

STANDARD PLAN

NUMBER

SEWER CONSTRUCTION GENERAL NOTES _____ 1200

SEWER MANHOLE; NOTES FOR SEWER MANHOLE _____ 1201

DROP MANHOLE _____ 1201A

STEEL CASING _____ 1203

SEWER ENCASEMENT/CONCRETE BLANKET _____ 1203A

SEWER LATERAL AND CLEANOUT (OPEN TRENCH) _____ 1204

SEWER LATERAL AND CLEANOUT (PIPE BURSTING) _____ 1204A

METHOD OF SUPPORTING STORM DRAIN
AND SEWER PIPES ACROSS TRENCHES _____ 1207

MANHOLE ABANDONMENT _____ 1209

GRAVITY GREASE INTERCEPTOR _____ 1210

36" SEWER MANHOLE COVER _____ 1211

SEWER LATERAL ABANDONMENT _____ 1212

APPROVED:

DATE:

11/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY



DATE		REVISION
1/23/06	A.F.	DELETE STD PLAN 240A
7/16/09	R.R.	ADD STD 1204A & 1209 ADD STD DEVELOPMENT SPECIFICATIONS
11/5/12	J.A.	ADD STD 1203A AND 1208A
11/2020	R.R.	DEL STD 1202; ADD 1210-1212

INDEX OF STANDARD PLANS
FOR SANITARY SEWERS

SHEET
1 OF 1

General Notes for Public Works Permitted Work on Sewer Collection System

1. Construction and installation of all sewer mains and appurtenances shall be in accordance with the City of Santa Ana Standard Plans and Specifications. Where the standard plans are silent, construction and installation of sewer mains and appurtenances shall conform to the Standard Specifications for Public Works Construction, 2012 edition.
2. Construction of sewer mains and appurtenances shall only be performed by qualified contractors with a valid California Contractor A or C34 license.
3. All newly constructed sewer mains and appurtenances shall be tested in accordance with Standard Specifications for Public Works Construction. All newly constructed sewer mains, laterals and manholes must be inspected via closed circuit television camera by a National Association of Sewer Service Companies (NASSCO) certified technician and video submitted in a digital format to the Water Resources Division for review and final acceptance of work.
4. All sewer mains shall be vitrified clay pipe (VCP) or PVC SDR-26 pipe. All other pipe materials require special review and approval from the Water Resources Division.
5. Trench plates shall be flush with pavement and shall be non-skid.
6. Contractor to verify depth and location of all utilities and points of connection prior to trenching.
7. When public sewer facilities are located on private property, easement documents are to be submitted to City for approval prior to a permit being issued.
8. Final acceptance will not occur until original record drawings on mylar and digital format are delivered to and accepted by the City's inspector. Show all field changes on record drawings.
9. All sewer repairs shall be accomplished using stainless steel double banded couplings.

"ADD ALL NOTES TO PLANS"



APPROVED:

DATE:

11/24/2020

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CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

SEWER CONSTRUCTION
GENERAL NOTES

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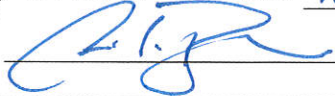
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◦ CITY OF SANTA ANA ◦
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SHEET
1 OF 1

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"ADD ALL NOTES TO PLANS"



APPROVED:

DATE:

11/24/22

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CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

SEWER CONSTRUCTION
GENERAL NOTES

STD. PLAN
NUMBER
1200

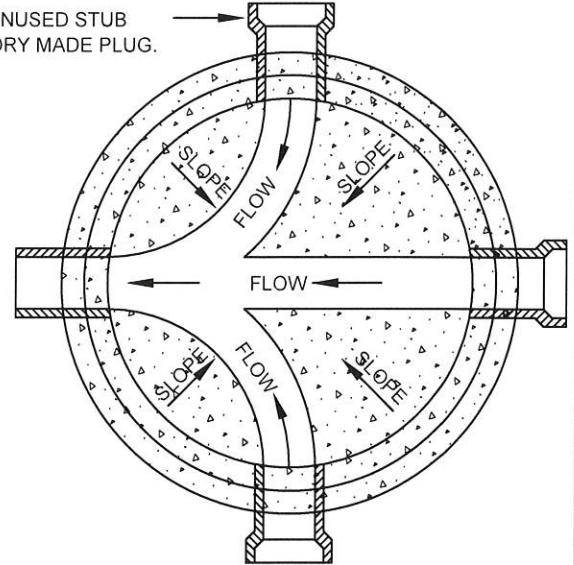
FRAME AND COVER SHALL BE ON DOWNSTREAM SIDE OF MANHOLE

CIRCULAR P.C.C. COLLAR WITH FINISHED EDGES.

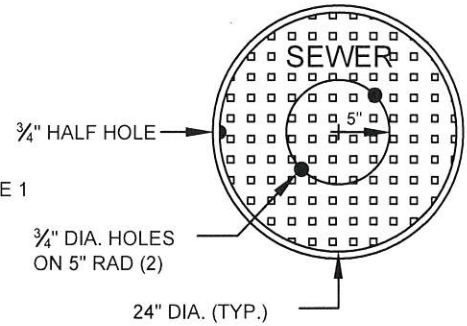
ADD #3 REBAR CIRCUMFERENTIAL

NECK SHALL BE (MIN.) 6" AND (MAX.) 24" HIGH WHEN IN PAVEMENT AREA. WHEN OUTSIDE PAVEMENT, NECK SHALL BE AS DIRECTED BY THE ENGINEER.

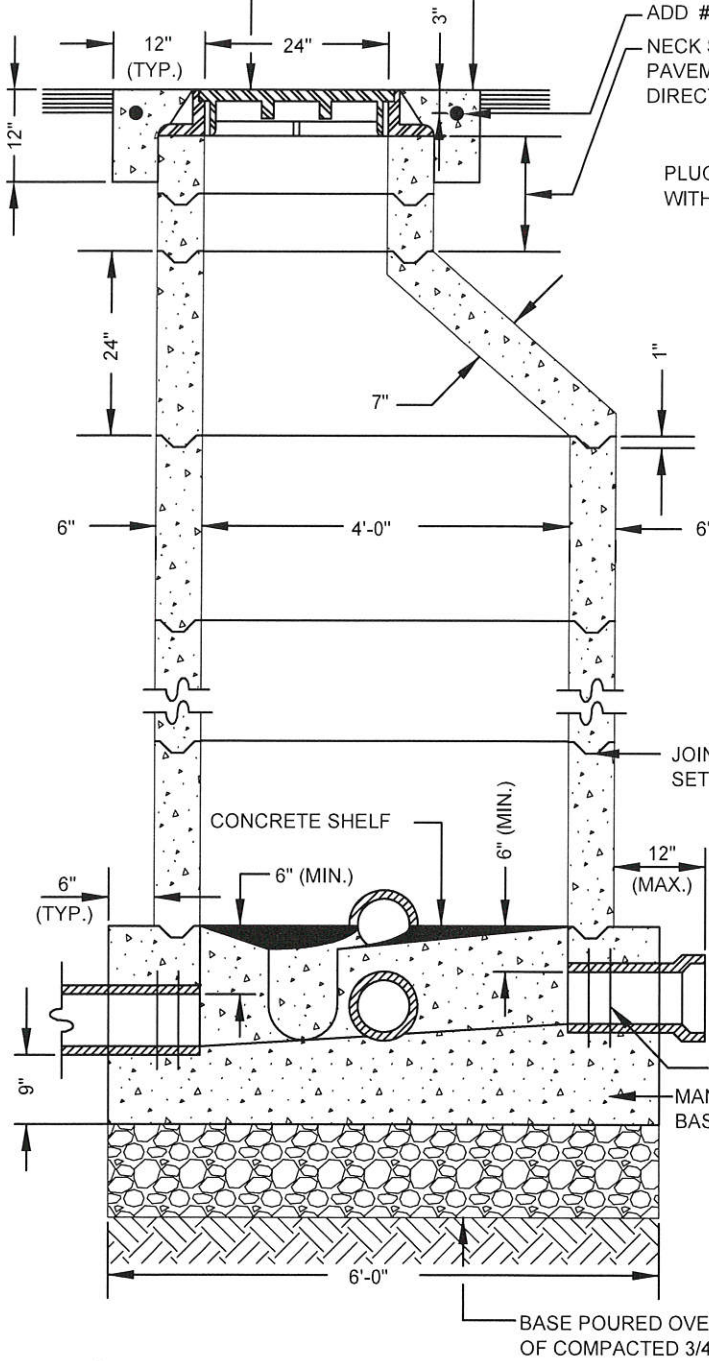
PLUG ANY UNUSED STUB WITH FACTORY MADE PLUG.



