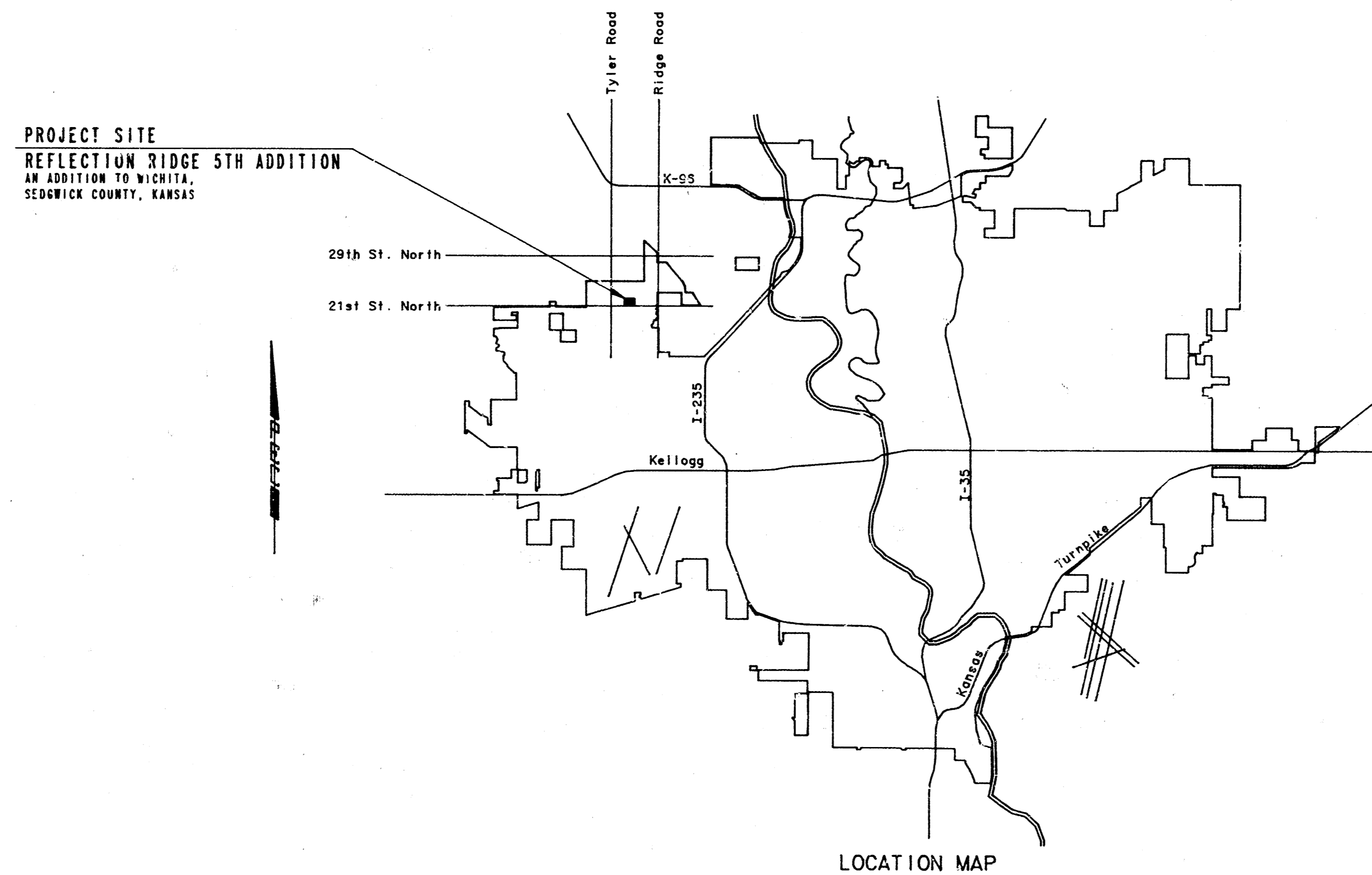


CONSTRUCTION PLANS FOR
LATERAL 19, MAIN 15
 OF THE
SOUTHWEST INTERCEPTOR SEWER
 IN
THE CITY OF WICHITA,
 SEDGWICK COUNTY, KANSAS
 MICHAEL E. LINDEBAK, P. E. - CITY ENGINEER



INDEX OF SHEETS

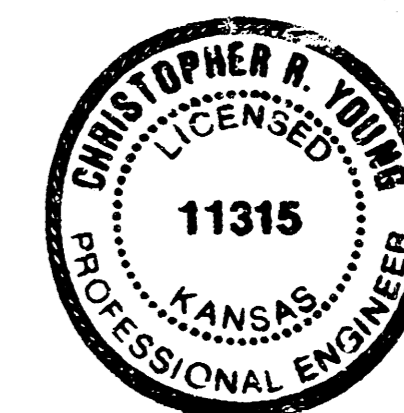
SHEET NO. 1	TITLE SHEET
SHEET NO. 2	KEY MAP
SHEET NO. 3	PLAT
SHEET NO. 4	EASEMENT GRADING
SHEET NO. 5-6	PLAN/PROFILE
SHEET NO. 7	TYPE "P" MANHOLE DETAILS
SHEET NO. 8	TYPE "C" MANHOLE DETAILS
SHEET NO. 9	TYPE "D" MANHOLE DETAILS
SHEET NO. 10	FRAME & COVER DETAIL
SHEET NO. 11	RISER DETAILS

INDEX CODE 740589
 CITY OF WICHITA PROJECT NO. 468-76-245-82073-000-000-001

AUGUST, 1990

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

*Built Per Plan
 RDC
 1-91*



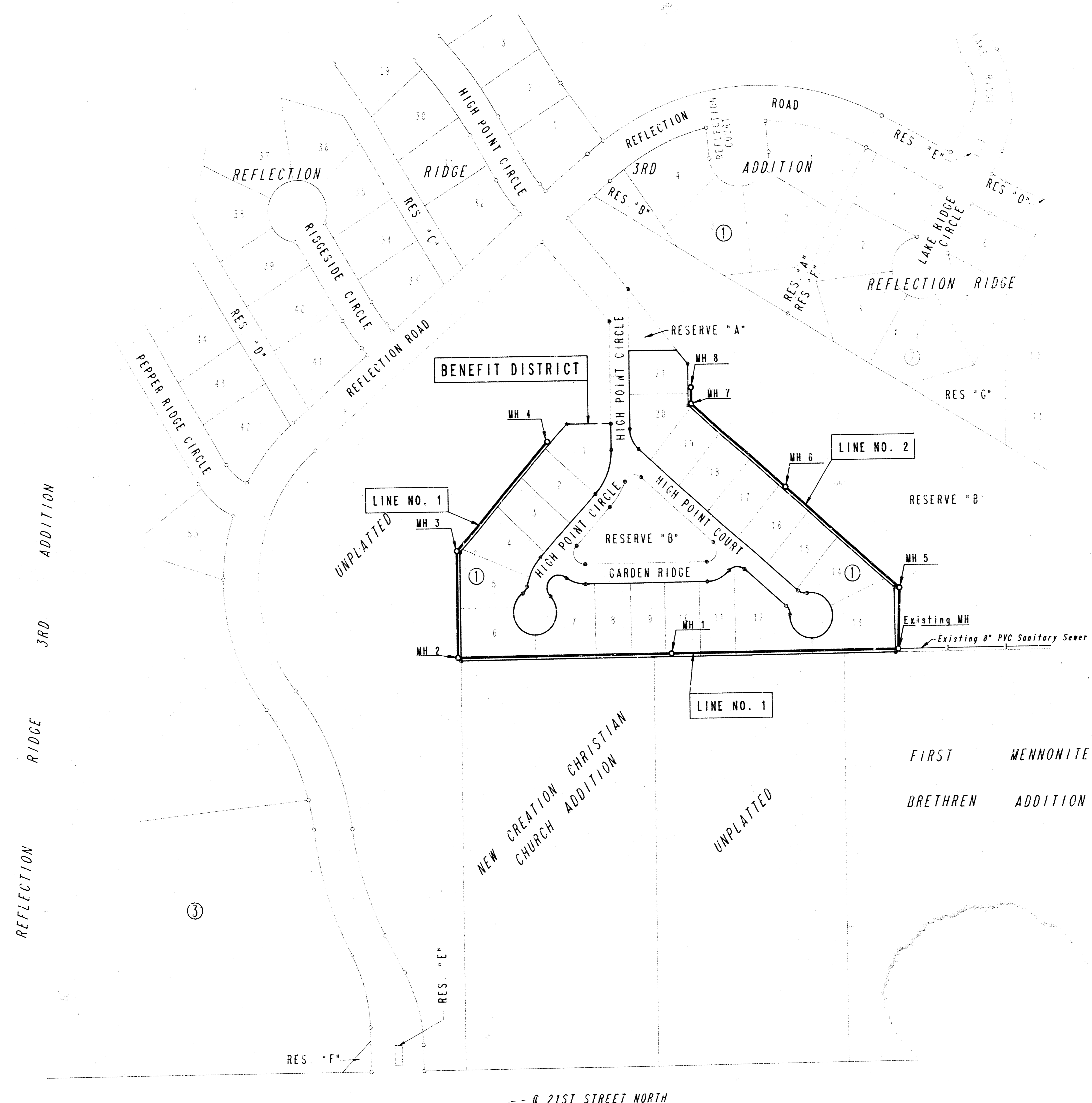
August 21, 1990 34-90296-2 RR SS Title
 Dwg. No. 489 SFM10.04

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Aug. 21, 1990 34-90296-2 RR SS Key
 Des. No. 408 SPM10.04

Scale: 1"=100'

- IRON SET AT TIME OF PLATTING
- PROPERTY IRONS VERIFIED EXISTING AS OF JUNE 13, 1990. CONTRACTOR TO SATISFY HIMSELF AS TO IRONS IN PLACE AT TIME OF CONSTRUCTION.

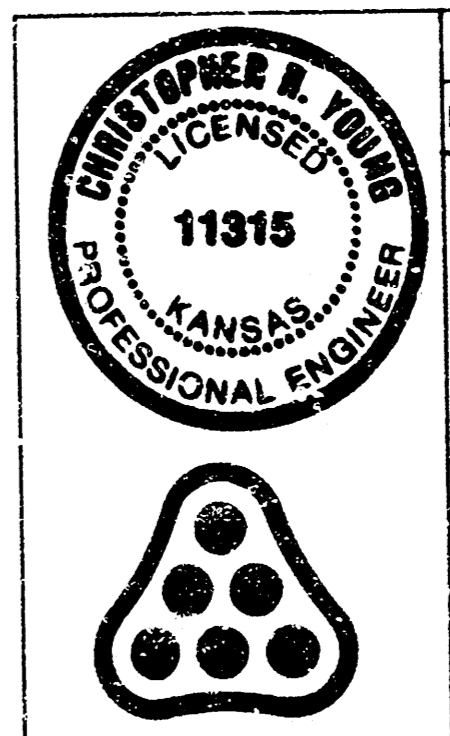


KEY MAP

GENERAL NOTES

- ALL CONSTRUCTION AND MATERIALS TO COMPLY WITH CITY OF WICHITA SPECIFICATIONS AND STANDARDS.
- ALL ELEVATIONS SHOWN ARE CITY OF WICHITA DATUM (USGS - 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 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 COMPANY, K.G. & E., THE WICHITA WATER DEPARTMENT, MULTIMEDIA CABLEVISION, AND SOUTHWESTERN BELL TELEPHONE.
- 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 LOCATION, 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 OTHER ITEMS OF WORK.
- CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
- UNLESS OTHERWISE SPECIFIED ON THE PLANS, MANHOLES MAY BE TYPE "P", "C", OR "D" MANHOLES. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS.
- CONTRACTOR SHALL GRADE THE SANITARY SEWER ALIGNMENT TO THE PROFILE AND ELEVATIONS SHOWN ON THE EASEMENT GRADING PLAN. ALL COSTS FOR GRADING SHALL BE SUBSIDIARY TO THE PROJECT.
- EXCESS EXCAVATION FROM SANITARY SEWER CONSTRUCTION SHALL BE STOCKPILED IN REFLECTION RIDGE 5TH ADDITION AS DIRECTED BY THE OWNER (REFLECTION RIDGE, INC.), AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL CONTACT MR. HARVIN SCHELLENBERG AT 721-2153 PRIOR TO PLACEMENT OF EXCESS MATERIAL.
- EXISTING TREES AND IRRIGATION SYSTEM (PIPELINES, SPRINKLER HEADS, ETC.) WHICH MAY BE SHOWN TO CONFLICT WITH THE CONSTRUCTION OPERATIONS FOR THE PROPOSED IMPROVEMENTS ARE TO BE REMOVED OR RELOCATED BY REFLECTION RIDGE GOLF COURSE PERSONNEL PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION OPERATIONS WITH THE GOLF COURSE SUPERINTENDENT, MR. JOHN WRIGHT AT 721-9483.
- CONTRACTOR SHALL RESTRICT HIS CONSTRUCTION TO STREET RIGHT-OF-WAY AND DEDICATED EASEMENTS IN ORDER TO PREVENT DAMAGE TO THE EXISTING GOLF COURSE. ANY DAMAGE TO THE GOLF COURSE OUTSIDE THE SPECIFIED LIMITS WHICH ARE CAUSED BY THE CONTRACTOR SHALL BE SUBJECT TO REPAIR AS APPROVED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

