

CITY OF CANANDAIGUA

SITE DESIGN AND DEVELOPMENT CRITERIA

2 NORTH MAIN STREET, CANANDAIGUA, NEW YORK 14424

PHONE: (585) 396-5000

As adopted by the City Council on _____

Resolution # _____ of 2017

Date: April 2017

Prepared by:

MRB | *group*

Engineering, Architecture & Surveying, D.P.C.

THE CULVER ROAD ARMORY

145 CULVER ROAD, SUITE 160, ROCHESTER, NEW YORK 14620

TELEPHONE: (585) 381-9250 FACSIMILE: (585) 381-1008

CITY OF CANANDAIGUA
SITE DESIGN AND DEVELOPMENT CRITERIA

APPENDICES

- A. Alley Concrete Gutter
- B. Pavement Cross Section (2 Sheets)
- C. Catch Basin
- D. Catch Basin with Trap
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- F. Catch Basin & Curb Detail
- G. Gutter & Catch Basin Apron Detail
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- I. Offset Cul-De-Sac
- J. Offset Cul-De-Sac with Island
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- P. Typical Driveway Apron Detail
- Q. Sidewalk Detail
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- S. Monument
- T. Utility Notifications
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CITY OF CANANDAIGUA
SITE DESIGN AND DEVELOPMENT CRITERIA

APPENDICES

- CC. Watermain Cut & Plug Detail
- DD. Parallel Hydrant Unit (2 Sheets)
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- FF. RPZ Backflow Preventer (2 Sheets)
- GG. Typical Water Meter Vault
- HH. Meter Pit Detail
- II. Cleaning & Testing of Sanitary Sewers (3 Sheets)
- JJ. Inserta-Tee Sewer Lateral Connection
- KK. Sanitary Lateral Detail
- LL. Sanitary Lateral Riser Detail (2 Sheets)
- MM. Sanitary Cleanout Detail
- NN. Manhole Connection at Existing Sanitary Sewer
- OO. Sanitary Sewer Manhole Connection (2 Sheets)
- PP. Sanitary Sewer Manhole (2 Sheets)
- QQ. Manhole Frame & Cover Detail
- RR. Bedding Backfill for Combination Storm Sewer & Underdrain
- SS. Deep and Shallow Sewer Manhole (2 Sheets)
- TT. Storm Sewer and Catch Basin Manhole
- UU. Storm Lateral Connection
- VV. Fiberglass Pole Base Precast Foundation
- WW. Fiberglass Light Pole and Luminaire Installation
- XX. Metal Light Pole and Luminaire Schedule

APPENDIX:

A

DATE:

APRIL 2017

SCALE:

N.T.S.

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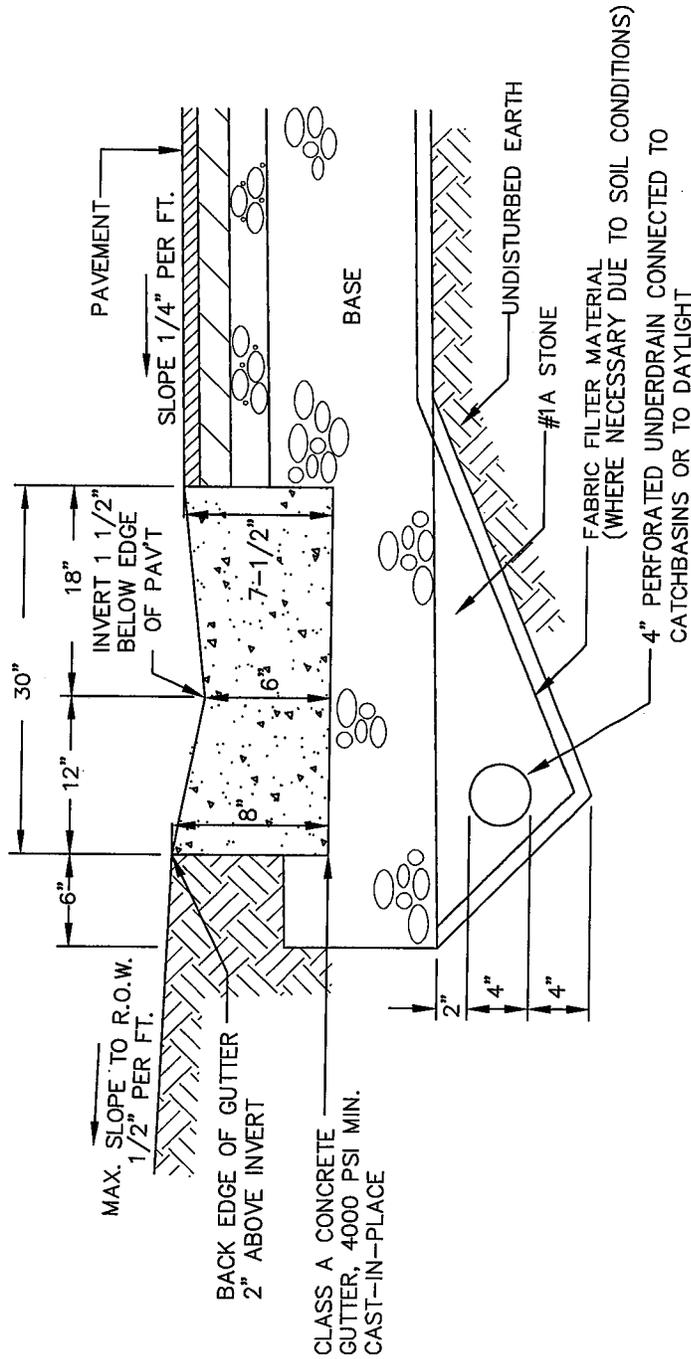
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ALLEY CONCRETE GUTTER

APPENDIX: B (1 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

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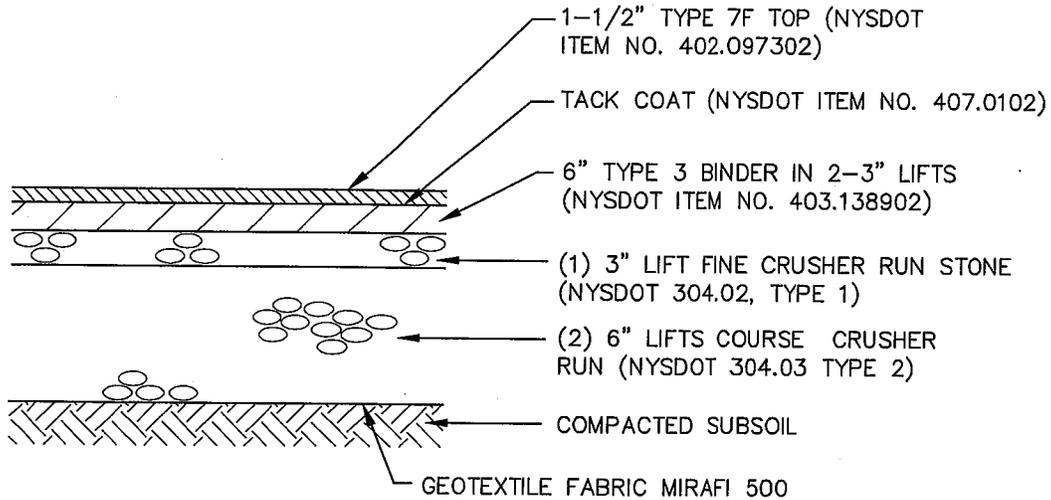
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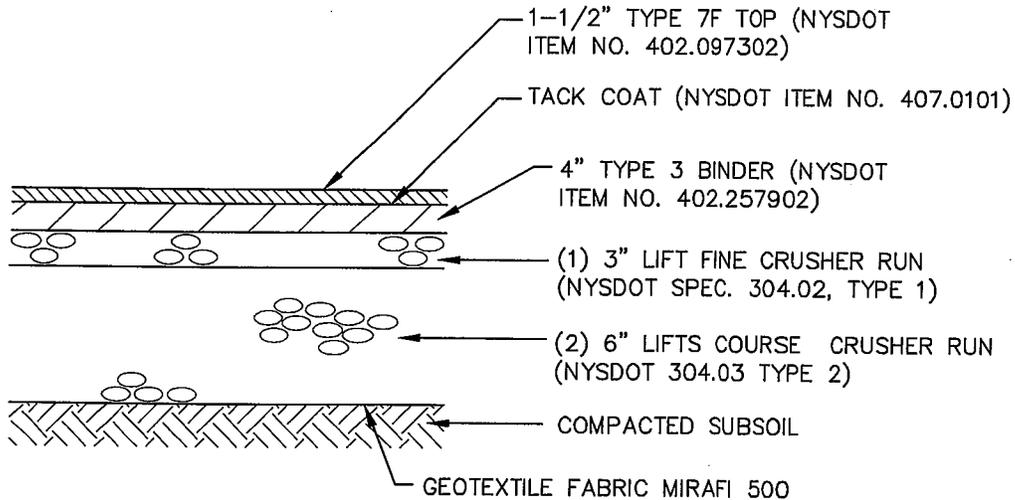
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(HEAVY DUTY) ARTERIAL, COLLECTOR STREET



(MEDIUM DUTY) SUBDIVISION STREET

NOTES:

1. ALL DEPTHS ARE COMPACTED THICKNESSES AND PAVEMENT THICKNESSES MAY VARY AS REQUIRED BY DIRECTOR OF PUBLIC WORKS.
2. FOR OVERLAYS $\leq 1\frac{1}{2}$ " TO 2", USE NYSDOT ITEM NO. 402.127201

PAVEMENT CROSS SECTION (TYP.)

APPENDIX: B (2 of 2)

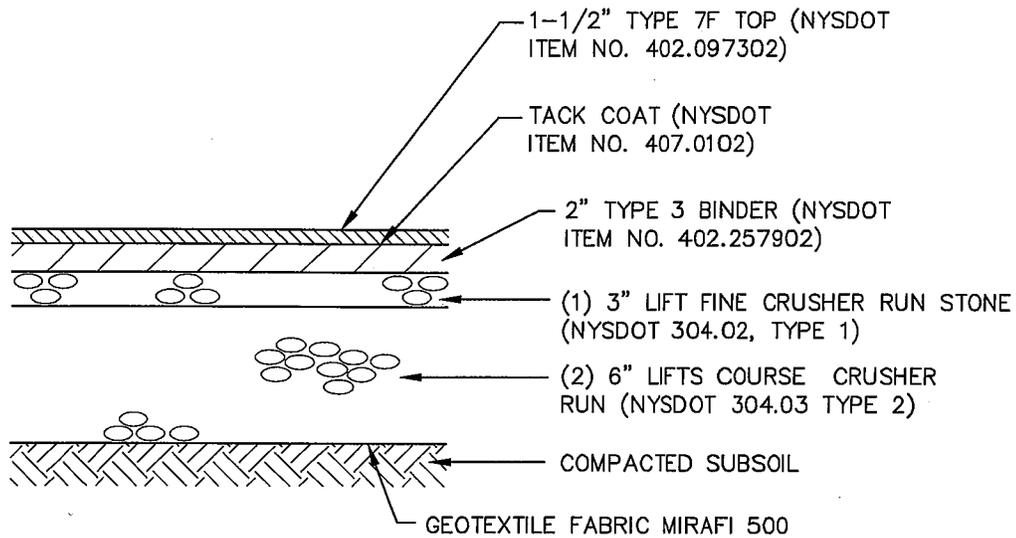
DATE: APRIL 2017

SCALE: N.T.S.

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(LIGHT DUTY) SUBDIVISION STREET

NOTES:

1. ALL DEPTHS ARE COMPACTED THICKNESSES AND PAVEMENT THICKNESSES MAY VARY AS REQUIRED BY DIRECTOR OF PUBLIC WORKS.
2. FOR OVERLAYS $\leq 1\text{--}\frac{1}{2}$ " TO 2", USE NYSDOT ITEM NO. 402.127201

PAVEMENT CROSS SECTION (TYP.)

APPENDIX: C

DATE: APRIL 2017

SCALE: N.T.S.

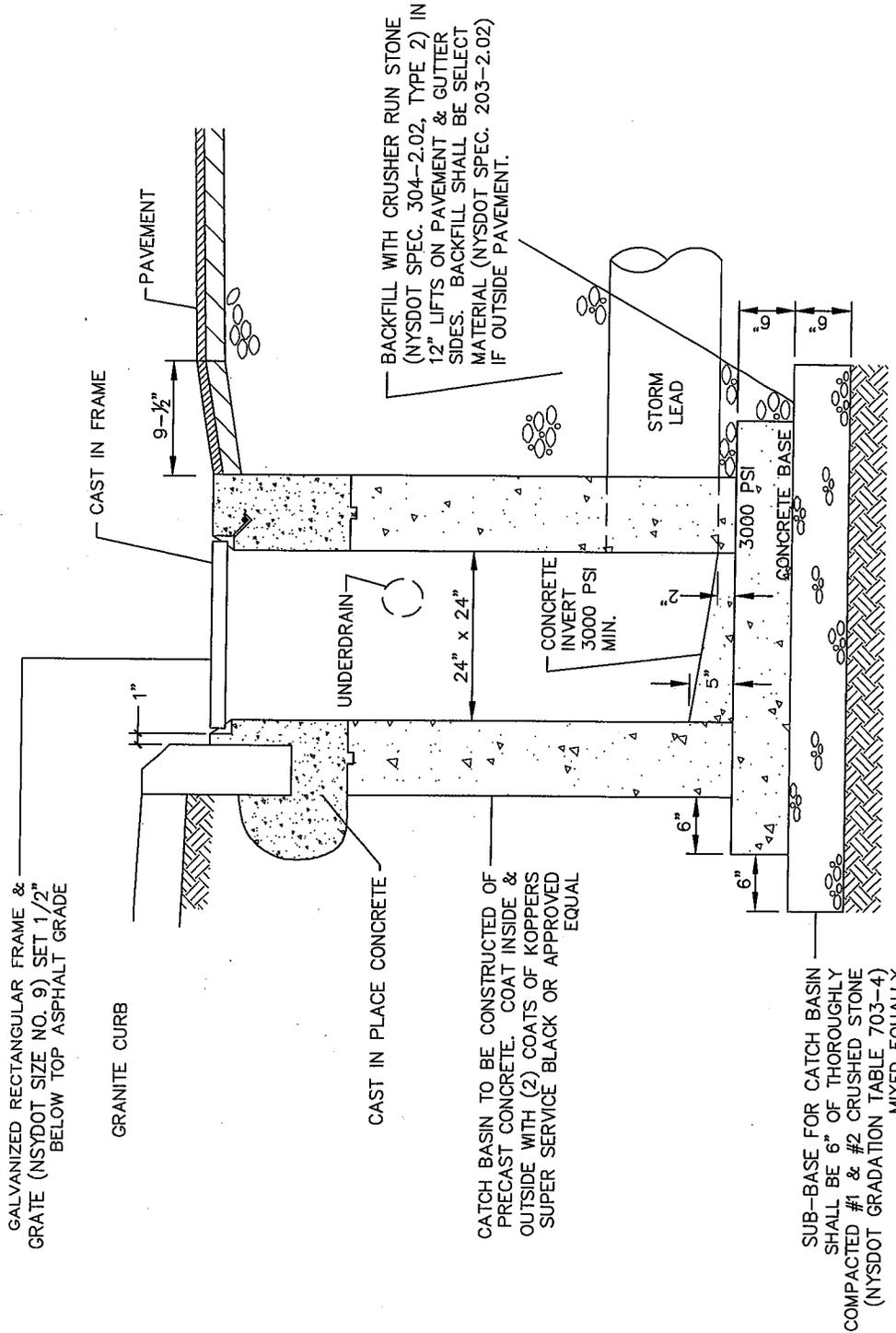
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NOTES:

- 1) USE 24" X 24" CATCH BASIN UP TO 3' INSIDE DEPTH MAX.
- 2) USE 24" X 32" CATCH BASIN UP TO 4' INSIDE DEPTH MAX.

CATCH BASIN WITH CURB DETAIL

APPENDIX: D

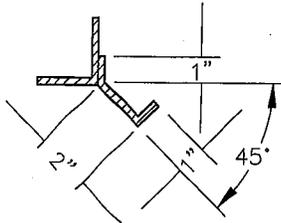
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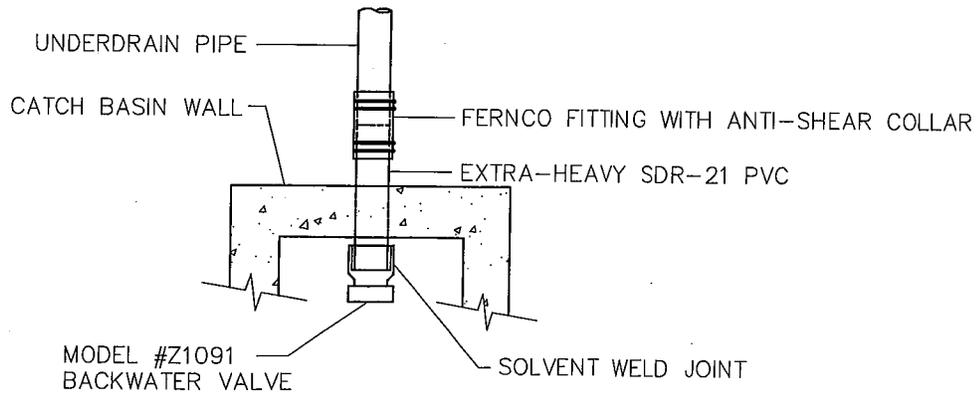
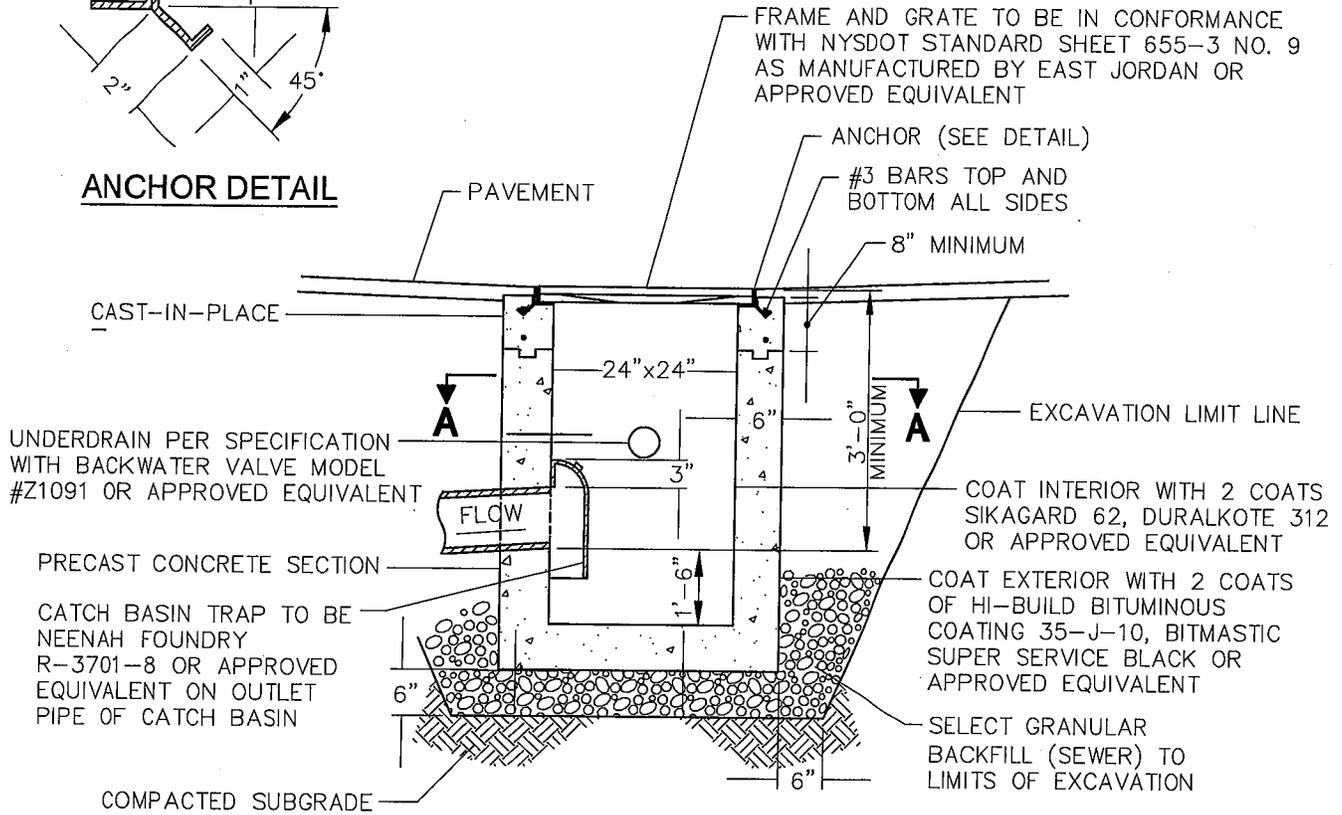
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ANCHOR DETAIL



SECTION A-A

BACKWATER VALVE CONNECTION

CATCH BASIN WITH TRAP

APPENDIX: E

DATE: APRIL 2017

SCALE: N.T.S.

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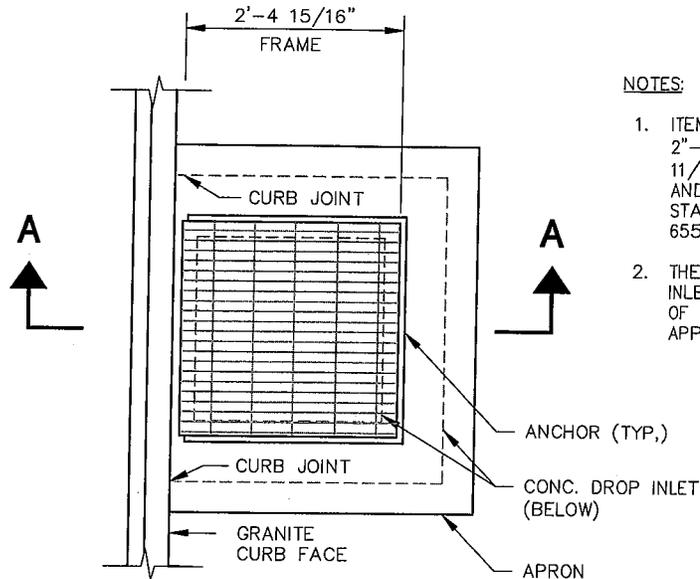
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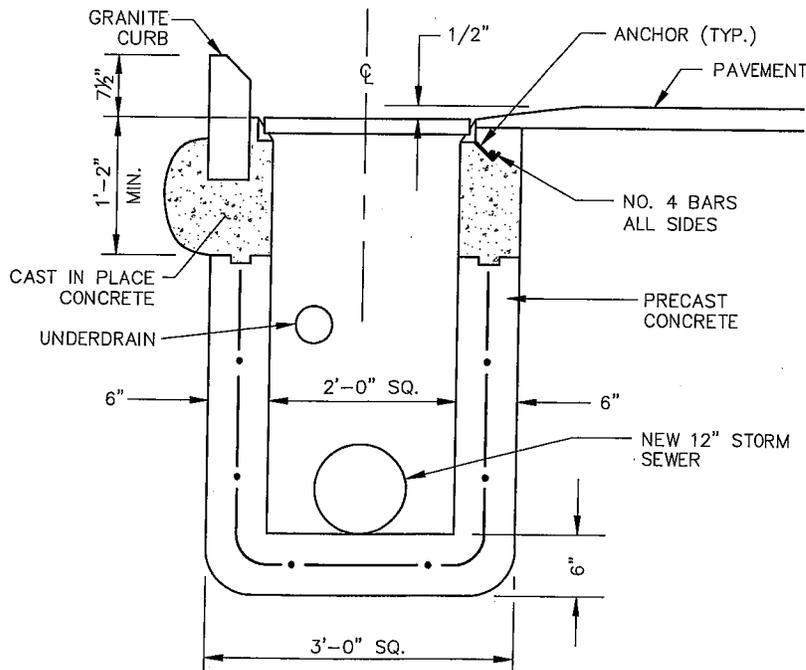
CITY OF CANANDAIGUA



NOTES:

- ITEM 655.02 FRAME AND GRATE, FRAME $2'-4 \frac{15}{16}" \times 2'-3 \frac{1}{2}"$, GRATE $2'-3 \frac{11}{16}" \times 2'-2 \frac{1}{2}"$. RECTANGULAR FRAME AND GRATE ASSEMBLY TYPE 9 N.Y.S.D.O.T. STANDARD SHEETS 655-4R1, 655-5R1 AND 655-6R1.
- THE INTERIOR AND EXTERIOR OF ALL DROP INLETS SHALL BE COATED WITH TWO COATS OF KOPPERS SUPER SERVICE BLACK OR APPROVED EQUAL.

PLAN



SECTION A-A

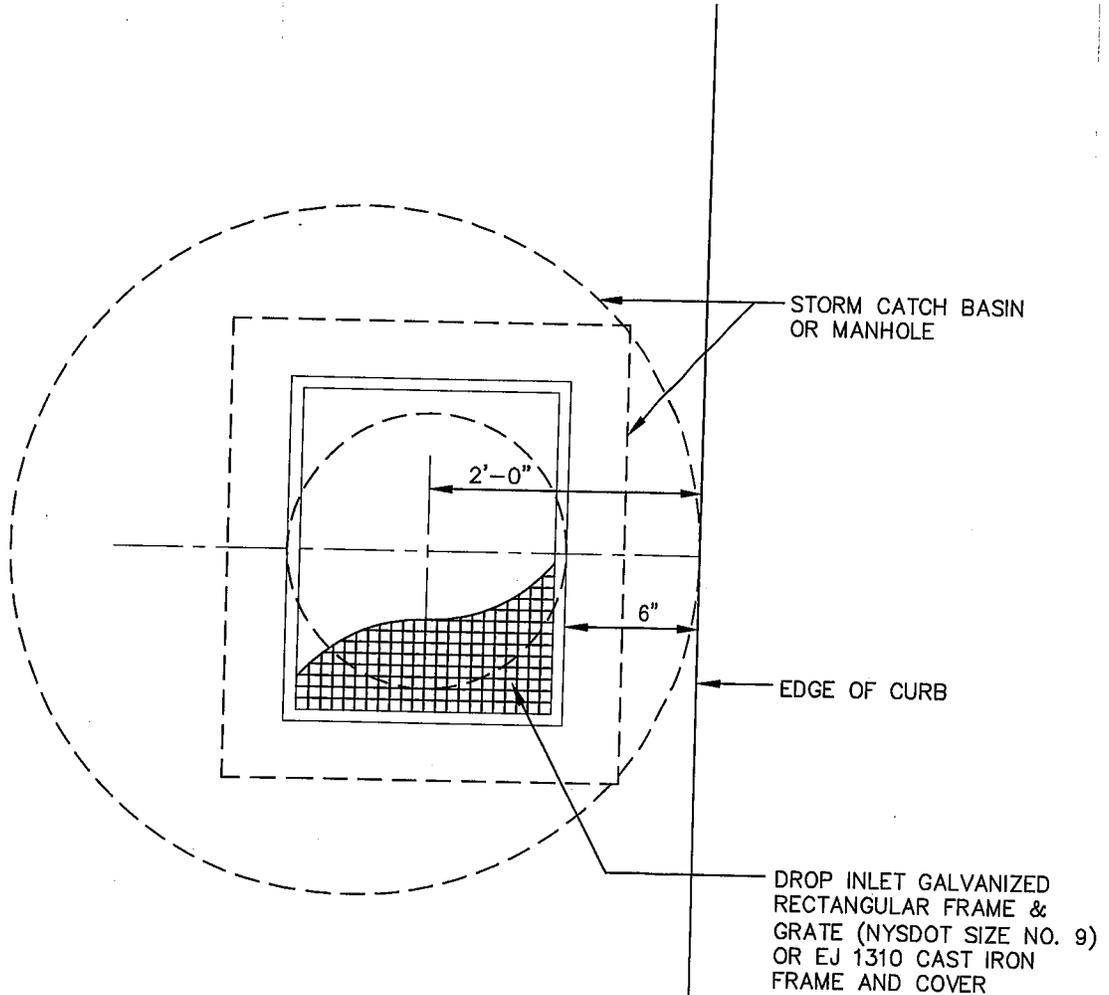
REINFORCED CONCRETE DROP INLET

APPENDIX: F
DATE: APRIL 2017
SCALE: N.T.S.

