

- NOTES:**
- LOCATIONS AND ELEVATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE REFERENCED PLAN AND SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. H.W. MOORE ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES INACCURATELY SHOWN OR OMITTED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY DEPARTMENT SHALL BE NOTIFIED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHALL BE VERIFIED IN THE FIELD. CALL THE BWSIC, (617) 887-7000 AND DIS-SAFE CALL CENTER, (888) 344-7233, 72 HOURS (3 WORKING DAYS) PRIOR TO EXCAVATION.
  - ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO BWSIC REQUIREMENTS AND ALL OTHER APPLICABLE MUNICIPAL REGULATIONS.
  - ALL DISTURBANCES WITHIN THE TRAVELED WAYS SHALL CONFORM TO CITY AND BWSIC STANDARDS.
  - THIS PLAN HAS BEEN PREPARED FOR APPROVAL OF THE WATER, DRAIN AND SEWER CONNECTIONS TO THE BWSIC FACILITIES. IT IS UNDERSTOOD THAT THE RESPONSIBILITY OF OWNERSHIP AND MAINTENANCE OF THE SEWER CONNECTIONS ON PRIVATE PROPERTY AND/OR PUBLIC WAYS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND/OR OWNERS. IT IS ALSO UNDERSTOOD THAT THE WATER CONNECTIONS ON PRIVATE PROPERTY INCLUDING PRIVATE WAYS ARE ALSO THE RESPONSIBILITY OF THE DEVELOPER AND/OR OWNERS. IF THE CONNECTIONS CROSS, OR ARE NEAR INDIVIDUAL PROPERTY LINES, PROVISIONS MUST BE MADE TO ALLOW EACH OWNER TO MAINTAIN OR RECONSTRUCT THEIR RESPECTIVE CONNECTIONS. THIS FACT MUST BE INCORPORATED INTO ANY PURCHASE AND SALES AGREEMENT AND DEEDS RELATED TO THE TRANSFER OF OWNERSHIP OF THE PROPERTIES.
  - THE PROPOSED BUILDING CONNECTIONS (BY PLUMBER) SHALL BE 10' OUTSIDE THE FOUNDATION WALL.
  - SITE CONTRACTOR TO PROVIDE ALL EXCAVATION, INSTALLATION, BACK FILLING, PAVEMENT PATCHING, ETC. FOR THE INSTALLATION OF UNDERGROUND GAS, ELECTRIC, TELEPHONE, FIRE ALARM, WATER, SEWER, DRAIN AND SIMILAR SERVICES.
  - IF EXISTING ABANDONED BWSIC SERVICES ARE ENCOUNTERED THEY SHALL BE CUT AND CAPPED AT THE MAIN PER BWSIC STANDARDS.
  - THE SEWER GRAVITY PIPE SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SDR 35 CONFORMING TO ASTM STANDARD SPECIFICATIONS D3034 UNLESS OTHERWISE NOTED.
  - STORM DRAIN PIPES SHALL BE POLYVINYL CHLORIDE (PVC) PIPE SDR 35 CONFORMING TO ASTM STANDARD SPECIFICATIONS D3034.
  - CONTRACTOR IS TO OBTAIN THE ROUGH CONSTRUCTION SIGN OFF DOCUMENT FROM THE CITY OF BOSTON INSPECTORIAL SERVICES DEPARTMENT PRIOR TO FILING A GENERAL SERVICES APPLICATION WITH BWSIC.
  - CONTRACTOR WILL BE RESPONSIBLE FOR PREPARING AS-BUILT PLANS IN ACCORDANCE WITH BWSIC REQUIREMENTS.
  - CONTRACTOR TO CONFIRM THE LOCATIONS AND INVERTS OF THE EXISTING UTILITIES IN THE STREET PRIOR TO THE INSTALLATION OF NEW SERVICE CONNECTIONS. SERVICES SHALL BE FIELD VERIFIED BEFORE BEGINNING CONSTRUCTION.
  - ANY CONSTRUCTION Dewatering SHALL EMPLOY MEASURES TO FILTER OUT SEDIMENT PRIOR TO ITS DISCHARGE AND SHALL CONFORM WITH BWSIC REQUIREMENTS. CONTRACTOR TO SUBMIT A SKETCH OF THESE TO THE ARCHITECT FOR APPROVAL.

- CONTRACTOR TO EMPLOY MEASURES TO CONTROL DUST DURING CONSTRUCTION.
- RIM ELEVATIONS OF DRAINAGE STRUCTURES ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH. ADJUST ALL OTHER RIM ELEVATIONS OF EXISTING MANHOLES, WATER GATES, GAS GATES AND OTHER UTILITIES TO FINISHED GRADE WITHIN LIMITS OF SITE WORK.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM AND OTHER PRIVATE COMPANIES, AS REQUIRED.
- COORDINATE CATV, TELEPHONE AND GAS INSTALLATION WITH THE UTILITY COMPANIES.
- LOCATIONS OF 'CUT & CAPS' FOR THE EXISTING BUILDINGS UTILITY SERVICES ARE APPROXIMATE ONLY. CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING SERVICES TO BE CUT & CAPPED PRIOR TO START OF WORK.
- FIRE AND DOMESTIC SERVICES SHALL BE DUCTILE IRON, MANUFACTURED IN ACCORDANCE WITH THE REQUIREMENTS OF ANIRAWWA C151A21.51 AND SHALL BE CLASS 50. JOINTS SHALL BE INSTALLED WITH MEGALUG MECHANICAL JOINTS OR EQUAL. DUE TO CORROSIVE SOILS IN THIS AREA, ALL NEW WATER PIPE SHALL BE ZINC COATED PER BWSIC SPECIFICATIONS.
- SEE PLUMBING PLANS FOR ALL PIPE WORK WITHIN BUILDING.
- SEE ARCHITECTURAL PLANS FOR COMPONENTS OF EXISTING BUILDING TO BE DEMOLISHED AND/OR SALVAGED.
- THE RIM ELEVATIONS OF ALL UTILITY STRUCTURES WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED TO FINISHED GRADE.
- CONTRACTOR TO SAWCUT EXISTING PAVEMENTS FOR PROPOSED UTILITY TRENCHES.

- REFERENCES:**
- EXISTING CONDITIONS, PROPERTY LINES, UTILITIES AND GRADES TAKEN FROM A PLAN TITLED 'EXISTING CONDITIONS PLAN LOCATED AT 105 FIRST AVENUE CHARLESTOWN, MASSACHUSETTS' DATED OCTOBER 2, 2014, PREPARED BY GEO CONSULTING. THIS FILE WAS RECEIVED BY EMAIL ON SEPTEMBER 14, 2017 FROM BARGMANN HENDRIE + ARCHETYPE THIS PLAN WAS ISSUED BY GEO CONSULTING AS A "PROGRESS PRINT".
  - PROPOSED BUILDING REHABILITATION PLANS TAKEN FROM A FILE NAMED A101 - First Floor.dwg RECEIVED BY EMAIL ON SEPTEMBER 14, 2017 FROM BARGMANN HENDRIE + ARCHETYPE.
  - FEMA FLOOD ZONE LINE DESIGNATING ZONE 'X' AND ZONE 'SH' HAS BEEN TAKEN FROM A DIGITAL FILE OF A PLAN TITLED 'ALTANSPS LAND TITLE SURVEY, 105 FIRST AVENUE, BOSTON, (CHARLESTOWN MASS.)' AND DATED APRIL 28, 2017 AND PREPARED BY FELDMAN LAND SURVEYORS OF BOSTON, MA. DIGITAL FILE RECEIVED ON FEBRUARY 22, 2016.

**STORMWATER INFILTRATION CALCULATIONS**

**DESIGN RUNOFF VOLUME:**

USE 1/2 INCH RAINFALL EVENT PER 9-20-2017 DISCUSSION WITH BWSIC.  
PROPOSED LEASE AREA = 64,684 S.F.

RUNOFF VOLUME = 64,684 S.F. x 1/2"/12" = 2,695 C.F.

DESIGN VOLUME = 2,700 C.F.

**PROPOSED INFILTRATION SYSTEM STORAGE VOLUME**

USE 24" PERFORATED PIPE WITH CRUSHED STONE

PIPE VOLUME = 563 L.F. x II (1)<sup>3</sup> = 1,768.7 C.F.

STONE VOLUME = [(16x92x2.75) + (6x57x2.75) - 1,768.7 C.F.] x 0.3 VOIDS = 965.9 C.F.

TOTAL VOLUME PROVIDED = 1,768.7 C.F. + 965.9 C.F. = 2,734.6 C.F.

**STORMWATER STORAGE VOLUME = 2,734.6 C.F. > 2,700 C.F.**

**WATER METER INFORMATION**

EXISTING BWSIC WATER ACCOUNT No. :  
EXISTING WATER METER No. :  
EXISTING WATER METER SIZE =

**ANTICIPATED SEWAGE FLOW**

HOTEL: 230 ROOMS x 110 GPD/ROOM = 25,300 GPD  
RESTAURANT: 400 SEATS x 35 GPD/SEAT = 14,000 GPD

**ANTICIPATED SEWAGE FLOW = 39,300 GPD**

**SERVICE CONNECTION TABLE**

ITEM	QTY	BWSIC INSPECTOR/DATE
AS-BUILT PLAN		
CONDITIONS LETTER		

**OWNER**  
BOSTON REDEVELOPMENT AUTHORITY  
ONE CITY HALL SQUARE  
BOSTON, MA 02201-1007

**APPLICANT**  
CVPA CHAIN FORGE, LLC  
451 D STREET - SUITE 100  
BOSTON, MA 02210

LAND USE CODE: "C" - COMMERCIAL

**ARCHITECT**  
**bh+a**  
Bargmann Hendrie + Archetype, Inc.  
300 A Street  
Boston, MA 02210  
617 350-0450 Tel

**PROJECT NAME**  
**The Chain Forge Hotel**  
105 First Avenue  
Charlestown Navy Yard  
Charlestown MA, 02129

**CLIENT**  
**CV Properties**

451 D Street Boston MA 02210

**RESERVED FOR BWSIC USE**

**PROPERTY INFORMATION**

Account Number \_\_\_\_\_ Parcel Number \_\_\_\_\_ Ward \_\_\_\_\_  
Property Location \_\_\_\_\_ 105 FIRST AVENUE  
Project Name \_\_\_\_\_ THE CHAIN FORGE HOTEL  
Neighborhood \_\_\_\_\_ CHARLESTOWN Extended Zip Code \_\_\_\_\_ 02129  
Type of Premise \_\_\_\_\_ HOTEL / RESTAURANT

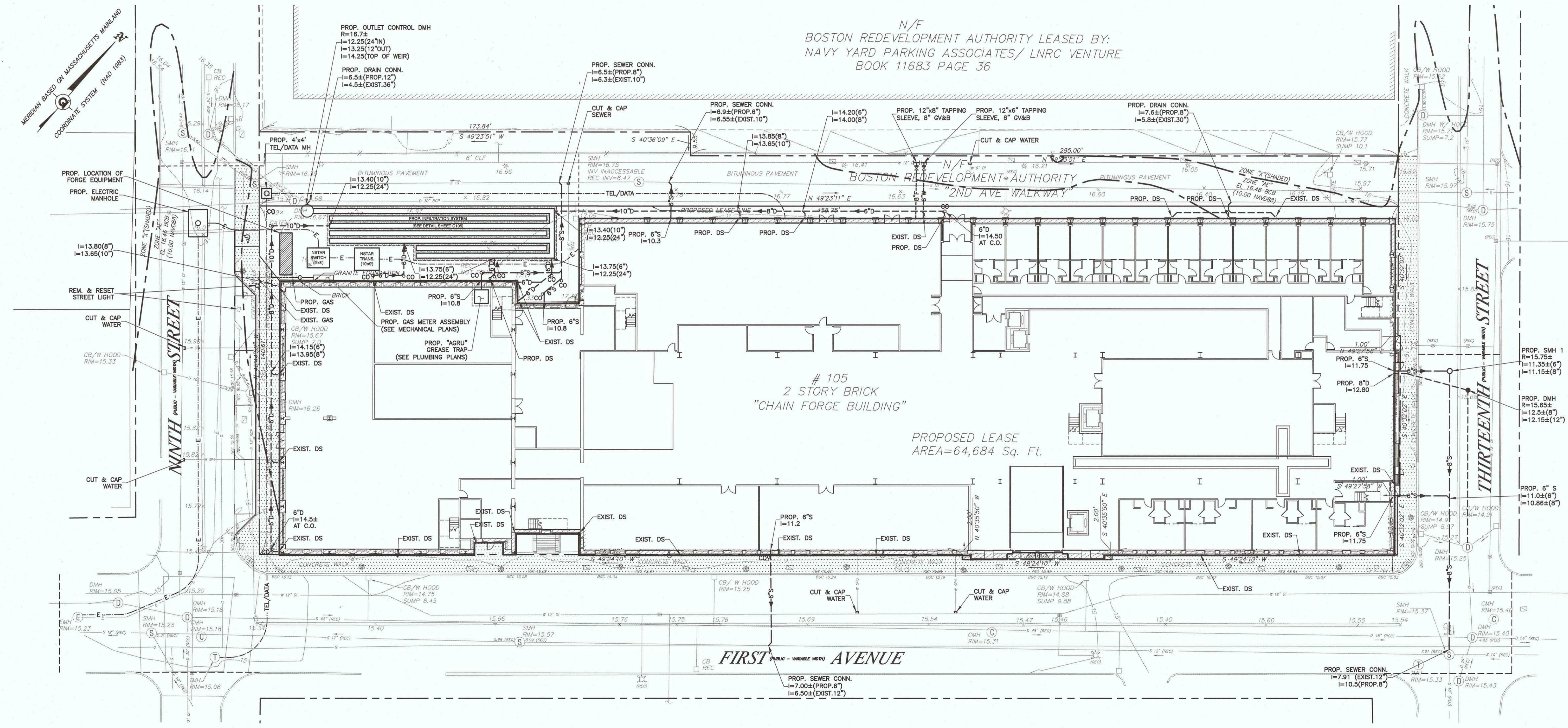
**PROJECT TEAM**

**MEP/FP Engineer**  
AHA Consulting Engineers  
24 Hartwell Avenue, 3rd Floor  
Lexington, MA 02421  
(781) 372-3000

**Structural Engineer**  
McNamara Salvia  
101 Federal Street, 11th Floor  
Boston, MA 02110  
(617) 737-0040

**Civil Engineer**  
HW Moore Associates, Inc.  
121 E. Berkeley Street,  
Boston, MA 02118  
(617) 357-8145

**Landscape Engineer**  
Kyle Zick Landscape Architecture  
36 Bromfield Street, Suite 202  
Boston, MA 02108  
(617) 451-1018



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**REVISIONS**

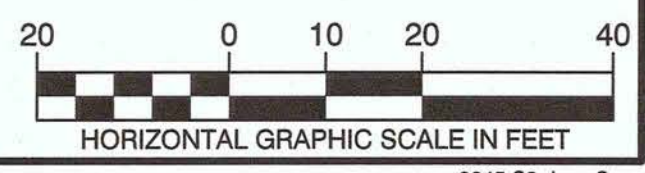
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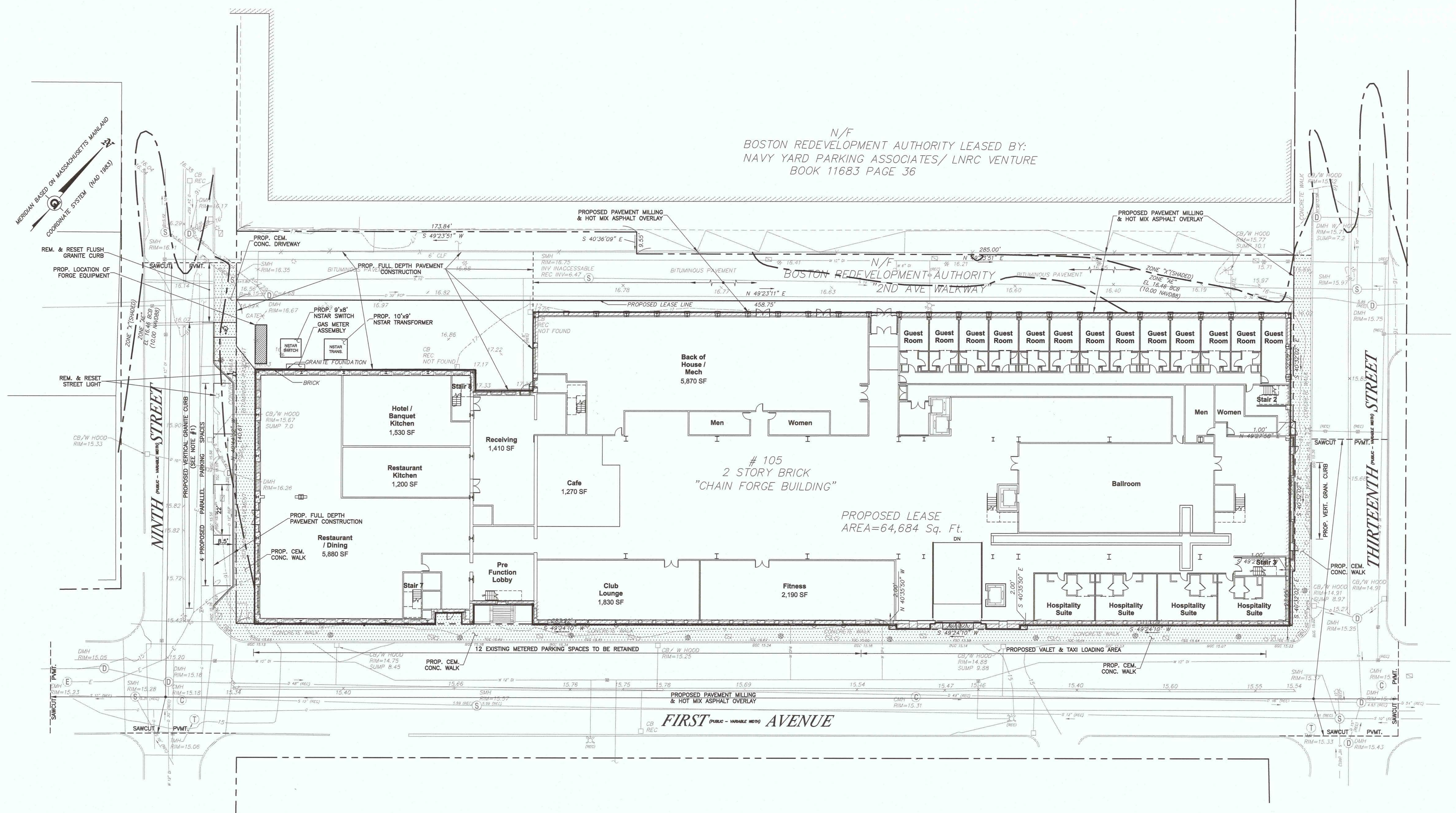
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**Utility Site Plan**

