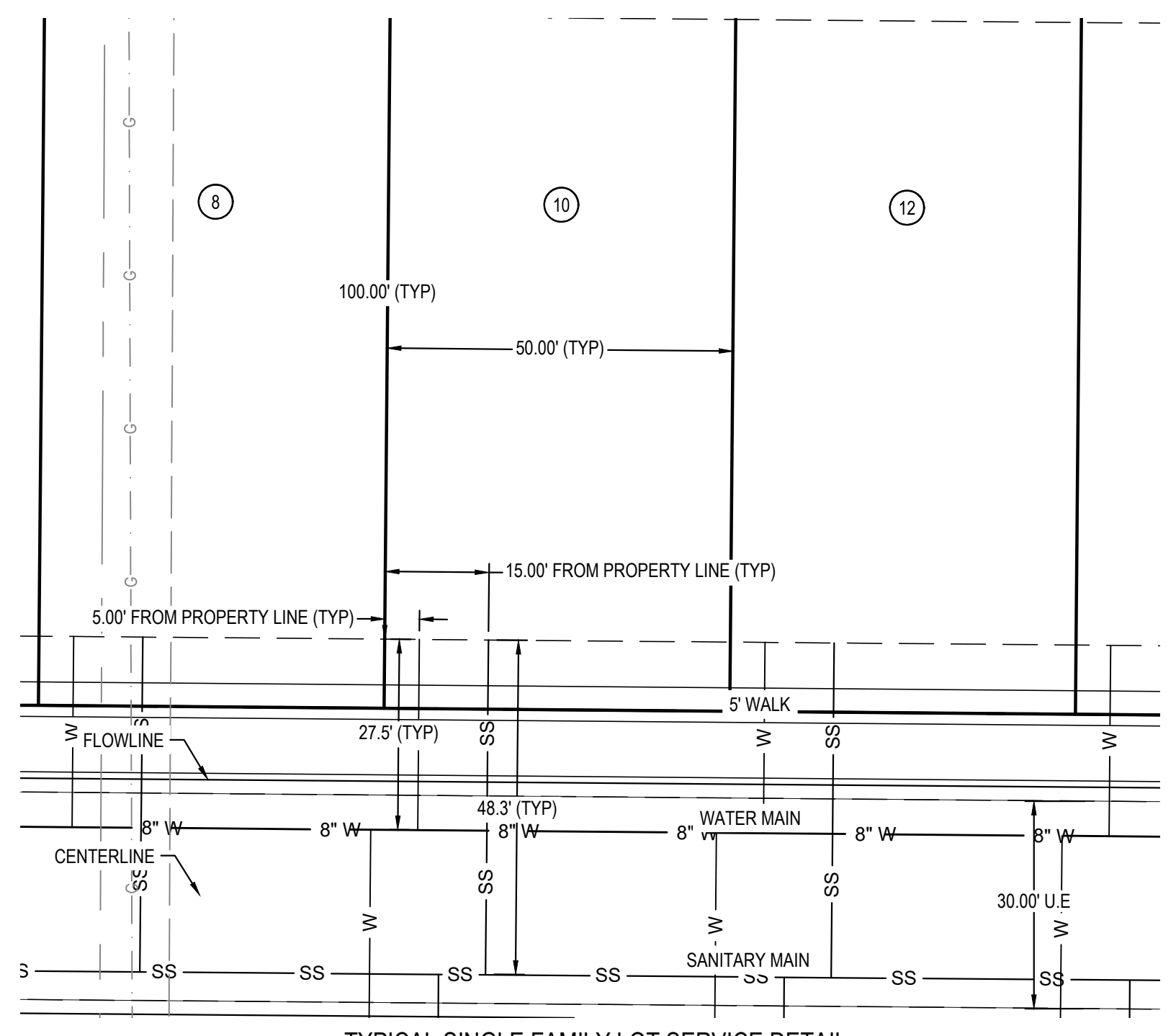
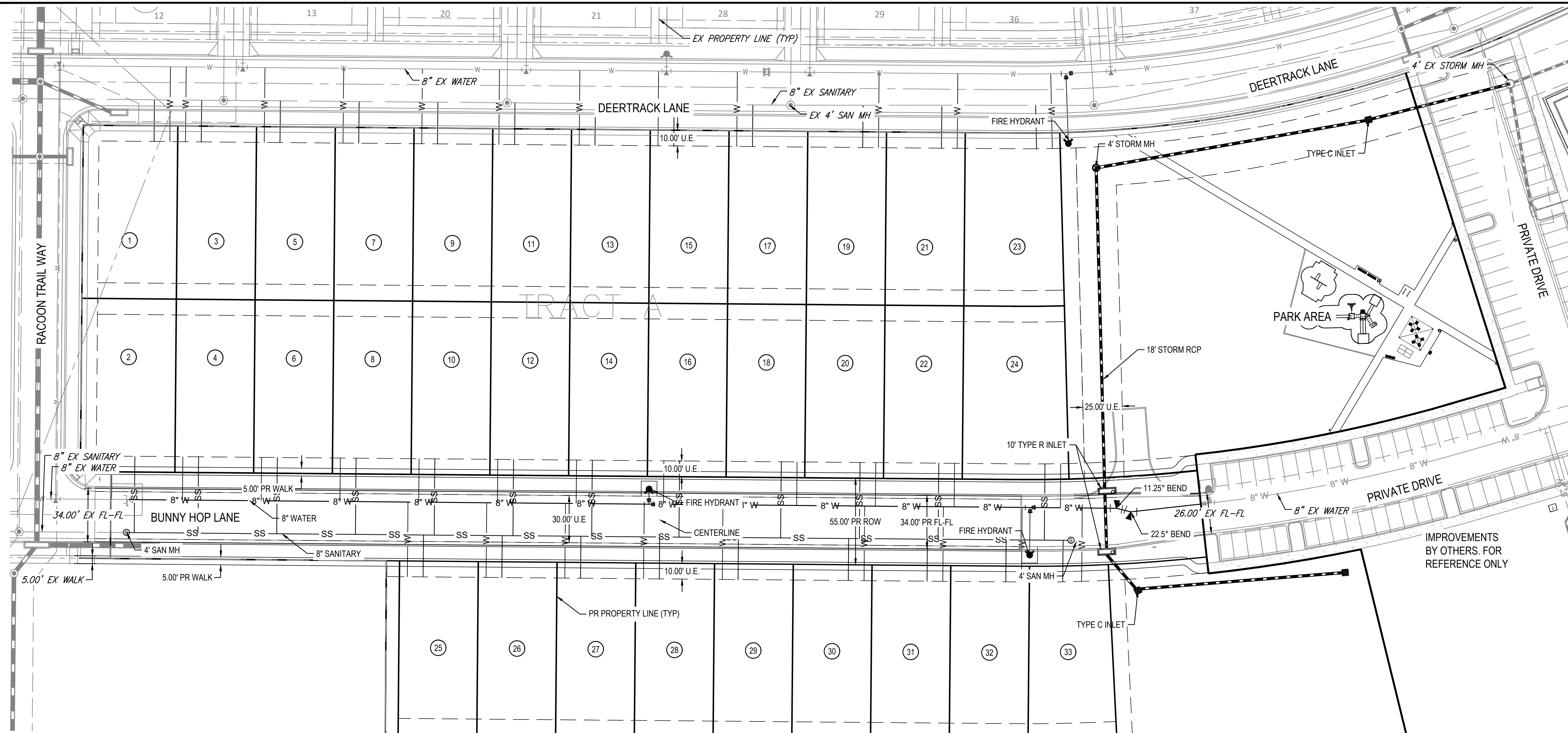


THE USE OF ANY CHANGES TO EXISTING UTILITY LOCATIONS IS AN INVESTMENT OF SERVICE PROVIDED BY MERRICK AND COMPANY, INC. A SERVICE PROJECT. IT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE IN WHOLE OR IN PART OR FOR EXTENSION OF THE PROJECT OR ON ANY OTHER PROJECT. REUSE OR MODIFICATION OF ANY UTILITATION WITHOUT A WRITTEN INSTRUMENT, WITHOUT THE PRIOR WRITTEN CONSENT OF MERRICK AND COMPANY SHALL BE AT THE USER'S RISK. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.

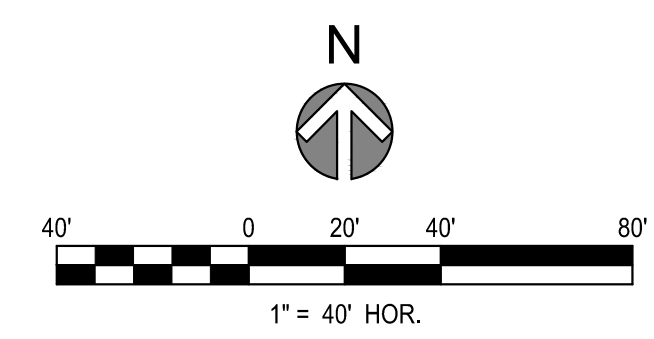


TYPICAL SINGLE FAMILY LOT SERVICE DETAIL

NOTES:
1. SERVICE LOCATIONS ARE TYPICAL UNLESS OTHERWISE NOTED.

NOTES:
CONTRACTOR TO FIELD VERIFY VERTICAL AND HORIZONTAL LOCATION OF EXISTING UTILITIES AND IRRIGATION.

IMPROVEMENTS BY OTHERS. FOR REFERENCE ONLY



FIRE/LIFE SAFETY REVIEW BLOCK

All fire hydrants shall be installed according to water utility standards. The number and locations of the fire hydrants as shown on the Overall Utility Plan are correct as specified by the Town of Parker, Community Development Department.

Date _____
Fire Code Official or Designated Representative _____

(NOTE - Underground Fire Line (UFL) submittal documents must meet the requirements of NFPA 24 when submitting for review.)

The Town of Parker review constitutes general compliance with the Town's Standards and approved variances, subject to these plans being stamped, signed, and dated by the professional engineer of record. Review by the Town does not constitute approval of the plan design or accuracy and correctness of engineering calculations. Errors in the design or calculations remain the responsibility of the registered professional engineer whose stamp and signature are affixed to this document.

This review does not constitute approval of any private on-site improvements which may be shown. Construction cannot commence until all required drainage/traffic report(s), final development plan(s), special review(s), grading permit, and/or other permits are complete, approved and on file with the Town of Parker.

