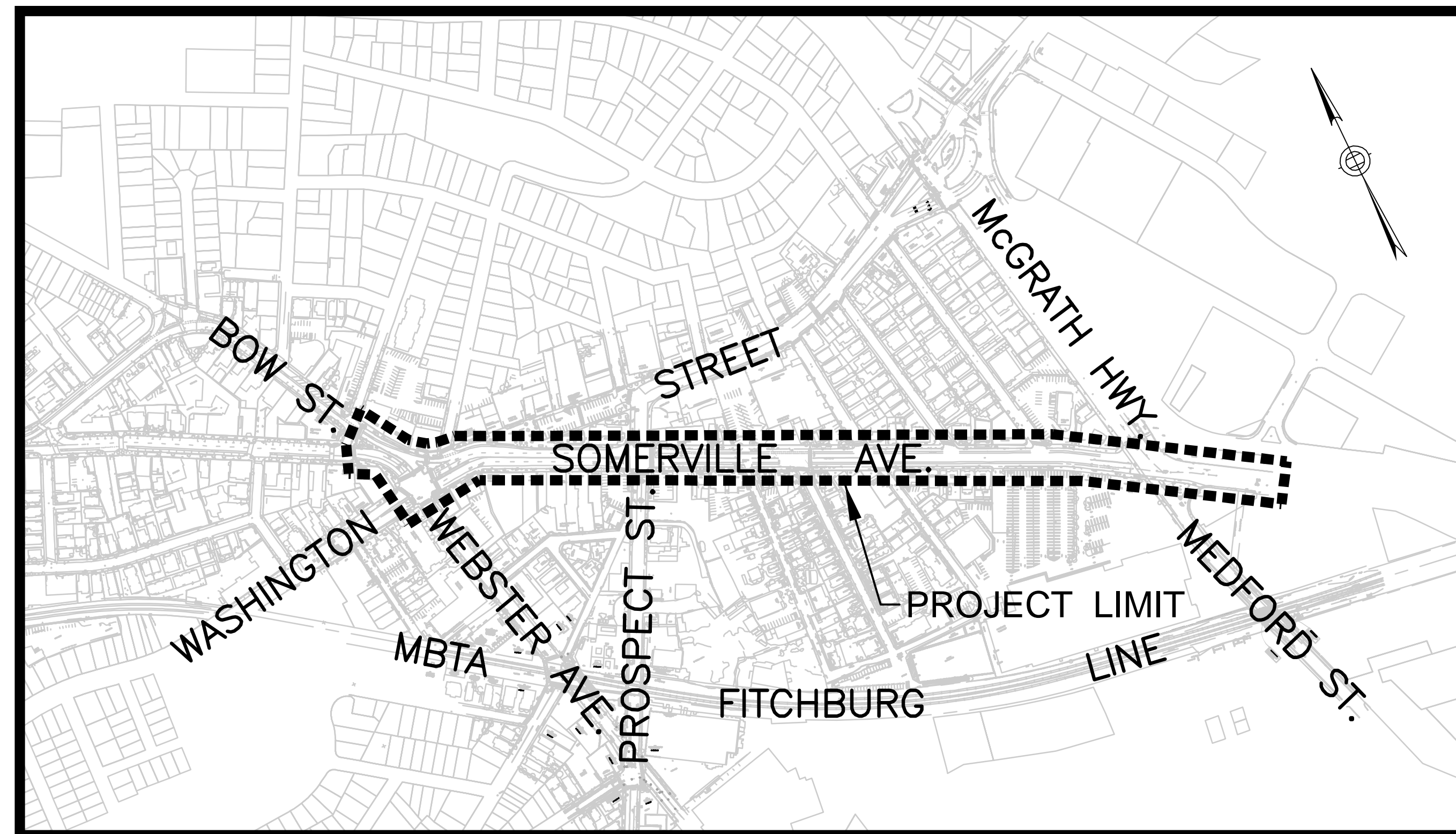


CITY OF SOMERVILLE  
 UNION SQUARE UTILITY AND TRANSPORTATION IMPROVEMENTS  
 CONSTRUCTION PACKAGES 2 & 3  
 SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS  
 IFB #18-24  
 SOMERVILLE, MASSACHUSETTS



**LOCUS MAP**

SCALE: 1"=300'



**WSP | PARSONS BRINCKERHOFF**  
 75 ARLINGTON STREET BOSTON, MA 02116  
 Phone: (617) 426-7330, FAX: (617) 482-0642

**STANTEC CONSULTING SERVICES, INC.**  
 285 SUMMER STREET BOSTON, MA 02210  
 Phone: (617) 314-7100, FAX: (617) 314-7150

**TOOLE DESIGN GROUP, LLC**  
 33 BROAD STREET BOSTON, MA 02109  
 Phone: (617) 619-9910, FAX: (301) 927-2800

**BRYANT ASSOCIATES, INC.**  
 98 NORTH WASHINGTON STREET, SUITE B-1, BOSTON, MA 02114  
 Phone: (617) 248-0300, FAX: (617) 248-0212

**HATCH ASSOCIATES CONSULTANTS, INC.**  
 27 CONGRESS STREET, SUITE 508, SALEM, MA 01970  
 Phone: (978) 740-0096, FAX: (412) 809-6611

**BSI ENGINEERING, INC.**  
 100 HALLET STREET BOSTON, MA 02124  
 Phone: (617) 265-4200, FAX: (617) 209-1297

**PEER CONSULTANTS, PC**  
 99 SOUTH BEDFORD STREET BURLINGTON, MA 01803  
 Phone: (781) 238-8880, FAX: (781) 238-8884

**IRRIGATION CONSULTING, INC.**  
 4 HOTEL PLACE PEPPERELL, MA 01463  
 Phone: (978) 433-8972, FAX: (978) 433-2788

VOLUME 1 OF 3  
 DATE: Dec. 11, 2017

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2017-12-05 2:03 PM T:\52647LS Union Square Study and Design\SH1 DWG\CP-2\_CP-3 Sewer Separation\General\C-2.dwg

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

## SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS

# CONTRACT CP-2/CP-3 SEWER SEPARATION AND WATER REPLACEMENT INDEX OF DRAWINGS SHEET 1 OF 2

DESIGNED: N/A	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET	
CHECKED: LAC		<div style="font-size: 2em; font-weight: bold; text-align: center;">G-2</div>	
DRAWN: LAC	REF.		
CHECKED: RJB	ACC.		DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143



# VOLUME 3 OF 3

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TM-83	WATER MAIN REPLACEMENT TMP SEGMENT 5-6 SHEET 2 OF 2
TM-84	WATER MAIN REPLACEMENT TMP SEGMENT 5-7 SHEET 1 OF 3
TM-85	WATER MAIN REPLACEMENT TMP SEGMENT 5-7 SHEET 2 OF 3
TM-86	WATER MAIN REPLACEMENT TMP SEGMENT 5-7 SHEET 3 OF 3
TM-87	WATER MAIN REPLACEMENT TMP SEGMENT 5-8 SHEET 1 OF 1
TM-88	WATER MAIN REPLACEMENT TMP SEGMENT 5-9 SHEET 1 OF 1
TM-89	WATER MAIN REPLACEMENT TMP SEGMENT 5-10 SHEET 1 OF 1
TM-90	WATER MAIN REPLACEMENT TMP SEGMENT 5-11 SHEET 1 OF 1
TM-91 to TM-110	NOT USED
TM-111	TRAFFIC MANAGEMENT PLAN - STAGE 1A - SHEET 1 OF 2
TM-112	TRAFFIC MANAGEMENT PLAN - STAGE 1A - SHEET 2 OF 2
TM-113	TRAFFIC MANAGEMENT - STAGE 1A - DETOUR PLAN
TM-114	UPSTREAM SEWER RELOCATION- STAGE 1A-2
TM-115	UPSTREAM SEWER RELOCATION- STAGE 1A-3
TM-116 to TM-120	NOT USED
TM-121	TRAFFIC MANAGEMENT PLAN - STAGE 1B
TM-122 to TM-124	NOT USED
TM-125	TRAFFIC MANAGEMENT - STAGE 1B - DETOUR PLAN

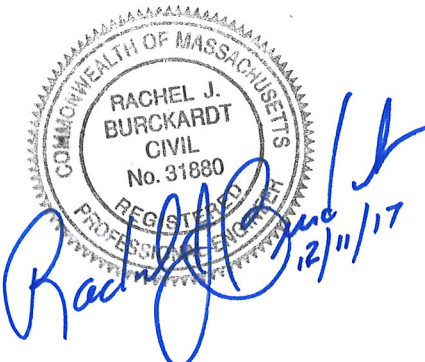
## TRAFFIC MANAGEMENT (CONTINUED)

TM-126 to TM-130	NOT USED
TM-131	TRAFFIC MANAGEMENT PLAN - STAGE 1C - SHEET 1 OF 2
TM-132	TRAFFIC MANAGEMENT PLAN - STAGE 1C - SHEET 2 OF 2
TM-133 to TM-134	NOT USED
TM-135	TRAFFIC MANAGEMENT PLAN- STAGE 1D-1- SHEET 1 OF 2
TM-136	TRAFFIC MANAGEMENT PLAN- STAGE 1D-1- SHEET 2 OF 2
TM-137	TRAFFIC MANAGEMENT - STAGE 1D-1- DETOUR PLAN
TM-138	TRAFFIC MANAGEMENT PLAN- STAGE 1D-2
TM-139	TRAFFIC MANAGEMENT- STAGE 1D-2- DETOUR PLAN
TM-140	TRAFFIC MANAGEMENT PLAN- STAGE 1D-3
TM-141	NOT USED
TM-142	TRAFFIC MANAGEMENT PLAN- STAGE 1D-4- SHEET 1 OF 2
TM-143	TRAFFIC MANAGEMENT PLAN- STAGE 1D-4- SHEET 2 OF 2
TM-144	TRAFFIC MANAGEMENT- STAGE 1D-4- DETOUR PLAN
TM-145	TRAFFIC MANAGEMENT PLAN - STAGE 1D-5
TM-146 to TM-150	NOT USED
TM-151	TRAFFIC MANAGEMENT PLAN - STAGE 1E-1 - SHEET 1 OF 2
TM-152	TRAFFIC MANAGEMENT PLAN - STAGE 1E-1 - SHEET 2 OF 2
TM-153	TRAFFIC MANAGEMENT - STAGE 1E-1 - DETOUR PLAN - SHEET 1 OF 2
TM-154	TRAFFIC MANAGEMENT - STAGE 1E-1 - DETOUR PLAN - SHEET 2 OF 2
TM-155	TRAFFIC MANAGEMENT PLAN - STAGE 1E-2
TM-156	TRAFFIC MANAGEMENT - STAGE 1E-2 - DETOUR PLAN
TM-157 to TM-160	NOT USED
TM-161	TRAFFIC MANAGEMENT PLAN - STAGE 1F
TM-162 to TM-164	NOT USED
TM-165	TRAFFIC MANAGEMENT - STAGE 1F - DETOUR PLAN
TM-166 to TM-200	NOT USED
TM-201	TRAFFIC MANAGEMENT PLAN - STAGE 2A
TM-202 to TM-204	NOT USED
TM-205	TRAFFIC MANAGEMENT - STAGE 2A - DETOUR PLAN
TM-206 to TM-210	NOT USED
TM-211	TRAFFIC MANAGEMENT PLAN - STAGE 2B - SHEET 1 OF 2
TM-212	TRAFFIC MANAGEMENT PLAN - STAGE 2B - SHEET 2 OF 2
TM-213 to TM-214	NOT USED
TM-215	TRAFFIC MANAGEMENT - STAGE 2B - DETOUR PLAN
TM-216 to TM-220	NOT USED
TM-221	TRAFFIC MANAGEMENT PLAN - STAGE 2C - SHEET 1 OF 2
TM-222	TRAFFIC MANAGEMENT PLAN - STAGE 2C - SHEET 2 OF 2
TM-223 to TM-224	NOT USED
TM-225	TRAFFIC MANAGEMENT - STAGE 2C - DETOUR PLAN
TM-226 to TM-230	NOT USED
TM-231	TRAFFIC MANAGEMENT PLAN - STAGE 2D - SHEET 1 OF 2
TM-232	TRAFFIC MANAGEMENT PLAN - STAGE 2D - SHEET 2 OF 2
TM-233 to TM-234	NOT USED
TM-235	TRAFFIC MANAGEMENT - STAGE 2D - DETOUR PLAN
TM-236 to TM-240	NOT USED
TM-241	TRAFFIC MANAGEMENT PLAN - STAGE 2E - SHEET 1 OF 2
TM-242	TRAFFIC MANAGEMENT PLAN - STAGE 2E - SHEET 2 OF 2
TM-243 to TM-244	NOT USED
TM-245	TRAFFIC MANAGEMENT - STAGE 2E - DETOUR PLAN
TM-246 to TM-250	NOT USED
TM-251	TRAFFIC MANAGEMENT PLAN - STAGE 2F
TM-252 to TM-254	NOT USED
TM-255	TRAFFIC MANAGEMENT - STAGE 2F - DETOUR PLAN
TM-256 to TM-260	NOT USED
TM-261	TRAFFIC MANAGEMENT PLAN - STAGE 2G
TM-262 to TM-264	NOT USED
TM-265	TRAFFIC MANAGEMENT - STAGE 2G - DETOUR PLAN
TM-266 to TM-270	NOT USED
TM-271	TRAFFIC MANAGEMENT PLAN - STAGE 2H - SHEET 1 OF 2
TM-272	TRAFFIC MANAGEMENT PLAN - STAGE 2H - SHEET 2 OF 2
TM-273 to TM-274	NOT USED
TM-275	TRAFFIC MANAGEMENT - STAGE 2H - DETOUR PLAN
TM-276 to TM-280	NOT USED
TM-281	TRAFFIC MANAGEMENT PLAN - STAGE 2I
TM-282 to TM-284	NOT USED
TM-285	TRAFFIC MANAGEMENT - STAGE 2I - DETOUR PLAN
TM-286 to TM-290	NOT USED
TM-291	TRAFFIC MANAGEMENT PLAN - STAGE 2J-1
TM-292	TRAFFIC MANAGEMENT PLAN - STAGE 2J-2
TM-293 to TM-294	NOT USED
TM-295	TRAFFIC MANAGEMENT - STAGE 2J - DETOUR PLAN
TM-296 to TM-300	NOT USED
TM-301	TRAFFIC MANAGEMENT PLAN - STAGE 2K-1

## TRAFFIC MANAGEMENT (CONTINUED)

TM-302	TRAFFIC MANAGEMENT PLAN - STAGE 2K-2
TM-303 to TM-310	NOT USED
TM-311	TRAFFIC MANAGEMENT PLAN - STAGE 2L
TM-312 to TM-339	NOT USED
TM-340	DOWNSTREAM SEWER RELOCATION - TYPICAL SETUP 'A'
TM-341	DOWNSTREAM SEWER RELOCATION - TYPICAL SETUP 'B'
TM-342	DOWNSTREAM SEWER RELOCATION - TYPICAL SETUP 'C'
TM-343	DOWNSTREAM SEWER RELOCATION - TYPICAL SETUP 'D'
TM-344	DOWNSTREAM SEWER RELOCATION - TYPICAL SETUP 'E'
TM-345 to TM-410	NOT USED
TM-411	TRAFFIC SIGNAL CHANGES- STAGE 1A - SHEET 1 OF 2
TM-412	TRAFFIC SIGNAL CHANGES- STAGE 1A - SHEET 2 OF 2
TM-413 to TM-420	NOT USED
TM-421	TRAFFIC SIGNAL CHANGES- STAGE 1B - SHEET 1 OF 2
TM-422	TRAFFIC SIGNAL CHANGES- STAGE 1B - SHEET 2 OF 2
TM-423 to TM-424	NOT USED
TM-425	TRAFFIC SIGNAL CHANGES- STAGE 1C- SHEET 1 OF 2
TM-426	TRAFFIC SIGNAL CHANGES- STAGE 1C- SHEET 2 OF 2
TM-427 to TM-430	NOT USED
TM-431	TRAFFIC SIGNAL CHANGES- STAGE 1 D-1 - SHEET 1 OF 2
TM-432	TRAFFIC SIGNAL CHANGES- STAGE 1 D-1 - SHEET 2 OF 2
TM-433 to TM-440	NOT USED
TM-441	TRAFFIC SIGNAL CHANGES- STAGE 1E-1 - SHEET 1 OF 2
TM-442	TRAFFIC SIGNAL CHANGES- STAGE 1E-1 - SHEET 2 OF 2
TM-443	TRAFFIC SIGNAL CHANGES- STAGE 1E-2 - SHEET 1 OF 2
TM-444	TRAFFIC SIGNAL CHANGES- STAGE 1E-2 - SHEET 2 OF 2
TM-445 to TM-450	NOT USED
TM-451	TRAFFIC SIGNAL CHANGES- STAGE 1F - SHEET 1 OF 2
TM-452	TRAFFIC SIGNAL CHANGES- STAGE 1F - SHEET 2 OF 2
TM-453 to TM-460	NOT USED
TM-461	TRAFFIC SIGNAL CHANGES- STAGE 2A - SHEET 1 OF 2
TM-462	TRAFFIC SIGNAL CHANGES- STAGE 2A - SHEET 2 OF 2
TM-463 to TM-470	NOT USED
TM-471	TRAFFIC SIGNAL CHANGES- STAGE 2B - SHEET 1 OF 3
TM-472	TRAFFIC SIGNAL CHANGES- STAGE 2B - SHEET 2 OF 3
TM-473	TRAFFIC SIGNAL CHANGES- STAGE 2B - SHEET 3 OF 3
TM-474	NOT USED
TM-475	TRAFFIC SIGNAL CHANGES- STAGE 2C
TM-476 to TM-480	NOT USED
TM-481	TRAFFIC SIGNAL CHANGES- STAGE 2I - SHEET 1 OF 2
TM-482	TRAFFIC SIGNAL CHANGES- STAGE 2I - SHEET 2 OF 2
TM-483 to TM-490	NOT USED
TM-491	TRAFFIC SIGNAL CHANGES- STAGES 2J-1 AND 2J-2 - SHEET 1 OF 2
TM-492	TRAFFIC SIGNAL CHANGES- STAGES 2J-1 AND 2J-2 - SHEET 2 OF 2
TM-493 to TM-510	NOT USED
TM-511	TRAFFIC SIGNAL CHANGES- STAGE 2K-1 - SHEET 1 OF 2
TM-512	TRAFFIC SIGNAL CHANGES- STAGE 2K-1 - SHEET 2 OF 2
TM-513	TRAFFIC SIGNAL CHANGES- STAGE 2K-2 - SHEET 1 OF 2
TM-514	TRAFFIC SIGNAL CHANGES- STAGE 2K-2 - SHEET 2 OF 2
TM-515 to TM-520	NOT USED
TM-521	TRAFFIC SIGNAL CHANGES- STAGE 2L - SHEET 1 OF 2
TM-522	TRAFFIC SIGNAL CHANGES- STAGE 2L - SHEET 2 OF 2
TM-523 to TM-559	NOT USED
TM-560	STREETSCAPE EAST OF PROSPECT TYPICAL TMP PLANS AND SECTION
TM-561 to TM-599	NOT USED
TM-600	EXISTING BUS ROUTES PLAN
TM-601	BUS ROUTE 87 DETOUR PLAN
TM-602	NOT USED
TM-603	BUS ROUTE 87 INBOUND DETOUR PLAN
TM-604	NOT USED
TM-605	BUS ROUTES 86 OB & 91 OB DETOUR PLAN
TM-606	NOT USED
TM-607	BUS ROUTE 85 OB DETOUR PLAN
TM-608 to TM-699	NOT USED
TM-700	BICYCLE DETOUR PLAN

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ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

### SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS

## CONTRACT CP-2/CP-3 SEWER SEPARATION AND WATER REPLACEMENT INDEX OF DRAWINGS SHEET 2 OF 2

DESIGNED: N/A	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET	
CHECKED: LAC		G-3	
DRAWN: LAC	REF.	CONT.	SCALE: N/A
CHECKED: RJB	ACC.		DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

**LEGEND:**

**EXISTING**

- CATCH BASIN
- CABLE TELEVISION MANHOLE
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- MISCELLANEOUS MANHOLE
- SEWER MANHOLE
- TELEPHONE MANHOLE
- WATER MANHOLE
- MWRA WATER MANHOLE
- HANDHOLE
- GAS SHUT-OFF
- WATER SHUT-OFF
- GAS GATE
- STREET LIGHT CONTROL BOX
- WATER GATE
- FIRE HYDRANT
- UTILITY POLE
- LIGHT POLE
- TRASH CAN
- METAL POST
- GUARD POST
- SIGN POST
- SIGN
- DECIDUOUS TREE WITH TRUNK DIAMETER
- SPOT ELEVATION
- RIM ELEVATION EQUALS
- INVERT ELEVATION EQUALS
- TOP OF HATCH
- NO PIPES VISIBLE
- TOP OF WALL ELEVATION EQUALS
- UNDERGROUND CABLE TELEVISION LINE
- UNDERGROUND DRAIN LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND FIRE ALARM
- UNDERGROUND FIBER OPTIC
- UNDERGROUND GAS LINE
- UNDERGROUND MBTA ELECTRIC LINE
- OVERHEAD ELECTRIC LINE
- OVERHEAD TELEPHONE LINE
- OVERHEAD WIRE
- UNDERGROUND SEWER LINE
- UNDERGROUND STREET LIGHTING LINE
- UNDERGROUND TELEPHONE LINE
- UNDERGROUND TRAFFIC CONTROL LINE
- TRAFFIC SIGNAL INTERCONNECT CONDUIT
- UNDERGROUND WATER LINE
- BORING (SEE GENERAL NOTE 16)
- TRAFFIC CONTROL MAST ARM & POLE
- TRAFFIC CONTROL PEDESTRIAN SIGNAL

**PROPOSED**

SEE LEGENDS ON THE VARIOUS PLANS

- ABANDONED IN PLACE UTILITY (RECORD LOCATION)

**ABBREVIATIONS**

ABAN	ABANDON	G.I.	GREEN INFRASTRUCTURE	QL-B	QUALITY LEVEL B SUBSURFACE EXPLORATION
AD	AREA DRAIN; ARITHMETIC DIFFERENCE	GIB	GREEN INFRASTRUCTURE BASIN	QL-C	QUALITY LEVEL C SUBSURFACE EXPLORATION
ADJ	ADJUST	GR.	GRATE	R	RIM, RADIUS
AGGR.	AGGREGATE	GRAN.	GRANITE	R & D	REMOVE AND DISCARD
BIT. CONC.	BITUMINOUS CONCRETE	GND	GROUND	R & R	REMOVE AND RESET
BC	BOTTOM OF CURB	GP	GUARD POST	R & S	REMOVE AND STACK
BCB	BOSTON CITY BASE	GV	GATE VALVE AND BOX	RCP	REINFORCED CONCRETE PIPE
B.O.	BLOW OFF	H	HIGH, HEIGHT	RECONST	RECONSTRUCT
BW	BOTTOM OF WALL	HDPE	HIGH DENSITY POLYETHELENE	REM	REMOVE
CA	CABLE	HH	HANDHOLE	RET.	RETAIN
CATV	CABLE TELEVISION	HMA	HOT MIX ASPHALT	RT.	RIGHT
CB	CATCH BASIN	HP	HIGH PRESSURE	RTE.	ROUTE
CC	CONCRETE CURB	H.S.	HARD SEWER	SAN	SANITARY
CDF	CONTROL DENSITY FILL	HWY	HIGHWAY	SCHED	SCHEDULE
CEM	CEMENT	I	INVERT	SD	STORM DRAIN
CF	CUBIC FOOT	INV.	INVERT	SL	STREET LIGHTING
C.I.	CAST IRON	I.P.	INTERMEDIATE PRESSURE GAS MAIN	SLCB	STREET LIGHTING CONTROL BOX
CLDI	CEMENT LINED DUCTILE IRON	IP	IRON PIPE ELECTRICAL CONDUIT	SMH	SEWER MANHOLE
CLF	CHAIN LINK FENCE	KV	KILO VOLT	SMP	SUMP, OR STORMWATER MANAGEMENT PLAN
CMF	COMBINED MANHOLE (DRAIN OVER SEWER)	L	LENGTH OF CURVE	SOE	SUPPORT OF EXCAVATION
CMP	CORRUGATED METAL PIPE	L.P.	LIGHT POLE	SQ.	SQUARE
COMB	COMBINED	L.P.	LOW PRESSURE	SS	SANITARY SEWER
CONC	CONCRETE	LT.	LEFT	STA.	STATION
CONN	CONNECT, CONNECTION	MASSDOT	MASSACHUSETTS DEPARTMENT OF TRANSPORTATION	SW	SIDEWALK
CORP.	CORPORATION	MAX.	MAXIMUM	TBR	TO BE RELOCATED
CS	COMBINED SEWER	MBTA	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY	TC	TREE CANOPY, TOP OF CURB
CU	COPPER ; CONTINUATION UNKNOWN	MET.W.W.	METROPOLITAN WATER WORKS (NOW MWRA)	T-CAN	TRAFFIC CONTROL
CULV	CULVERT	MH	MANHOLE	TOH	TOP OF HOOD
D	DELTA ANGLE	M.J.	MECHANICAL JOINT	TOW	TOP OF WATER
DB	DRAIN BASIN	MIN.	MINIMUM	TR	TOP OF RAIL
DBL.	DOUBLE	MWRA	MASSACHUSETTS WATER RESOURCES AUTHORITY	TS	TRAFFIC SIGNAL
DEFL.	DEFLECTION	NAVD	NORTH AMERICAN VERTICAL DATUM	TSCB	TRAFFIC SIGNAL CONTROL BOX
DIA.	DIAMETER	NVP	NO PIPE VISIBLE	TSIC	TRAFFIC SIGNAL INTERCONNECT CONDUIT
DI	DUCTILE IRON, DROP INLET	O.C.	ON CENTER	TYP.	TYPICAL
DIP	DUCTILE IRON PIPE	O.D.	OUTSIDE DIAMETER	TW	TOP OF WALL
DMH	DRAIN MANHOLE	OH	OVERHEAD	UNK.	UNKNOWN
EG	EXISTING GRADE	PC	POINT OF CURVATURE	UNO	UNLESS NOTED OTHERWISE
EL	ELBOW OR BEND	PCC	POINT OF COMPOUND CURVE	U.O.	UNDERDRAIN
ELEV.	ELEVATION	PE	PLAIN END	VC	VITRIFIED CLAY
EOP	EDGE OF PAVEMENT	PED.	PEDESTRIAN	VC	VERTICAL CURVE
EXIST.	EXISTING	PGL	PROFILE GRADE LINE	VCP	VITRIFIED CLAY PIPE
EXT.	EXTENSION	POB	POINT OF BEGINNING	VGC	VERTICAL GRANITE CURB
E.W.	EACH WAY	PRC	POINT OF REVERSED CURVATURE	W/	WITH
FA	FIRE ALARM	PROP	PROPOSED	WCR	WHEELCHAIR RAMP
F&C	FRAME & COVER	PSI	POUNDS PER SQUARE INCH	WI	WROUGHT IRON
FG	FINISH GRADE	PT	POINT OF TANGENCY	WQMH	WATER QUALITY MANHOLE
FHWA	FEDERAL HIGHWAY ADMINISTRATION	PVI	POINT OF VERTICAL INTERSECTION		
FL	FLANGE	PVC	POLY VINYL CHLORIDE		
FO	FIBER OPTIC				

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

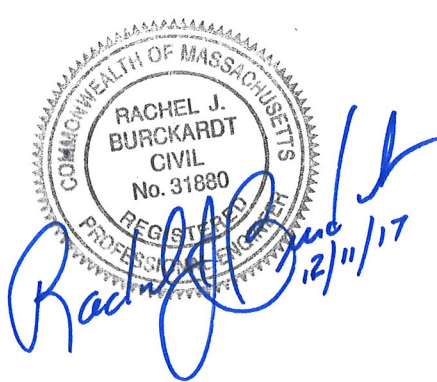
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
LEGEND & ABBREVIATIONS**

DESIGNED: N/A		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
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CHECKED: RJB	ACC.	DATE: DEC 2017	

SHEET  
**G-4**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143



NO.	DATE	REVISIONS	BY

GENERAL NOTES

- TOPOGRAPHIC INFORMATION IS BASED ON AERIAL AND GROUND SURVEY BY BRYANT ASSOCIATES, INC. PERFORMED IN 2014.
- THE UTILITY INFORMATION SHOWN IS COMPILED BASED ON FIELD SURVEY BY BRYANT ASSOCIATES, INC IN 2014 AND BY RECORD INFORMATION OBTAINED FROM VARIOUS UTILITY COMPANIES. LOCATION OF MAJOR BRICK SEWERS ON SOMERVILLE AVENUE FROM WEBSTER AVE. TO MEDFORD ST. ARE BASED ON LASER SCANS OF THE INSIDE OF THE LINES PERFORMED BY WSP | PARSONS BRINCKERHOFF IN APRIL THROUGH JULY 2016. ADDITIONAL SUBSURFACE UTILITY EXPLORATION WORK PERFORMED BY BSI ENGINEERING, INC. IN JULY, AUGUST 2016 AND SEPTEMBER 2017. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM RECORD PLANS AND ARE APPROXIMATE ONLY. LOCATIONS OF UNDERGROUND STRUCTURES MAY VARY FROM LOCATIONS SHOWN HEREON. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED. THE PROPER UTILITY ENGINEERING DEPARTMENT/COMPANY SHALL BE CONSULTED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHALL BE DETERMINED IN THE FIELD.
  - ALL UTILITY COMPANIES, PUBLIC AND PRIVATE INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THE DRAWINGS MUST BE NOTIFIED (STATE OF MA, ACTS OF 1963, CHAPTER 370) PRIOR TO EXCAVATING, INSTALLING, BACKFILLING, AND GRADING OR PAVEMENT RESTORATION.
  - CONTACT THE DIG SAFE CALL CENTER AT 1-888-344-7233 AT LEAST SEVENTY-TWO HOURS PRIOR TO EXCAVATION, GRADING AND/OR PAVING.
  - ALSO CONTACT THE CITY, MWRA AND OTHER UTILITIES NOT COVERED BY DIG SAFE AT LEAST 72 HOURS PRIOR TO START OF EXCAVATION.
- ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM (NAVD88) FOR VERTICAL DATUM HORIZONTAL COORDINATES REFER TO MASSACHUSETTS STATE PLANE - MAINLAND ZONE THE NORTH AMERICAN DATUM OF 1983.
- PROTECT CATCH BASINS, INLETS AND MANHOLES FROM INFLOW OF SEDIMENT OR OTHER CONSTRUCTION DEBRIS. GROUND WATER DEWATERING SHALL PASS THROUGH AN APPROVED SEDIMENTATION BASIN PRIOR TO DISCHARGE TO ANY CB, INLET, MANHOLE, DITCH, BASIN, OR WATERBODY.
- THE CONTRACTOR SHALL SUPPORT IN PLACE ALL UTILITIES CROSSING TRENCH EXCAVATIONS AND SHALL BE RESPONSIBLE FOR THE SELECTION AND DESIGN OF THE TEMPORARY UTILITY SUPPORTS. THE PROPOSED SUPPORT SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE AFFECTED UTILITY OWNER FOR REVIEW AND APPROVAL. THIS WORK IS TO BE ACCOMPLISHED AT NO ADDITIONAL COST TO THE CITY.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN CONTINUOUS UTILITY SERVICE FOR ALL UTILITY SYSTEMS AND TO PREVENT DAMAGE TO ALL UTILITIES.
- PRIOR TO INITIATING LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL SEDIMENT AND EROSION CONTROLS INDICATED ON THE PLANS AND SPECIFICATIONS.
- EXISTING TREES SHALL BE PRESERVED AND PROTECTED, EXCEPT FOR THOSE SHOWN TO BE REMOVED ON DRAWING L-0.
- INSTALLATION OF TEMPORARY SIGNS, DRUMS, BARRICADES, AND OTHER WARNING DEVICES FOR TRAFFIC MANAGEMENT SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- THE CONTRACTOR SHALL MAINTAIN RECORDS OF THE ACTUAL AS-BUILT LOCATIONS AND DIMENSIONS OF THE WORK. SEE SECTION 01050 FOR SUBMITTAL REQUIREMENTS.
- THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION ACTIVITIES TO THE ESTABLISHED LIMIT OF WORK SHOWN ON THE DRAWINGS AND IN CONJUNCTION WITH TRAFFIC MANAGEMENT PLANS, UNLESS OTHERWISE APPROVED BY THE CITY.
- REMOVE LITTER DAILY WITHIN THE LIMITS OF WORK.
- FOR CONTROL POINTS, SEE EXISTING CONDITIONS PLANS. PROTECT EXISTING CONTROL POINTS FROM DAMAGE DURING CONSTRUCTION.
- PROVIDE NEW GRANITE CURB, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- GRADE EVENLY BETWEEN SPOT GRADES.
- FOR TRAFFIC MANAGEMENT NOTES, SEE SHEET TM-2.
- MAINTAIN ALL STOP AND GO TRAFFIC SIGNALS AT ALL TIMES.
- PROJECT REQUIRES MWRA 8(m) PERMIT WHICH WILL BE OBTAINED BY THE CITY.
- PRIOR TO COLD PLANE OPERATIONS, VERIFY IN THE FIELD THE EXACT LIMITS OF THIS WORK WITH THE ENGINEER. THE CITY RESERVES THE RIGHT TO REVISE THE LIMITS OF COLD PLANE AND OVERLAY.
- MAINTAIN ACCESS TO ABUTTING BUSINESSES, RESIDENCES AND OTHER PROPERTIES.
- ALL CAST-IN-PLACE CONCRETE SHALL BE MIN. 4000 PSI, 3/4" AGGR. CONCRETE, UNLESS OTHERWISE NOTED.
- PRIOR TO THE START OF CONSTRUCTION, FIELD VERIFY EXISTING GRADES ALONG MERRIAM, ROSSMORE AND MANSFIELD STREETS FOR 200 FEET NORTH OF THE BACK OF SIDEWALK OF SOMERVILLE AVENUE.
- RETAIN & PROTECT ALL FIRE ALARM BOXES.

ADDITIONAL UTILITY NOTES

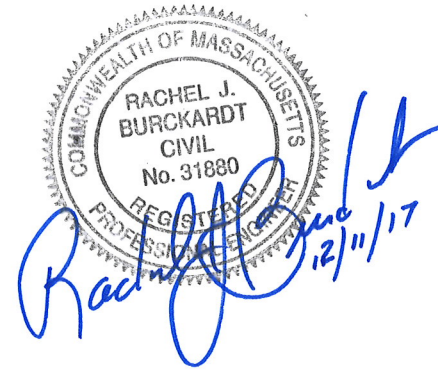
GENERAL

- RESTORATION OF EXISTING CONDITIONS:
  - RESTORATION OF SIDEWALKS: IMMEDIATELY AFTER BACKFILLING, RESTORE SIDEWALKS TO A WALKABLE, ADA-COMPLIANT SURFACE AND WIDTH. RESTORED SIDEWALK SHALL BE EITHER ASPHALT OR THE PERMANENT MATERIAL INDICATED ON THE SURFACE MATERIAL PLANS.
  - RESTORATION OF ROADWAYS: IMMEDIATELY AFTER BACKFILLING, RESTORE ROADWAYS TO GRADE WITH ASPHALT PAVEMENT PATCH, AS DETAILED IN THE CIVIL DRAWINGS. RESTORE ALL PAVEMENT MARKINGS TO PRE-EXISTING CONDITIONS OR AS ORDERED BY THE ENGINEER.
  - RESTORE OTHER MISCELLANEOUS EXISTING CONDITIONS SUCH AS SIGN POSTS, TRAFFIC SIGNS, PARKING METERS, CURBING, WHEELCHAIR RAMPS, CURB CUTS, TREE GRATES, TRASH RECEPTACLES, PAVEMENT MARKINGS, AND THE LIKE IMMEDIATELY AFTER SIDEWALK AND/OR ROADWAY PAVEMENT IS RESTORED.
- MAINTENANCE OF TRAFFIC (GENERAL): MAINTAIN PEDESTRIAN AND VEHICULAR TRAFFIC AS INDICATED ON THE TRAFFIC MAINTENANCE PLANS. DO NOT BLOCK ENTRANCE OR EGRESS TO BUILDINGS. FOR UTILITY RELOCATION WORK NOT INDICATED ON THE TRAFFIC MAINTENANCE PLANS, PROVIDE BARRIERS AND SIGNS AS DIRECTED BY THE ENGINEER.
- MAINTENANCE OF TRAFFIC (WORK BY UTILITY COMPANIES): THOUGH PORTIONS OF THE UTILITY WORK INCLUDED IN THIS CONTRACT WILL BE PERFORMED BY UTILITY COMPANIES OR THEIR CONTRACTORS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC MAINTENANCE REQUIREMENTS INCLUDING THE FOLLOWING:
  - COORDINATION WITH THE CITY OF SOMERVILLE REGARDING VEHICULAR AND PEDESTRIAN MAINTENANCE INCLUDING LANE CLOSURES, DETOURS, SIGNAGE, BARRIERS, FENCING, AND WARNING DEVICES.
  - PROVISION, INSTALLATION, MAINTENANCE, AND REMOVALS OF SIGNS, BARRIERS, FENCES, AND OTHER WARNING DEVICES FOR THE MAINTENANCE AND PROTECTION OF PEDESTRIAN AND VEHICULAR TRAFFIC.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND ADHERE TO THE LATEST REVISION OF SPECIFICATIONS FOR EACH UTILITY AFFECTED BY THIS CONTRACT, INCLUDING (BUT NOT NECESSARILY LIMITED TO) THE FOLLOWING:
  - COMCAST
  - RCN
  - NATIONAL GRID
  - EVERSOURCE ENERGY (GAS & ELECTRIC)
  - VERIZON
- ALL UTILITY COMPANIES SHALL HAVE UNLIMITED ACCESS TO THEIR MANHOLES AT ALL TIMES.
- ALL UTILITIES THAT REQUIRE TEMPORARY SUPPORT SHALL BE OF SOUND AND SUITABLE MATERIALS. IF NOT, THE UTILITIES SHALL BE COMPLETELY REPLACED WITHIN THE LIMITS OF THE SUPPORT SYSTEM WITH NEW, MORE APPROPRIATE MATERIALS. REFER TO THE SPECIFICATION FOR PAYMENT OF THIS ITEM.
- WHERE EXISTING UTILITIES SERVICES CONFLICT WITH SOIL CELLS, SEE DETAIL 3 ON SHEET GI-102.
- MAINTAIN UTILITY SERVICES AT ALL TIMES.
- DO NOT USE VIBRATORY COMPACTORS WITHIN 18" HORIZONTALLY AND VERTICALLY OF A GAS MAIN. SEE DETAIL 5 ON SHEET U-54 AND SPEC. SECTION 02200 PAR. 3.05F.

ABANDONMENT & REMOVAL OF UTILITIES

- WHERE THE PLANS INDICATE THE REMOVAL OF A UTILITY, THE LINE SHALL BE COMPLETELY REMOVED INCLUDING ALL MANHOLES, OTHER STRUCTURES AND APPURTENANCES. THIS WORK SHALL INCLUDE EXCAVATION, SUPPORT OF UTILITIES TO BE RETAINED, SUPPORT OF EXCAVATION, DEWATERING, BACKFILLING, AND RESTORING THE SURFACE PAVEMENT AND CURBING.
- WHERE THE PLANS INDICATE THE REMOVAL OF A UTILITY OWNED BY PRIVATE COMPANIES (SUCH AS EVERSOURCE, COMCAST, RCN, ETC.), THE CONTRACTOR SHALL REMOVE THE UTILITY AFTER IT HAS BEEN TAKEN OUT OF SERVICE AND DECLARED ABANDONED BY THE RESPECTIVE UTILITY OWNER.
- WHERE THE PLANS INDICATE THE ABANDONMENT OF A UTILITY, THE CONTRACTOR SHALL DO ONE OF THE FOLLOWING:
  - ABANDON-IN-PLACE THE LINE, OR
  - REMOVE A PORTION OF THE LINE AND ABANDON-IN-PLACE THE REMAINDER, OR
  - COMPLETELY REMOVE THE LINE.
- FOR THE PORTION OF ANY UTILITY LESS THAN 12 INCHES IN DIAMETER THAT IS ABANDONED-IN-PLACE, THE CONTRACTOR SHALL PLUG THE ENDS OF THE PIPE OR CONDUIT LEFT IN PLACE WITH A MASONRY PLUG. FOR PIPE LINES 12 INCHES IN DIAMETER OR GREATER, THE CONTRACTOR SHALL DO ONE OF THE FOLLOWING:
  - COMPLETELY REMOVE THE LINE AND FOLLOW PROCEDURES FOR THE ABANDONMENT OF UTILITIES, OR
  - COMPLETELY FILL THE LINE WITH GROUT, LEAN CONCRETE, FLOWABLE FILL OR COMPACTED SAND.
- FOR REMOVAL OF ABANDONED-IN-PLACE GAS MAINS OR SERVICES, PROVIDE AT LEAST 90 DAYS NOTICE TO EVERSOURCE GAS AND FOLLOW PROCEDURE IN SPEC. SECTION 02500 PAR. 3.06C.

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ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GENERAL & ADDITIONAL**  
**UTILITY NOTES**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: LAC  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

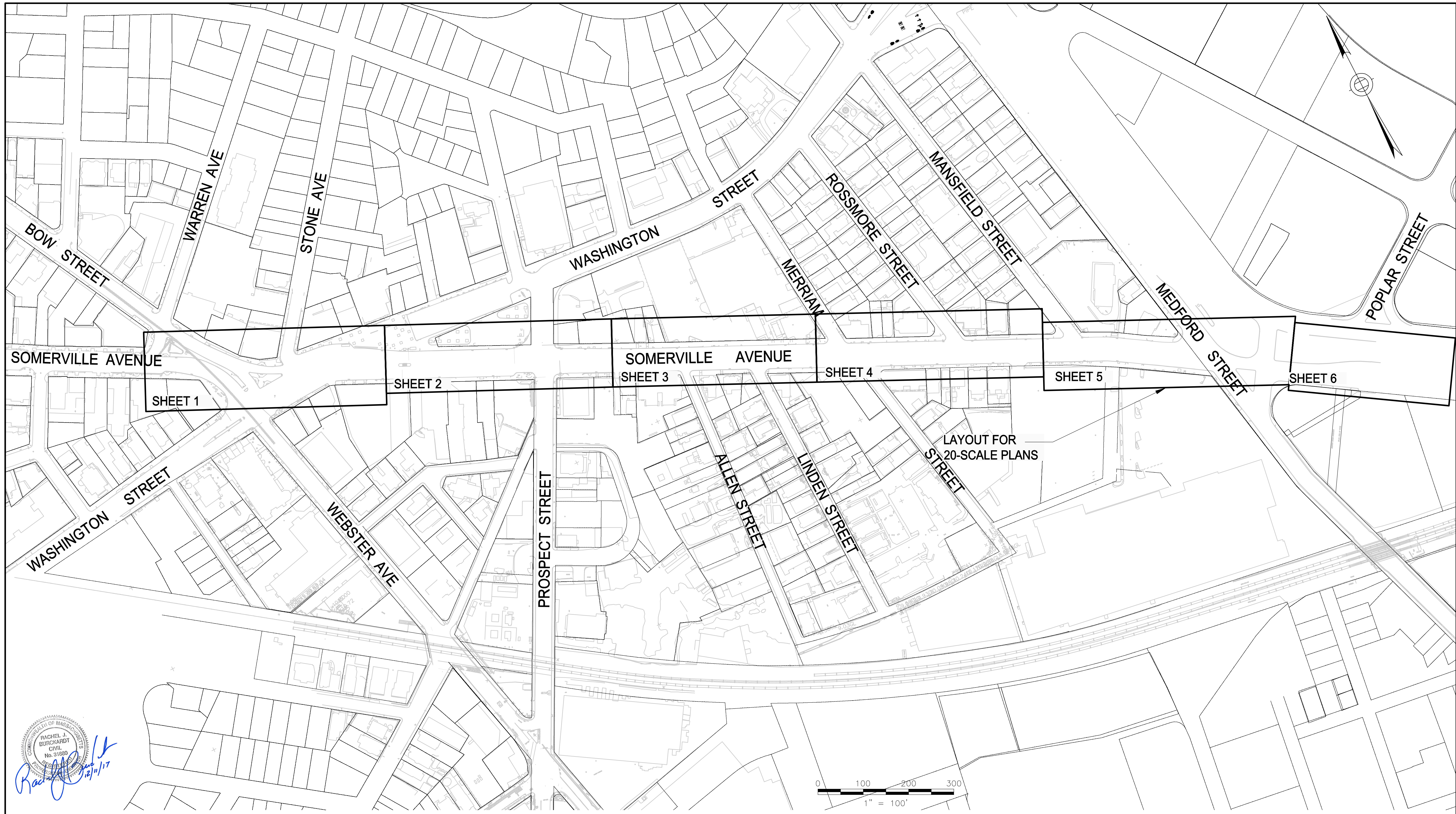
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ACC.		DATE: DEC 2017

SHEET  
G-5

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-11-14 11:13 AM T:\52647LS Union Square Study and Design\SHI DWG\CP-2\_CP-3 Sewer Separation\General\G-6.dwg



Rachel J. Burckhardt
   
 12/11/17

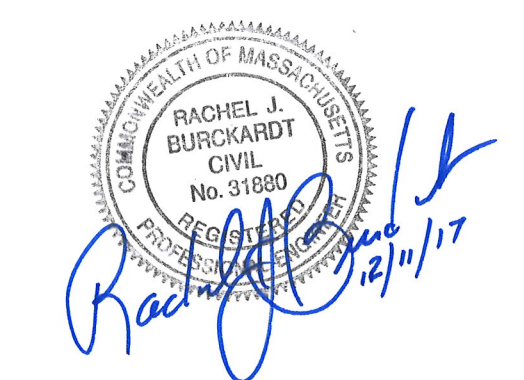
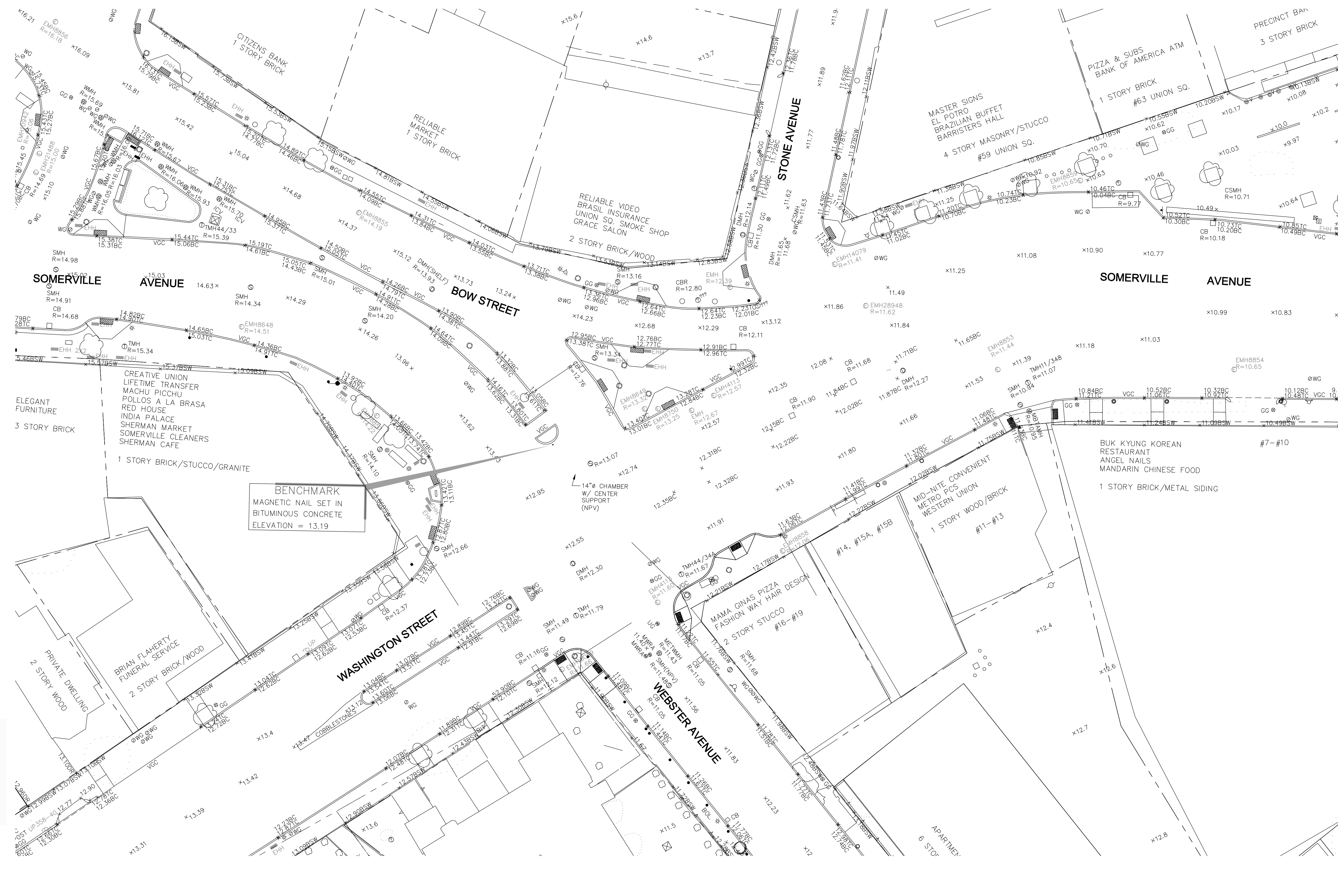
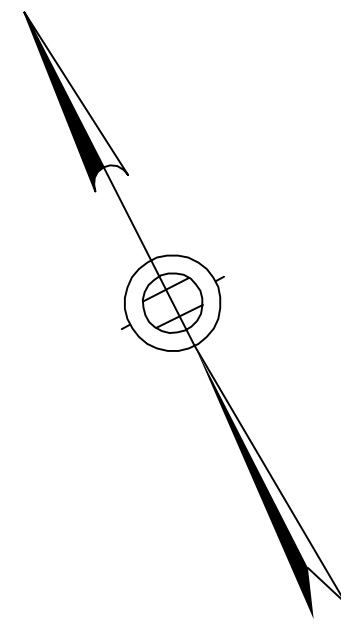
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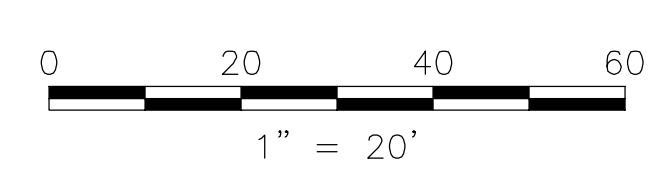
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**KEY PLAN**

DESIGNED: LAC CHECKED: RJB DRAWN: LAC CHECKED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>G-6</b>
REF. ACC.	CONT.	SCALE: 1"=100' DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

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- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-21.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-11.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**SURFACE EXISTING CONDITIONS PLAN**

**SHEET 1 OF 6**

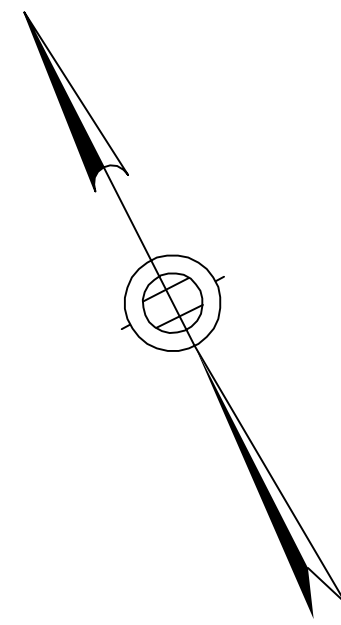
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CHECKED: RJB		REF.	CONT.	
DRAWN: LAC		ACC.		
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143				

NO.	DATE	REVISIONS	BY

SEE SHEET G-12

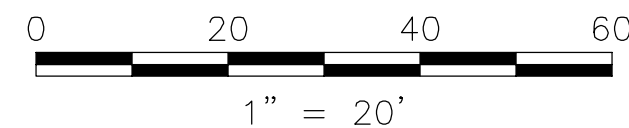
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Rachel J. Burkhardt
   
 Civil
   
 No. 31680
   
 State of Massachusetts
   
 12/11/17

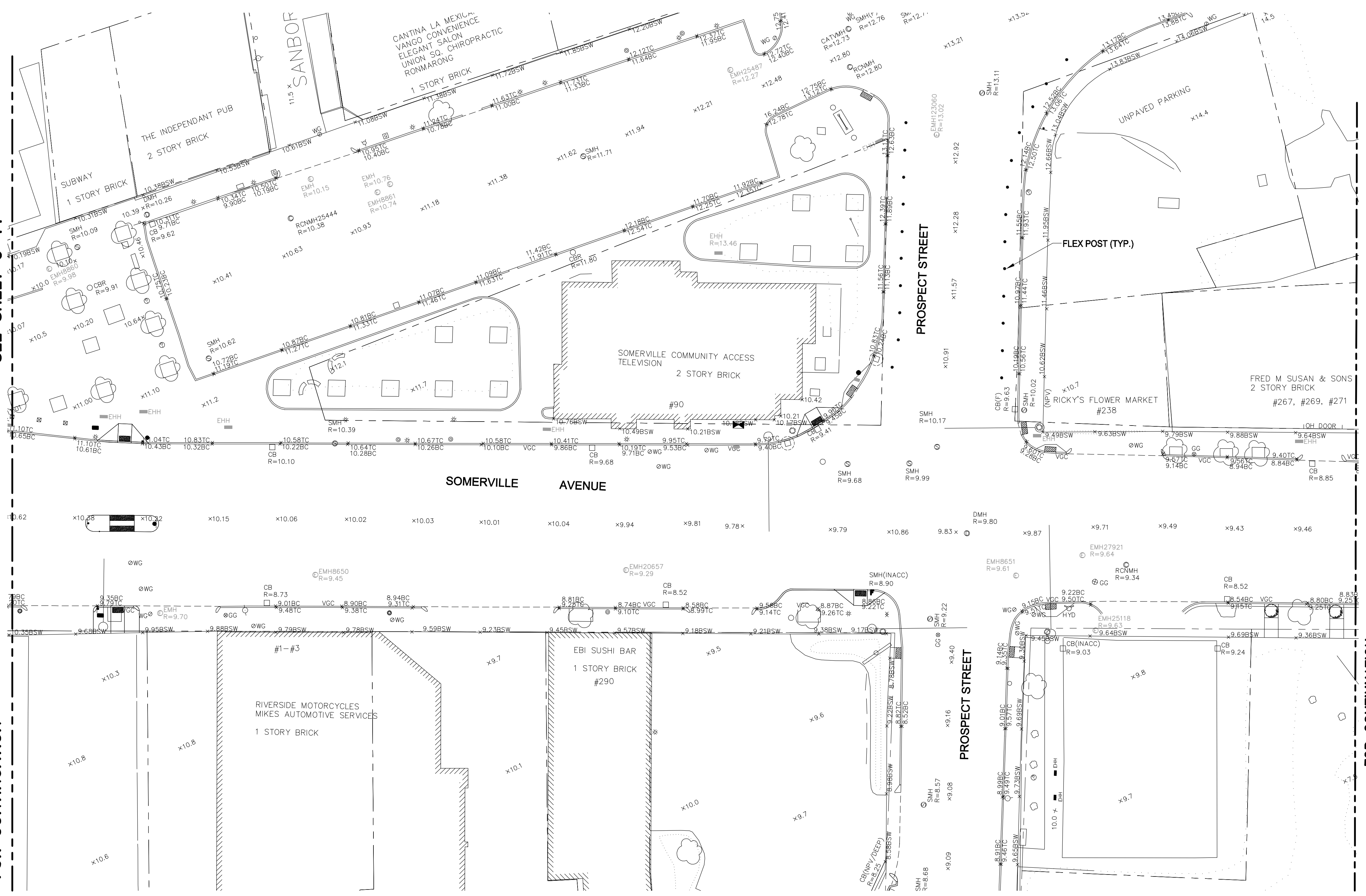
- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-22.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-12.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SEE SHEET G-11

FOR CONTINUATION



SEE SHEET G-13

FOR CONTINUATION

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE EXISTING CONDITIONS PLAN**  
**SHEET 2 OF 6**

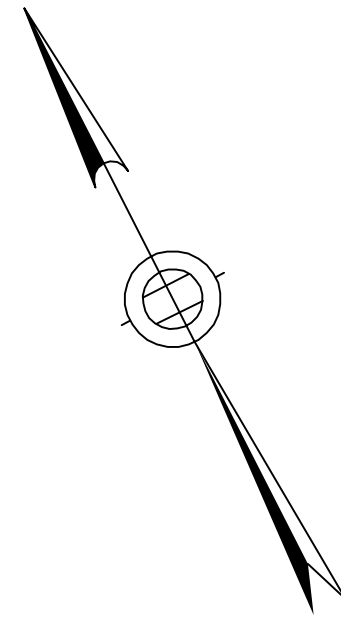
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CHECKED: RJB					

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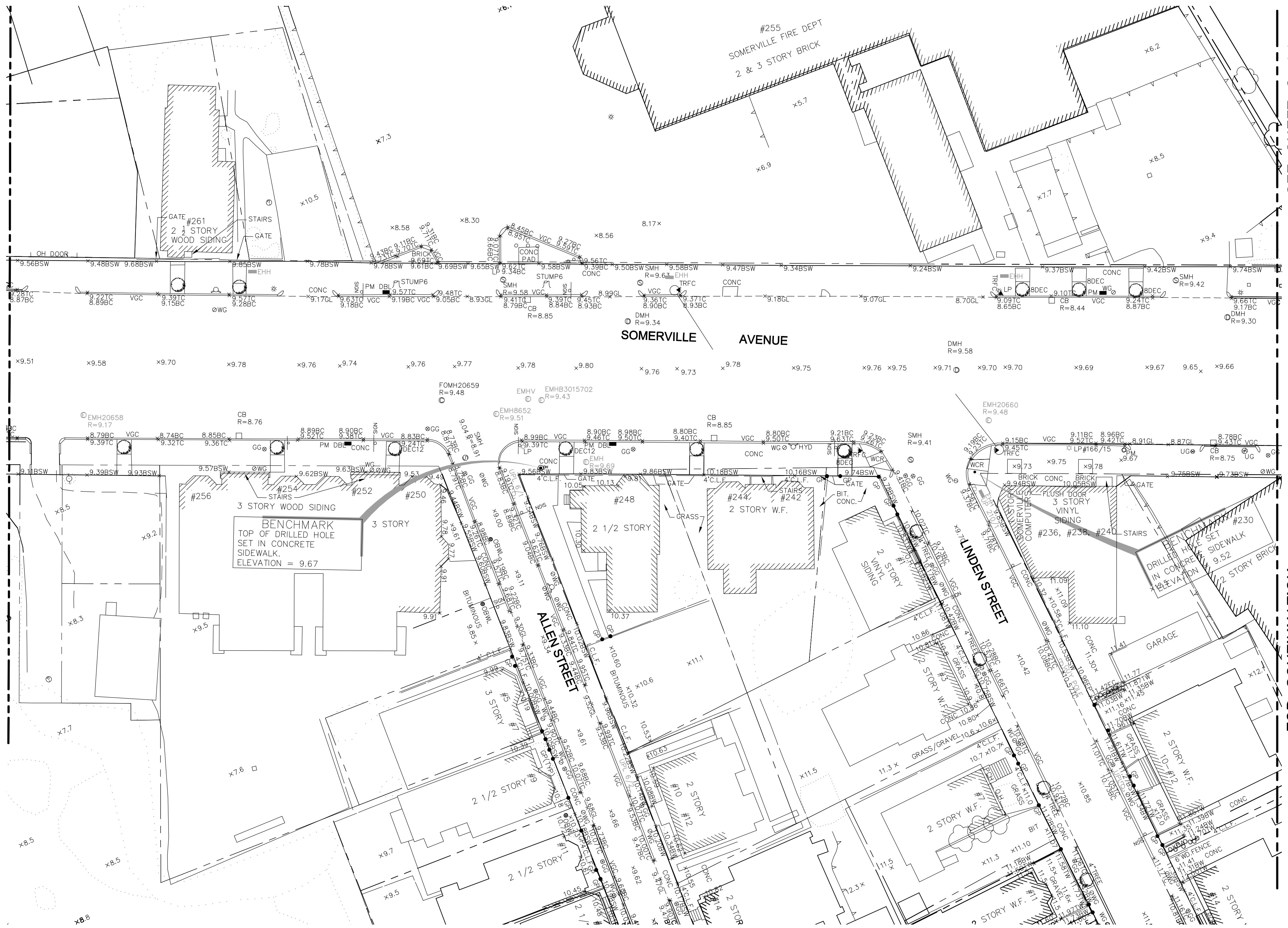


SEE SHEET G-12

SEE SHEET G-14

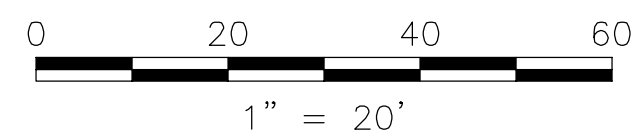
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FOR CONTINUATION



**NOTES:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5
3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-23.
4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-13.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
SURFACE EXISTING CONDITIONS PLAN  
SHEET 3 OF 6**

DESIGNED: N/A  
CHECKED: RJB  
DRAWN: LAC  
CHECKED: RJB



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SHEET

**G-13**

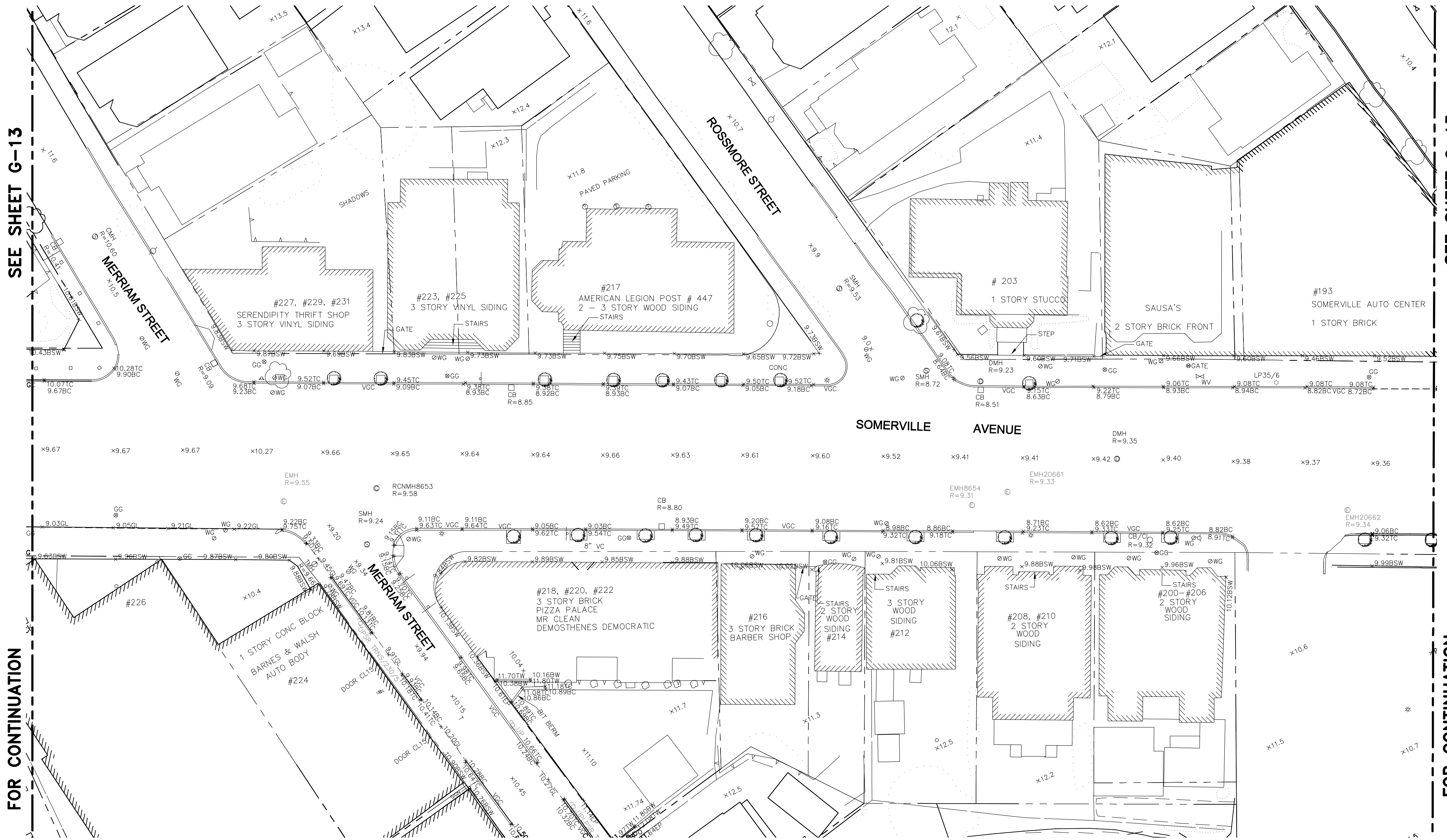
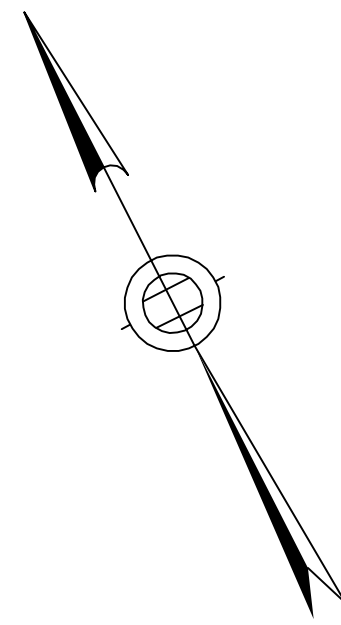
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SOMERVILLE, MA 02143

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SEE SHEET G-13

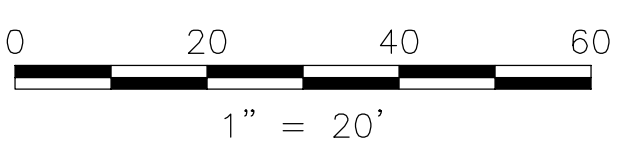
SEE SHEET G-15

FOR CONTINUATION

FOR CONTINUATION



- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-24.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-14.



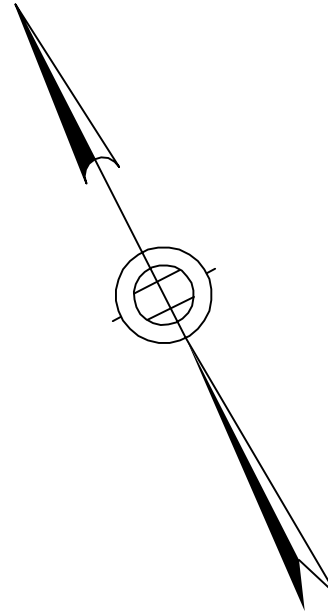
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**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE EXISTING CONDITIONS PLAN**  
**SHEET 4 OF 6**

DESIGNED: N/A	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>G-14</b>
CHECKED: RJB		
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CHECKED: RJB	ACC. _____	SCALE: 1"=20' DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

NO.	DATE	REVISIONS	BY

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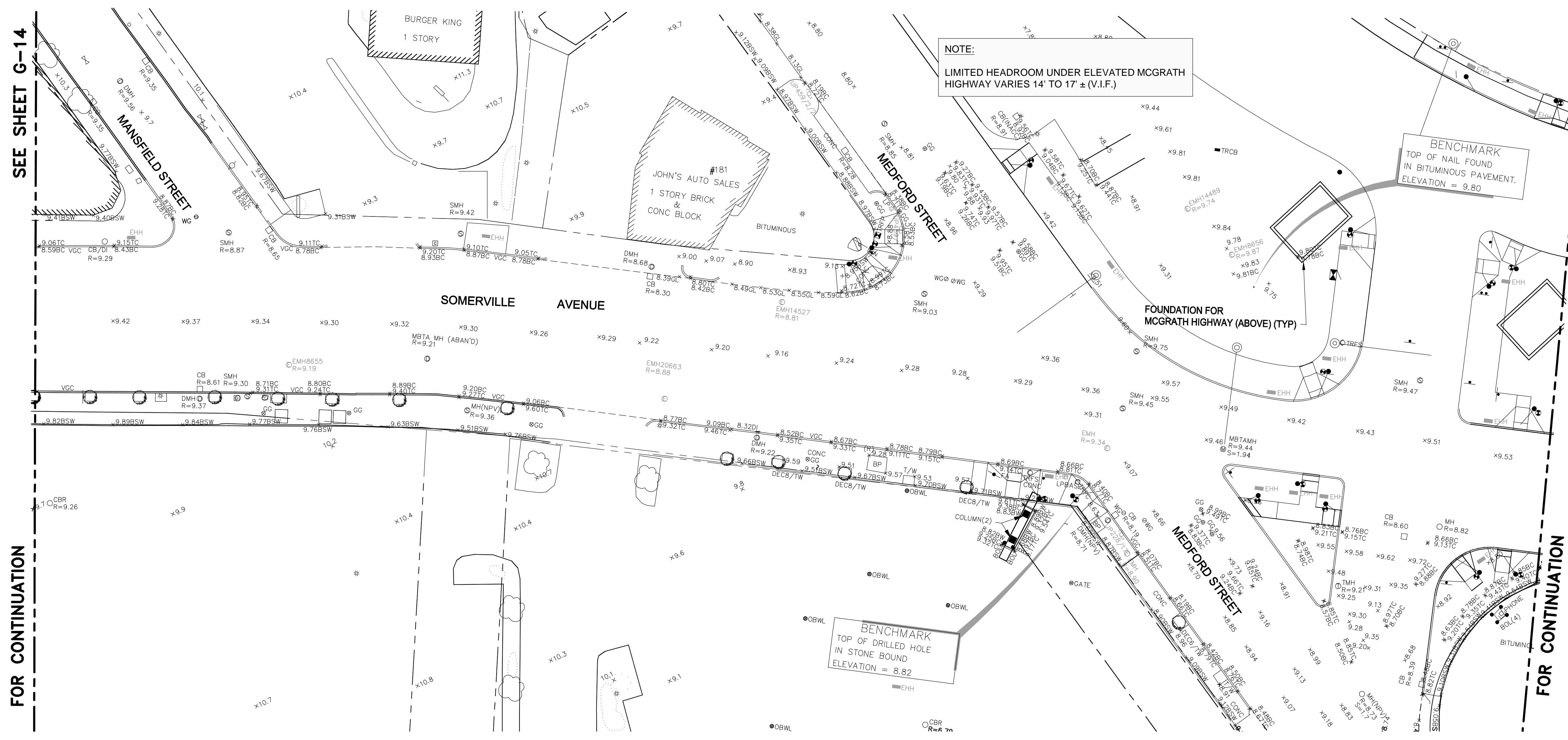


SEE SHEET G-14

FOR CONTINUATION

SEE SHEET G-16

FOR CONTINUATION



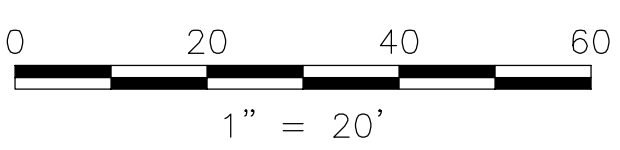
**NOTE:**  
LIMITED HEADROOM UNDER ELEVATED MCGRATH HIGHWAY VARIES 14' TO 17' ± (V.I.F.)

**BENCHMARK**  
TOP OF NAIL FOUND  
IN BITUMINOUS PAVEMENT.  
ELEVATION = 9.80

**BENCHMARK**  
TOP OF DRILLED HOLE  
IN STONE BOUND  
ELEVATION = 8.82

- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-25.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-15.

Professional Engineer Seal for Rachel J. Burckhardt, No. 31680, State of Massachusetts. Includes signature and date 12/11/17.



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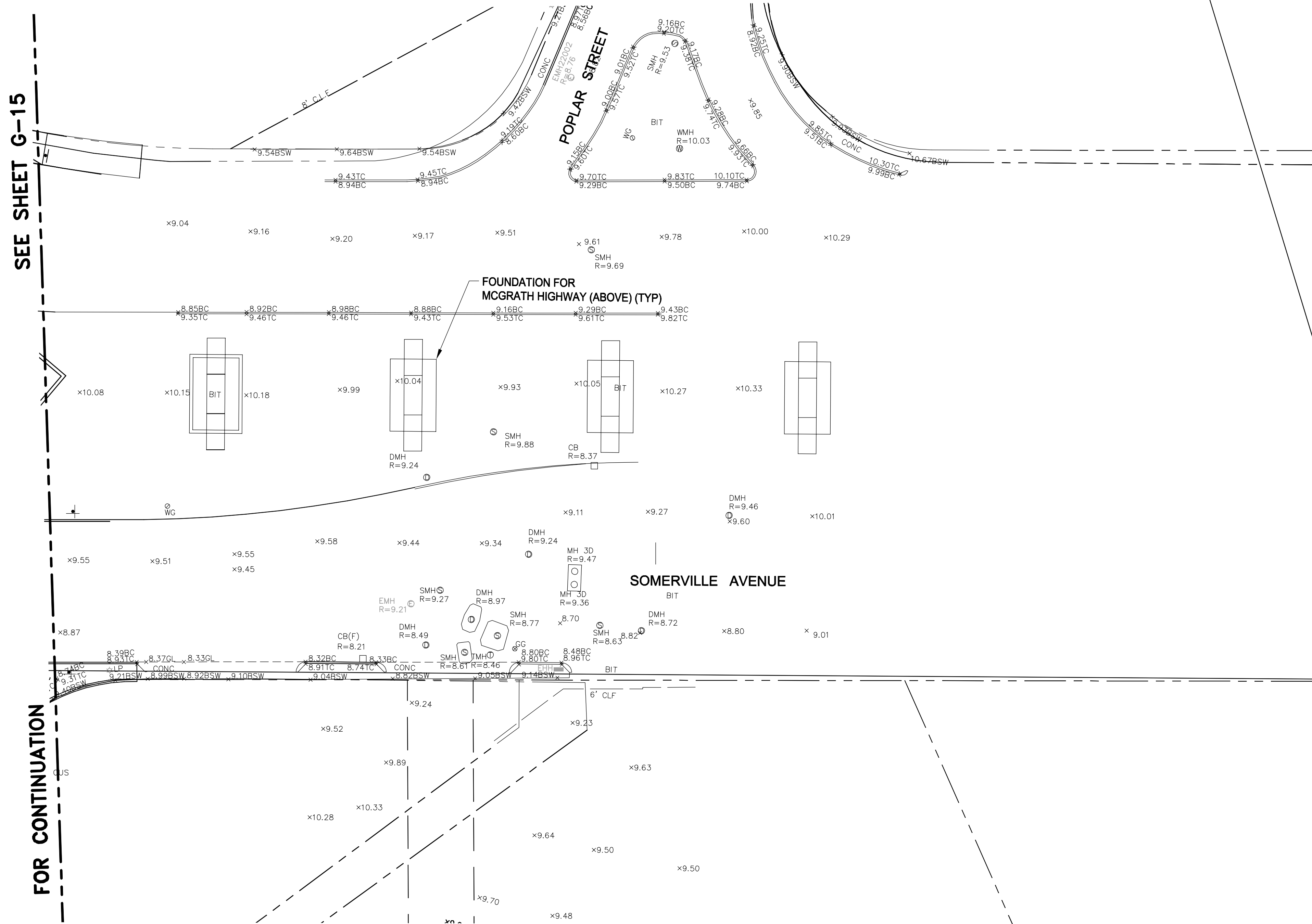
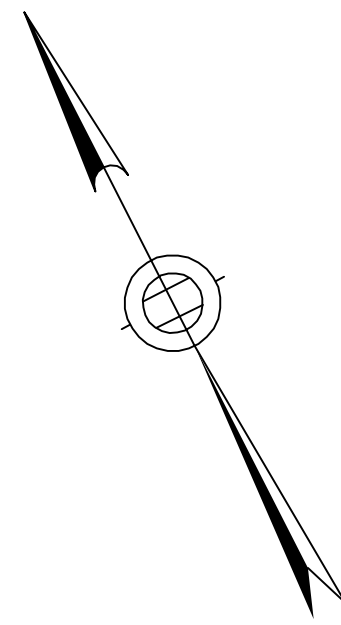
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE EXISTING CONDITIONS PLAN**  
**SHEET 5 OF 6**

DESIGNED: N/A	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>G-15</b>
CHECKED: RJB		
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CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

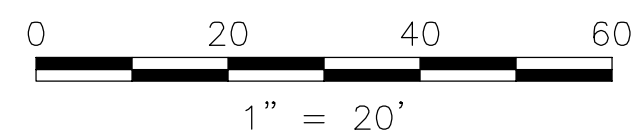
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SEE SHEET G-15

FOR CONTINUATION

Professional Engineer Seal for Rachel J. Burckardt, No. 31980, State of Massachusetts. Includes a signature and date 12/11/17.



- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-26.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-16.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE EXISTING CONDITIONS PLAN**  
**SHEET 6 OF 6**

DESIGNED: N/A  
 CHECKED: RJB  
 DRAWN: LAC  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

SHEET  
**G-16**

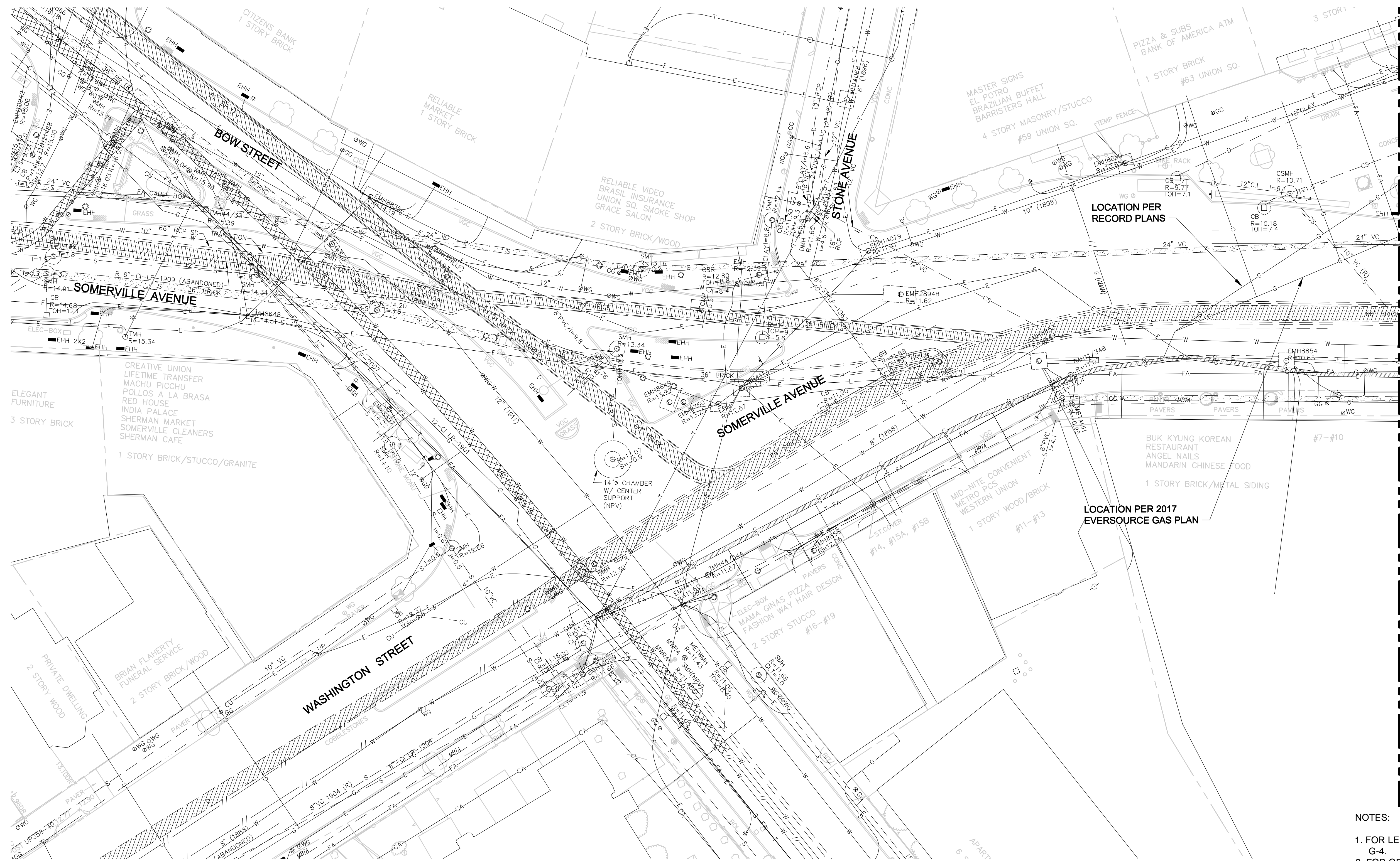
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 DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

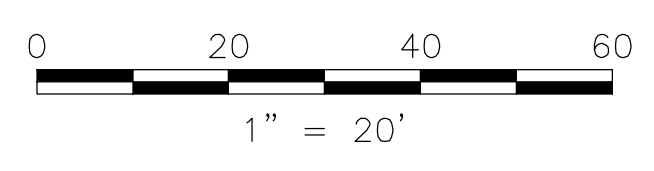
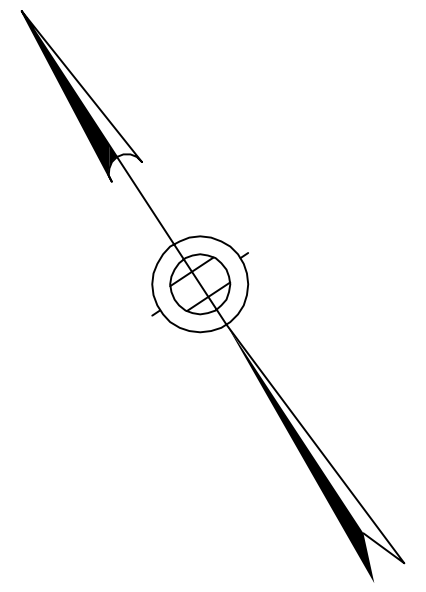
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SEE SHEET G-22

FOR CONTINUATION



- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-11.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-11.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SUBSURFACE EXISTING CONDITIONS**  
**PLAN SHEET 1 OF 6**

DESIGNED: N/A	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET			
CHECKED: RJB			<table border="1"> <tr> <td>REF.</td> <td>CONT.</td> </tr> <tr> <td>ACC.</td> <td>DATE: DEC 2017</td> </tr> </table>	REF.	CONT.
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CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

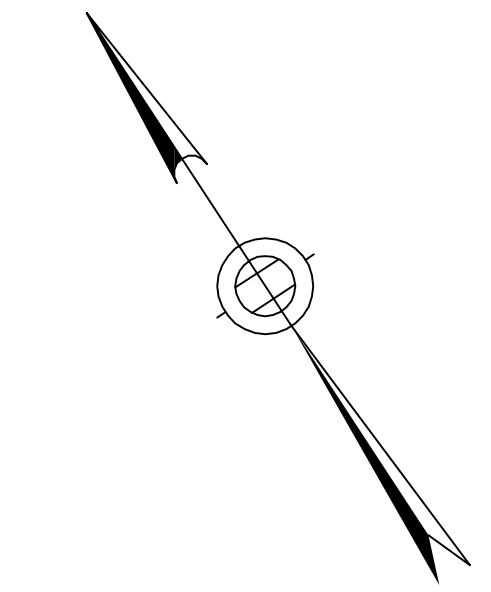
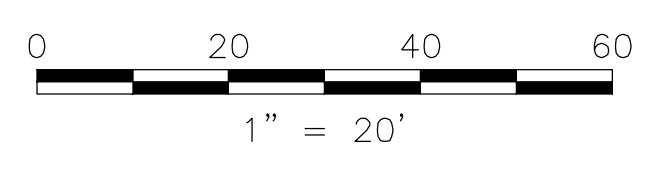
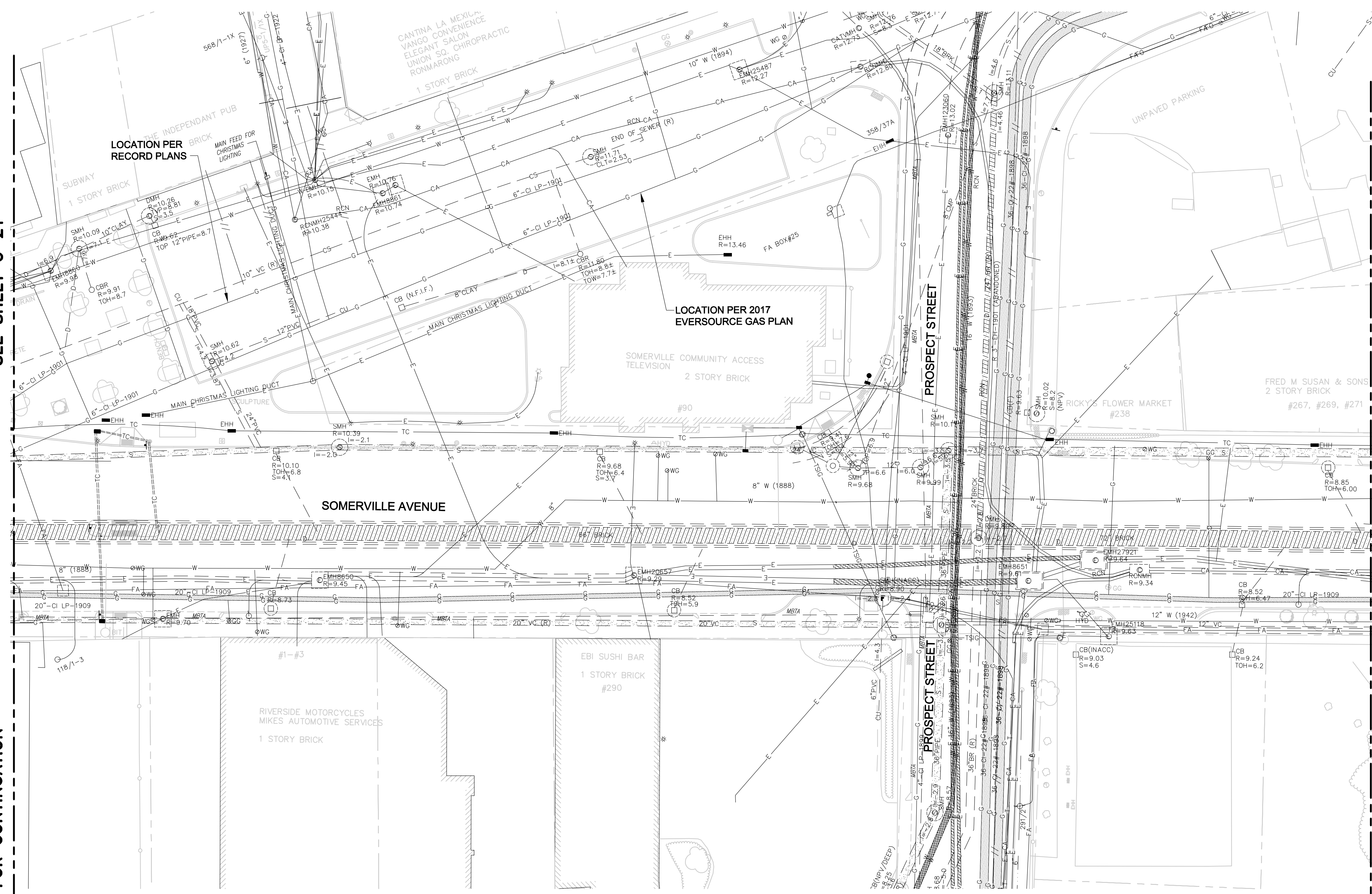
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SEE SHEET G-21

FOR CONTINUATION

SEE SHEET G-23

FOR CONTINUATION



- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-12.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-12.

Professional Engineer Seal for Rachel J. Burckardt, Civil No. 31820, dated 12/11/17.

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**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SUBSURFACE EXISTING CONDITIONS**  
**PLAN SHEET 2 OF 6**

DESIGNED: N/A		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: RJB		REF.	CONT.
DRAWN: LAC	ACC.	SCALE: 1"=20'	DATE: DEC 2017
CHECKED: RJB			

SHEET  
**G-22**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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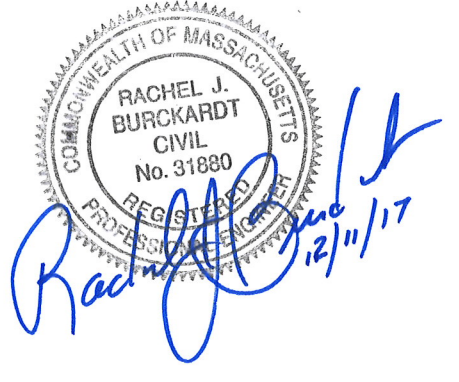
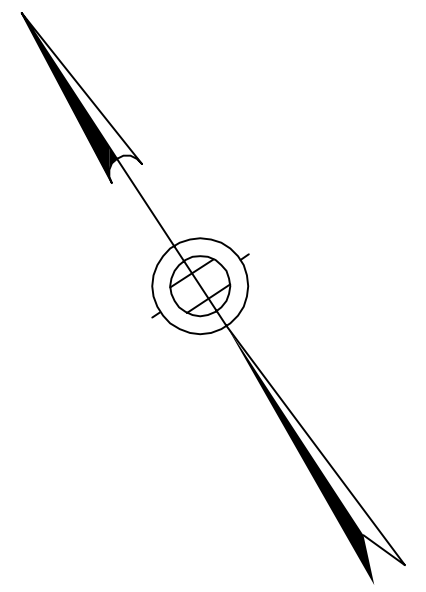


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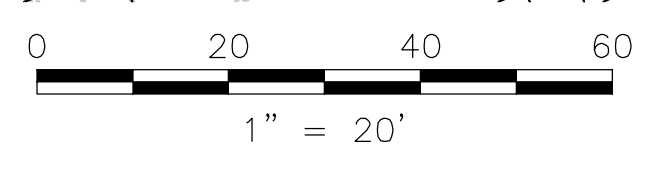
SEE SHEET G-24

FOR CONTINUATION

FOR CONTINUATION



- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-13.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-13.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SUBSURFACE EXISTING CONDITIONS**  
**PLAN SHEET 3 OF 6**

DESIGNED: N/A		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>G-23</b>
CHECKED: RJB		REF.	CONT.	
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CHECKED: RJB				

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NO.	DATE	REVISIONS	BY





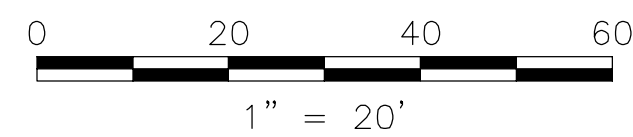
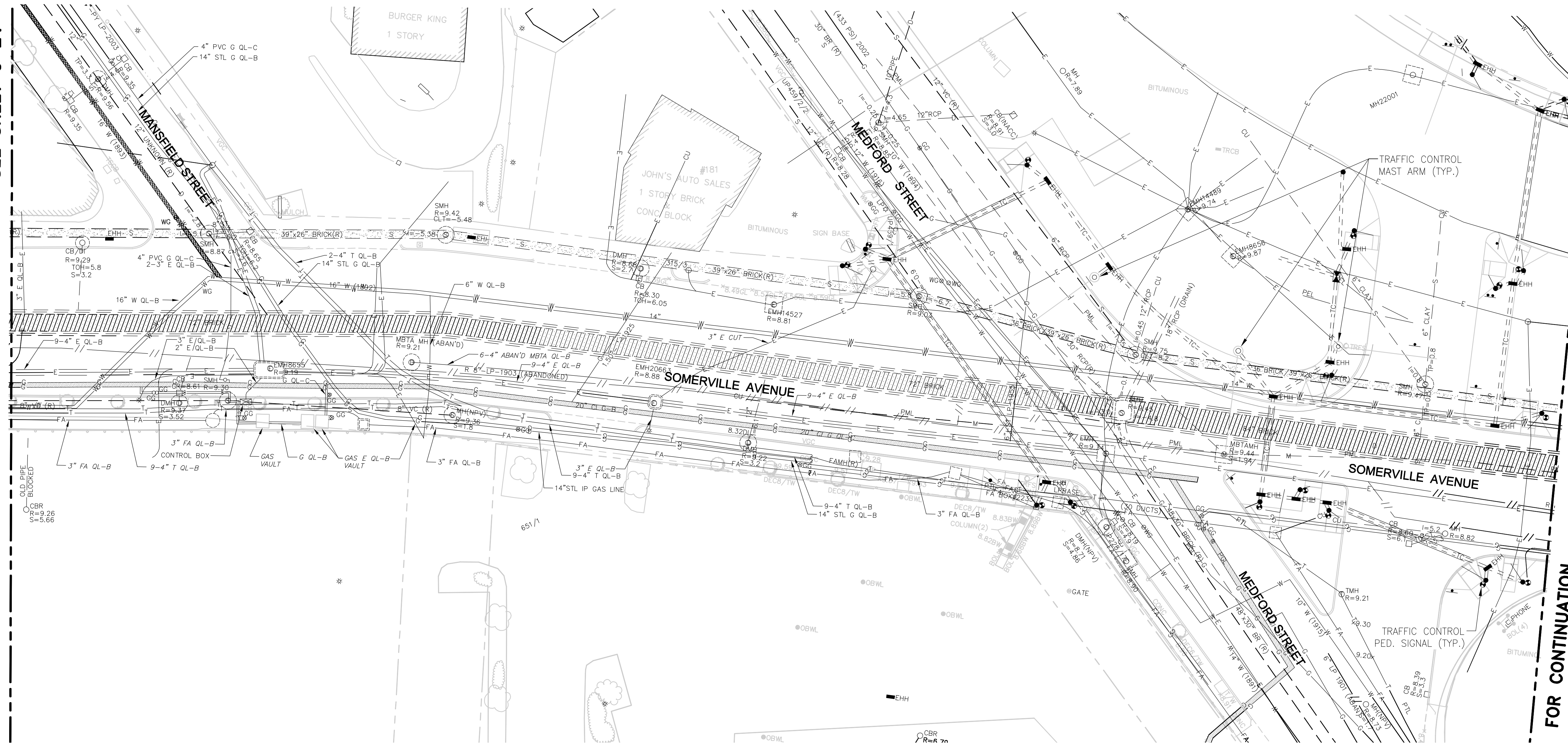
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SEE SHEET G-24

FOR CONTINUATION

SEE SHEET G-26

FOR CONTINUATION



NOTES:

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5
3. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-15.
4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-15.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS

CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
SUBSURFACE EXISTING CONDITIONS  
PLAN SHEET 5 OF 6

DESIGNED: N/A  
CHECKED: RJB  
DRAWN: LAC  
CHECKED: RJB



Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

SHEET  
**G-25**

REF. CONT.  
ACC.

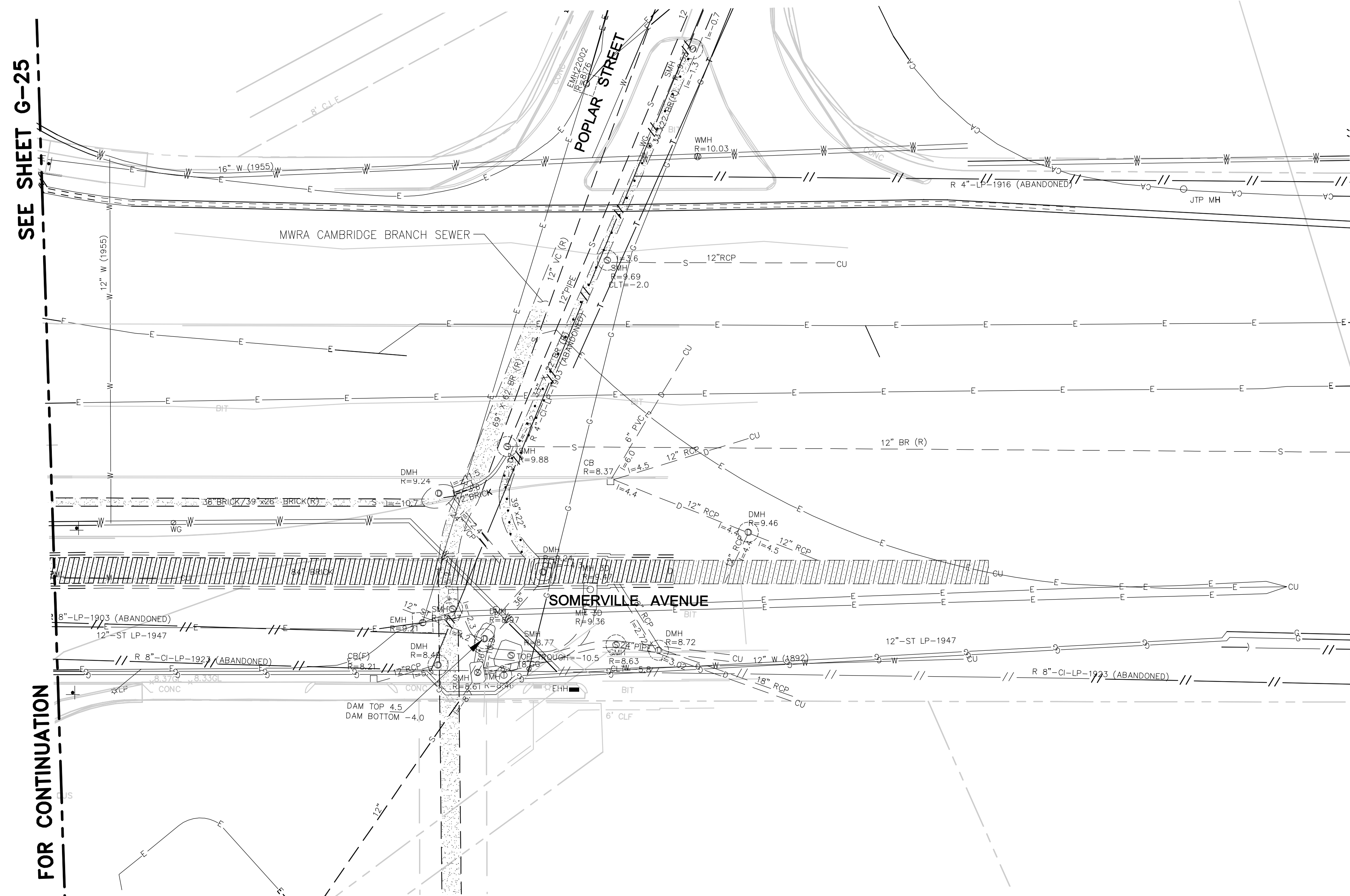
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CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

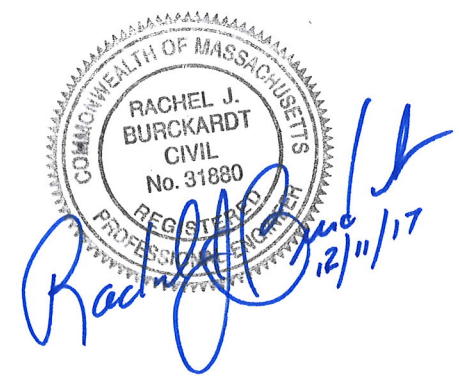
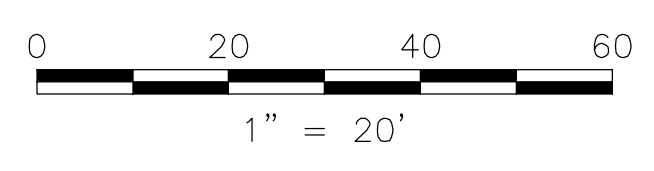
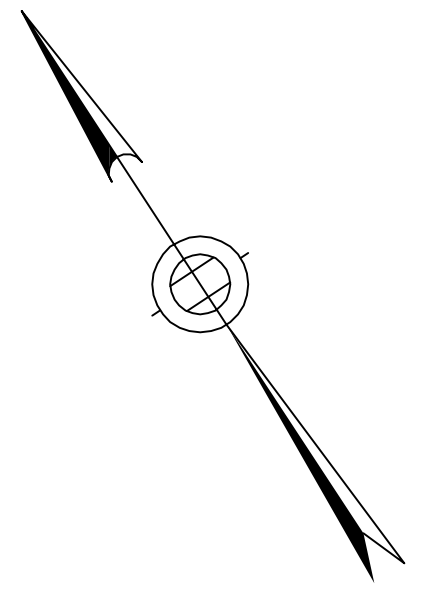
STATE OF MASSACHUSETTS  
RACHEL J. BURCKARDT  
CIVIL  
No. 31880  
Professional Seal  
12/11/17

T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\General\G-21\_G-26 Subsurface\_Existing\_Conditions\_Plans.dwg 2017-12-07 5:05 PM



SEE SHEET G-25

FOR CONTINUATION



- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-16.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEET TM-16.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

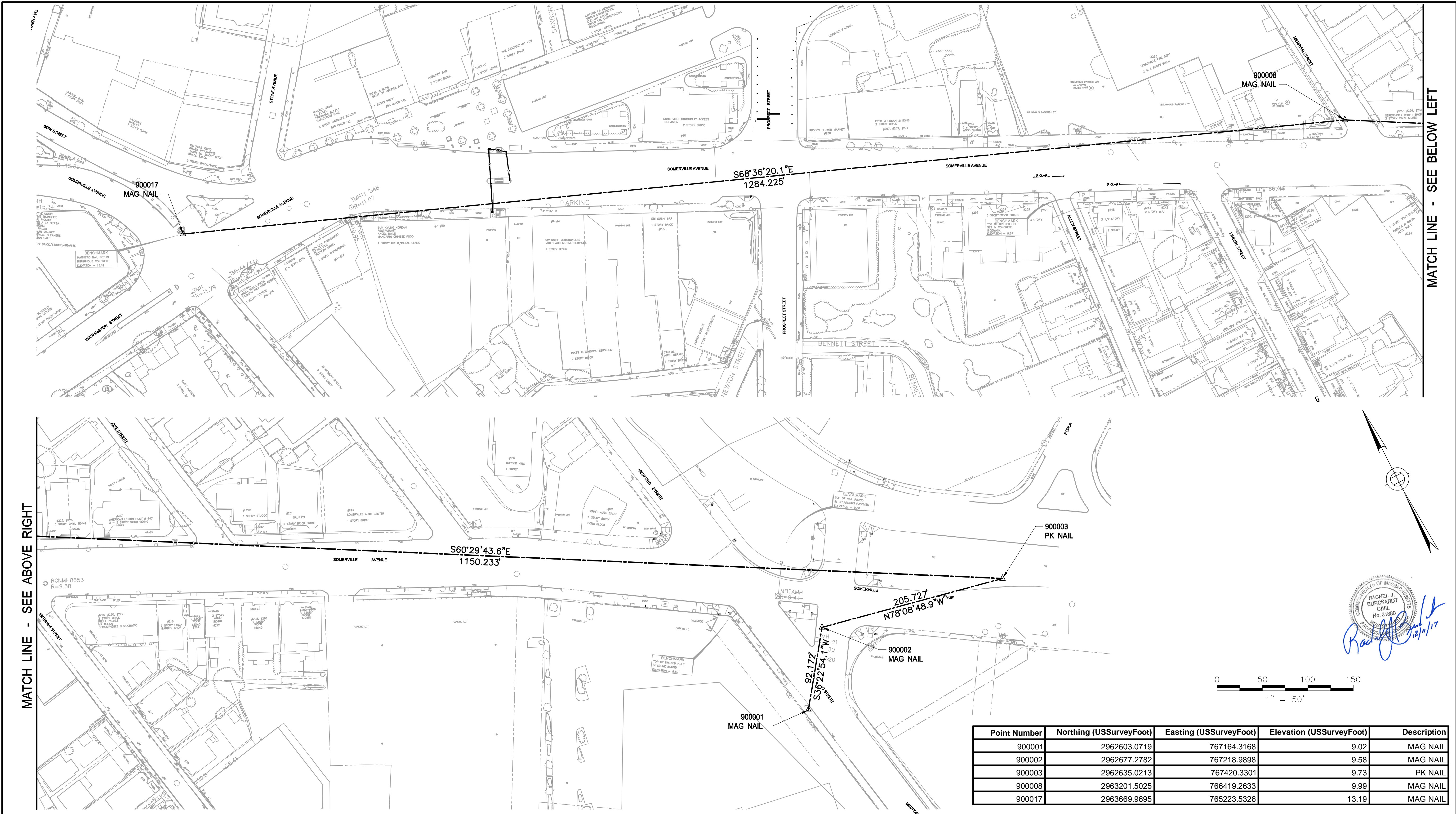
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**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SUBSURFACE EXISTING CONDITIONS**  
**PLAN SHEET 6 OF 6**

DESIGNED: N/A	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>G-26</b>
CHECKED: RJB		
DRAWN: LAC	REF.	CONT.
CHECKED: RJB	ACC.	SCALE: 1"=20'
CITY OF SOMERVILLE		DATE: DEC 2017
93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

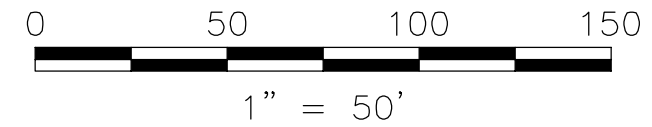
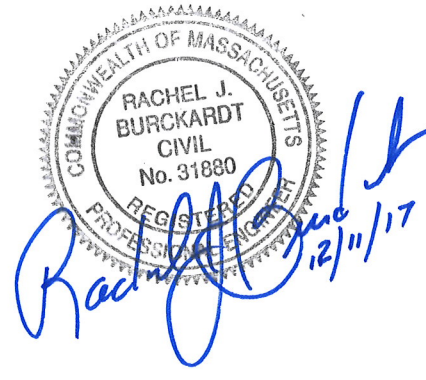
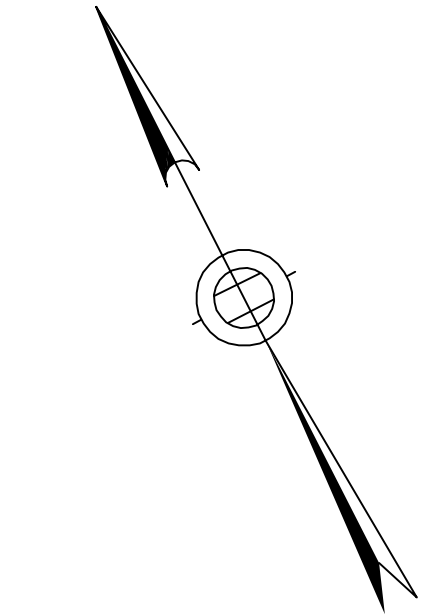
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2017-11-14 1:12 PM



MATCH LINE - SEE ABOVE RIGHT

MATCH LINE - SEE BELOW LEFT



Point Number	Northing (USSurveyFoot)	Easting (USSurveyFoot)	Elevation (USSurveyFoot)	Description
900001	2962603.0719	767164.3168	9.02	MAG NAIL
900002	2962677.2782	767218.9898	9.58	MAG NAIL
900003	2962635.0213	767420.3301	9.73	PK NAIL
900008	2963201.5025	766419.2633	9.99	MAG NAIL
900017	2963669.9695	765223.5326	13.19	MAG NAIL

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

NO.	DATE	REVISIONS	BY

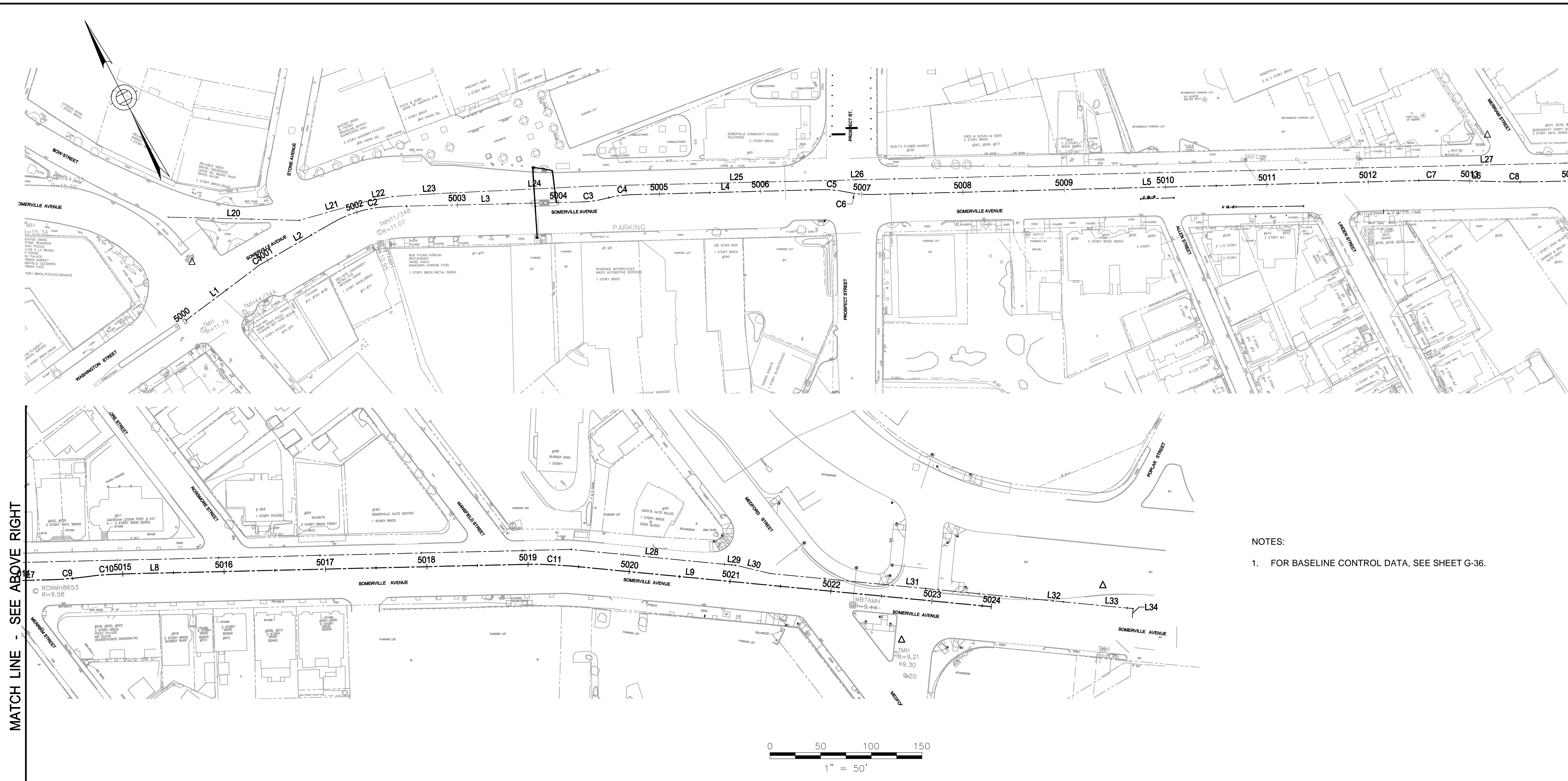
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURVEY CONTROL PLAN**

DESIGNED: N/A	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>G-31</b>
CHECKED: LAC		
DRAWN: LAC	REF.	CONT.
CHECKED: RJB	ACC.	SCALE: 1"=50'
		DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		



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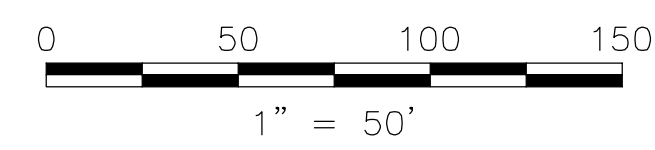
2017-11-14 1:26 PM



MATCH LINE - SEE BELOW LEFT

MATCH LINE - SEE ABOVE RIGHT

- NOTES:
- FOR BASELINE CONTROL DATA, SEE SHEET G-36.



Professional Engineer Seal for Rachel J. Burckardt, No. 31890, State of Massachusetts. Includes a signature and date 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**BASELINE CONTROL PLAN**

DESIGNED: LAC		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>G-35</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: LAC		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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Baseline Alignment Tangent Table						
Line #	Length	Direction	Begin Point (N,E)	End Point (N,E)	Begin Station	End Station
L1	78.148	N80° 03' 45.61"E	N 2963621.734, E 765192.256	N 2963635.220, E 765269.232	5000+00.000	5000+78.148
L2	71.319	N86° 54' 26.54"E	N 2963637.929, E 765292.956	N 2963641.777, E 765364.171	5001+02.041	5001+73.360
L3	188.277	S64° 21' 23.27"E	N 2963630.035, E 765423.064	N 2963548.554, E 765592.797	5002+34.046	5004+22.324
L4	188.790	S64° 33' 12.41"E	N 2963533.068, E 765638.922	N 2963451.951, E 765809.397	5004+71.100	5006+59.890
L5	544.423	S64° 27' 47.31"E	N 2963425.184, E 765851.216	N 2963190.488, E 766342.453	5007+09.670	5012+54.093
L6	67.828	S61° 44' 01.57"E	N 2963181.867, E 766359.444	N 2963149.746, E 766419.184	5012+73.147	5013+40.975
L7	68.566	S64° 22' 06.15"E	N 2963141.411, E 766435.578	N 2963111.750, E 766497.397	5013+59.368	5014+27.934
L8	398.088	S64° 22' 06.15"E	N 2963085.437, E 766561.488	N 2962913.230, E 766920.401	5014+97.255	5018+95.343
L9	415.548	S57° 28' 50.40"E	N 2962889.877, E 766962.401	N 2962666.485, E 767312.796	5019+43.428	5023+58.976

Curve Table: Alignments								
Curve #	Radius	Curve Length	Delta	Tangent	PC Station	PC (N,E)	PT Station	PT (N,E)
C1	200.000	23.893	6.845	11.960	5000+78.148	N 2963635.220, E 765269.232	5001+02.041	N 2963637.929, E 765292.956
C2	121.000	60.686	28.736	30.996	5001+73.360	N 2963641.777, E 765364.171	5002+34.046	N 2963630.035, E 765423.064
C3	100.000	24.560	14.072	12.342	5004+22.324	N 2963548.554, E 765592.797	5004+46.884	N 2963540.737, E 765616.015
C4	100.000	24.216	13.875	12.168	5004+46.884	N 2963540.737, E 765616.015	5004+71.100	N 2963533.068, E 765638.922
C5	100.000	24.969	14.306	12.550	5006+59.890	N 2963451.951, E 765809.397	5006+84.858	N 2963438.534, E 765830.377
C6	100.000	24.811	14.216	12.470	5006+84.858	N 2963438.534, E 765830.377	5007+09.670	N 2963425.184, E 765851.216
C7	400.000	19.055	2.729	9.529	5012+54.093	N 2963190.488, E 766342.453	5012+73.147	N 2963181.867, E 766359.444
C8	400.000	18.393	2.635	9.198	5013+40.975	N 2963149.746, E 766419.184	5013+59.368	N 2963141.411, E 766435.578
C9	300.000	34.660	6.620	17.349	5014+27.934	N 2963111.750, E 766497.397	5014+62.595	N 2963098.593, E 766529.442
C10	300.000	34.660	6.620	17.349	5014+62.595	N 2963098.593, E 766529.442	5014+97.255	N 2963085.437, E 766561.488
C11	400.000	48.085	6.888	24.072	5018+95.343	N 2962913.230, E 766920.401	5019+43.428	N 2962889.877, E 766962.401

Baseline Alignment Tangent Table						
Line #	Length	Direction	Begin Point (N,E)	End Point (N,E)	Begin Station	End Station
L20	129.584	S61° 36' 36.27"E	N 2963720.418, E 765222.714	N 2963658.804, E 765336.714	128+68.000	129+97.584
L21	68.942	S78° 45' 46.54"E	N 2963658.804, E 765336.714	N 2963645.370, E 765404.334	129+97.584	130+66.526
L22	25.719	S73° 29' 50.06"E	N 2963645.370, E 765404.334	N 2963638.064, E 765428.994	130+66.526	130+92.245
L23	42.358	S66° 45' 30.12"E	N 2963638.064, E 765428.994	N 2963621.349, E 765467.914	130+92.245	131+34.604
L24	158.947	S65° 45' 30.12"E	N 2963621.349, E 765467.914	N 2963556.088, E 765612.846	131+34.604	132+93.550
L25	221.609	S64° 21' 13.77"E	N 2963556.088, E 765612.846	N 2963460.173, E 765812.623	132+93.550	135+15.159
L26	73.094	S64° 21' 13.24"E	N 2963460.173, E 765812.623	N 2963428.536, E 765878.516	135+15.159	135+88.254
L27	1209.972	S64° 21' 13.24"E	N 2963428.536, E 765878.516	N 2962904.843, E 766969.285	135+88.254	147+98.226
L28	159.007	S57° 28' 50.56"E	N 2962904.843, E 766969.285	N 2962819.363, E 767103.361	147+98.226	149+57.233
L29	3.833	S57° 28' 50.56"E	N 2962819.363, E 767103.361	N 2962817.303, E 767106.593	149+57.233	149+61.066
L30	35.250	S49° 42' 50.98"E	N 2962817.303, E 767106.593	N 2962794.510, E 767133.483	149+61.066	149+96.316
L31	280.208	S57° 28' 50.56"E	N 2962794.510, E 767133.483	N 2962643.874, E 767369.758	149+96.316	152+76.524
L32	10.000	S57° 28' 50.56"E	N 2962643.874, E 767369.758	N 2962638.499, E 767378.190	152+76.524	152+86.524
L33	69.270	S57° 28' 50.56"E	N 2962638.499, E 767378.190	N 2962601.260, E 767436.598	152+86.524	153+55.794
L34	9.092	S32° 31' 09.44"W	N 2962601.260, E 767436.598	N 2962593.594, E 767431.711	153+55.794	153+64.885



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**BASELINE CONTROL DATA**

DESIGNED: LAC  
 CHECKED: RJB  
 DRAWN: LAC  
 CHECKED: RJB

**WSP | PARSONS BRINCKERHOFF**  
 Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

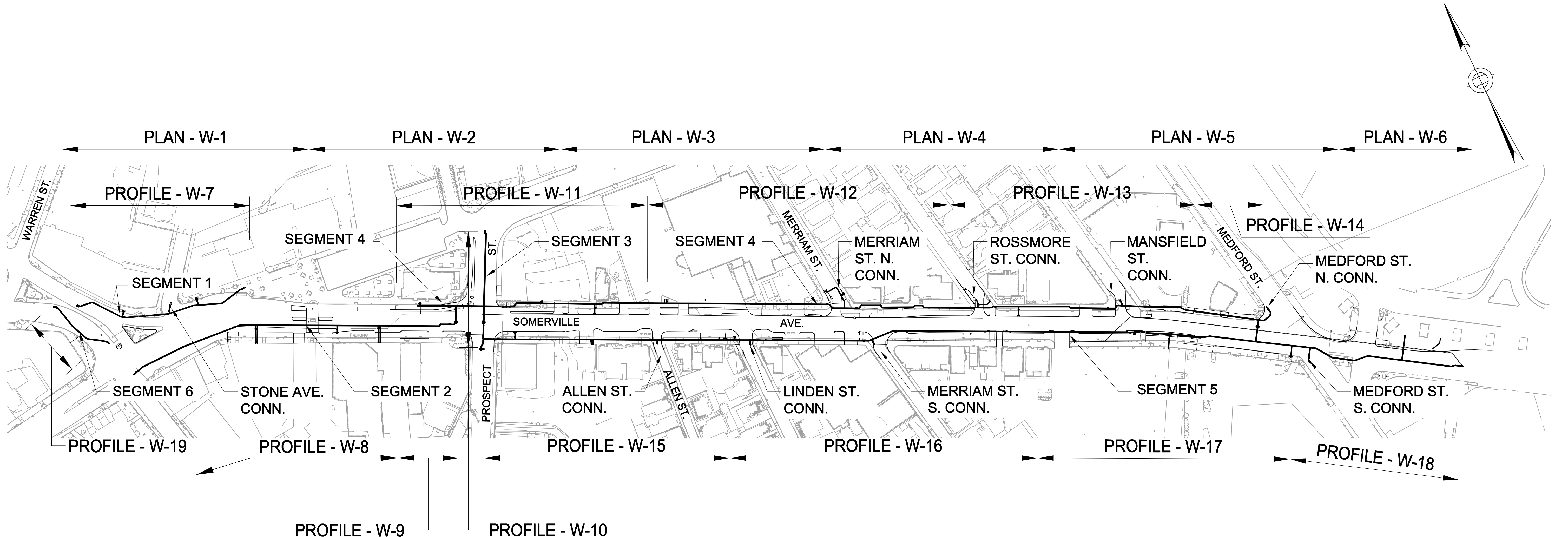
SHEET  
**G-36**

REF. CONT. SCALE: N.T.S.  
 ACC. DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

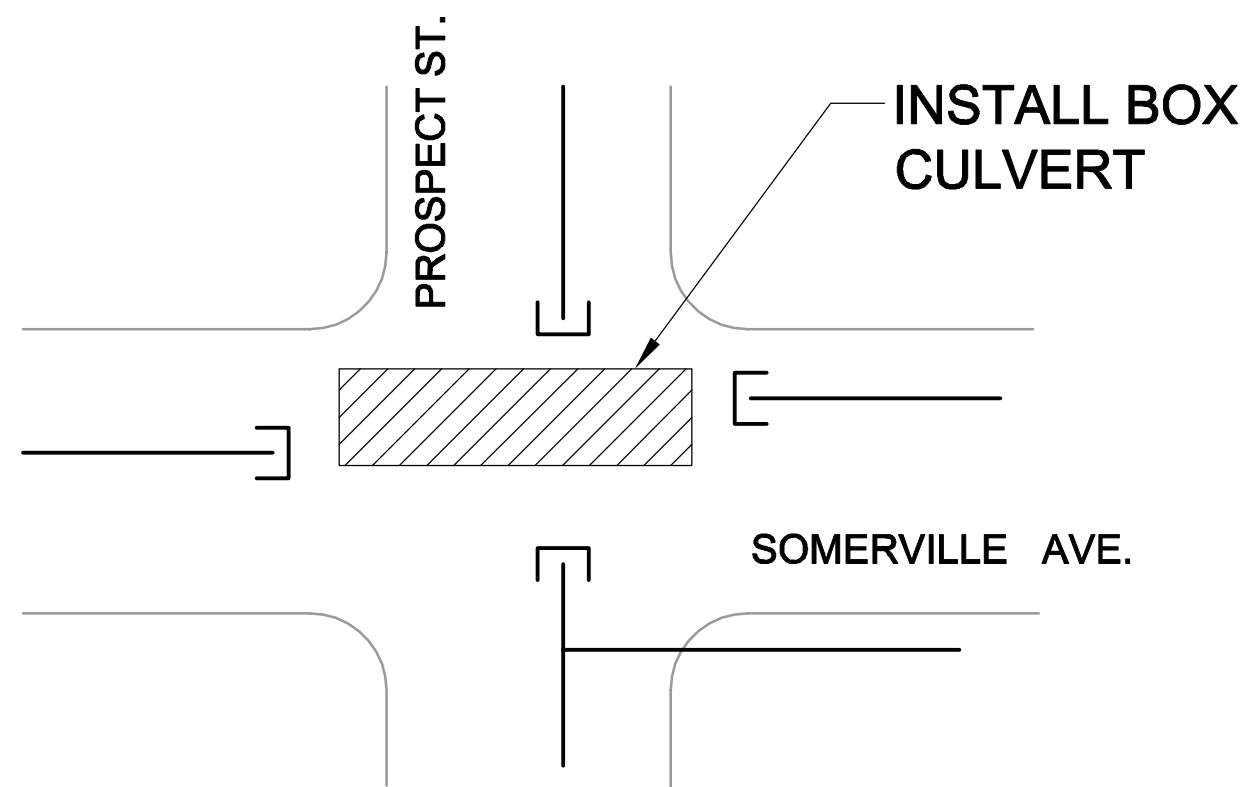
NO.	DATE	REVISIONS	BY

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**NOTE:**

INDICATED TEMP. CAPPING OF WATER MAINS IS ALLOWABLE FOR 90 CONSECUTIVE CALENDAR DAYS FOR FOR THE INSTALLATION OF THE BOX CULVERT THROUGH THE PROSPECT ST. INTERSECTION.



**TEMP. CAPPING OF WATER MAINS  
PROSPECT ST. & SOMERVILLE AVE.**

**SUGGESTED SEQUENCING FOR MAINTAINING WATER SERVICE DURING WATER MAIN CONSTRUCTION:**

- SEGMENT 1: PROVIDE TEMP. WATER MAIN FROM HYDRANT WEST OF WALNUT TO BONNER AVE. WITH BRANCH TO HYDRANT ON STONE AVE. TEMP. SHUTDOWN REQUIRED TO TIE IN PERMANENT WORK TO EXISTING.
- SEGMENT 2: CONSTRUCT OFF-LINE FROM WEBSTER AV. TO STA. 405+80+; PROVIDE TEMP. TIE-IN TO HYDRANT AT SE CORNER OF SOMERVILLE AVE. & PROSPECT ST. CONSTRUCT STA. 405+80+ TO SEGMENT 4 WITH BOX CULVERT.
- SEGMENT 3: CONSTRUCT OFF-LINE. TEMP SHUTDOWN REQUIRED TO TIE IN PERMANENT WORK TO EXISTING.
- SEGMENT 4: CONSTRUCT STA. 305+61 TO STA. 307+40+ WITH BOX CULVERT. CONSTRUCT STA. 307+40+ TO MEDFORD ST. OFF-LINE. TEMP SHUTDOWN REQUIRED TO TIE IN PERMANENT WORK TO EXISTING AT SIDE STREETS. ACTIVATE LINE IN TWO OR MORE STAGES (E.G., PROSPECT TO MERRIAM; MERRIAM TO MEDFORD)
- SEGMENT 5: CONSTRUCT AFTER SEGMENTS 3 IS IN SERVICE. PROSPECT TO MERRIAM: CONSTRUCT AFTER SEGMENT 4 PROSPECT TO MERRIAM IS IN SERVICE; PROVIDE TEMP. WATER MAIN FROM HYDRANT AT PROSPECT & BENNET CT. TO HYDRANT AT MEDFORD ST. JUST SOUTH OF SOMERVILLE AVE. MERRIAM ST. EAST: CONSTRUCT OFF-LINE. TEMP. SHUTDOWNS REQUIRED TO TIE IN PERMANENT WORK TO EXISTING.
- SEGMENT 6: CONSTRUCT OFF-LINE. TEMP. SHUTDOWNS REQUIRED TO TIE IN PERMANENT WORK TO EXISTING.

*Rachel J. Burckhardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

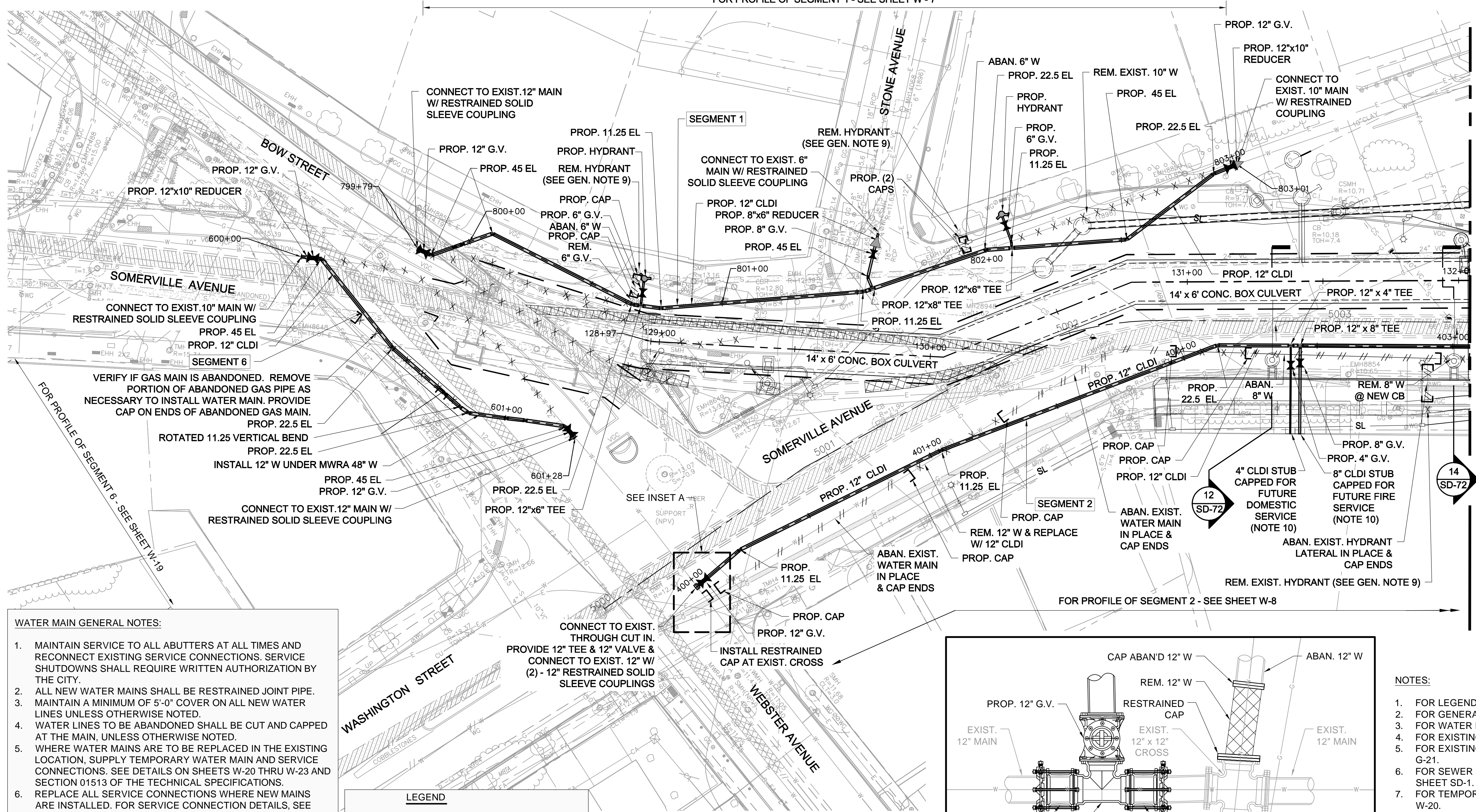
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN REPLACEMENT**  
**KEY PLAN**

DESIGNED: KMM		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: RJB		REF.	CONT.	W-0
DRAWN: LAC	ACC.	SCALE: NTS		
CHECKED: RJB		DATE: DEC 2017		
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143				

NO.	DATE	REVISIONS	BY

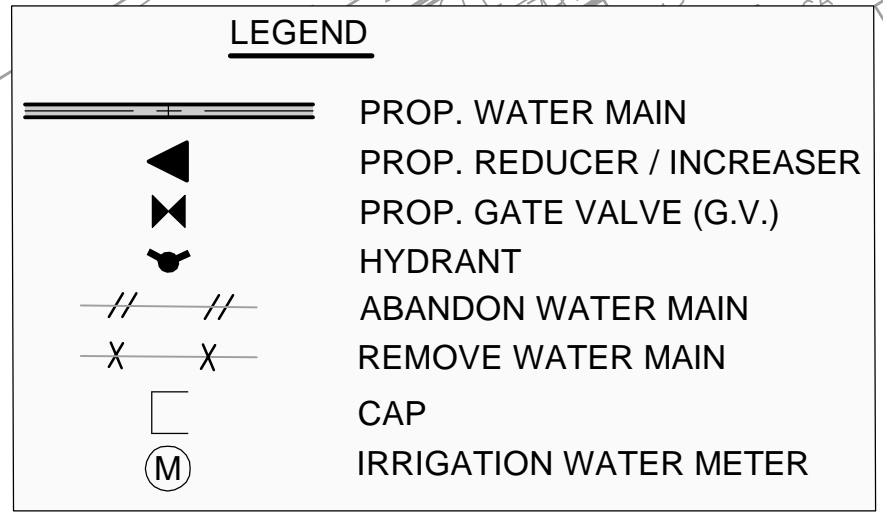
2017-12-11 1:22 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\W-1\_W-6 WaterMainReplacement.dwg

FOR PROFILE OF SEGMENT 1 - SEE SHEET W-7

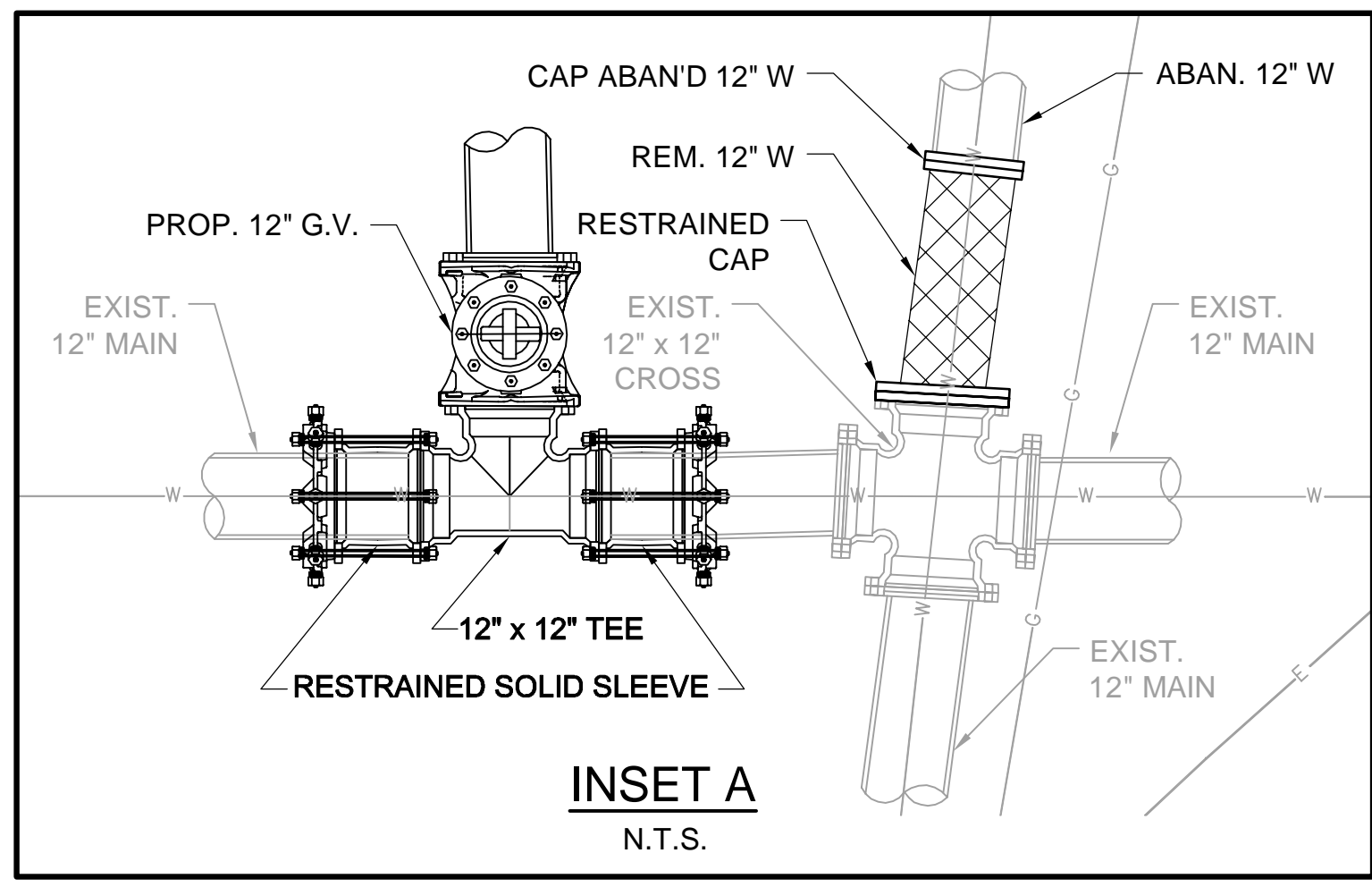
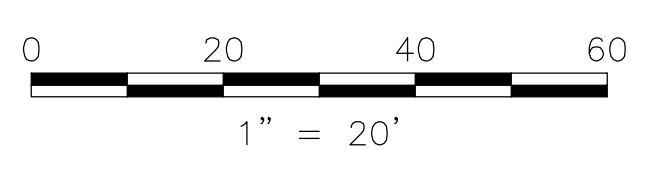


MATCH LINE - SEE SHEET W-2

- WATER MAIN GENERAL NOTES:**
1. MAINTAIN SERVICE TO ALL ABUTTERS AT ALL TIMES AND RECONNECT EXISTING SERVICE CONNECTIONS. SERVICE SHUTDOWNS SHALL REQUIRE WRITTEN AUTHORIZATION BY THE CITY.
  2. ALL NEW WATER MAINS SHALL BE RESTRAINED JOINT PIPE.
  3. MAINTAIN A MINIMUM OF 5'-0" COVER ON ALL NEW WATER LINES UNLESS OTHERWISE NOTED.
  4. WATER LINES TO BE ABANDONED SHALL BE CUT AND CAPPED AT THE MAIN, UNLESS OTHERWISE NOTED.
  5. WHERE WATER MAINS ARE TO BE REPLACED IN THE EXISTING LOCATION, SUPPLY TEMPORARY WATER MAIN AND SERVICE CONNECTIONS. SEE DETAILS ON SHEETS W-20 THRU W-23 AND SECTION 01513 OF THE TECHNICAL SPECIFICATIONS.
  6. REPLACE ALL SERVICE CONNECTIONS WHERE NEW MAINS ARE INSTALLED. FOR SERVICE CONNECTION DETAILS, SEE SHEET W-22. SERVICE CONNECTIONS ARE NOT SHOWN. FOR TIE CARDS, SEE ATTACHMENT E OF THE TECHNICAL SPECIFICATIONS.
  7. ALL CONNECTIONS TO EXISTING WATER LINES SHALL BE WITH RESTRAINED SOLID SLEEVE COUPLINGS. SEE DETAIL ON SHEET W-24.
  8. AT ALL CONNECTIONS TO EXISTING, TAKE TEST PIT TO CONFIRM DEPTH AND OUTER DIAMETER OF EXISTING WATER MAIN.
  9. REMOVE EXISTING HYDRANTS AND DELIVER TO SOMERVILLE DPW YARD. SEE HYDRANT REMOVAL DETAILS ON SHEET W-23.



*Rachel J. Burckardt*  
 RACHEL J. BURCKARDT  
 CIVIL  
 No. 31520  
 12/11/17



- NOTES:**
1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR WATER MAIN GENERAL NOTES, SEE THIS SHEET.
  4. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  5. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  6. FOR SEWER SEPARATION PLAN AND PROFILE, SEE SHEET SD-1.
  7. FOR TEMPORARY WATER MAIN DETAILS, SEE SHEET W-20.
  8. FOR WATER MAIN DETAILS, SEE SHEETS W-21 THRU W-23.
  9. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-61.
  10. PRIOR TO INSTALLATION, VERIFY LOCATION OF FUTURE SERVICE CONNECTIONS WITH THE ENGINEER

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

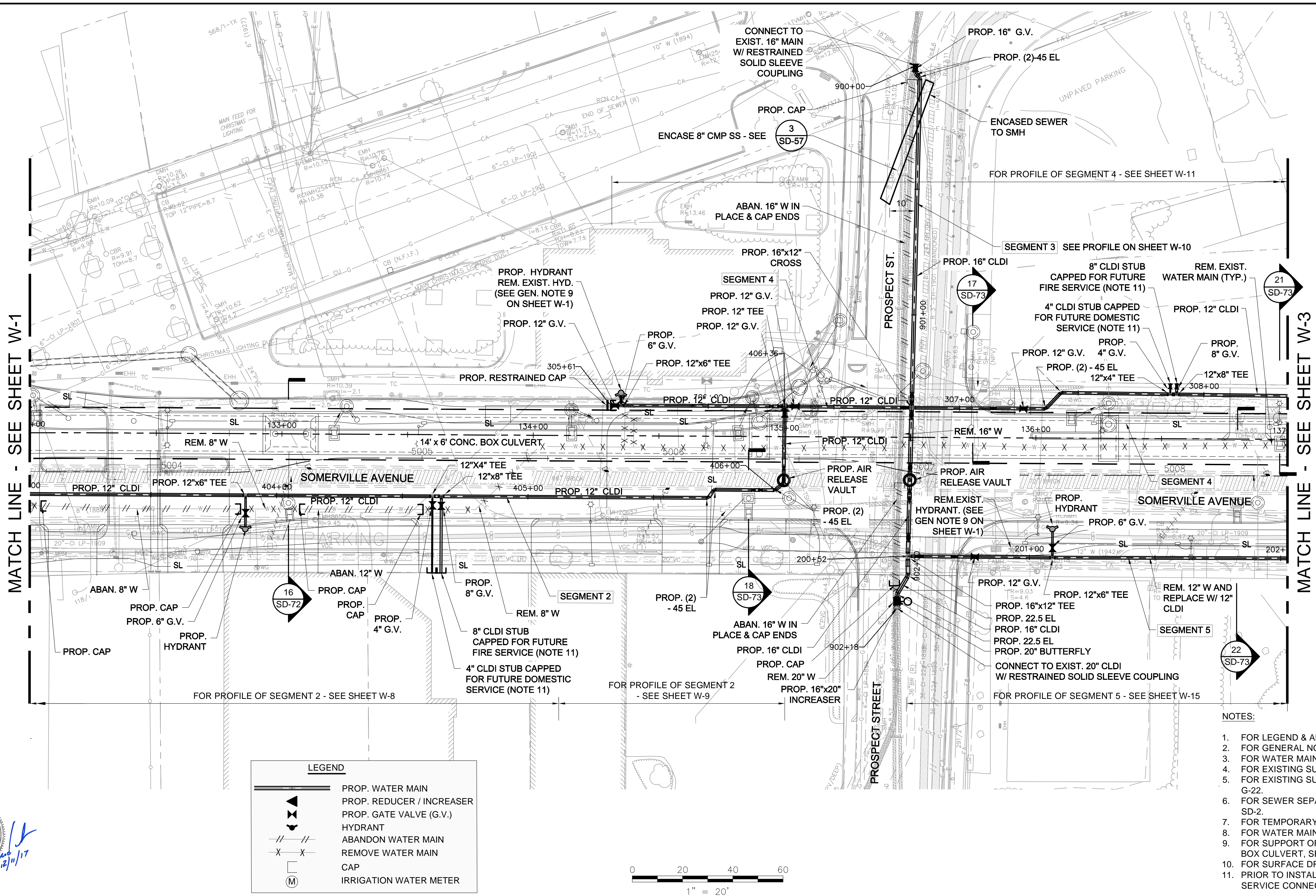
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN REPLACEMENT PLAN**  
**SHEET 1 OF 6**

DESIGNED: KMM		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>W-1</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: RA	ACC.	SCALE: 1"=20'	DATE: DEC 2017	
CHECKED: RJB		CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

NO.	DATE	REVISIONS	BY



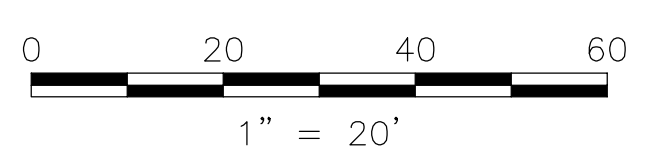
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MATCH LINE - SEE SHEET W-1

MATCH LINE - SEE SHEET W-3

LEGEND	
	PROP. WATER MAIN
	PROP. REDUCER / INVERTER
	PROP. GATE VALVE (G.V.)
	HYDRANT
	ABANDON WATER MAIN
	REMOVE WATER MAIN
	CAP
	IRRIGATION WATER METER



- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN GENERAL NOTES, SEE SHEET W-1.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
  - FOR SEWER SEPARATION PLAN AND PROFILE, SEE SHEET SD-2.
  - FOR TEMPORARY WATER MAIN DETAILS, SEE SHEET W-20.
  - FOR WATER MAIN DETAILS, SEE SHEETS W-21 THRU W-23.
  - FOR SUPPORT OF PROP. 16" W OVER EXCAVATION FOR BOX CULVERT, SEE SECTION ON SHEET SD-82 AND W-26.
  - FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-62.
  - PRIOR TO INSTALLATION, VERIFY LOCATION OF FUTURE SERVICE CONNECTIONS WITH THE ENGINEER.

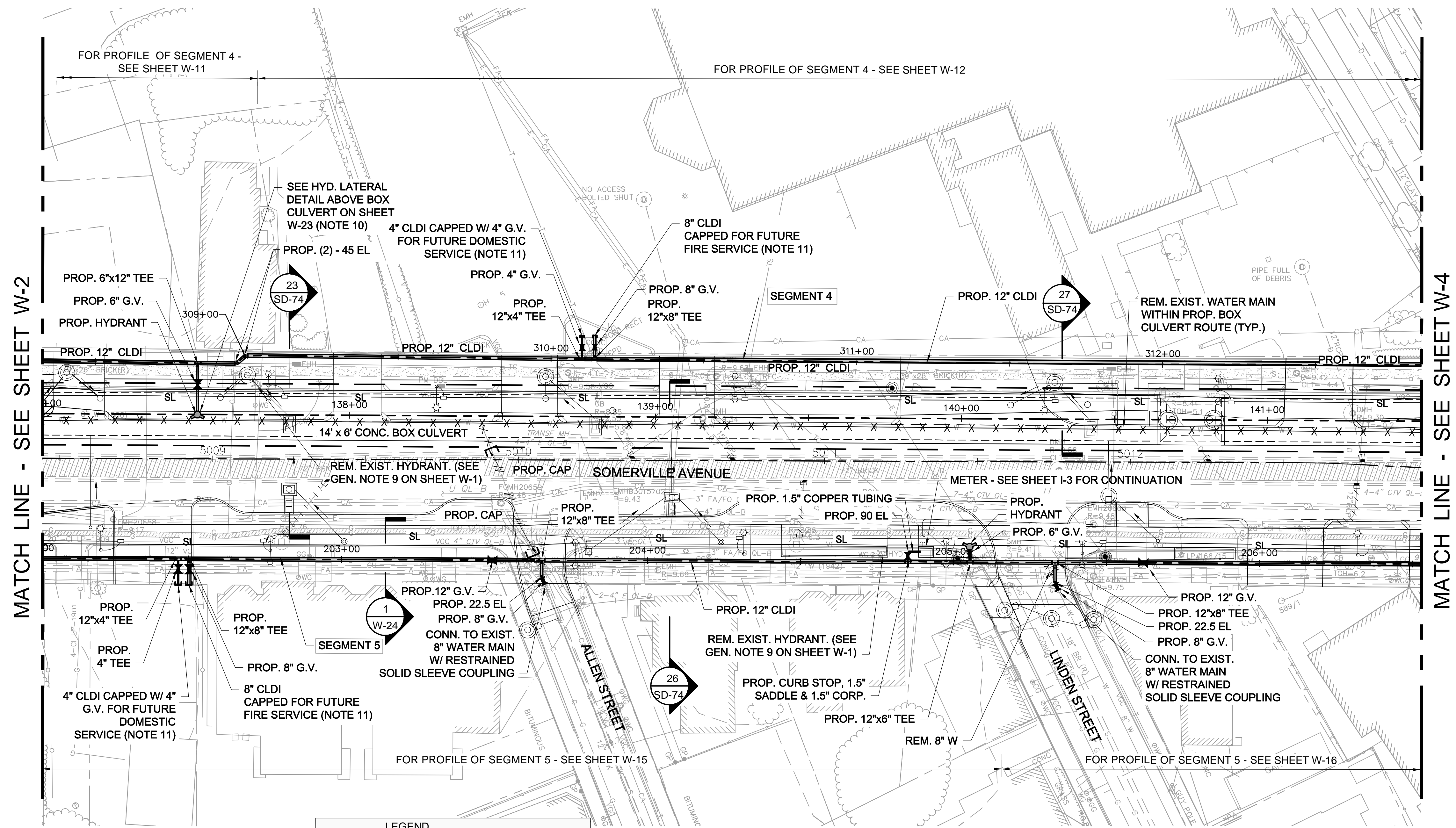
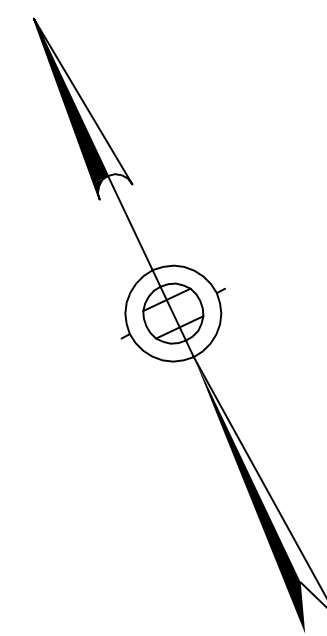
*Rachel J. Burckardt*  
 RACHEL J. BURCKARDT  
 CIVIL  
 No. 31889  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MASSACHUSETTS  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN REPLACEMENT PLAN**  
**SHEET 2 OF 6**

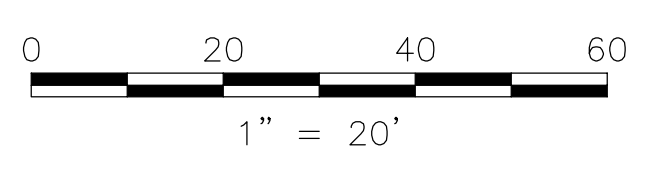
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CHECKED: RJB		REF.	CONT.	
DRAWN: RA	ACC.	SCALE: 1"=20' DATE: DEC 2017		
CHECKED: RJB		CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

NO.	DATE	REVISIONS	BY



**LEGEND**

	PROP. WATER MAIN
	PROP. REDUCER / INCREASER
	PROP. GATE VALVE (G.V.)
	HYDRANT
	ABANDON WATER MAIN
	REMOVE WATER MAIN
	CAP
	IRRIGATION WATER METER



- NOTES:**
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN GENERAL NOTES, SEE SHEET W-1.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-13.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-23.
  - FOR SEWER SEPARATION PLAN AND PROFILE, SEE SHEET SD-3.
  - FOR TEMPORARY WATER MAIN DETAILS, SEE SHEET W-20.
  - FOR WATER MAIN DETAILS, SEE SHEETS W-21 THRU W-23.
  - FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-63.
  - UNTIL NEW CURB LINE IS INSTALLED, LOCATE HYDRANT BEHIND EXIST. CURB LINE OR PROTECT W/ BARRIER BOLLARD.
  - VERIFY WITH THE ENGINEER EXACT LOCATIONS OF SERVICE STUBS PRIOR TO INSTALLATION.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

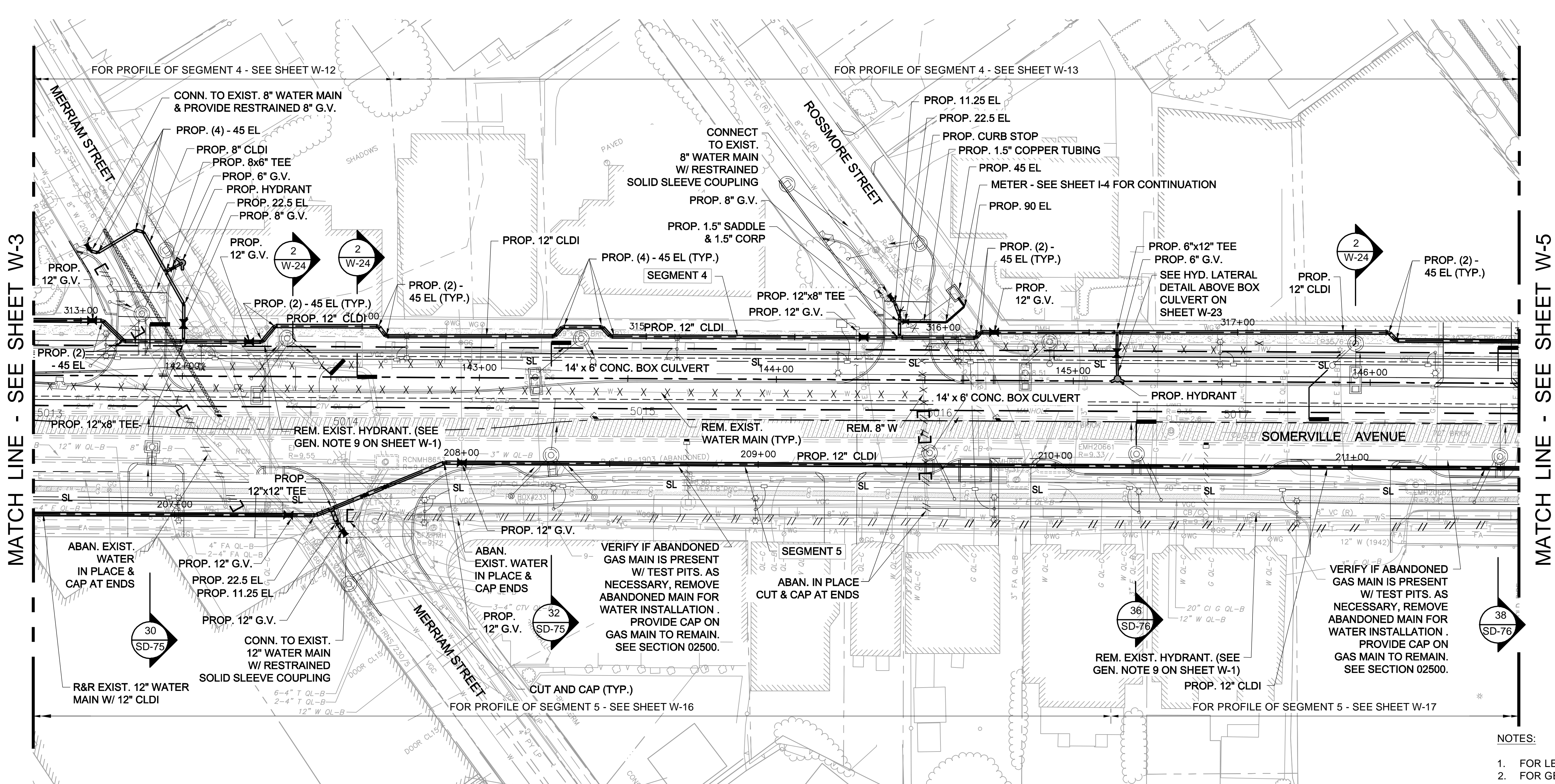
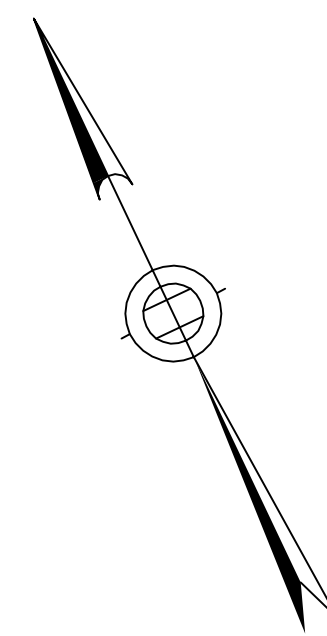
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN REPLACEMENT PLAN**  
**SHEET 3 OF 6**

DESIGNED: KMM		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>W-3</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: RA		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

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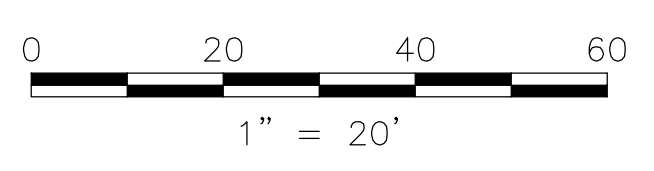
NO.	DATE	REVISIONS	BY



MATCH LINE - SEE SHEET W-3

MATCH LINE - SEE SHEET W-5

LEGEND	
	PROP. WATER MAIN
	PROP. REDUCER / INCRASER
	PROP. GATE VALVE (G.V.)
	HYDRANT
	ABANDON WATER MAIN
	REMOVE WATER MAIN
	CAP
	IRRIGATION WATER METER



- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN GENERAL NOTES, SEE SHEET W-1.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-14.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-24.
  - FOR SEWER SEPARATION PLAN AND PROFILE, SEE SHEET SD-4.
  - FOR TEMPORARY WATER MAIN DETAILS, SEE SHEET W-20.
  - FOR WATER MAIN DETAILS, SEE SHEETS W-21 THRU W-23.
  - FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-64.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN REPLACEMENT PLAN**  
**SHEET 4 OF 6**

DESIGNED: KMM		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>W-4</b>
CHECKED: RJB		REF.	CONT.	
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CHECKED: RJB				

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

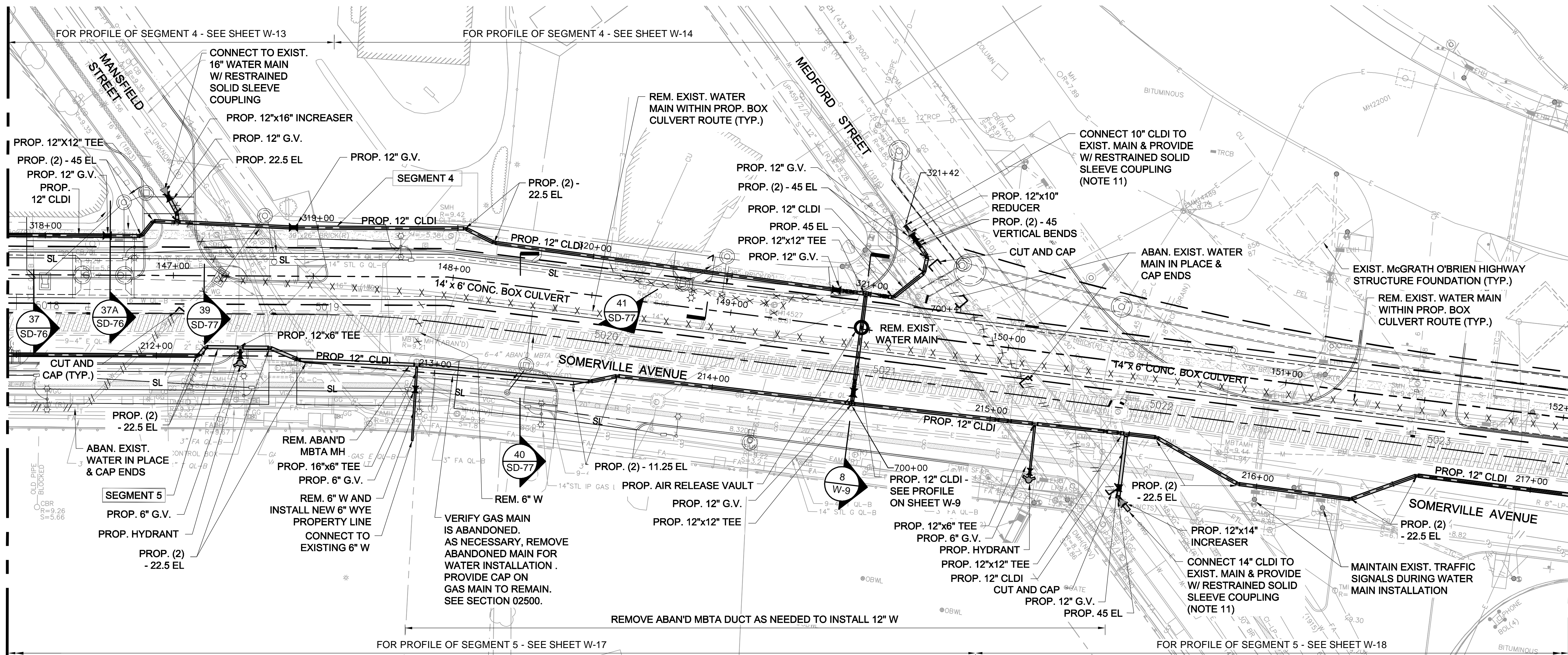
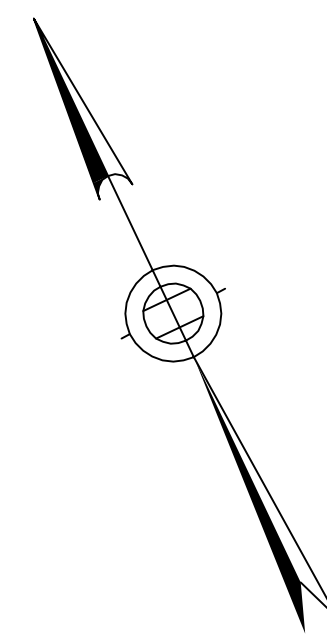
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NO.	DATE	REVISIONS	BY

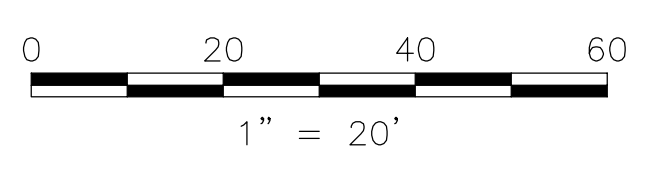
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MATCH LINE - SEE SHEET W-4

MATCH LINE - SEE SHEET W-6



LEGEND	
	PROP. WATER MAIN
	PROP. REDUCER / INCREASER
	PROP. GATE VALVE (G.V.)
	HYDRANT
	ABANDON WATER MAIN
	REMOVE WATER MAIN
	CAP
	IRRIGATION WATER METER



**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN GENERAL NOTES, SEE SHEET W-1.
4. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-15.
5. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-25.
6. FOR SEWER SEPARATION PLAN AND PROFILE, SEE SHEET SD-5.
7. FOR TEMPORARY WATER MAIN DETAILS, SEE SHEET W-20.
8. FOR WATER MAIN DETAILS, SEE SHEETS W-21 THRU W-23.
9. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-65.
10. EXISTING HIGH SERVICE WATER MAIN IN MEDFORD SHALL REMAIN IN PLACE.
11. CONNECTIONS AT MEDFORD ST. ARE TO THE LOW SERVICE MAIN.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

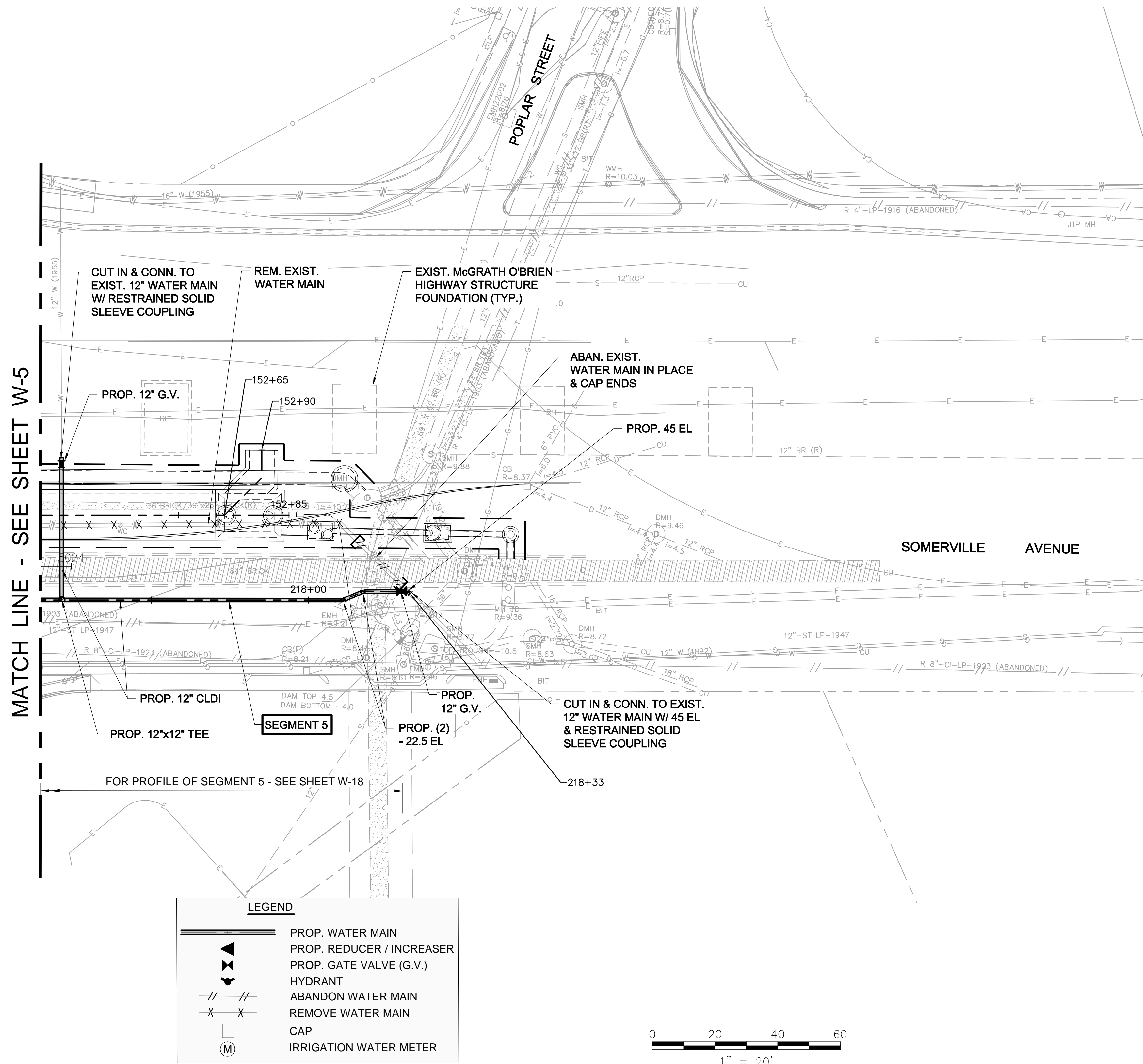
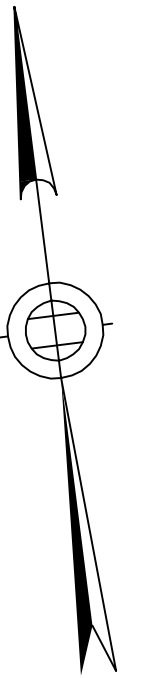
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN REPLACEMENT PLAN**  
**SHEET 5 OF 6**

DESIGNED: KMM	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: RJB			<b>W-5</b>
DRAWN: RA	REF.:	CONT.:	SCALE: 1"=20'
CHECKED: RJB	ACC.:		DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143			

Rachel J. Burckardt  
 12/11/17

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RACHEL J. BURCKARDT  
 CIVIL  
 No. 31880  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**WATER MAIN REPLACEMENT PLAN**

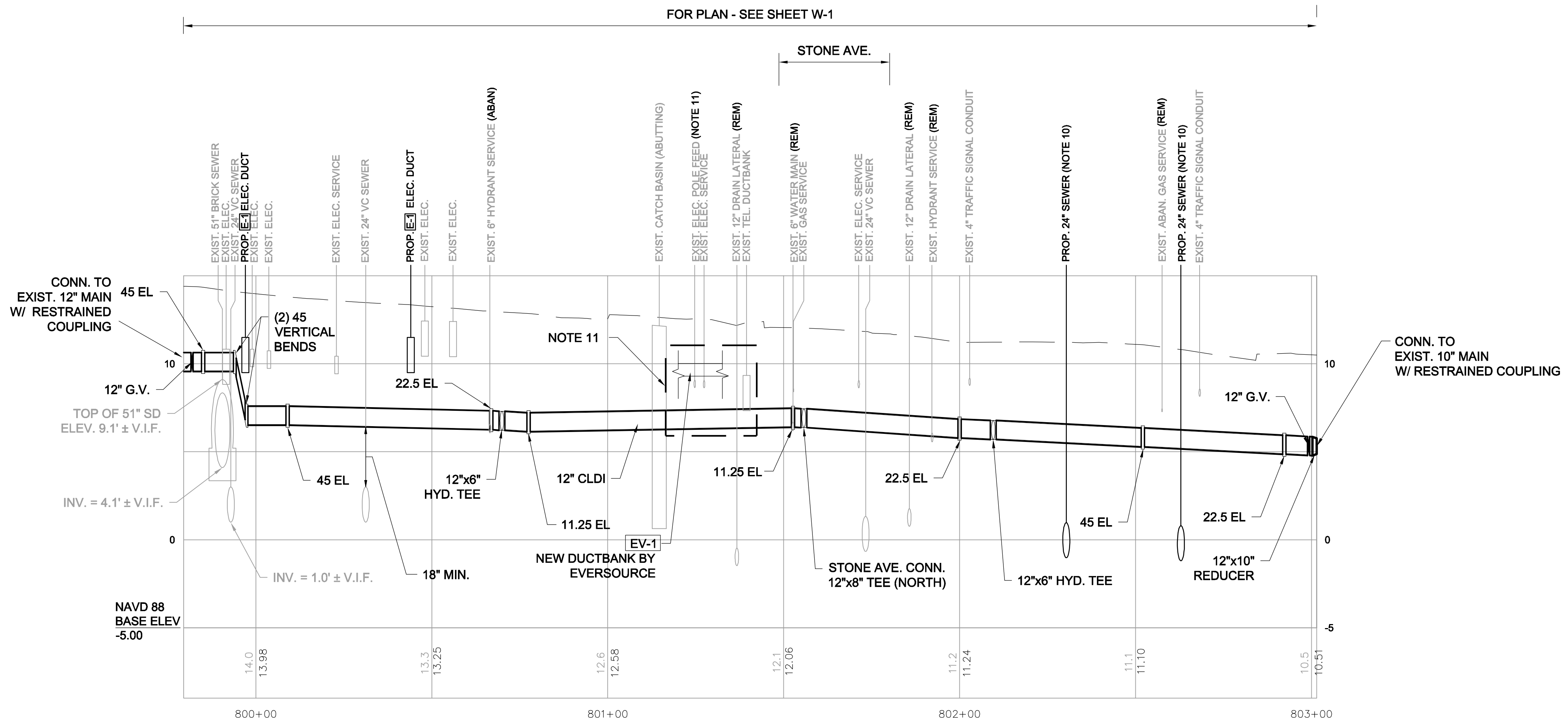
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DESIGNED: KMM		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>W-6</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: RA		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

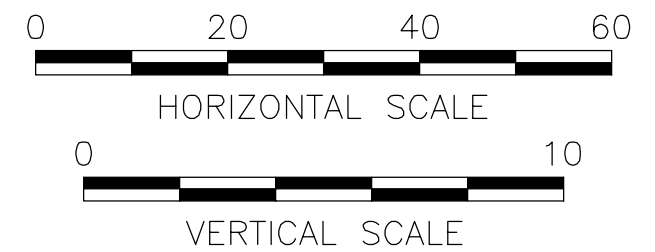
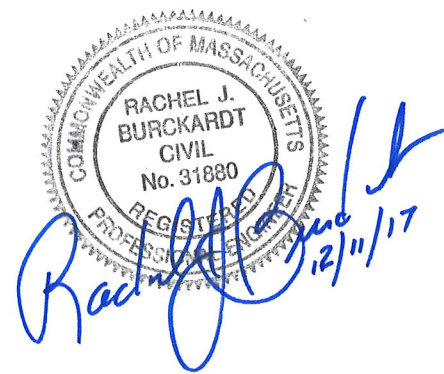
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PROFILE- 10 IN AND 12 IN WATER MAIN ON SOMERVILLE AVE  
SEGMENT 1

NOTES:

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEET W-1.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-1 THRU SD-2.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. FOR SEWER PLAN & PROFILE, SEE SHEET SD-41.
11. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS

CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
WATER MAIN PROFILE SEGMENT 1

DESIGNED: JF  
CHECKED: RJB  
DRAWN: KWW  
CHECKED: RJB

**WSP PARSONS BRINCKERHOFF** Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF.	CONT.	SCALE: AS NOTED
ACC.		DATE: DEC 2017

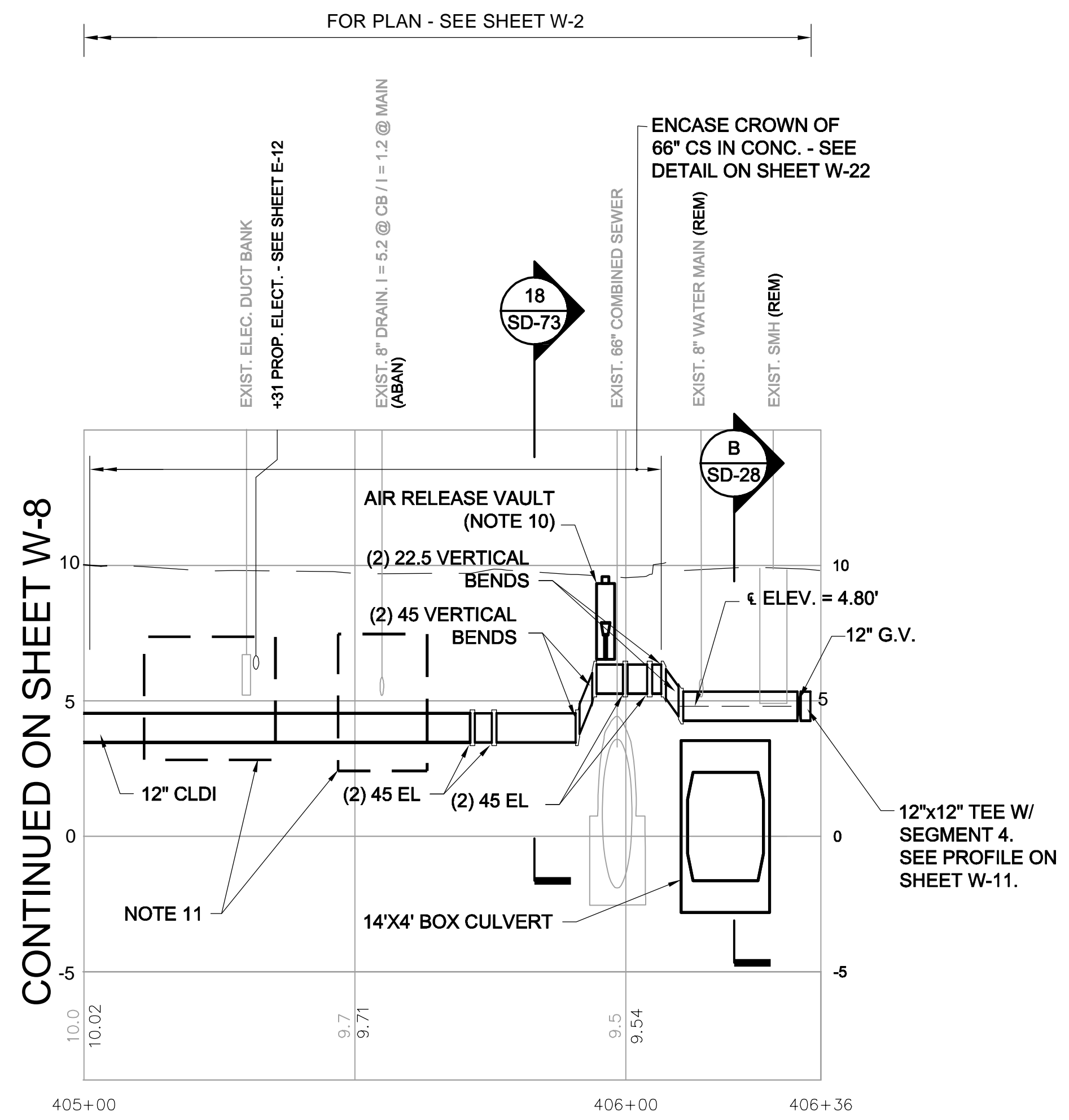
SHEET  
**W-7**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

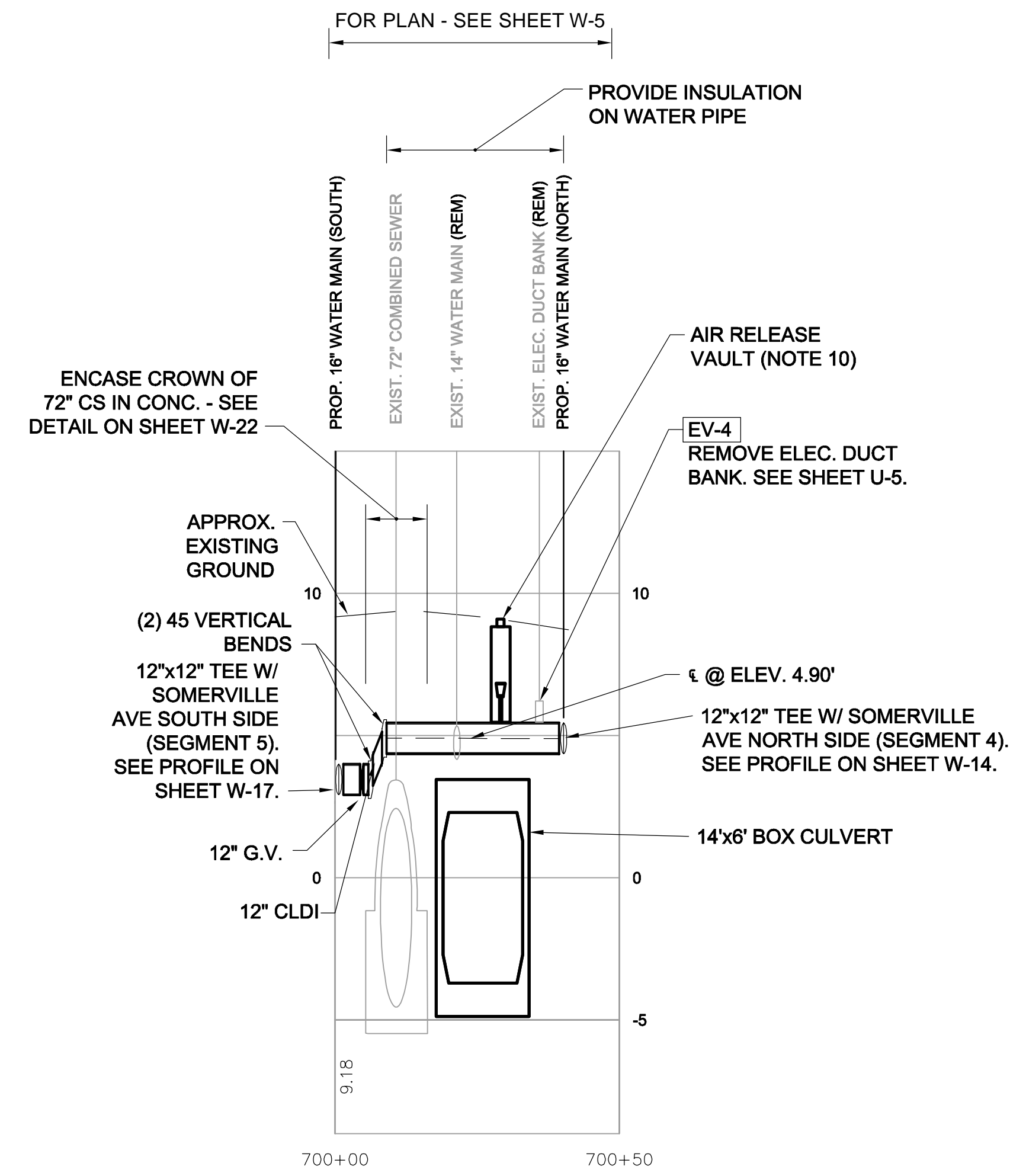
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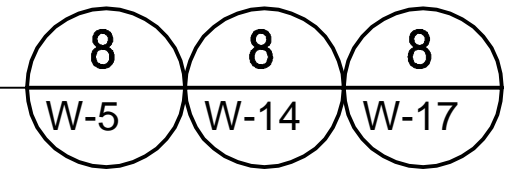
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**PROFILE - SOMERVILLE AVE. SOUTH SIDE  
SEGMENT 2**



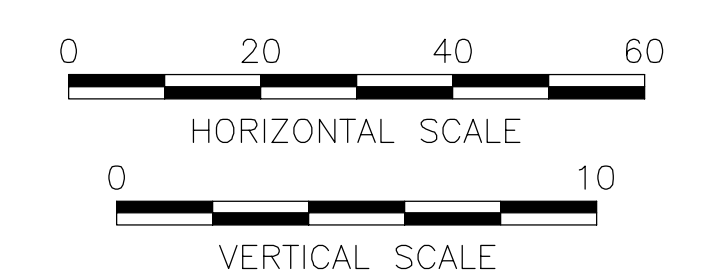
**PROFILE - SOMERVILLE AVE. CROSS CONNECTION  
AT MEDFORD STREET**



**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEETS W-2 AND W-5.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-2 AND SD-5.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. FOR AIR RELEASE VAULT DETAIL, SEE SHEET W-24.
11. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.

*Rachel J. Burckardt*
  
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 2**  
**SHEET 2 OF 2**

DESIGNED: JF  
 CHECKED: RJB  
 DRAWN: KWW  
 CHECKED: RJB

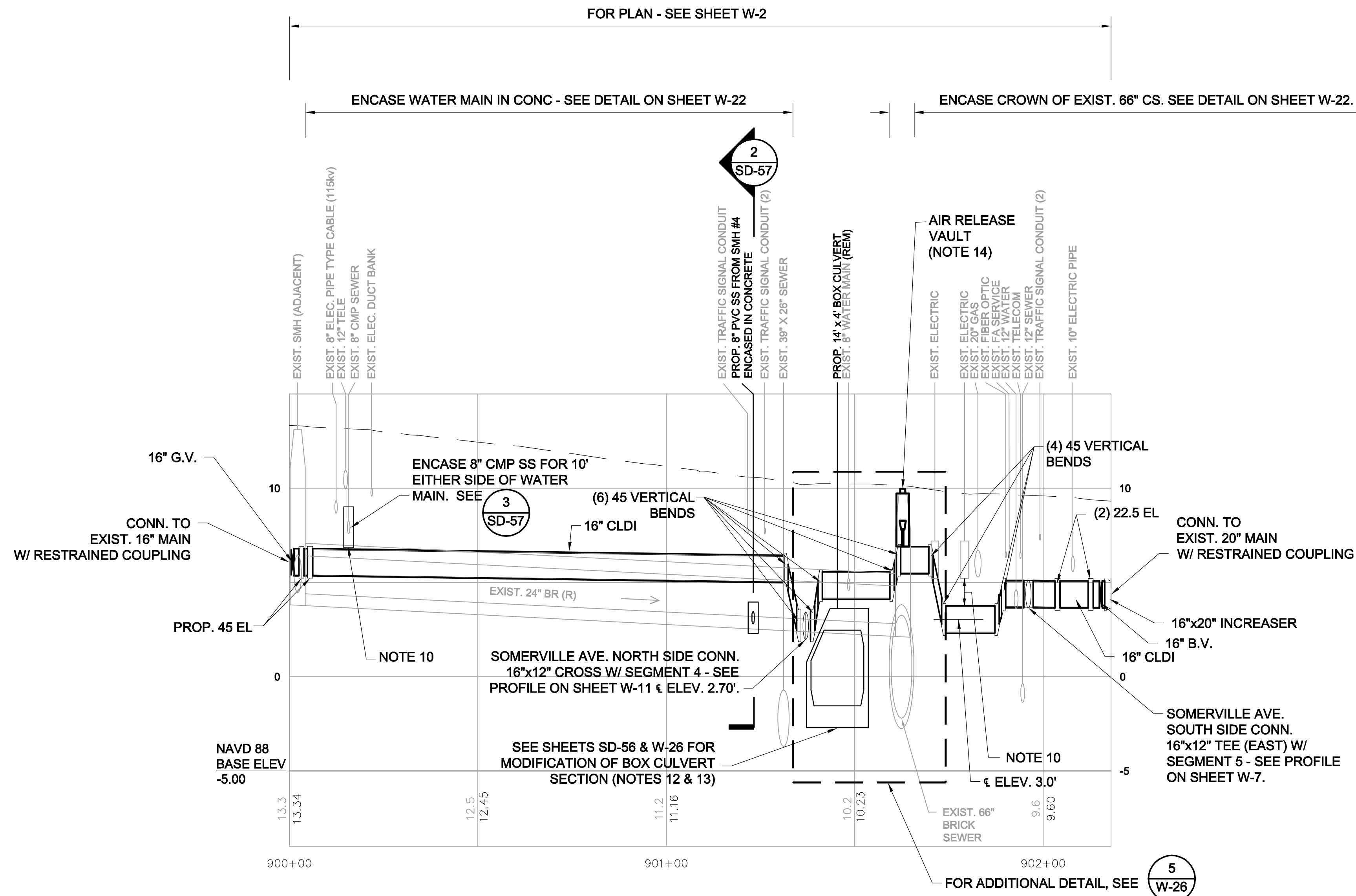
		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
		REF. _____ ACC. _____	CONT. _____ DATE: DEC 2017

SHEET  
**W-9**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

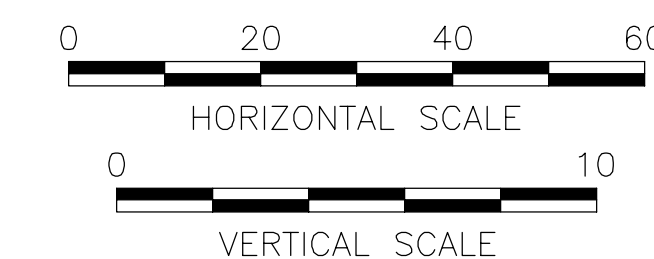




**PROFILE - 16 IN AND 20 IN WATER MAIN ON PROSPECT STREET  
SEGMENT 3**

**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEET W-2.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. PROVIDE MIN. 12" CLEAR UNDER EXISTING UTILITIES.
11. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.
12. REMOVE & CAP EXIST. 16" WATER MAIN PRIOR TO INSTALLING BOX CULVERT. SEE SHEETS SD-55 AND W-24.
13. INSTALL PROP. 16" WATER MAIN (SEGMENT 3) AFTER BOX CULVERT IS INSTALLED.
14. FOR AIR RELEASE VAULT DETAIL, SEE SHEET W-24.



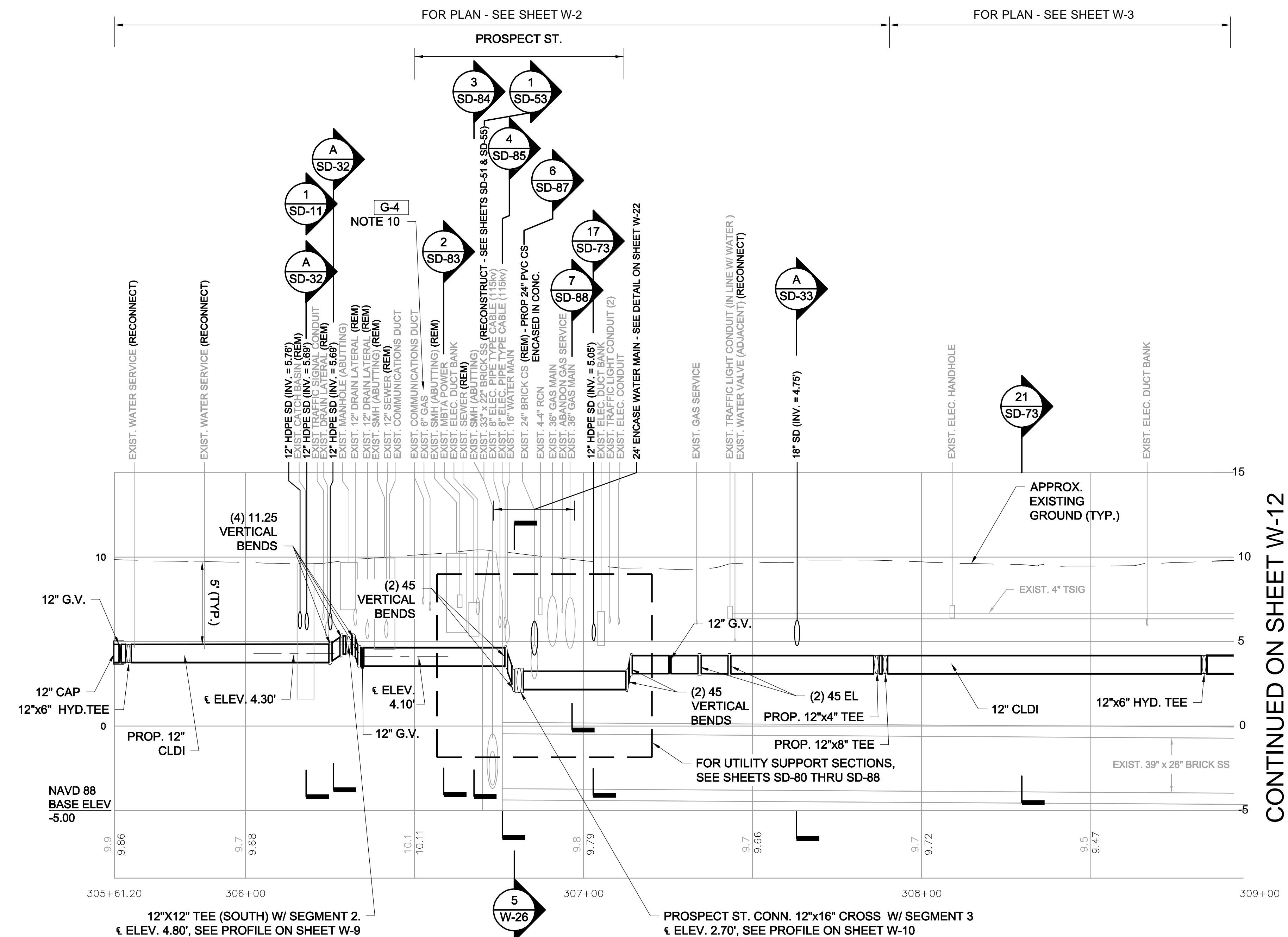
ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 3**

DESIGNED: JF		Parsons Brinckerhoff, Inc.		SHEET
CHECKED: RJB		75 Arlington St. Boston, MA 02116		
DRAWN: KWW	REF.	CONT.	SCALE: AS NOTED	CITY OF SOMERVILLE
CHECKED: RJB	ACC.		DATE: DEC 2017	
				SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

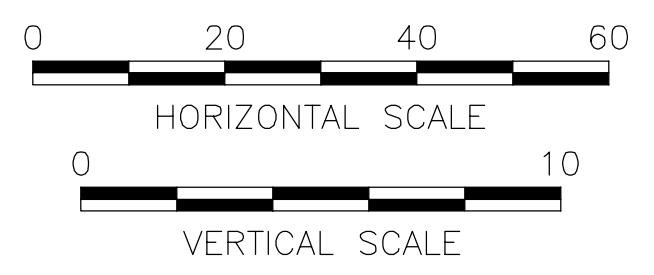
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**PROFILE- SOMERVILLE AVE. NORTH SIDE  
SEGMENT 4**

**CONTINUED ON SHEET W-12**

- NOTES:**
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN PLAN, SEE SHEETS W-2 THRU W-3.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-2 THRU SD-3.
  - RETAIN ALL EXISTING UTILITIES U.N.O.
  - REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
  - FOR DETAILS, SEE W-20 THRU W-23.
  - ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
  - SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
  - G-4 EVERSOURCE GAS WILL REPLACE 6" CI W/ 8" PLASTIC. SEE SHEET U-2 AND SECTION 02500.
  - PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.



