CONSTRUCTION PLANS FOR

LATERAL 31, MAIN 15

OF THE

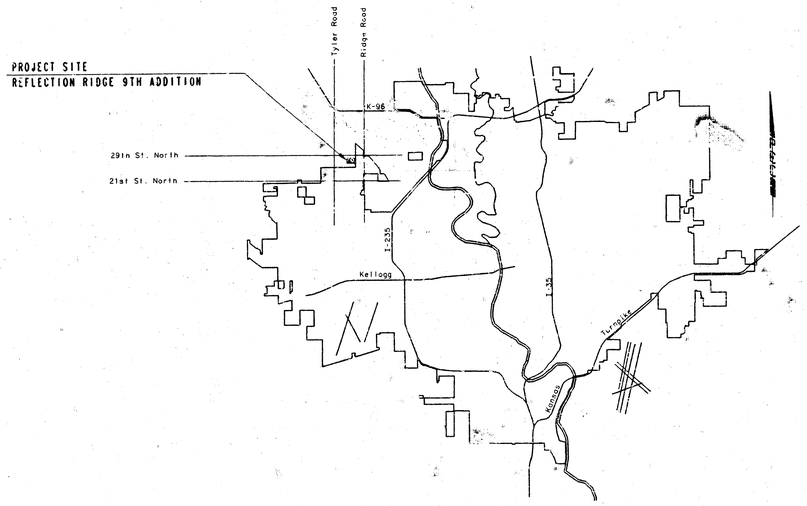
SOUTHWEST INTERCEPTOR SEWER

IN

THE CITY OF WICHITA,

SEDGWICK COUNTY, KANSAS

MICHAEL E. LINDEBAK, P.E.-CITY ENGINEER



LOCATION MAP

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INDEX CODE 741405

CITY OF WICHITA PROJECT NO. 468-76-245-82274-000-000-001

JANUARY, 1993

PLANS PREPARED BY

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

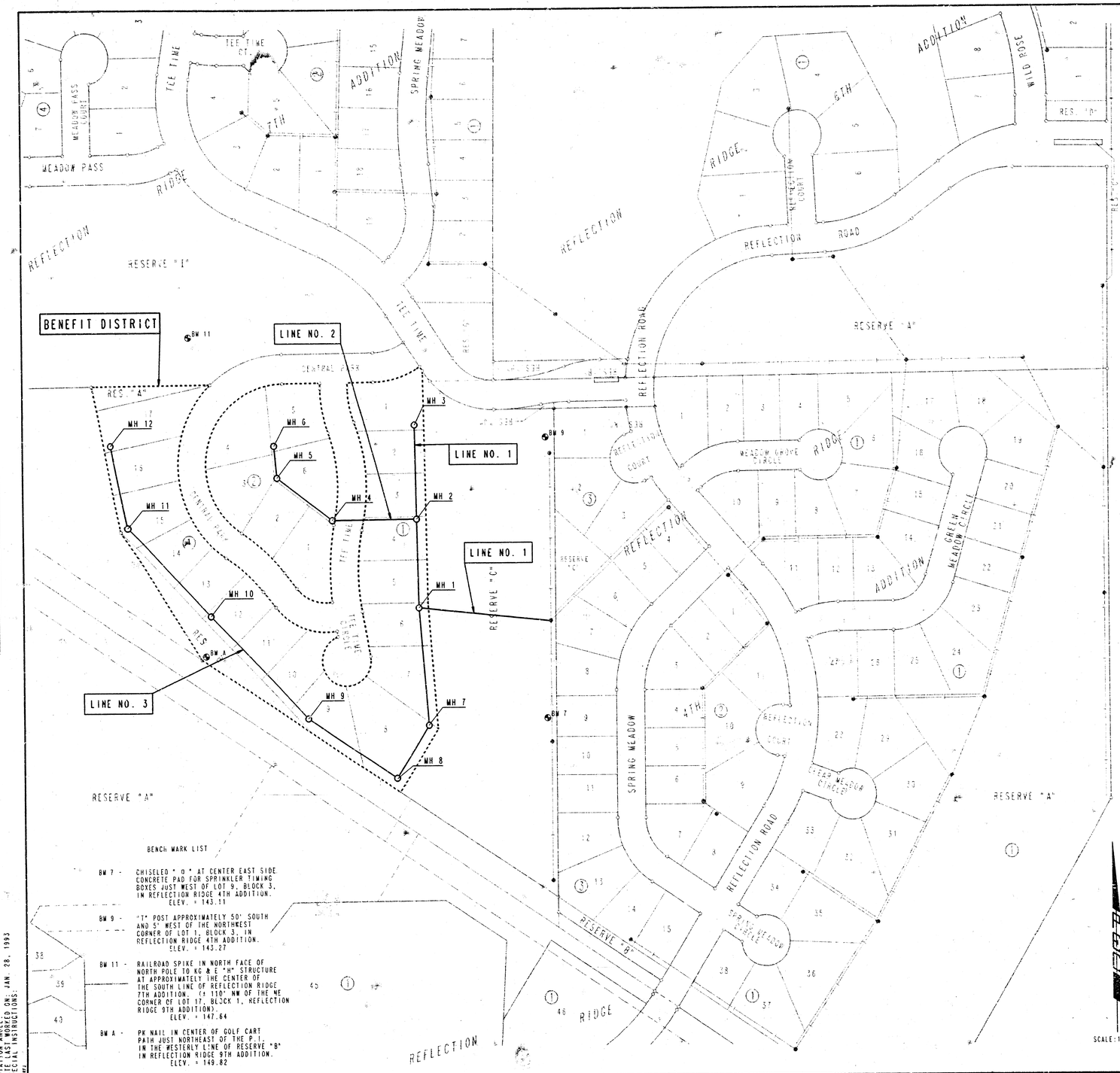
ENGINEERS

WICHITA, KANSAS

Booked 7-22-93
JKB
As Per Plan

MICHAEL D. SCHOMAKER
LICENSED
6778
KANSAS
PROFESSIONAL ENGINEER

DRAWING NAME: 34-92612-2 RR9 SS TITLE
LOCATION: E4 #527
CENTER COORDINATES:
ROTATION ANGLE:
DATE LAST WORKED ON: JAN. 28, 1993
SPECIAL INSTRUCTIONS:
EN-REJ



PLAN

DATE	BY	CHECKED / CHECKED

DRAWING NAME: 34-92612-2 R89 SS KEY
LOCATION: E:\4_DWGS\ 531
CENTER COORDINATES:
ROTATION ANGLE:
DATE LAST WORKED ON: JAN. 28, 1993
SPECIAL INSTRUCTIONS:

BENCH MARK LIST

BM 7 - CHISELED " O " AT CENTER EAST SIDE CONCRETE PAD FOR SPRINKLER TIMING BOXES JUST WEST OF LOT 9, BLOCK 3, IN REFLECTION RIDGE 4TH ADDITION. ELEV. = 143.11

BM 9 - "T" POST APPROXIMATELY 50' SOUTH AND 5' WEST OF THE NORTHWEST CORNER OF LOT 1, BLOCK 3, IN REFLECTION RIDGE 4TH ADDITION. ELEV. = 143.27

BM 11 - RAILROAD SPIKE IN NORTH FACE OF NORTH POLE TO KG & E "H" STRUCTURE AT APPROXIMATELY THE CENTER OF THE SOUTH LINE OF REFLECTION RIDGE 7TH ADDITION. (± 110' NW OF THE NE CORNER OF LOT 17, BLOCK 1, REFLECTION RIDGE 9TH ADDITION). ELEV. = 147.64

BM A - PK NAIL IN CENTER OF GOLF CART PATH JUST NORTHEAST OF THE P.T. IN THE WESTERLY LINE OF RESERVE "B" IN REFLECTION RIDGE 9TH ADDITION. ELEV. = 149.82

GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
2. ALL ELEVATIONS SHOWN ARE CITY OF WICHITA DATUM.
3. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
4. AT LEAST 48 HOURS PRIOR TO BEGINNING EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: ARKLA GAS CO., THE WICHITA WATER DEPARTMENT, MULTIMEDIA CABLEVISION, K.G.&E. (ELECTRIC), AND SOUTHWESTERN BELL TELEPHONE.
5. 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.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
7. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
8. UNLESS OTHERWISE SPECIFIED ON THE PLANS, MANHOLES MAY BE TYPE "A", "C", OR "D" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
9. ALL LAWN/TURF AREAS DISTURBED BY CONSTRUCTION OF THE PROPOSED IMPROVEMENTS SHALL BE 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. AR7b WHICH GOVERNS CLEANUP AND RESTORATION OR REPLACEMENT FOLLOWING CONSTRUCTION. ALL COSTS FOR THIS WORK SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE RESTORATION".
10. RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES INCLUDING ANY TREES REMOVED AND TREE TRIMMINGS SHALL BE DISPOSED OF ON SITES PROVIDED BY THE CONTRACTOR. THESE SITES SHALL ALSO BE APPROVED BY THE ENGINEER AS TO SUITABILITY, APPEARANCE, AND SITE LOCATION. LOCATIONS THAT, IN THE OPINION OF THE ENGINEER, WILL LEAVE AN UNSIGHTLY APPEARANCE WILL NOT BE APPROVED. ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN 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.
11. 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. COSTS FOR TREE/SHRUB REMOVAL AND TRIMMING, REGARDLESS OF SIZE, SHALL BE CONSIDERED SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "SITE CLEARING".
12. CONTRACTOR SHALL GRADE THE SANITARY SEWER ALIGNMENT TO THE PROFILE AND ELEVATIONS SHOWN ON THE EASEMENT GRADING PLAN. ALL COSTS FOR EASEMENT GRADING SHALL BE SUBSIDIARY TO THE LUMP SUM PRICE BID FOR "EASEMENT GRADING".
13. THE CONTRACTOR SHALL PREVENT ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION.
14. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ABUTTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF TEN (10) DAYS' ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION.
15. EXCESS EXCAVATION WHICH IS TO BE WASTED SHALL BE STOCKPILED WITHIN REFLECTION RIDGE 9TH ADDITION AT NO ADDITIONAL COST TO THE OWNER. STOCKPILE LOCATIONS SHALL BE AS DIRECTED BY MR. MARVIN SCHELLENBERG, VICE PRESIDENT, REFLECTION RIDGE, INC. AT 721-2153 AND IN ACCORDANCE WITH GENERAL NOTE NO. 10 ABOVE.
16. CONTRACTOR IS REQUIRED TO MAINTAIN CONTINUOUS FLOW OF SEWAGE IN EXISTING MAINS AT ALL TIMES AT NO ADDITIONAL COST TO THE OWNER.
17. GOLF COURSE IRRIGATION MAINS AND LATERALS SHOWN ON THE PLANS ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL REQUEST THAT THESE LINES BE FLAGGED BY GOLF COURSE PERSONNEL PRIOR TO THE START OF CONSTRUCTION. WHERE REMOVAL, RELOCATION, OR VERTICAL ADJUSTMENTS TO THE IRRIGATION LINES, CONTROL VALVES, OR SPRINKLER HEADS ARE REQUIRED DUE TO THE SANITARY SEWER CONSTRUCTION, GOLF COURSE PERSONNEL SHALL PERFORM SUCH WORK. THE CONTRACTOR SHALL COORDINATE SUCH REMOVAL, RELOCATION, OR VERTICAL ADJUSTMENTS WITH THE GOLF COURSE SUPERINTENDENT, MR. JOHN WRIGHT, AT 721-9483.
18. PRIVATE PROPERTY ADJACENT TO THE GOLF COURSE MAY HAVE UNDERGROUND SPRINKLER SYSTEMS IN PUBLIC RIGHT-OF-WAY WHICH CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO REMOVE SUCH IMPROVEMENTS SHOULD THEY NOT BE REMOVED BY THEIR OWNER AT THE TIME OF CONSTRUCTION OF THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO SALVAGE ALL SPRINKLER HEADS AND/OR VALVES AND GIVE SUCH MATERIAL TO THEIR OWNER. PORTIONS OF UNDERGROUND SPRINKLER SYSTEMS NOT IN CONFLICT WITH NEW CONSTRUCTION SHALL BE PROTECTED FROM DAMAGE AND SHALL REMAIN IN PLACE. ALL WORK IN CONNECTION WITH UNDERGROUND SPRINKLER SYSTEMS SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING".
19. THE CONTRACTOR SHALL NOTIFY THE GOLF COURSE SUPERINTENDENT PRIOR TO THE START OF CONSTRUCTION SO THAT ANY TREES ON THE GOLF COURSE THAT CONFLICT WITH CONSTRUCTION MAY BE RELOCATED BY GOLF COURSE PERSONNEL. THE CONTRACTOR SHALL NOT REMOVE OR TRIM ANY TREES WITHIN THE LIMITS OF THE GOLF COURSE UNLESS WRITTEN AUTHORIZATION IS OBTAINED FROM THE COURSE SUPERINTENDENT, MR. JOHN WRIGHT, AT 721-9483.
20. PRIOR TO COMMENCEMENT OF SANITARY SEWER CONSTRUCTION CROSSING THE GOLF COURSE FAIRWAY, THE CONTRACTOR SHALL NOTIFY THE GOLF COURSE SUPERINTENDENT, MR. JOHN WRIGHT, (721-9483) TO PROVIDE THE GOLF COURSE THE OPPORTUNITY TO STRIP THE EXISTING SOD FOR ITS USE.

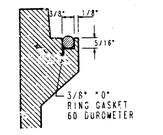
    ONLY TRENCHING, PIPE-LAYING, AND BACKFILLING EQUIPMENT WILL BE ALLOWED ON THE GOLF COURSE PROPER. UNDER NO CIRCUMSTANCES WILL DELIVERIES, HAUL ROUTES, PERSONAL OR COMPANY VEHICLES, ETC., BE ALLOWED TO CROSS THE GOLF COURSE.

    SPOIL PILES FROM EXCAVATION ACROSS THE GOLF COURSE SHALL BE LAID UPON PLYWOOD SHEETS DURING PIPE-LAYING OPERATIONS, TO MINIMIZE DAMAGE TO THE TURF ADJACENT TO THE TRENCH. BEDDING, PIPE-LAYING, AND BACKFILLING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE SPECIFICATIONS.

    THE TOP TWELVE INCHES OF TRENCH BACKFILL SHALL BE HIGH QUALITY TOPSOIL, IN LIEU OF MECHANICAL COMPACTION OF THE TOP TWELVE INCHES OF MATERIAL, AFTER PLACEMENT OF EACH LIFT. THE TRENCH SHALL BE FLOODED TO INDUCE SETTLEMENT OF THE EARTHEN MATERIAL. THE DISTURBED AREA SHALL BE FINE GRADED TO RESTORE THE ORIGINAL CONTOUR OF THE GROUND. THE TOPSOIL MATERIAL, ITS PLACEMENT IN THE EXCAVATION, AND THE FINISH GRADING SHALL BE ACCEPTED BY GOLF COURSE SUPERINTENDENT, MR. JOHN WRIGHT (721-9483), PRIOR TO ACCEPTANCE BY THE ENGINEER.

    EXTRA WORK REQUIRED FOR CONSTRUCTION ACROSS THE GOLF COURSE FAIRWAY, INCLUDING BUT NOT LIMITED TO COORDINATION, SCHEDULING, TURF PROTECTION, TOPSOILING, AND FINE GRADING SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR "GOLF COURSE PROTECTION/RESTORATION".
21. ANY FAIRWAY AREAS DAMAGED BY THE CONTRACTOR'S OPERATIONS OUTSIDE OF THE TRENCH CONSTRUCTION LIMITS SHALL BE REPAIRED BY GOLF COURSE PERSONNEL AT THE CONTRACTOR'S EXPENSE.
22. THE CONTRACTOR SHALL SCHEDULE HIS OPERATIONS TO COMPLETE CONSTRUCTION OF LINE NO. 1 FROM THE EXISTING MANHOLE TO MANHOLE NO. 1, INCLUDING TOPSOIL REPLACEMENT AND FINE GRADING, PRIOR TO BEGINNING WORK ON THE BALANCE OF THE PROJECT. ALL CONSTRUCTION ACTIVITIES CROSSING THE GOLF COURSE SHALL BE COMPLETED WITHIN SEVEN (7) CALENDAR DAYS, AND SHALL BE SCHEDULED BOTH WITH THE ENGINEER AND WITH MR. JOHN WRIGHT, GOLF COURSE SUPERINTENDENT, AT 721-9483.

WHERE SELF-SEALING MANHOLE FRAMES ARE SPECIFIED ON THE PLANS, THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL NOT BE INSTALLED IN THE MANHOLE FRAME UNTIL AFTER FINAL INSPECTION AND ACCEPTANCE OF THE PROJECT BY THE ENGINEER. THE CONTRACTOR SHALL SUPPLY TO THE OWNER ONE (1) REPLACEMENT "O" RING GASKET FOR EACH SELF-SEALING MANHOLE SPECIFIED.



FRAME GROOVING DETAIL (FOR SELF-SEALING MHS ONLY)