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NOTES:

1. CATCH BASINS SHOULD NOT BE PLACED IN DRIVEWAY AREAS OR IN FRONT OF DRIVEWAY AREAS.
2. SPECIAL DESIGN MAY BE REQUIRED FOR STEEP GRADE SECTIONS.

CATCH BASIN & CURB DETAIL

APPENDIX: G

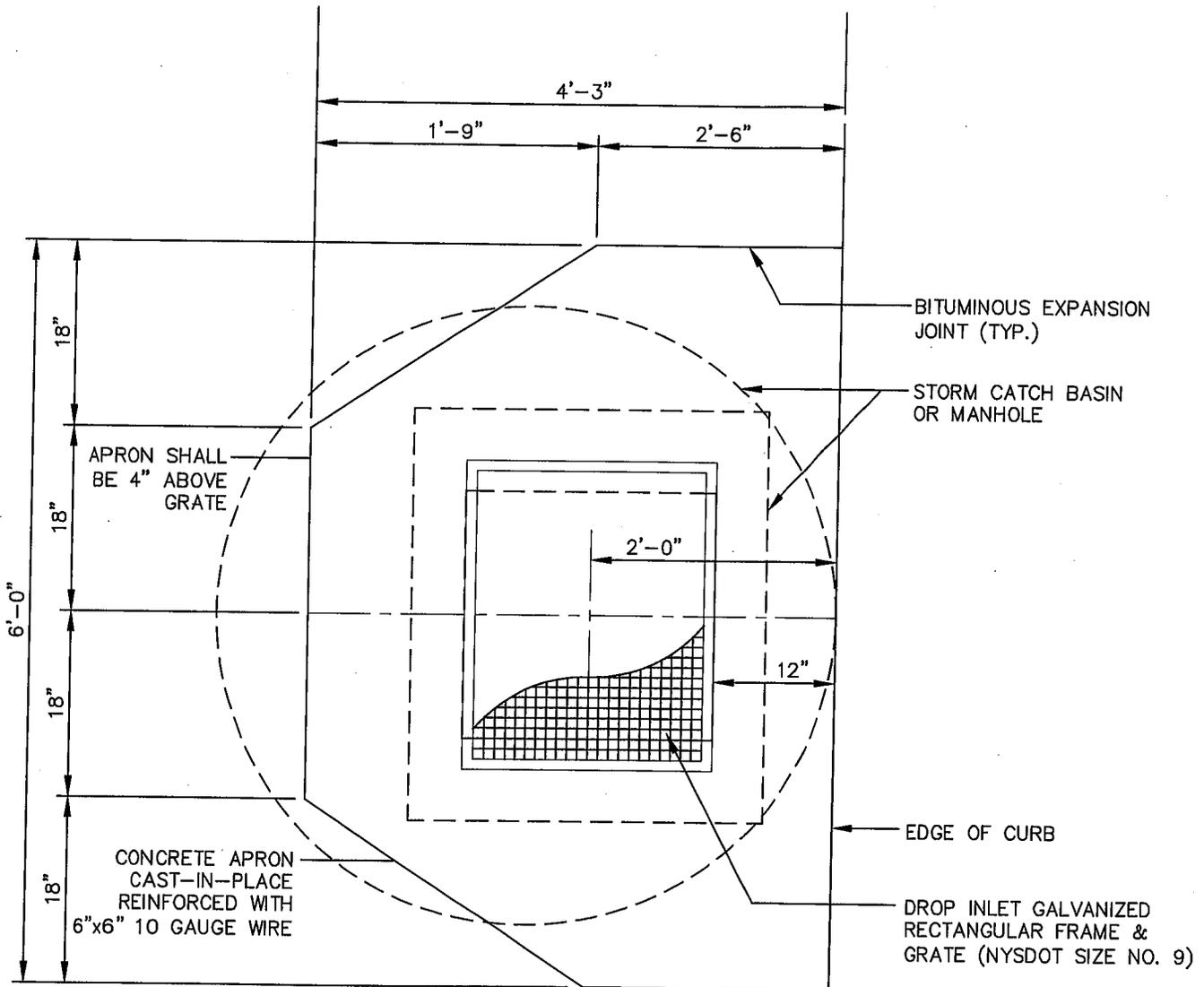
DATE: APRIL 2017

SCALE: N.T.S.

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NOTES:

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GUTTER & CATCH BASIN APRON DETAIL

APPENDIX:

H

DATE:

APRIL 2017

SCALE:

N.T.S.

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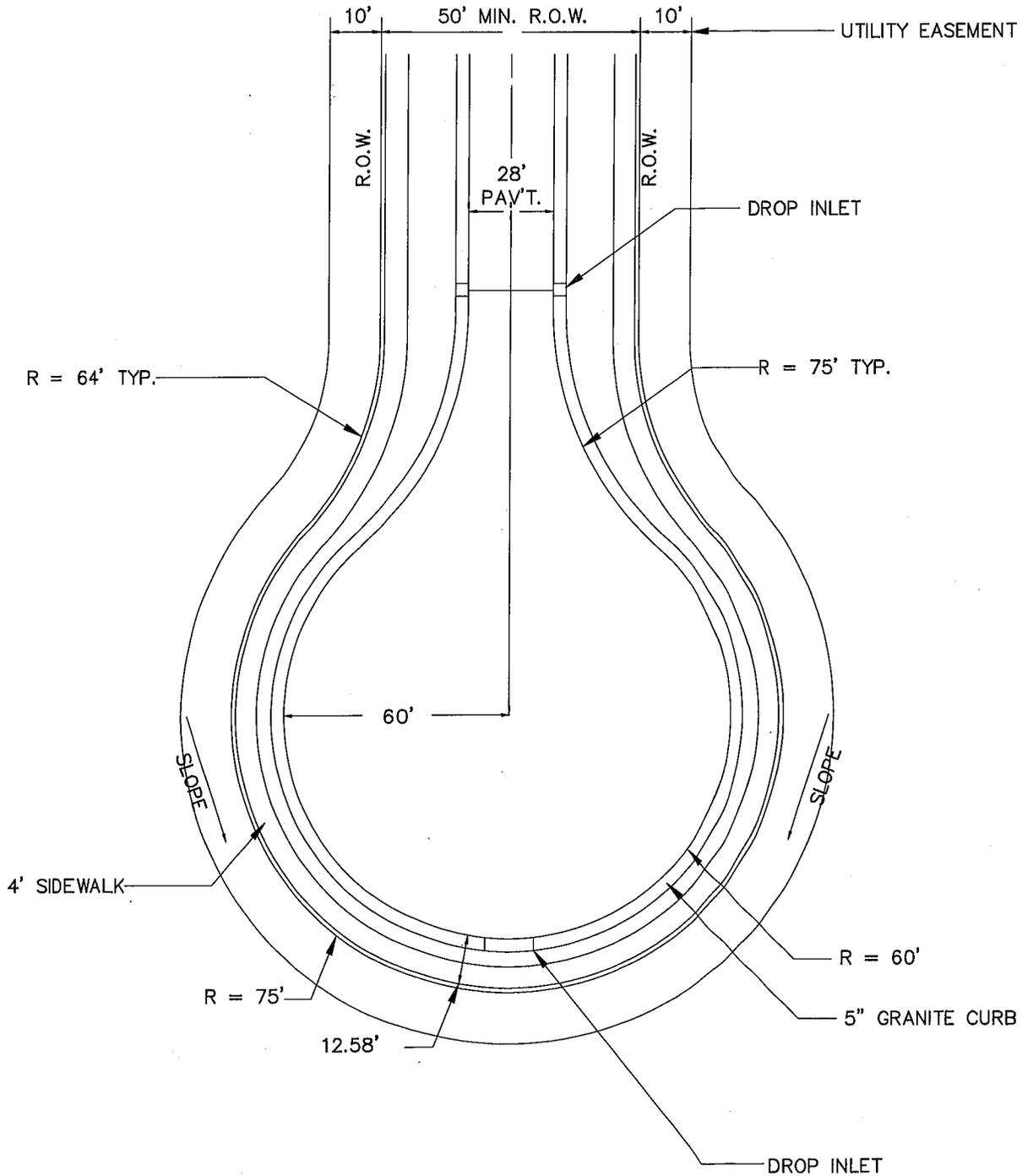
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CONVENTIONAL CUL-DE-SAC PLAN

APPENDIX:

I

DATE:

APRIL 2017

SCALE:

N.T.S.

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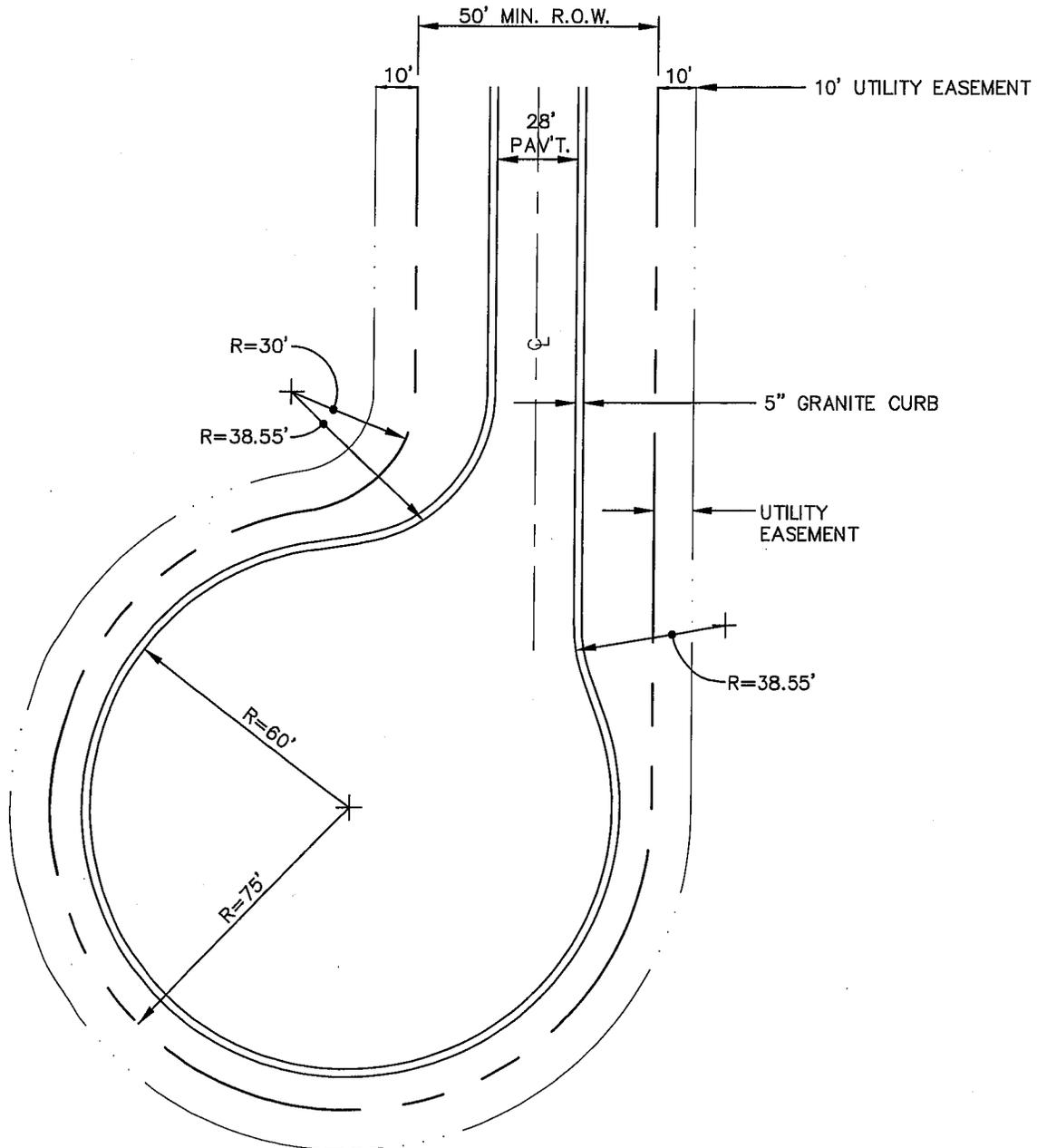
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OFFSET CUL-DE-SAC PLAN

APPENDIX: J

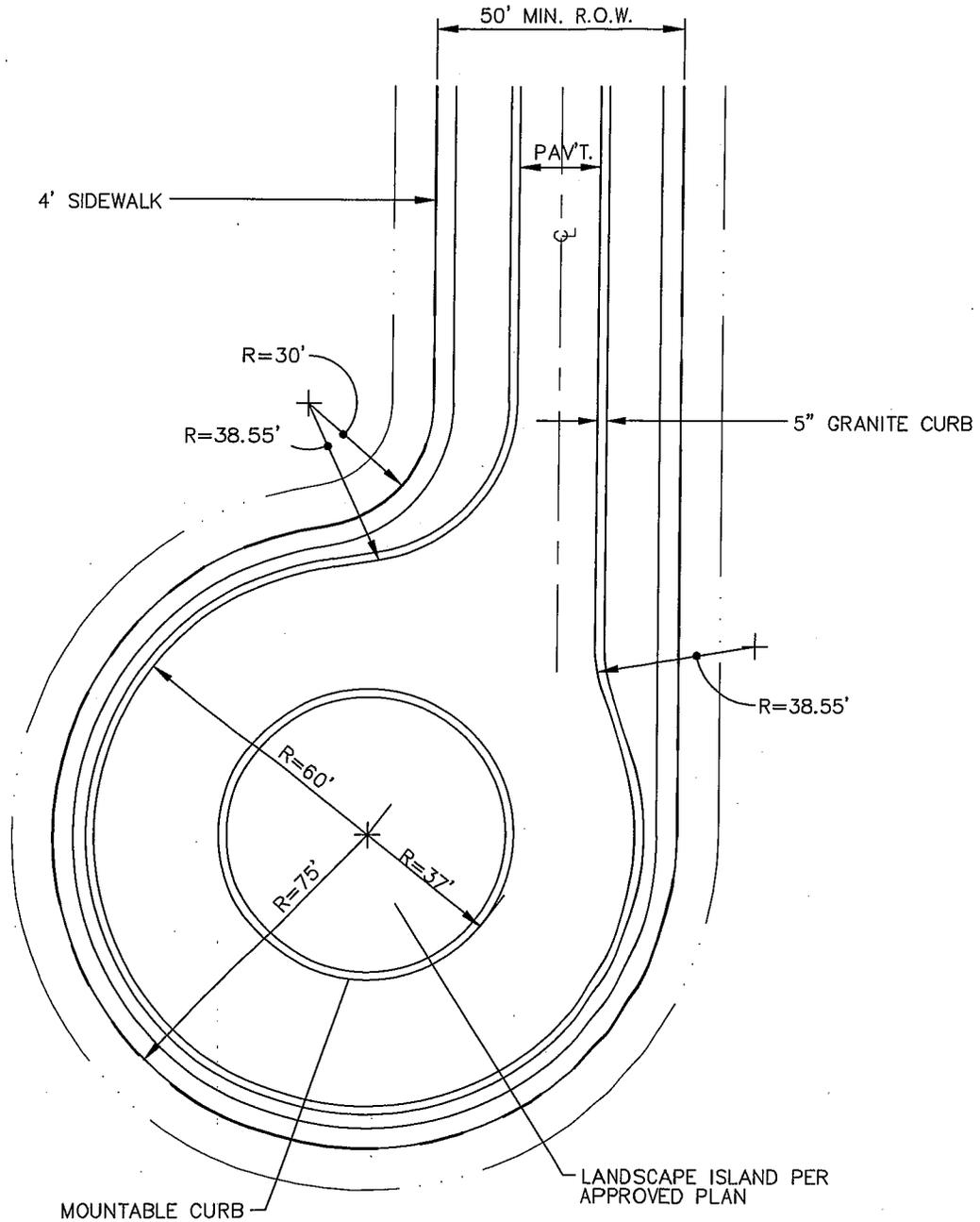
DATE: APRIL 2017

SCALE: N.T.S.

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OFFSET CUL-DE-SAC W/ ISLAND PLAN

APPENDIX:

K

DATE:

APRIL 2017

SCALE:

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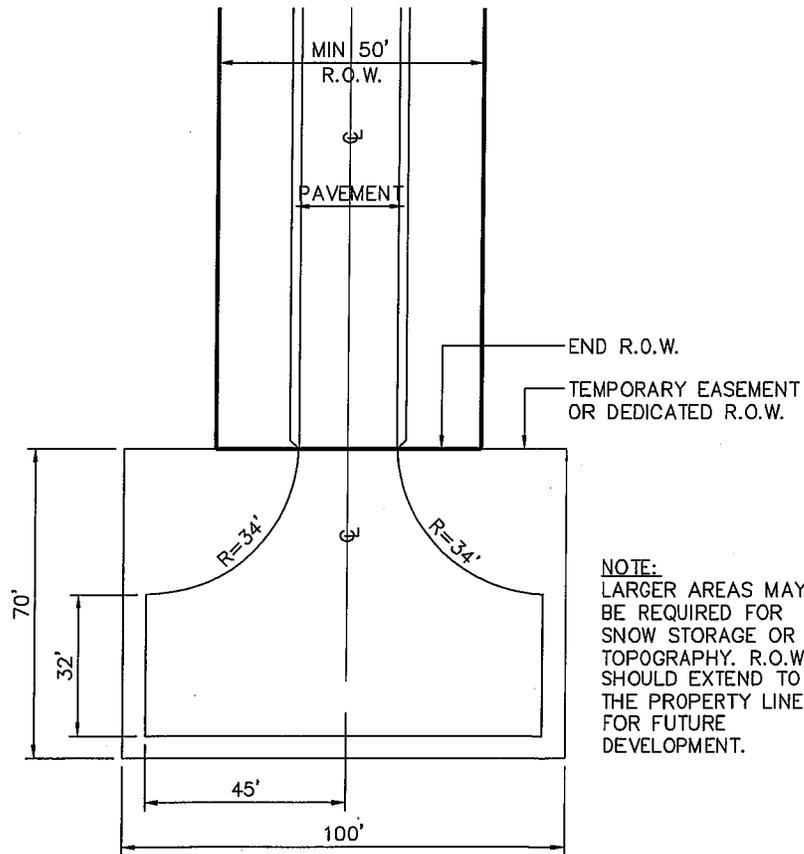
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TEMPORARY HAMMER HEAD TURN-AROUND

APPENDIX:

L

DATE:

APRIL 2017

SCALE:

N.T.S.

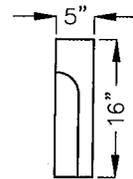
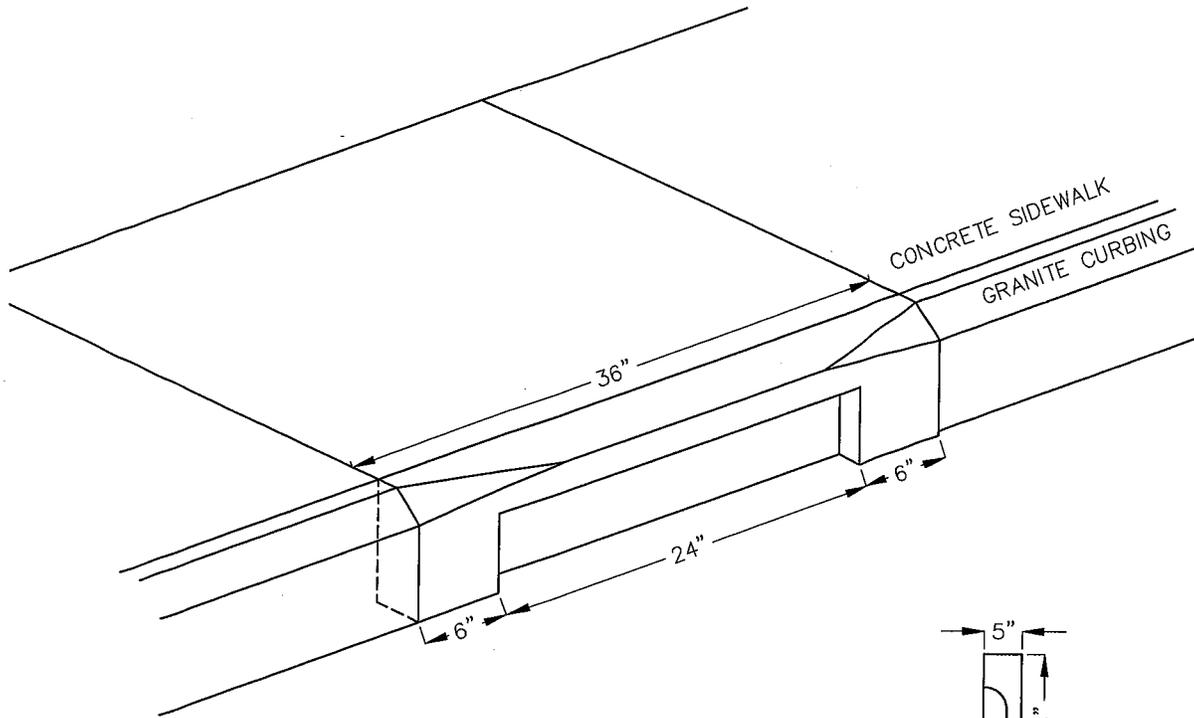
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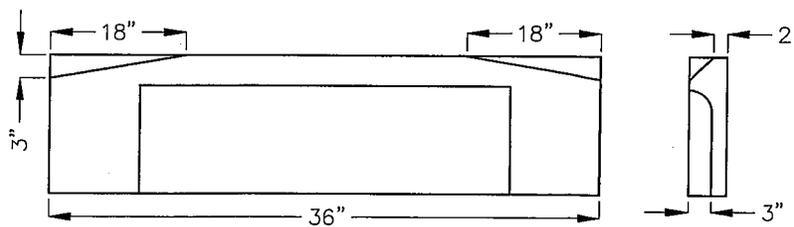
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SECTION VIEW



FRONT ELEVATION

END SECTION

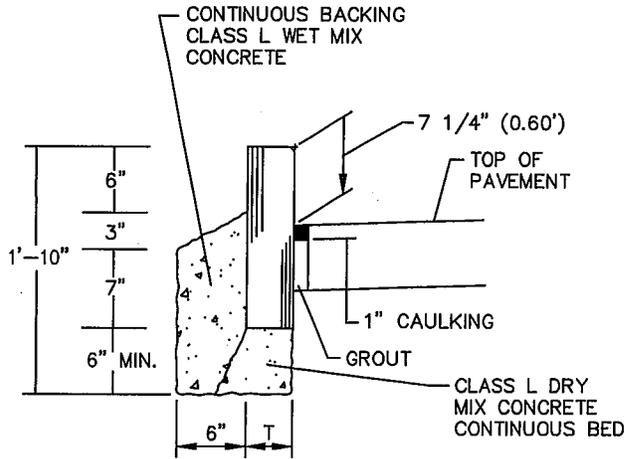
GRANITE CURB INLET

APPENDIX: M
 DATE: APRIL 2017
 SCALE: N.T.S.

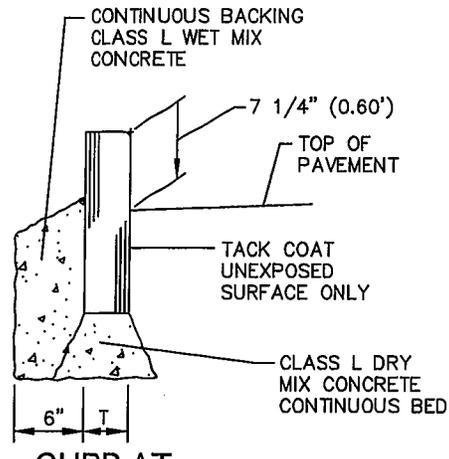
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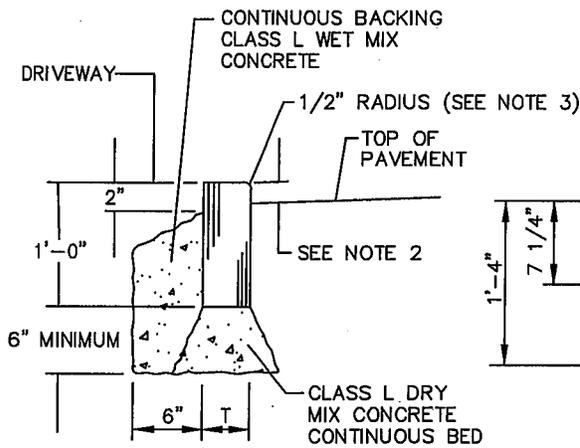
CITY OF CANANDAIGUA



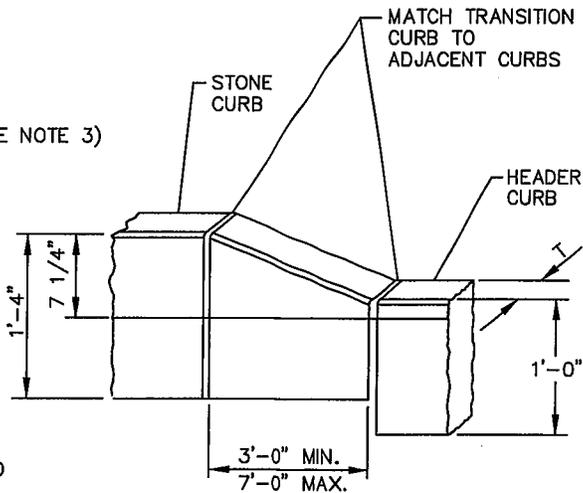
CURB AT RIGID PAVEMENT



CURB AT FLEXIBLE BASE PAVEMENT



HEADER CURB



TRANSITION CURB

NOTES:

1. CURB THICKNESS T IS TO BE 5" OR AS INDICATED ON THE DRAWINGS.
2. PROVIDE 0" CURB REVEAL FOR HEADER CURB AT SIDEWALK RAMPS AND 1 1/2" FOR HEADER CURB AT DRIVEWAYS.
3. ALL CURB, EXCEPT HEADER CURB USED FOR SIDEWALK ACCESS RAMPS IS TO HAVE RADIUS.

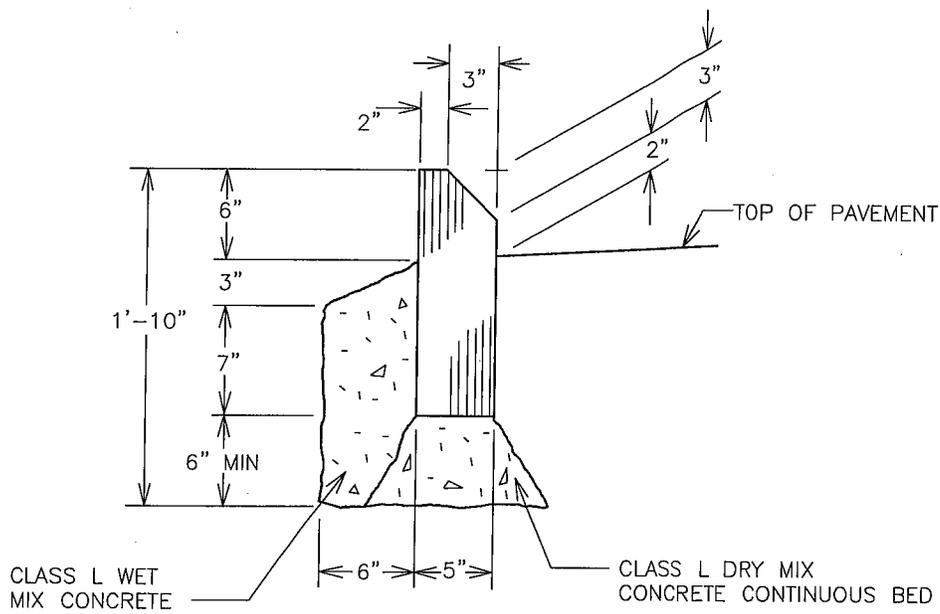
STONE CURB

APPENDIX:	N
DATE:	APRIL 2017
SCALE:	N.T.S.