**DRAWING INFORMATION**

DATE OF ISSUE: March 6, 2018  
NOI Submittal  
DESCRIPTION: CIVIL  
SCALE: 1"=20'  
DRAWN BY: [Signature]  
PROJECT # [Blank] FILE NAME [Blank]

**DRAWING NUMBER**  
**C100**  
**BWSIC#**





N/F  
 BOSTON REDEVELOPMENT AUTHORITY LEASED BY:  
 NAVY YARD PARKING ASSOCIATES/ LNRC VENTURE  
 BOOK 11683 PAGE 36

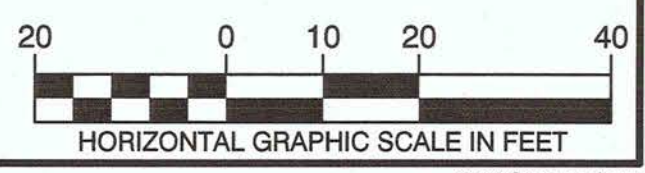
FIRST AVENUE

THIRTEENTH STREET

NINTH STREET

- REFERENCES:
- EXISTING CONDITIONS, PROPERTY LINES, UTILITIES AND GRADES TAKEN FROM A PLAN TITLED "EXISTING CONDITIONS PLAN LOCATED AT 105 FIRST AVENUE CHARLESTOWN, MASSACHUSETTS" DATED OCTOBER 2, 2014, PREPARED BY GEOD CONSULTING. THIS FILE WAS RECEIVED BY EMAIL ON SEPTEMBER 14, 2017 FROM BARGMANN HENDRIE + ARCHETYPE THIS PLAN WAS ISSUED BY GEOD CONSULTING AS A "PROGRESS PRINT".
  - PROPOSED BUILDING REHABILITATION PLANS TAKEN FROM A FILE NAMED A101 - First Floor.dwg RECEIVED BY EMAIL ON SEPTEMBER 14, 2017 FROM BARGMANN HENDRIE + ARCHETYPE.

- NOTES:
- EXISTING VERTICAL GRANITE CURB, IF IN GOOD CONDITION, CAN BE REMOVED AND RESET FOR CONSTRUCTION OF PARALLEL SPACES, SUPPLEMENT WITH NEW GRANITE CURB AS REQUIRED TO LIMITS SHOWN. GRANITE CURB CORNERS AND UNSUITABLE GRANITE CURB SHALL BE REMOVED AND DISPOSED OFF-SITE BY THE CONTRACTOR.
  - REMOVE AND RESET EXISTING VERTICAL GRANITE CURB AS REQUIRED FOR SIDEWALK RECONSTRUCTION.
  - ALL EXISTING PAVEMENT MARKINGS ON NINTH STREET, FIRST AVENUE AND THIRTEENTH STREET SHALL BE REPLACED IN KIND BY THE CONTRACTOR.
  - EXISTING SIGNS TO BE RETAINED/REMOVED AND RESET UNLESS OTHERWISE INDICATED ON THE PROJECT PLAN.

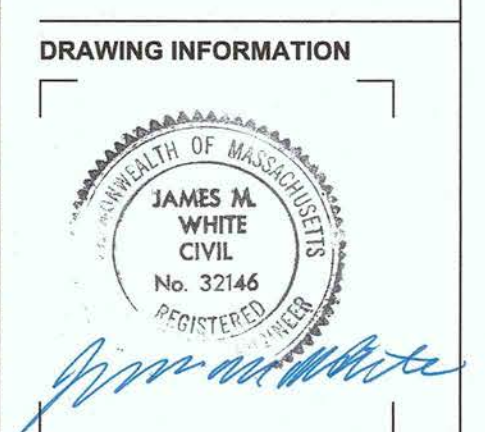


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REVISIONS

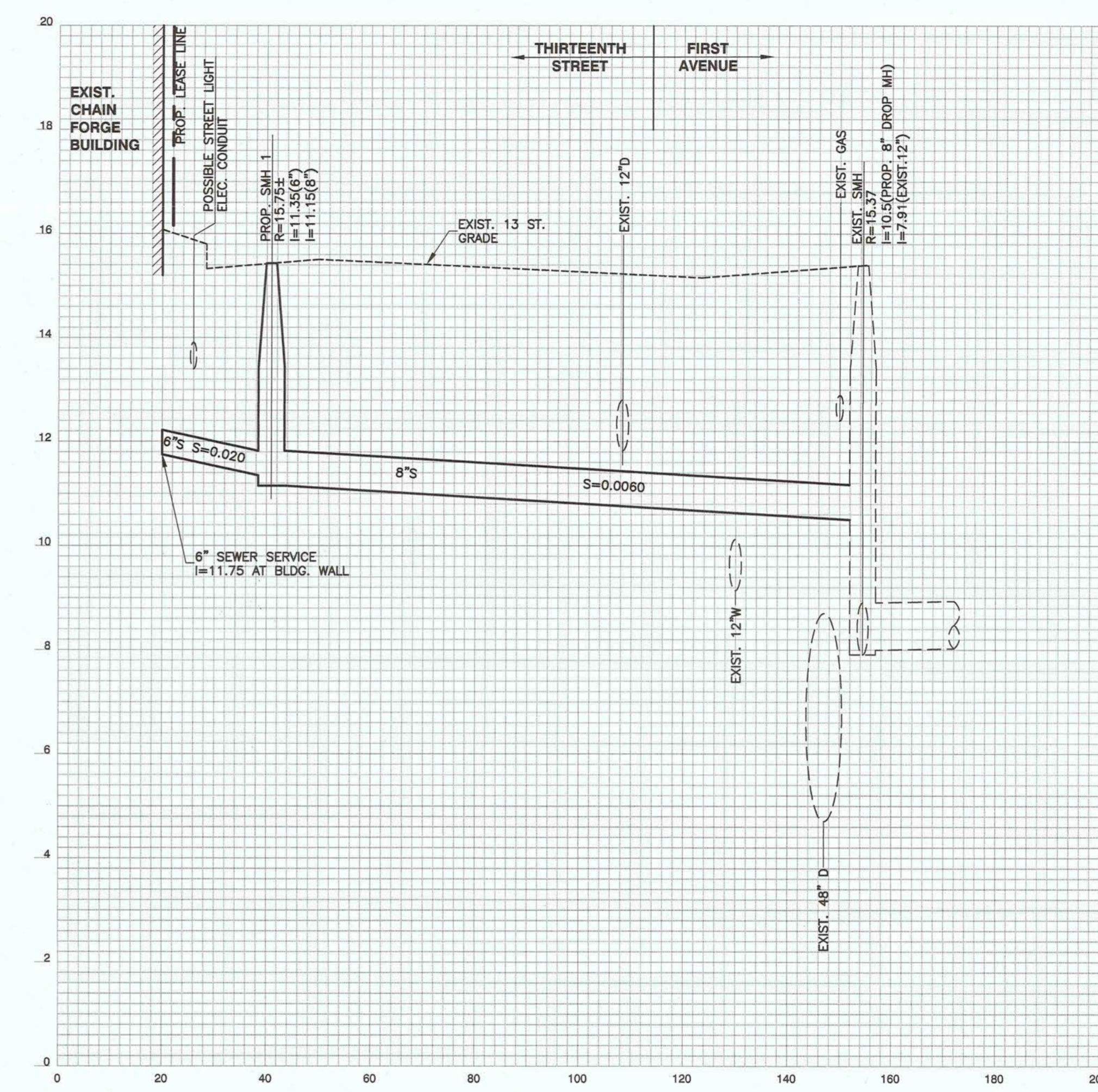
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**Site Layout Plan**

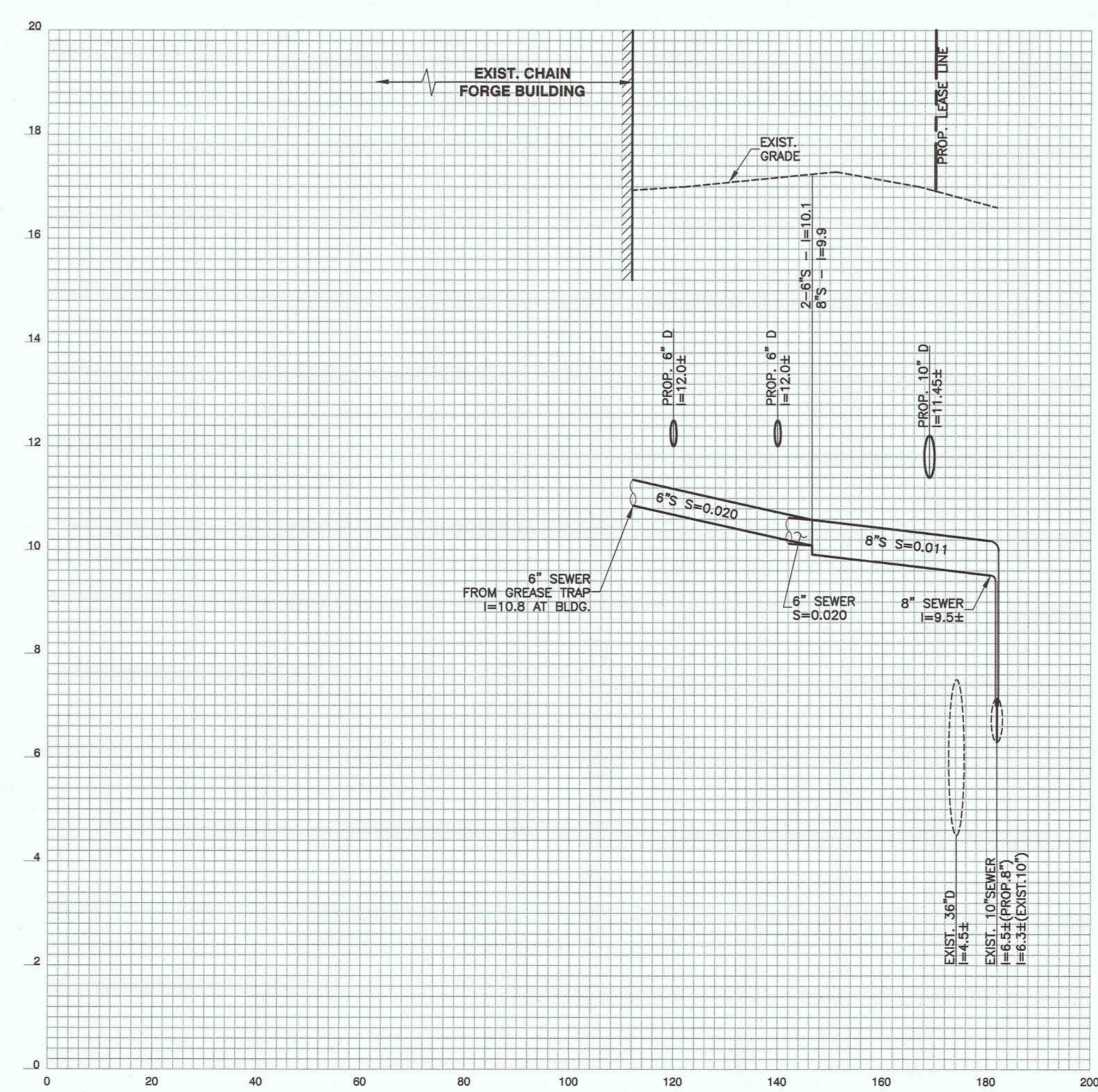


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 DATE OF ISSUE  
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 DESCRIPTION  
 1"=20'  
 SCALE  
 DRAWN BY  
 PROJECT # FILE NAME

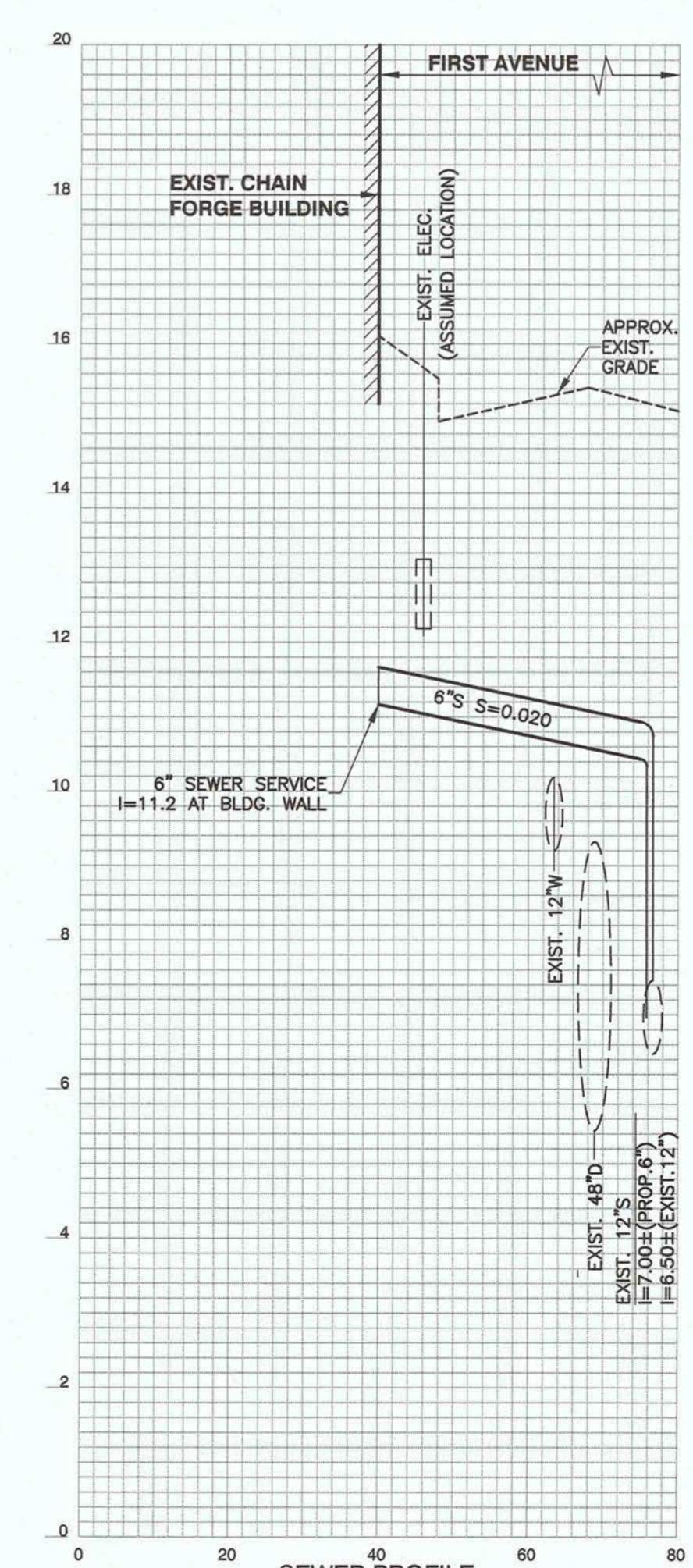
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 BWSC#



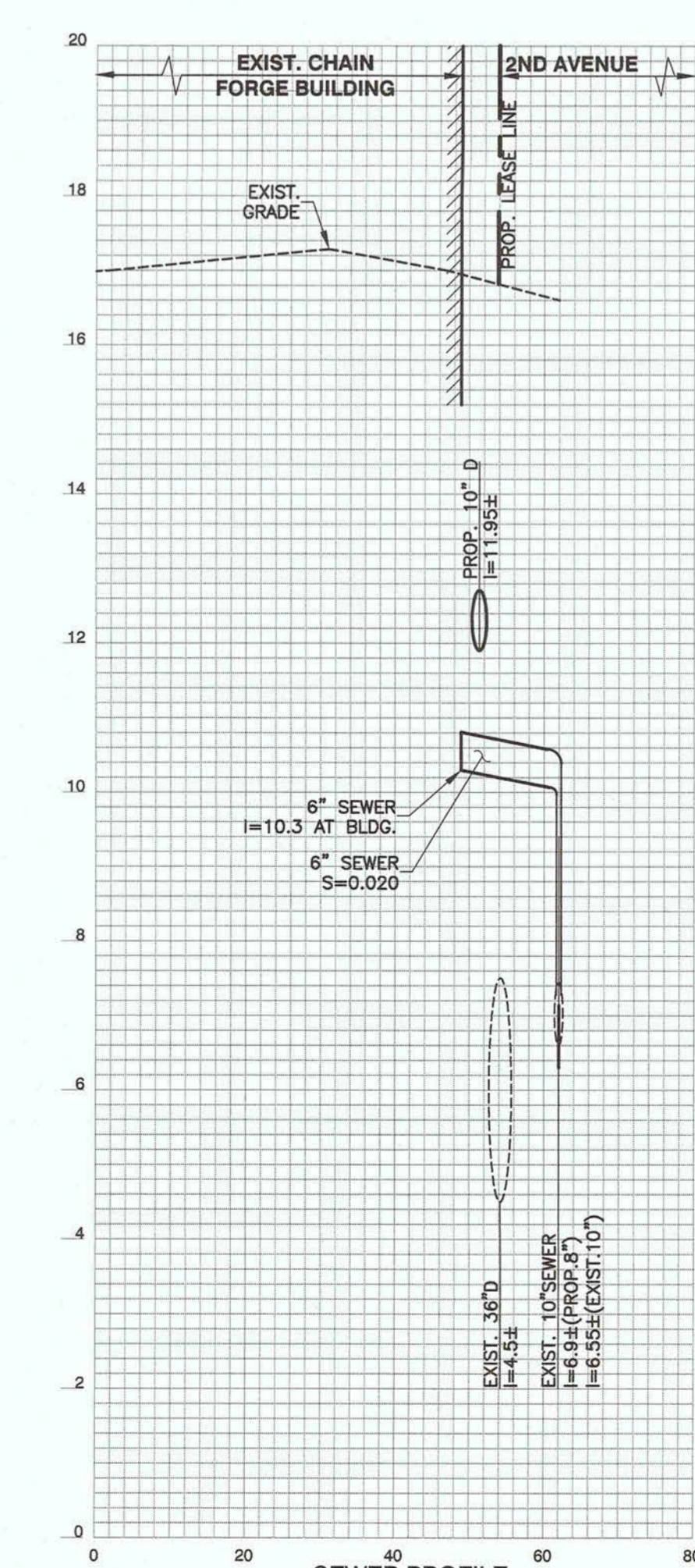
SEWER PROFILE - THIRTEENTH STREET  
 1"=20' HORIZ.  
 1"=2' VERT.