Town of Parker, Director of Engineering/Public Works _____ Date _____

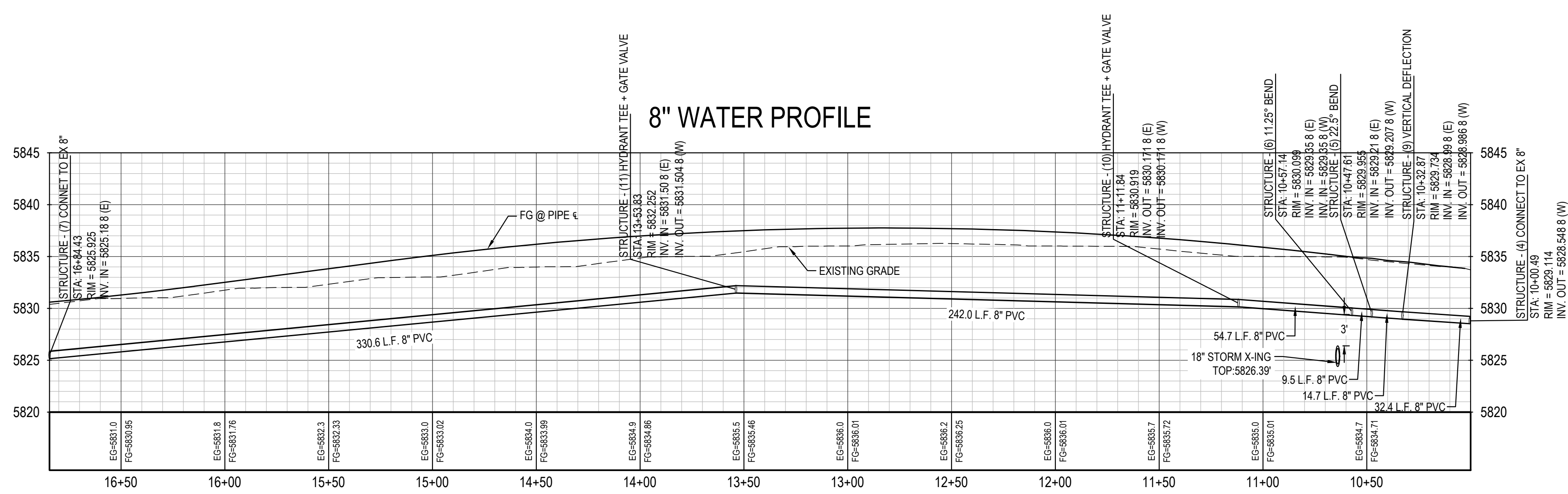
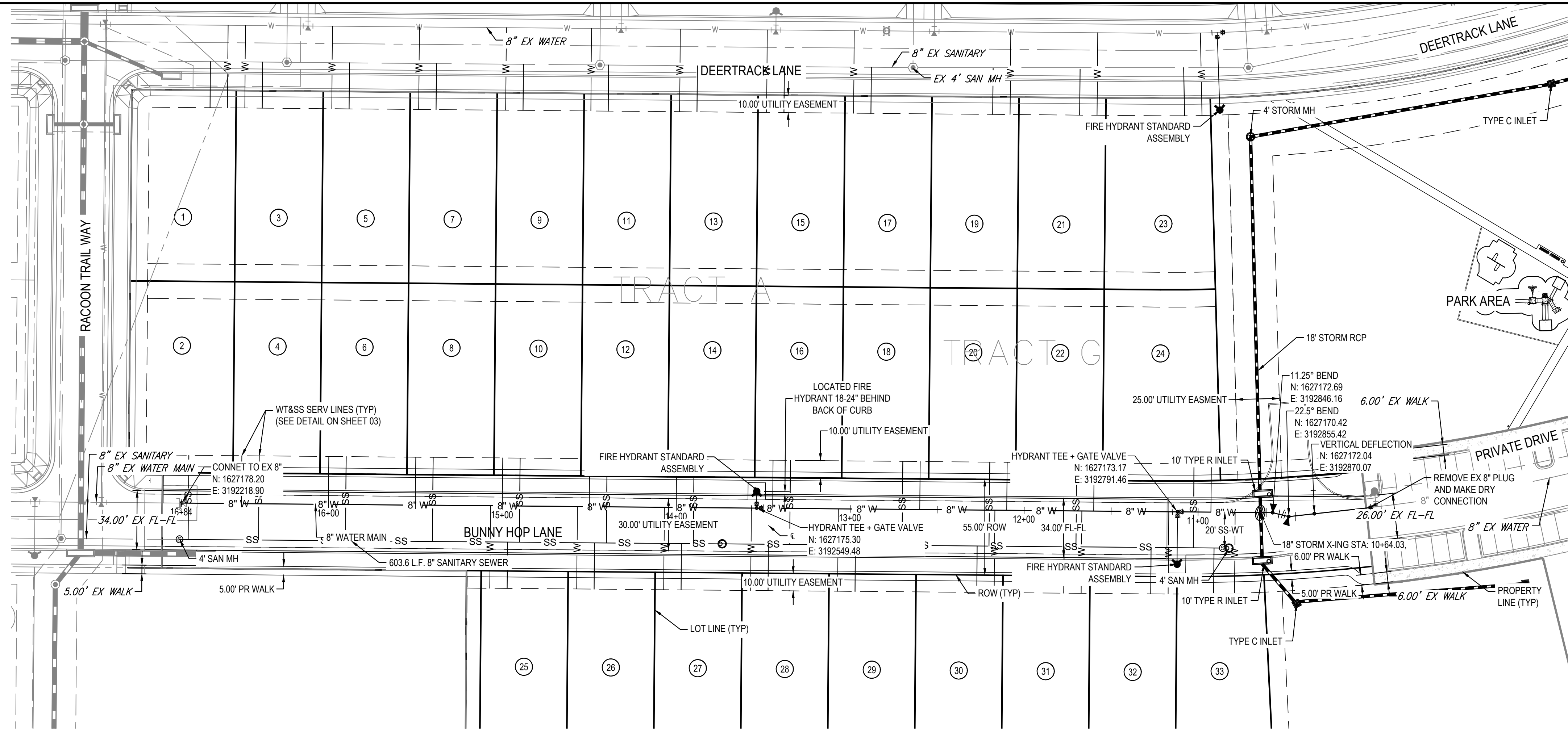
REV	REVISION DESCRIPTION	DATE	CHKD	APPR

COMPARK VILLAGE SOUTH
PRIVATE IMPROVEMENT
CONSTRUCTION PLANS
OVERALL UTILITY PLAN

ISSUED FOR REVIEW



THE ABOVE PLAN, SPECIFICATIONS, AND INSTRUMENTS ARE AN INSTRUMENT OF SERVICE PROVIDED BY MERRICK AND COMPANY, P.C. A REGISTERED PROFESSIONAL ENGINEER. IT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE IN WHOLE OR IN PART OR FOR EXTENSION OF THE PROJECT OR ON ANY OTHER PROJECT. REUSE OR MODIFICATION OF ANY INFORMATION NOT A PART OF THIS INSTRUMENT WITHOUT THE EXPRESS WRITTEN CONSENT OF MERRICK AND COMPANY SHALL BE AT THE USER'S RISK. THE USER ASSUMES ALL LIABILITY TO THE USER AND CONTRACTOR.



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This review does not constitute approval of any private on-site improvements which may be shown. Construction cannot commence until all required drainage/traffic report(s), final development plan(s), special review(s), grading permit, and/or other permits are complete, approved and on file with the Town of Parker.

Town of Parker, Director of Engineering/Public Works

REV	REVISION DESCRIPTION	DATE	CHKD	APPR

COMPARK VILLAGE SOUTH
 WATER AND SANITARY
 PLANS
 WATER-P&P

ISSUED FOR REVIEW

FOR AND ON BEHALF OF MERRICK & COMPANY



THE USE OF THESE STANDARD DETAILS IS AN ACKNOWLEDGMENT OF THE DESIGN RESPONSIBILITY OF THE ENGINEER AND COMPANY. THE ENGINEER AND COMPANY SHALL BE RESPONSIBLE FOR THE PROPER APPLICATION OF THESE DETAILS TO THE PROJECT. IT IS NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR USE IN WHOLE OR IN PART OR FOR EXTENSION OF THE PROJECT OR ON ANY OTHER PROJECT. REUSE OR MODIFICATION OF ANY INFORMATION NOT A PART OF THE ORIGINAL DESIGN SHALL BE AT THE USER'S RISK. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

LENGTH OF TIED PIPE

PIPE SIZE	4"		6"		8"		12"		16"		20"		24"	
	D	L	D	L	D	L	D	L	D	L	D	L	D	L
3/4" TIE OR VALVE	6.0	3.4	13.0	6.0	18.0	9.0	24.0	12.0	30.0	15.0	36.0	18.0	48.0	24.0
1" TIE OR VALVE	8.0	4.0	17.0	8.0	24.0	12.0	30.0	18.0	36.0	24.0	42.0	30.0	60.0	30.0
1 1/2" TIE OR VALVE	10.0	5.0	21.0	10.0	28.0	14.0	36.0	24.0	42.0	30.0	54.0	36.0	72.0	36.0
2" TIE OR VALVE	12.0	6.0	24.0	12.0	32.0	16.0	42.0	30.0	54.0	42.0	66.0	48.0	84.0	48.0
2 1/2" TIE OR VALVE	14.0	7.0	28.0	14.0	36.0	18.0	48.0	36.0	60.0	48.0	78.0	60.0	96.0	60.0
3" TIE OR VALVE	16.0	8.0	32.0	16.0	42.0	21.0	54.0	42.0	66.0	54.0	84.0	66.0	108.0	66.0
4" TIE OR VALVE	18.0	9.0	36.0	18.0	48.0	24.0	60.0	48.0	72.0	60.0	90.0	72.0	120.0	72.0
5" TIE OR VALVE	20.0	10.0	40.0	20.0	54.0	27.0	66.0	54.0	84.0	66.0	108.0	84.0	144.0	84.0
6" TIE OR VALVE	22.0	11.0	44.0	22.0	60.0	30.0	72.0	60.0	90.0	72.0	108.0	90.0	168.0	90.0
8" TIE OR VALVE	26.0	13.0	52.0	26.0	72.0	36.0	84.0	72.0	108.0	84.0	126.0	108.0	216.0	108.0
10" TIE OR VALVE	30.0	15.0	60.0	30.0	84.0	42.0	108.0	84.0	126.0	108.0	156.0	126.0	252.0	126.0
12" TIE OR VALVE	34.0	17.0	68.0	34.0	96.0	48.0	120.0	96.0	144.0	120.0	180.0	144.0	288.0	144.0
16" TIE OR VALVE	40.0	20.0	80.0	40.0	114.0	57.0	144.0	114.0	174.0	144.0	216.0	174.0	348.0	174.0
20" TIE OR VALVE	46.0	23.0	92.0	46.0	132.0	66.0	162.0	132.0	204.0	162.0	252.0	204.0	408.0	204.0
24" TIE OR VALVE	52.0	26.0	104.0	52.0	150.0	75.0	180.0	150.0	234.0	180.0	288.0	234.0	474.0	234.0

NOTES:

- LENGTH OF TIED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.
- CLAMPS AND RODS NOT ALLOWED FOR 24" AND LARGER PIPES.
- D = DIAMETER, L = LENGTH, G = GRADE, M.S. = MILD STEEL, H.S. = HIGH STRENGTH.
- MINIMUM 4.5" GROUND COVER REQUIRED.
- BASED ON 150 PSI INTERNAL PRESSURE.
- M.S. MEANS MILD STEEL ROD A.S.T.M. STANDARD DESIGNATION A-36.
- H.S. MEANS HIGH STRENGTH ROD A.S.T.M. STANDARD DESIGNATION A-36.
- NUTS SHALL BE A.S.T.M. STANDARD DESIGNATION A-307 GRADE A OR B HEXAGON HEAVY SERIES.
- CLAMP METALS AND SET CLAMP DETAILS SHALL BE THE SAME AS THE ROD COUPLING DETAILS.
- LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE TIED TOGETHER AND IS NOT NECESSARILY THE LENGTH OF THE RODS.
- STAR BOLTS NOT ALLOWED ON PIPE LARGER THAN 16".
- MINIMUM OF 4 RODS REQUIRED ON 16" PIPE IF STAR BOLTS ARE USED.
- TEES ARE TO BE RODED ON BRANCH ONLY.
- ALL VALVES TO BE RODED IN BOTH DIRECTIONS.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

LENGTH OF TIED PIPE

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

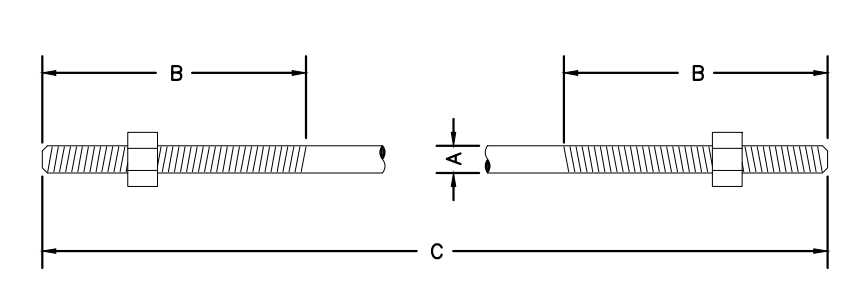
STONEGATE VILLAGE
METROPOLITAN DISTRICT

TIE ROD AND WASHER
DETAILS

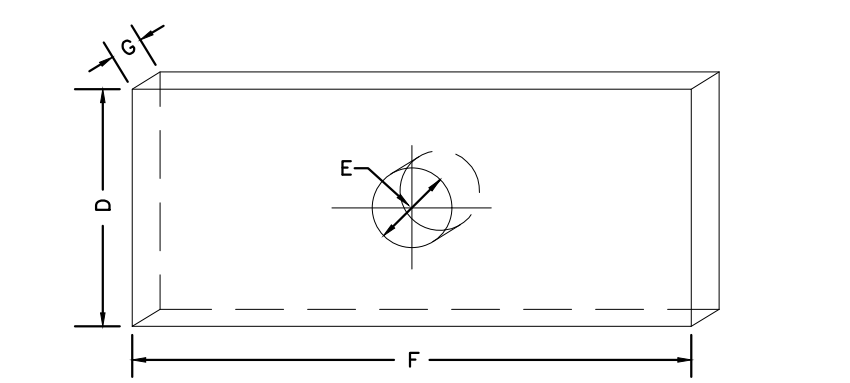
SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

TIE ROD DETAIL



WASHER DETAIL



TIE RODS		WASHERS	
ROD DIAMETER	ROD LENGTH	WIDTH	HOLE DIAMETER
3/4"	10 1/2" & 20"	3"	3/8"
1"	10 1/2" & 20"	4"	7/8"
1 1/4"	10 1/2" & 20"	4"	1 1/8"

NOTES:

- SEE TIED JOINTS ROD DIMENSIONS SHEET.
- SEE CLAMP DETAILS AND DIMENSIONS SHEET 23 FOR PROPER PLACEMENT OF WASHERS.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

TIE ROD AND WASHER
DETAILS

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

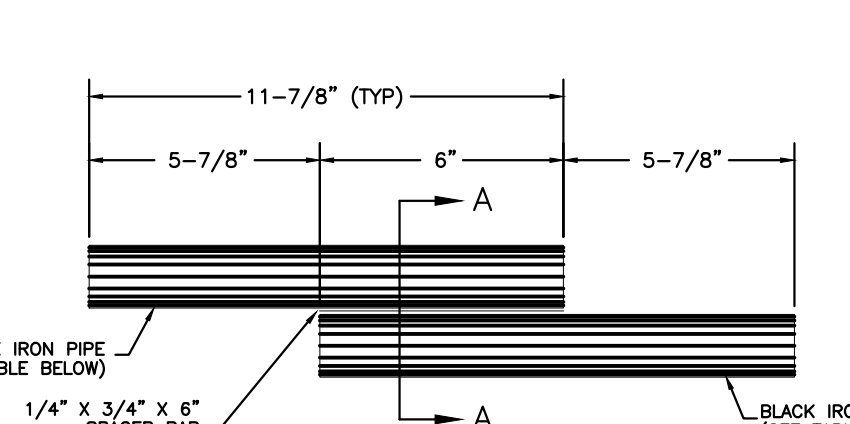
STONEGATE VILLAGE
METROPOLITAN DISTRICT

TIE ROD COUPLING

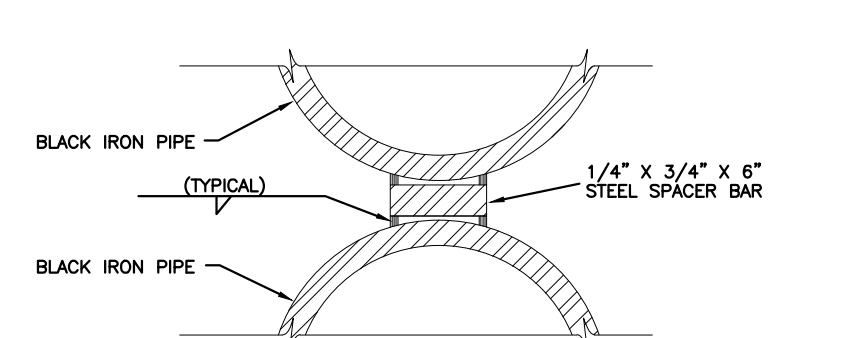
SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