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MOUNTABLE GRANITE CURB DETAIL

APPENDIX: O (1 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

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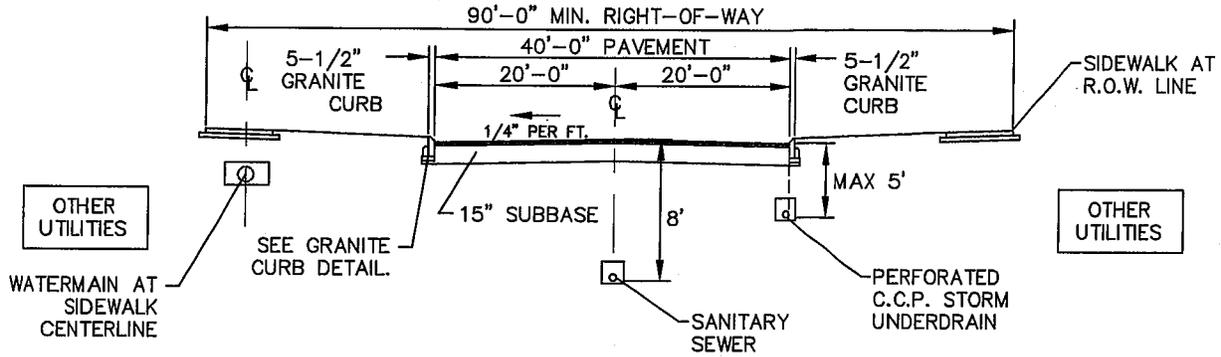
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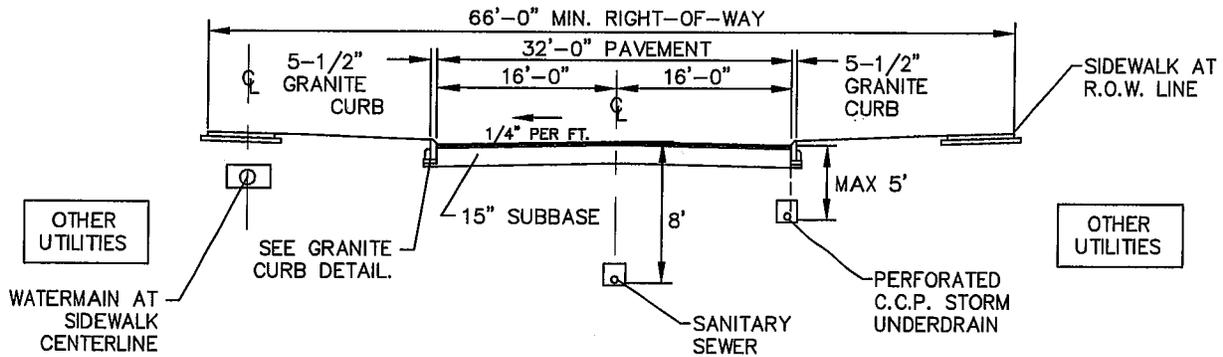
Phone: 585-381-9250

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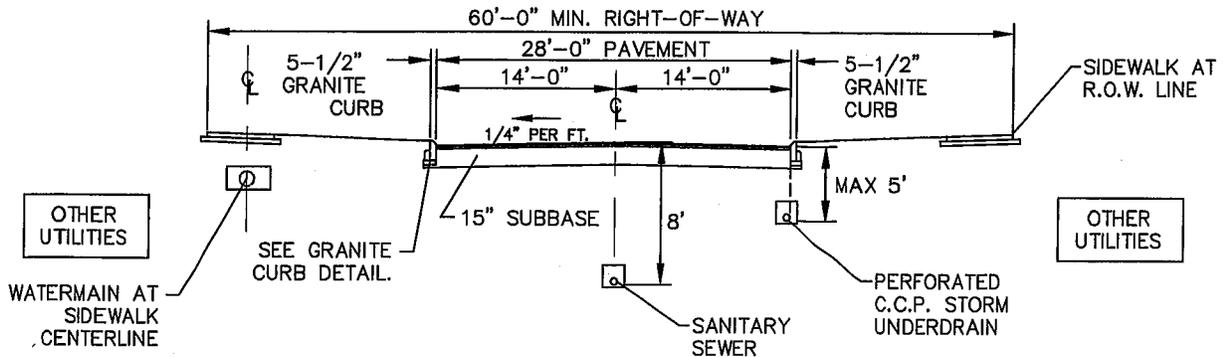
CITY OF CANANDAIGUA



ARTERIAL STREET WITH GRANITE CURB



COLLECTOR STREET WITH GRANITE CURB



LOCAL STREET WITH GRANITE CURB

NOTE: NO PRIVATE UTILITY TO CROSS CITY STREET PAVEMENT SECTION

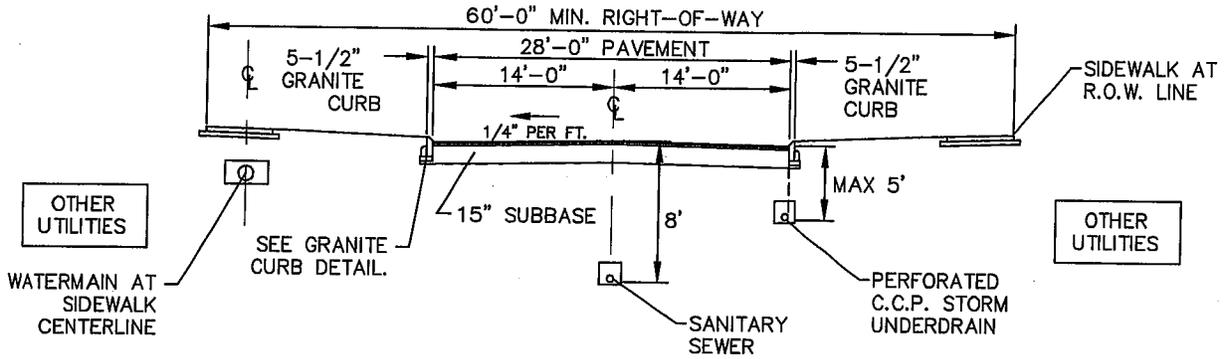
TYPICAL ROAD CROSS SECTIONS

APPENDIX: O (2 of 2)
 DATE: APRIL 2017
 SCALE: N.T.S.

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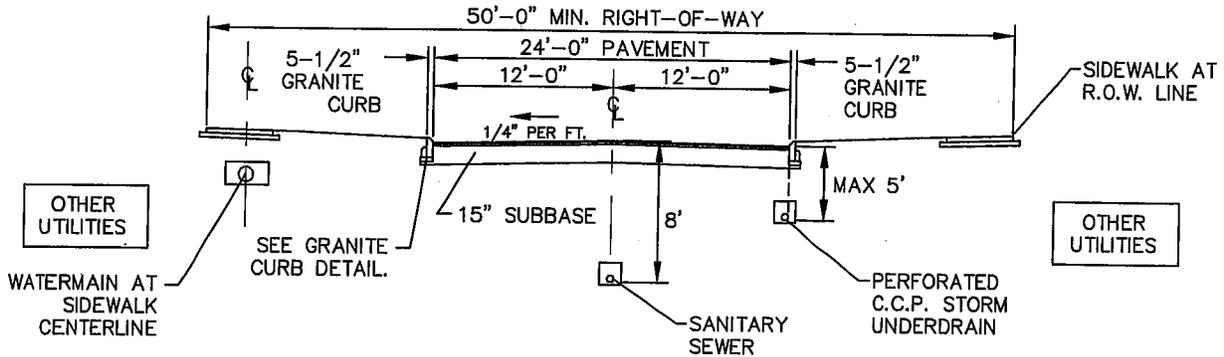
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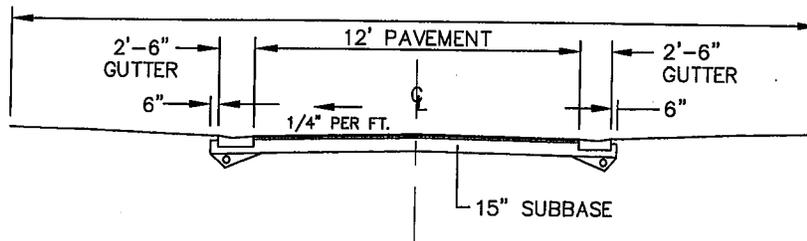


NOTE: LOCAL STREET WHICH SERVES ABUTTING RESIDENTIAL PROPERTIES MAY BE REDUCED TO 50 FEET R.O.W. WHERE EASEMENTS PROVIDE FOR MAINTENANCE OF PUBLIC UTILITIES AND SIDEWALKS.

LOCAL RESIDENTIAL STREET WITH GRANITE CURB



MINOR RESIDENTIAL STREET WITH GRANITE CURB



ALLEY WITH CONCRETE GUTTER

NOTE: NO PRIVATE UTILITY TO CROSS CITY STREET PAVEMENT SECTION

TYPICAL ROAD CROSS SECTIONS

APPENDIX:

P

DATE:

APRIL 2017

SCALE:

N.T.S.

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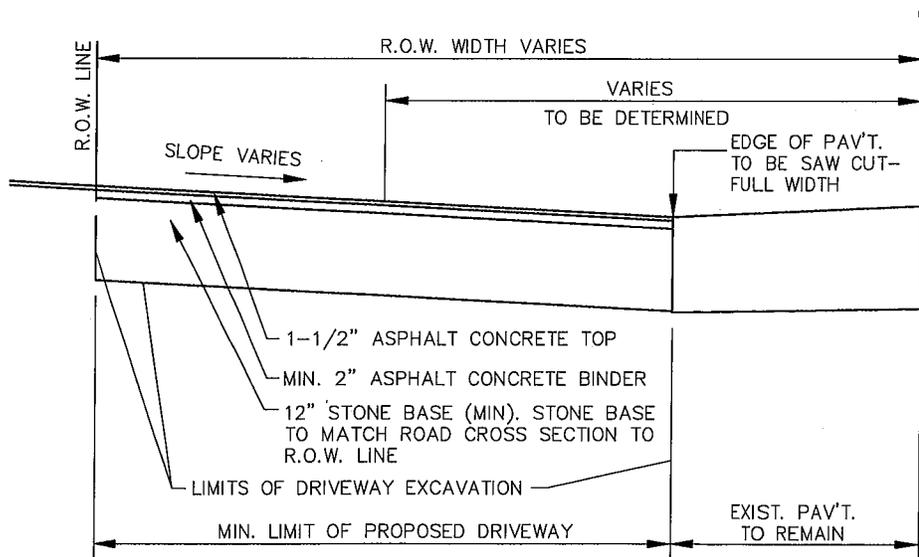
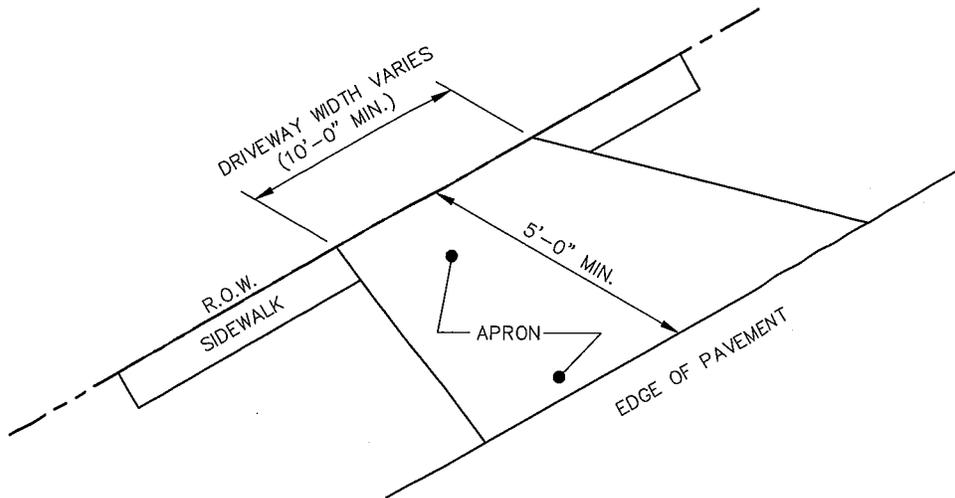
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CITY OF CANANDAIGUA



NOTES:

1. DRIVEWAYS FRONTING ON CITY STREETS SHALL BE PAVED TO THE RIGHT-OF-WAY LINE UNLESS OTHERWISE INDICATED BY THE CITY.
2. THE APPLICANT SHALL NOTIFY THE DIRECTOR OF PUBLIC WORKS AT LEAST 48 HOURS PRIOR TO PERFORMING THE WORK TO SCHEDULE A FIELD INSPECTION.
3. DRIVEWAY SLOPE TO BE 2% - 10%.

TYPICAL DRIVEWAY APRON DETAIL

APPENDIX: Q

DATE: APRIL 2017

SCALE: N.T.S.

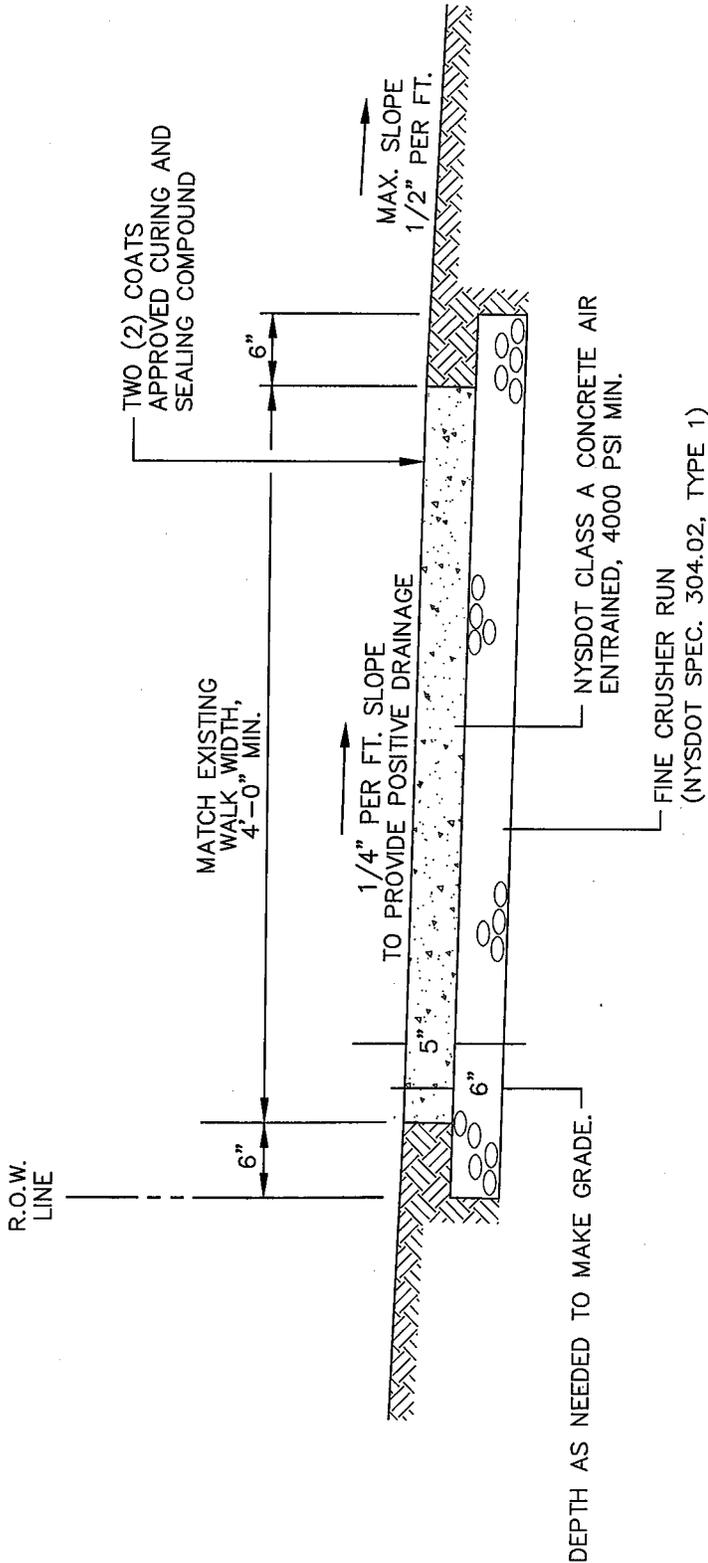
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NOTE:
 CONCRETE SIDEWALK SUBBASE THROUGH DRIVEWAYS SHALL BE INCREASED TO A 10" THICKNESS.
 CONCRETE TO MEET REQUIREMENTS OF NYSDOT ITEM NO. 608.0101 WITH 2 POUNDS PER CY FIBERS.

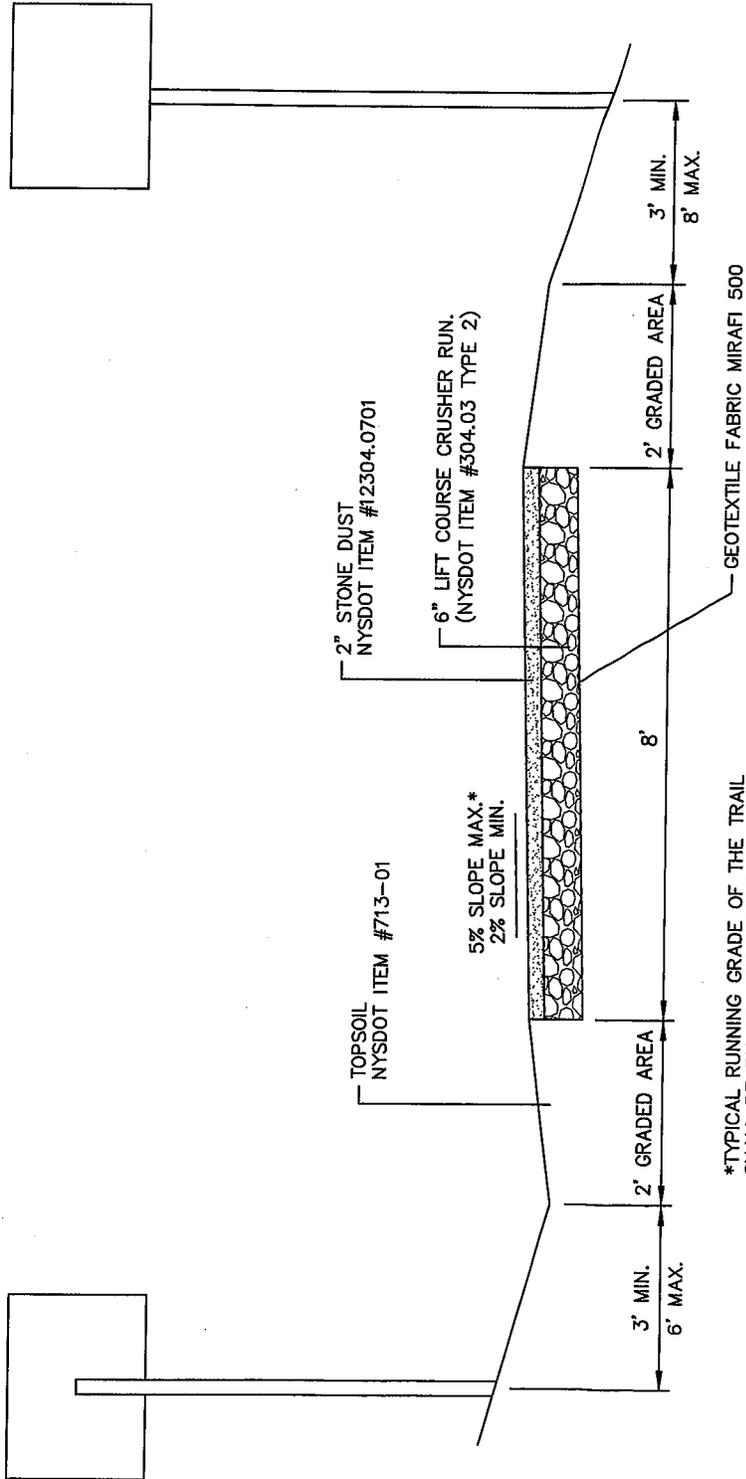
SIDEWALK DETAIL

APPENDIX:	R
DATE:	APRIL 2017
SCALE:	N.T.S.

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*TYPICAL RUNNING GRADE OF THE TRAIL SHALL BE 5% OR LESS WHERE PRACTICAL.

STONE DUST WALKING TRAIL

APPENDIX:

S

DATE:

APRIL 2017

SCALE:

N.T.S.

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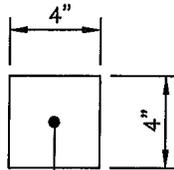
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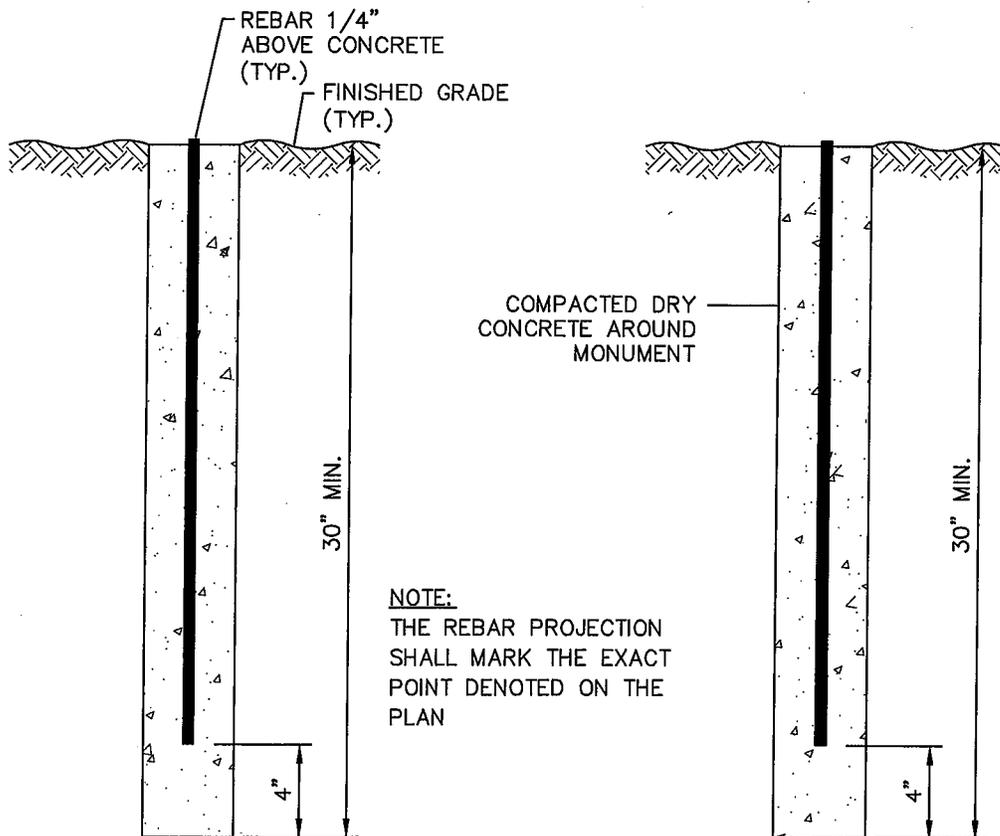
CITY OF CANANDAIGUA



#4 REINFORCING
BAR (TYP.)



PLAN



NOTE:
THE REBAR PROJECTION
SHALL MARK THE EXACT
POINT DENOTED ON THE
PLAN

SECTION

MONUMENT

APPENDIX:	T
DATE:	APRIL 2017
SCALE:	N.T.S.

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CITY OF CANANDAIGUA

!! CALL !!

**BEFORE YOU
DIG, DRILL OR BLAST**

1-800-962-7962 or 811

IN ACCORDANCE WITH UFPO (UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION), CONTRACTORS MUST NOTIFY ALL UTILITIES IN THE AREA TWO (2) WORKING DAYS BEFORE EXCAVATION.

IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE CITY OF CANANDAIGUA SEWER AND WATER DEPARTMENTS WITHIN THE PROJECT AREA.

UTILITY NOTIFICATIONS

APPENDIX: U

DATE: APRIL 2017

SCALE: N.T.S.

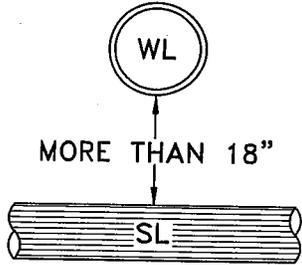
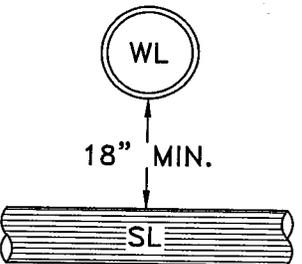
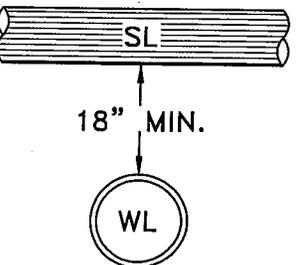
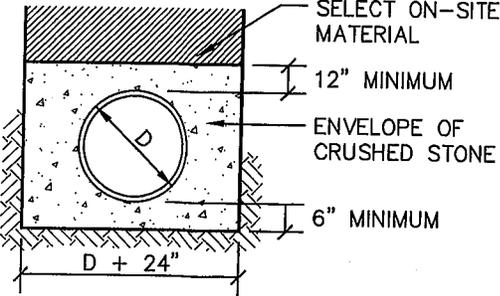
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CONDITION	SCHEMATIC	REQUIREMENTS
<p>I WATER LINE ABOVE SEWER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) BACKFILL WITH COMPACTED CRUSHER RUN STONE.</p>
<p>II WATER LINE ABOVE SEWER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) WHEN BOTH WATER LINE AND SEWER LINE ARE NEW, SLEEVE SEWER LINE WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>WHEN ONE LINE IS EXISTING, SLEEVE PIPE BEING INSTALLED WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>C) BACKFILL WITH COMPACTED CRUSHER RUN STONE.</p>
<p>III SEWER LINE ABOVE WATER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) SLEEVE SEWER LINE WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>C) PROVIDE CRADLE OF CONCRETE OR CRUSHER RUN STONE (SEE TRENCH DETAIL BELOW) FOR WATER LINE AND SEWER LINE FOR 10 FT. EACH SIDE OF CROSSING.</p>
<p style="text-align: center;">NOTES</p> <p>WL (WATER LINE)</p> <p>SL (SEWER LINE)</p> <p>D (OUTSIDE DIAMETER OF PIPE)</p> <p>IN NO CASE SHALL PIPES BE CLOSER THAN 18" APART. DISTANCES ARE MEASURED BETWEEN OUTSIDES OF PIPE.</p>		

WATERMAIN/SEWER CROSSING DETAIL

APPENDIX: V

DATE: APRIL 2017

SCALE: N.T.S.