SEWER PROFILE - BUILDING SERVICE AREA  
 1"=20' HORIZ.  
 1"=2' VERT.



SEWER PROFILE - 6" SERVICE CONNECTION TO FIRST AVENUE  
 1"=20' HORIZ.  
 1"=2' VERT.



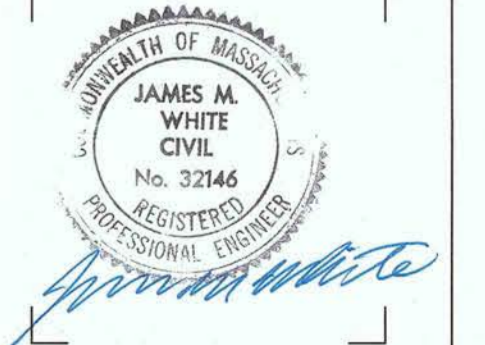
SEWER PROFILE - 6" SEWER CONNECTION TO SECOND AVENUE  
 1"=20' HORIZ.  
 1"=2' VERT.

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 NOT FOR CONSTRUCTION

REVISIONS	DATE
1 GENERAL	03-21-18
2	
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DRAWING TITLE  
**Sewer Profiles**

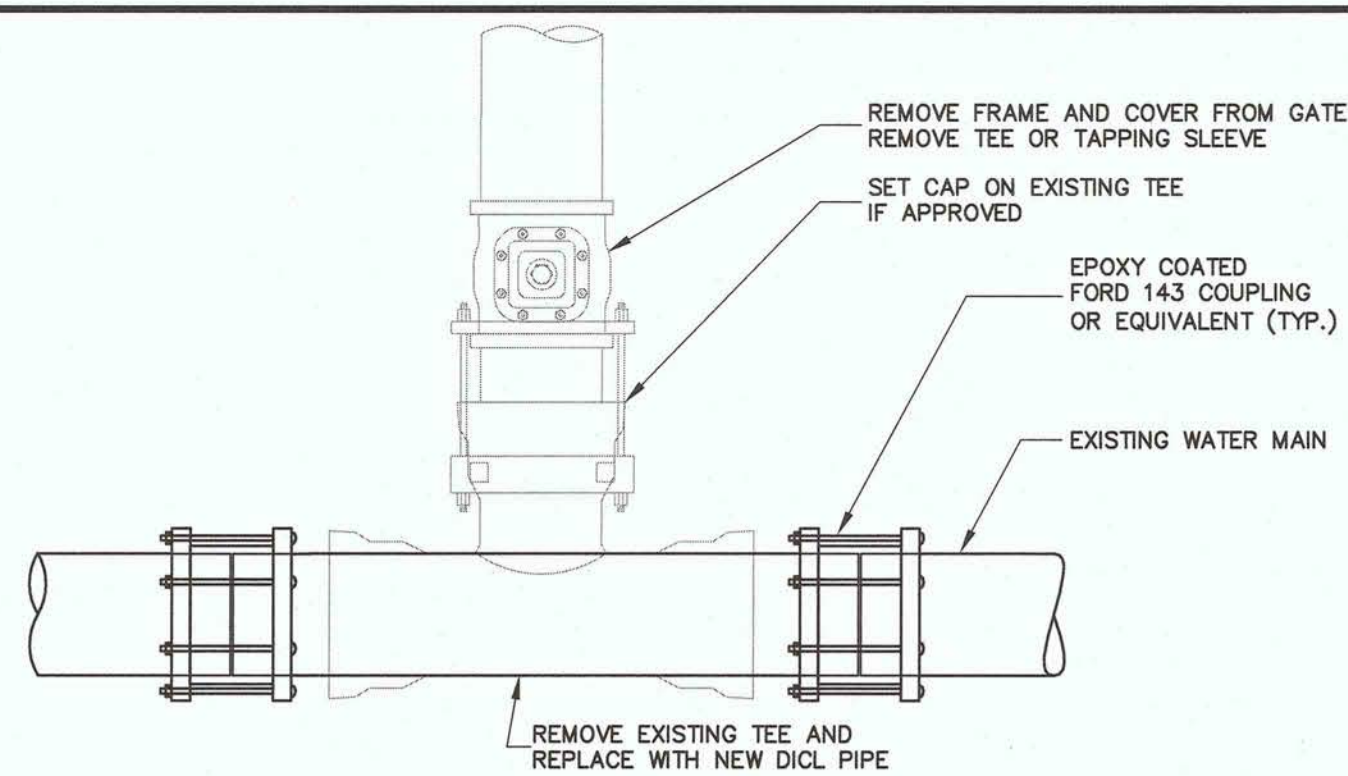
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 DATE OF ISSUE  
 NOI Submission  
 DESCRIPTION  
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 PROJECT # FILE NAME

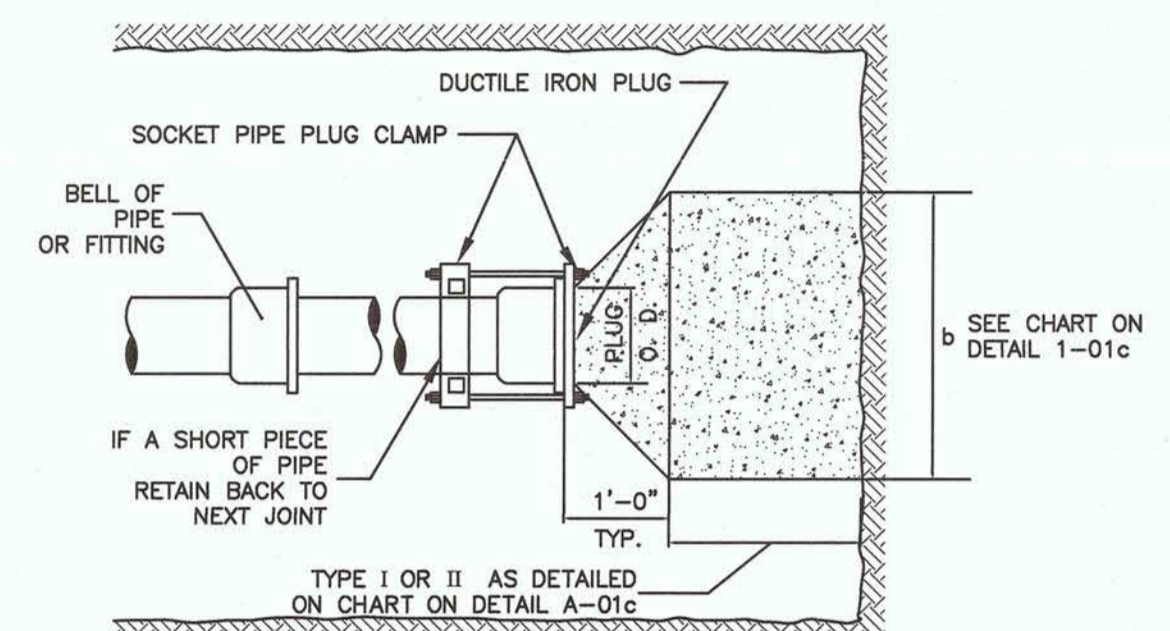
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**BWSC#**  
 Copyright BH+A, Inc.

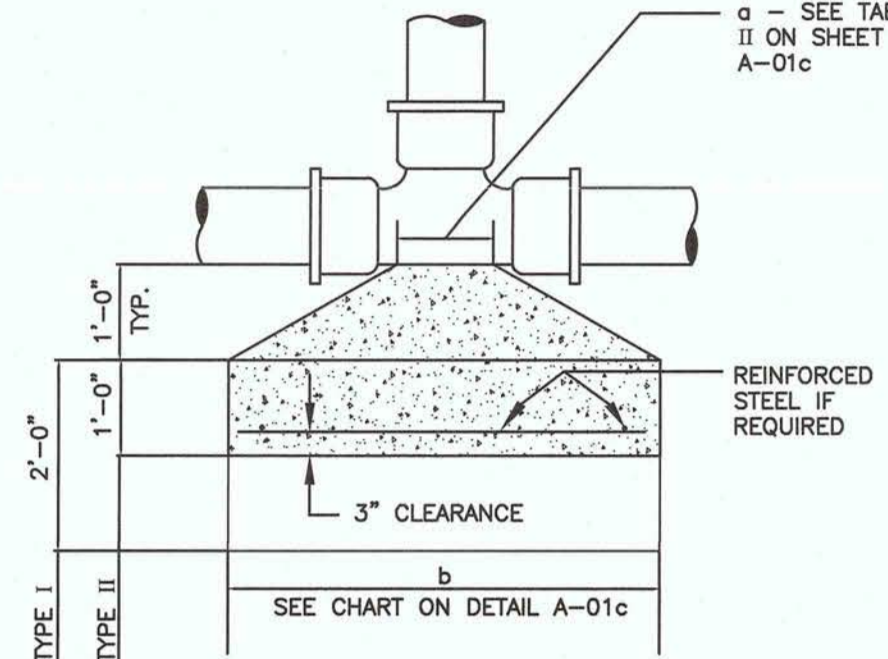


- NOTES:**
1. ALL WORK MUST BE PERFORMED BY A BWSO LICENSED AND BONDED CONTRACTOR.
  2. THIS PROCEDURE WILL INVOLVE A MAIN LINE SHUT DOWN THAT THE CONTRACTOR WILL COORDINATE WITH THE BWSO'S OPERATIONS DIVISION.
  3. WRITTEN NOTIFICATION OF ALL AFFECTED CUSTOMERS MUST BE PERFORMED BY THE CONTRACTOR.
  4. ALL WORK MUST BE PERMITTED BY BWSO AND ALL OTHER APPROPRIATE AGENCIES.
  5. ALL WORK MUST BE INSPECTED BY BWSO INSPECTOR OR DESIGNEE.

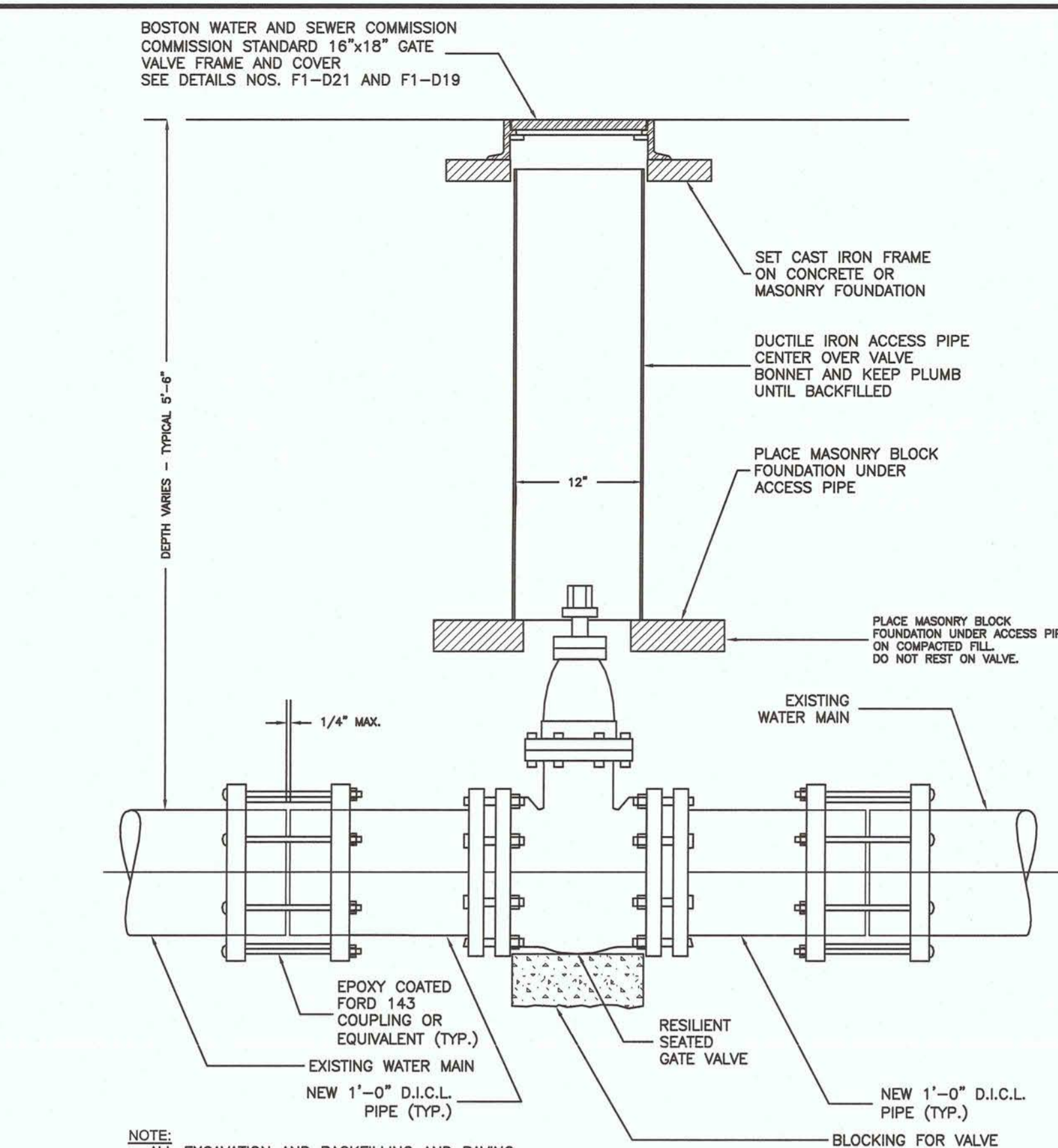
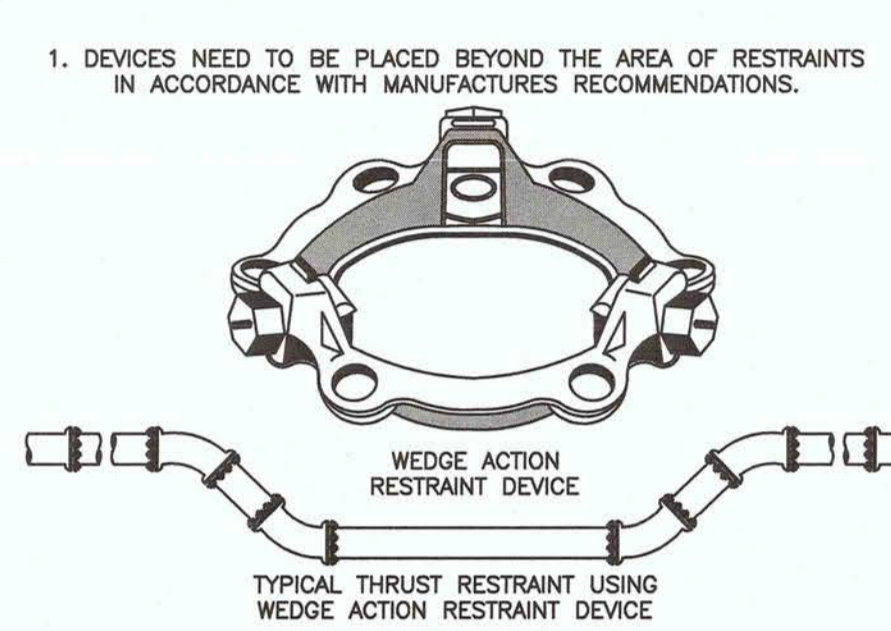
**BWSC #A-15  
DETAIL OF CUT AND CAP  
OF WATER CONNECTION 4" AND OVER  
(NOT TO SCALE)**