ALHAMBRA FOUNDRY A-1270-C/R OR APPROVED EQUAL FRAME AND COVER



DETAILS OF HOLES IN COVER



JOIN WITH 1/2" THICK QUICK SETTING GROUT, (TYP.)

CONCRETE SHELF

SEE NOTE 1

MANHOLE BASE

BASE POURED OVER 12" OF COMPACTED 3/4" ROCK

NOTE:

1. FOR PVC SEWER PIPES, INSTALL WATER STOP GASKETS

SEE ADDITIONAL INFORMATION ON SHEET 2

APPROVED:

DATE:

11/27/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY



DATE		REVISION
7/16/09	R.R.	WATER STOP GASKET
11/5/12	J.A.	ADDED REBAR
3/1/16	R.R.	ADDED COMPOSITE COVER
11/2020	R.R.	UPDATED

SEWER MANHOLE

STD. PLAN NUMBER
1201
SHEET 1 OF 2

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CITY OF SANTA ANA
PUBLIC WORKS AGENCY

DATE		REVISION
3/1/16	R.R.	NEW
11/2020	R.R.	UPDATED

SEWER CONSTRUCTION
GENERAL NOTES

STD. PLAN
NUMBER
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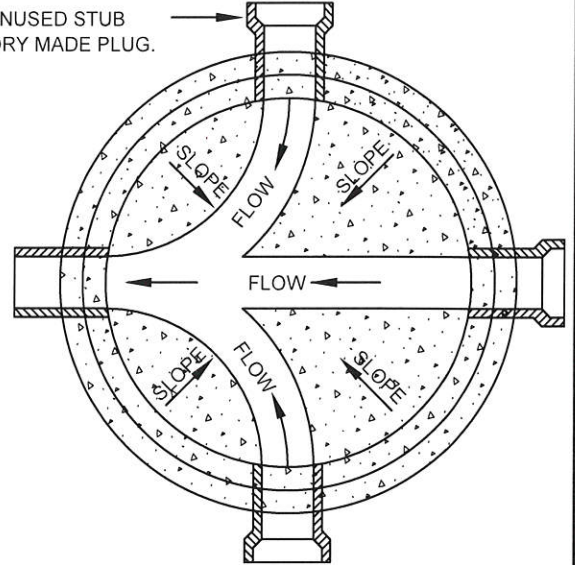
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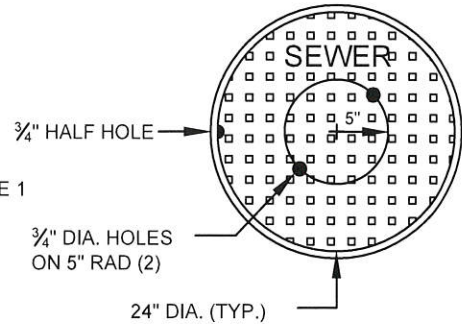
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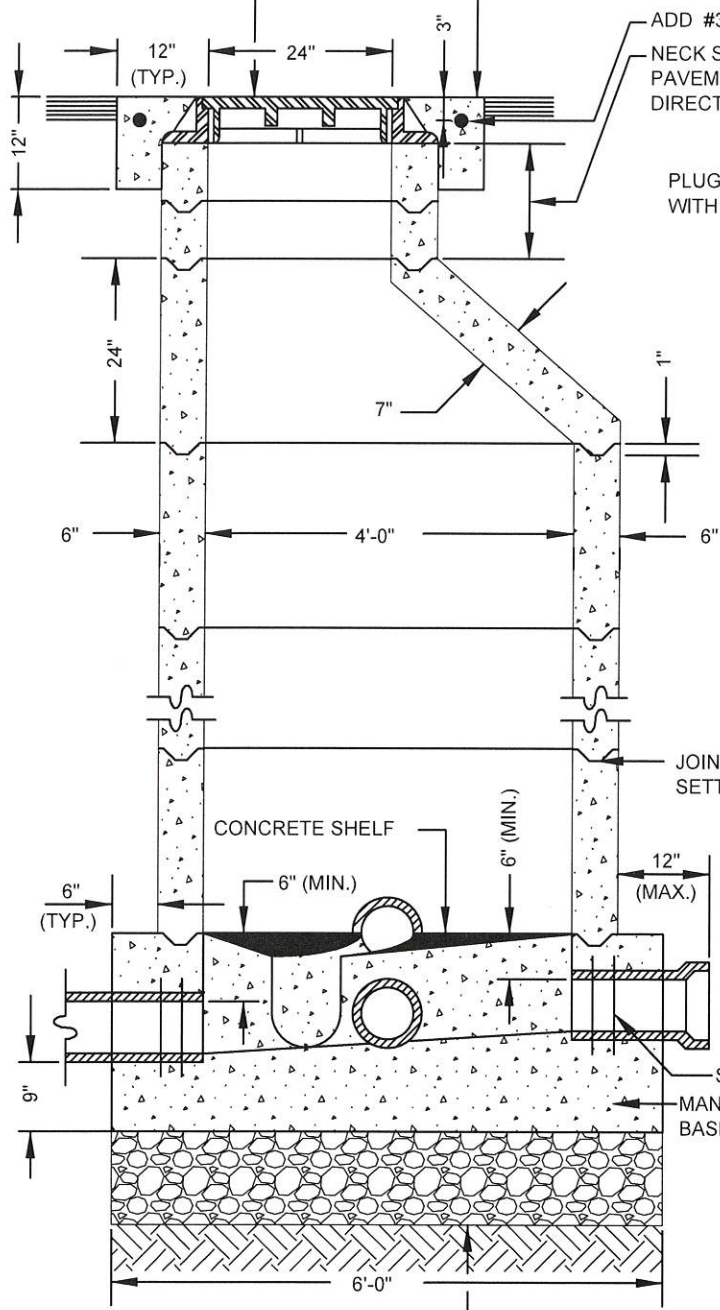
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ALHAMBRA FOUNDRY A-1270-C/R OR APPROVED EQUAL FRAME AND COVER



DETAILS OF HOLES IN COVER



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CONCRETE SHELF

SEE NOTE 1

MANHOLE BASE

BASE POURED OVER 12" OF COMPACTED 3/4" ROCK

NOTE:

1. FOR PVC SEWER PIPES, INSTALL WATER STOP GASKETS

SEE ADDITIONAL INFORMATION ON SHEET 2

APPROVED:

DATE:

4/24/2020

CITY OF SANTA ANA
PUBLIC WORKS AGENCY



DATE	R.R.	REVISION
7/16/09	R.R.	WATER STOP GASKET
11/5/12	J.A.	ADDED REBAR
3/1/16	R.R.	ADDED COMPOSITE COVER
11/2020	R.R.	UPDATED

SEWER MANHOLE

STD. PLAN NUMBER
1201
SHEET 1 OF 2

NOTES:

1. MANHOLE FRAME AND COVER SHALL BE CAST IRON AND SHALL CONFORM TO A.S.T.M. A-48, CLASS 30. MANHOLE FRAME AND COVER SHALL BE ALHAMBRA FOUNDRY A-1270-C/R OR APPROVED EQUAL. MANHOLE COVER SHALL HAVE 2 PICK HOLES PER DETAIL ON SHEET 1.
2. THE IDENTIFYING WORD "SEWER" SHALL APPEAR ON ALL SANITARY SEWER MANHOLE COVERS.
3. ELEVATION OF THE COVER TO BE DETERMINED BY THE ENGINEER.
4. ALL CONCRETE SHALL BE 560-C-3250 PER STANDARD SPECIFICATIONS.
5. BACKFILL MATERIAL TO SUBGRADE SHALL BE SAND, S.E. 30 (MIN) OR 0 SACK SLURRY, PLACED A MINIMUM OF 2 FEET Laterally AROUND STRUCTURE.
6. WHERE MANHOLE HAS 1 OR 2 INLETS AND 1 OUTLET, PLACE THE COVER DOWNSTREAM AND AWAY FROM PIPES.
7. THE TOP SURFACE OF THE SHELVES SHALL BE SLOPED DOWNWARD TOWARD THE CENTER OF MANHOLE AT THE RATE OF 1 INCH PER FOOT. THE HIGHEST ELEVATION OF THE SHELVES SHALL BE 6" MINIMUM ABOVE THE TOP OF PIPE OF THE MAIN SEWER LINE. CHANNELS AND SHELVES SHALL HAVE A SMOOTH STEEL TROWEL FINISH.
8. MANHOLES SHALL BE PRECAST NON-REINFORCED CONCRETE EXCEPT THAT THE CONTRACTOR, AT HIS OPTION AND EXPENSE, MAY FURNISH REINFORCED PRECAST MANHOLES CONFORMING TO SECTION 70-1.02H OF THE STATE STANDARD SPECIFICATIONS, (CURRENT EDITION).
9. SOFFIT OF MAIN LINE BRANCHES AND LATERALS SHALL MATCH SOFFIT OF TRUNK SEWER.
10. RIGHT ANGLE TURN OF MANHOLE'S CHANNEL SHALL HAVE A MINIMUM DROP OF 0.20 FEET.
11. MAINTAIN THE SLOPE OF THE SEWER MAIN IN THE MANHOLES WITH A STRAIGHT THROUGH CHANNEL, IF NO INLET-OUTLET ELEVATIONS ARE SHOWN ON THE PLANS.
12. MANHOLE SHALL NOT HAVE STEPS. IF PRE-CAST MANHOLE IS MANUFACTURED W/ STEPS, CONTRACTOR SHALL AT HIS EXPENSE, REMOVE THE STEPS PRIOR TO INSTALLATION.
13. INSTALL #3 REBAR CIRCUMFERENTIAL TO THE P.C.C. COLLAR, 3" BELOW FINISHED GRADE
14. COMPOSITE MANHOLES AS MANUFACTURED BY EJ BEING H-20 TRAFFIC RATED MAY BE INSTALLED SUBJECT TO THE APPROVAL OF THE ENGINEER.

APPROVED:

DATE:

11/24/2020

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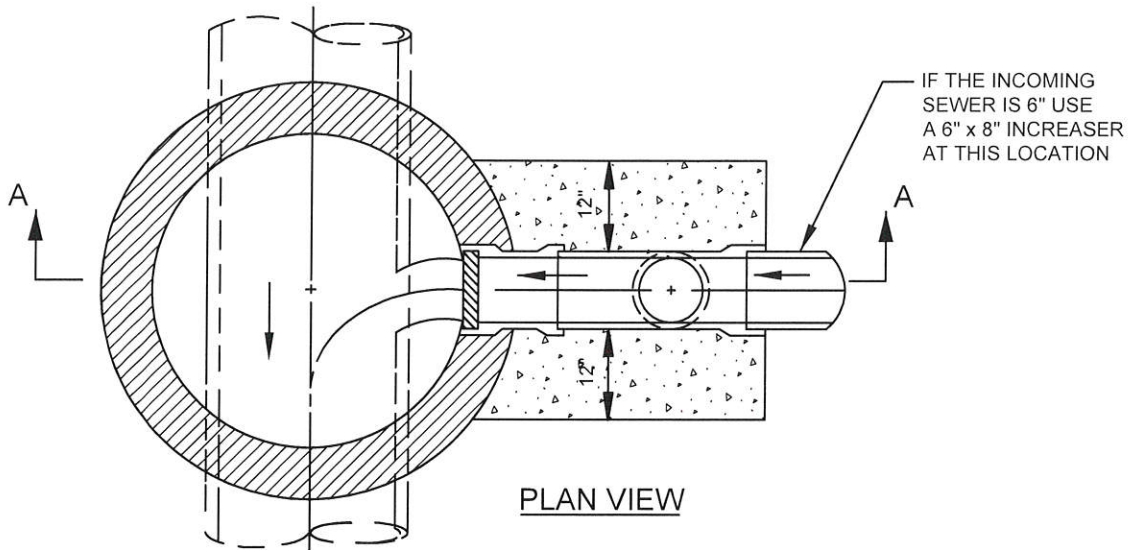
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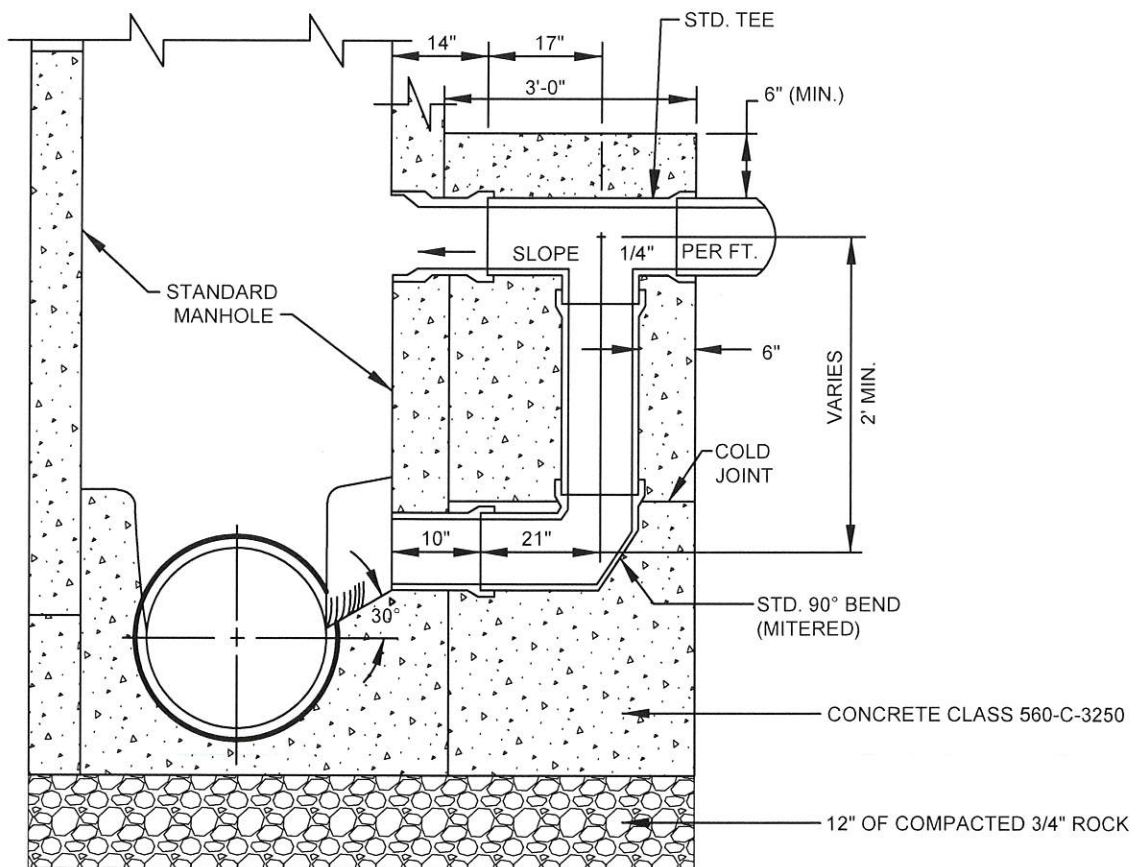
DATE		REVISION
7/16/09	R.R.	SPECIFY MH COVER
11/5/12	J.A.	ADD NOTE 12 & 13
3/1/16	R.R.	ADDED COMPOSITE COVER
11/2020	R.R.	UPDATED

NOTES FOR SEWER MANHOLE AND
DROP MANHOLE

STD. PLAN
NUMBER
1201
SHEET 2 OF 2



PLAN VIEW



SECTION A-A

NOTE:

1. DIMENSIONS SHOWN ARE FOR 8" FITTINGS (THE MINIMUM SIZE TO BE USED).
2. NOTES ON SHEET 2 OF CITY STD. PLAN 1201 APPLY TO THIS STANDARD PLAN.
3. MATERIAL OF TEE AND FITTINGS TO MATCH THE MAIN MATERIAL.

