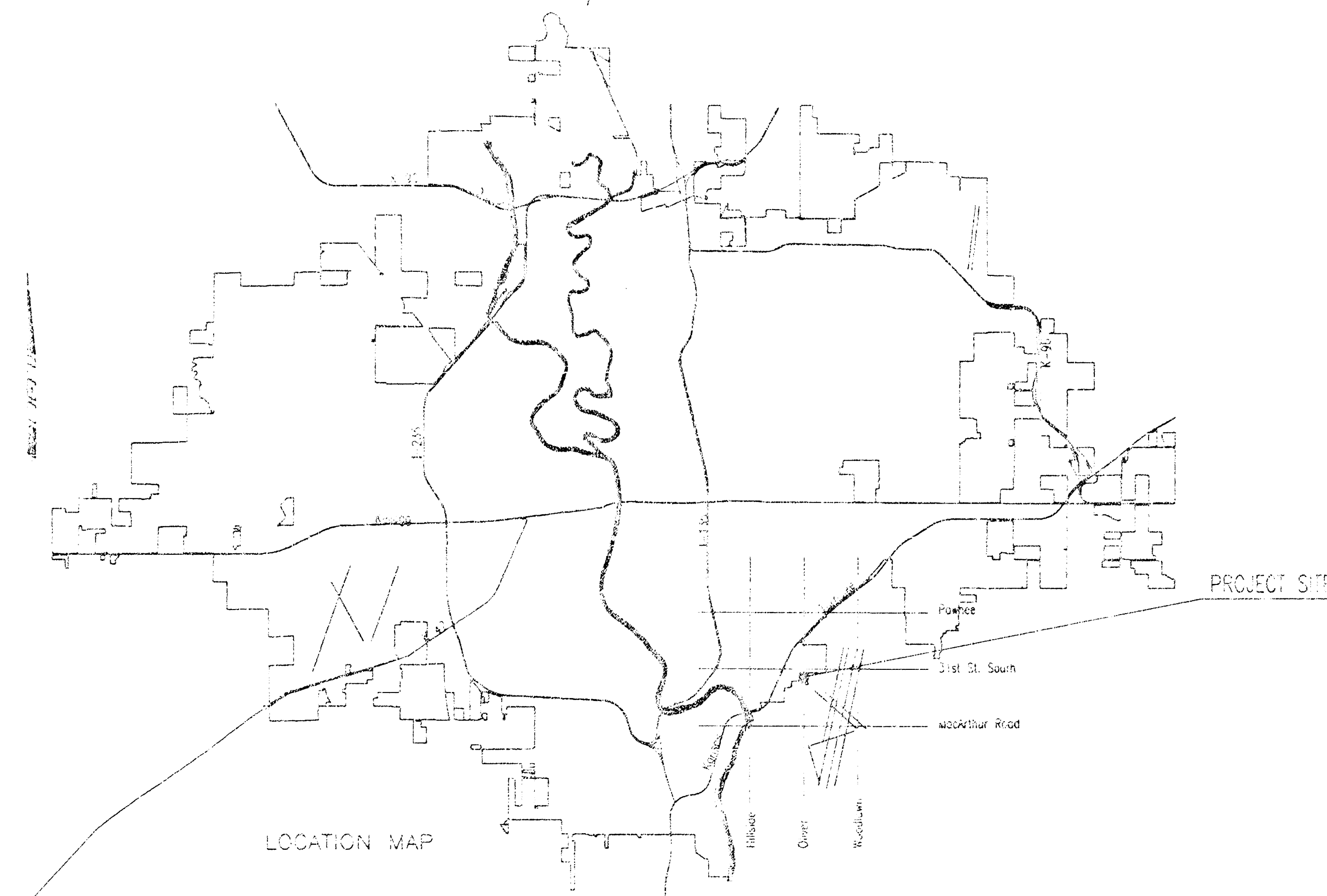


CONSTRUCTION PLANS FOR
PRIVATE SANITARY SEWER IMPROVEMENTS
TO SERVE
BOEING COMMERCIAL AIRPLANE GROUP
WICHITA DIVISION
ABLAH WAREHOUSE SEPARATION
IN
THE CITY OF WICHITA,

SEDGWICK COUNTY, KANSAS
NEIL D. CABLE, P.E. - CITY ENGINEER

Eby Construction Co. - Contractor
Boeing - Inspector
As-Builts not verified
pdf by JDL 3/3/06



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APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA

SANITARY SEWERS *Julianne Kellman* 3.25.03

STORM SEWERS _____

DRIVEWAY APPROACHES _____

WATER MAINS _____

PAVING _____

NOTE TO CONTRACTOR

INSPECTION AND TESTING FOR THIS PROJECT IS TO BE PROVIDED BY A LICENSED CONSULTING ENGINEERING FIRM CONTRACTED BY THE CONTRACTOR. 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 AS-BUILT DRAWINGS, INSPECTION LOGS, TEST DOCUMENTATION, TV TAPES, AND A CERTIFICATE OF COMPLETION.

PRIVATE PROJECT NO. 1325 PPS (607861)

MARCH 2003

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

PLANT ENGINEERING CONTACT
JERRY PURVETT, 516-1111

CSNR: REY OFFER IDS: SCALE: 1"=150.00
03-24-2003 03:01:15 pm

BENCH MARKS
BMK 92-40 N-1,665,616.2730, E-1,663,982.1280
Chis. "V" on conc. parking, 50' W. and 40' S
of SE Cor. Master Model Bldg.
Elev. 1341.74 (City Datum = 154.34)

BMK 92-41 N-1,665,760.5428, E-1,664,106.0576
Chis. "d" on top conc. base of light pole,
100' N and 100' E of SE corner of Master Model Bldg.
Elev. 1347.54 (City Datum = 160.14)

BMK 92-42 N-1,665,616.4829, E-1,664,183.7871
Chis. "x" on N rim MH of concrete Elect. Vault,
47.5' S and 172' E of SE corner of Master Model Bldg.
Elev. 1347.31 (City Datum = 159.91)

BMK 92-43 N-1,666,147.992, E-1,664,041.349
Chis. "d" on concrete drive, 20.5' E & 200' S of
NE cor. Tool Fab. Bldg.
Elev. 1349.68 (City Datum = 162.28)

BMK 92-44 N-1,666,346.890, E-1,664,017.710
Chis. "d" on concrete at NE cor. Tool Fab. Bldg.
Elev. 1349.76 (City Datum = 162.36)

BMK 92-45 N-1,665,901.368, E-1,664,043.133
Chis. "x" on conc. drive, 20' E and 50' S of SE
corner of Tool Fab. Bldg.
Elev. 1340.74 (City Datum = 161.34)

CP #115-90 (SEE BELOW)
Elev. 1358.78 (City Datum = 171.38)

CONTROL POINT REFERENCE TIES

CP #115-90 N-1,666,897.984, E-1,665,219.884
3 1/4" Disc
1. Chis. "x" on North Curb of Calfax 55.26' S
2. Chis. "x" on the NE face of a steel
corner post of a chain link fence 142.03' SE
3. Nail and Shiner in South face of a
Cottonwood. 128.90' WSW

CP #3168 N-1,666,356.107, E-1,664,031.429
1/2" rebar w/ PEC ID Cap
1. Chis. "x" on SW face corner fence post 55.40' SE
2. 7' chain link fence SE-NW 0.5' E
3. Chis. "x" on conc. parking lot 24.44' SW
4. Pl Conc. Parking Lot S, NW 0.1' S

CP #3067 N-1,666,246.999, E-1,664,039.626
PK Nail in conc. joint
1. Center chis. "d" (BMK 92-43) 99.17' S
2. Q Door #1 near NE cor. Tool Fab. Bldg. 13' N
3. E. edge Tool Fab. Bldg. 20.5' W
4. Chis. "x" E. edge conc. Parking 30.50' E

CP #4100 N-1,665,929.0528, E-1,664,088.5483
1. Set PK Nail in concrete joint, 18' S. and 63' E. of
SE corner Tool Fab. Bldg.
2. Chis. "x" on top conc. curb 32.24' SSW
3. Chis. "x" on concrete 21.64' E
4. Chis. "x" on concrete 21.14' N
5. SE corner Tool Fab. Bldg. 65.31' WNW