TIE ROD COUPLING DETAIL



SECTION "A-A"



ROD SIZE	PIPE DIAMETER
3/4"	1"
1"	1-1/4"
1-1/4"	1-1/2"

NOTE: BLACK IRON PIPE = SCHEDULE 40.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

TIE ROD COUPLING

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

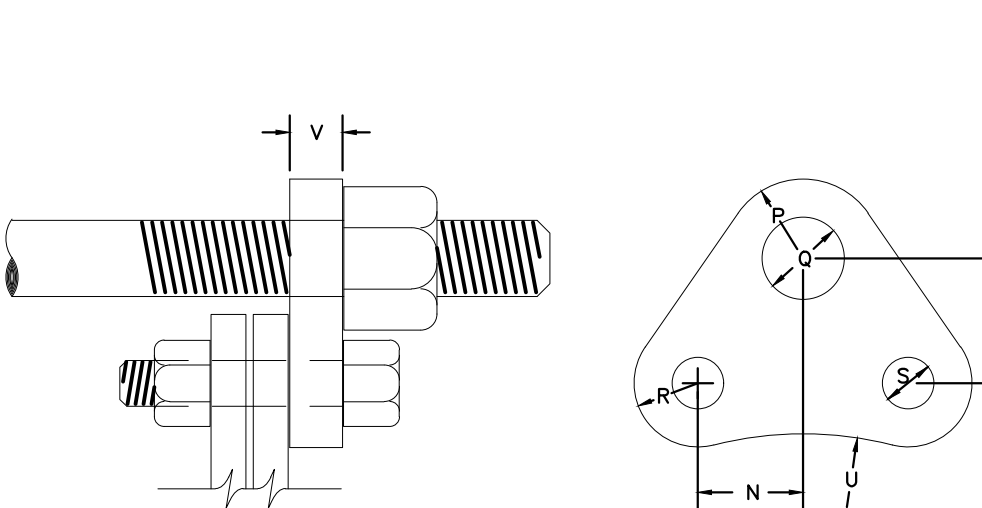
STONEGATE VILLAGE
METROPOLITAN DISTRICT

FLANGE LUG DETAIL

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

FLANGE LUG DETAIL



DIMENSIONS (IN INCHES)

PIPE DIA.	N	O	H.S. ROD			M.S. ROD			R	S	U	V	PIPE DIA.
			P	Q	ROD DIA.	P	Q	ROD DIA.					
4"	1	1 1/2	3/4	1 1/2	3/4	1 1/2	3/4	1 1/2	3/4	1 1/2	3/4	4"	
6"	2	2 1/4	1 1/4	2 1/4	1 1/4	2 1/4	1 1/4	2 1/4	1 1/4	2 1/4	1 1/4	6"	
8"	3	3 1/4	1 3/4	3 1/4	1 3/4	3 1/4	1 3/4	3 1/4	1 3/4	3 1/4	1 3/4	8"	
10"	4	4 1/4	2 1/4	4 1/4	2 1/4	4 1/4	2 1/4	4 1/4	2 1/4	4 1/4	2 1/4	10"	
12"	5	5 1/4	2 3/4	5 1/4	2 3/4	5 1/4	2 3/4	5 1/4	2 3/4	5 1/4	2 3/4	12"	
16"	7	7 1/4	3 1/2	7 1/4	3 1/2	7 1/4	3 1/2	7 1/4	3 1/2	7 1/4	3 1/2	16"	
20"	9	9 1/4	4 1/2	9 1/4	4 1/2	9 1/4	4 1/2	9 1/4	4 1/2	9 1/4	4 1/2	20"	
24"	11	11 1/4	5 1/2	11 1/4	5 1/2	11 1/4	5 1/2	11 1/4	5 1/2	11 1/4	5 1/2	24"	

NOTES:

- M.S. MEANS MILD STEEL ROD A.S.T.M. STANDARD DESIGNATION A-36. (NUTS SHALL BE A.S.T.M. STANDARD DESIGNATION A-307 GRADE A OR B HEXAGON HEAVY SERIES).
- H.S. MEANS HIGH STRENGTH STEEL ROD A.S.T.M. STANDARD DESIGNATION A-193 GRADE B7. (NUTS SHALL BE A.S.T.M. STANDARD DESIGNATION A-194 GRADE 2H).
- FLANGE LUGS SHALL NOT BE USED ON VALVES.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

TIE ROD COUPLING

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

STONEGATE VILLAGE
METROPOLITAN DISTRICT

FLANGE LUG DETAIL

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

PIPE BEDDING

(a) **Installation of Bedding and Pipe:** After completion of the trench excavation and proper preparation of the foundation, six inches (6") of bedding material shall be placed on the trench bottom for support under the pipe. Bell holes shall be dug deep enough to provide a minimum of two inches (2") of clearance between the bell and bedding material. All pipe shall be installed in such a manner as to insure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade, and the joint is made, the bedding material shall be carefully placed and tamped under the haunches of the pipe and in the previously dug bell holes.

Tamping is herein defined as the act of placing approved bedding material under the haunches of the pipe, paying particular attention to voids, bell holes, and silt holes. The purpose of tamping is to ensure uniform support for the pipe.

The limits of bedding shall be from six inches (6") below the bottom of the pipe to twelve inches (12") above the top of the pipe. Approved backfill may then be installed to the groundline. See Section 8 of these Standards for backfill and composition of backfill.

Compaction of bedding is not required. The only requirement is sufficient tamping to achieve uniform support under the pipe. See Sheet 8 of the Standard Drawings for a typical trench cross section.

(b) **Bedding Material:** The bedding material shall be a clean well-graded sand or silt-sand and shall conform to the following limits when tested by means of laboratory sieves:

Well-Graded Sand	
Sieve Size	Total Percent Passing by Weight
3/8 inch	100
No. 4	85-100
No. 8	50-85
No. 16	25-60
No. 30	10-30
No. 50	2-10
No. 100	0

Sieve Sand	
Sieve Size	Total Percent Passing by Weight
3/8 inch	100
No. 100	0-5

If approved by the District, fines form the trench walls and spoils pile may be used to provide uniform support for the pipe. No rock or stone larger than that allowed by the sieve analysis, or any other detrimental substance, shall be placed closer to the pipe than six inches (6"). Approved bedding materials shall be stockpiled on the jobsite to be used in the event natural materials become unsatisfactory. The District reserves the right to require the use of the specified bedding material at any time.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

PIPE BEDDING

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

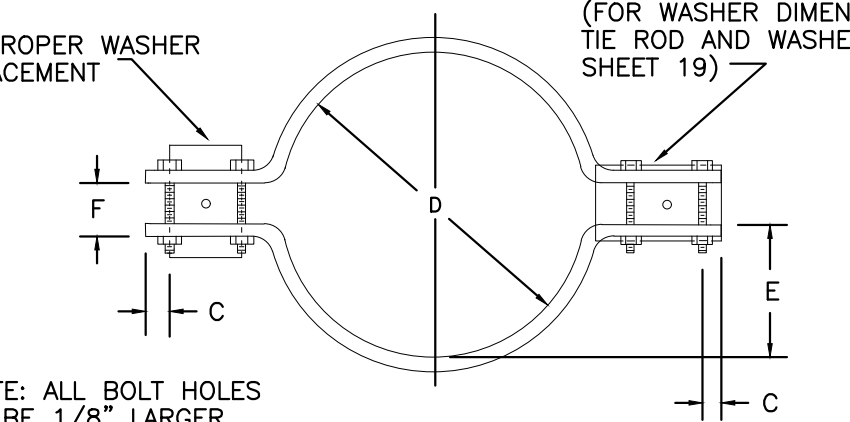
STONEGATE VILLAGE
METROPOLITAN DISTRICT

CLAMP DETAILS AND
DIMENSIONS

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

CLAMP DETAILS



DIMENSIONS

TABLE OF DIMENSIONS FOR CLAMPS																	
PIPE DIA.	BAR SIZE	A		B		C		D		E		F		BOLT SIZES		PIPE DIA.	
		BELL	BODY	BELL	BODY	BELL	BODY	BELL	BODY	BELL	BODY	BELL	BODY	BELL	BODY		
4"	1-1/2	9-3/4	7-1/2	3-1/2	3-1/2	1	1	6-3/4	4-7/8	2-3/4	1-13/16	1-1/4	1-1/4	3/8 x 1/2	2-1/2 x 3/8	4	
6"	2-1/2	13	9-1/2	4	4-1/2	2	2	10-1/4	7-7/8	4-7/8	2-19/16	2	1-1/4	3-1/2 x 1/2	3-1/2 x 1/2	6	
8"	3-1/2	17	12-3/4	4-3/4	4-1/2	1-1/4	1-1/2	13-1/4	9-1/4	5-7/8	4	2	1-3/4	4-1/2 x 1/2	4-1/2 x 1/2	8	
12"	5-1/2	25	17-1/2	6-3/8	4-5/8	4-3/4	1	1-1/4	14-1/2	13-1/2	6	5-1/2	2-1/2	4-1/2 x 5/8	4-1/2 x 5/8	12	
16"	7-1/2	33	24-1/2	7-7/8	4-1/2	4-3/4	1-1/2	1-1/2	18-3/4	17-1/2	8-3/8	7-1/2	3	2-1/2	5-1/2 x 5/8	5-1/2 x 5/8	16
20"	9-1/2	41	32-1/2	9-1/8	4-1/2	4-3/4	1-1/2	1-1/2	24-3/4	21-3/4	10-7/8	9-1/2	3	3-1/4	5-1/2 x 5/8	5-1/2 x 5/8	20
24"	11-1/2	49	40-1/2	10-3/8	4-1/2	4-3/4	1-1/2	1-1/2	30-3/4	27-3/4	12-1/8	11-1/2	3	3-1/4	5-1/2 x 5/8	5-1/2 x 5/8	24

NOTE: ALL DIMENSIONS IN INCHES. CLAMPS MAY NOT BE USED ON PVC PIPE.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

CLAMP DETAILS AND
DIMENSIONS

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

STONEGATE VILLAGE
METROPOLITAN DISTRICT

HARNES LUG DETAILS

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

HARNES LUG DIMENSIONS

CARRIER PIPE NOMINAL DIA. D	STUD DIA.	A	W	Z	T	H	E	H1	Y	X
4" to 16"	3/4"	5"	1-1/2"	3-3/4"	3/8"	4-1/8"	3-1/8"	2"	4-1/2"	5"
20"	1"	5-3/4"	1-3/4"	4-7/16"	3/8"	4-1/2"	3-1/4"	2"	5-1/4"	5-11/16"

NOTES:

- USE TWO HIGH STRENGTH STEEL TIE RODS AT END OF CASING.
- TIE ROD HOLE DIAMETER 1/8" LARGER THAN STUD DIAMETER.
- BOTTOM EDGE OF ALL PLATES SHAPED TO FIT O.D. OF PIPE.