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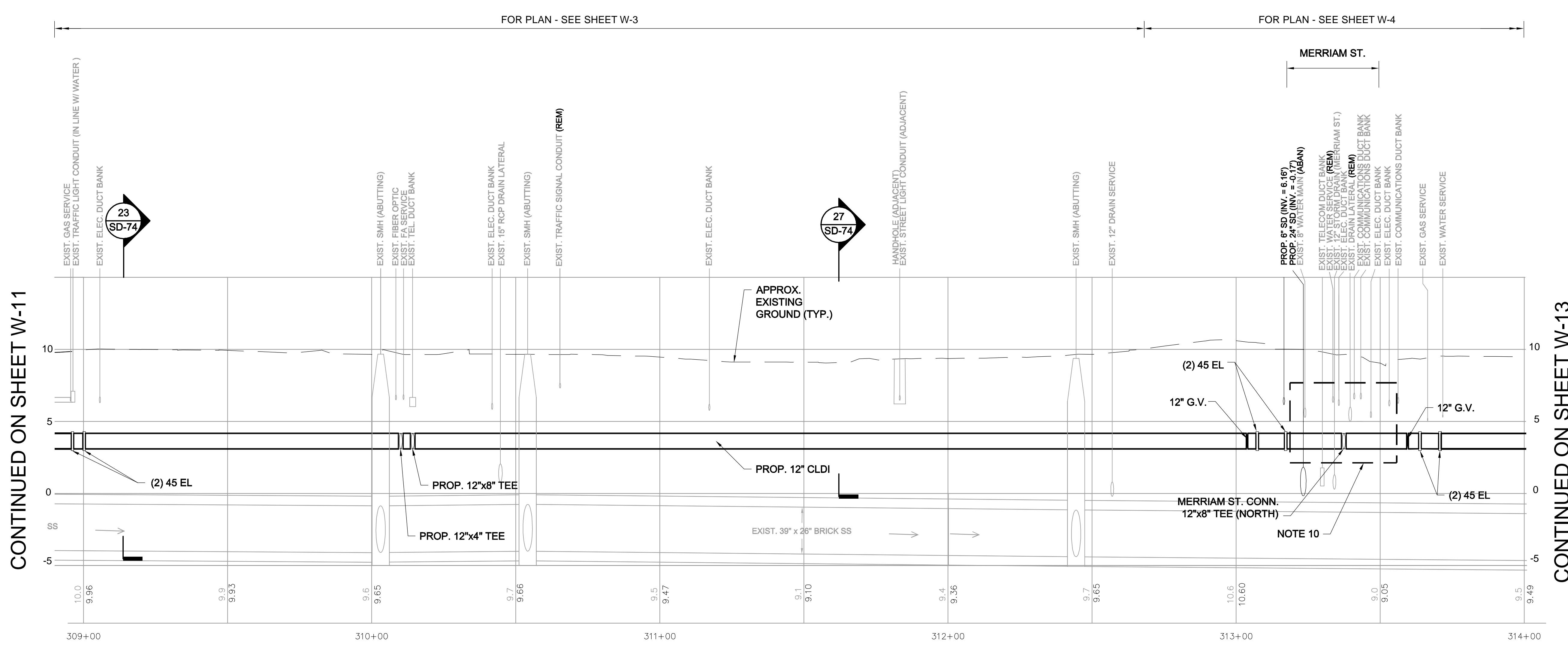
**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 4**  
**SHEET 1 OF 4**

DESIGNED: JF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <h1 style="font-size: 2em;">W-11</h1>
CHECKED: RJB		REF.	CONT.	
DRAWN: KWW		ACC.	DATE: DEC 2017	
CHECKED: RJB				

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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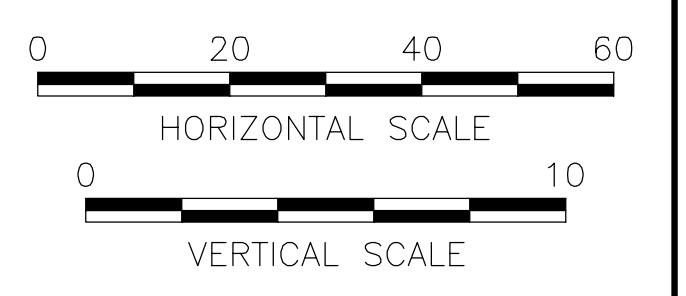
CONTINUED ON SHEET W-11

CONTINUED ON SHEET W-13

PROFILE- SOMERVILLE AVE. NORTH SIDE  
SEGMENT 4

- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN PLAN, SEE SHEETS W-3 THRU W-4.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-3 THRU SD-4.
  - RETAIN ALL EXISTING UTILITIES U.N.O.
  - REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
  - FOR DETAILS, SEE W-20 THRU W-23.
  - ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
  - SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
  - PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.

RACHEL J. BURKHARDT  
CIVIL  
No. 31880  
DEC 11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

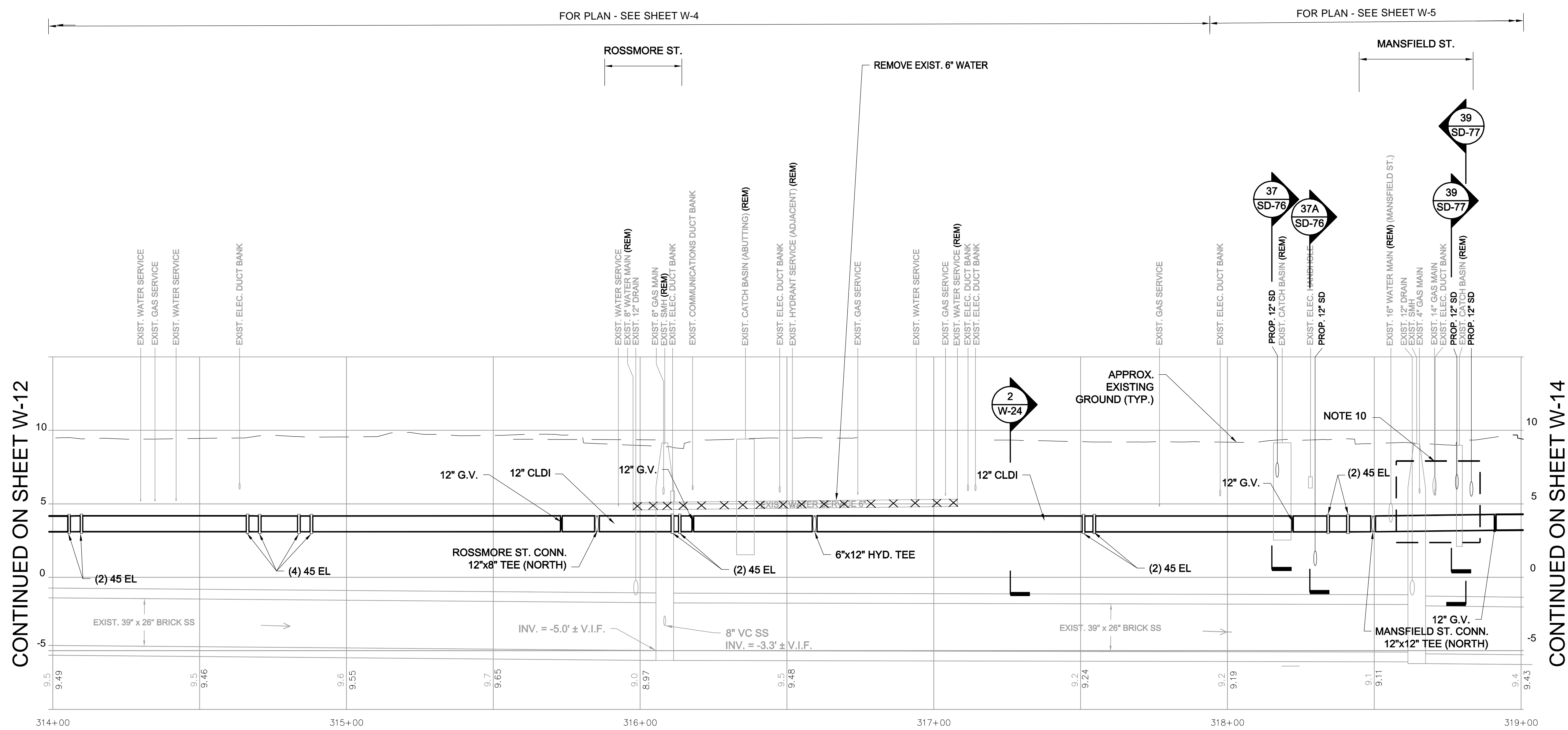
SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS  
CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
WATER MAIN PROFILE SEGMENT 4  
SHEET 2 OF 4

DESIGNED: JF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>W-12</b>
CHECKED: RJB		REF.	CONT.	
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CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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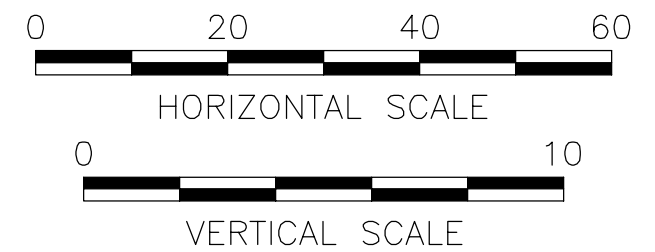
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CONTINUED ON SHEET W-14

**PROFILE- SOMERVILLE AVE. NORTH SIDE  
SEGMENT 4**

- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN PLAN, SEE SHEETS W-4 THRU W-5.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-4 THRU SD-5.
  - RETAIN ALL EXISTING UTILITIES U.N.O.
  - REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
  - FOR DETAILS, SEE W-20 THRU W-23.
  - ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
  - SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
  - PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.

Rachel J. Burckhardt  
 Civil Engineer  
 No. 31880  
 State of Massachusetts  
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

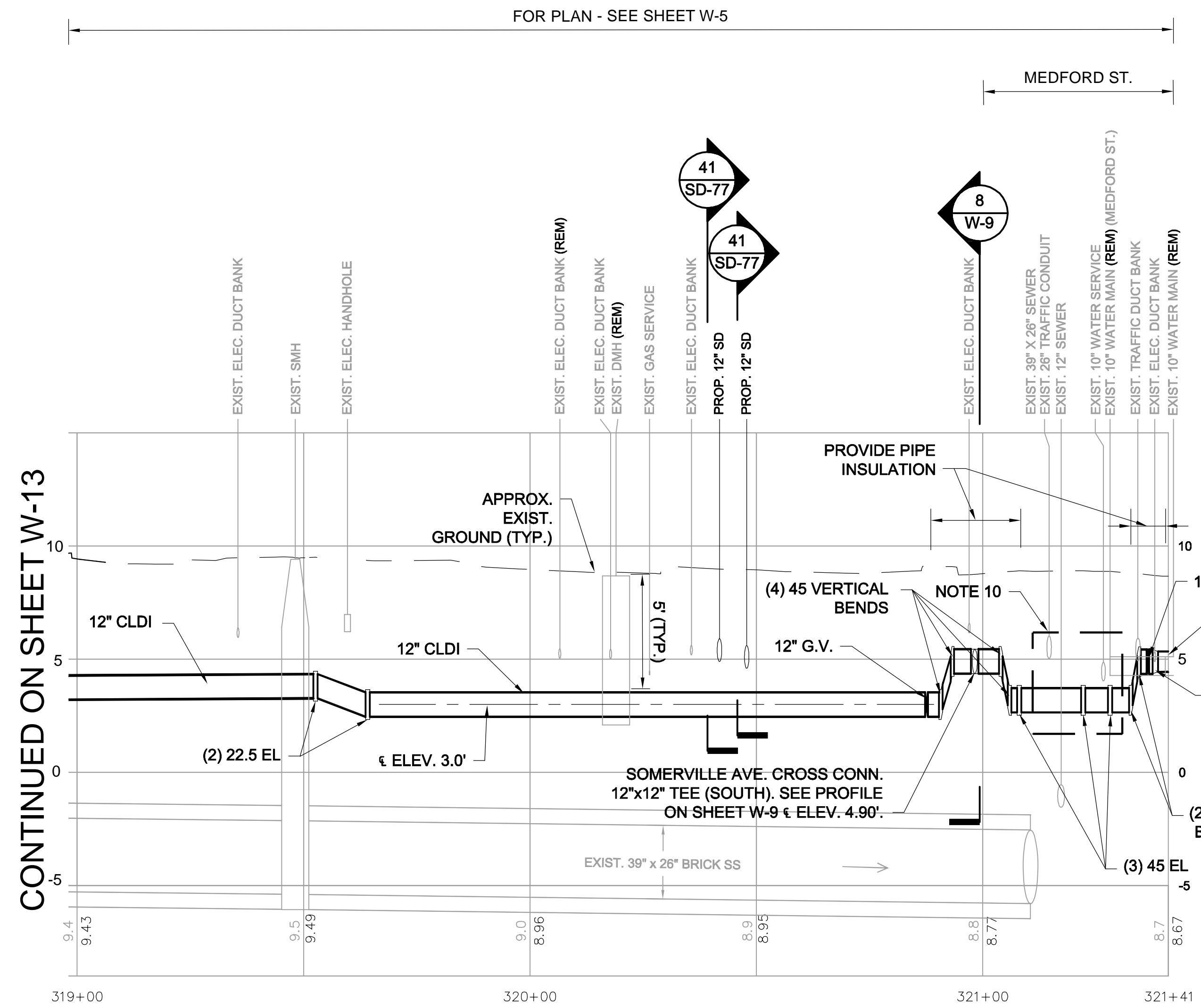
**WATER MAIN PROFILE SEGMENT 4**

**SHEET 3 OF 4**

DESIGNED: JF	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>W-13</b>
CHECKED: RJB		
DRAWN: KWW	REF.	CONT.
CHECKED: RJB	ACC.	SCALE: AS NOTED DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

NO.	DATE	REVISIONS	BY

T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\W-07\_W-19 WaterMainReplacement\_Profiles.dwg 2017-12-08 1:03 PM

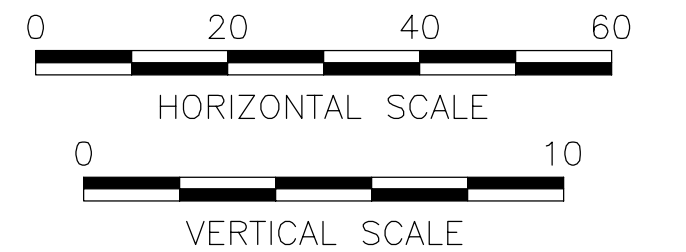


**PROFILE- SOMERVILLE AVE. NORTH SIDE  
 SEGMENT 4**

**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEET W-5.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-5.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.

RACHEL J. BURCKARDT  
 CIVIL  
 No. 31880  
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**WATER MAIN PROFILE SEGMENT 4**

**SHEET 4 OF 4**

DESIGNED: JF  
 CHECKED: RJB  
 DRAWN: KWW  
 CHECKED: RJB

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 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

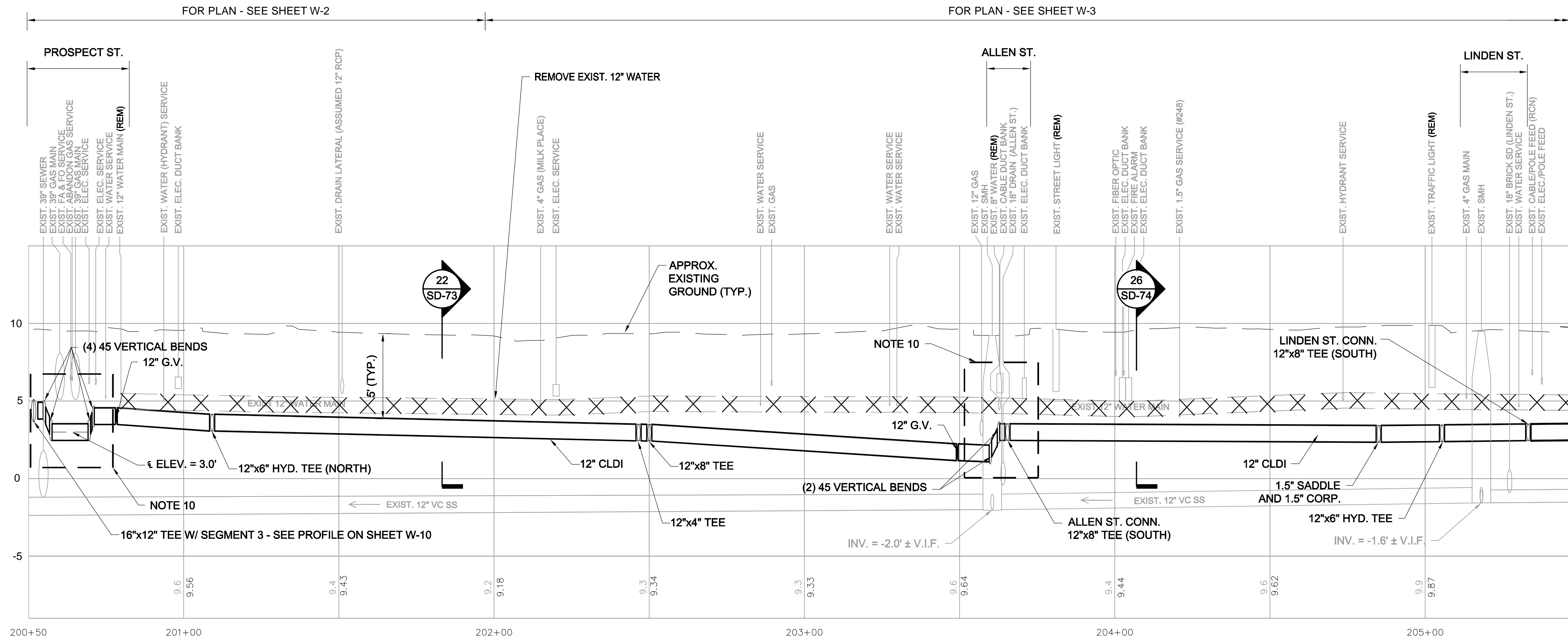
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 ACC. SCALE: AS NOTED  
 DATE: DEC 2017

SHEET  
**W-14**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-12-08 4:05 PM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\W-07\_W-19 WaterMainReplacement\_Profiles.dwg



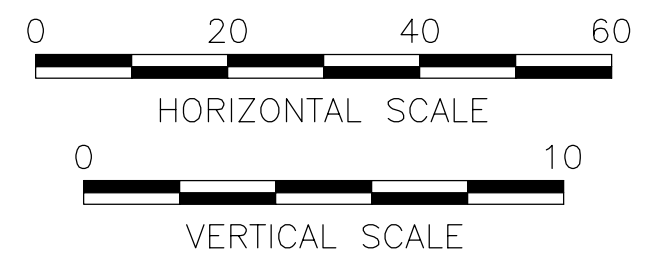
**PROFILE - SOMERVILLE AVE. SOUTH SIDE  
SEGMENT 5**

CONTINUED ON SHEET W-16

**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEETS W-2 THRU W-3.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-2 THRU SD-3.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.

*Rachel J. Burckhardt*
  
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 5**  
**SHEET 1 OF 4**

DESIGNED: JF  
 CHECKED: RJB  
 DRAWN: KWW  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
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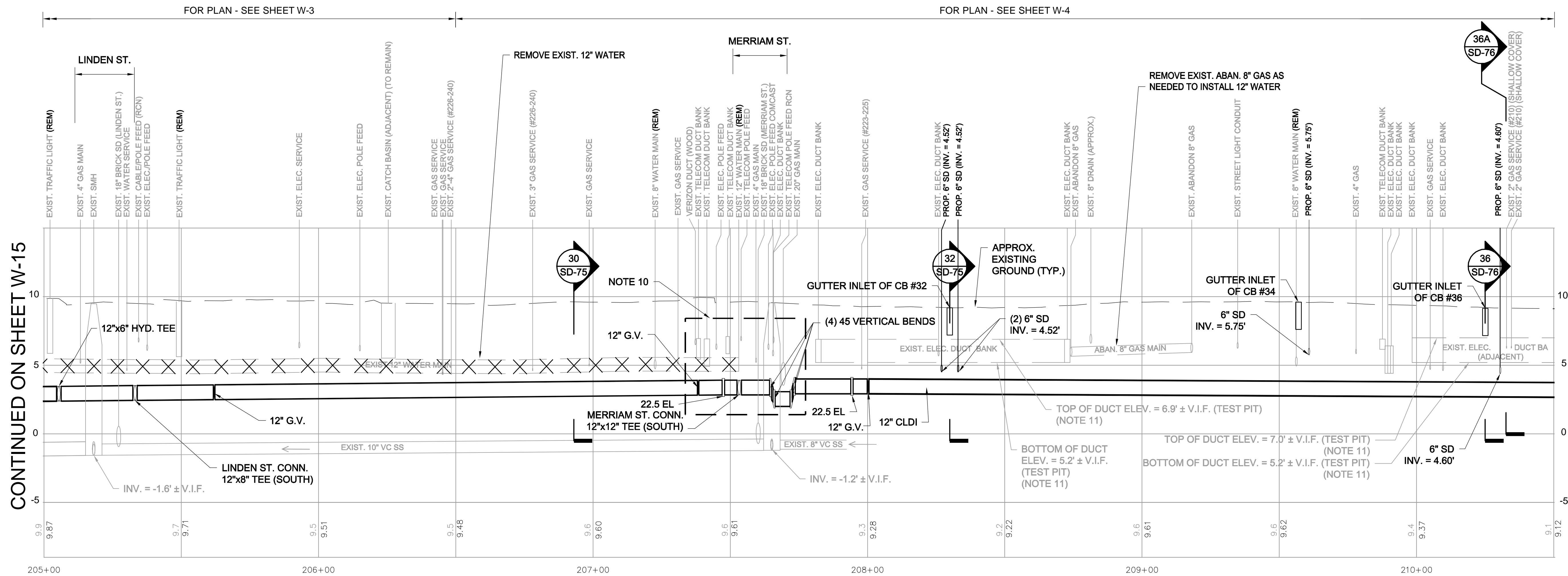
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ACC.		DATE: DEC 2017

SHEET  
**W-15**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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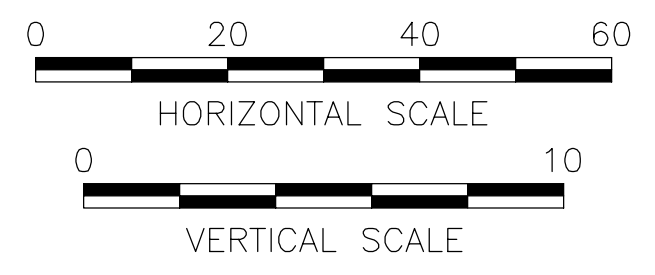


PROFILE- SOMERVILLE AVE. SOUTH SIDE  
SEGMENT 5

NOTES:

- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR WATER MAIN PLAN, SEE SHEETS W-3 THRU W-4.
- FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-3 THRU SD-4.
- RETAIN ALL EXISTING UTILITIES U.N.O.
- REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
- FOR DETAILS, SEE W-20 THRU W-23.
- ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
- SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
- PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.
- DUCT BANK ELEVATIONS NOTED WITH "TEST PIT" ARE BASED ON VACUUM TEST PITS IN OCT. 2017.

Professional Engineer Seal for Rachel J. Burckardt, No. 31880, dated 12/11/17.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS  
CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
WATER MAIN PROFILE SEGMENT 5  
SHEET 2 OF 4

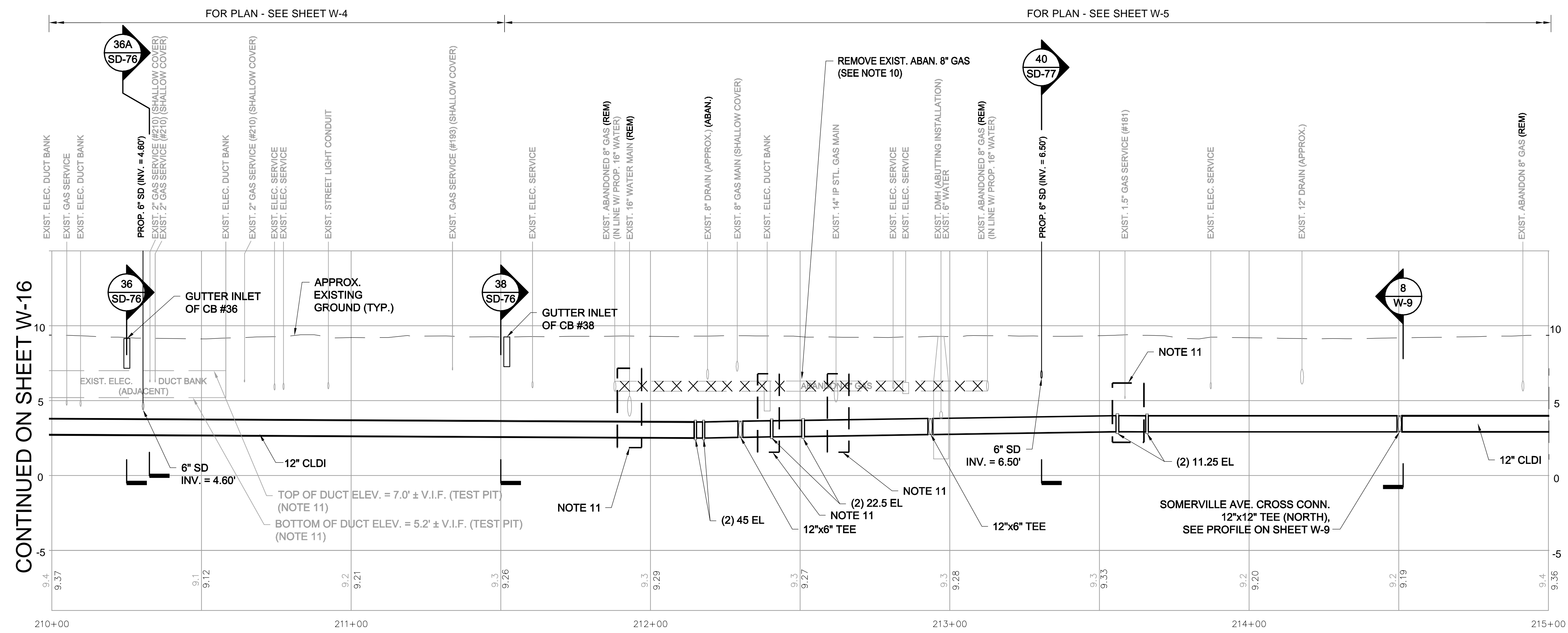
DESIGNED: JF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: RJB		REF.	CONT.
DRAWN: KWW		ACC.	SCALE: AS NOTED
CHECKED: RJB			DATE: DEC 2017

SHEET  
**W-16**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

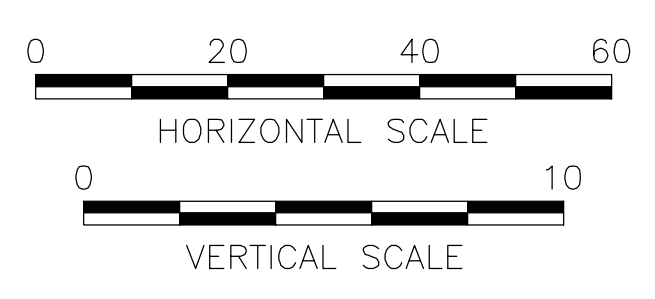
NO.	DATE	REVISIONS	BY

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**PROFILE- SOMERVILLE AVE. SOUTH SIDE  
SEGMENT 5**

- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR WATER MAIN PLAN, SEE SHEETS W-4 THRU W-5.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-4 THRU SD-5.
  - RETAIN ALL EXISTING UTILITIES U.N.O.
  - REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
  - FOR DETAILS, SEE W-20 THRU W-23.
  - ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
  - SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
  - SEE SPEC. SECTION 02500 FOR PROCEDURE FOR REMOVAL OF ABANDONED GAS MAINS.
  - PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 5**  
**SHEET 3 OF 4**

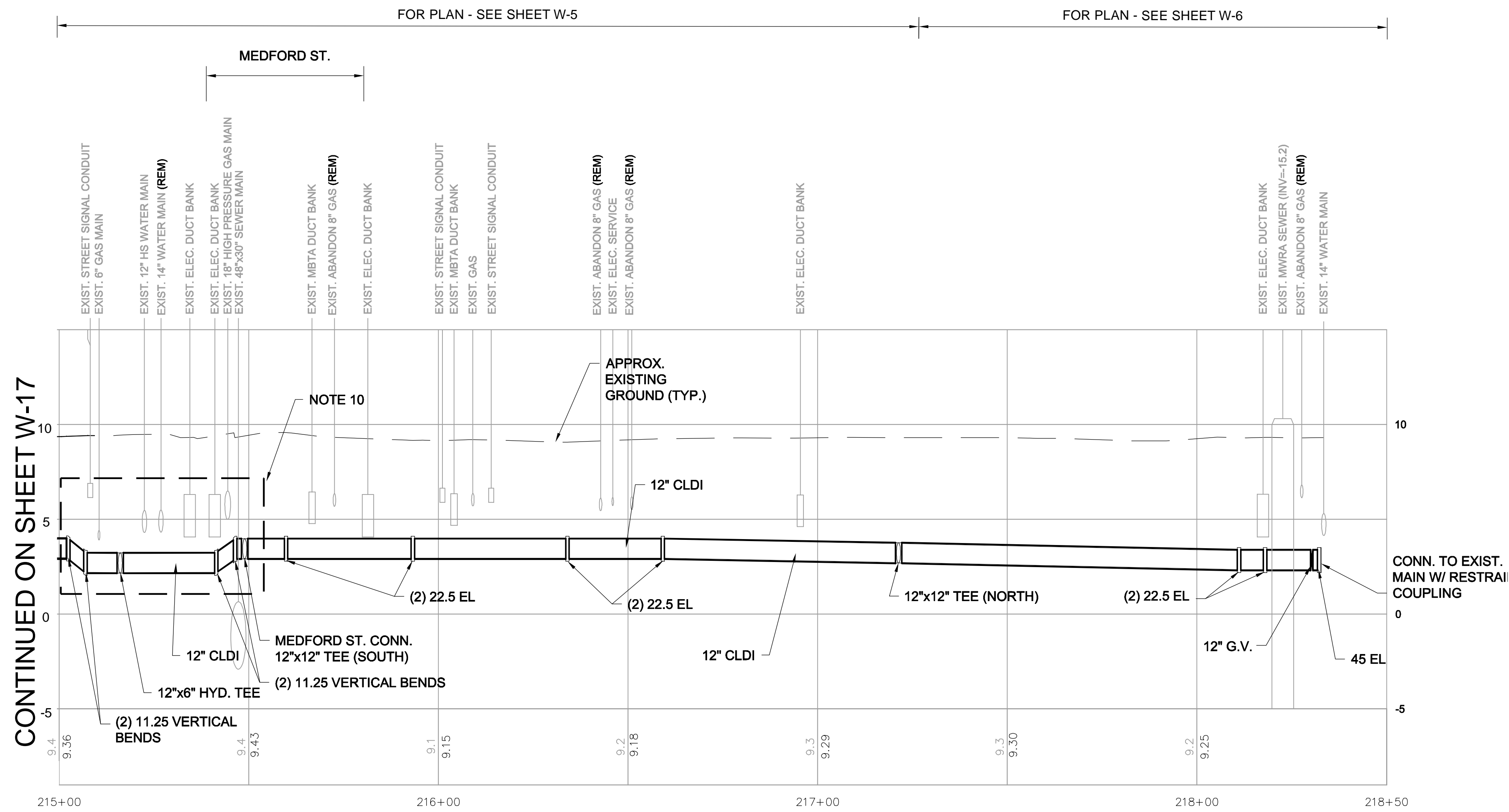
DESIGNED: JF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>W-17</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: KWW		ACC.		DATE: DEC 2017
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY



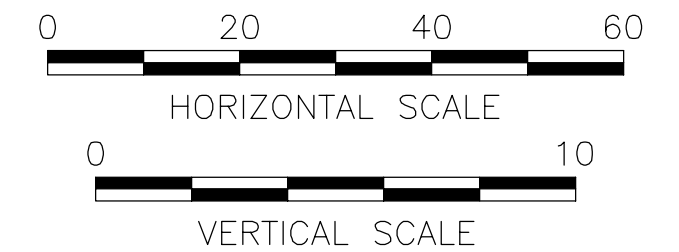
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**PROFILE- SOMERVILLE AVE. SOUTH SIDE  
SEGMENT 5**

**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEETS W-5 THRU W-6.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-5 THRU SD-6.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 5**  
**SHEET 4 OF 4**

DESIGNED: JF  
CHECKED: RJB  
DRAWN: KWW  
CHECKED: RJB

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75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

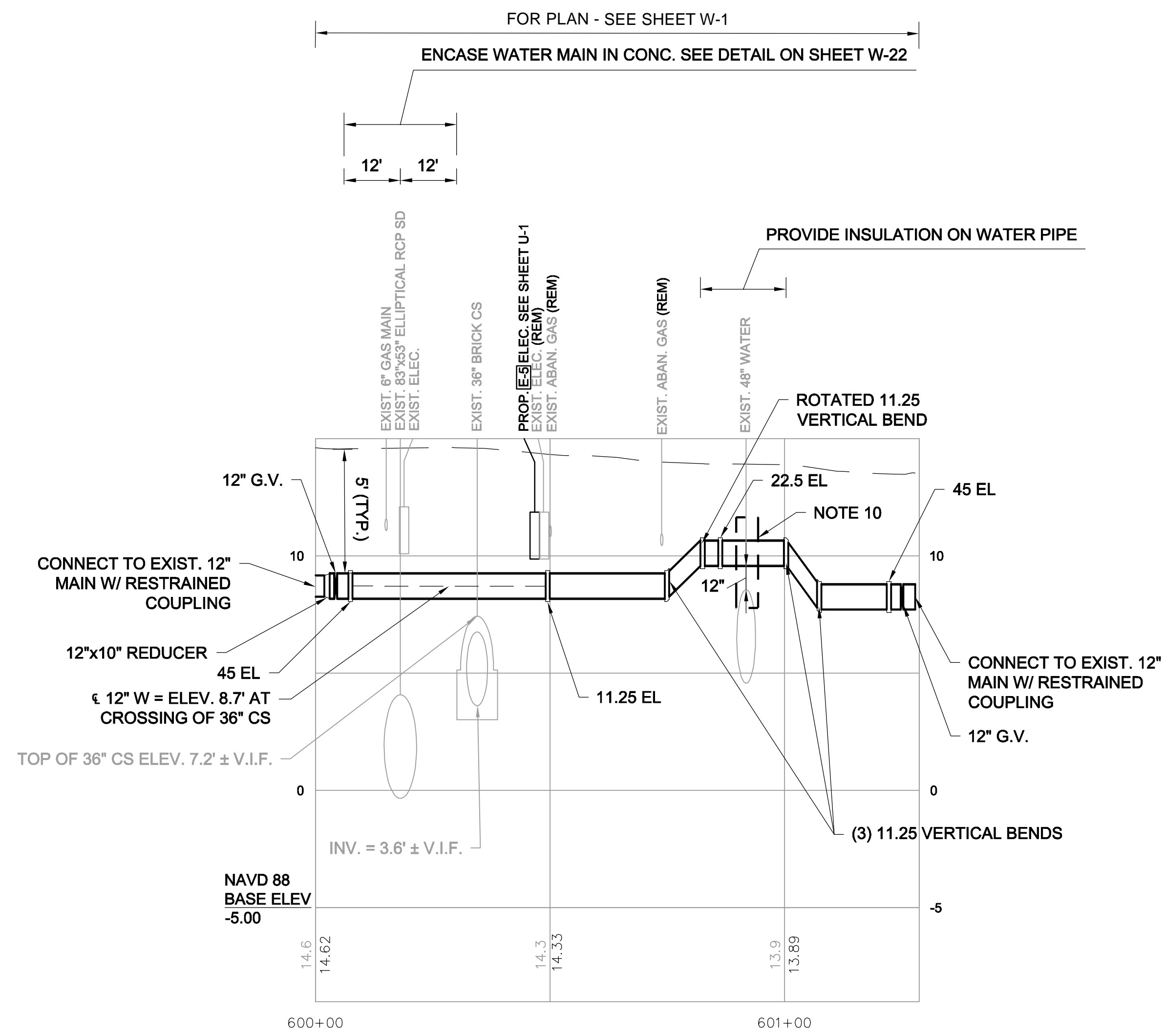
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ACC.		DATE: DEC 2017

SHEET  
**W-18**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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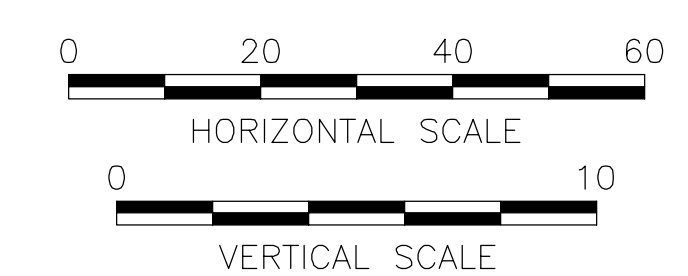


**PROFILE- SOMERVILLE AVE  
SEGMENT 6**

**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR WATER MAIN PLAN, SEE SHEETS W-5 THRU W-6.
4. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-5 THRU SD-6.
5. RETAIN ALL EXISTING UTILITIES U.N.O.
6. REPLACE ALL WATER SERVICES AND CONNECT TO NEW MAIN. SEE DETAIL ON SHEET W-22.
7. FOR DETAILS, SEE W-20 THRU W-23.
8. ELEVATIONS OF ALL SERVICES ARE APPROXIMATE - V.I.F.
9. SUPPORT EXISTING UTILITIES IN PLACE, U.N.O.
10. PRIOR TO THE START OF WATER MAIN CONSTRUCTION, TAKE TEST PITS TO CONFIRM DEPTH AND SIZE OF CROSSING UTILITIES.

*Rachel J. Burckhardt*  
12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN PROFILE SEGMENT 6**  
**SHEET 1 OF 1**

DESIGNED: JF  
CHECKED: RJB  
DRAWN: KWW  
CHECKED: RJB

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Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

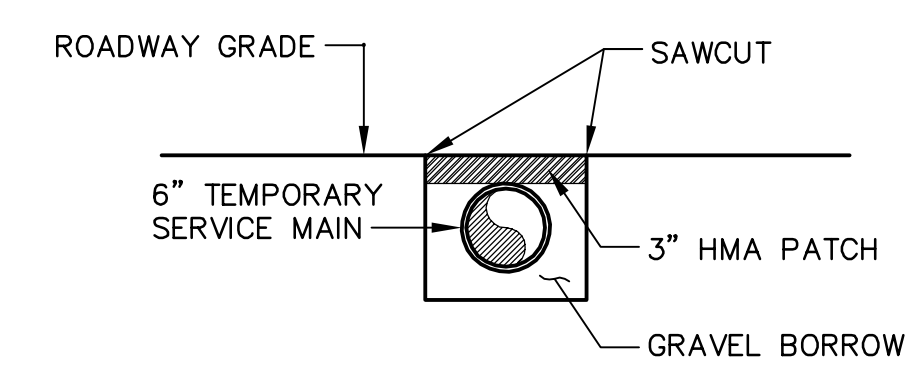
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ACC. SCALE: AS NOTED  
DATE: DEC 2017

SHEET  
**W-19**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

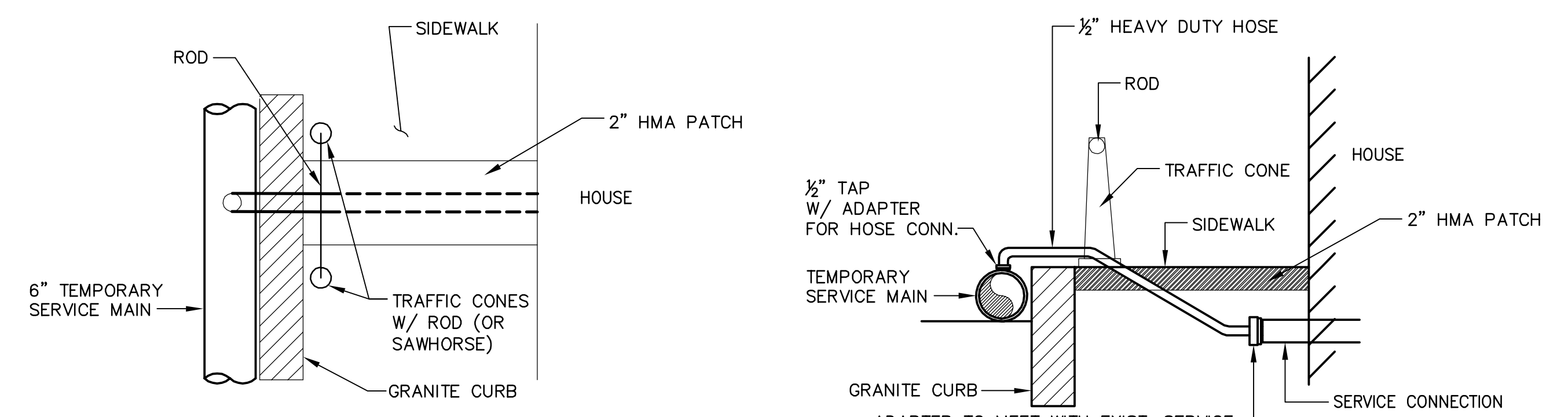
NO.	DATE	REVISIONS	BY

NOTE:  
AFTER REMOVAL OF  
TEMPORARY WATER MAIN,  
PATCH TRENCH AS INDICATED IN 1  
L-100

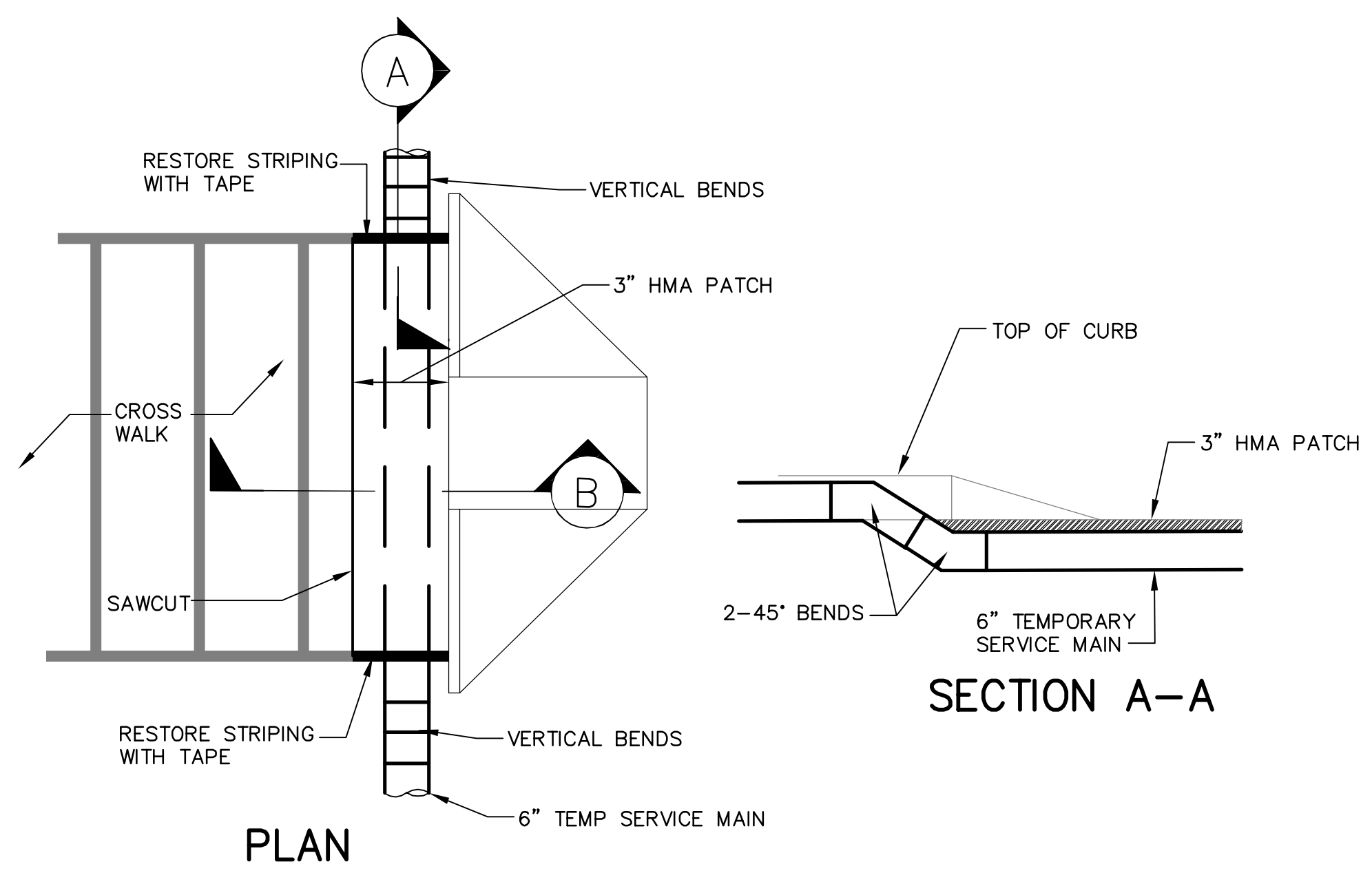


**TEMPORARY WATER MAIN AT INTERSECTION OR DRIVEWAY**  
NOT TO SCALE

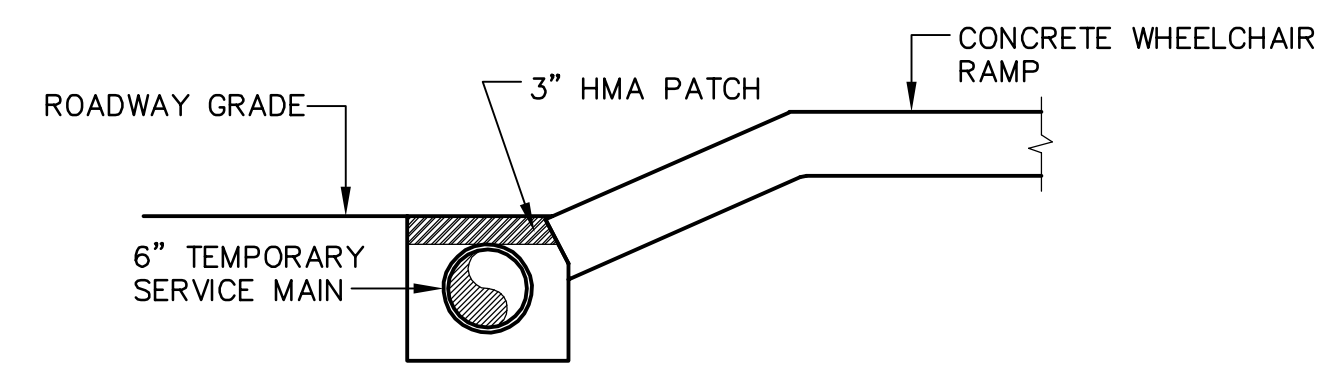
NOTE:  
FOR FIRE SEQUENCE CONNECTION,  
SEE SPECIFICATION SECTION 01513.



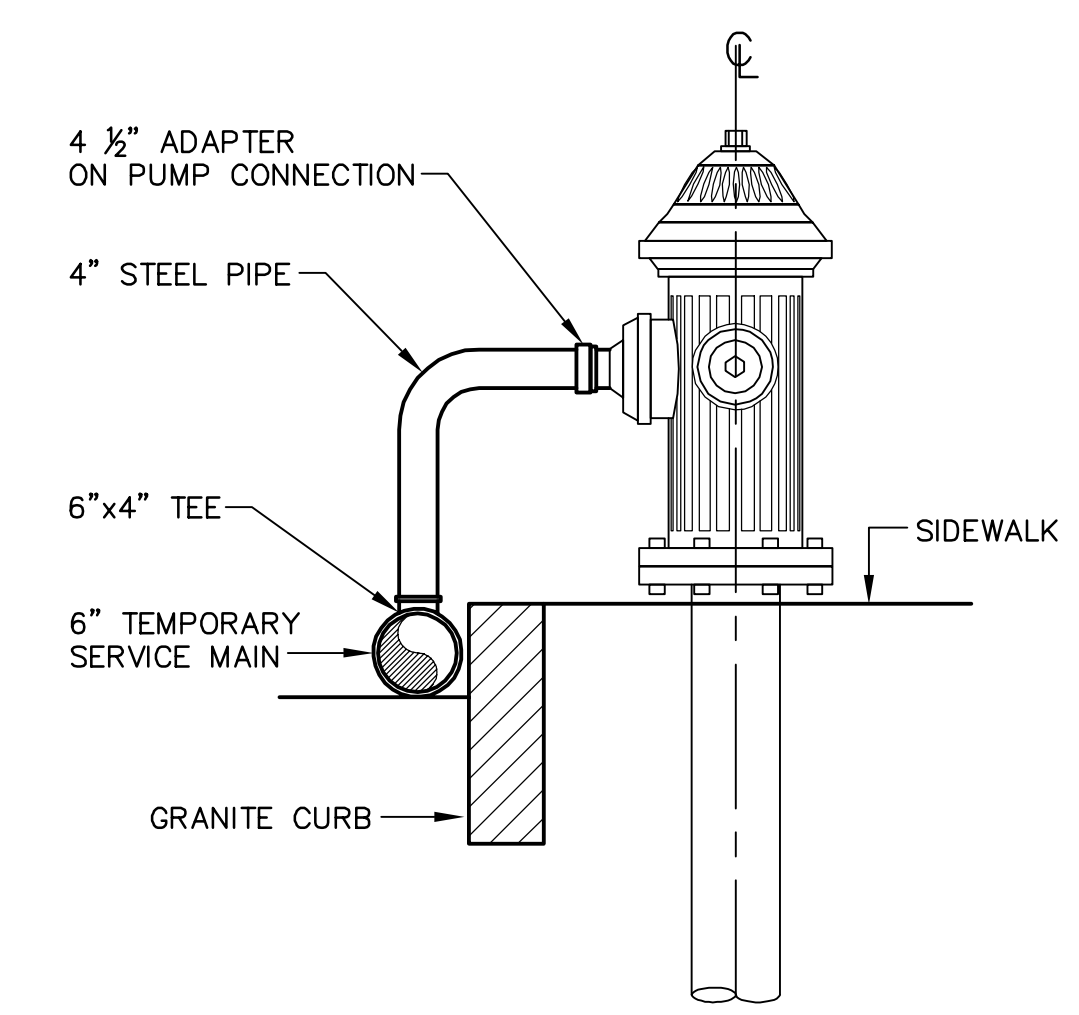
**TEMPORARY WATER MAIN SERVICE CONNECTION**  
NOT TO SCALE



**TEMPORARY WATER MAIN AT WCR**  
NOT TO SCALE



**TEMPORARY WATER MAIN AT WCR**  
NOT TO SCALE



**TEMPORARY WATER MAIN CONNECTION AT EXISTING HYDRANT**  
NOT TO SCALE

2017-12-06 5:28 PM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\W-20\_W-23 Water Details.dwg

*Rachel J. Burckhardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER DETAILS SHEET 1 OF 4**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: LAC  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
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75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

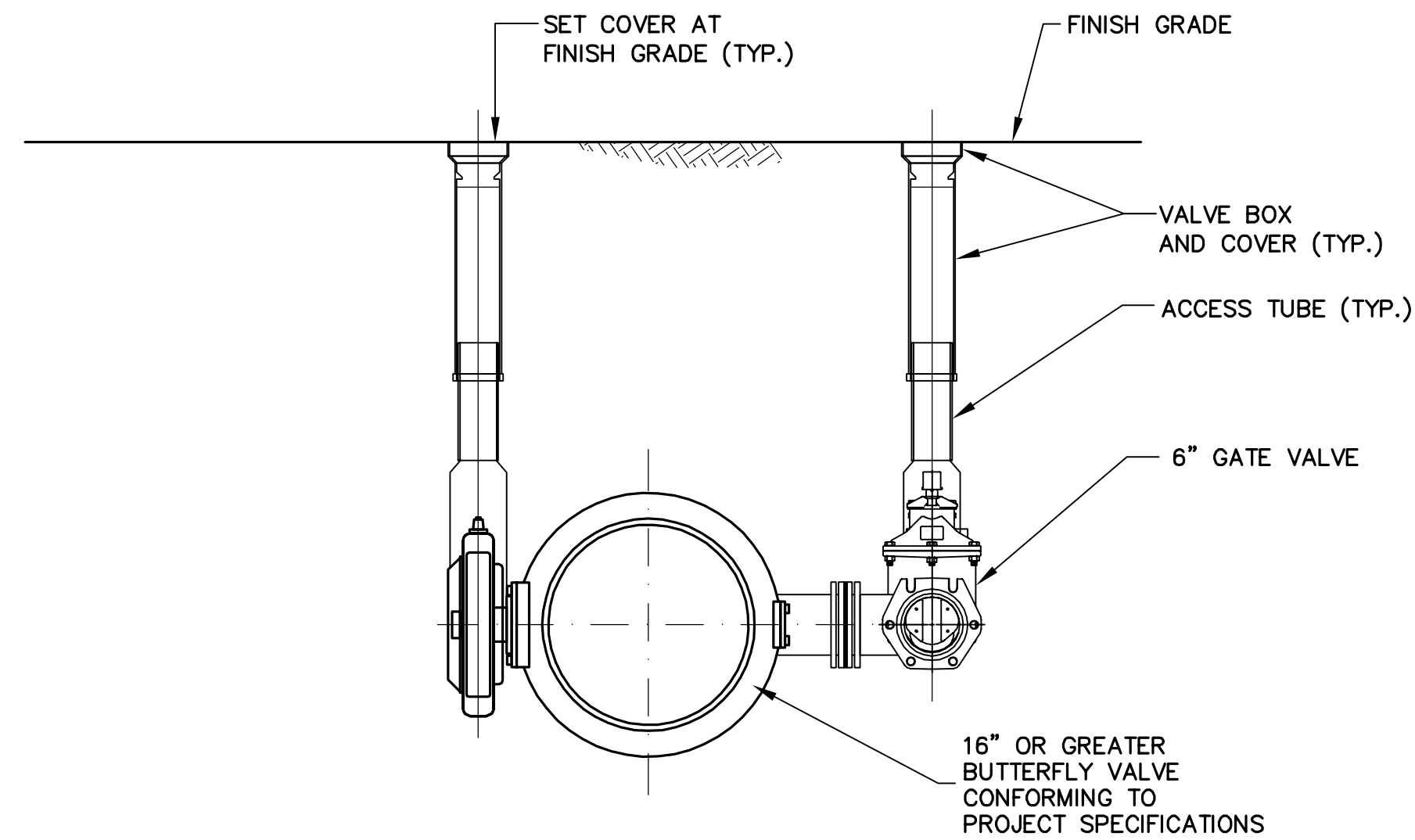
SHEET  
**W-20**

REF. CONT. SCALE: N.T.S.  
ACC. DATE: DEC 2017

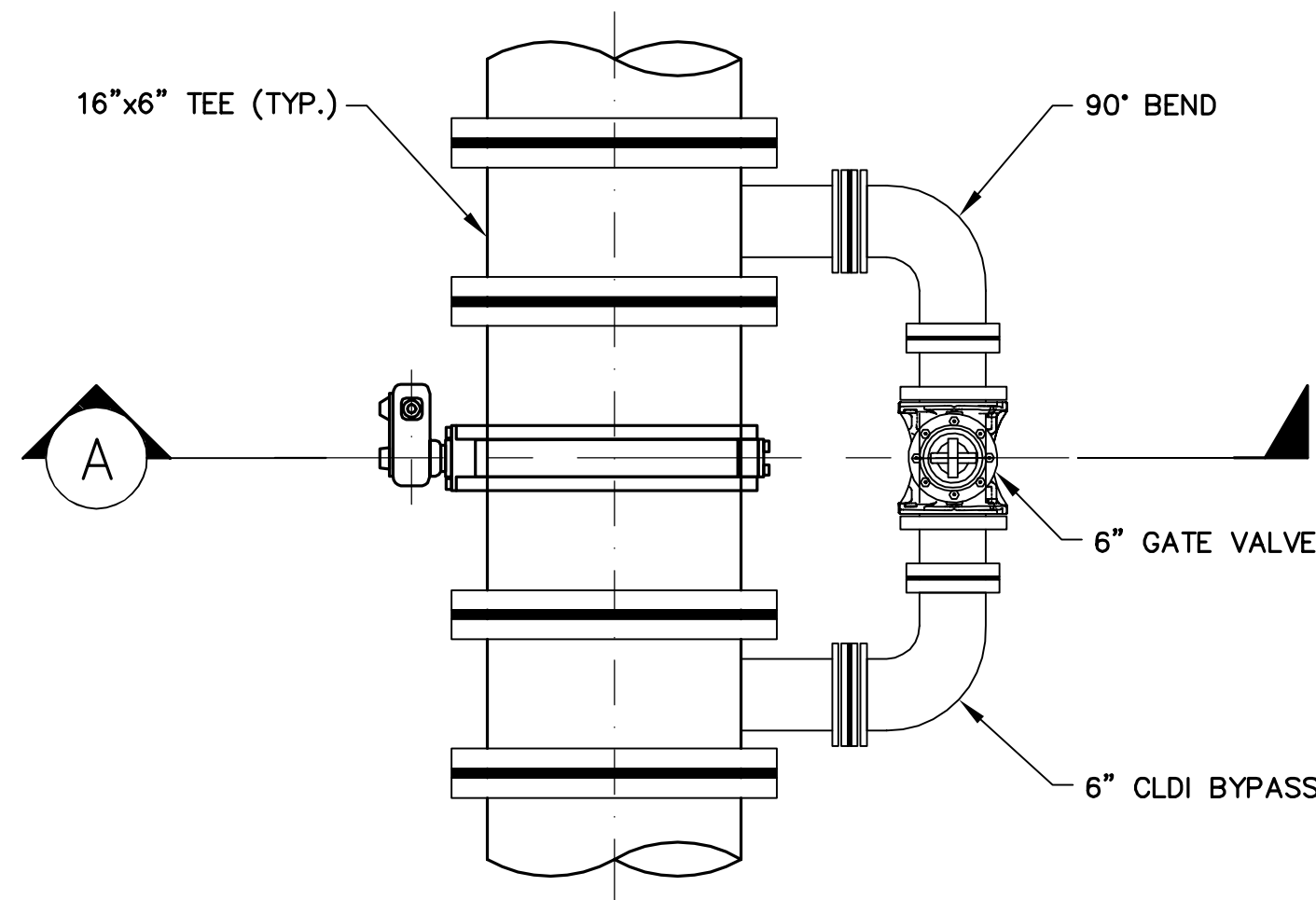
NO.	DATE	REVISIONS	BY

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

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**SECTION A-A**

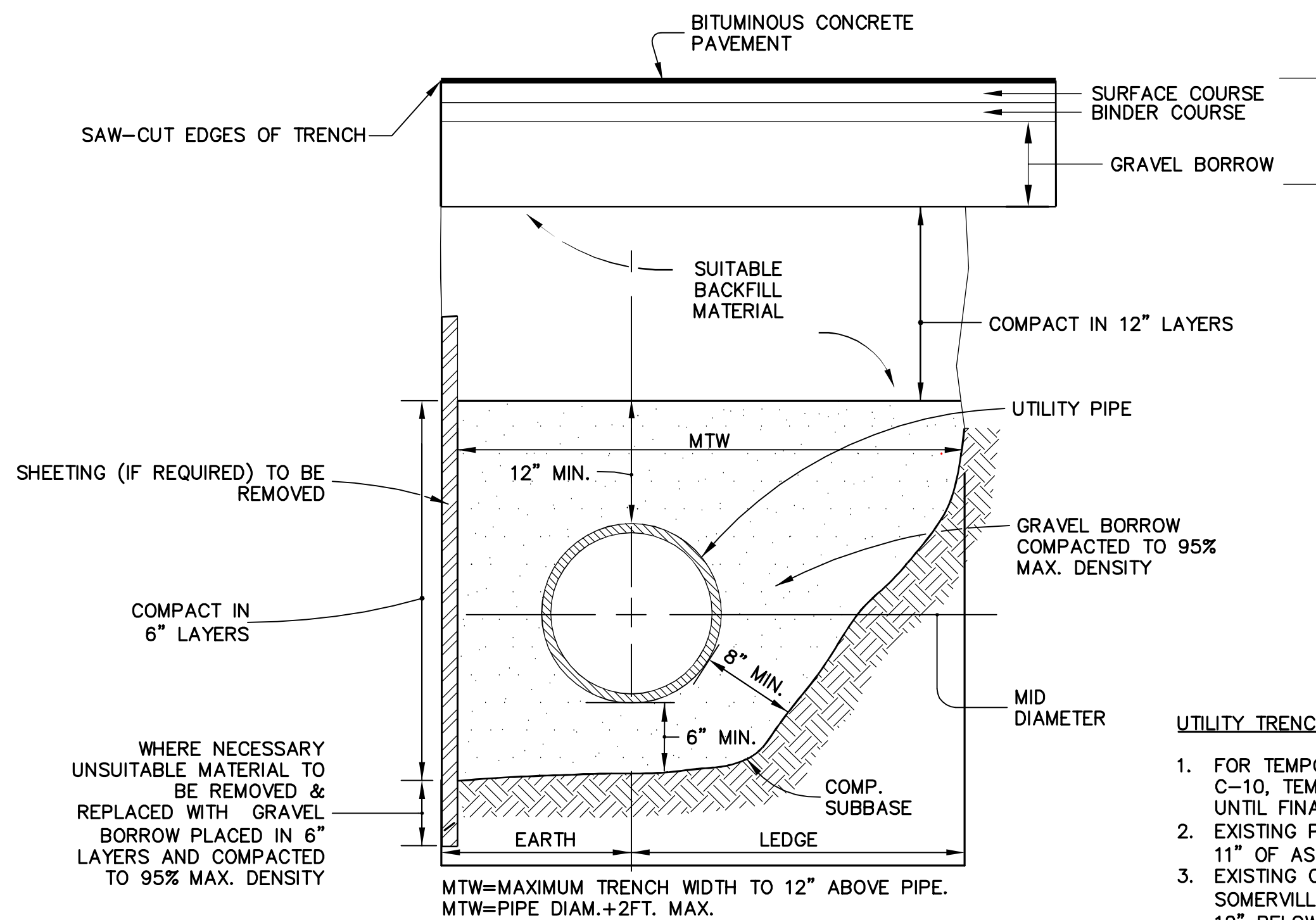


**16-INCH OR GREATER BUTTERFLY VALVE & CHAMBER**

NOT TO SCALE

**NOTES:**

1. ALL BUTTERFLY VALVES SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS.



**ROADWAY UTILITY TRENCH**

NOT TO SCALE

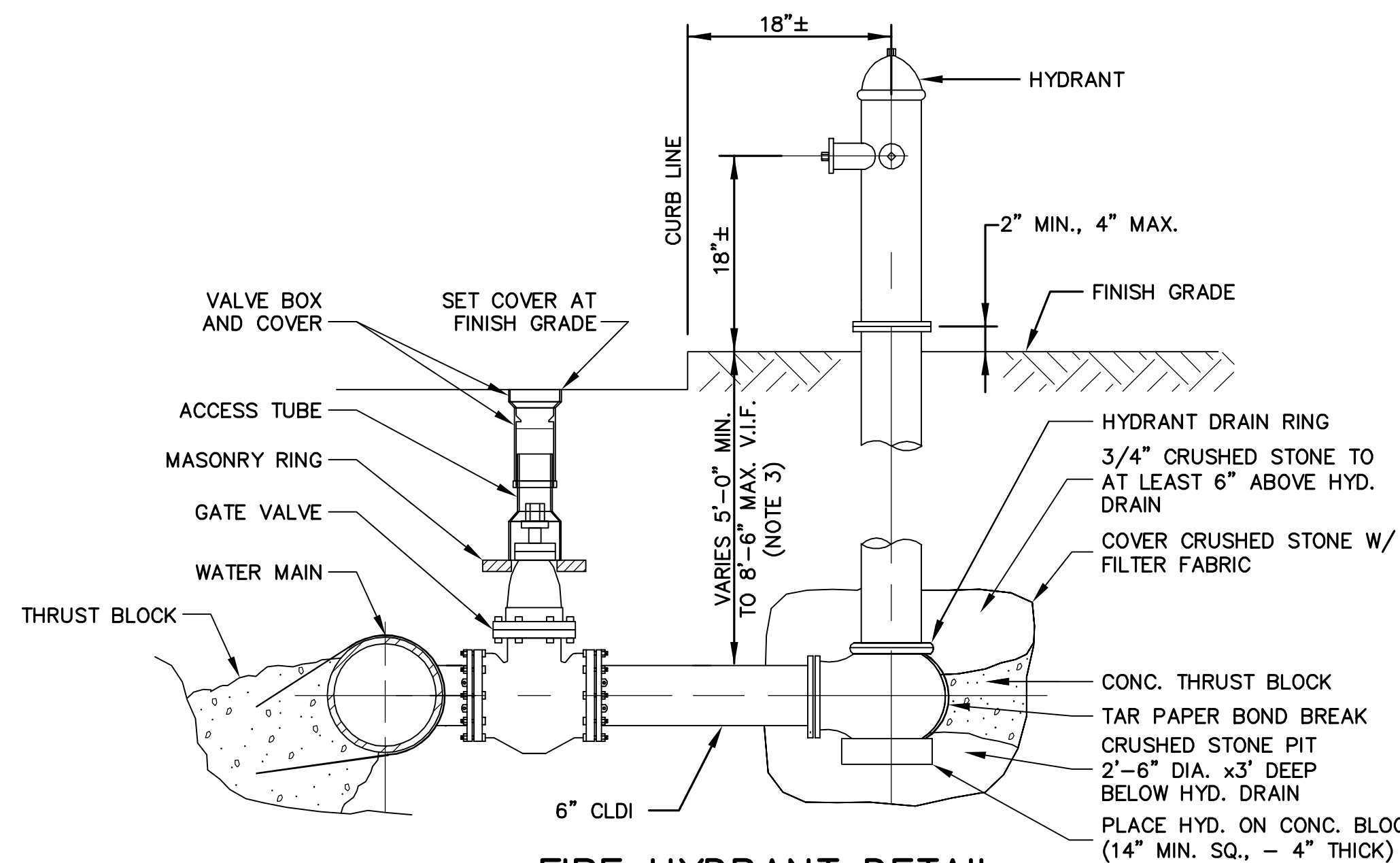
**NOTES FOR MANHOLES**

1. ALL CAST IN PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4000 LBS PER SQ INCH, USING 3/4\"/>

FOR DEPTH, SEE DETAILS ON SHEET L-100

**UTILITY TRENCH NOTES:**

1. FOR TEMPORARY PATCH REQUIREMENTS SEE DRAWING C-10, TEMPORARY PATCH SHALL REMAIN IN PLACE UNTIL FINAL PAVING OPERATION.
2. EXISTING PAVEMENT THICKNESS VARIES FROM 9\"/>



**FIRE HYDRANT DETAIL**

NOT TO SCALE

**HYDRANT NOTES:**

1. ALL JOINTS ON HYDRANT BRANCH TO BE RESTRAINED JOINTS.
2. PUMPER NOZZLE SHALL FACE STREET.
3. WHERE MAIN OR LATERAL IS BURIED DEEPER THAN THE NORMAL 5\"/>

*Rachel J. Burckardt*  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
 SEWER SEPARATION AND WATER REPLACEMENT**

**WATER DETAILS SHEET 2 OF 4**

DESIGNED: LAC  
 CHECKED: RJB  
 DRAWN: LAC  
 CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
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 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

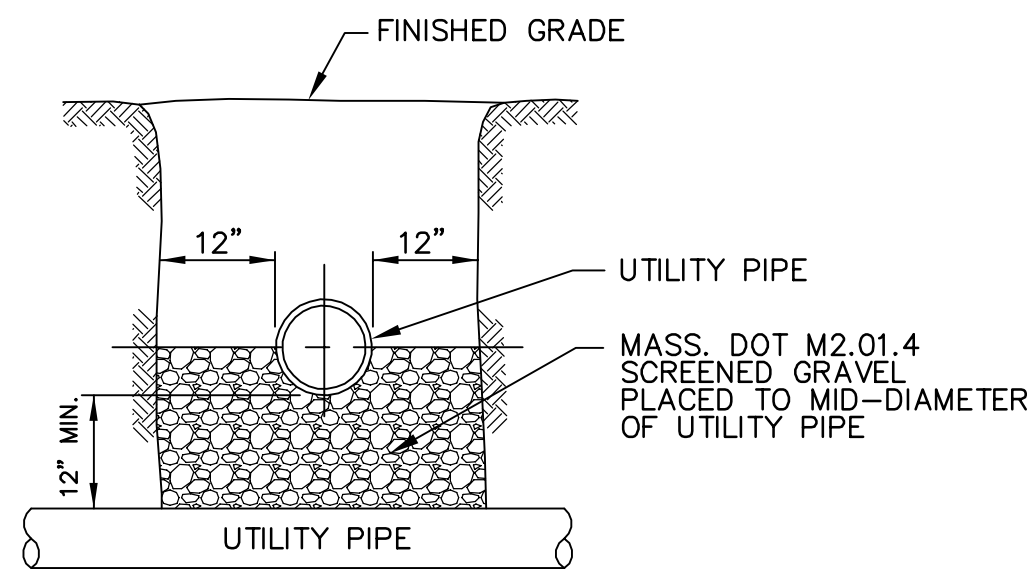
**SHEET  
 W-21**

REF. CONT. SCALE: N.T.S.  
 ACC. DATE: DEC 2017

**CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143**

NO.	DATE	REVISIONS	BY

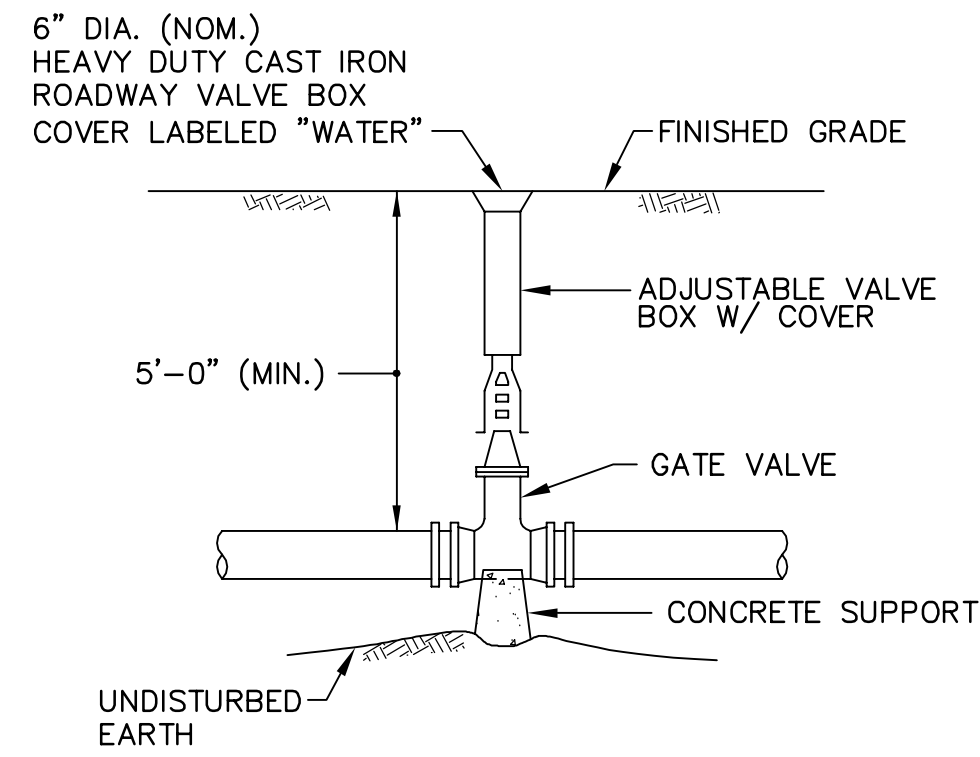
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**NOTE:**

WATER AND SEWER CLEARANCE PROVIDE A MINIMUM OF 18" OR REFER TO TYPICAL ENCASED SEWER AND WATER MAIN CROSSING FOR LESSER CLEARANCE CONDITIONS.

**TYPICAL PIPE CLEARANCE**  
NOT TO SCALE



**GATE VALVE**  
NOT TO SCALE

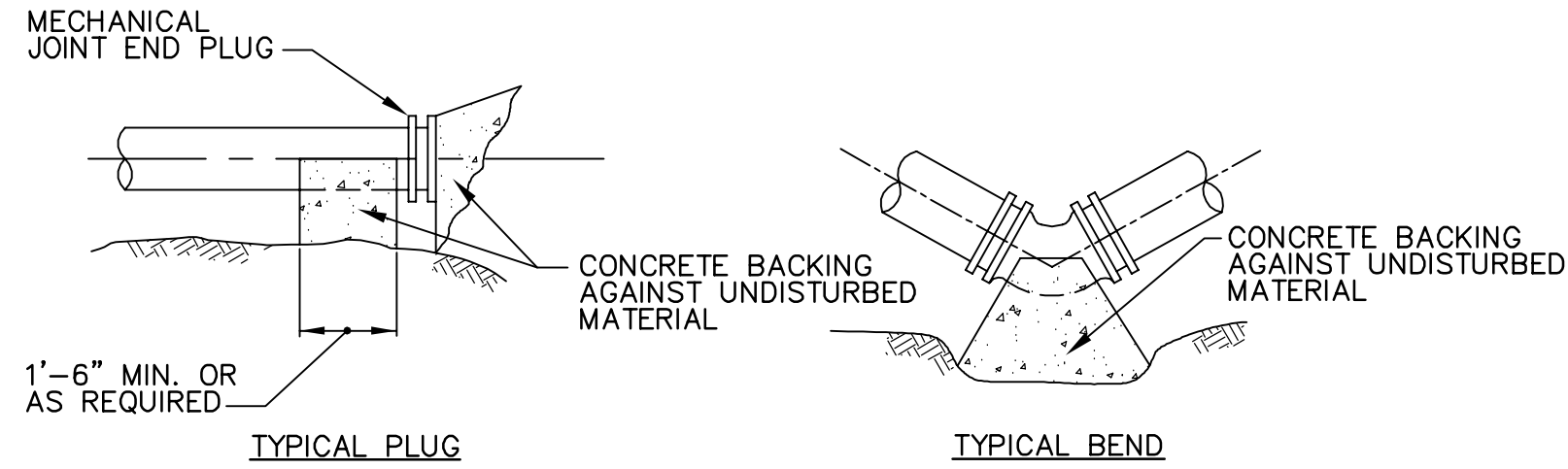
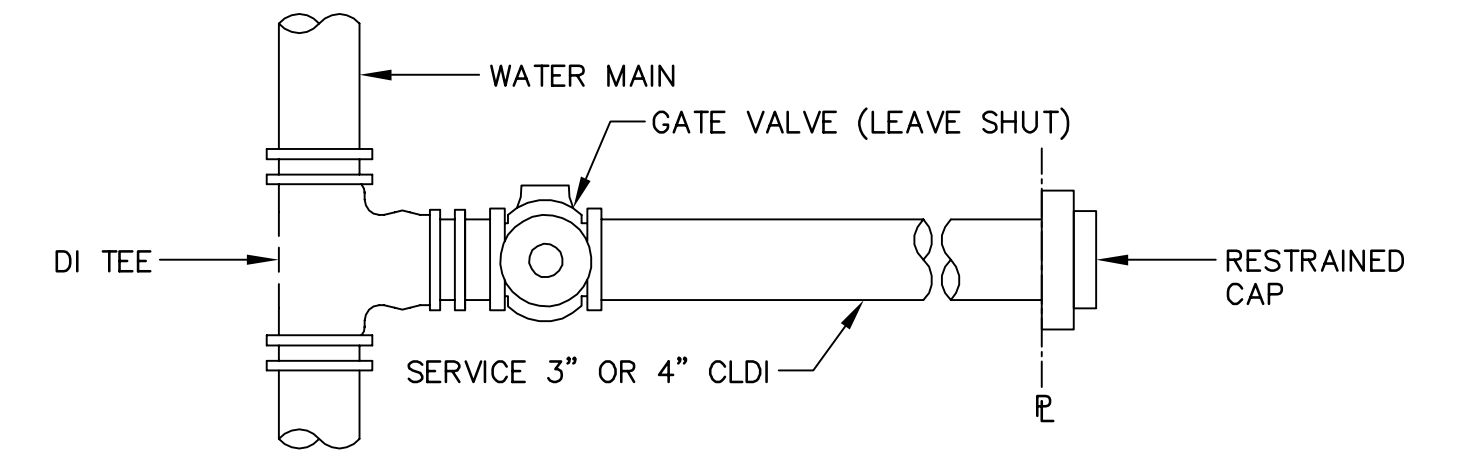
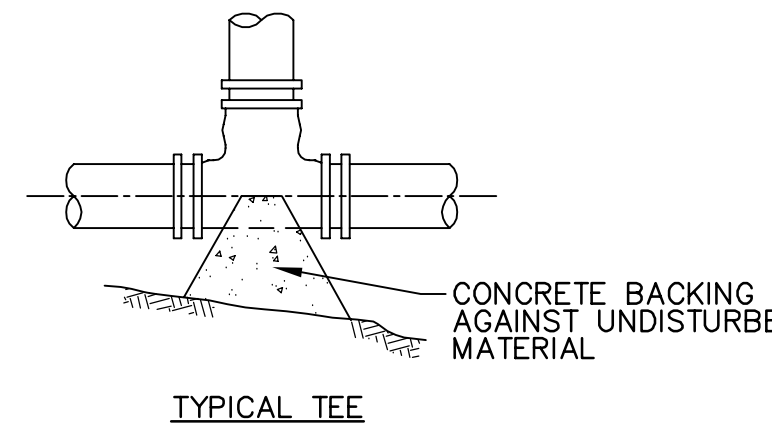
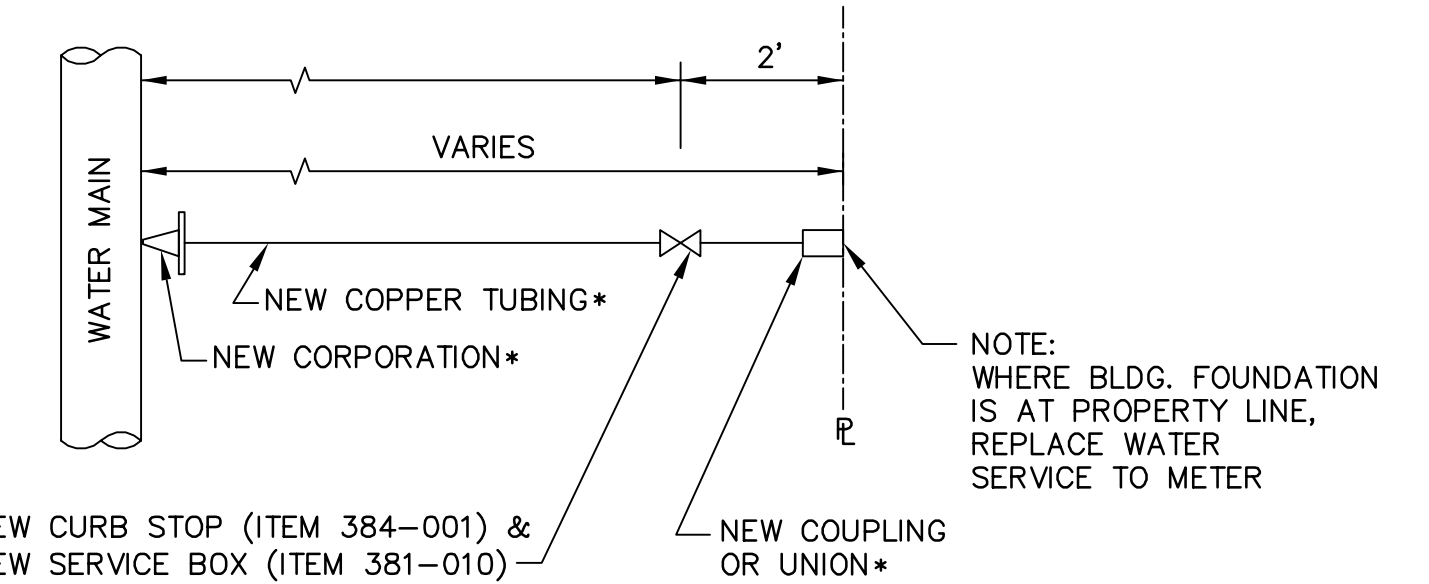


TABLE OF BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS

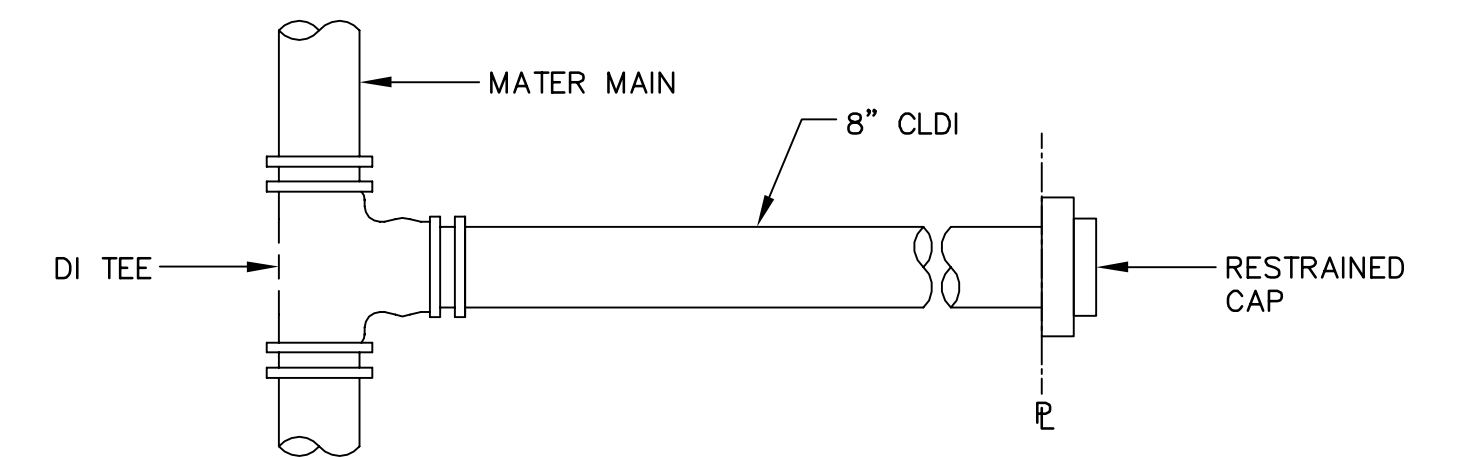
SIZE OF MAIN (IN.)	45° BEND	TEES & PLUGS	22 1/2° BEND
8" & LESS	4	5	2
10"	6	8	3
12"	9	12	5
16"	12	16	7
20"	20	25	10



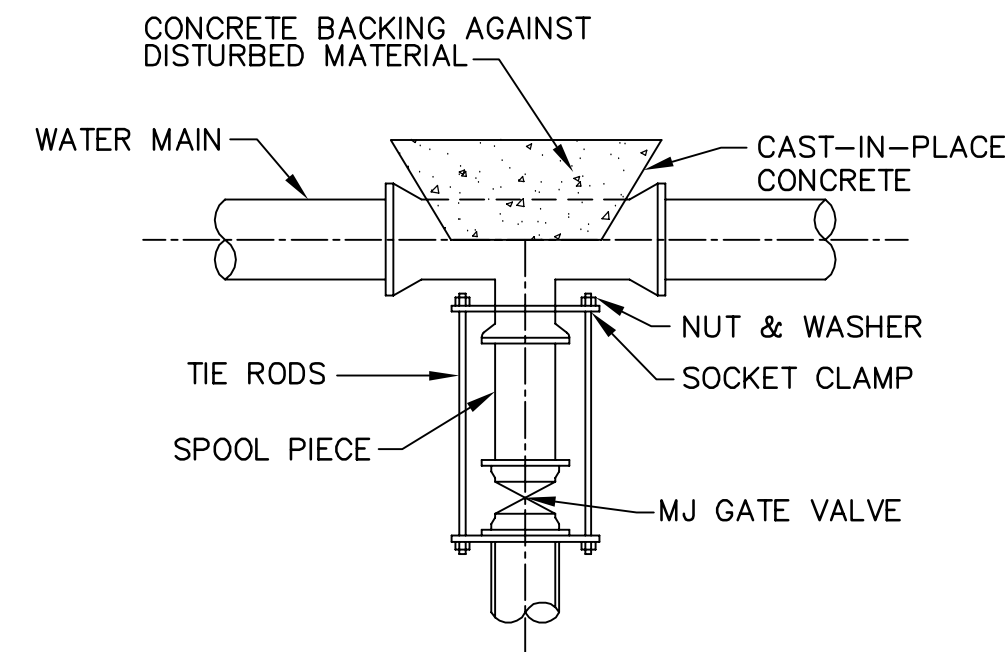
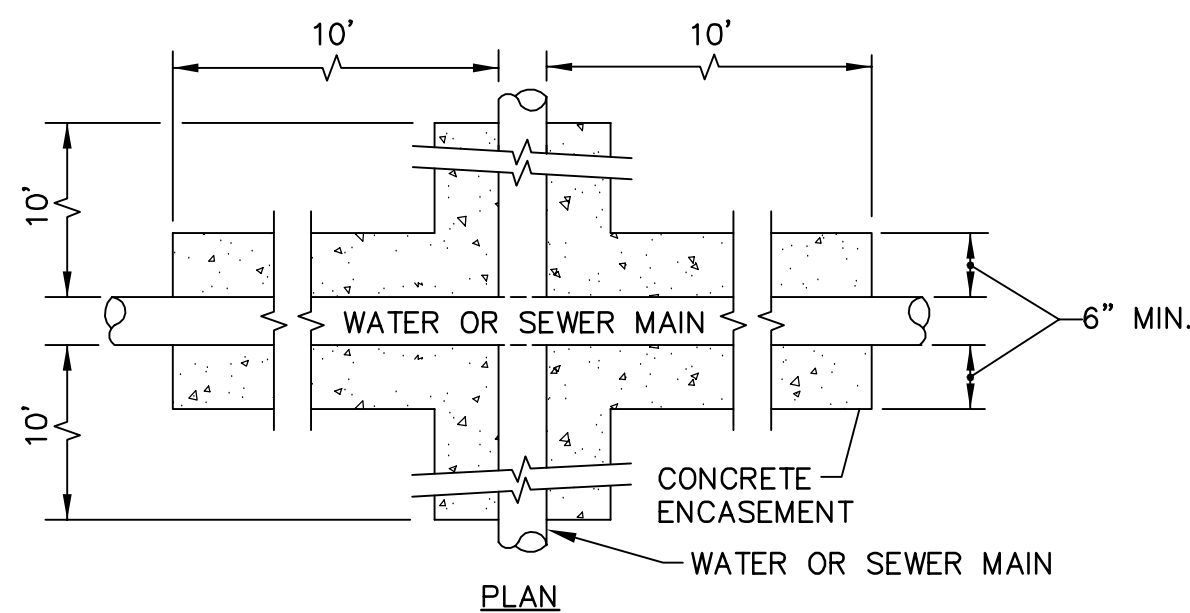
**DOMESTIC WATER SERVICE (DUCTILE IRON) FOR FUTURE DEVELOPMENT**  
NOT TO SCALE



**DOMESTIC WATER SERVICE (COPPER)**  
NOT TO SCALE  
\* INCIDENTAL TO ITEMS IN THE 347-XXX SERIES



**FIRE PROTECTION SERVICE FOR FUTURE DEVELOPMENT**  
NOT TO SCALE

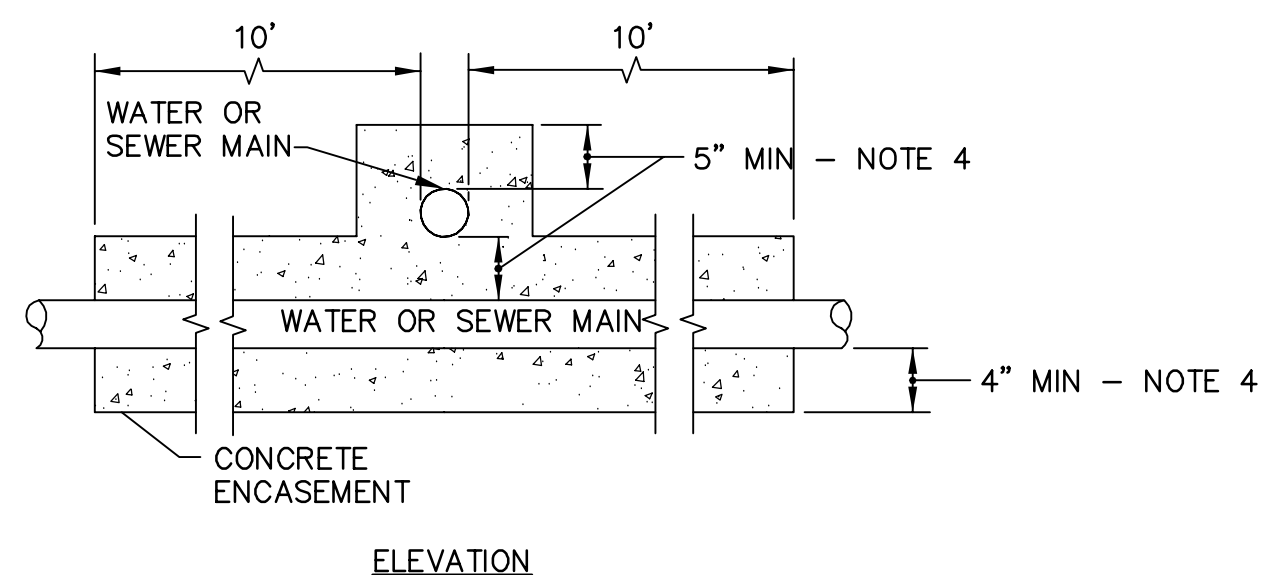


**PLAN - RESTRAINED JOINT TEE VALVE CONNECTION**  
NOT TO SCALE

**NOTES:**

- THRUST BLOCKS ARE REQUIRED ONLY AT CONNECTIONS TO EXISTING WATER MAINS WHEN RESTRAINED JOINT PIPE IS INSTALLED.
- BEARING AREAS APPLY TO LOCATIONS WHERE WELL GRADED SAND AND GRAVEL OR HARD CLAY IS ENCOUNTERED. ADJUST SIZE OF THRUST BLOCK IF DIFFERENT SOIL CONDITIONS ARE ENCOUNTERED IN THE FIELD.

**CONCRETE THRUST BLOCKS**  
NOT TO SCALE



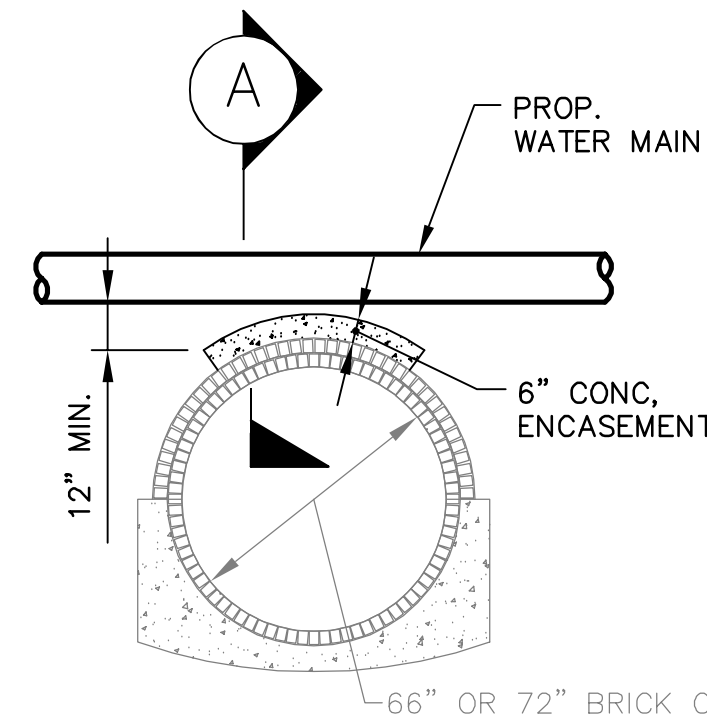
**NOTES:**

- WHENEVER POSSIBLE WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER.
- SHOULD LOCAL CONDITIONS PREVENT AN 18" SEPARATION, BOTH THE WATER MAIN AND THE SEWER SHALL BE ENCASED IN CONCRETE ON EITHER SIDE OF THE CROSSING (SEE DETAIL).
- WHEREVER 5-FOOT FROST PROTECTION IS ACHIEVABLE, THE WATER MAIN SHALL BE LAID ABOVE THE SEWER.
- PROVIDE MIN. 6" ENCASEMENT FOR SEWER. SEE

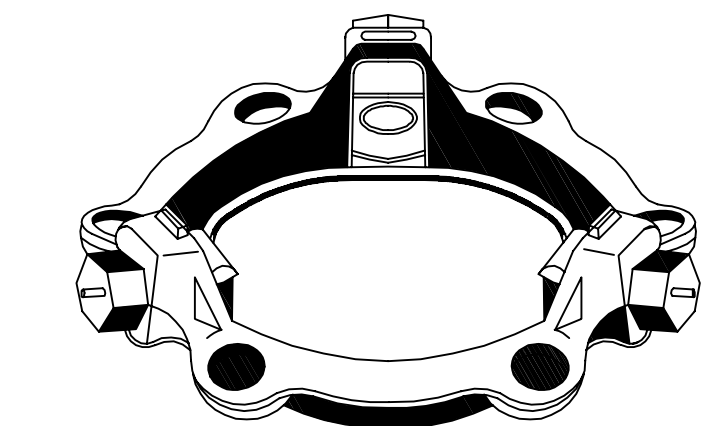
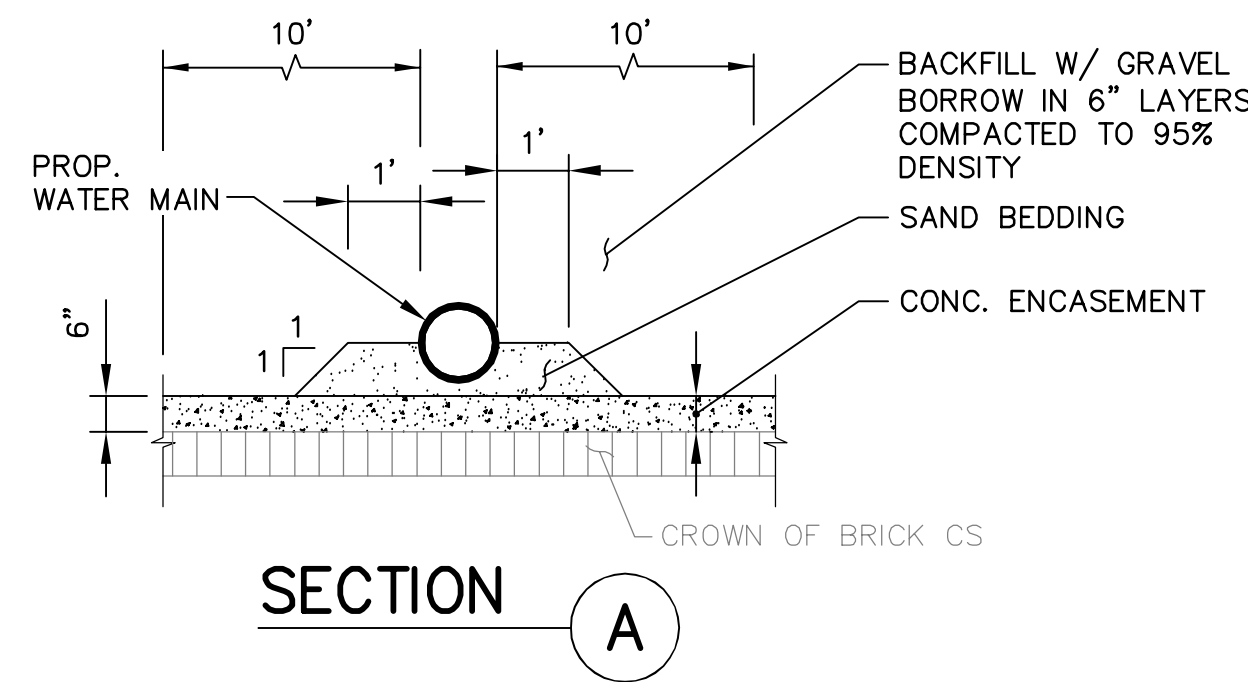
**TYPICAL ENCASED SEWER AND WATER MAIN CROSSING**  
NOT TO SCALE

3  
SD-57

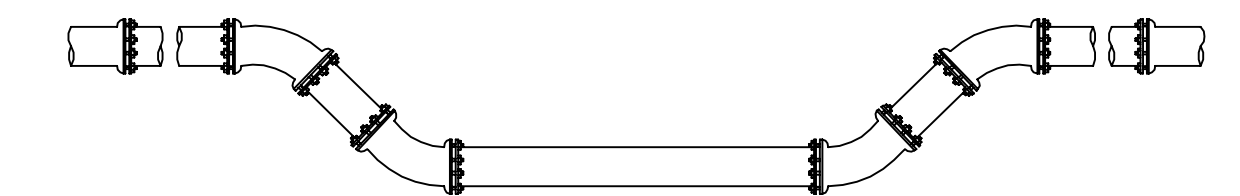
RACHEL J. BURCKARDT  
CIVIL  
No. 31680  
12/11/17



**CONCRETE ENCASEMENT OF CROWN OF BRICK CS AT WATER MAIN CROSSING**  
NOT TO SCALE



**TYPICAL MEGALUG TYPE RESTRAINT DEVICE**  
NOT TO SCALE



**TYPICAL THRUST RESTRAINT MEGALUG TYPE JOINTS**  
NOT TO SCALE

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT**

**WATER DETAILS SHEET 3 OF 4**

DESIGNED: LAC  
CHECKED: RJB  
DRAWN: LAC  
CHECKED: RJB

**WSP** | PARSONS BRINCKERHOFF  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT. SCALE: N.T.S.  
ACC. DATE: DEC 2017

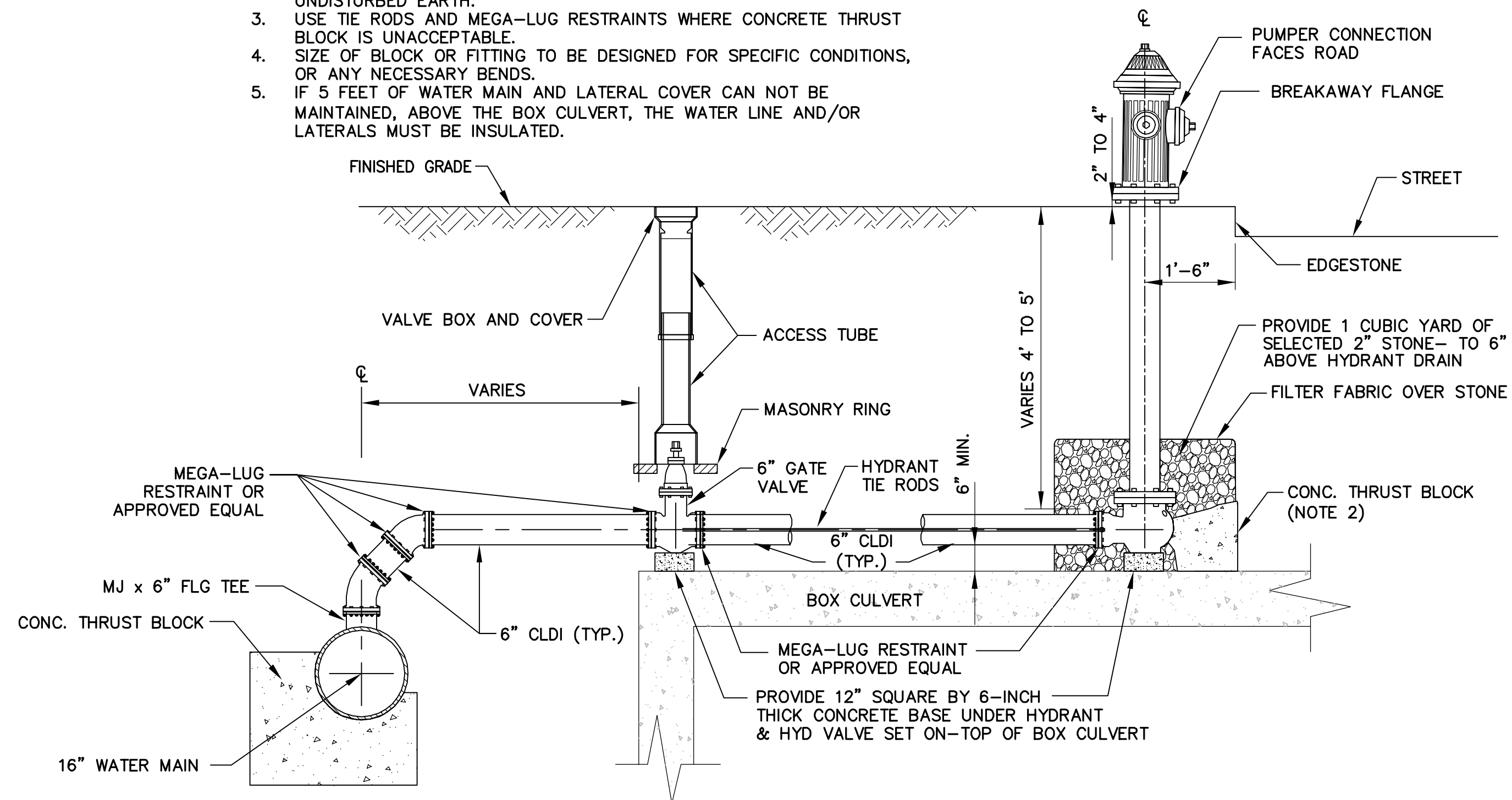
SHEET  
**W-22**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

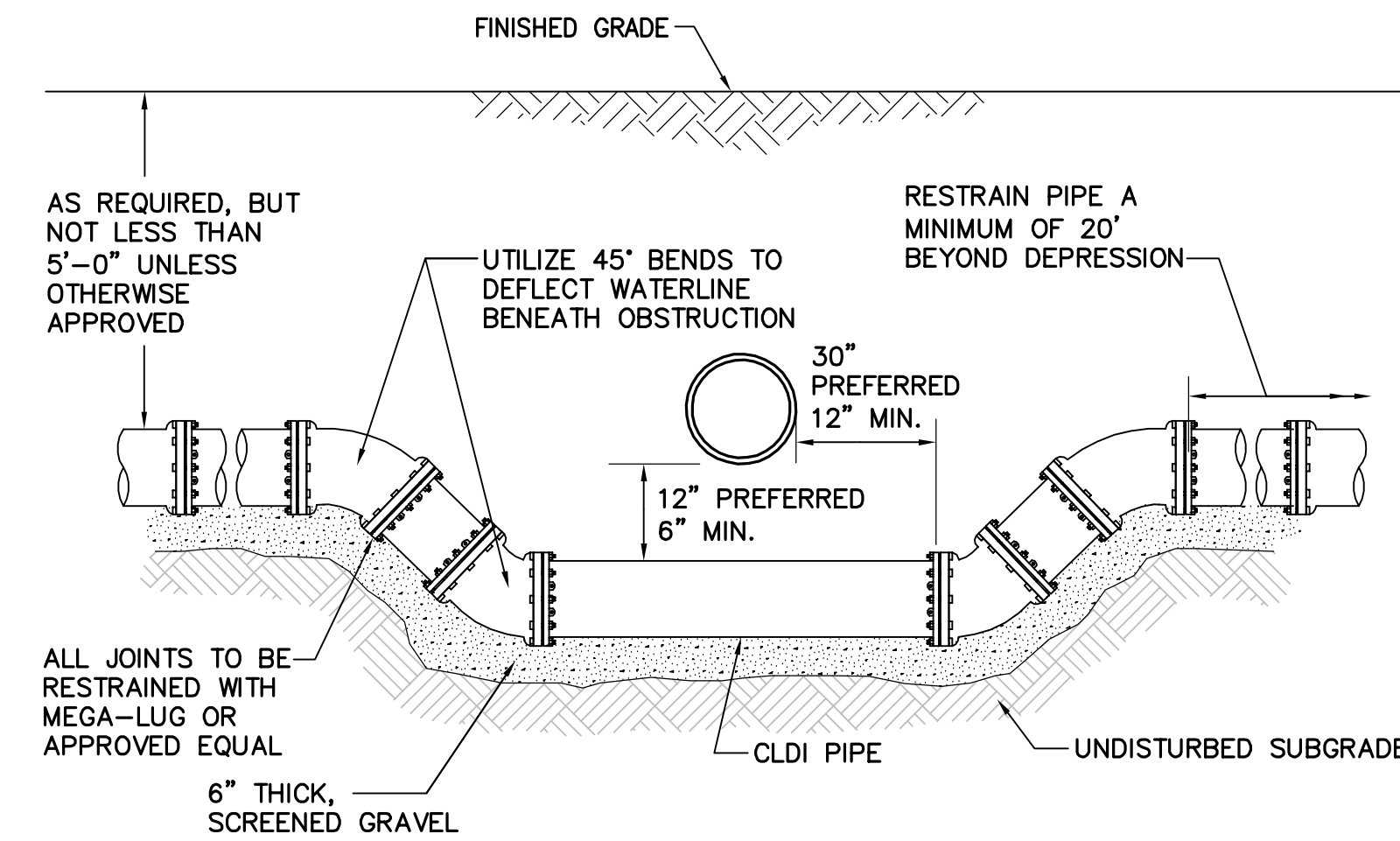
NO.	DATE	REVISIONS	BY

**NOTES:**

1. ALL HYDRANT LATERAL FITTINGS SHALL BE FURNISHED WITH MEGA-LUG RESTRAINTS OR APPROVED EQUAL.
2. BACK FILL IN LIFTS TO MIN. 24" ABOVE BOX CULVERT BEFORE INSTALLING LATERAL AND THRUST BLOCK. UNDISTURBED EARTH.
3. USE TIE RODS AND MEGA-LUG RESTRAINTS WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
4. SIZE OF BLOCK OR FITTING TO BE DESIGNED FOR SPECIFIC CONDITIONS, OR ANY NECESSARY BENDS.
5. IF 5 FEET OF WATER MAIN AND LATERAL COVER CAN NOT BE MAINTAINED, ABOVE THE BOX CULVERT, THE WATER LINE AND/OR LATERALS MUST BE INSULATED.



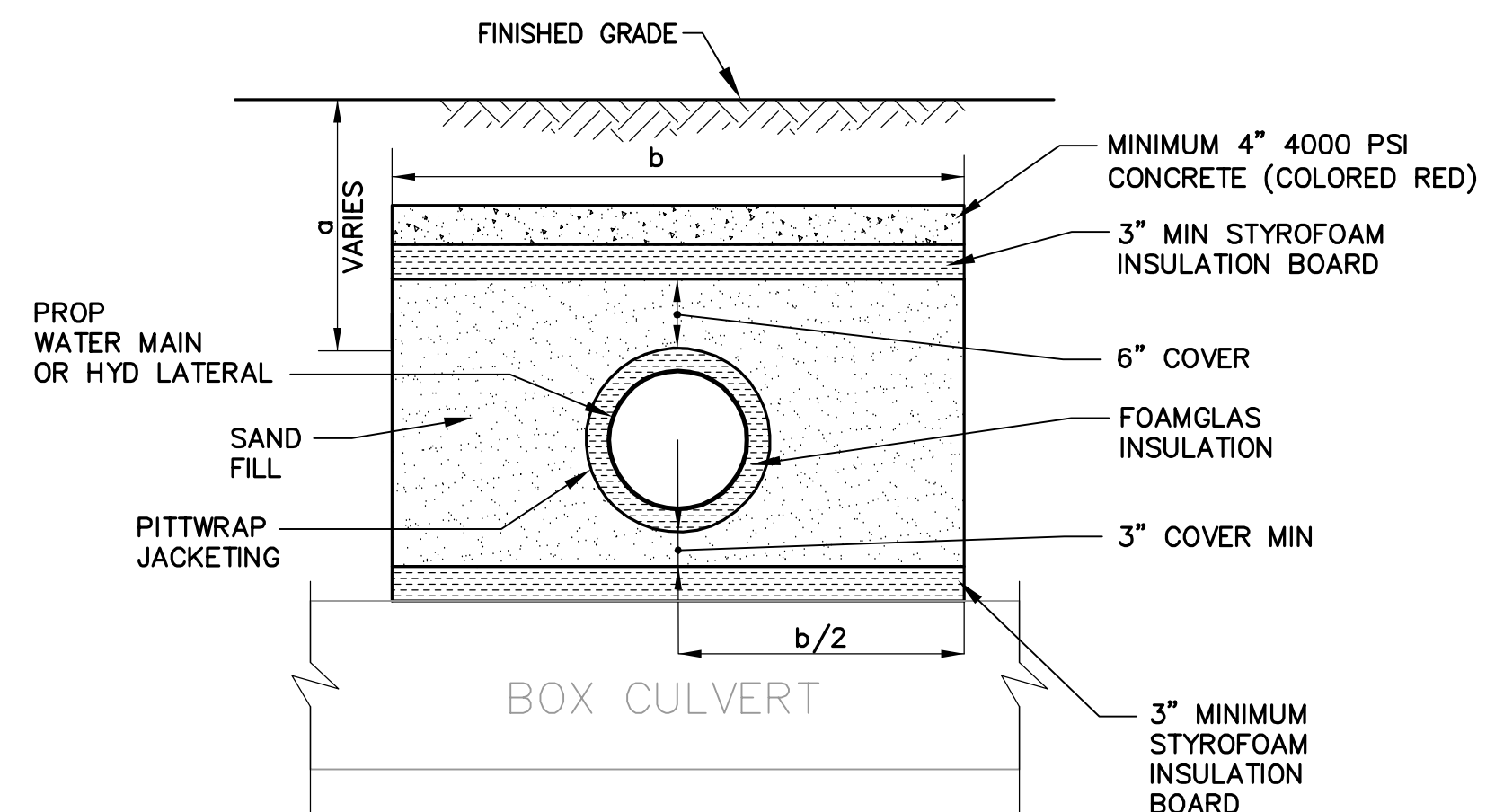
**FIRE HYDRANT ABOVE BOX CULVERT DETAIL**  
NOT TO SCALE



**DEPRESSED WATER LINE DETAIL**  
NOT TO SCALE

**NOTE:**

FOR DETAIL OF CROSSING UNDER C.I. GAS MAIN, SEE SHEET U-54.

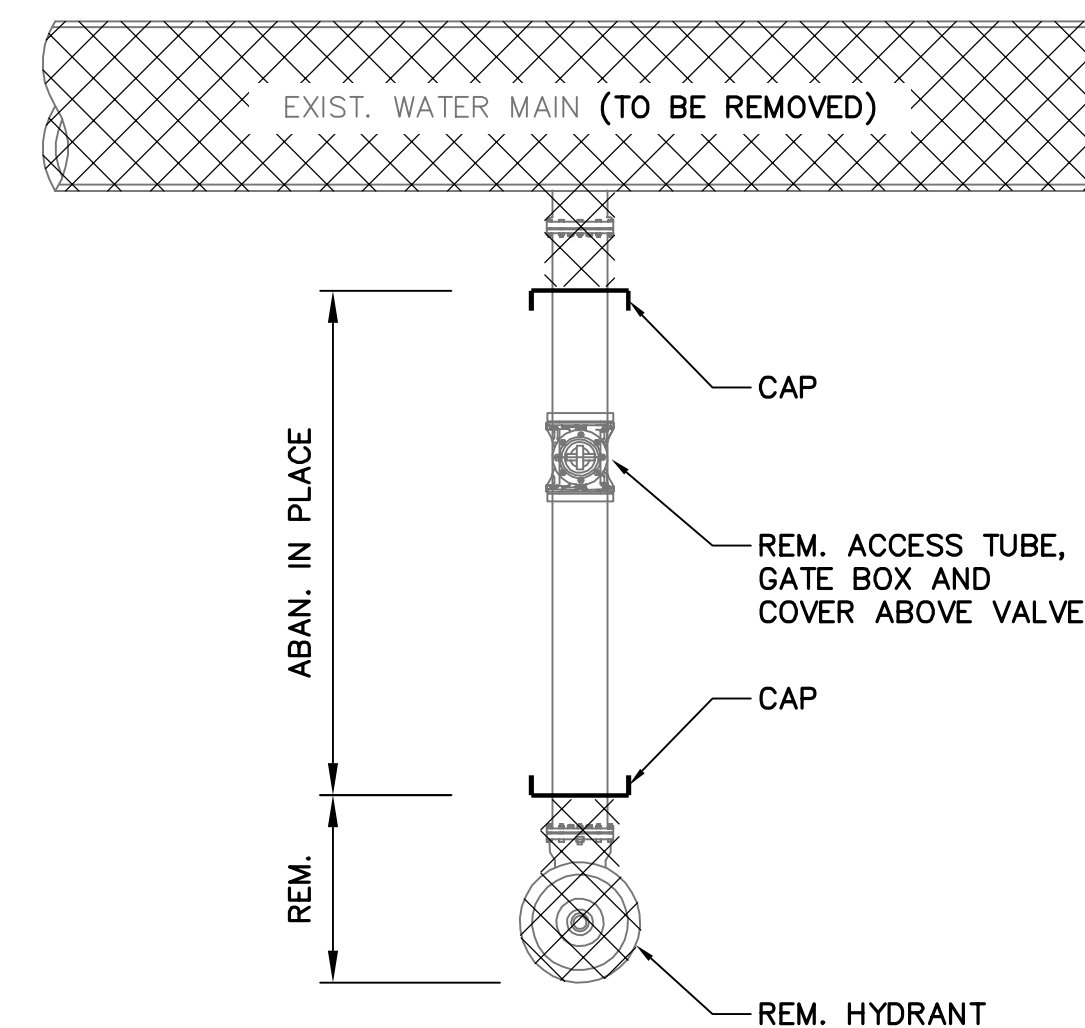


**INSULATED WATER LINE WITH LESS THAN 5' COVER**  
NOT TO SCALE

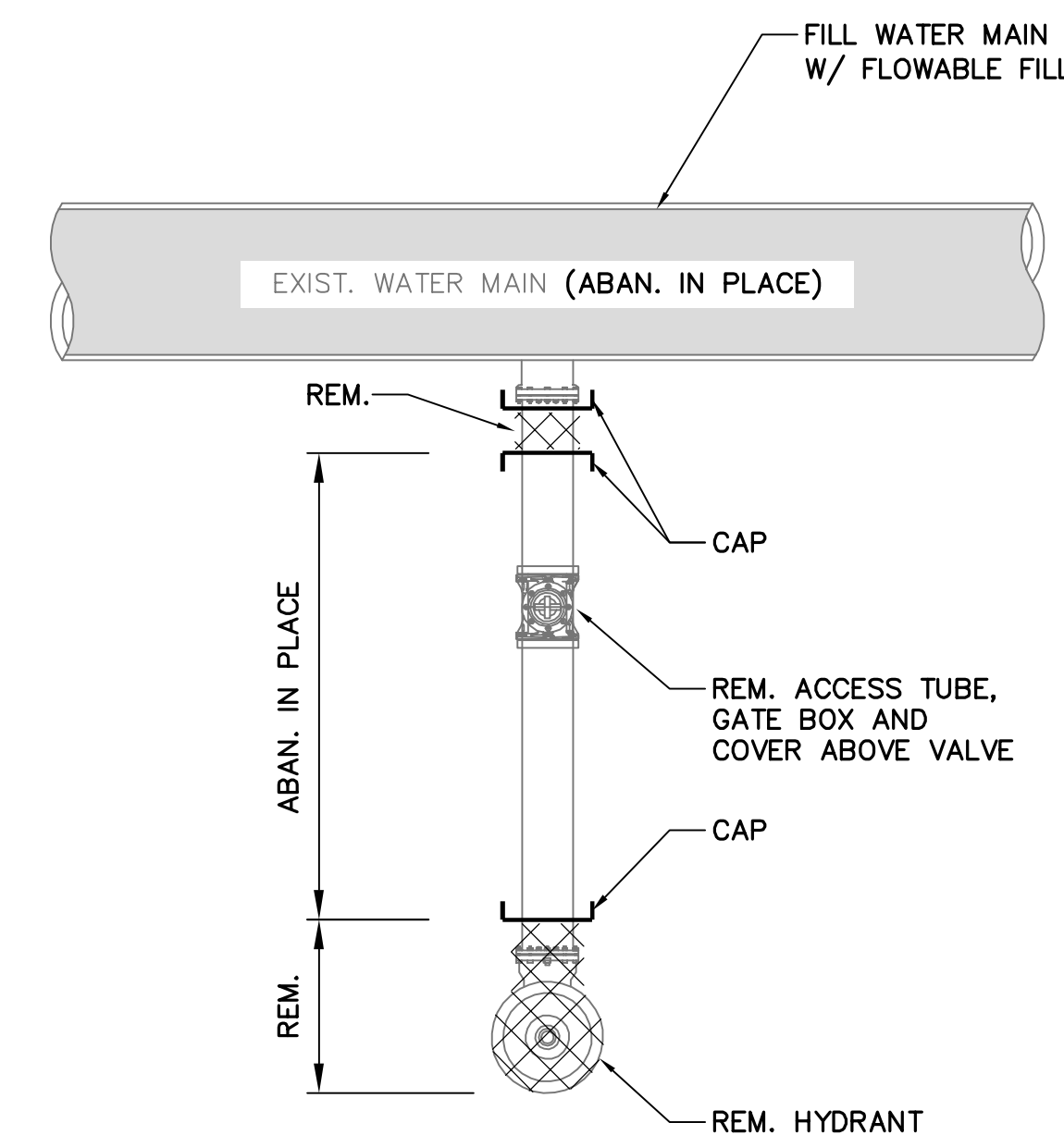
COVER OVER PIPE - a	WIDTH OF INSULATING BOARD - b
2'	11'
3'	9'
4'	7'

**NOTES:**

1. PIPE SHALL BE CENTERED UNDER INSULATION UNLESS OTHERWISE SPECIFIED.
2. PIPE WRAP SHALL BE PITTSBURGH CORNING, PITWRAP JACKETING & FOAMGLAS INSULATION OR APPROVED EQUAL.
3. PIPE WRAP INSULATION & JACKETING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. INSULATION BOARD SHALL BE RATED FOR DIRECT BURY.
4. FOAMGLAS PIPE INSULATION SHALL BE USED ON ALL PIPE WITH THREE FEET SIX INCHES (3'-6") OR LESS COVER.



**HYDRANT REMOVAL DETAIL - TYPE 1**  
NOT TO SCALE



**HYDRANT REMOVAL DETAIL - TYPE 2**  
NOT TO SCALE

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT**

**WATER DETAILS SHEET 4 OF 4**

DESIGNED: LAC  
CHECKED: RJB  
DRAWN: LAC  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

SCALE: N.T.S.  
DATE: DEC 2017

SHEET

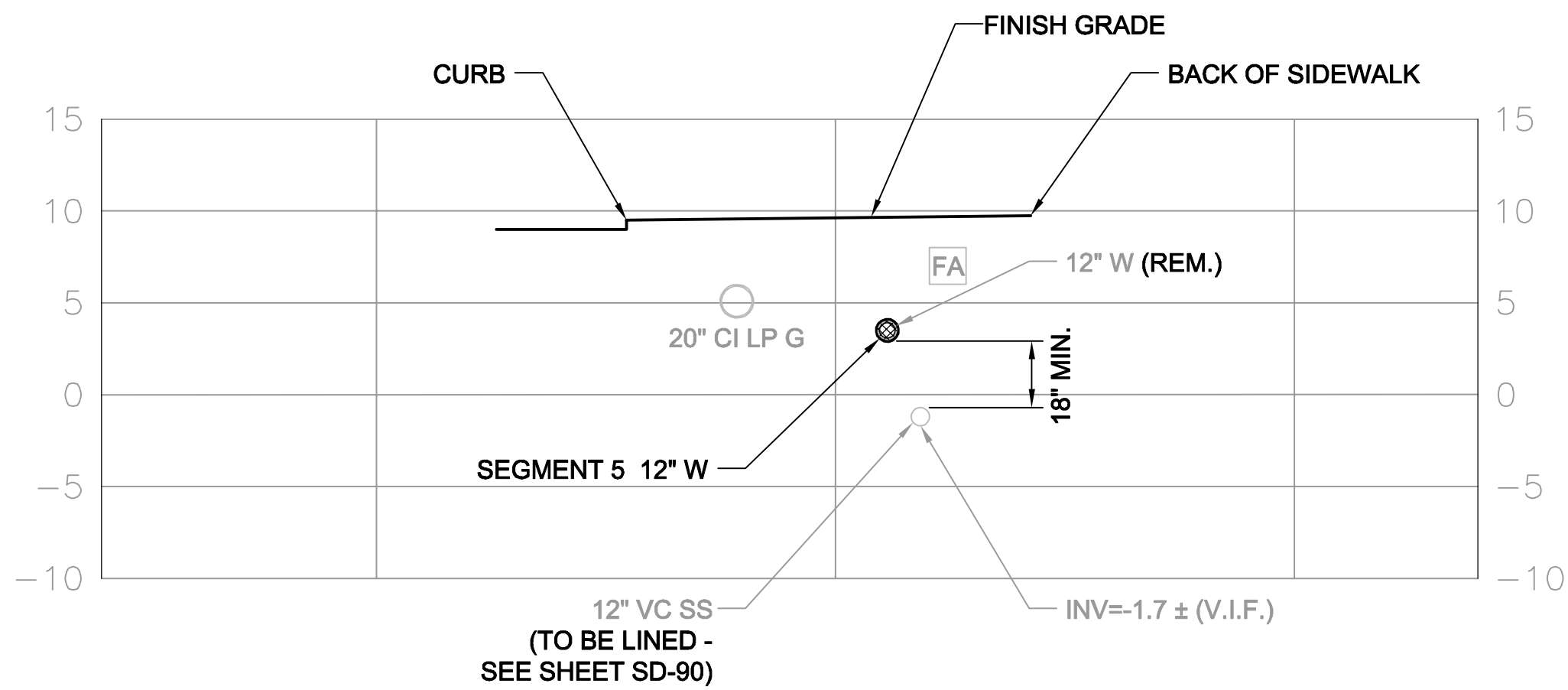
**W-23**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

*Rachel J. Burckhardt*  
RACHEL J. BURCKHARDT  
CIVIL  
No. 91580  
12/11/17

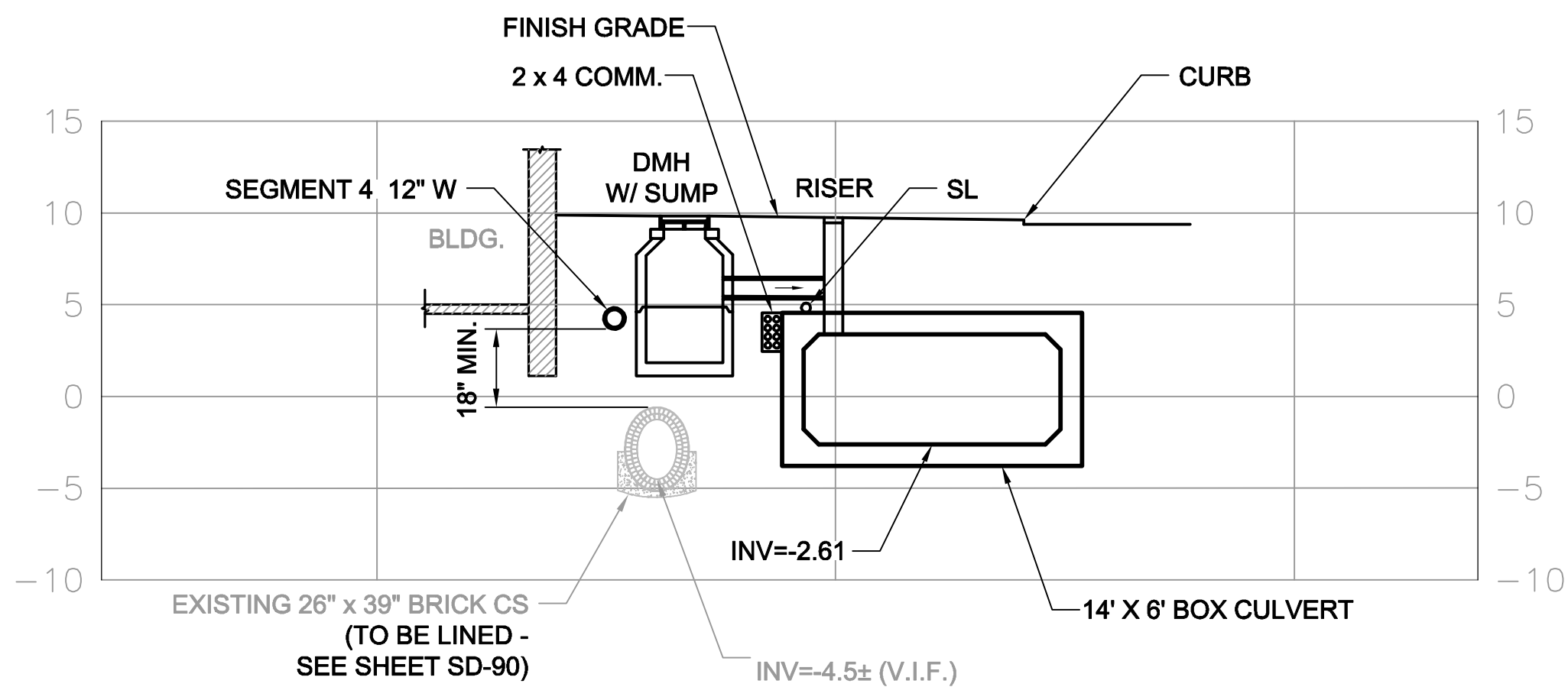
NO.	DATE	REVISIONS	BY

2017-12-07 7:40 PM T:\52647LS Union Square Study and Design\SH1 DWG\CP-2\_CP-3 Sewer Separation\Civil\W-24 Water Main Sections.dwg



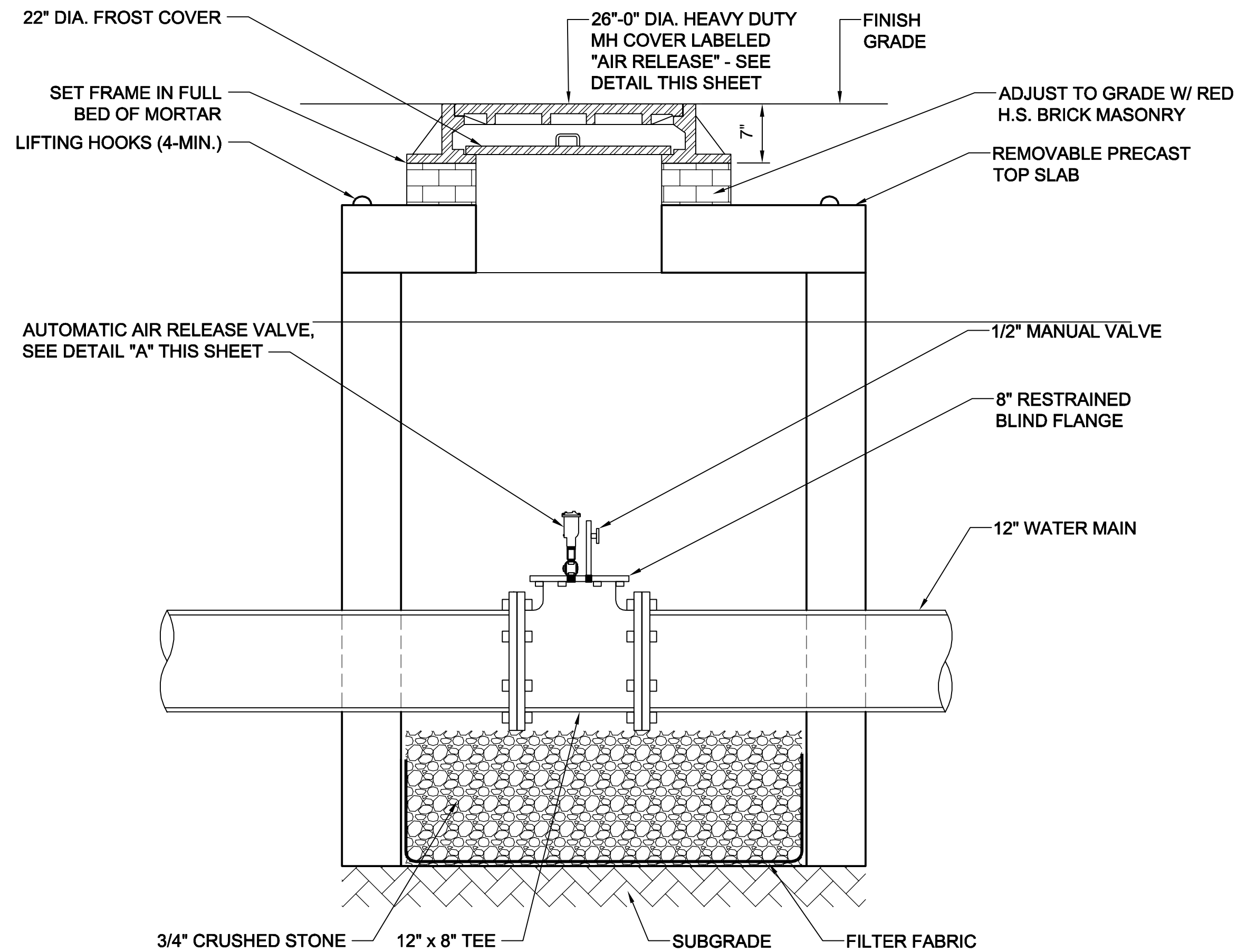
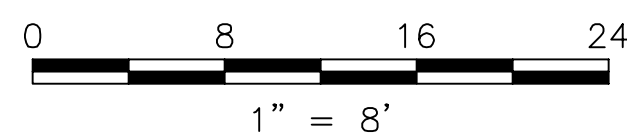
**SECTION 1**  
SCALE: 1" = 8'  
W-3

**TYPICAL SECTION - SEGMENT 5  
SOMERVILLE AVENUE EAST OF PROSPECT STREET**

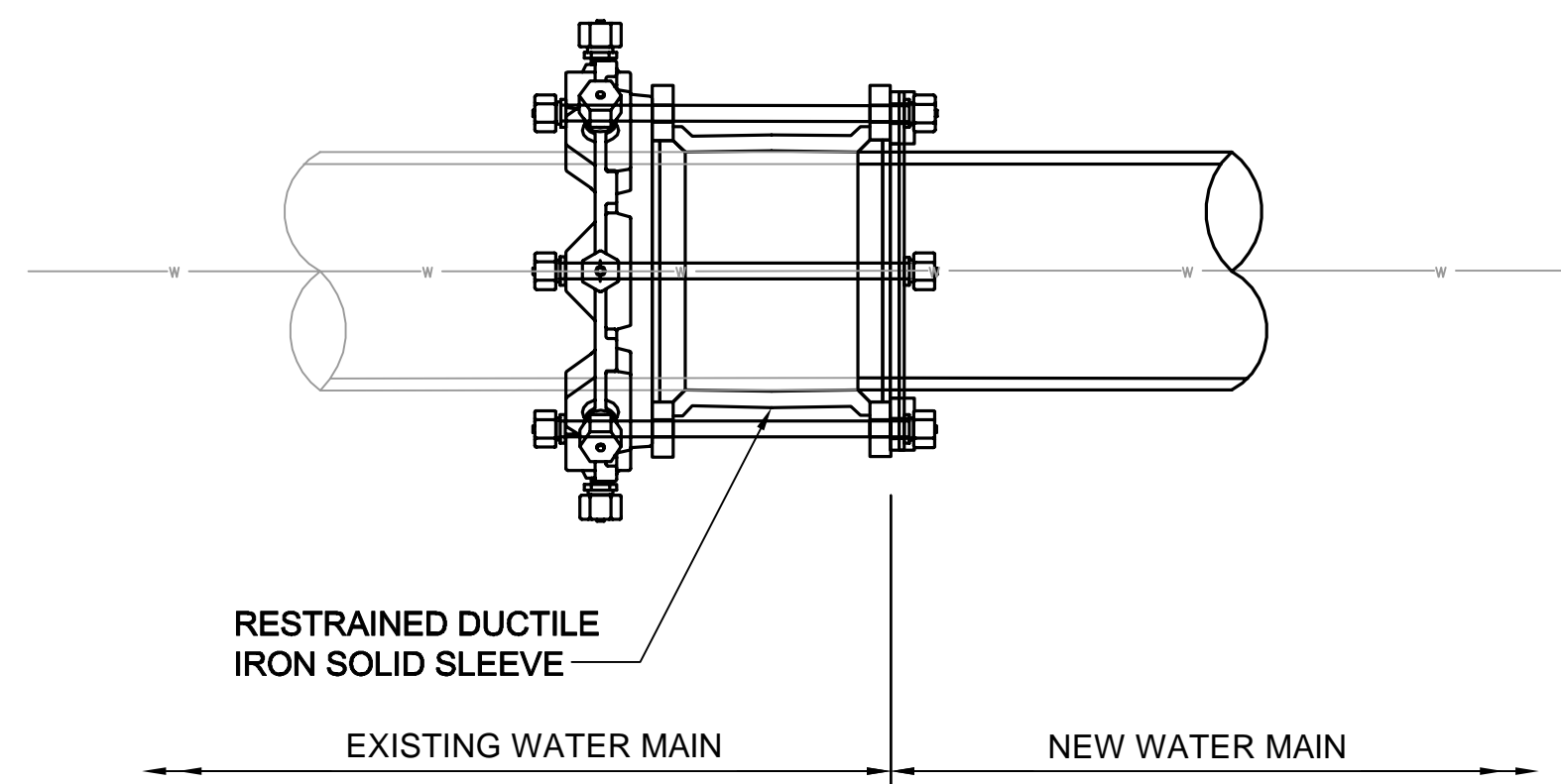
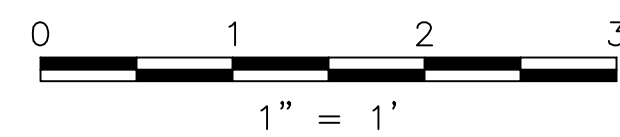


**SECTION 2**  
SCALE: 1" = 8'  
W-4

**WATER MAIN - SEGMENT 4  
ADJACENT TO BUILDING - NORTH OF SOMERVILLE AVENUE**

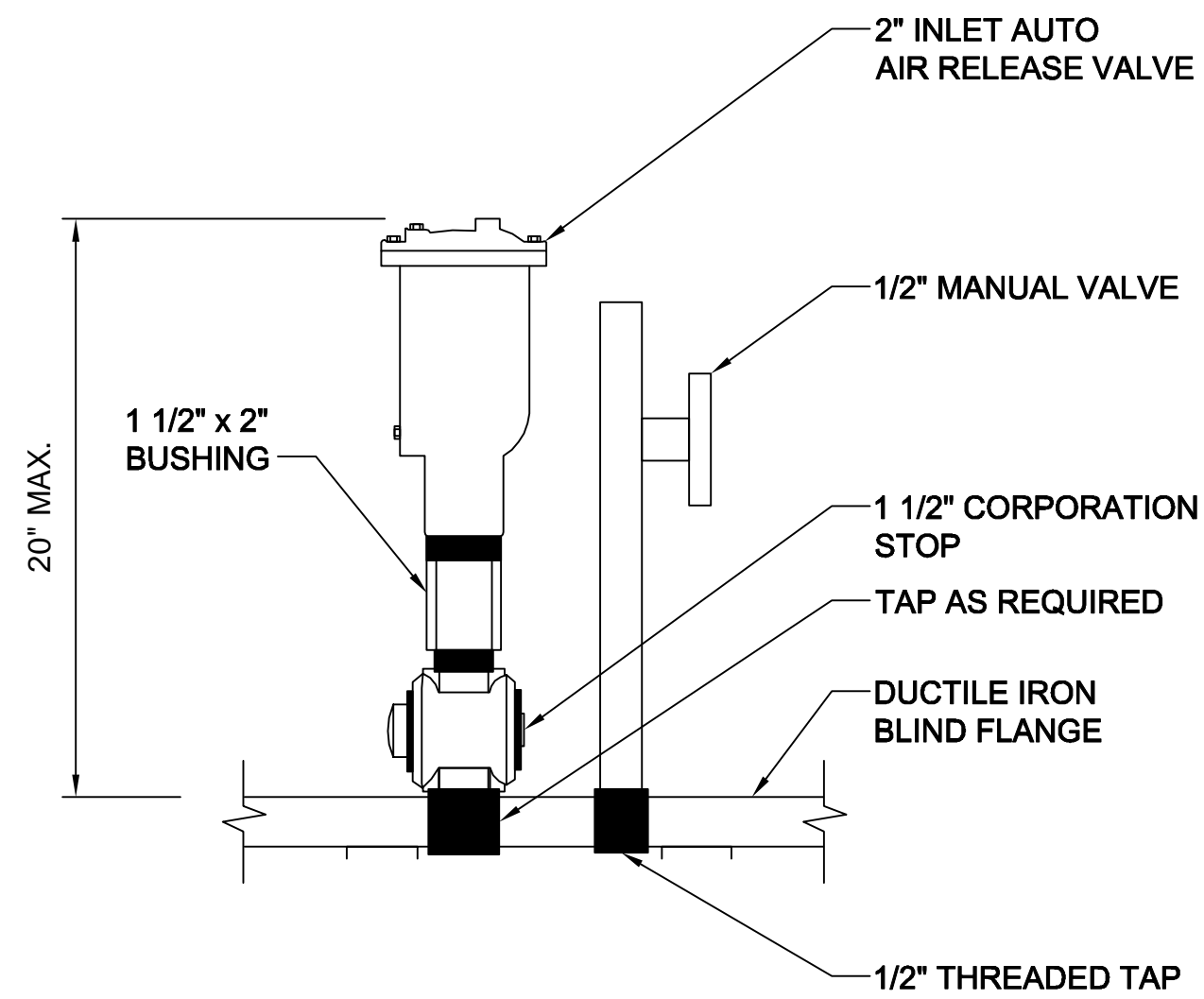


**AIR RELEASE VAULT**  
SCALE: 1" = 1'



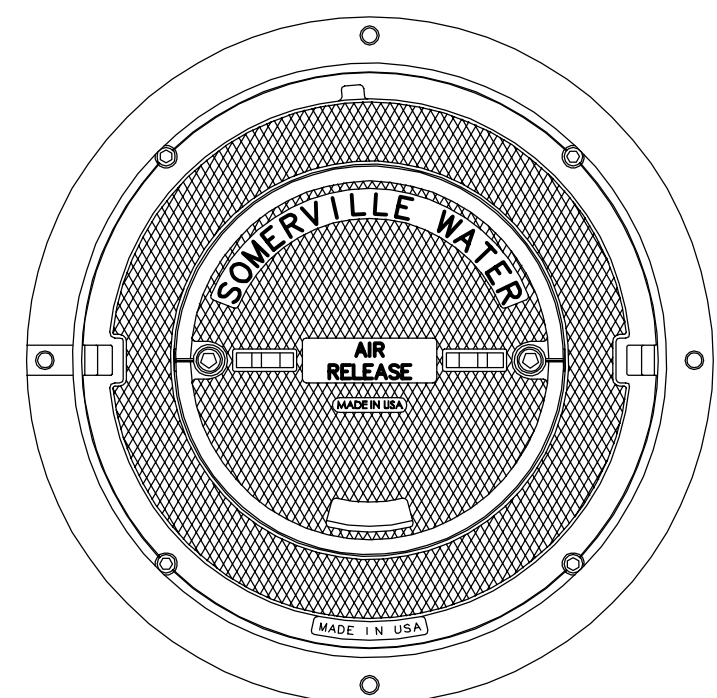
**CONNECTION TO EXIST. WATER MAIN**  
SCALE: N.T.S.

NOTE:  
1. FOR ADDITIONAL SECTIONS SEE SHEETS SD-71 THRU SD-77.  
2. SEE SHEET W-26 FOR SEGMENT 3 CROSSING SOMERVILLE AVENUE.



**AUTOMATIC AIR RELEASE VALVE ASSEMBLY**

**DETAIL A**  
SCALE: N.T.S.



**MANHOLE COVER LABEL**  
SCALE: N.T.S.

*Rachel J. Burckardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

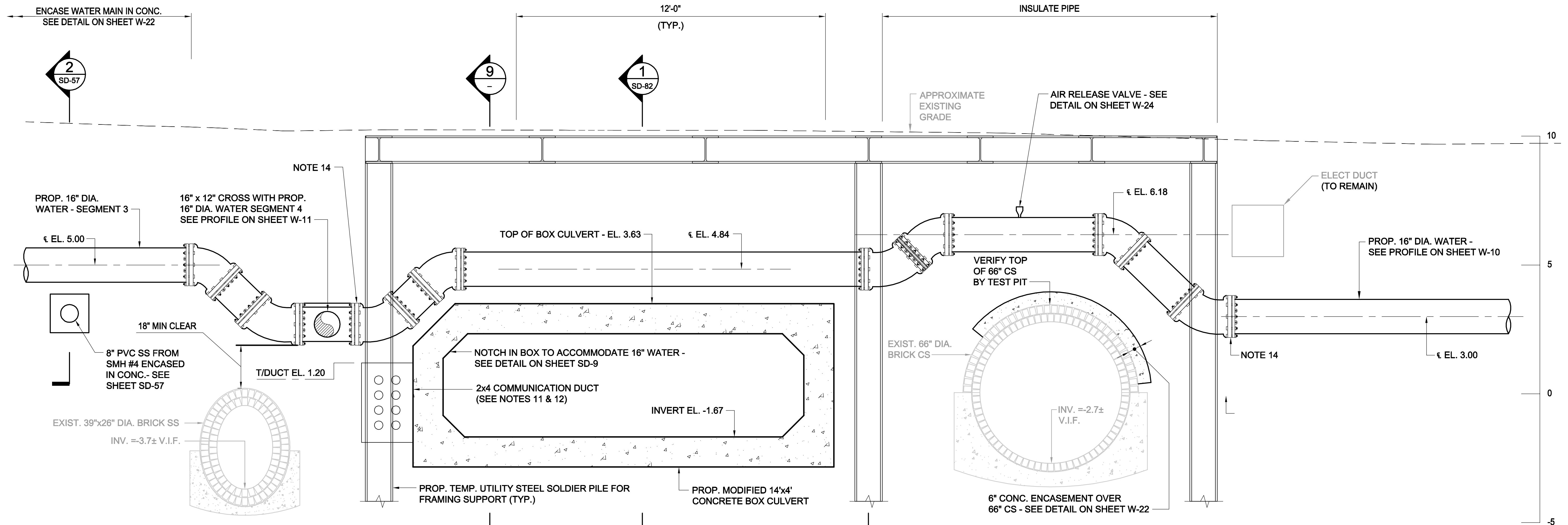
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**WATER MAIN SECTIONS & DETAIL**

DESIGNED: LAC		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		<b>SHEET</b> <b>W-24</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: KLN		ACC.	DATE: DEC 2017	
CHECKED: RJB				

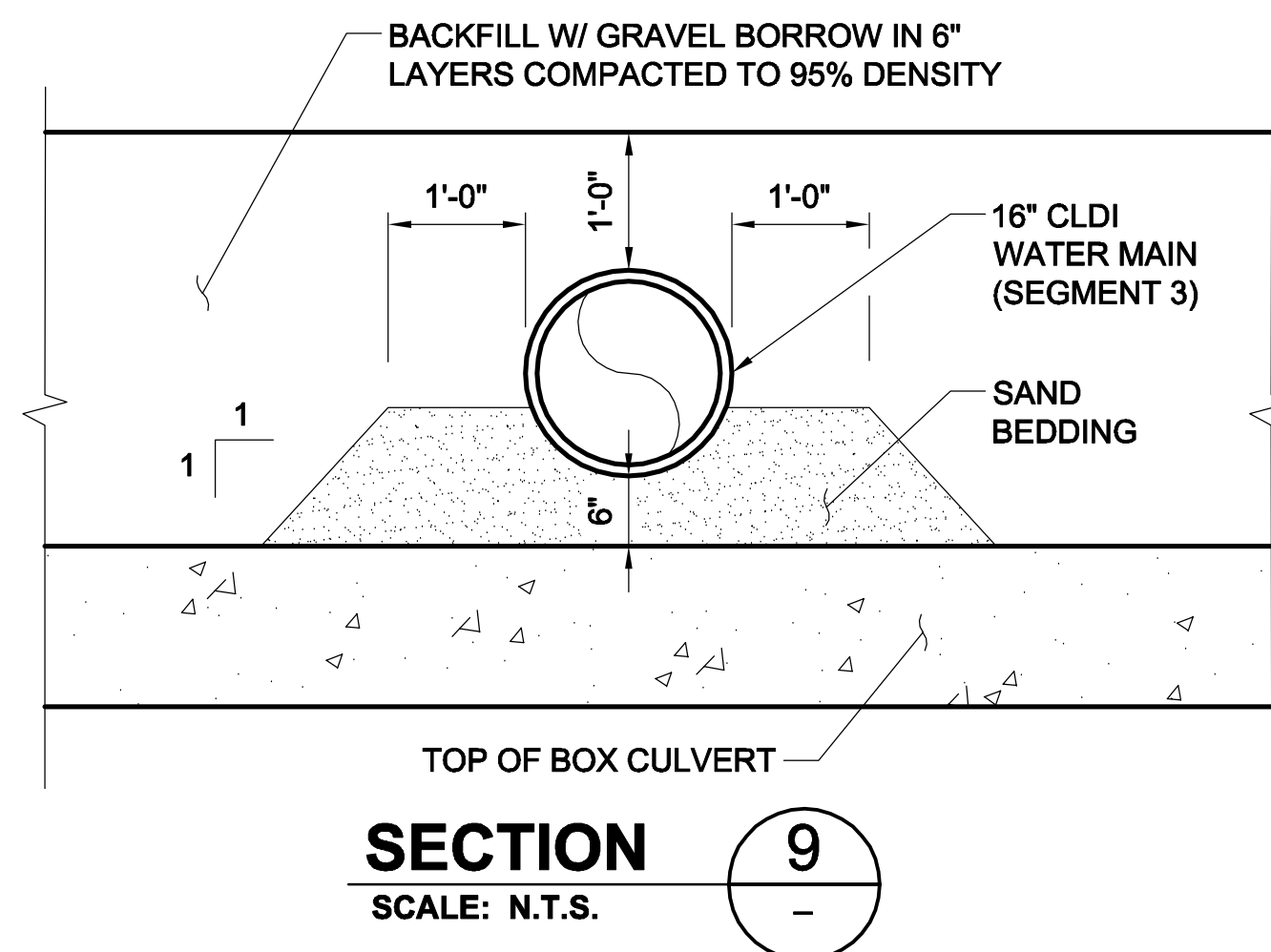
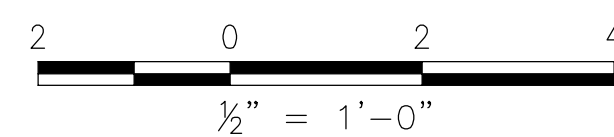
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-11-14 2:20 PM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\W-26.dwg



**SECTION 5-5**  
SCALE: 1/2" = 1'-0"



**SECTION 9**  
SCALE: N.T.S.

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  - FOR UTILITY PLAN, SEE SHEET U-2
  - HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  - PLAN SHOWS A SUGGESTED LAYOUT FOR SOLDIER PILES TO SUPPORT FRAMING FOR TEMPORARY UTILITY SUPPORT. THE CONTRACTOR SHALL TAKE VACUUM TEST PITS TO VERIFY UTILITY LOCATIONS BEFORE INSTALLATION. INSTALLATION SHALL BE BY AUGER.
  - SUPPORT ALL CROSSING UTILITIES IN PLACE, UNLESS OTHERWISE NOTED.
  - FOR COMMUNICATION DUCT SEE SHEET U-72.
  - COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCT BANK WITH THE PARTIAL REMOVAL OF SOLDIER PILES. MAINTAIN SUPPORT OF ALL CROSSING UTILITIES.
  - REMOVE AND CAP EXISTING 16" WATER MAIN PRIOR TO INSTALLING BOX CULVERT. SEE SHEETS W-10 AND SD-55.
  - TEMP. CAP 16" WATER MAIN AS INDICATED IN ORDER TO INSTALL BOX CULVERT.
  - INSTALL PROP. 16" WATER MAIN (SEGMENT 3) AFTER BOX CULVERT IS INSTALLED.
  - PROVIDE SAND BEDDING OVER BOX CULVERT AND UNDER WATER MAIN. SEE SECTION 9, THIS SHEET.

Professional Engineer Seal for Rachel J. Burckardt, No. 31880, State of Massachusetts, dated 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET WATER MAIN SECTION**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: LAC

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT. SCALE: AS NOTED  
ACC. DATE: DEC 2017

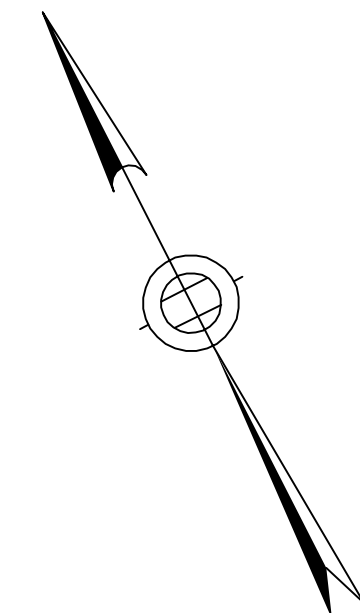
SHEET  
**W-26**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY



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WP-1  
N = 2963639.7761  
E = 765473.0919

WP-2  
N = 2963631.0571  
E = 765491.5093

**KEY**

**UTILITIES TO BE SUPPORTED IN PLACE**

DUCT BANK OR PIPE TO BE SUPPORTED IN PLACE.

**UTILITIES TO BE RELOCATED OR REPLACED**

NEW DUCTBANK.

PIPE TO BE REPLACED

REPLACEMENT PIPE OR CONDUIT IN NEW ALIGNMENT

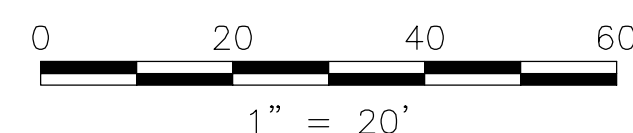
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EV-1 TAG # FOR UTILITY RELOCATION.

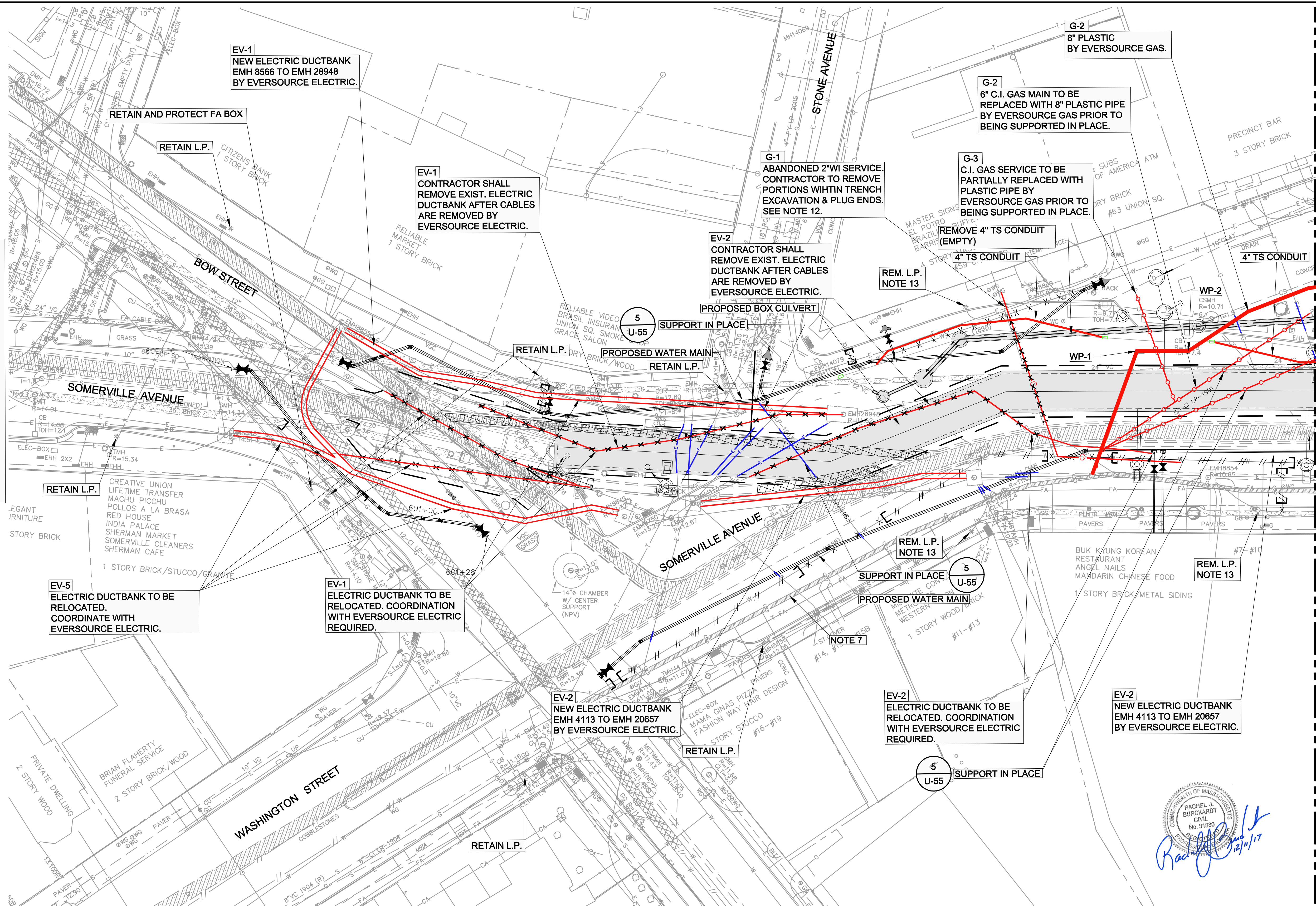
PLUG PIPE (BY CONTRACTOR)

HANDHOLE

- NOTES:**
- FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR SURFACE EXISTING CONDITIONS, SEE SHEETS G-11 THRU G-16.
  - FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEETS TM-11 THRU TM-16.
  - FOR SERVICES SUPPORT DETAILS, SEE SHEETS U-50 THRU U-55.
  - CONTRACTOR TO PERFORM NECESSARY TEST PITS TO CONFIRM DUCT BANK LOCATIONS.
  - EXIST. 20" L.P. C.I. GAS MAIN (EVERSOURCE) ON SOMERVILLE AVENUE WILL REMAIN IN PLACE.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF STORM DRAIN & SANITARY SEWERS, SEE SHEETS SD-1 THRU SD-6.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF WATER SYSTEM, SEE SHEETS W-1 THRU W-6.
  - FOR TIMING OF WORK BY PRIVATE UTILITIES, SEE SECTION 02500.
  - SUPPORT ALL ENCOUNTERED UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  - REMOVAL OF ABANDONED-IN-PLACE GAS MAIN OR SERVICES SHALL COMPLY WITH SPEC. SECTION 02500, PAR. 3.06C.
  - REMOVE EXISTING LIGHT POLES AFTER NEW LIGHTING SYSTEM IS ENERGIZED. SEE SPEC. SECTIONS 01512 & 02500 AND SHEETS E-11 TO E-15.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM



SEE SHEET U-02

FOR CONTINUATION

RACHEL J. BURCKARDT  
CIVIL  
No. 31680  
DEC 11, 2017

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**UTILITY PLANS**

**SHEET 1 OF 6**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: LAC  
CHECKED: RJB

**WSP** PARSONS BRINCKERHOFF  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

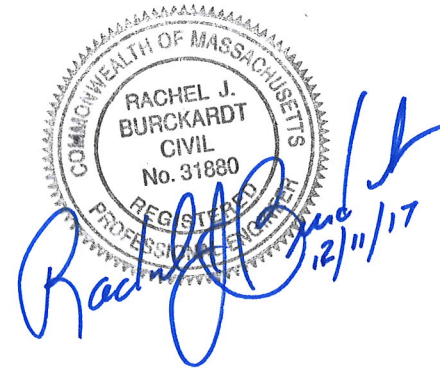
REF. CONT. SCALE: 1"=20'  
ACC. DATE: DEC 2017

SHEET  
**U-1**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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**KEY**

**UTILITIES TO BE SUPPORTED IN PLACE**

DUCT BANK OR PIPE TO BE SUPPORTED IN PLACE.

**UTILITIES TO BE RELOCATED OR REPLACED**

NEW DUCTBANK.

PIPE TO BE REPLACED

REPLACEMENT PIPE OR CONDUIT IN NEW ALIGNMENT

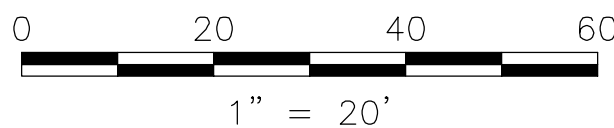
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EV-1 TAG # FOR UTILITY RELOCATION.

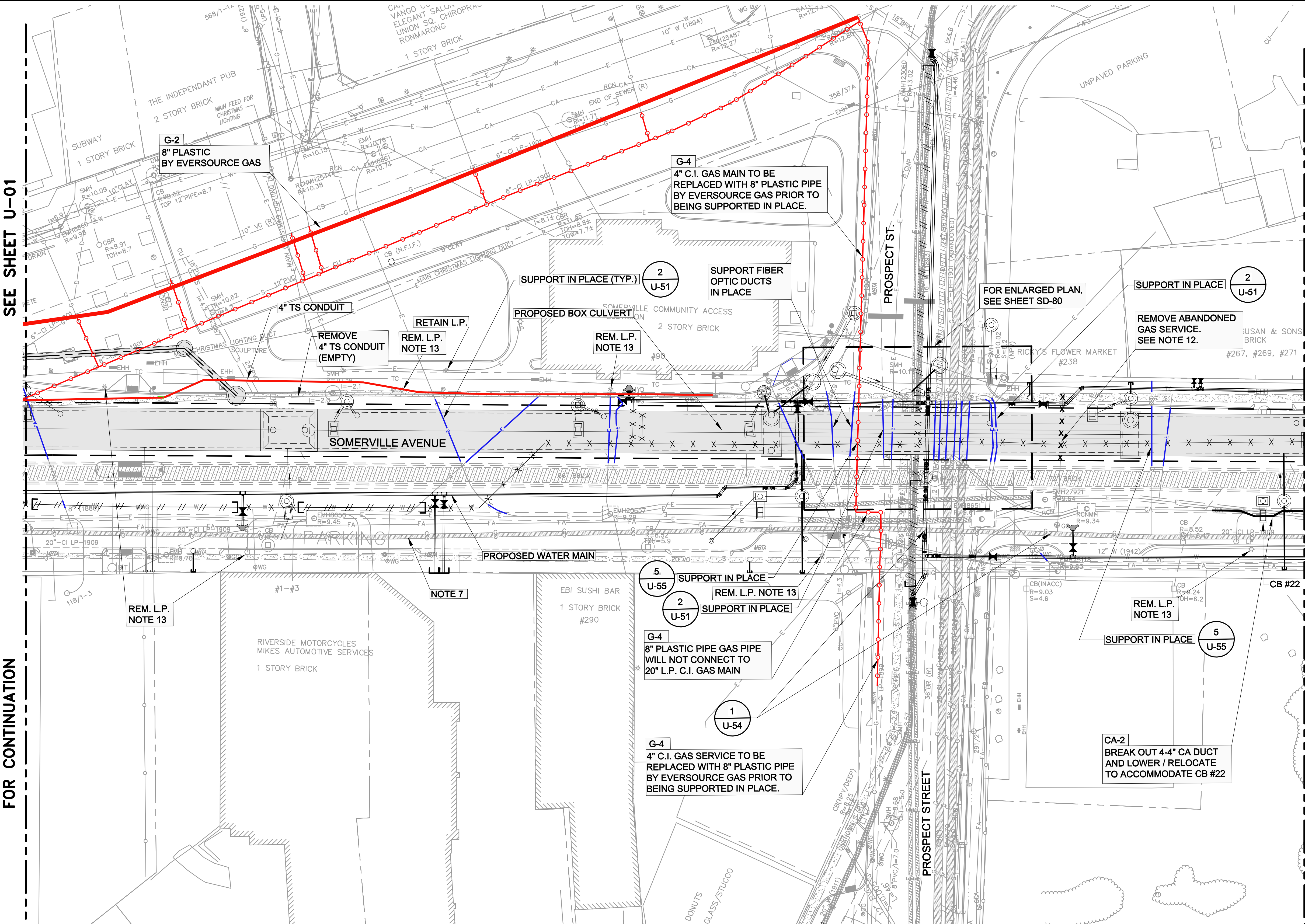
PLUG PIPE (BY CONTRACTOR)

HANDHOLE

- NOTES:**
- FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR SURFACE EXISTING CONDITIONS, SEE SHEETS G-11 THRU G-16.
  - FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEETS TM-11 THRU TM-16.
  - FOR SERVICES SUPPORT DETAILS, SEE SHEETS U-50 THRU U-55.
  - CONTRACTOR TO PERFORM NECESSARY TEST PITS TO CONFIRM DUCT BANK LOCATIONS.
  - EXIST. 20" L.P. C.I. GAS MAIN (EVERSOURCE) ON SOMERVILLE AVENUE WILL REMAIN IN PLACE. FOR ABANDONMENT, REMOVAL & RELOCATION OF STORM DRAIN & SANITARY SEWERS, SEE SHEETS SD-1 THRU SD-6.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF WATER SYSTEM, SEE SHEETS W-1 THRU W-6.
  - FOR TIMING OF WORK BY PRIVATE UTILITIES, SEE SECTION 02500.
  - SUPPORT ALL ENCOUNTERED UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  - REMOVAL OF ABANDONED-IN-PLACE GAS MAIN OR SERVICES SHALL COMPLY WITH SPEC. SECTION 02500, PAR. 3.06C.
  - REMOVE EXISTING LIGHT POLES AFTER NEW LIGHTING SYSTEM IS ENERGIZED. SEE SPEC. SECTIONS 01512 & 02500 AND SHEETS E-11 TO E-15.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM



SEE SHEET U-01

FOR CONTINUATION

SEE SHEET U-03

FOR CONTINUATION

**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**UTILITY PLANS**

**SHEET 2 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: LAC		REF.	CONT.
DRAWN: LAC		SCALE: 1"=20'	
CHECKED: RJB		DATE: DEC 2017	

SHEET  
**U-2**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY



**KEY**

**UTILITIES TO BE SUPPORTED IN PLACE**

DUCT BANK OR PIPE TO BE SUPPORTED IN PLACE.

**UTILITIES TO BE RELOCATED OR REPLACED**

NEW DUCTBANK.

PIPE TO BE REPLACED

REPLACEMENT PIPE OR CONDUIT IN NEW ALIGNMENT

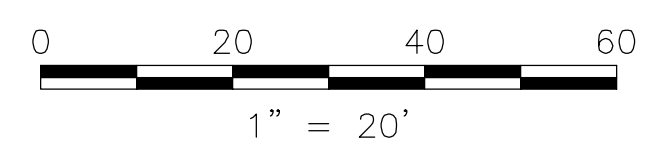
REMOVE EXIST. UTILITY

EV-1 TAG # FOR UTILITY RELOCATION.

PLUG PIPE (BY CONTRACTOR)

HANDHOLE

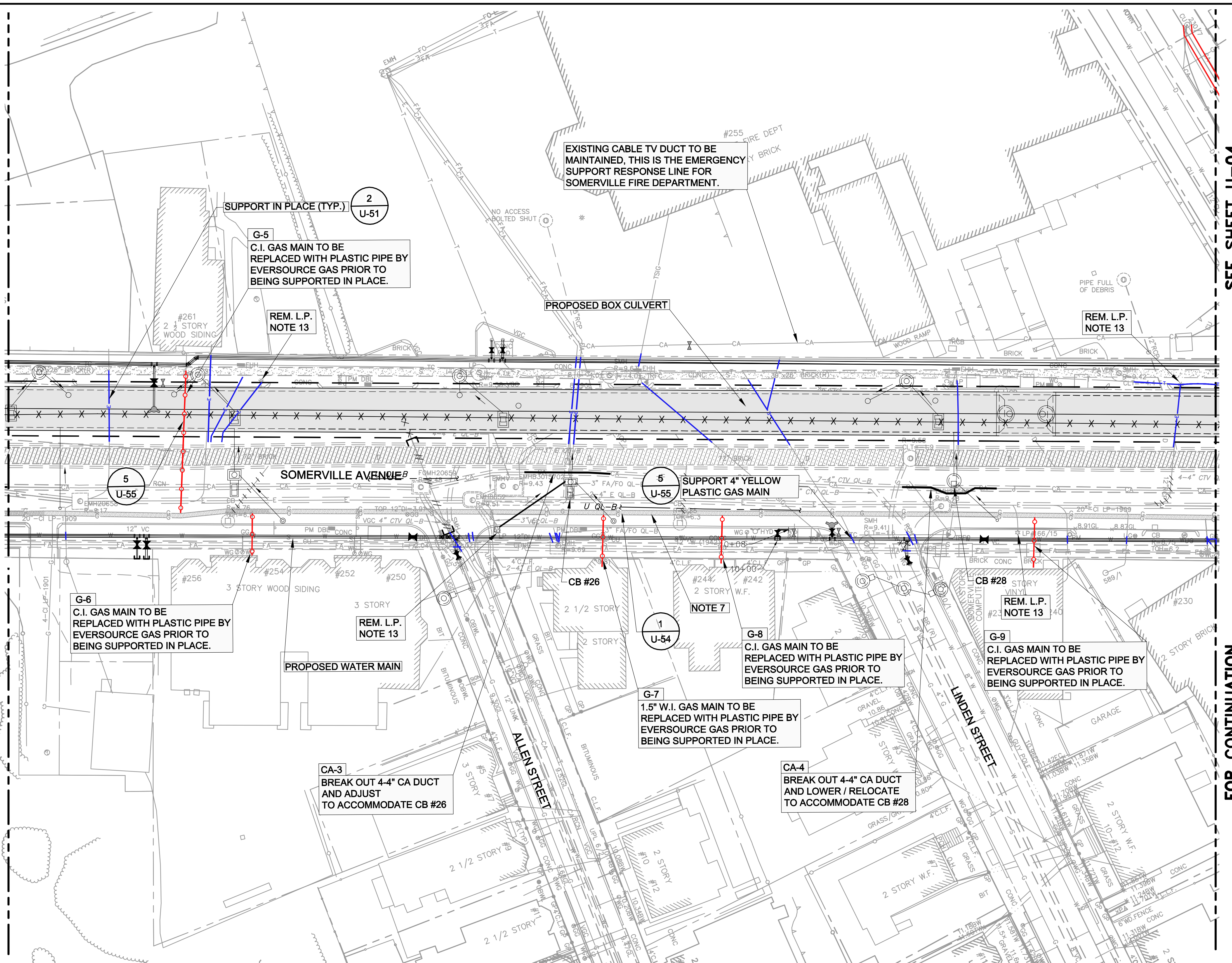
- NOTES:**
- FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR SURFACE EXISTING CONDITIONS, SEE SHEETS G-11 THRU G-16.
  - FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEETS TM-11 THRU TM-16.
  - FOR SERVICES SUPPORT DETAILS, SEE SHEETS U-50 THRU U-55.
  - CONTRACTOR TO PERFORM NECESSARY TEST PITS TO CONFIRM DUCT BANK LOCATIONS.
  - EXIST. 20" L.P. C.I. GAS MAIN (EVERSOURCE) ON SOMERVILLE AVENUE WILL REMAIN IN PLACE.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF STORM DRAIN & SANITARY SEWERS, SEE SHEETS SD-1 THRU SD-6.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF WATER SYSTEM, SEE SHEETS W-1 THRU W-6.
  - FOR TIMING OF WORK BY PRIVATE UTILITIES, SEE SECTION 02500.
  - SUPPORT ALL ENCOUNTERED UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  - REMOVAL OF ABANDONED-IN-PLACE GAS MAIN OR SERVICES SHALL COMPLY WITH SPEC. SECTION 02500, PAR. 3.06C.
  - REMOVE EXISTING LIGHT POLES AFTER NEW LIGHTING SYSTEM IS ENERGIZED. SEE SPEC. SECTIONS 01512 & 02500 AND SHEETS E-11 TO E-15.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SEE SHEET U-02

FOR CONTINUATION



SEE SHEET U-04

FOR CONTINUATION

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**UTILITY PLANS**

**SHEET 3 OF 6**

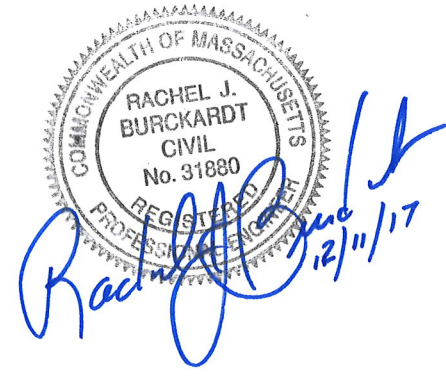
DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET					
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CITY OF SOMERVILLE  
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 SOMERVILLE, MA 02143

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**KEY**

UTILITIES TO BE SUPPORTED IN PLACE

UTILITIES TO BE RELOCATED OR REPLACED

NEW DUCTBANK.

PIPE TO BE REPLACED

REPLACEMENT PIPE OR CONDUIT IN NEW ALIGNMENT

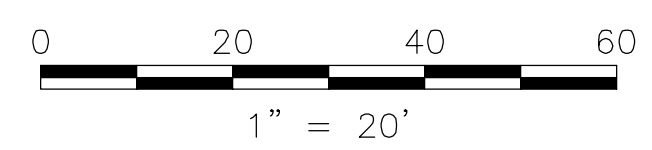
REMOVE EXIST. UTILITY

TAG # FOR UTILITY RELOCATION.

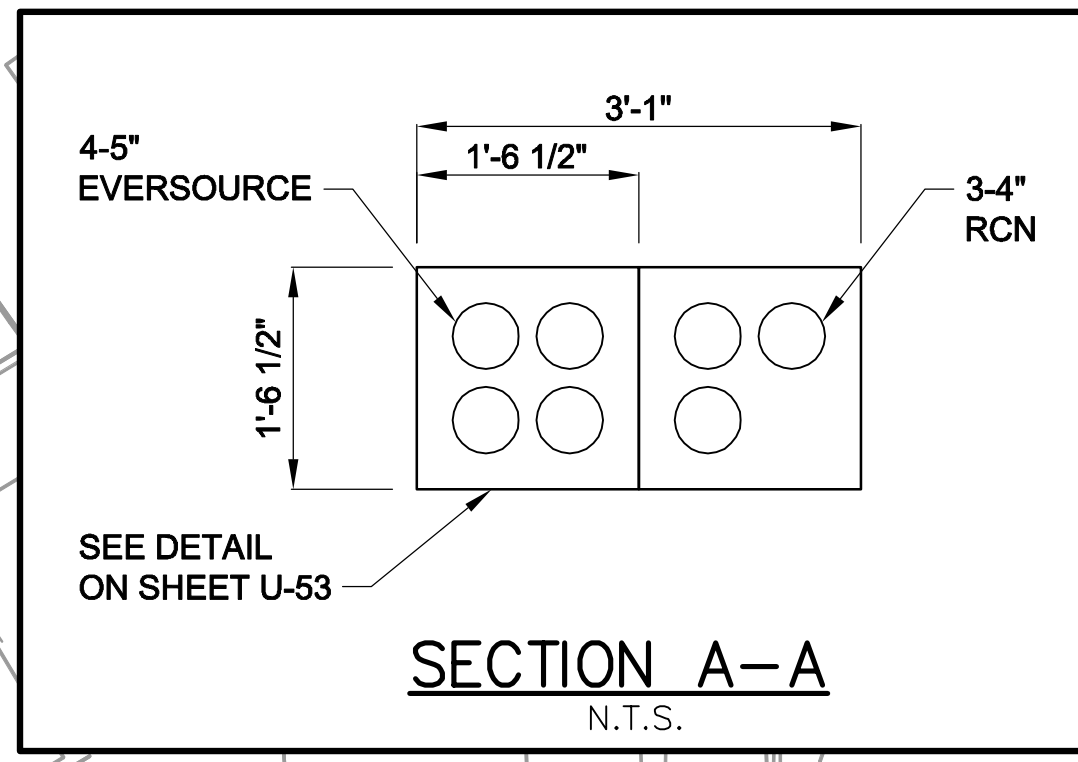
PLUG PIPE (BY CONTRACTOR)

HANDHOLE

- NOTES:**
- FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR SURFACE EXISTING CONDITIONS, SEE SHEETS G-11 THRU G-16.
  - FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEETS TM-11 THRU TM-16.
  - FOR SERVICES SUPPORT DETAILS, SEE SHEETS U-50 THRU U-55.
  - CONTRACTOR TO PERFORM NECESSARY TEST PITS TO CONFIRM DUCT BANK LOCATIONS.
  - EXIST. 20" L.P. C.I. GAS MAIN (EVERSOURCE) ON SOMERVILLE AVENUE WILL REMAIN IN PLACE.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF STORM DRAIN & SANITARY SEWERS, SEE SHEETS SD-1 THRU SD-6.
  - FOR ABANDONMENT, REMOVAL & RELOCATION OF WATER SYSTEM, SEE SHEETS W-1 THRU W-6.
  - FOR TIMING OF WORK BY PRIVATE UTILITIES, SEE SECTION 02500.
  - SUPPORT ALL ENCOUNTERED UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  - REMOVAL OF ABANDONED-IN-PLACE GAS MAIN OR SERVICES SHALL COMPLY WITH SPEC. SECTION 02500, PAR. 3.06C.
  - REMOVE EXISTING LIGHT POLES AFTER NEW LIGHTING SYSTEM IS ENERGIZED. SEE SPEC. SECTIONS 01512 & 02500 AND SHEETS E-11 TO E-15.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM



**G-13**  
EXISTING 4" UNKNOWN MATERIAL GAS MAIN TO BE REPLACED WITH 6" PLASTIC PIPE, BY EVERSOURCE GAS, PRIOR TO CONSTRUCTION.

**4 U-54**  
SHALLOW 4" GAS PIPE CONNECTION, CONTRACTOR SHALL PROTECT WITH STEEL PLATE.

**G-10**  
C.I. GAS MAIN TO BE REPLACED WITH PLASTIC PIPE BY EVERSOURCE GAS PRIOR TO BEING SUPPORTED IN PLACE.

**5 U-55**  
REM. L.P. NOTE 13

EXIST. 20" L.P. GAS MAIN HAS BETWEEN 19" & 24" COVER IN THIS AREA. LIMIT ROADWAY EXCAVATION.

**G-11**  
C.I. GAS MAIN TO BE REPLACED WITH PLASTIC PIPE BY EVERSOURCE GAS PRIOR TO BEING SUPPORTED IN PLACE.

**G-12**  
C.I. GAS MAIN TO BE REPLACED WITH PLASTIC PIPE BY EVERSOURCE GAS PRIOR TO BEING SUPPORTED IN PLACE.

**G-14**  
C.I. GAS MAIN TO BE REPLACED WITH PLASTIC PIPE BY EVERSOURCE GAS PRIOR TO BEING SUPPORTED IN PLACE.

SEE SHEET U-03

FOR CONTINUATION

SEE SHEET U-05

FOR CONTINUATION

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**UTILITY PLANS**

**SHEET 4 OF 6**

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CHECKED: LAC		REF.	CONT.	
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CHECKED: RJB				

CITY OF SOMERVILLE  
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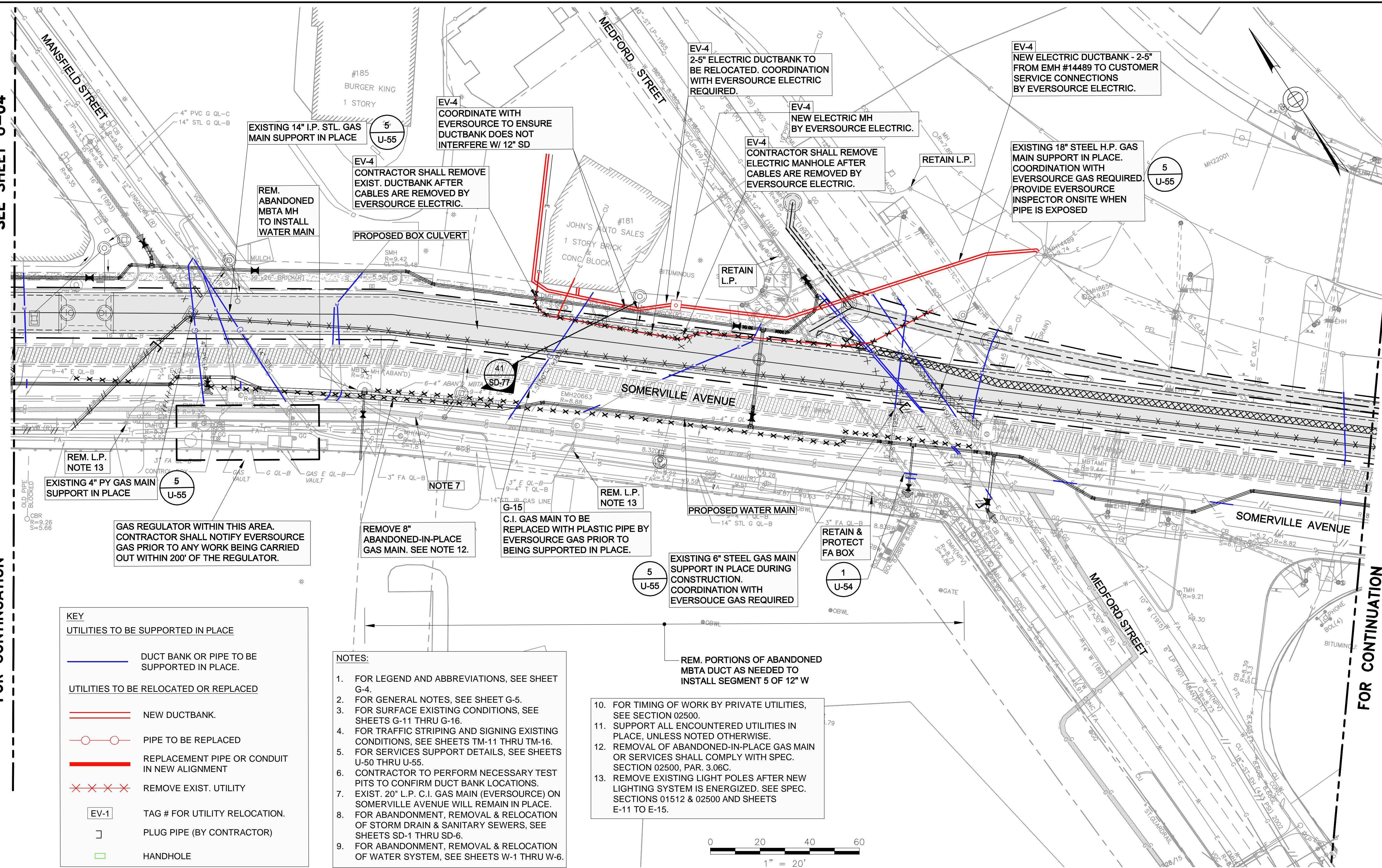
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SEE SHEET U-04

FOR CONTINUATION

SEE SHEET U-06

FOR CONTINUATION



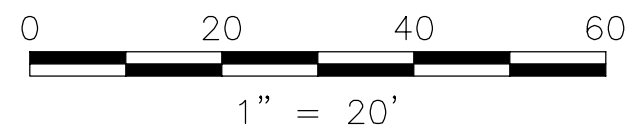
**KEY**

UTILITIES TO BE SUPPORTED IN PLACE

UTILITIES TO BE RELOCATED OR REPLACED

- DUCT BANK OR PIPE TO BE SUPPORTED IN PLACE.
- NEW DUCTBANK.
- PIPE TO BE REPLACED
- REPLACEMENT PIPE OR CONDUIT IN NEW ALIGNMENT
- ×××× REMOVE EXIST. UTILITY
- EV-1 TAG # FOR UTILITY RELOCATION.
- ] PLUG PIPE (BY CONTRACTOR)
- HANDHOLE

- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR SURFACE EXISTING CONDITIONS, SEE SHEETS G-11 THRU G-16.
  4. FOR TRAFFIC STRIPING AND SIGNING EXISTING CONDITIONS, SEE SHEETS TM-11 THRU TM-16.
  5. FOR SERVICES SUPPORT DETAILS, SEE SHEETS U-50 THRU U-55.
  6. CONTRACTOR TO PERFORM NECESSARY TEST PITS TO CONFIRM DUCT BANK LOCATIONS.
  7. EXIST. 20" L.P. C.I. GAS MAIN (EVERSOURCE) ON SOMERVILLE AVENUE WILL REMAIN IN PLACE.
  8. FOR ABANDONMENT, REMOVAL & RELOCATION OF STORM DRAIN & SANITARY SEWERS, SEE SHEETS SD-1 THRU SD-6.
  9. FOR ABANDONMENT, REMOVAL & RELOCATION OF WATER SYSTEM, SEE SHEETS W-1 THRU W-6.
  10. FOR TIMING OF WORK BY PRIVATE UTILITIES, SEE SECTION 02500.
  11. SUPPORT ALL ENCOUNTERED UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  12. REMOVAL OF ABANDONED-IN-PLACE GAS MAIN OR SERVICES SHALL COMPLY WITH SPEC. SECTION 02500, PAR. 3.06C.
  13. REMOVE EXISTING LIGHT POLES AFTER NEW LIGHTING SYSTEM IS ENERGIZED. SEE SPEC. SECTIONS 01512 & 02500 AND SHEETS E-11 TO E-15.



Professional Engineer Seal for Rachel J. Burckhardt, Civil, No. 31880, State of Massachusetts. Includes a signature and date 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

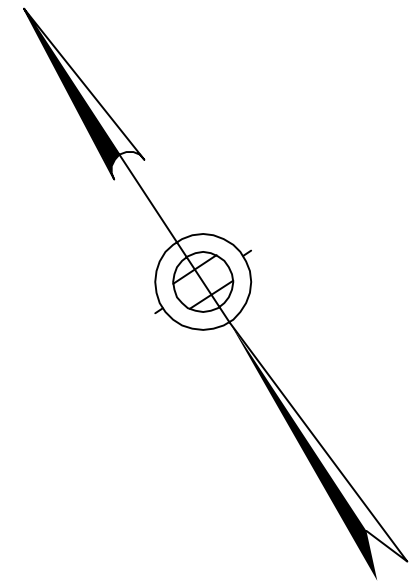
**UTILITY PLANS**

**SHEET 5 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: LAC		U-5		
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SEE SHEET U-05

**KEY**

**UTILITIES TO BE SUPPORTED IN PLACE**

DUCT BANK OR PIPE TO BE SUPPORTED IN PLACE.

**UTILITIES TO BE RELOCATED OR REPLACED**

NEW DUCTBANK.

PIPE TO BE REPLACED

REPLACEMENT PIPE OR CONDUIT IN NEW ALIGNMENT

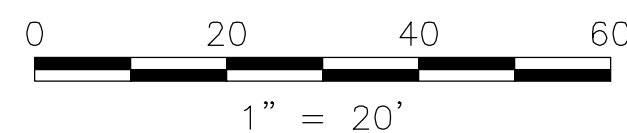
REMOVE EXIST. UTILITY

EV-1 TAG # FOR UTILITY RELOCATION.

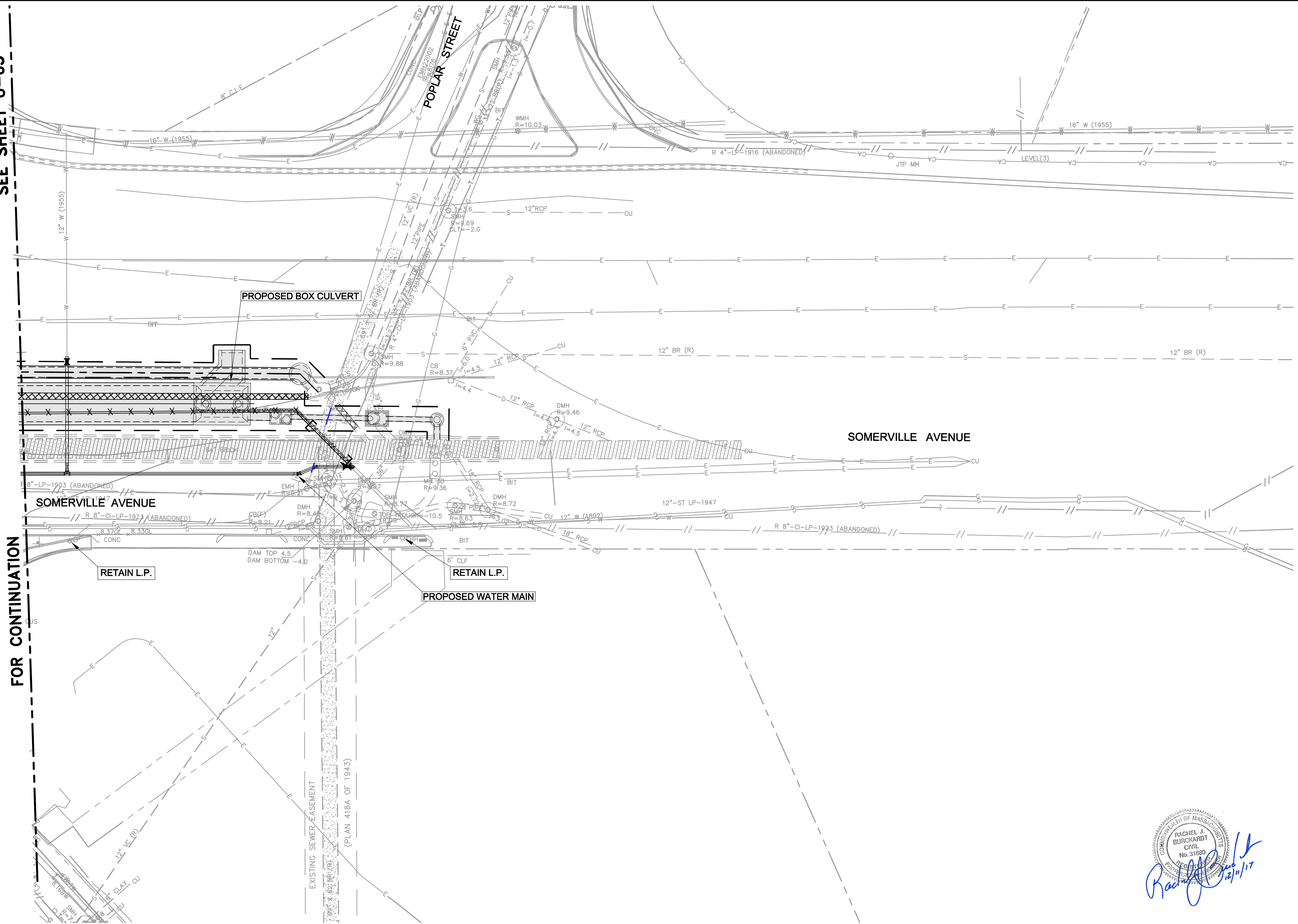
PLUG PIPE (BY CONTRACTOR)

HANDHOLE

- NOTES:**
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  - FOR SURFACE EXISTING CONDITIONS, SEE SHEETS G-11 THRU G-16.
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FOR CONTINUATION



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**UTILITY PLANS**

**SHEET 6 OF 6**

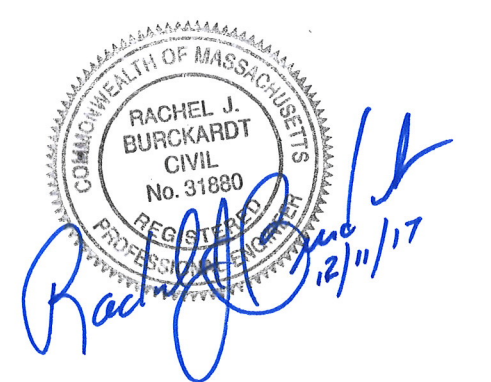
DESIGNED: RJB  
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 CHECKED: RJB

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 Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
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 ACC. SCALE: 1"=20'  
 DATE: DEC 2017

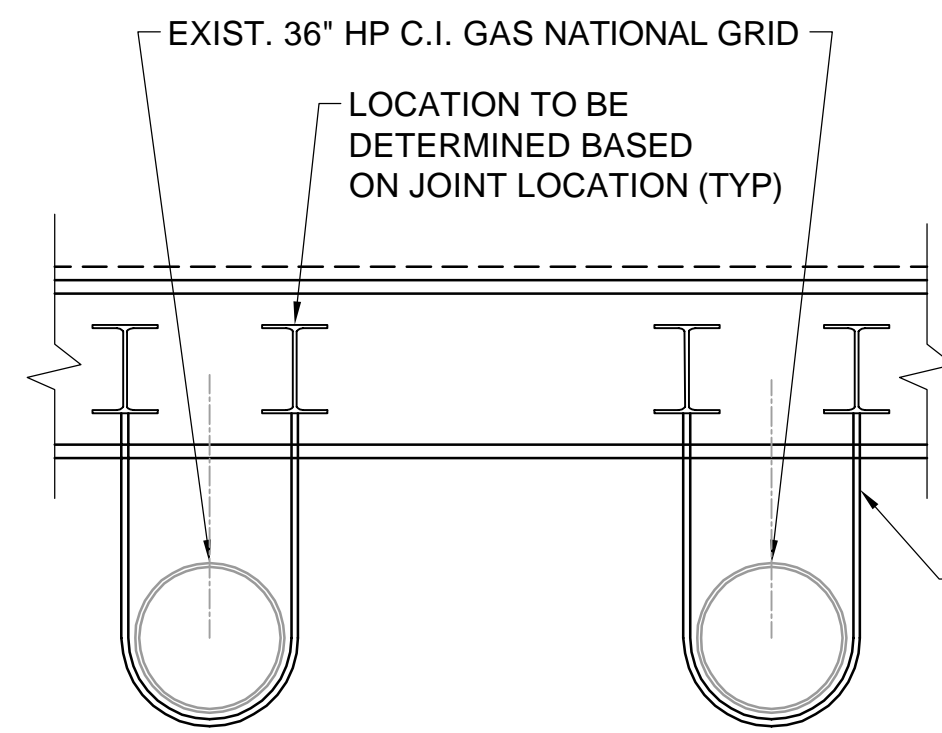
SHEET  
**U-6**

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NYLON SLINGS - MIN. 3 SLINGS PER PIPE STICK (12")

NOTES:

- SEE NATIONAL GAS NOTES, THIS SHEET.
- SEE SECTIONS ON SHEETS U-32 & U-38.