MICHAEL D. SCHLINKERT LICENSED 8778 KANSAS PROFESSIONAL ENGINEER

No.	Revision	By	Date

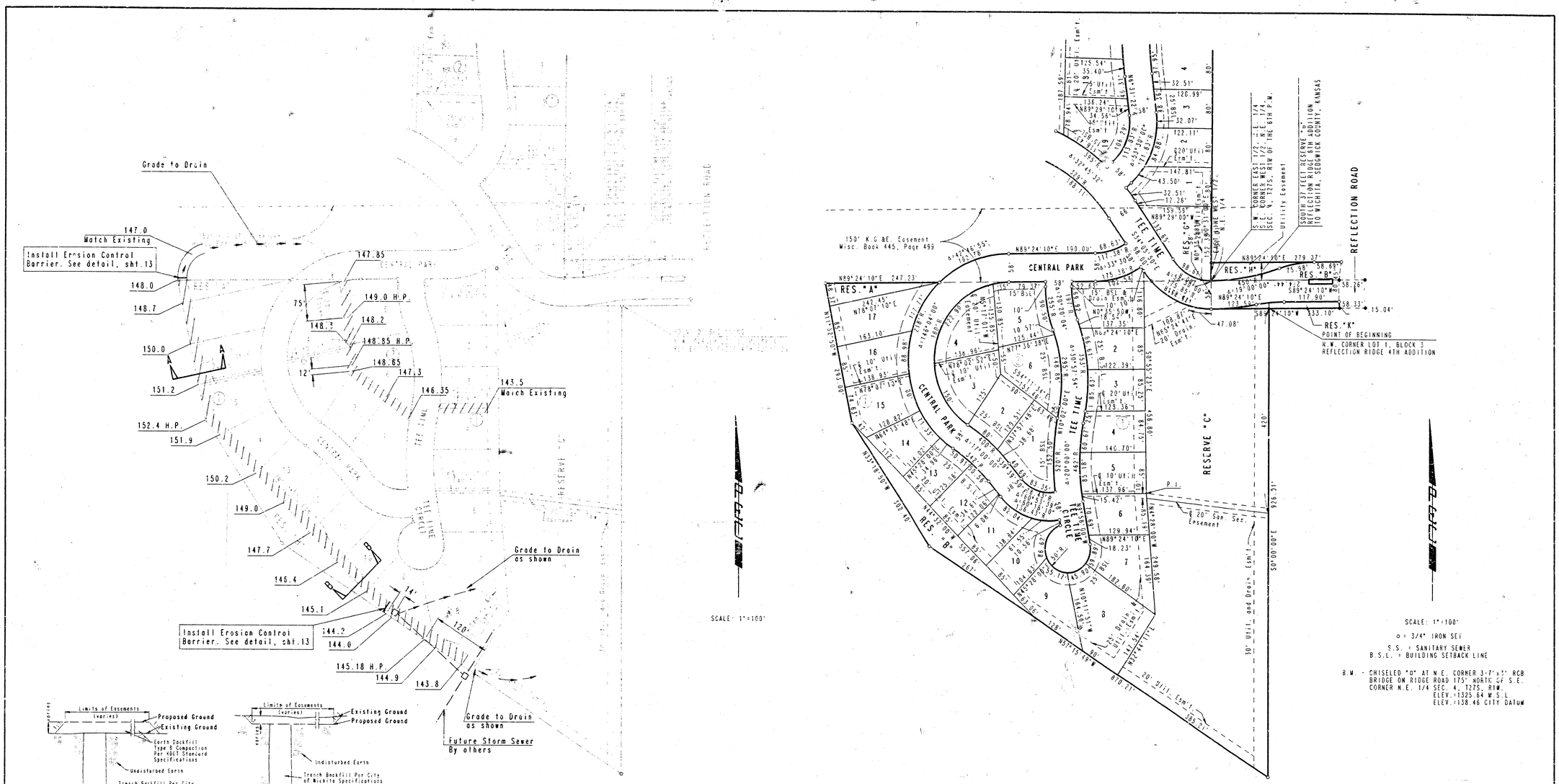
LATERAL 31, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER

KEY MAP AND GENERAL NOTES

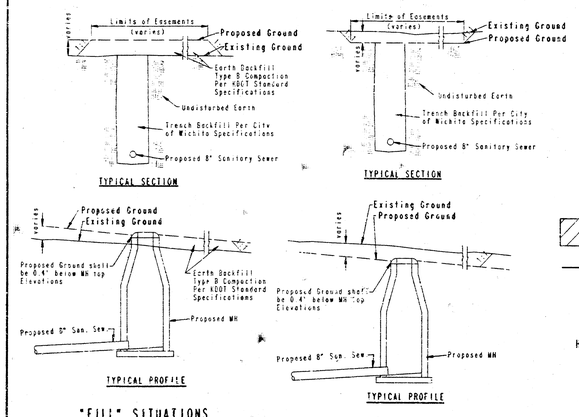
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245-82274-000-000-001

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Designed by MDS, MDK	Job No. 34-92612-2	Sht. 2 of 13
Drawn by TDS	Date December, 1992	



PLAT



"FILL" SITUATIONS

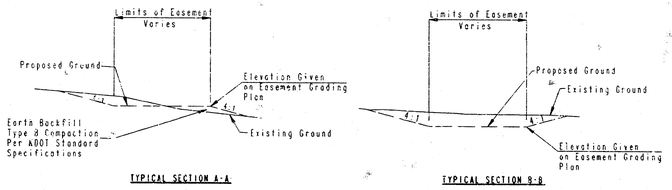
"CUT" SITUATIONS

EASEMENT GRADING

AS TO BE GRADED

- Locations where surface drainage will be directed along the side lot lines from the rear yard easements to the front of the lot. This grading will be "by others".

H.P. = HIGH POINT



ALONG WESTERLY LINE OF PLAT ONLY

No.	Revision	By	Date

LATERAL 31, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER

EASEMENT GRADING PLAN/PLAT

MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO.468-76 245-82274-000-000-001

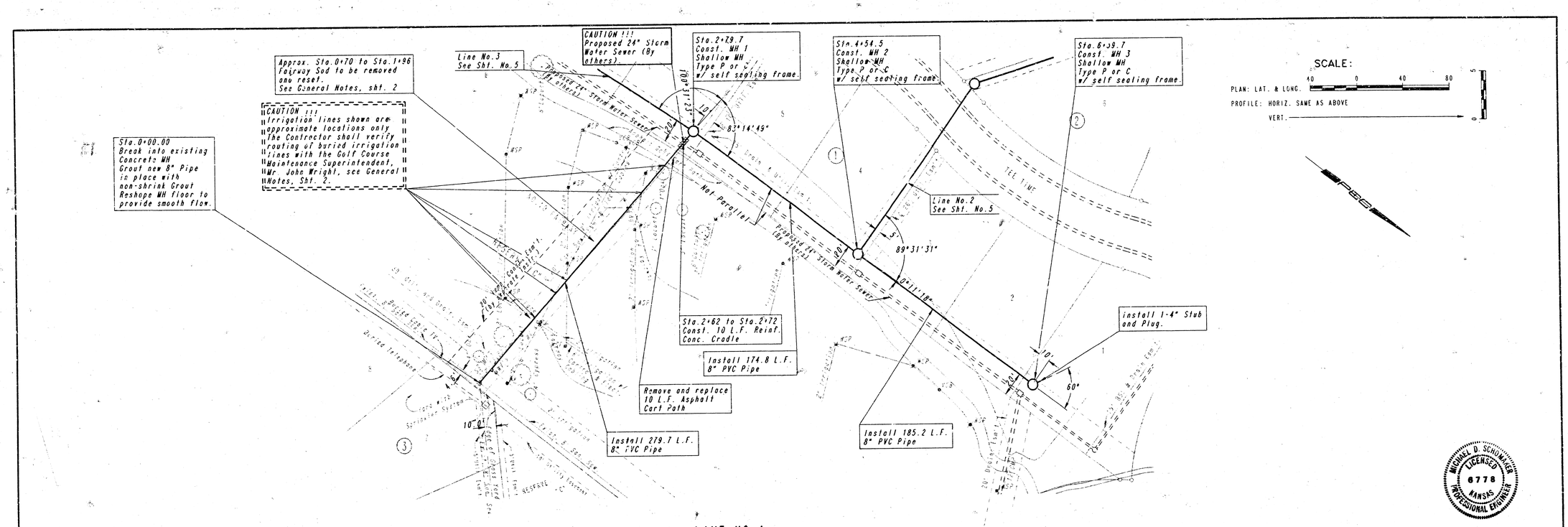
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Designed by MDS, MDK	Job No. 34-92612-2	Sht. 3 of 13
Drawn by TDS	Date January, 1993	

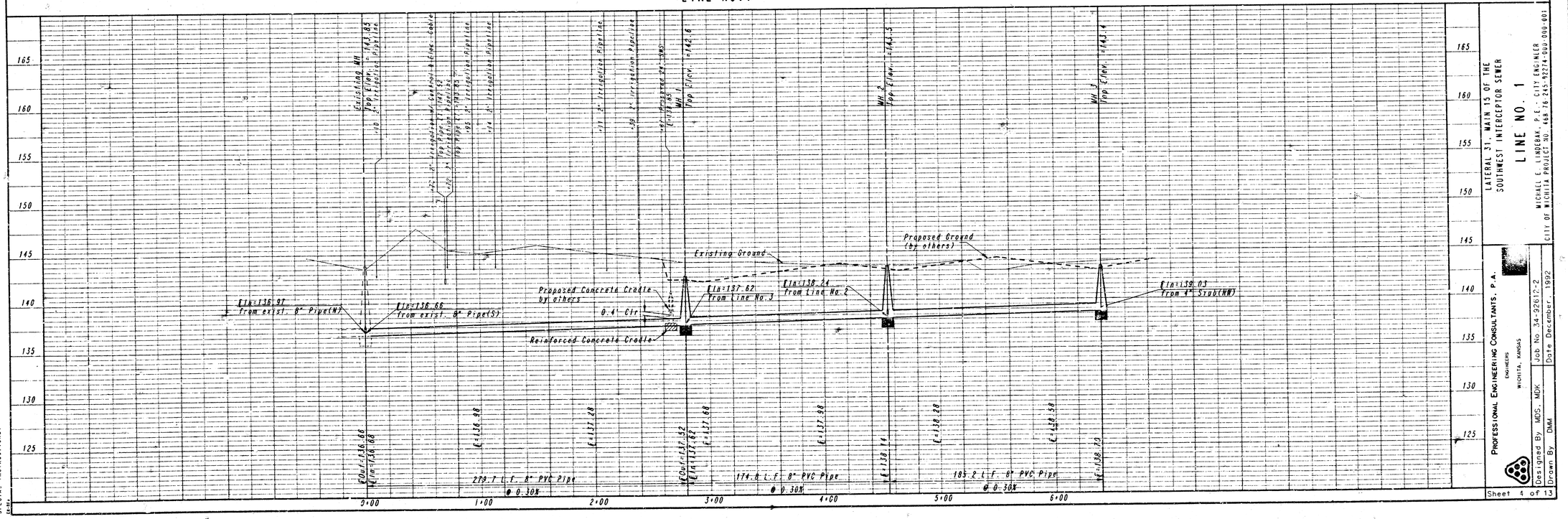
MICHAEL D. SCHOMAKER LICENSED 6778 KANSAS PROFESSIONAL ENGINEER

PLAN CHECKED CHECKED BY DATE

DRAWING NAME: 34-92612-2 RR9 SS ESMTPL
LOCATION: E4 DWG.# 529
CENTER COORDINATES:
ROTATION ANGLE:
DATE LAST WORKED ON: JAN. 28, 1993
SPECIAL INSTRUCTIONS:



LINE NO.1



PROFILE

	CHECKED	BY	DATE
	CHECKED		

PLAN

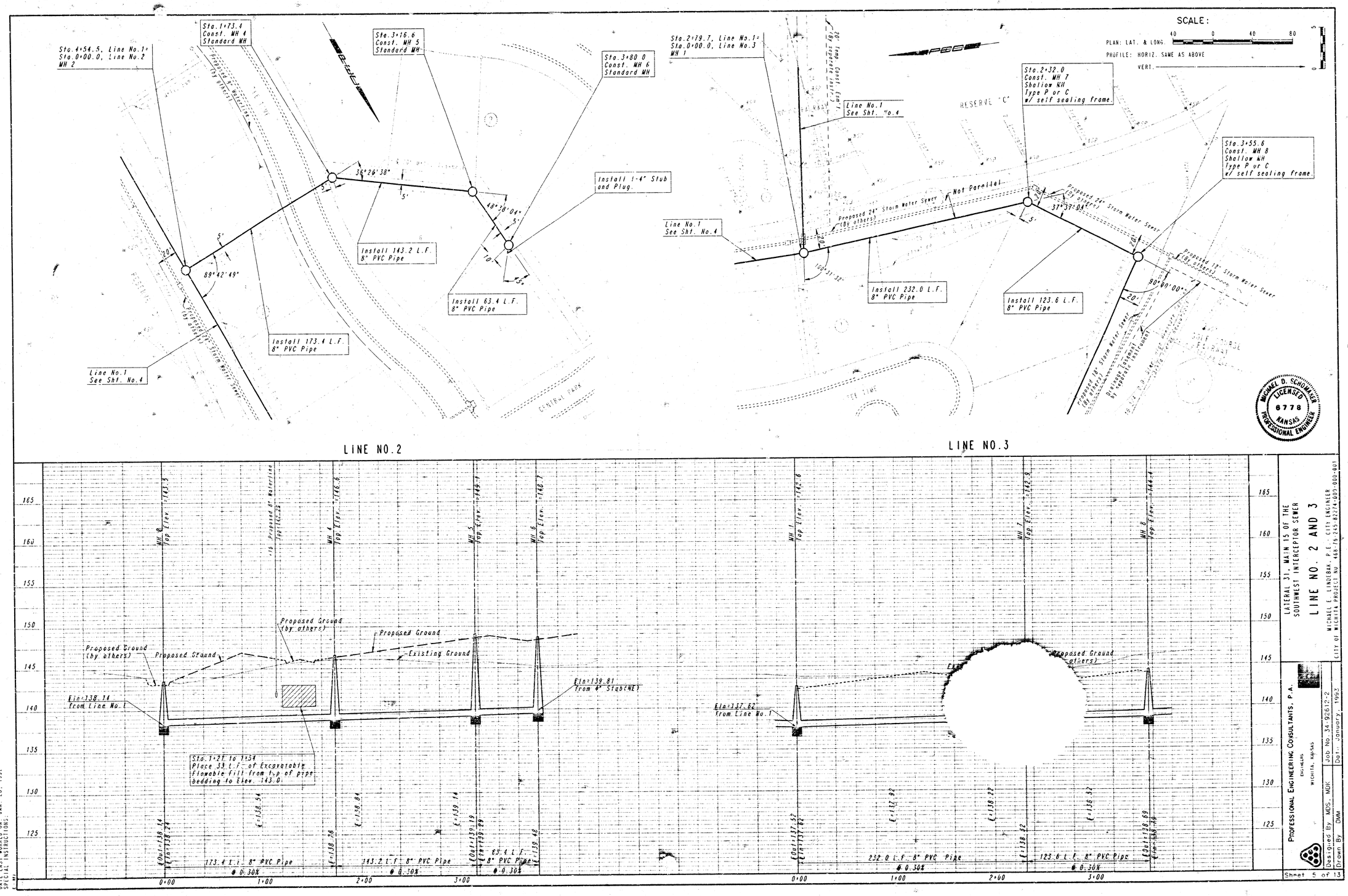
	CHECKED	BY	DATE
	CHECKED		

DRAWING NAME: 34-92612-2 R89 SS PP1
LOCATION: CORE NOTES: F 541
ADDITION NOTES:
ROTATION ANGLE:
DATE LAST WORKED ON: JAN. 28, 1993
SPECIAL INSTRUCTIONS:

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS
Designed By MDS, MDK
Drawn By DMM
Job No 34-92612-2
Date December, 1992

LATERAL 37, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER
LINE NO. 1
MICHAEL D. SCHUMACHER, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468.16 (34-92274-000 000-001

Sheet 4 of 13



LATERAL 31, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER

LINE NO. 2 AND 3

MICHAEL E. LINDEBAK, P.E., CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245-82274-009-000-001

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Job No. 34-92612-2
Date: January, 1992
Designed By MDS, MDK
Drawn By DMM

Sheet 5 of 13

PLAN CHECKED CHECKED BY DATE

PROFILE CHECKED CHECKED BY DATE

DRAWING NAME: 34-92612-2 RRS SS PP2
LOCATION: L4 DWG.# 542
CENTER COORDINATES:
ROTATION ANGLE:
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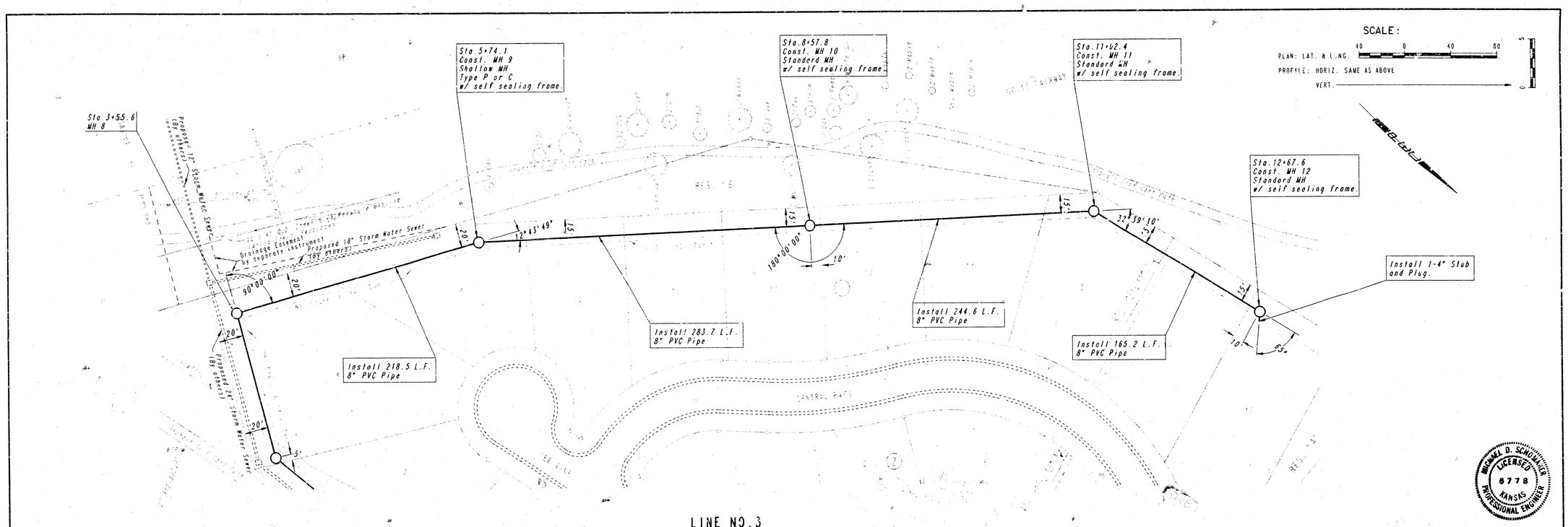


LINE NO. 3

PLAN CHECKED / CHECKED — BY — DATE

PROFILE CHECKED / CHECKED — BY — DATE

DRAWING NAME: 34-92612-2 R09 SS PP3
LOCATION: SEC. 6 TWP. 27S RNG. 1E
ZONE COORDINATES: N 143
ROTATION ANGLE:
DATE LAST WORKED ON: JAN. 28, 1993
SPECIAL INSTRUCTIONS:

MICHAEL D. SCHOWALTER LICENSED 8778 KANSAS PROFESSIONAL ENGINEER

LATERAL 31, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER

LINE NO. 3

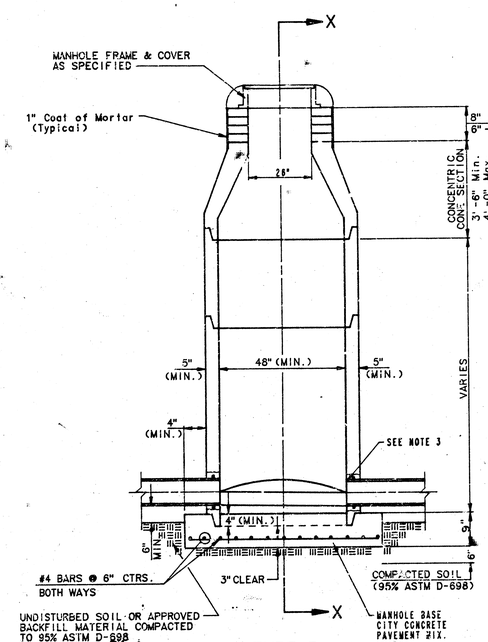
MICHAEL E. LINDEBAK, P.E., CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245 82274-000-002 001

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

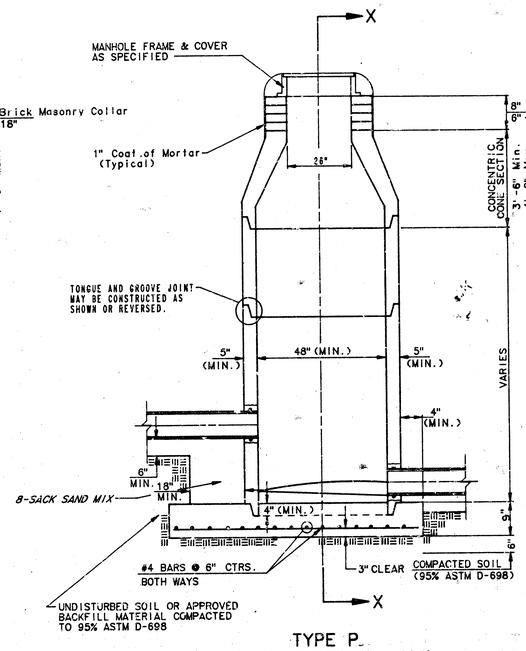
Designed By MDS, MDK | Job No. 34-92612-2
Drawn By DMM | Date January, 1993

SEWER APPURTENANCES DETAILS

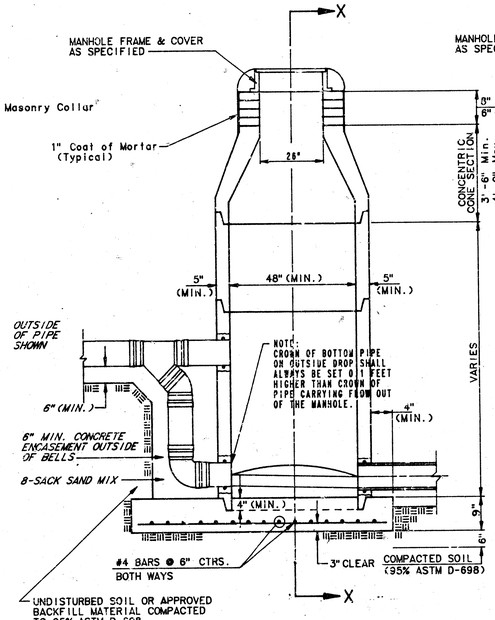
ADOPTED AS STANDARD DESIGN BY CITY OF WICHITA



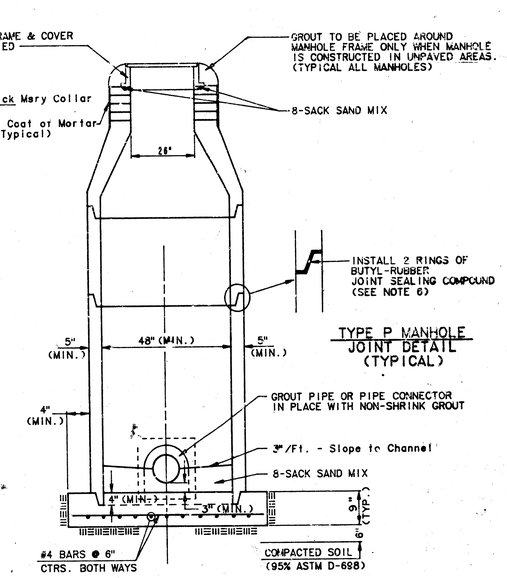
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



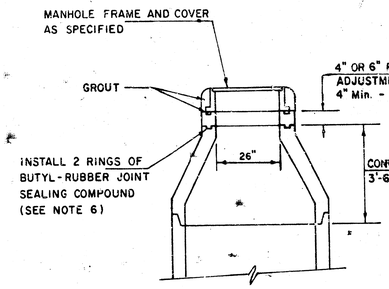
TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

SECTION X
(TYPICAL)

GENERAL NOTES

PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS THENEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINUS 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 6 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 CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INCOMING 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 OUTRIDE 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 FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 2'. 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.



ALTERNATE CONSTRUCTION
IN UNPAVED AREAS

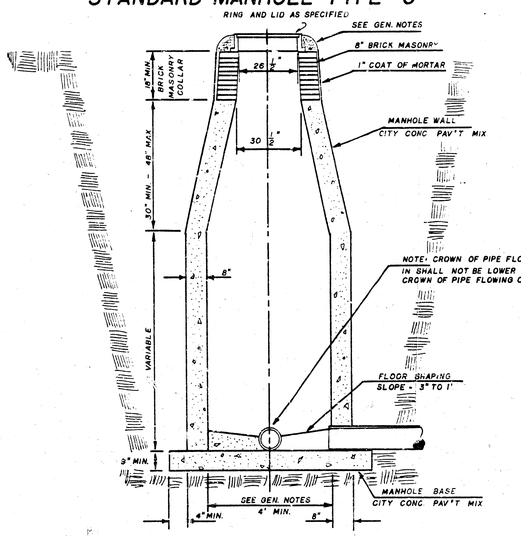
NOTE NO. 16 REVISED JAN. 1991
Revised 3-21-89
Revised 8-10-88

SEWER APPURTENANCES DETAILS

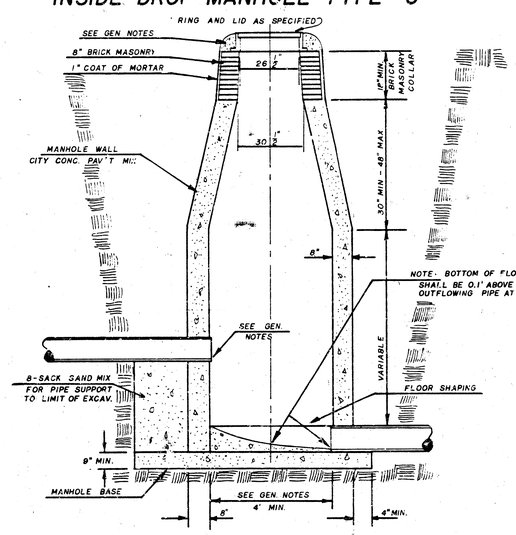
ADOPTED AS STANDARD DESIGN
BY

City of Wichita, Kansas

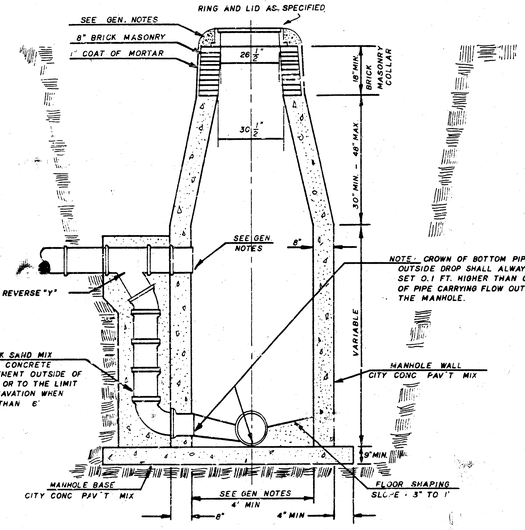
STANDARD MANHOLE TYPE "C"



INSIDE DROP MANHOLE TYPE "C"



OUTSIDE DROP MANHOLE TYPE "C"



GENERAL NOTES

1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS 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. TYPE "C" MANHOLES CAN BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.

2. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

3. AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE UPPER INLET PIPE FOR INSIDE AND OUTSIDE DROP MANHOLES. THE UPPER INLET PIPE SHALL BE GROUTED INTO THIS OPENING WITH NON-SHRINK GROUT. THE EXTERIOR OF THIS COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT.

4. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.

5. 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.

6. 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.

7. THE VERTICAL **FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 2'.**

   THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.