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		TEST PRESSURE (P.S.I.)			
		150	175	200	225
		ALLOWABLE LEAKAGE (G.P.H.)			
		PIPE DIA. (INCHES)			
D.I.P. PER 1,000 L.F. OF LINE	6	0.55	0.59	0.64	0.68
	8	0.74	0.80	0.85	0.90
	10	0.92	0.99	1.06	1.13
	12	1.10	1.19	1.28	1.35
P.V.C. PER 1,000 L.F. OF LINE	6	0.50	0.53	0.57	0.61
	8	0.66	0.71	0.76	0.81
	10	0.83	0.90	0.96	1.02
	12	0.99	1.07	1.15	1.22
*HDPE PER 1,000 L.F. OF LINE	6	0.00	0.00	0.00	0.00
	8	0.00	0.00	0.00	0.00
	10	0.00	0.00	0.00	0.00
	12	0.00	0.00	0.00	0.00

NOTES:

- *HDPE PRESSURE TESTS SHALL BE DONE IN ACCORDANCE WITH ASTM 2164, AWWA MANUAL OF PRACTICE M55 CHAPTER 9, AND PPI HANDBOOK OF POLYETHYLENE PIPE CHAPTER 2, AND MANUFACTURERS RECOMMENDATION.
- *PER AWWA MANUAL OF PRACTICE M55, CHAPTER 9, THE TEST PRESSURE IS TO BE 1.5 TIMES THE DESIGN WORKING PRESSURE AT THE LOWEST ELEVATION IN THE SECTION OF PIPE TESTED, OR A MINIMUM PRESSURE OF 150 PSI. ASTM F2154 PROHIBITS TESTING AT THIS TEST PRESSURE FOR MORE THAN EIGHT (8) HOURS. IF TEST NEEDS TO BE CONTINUED PAST EIGHT (8) HOURS DUE TO ANY FIELD ISSUES, THE TEST SECTION MUST BE DEPRESSURIZED FOR AT LAST EIGHT (8) HOURS BEFORE TESTING AGAIN.
- *IF PRESSURE REMAINS WITHIN 5% OF THE TARGET VALUE FOR ONE HOUR DURING TESTING, LEAKAGE IS NOT INDICATED.
- *FILL TEST SECTION OF PIPE WITH WATER AND MAINTAIN FOR 24 HOURS PRIOR TO TESTING.
- *PNEUMATIC (COMPRESSED AIR) LEAKAGE TESTING OF HDPE PRESSURE PIPING IS PROHIBITED FOR SAFETY REASONS.
- *FILL TEST SECTION OF PIPE WITH WATER OF APPROVED QUALITY AND REMOVE ALL AIR FROM TEST SECTION.
- *PRESSURE TEST ALL WATER MAINS FROM MAIN LINE VALVE TO MAIN LINE VALVE OR TAPPING VALVE UNLESS OTHERWISE SPECIFIED.
- PRESSURE TESTS SHALL BE CONDUCTED SO THAT PIPE SECTIONS ARE WITHIN 10 PSI OF THE TEST PRESSURE LOCATION.
- PRESSURE TESTS SHALL BE CONDUCTED FOR A MINIMUM OF 2 HOURS.
- LEAKAGE TESTS AT LINE PRESSURE SHALL BE CONDUCTED OVER A 24 HOUR PERIOD.

WATERMAIN PRESSURE TEST

APPENDIX: W

DATE: APRIL 2017

SCALE: N.T.S.

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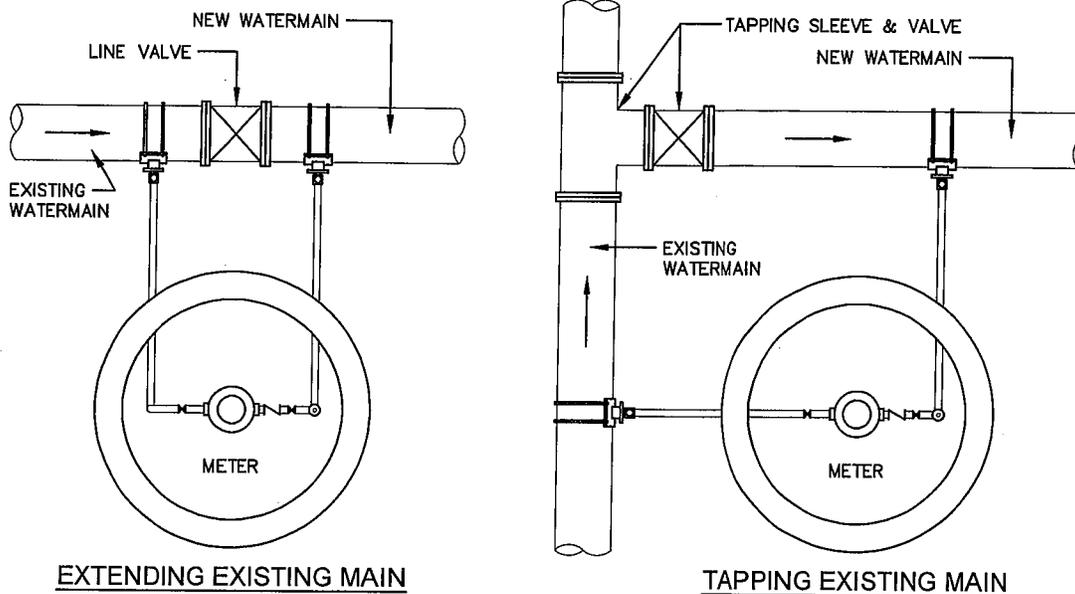
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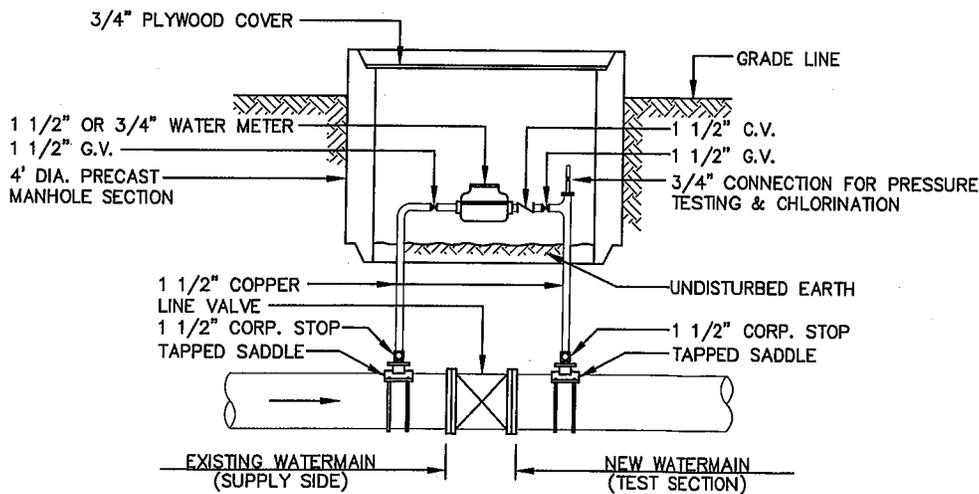
CITY OF CANANDAIGUA



PLAN

NOTES:

1. INSTALL 1 1/2" METER FOR PRESSURE TESTING AND CHLORINATION. REMOVE AND INSTALL 3/4" METER FOR LEAKAGE TESTING.
2. LINE VALVE TO REMAIN CLOSED UNTIL WATER SYSTEM IS ACCEPTED.



SECTION

TEMPORARY TESTING METER DETAIL

APPENDIX: X (1 of 2)

DATE: APRIL 2017

SCALE: N.T.S

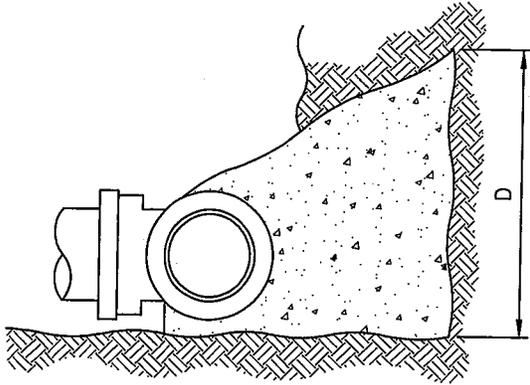
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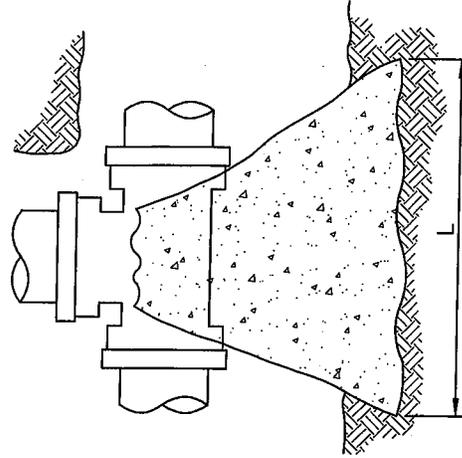
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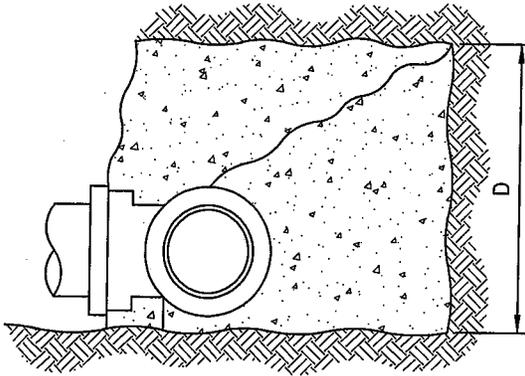


SECTION

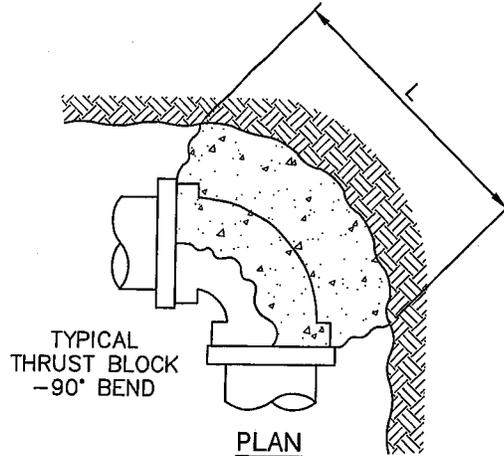


PLAN

TEE



SECTION



TYPICAL
THRUST BLOCK
-90° BEND

PLAN

BEND

THRUST BLOCK DETAIL

APPENDIX: X (2 of 2)

DATE: APRIL 2017

SCALE: N.T.S

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NOTES:

1. ALL DIMENSIONS ARE IN FEET.
2. BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING PRESSURE OF 2500 PSF.
3. HEIGHT OF THRUST BLOCK SHOULD BE EQUAL TO OR LESS THAN 1/2 THE DEPTH FROM THE GROUND SURFACE TO THE BASE OF THE BLOCK.
4. ALL THRUST BLOCKS SHALL CURE A MINIMUM OF SEVEN (7) DAYS BEFORE ANY PRESSURE TESTS ARE CONDUCTED.
5. DR-14 PIPE SHALL BE USED.

PIPE SIZE (INCHES)	WORKING PRESSURE (PSIG)	TEE OR PLUG		90° BEND		45° BEND		22-1/2° BEND	
		L	D	L	D	L	D	L	D
4	200	2.00	1.50	1.67	0.75	1.50	0.67	1.50	0.67
6	200	2.24	1.50	2.00	1.50	1.75	1.00	1.50	0.67
8	200	3.00	2.00	1.67	0.75	1.50	0.67	1.50	0.67
10	200	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
12	200	1.50	0.67	1.67	0.75	1.50	0.67	1.50	0.67
14	200	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
16	200	1.50	0.67	1.67	0.75	1.50	0.67	1.50	0.67
18	200	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
20	200	1.50	0.67	1.67	0.75	1.50	0.67	1.50	0.67
24	200	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67

THRUST BLOCK DETAIL

APPENDIX:

Y

DATE:

APRIL 2017

SCALE:

N.T.S.

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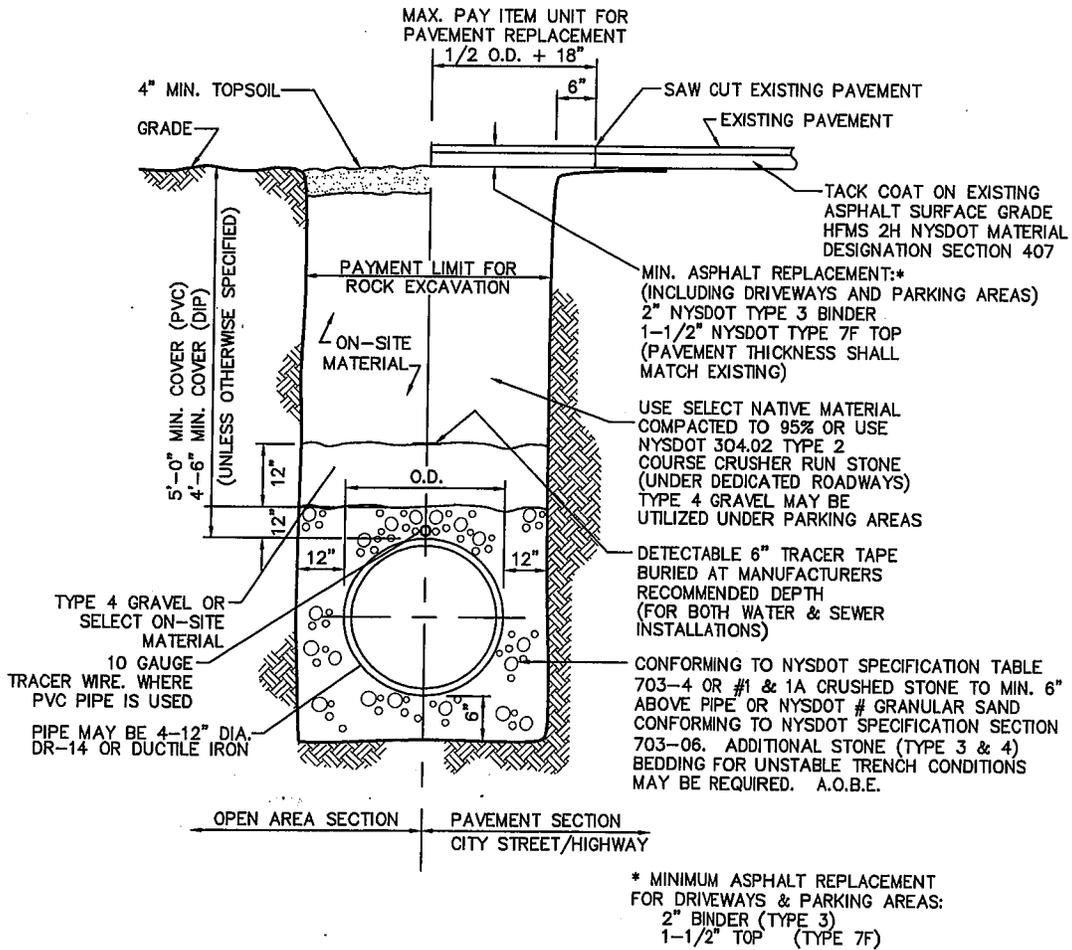
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PIPE BEDDING/ TRENCH DETAIL

(OUTSIDE OF N.Y.S. HIGHWAYS)

APPENDIX: Z

DATE: APRIL 2017

SCALE: N.T.S.

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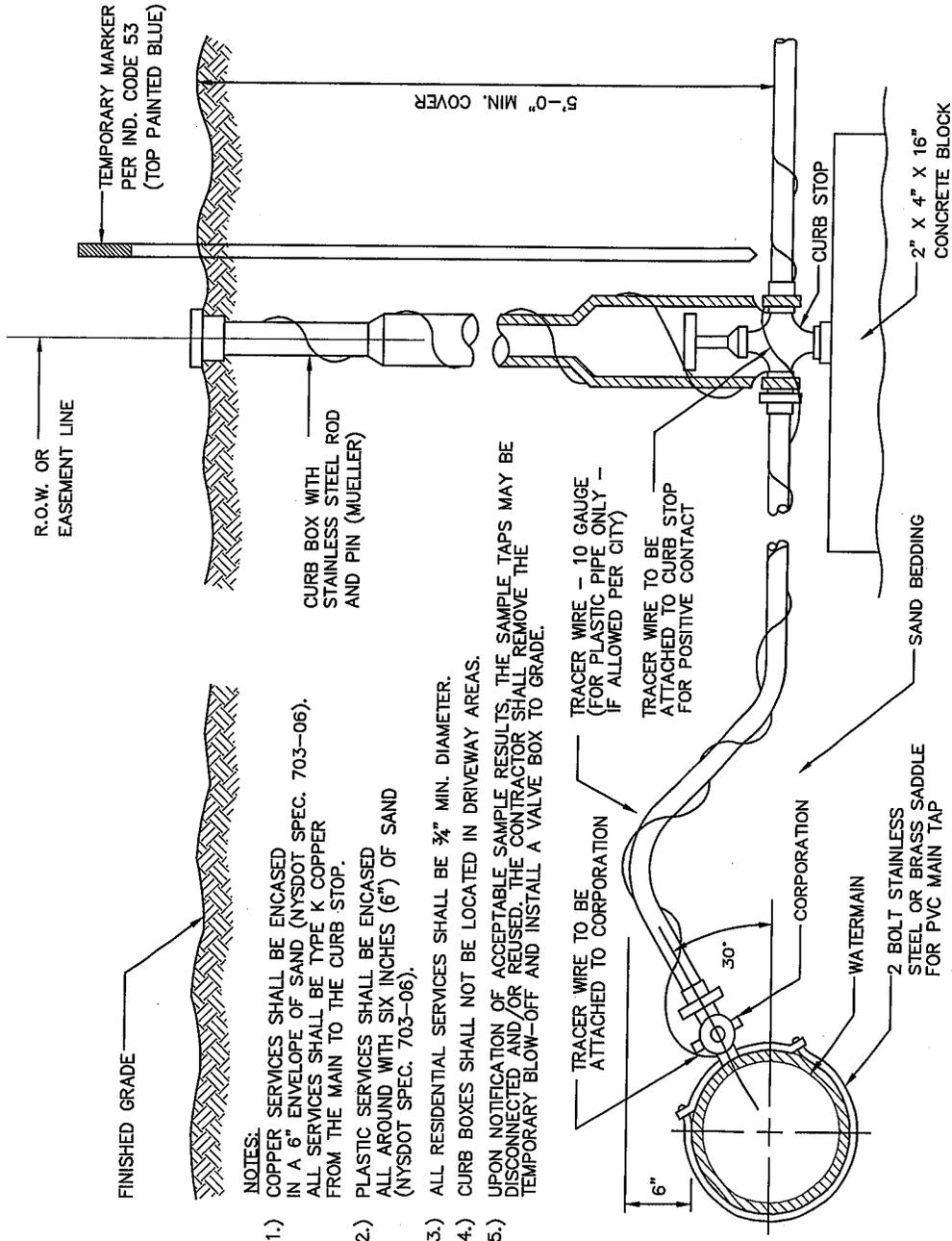
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NOTES:

- 1.) COPPER SERVICES SHALL BE ENCASED IN A 6" ENVELOPE OF SAND (NYS DOT SPEC. 703-06). ALL SERVICES SHALL BE TYPE K COPPER FROM THE MAIN TO THE CURB STOP.
- 2.) PLASTIC SERVICES SHALL BE ENCASED ALL AROUND WITH SIX INCHES (6") OF SAND (NYS DOT SPEC. 703-06).
- 3.) ALL RESIDENTIAL SERVICES SHALL BE 3/4" MIN. DIAMETER.
- 4.) CURB BOXES SHALL NOT BE LOCATED IN DRIVEWAY AREAS.
- 5.) UPON NOTIFICATION OF ACCEPTABLE SAMPLE RESULTS, THE SAMPLE TAPS MAY BE DISCONNECTED AND/OR REUSED. THE CONTRACTOR SHALL REMOVE THE TEMPORARY BLOW-OFF AND INSTALL A VALVE BOX TO GRADE.

TYPICAL WATER SERVICE

APPENDIX: AA

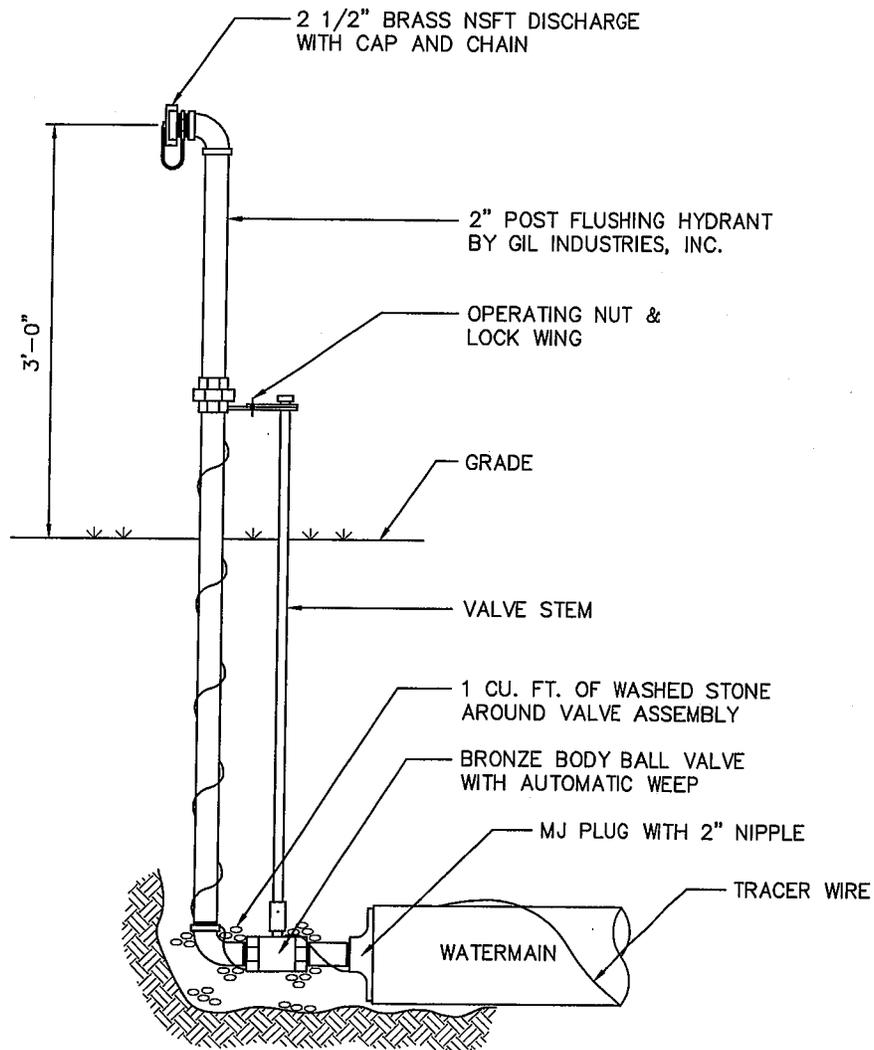
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SCALE: N.T.S.

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WATERMAIN BLOW-OFF DETAIL

APPENDIX: BB

DATE: APRIL 2017

SCALE: N.T.S.

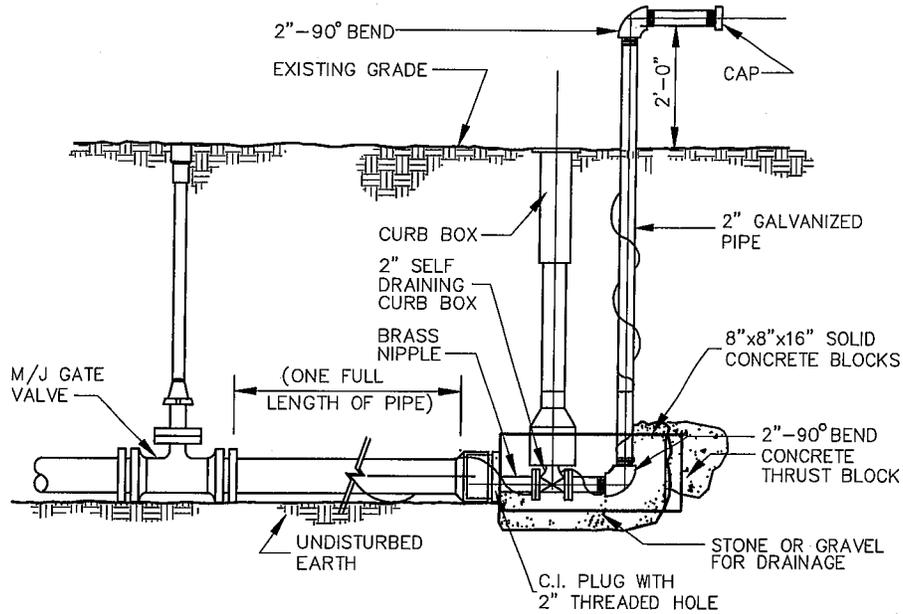
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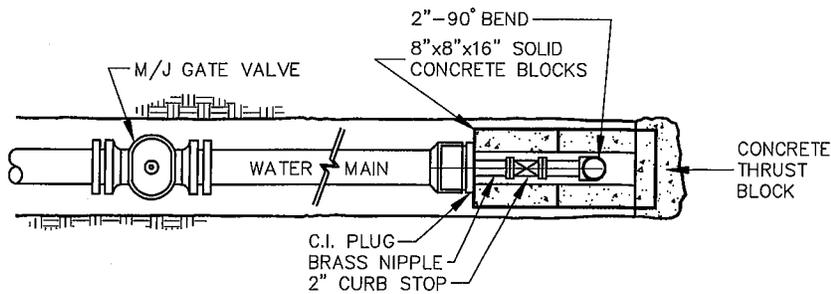
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SECTION



PLAN

PLUG, BLOCK & BLOW-OFF DETAIL

(LENGTH IS GREATER THAN 3 FEET)

APPENDIX: CC

DATE: APRIL 2017

SCALE: N.T.S.

