

**GENERAL NOTES:**

1. Contractor will be required to provide notice to utility companies a minimum of twenty-four (24) hours prior to any excavation, as follows:

Kansas One-Call 687-2470

The Contractor must notify the following in case of an emergency:

Cox Communications 262-4270  
 Kansas Gas Service 1-888-492-4350  
 Westar Energy 383-8650  
 Aquila Energy 1-800-303-0357  
 SSC 268-2245  
 City of Wichita Water Dept. 268-4353  
 City of Wichita Sewer Maint. 268-4034  
 City of Wichita Storm Sewer Maint. 268-4090  
 City of Wichita Traffic Maint. 268-4034  
 Conoco Pipeline Co. 1-800-231-2551  
 Southern Star Pipeline Co. 529-6600  
 Phillips Pipeline Co. 1-800-765-8230  
 Jayhawk Pipeline Co. 1-888-542-9375

2. Utility service lines, poles, valve boxes, meters, and etcetera are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

3. 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 on site location. Locations, 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.

4. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

5. The Contractor shall give all property owners and/or tenants of developed property adjoining the construction of this project a minimum of ten (10) days advance notice prior to start of construction.

6. The Contractor shall be responsible for preserving property irons. The Contractor will 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.

7. The Contractor shall be responsible for maintaining continuous flow of sewage through construction. Contractor's proposed method for maintaining sewage flow shall be approved by the Engineer. Cost of maintaining flow of sewage through construction will not be paid for directly and this cost shall be considered as subsidiary to the other pay items of work.

8. When connecting to existing manhole or stub, the contractor shall reshape manhole bottom or adjust the existing stub's alignment or elevation as necessary. Cost shall be subsidiary to project.

9. All areas disturbed during construction shall be seeded, mulched, and fertilized as follows unless otherwise noted (Permanent Seeding):

Seed: Kansas Premium Fescue Blend: 8 lbs./1000 sq. ft.  
 Mulch: Prairie Hay: 2 tons/acre  
 Fertilizer: 12-24-12: 850 lbs./acre

All cost's associated with seeding, mulching, and fertilization shall be included in bid item "Project Seeding." All seeding operations shall conform to City of Wichita Standard Specifications.

10. All existing and proposed erosion control measures including silt fencing, erosion control mat, straw bales, inlet barriers, and const. entrances shall be maintained throughout construction by the contractor and until project is accepted by the City of Wichita. The on-site engineer shall complete weekly reports on the status of erosion control measures. The contractor shall be required to comply with maintenance and/or replacement of erosion control measures as determined by the on-site engineer until project is accepted by City of Wichita. Maintenance and/or replacement of erosion control measures to be paid by bid item "Erosion Control BMP's."

Lat. 8, Main 14, S.W.I.  
**SANITARY SEWER IMPROVEMENTS**

to serve  
**CHANCE INDUSTRIAL PARK 2ND ADDITION, AND  
 BATSON INDUSTRIAL PARK 2ND ADDITION**  
 CITY OF WICHITA, KANSAS

James L. Armour, P.E. Acting City Engineer

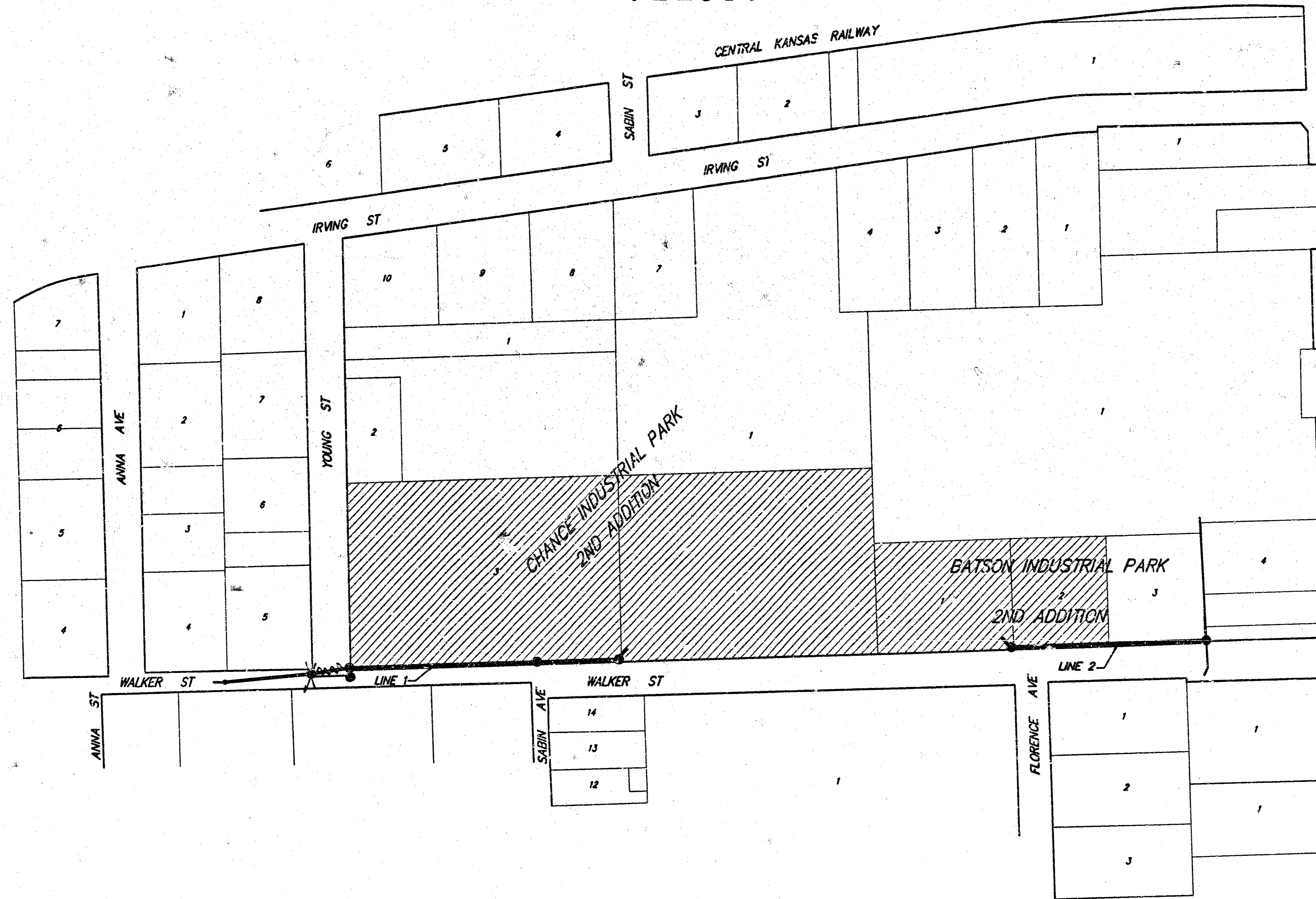
Project Number

**468-82194**

O.C.A. Number

**744089**

Scale: 1" = 150'



**Benchmark**

BM #1: "□" Cut in top of curb on North side of Walker Street at centerline of Sabin Avenue.

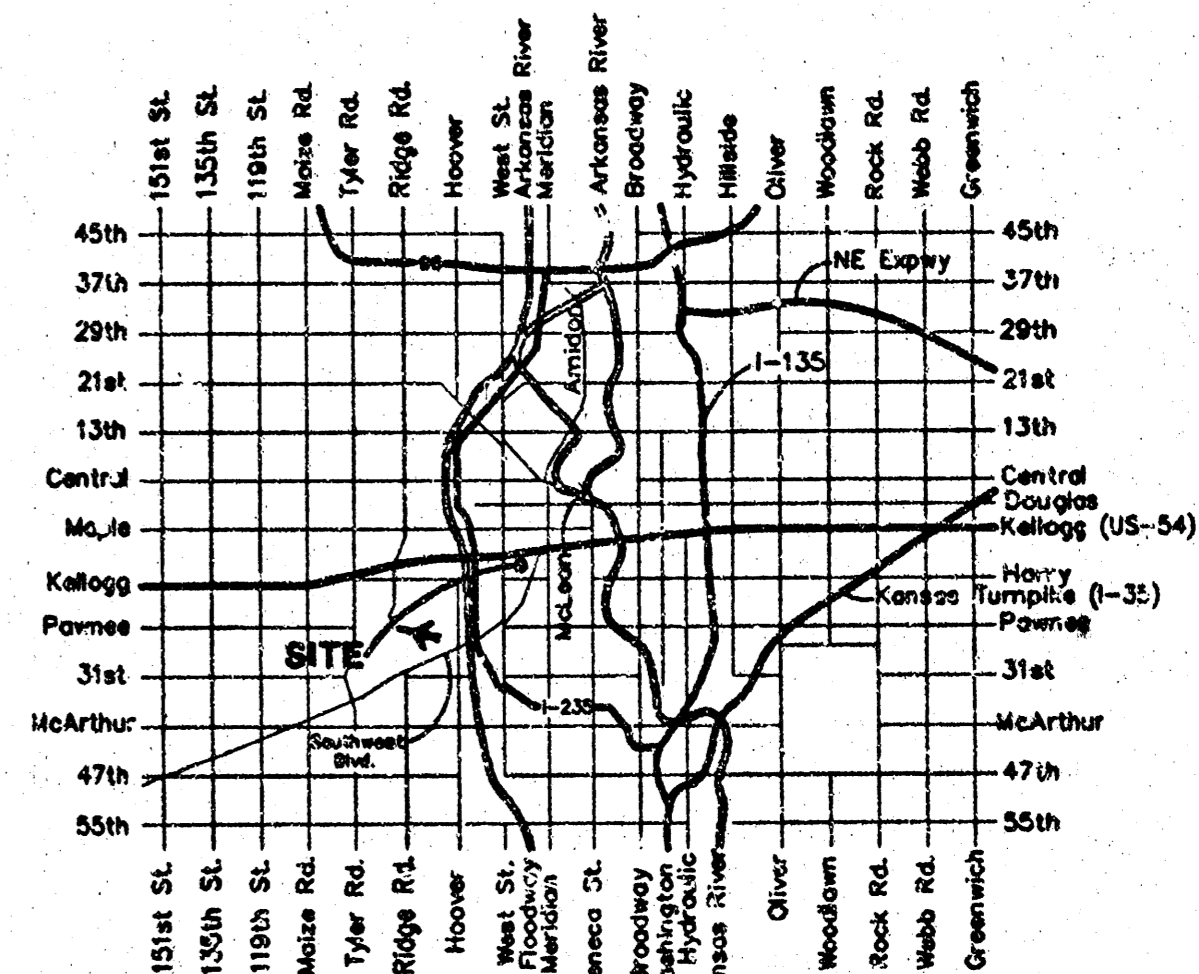
Elevation = 112.41 City Datum

BM #2: "□" Cut in top of curb on North side of Walker Street: 300' +/- West of centerline West Street.

Elevation = 112.26 City Datum

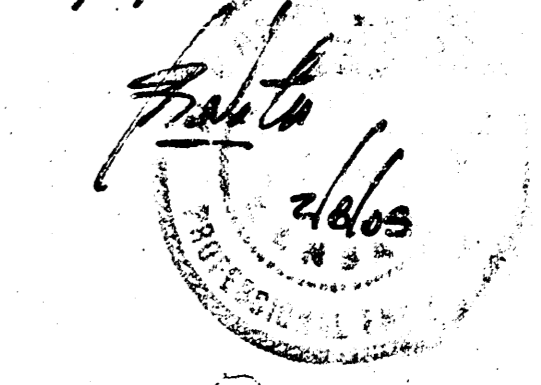
**Sheet Index**

Title Sheet	1
Line 1	2
Line 2	3
Standard Manhole Detail	4
Shallow Manhole Detail	5
Ring & Cover Detail	6
Erosion Control Details	7-10
Copy of Plot	11



**Vicinity Map**

WB Carter, Inc. - Contractor  
 Hartman, City - Inspector  
 Released 5/2/05  
 As-Built  
 Stubs  
 .pdf by JDL 5/4/05



**Benefit District** [Hatched Box]



Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-263-7271 F 316-262-0145  
 ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

**Benchmarks:**

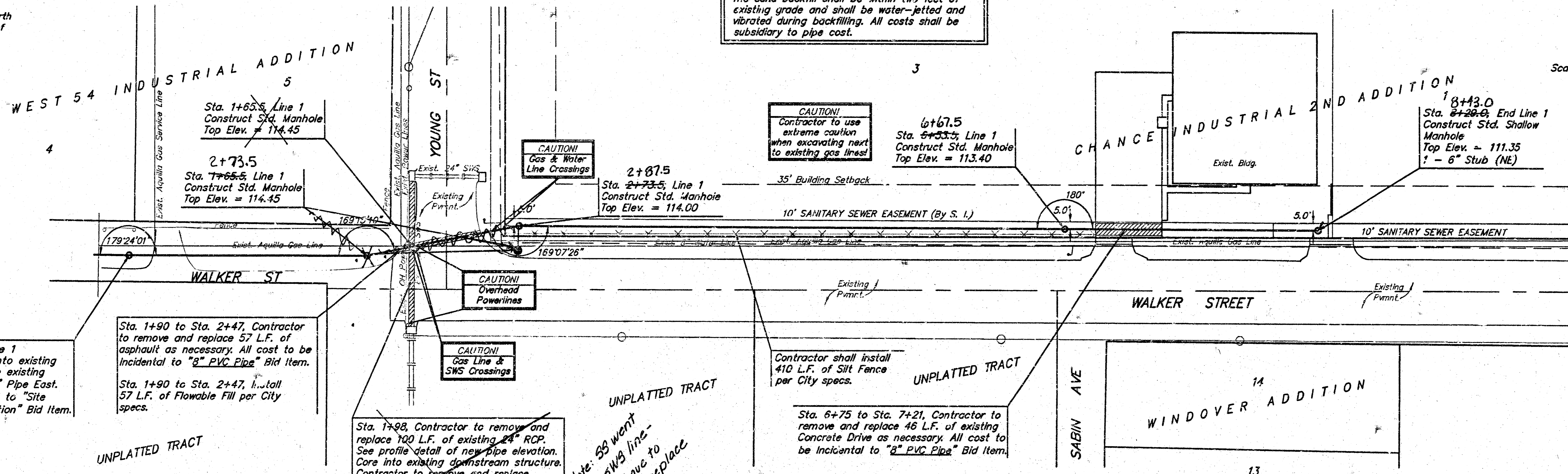
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Elevation = 112.41 City Datum

BM #2: " " Cut in top of curb on North side of Walker Street 300' +/- West of centerline West Street.  
Elevation = 112.26 City Datum

Contractor to verify depth & location of existing sanitary sewer and utilities prior to construction.

All trench and manhole excavation areas from Sta. 0+17.0 to Sta. 0+41.0 and Sta. 6+75.0 to Sta. 7+21.0 Line 1 shall be backfilled with sand. Except where flowable fill is called out. The sand backfill shall be within two feet of existing grade and shall be water-jetted and vibrated during backfilling. All costs shall be subsidiary to pipe cost.

Scale: 1" = 40' Horizontal  
1" = 5' Vertical  
= Iron



Sta. 0+00, Begin Line 1  
Contractor to Core into existing manhole and reshape existing invert, and extend 8" Pipe East. Cost to be incidental to "Site Clearing and Restoration" Bid Item.

Sta. 1+90 to Sta. 2+47, Contractor to remove and replace 57 L.F. of asphalt as necessary. All cost to be incidental to "8" PVC Pipe" Bid Item.  
Sta. 1+90 to Sta. 2+47, Install 57 L.F. of Flowable Fill per City specs.

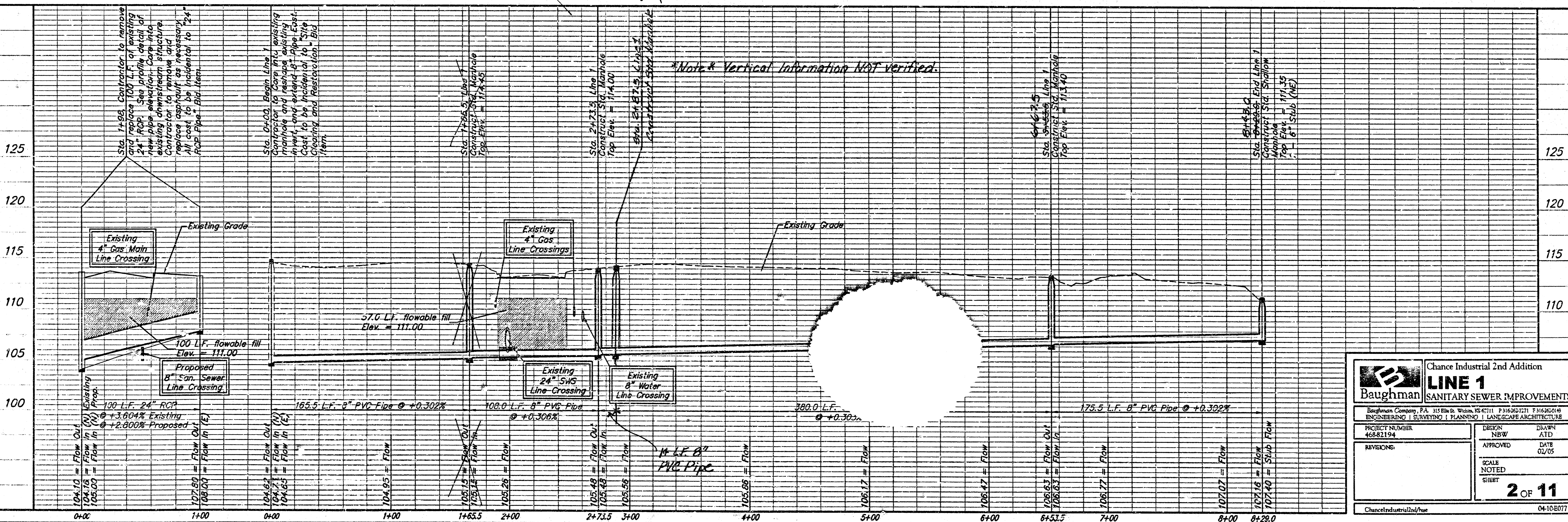
Sta. 1+98, Contractor to remove and replace 100 L.F. of existing 24" RCP. See profile detail of new pipe elevation. Core into existing downstream structure. Contractor to remove and replace asphalt as necessary. All cost to be incidental to "24" RCP Pipe" Bid Item.  
Sta. 1+98, Install 100 L.F. of Flowable Fill per City specs.

Note: SS want under SWS line - did NOT have to remove SWS line.

Contractor shall install 410 L.F. of Silt Fence per City specs.

UNPLATTED TRACT

UNPLATTED TRACT



\*Note: Vertical Information NOT verified.

14 L.F. 8" PVC Pipe

		Chance Industrial 2nd Addition <b>LINE 1</b> SANITARY SEWER IMPROVEMENTS	
Baughman Company, P.A. 315 Blue St. Walnut, VA 24111 P 540-263-7271 F 540-263-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE			
PROJECT NUMBER 46882194	DESIGN NEW	DRAWN ATD	DATE 02/05
REVISIONS:	APPROVED	SCALE NOTED	SHEET <b>2 OF 11</b>
ChanceIndustrial2nd/line		04-10-077	

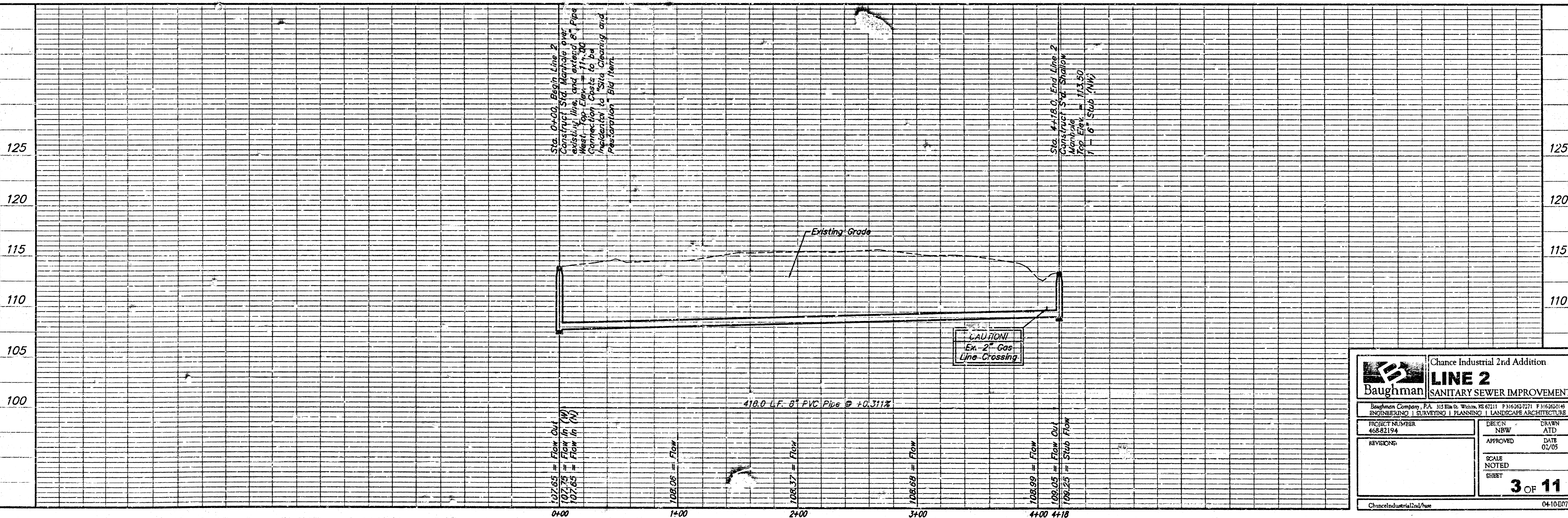
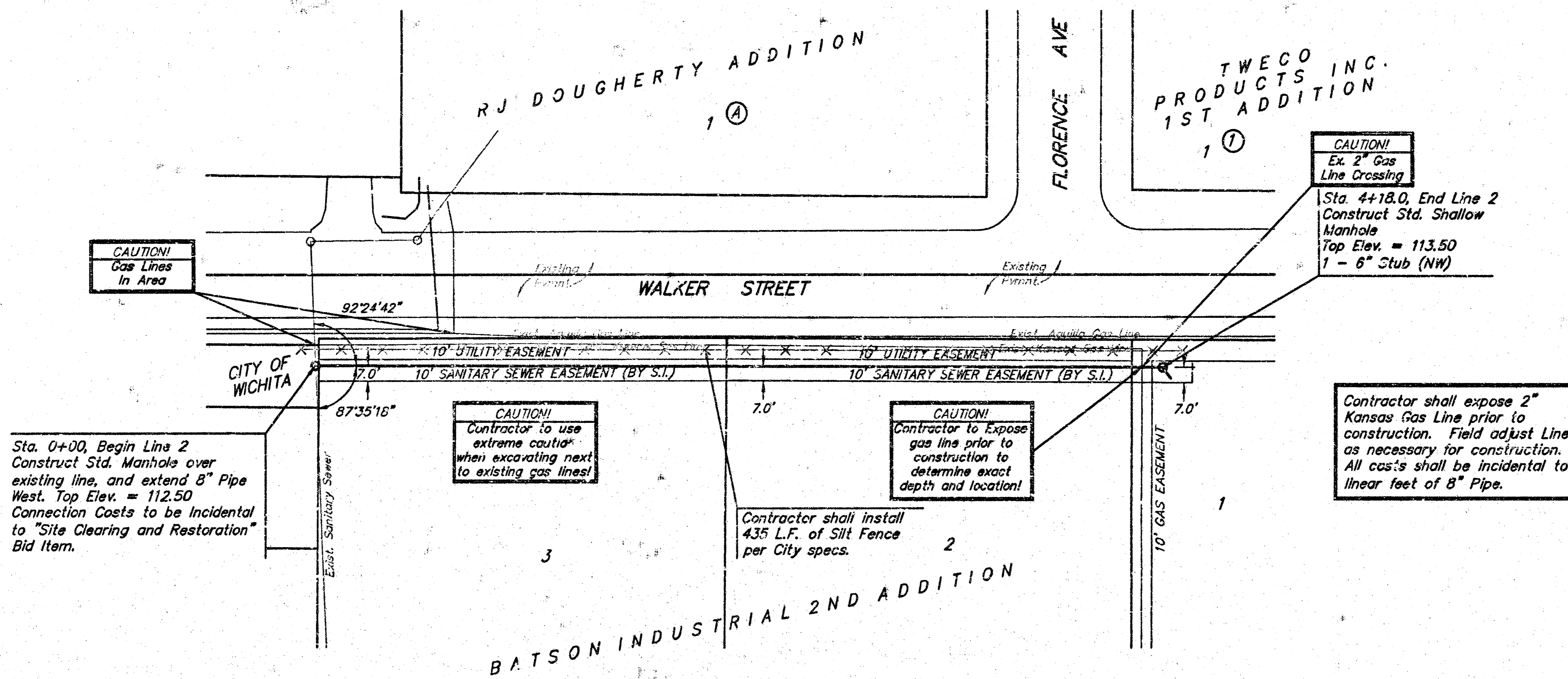
**Benchmarks:**