RISER LOCATION TABLE							ELEV.
TEE SADDLE LOCATION (8"x4")							
NO.	LINE NO.	STATION	BLOCK NO.	LOT NO.	DIRECTION	4" RISER PIPE (L.F.)	
1	1	2+15	1	12	RT. 20	4.0'	159.40
2	1	2+85	1	11	RT. 20	4.0'	160.10
3	1	3+45	1	10	RT. 20	4.0'	160.70
4	1	4+10	1	9	RT. 20	4.0'	161.30
5	1	4+70	1	8	RT. 20	4.0'	161.90
6	1	5+35	1	7	RT. 20	4.0'	162.50
7	1	6+80	1	6	RT. 20	3.0'	163.10

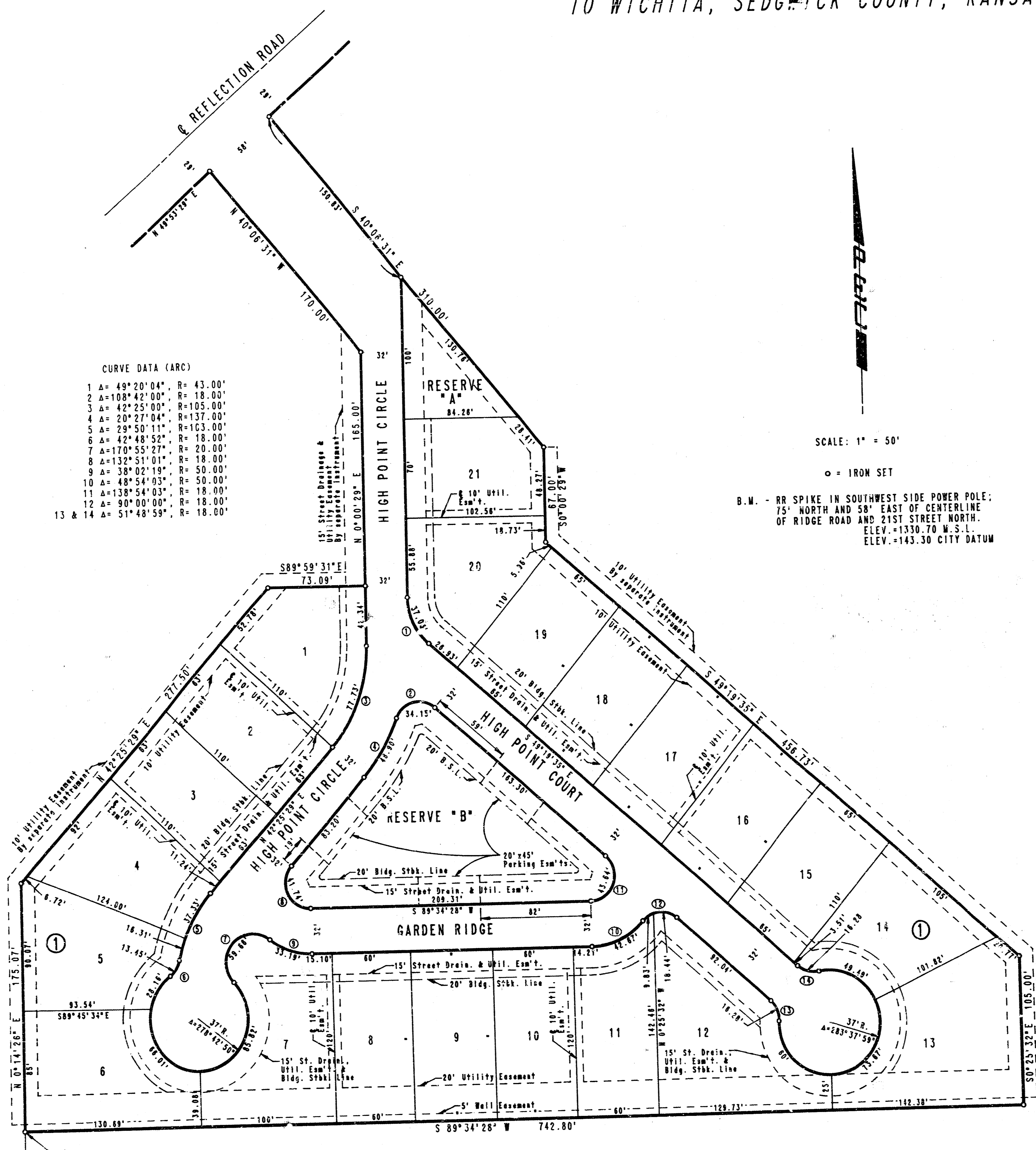


No.	Revision	By	Date
LATERAL 19, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER			
KEY MAP AND GENERAL NOTES			
MICHAEL E. LINDBERK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-75-245-82013-000-000-001			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	CRY, RFJ	Job No.	34-90296-2
Drawn by	TDS, DMM	Date	June, 1990
			Sht. 2 of 11

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REFLECTION RIDGE 5TH ADDITION

TO WICHITA, SEDGWICK COUNTY, KANSAS



CURVE DATA (ARC)

1	A=49°20'04"	R=43.00'
2	A=108°42'00"	R=18.00'
3	A=42°25'00"	R=105.00'
4	A=20°27'04"	R=137.00'
5	A=29°50'11"	R=163.00'
6	A=42°48'52"	R=18.00'
7	A=170°55'27"	R=20.00'
8	A=132°51'01"	R=18.00'
9	A=38°02'19"	R=50.00'
10	A=48°54'03"	R=50.00'
11	A=138°54'03"	R=18.00'
12	A=90°00'00"	R=18.00'
13 & 14	A=51°48'59"	R=18.00'

STATE OF KANSAS)
 COUNTY OF SEDGWICK) SS

I, CHARLES S. BROWN, A REGISTERED LAND SURVEYOR IN AFORESAID STATE AND COUNTY, DO HEREBY CERTIFY THAT ON THIS _____ DAY OF _____, 1990, I HAVE BEEN IN RESPONSIBLE CHARGE OF SURVEYING AND PLATTING OF REFLECTION RIDGE 5TH ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS, INTO LOTS, A BLOCK, STREETS AND RESERVES; THE SAME BEING A TRACT OF LAND IN THE SW 1/4 OF SECTION 4, TOWNSHIP 27 SOUTH, RANGE 1 WEST OF THE 6TH P.M. AND DESCRIBED AS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SOUTHWEST QUARTER; THENCE BEARING N 89°34'28" E ALONG THE SOUTH LINE OF SAID SOUTHWEST QUARTER, A DISTANCE OF 1317.05 FEET; THENCE BEARING N 0°14'26" E, A DISTANCE OF 740.02 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ON A BEARING OF N 0°14'26" E, A DISTANCE OF 175.07 FEET; THENCE BEARING N 42°25'00" E, A DISTANCE OF 277.50 FEET; THENCE BEARING S 89°59'51" E, A DISTANCE OF 73.09 FEET; THENCE BEARING N 0°00'29" E, A DISTANCE OF 185.00 FEET; THENCE BEARING N 40°06'31" W, A DISTANCE OF 170.00 FEET TO A POINT ON THE SOUTHERLY LINE OF REFLECTION ROAD AS PLATTED IN REFLECTION RIDGE 3RD ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS; THENCE ALONG SAID SOUTHERLY LINE BEARING N 49°53'29" E, A DISTANCE OF 58.00 FEET; THENCE BEARING S 40°06'31" E, ALONG THE WESTERLY LINE OF RESERVE "B" AS PLATTED IN REFLECTION RIDGE, AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS, A DISTANCE OF 310.00 FEET; THENCE CONTINUING ALONG SAID WESTERLY LINE BEARING S 0°00'29" W, A DISTANCE OF 456.73 FEET; THENCE BEARING S 0°25'32" E, A DISTANCE OF 105.00 FEET; THENCE BEARING S 89°34'28" W, A DISTANCE OF 742.80 FEET TO THE POINT OF BEGINNING.

SCALE: 1" = 50'

○ = IRON SET
 B.W. - RR SPIKE IN SOUTHWEST SIDE POWER POLE; 75' NORTH AND 58' EAST OF CENTERLINE OF RIDGE ROAD AND 21ST STREET NORTH. ELEV. = 1330.70 W.S.L. ELEV. = 143.30 CITY DATUM

CHARLES S. BROWN, P.E., LIC. NO. 7581 R.L.S. NO. 991
 PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

KNOW ALL MEN BY THESE PRESENTS THAT WE, THE UNFORSIGNED PROPERTY OWNERS OF THE LAND, AS ABOVE SET FORTH IN THE SURVEYOR'S CERTIFICATE, HAVE CAUSED THE LAND TO BE SURVEYED AND PLATTED INTO LOTS, A BLOCK, STREETS AND RESERVES, THE SAME TO BE KNOWN AS REFLECTION RIDGE 5TH ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS.

EASEMENTS AS INDICATED FOR THE CONSTRUCTION AND MAINTENANCE OF PUBLIC UTILITIES, STREETS AND DRAINAGE ARE HEREBY GRANTED. THE STREETS ARE HEREBY DEDICATED TO AND FOR THE USE OF THE PUBLIC.
 THE FIVE-FOOT WALL EASEMENT ALONG THE SOUTH LINE OF BLOCK 1 IS HEREBY PLATTED FOR THE CONSTRUCTION AND MAINTENANCE OF A PRIVATE WALL. UTILITIES MAY CROSS THE WALL EASEMENT.

RESERVE "A" IS PLATTED FOR LANDSCAPING, IRRIGATION SYSTEMS, WALKS, MAIL BOX STRUCTURES, AND UTILITIES AND DRAINAGE CONFINED TO EASEMENTS. RESERVE "B" IS PLATTED FOR OFF-STREET PARKING, LANDSCAPING, IRRIGATION SYSTEMS, WALKS, MAIL BOX STRUCTURES, GAZEBOS, SHELTERS, AND UTILITIES AND DRAINAGE CONFINED TO EASEMENTS. RESERVES "A" AND "B" SHALL BE SUBJECT TO RESTRICTIVE COVENANTS ESTABLISHED BY THE DECLARATION OF LANDOWNERS ASSOCIATION AGREEMENTS AND SHALL BE OWNED AND MAINTAINED BY AN OWNERS' ASSOCIATION TO BE FORMED WITHIN THE REFLECTION RIDGE 5TH ADDITION.

THOSE PORTIONS OF RESERVE "B" REFLECTION RIDGE, AND FIRST MENNONITE BRETHREN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS, WITHIN THE ABOVE DESCRIBED TRACT ARE HEREBY VACATED AND REPLATTED BY VIRTUE OF K.S.A. 12-512(C) AMENDED.

OWNER: REFLECTION RIDGE, INC.
 BY: MARVIN SCHELLENBERG, VICE PRESIDENT

STATE OF KANSAS)
 COUNTY OF SEDGWICK) SS

BE IT REMEMBERED ON THIS _____ DAY OF _____, 1990, BEFORE ME, A NOTARY PUBLIC IN AFORESAID STATE AND COUNTY, CAME MARVIN SCHELLENBERG, VICE PRESIDENT, REFLECTION RIDGE, INC., TO ME PERSONALLY KNOWN TO BE THE SAME PERSON WHO EXECUTED THE FOREGOING INSTRUMENT OF WRITING AND DULY ACKNOWLEDGED THE EXECUTION OF SAME FOR AND ON BEHALF AND AS THE ACT AND DEED OF SAID CORPORATION, IN TESTIMONY WHEREOF I HAVE HERETO SET MY HAND AND AFFIXED MY NOTARIAL SEAL THE DAY AND YEAR ABOVE WRITTEN.

_____, NOTARY PUBLIC
 MY COMMISSION EXPIRES _____

WE, EMPIRE BANK, IN WICHITA, KANSAS, HOLDER OF A MORTGAGE ON THE ABOVE DESCRIBED PROPERTY, DO HEREBY CONSENT TO THE PLATTING OF REFLECTION RIDGE 5TH ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS.