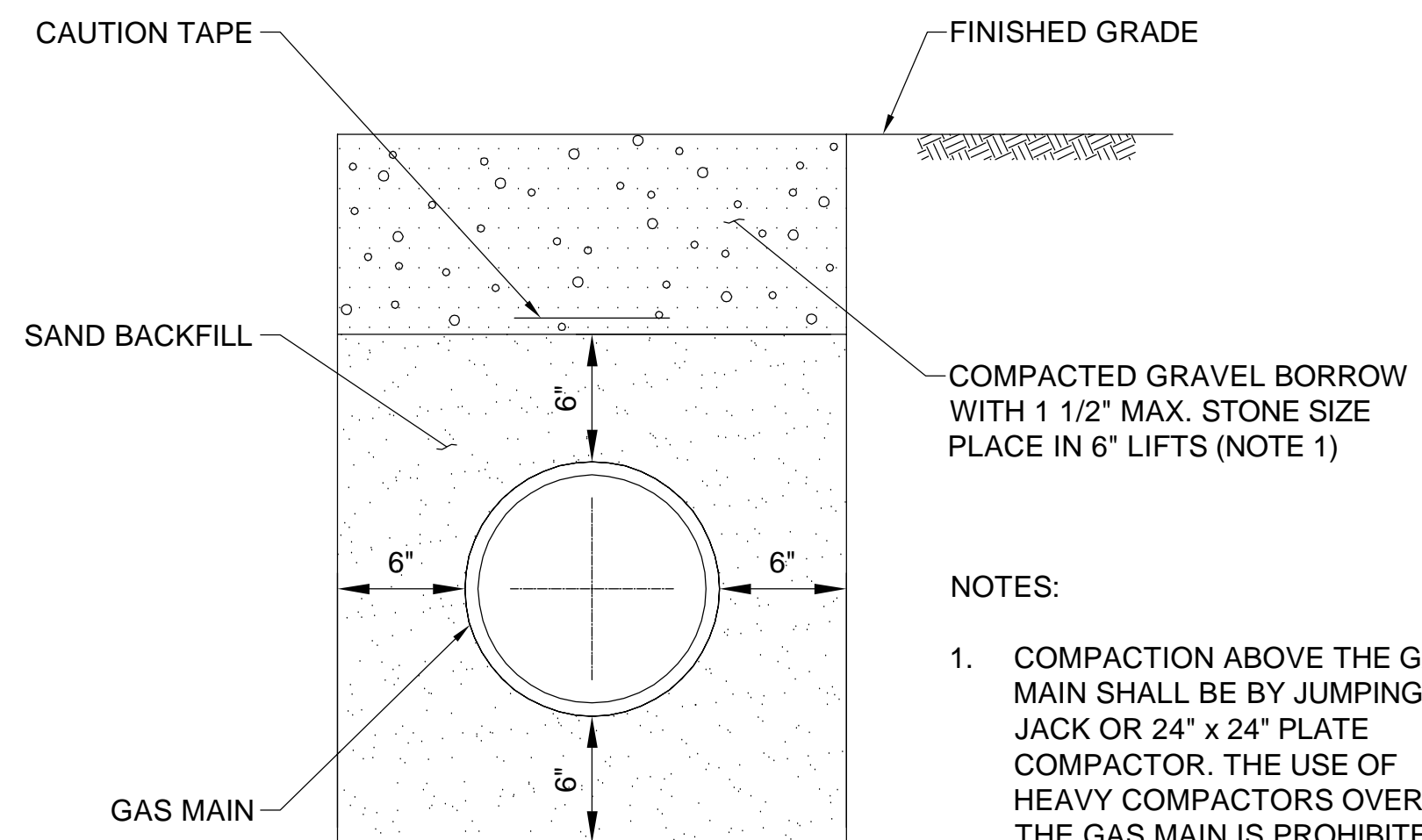
**SUPPORT OF 36" HP C.I. GAS MAINS AT PROSPECT STREET**

TOTAL TOLERANCE ZONE = PIPE DIAMETER + 36"

- UPON LOCATION AND VERIFYING THE GAS FACILITY, POWERED EXCAVATION MAY BE USED ONLY OUTSIDE THE ZONE OF PROTECTION OF THE GAS LINE. THE ZONE OF PROTECTION SHALL BE DEFINED AS 4 INCHES FROM ANY FACE OF A DISTRIBUTION GAS FACILITY AND 24 INCHES FROM ANY FACE OF A GAS TRANSMISSION LINE.
- EXCAVATORS SHALL NOT DIRECTLY MOVE, TUG, OR PULL ON OBJECTS (I.E. BOULDERS, LEDGE, ETC.) IN CLOSE PROXIMITY TO AN EXISTING FACILITY WITHOUT FULLY EXPOSING THE FACILITY.
- EXPOSED GAS FACILITIES SHALL BE SUPPORTED AS NECESSARY DURING EXCAVATION ACTIVITIES TO PREVENT FAILURE.

**NATIONAL GRID GAS NOTES:**

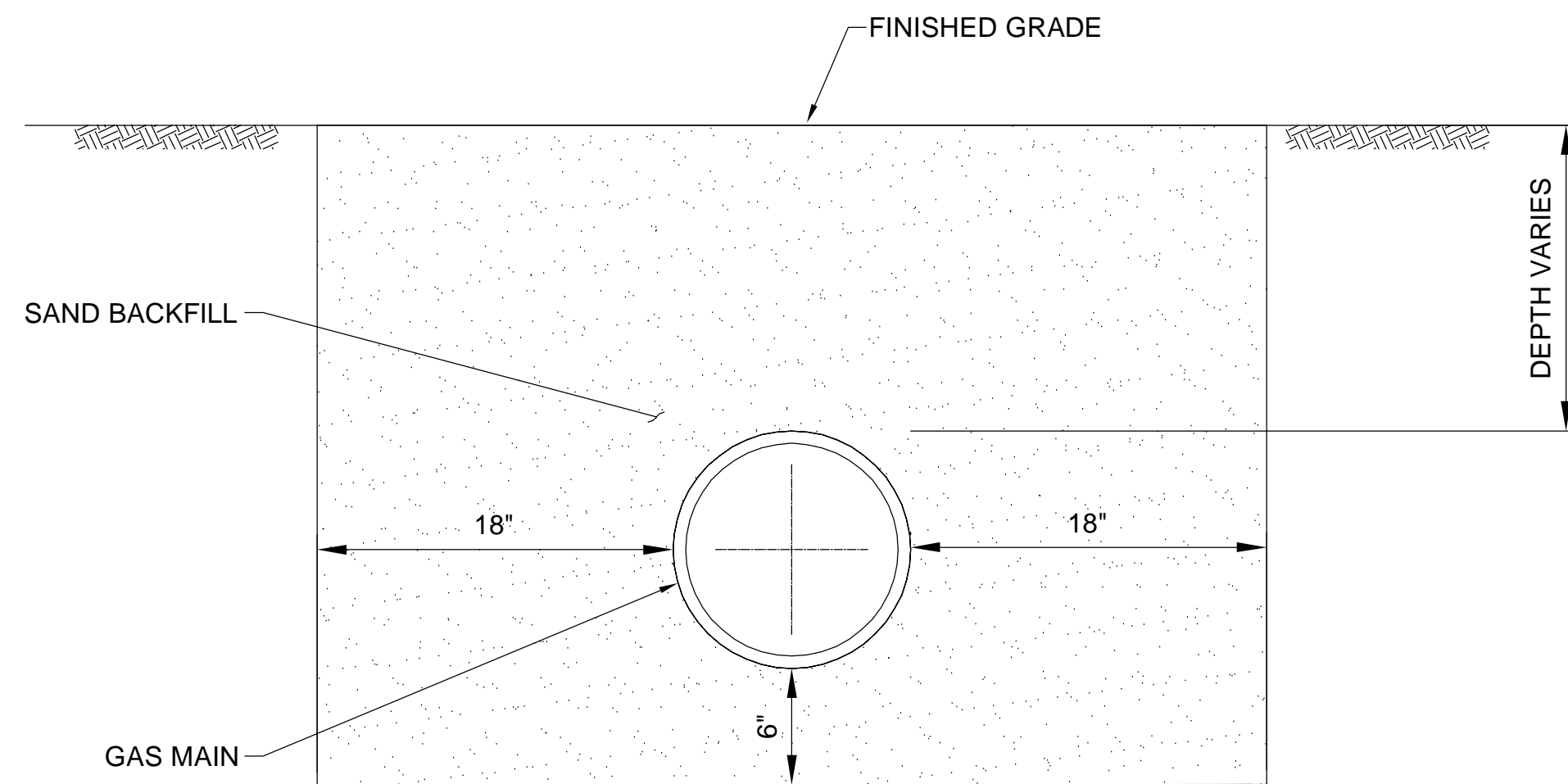
- THIS CONSTRUCTION STANDARD SHALL BE USED TO SUPPORT NATIONAL GRID GAS FACILITIES WHICH ARE UNDERMINED AND EXPOSED BY CONSTRUCTION ACTIVITY.
- IF AN EXCAVATION IS MADE AT ANY DISTANCE PARALLEL TO THE GAS FACILITY WITH ADEQUATE OSHA STRUCTURAL SHORING, AS SHOWN IN DETAIL "A", OR IF A STABLE SOIL CONDITION WITH SUFFICIENT COVER ABOVE THE PIPE'S CENTERLINE EXISTS, AS SHOWN IN DETAIL "B", THEN SUPPORTS ARE NOT REQUIRED. UNSTABLE SOIL IS DEFINED AS A SOIL WHICH CAN CAUSE "SOIL RUN OUT" FROM BENEATH THE PIPE (e.g., WASHOUT, SOFT CLAY, etc.) OR CAN SHIFT DUE TO CONSTRUCTION ACTIVITY, VIBRATIONS, etc.; AND CAUSE A SOIL SCENARIO TO OCCUR AS SHOWN IN DETAIL "B" TO REQUIRE PIPE SUPPORT.
- IF AN EXCAVATION CROSSES OR RUNS PARALLEL TO A GAS FACILITY, SUPPORTS MAY NOT BE REQUIRED IF THE EXPOSED SECTION OF PLASTIC PIPES IS 3' OR LESS AND STEEL PIPES 7' OR LESS.
- ALL EXCAVATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONE CALL DIG SAFE PROGRAM USING THE APPROPRIATE MARK OUT, TEST HOLES AND EXCAVATION TO AVOID DAMAGE TO PIPE OR PIPE COATINGS:  
- MA CHAPTER 82 - SECTION 40. GENERAL LAWS, REGULATING NOTICE REQUIREMENTS FOR EXCAVATION IN PUBLIC WAYS
- USE OF THIS CONSTRUCTION STANDARD DOES NOT RELIEVE THE CONSTRUCTION AGENCY OR AUTHORITY OR THEIR RESPECTIVE CONTRACTORS OF RESPONSIBILITY FOR DAMAGES. ALL DAMAGES WILL BE REPAIRED IN ACCORDANCE WITH EXISTING STANDARDS AND THE APPROPRIATE PARTY SHALL BE BILLED FOR ALL EXPENSES.
- GAS FACILITIES SHOULD NOT BE UNDERMINED WITHOUT ADEQUATE SUPPORT (DETAIL A). ALL SUPPORT LINES SHALL BE TENSIONED SO THAT NO DEFLECTION WILL OCCUR WHEN THE FACILITY IS UNDERMINED. THIS TENSION SHALL BE CHECKED AT THE START AND END OF EACH DAY AND ADJUSTED AS NECESSARY.
- WHERE A COUPLING, GAS SERVICE, CLAMP, VALVE, DRIP LINE OR OTHER APPURTENANCE EXISTS ON THE EXPOSED SECTION OF MAIN, AN ADDITIONAL SUPPORT SHALL BE INSTALLED AT THE LOCATION.
- WHEN SUPPORTING AN EXPOSED FACILITY, THE PIPE COATING SHALL BE PROTECTED WITH ROCK SHIELD NATIONAL GRID (ITEM ID 00301097), OR OTHER LIKE MATERIAL CUT TO A MINIMUM WIDTH OF 1/2 THE SUPPORTED PIPE DIAMETER. SUPPORT LINES SHALL BE A MINIMUM OF 3/4" POLYPROPYLENE OR BETTER. NATIONAL GRID WILL SUPPLY & INSTALL ROCK SHIELD.
- SUPPORTS FOR GAS TRANSMISSION FACILITIES SHALL BE REVIEWED WITH GAS ENGINEERING PRIOR TO INSTALLATION.
- FOR SUPPORT OF 36" C.I. HP GAS TRANSMISSION LINES, SEE SHEETS U-30, U-32, & U-38.
- NOT USED.
- VIBRATING MACHINES ARE ALLOWED OVER STEEL OR PLASTIC FACILITIES WITH 24" OR GREATER COVER. HAND HELD MECHANICAL TAMPER IS ACCEPTABLE OVER ANY FACILITY WITH 12" OR GREATER COVER.
- WHEN CONSTRUCTION ACTIVITY IS COMPLETED, CLEAN FILL SHALL BE COMPACTED AROUND AND UNDER THE GAS FACILITY BEFORE REMOVING SUPPORTS. SEE TRENCH BACKFILL DETAIL, THIS SHEET.



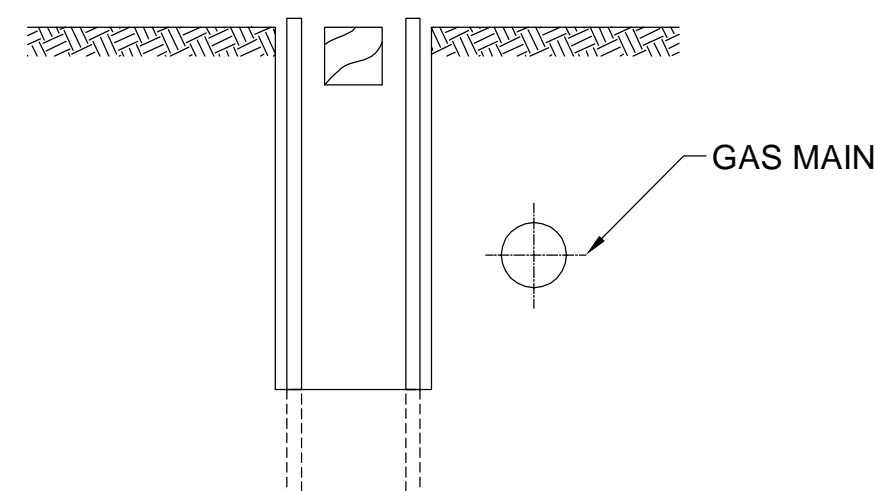
NOTES:

- COMPACTION ABOVE THE GAS MAIN SHALL BE BY JUMPING JACK OR 24" x 24" PLATE COMPACTOR. THE USE OF HEAVY COMPACTORS OVER THE GAS MAIN IS PROHIBITED.

**TRENCH BACKFILL AT GAS MAIN**

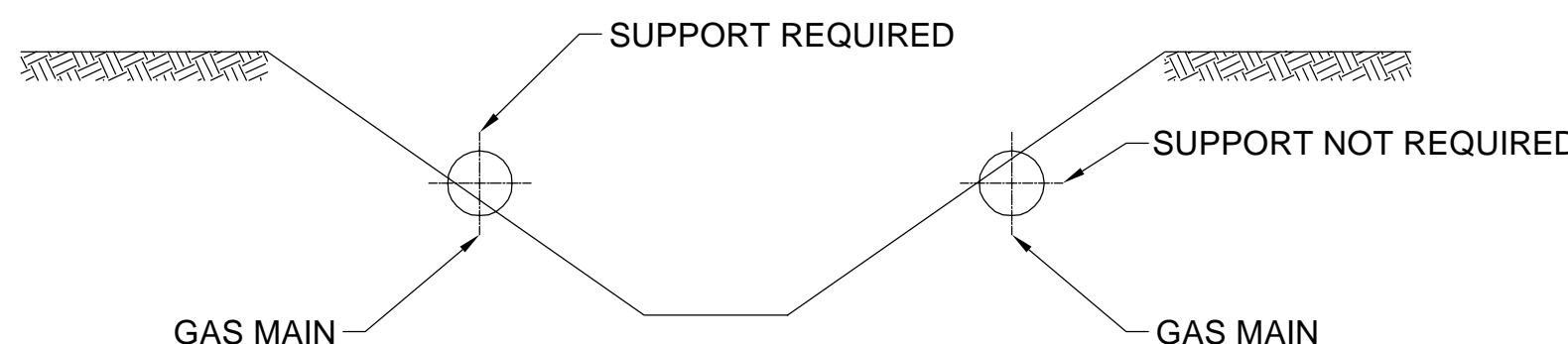


**TOLERANCE ZONE**



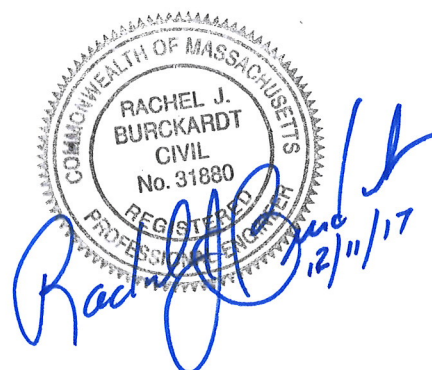
**ADEQUATELY SHORED TRENCH DETAIL A**

(SEE NOTE B)



**INADEQUATELY SHORED OR UNSHORED TRENCH DETAIL A**

(SEE NOTE B)



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
NATIONAL GRID GAS DETAILS**

DESIGNED: N/A  
CHECKED: RJB  
DRAWN: LN  
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DATE: DEC 2017

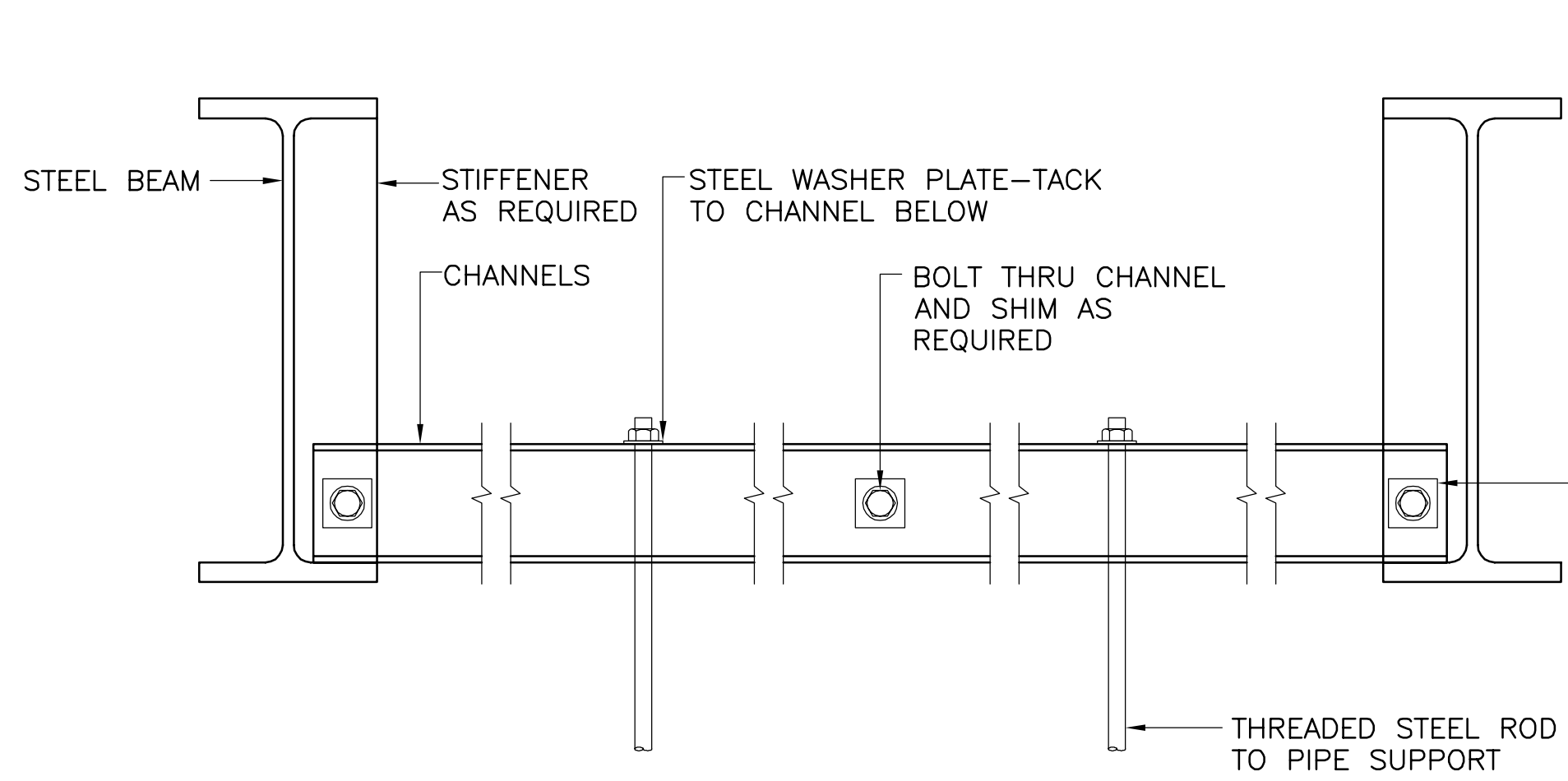
SHEET

**U-50**

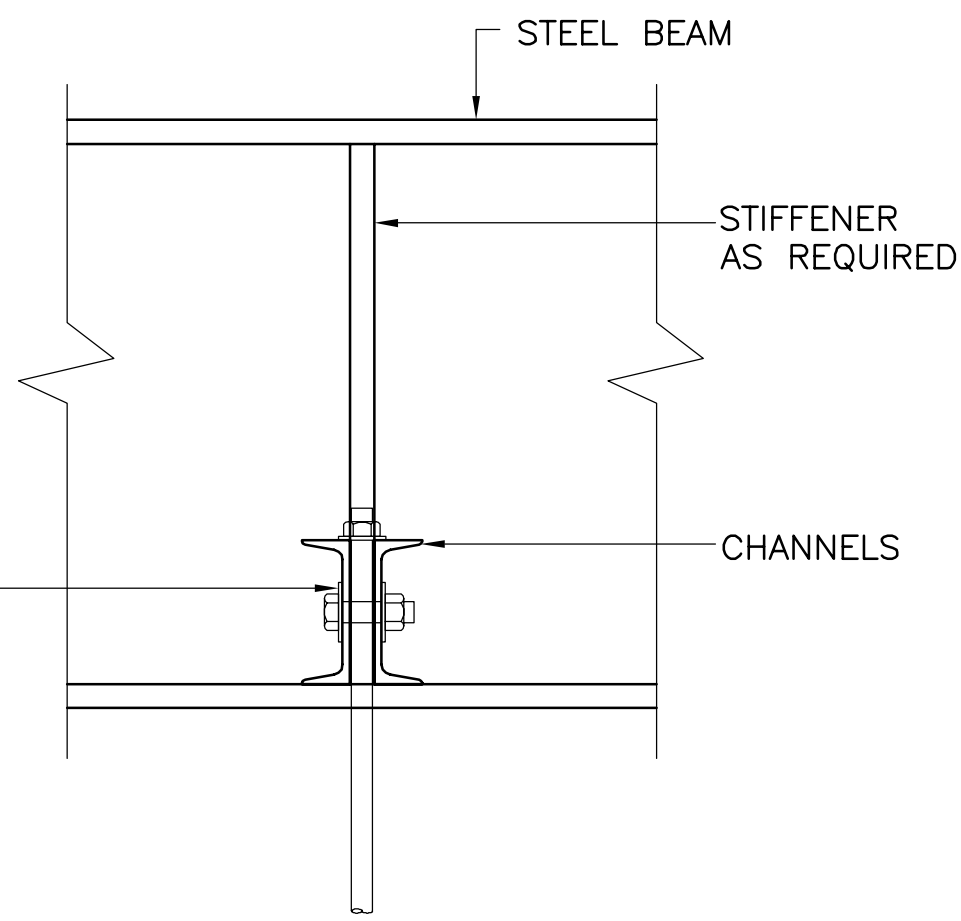
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93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

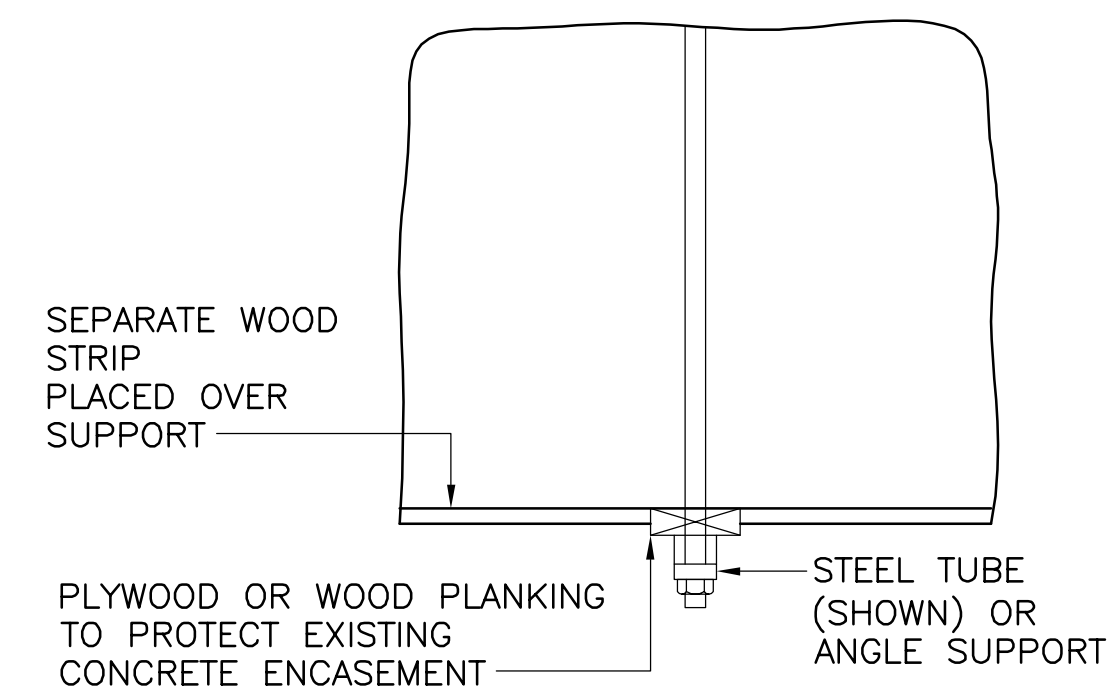
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**ELEVATION**



**SECTION B-B**

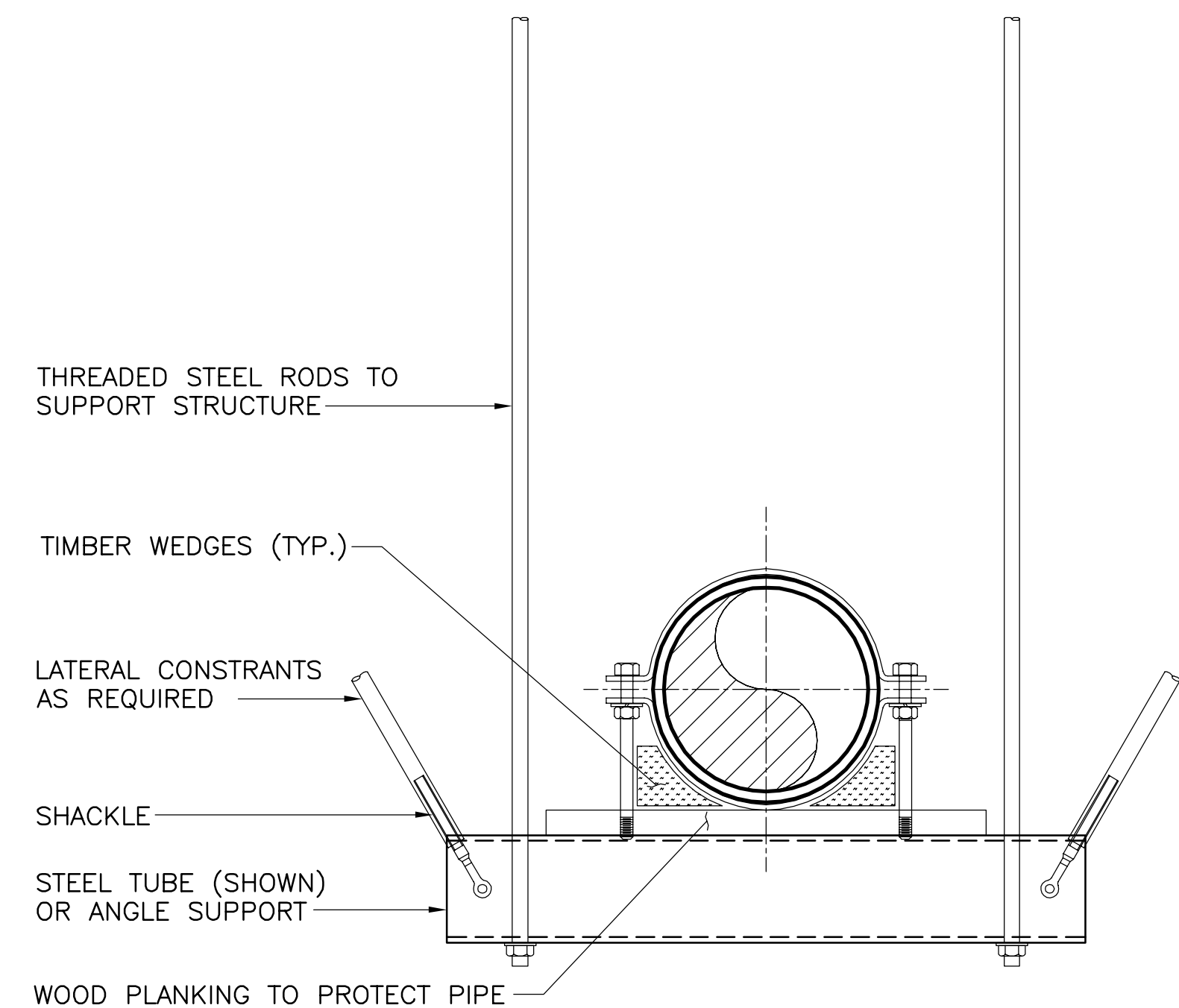


**SECTION A-A**

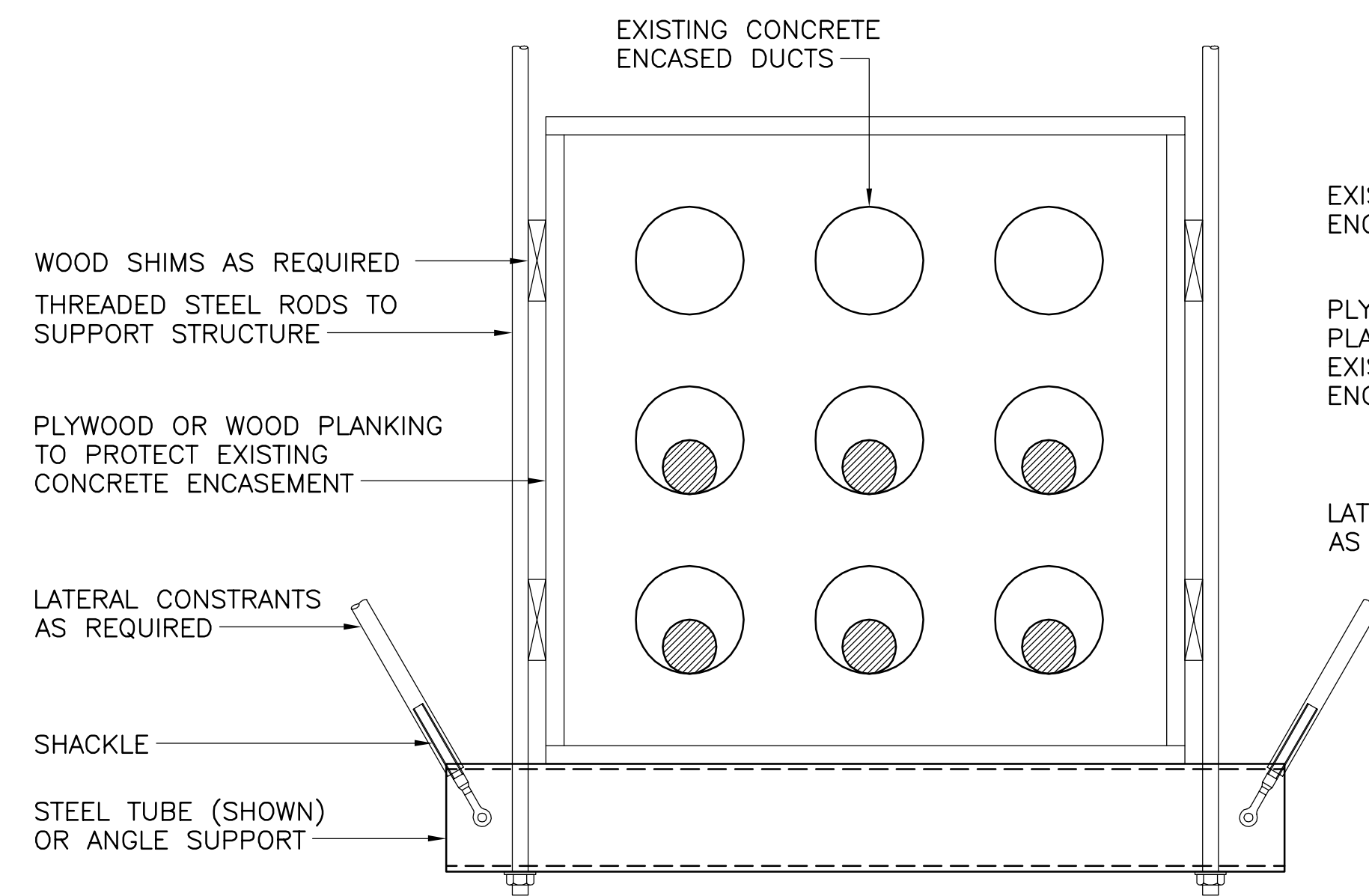
**SUPPORT STRUCTURE**

**NOTES:**

- THIS DRAWING ESTABLISHES MINIMUM FOR TEMPORARY SUPPORT OF EXISTING UTILITIES THAT CROSS OVER OPEN TRENCH EXCAVATIONS.
- THE CONTRACTOR IS REQUIRED TO SUBMIT WORKING DRAWINGS, TOGETHER WITH DESIGN CALCULATIONS AND MATERIAL SPECIFICATIONS FOR APPROVAL BY THE ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE WORKING DRAWINGS SHALL INCLUDE THE ENTIRE PROPOSED SUPPORT SYSTEM AND INCORPORATE ALL APPLICABLE FEATURES OF THIS DRAWINGS OR THEIR APPROVED EQUALS.
- TEMPORARY SUPPORTS SHOWN ON THIS DRAWINGS ARE CONCEPTUAL IN NATURE, HOWEVER, CONTRACTOR'S PROPOSED SUPPORT SYSTEM MUST COMPLY WITH THE DESIGN REQUIREMENTS REPRESENTED BY THIS DRAWING.
- THE MAXIMUM LENGTH OF DUCTBANK TO BE UNDERMINED AT ONE TIME SHALL NOT EXCEED THAT LENGTH WHICH MAY BE SAFELY ACHIEVED WITHOUT DETREMENTAL EFFECT TO THE UTILITY, AS DETERMINED BY THE UTILITY COMPANIES.
- PLYWOOD PROTECTION, IF USED FOR TELEPHONE FACILITIES, SHALL BE A MINIMUM OF 1/2" THICK.
- ALL WOOD USED FOR TEMPORARY SUPPORT SHALL BE FIRE RETARDANT TREATED OR COATED WITH FIRE RETARDANT PAINT.
- SPACING FOR ROD OR CABLE HANGERS SHALL BE AS REQUIRED (NOT TO EXCEED 6'-0" MAXIMUM), AND APPROVED BY THE UTILITY OWNERS.
- ALL DUCTS SHALL BE LATERALLY CONSTRAINED. MAXIMUM SPACING FOR LATERAL CONSTRAINTS SHALL NOT EXCEED 12'-0". LATERAL CONSTRAINTS MUST NOT INTERFERE WITH ADJACENT UTILITIES, BOTH EXISTING AND PLANNED.
- STRUCTURAL DESIGN CALCULATIONS AND DRAWINGS SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN MASSACHUSETTS. STRUCTURAL STEEL DESIGN SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS.
- EXCAVATE BY HAND AT HANGER POINTS AND INSTALL HANGERS, TENSION-UP HANGER RODS TO DEFLECT SUPPORT STRUCTURE TO FULL THEORETICAL DEFLECTION, FINISH EXCAVATING ABOVE UTILITY WHILE MONITORING RISE/FALL, ADJUST HANGERS AS NECESSARY TO KEEP UTILITY UNDEFLECTED.



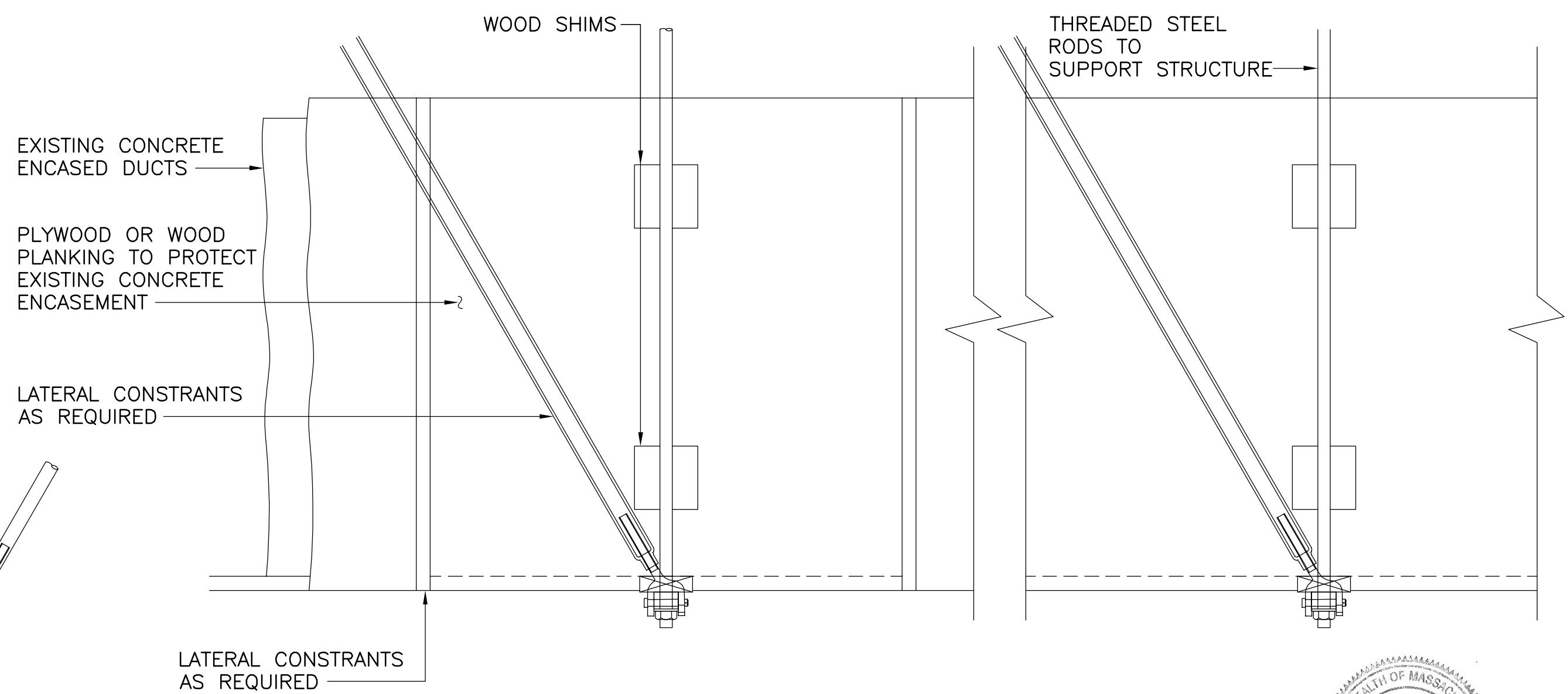
**SUPPORT FOR WATER MAIN**



**SECTION 2**

(ELECTRICAL/TELEPHONE CONCRETE ENCASED DUCTS)

**SUPPORT FOR ELECTRICAL / TELEPHONE DUCTS ENCASED IN CONCRETE**



**ELEVATION**

PROFESSIONAL ENGINEER  
RACHEL J. BURCKARDT  
CIVIL  
No. 31020  
DEC 21, 2017

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UTILITY SUPPORT DETAILS**  
**SHEET 1 OF 2**

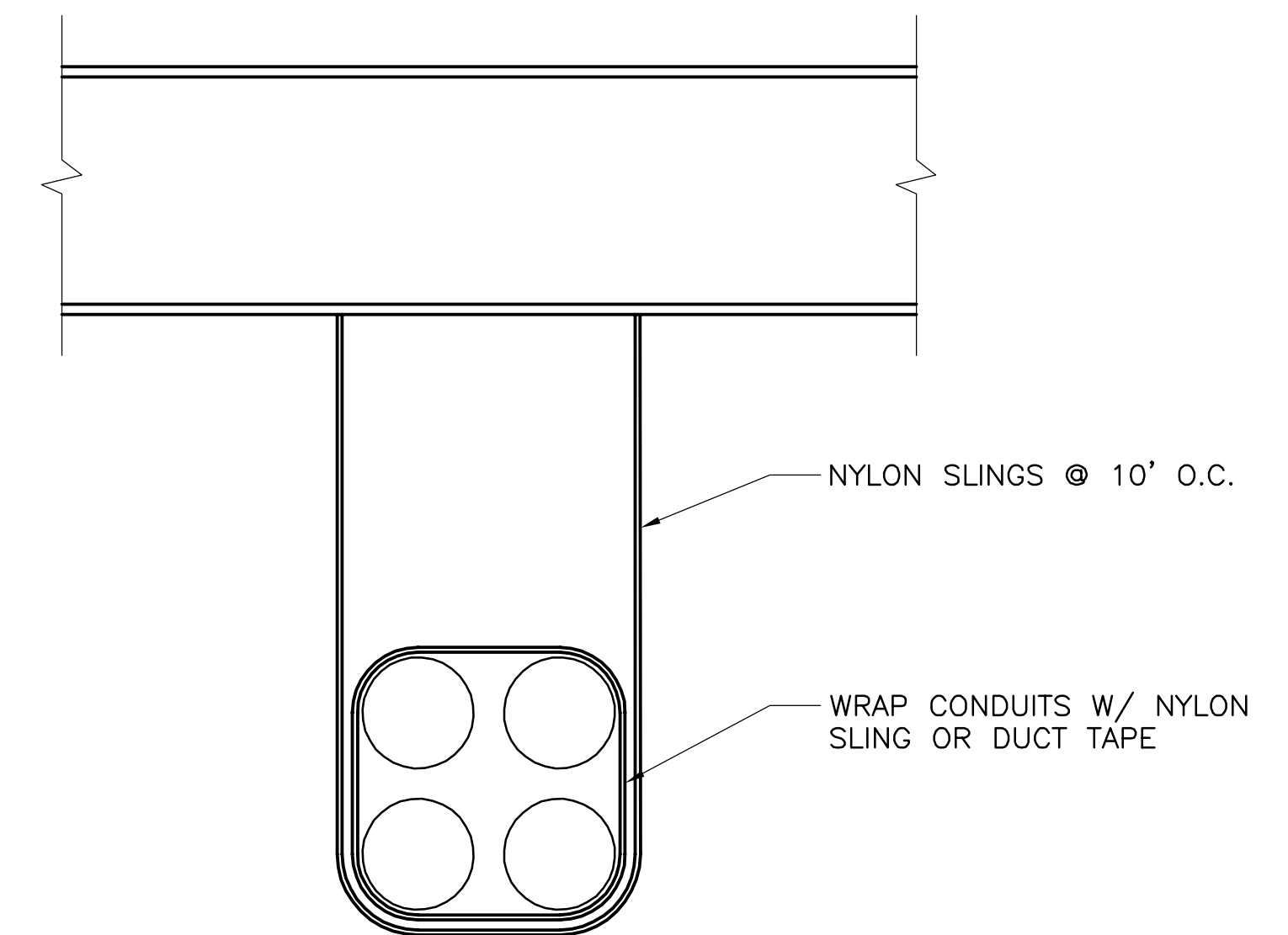
DESIGNED: RJB CHECKED: LAC	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET
DRAWN: JLM CHECKED: RJB		U-51
REF.	CONT.	SCALE: N.T.S.
ACC.		DATE: DEC 2017

**CITY OF SOMERVILLE**  
**93 HIGHLAND AVENUE**  
**SOMERVILLE, MA 02143**

NO.	DATE	REVISIONS	BY



2017-11-14 10:13 AM T:\52647LS Union Square Study and Design\SHI DWG\CP-2\_CP-3 Sewer Separation\Civil\U-51\_U-55 Utility Details.dwg



**SUPPORT FOR COMM. CONDUITS  
NOT ENCASED IN CONCRETE**  
N.T.S.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UTILITY SUPPORT DETAILS**  
**SHEET 2 OF 2**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB

**WSP | PARSONS BRINCKERHOFF** Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

SHEET  
**U-52**

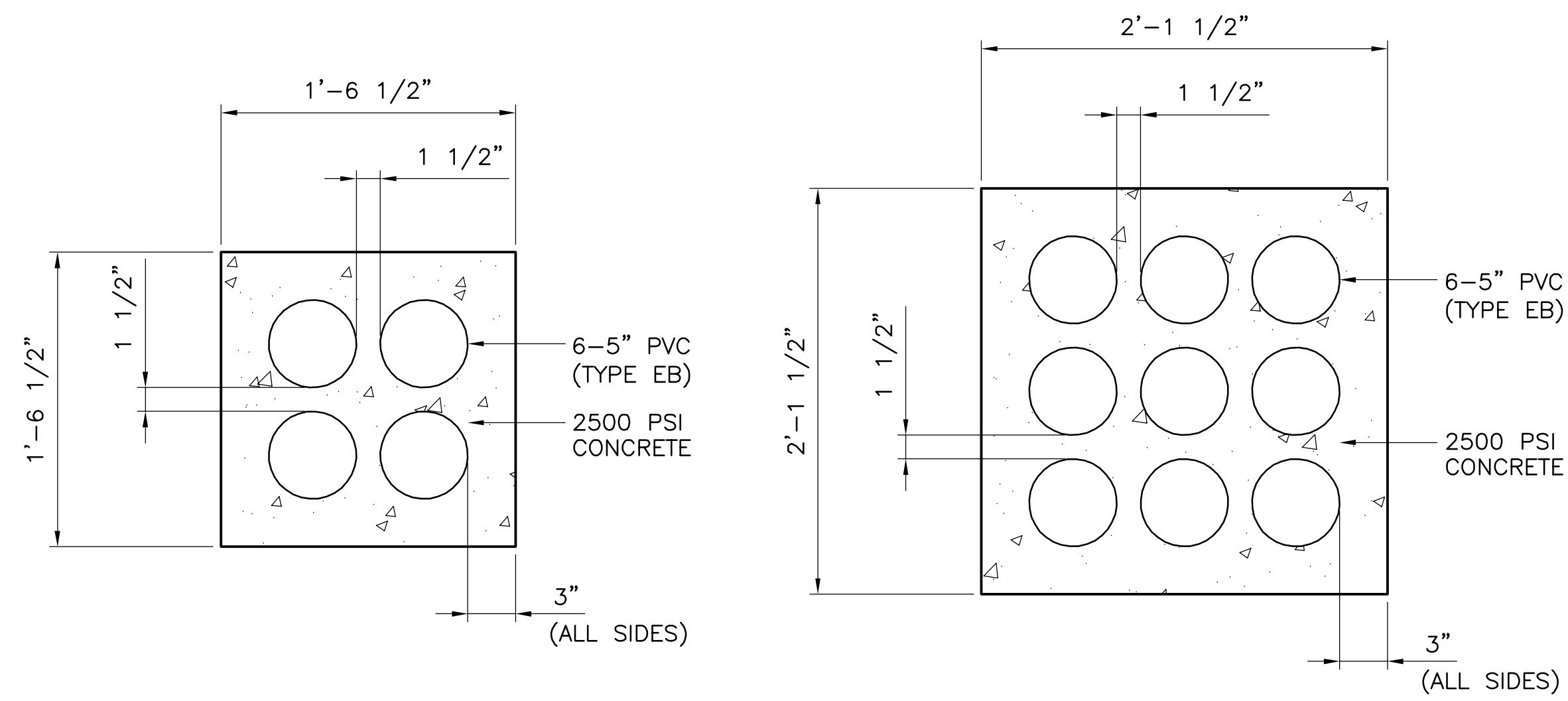
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SCALE: N.T.S.  
DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

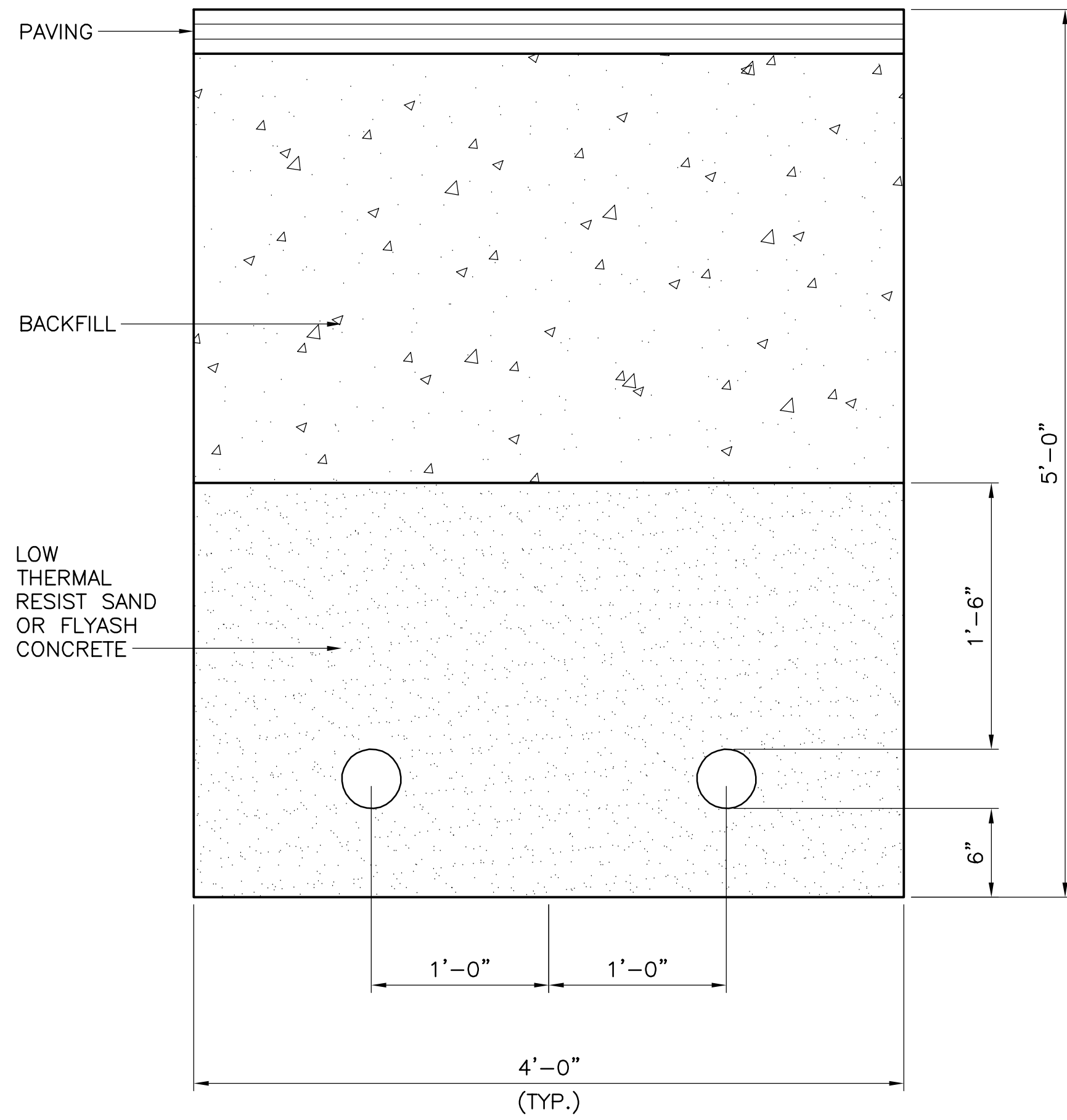
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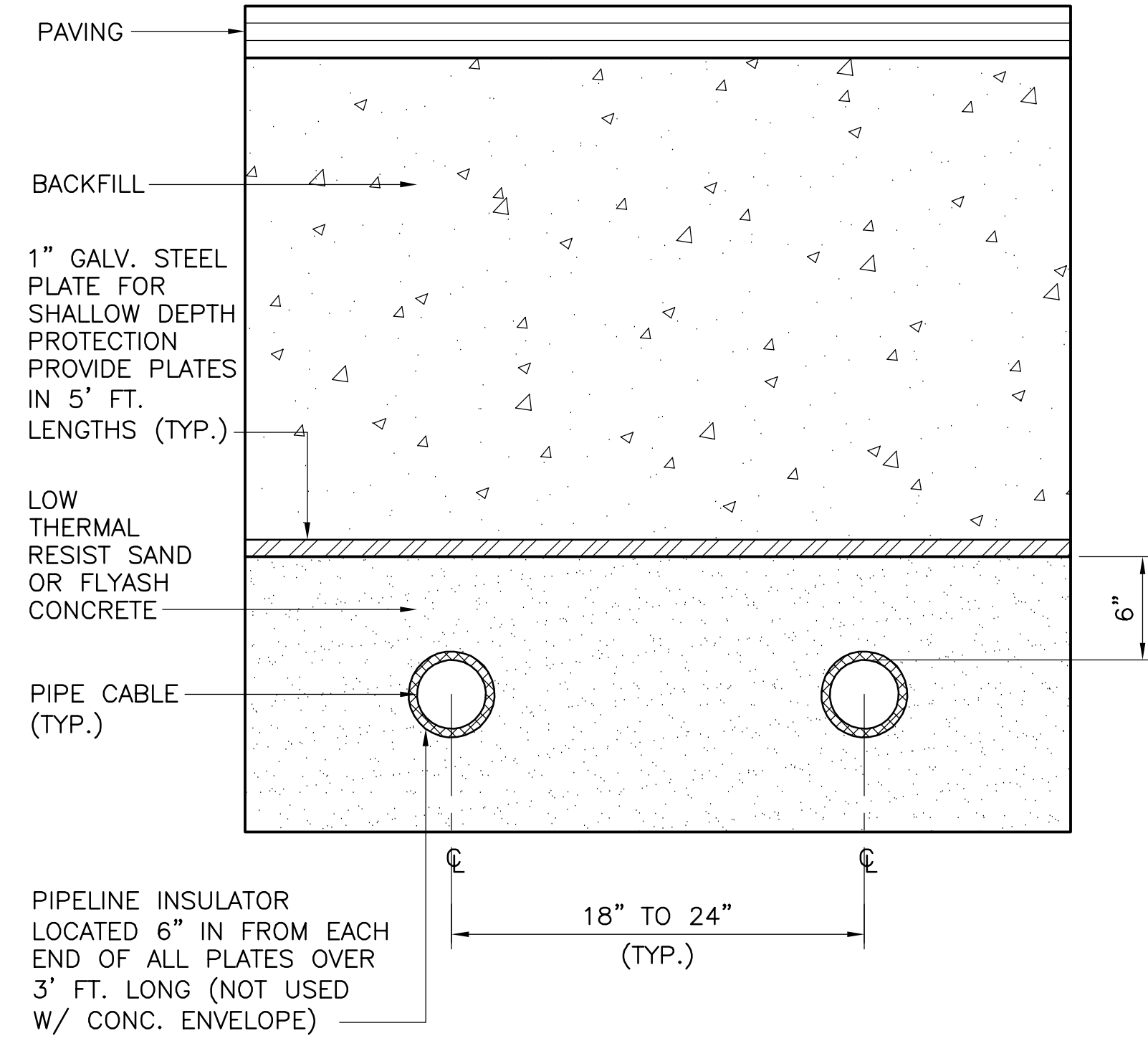
**4 BANK**

**9 BANK**

**EVERSOURCE SERVICE FEED**  
N.T.S.



**STANDARD TRENCH**

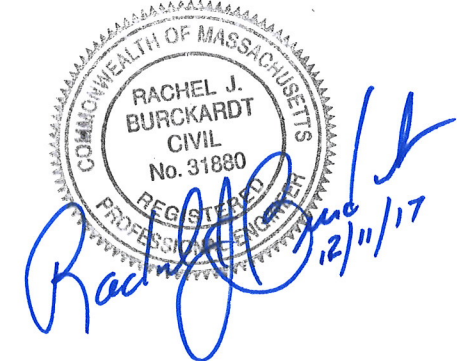


**SHALLOW DEPTH PROJECTION**

**EVERSOURCE 115 kv DETAILS**  
N.T.S.

**NOTES:**

1. THIS DETAIL SHOWS TYPICAL TRENCH BACKFILL FOR OPEN TRENCH CROSSING OF EXIST. 115 kv LINE IN PROSPECT ST.
2. SUPPORT OF EXISTING LINES: SUPPORT EXISTING LINES W/NYLON SLINGS AS APPROVED BY EVERSOURCE (SEE SPEC. SECTION 02500 FOR ADDITIONAL REQUIREMENTS)
3. BACKFILL AT EXISTING LINES: WHENEVER PIPE-TYPE CABLE IS UNCOVERED DURING THE INSTALLATION OF OTHER UTILITIES IT SHALL BE BACKFILLED WITH SAND IN ACCORDANCE WITH EVERSOURCE STANDARDS & SPECIFICATIONS.



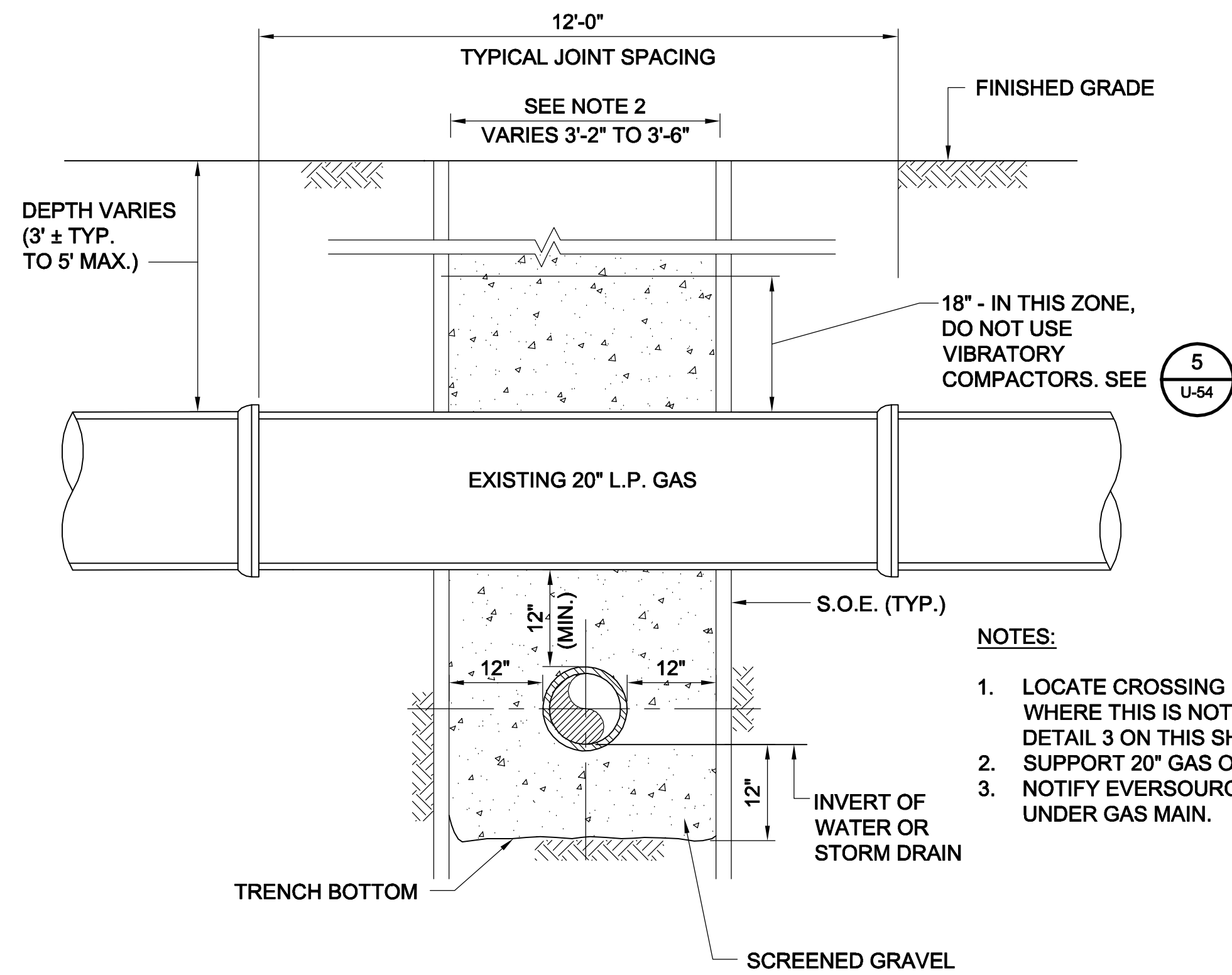
ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

NO.	DATE	REVISIONS	BY

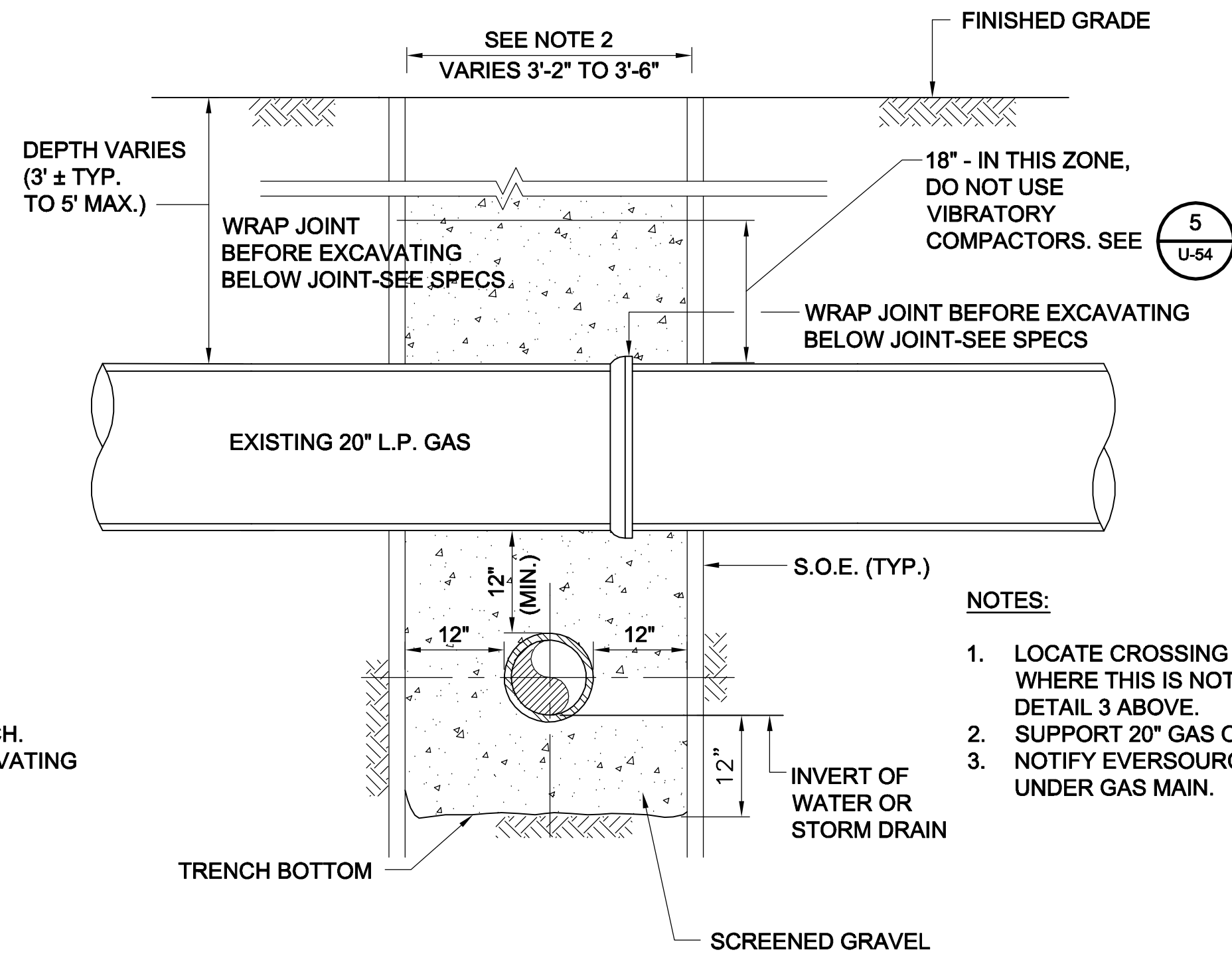
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**EVERSOURCE ELECTRIC DETAILS**

DESIGNED: RJB CHECKED: LAC DRAWN: JLM CHECKED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	<b>SHEET</b> <h1 align="center">U-53</h1>
REF. ACC.	CONT.	SCALE: N.T.S. DATE: DEC 2017
<b>CITY OF SOMERVILLE</b> <b>93 HIGHLAND AVENUE</b> <b>SOMERVILLE, MA 02143</b>		

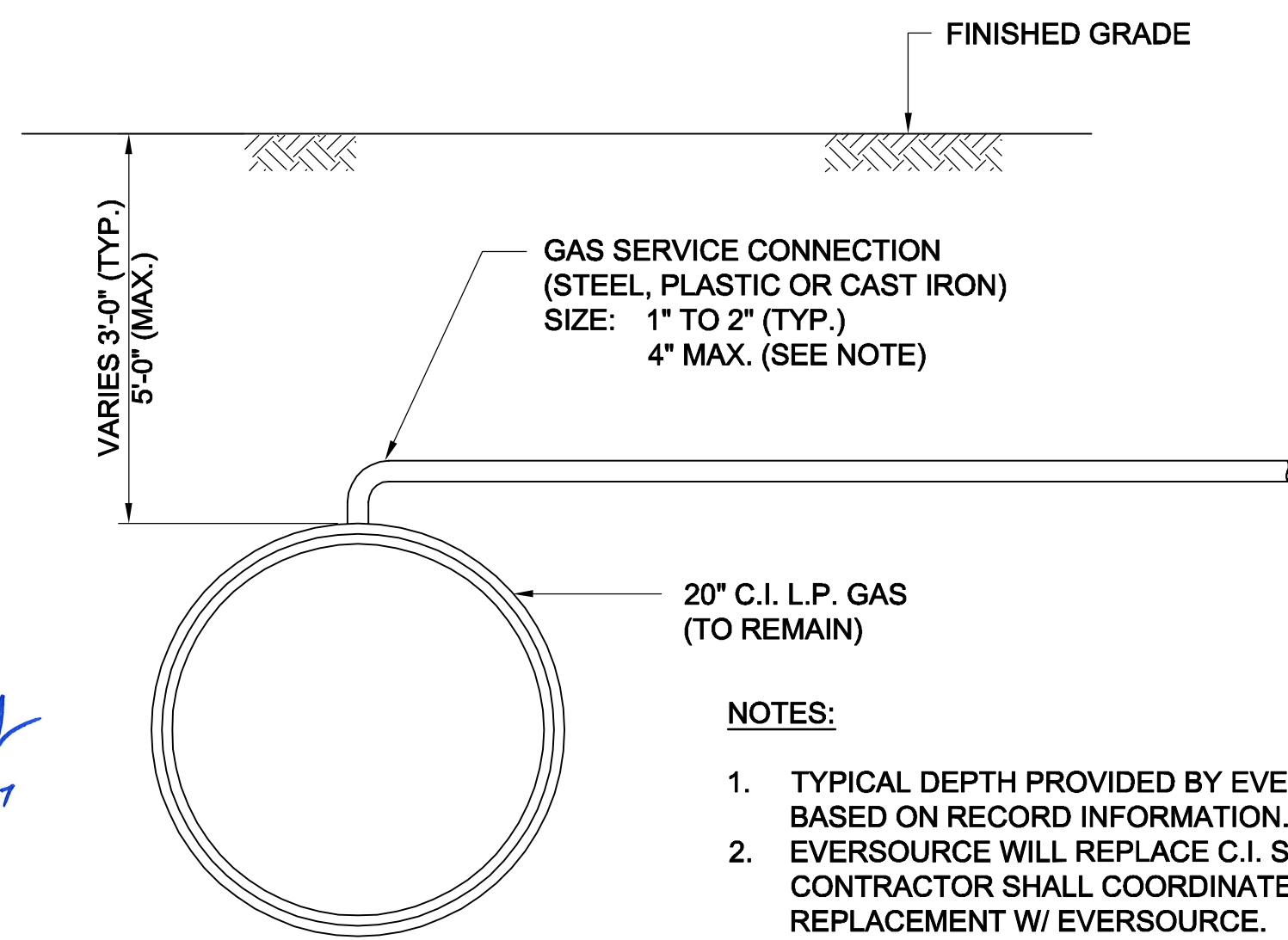
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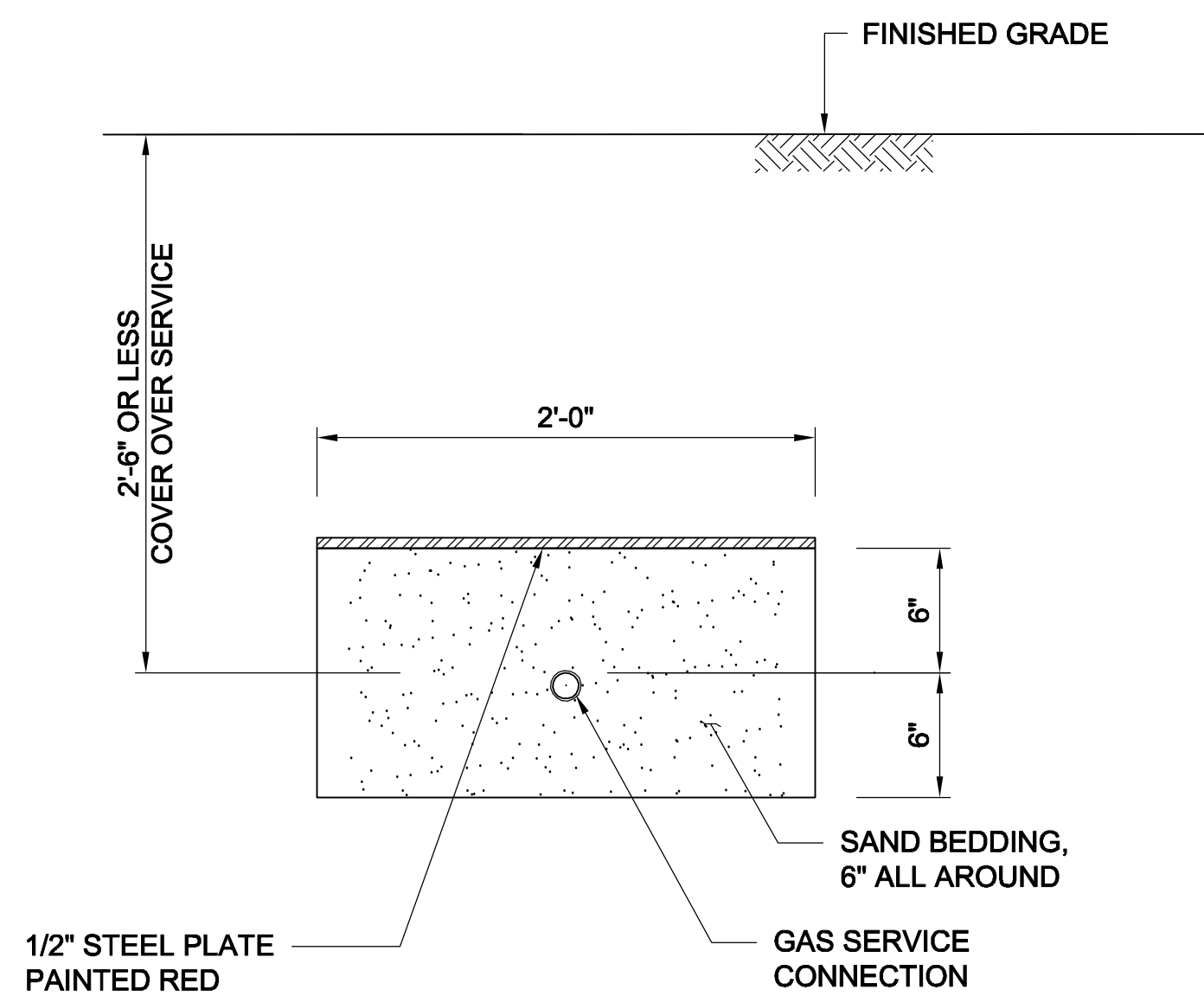
**1** TYPICAL UTILITY CROSSING BENEATH GAS MAIN  
N.T.S.



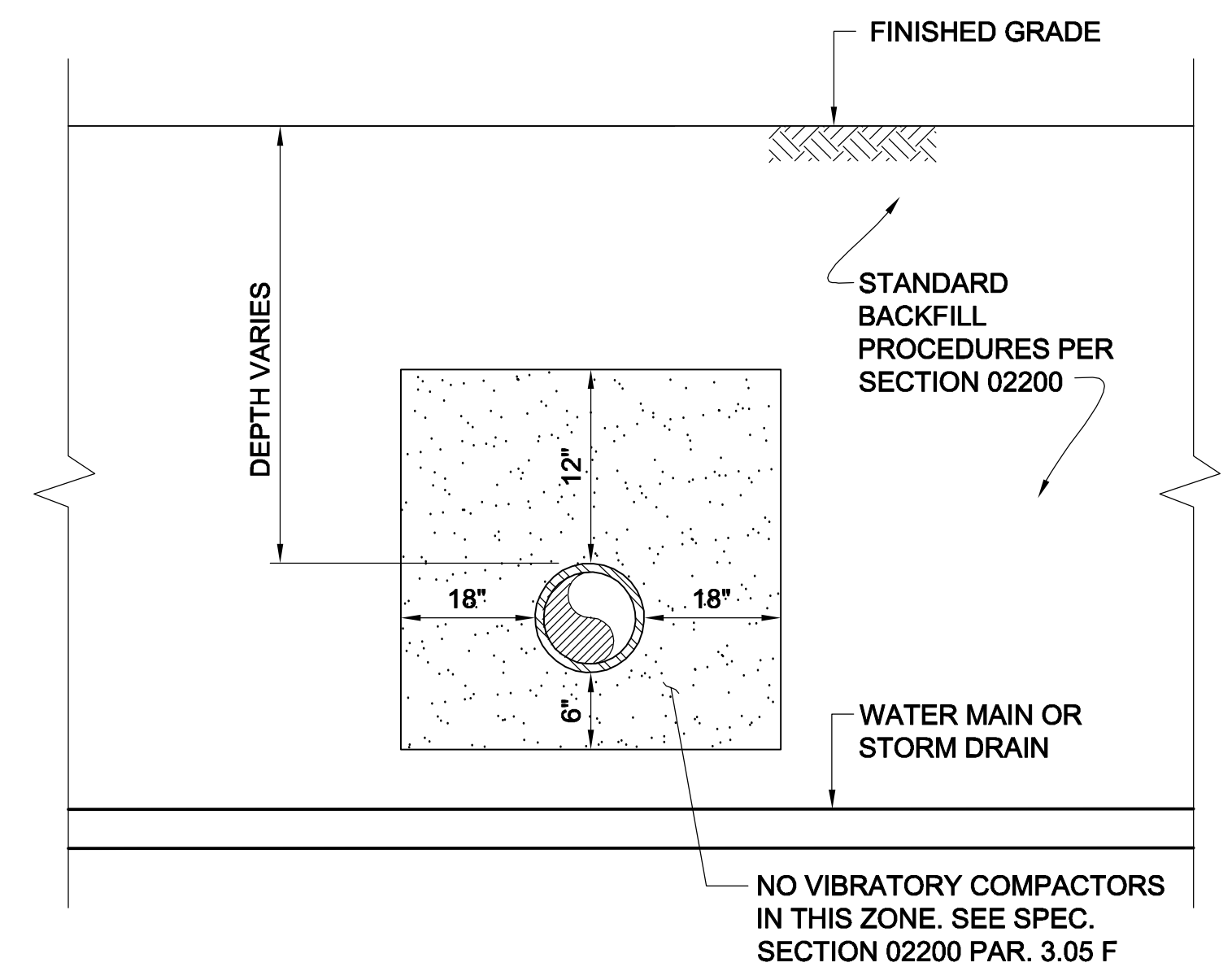
**2** TYPICAL UTILITY CROSSING BENEATH GAS MAIN WHEN CROSSING CANNOT BE LOCATED BETWEEN JOINTS  
N.T.S.



**3** TYPICAL SECTION - SOMERVILLE AVE.  
EVERSOURCE 20" L.P. GAS W/ SERVICE CONNECTION  
N.T.S.



**4** SHALLOW DEPTH PROTECTION  
N.T.S.



**5** BACKFILL OVER GAS MAIN  
N.T.S.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**EVERSOURCE GAS DETAILS**  
**SHEET 1 OF 2**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

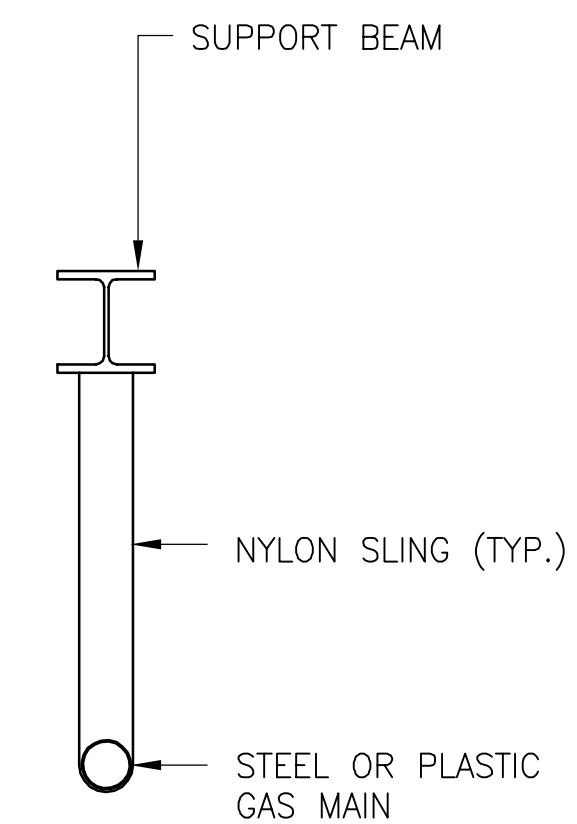
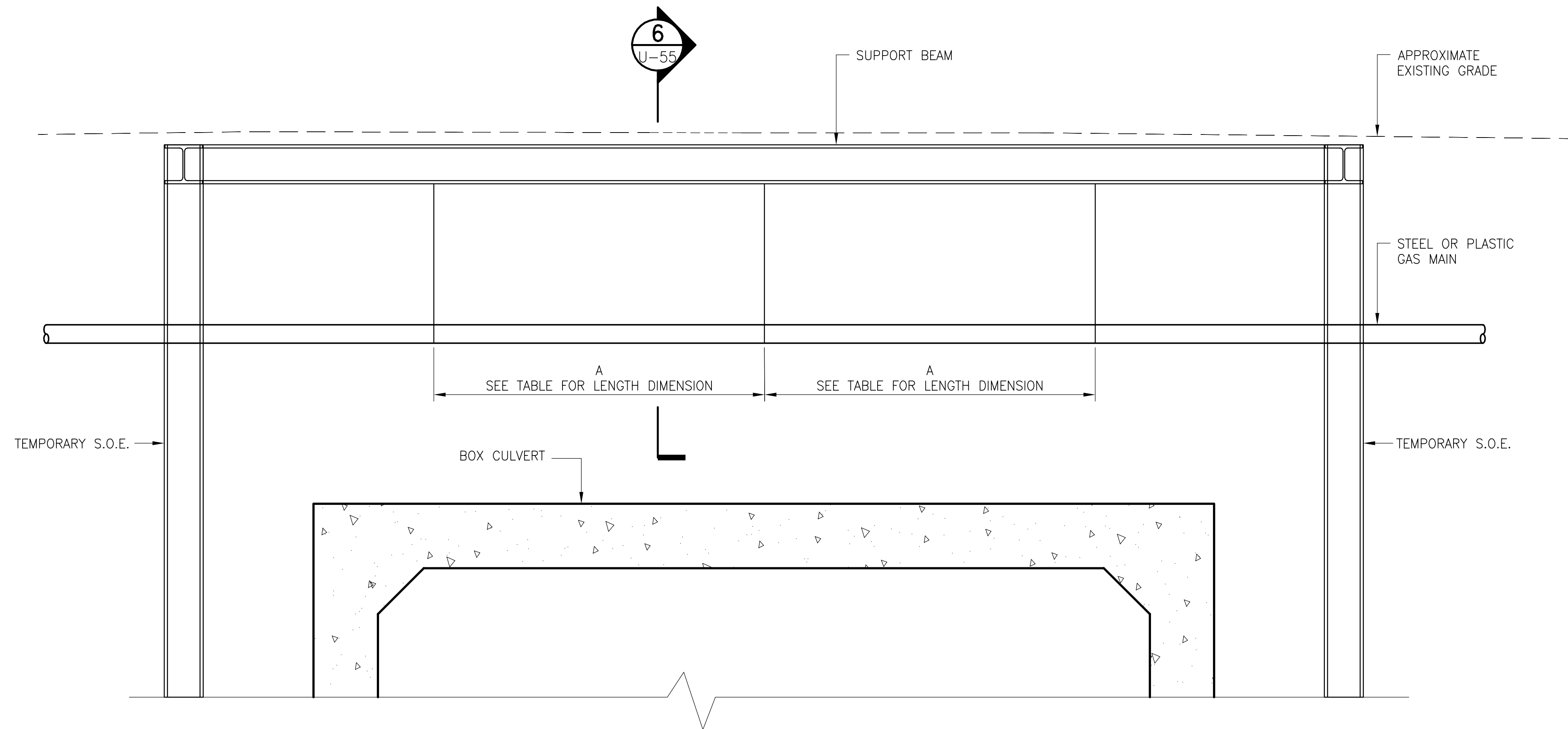
SCALE: N.T.S.  
DATE: DEC 2017

SHEET  
**U-54**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

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**SECTION 6**  
NOT TO SCALE

**5 SUPPORTING GAS PIPE OVER TRENCH EXCAVATION FOR BOX CULVERT**

MATERIAL	PIPE	A
PLASTIC	UP TO 2" DIA.	3'-0" MAX.
	4" DIA. AND LARGER	6'-0" MAX.
STEEL	UP TO 1 1/2" DIA.	7'-0" MAX.
	2" DIA.	10'-0" MAX.
	3" TO 4" DIA.	15'-0" MAX.
	6" DIA. AND LARGER	20'-0" MAX.

*Rachel J. Burckhardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**EVERSOURCE GAS DETAILS**  
**SHEET 2 OF 2**

DESIGNED: RJB  
CHECKED: LAC  
  
DRAWN: JLM  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

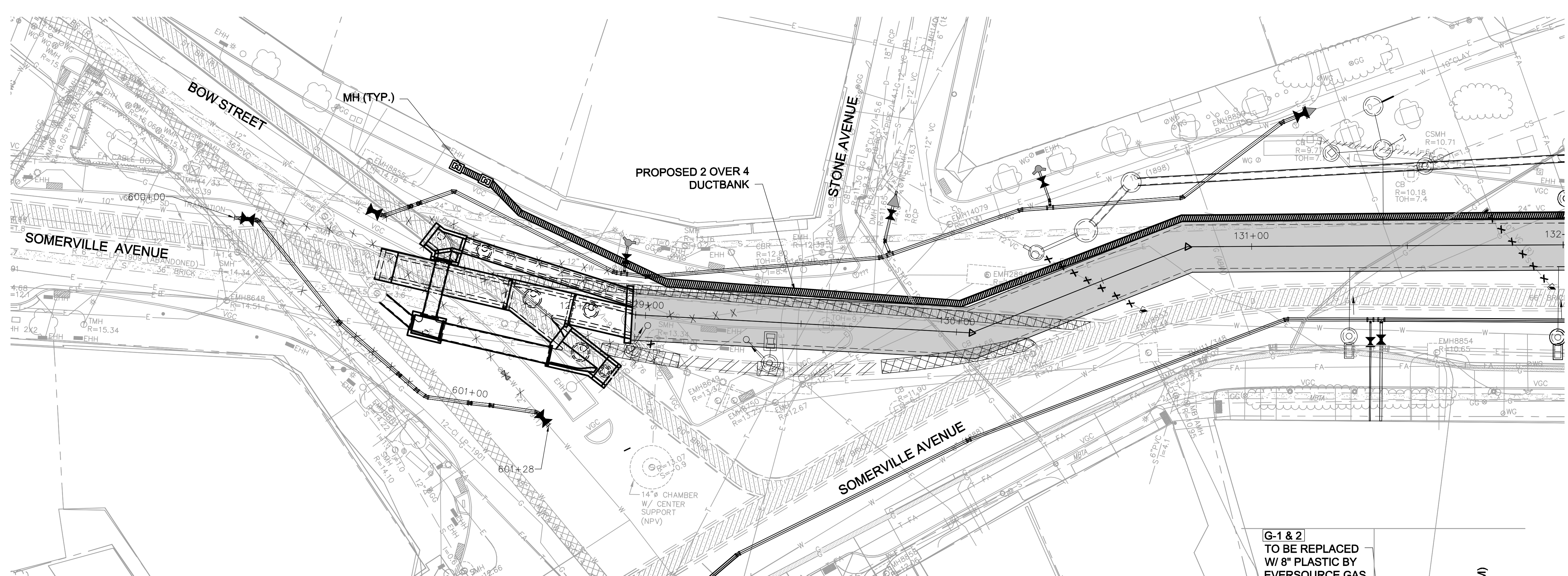
**SHEET**  
**U-55**

REF.	CONT.	SCALE: N.T.S.
ACC.		DATE: DEC 2017

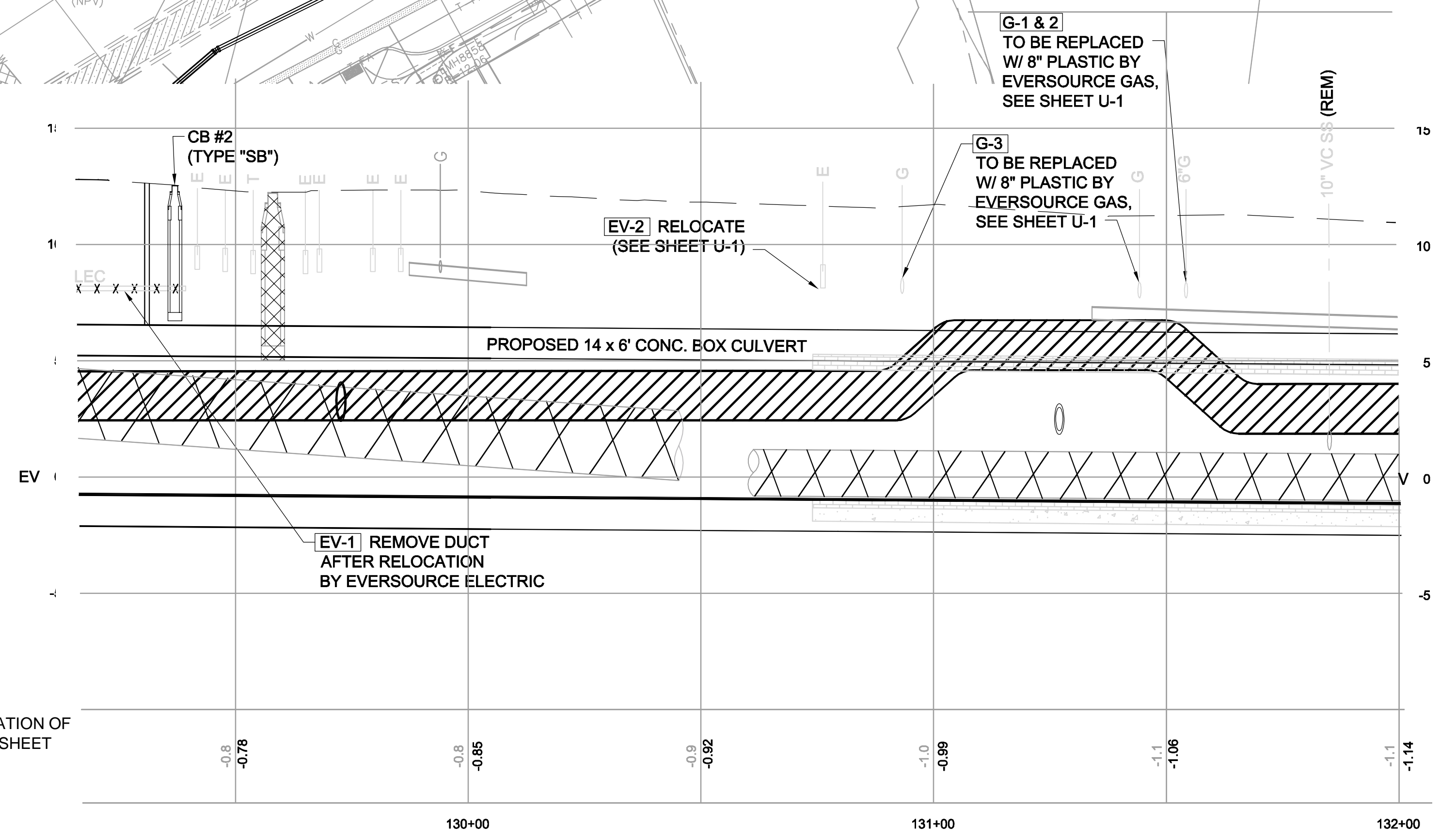
**CITY OF SOMERVILLE**  
**93 HIGHLAND AVENUE**  
**SOMERVILLE, MA 02143**

NO.	DATE	REVISIONS	BY

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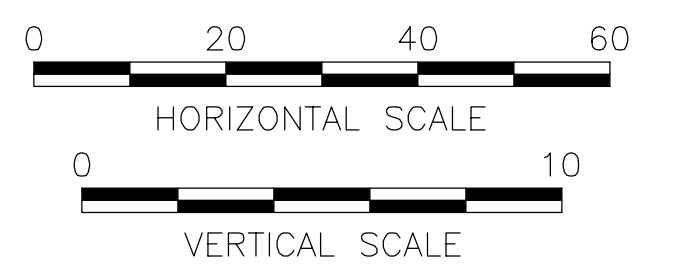


MATCH LINE - SEE SHEET U-72



- LEGEND**
- MANHOLE
  - HANDHOLE
  - 2 OVER 4 DUCT BANK

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1
  6. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  7. FOR TMP PLANS, SEE SHEETS TM-111 THRU TM-132.
  8. FOR UTILITY PLAN, SEE SHEET U-1
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-61.
  10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  11. SEE DWG U-77 FOR TELECOMM DUCTBANK TO MANHOLE DETAILS.



FOR CONTINUATION OF PROFILE, SEE SHEET SD-1

Professional Engineer Seal for Rachel J. Burckhardt, No. 31880, State of Massachusetts, dated 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED COMMUNICATIONS DUCTBANK**  
**SHEET 1 OF 6**

DESIGNED: AJF  
 CHECKED: RJB  
 DRAWN: EP  
 CHECKED: RJB

**WSP PARSONS BRINCKERHOFF**  
 Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

REF. CONT. SCALE: 1"=20'  
 ACC. DATE: DEC 2017

SHEET  
**U-71**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

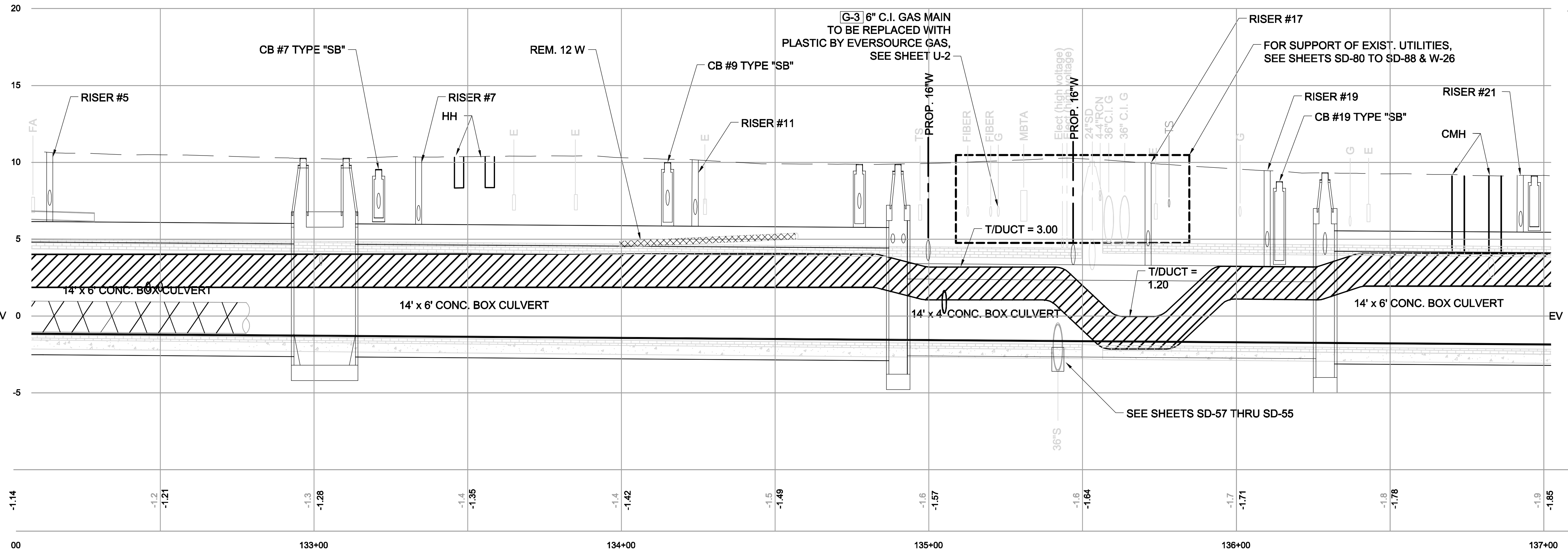
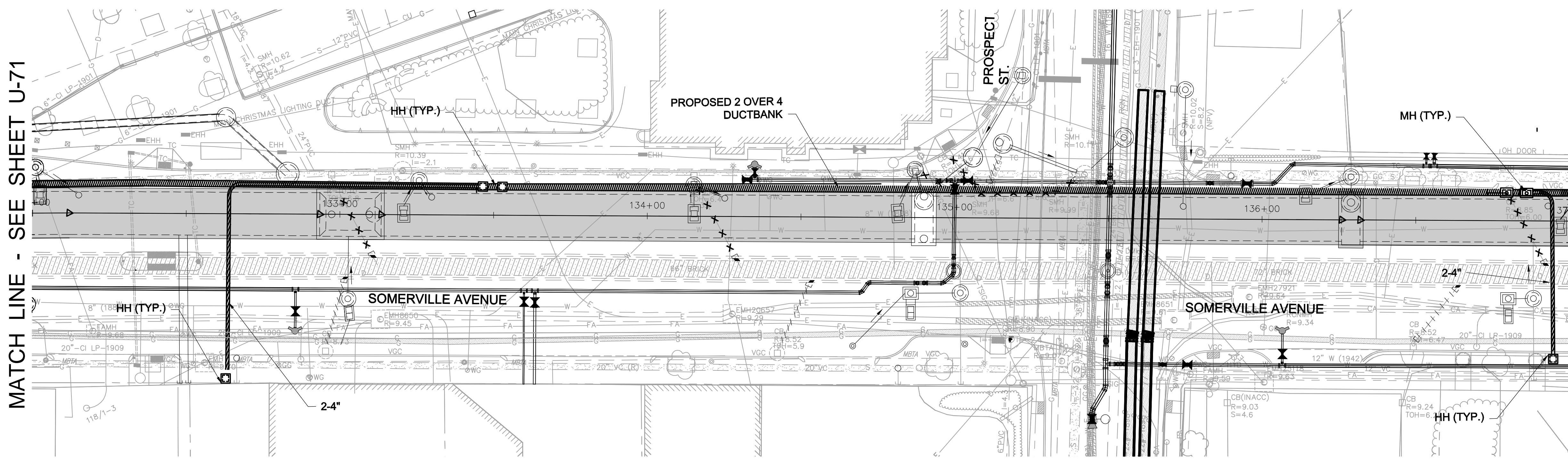
NO.	DATE	REVISIONS	BY

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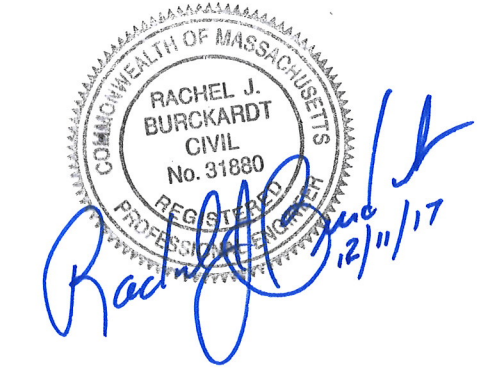
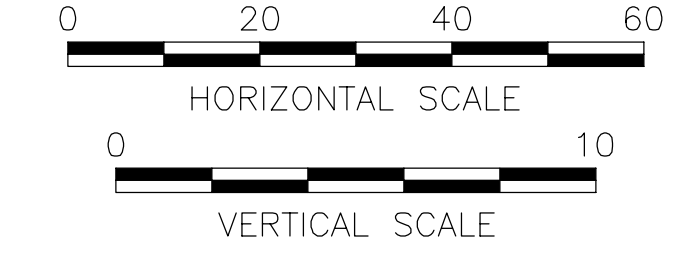
MATCH LINE - SEE SHEET U-71

MATCH LINE - SEE SHEET U-73



- LEGEND**
- MANHOLE
  - HANDHOLE
  - 2 OVER 4 DUCT BANK

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  6. FOR UTILITY PLAN, SEE SHEET U-2
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-141 THRU TM-165.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-62.
  10. SUPPORT UTILITIES IN PLACE, U.N.O.
  11. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-2.
  12. SEE DWG U-77 FOR TELECOMM DUCTBANK TO MANHOLE DETAILS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED COMMUNICATIONS DUCTBANK**  
**SHEET 2 OF 6**

DESIGNED: AJF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: RJB		REF.	CONT.
DRAWN: EP		SCALE: 1"=20'	
CHECKED: RJB		DATE: DEC 2017	

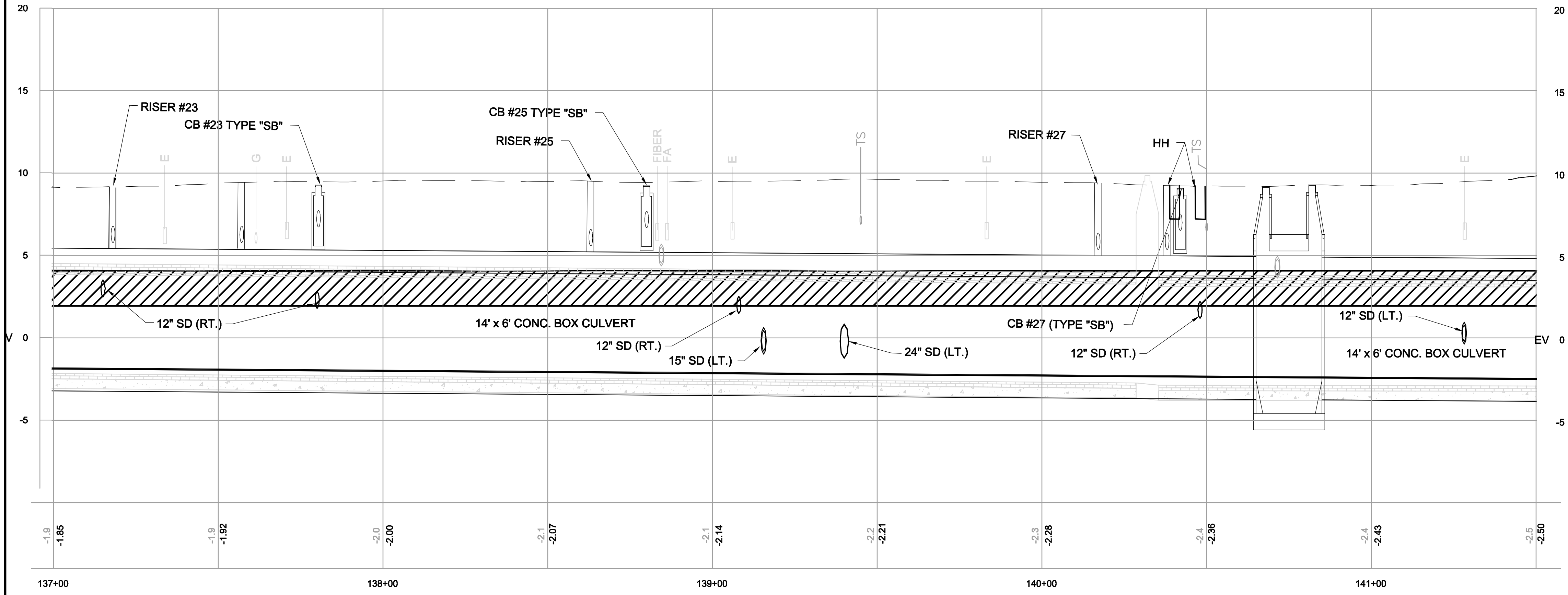
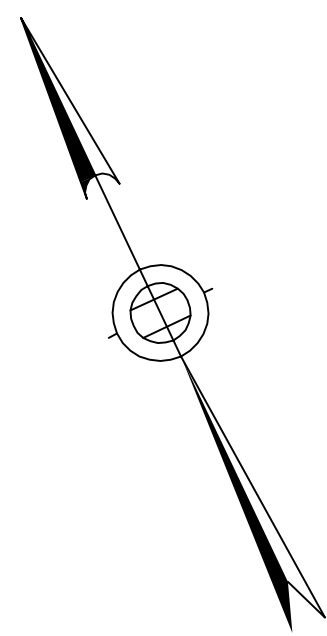
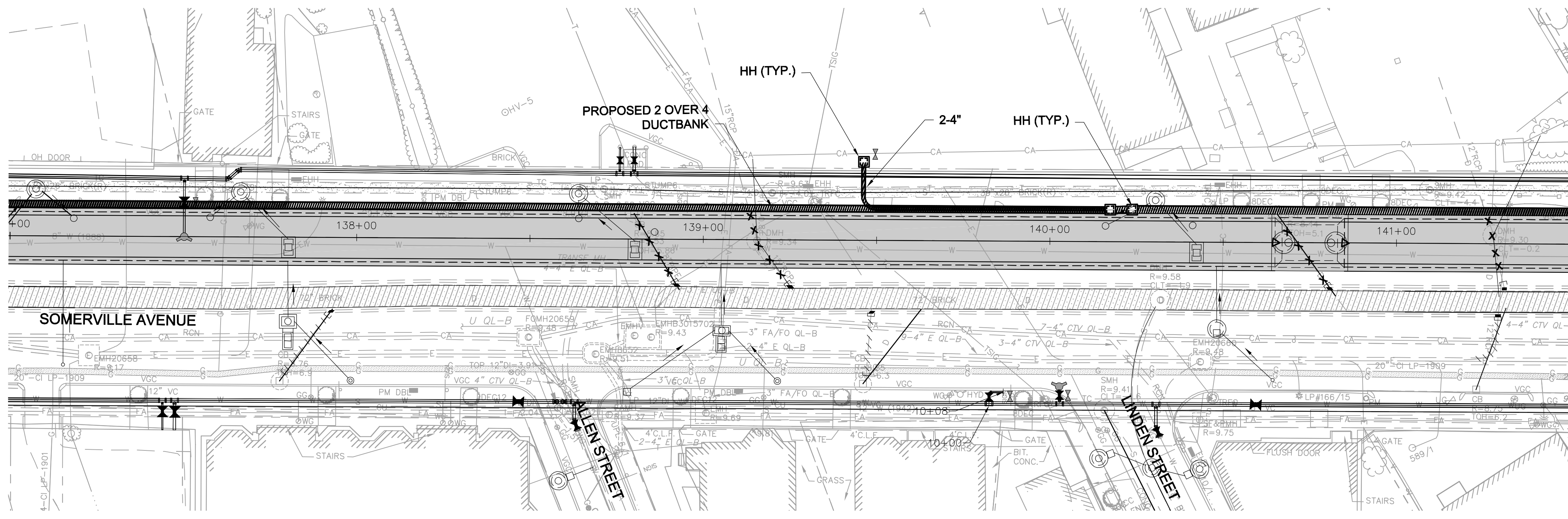
SHEET  
**U-72**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143




NO.	DATE	REVISIONS	BY

MATCH LINE - SEE SHEET U-72

MATCH LINE - SEE SHEET U-74

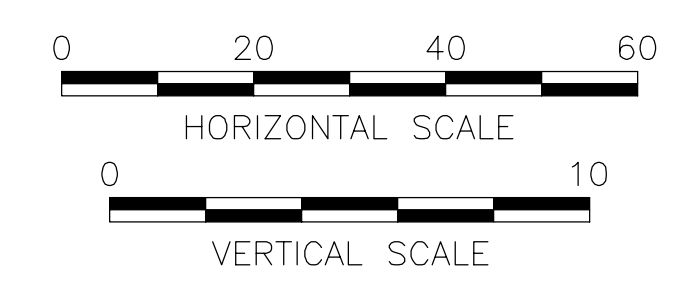


LEGEND

-  MANHOLE
-  HANDHOLE
-  2 OVER 4 DUCT BANK

NOTES:

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-13.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-23.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-3.
6. FOR UTILITY PLAN, SEE SHEET U-3.
7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
8. FOR TMP PLANS, SEE SHEETS TM-161 THRU TM-215.
9. FOR SURFACE DRAINAGE, SEE SHEET SD-63.
10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
11. SEE DWG U-77 FOR TELECOMM DUCTBANK TO MANHOLE DETAILS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED COMMUNICATIONS DUCTBANK**  
**SHEET 3 OF 6**

DESIGNED: AJF  
 CHECKED: RJB  
 DRAWN: EP  
 CHECKED: RJB

**WSP PARSONS BRINCKERHOFF**  
 Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

REF. CONT. SCALE: 1"=20'  
 ACC. DATE: DEC 2017

SHEET  
**U-73**

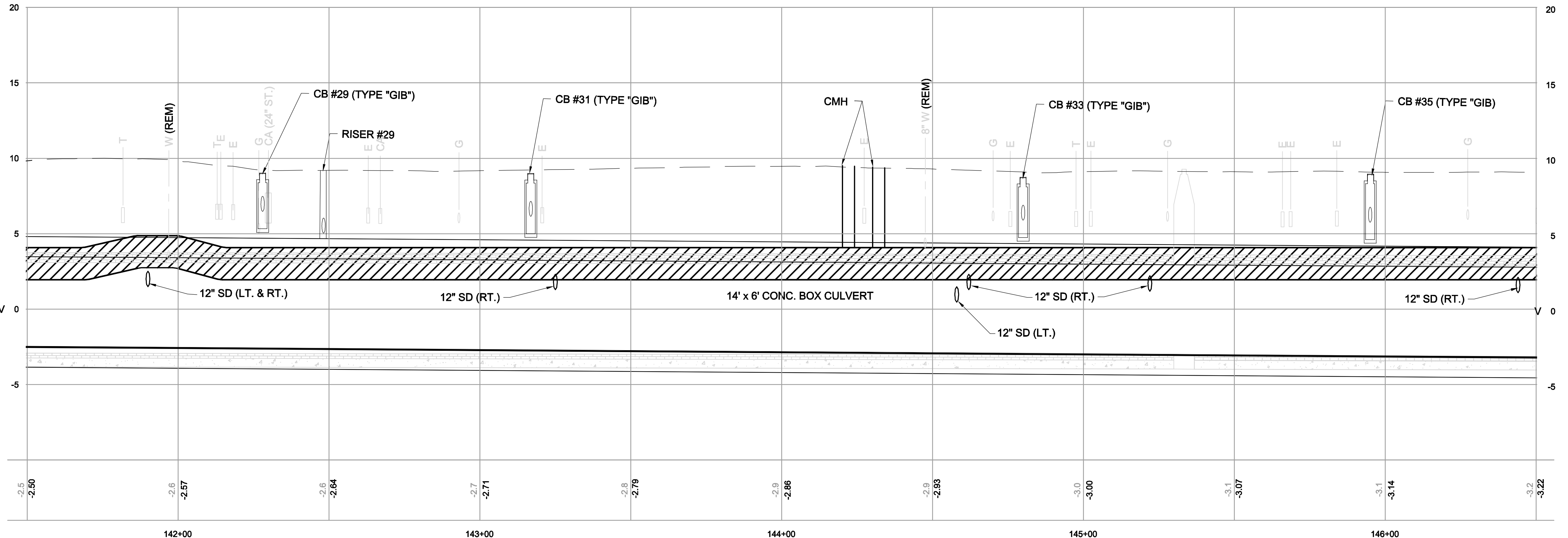
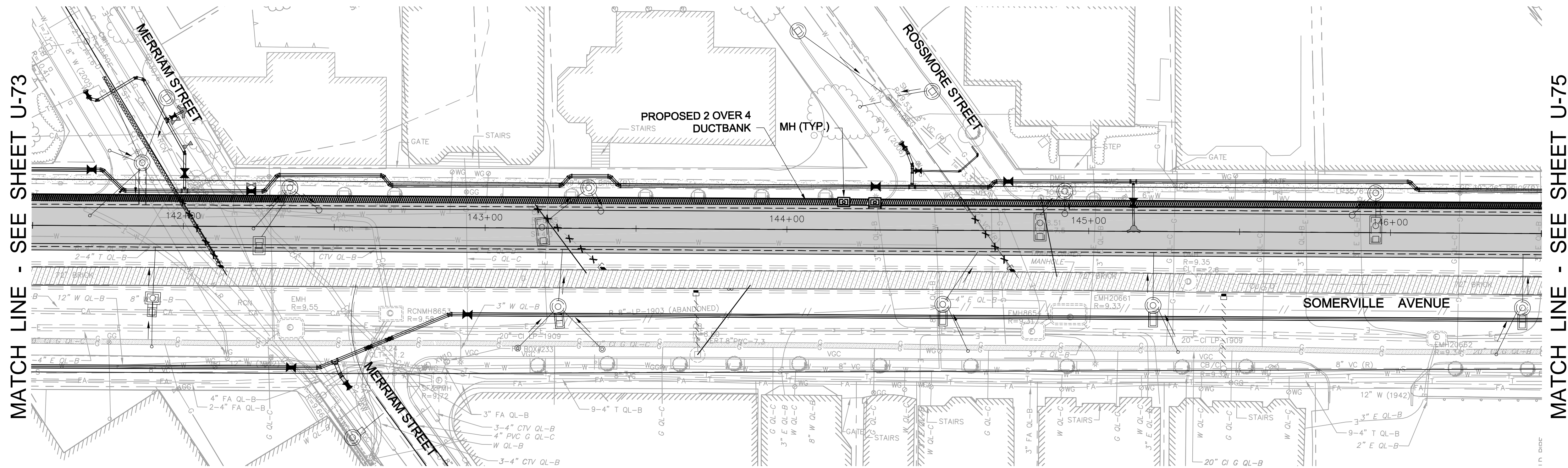
CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

2017-11-20 7:27 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\U-71\_U-76 Comm\_Duct.dwg

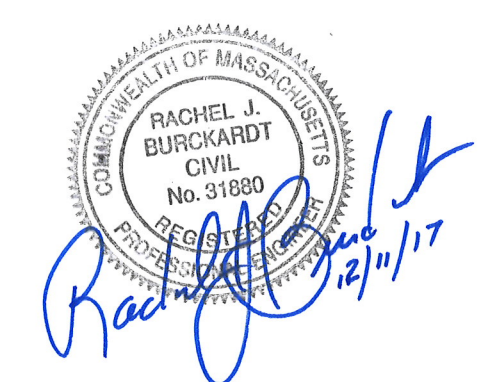
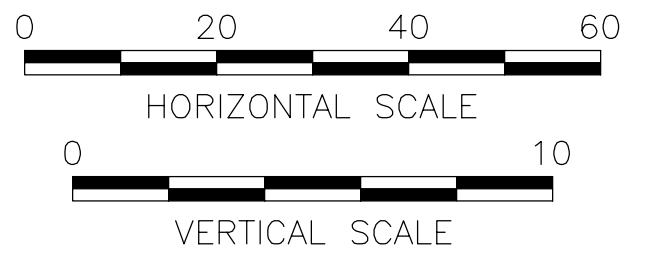
NO.	DATE	REVISIONS	BY

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2017-11-20 7:27 AM



- LEGEND**
- MANHOLE
  - HANDHOLE
  - 2 OVER 4 DUCT BANK
- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-14.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-24.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-4
  6. FOR UTILITY PLAN, SEE SHEET U-4.
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, UTILITY DETAILS, SEE SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-221 THRU TM-265.
  9. FOR SURFACE DRAINAGE, SEE SHEETS SD-64.
  10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  11. SEE DWG U-77 FOR TELECOMM DUCTBANK TO MANHOLE DETAILS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED COMMUNICATIONS DUCTBANK**  
**SHEET 4 OF 6**

DESIGNED: AJF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: RJB		REF.	CONT.
DRAWN: EP		SCALE: 1"=20'	
CHECKED: RJB		DATE: DEC 2017	

SHEET  
**U-74**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

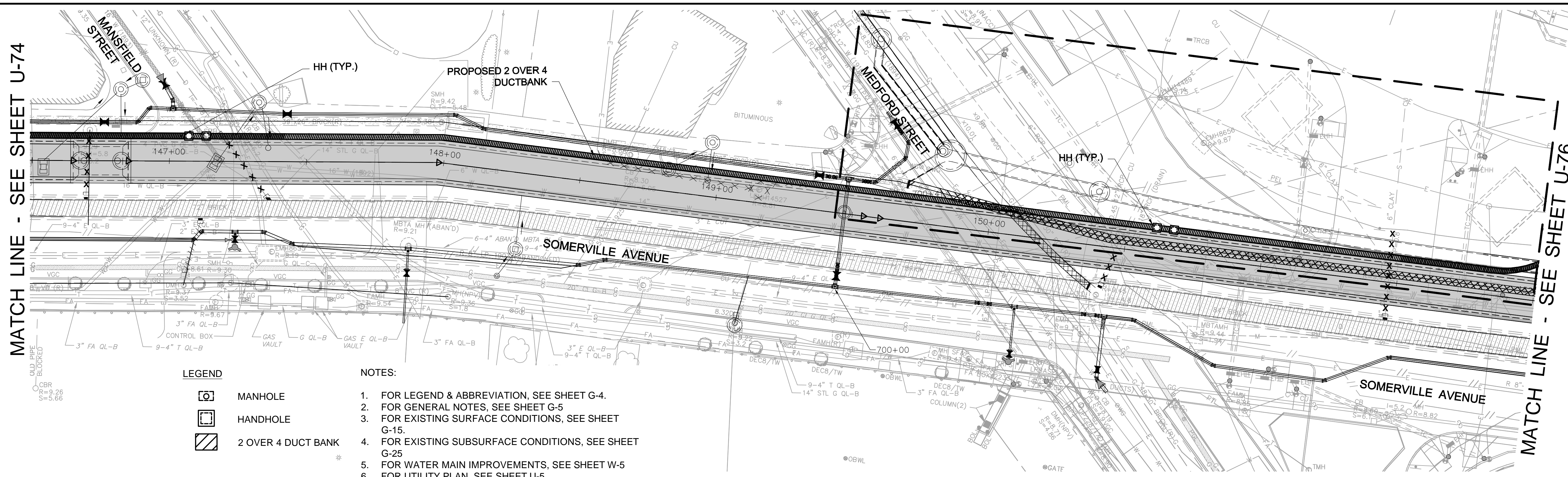
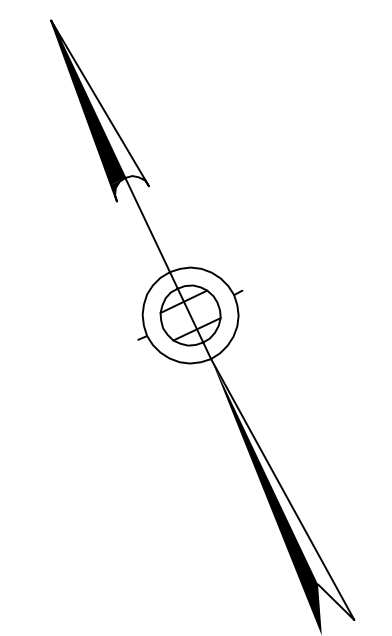
NO.	DATE	REVISIONS	BY



2017-11-20 7:27 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\U-71\_U-76 Comm\_Duct.dwg

MATCH LINE - SEE SHEET U-74

MATCH LINE - SEE SHEET U-76

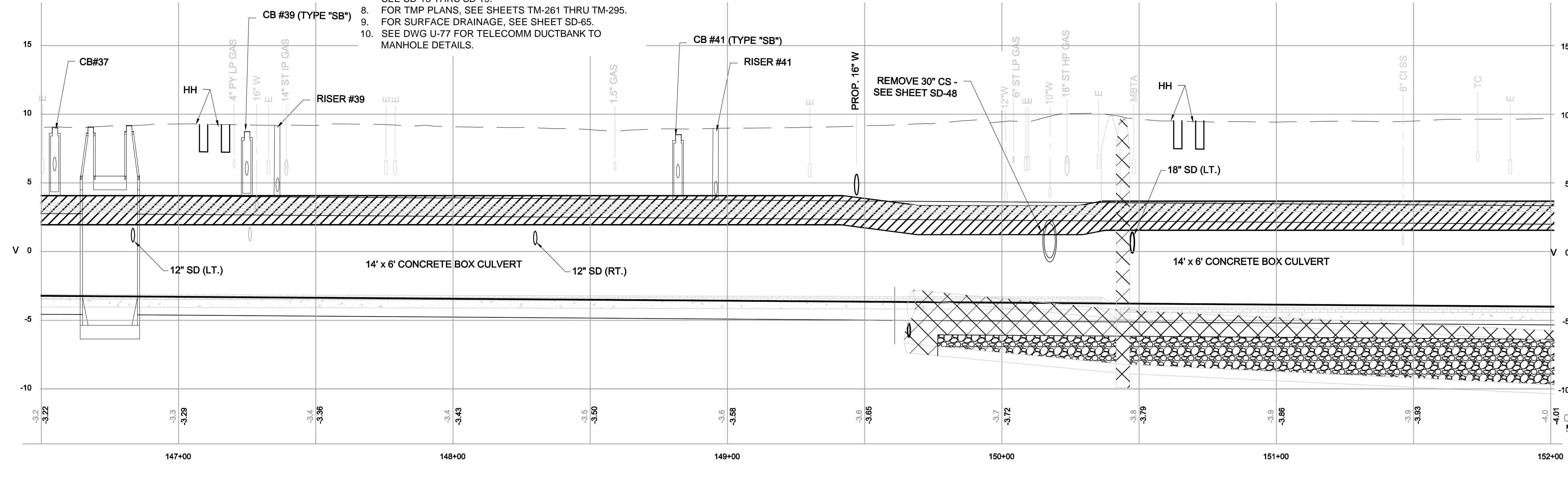


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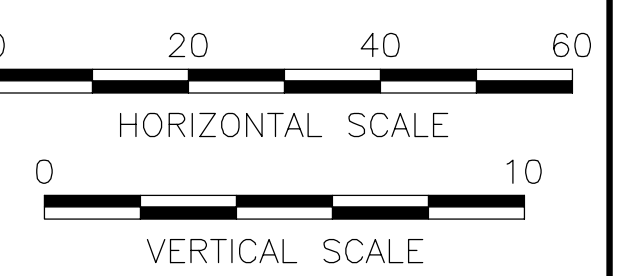
- MANHOLE
- HANDHOLE
- 2 OVER 4 DUCT BANK

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-15.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-25
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-5
6. FOR UTILITY PLAN, SEE SHEET U-5.
7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
8. FOR TMP PLANS, SEE SHEETS TM-261 THRU TM-295.
9. FOR SURFACE DRAINAGE, SEE SHEET SD-65.
10. SEE DWG U-77 FOR TELECOMM DUCTBANK TO MANHOLE DETAILS.



Rachel J. Burckardt



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

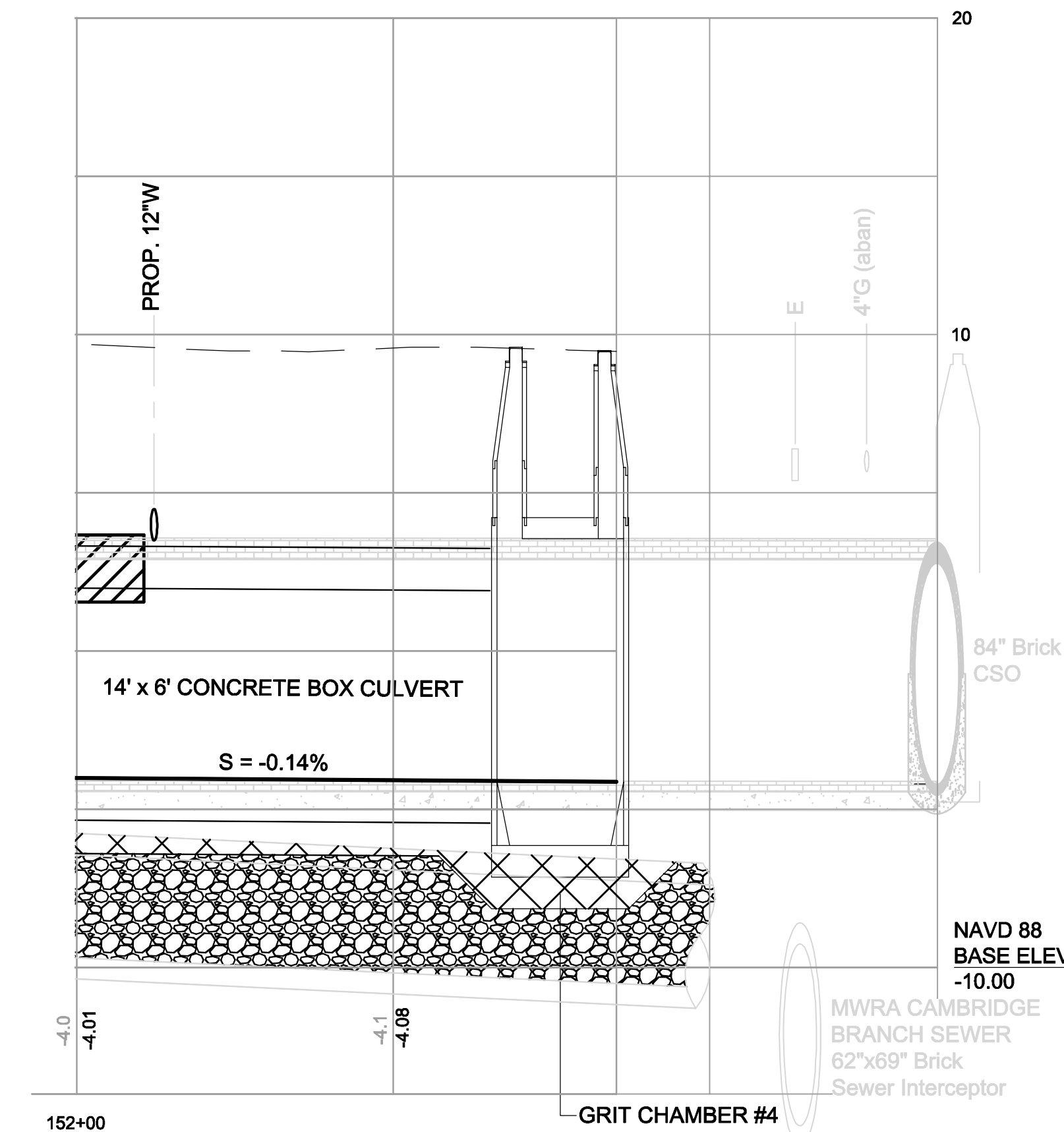
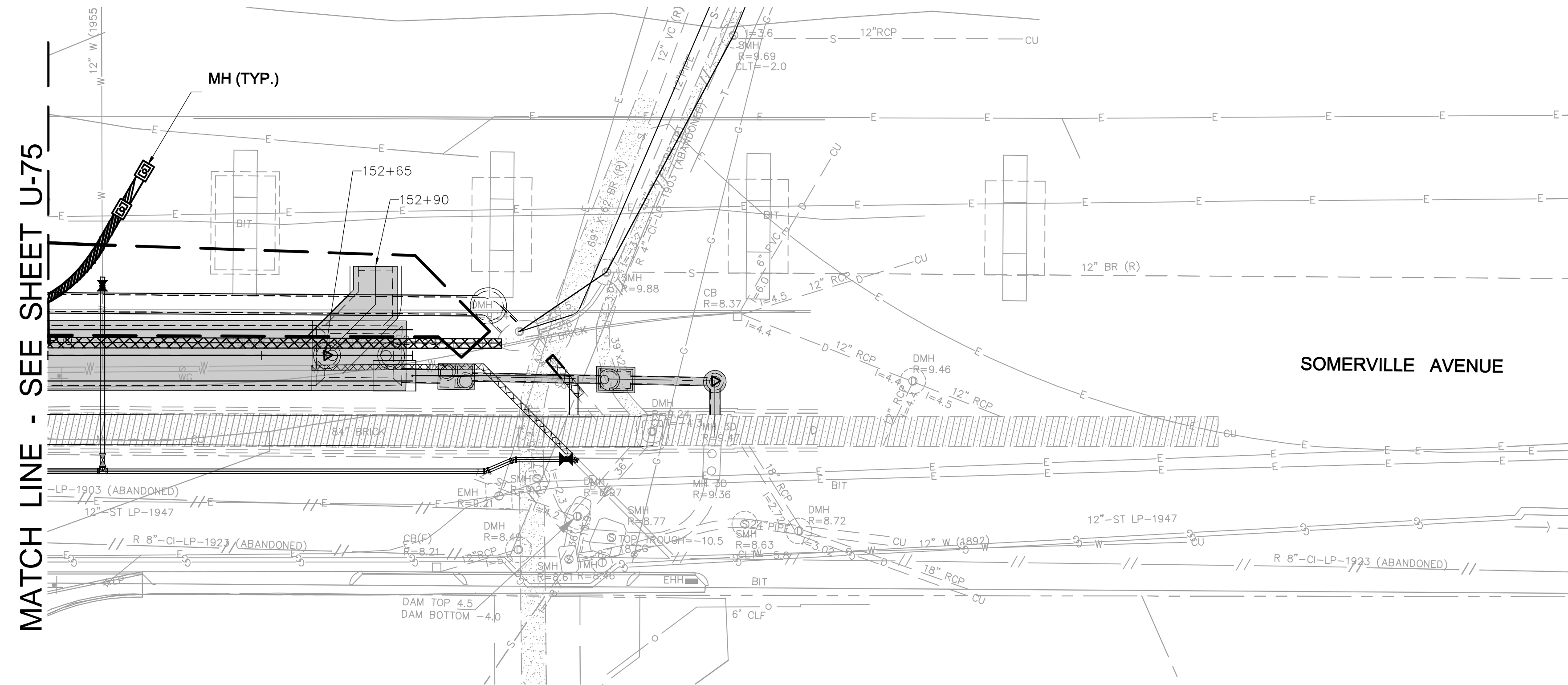
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED COMMUNICATIONS DUCTBANK**  
**SHEET 5 OF 6**

DESIGNED: AJF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: RJB			
DRAWN: EP		SCALE: 1"=20'	<b>SHEET</b>  <b>U-75</b>
CHECKED: RJB	REF. CONT.	DATE: DEC 2017	

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

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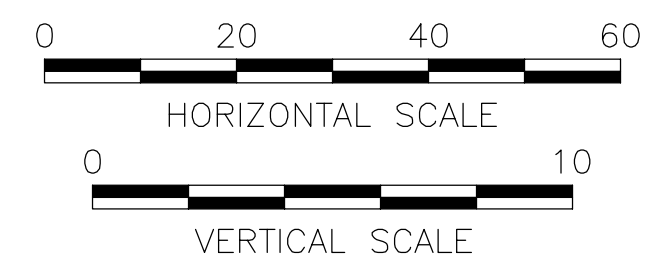
Rachel J. Burckardt
   
 12/11/17

**LEGEND**

- MANHOLE
- HANDHOLE
- 2 OVER 4 DUCT BANK

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6
6. FOR UTILITY PLAN, SEE SHEET U-6
7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
8. FOR TMP PLANS, SEE SHEETS TM-291 THRU TM-295.
9. FOR SURFACE DRAINAGE, SEE SHEET SD-66.
10. SEE DWG U-77 FOR TELECOMM DUCTBANK TO MANHOLE DETAILS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED COMMUNICATIONS DUCTBANK**  
**SHEET 6 OF 6**

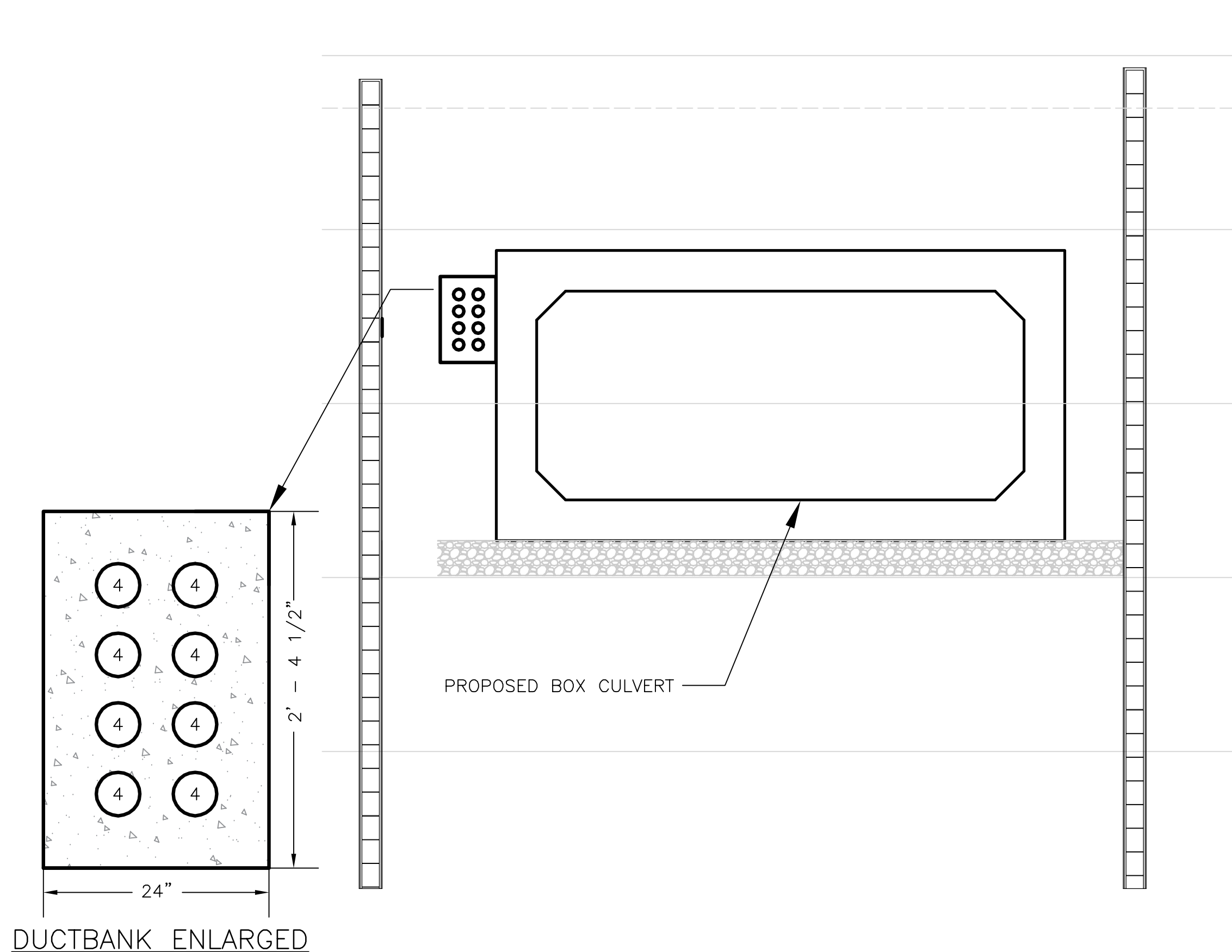
DESIGNED: AJF		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: RJB			
DRAWN: EP		REF.	CONT.
CHECKED: RJB		ACC.	SCALE: 1"=20' DATE: DEC 2017

SHEET  
**U-76**

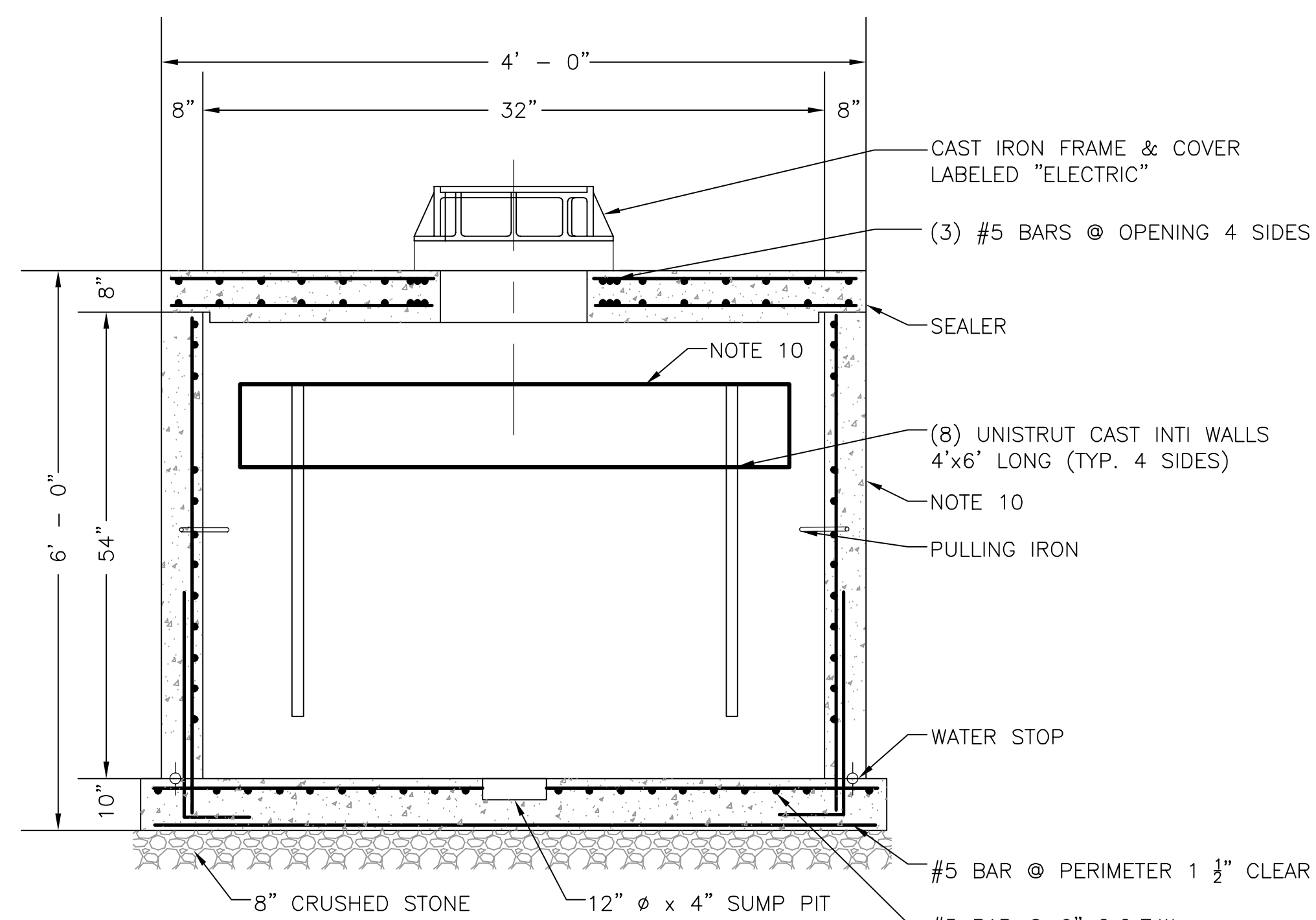
NO.	DATE	REVISIONS	BY

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

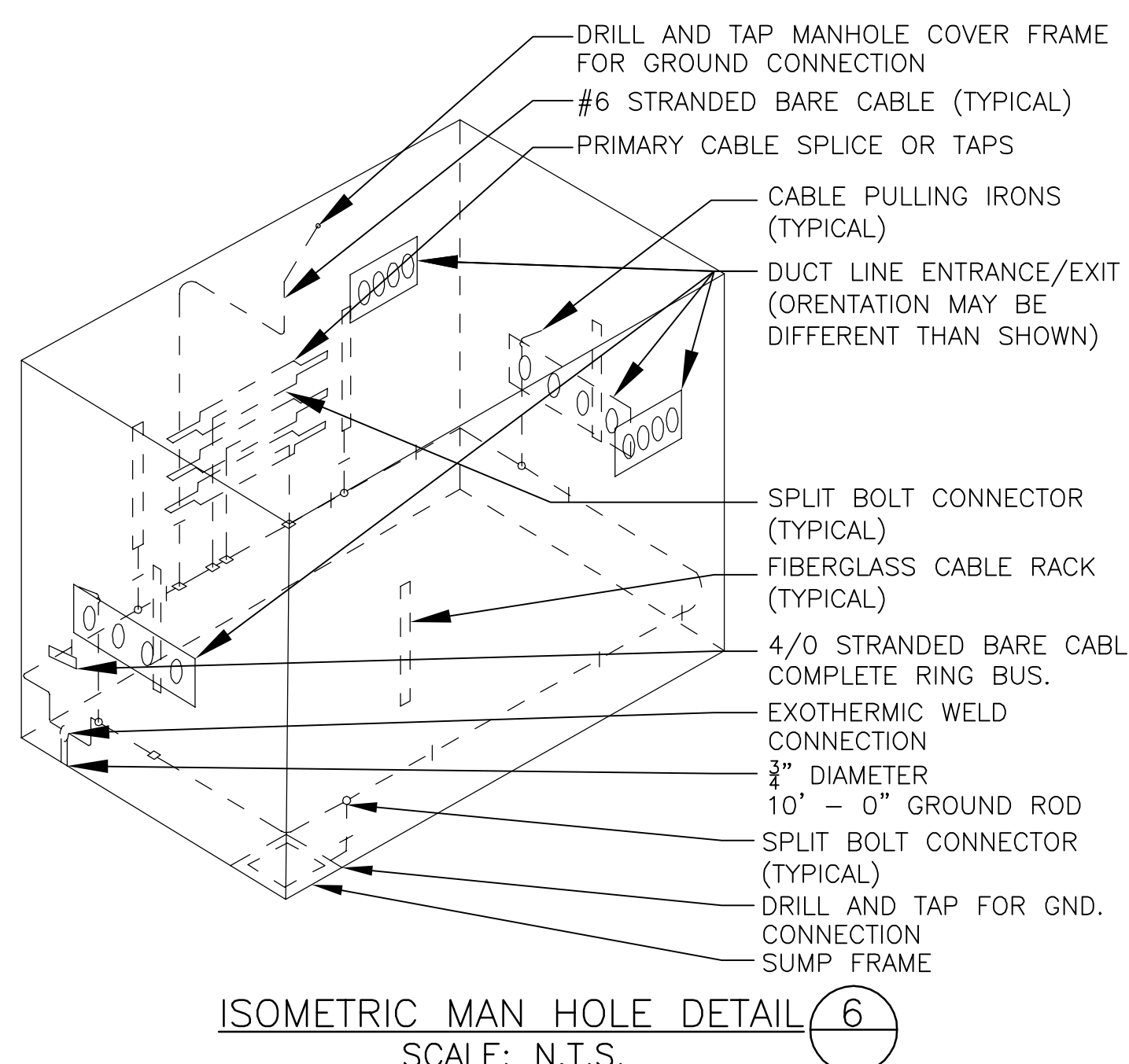
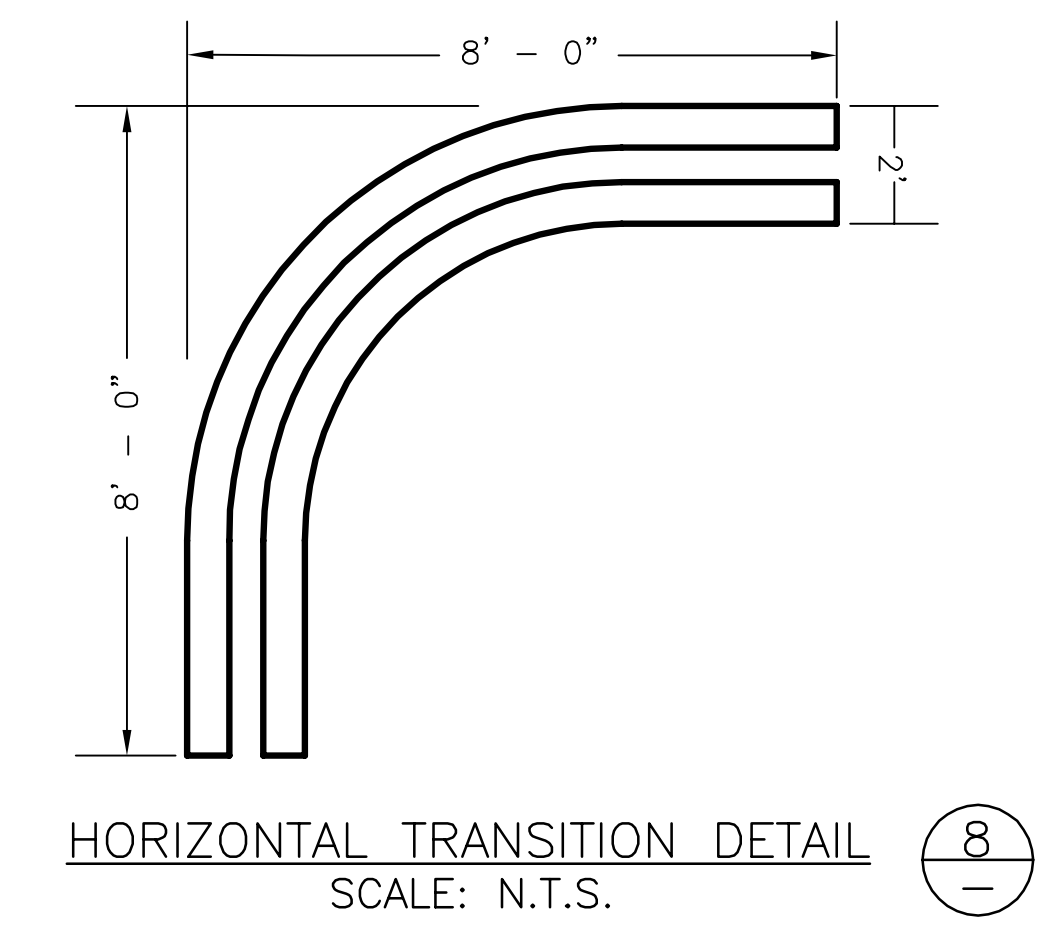
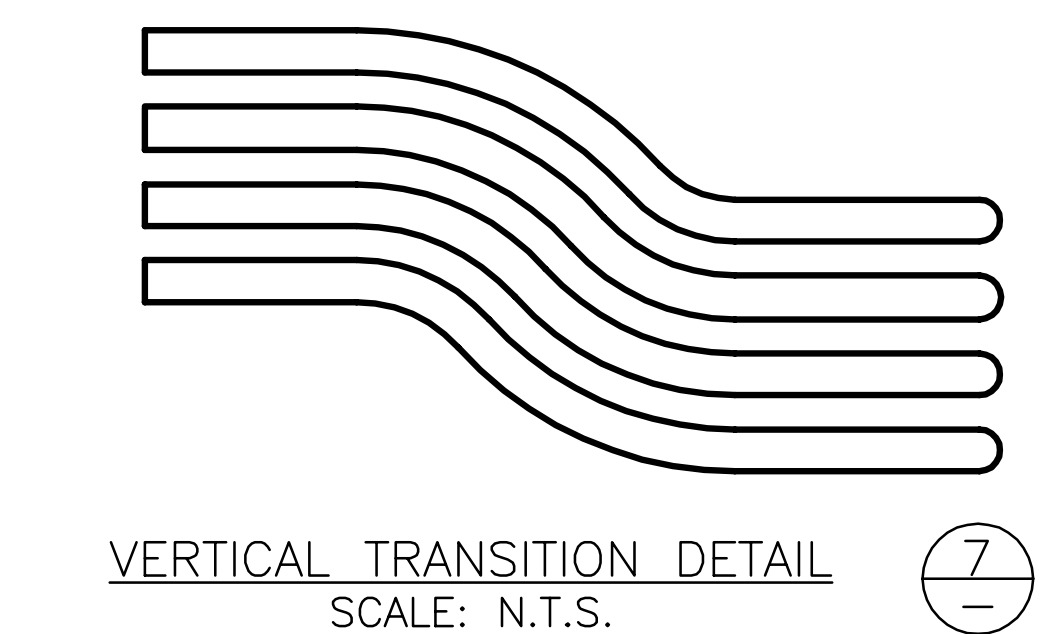
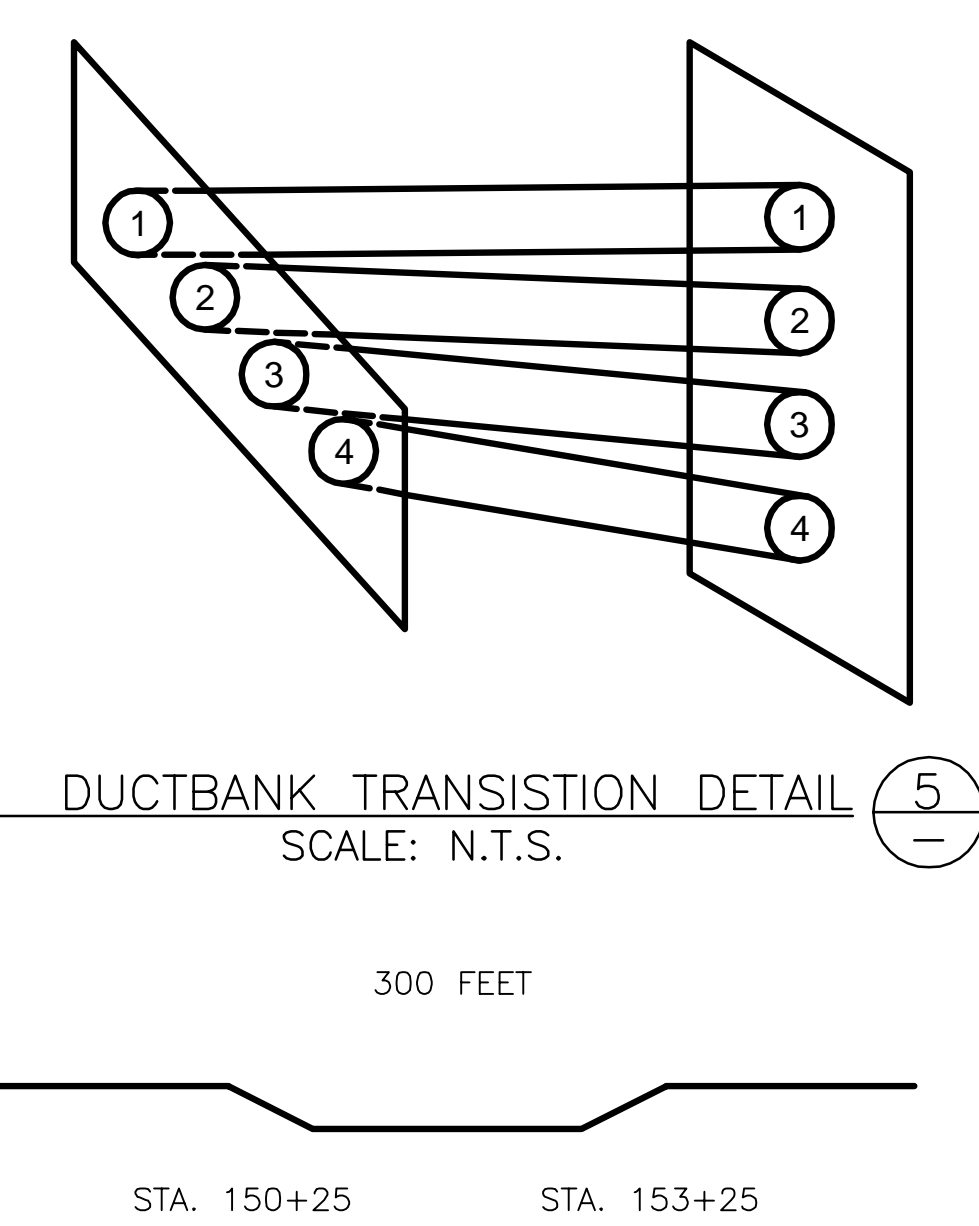
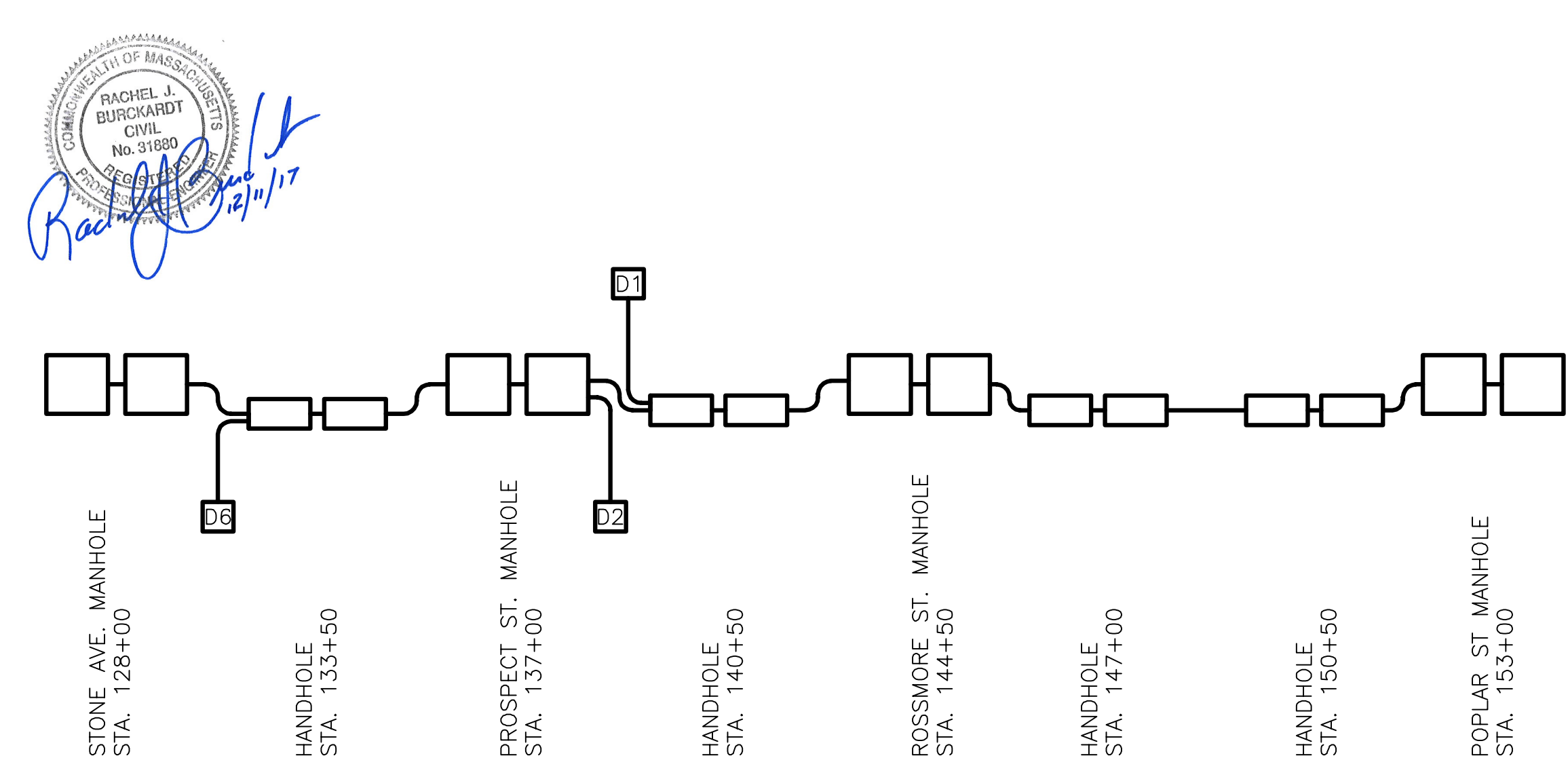
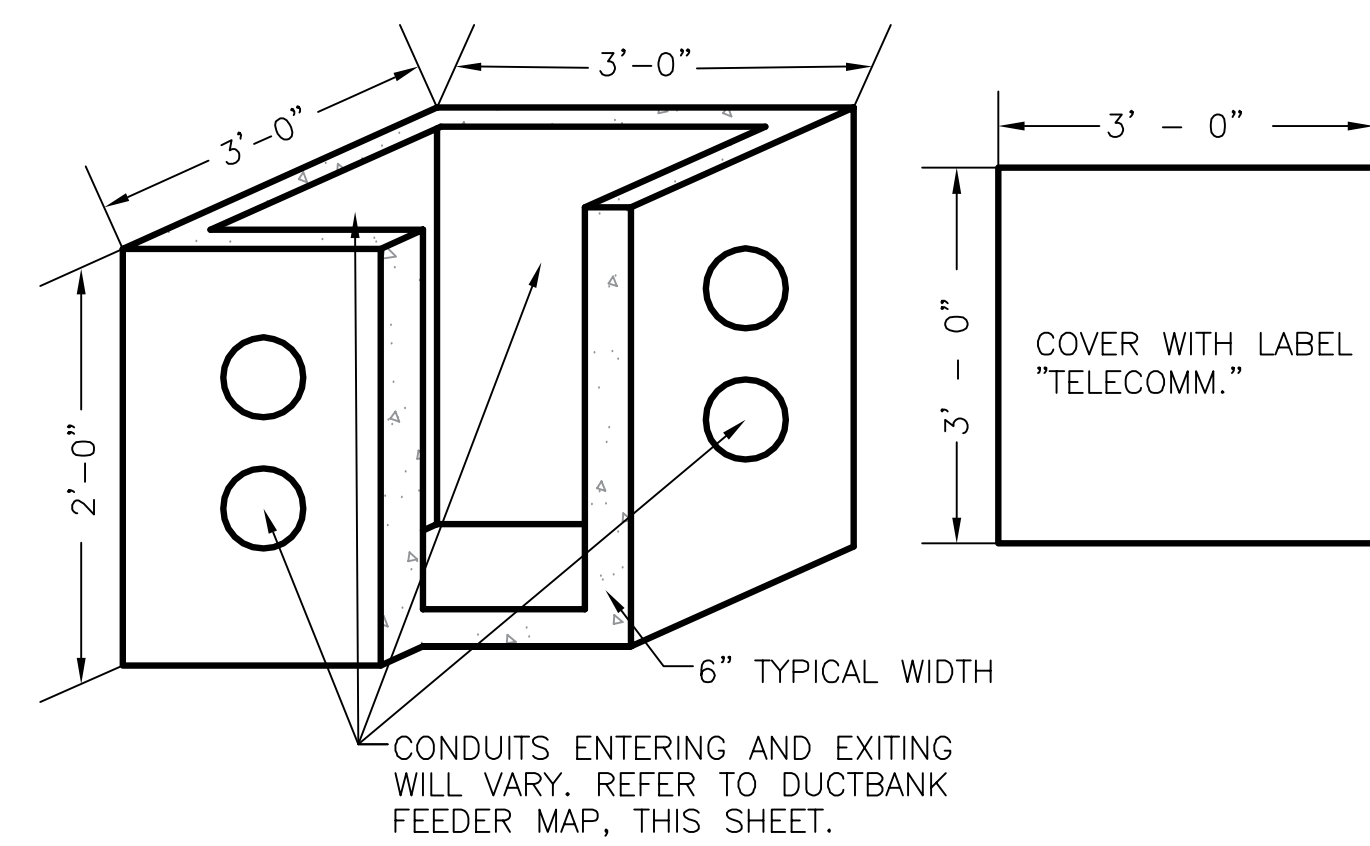
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DUCTBANK LOCATION WITHIN BOX CULVERT DETAIL (1)  
SCALE: N.T.S.



- NOTES:
1. FOR GENERAL NOTES REFER TO DRAWING XXX.
  2. PITCH TELECOMM CONDUITS TOWARDS MANHOLE AT A SLOPE OF 1 INCH PER 100 FEET, TO ALLOW WATER TO DRAIN INTO THE MANHOLE.
  3. THERE SHALL BE NO MORE THAN 270 DEGREES OF BENDS BETWEEN MANHOLES AND HANDHOLES.
  4. THERE SHALL BE NO MORE THAN TWO (2) BACK TO BACK 90 DEGREE BENDS IN ANY TELCOMM CONDUIT RUN.
  5. THERE SHALL BE NO MORE THAN 300 FEET BETWEEN MANHOLES AND HANDHOLES.
  6. USE BELL ENDS FOR TELECOMM CONDUITS AT PROJECT LIMITS.
  7. GROUNDING OF TELECOMM DUCTBANK SHALL BE TESTED TO 5 OHMS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**PROPOSED COMMUNICATIONS**

**DUCTBANK DETAILS**

DESIGNED: AJF  
CHECKED: RJB  
DRAWN: EP  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT. SCALE: N/A  
ACC. DATE: DEC 2017

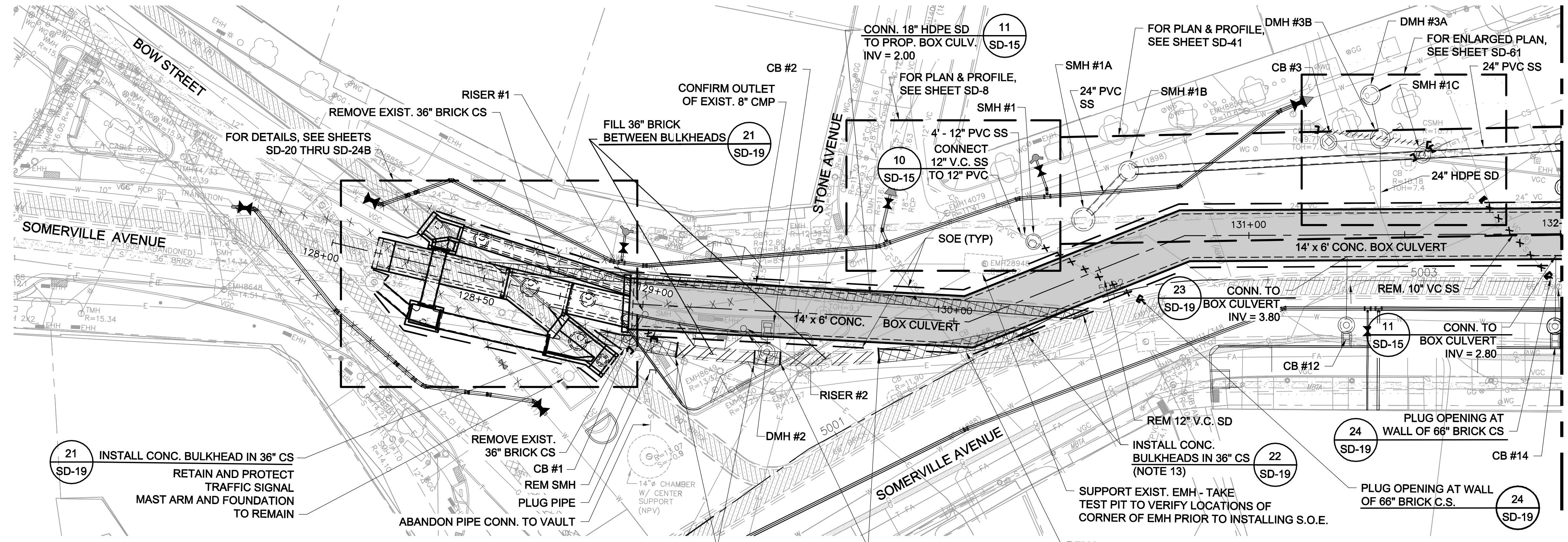
SHEET  
**U-77**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-12-07 2:08 PM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-1\_SD-6 Sewer\_Sep\_Plan\_Profile.dwg

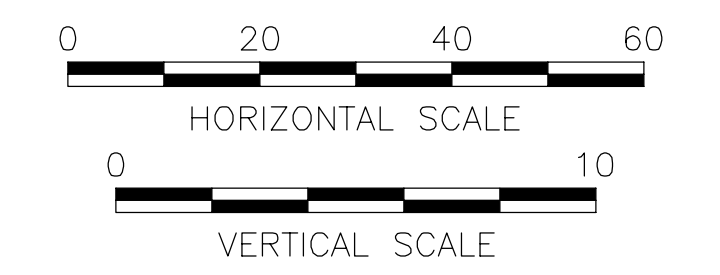
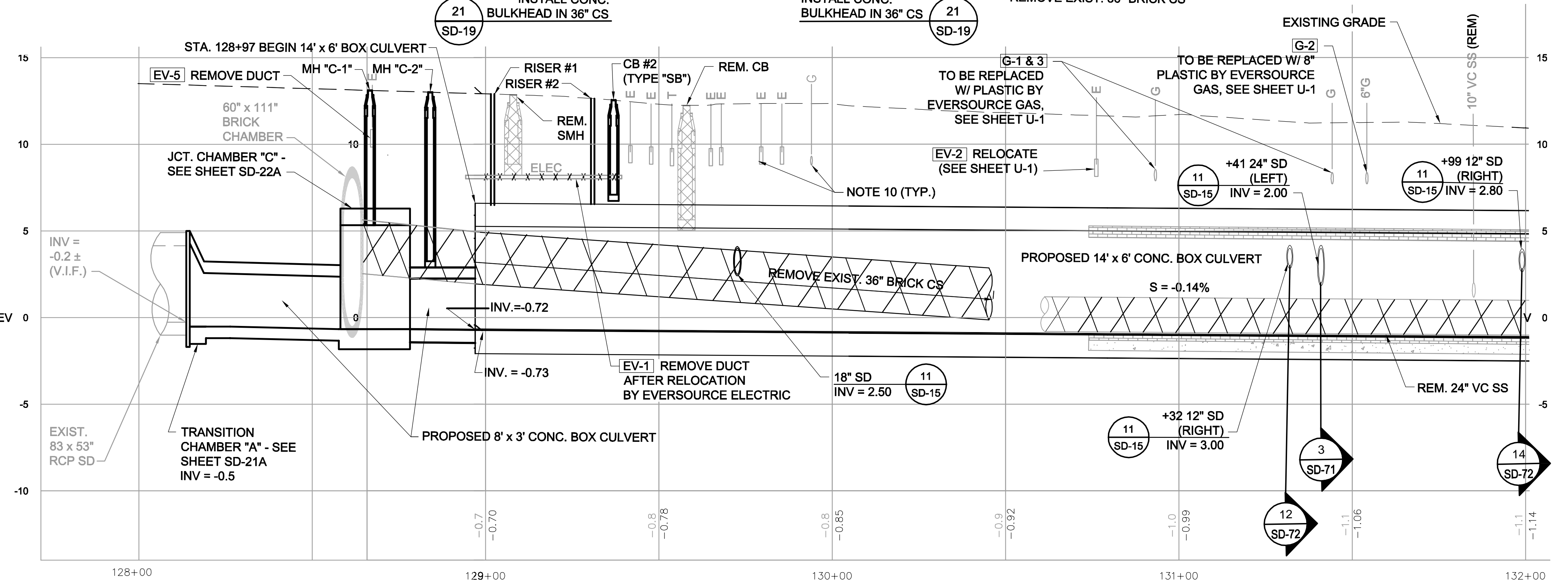
RACHEL J. BURCKHART  
 CIVIL  
 No. 31680  
 STATE OF MASSACHUSETTS  
 12/11/17



MATCH LINE - SEE SHEET SD-2

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - [EV-1] UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  6. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  7. FOR TMP PLANS, SEE SHEETS TM-111 THRU TM-132.
  8. FOR UTILITY PLAN, SEE SHEET U-1.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-61.
  10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  11. FOR SEWER LINING PLAN, SEE SHEET SD-90.
  12. FOR GREEN INFRASTRUCTURE, SEE SHEET GI-1.
  13. FOR SUGGESTED BYPASS PUMPING ARRANGEMENT TO INSTALL 36" DIA. BULKHEADS IN 66" CS, SEE STEP 1 ON SHEET SD-91.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

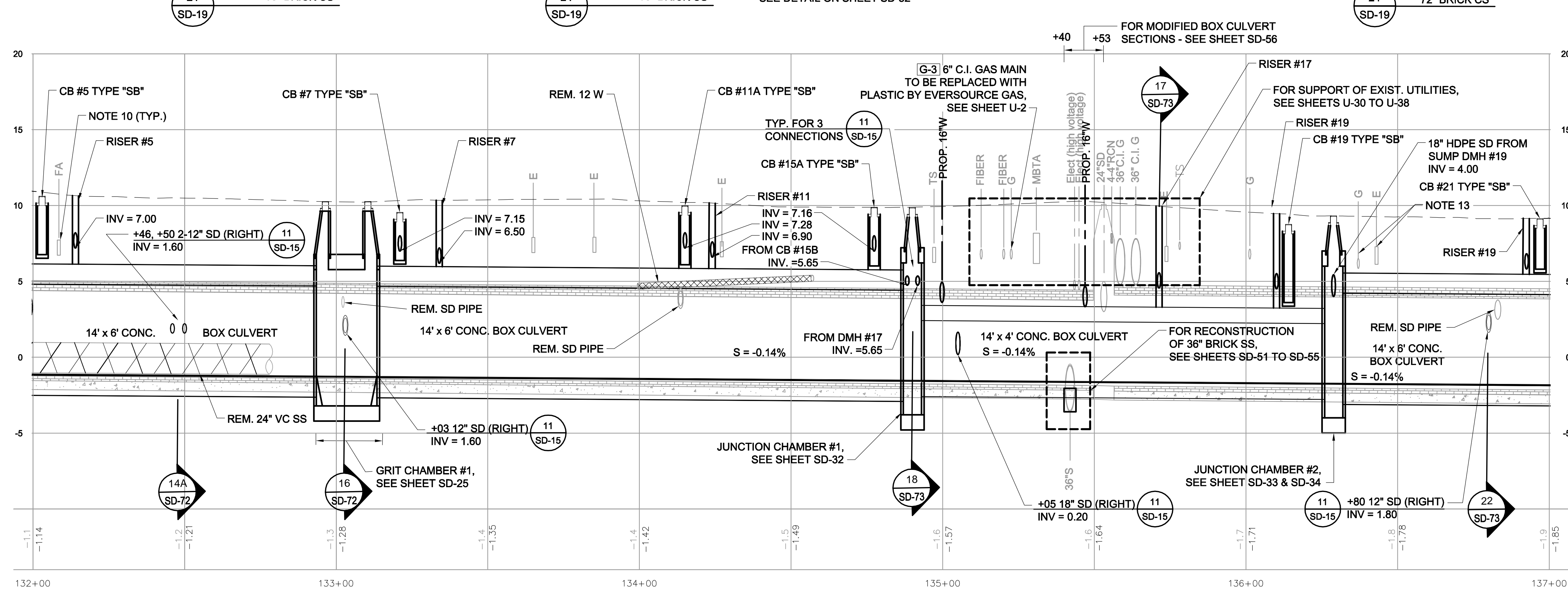
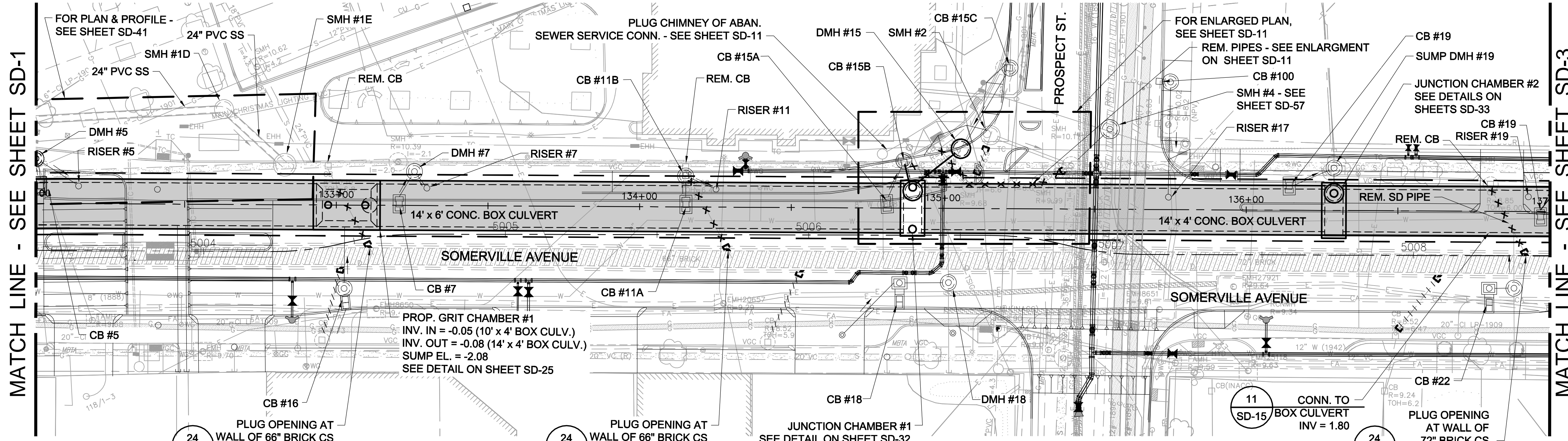
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER SEPARATION PLAN & PROFILE**  
**SHEET 1 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: LAC		REF. _____	CONT. _____	SD-1
DRAWN: JD	ACC. _____	SCALE: 1"=20'	DATE: DEC 2017	
CHECKED: RJB				

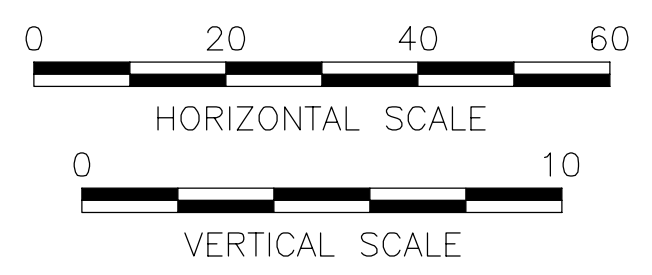
CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE
- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  6. FOR UTILITY PLAN, SEE SHEET U-2
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-141 THRU TM-165.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-62.
  10. SUPPORT UTILITIES IN PLACE, U.N.O.
  11. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-1 & GI-2.
  12. FOR SEWER LINING PLAN, SEE SHEET SD-90.
  13. TAKE TEST PITS TO VERIFY DEPTH OF EXIST. UTILITIES CROSSING THE PROP. BOX CULVERT.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

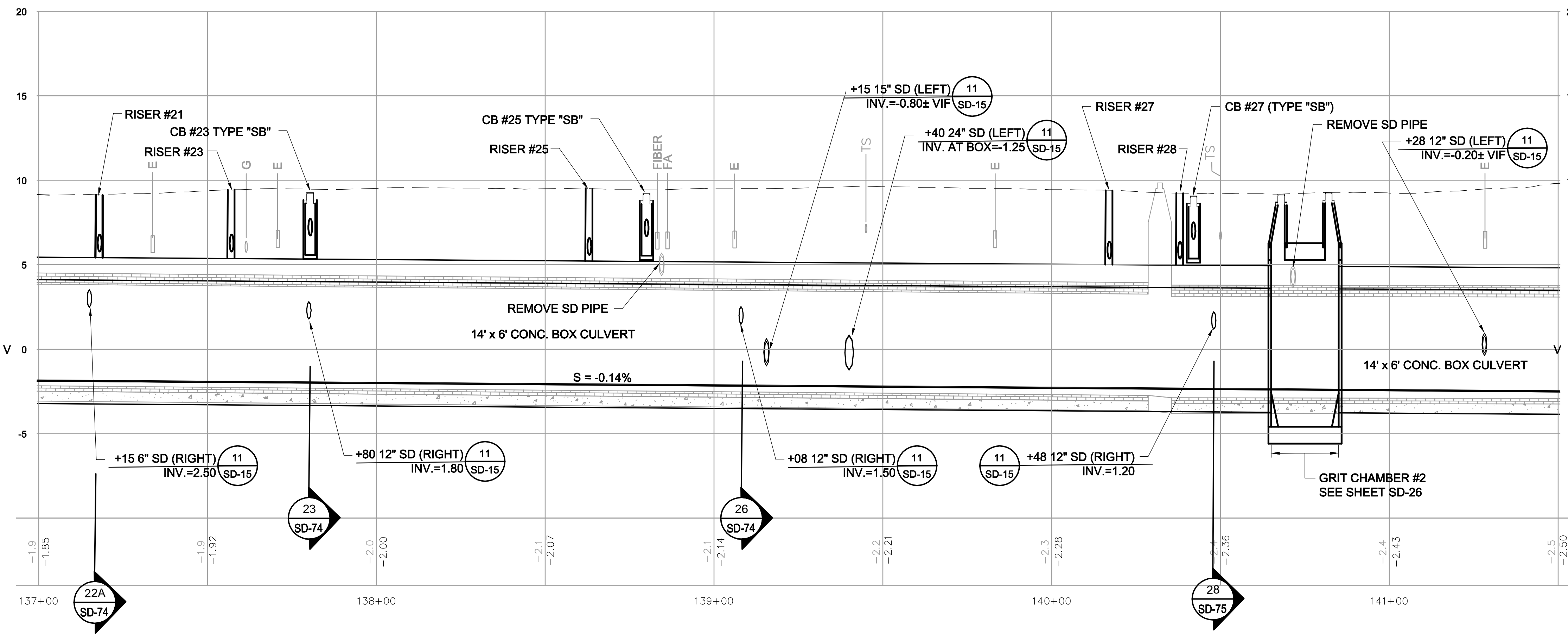
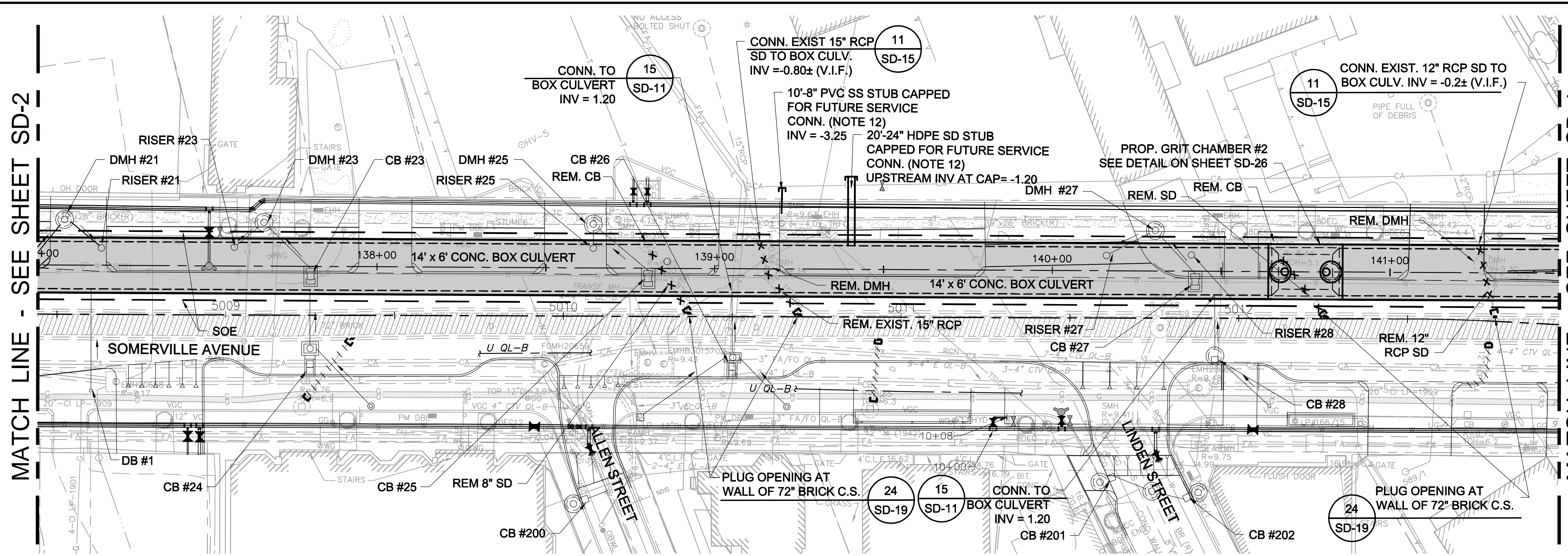
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER SEPARATION PLAN & PROFILE**  
**SHEET 2 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-2</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JD		SCALE: 1"=20'		
CHECKED: RJB		DATE: DEC 2017		

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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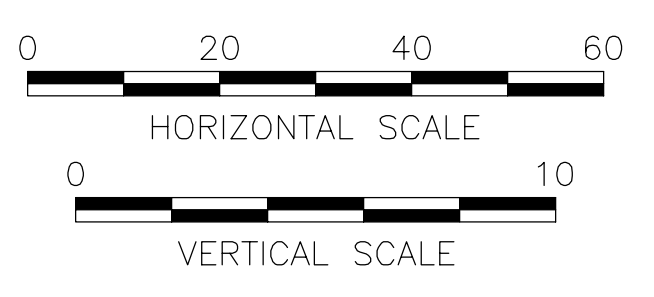


MATCH LINE - SEE SHEET SD-4

MATCH LINE - SEE SHEET SD-2

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-13.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-23.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-3
  6. FOR UTILITY PLAN, SEE SHEET U-3.
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-161 THRU TM-215.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-63.
  10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  11. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-1 THRU GI-4.
  12. PRIOR TO INSTALLATION, VERIFY WITH THE ENGINEER THE EXACT LOCATIONS OF SERVICE CONNECTIONS FOR FUTURE DEVELOPMENT.
  13. TAKE TEST PITS TO VERIFY DEPTH OF EXIST. UTILITIES CROSSING THE PROP. BOX CULVERT.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER SEPARATION PLAN & PROFILE**  
**SHEET 3 OF 6**

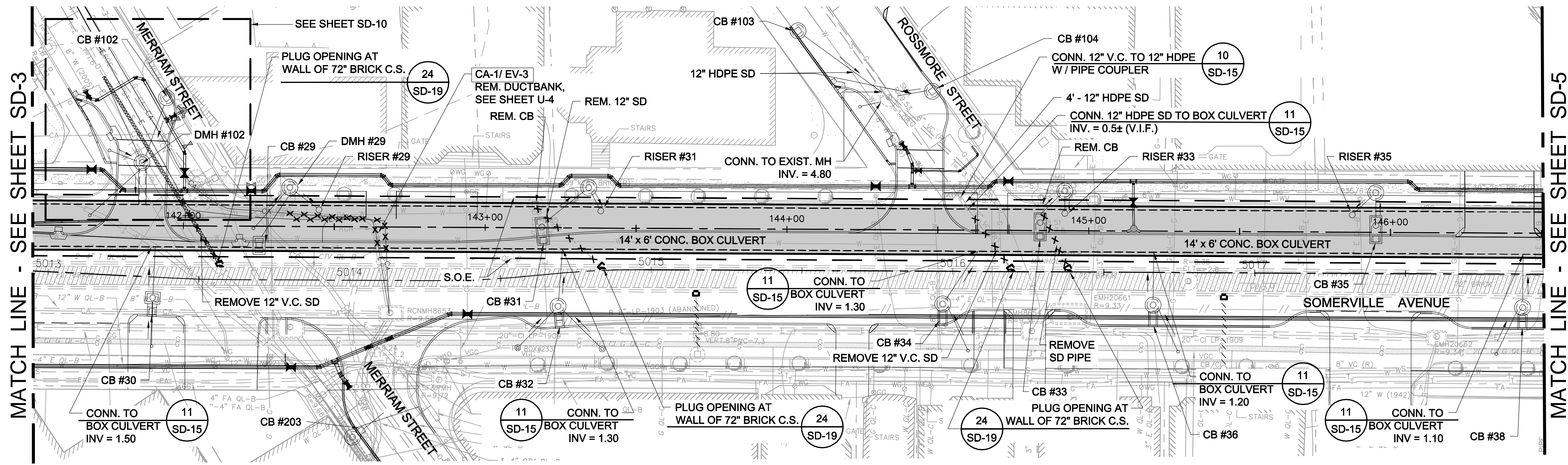
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CHECKED: LAC		<b>SD-3</b>		
DRAWN: JD	REF.	CONT.	SCALE: 1"=20'	
CHECKED: RJB	ACC.		DATE: DEC 2017	

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

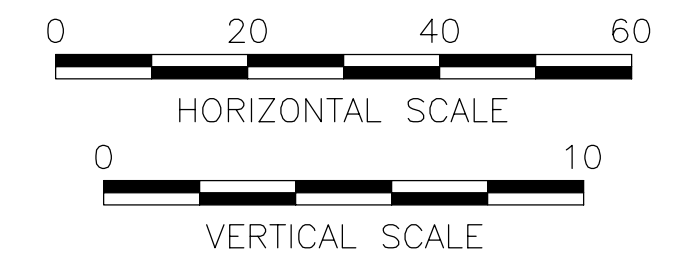
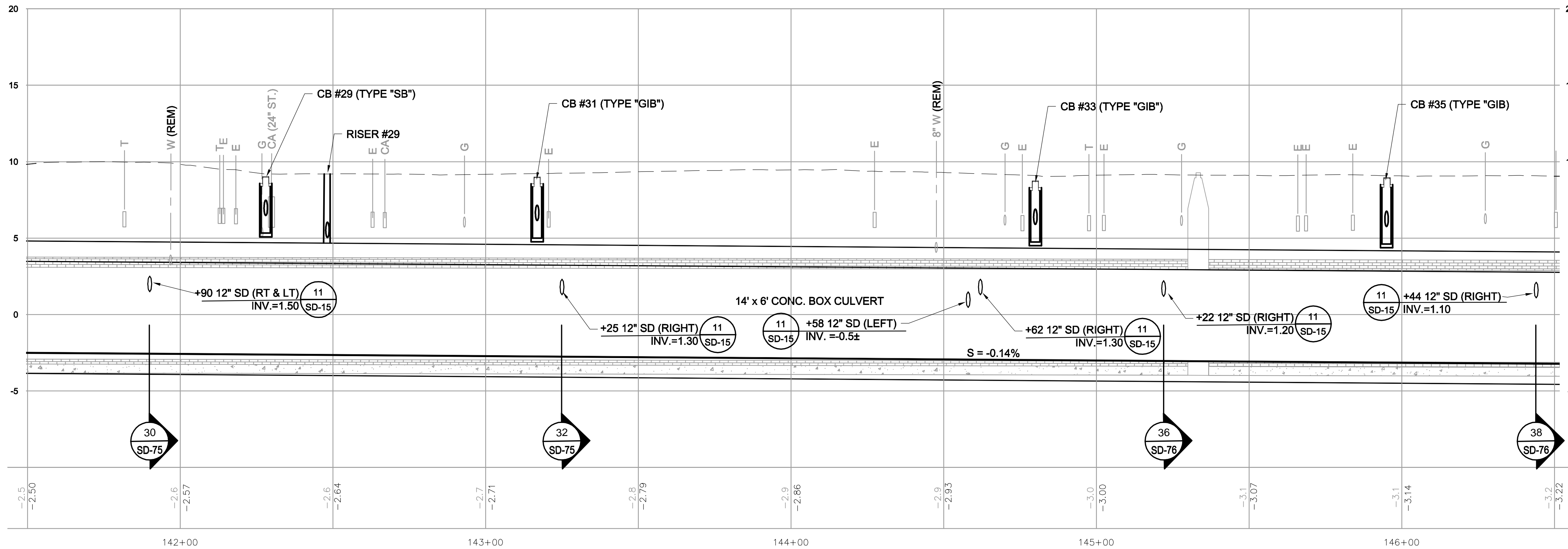


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- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-14.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-24.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-4
  6. FOR UTILITY PLAN, SEE SHEET U-4.
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, UTILITY DETAILS, SEE SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-221 THRU TM-265.
  9. FOR SURFACE DRAINAGE, SEE SHEETS SD-64.
  10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  11. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-4.
  12. TAKE TEST PITS TO VERIFY DEPTH OF EXIST. UTILITIES CROSSING THE PROP. BOX CULVERT.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER SEPARATION PLAN & PROFILE**  
**SHEET 4 OF 6**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB



Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

REF.  
 ACC.

CONT.

SCALE: 1"=20'  
 DATE: DEC 2017

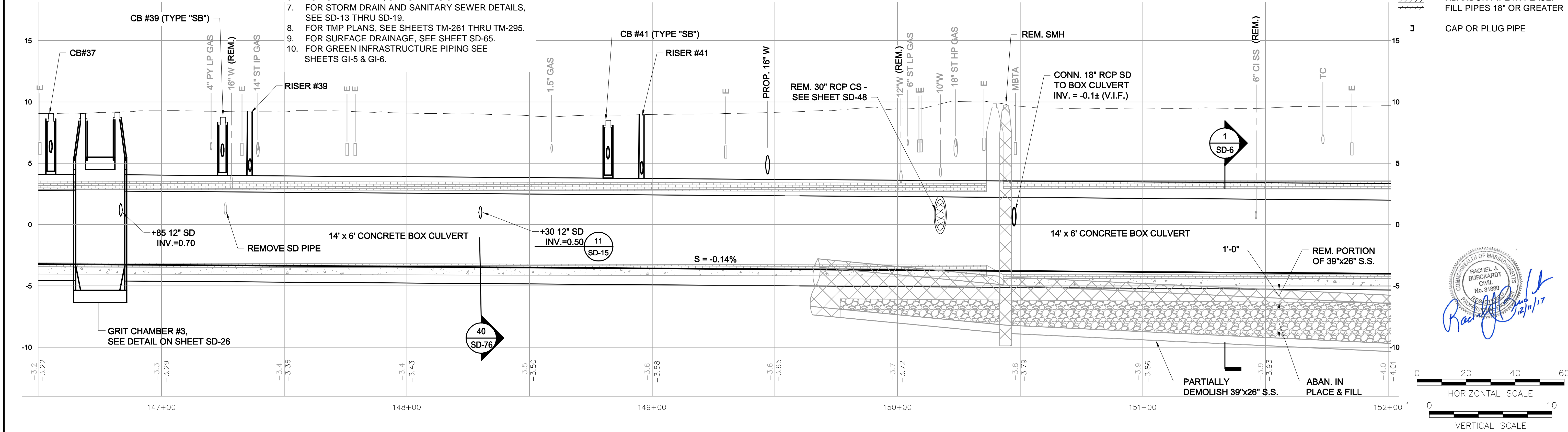
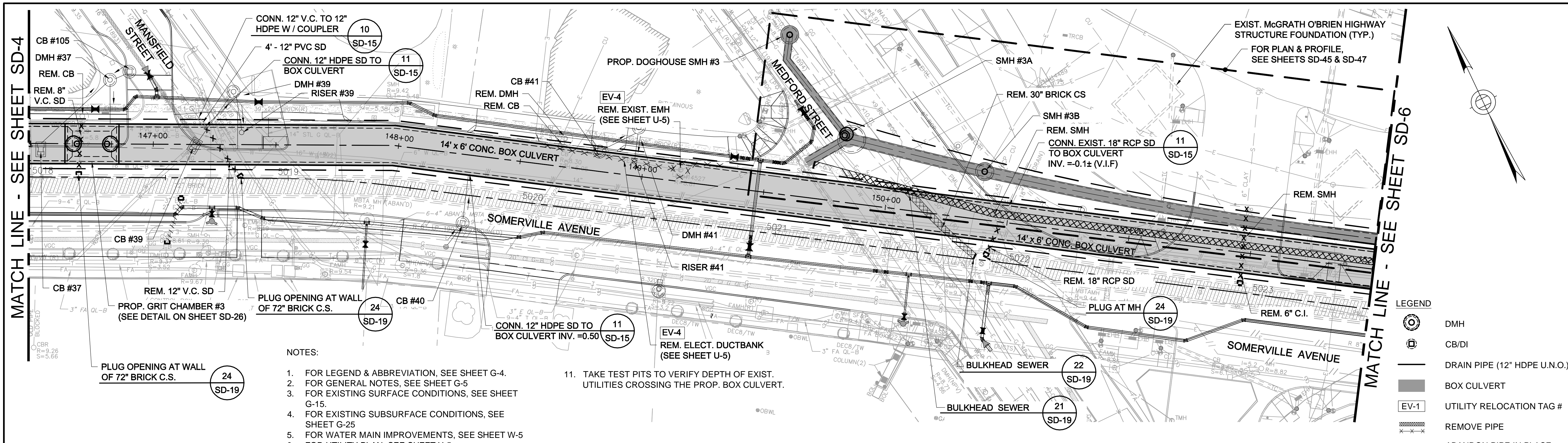
SHEET

**SD-4**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

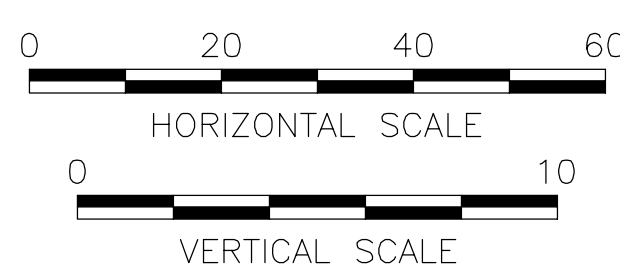
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- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-15.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-25
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-5
  - FOR UTILITY PLAN, SEE SHEET U-5.
  - FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  - FOR TMP PLANS, SEE SHEETS TM-261 THRU TM-295.
  - FOR SURFACE DRAINAGE, SEE SHEET SD-65.
  - FOR GREEN INFRASTRUCTURE PIPING SEE SHEETS GI-5 & GI-6.
  - TAKE TEST PITS TO VERIFY DEPTH OF EXIST. UTILITIES CROSSING THE PROP. BOX CULVERT.