APPROVED:

DATE:

11/24/2020

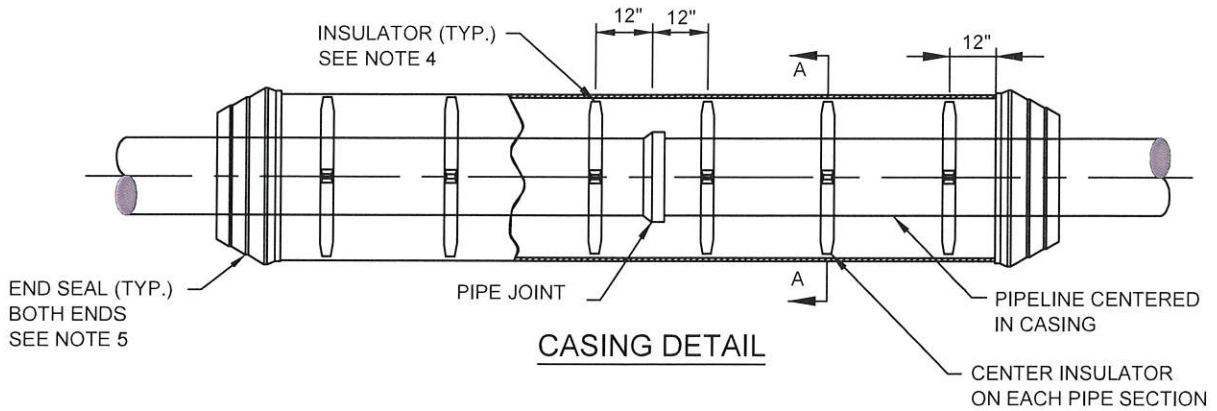
CITY OF SANTA ANA
PUBLIC WORKS AGENCY



DATE	REVISION
11/7/67	R.E.W. ADD INCREASER
7/16/09	R.R. UPDATED
11/2020	R.R. UPDATED

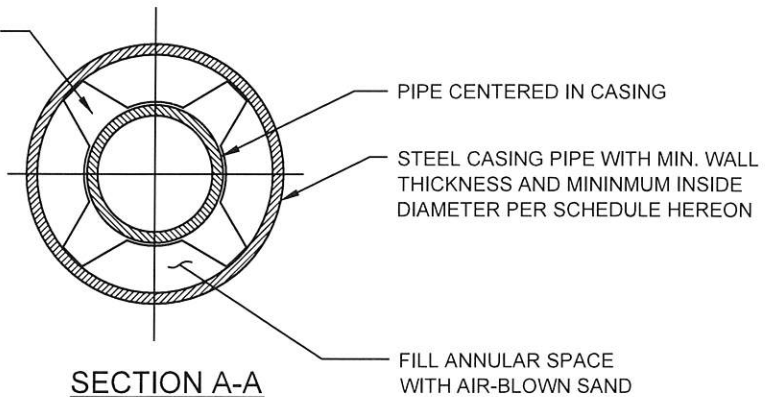
DROP MANHOLE

STD. PLAN
NUMBER
1201A



USE POLYETHYLENE CASING INSULATORS WITH POLYETHYLENE SKIDS. ALL BOLTS AND BANDS SHALL BE TYPE 304 STAINLESS STEEL.

PIPE SIZE (I.D.)	STEEL CASING PIPE	
	MIN. SIZE (I.D.) CARRIER PIPE DIP & PVC	MIN. WALL THK.
6"	16"	1/4"
8"	18"	1/4"
10"	21"	5/16"
12"	24"	5/16"



NOTES:

1. ALL SEWER ENCASEMENT REQUIRES ENGINEER'S APPROVAL.
2. ALL STEEL CASING PIPE JOINTS SHALL BE WELDED FULL CIRCUMFERENCE.
3. UPSTREAM AND DOWNSTREAM ELEVATIONS TO BE VERIFIED.
4. SPACING BETWEEN THE CASING INSULATORS SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS, EXCEPT THAT THERE SHALL BE AT LEAST 3 CASING INSULATORS PER PIPE SECTION, ONE 12" FROM EACH JOINT AND ONE CENTERED. ADDITIONALLY, ONE INSULATOR SHALL BE INSTALLED 12" FROM EACH END OF THE CASING.
5. BOTH ENDS OF THE CASING BETWEEN THE CASING AND CARRIER PIPE SHALL BE SEALED WATER TIGHT USING AN END SEAL. BANDS SHALL BE TYPE 304 STAINLESS STEEL.

APPROVED:

DATE:

11/24/2022

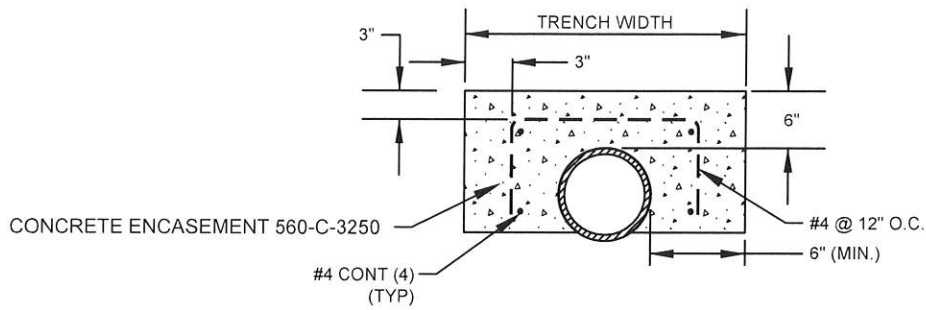
CITY OF SANTA ANA
PUBLIC WORKS AGENCY



DATE		REVISION
7/16/09	R.R.	ADD CASING PIPE
11/05/12	J.A.	SEPARATED INTO TWO CASES
11/2020	R.R.	UPDATED

STEEL CASING

STD. PLAN NUMBER
1203

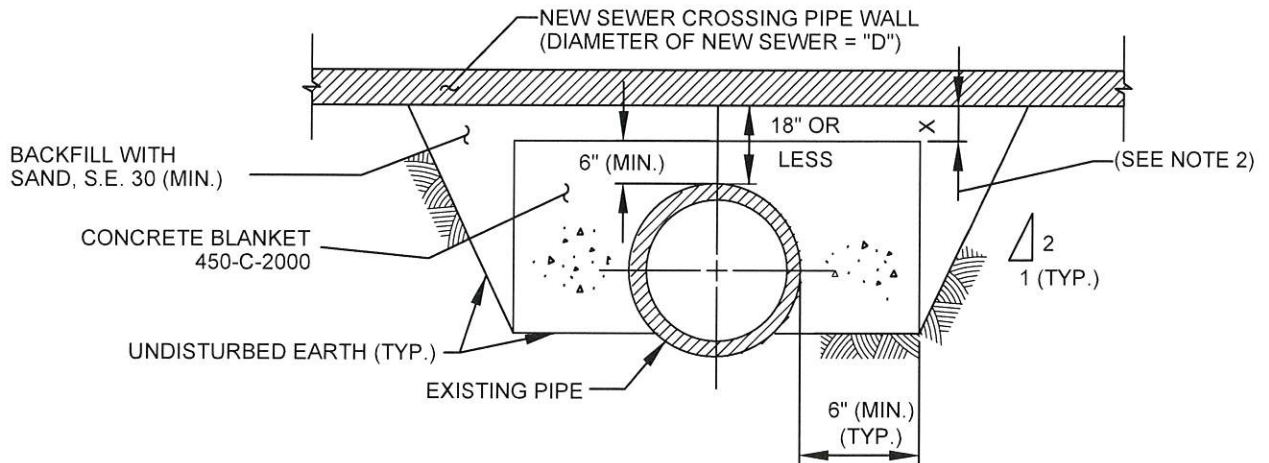


FOR USE WHEN PIPE COVER TO SURFACE IS LESS THAN 36"

CASE 1

NOTES:

1. ALL SEWER ENCASEMENT REQUIRES APPROVAL FROM THE WATER RESOURCES DIVISION.



CONCRETE BLANKET

(FOR EXISTING PIPES CROSSED OVER BY A NEW PIPE)

NOTES:

1. CONCRETE BLANKET IS REQUIRED WHEN THE CLEARANCE BETWEEN THE TOP OF THE EXISTING PIPE AND THE BOTTOM OF THE CROSSING PIPE IS LESS THAN 18".
2. X = 4-INCHES, MINIMUM, TO PROVIDE BEDDING MATERIAL FOR THE CROSSING PIPE. WHEN X IS LESS THAN MINIMUM, THE ENTIRE TOP SURFACE OF THE BLANKET SHALL BE RAISED TO MAKE CONTACT WITH THE LOWER 90° OF THE CROSSING PIPE.
3. THE BLANKET SHALL EXTEND LONGITUDINALLY TO THE FIRST JOINT BEYOND THE TRENCH EXCAVATION AT EACH END OF THE BLANKET, EXCEPT THAT THE BLANKET NEED NOT BE EXTENDED MORE THAN 4' BEYOND THE TRENCH.

