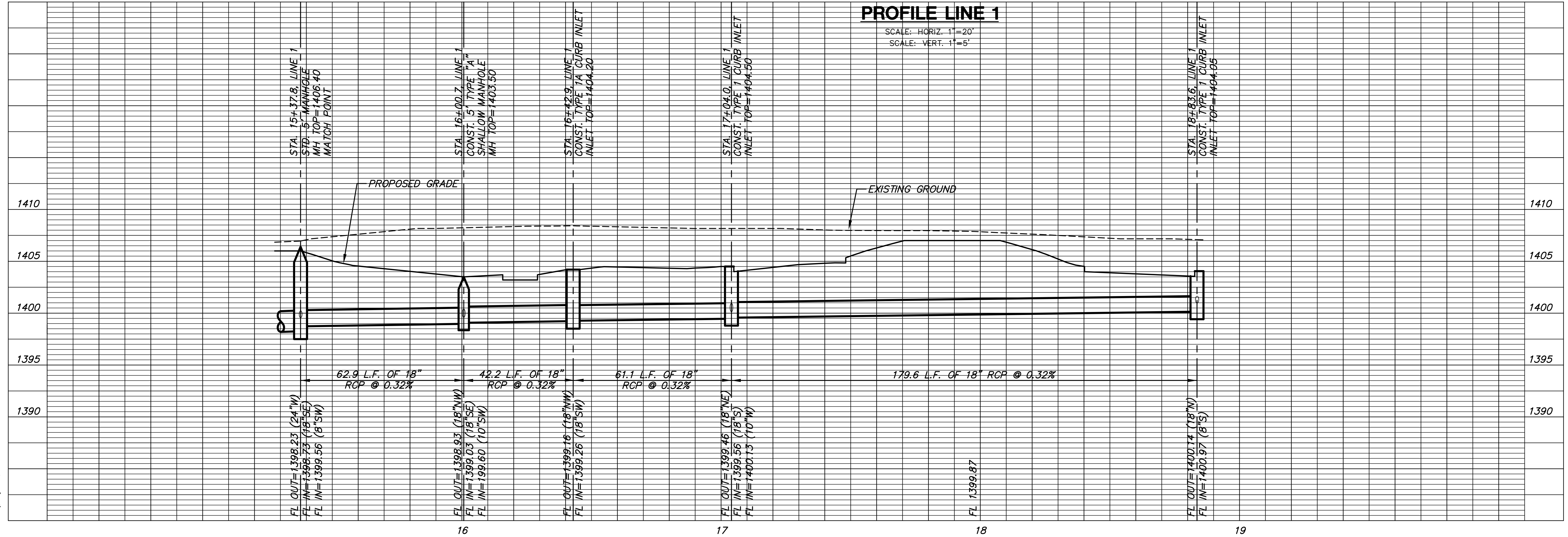
ISSUED July 10  
REVISED

SHEET NO.  
**3 of 11**



**PROFILE LINE 1**

SCALE: HORIZ. 1"=20'  
SCALE: VERT. 1"=5'



D  
C  
B  
A

**PRIVATE STORM WATER SEWER PLANS FOR  
LARKSFIELD PLACE - EAST  
LARKSFIELD PLACE ADDITION, WICHITA, KS**

**PLAN & PROFILE  
LINE 2**  
SHEET TITLE  
PROJECT NUMBER  
**10043**

DESIGN BY  
**DACR**  
DRAWN BY  
**DACR**  
CHECKED BY  
**MAB**

ISSUED  
**July 10**  
REVISED

SHEET NO.  
**4 of 11**

See Next Sheet for  
Revisions

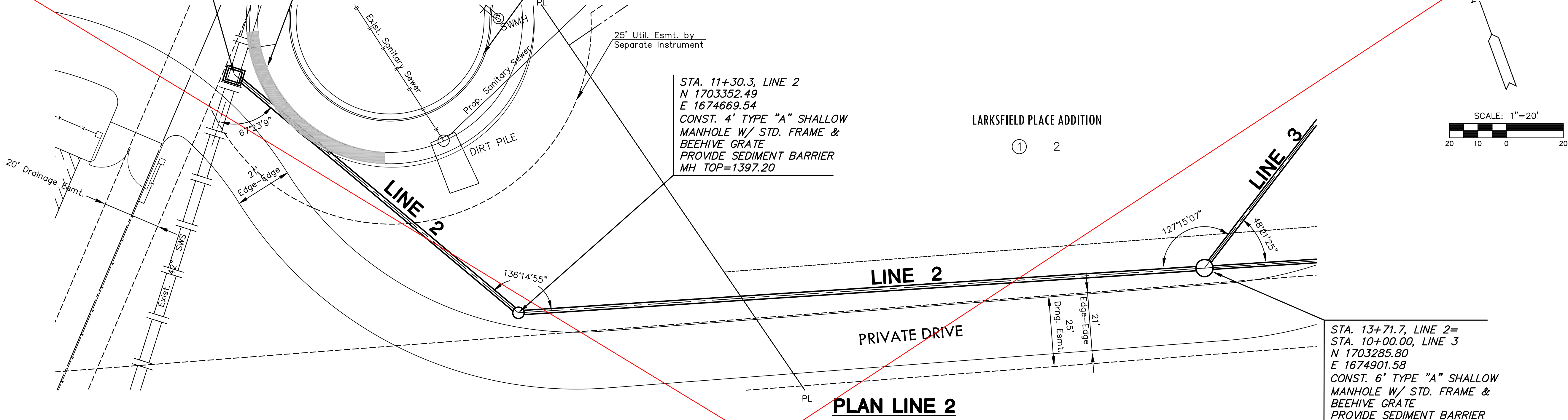
STA. 10+00, LINE 2  
N 1703465.09  
E 1674603.96  
CONST. 6.5'x5.5' REINFORCED  
CONCRETE MANHOLE W/ STD.  
FRAME AND BEEHIVE GRATE  
PROVIDE SEDIMENT BARRIER  
MH TOP=1394.30

REMOVE, REPLACE & RE-ALIGN  
SIDEWALK AND FENCE AS  
REQUIRED FOR CONSTRUCTION.  
COORDINATE SIDEWALK  
REPLACEMENT WITH PROJECT  
ENGINEER. COST SUBSIDIARY TO  
PROJECT.

STORM SEWER CONTRACTOR TO REMOVE  
SIDEWALK AS REQUIRED. SIDEWALK TO BE  
REPLACED BY THE CITY'S PAVEMENT CUT  
REPAIR CONTRACTOR AT THE STORM SEWER  
CONTRACTOR'S EXPENSE.

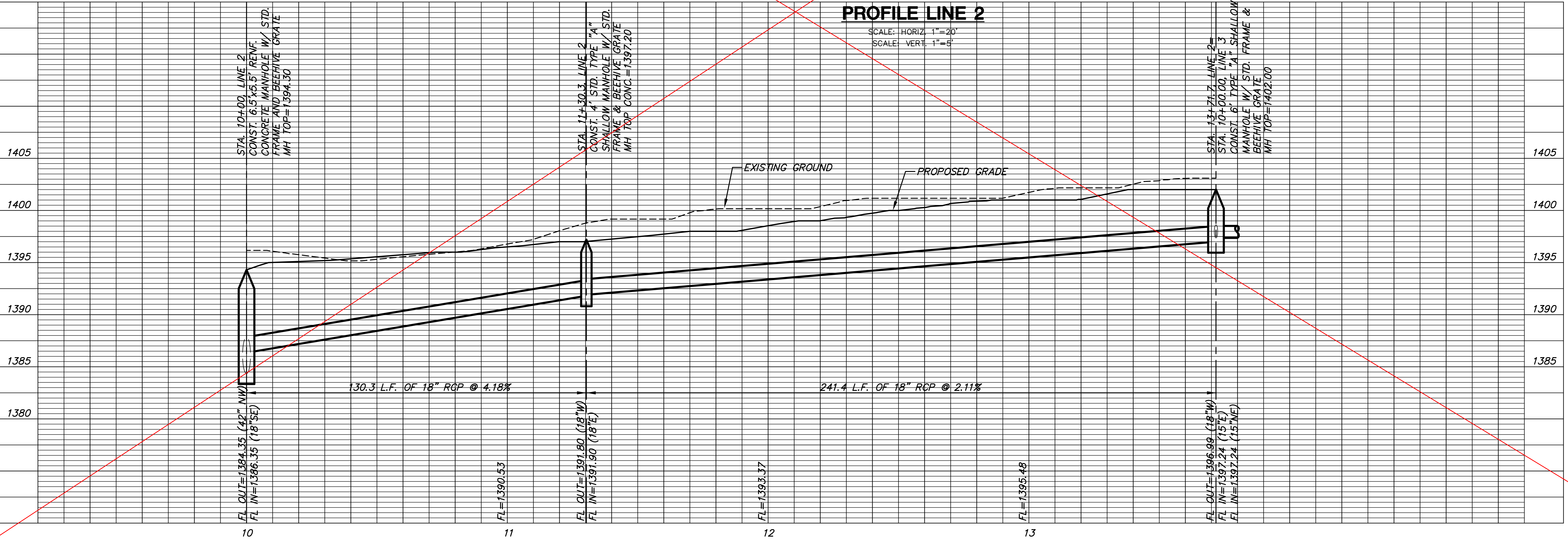
STA. 11+30.3, LINE 2  
N 1703352.49  
E 1674669.54  
CONST. 4' TYPE "A" SHALLOW  
MANHOLE W/ STD. FRAME &  
BEEHIVE GRATE  
PROVIDE SEDIMENT BARRIER  
MH TOP=1397.20

STA. 13+71.7, LINE 2=  
STA. 10+00.00, LINE 3  
N 1703285.80  
E 1674901.58  
CONST. 6' TYPE "A" SHALLOW  
MANHOLE W/ STD. FRAME &  
BEEHIVE GRATE  
PROVIDE SEDIMENT BARRIER  
MH TOP=1402.00



**PLAN LINE 2**

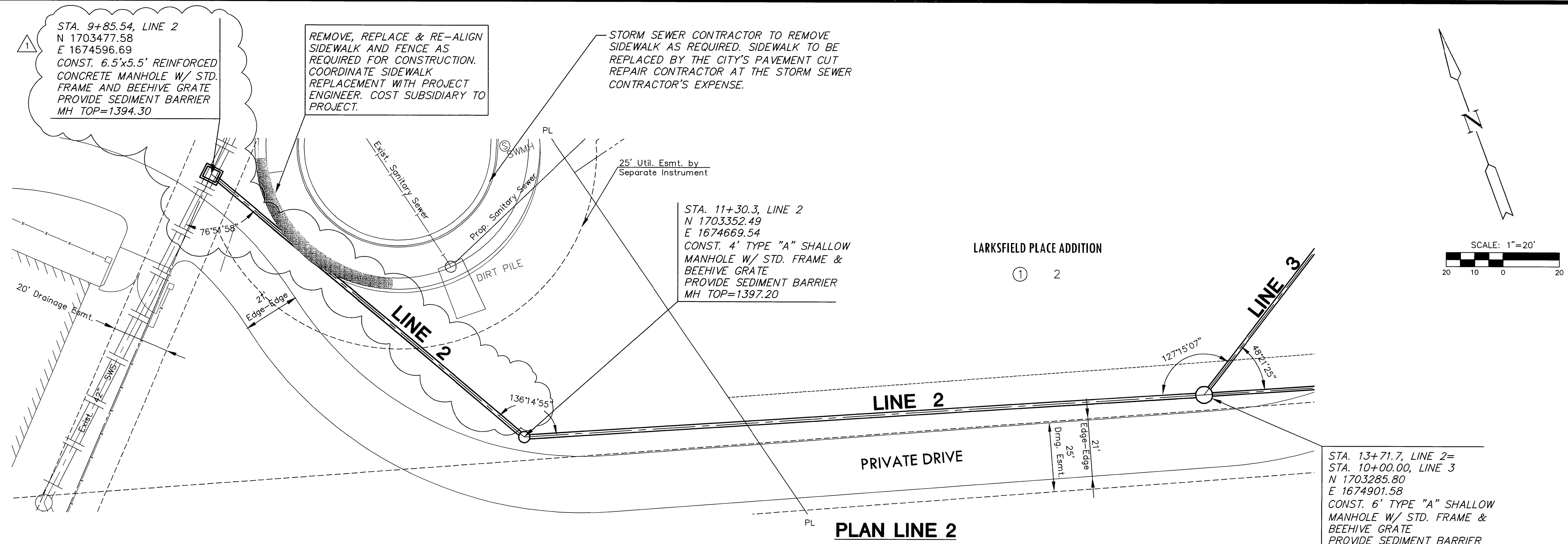
**PROFILE LINE 2**



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D  
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**MKEC**  
ENGINEERING  
CONSULTANTS, INC.  
411 N. WEBB ROAD  
WICHITA, KS. 67206  
316-684-9600

PRIVATE STORM WATER SEWER PLANS FOR  
**LARKSFIELD PLACE - EAST**  
LARKSFIELD PLACE ADDITION, WICHITA, KS

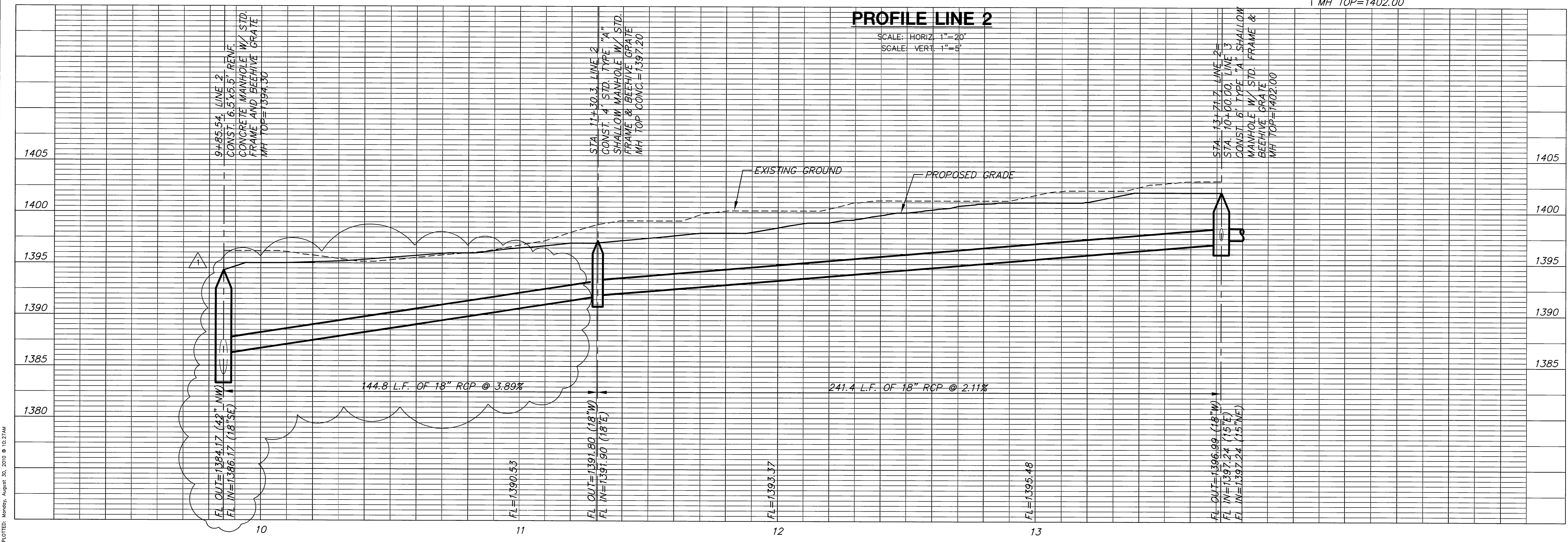
**PLAN & PROFILE  
LINE 2**

SHEET TITLE  
10043  
PROJECT NUMBER

DESIGN BY: DACR  
DRAWN BY: DACR  
CHECKED BY: MAB

ISSUED: August 10  
REVISED: 08-30-10

SHEET NO.  
4 of 11



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PLOTED: Monday, August 10, 2010 @ 10:27AM

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1 2 3 4 5 6

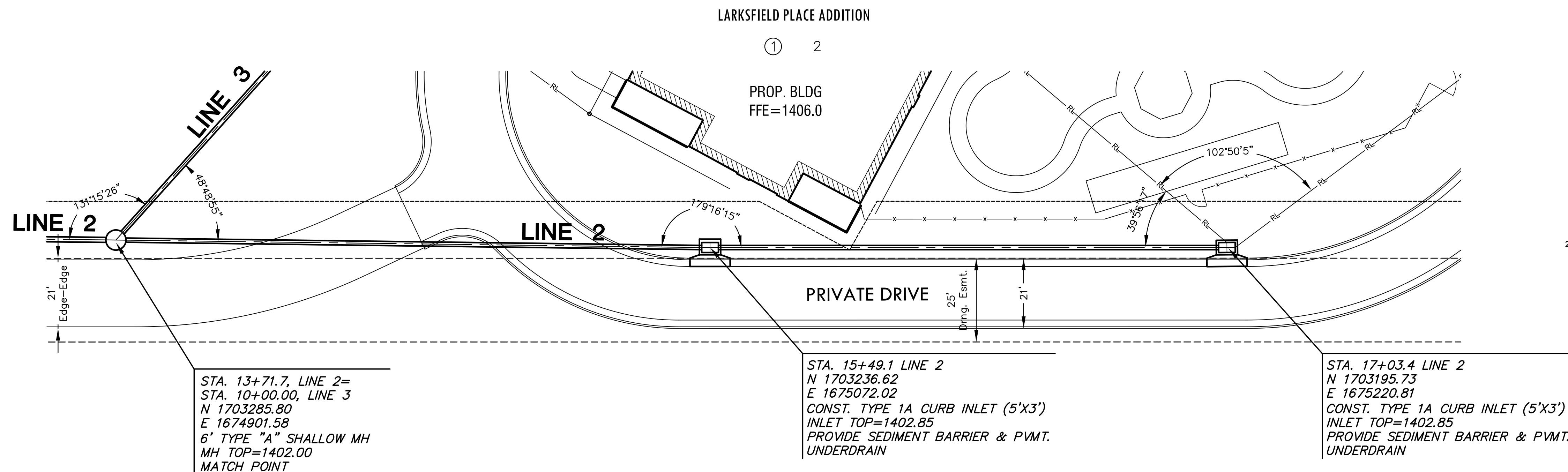
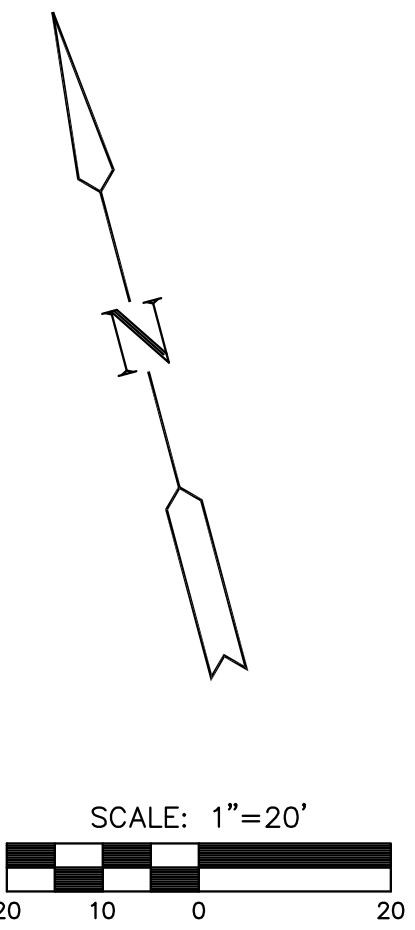
**PRIVATE STORM WATER SEWER PLANS FOR  
LARKSFIELD PLACE - EAST  
LARKSFIELD PLACE ADDITION, WICHITA, KS**