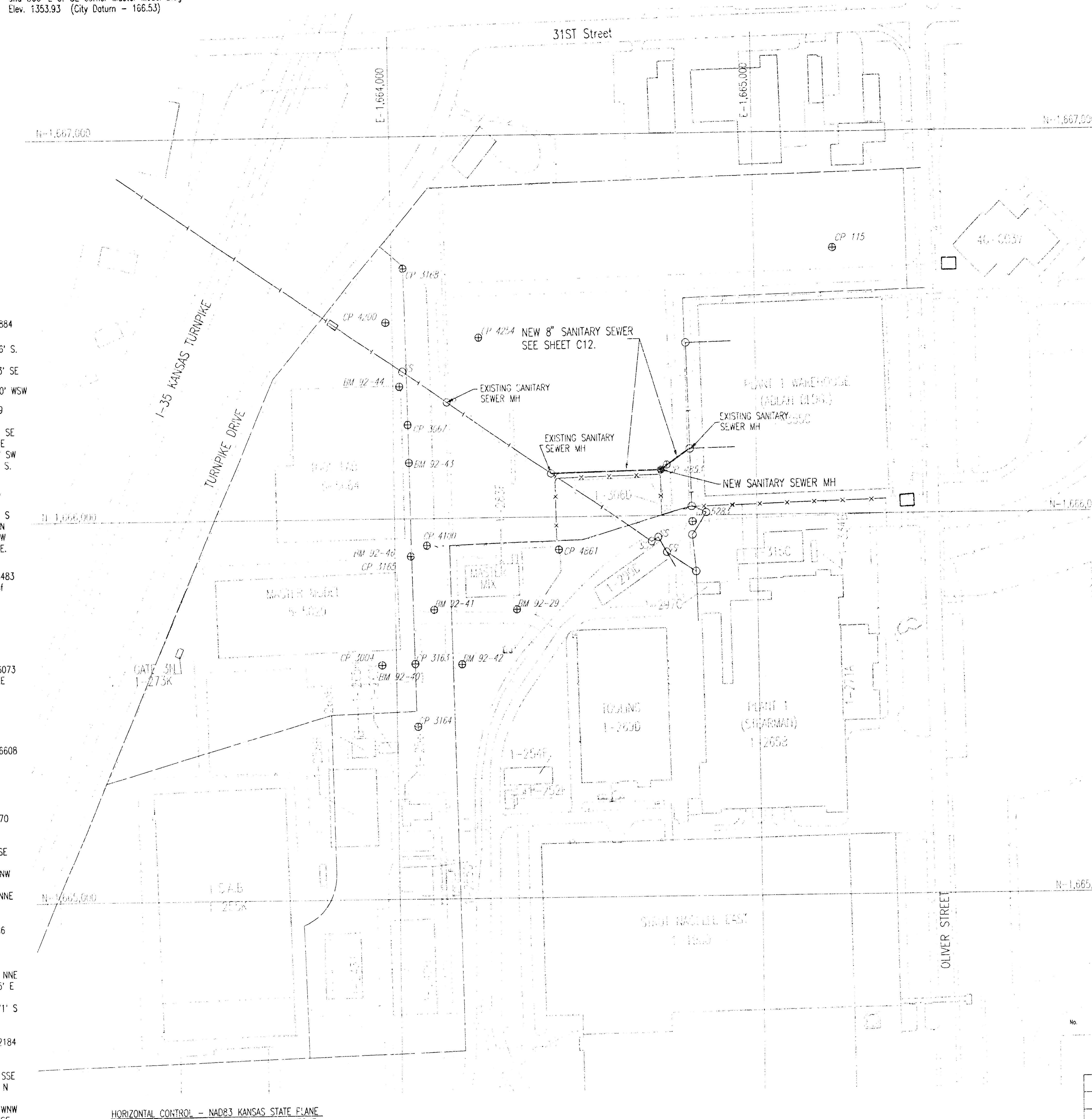
CP #4200 N-1,666,514.5854, E-1,663,982.6073
1. Set Chis. "x" in concrete parking area NNW of NE
corner Tool Fab. Bldg. (168' N. & 38' W)
2. 1/2" bar w/ cap (3168) 149.85' NNE
3. E. edge conc. parking area 51.75' E
4. NE cor. Tool Fab. Bldg. 171.34' SSE

CP #4254 N-1,666,472.4593, E-1,664,240.6608
1. Set PK Nail and Shiner in NW corner of "Z"
parking lot, NE of NE cor. Tool Fab. Bldg.
35.2' E. of Light Pole on conc. base.
(No Reference Ties)

CP #4235 N-1,666,134.5029, E-1,664,756.4470
1. Set PK nail & shiner in SE cor.
"Z" parking lot
2. center corner fence post 22.78' SSE
3. NE corner concrete around
inlet 25.75' WNW
4. SW cor. base plate of Light
Pole on conc. 91.72' NNE
Elev. 1360.61

CP #4861 N-1,665,914.3490, E-1,664,453.5186
1. Set chis. "x" in concrete storage
area NE of Master Mix Kit Bldg.
2. chis. "x" on top conc. curb @ NE
corner storage area 8.00' NNE
3. chis. "x" on conc. base light pole 83.35' E
4. chis. "x" on conc. curb @ SE
corner storage area 56.71' S
Elev. 1354.52

CP #5283 N-1,665,984.1525, E-1,664,824.2184
1. Set chis. "x" conc. drive NE of
North Rail Car Repair Bldg.
2. Center SSM #14 27.01' SSE
3. Center SSM #9 40.54' N
4. Corner Fence Post S. of SW corner
Entry Gate 76.20' WNW
5. Q N. Rail RR tracks 3.0' SSE



HORIZONTAL CONTROL - NAD83 KANSAS STATE PLANE
COORDINATES, SOUTH ZONE

GENERAL NOTES

- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
- ALL ELEVATIONS SHOWN ARE U.S.G.S. DATUM (U.S.G.S. - 1187.4 = CITY DATUM).
- THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
- AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 887-2470 TO REQUEST THE LOCAL UTILITY COMPANIES MARK ANY EXISTING LINES WITHIN THE PROJECT AREA.
- 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 OR UNLESS THE PLANS SPECIFICALLY IDENTIFY A UTILITY TO BE ADJUSTED BY ITS OWNER DURING CONSTRUCTION. EXISTING UTILITIES AND THEIR LOCATIONS, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION OBTAINABLE FOR THE DESIGN. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION.
- 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 COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
- ALL HOLES SHALL BE TYPE "P" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
- ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE RESTORED TO THE SAME GRASS/SOIL AS EXISTING. RESTORATION OF DISTURBED AREAS SHALL INCLUDE, BUT NOT BE LIMITED TO, TOP SOIL, IMPEDEMENT, 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. 807B WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION.
- PURGE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED, TREE TRIMMINGS, AND EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE DISPOSED OF AT THE BEING LANDFILL AND COORDINATED WITH FACILITIES PERSONNEL. ALL DISPOSAL WASTE MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WILL 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 MAY REQUIRE ARCHAEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED DISPOSAL LOCATION.
- THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.
- THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ADJACENT TO THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR IS REQUIRED TO MAINTAIN CONTINUOUS FLOW OF SEWAGE IN EXISTING MAINS AT ALL TIMES.
- THE CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH TEMPORARY RYE GRASS. RYE GRASS SEED SHALL BE PLANTED AT A MINIMUM RATE OF SIX (6) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET. THIS TEMPORARY SEEDING MAY BE OMITTED ONLY IF OTHER SEEDING IS REQUIRED IN ACCORDANCE WITH GENERAL NOTE NO. 9 ABOVE. TEMPORARY SEEDING OR PERMANENT SEEDING/SODDING SHALL BE APPLIED WITHIN 14 DAYS AFTER THE AREA HAS BEEN DISTURBED.
- THE CONTRACTOR SHALL NOT BURY MANHOLES THAT HAVE RIM ELEVATIONS WHICH ARE LOWER THAN EXISTING GROUND AT THE MANHOLE. THE GROUND AROUND SUCH MANHOLES AND ALONG THE SEWER ALIGNMENT SHALL BE BACKFILLED TO THE APPROXIMATE ELEVATION OF THE PROPOSED GROUND ELEVATION SHOWN ON THE PLAN/PROFILE SHEETS. THE CONTRACTOR SHALL PROVIDE DRAINAGE AWAY FROM THESE MANHOLES AND SEWER LINES BY CONSTRUCTION OF TEMPORARY DITCHES OR SLOPING THE GROUND AS REQUIRED.
- THE CONTRACTOR SHALL PROVIDE MOUND EARTH AT MANHOLES AND CLEANOUTS THAT HAVE TOP ELEVATIONS GREATER THAN 1 FOOT ABOVE EXISTING GRADE, AS SHOWN ON THE PLANS.
- INTERURBAN TRAFFIC GENERATED OUTSIDE THE PROJECT AREA AND LOCAL BUSINESS OR RESIDENTIAL TRAFFIC GENERATED WITHIN THE PROJECT AREA ARE TO BE CARRIED THROUGH CONSTRUCTION PER CITY OF WICHITA GENERAL CONDITIONS. THE CONTRACTOR SHALL UTILIZE BARRICADES, SIGNS, CONES, AND FLAGMEN IN ACCORDANCE WITH "M" MANUAL OR UNIFORM TRAFFIC CONTROL DEVICES.
- THE CONTRACTOR SHALL AVOID REMOVAL OR TRIMMING OF ANY TREES OR SHRUBS WHERE POSSIBLE. WHERE THE CONTRACTOR BELIEVES THE REMOVAL OR TRIMMING IS UNAVOIDABLE, HE SHALL COORDINATE SUCH WORK WITH THE ENGINEER.
- THE EXISTING UTILITY CONNECTIONS SHALL BE EXCAVATED TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS, PIPE SIZES, AND TYPES PRIOR TO CONSTRUCTION. FINDINGS SHALL BE REPORTED TO THE BEING REPRESENTATIVE. ANY DISCREPANCY CONDITIONS SHALL BE RESOLVED PRIOR TO ORDERING CONSTRUCTION MATERIALS.