8. STANDARD MANHOLES TYPE "C" AND STANDARD INSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "C" SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

JNL JAN. 1982

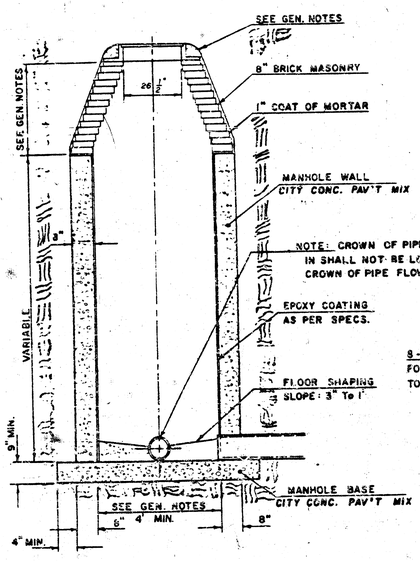
NOTE NO. 7 REVISED JAN. 1991

SEWER APPURTENANCES DETAILS

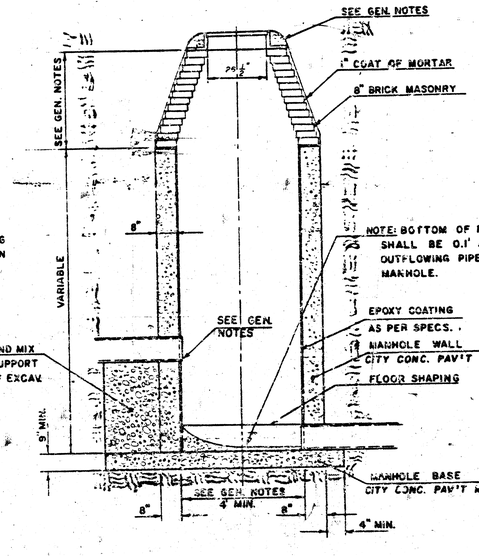
ADOPTED AS STANDARD DESIGN
BY

CITY OF WICHITA, KANSAS

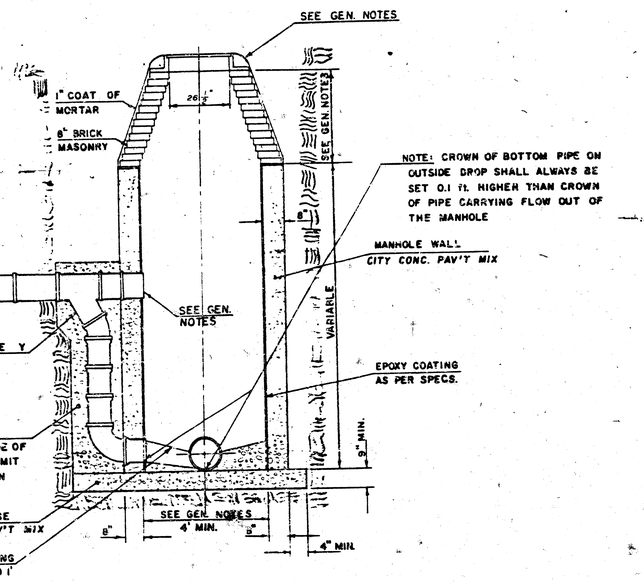
TYPE "D" MANHOLE



TYPE "D" INSIDE DROP MANHOLE



TYPE "D" OUTSIDE DROP MANHOLE



GENERAL NOTES

1. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS 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.

   ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WALL WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE PROTECTED BY AN APPROVED EPOXY COATING. TYPE "D" MANHOLES MAY BE USED ON PIPE SIZES 8" TO 36" WHEN THE MANHOLE DEPTH EXCEEDS THE REQUIRED CORBEL HEIGHT BY 1' PLUS THE OUTSIDE DIAMETER OF THE LARGEST PIPE IN THE MANHOLE.

   MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE A DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE THE PIPE SIZES ARE 24" OR LARGER SHALL HAVE A DIAMETER OF 5'. THE HEIGHT OF THE CORBELS ON 4' DIAMETER MANHOLES SHALL BE 4' MANHOLES HAVING A DIAMETER OF 5' SHALL HAVE CORBELS 6' IN HEIGHT. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.

2. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED 6" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

3. AN OPENING SHALL BE CUT IN THE MANHOLE WALL FOR THE UPPER INLET PIPE FOR INSIDE AND OUTSIDE DROP MANHOLES. THE UPPER INLET PIPE SHALL BE GROUTED INTO THIS OPENING WITH NON-SHRINK GROUT. THE EXTERIOR OF THIS COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. THE INTERIOR PLASTIC LINING SHALL BE SEALED AROUND THE INLET PIPE OPENING IN SUCH A MANNER THAT WILL EFFECTIVELY MAINTAIN THE INTEGRITY OF THE PROTECTIVE PLASTIC LINER.

4. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.

5. 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 5' CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.

6. 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.

7. THE VERTICAL FREE FALL DROP INSIDE MANHOLES SHALL NOT EXCEED 2'.

   THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.

8. STANDARD MANHOLES TYPE "D" AND STANDARD INSIDE DROP MANHOLES TYPE "D" SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES TYPE "D" SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

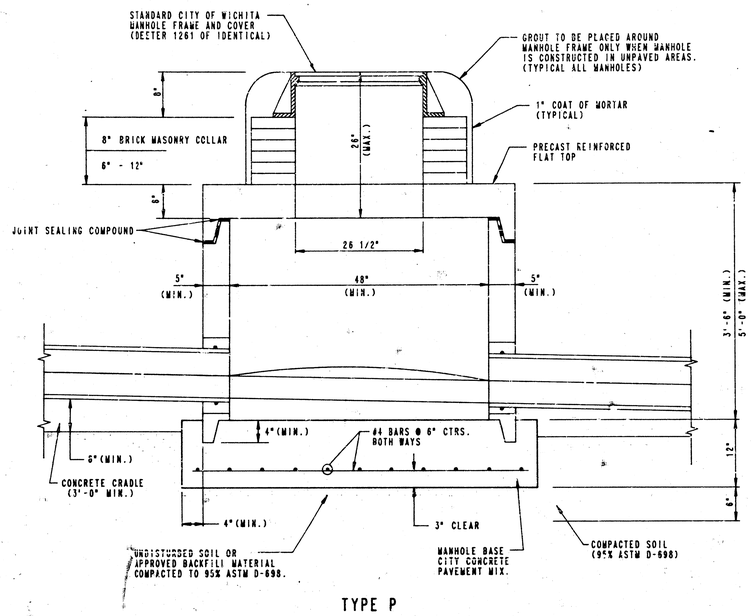
NOTE: EPOXY COATING OK INTERIOR CONCRETE SURFACES MAY BE DELETED WHEN TYPE "D" MANHOLES ARE CONSTRUCTED ON SEWERS WITH DIAMETERS SMALLER THAN 10".

NOTE NO. 7 REVISED JAN. 1991

APRIL 1987

SEWER APPURTENANCES DETAILS

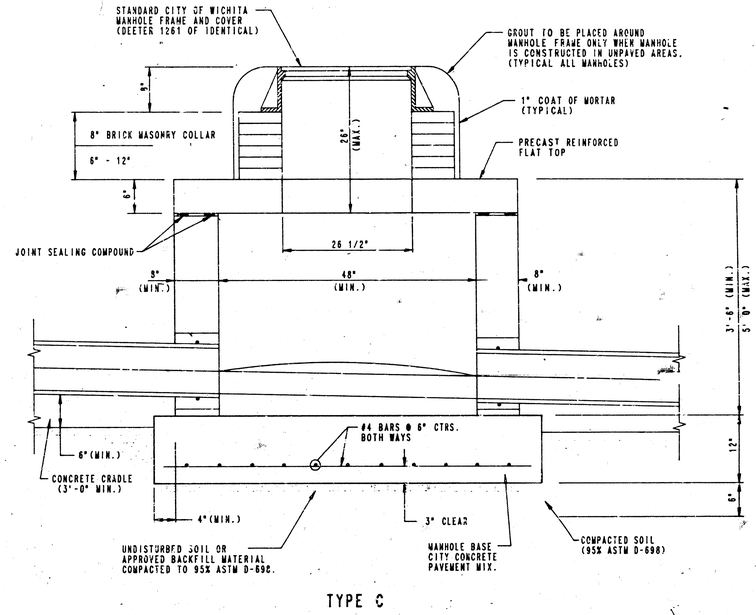
ADOPTED AS STANDARD DESIGN
BY
CITY OF WICHITA



TYPE P
SHALLOW MANHOLE
(PRECAST)

PRECAST MANHOLE NOTES

1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN PLASTIC PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT.
3. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
4. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION (3" MIN.). WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE (3" MIN.). 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.
5. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS TNEMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.).
6. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
7. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
8. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
9. 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.
10. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
11. 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.
12. 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.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS. 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. 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.
15. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
16. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE PRECAST REINFORCED FLAT TOP. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 16" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.
17. SHALLOW MANHOLES TYPE "P" SHALL BE BID AS SHALLOW MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.



TYPE C
SHALLOW MANHOLE
(CAST-IN-PLACE)

CAST-IN-PLACE MANHOLE NOTES

1. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN PLASTIC PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION (3" MIN.). WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MANHOLE (3" MIN.). 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.
4. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
5. 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.
6. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS 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. TYPE "C" MANHOLES CAN BE CONSTRUCTED ONLY WHERE PIPE SIZES ARE 8" OR SMALLER. THE INSIDE DIAMETER OF TYPE "C" MANHOLES SHALL BE 4'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
7. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASE. REINFORCING STEEL SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. REINFORCING STEEL SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. COST OF FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
8. 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.
9. 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.
10. THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
11. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE PRECAST REINFORCED FLAT TOP. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR.
12. SHALLOW MANHOLES TYPE "C" SHALL BE BID AS SHALLOW MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.