**PLAN & PROFILE  
LINE 2**  
SHEET TITLE  
PROJECT NUMBER  
**10043**

DESIGN BY  
**DACR**  
DRAWN BY  
**DACR**  
CHECKED BY  
**MAB**

ISSUED  
**July 10**  
REVISED

SHEET NO.  
**5 of 11**



STA. 13+71.7, LINE 2=  
STA. 10+00.00, LINE 3  
N 1703285.80  
E 1674901.58  
6' TYPE "A" SHALLOW MH  
MH TOP=1402.00  
MATCH POINT

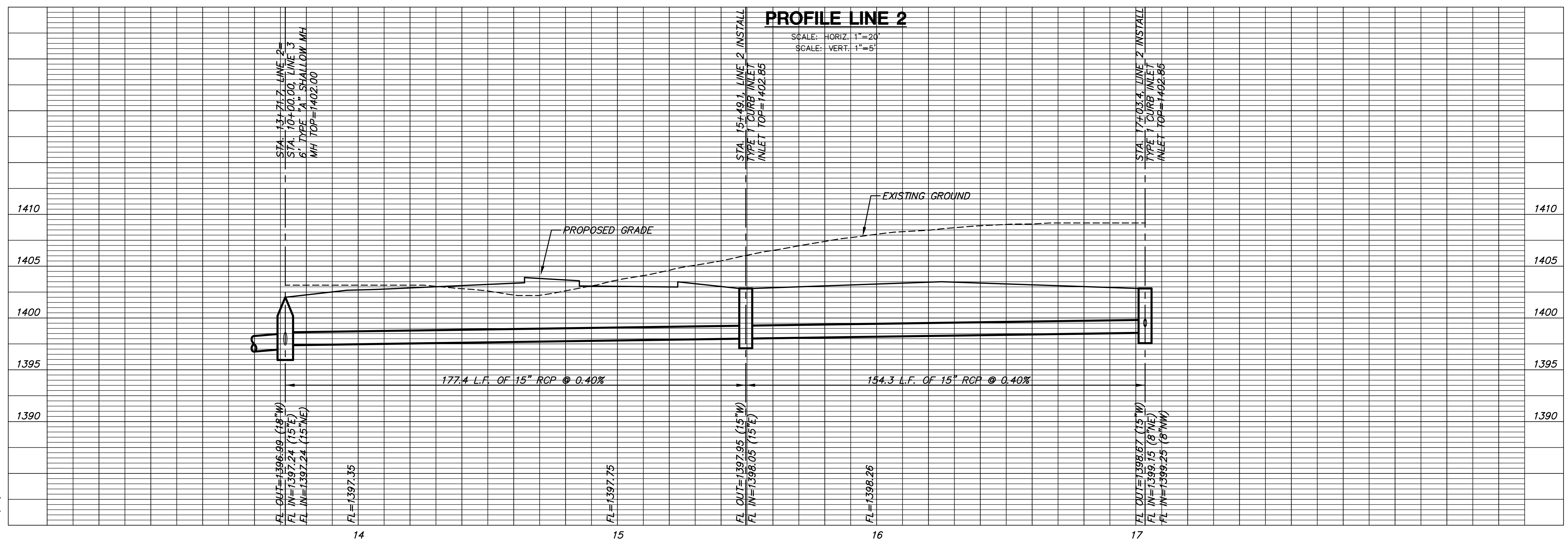
STA. 15+49.1 LINE 2  
N 1703236.62  
E 1675072.02  
CONST. TYPE 1A CURB INLET (5'X3')  
INLET TOP=1402.85  
PROVIDE SEDIMENT BARRIER & PVMT.  
UNDERDRAIN

STA. 17+03.4 LINE 2  
N 1703195.73  
E 1675220.81  
CONST. TYPE 1A CURB INLET (5'X3')  
INLET TOP=1402.85  
PROVIDE SEDIMENT BARRIER & PVMT.  
UNDERDRAIN

**PLAN LINE 2**

**PROFILE LINE 2**

SCALE: HORIZ. 1"=20'  
SCALE: VERT. 1"=5'



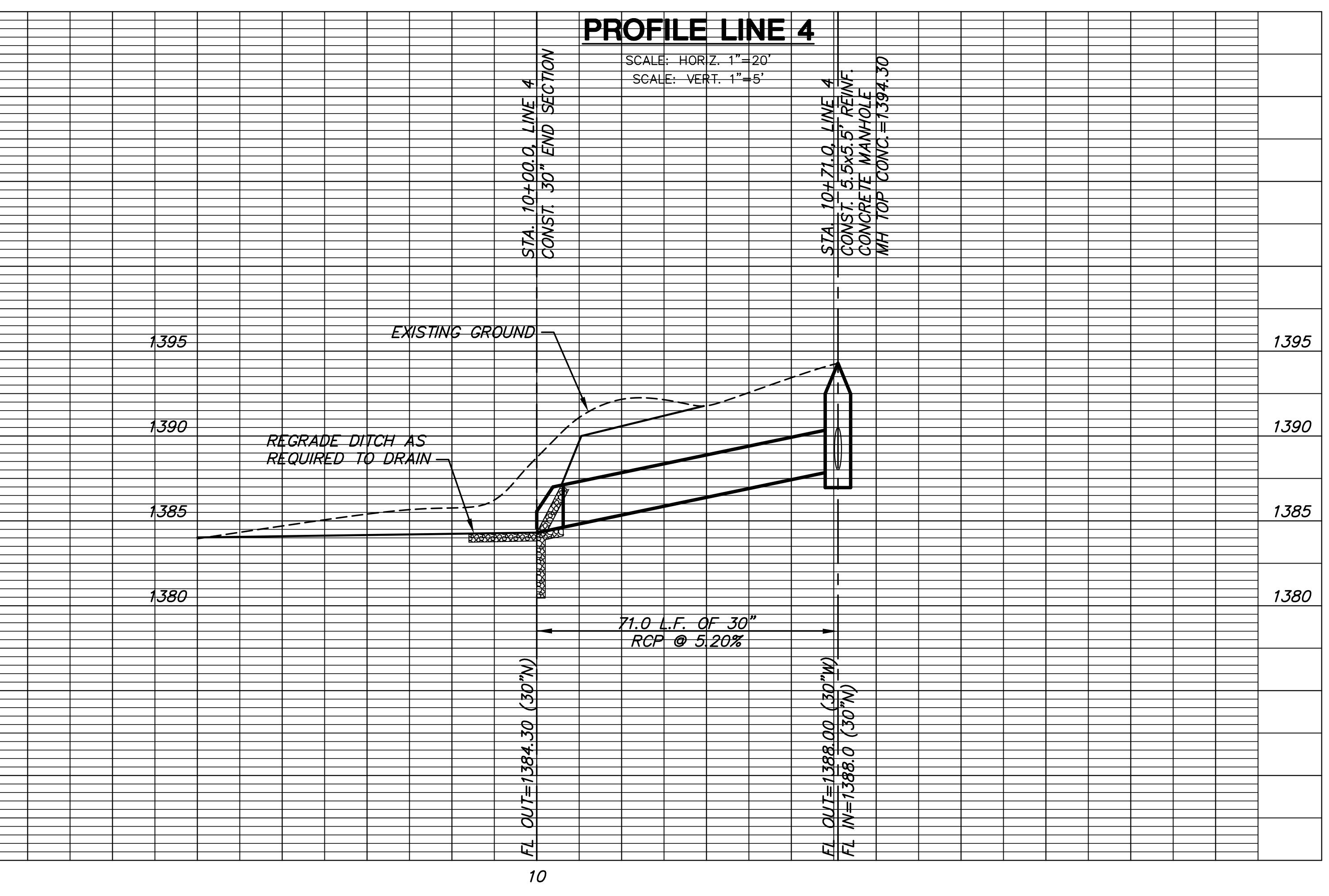
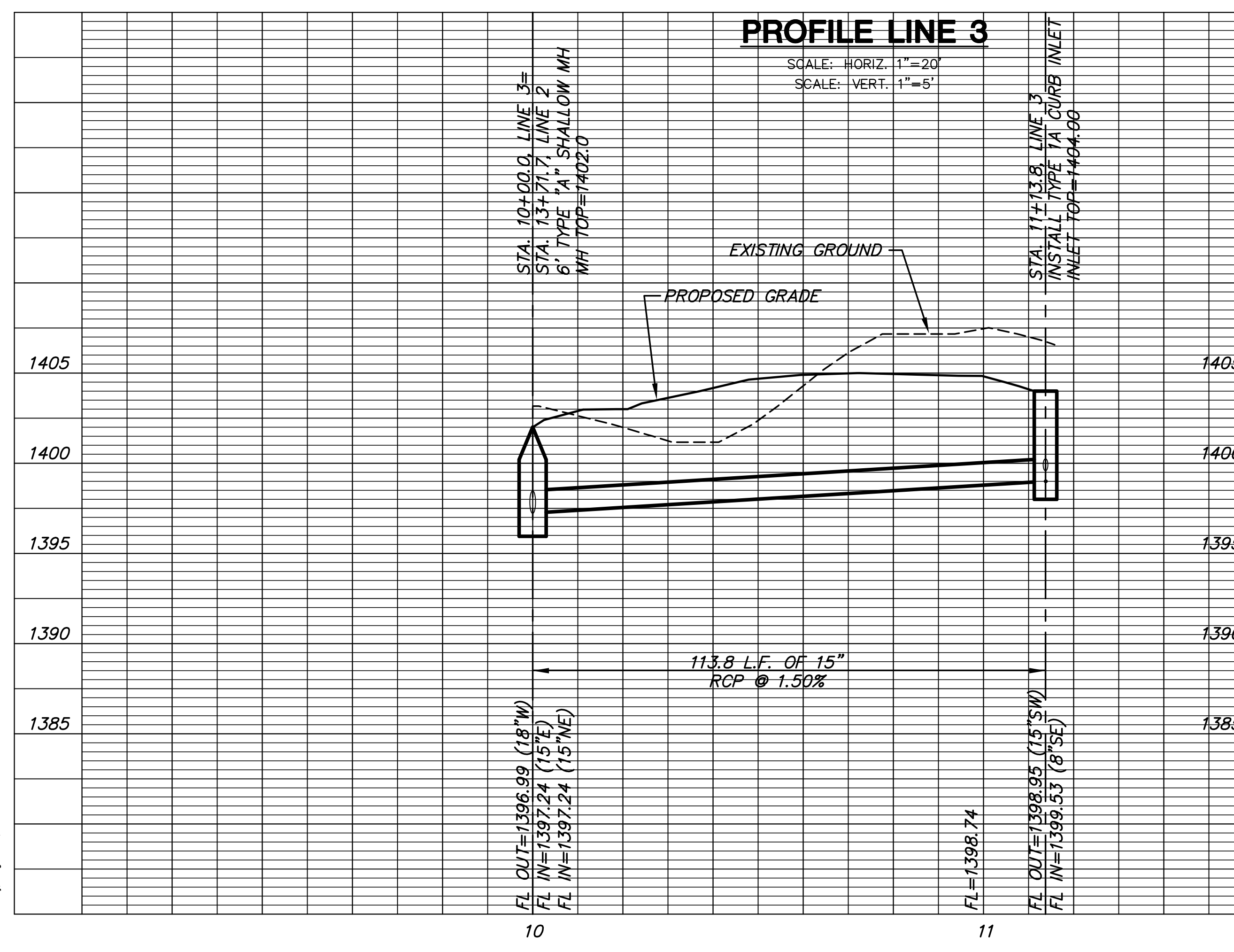
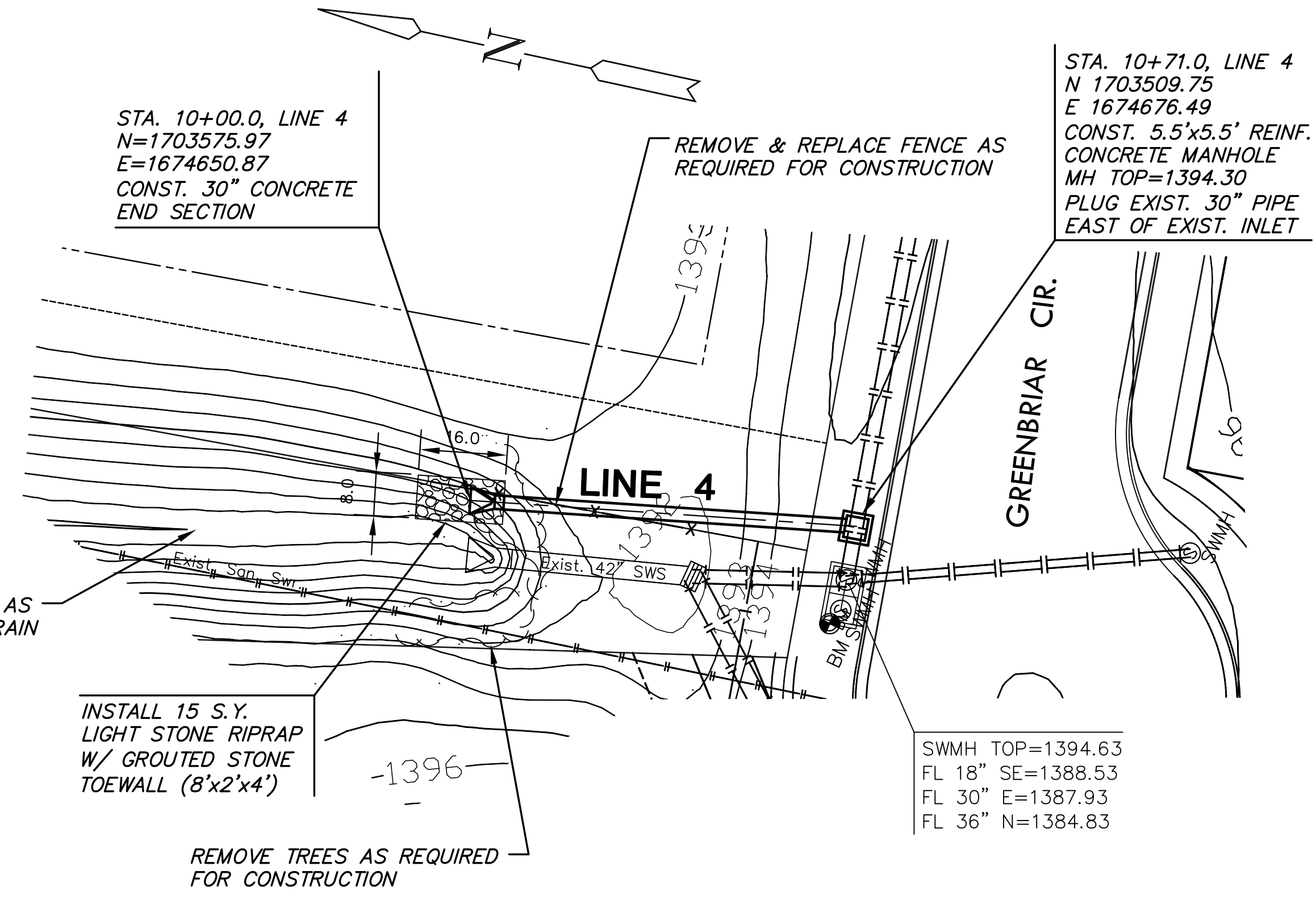
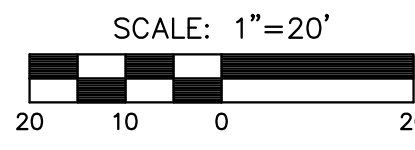
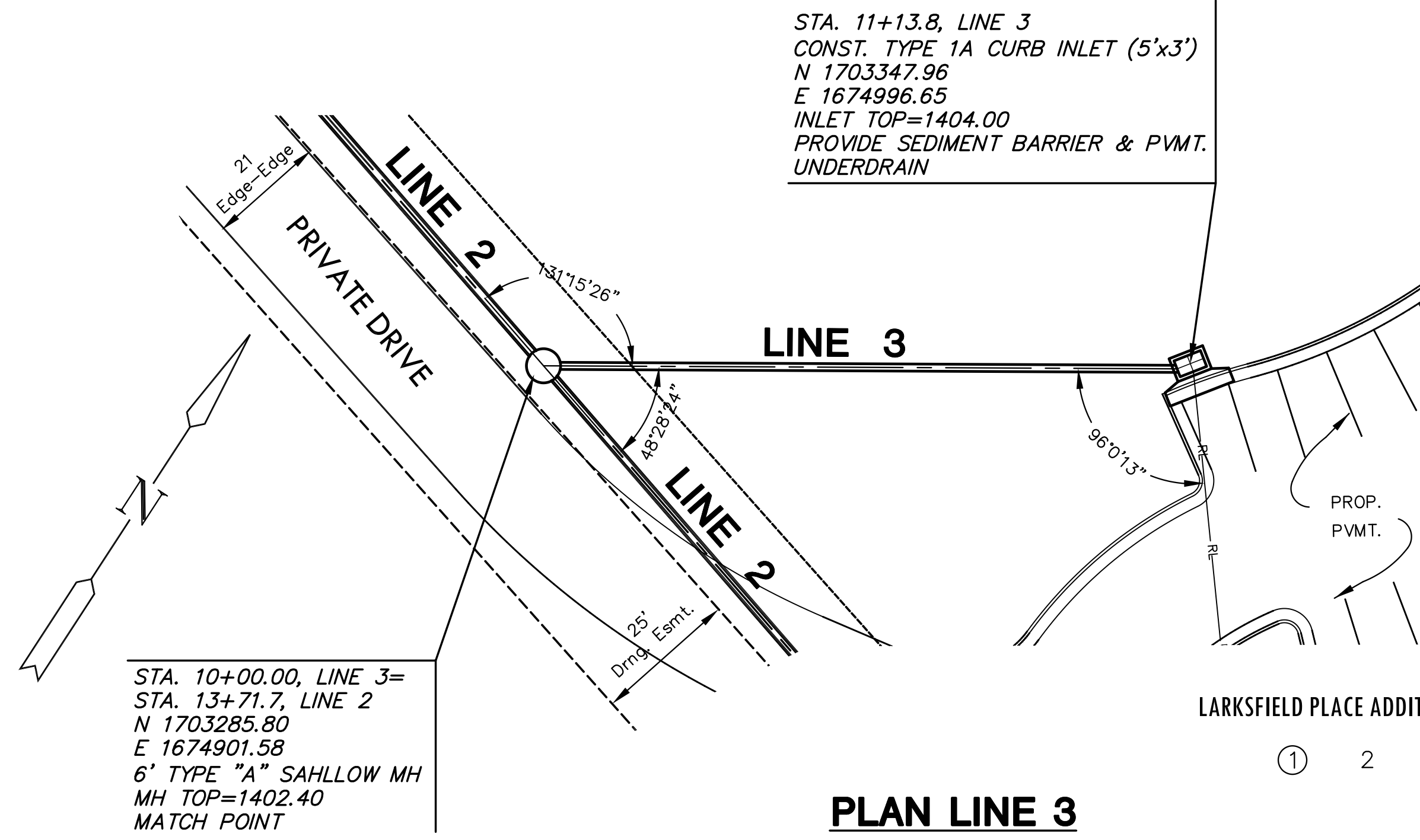
**PRIVATE STORM WATER SEWER PLANS FOR  
LARKSFIELD PLACE - EAST  
LARKSFIELD PLACE ADDITION, WICHITA, KS**