STONEGATE VILLAGE
METROPOLITAN DISTRICT

HARNES LUG DETAILS

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

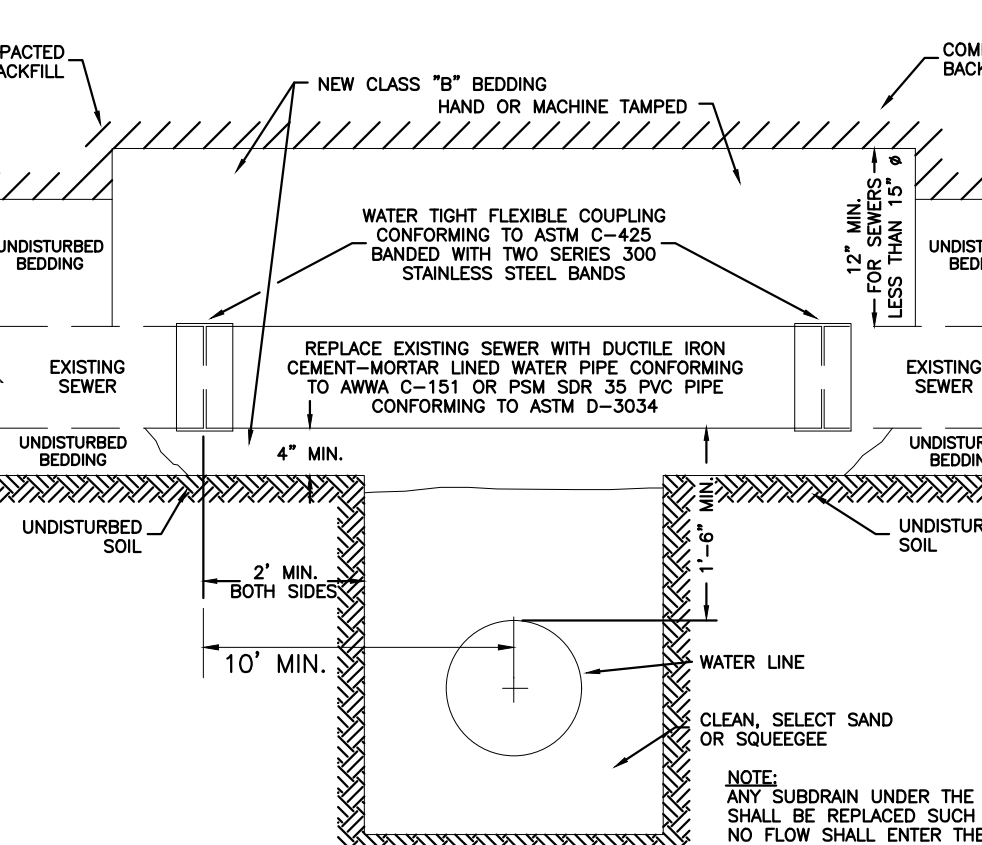
STONEGATE VILLAGE
METROPOLITAN DISTRICT

SEWER CROSSING UNDER
(WITH "D" LESS THAN 2')

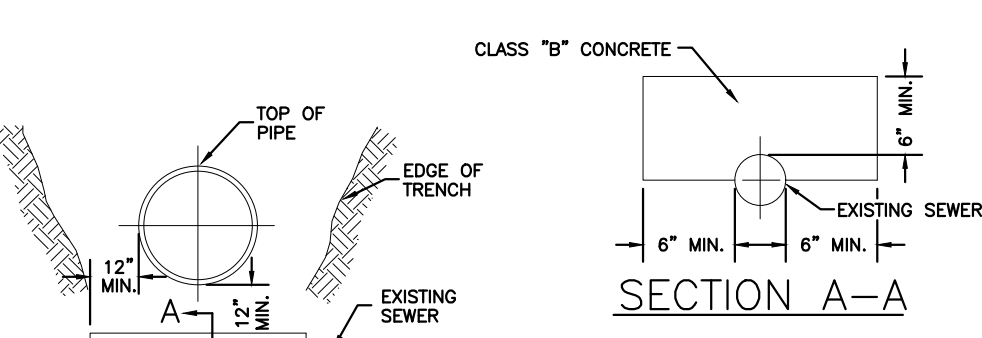
SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

SEWER CROSSING UNDER



SECTION A-A



STONEGATE VILLAGE
METROPOLITAN DISTRICT

SEWER CROSSING UNDER
(WITH "D" LESS THAN 2')

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER

STONEGATE VILLAGE
METROPOLITAN DISTRICT

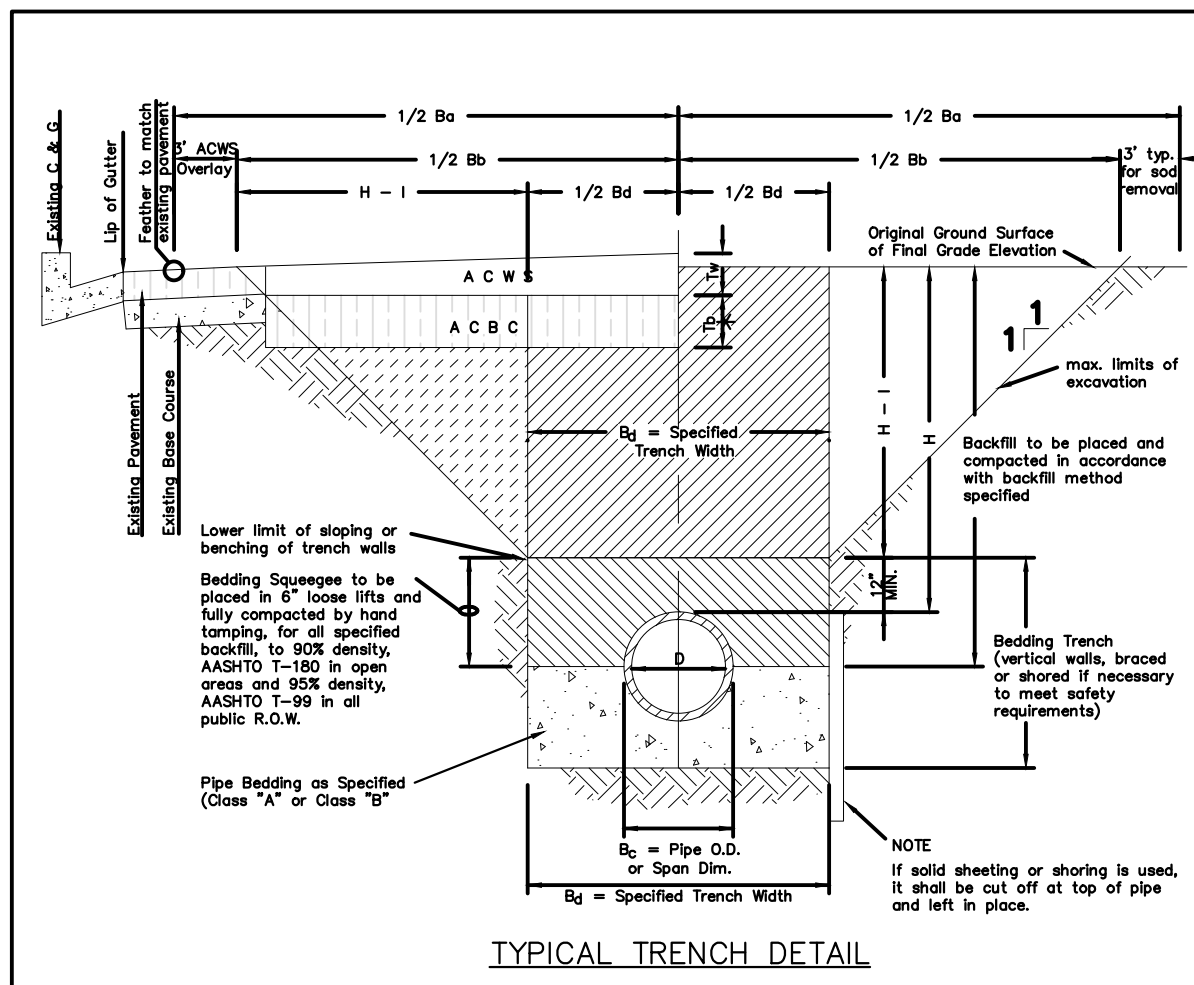
CROSSING
STORM & SANITARY SEWERS

SCALE: NONE DATE: 4/00

APPROVED: R/JG
DISTRICT ENGINEER



THE USE OF ANY CHANGE IN EXISTING MEDIA, OR ANY INSTRUMENT OF SERVICE, PREPARED BY MERRICK AND ASSOCIATES, INC. IS HEREBY REPRODUCED IN FULL. ANY INSTRUMENT OF SERVICE, PREPARED BY MERRICK AND ASSOCIATES, INC. IS HEREBY REPRODUCED IN FULL. ANY INSTRUMENT OF SERVICE, PREPARED BY MERRICK AND ASSOCIATES, INC. IS HEREBY REPRODUCED IN FULL. ANY INSTRUMENT OF SERVICE, PREPARED BY MERRICK AND ASSOCIATES, INC. IS HEREBY REPRODUCED IN FULL.



NOTES

- Sloping or benching of trench side walls, where permitted shall be in accordance with applicable Federal, State and Local agency regulations.
- Trench shall be brood and shored as necessary to afford safe working conditions or to protect adjacent utilities, structures, etc. Unless otherwise specified on the plans, no pavement will be made for removal, replacement or relocation of curb and gutters, utilities, structures, etc. outside the maximum limits of excavation as shown and the contractor shall be responsible for protection of same.
- If dimension T_2 is $\leq 5'$, then existing asphalt pavement shall be removed and replaced up to the gutter. Maximum asphalt paving, R_2 if R_2 shall then be based upon this section only.

ASPHALT AND BASE COURSE REPLACEMENT SCHEDULE

STREET WIDTH	ASPHALTIC BASE COURSE (1/2")	ASPHALTIC WEARING SURFACE (1/2")	TOTAL THICKNESS (1/2")
UP TO 36'	4"	2"	6"
36' TO 44'	4"	3"	7"
44' TO 48'	5"	3"	8"
WIDER THAN 48'	6"	3"	9"

TABLE II * Unless otherwise noted on the plans or in the specs.

STONEGATE VILLAGE METROPOLITAN DISTRICT
SEWER TRENCHING AND BEDDING TRENCH DETAIL - CLASS "A"

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER

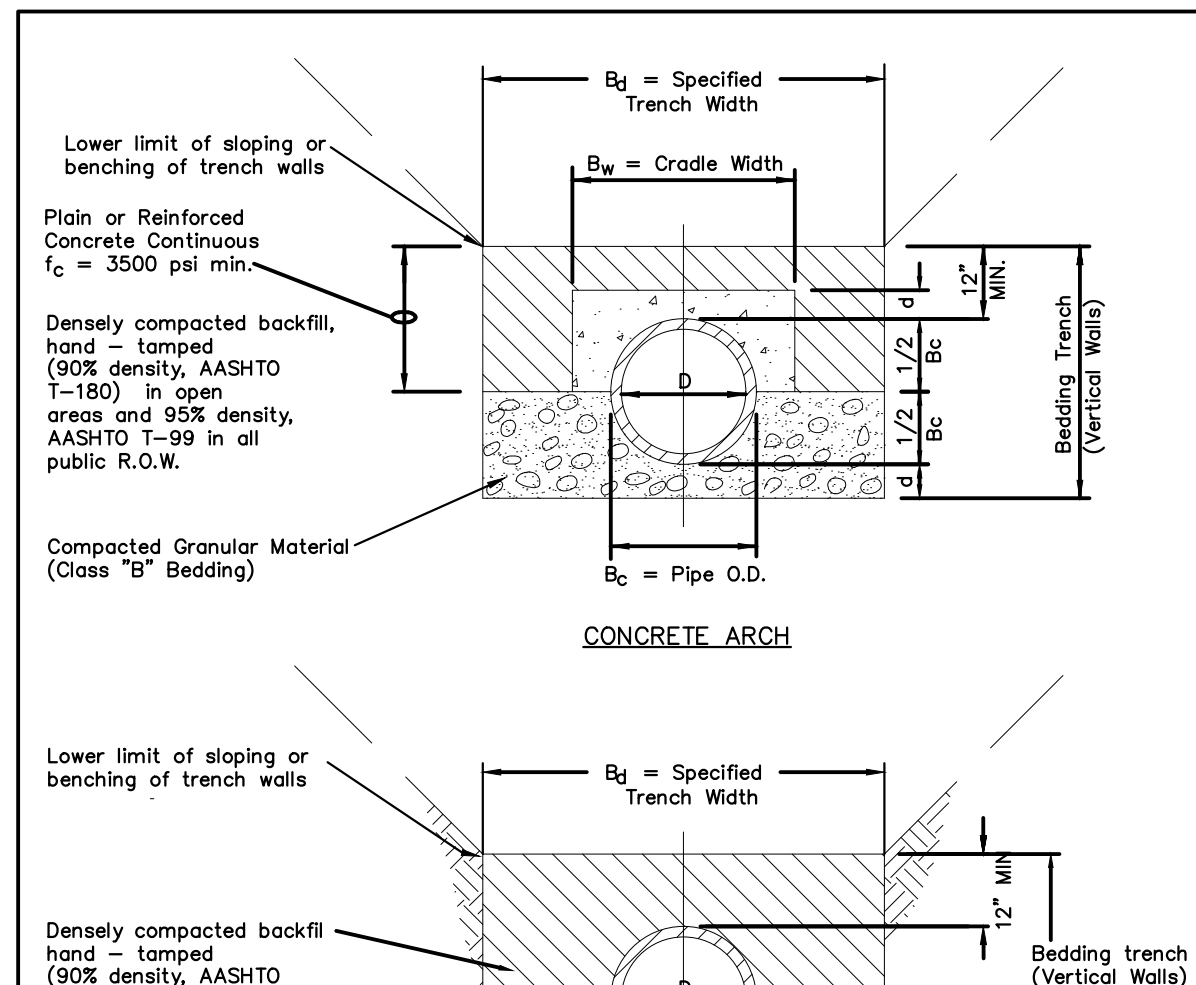


TABLE III

NOMINAL DIAMETER (D)	MINIMUM THICKNESS (t)	MIN. WIDTH OF CRADLE (B _w)
18" & smaller	4"	B _c + 8"
21" to 24"	6"	B _c + 8"
27" to 33"	8"	B _c + 8"
36" to 42"	10"	1.25 B _c
48" & larger	1/4 D	1.25 B _c

STONEGATE VILLAGE METROPOLITAN DISTRICT
TRENCHING AND BEDDING DETAIL - CLASS "A"