- LEGEND
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE

RACHEL J. BURKHARDT  
CIVIL  
No. 31880  
12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

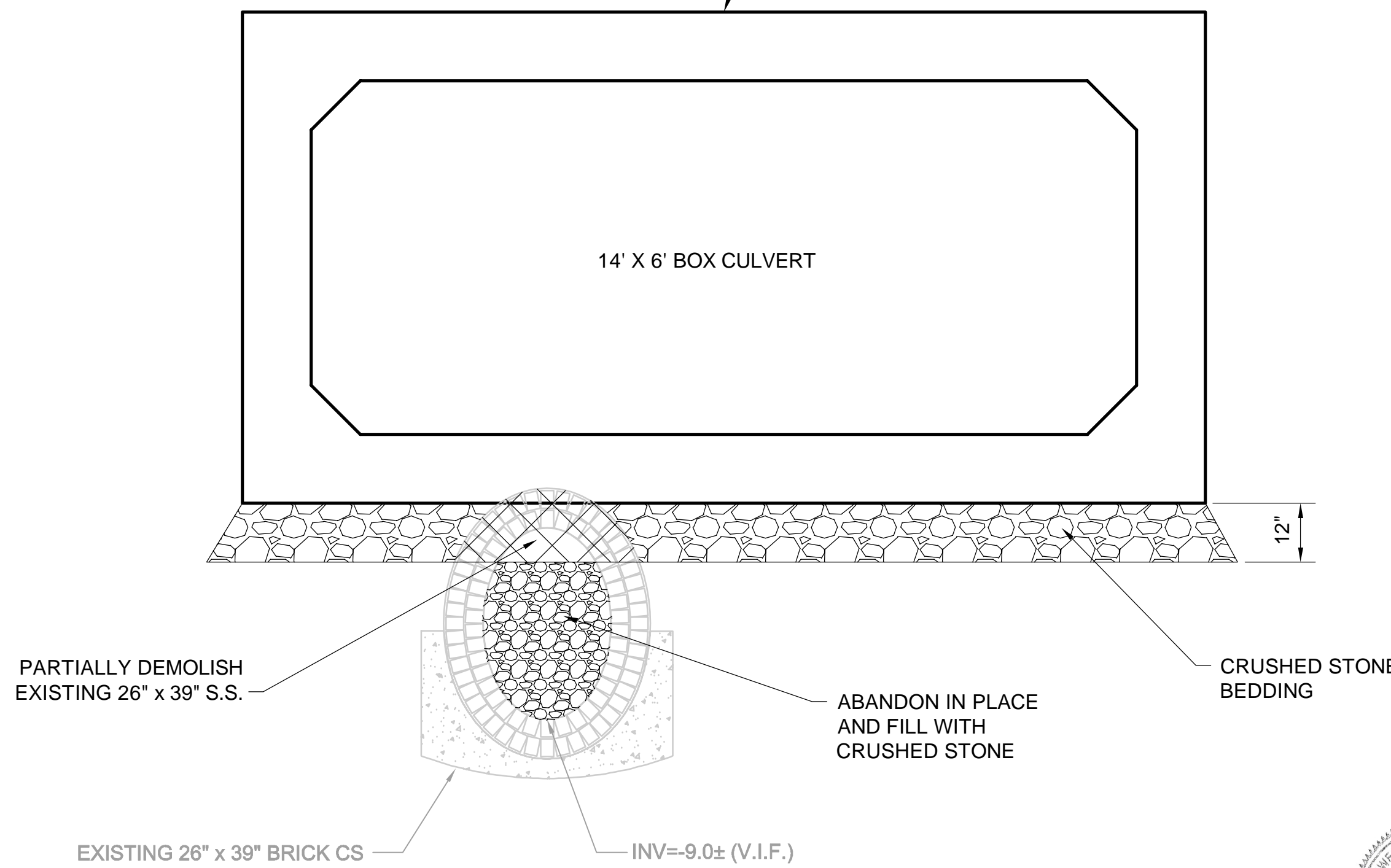
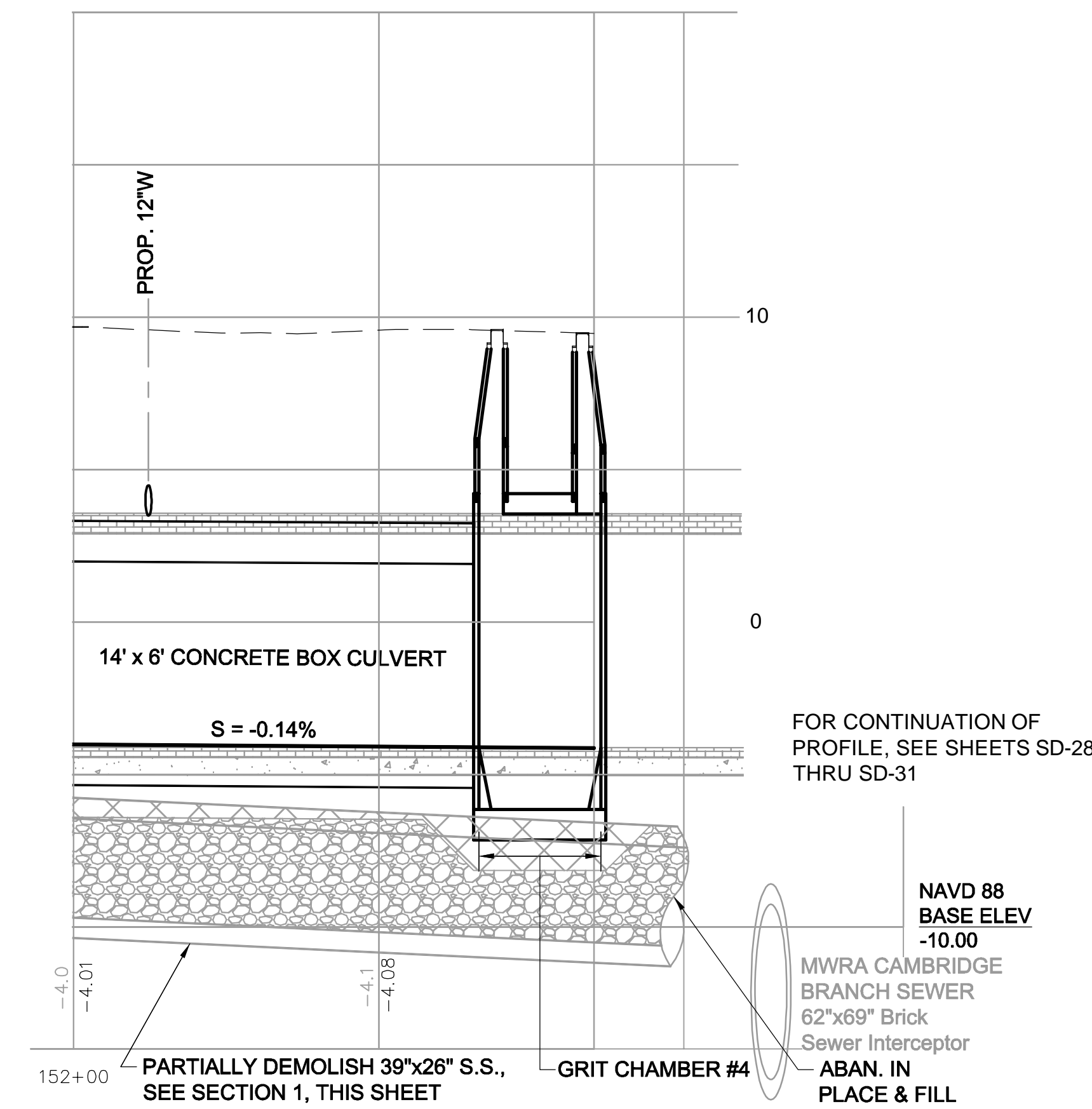
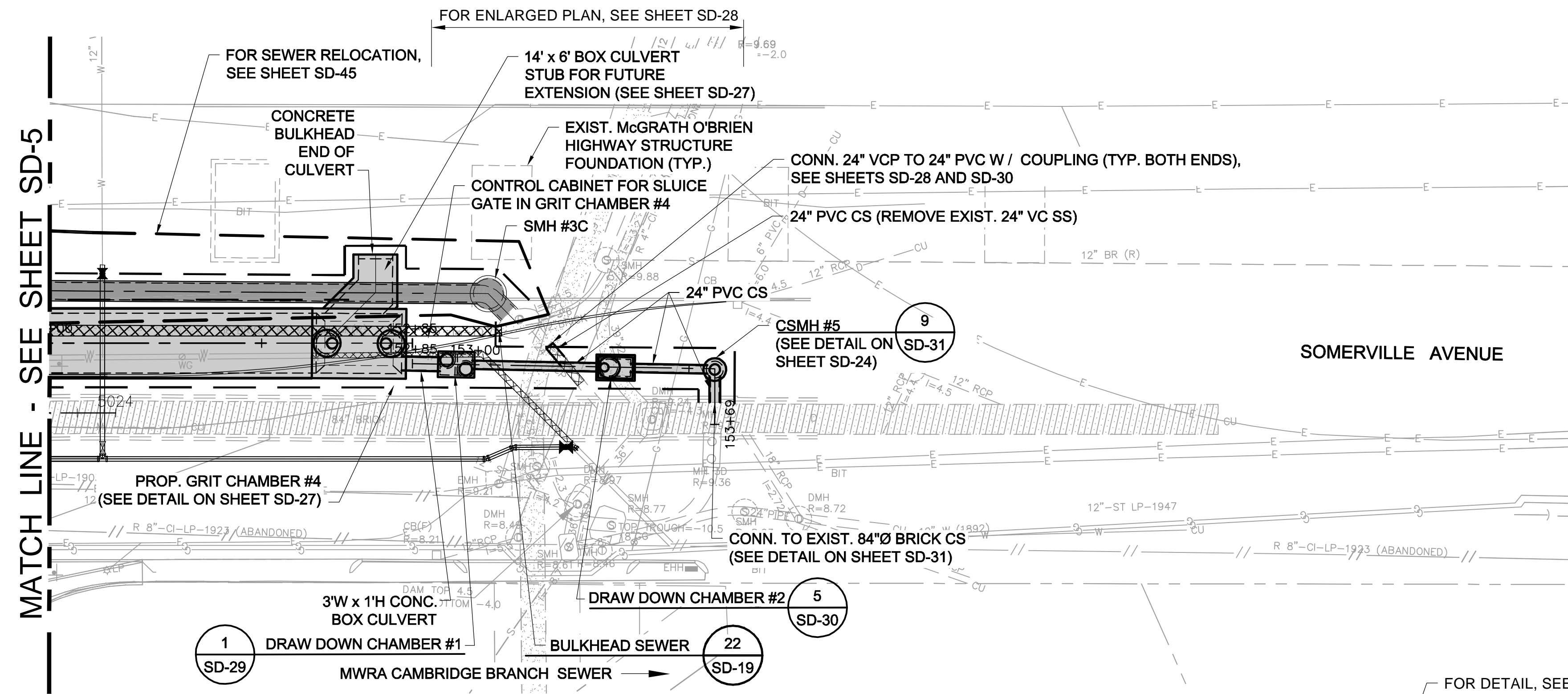
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER SEPARATION PLAN & PROFILE**  
**SHEET 5 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-5</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JD		ACC.	DATE: DEC 2017	
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143				

NO.	DATE	REVISIONS	BY



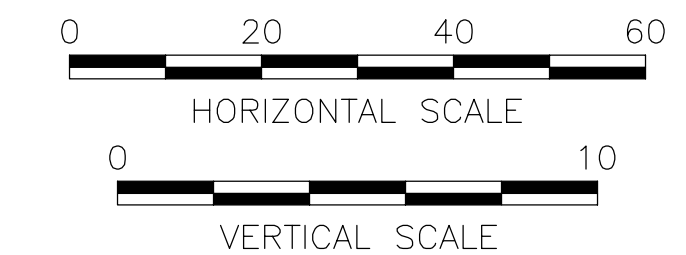
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1 SECTION  
SD-5 N.T.S.

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6
  6. FOR UTILITY PLAN, SEE SHEET U-6
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-15 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-291 THRU TM-295.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-66.
  10. TAKE TEST PITS TO VERIFY DEPTH OF EXIST. UTILITIES CROSSING THE PROP. BOX CULVERT.



*Rachel J. Burckhardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER SEPARATION PLAN & PROFILE**  
**SHEET 6 OF 6**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
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 75 Arlington St. Boston, MA 02116  
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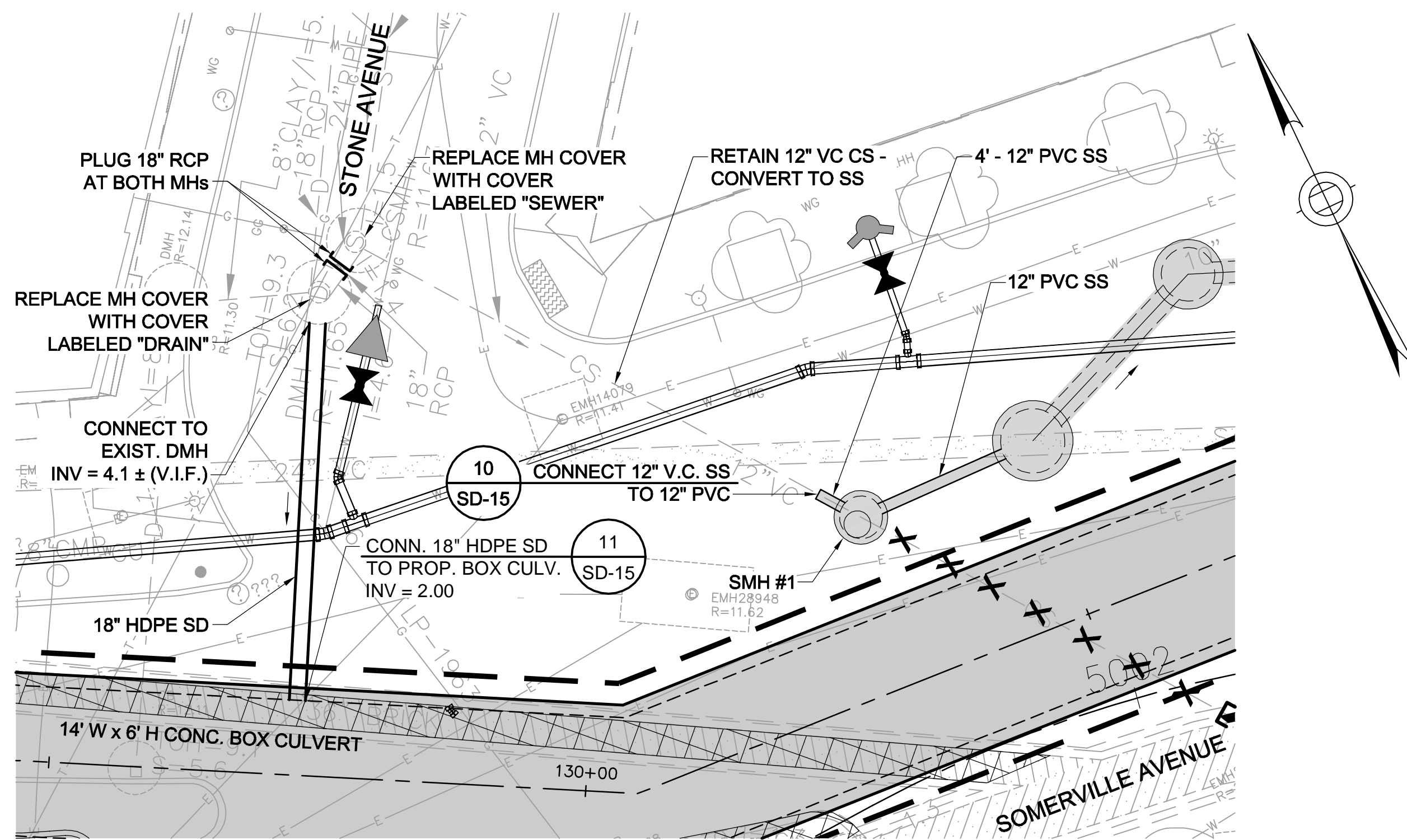
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 ACC. SCALE: 1"=20'  
 DATE: DEC 2017

SHEET  
**SD-6**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

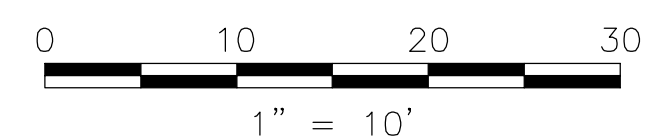
NO.	DATE	REVISIONS	BY





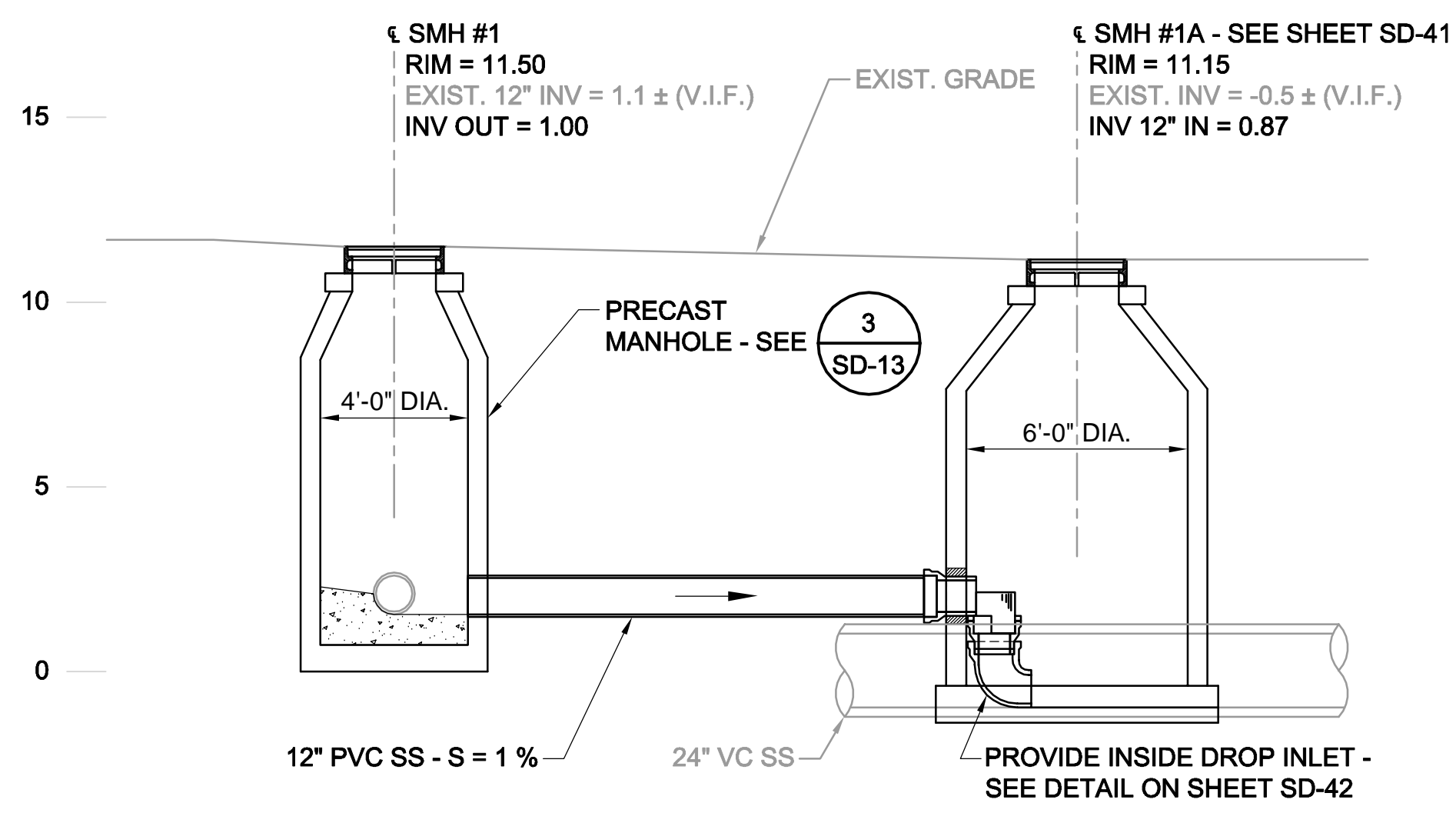
**PLAN**

SCALE: 1" = 10'-0"



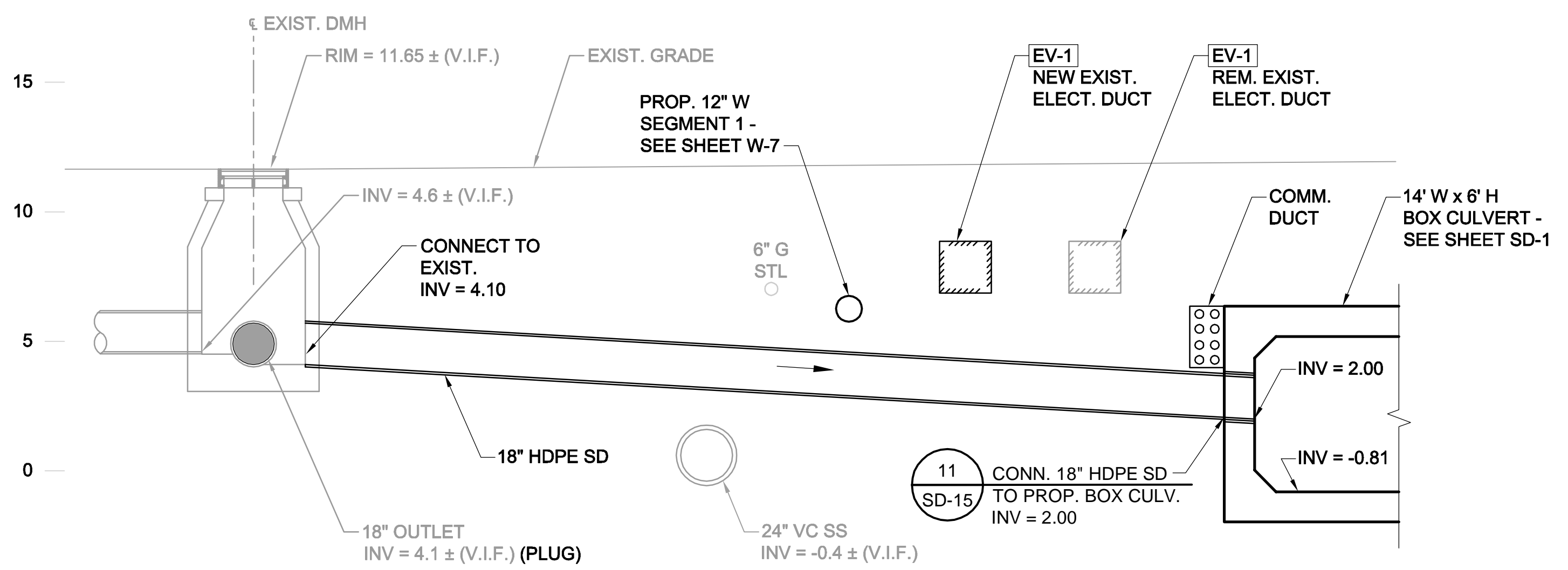
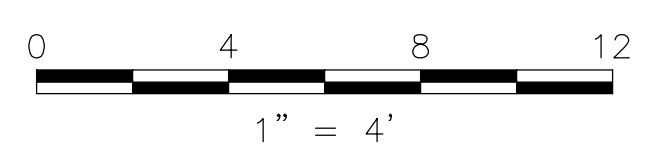
**LEGEND**

	DMH
	CB/DI
	DRAIN PIPE (12" HDPE U.N.O.)
	BOX CULVERT
	UTILITY RELOCATION TAG #
	REMOVE PIPE
	ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
	CAP OR PLUG PIPE



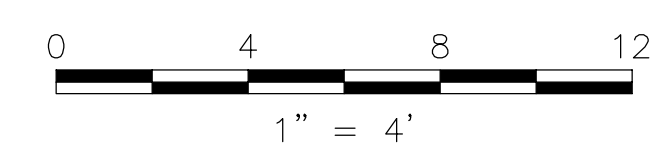
**STONE AVE. SEWER CONNECTION**

SCALE: 1" = 4'



**PROFILE - 18" STONE AVE. DRAIN EXTENSION**

SCALE: 1" = 4'



- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  6. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  7. FOR TMP PLANS, SEE SHEETS TM-111 THRU TM-132.
  8. FOR UTILITY PLAN, SEE SHEET U-1.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-61.
  10. SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  11. FOR SEWER LINING PLAN, SEE SHEET SD-90.
  12. FOR GREEN INFRASTRUCTURE, SEE SHEET GI-1.

2017-11-06 10:46 PM T:\52647LS Union Square Study and Design\SHI DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-8.dwg



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

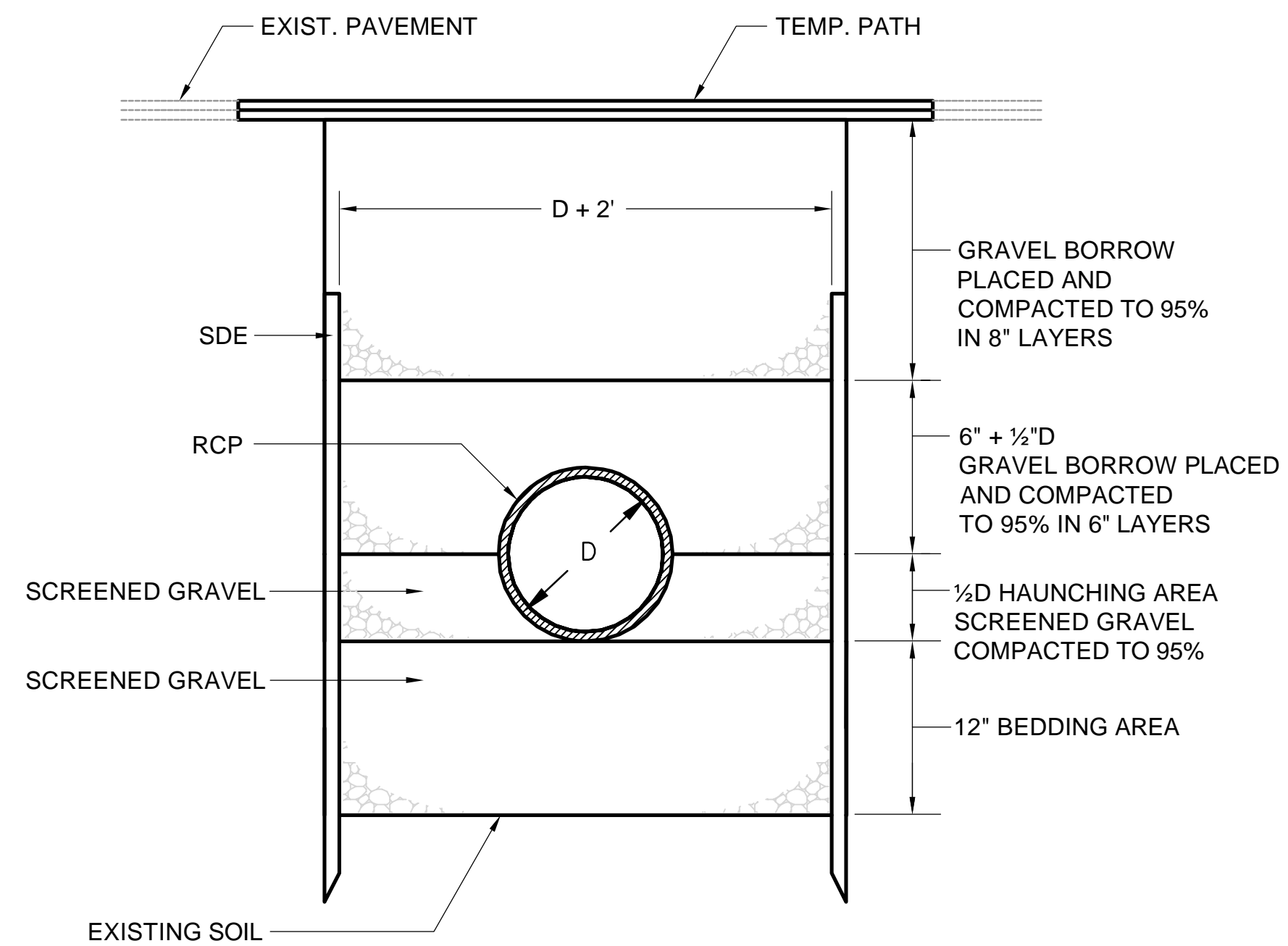
**STONE AVENUE SEWER SEPARATION EXTENTION**

**PLAN AND PROFILE**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-8</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: KLN		ACC.		
CHECKED: RJB				

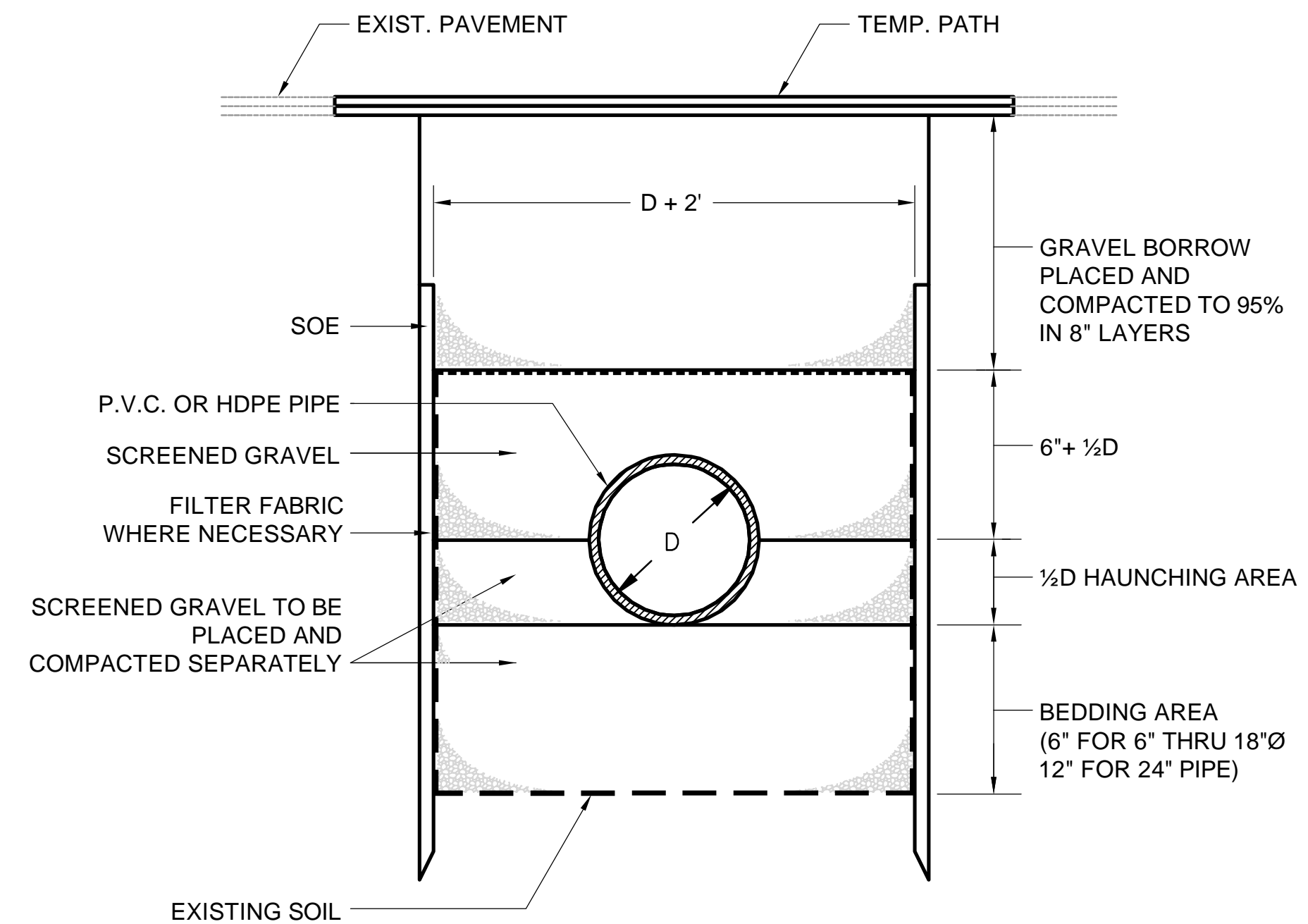
NO.	DATE	REVISIONS	BY

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143



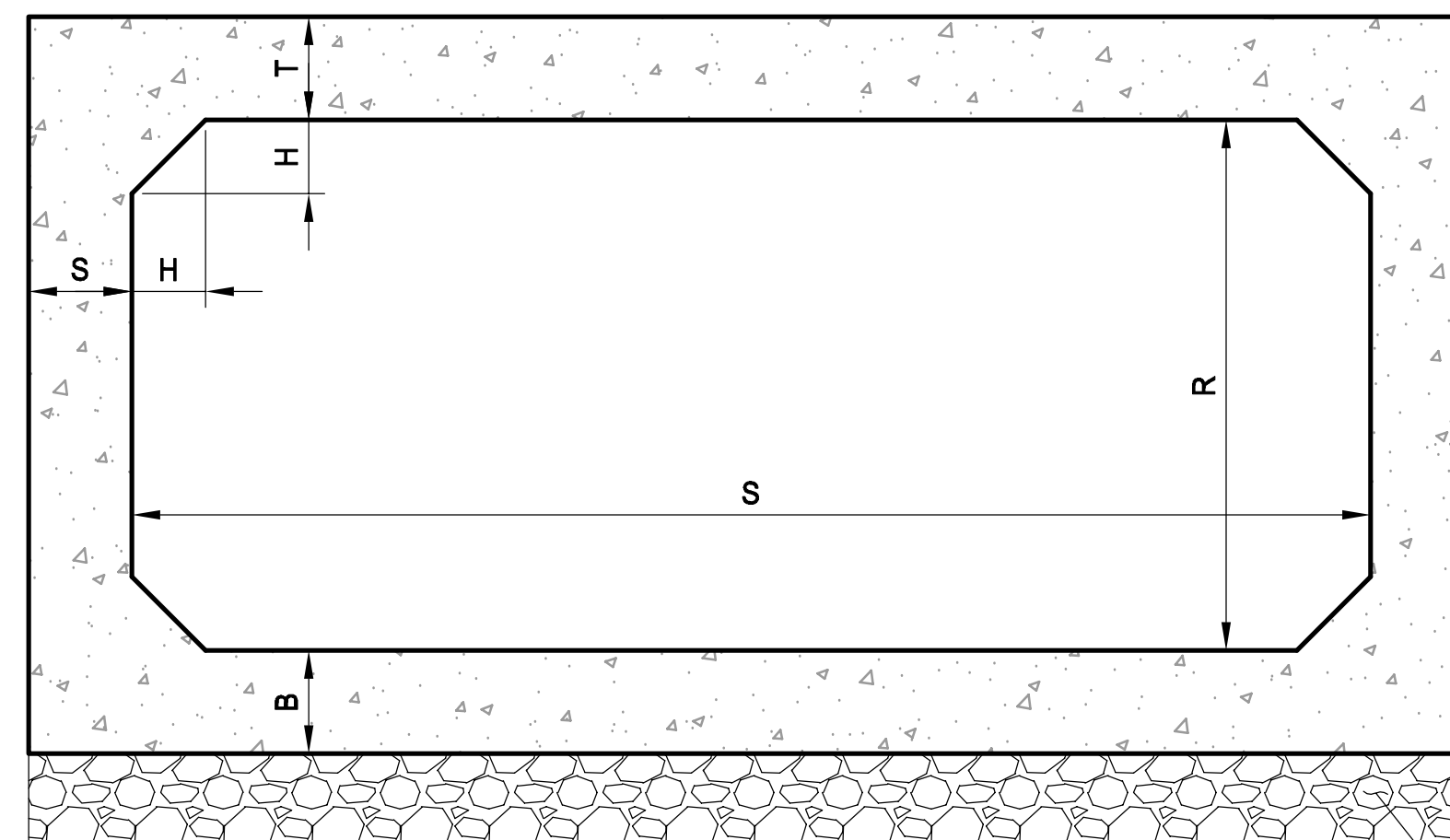
**TRENCH DETAIL FOR RCP**

SCALE: NTS



**TRENCH DETAIL FOR PVC AND HDPE PIPE**

SCALE: NTS

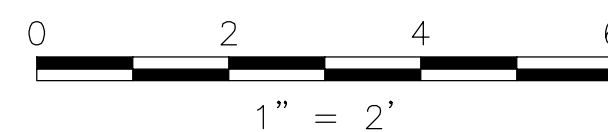


**TYPICAL BOX CULVERT DIMENSIONS**

SCALE: 1" = 2'

TYPICAL BOX CULVERT DIMENSIONS					
S	R	T	S	B	H
3'	1'	5"	5"	5"	4"
4'	4'	7"	7"	7"	8"
8'	3'	12"	12"	12"	10"
14'	4'	14"	14"	14"	12"
14'	6'	14"	14"	14"	12"

12" CRUSHED STONE



**NOTE:**

FOR NON-TYPICAL BOX CULVERT SECTIONS, SEE DETAILS ON SHEET 5D-56.

Professional Engineer Seal for Rachel J. Burckhardt, Civil, No. 31080, State of Massachusetts. Includes a signature and date 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
MISCELLANEOUS  
DETAILS**

DESIGNED: JP  
CHECKED: RJB  
DRAWN: LAC  
CHECKED: RJB

**WSP | PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

SHEET  
**SD-9**

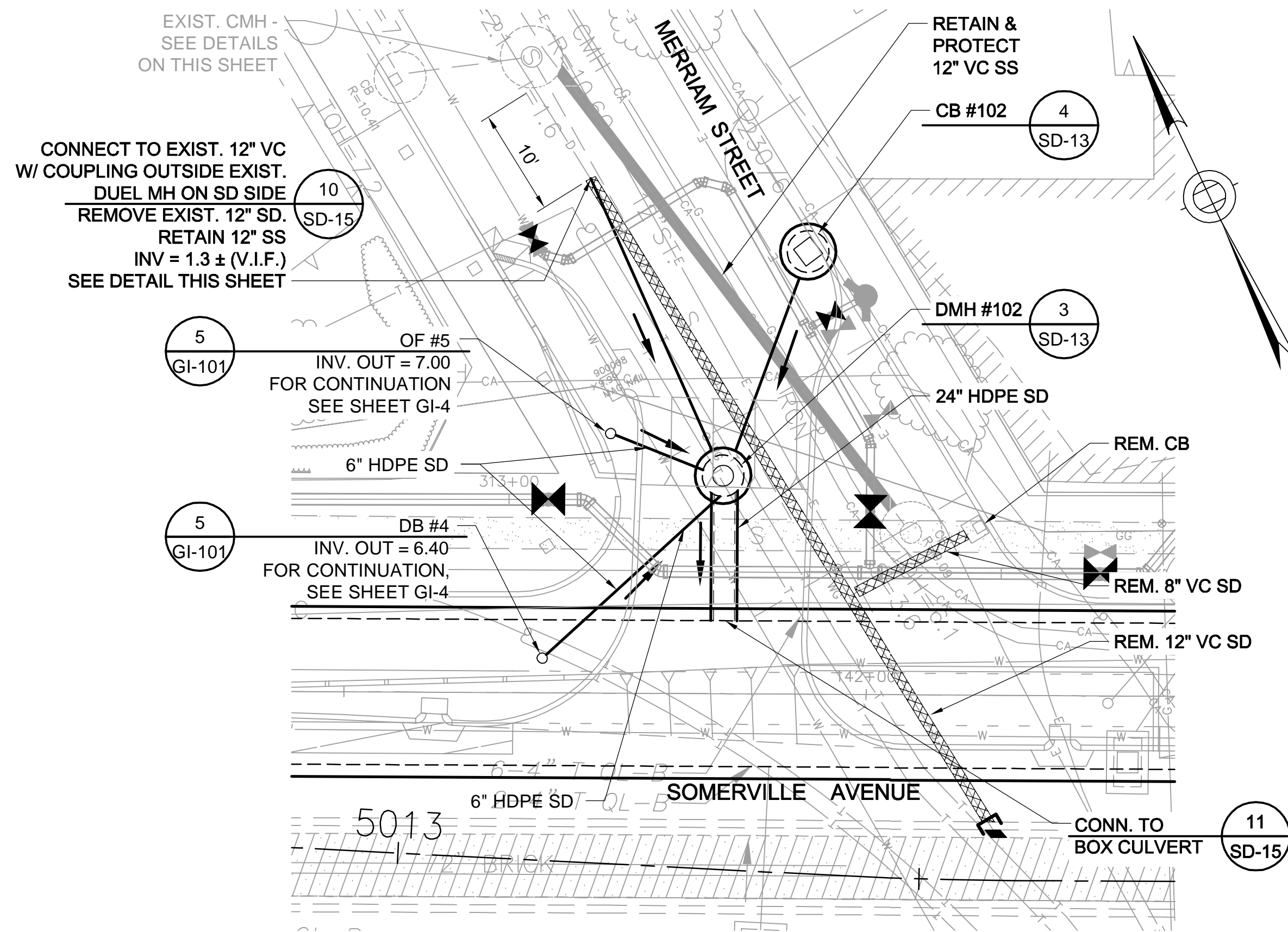
REF. CONT.  
ACC.

SCALE: AS NOTED  
DATE: DEC 2017

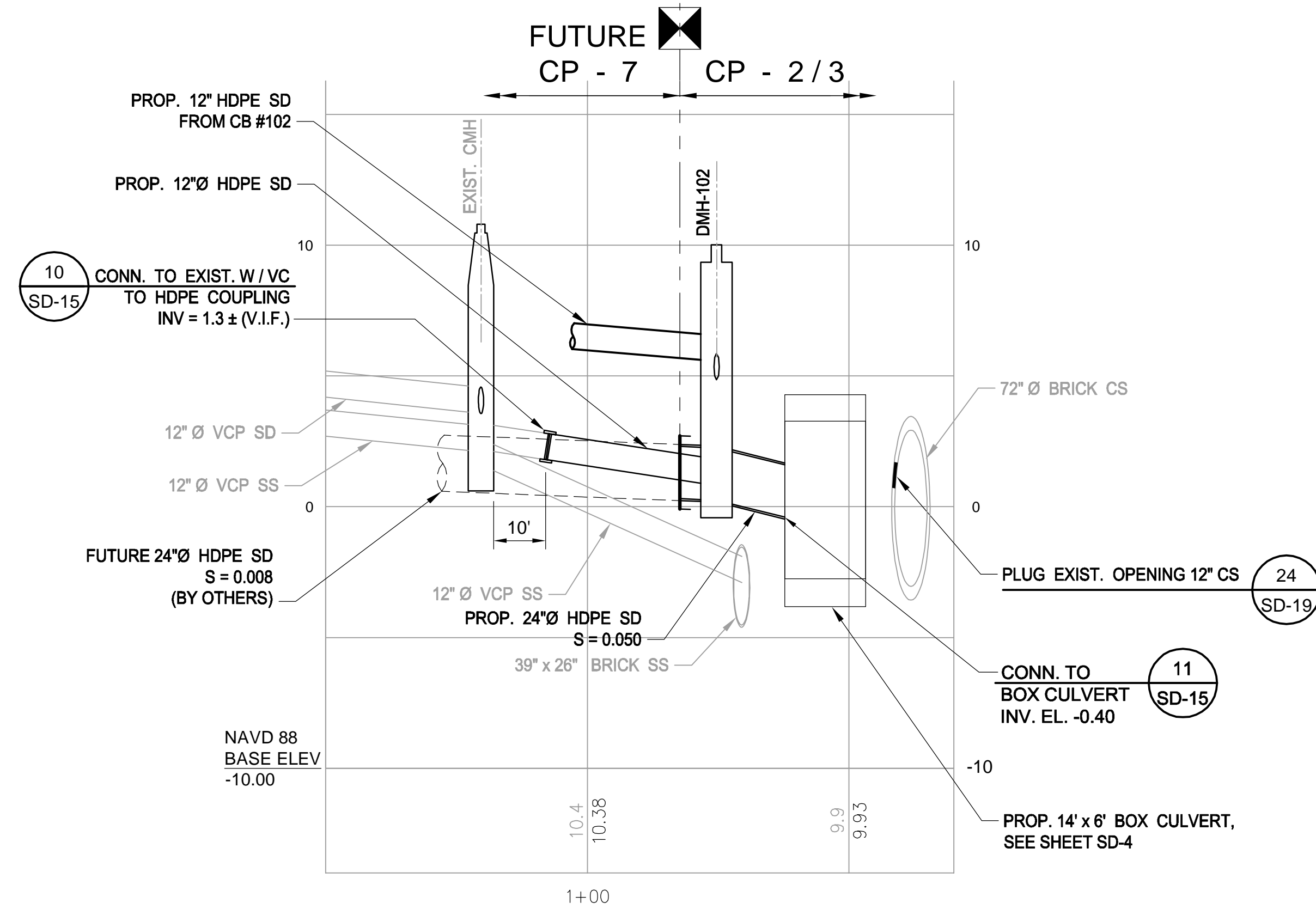
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-11-20 9:32 AM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-10.dwg



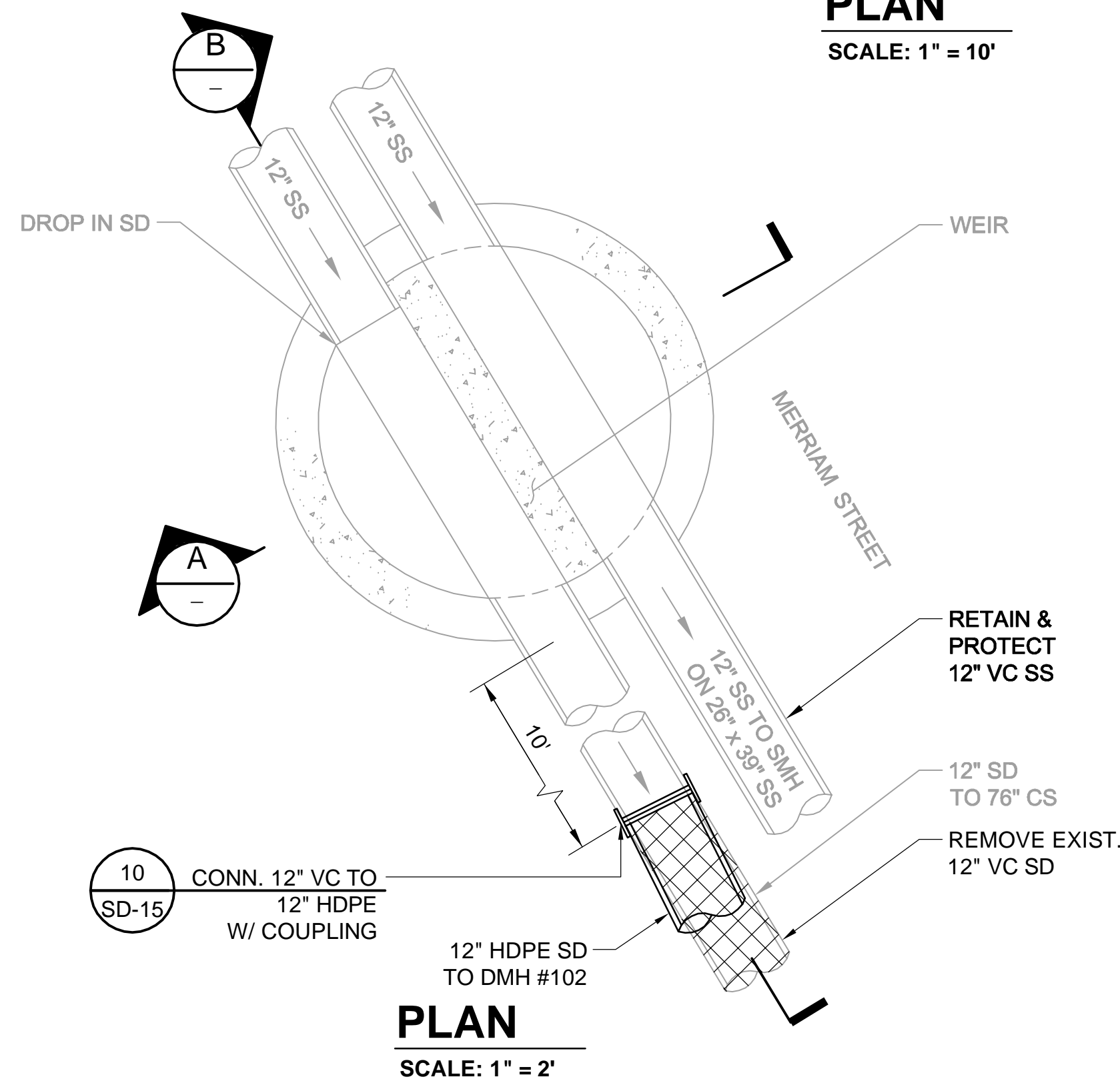
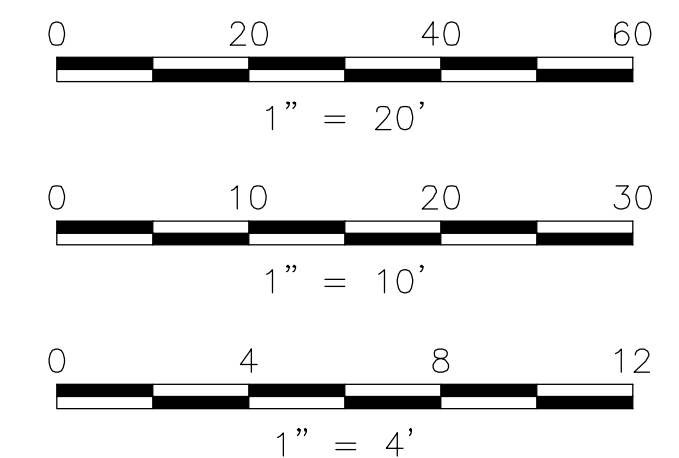
**PLAN**  
SCALE: 1" = 10'



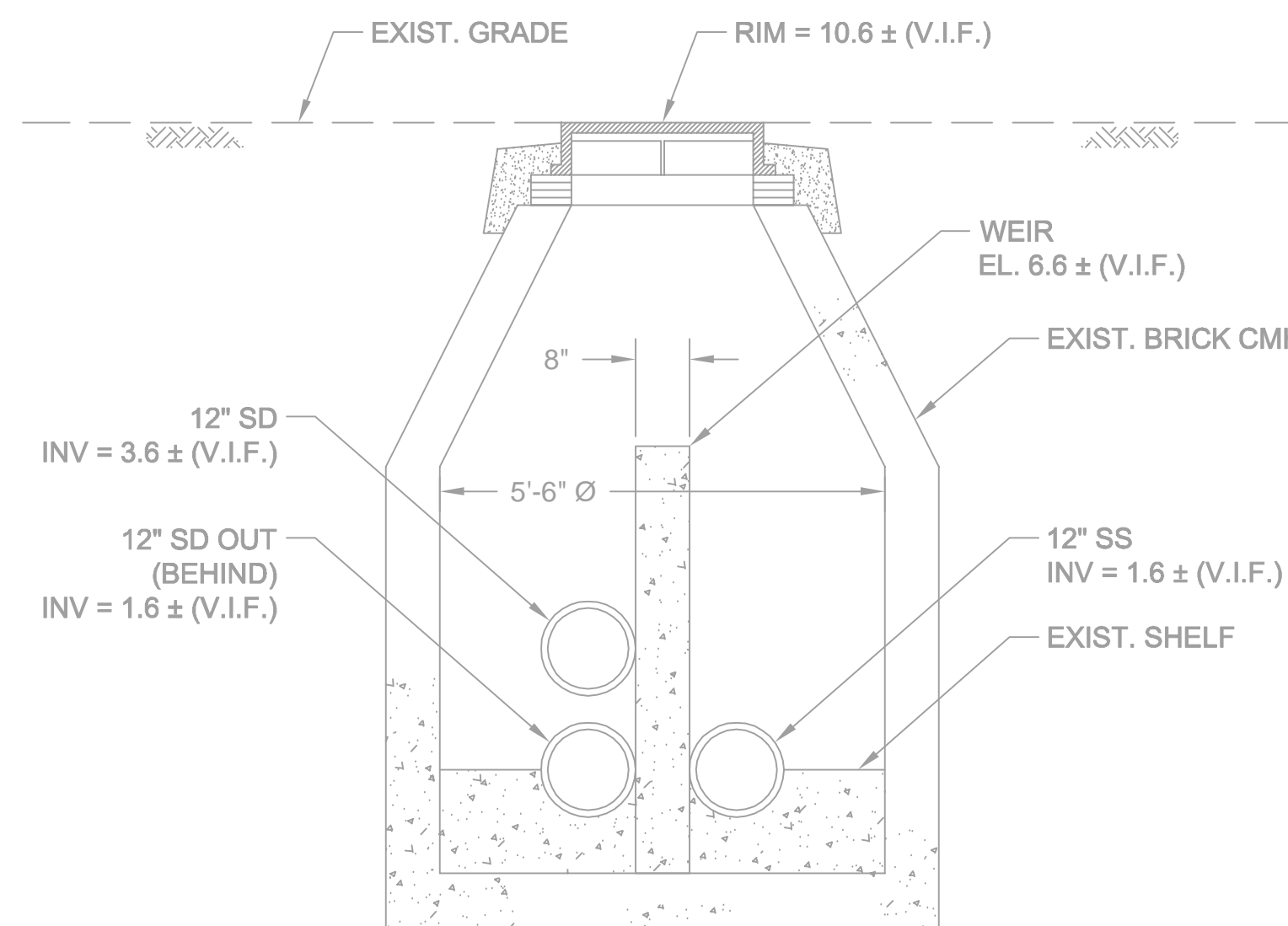
**MERRIAM STREET DRAIN PROFILE**  
SCALE: HORIZ 1" = 20'  
VERT 1" = 4'

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT

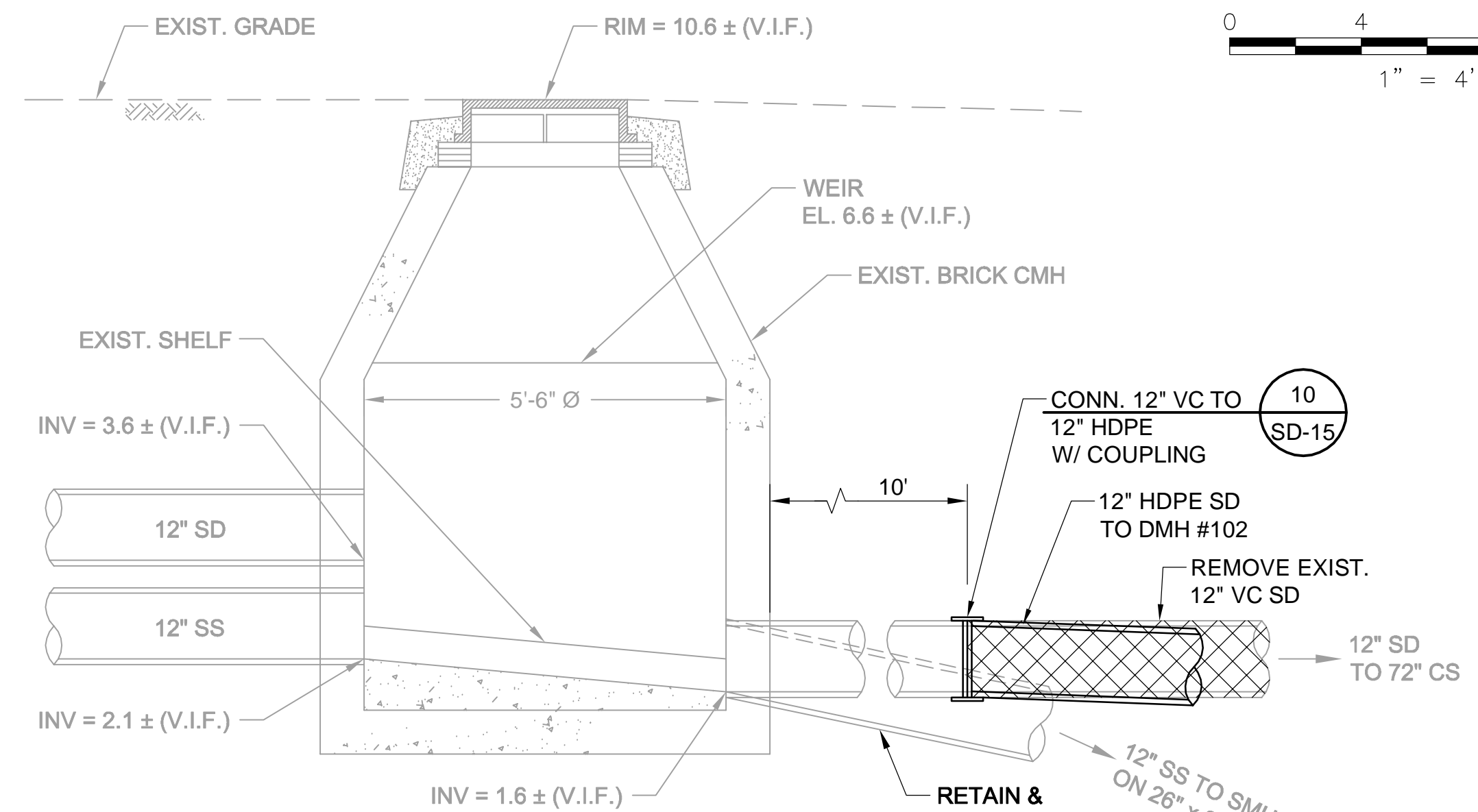
- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-14.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-24.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-4.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-4.
  7. FOR GRADING PLAN, SEE SHEET L-34.
  8. FOR UTILITY PLAN, SEE SHEET U-4.
  9. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-64.
  10. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
  11. TAKE TEST PITS AT LOCATION OF CB#102.
  12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-4.
  13. FOR DRAINAGE STRUCTURE RIMS AND INVERTS, SEE SHEET SD-67.



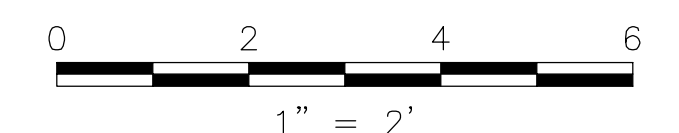
**PLAN**  
SCALE: 1" = 2'



**SECTION A**  
SCALE: 1" = 2'



**SECTION B**  
SCALE: 1" = 2'



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**MERRIAM STREET**  
**STORM DRAIN PLAN & PROFILE**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JD  
CHECKED: RJB

**WSP PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

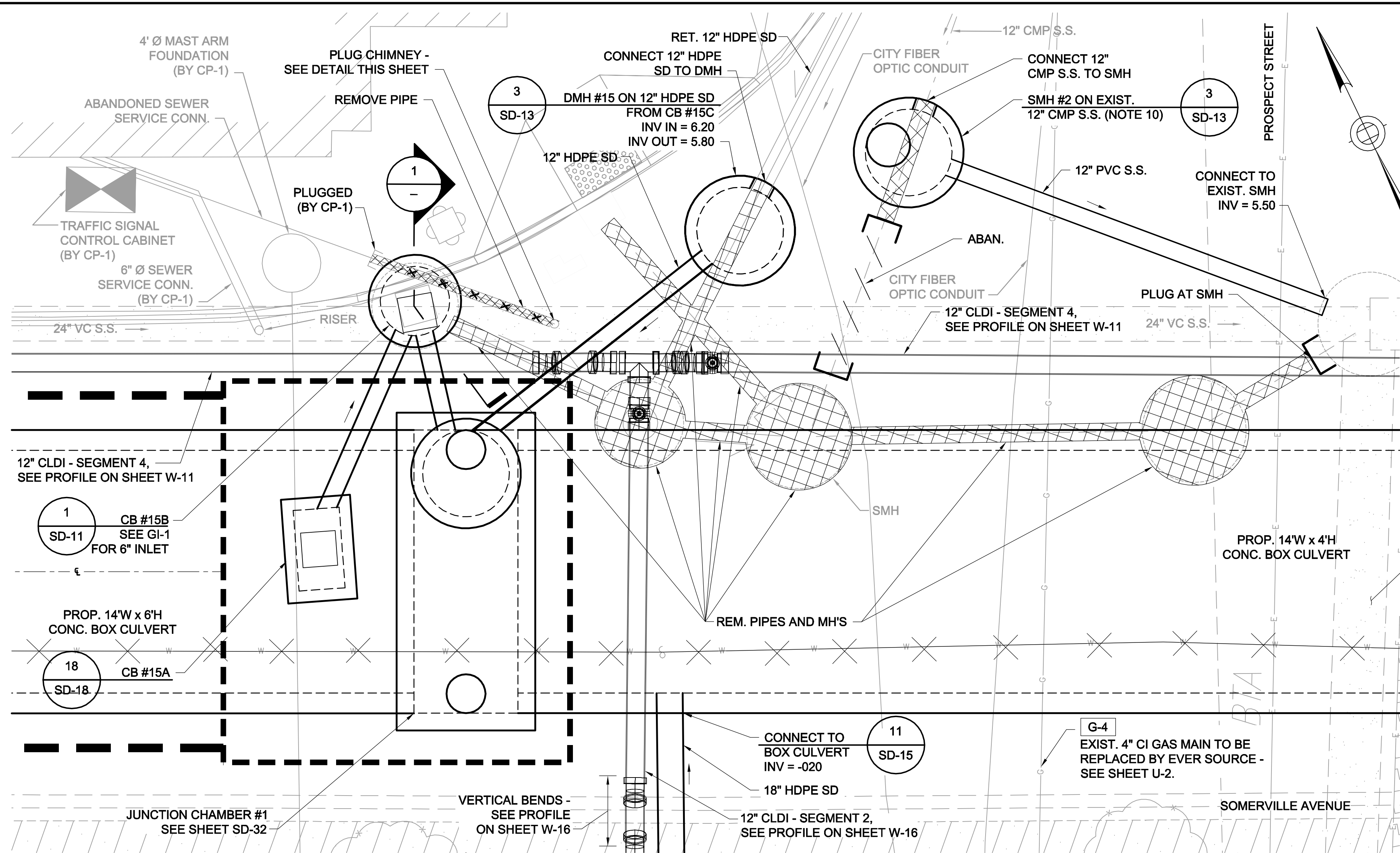
SCALE: AS NOTED  
DATE: DEC 2017

SHEET  
**SD-10**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

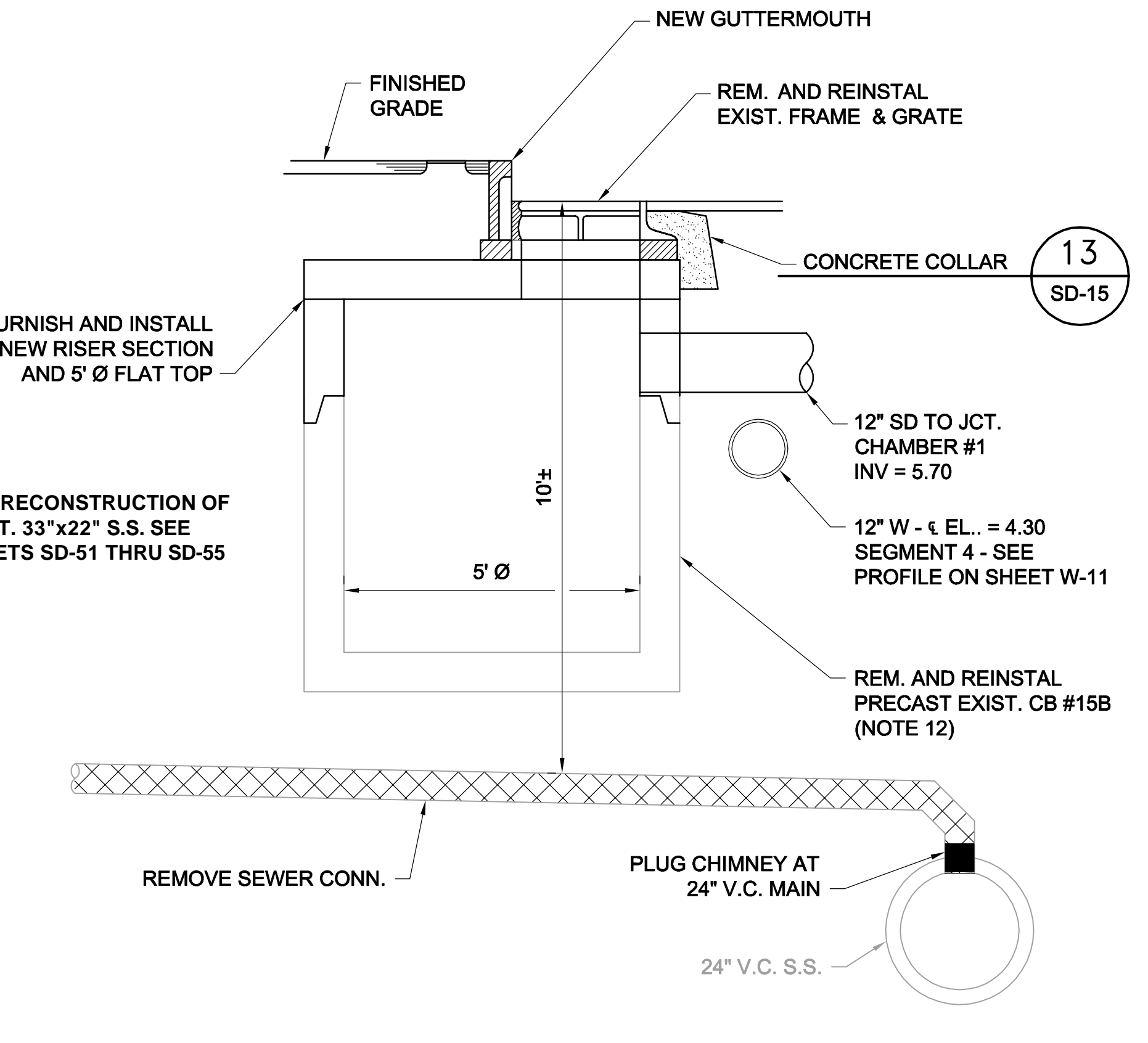
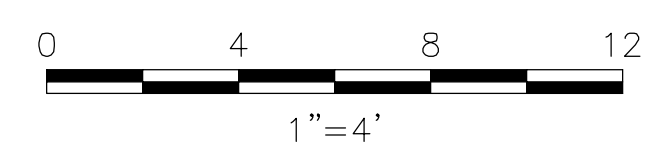
NO.	DATE	REVISIONS	BY

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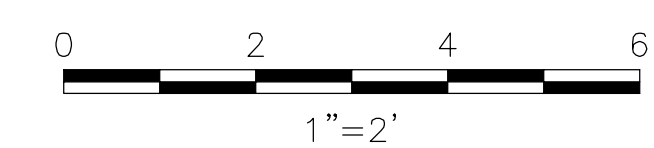
**PLAN**

SCALE: 1" = 4'



**PLUG CHIMNEY AT SEWER CONNECTION**

SCALE: 1" = 2'



**LEGEND:**

REMOVE PIPE OR STRUCTURE.

**NOTES:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR UTILITY PLAN, SEE SHEET U-2.
8. ALL PIPES ARE 12" HDPE U.N.O.
9. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-62.
10. VERIFY BY TEST PIT EXISTENCE & LOCATION OF 12" CMP S.S. SHOWN ON SURVEY PLAN SHEET G-22.
11. FOR TABLE OF RIMS & INVERTS, SEE SHEET SD-67.
12. EXISTING CB #15B INSTALLED NEW IN CP-1 IN 2016.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

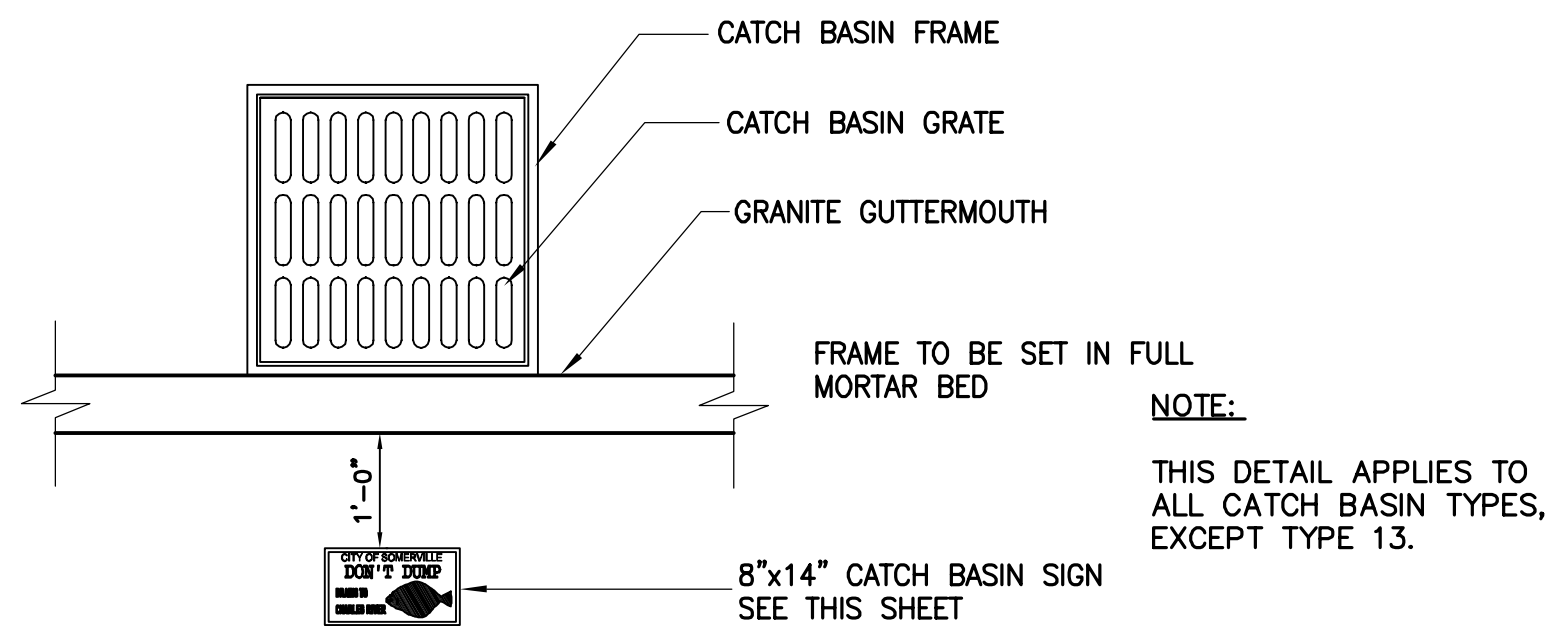
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PLAN ENLARGEMENT**  
**AT PROSPECT STREET**

DESIGNED: RJB CHECKED: LAC	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-11</b>
DRAWN: JD CHECKED: RJB		
REF. ACC.	CONT.	SCALE: AS NOTED DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

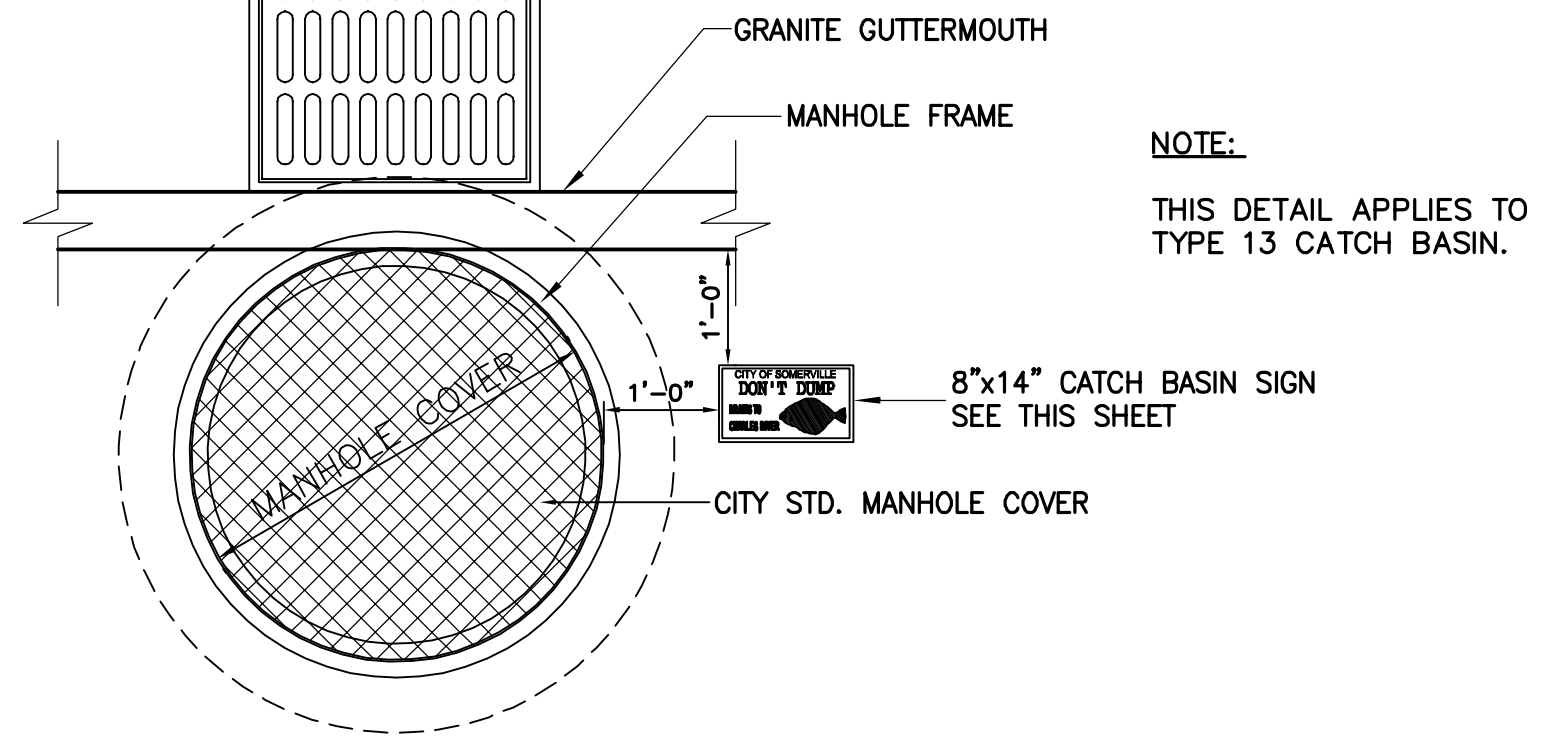
NO.	DATE	REVISIONS	BY

**DETAIL FOR ALL CATCH BASINS OTHER THAN TYPE 13**



NOTE:  
THIS DETAIL APPLIES TO ALL CATCH BASIN TYPES, EXCEPT TYPE 13.

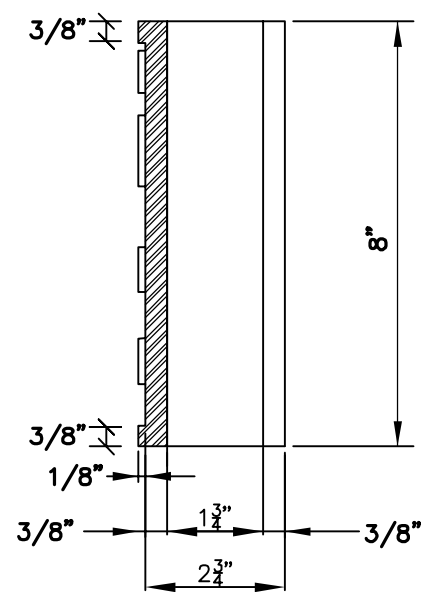
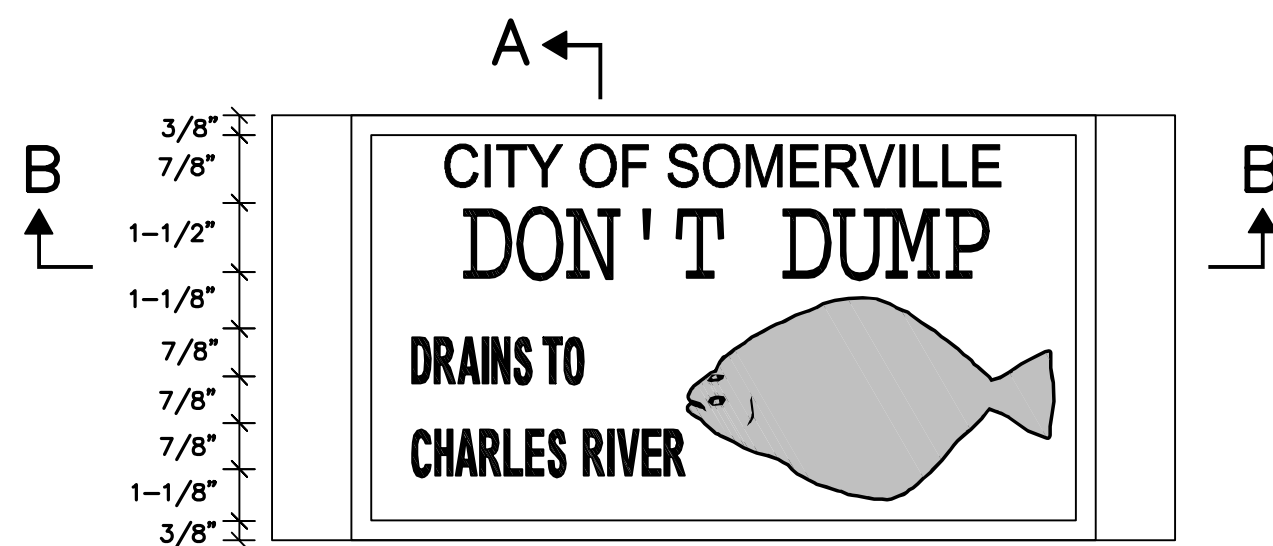
**DETAIL FOR TYPE 13 CATCH BASINS**



NOTE:  
THIS DETAIL APPLIES TO TYPE 13 CATCH BASIN.



**1 CATCH BASIN PLAQUE LOCATION PLACEMENT**  
SCALE: NTS

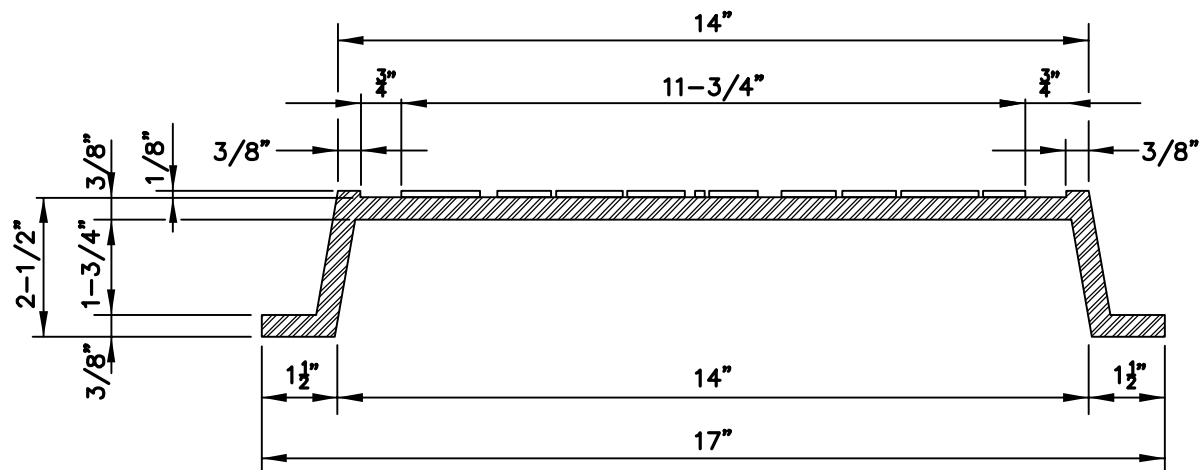


**A SECTION**  
SCALE: NTS

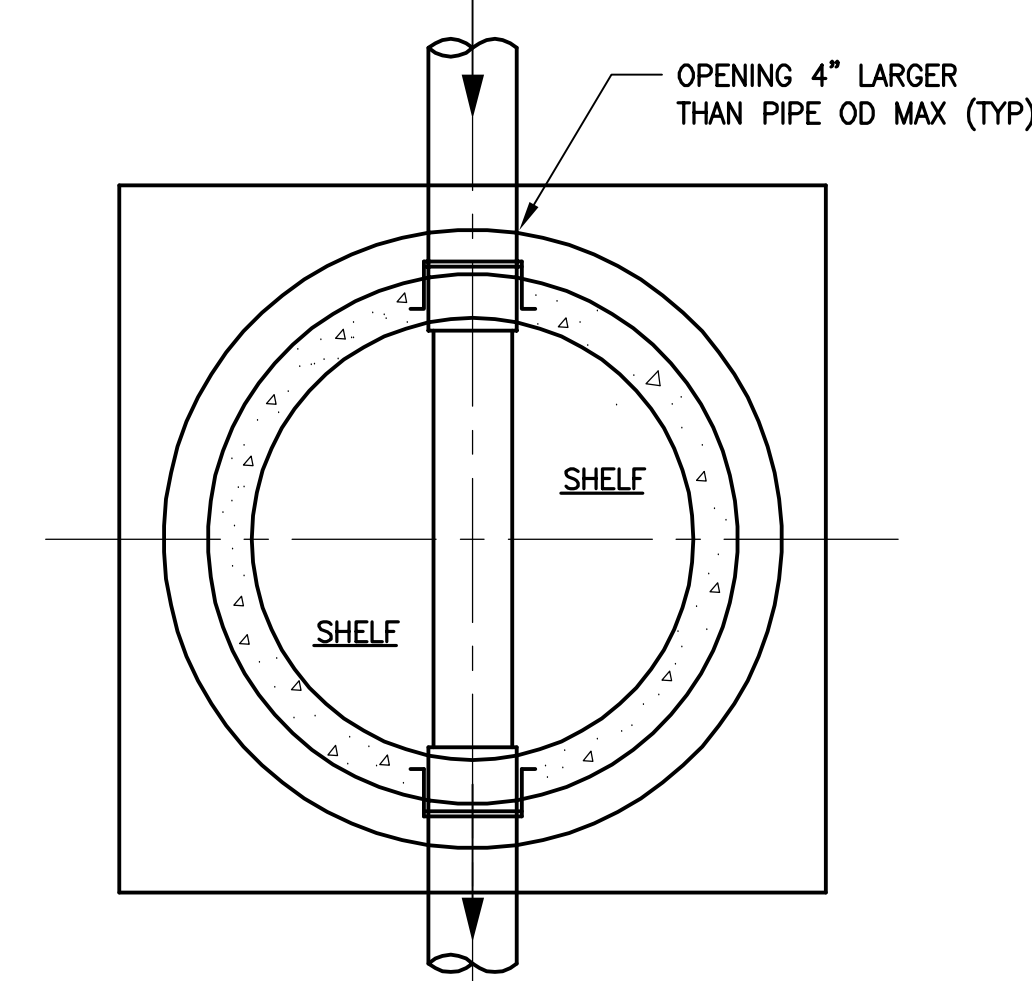
NOTES:

1. PROVIDE AT ALL CATCH BASINS AND DROP INLETS.
2. LETTERING, SYMBOLS, AND BORDER ALL CUT AT 1/8" HEIGHT.
3. THE SIZE OF THE FISH SHALL BE TO THE BWSC SPECIFICATIONS.
4. MINIMUM WEIGHT 18 LBS PER CASTING.
5. INSTALL ON SIDEWALK AT EACH CATCH BASIN LOCATION.

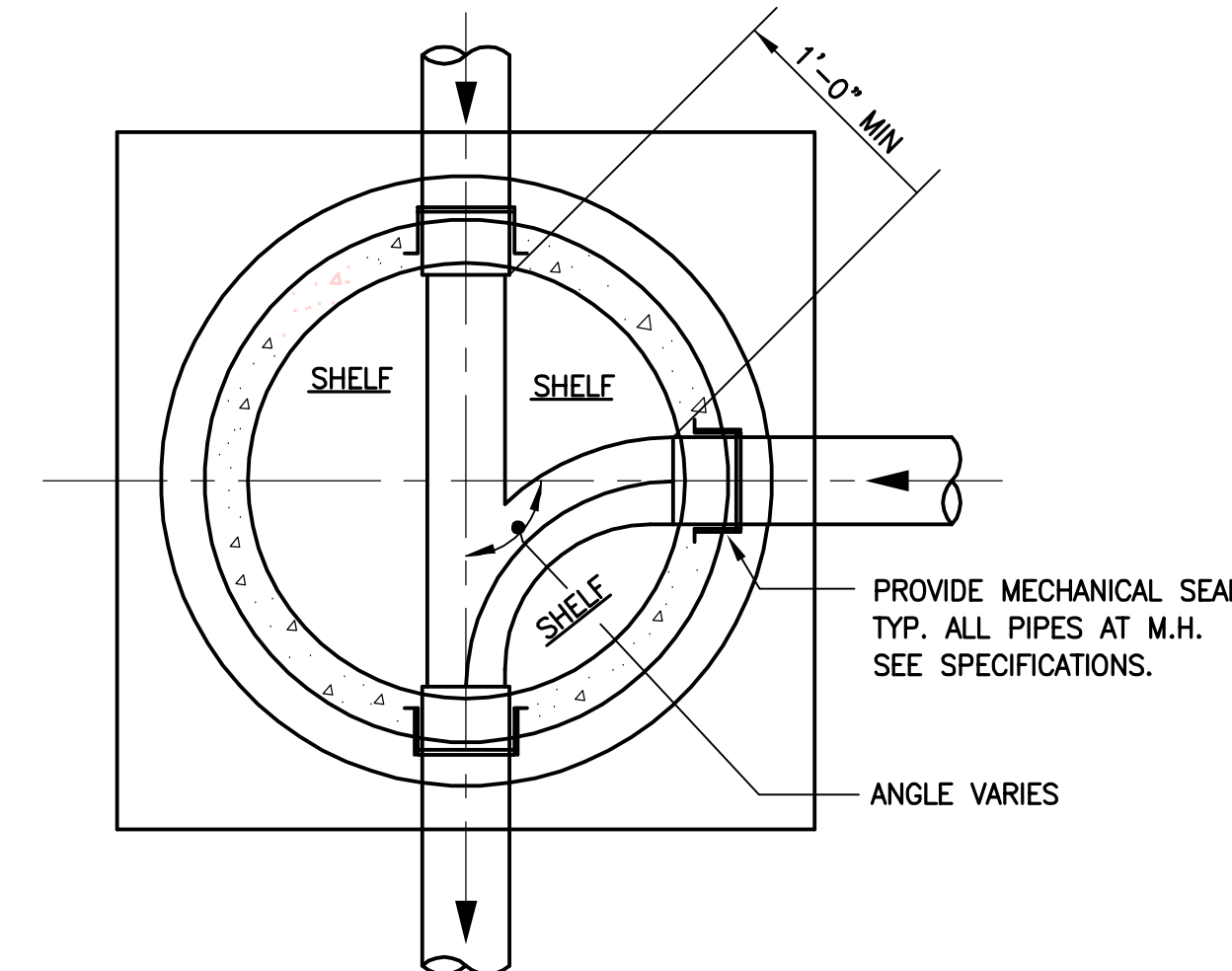
**2 CATCH BASIN PLAQUE**  
SCALE: NTS



**C SECTION FOR DETAIL 3 (AT STRAIGHT PIPE DRAINS)**  
SCALE: NTS

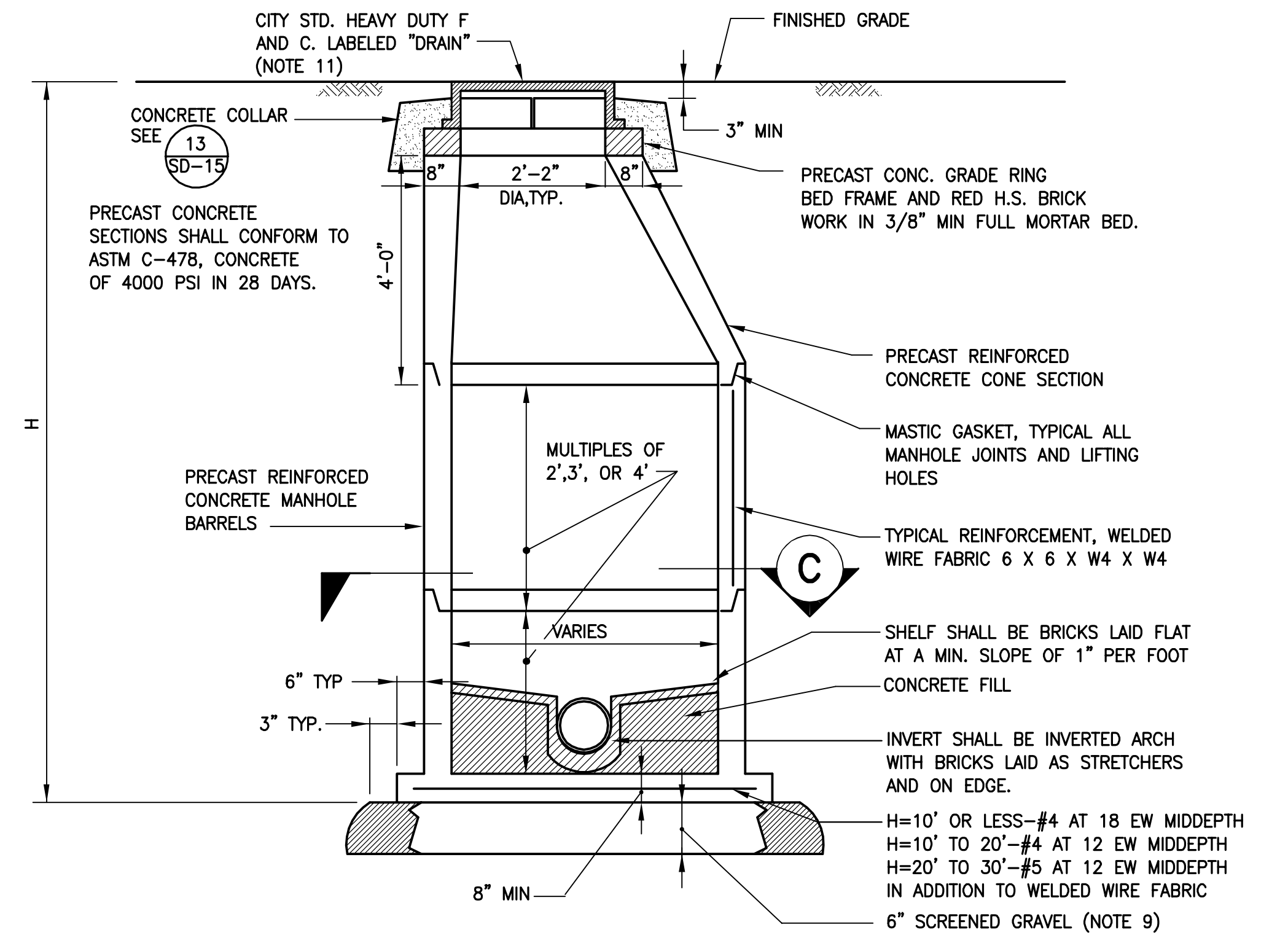


**C SECTION FOR DETAIL 3 (AT PIPE JUNCTURES)**  
SCALE: NTS



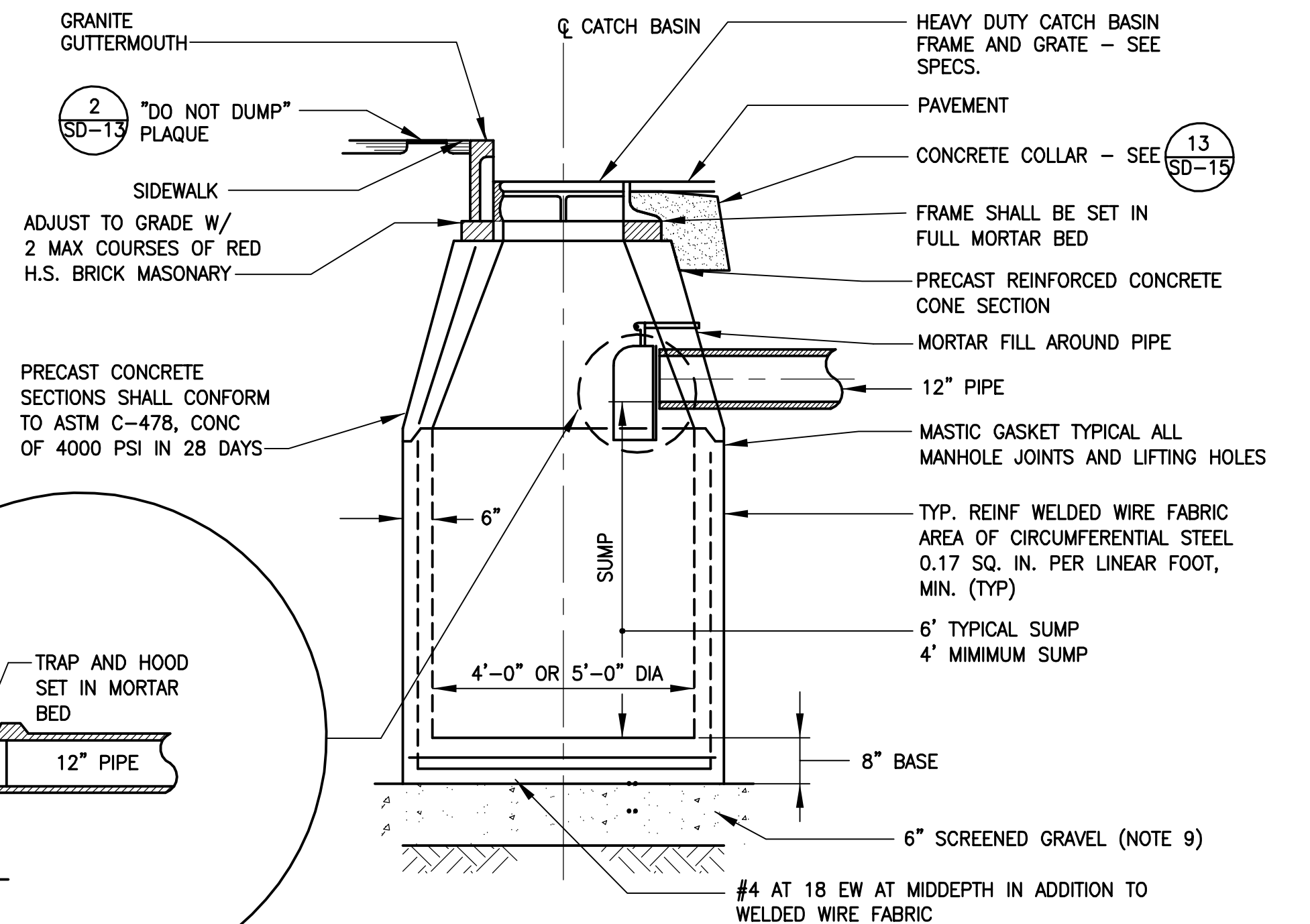
**NOTES FOR MANHOLES**

1. ALL CAST IN PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 4000 LBS PER SQ INCH, USING 3/4" MAXIMUM SIZE AGGREGATE.
2. REINFORCING STEEL BARS SHALL BE DEFORMED BARS OF NEW BILLET STEEL ASTM A615 GRADE 60.
3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
4. CAST IRON FRAME, AND COVER. COVERS SHALL BE MARKED "SEWER" OR "DRAIN".
5. DESIGN LIVE LOAD - HS20-44.
6. MINIMUM COVER FOR REINFORCING IN WALLS OR SLABS POURED AGAINST EARTH SHALL BE 3 INCHES, ALL OTHER SHALL BE 2 INCHES UNLESS OTHERWISE NOTED.
7. USE 2'-0" LENGTHS OF PIPE STUBS AT ALL MANHOLES FOR PVC PIPE. USE 4'-0" MAX LENGTH OF PIPE STUBS AT ALL MANHOLES FOR RC OR DI PIPE.
8. MAXIMUM PRESSURE ON SOIL BELOW CAST IN PLACE CONCRETE BASE SHALL NOT EXCEED ALLOWABLE BEARING PRESSURE.
9. WHERE WET CONDITION EXIST, SUBSTITUTE CRUSHED STONE FOR SCREENED GRAVEL FOR SUBBASE AT MANHOLE AND CATCH BASINS.
10. FOR TABLE OF RIMS & INVERTS, SEE SHEET SD-67.
11. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS



**3 TYPICAL PRECAST CONCRETE MANHOLE**  
SCALE: NTS

NOTE:  
1. 6" LIP OPTIONAL UNLESS OTHERWISE NOTED



**4 TYPICAL CATCH BASIN**  
SCALE: NTS

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

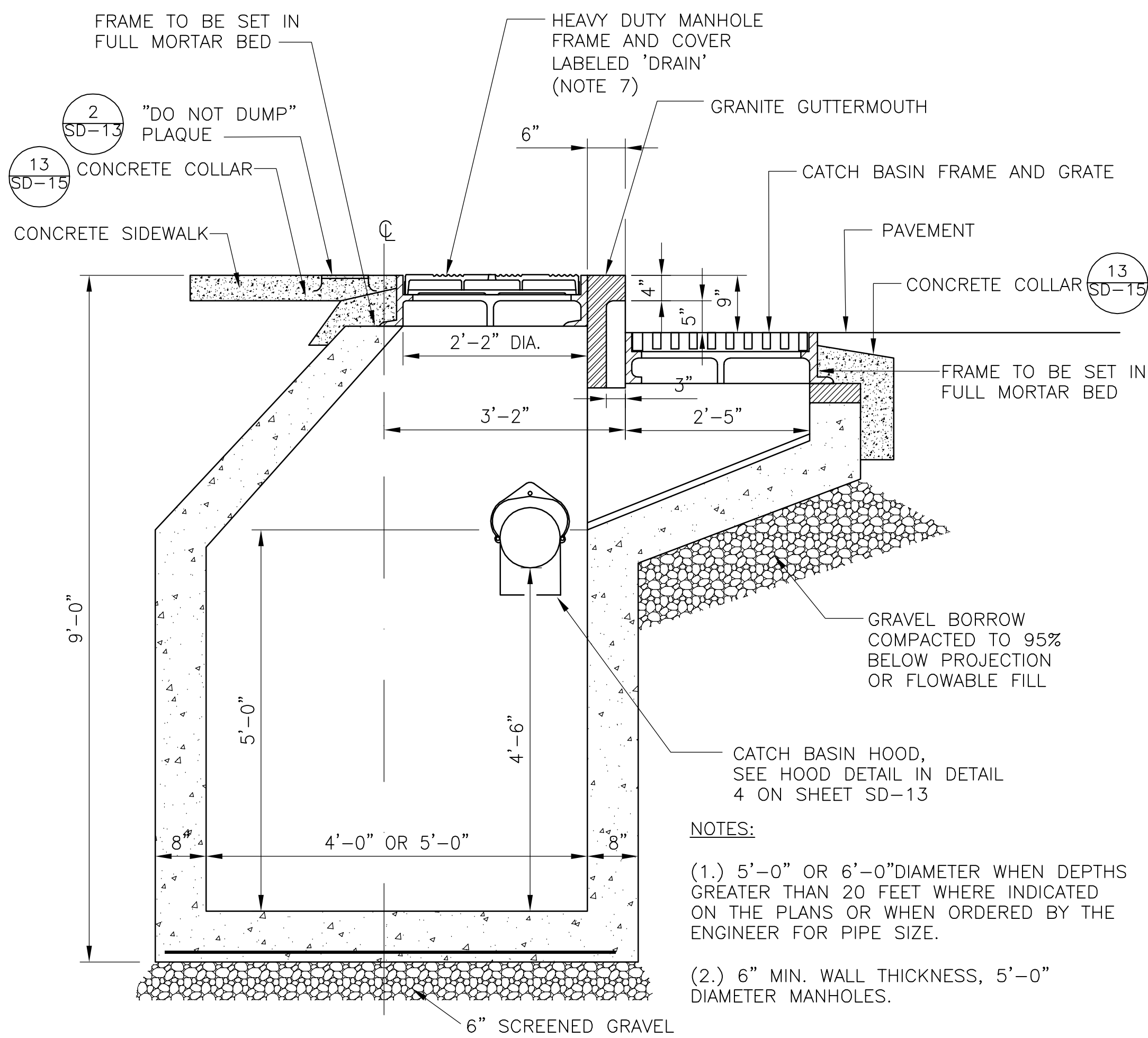
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**STORM DRAIN AND SEWER STANDARD DETAILS**  
**SHEET 1 OF 7**

DESIGNED: LAC		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-13</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: LAC		ACC.	SCALE: N.T.S.	
CHECKED: RJB			DATE: DEC 2017	

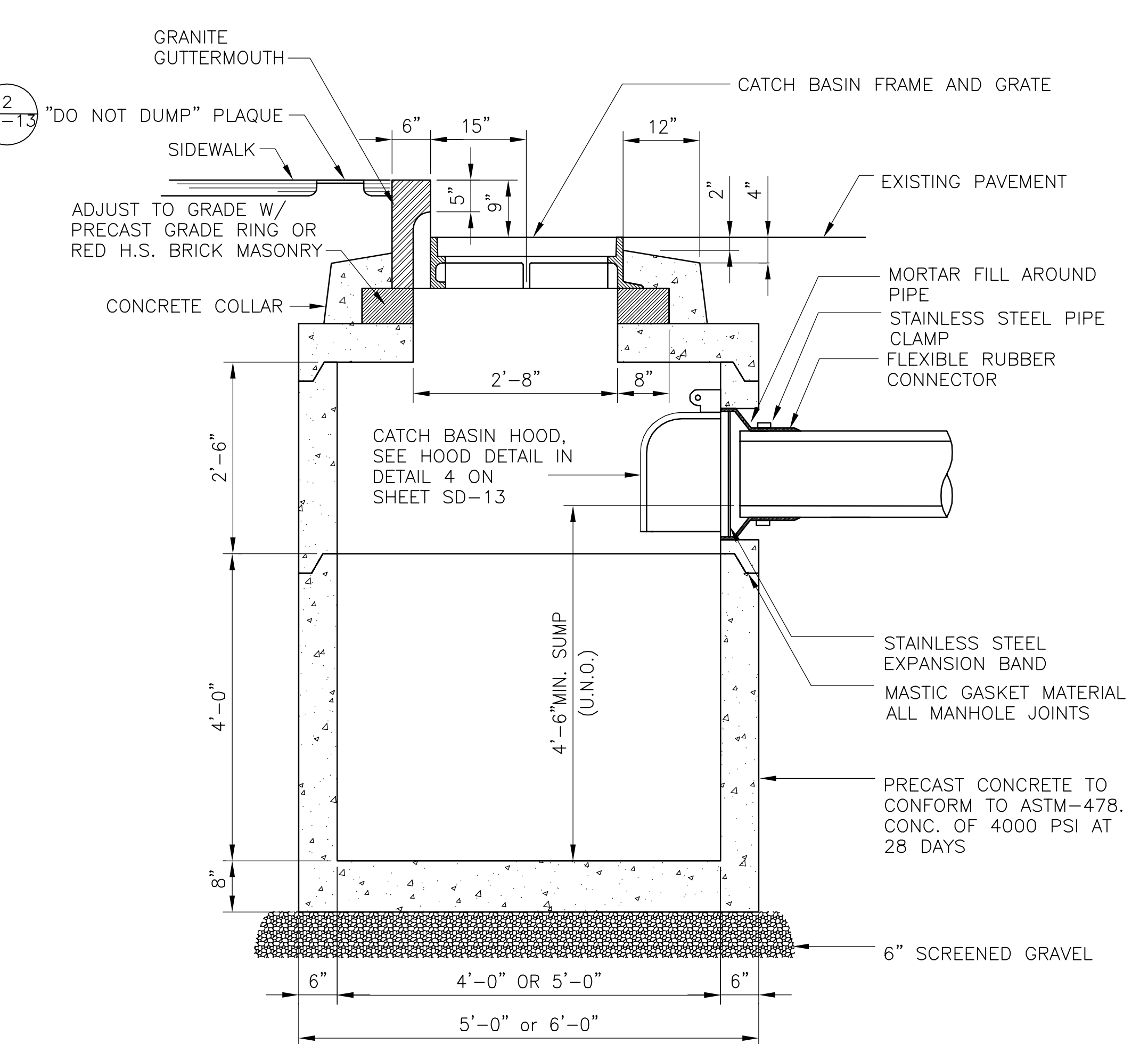
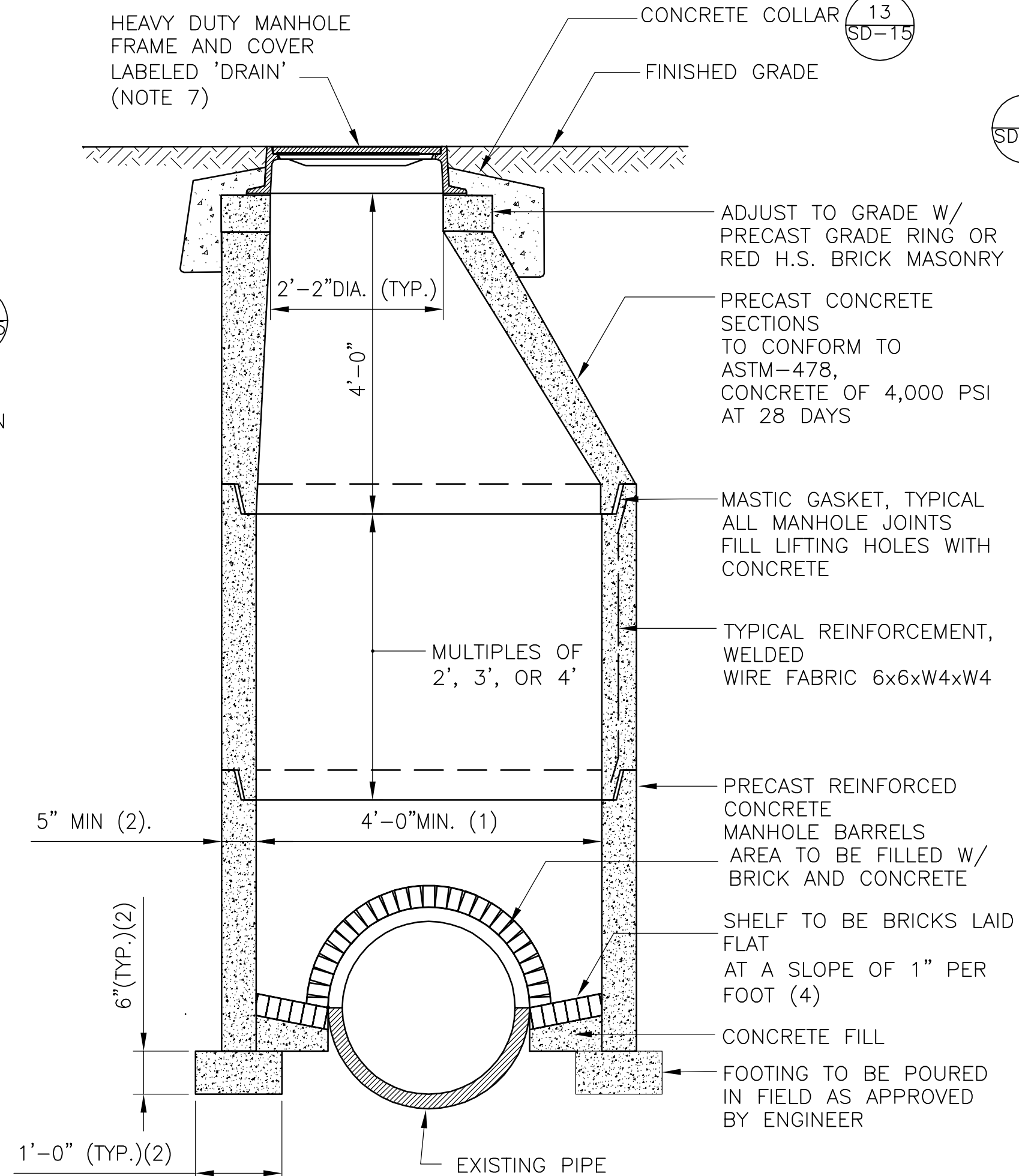
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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**NOTES:**  
 (1.) 5'-0" OR 6'-0" DIAMETER WHEN DEPTHS GREATER THAN 20 FEET WHERE INDICATED ON THE PLANS OR WHEN ORDERED BY THE ENGINEER FOR PIPE SIZE.  
 (2.) 6" MIN. WALL THICKNESS, 5'-0" DIAMETER MANHOLES.



**5 CATCH BASIN WITH OFFSET SUMP (TYPE 13)**  
SCALE: NTS

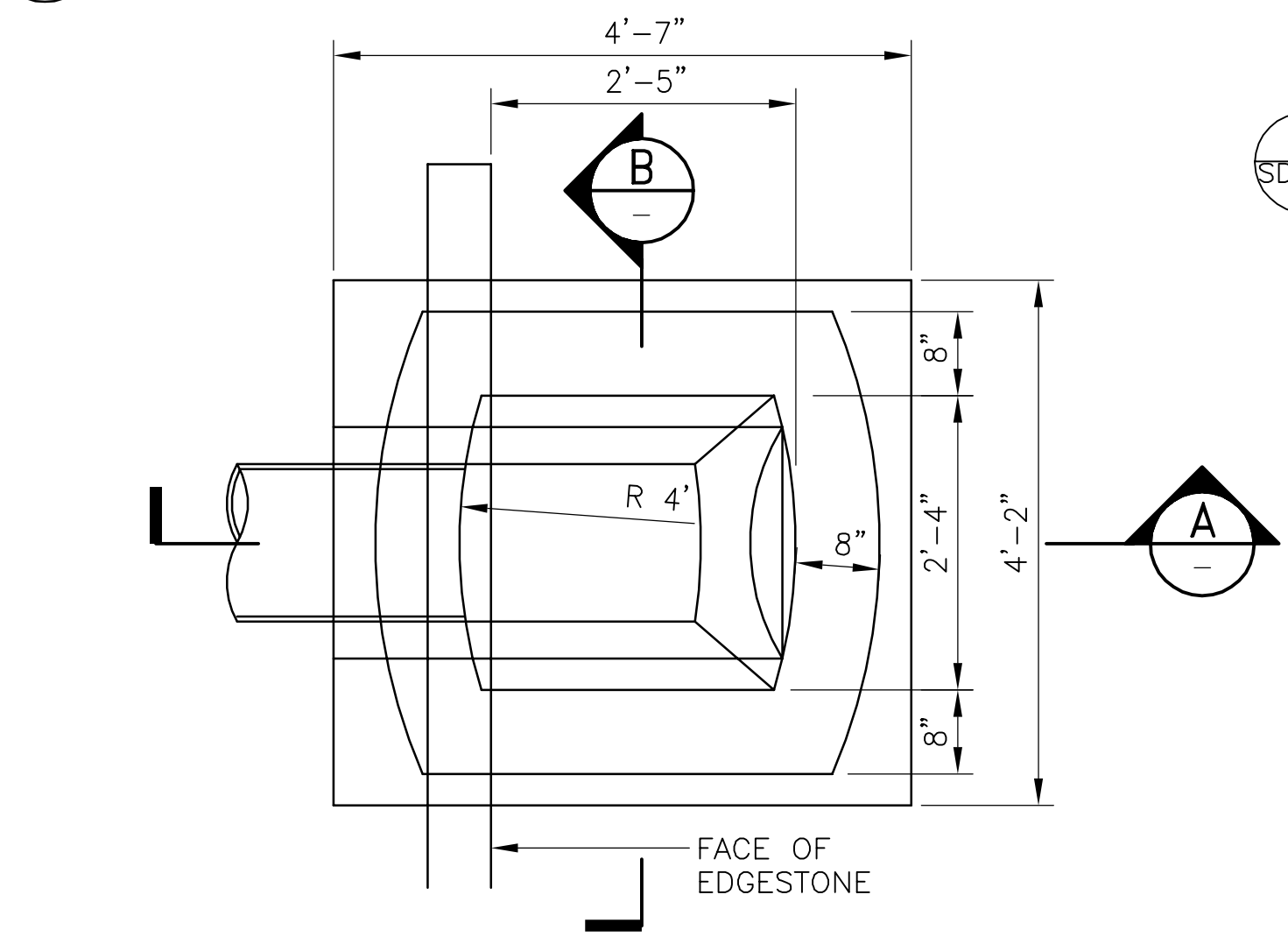
**7 TYPICAL DOG HOUSE MANHOLE**  
SCALE: NTS

**8 CATCH BASIN WITH FLAT TOP**  
SCALE: NTS

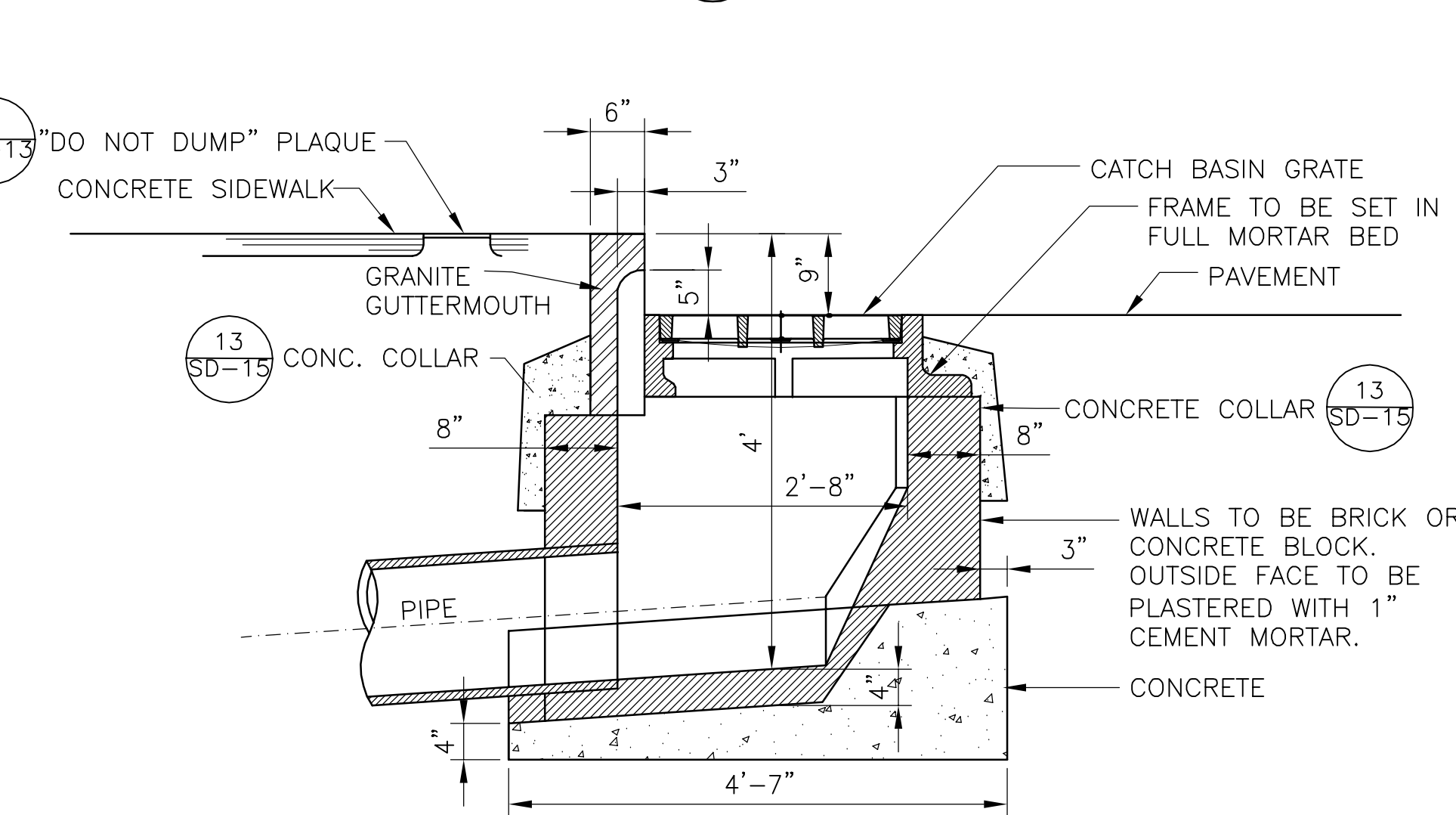
**NOTES - FOR ALL DETAILS ON THIS SHEET:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. ALL CONC. SHALL BE PRECAST U.N.O.
4. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
5. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
6. FOR RIMS & INVERTS, SEE TABLE ON SHEET SD-67.
7. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.

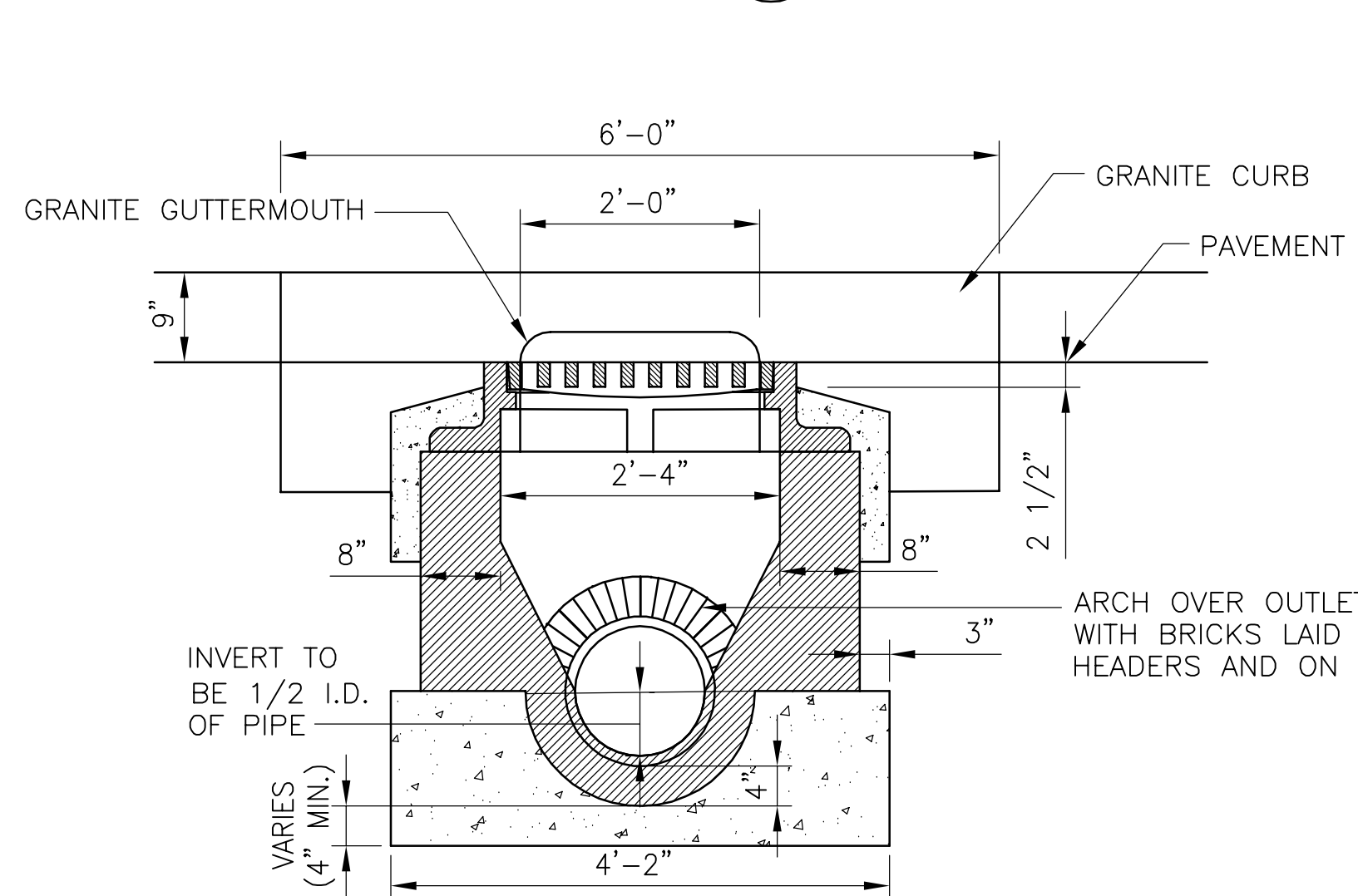
RACHEL J. BURCKARDT  
 CIVIL  
 No. 31880  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MASSACHUSETTS  
 12/11/17



**6 DROP INLET WITH GUTTERMOUTH**  
SCALE: NTS



**A SECTION**  
SCALE: NTS



**B SECTION**  
SCALE: NTS

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**STORM DRAIN AND SEWER STANDARD DETAILS**  
**SHEET 2 OF 7**

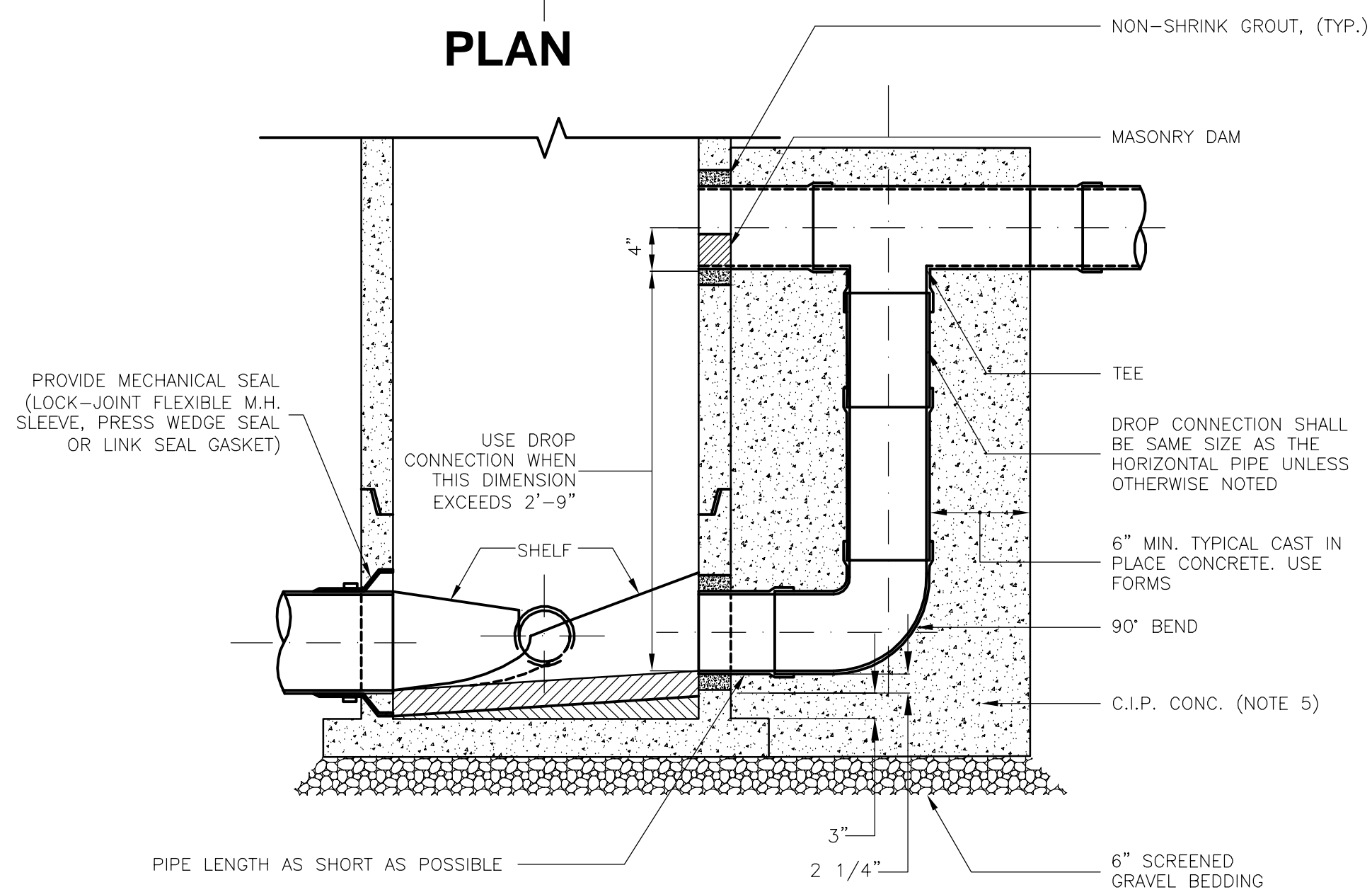
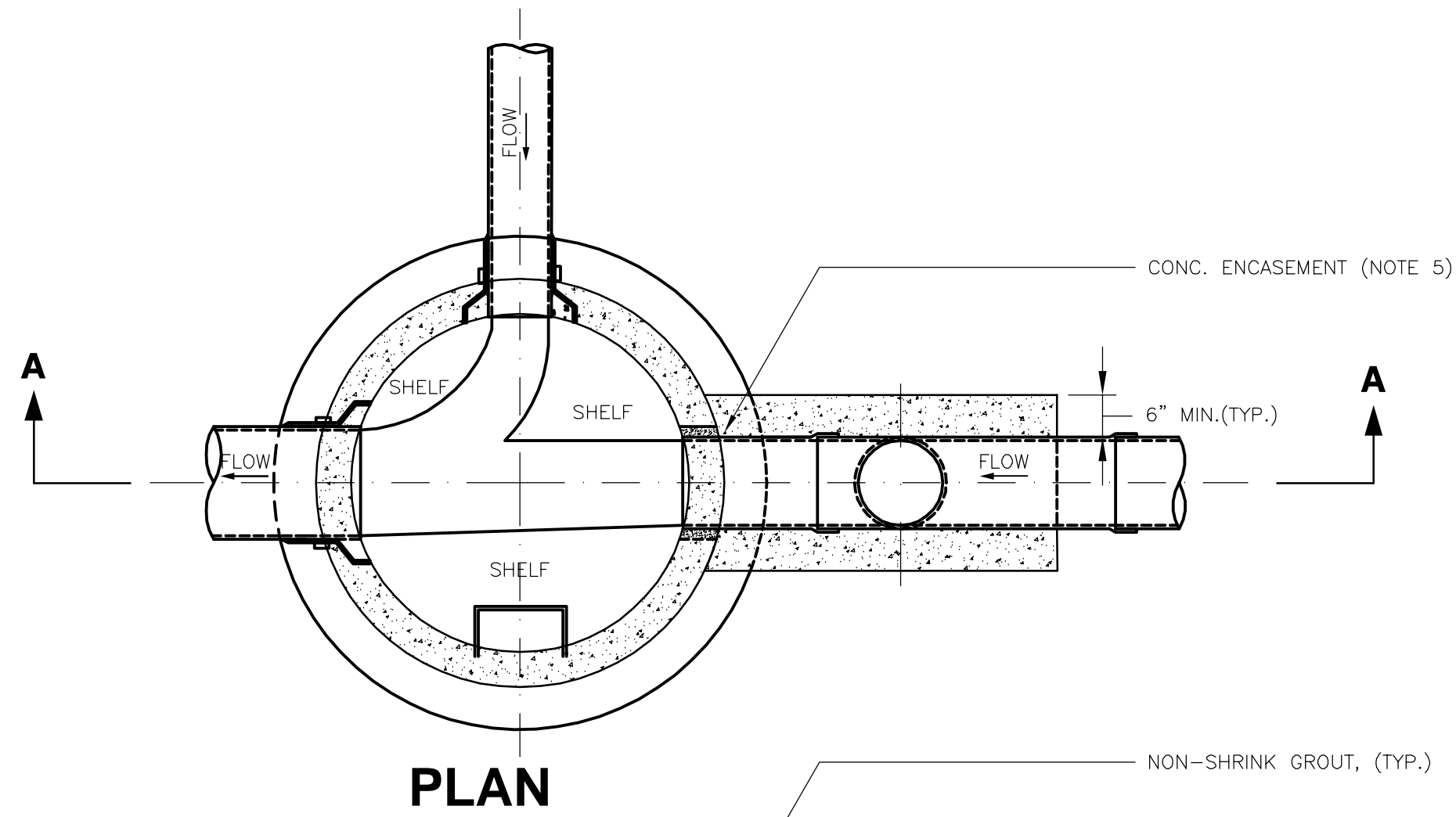
DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-14</b>
CHECKED: LAC		
DRAWN: JLM	REF.	CONT.
CHECKED: RJB	ACC.	SCALE: N.T.S. DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

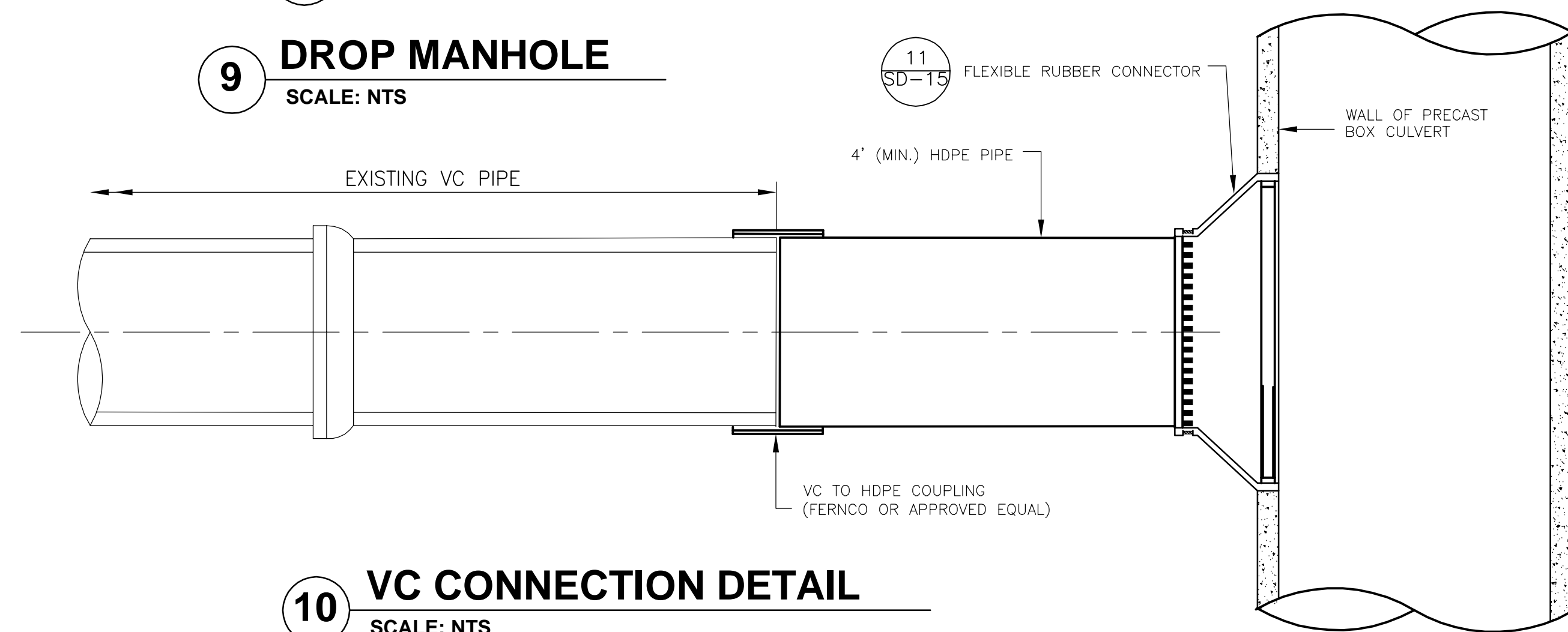
NO.	DATE	REVISIONS	BY



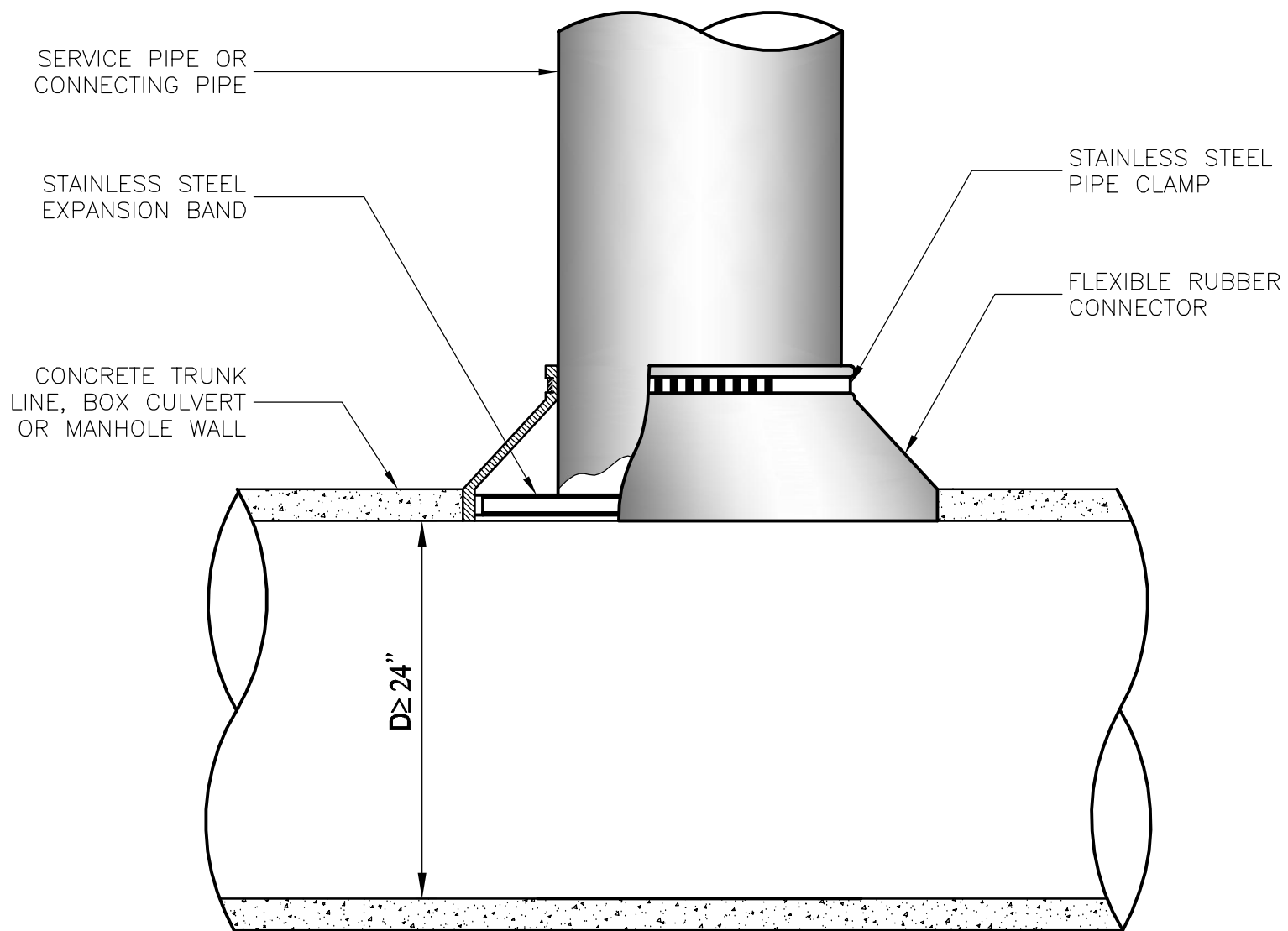
2017-11-14 3:17 PM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-15.dwg



**9 DROP MANHOLE**  
SCALE: NTS



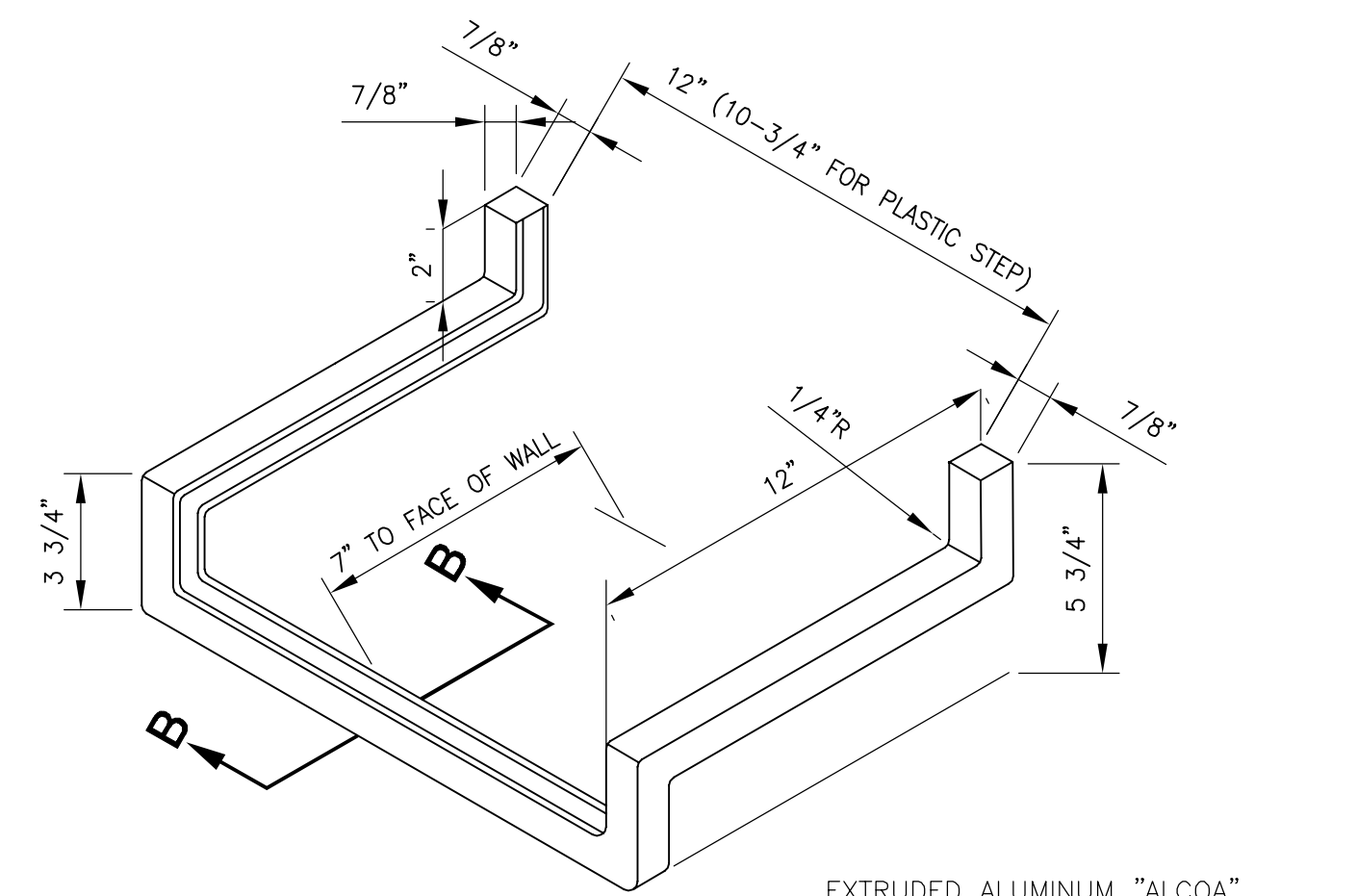
**10 VC CONNECTION DETAIL**  
SCALE: NTS



**NOTES:**

1. OPENING IN CONCRETE WALL SHALL BE CORED USING HIGH SPEED DIAMOND DRILL
2. ALL METAL FIXTURES SHALL BE OF STAINLESS STEEL
3. SERVICE OR CONNECTING PIPE SHALL BE FLUSH WITH THE INSIDE OF THE CONCRETE PIPE OR WALL
4. IF TRUNK LINE DIAMETER IS LESS THAN 24" THEN A SADDLE TYPE CONNECTION SHALL BE USED

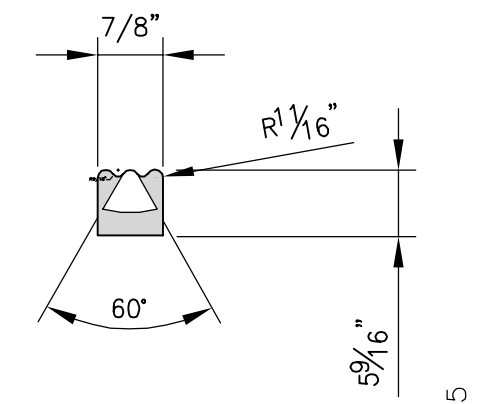
**11 TYPICAL FIELD CONNECTION**  
SCALE: NTS



**NOTES:**

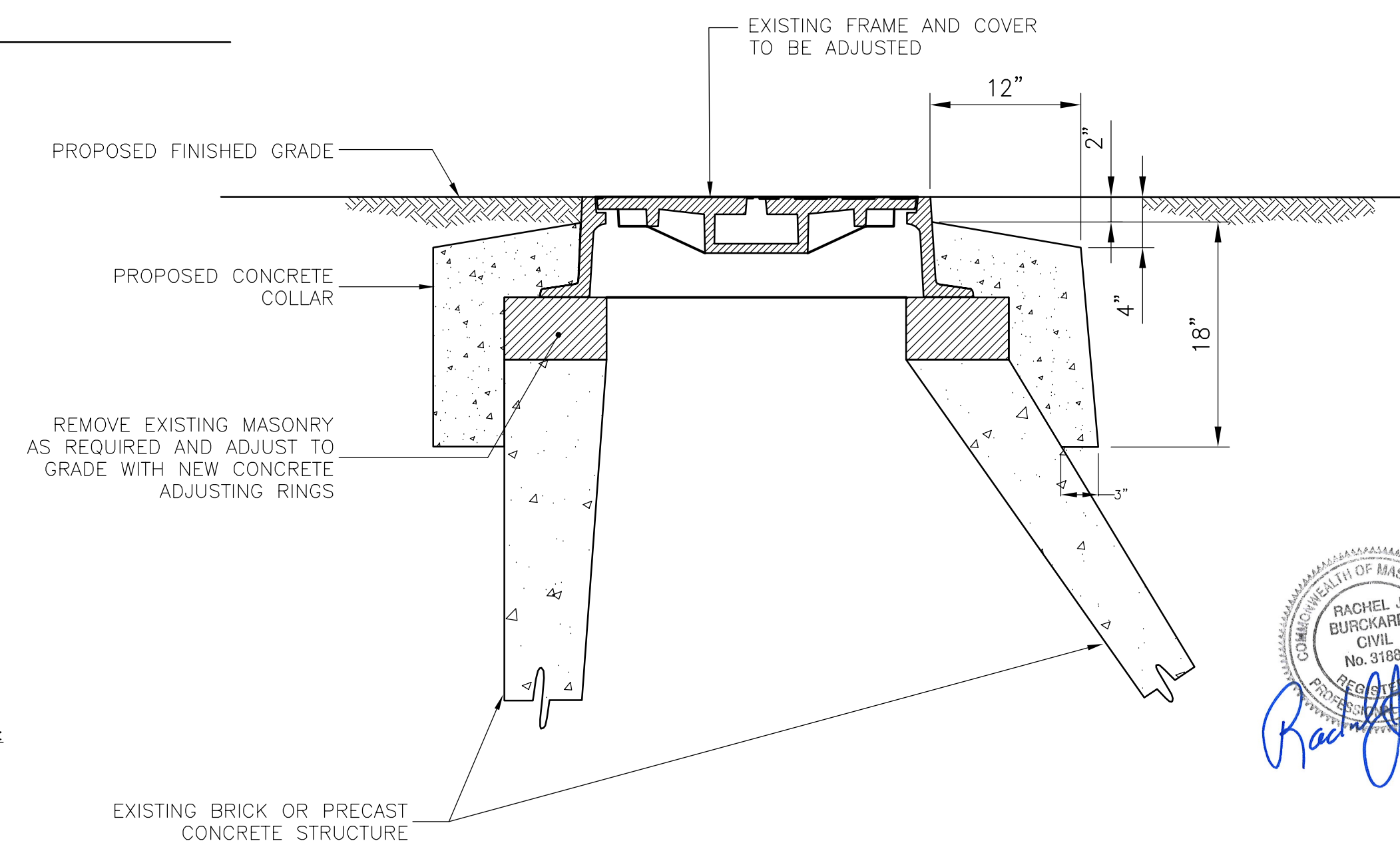
1. PORTION EMBEDDED IN CONCRETE COATED WITH HEAVY-BODIED BITUMINOUS MATERIAL AS SPECIFIED OR APPROVED.
2. STEPS ARE ONLY TO BE PROVIDED FOR SPECIFICALLY IDENTIFIED STRUCTURES.

EXTRUDED ALUMINUM "ALCOA" 6061-T6 NO.126538 OR APPROVED EQUAL OR STEEL REINFORCED POLYPROPYLENE PLASTIC.



**B SECTION**  
SCALE: NTS

**12 MANHOLE STEP**  
SCALE: NTS



**NOTES - FOR ALL DETAILS ON THIS SHEET:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. ALL CONC. SHALL BE PRECAST U.N.O.
4. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
5. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
6. FOR RIMS & INVERTS, SEE TABLE ON SHEET SD-67.

**13 CONCRETE MANHOLE ADJUSTMENT TO GRADE**  
SCALE: NTS

SEAL OF THE COMMONWEALTH OF MASSACHUSETTS  
RACHEL J. BURCKARDT  
CIVIL  
No. 31880  
Professional Seal  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**STORM DRAIN AND SEWER STANDARD DETAILS**  
**SHEET 3 OF 7**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB

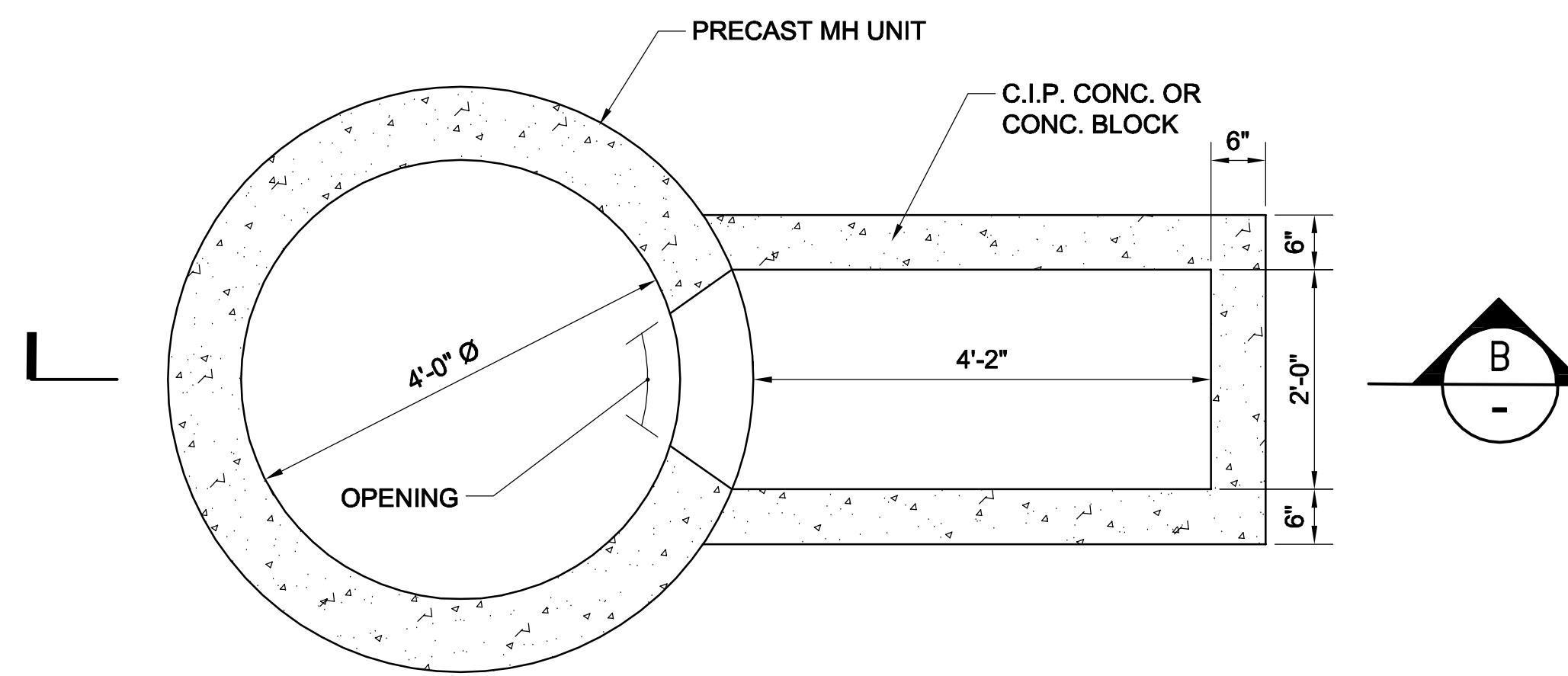
**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

SHEET  
**SD-15**

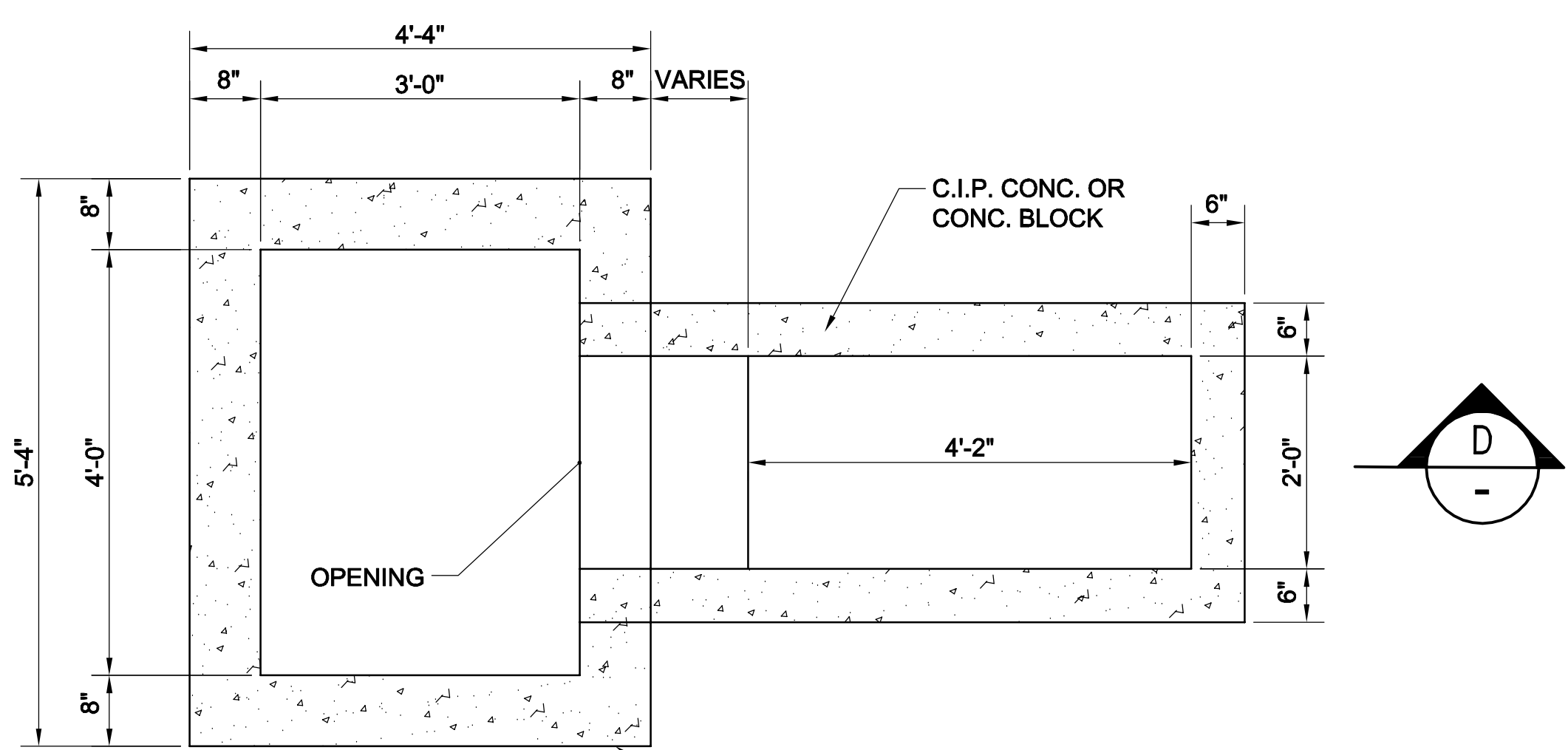
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ACC. DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

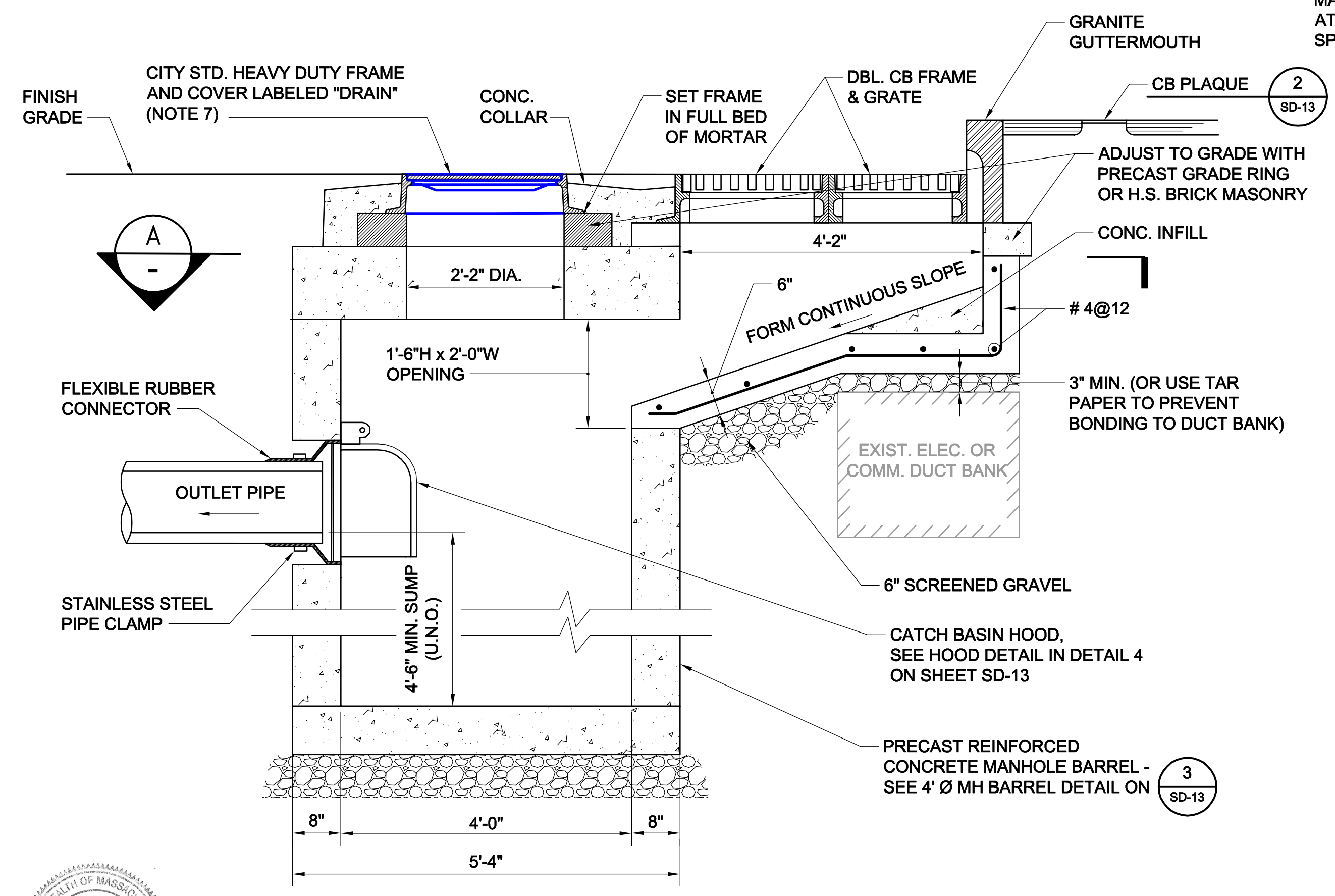


**A SECTION**  
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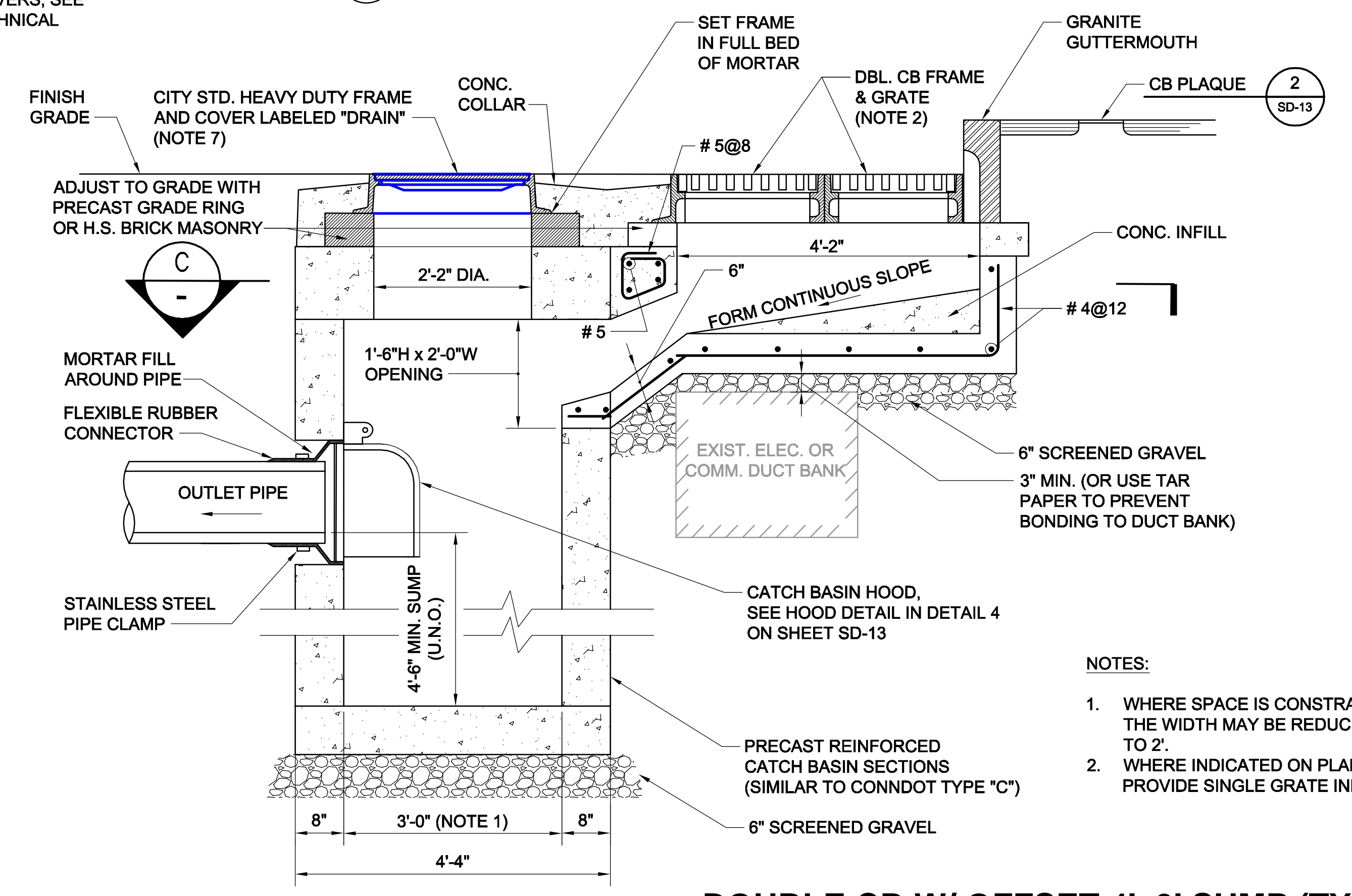


**C SECTION**  
SCALE: NTS

- NOTES - FOR ALL DETAILS ON THIS SHEET:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. ALL CONC. SHALL BE PRECAST U.N.O.
  4. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  5. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  6. FOR RIMS & INVERTS, SEE TABLE ON SHEET SD-67.
  7. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS



**14 DOUBLE CB W/ OFFSET 4' Ø SUMP (TYPE 14)**  
SCALE: NTS



**15 DOUBLE CB W/ OFFSET 4'x3' SUMP (TYPE 15)**  
SCALE: NTS

- NOTES:**
1. WHERE SPACE IS CONSTRAINED, THE WIDTH MAY BE REDUCED TO 2'.
  2. WHERE INDICATED ON PLANS, PROVIDE SINGLE GRATE INLET.

RACHEL J. BURCKARDT  
CIVIL  
No. 31590  
12/11/17

**B SECTION**  
SCALE: NTS

**D SECTION**  
SCALE: NTS

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**STORM DRAIN AND SEWER STANDARD DETAILS**  
**SHEET 4 OF 7**

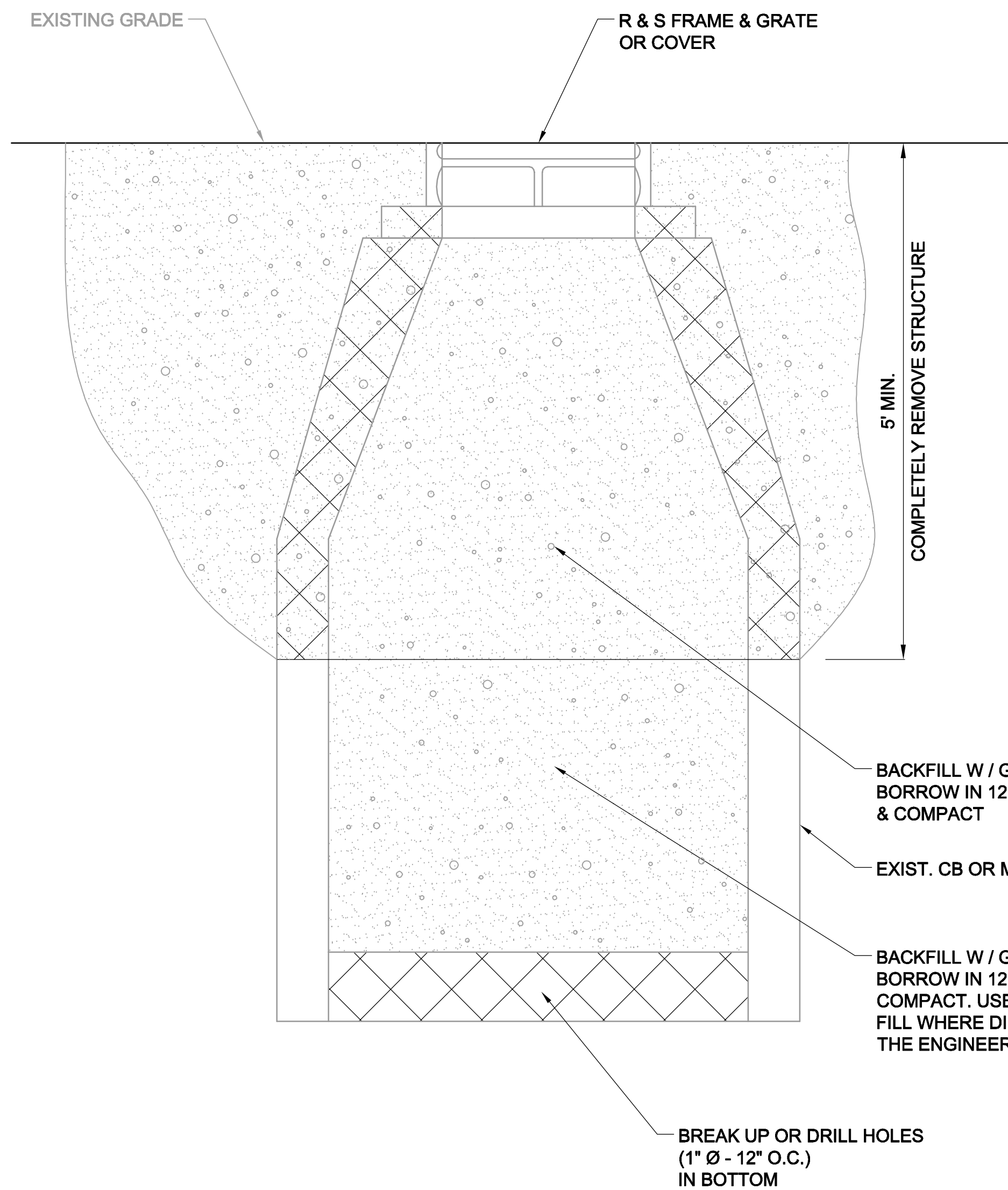
DESIGNED: RJB		Parsons Brinckerhoff, Inc.		SHEET
CHECKED: LAC		75 Arlington St. Boston, MA 02116		
DRAWN: JLM	REF.	CONT.	SCALE: N.T.S.	DATE: DEC 2017
CHECKED: RJB	ACC.			

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

2017-12-07 11:40 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-16.dwg

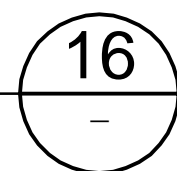
NO.	DATE	REVISIONS	BY

2017-11-15 9:30 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-17.dwg



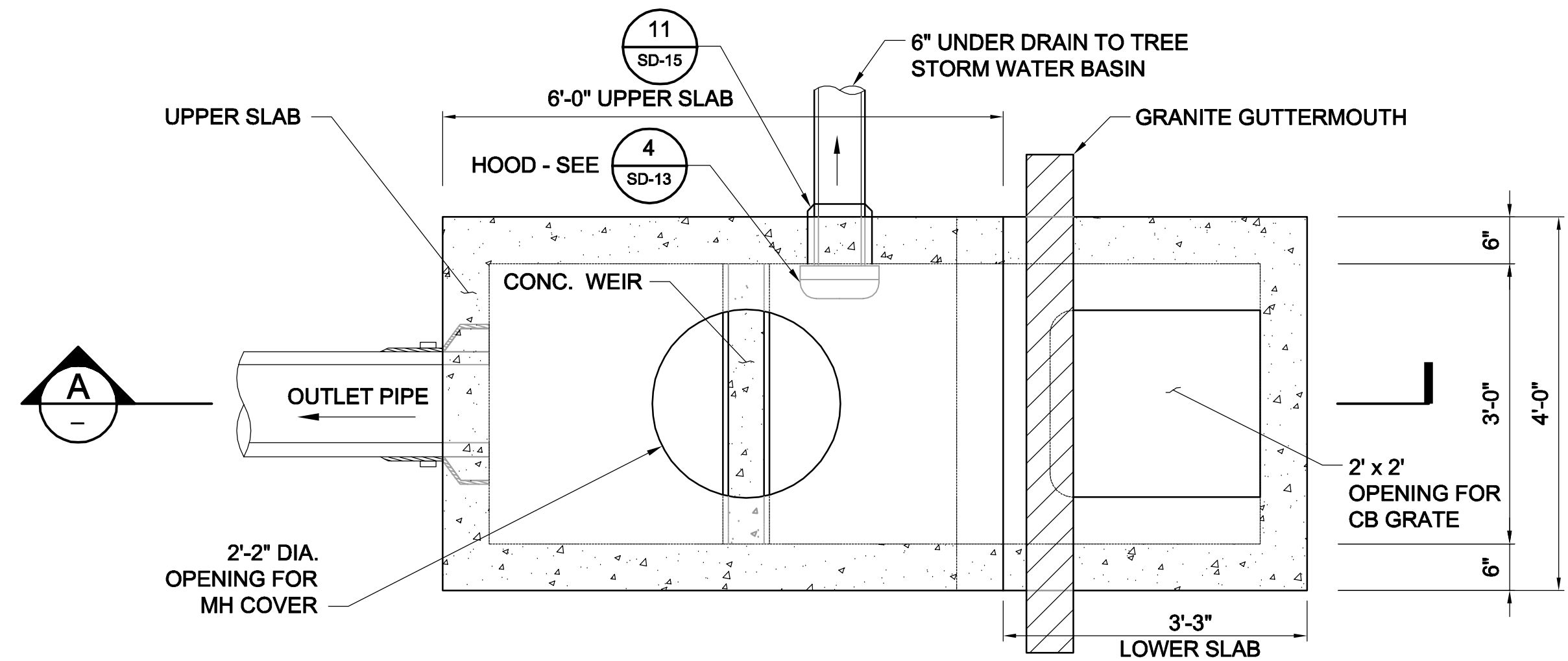
**ABANDON DRAINAGE STRUCTURE**

SCALE: NTS

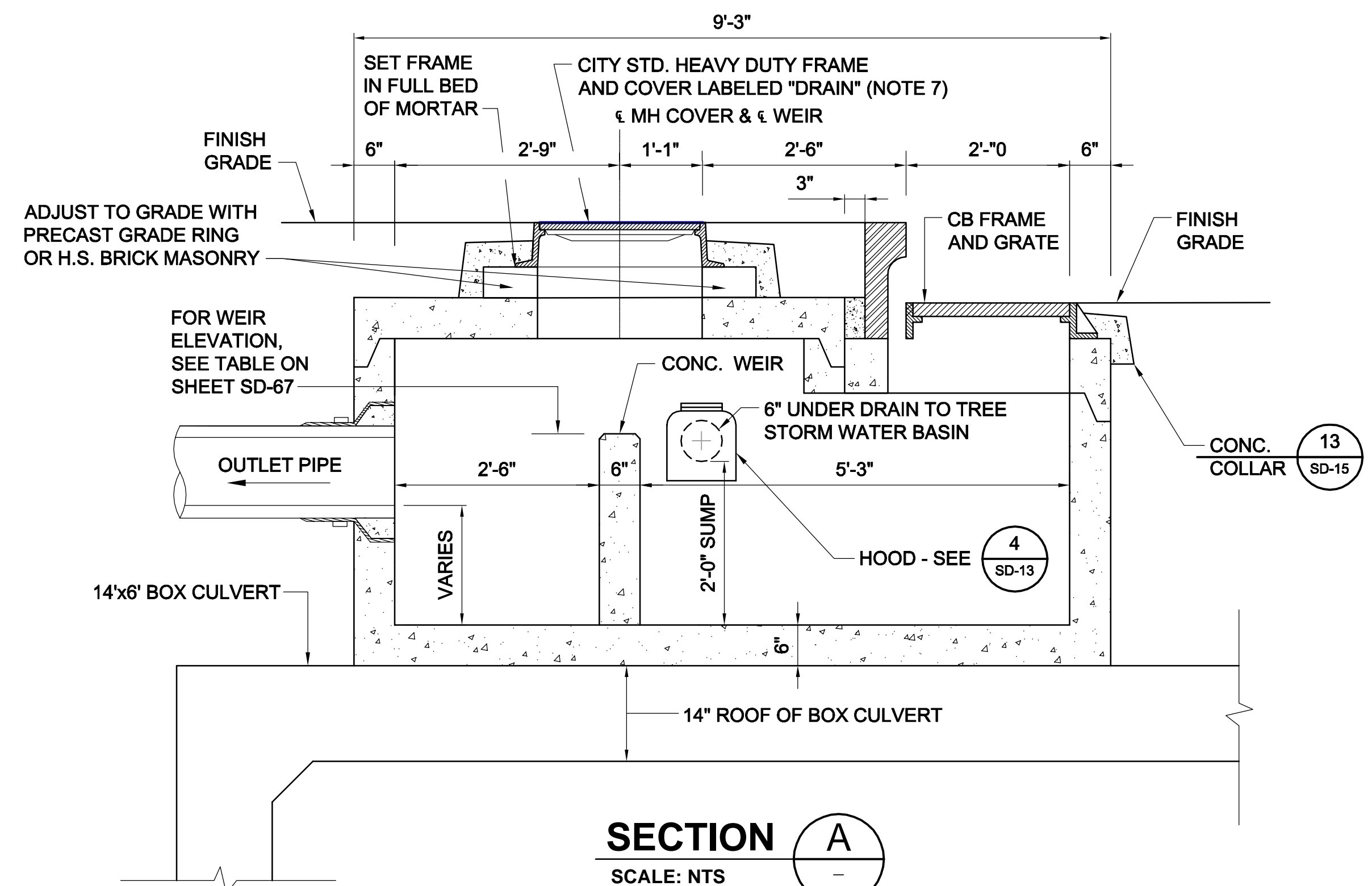


**NOTES - FOR ALL DETAILS ON THIS SHEET:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. ALL CONC. SHALL BE PRECAST U.N.O.
4. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
5. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
6. FOR RIMS & INVERTS, SEE TABLE ON SHEET SD-67.
7. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS

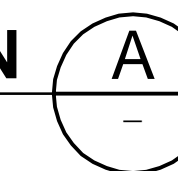


**TOP SLAB PLAN VIEW**



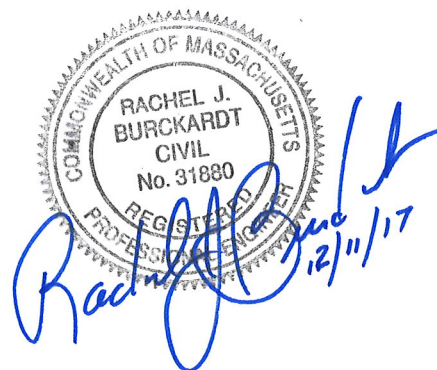
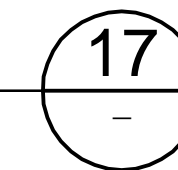
**SECTION A**

SCALE: NTS



**GREEN INFRASTRUCTURE BASIN W/ WEIR (TYPE "GIB")**

SCALE: NTS



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

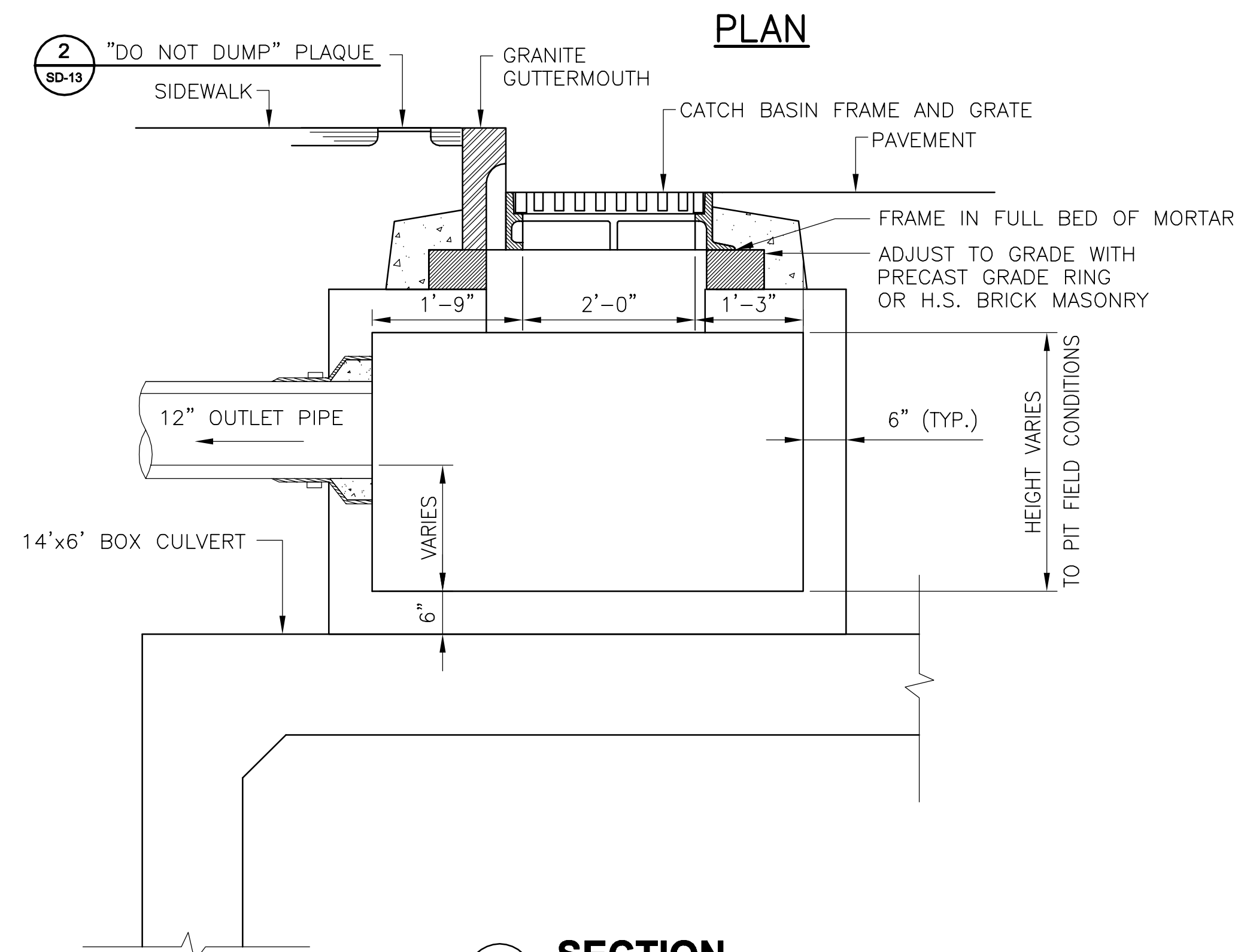
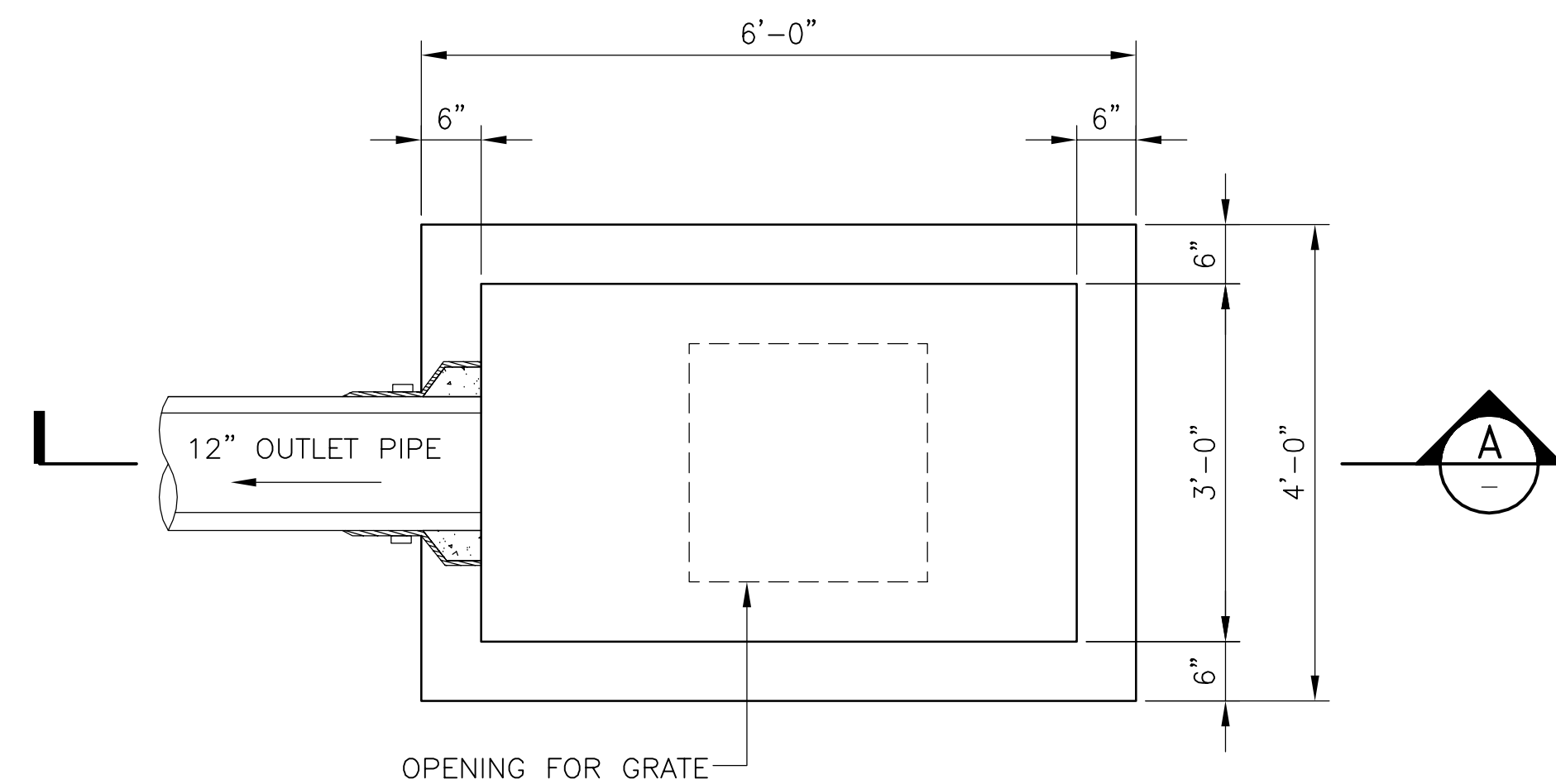
**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
STORM DRAIN AND SEWER STANDARD DETAILS  
SHEET 5 OF 7**

DESIGNED: LAC		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-17</b>
CHECKED: RJB		REF.	CONT.	
DRAWN: LAC				DATE: DEC 2017
CHECKED: RJB	ACC.			

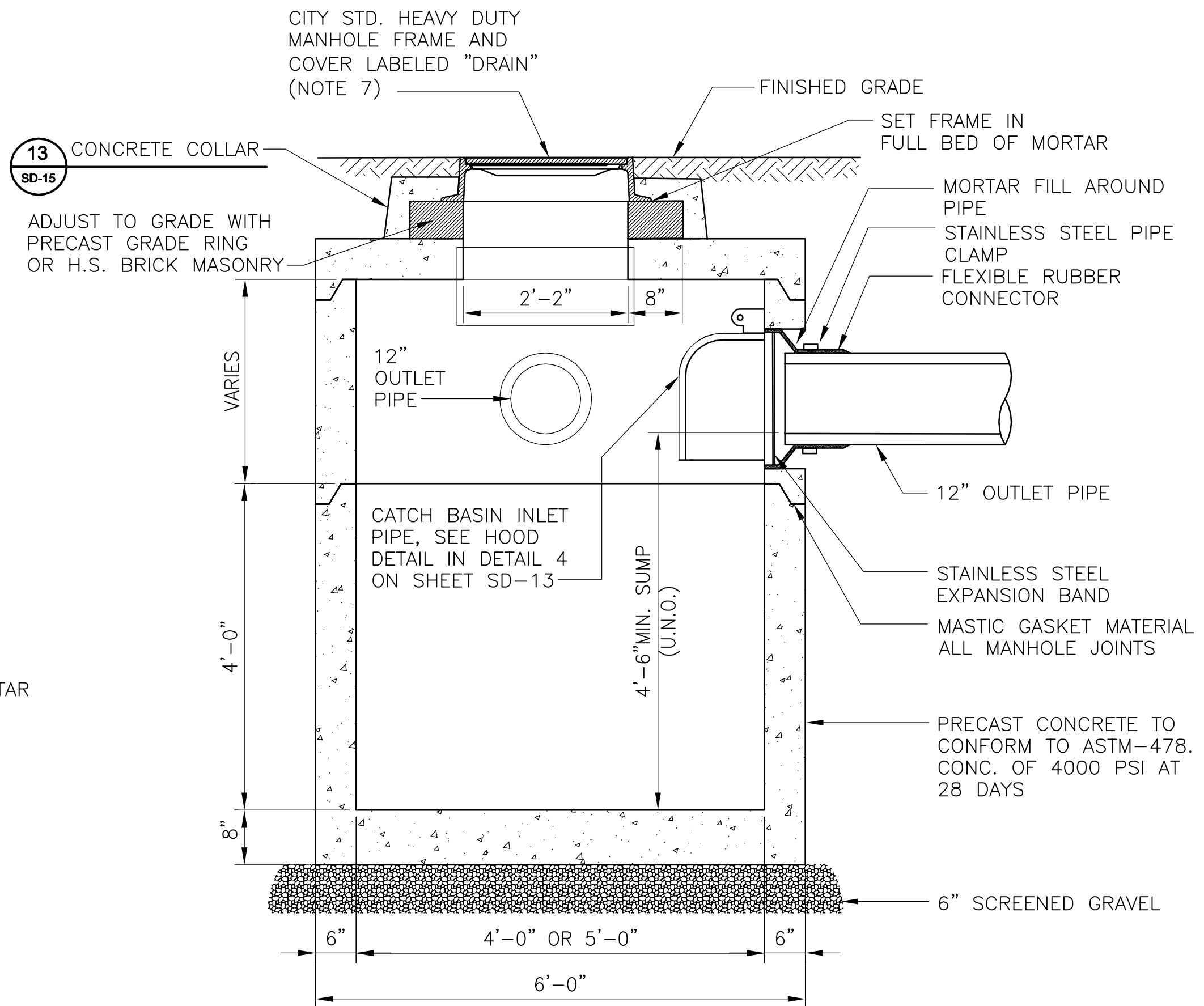
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-11-16 9:21 PM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-18.dwg



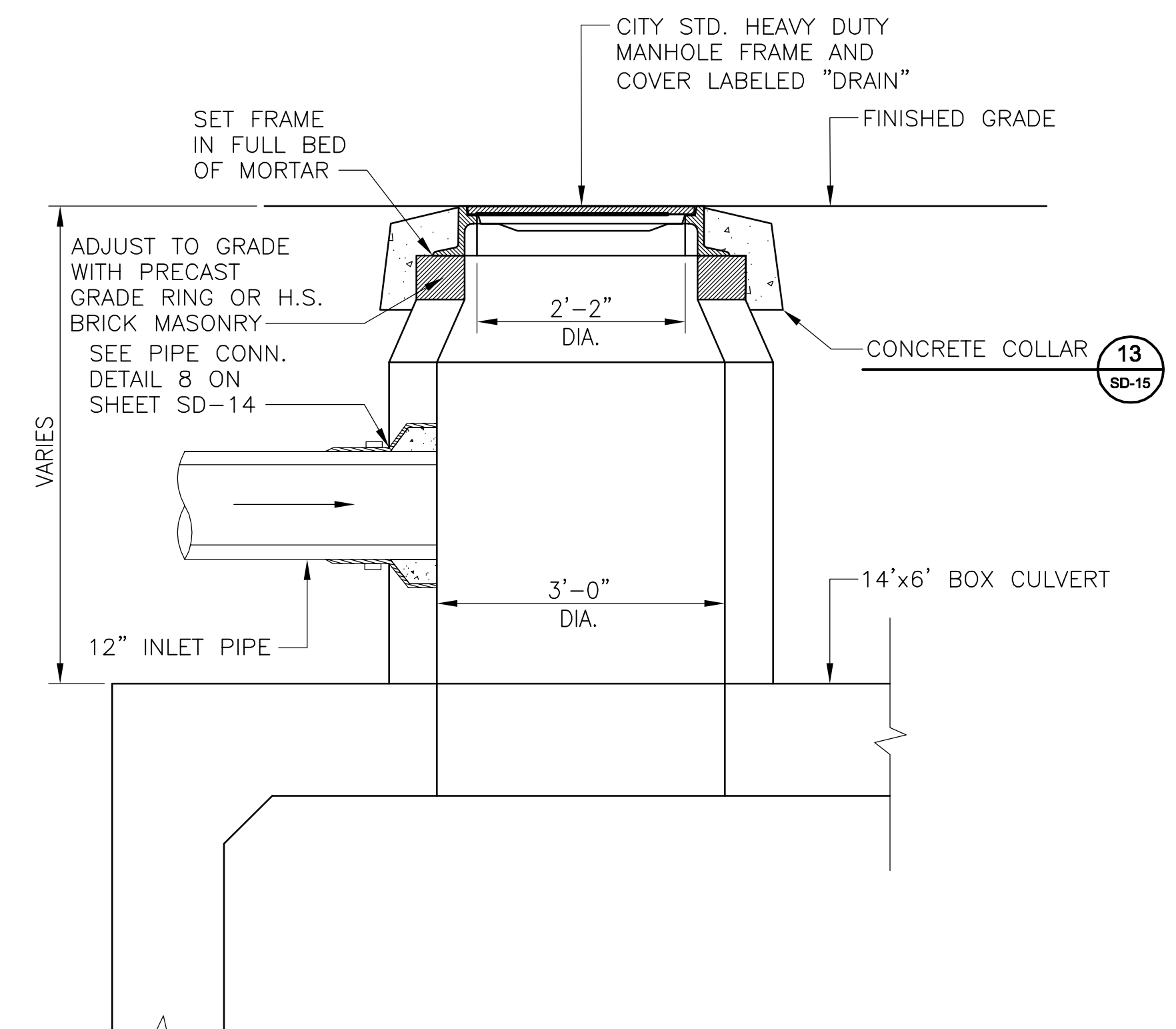
**18 SHALLOW CATCH BASIN TYPE "SB" OVER BOX CULVERT**  
SCALE: NTS



**19 DRAIN MANHOLE WITH SUMP**  
SCALE: NTS

- NOTES:
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. ALL CONC. SHALL BE PRECAST U.N.O.
  4. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  5. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  6. FOR RIMS & INVERTS, SEE TABLE ON SHEET SD-67.
  7. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT 1 OF THE TECHNICAL SPECIFICATIONS

*Rachel J. Burckardt*  
12/11/17



**20 RISER CONNECTION BOX CULVERT**  
SCALE: NTS

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

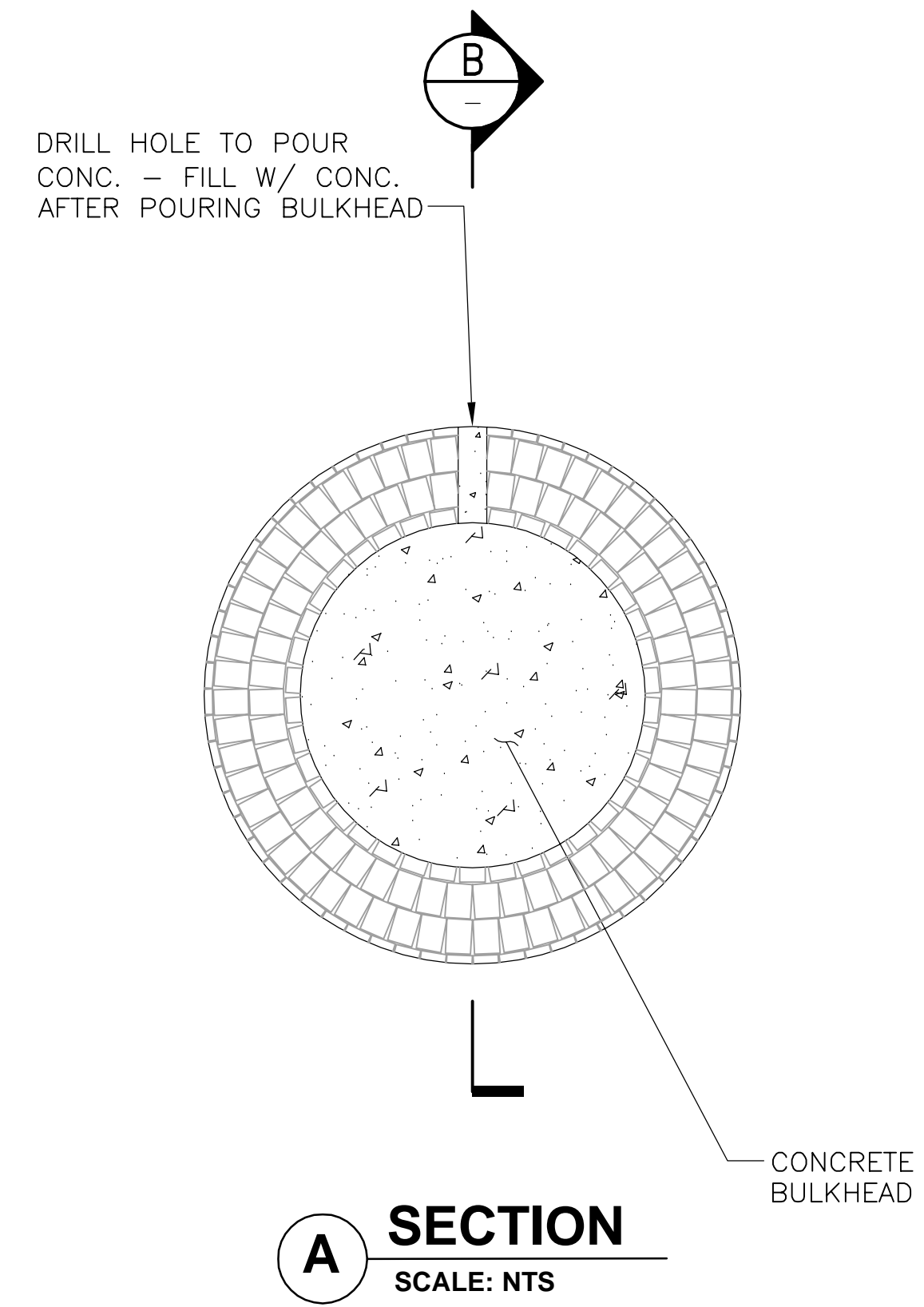
NO.	DATE	REVISIONS	BY

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**STORM DRAIN AND SEWER STANDARD DETAILS**  
**SHEET 6 OF 7**

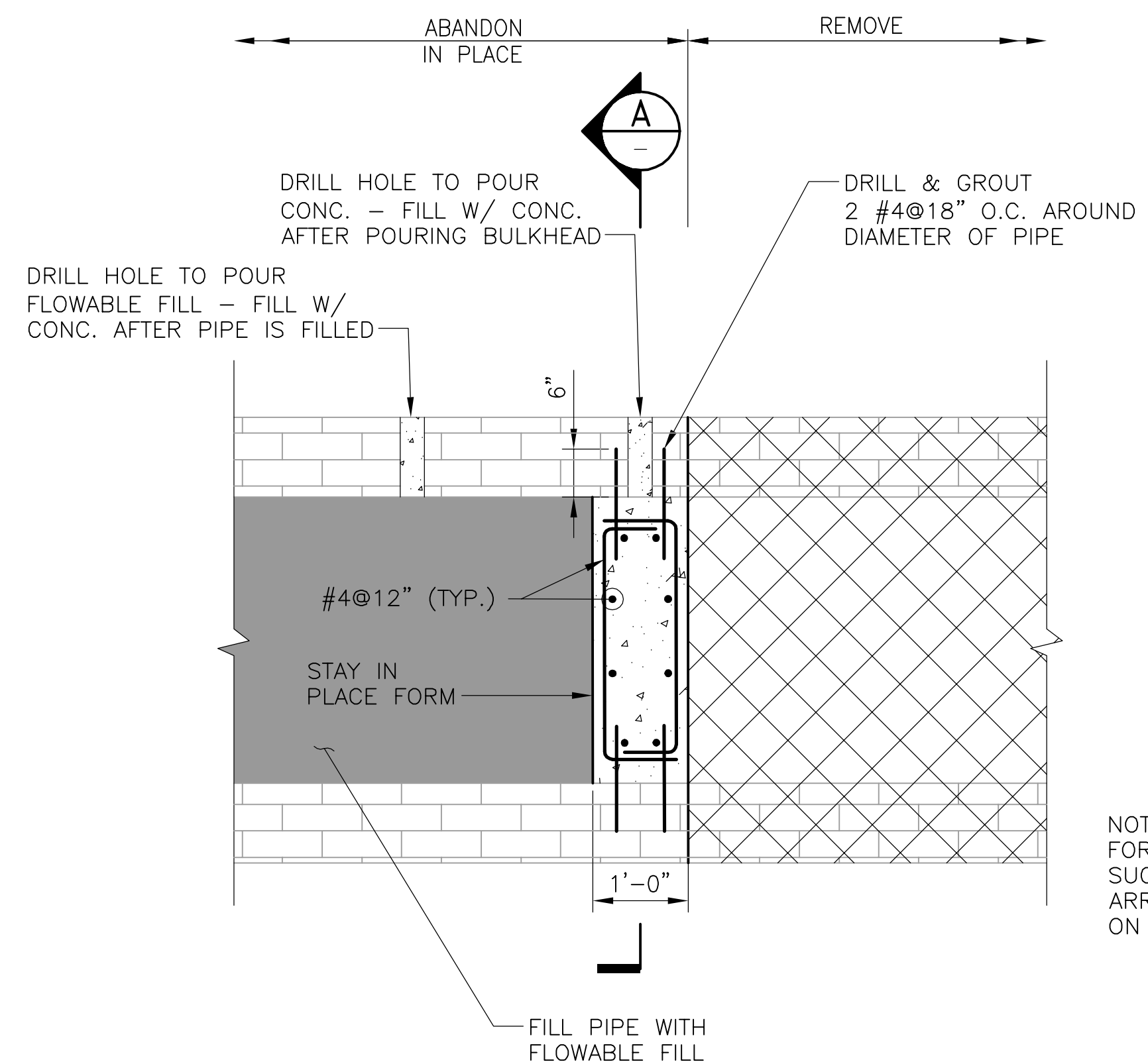
DESIGNED: RJB CHECKED: LAC	<p>Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487</p>	<p>SHEET <b>SD-18</b></p>
DRAWN: JLM CHECKED: RJB		
REF.	CONT.	SCALE: N.T.S.
ACC.		DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

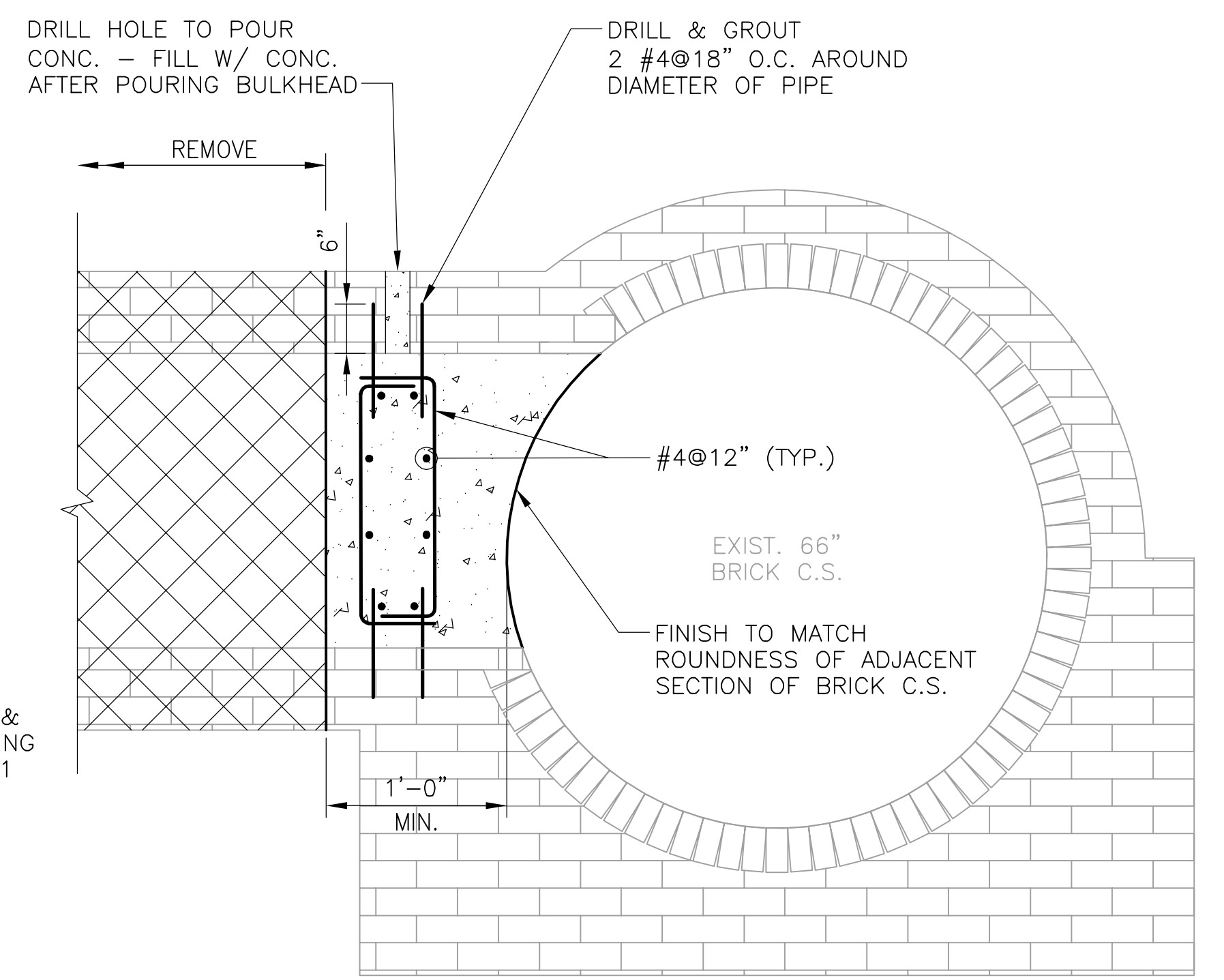
- NOTES - FOR ALL DETAILS ON THIS SHEET:
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.