BM #1: "□" Cut in top of curb on North side of Walker Street at centerline of Sabin Avenue.  
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BM #2: "□" Cut in top of curb on North side of Walker Street 300' +/- West of centerline West Street.  
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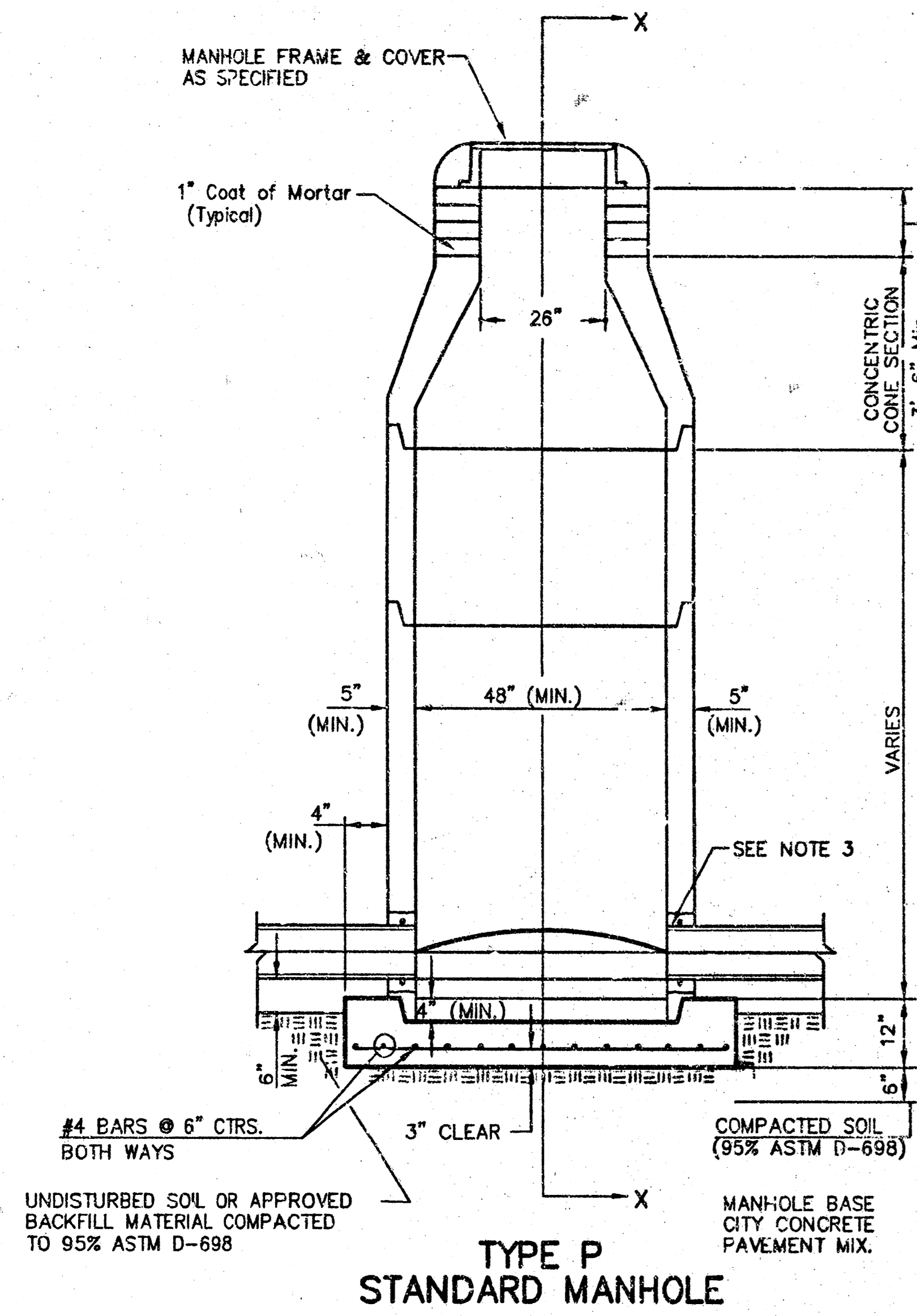
Contractor to verify depth & location of existing sanitary sewer and utilities prior to construction.

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• = Iron

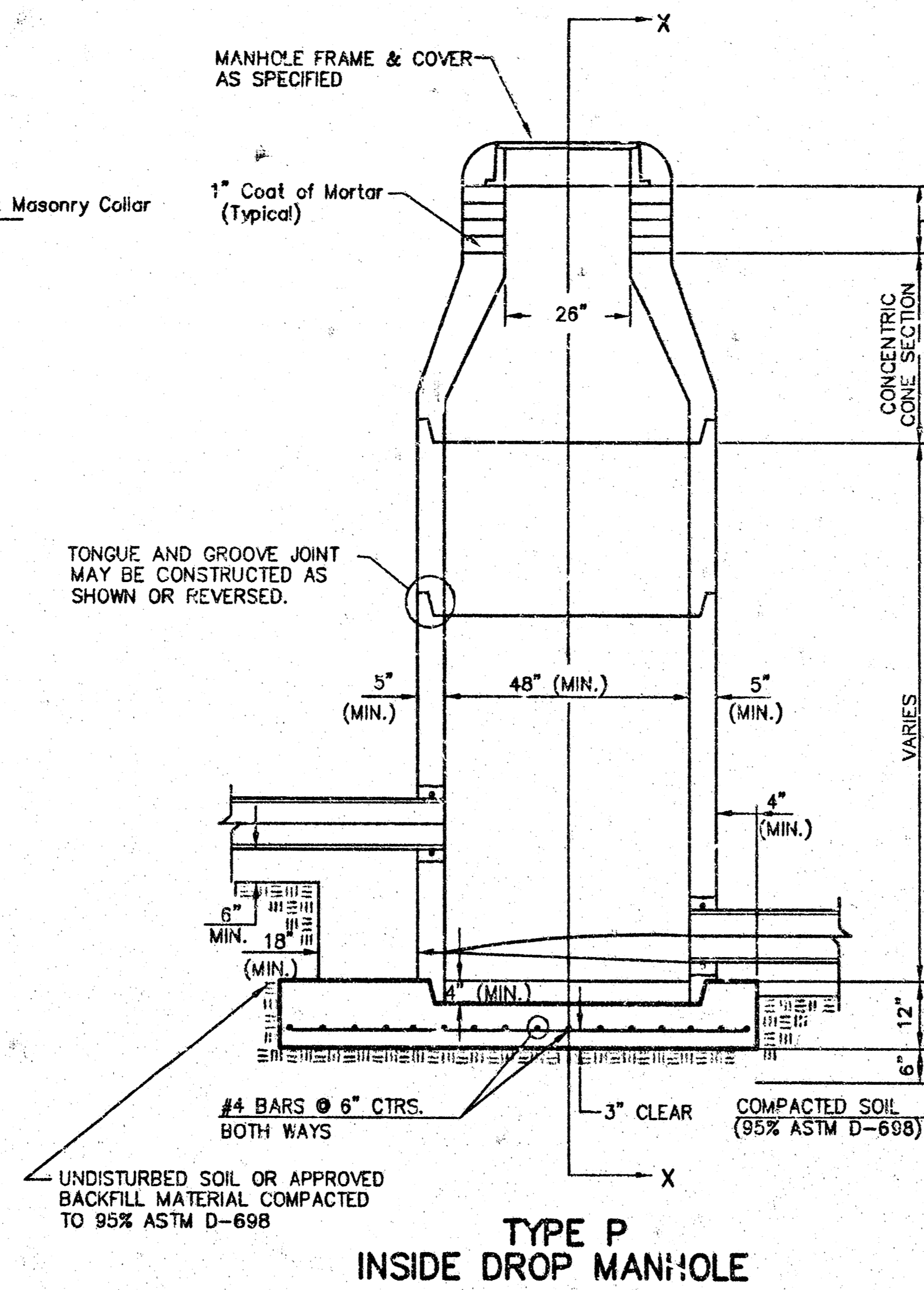


		Chance Industrial 2nd Addition <b>LINE 2</b> SANITARY SEWER IMPROVEMENTS	
Baughman Company, P.A. 315 Elm St. Wichita, KS 67211 P 3162627271 F 3162620149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE			
PROJECT NUMBER 468-82194	DESIGN NEW	DRAWN ATD	DATE 02/05
REVISIONS:	SCALE NOTED SHEET <b>3 OF 11</b>		
ChanceIndustrial2nd/line		04-10-0777	

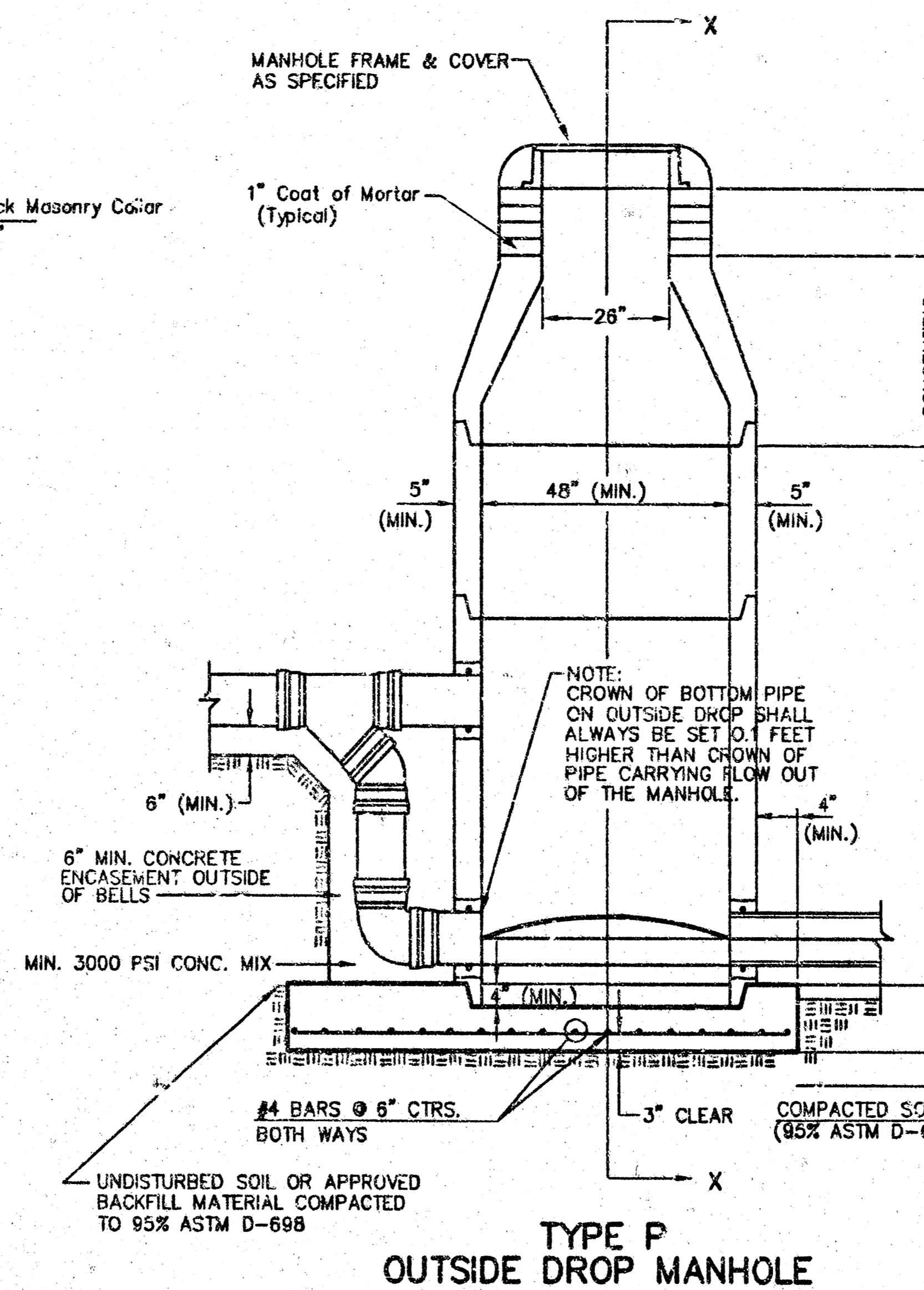
# SEWER APPURTENANCES DETAILS



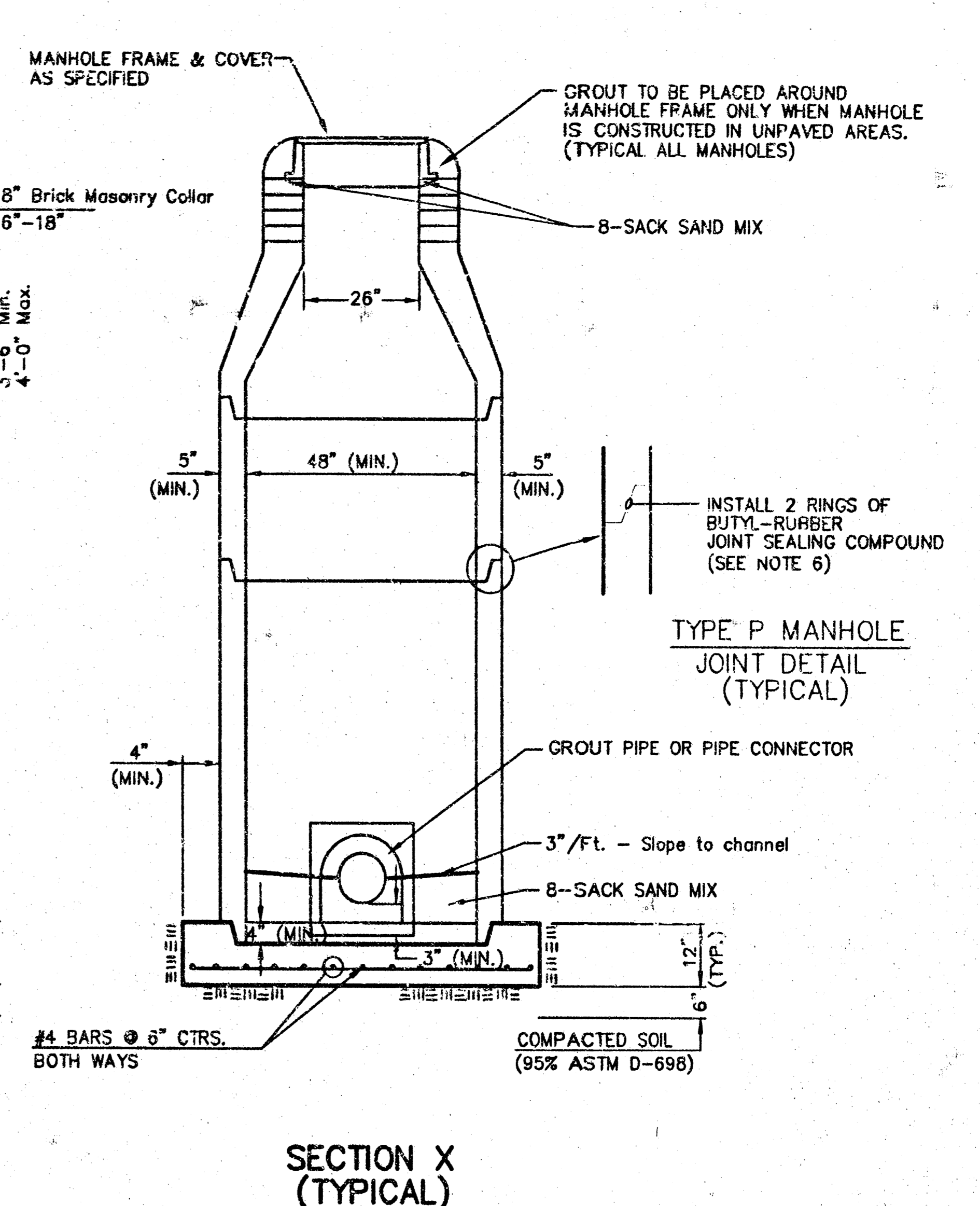
**TYPE P STANDARD MANHOLE**



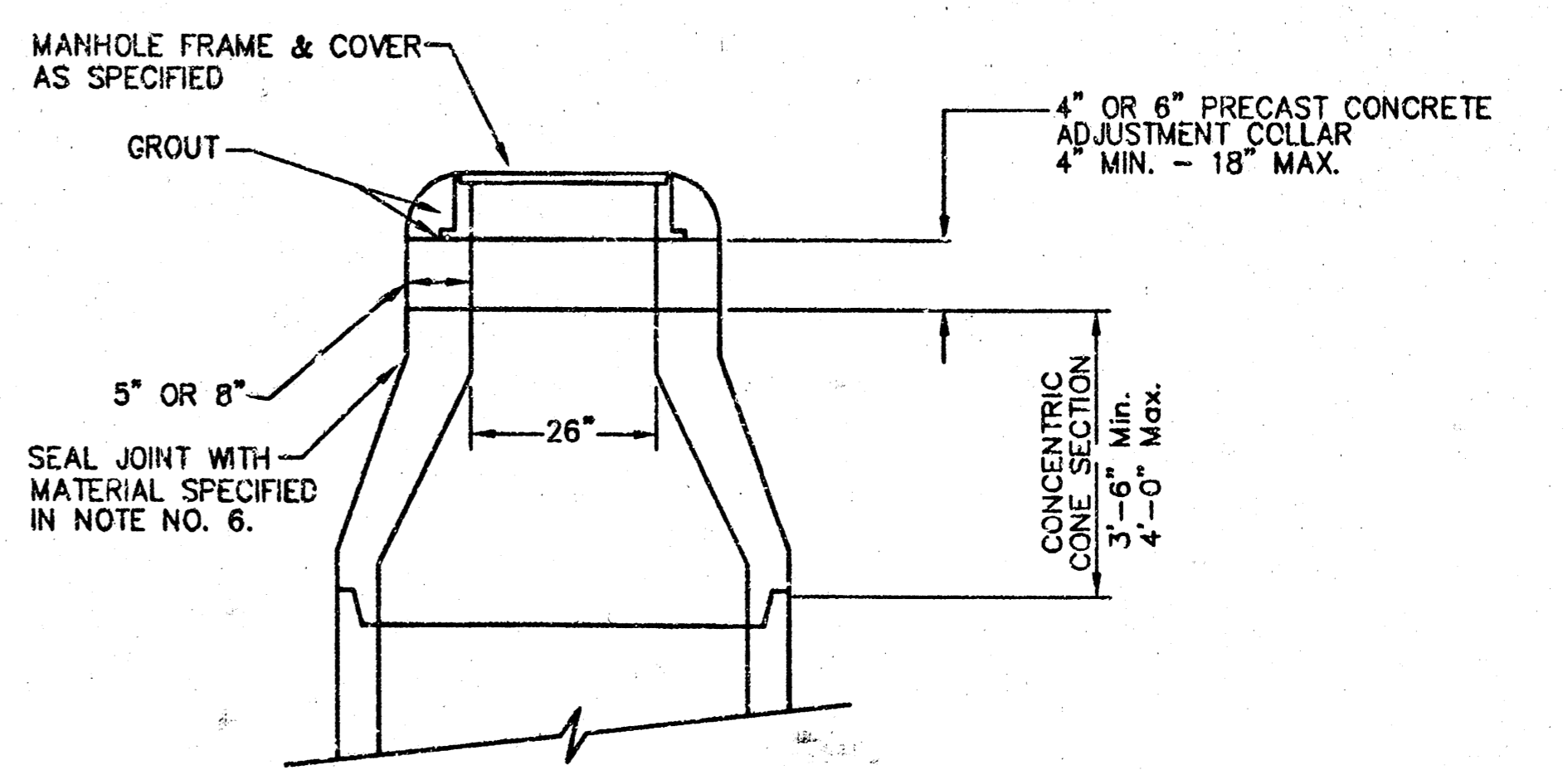
**TYPE P INSIDE DROP MANHOLE**



**TYPE P OUTSIDE DROP MANHOLE**



**SECTION X (TYPICAL)**



**ALTERNATE CONSTRUCTION IN UNPAVED AREAS**

**GENERAL NOTES**  
**PRECAST MANHOLE NOTES**

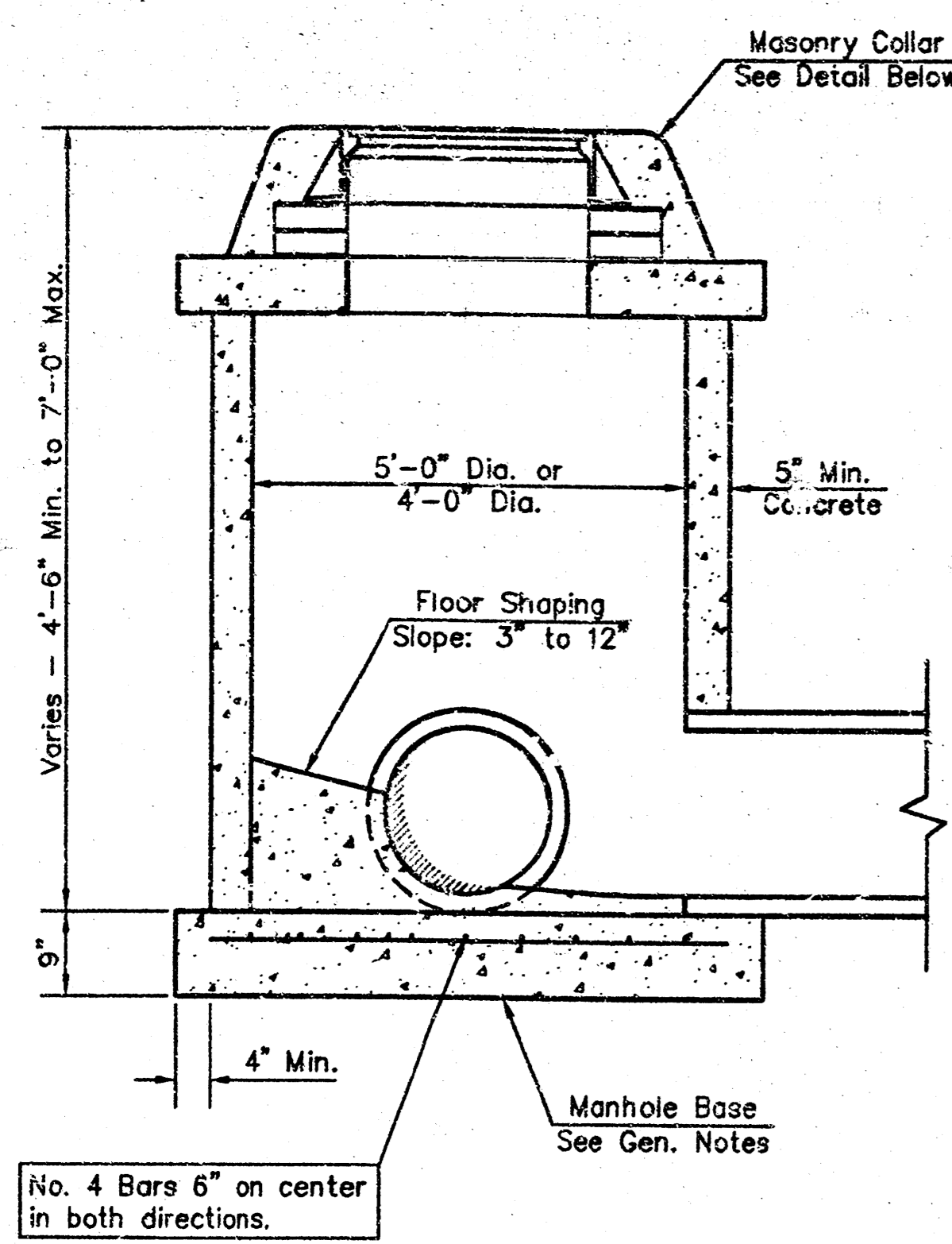
1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEEC SERIES 66 HI-BUILD EPOXYLINE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. 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.
9. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. 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. 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.