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER

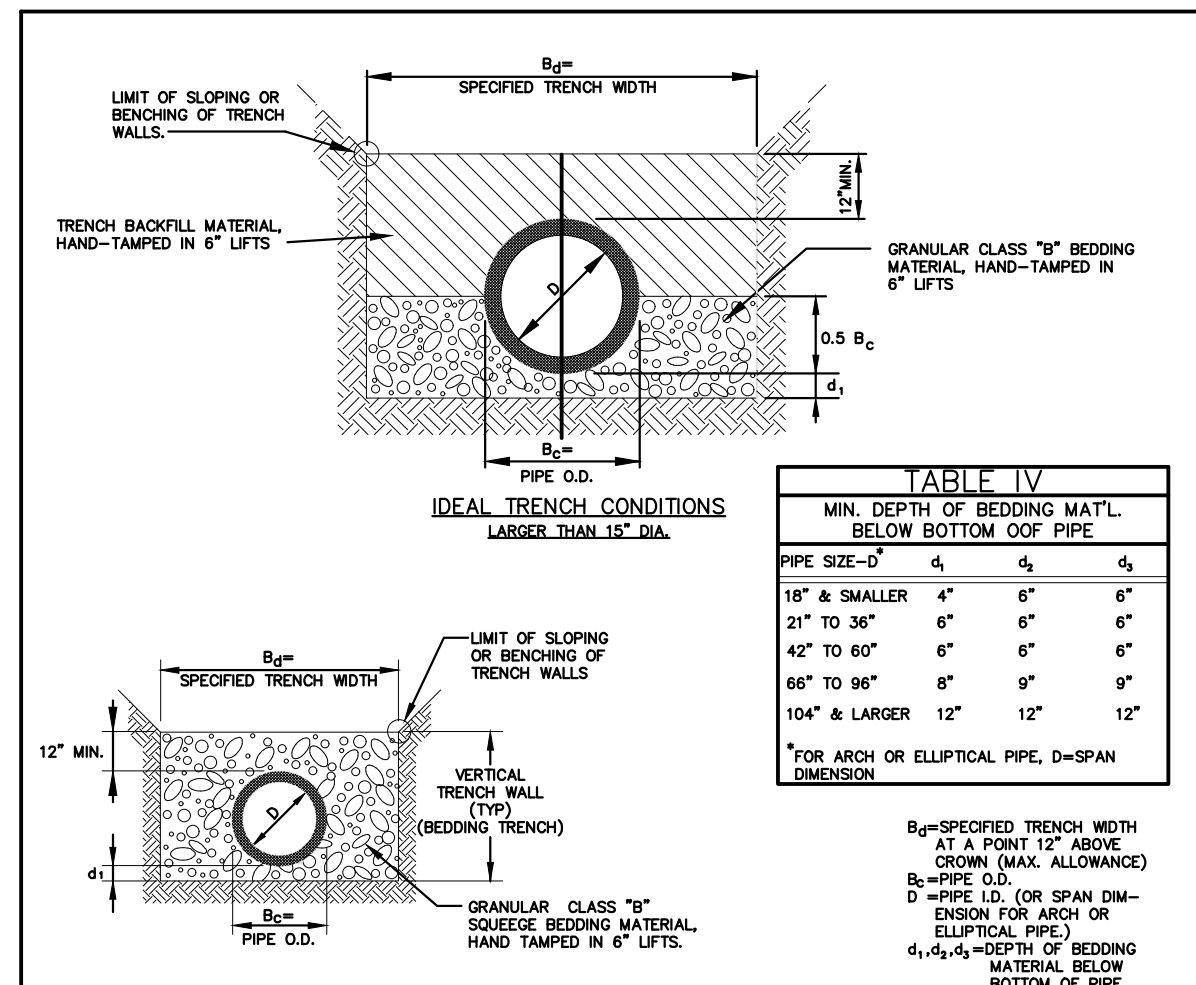


TABLE IV

PIPE SIZE - D	MIN. DEPTH OF BEDDING MAT'L. BELOW BOTTOM OF PIPE	MIN. DEPTH OF BEDDING MAT'L. BELOW BOTTOM OF PIPE
18" & smaller	4"	4"
21" to 36"	6"	6"
42" to 60"	6"	6"
66" to 96"	8"	9"
104" & larger	12"	12"

GENERAL NOTES:

- 1.1 BELL HOLES SHALL BE EXCAVATED AT ALL BELL AND SPIGOT JOINTS.
- 1.2 SUBURBAN PIPE TO BE AN APPROVED PERFORMED PIPE CONFORMING TO APPLICABLE REQUIREMENTS OF THE SPECIFICATIONS.
- 1.3 BEDDING TRENCH BACKFILL TO BE COMPACTED TO 90% DENSITY, AASHTO T-100 IN OPEN AREAS AND 95% DENSITY AASHTO T-99 IN ALL PUBLIC R.O.W.

REFERENCE:

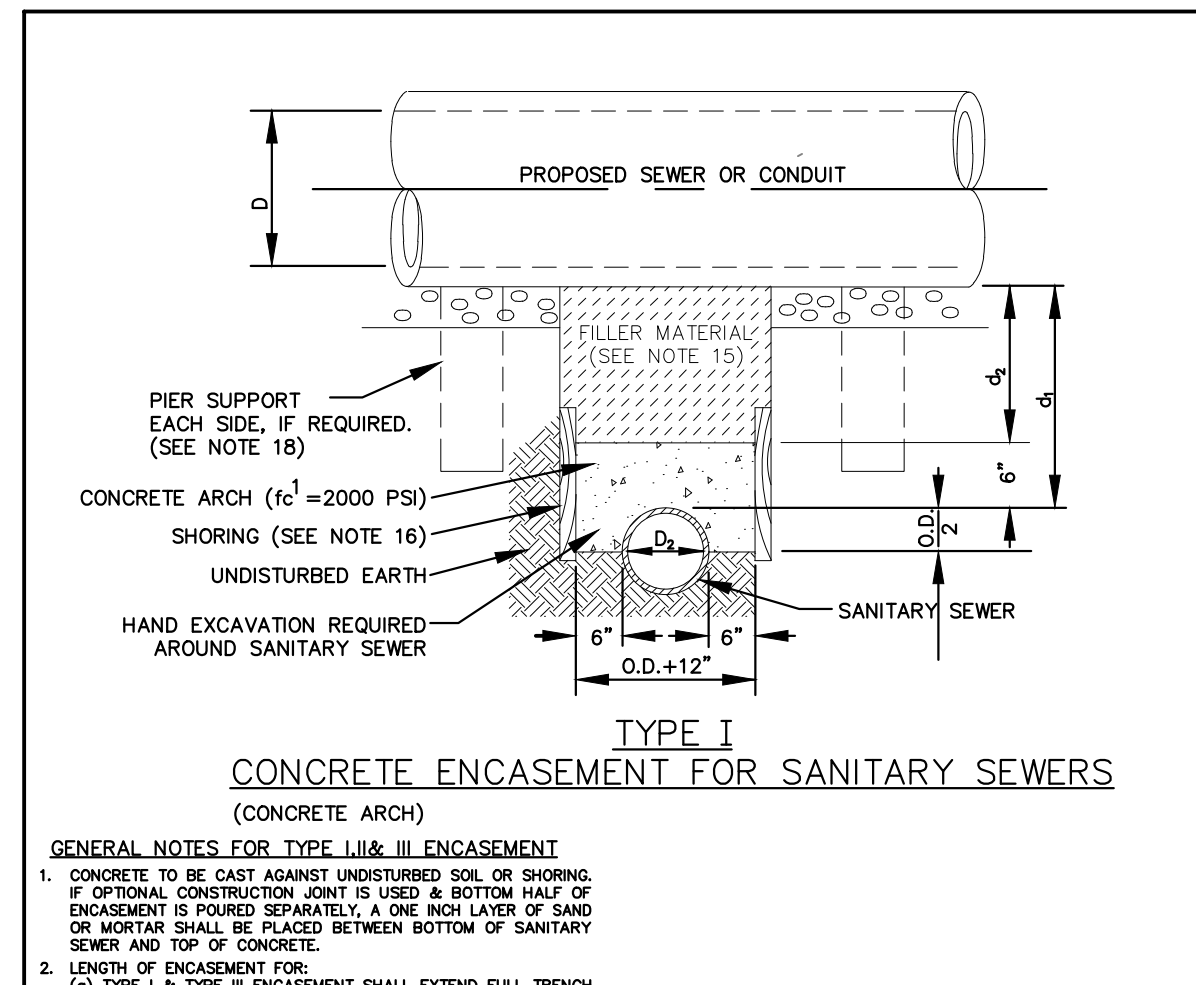
R-1 M.P.C.F. MANUAL OF PRACTICE NO. 9 (A.S.I.C.E. MANUAL)

R-2 AMERICAN CONCRETE PIPE ASSOCIATION DESIGN MANUAL LATEST EDITION.

STONEGATE VILLAGE METROPOLITAN DISTRICT
TRENCHING AND BEDDING DETAIL - CLASS "B"

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER



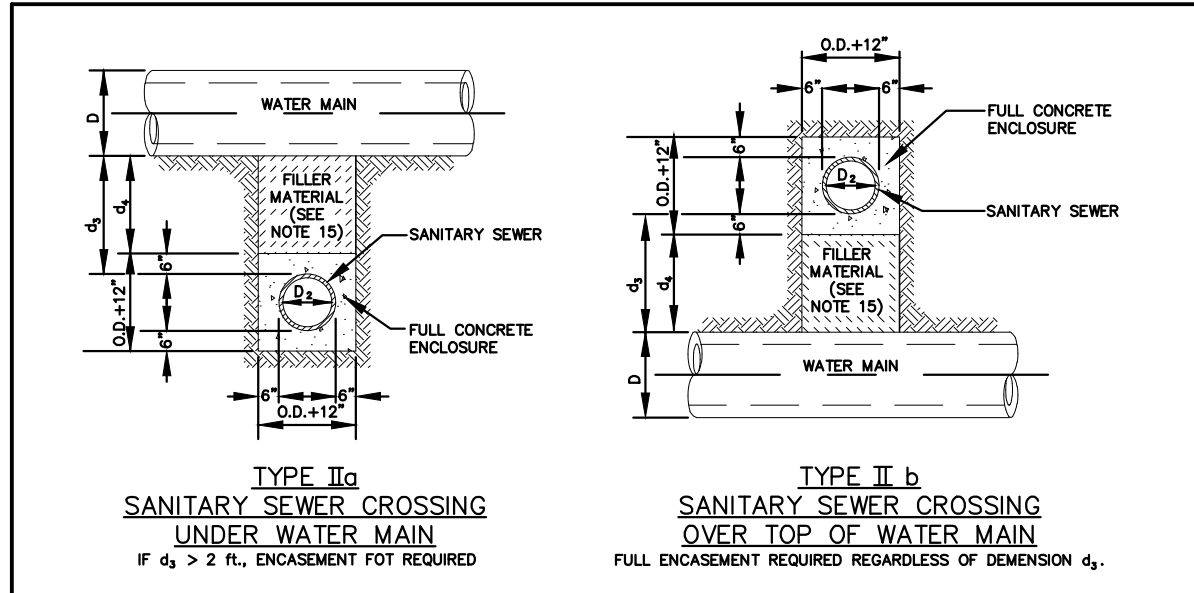
GENERAL NOTES FOR TYPE I, II & III ENCASEMENT

- CONCRETE TO BE CAST AGAINST UNDISTURBED SOIL OR SHORING. IF OPTIONAL CONSTRUCTION JOINT IS USED & BOTTOM HALF OF ENCASEMENT IS POURED SEPARATELY, A ONE INCH LAYER OF SAND OR MORTAR SHALL BE PLACED BETWEEN BOTTOM OF SANITARY SEWER AND TOP OF CONCRETE.
- LENGTH OF ENCASEMENT FOR: (a) TYPE I & II ENCASEMENT SHALL EXTEND FULL TRENCH WIDTH EXCAVATED FOR PROPOSED SEWER OR CONDUIT. (b) TYPE III ENCASEMENT SHALL EXTEND AT LEAST TO FEET EACH SIDE OF WATER MAIN.
- UNLESS OTHERWISE NOTED ON PLAN/PROFILE DRAWINGS, TYPE I, II & III ENCASEMENTS NEED NOT BE REINFORCED. REINFORCEMENT, IF REQUIRED, SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN & PROFILE DRAWINGS.
- TYPE I, II OR III ENCASEMENTS ARE REQUIRED UNDER FOLLOWING CONDITIONS: (a) TYPE I OR TYPE II IF $d \leq 18"$ ($d \leq 12"$) EXCEPT FOR SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS. (b) TYPE III IF $d \leq 24"$ ($d \leq 18"$) EXCEPT FOR SANITARY SEWER CROSSING OVER TOP OF WATER MAINS, REGARDLESS OF DIMENSION "d". (c) EXCEPT FOR UNUSUAL CIRCUMSTANCES, WATER MAIN CROSSINGS, OR WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, TYPE I ENCASEMENT WILL NORMALLY BE SATISFACTORY. (d) IF THE SANITARY SEWER IS REPLACED OR CONSTRUCTED OF DUCTILE IRON PIPE (AWWA C-150 OR C-151), CONCRETE ENCASEMENT MAY NOT BE REQUIRED.
- FILLER MATERIAL BETWEEN CONDUITS TO BE: (a) APPROVED COMPRESSIBLE MATERIAL SUCH AS STYROFOAM, ETC. IF d_1 & $d_2 \leq 6"$. (b) COMPACTED CLASS "B" BEDDING IF d_1 & $d_2 > 6"$ (IF d_1 & d_2 FOR TYPE II ENCASEMENT POUR CONCRETE ON UNDISTURBED SOIL).
- SHORING OR SHEETING, IF USED, TO BE CUT OFF AT TOP OF ENCASEMENT.
- THESE ENCASUREMENT DETAILS MAY ALSO BE APPLICABLE FOR CONDUITS OTHER THAN STORM OR SANITARY SEWER INSTALLATIONS.
- IN CERTAIN SITUATIONS WHERE CONDUIT DIAMETER "d" IS EXTREMELY LARGE, PIER SUPPORTS ON EACH SIDE OF SANITARY SEWER MAY ALSO BE REQUIRED. IF REQUIRED, SUPPORTS SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN AND PROFILE DRAWINGS.

