

PRIVATE STORM WATER SEWER EXTENSION

TO SERVE

NEWMARKET SQUARE, PHASE II (BUILDING 25)

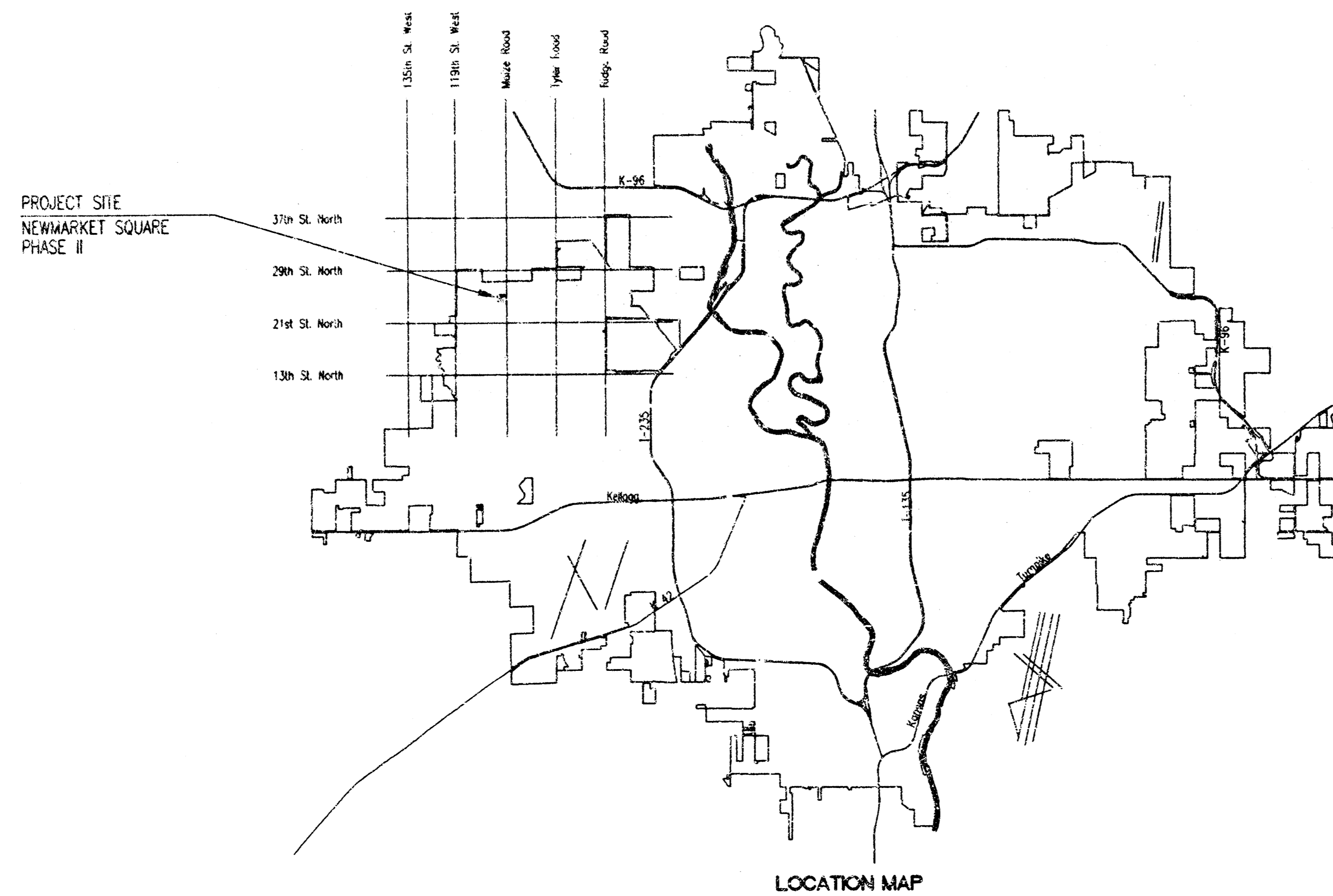
PRIVATE PROJECT NO. 1521 PPS (607861)

CITY OF WICHITA, KANSAS

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

INDEX OF SHEETS

SHEET NO. CU201	TITLE SHEET
SHEET NO. CU202	KEY MAP AND GENERAL NOTES
SHEET NO. CU203-CU205	PLATS
SHEET NO. CU206-CU207	PLAN/PROFILE
SHEET NO. CU208	TYPE 'P' & 'C' MANHOLE DETAILS
SHEET NO. CU209	FRAME AND COVER DETAILS
SHEET NO. CU210	STANDARD TYPE 1 CURB INLET DETAILS
SHEET NO. CG501-CG504	SOIL EROSION BMP DETAILS



APPROVED AS NOTED:
By CITY ENGINEER OF WICHITA

Sanitary Sewers _____
Storm Sewers VRH 2/10/05
Driveway Approaches _____
Paving _____

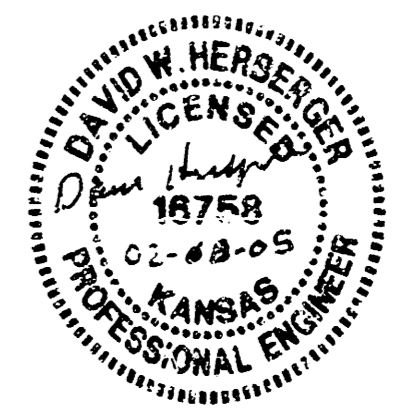
NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM CONTRACTED BY THE OWNER/DEVELOPER. SAID INSPECTION TO BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD CONSTRUCTION ENGINEERING PRACTICES AND CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. NO WORK SHALL BE PERFORMED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY BY THE CONTRACTOR UNTIL SUCH INSPECTION IS ARRANGED FOR AND REQUIRED BONDS HAVE BEEN SUBMITTED TO AND APPROVED BY THE CITY. NOR SHALL ANY WORK BE COMMENCED IN DEDICATED EASEMENTS OR PUBLIC RIGHT-OF-WAY WITHOUT WRITTEN AUTHORIZATION BY THE CITY ENGINEER. IMPROVEMENTS PERFORMED UNDER THIS PROJECT SHALL NOT BE ACCEPTED BY THE CITY UNTIL ALL APPLICABLE DOCUMENTATION HAS BEEN SUBMITTED TO THE CITY ENGINEER. THIS MAY INCLUDE: RECORD DRAWINGS, INSPECTION LOGS, TEST DOCUMENTATION, TV TAPES, AND A CERTIFICATE OF COMPLETION. THE ABOVE SHALL BE PERFORMED BY THE CONSULTING FIRM CONTRACTED TO INSPECT THIS PROJECT.

FEBRUARY 2005

PLANS PREPARED BY
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

AS-BUILT
5/2/05
K.E. Miller
Signed



DSNR: RRY OPER: IDS SCALE: 1"=1.00
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GENERAL NOTES

UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. EXISTING UTILITIES AND THEIR LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM THE VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION. CONTRACTOR SHALL SATISFY HIMSELF OF SUBSURFACE CONDITIONS PRIOR TO BIDDING.

ALL APPROVED EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF ON SITE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL COORDINATE LOCATIONS OF STOCKPILE WITH THE OWNER.

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.

EACH BIDDER SHALL VISIT THE SITE OF THE PROJECT BEFORE SUBMITTING THE PROPOSAL FOR THIS WORK SO THAT HE WILL BE FULLY INFORMED OF THE EXISTING FIELD CONDITIONS AND THE OBSTACLES WHICH MIGHT BE ENCOUNTERED. UPON AWARD OF THE CONTRACT THE CONTRACTOR WILL NOT BE GRANTED ANY ADDITIONAL COMPENSATION WITH REGARDS TO TIME AND MONEY FOR CONDITIONS THAT MAY HAVE BEEN EVALUATED DURING ANY INSPECTION OF THE SITE.

RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR AND APPROVED AS NOTED.

EROSION CONTROL (BMP'S)
THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN EROSION CONTROL METHODS AS SPECIFIED ON SHEETS SCS01-SGS04. THE FOLLOWING QUANTITIES ARE ESTIMATED, AND SHOULD BE CONSIDERED THE MINIMUM EFFORT REQUIRED. THE GENERAL LOCATION OF THE REQUIRED EROSION CONTROL IS ILLUSTRATED ON THE PROJECT KEY MAP. THE SUTARY SEWER CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL SHOWN THROUGH THE COMPLETION OF THIS PROJECT. INSTALLATION OF THESE BMP'S DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF ABATING SOIL EROSION.

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 ARCHEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

SILT FENCE BARRIER 600 L.F.
CONSTRUCTION ENTRANCE 1 EA.

CONTRACTOR SHALL PROVIDE A MINIMUM SEVENTY-TWO (72) HOUR ADVANCE NOTICE (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO BEGINNING ANY EXCAVATION, TO KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 967-2479 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ALL EXISTING LINES WITHIN THE PROJECT AREA: K.G.S. GAS, AQUILA NETWORK, WESTAR ENERGY, SBC COX COMMUNICATIONS, CITY OF WICHITA SEWER MAINTENANCE AND CITY OF WICHITA WATER DEPARTMENT.

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.

ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED, FERTILIZED, AND MULCHED ACCORDING TO CITY OF WICHITA STANDARDS AND SPECIFICATIONS.

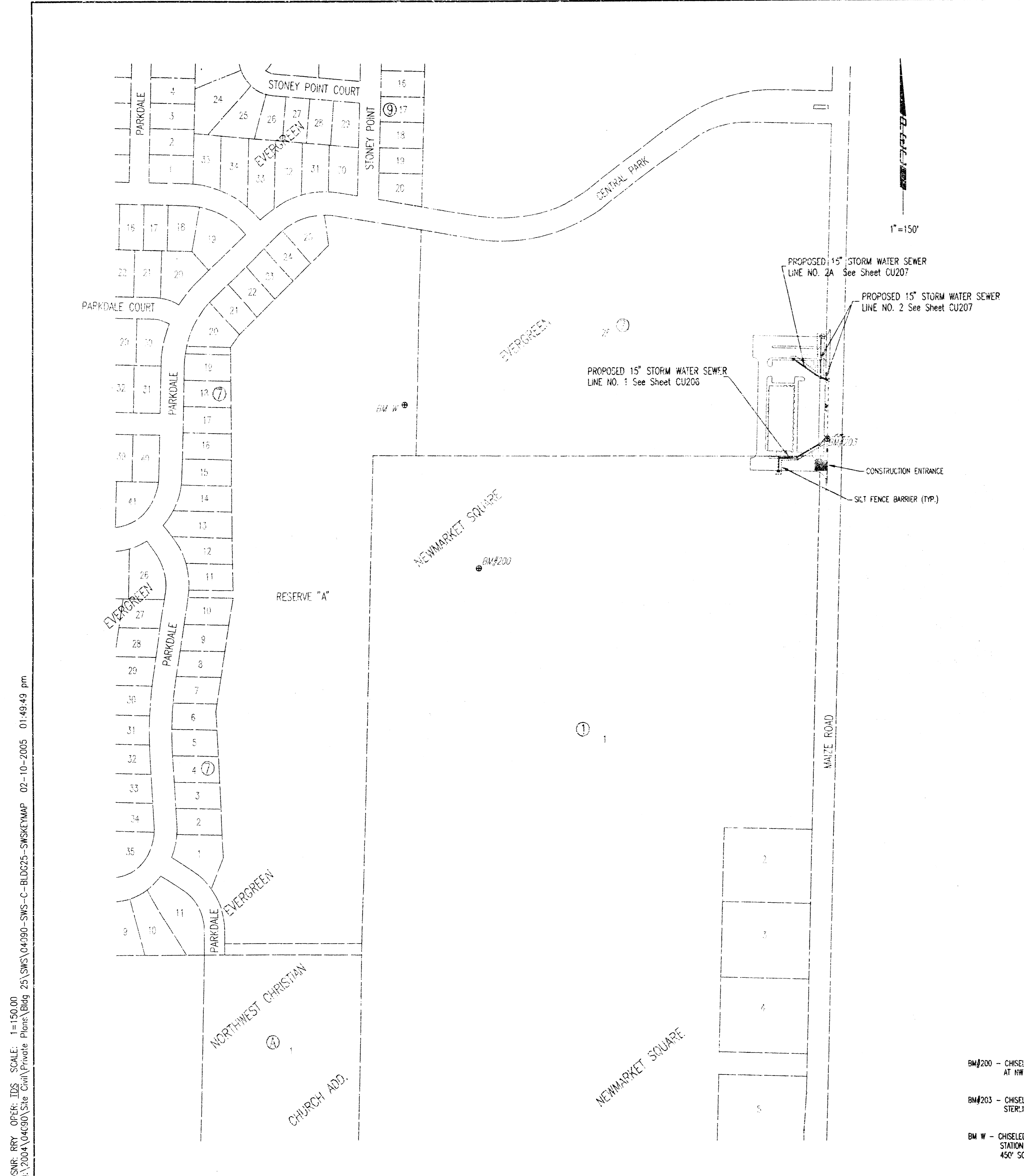
ALL CONSTRUCTION MATERIALS AND PROCEDURES SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARDS AND SPECIFICATIONS FOR STORM SEWER CONSTRUCTION.

ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE SEEDED PER THE SPECIFICATIONS OR RESTORED WITH THE SAME GRASS/SOD AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL PREPARATION, SEEDING, MULCH, AND/OR RESEEDING. ALL SEEDING/SODDING WORK SHALL BE IN ACCORDANCE WITH THE CITY OF WICHITA STANDARD SPECIFICATIONS AND THE CITY OF WICHITA ADMINISTRATIVE REGULATION NO. AR78 WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION.

THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ADJUTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.

THE WATER DEPARTMENT SHALL FIELD LOCATE WATER VALVES ONE TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, WATER VALVE BOXES OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

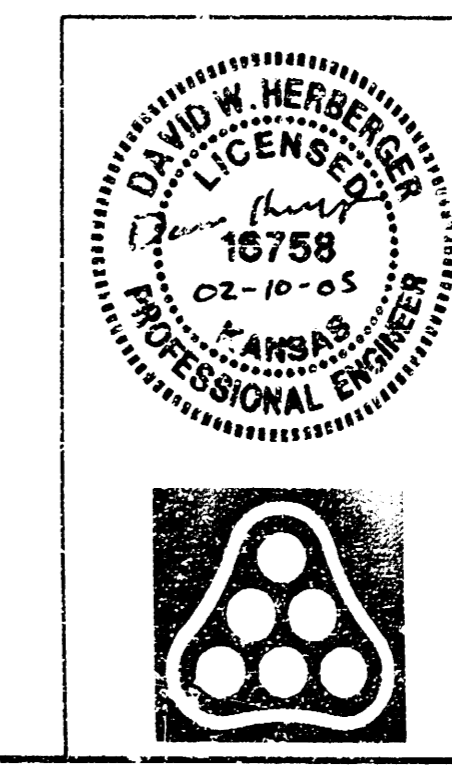
CUTS MADE IN PAVED SURFACES ON PUBLIC PROPERTY WILL BE REPAIRED BY THE CITY'S CONTRACTOR AND CHARGED AGAINST THE OWNER/APPLICANT. UNIT REPAIR PRICES ARE AVAILABLE FROM THE CITY AT 268-4418. A SURCHARGE MAY BE APPLICABLE. CALL 268-4418 FOR DETAILS. REPAIR COSTS TO BE PAID PRIOR TO RELEASE OF WATER SERVICE IF WATER SERVICE IS AFFECTED.



SEE SHEET NO. CU203, CU204 & CU205 FOR PLAT COORDINATES

- BENCHMARK LIST**
- BM#200 - CHISELED "I" ON NORTH END 1/2" EXISTING G/G ALONG FACE OF BUILDINGS AT NW CORNER OF EXISTING ASPHALT PARKING. ELEV. = 166.73
 - BM#203 - CHISELED "I" ON TOP CURB SE CORNER OF 2ND CURB INLET NORTH OF STERLING ST. ON WEST SIDE OF MAIZE ROAD. ELEV. = 163.03
 - BM W - CHISELED "I" ON EAST SIDE, IN THE CENTER, OF EXISTING LAKE PUMP STATION, EAST SIDE OF POND IN RESERVE "A" OF EVERGREEN ADDITION, 450' SOUTH OF STONEY POINT. ELEV. = 164.33

DSNR: RRY OPER: JDS SCALE: 1"=150.00
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No.	Revision	By	Date
NEWMARKET SQUARE-PHASE 2 STORM WATER SEWER IMPROVEMENTS KEY MAP AND GENERAL NOTES JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER CITY OF WICHITA PRIVATE PROJECT NO. 1521 PPS (607861) Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003			
Designed by	RRY	Job No.	35-04090
Drawn by	GJR	Date	January 2005
			SH CU202 of

EVERGREEN

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

POINT	NORTH	EAST
100	7,403.3020	3,738.0388
101	6,071.1795	3,706.7802
102	6,072.4203	3,314.7822
103	6,137.8021	3,314.9991
104	6,245.6703	3,280.1526
105	6,329.6488	3,312.6943
106	6,390.5482	3,309.1926
107	6,460.6599	3,305.1612
108	6,530.7716	3,301.1298
109	6,600.8833	3,297.0985
110	6,670.9950	3,293.0671
111	6,741.0043	3,293.4448
112	6,810.7673	3,304.5445
113	6,880.5298	3,315.6442
114	6,950.2922	3,326.7439
115	7,020.0546	3,338.2975
116	7,042.9143	3,338.1034
117	7,112.9500	3,337.4508
118	7,182.9860	3,336.7922
119	7,253.0220	3,336.1336
120	7,323.0580	3,335.4750
121	7,393.0940	3,334.8165
122	7,463.1299	3,334.1579
123	7,533.1659	3,333.4993
124	7,603.2019	3,332.8407
125	7,673.2379	3,332.1821
126	7,693.2482	3,331.9940
127	7,727.9233	3,356.7979
128	7,775.8231	3,407.8441
129	7,871.6196	3,509.9364
130	7,919.5183	3,560.9825
131	7,967.4171	3,612.0287
132	8,050.4278	3,600.0991
133	8,047.8090	3,634.7381
134	8,008.4486	3,872.3019
135	7,402.8946	3,857.4232

100 = COORDINATE POINT NO.