BY: GREGG L. LESH, SENIOR VICE PRESIDENT

STATE OF KANSAS)
 COUNTY OF SEDGWICK) SS

BE IT REMEMBERED ON THIS _____ DAY OF _____, 1990, BEFORE ME, A NOTARY PUBLIC IN AFORESAID STATE AND COUNTY, CAME GREGG L. LESH, SENIOR VICE PRESIDENT, EMPIRE BANK, IN WICHITA, KANSAS, TO ME PERSONALLY KNOWN TO BE THE SAME PERSON WHO EXECUTED THE FOREGOING INSTRUMENT OF WRITING AND DULY ACKNOWLEDGED THE EXECUTION OF SAME FOR AND ON BEHALF AND AS THE ACT AND DEED OF SAID BANK, IN TESTIMONY WHEREOF I HAVE HERETO SET MY HAND AND AFFIXED MY NOTARIAL SEAL THE DAY AND YEAR ABOVE WRITTEN.

_____, NOTARY PUBLIC

MY COMMISSION EXPIRES _____

THIS PLAT HAS BEEN SUBMITTED TO AND APPROVED BY THE WICHITA-SEGWICK COUNTY METROPOLITAN AREA PLANNING COMMISSION, WICHITA, KANSAS, DATED THIS _____ DAY OF _____, 1990.

_____, ACTING CHAIRMAN

_____, SECRETARY

MARVIN S. KROUT

THIS PLAT APPROVED AND ALL DEDICATIONS SHOWN HEREON ARE ACCEPTED BY THE CITY COUNCIL OF THE CITY OF WICHITA, KANSAS, DATED THIS _____ DAY OF _____, 1990.

_____, MAYOR

_____, CITY CLERK

JOHN MOIR

ENTERED ON TRANSFER RECORD THIS _____ DAY OF _____, 1990.

_____, COUNTY CLERK

DON WRIGHT

THIS IS TO CERTIFY THAT THIS INSTRUMENT WAS FILED FOR RECORD IN THE REGISTER OF DEEDS OFFICE AT _____ M., ON THIS _____ DAY OF _____, 1990.

_____, REGISTER OF DEEDS

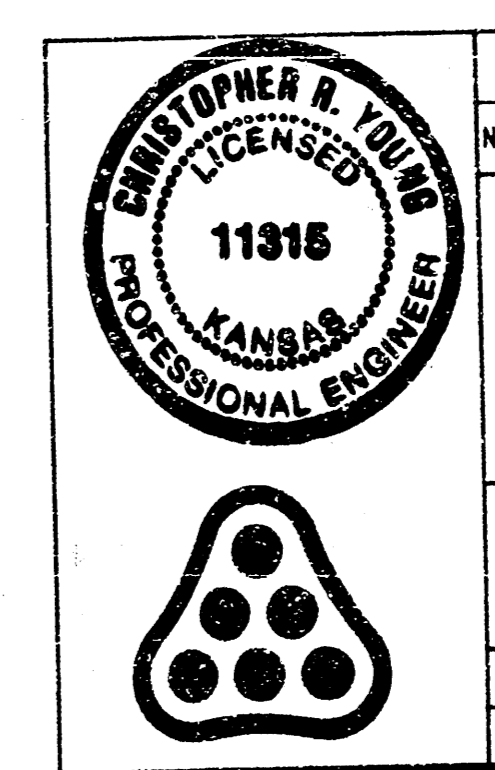
PAT KETTLER

_____, DEPUTY

ED RESA

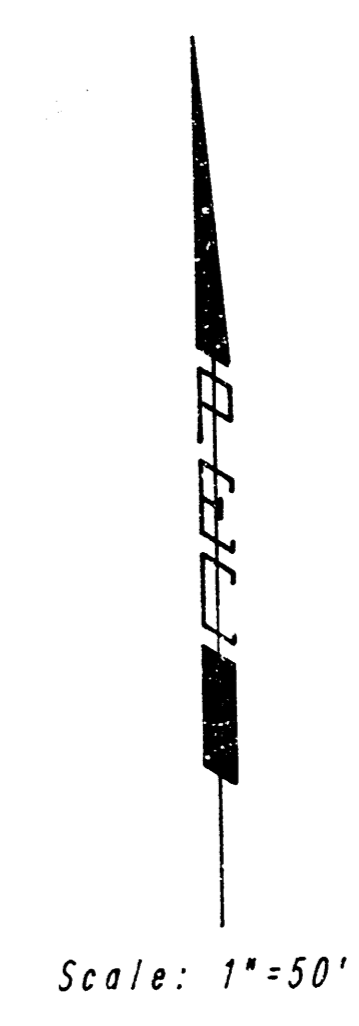
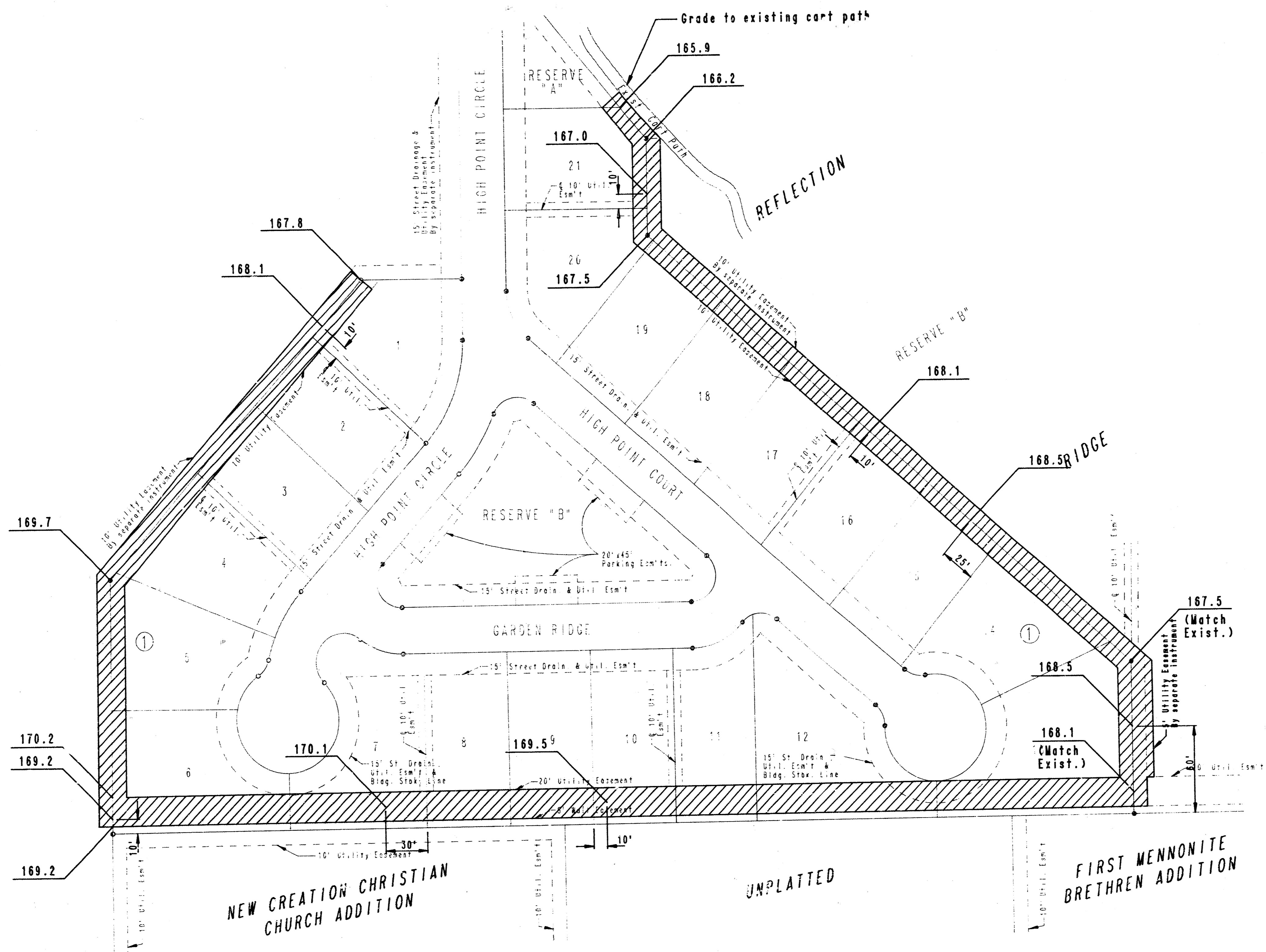
July 24, 1990 34-90296-2 RR SS Plat
 Dwg. No. 491 SEM10.04

S.W. CORNER S.W. 1/4
 SEC. 4, T27S, R1W
 OF THE 6TH P.M.



No.	Revision	By	Date
	LATERAL 19, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER		
PLAT			
MICHAEL E. LIMDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 268-76-245-82073-000-000-001			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	Job No. 34-90296-2	Sht. 3 of 11	
Drawn by	Date June, 1990		

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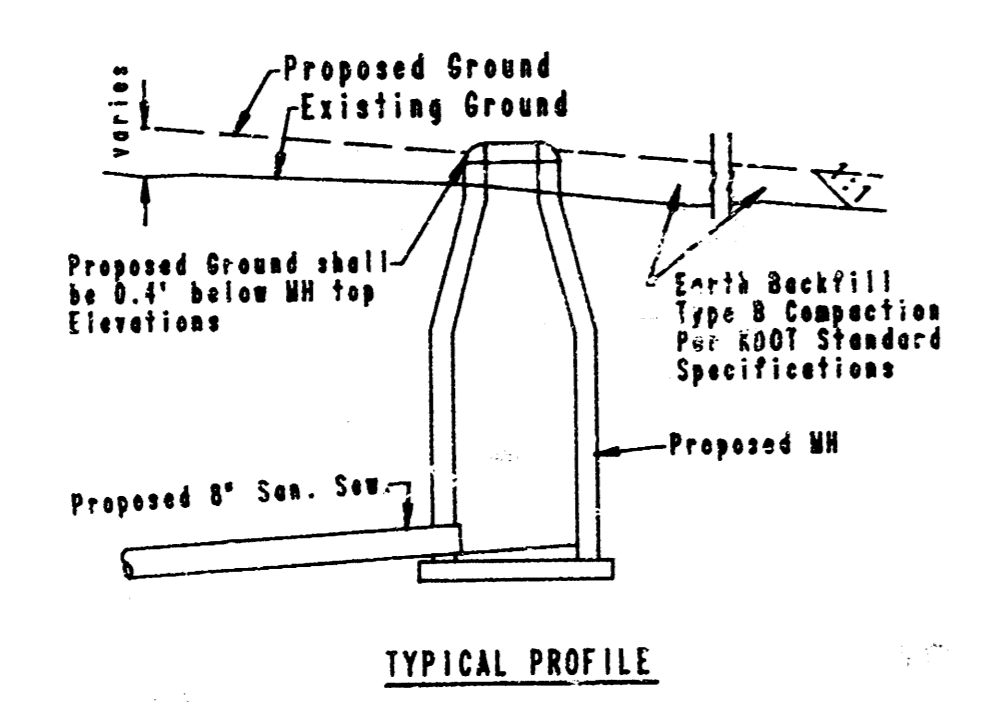


- IRON SET AT TIME OF PLATTING
- PROPERTY IRONS VERIFIED EXISTING AS OF JUNE 13, 1990. CONTRACTOR TO SATISFY HIMSELF AS TO IRONS IN PLACE AT TIME OF CONSTRUCTION.
- B.M. - RR SPIKE IN SOUTHWEST SIDE POWER POLE: 75' NORTH AND 50' EAST OF CENTERLINE OF RIDGE ROAD AND 21ST STREET NORTH. ELEV. = 1330.70 M.S.L. ELEV. = 143.30 CITY DATUM