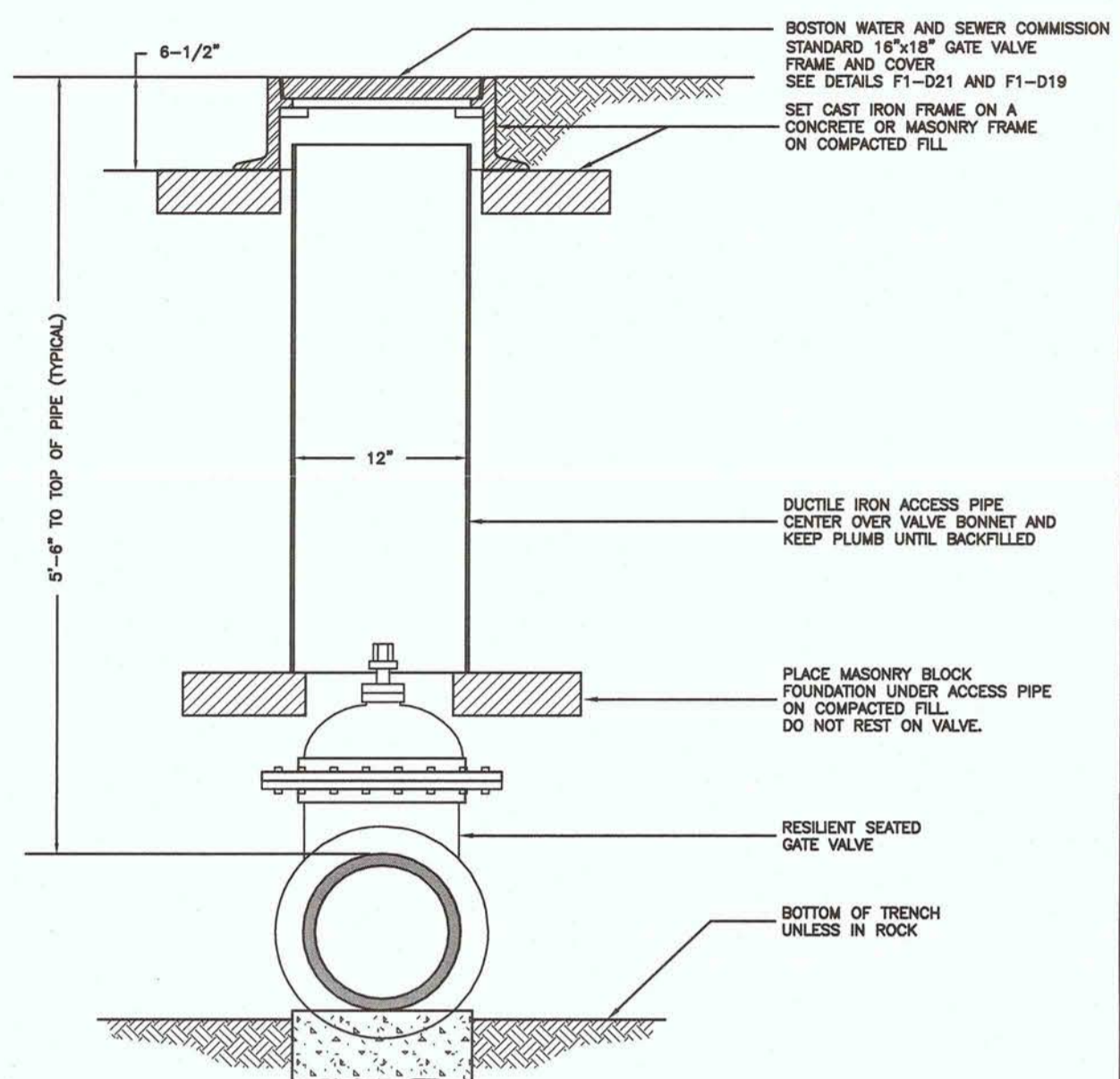
**BWSC #A-09  
TYPICAL WATER PIPE CONNECTION  
WITH TAPPING SLEEVE AND GATE VALVE  
(NOT TO SCALE)**



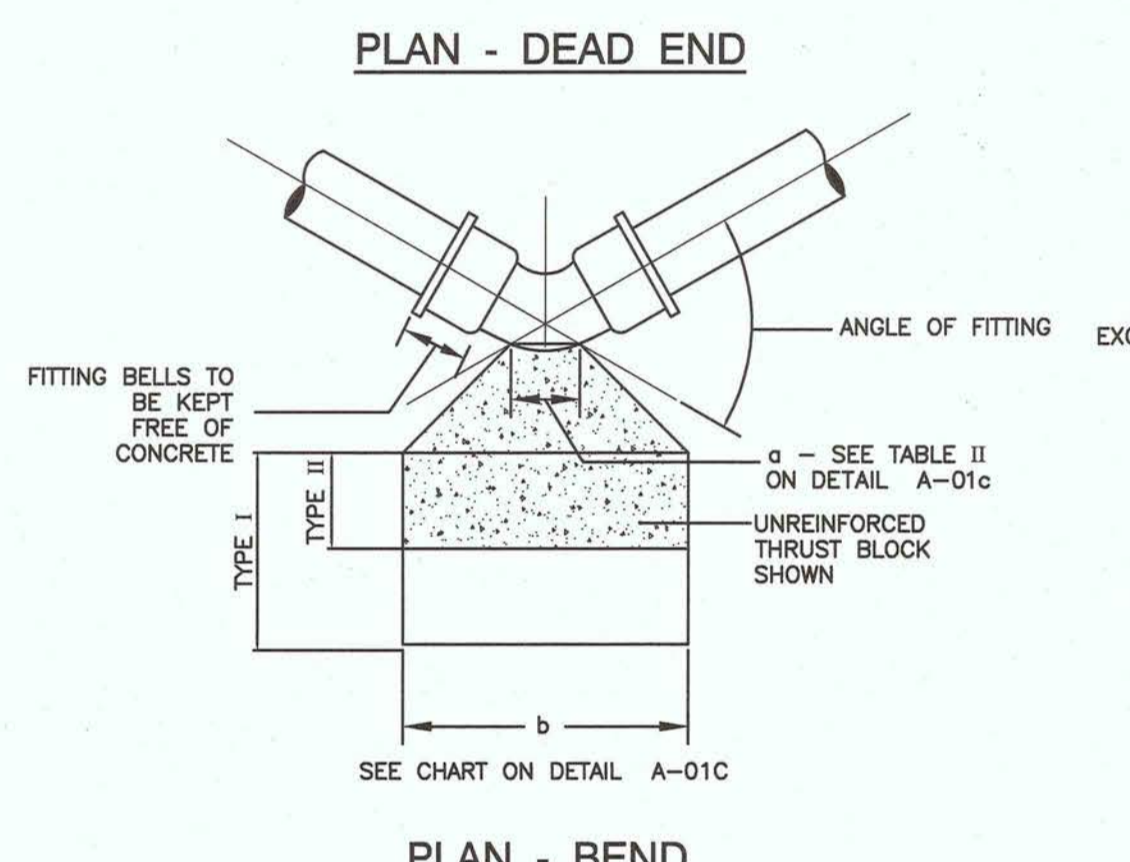
**BWSC #A-01f  
TYPICAL THRUST RESTRAINT  
WEDGE ACTION RESTRAINT  
TYPE JOINTS  
(NOT TO SCALE)**



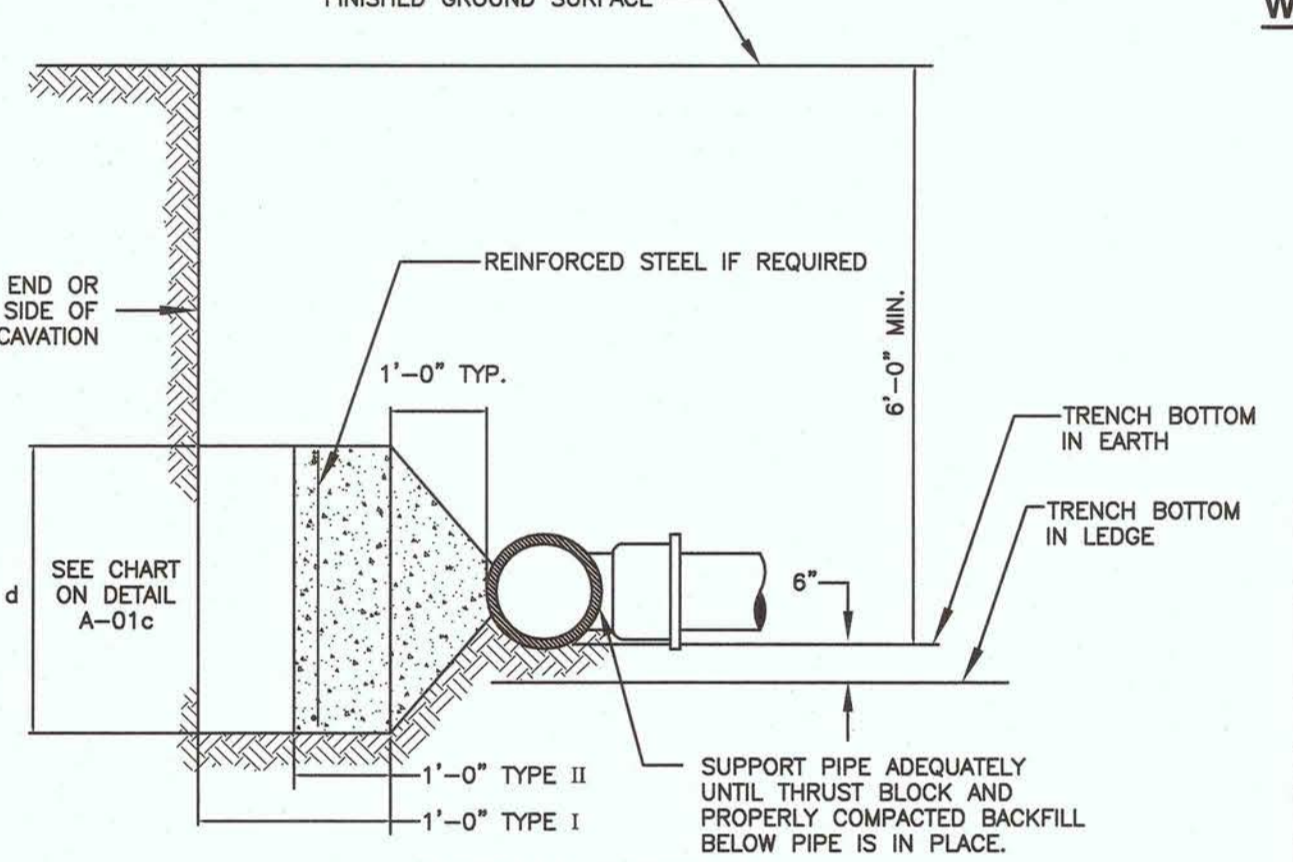
**Elevation View  
BWSC #A-19b  
TYPICAL GATE VALVE INSTALLATION  
ELEVATION VIEW  
(NOT TO SCALE)**



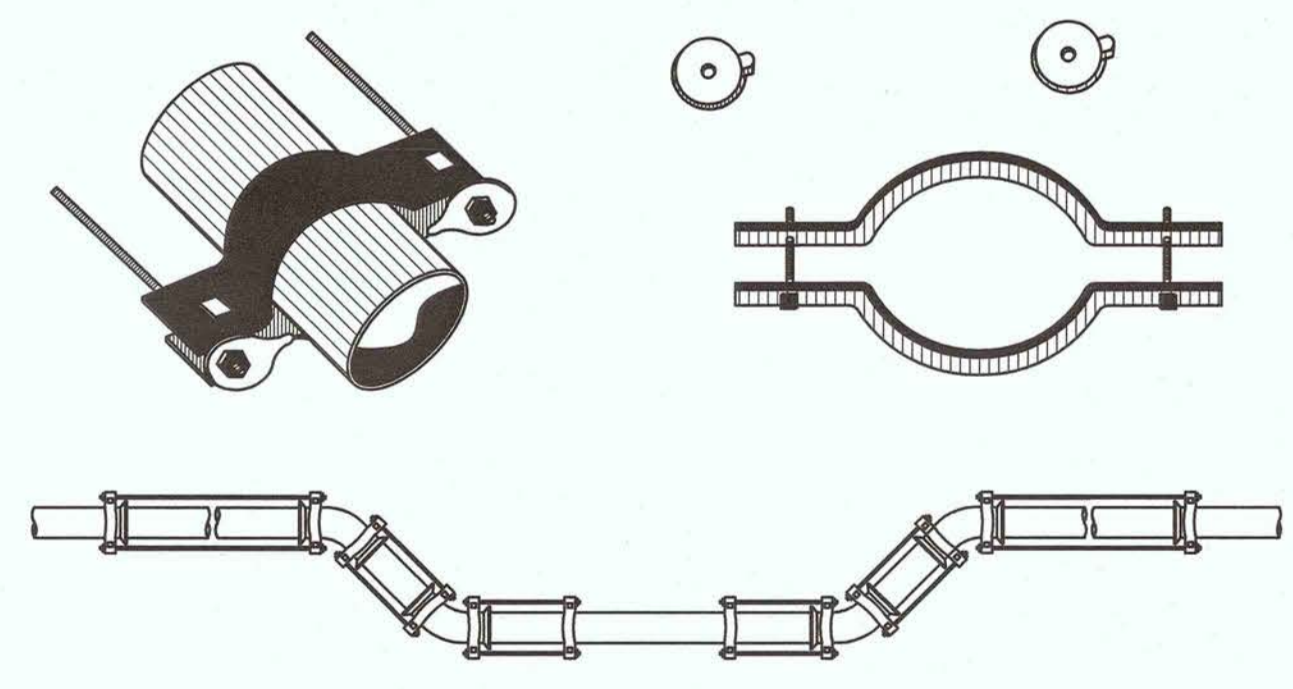
**Cross Section View  
BWSC #A-19a  
TYPICAL GATE VALVE INSTALLATION  
CROSS SECTION VIEW  
(NOT TO SCALE)**



**BWSC #A-01a  
THRUST BLOCK DETAILS  
(NOT TO SCALE)**



**BWSC #A-01b  
THRUST BLOCK DETAILS  
(NOT TO SCALE)**



**BWSC #A-01e  
TYPICAL THRUST RESTRAINTS USING  
TIE RODS AND FRICTION CLAMPS  
(NOT TO SCALE)**

**SCHEDULE OF TIE RODS**

PIPE SIZE	NUMBER OF RODS PER FITTING	DIAMETER OF RODS
4" - 12"	2	3/4"
16"	4	3/4"
20" - 24"	4	1 1/2"
36"	6	1 1/2"

**TABLE I - THRUST - KIPS (WATER PRESSURE = 200 P.S.I.)**

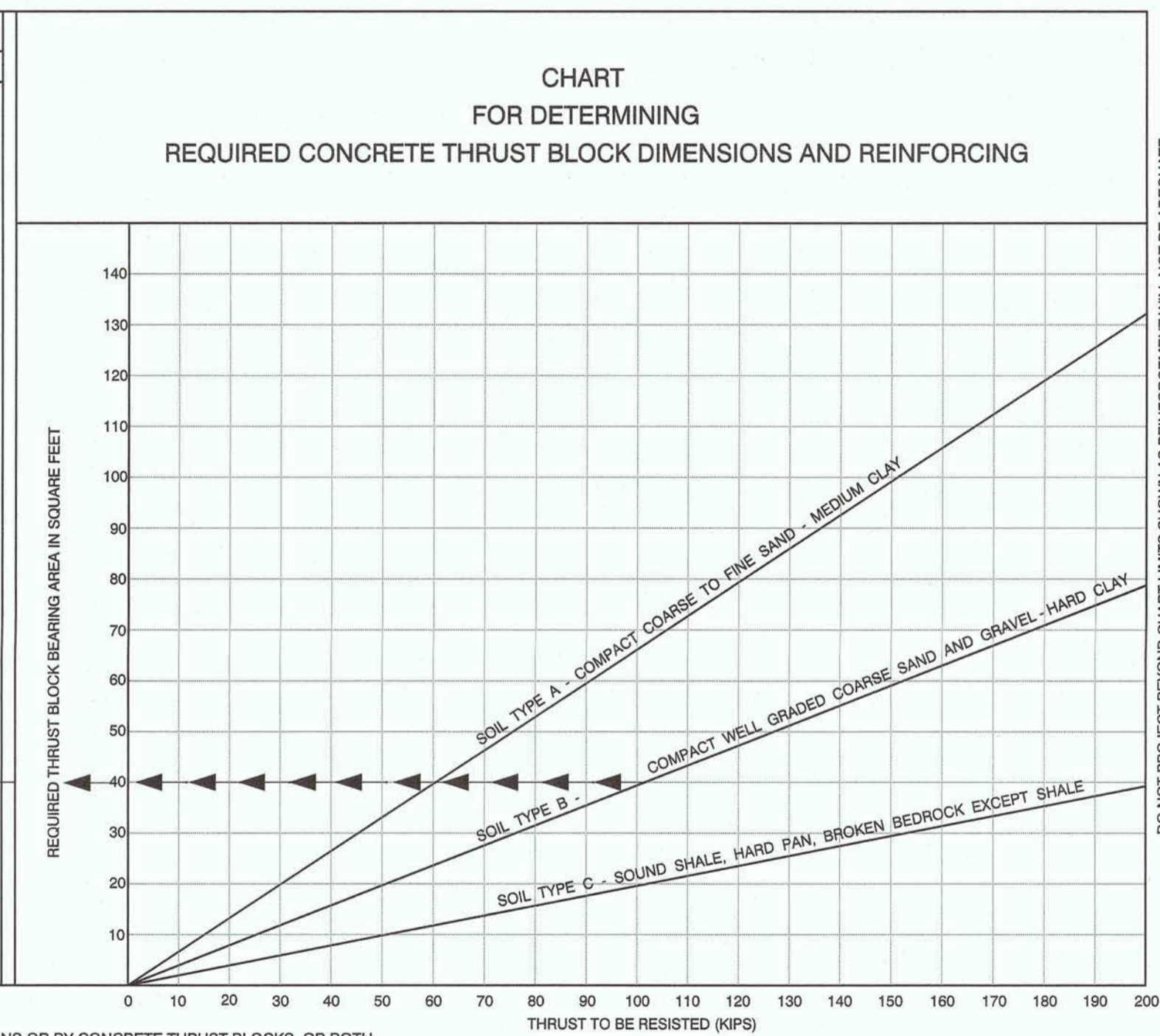
PIPE DIAMETER AND TEES	6	8	10	12	16	20	24	30	36	42
90°	5.6	10	15.8	22.6	40.2	62.8	90.4	141.0	203.6	277.0
45°	7.9	14.2	22.4	32.0	58.8	88.8	127.7	199.0	288.0	392.0
60°	-	11.1	17.6	25.1	44.7	70.0	100.2	157.0	226.0	308.0
75°	-	-	14.9	21.2	37.9	59.2	85.1	135.0	192.0	261.0
90°	-	-	-	17.3	30.8	48.1	69.0	108.0	156.0	212.0
33 3/4"	-	-	-	-	13.1	23.3	36.5	52.5	82.0	118.0
22 1/2"	-	-	-	-	8.8	15.7	24.5	35.2	55.0	79.5