SCALE: 1" = 100'

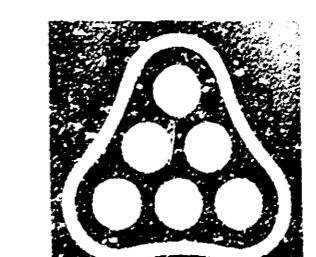
● = IRON SET

No.	Revision	By	Date

NEWMARKET SQUARE - PHASE 2
STORM WATER SEWER IMPROVEMENTS
PLAT
(EVERGREEN)
 JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER
 CITY OF WICHITA PRIVATE PROJECT NO. 1521 PPS (S07861)
Professional Engineering Consultants, P.C.
 303 S. TOPICKA - WICHITA, KANSAS 67202
 316-262-2691 • FAX 316-262-3003

Designed by	RRY	Job No.	35-04090
Drawn by	GJR	Date	January 2005

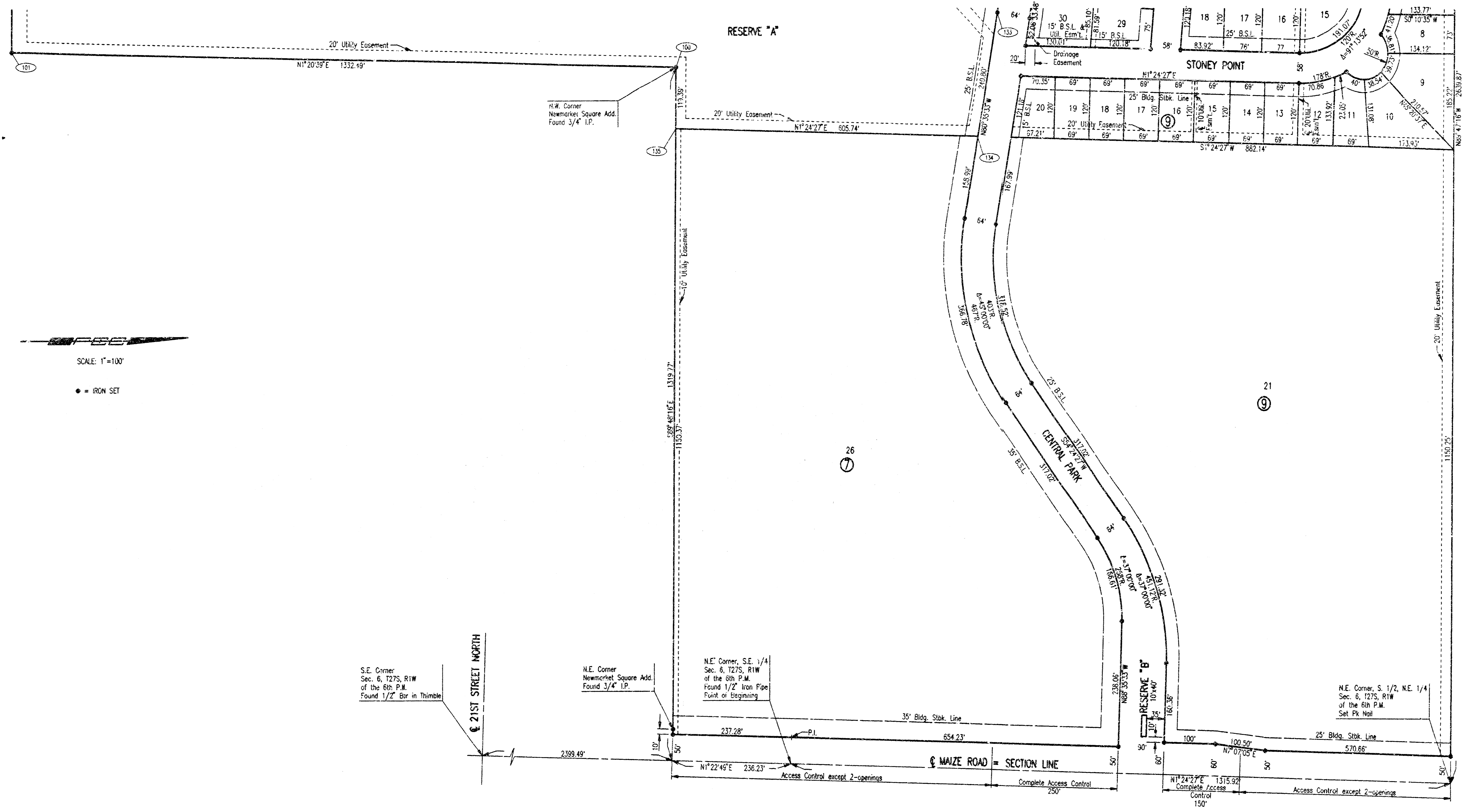
Sht. CU203 of



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EVERGREEN

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



SCALE: 1"=100'
● = IRON SET

S.E. Corner
Sec. 6, T27S, R1W
of the 6th P.M.
Found 1/2" Bar in Thimble

N.E. Corner
Newmarket Square Add.
Found 3/4" I.P.

N.E. Corner, S.E. 1/4
Sec. 6, T27S, R1W
of the 6th P.M.
Found 1/2" Iron Pipe
Point of Beginning

N.E. Corner, S. 1/2, N.E. 1/4
Sec. 6, T27S, R1W
of the 6th P.M.
Set. Pk. Not

D:\NSP - BRV - OBER - IDS - SCALE: 1"=100.00
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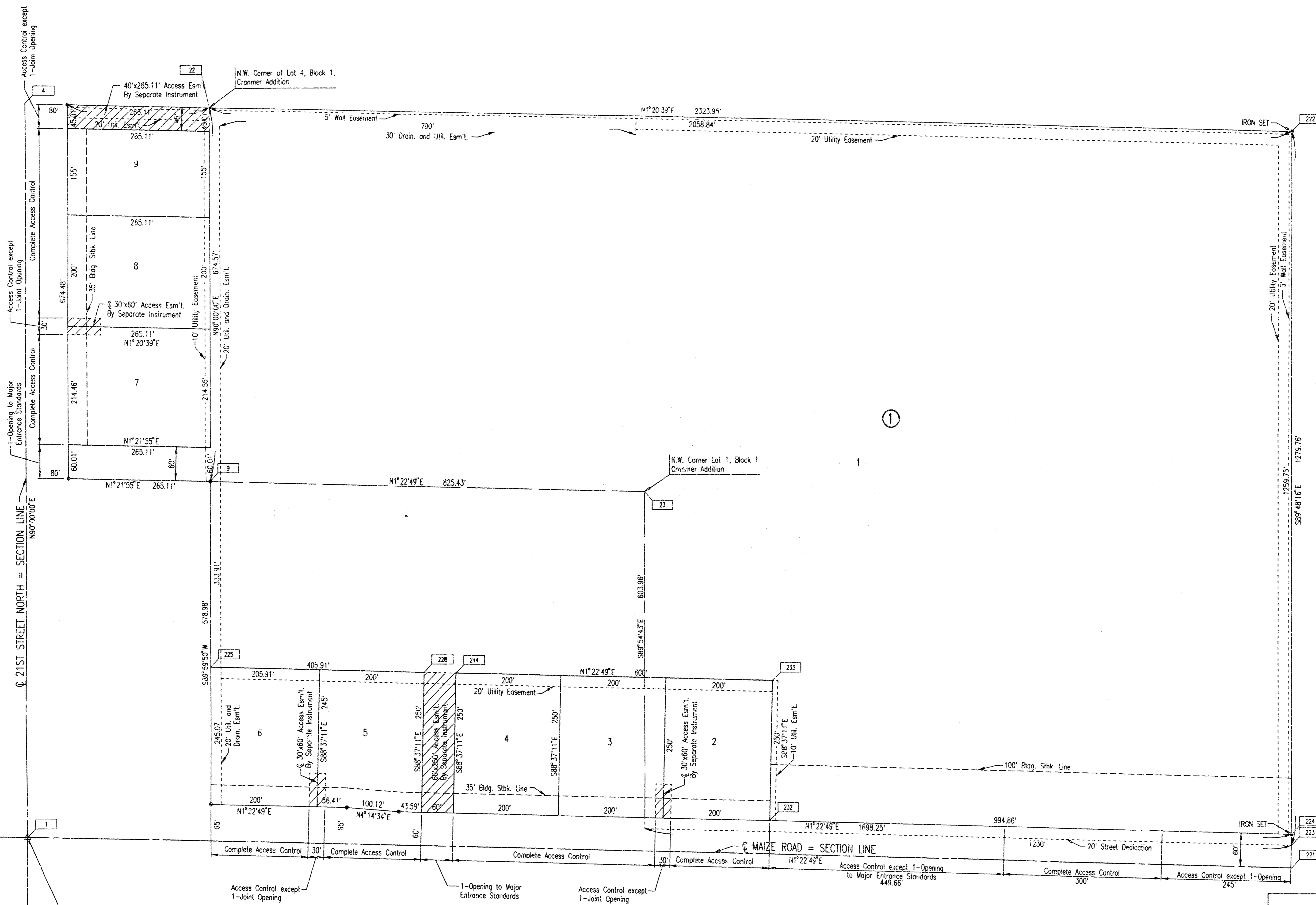
No.	Revision	By	Date
NEWMARKET SQUARE-PHASE 2 STORM WATER SEWER IMPROVEMENTS PLAT (EVERGREEN) JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER CITY OF WICHITA PRIVATE PROJECT NO. 1521 PPS (607851)			
Professional Engineering Consultants, P.A. 303 S. TOPEKA • WICHITA, KANSAS 67202 316-262-2601 • FAX 316-262-3003			
Designed by	RJY	Job No.	35-04090
Drawn by	GJR	Date	January 2005
			SH: CU204 of -

NEWMARKET SQUARE

AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS

SCALE: 1"=100'

• = IRON FOUND



COORDINATE LIST		
POINT	NORTH	EAST
1	5,000.0000	5,000.0000
4	5,000.0031	3,681.8447
9	5,345.0325	4,564.3163
22	5,345.0325	3,689.7413
23	6,170.2203	4,384.1985
221	7,393.7989	5,057.7972
222	7,403.3020	3,738.0388
223	7,393.9353	5,017.7989
224	7,399.0035	4,397.7647
225	5,345.0482	4,698.2237
228	5,750.8451	4,708.0011
232	6,404.6318	4,373.8281
233	6,410.6536	4,723.8986
244	5,810.8277	4,709.4463

□ = COORDINATE POINT NO

DSNR: RRY OPER: IDS SCALE: 1"=100.00
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S.E. Corner
 Sec. 6, T27S, R1W
 of the 6th P.M.
 Found 1/2" Bar in Thimble



No.	Revision	By	Date
NEWMARKET SQUARE-PHASE 2 STORM WATER SEWER IMPROVEMENTS PLAT (NEWMARKET SQUARE) JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER CITY OF WICHITA PRIVATE PROJECT NO. 1521 PFS (607861) Professional Engineering Consultants, P.A. 303 S. YOPEKA • WICHITA, KANSAS 67202 316-262-2691 • FAX 316-262-3003			
Designed by	RRY	Job No.	35-04090
Drawn by	GJR	Date	January 2005
			SHL CU205 of

**CUT OPENING IN WALL OF EXISTING INLET AND REMOVE FLOOR SHAPING AS NECESSARY. INSTALL NEW PIPE, CUT FLUSH WITH INSIDE WALL OF MANHOLE, AND GROUT IN PLACE WITH NON-SHRINK GROUT. INSTALL NEW FLOOR SHAPING.

N-7,450.4992, E-5,017.5302
Sta. 9+69.4, SWS Line 1
Connect to exist. Curb Inlet **
Top Elev.=162.98
Install 30.6 L.F. 15" RCP(SW)
See Sheet No. CU210

CAUTION !!!
Buried Telephone
(SDC)

N-7,420.9744, E-4,994.7993
Sta. 10+00.0, SWS Line 1
Construct Std. Type 1 Curb Inlet
(5' x 3')
Top Elev.=164.47
Install 71.3 L.F. 15" RCP(SW)
See Sheet No. CU210

CAUTION !!!
Prop. 8" Waterline
(by others)

N-7,396.5174, E-4,931.8523
Sta. 10+71.3, SWS Line 1
Construct Std. Manhole
Dia.=4'-0"
Top Elev.=164.78
Install 51.8 L.F. 15" RCP(W)
See Sheet No. CU208

N-7,394.6783, E-4,880.1264
Sta. 11+23.1, SWS Line 1
Construct Std. Type 1 Curb Inlet
(5' x 3')
Top Elev.=164.13
Install 35.7 L.F. 15" RCP(S)
See Sheet No. CU210

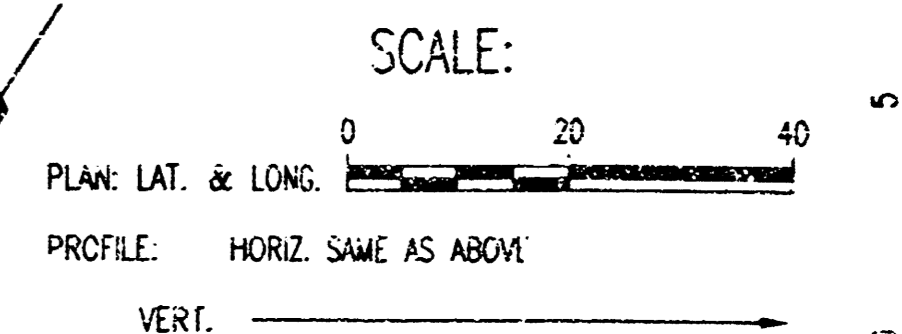
N-7,358.9380, E-4,879.2672
Sta. 11+58.8, SWS Line 1
Construct Std. Type 1 Curb Inlet
(5' x 3')
Top Elev.=164.13
See Sheet No. CU210

Install 32.0 L.F.
Excavatable Flowable
Fill to Elev. 163.0

CAUTION !!!
Gas Line
(Aquila network)

Remove and replace
9 L.F. Concrete
Sidewalk in kind.