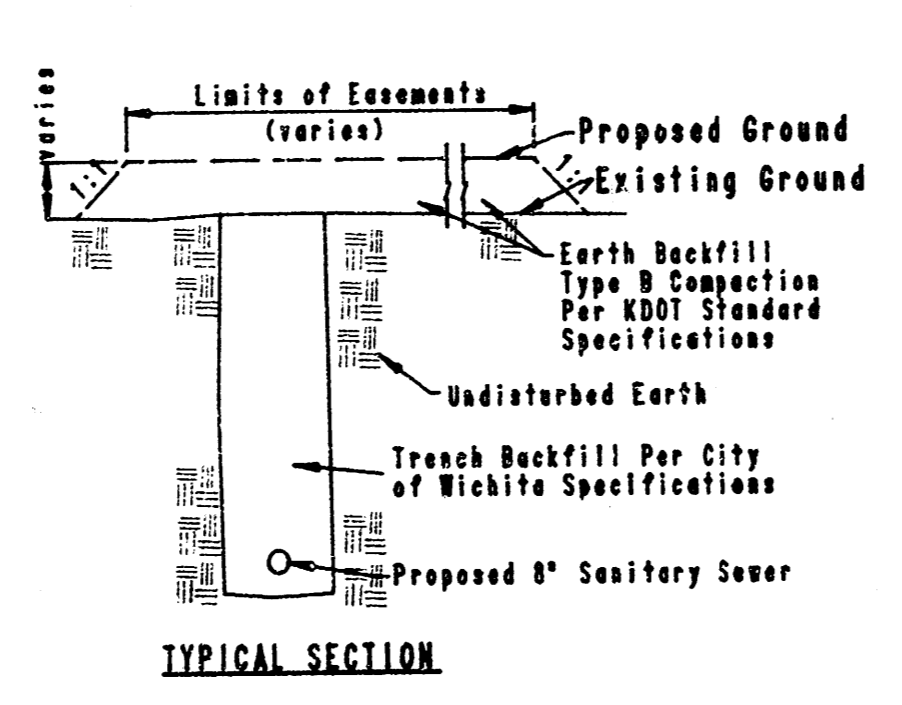
EASEMENT GRADING

- = AREAS 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

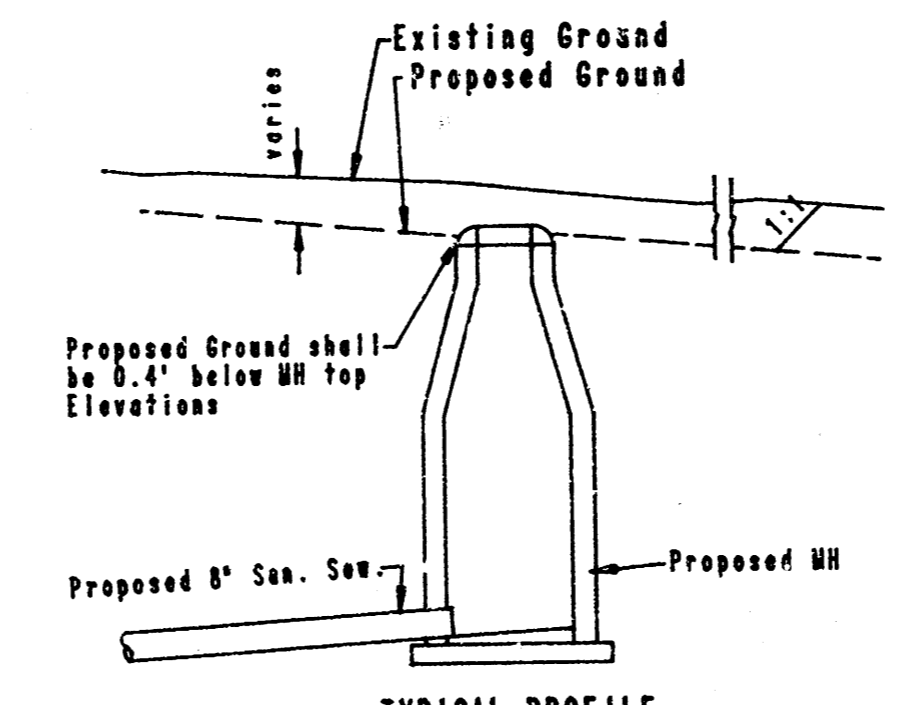
Aug. 21, 1990 34-90296-2 RR SS Esm't Gr.
 Dwg. No. 492 SEM10.04



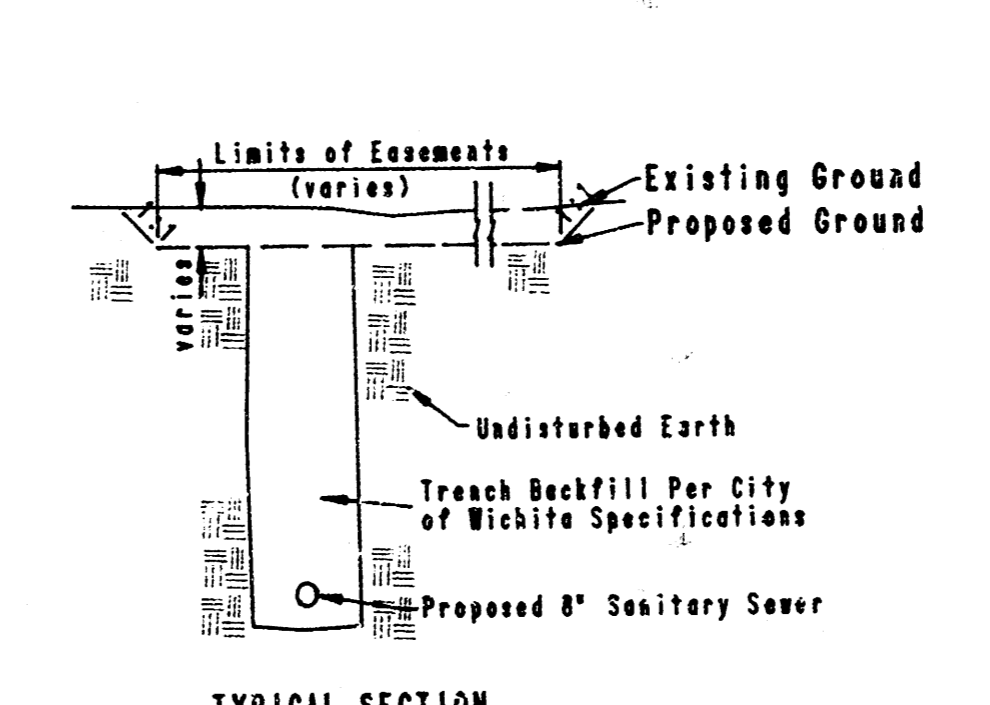
***FILL* SITUATIONS**



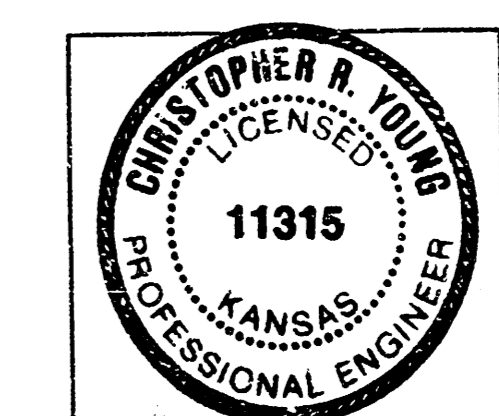
TYPICAL SECTION



***CUT* SITUATIONS**



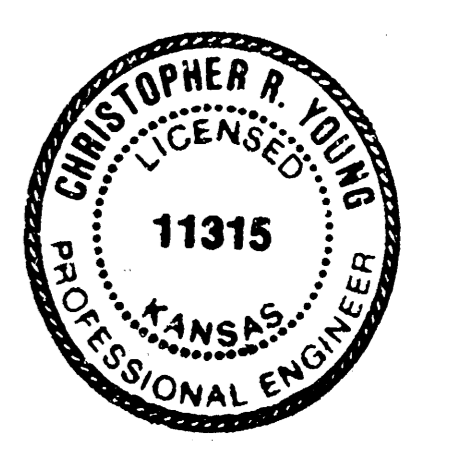
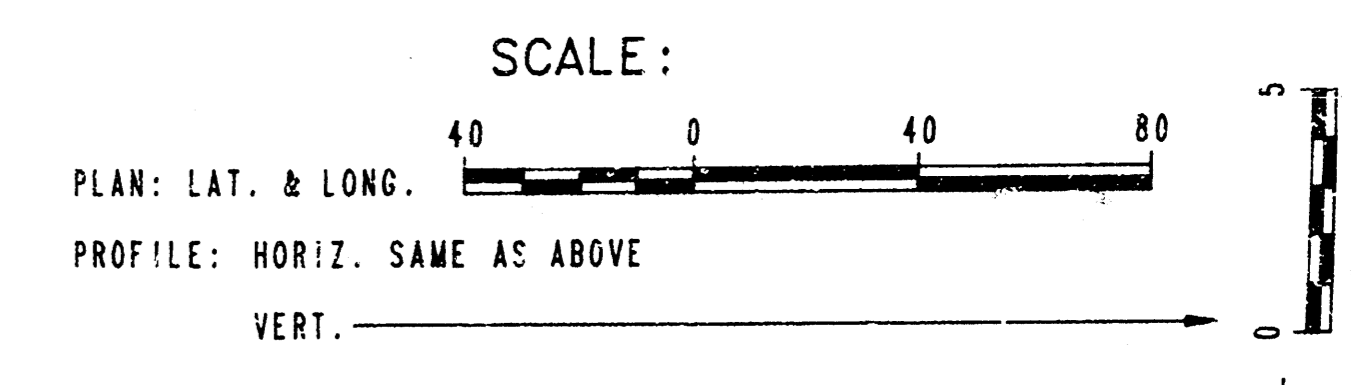
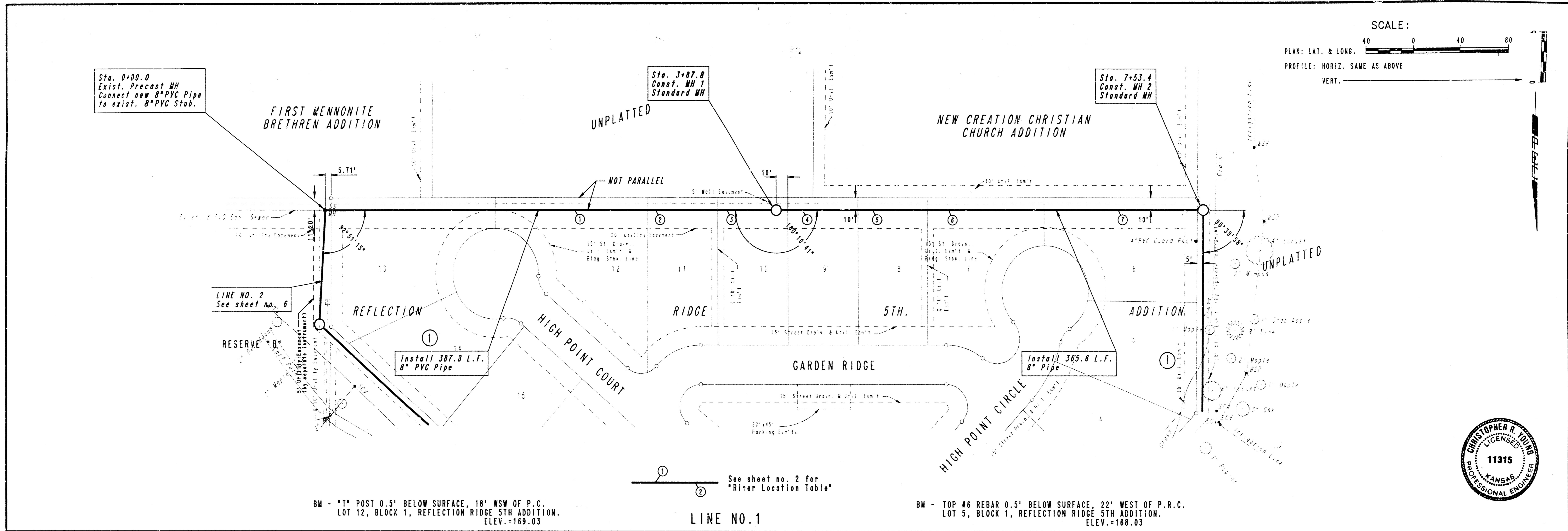
TYPICAL SECTION



No.	Revision	By	Date
	LATERAL 19, MAIN 15 OF THE SOUTHWEST INTERCEPTOR SEWER		
EASEMENT GRADING			
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER CITY OF WICHITA PROJEC ^N NO. 468-76-245-82073-000-000-001			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by CRY, RFJ	Job No. 34-90296-2	Sht. 4 of 11	
Drawn by DWM	Date June, 1990		

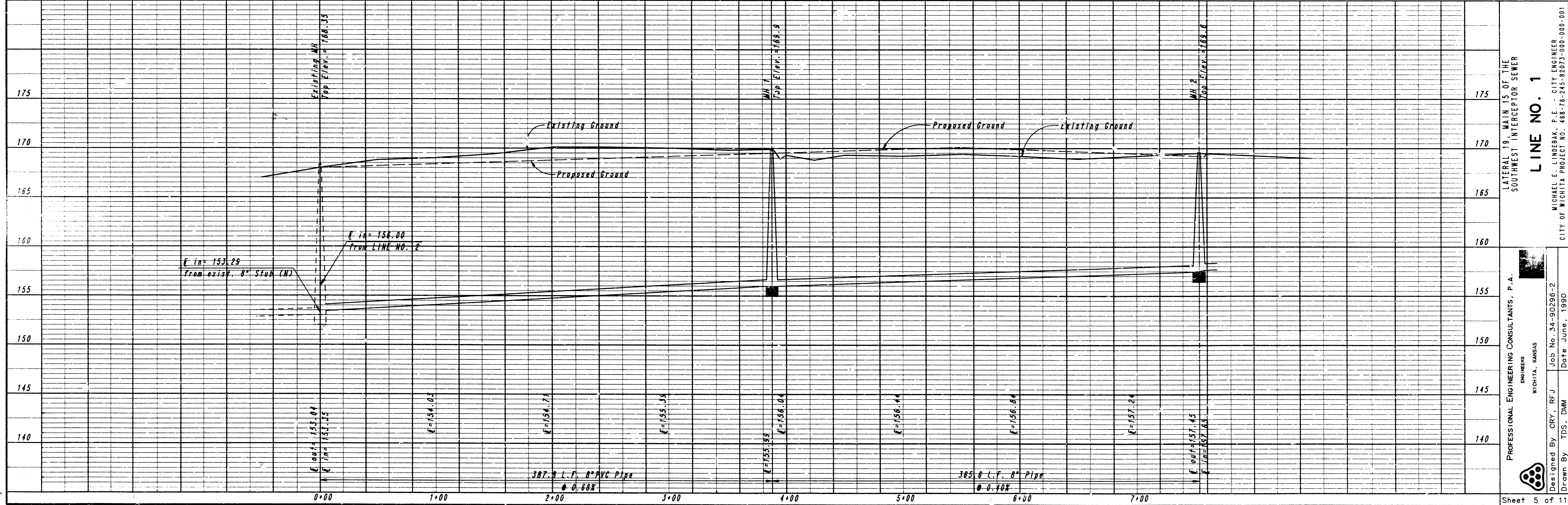
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Aug. 21, 1990 34-90296-2 RR SS P1
 Dwg. No. 438 SFM10.04