MANHOLE FRAME AND COVER DETAIL

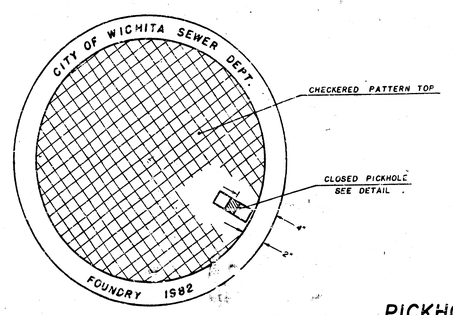
ADOPTED AS STANDARD DESIGN

BY

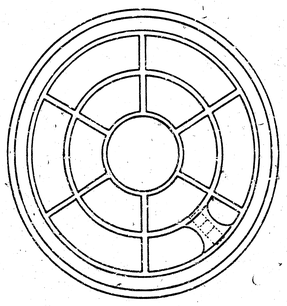
City of Wichita, Kansas

MANHOLE COVER

Weight: 180 Lbs.

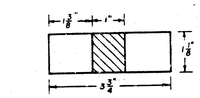


TOP VIEW

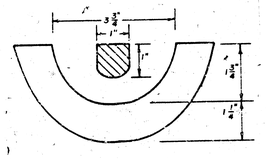


BOTTOM VIEW

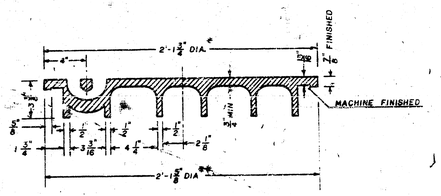
PICKHOLE DETAIL



TOP VIEW



SECTION VIEW



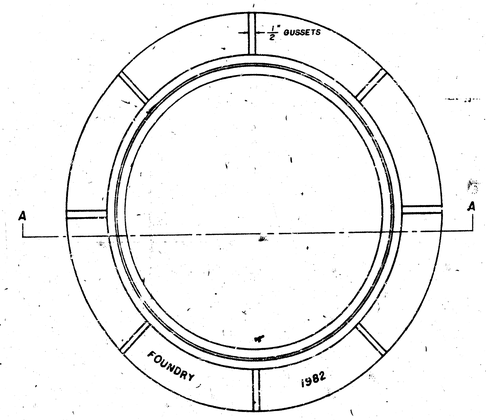
SECTION VIEW

* OUTSIDE DIA. TOP OF COVER

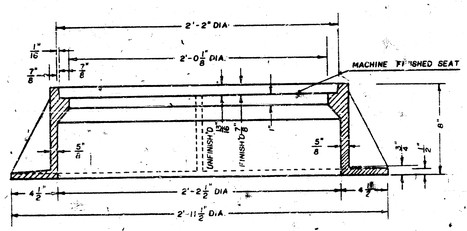
** OUTSIDE DIA. BOTTOM OF COVER

MANHOLE FRAME

Weight: 240 Lbs.



TOP VIEW



SECTION A-A

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 BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.

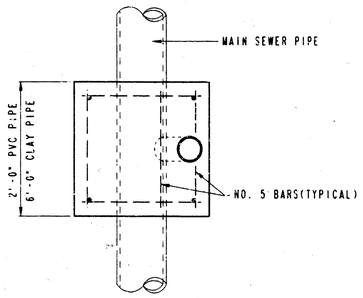
3. MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE 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 SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

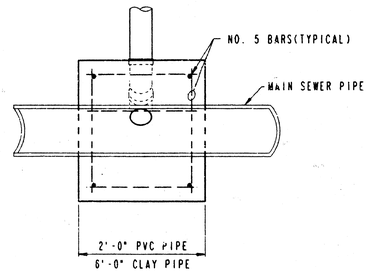
5. THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1" IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER 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 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.

JNL DEC. 1981

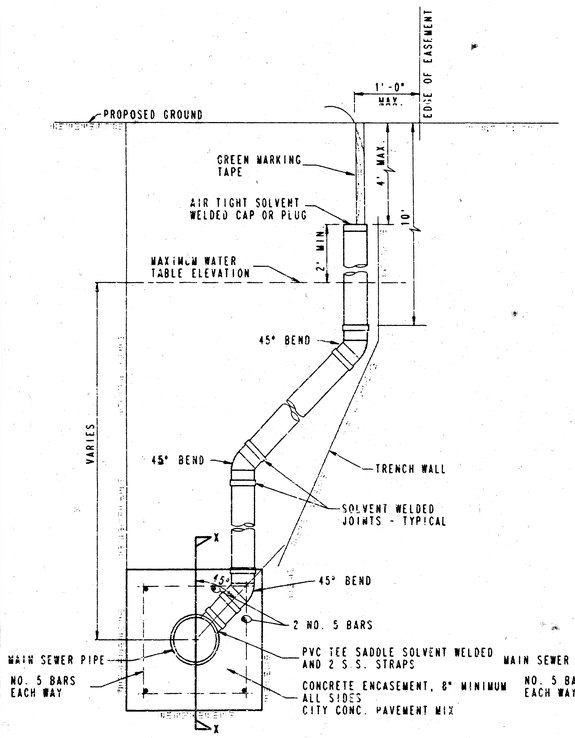
VERTICAL RISER DETAILS
ADOPTED AS STANDARD DESIGN
BY
CITY OF WICHITA, KANSAS
OCTOBER 1992



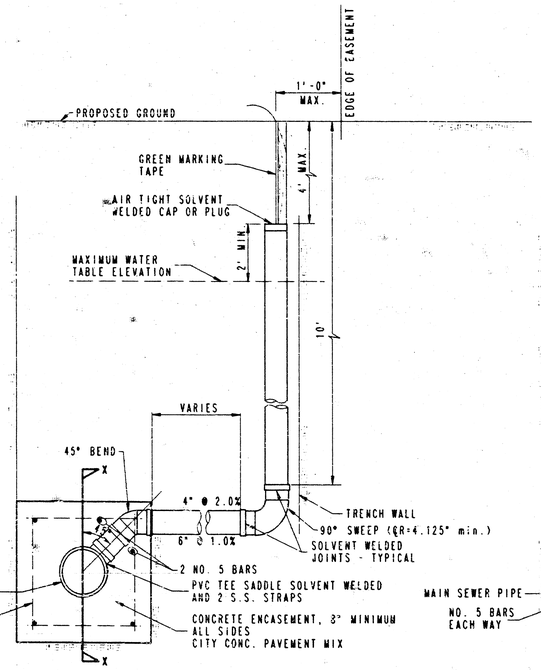
TYPICAL PLAN VIEW



TYPICAL SECTION X-X



METHOD "A"



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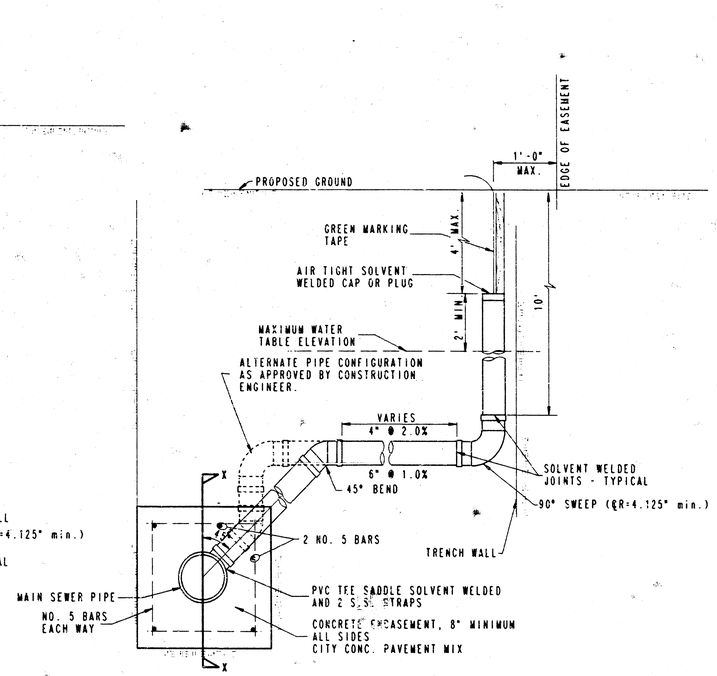


METHOD "C"

NOTE: RISER PIPE REQUIREMENTS AT MANHOLE STUBS SHALL BE SIMILAR TO THOSE SHOWN ABOVE.

GENERAL NOTES

1. RISERS. Risers shall be installed to serve all lots or tracts where the sanitary sewer main is below the water table. Risers shall also be installed to serve all lots and tracts where the sanitary sewer main depth is greater than 12 feet below the proposed ground elevation. Installation of risers because of field conditions shall be as approved by the Construction Engineer. The location of the risers to serve developed property shall be approved by the property owner and the Construction Engineer.

2. PIPE STUBS. Pipe stubs shall be installed in manholes where locations of manholes will provide satisfactory service connection as determined by the Construction Engineer. The vertical distance between the flowline of the manhole pipe stub and the flowline of the sanitary sewer main out of the manhole shall not exceed 2 feet. Risers shall be utilized at manhole pipe stubs as indicated in Note 1. Manhole pipe stubs shall be set such that the top of the stub is not lower than the top of the sanitary sewer main.