11. 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.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED WITH THE OPENING USING AN APPROVED NON-SHRINK 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.
13. 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 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.
14. 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.

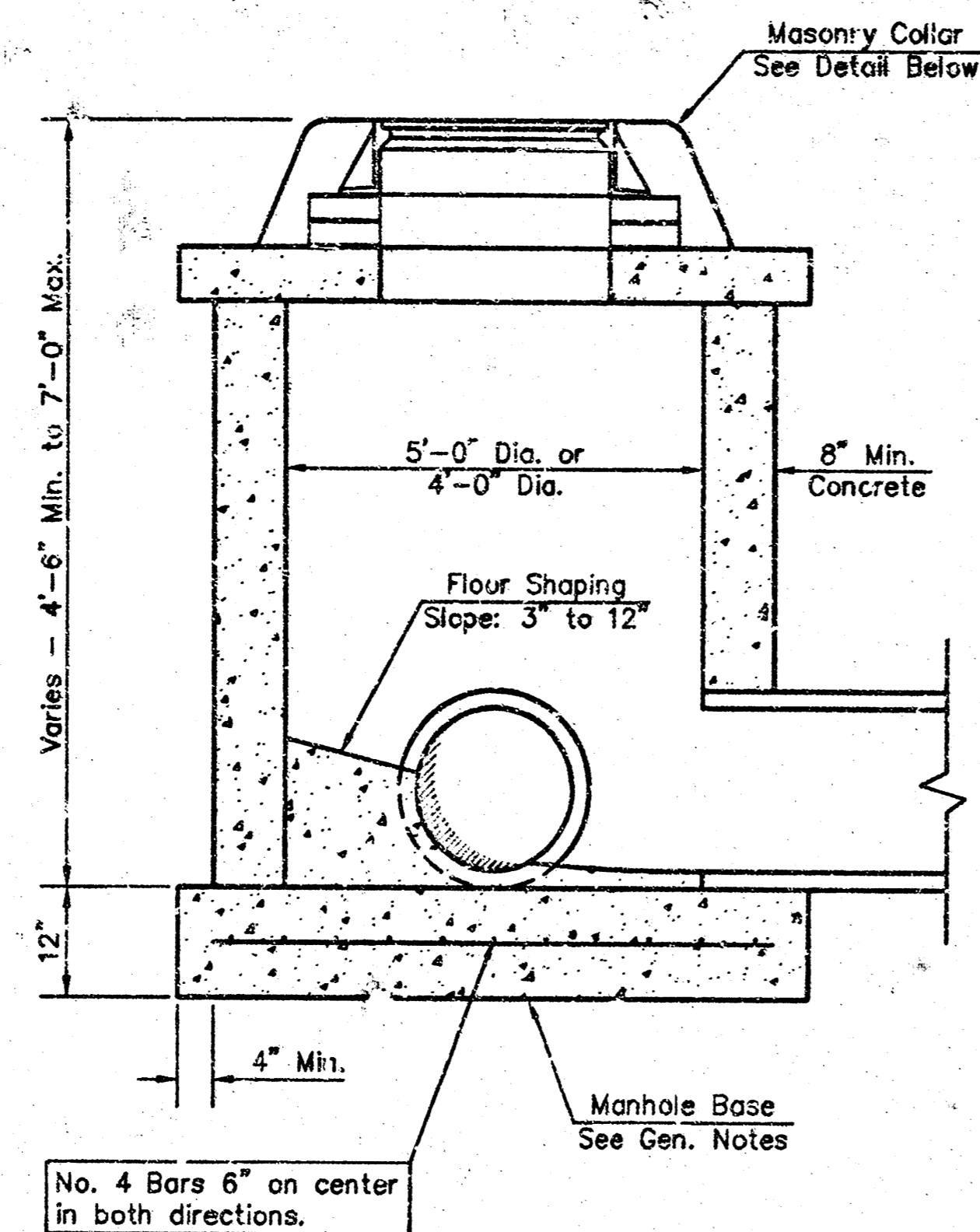
15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. 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.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC COGN. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

		CITY OF WICHITA, KANSAS	
		STANDARD MANHOLE DETAILS	
Baughman Company, P.A. 315 Ellis St., Wichita, KS 67211 P: 316-262-2721 F: 316-262-0149 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE		DESIGN STAFF APPROVED DATE FEB 2005	
PROJECT NUMBER 468-82194		DRAWN DATE FEB 2005	
REVISIONS:		SCALE NONE	
		SHEET <b>4 OF 11</b>	

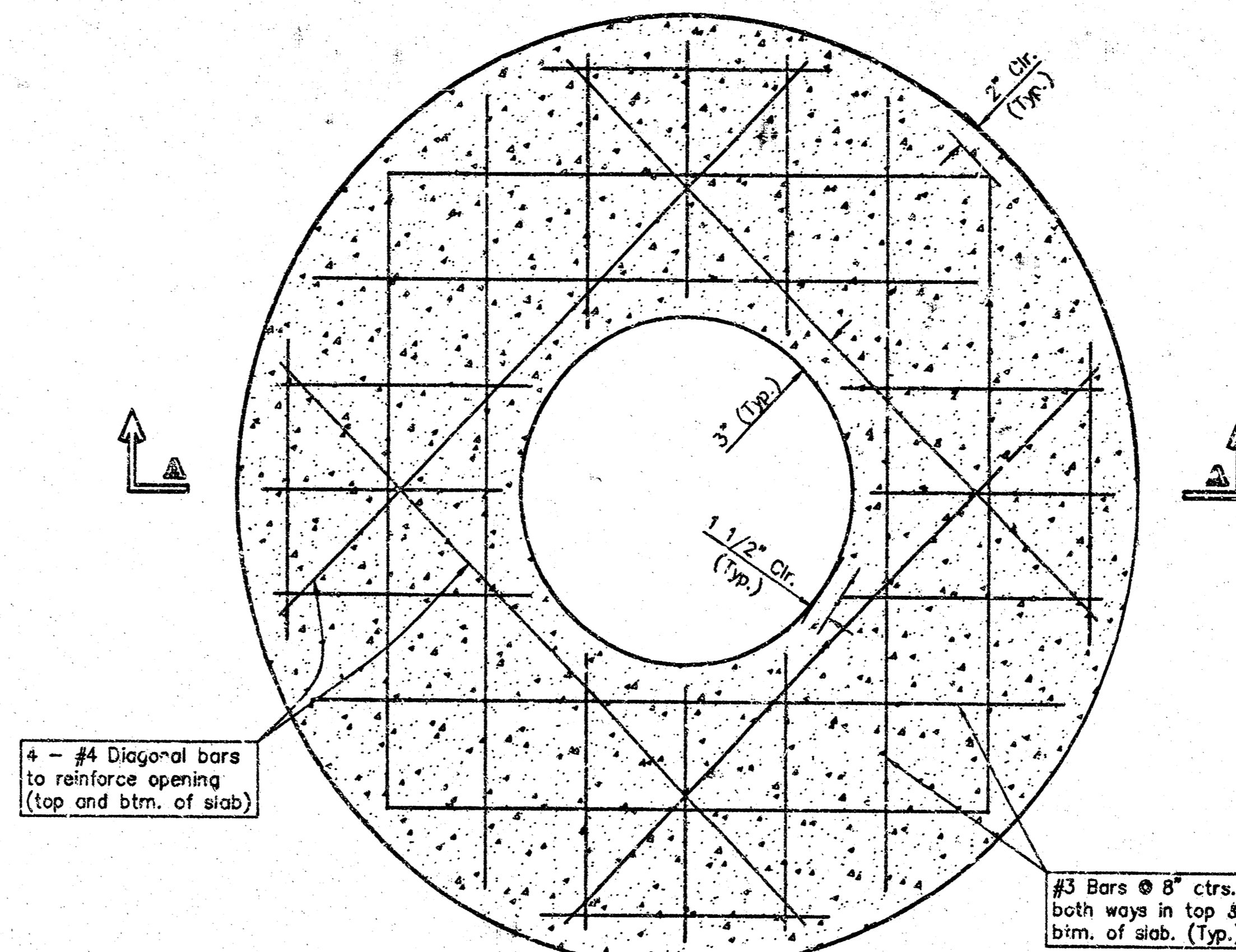
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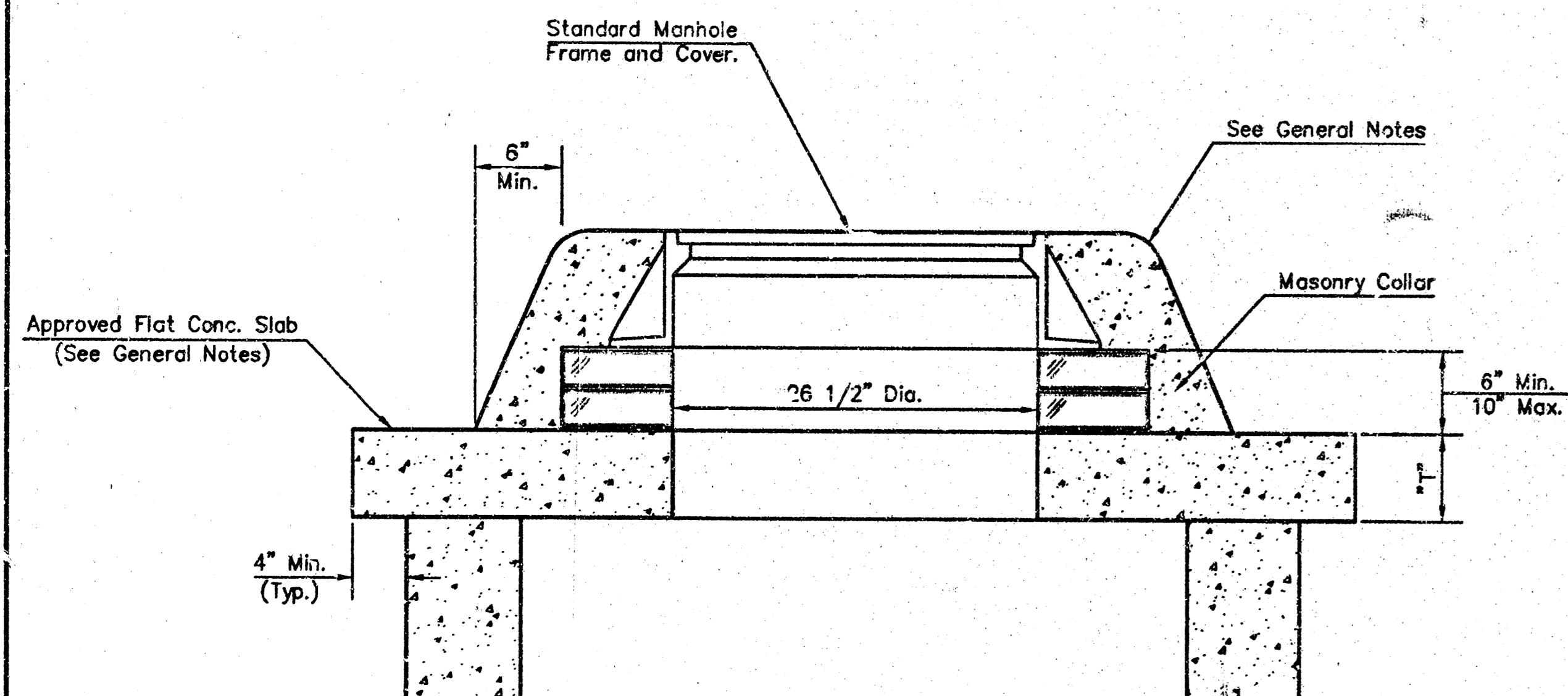
SHALLOW TYPE "P" MANHOLE



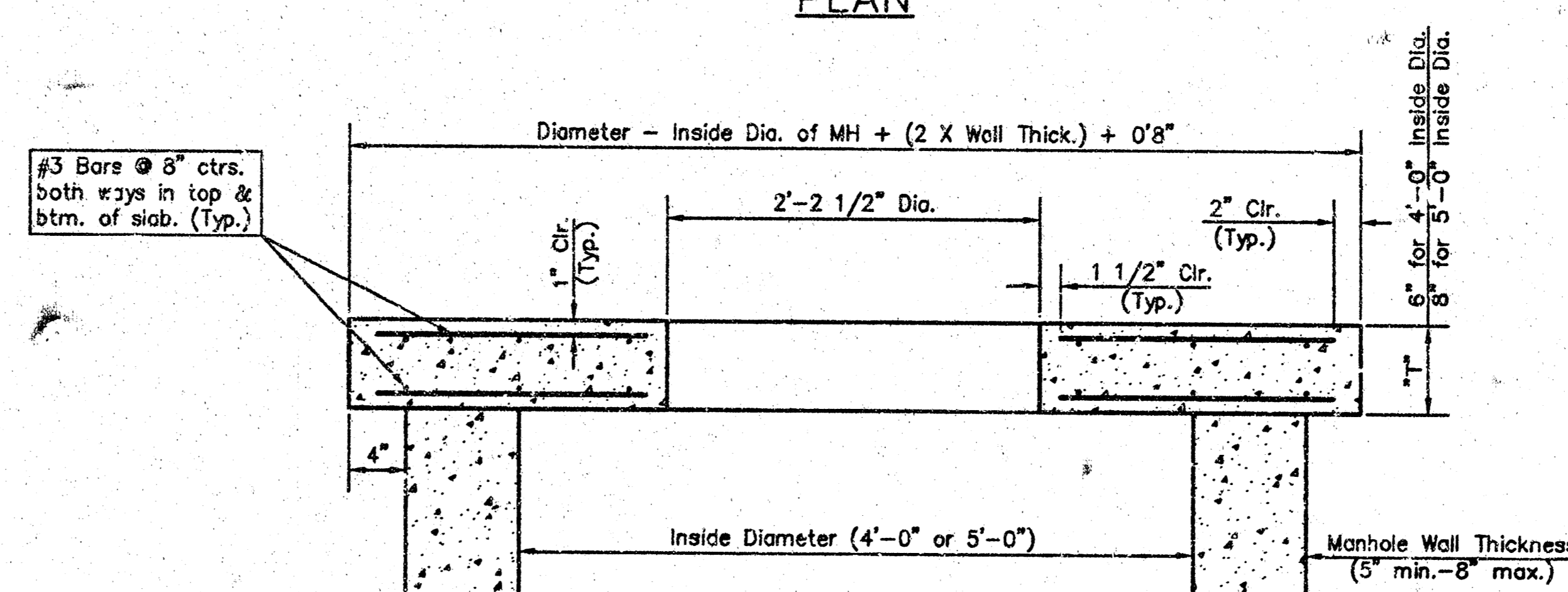
SHALLOW TYPE "C" MANHOLE



PLAN



MASONRY COLLAR DETAIL

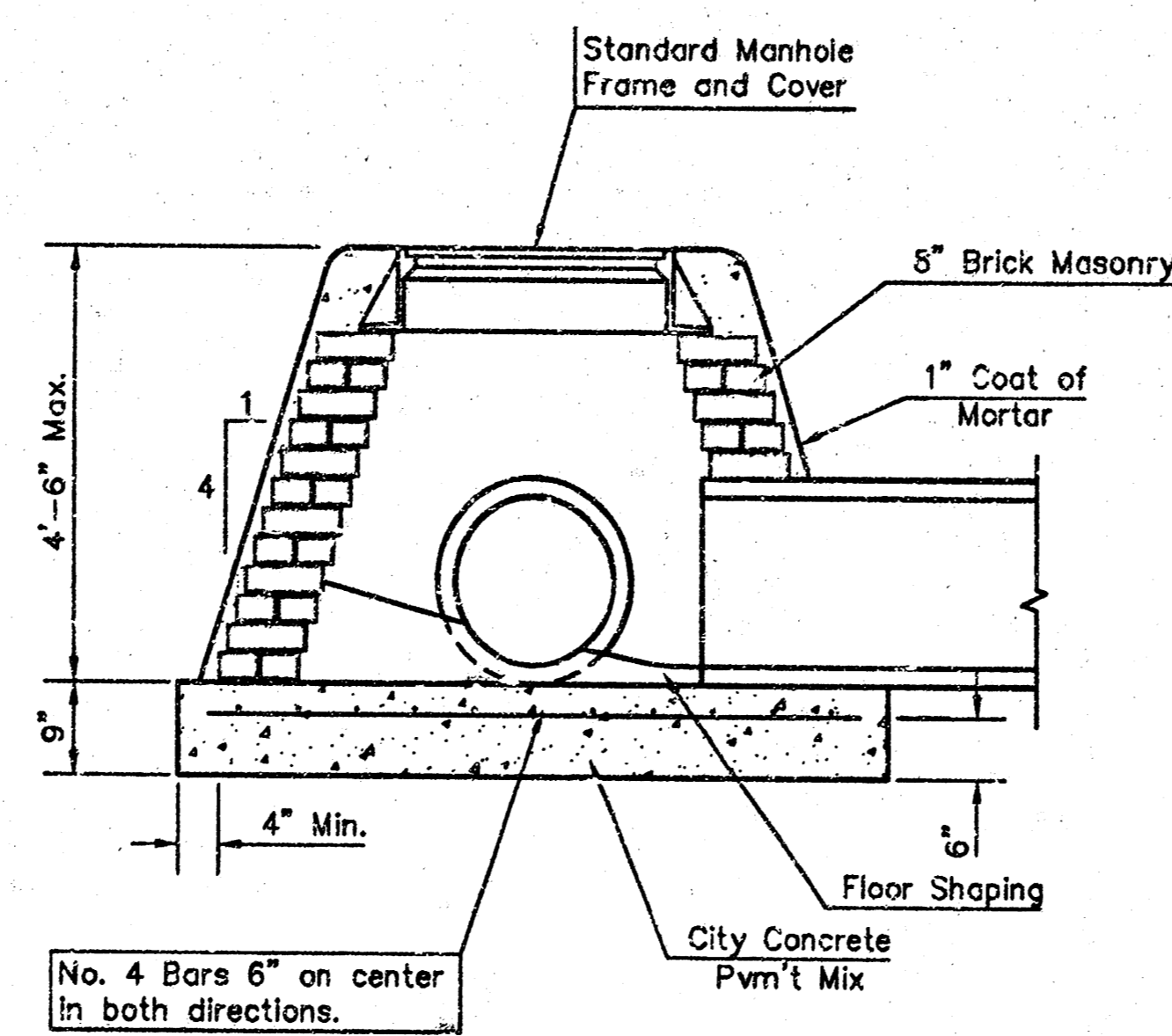


SECTION A-A

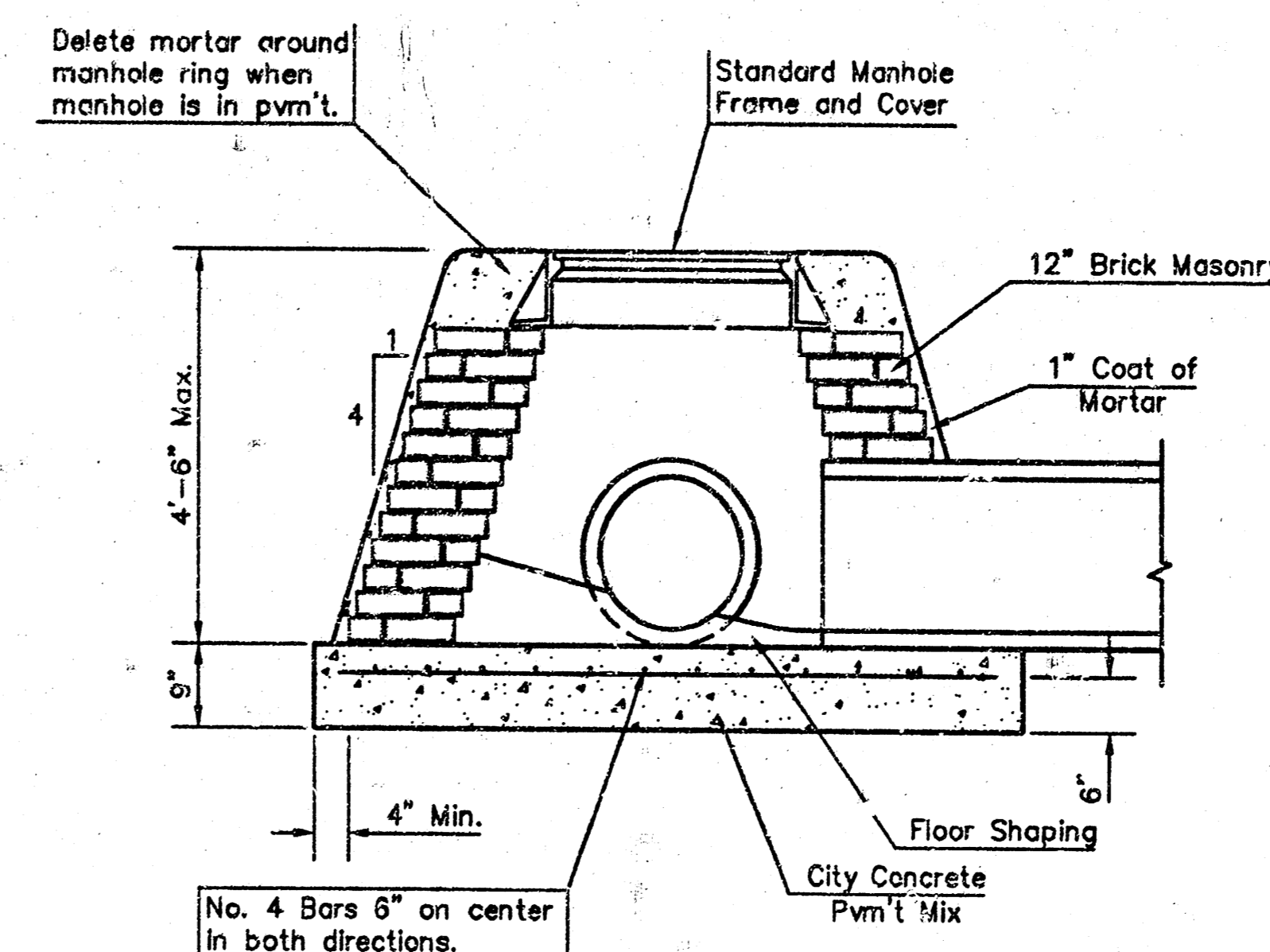
FLAT CONCRETE SLAB DETAILS

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 admixtures. Mortar shall be placed around the manhole ring as shown on the drawings when manholes are constructed in unpaved areas. 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 bases. 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 "P" and "C" shall be paid for at the unit price bid per each for the type and diameter indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.
- All brick used in manhole construction shall meet Grade SW of ASTM C552 or C52-57.