**TABLE II - "d" DIMENSION - FEET**

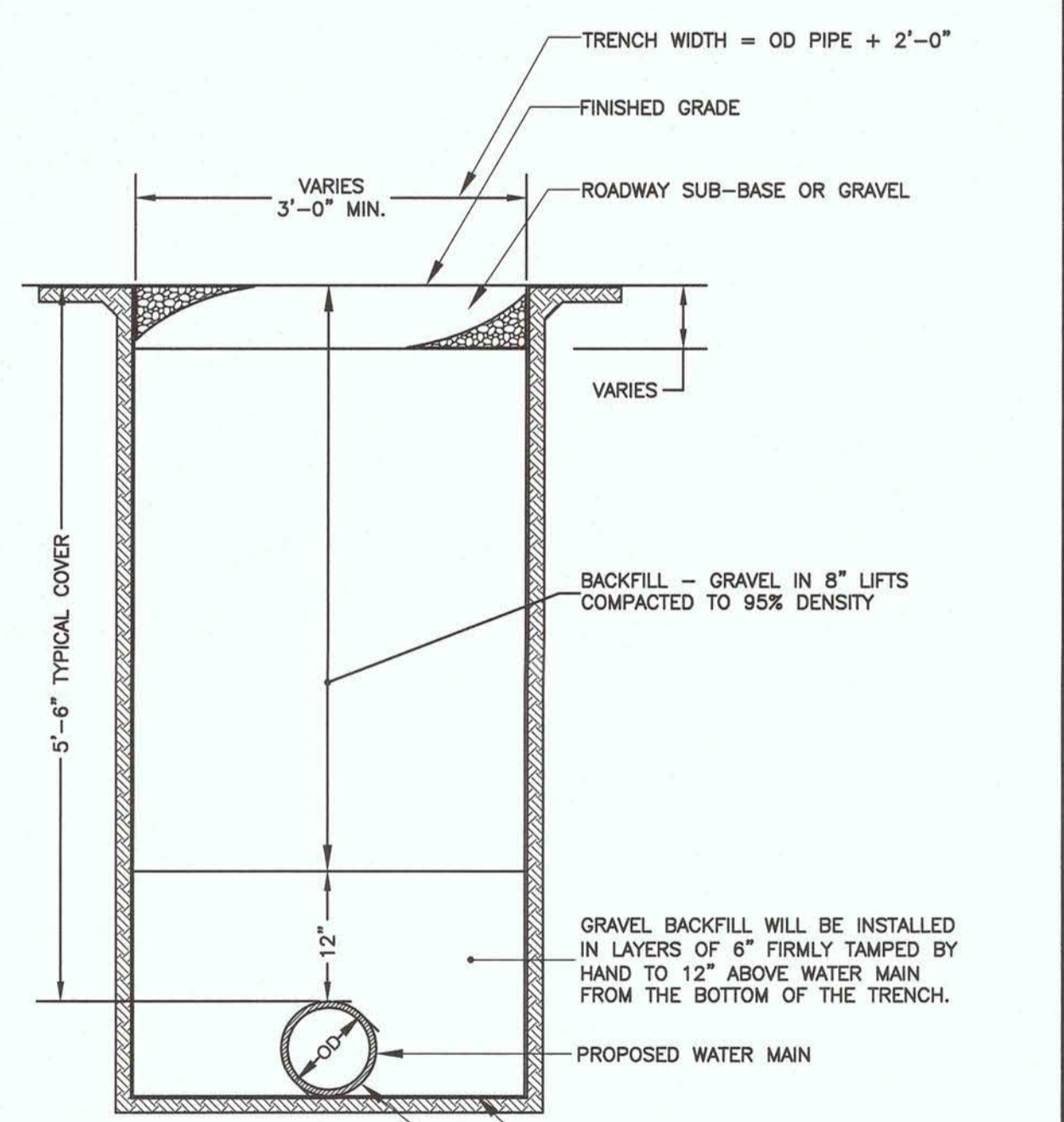
PIPE DIAMETER - INCHES	90° FITTING	OTHERS
6, 8, 10 & 12	1 - 6	1 - 0
16 & 20	2 - 0	1 - 6
24" - 30"	3 - 0	2 - 0

**TABLE I - THRUST - KIPS (WATER PRESSURE = 200 P.S.I.)**

PIPE DIAMETER AND TEES	6	8	10	12	16	20	24	30	36	42
90°	5.6	10	15.8	22.6	40.2	62.8	90.4	141.0	203.6	277.0
45°	7.9	14.2	22.4	32.0	58.8	88.8	127.7	199.0	288.0	392.0
60°	-	11.1	17.6	25.1	44.7	70.0	100.2	157.0	226.0	308.0
75°	-	-	14.9	21.2	37.9	59.2	85.1	135.0	192.0	261.0
90°	-	-	-	17.3	30.8	48.1	69.0	108.0	156.0	212.0
33 3/4"	-	-	-	-	13.1	23.3	36.5	52.5	82.0	118.0
22 1/2"	-	-	-	-	8.8	15.7	24.5	35.2	55.0	79.5



**BWSC #A-01c  
THRUST BLOCK DIMENSIONS  
TABLE AND CHART  
(NOT TO SCALE)**



**BWSC #A-05  
TYPICAL TRENCH DETAIL OF  
WATER MAIN IN FIRM GROUND  
(NOT TO SCALE)**

**ARCHITECT**  
bhta  
Bairdman Hendrie + Archetype, Inc.  
300 A Street  
Boston, MA 02210  
617.350-0450 Tel

**PROJECT NAME**  
**The Chain Forge Hotel**  
105 First Avenue  
Charlestown Navy Yard  
Charlestown MA, 02129

**CLIENT**  
**CV Properties**

451 D Street Boston MA 02210

**PROJECT TEAM**  
MEP/FP Engineer  
AHA Consulting Engineers  
24 Hartwell Avenue, 3rd Floor  
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(781) 372-3000  
Structural Engineer  
McNamara Salvia  
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Civil Engineer  
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Landscape Engineer  
Kyle Zick Landscape Architecture  
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**REVISIONS**

NO.	DATE	DESCRIPTION
1	03-21-18	GENERAL
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**DRAWING TITLE**  
**Site Details Plan**

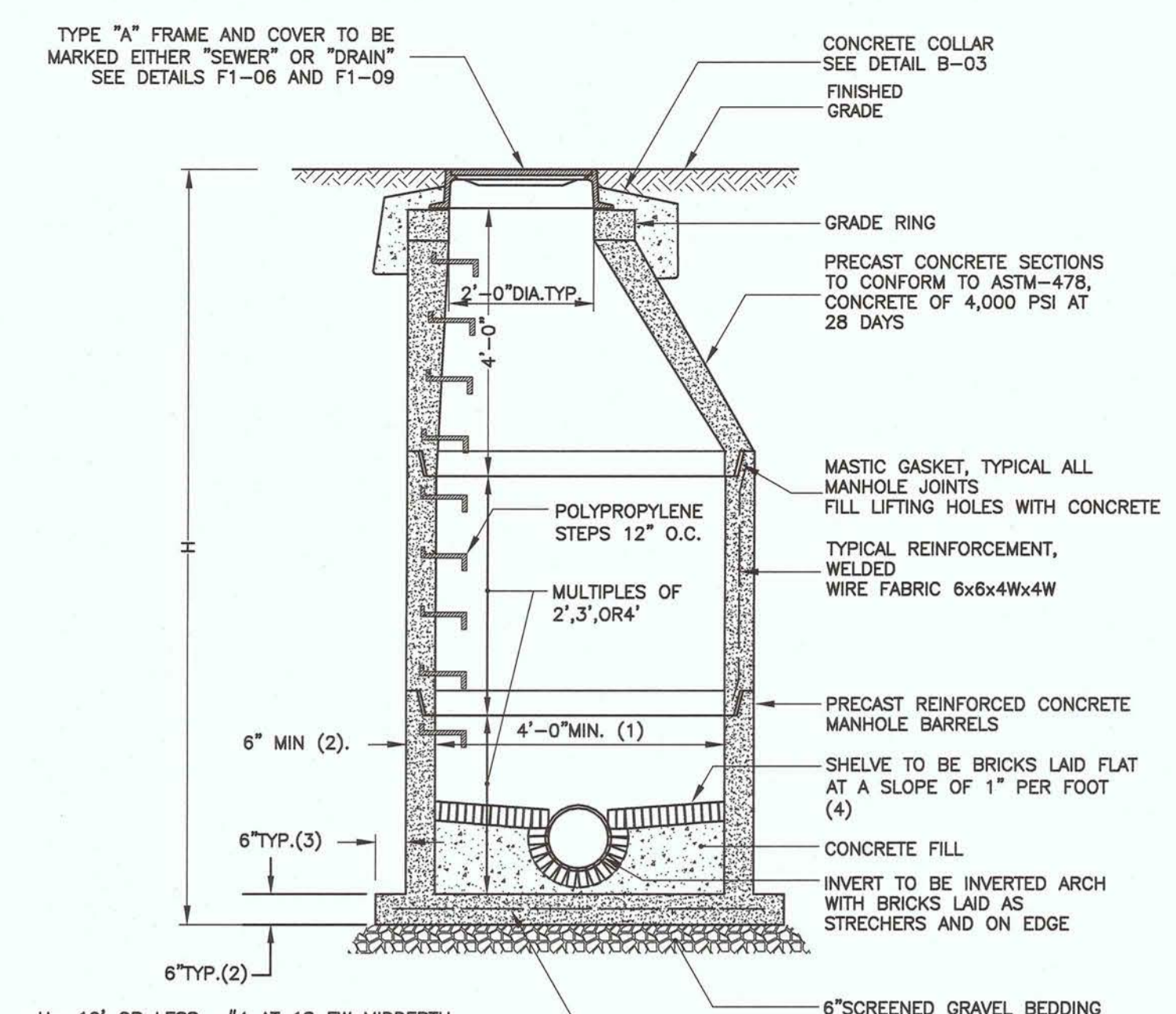
**DRAWING INFORMATION**

March 6, 2018  
DATE OF ISSUE  
NOI Submission  
DESCRIPTION

SCALE  
3/8" = 1'-0"  
DRAWN BY  
FILE NAME

**DRAWING NUMBER**  
**C103**

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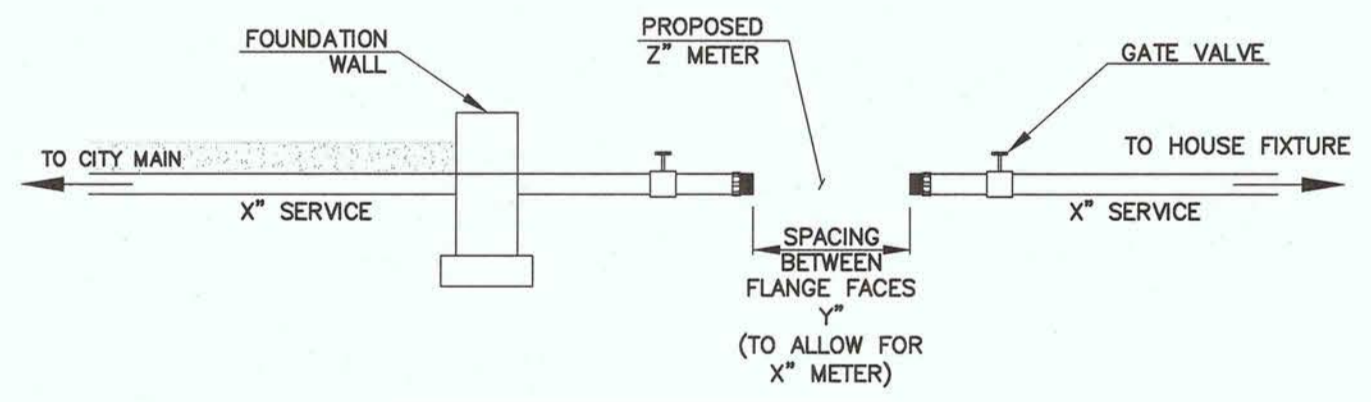
H= 10' OR LESS -#4 AT 18 EW MIDDDEPTH  
 H= 10' TO 20' -#4 AT 12 EW MIDDDEPTH  
 H= 20' TO 30' -#5 AT 12 EW MIDDDEPTH  
 IN ADDITION TO WELDED WIRE FABRIC

- NOTES:**
- 5'-0" DIAMETER FOR ALL MANHOLE DEPTHS GREATER THAN 20 FEET OR WHEN ORDERED BY THE ENGINEER.
  - 6" MIN. WALL THICKNESS AND 7 INCH MIN. BASE THICKNESS WITH 5'-0" DIAMETER MANHOLES.
  - 6 INCH LIP OPTIONAL UNLESS OTHERWISE NOTED.
  - CONCRETE INVERT AND SHELF MAY BE SUBSTITUTED IN STORM DRAIN MANHOLES AS DIRECTED BY THE ENGINEER.

**BWSC #B-02a**  
**TYPICAL PRECAST**  
**CONCRETE MANHOLE**  
 (NOT TO SCALE)

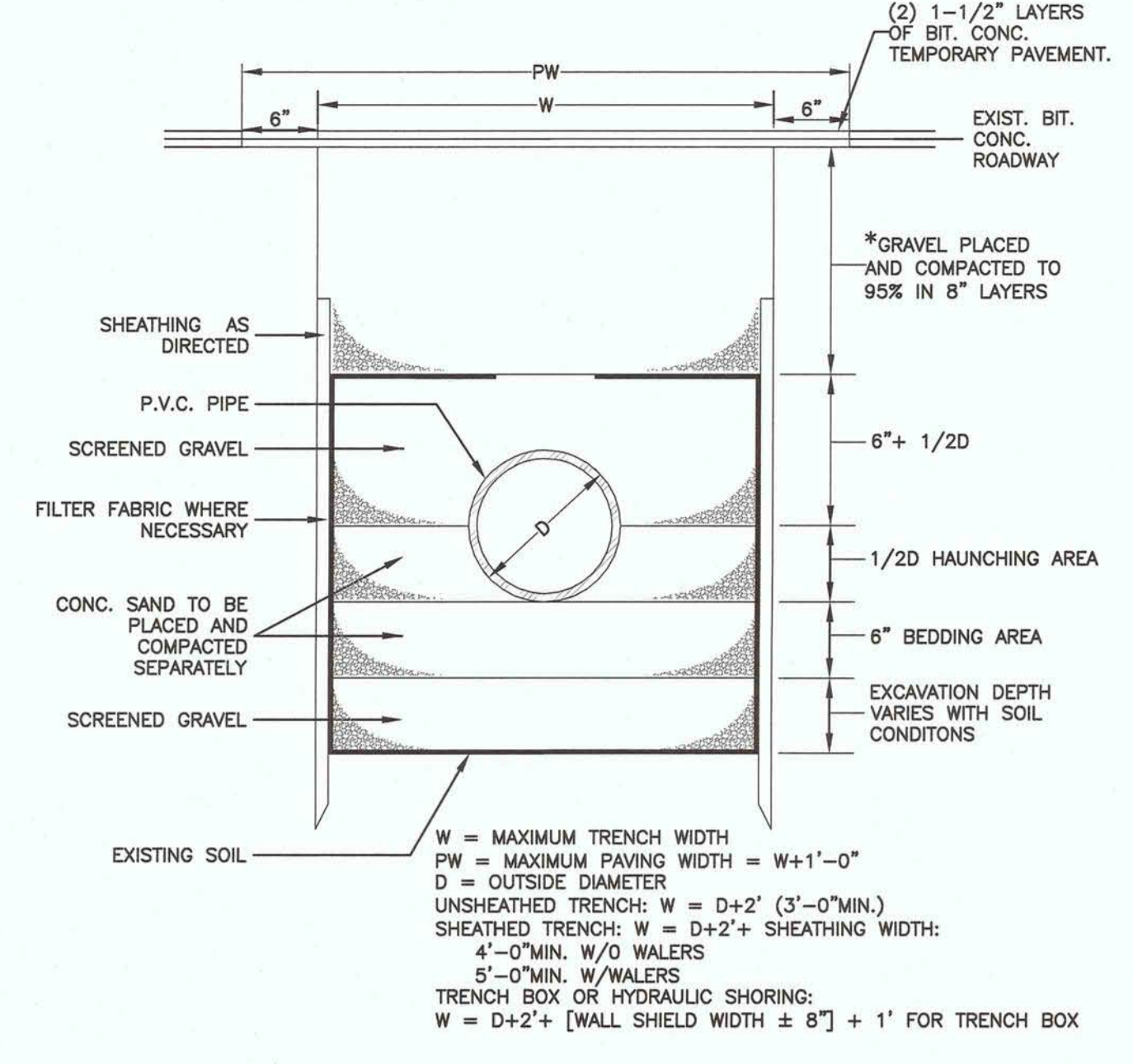
- NOTES:**
- ALL CAST IN PLACE CONCRETE TO HAVE A MINIMUM 28 DAY STRENGTH OF 3000 LBS PER SQ. INCH, USING 3/4" MAXIMUM SIZE AGGREGATE.
  - REINFORCING STEEL BARS ARE DEFORMED BARS OF BILLET STEEL ASTM A615 GRADE 60.
  - WELDED WIRE FABRIC CONFORMS TO ASTM A185.
  - CAST IRON FRAME, TYPE 'A' AND COVER TYPE 'A' FOR DETAILS SEE DETAILS NOS. F1-D01, F1-D04 AND F1-D05. COVERS TO BE MARKED EITHER 'SEWER' OR 'DRAIN'.
  - DESIGN LIVE LOAD - HS 20 - 44.
  - MINIMUM COVER FOR REINFORCING IN WALLS OR SLABS POURED AGAINST EARTH SHALL BE 3 INCHES. ALL OTHERS SHALL BE 2 INCHES UNLESS OTHERWISE NOTED.
  - USE 2'-0" LENGTHS OF PIPE STUBS AT ALL MANHOLES FOR VC OR AC PIPE. USE 4'-0" MAX. LENGTHS OF PIPE STUBS AT ALL MANHOLES FOR RC, DI OR PVC.
  - THESE MANHOLE DETAILS TO BE USED FOR BOTH SANITARY SEWER AND STORM DRAIN MANHOLES.
  - ALL MANHOLES SHALL BE CONSTRUCTED OF REINFORCED CONCRETE. SHOP DRAWINGS SUBMITTALS SHALL SHOW ALL REINFORCING DETAILS.
  - MWRA OIL AND GREASE SEPARATOR IS USED WITHIN BUILDINGS WHERE REQUIRED BY MWRA (MASSACHUSETTS WATER RESOURCES AUTHORITY) OR DEP (DEPARTMENT OF ENVIRONMENTAL PROTECTION) REGULATION. FOR DETAILS SEE DETAIL NO. B-04. FOR BWSC APPROVED GRIT AND OIL SEPARATORS, SEE DETAIL NOS. B-17 AND B-18.