Install 50.8 L.F.
Excavatable Flowable
Fill to Elev. 162.70

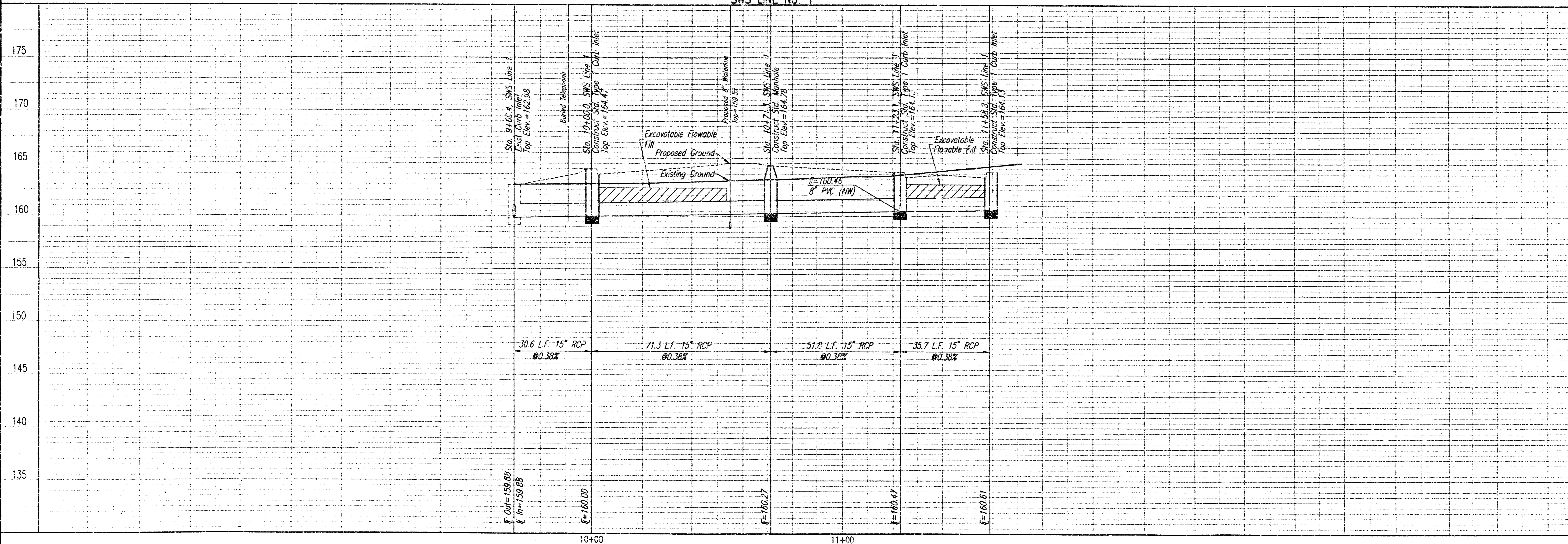


3/4/05

PLAN	CHECKED	DATE
	CHECKED	

PROFILE	CHECKED	DATE
	CHECKED	

DSNR, RRY, OFFER, GJR, SCALE: 1"=20.00
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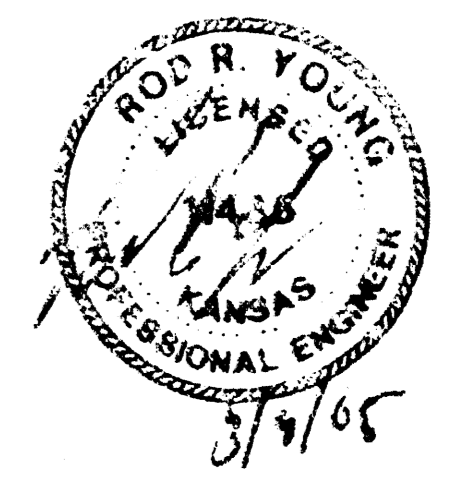
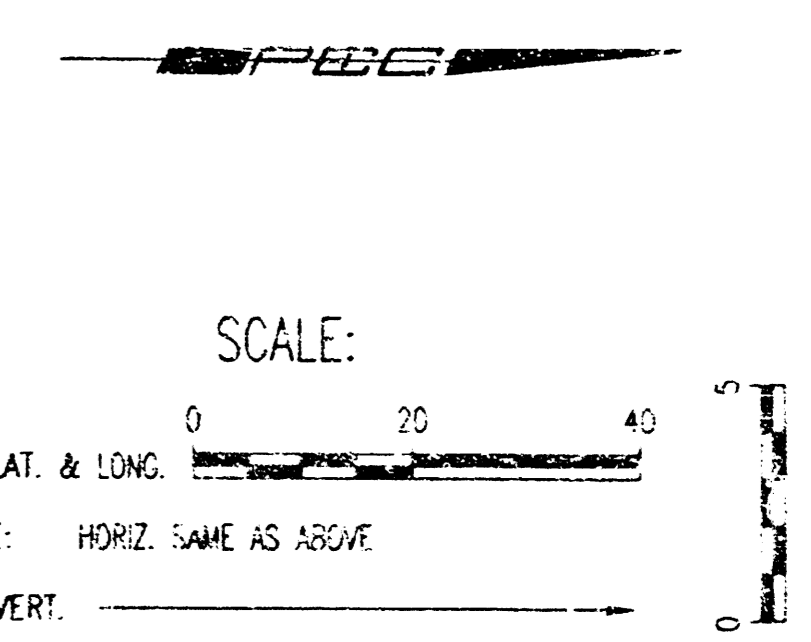
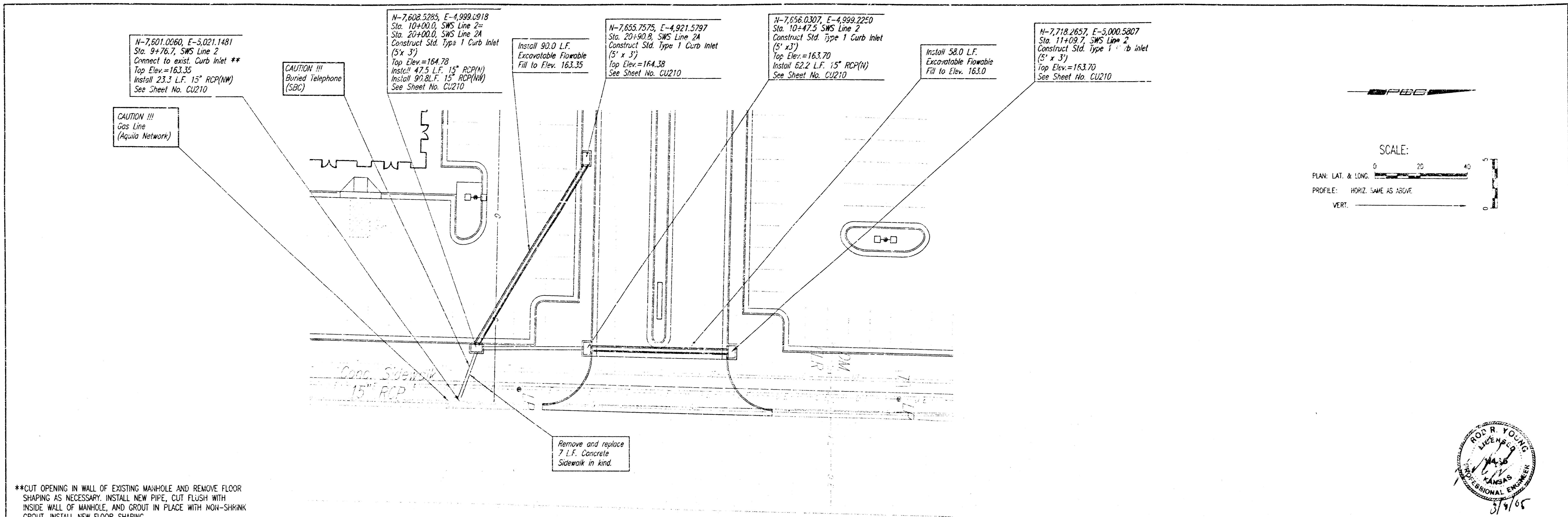
NEWMARKET SQUARE - PHASE 2
STORM WATER SEWER IMPROVEMENTS
SWS LINE NO. 1
Professional Engineering Consultants, P.A.
308 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2601 • FAX 316-262-3003
Designed By: RRY
Job No.: 35-0490
Drawn By: GJR
Date: January 2005
Sheet CU206 of

JAMES L. ARICOUR, P.E. - ACTING CITY ENGINEER
CITY OF WICHITA PRIVATE PROJECT NO. 1521 PPS (6/08E1)

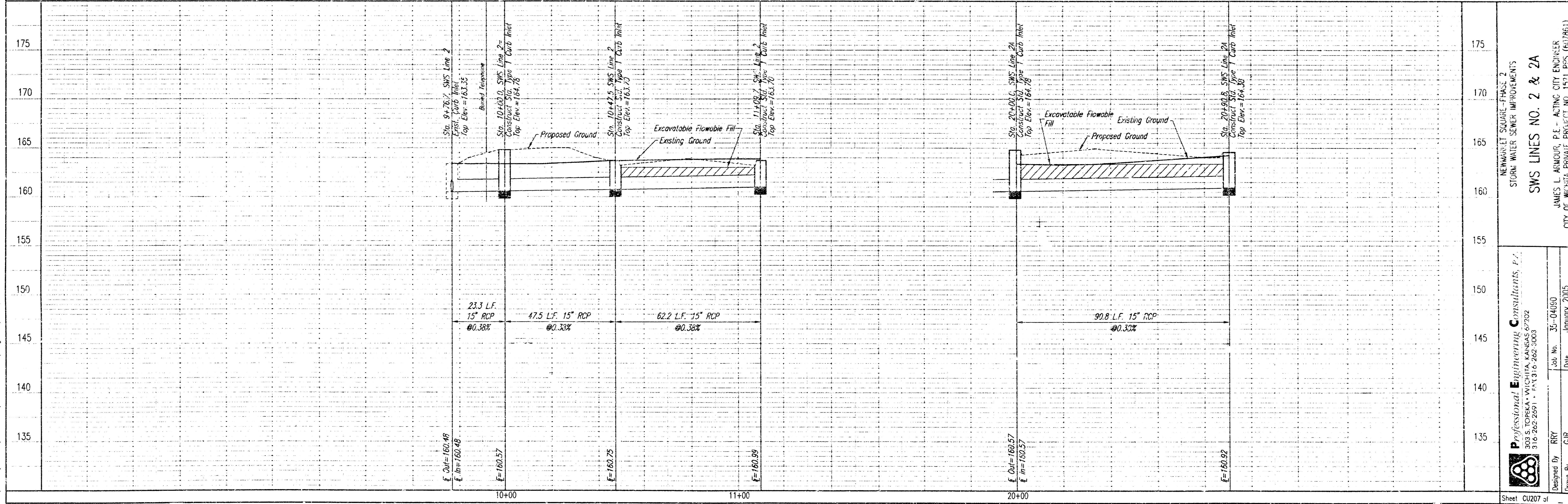
PLAN
 CHECKED
 DATE

PROFILE
 CHECKED
 DATE

DSNR: RRY OPER: CJP SCALE: 1"=20.00
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**CUT OPENING IN WALL OF EXISTING MANHOLE AND REMOVE FLOOR SHAPING AS NECESSARY. INSTALL NEW PIPE, CUT FLUSH WITH INSIDE WALL OF MANHOLE, AND GROUT IN PLACE WITH NON-SHRINK GROUT. INSTALL NEW FLOOR SHAPING.



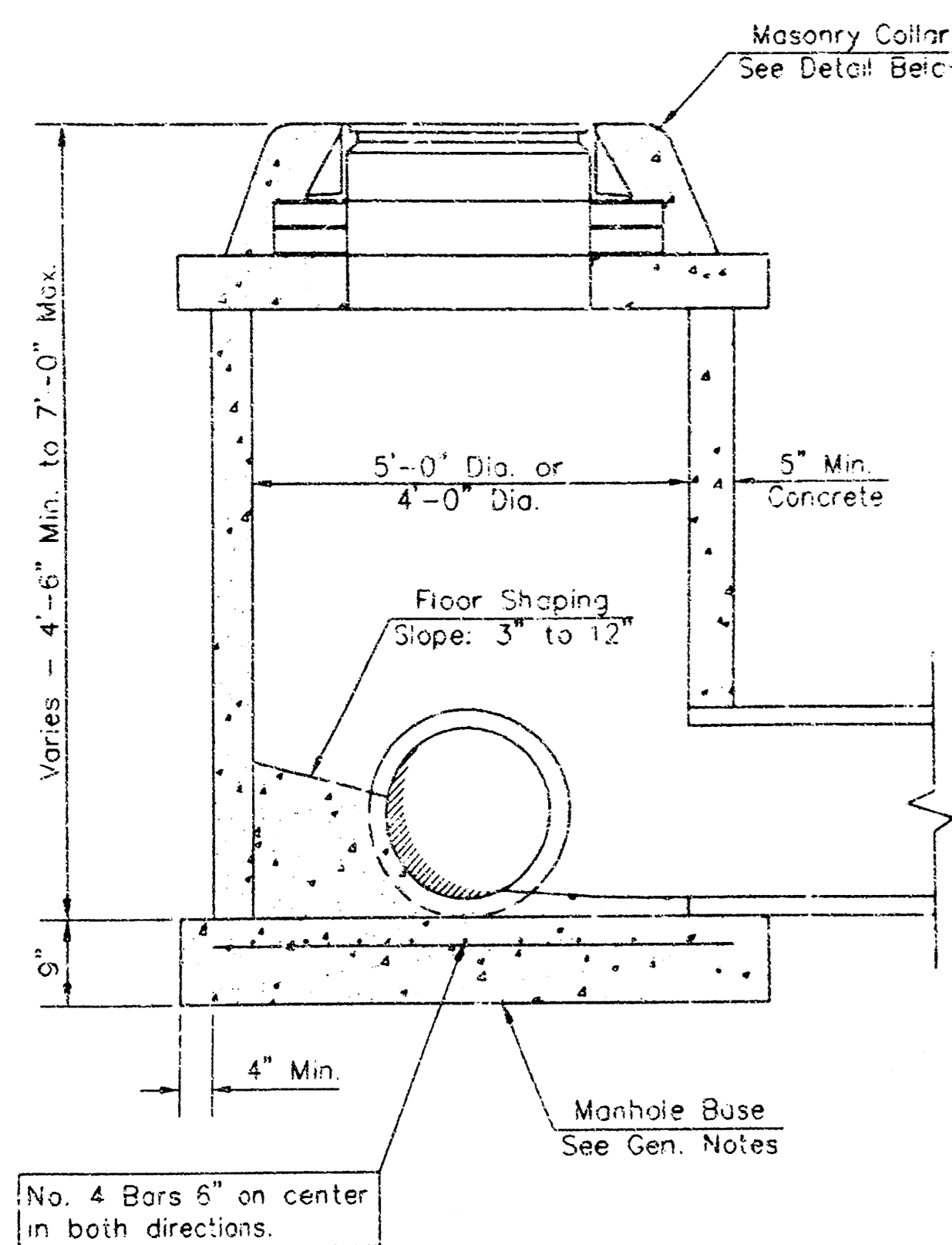
Professional Engineering Consultants, P.C.
 203 S. TORRESA, WICHITA, KANSAS 67202
 316-262-2591 • FAX 316-262-3003

Designed By: RRY Job No. 35-04050
 Drawn By: CJP Date: January 2005

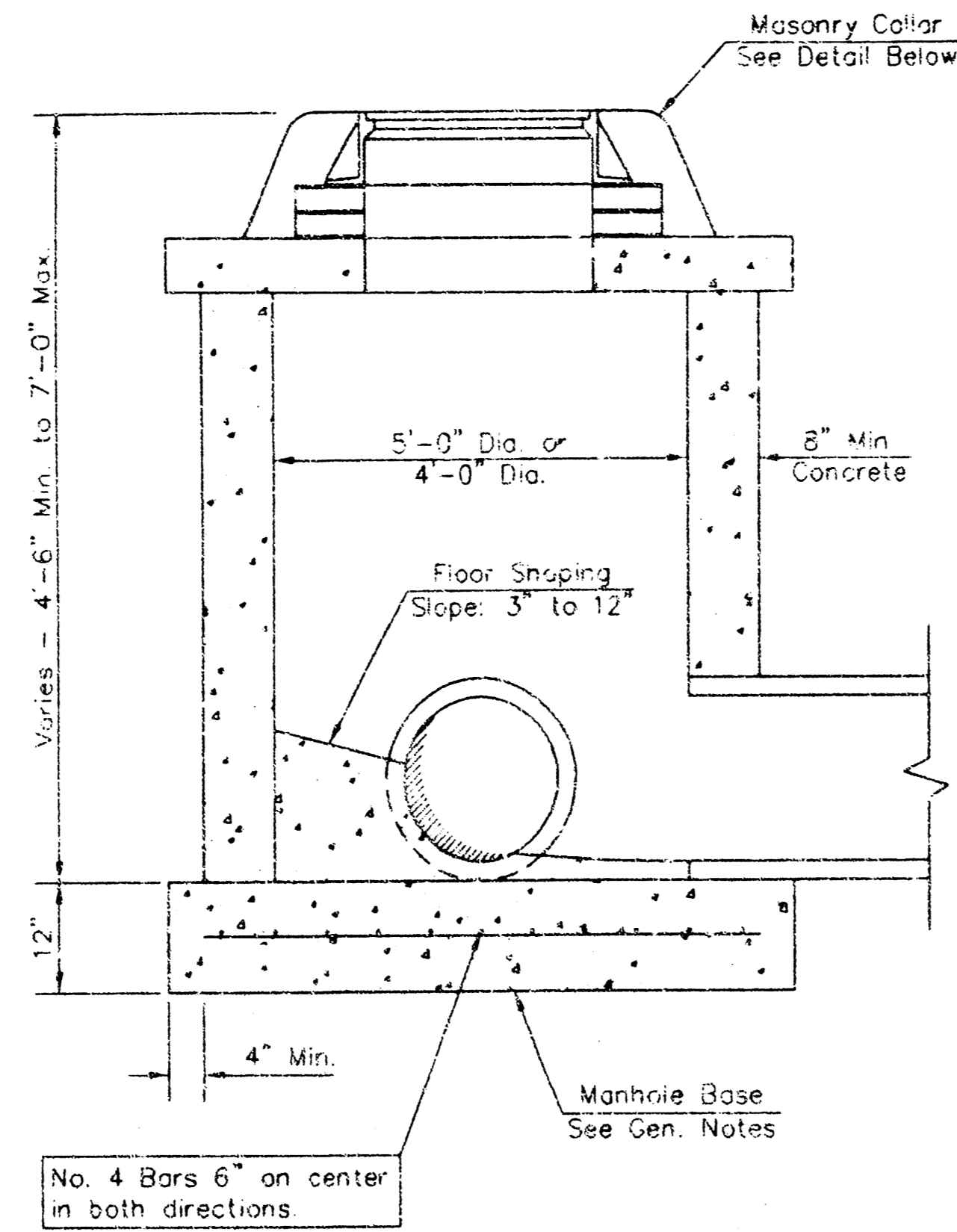
Professional Engineer Seal: ROD R. YOUNG, LICENSE NO. 1413, STATE OF KANSAS. Date: 3/4/05.

NEWARKLET SQUARE - PHASE 2
 STORM WATER SEWER IMPROVEMENTS
 SWS LINES NO. 2 & 2A
 JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER
 CITY OF WICHITA, PRIVATE PROJECT NO. 1531 EPS (040801)