**PLAN & PROFILE  
LINES 3 & 4**  
SHEET TITLE  
10043  
PROJECT NUMBER

DESIGN BY: DACR  
DRAWN BY: DACR  
CHECKED BY: MAB

ISSUED: July 10  
REVISED:

SHEET NO.  
6 of 11

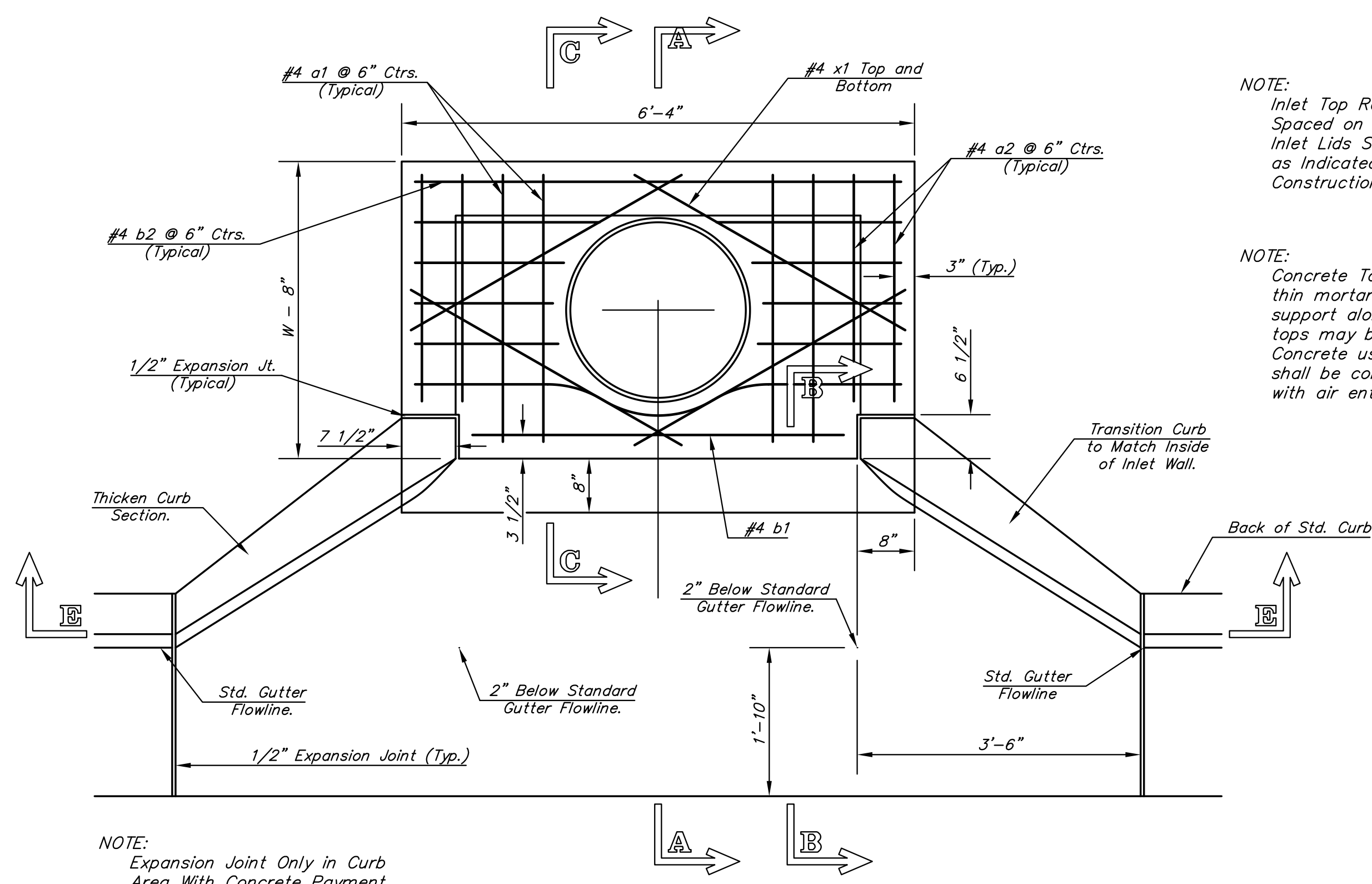


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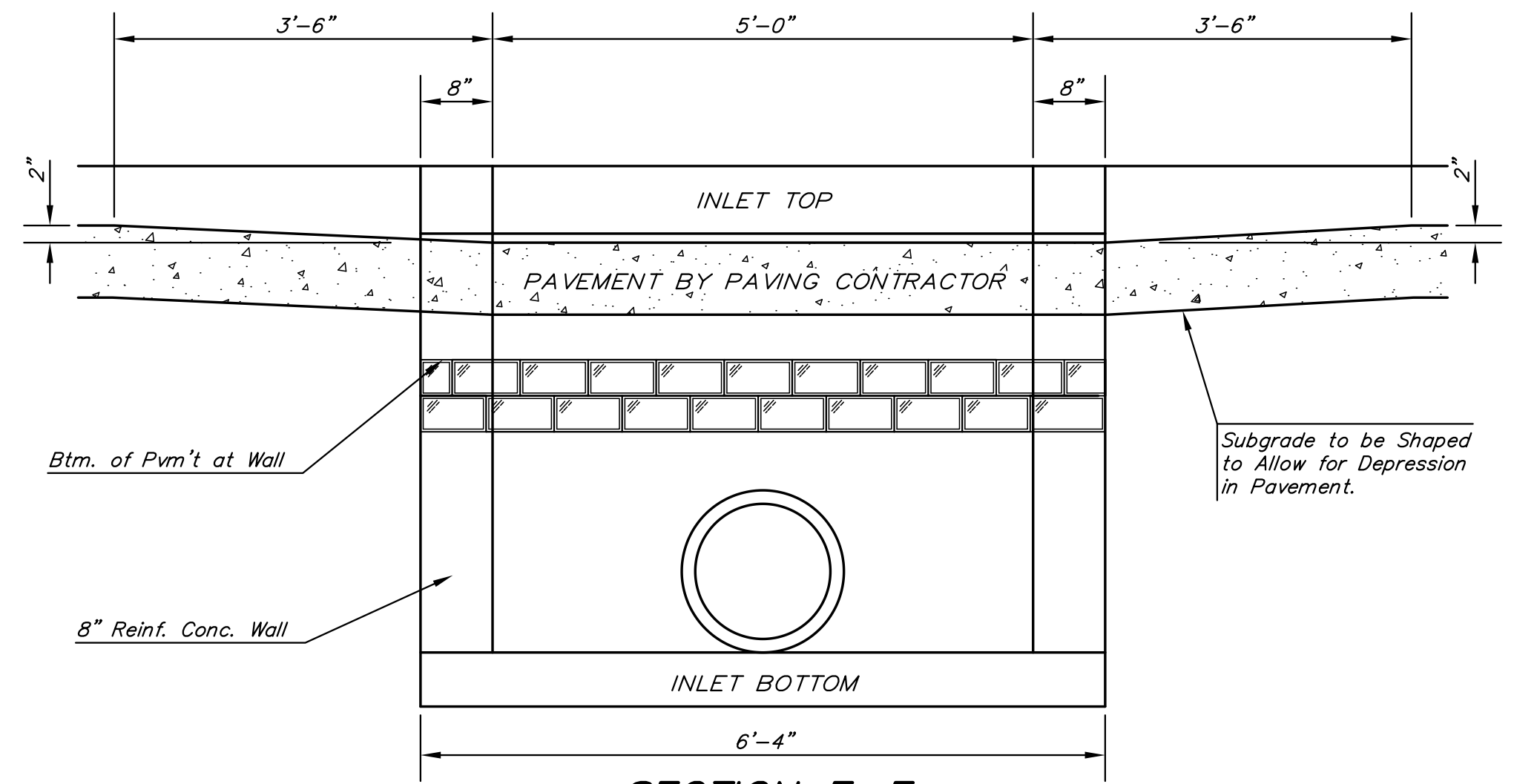
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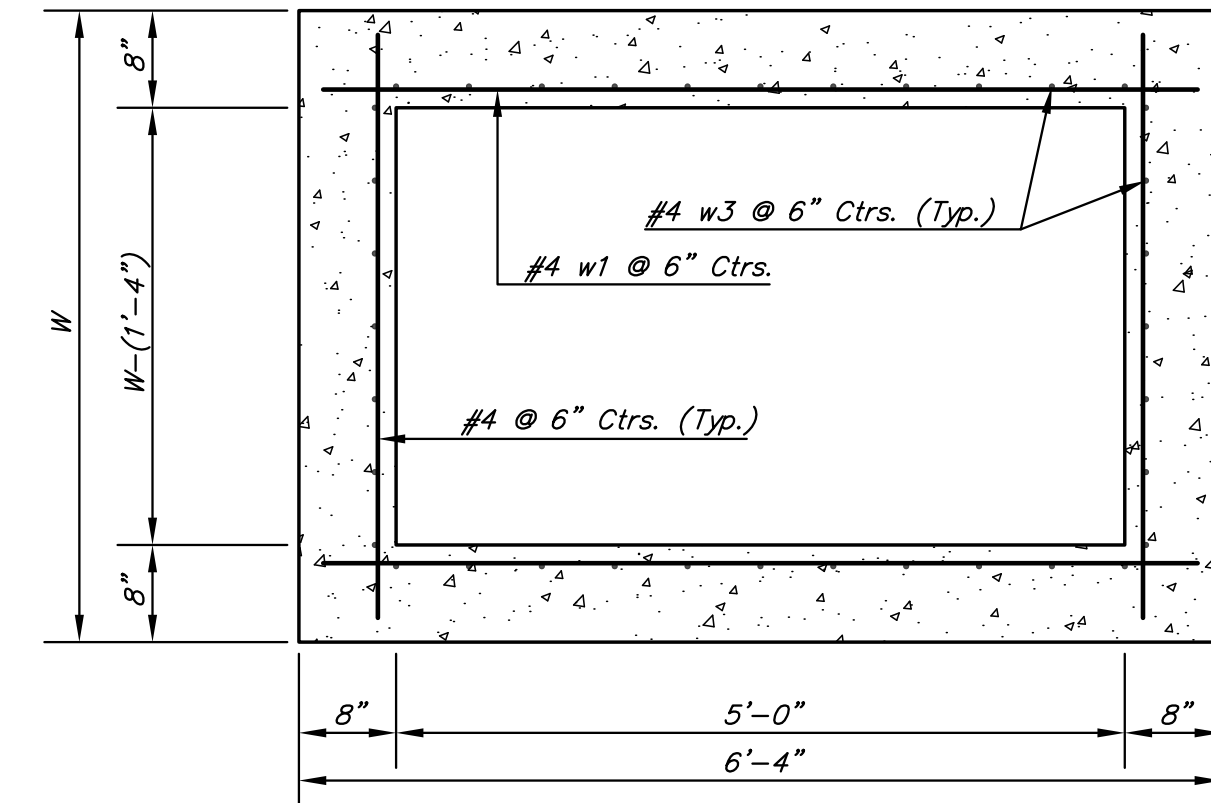


NOTE:  
Expansion Joint Only in Curb Area With Concrete Pavement.

PLAN



SECTION E-E



SECTION D-D

NOTE: Contractor shall have the option of constructing 8" brick masonry walls between the concrete inlet base and top on this inlet when W=6'-4" and H=7'-0" or less.

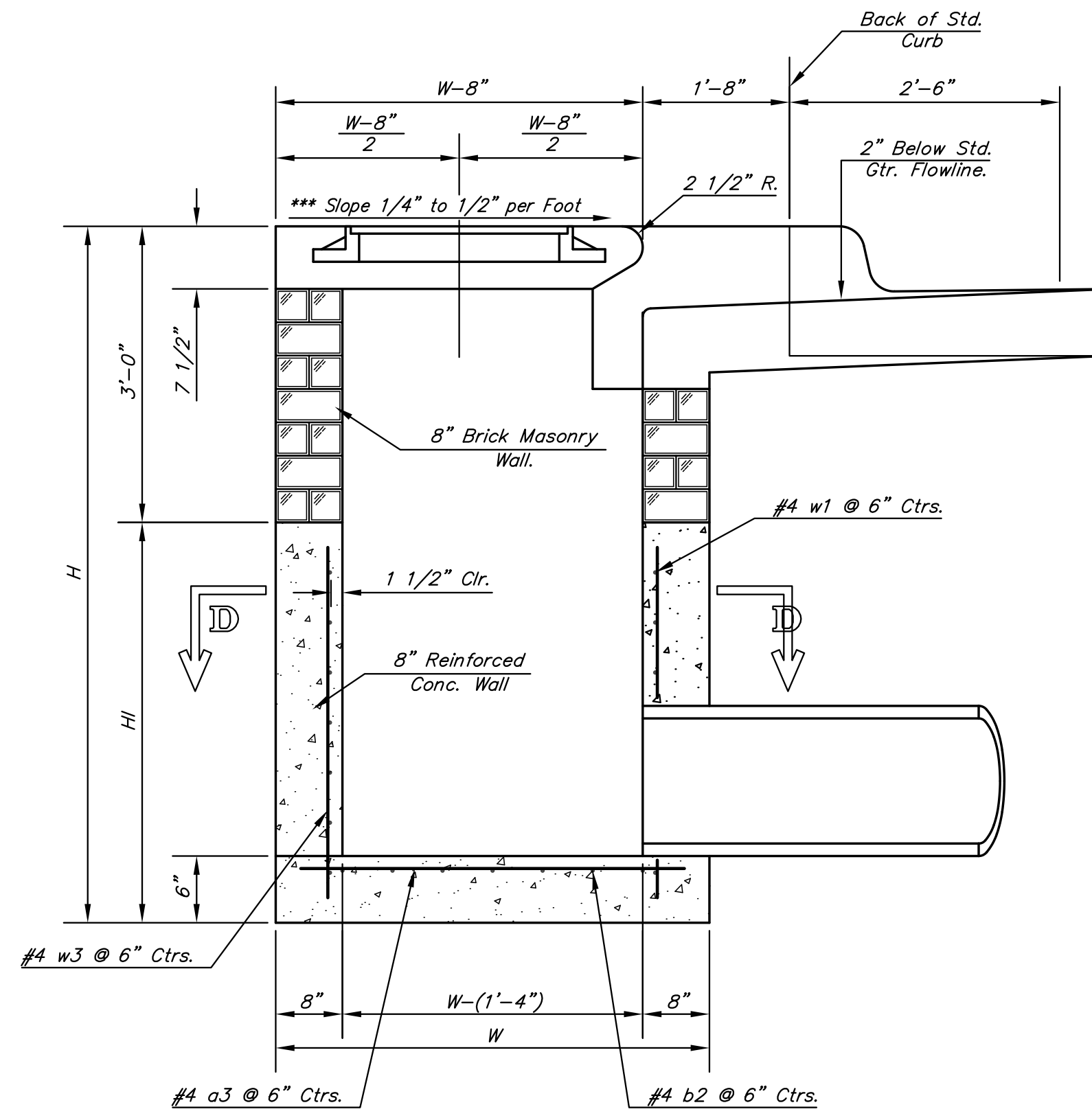
Additional curb and gutter construction necessary to connect set-back inlet to pavement will be paid for at the unit price bid for each inlet hookup.

Inlet invert shall be shaped with 8 sack sand mix concrete to create flow channels and to increase hydraulic efficiency such that the inlet will be self-cleaning between all inlet and/or outlet pipes.