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

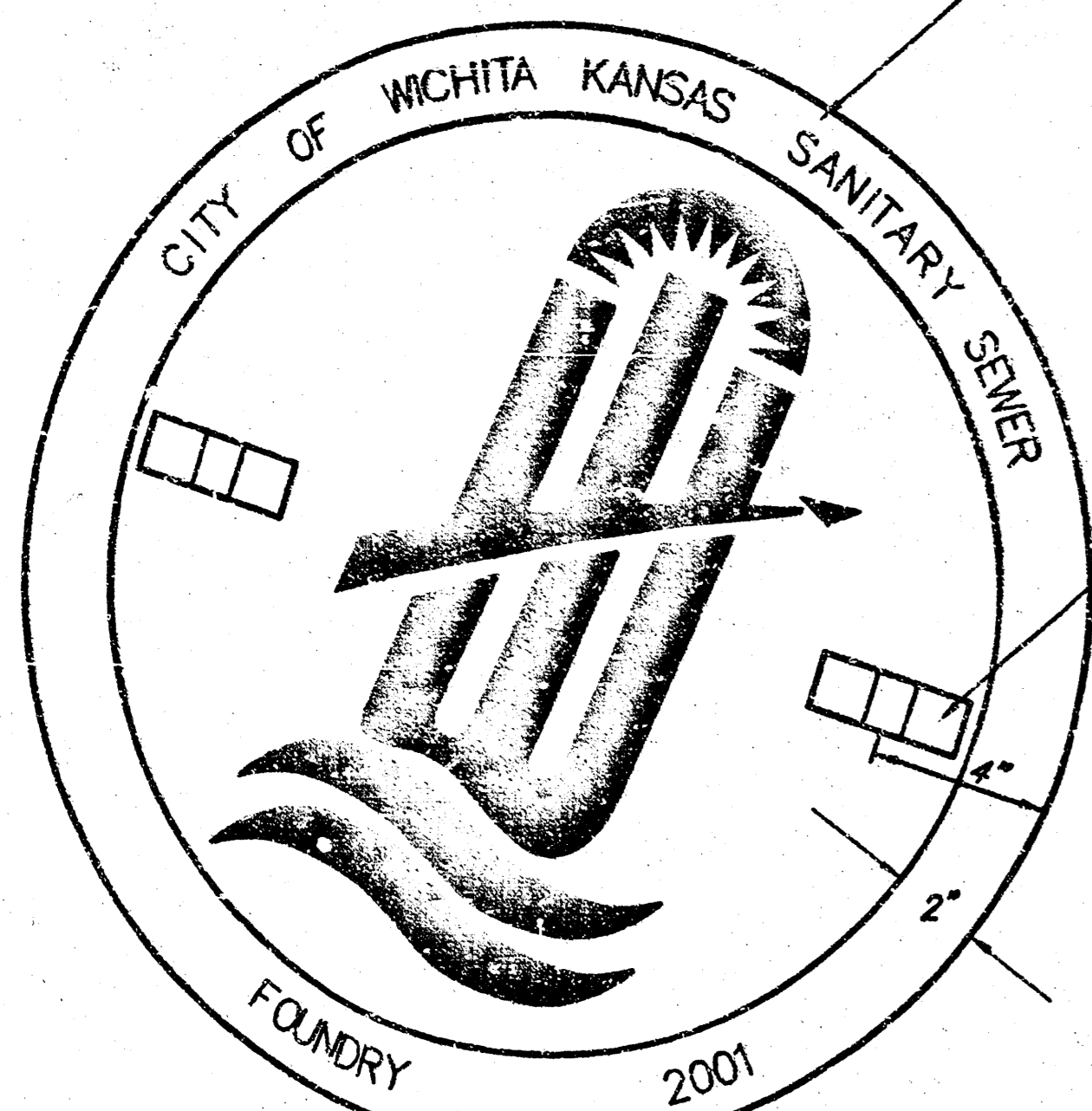
<b>Std. Shallow Manholes</b> Type "P" and Type "C"	
Baughman Company, P.O. Box 5, Waltham, MA 02157 F31626/27/1 F31626/21/6 ENGINEERING   SURVEYING   PLANNING   LANDSCAPE ARCHITECTURE	
PROJECT NUMBER 468-21194	DRAWN Staff
REVISIONS:	APPROVED DATE
SCALE None	SHEET
5 OF 11	
0405E884	

# STANDARD AND LIGHT WEIGHT MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY  
CITY OF WICHITA, KANSAS

MANHOLE COVER  
Weight = 180 Lbs.

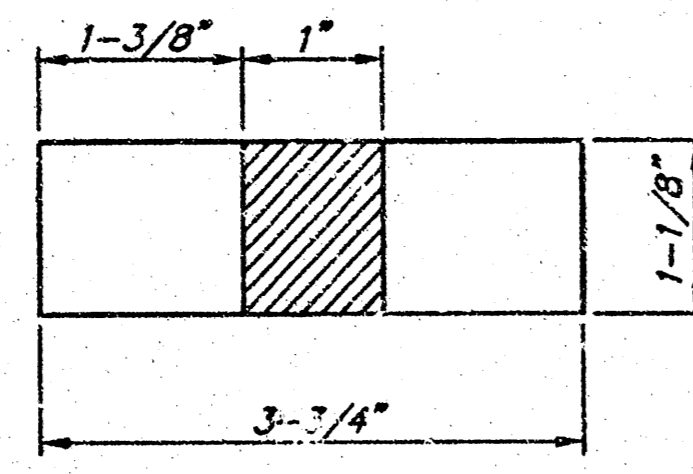
CHANGE TO SANITARY SEWER  
OR STORM SEWER AS APPLICABLE



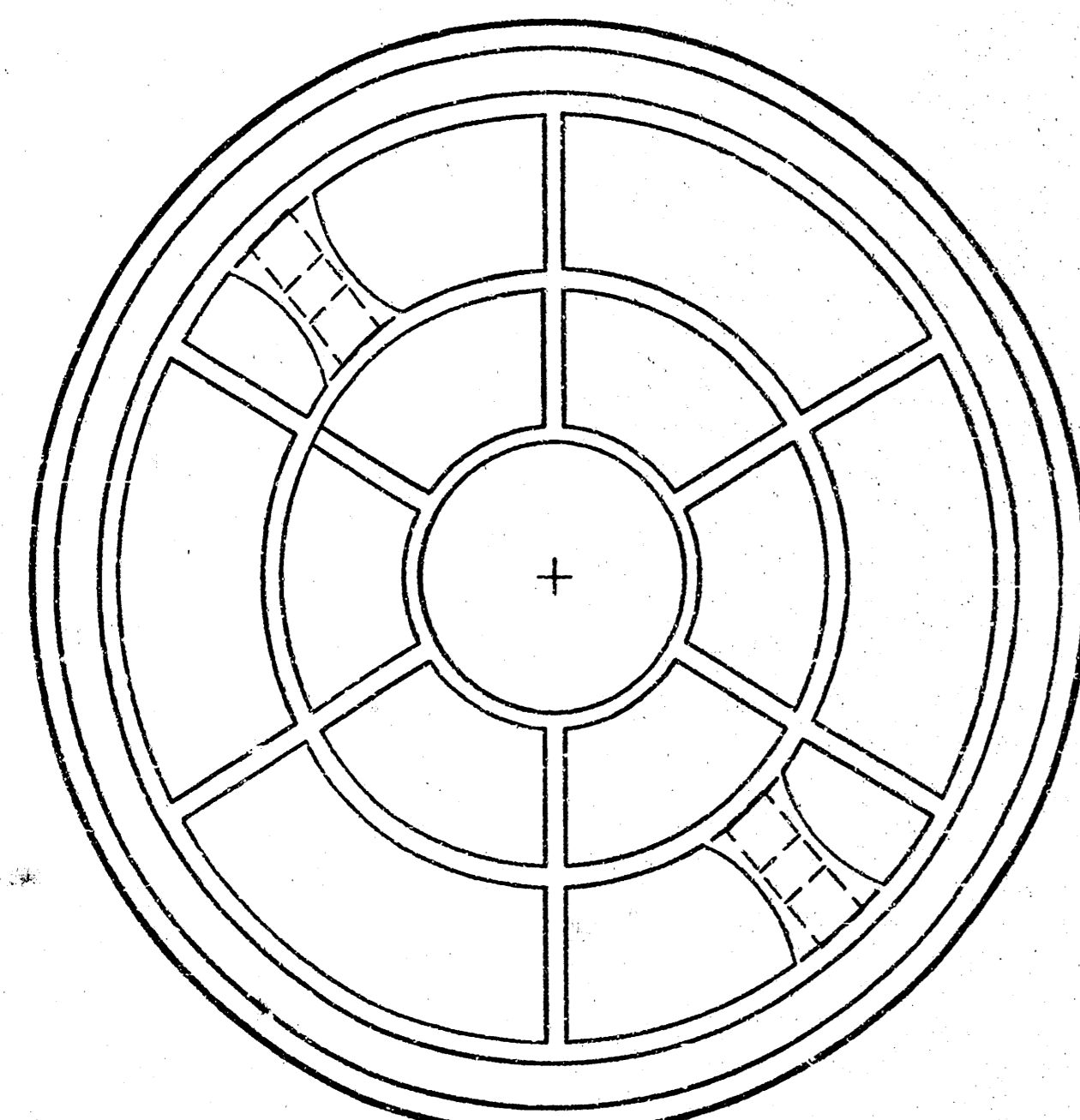
TOP VIEW

CLOSED PICKHOLE (SEE DETAIL)

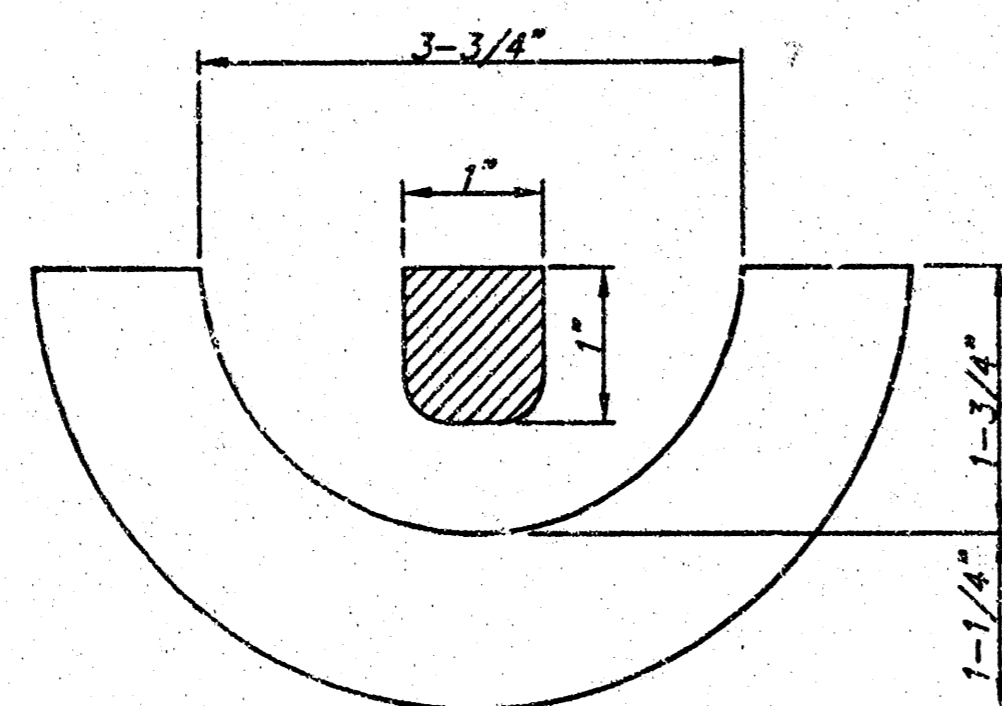
PICKHOLE DETAIL



TOP VIEW

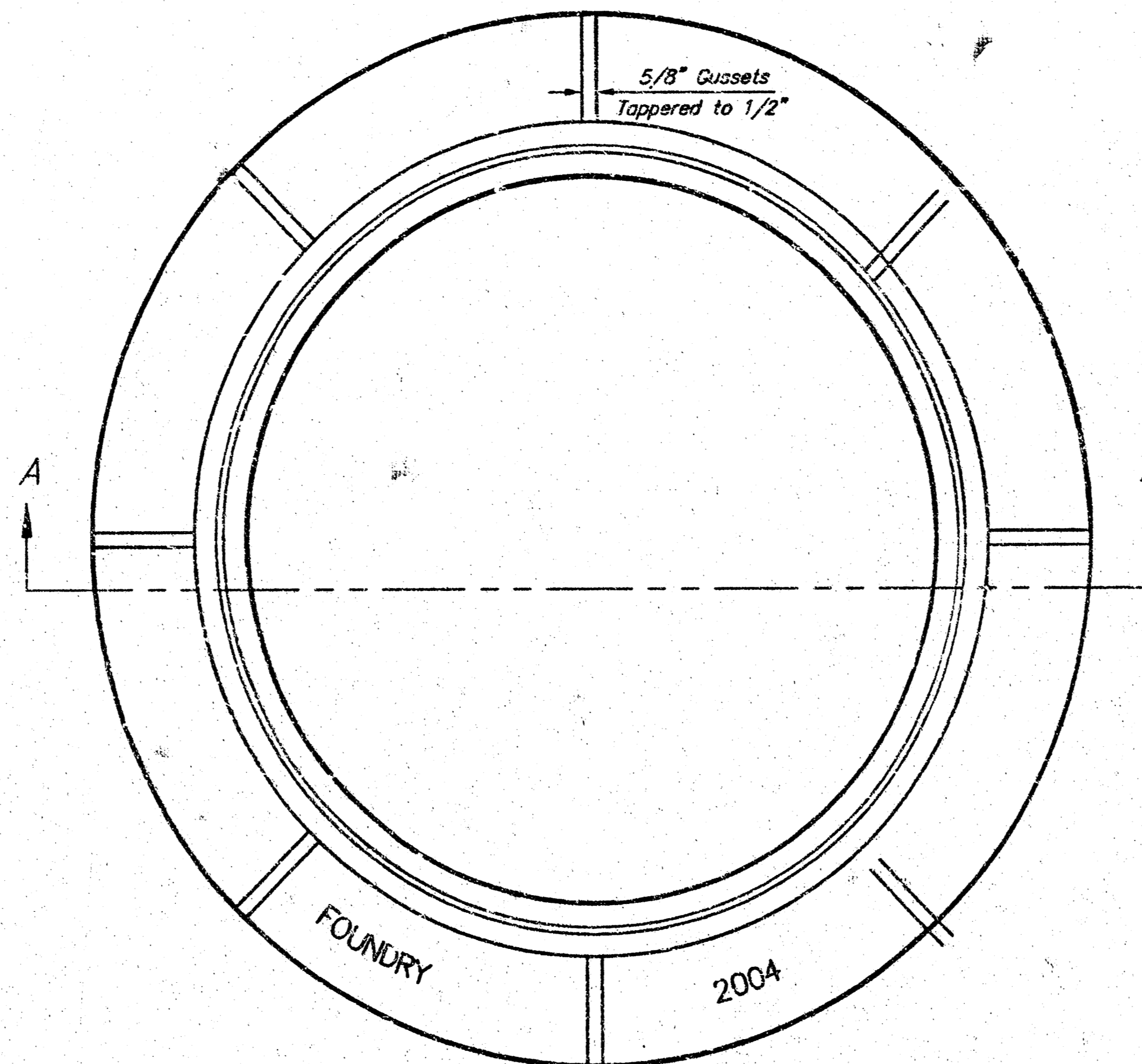


BOTTOM VIEW



SECTION VIEW

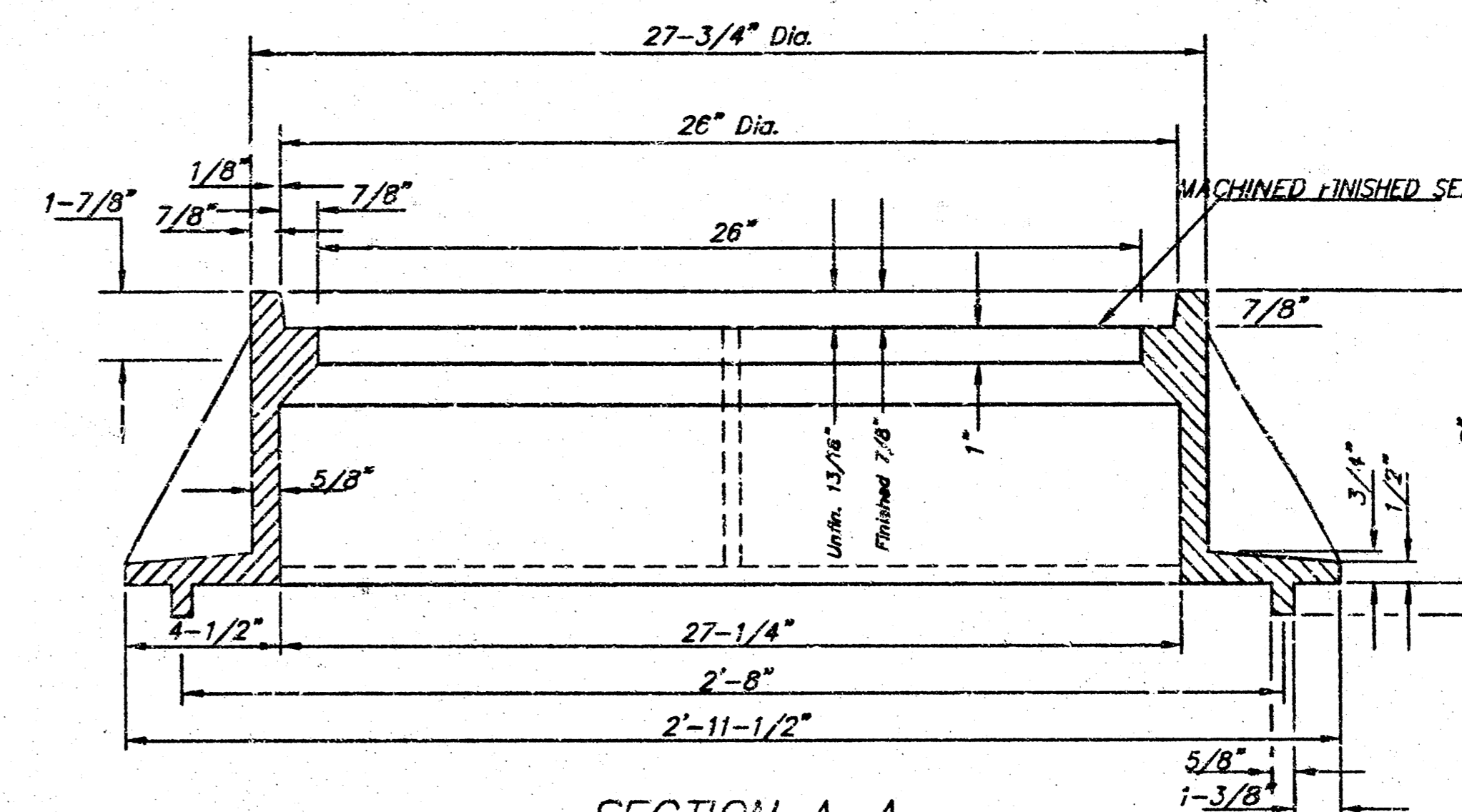
LIGHT WEIGHT  
MANHOLE FRAME  
Weight = 161 Lbs.