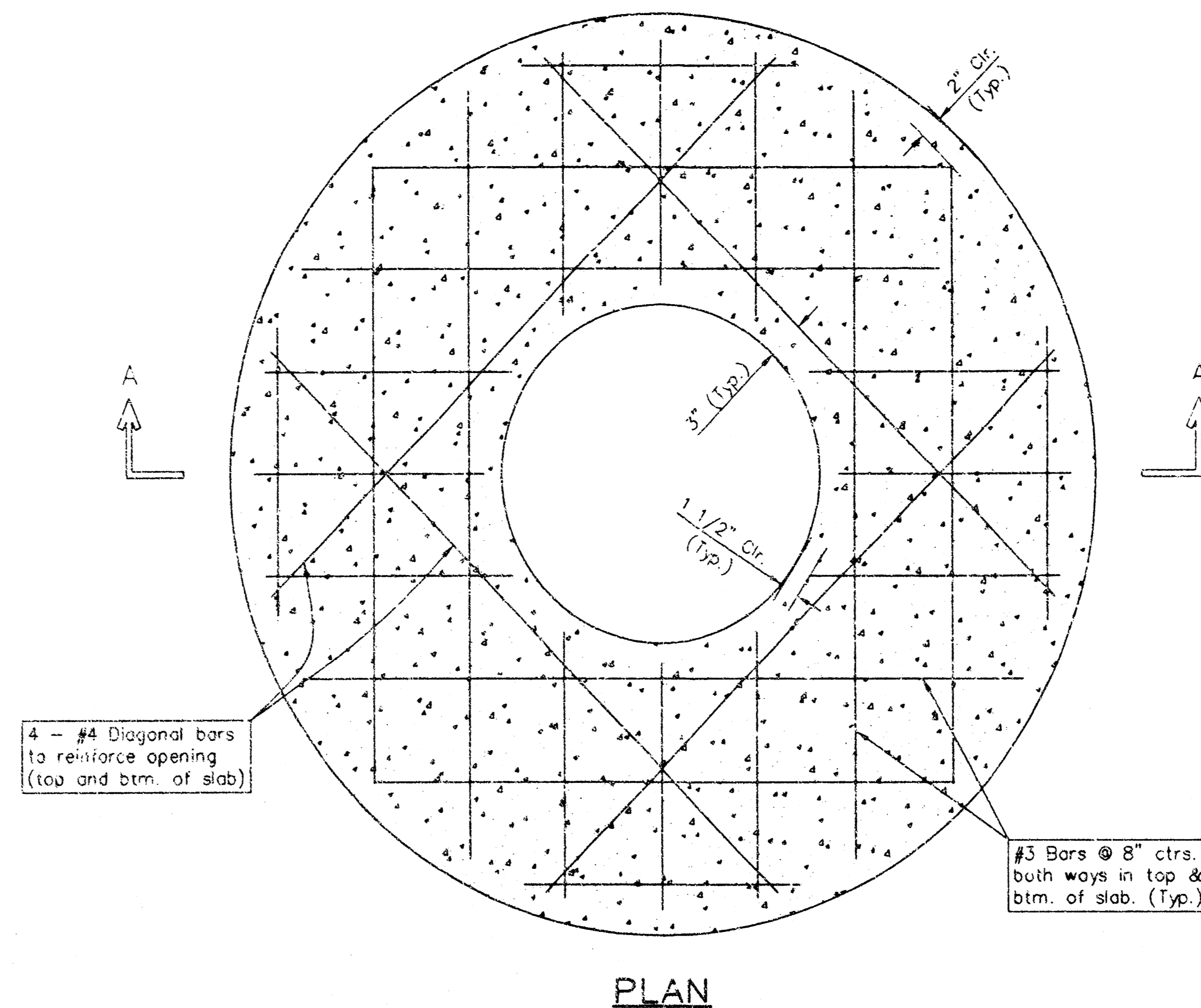
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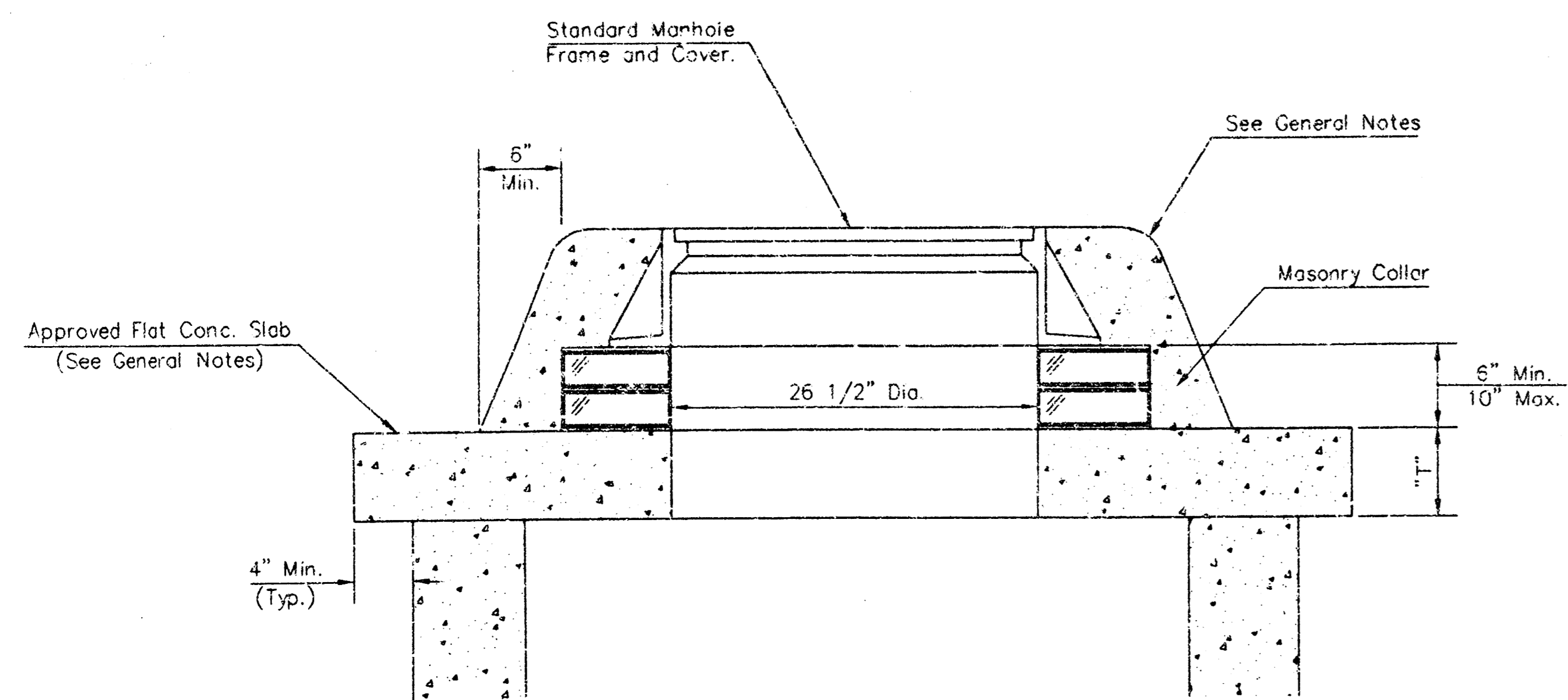
SHALLOW TYPE "P" MANHOLE



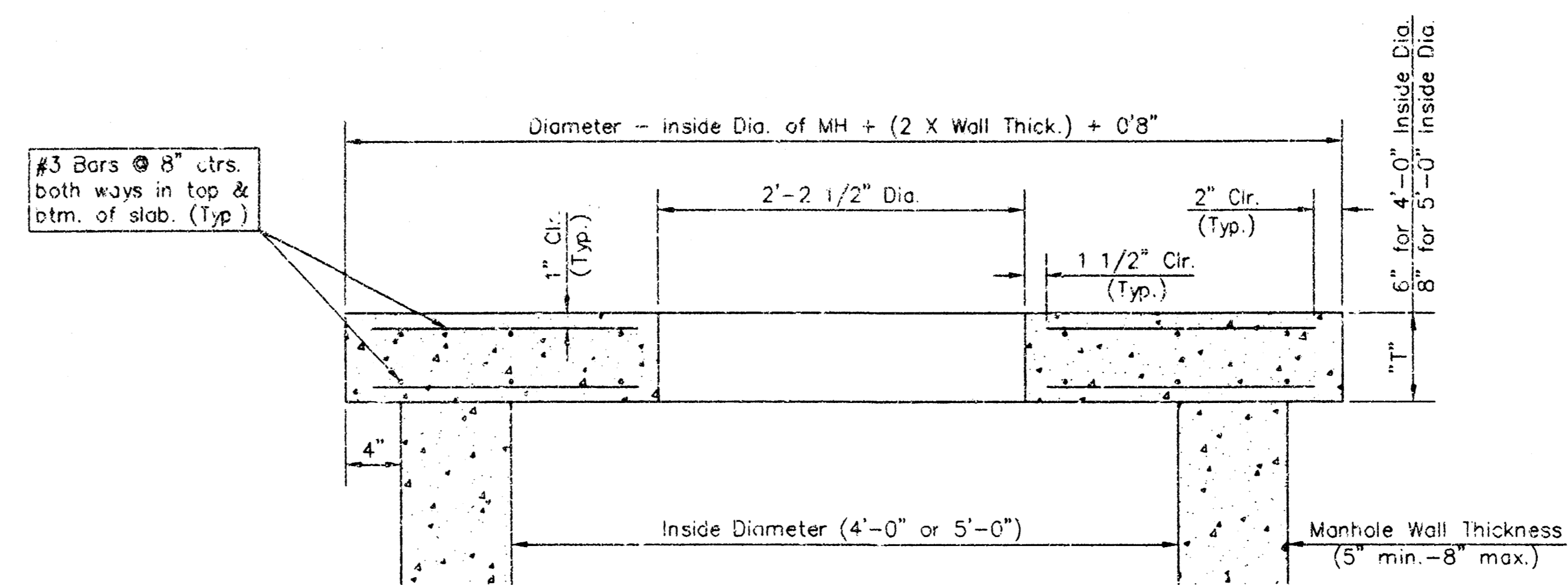
SHALLOW TYPE "C" MANHOLE



PLAN



MASONRY COLLAR DETAIL



SECTION A-A

FLAT CONCRETE SLAB DETAILS

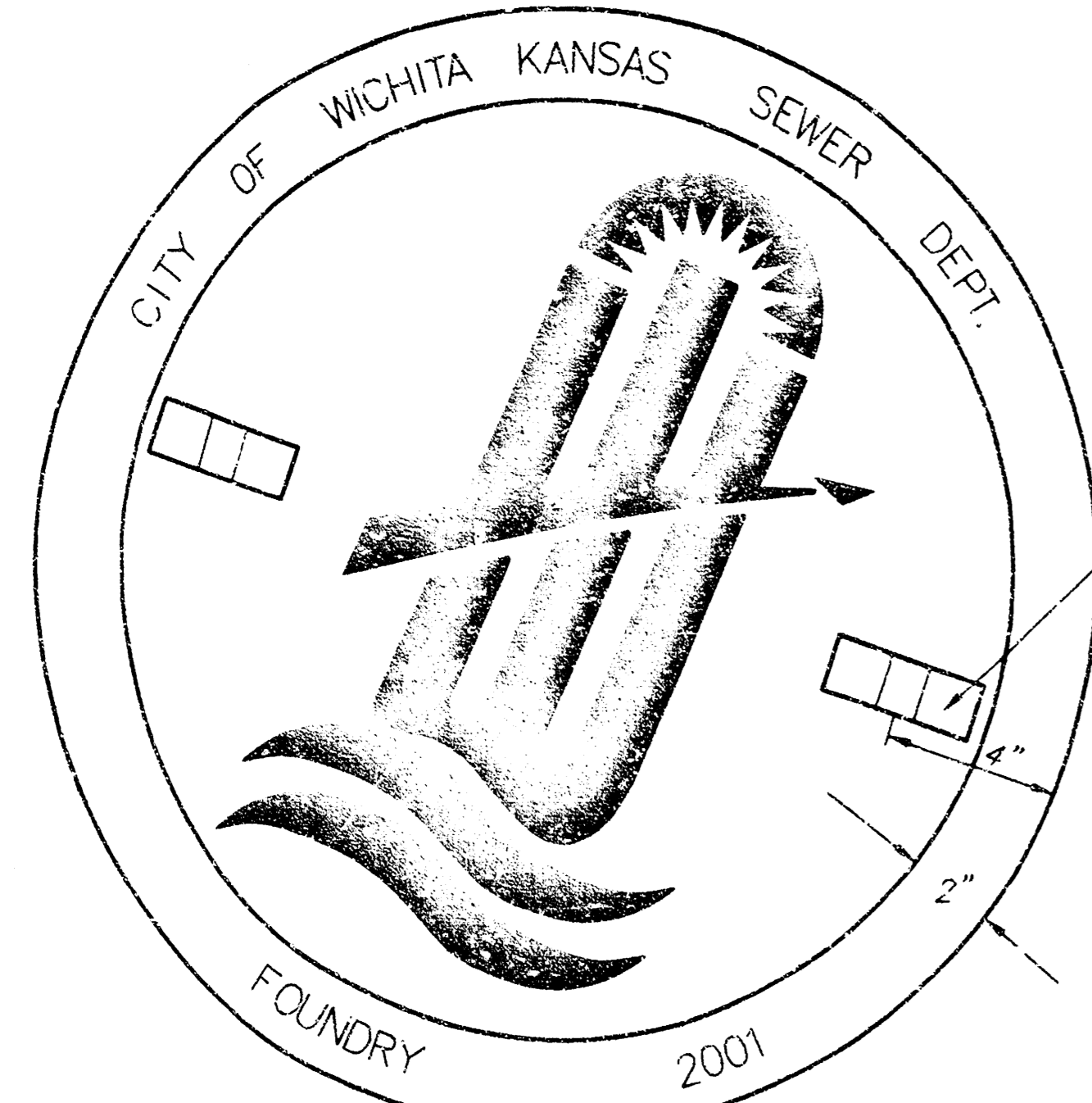
GENERAL NOTES

- 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 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.
- 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 "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 C652 or C62-87.

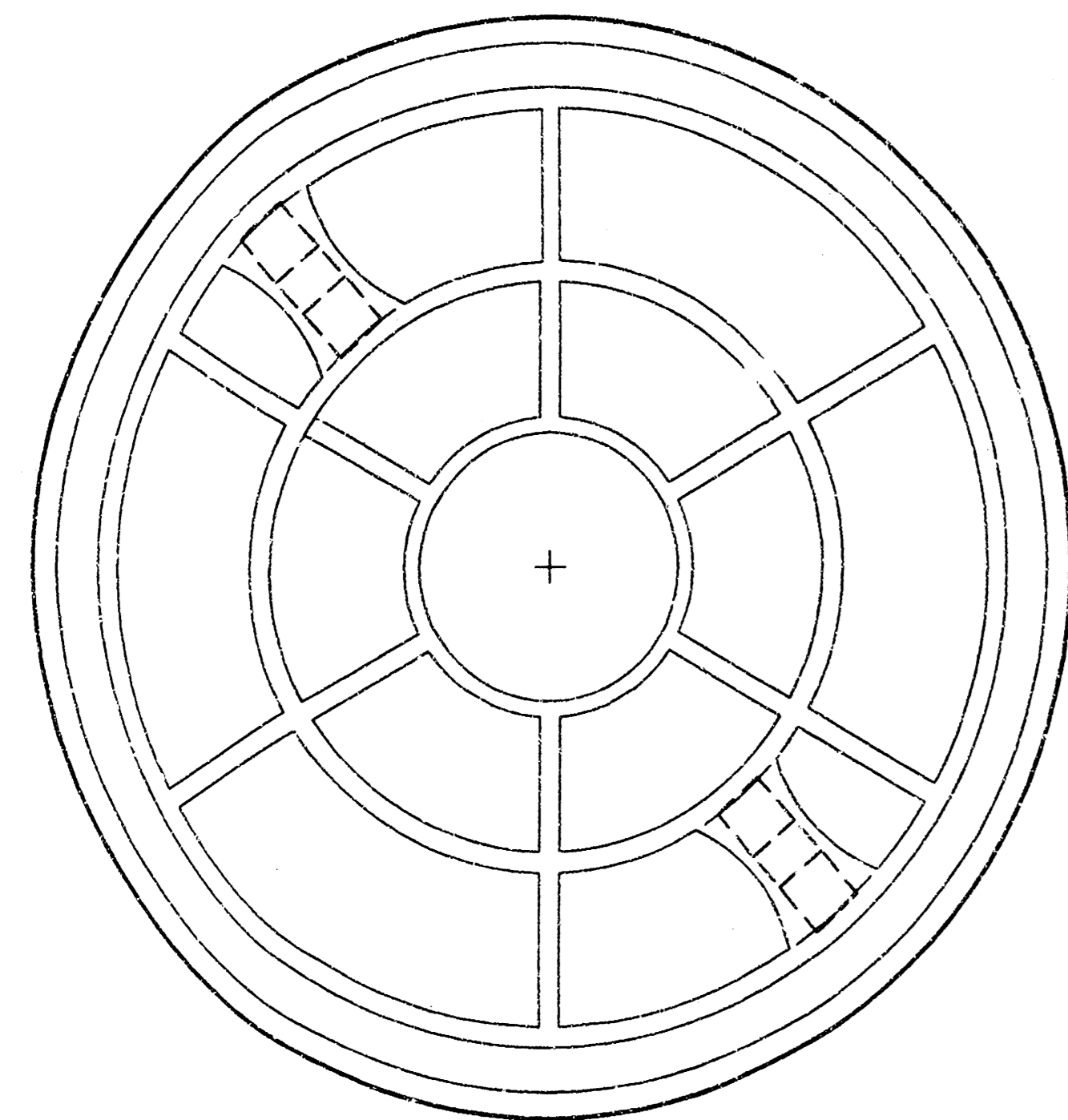
CSNR: RRY OPER: IDS SCALE: 1=1.00
 Q:\2004\04090\Site\Civil\Private Plans\Blug 25\SWS\04090-SWS-C-BLDG25-SHLWHMPC 02-10-2005 01:55:02 pm

<p>THE CITY OF WICHITA</p> <p>CITY ENGINEER'S OFFICE CITY HALL - SEVENTH FLOOR 435 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4801 (316) 268-4114 Fax</p>	SHALLOW MANHOLES	
	TYPE 'P' & 'C'	
	JAMES L. ARMOUR, P.E. - ACTING CITY ENGINEER	
	PROJECT NUMBER PPS	OCA NO. (607861)
DATE MAR 96	SHEET CU208 OF	

MANHOLE COVER
Weight = 180 Lbs.



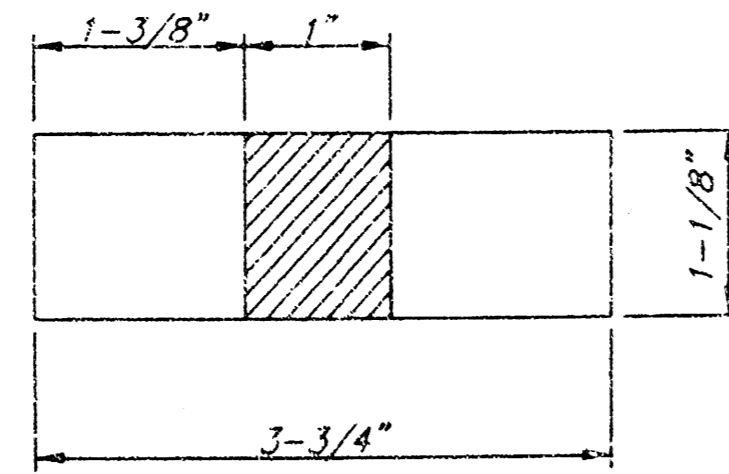
TOP VIEW



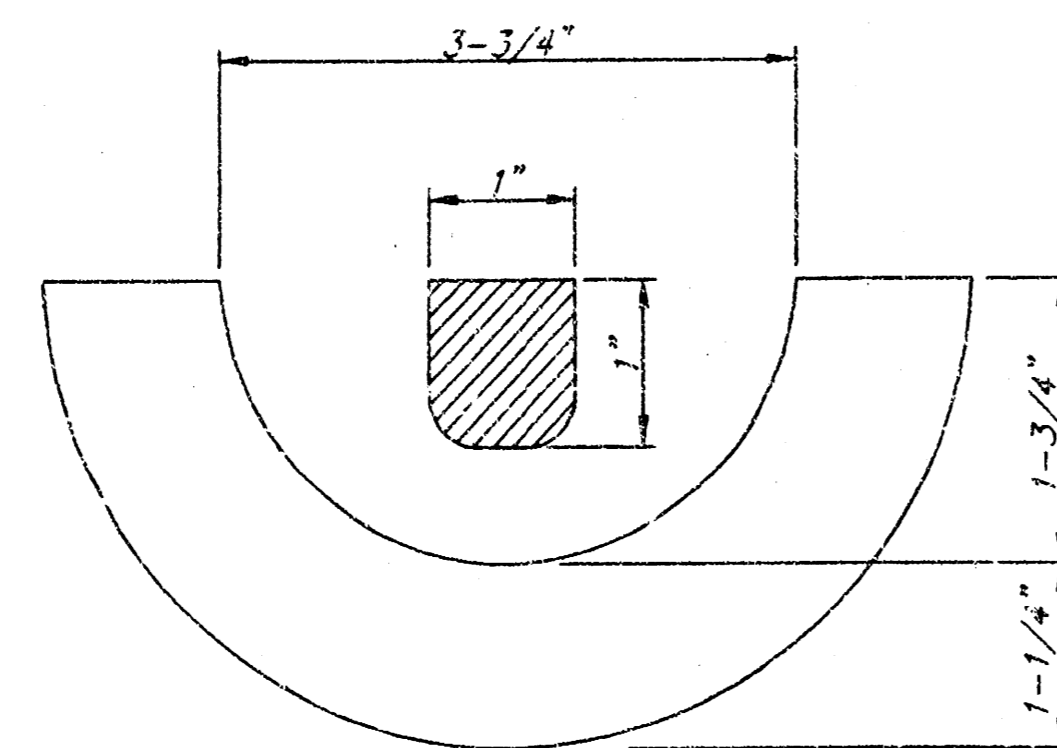
BOTTOM VIEW

CLOSED PICKHOLE (SEE DETAIL)