The ends of all pipes installed in inlets shall be cut off flush with the inside face of the inlet wall

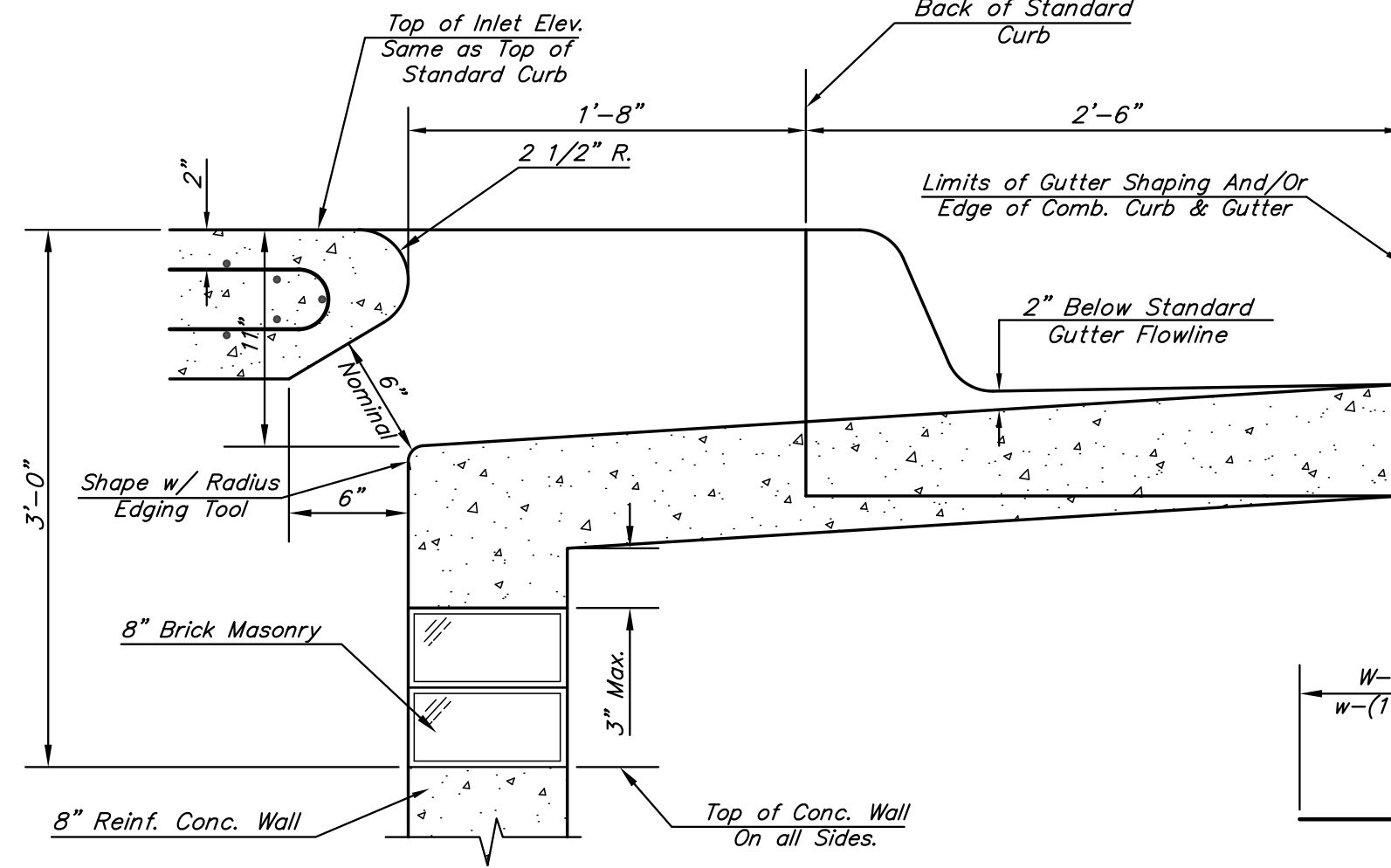
NOTE:  
Inlet Top Reinforcing shall be Spaced on 6" Max. Centers. Inlet Lids Shall be Notched Out as Indicated to Facilitate Construction of Curb.

NOTE:  
Concrete Tops to be installed on thin mortar cushion to insure full support along brick walls. Concrete tops may be cast in place or precast. Concrete used for inlet construction shall be concrete pavement mix with air entrainment.

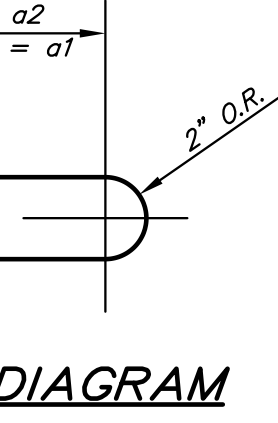


SECTION A-A

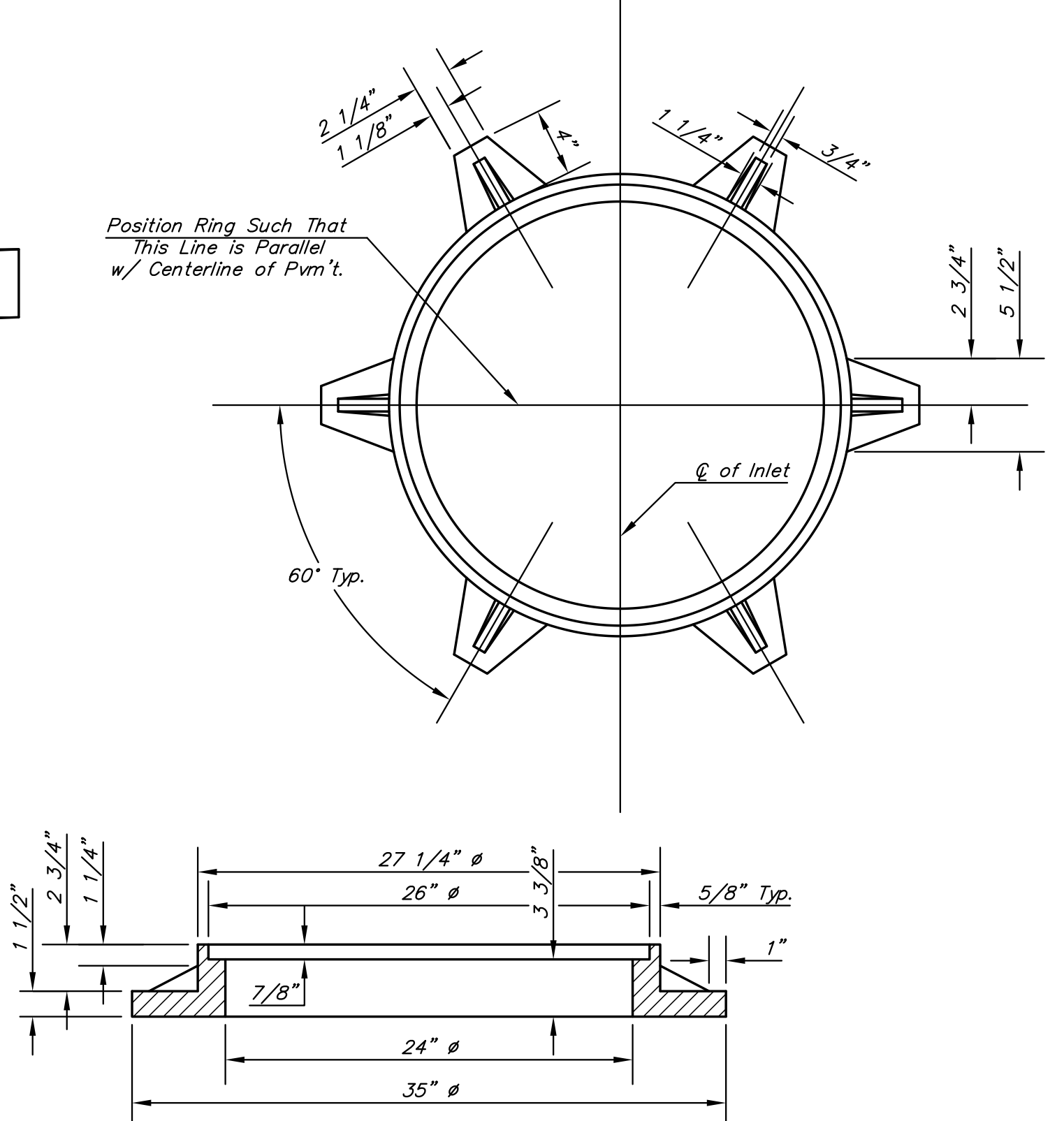
\*\*\*NOTE: Slope of Inlet tops to Match Sidewalk or Parking Slopes within Limits Indicated.



SECTION B-B



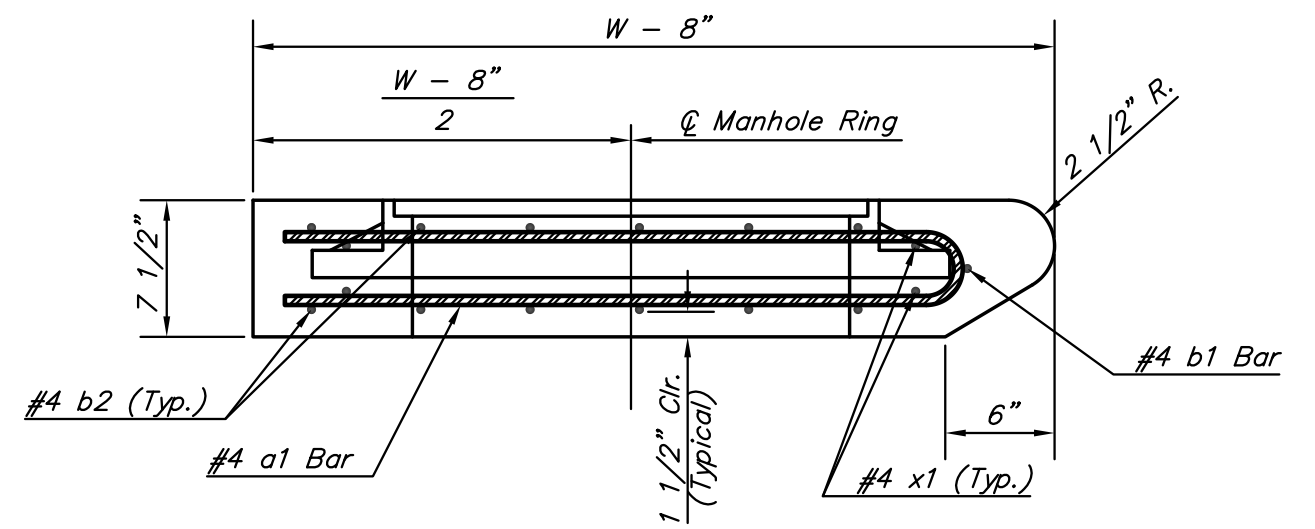
BENDING DIAGRAM



MANHOLE RING AND COVER

Weight = 180 Lbs.

\*See City of Wichita Standard Manhole Ring and Cover Detail Sheet for Cover Details to Be Used With Inlet Frame.



SECTION A-A

PRECAST SLAB AND FLOOR REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
* a1	#4	6	6'-7"	6	8'-7"	6	10'-7"	6	12'-7"	6	14'-7"
a2	#4	4	6'-0"	4	8'-0"	4	10'-0"	4	12'-0"	4	14'-0"
a3	#4	13	4'-1"	13	5'-1"	13	6'-1"	13	7'-1"	13	8'-1"
b1	#4	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"	1	4'-9"
* b2	#4	23	6'-1"	29	6'-1"	35	6'-1"	41	6'-1"	47	6'-1"
x1	#4	8	3'-10"	8	4'-2"	8	4'-6"	8	4'-10"	8	5'-2"

WALL REINFORCING											
		W = 4'-4"		W = 5'-4"		W = 6'-4"		W = 7'-4"		W = 8'-4"	
MARK	SIZE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
w1	#4	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"	①	6'-1"
w2	#4	①	4'-1"	①	5'-1"	①	6'-1"	①	7'-1"	①	8'-1"
w3	#4	32	②	36	②	40	②	44	②	48	②

\* Field Bend or Cut Reinforcing as Required for Clearance.  
 ① 4 (Hl - 12") (Hl - 21") Rounded down to nearest 0.5"  
 ② Hl - 3"

STANDARD CURB INLET PRECAST TOPS			
W	PRE-CAST TOP SIZE	PIPE SIZE	CU. YD. CONC.
4'-4"	3'-8" x 6'-4" x 7 1/2"	21" & SMALLER	0.38±
5'-4"	4'-8" x 6'-4" x 7 1/2"	24" & 30"	0.51±
6'-4"	5'-8" x 6'-4" x 7 1/2"	36" & 42"	0.64±
7'-4"	6'-8" x 6'-4" x 7 1/2"	48" & 54"	0.77±
8'-4"	7'-8" x 6'-4" x 7 1/2"	60" & 66"	0.90±

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE  
 CITY HALL - SEVENTH FLOOR  
 455 NORTH MAIN STREET  
 WICHITA, KANSAS 67202  
 (316) 268-4501  
 (316) 268-4114 FAX

**STANDARD TYPE 1-A  
 CURB INLET  
 OPENING = 6" x 5'-0"**

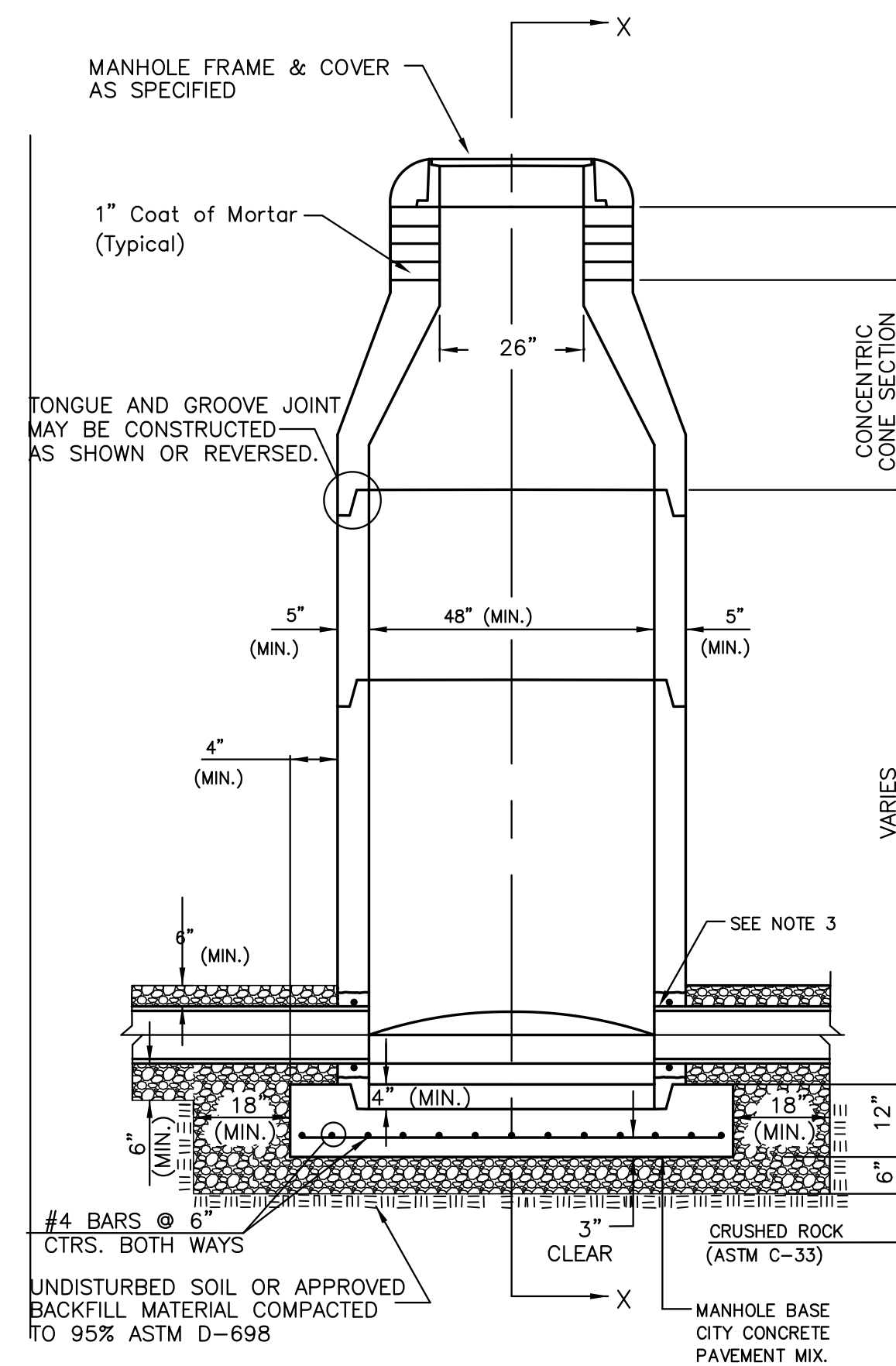
JAMES L. ARMOUR, P.E. - CITY ENGINEER

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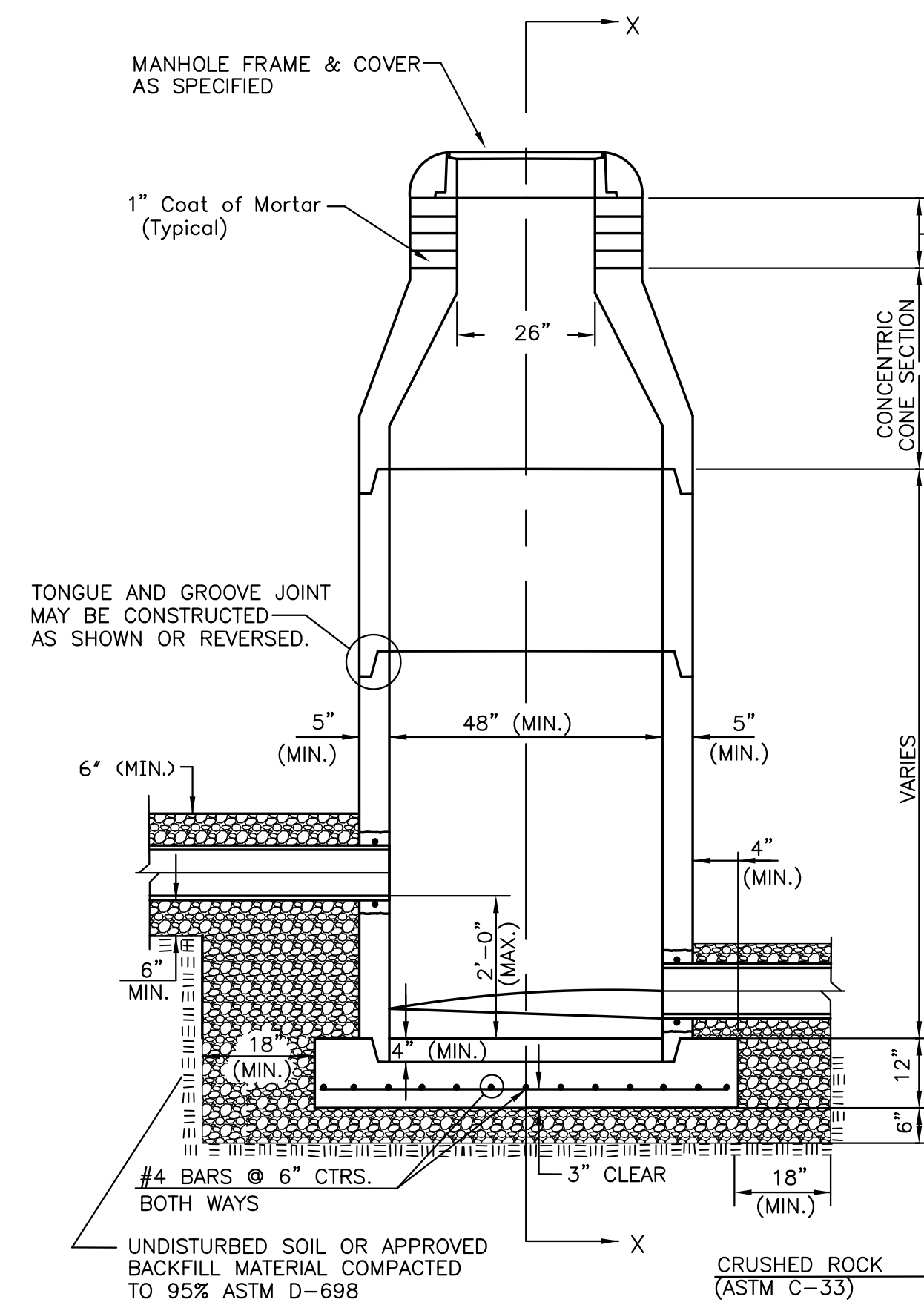
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# SEWER APPURTENANCES DETAILS