CASE 2

APPROVED:

DATE:

11/24/22

CITY OF SANTA ANA

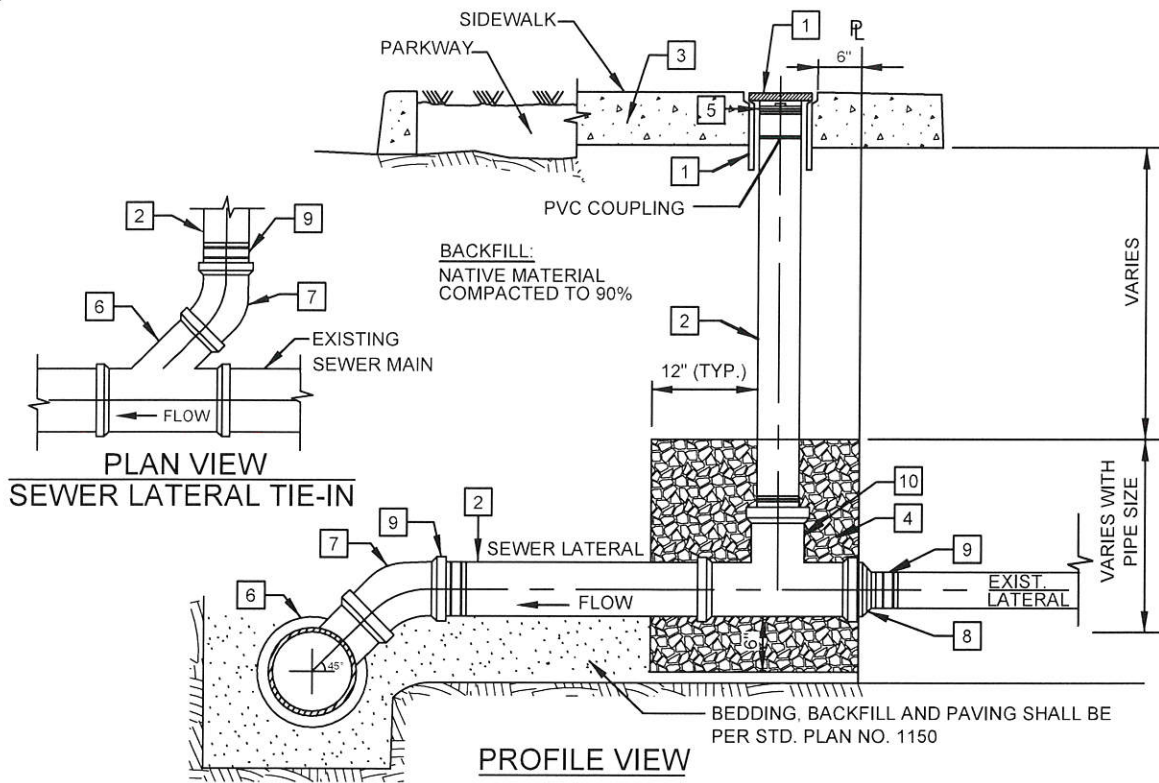
PUBLIC WORKS AGENCY



DATE		REVISION
11/05/12	J.A.	ADDED 1203A
11/2020	R.R.	UPDATED

SEWER ENCASEMENT/
CONCRETE BLANKET

STD. PLAN
NUMBER
1203A



CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER/MATERIAL	MFR. CAT. NO.
1	CAST IRON FRAME AND COVER ("SEWER")	ALHAMBRA FOUNDRY	A-2100
2	SDR-26; PVC SEWER PIPE -4" (MIN.) IF SERVING 4 DWELLINGS OR LESS -6" (MIN.) ALL OTHER CASES	SDR-26	
3	CONSTRUCT CONCRETE SIDEWALK PER CITY STD. PLAN 1104, SEE NOTE 3		
4	CRUSHED ROCK, 1/2" DIAMETER (MAX)		
5	MALE THREADED NUT PLUG		
6	CONSTRUCT NEW WYE AND MATCH EXIST. SEWER MAIN MATERIAL	SDR-26 PVC OR V.C.P.	
7	45° ELBOW SHALL MATCH WYE MATERIAL	SDR-26 PVC OR V.C.P.	
8	REDUCER (IF NECESSARY)	SDR-26	
9	COUPLING ADAPTER (IF NECESSARY)	STAINLESS STEEL DOUBLE BANDED	
10	PVC TWO-WAY TEE, DR 17	SDR-26	
11	45° PVC ELBOW	SDR-26	

NOTE:

1. MINIMUM LATERAL SLOPE SHALL BE 1/4" PER FOOT (2%).
2. ALL NEW DEVELOPMENTS SHALL CONSTRUCT NEW LATERAL PER THIS STANDARD.
3. SIDEWALK SHALL BE REPLACED FROM SCORE JOINT TO SCORE JOINT OR A MINIMUM OF 4 FEET BUT IN NO CASE SHALL FLOATING SECTION BE LESS THAN 4 FEET.

APPROVED:

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4/24/2020

CITY OF SANTA ANA

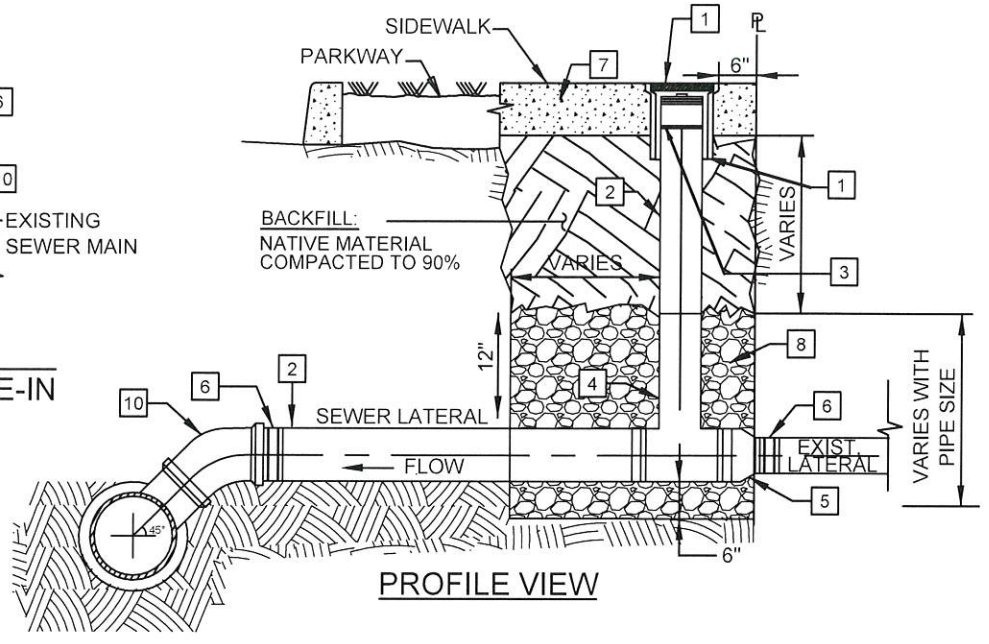
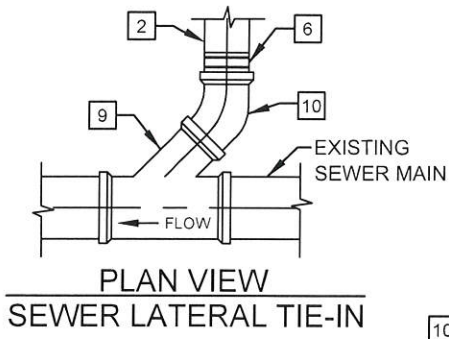
PUBLIC WORKS AGENCY



DATE	A.F.	REVISION
8/19/03	A.F.	NEW DETAIL
7/16/09	R.R.	CHANGED MIN. LATERAL SIZE
11/5/12	J.A.	ADDED SDR 26
11/2020	R.R.	UPDATED

SEWER LATERAL
AND CLEANOUT
(OPEN TRENCH)

STD. PLAN
NUMBER
1204



CONSTRUCTION ITEMS / MATERIALS LIST

NO.	SIZE AND DESCRIPTION	MANUFACTURER/MATERIAL	MFR. CAT. NO.
1	CAST IRON FRAME AND COVER	ALHAMBRA FOUNDRY	A-2100
2	HDPE SEWER PIPE -4" (MIN.) IF SERVING 4 DWELLINGS OR LESS -6" (MIN.) ALL OTHER CASES	HDPE (HIGH DENSITY POLYETHYLENE) DR-17 OUTER SURFACE - GREEN STRIPE INNER SURFACE - REFLECTIVE COATING	
3	CLEAN OUT, 4", DR11 IPS	P & F DISTRIBUTORS OR APPROVED EQUAL	40040010
4	TWO-WAY TEE, DR 17	P & F DISTRIBUTORS OR APPROVED EQUAL	
5	REDUCER (IF NECESSARY)	SDR-26 OR DR-17	
6	COUPLING ADAPTER (IF NECESSARY)		
7	CONSTRUCT CONCRETE SIDEWALK PER CITY STD. PLAN 1104, SEE NOTE 4		
8			
9	CONSTRUCT WYE AND MATCH EXISTING SEWER MAIN MATERIAL		
10	45° ELBOW SHALL MATCH WYE MATERIAL		

NOTES:

1. WATER RESOURCES DIVISION SHALL REVIEW AND APPROVE OF PIPE BURSTING METHOD PRIOR TO CONTRACTOR COMMENCING WORK.
2. ALL HDPE JOINTS SHALL BE FUSED.
3. CONTRACTOR SHALL REMOVE THE FUSION "BEAD" FROM INSIDE OF PIPE USING APPROPRIATE CUTTING TOOL.
4. SIDEWALK SHALL BE REPLACED FROM SCORE JOINT TO SCORE JOINT OR A MINIMUM OF 4 FEET BUT IN NO CASE SHALL FLOATING SECTION BE LESS THAN 4 FEET.