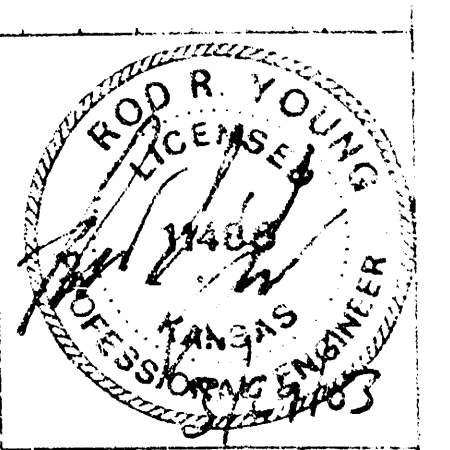


NORTH
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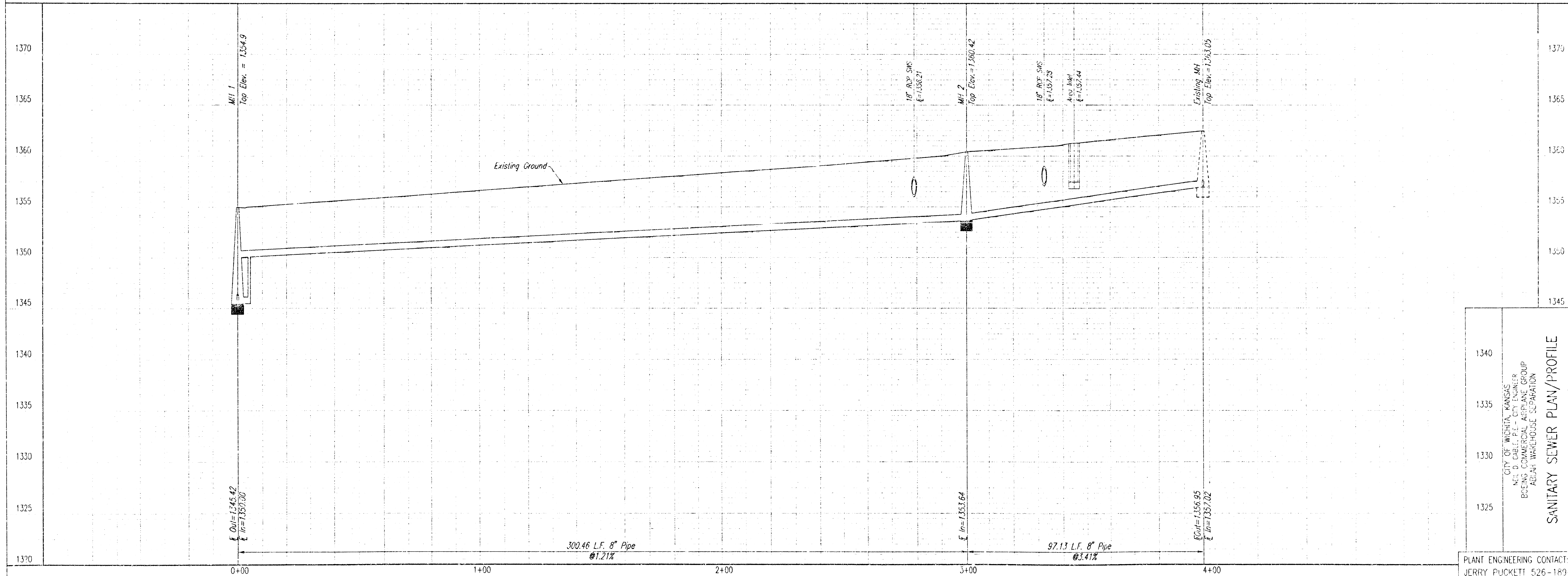
Revision		By	Date
CITY OF WICHITA, KANSAS NEIL D. CABLE, P.E. - CITY ENGINEER BOEING COMMERCIAL AIRPLANE GROUP ABLAW WAREHOUSE SEPARATION KEY MAP AND GENERAL NOTES PRIVATE PROJECT NO. 1325 PPS. (607861)			

ABLAW WAREHOUSE SEPARATION

KEY MAP AND GENERAL NOTES



PROJECT NO. 231694	
SHEET 610 OF 610	
DATE 3/24/03	
DRAWN BY JERRY PUCKETT	
CHECKED BY JERRY PUCKETT	
APPROVED BY JERRY PUCKETT	
PLANT ENGINEERING CONTACT: JERRY PUCKETT 526-1894	



CITY OF WICHITA, KANSAS
NEW D. CABLE, P.E. - CITY ENGINEER
BECKING COMMERCIAL AIRPLANE GROUP
ABLAH WAREHOUSE SEPARATION

SANITARY SEWER PLAN/PROFILE

PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1894

PROJECT NO. 186-SSFP01
SHEET NO. 012 OF 012
DATE: 3/24/03

DESIGNED BY: JERRY PUCKETT
CHECKED BY: JERRY PUCKETT
APPROVED BY: JERRY PUCKETT

PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1894

SCALE: 1"=20.00'
PLAN, LAT. & LONG.
PROFILE: HORIZ. SAME AS ABOVE
VERT. 1"=20.00'