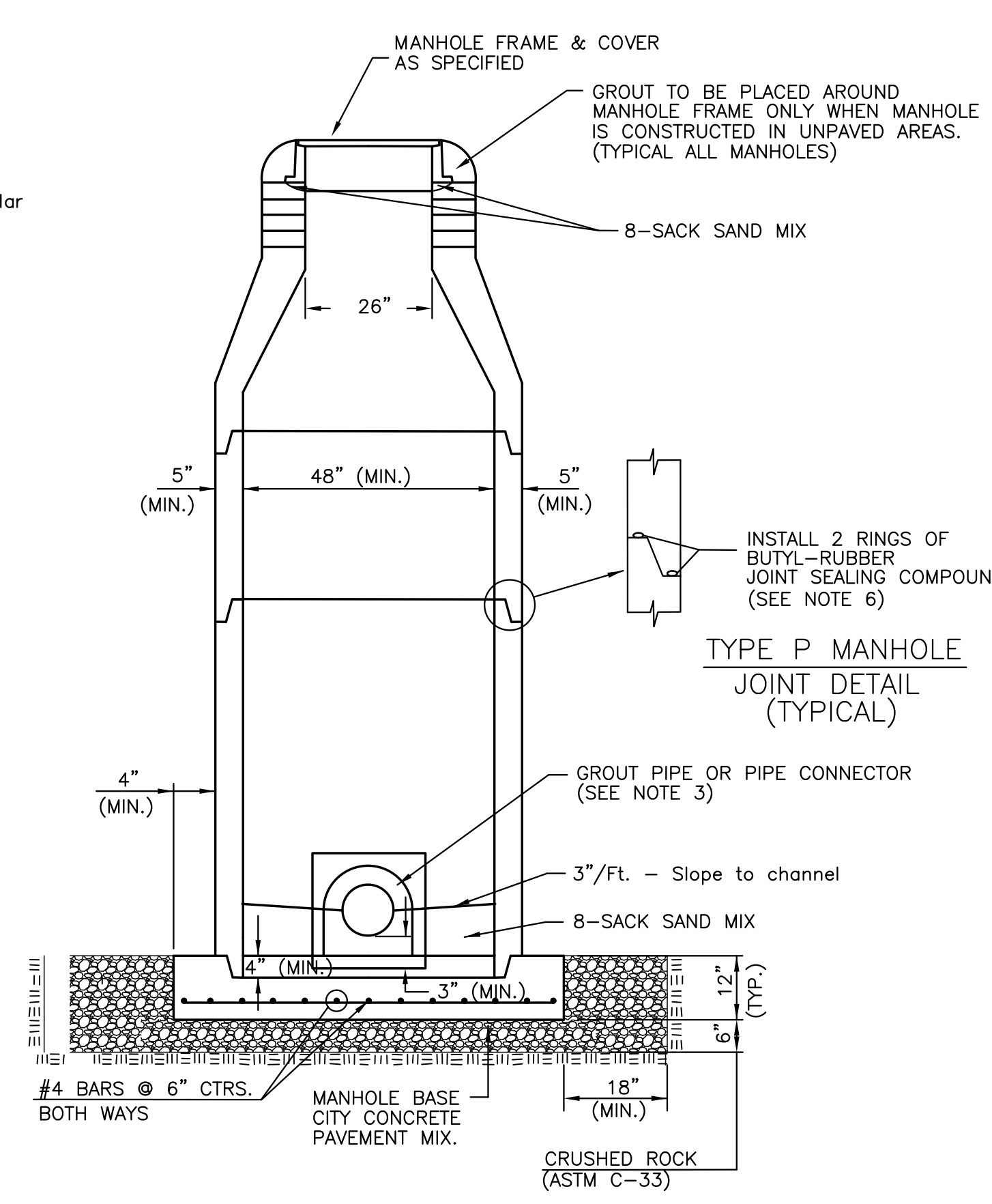
## ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA, KS AUGUST 2007



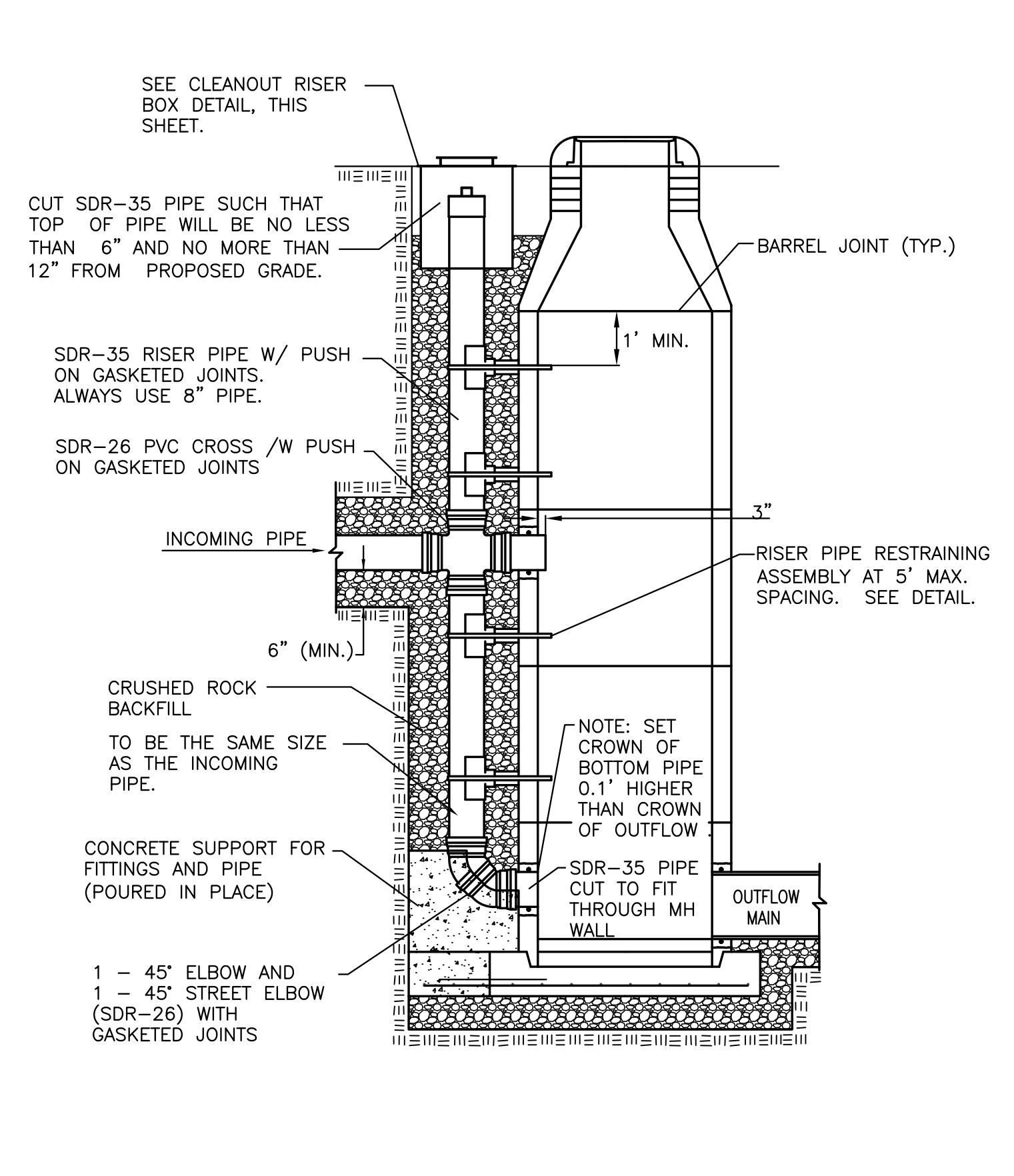
**TYPE P  
STANDARD MANHOLE**  
Not to Scale



**TYPE P  
INSIDE DROP MANHOLE**  
Not to Scale



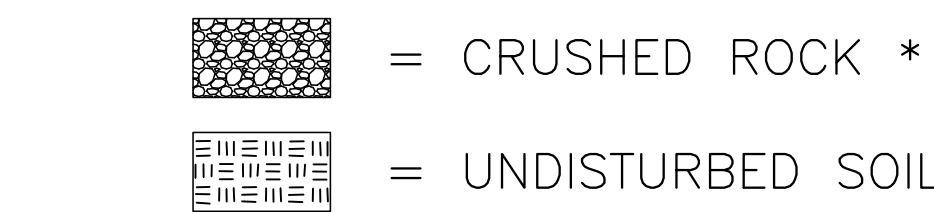
**SECTION X  
(TYPICAL)**  
Not to Scale



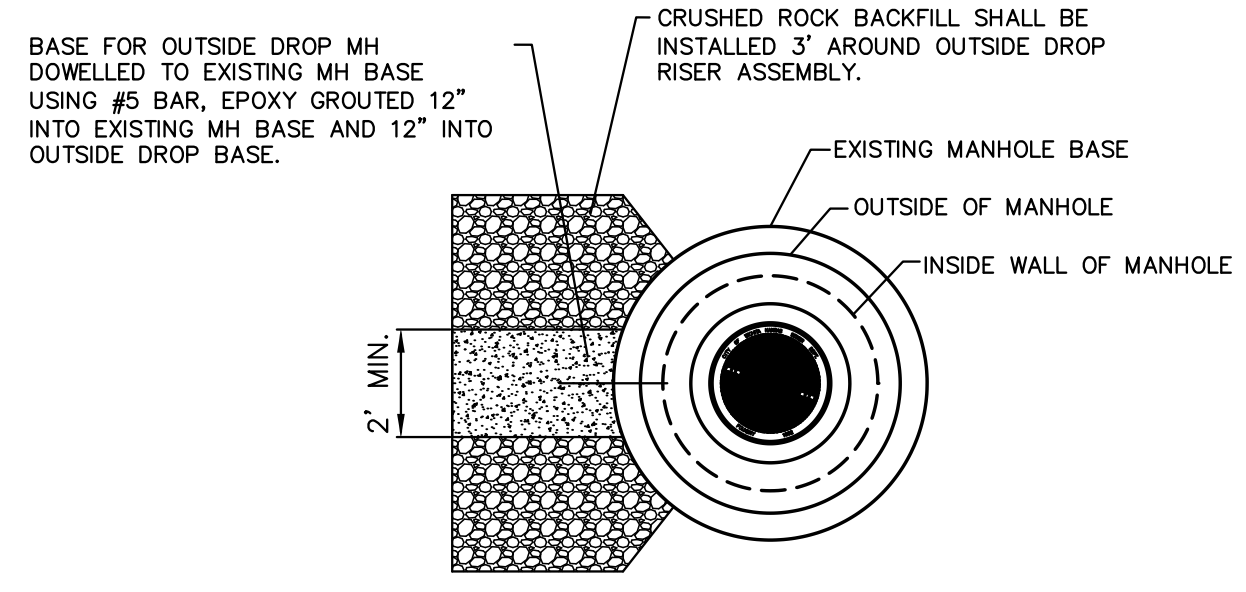
**TYPE P  
OUTSIDE DROP MANHOLE**  
Not to Scale

- PRECAST MANHOLE GENERAL NOTES
- ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
  - NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
  - APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUDED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CRUSHED ROCK A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
  - ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
  - EXTERIOR MANHOLE WALLS SHALL BE COATED PER SECTION 804.4 OF STANDARD SPECIFICATIONS.
  - JOINT SEALING COMPOUND SHALL BE PER 804.4 OF STANDARD SPECIFICATIONS.
  - PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
  - TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
  - LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
  - MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
  - REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
  - WALL THICKNESS SHALL BE 1" GREATER THAN MANHOLE DIAMETER IN FEET.

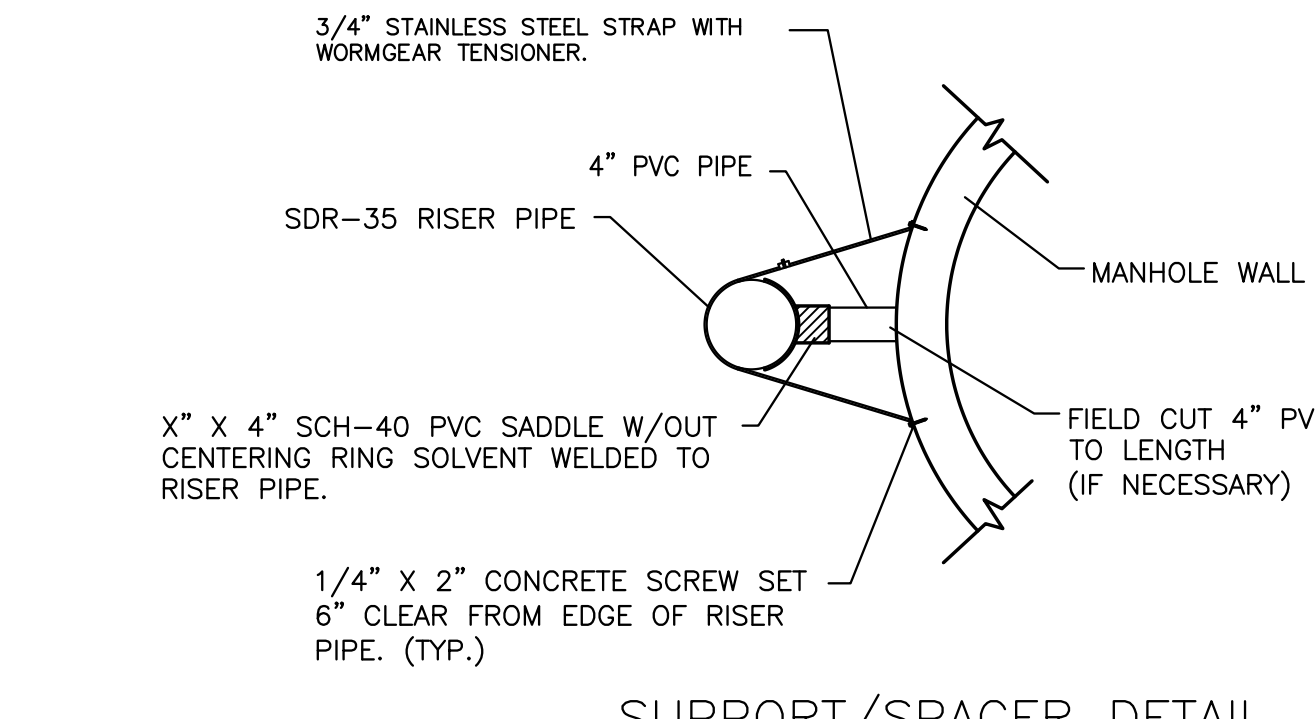
- OPENINGS SHALL BE CORE DRILLED INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS DRILLED INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUDED THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. PIPE. THE NEW PIPE SHALL BE GROUDED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
- THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO HEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
- MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' REGARDLESS OF PIPE SIZE. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
- STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
- A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLACED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.
- THE FULL DIAMETER OF THE MANHOLE SHALL EXTEND THE ENTIRE DEPTH OF THE MANHOLE TO THE CONE SECTION. NO REDUCTION IN MANHOLE DIAMETER WILL BE ALLOWED.
- REFER TO PLANS FOR SIZE OF OUTSIDE DROP RISER, SADDLES AND CROSS.