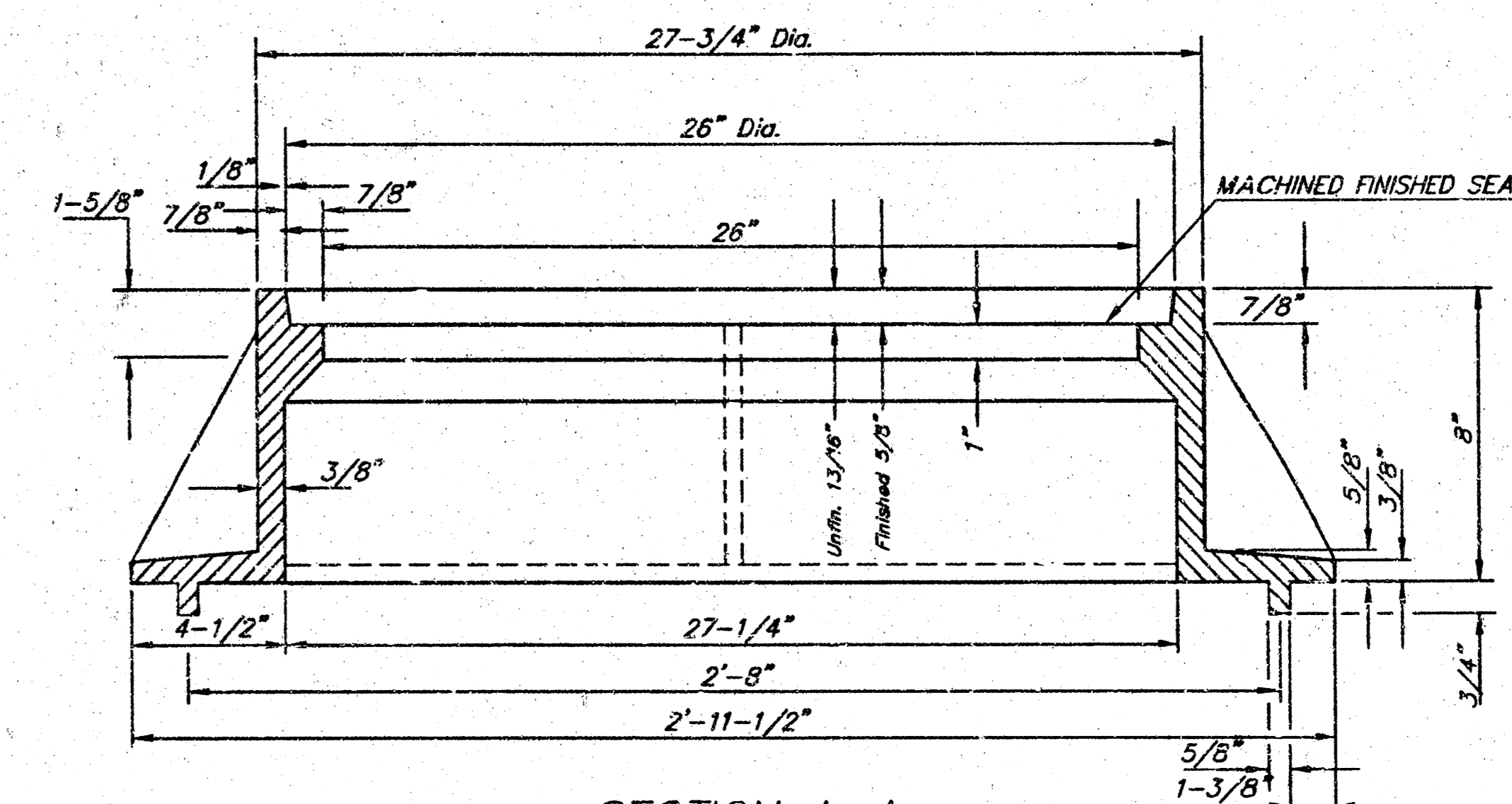
TOP VIEW

## GENERAL NOTES

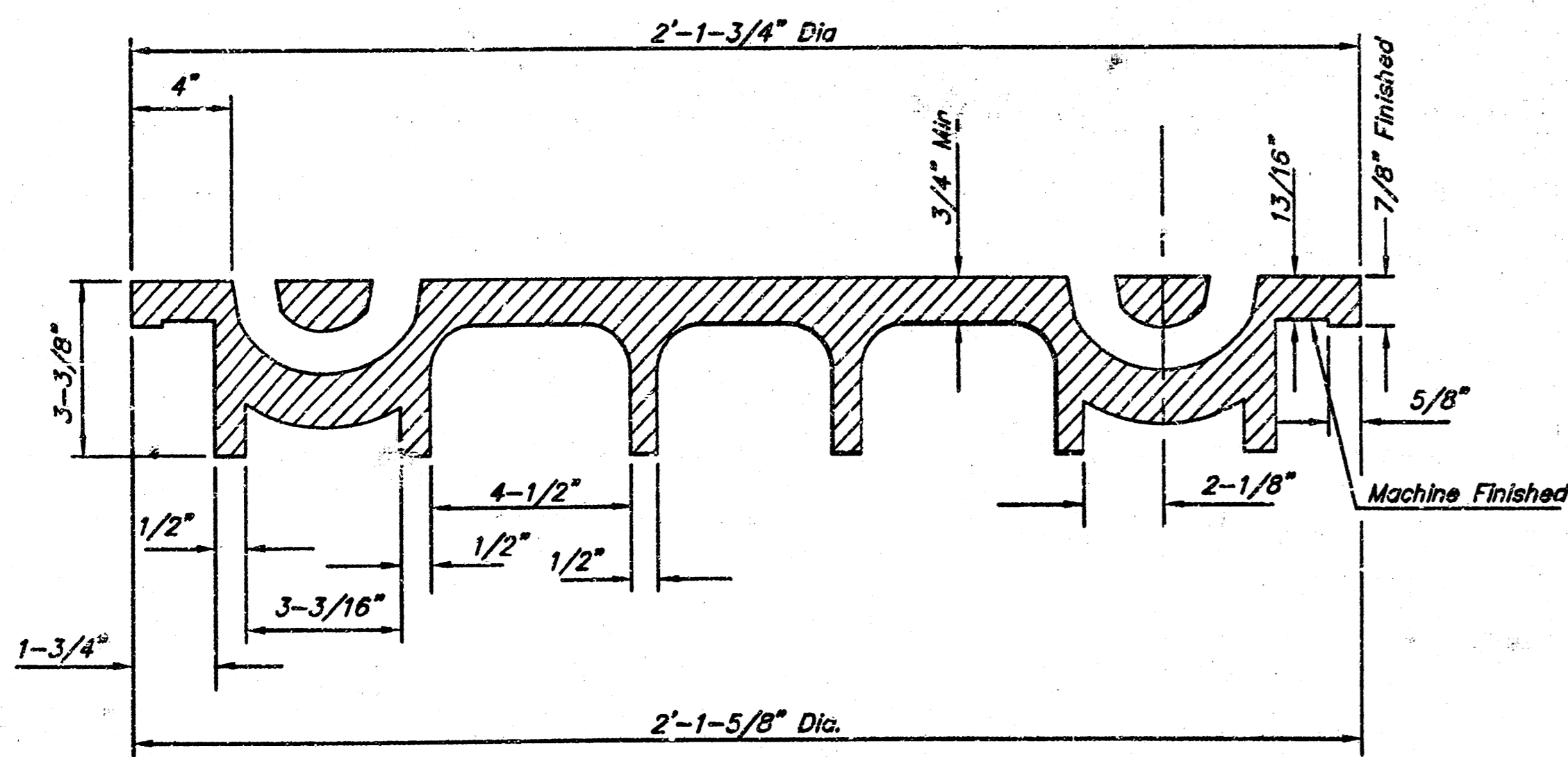
- MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND HEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HAND SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
- LIGHT WEIGHT MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 161 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 341 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
- STANDARD MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 430 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 610 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
- MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.
- THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH THAT THESE SEATING SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.
- THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SANITARY SEWER" OR "CITY OF WICHITA STORM SEWER". THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.
- MANHOLE FRAME WITHOUT MUDRING TO BE USED ONLY ON RECONSTRUCTION PROJECTS WHERE ADDITIONAL CLEARANCE IS NEEDED.



SECTION A-A  
STANDARD  
MANHOLE FRAME  
Weight = 250 Lbs.




SECTION A-A  
LIGHT WEIGHT  
MANHOLE FRAME  
Weight = 161 Lbs.

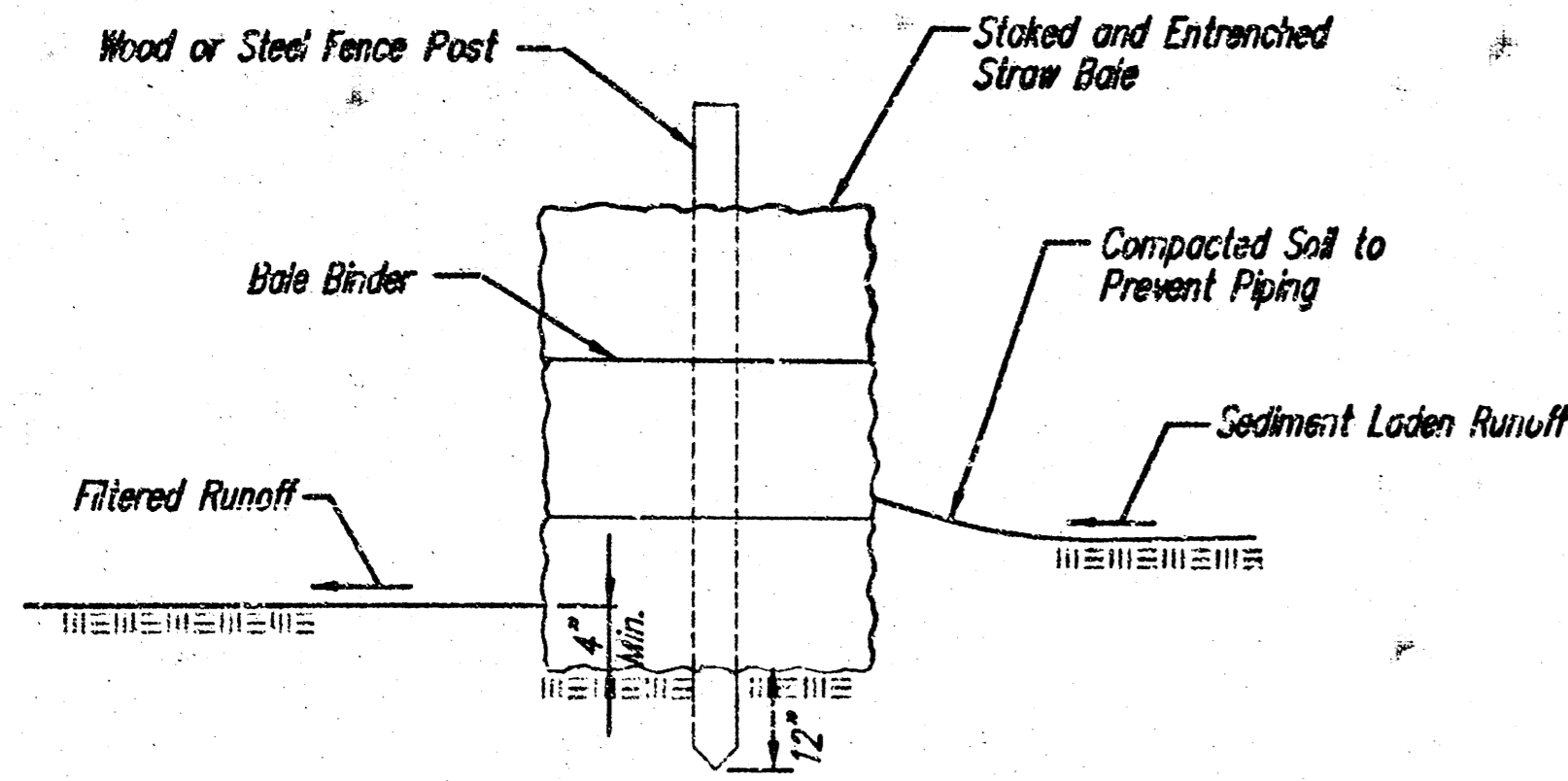


SECTION VIEW

REV. 3-13-02, MCG

L:\Sewer\Manhole Frame Cover Light Weight R.dwg

 <b>CITY OF WICHITA</b> PUBLIC WORKS ENGINEERING		<b>STANDARD &amp; LIGHT WEIGHT MANHOLE FRAME AND COVER</b>	
		CITY ENGINEER	
JAMES L. ARMOUR, P.E. ACTING CITY ENGINEER		PROJECT NUMBER	DATE
468-02184	744089	02/05	
CITY ENGINEER'S OFFICE		DESIGN	DRAW
CITY HALL - SEVENTH FLOOR 400 NORTH MAIN STREET WICHITA, KANSAS 67202-1620 (316) 266-4200 (316) 266-4114 FAX		COW	COW
		SHEET	6 OF 11



**STRAW BALE BARRIERS**

**Material Specification:**

Bale slope barriers may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

**Placement:**

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for setting out sediment.

When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow. Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

**Proper installation method:**

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.

Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

**List of common placement/installation mistakes to avoid:**

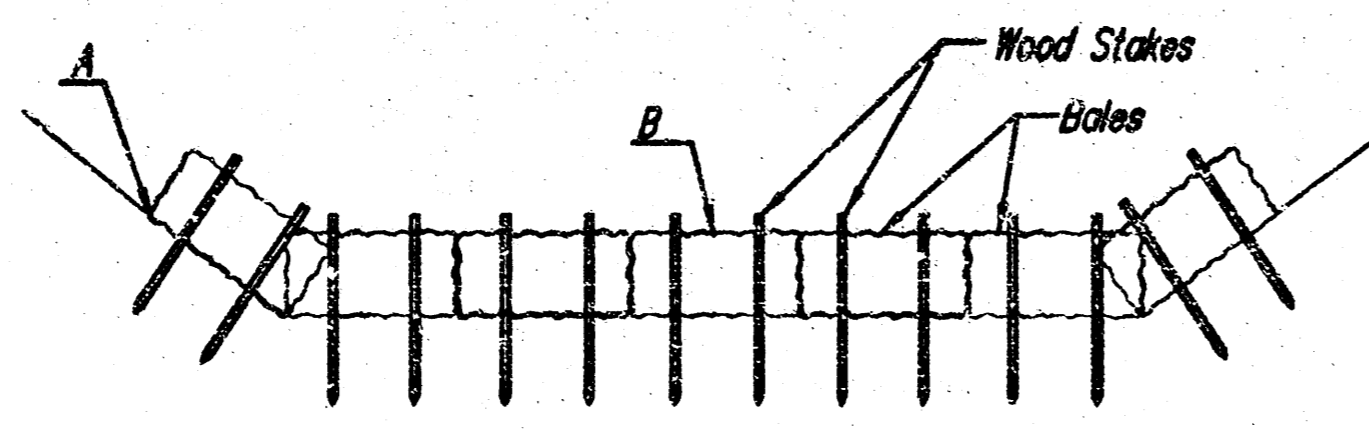
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails. Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out. Bale slope barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

**Inspection and Maintenance:**

Bale slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Are there any points along the slope barrier where water is concentrating?
- Does water flow under the slope barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the slope barrier?

NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



**STRAW BALE DITCH CHECKS**

**Material Specification:**

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide. Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

**Placement:**

Bale ditch checks should be placed perpendicular to the flowline of the ditch. The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.

Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead. Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used. The following table provides check spacing for a given ditch grade:

Ditch Check Spacing (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

**Proper installation method:**

Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upslope side of the trench—it will be used later.

Optional: On the downstream side of the trench, roll out a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion control blanket should be anchored in the trench with one row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 3" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" landscape staples on 18" centers placed perpendicular to the flowline of the ditch.

Place the bales in the trench, making sure that they are butted tightly. Two stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

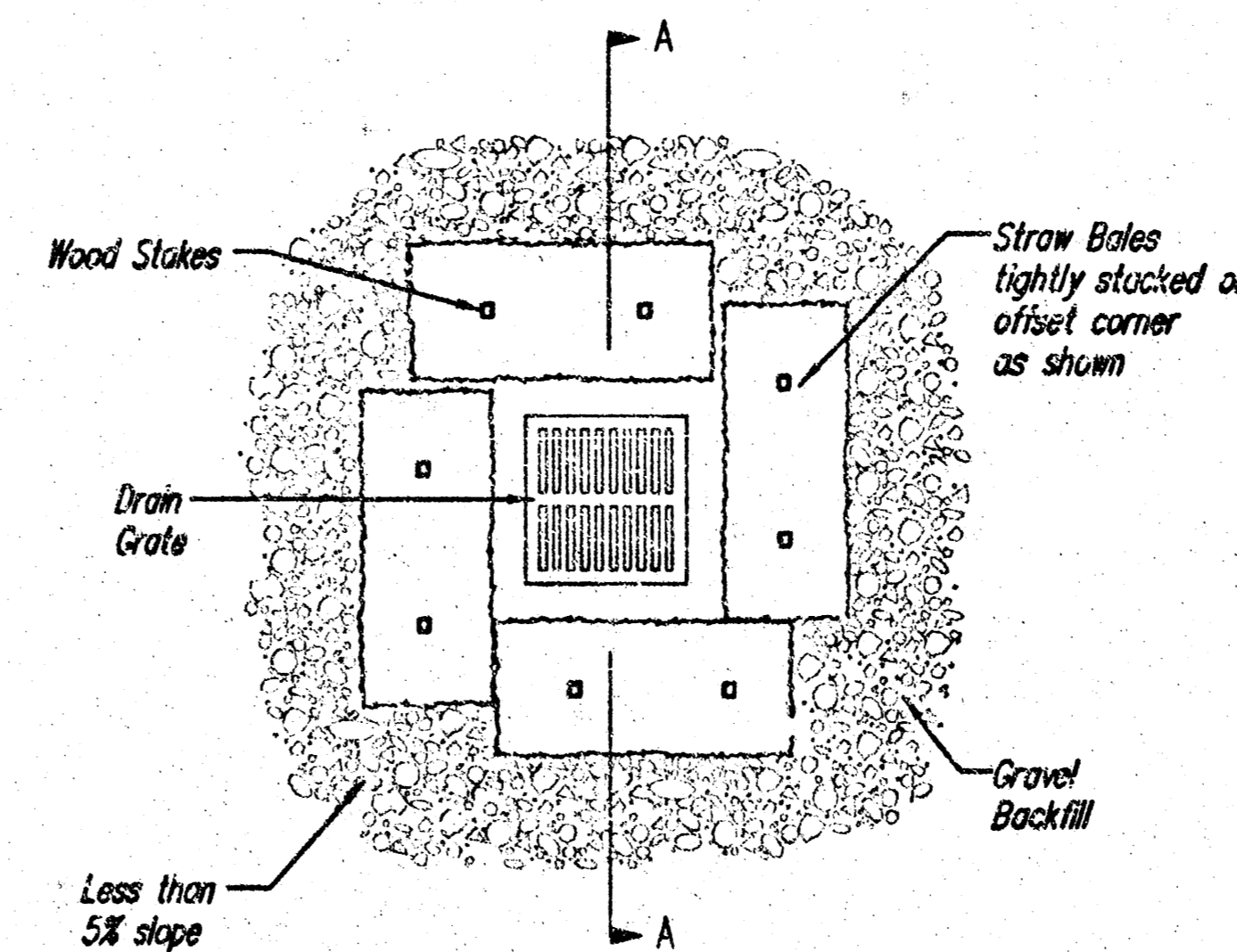
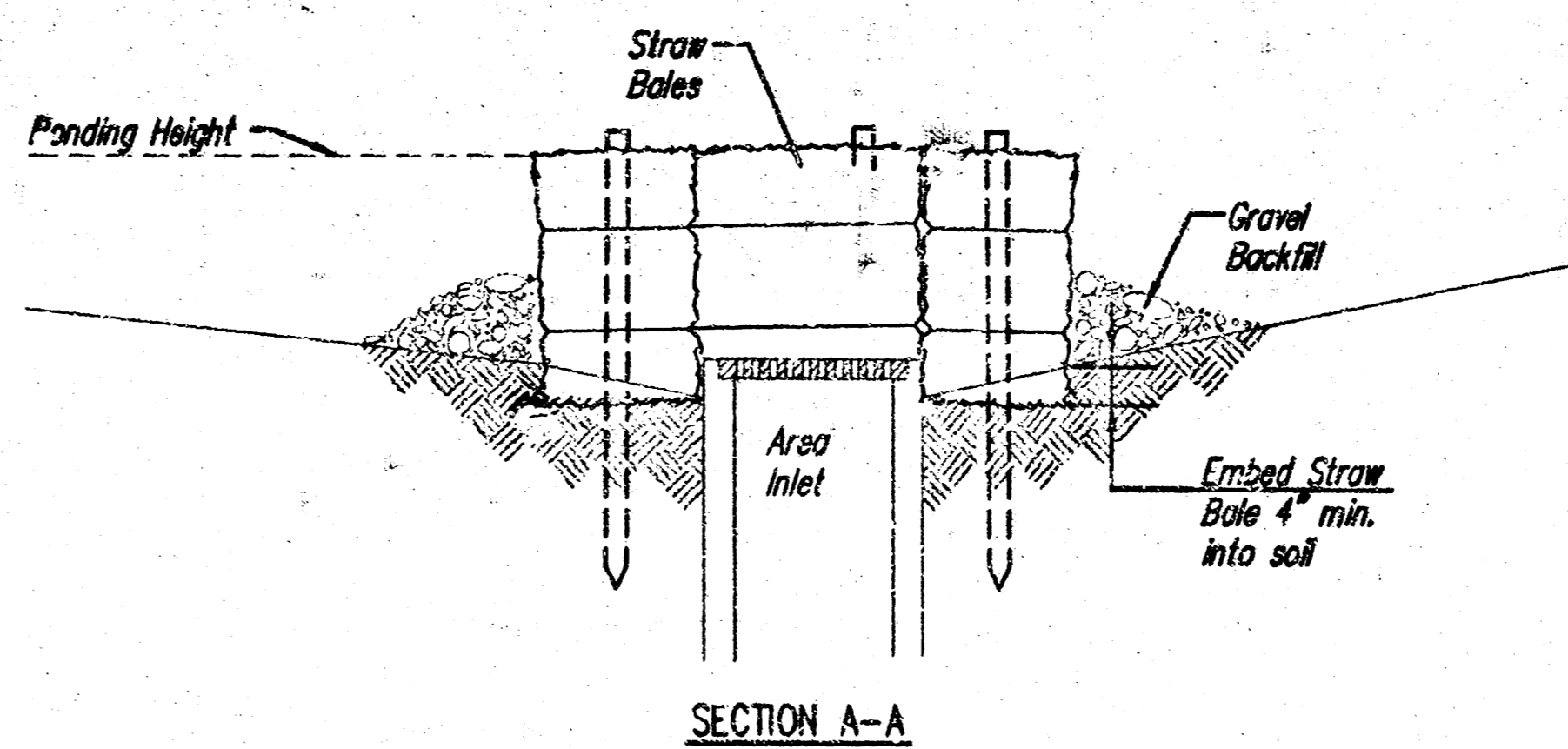
**List of common placement/installation mistakes to avoid:**

Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow. Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow. Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks. Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out. Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

**Inspection and Maintenance:**

Bale ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow around the ditch check?
- Does water flow under the ditch check?
- Does water flow through spaces between abutting bales?
- Are any bales and/or scour aprons (optional) dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the ditch check?



**STRAW BALE BARRIERS FOR AREA INLETS (INLET PROTECTION)**

**Material Specification:**

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

**Placement:**

Bale area inlet barriers should be placed directly around the perimeter of a drop inlet. When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

**Proper installation Method:**

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide. Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends. Stakes should be driven at least 12" into the ground. Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep.

Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

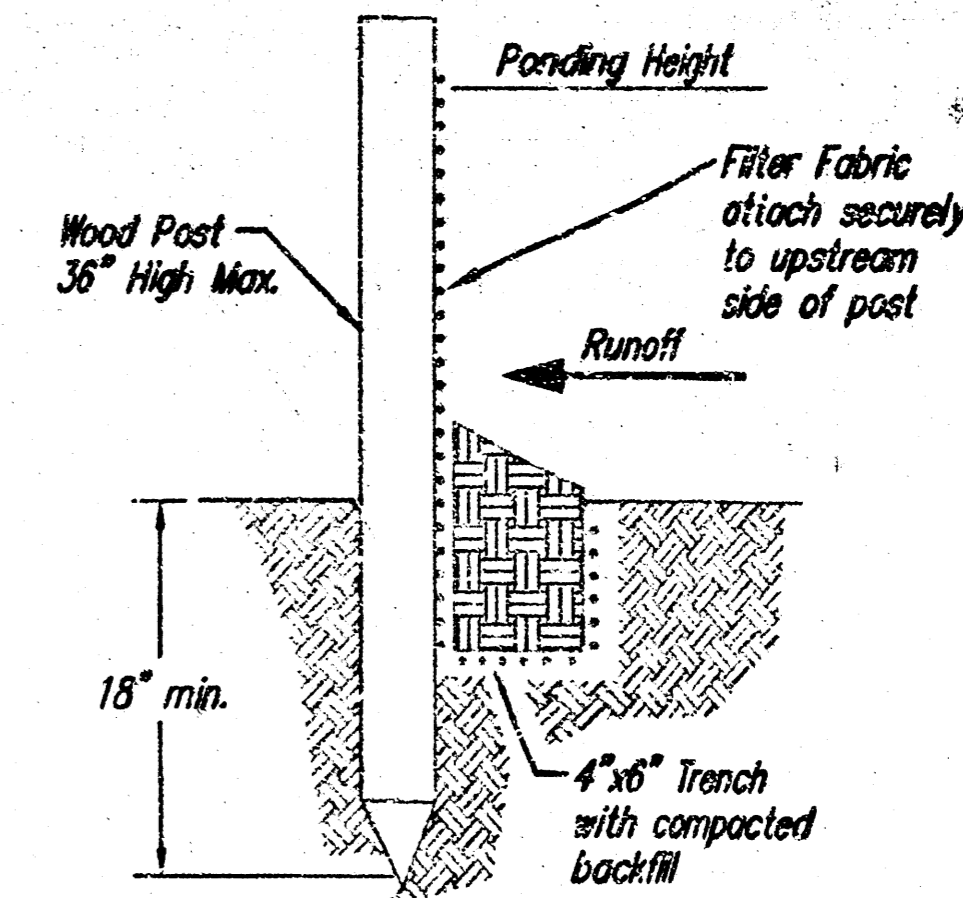
**List of common placement/installation mistakes to avoid:**

Bales should be placed directly against the perimeter of the area inlet. This allows overlapping water to flow directly into the inlet instead of onto nearby soil causing scour. Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

**Inspection and Maintenance:**

Bale area inlet barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow under the area inlet barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the area inlet barrier?



**SILT FENCE BARRIERS**

**SILT FENCE BARRIERS**

**Material Specification:**

Silt fence fabric should conform to the AASHTO M288 95 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

**Placement:**

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for setting out sediment. When practicable, silt fence slope barriers should be placed along contours to avoid a concentration of flow. Silt fence slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

**Proper installation method:**

Excavate a trench the length of the planned slope barrier that is 6" deep by 4" wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use. Roll out a continuous length of silt fence fabric on the downslope side of the trench. Place the edge of the fabric in the trench starting at the top upslope edge. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt-fence fabric should remain exposed. Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts. Just downslope of the trench, drive posts into the ground to a depth of at least 18". Place posts no more than 4' apart. Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

**List of common placement/installation mistakes to avoid:**

When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates. Do not place silt-fence posts on the upslope side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, etc.). The silt fence will rip and fail. Do not place silt fence slope barriers in areas with shallow soils underlain by rock. If the barrier is not sufficiently anchored, it will wash out. Silt fence slope barriers must be dug into the ground—silt fence at ground level does not work because water will flow underneath.

**Inspection and Maintenance:**

Silt fence slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Are there any points along the slope barrier where water is concentrating?
- Does water flow under the slope barrier?
- Does water flow through spaces between abutting bales?
- Are any bales dislodged?
- Are bales decomposing due to age and/or water damage?
- Does sediment need to be removed from behind the slope barrier?