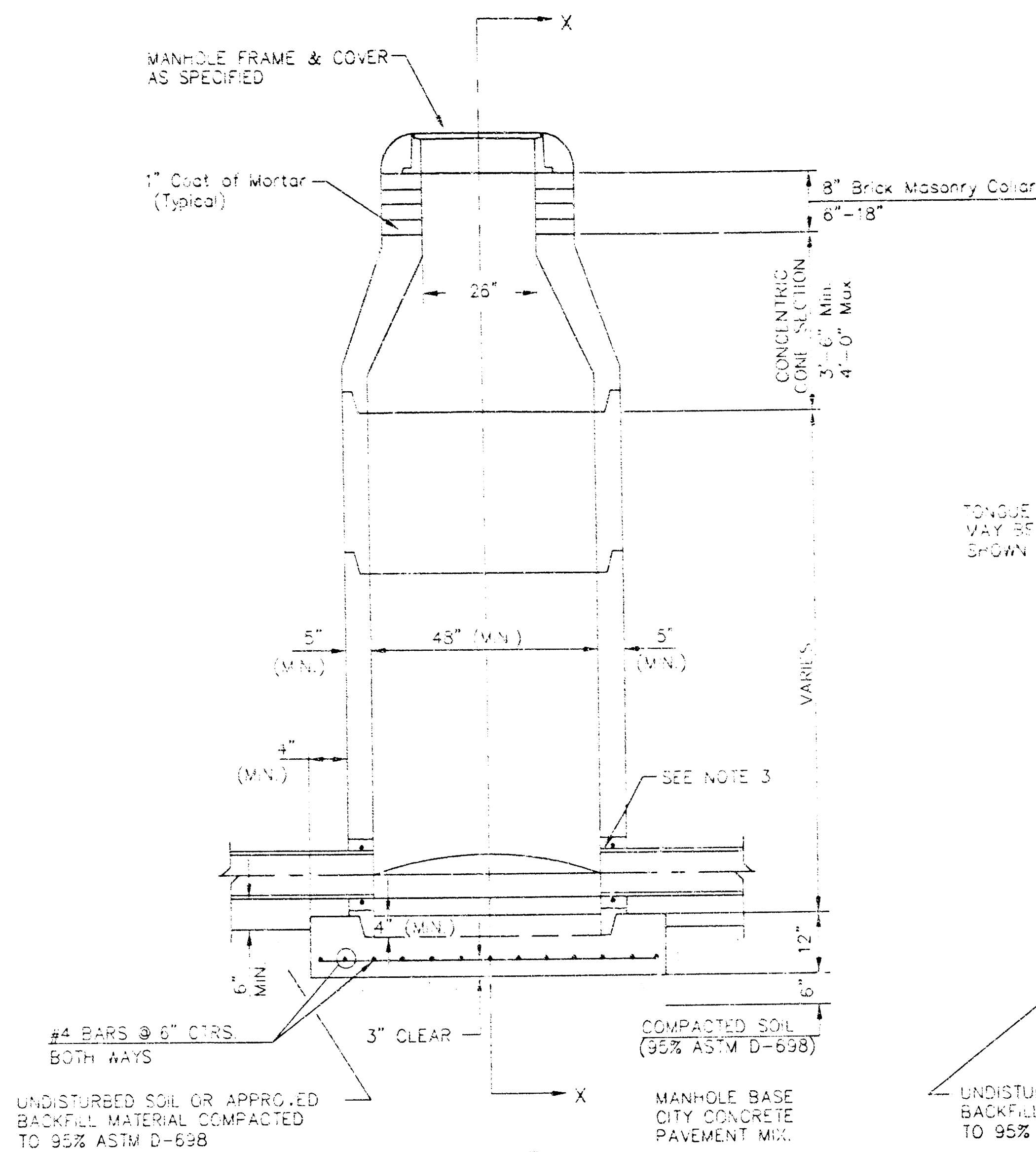
NORTH

ABLAH WAREHOUSE SEPARATION
SANITARY SEWER PLAN/PROFILE

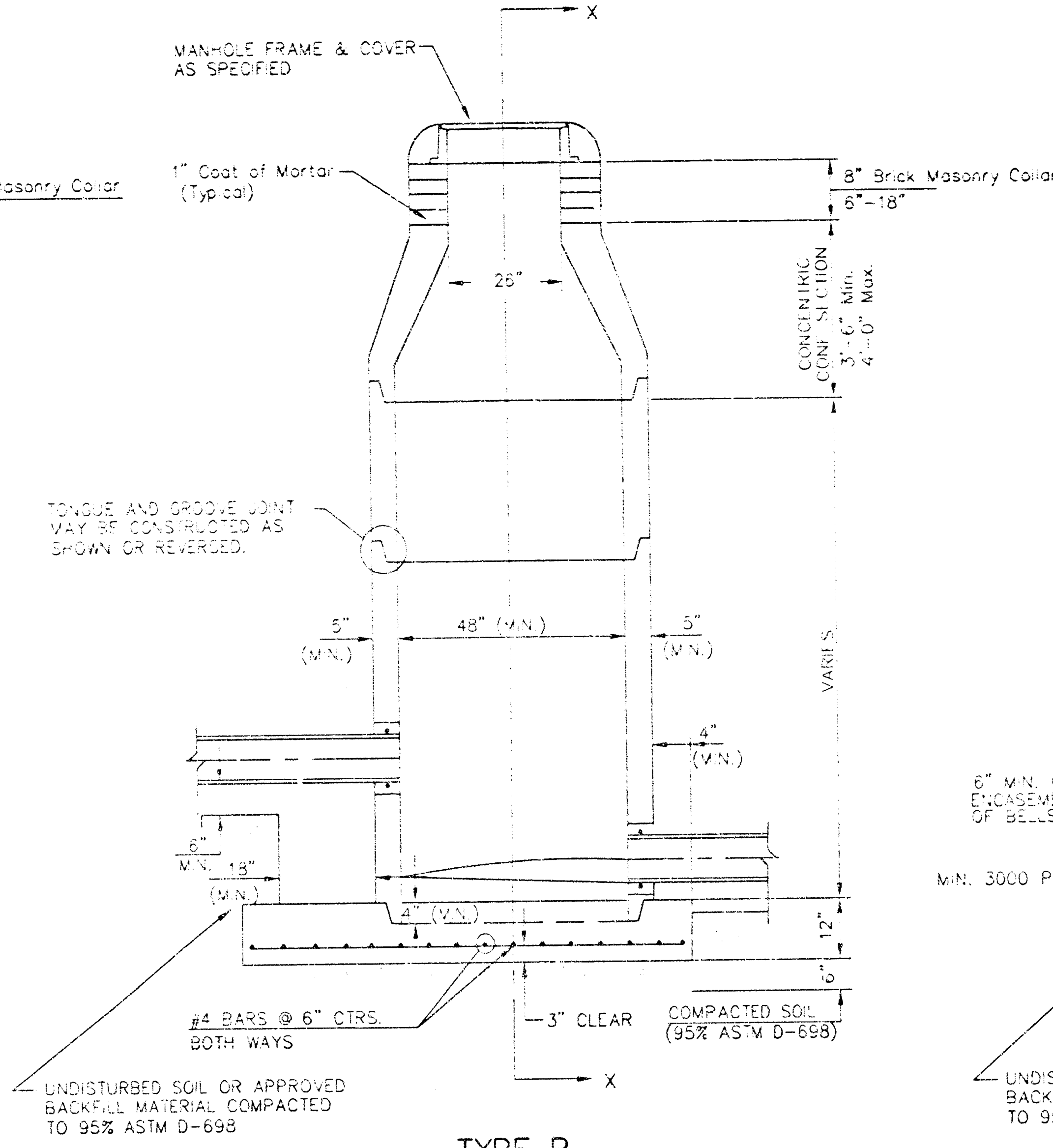
REVISIONS

NO.	DATE	DESCRIPTION
1	3/24/03	ISSUED FOR CONSTRUCTION

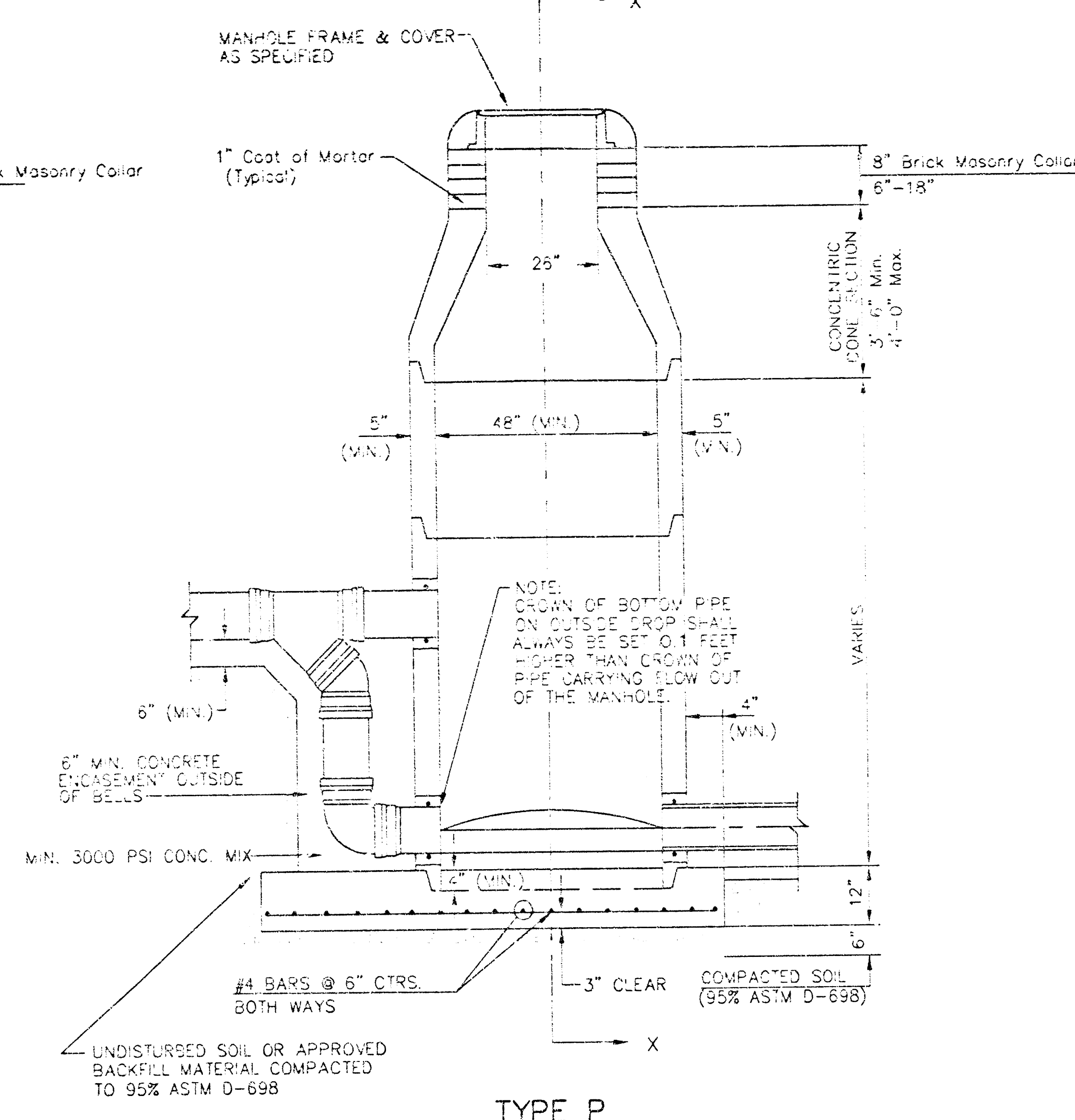
SEWER APPURTENANCES DETAILS



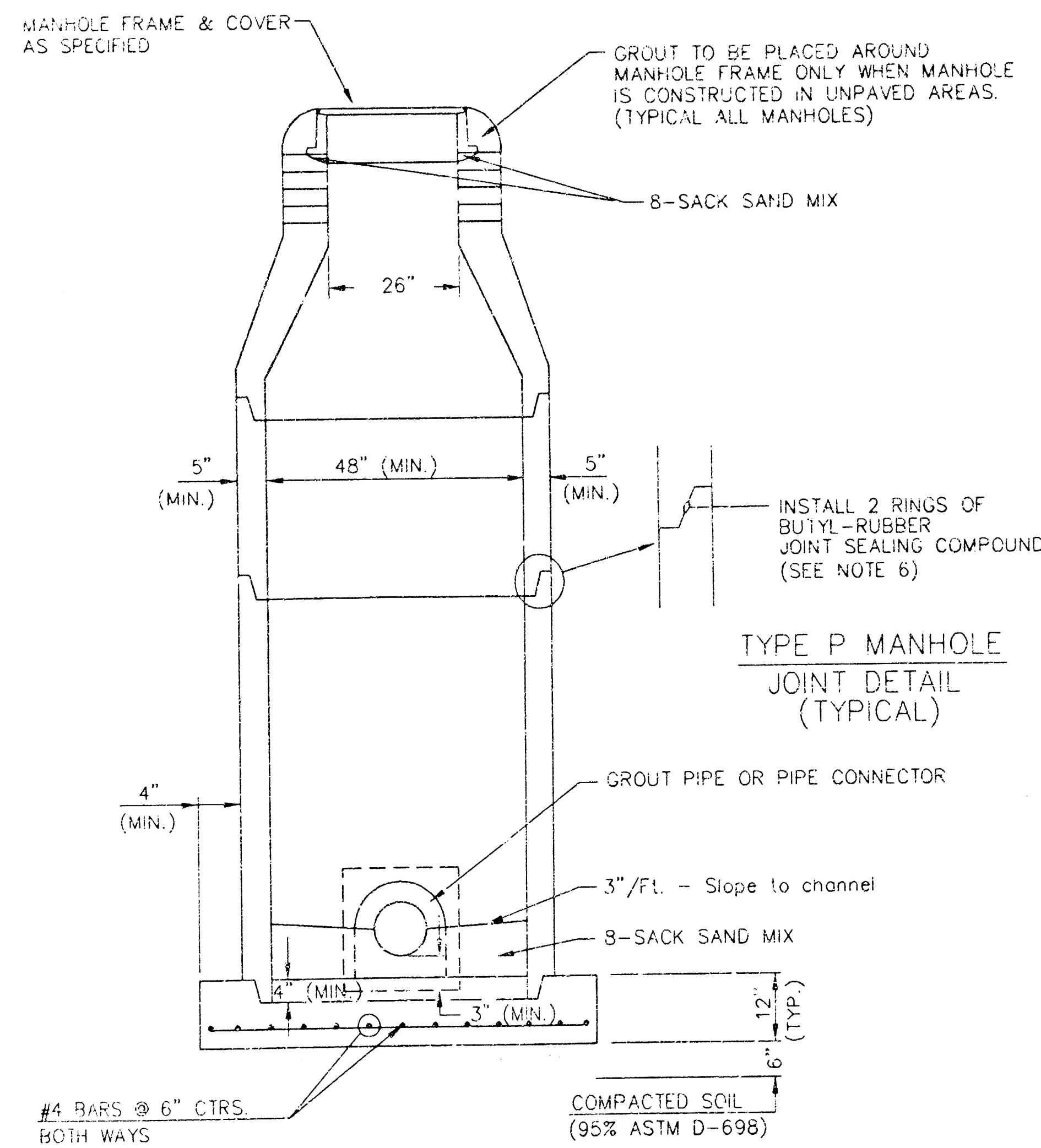
TYPE P STANDARD MANHOLE



TYPE P INSIDE DROP MANHOLE



TYPE P OUTSIDE DROP MANHOLE



SECTION X (TYPICAL)

GENERAL 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 PIPE SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENGAGEMENT 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 INEMEC 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 INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANSING 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 CONE. 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.

THE CITY OF WICHITA CITY ENGINEER'S OFFICE 455 NORTH MAIN STREET WICHITA, KANSAS 67202 (316) 268-4501 (316) 268-4114 FAX	STANDARD TYPE 'P' MANHOLES	
	NEIL D. CABLE, P.E. - CITY ENGINEER	
	PROJECT NUMBER 1325 PPS	DCA NO. ()
	DATE MAR 96	SHEET OF

PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1894

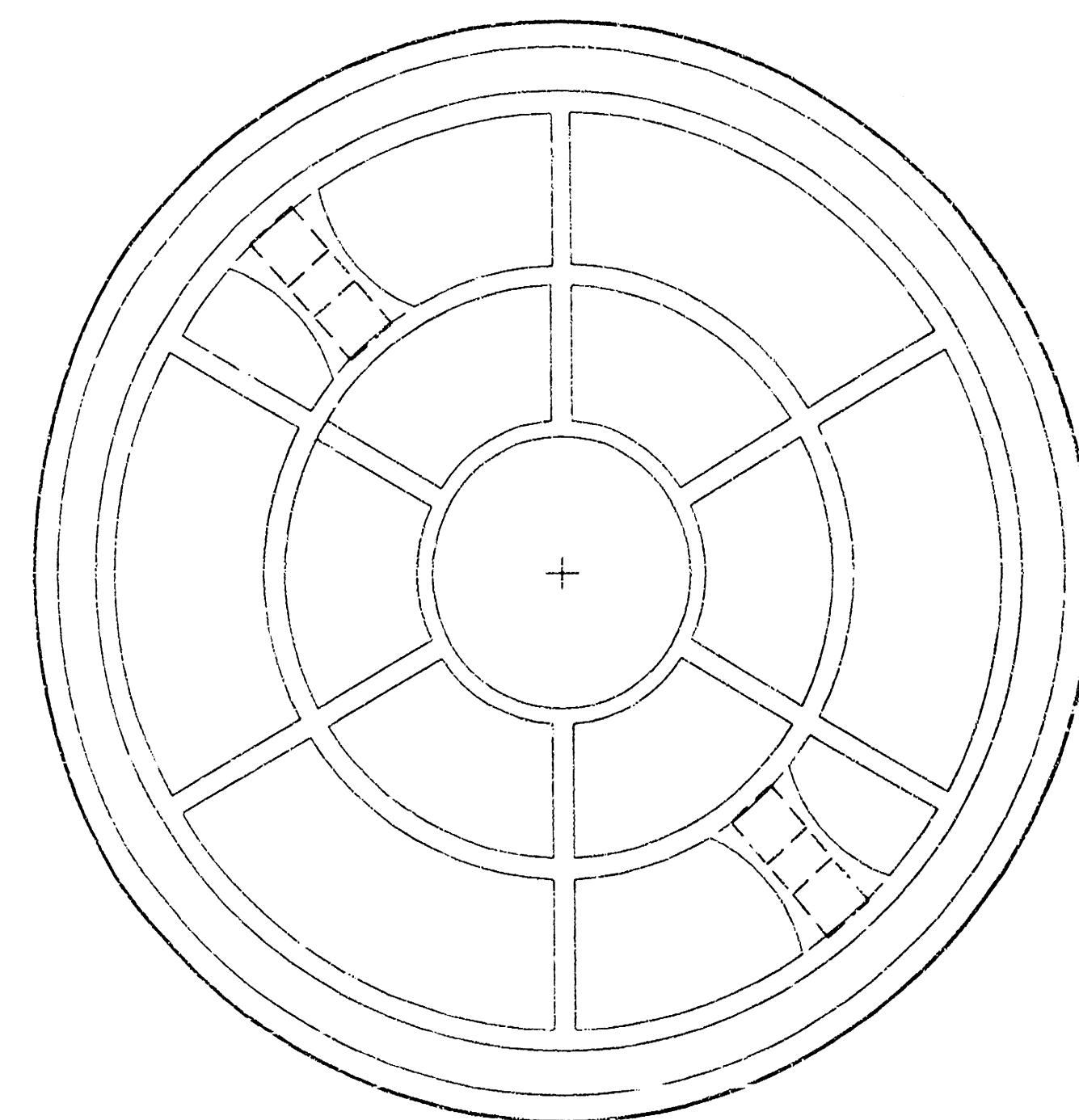
ABLAH WAREHOUSE SEPARATION
STANDARD TYPE 'P' MANHOLES

PROJECT NO. 231684	DATE 3-24-96
DESIGNED BY NEIL D. CABLE	CHECKED BY NEIL D. CABLE
APPROVED BY NEIL D. CABLE	DATE 3-24-96