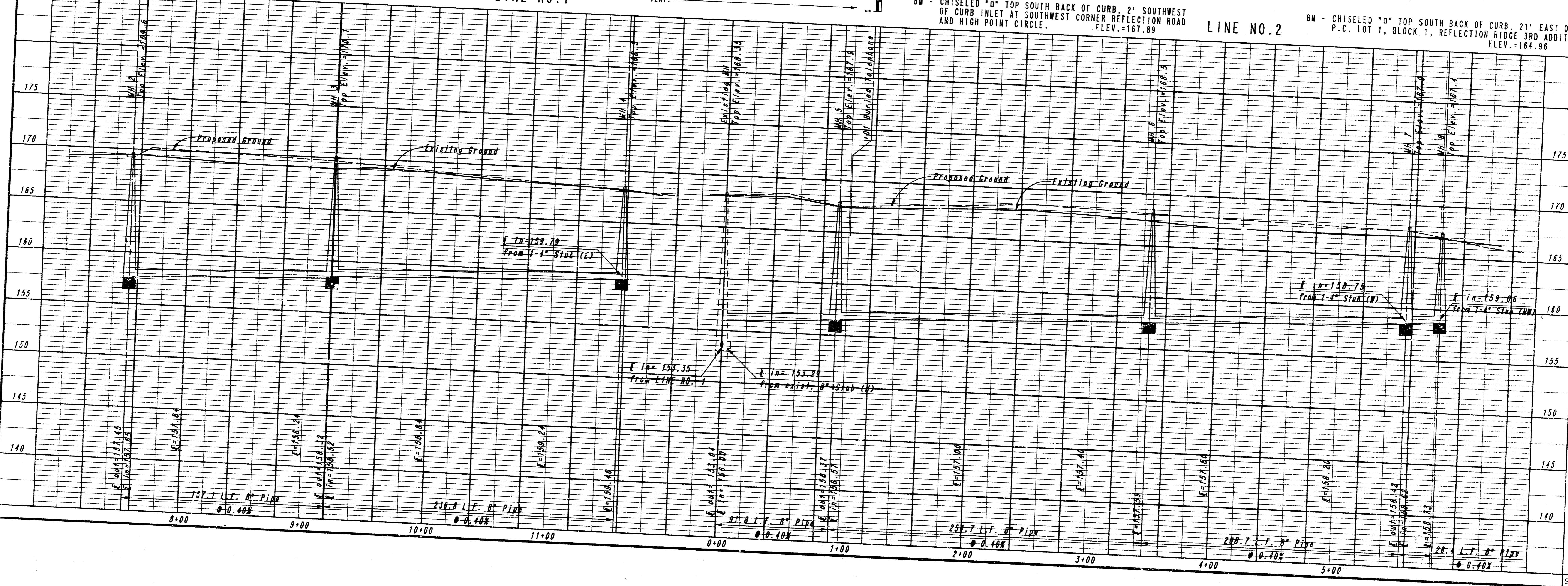
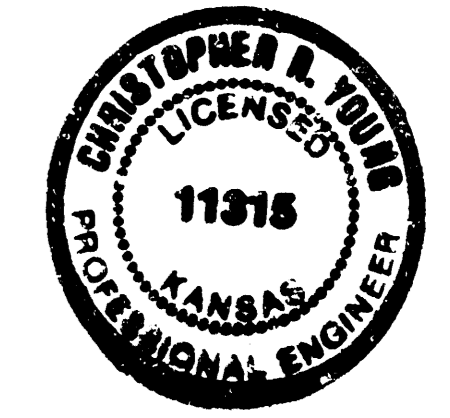
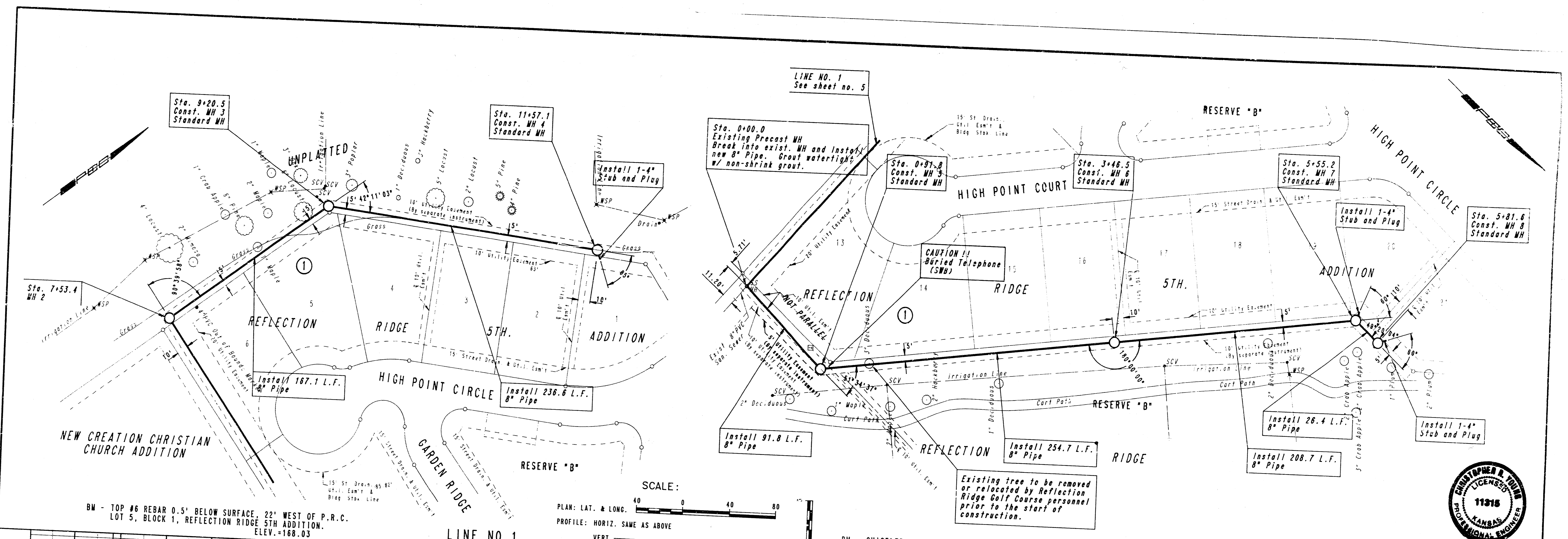
BM - "1" POST 0.5' BELOW SURFACE, 18" WSW OF P.R.C. LOT 12, BLOCK 1, REFLECTION RIDGE 5TH ADDITION. ELEV. = 169.03

BM - TOP #6 REBAR 0.5' BELOW SURFACE, 22" WEST OF P.R.C. LOT 5, BLOCK 1, REFLECTION RIDGE 5TH ADDITION. ELEV. = 168.03



LINE NO. 1
 LATERAL 19, MAIN 15 OF THE
 SOUTHWEST INTERCEPTOR SEWER
 PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 WICHITA, KANSAS
 Designed By: CRY, RFJ
 Drawn By: TDS, DMW
 Job No. 34-90296-2
 Date June, 1990
 CITY OF WICHITA PROJECT NO. 468-78-445-82013-000-000-001
 Sheet 5 of 11

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Aug. 21, 1990 34-90296-2 RR SS PP2
 Dwg. No. 442 SFM10.04

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Designed By: CRY, RFJ
 Drawn By: TDS, DMM
 Job No. 34-90296-2
 Date: June, 1990
LINE NO. 1 & LINE NO. 2
 LATERAL 19, MAIN 15 OF THE
 SOUTHWEST INTERCEPTOR SEWER
 MICHAEL E. LINDEBAK, P.E., CITY ENGINEER
 CITY OF WICHITA PROJECT NO. 668-76-245-82073-000-000-081
 Sheet 6 of 11

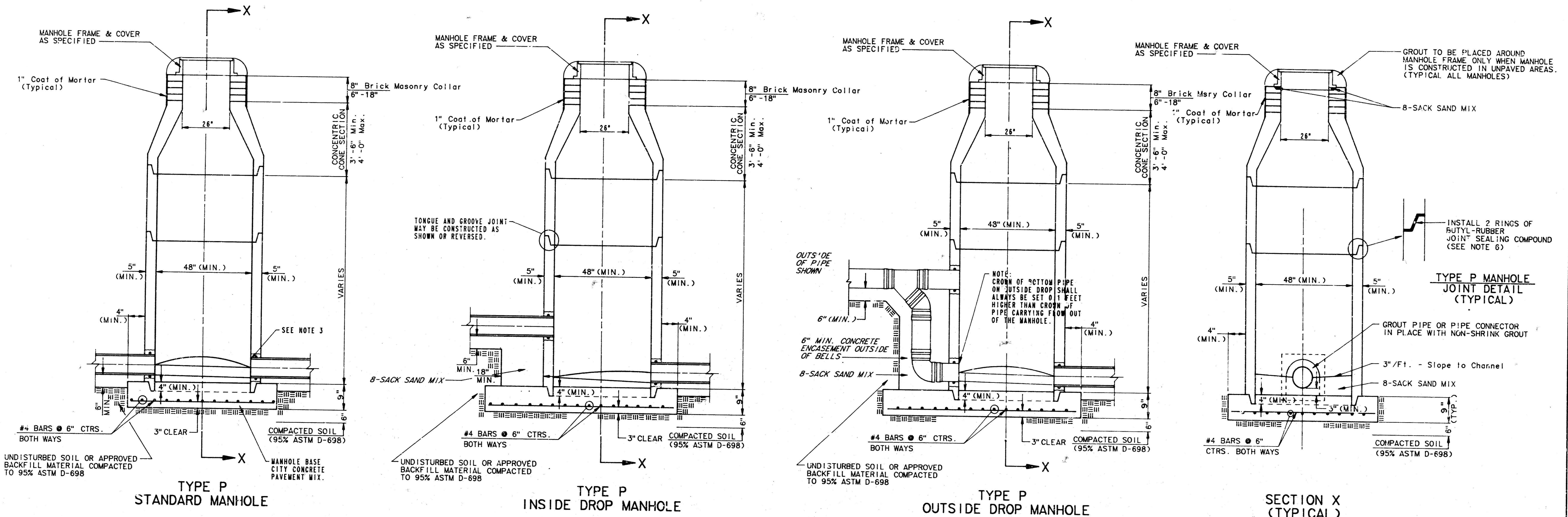
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SEWER APPURTENANCES DETAILS

ADOPTED AS STANDARD DESIGN

BY

CITY OF WICHITA



- 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 GROUDED 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 (MECC SERIES 66 HI-BUILD EPOXYLINE, 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 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 1" 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 GROUING 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 GROUDED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
 13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF-CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE BOTTOM HALVES OF THE INFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO MEAT 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 MAINTAINED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLING 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 4' 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 SHALL 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.