**A SECTION**  
SCALE: NTS

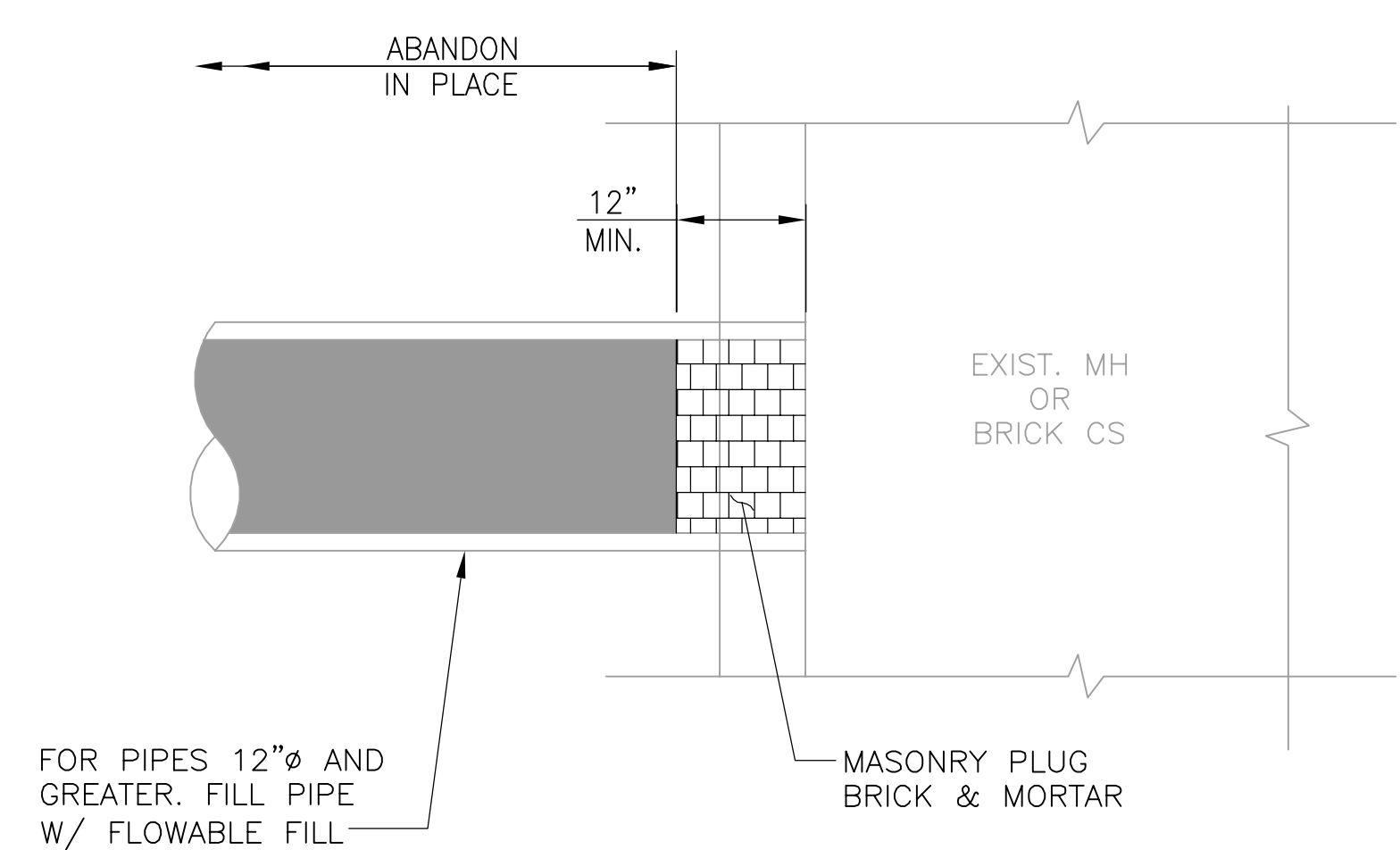


**B LONGITUDINAL SECTION AT LIMIT OF REMOVAL/ABANDON IN PLACE**

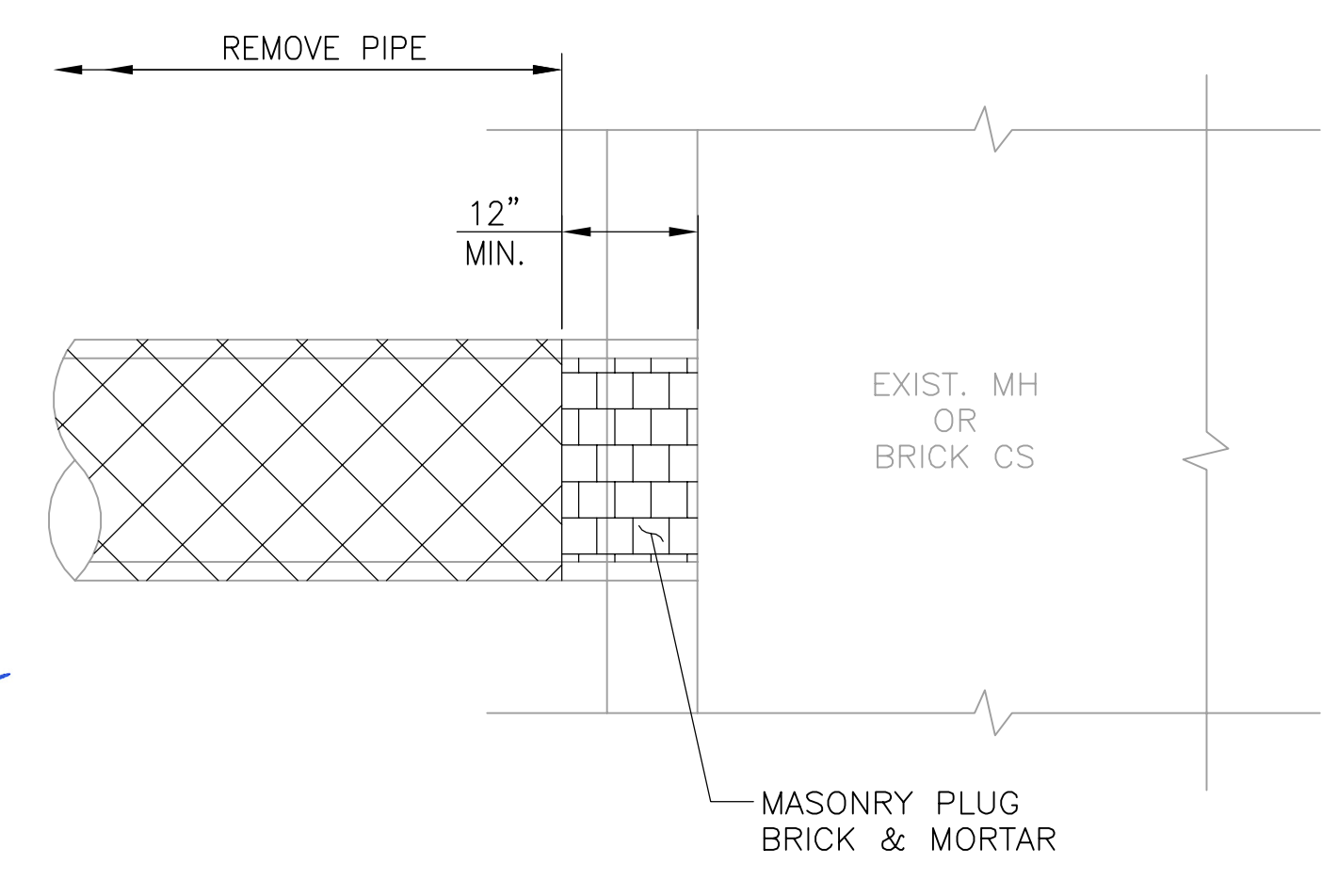


**CONCRETE BULKHEAD AT EXIST. BRICK CS**  
SCALE: NTS

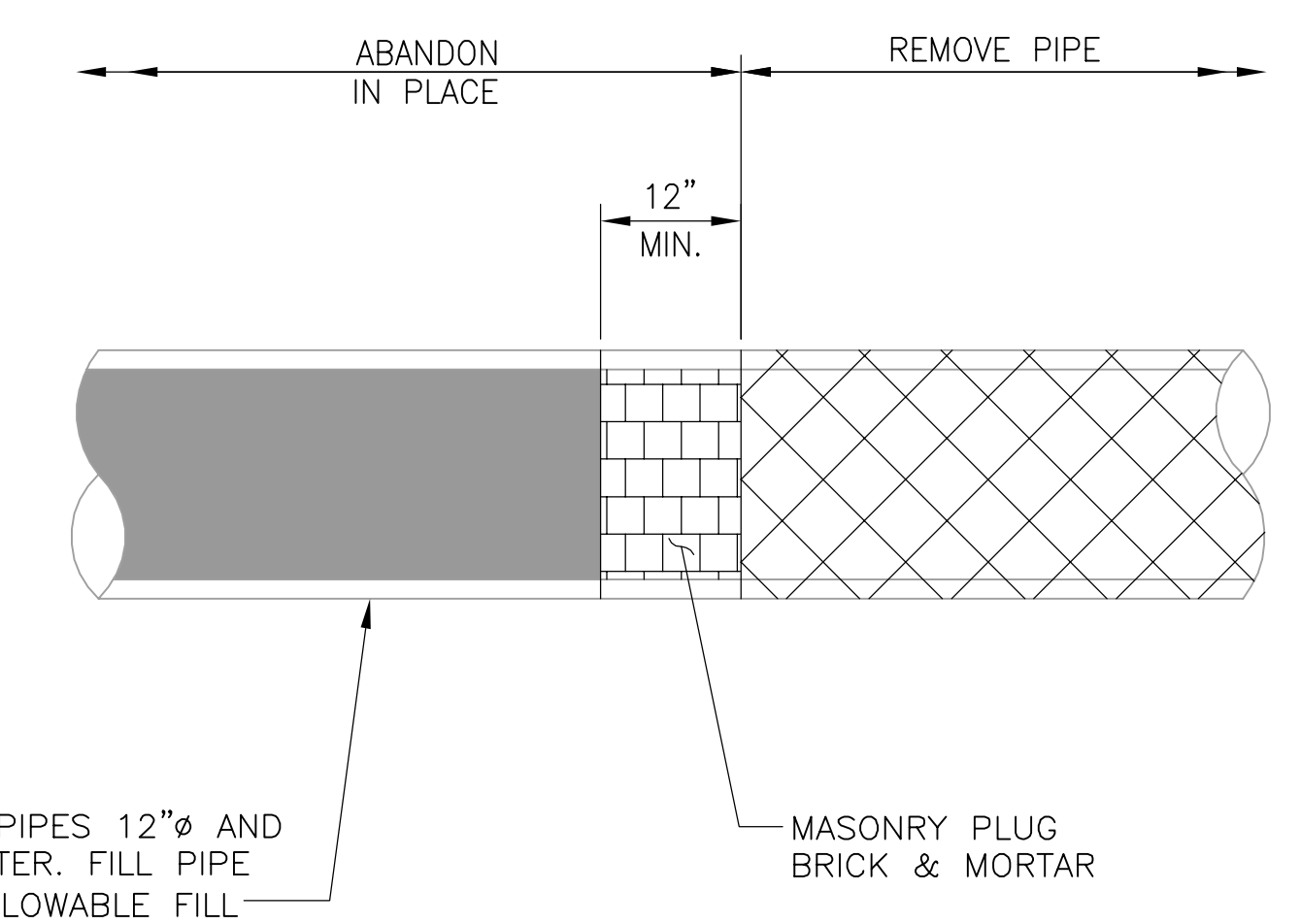
**21 CONCRETE BULKHEAD IN LARGE DIA. BRICK SEWER**  
SCALE: NTS



**23 PIPE PLUG FOR PIPE ABANDONED IN PLACE AT MH**  
SCALE: NTS



**24 PIPE PLUG FOR PIPE REMOVAL AT MH OR BRICK CS**  
SCALE: NTS



**25 PIPE PLUG AT LIMIT OF PIPE REMOVAL**  
SCALE: NTS

*Rachel J. Burckardt*  
2/11/17  
Professional Engineer  
No. 31890  
Civil  
Commonwealth of Massachusetts

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**STORM DRAIN AND SEWER STANDARD DETAILS**  
**SHEET 7 OF 7**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: KLN  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

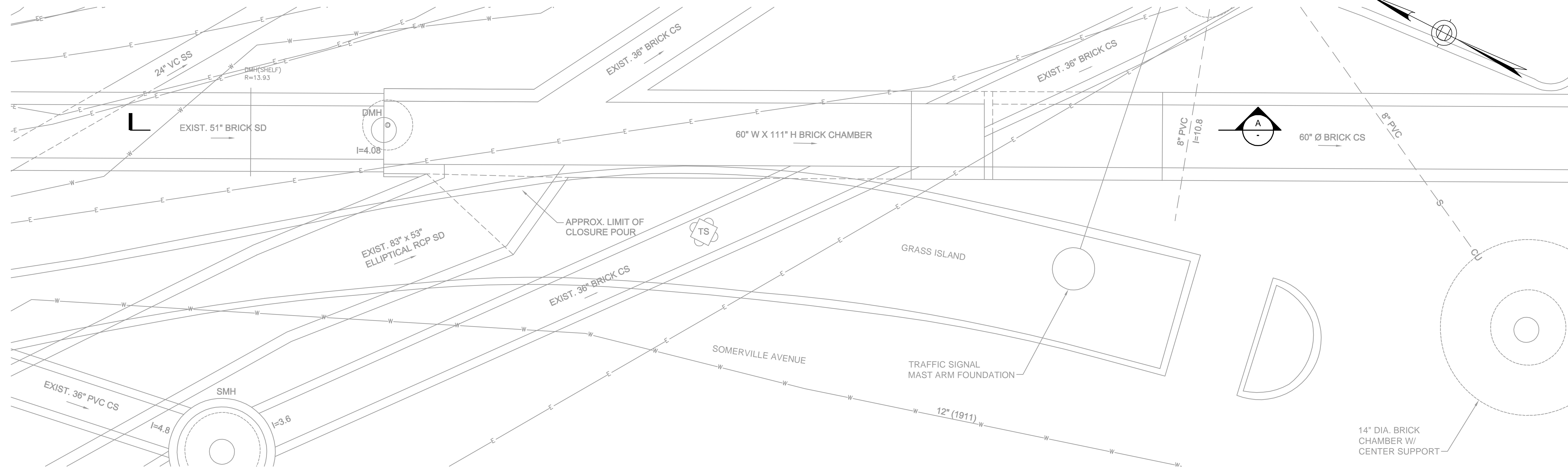
REF. CONT. SCALE: N.T.S.  
ACC. DATE: DEC 2017

SHEET  
**SD-19**

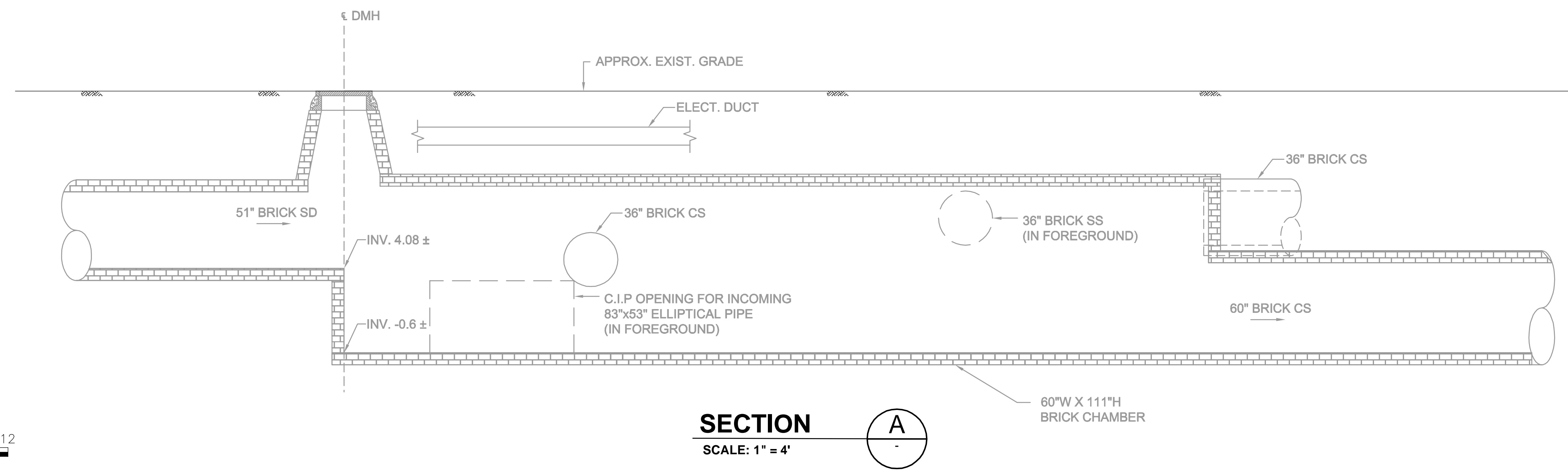
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

2017-11-15 10:17 AM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-19.dwg

NO.	DATE	REVISIONS	BY



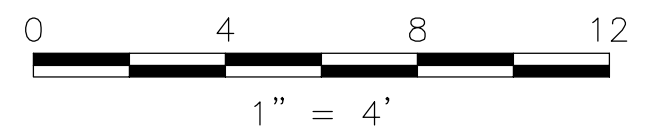
**PLAN**  
SCALE: 1" = 4'



**SECTION**  
SCALE: 1" = 4'

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
  7. FOR UTILITY PLAN, SEE SHEET U-1.
  8. LOCATION AND SIZE OF 60" X 111" BRICK CHAMBER BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  9. DEPTH OF EXISTING UTILITIES AS SHOWN IN APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THE AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT.
  10. FOR LIMIT OF EXISTING SEWERS, SEE SHEET SD-90.
  11. MAINTAIN STORM DRAIN & SEWER FLOWS AT ALL TIMES.
  12. FOR FLOW RATES, SEE TABLE 01514-1 IN THE SPECIFICATIONS.

Professional Engineer Seal for Rachel J. Burckardt, No. 51980, State of Massachusetts. Signature and date: Rachel J. Burckardt, 12/11/17.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

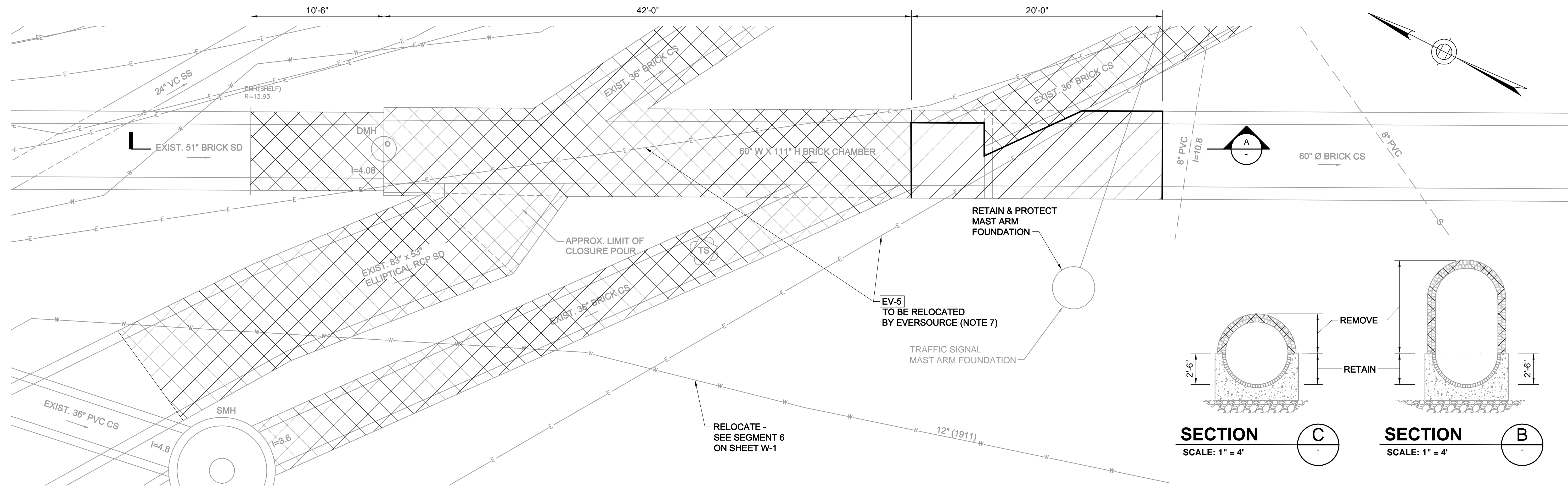
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**EXISTING CONDITIONS**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-20</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: JD		ACC.	DATE: DEC 2017	
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

2017-12-08 7:12 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-20.dwg

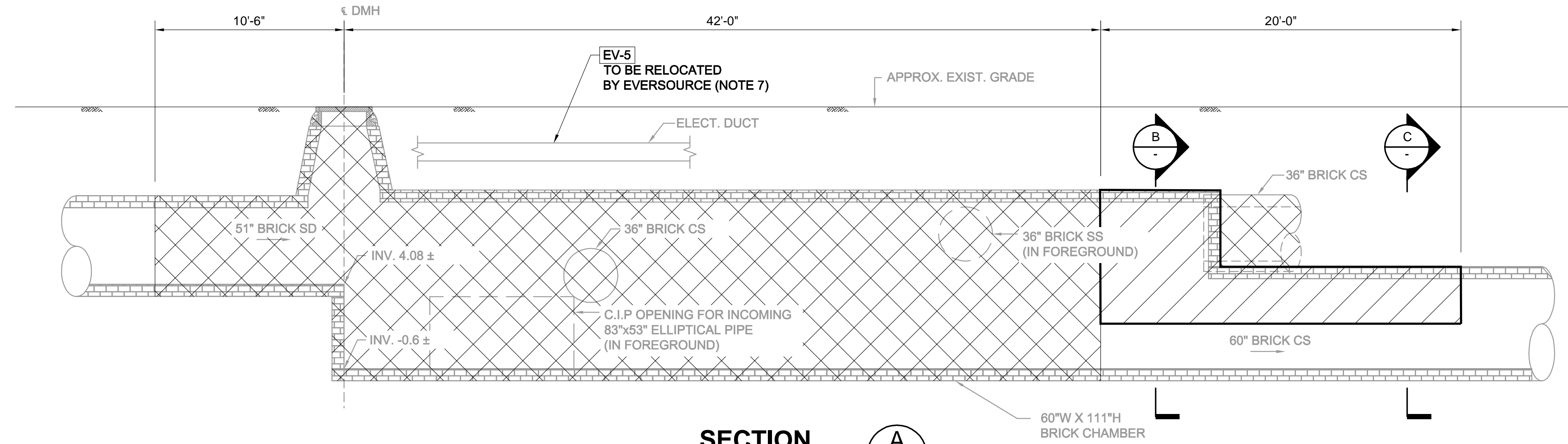
NO.	DATE	REVISIONS	BY



**PLAN**  
SCALE: 1" = 4'

**SECTION C**  
SCALE: 1" = 4'

**SECTION B**  
SCALE: 1" = 4'

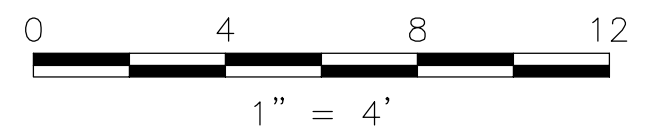


**SECTION A**  
SCALE: 1" = 4'

- LEGEND:**
- COMPLETE REMOVAL
  - PARTIAL REMOVAL

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
  7. FOR UTILITY PLAN, SEE SHEET U-1.
  8. LOCATION AND SIZE OF 60" X 111" BRICK CHAMBER BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  9. DEPTH OF EXISTING UTILITIES AS SHOWN IN APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THE AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT.
  10. FOR LINING OF EXISTING SEWERS, SEE SHEET SD-90.
  11. MAINTAIN STORM DRAIN & SEWER FLOWS AT ALL TIMES. FOR FLOW RATES, SEE TABLE 01514-1 IN THE SPECIFICATIONS.
  12. FOR SUGGESTED SEQUENCING, SEE SHEET SD-24B.

Professional Engineer Seal for Rachel J. Burckhardt, Civil No. 31880, State of Massachusetts. Includes a signature and date 12/11/17.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

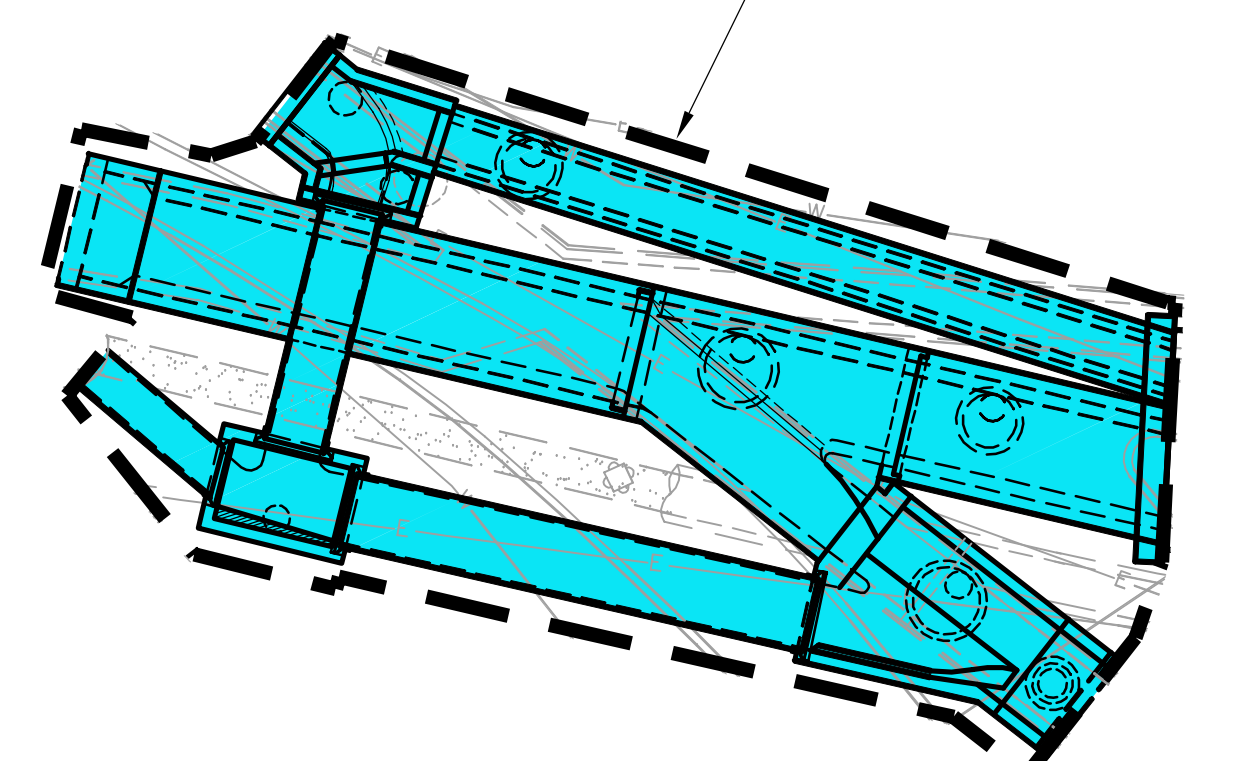
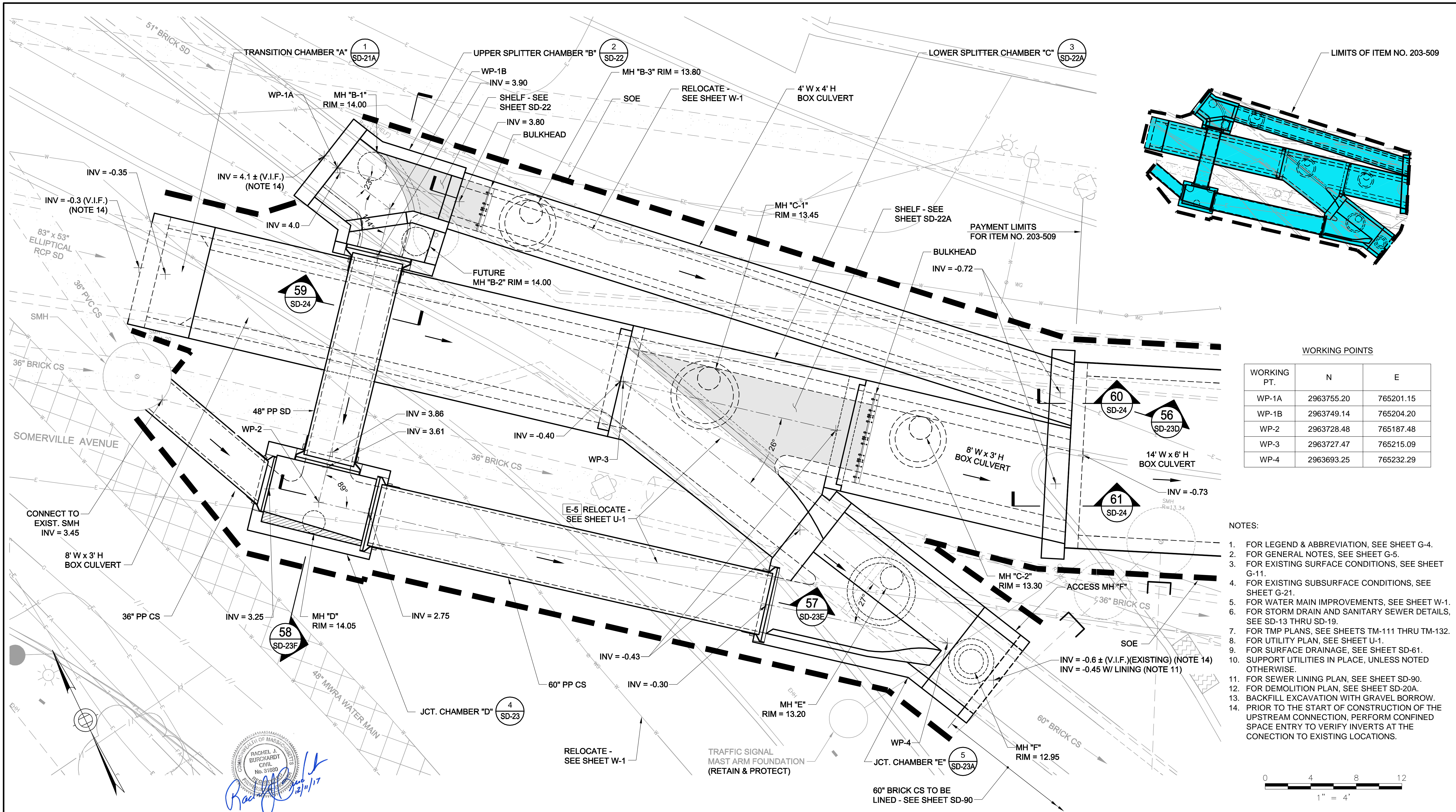
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**DEMOLITION PLAN AND SECTIONS**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-20A</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: JD		SCALE: 1"=4'	DATE: DEC 2017	
CHECKED: RJB		CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

2017-12-08 6:52 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-20A.dwg

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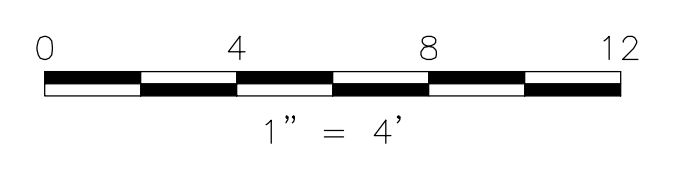
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WORKING POINTS

WORKING PT.	N	E
WP-1A	2963755.20	765201.15
WP-1B	2963749.14	765204.20
WP-2	2963728.48	765187.48
WP-3	2963727.47	765215.09
WP-4	2963693.25	765232.29

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  - FOR TMP PLANS, SEE SHEETS TM-111 THRU TM-132.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - FOR SURFACE DRAINAGE, SEE SHEET SD-61.
  - SUPPORT UTILITIES IN PLACE, UNLESS NOTED OTHERWISE.
  - FOR SEWER LINING PLAN, SEE SHEET SD-90.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.
  - BACKFILL EXCAVATION WITH GRAVEL BORROW. PRIOR TO THE START OF CONSTRUCTION OF THE UPSTREAM CONNECTION, PERFORM CONFINED SPACE ENTRY TO VERIFY INVERTS AT THE CONNECTION TO EXISTING LOCATIONS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**OVERALL PLAN**

DESIGNED: RJB		Parsons Brinckerhoff, Inc.		SHEET	
CHECKED: KMM		75 Arlington St. Boston, MA 02116			
DRAWN: KLN		REF.	CONT.	SCALE: 1"=4'	SD-21
CHECKED: RJB		ACC.	DATE: DEC 2017		

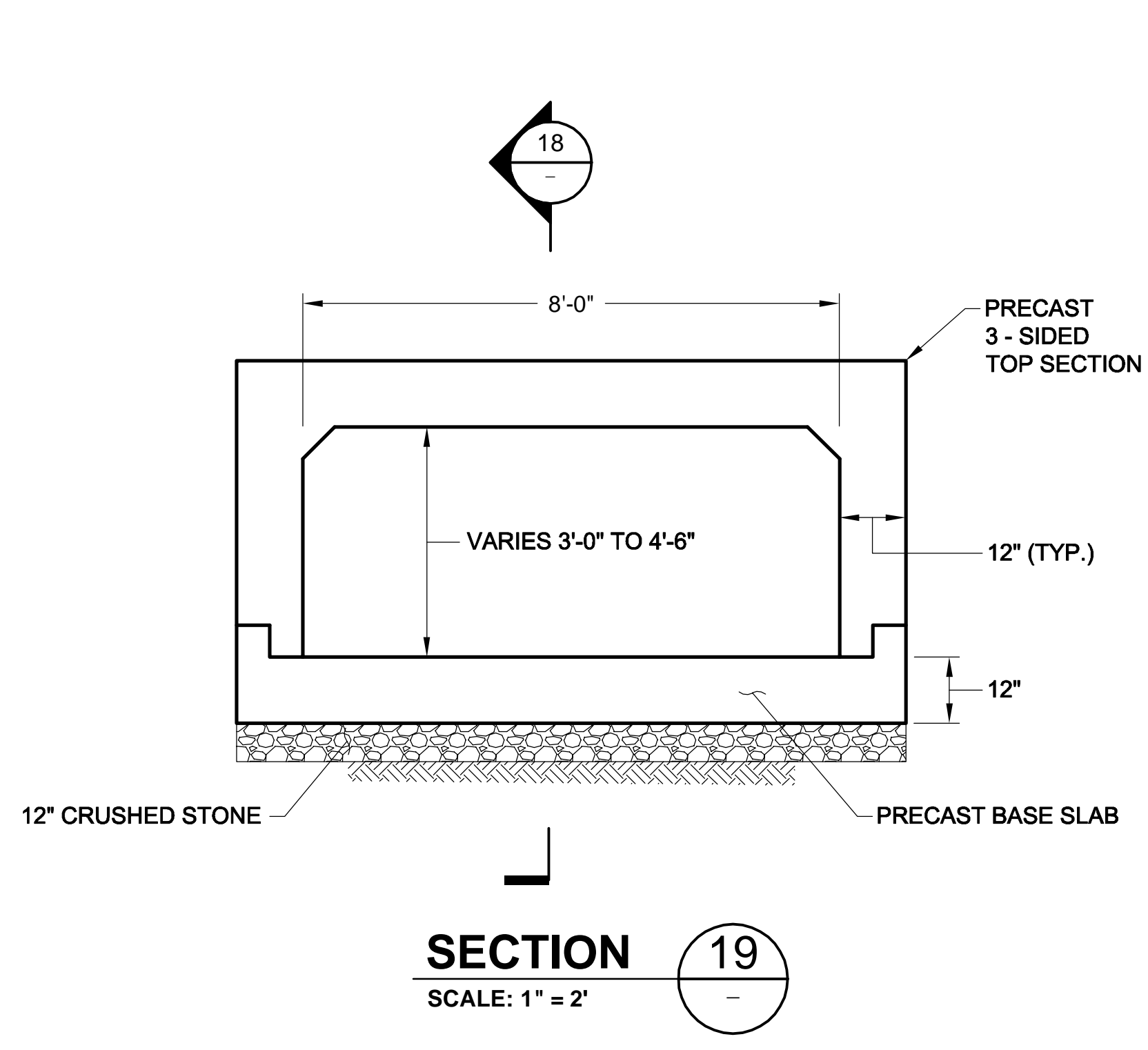
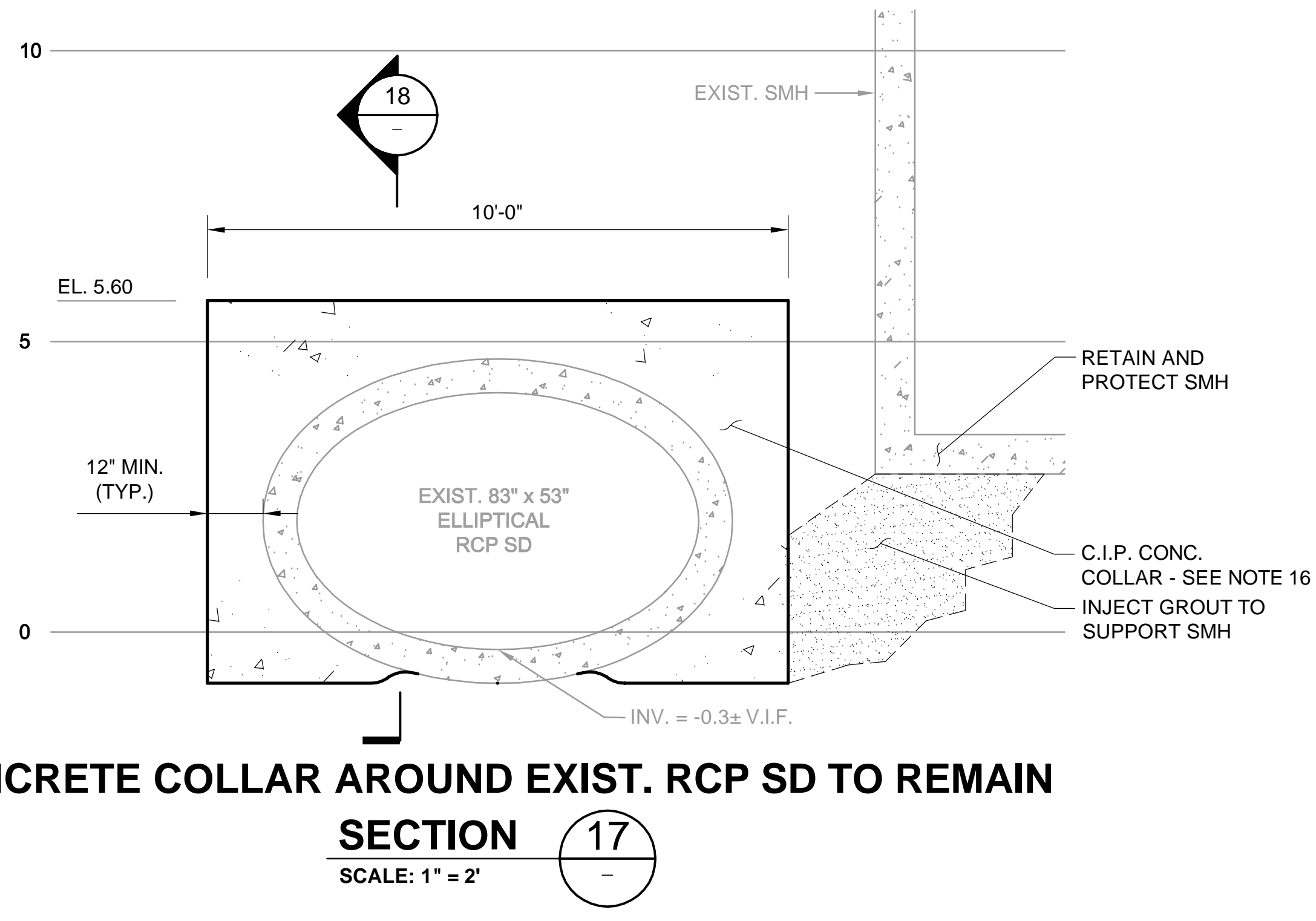
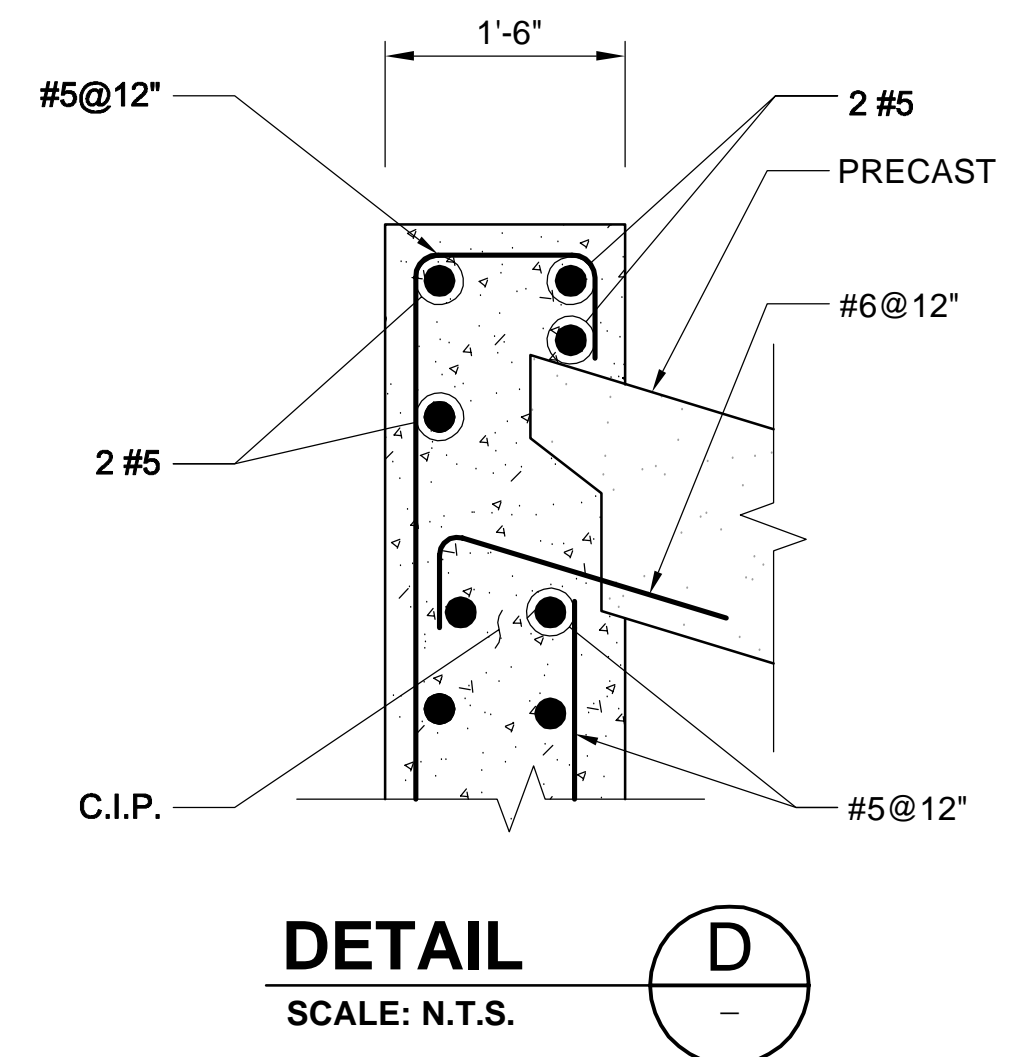
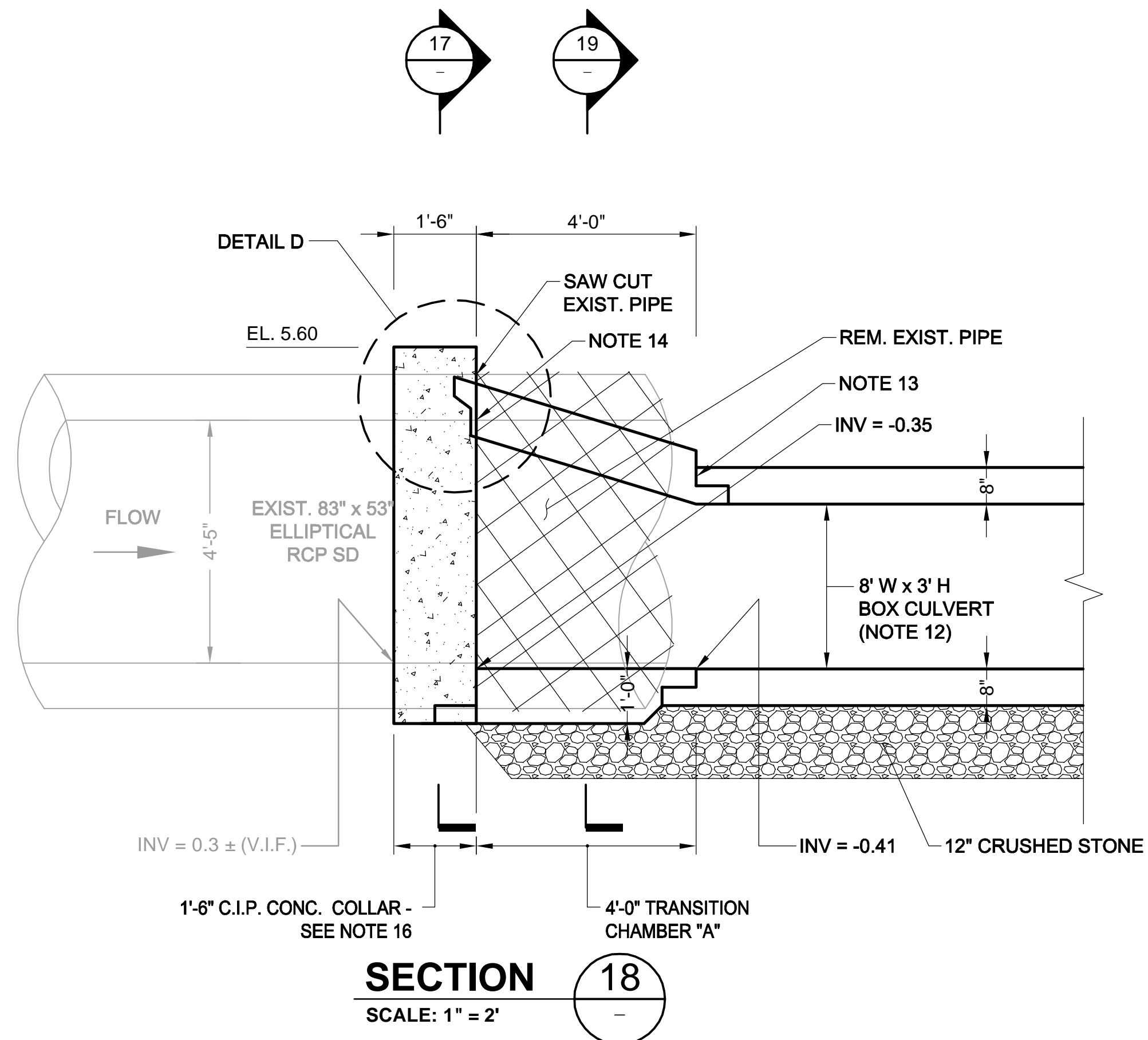
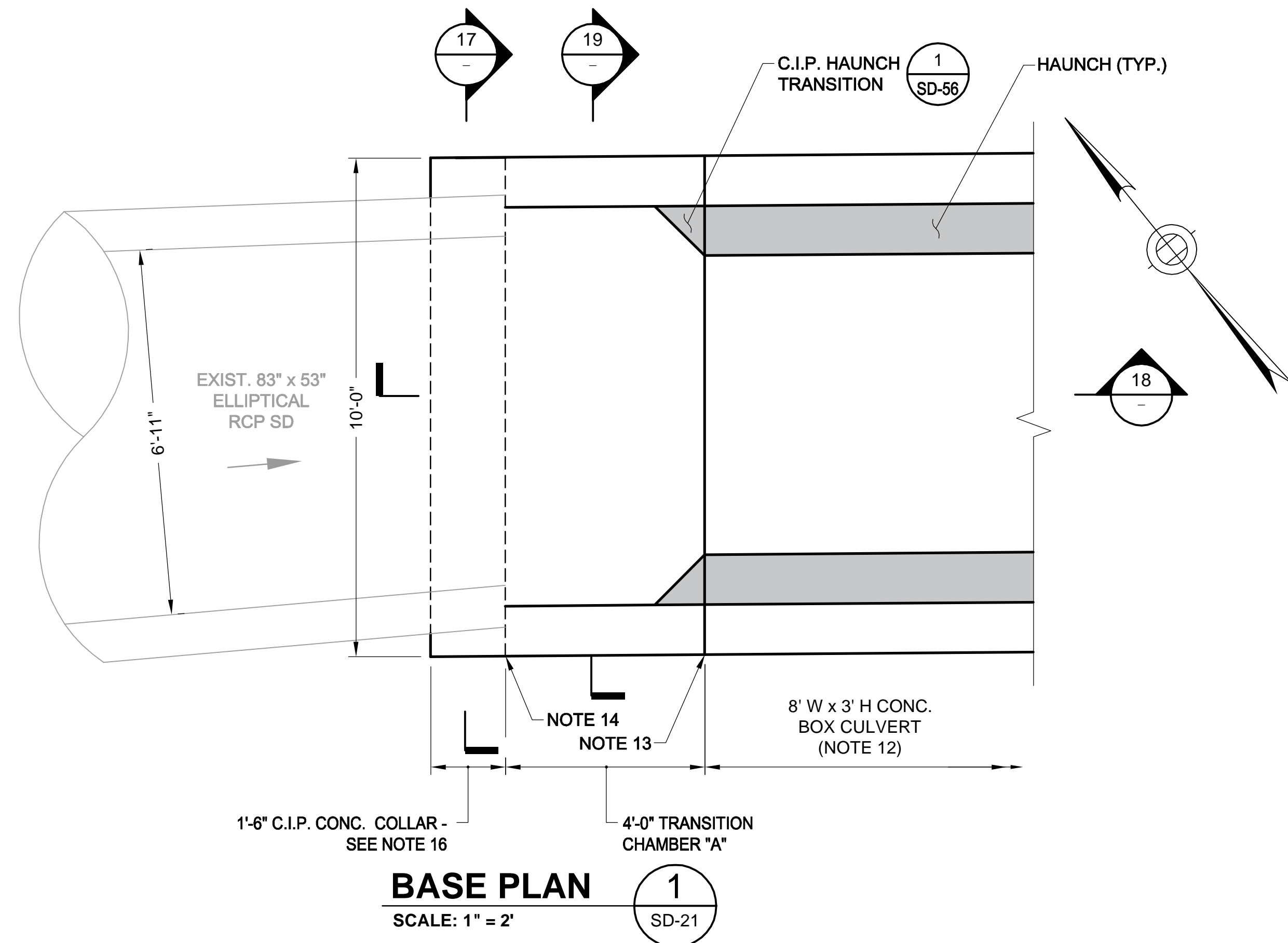
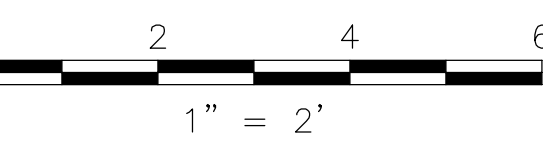
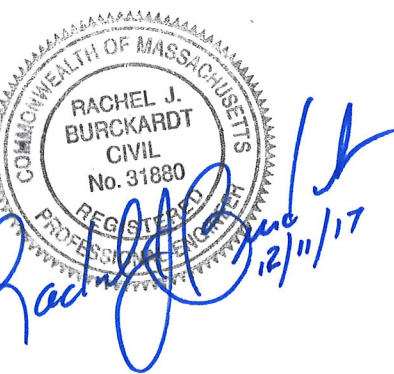
CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

*Rachel J. Burckhardt*
  
 12/11/17



2017-11-16 11:43 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-21A.dwg



- LEGEND:**
- PIPE REMOVAL
- NOTES:**
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
  - PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  - PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.
  - FOR REINFORCING DETAILS, SEE SHEET SD-24.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**TRANSITION CHAMBER "A"**

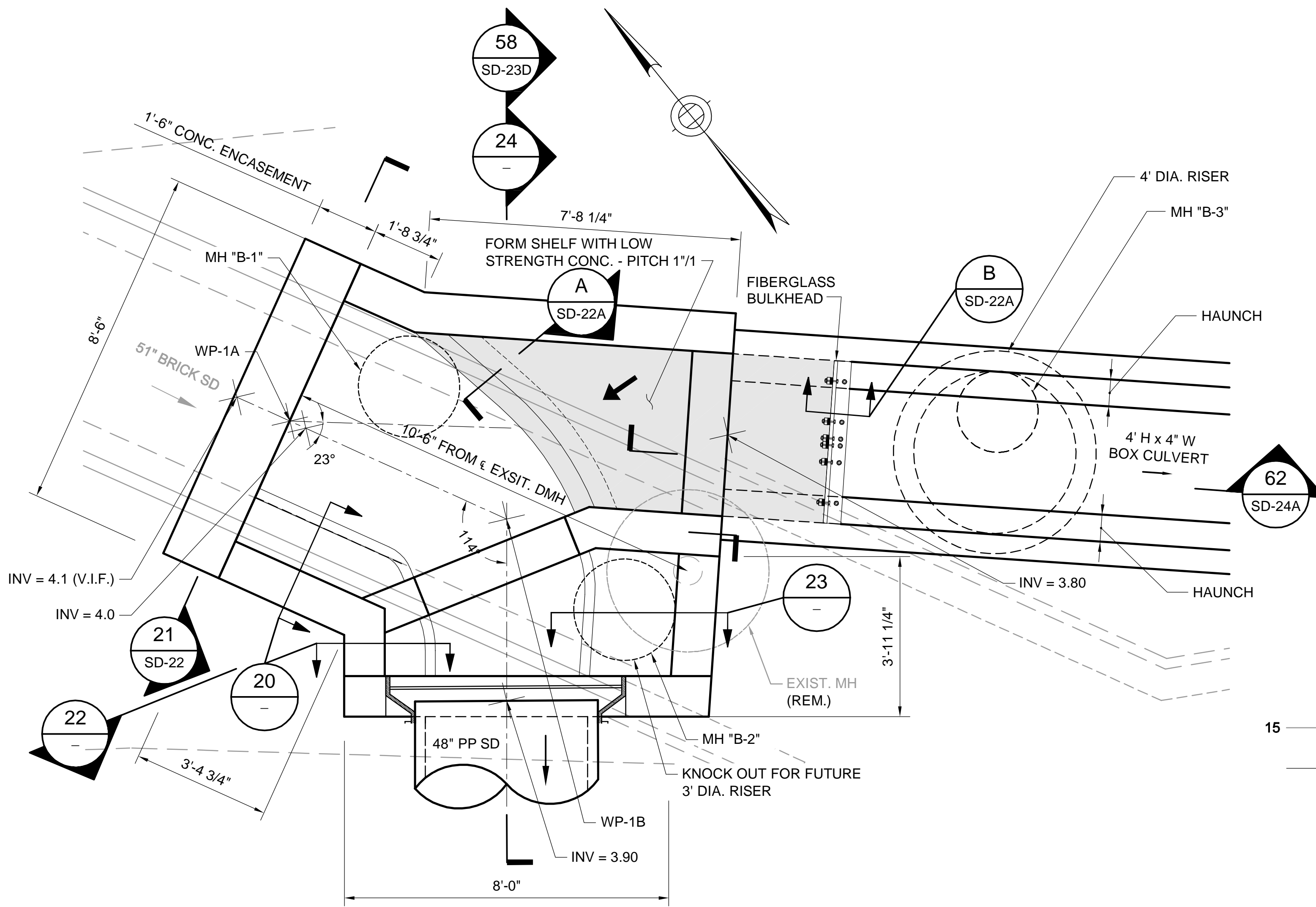
**PLAN AND SECTIONS**

DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-21A</b>
CHECKED: LAC		
DRAWN: JD	REF. CONT.	SCALE: 1"=2'
CHECKED: RJB	ACC.	DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

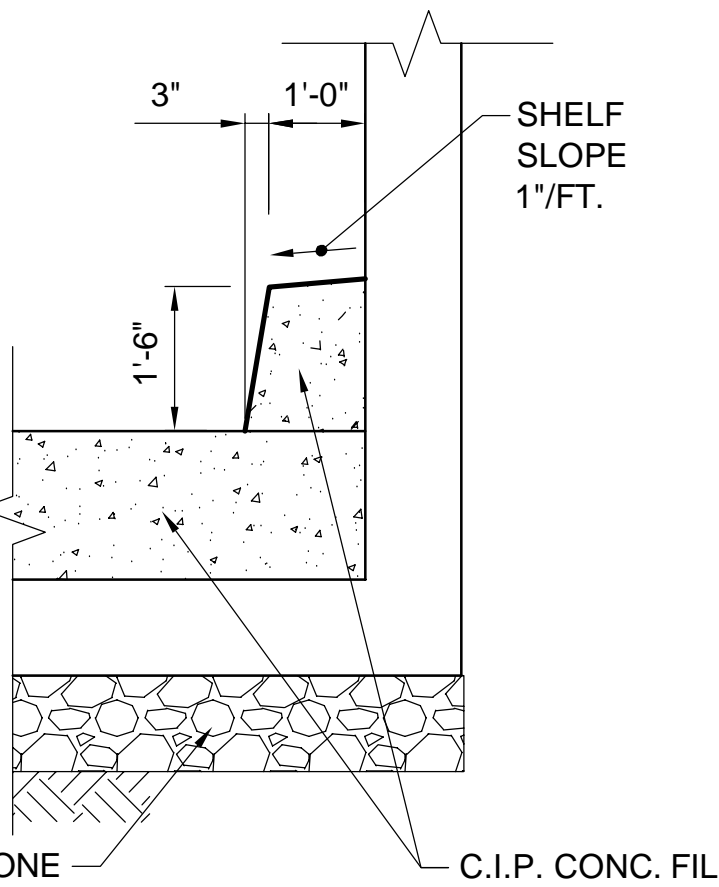
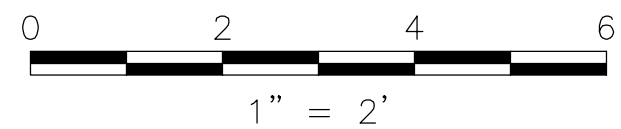
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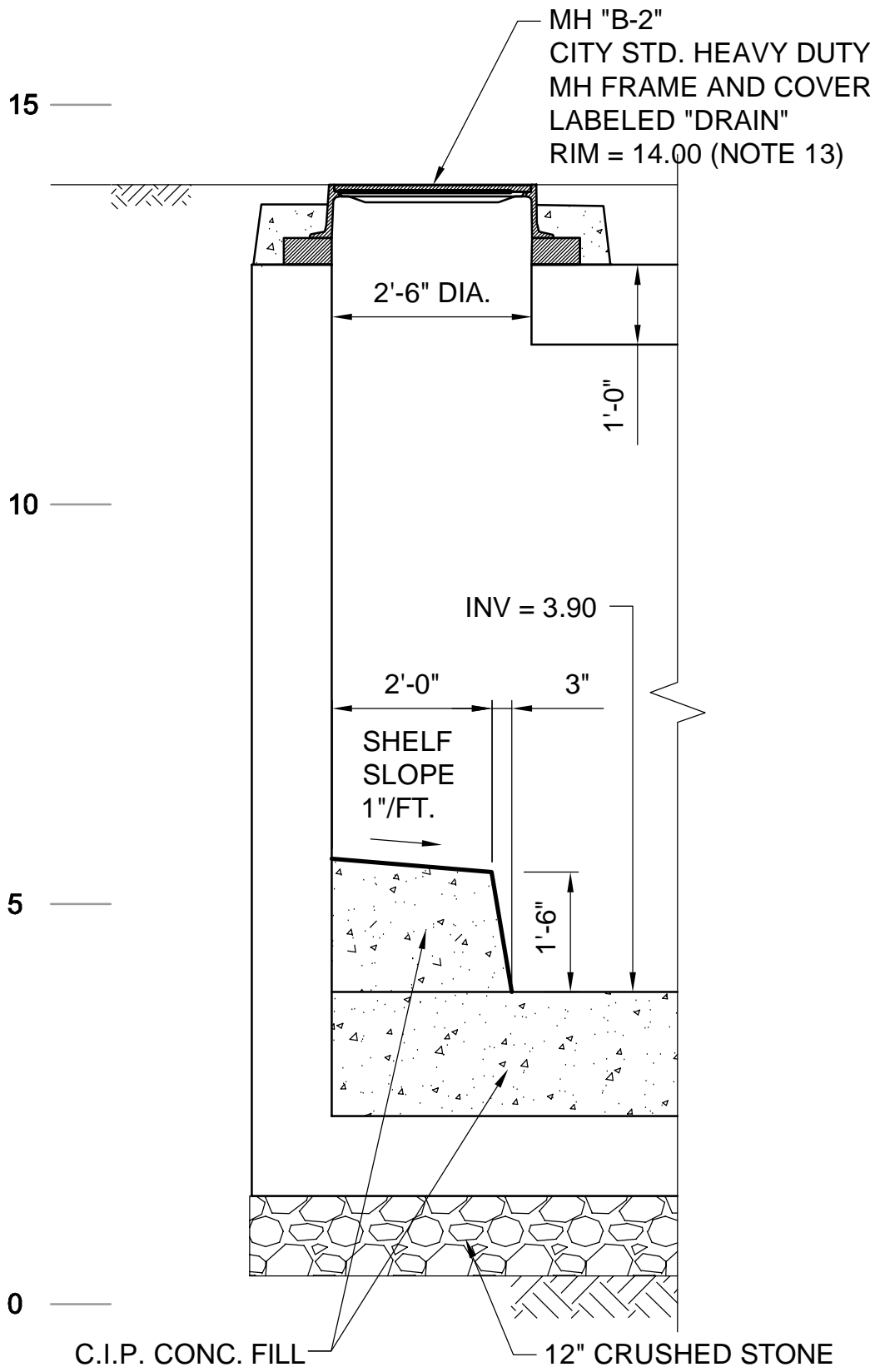
**BASE PLAN - UPPER SPLITTER CHAMBER "B"**  
SCALE: 1" = 2'

- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR BULKHEAD DETAILS, SEE SHEET SD-24A.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.
  - FOR REINFORCING DETAILS, SEE SHEET SD-24.

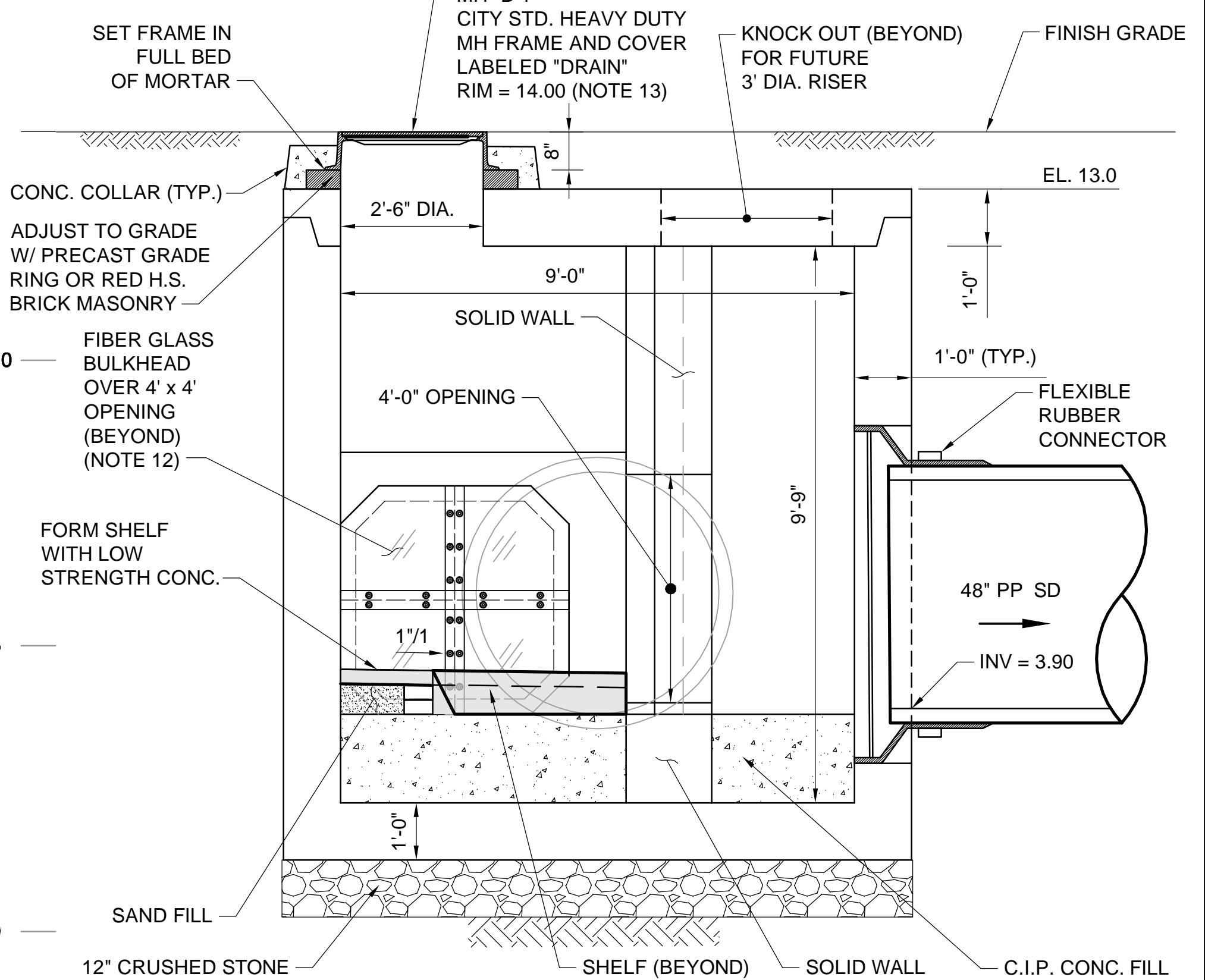
Rachel J. Burkhardt  
 12/11/17



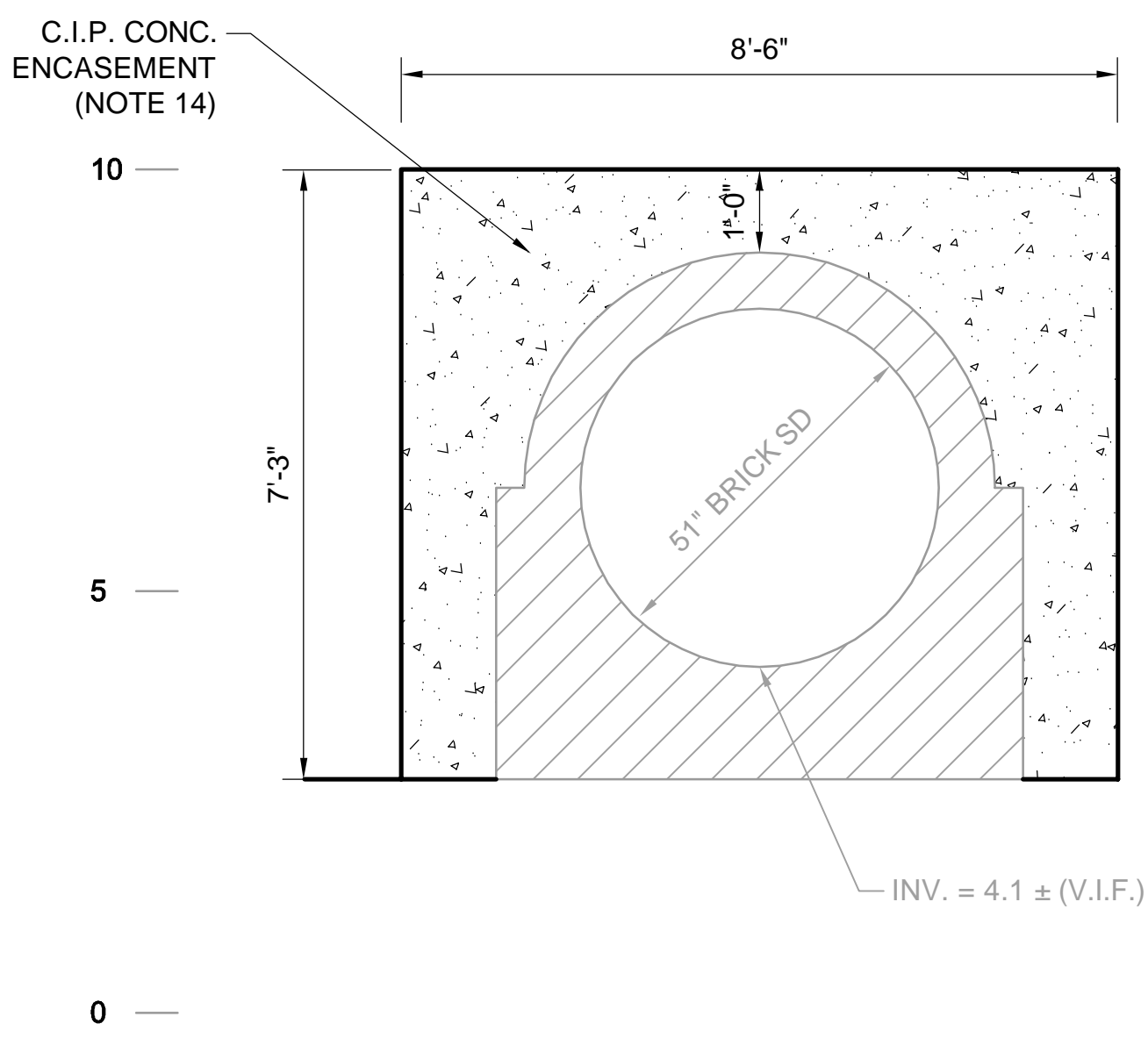
**SECTION 20**  
SCALE: 1" = 2'



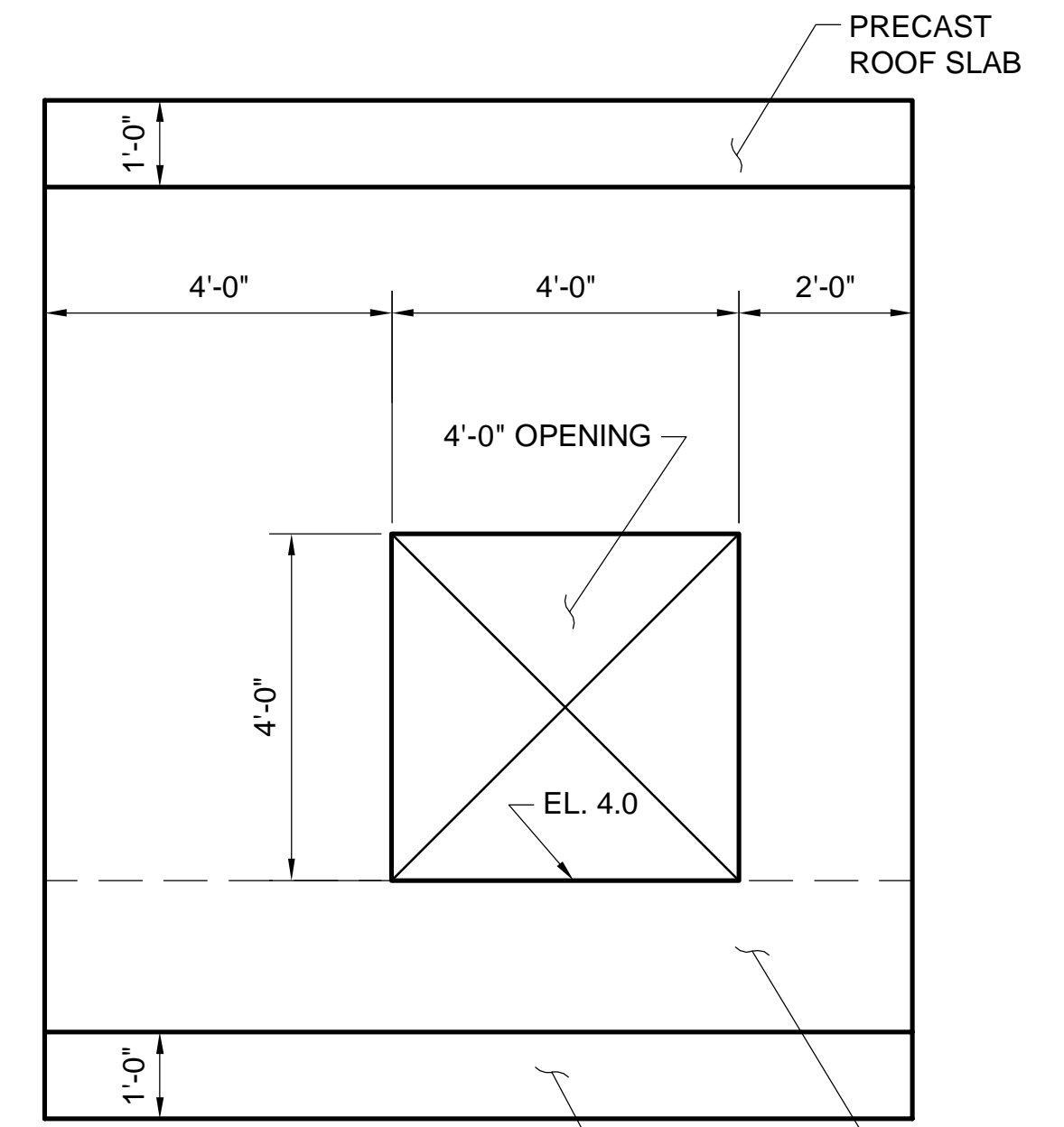
**SECTION 23**  
SCALE: 1" = 2'



**SECTION 24**  
SCALE: 1" = 2'



**CONCRETE COLLAR AROUND EXIST. 51" BRICK SD SECTION**  
SCALE: 1" = 2'



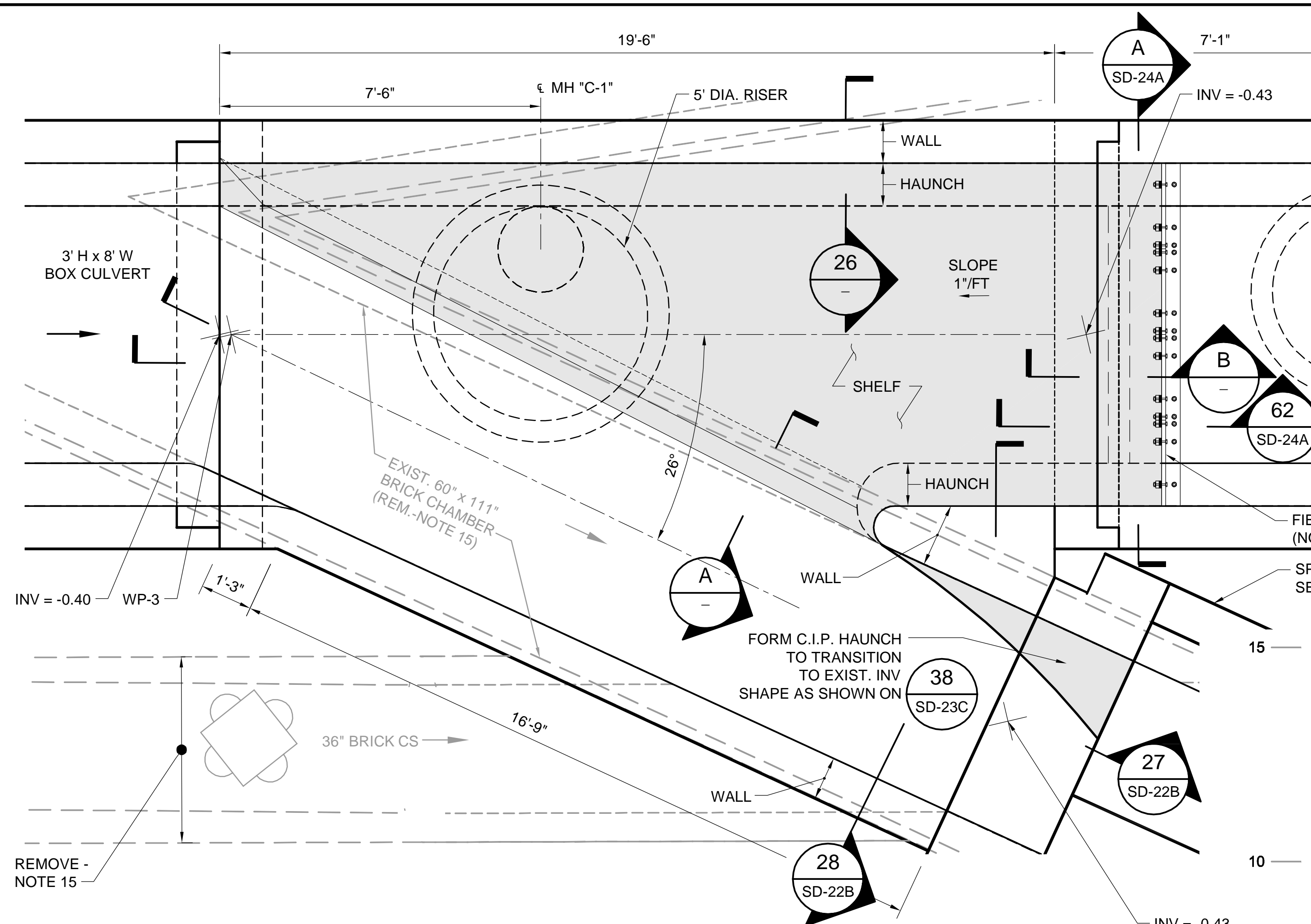
**SECTION 22**  
SCALE: 1" = 2'

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SPLITTER CHAMBER "B"**  
**PLAN AND SECTIONS**

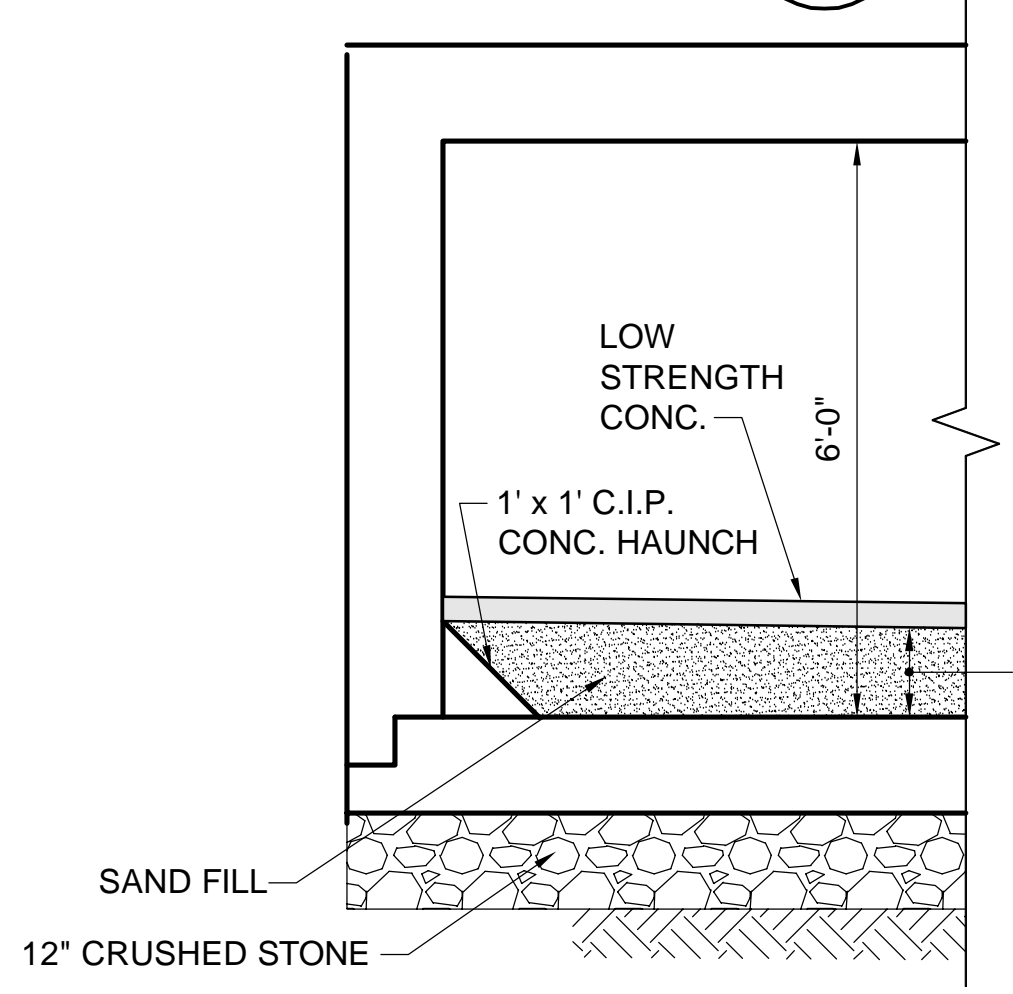
DESIGNED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: KMM			SD-22
DRAWN: KLN	REF.	CONT.	SCALE: 1"=2'
CHECKED: RJB	ACC.		DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143			

NO.	DATE	REVISIONS	BY

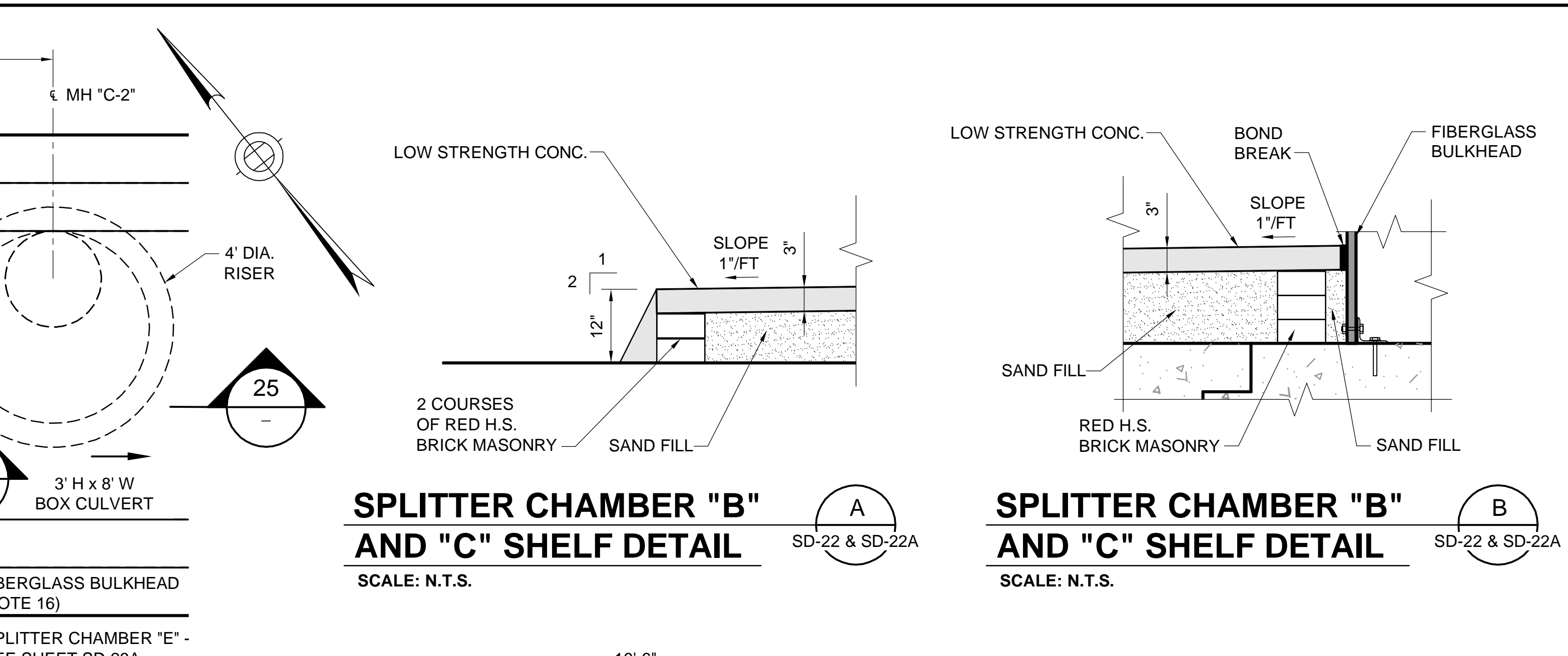


**SPLITTER CHAMBER "C" BASE PLAN**  
SCALE: 1" = 2'  
3 SD-21

- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
  - PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  - PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.
  - FOR BULKHEAD DETAILS, SEE SHEET SD-24A.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.

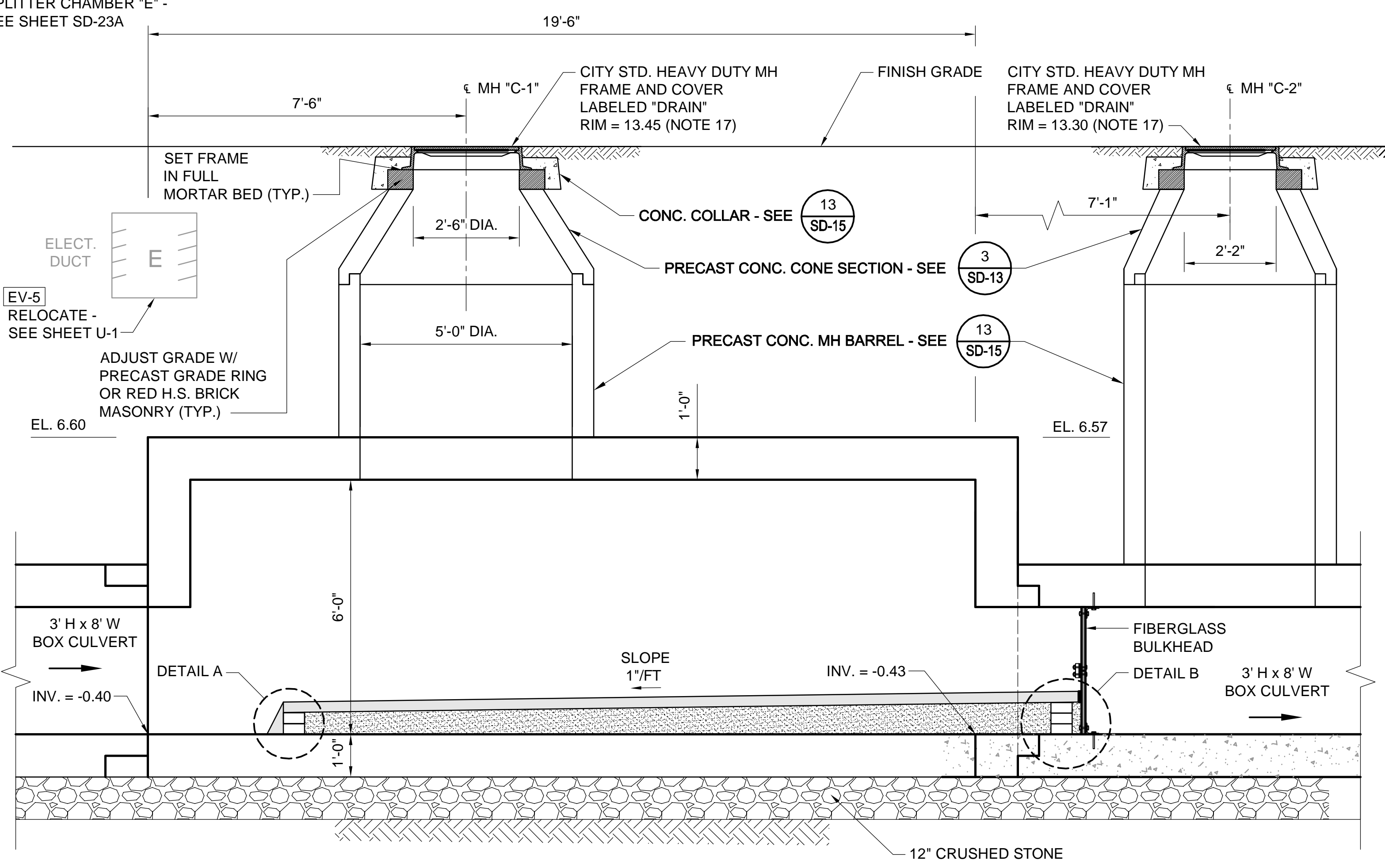


**SECTION 26**  
SCALE: 1" = 2'

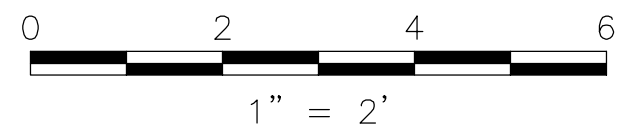


**SPLITTER CHAMBER "B" AND "C" SHELF DETAIL**  
SCALE: N.T.S.  
A SD-22 & SD-22A

**SPLITTER CHAMBER "B" AND "C" SHELF DETAIL**  
SCALE: N.T.S.  
B SD-22 & SD-22A



**SECTION 25**  
SCALE: 1" = 2'



Professional Engineer Seal for Rachel J. Burckardt, Civil No. 31920, State of Massachusetts, dated 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

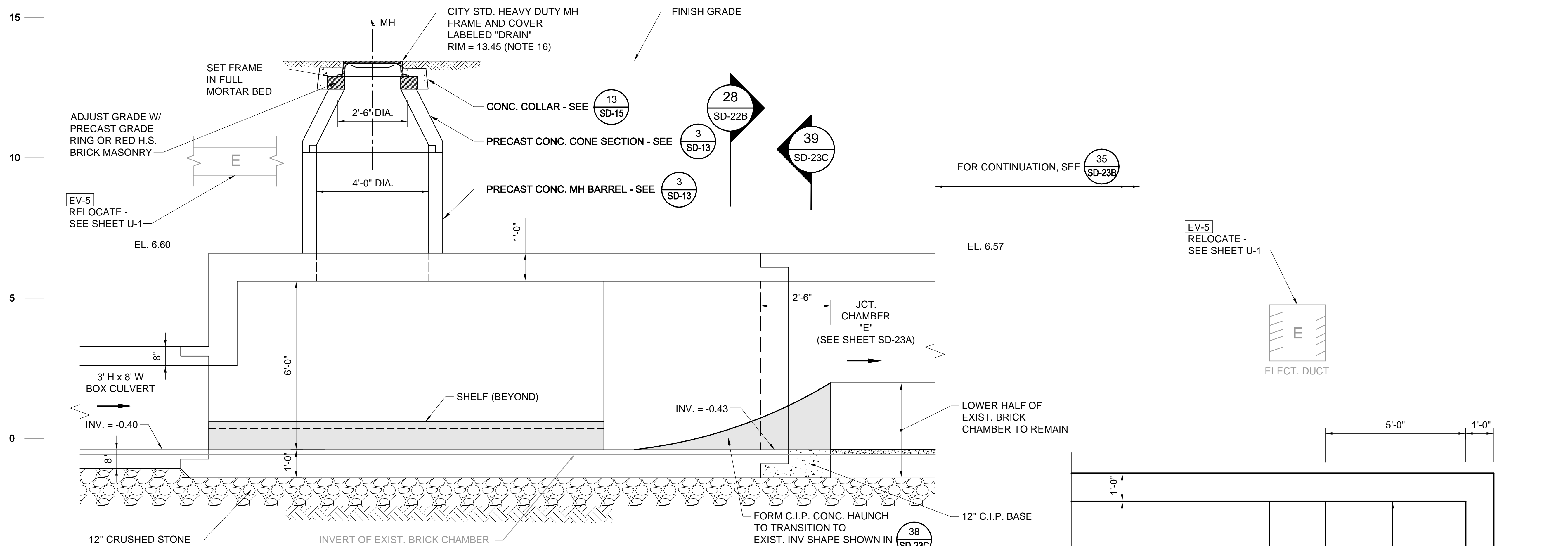
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SPLITTER CHAMBER "C"**  
**PLAN AND SECTIONS**

DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-22A</b>
CHECKED: KMM		
DRAWN: KLN	REF.	CONT.
CHECKED: RJB	ACC.	SCALE: 1"=2' DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

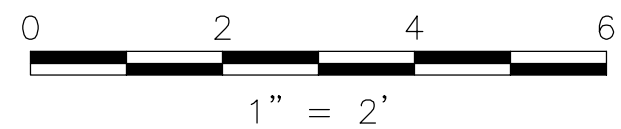
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NO.	DATE	REVISIONS	BY



- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
  - PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  - PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.

RACHEL J. BURCKARDT  
 CIVIL  
 No. 31980  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MASSACHUSETTS  
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SPLITTER CHAMBER "C"**  
**SECTIONS**

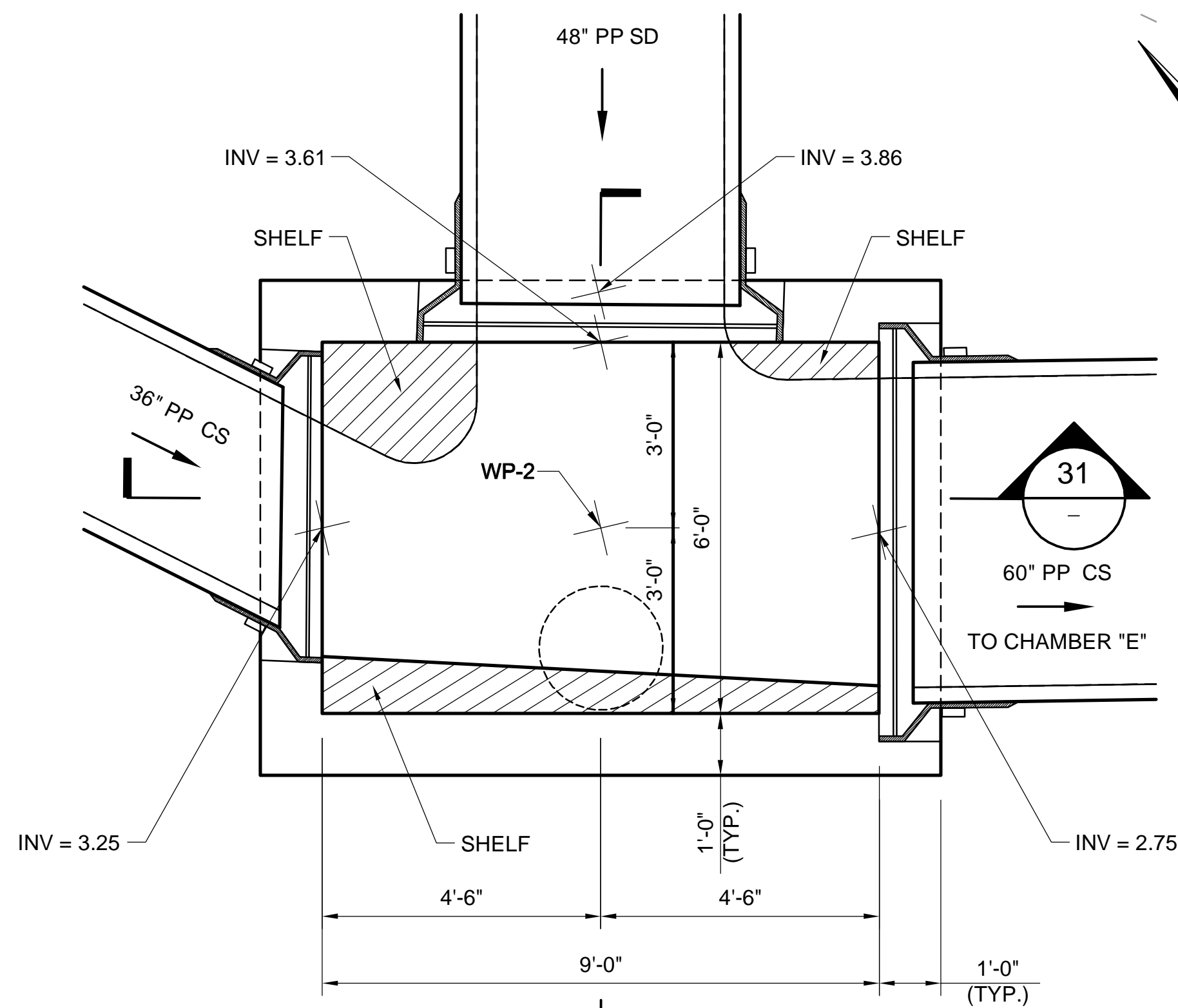
DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-22B</b>
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CHECKED: RJB	ACC.	SCALE: 1"=2' DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

2017-12-09 9:00 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-22B.dwg

NO.	DATE	REVISIONS	BY

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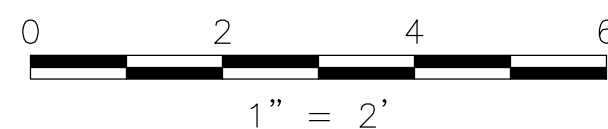
**PLAN - JUNCTION CHAMBER "D"**

SCALE: 1" = 2'

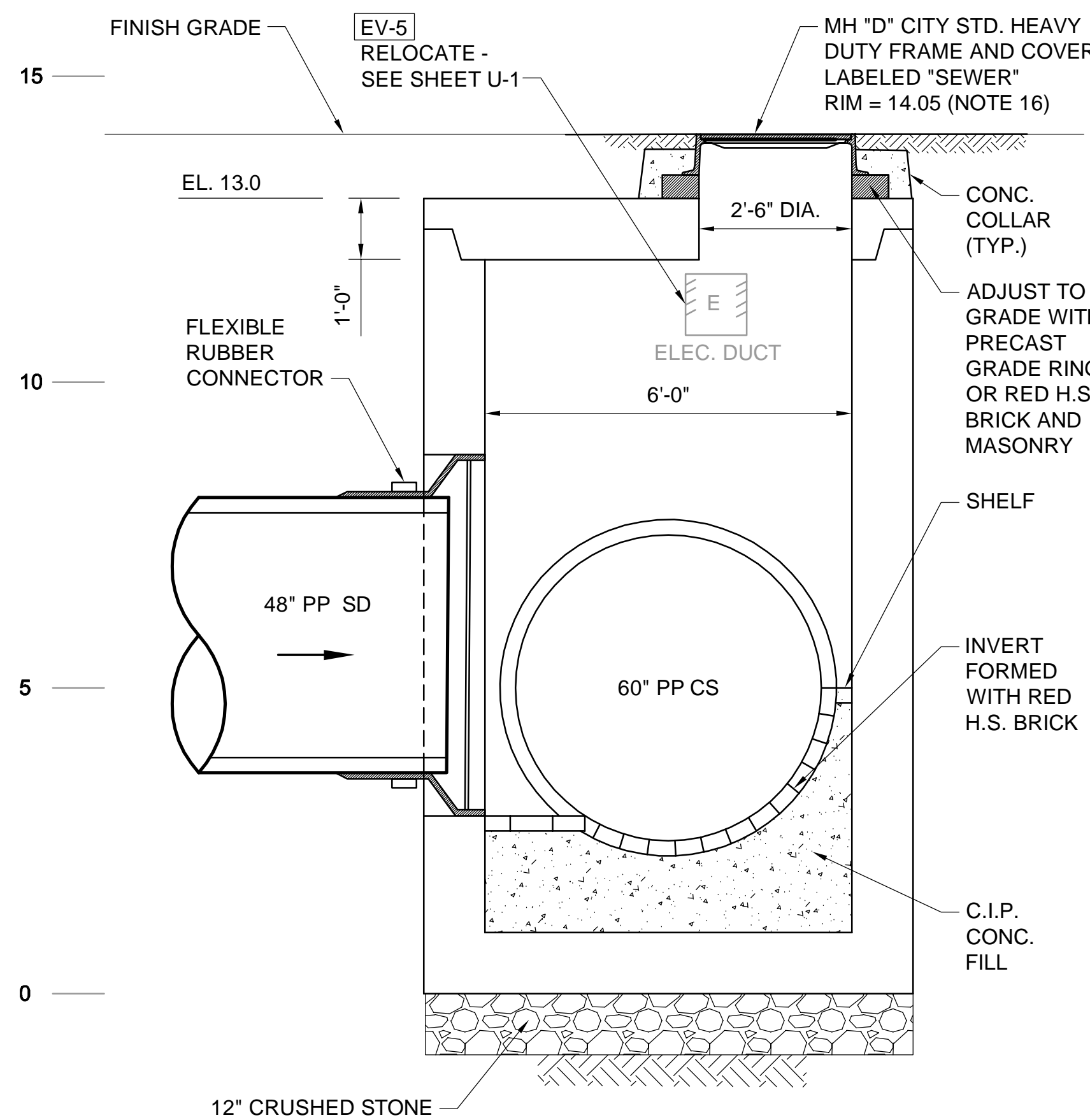
4  
SD-21

**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
7. FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
8. FOR UTILITY PLAN, SEE SHEET U-1.
9. ALL CONC. SHALL BE PRECAST U.N.O.
10. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
11. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
12. FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
13. PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
14. PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
15. FOR DEMOLITION PLAN, SEE SHEET SD-20A.
16. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



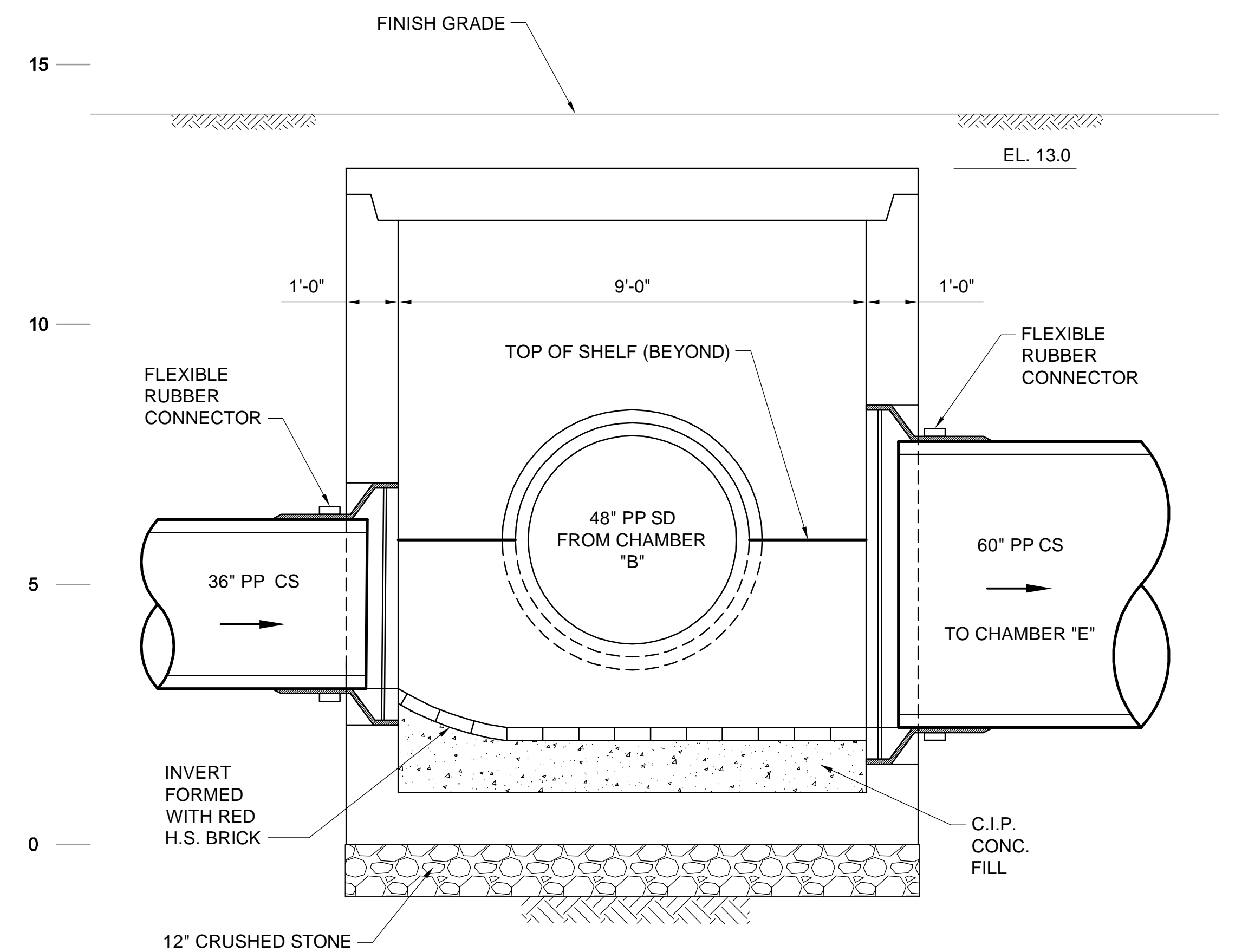
*Rachel J. Burckardt*  
 12/11/17



**SECTION**

SCALE: 1" = 2'

30



**SECTION**

SCALE: 1" = 2'

31

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

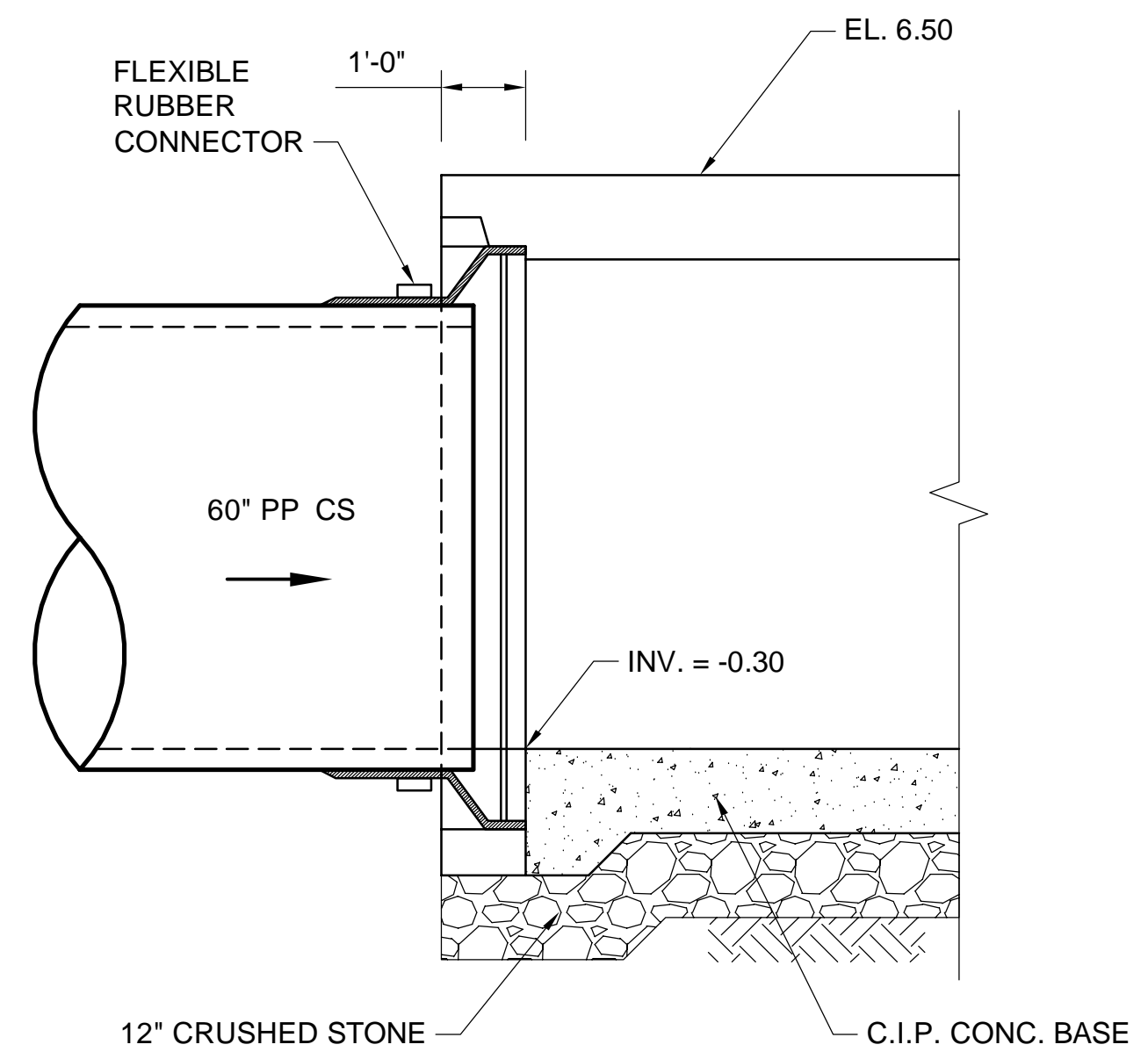
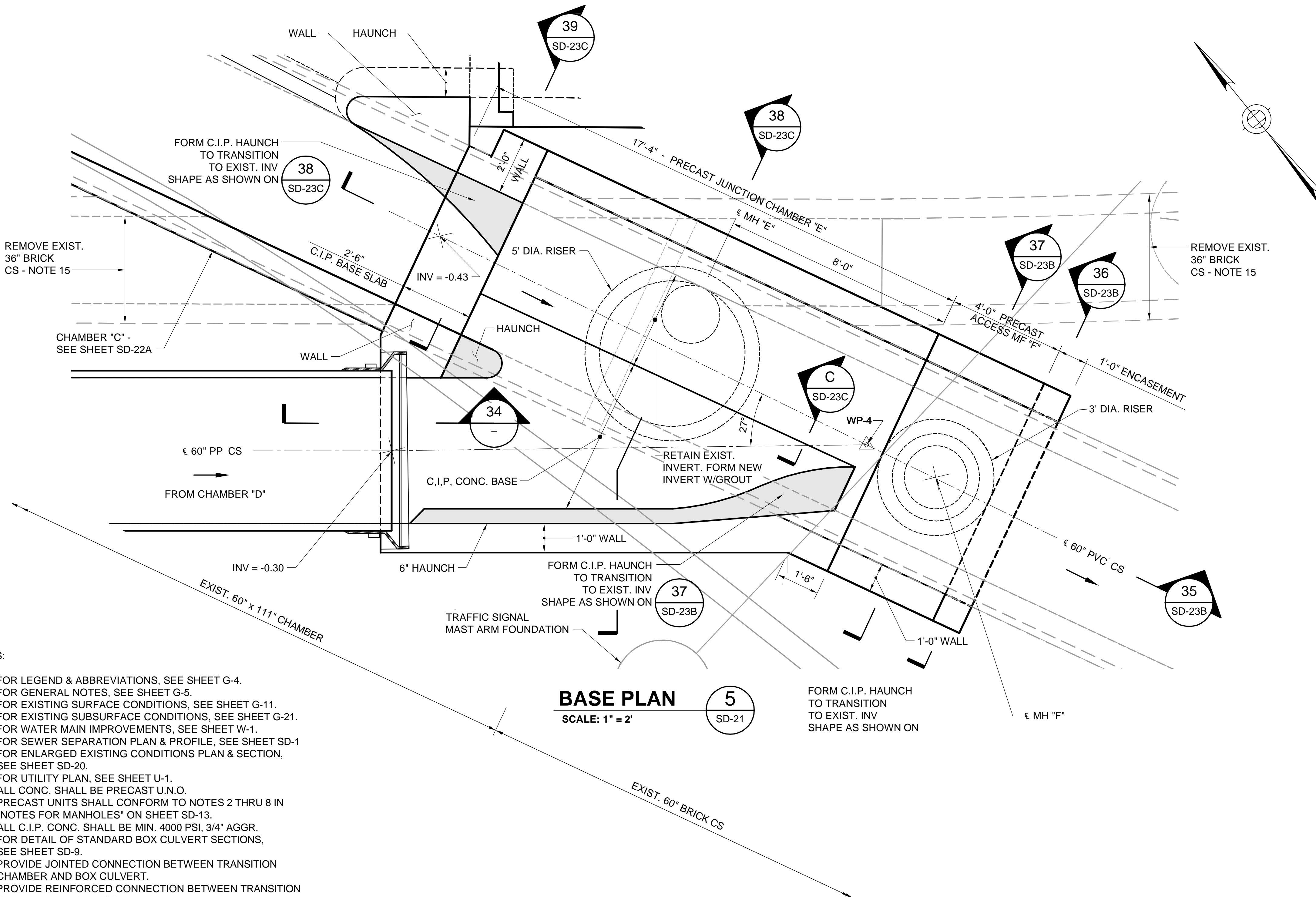
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**JUNCTION CHAMBER "D"**  
**PLAN AND SECTIONS**

DESIGNED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET
CHECKED: KMM		<b>SD-23</b>
DRAWN: KLN	REF. CONT.	SCALE: 1"=2'
CHECKED: RJB	ACC.	DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

NO.	DATE	REVISIONS	BY

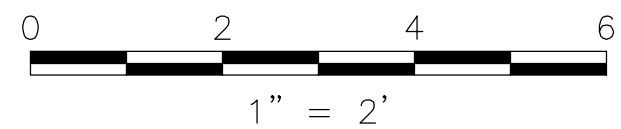
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- NOTES:**
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
  - PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  - PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.

**BASE PLAN**  
SCALE: 1" = 2'

**SECTION**  
SCALE: 1" = 2'



*Rachel J. Burckardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

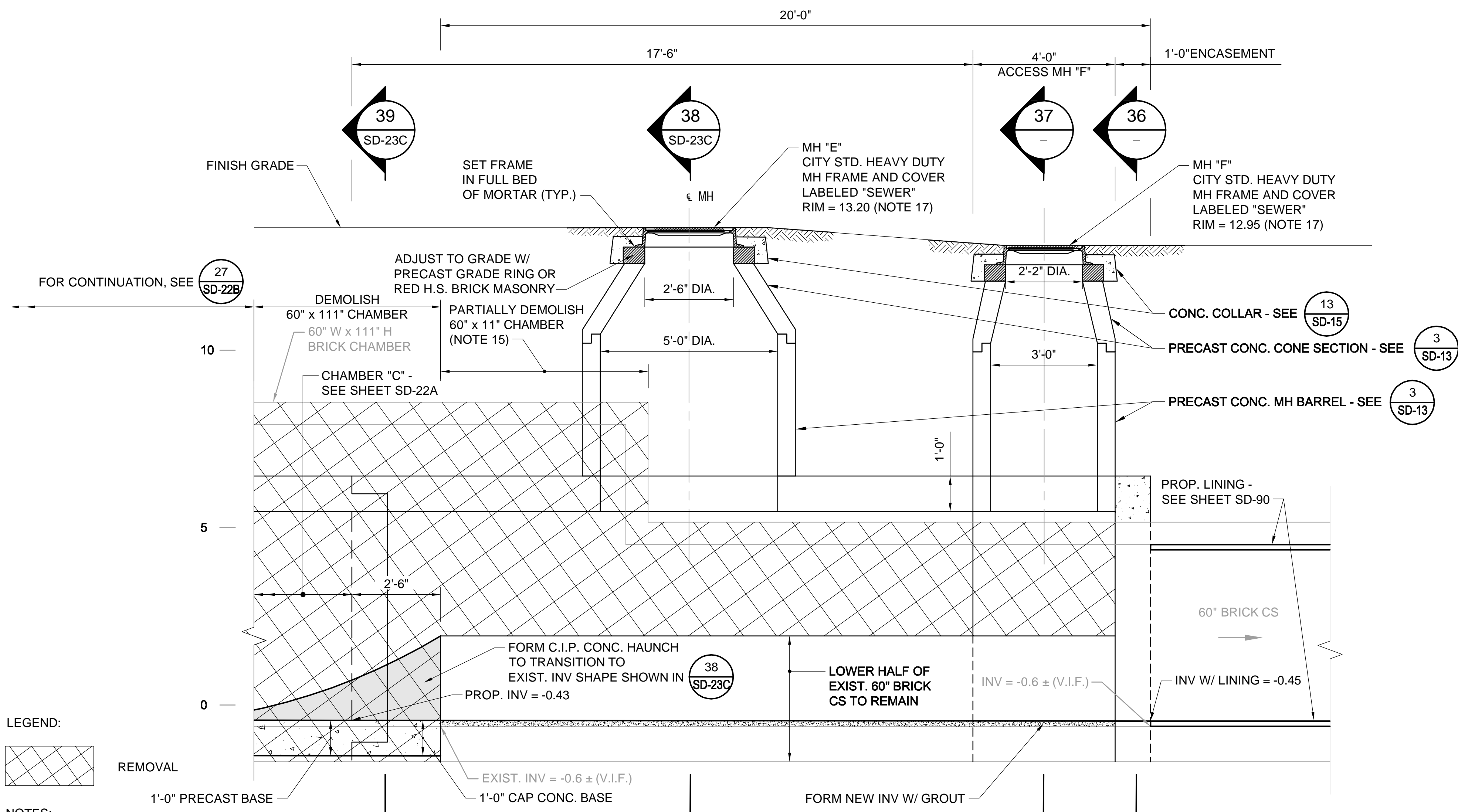
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**JUNCTION CHAMBER "E" AND ACCESS MH "F"**  
**PLAN AND SECTION**

DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET					
CHECKED: KMM			<table border="1"> <tr> <td>REF.</td> <td>CONT.</td> <td>SCALE: 1"=2'</td> </tr> <tr> <td>ACC.</td> <td></td> <td>DATE: DEC 2017</td> </tr> </table>	REF.	CONT.	SCALE: 1"=2'	ACC.
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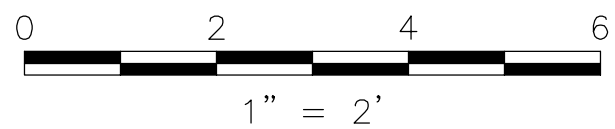
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

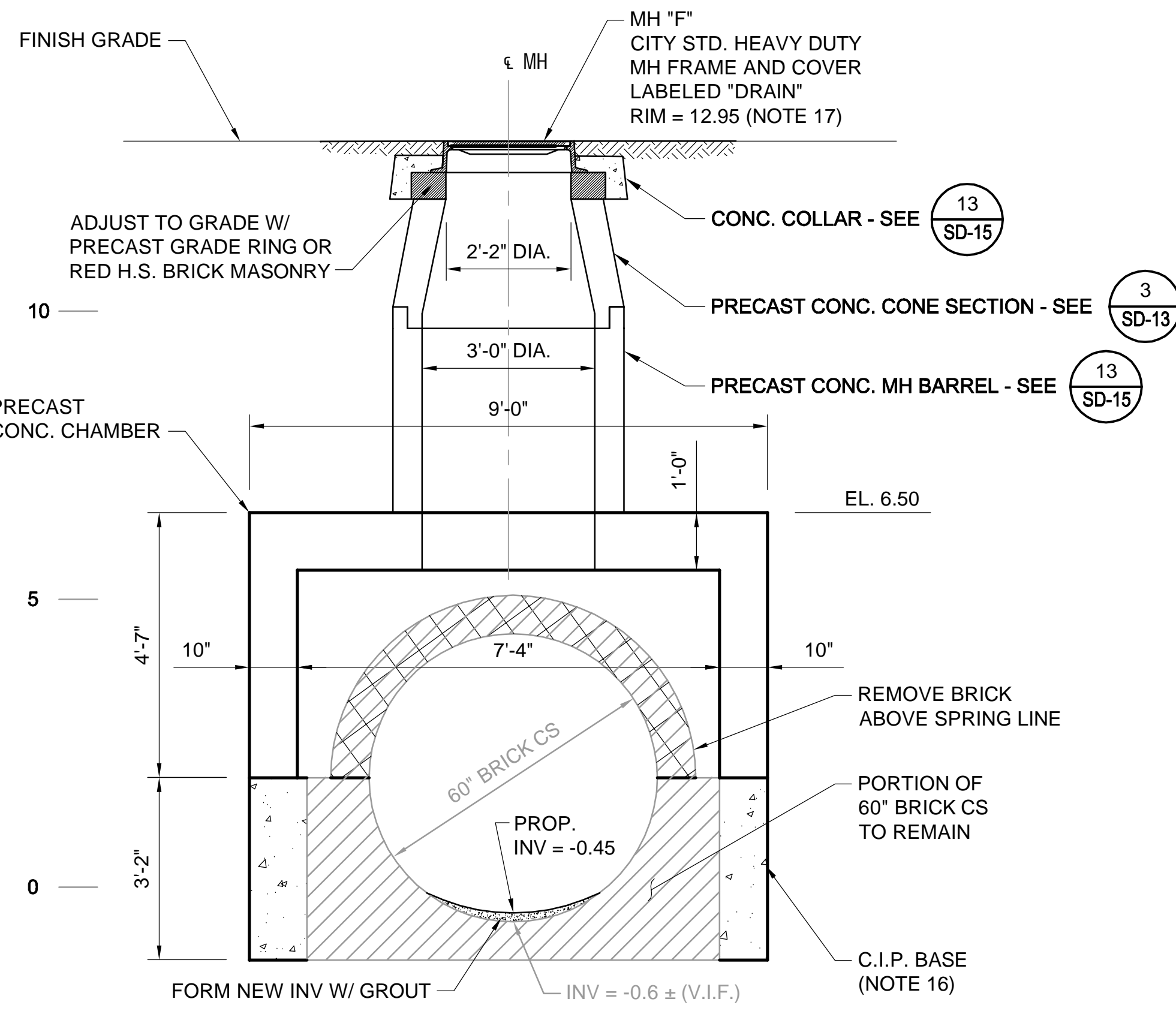
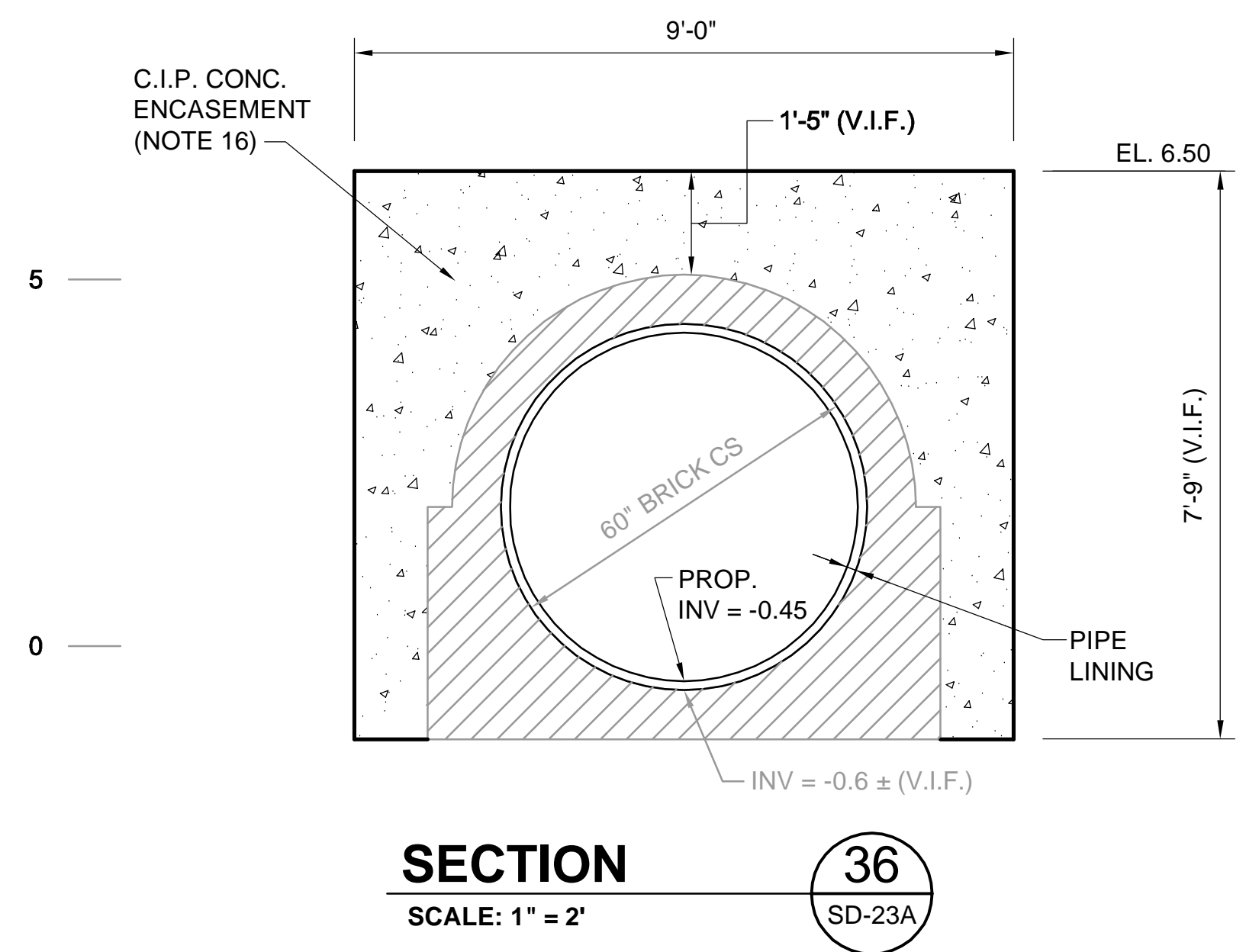
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- NOTES:**
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
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  - PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  - PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.
  - FOR REINFORCING DETAILS, SEE SHEET SD-24.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



*Rachel J. Burckardt*  
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

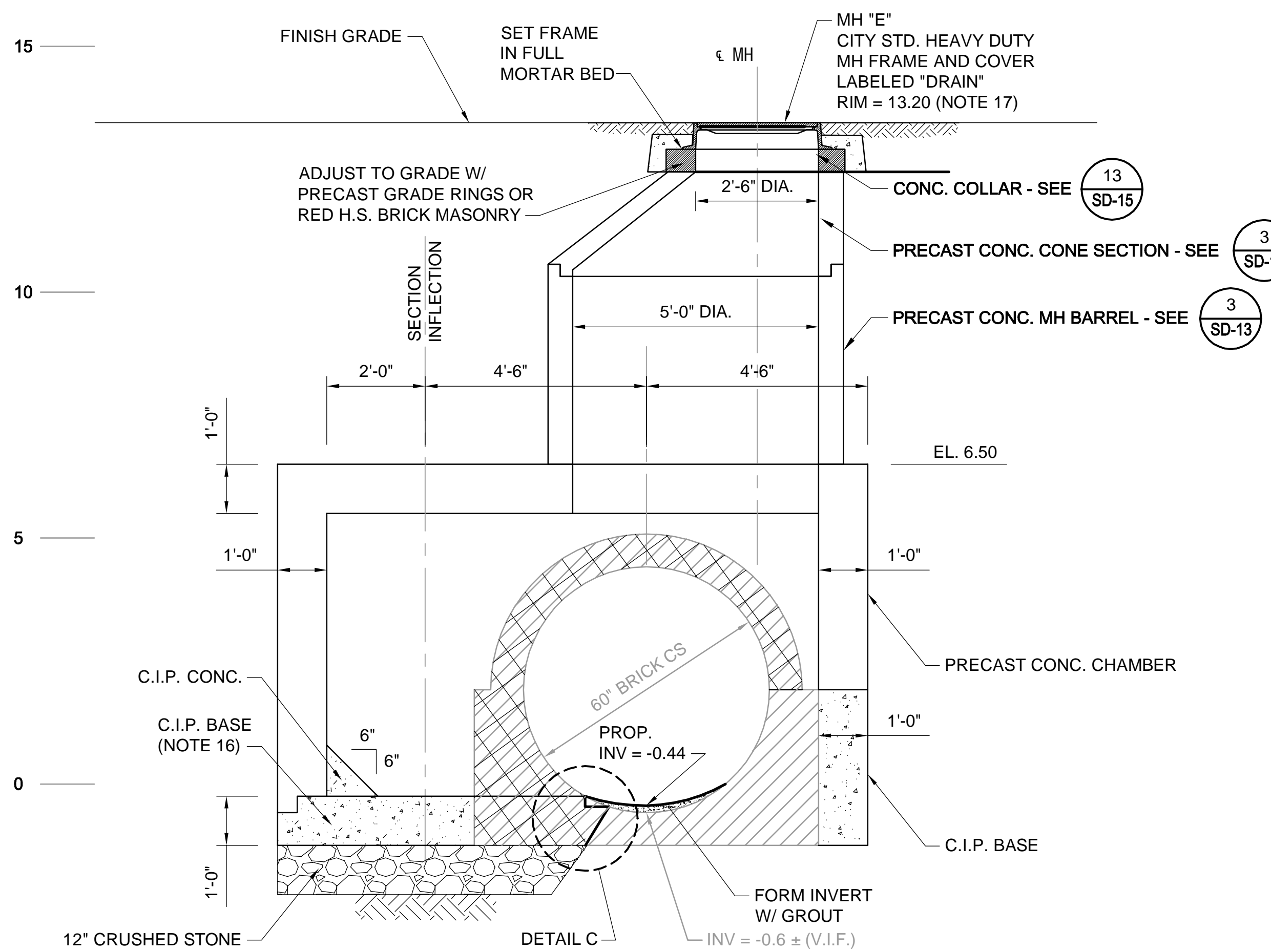
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**JUNCTION CHAMBER "E" AND ACCESS MH "F"**  
**SECTIONS - 1 OF 2**

DESIGNED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET
CHECKED: KMM		SD-23B
DRAWN: KLN	REF. _____	SCALE: 1"=2'
CHECKED: RJB	CONT. _____	DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

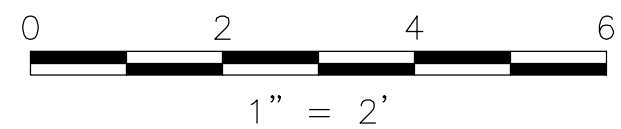
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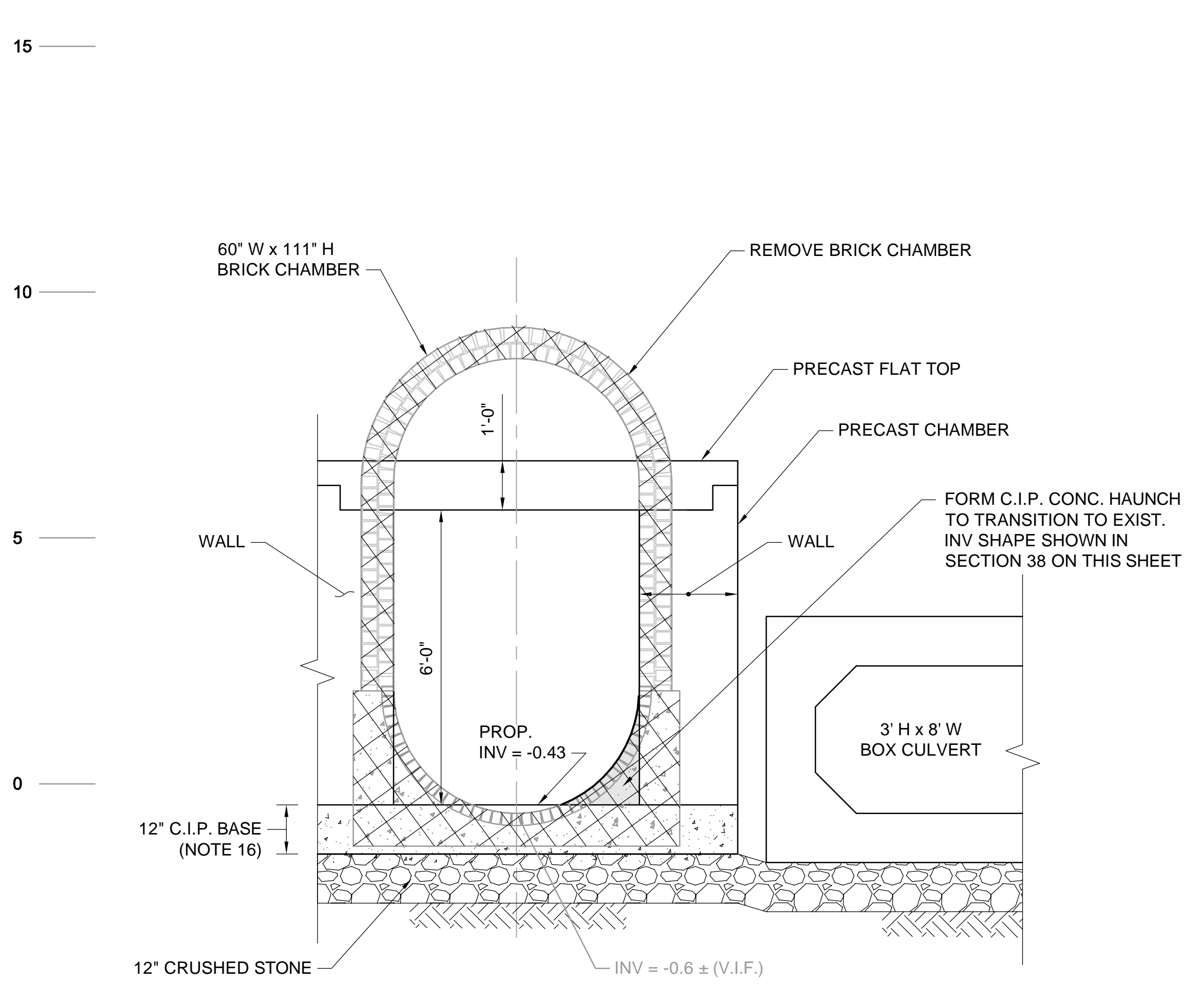
**SECTION 38**  
SCALE: 1" = 2'  
SD-23A



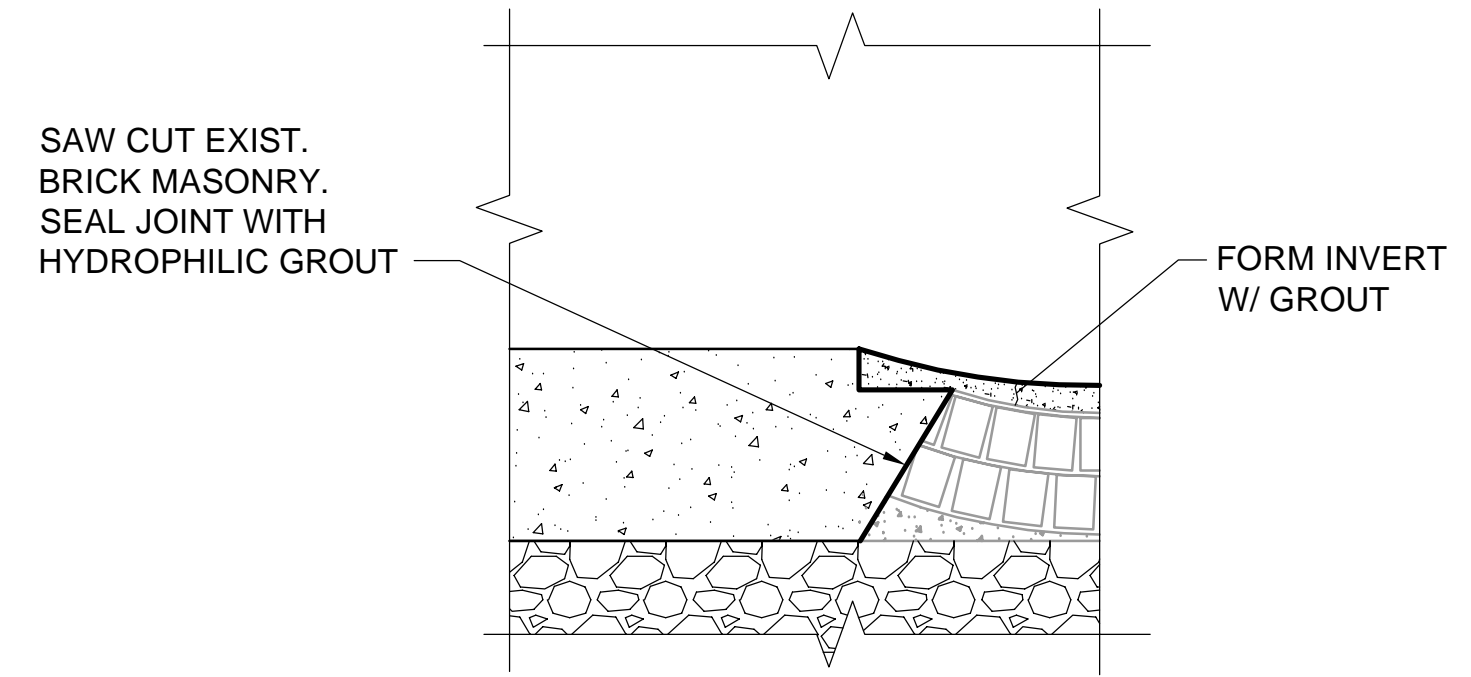
- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
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  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
  - PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  - PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
  - FOR DEMOLITION PLAN, SEE SHEET SD-20A.
  - FOR REINFORCING DETAILS, SEE SHEET SD-24.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVER, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



*Rachel J. Burckardt*  
12/11/17



**SECTION 39**  
SCALE: 1" = 2'  
SD-22B SD-23A SD-23B



**DETAIL C**  
SCALE: N.T.S.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**JUNCTION CHAMBER "E" AND ACCESS MH "F"**  
**SECTIONS - 2 OF 2**

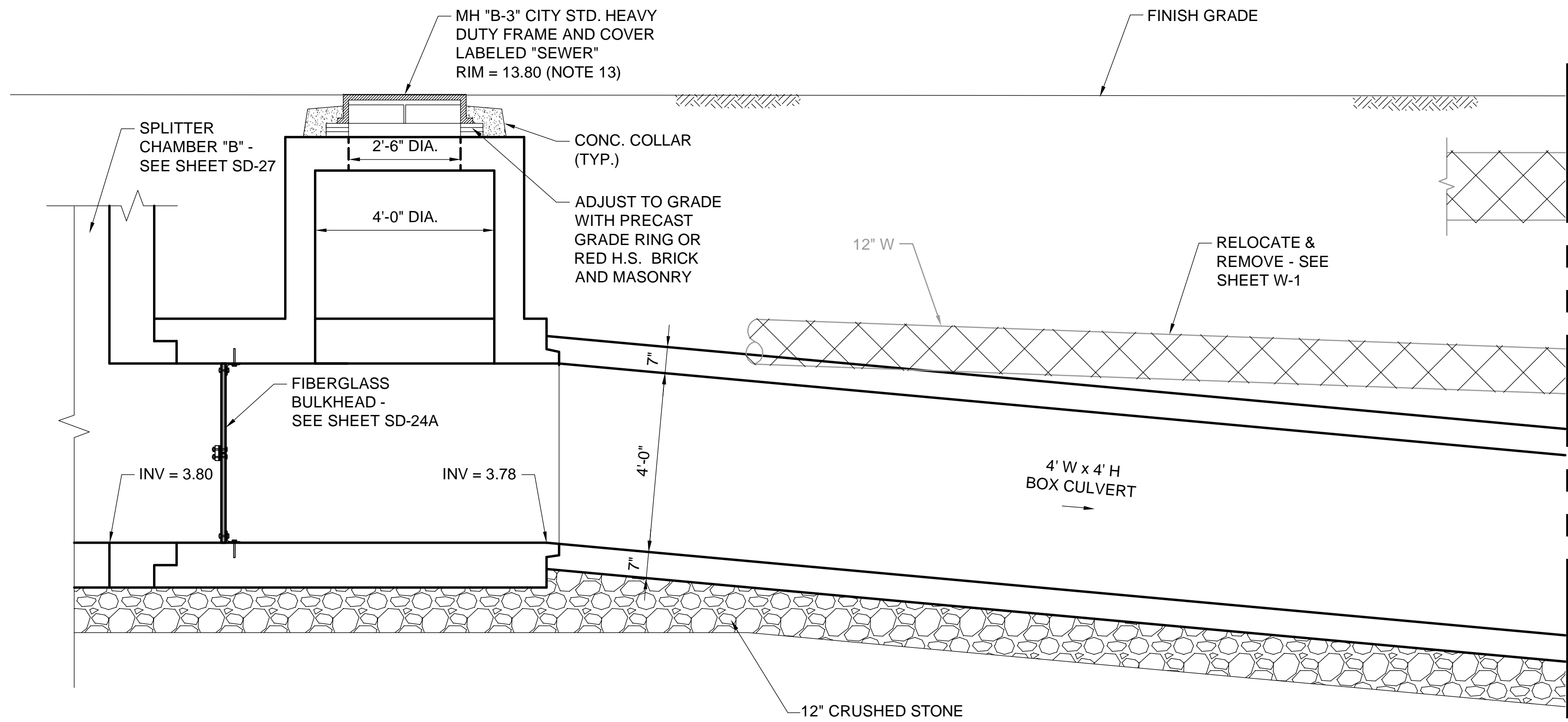
DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-23C</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: KLN		ACC.		
CHECKED: RJB				

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93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY



2017-12-09 3:56 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-23D.dwg



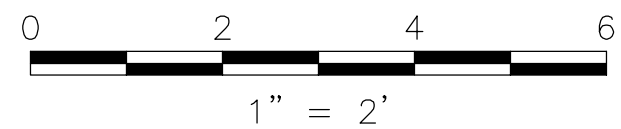
MATCH LINE - SEE BELOW

MATCH LINE - SEE ABOVE

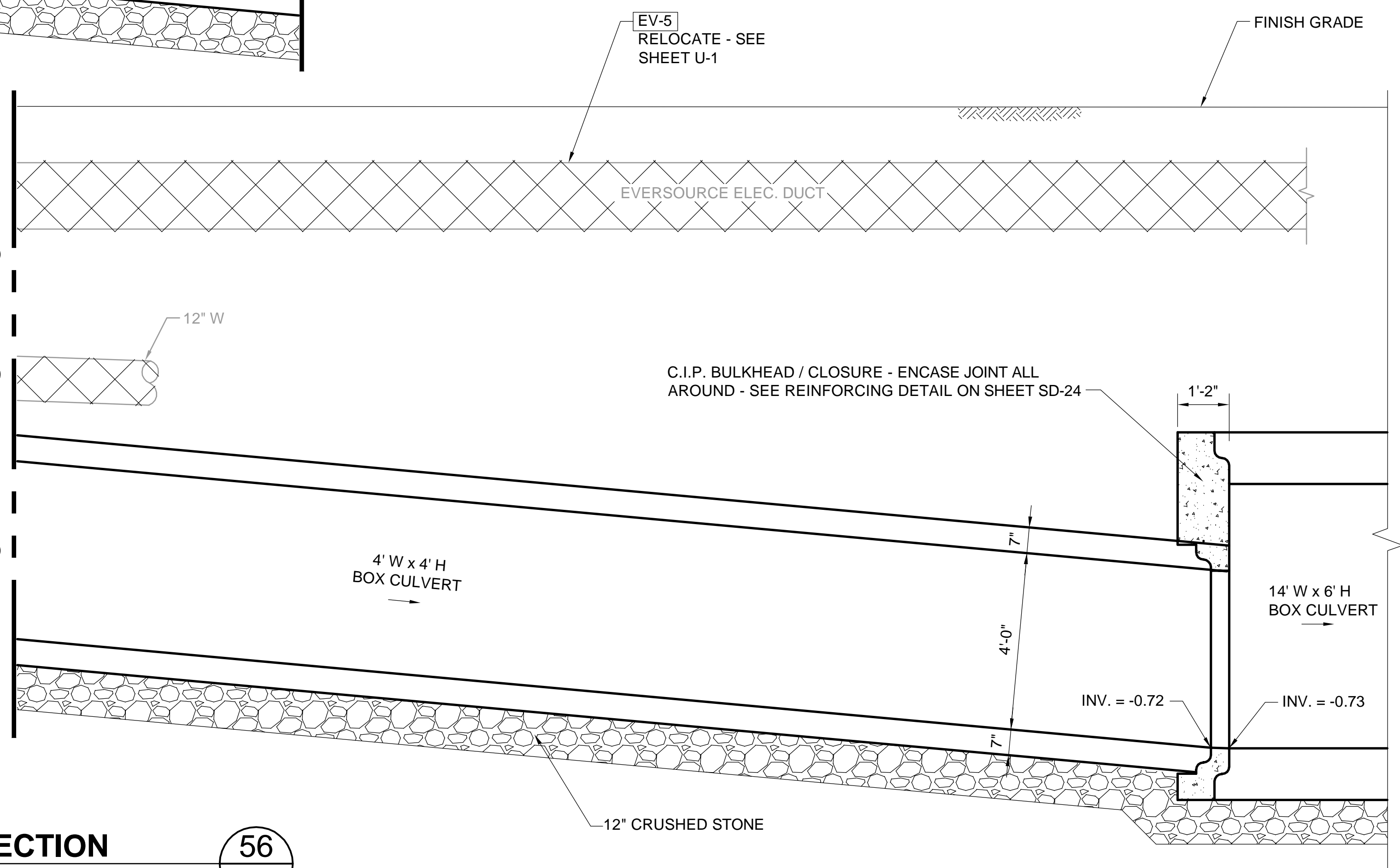
**SECTION**  
SCALE: 1" = 2'

56  
SD-21

- NOTES:
1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
  7. FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  8. FOR UTILITY PLAN, SEE SHEET U-1.
  9. ALL CONC. SHALL BE PRECAST U.N.O.
  10. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  11. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  12. FOR BULKHEAD DETAILS, SEE SHEET SD-24A.
  13. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



RACHEL J. BURCKARDT  
CIVIL  
No. 31680  
12/11/17



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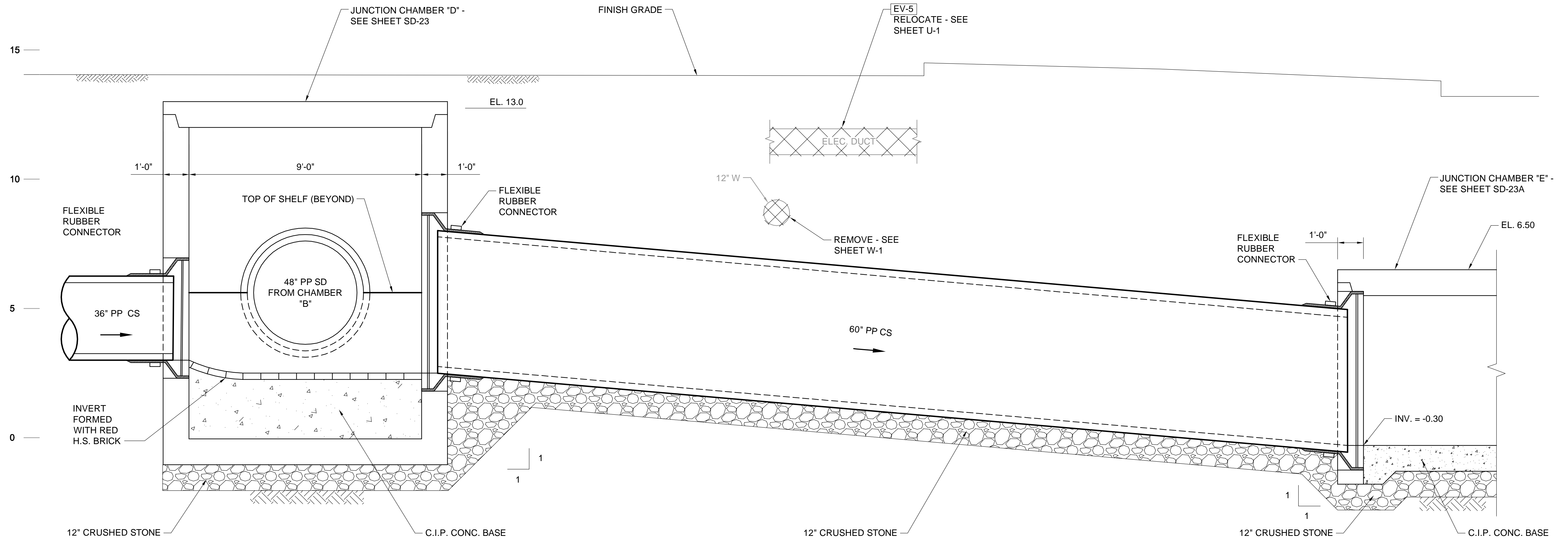
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**MISC. SECTIONS AND DETAILS 1 OF 4**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-23D</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: KLN		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

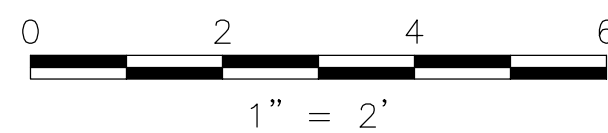
NO.	DATE	REVISIONS	BY

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**NOTES:**

1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1
7. FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
8. FOR UTILITY PLAN, SEE SHEET U-1.
9. ALL CONC. SHALL BE PRECAST U.N.O.
10. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
11. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
12. FOR BULKHEAD DETAILS, SEE SHEET SD-24A.
13. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



*Rachel J. Burckardt*
  
 12/11/17

**SECTION**  
SCALE: 1" = 2'

57  
SD-21

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**MISC. SECTIONS AND DETAILS 2 OF 4**

DESIGNED: RJB  
 CHECKED: KMM  
 DRAWN: KLN  
 CHECKED: RJB

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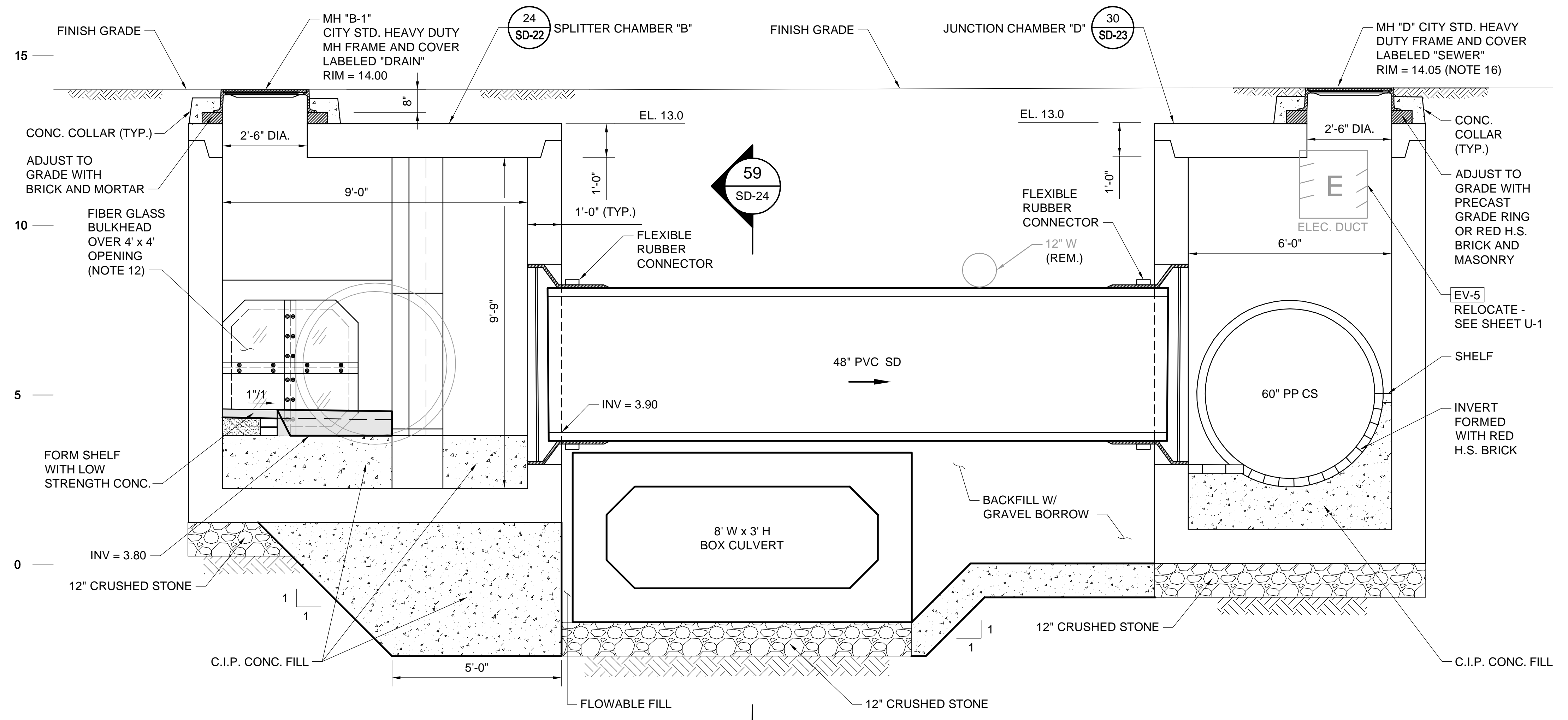
SHEET  
**SD-23E**

REF.	CONT.
ACC.	DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

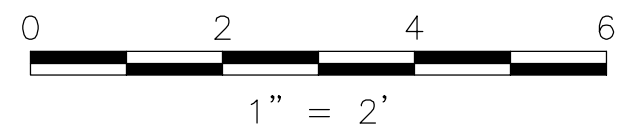
NO.	DATE	REVISIONS	BY

2017-12-07 11:25 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-23F.dwg



**SECTION**  
SCALE: 1" = 2'

- NOTES:
- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
  - FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  - FOR UTILITY PLAN, SEE SHEET U-1.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR BULKHEAD DETAILS, SEE SHEET SD-24A.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



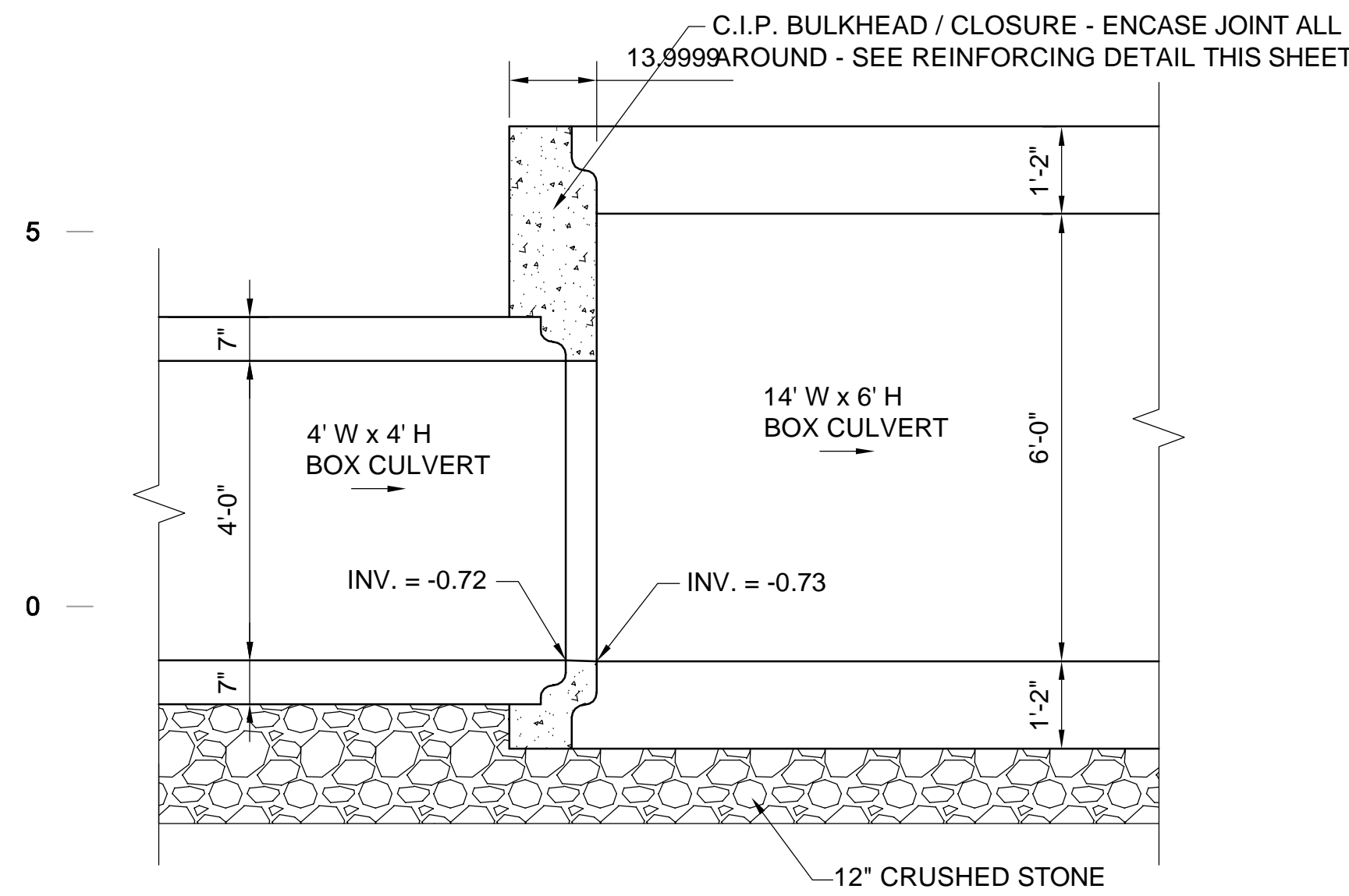
*Rachel J. Burckardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

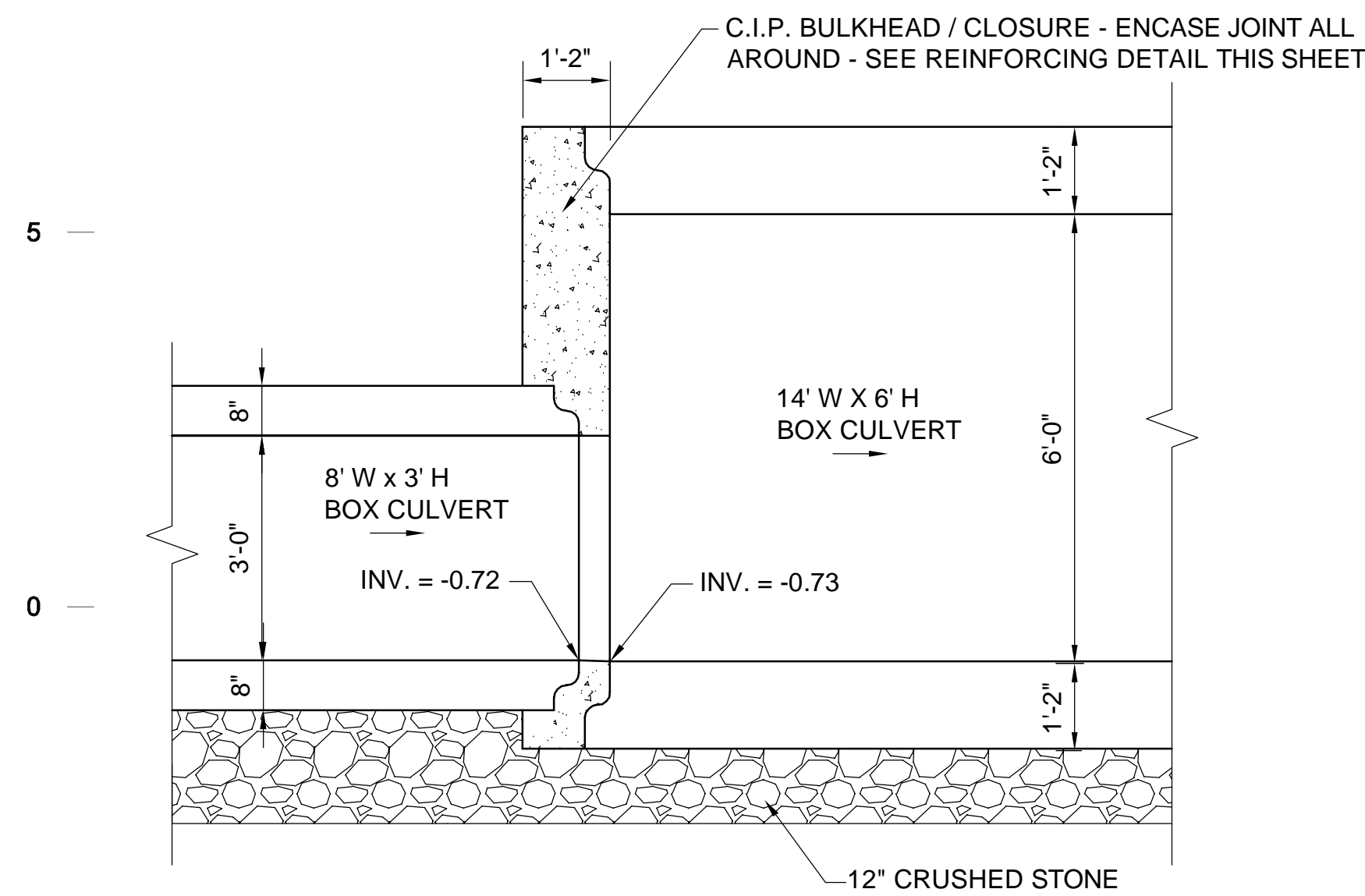
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**MISC. SECTIONS AND DETAILS 3 OF 4**

DESIGNED: RJB		Parsons Brinckerhoff, Inc.		SHEET <b>SD-23F</b>
CHECKED: KMM		75 Arlington St. Boston, MA 02116		
DRAWN: KLN	REF.	CONT.	SCALE: 1"=2'	CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143
CHECKED: RJB	ACC.		DATE: DEC 2017	

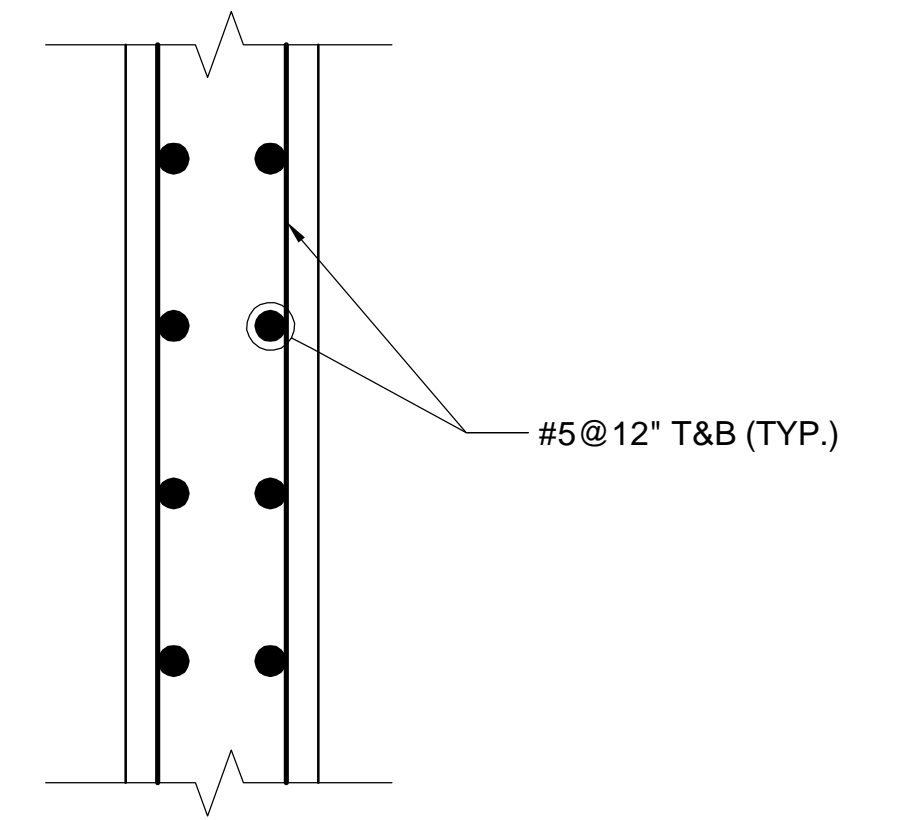
NO.	DATE	REVISIONS	BY



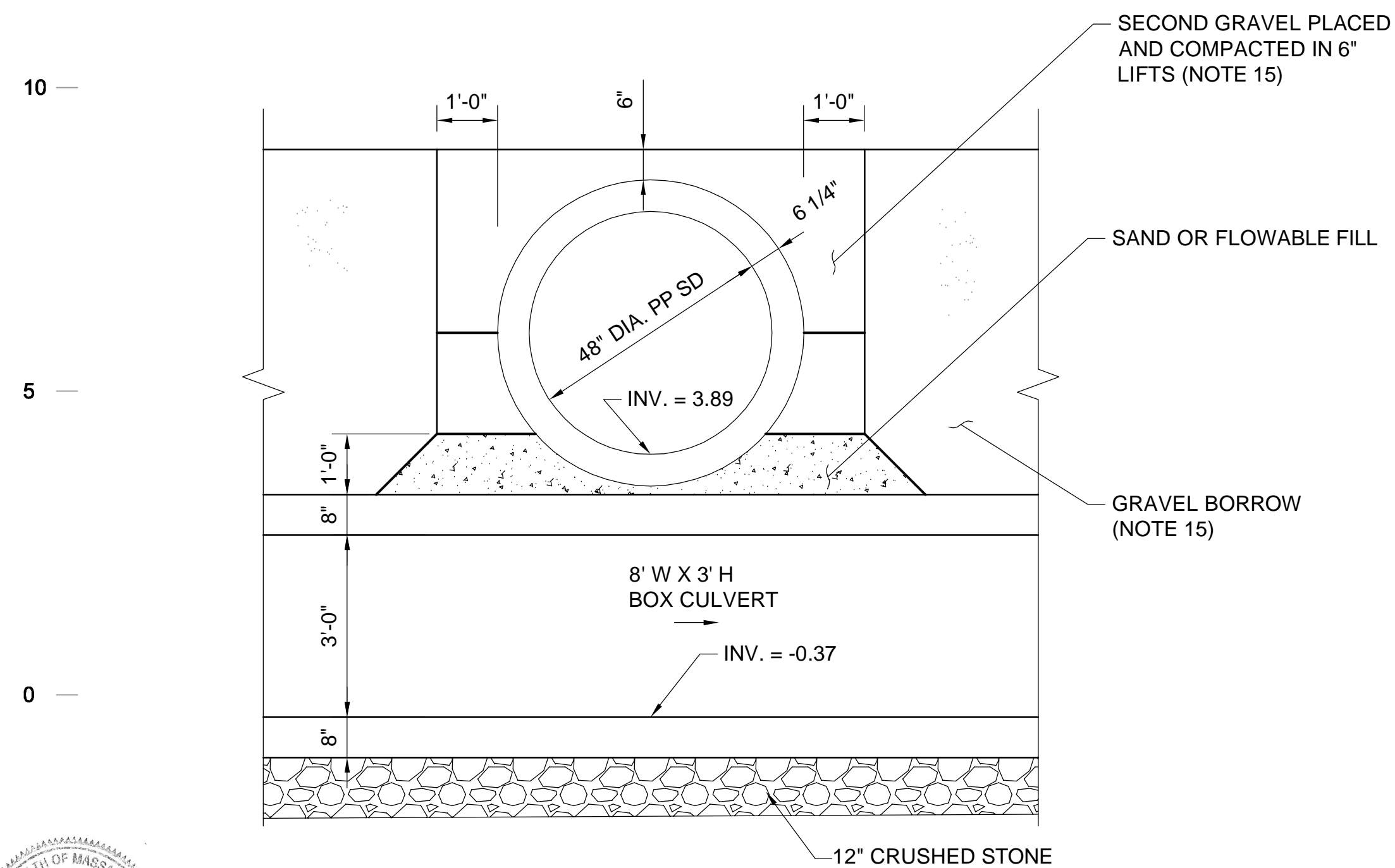
**SECTION 60**  
SCALE: 1" = 2'  
SD-21



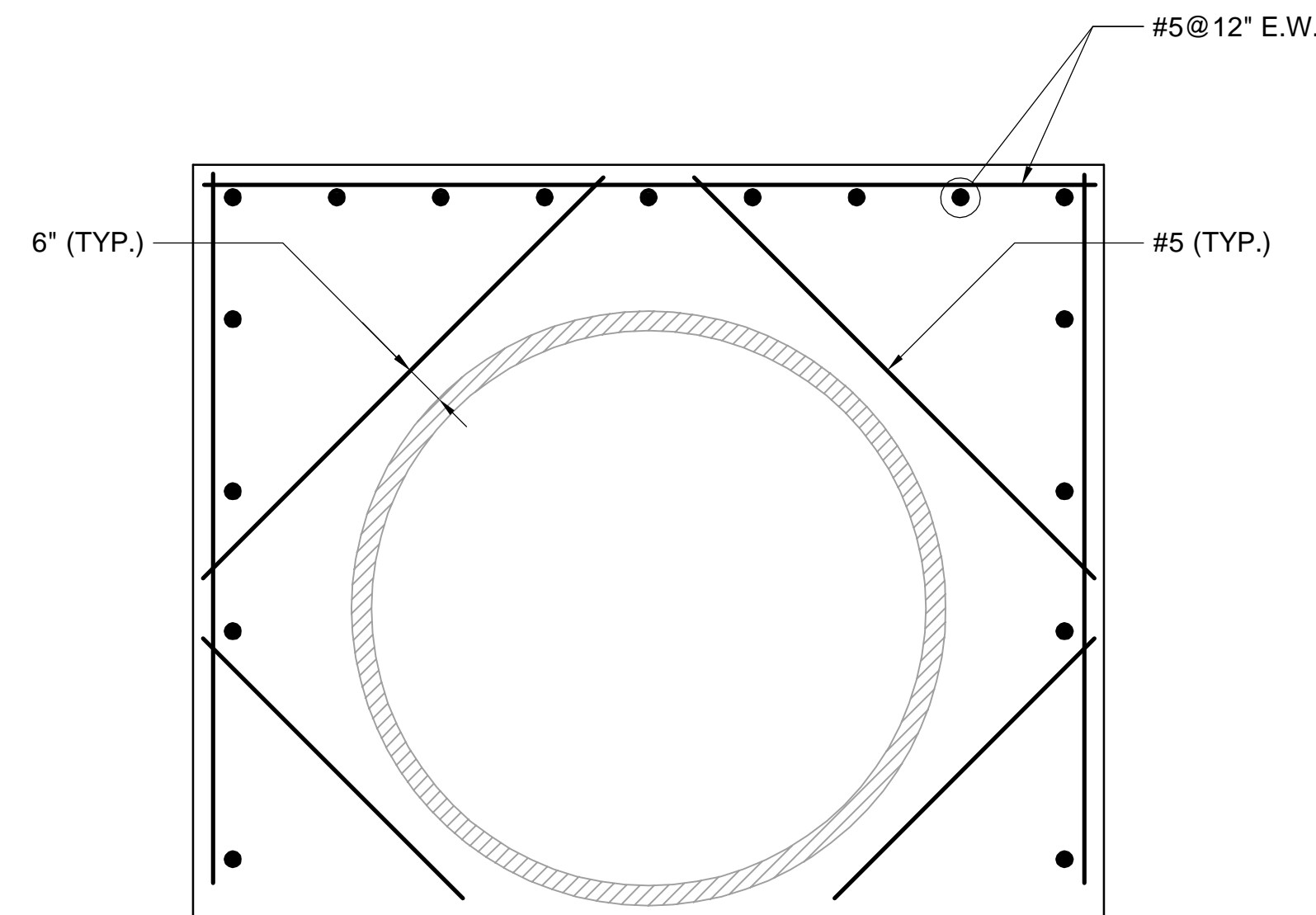
**SECTION 61**  
SCALE: 1" = 2'  
SD-21



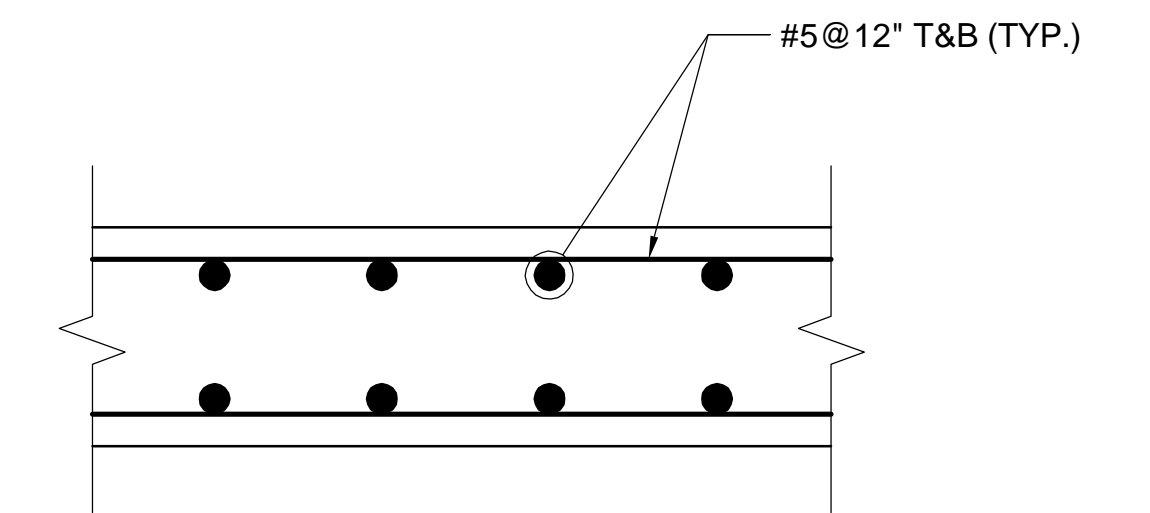
**C.I.P. BULKHEAD - TYPICAL REINFORCING DETAIL**  
SCALE: N.T.S.



**SECTION 59**  
SCALE: 1" = 2'  
SD-21 SD-23F



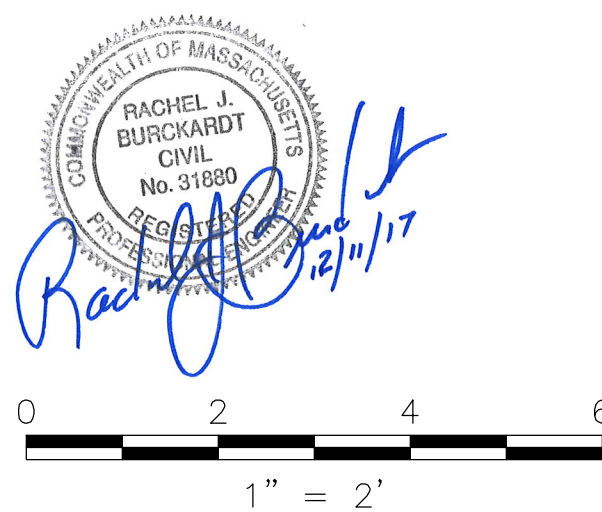
**C.I.P. PIPE ENCASEMENT - TYPICAL REINFORCING DETAIL**  
SCALE: N.T.S.



**C.I.P. BASE - TYPICAL REINFORCING DETAIL**  
SCALE: N.T.S.

**NOTES:**

- FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
- FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
- FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
- FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
- FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
- FOR UTILITY PLAN, SEE SHEET U-1.
- ALL CONC. SHALL BE PRECAST U.N.O.
- PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
- ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
- FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
- PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
- PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.
- PLACE SCREENED GRAVEL LIFTS CONCURRENT WITH GRAVEL BORROW LIFTS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**MISC. SECTIONS AND DETAILS 4 OF 4**

DESIGNED: RJB  
CHECKED: KMM  
DRAWN: KLN  
CHECKED: RJB

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Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

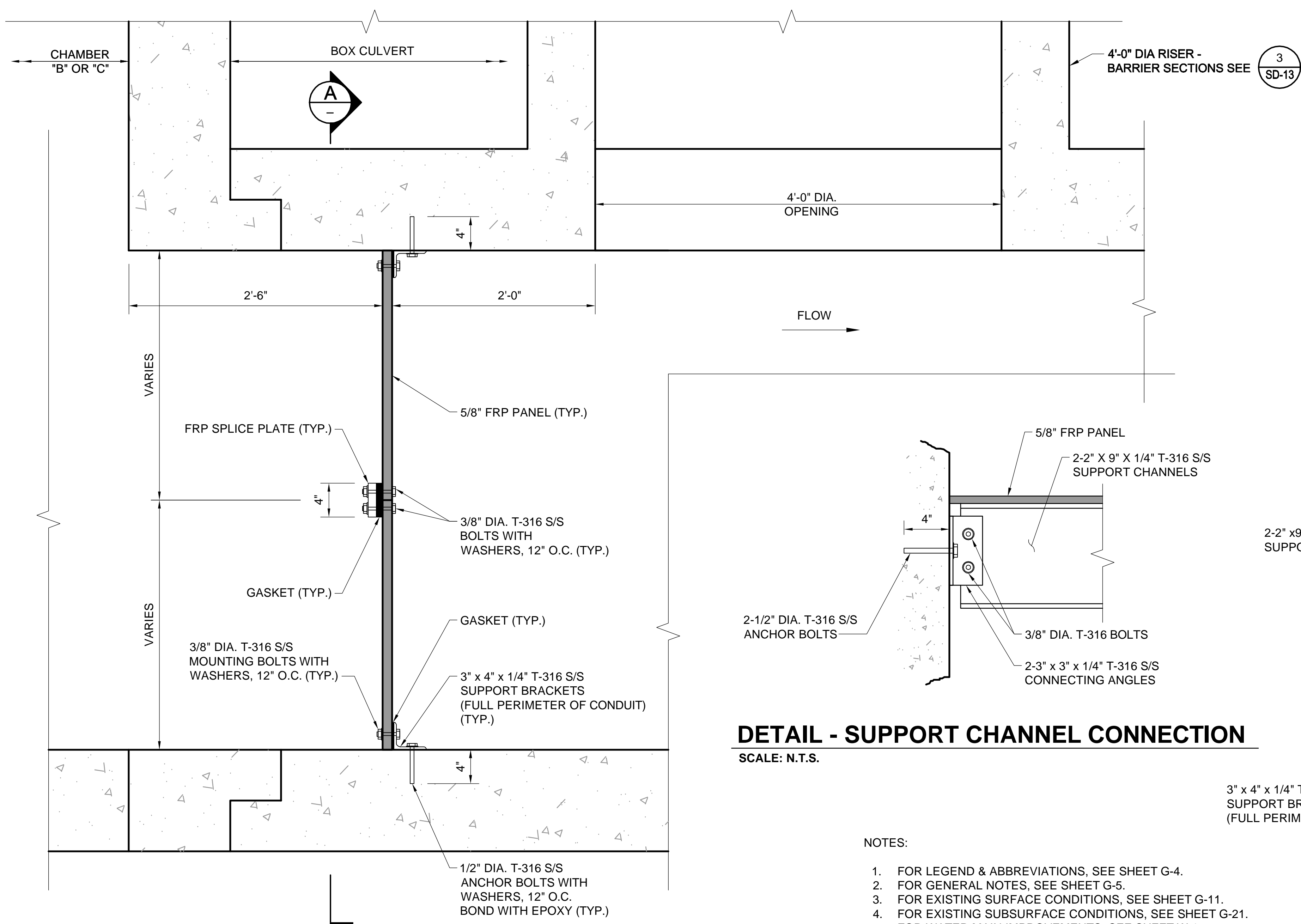
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ACC. DATE: DEC 2017

SHEET  
**SD-24**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

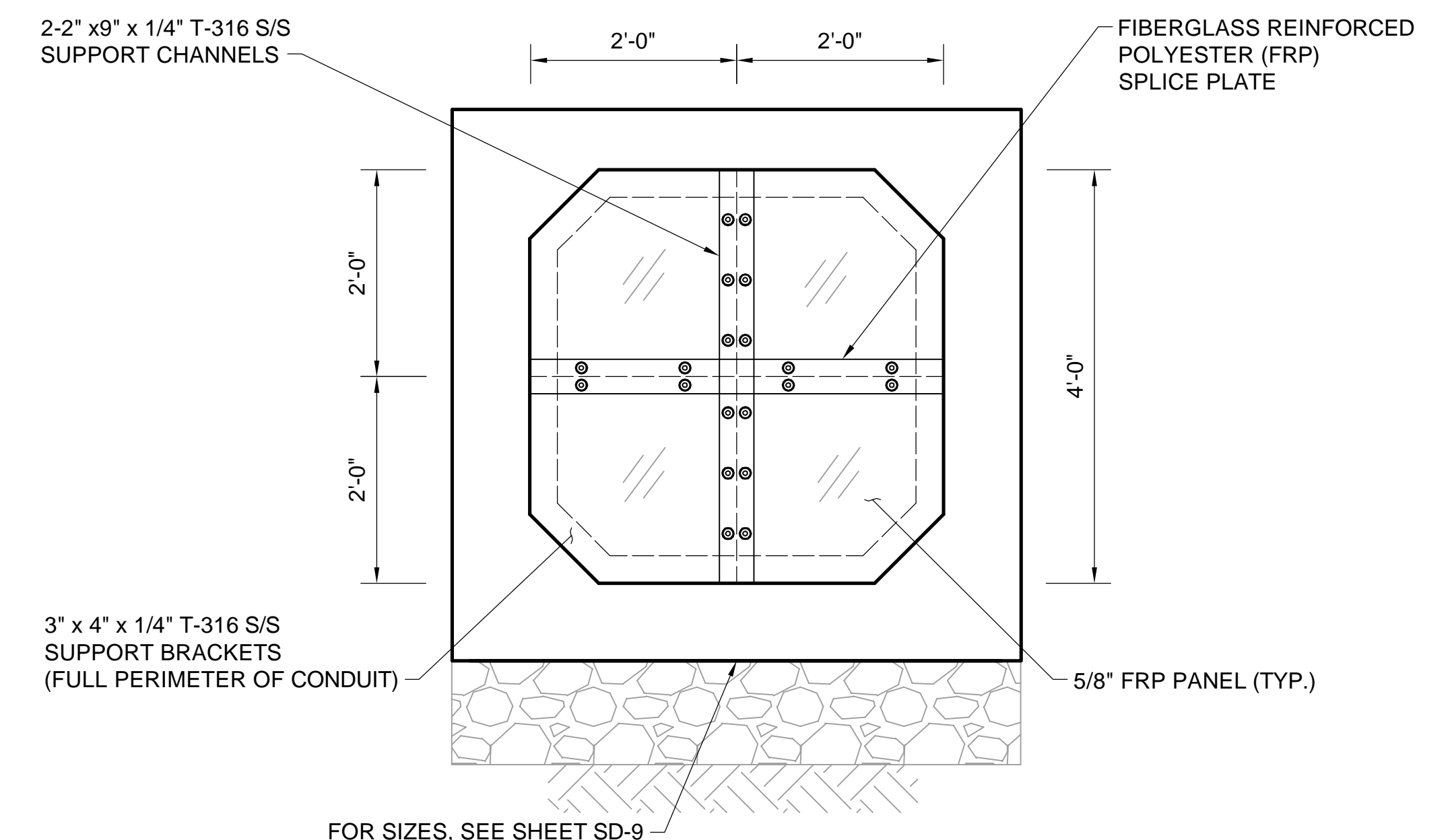
NO.	DATE	REVISIONS	BY

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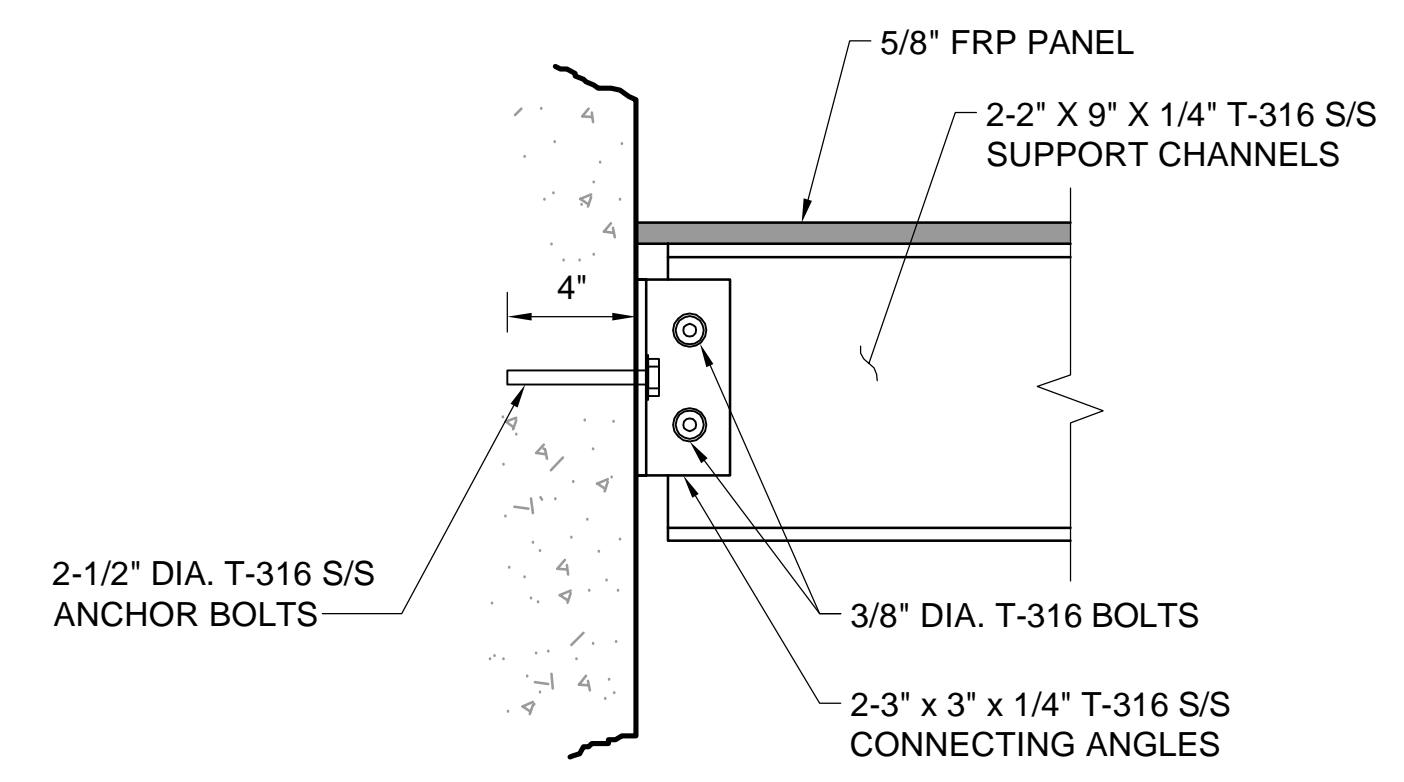
**SECTION - FIBERGLASS BULKHEAD**  
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62  
SD-22

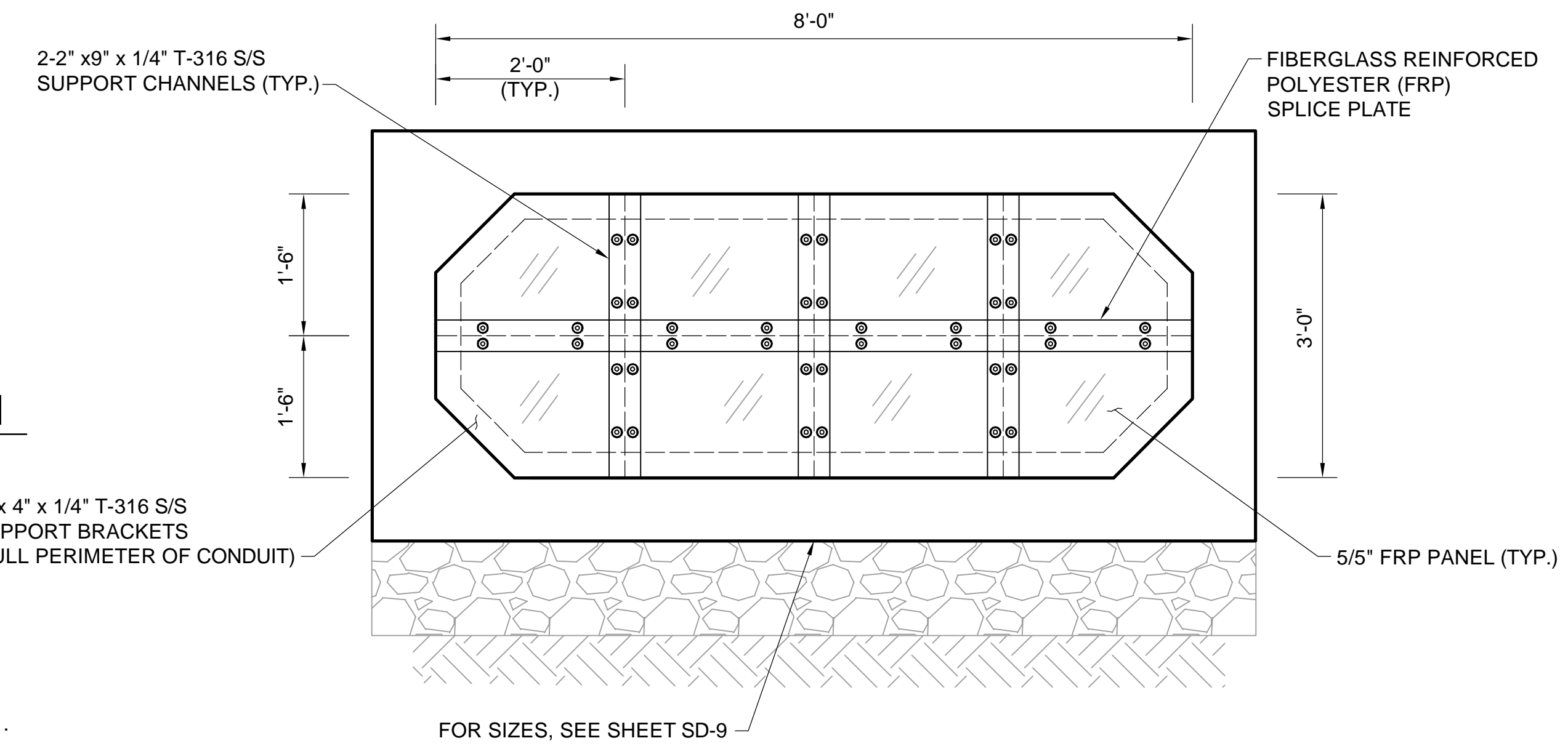


**ELEVATION - 4' W x 4' H BOX CULVERT**  
SCALE: N.T.S.

A



**DETAIL - SUPPORT CHANNEL CONNECTION**  
SCALE: N.T.S.



**ELEVATION - 8' W x 3' H BOX CULVERT**  
SCALE: N.T.S.

A

- NOTES:
1. FOR LEGEND & ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
  7. FOR ENLARGED EXISTING CONDITIONS PLAN & SECTION, SEE SHEET SD-20.
  8. FOR UTILITY PLAN, SEE SHEET U-1.
  9. ALL CONC. SHALL BE PRECAST U.N.O.
  10. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  11. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  12. FOR DETAIL OF STANDARD BOX CULVERT SECTIONS, SEE SHEET SD-9.
  13. PROVIDE JOINTED CONNECTION BETWEEN TRANSITION CHAMBER AND BOX CULVERT.
  14. PROVIDE REINFORCED CONNECTION BETWEEN TRANSITION CHAMBER AND C.I.P. COLLAR.