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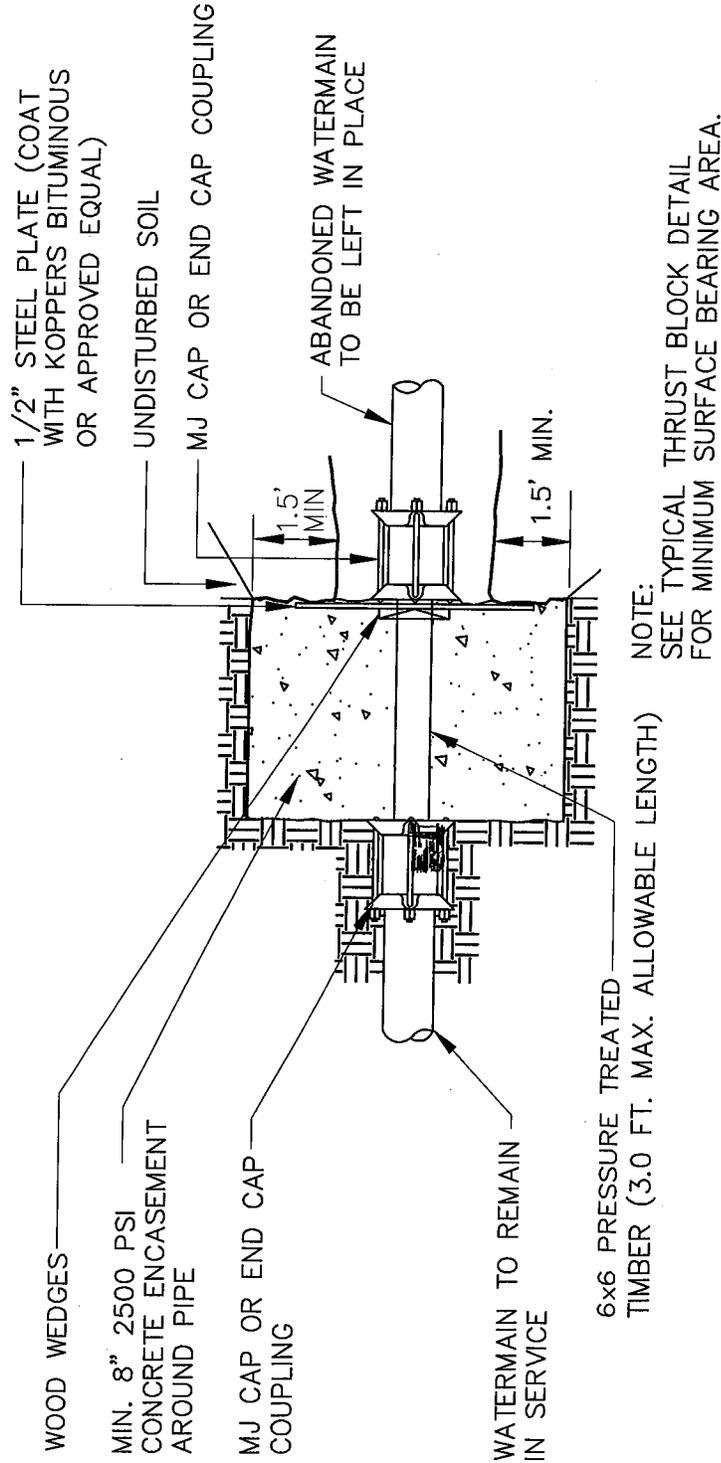
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IN-LINE ABANDONMENT

WATERMAIN CUT AND PLUG DETAIL

APPENDIX: DD (1 of 2)

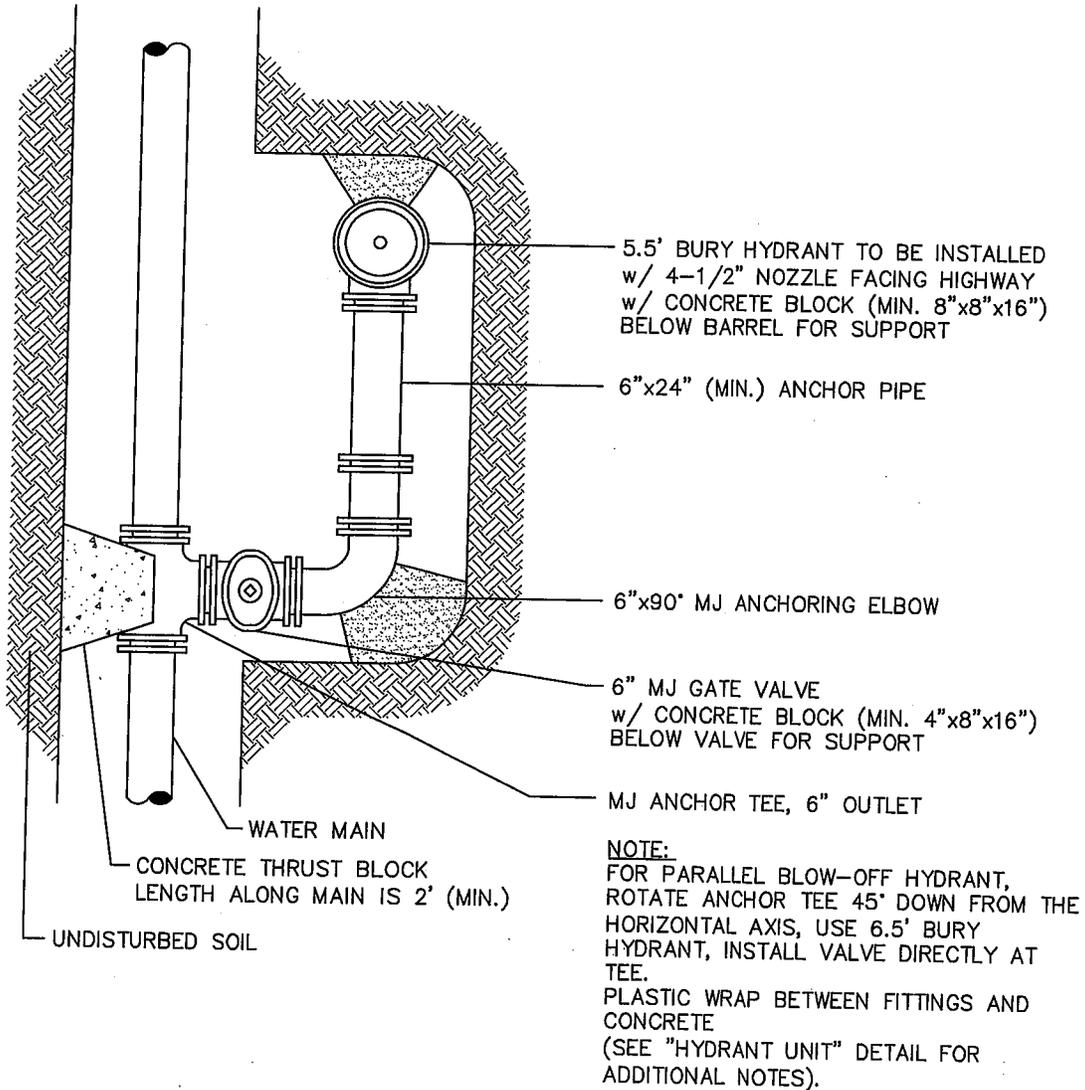
DATE: APIRL 2017

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PARALLEL HYDRANT ASSEMBLY

APPENDIX: DD (2 of 2)

DATE: APIRL 2017

SCALE: N.T.S.

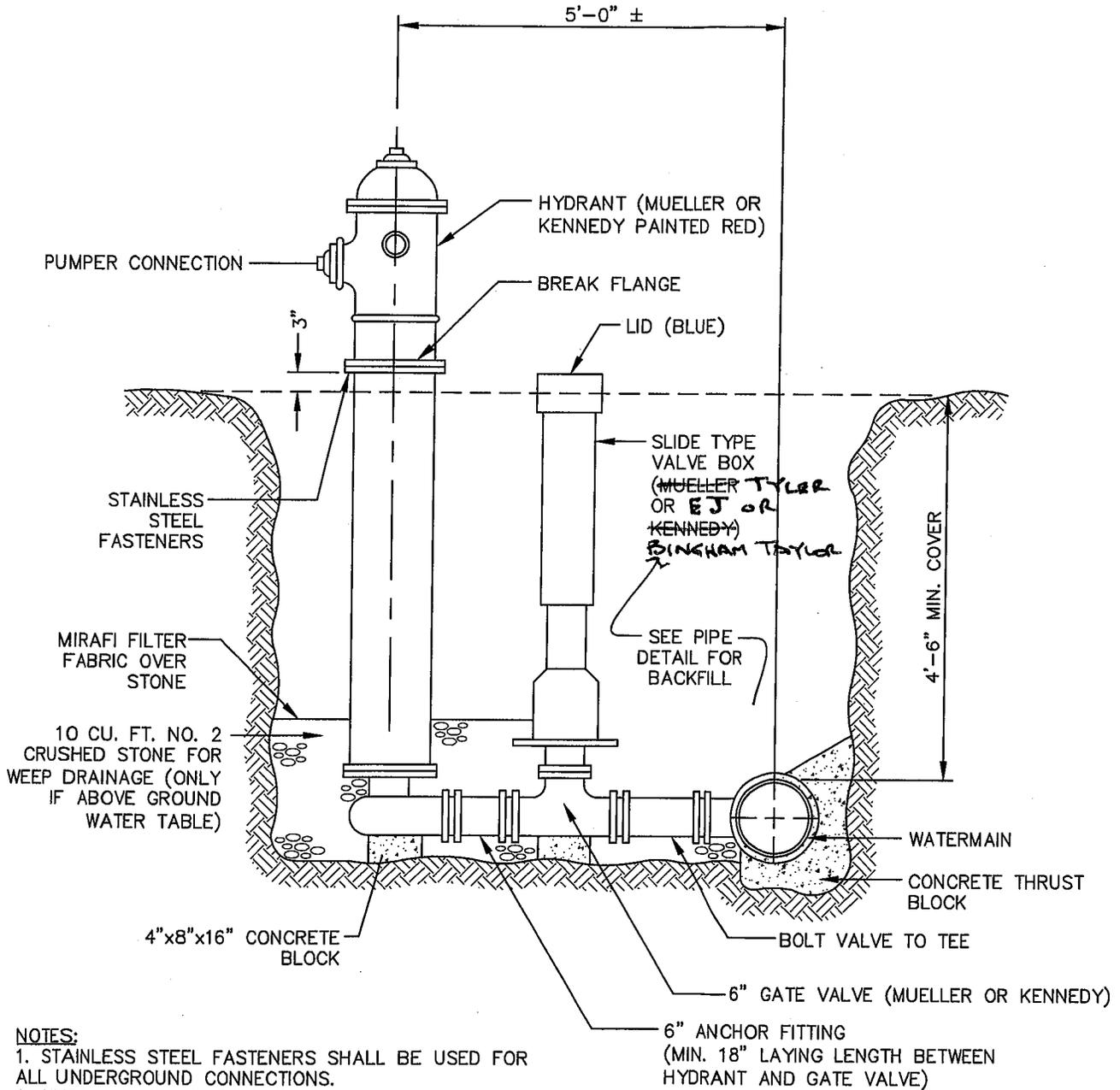
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NOTES:

1. STAINLESS STEEL FASTENERS SHALL BE USED FOR ALL UNDERGROUND CONNECTIONS.
2. HYDRANTS SHALL BE PAINTED RED.
3. BOLTS SHALL BE "BLUE BOLTS".
4. IF GROUND WATER IS ENCOUNTERED, THE WEEP HOLES MUST BE PLUGGED AND THE HYDRANT MARKED.
5. PLASTIC WRAP BETWEEN FITTINGS AND CONCRETE.

PARALLEL HYDRANT ASSEMBLY

APPENDIX: EE

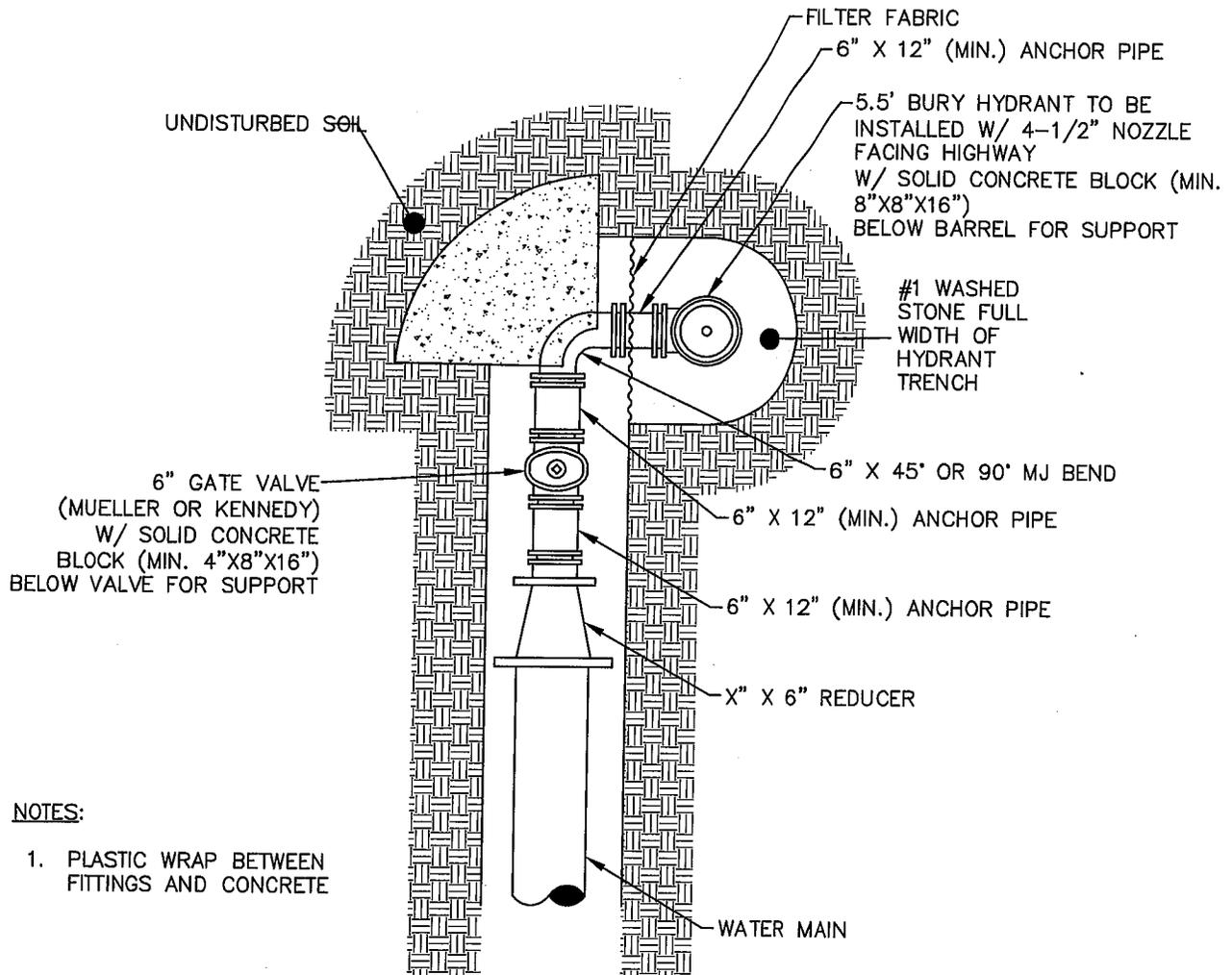
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NOTES:

1. PLASTIC WRAP BETWEEN FITTINGS AND CONCRETE

DEAD END PERPENDICULAR HYDRANT ASSEMBLY

APPENDIX: FF (1 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

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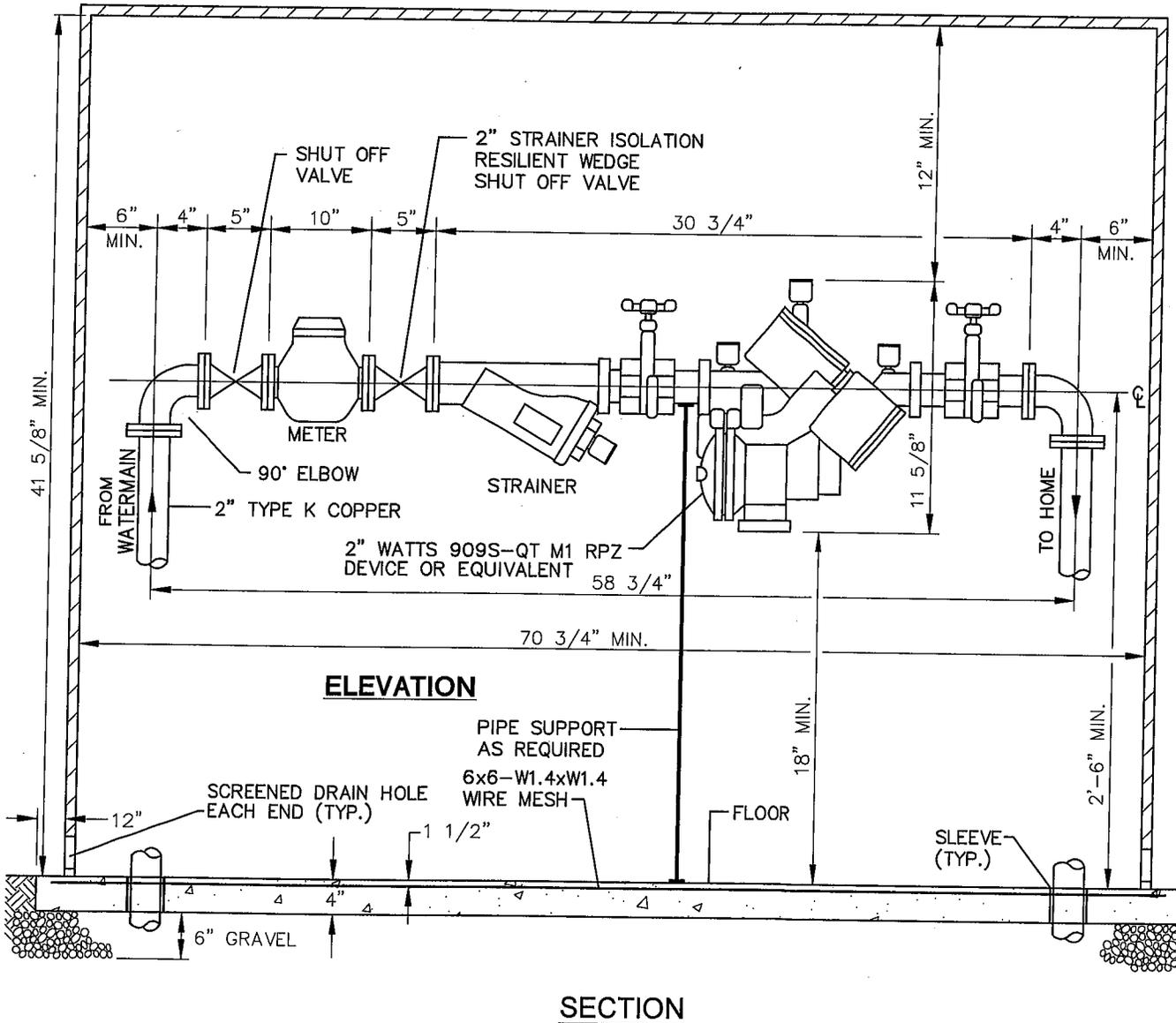
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RPZ BACKFLOW PREVENTER

APPENDIX: FF (2 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

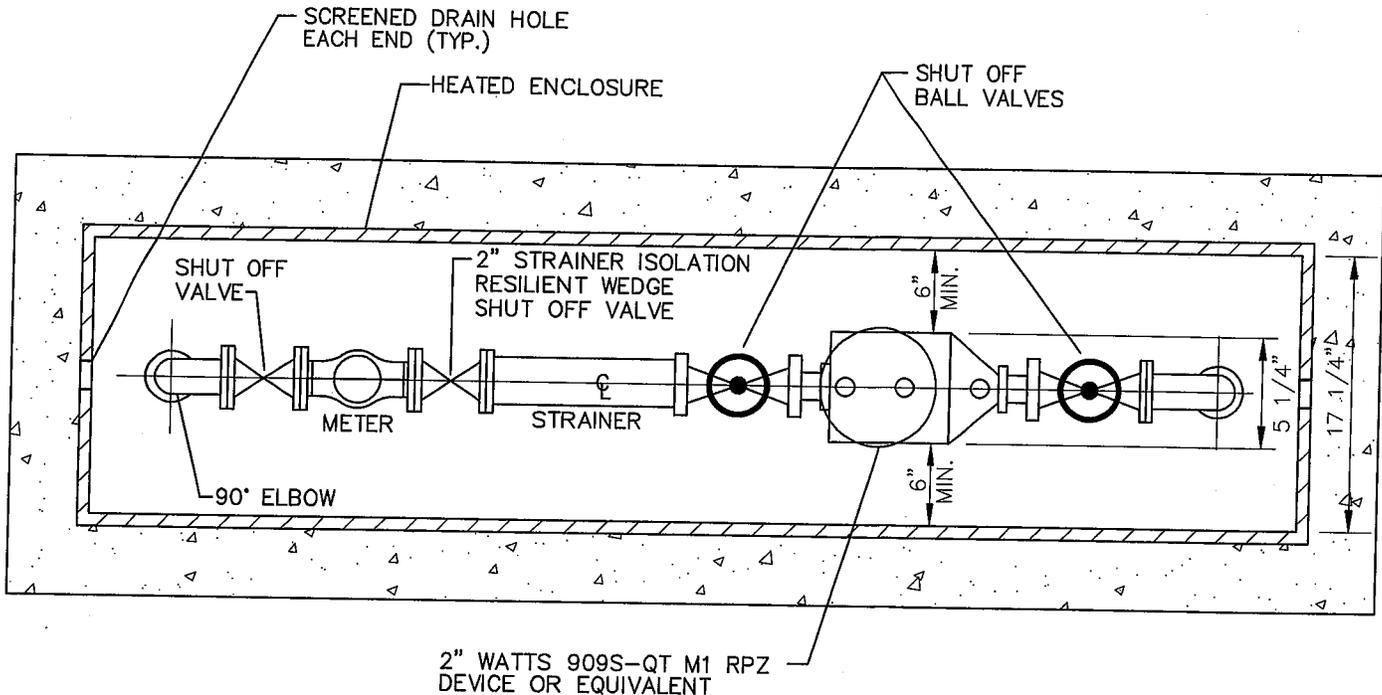
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PLAN

NOTES:

1. NO CONNECTIONS TO THE SERVICE WILL BE ALLOWED UPSTREAM FROM THE BACKFLOW PREVENTER.
2. ENCLOSURE FOR BACKFLOW PREVENTER SHALL BE "HOT BOX" MODEL NO. HB2ST (MOD) WITH FIBERGLASS SHELL. (MOD) REFERS TO "MODIFIED" TO ACCOMMODATE METER.
3. ELECTRIC HEAT SHALL BE PROVIDED WITHIN ENCLOSURE BY A HEATER DESIGNED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
4. "HOT BOX" SHALL BE ANCHORED TO A 4" CONCRETE SLAB REINFORCED WITH 6x6-W1.4xW1.4 WIRE MESH WITH A 6" COMPACTED STONE BASE.
5. "HOT BOX" SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS.
6. ELECTRICAL SERVICE TO "HOT BOX" MUST BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND LOCAL ORDINANCES.

RPZ BACKFLOW PREVENTER

APPENDIX: GG

DATE: APRIL 2017

SCALE: N.T.S.

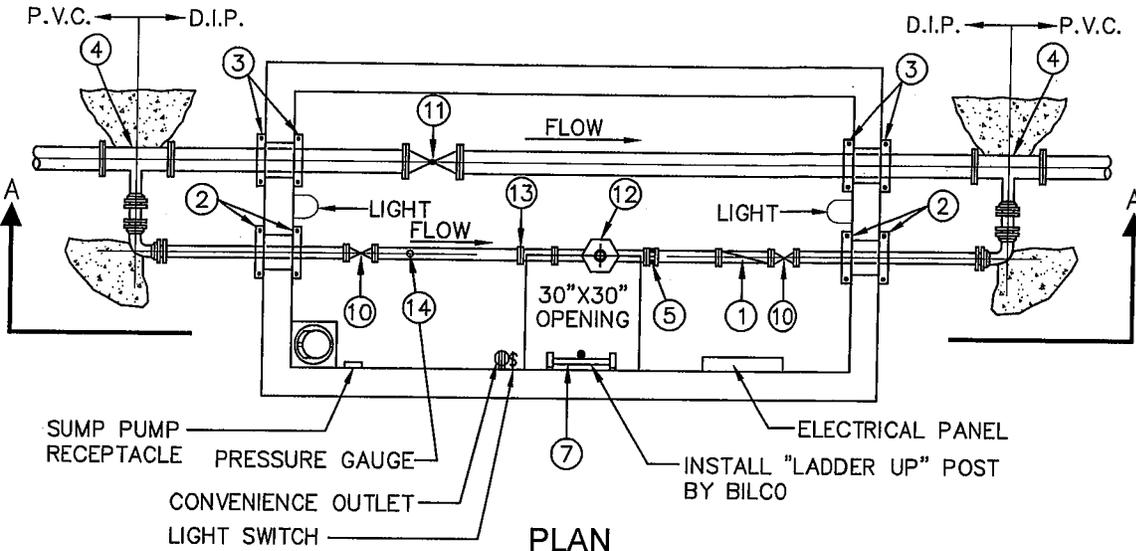
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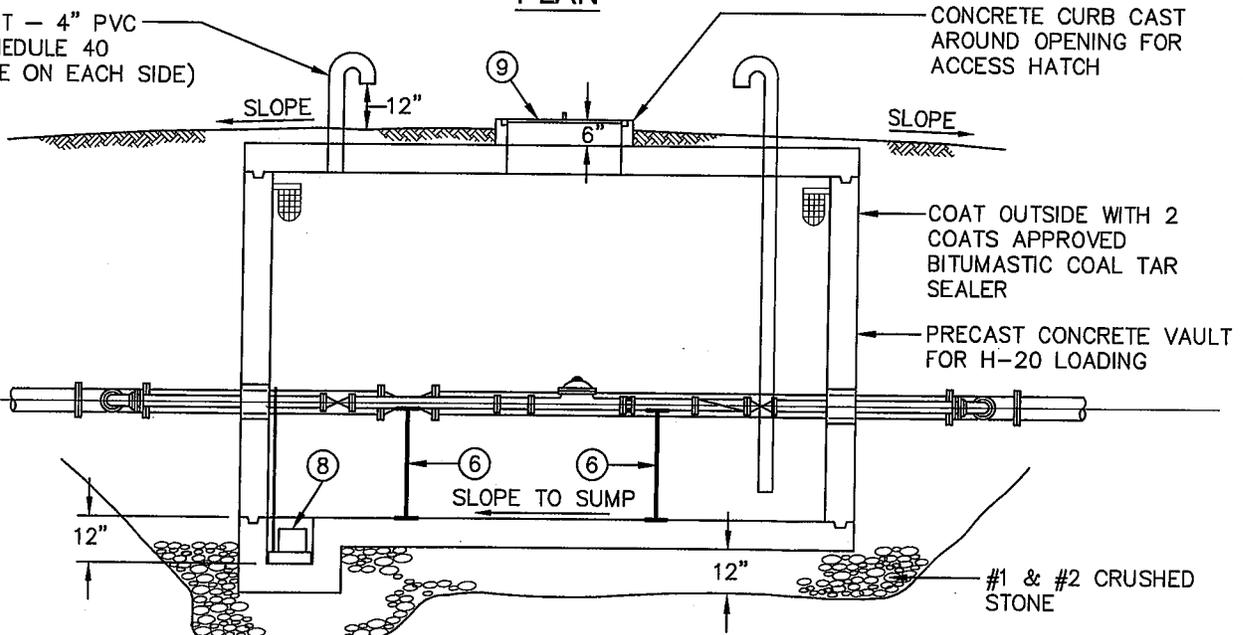
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VENT - 4" PVC
SCHEDULE 40
(ONE ON EACH SIDE)



SECTION A-A

- | | |
|---|--|
| ① SWING CHECK VALVE (FL-FL) | ⑨ BILCO ACCESS DOOR
TYPE J-2AL (2'-6"X2'-6") H-20 LOADING |
| ② SOCKET CLAMPS | ⑩ RESILIENT SEAT GATE VALVE (FL-FL) |
| ③ SOCKET CLAMPS | ⑪ RESILIENT SEAT GATE VALVE (FL-FL) |
| ④ MJ TEE | NOTE: GATE VALVES TO BE MUELLER OR KENNEDY |
| ⑤ FLANGE ADAPTOR | ⑫ BADGER RECORDALL COMPOUND METER
OR FIRE SERVICE METER |
| ⑥ PIPE SUPPORTS (4 REQ'D) | ⑬ RECORDER PLATE STRAINER |
| ⑦ LADDER | ⑭ PRESSURE GAUGE (ASHCROFT OR EQUAL) |
| ⑧ SUMP PUMP OR GRAVITY
DISCHARGE TO GROUND SURFACE | |

NOTE: IF A GRAVITY DRAIN IS POSSIBLE, ELIMINATE ALL ELECTRIC.

TYPICAL WATER METER VAULT

APPENDIX: HH

DATE: APRIL 2017

SCALE: N.T.S.