Revised 3-21-89
Revised 8-10-88
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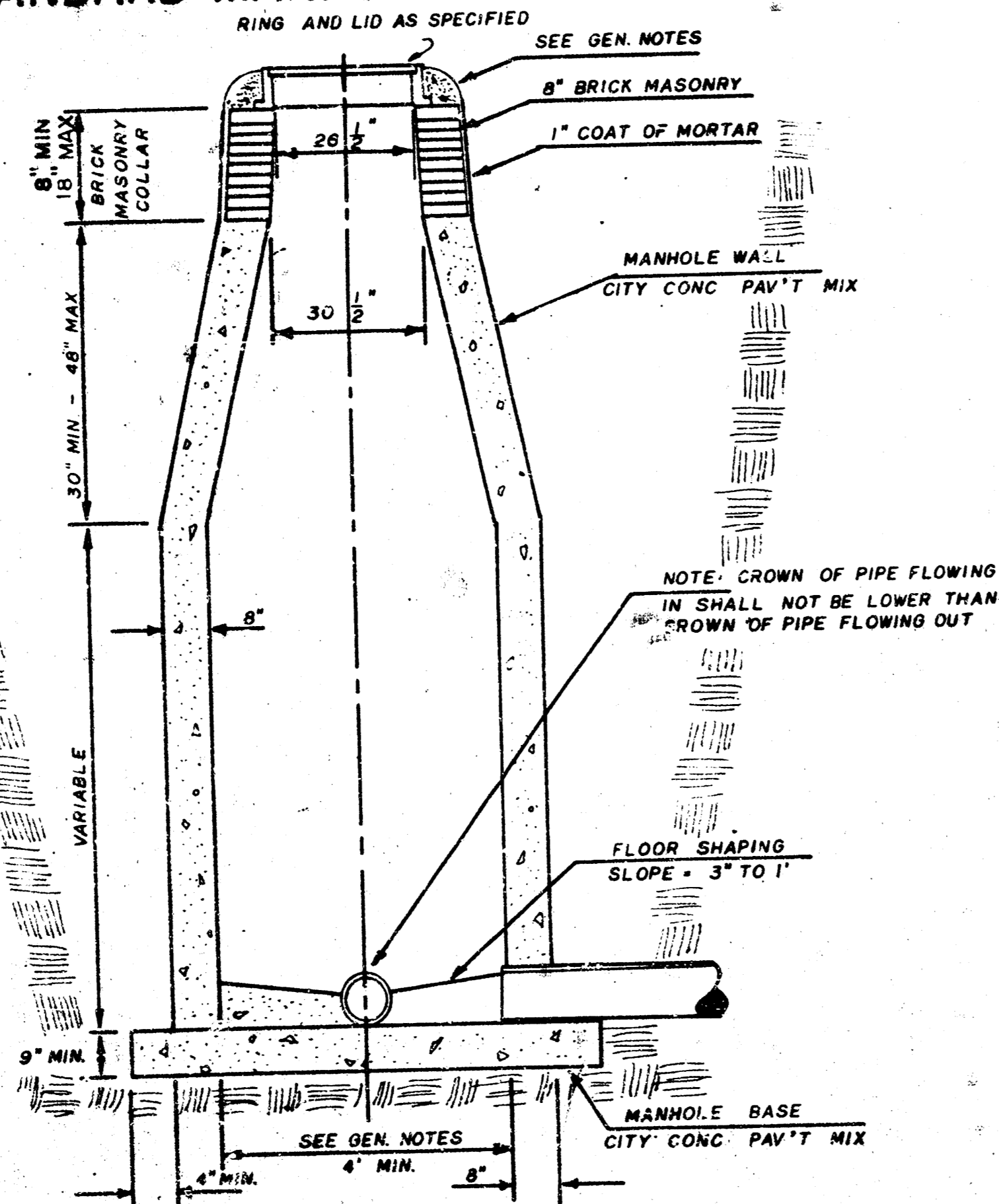
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SEWER APPURTENANCES DETAILS

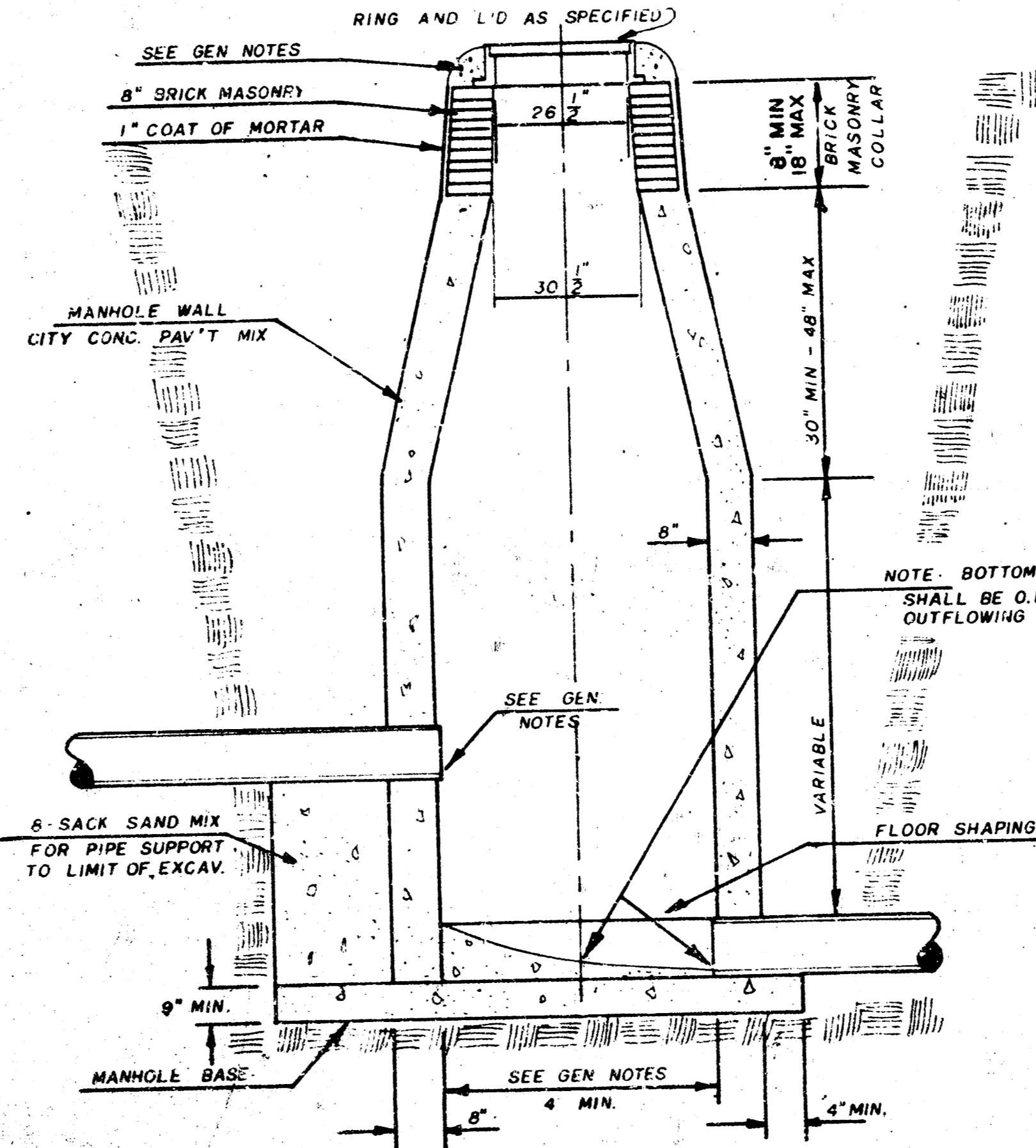
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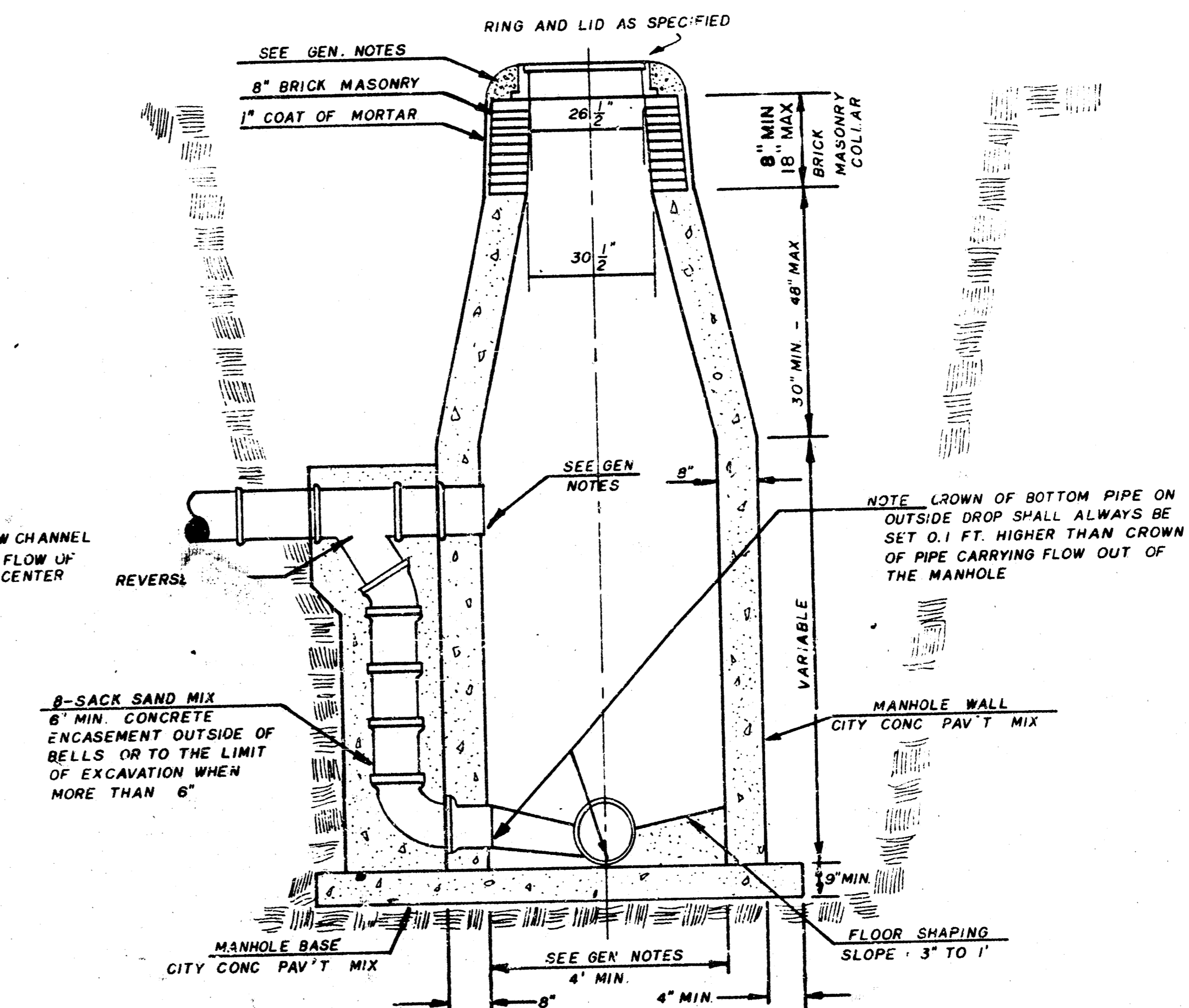
STANDARD MANHOLE TYPE "C"



INSIDE DROP MANHOLE TYPE "C"



OUTSIDE DROP MANHOLE TYPE "C"



GENERAL NOTES

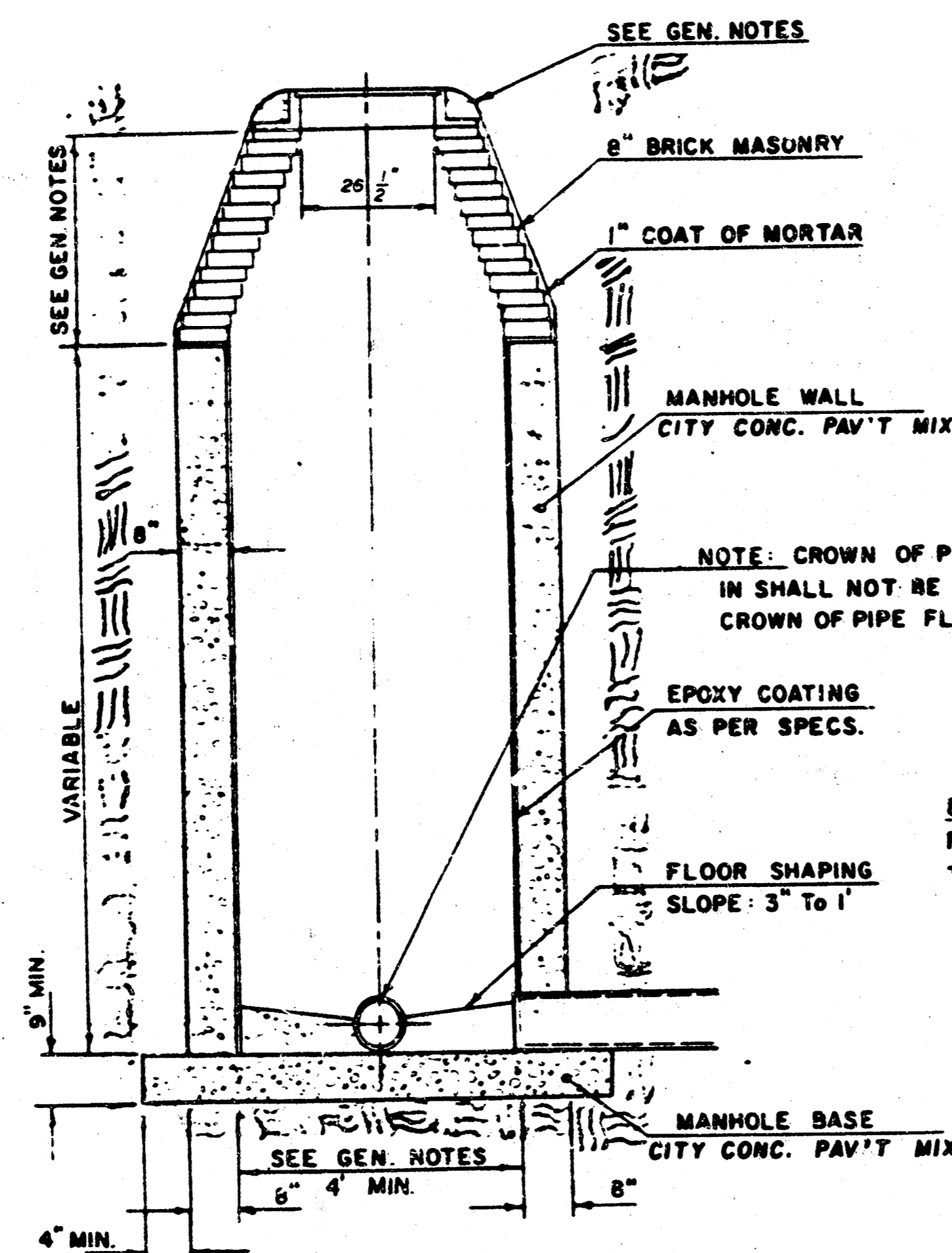
- MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE WALLS AND BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADJUSTURE. 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.
- 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.
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- 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 MANHOLE 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.
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SEWER APPURTENANCES DETAILS