PICKHOLE DETAIL



TOP VIEW

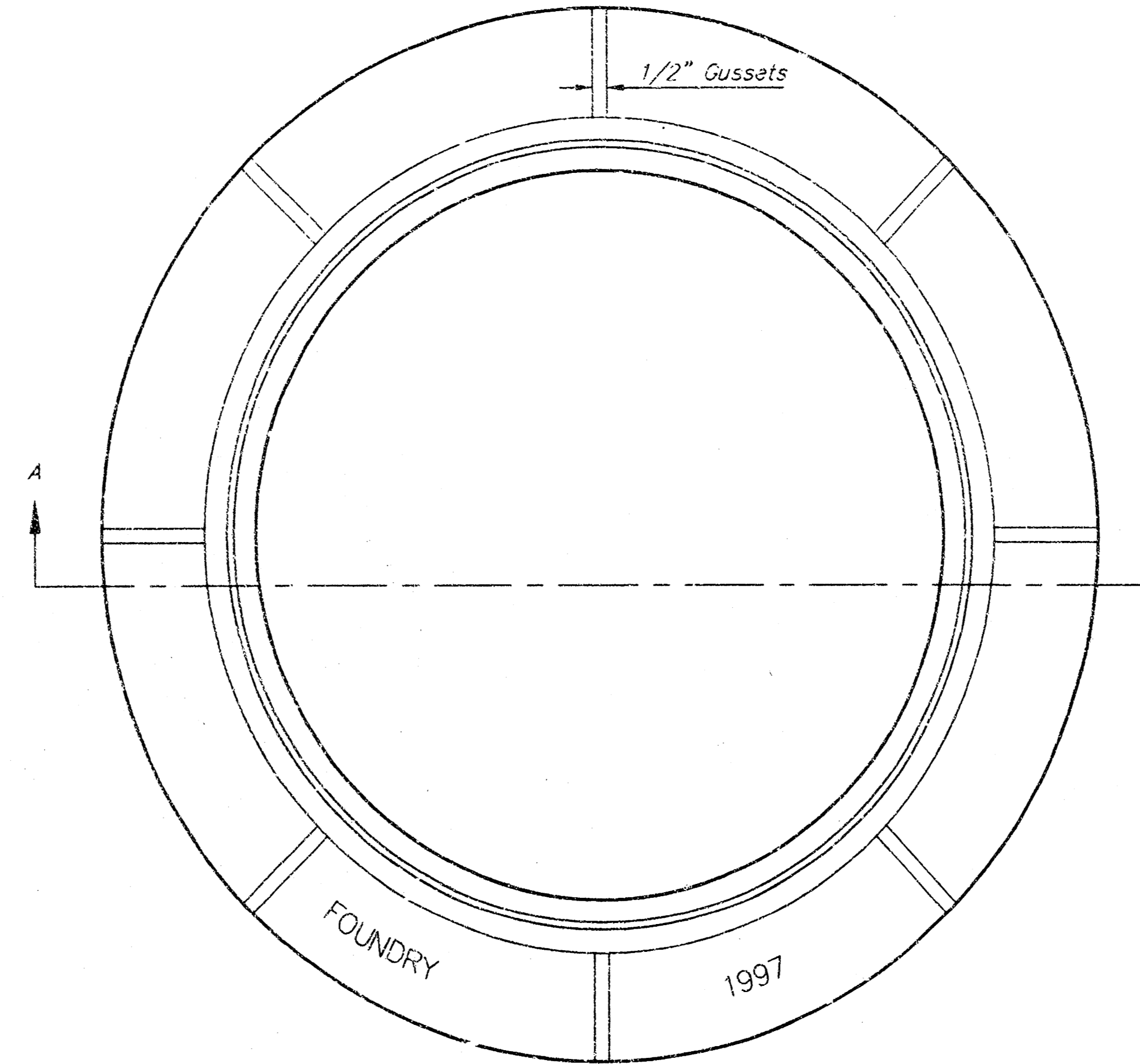


SECTION VIEW

MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

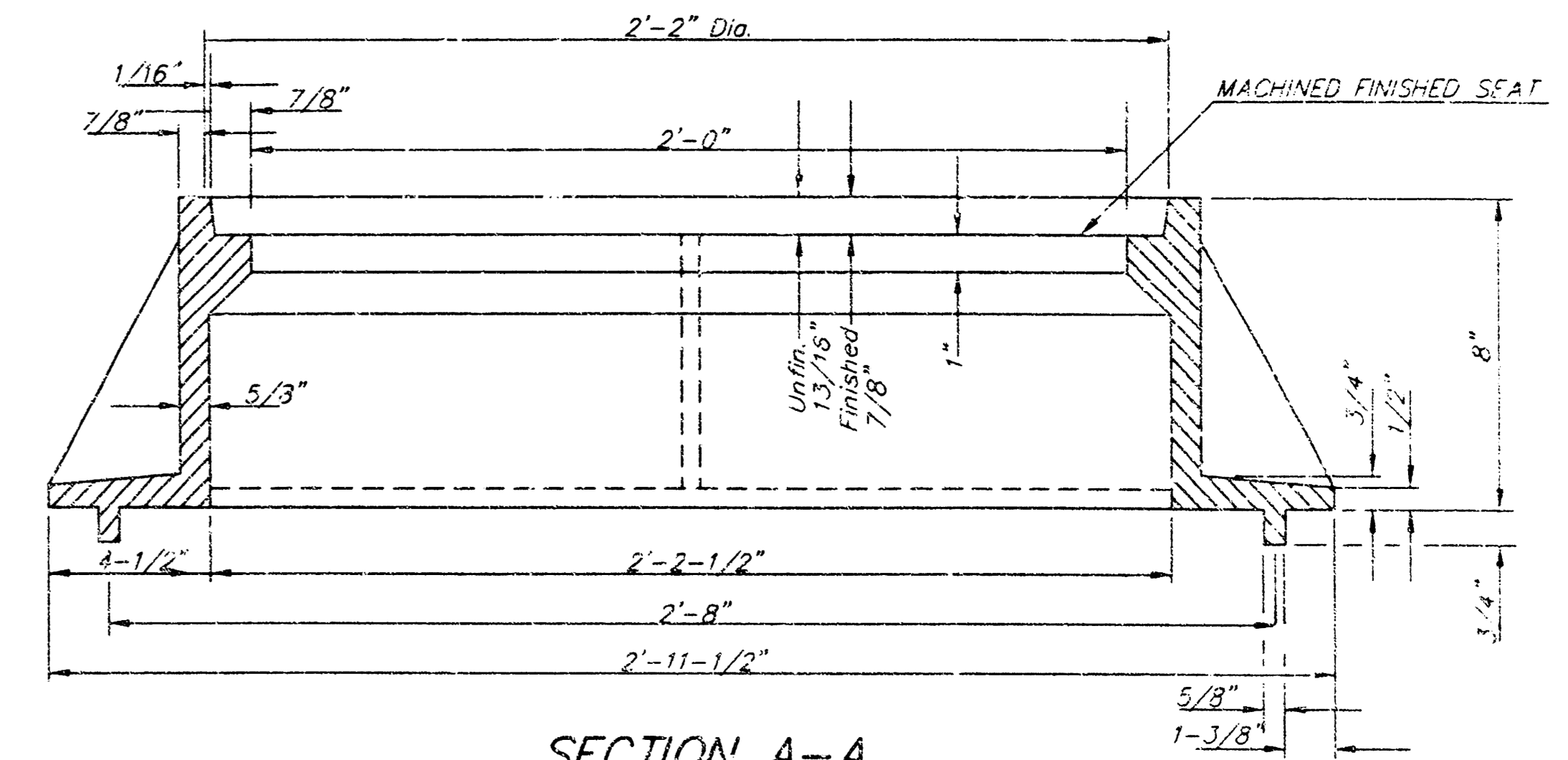
MANHOLE FRAME
Weight = 240 Lbs.



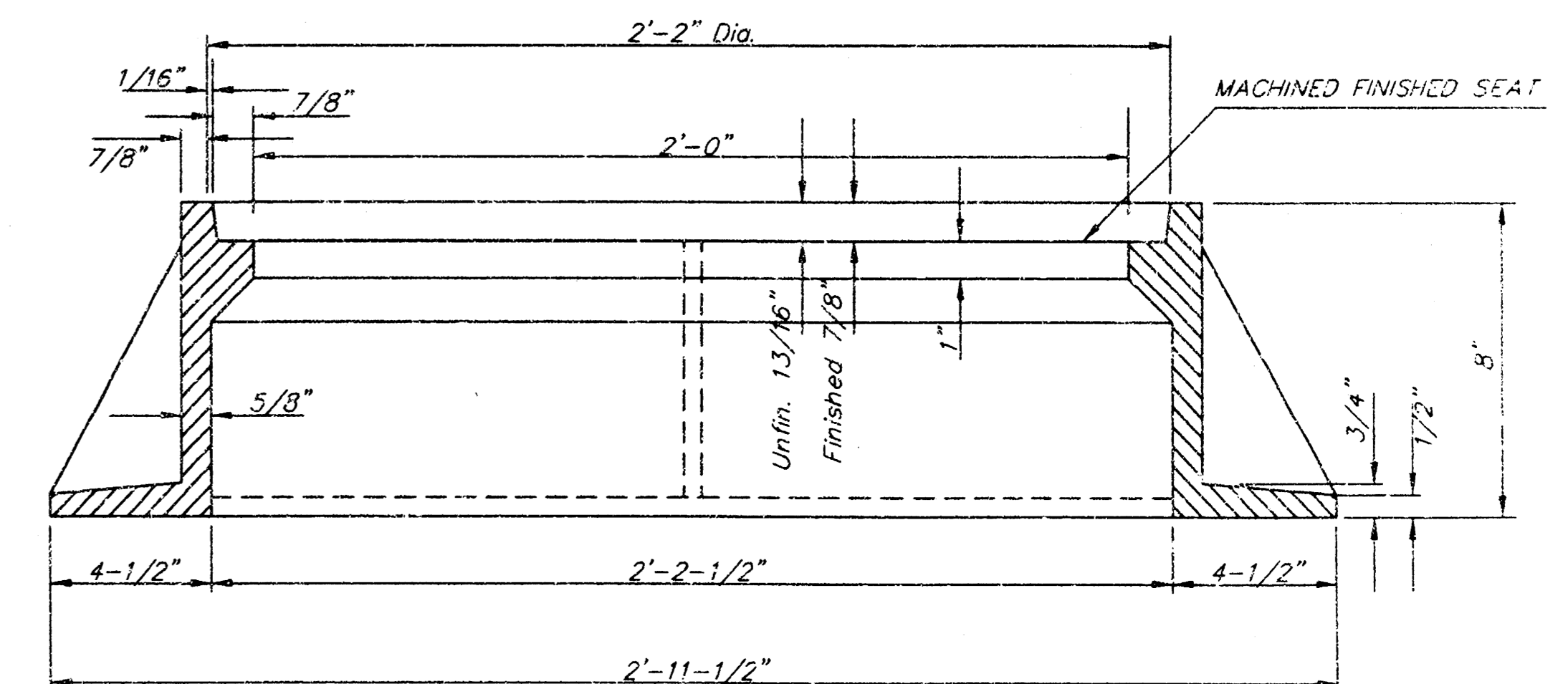
TOP VIEW

GENERAL NOTES

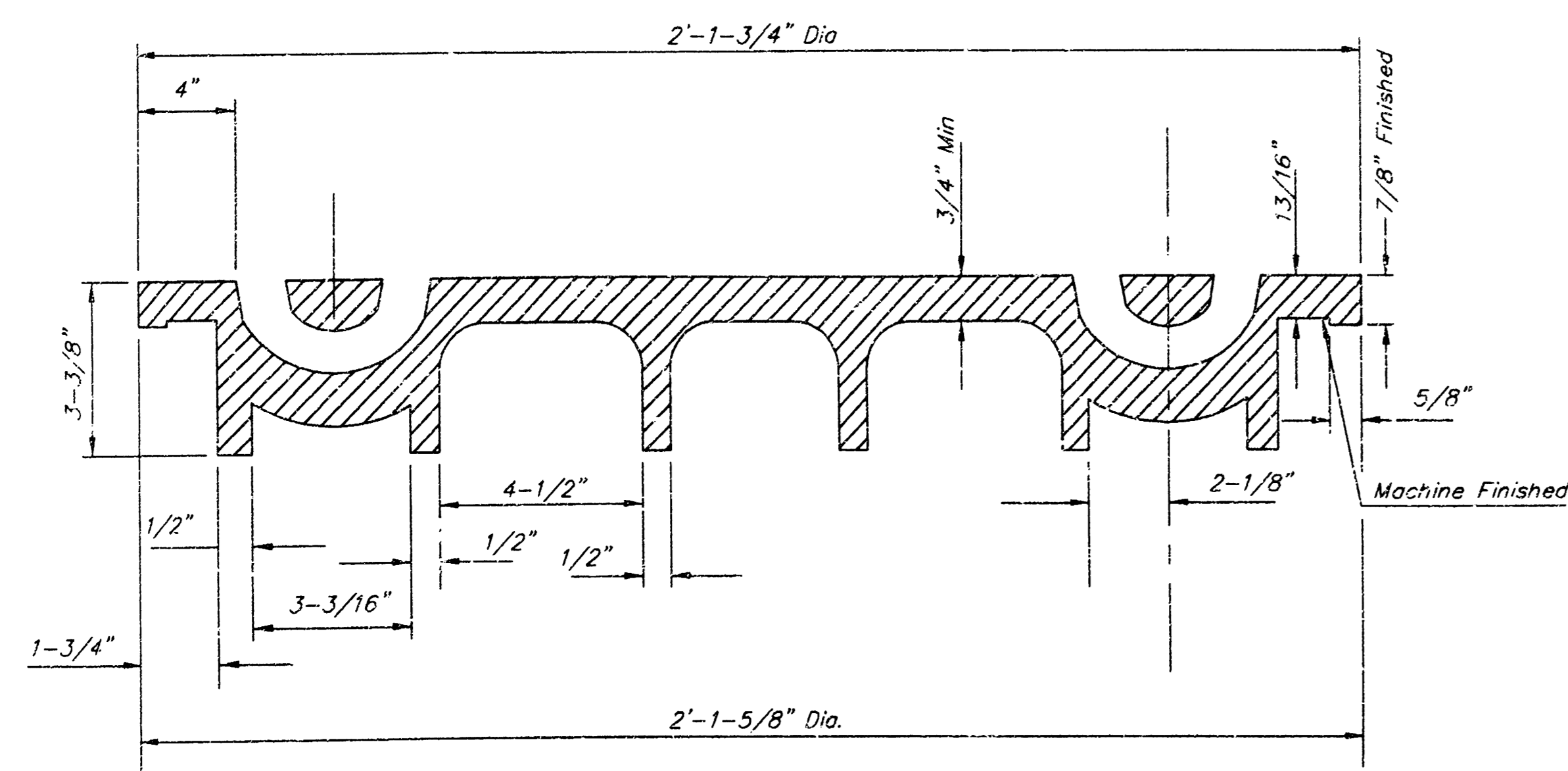
1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.
2. MANHOLE CASTINGS SHALL WEIGH A MINIMUM OF 180 POUNDS ON THE SOLID COVER AND 240 POUNDS ON THE MANHOLE RING. THIS IS A TOTAL OF 420 POUNDS ON A RING AND COVER SET. CASTINGS WEIGHING LESS THAN THE MINIMUM SPECIFICATIONS WILL NOT BE ACCEPTED.
3. 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.
4. 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.
5. 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 SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED WITH THE CITY OF WICHITA LOGO 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.