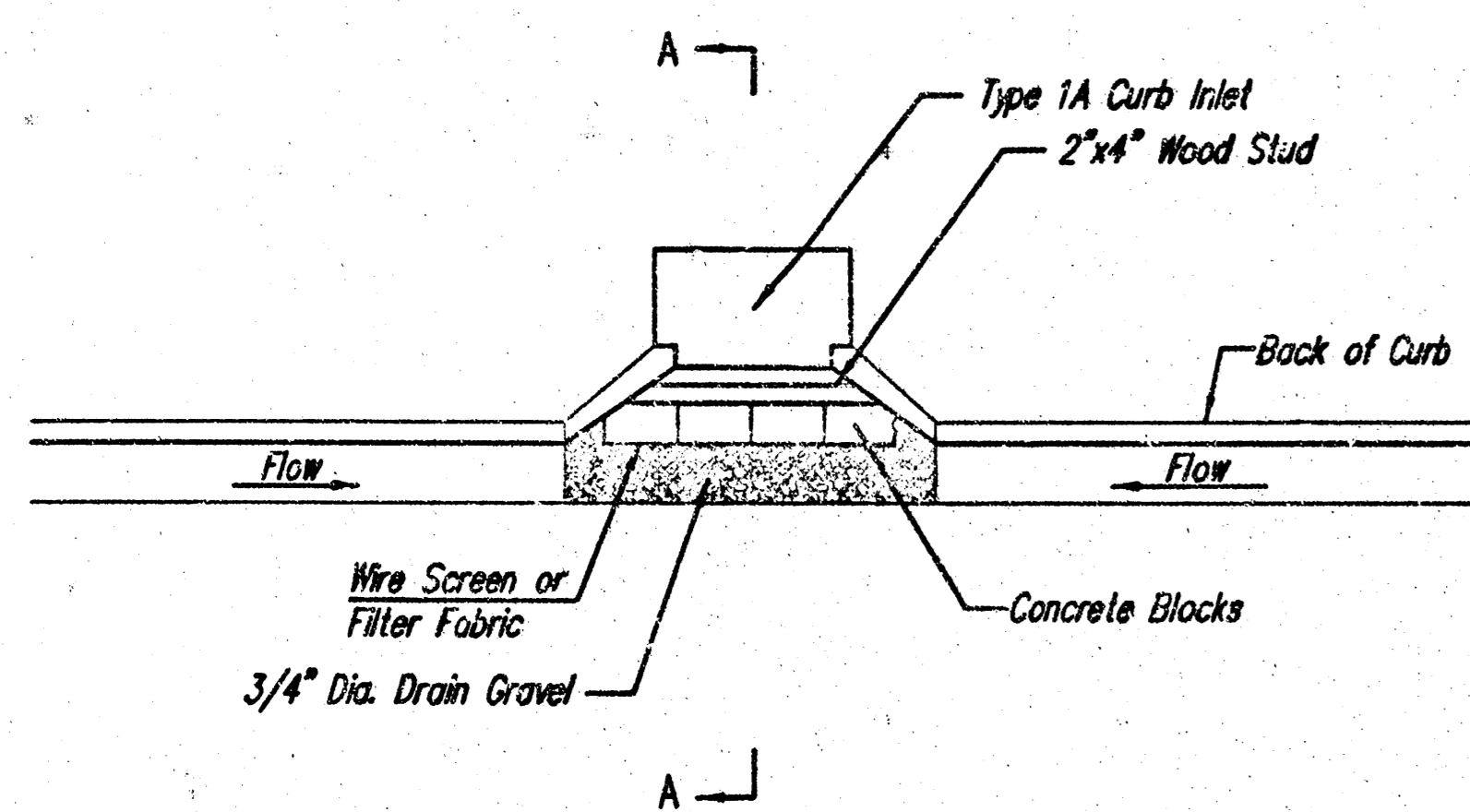
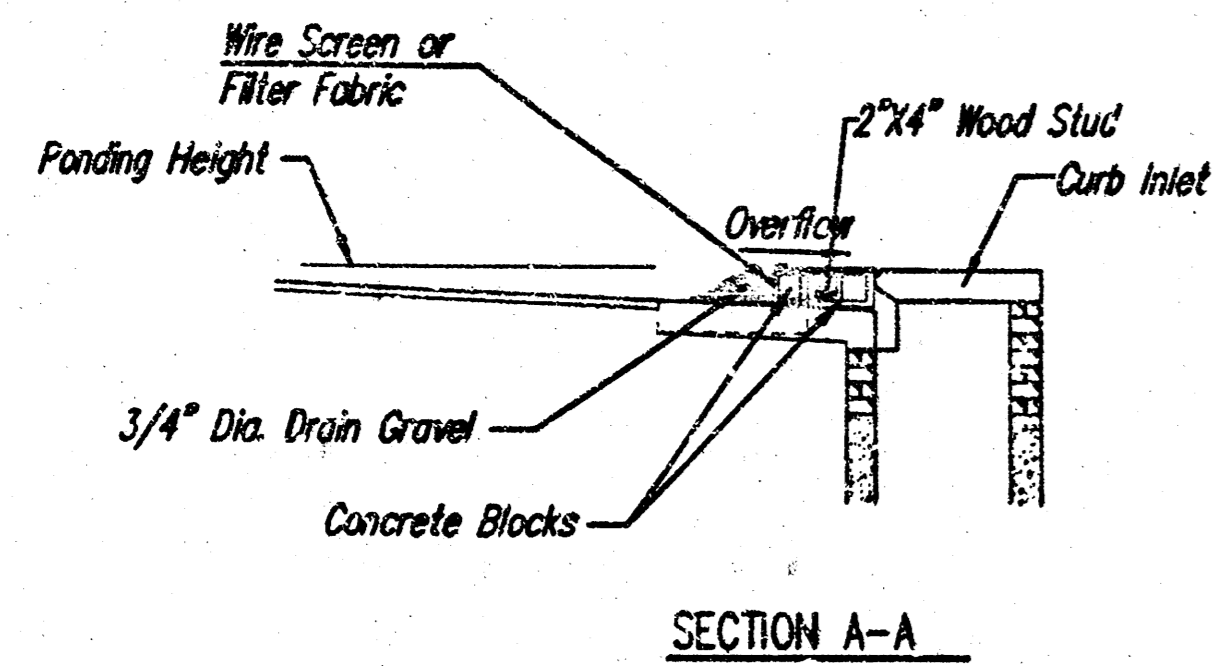


**SOIL EROSION BMP DETAILS**

CHRISTOPHER M. CARRIER, P.E.  
STORM WATER ENGINEER

PROJECT NUMBER  
468-82194

DATE  
FEB 2005 SHEET 7 OF 11



**CURB INLET GRAVEL FILTERS**  
(INLET PROTECTION-RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

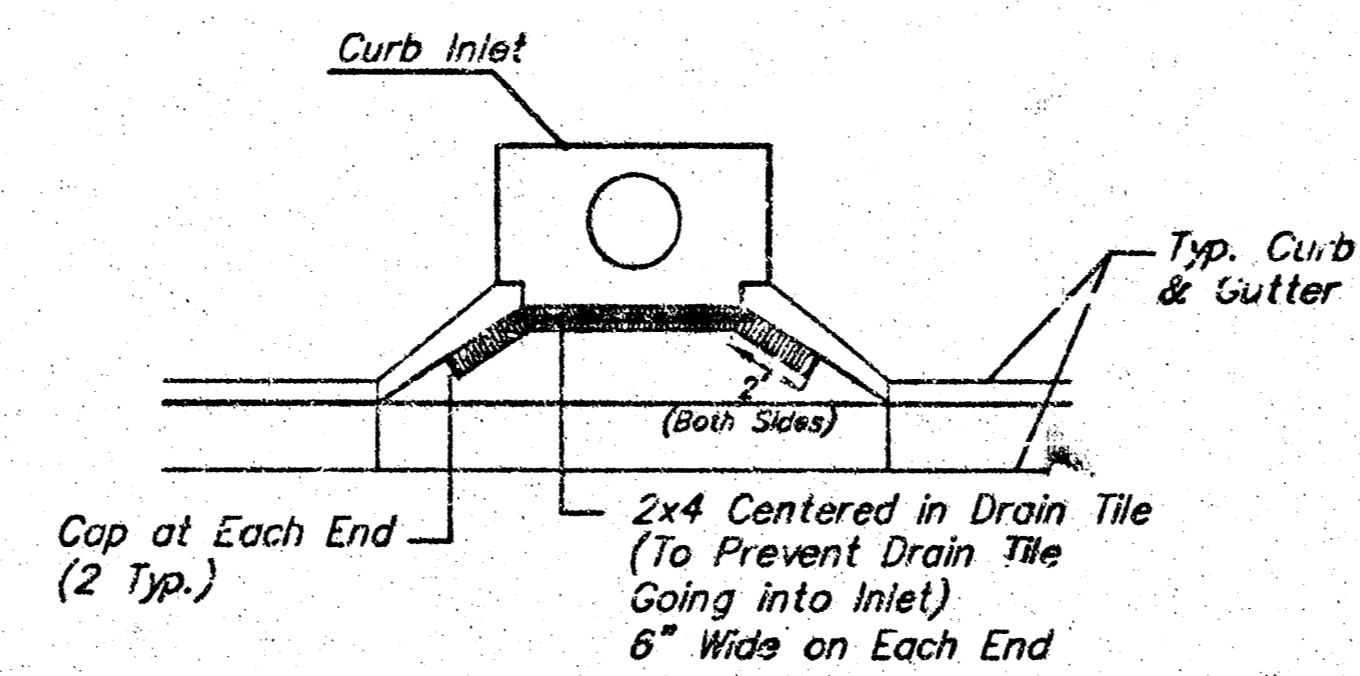
Instructions for Installing:

- STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
- STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
- STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
- STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

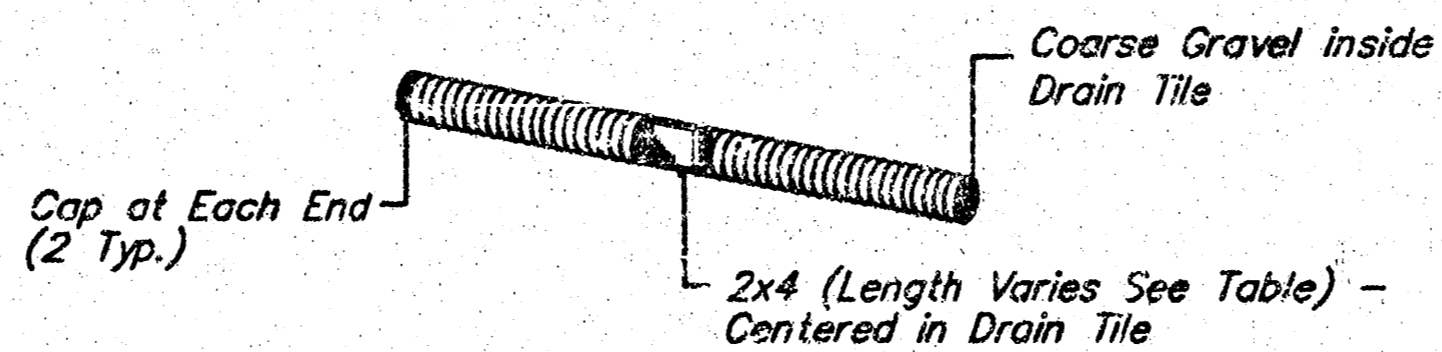
Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

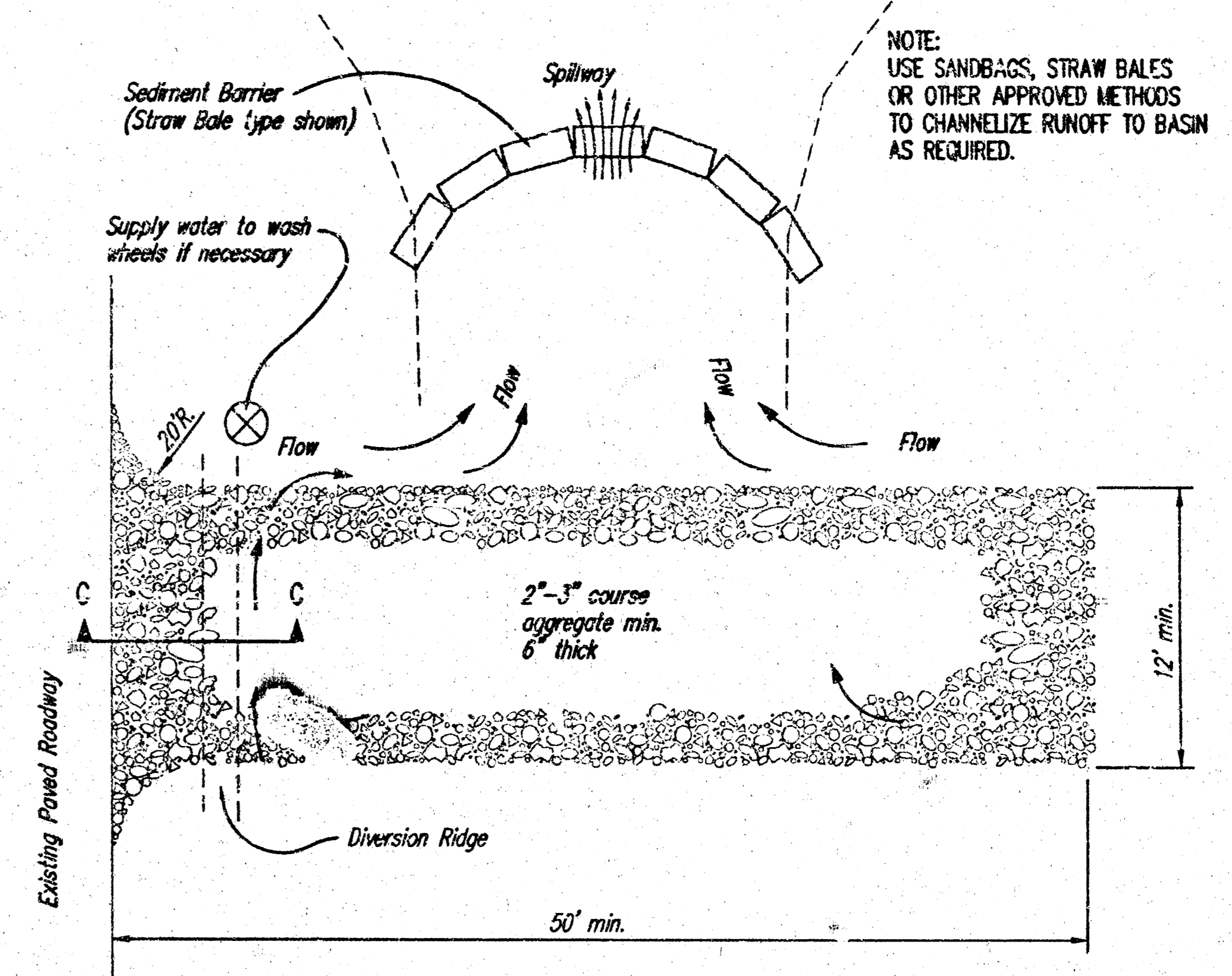
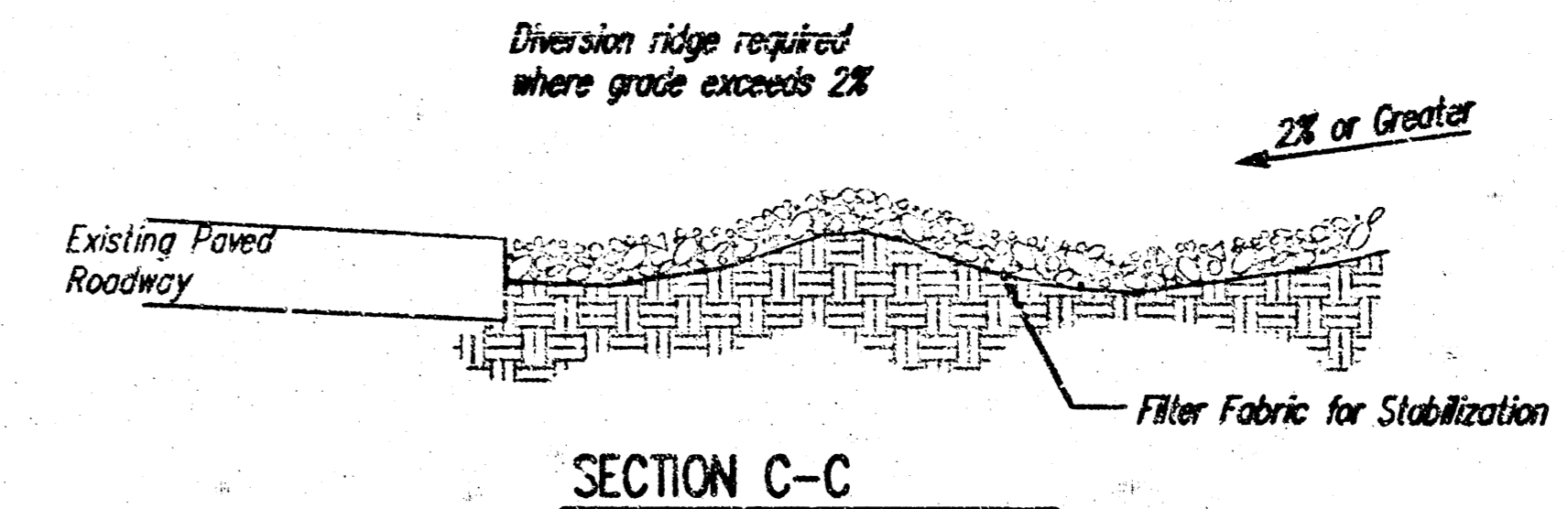


Note:  
Place 4" perforated PVC pipe filled w/ 1/2"-1" Dia. gravel. Place pipe in front of Curb Inlet as Shown.

2x4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-A	5'-0"
10'-6"	1-A	10'-0"
15'-6"	1-A	15'-0"



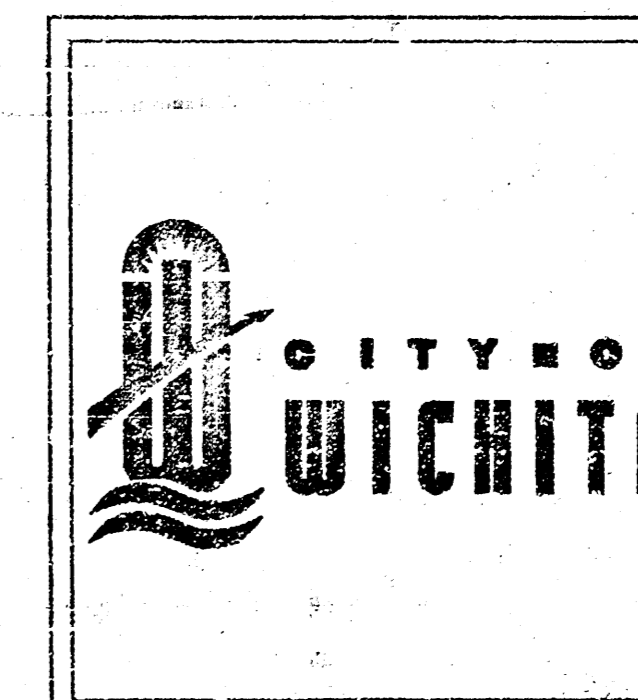
**CURB INLET PROTECTION**  
4" Perforated Pipe w/ Gravel



**STABILIZED CONSTRUCTION ENTRANCE**

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELLING.

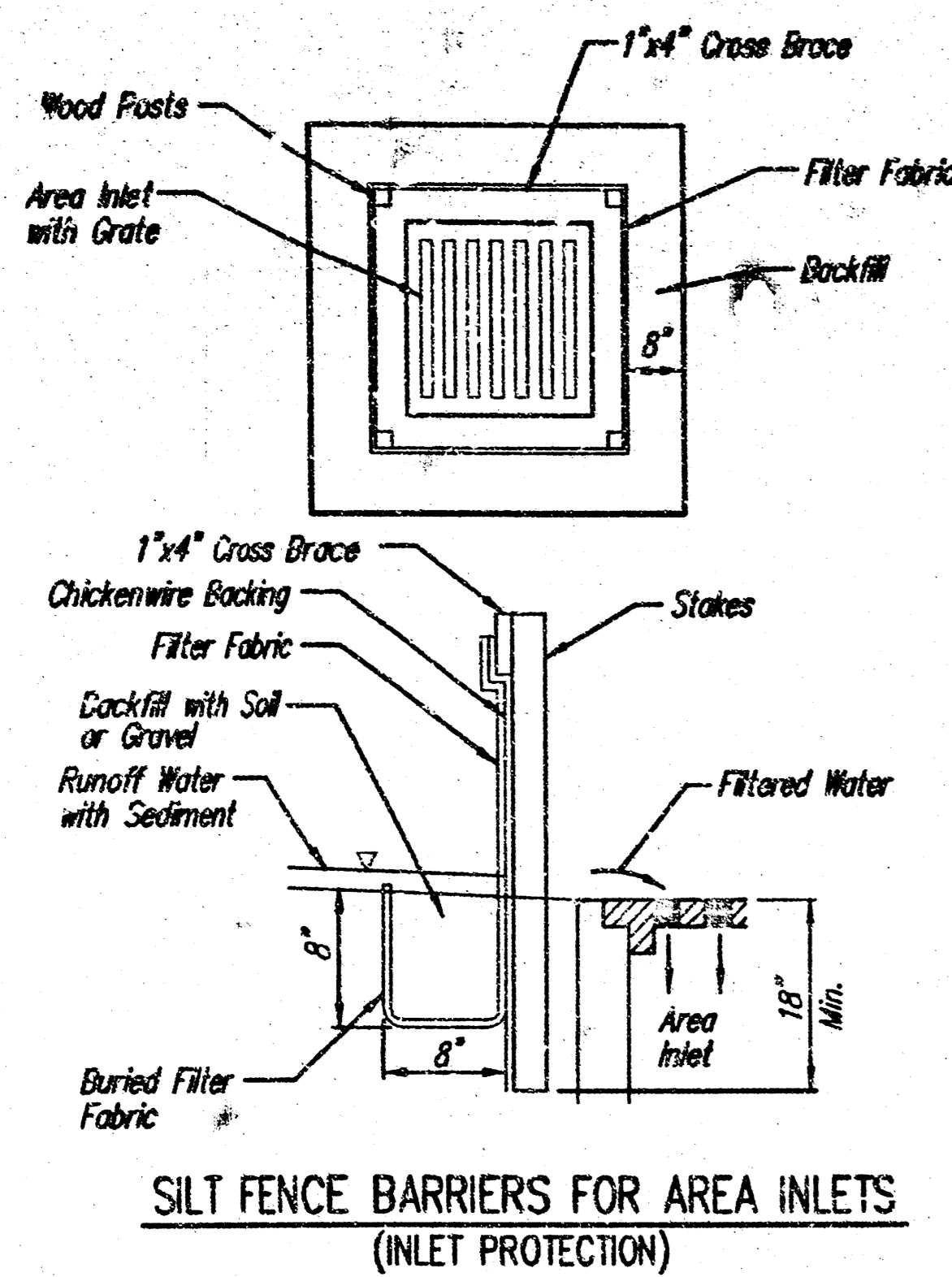


**SOIL EROSION  
BMP DETAILS**

CHRISTOPHER M. CARRIER, P.E.  
STORM WATER ENGINEER

PROJECT NUMBER  
468-82194

DATE  
FEB 2005 SHEET 8 OF 11



**SILT FENCE BARRIERS FOR AREA INLETS**  
(INLET PROTECTION)

**Material Specification:**

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The wire or polymeric mesh backing used to help support the silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. The material used to frame the tops of the posts should be 1" by 4" boards. Silt fence fabric and support backing should be attached to the wooden posts and frame with staples, wire, zip ties, or nails.