STONEGATE VILLAGE METROPOLITAN DISTRICT
CONCRETE ENCASEMENT TYPE I

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER



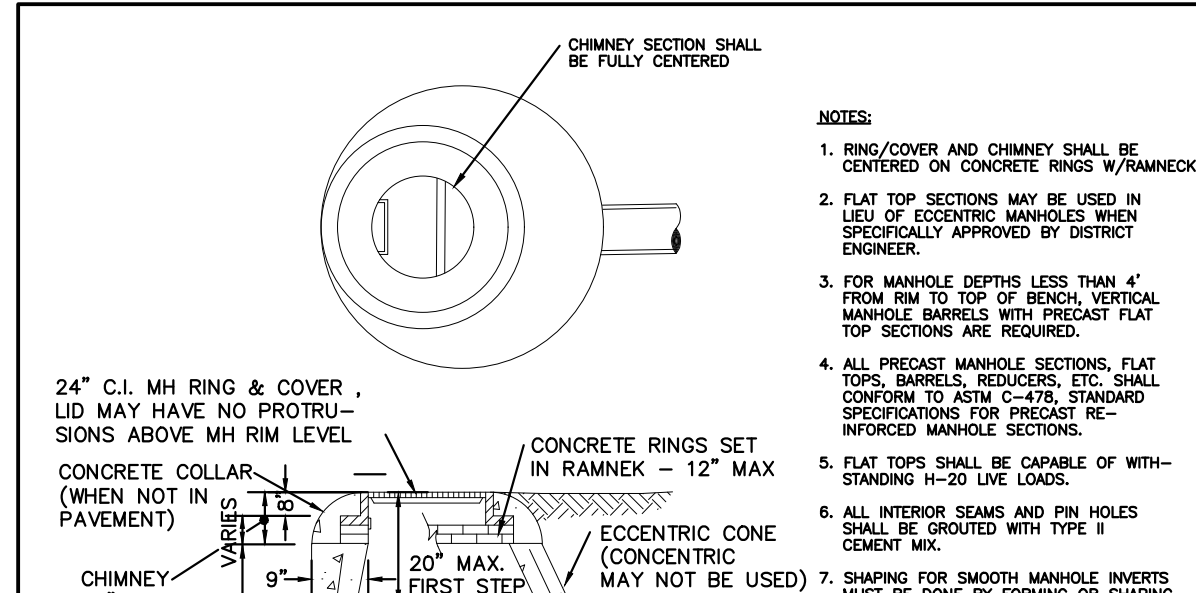
GENERAL NOTES FOR TYPE I, II & III ENCASEMENT

- CONCRETE TO BE CAST AGAINST UNDISTURBED SOIL OR SHORING. IF OPTIONAL CONSTRUCTION JOINT IS USED & BOTTOM HALF OF ENCASEMENT IS POURED SEPARATELY, A ONE INCH LAYER OF SAND OR MORTAR SHALL BE PLACED BETWEEN BOTTOM OF SANITARY SEWER AND TOP OF CONCRETE.
- LENGTH OF ENCASEMENT FOR: (a) TYPE I & II ENCASEMENT SHALL EXTEND FULL TRENCH WIDTH EXCAVATED FOR PROPOSED SEWER OR CONDUIT. (b) TYPE III ENCASEMENT SHALL EXTEND AT LEAST TO FEET EACH SIDE OF WATER MAIN.
- UNLESS OTHERWISE NOTED ON PLAN/PROFILE DRAWINGS, TYPE I, II & III ENCASEMENTS NEED NOT BE REINFORCED. REINFORCEMENT, IF REQUIRED, SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN & PROFILE DRAWINGS.
- TYPE I, II OR III ENCASEMENTS ARE REQUIRED UNDER FOLLOWING CONDITIONS: (a) TYPE I OR TYPE II IF $d \leq 18"$ ($d \leq 12"$) EXCEPT FOR SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS. (b) TYPE III IF $d \leq 24"$ ($d \leq 18"$) EXCEPT FOR SANITARY SEWER CROSSING OVER TOP OF WATER MAINS, REGARDLESS OF DIMENSION "d". (c) EXCEPT FOR UNUSUAL CIRCUMSTANCES, WATER MAIN CROSSINGS, OR WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, TYPE I ENCASEMENT WILL NORMALLY BE SATISFACTORY. (d) IF THE SANITARY SEWER IS REPLACED OR CONSTRUCTED OF DUCTILE IRON PIPE (AWWA C-150 OR C-151), CONCRETE ENCASEMENT MAY NOT BE REQUIRED.
- FILLER MATERIAL BETWEEN CONDUITS TO BE: (a) APPROVED COMPRESSIBLE MATERIAL SUCH AS STYROFOAM, ETC. IF d_1 & $d_2 \leq 6"$. (b) COMPACTED CLASS "B" BEDDING IF d_1 & $d_2 > 6"$ (IF d_1 & d_2 FOR TYPE II ENCASEMENT POUR CONCRETE ON UNDISTURBED SOIL).
- SHORING OR SHEETING, IF USED, TO BE CUT OFF AT TOP OF ENCASEMENT.
- THESE ENCASUREMENT DETAILS MAY ALSO BE APPLICABLE FOR CONDUITS OTHER THAN STORM OR SANITARY SEWER INSTALLATIONS.
- IN CERTAIN SITUATIONS WHERE CONDUIT DIAMETER "d" IS EXTREMELY LARGE, PIER SUPPORTS ON EACH SIDE OF SANITARY SEWER MAY ALSO BE REQUIRED. IF REQUIRED, SUPPORTS SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN AND PROFILE DRAWINGS.

STONEGATE VILLAGE METROPOLITAN DISTRICT
CONCRETE ENCASEMENT TYPE II

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER



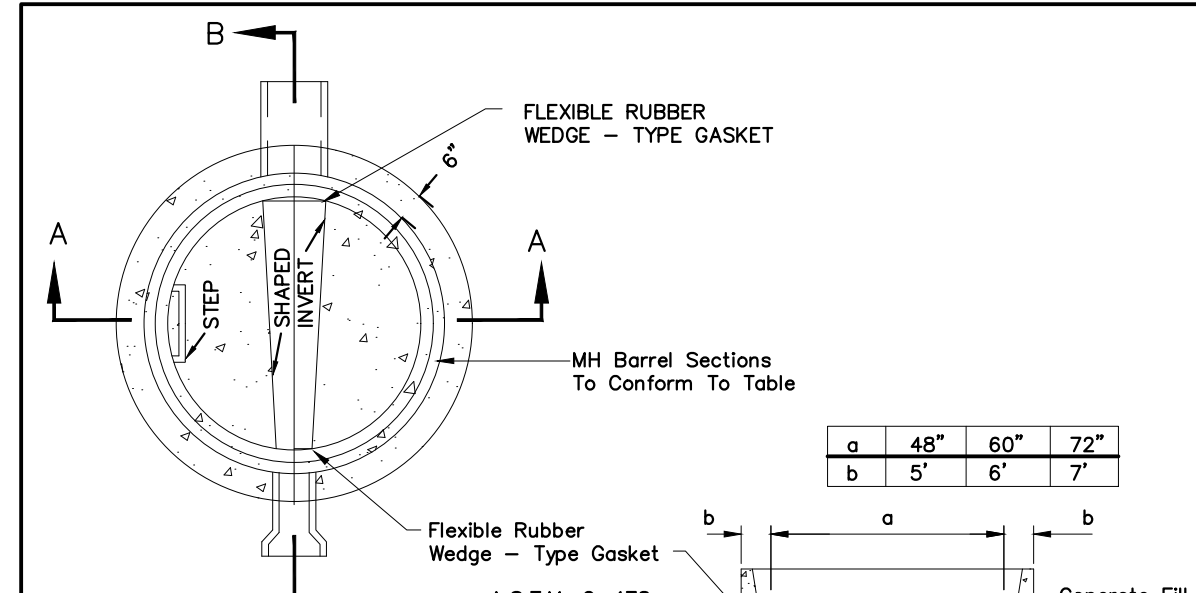
NOTES:

- RING/COVER AND CHIMNEY SHALL BE CENTERED ON CONCRETE RINGS/RAMNECK.
- FLAT TOP SECTIONS MAY BE USED IN LEV OF ECCENTRIC MANHOLES WHEN SPECIFICALLY APPROVED BY DISTRICT ENGINEER.
- FOR MANHOLE DEPTHS LESS THAN 4' FROM RIM TO TOP OF BENCH, VERTICAL MANHOLE BARRELS WITH PRECAST FLAT TOP SECTIONS ARE REQUIRED.
- ALL PRECAST MANHOLE SECTIONS, FLAT TOPS, BARRELS, REDUCERS, ETC. SHALL CONFORM TO ASTM C-478 STANDARD SPECIFICATIONS FOR PRECAST REINFORCED MANHOLE SECTIONS.
- FLAT TOPS SHALL BE CAPABLE OF WITHSTANDING H-20 LIVE LOADS.
- ALL INTERIOR SEAMS AND PIN HOLES SHALL BE GROVED WITH TYPE I CEMENT MIX.
- SHAPING FOR SMOOTH MANHOLE INVERTS MUST BE DONE BY FORMING OR SHAPING CONCRETE BASE.
- FLAT TOP SECTIONS WITH CONCENTRIC OPENINGS ARE NOT ALLOWED.
- MANHOLE STEPS SHALL NOT BE INSTALLED OVER THE FLOW CHANNEL. THEY SHALL BE PLACED 12" MINIMUM OR 16" MAXIMUM IN STRAIGHT VERTICAL ALIGNMENT WITH THE BOTTOM STEP 8" ABOVE THE BENCH MINIMUM.
- FLEXIBLE ASPHALTIC SEALANT (TYP) IN SHIP-LAP JOINTS AND IN JOINTS BETWEEN BASE, BARREL SECTIONS, CONE SECTIONS, FLAT TOPS, ETC.
- DESIGN ENGINEER OR DISTRICT ENGINEER MAY INCREASE MANHOLE SIZE FOR SPECIAL DESIGN CONSIDERATIONS.
- SLIP-RING FRAME RISERS MAY NOT BE USED.

STONEGATE VILLAGE METROPOLITAN DISTRICT
PRECAST MANHOLE ECCENTRIC CONE

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER



SECTION A-A

SECTION B-B

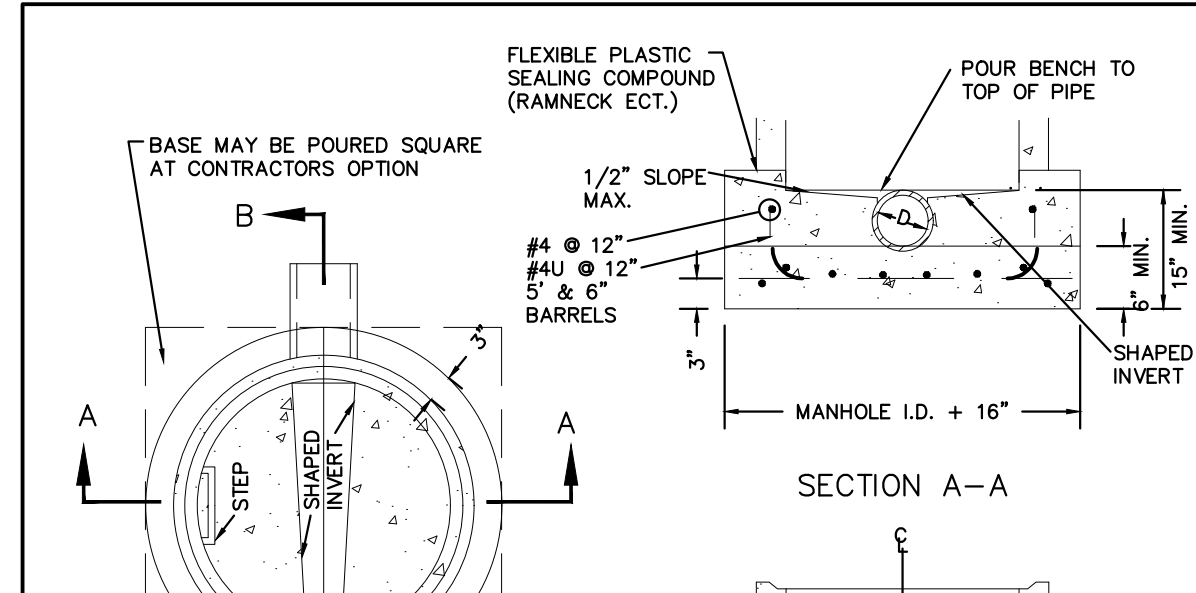
NOTES:

- Base slab shall be cast monolithic with the bottom riser section.
- All pipe openings shall be formed with an approved flexible rubber wedge - type gasket conforming to A.S.T.M. C-443 which shall be capable of providing a water-tight joint with zero leakage around the installed pipe(s).
- Manhole steps installed in bottom riser section shall conform to Division Standards and Specifications.
- Ship-lap joint on manhole barrel riser shall conform to Division Standards and Specifications. However, as an alternate a special adapter section may be provided at the first joint in the bottom riser section which will adapt the precast base section to Division standard manhole riser sections.
- Grouted flow channels and inverts shall conform to Division Standards and Specifications. Manhole barrel min. diameter shall conform to table. Precast barrel sections to conform to A.S.T.M. C-478. All dead-end manholes shall be stubbed thru at 0.40% minimum slope.
- Stub outs shall extend 2'-0" min past manhole O.D. and be satisfactorily plugged.
- 2.9 Stub outs shall extend 2'-0" min past manhole O.D. and be satisfactorily plugged.
- 2.10 Max. slope of bench = 1/2".
- 2.11 Δ = invert drop thru Manhole (if $\Delta > 18"$, outside drop MH req'd)

STONEGATE VILLAGE METROPOLITAN DISTRICT
PRECAST MANHOLE BASE DETAIL

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER



SECTION A-A

SECTION B-B

NOTES:

- Manhole barrel min. thickness to be 5".
- Shaping for smooth manhole inverts may be done by forming or shaping with cement mortar (San. Sewer).
- The manhole steps shall conform to District Standards and Specifications.
- Precast sections to conform to A.S.T.M C-478.
- All dead-end manholes shall be stubbed thru at 0.40% minimum slope.
- Stub outs shall extend 2'-0" minimum past manhole O.D. and be satisfactorily plugged.
- Reinforcing in base required for manhole.
- Maximum slope of bench = 1/2".
- Δ = invert drop thru MH (if $\Delta > 18"$, outside drop MH required).