**BWSC #B-02e**  
**MANHOLE STRUCTURES**  
**GENERAL NOTES**  
 (NOT TO SCALE)



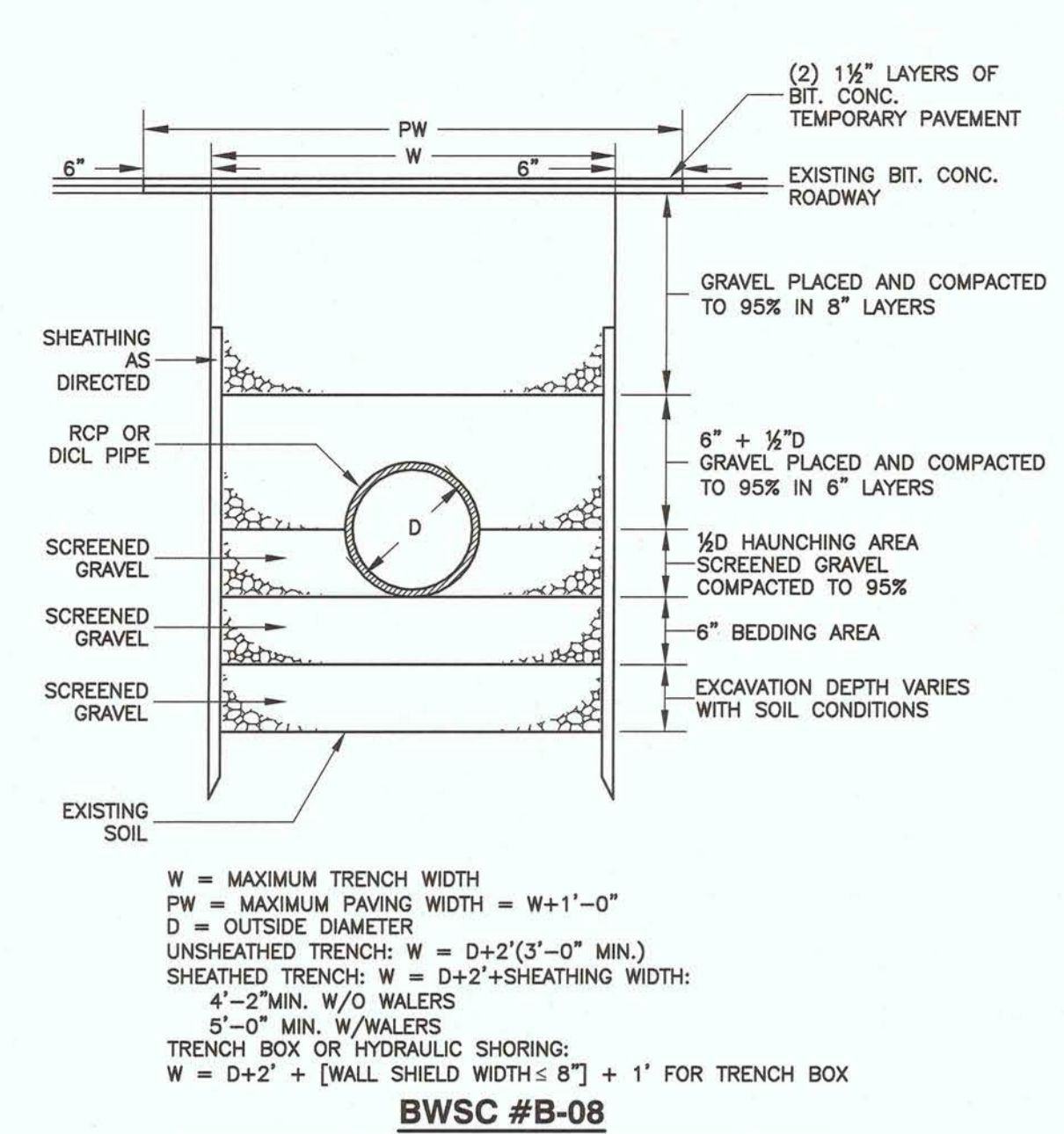
SERVICE SIZE (X)	SPACING (Y)
5/8"	7-1/2"
3/4"	9"
1"	10-3/4"
1-1/2"	1' 1-7/16"
2"	1' 11-7/16"
3"	1' 11"
4"	2' 3-1/2"
6"	2' 9"

**BWSC #M-01**  
**CORRECT PLUMBING**  
**FOR METER INSTALLATION**  
 (NOT TO SCALE)



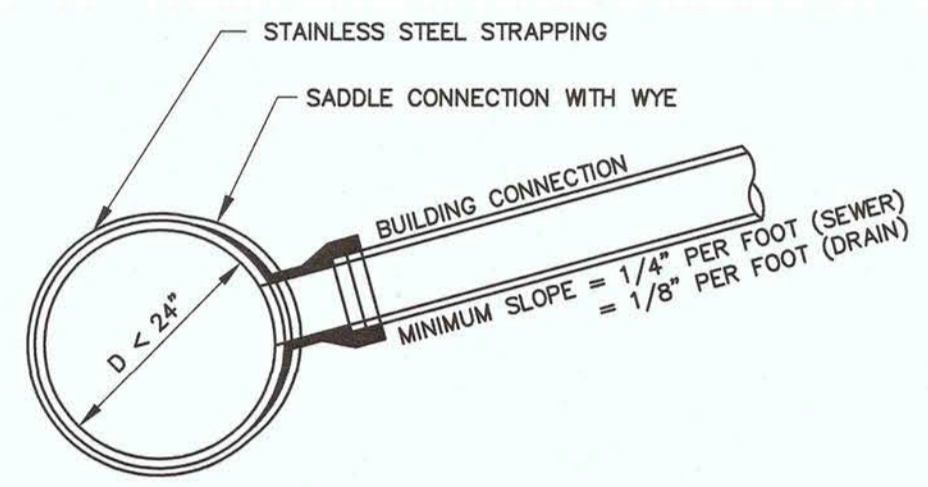
W = MAXIMUM TRENCH WIDTH = W+1'-0"  
 PW = MAXIMUM PAVING WIDTH = W+1'-0"  
 D = OUTSIDE DIAMETER  
 UNSHEATHED TRENCH: W = D+2' (3'-0" MIN.)  
 SHEATHED TRENCH: W = D+2'+SHEATHING WIDTH:  
 4'-0" MIN. W/O WALLERS  
 5'-0" MIN. W/WALLERS  
 TRENCH BOX OR HYDRAULIC SHORING:  
 W = D+2' + [WALL SHIELD WIDTH ± 8"] + 1' FOR TRENCH BOX

**BWSC #B-09**  
**TRENCH DETAIL FOR P.V.C. PIPE**  
 (NOT TO SCALE)



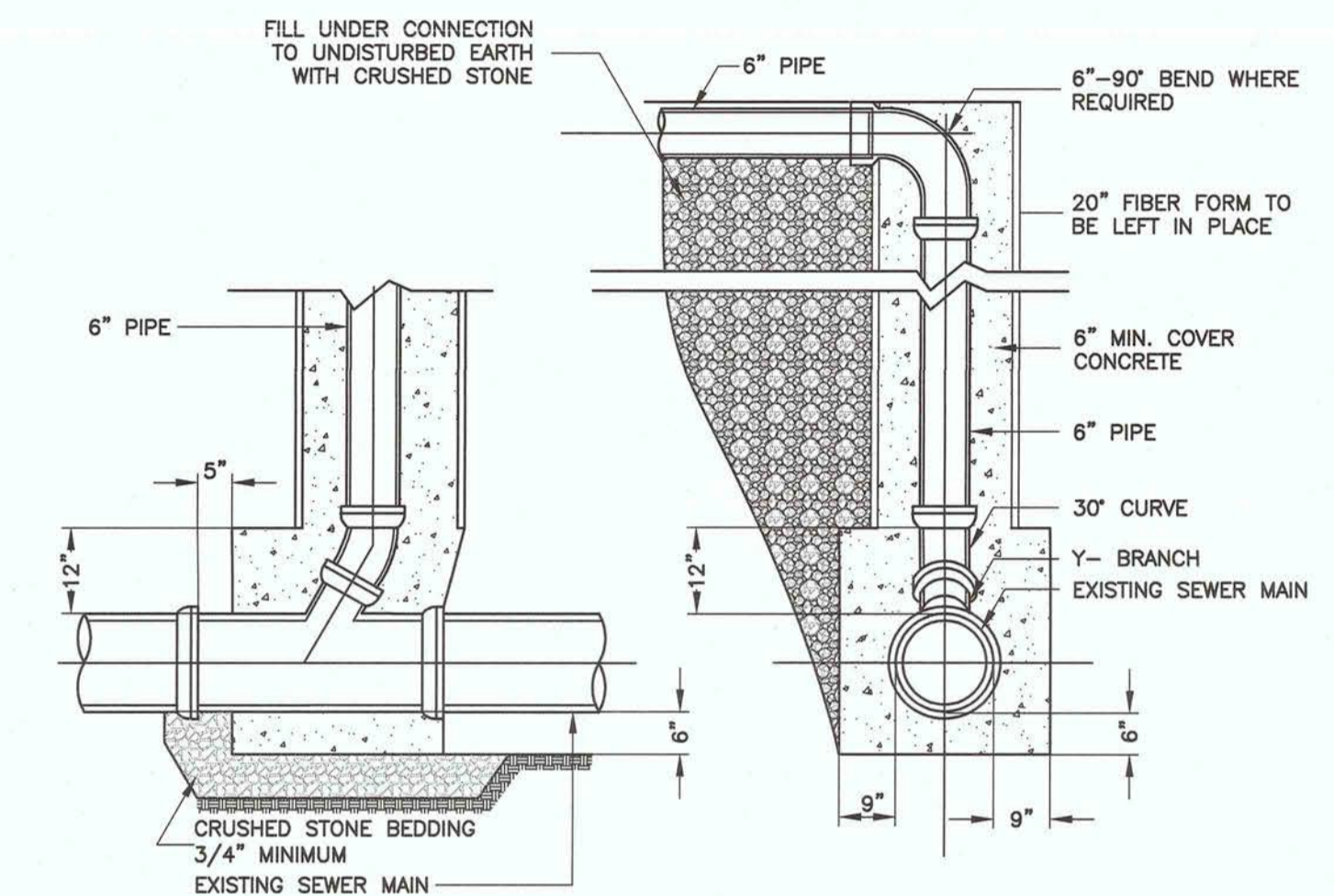
W = MAXIMUM TRENCH WIDTH = W+1'-0"  
 PW = MAXIMUM PAVING WIDTH = W+1'-0"  
 D = OUTSIDE DIAMETER  
 UNSHEATHED TRENCH: W = D+2' (3'-0" MIN.)  
 SHEATHED TRENCH: W = D+2'+SHEATHING WIDTH:  
 4'-0" MIN. W/O WALLERS  
 5'-0" MIN. W/WALLERS  
 TRENCH BOX OR HYDRAULIC SHORING:  
 W = D+2' + [WALL SHIELD WIDTH ± 8"] + 1' FOR TRENCH BOX

**BWSC #B-08**  
**TRENCH DETAIL FOR RCP OR DI CL PIPE**  
 (NOT TO SCALE)

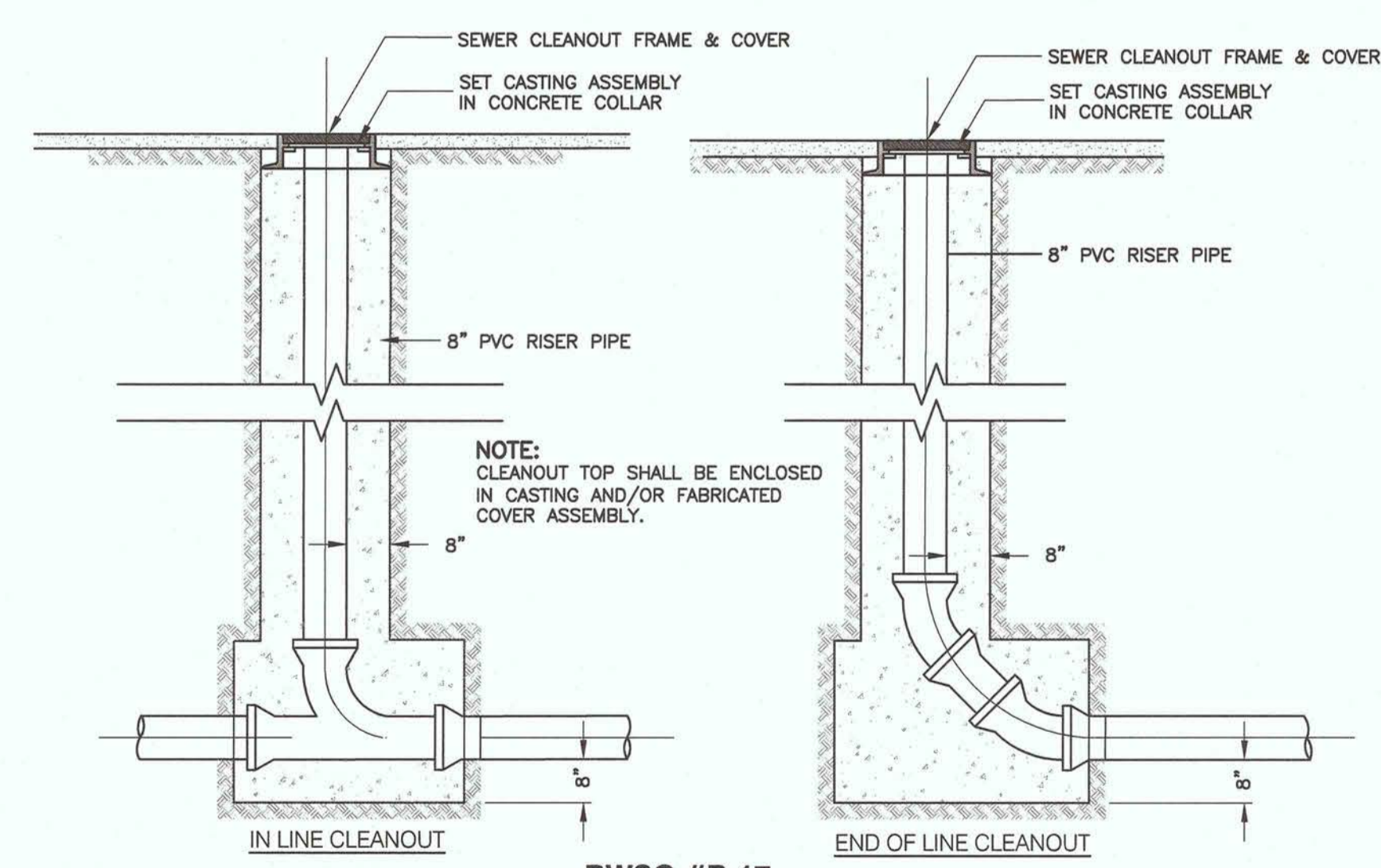


- NOTES:**
- FULL PVC OR IRON SADDLE MAY BE USED TO CONNECT TO EXISTING PVC, CLAY, CONCRETE OR IRON PIPE.
  - SADDLES MUST HAVE RUBBER GASKETS AND SHALL BE TIGHTENED WITH STRAPS. SADDLES WILL NOT BE CEMENTED ONTO THE PIPE.
  - FULL WYE CONNECTION FITTINGS MAY BE USED.
  - PIPE SHALL BE CUT TO CONFORM TO THE OPENING IN THE SADDLE.
  - CONNECTIONS DIRECTLY INTO THE EXISTING PIPE WITHOUT A SADDLE OR A FULL WYE FITTING ARE NOT ALLOWED.