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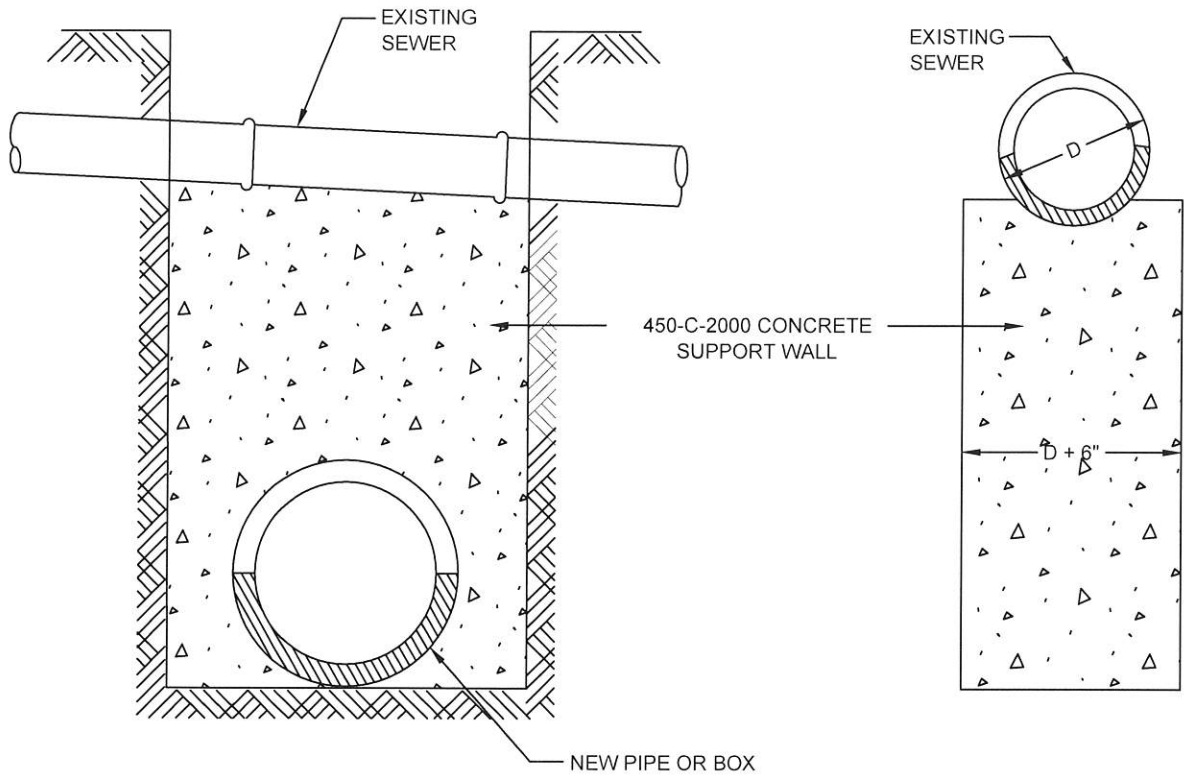
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11/2020	R.R.	UPDATE

SEWER LATERAL
AND CLEANOUT
(PIPE BURSTING)

STD. PLAN
NUMBER
1204A



NOTES:

1. SUPPORTING WALL SHALL HAVE A FIRM BEARING ON THE SUBGRADE AND AGAINST THE SIDES OF THE EXCAVATION.
2. WALL SHALL BE AT LEAST 2" FREE AND CLEAR OF ANY GAS OR WATER MAIN OR OTHER CONDUIT OR DUCT.
3. WHENEVER SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PIERCE THE WALL WITH SUITABLE OPENINGS TO PREVENT UNEQUAL PRESSURE RESULTING FROM FLOODING THE BACKFILL. THE VOLUME OF THE PIERCED OPENING SHALL NOT EXCEED 1/2 THE VOLUME OF THE SUPPORTING WALL.

APPROVED:

DATE:

11/24/2023

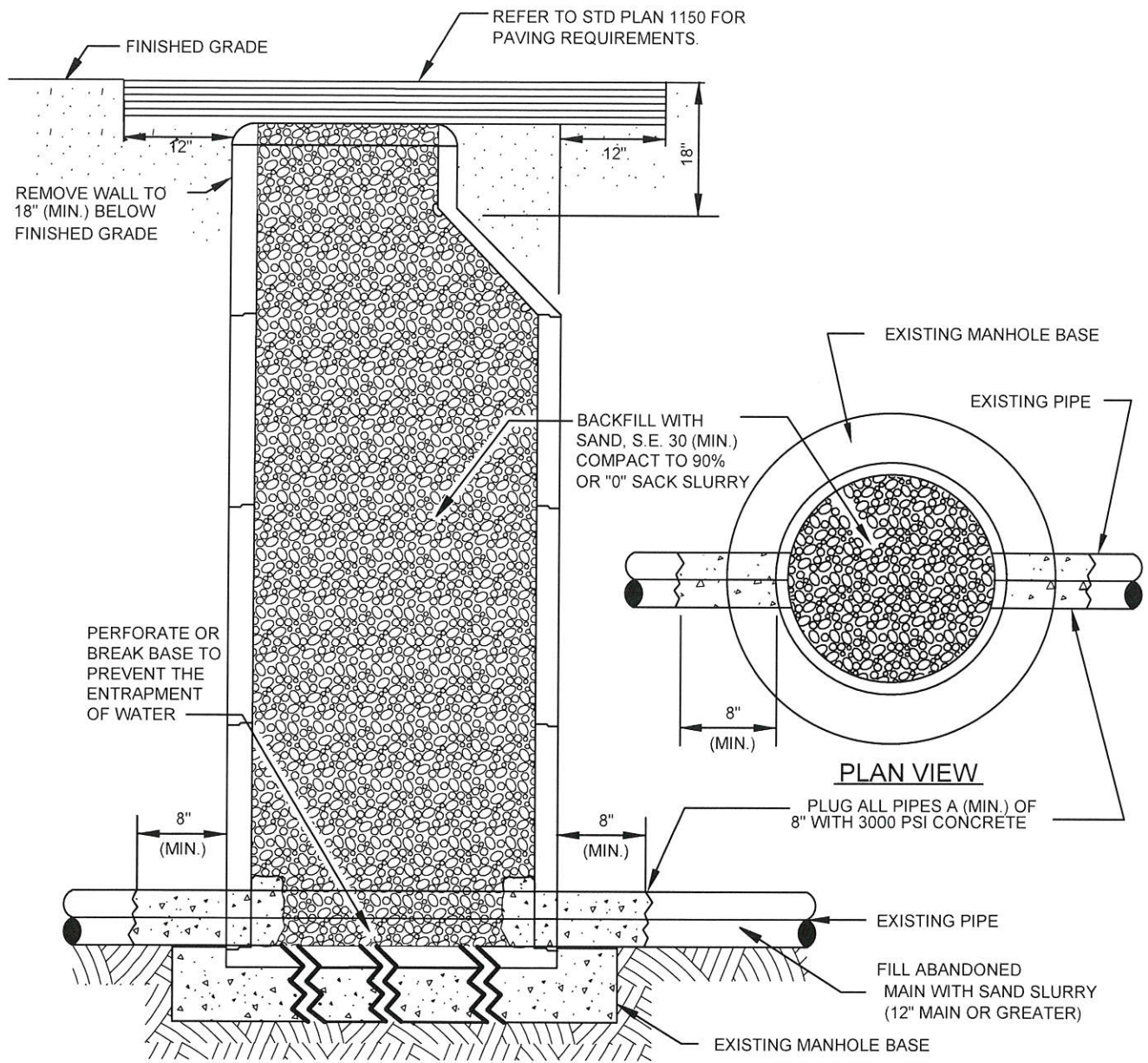
CITY OF SANTA ANA
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DATE	REVISION
7/16/09	R.R. DELETED CASE 1