**Placement:**

Place a silt fence drop inlet barrier in a location where it is unlikely to be overtopped. Water should flow through silt fence, not over it. Silt fence barriers for area inlets often fail when repeatedly overtopped. When used as a barrier for area inlets, silt fence fabric and posts must be supported at the top by a wooden frame. When a silt fence barrier for area inlets is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

**Proper installation method:**

Excavate a trench around the perimeter of the area inlet that is at least 8" deep by 8" wide. Drive posts to a depth of at least 18" around the perimeter of the area inlet. The distance between posts should be 4' or less. If the distance between two adjacent corner posts is more than 4', add another post(s) between them. Connect the tops of all the posts with a wooden frame made of 1" by 4" boards. Use nails or screws for fastening. Attach the wire or polymeric-mesh backing to the outside of the post/frame structure with staples, wire, zip ties, or nails. Roll out a continuous length of silt fence fabric long enough to wrap around the perimeter of the area inlet. Add more length for overlapping the fabric joint. Place the edge of the fabric in the trench, starting at the outside edge of the trench. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed. Attach the silt fence to the outside of the post/frame structure with staples, wire, zip ties, or nails. The joint should be overlapped to the next post.

**Note:** When a silt fence barrier for area inlet is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

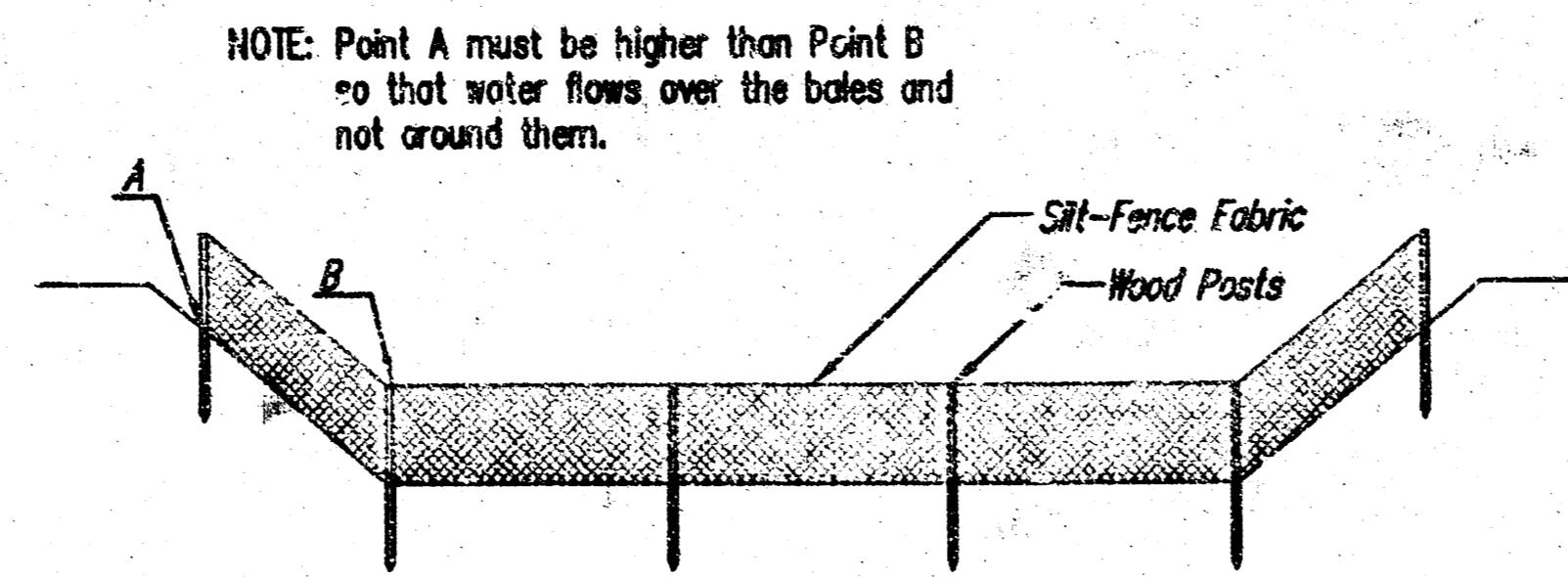
**List of common placement/installation mistakes to avoid:**

Water should flow through a silt fence barrier for area inlet—not over it. Place a silt fence barrier for area inlet in a location where it is unlikely to be overtopped. Silt fence barrier for area inlets often fail when repeatedly overtopped. Do not place posts on the outside of the silt fence barrier for area inlet. In this configuration, the force of the water is not resisted by the posts, but only by the staples (wire, zip-ties, nails, etc.). The silt fence will rip and fail. Do not install silt fence barrier for area inlets without framing the top of the posts. The corner posts around area inlets are stressed in two directions whereas a normal silt fence is only stressed in one direction. This added stress requires more support.

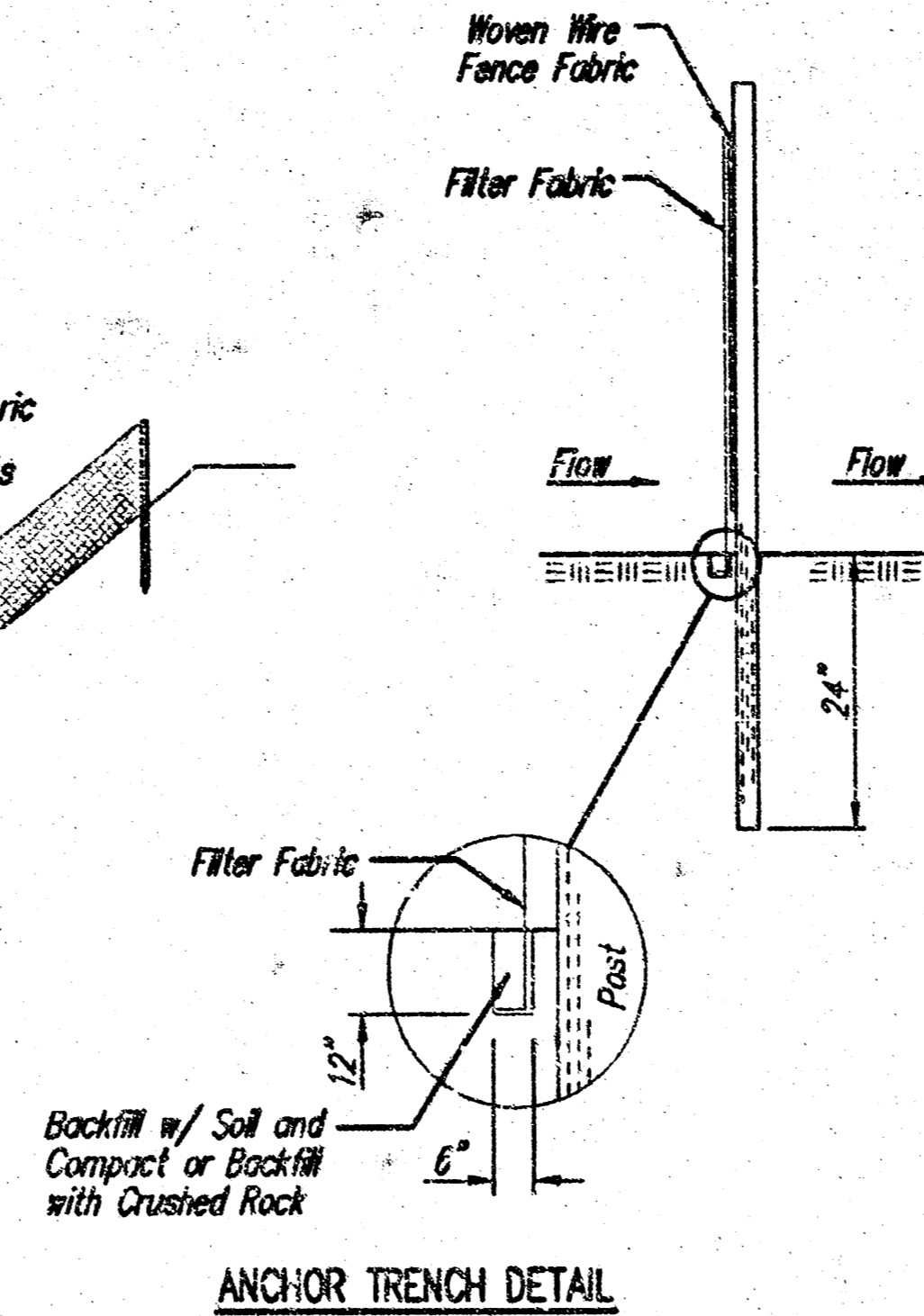
**Inspection and Maintenance:**

Silt fence barrier for area inlets should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow under the silt fence?
- Does the silt fence sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the area inlet barrier?



**ELEVATION**  
**SILT FENCE DITCH CHECKS**  
(STREAM PROTECTION)



**ANCHOR TRENCH DETAIL**

**Material Specification:**

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification. The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long. Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

**Placement:**

Place silt fence in ditches where it is unlikely that it will be overtopped. Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped. Silt fence ditch checks should be placed perpendicular to the flowline of the ditch. The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check. Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead. Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

Ditch Check Ditch grade (%)	Spacing Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

**Proper installation method:**

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench for later use. Roll out a continuous length of silt fence fabric on the downstream side of the trench. Place the edge of the fabric in the trench starting at the top upstream edge of the trench. Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed. Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart. Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

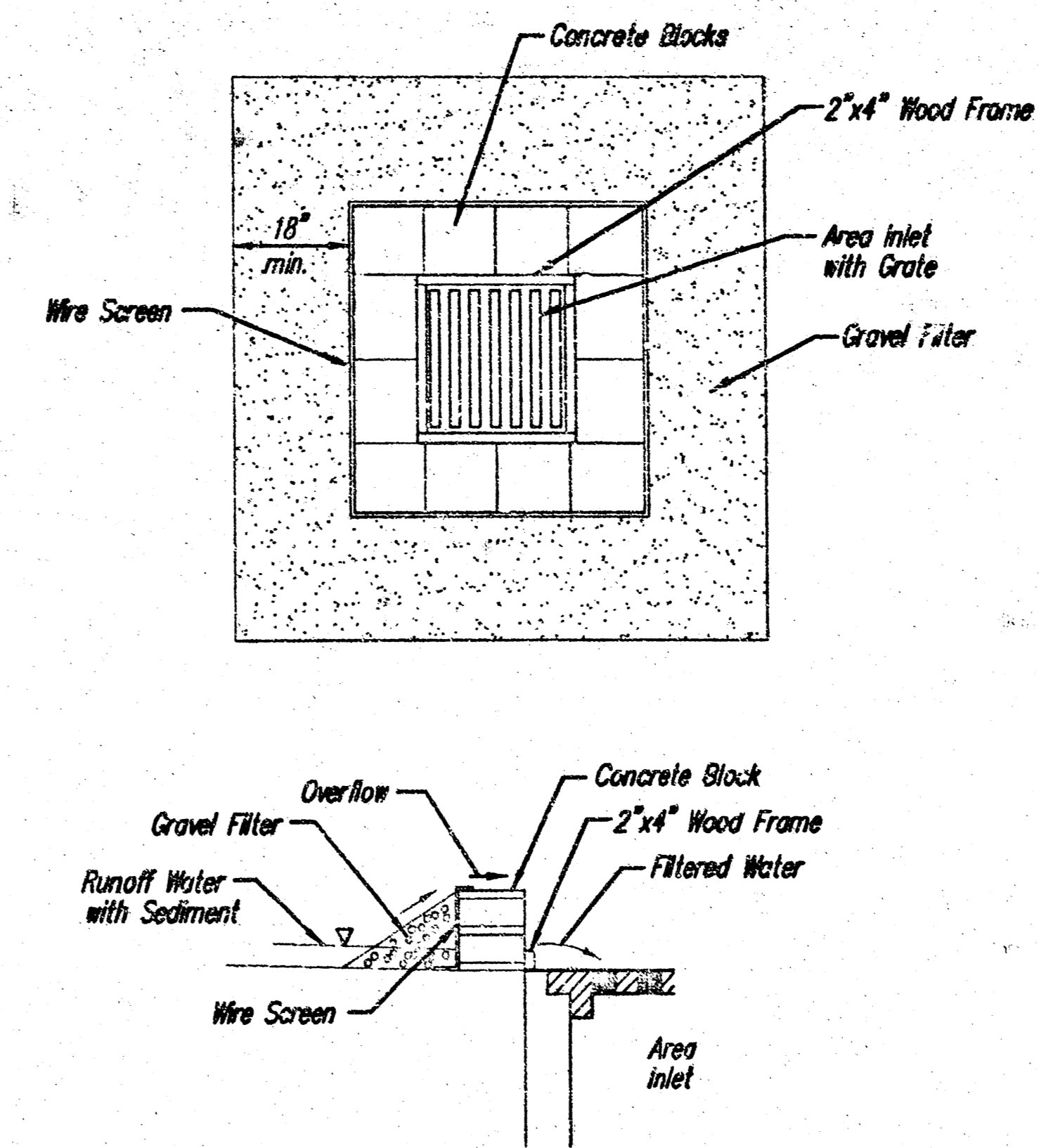
**List of common placement/installation mistakes to avoid:**

Water should flow through a silt fence ditch check—not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them. Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not resisted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail. Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow. Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow. Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks. Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence. Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

**Inspection and Maintenance:**

Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

- Does water flow around the ditch check?
- Does water flow under the ditch check?
- Does the silt fence sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the ditch check?



**CONCRETE BLOCK FILTER FOR AREA DRAIN**  
(INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

**Instructions for Installing:**

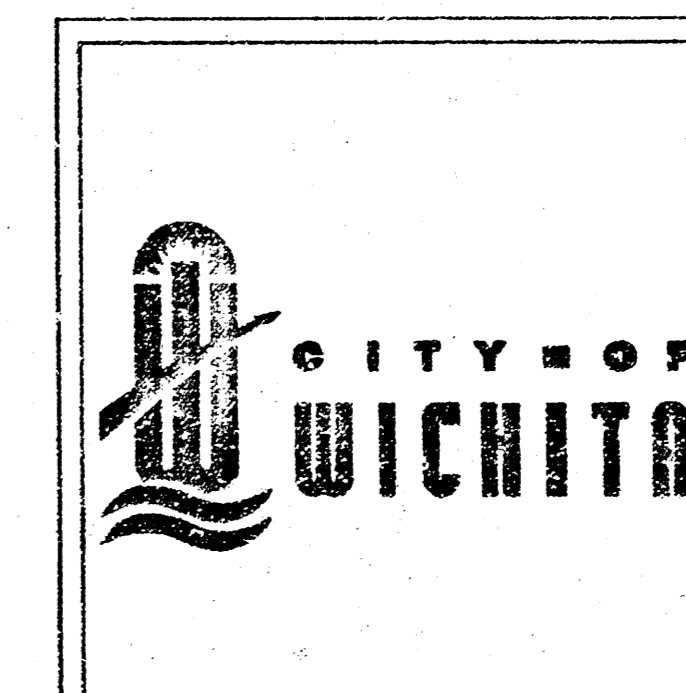
- STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2"x4" board.
- STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
- STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
- STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

**Maintenance:**

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.



**SOIL EROSION**  
**BMP DETAILS**

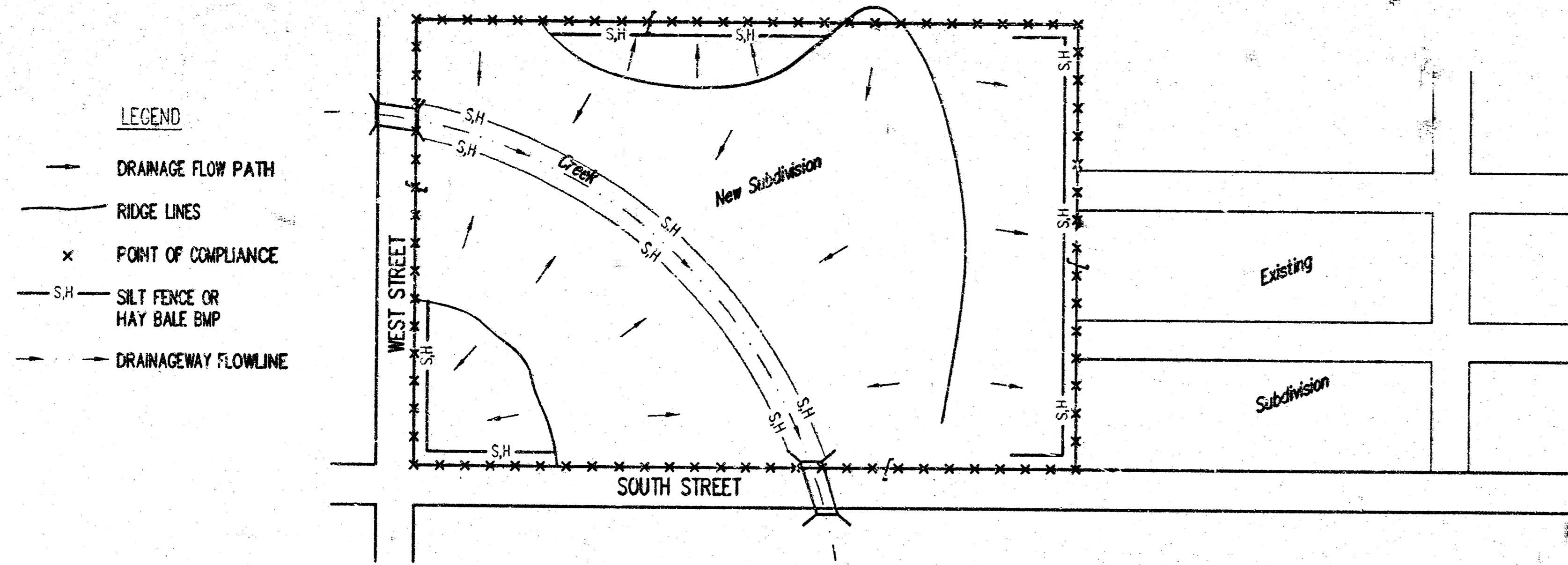
CHRISTOPHER M. CARRIER, P.E.  
STORM WATER ENGINEER

PROJECT NUMBER  
468-62194

DATE  
FEB 2005

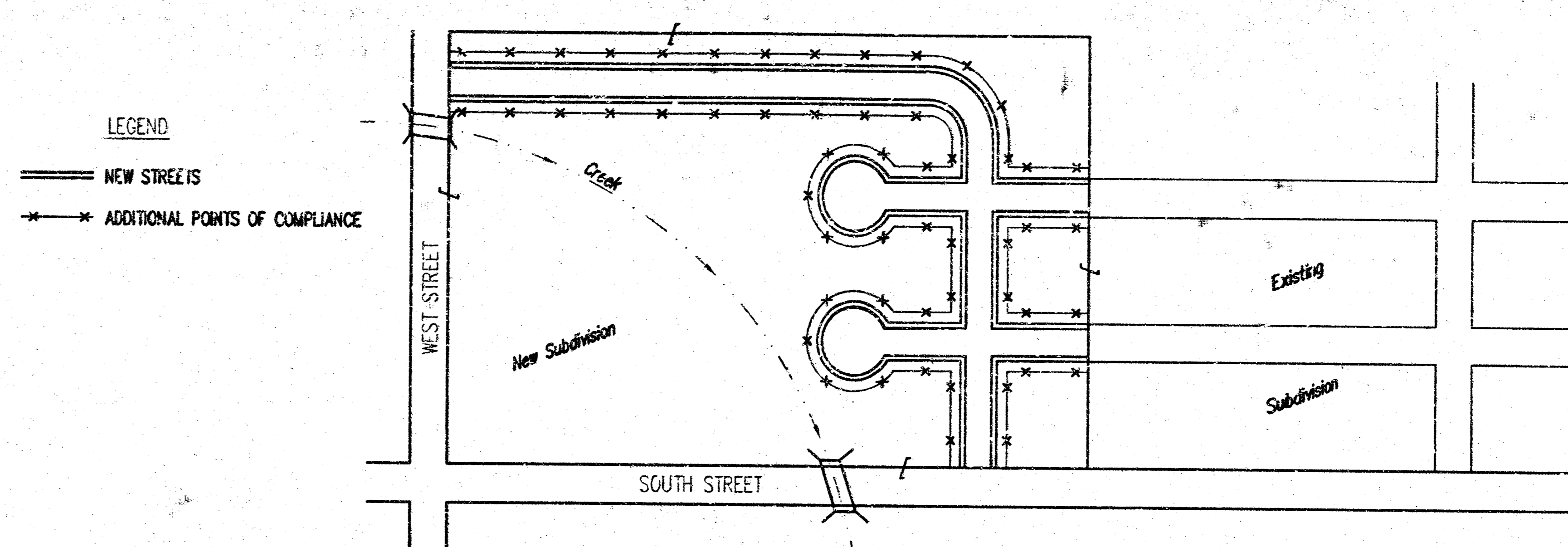
SHEET 9 OF 11

**PHASE 1 - INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)**



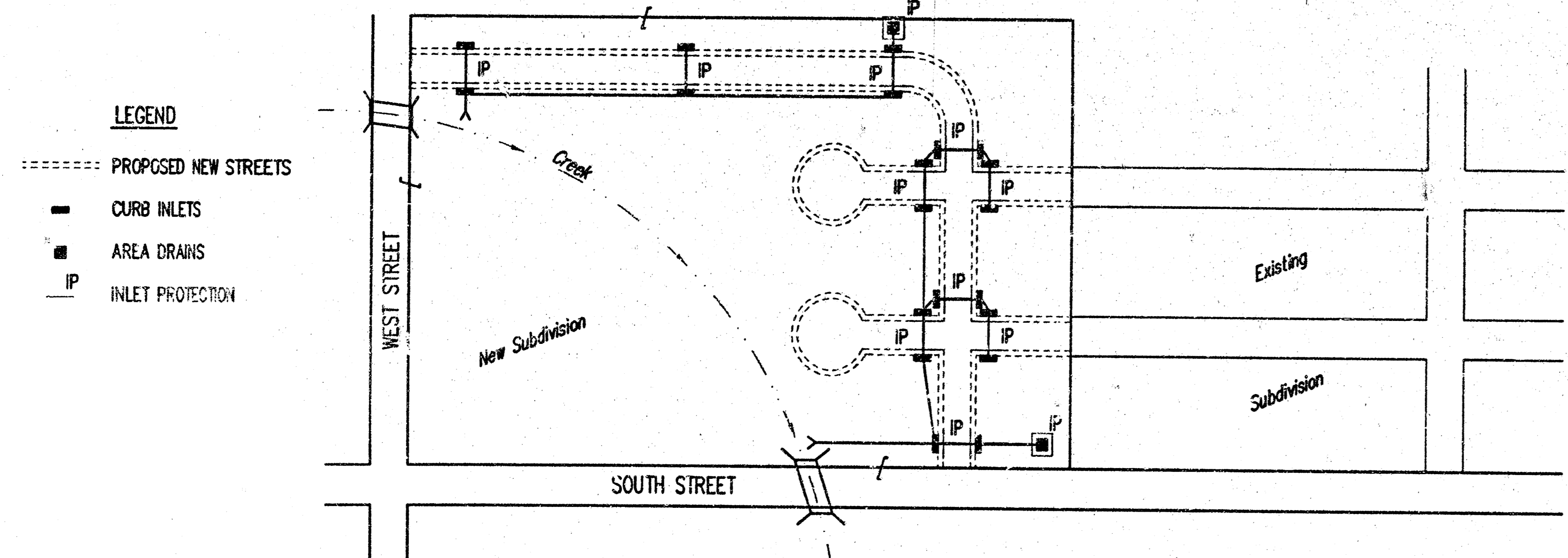
- LEGEND**
- DRAINAGE FLOW PATH
  - RIDGE LINES
  - × POINT OF COMPLIANCE
  - S-H- SILT FENCE OR HAY BALE BMP
  - - - DRAINAGE WAY FLOWLINE
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
  2. HAYBALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE BMP'S WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
  3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR GUTTERLINES ON THE ADJACENT BOUNDARY STREETS, APPROPRIATE BMP'S WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
  4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED AT THE END OF EACH WORK DAY.
  5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL BMP'S AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDARY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE BMP'S AT THEIR WORK LOCATIONS, AS NEEDED.
  6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
  7. THE SUBDIVISION DEVELOPER (OWNER) SHALL INSTALL AND MAINTAIN THE ON-SITE BMP'S.