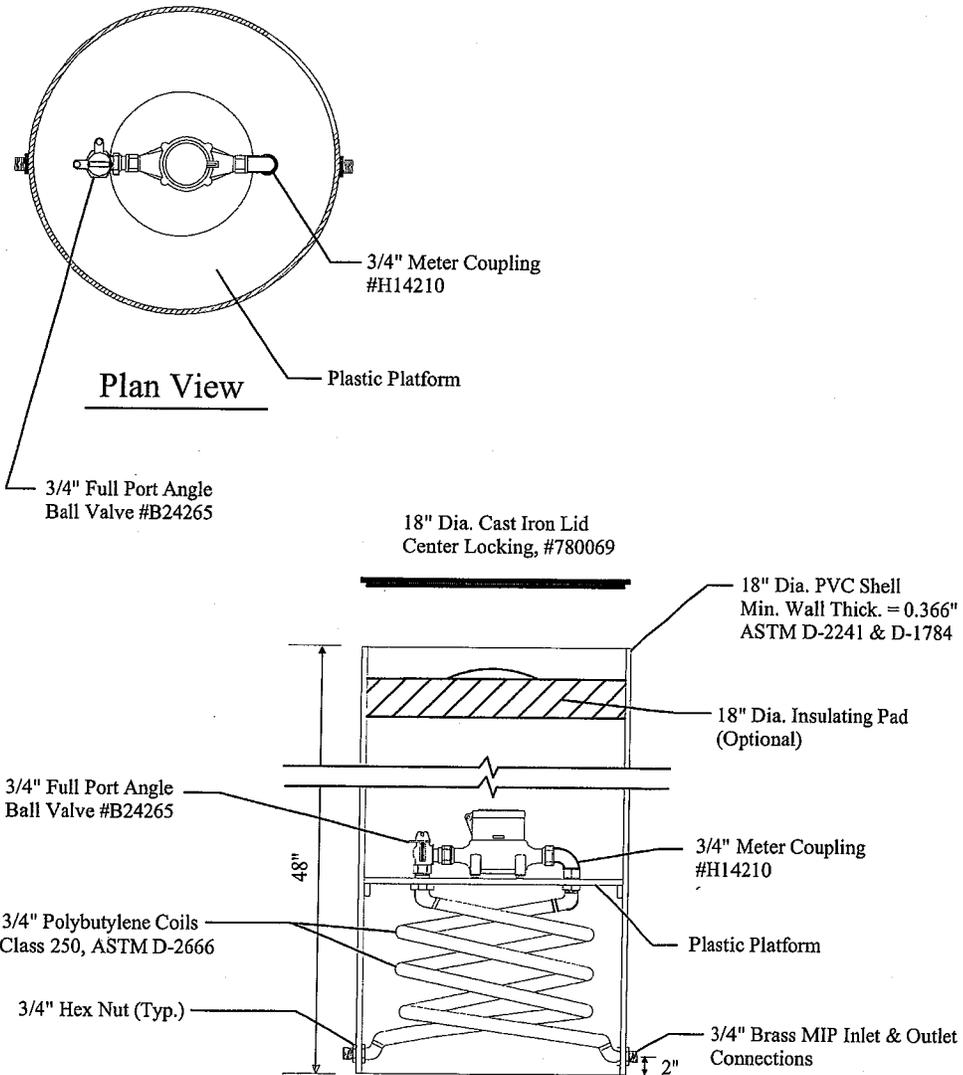
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METER PIT DETAIL

APPENDIX: II (1 of 3)

DATE: APRIL 2017

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CITY OF CANANDAIGUA

GENERAL

All testing of gravity sewers shall be completed under the observation of the City. The Contractor shall furnish all labor and testing equipment including hoses, pumps, plugs, temporary connections, gauges, etc. necessary to perform the required tests.

CLEANING

Each section of gravity sewer shall be flushed to remove all silt, sand, gravel and other debris prior to testing. If any sections of pipe cannot be flushed clean, mechanical methods shall be used to dislodge any deposits in the pipe.

TESTING GRAVITY SEWERS

- I. Air testing may be used for the final acceptance of each section of gravity sewer unless otherwise designated by the City. Gravity sewers shall be tested in sections not exceeding 1,000 feet in length. Any section of gravity sewer which does not give satisfactory test results must be replaced and retested until a satisfactory test is completed.

a. Air Test

Low pressure air test may be used to test a section of sewer pipe or locate areas requiring replacement. The following procedures shall be used for low pressure air test.

1. The test shall be conducted between two (2) consecutive manholes.
2. The test section of the sewer line shall be plugged at each end. One of the plugs used at the manhole must be tapped and equipped for the air inlet connection for filling the line from the air compressor.
3. All service laterals, stubs and fittings into the sewer test section shall be properly capped or plugged and carefully braced against the internal pressure to prevent air leakage by slippage and blowouts.

CLEANING AND TESTING OF SANITARY SEWERS

APPENDIX: II (2 of 3)

DATE: APRIL 2017

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4. Supply air to the test section slowly, filling the pipe line until a constant pressure of 4.0 PSIG is maintained. The air pressure shall be regulated to prevent the pressure inside the pipe from exceeding 5.0 PSIG.
5. When constant pressure of 4.0 PSIG is reached, throttle the air supply to maintain the internal pressure above 3.5 PSIG for at least five (5) minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall.
6. After the stabilization period, the air pressure shall be adjusted to 4.0 PSIG and the air supply disconnected. At 4.0 PSIG commence timing with a stop watch which is allowed to run until the line pressure drops to 3.5 PSIG at which time the stop watch shall be stopped. The time required for a pressure loss of 0.5 PSIG shall be compared to the following chart.

Any time which is less than shown in the following table shall be cause for rejection:

TIME REQUIREMENTS FOR AIR TESTING

PIPE SIZE (Inches)	TIME	
	(Minutes)	(Seconds)
4	2	32
6	3	50
8	5	6
10	6	22
12	7	39
14	8	56
15	9	35
16	10	12
18	11	34
20	12	45
21	13	30

For larger diameter pipe:

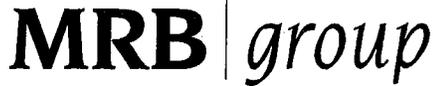
Minimum time in seconds =
462 x pipe diameter in feet

CLEANING AND TESTING OF SANITARY SEWERS

APPENDIX: II (3 of 3)

DATE: APRIL 2017

SCALE: N.T.S.



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7. An air pressure correction shall be required when the prevailing ground water is above the sewer line being tested. Under this condition, the air test pressure shall be increased to 0.433 PSIG for each foot the ground water level is above the invert of the pipe.

b. Water Tests

Leakage or infiltration shall not exceed 100 gallons per inch diameter per mile per day for any section tested. Leakage tests shall be conducted with a positive head of 10 ft. over the pipe invert for a period of 24 hours.

II. Manholes

Each manhole shall be subjected to an infiltration or exfiltration test as determined by the Town.

a. Water Testing – Each manhole shall be filled with a maximum of 10 feet of water, subjected to a 24 hour test and show a loss of water not to exceed 15 gallons/24 hours for a 4 foot IDMH. Infiltration tests shall adhere to the same limits.

b. Vacuum Testing – Each manhole shall be subjected to a vacuum of 10 inches of Hg for one minute with an allowable loss of 1 inch of Hg.

FORCEMAIN TESTING

Sanitary Sewer Force mains shall be tested at 100 psig for a duration of one hour. Allowable leakage shall be as follows:

<u>Pipe Size</u>	<u>Allowable Leakage (gal/hr/100' of pipe)</u>
4"	.030
6"	.045

CLEANING AND TESTING OF SANITARY SEWERS

APPENDIX: JJ

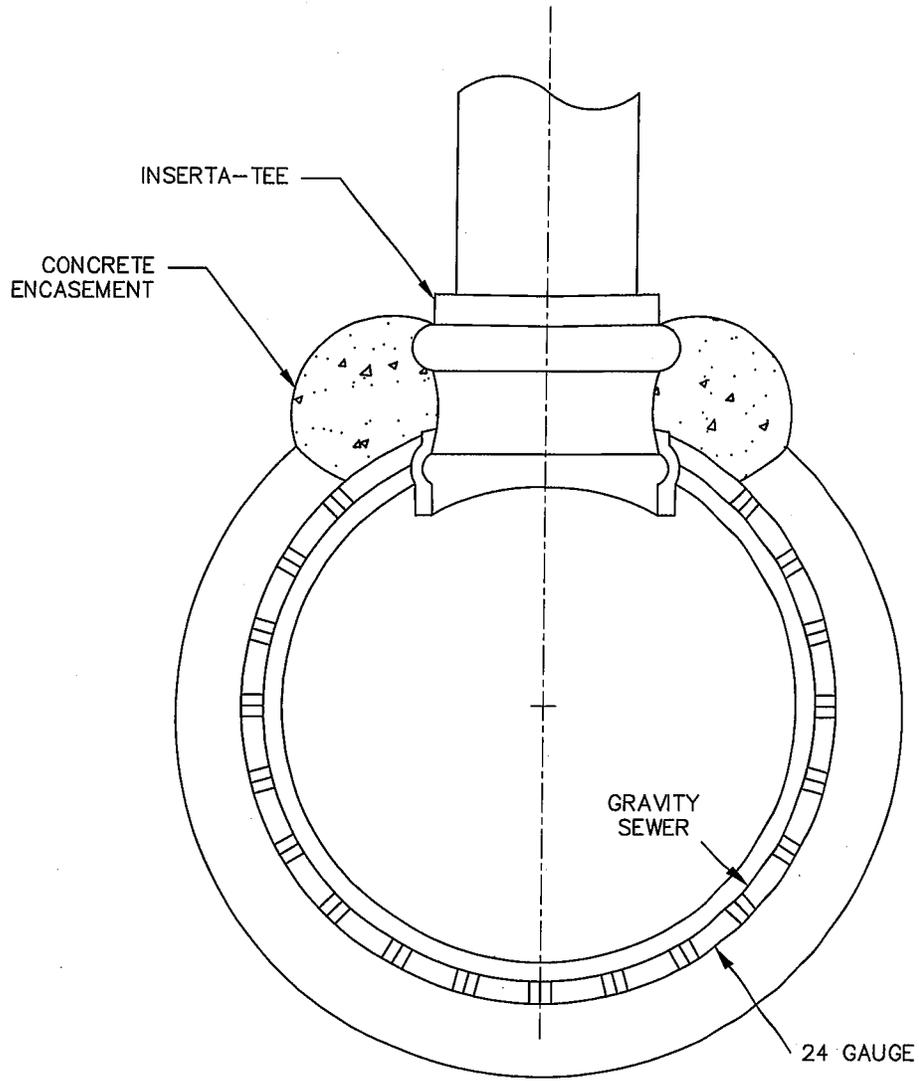
DATE: APRIL 2017

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INSERTA-TEE SEWER LATERAL CONNECTION

APPENDIX: KK

DATE: APRIL 2017

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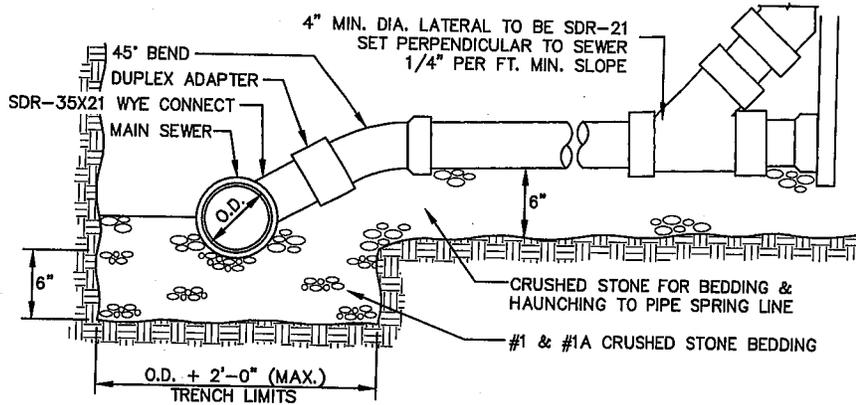
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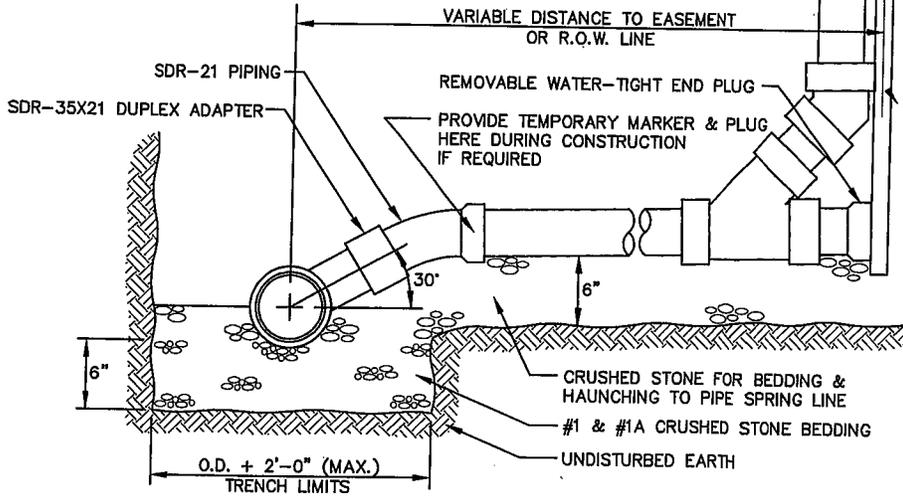
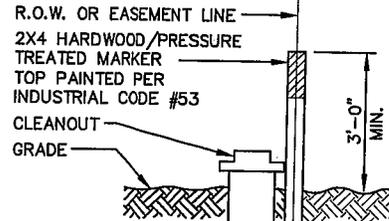
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ROCK EXCAVATION

NOTE:

1. ALL LATERAL PIPING TO BE SDR-21
2. ALL WYE CONNECTIONS TO BE SAME MATERIAL AS MAIN LINE PIPE
3. All connects made by gasketed joints. Glued fittings are unacceptable.



EARTH EXCAVATION

SANITARY LATERAL CONNECTION

APPENDIX: LL (1 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

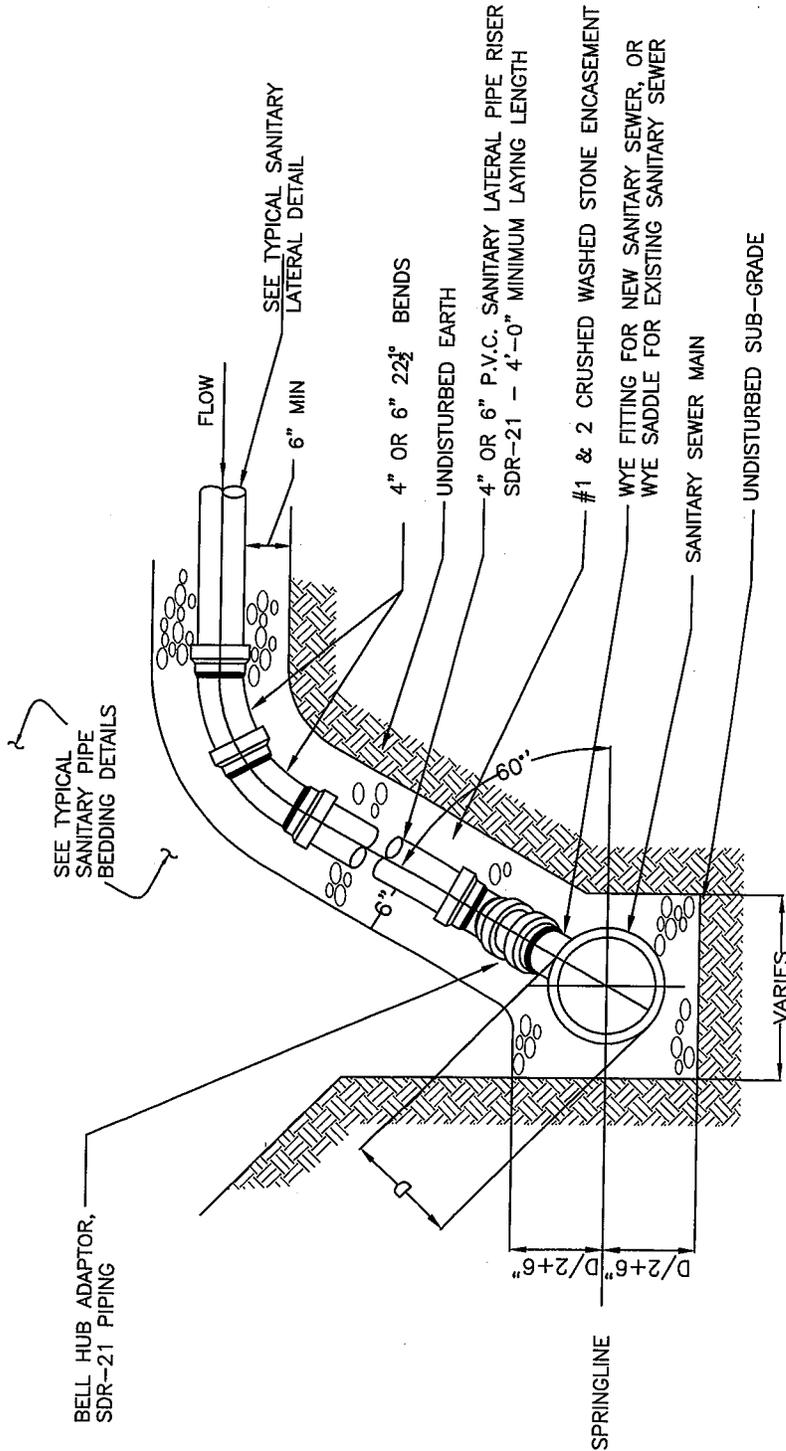
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NOTES:

1. APPLIES IN CASES WHERE RISER IS LESS THAN OR EQUAL TO FIVE (5) FEET IN HEIGHT.
2. CLEANOUT ASSEMBLY TO BE INSTALLED AT R.O.W.

3. All connects made by gasketed joints. Glued fittings are unacceptable.

SANITARY LATERAL RISER DETAIL

APPENDIX: LL (2 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

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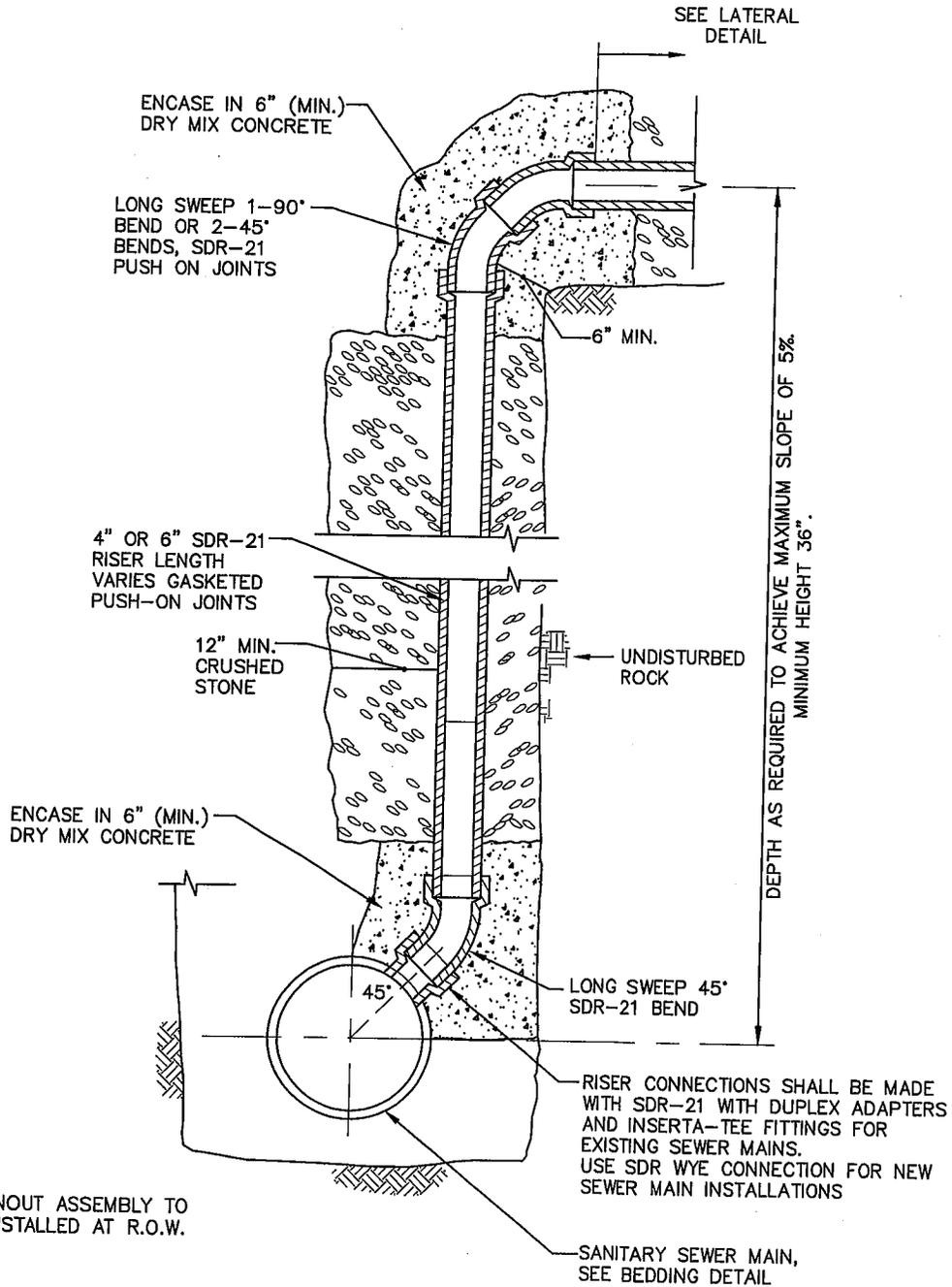
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LATERAL RISER (DEEP SEWER) CONNECTION

APPENDIX: MM

DATE: APRIL 2017

SCALE: N.T.S.

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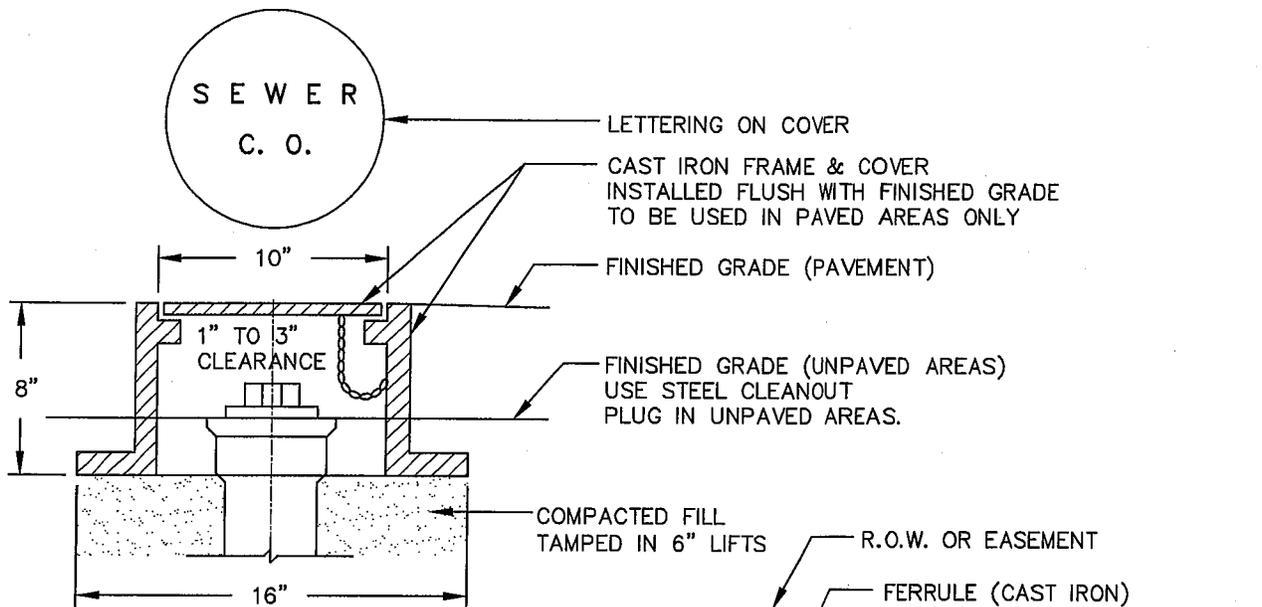
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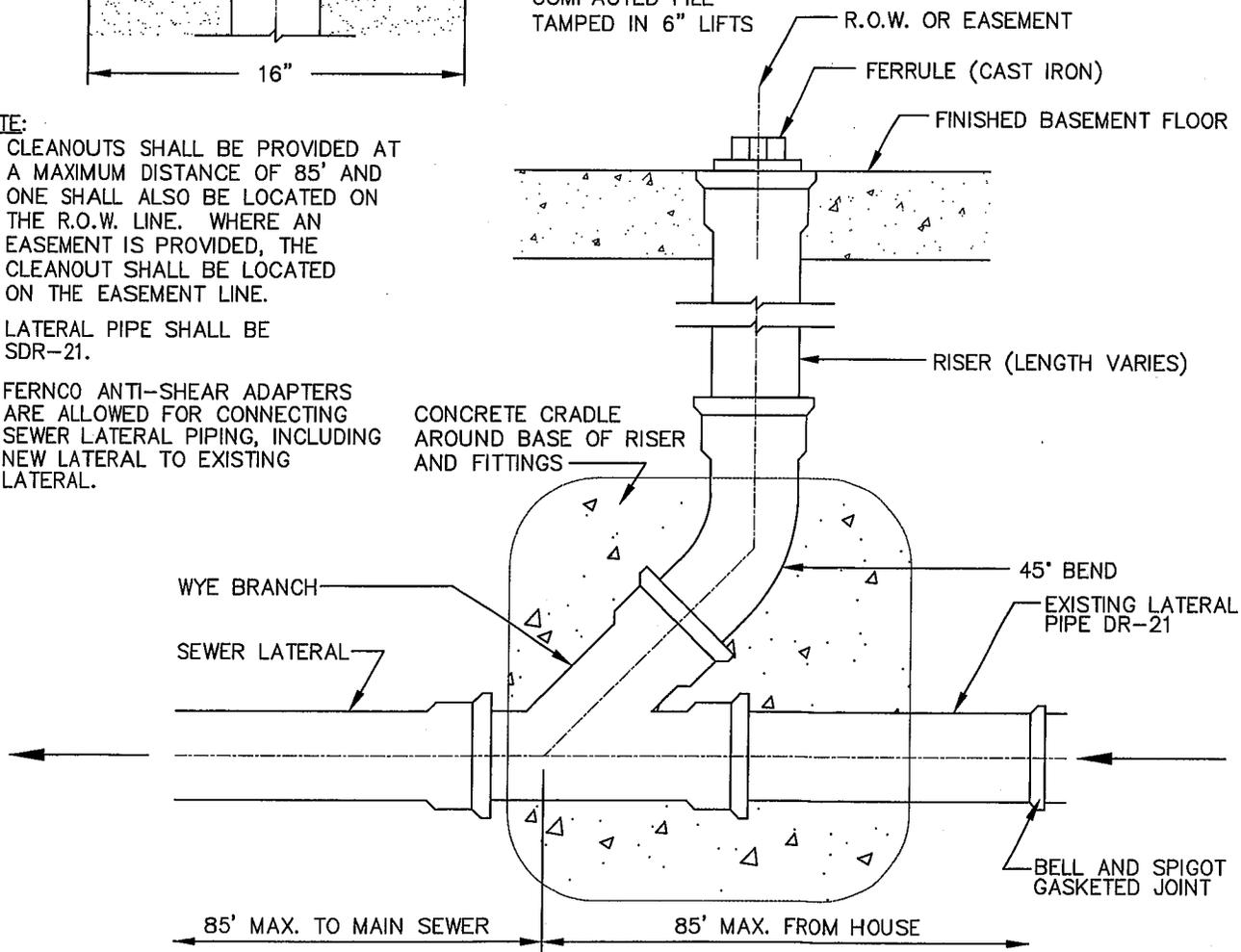
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NOTE:

1. CLEANOUTS SHALL BE PROVIDED AT A MAXIMUM DISTANCE OF 85' AND ONE SHALL ALSO BE LOCATED ON THE R.O.W. LINE. WHERE AN EASEMENT IS PROVIDED, THE CLEANOUT SHALL BE LOCATED ON THE EASEMENT LINE.
2. LATERAL PIPE SHALL BE SDR-21.
3. FERNCO ANTI-SHEAR ADAPTERS ARE ALLOWED FOR CONNECTING SEWER LATERAL PIPING, INCLUDING NEW LATERAL TO EXISTING LATERAL.