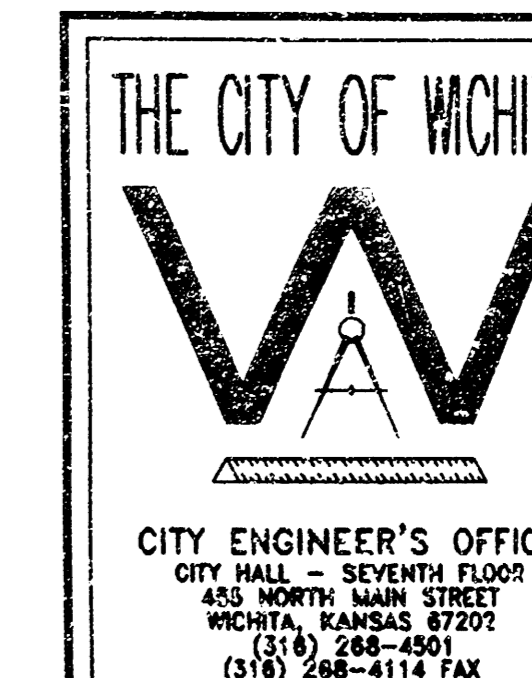
SECTION A-A
MUD RING



SECTION A-A



SECTION VIEW



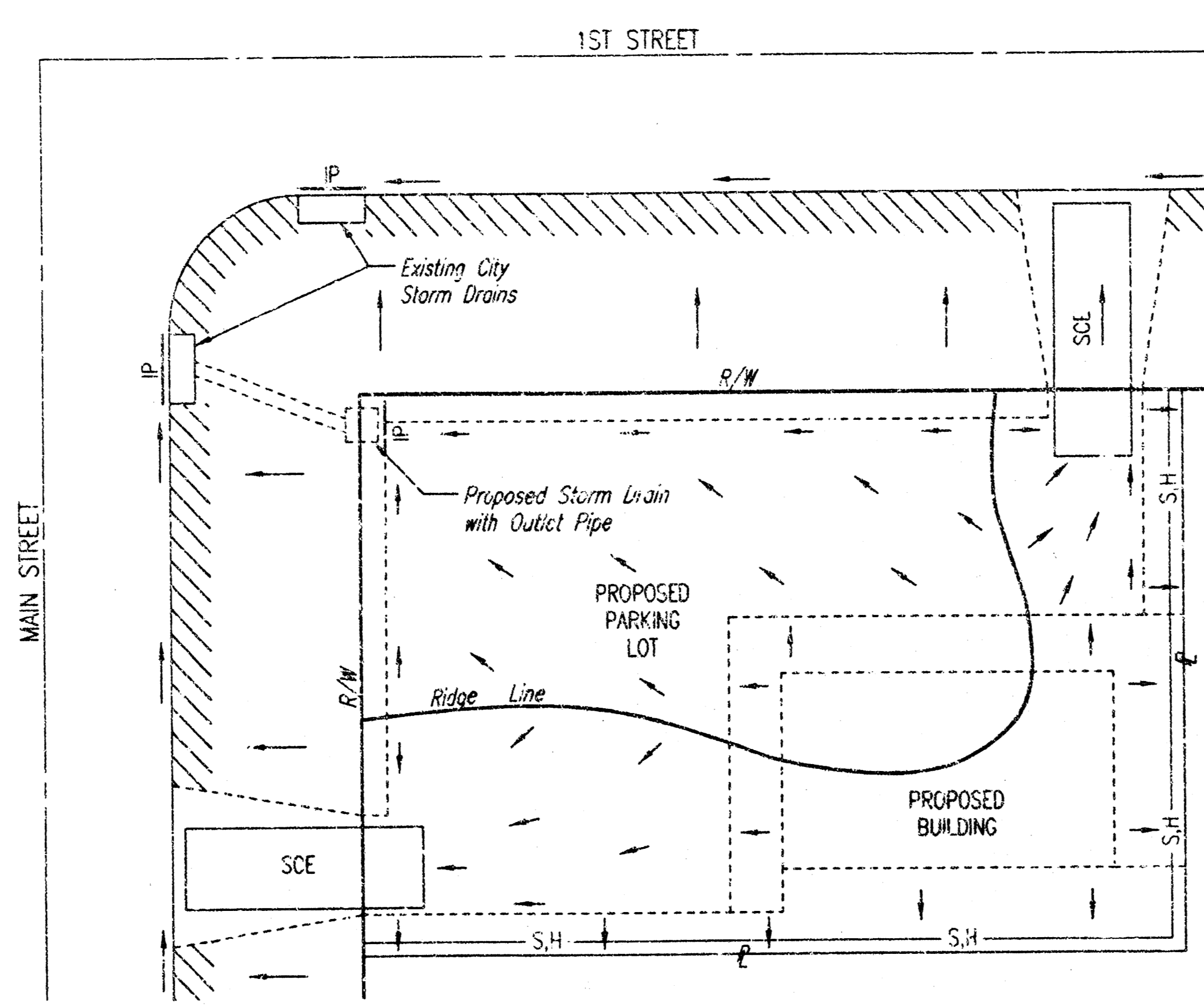
MANHOLE FRAME AND COVER

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

PROJECT NUMBER 458- DCA NO.

DATE MAR 96 SHEET CU209 OF

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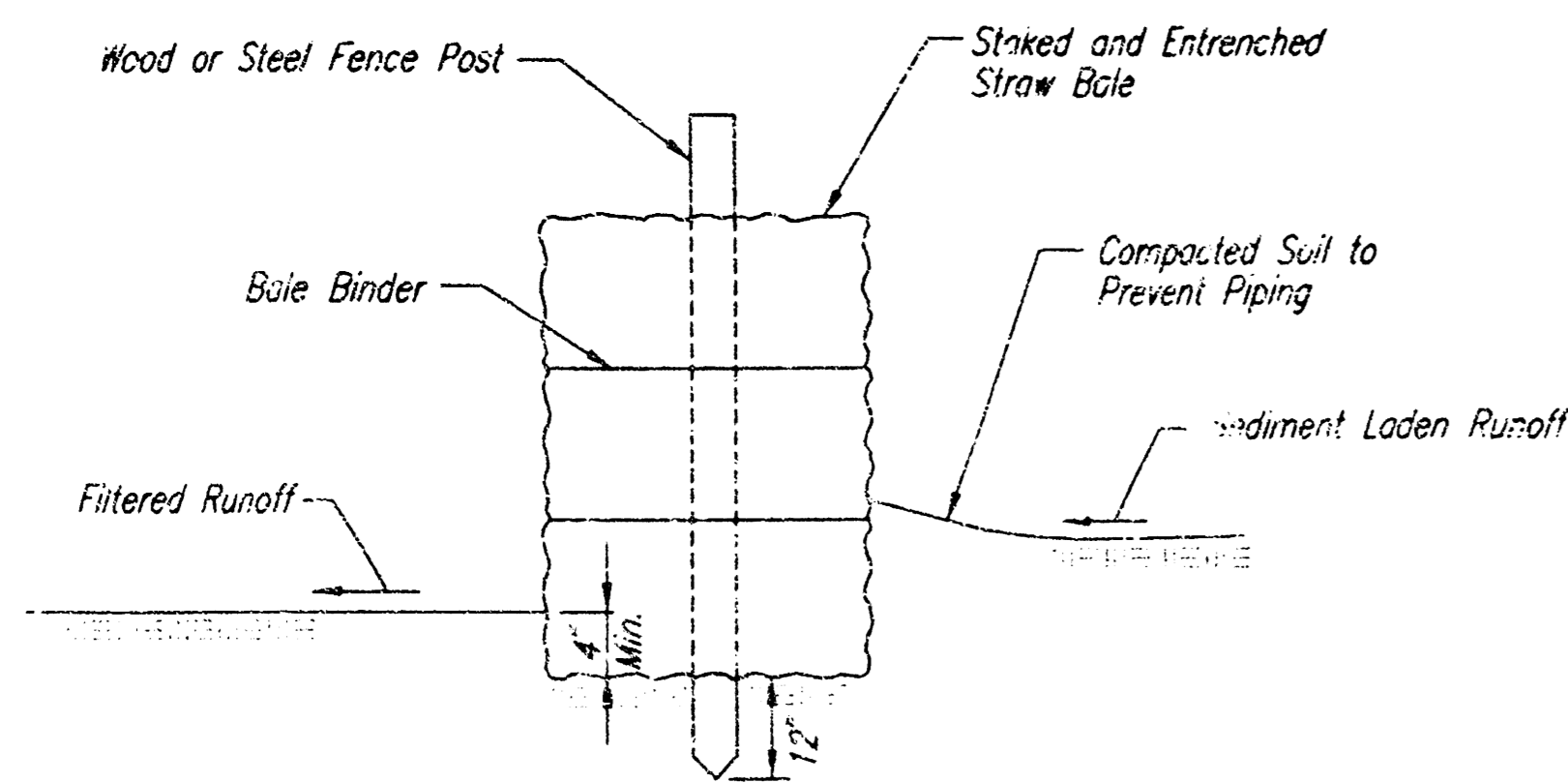


- LEGEND**
- Flow Direction
 - IP Inlet Protection - to be provided at all inlets subject to silt laden runoff.
 - S.H- Silt Fence or Hay Bale Barrier - to be installed along property lines where runoff from construction site can run onto other properties.
 - SCE Stabilized Construction Entrance - to be used at all locations where vehicles or equipment enter or exit property.
 - Back of Curb Protection - to be installed whenever curb is backfilled to less than 3 inches from top and disturbed earth exists adjacent thereto. (See City Standard Details.)

General Notes

1. This standard detail sheet is a part of your building permit. The BMP's shown on this sheet are considered minimum standards. Whenever sediment enters the streets, storm sewers, ditches, or ponds, contractor will install additional BMP's, as needed, to correct the problem.
2. Follow these general principals on all commercial building sites.
3. The soil erosion BMP's shown hereon must be in place at all times during construction until such time as the site is re-established with paving or grass.
4. Failure to install, protect, and maintain BMP's are violations of Section 16.32 of the City Code and will subject the contractor to the penalties provided therein. Included with your permit is an orange "notice" sign that must be posted on-site in a conspicuous place at all times during construction. This sign is provided to assist you in the maintenance of BMP's.
5. Back of Curb Protection: Can include hay bale, silt fence, or Curlex barrier, as shown on City BMP standard details. This BMP must remain in place until the area between the curb and right-of-way line has been permanently stabilized.
6. The General Contractor is responsible for the installation and maintenance of all BMP's.
7. Should the site abut a lake, BMP's will be installed to prevent sediment from entering the lake.
8. Any mud inadvertently tracked onto any street will be cleaned up by the general contractor at the end of each day's work.

	SOIL EROSION BMPS COMMERCIAL DEVELOPMENT SITES	
	CHRISTOPHER M. CARRIER, P.E. STORM WATER ENGINEER	
	PROJECT NUMBER PPS	O&A NO. (607861)
	DATE MAY 2001	SHEET CG501 OF —



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 settling 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:

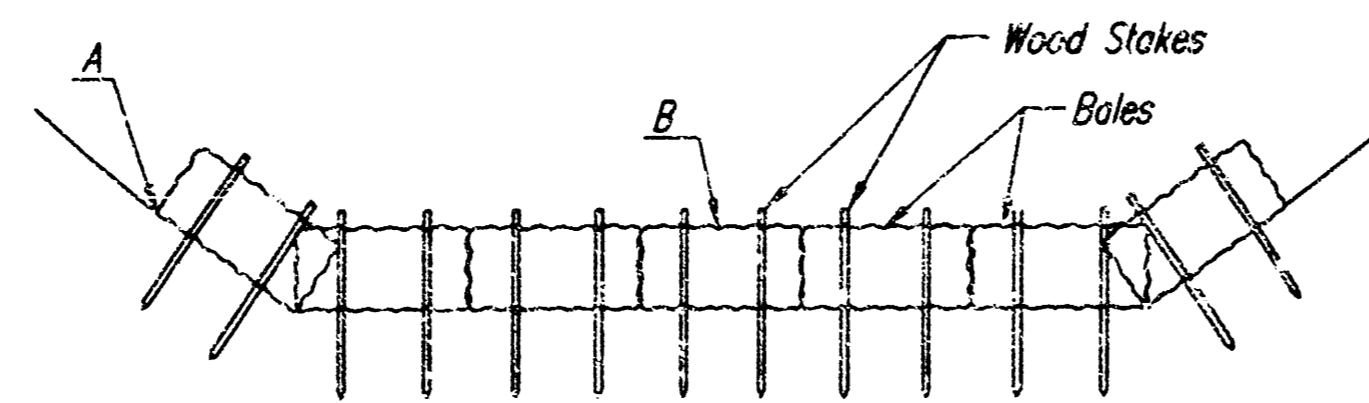
When practical, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier 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 upstream 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 8" 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".

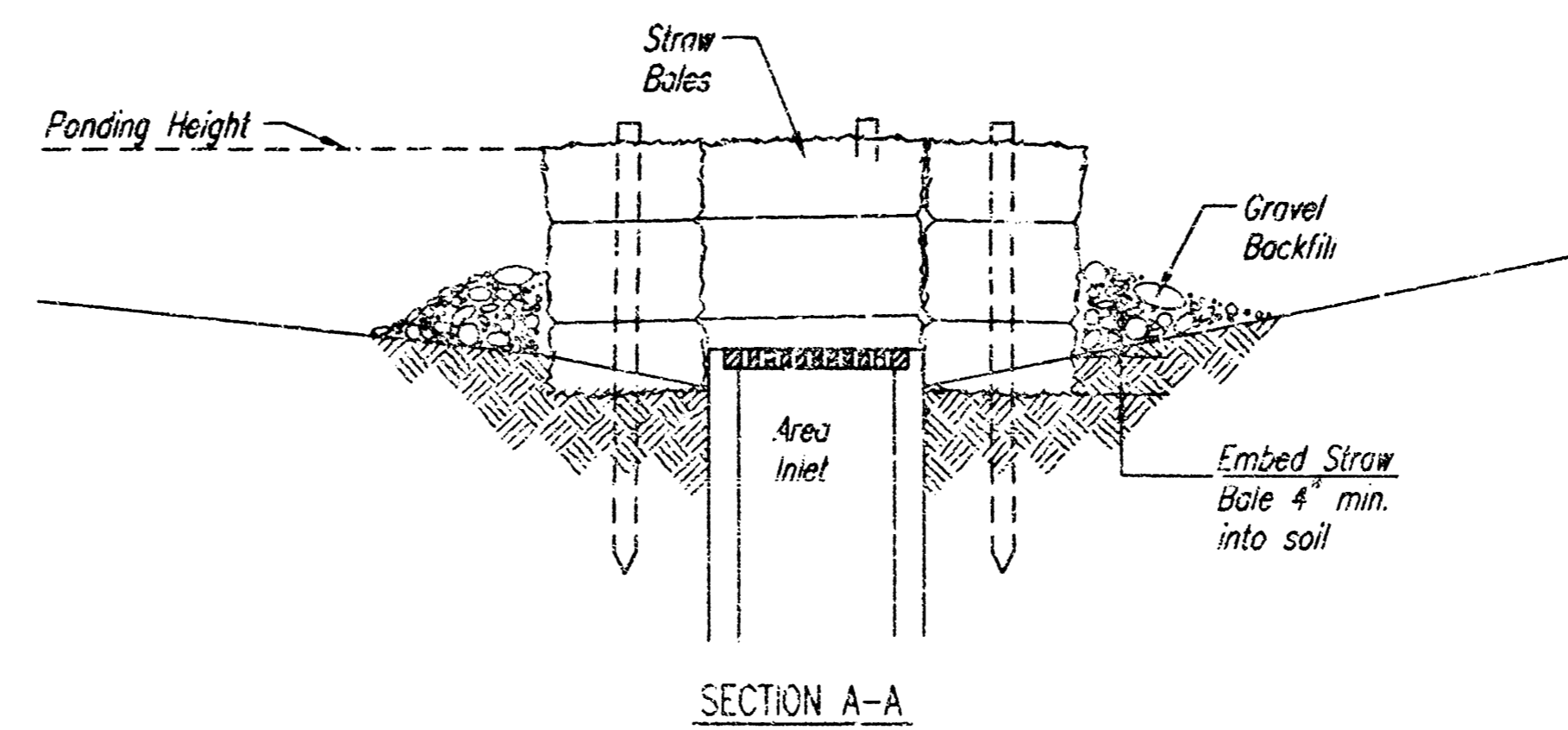
List of common placement/installation mistakes to avoid:

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.

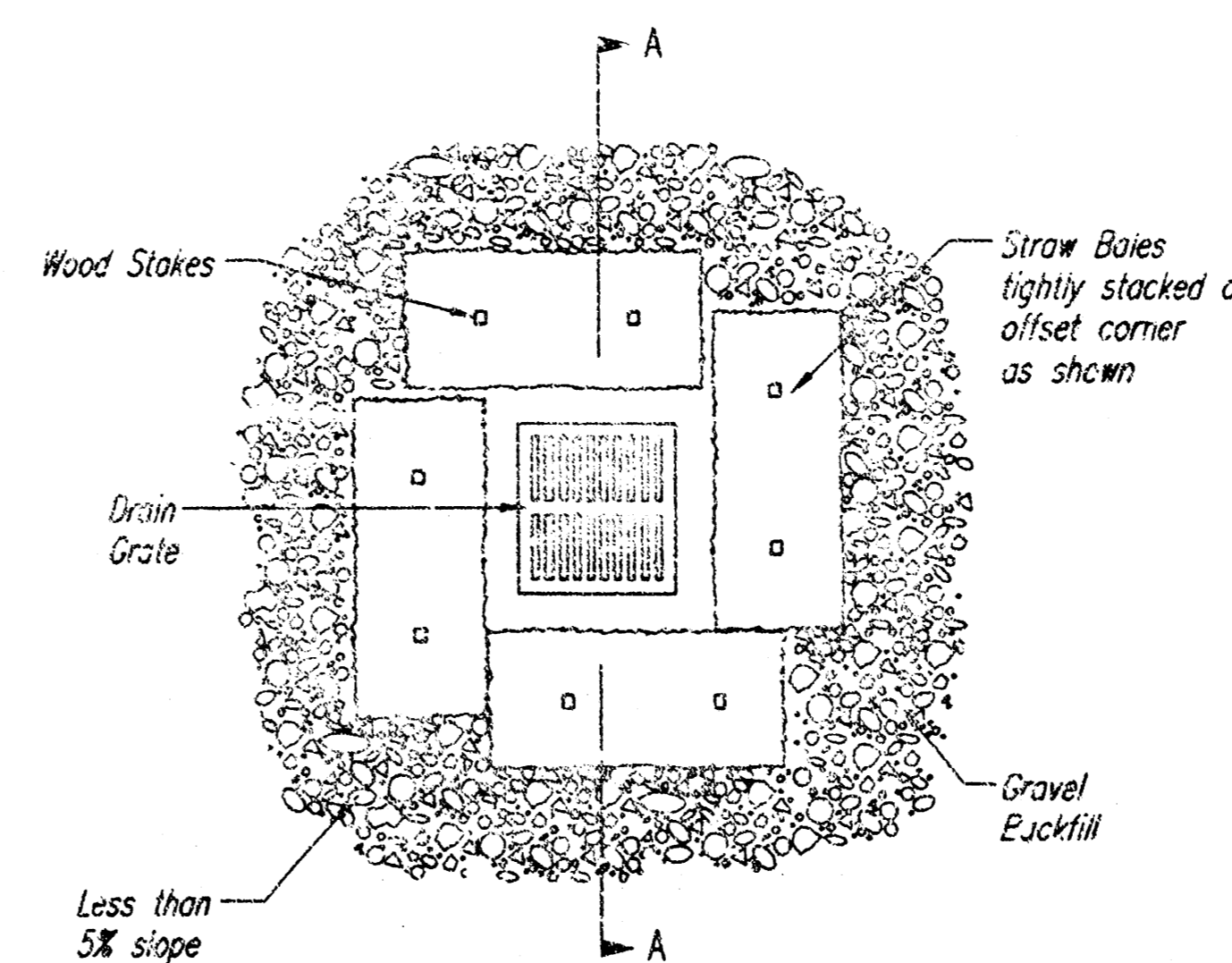
Inspection and Maintenance:

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?



SECTION A-A



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 recessed 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.