3. SIZING. Pipe stubs and risers shall be sized according to the plans and riser table where risers are indicated by the plans. Where risers or pipe stubs are required because of field conditions, the risers and stubs shall be six-inch diameter for commercial or industrial properties and 4" or 6" diameter for residential properties, based on lot size and sanitary sewer main depth. Sizing of risers and stubs shall be approved by the Construction Engineer prior to installation.

4. RISER OR STUB MATERIAL. Risers and stubs shall be constructed of SDR 35 PVC Pipe or Schedule 40 PVC Pipe, meeting the requirements of the latest revision of A.S.T.M. . All pipe joints shall be solvent welded.

5. REINFORCED CONCRETE ENCASEMENT. Riser connections to clay pipe sanitary sewers shall be reinforced concrete encased both ways from the riser centerline. The reinforced concrete encasement shall extend three feet from the riser centerline or stop at the first sanitary sewer pipe joint within three feet of the riser centerline. Riser connections to PVC Sanitary Sewer mains shall be reinforced concrete encased one foot each way from the riser centerline. The concrete encasement shall be reinforced using reinforcing steel as shown in the appropriate drawing. The concrete shall conform to the City Standard Specifications for concrete pavement.

6. BEDDING. Bedding around the sanitary sewer riser shall be compacted Pipe Bedding Type 1 or 2. The bedding shall be placed and compacted from the depth of the sanitary sewer main to the top of the sanitary sewer riser pipe. Compacted Pipe Bedding Type 1 or 2 shall be required for all risers whether constructed in vertical wall or sloped wall trenches. Bedding material and construction practices shall be approved by the Construction Engineer prior to installation.

7. SUPPORT OF RISERS. Sanitary sewer riser pipe shall be supported during trench backfill. The riser pipe shall be held in a vertical position at all times until trench backfill and compaction has been completed. Contractor's methods for supporting and backfilling the riser pipe shall be approved by the Construction Engineer.

8. PLUGGING. The ends of the riser pipes and manhole stubs shall be plugged using an airtight solvent welded cap or plug. Cap or plug fittings shall be approved by the Construction Engineer prior to installation. Caps or plugs which do not provide an airtight seal will not be accepted.

9. TOP OF THE RISER PIPE. The top elevation of the sanitary sewer riser pipe shall be built per plan elevations, unless otherwise directed by the Construction Engineer. Where riser elevations are not shown on the plans, the top of the risers shall be set at an elevation four feet below the proposed ground surface. If ground water is encountered, the top of the riser pipe shall be set at an elevation two feet (min.) above the maximum water table elevation, regardless of the riser elevation shown on the plans.

10. MARKING. Locations of the ends of the sanitary sewer riser pipe shall be marked by fastening green colored plastic tape to the end of the riser. The pipe shall be supported by a length of wooden 2 x 4, extending from the top of the riser pipe to the proposed ground surface. The green tape shall be visible and extend one foot above the proposed ground surface. The green tape shall be 4 mil Polyethylene film with a minimum width of three inches, specifically manufactured for the purpose of identification of underground sewers.

11. LOCATION MEASURES. The project inspector shall record and document the location of all risers constructed as measured from the nearest manhole, indicating the direction from the manhole, the direction and distance from the main, riser size, and elevation of the top of the riser.

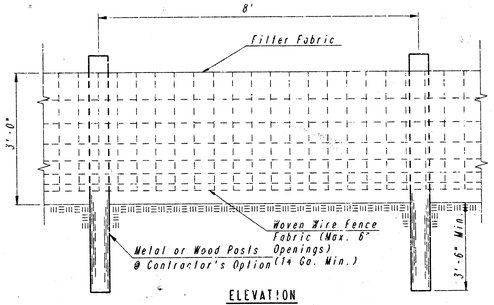
12. RISER LOCATION. The riser shall be located per plan if shown. If not shown on the plan, the riser shall be located at the center of the lot, within one foot of the property side of the easement for the lot being served. All riser locations shall be approved by the Construction Engineer prior to installation.

13. PAYMENT. "Sanitary sewer risers" shall be paid for at the contract unit price per each, which price shall be full compensation for all pipe, fittings, marking tape, length of wooden 2 x 4, reinforced concrete encasement, support during backfill, backfill, labor, site restoration, and any other items necessary to complete the work.

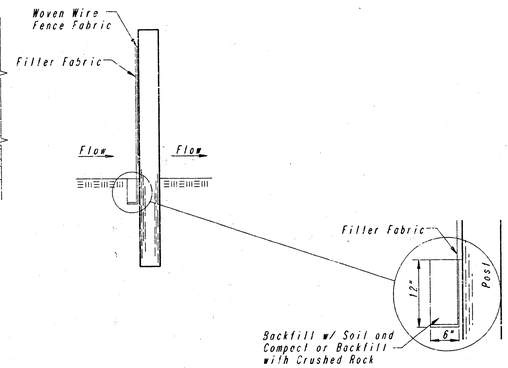
"Manhole stubs" shall be paid for at the contract unit price per each, which shall be full compensation for all labor, material, and incidentals necessary to complete the work including all pipe, fittings, reinforced concrete encasement, and all other items as required and listed for "Sanitary Sewer Risers"

PLAN	CHECKED	DATE
	CHECKED	
BY		

11-1-T-01

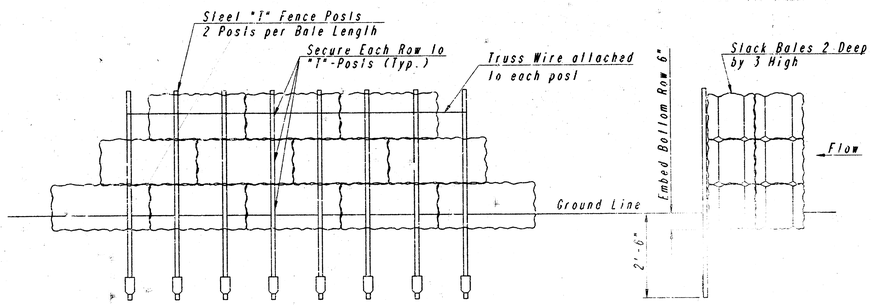


ELEVATION



TRENCH DETAIL

SILTATION BARRIER DETAILS
FENCE OPTION



ELEVATION SECTION

SILTATION BARRIER DETAILS
HAY/STRAW BALE OPTION

EROSION CONTROL NOTES

1. SILTATION BARRIERS SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE COST FOR THE EROSION BARRIERS SHALL BE CONSIDERED SUBSIDIARY TO LUMP SUM PRICE BID FOR EASEMENT GRADING.

2. SILTATION BARRIERS SHALL BE ERECTED PRIOR TO THE COMMENCEMENT OF EARTHWORK OPERATIONS IN A GIVEN BASIN. REMOVAL AND DISPOSAL OF ACCUMULATED SILT AND DEBRIS AND/OR REMOVAL AND RECONSTRUCTION OF SILTATION BARRIERS WILL BE PERFORMED THROUGHOUT THE PROJECT WHEN DEBRIS REACHES ONE-THIRD THE FENCE HEIGHT OR AS DEEMED NECESSARY BY THE ENGINEER. SILTATION BARRIERS AND ACCUMULATED DEBRIS SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR (IN ACCORDANCE WITH THE GENERAL NOTES ON SHEET 2) AFTER TURF COVER HAS BEEN ESTABLISHED, UNLESS OTHER ARRANGEMENTS HAVE BEEN AGREED TO.

3. FILTER FABRIC FOR FENCE OPTION SILTATION BARRIERS SHALL BE RESISTANT TO ULTRAVIOLET LIGHT. MATERIALS MAY BE SUPPLIED BY THE FOLLOWING MANUFACTURERS:

MIRAFI, INC.	-	100X
HOECHST FIBERS INDUSTRIES	-	TREVIRA 1115
EXXON	-	TYPAR 3301 W

MATERIALS SUPPLIED BY THE ABOVE NAMED MANUFACTURERS SHALL BE ACCEPTED UPON VISUAL INSPECTION BY THE ENGINEER. OTHER COMPARABLE MATERIALS MAY BE USED IF APPROVED BY THE ENGINEER.

FILTER FABRIC SHALL BE ATTACHED TO FENCE FABRIC BY MEANS OF TIE WIRES OR HOG RINGS PRIOR TO ATTACHMENT OF FENCE/FABRIC COMBINATION ONTO THE POSTS.

4. BALES USED FOR SILTATION BARRIERS MAY BE EITHER HAY OR STRAW, PROVIDED THEY ARE SOUND.

PLAN CHECKED CHECKED DATE BY

DRAWING NAME: 34-92612-2 R69 EROCON
COUNTY: SEDGWICK
LOCATION: KELLY DWG. #369
ROTATION ANGLE:
DATE LAST WORKED ON: JAN. 18, 1993
SPECIAL INSTRUCTIONS:

No.	Revision	By	Date

LATERAL 31, MAIN 15 OF THE
SOUTHWEST INTERCEPTOR SEWER
SEDIMENT AND EROSION CONTROL STANDARD DETAILS
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER
CITY OF WICHITA PROJECT NO. 468-76-245-82274-000-000-001

MICHAEL D. SCHOMAKER LICENSED 6778 KANSAS PROFESSIONAL ENGINEER

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
ENGINEERS
WICHITA, KANSAS

Designed by MWB | Job No. 34-92612-2 | Sht. 13 of 13
Drawn by DEP | Date January, 1993

JE-10-05-05