CHECKERED PATTERN TOP

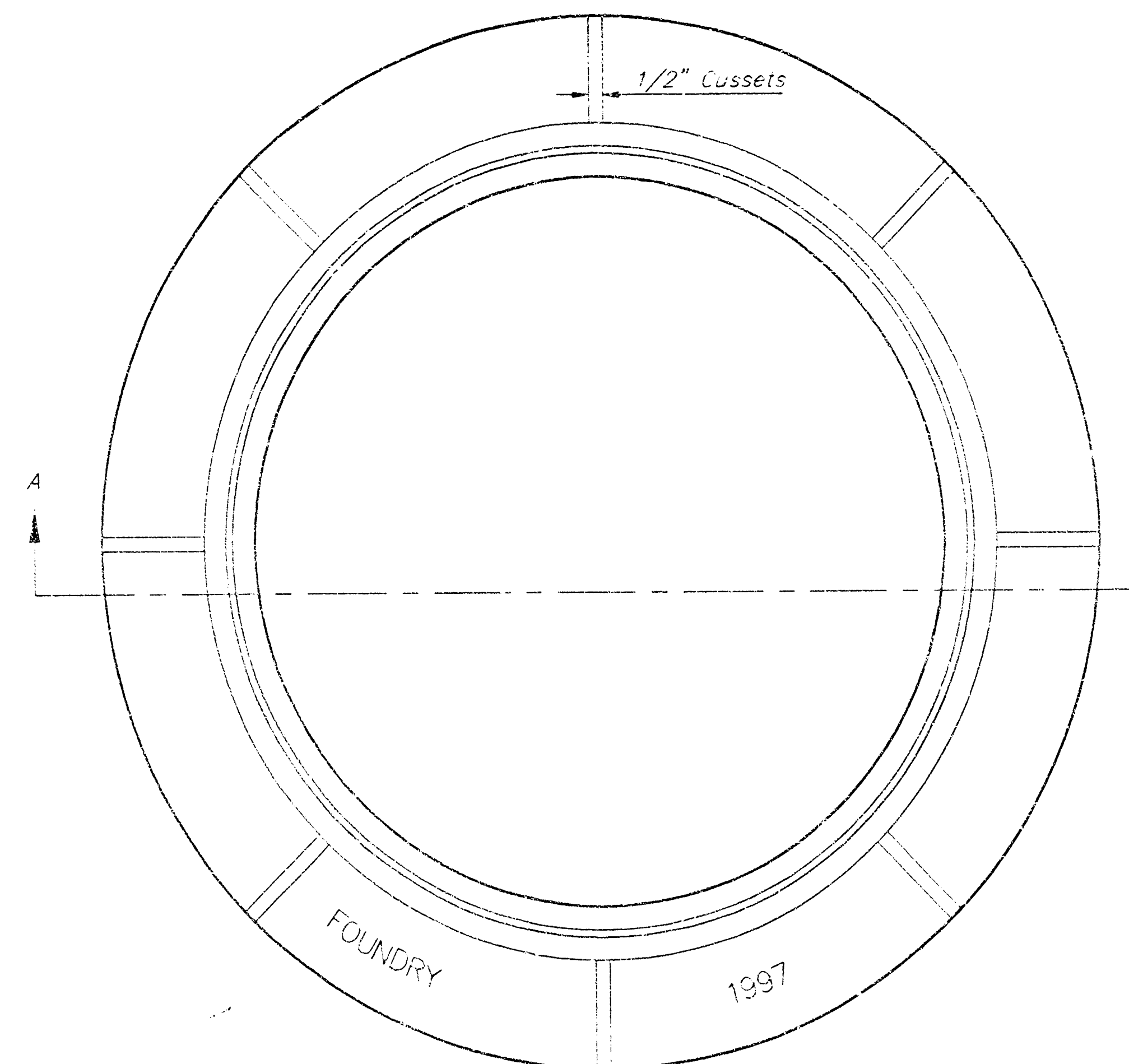
CLOSED PICKHOLE (SEE DETAIL)

Top view of a stepped block. The total width is $3 - \frac{3}{4}$ " and the total height is $1 - \frac{1}{8}$ ". The top edge is divided into a left section of $1 - \frac{3}{8}$ " and a right section of 1 ". A rectangular section in the top-right corner, measuring 1 " in width and $1 - \frac{3}{8}$ " in height, is hatched with diagonal lines.

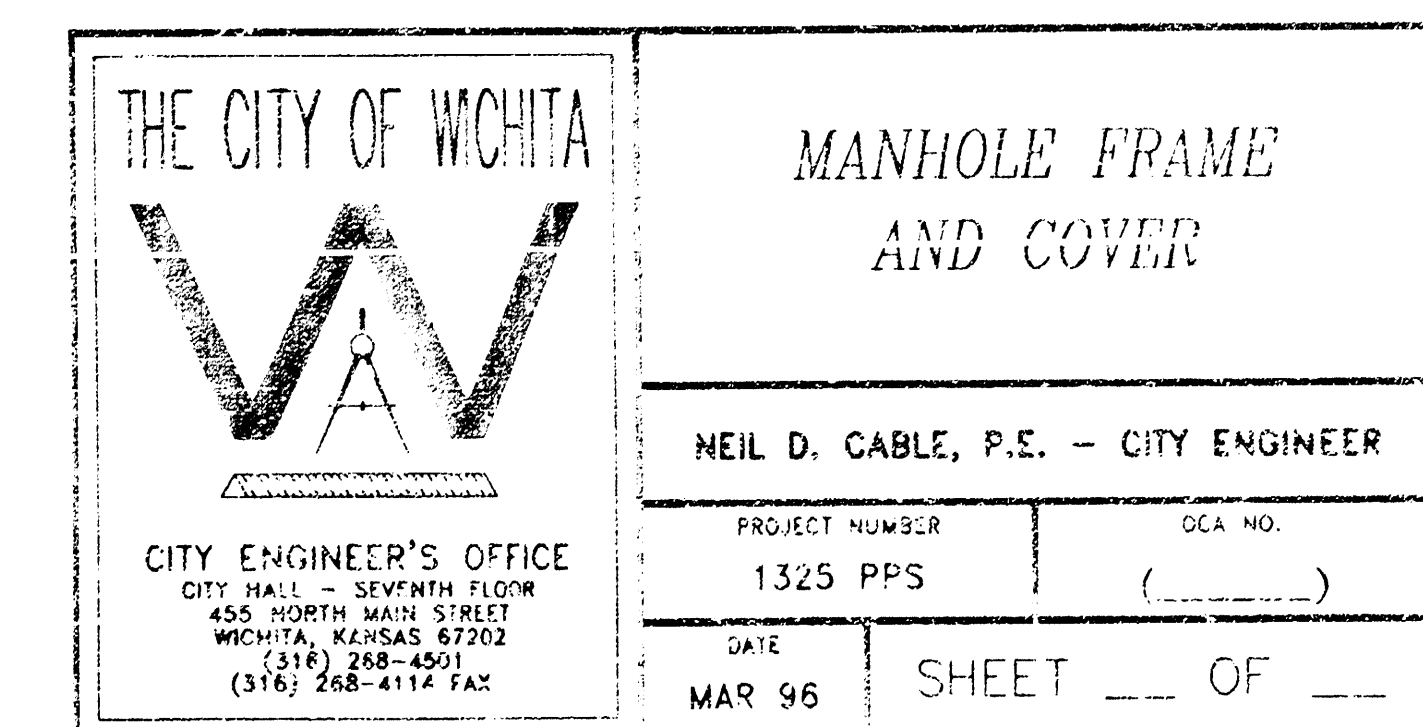


MANHOLE FRAME AND COVER DETAIL

MANHOLE FRAME
Weight = 240 Lbs.

[illegible]

1. MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 TO A 1.5 IN. DESIGN 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, 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 THEM 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 IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO RELIEVE 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.



PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1894

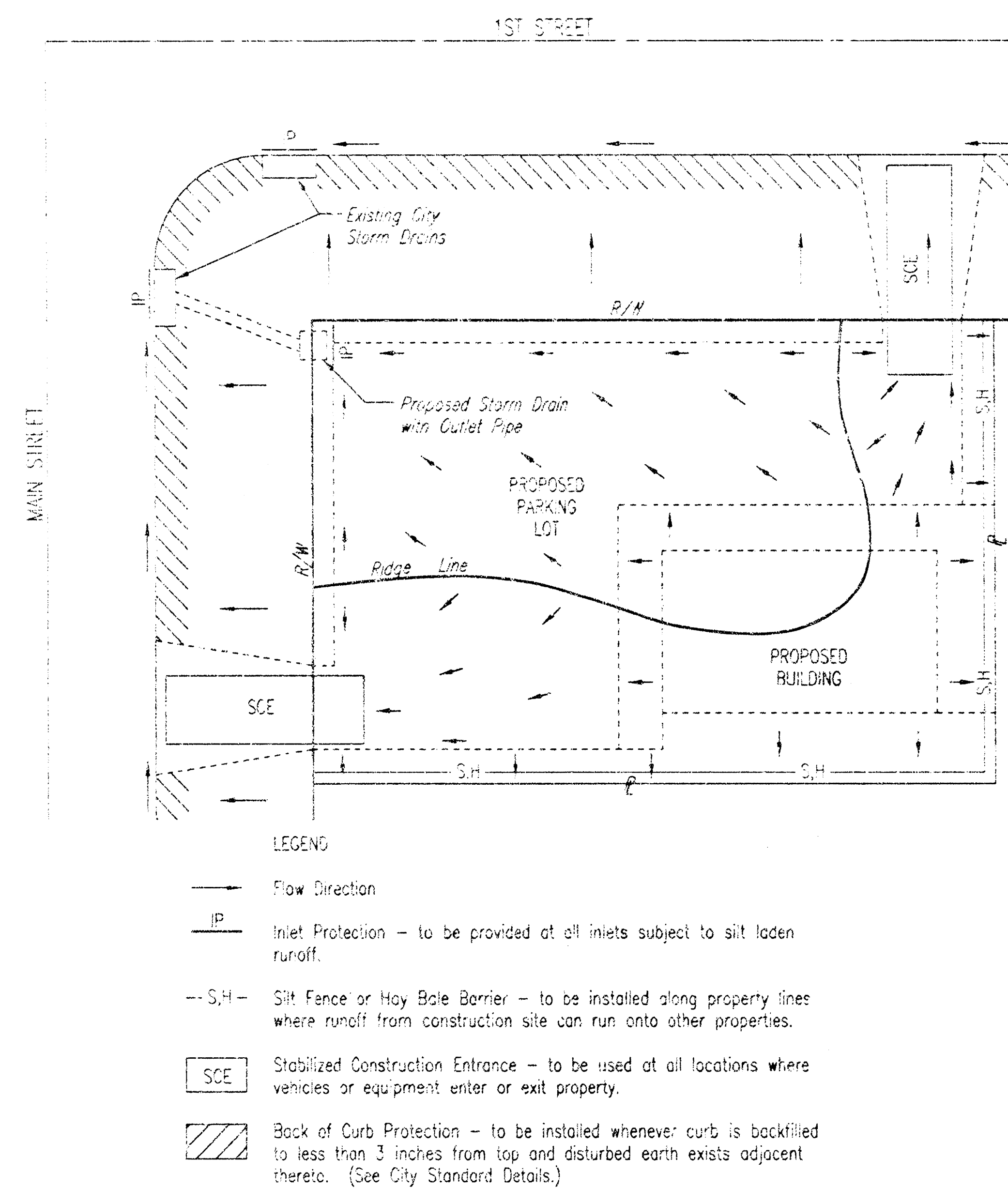
ABLAH WAREHOUSE SEPARATION

MANHOLE FRAME AND COVER

WOMEN KNOWS

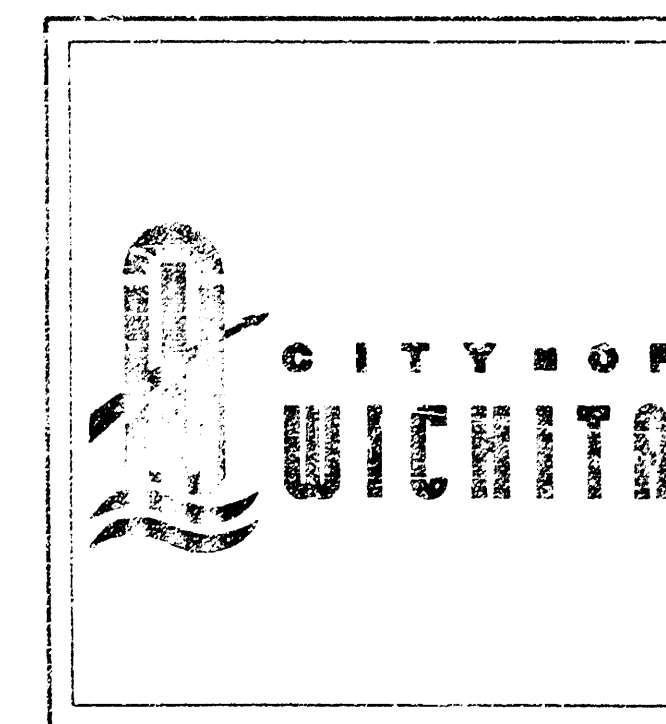
Spec. No.	525	Loc. No.	31-0110-105-106
Tag	72	Spec.	C14

24/03



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 principles 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 16.02 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 BMP'S COMMERCIAL DEVELOPMENT SITES

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

PROJECT NUMBER: _____ CCA NO.: _____
PPW: _____

DATE: MAY 2001 SHEET: 1 OF 1

PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1844

ABLAI WAREHOUSE SEPARATION

SOIL EROSION BMP DETAILS

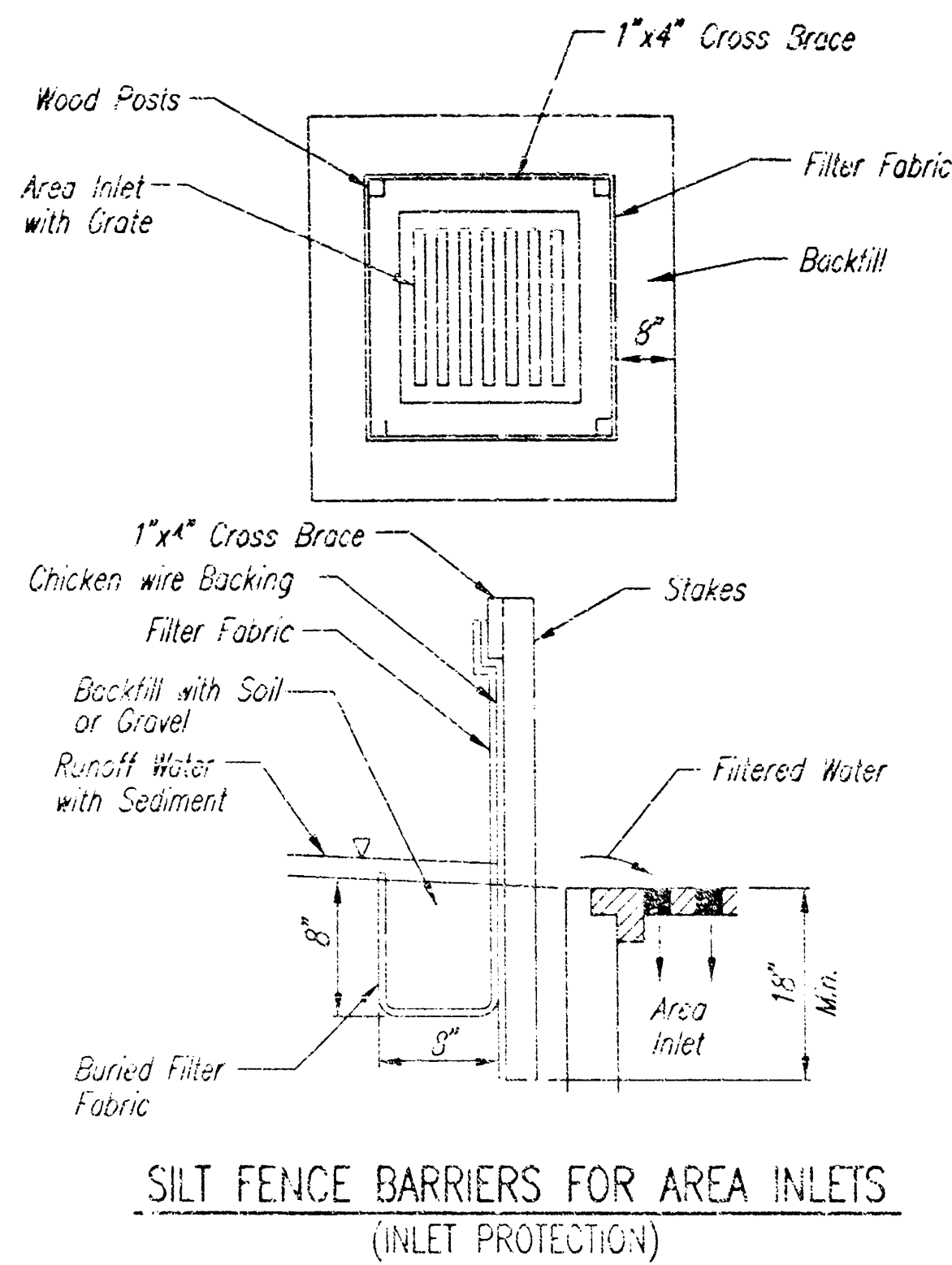
PROJECT: ABLAI WAREHOUSE SEPARATION
SHEET: 1 OF 1
DATE: MAY 2001
DRAWN BY: JERRY PUCKETT
CHECKED BY: JERRY PUCKETT
APPROVED BY: JERRY PUCKETT

DATE: MAY 2001 SHEET: 1 OF 1

PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1844



Project no. 231004
Sheet C2A of
Drawing no.
4 200-124-



Material Specification:

Silt fence fabric should conform to the AASHTO M208 96 silt fence specification. The wire or polymeric mesh backing used to help support the silt fence fabric should conform to the AASHTO M208 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.