**PHASE 3 - STREET CONSTRUCTION**



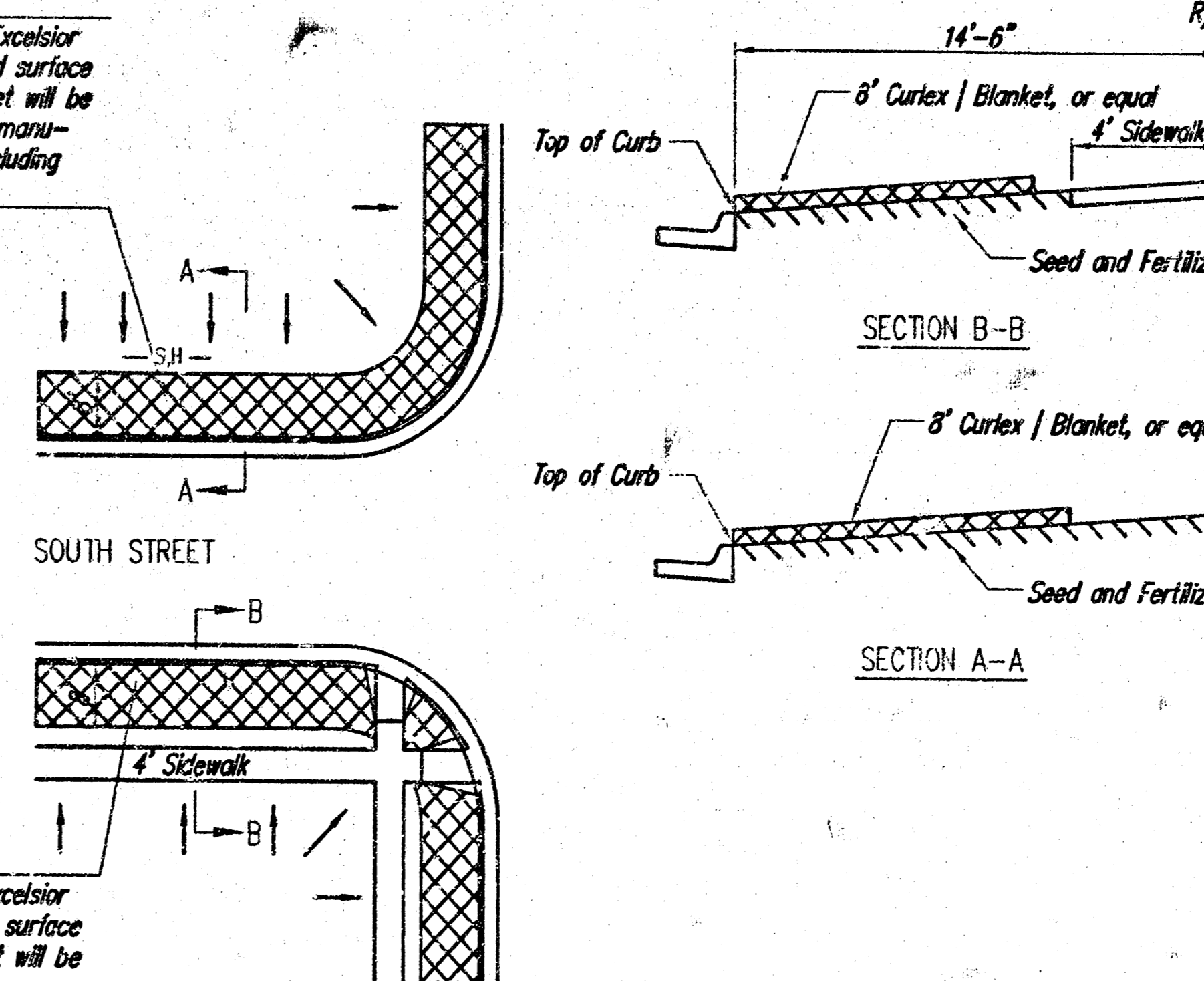
- LEGEND**
- NEW STREETS
  - ADDITIONAL POINTS OF COMPLIANCE
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
  2. CURB OPENING INLET PROTECTION:
    - A. SLUMP AREAS - INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
    - B. NON-SLUMP LOCATIONS - PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
  3. BMP'S WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), BMP'S WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
  4. SEE DETAIL THIS SHEET ON BACK OF CURB PROTECTION.
  5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLEMENTED WITH HAYBALE OR SILT FENCE BMP'S AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
  6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB BMP'S.
  7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB BMP'S IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOG.

**PHASE 2 - INSTALLATION OF STORM SEWER**



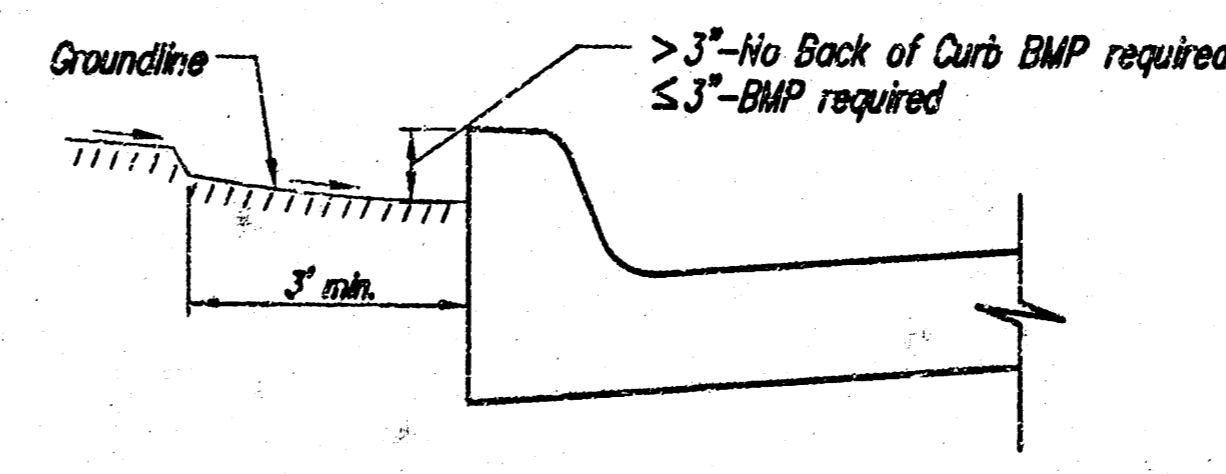
- LEGEND**
- PROPOSED NEW STREETS
  - CURB INLETS
  - AREA DRAINS
  - IP INLET PROTECTION
1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
  2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
  3. AREA DRAINS - AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAYBALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
  4. CURB OPENING INLETS - AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION BMP'S MUST BE INSTALLED. SEE PHASE 3 - STREET CONSTRUCTION.
  5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE BMP'S. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION.
  6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE BMP'S ONCE INSTALLED.
  7. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOG, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

BMP-Install 8' wide Curlex / Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples.



BMP-Install 8' wide Curlex / Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be at back of curb. Install per manufacturer's recommendation, including staples.

**BACK OF CURB PROTECTION DETAIL**



**CURB BACKFILL DETAIL**

- GENERAL NOTES:**
1. THE INTENT OF ALL BEST MANAGEMENT PRACTICES (B.M.P.'S) IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, OR ANY OTHER DRAINAGE FEATURE.
  2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
  3. BMP'S SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON THE BMP DETAIL SHEETS.
  4. PERSONS DESTROYING BMP'S SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT BMP'S.
  5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 5 ACRES OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL BMP'S ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLAN.
  6. FOR SUBDIVISIONS SMALLER THAN 5 ACRES, SOIL EROSION BMP'S ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
  7. FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
  8. THE APPLICATION OF BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THAT SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
  9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

**SOIL EROSION BMP'S SUBDIVISION DEVELOPMENT PROCESS**

**CITY OF WICHITA**

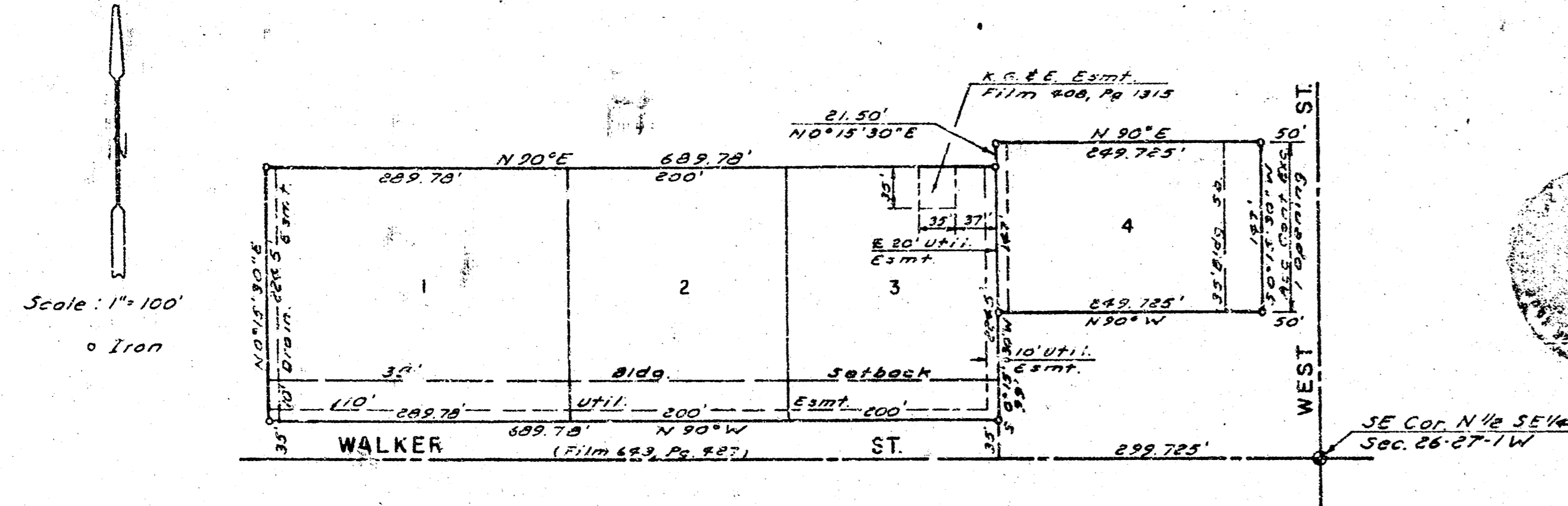
CHRISTOPHER M. CARRIER, P.E.  
STORM WATER ENGINEER

PROJECT NUMBER  
468-82194

DATE  
FEB 2005

SHEET 10 OF 11

**BATSON INDUSTRIAL 2ND ADDITION**  
WICHITA, KANSAS



State of Kansas } SS We, Baughman Company, P.A.,  
Sedgwick County } surveyors in aforesaid county and state, do  
hereby certify that we have surveyed and platted  
"BATSON INDUSTRIAL 2ND ADDITION", Wichita, Kansas,  
and that the accompanying plot is a true and  
correct exhibit of the property surveyed, de-  
scribed as beginning at a point 299.785 feet west  
and 35 feet north of the S.E. corner of the N<sup>1/2</sup>  
of the S<sup>1/4</sup> of Section 26, T27S, R1W of the 6th  
P.M., Sedgwick County, Kansas; thence westerly,  
parallel with the south line of said N<sup>1/2</sup>, 689.78  
feet; thence northerly, parallel with the east line  
of said N<sup>1/2</sup>, 299.785 feet; thence easterly, parallel  
with the south line of said N<sup>1/2</sup>, 689.78 feet; thence  
northerly, parallel with the east line of said N<sup>1/2</sup>,  
299.785 feet; thence easterly, parallel with the  
south line of said N<sup>1/2</sup>, 689.78 feet; thence  
southerly, parallel with the east line of said N<sup>1/2</sup>,  
187 feet; thence westerly, parallel with the north  
line of said N<sup>1/2</sup>, 299.785 feet; thence southerly,  
parallel with the east line of said N<sup>1/2</sup>, 99 feet  
to the point of beginning.

This plot of "BATSON INDUSTRIAL 2ND  
ADDITION", Wichita, Kansas, has been sub-  
mitted to and approved by the Wichita-  
Sedgwick County Metropolitan Area Planning  
Commission, Wichita, Kansas, dated this  
1<sup>st</sup> day of April, 1985.

Wichita-Sedgwick County Metropolitan  
Area Planning Commission  
*James C. Shaw* Chairman  
*John E. Lundgrave* ASST. Secretary

This plot approved and all dedications  
shown hereon accepted by the Board of City  
Commissioners, Wichita, Kansas, this 2<sup>nd</sup>  
day of August, 1985.

*John E. Lundgrave* Mayor  
*David E. Stivers* City Clerk

Date July 15, 1985 Baughman Company, P.A.  
*John E. Lundgrave* Surveyor

Know all men by these presents, that we, the  
undersigned, have caused the land described in  
the surveyors certificate to be platted into lots  
to be known as "BATSON INDUSTRIAL 2ND ADDITION",  
Wichita, Kansas. The easements are hereby granted  
as indicated for the construction and maintenance  
of public utilities. The drainage easement is here-  
by granted for drainage purposes. All other  
rights of access to West St. are hereby granted to  
the City of Wichita, Kansas, except, however,  
that Lot 4 shall have access to West St. at  
one location, said location to be determined by  
the City Engineer.

Batson Properties, a partnership  
*John E. Lundgrave* Managing Partners  
*Faye Batson*

State of Kansas } SS The foregoing instrument was  
Sedgwick County } acknowledged before me this 15<sup>th</sup> day of July,  
1985, by Dale O. Batson and Faye Batson, his wife,  
Managing Partners for Batson Properties, a part-  
nership, on behalf of the partnership.

*Mark A. Smith* Notary Public  
My Commission Expires 12/15/1988

State of Kansas } SS This is to certify that  
Sedgwick County } this plot has been filed for record in the  
Office of the Register of Deeds this 14<sup>th</sup>  
day of August, 1985, at 9 o'clock, A. M.,  
and is duly recorded.

*Ed Resa* Register of Deeds  
*Ed Resa* Deputy

State of Kansas } SS This is to certify that this plot has been filed  
Sedgwick County } for record in the office of the Register of Deeds this 23<sup>rd</sup> day of  
July, 1985, at 11:30 o'clock, A.M., and is duly  
recorded.

*Ed Resa* Register of Deeds  
*Ed Resa* Deputy

**CHANCE INDUSTRIAL PARK 2ND ADDITION**

WICHITA, SEDGWICK COUNTY, KANSAS

State of Kansas) SS We, Baughman Company, P.A., Surveyors in  
aforesaid county and state do hereby certify that we have surveyed  
and platted "CHANCE INDUSTRIAL PARK 2ND ADDITION", Wichita, Sedgwick  
County, Kansas, and that the accompanying plot is a true and  
correct exhibit of the property surveyed, described as and being a  
replot of Lots 5 and 6, Block 4, West 24 Industrial Addition, Wichita,  
Sedgwick County, Kansas, and Lots 1, 2, 3, 4, 5, 6, and 7, Chance  
Industrial Park, Wichita, Sedgwick County, Kansas, and the east 535.5  
feet of the west 1115.5 feet of the north 320 feet of Lot 1, in Batson  
Industrial Addition, Wichita, Kansas, Sedgwick County, Kansas, and that  
part of Lot 1, Batson Industrial Addition, Wichita, Kansas, Sedgwick  
County, Kansas, described as beginning at the S.W. corner of the  
north 320 feet of said Lot 1; thence east parallel with the north line  
of said Lot 1 to a point 590 feet east of the west line of said Lot 1,  
as measured at right angles to said west line; thence north parallel  
with the west line of said Lot 1, 254 feet; thence west parallel with  
the north line of said Lot 1, to a point on the west line of said Lot  
1; thence south 254 feet to the point of beginning.  
Building setback lines and public easements except the 7 foot san-  
itary sewer easement and the 8 foot utility easement as shown cross-  
ing Lot 1 are hereby vacated by virtue of K.S.A. 1970 Supp. 12-512(b).  
Being situated in the S.E. 1/4 of Sec. 26, Twp. 27-S, R-1-W  
of the 6th P.M., Sedgwick County, Kansas.

1-14-92 Date  
Baughman Company, P.A.  
*William F. Severns* Surveyor  
Gregory F. Severns

Know all men by these presents that we,  
the undersigned, have caused the land described in the surveyors  
certificate to be platted into lots to be known as "CHANCE INDUSTRI-  
AL PARK 2ND ADDITION", Wichita, Sedgwick County, Kansas. The  
sanitary sewer easements are hereby granted as indicated for the  
construction and maintenance of public sanitary sewer lines. The  
drainage and utility easement is hereby granted as indicated for the  
construction and maintenance of all public utilities, and for drainage  
purposes.

The City of Wichita, Kansas  
*Bob Knight* Mayor  
*Pat Burnett* Deputy City Clerk

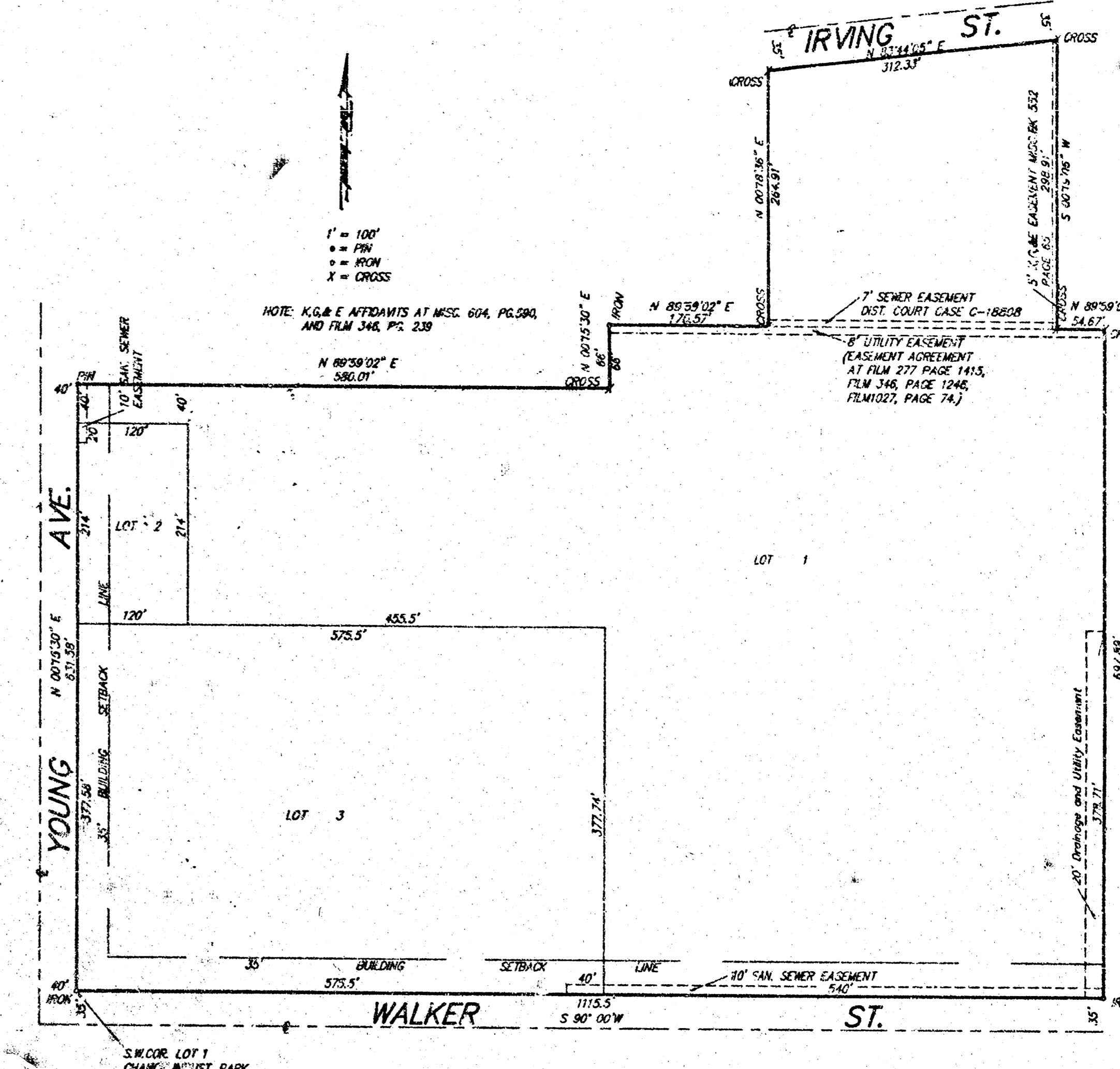
Chance Properties, a Kansas general partnership  
by *Richard H. Chance* Partner  
by *Richard G. Chance* Partner  
*Richard H. Chance* *Marjorie E. Chance*  
*Richard G. Chance* *Carol L. Chance*

State of Kansas) SS The foregoing instrument was acknowledged  
Sedgwick County) before me this 14<sup>th</sup> day of January, 1992, by  
Bob Knight, Mayor and Pat Burnett, Deputy City Clerk of the City of  
Wichita, Kansas, on behalf of the City of Wichita, Kansas.

*Pat Burnett* Notary Public  
My App'l Exp. 10-24-94

State of Kansas) SS The foregoing instrument was acknowledged  
Sedgwick County) before me this 5<sup>th</sup> day of July, 1985, by  
Richard H. Chance, Partner and by Richard G. Chance, Partner of  
Chance Properties, a Kansas general partnership.

*Karen L. Armstrong* Notary Public  
My App'l Exp. 7-17-95



State of Kansas) SS The foregoing instrument was acknowledged  
Sedgwick County) before me this 14<sup>th</sup> day of January, 1992, by  
Richard H. Chance and Marjorie E. Chance, husband and wife, and  
by Richard G. Chance and Carol L. Chance, husband and wife.

*Karen L. Armstrong* Notary Public  
My App'l Exp. 7-17-95

This plot of "CHANCE INDUSTRIAL PARK 2ND ADDITION",  
Wichita, Sedgwick County, Kansas has been submitted to and approved  
by the Wichita-Sedgwick County Metropolitan Area Planning Commission,  
Wichita, Kansas.  
Dated this 16<sup>th</sup> day of January, 1992  
Wichita-Sedgwick County Metropolitan Area Planning Commission

*Christopher J. Coebel* Chairman  
*Marvin S. Kriehl* Secretary

State of Kansas) SS This is to certify that this plot has been filed  
Sedgwick County) for record in the office of the Register of Deeds this 23<sup>rd</sup> day of  
July, 1985, at 11:30 o'clock, A.M., and is duly  
recorded.

*Ed Resa* Register of Deeds  
*Ed Resa* Deputy

This plot approved and all dedications shown  
hereon accepted by the City Council of the City of Wichita, Kansas,  
this 23<sup>rd</sup> day of January, 1992.

*Bob Knight* Mayor  
*Pat Burnett* Deputy City Clerk

Entered on transfer record this 16<sup>th</sup> day of  
January, 1992.  
*Don Wright* County Clerk

State of Kansas) SS This is to certify that this plot has been filed  
Sedgwick County) for record in the office of the Register of Deeds this 23<sup>rd</sup> day of  
July, 1985, at 11:30 o'clock, A.M., and is duly  
recorded.

*Ed Resa* Register of Deeds  
*Ed Resa* Deputy

M-2 7-26

PC 30-5

PC 30-5