**BWSC #B-12b**  
**TYPICAL SADDLE CONNECTION TO**  
**EXISTING DRAIN OR SEWER**  
 (NOT TO SCALE)



**BWSC #B-15**  
**TYPICAL SEWER CHIMNEY DETAIL**  
 (NOT TO SCALE)



**BWSC #B-17**  
**WYE CLEANOUT DETAIL**  
 (NOT TO SCALE)

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**PROJECT NAME**  
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 105 First Avenue  
 Charlestown Navy Yard  
 Charlestown MA, 02129

**CLIENT**  
**CV Properties**

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**NOT FOR CONSTRUCTION**

**REVISIONS**

NO.	DATE	DESCRIPTION
1	03-21-18	GENERAL
2		
3		
4		
5		

**DRAWING TITLE**  
**Site Details Plan**

**DRAWING INFORMATION**

March 8, 2018  
 DATE OF ISSUE

NOI Submission  
 DESCRIPTION

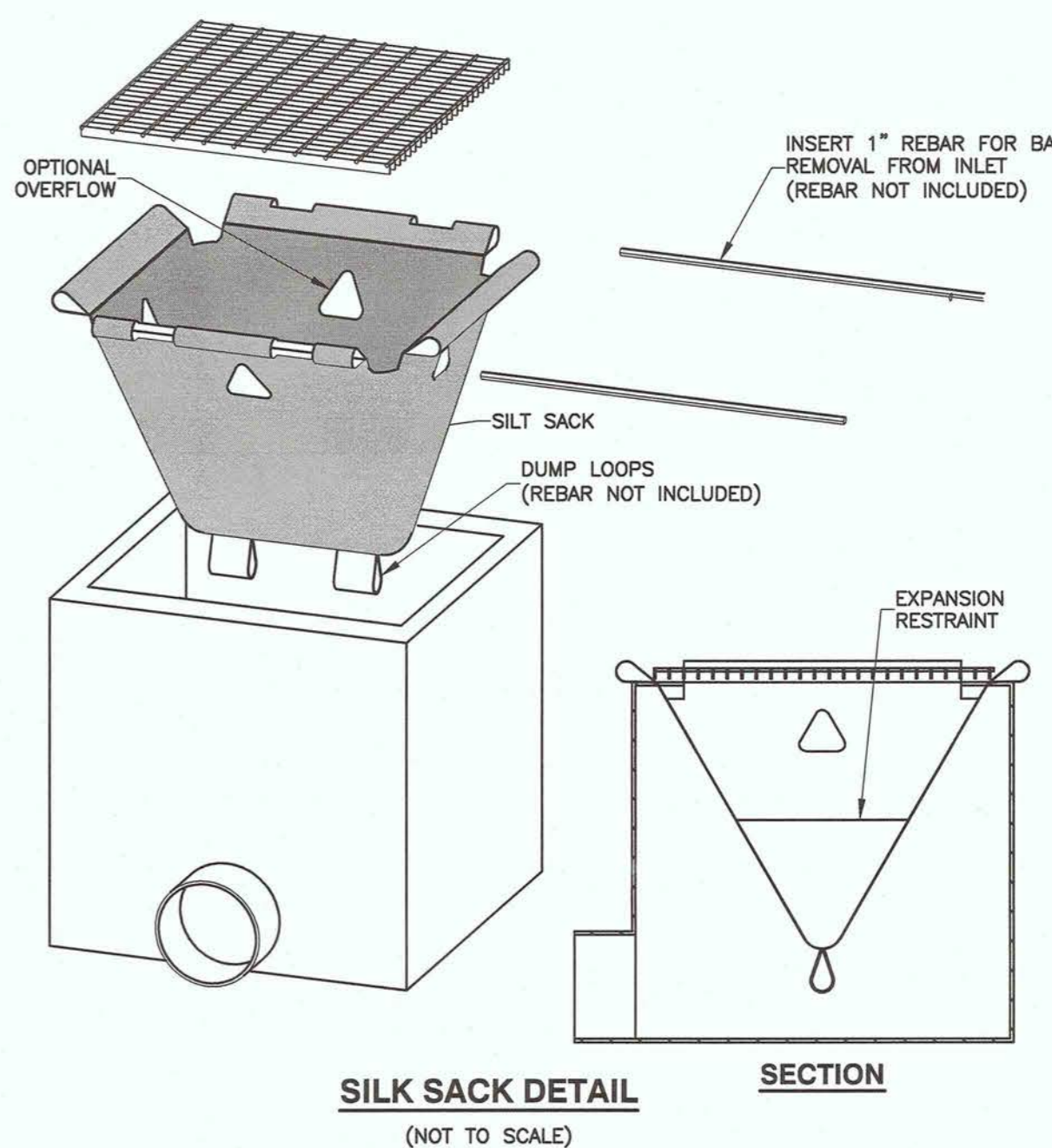
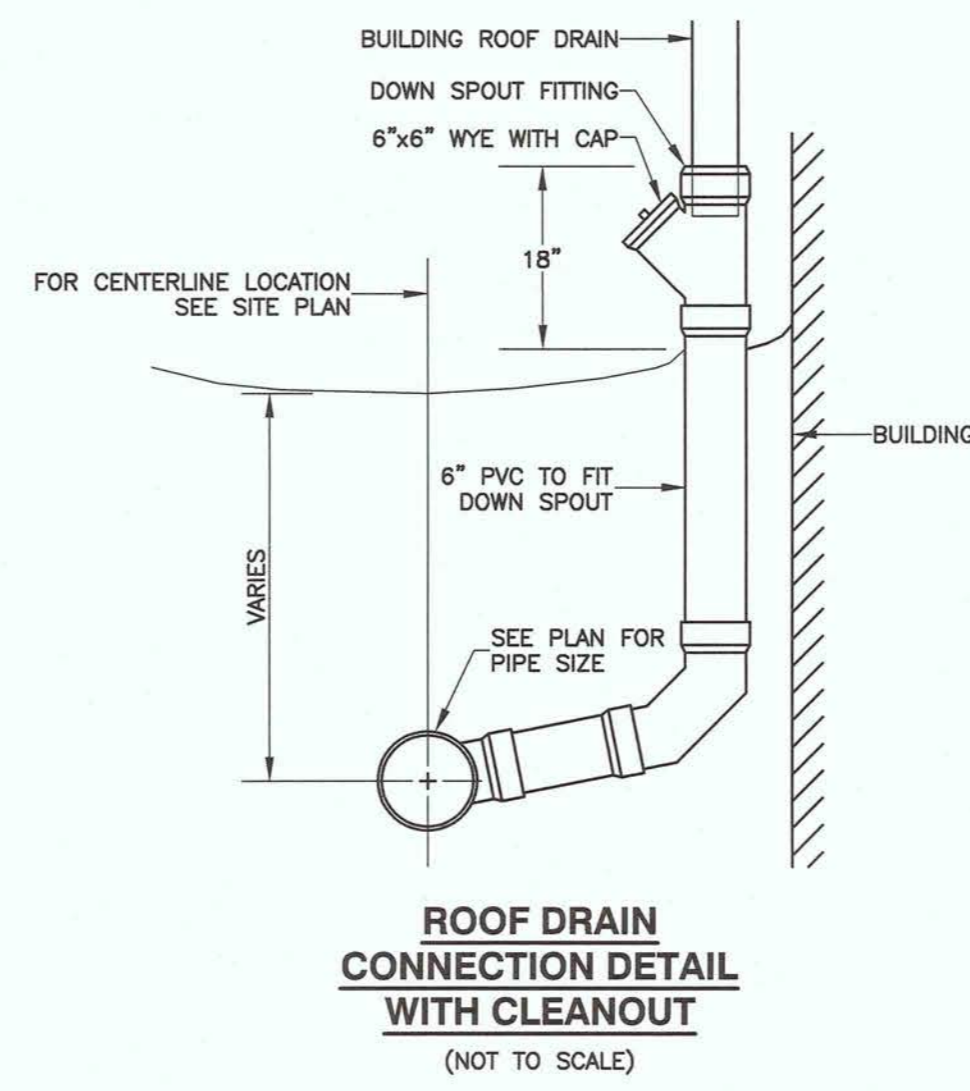
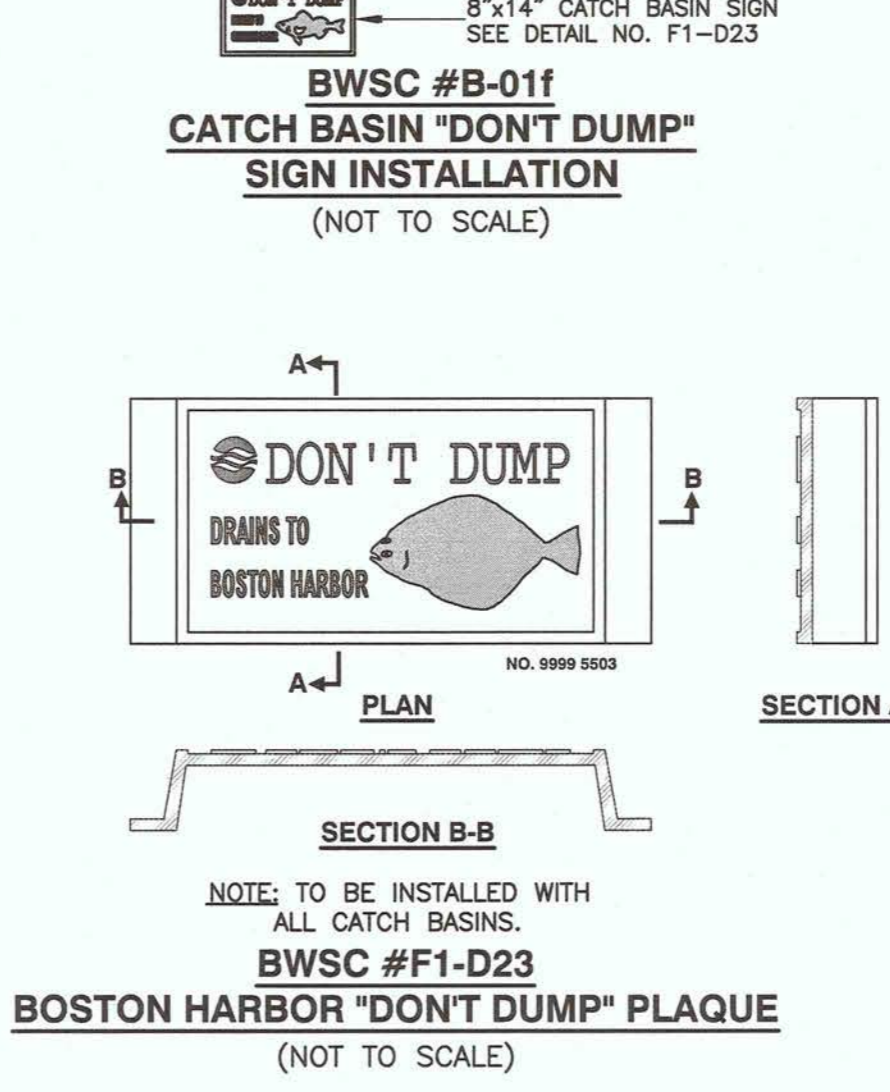
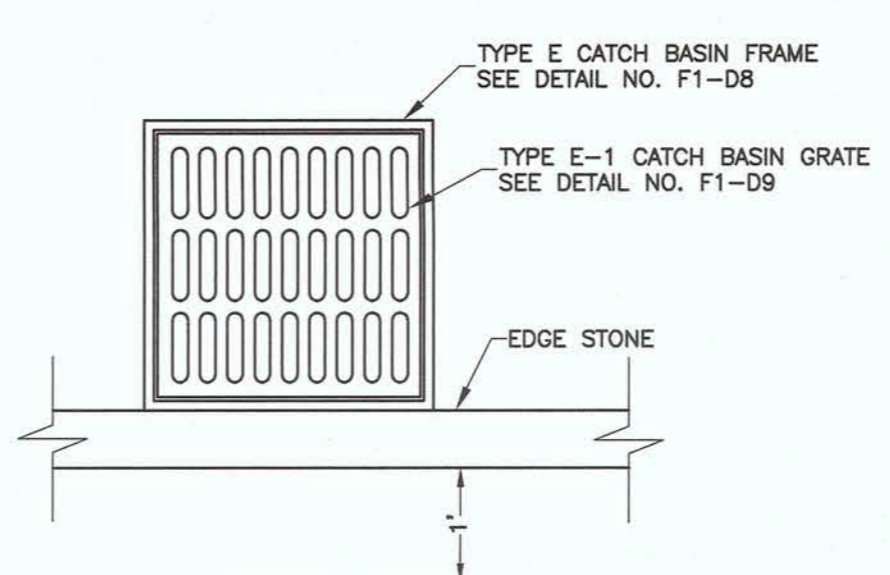
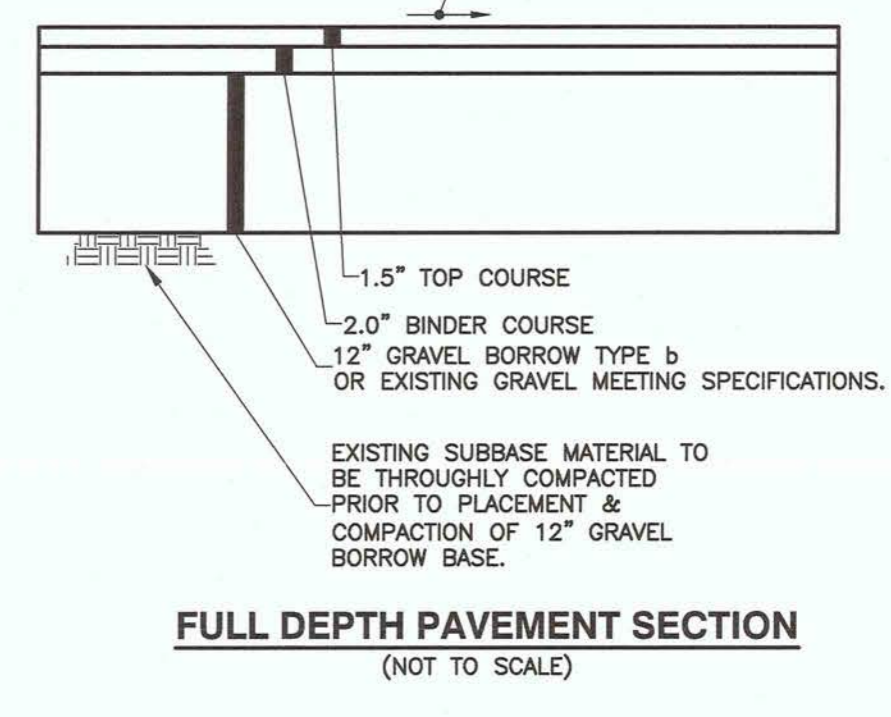
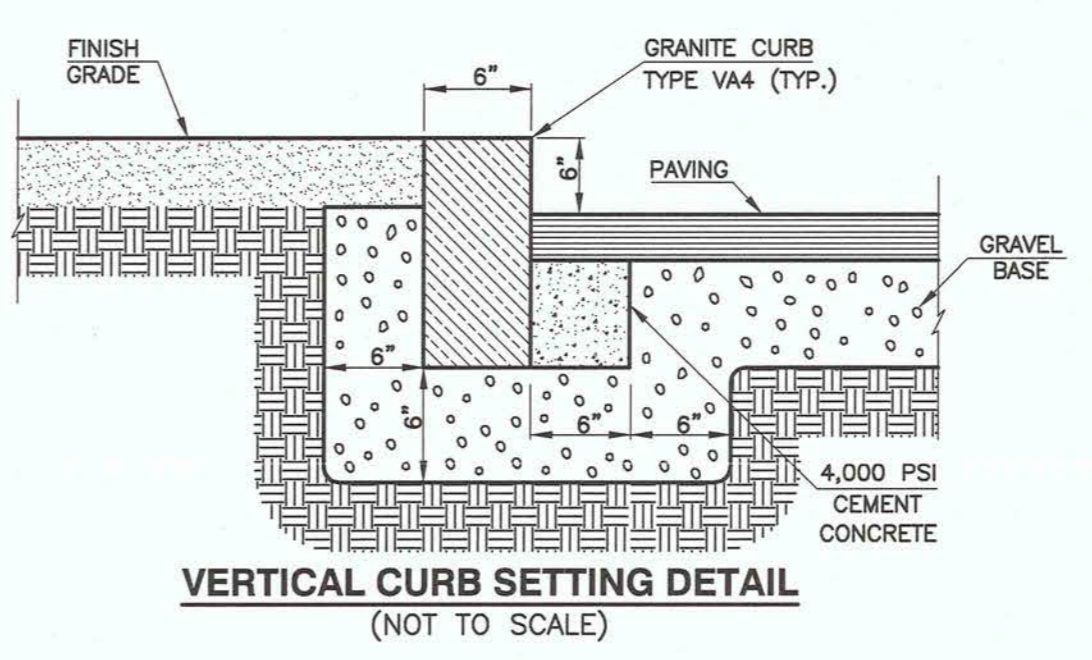
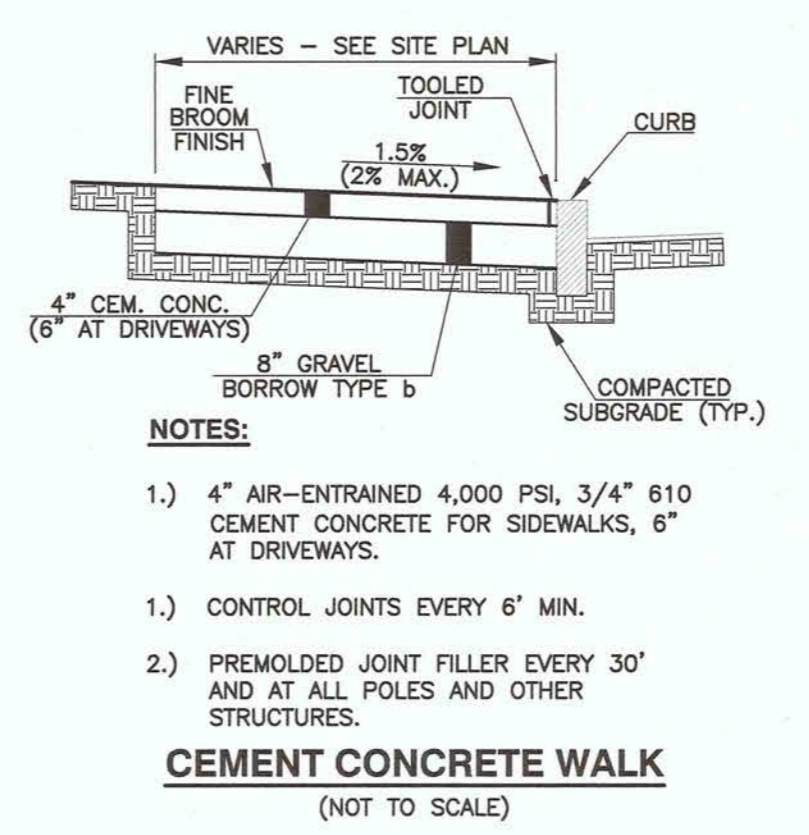
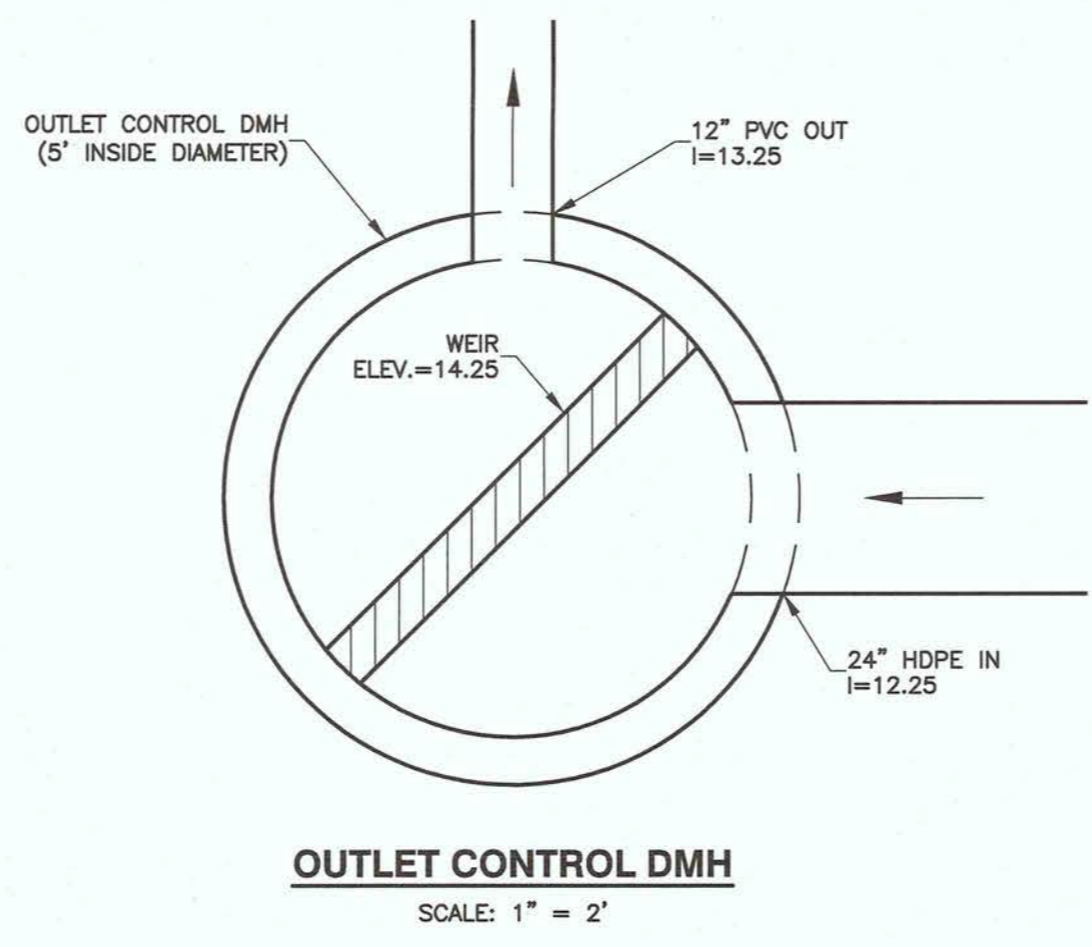
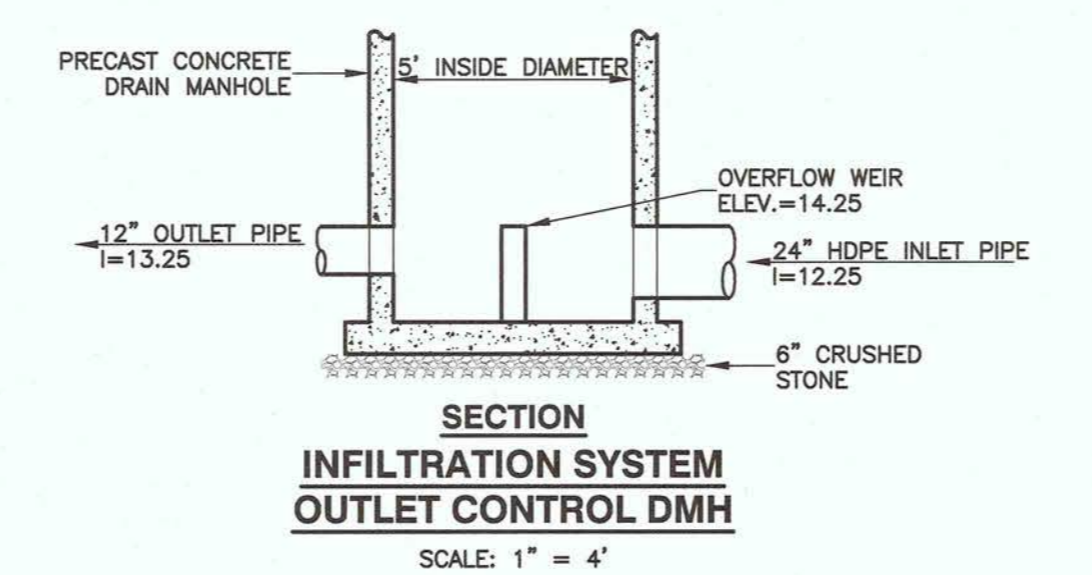
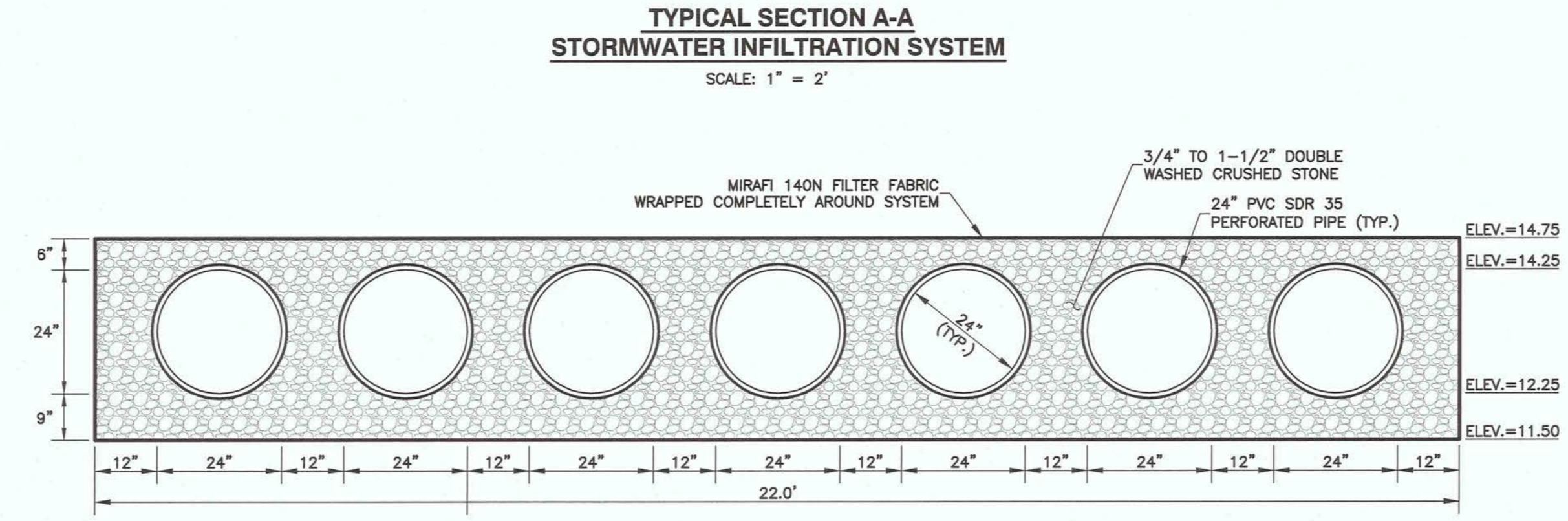
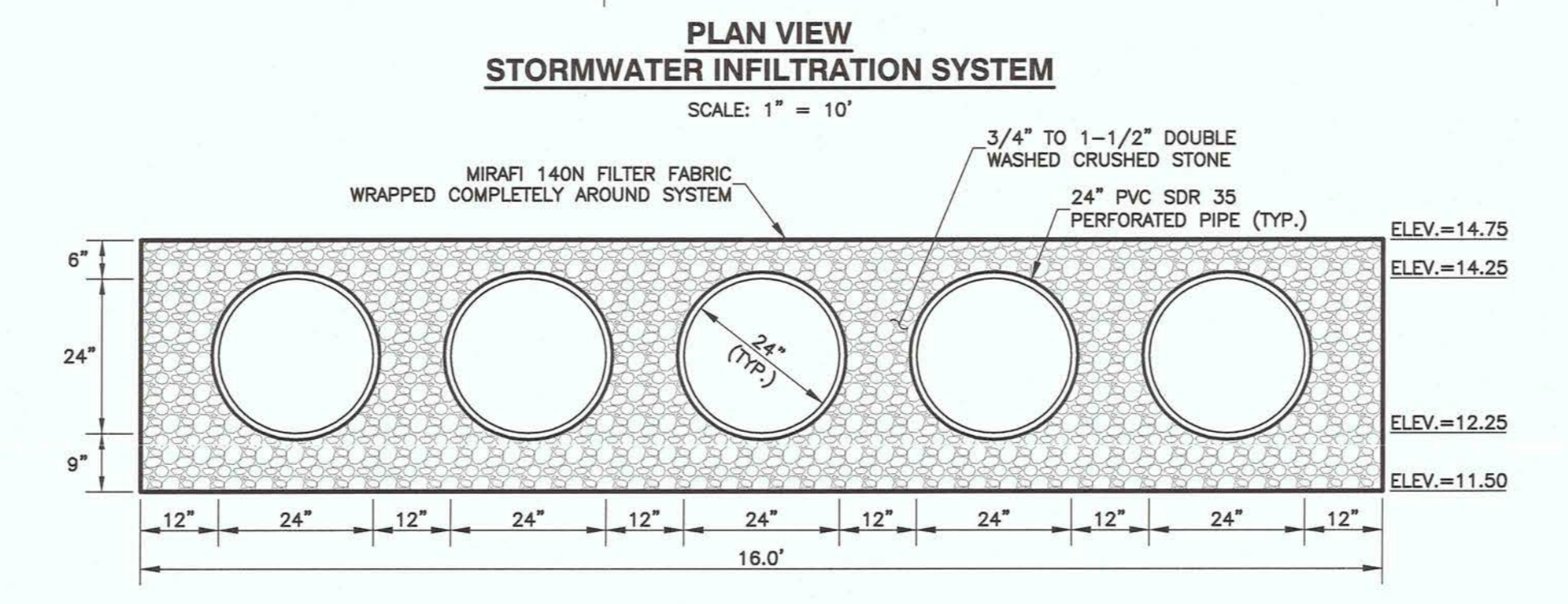
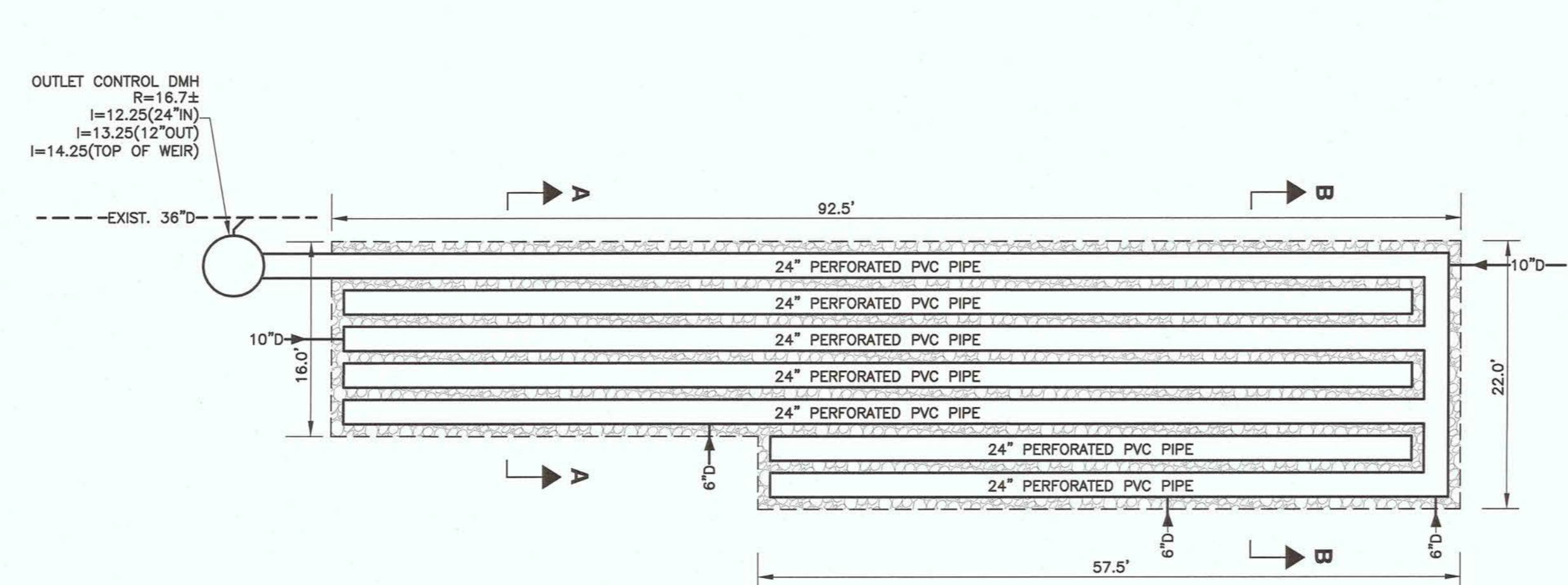
Author  
 DRAWN BY