STONEGATE VILLAGE METROPOLITAN DISTRICT
CAST-IN-PLACE MANHOLE BASE DETAIL

SCALE: NONE DATE: 4/00

APPROVED: RJD DISTRICT ENGINEER

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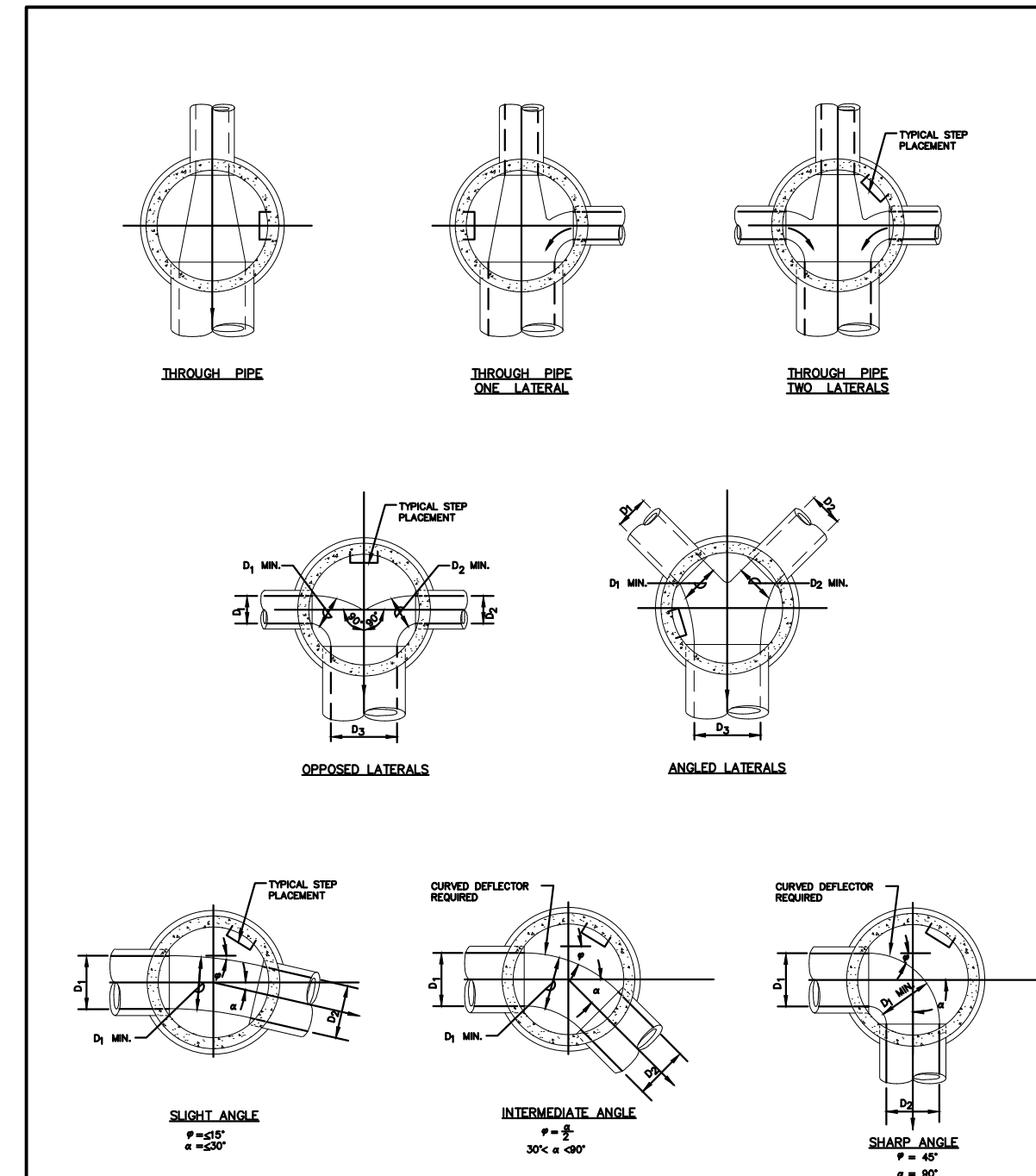
CENTURY LIVING

LOT 1, COMPARK VILLAGE SOUTH
FLG 1, AMD 2
WATER & SANITARY SEWER IMPROVEMENTS
STANDARD DETAILS - SANITARY

DATE: 4/11/2022
SHEET: C7-11

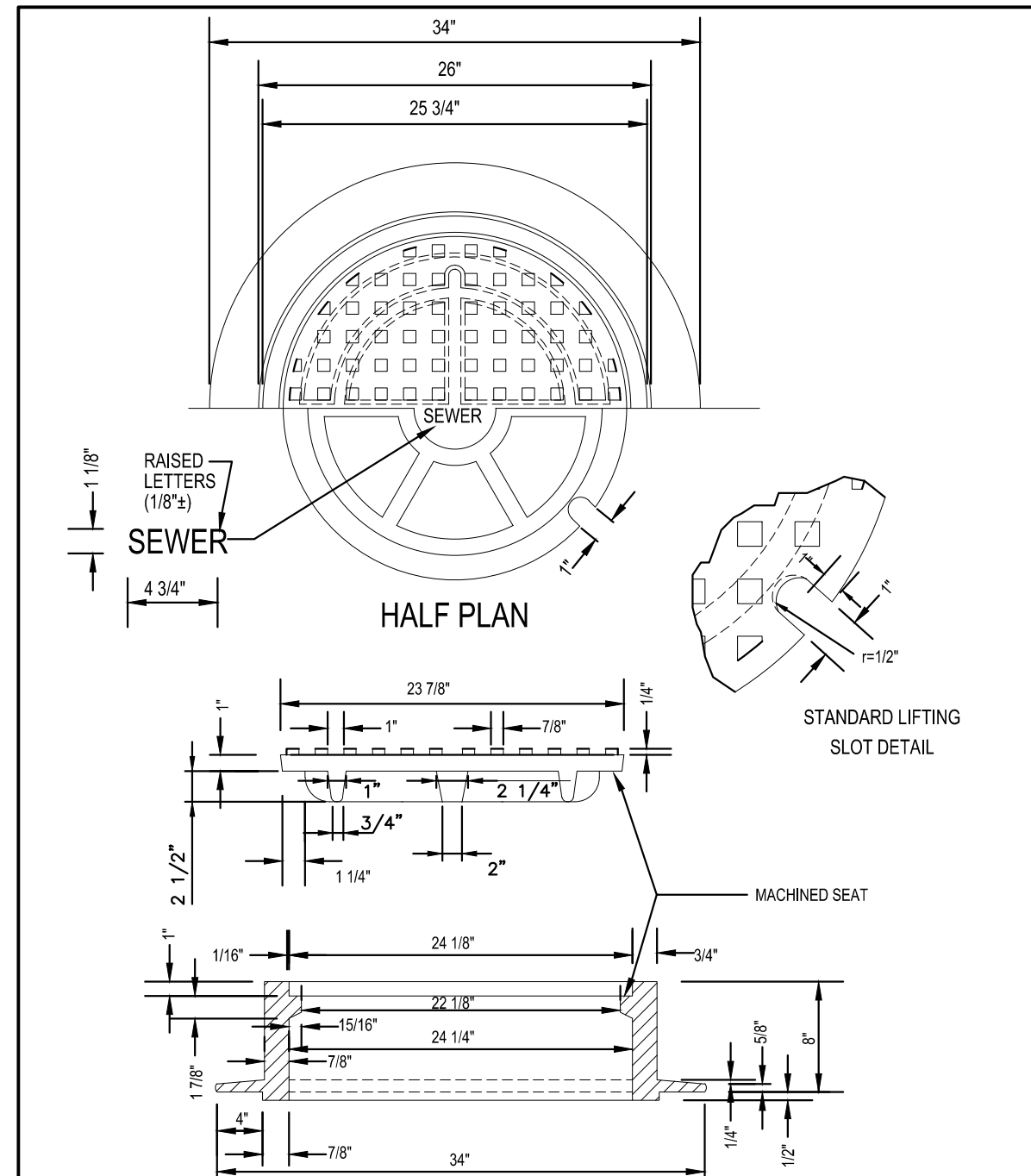
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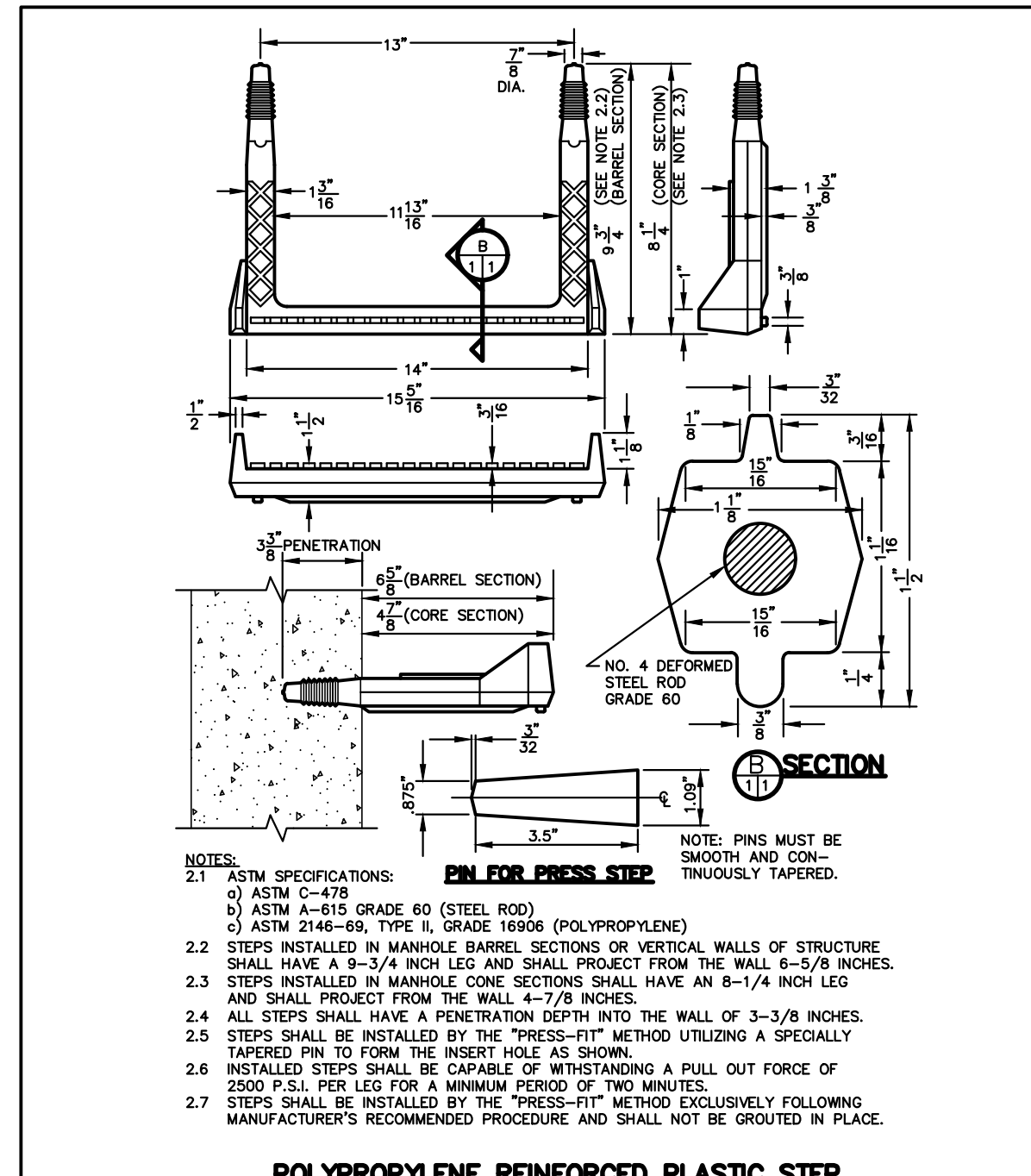
STONEGATE VILLAGE
METROPOLITAN DISTRICT
TYPICAL BASE
CHANNELIZATION DETAILS
SCALE: NONE DATE: 4/00
APPROVED: RJD DISTRICT ENGINEER