SANITARY CLEANOUT DETAIL

APPENDIX: NN

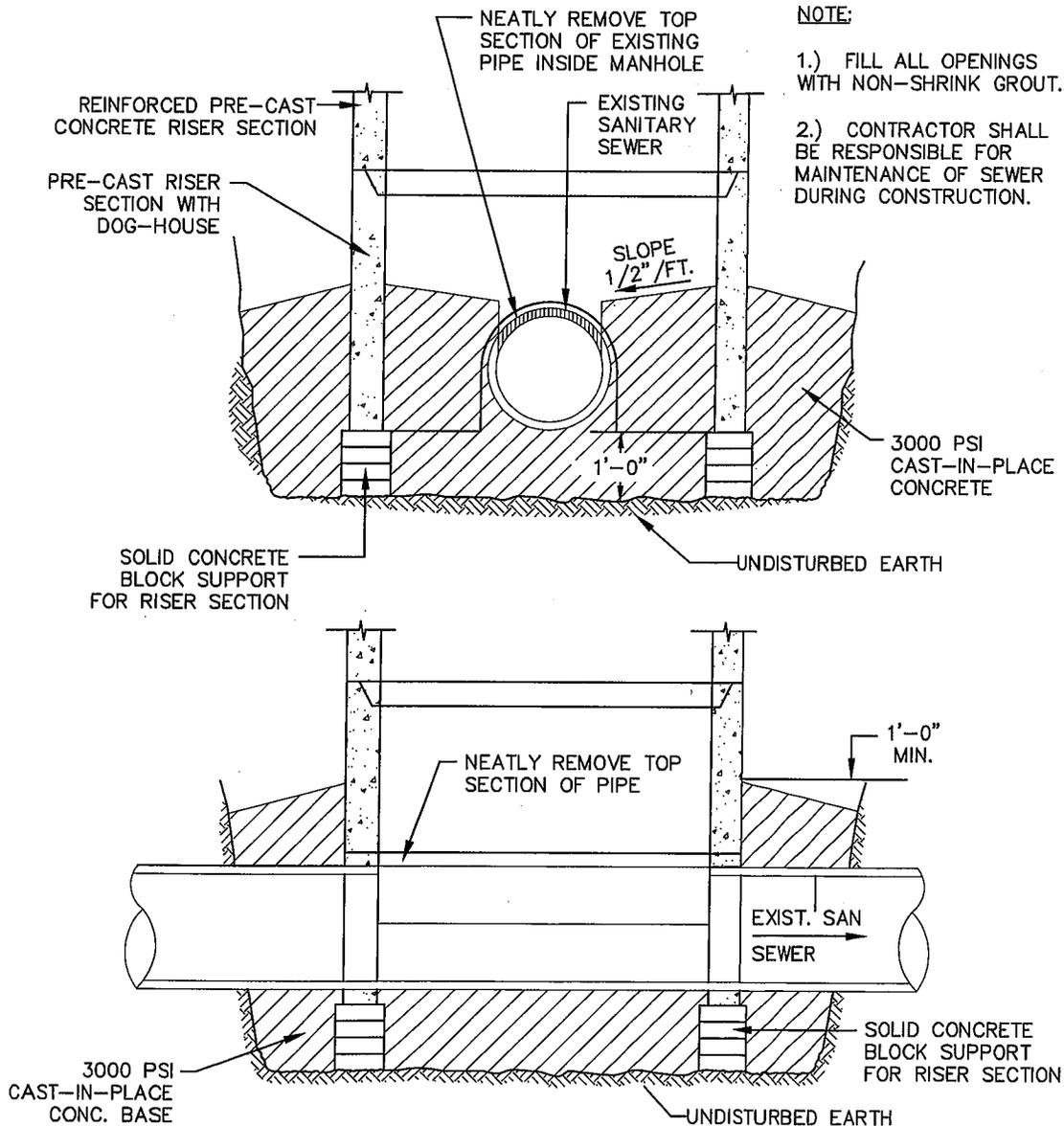
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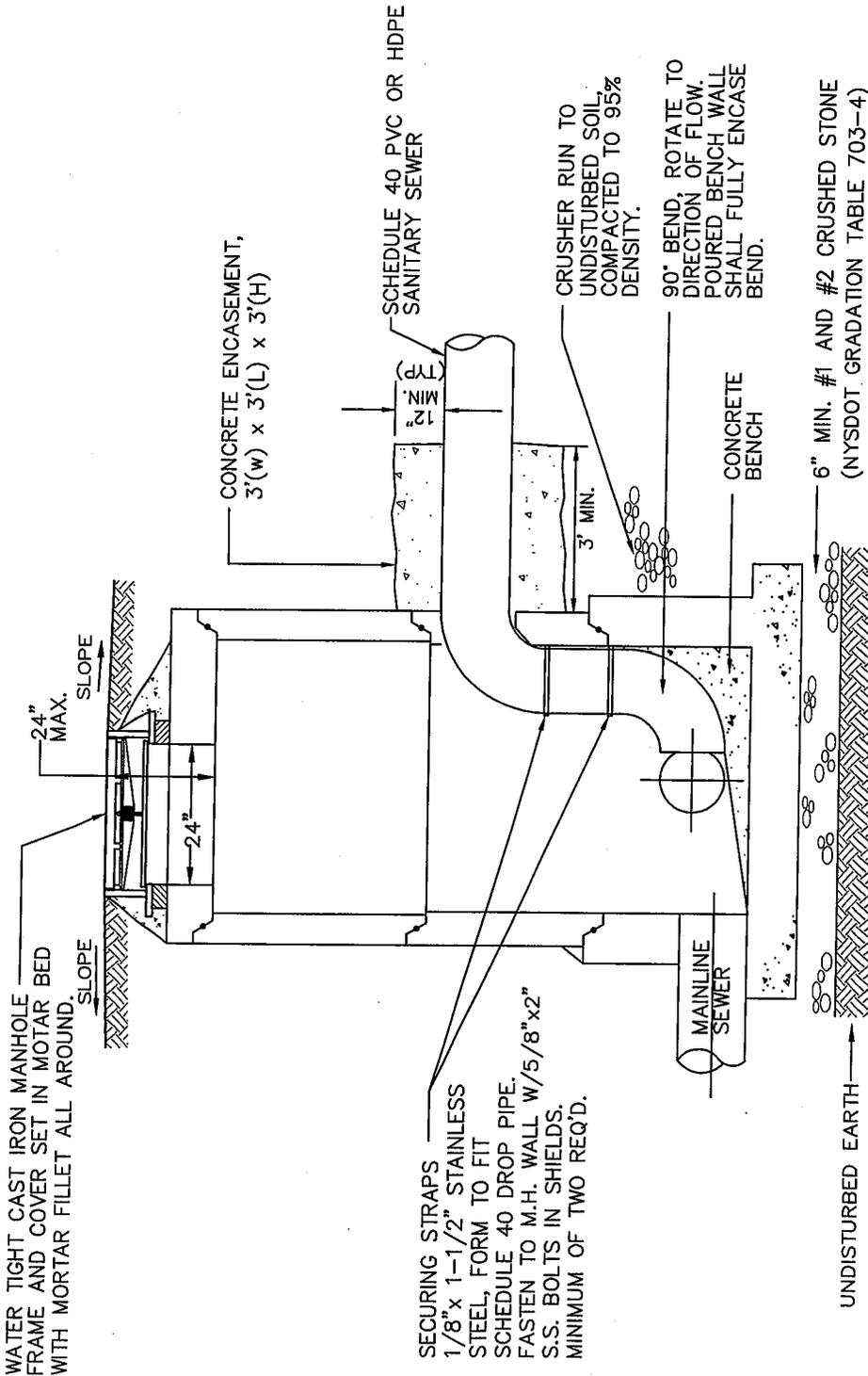
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MANHOLE CONNECTION AT EXISTING SANITARY SEWER

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- UNDISTURBED EARTH
- NOTES: 1. ALL FITTINGS TO BE CONSTRUCTED OF SCHEDULE 40 PVC PIPE.
 2. MIN. REQUIRED DIAMETER OF MANHOLE SHALL INCREASE BY 1FT FOR INSIDE DROP CONNECTIONS.
 3. SEE SANITARY MANHOLE FOR ALL OTHER CONNECTION FEATURES NOT SHOWN.

FORCEMAIN CONNECTION

SANITARY SEWER MANHOLE DETAIL

APPENDIX: OO (2 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

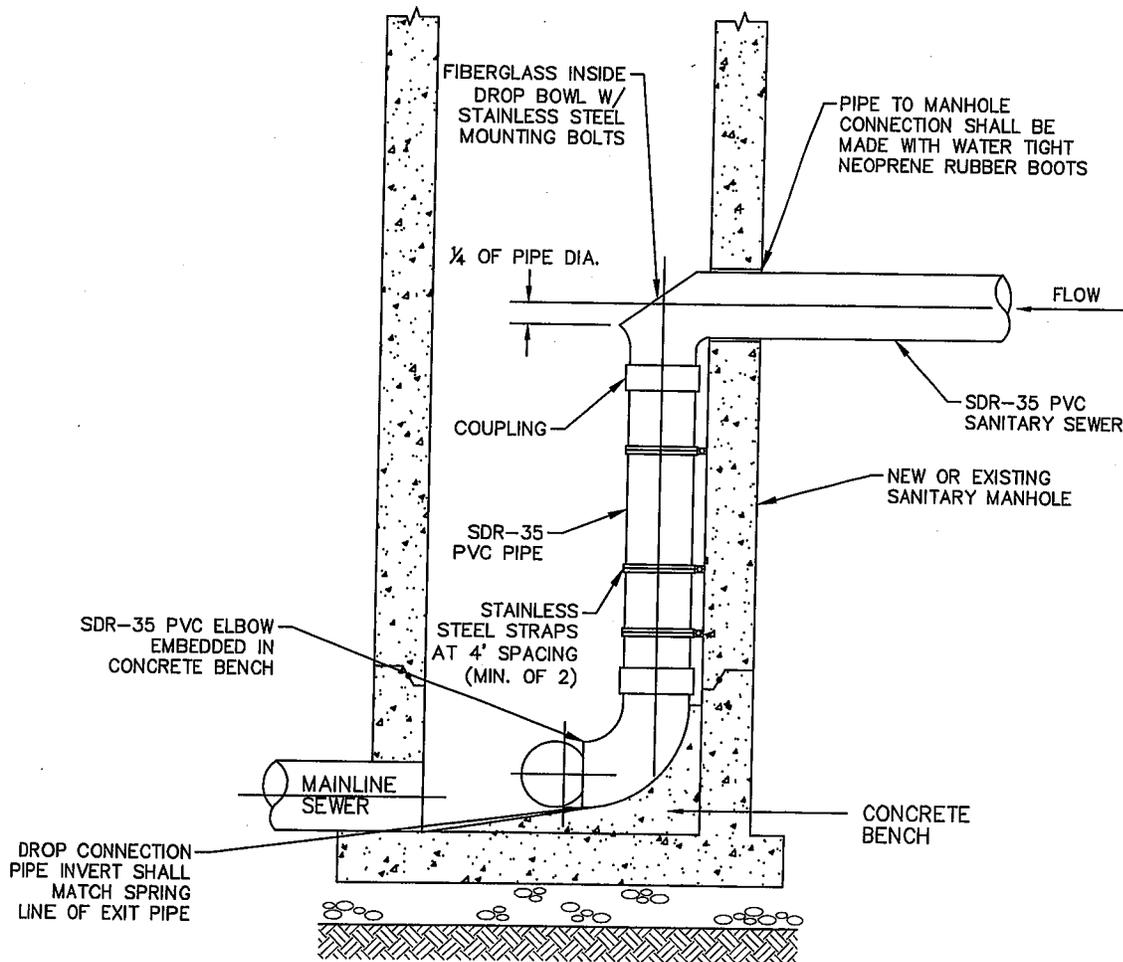
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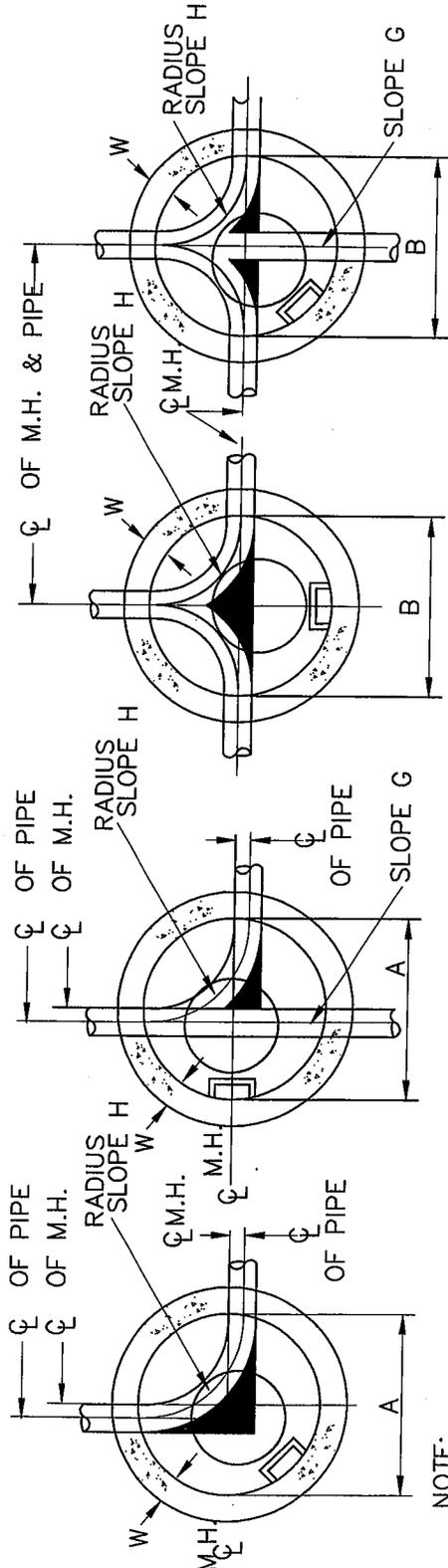
NOTES:

1. ALL FITTINGS TO BE CONSTRUCTED OF SDR-35 PVC PIPE.
2. MIN. 5' DIAMETER MANHOLE REQUIRED FOR INSIDE DROP CONNECTIONS.
3. SEE SANITARY MANHOLE DETAIL FOR ALL OTHER CONNECTION DETAILS.

INSIDE DROP CONNECTION

SANITARY SEWER MANHOLE DETAIL

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NOTE: BENCH CUT DOWN TO CL OF PIPE IN ALL SHADED AREAS.

M.H. BARREL WALL THICKNESS		
A	4'-0"	5'-0"
B	-	5'-0"
W	5"	6"

SEWER PIPE DIA.	8"	10"	12"	18"
MANHOLE DIA. A	4'-0"	4'-0"	4'-0"	5'-0"
B	5'-0"	5'-0"	5'-0"	5'-0"
INVERT DIFF. G	0.1'	0.1'	0.1'	0.05'
H	0.3'	0.3'	0.2'	0.2'

NOTE: WHERE INLET AND OUTLET PIPES ARE OF DIFFERENT DIAMETERS THE SLOPE MUST NOT BE LESS THAN THE DIFFERENCE IN DIAMETER OR GREATER THAN 9"

TYPICAL MANHOLE BENDS DETAIL

APPENDIX: QQ

DATE: APRIL 2017

SCALE: N.T.S.

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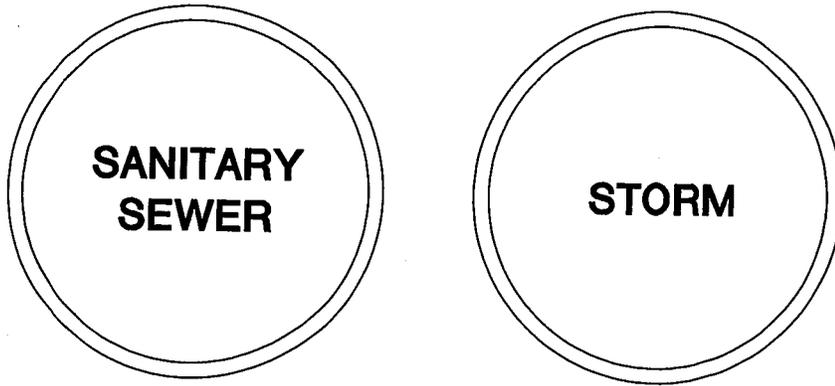
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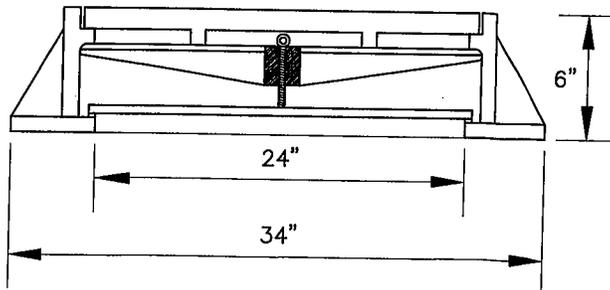
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LETTERS NOT LESS THAN TWO (2) INCHES HIGH SHALL BE STAMPED OR CAST INTO ALL SANITARY AND STORM MANHOLE COVERS AS TO BE PLAINLY VISIBLE.

EAST JORDAN CASTING No. 1310 SET CAST IRON MANHOLE FRAME AND COVER SET IN MORTOR BED WITH MORTOR FILLET ALL AROUND.

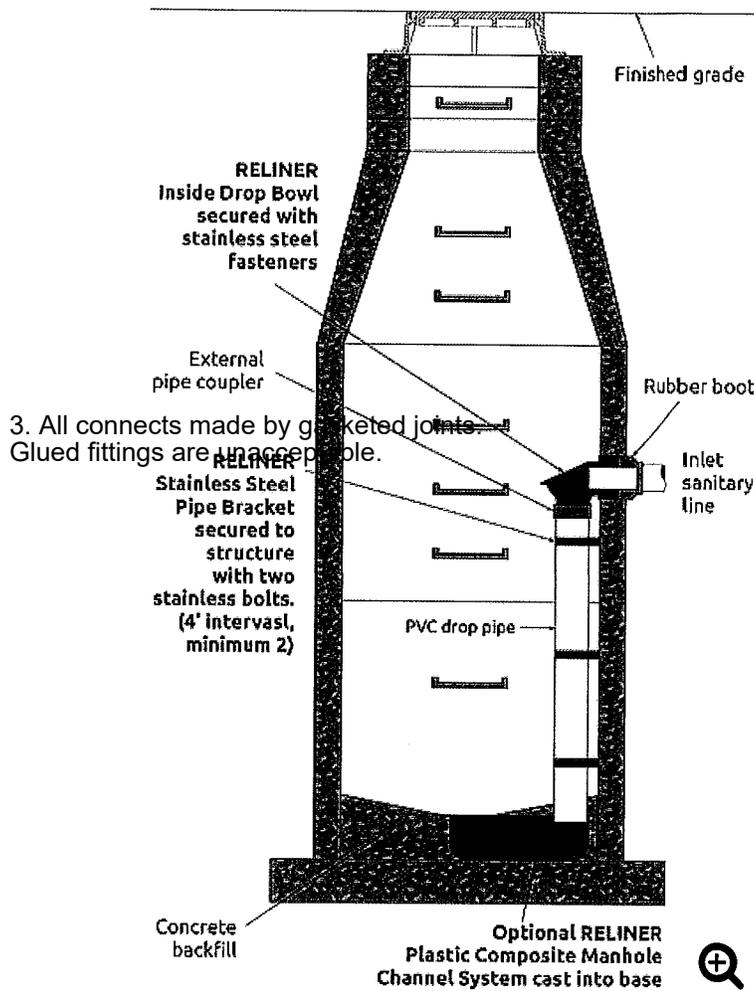
EAST JORDAN CASTING No. 1890 FOR WATERTIGHT MANHOLE FRAME AS REQUIRED BY THE DIRECTOR OF PUBLIC WORKS.



MANHOLE FRAME AND COVER DETAIL

RELINER® / Duran Inc. is a Connecticut based manufacturer dedicated to providing simple, cost effective, durable products for use in the wastewater and construction industries. Our patented product lines include:

- The RELINER® Inside Drop System, consisting of a fiberglass Drop Bowl and Stainless Steel Pipe Support Brackets.
- The RELINER® Modular Manhole Invert Channel System



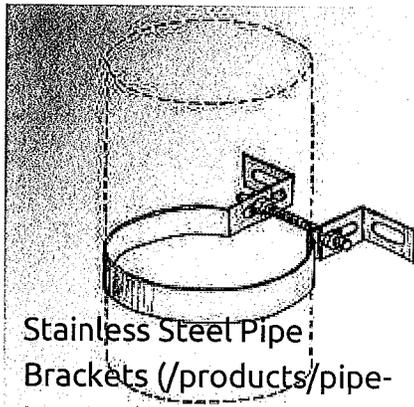
Typical installation detail showing an inside manhole drop using a Drop Bowl and Pipe Supports with the optional Channel System.



Drop Bowl
(/products/inside-drop-bowl)

Controls the drop of influent inside a sanitary manhole or wet well.

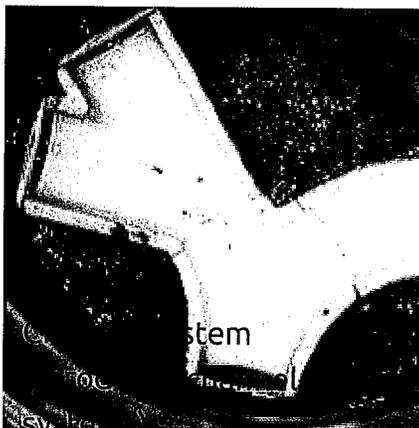
[READ MORE \(/PRODUCTS/INSIDE-DROP-BOWL\)](#)



Stainless Steel Pipe Brackets
(/products/pipe-brackets)

Securely attach pipes to manhole and structure walls. Type 304 or 316 Stainless.

[READ MORE \(/PRODUCTS/PIPE-BRACKET\)](#)



Channel System
(/products/channel-systems)

Modular fiberglass invert channels for improved manhole hydraulics. Reduce maintenance

[READ MORE \(/PRODUCTS/CHANNEL-SYSTEMS\)](#)

- RELINER® products are proudly made in the USA and are available at waterworks suppliers throughout the United States and Canada. Individual direct orders are accepted by email fax or phone.
- RELINER® products have found widespread acceptance throughout the United States and Canada as the preferred solution to sewer manhole and lift station drops also for manhole invert channel rehabilitation and construction.
- RELINER® Stainless Steel Pipe Support Brackets are extensively used throughout the construction industry to securely mount pipes of almost any size to structure walls.

[LEARN ABOUT OUR PRODUCTS \(NODE/10\)](#) [PARTS / PRICING \(NODE/8\)](#)

[CONTACT US \(NODE/11\)](#)

[ORDER FORM \(NODE/23\)](#)

ANNOUNCEMENTS

Visit our booth at PWX 2018, August 26-29 at the Kansas City Convention Center. We will be exhibiting with Best Management Products in Booth 635.

Products

[Inside Drop Bowl \(/products/inside-drop-bowl\)](#)
[Pipe Brackets \(/products/pipe-brackets\)](#)
[Force Line Hood \(/products/force-line-hood\)](#)
[Channel Systems \(/products/channel-systems\)](#)
[Wet Well Inside Drops \(/products/wet-well-inside-drops\)](#)

All of our products are proudly made in the USA of durable marine grade fiberglass and stainless steel.