Professional Engineer Seal for Rachel J. Burckhardt, Civil, No. 31680, dated 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

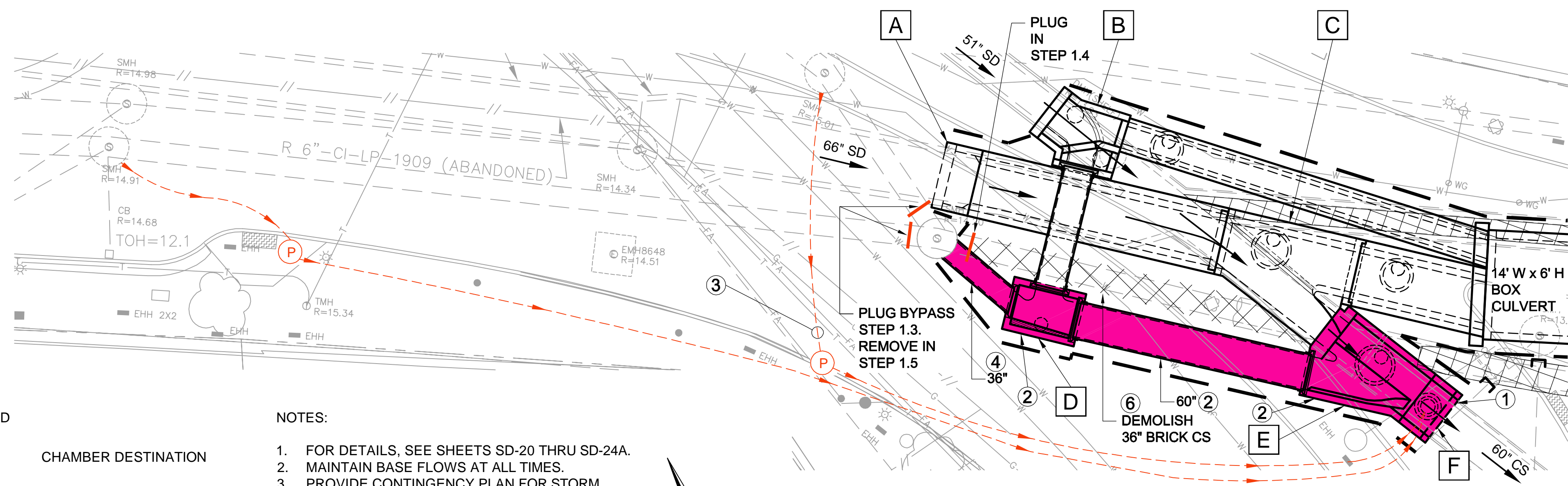
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**DETAILS**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-24A</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: KLN		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

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2017-12-11 1:42 PM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-24B.dwg

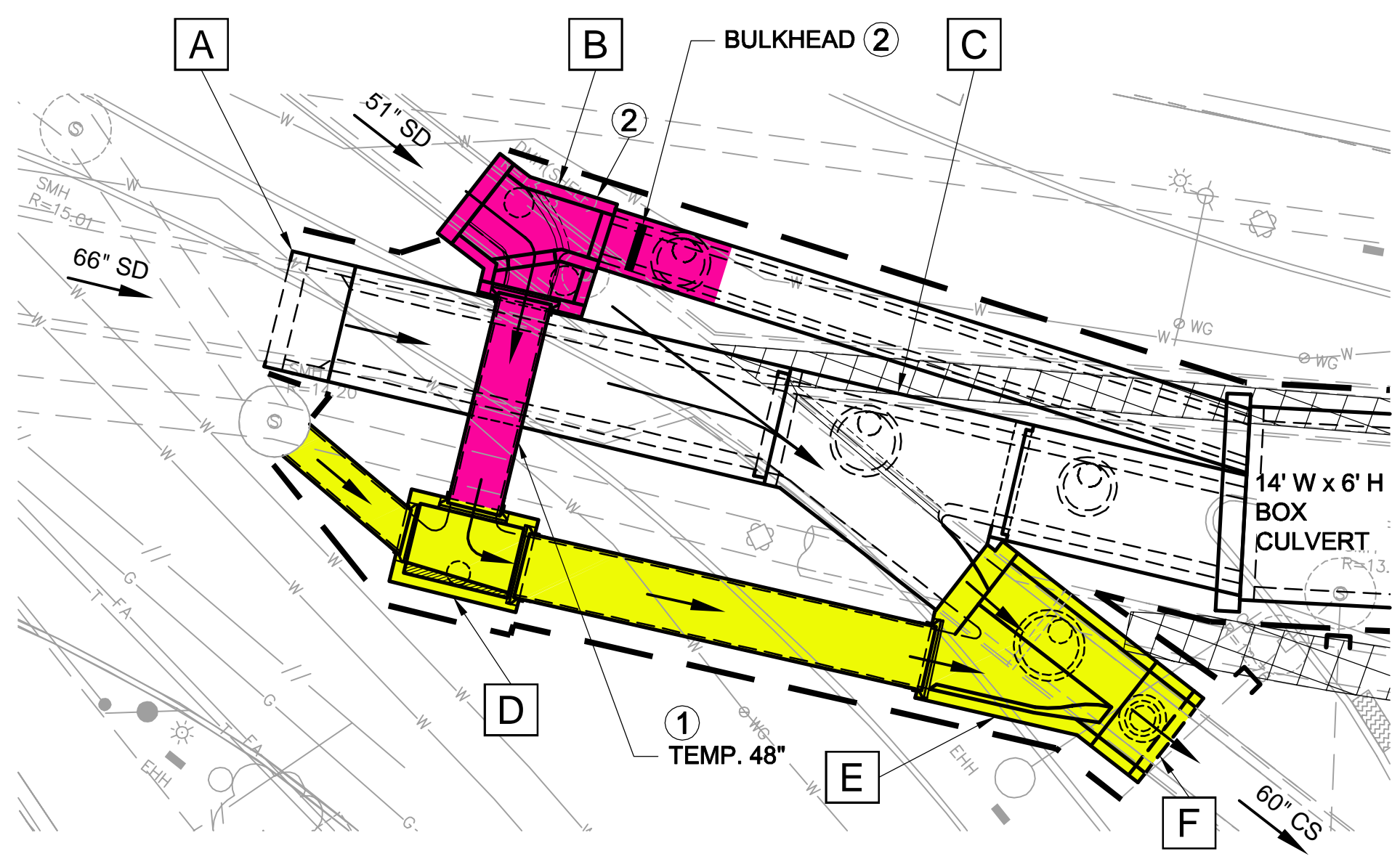


- LEGEND**
- A CHAMBER DESTINATION
  - CONSTRUCTION - THIS STEP
  - MAINTAIN FLOW
  - MAINTAIN FLOW
  - P BYPASS PLUMBING
  - PLUG

- NOTES:**
1. FOR DETAILS, SEE SHEETS SD-20 THRU SD-24A.
  2. MAINTAIN BASE FLOWS AT ALL TIMES.
  3. PROVIDE CONTINGENCY PLAN FOR STORM EVENTS. SEE SPECIFICATION SECTION 01514.
  4. EXACT LOCATION OF PUMPS AND HOSES FOR BYPASS PUMPING SUBJECT TO APPROVAL BY THE ENGINEER.

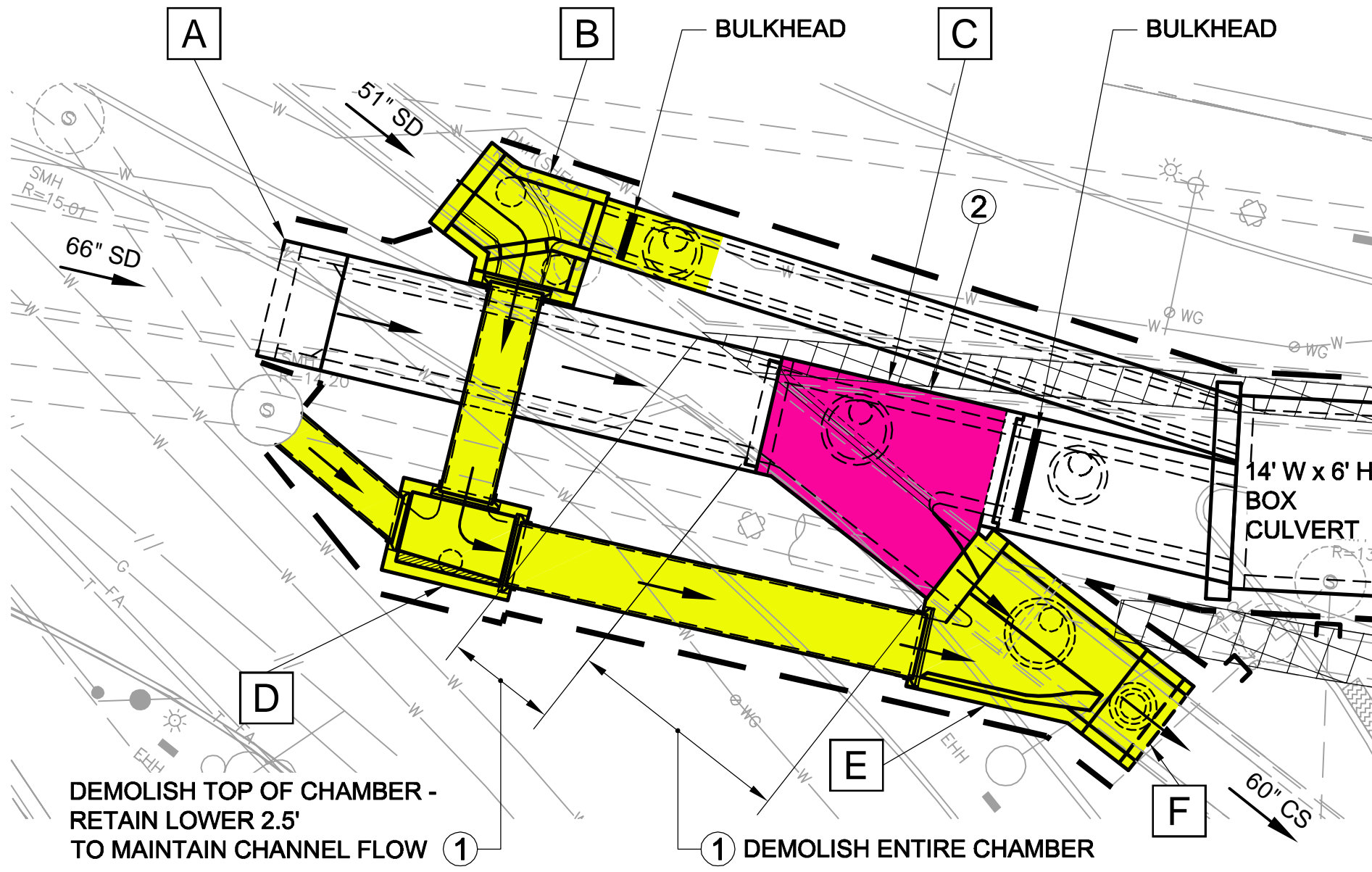
**STEP 1**

1. CONSTRUCT DOGHOUSE MH "F" WHILE MAINTAINING FLOWS.
2. CONSTRUCT CHAMBERS "D" AND DOGHOUSE "E" AND CONNECT 60" PIPE WHILE MAINTAINING FLOWS OR BYPASSING PUMPING TO 60" CS.
3. BYPASS PUMP 36" CS FROM TWO SMHs AS SHOWN TO MH "F". TEMP. PLUG INLETS TO SMH AS SHOWN.
4. CONSTRUCT 36" CONNECTION FROM EXISTING SMH TO CHAMBER "D". PLUG EXISTING SMH OUTLET.
5. REMOVE TEMP. PLUGS.
6. DEMOLISH EXIST. 36" BRICK CS FROM MH TO CHAMBER.



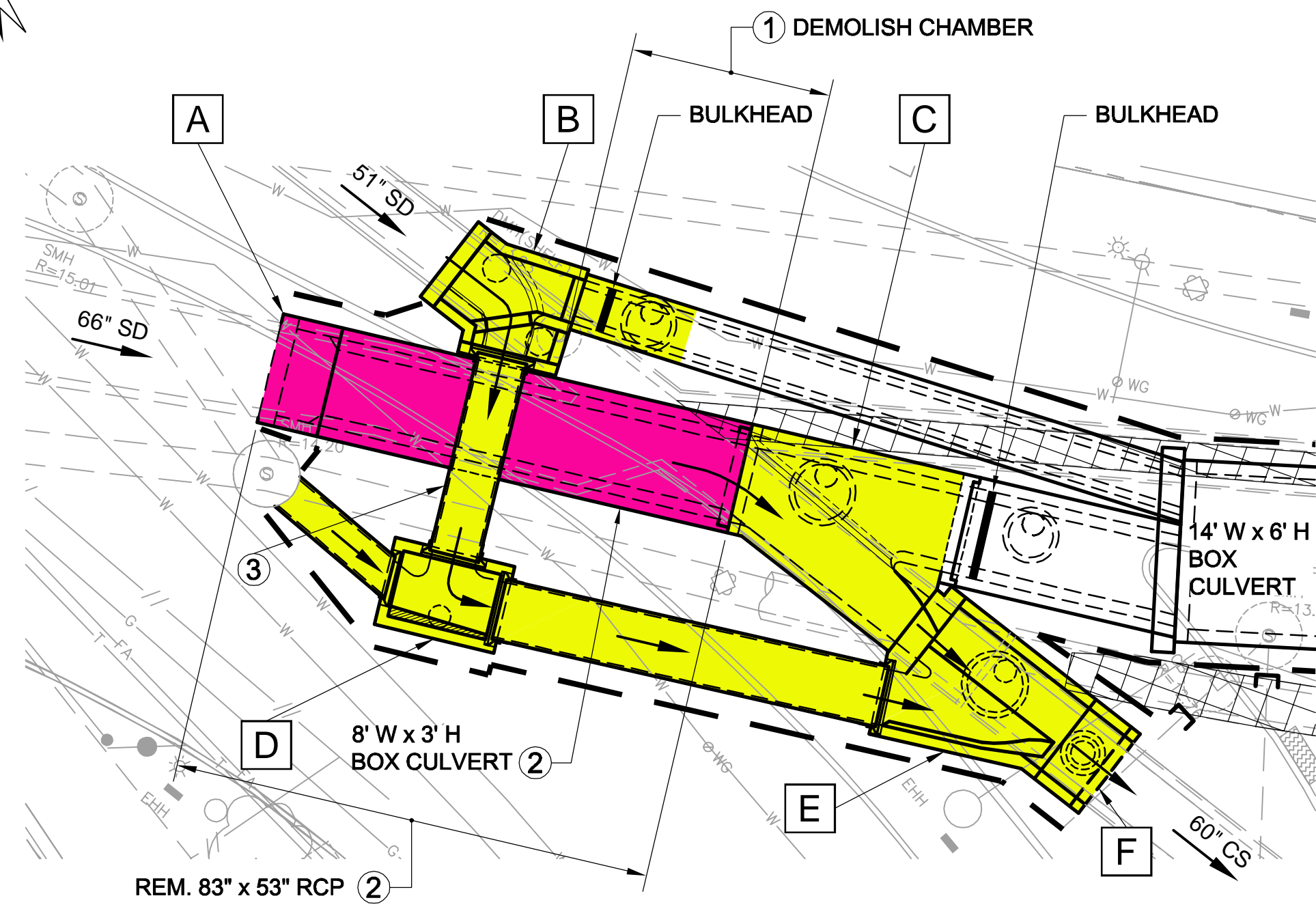
**STEP 2**

1. CONSTRUCT TEMP. 48" PIPE BETWEEN CHAMBERS "B" AND "D".
2. CONSTRUCT CHAMBERS "B" WHILE MAINTAINING FLOW FROM UPSTREAM 51" SD TO 48" OUTLET.
3. INSTALL BULKHEAD IN CHAMBER "B".



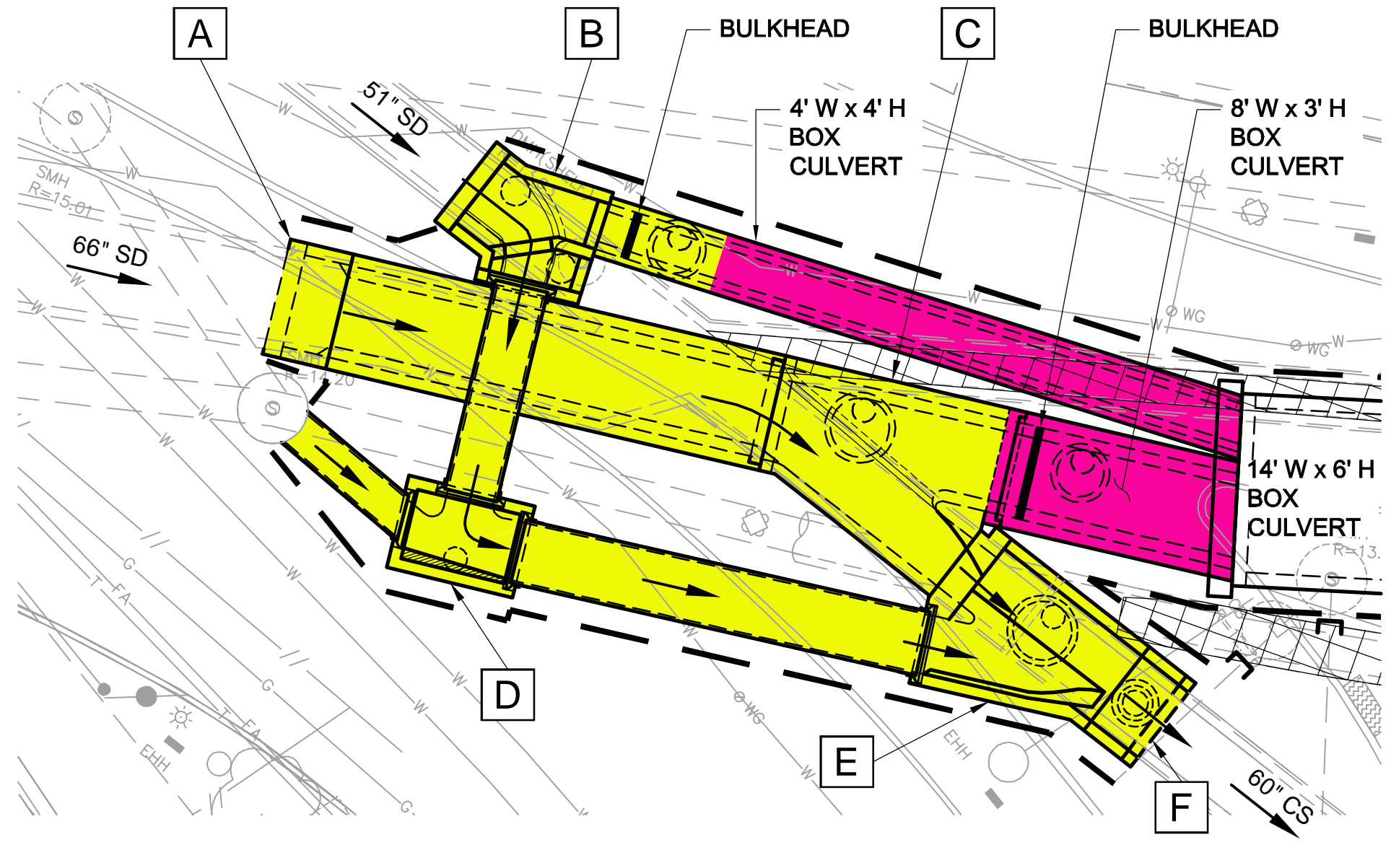
**STEP 3**

1. DEMOLISH SECTION OF EXISTING 60" W x 111" H BRICK CHAMBER AS NOTED ABOVE.
2. CONSTRUCT CHAMBER "C" WHILE MAINTAINING BASE FLOWS OR BYPASS PUMPING BASE FLOW.



**STEP 4**

1. DEMOLISH SECTION OF 60" x 111" BRICK CHAMBER.
2. REMOVE EXISTING 83" x 53" RCP AND INSTALL 8' W x 3' H BOX CULVERT AND CHAMBER "A" WHILE MAINTAINING BASE FLOW OR BYPASS PUMPING BASE FLOW.
3. REMOVE TEMP. 48" PIPE AS NECESSARY TO INSTALL TEMP. BYPASS PUMP OR PIPE BASE FLOWS FROM 51" SD. TEMP. PLUG OPENINGS AT CHAMBERS "B" AND "D". INSTALL PERMANENT 48" PIPE.



**STEP 5**

1. CONSTRUCT 8' W x 3' H BOX CULVERT FROM CHAMBER "C" TO CONNECTION TO 14' W x 6' H BOX CULVERT.
2. CONSTRUCT 4' W x 4' H BOX CULVERT FROM CHAMBER "B" TO 14' W x 6' H BOX CULVERT.

*Rachel Burckhardt*

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

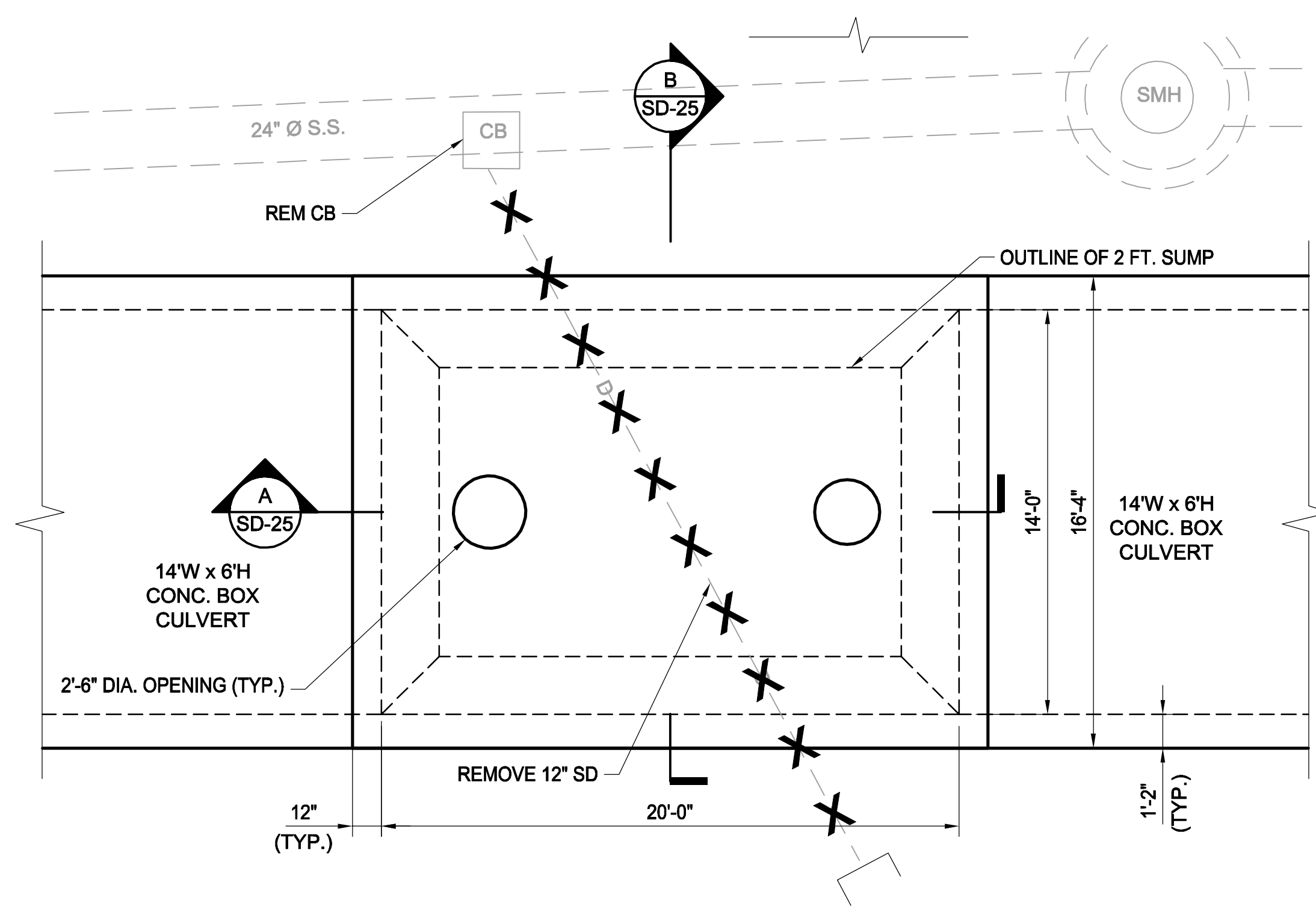
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UPSTREAM CONNECTION**  
**SUGGESTED SEQUENCING**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: KMM		REF.	CONT.	SCALE: N.T.S.
DRAWN: KLN	ACC.		DATE: DEC 2017	
CHECKED: RJB				

NO.	DATE	REVISIONS	BY

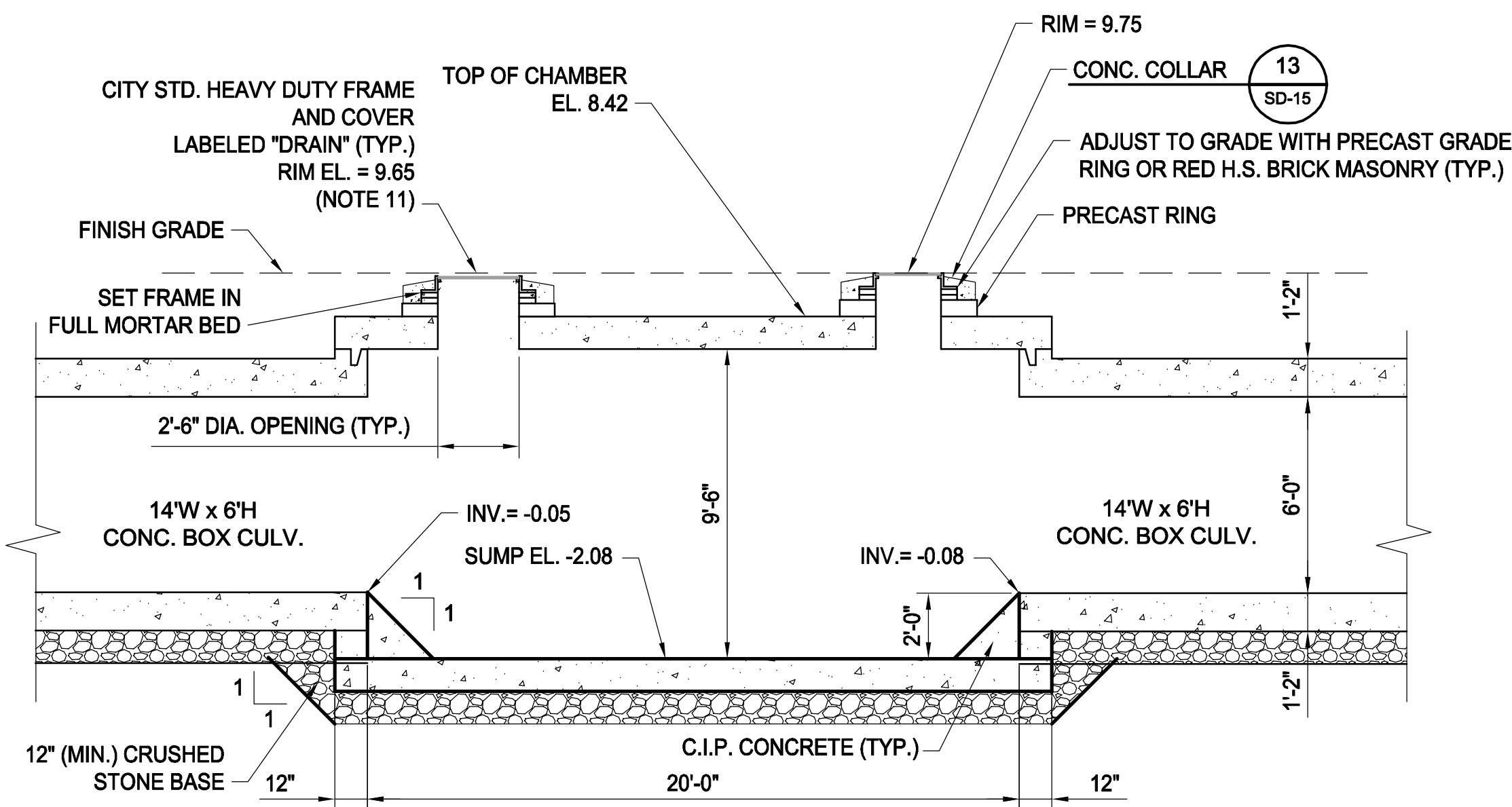
CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

2017-11-17 1:12 AM T:\52647LS Union Square Study and Design\SHD\CP-2\_CP-3 Sewer Separation\Civil\SD-25.dwg

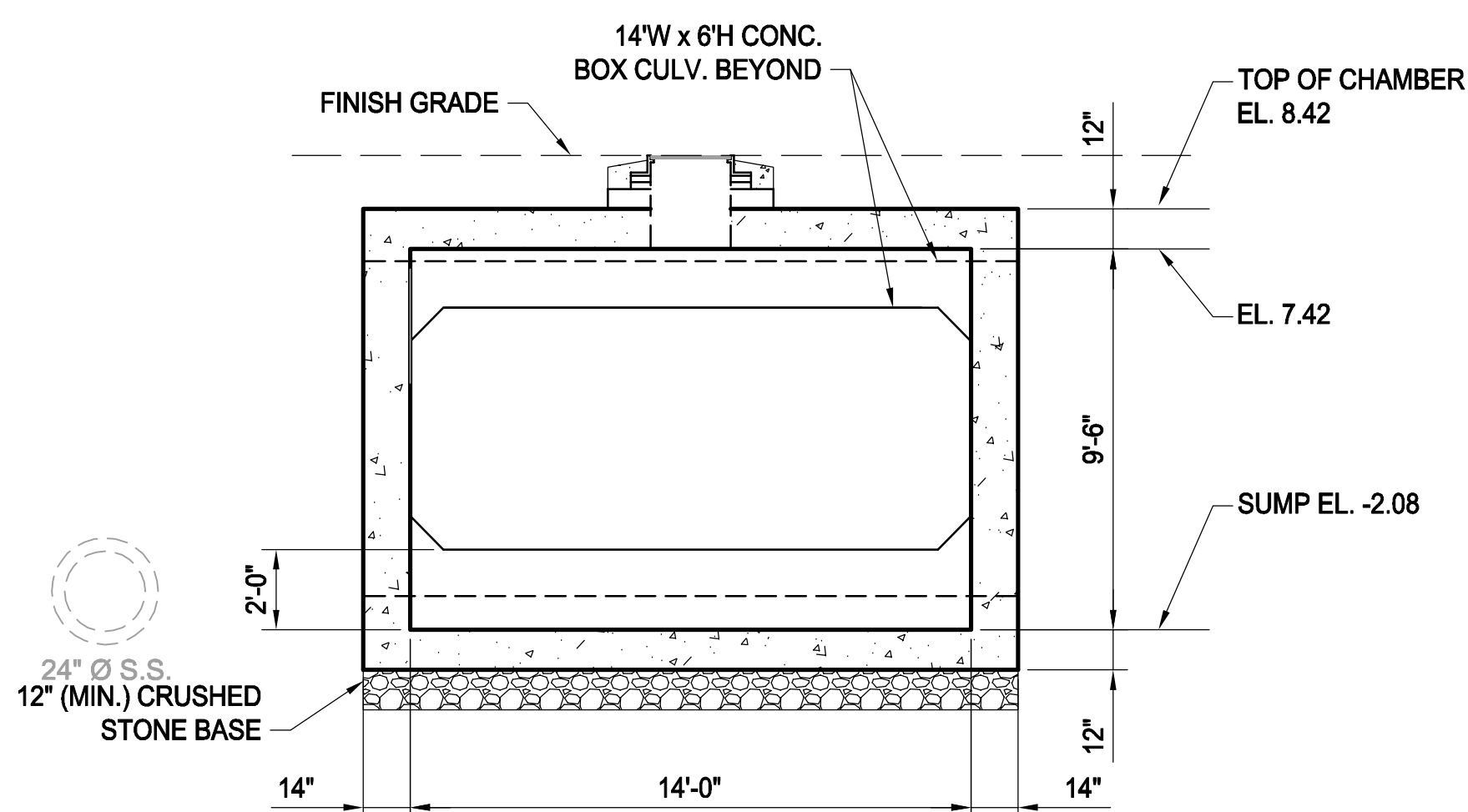


NOTE:  
1. FOR PLAN, SEE SHEET SD-2.

PLAN VIEW



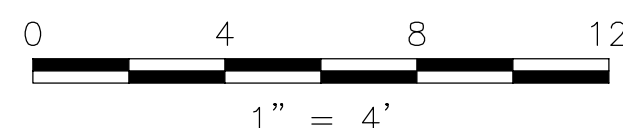
SECTION A



SECTION B

NOTES:

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR UTILITY PLAN, SEE SHEET U-2.
8. ALL CONCRETE SHALL BE PRECAST U.N.O.
9. PRECAST SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
10. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI. 3/4" AGGR.
11. FOR DETAILS OF STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



Rachel J. Burckardt  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS

CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
TYPICAL DETAILS  
GRIT CHAMBER #1

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JD  
CHECKED: RJB



Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

SCALE: 1" = 4'  
DATE: DEC 2017

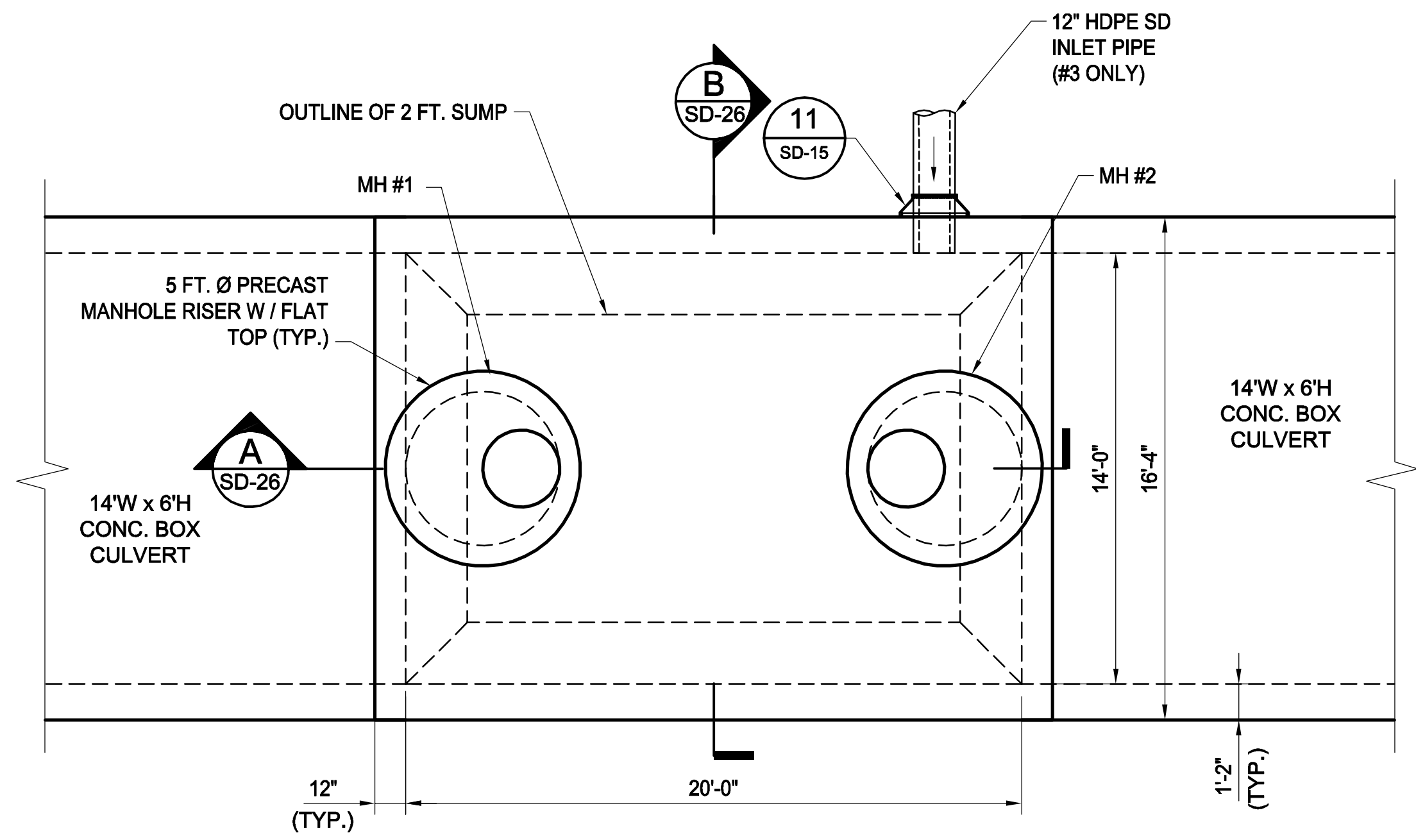
SHEET

SD-25

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93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

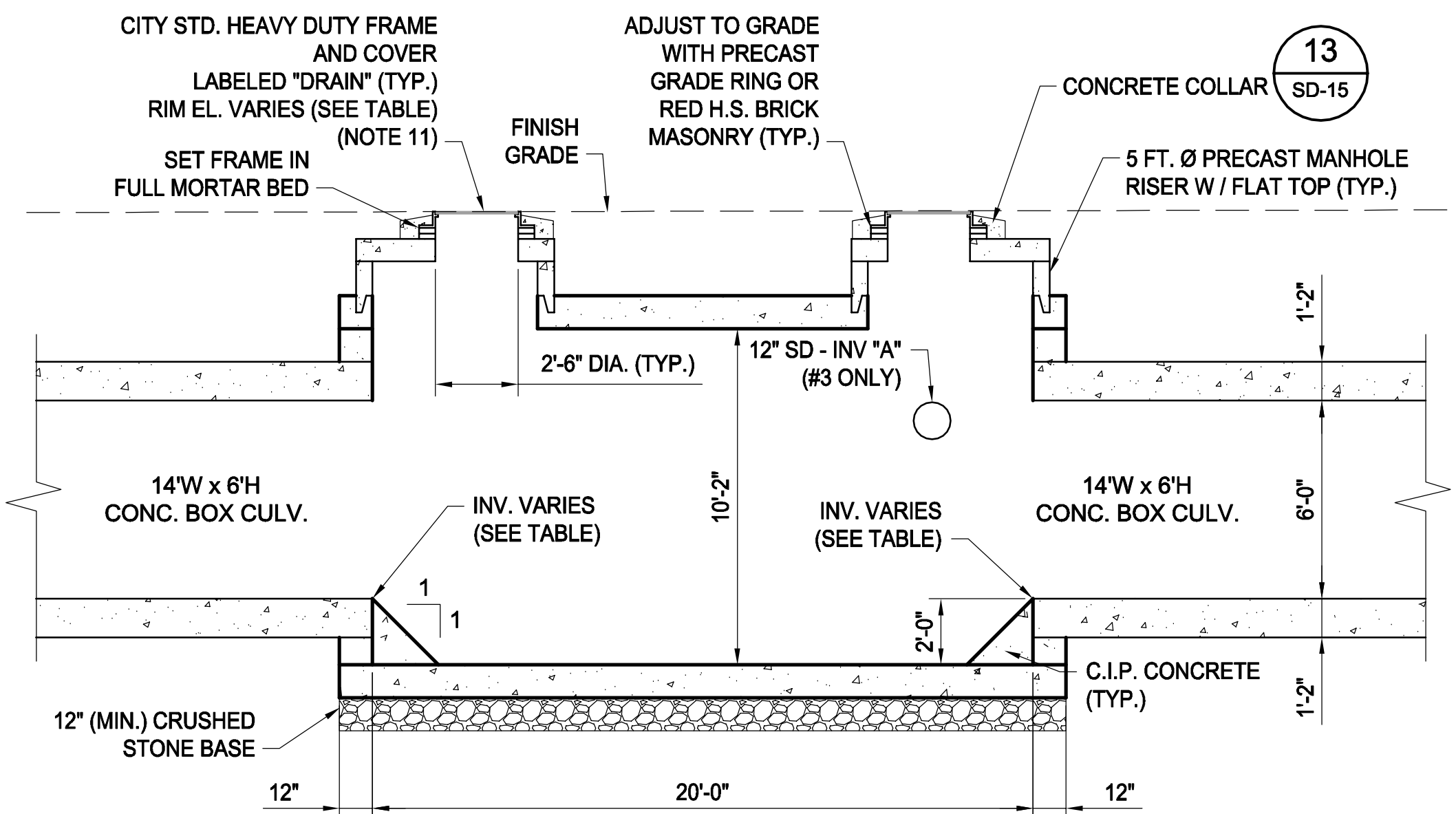
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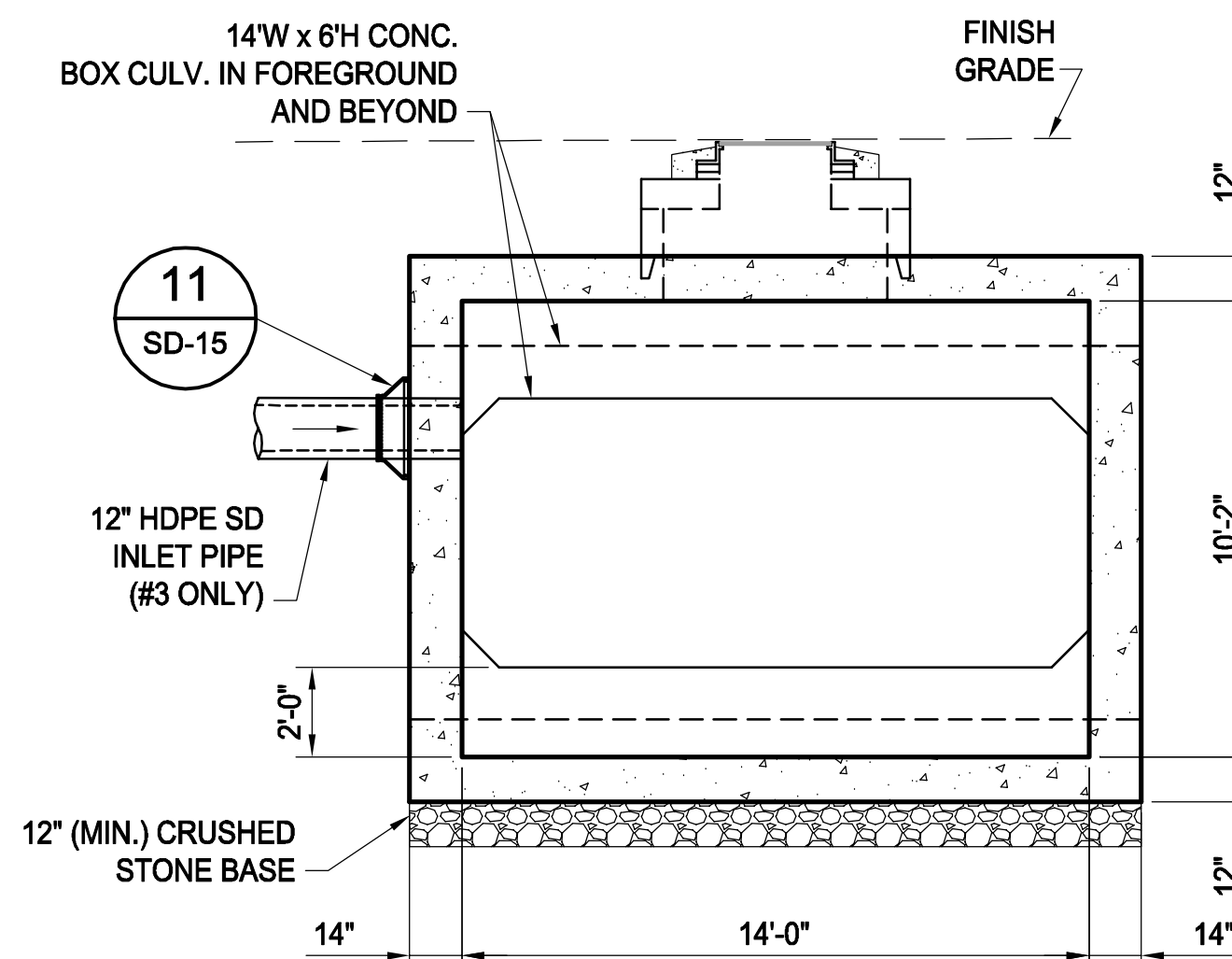


**PLAN VIEW**

RIM AND INVERT TABLE							
CHAMBER #	RIM ELEV.		INV. ELEV. (IN)	INV. ELEV. (OUT)	SUMP ELEV.	FOR PLAN SEE SHEET	12" SD IN INV "A"
	MH #1	MH #2					
2	9.21	9.20	-2.56	-2.58	-4.58	SD-3	-
3	9.24	9.27	-3.25	-3.27	-5.27	SD-5	0.70



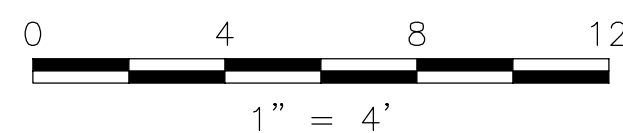
**SECTION A**



**SECTION B**

**NOTES:**

- FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-13 & G-15.
- FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-23 & G-25.
- FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-3 & W-5.
- FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-3 & SD-5.
- FOR UTILITY PLAN, SEE SHEETS U-3 & U-5.
- ALL CONCRETE SHALL BE PRECAST U.N.O.
- PRECAST SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
- ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR. FOR DETAILS OF STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



*Rachel J. Burckhardt*
  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**TYPICAL DETAILS**  
**GRIT CHAMBERS #2 AND #3**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

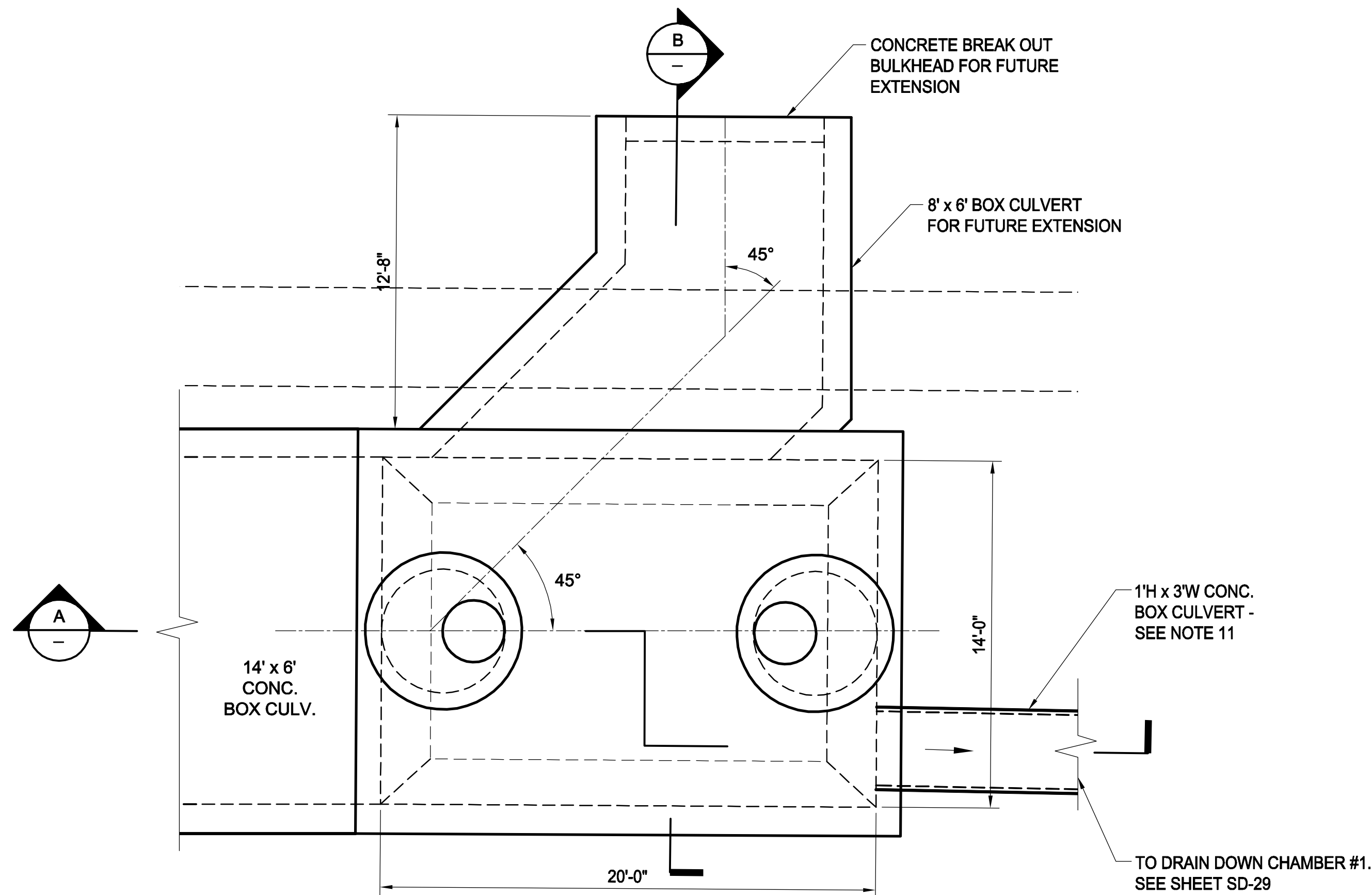
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ACC.		DATE: DEC 2017

SHEET  
**SD-26**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

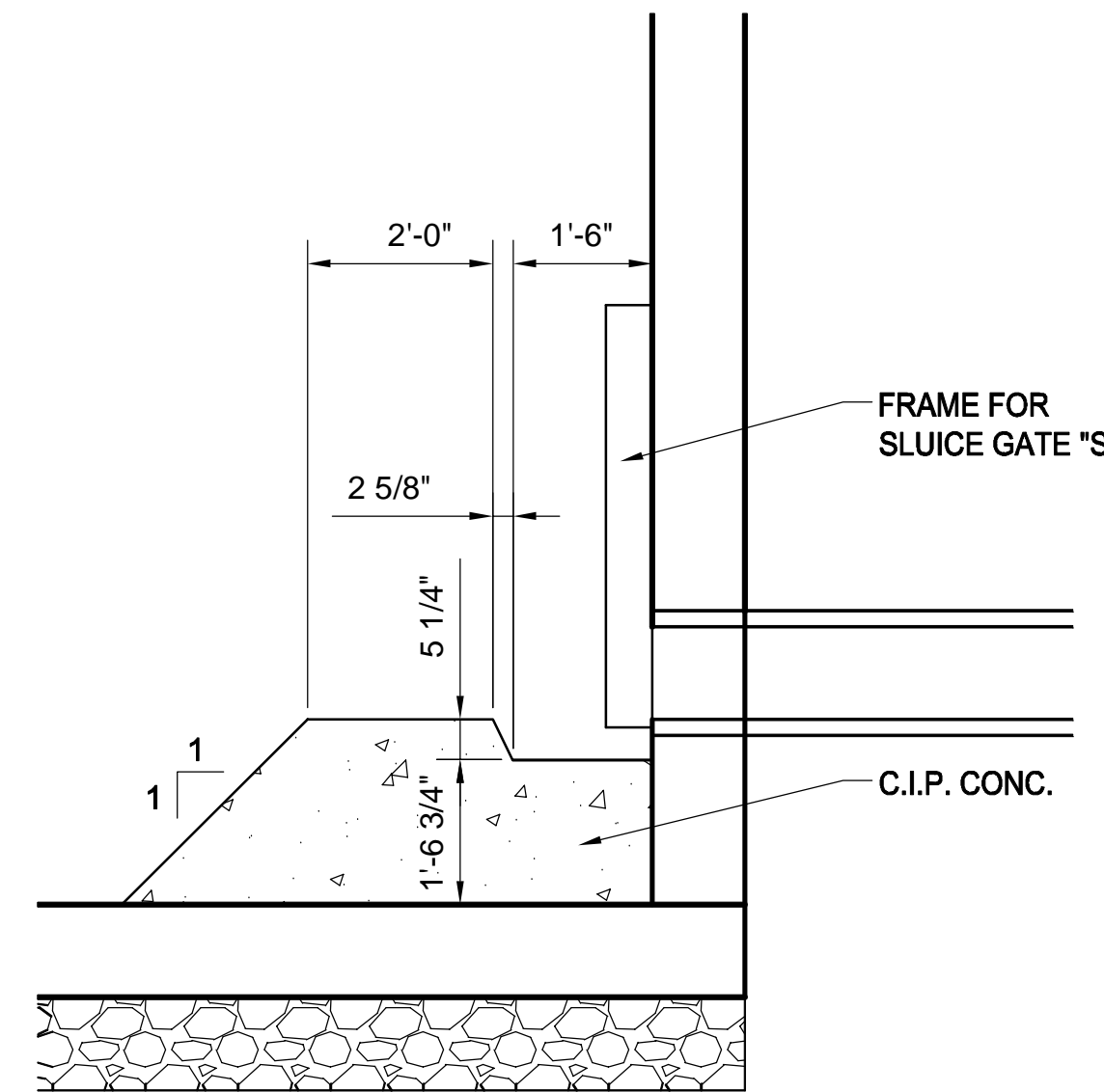
NO.	DATE	REVISIONS	BY





**PLAN VIEW**

SCALE: 1" = 4'

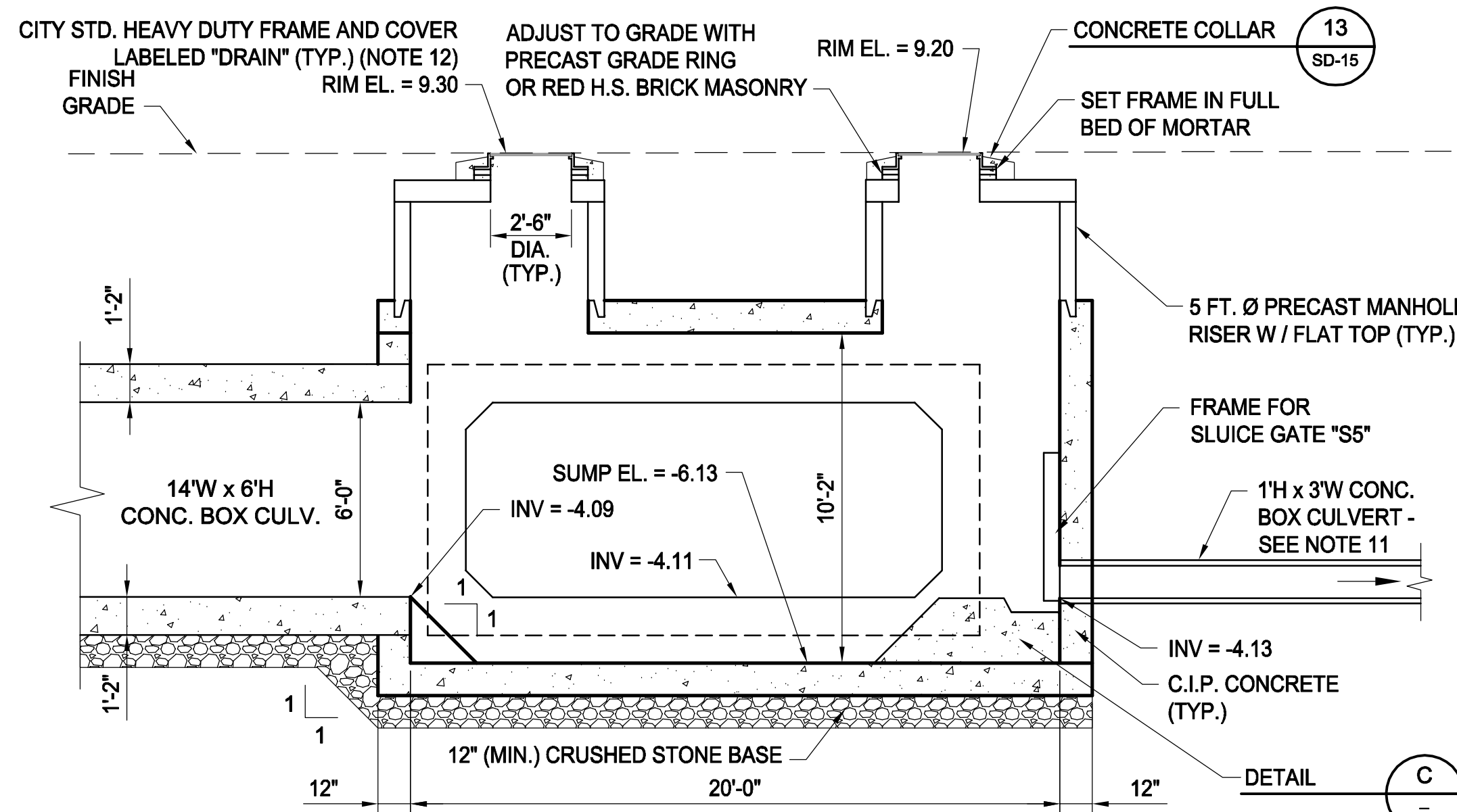


**DETAIL C**

SCALE: NTS

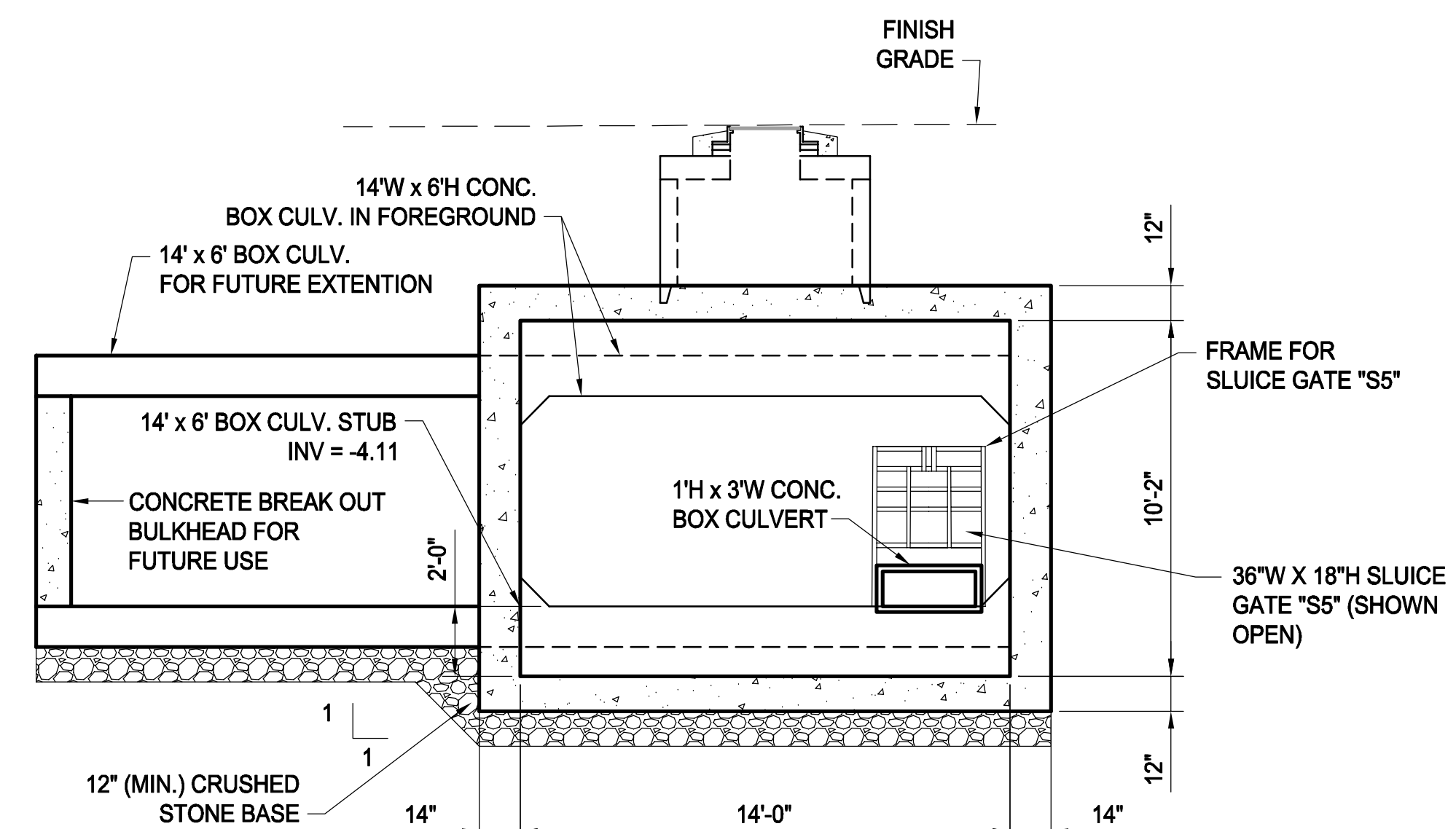
**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-6.
7. FOR UTILITY PLAN, SEE SHEET U-6.
8. ALL CONCRETE SHALL BE PRECAST U.N.O.
9. PRECAST SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
10. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
11. FOR ENLARGED PLAN OF DRAIN DOWN LINE AND CONNECTION TO SOM-009, SEE SHEET SD-28.
12. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS



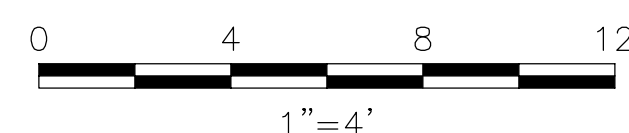
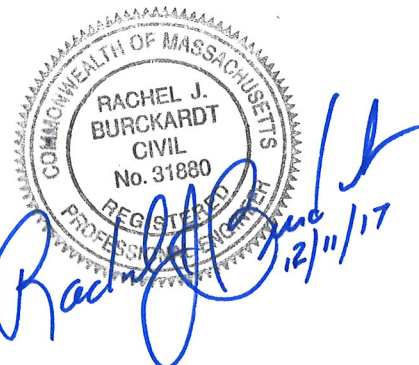
**SECTION A**

SCALE: 1" = 4'



**SECTION B**

SCALE: 1" = 4'



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
TYPICAL DETAILS  
GRIT CHAMBER #4**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JD  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

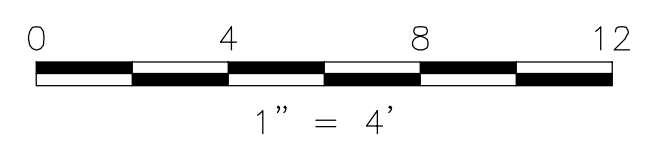
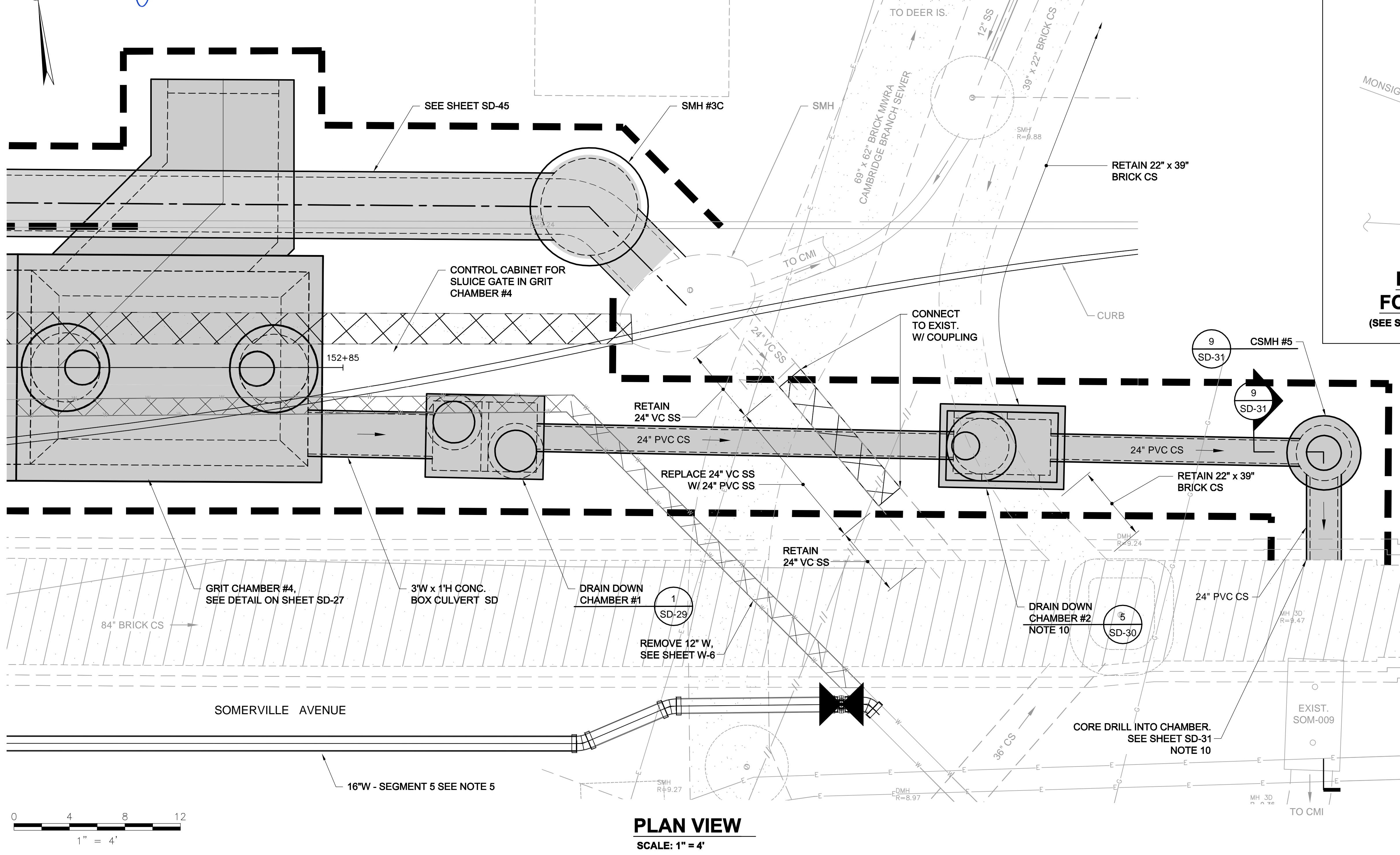
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DATE: DEC 2017

SHEET  
**SD-27**

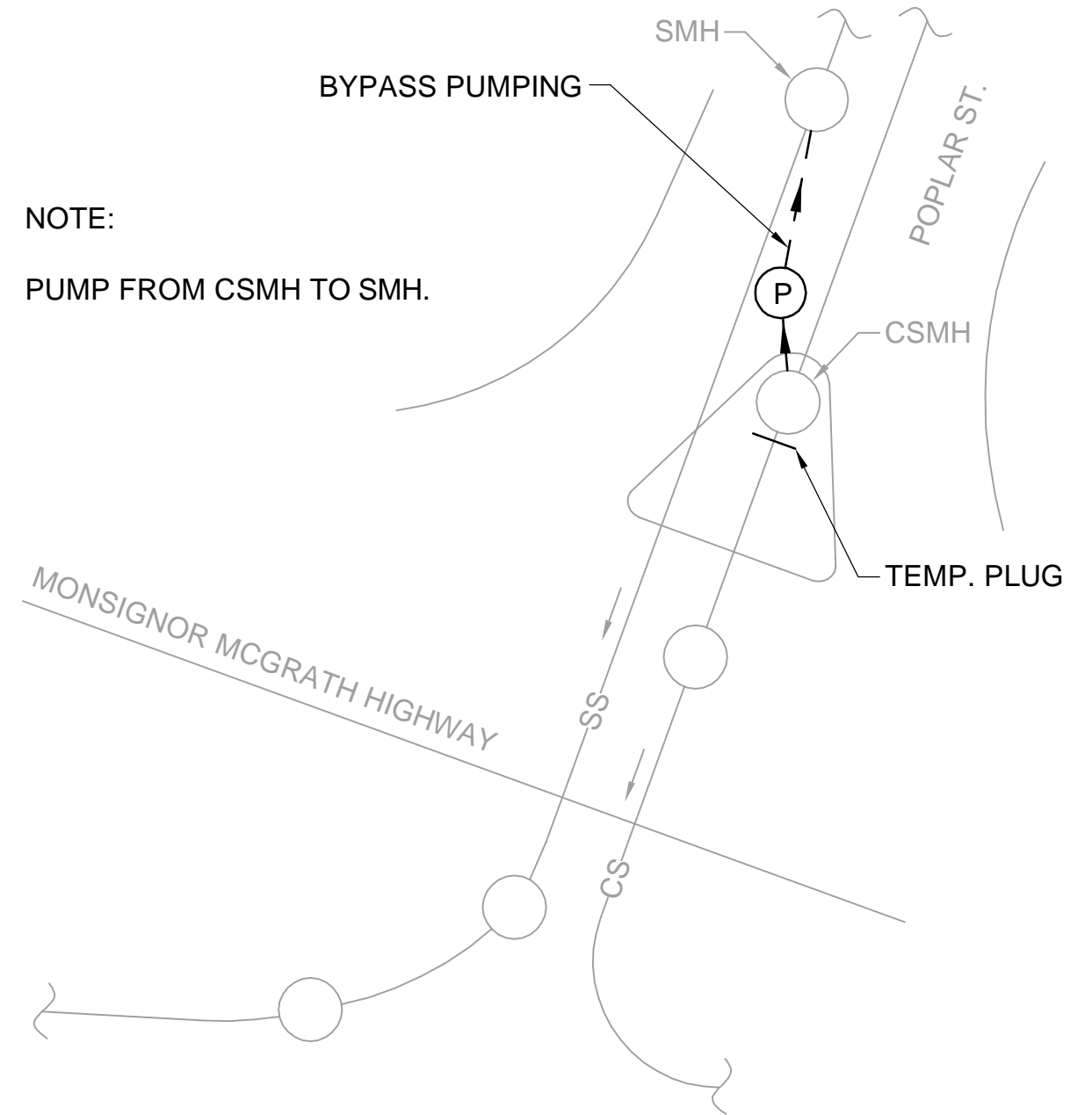
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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**PLAN VIEW**  
SCALE: 1" = 4'



**BYPASS PUMPING DIAGRAM FOR DRAIN DOWN CHAMBER #2**  
(SEE SUGGESTED SEQUENCE OF CONSTRUCTION ON SHEET SD-30)

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6
  6. FOR UTILITY PLAN, SEE SHEET U-6
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-291 THRU TM-295.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-66.
  10. MAINTAIN EXISTING FLOWS AT ALL TIMES. THE EXISTING PIPES AND STRUCTURES ARE SUBJECT TO SURCHARGE FLOWS IN WET WEATHER. SEE ADDITIONAL NOTES ON SHEETS SD-30 AND SD-31.
  11. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

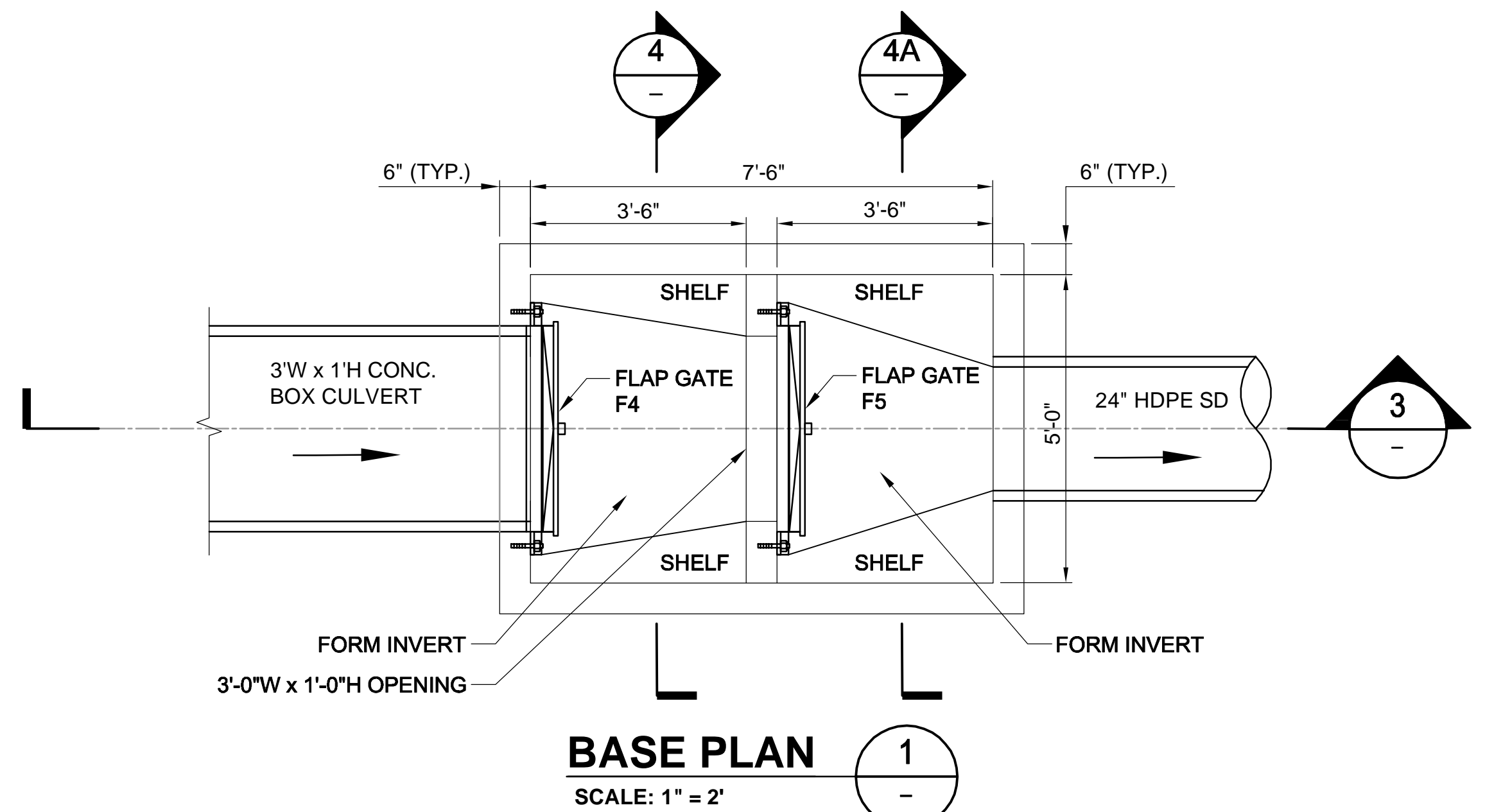
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**DOWNSTREAM CONNECTION PLAN**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-28</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JD		ACC.		
CHECKED: RJB				

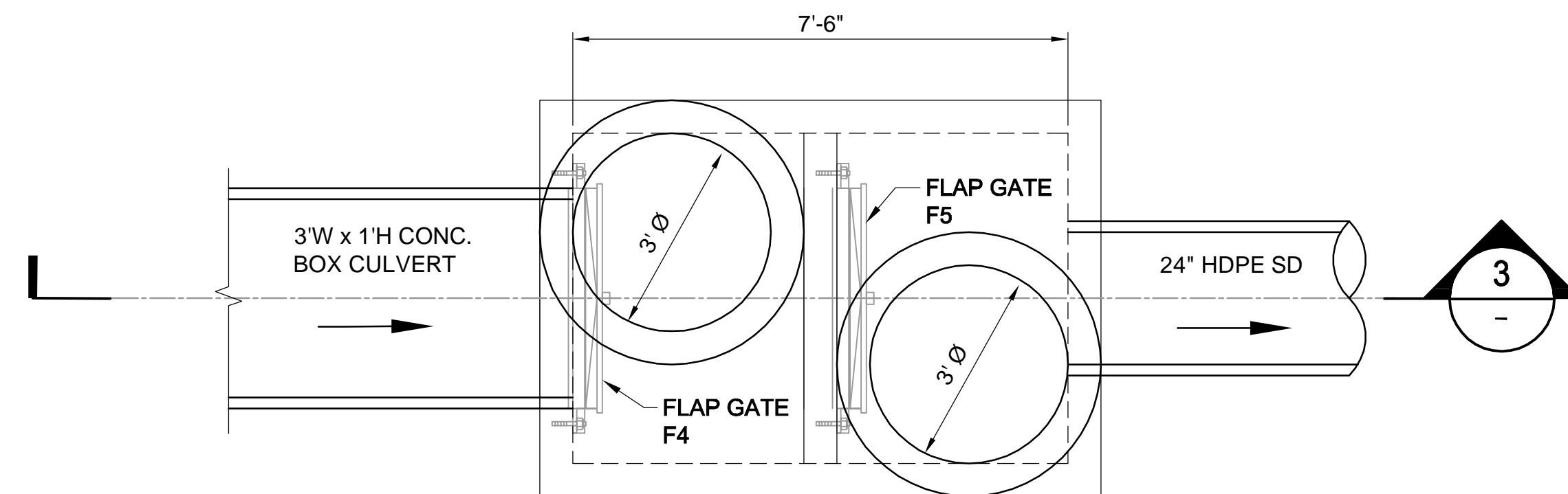
NO.	DATE	REVISIONS	BY

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

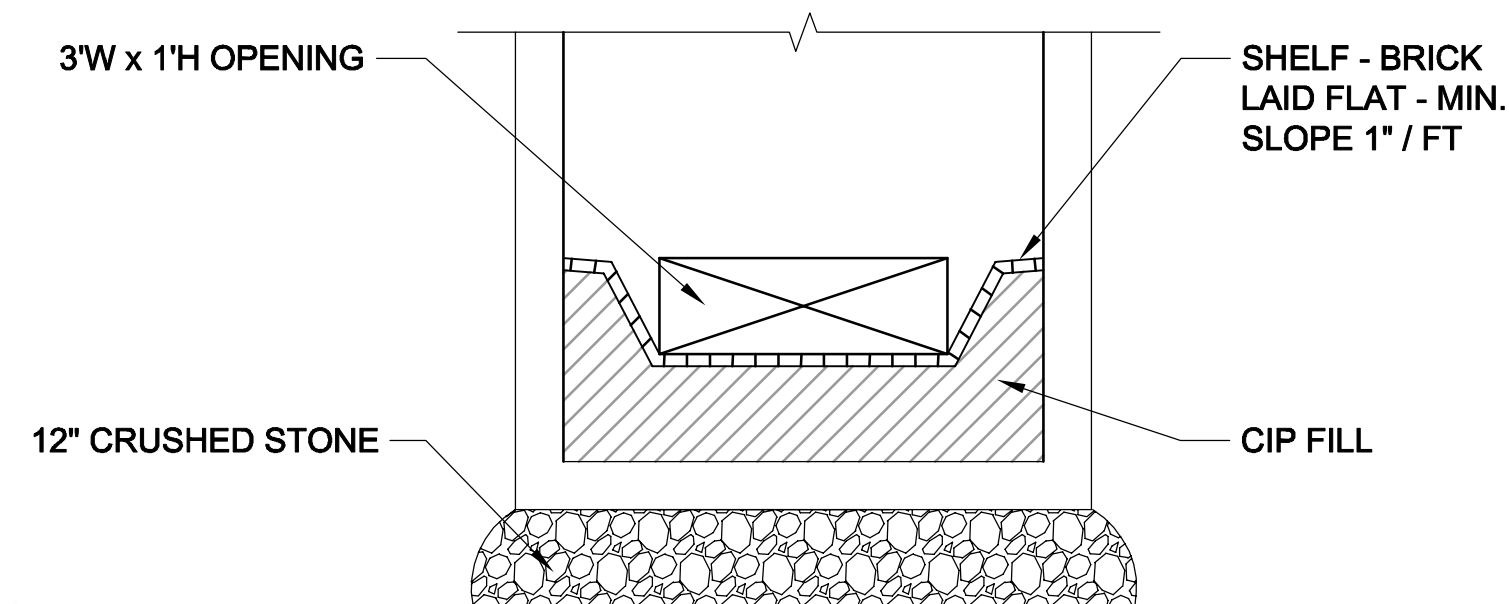
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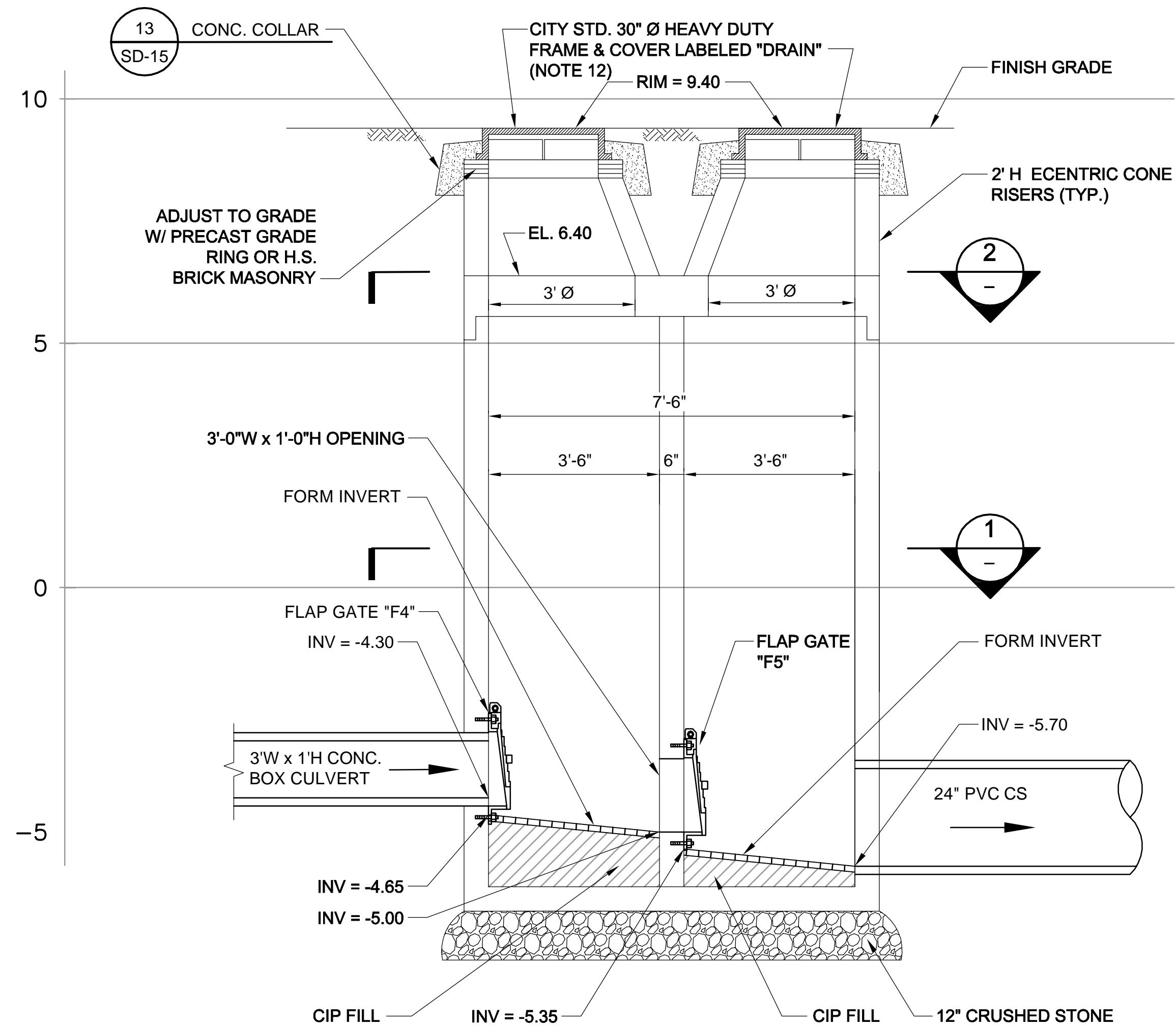
**BASE PLAN**  
SCALE: 1" = 2'



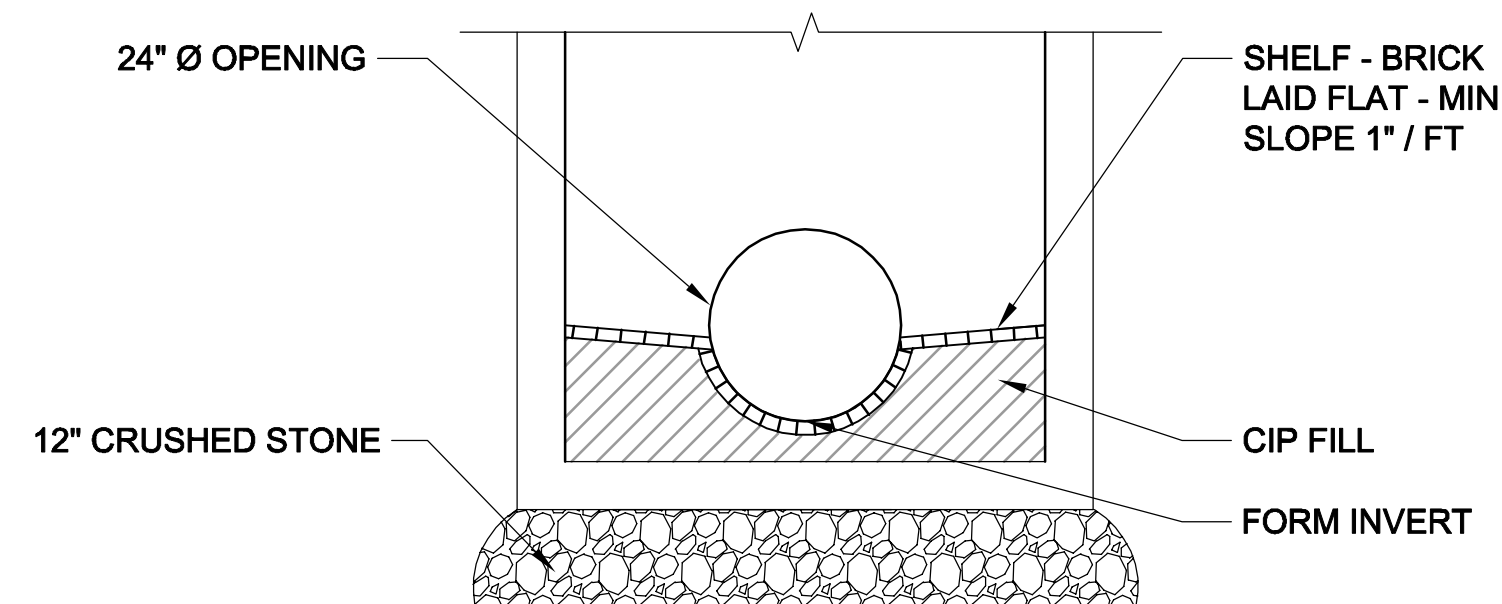
**UPPER PLAN**  
SCALE: 1" = 2'



**SECTION**  
SCALE: 1" = 2'



**DRAIN DOWN CHAMBER #1**  
SCALE: 1" = 2'



**SECTION**  
SCALE: 1" = 2'

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-6.
  - FOR ENLARGED PLAN, SEE SHEET C-28.
  - FOR UTILITY PLAN, SEE SHEET U-6.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.



*Rachel J. Burckhardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**DOWNSTREAM**  
**DRAIN DOWN VALVE CHAMBER #1**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JD  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

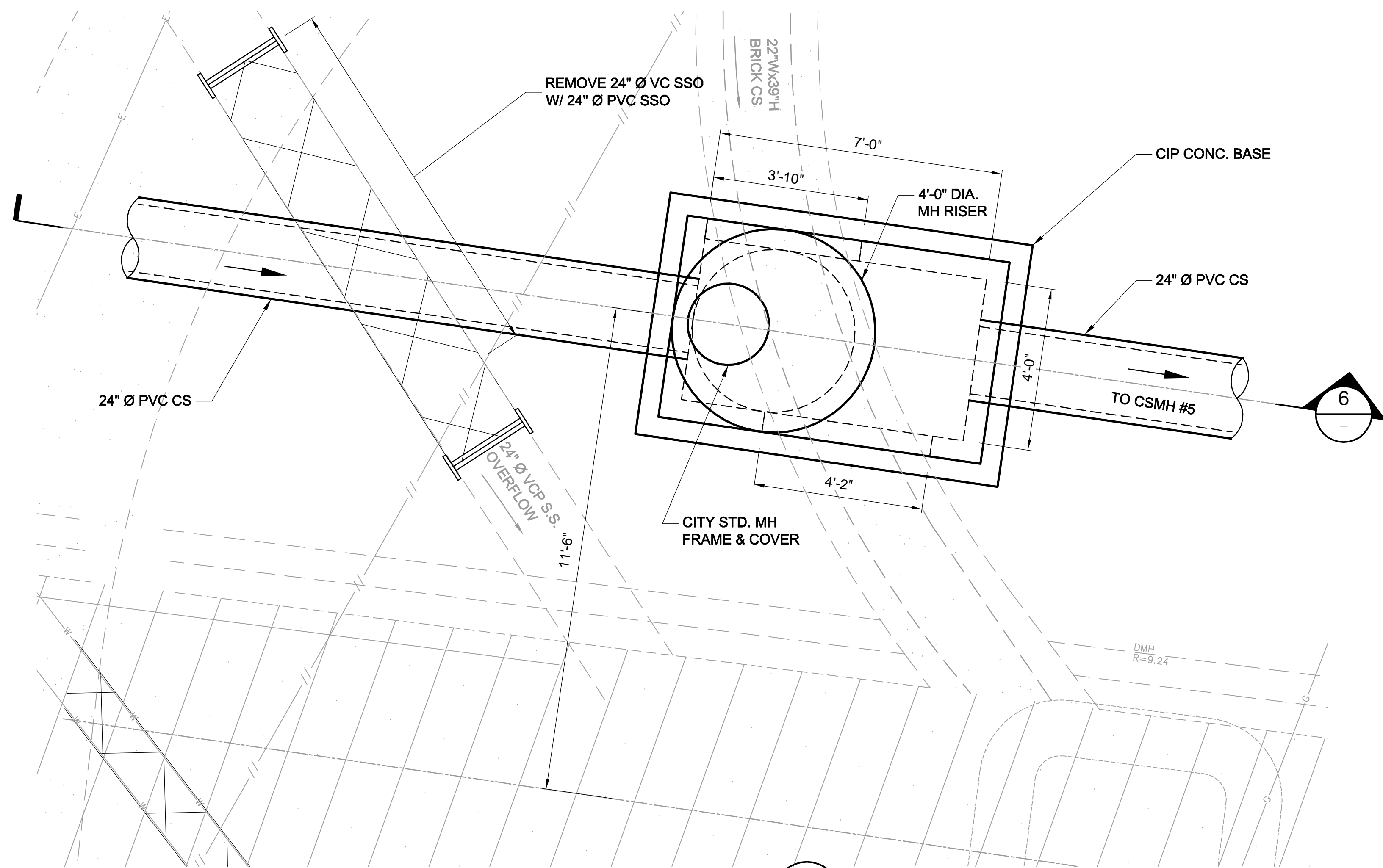
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ACC. DATE: DEC 2017

SHEET  
**SD-29**

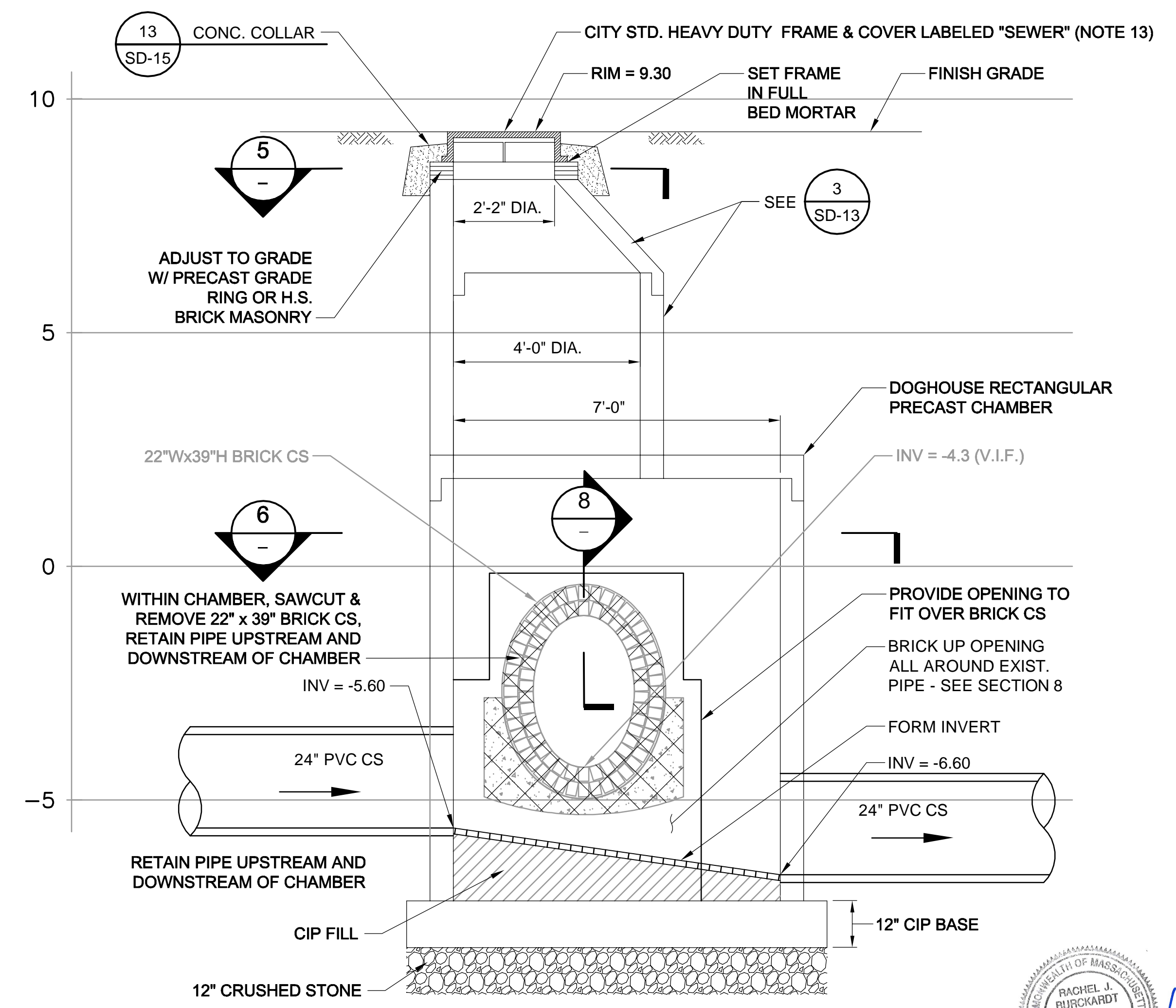
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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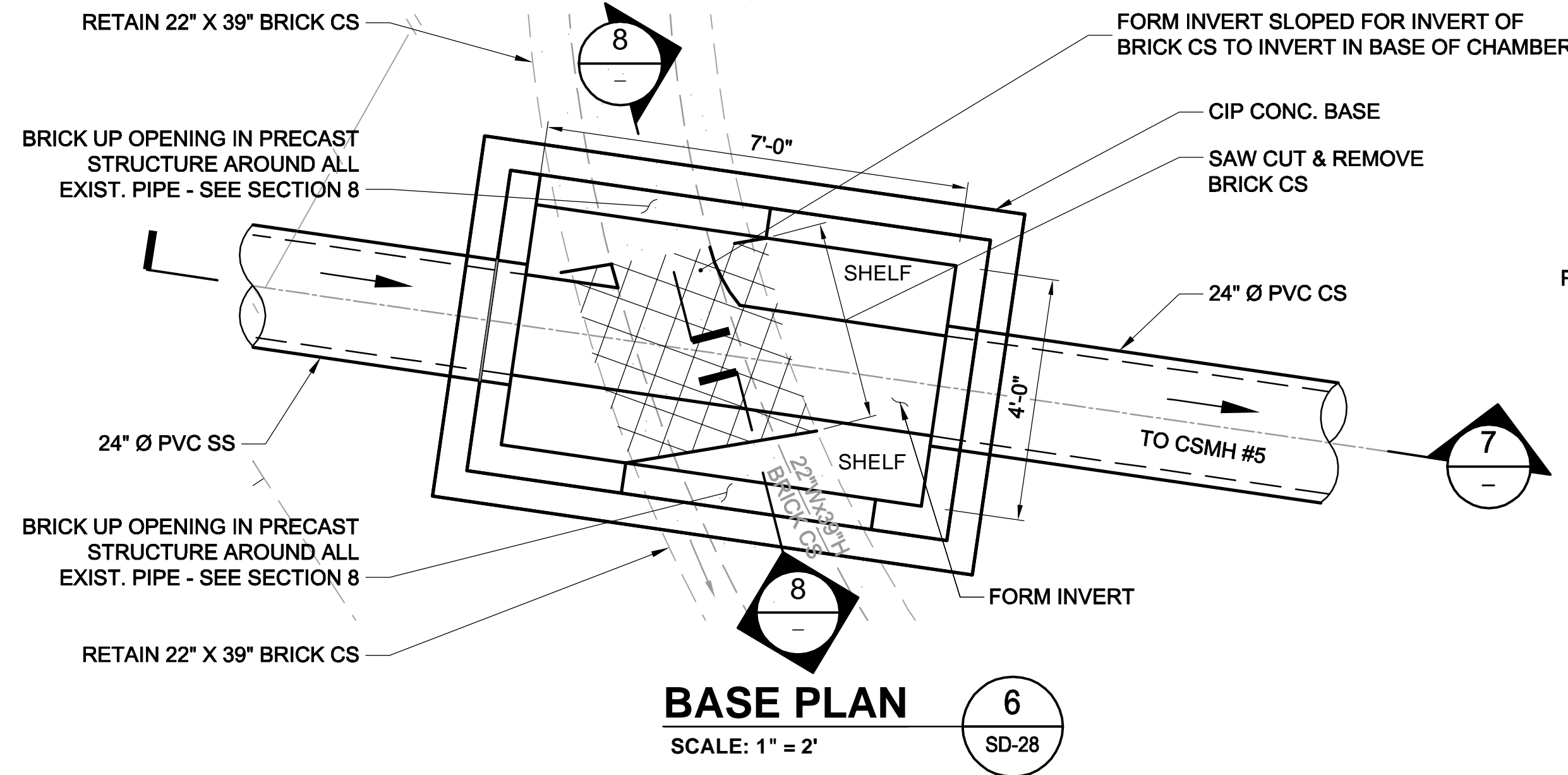
**PLAN**  
SCALE: 1" = 2'  
5  
SD-28



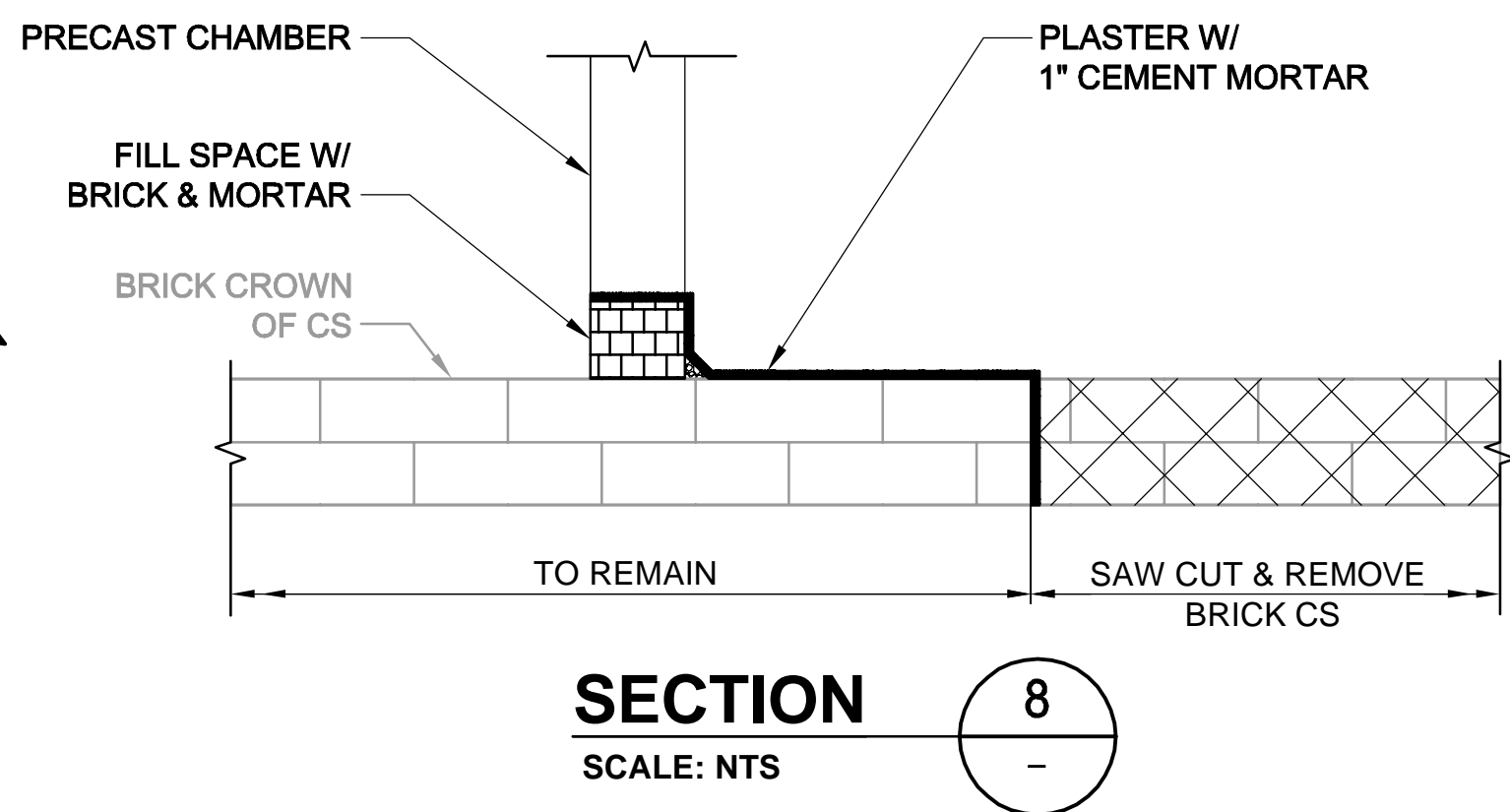
**DRAIN DOWN CHAMBER #2**  
SCALE: 1" = 2'  
7  
-

**SUGGESTED SEQUENCE:**

1. SUPPORT 22" X 39" CS IN PLACE AND POUR C.I.P. BASE FOR CHAMBER.
2. INSTALL PRECAST "DOGHOUSE" CHAMBER.
3. BRICK UP OPENING BETWEEN PRECAST CHAMBER AND EXISTING 22" X 39" CS.
4. INSTALL DOWNSTREAM 24" Ø TO CSMH #5 AND CONNECTION TO EXISTING CHAMBER.
5. CUT OUT SECTION OF 22" X 39" CS IN CHAMBER AND FORM INVERT. PROVIDE BYPASS PUMPING FOR THIS STEP - SEE SHEET SD-28.



**BASE PLAN**  
SCALE: 1" = 2'  
6  
SD-28



**SECTION**  
SCALE: NTS  
8  
-

**LEGEND:**



**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-6.
7. FOR ENLARGED PLAN, SEE SHEET C-28.
8. FOR UTILITY PLAN, SEE SHEET U-6.
9. ALL CONC. SHALL BE PRECAST U.N.O.
10. PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
11. ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
12. MAINTAIN FLOWS AT ALL TIMES. SEE BYPASS PLUMBING DIAGRAM ON SHEET SD-28. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.
13. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.

Professional Engineer Seal for Rachel J. Burckardt, Civil No. 31880, State of Massachusetts. Signature: Rachel J. Burckardt, Date: 11/17.

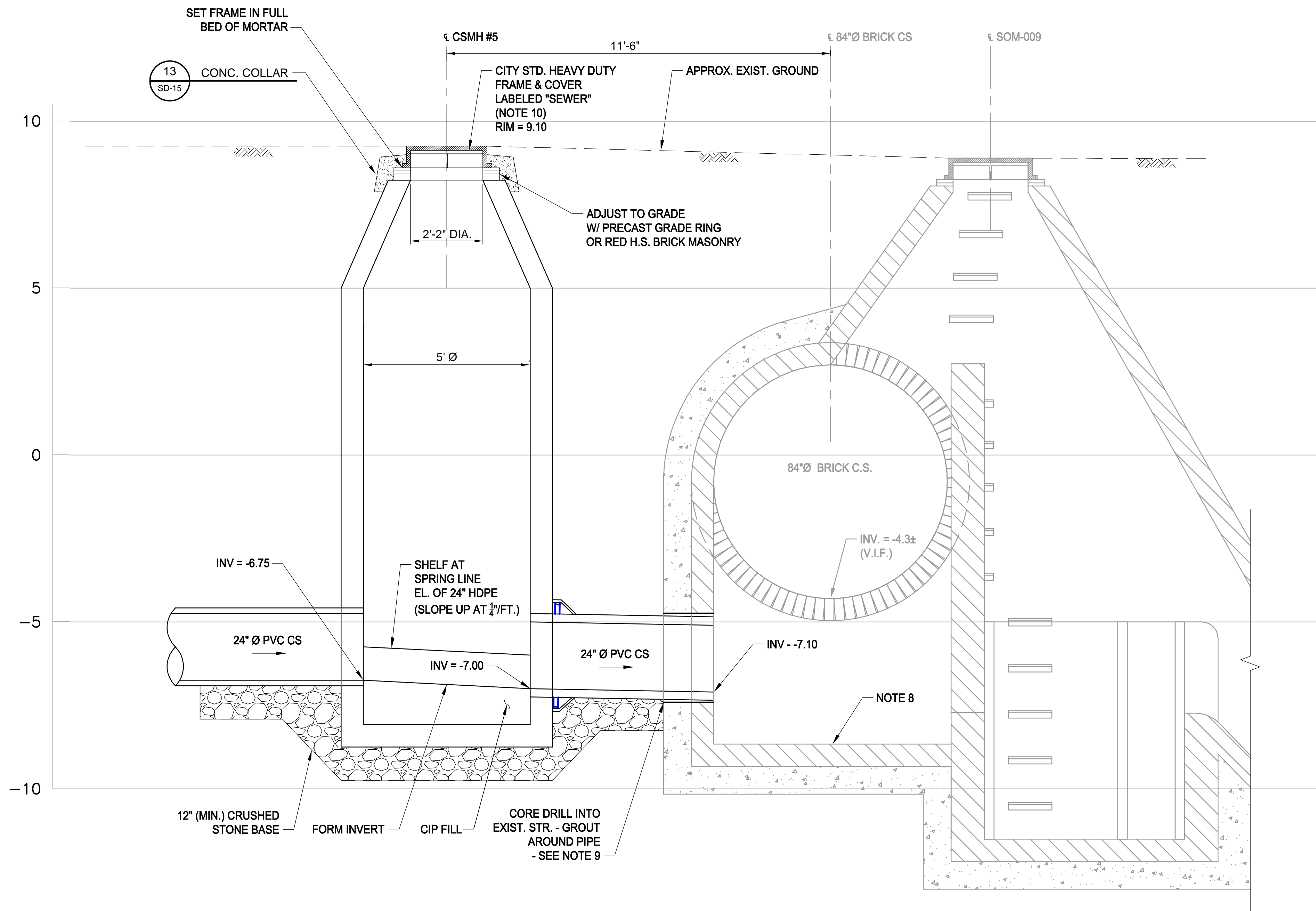
ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**DOWNSTREAM**  
**DRAIN DOWN CHAMBER #2**

DESIGNED: RJB CHECKED: LAC	<p>Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487</p>	SHEET <b>SD-30</b>
DRAWN: JD CHECKED: RJB		
REF. ACC.	CONT.	SCALE: AS NOTED DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

NO.	DATE	REVISIONS	BY

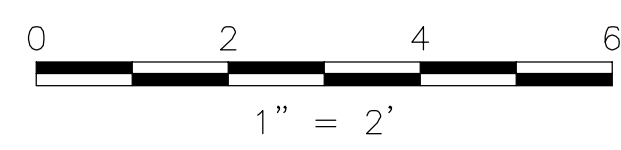
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- NOTES:**
1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-6.
  7. FOR UTILITY PLAN, SEE SHEET U-6.
  8. PRIOR TO THE START OF CONSTRUCTION, VERIFY INVERT OF EXISTING 84" CS AND INVERT OF EXISTING CHAMBER AT SOM-009.
  9. EXISTING STRUCTURE IS SUBJECT TO SURCHARGED FLOWS IN WET WEATHER. CORE DRILL AND MAKE CONNECTION INTO EXISTING STRUCTURE DURING A DRY WEATHER PERIOD.
  10. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS

**EXTENDED SECTION**  
SCALE: 1" = 2'

9  
SD-28



*Rachel J. Burckardt*  
12/17/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

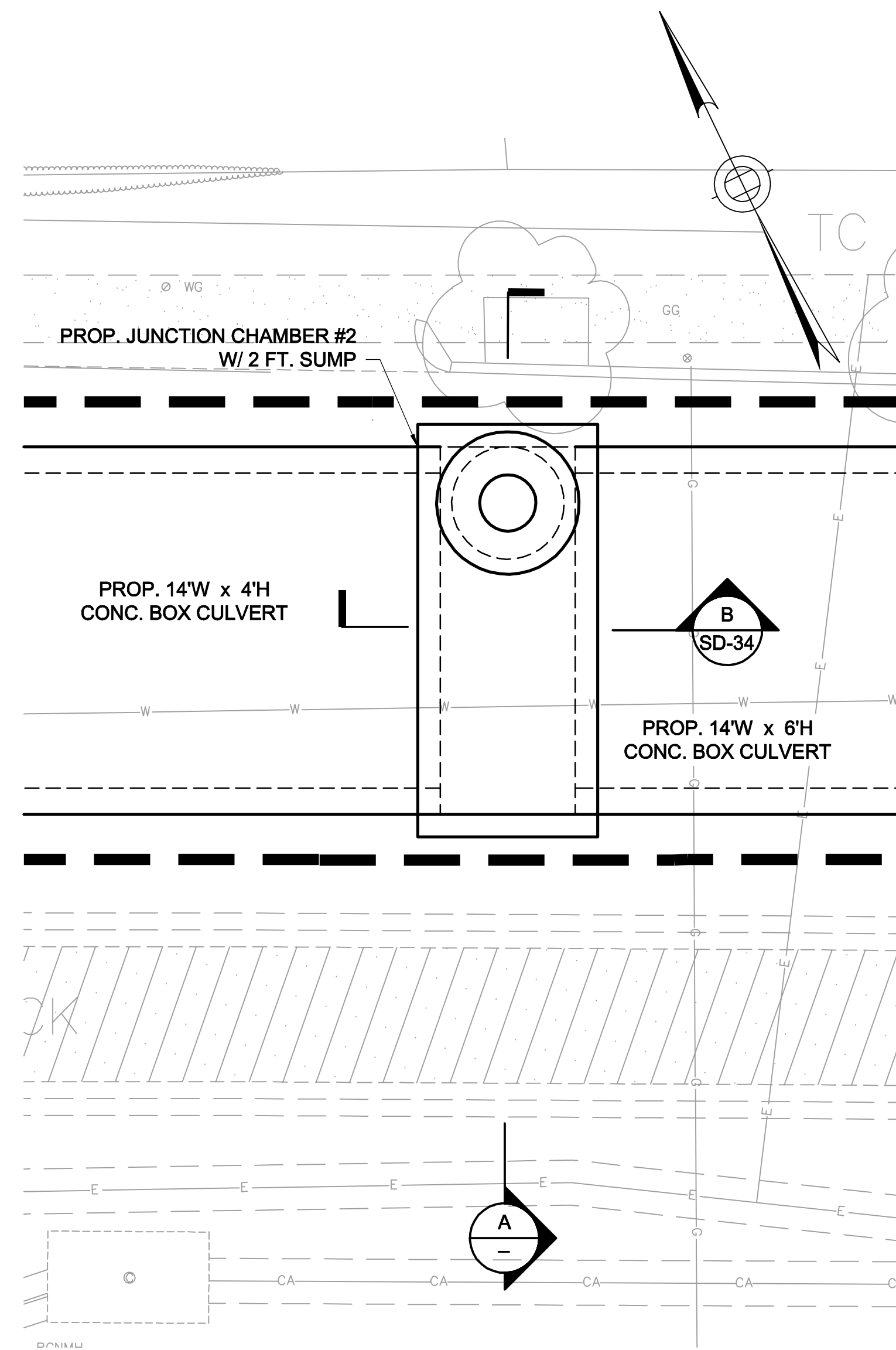
NO.	DATE	REVISIONS	BY

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**DOWNSTREAM CONNECTION**  
**CSMH #5 TO SOM-009**

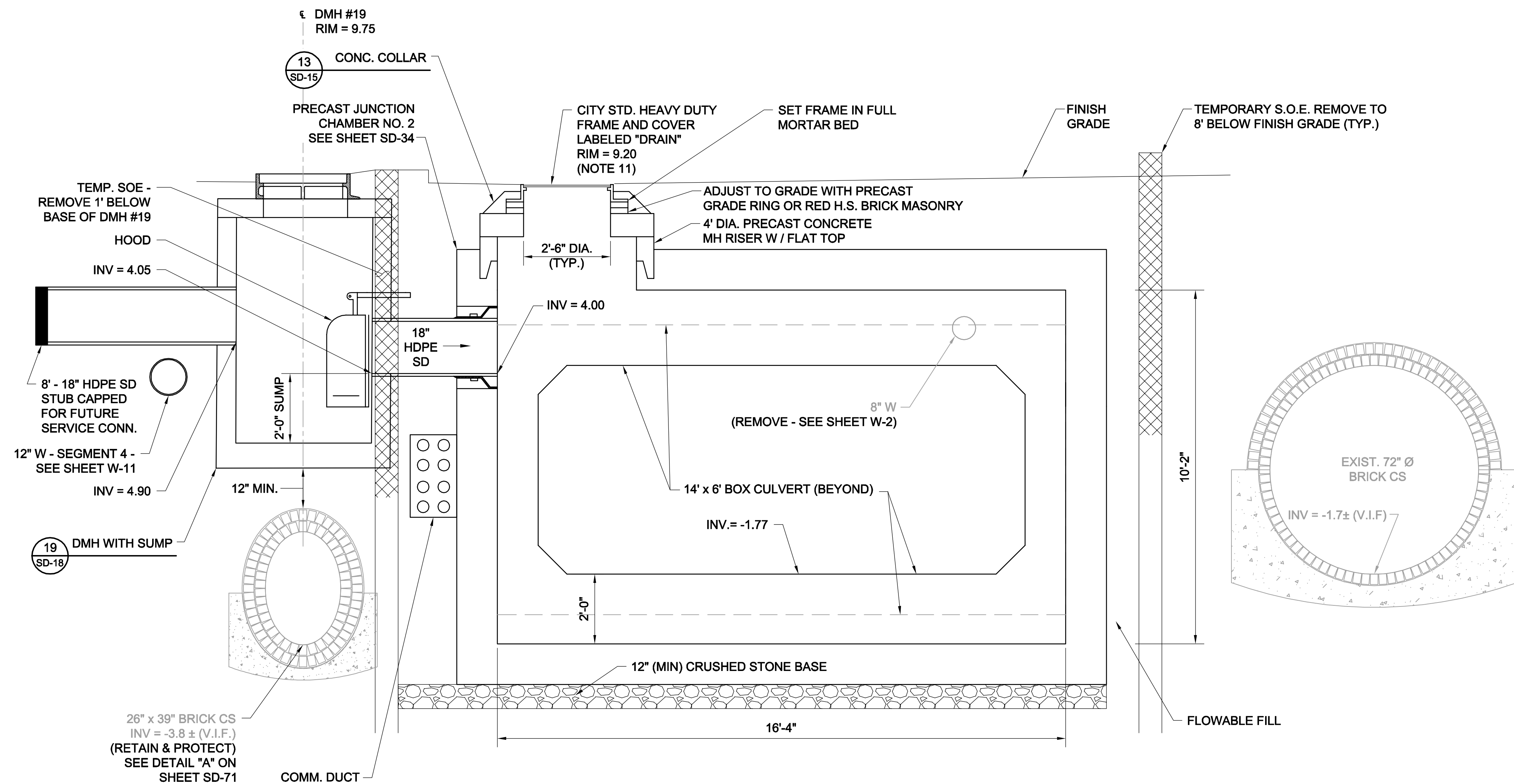
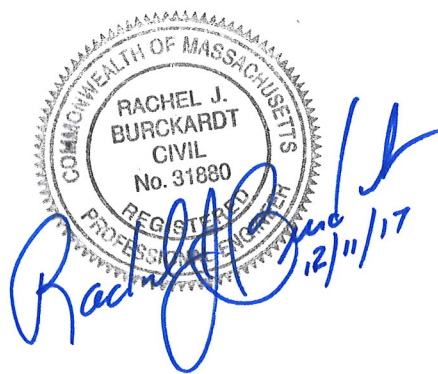
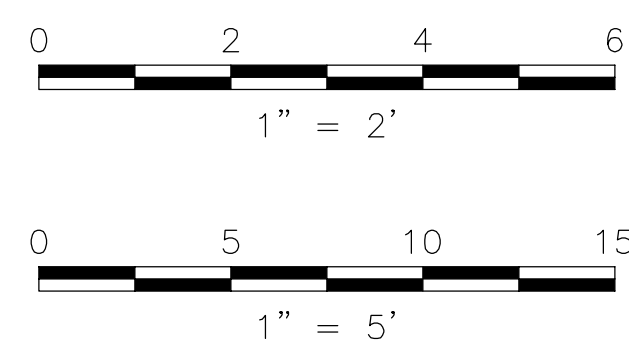
DESIGNED: RJB CHECKED: LAC	<p>Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487</p>	SHEET <b>SD-31</b>
DRAWN: JD CHECKED: RJB		
REF. ACC.	CONT.	SCALE: 1" = 2' DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		



2017-11-20 1:51 PM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-33.dwg



**PLAN VIEW**  
SCALE: 1" = 5'



**SECTION A**  
SCALE: 1" = 2'  
**JUNCTION CHAMBER #2**

- NOTES:**
- FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  - FOR UTILITY PLAN, SEE SHEET U-2.
  - ALL CONC. SHALL BE PRECAST U.N.O.
  - PRECAST UNITS SHALL CONFORM TO NOTES 2 THRU 8 IN "NOTES FOR MANHOLES" ON SHEET SD-13.
  - ALL C.I.P. CONC. SHALL BE MIN. 4000 PSI, 3/4" AGGR.
  - FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

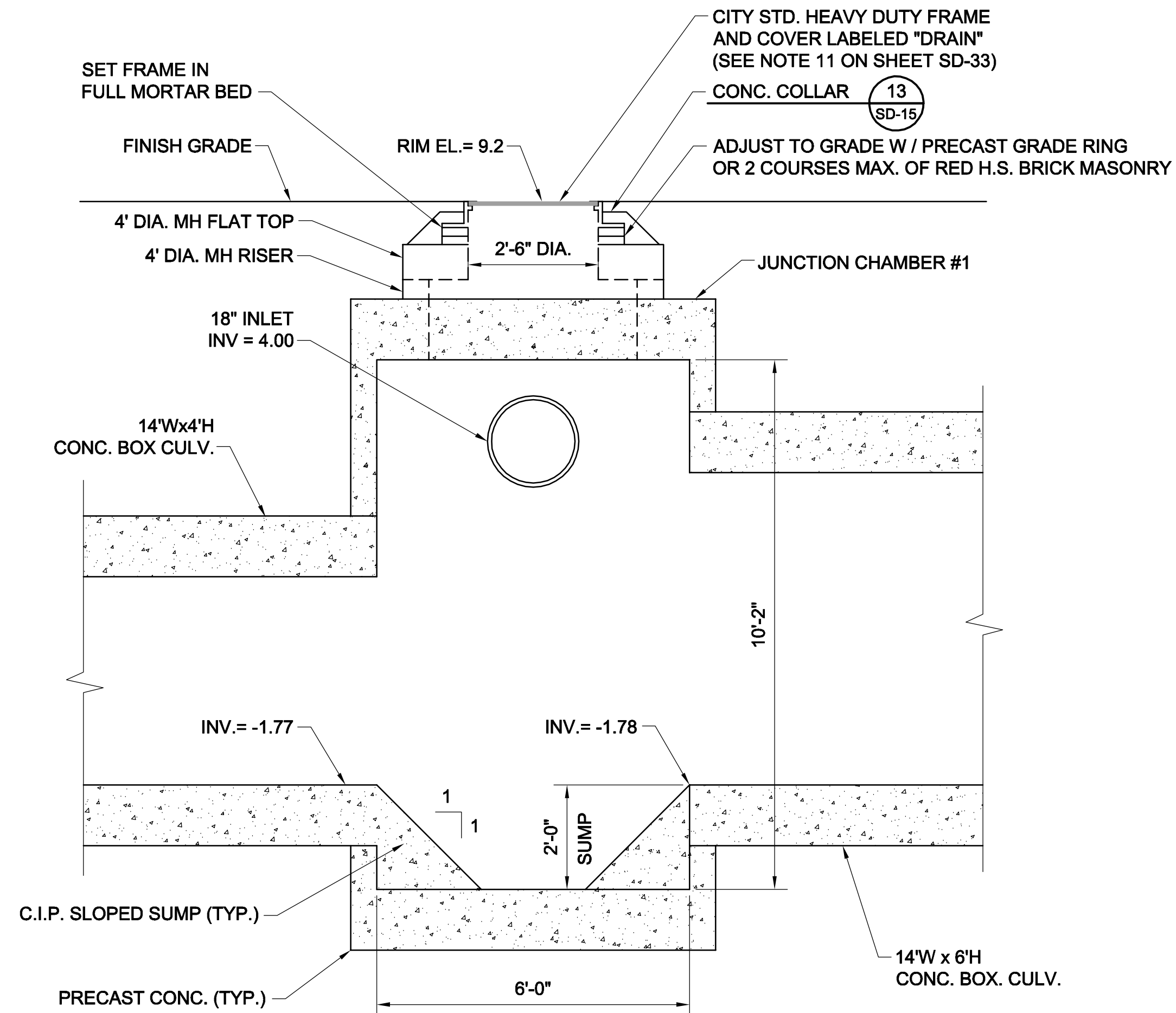
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET**  
**JUNCTION CHAMBER #2 DETAILS**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-33</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JD		ACC.	DATE: DEC 2017	
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

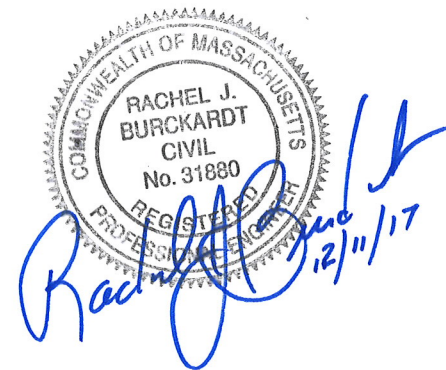
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**SECTION B**  
SD-33

**NOTE:**

- FOR NOTES, SEE SHEET SD-33.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET**  
**JUNCTION CHAMBER #2 DETAILS**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB



Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. \_\_\_\_\_ CONT. \_\_\_\_\_  
ACC. \_\_\_\_\_

SCALE: N.T.S.  
DATE: DEC 2017

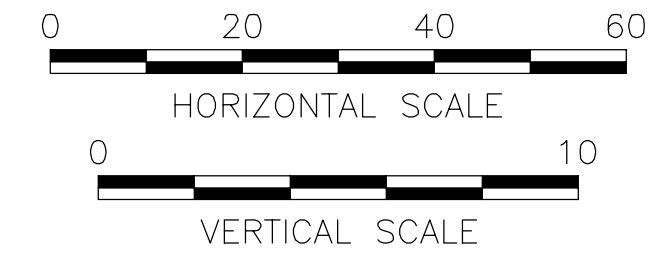
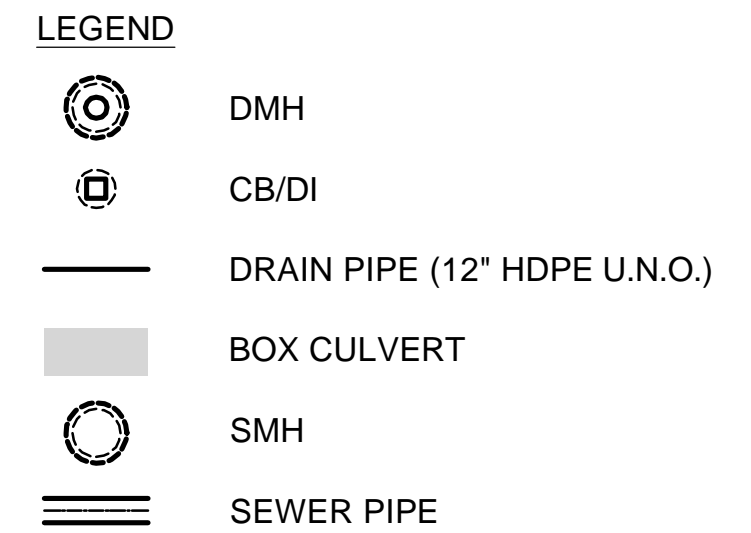
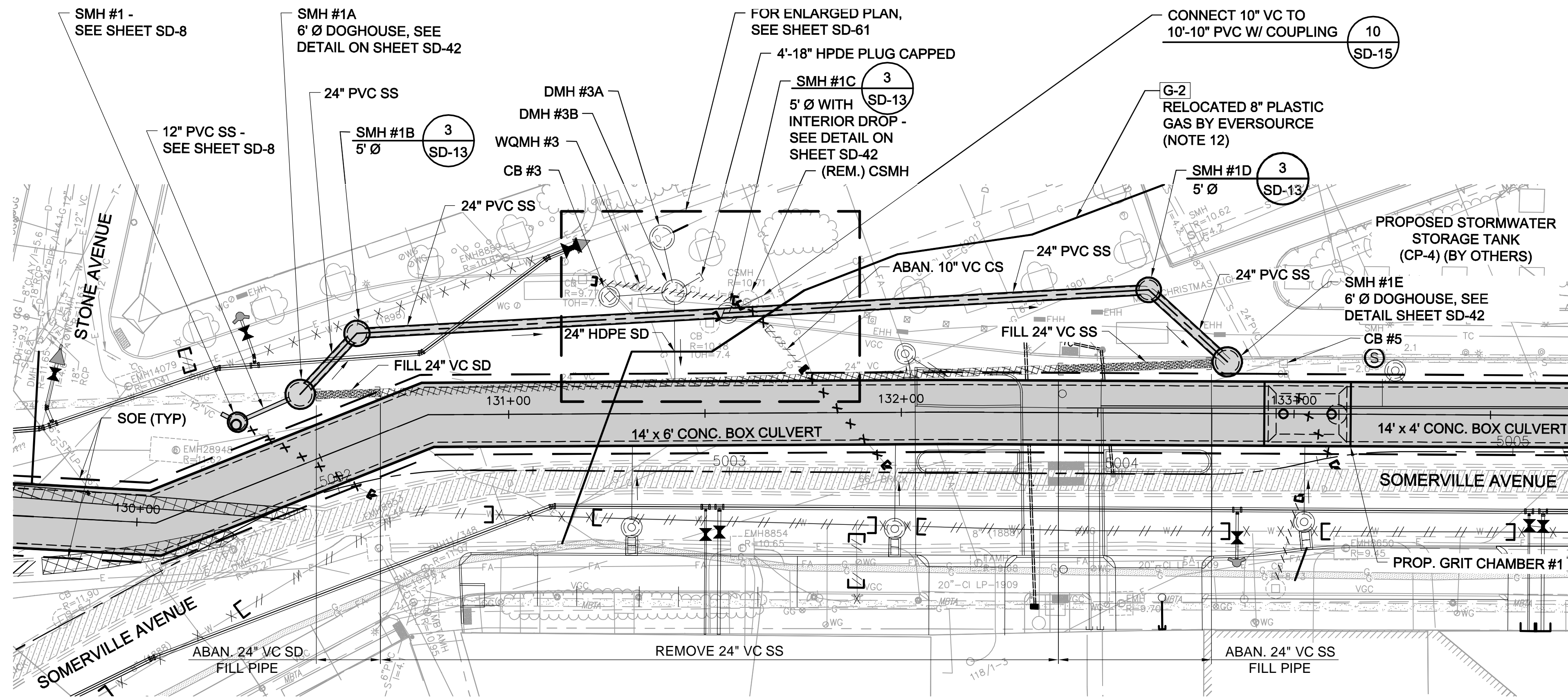
SHEET  
**SD-34**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

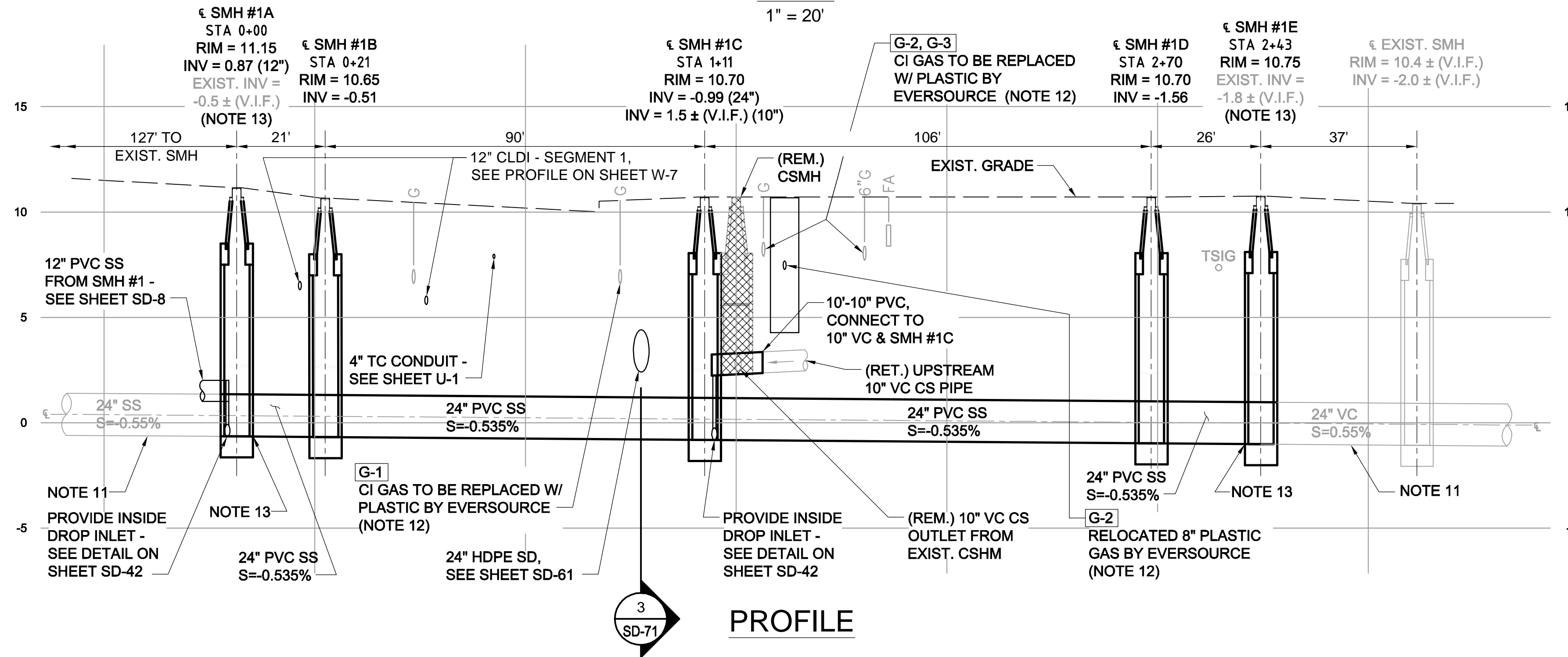


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**PLAN**

1" = 20'



**PROFILE**

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11 & G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21 & G-22.
5. FOR SEWER SEPARATION PLANS AND PROFILES, SEE SHEETS SD-1 & SD-2.
6. FOR SURFACE DRAINAGE PLANS, SEE SHEETS SD-61 & SD-62.
7. FOR SITE PREPARATIONS PLAN, SEE SHEET SD-42.
8. FOR SUGGESTED CONSTRUCTION STAGING TO MAINTAIN FLOW, SEE SHEET SD-42.
9. MAINTAIN SEWER FLOW AT ALL TIMES. FOR FLOW RATES, SEE TABLE 01514-1 IN THE SPECIFICATIONS.
10. SUPPORT UTILITIES IN PLACE UNLESS NOTED OTHERWISE.
11. FOR SEWER LINING PLAN, SEE SHEET SD-90.
12. FOR GAS LINE RELOCATION IN PLAZA, SEE SHEETS U-1 AND U-2.
13. AT SMH #1A & SMH #1E, SET NEW 24\"/>

*Rachel J. Burckhardt*  
 RACHEL J. BURCKHARDT  
 CIVIL  
 No. 31680  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MASSACHUSETTS  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
 SEWER SEPARATION AND WATER REPLACEMENT  
 SEWER RELOCATION AT PLAZA  
 PLAN AND PROFILE**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
 Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

REF.  
 ACC.

CONT.

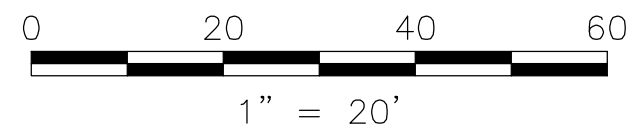
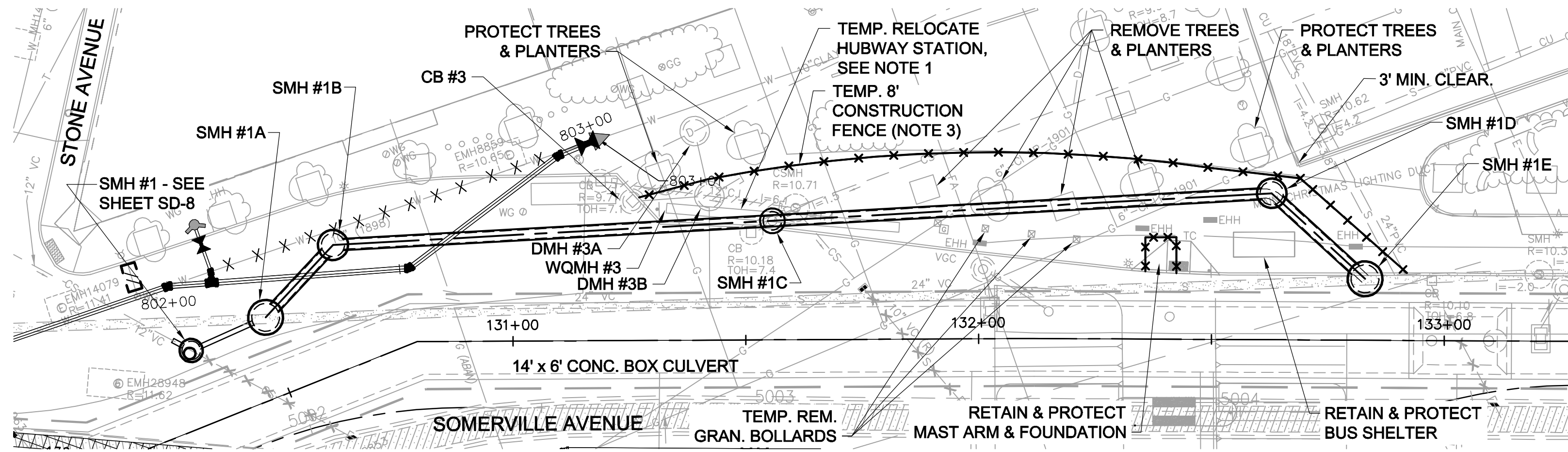
SCALE: AS NOTED  
 DATE: DEC 2017

SHEET  
**SD-41**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - SMH
  - SEWER PIPE

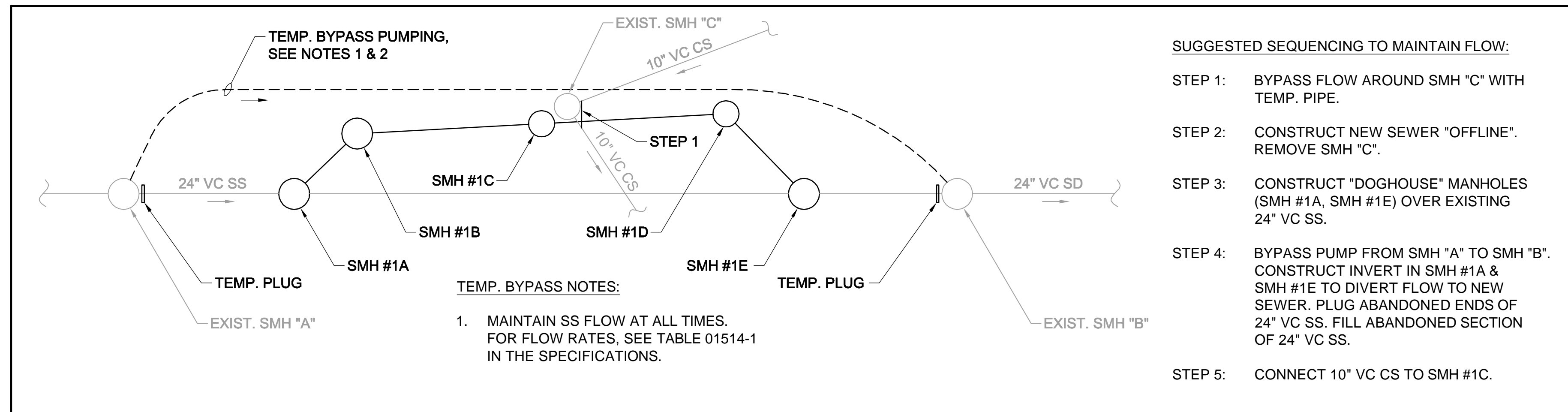


**SITE PREPARATION PLAN**

SCALE: 1" = 20'-0"

**SITE PREPARATION NOTES:**

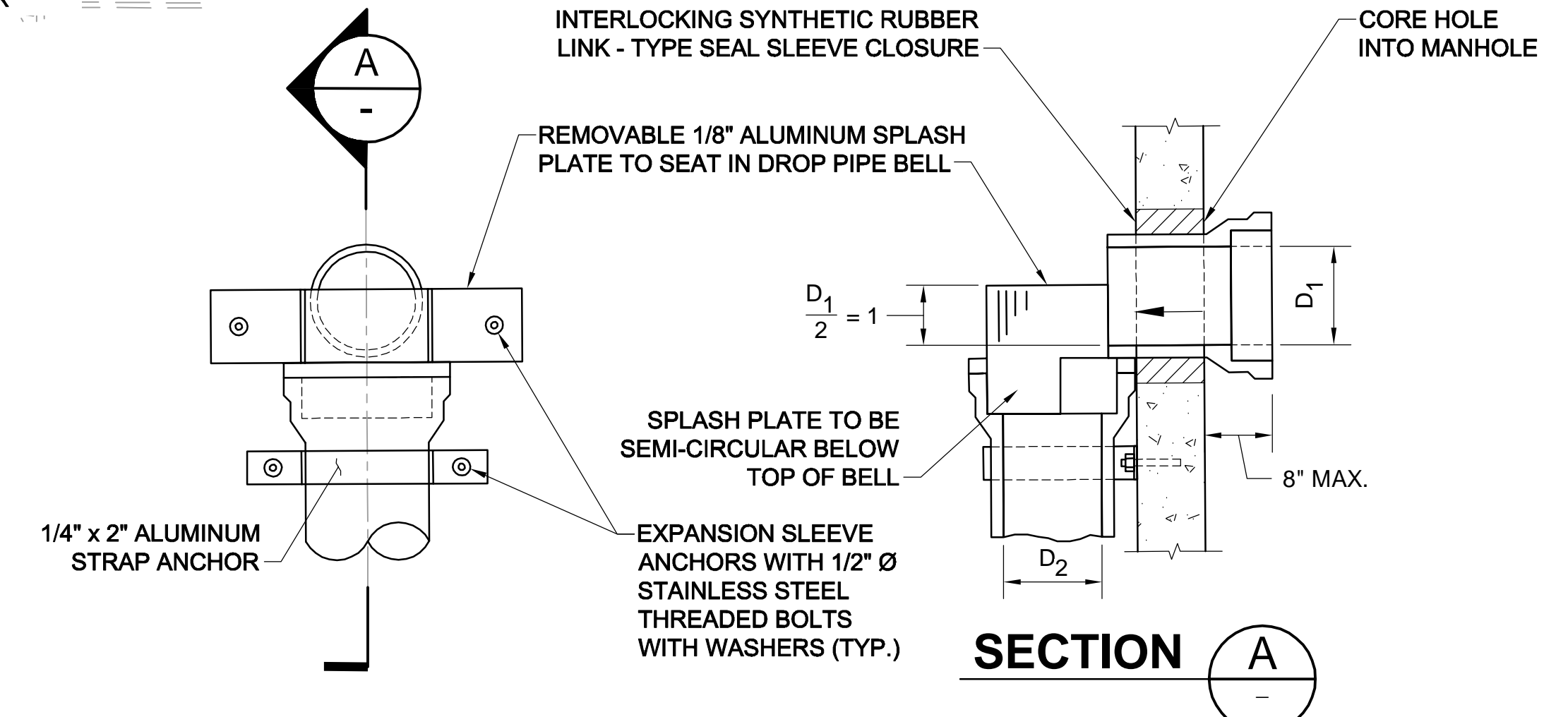
1. AT LEAST 30 DAYS PRIOR TO THE START OF THIS SEWER RELOCATION WORK, NOTIFY THE ENGINEER FOR THE CITY TO ARRANGE FOR THE TEMPORARY RELOCATION OF THE HUBWAY STATION.
2. FOR TMP PLAN, SEE SHEETS TM-114 & TM-115.
3. PRIOR TO ERECTION, CONFIRM EXACT LOCATION OF TEMP. CONSTRUCTION FENCE WITH THE ENGINEER IN THE FIELD.
4. FOR OVERALL SITE PREPARATION PLAN, SEE SHEET L-0.
5. FOR GAS LINE RELOCATION IN PLAZA, SEE SHEETS U-1 AND U-2.
6. FOR BOX CULVERT PLAN AND PROFILE, SEE SHEETS SD-1 AND SD-2.
7. FOR SURFACE DRAINAGE PLAN, SEE SHEETS SD-61 AND SD-62.
8. FOR WATER MAIN PLAN, SEE SHEET W-1.
9. FOR SEWER LINING PLAN, SEE SHEET SD-90.



**SUGGESTED SEQUENCING TO MAINTAIN FLOW:**

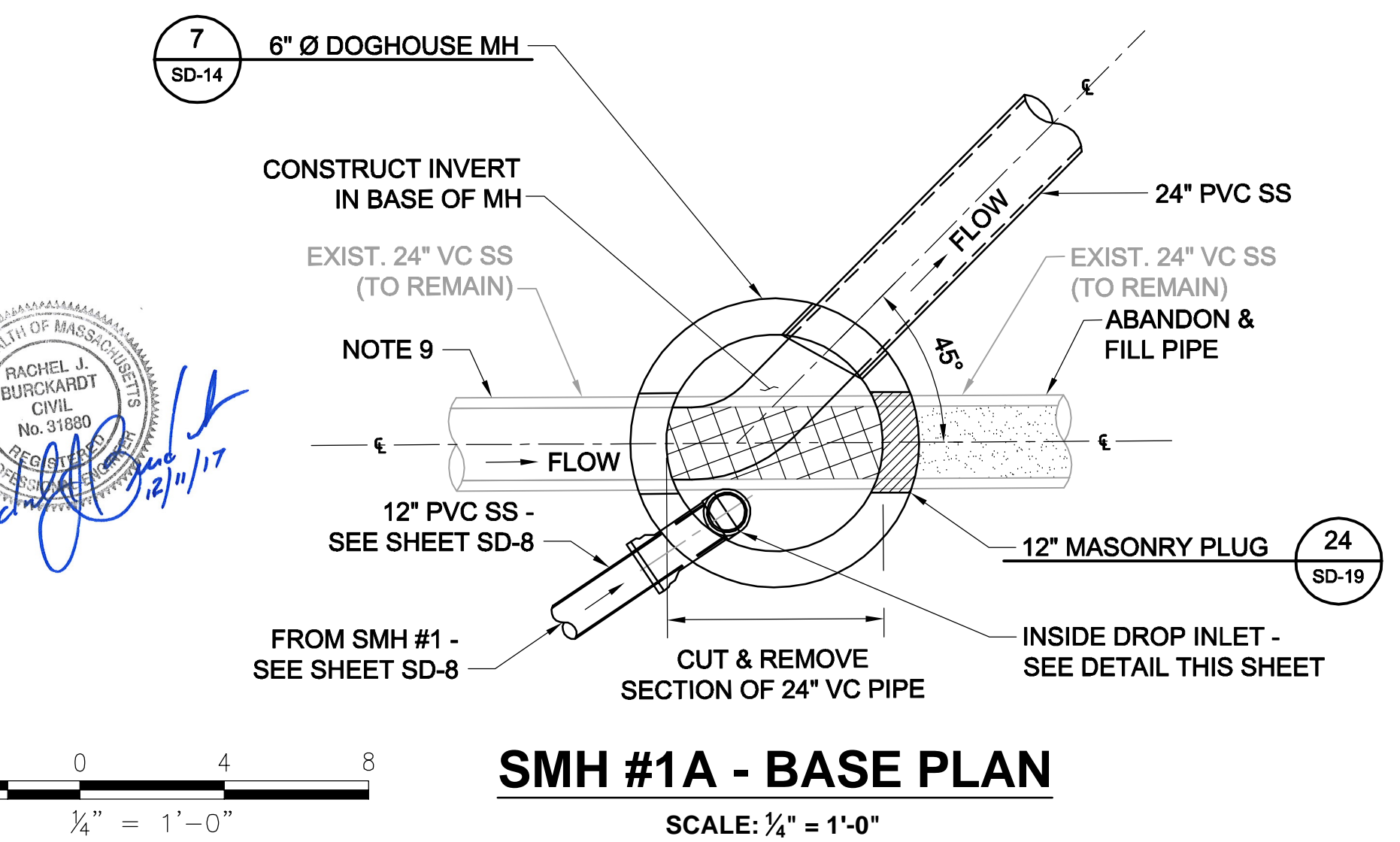
- STEP 1: BYPASS FLOW AROUND SMH "C" WITH TEMP. PIPE.
- STEP 2: CONSTRUCT NEW SEWER "OFFLINE". REMOVE SMH "C".
- STEP 3: CONSTRUCT "DOGHOUSE" MANHOLES (SMH #1A, SMH #1E) OVER EXISTING 24" VC SS.
- STEP 4: BYPASS PUMP FROM SMH "A" TO SMH "B". CONSTRUCT INVERT IN SMH #1A & SMH #1E TO DIVERT FLOW TO NEW SEWER. PLUG ABANDONED ENDS OF 24" VC SS. FILL ABANDONED SECTION OF 24" VC SS.
- STEP 5: CONNECT 10" VC CS TO SMH #1C.

**BYPASS PUMPING SCHEMATIC**



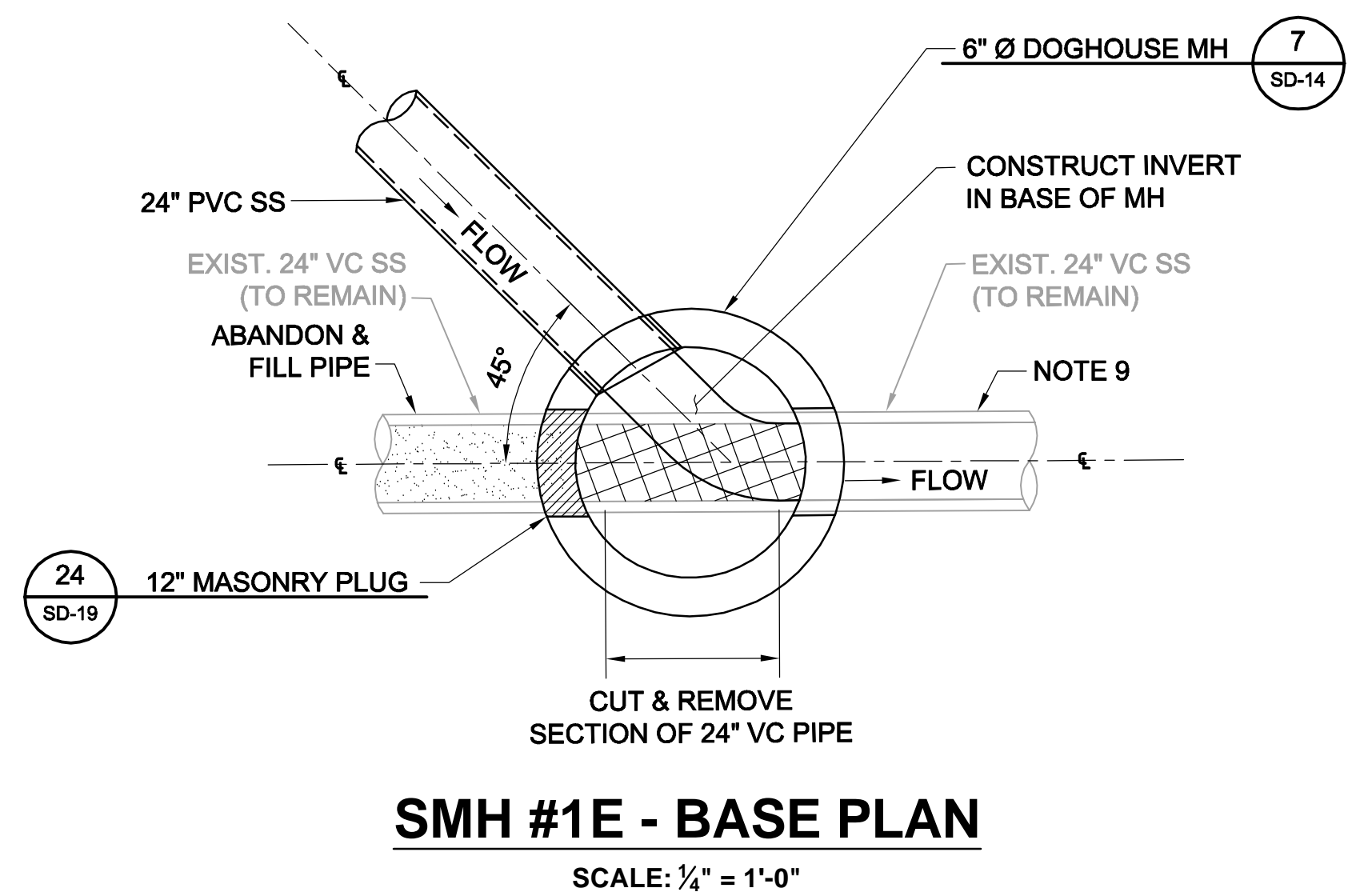
**ALUMUNUM SPLASH PLATE DETAIL**

SCALE: NTS



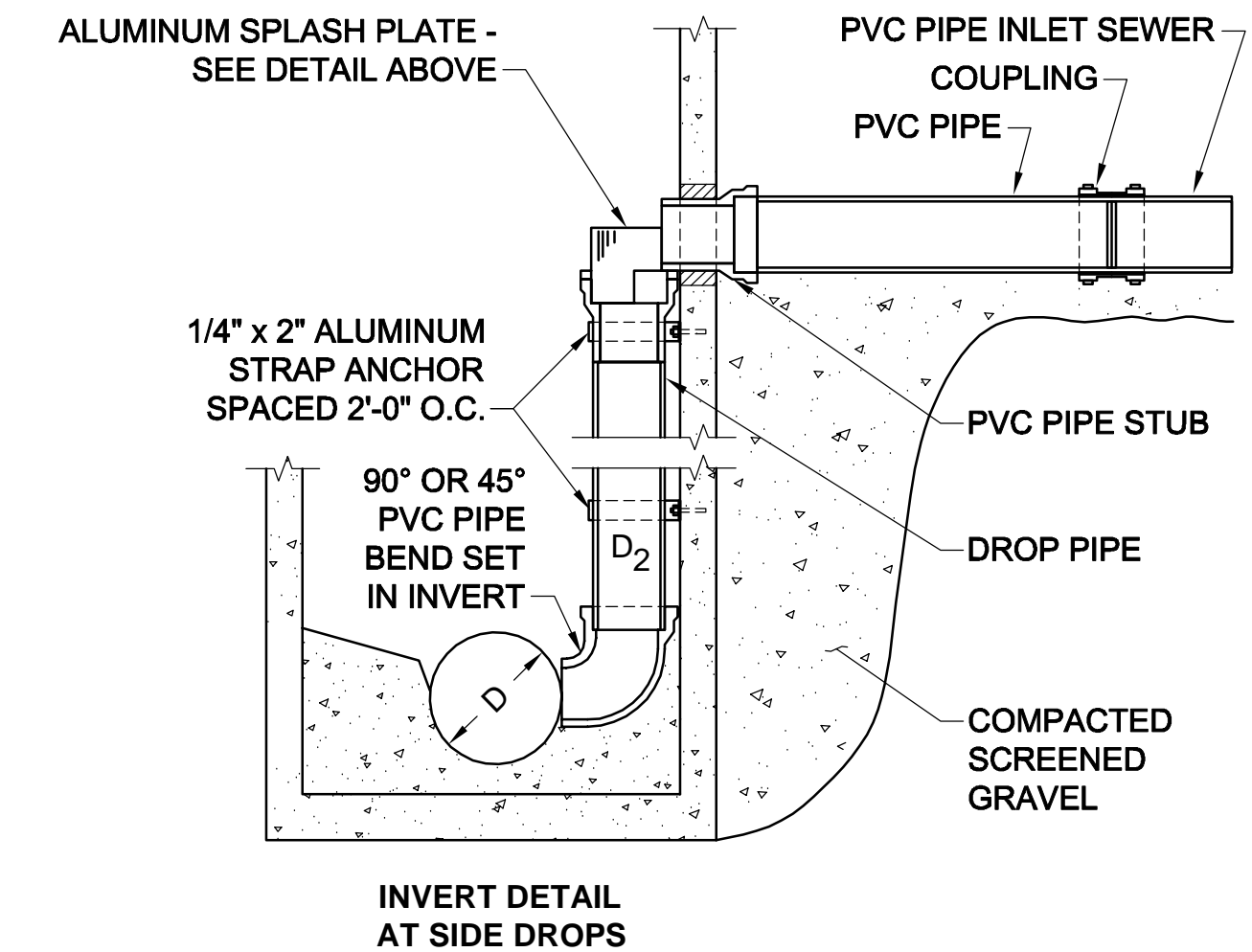
**SMH #1A - BASE PLAN**

SCALE: 1/4" = 1'-0"



**SMH #1E - BASE PLAN**

SCALE: 1/4" = 1'-0"



**INSIDE DROP INLETS FOR PVC PIPE SEWER**

SCALE: NTS

**PIPE SIZE TABLE**

PIPE SIZES (IN)	
INLET SEWER D <sub>1</sub>	DROP PIPE D <sub>2</sub>
10	8

**NOTES:**

1. DETAILS OF DROP MANHOLE SHALL BE SAME AS FOR TYPICAL MANHOLE EXCEPT AS SHOWN.
2. ALUMINUM SHALL BE 6061-T6 ALLOY AND TEMPER.
3. COUPLING ELASTOMETRIC PLASTIC SLEEVE WITH STAINLESS STEEL CLAMP BANDS, MATERIALS PER ASTM C425.
4. RUBBER RING WATER STOP MATERIALS PER ASTM C923.

2017-12-06 12:29 PM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-42.dwg

*Rachel J. Burckhardt*  
 RACHEL J. BURCKHARDT  
 CIVIL  
 No. 31880  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MASSACHUSETTS  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

NO.	DATE	REVISIONS	BY

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

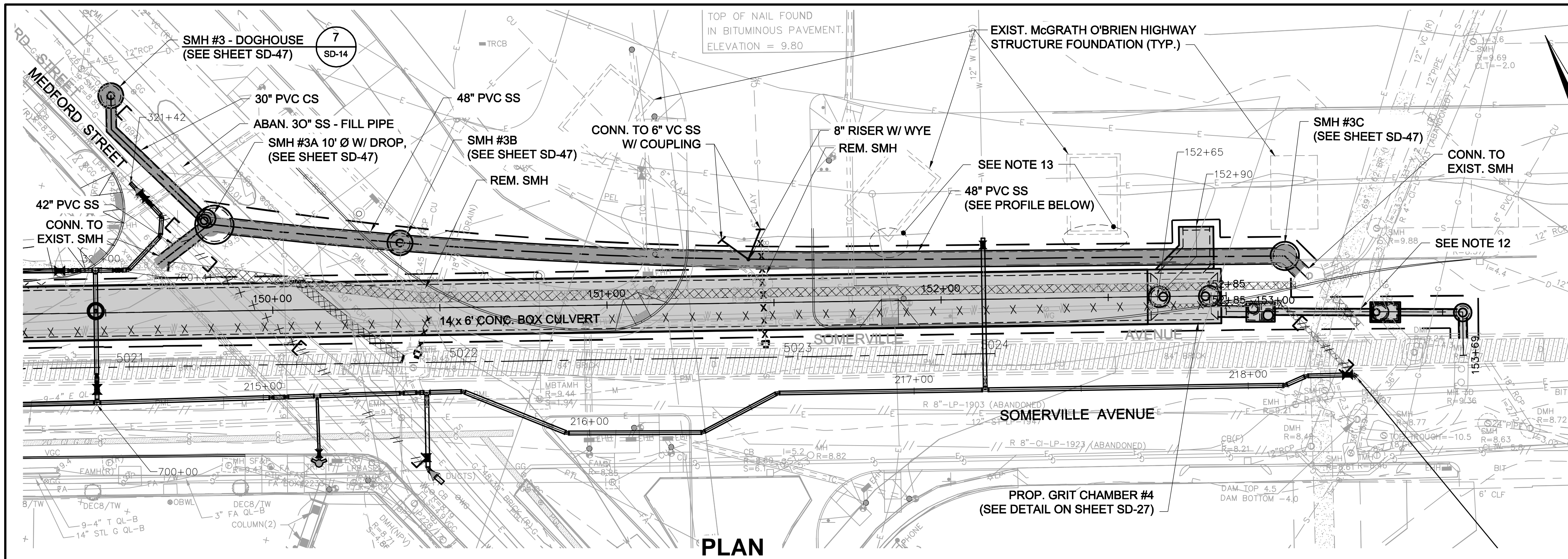
**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**SEWER RELOCATION AT PLAZA**

**DETAILS**

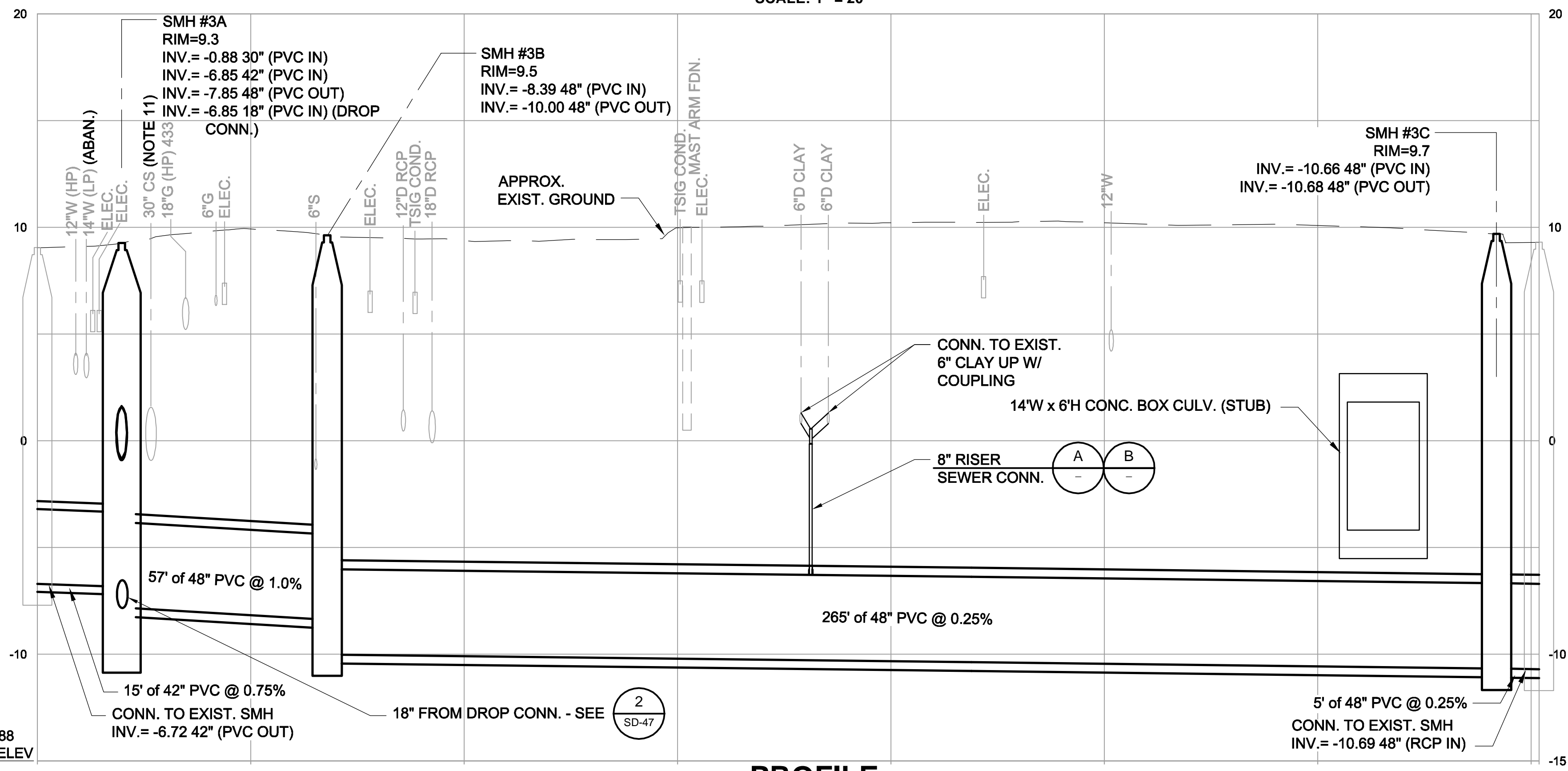
DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-42</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: KLN	ACC.	CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		



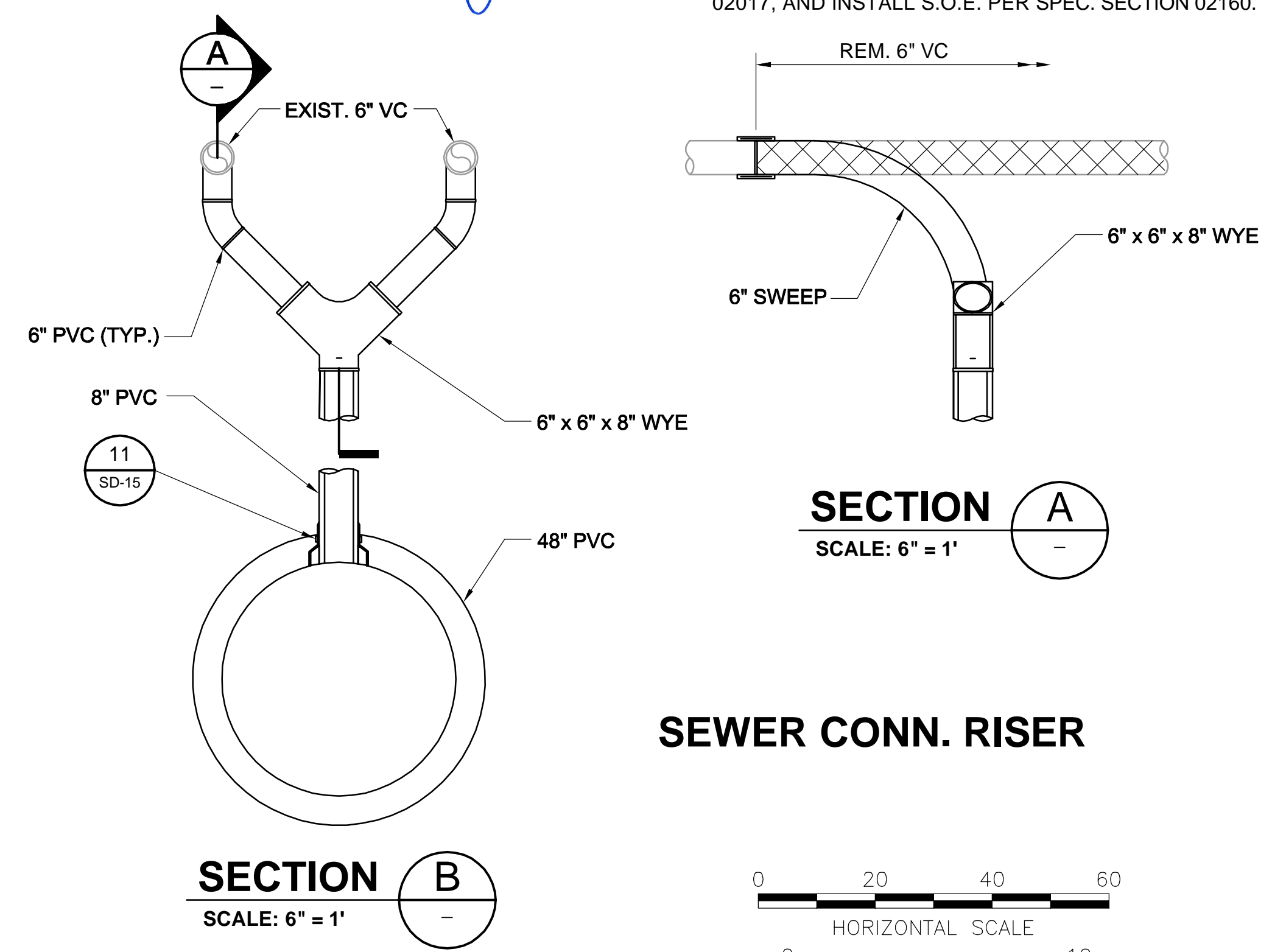
**PLAN**  
SCALE: 1" = 20'

- LEGEND**
- DMH
  - CB/DI
  - HDPE DRAIN PIPE
  - BOX CULVERT
  - SMH
  - SEWER PIPE
- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-15 & G-16.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-25 & G-26.
  5. FOR SEWER SEPARATION PLANS AND PROFILES, SEE SHEETS SD-5 & SD-6.
  6. FOR TMP PLANS, SEE SHEETS TM-340 THRU TM-344.
  7. FOR SITE PREPARATIONS PLAN, SEE SHEET SD-42.
  8. FOR SUGGESTED CONSTRUCTION STAGING TO MAINTAIN FLOW, SEE SHEET SD-46.
  9. MAINTAIN SEWER FLOW AT ALL TIMES. FOR FLOW RATES, SEE TABLE 01514-1 IN SPECIFICATIONS.
  10. SUPPORT UTILITIES IN PLACE, U.N.O.
  11. SEE DETAIL ON SHEETS SD-46 & SD-47 FOR CONSTRUCTION OF SMH #3A UNDER & ADJACENT TO EXIST. 30" BRICK CS.
  12. FOR ENLARGED PLAN OF DRAIN DOWN LINE FROM GRIT CHAMBER #4 TO CONNECTION TO 84" CS, SEE SHEET SD-28.
  13. PRIOR TO WORK WITHIN 25 FT. OF THE FOUNDATIONS FOR McGRATH HIGHWAY, IMPLEMENT STRUCTURE INSPECTION & MONITORING PER SPEC. SECTION 02017, AND INSTALL S.O.E. PER SPEC. SECTION 02160.

*Rachel J. Burckardt*  
12/11/17

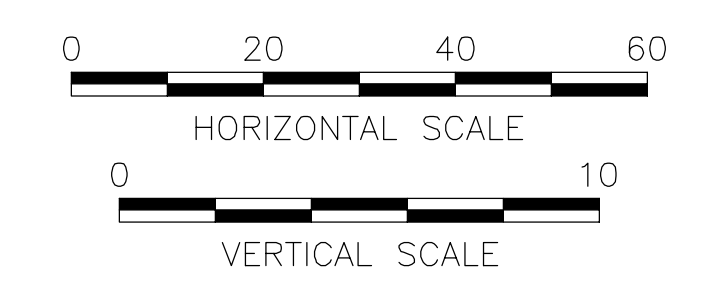


**PROFILE**



**SECTION A**  
SCALE: 6" = 1'

**SECTION B**  
SCALE: 6" = 1'



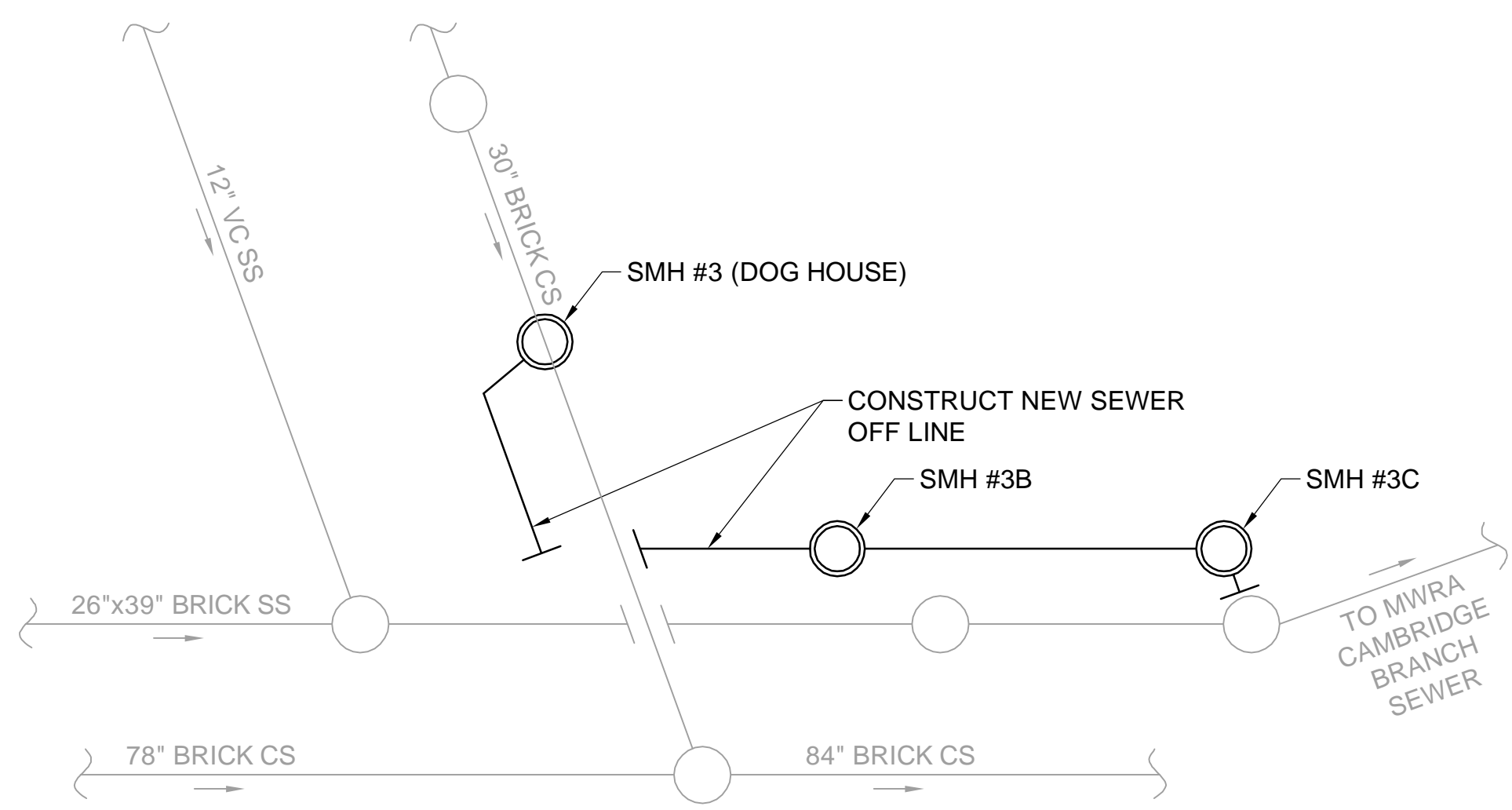
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NO.	DATE	REVISIONS	BY

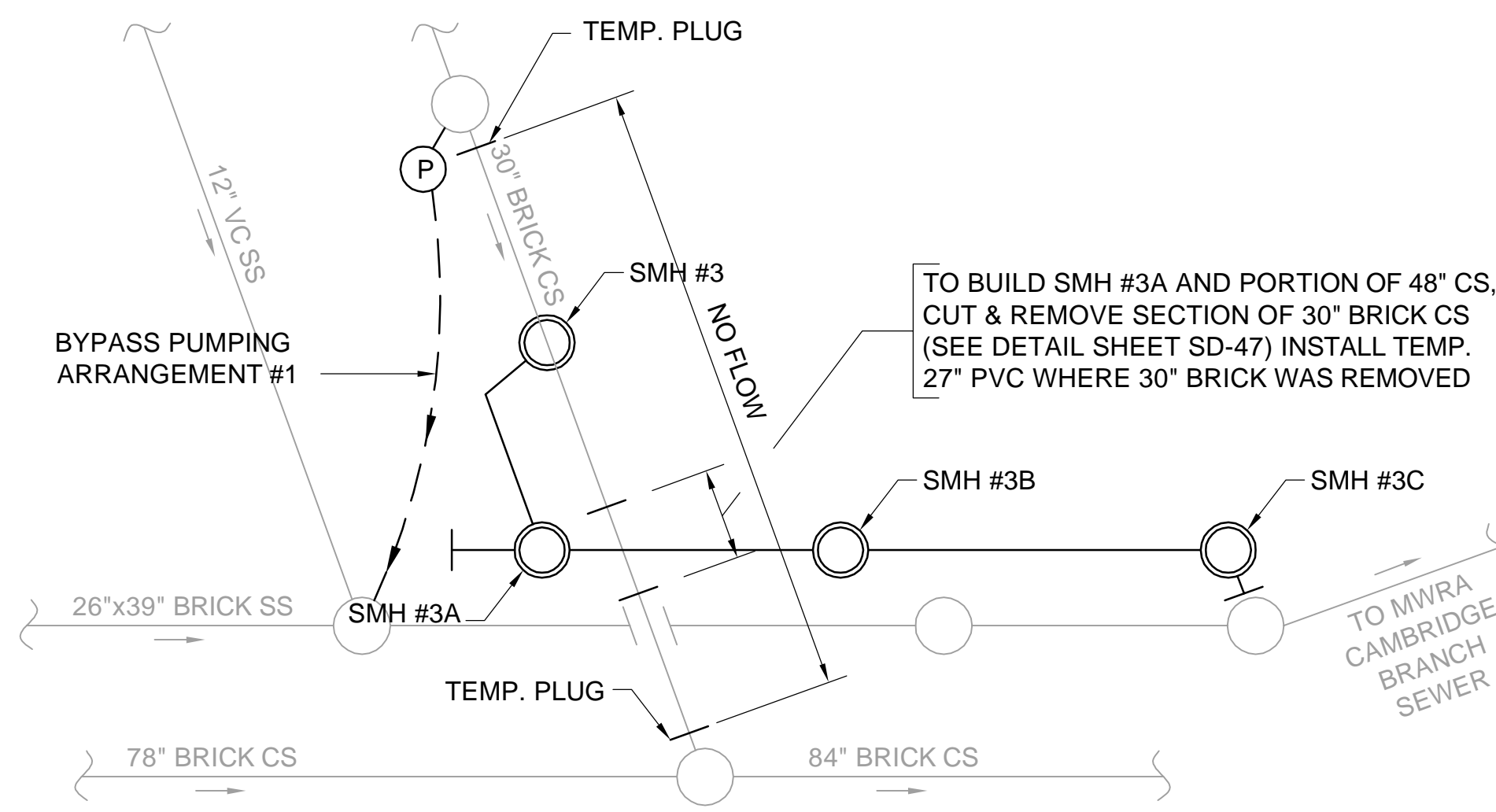
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER RELOCATION AT MEDFORD ST.**  
**PLAN AND PROFILE**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-45</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JD	ACC.	CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

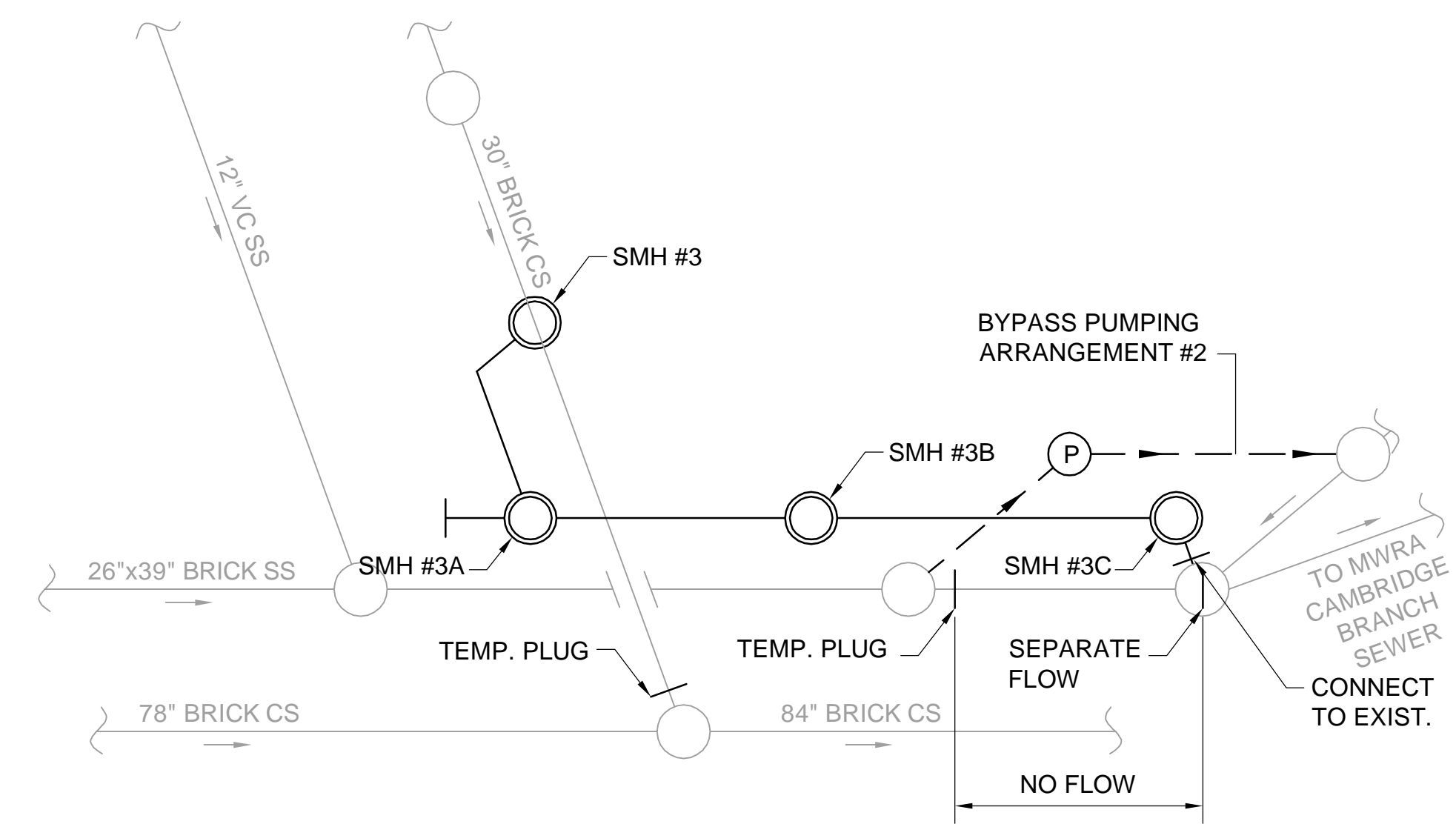
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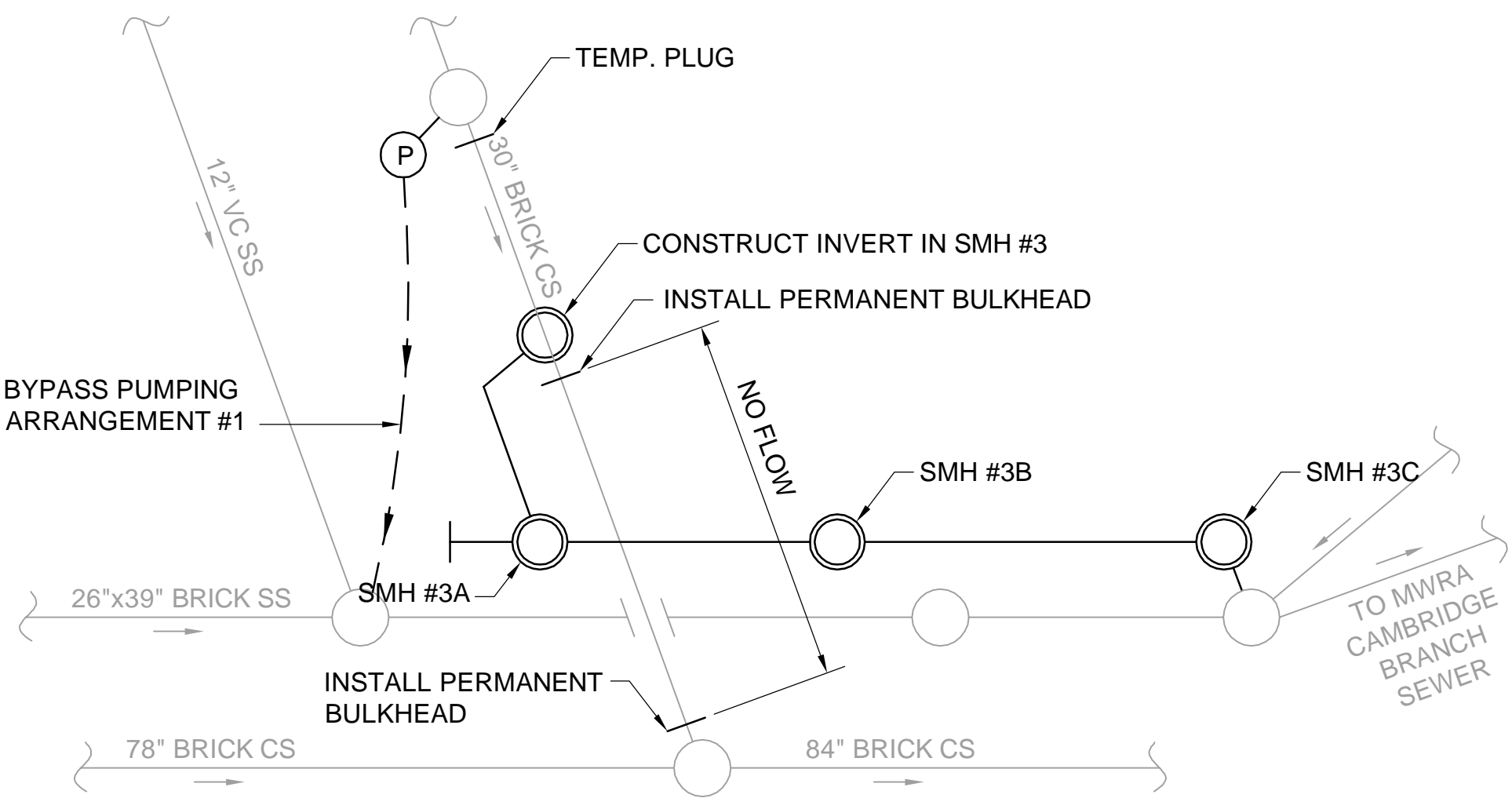
**STEP 1**



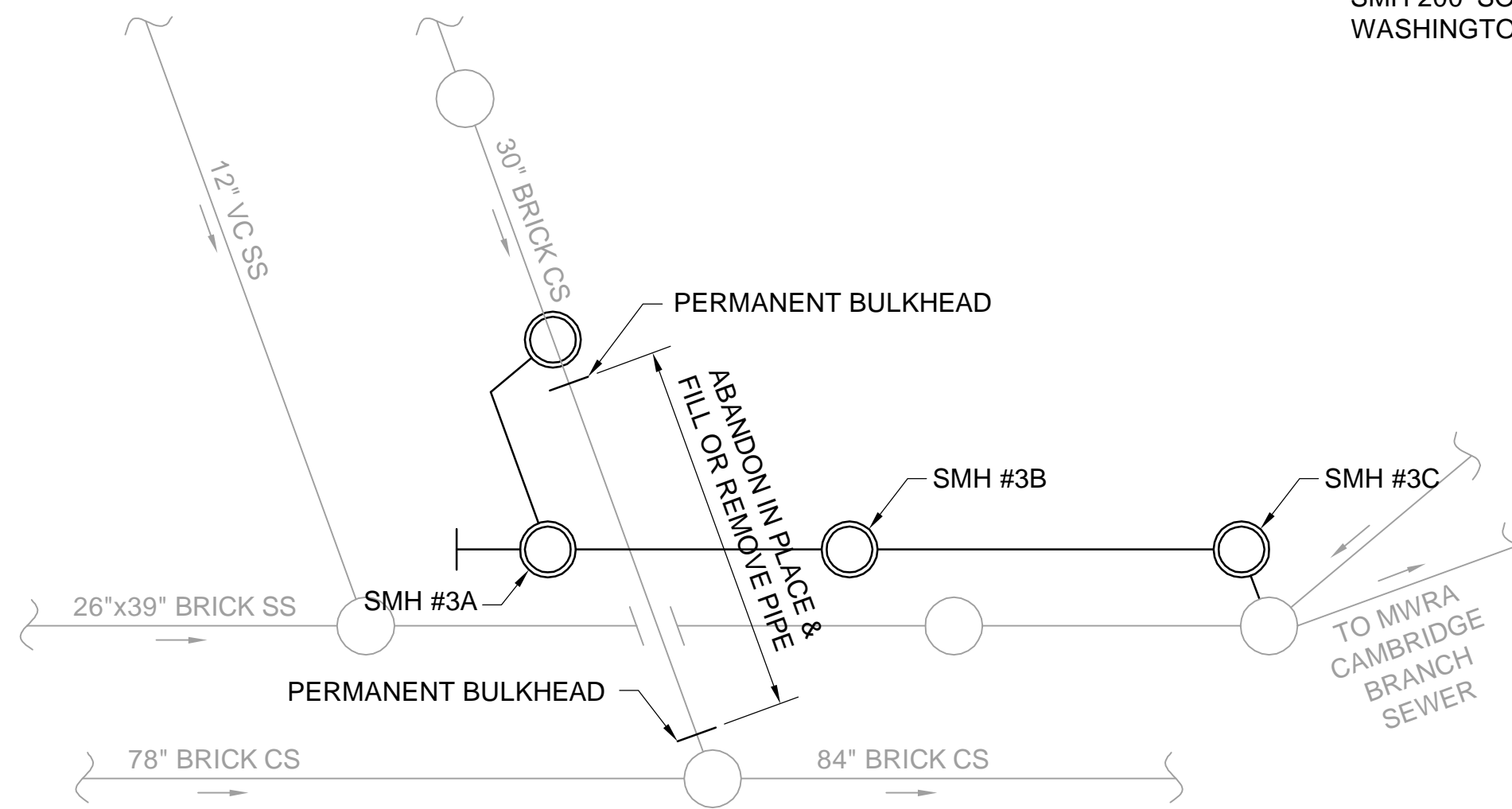
**STEP 2**



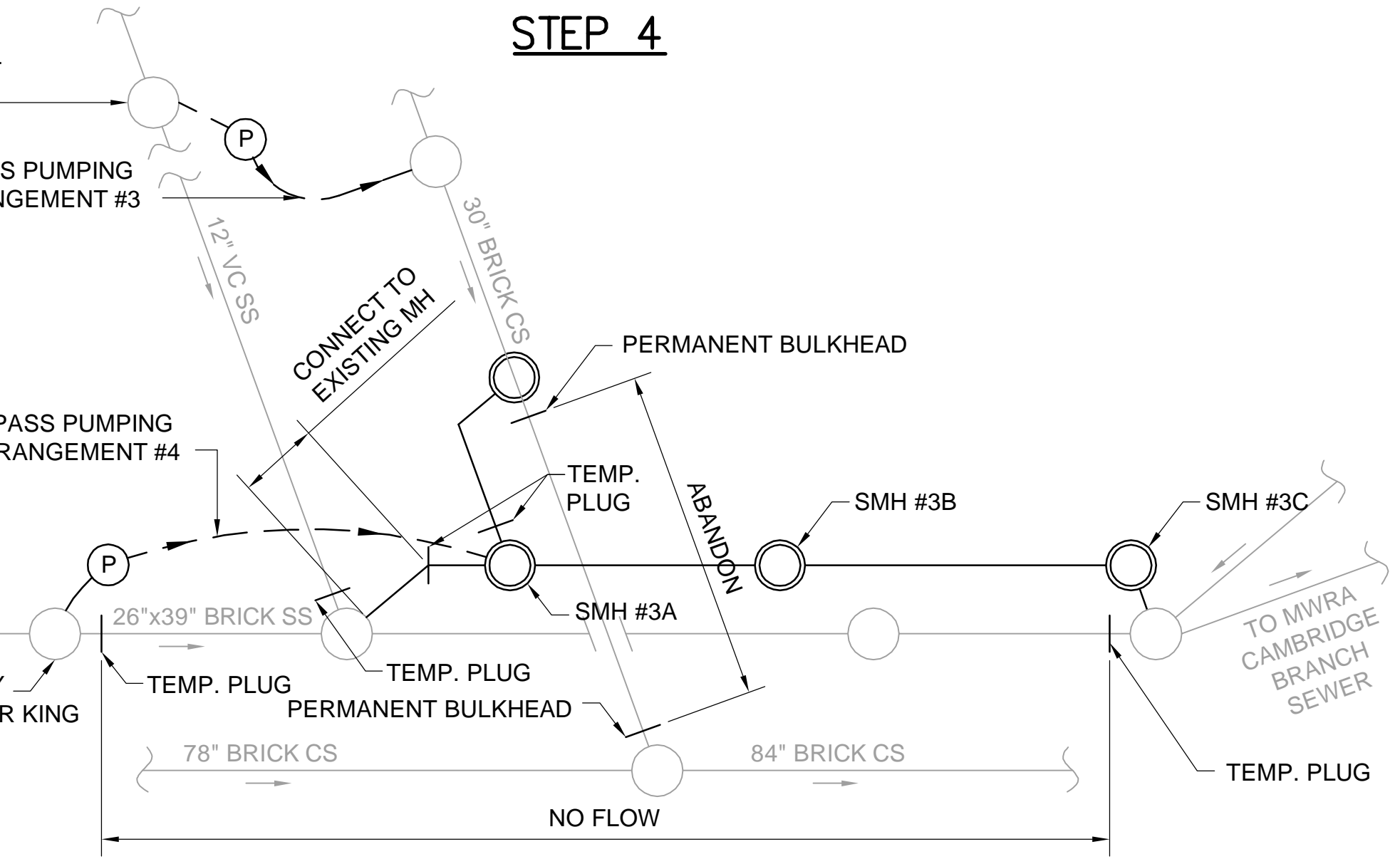
**STEP 4**



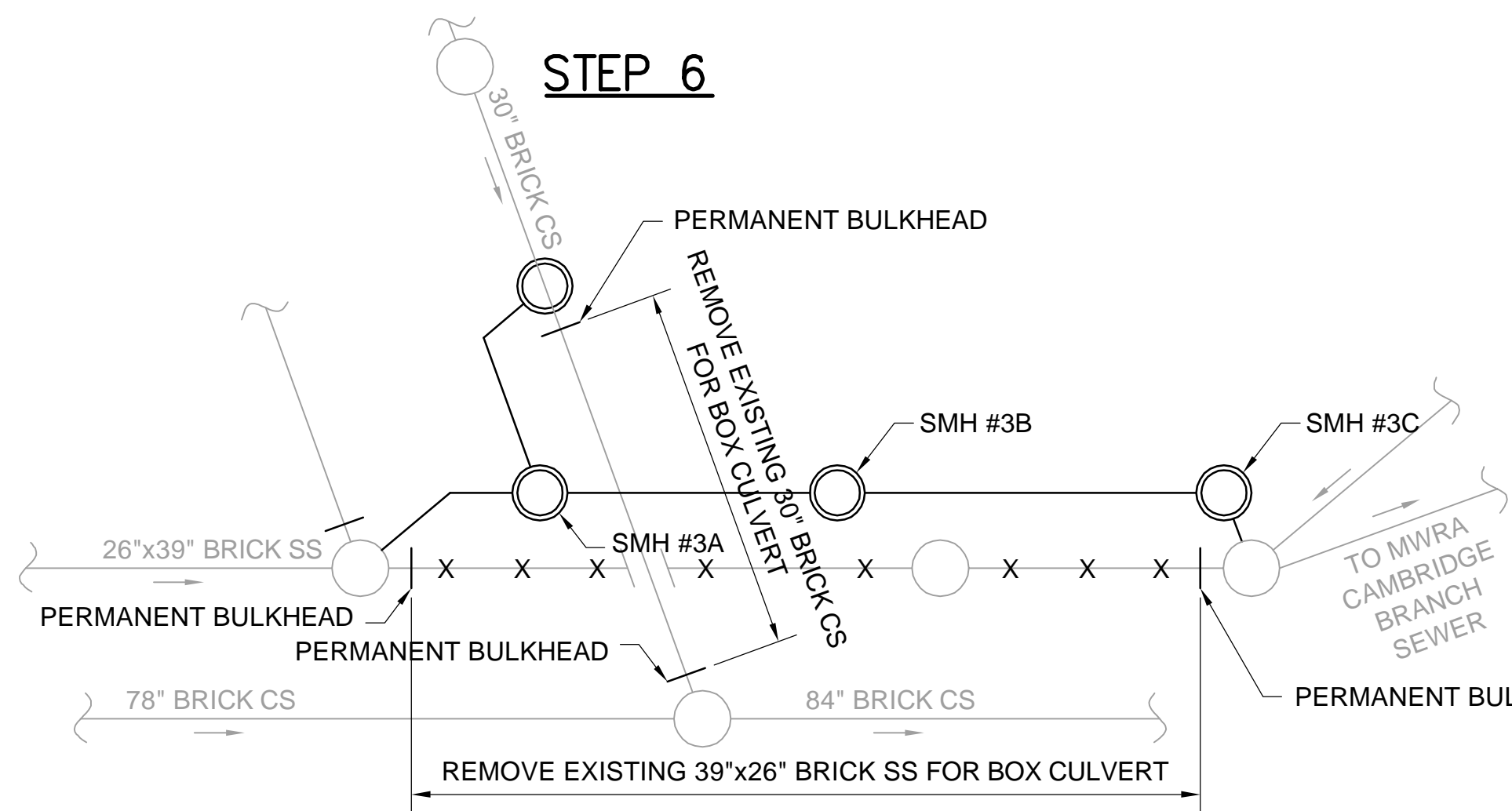
**STEP 6**



**STEP 7**



**STEP 8**



**STEP 9**

**NOTE:**  
FOR FLOW RATES FOR BYPASS PUMPING,  
SEE TABLE 01514-1 IN THE SPECIFICATIONS.

**SUGGESTED SEQUENCING TO MAINTAIN FLOW**

- STEP 1: CONSTRUCT OFF-LINE PORTIONS OF NEW 30" CS AND 48" CS AS INDICATED. CONSTRUCT DOGHOUSE SMH#3 OVER EXISTING 30" BRICK CS. FLOW IS MAINTAINED IN 39"x26" BRICK SS AND 30" BRICK CS.
- STEP 2: SET UP BYPASS PUMPING ARRANGEMENT #1. CUT OUT PORTION OF 30" BRICK CS TO ALLOW CONSTRUCTION OF SMH #3A AND ASSOCIATED PIPING. SEE DETAIL ON SHEET SD-47. IMMEDIATELY AFTER BASE OF SMH #3A IS INSTALLED, INSTALL SECTION OF TEMP. 27" PVC WHERE THE 30" BRICK WAS REMOVED. INSERT 27" PVC AT LEAST 5 FT. INTO 30" BRICK AND SEAL ENDS WITH BRICK AND MORTAR.
- STEP 3: REMOVE BYPASS PUMPING ARRANGEMENT #1 AND RESTORE FLOW THROUGH 30" CS.
- STEP 4: SET UP BYPASS PUMPING ARRANGEMENT #2. CONNECT DOWNSTREAM END TO MH ADJACENT TO CMI.
- STEP 5: REMOVE BYPASS PUMPING ARRANGEMENT #2 AND RESTORE FLOW THROUGH 39"x26" CS.
- STEP 6: SET UP BYPASS PUMPING ARRANGEMENT #1. CONSTRUCT INVERT AND BULKHEAD IN SMH #3. ABANDON & FILL 30" BRICK FROM SMH #3 TO CSMH

- ON 72" BRICK CS.
- STEP 7: REMOVE BYPASS PUMPING ARRANGEMENT #1 AND DIVERT FLOW THROUGH NEW 30" CS (SMH #3 TO SMH #3A) AND NEW 48" CS (SMH #3A TO CMI).
- STEP 8: SET UP BYPASS PUMPING ARRANGEMENTS #3 & #4. MAKE UPSTREAM CONNECTION INTO EXISTING MANHOLE.
- STEP 9: REMOVE BYPASS PUMPING ARRANGEMENTS #3 & #4 AND DIVERT FLOW THROUGH NEW 42" SS TO SMH #3A AND NEW 48" CS (SMH #3A TO CMI).