2000 REVISION SHEET 15



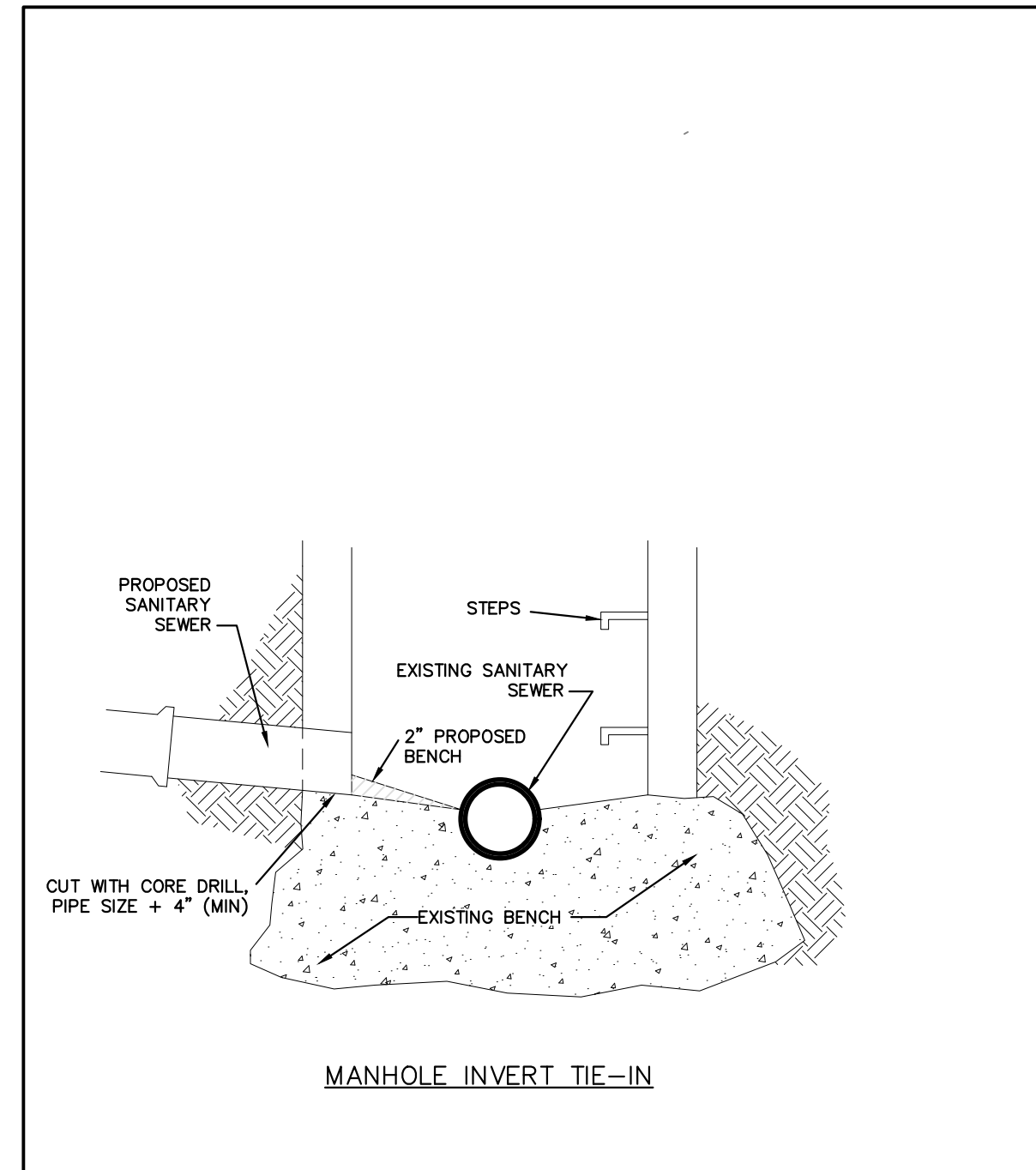
STONEGATE VILLAGE
METROPOLITAN DISTRICT
24\"/>

2000 REVISION SHEET 17



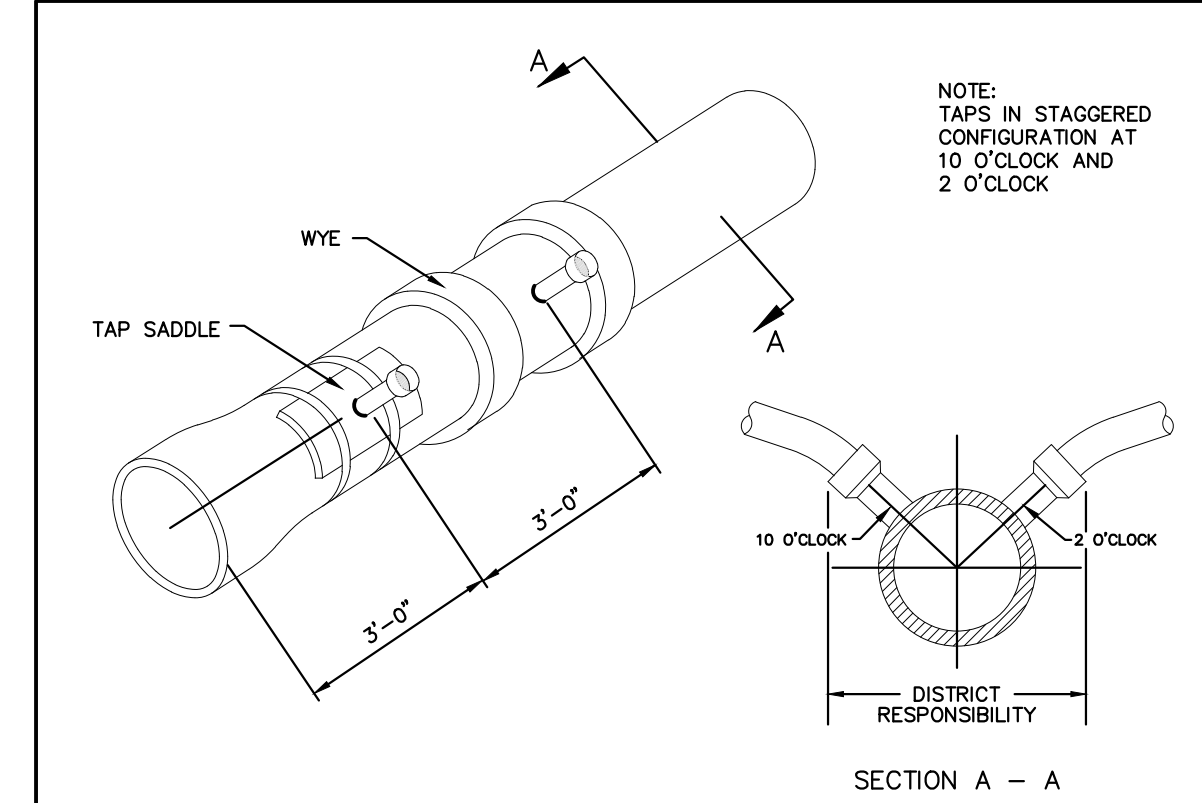
STONEGATE VILLAGE
METROPOLITAN DISTRICT
POLYPROPYLENE REINFORCED
PLASTIC MANHOLE STEP
SCALE: NONE DATE: 4/00
APPROVED: RJD DISTRICT ENGINEER

2000 REVISION SHEET 20



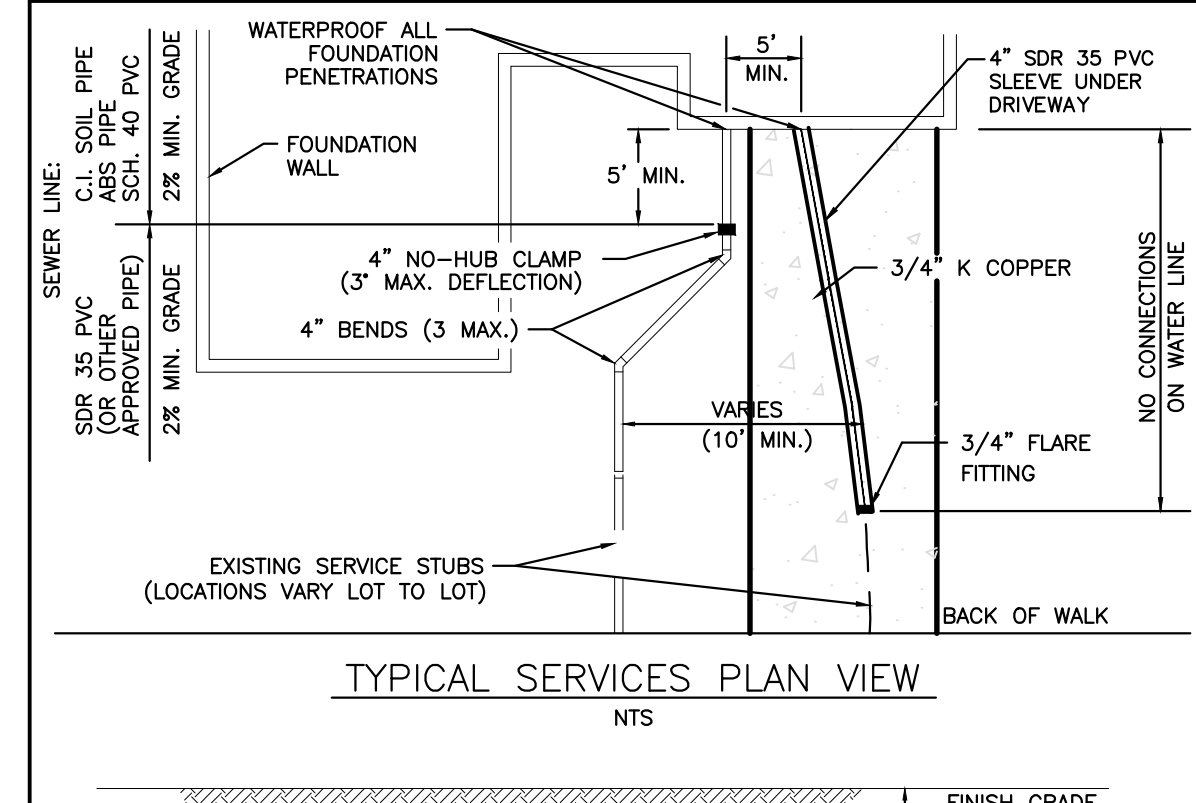
STONEGATE VILLAGE
METROPOLITAN DISTRICT
MANHOLE INVERT
TIE-IN DETAIL
SCALE: NONE DATE: 4/00
APPROVED: RJD DISTRICT ENGINEER

2000 REVISION SHEET 22



STONEGATE VILLAGE
METROPOLITAN DISTRICT
DOMESTIC SEWER
TAPPING DETAIL
SCALE: NONE DATE: 4/00
APPROVED: RJD DISTRICT ENGINEER

2000 REVISION SHEET 27



STONEGATE VILLAGE
METROPOLITAN DISTRICT
TYPICAL SEWER SERVICES
SCALE: NONE DATE: 4/00
APPROVED: RJD DISTRICT ENGINEER

2000 REVISION SHEET 28

INSPECTION POLICY:
1. ALL SERVICE INSPECTIONS MUST BE SCHEDULED WITH THE DISTRICT ENGINEER'S OFFICE (303) 263-3699 AT LEAST 24 HOURS IN ADVANCE OF THE REQUESTED INSPECTION.
2. SERVICE INSPECTIONS WILL OCCUR BETWEEN 1:00 P.M. AND 4:00 P.M. SPECIFIC INSPECTION TIMES ARE NOT AVAILABLE.
3. IF THE CONTRACTOR IS NOT READY FOR INSPECTION WHEN THE INSPECTOR ARRIVES AT THE SITE, A RE-INSPECTION WILL HAVE TO BE SCHEDULED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE.
4. SHOULD THE SERVICE LINES BE DAMAGED BY LATER CONSTRUCTION, AN INSPECTION OF THE REPAIR WILL BE REQUIRED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE.
5. THE CONTRACTOR SHALL LEAVE ALL PIPE AND FITTINGS EXPOSED FOR THE INSPECTOR TO OBSERVE. INSPECTORS WILL NOT ENTER ANY EXCAVATIONS TO CHECK MATERIALS. THE TOP LAYER OF BEDDING CAN BE ADDED AFTER THE INSPECTION HAS BEEN COMPLETED.
6. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.

INSTALLATION NOTES:
SEWER
1. ACCEPTABLE PIPE MATERIALS ARE TO BE SDR 35 PVC PIPE, ABS PIPE AND CAST IRON CLASS 22 SOIL PIPE. APPROVED BEDDING IS TO BE SQUEEGEE.
2. NO-HUB CLAMPS SHALL BE USED TO JOIN 2 MALE PIPE ENDS WITH A MAXIMUM DEFLECTION OF 3\"/>

STONEGATE VILLAGE
METROPOLITAN DISTRICT
DISTRICT POLICIES & INSTALLATION
NOTES FOR SEWER SERVICES
SCALE: NONE DATE: 4/00
APPROVED: RJD DISTRICT ENGINEER

2000 REVISION SHEET 29

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A	INITIAL SUBMITTAL TO SWMD	4/1/2022			

LOT 1, COMPARK VILLAGE SOUTH
FLG 1, AMD 2
WATER & SANITARY SEWER IMPROVEMENTS
STANDARD DETAILS - SANITARY

ISSUED FOR REVIEW