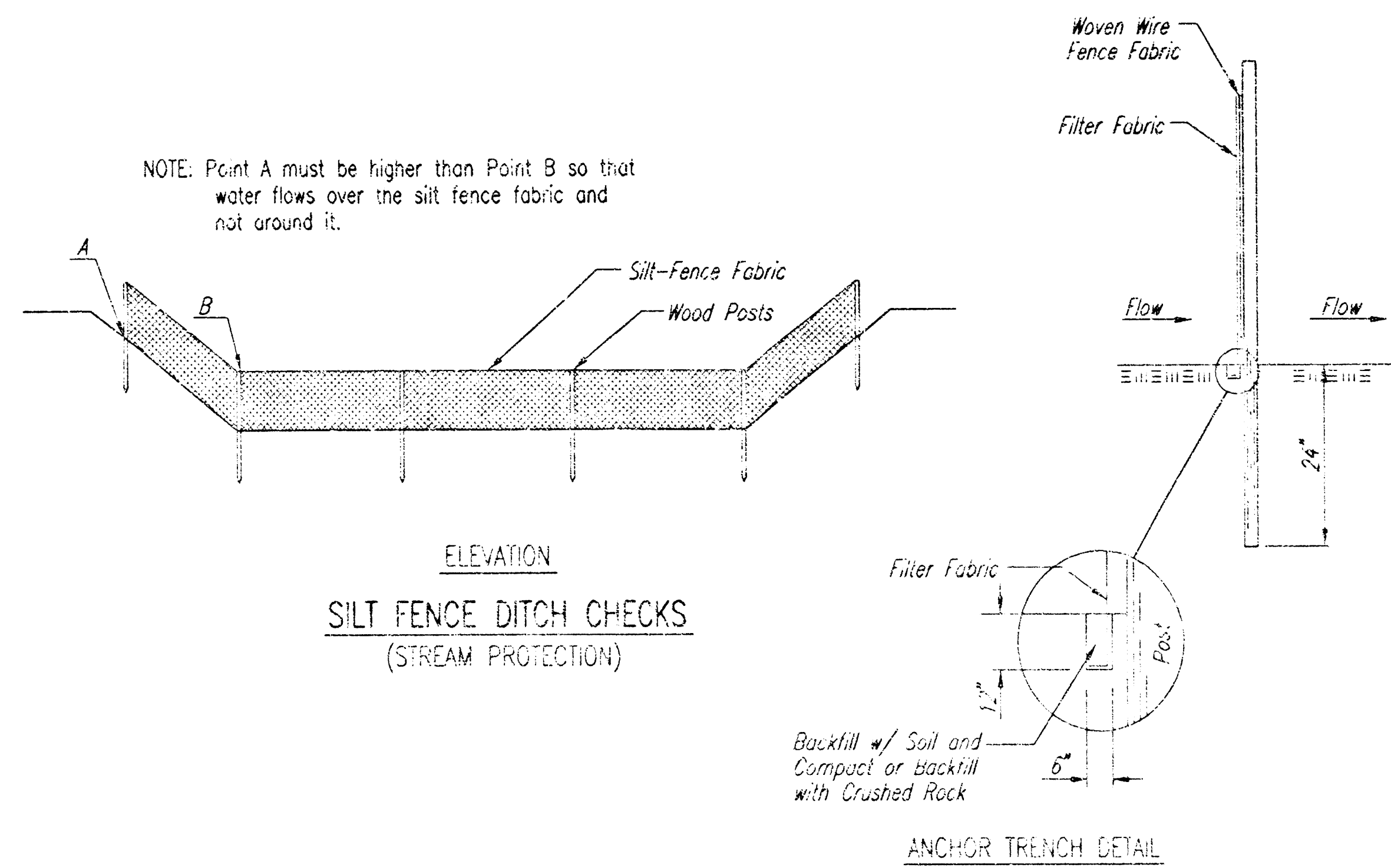
List of common placement/installation mistakes to avoid:

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?



Material Specification:

Silt fence fabric should conform to the AASHTO M208 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.

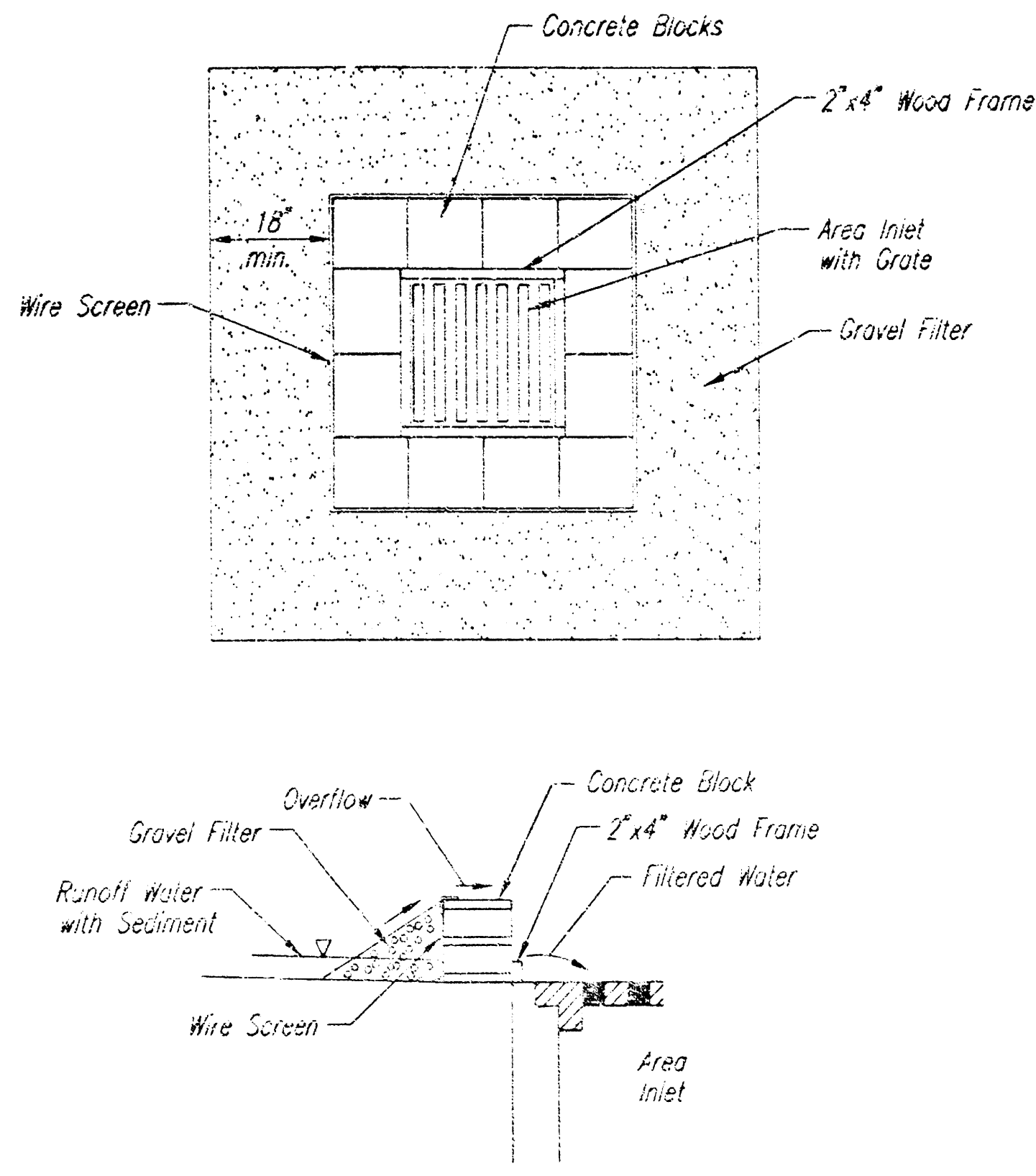
List of common placement/installation mistakes to avoid:

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 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.

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" 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.

	SOIL EROSION BMP DETAILS	
	CHRISTOPHER M. CARRIER, P.E. STORM WATER ENGINEER	
	PROJECT NUMBER 917 PPW	CUA # (607853)
	DATE MAY 2001	SHEET 12 OF 12

PLANT ENGINEERING CONTACT:
JERRY PUCKETT 526-1894

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