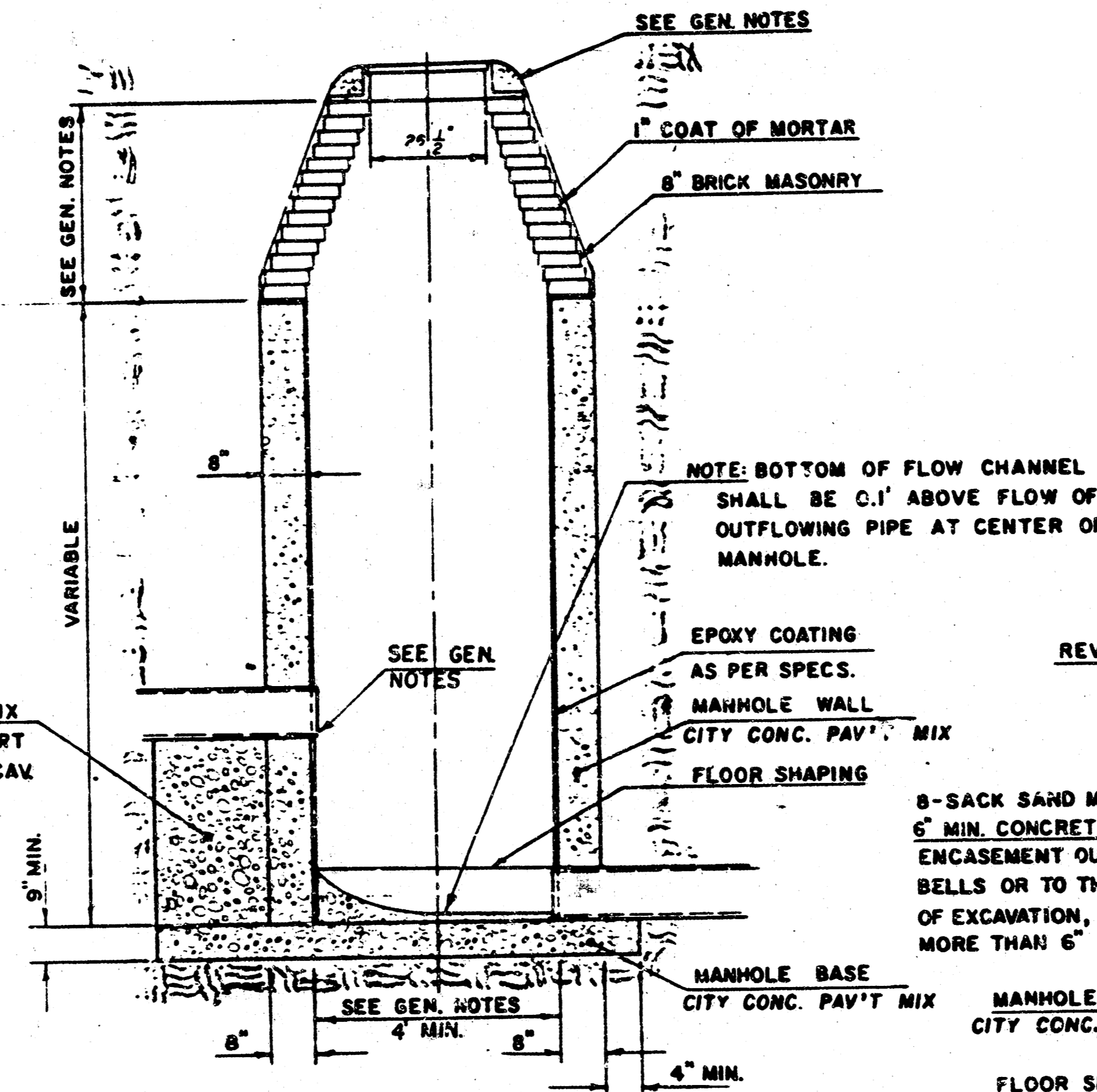
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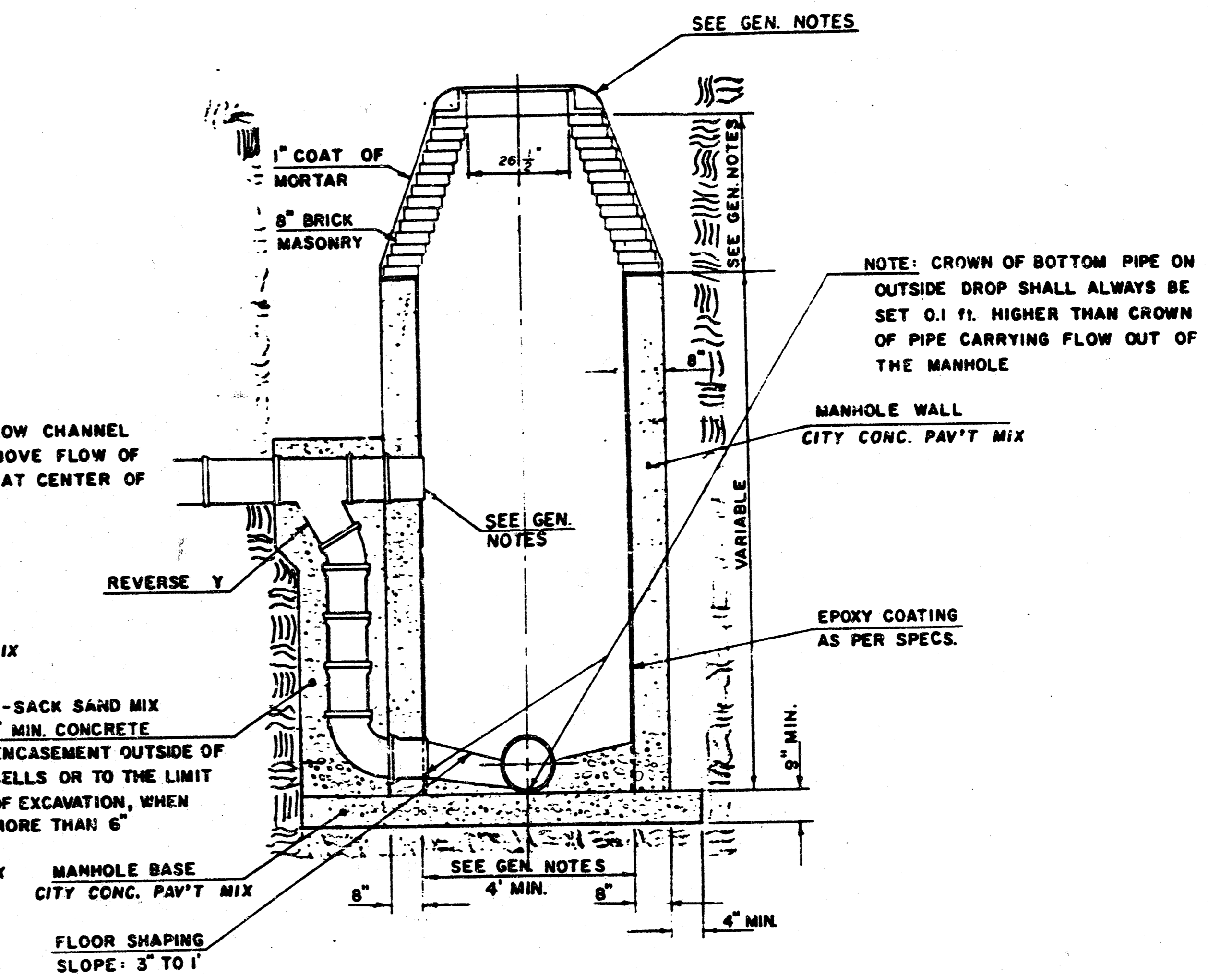
TYPE "D" MANHOLE



TYPE "D" INSIDE DROP MANHOLE



TYPE "D" OUTSIDE DROP MANHOLE



GENERAL NOTES

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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.
- 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.
- 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.
- 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
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- THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 4' 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.
- 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 ON INTERIOR CONCRETE SURFACES MAY BE DELETED WHEN TYPE "D" MANHOLES ARE CONSTRUCTED ON SEWERS WITH DIAMETERS SMALLER THAN 10".