U.S. PATENTS # 5553973 & 6074130
 CANADIAN PATENTS # 2176074 & 2269565
 Additional Patents Pending

Information

[Parts / Pricing / Submittals / CAD / PDF \(/parts-pricing-submittals-cad-pdf\)](#)
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 800-508-6001
 860-434-0277
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[info@reliner.com \(mailto:info@reliner.com\)](mailto:info@reliner.com)

APPENDIX: RR

DATE: APRIL 2017

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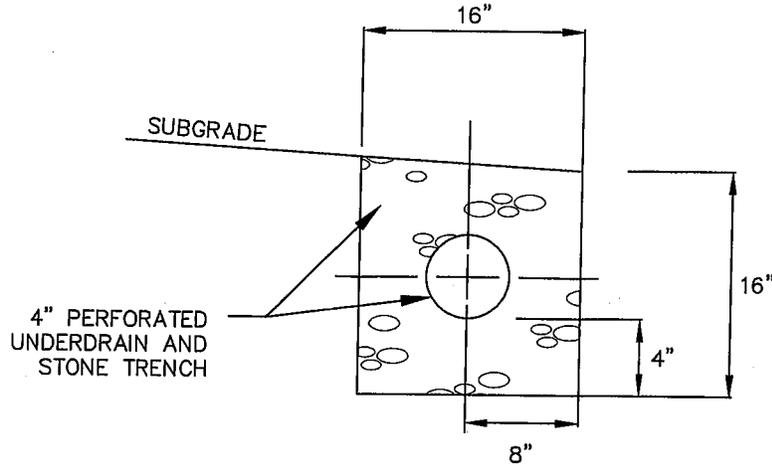
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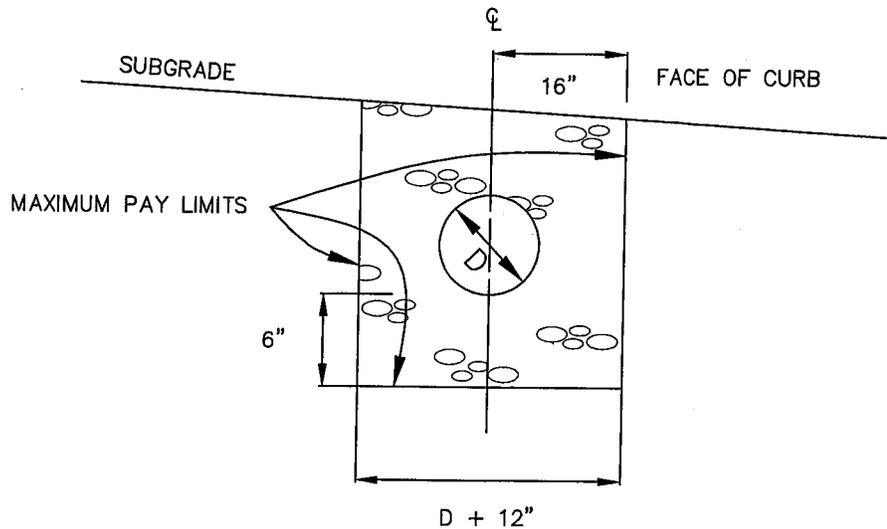
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PERFORATED UNDERDRAIN AND STONE TRENCH

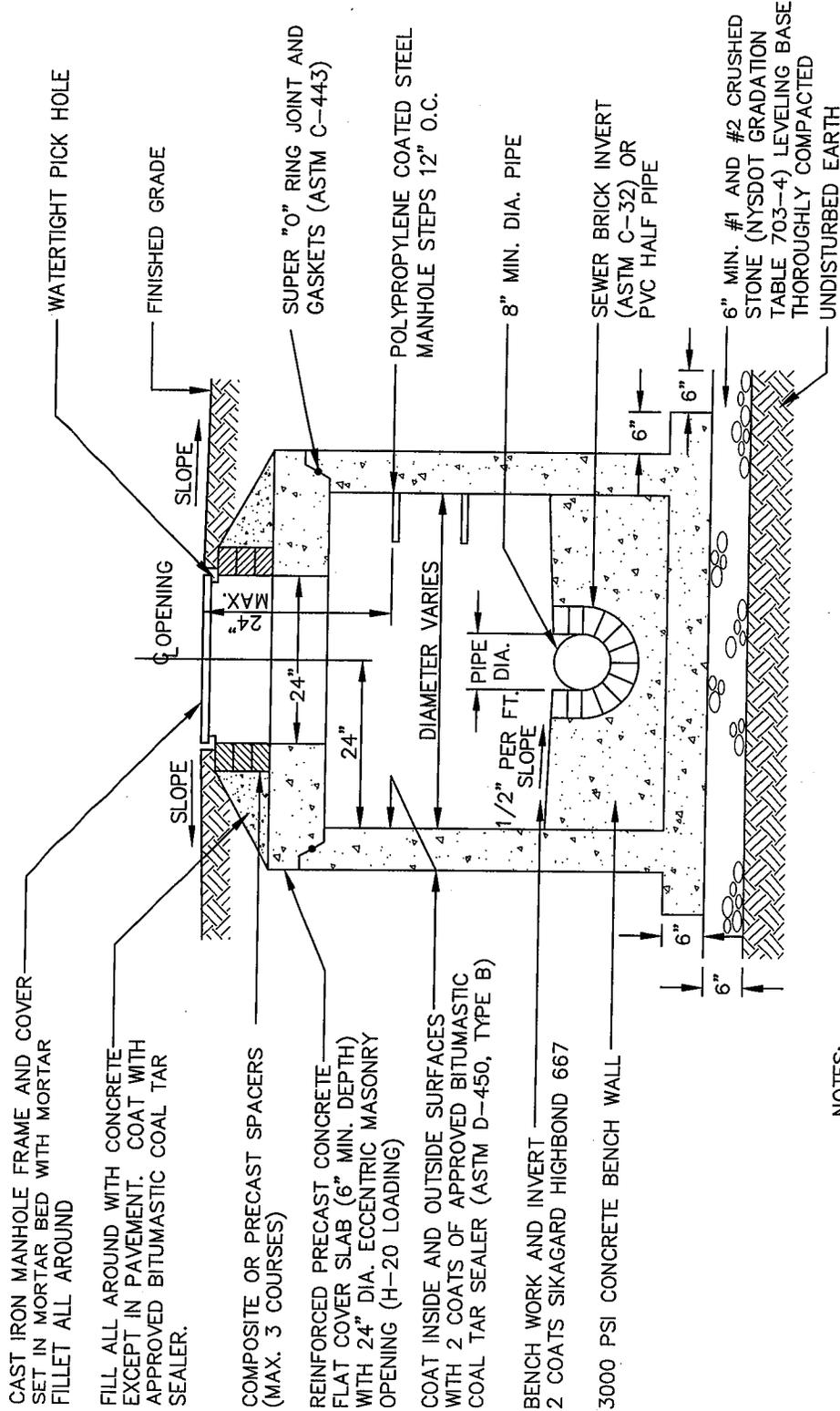


NOTES:

1. UPSTREAM END OF 4" UNDERDRAIN SHALL BE PLUGGED WITH APPROPRIATE CAP AND SHALL NOT CONNECT TO UPSTREAM D.I.
2. SEE DRAINAGE TABLE FOR LOCATIONS OF ALL DRAINAGE RUNS.

BEDDING BACKFILL DETAIL FOR COMBINATION STORM SEWER & UNDERDRAIN

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NOTES:

1. RISER AND COVER SLAB JOINTS AND LIFT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND EALED WITH 2 COATS OF APPROVED BITUMASTIC COAL TAR SEALER.
2. BACKFILL SHALL BE SELECT GRANULAR MATERIAL (NYS DOT SPEC. 230-2.02) IF OUTSIDE PAVEMENT. IF IN PAVEMENT, BACKFILL SHALL BE CRUSHER RUN STONE (NYS DOT SPEC. 304-2.02, TYPE 2)

SHALLOW SEWER MANHOLE

APPENDIX: SS (2 of 2)

DATE: APRIL 2017

SCALE: N.T.S.

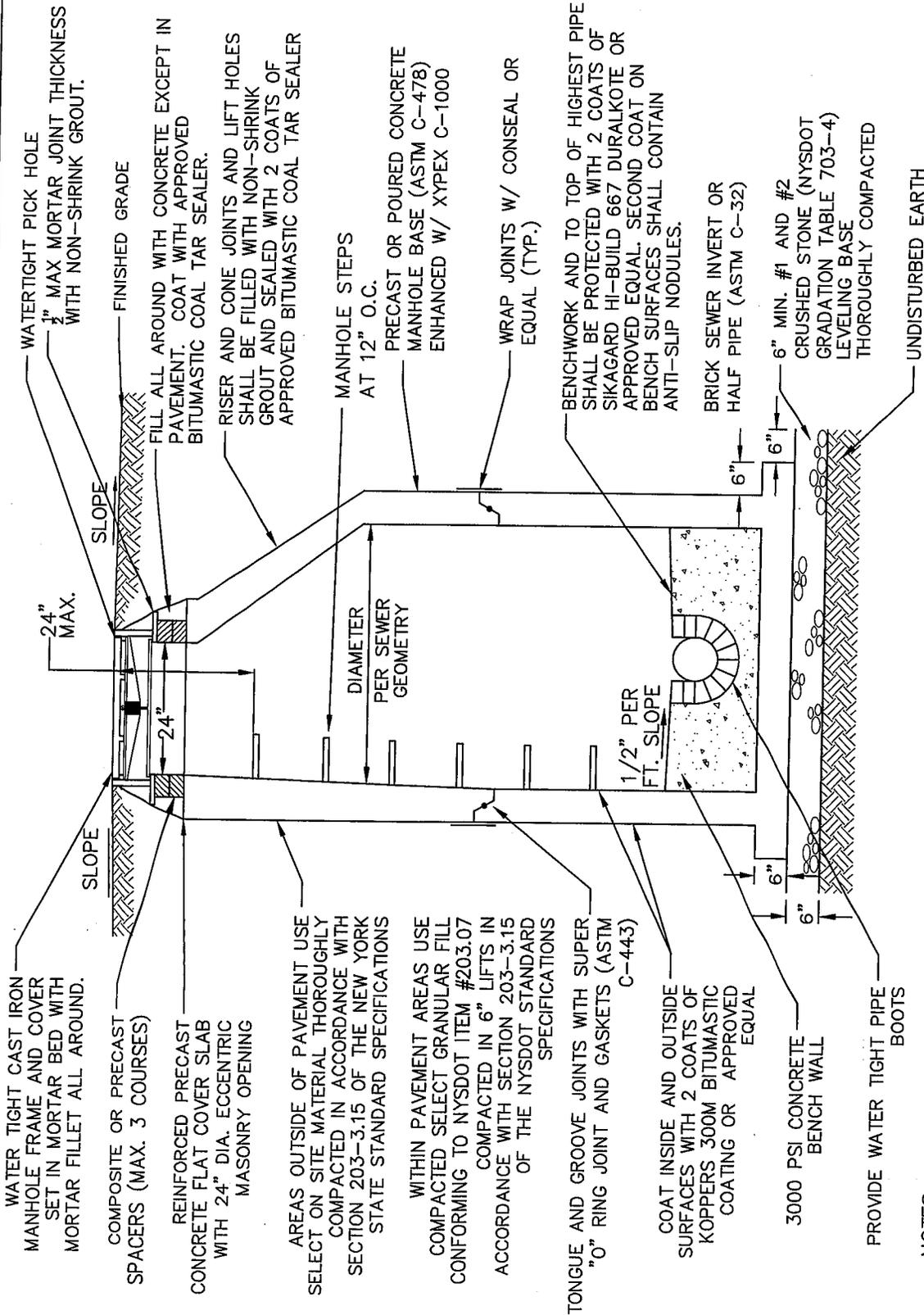
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NOTES:

1. ECCENTRIC CONE RISER SECTIONS CAN BE USED WHEN MANHOLE DEPTH IS GREATER THAN TWELVE (12) FEET.
2. MANHOLE HEIGHT UP TO 12FT IN DEPTH SHALL BE A MINIMUM DIAMETER OF 4FT.
3. MANHOLE HEIGHT GREATER THAN 12FT SHALL BE A MINIMUM DIAMETER OF 5FT.
4. MANHOLES WITH INSIDE DROP CONNECTION, ADD MINIMUM OF 1FT TO INSIDE DIAMETER.

DEEP SEWER MANHOLE DETAIL

APPENDIX: TT

DATE: APRIL 2017

SCALE: N.T.S.

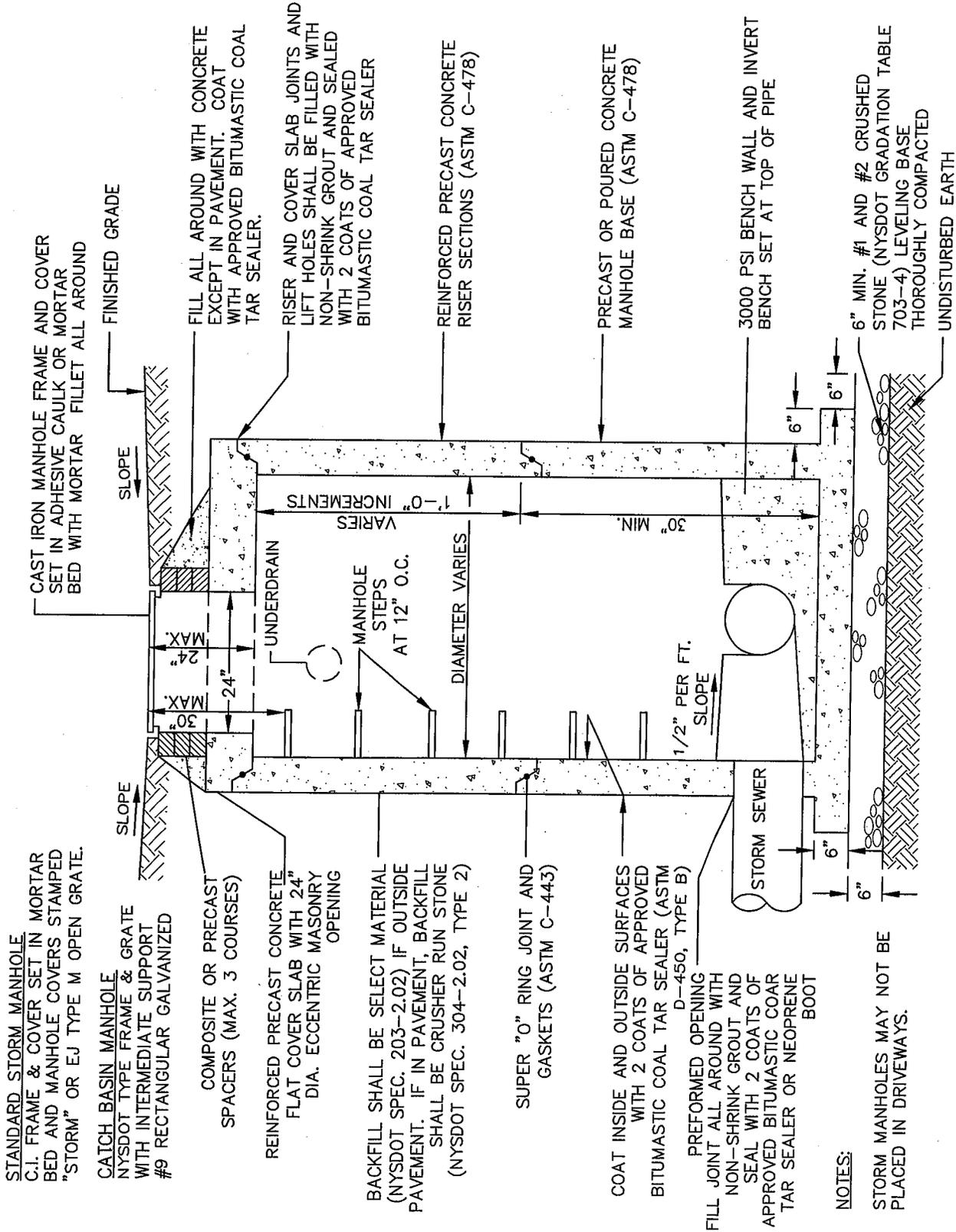
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STORM SEWER MANHOLE AND CATCH BASIN MANHOLE

APPENDIX: UU

DATE: APRIL 2017

SCALE: N.T.S.

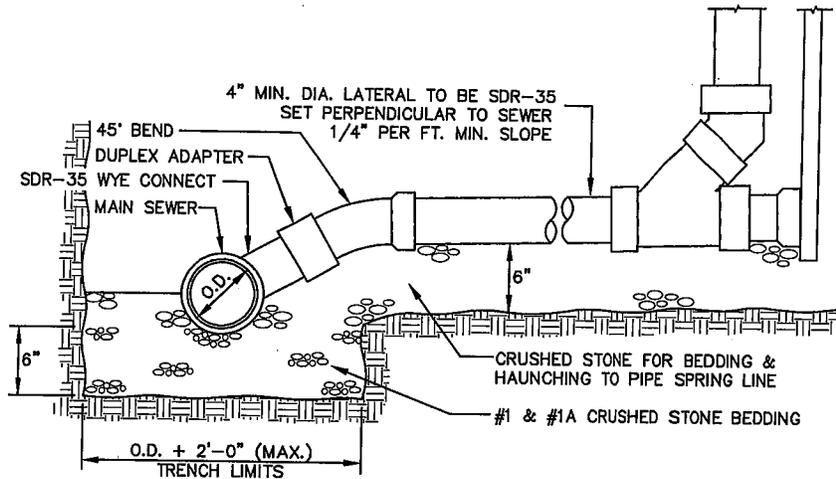
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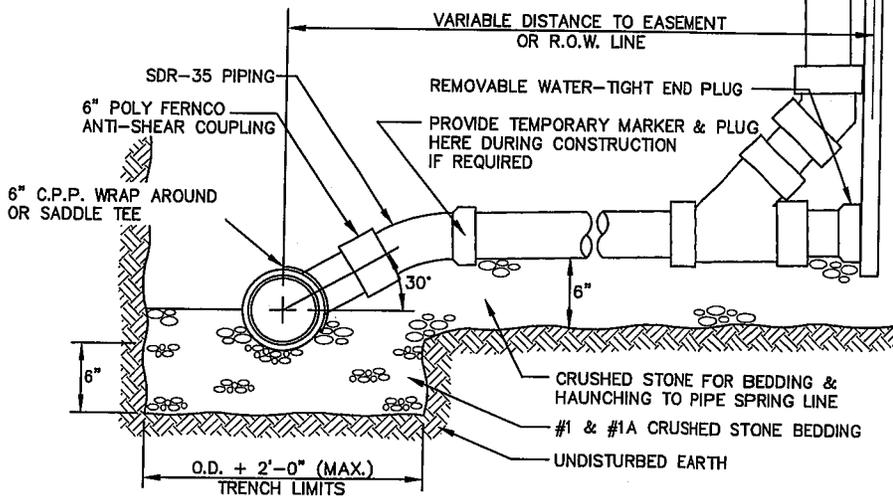
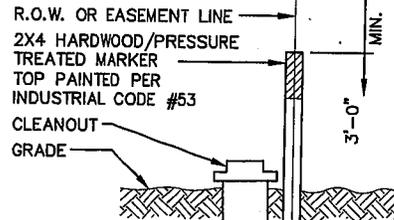
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PVC PIPE

NOTE:

1. ALL LATERAL PIPING TO BE SDR-35
2. ALL WYE CONNECTIONS TO BE SAME MATERIAL AS MAIN LINE PIPE



CORRUGATED PIPE

NOTE:

1. A 6"-7" MAX. ROUND HOLE SHALL BE DRILLED INTO PIPE AND 6" TEE POSITIONED OVER IT ALIGNING HOLES.

STORM LATERAL CONNECTION

APPENDIX: VV

DATE: APRIL 2017

SCALE: N.T.S.

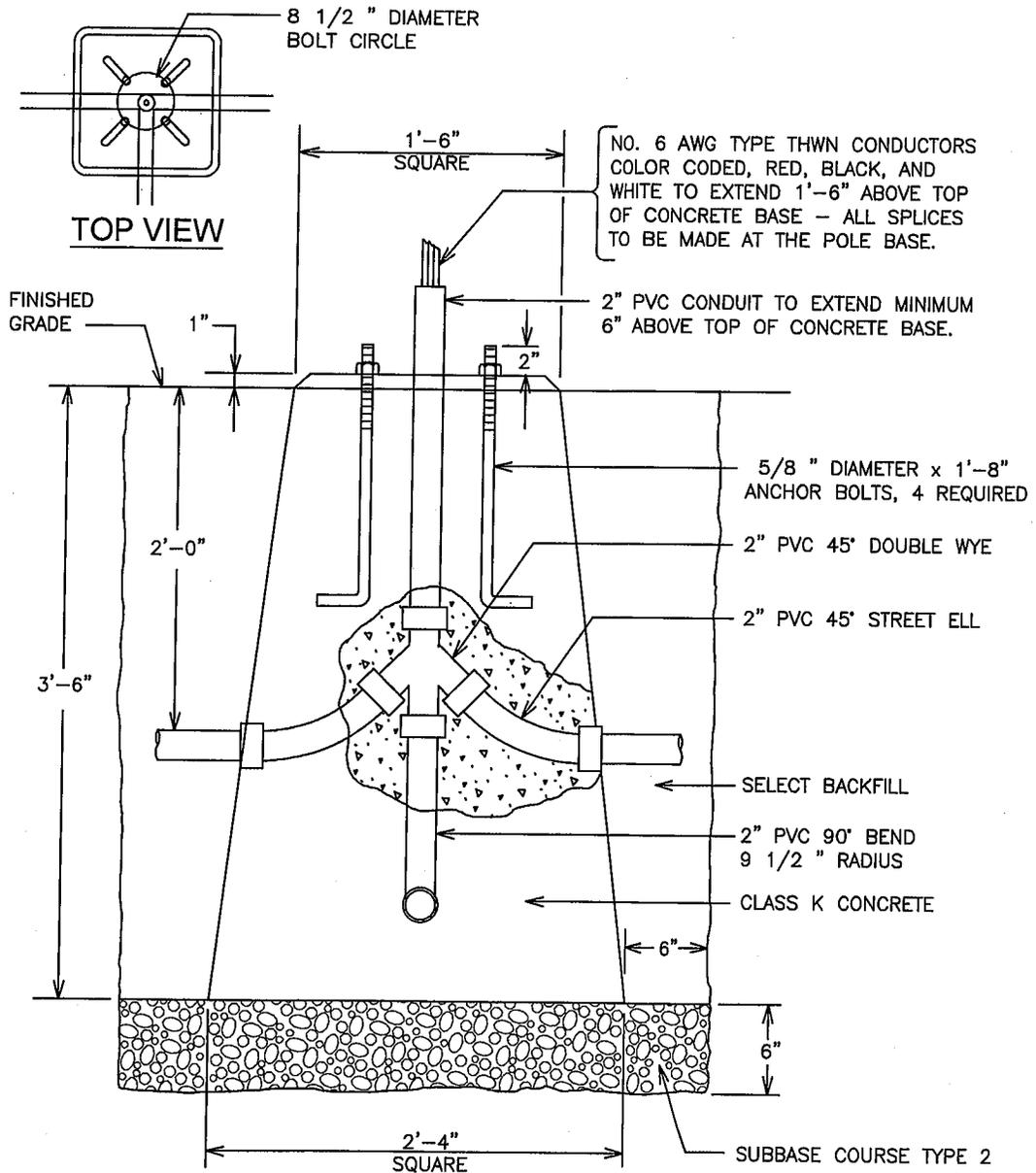
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NOTES:

1. USE ANY COMBINATION OF OPENINGS NECESSARY FOR ELECTRICAL HOOKUP, CAP OFF ALL REMAINING CONDUIT.
2. ALL CONDUIT CONNECTIONS IN BASE, INCLUDING CROSSOVERS, TO HAVE DOUBLE WYE TYPE OPENINGS.
3. CONDUIT TO MEET NYS ELECTRIC CODE MINIMUM DIAMETER OF 1-1/2" CROSSOVERS, TO HAVE DOUBLE WYE TYPE OPENINGS.

FIBERGLASS POLE BASE PRECAST FOUNDATION

APPENDIX: WW

DATE: APRIL 2017

SCALE: N.T.S.

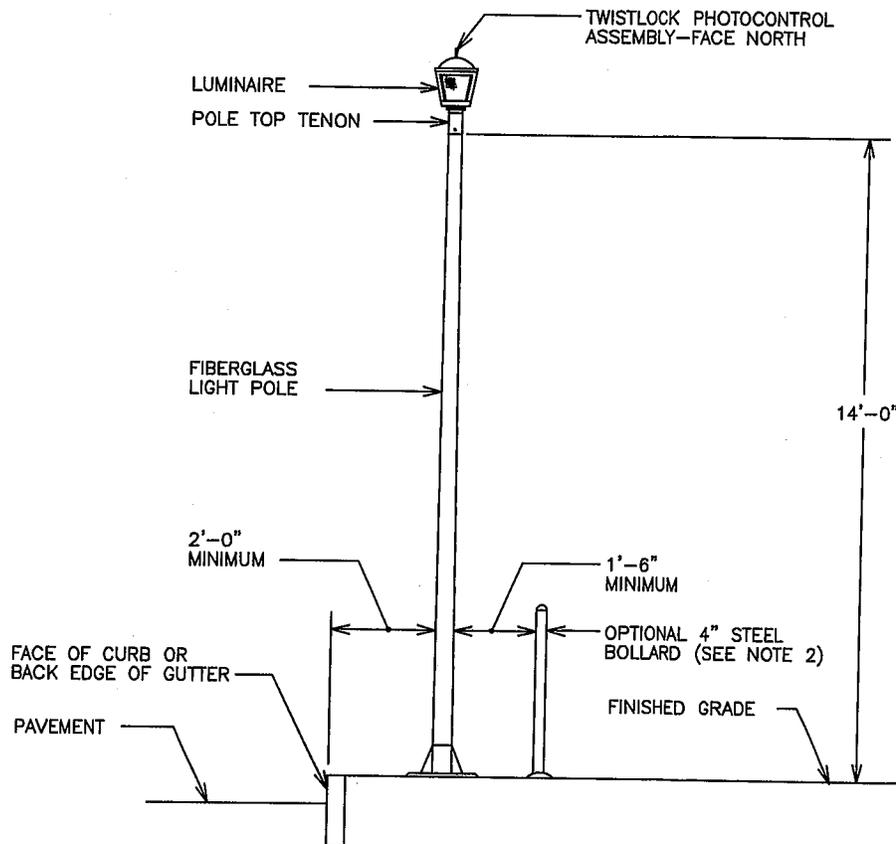
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NOTES:

1. PRISMATIC REFRACTOR HAS A "STREET SIDE" AND A "HOUSE SIDE", AND MARKINGS INDICATING LOCATION OF RIBS. ORIENT REFRACTOR PROPERLY IN LUMINAIRE WHEN INSTALLED ON THE POLE.
2. BOLLARDS WILL BE INSTALLED ONLY AS INDICATED ON THE PLANS, BOLLARDS ARE NOT NORMALLY INSTALLED WITH LIGHT POLES. NUMBER OF BOLLARDS TO BE INSTALLED WILL BE FROM 1 TO 4, AS INDICATED ON THE PLANS.
3. LIGHT POLES SHALL BE SHAKESPEARE ROUND TAPERED COMPOSITE POLE. FIXTURE SHALL BE MCGRAW EDISON TRADITIONAL LED BULB.

FIBERGLASS LIGHT POLE AND LUMINAIRE INSTALLATION

APPENDIX: XX

DATE: APRIL 2017

SCALE: N.T.S.

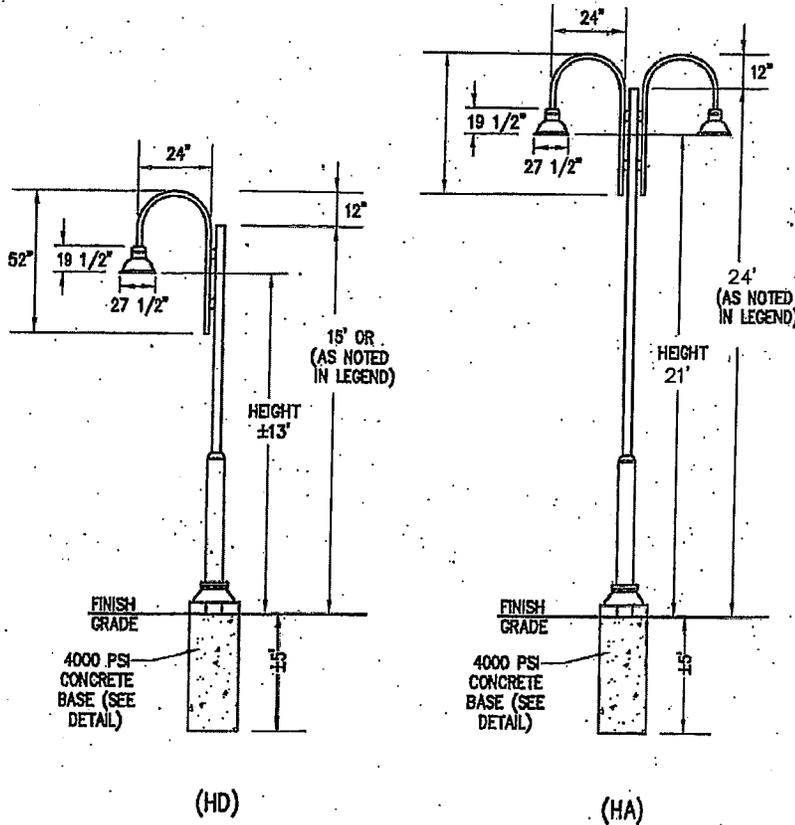
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LUMINAIRE SCHEDULE						
TYPE	QTY	DESCRIPTION				DESIGN MAKE
HA	2	50 WATT LED WITH HORIZONTAL LAMP, TYPE 2 CUT OFF DISTRIBUTION, AND FLAT GLASS LENS. INSTALL ON 24' POLE WITH 5" BASE. BLACK IN COLOR.	LED	50	120	LUMEC CATALOG NO. DMS50-50 LED-SG3 POLE CATALOG NO. SSMBV-15-PH7/120-PS-GFI-BKT(24') BRACKET CATALOG NO. IF
HD	5	24 WATT LED WITH HORIZONTAL LAMP, TYPE 3 CUT OFF DISTRIBUTION, HOUSE SIDE SHIELD W/ FLAT GLASS LENS. INSTALL ON 15' POLE WITH 5" BASE. BLACK IN COLOR.	LED	24	120	LUMEC CATALOG NO. DMS50-24 LED-SG3 POLE CATALOG NO. SSMBV-15-PH7/120-PS-GFI-BKT(15') BRACKET CATALOG NO. IF

METAL LIGHT POLE AND LUMINAIRE SCHEDULE