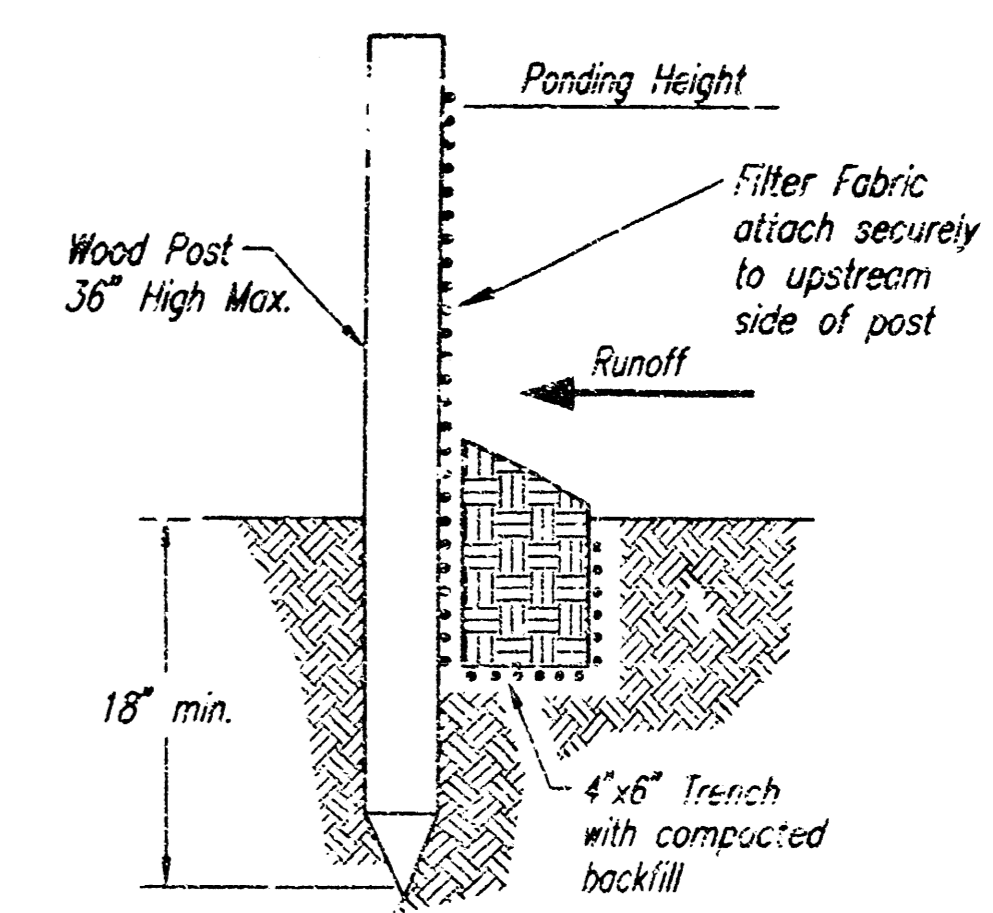
List of common placement/installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping 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 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:

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 settling 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 3" 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:

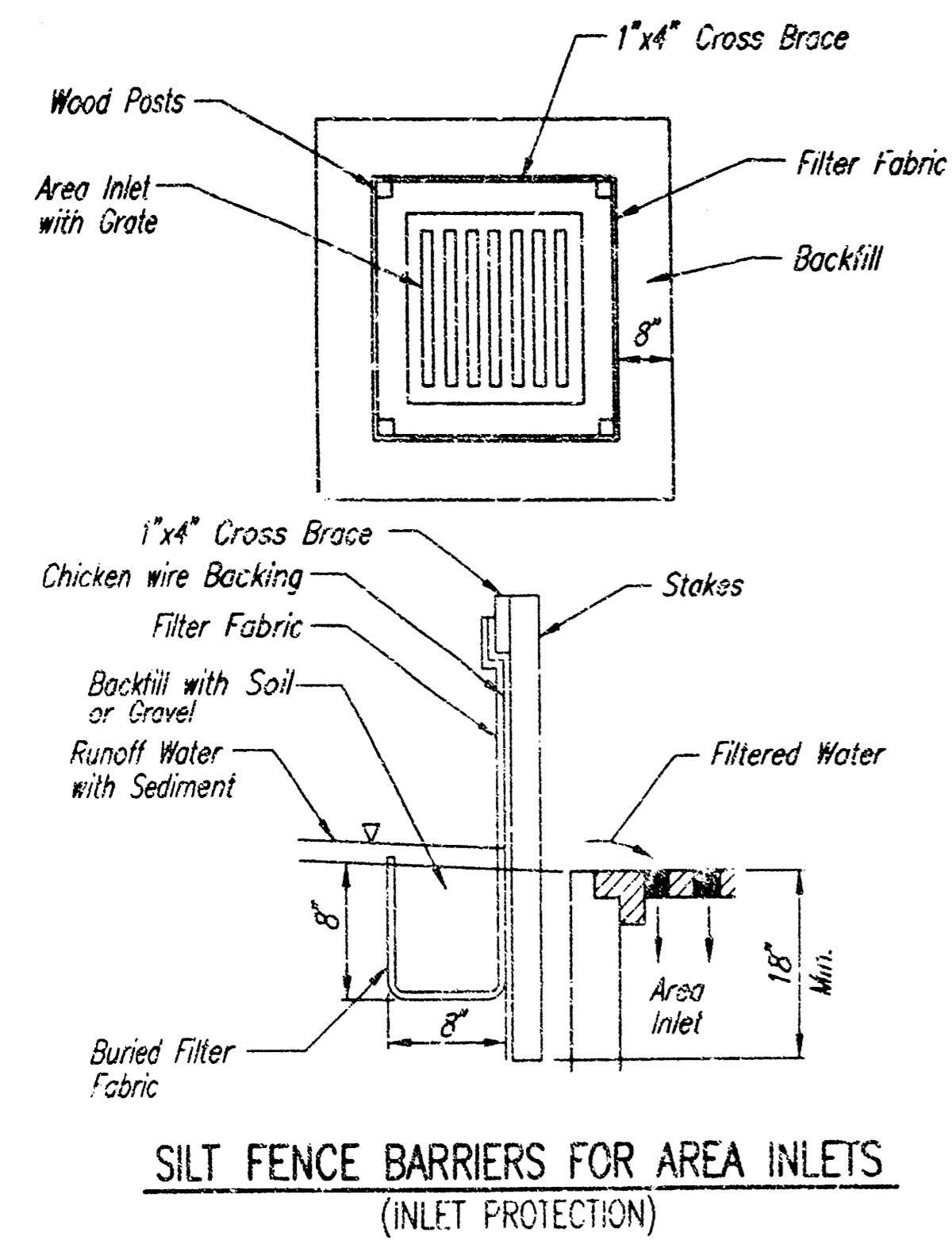
When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates. Do not place silt fence posts on the upslope 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, nails, 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?
- Do the silt fences sag excessively?
- Has the silt fence torn or become detached from the posts?
- 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 PPS	CCA NO. (607861)
	DATE MAY 2001	SHEET CG502 OF



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.

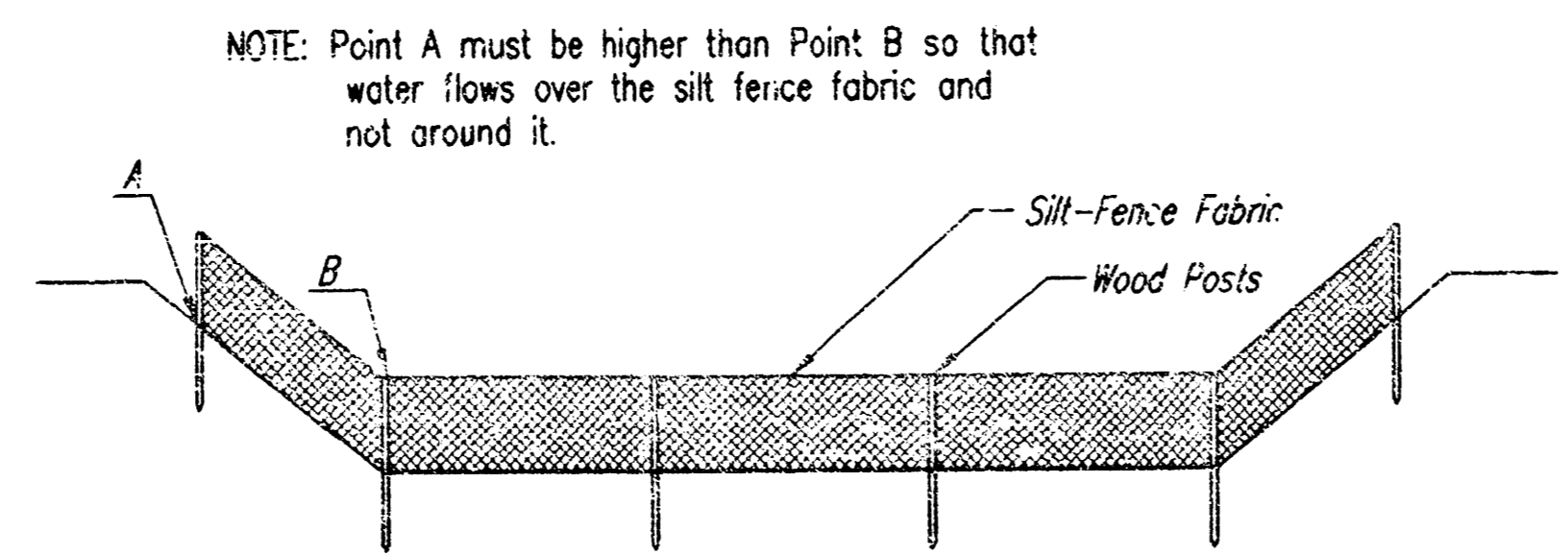
List of common placement/installation mistakes to avoid:

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 with out 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?



SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

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 5% or less. For slopes steeper than 5%, rock checks should be used.

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

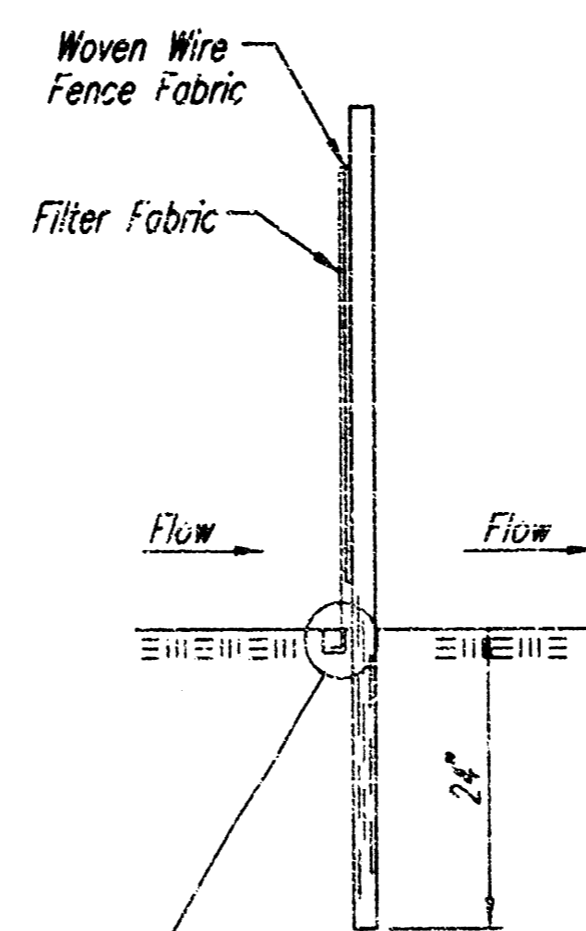
Ditch Check Ditch grade (%)	Spacing Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

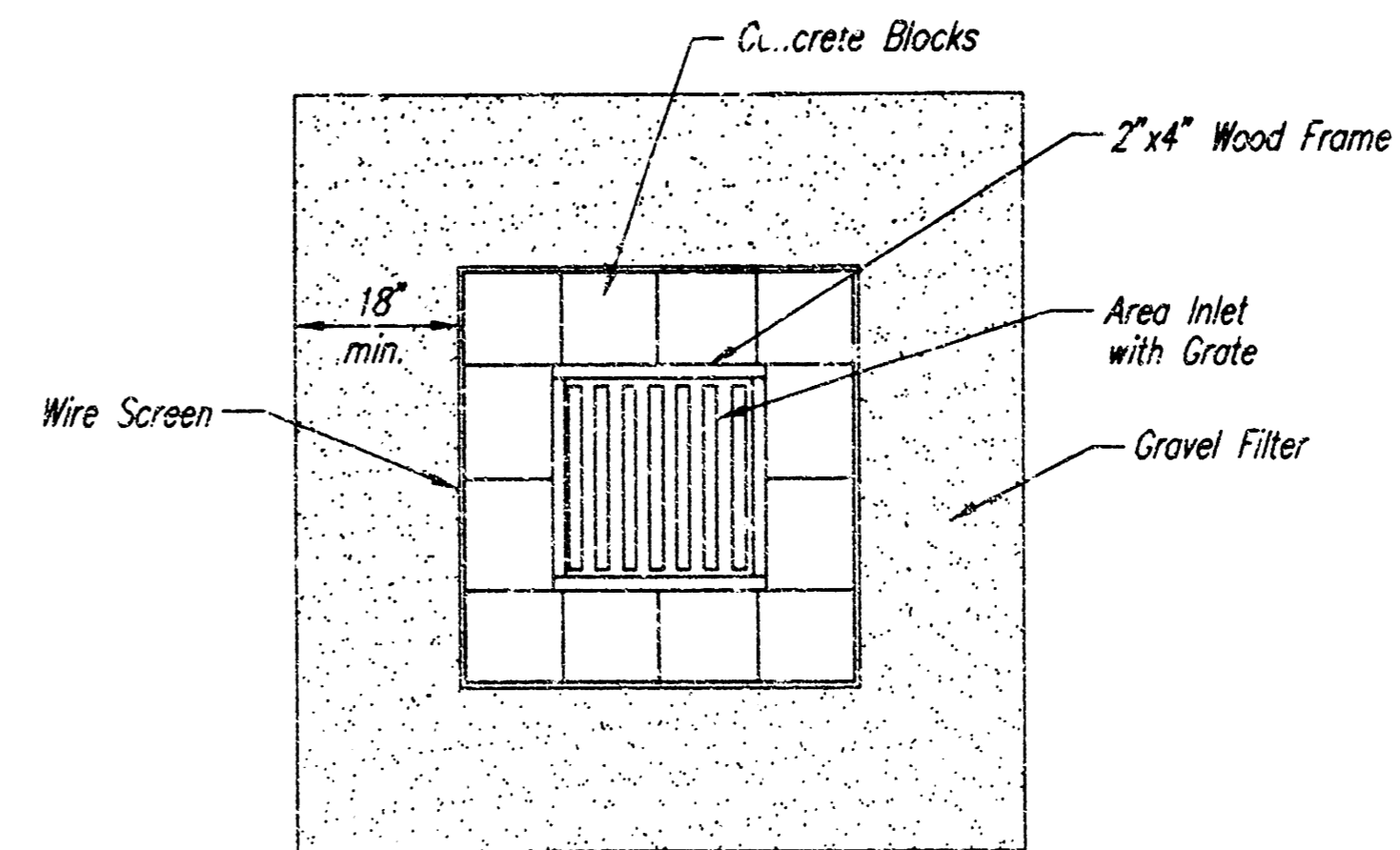
Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide. Extend the trench in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench for later use. Roll out a continuous length of silt fence fabric on the 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 restricted 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.



ANCHOR TRENCH DETAIL



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" x 4" 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.

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:

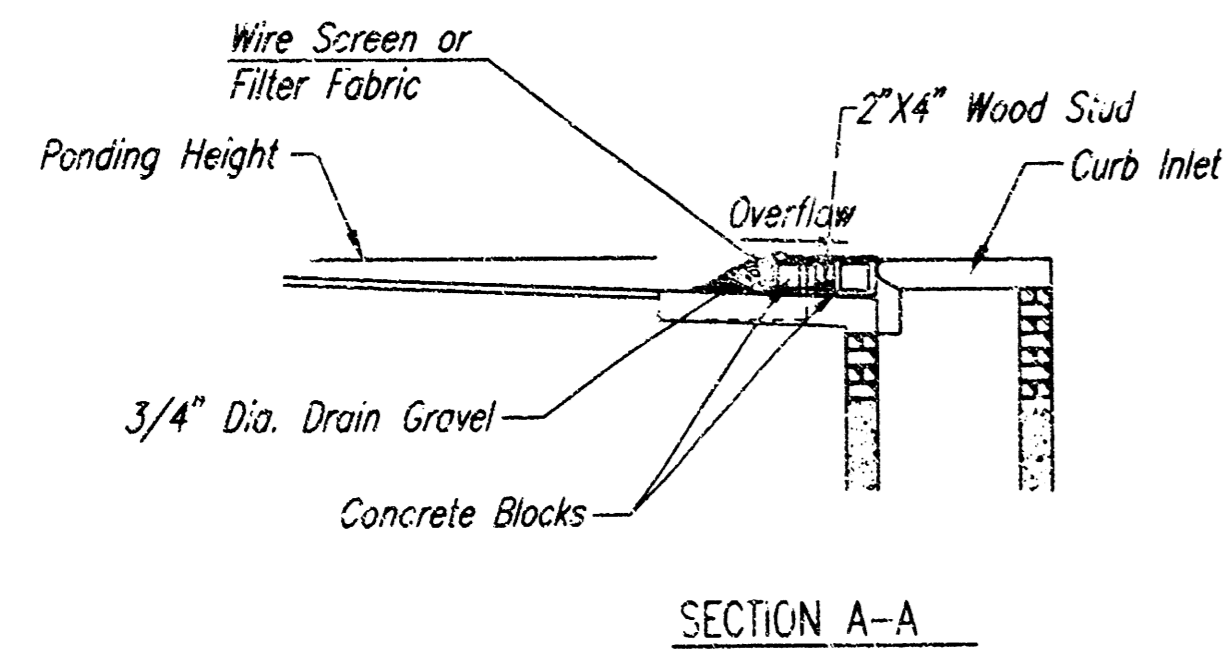
- Does water flow around the ditch check?
- Does water flow under the ditch check?
- Does the silt fence sag excessively?
- Has the silt fence torn or become detached from the posts?
- Does sediment need to be removed from behind the ditch check?