APRIL 1987

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VERTICAL RISER DETAIL

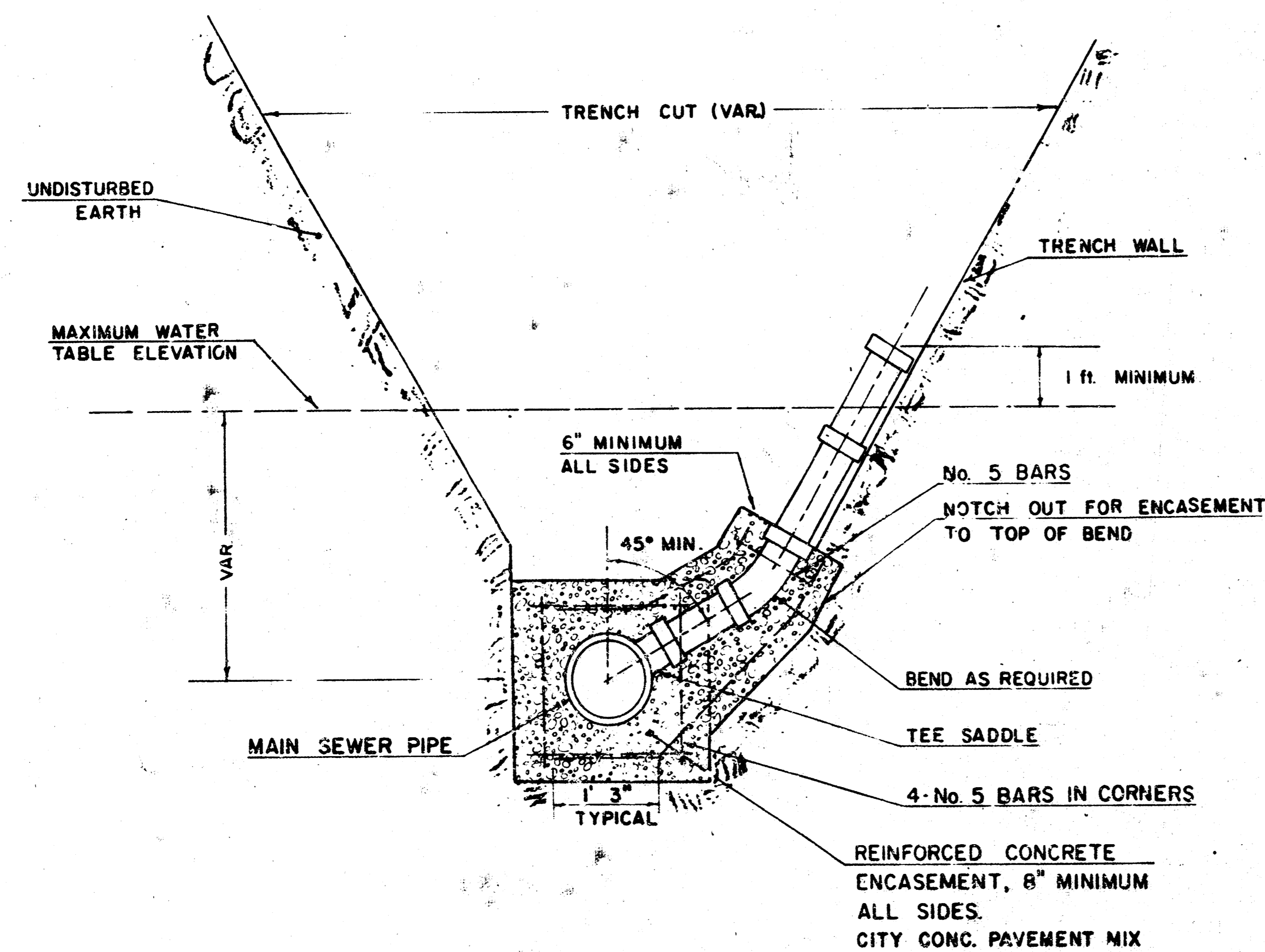
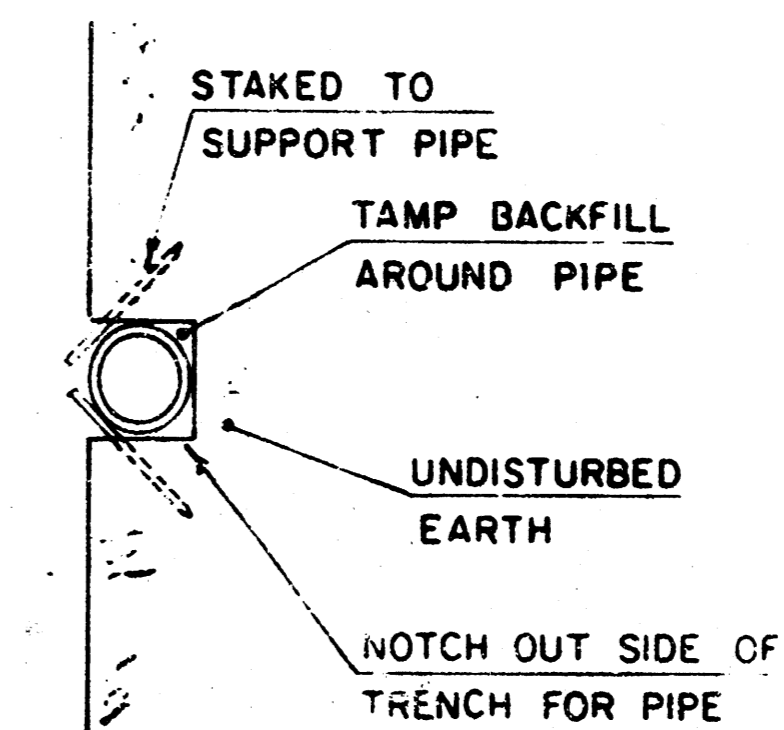
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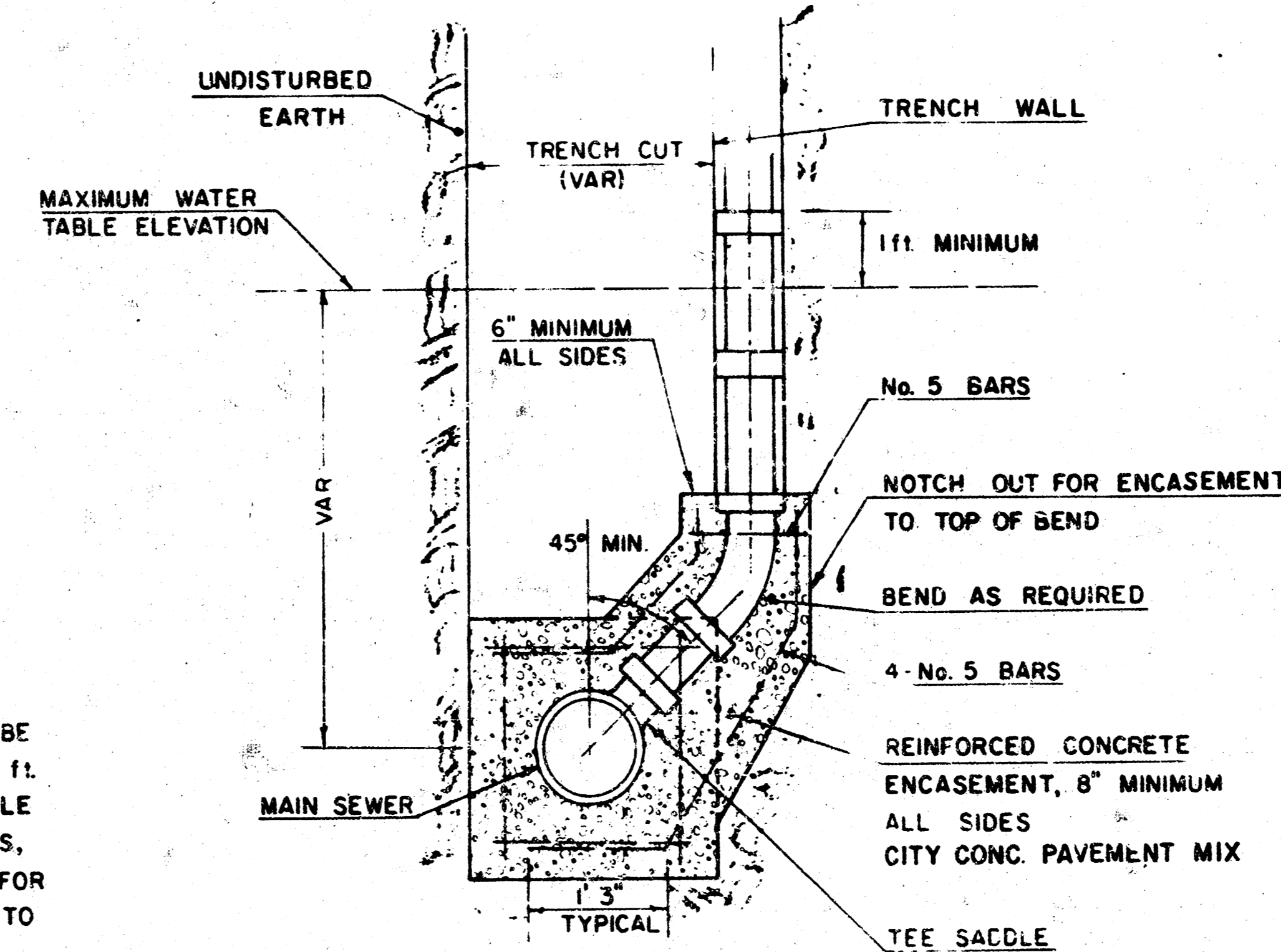
GENERAL NOTE

RISERS SHALL BE INSTALLED TO SERVE ALL LOTS OR TRACTS WHEN THE MAIN SEWER LINE IS BELOW THE WATER TABLE. RISERS SHALL ALSO BE INSTALLED TO SERVE ALL LOTS AND TRACTS WHEN THE MAIN SEWER LINE DEPTH IS SUCH THAT WOULD MAKE THE BUILDING SEWER LINE CONNECTION DIFFICULT. INSTALLATION OF RISERS BECAUSE OF MAIN LINE SEWER DEPTH SHALL BE AS APPROVED BY THE ENGINEER. THE LOCATION OF RISERS TO SERVE DEVELOPED PROPERTY SHALL BE APPROVED BY THE PROPERTY OWNER. PIPE STUBS SHALL BE INSTALLED IN MANHOLES WHERE LOCATIONS OF MANHOLES WILL PROVIDE SATISFACTORY SERVICE CONNECTIONS AS DETERMINED BY THE FIELD ENGINEER. THE VERTICAL DISTANCE BETWEEN THE FLOW LINE OF THE MANHOLE PIPE STUB AND THE FLOW LINE OF THE MAIN SEWER LINE SHALL NOT EXCEED 1'. MANHOLE PIPE STUBS SHALL NOT BE SET BELOW AN ELEVATION WHICH WILL PERMIT THE TOP OF THE INSIDE OF THE STUB TO MATCH THE TOP OF THE INSIDE OF THE MAIN SEWER PIPE. PIPE STUBS AND RISERS INSTALLED TO SERVE COMMERCIAL OR INDUSTRIAL PROPERTY SHALL BE 6 INCH. PIPE STUBS AND RISERS INSTALLED TO SERVE RESIDENTIAL PROPERTY MAY BE EITHER 4 INCH OR 6 INCH DEPENDING UPON THE AVAILABLE GRADE AND THE SIZE OF THE LOT AS DETERMINED BY THE FIELD ENGINEER. ENCASEMENT OF VERIFIED CLAY MAIN SEWER PIPE SHALL EXTEND TO THE FIRST JOINT IN THE MAIN SEWER PIPE ON EACH SIDE OF THE RISER INSTALLATION. ENCASEMENT OF A.B.S., COMPOSITE OR P.V.C. MAIN SEWER PIPE SHALL EXTEND A MINIMUM OF 1' ON BOTH SIDES OF THE CENTERLINE OF THE RISER. FOUR INCH AND SIX INCH RISER PIPE SHALL BE ENCASED WITH CONCRETE TO THE TOP OF THE BEND AS INDICATED IN THE DRAWINGS. FOUR INCH AND SIX INCH CLAY PIPE BEND FOR RISERS SHALL BE EXTRA STRENGTH PIPE CONFORMING TO THE REQUIREMENTS OF THE LATEST REVISION OF A.S.T.M. DESIGNATION C700 WITH COMPRESSION JOINTS AS SPECIFIED FOR CLAY PIPE IN THE STANDARD SPECIFICATIONS. FOUR INCH AND SIX INCH A.B.S. OR P.V.C. PIPE SHALL BE PIPE APPROVED FOR USE IN THE CITY BY THE CHIEF PLUMBING AND MECHANICAL INSPECTOR OR FOR THE CENTRAL INSPECTION DIVISIONS OF THE DEPARTMENT OF HOUSING AND ECONOMIC DEVELOPMENT. LOCATIONS OF THE ENDS OF THE RISERS SHALL BE MARKED BY FASTENING GREEN COLORED PLASTIC TAPE TO THE END OF THE RISER WHICH SHALL BE EXTENDED TO THE GROUND SURFACE AS THE EXCAVATION IS BACKFILLED SUCH THAT THE COLORED TAPE WILL BE VISIBLE WHEN THE PROJECT IS COMPLETED. SUCH GREEN PLASTIC TAPE SHALL BE 4 MIL. POLYETHYLENE FILM WITH A MINIMUM WIDTH OF 3" SPECIALLY MANUFACTURED FOR THE PURPOSE OF IDENTIFICATION OF UNDERGROUND SEWERS. THE ENDS OF THE RISER PIPE AND MANHOLE STUBS SHALL BE CAPPED OR PLUGGED USING FITTINGS FURNISHED BY THE MANUFACTURER OF THE PIPE. CONTRACTOR'S METHODS FOR SUPPORTING AND BACKFILLING RISER PIPE SHALL BE APPROVED BY THE ENGINEER.



TYPICAL RISER FOR SLOPING TRENCH WALLS

NOTE:
TOP OF 4" OR 6" RISER PIPE TO BE EXTENDED TO AN ELEVATION OF 1 ft. MINIMUM ABOVE THE WATER TABLE ELEVATION, WHEN WATER EXISTS, OR TO AN ELEVATION SUITABLE FOR PROVIDING SERVICE TO THE LOT TO BE SERVED AND THEN PLUGGED.



TYPICAL RISER FOR VERTICAL TRENCH WALLS

FURNISHING AND INSTALLING RISERS SHALL BE PAID FOR AT THE UNIT PRICES BID FOR 4" PIPE, 6" PIPE AND REINFORCED CONCRETE ENCASEMENT FOR THE VARIOUS MAIN SEWER PIPE SIZES INDICATED WHICH PRICE SHALL INCLUDE ALL COSTS FOR COMPLETION OF THIS ITEM INCLUDING SADDLES, BENDS, CONCRETE, REINFORCING STEEL, CAPS OR PLUGS, AND ALL OTHER NECESSARY MATERIALS OR WORK. CONCRETE ENCASEMENT OF THE RISER PIPE TO THE TOP OF THE BEND AS SHOWN BY THE DRAWINGS WILL NOT BE PAID FOR DIRECTLY AND THE COST FOR THIS WORK SHALL BE CONSIDERED AS SUBSIDIARY TO THE OTHER ITEMS OF WORK.

THE PROJECT INSPECTOR SHALL REPORT ON INSPECTOR CARDS THE LOCATION OF ALL RISERS CONSTRUCTED AS MEASURED FROM THE NEAREST MANHOLE, THE DIRECTION OF SERVICE, THE ELEVATION OF THE TOP OF THE RISER, AND THE PAY QUANTITIES INVOLVED. THE PROJECT INSPECTOR SHALL ALSO REPORT ON INSPECTOR CARDS THE LOCATION, DIRECTION OF SERVICE, AND SIZE OF ALL STUBS INSTALLED IN MANHOLES.