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
SEWER RELOCATION AT  
MEDFORD STREET - DETAILS**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: KLN  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

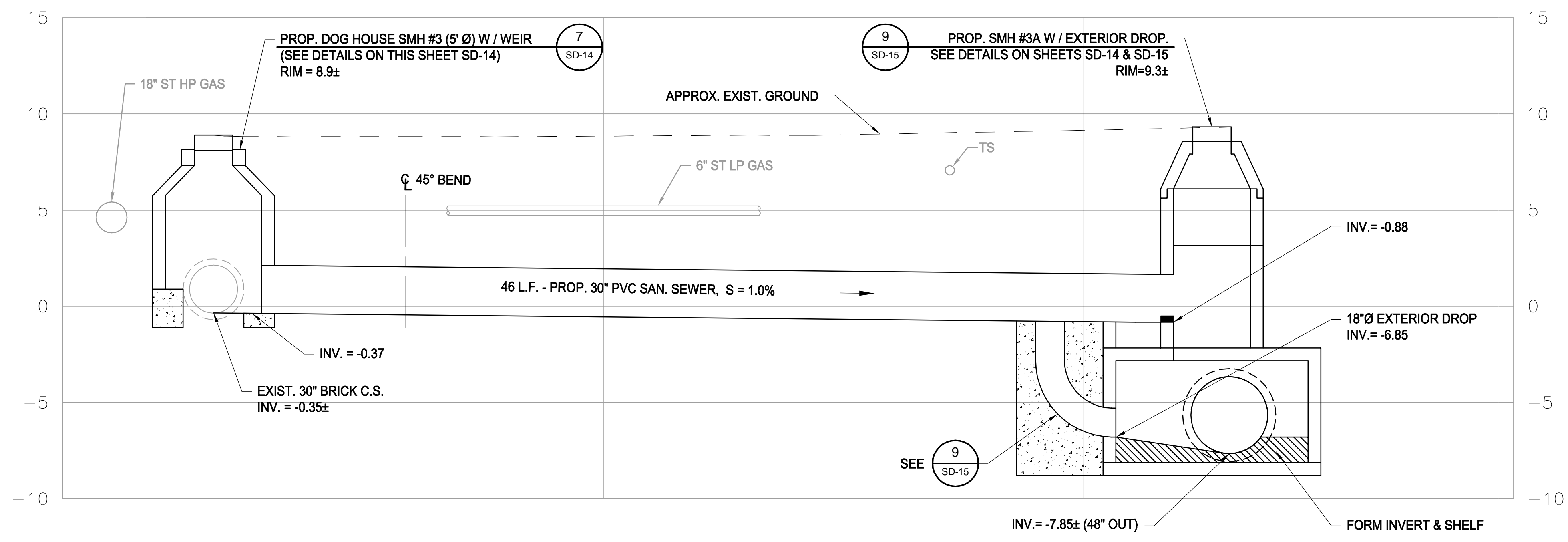
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SCALE: AS NOTED  
DATE: DEC 2017

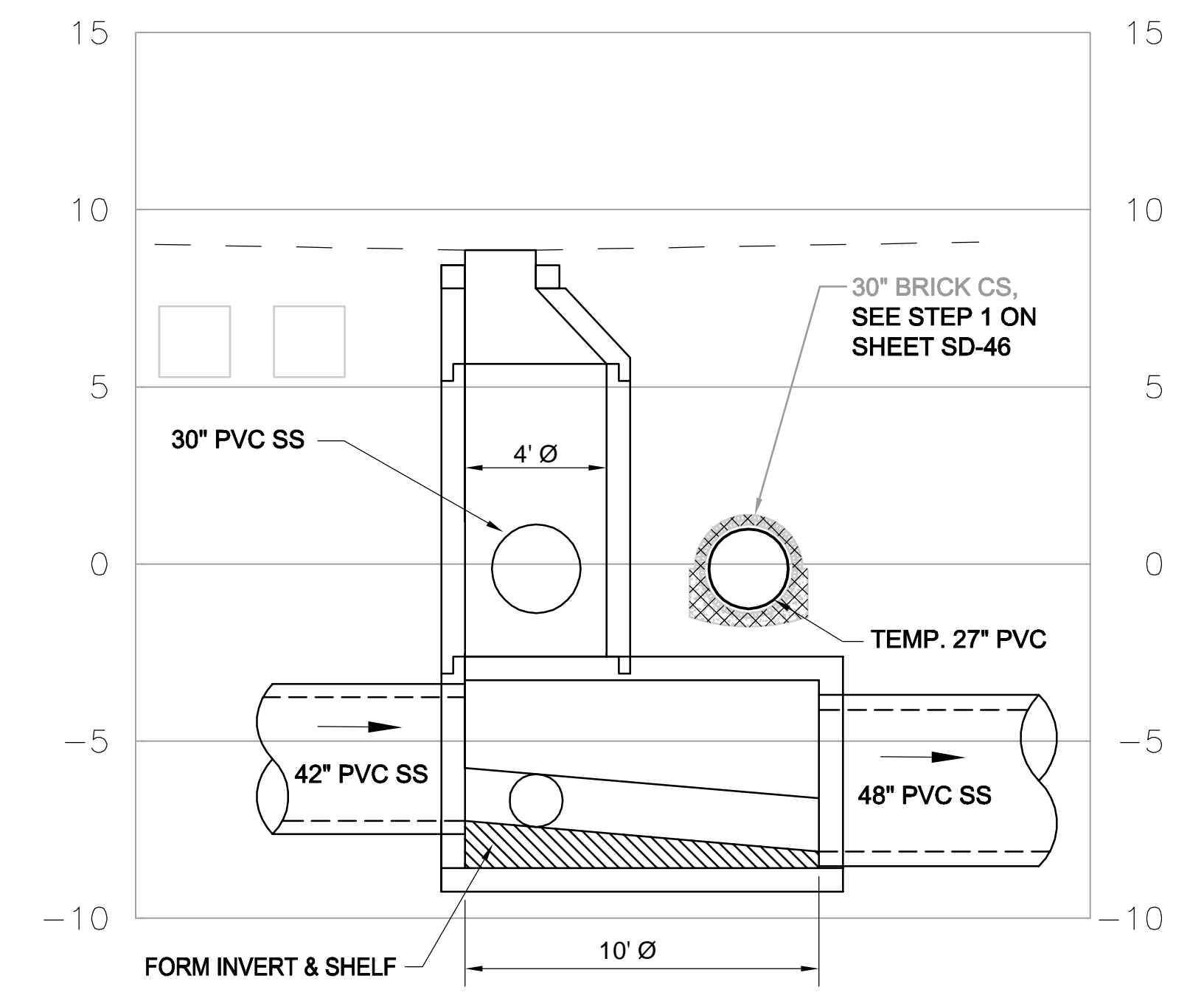
SHEET  
**SD-46**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

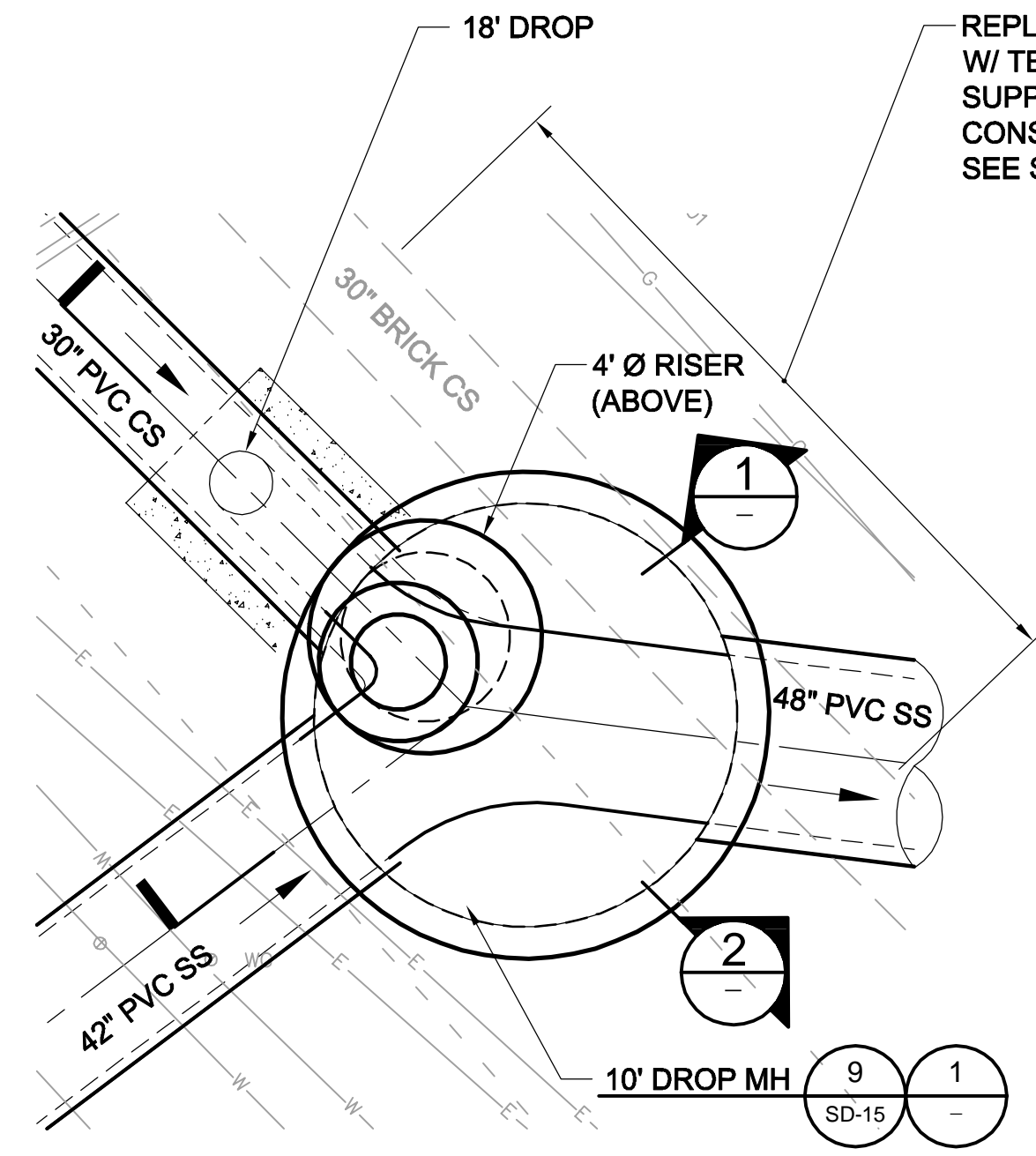


**SECTION ALONG MEDFORD ST. 30" COMB. SEWER**  
SCALE: 1" = 4'

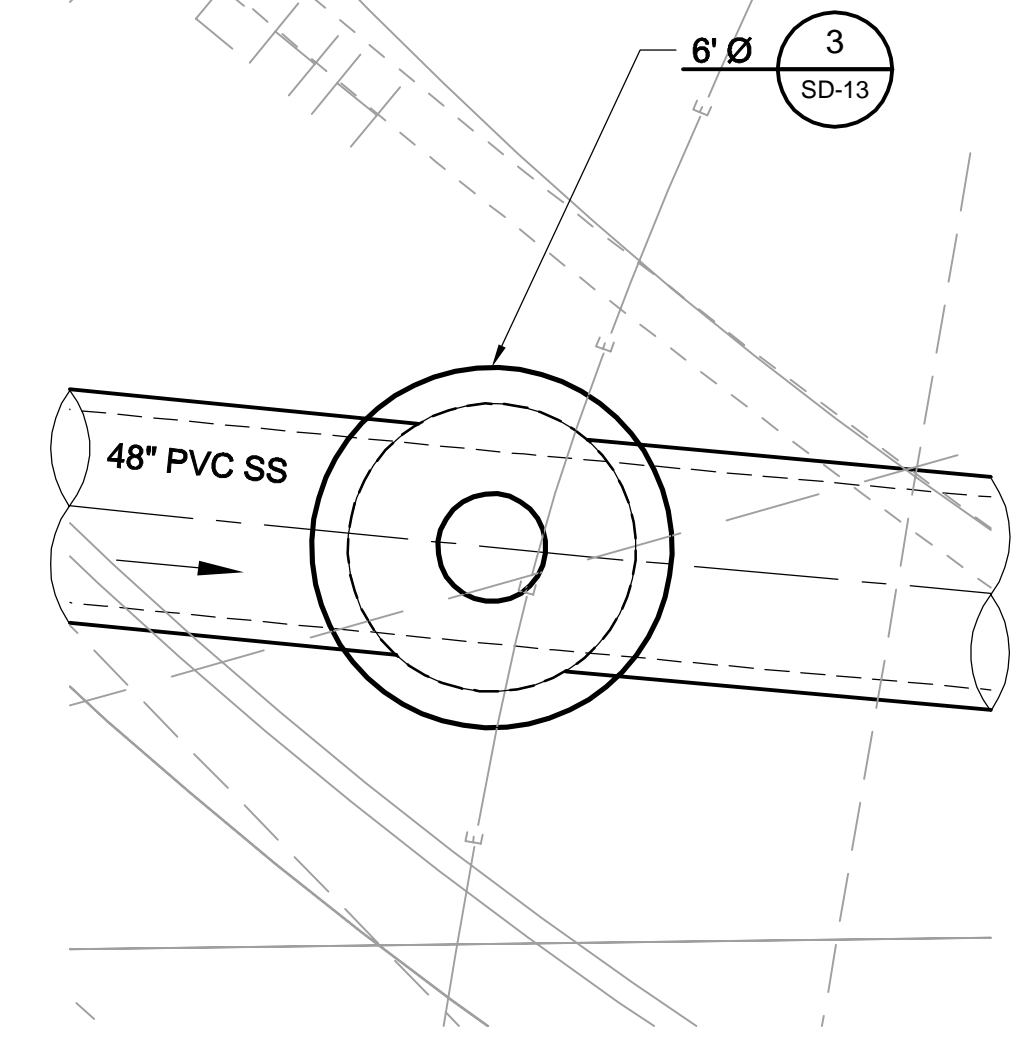


**SECTION AT SMH #3A**  
SCALE: 1" = 4'

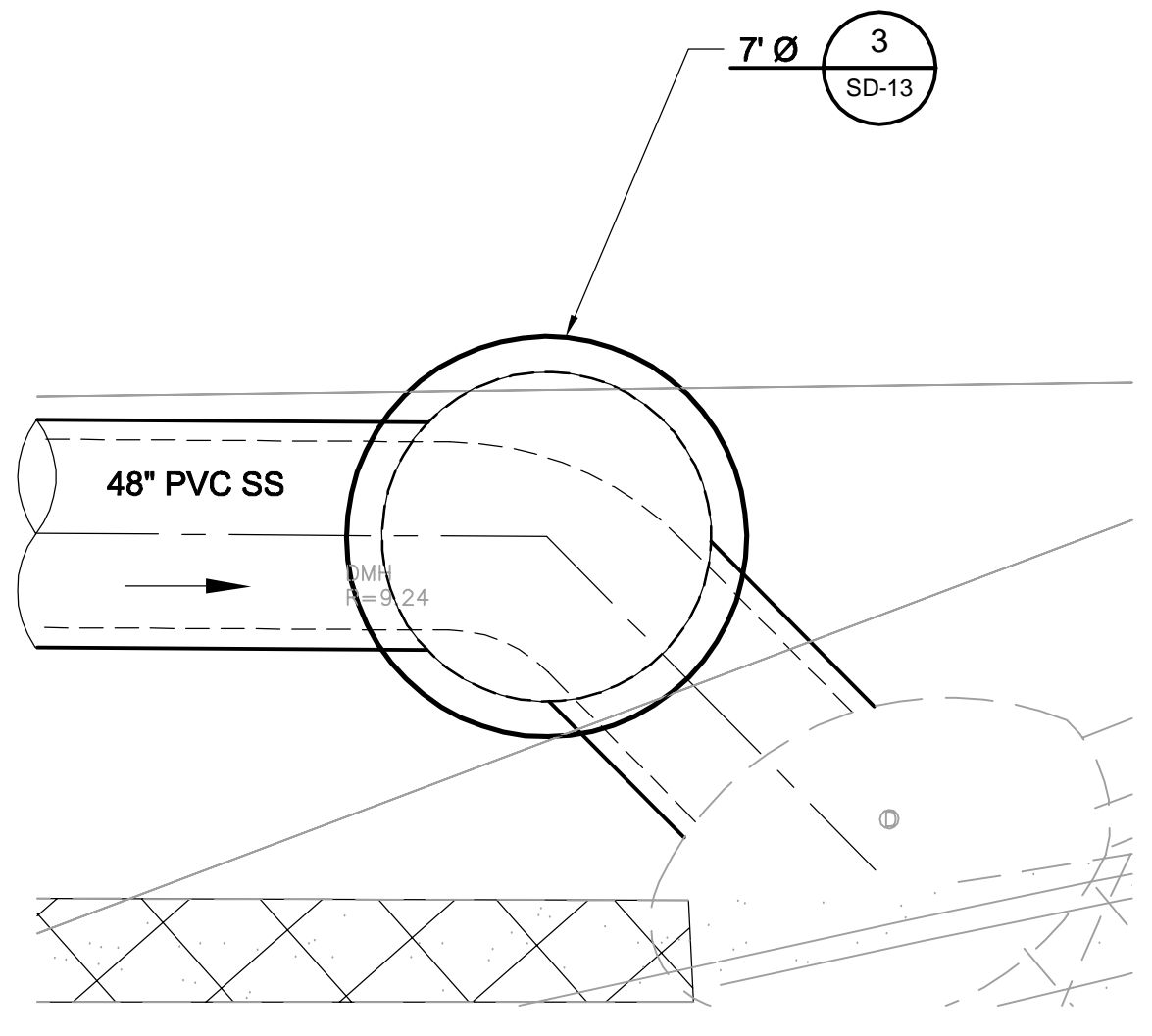
NOTE:  
FOR PLAN, SEE SHEET SD-45.



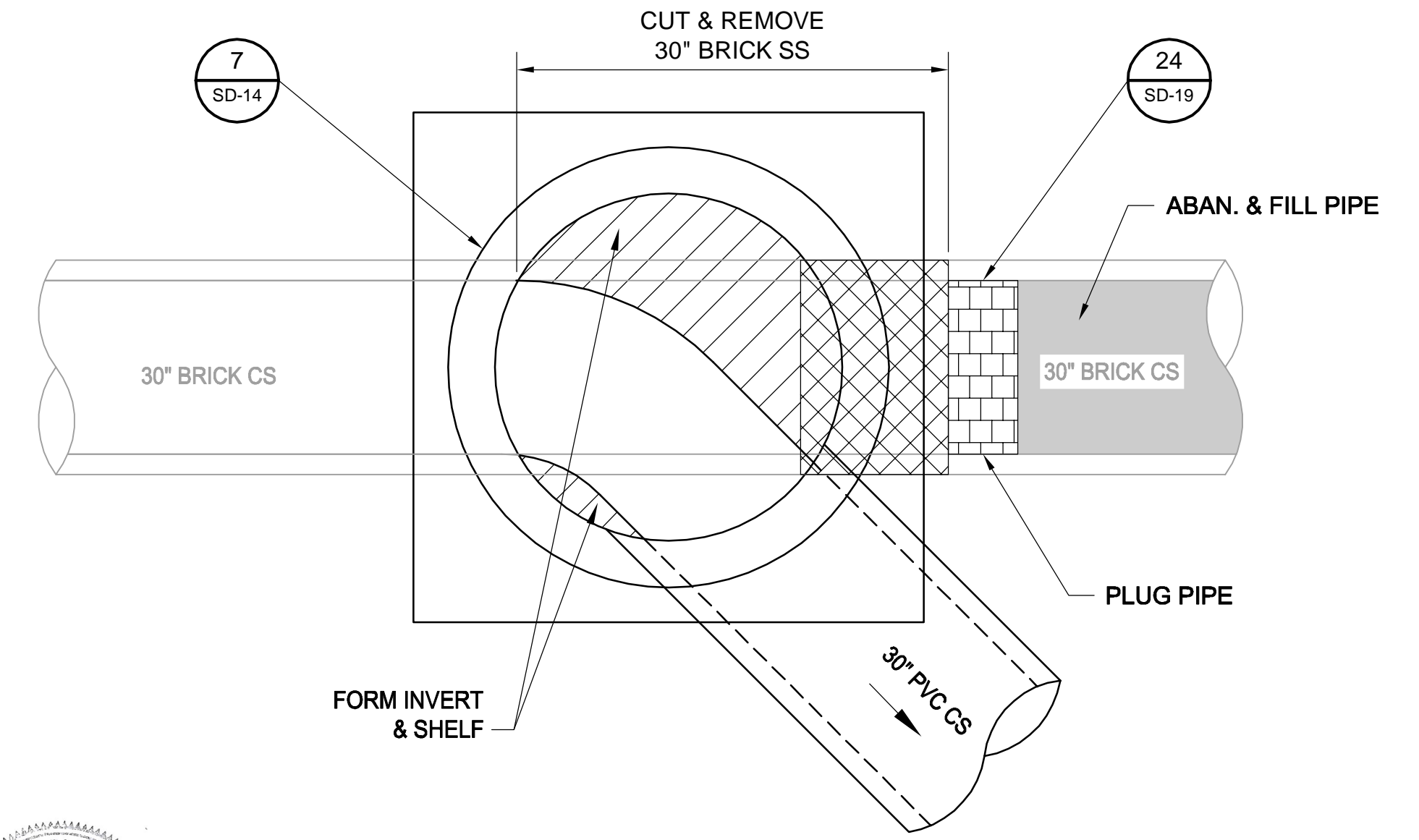
**SMH #3A - BASE PLAN**  
SCALE: 1" = 4'



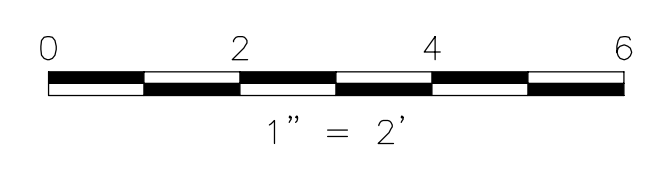
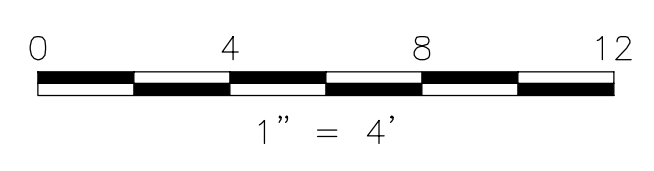
**SMH #3B - BASE PLAN**  
SCALE: 1" = 4'



**SMH #3C - BASE PLAN**  
SCALE: 1" = 4'



**SMH #3 - BASE PLAN**  
SCALE: 1" = 2'



*Rachel J. Burckardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

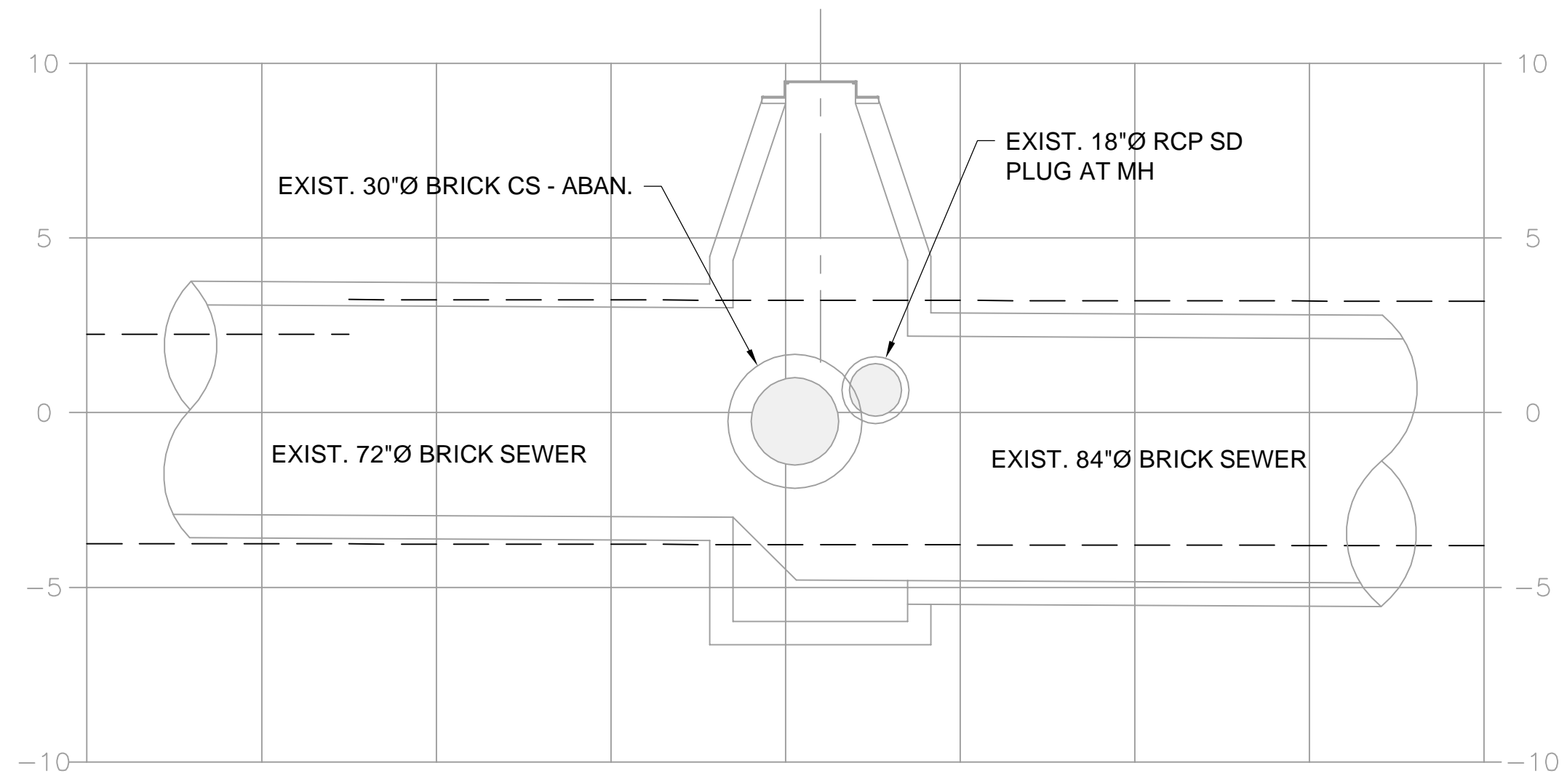
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER RELOCATION AT MEDFORD STREET**  
**DETAIL PLANS & SECTION**

DESIGNED: JD	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET					
CHECKED: RJB			<table border="1"> <tr> <td>REF.</td> <td>CONT.</td> <td>SCALE: AS NOTED</td> </tr> <tr> <td>ACC.</td> <td></td> <td>DATE: DEC 2017</td> </tr> </table>	REF.	CONT.	SCALE: AS NOTED	ACC.
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ACC.		DATE: DEC 2017					
DRAWN: JD		<b>SD-47</b>					
CHECKED: RJB							

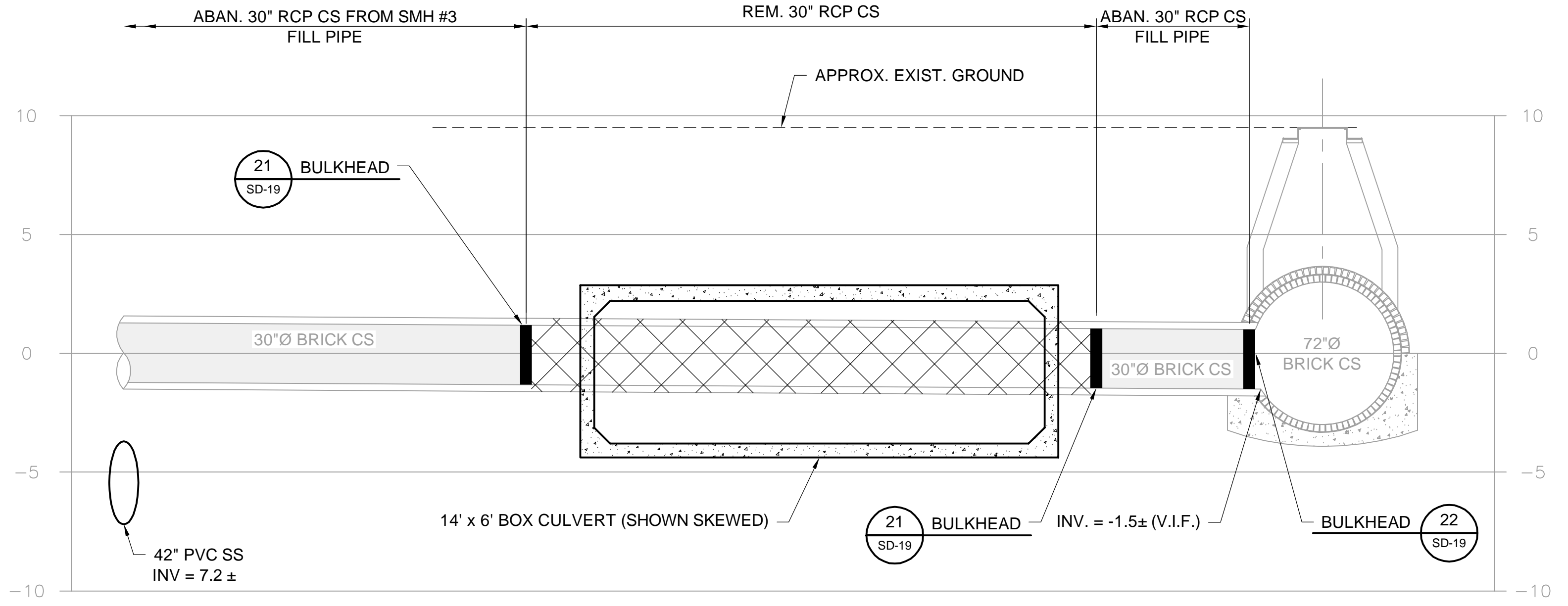
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

2017-12-06 7:39 PM T:\52647LS Union Square Study and Design\SH\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-47.dwg

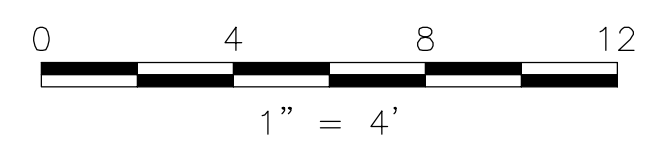
NO.	DATE	REVISIONS	BY



**SECTION ALONG EXIST. BRICK SEWER**  
SCALE: 1" = 4'



**SECTION ALONG EXIST. 30" RCP C.S.**  
SCALE: 1" = 4'



Professional Engineer Seal for Rachel J. Burckardt, No. 31880, State of Massachusetts. Includes a signature and the date 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SECTIONS AND DETAILS**  
**MEDFORD ST. AT SOMERVILLE AVE.**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: LAC		REF.	CONT.
DRAWN: JD		SCALE: 1" = 4'	
CHECKED: RJB	ACC.	DATE: DEC 2017	

SHEET  
**SD-48**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-12-06 5:28 PM T:\52647LS Union Square Study and Design\SHF DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-48.dwg

2017-11-15 8:55 AM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-51.dwg

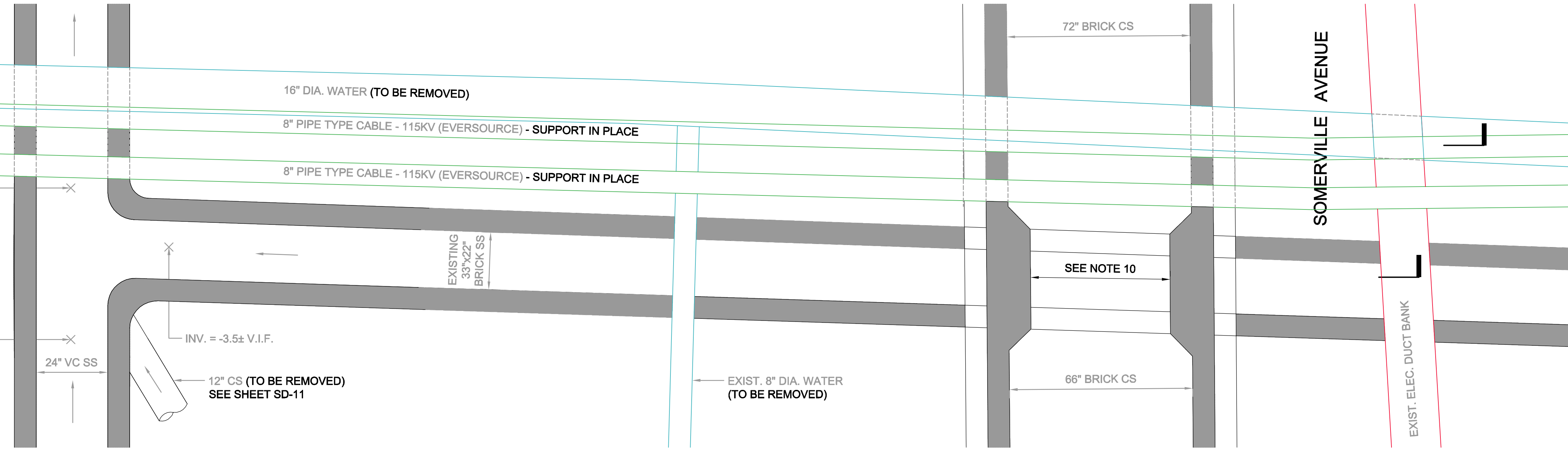
4  
SD-85

INV. = -3.7± V.I.F.

PROSPECT ST.

1  
SD-51

INV. = -3.5± V.I.F.

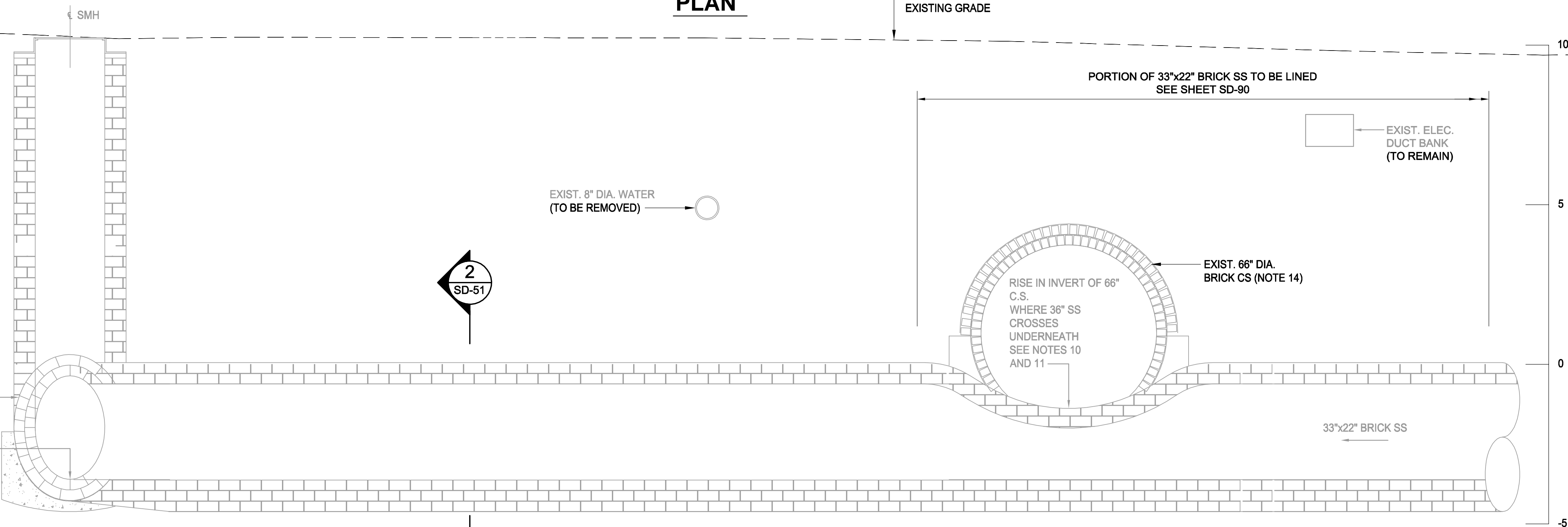


**PLAN**

APPROXIMATE EXISTING GRADE

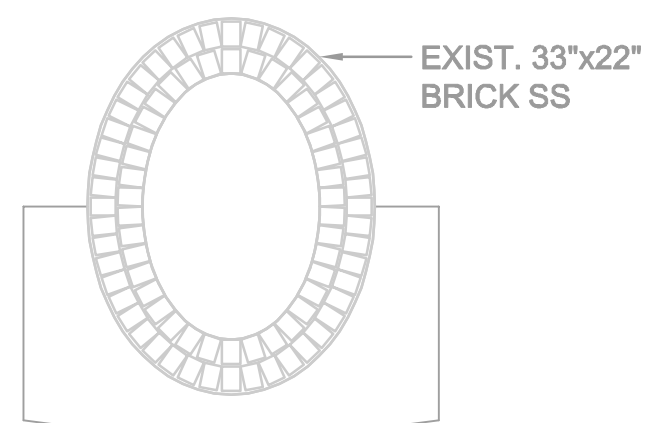
NOTES:

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR UTILITY PLAN, SEE SHEETS U-2, U-30, AND U-31
8. HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
9. DEPTH OF EXISTING UTILITIES AS SHOWN IN APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THE AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT. DETAIL OF 36" BRICK SS CROSSING UNDER 66" BRICK CS IS BASED ON PLAN TITLED "SOMERVILLE AVE" SEPARATE SEWAGE SYSTEM, DATED SEPT. 21, 1898 AND OCT. 3, 1901.
10. CONDITIONS IN 66" CS CONFIRMED BY VIDEO AND SCANS IN THE CS MANHOLE AT SOMERVILLE AVE. AND PROSPECT ST. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
11. FOR RELOCATED UTILITY SECTIONS, SEE SHEETS U-34 AND U-35.
12. FOR DEMOLITION PLAN & SECTION, SEE SHEET SD-52.
13. FOR LINING OF EXISTING SEWERS, SEE SHEET SD-90.
14. MAINTAIN SEWER FLOWS AT ALL TIMES. SEE SUGGESTED SEQUENCING ON SHEET SD-55.



**SECTION 1**  
SCALE: 1/2" = 1'-0"

**SECTION 2**  
SCALE: 1/2" = 1'-0"



EXIST. 39"x26" DIA. BRICK SS (BEYOND) (NOTE 14)  
INV. = -3.7± V.I.F.

*Rachel J. Burckardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
EXISTING 33"x22" SEWER PLAN  
AT PROSPECT ST. & SOMERVILLE AVE.**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB

**WSP | PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

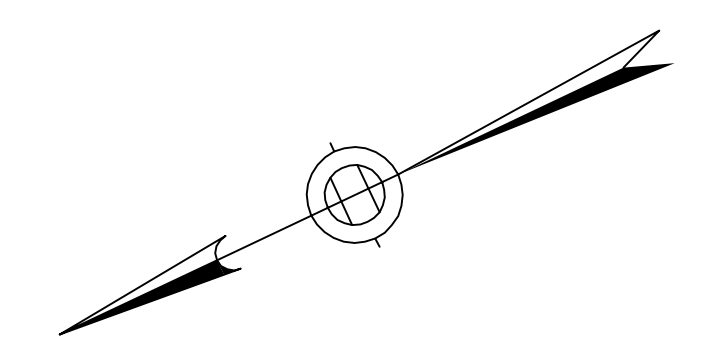
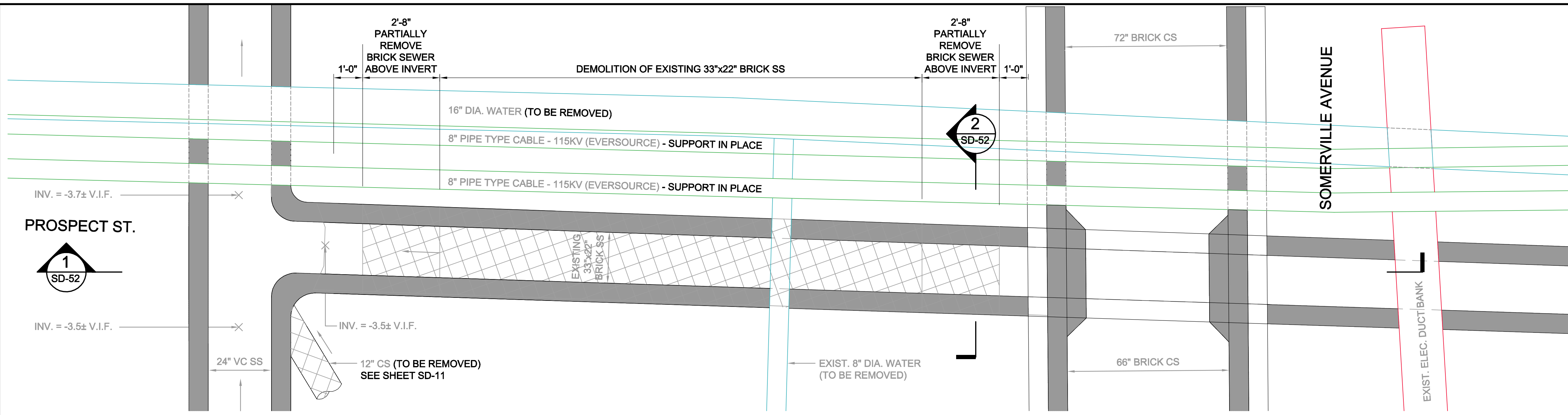
SCALE: 1/2"=1'-0"  
DATE: DEC 2017

SHEET  
**SD-51**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

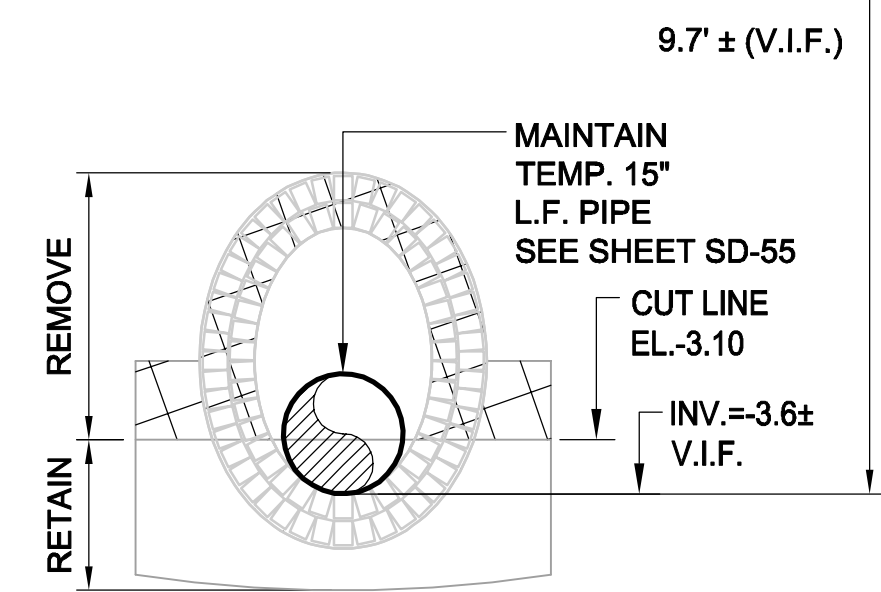
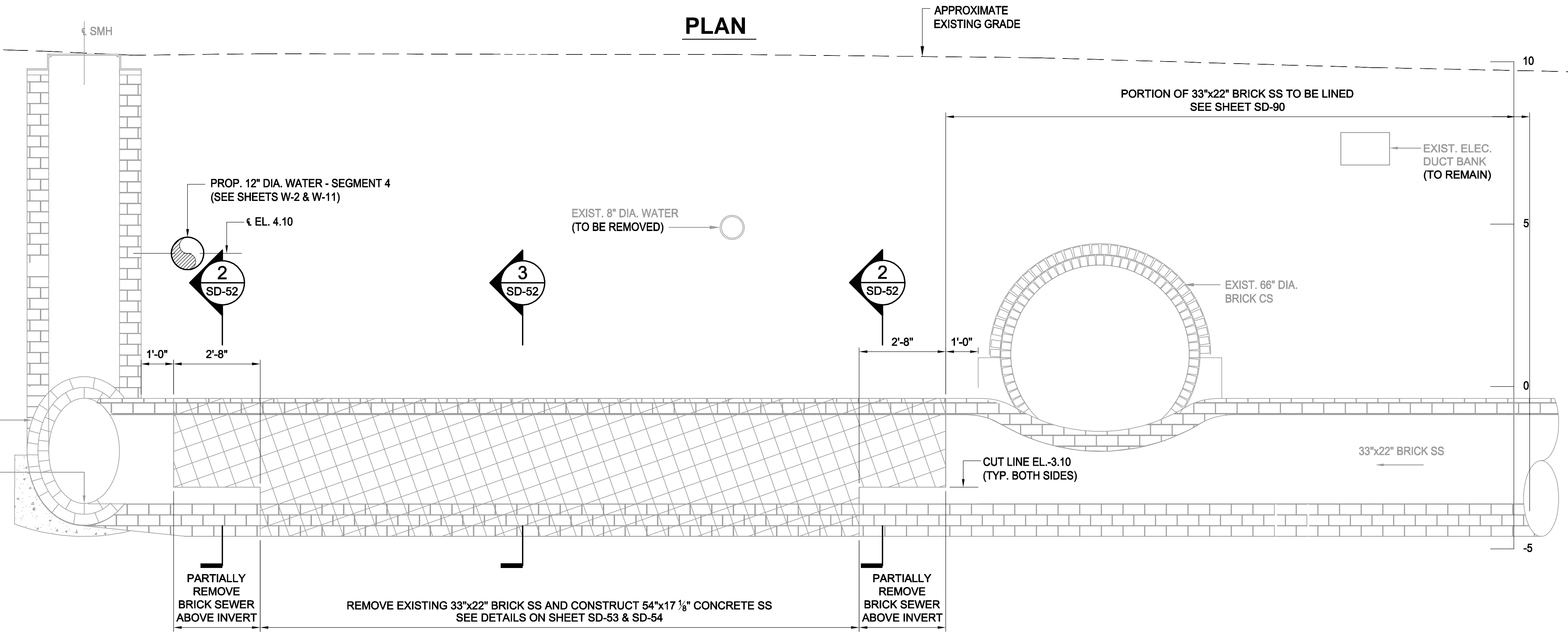
NO.	DATE	REVISIONS	BY

2017-11-20 10:16 AM T:\52647LS Union Square Study and Design\SH1 DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-52.dwg

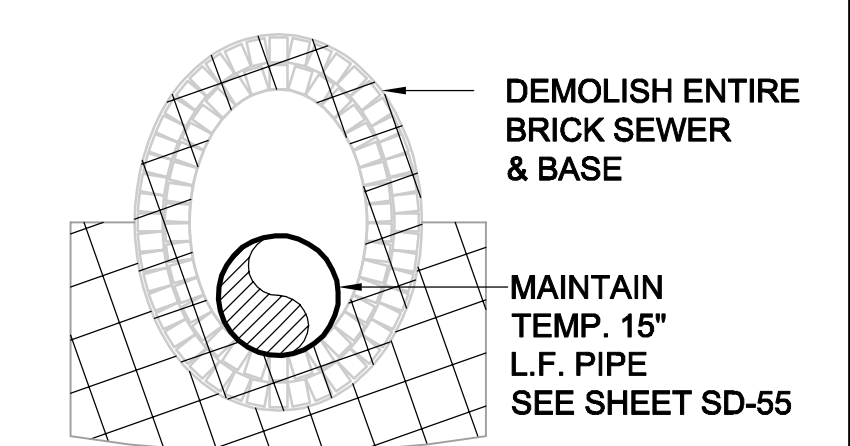


8" PIPE TYPE CABLE - 115KV (EVERSOURCE) - SUPPORT IN PLACE

**PLAN**

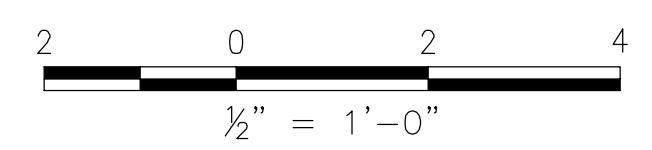


**SECTION 2**  
SCALE: 1/2" = 1'-0" SD-52



**SECTION 3**  
SCALE: 1/2" = 1'-0" SD-52

NOTE:  
1. FOR NOTES, SEE SHEET SD-51.



Professional Engineer Seal for Rachel J. Burckhardt, No. 31880, State of Massachusetts, dated 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**33"x22" SEWER DEMOLITION PLAN**

**AT PROSPECT ST. & SOMERVILLE AVE.**

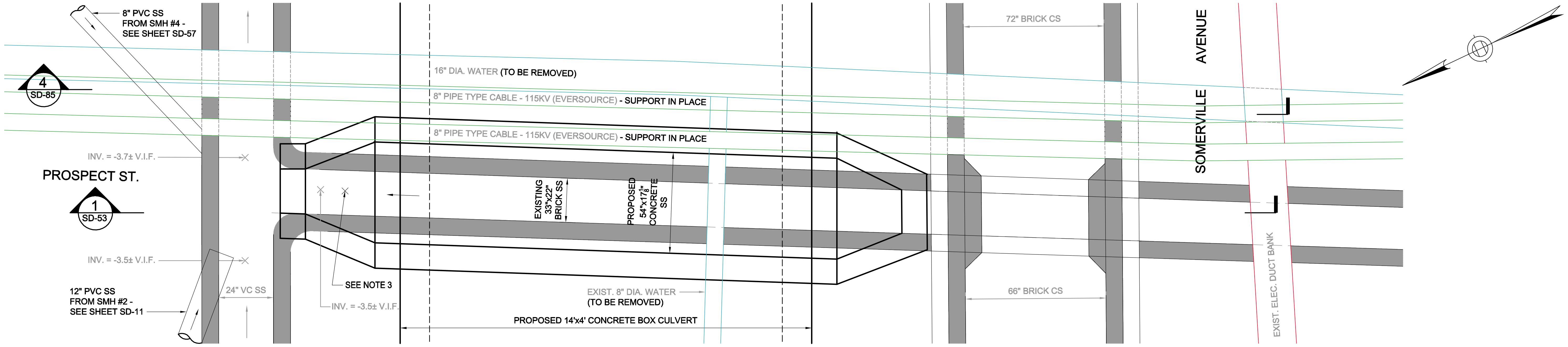
DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-52</b>
CHECKED: LAC		
DRAWN: JLM	REF.	CONT.
CHECKED: RJB	ACC.	SCALE: 1/2"=1'-0" DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

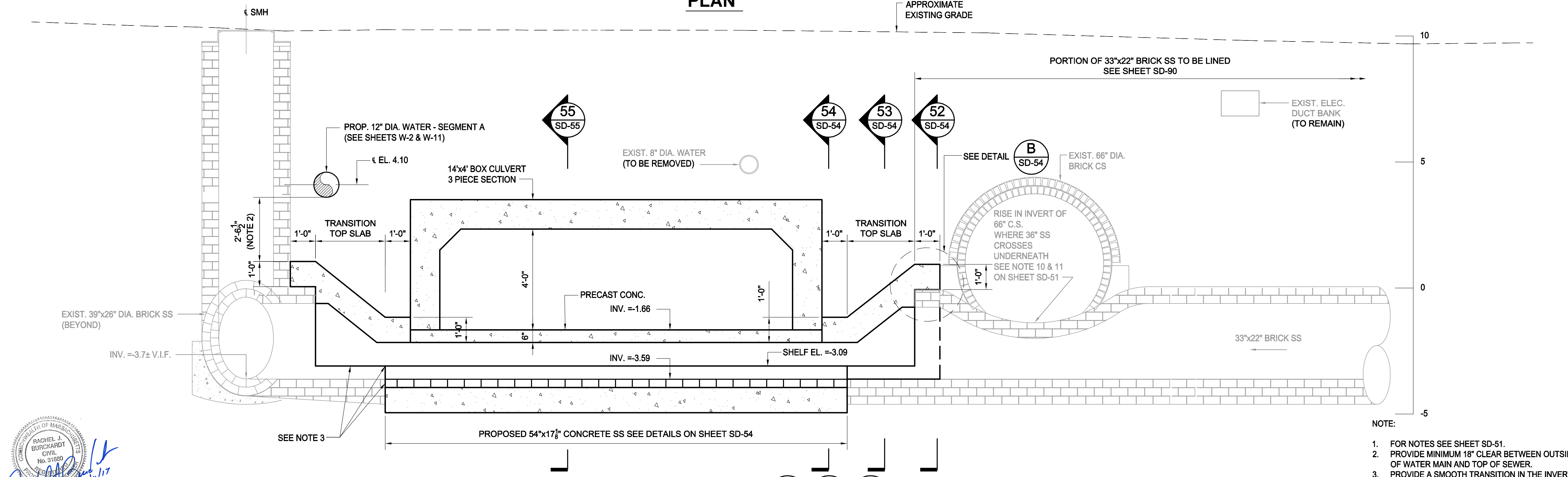
NO.	DATE	REVISIONS	BY



2017-11-20 10:20 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-53.dwg



**PLAN**



**SECTION**  
SCALE: 1/2" = 1'-0"

NOTE:  
 1. FOR NOTES SEE SHEET SD-51.  
 2. PROVIDE MINIMUM 18" CLEAR BETWEEN OUTSIDE OF WATER MAIN AND TOP OF SEWER.  
 3. PROVIDE A SMOOTH TRANSITION IN THE INVERT AND SHELF TO AVOID CATCHING DEBRIS.

2 0 2 4  
 1/2" = 1'-0"

*Rachel J. Burckardt*  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

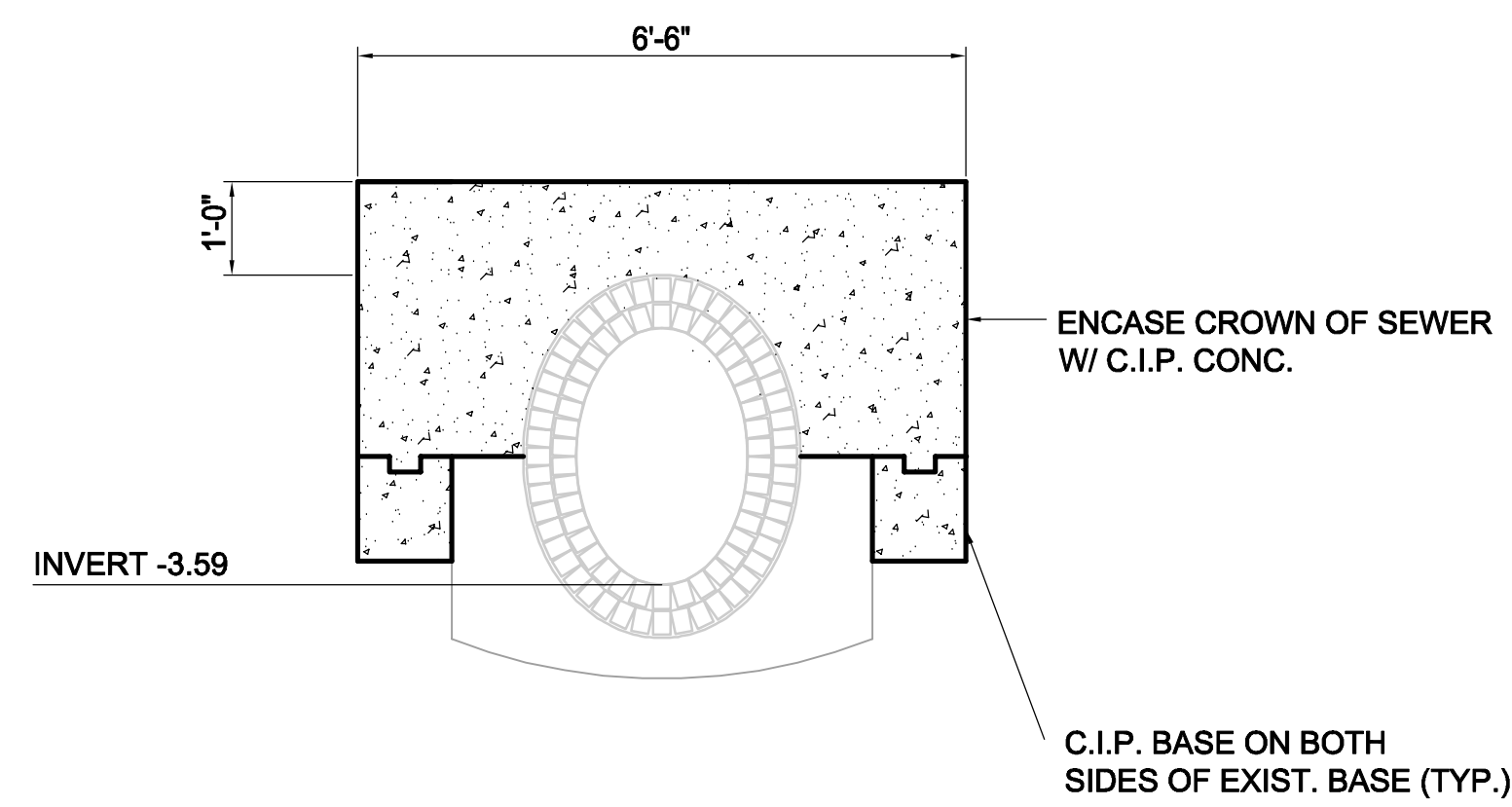
NO.	DATE	REVISIONS	BY

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED SEWER PLAN**  
**AT PROSPECT ST. & SOMERVILLE AVE.**

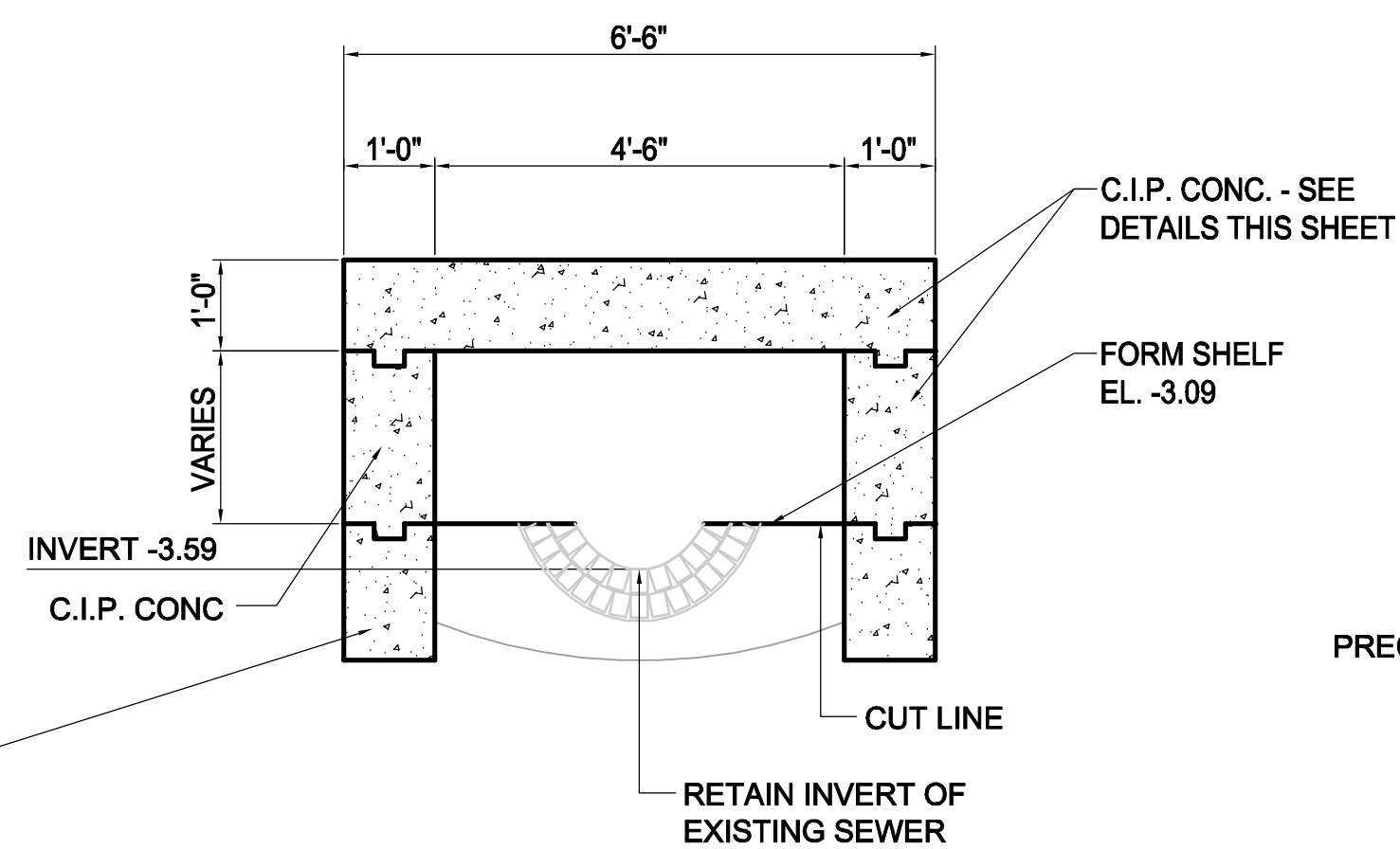
DESIGNED: RJB CHECKED: LAC	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET
DRAWN: JLM CHECKED: RJB		REF. CONT. ACC.
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

**SD-53**

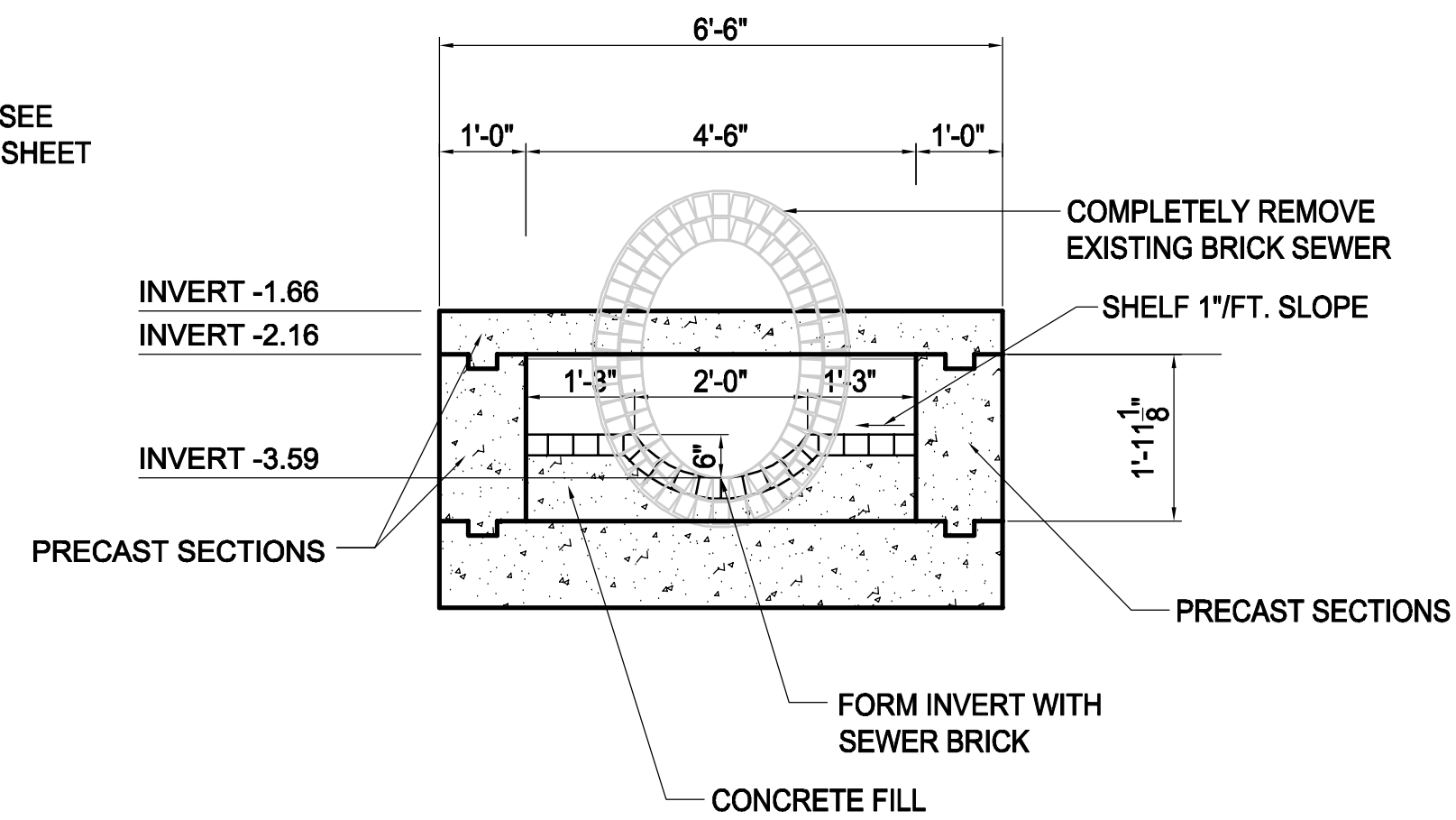
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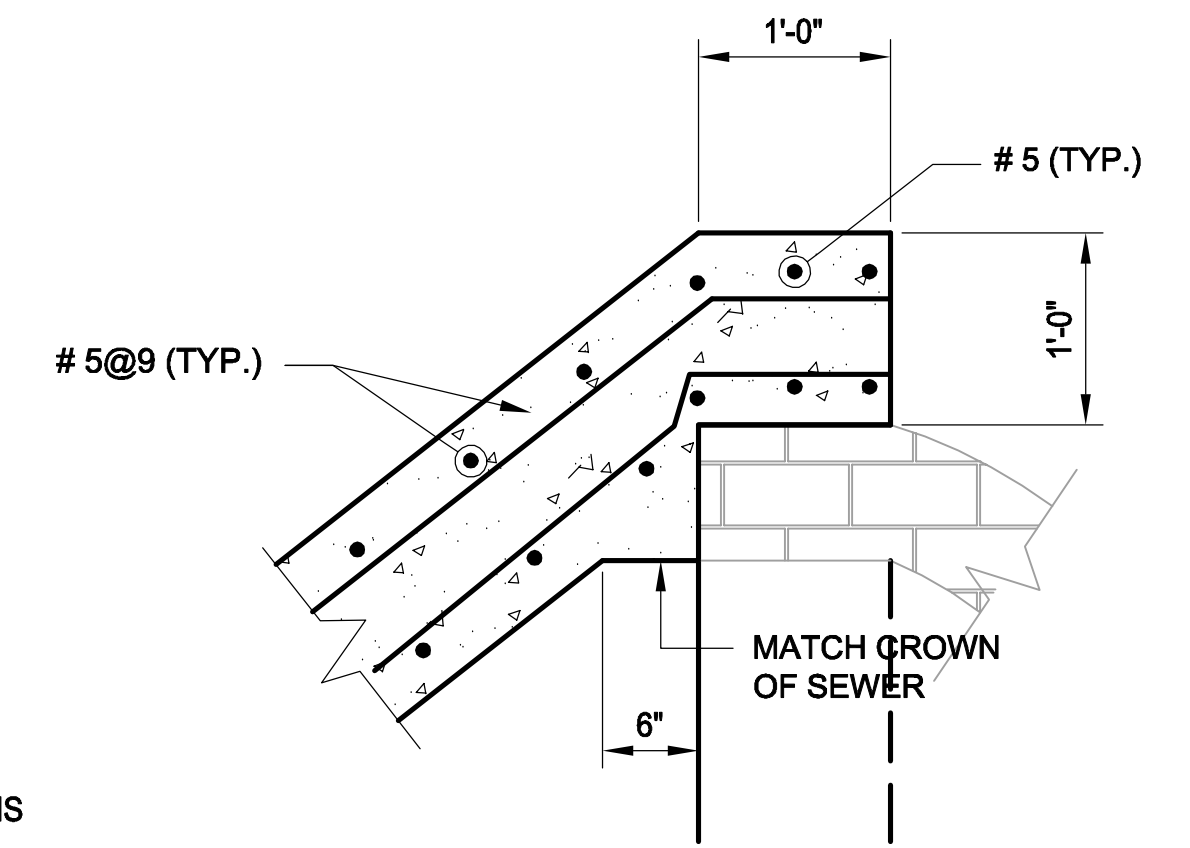
**52 SECTION**  
SD-53 SCALE: 1/2"=1'-0"



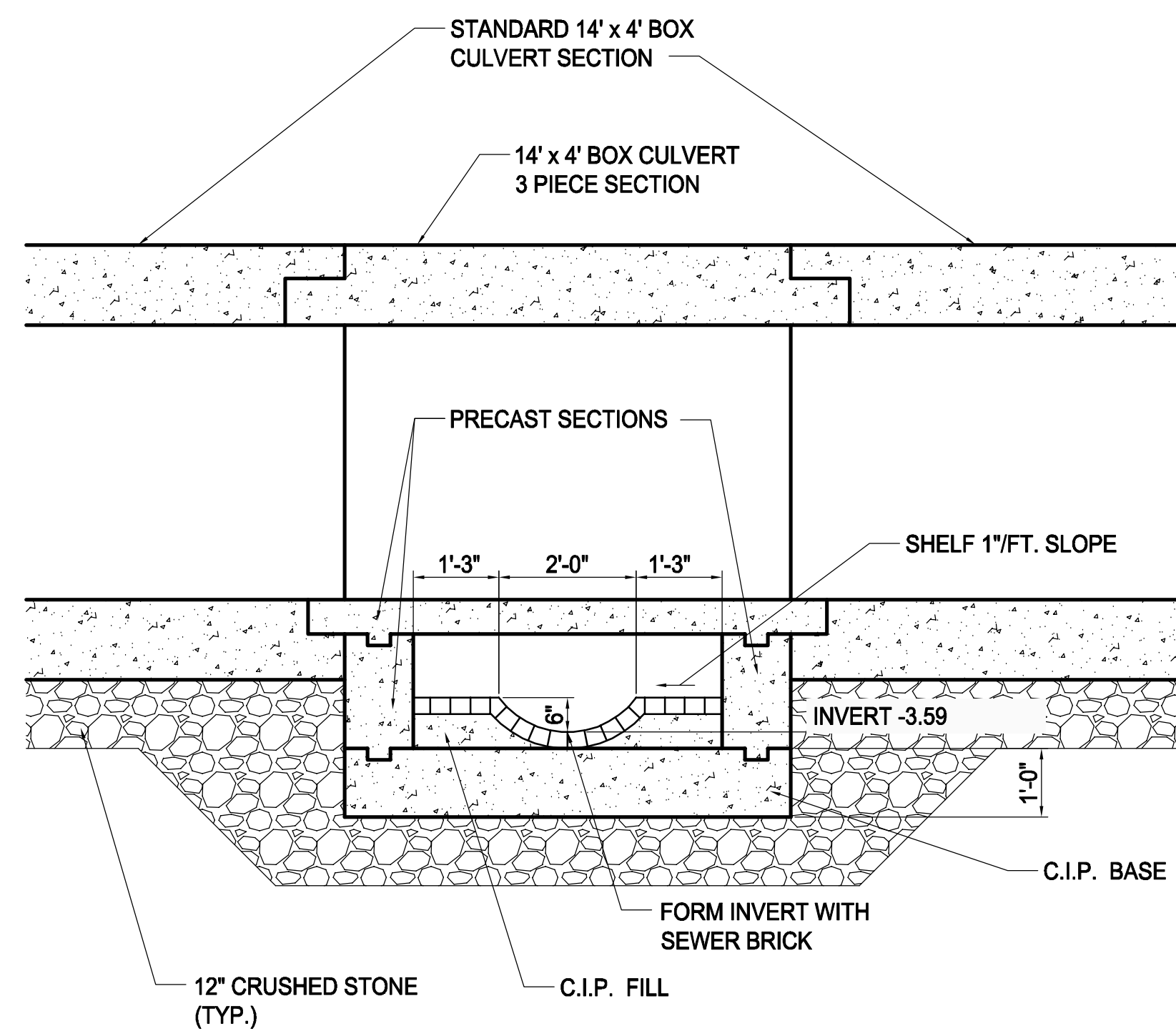
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SD-53 SCALE: 1/2"=1'-0"



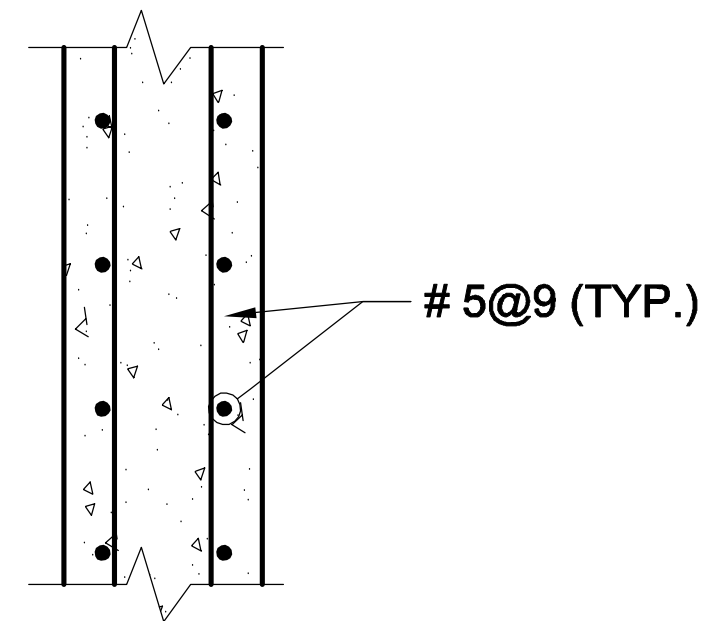
**54 SECTION**  
SD-53 SCALE: 1/2"=1'-0"



**B DETAIL**  
SD-53 SCALE: 1"=1'-0"



**A INVERT DETAIL**  
SD-53 SCALE: 1/2"=1'-0"



**C.I.P. WALL AND TOP SLAB SECTION**  
SCALE: 1"=1'-0"

*Rachel J. Burckardt*  
12/11/17

NOTE:  
1. FOR NOTES SEE SHEET SD-51.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED SEWER SECTIONS & DETAILS**  
**AT PROSPECT ST. & SOMERVILLE AVE.**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB



Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

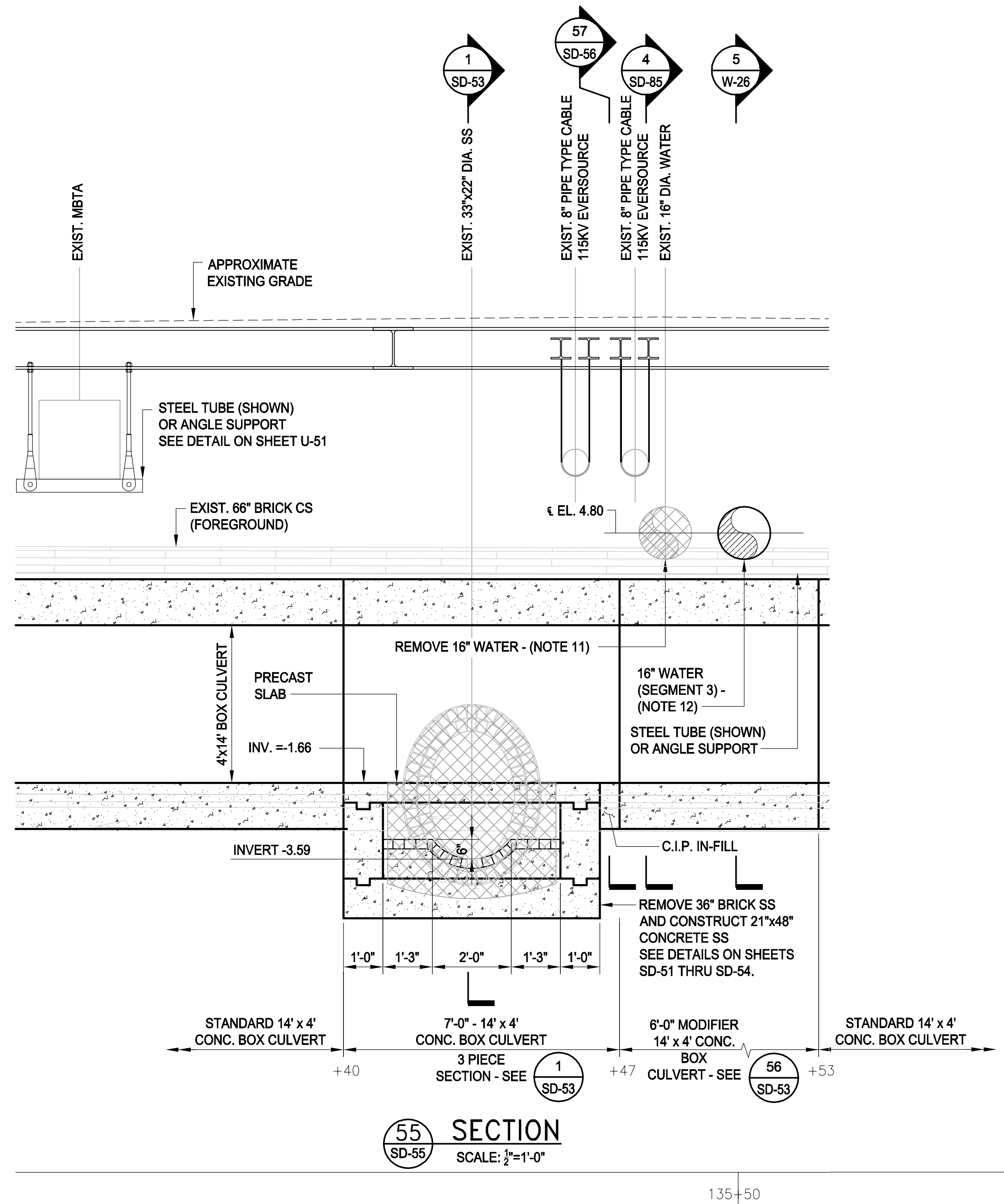
SCALE: 1/2" = 1'-0"  
DATE: DEC 2017

SHEET  
**SD-54**

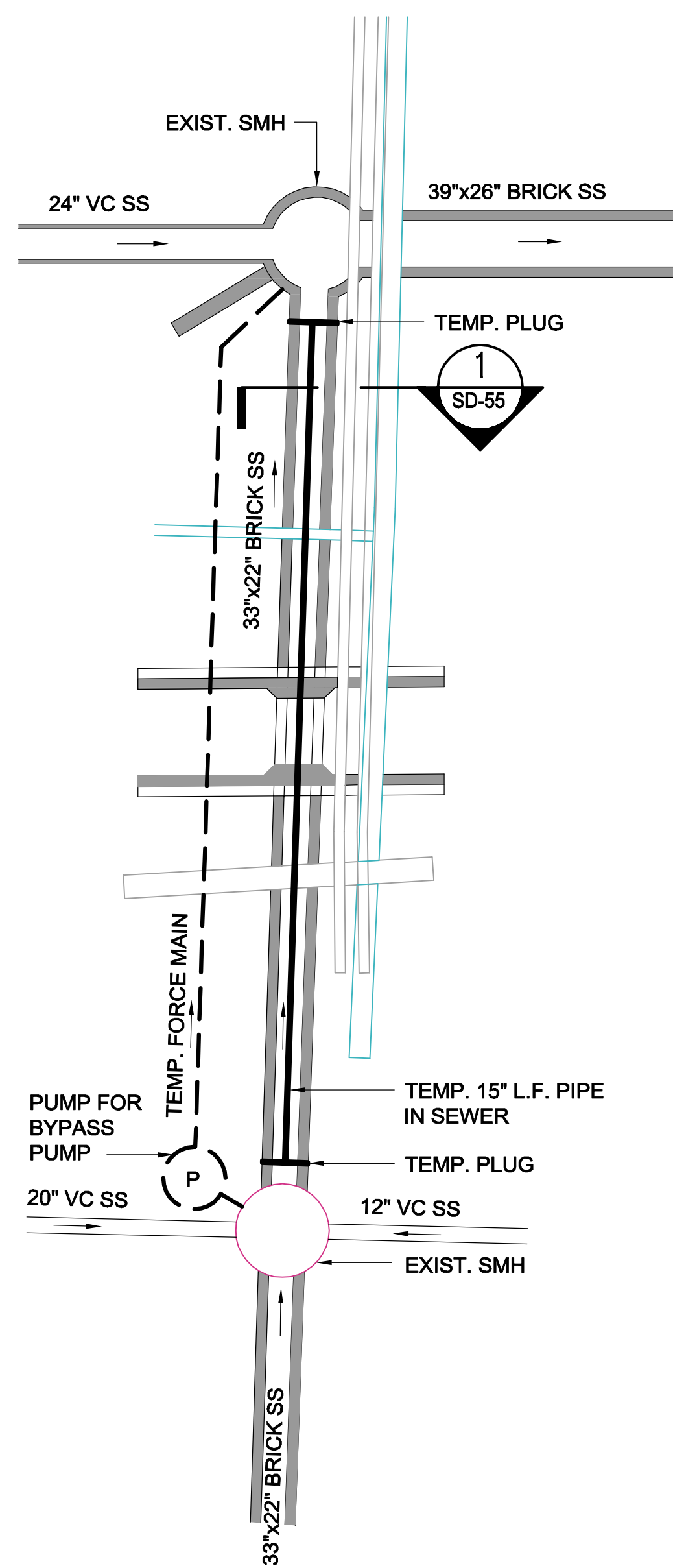
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

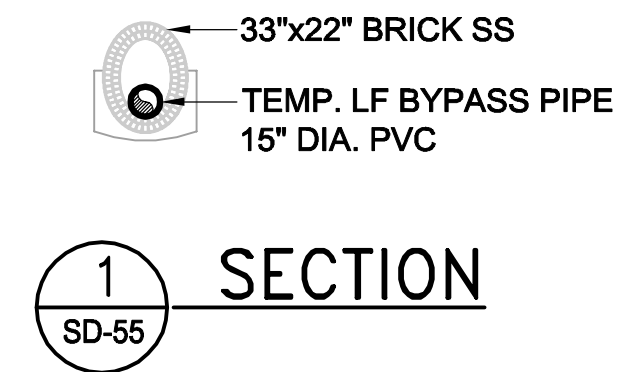
2017-11-15 9:11 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-55.dwg



**55 SECTION**  
SCALE: 1/2"=1'-0"



**BYPASS PIPING SCHEMATIC**  
NOT TO SCALE



SUGGEST SEQUENCE:

1. EXCAVATE AND EXPOSE EXISTING 33"x22" BRICK SS.
2. POUR CONCRETE BASE ON SIDE OF EXISTING BASE OF THE BRICK SS.
3. POUR CONCRETE COLLARS AROUND 33"x22" BRICK SS AT LIMITS OF REMOVAL.
4. SET UP BYPASS PUMPING OPERATION.
5. WITH BYPASS PUMP OPERATION IN DRY WEATHER, CUT INTO BRICK SS AND INSTALL LOW FLOW PIPE INSIDE THE 33"x22" BRICK SS. INSTALL PLUGS AROUND THE LOW PIPE TO SEAL EITHER END OF THE BRICK SS.
6. WITH LOW FLOW PIPE IN OPERATION, CONTINUE BYPASS PIPING FOR EXCESS FLOW.
7. CAREFULLY DEMOLISH EXISTING 33"x22" BRICK SS IN SEGMENTS APPROXIMATELY 10 FT. LONG. WHILE MAINTAINING TEMP. L.F. PIPE.
8. AFTER DEMOLITION, FORM AND POUR THE REPLACEMENT CONCRETE BOX CULVERT. FROM INVERT. SUPPORT TEMP. L.F. PIPE THROUGHOUT.
9. AFTER COMPLETION OF THE CONSTRUCTION OF REPLACEMENT CONCRETE BOX CULVERT, INITIATE BYPASS PUMPING OPERATION FOR ALL SS FLOWS. REMOVE LOW FLOW PIPE AND PLUG.
10. PUT NEW REPLACEMENT BOX CULVERT SS IN OPERATION.

NOTES:

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR UTILITY PLAN, SEE SHEET U-2.
8. HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
9. DEPTH OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THE AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT.
10. MAINTAIN SEWER FLOW AT ALL TIMES. FOR FLOW RATES FOR BYPASS PUMPING, SEE TABLE 01514-1 IN THE SPECIFICATIONS.
11. REMOVE AND CAP EXISTING 16" WATER MAIN PRIOR TO INSTALLING BOX CULVERT. SEE SHEETS W-10 AND W-24.
12. INSTALL PROPOSED 16" WATER MAIN (SEGMENT 3) AFTER BOX CULVERT IS INSTALLED.

*Rachel J. Burckhardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROPOSED SEWER TYPICAL SECTION & DETAIL**  
**AT PROSPECT ST. & SOMERVILLE AVE.**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: JLM  
CHECKED: RJB

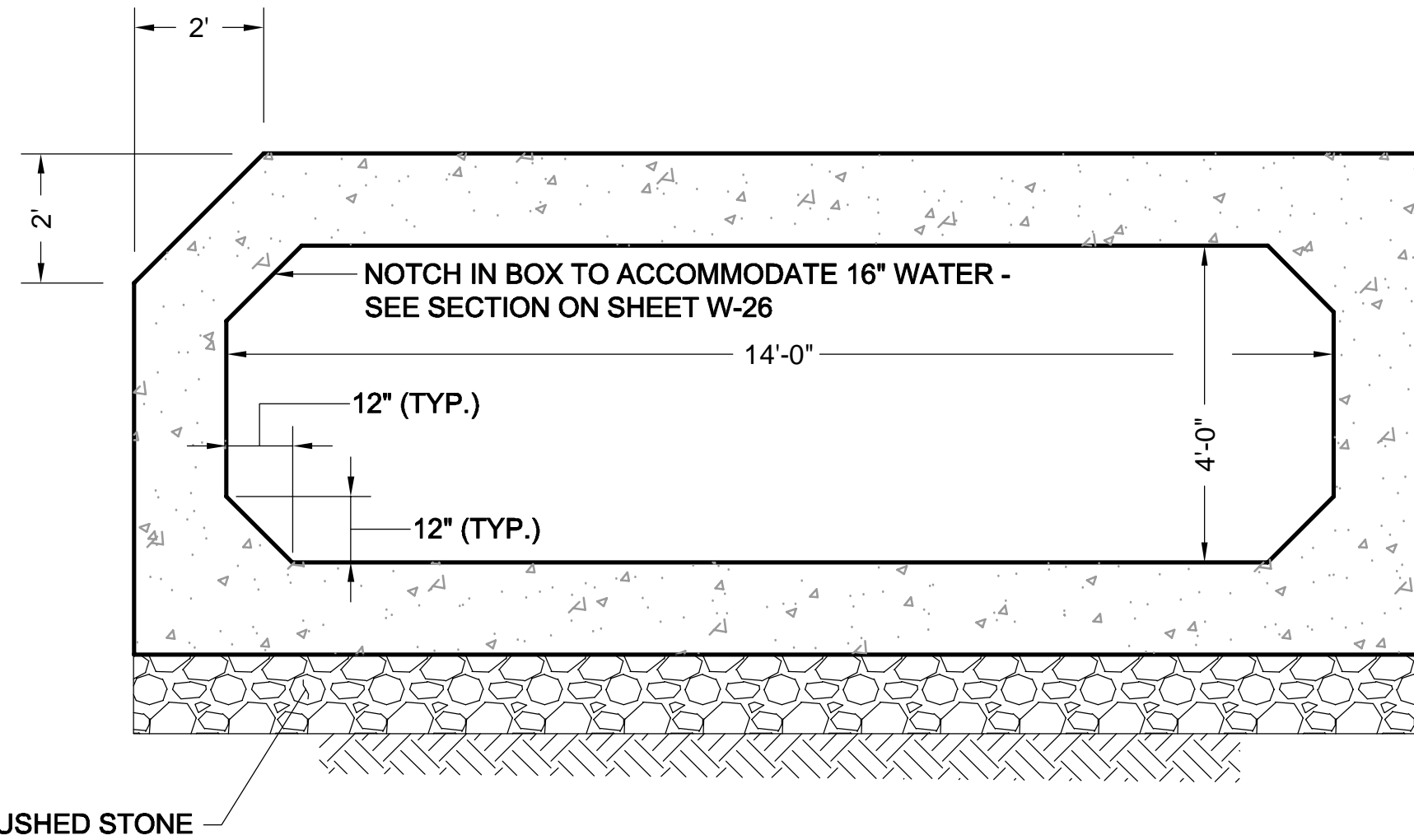
**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

SHEET  
**SD-55**

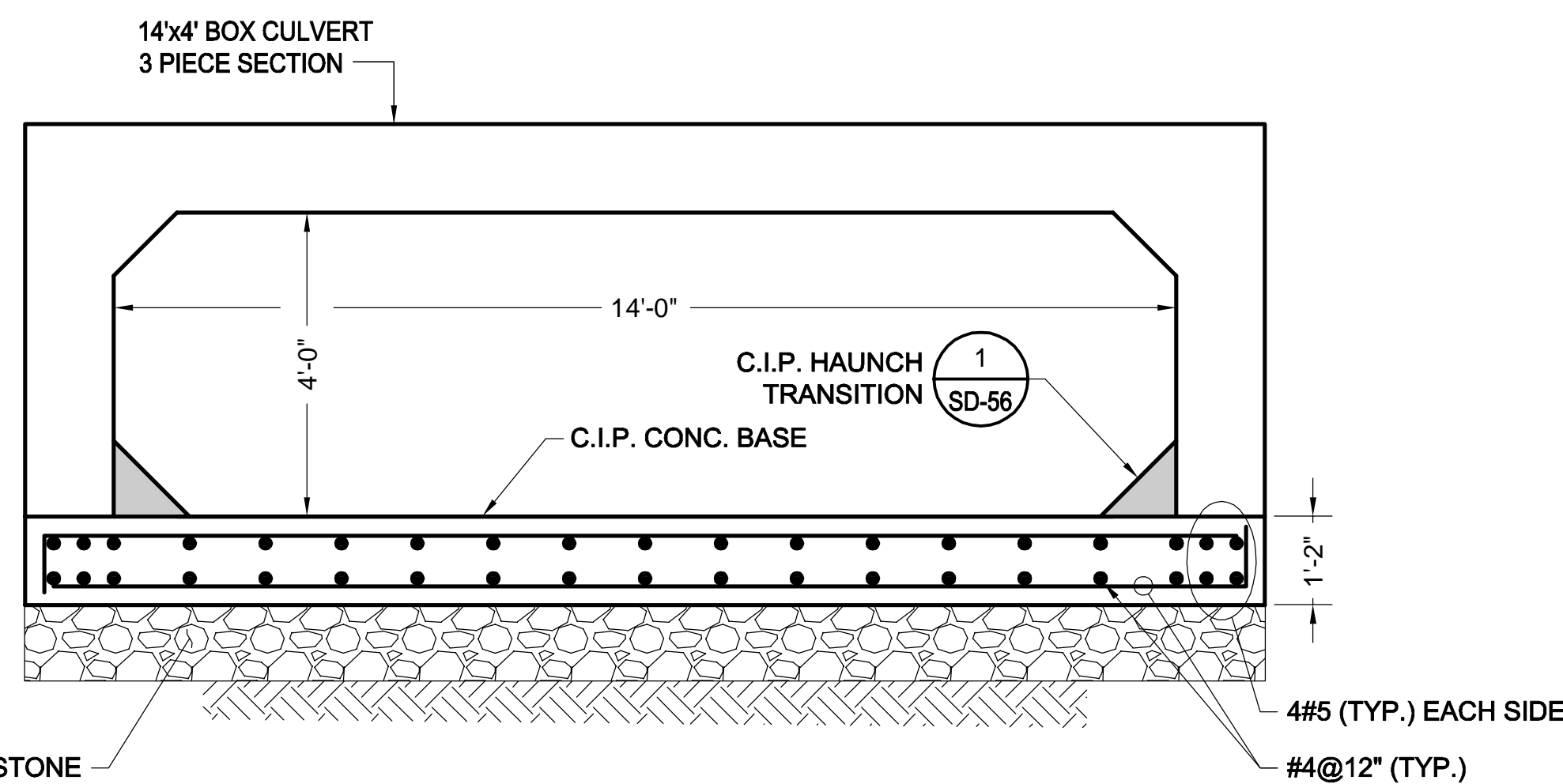
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ACC. DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

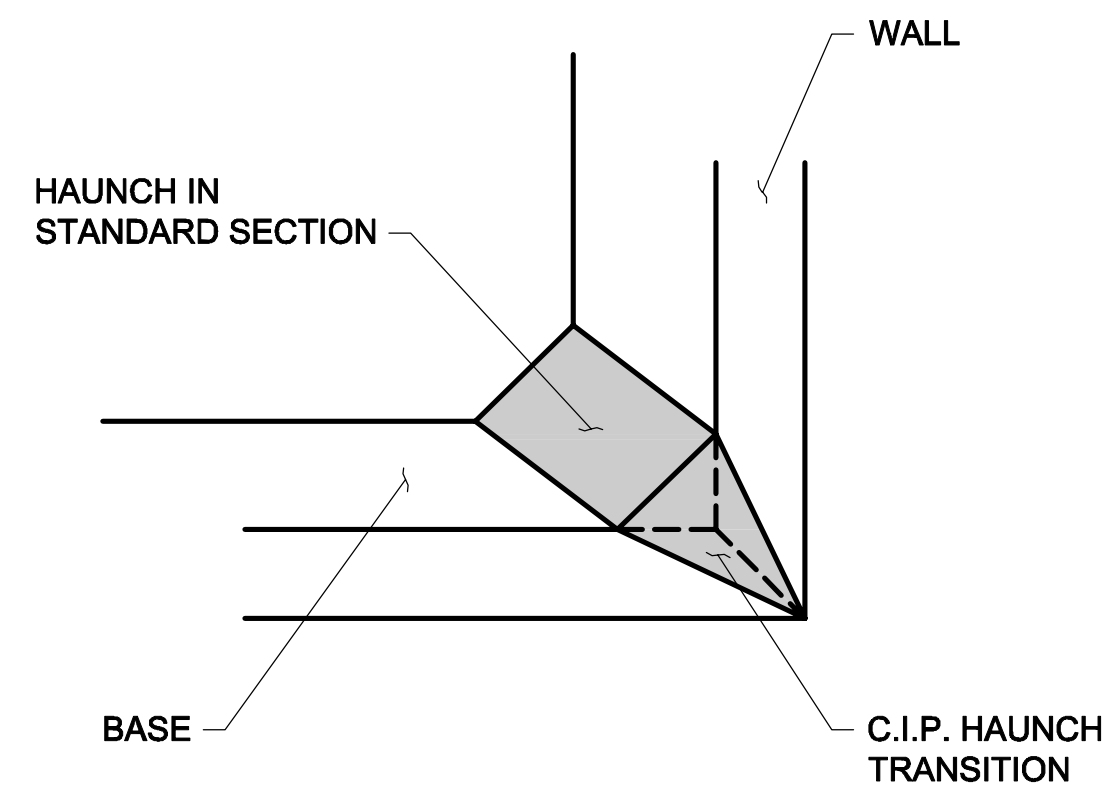
NO.	DATE	REVISIONS	BY



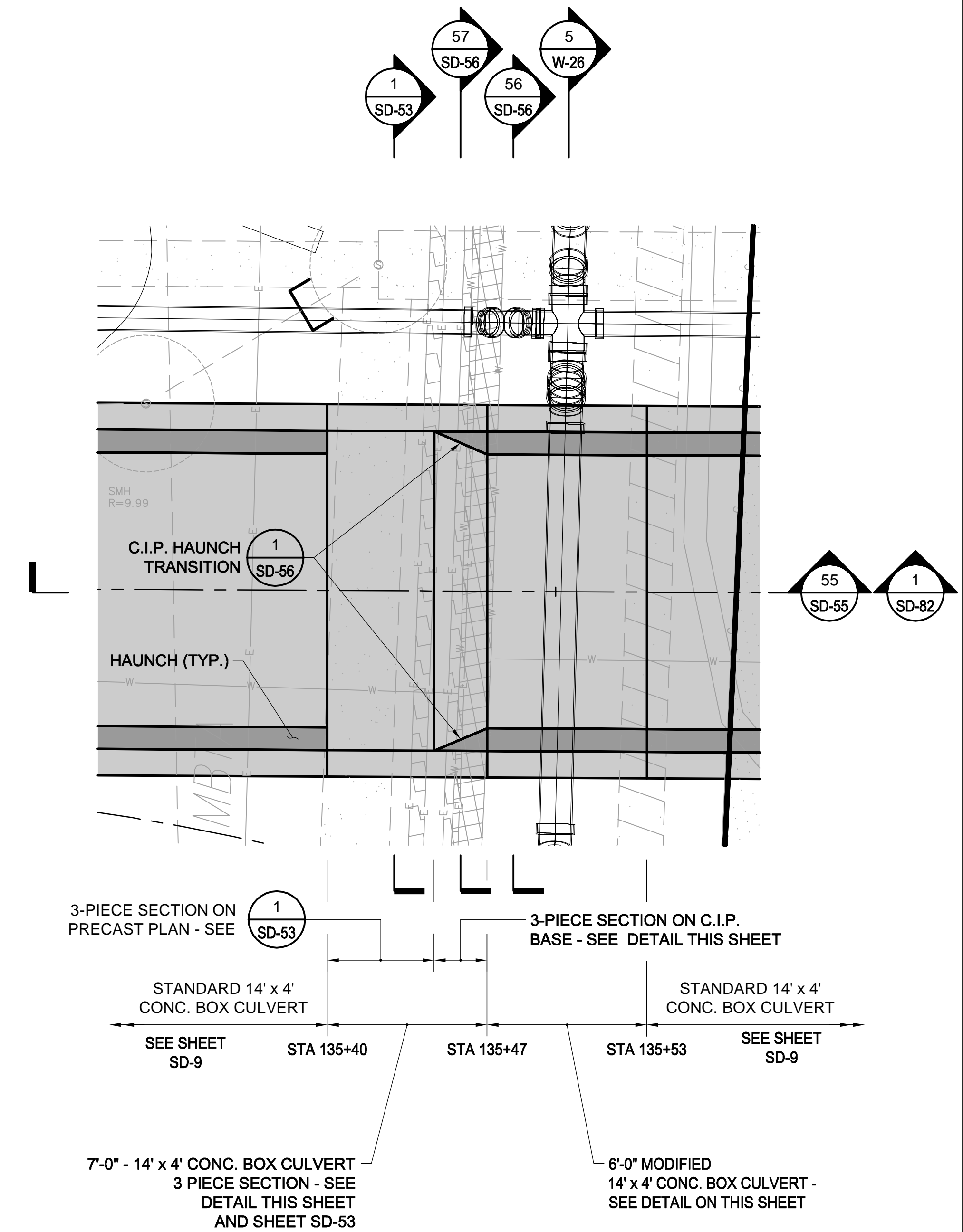
**MODIFIED 14 x 4' CONCRETE BOX CULVERT - STA 145+47 TO STA 145+53** (56)  
SCALE: 1" = 2' SD-56



**3 PIECE SECTION ON C.I.P. CONC. BASE** (57)  
SCALE: 1" = 2' SD-56

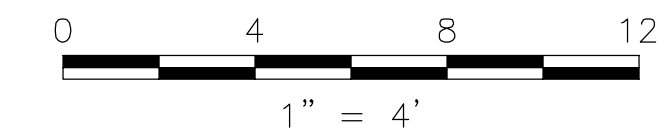
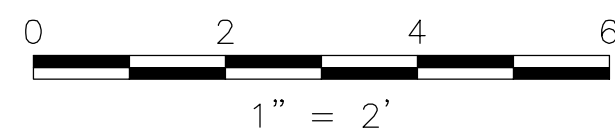


**DETAIL** (1)  
SCALE: NTS



**BOX CULVERT BASE PLAN**  
SCALE: 1" = 4'

Professional Engineer Seal for Rachel J. Burckardt, No. 31880, State of Massachusetts. Signature and date: Rachel J. Burckardt, 12/11/17.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

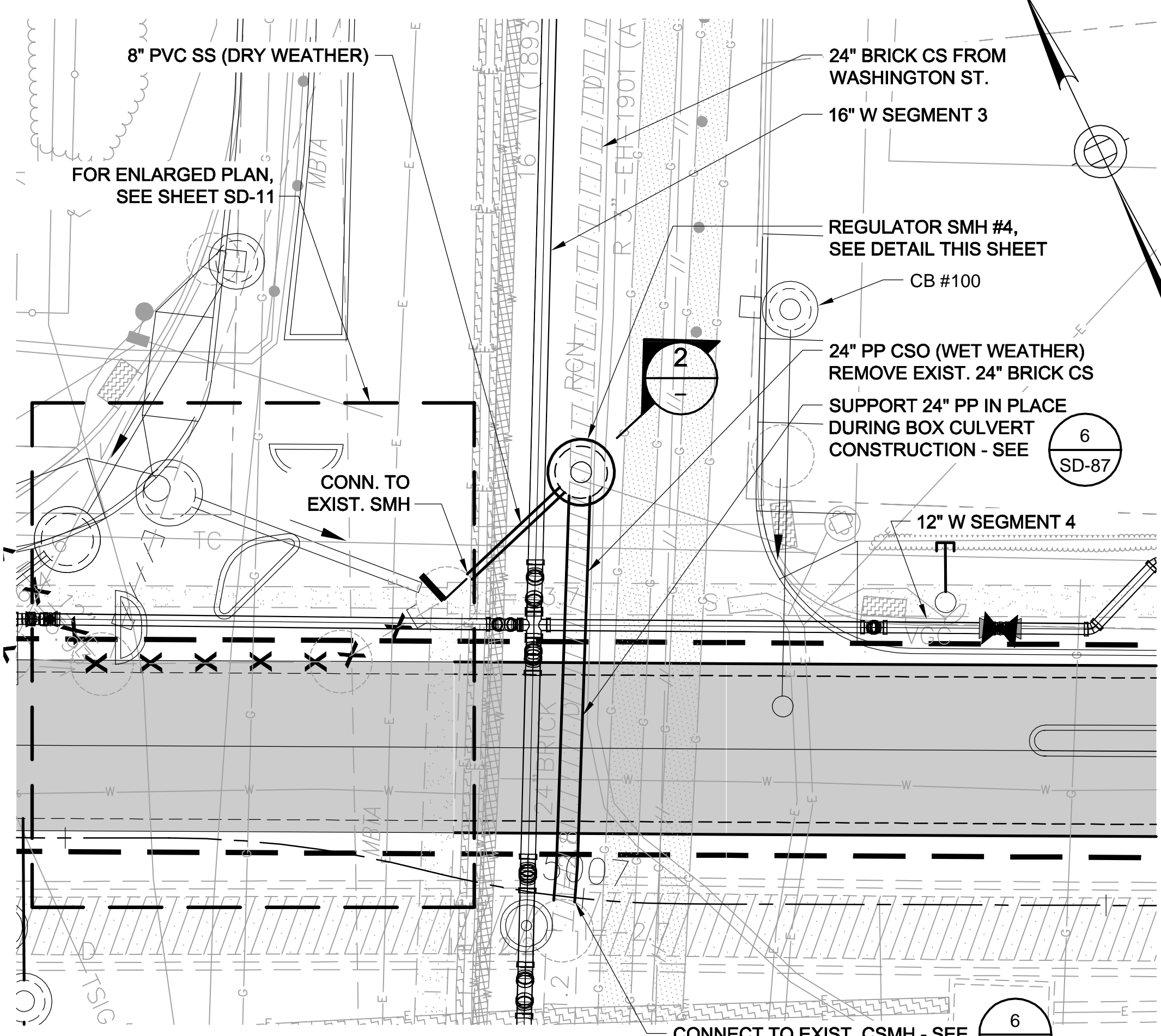
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SPECIAL BOX CULVERT SECTIONS & DETAILS**  
**STA 135+40 TO STA 135+53**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-56</b>
CHECKED: KMM		REF.	CONT.	
DRAWN: KLN		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

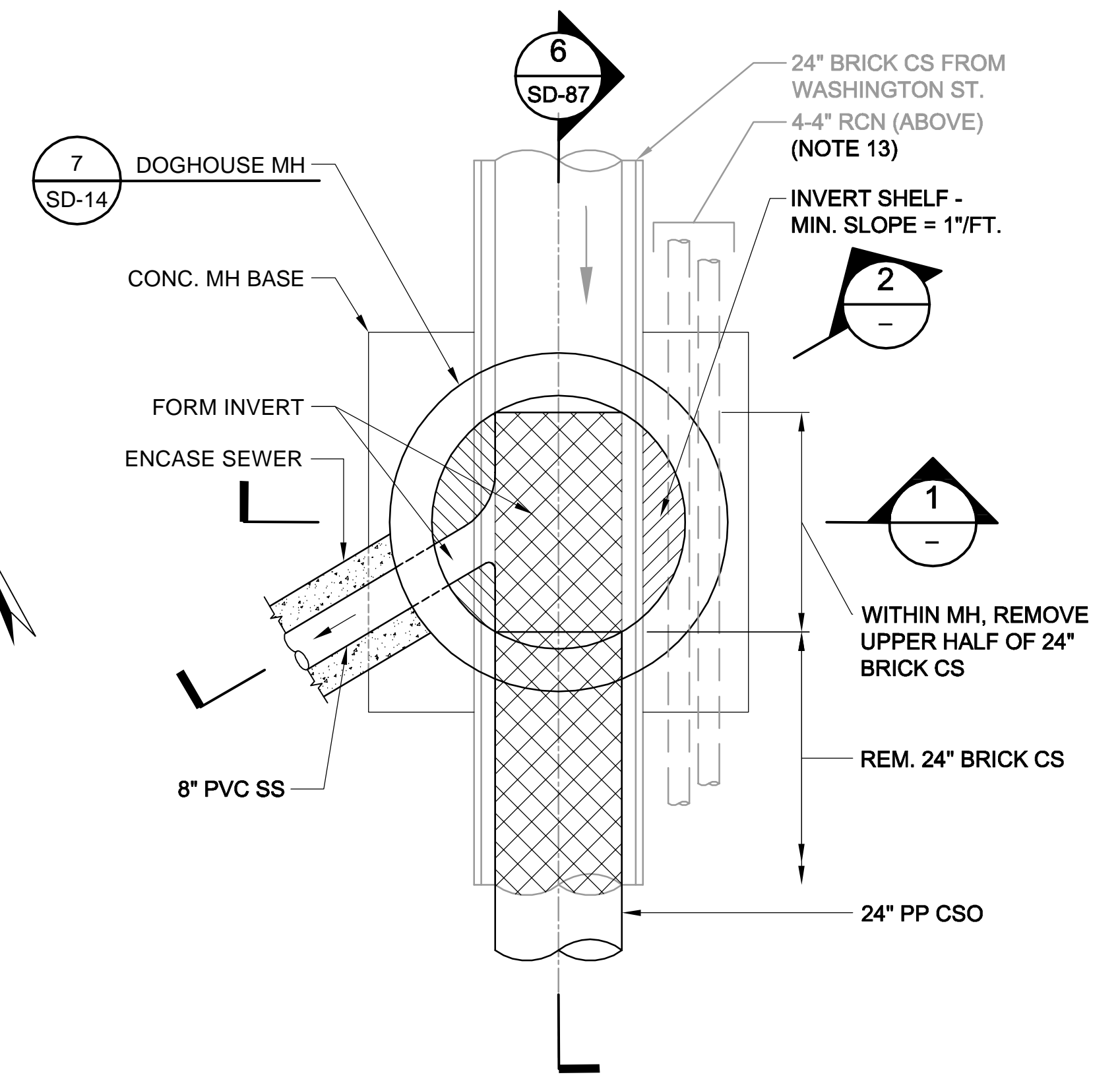
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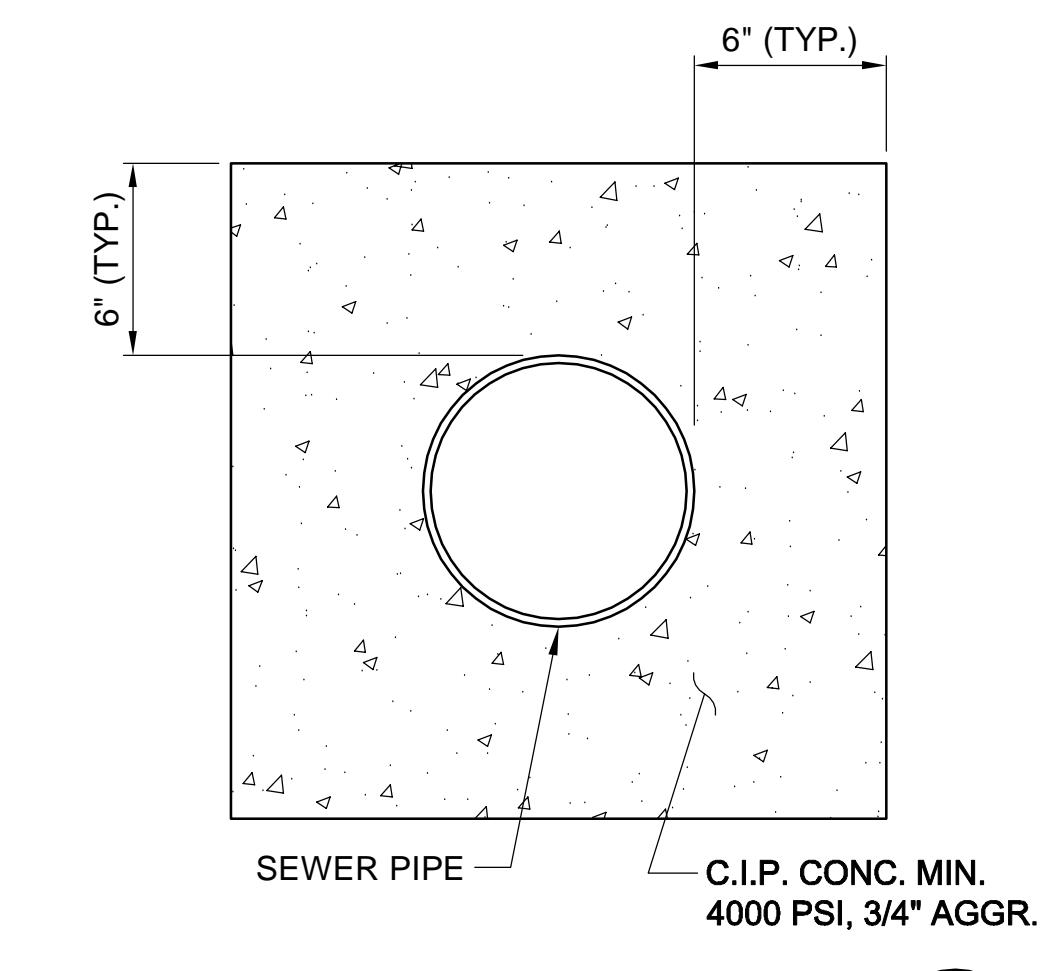
**PLAN VIEW**  
SCALE: 1" = 10'

- SUGGESTED SEQUENCING FOR SMH #4:
1. CONSTRUCT DOGHOUSE SMH#4 OVER EXIST. 24" BRICK CS.
  2. CONSTRUCT 8" PVC S.S. TO EXIST. SMH.
  3. BREAK OUT BRICK CS WITHIN MH & DIRECT DRY WEATHER FLOW TO 8" PVC. PROVIDE BYPASS PUMPING FOR THIS STEP.
  4. DURING A DRY WEATHER PERIOD REMOVE 24" BRICK CS DOWN STREAM OF SMH #4 AND INSTALL 24" HDPE OVERFLOW PIPE. CONNECT TO CSMH ON 72" CS.
  5. FOR FLOW RATES, SEE TABLE 01512-1 IN THE SPECIFICATIONS.

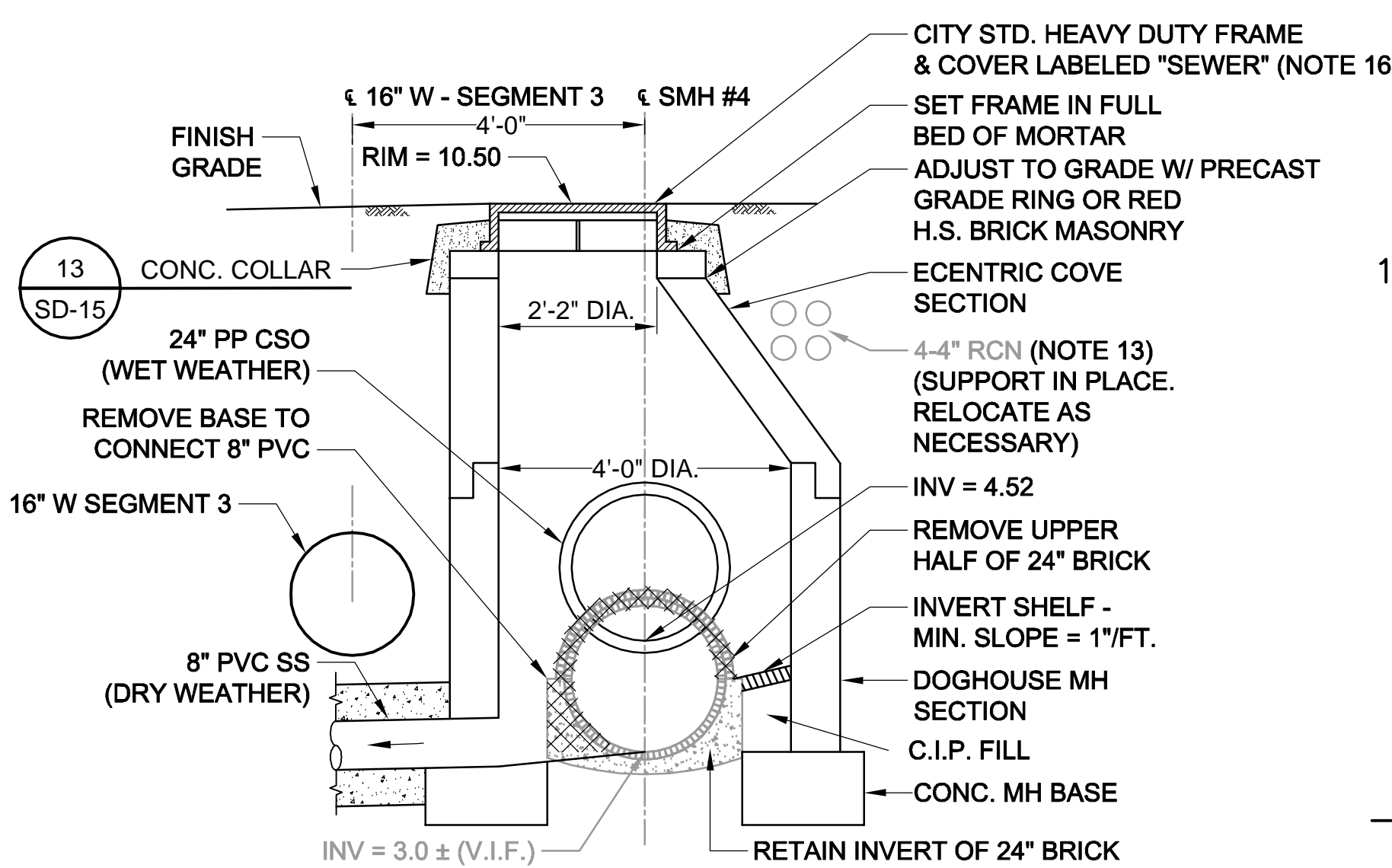
*Rachel J. Burckhardt*  
12/11/17



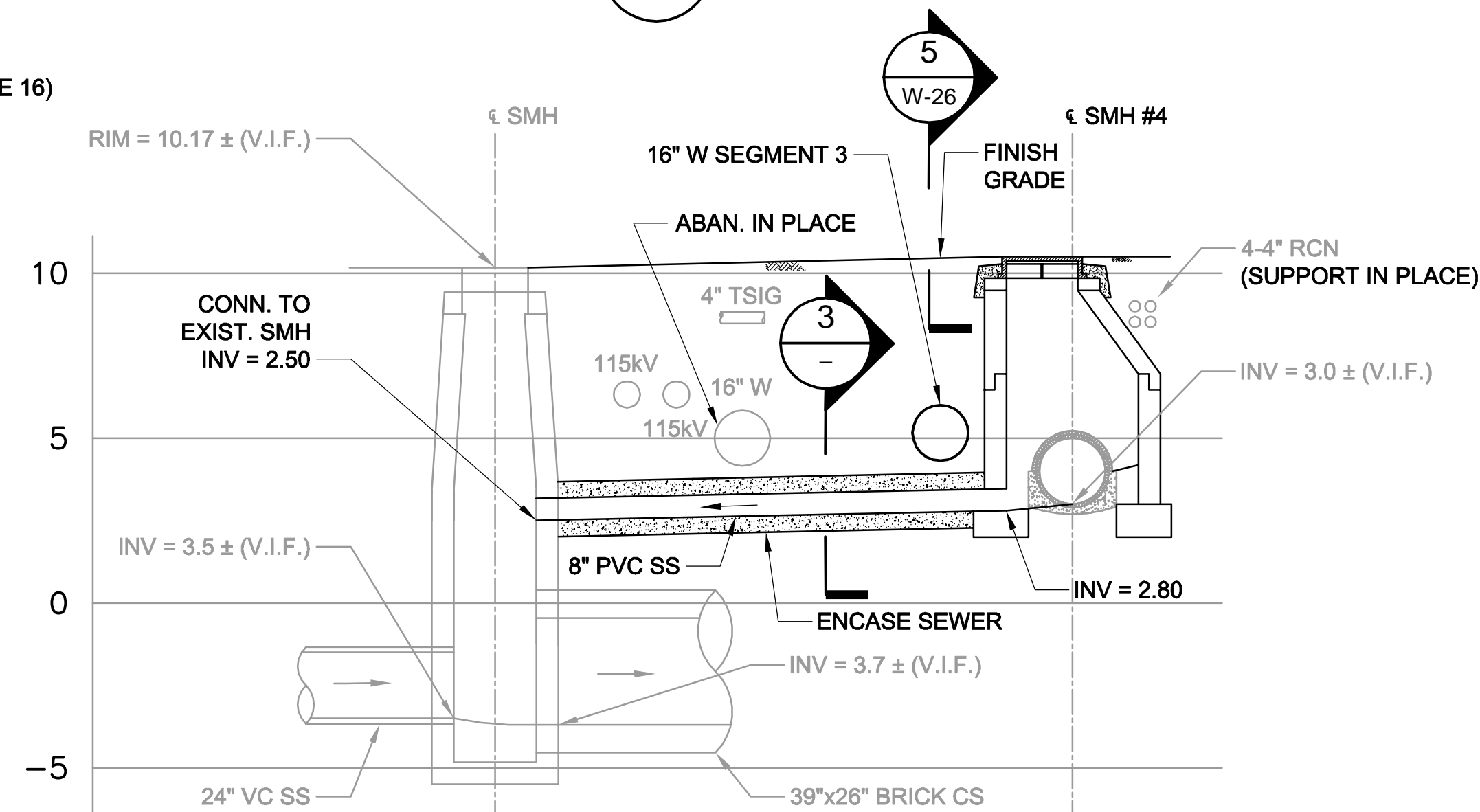
**SMH #4 - BASE PLAN**  
SCALE: 1" = 2'



**ENCASE SEWER DETAIL**  
SCALE: NTS



**SECTION 1**  
SCALE: 1" = 2'



**SECTION 2**  
SCALE: 1" = 4'

- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - UTILITY RELOCATION TAG #
  - REMOVE PIPE
  - ABANDON PIPE IN PLACE. FILL PIPES 18" OR GREATER
  - CAP OR PLUG PIPE
- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  6. FOR UTILITY PLAN, SEE SHEET U-2.
  7. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
  8. FOR TMP PLANS, SEE SHEETS TM-141 THRU TM-165.
  9. FOR SURFACE DRAINAGE, SEE SHEET SD-62.
  10. SUPPORT UTILITIES IN PLACE, U.N.O. SEE SHEETS SD-80 THRU SD-88 & W-26.
  11. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-1 & GI-2.
  12. FOR SEWER LINING PLAN, SEE SHEET SD-90.
  13. TAKE TEST PIT TO DETERMINE EXACT LOCATION AND ELEVATION OF EXIST. 4-4" RCN.
  14. MAINTAIN SEWER FLOWS AT ALL TIMES.
  15. FOR FLOW RATES, SEE TABLE 01514-1 IN THE SPECIFICATIONS.
  16. FOR DETAILS OF CITY STANDARD MANHOLE FRAMES AND COVERS, SEE ATTACHMENT I OF THE TECHNICAL SPECIFICATIONS.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

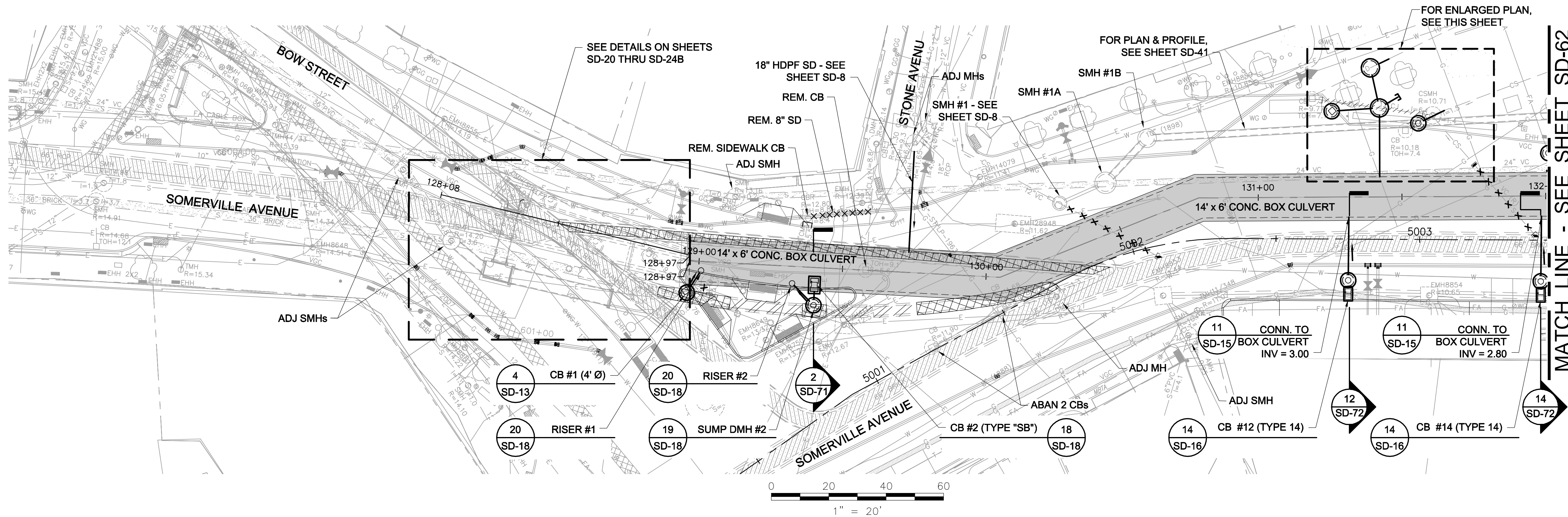
**SEWER SEPARATION AND WATER REPLACEMENT CONNECTION FROM WASHINGTON ST. COMBINED SEWER**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-57</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JD		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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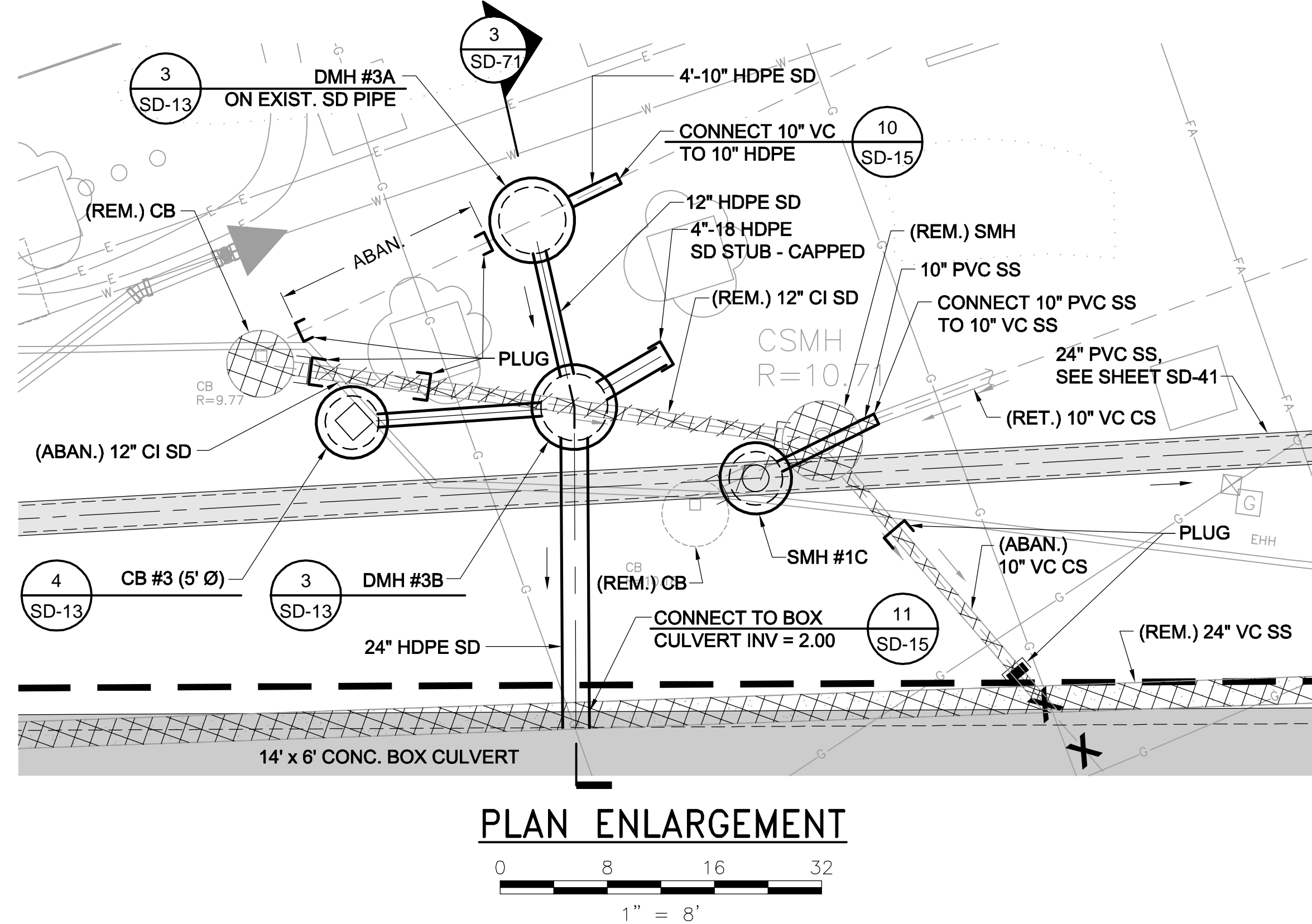
**LEGEND**

- DMH
- CB/DI
- DRAIN PIPE (12" HDPE U.N.O.)
- BOX CULVERT

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-11.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-21.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-1.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1.
7. FOR GRADING PLAN, SEE SHEET C-21.
8. FOR UTILITY PLAN, SEE SHEET U-1.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.

*Rachel J. Burckardt*  
 RACHEL J. BURCKARDT  
 CIVIL  
 No. 31880  
 REGISTERED PROFESSIONAL ENGINEER  
 DEC 11/17



AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SURFACE DRAINAGE RUNOFF FROM THE PROJECT LIMITS INCLUDING RUNOFF FROM SIDE STREETS AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL INSTALL PERMANENT CATCH BASINS OR TEMPORARY CATCH BASINS FOLLOWING THE INSTALLATION OF THE BOX CULVERT AND ANY WATER MAINS THAT REQUIRE REMOVAL OF CATCH BASINS. FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATIONS SECTION 01514.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE PLAN**  
**SHEET 1 OF 6**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

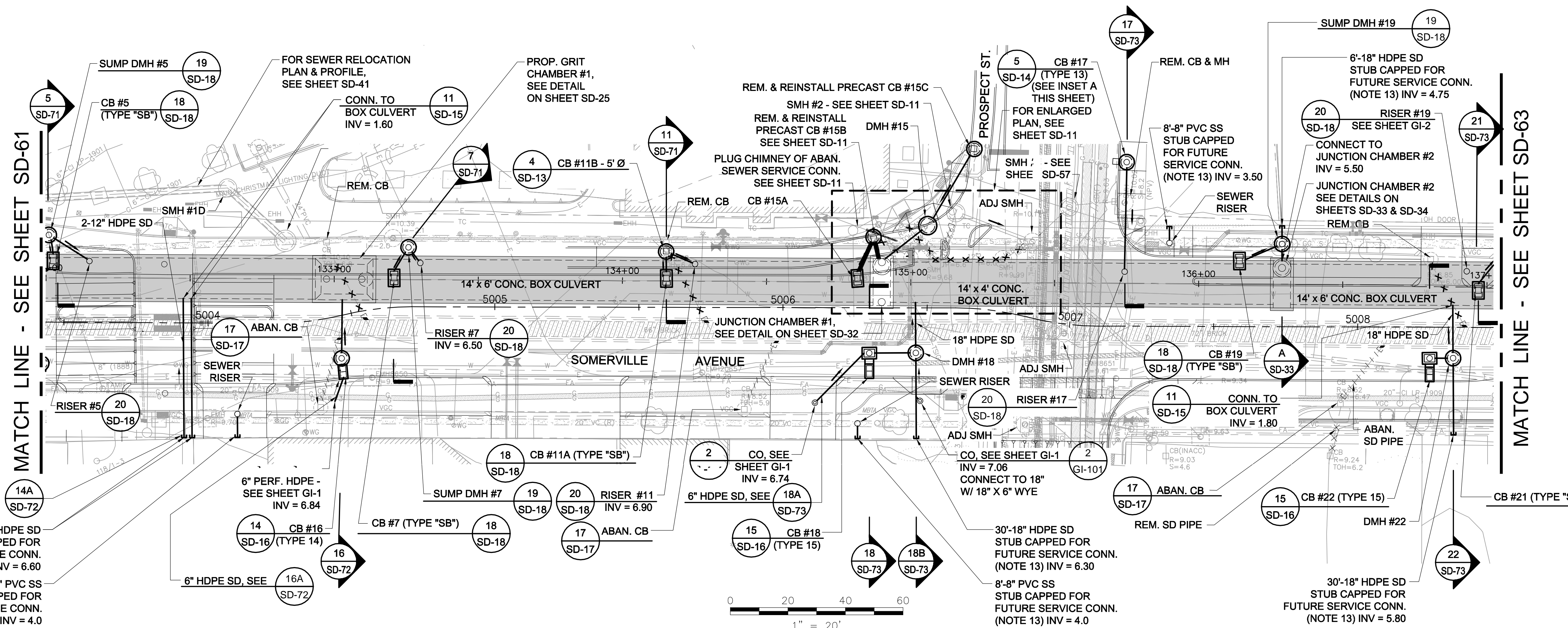
REF. CONT.  
 ACC. SCALE: AS NOTED  
 DATE: DEC 2017

SHEET  
**SD-61**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

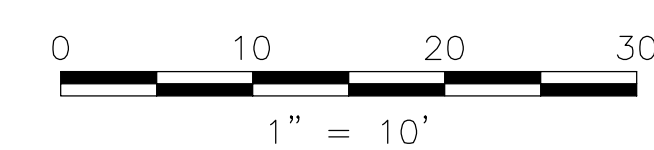
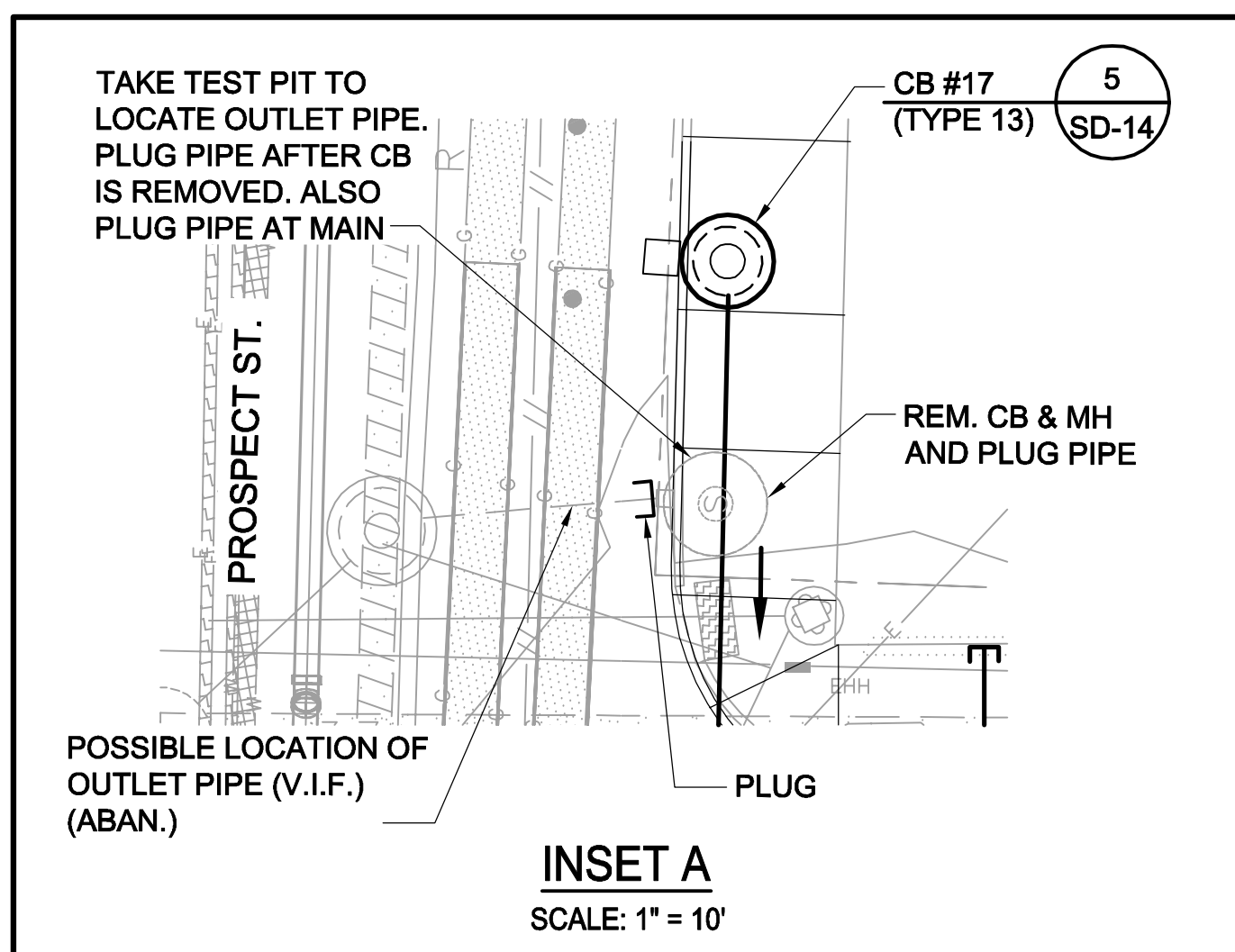
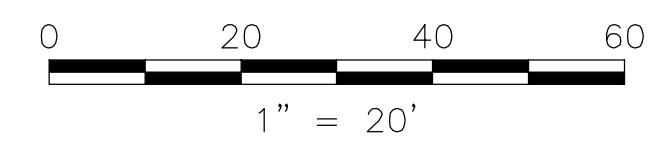
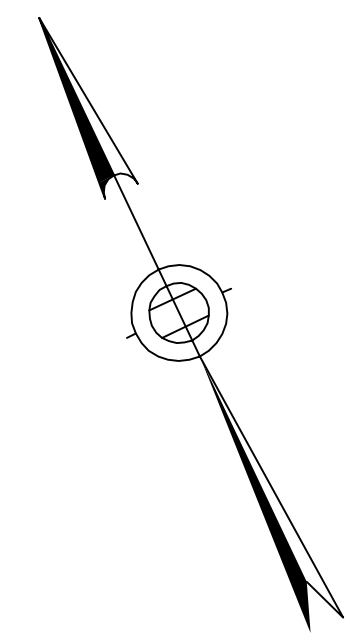
NO.	DATE	REVISIONS	BY

2017-12-11 2:47 PM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-61\_SD-66 Storm Drainage.dwg



MATCH LINE - SEE SHEET SD-61

MATCH LINE - SEE SHEET SD-63



**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR GRADING PLAN, SEE SHEET C-22.
8. FOR UTILITY PLAN, SEE SHEET U-2.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-1 & GI-2.
13. PRIOR TO INSTALLATION, VERIFY WITH THE ENGINEER THE EXACT LOCATIONS OF SERVICE CONNECTIONS FOR FUTURE DEVELOPMENT.

**LEGEND**

- DMH
- CB/DI
- DRAIN PIPE (12" HDPE U.N.O.)
- BOX CULVERT

Rachel J. Burckardt  
 CIVIL ENGINEER  
 No. 31880  
 State of Massachusetts  
 12/11/17

AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SURFACE DRAINAGE RUNOFF FROM THE PROJECT LIMITS INCLUDING RUNOFF FROM SIDE STREETS AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL INSTALL PERMANENT CATCH BASINS OR TEMPORARY CATCH BASINS FOLLOWING THE INSTALLATION OF THE BOX CULVERT AND ANY WATER MAINS THAT REQUIRE REMOVAL OF CATCH BASINS. FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATIONS SECTION 01514.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

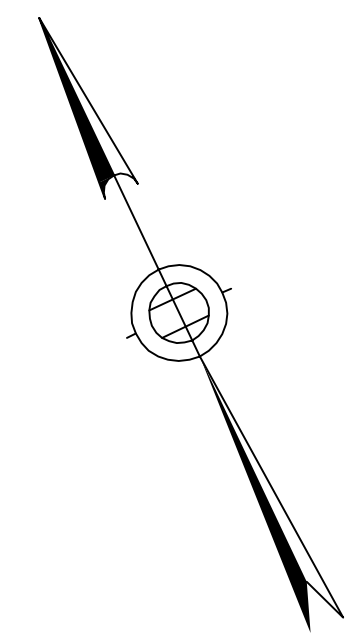
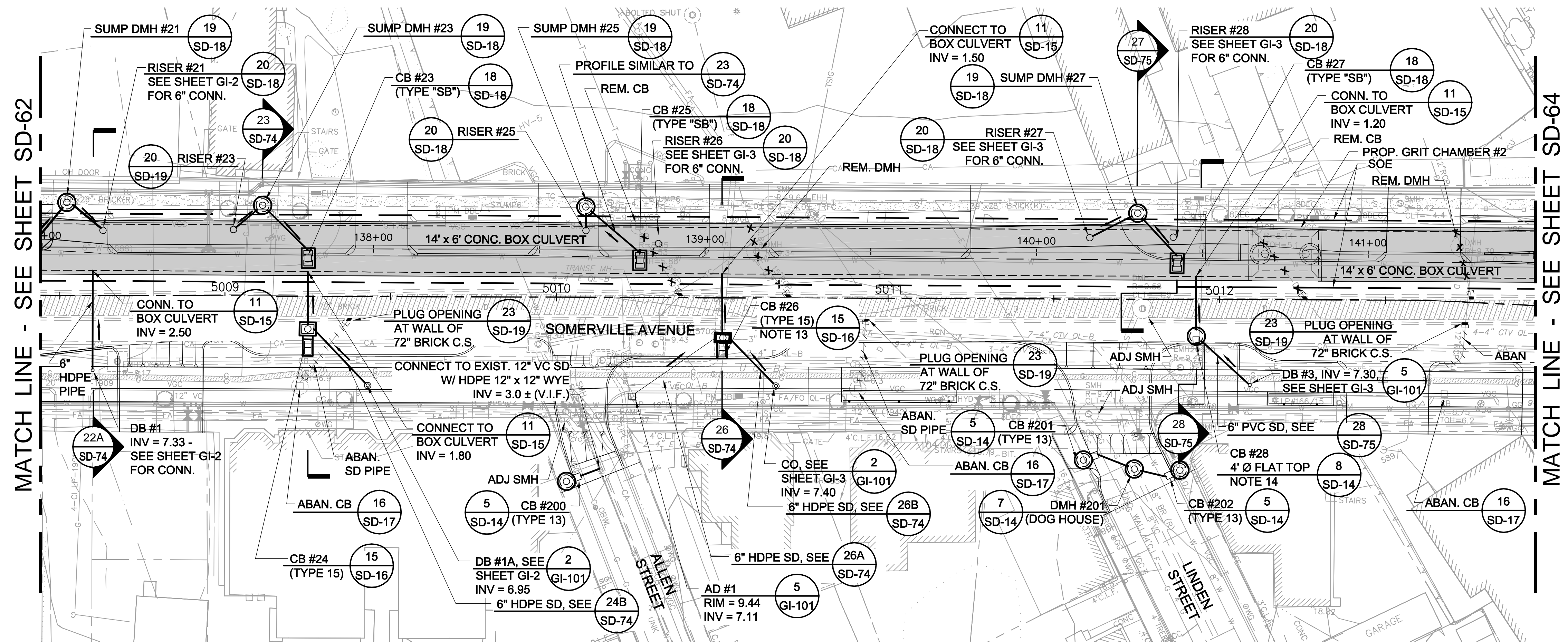
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE PLAN**  
**SHEET 2 OF 6**

DESIGNED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET	SD-62
CHECKED: LAC		REF.	
DRAWN: JD	ACC.	SCALE: AS NOTED	DATE: DEC 2017
CHECKED: RJB			





CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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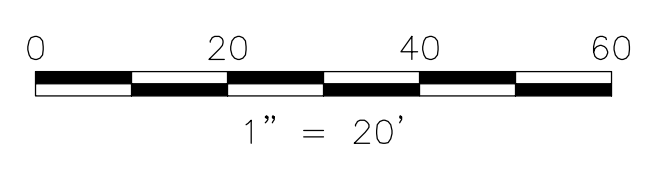


**LEGEND**

-  DMH
-  CB/DI
-  DRAIN PIPE (12" HDPE U.N.O.)
-  BOX CULVERT

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-13.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-23.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-3.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-3.
7. FOR GRADING PLAN, SEE SHEET C-23.
8. FOR UTILITY PLAN, SEE SHEET U-3.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON THE SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-2 & GI-3.
13. AT CB #26, BREAK OUT, ADJUST / RELOCATE CA DUCT. SEE [CA-3] ON SHEET U-3.
14. AT CB #28, BREAK OUT, ADJUST / RELOCATE CA DUCT. SEE [CA-4] ON SHEET U-3.




*Rachel J. Burckardt*  
 RACHEL J. BURCKARDT  
 CIVIL  
 No. 31890  
 12/11/17

AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SURFACE DRAINAGE RUNOFF FROM THE PROJECT LIMITS INCLUDING RUNOFF FROM SIDE STREETS AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL INSTALL PERMANENT CATCH BASINS OR TEMPORARY CATCH BASINS FOLLOWING THE INSTALLATION OF THE BOX CULVERT AND ANY WATER MAINS THAT REQUIRE REMOVAL OF CATCH BASINS. FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATIONS SECTION 01514.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE PLAN**  
**SHEET 3 OF 6**

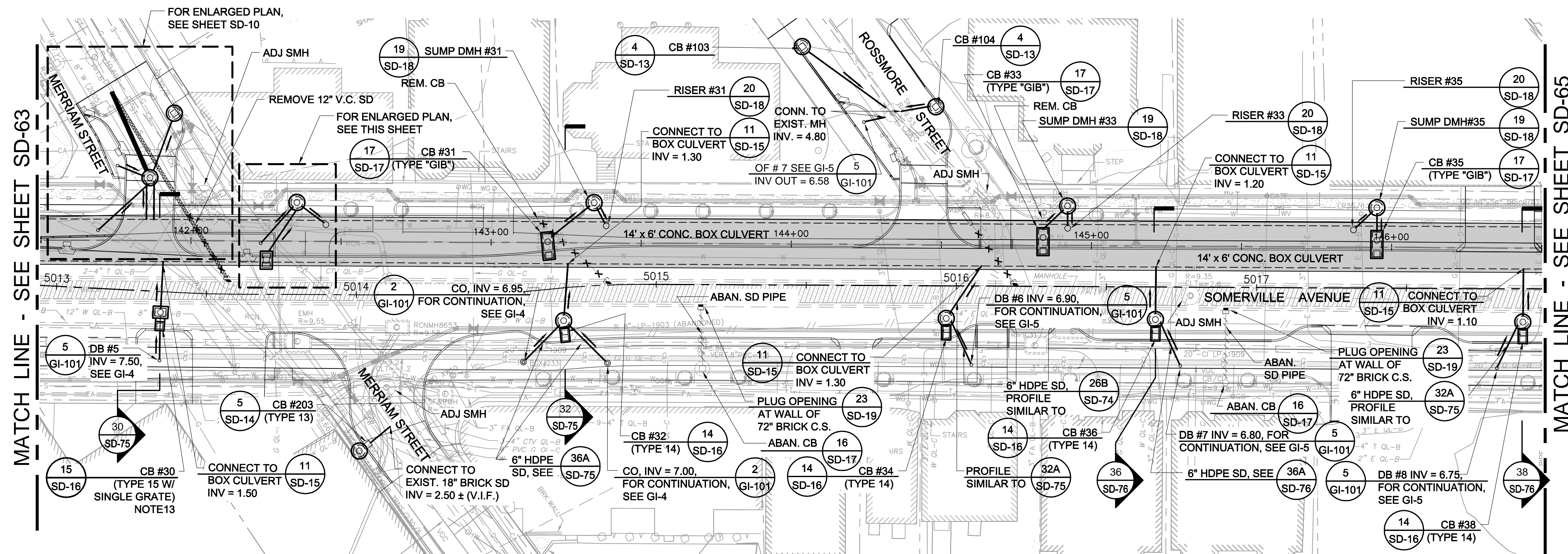
DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: LAC		REF.	CONT.	<b>SD-63</b>
DRAWN: JD	ACC.	SCALE: 1"=20'		
CHECKED: RJB	DATE: DEC 2017			

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

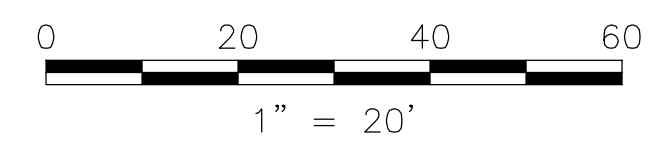
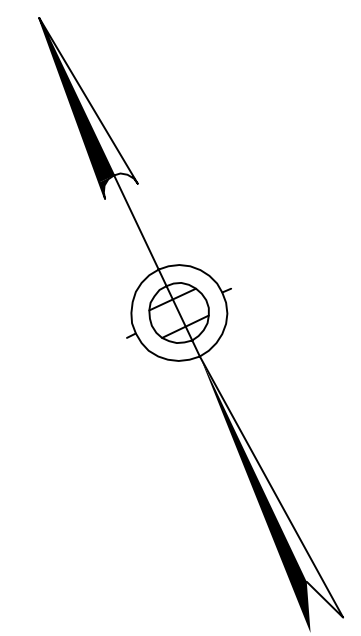


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MATCH LINE - SEE SHEET SD-63

MATCH LINE - SEE SHEET SD-65



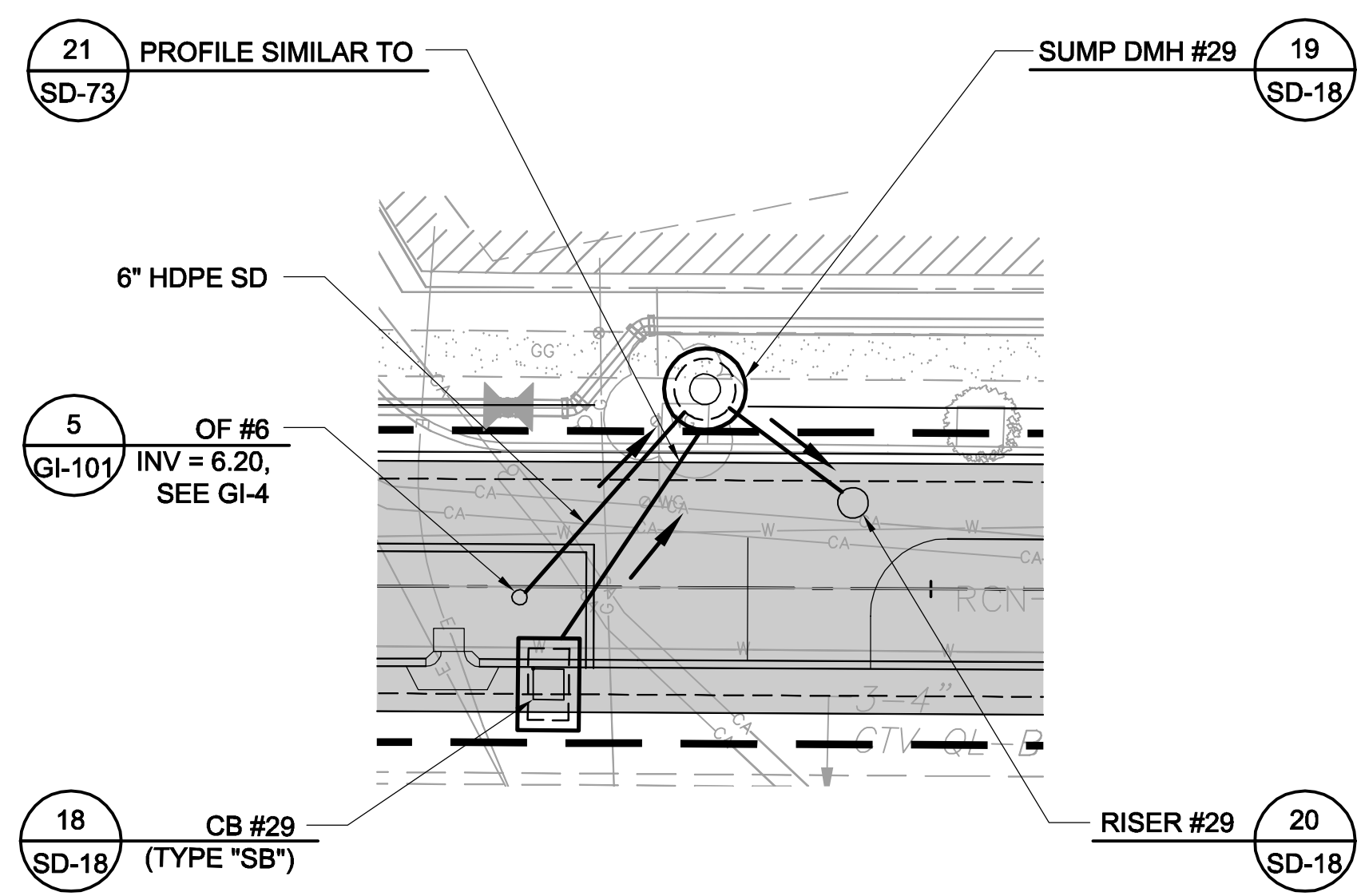
**LEGEND**

- DMH
- CB/DI
- DRAIN PIPE (HDPE U.N.O.)
- BOX CULVERT

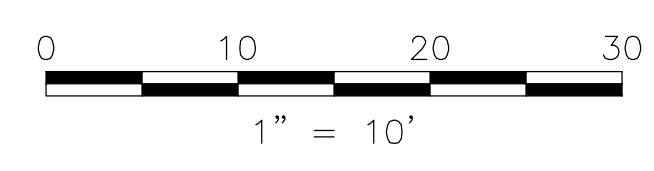
**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-14.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-24.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-4.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-4.
7. FOR GRADING PLAN, SEE SHEET C-24.
8. FOR UTILITY PLAN, SEE SHEET U-4.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON THE SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-4 & GI-5.
14. AT CB #30, BREAK OUT, ADJUST / RELOCATE CA DUCT. SEE [CA-5] ON SHEET U-4.

Rachel J. Burckardt  
 CIVIL  
 No. 31890  
 State of Massachusetts  
 12/11/17



**PLAN ENLARGEMENT**



AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SURFACE DRAINAGE RUNOFF FROM THE PROJECT LIMITS INCLUDING RUNOFF FROM SIDE STREETS AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL INSTALL PERMANENT CATCH BASINS OR TEMPORARY CATCH BASINS FOLLOWING THE INSTALLATION OF THE BOX CULVERT AND ANY WATER MAINS THAT REQUIRE REMOVAL OF CATCH BASINS. FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATIONS SECTION 01514.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE PLAN**  
**SHEET 4 OF 6**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

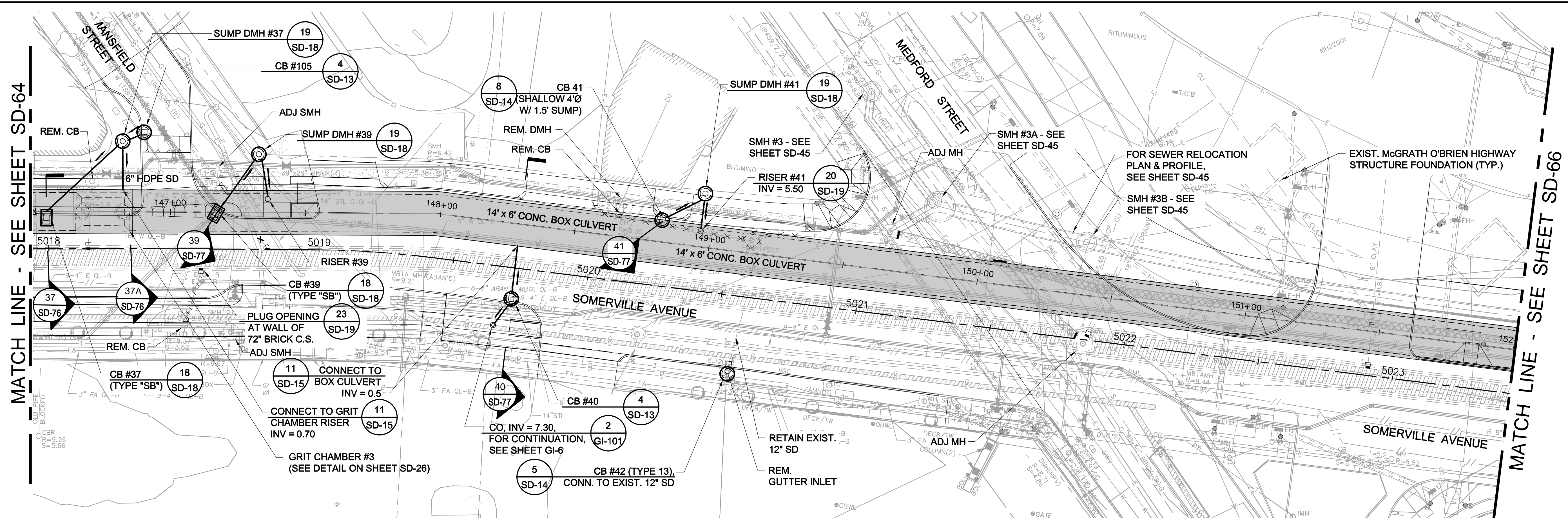
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 DATE: DEC 2017

SHEET  
**SD-64**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

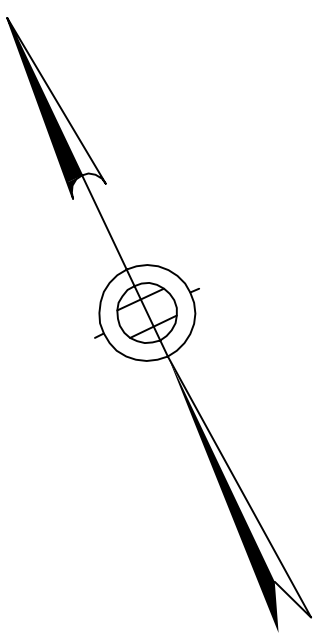
NO.	DATE	REVISIONS	BY

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MATCH LINE - SEE SHEET SD-64

MATCH LINE - SEE SHEET SD-66

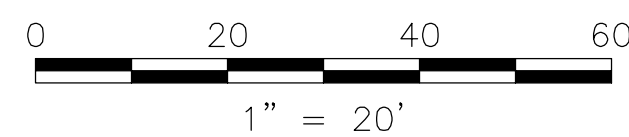


**LEGEND**

- DMH
- CB/DI
- DRAIN PIPE (12" HDPE U.N.O.)
- BOX CULVERT

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-14 AND G-15.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-24 AND G-25.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-5.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-5.
7. FOR GRADING PLAN, SEE SHEET L-35.
8. FOR UTILITY PLAN, SEE SHEET U-5.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON THE SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-5 & GI-6.



*Rachel J. Burckhardt*
  
 12/11/17

AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SURFACE DRAINAGE RUNOFF FROM THE PROJECT LIMITS INCLUDING RUNOFF FROM SIDE STREETS AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL INSTALL PERMANENT CATCH BASINS OR TEMPORARY CATCH BASINS FOLLOWING THE INSTALLATION OF THE BOX CULVERT AND ANY WATER MAINS THAT REQUIRE REMOVAL OF CATCH BASINS. FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATIONS SECTION 01514.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**SURFACE DRAINAGE PLAN**

**SHEET 5 OF 6**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: JD  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

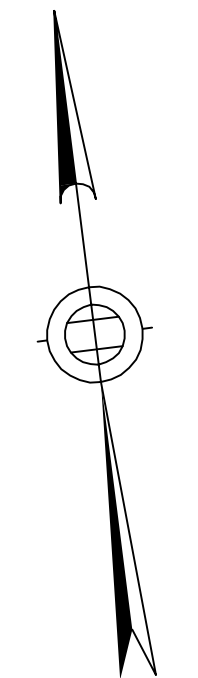
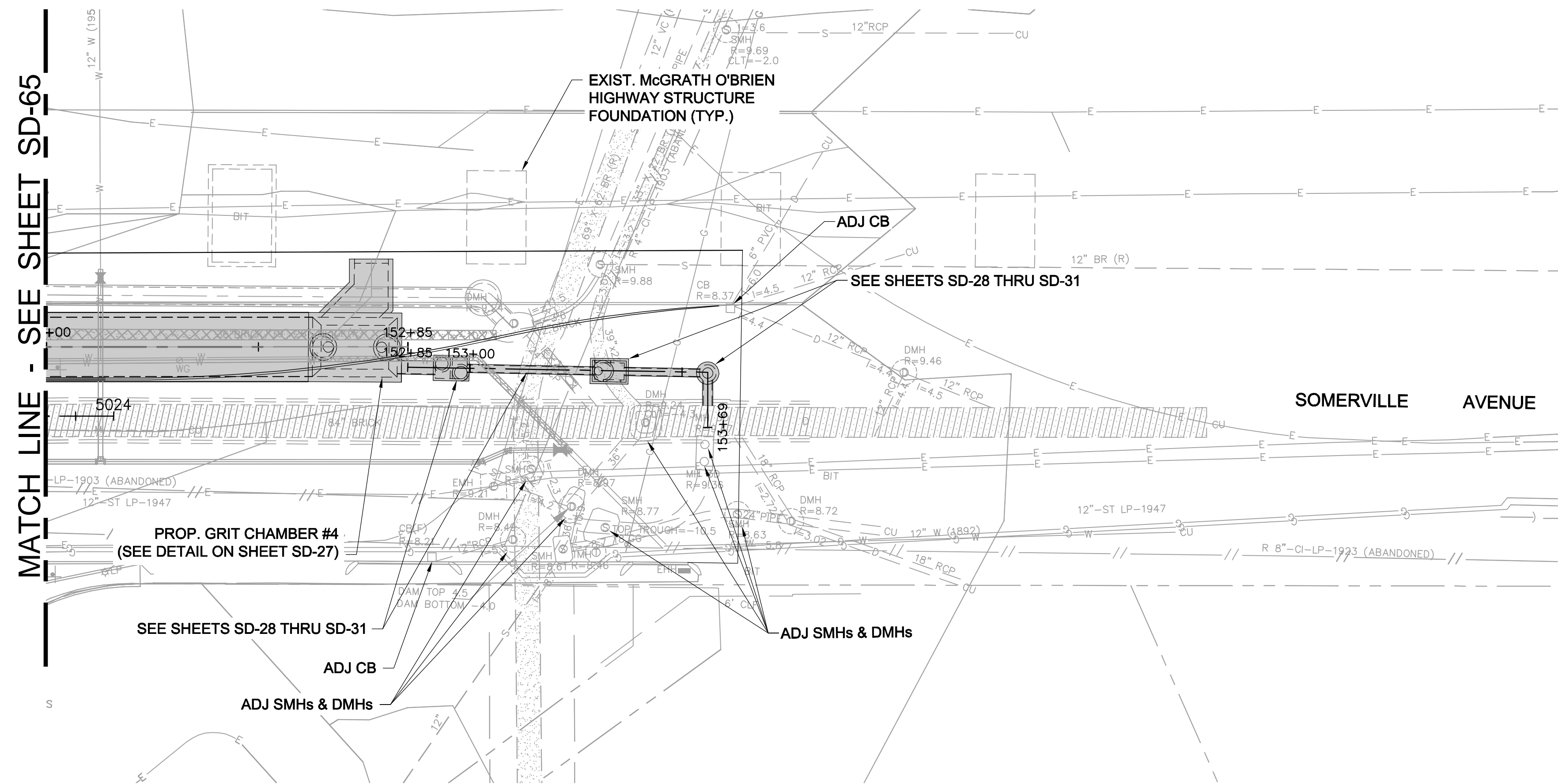
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ACC.	SCALE: 1"=20'
	DATE: DEC 2017

SHEET  
SD-65

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

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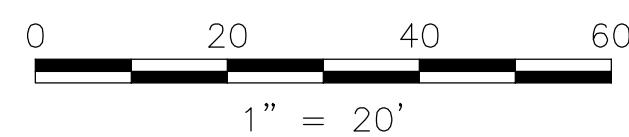


**LEGEND**

- DMH
- CB/DI
- DRAIN PIPE (12" HDPE U.N.O.)
- BOX CULVERT

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-6
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-6.
7. FOR UTILITY PLAN, SEE SHEET U-6.
8. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SD-13 THRU SD-19.
9. RETAIN ALL EXISTING STORM DRAINAGE, UNLESS NOTED OTHERWISE.