METHOD OF SUPPORTING STORM DRAIN AND SEWER PIPES ACROSS TRENCHES

STD. PLAN NUMBER
1207



APPROVED:  DATE: 11/24/2020

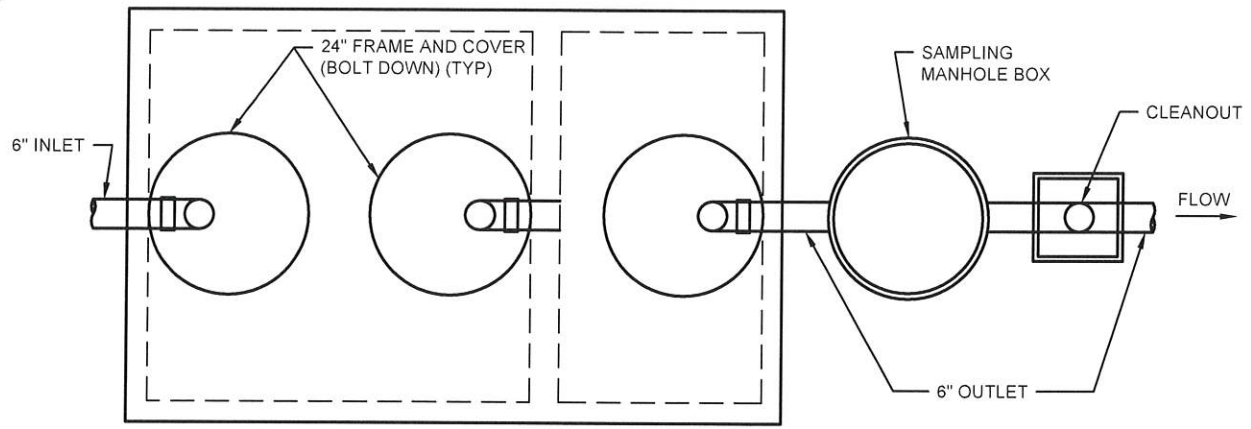
CITY OF SANTA ANA
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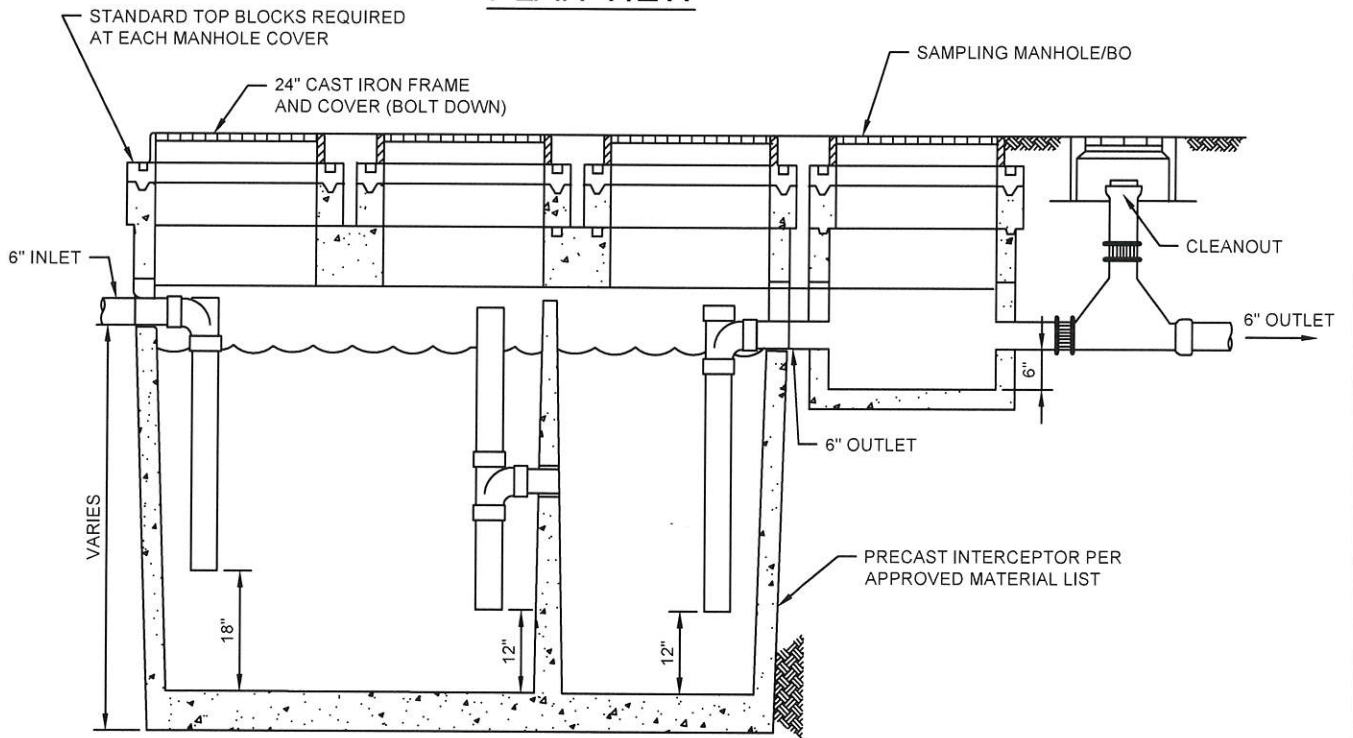
DATE		REVISION
7/16/09	R.R.	NEW DETAIL
11/5/12	J.A.	ADDED PLUG DETAIL
11/2020	R.R.	UPDATED

MANHOLE ABANDONMENT

STD. PLAN NUMBER
1209



PLAN VIEW



SECTION VIEW

NOTES:

1. MANHOLE LID ACCESS OVER EACH BAFFLE TUBE.
2. INTERCEPTOR LOCATED IN AN AREA SUBJECT TO TRAFFIC MUST BE HS-20 TRAFFIC RATED.
3. ALTERNATIVE MATERIALS ACCEPTABLE: HDPE OR FIBERGLASS (CAST IRON PIPE IS PROHIBITED)
4. INTERCEPTOR MUST HAVE IAPMO APPROVAL.
5. OUTLET SHALL BE SAME DIAMETER AS INLET.
6. INTERIOR OF INTERCEPTOR, INCLUDING ROOF, SHALL BE COATED WITH A PROTECTIVE COATING.

APPROVED: _____ DATE: 11/24/2020

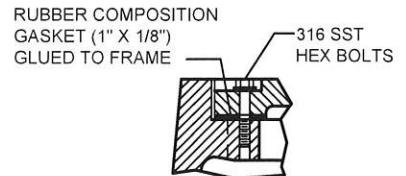
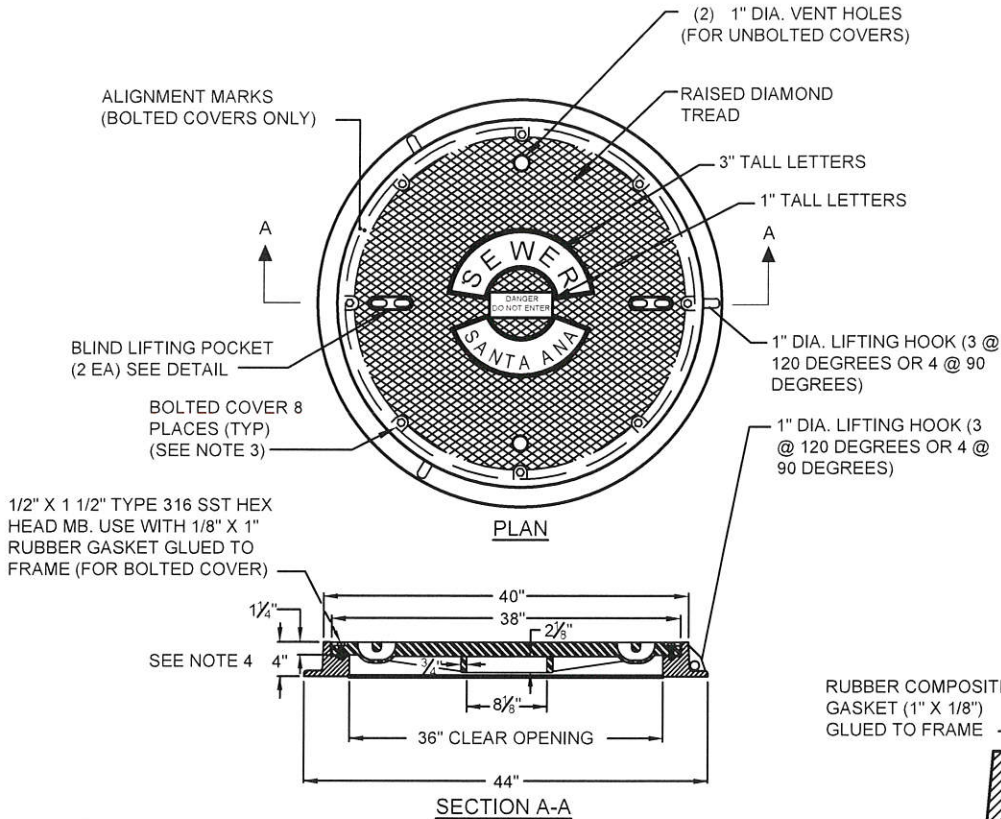
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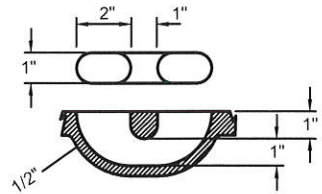
DATE	R.R.	REVISION
11/2020	R.R.	NEW