DSNR - OPER - IDS SCALE: 1"=100'
 01-2004 (04090) Site Construction Plans Bldg. 251 (SWS) 04090 - SWS - C-BLDG25 - SFBMP - DLSZ - 02-19-2005 - 02:00:07 am

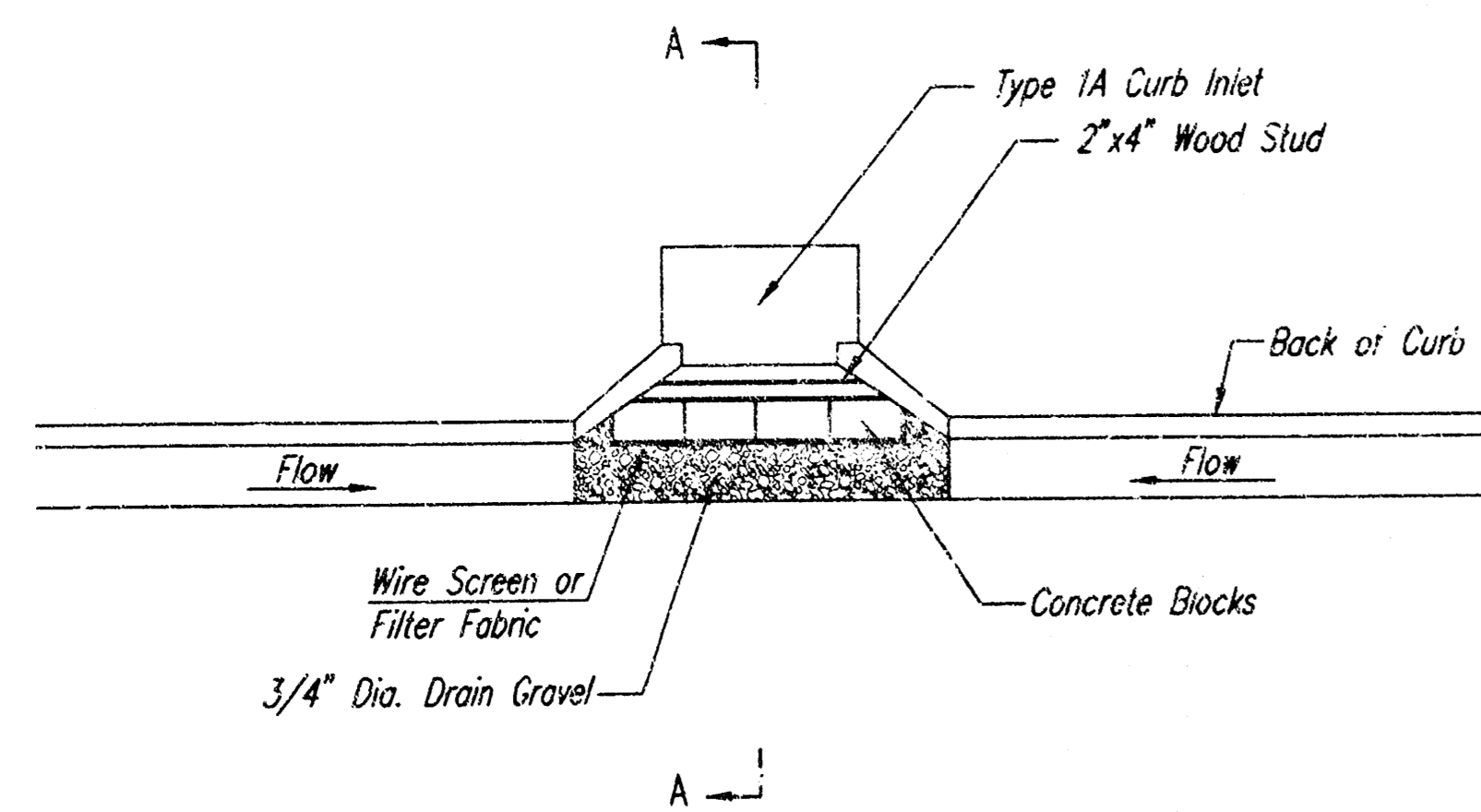
**SOIL EROSION
BMP DETAILS**

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

PROJECT NUMBER PPS	O&A NO. (607361)
DATE MAY 2001	SHEET CG503 OF



SECTION A-A



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.

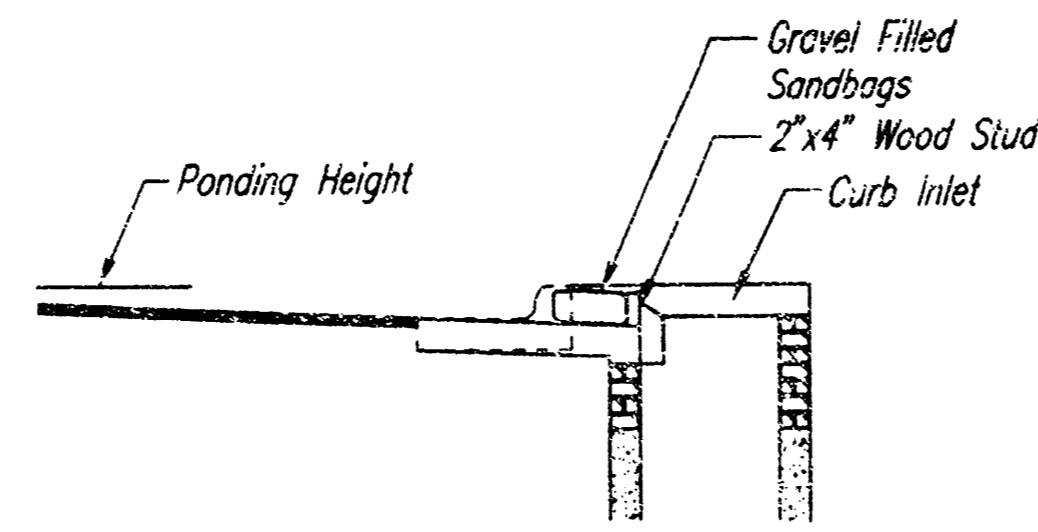
Instructions for Installing:

- 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.

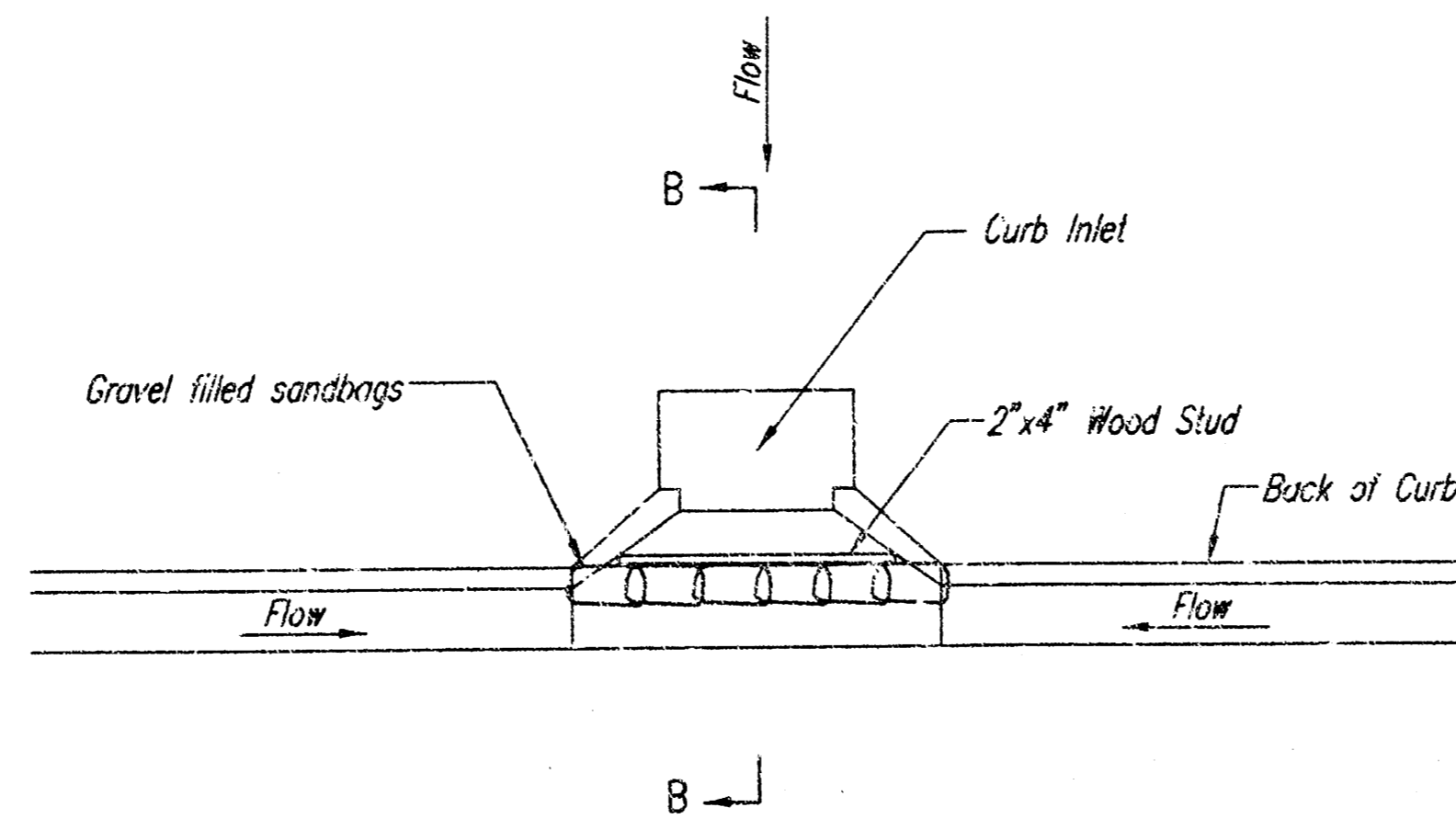
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

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.

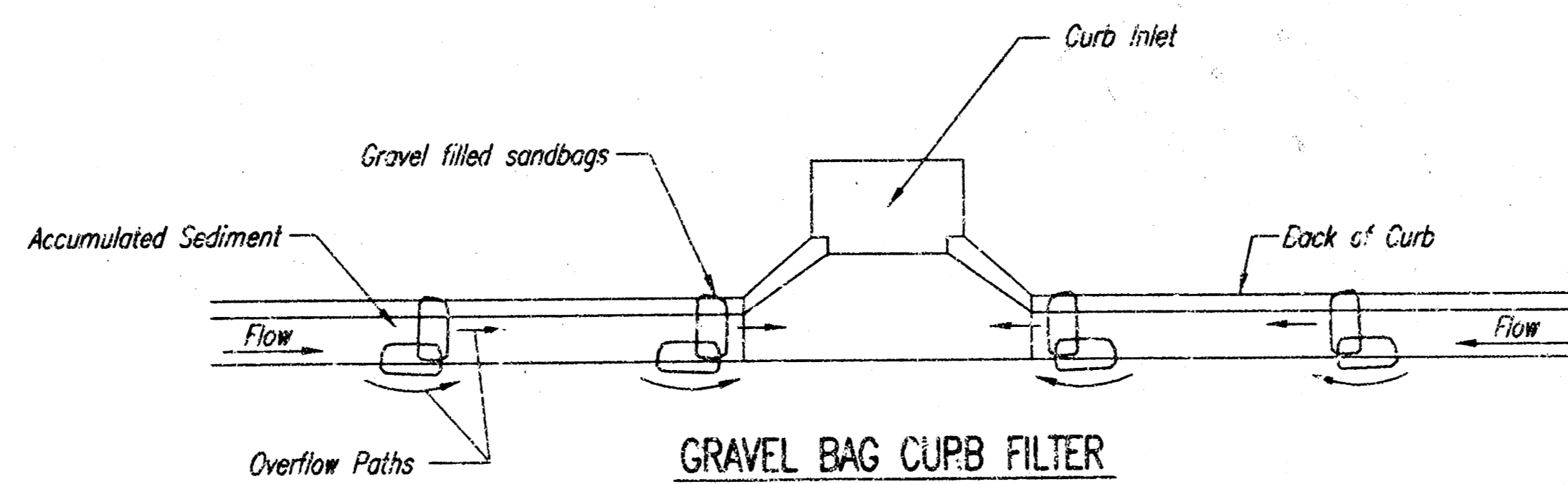


SECTION B-B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

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



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

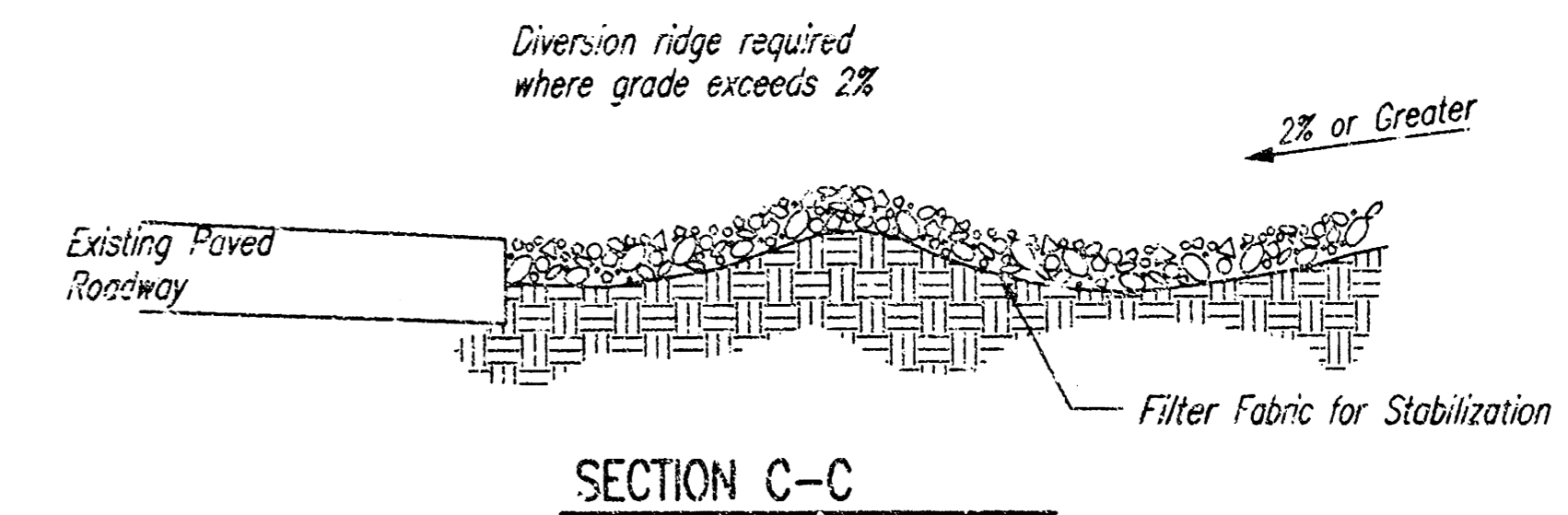
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

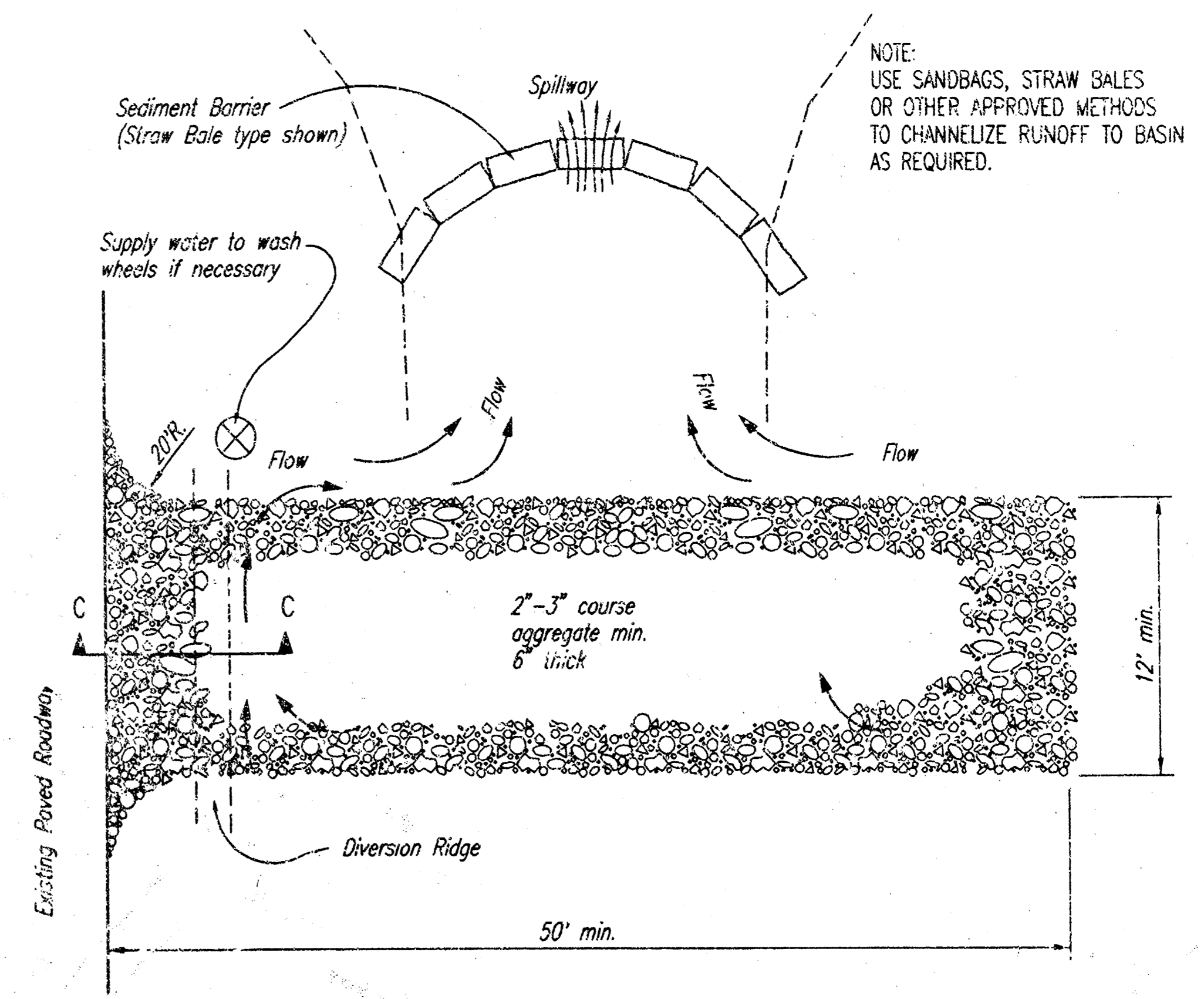
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



SECTION C-C



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: PPS
O&A NO.: (607861)

DATE: MAY 2001
SHEET CG504 OF