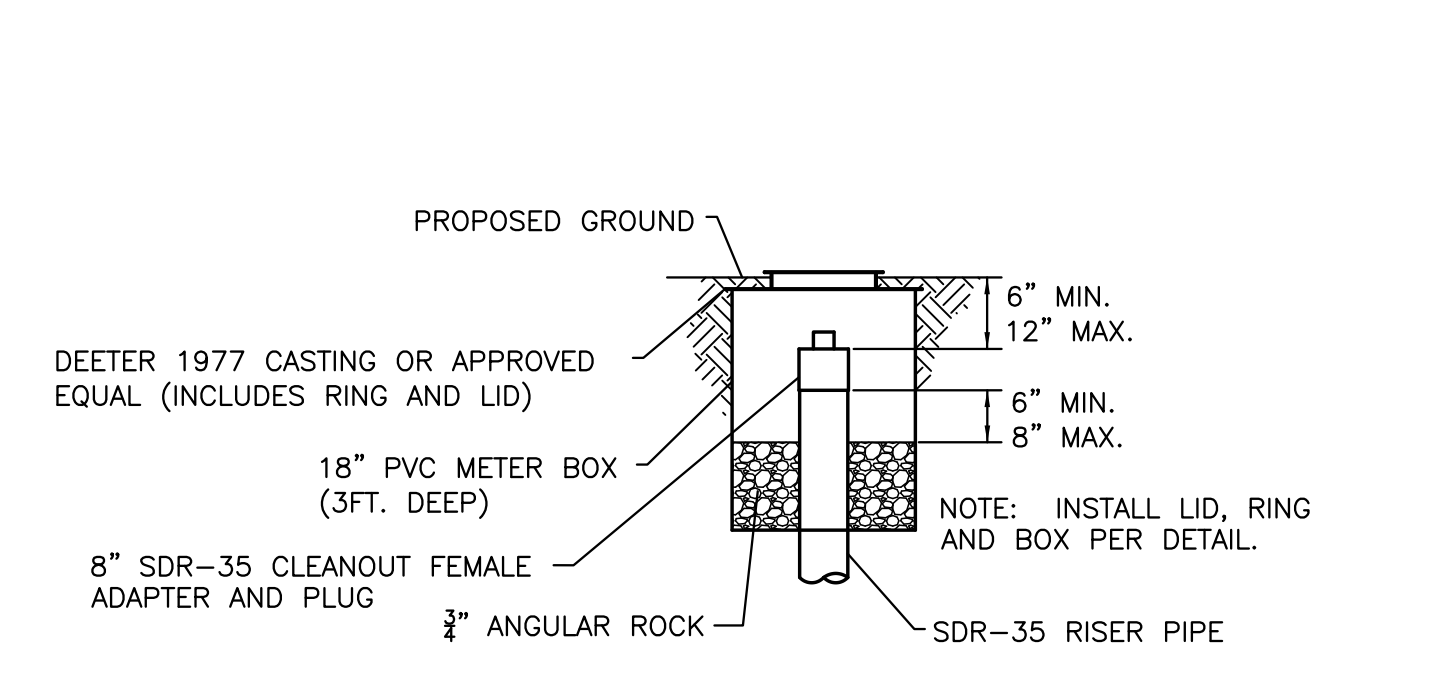
- FRAMES AND CHIMNEYS OF ALL MANHOLES CONSTRUCTED IN A FLOODWAY OR UNDER A PAVED SURFACE SHALL BE SEALED WITH AN EXTERNAL CHIMNEY SEAL, AS MANUFACTURED BY GRETEX SPECIALTY PRODUCTS, OR PRE-APPROVED EQUAL. THE CHIMNEY SEAL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND CONSIST OF A FLEXIBLE EXTERNAL RUBBER SLEEVE, INTERLOCKING EXTENSIONS AND STAINLESS STEEL COMPRESSION BANDS, DESIGNED TO REMAIN FLEXIBLE THROUGHOUT A 25 YEAR LIFE, ALLOWING REPEATED VERTICAL MOVEMENT OF THE FRAME OF NOT LESS THAN 2 INCHES AND/OR REPEATED HORIZONTAL MOVEMENT OF NOT LESS THAN 1/2 INCH. WITH A SLEEVE PORTION THAT IS CORRUGATED WITH A MINIMUM UNEXPANDED VERTICAL HEIGHT OF EITHER 6 INCHES OR 9 INCHES AND CAPABLE OF BEING MECHANICALLY LOCKED TO THE MANHOLE FRAME, WITH A MINIMUM THICKNESS OF 3/16 INCHES MADE FROM A HIGH QUALITY RUBBER COMPOUND CONFORMING TO THE APPLICABLE REQUIREMENTS OF ASTM C-923, WITH A MINIMUM OF 1500 PSI TENSILE STRENGTH, A MAXIMUM 18% COMPRESSION SET AND A HARDNESS (DUROMETER) OF 40-45, WITH BANDS INTEGRALLY FORMED FROM 16 GAUGE STAINLESS STEEL CONFORMING TO ASTM A-240, TYPE 304, WITH NO WELDED ATTACHMENTS AND WITH A MINIMUM ADJUSTMENT RANGE OF 2 DIAMETER INCHES. USING SCREWS, BOLTS AND NUTS OF STAINLESS STEEL CONFORMING TO ASTM F-593 AND 594, TYPE 304.
- ALL MANHOLE SECTION JOINTS THAT WILL BE IN GROUNDWATER SHALL BE WRAPPED WITH AN EXTERNAL JOINT SEAL, GRETEXWRAP EXTERNAL JOINT SEAL, OR PRE-APPROVED EQUAL. EXTERNAL JOINT SEAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM C-877 TYPE II, AND HAVE PASSED THE ASTM C-1244 TEST. EXTERNAL JOINT SEAL SHALL CONSIST OF A COLLAR 9" TO 18" WIDE WITH AN OUTER LAYER OF POLYETHYLENE WITH A MINIMUM TENSILE STRENGTH OF 4,000 PSI AND A MINIMUM TEAR RESISTANCE OF 1500 PSI, AND AN UNDER LAYER OF RUBBERIZED MASTIC REINFORCED WITH WOVEN POLYPROPYLENE FABRIC, WITH TWO 5/8" STEEL STRAPS LOCATED WITHIN THE COLLAR 3/4" FROM EACH EDGE AND CONFINED IN TUBES THAT ISOLATE THEM FROM THE MASTIC AND ALLOW THEM TO SLIP FREELY WHEN MECHANICALLY TIGHTENED AND LOCKED AROUND THE MANHOLE JOINT, AND FURNISHED WITH A MINIMUM OF 6" OVERLAP AND A CLOSING FLAP TO COVER ANY REMAINING EXPOSED STRAP.



**MH BASE DETAIL**  
Not to Scale



**SUPPORT/SPACER DETAIL**  
Not to Scale



**CLEAN-OUT RISER BOX DETAIL**  
Not to Scale

**CITY OF WICHITA  
PUBLIC WORKS  
ENGINEERING**

CITY ENGINEER'S OFFICE  
CITY HALL - SEVENTH FLOOR  
455 NORTH MAIN STREET  
WICHITA, KANSAS 67202-1620  
(316) 268-4501  
(316) 268-4114 FAX

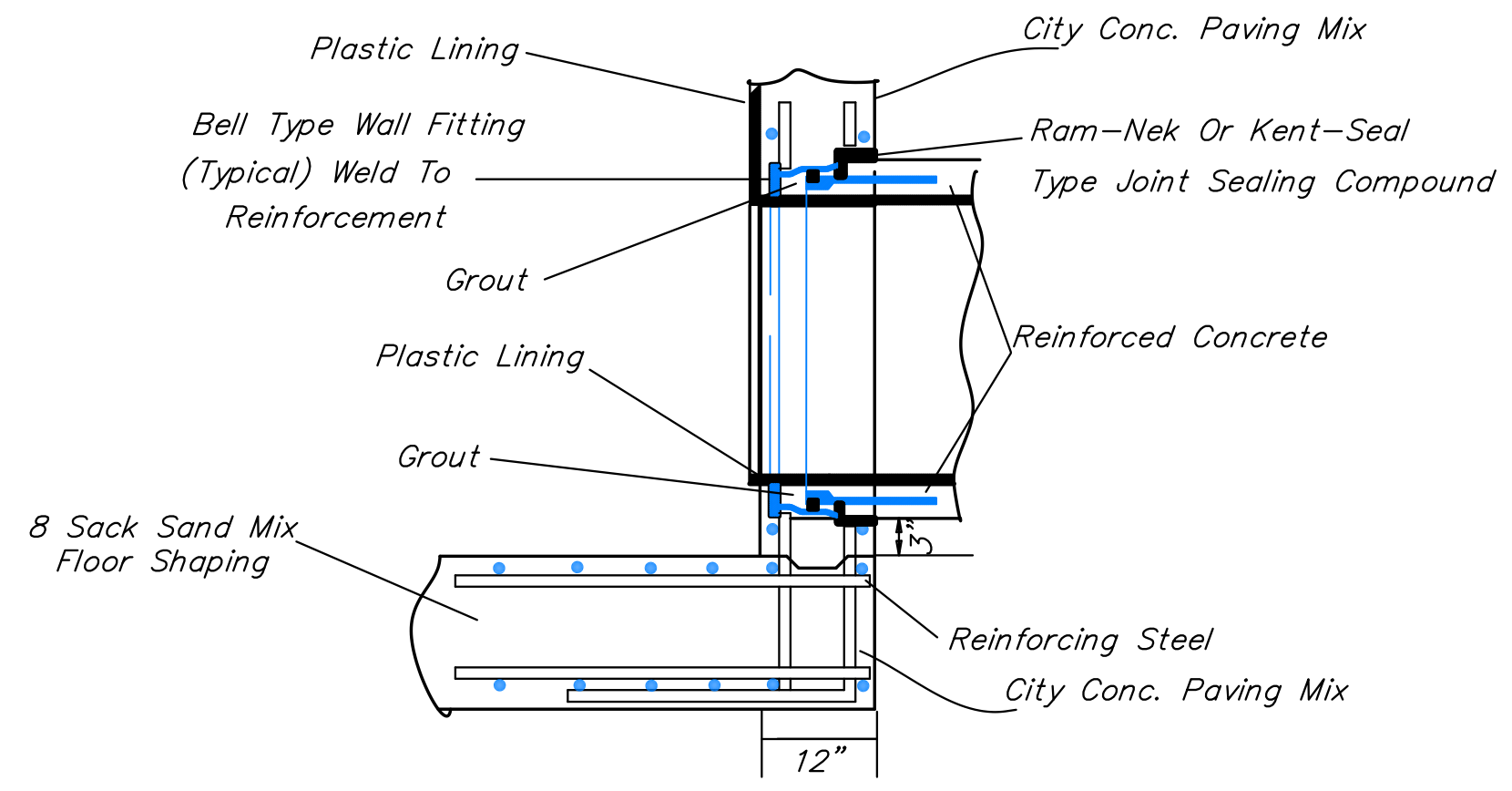
**STANDARD  
TYPE "P" MANHOLE  
DETAILS**

JAMES L. ARMOUR, P.E. - CITY ENGINEER

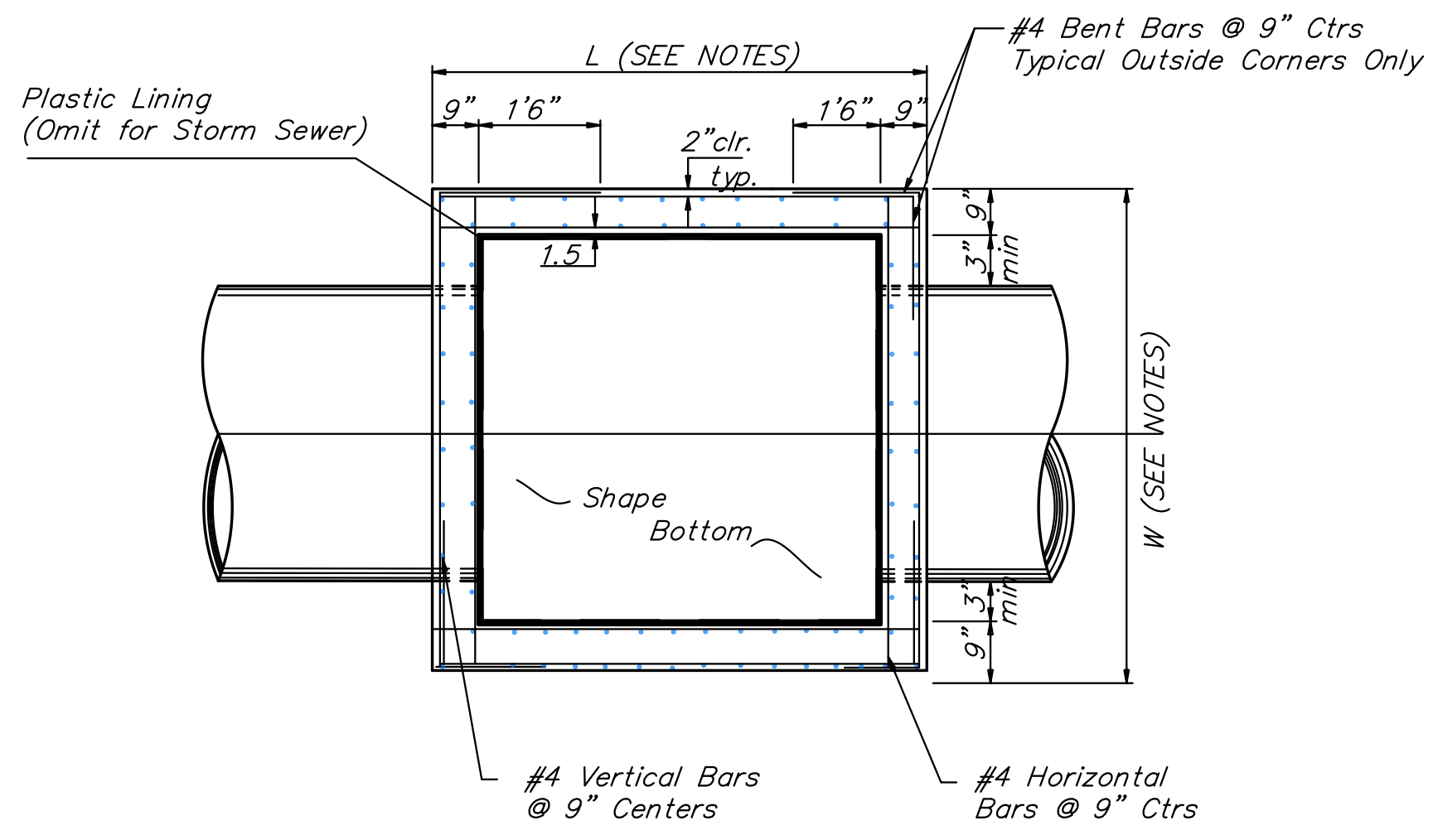
PROJECT NUMBER <b>2060PPS</b>	INDEX CODE <b>607861</b>
DATE July 2010	<b>Sheet 9 of 11</b>

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R.C.P. CONNECTION DETAIL  
SANITARY SEWER ONLY

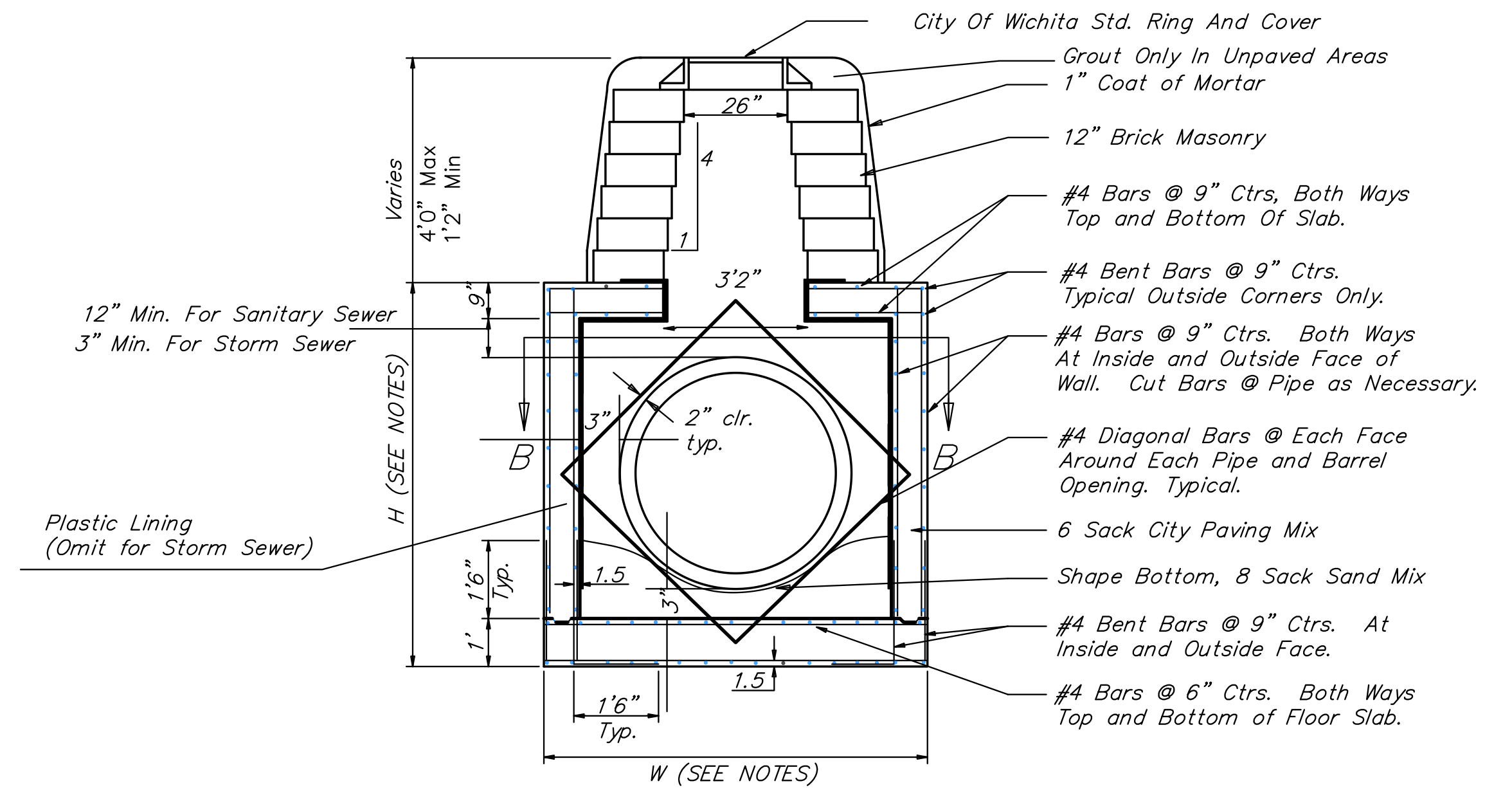


NOTE:  
Bend Bars Not More Than 8"  
to Clear Pipes, or Cut Bars  
2" Clear of Pipe, as Necessary.