GRAVITY GREASE INTERCEPTOR

STD. PLAN NUMBER 1210



BOLTING / SELF-SEAL DETAIL



BLIND LIFTING POCKET DETAIL

NOTES:

1. COVERS SHALL BE TRAFFIC GRADE.
2. ALL CASTINGS SHALL BE COMPLETELY PAINTED WITH 6 MILS. BITUMINOUS PAINT AND LETTERED "MADE IN COUNTRY OF ORIGIN", MARKED WITH MANUFACTURER'S IDENTIFICATION "HEAT NO. _____", "ASTM A-48", AND "CLASS 35B IRON" ON UNDERSIDE OF COVER. WEIGHT OF COVER SHALL BE 325 LBS. MIN., WEIGHT OF FRAME SHALL BE 270 LBS. MIN. ACTUAL WEIGHTS SHALL BE +/- 5 PERCENT OF THE MINIMUM.
3. BOLTED COVERS SHALL BE INSTALLED AT ALL INTERSECTIONS.
4. PROVIDE 6" RIM IF REQUIRED FOR ADJUSTMENT TO GRADE.
5. THE GAP BETWEEN THE COVER AND THE RING SHALL BE APPROXIMATELY 1/8" AROUND THE ENTIRE CIRCUMFERENCE AND SHALL NOT BE GREATER THAN 1/4" WHEN THE COVER IS SLID TO ONE SIDE.
6. IN LIEU OF CAST IRON FRAME AND COVER, THE WATER RESOURCES DIVISION MAY REQUEST A FIBER REINFORCED POLYMER (FRP) FRAME AND COVER MANUFACTURED BY GMI COMPOSITES, INC.

APPROVED:

DATE:

11/24/2020

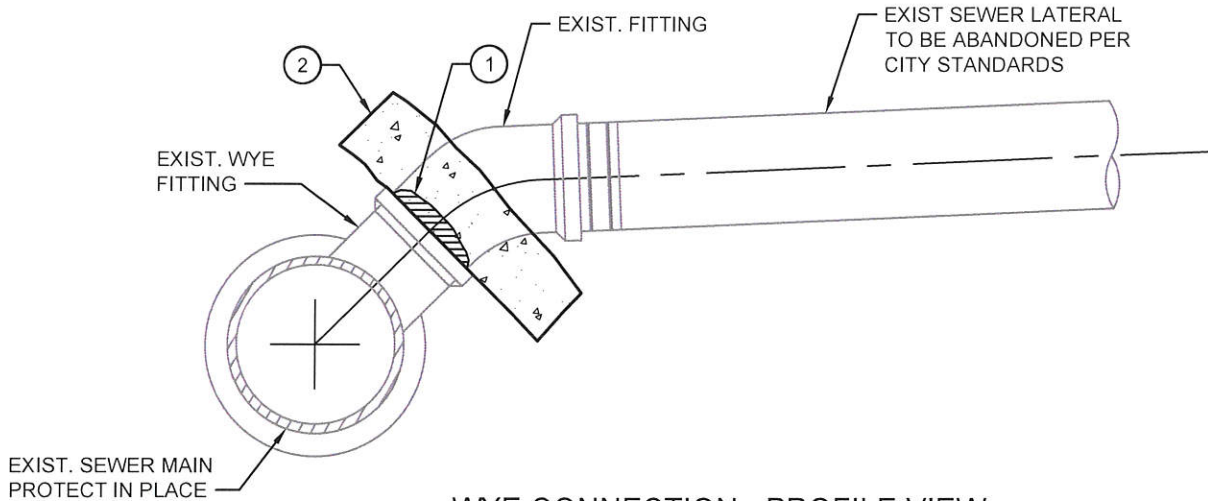
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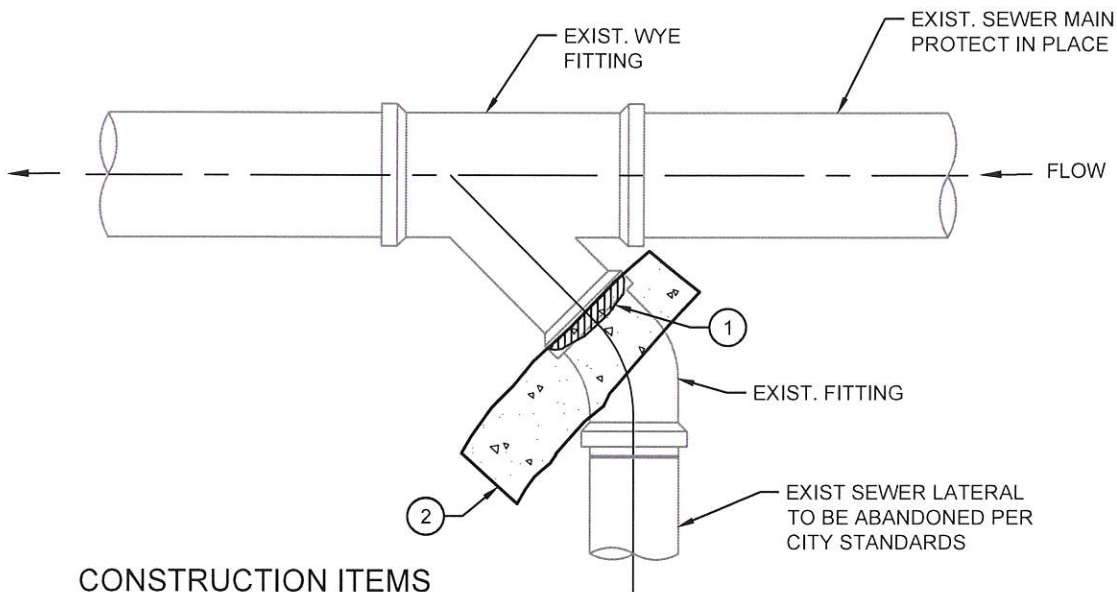
DATE	R.R.	REVISION
11/2020	R.R.	NEW

36" SEWER MANHOLE COVER

STD. PLAN NUMBER
1211



WYE CONNECTION - PROFILE VIEW



CONSTRUCTION ITEMS

- ① ALL LATERAL ABANDONMENTS SHALL HAVE A FACTORY MADE VCP PLUG INSTALLED IN THE BELL END OF THE EXISTING WYE CONNECTION, WITH RESTRAINT SUFFICIENT ENOUGH TO WITHSTAND LEAKAGE TESTING.
- ② KEY SHAPED THRUST BLOCK SHALL BEAR AGAINST UNDISTURBED NATIVE SOIL. CONCRETE SHALL BE 560-C-3250 PER STANDARD SPECIFICATIONS.
- ③ IF EXISTING LATERAL IS NOT A WYE FITTING, CUT LATERAL PIPE AND INSTALL PLUG AND CONCRETE THRUST BLOCK.

APPROVED: _____ DATE: 11/24/2020

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DATE		REVISION
11/2020	R.R.	NEW

SEWER LATERAL ABANDONMENT

STD. PLAN
 NUMBER
 1212