3183  
 PROJECT #

FILE NAME

**DRAWING NUMBER**  
**C104**

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**PAVEMENT NOTES**

**FULL DEPTH CONSTRUCTION**

**SURFACE COURSE:** 3.5" HOT MIX ASPHALT, PLACED IN TWO COURSES, 1.5" TOP COURSE MATERIAL OVER 2.0" BINDER COURSE.

**BASE COURSE:** 12" COMPACTED GRAVEL BORROW TYPE b OR EXISTING GRAVEL MEETING SPECIFICATIONS.

**HOT MIX ASPHALT OVERLAY**

**SURFACE COURSE:** 1.5" HOT MIX ASPHALT, PLACED IN ONE LAYER OF TOP COURSE MATERIAL.

**LEVELING COURSE:** 1" MINIMUM HOT MIX ASPHALT PLACED IN ONE LAYER. LEVELING COURSE TO BE PLACED AS REQUIRED TO CREATE A TRUE CROSS-SECTION PRIOR TO OVERLAY.

**SURFACE PREPARATION:** THE EXISTING SURFACE SHALL BE PREPARED BY COLD PLANING TO SUFFICIENT DEPTHS TO ACCOMMODATE THE PROPOSED PROFILE. A TACK COAT OF BITUMEN (RS-1) SHALL BE UNIFORMLY APPLIED BY MECHANICAL MEANS AT A RATE OF 0.05 GALLONS PER SQUARE YARD. THE EXISTING SURFACE SHALL BE CLEANED OF ALL FOREIGN MATTER AND LOOSE MATERIAL AND SHALL BE DRY BEFORE THE TACK COAT IS APPLIED.

**NOTE:** FINAL 1.5" OF PAVEMENT WILL BE PLACED OVER ENTIRE ROADWAY AT ONE TIME.

CALCIUM CHLORIDE OR WATER FOR ROADWAY DUST CONTROL.

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**REVISIONS**

NO.	DATE	DESCRIPTION
1	03-21-18	GENERAL
2		
3		
4		
5		

**DRAWING TITLE**  
 Site Details Plan

**DRAWING INFORMATION**

DATE OF ISSUE: March 6, 2018  
 PROJECT #:  
 SCALE: 3/8" = 1'-0"  
 DRAWN BY:  
 PROJECT #:  
 FILE NAME:  
 DRAWING NUMBER: **C105**