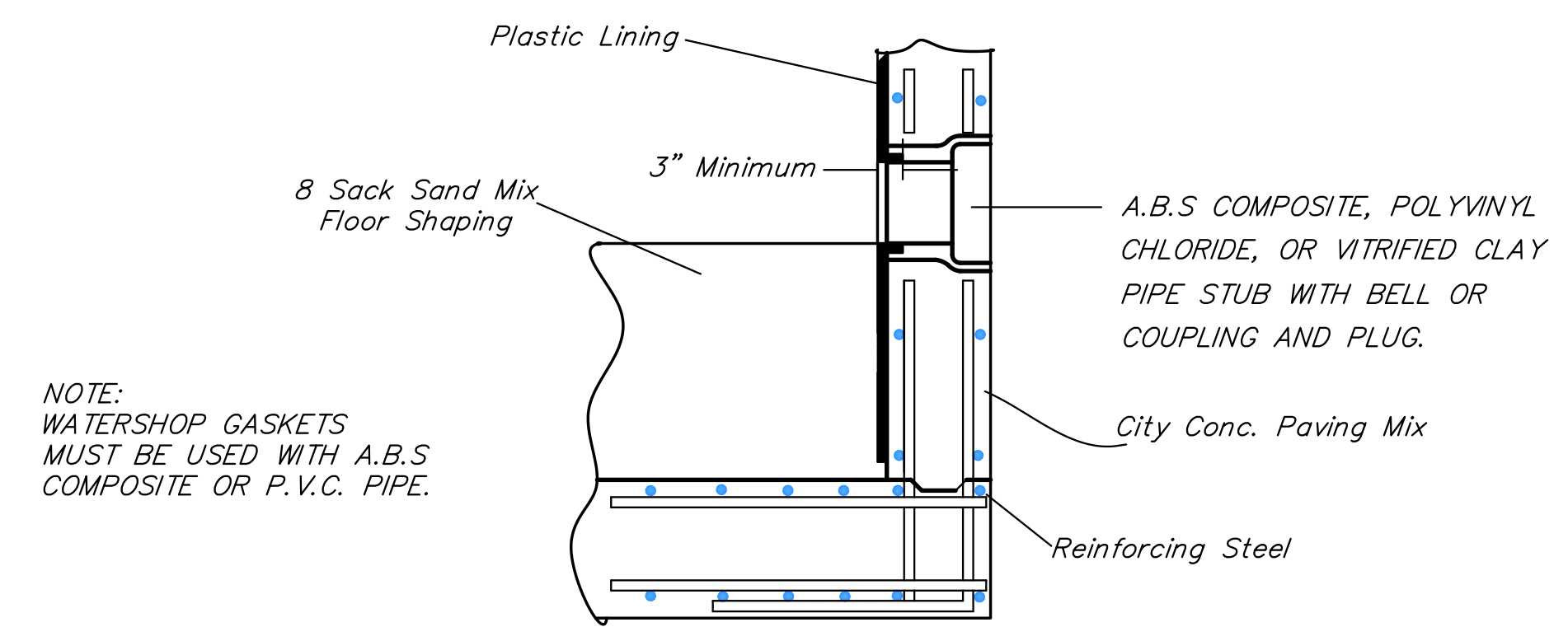
TOP VIEW

GENERAL NOTES:

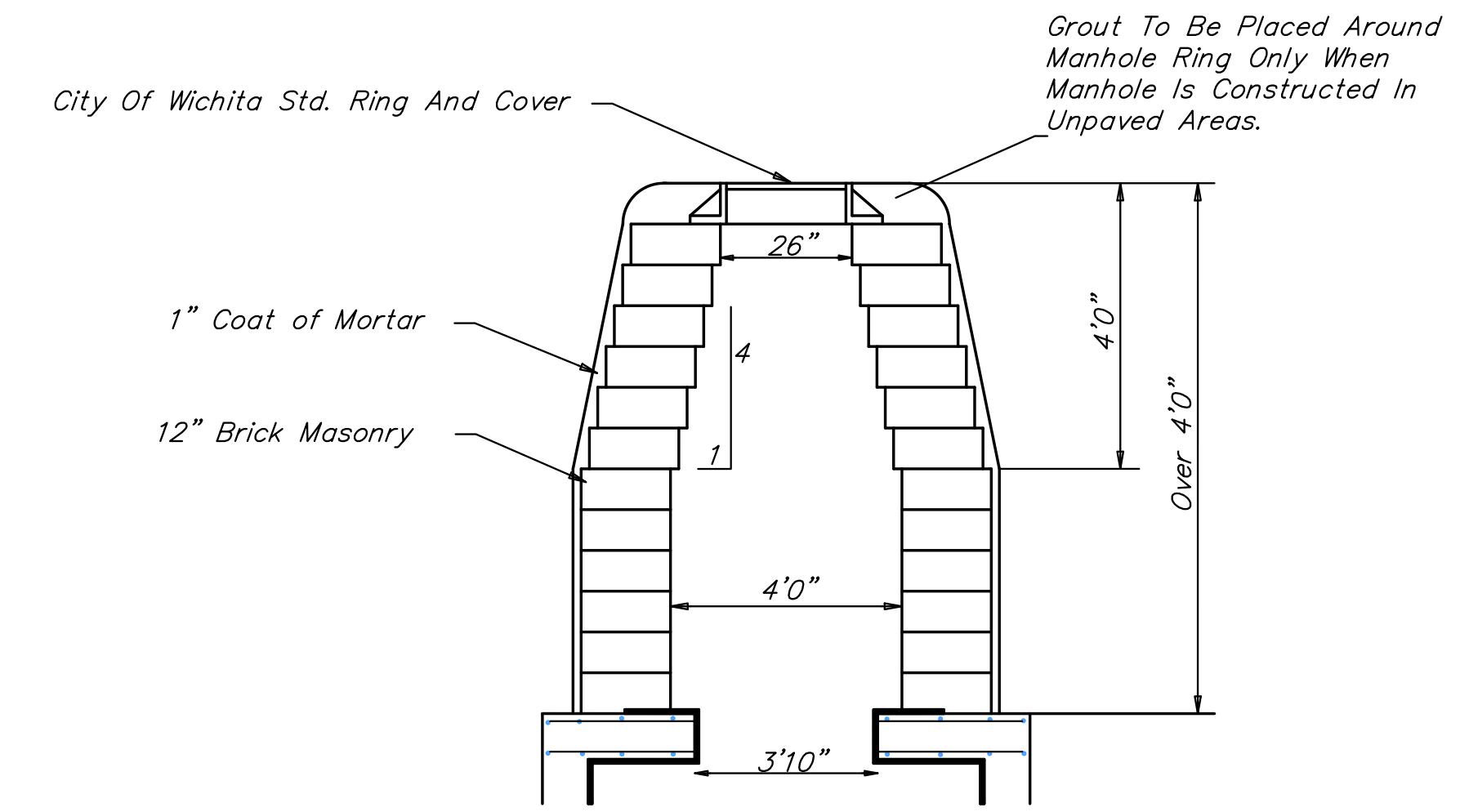
1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS, USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
2. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING. USING 8-SACK SAND MIX CONCRETE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS.
3. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
4. THE ENDS OF ALL PIPES IN MANHOLES SHALL BE CUT OFF FLUSH WITH THE INSIDE FACE OF MANHOLE WALL.
5. "L" & "W" SHALL BE AS SPECIFIED IN THE PLANS.



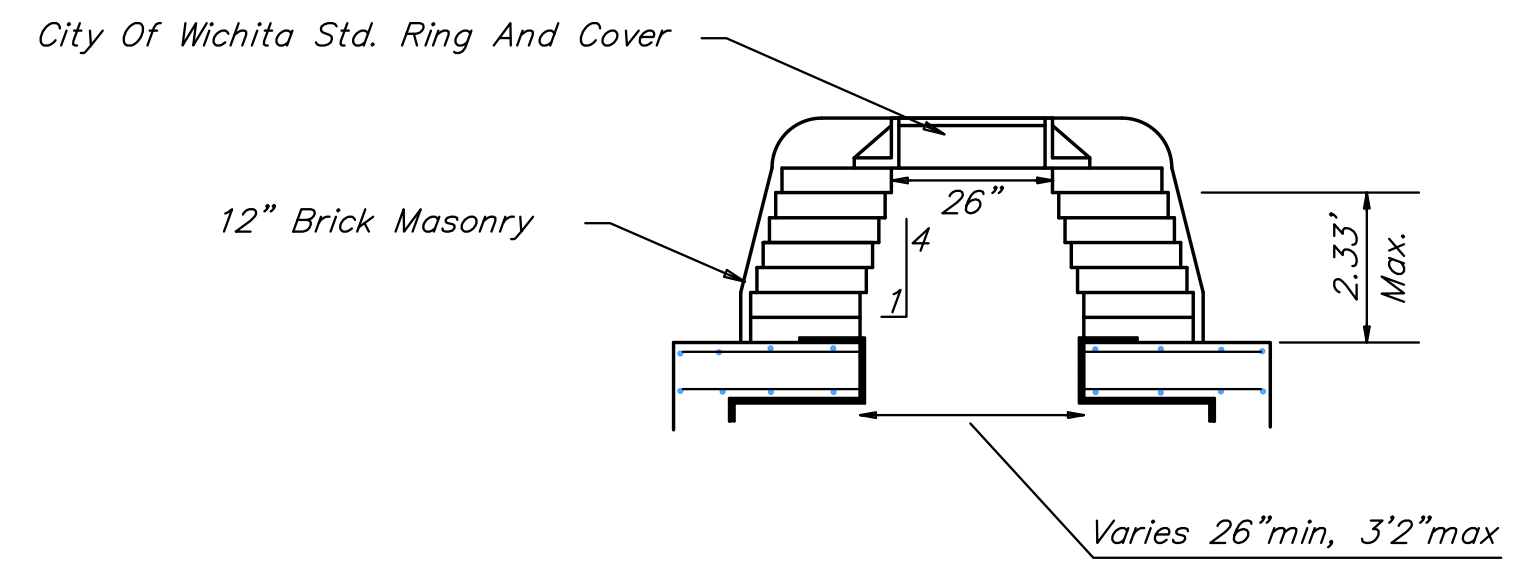
REINFORCED CONCRETE MANHOLE  
MANHOLE STACK 2.33' TO 4'0"



PIPE STUB DETAIL  
SANITARY SEWER ONLY



REINFORCED CONCRETE MANHOLE  
MANHOLE STACK OVER 4'0"



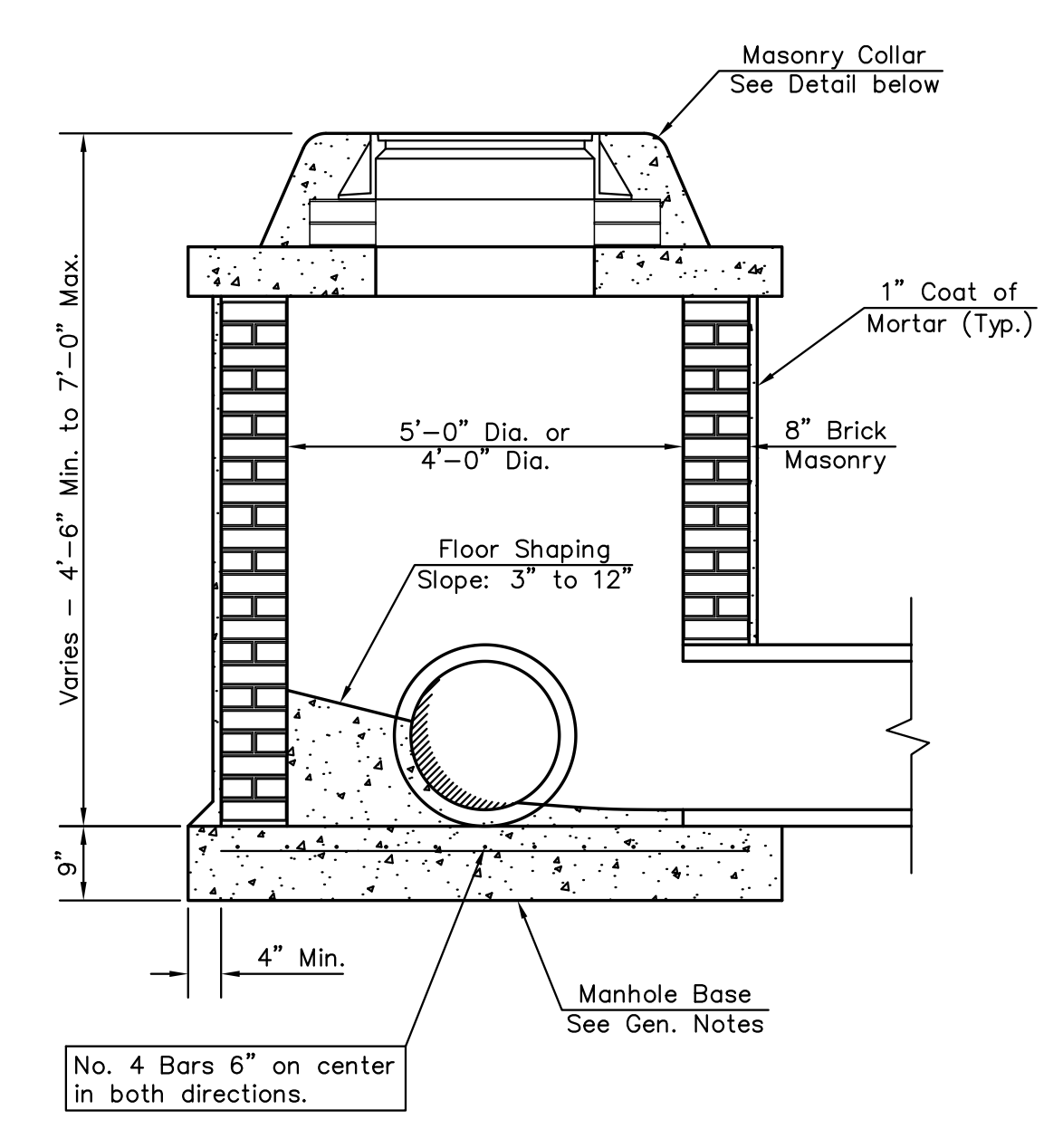
REINFORCED CONCRETE MANHOLE  
MANHOLE STACK LESS THAN 2.33'

<p>THE CITY OF WICHITA</p> <p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 (316) 268-4114 FAX</p>	<b>REINFORCED CONCRETE MANHOLE</b>	
	JAMES L. ARMOUR, P.E. - CITY ENGINEER	
	PROJECT NUMBER 2060PPS	INDEX CODE 607861
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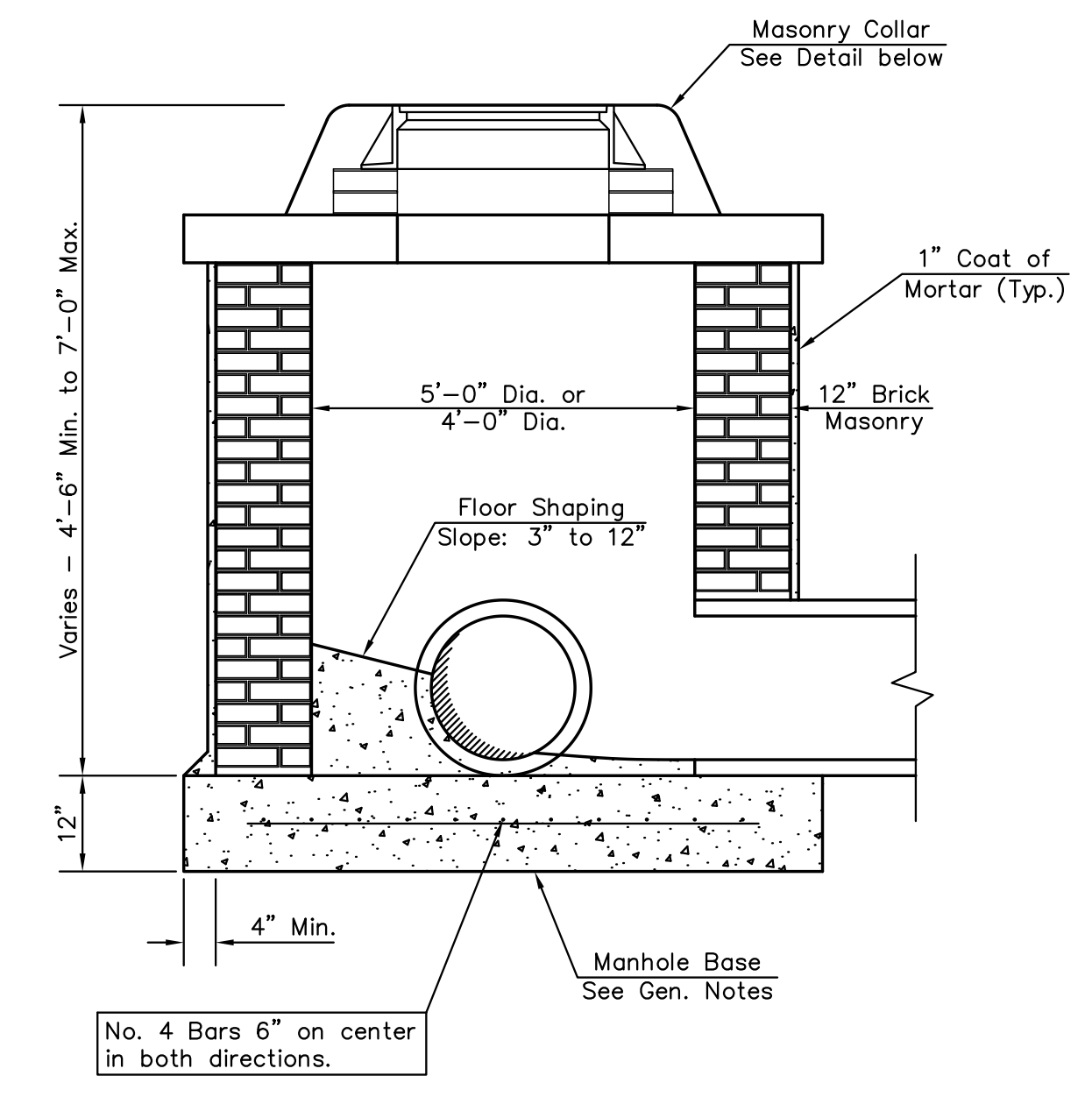
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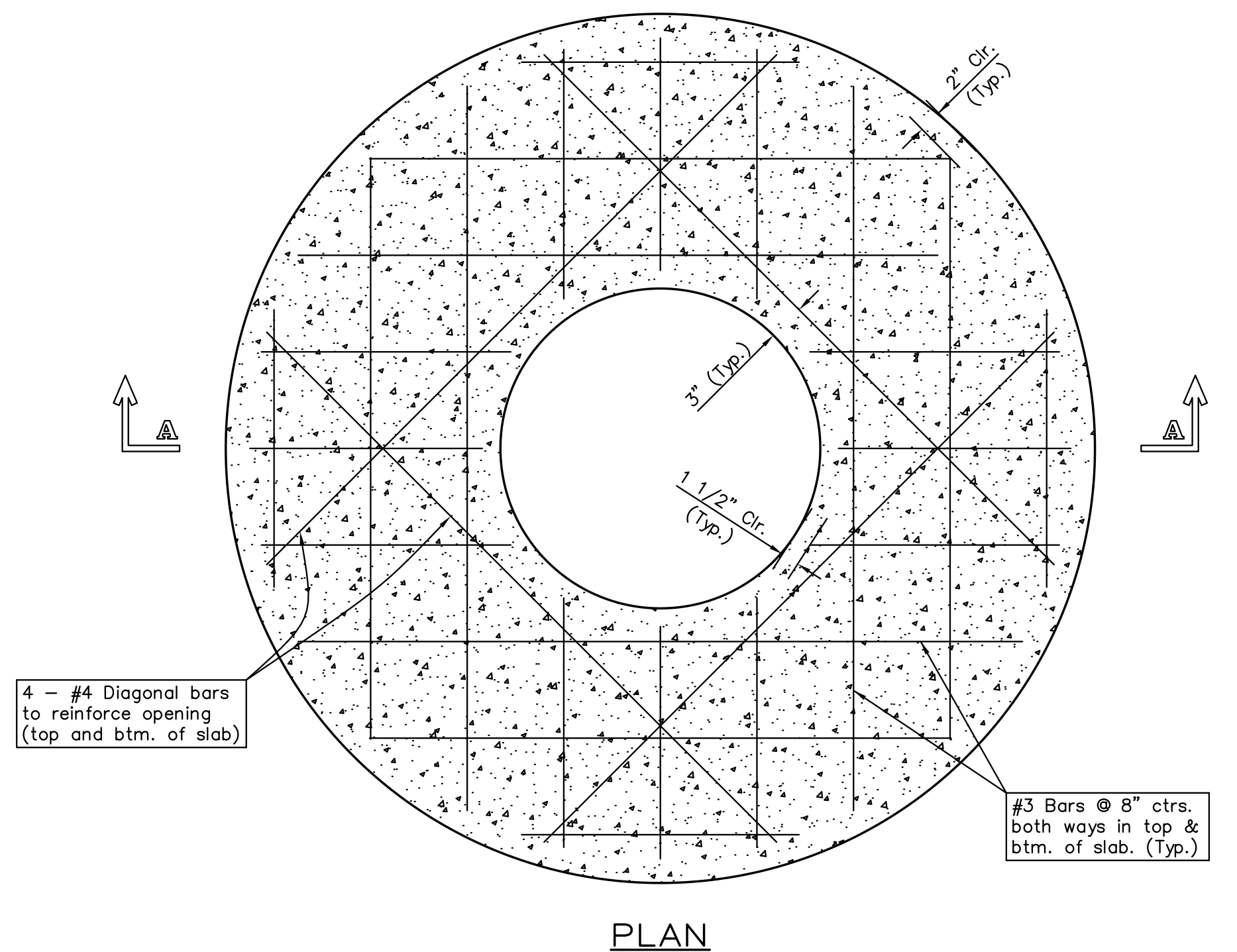
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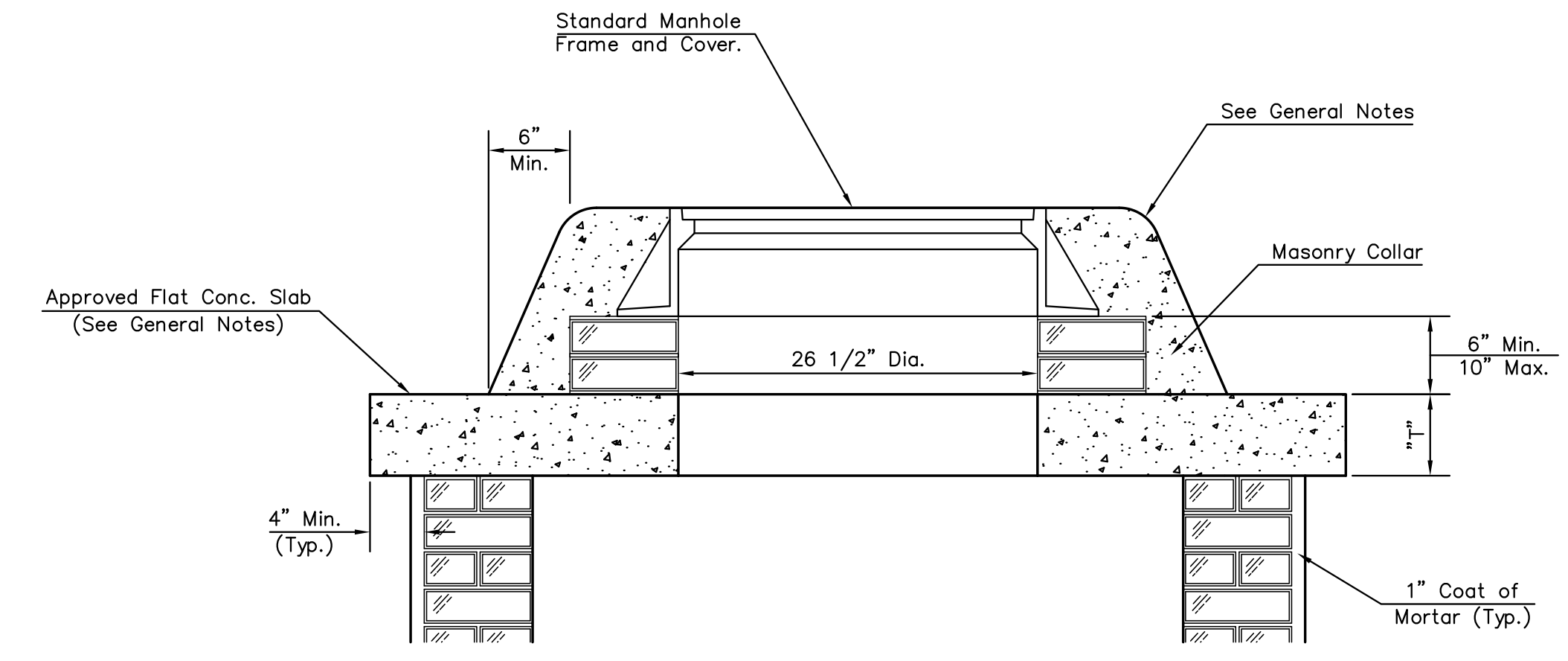
**SHALLOW TYPE "A" MANHOLE**



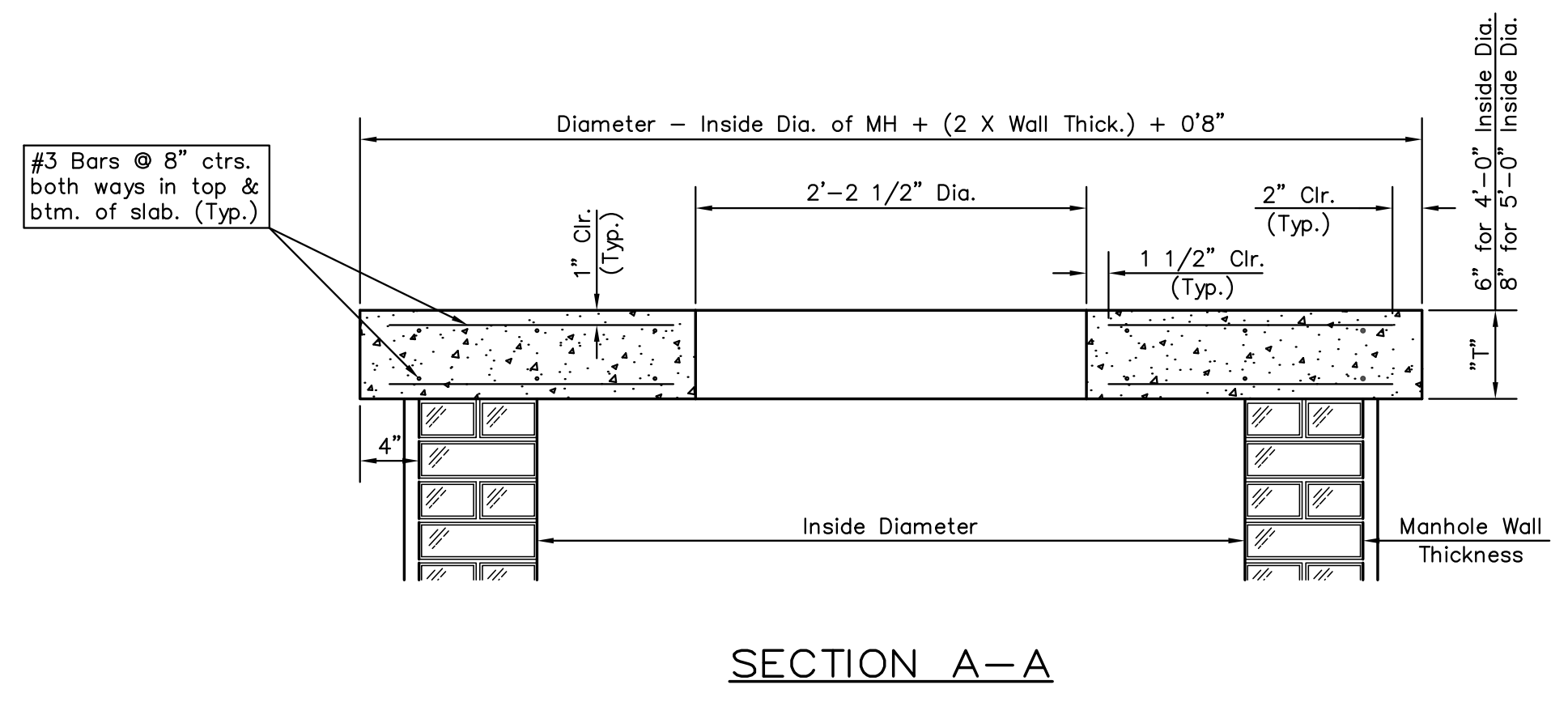
**SHALLOW TYPE "B" MANHOLE**



**PLAN**

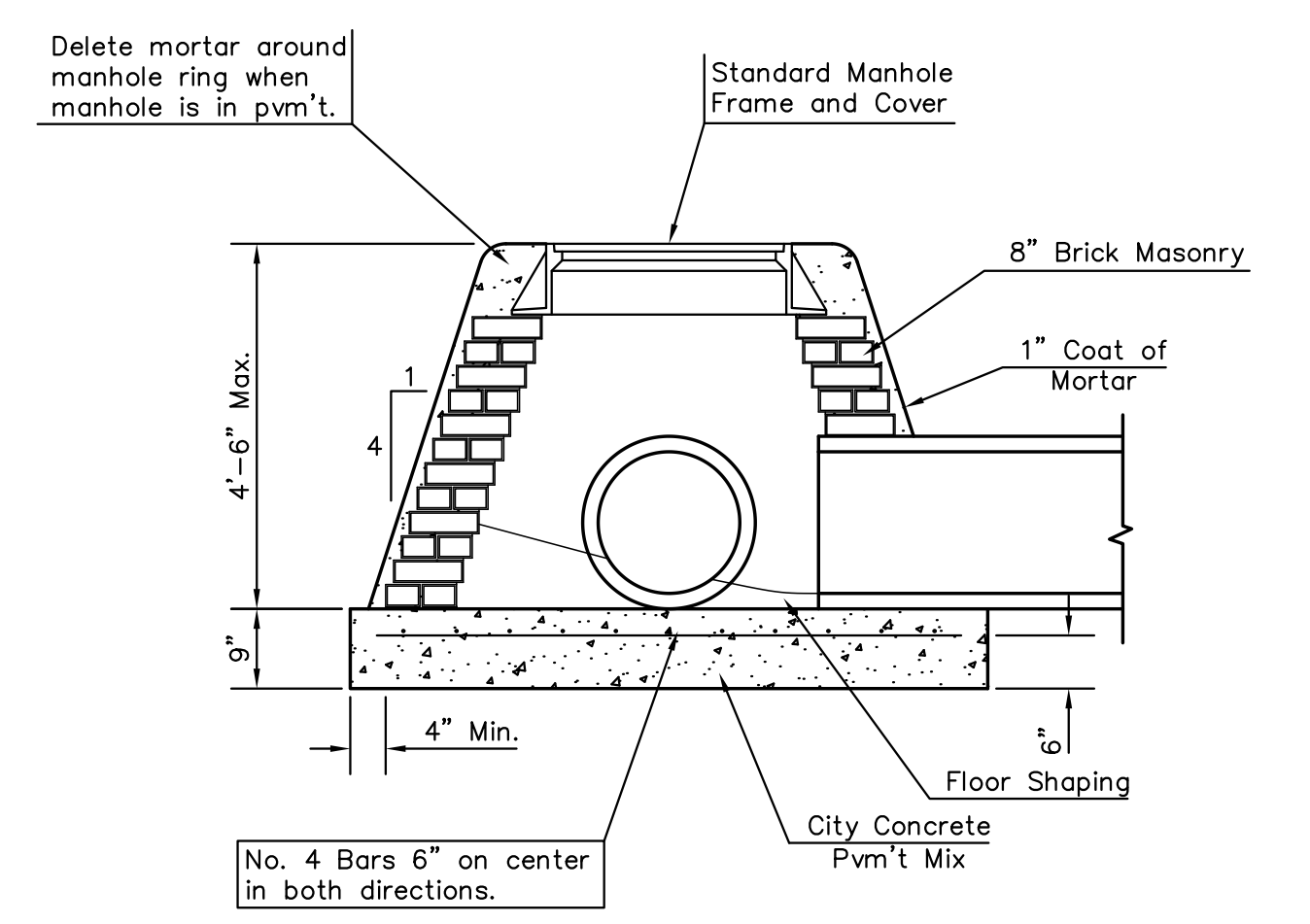


**MASONRY COLLAR DETAIL**

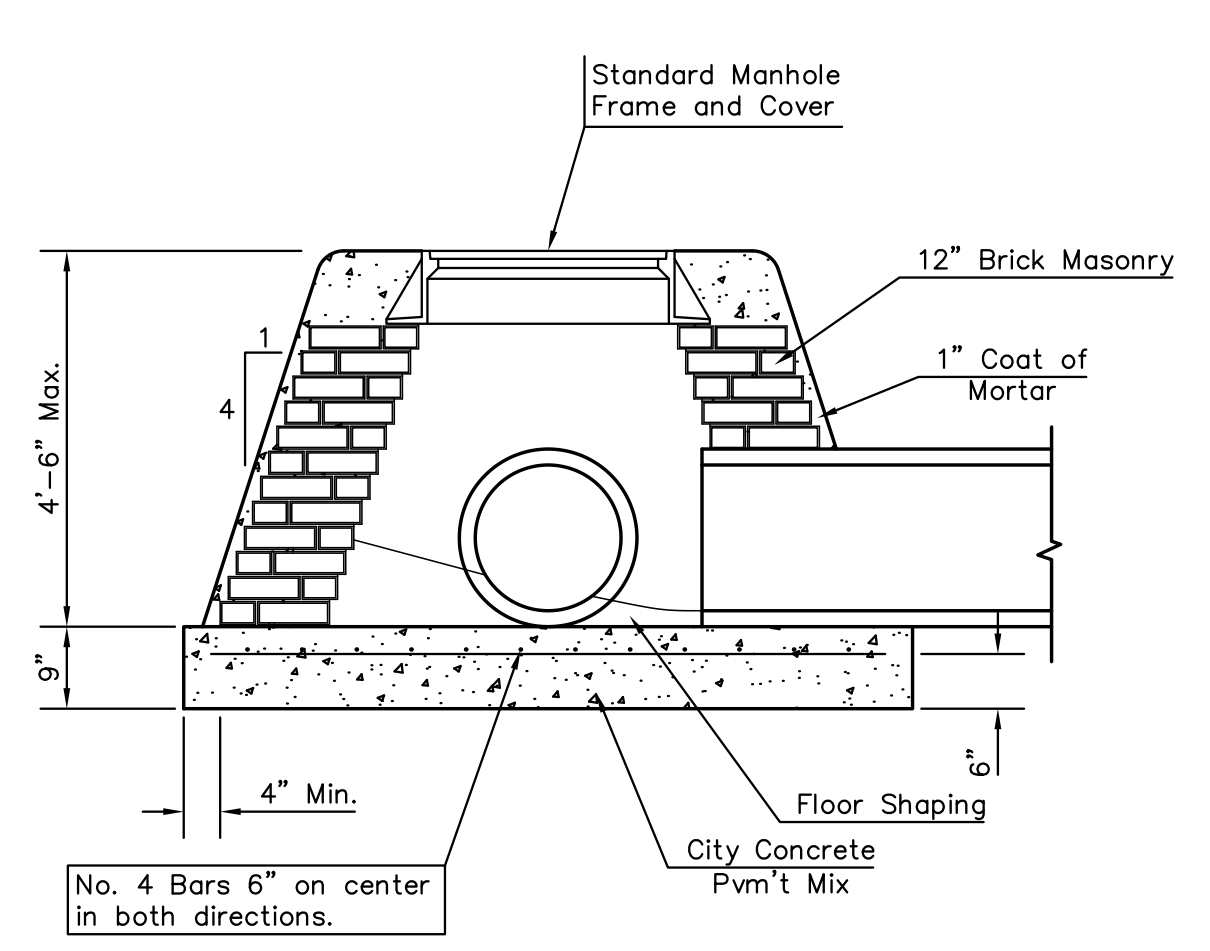


**SECTION A-A  
FLAT CONCRETE SLAB DETAILS**

- GENERAL NOTES**
- Mortar used in masonry construction shall contain 8 sacks of cement per cubic yard. Concrete used in manhole bases shall conform to the requirements of concrete for concrete pavement construction as specified in the city standard paving specifications using city concrete cement mix without air entraining admixture. Mortar shall be placed around the manhole ring as shown on the drawings when manholes are constructed in unpaved areas. Type "A" shallow manholes can be used on sewers when the manhole is not located within public street pavement. Manholes constructed where pipe sizes are smaller than 24" shall have an inside diameter of 4". Manholes constructed where pipe sizes are 24" or larger shall have an inside diameter of 5". Completed manhole shall be without leaks and water tight.
  - Reinforcing steel shall be installed in the manhole bases and shall consist of no. 4 bars placed on 6" centers in both directions. The manhole base reinforcement shall be placed 6" above the bottom of the manhole base. All costs for furnishing and installing reinforcing steel shall be included in the unit price bid for the manhole.
  - The floors of all manholes shall be shaped with flow channels such that the manholes will be self cleaning and free of areas where solids could be deposited as sewage flows through the manhole from all inlet pipes to the outlet pipe. Flow channels shall be formed to match the bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. Manhole floors shall have slopes of 3 inches per foot in the areas outside of the flow channels sloped toward the flow channels. Pipes laid through manholes shall have the top half removed to neat lines for the full inside diameter of the manhole. Manhole floors shall then be shaped around the bottom half of the pipe which forms the flow channel.
  - Pipes installed within the excavation made for the manhole shall be cradled with concrete to the limits of the manhole excavation. When clay pipe is used, the cradle shall extend to the first joint outside the manhole. The cradle shall be terminated at the clay pipe joint in a manner which will maintain the flexibility of the joint. Cost of cradle within manhole excavation or to clay pipe joints adjacent to manhole shall be included in the unit price bid for the manhole.
  - Manhole cover castings and manhole frame castings shall conform to the requirements as indicated in the standard specifications and as shown in the standard detail drawings.
  - The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.
  - Standard shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type and diameter indicated. Standard special shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.
  - All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.



**SPECIAL SHALLOW TYPE "A" MANHOLE**



**SPECIAL SHALLOW TYPE "B" MANHOLE**

REV. 1/05/01, MCG

<p>THE CITY OF WICHITA</p> <p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 455 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 (316) 268-4114 FAX</p>	<b>SHALLOW MANHOLE DETAILS</b>	
	JAMES L. ARMOUR, P.E. - CITY ENGINEER	
	PROJECT NUMBER 2060PPS	INDEX CODE 607861
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