AT ALL TIMES THE CONTRACTOR SHALL MAINTAIN SURFACE DRAINAGE RUNOFF FROM THE PROJECT LIMITS INCLUDING RUNOFF FROM SIDE STREETS AND ADJACENT PROPERTIES. THE CONTRACTOR SHALL INSTALL PERMANENT CATCH BASINS OR TEMPORARY CATCH BASINS FOLLOWING THE INSTALLATION OF THE BOX CULVERT AND ANY WATER MAINS THAT REQUIRE REMOVAL OF CATCH BASINS. FOR ADDITIONAL REQUIREMENTS, SEE SPECIFICATIONS SECTION 01514.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**SURFACE DRAINAGE PLAN**

**SHEET 6 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	
CHECKED: LAC			
DRAWN: JD	REF.	CONT.	SCALE: 1"=20'
CHECKED: RJB	ACC.		DATE: DEC 2017

SHEET

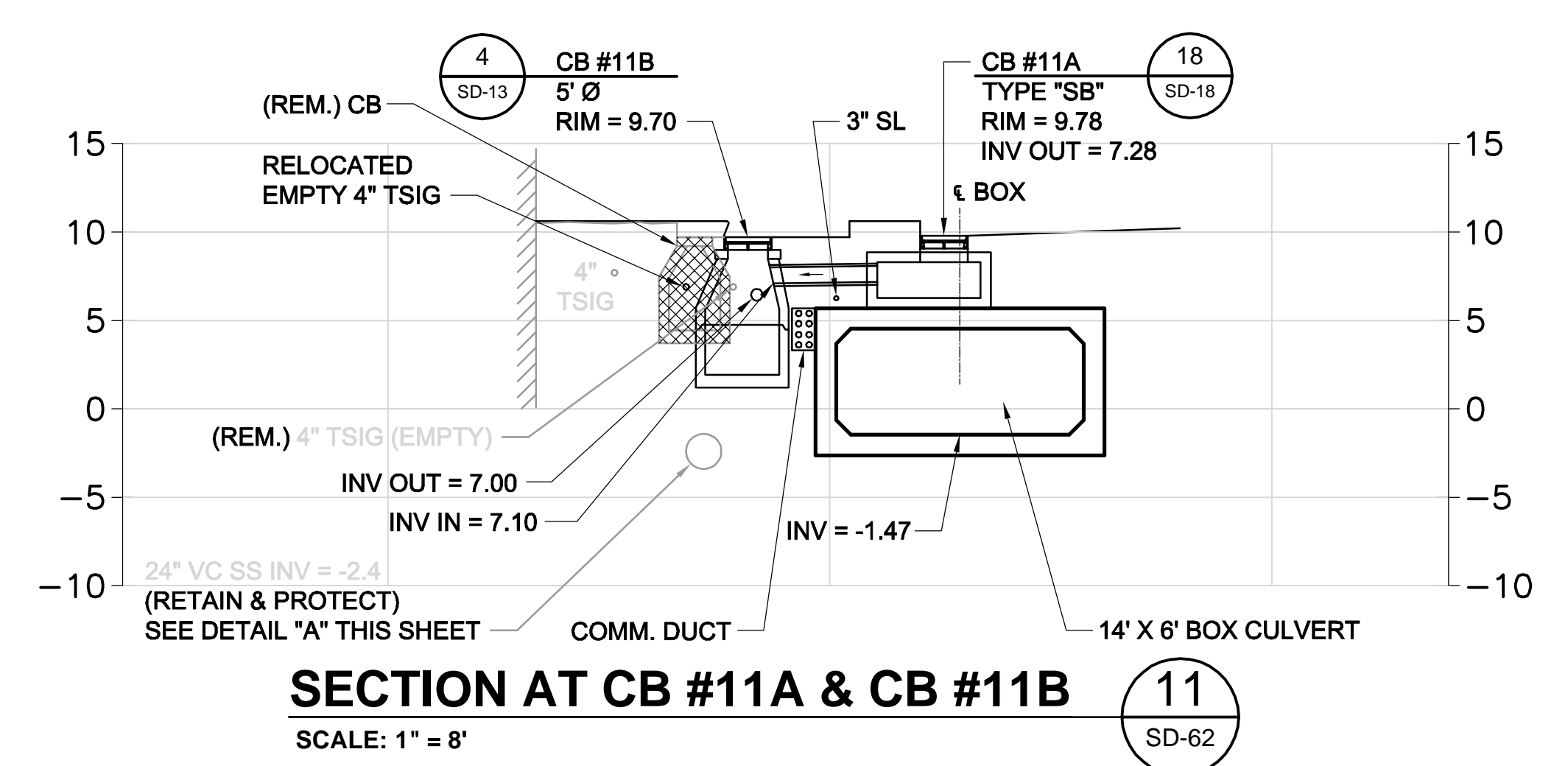
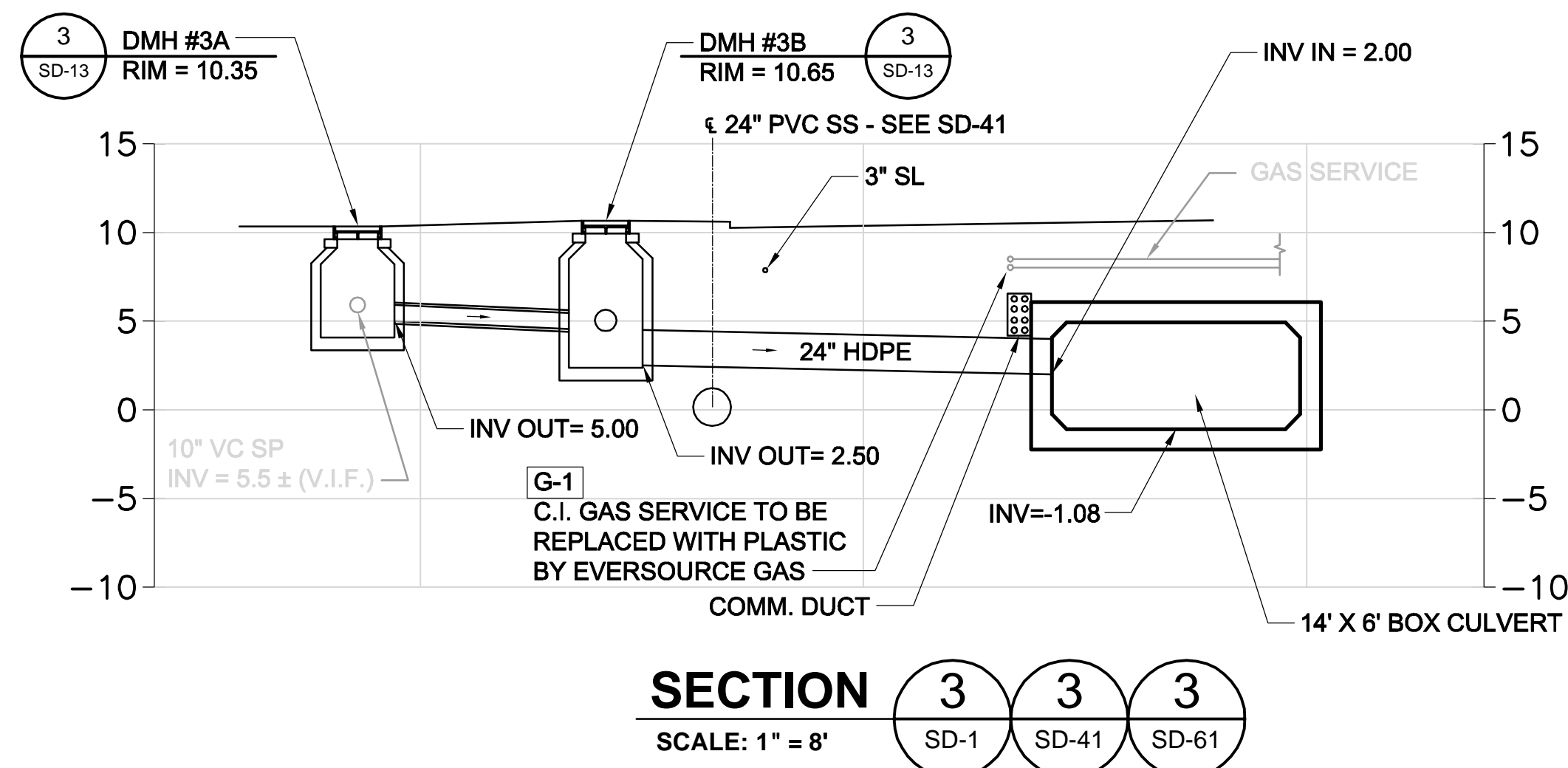
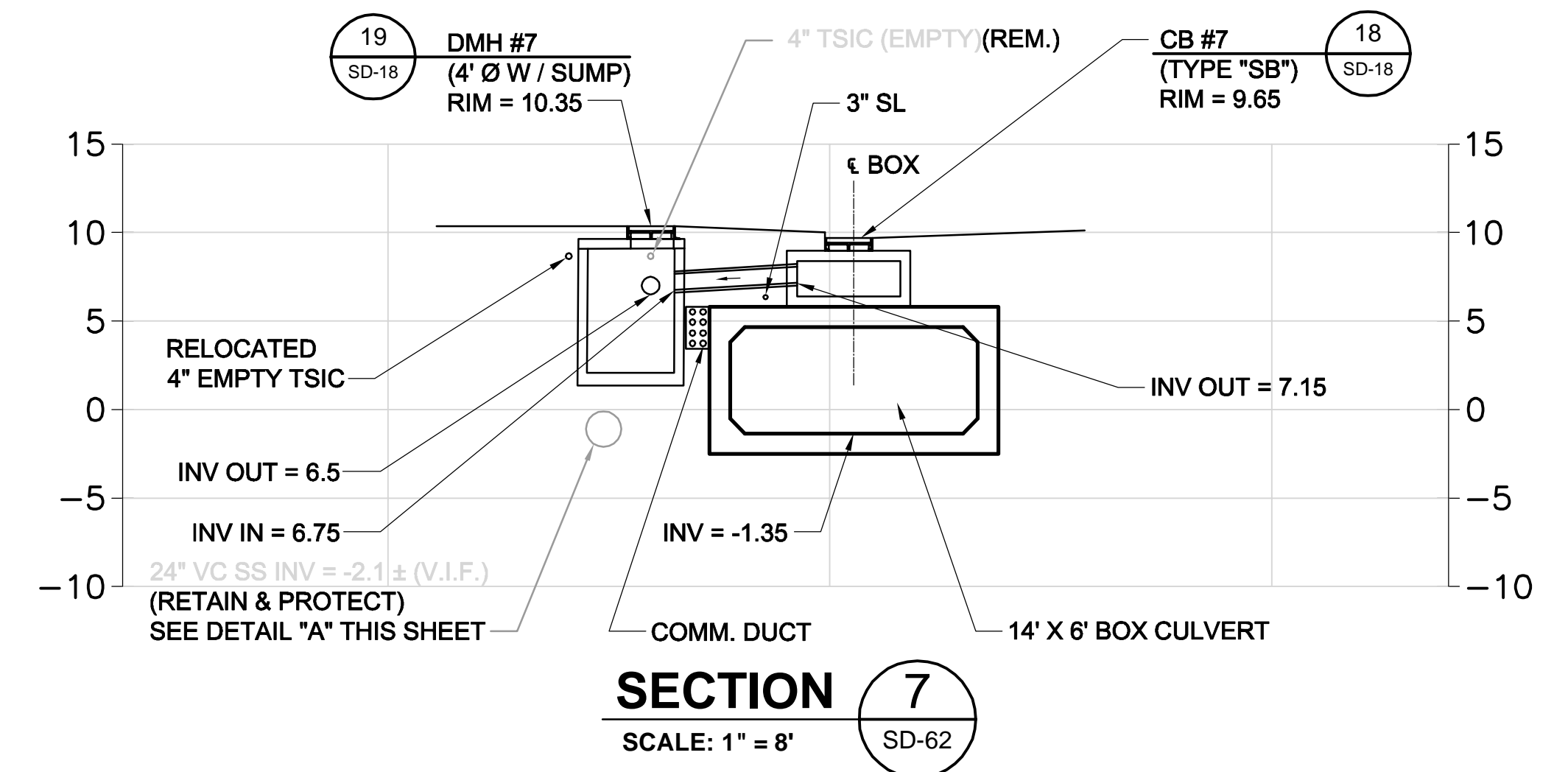
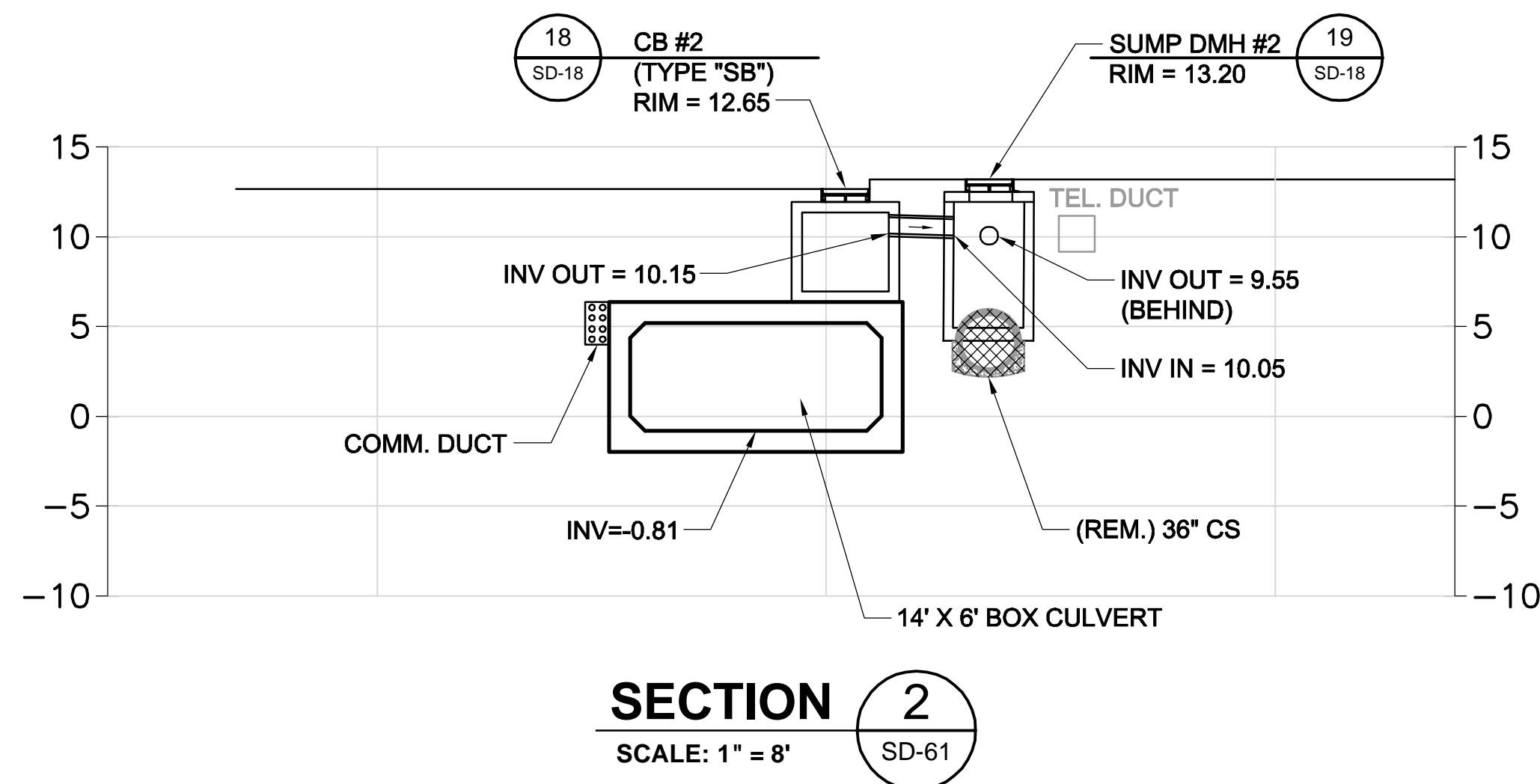
SD-66

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

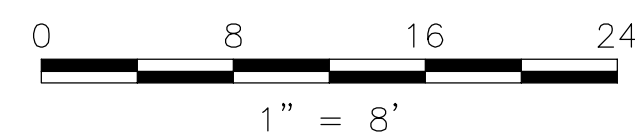
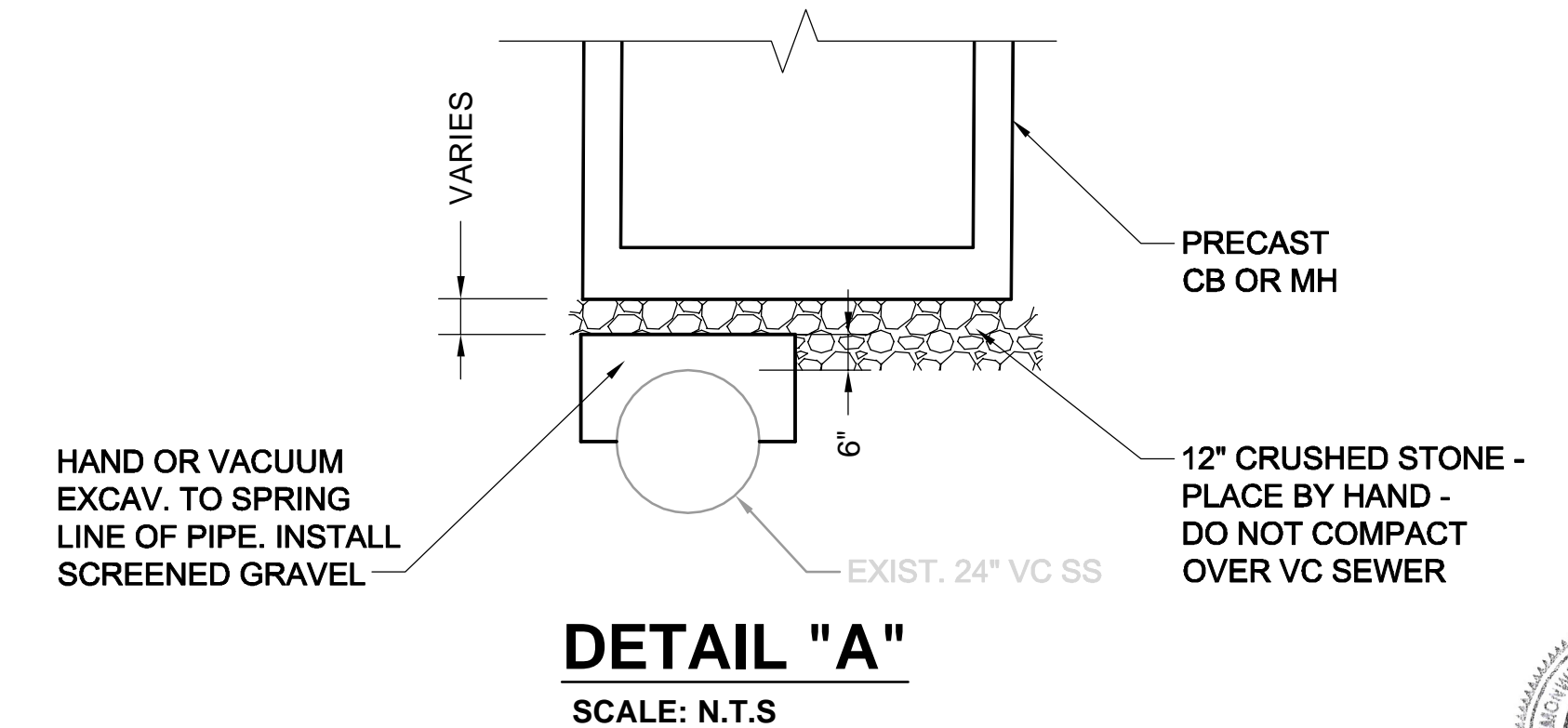
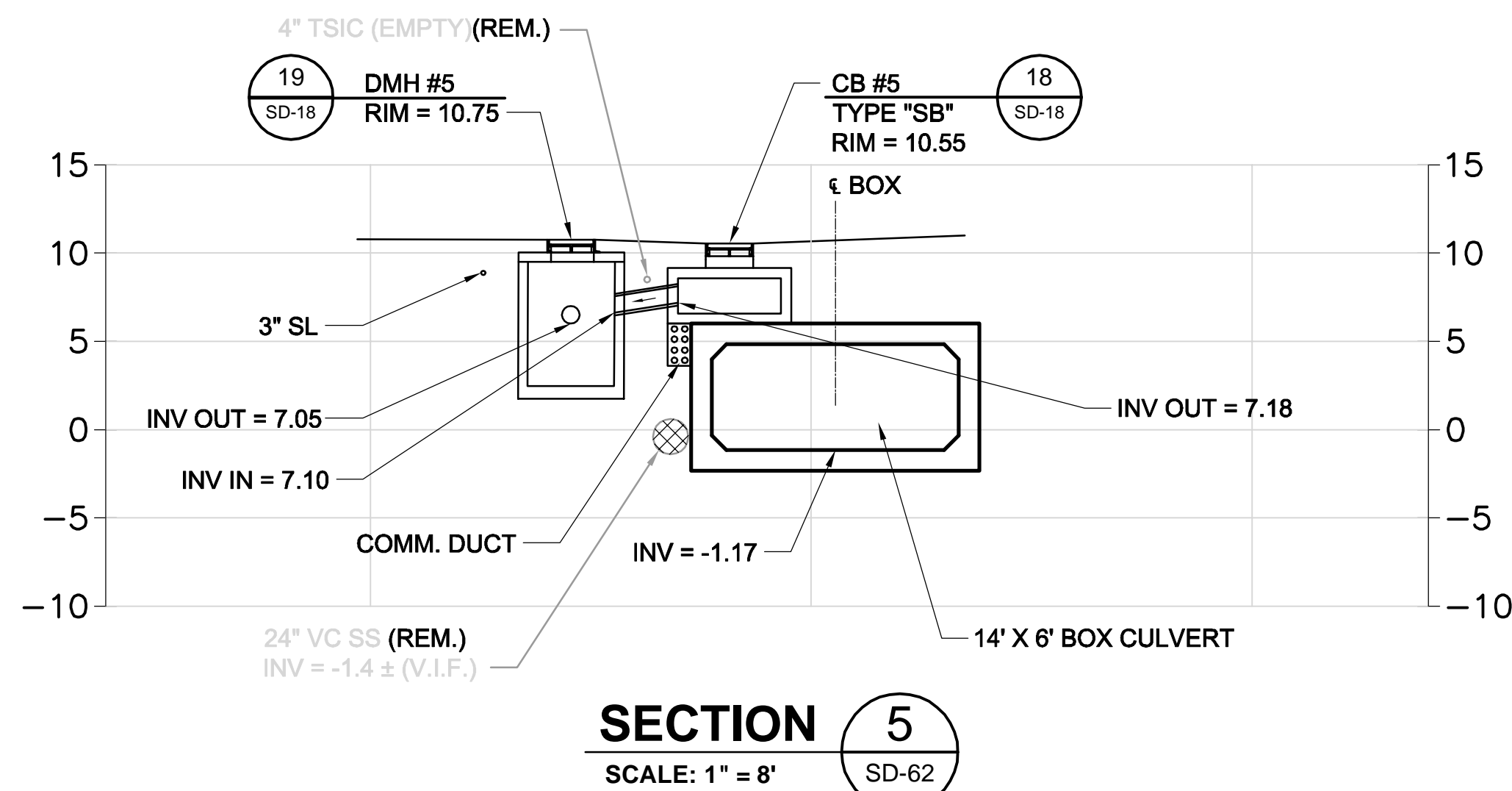


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**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-11 & G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-21 & G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-1 & W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-1 & SD-2.
7. FOR GRADING PLAN, SEE SHEETS L-31 & L-32.
8. FOR UTILITY PLAN, SEE SHEETS U-1 & U-2.
9. FOR SURFACE DRAINAGE PLAN, SEE SHEETS SD-61 & SD-62.
10. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
12. DRAIN PIPES ARE 12" HDPE U.N.O.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 1 OF 7**

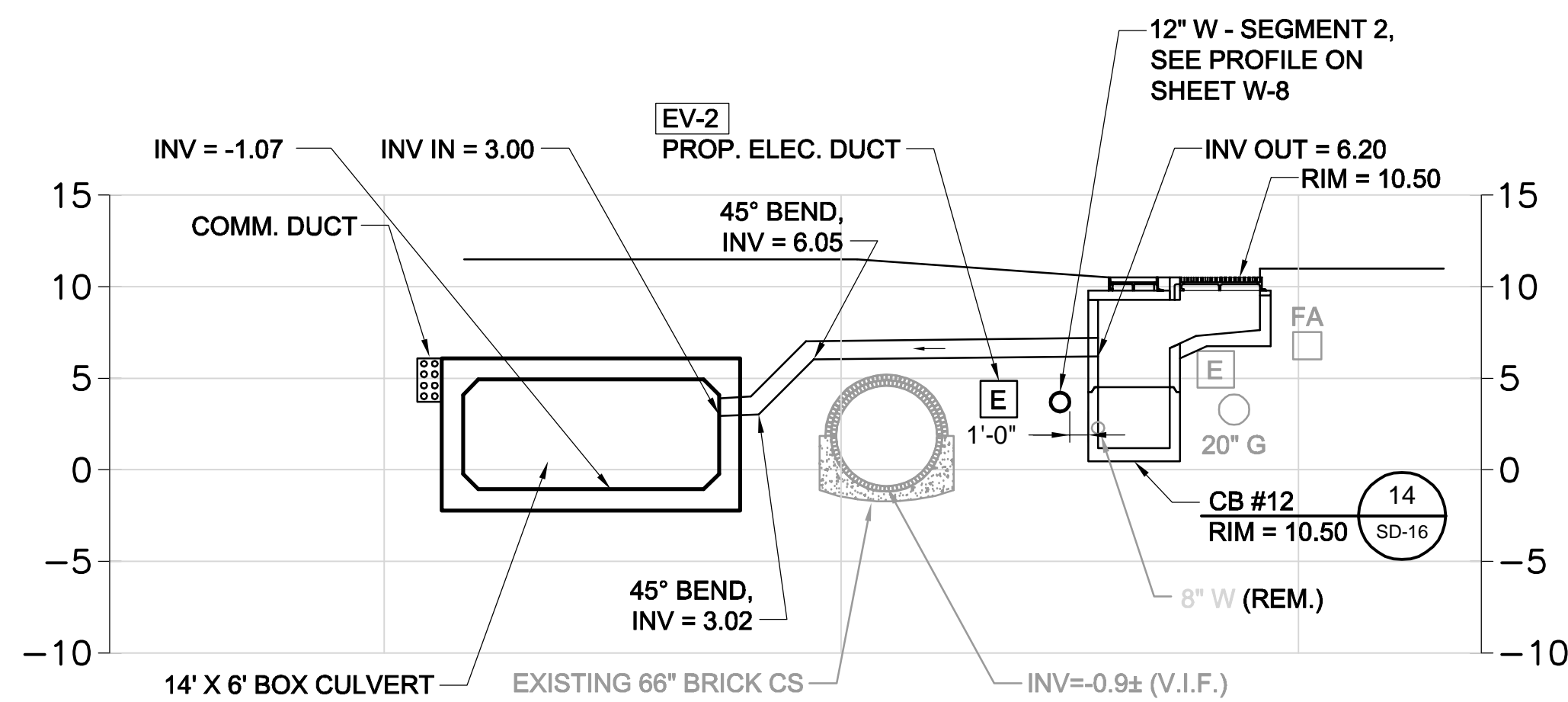
DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-71</b>
CHECKED: LAC		
DRAWN: KLN	REF. _____	CONT. _____
CHECKED: RJB	ACC. _____	SCALE: 1" = 8' DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

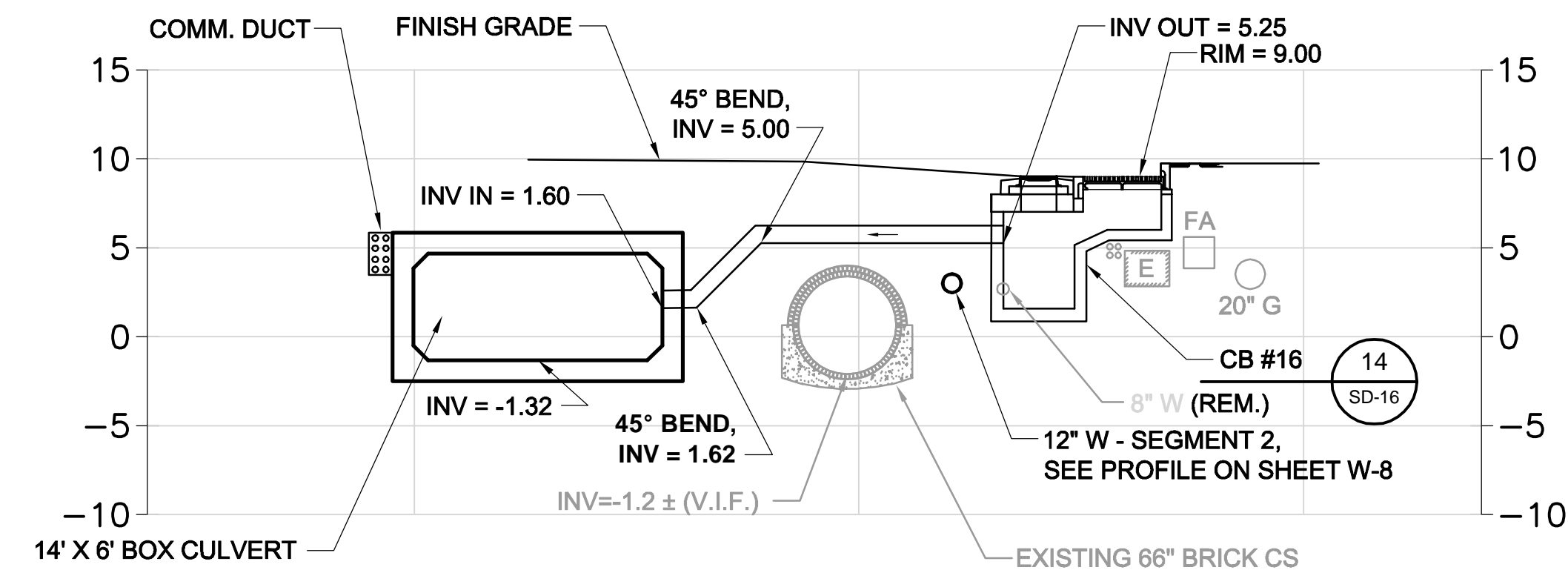
NO.	DATE	REVISIONS	BY

Rachel J. Burckardt  
 No. 31890  
 State of Massachusetts  
 Civil Engineer  
 12/11/17

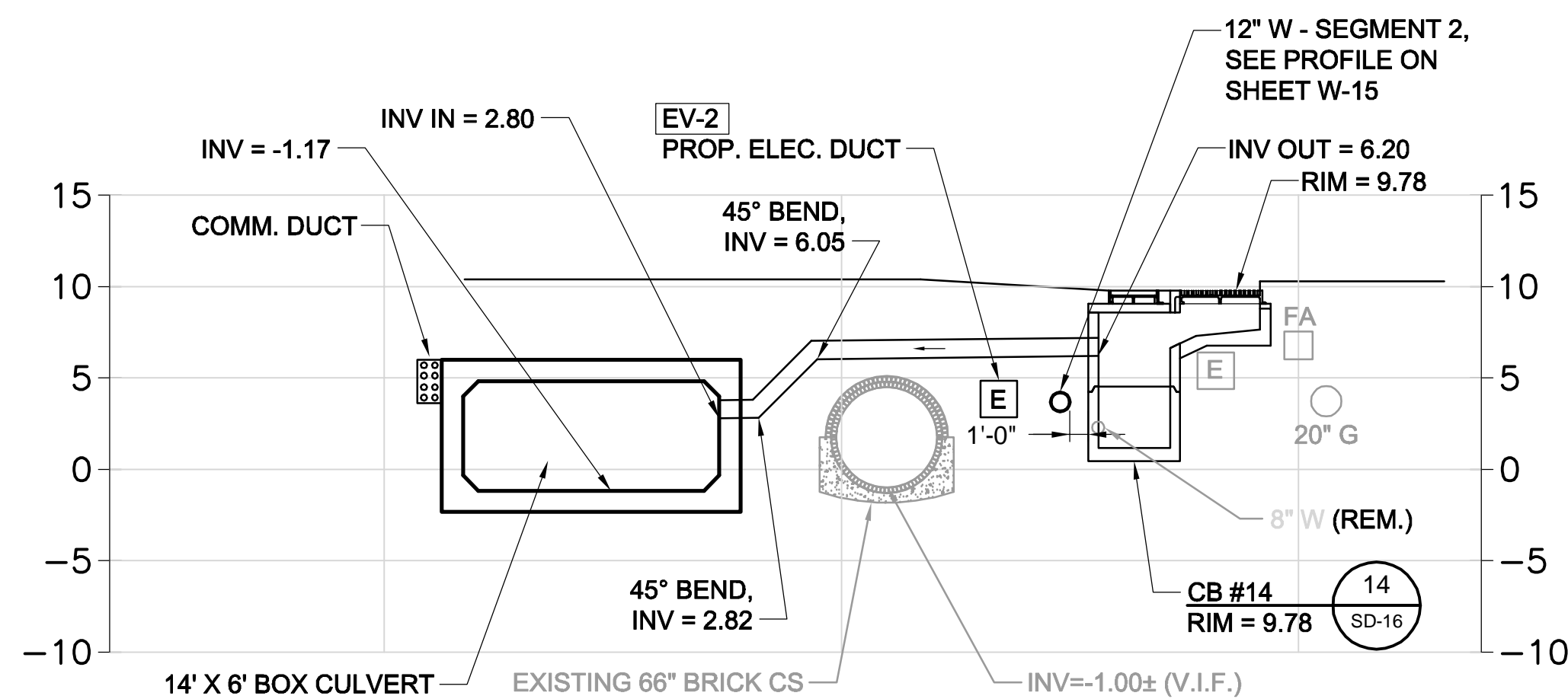
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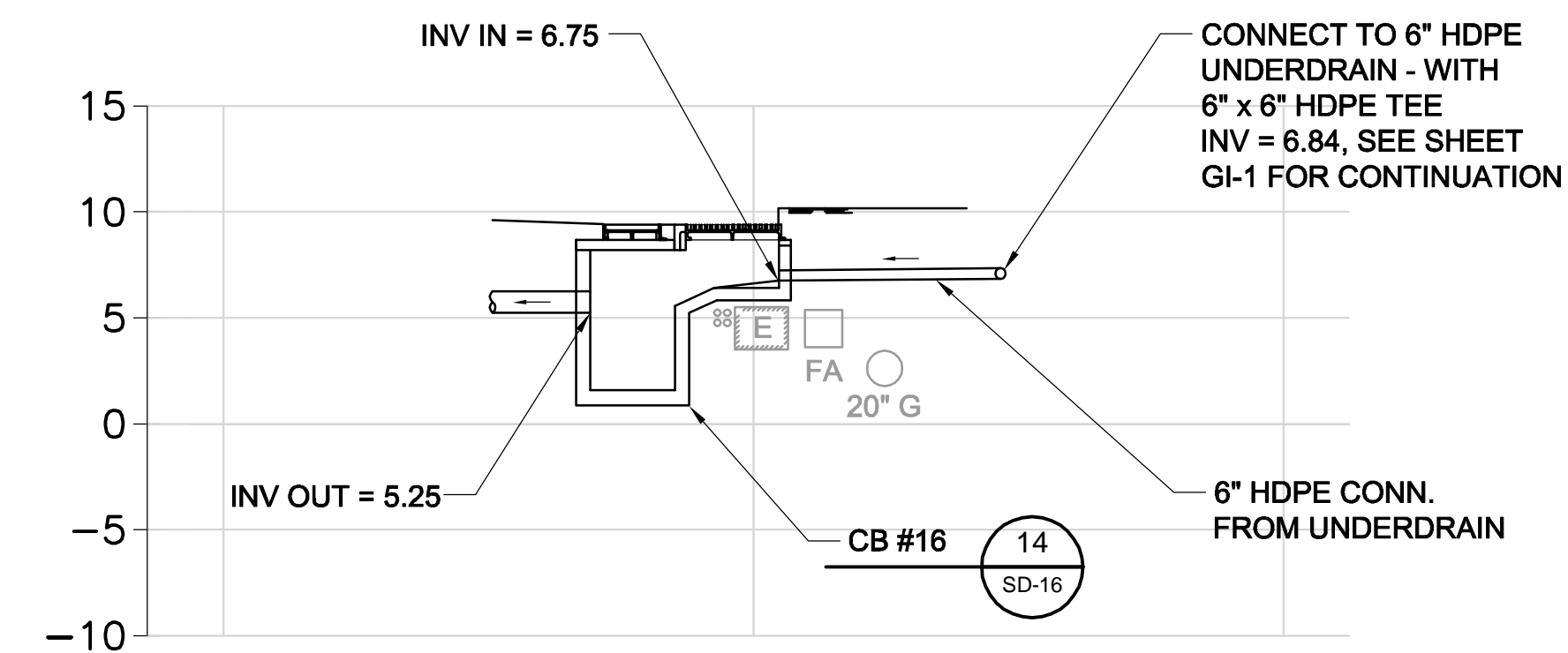
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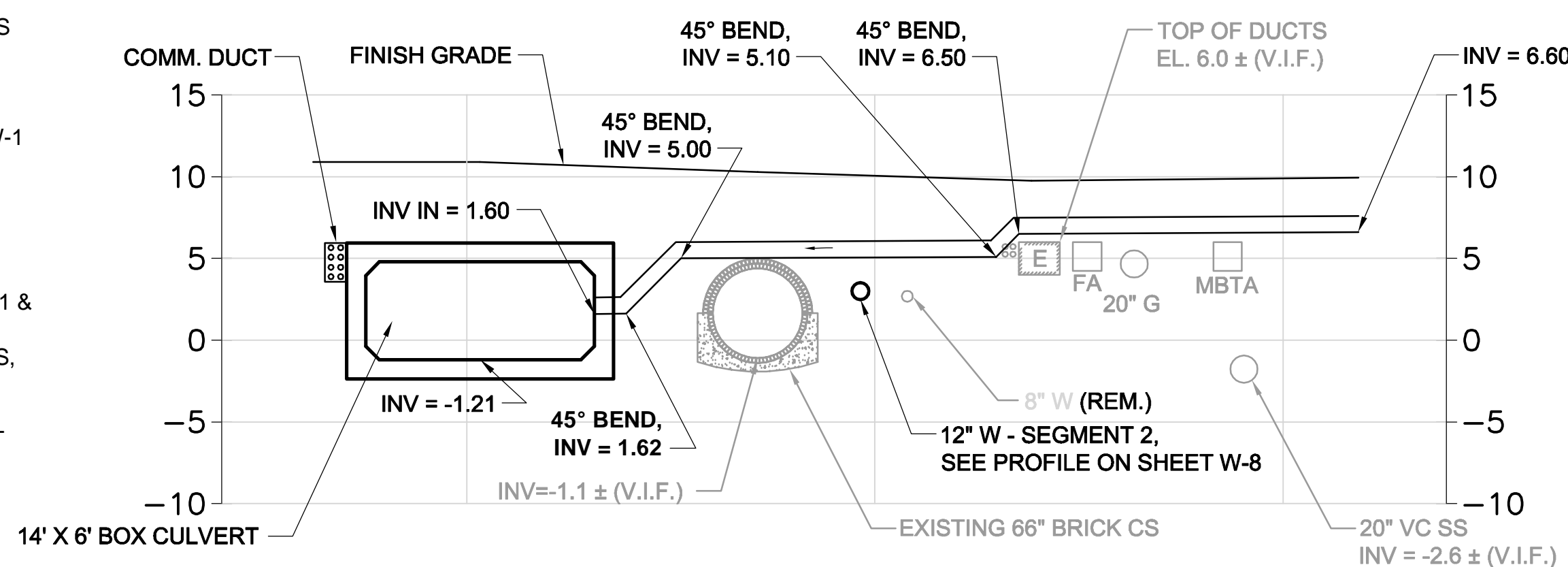
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**SECTION 14**  
SCALE: 1" = 8'



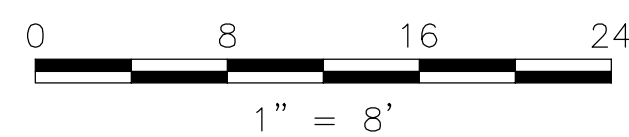
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**SECTION 14A**  
SCALE: 1" = 8'

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-11 & G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-21 & G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-1 & W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-1 & SD-2.
7. FOR GRADING PLAN, SEE SHEETS L-31 & L-32.
8. FOR UTILITY PLAN, SEE SHEETS U-1 & U-2.
9. FOR SURFACE DRAINAGE PLAN, SEE SHEETS SD-61 & SD-62.
10. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
11. TAKE TEST PITS AT LOCATION OF CB #12 & CB #14.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-1.
13. DRAIN PIPES ARE 12" HDPE U.N.O.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 2 OF 7**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: KLN  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

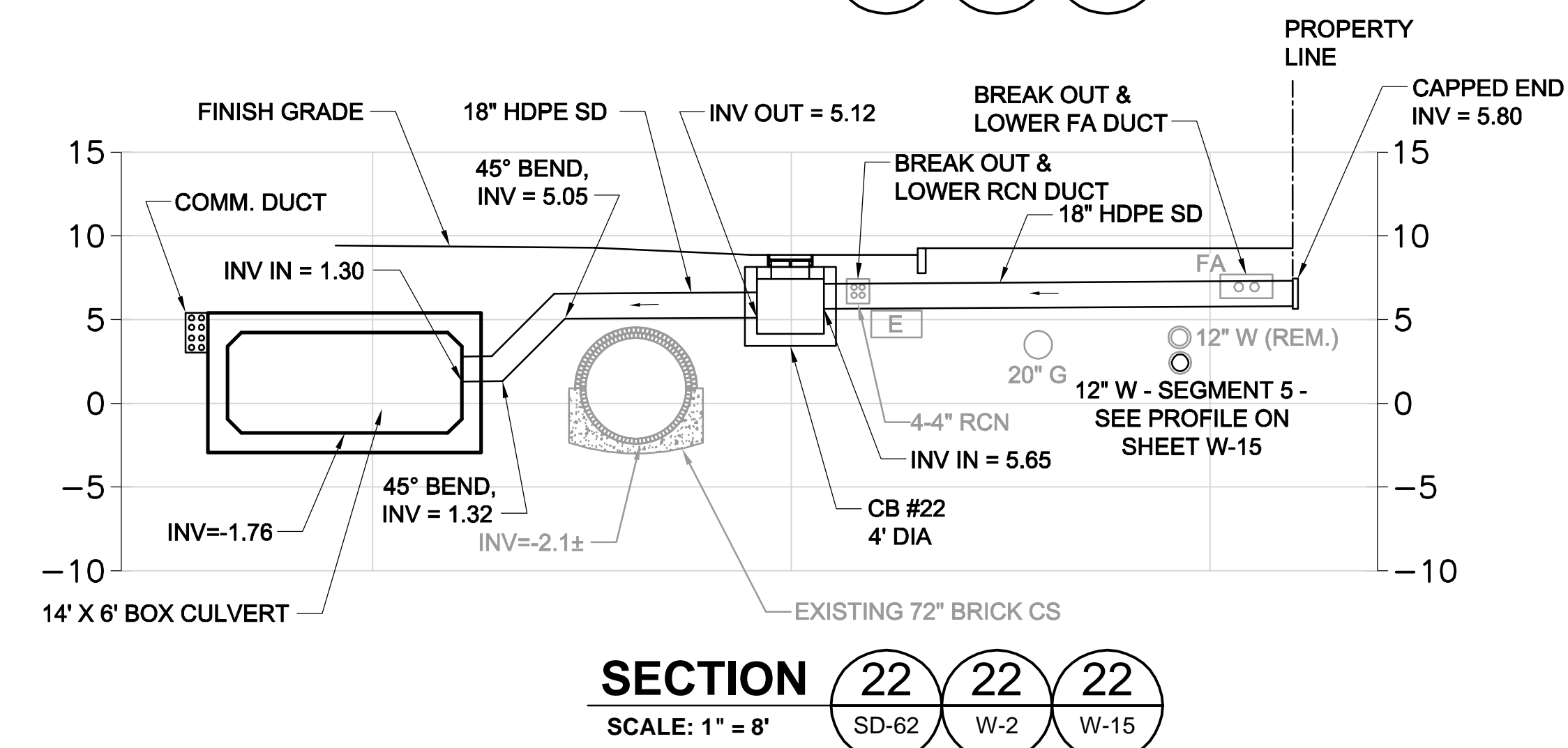
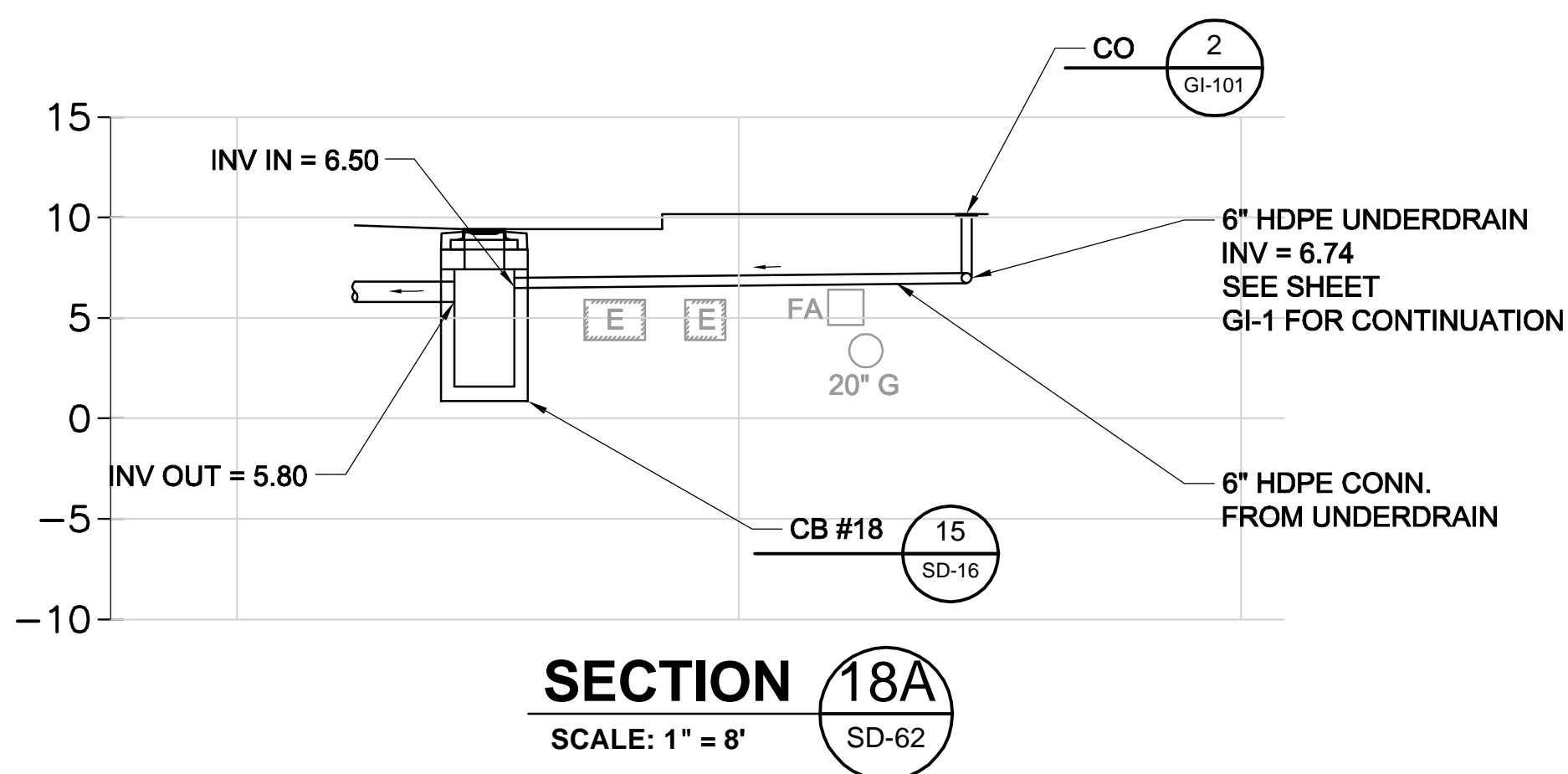
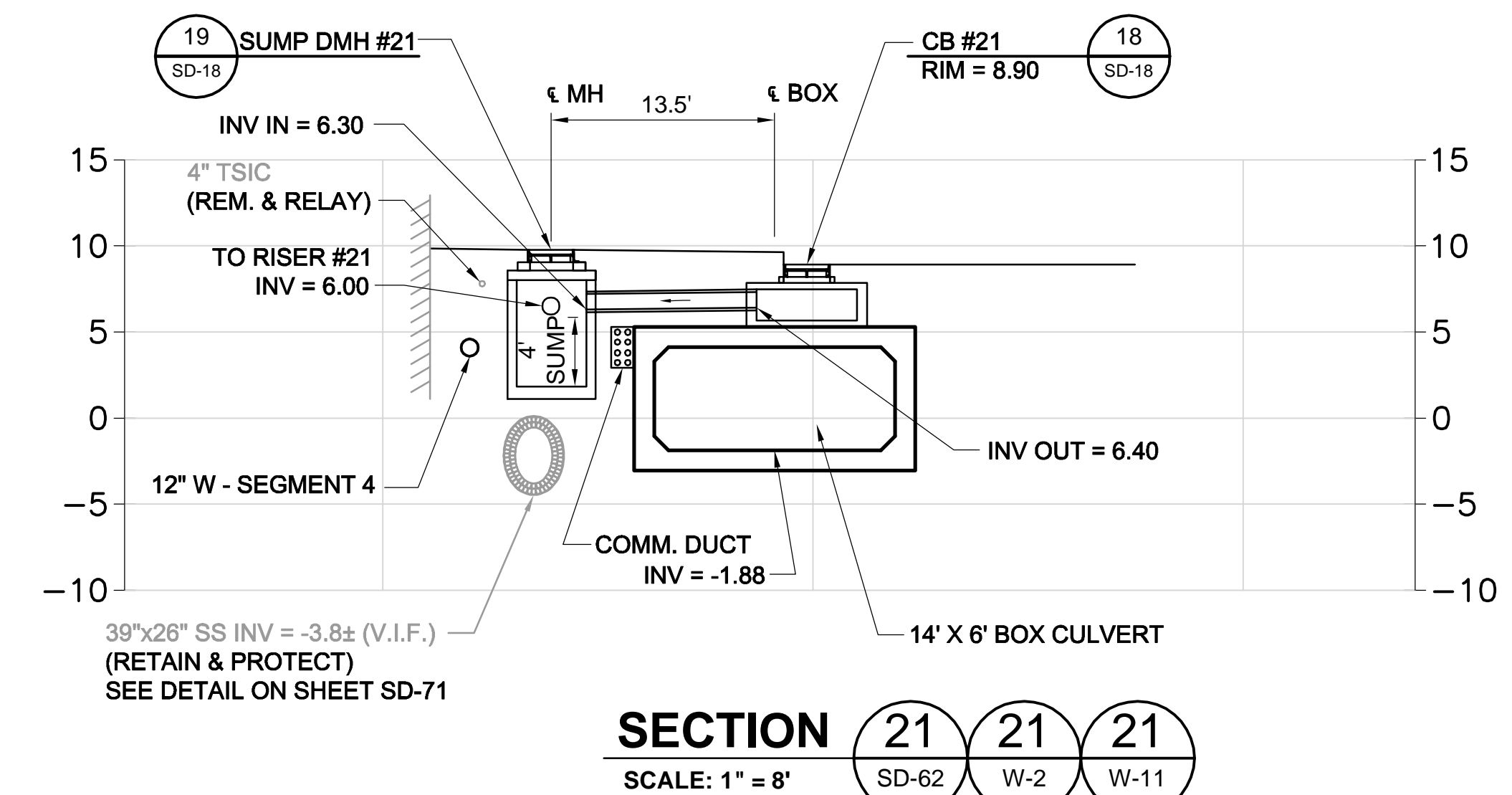
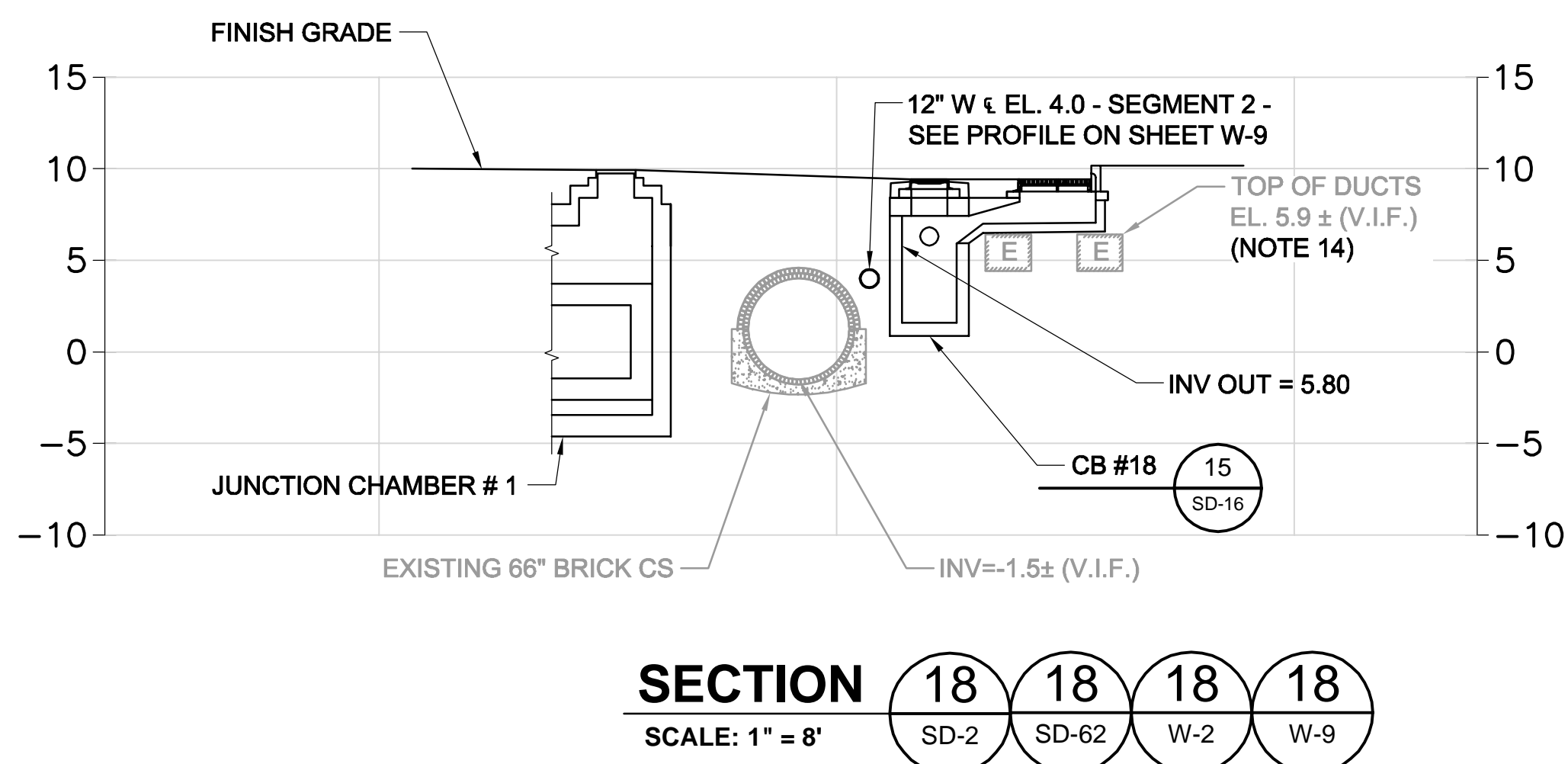
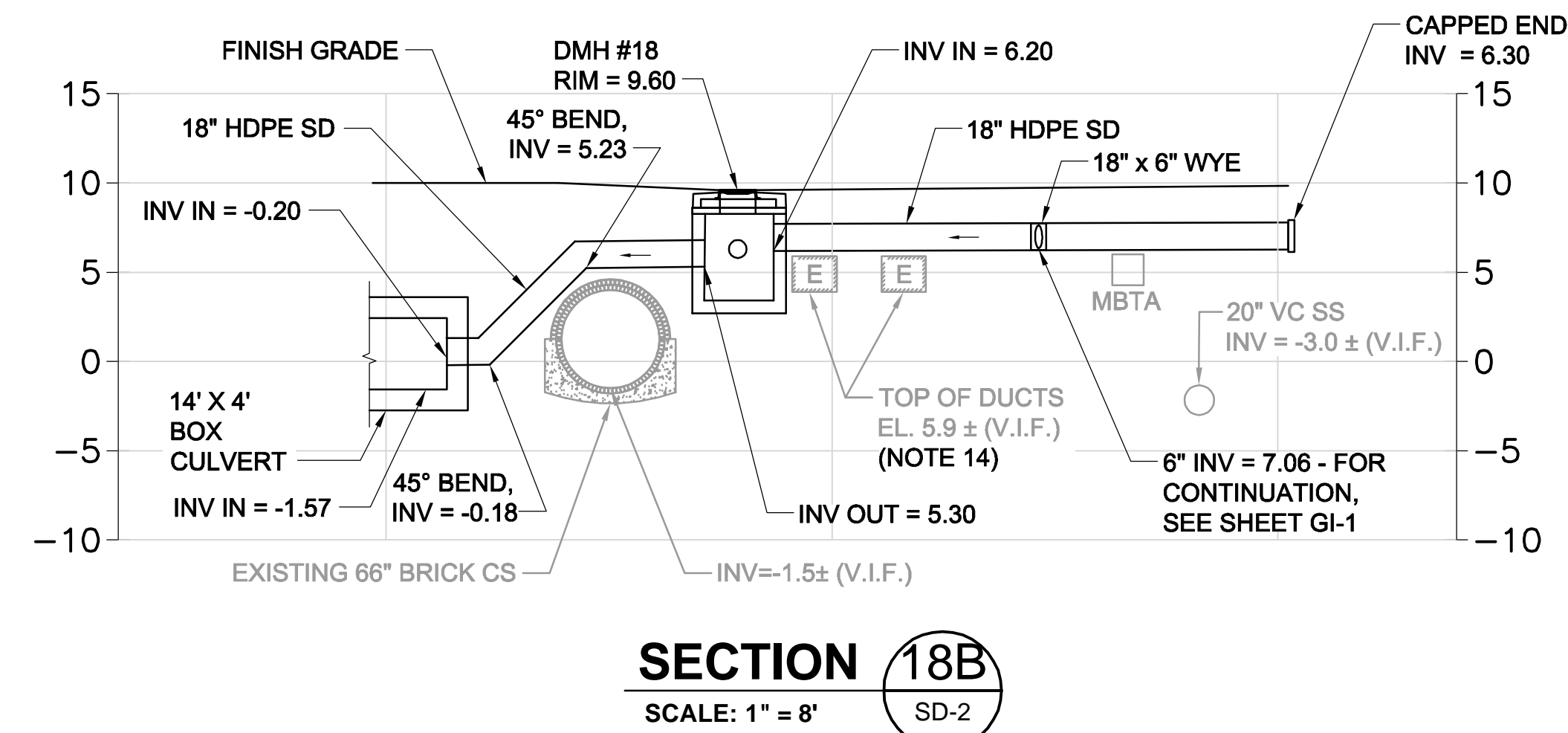
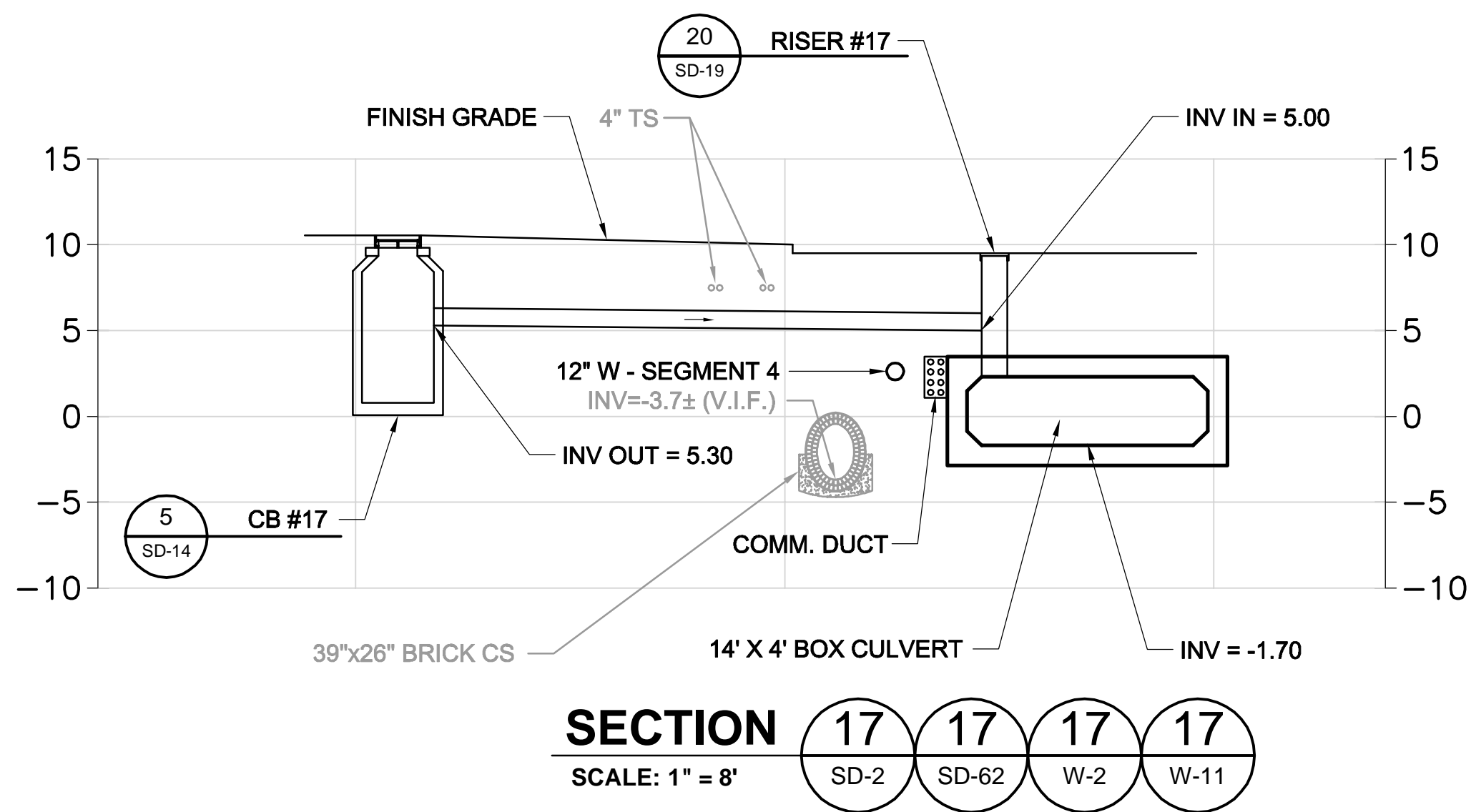
SHEET  
**SD-72**

REF. CONT. SCALE: 1" = 8'  
ACC. DATE: DEC 2017

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-12-09 6:40 PM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-71 - Sections.dwg



**NOTES:**

- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
- FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
- FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
- FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
- FOR GRADING PLAN, SEE SHEET C-22.
- FOR UTILITY PLAN, SEE SHEET U-2.
- FOR TMP PLANS, SEE SHEETS TM-141 THRU TM-165.
- FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
- TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
- FOR GREEN INFRASTRUCTURE PIPING, SEE SHEET GI-1.
- DRAIN PIPES ARE 12" HDPE U.N.O.
- DUCT BANK ELEVATIONS WHERE NOTED ARE BASED ON VACUUM TEST PITS IN OCT. 2017.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 3 OF 7**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: KLN  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC. DATE: DEC 2017

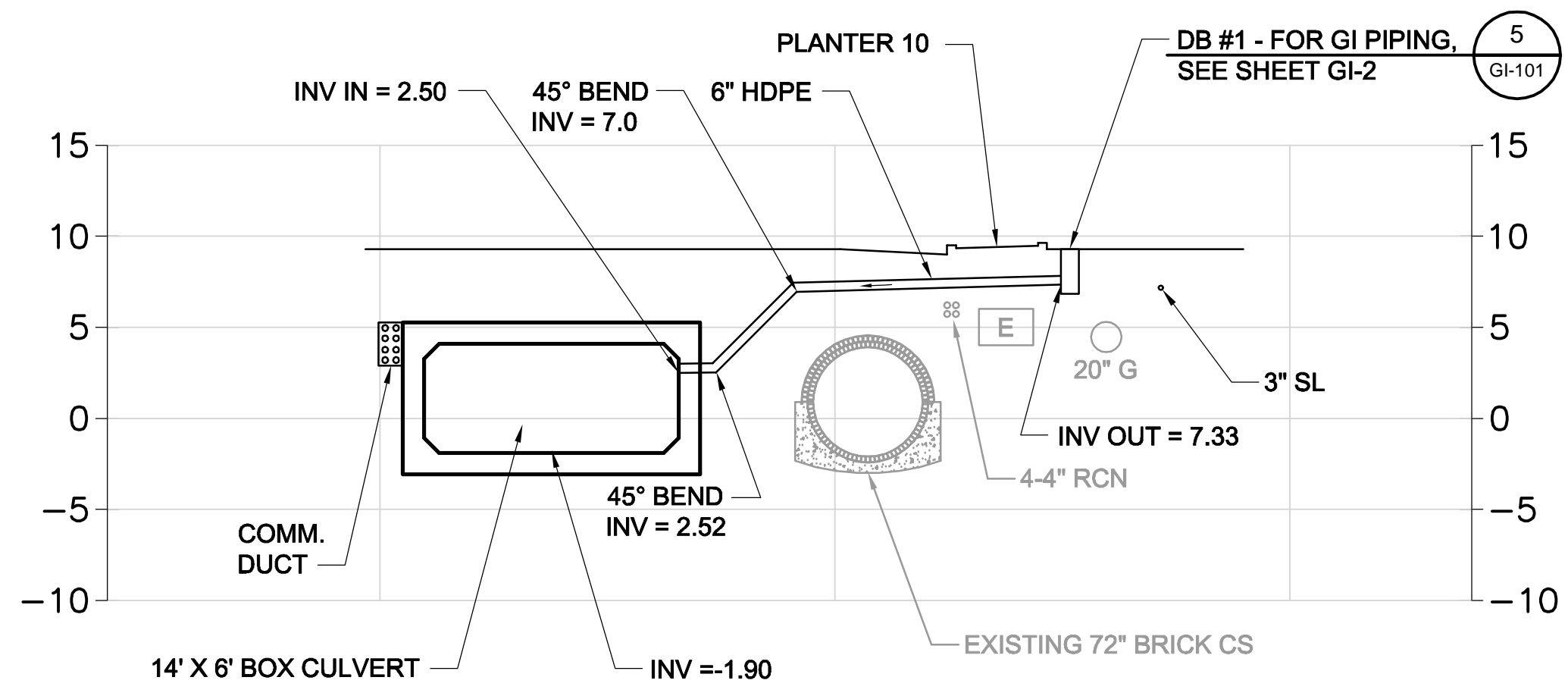
SCALE: 1" = 8'  
DATE: DEC 2017

SHEET  
**SD-73**

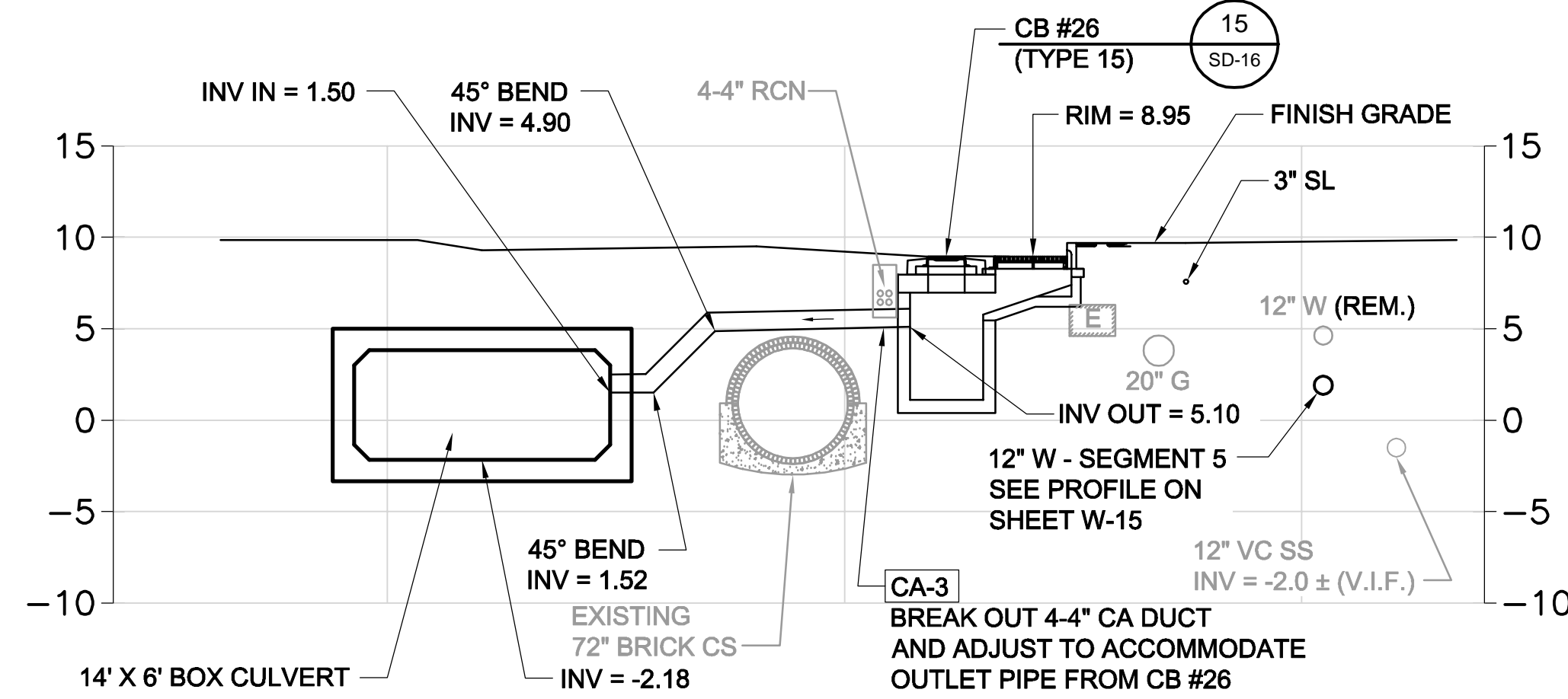
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

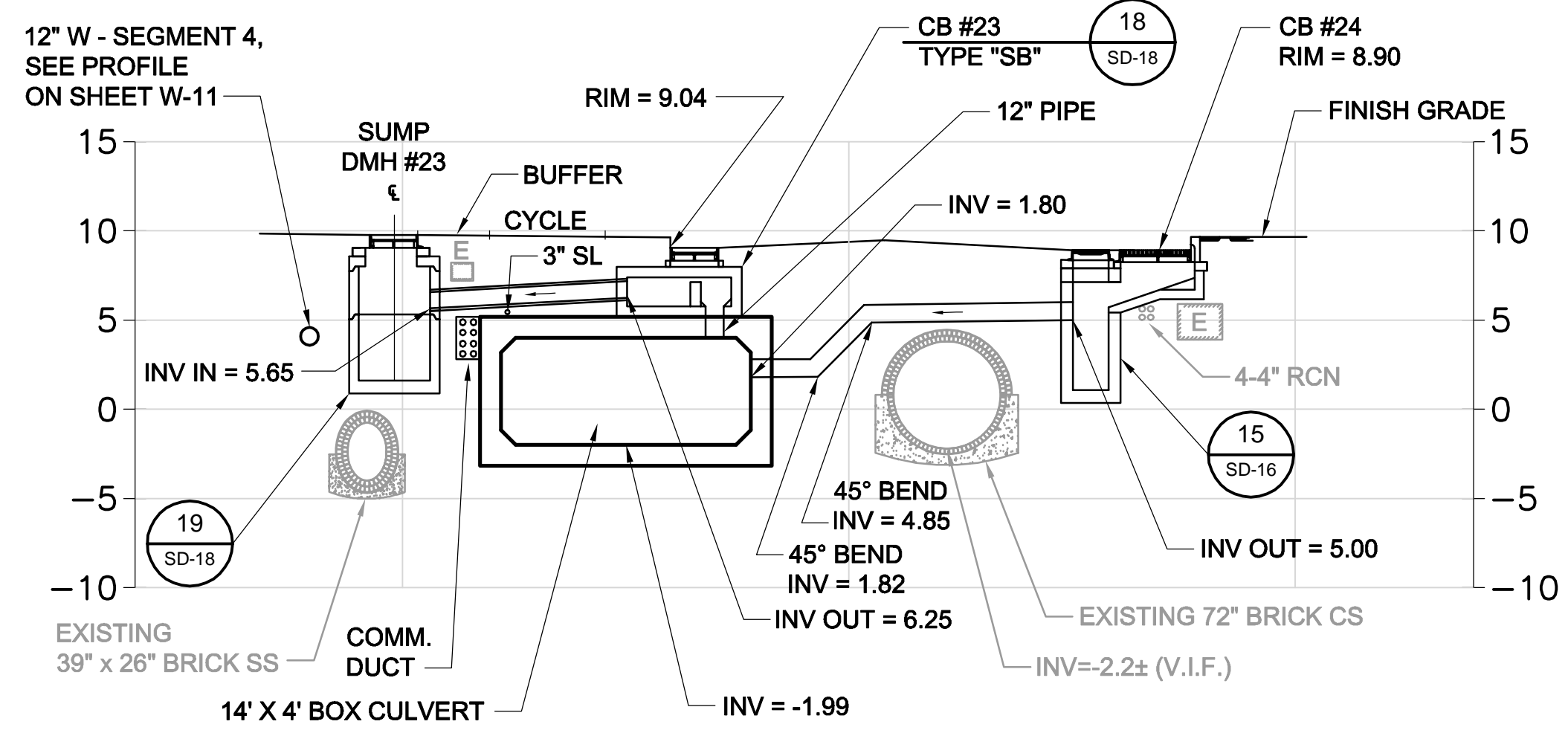
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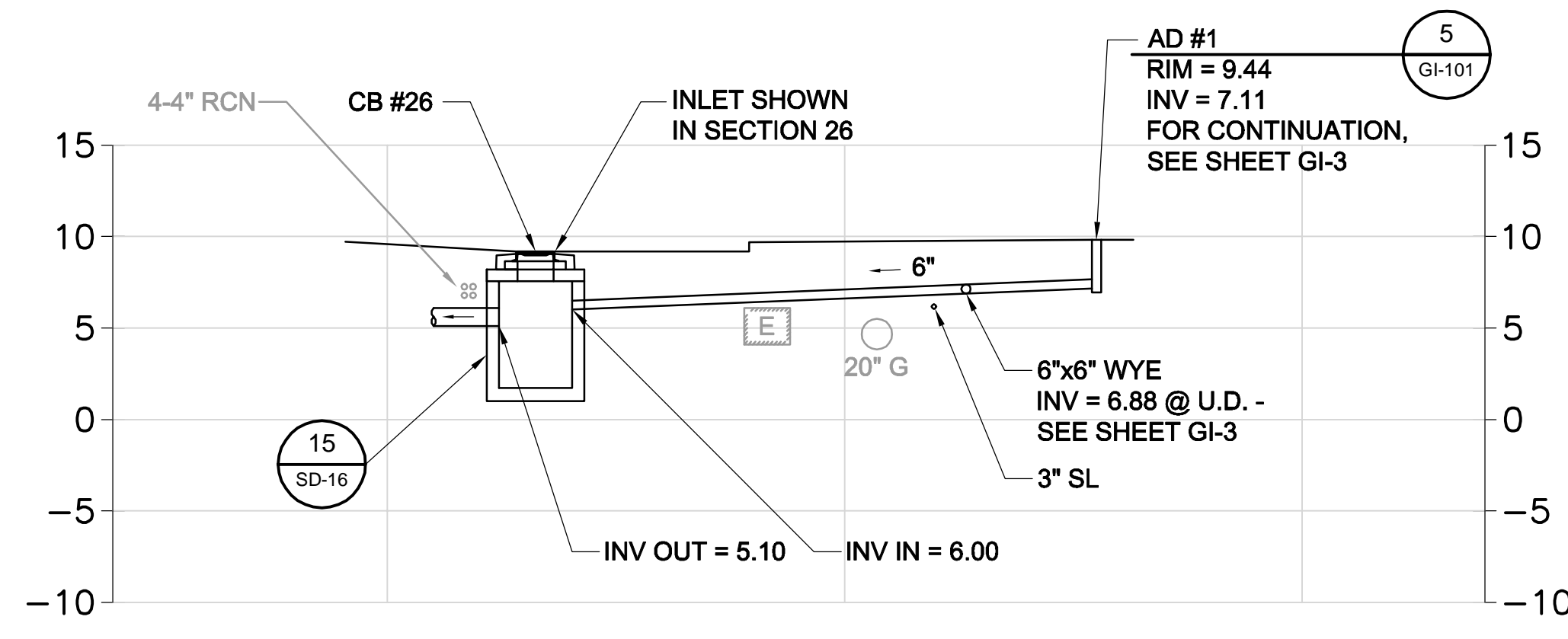
**SECTION 22A**  
SCALE: 1" = 8'



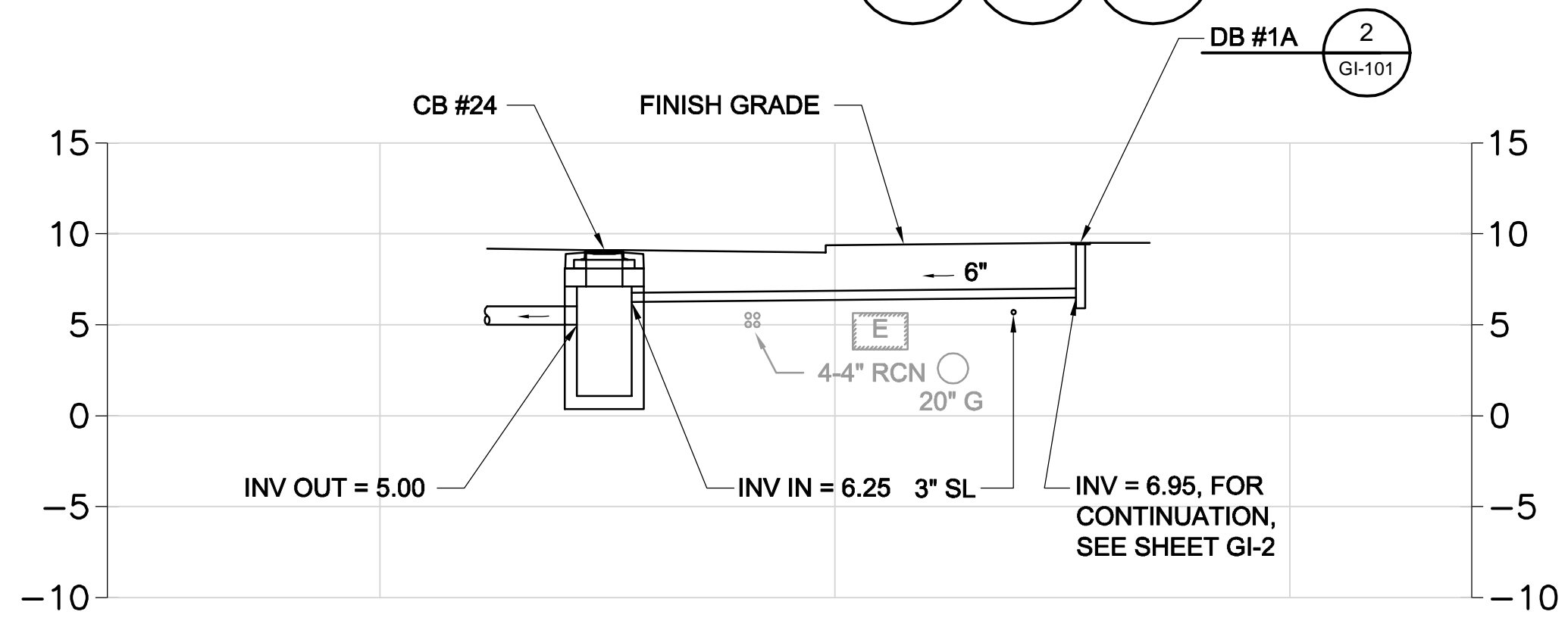
**SECTION 26**  
SCALE: 1" = 8'



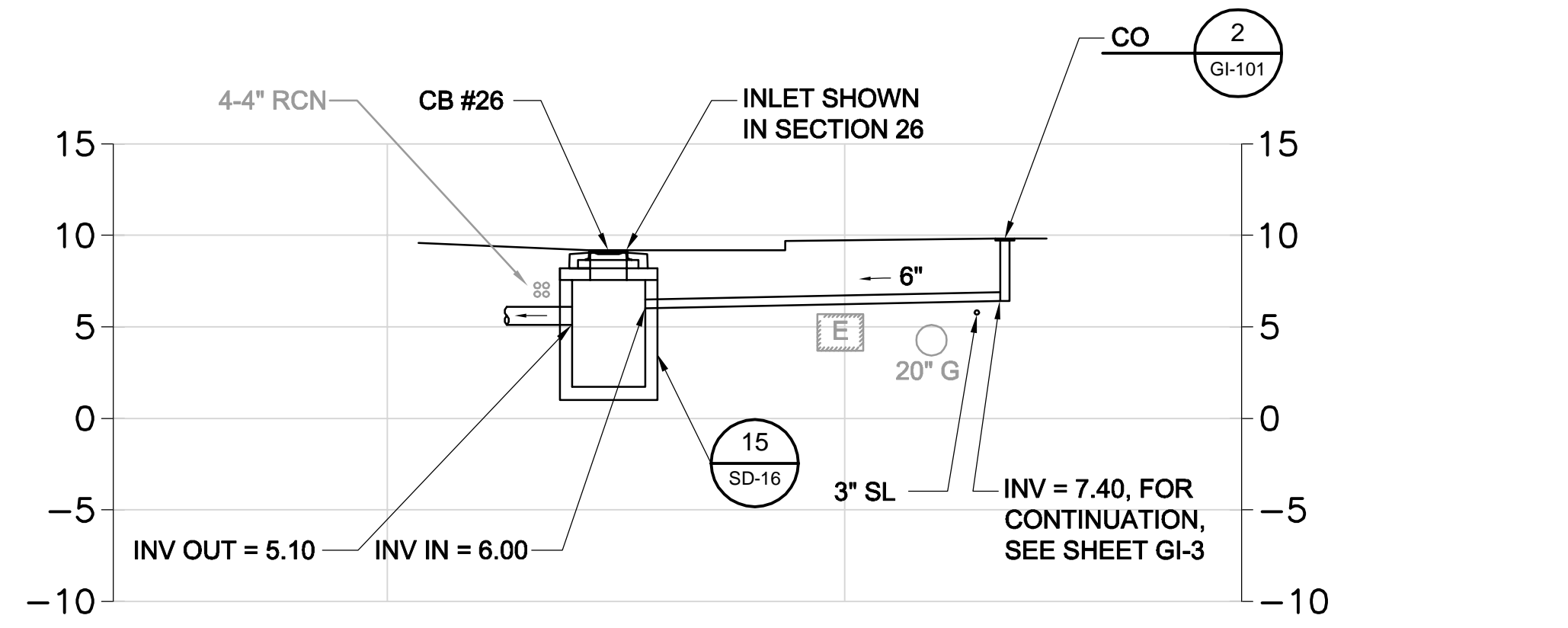
**SECTION 23**  
SCALE: 1" = 8'



**SECTION 26A**  
SCALE: 1" = 8'



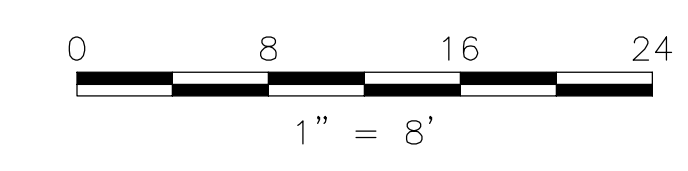
**SECTION 24**  
SCALE: 1" = 8'



**SECTION 26B**  
SCALE: 1" = 8'

Rachel J. Burckardt  
 12/11/17

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-13.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-23.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-3.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-3.
  - FOR GRADING PLAN, SEE SHEET L-33.
  - FOR UTILITY PLAN, SEE SHEET U-3.
  - FOR TMP PLANS, SEE SHEETS TM-141 THRU TM-165.
  - FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
  - TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
  - FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-2 & GI-3.
  - DRAIN PIPES ARE 12" HDPE U.N.O.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 4 OF 7**

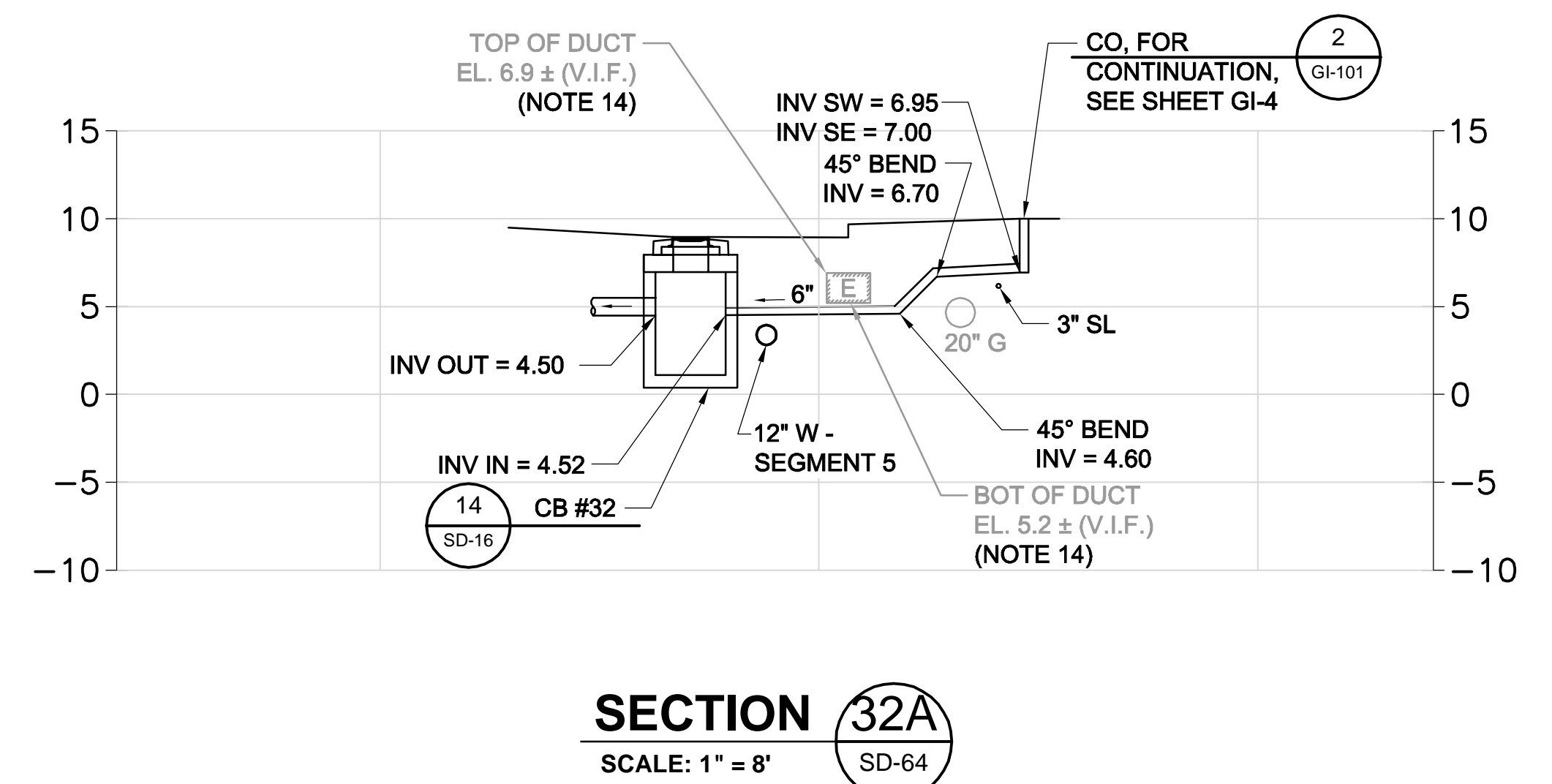
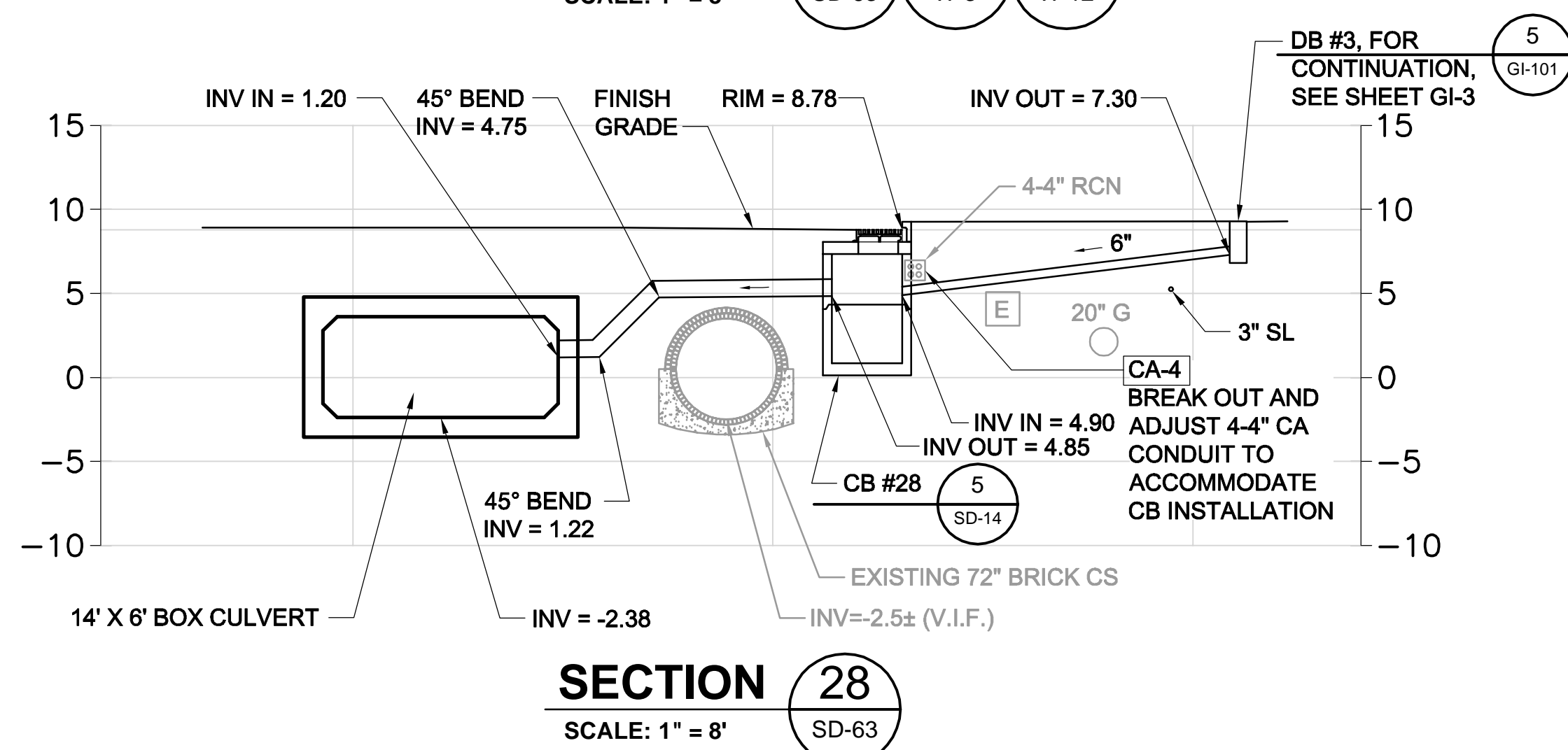
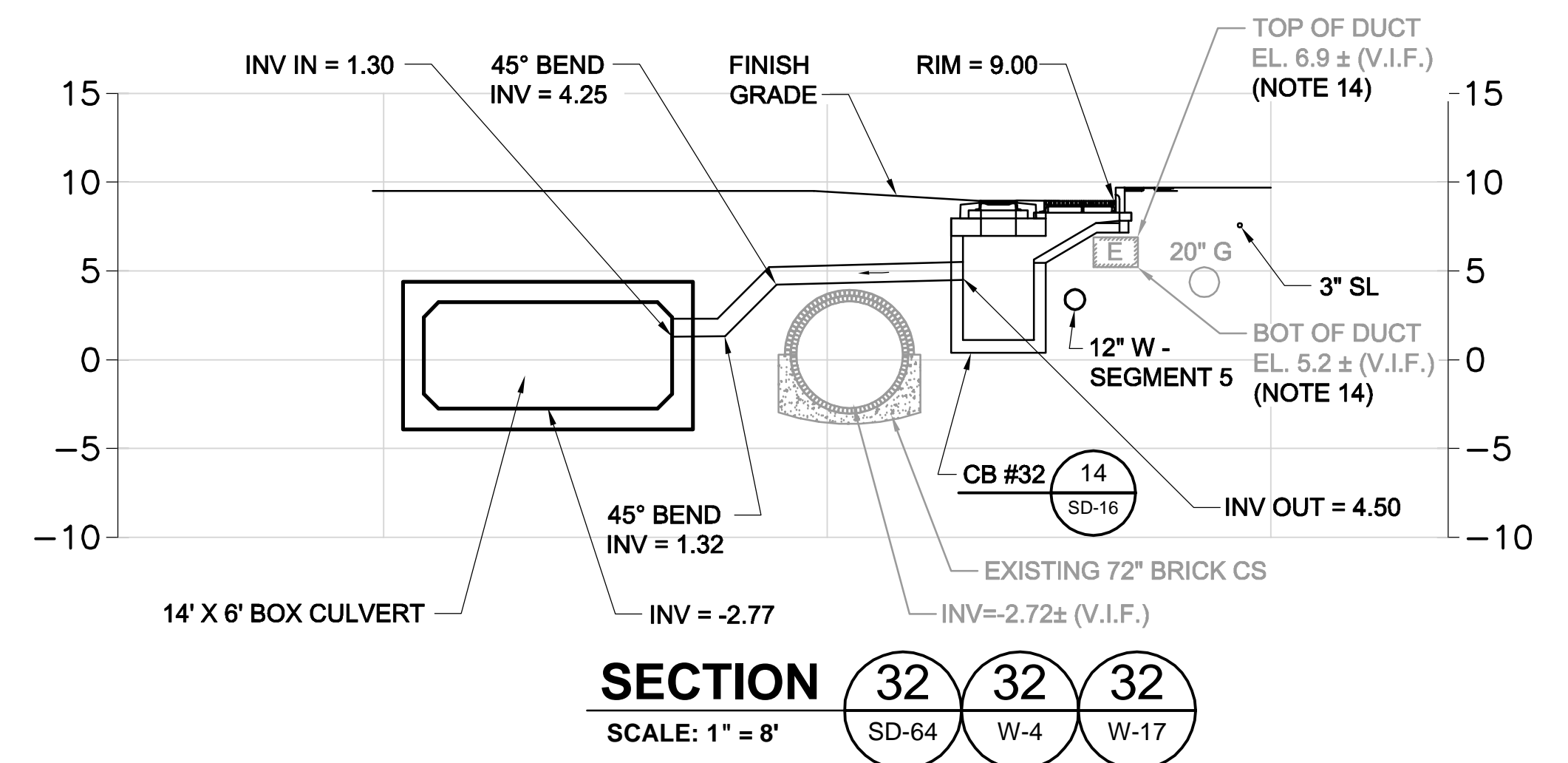
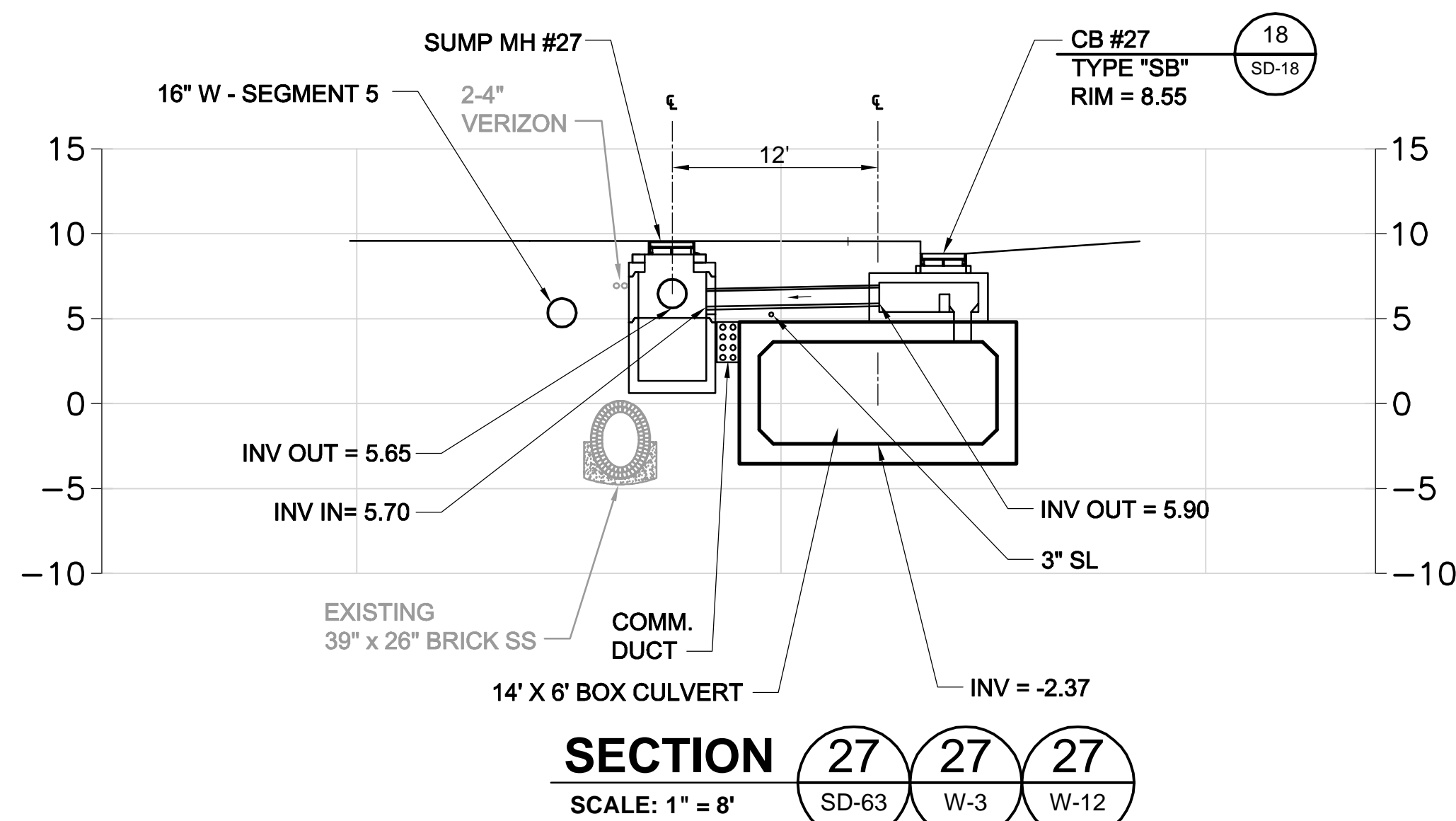
DESIGNED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET
CHECKED: LAC		SD-74
DRAWN: KLN	REF.	SCALE: 1" = 8'
CHECKED: RJB	CONT.	DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

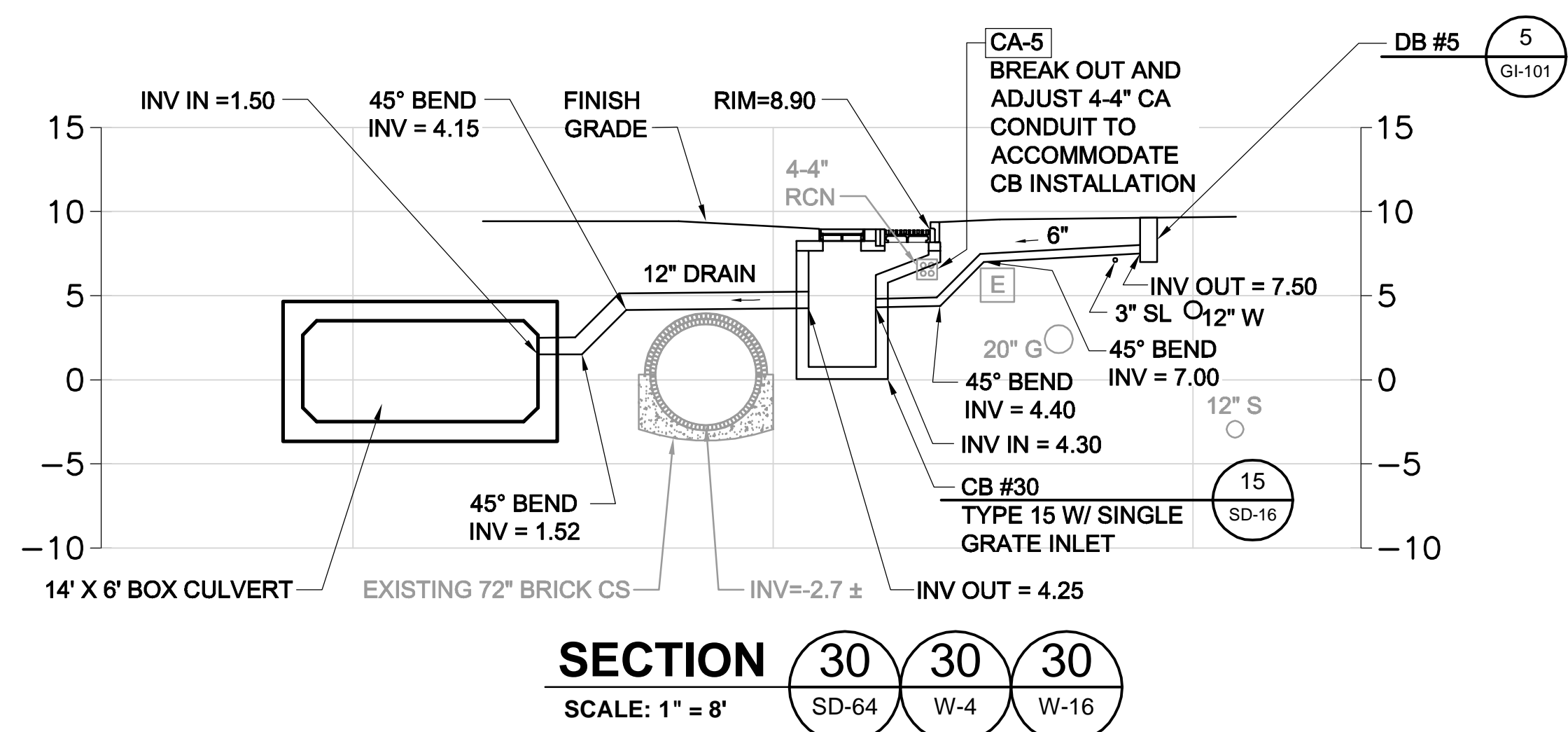
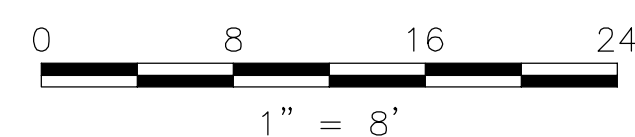


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**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-13 & G-14.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-23 & G-24.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-3 & W-4.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-3 & SD-4.
7. FOR GRADING PLAN, SEE SHEETS L-33 & L-34.
8. FOR UTILITY PLAN, SEE SHEETS U-3 & U-4.
9. FOR TMP PLANS, SEE SHEETS TM-141 THRU TM-165.
10. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-3 & GI-4.
13. DRAIN PIPES ARE 12" HDPE U.N.O.
14. DUCT BANK ELEVATIONS WHERE NOTED ARE BASED ON VACUUM TEST PITS IN OCT. 2017.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 5 OF 7**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: KLN  
 CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
 Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
 ACC. DATE: DEC 2017

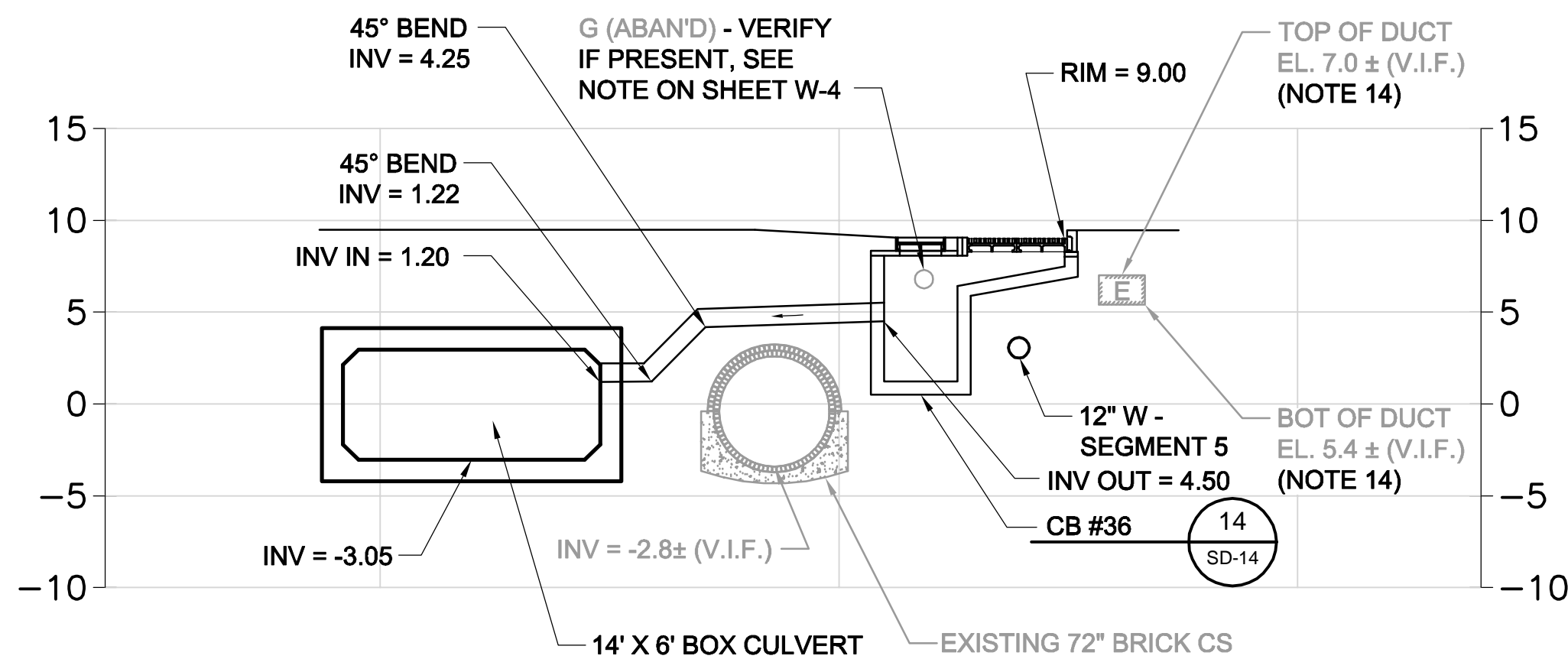
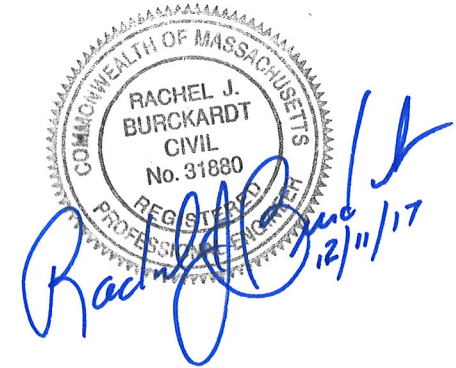
SHEET  
**SD-75**

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

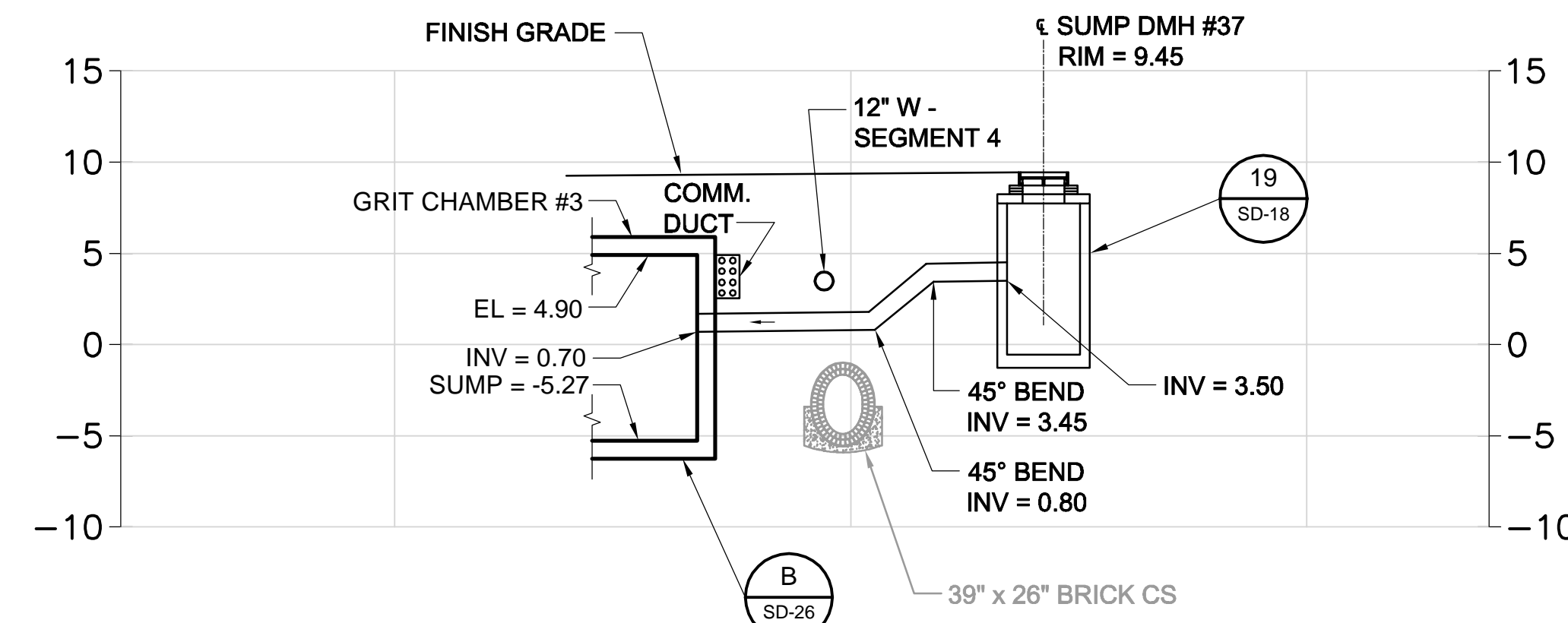
NO.	DATE	REVISIONS	BY

*Rachel J. Burckardt*  
 12/11/17

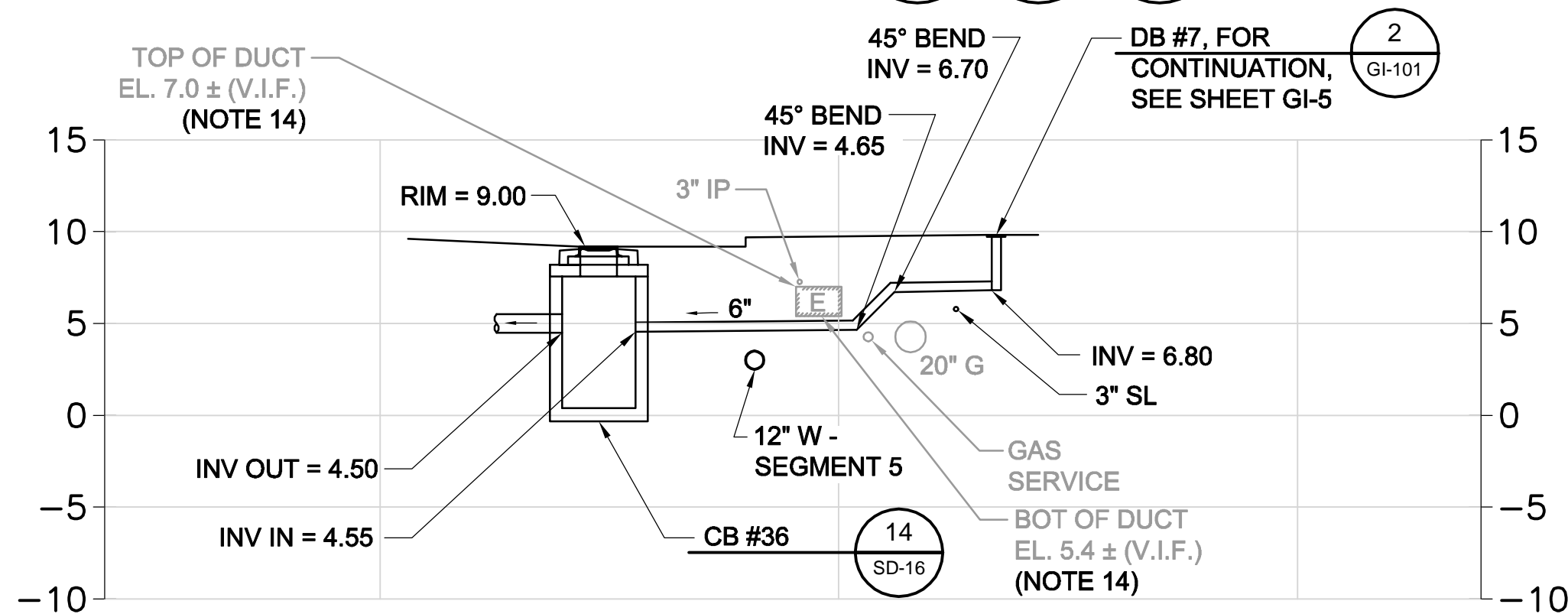
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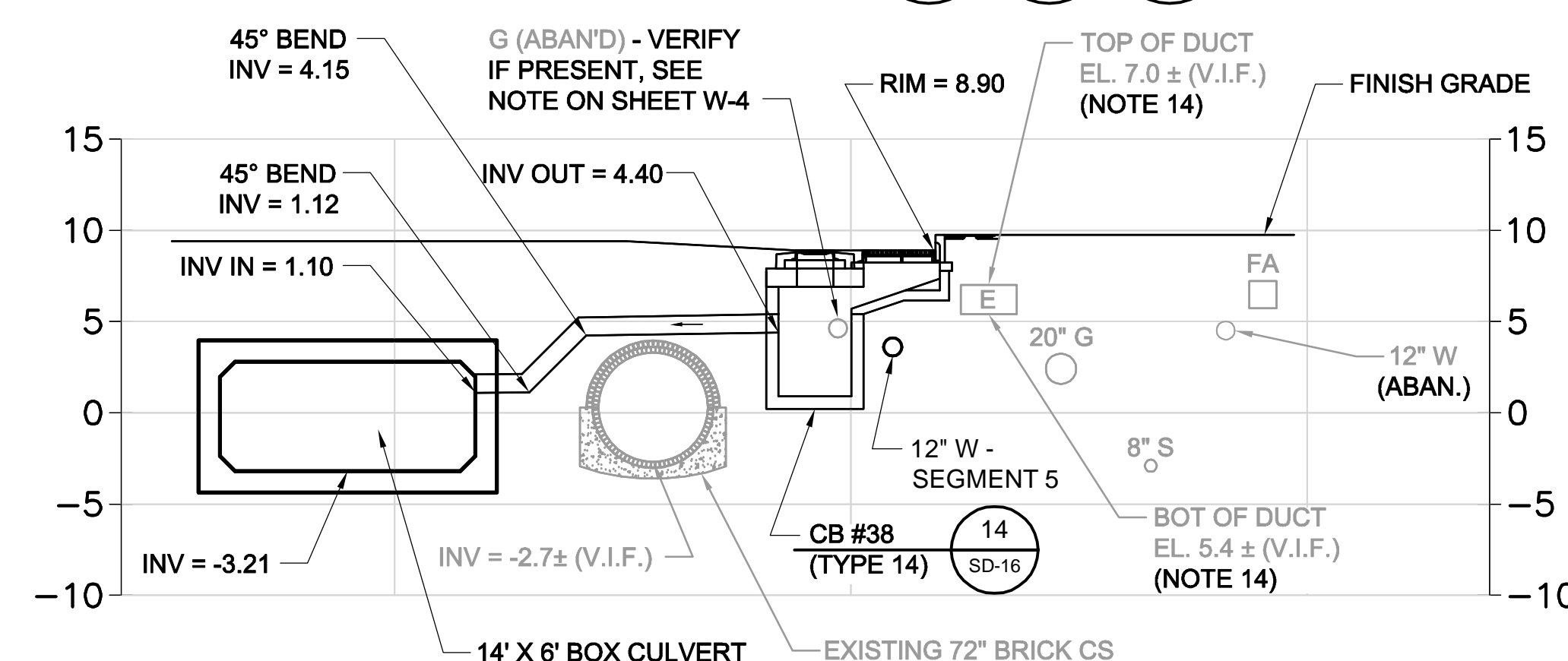
**SECTION 36**  
SCALE: 1" = 8'  
SD-4 SD-64 W-4



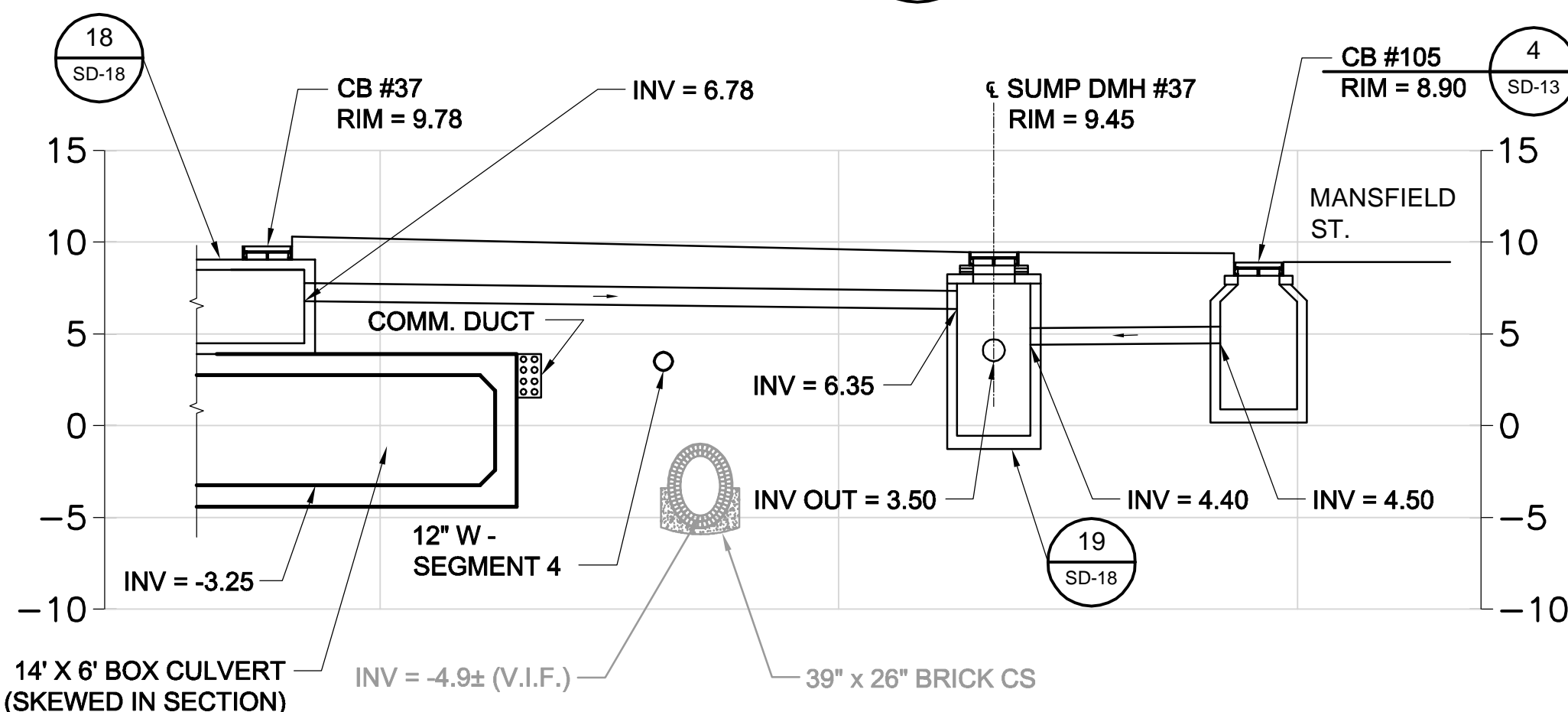
**SECTION 37A**  
SCALE: 1" = 8'  
SD-65 W-5 W-13



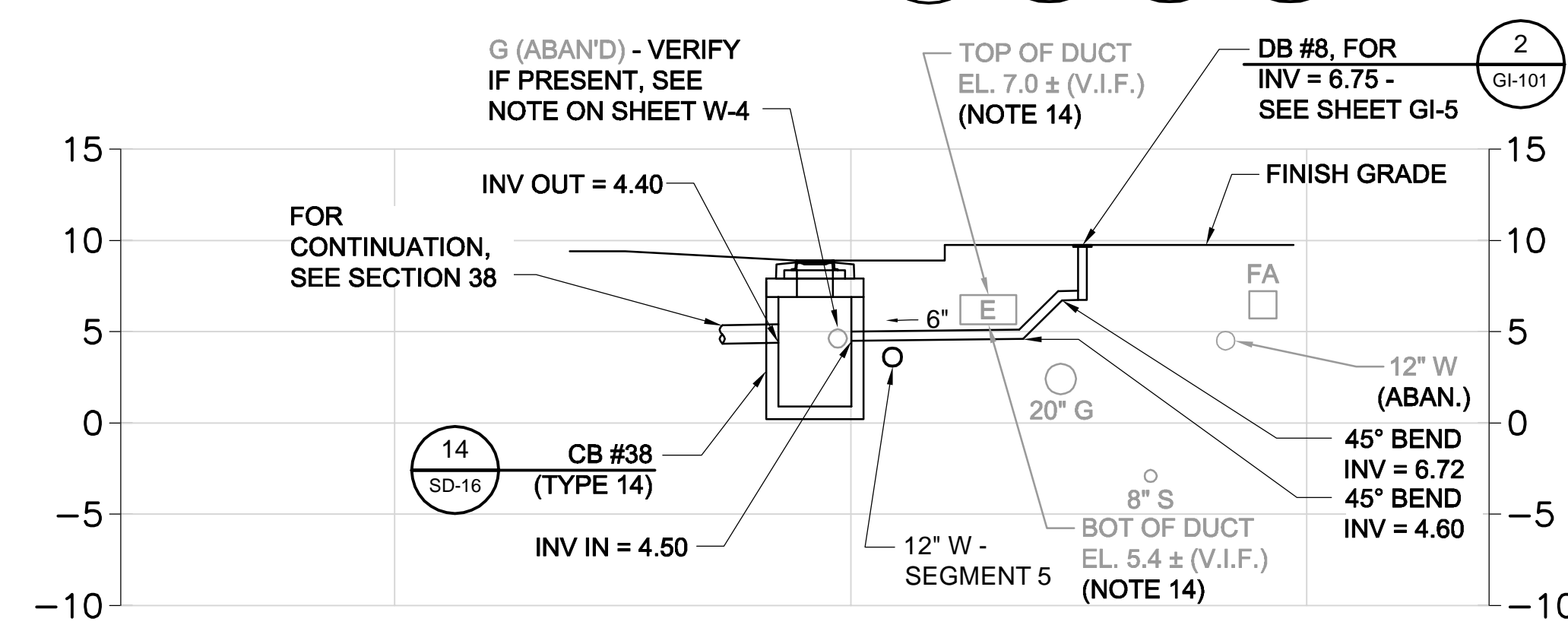
**SECTION 36A**  
SCALE: 1" = 8'  
SD-64



**SECTION 38**  
SCALE: 1" = 8'  
SD-4 SD-64 W-4 W-17



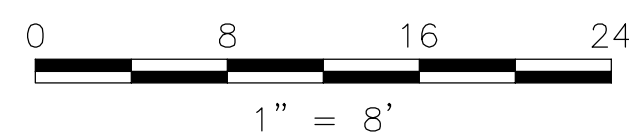
**SECTION 37**  
SCALE: 1" = 8'  
SD-65 W-5 W-13



**SECTION 38A**  
SCALE: 1" = 8'  
SD-4

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-14 & G-15.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-24 & G-25.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-4 & W-5.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-4 & SD-5.
7. FOR GRADING PLAN, SEE SHEETS L-34 & L-35.
8. FOR UTILITY PLAN, SEE SHEETS U-4 & U-5.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-5 & GI-6.
13. DRAIN PIPES ARE 12" HDPE U.N.O.
14. DUCT BANK ELEVATIONS WHERE NOTED ARE BASED ON VACUUM TEST PITS IN OCT. 2017.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

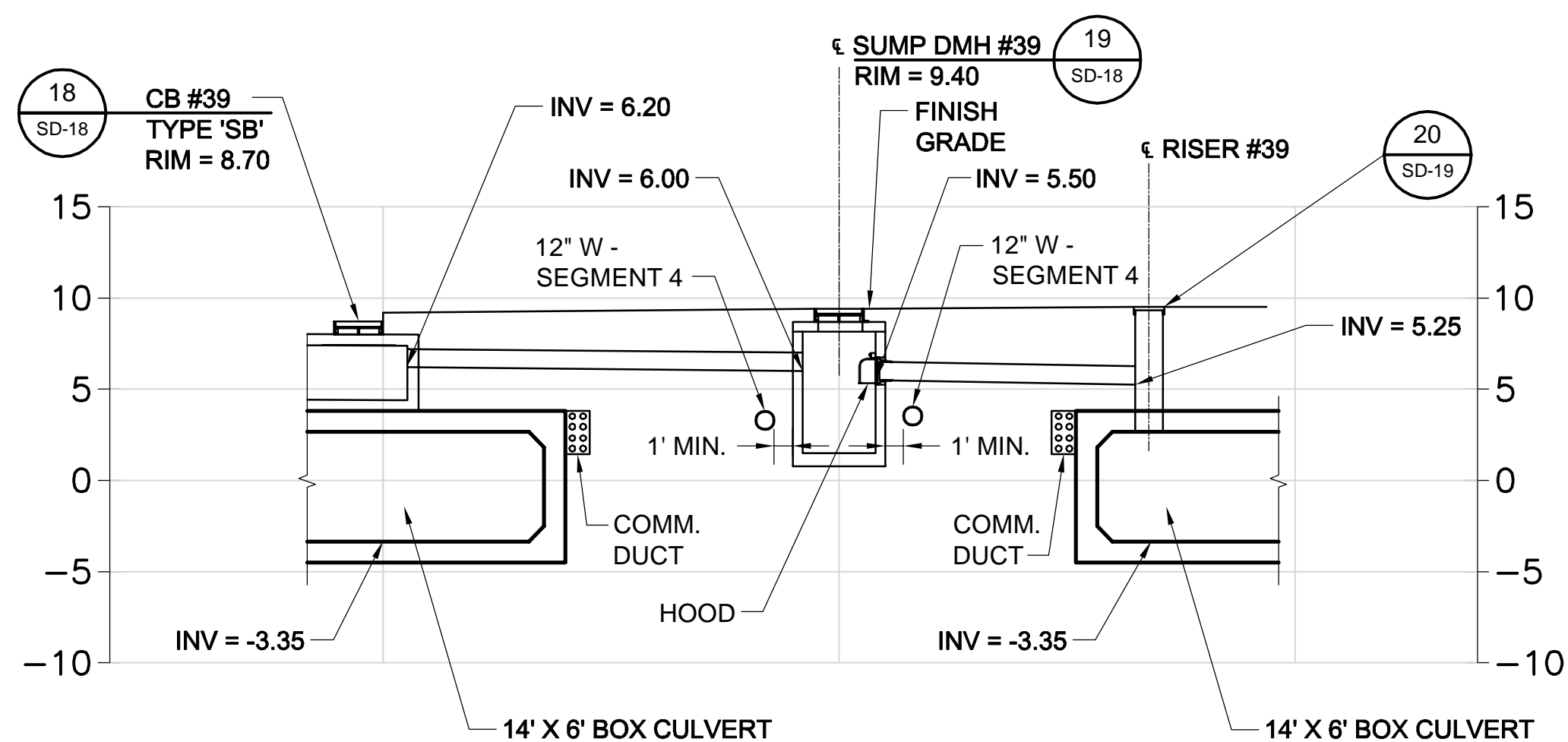
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 6 OF 7**

DESIGNED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET
CHECKED: LAC		SD-76
DRAWN: KLN	REF. _____ CONT. _____	SCALE: 1" = 8'
CHECKED: RJB	ACC. _____	DATE: DEC 2017

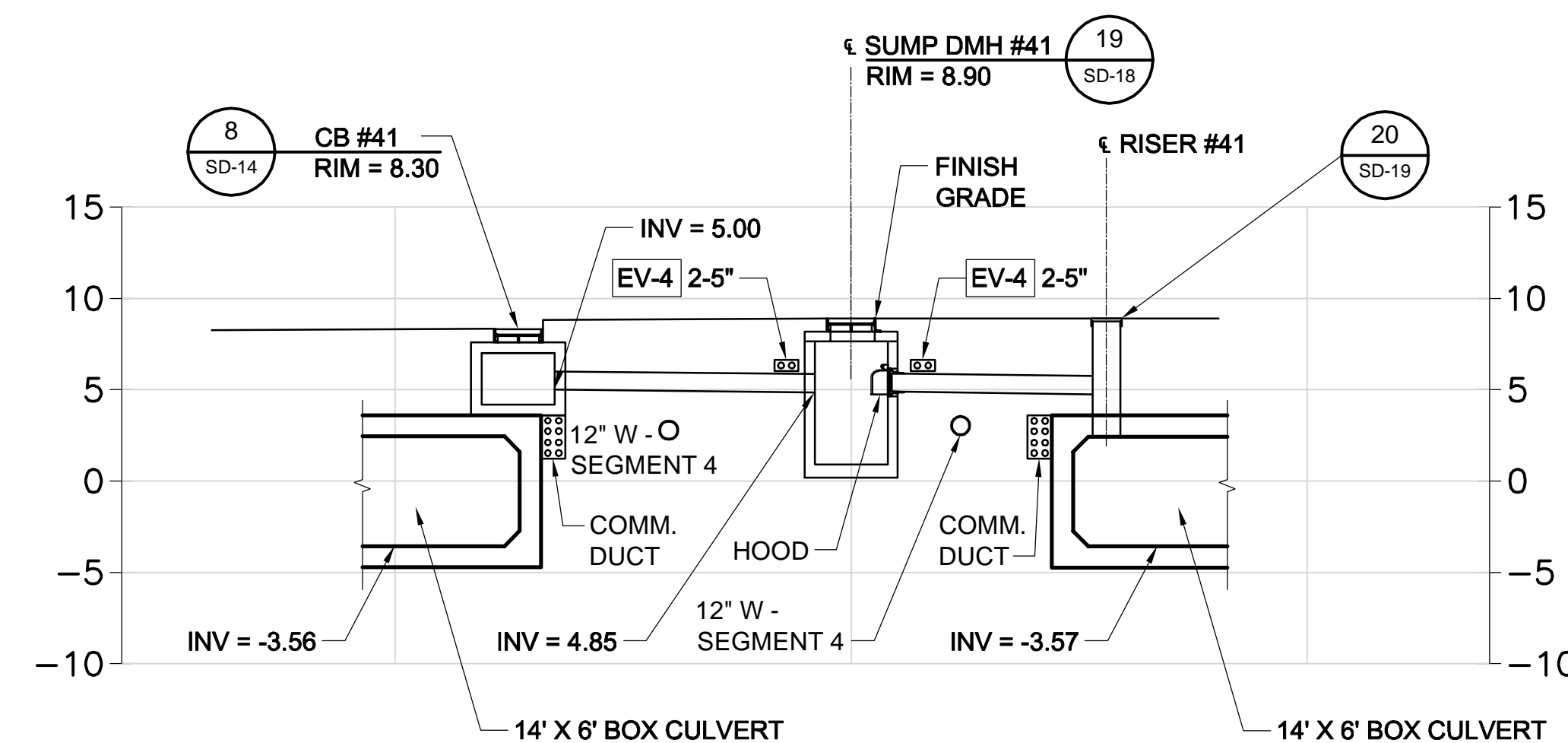
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

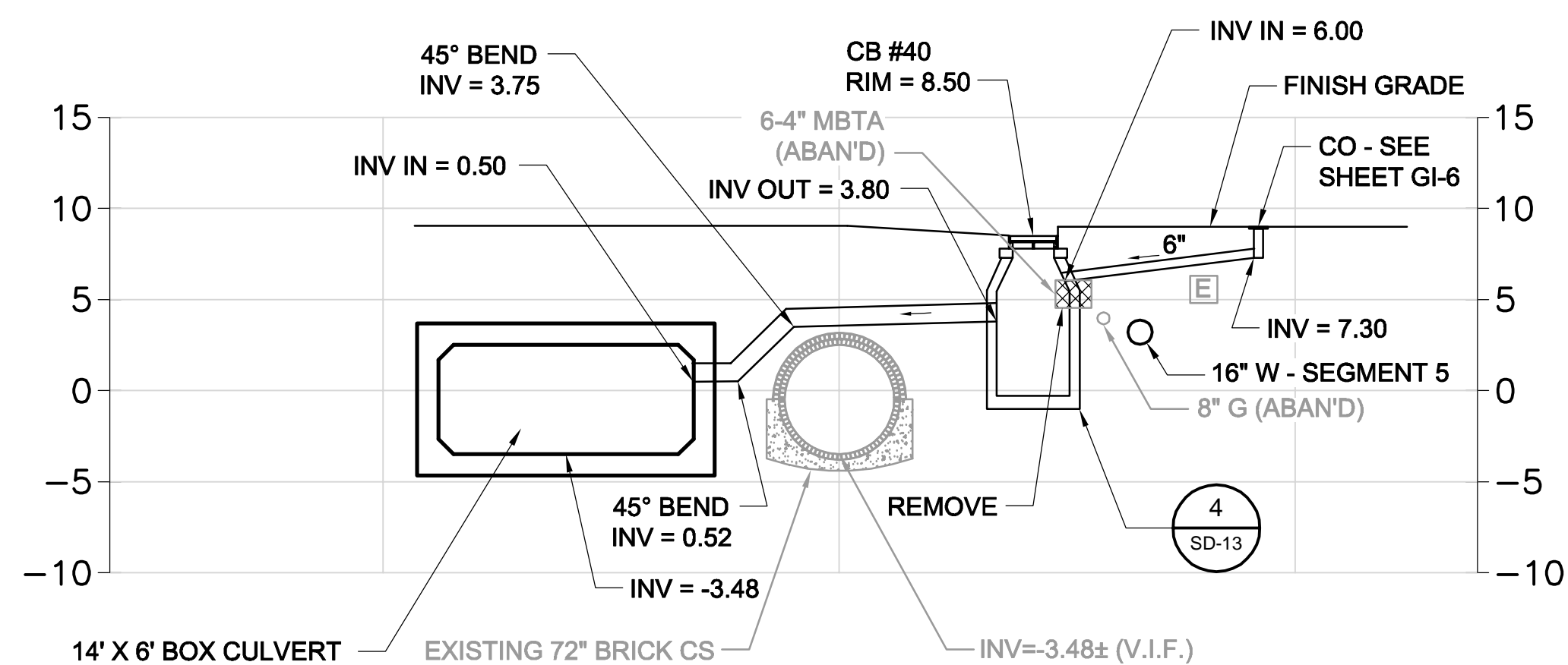
2017-12-09 6:40 PM T:\52647LS Union Square Study and Design\SHD DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-71 - Sections.dwg



**FOLDED SECTION 39**  
SCALE: 1" = 8'



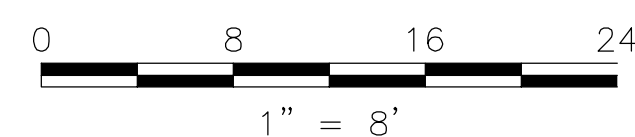
**FOLDED SECTION 41**  
SCALE: 1" = 8'



**SECTION 40**  
SCALE: 1" = 8'

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-14 & G-15.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-24 & G-25.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-4 & W-5.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-4 & SD-5.
7. FOR GRADING PLAN, SEE SHEETS L-34 & L-35.
8. FOR UTILITY PLAN, SEE SHEETS U-4 & U-5.
9. FOR STORM DRAIN AND SANITARY SEWER DETAILS, SEE SHEETS SD-13 THRU SD-19.
10. FOR DRAINAGE STRUCTURE RIMS & INVERTS, SEE SHEET SD-67.
11. TAKE TEST PITS AT ALL CB LOCATIONS ON SOUTH SIDE OF SOMERVILLE AVENUE.
12. FOR GREEN INFRASTRUCTURE PIPING, SEE SHEETS GI-5 & GI-6.
13. DRAIN PIPES ARE 12" HDPE U.N.O.



Rachel J. Burckardt  
 CIVIL  
 No. 31889  
 DEC 11 11 17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SURFACE DRAINAGE SECTIONS**  
**SHEET 7 OF 7**

DESIGNED: RJB  
 CHECKED: LAC  
 DRAWN: KLN  
 CHECKED: RJB

Parsons Brinckerhoff, Inc.  
 75 Arlington St. Boston, MA 02116  
 PH. (617)426-7330 FAX (617)482-8487

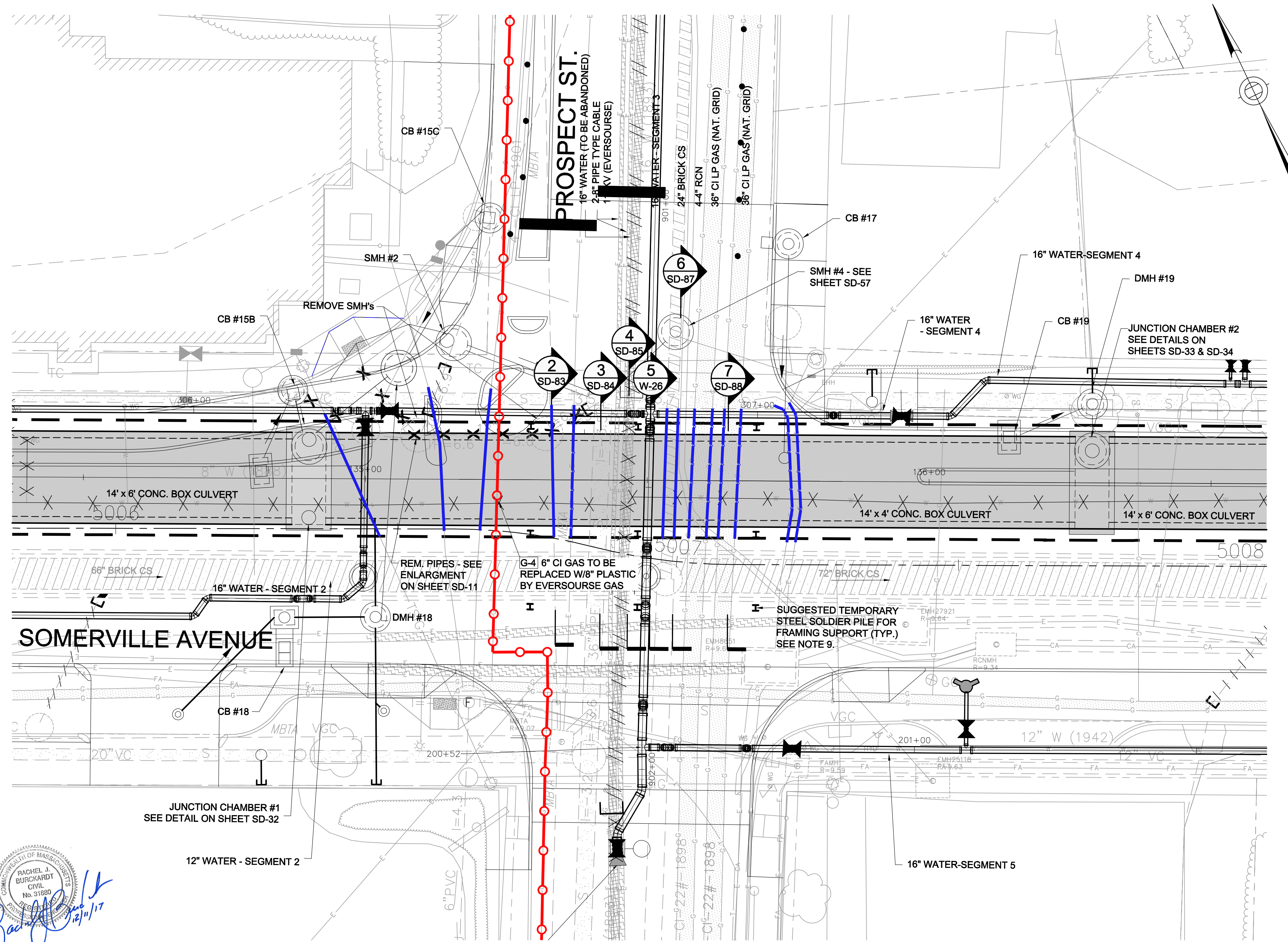
SHEET  
**SD-77**

REF. CONT. SCALE: 1" = 8'  
 ACC. DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

2017-11-20 10:42 AM T:\52647LS Union Square Study and Design\SHIT DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-80.dwg



PLAN

**KEY**

UTILITIES TO BE SUPPORTED IN PLACE

— DUCT BANK OR PIPE TO BE SUPPORTED IN PLACE.

UTILITIES TO BE RELOCATED OR REPLACED

— NEW DUCT BANK.

○ ○ PIPE TO BE REPLACED

× × × × REMOVE EXIST. UTILITY

EV-1 TAG # FOR UTILITY RELOCATION.

□ PLUG PIPE (BY CONTRACTOR)

- NOTES FOR UTILITY SUPPORT - SOMERVILLE AVE. AT PROSPECT ST.
1. PRIOR TO THE START OF CONSTRUCTION, TAKE VACUUM TEST PITS TO CONFIRM THE LOCATION OF DEPTH OF THE EXISTING UTILITIES TO BE SUPPORTED.
  2. PRIOR TO THE START OF CONSTRUCTION, TAKE VACUUM TEST PITS AT THE LOCATION OF EACH SOLDIER PILE. EXCAVATE TO AT LEAST 8 FEET BELOW GRADE.
  3. PRIOR TO THE START OF CONSTRUCTION, TAKE VACUUM TEST PITS TO LOCATE TOP AND SIDE OF 66"/72" COMBINED SEWER.
  4. THE WORK SHALL BE SCHEDULED TO OCCUR SO THAT THE EXCAVATION, SUPPORT, AND BACKFILL AROUND THE 36" GAS MAINS AND 115KV TRANSMISSION LINES IS ACCOMPLISHED IN THE TIMEFRAME SPECIFIED IN SECTION 01015.

**LEGEND**

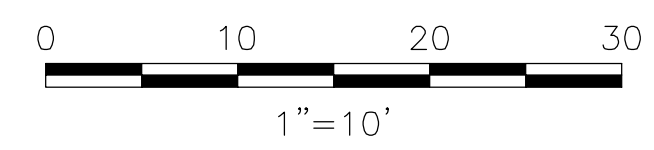
○ DMH OR SMH

□ CB/DI

— DRAIN PIPE (12" HDPE U.N.O.)

■ BOX CULVERT

- NOTES:
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  7. FOR UTILITY PLAN, SEE SHEET U-2
  8. HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  9. PLAN SHOWS A SUGGESTED LAYOUT FOR SOLDIER PILES TO SUPPORT FRAMING FOR TEMPORARY UTILITY SUPPORT. THE CONTRACTOR SHALL TAKE VACUUM TEST PITS TO VERIFY UTILITY LOCATIONS BEFORE INSTALLATION. INSTALLATION SHALL BE BY AUGER.



Professional Engineer Seal for Rachel J. Burckhardt, No. 91880, State of Massachusetts. Signature and date: Rachel J. Burckhardt, 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3**

**SEWER SEPARATION AND WATER REPLACEMENT**

**UTILITY SUPPORT PLAN**

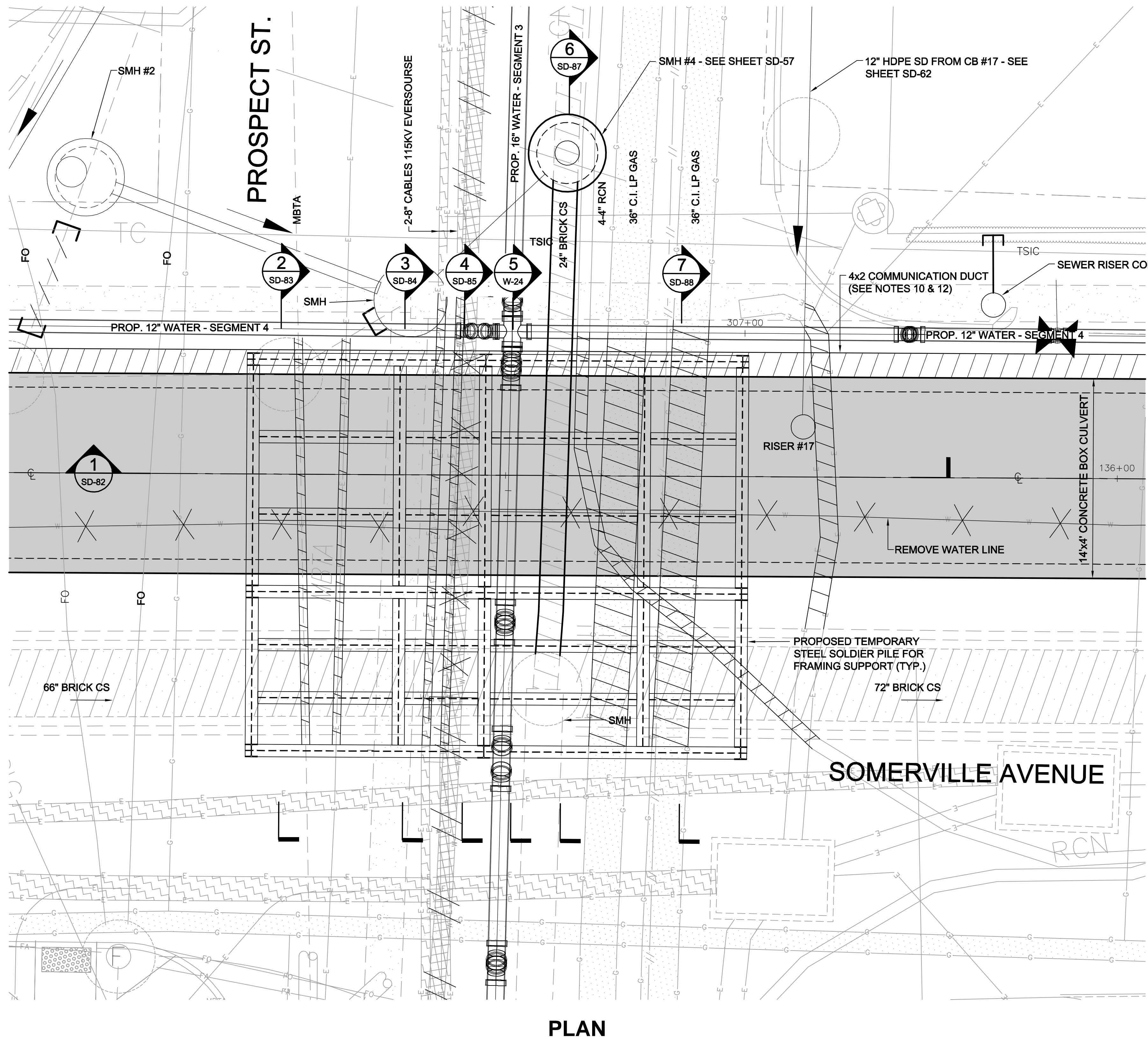
**AT PROSPECT ST. & SOMERVILLE AVE.**

DESIGNED: RJB		Parsons Brinckerhoff, Inc.		SHEET	
CHECKED: LAC		75 Arlington St. Boston, MA 02116			
DRAWN: JLM		REF.	CONT.	SCALE: 1"=10'	SD-80
CHECKED: RJB		ACC.		DATE: DEC 2017	

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

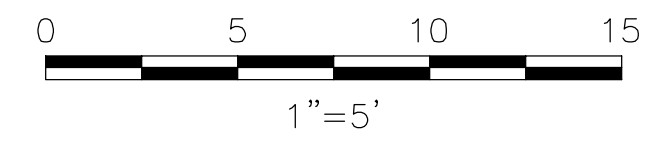
2017-11-20 10:48 AM T:\52647LS Union Square Study and Design\SHD\DWG\CP-2\_CP-3 Sewer Separation\Civil\SD-81.dwg



- LEGEND**
- DMH
  - CB/DI
  - DRAIN PIPE (12" HDPE U.N.O.)
  - BOX CULVERT
  - SUPPORT UTILITY IN PLACE

- NOTES:**
1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  2. FOR GENERAL NOTES, SEE SHEET G-5.
  3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
  5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  7. FOR UTILITY PLAN, SEE SHEET U-2.
  8. HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  9. PLAN SHOWS A SUGGESTED LAYOUT FOR SOLDIER PILES TO SUPPORT FRAMING FOR TEMPORARY UTILITY SUPPORT. THE CONTRACTOR SHALL TAKE VACUUM TEST PITS TO VERIFY UTILITY LOCATIONS BEFORE INSTALLATION. INSTALLATION SHALL BE BY AUGER.
  10. FOR COMMUNICATION DUCT SEE SHEET U-72.
  11. SUPPORT ALL CROSSING UTILITIES IN PLACE, UNLESS OTHERWISE NOTED.
  12. COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCTBANK WITH THE PARTIAL REMOVAL OF SOLDIER PILES. MAINTAIN SUPPORT OF ALL CROSSING UTILITIES.

*Rachel J. Burckardt*  
 12/11/17



**PLAN**

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

NO.	DATE	REVISIONS	BY

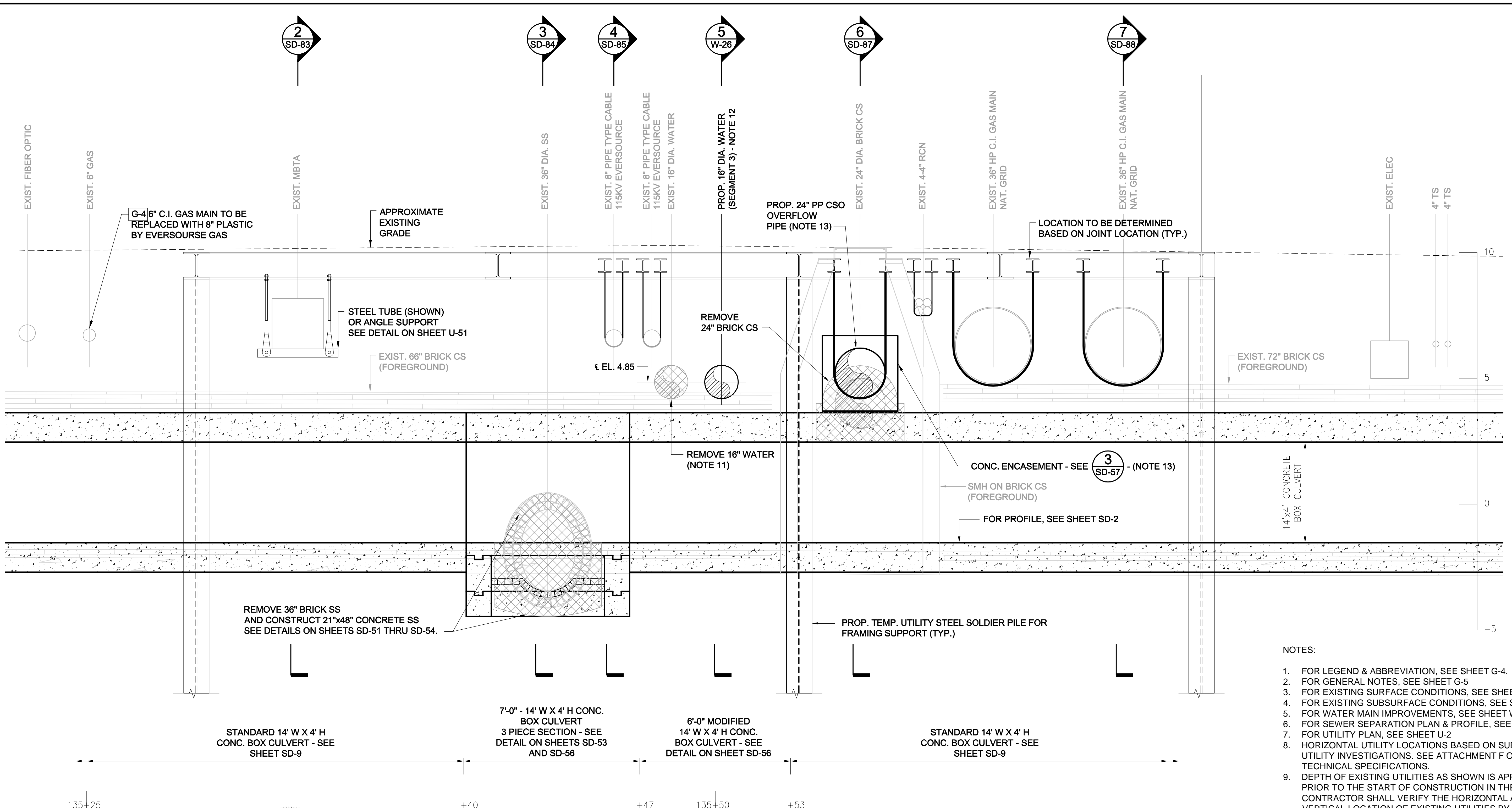
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**UTILITY SUPPORT ENLARGED PLAN**  
**AT PROSPECT ST. & SOMERVILLE AVE.**

DESIGNED: RJB CHECKED: LAC	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET					
DRAWN: JLM CHECKED: RJB		<table border="1"> <tr> <td>REF.</td> <td>CONT.</td> <td>SCALE: 1"=5'</td> </tr> <tr> <td>ACC.</td> <td></td> <td>DATE: DEC 2017</td> </tr> </table>	REF.	CONT.	SCALE: 1"=5'	ACC.	
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ACC.		DATE: DEC 2017					
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143							

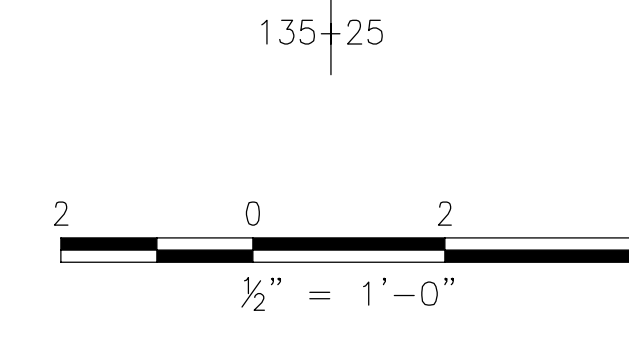
**SD-81**

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2017-11-16 8:10 PM



- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  - FOR UTILITY PLAN, SEE SHEET U-2
  - HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  - DEPTH OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THE AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT.
  - SUPPORT ALL UTILITIES IN PLACE U.N.O.
  - REMOVE AND CAP EXISTING 16" WATER MAIN PRIOR TO INSTALLING BOX CULVERT. SEE SHEETS W-10 AND W-24.
  - INSTALL PROPOSED 16" WATER MAIN (SEGMENT 3) AFTER BOX CULVERT IS INSTALLED.
  - SUPPORT 24" CSO IN PLACE DURING BOX CULVERT INSTALLATION. ENCASE 24" CSO AFTER BOX CULVERT IS INSTALLED.



*Rachel J. Burckardt*  
 RACHEL J. BURCKARDT  
 CIVIL  
 No. 31880  
 REGISTERED PROFESSIONAL ENGINEER  
 STATE OF MASSACHUSETTS

**SECTION** 1 1  
 SCALE: 1/2" = 1'-0"  
 SD-81 SD-56

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

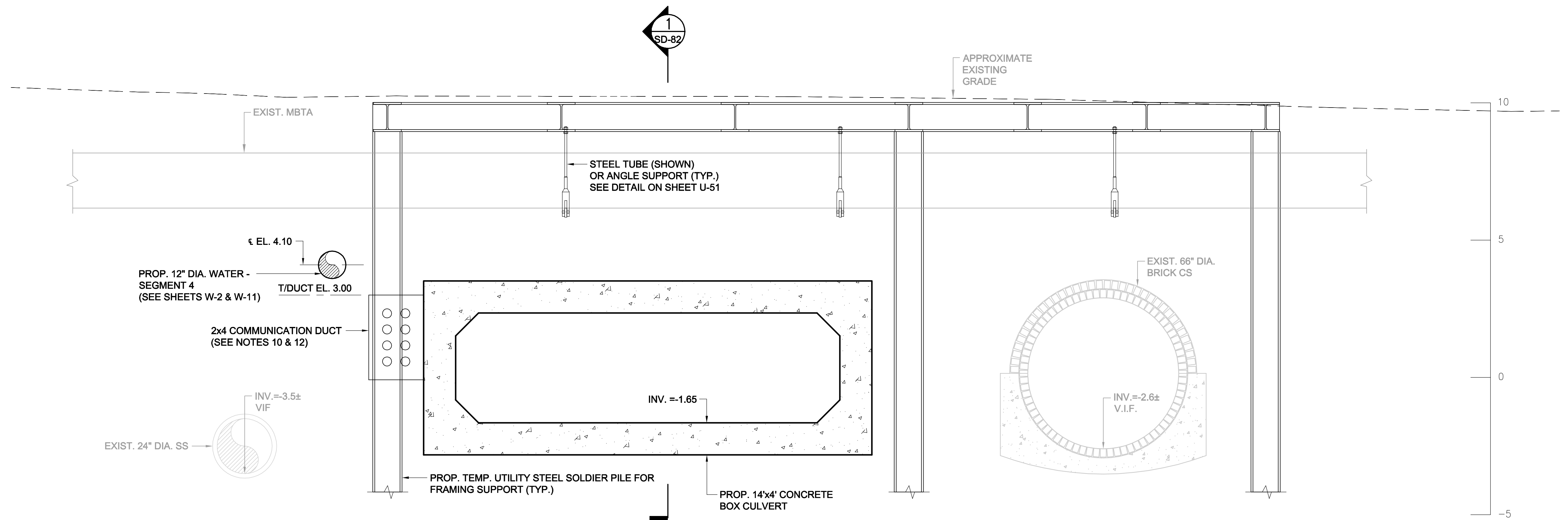
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT ST. UTILITY SUPPORT SECTION**  
**SHEET 1 OF 6**

DESIGNED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET <b>SD-82</b>
CHECKED: LAC		REF.	CONT.	
DRAWN: JLM		ACC.		
CHECKED: RJB				

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

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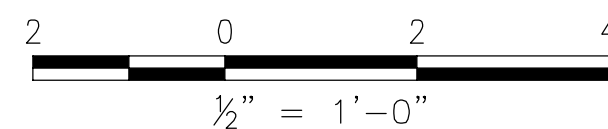
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**SECTION 2**  
SCALE: 1/2" = 1'-0"

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR UTILITY PLAN, SEE SHEET U-2.
8. HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
9. PLAN SHOWS A SUGGESTED LAYOUT FOR SOLDIER PILES TO SUPPORT FRAMING FOR TEMPORARY UTILITY SUPPORT. THE CONTRACTOR SHALL TAKE VACUUM TEST PITS TO VERIFY UTILITY LOCATIONS BEFORE INSTALLATION. INSTALLATION SHALL BE BY AUGER.
10. FOR COMMUNICATION DUCT SEE SHEET U-2.
11. SUPPORT ALL CROSSING UTILITIES IN PLACE, UNLESS OTHERWISE NOTED.
12. COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCT BANK WITH THE PARTIAL REMOVAL OF SOLDIER PILES. MAINTAIN SUPPORT OF ALL CROSSING UTILITIES.
13. WORK ON MBTA DUCT BANK SHALL BE PERFORMED IN THE PRESENCE OF AN MBTA INSPECTOR.



*Rachel J. Burckardt*  
12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET UTILITY SUPPORT SECTION**  
**SHEET 2 OF 6**

DESIGNED: RJB  
CHECKED: LAC  
  
DRAWN: JLM  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
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75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

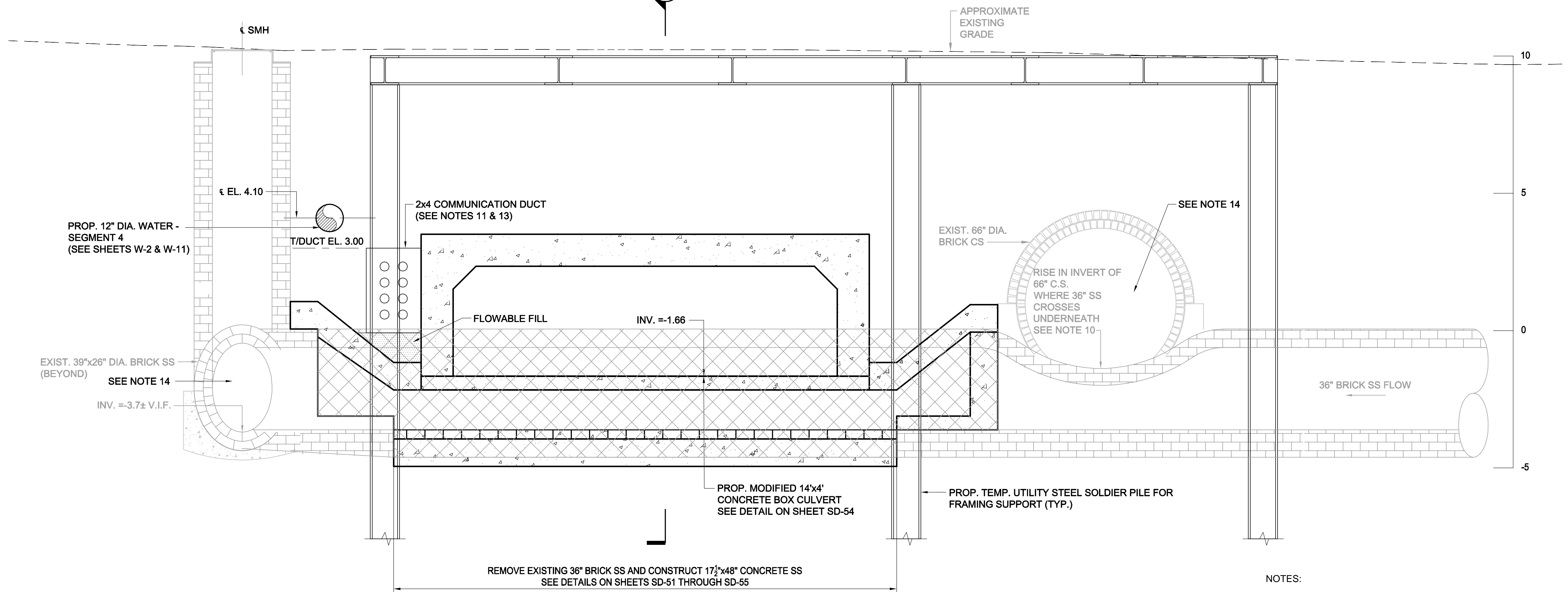
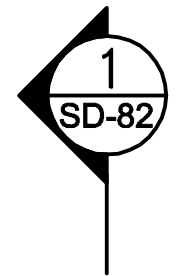
SHEET  
**SD-83**

REF. CONT.  
ACC.

SCALE: 1/2" = 1'-0"  
DATE: DEC 2017

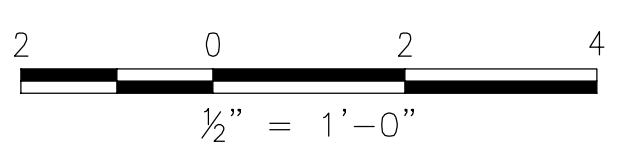
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY



**SECTION 3**  
SCALE: 1/2" = 1'-0" SD-81

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  - FOR UTILITY PLAN, SEE SHEET U-2
  - HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  - PLAN SHOWS A SUGGESTED LAYOUT FOR SOLDIER PILES TO SUPPORT FRAMING FOR TEMPORARY UTILITY SUPPORT. THE CONTRACTOR SHALL TAKE VACUUM TEST PITS TO VERIFY UTILITY LOCATIONS BEFORE INSTALLATION. INSTALLATION SHALL BE BY AUGER.
  - DETAIL OF 36" BRICK SS CROSSING UNDER 66" BRICK CS IS BASED ON PLAN TITLED SOMERVILLE AVE. SEPARATE SEWAGE SYSTEM, DATED SEPT. 21, 1898 AND OCT. 3, 1901.
  - FOR COMMUNICATION DUCT SEE SHEET U-72.
  - SUPPORT ALL CROSSING UTILITIES IN PLACE, UNLESS OTHERWISE NOTED.
  - COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCT BANK WITH THE PARTIAL REMOVAL OF SOLDIER PILES. MAINTAIN SUPPORT OF ALL CROSSING UTILITIES.
  - MAINTAIN SEWER FLOWS AT ALL TIMES. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.



Professional Engineer Seal for Rachel J. Burckardt, Civil No. 31880, State of Massachusetts. Includes a signature and date 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET UTILITY SUPPORT SECTION**  
**SHEET 3 OF 6**

DESIGNED: RJB CHECKED: LAC	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-84</b>
DRAWN: JLM CHECKED: RJB		
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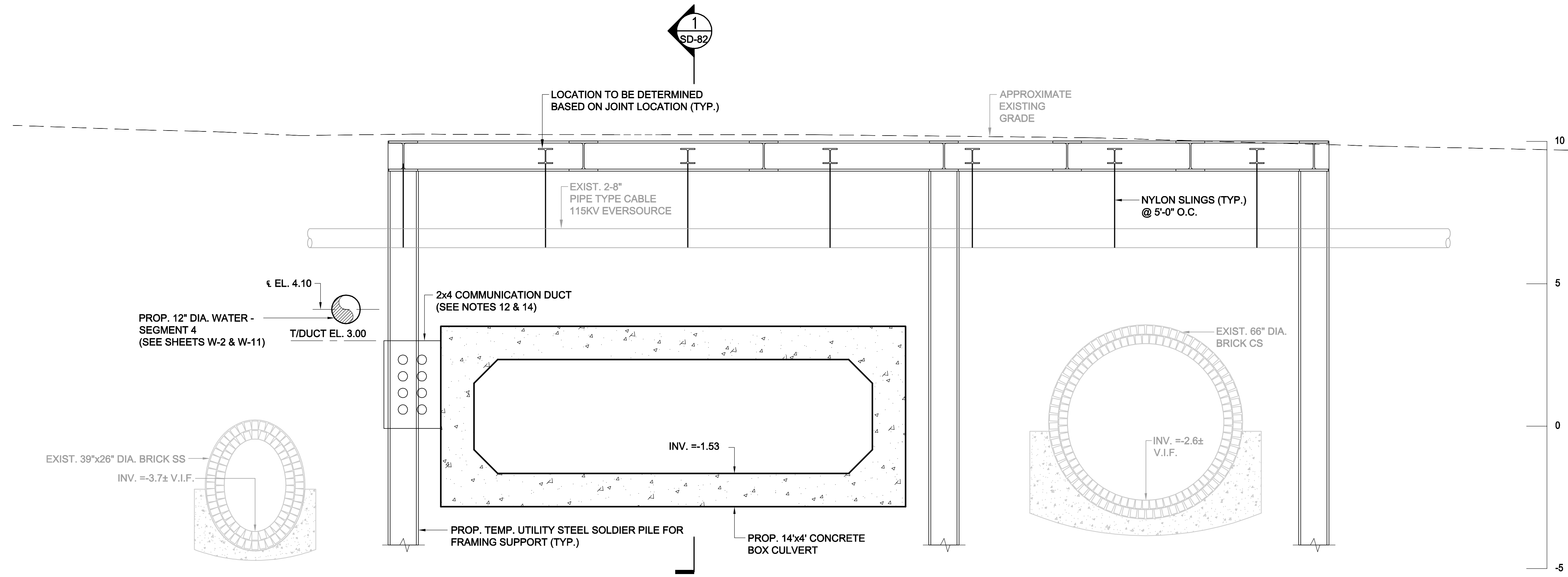
CITY OF SOMERVILLE  
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SOMERVILLE, MA 02143

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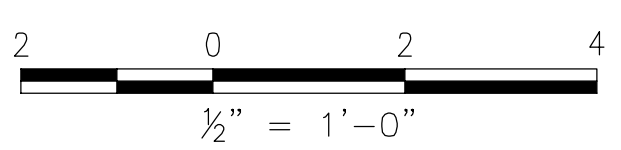


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**SECTION** 4 4 4 4  
 SCALE: 1/2" = 1'-0" SD-81 SD-51 SD-53 SD-55

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  - FOR UTILITY PLAN, SEE SHEET U-2
  - HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  - ALL WORK SUPPORTING 115KV CABLE SHALL BE PERFORMED IN THE PRESENCE OF A REPRESENTATIVE FROM EVERSOURCE TRANSMISSION.
  - SEE EVERSOURCE ELECTRIC DETAIL ON SHEET U-53.
  - DEPTH OF EXISTING UTILITIES AS SHOWN IN APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THIS AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT.
  - FOR COMMUNICATION DUCT, SEE SHEET U-72.
  - SUPPORT ALL CROSSING UTILITIES IN PLACE, UNLESS OTHERWISE NOTED.
  - COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCT BANK SUPPORT OF ALL CROSSING UTILITIES.
  - ALL WORK ON OR ADJACENT TO THE 115KV CABLES SHALL BE PERFORMED IN THE PRESENCE OF AN EVERSOURCE INSPECTOR.



*Rachel J. Burckardt*  
 12/11/17

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

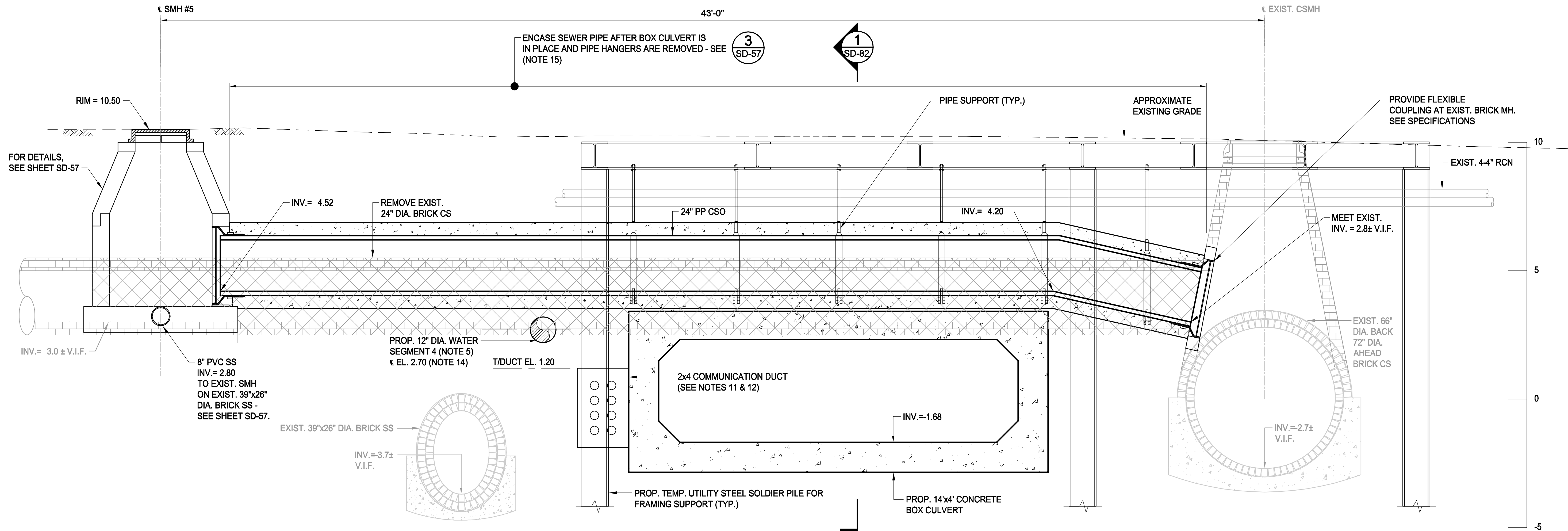
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET UTILITY SUPPORT SECTION**  
**SHEET 4 OF 6**

DESIGNED: RJB CHECKED: LAC	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-85</b>
DRAWN: JLM CHECKED: RJB		
REF.	CONT.	SCALE: 1/2" = 1'-0" DATE: DEC 2017
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CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

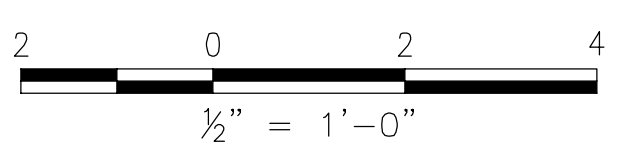
NO.	DATE	REVISIONS	BY

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**SECTION 6 6**  
 SCALE: 1/2" = 1'-0" SD-57 SD-81

- NOTES:
- FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
  - FOR GENERAL NOTES, SEE SHEET G-5.
  - FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
  - FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22.
  - FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
  - FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
  - FOR UTILITY PLAN, SEE SHEET U-2.
  - HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
  - PLAN SHOWS A SUGGESTED LAYOUT FOR SOLDIER PILES TO SUPPORT FRAMING FOR TEMPORARY UTILITY SUPPORT. THE CONTRACTOR SHALL TAKE VACUUM TEST PITS TO VERIFY UTILITY LOCATIONS BEFORE INSTALLATION. INSTALLATION SHALL BE BY AUGER.
  - SUPPORT ALL CROSSING UTILITIES IN PLACE, UNLESS OTHERWISE NOTED.
  - FOR COMMUNICATION DUCT SEE SHEET U-72.
  - COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCT BANK WITH THE PARTIAL REMOVAL OF SOLDIER PILES. MAINTAIN SUPPORT OF ALL CROSSING UTILITIES.
  - MAINTAIN SEWER FLOWS AT ALL TIMES. SEE SUGGESTED SEQUENCING ON SHEET SD-57. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.
  - REMOVE 24" BRICK CS BEFORE INSTALLING 16"W (SEGMENT 4).
  - ENCASE 24" CSD AFTER BOX CULVERT IS INSTALLED.



*Rachel J. Burckardt*  
 12/11/17

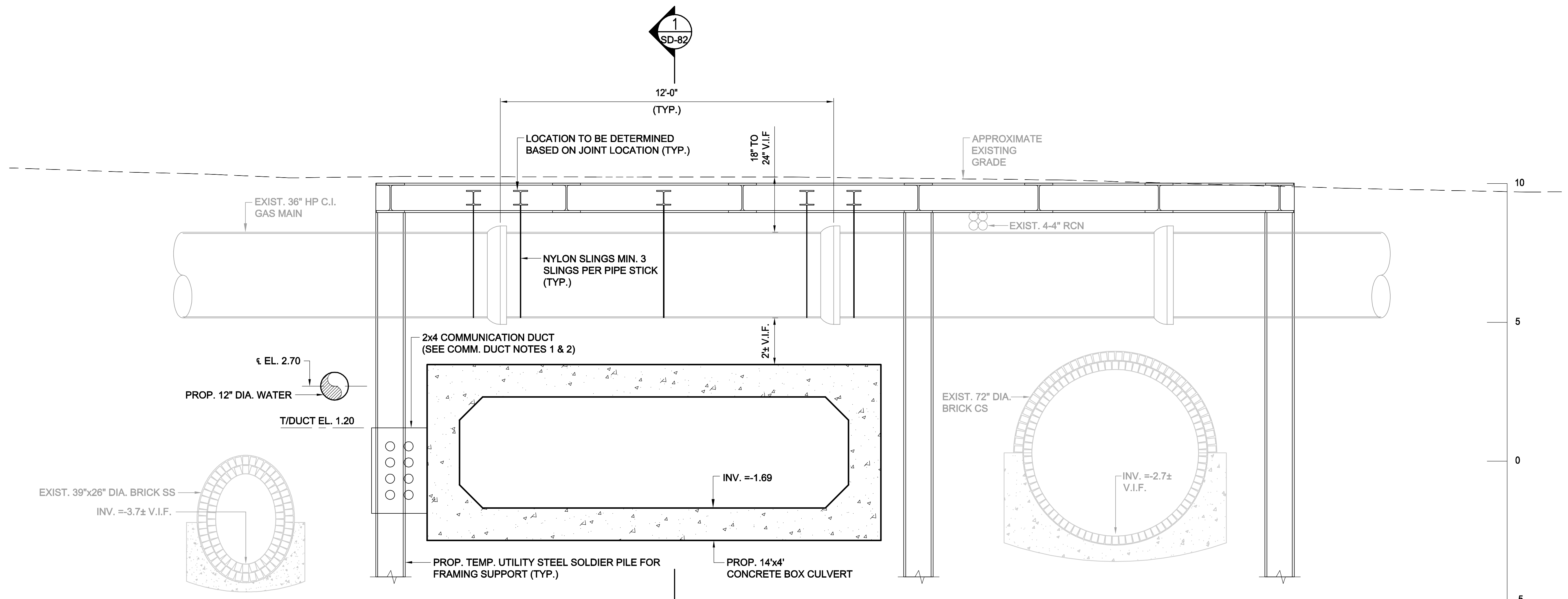
ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

NO.	DATE	REVISIONS	BY

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET UTILITY SUPPORT SECTION**  
**SHEET 5 OF 6**

DESIGNED: RJB CHECKED: LAC	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-87</b>
DRAWN: JLM CHECKED: RJB		REF. _____ CONT. _____ ACC. _____
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

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**SECTION 7**  
SCALE: 1/2" = 1'-0" SD-81

**NOTES:**

1. FOR LEGEND & ABBREVIATION, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEET G-12.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEET G-22
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEET W-2.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEET SD-2.
7. FOR UTILITY PLAN, SEE SHEET U-2
8. HORIZONTAL UTILITY LOCATIONS BASED ON SUBSURFACE UTILITY INVESTIGATIONS. SEE ATTACHMENT F OF THE TECHNICAL SPECIFICATIONS.
9. DEPTH OF EXISTING UTILITIES AS SHOWN IN APPROXIMATE. PRIOR TO THE START OF CONSTRUCTION IN THIS AREA, THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF EXISTING UTILITIES BY TEST PIT.

**ADDITIONAL NOTES REGARDING SUPPORT OF 36" CI HP GAS MAINS:**

1. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL GRID REQUIREMENTS FOR WORK IN THE VICINITY OF GAS MAINS. SEE SHEET U-50 AND SPECIFICATIONS SECTION 02500.
2. ALL WORK WITHIN 2 FEET OF THE GAS MAINS SHALL BE PERFORMED BY A NATIONAL GRID-APPROVED SUBCONTRACTOR. THIS PERTAINS TO EXCAVATION, SUPPORT, MONITORING, BACKFILLING, AND COMPACTION.
3. ALL WORK OF SUPPORTING 36" CI HP GAS MAINS SHALL BE PERFORMED IN THE PRESENCE OF A REPRESENTATIVE FROM NATIONAL GRID.
4. NOTIFY NATIONAL GRID AT LEAST 5 BUSINESS DAYS BEFORE PERFORMING ANY EXCAVATION OR OTHER WORK IN THE VICINITY OF ITS GAS MAINS.
5. PRIOR TO THE START OF UTILITY SUPPORT WORK, LOCATE ALL EXISTING PIPE JOINTS ON EACH PIPE WITHIN THE LIMITS OF THE PIPE SUPPORT AREA. SUBMIT UTILITY SUPPORT PLAN FOR APPROVAL OF THE ENGINEER AND NATIONAL GRID.
6. SEE NATIONAL GRID GAS DETAILS & NOTES ON SHEET U-50.
7. PROVIDE AT LEAST 30 DAYS ADVANCE NOTICE TO NATIONAL GRID PRIOR TO EXCAVATING AND SUPPORTING THE GAS MAINS, TO ALLOW FOR NATIONAL GRID TO ORDER "ROCK SHIELDS" TO PROTECT THE PIPE.
8. PRIOR TO EXCAVATING BELOW THE SPRING LINE OF THE GAS MAINS, NATIONAL GRID WILL INSTALL "ROCK SHIELDS" FOR ALL PIPE JOINTS.
9. SUPPORT PIPES WITH NYLON SLINGS.
10. PROVIDE A MINIMUM OF 12" CLEARANCE UNDER GAS MAINS AND ANY TEMPORARY OR PERMANENT CONSTRUCTION.
11. PRIOR TO REMOVING MATERIAL, THE CONTRACTOR SHALL SURVEY THE ELEVATION OF THE GAS MAINS AT 3 LOCATIONS ON EACH MAIN. THIS MONITORING SHALL BE CONTINUED DAILY UNTIL THE BACKFILL AND BEDDING UNDER AND AROUND THE MAINS IS COMPLETELY IN PLACE, AS INDICATED ON SHEET U-50.

**ADDITIONAL NOTES FOR COMM. DUCT:**

1. FOR COMMUNICATION DUCT PLAN & PROFILE, SEE SHEET U-72.
2. COORDINATE THE INSTALLATION OF THE COMMUNICATIONS DUCT BANK WITH THE PARTIAL REMOVAL OF SOLDIER PILES, MAINTAIN SUPPORT OF ALL CROSSING UTILITIES.

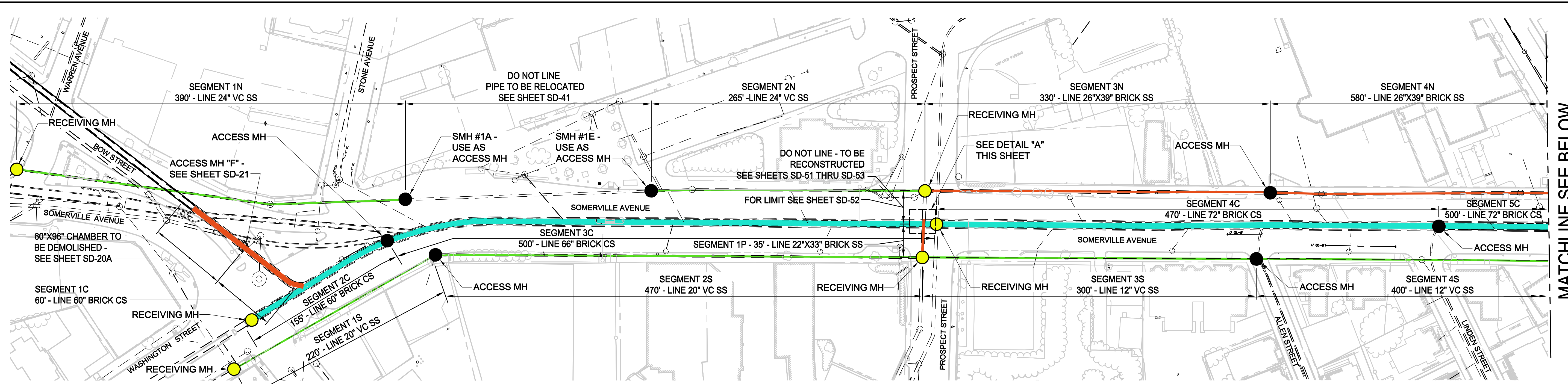
ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

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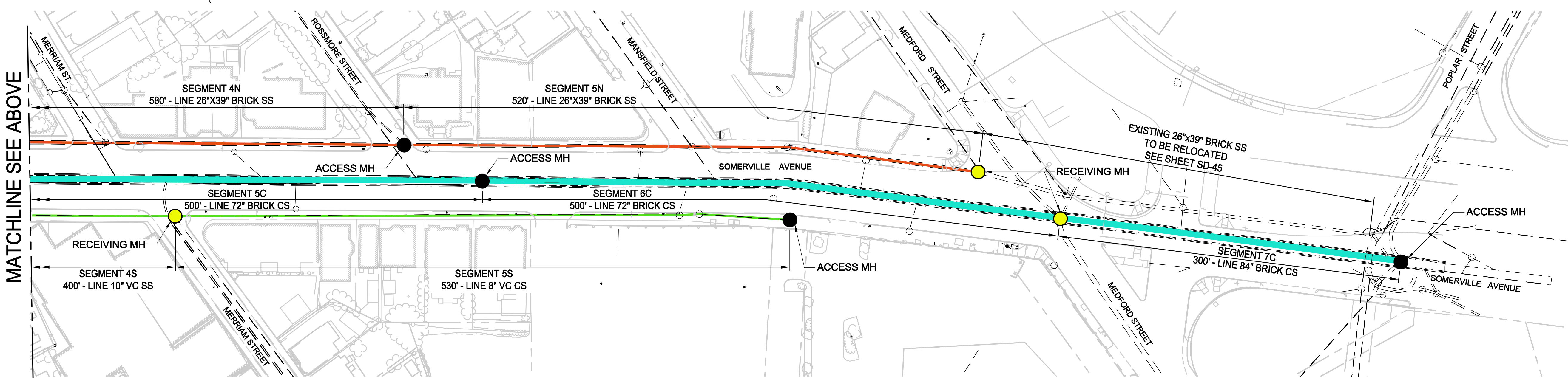
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**PROSPECT STREET UTILITY SUPPORT SECTION**  
**SHEET 6 OF 6**

DESIGNED: RJB CHECKED: LAC DRAWN: JLM CHECKED: RJB		Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <b>SD-88</b>
REF. ACC.	CONT.	SCALE: 1/2" = 1'-0" DATE: DEC 2017	CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143

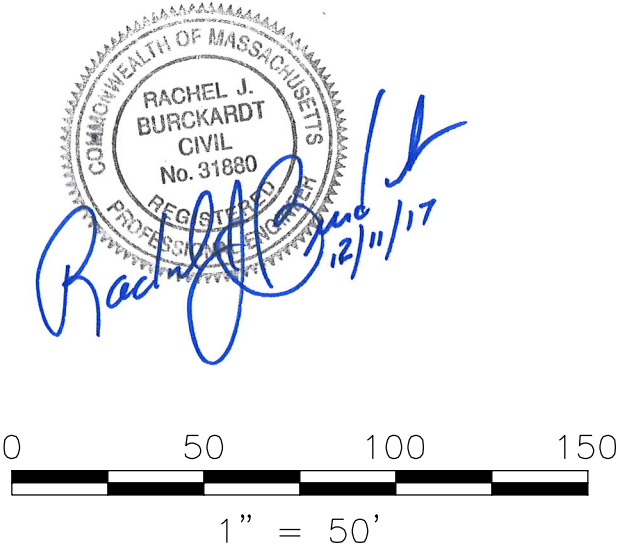
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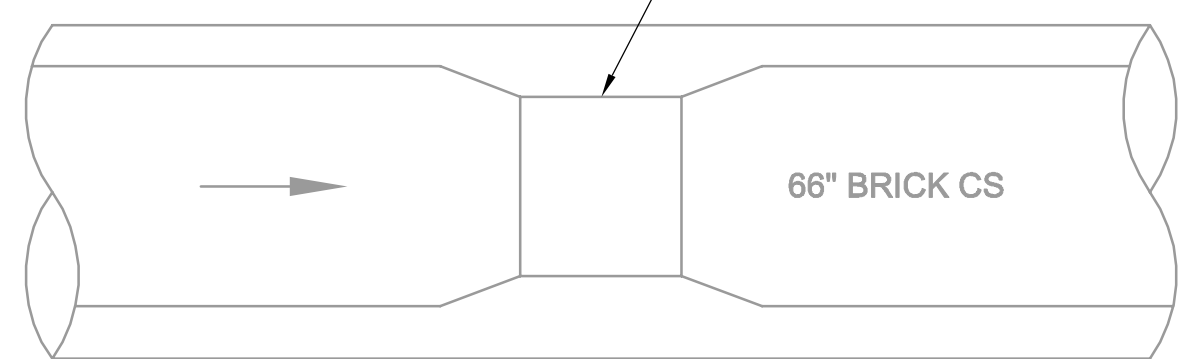
MATCHLINE SEE BELOW



MATCHLINE SEE ABOVE



NOTE: HORIZONTAL & VERTICAL CONSTRUCTION IN 66" CS. SEE PHOTOS IN ATTACHMENT F TO THE SPECIFICATIONS



**DETAIL "A"**  
N.T.S.

**LEGEND**

- LINE BRICK SEWER
- LINE VC SEWER
- ACCESS MH FOR LINING
- RECEIVING MH FOR LINING

**NOTES:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-11 THRU G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-21 THRU G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-1 THRU W-6.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-1 THRU SD-6.
7. FOR UTILITY PLAN, SEE SHEETS U-1 THRU U-6.
8. FURNISH AND INSTALL CURED-IN-PLACE LINING IN EXISTING COMBINED & SANITARY SEWERS AS INDICATED.
9. FOR LINING LOGISTICS PLANS, SEE SHEETS SD-91 THRU SD-93.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
SEWER LINING PLAN**

DESIGNED: RJB  
CHECKED: LAC  
DRAWN: LAC  
CHECKED: RJB

**WSP** PARSONS BRINCKERHOFF  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

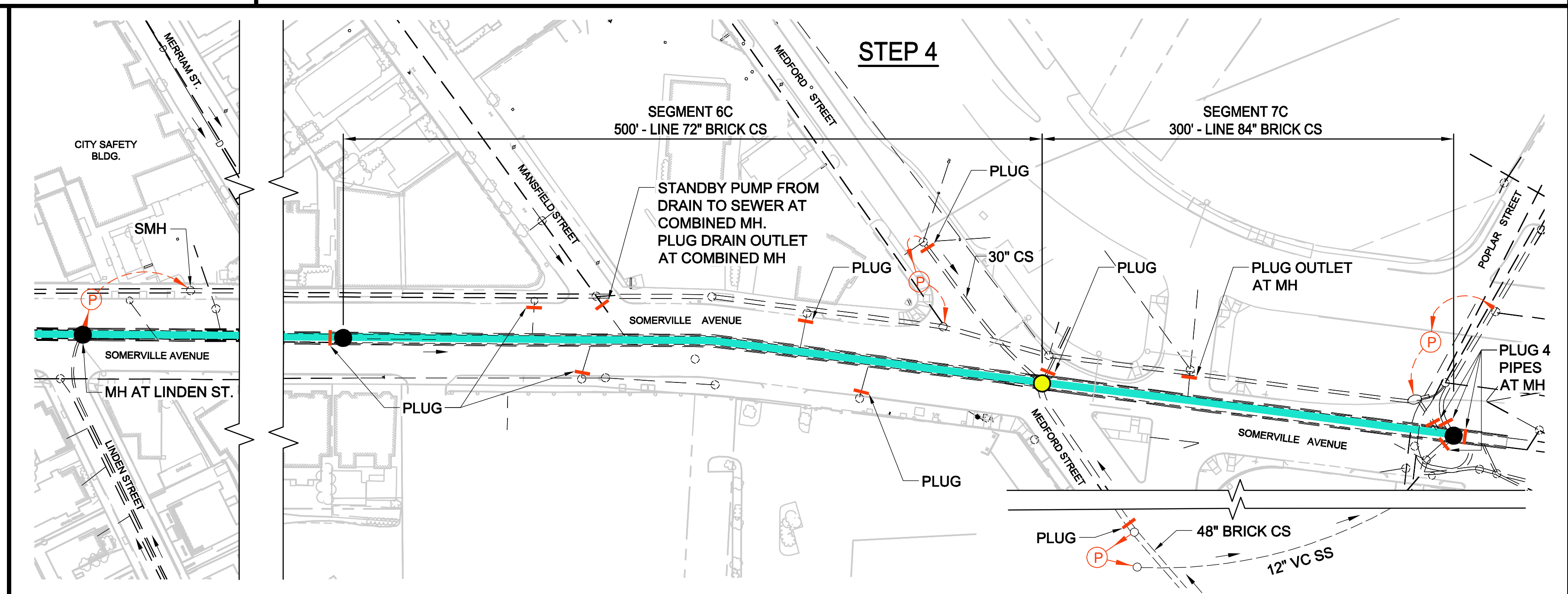
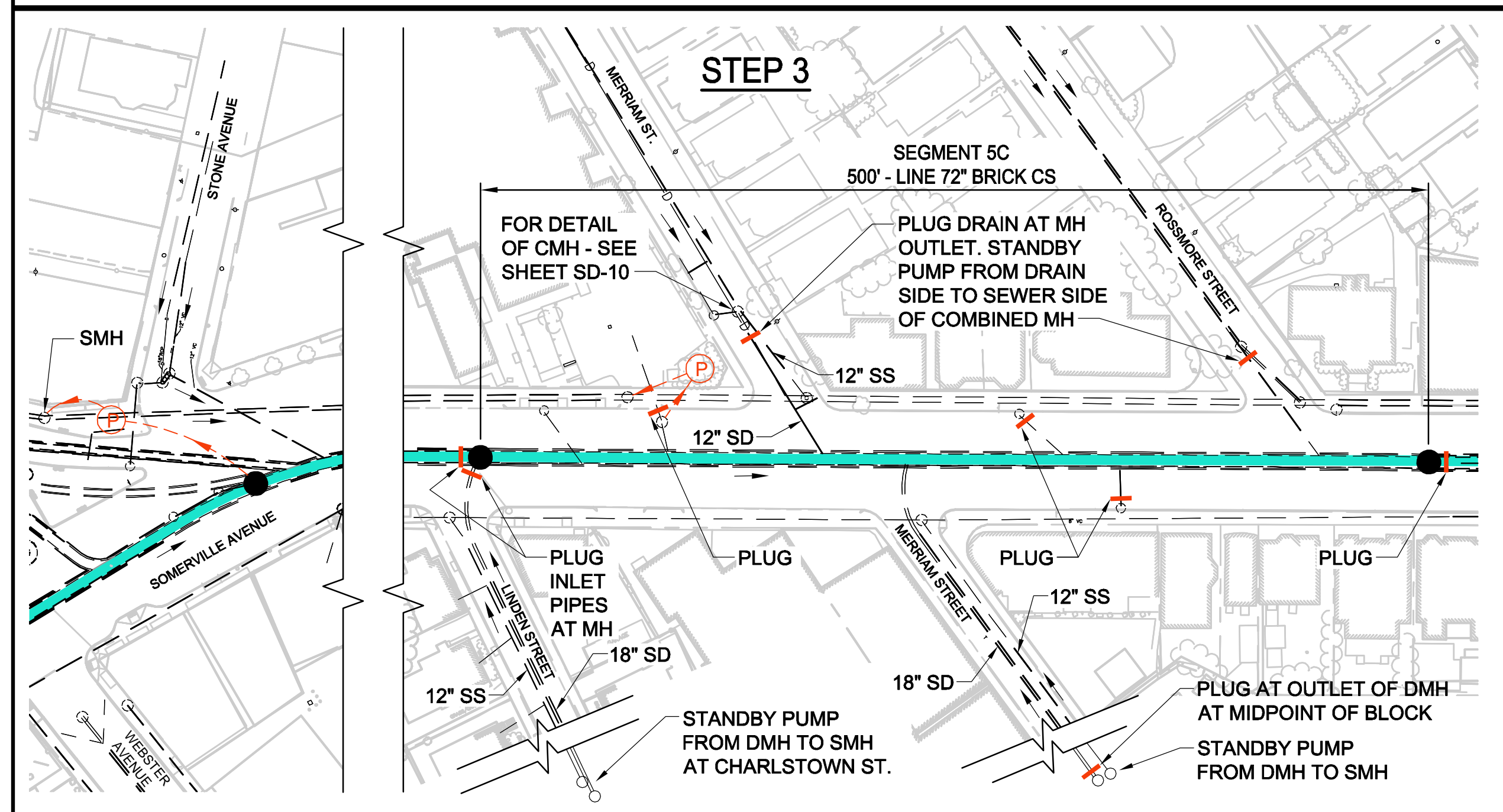
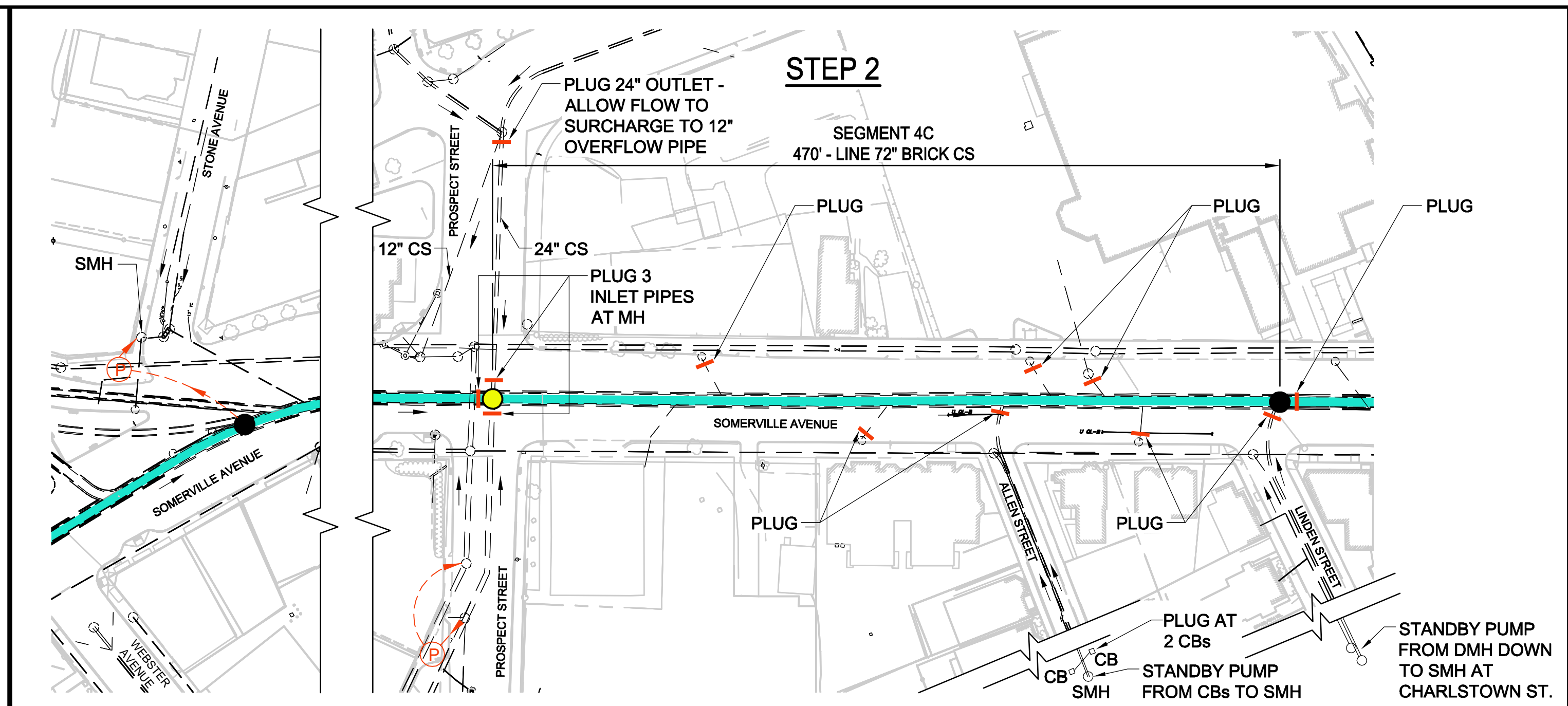
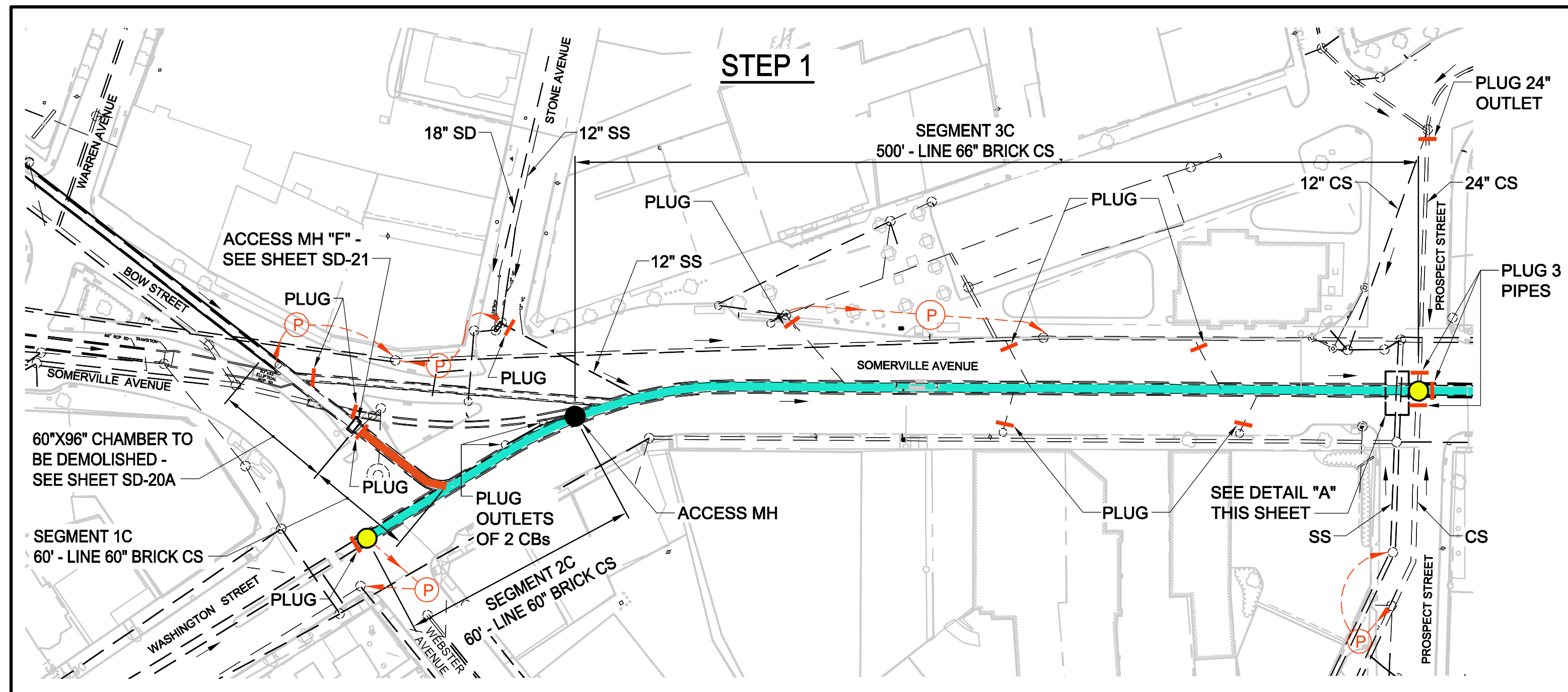
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ACC. DATE: DEC 2017

SHEET  
**SD-90**

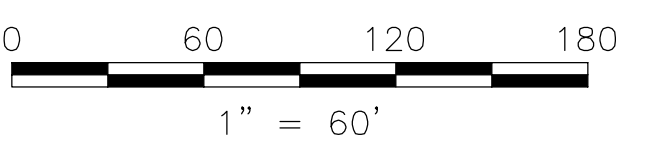
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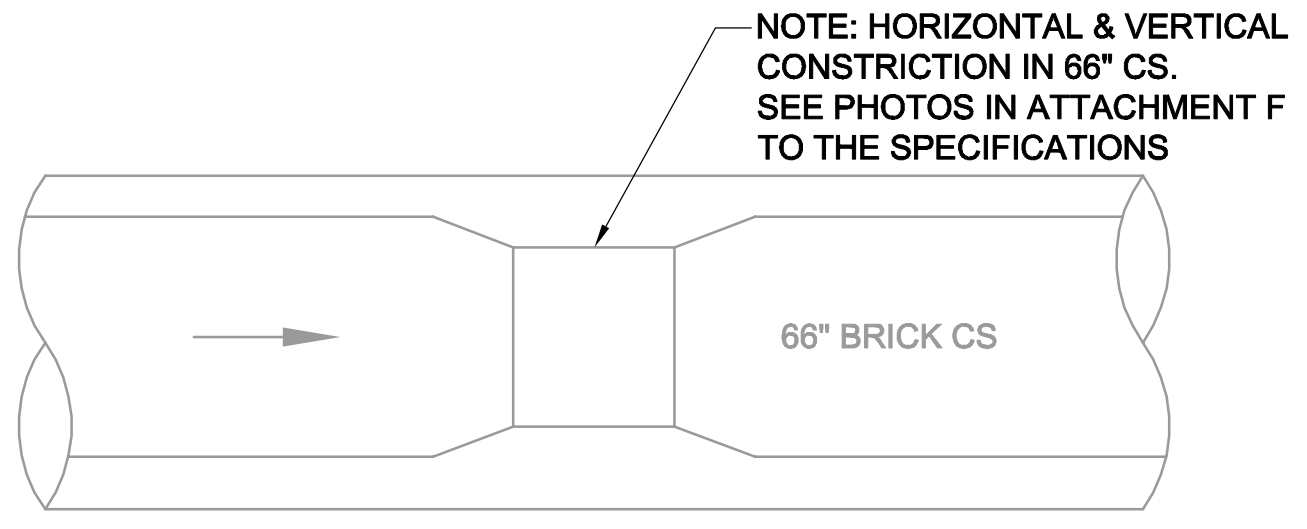
Rachel J. Burckhardt
   
 CIVIL ENGINEER
   
 No. 31880
   
 State of Massachusetts
   
 12/11/17



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**GENERAL NOTES:**

1. THIS SHEET SHOWS A SUGGESTED SEQUENCING AND LOGISTICS PLAN FOR SEWER LINING. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE SEQUENCING AND LOGISTICS PLAN, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND OBTAINING CITY APPROVAL FOR THE TRAFFIC MANAGEMENT PLANS FOR SEWER LINING.



**DETAIL "A"**  
N.T.S.

NOTE: HORIZONTAL & VERTICAL CONSTRUCTION IN 66" CS. SEE PHOTOS IN ATTACHMENT F TO THE SPECIFICATIONS

**LEGEND**

	LINE VC SEWER
	ACCESS MH FOR LINING
	RECEIVING MH FOR LINING
	BYPASS PLUMBING
	PLUG

**NOTES:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-11 THRU G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-21 THRU G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-1 THRU W-6.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-1 THRU SD-6.
7. FOR UTILITY PLAN, SEE SHEETS U-1 THRU U-6.
8. FURNISH AND INSTALL CURED-IN-PLACE LINING IN EXISTING COMBINED & SANITARY SEWERS AS INDICATED.
9. PROVIDE BYPASS PUMPING AND TEMP. PIPE PLUGS AS INDICATED. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.
10. AT UPSTREAM END OF SEGMENT TO BE LINED, PROVIDE DOUBLE PLUGS.

NO.	DATE	REVISIONS	BY

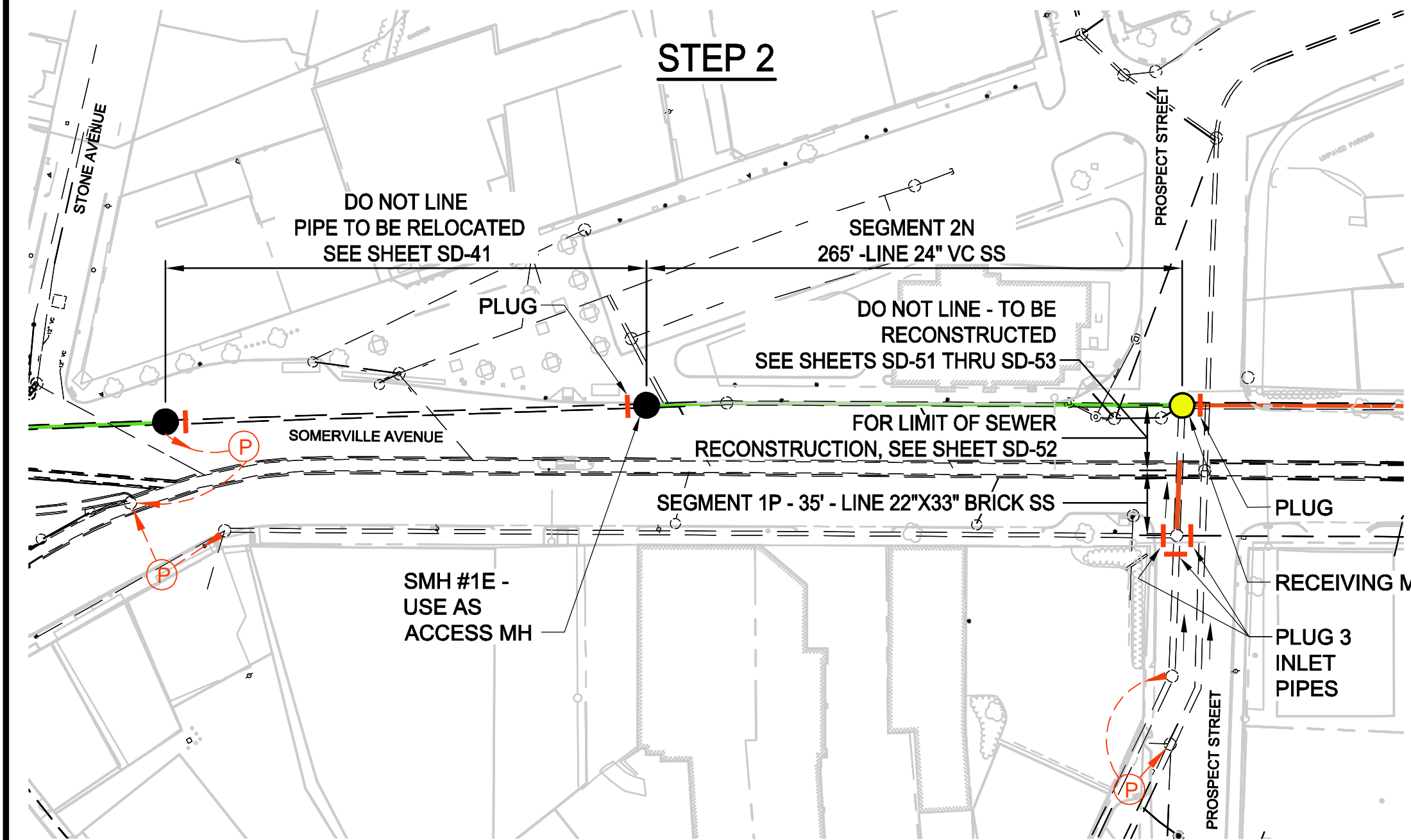
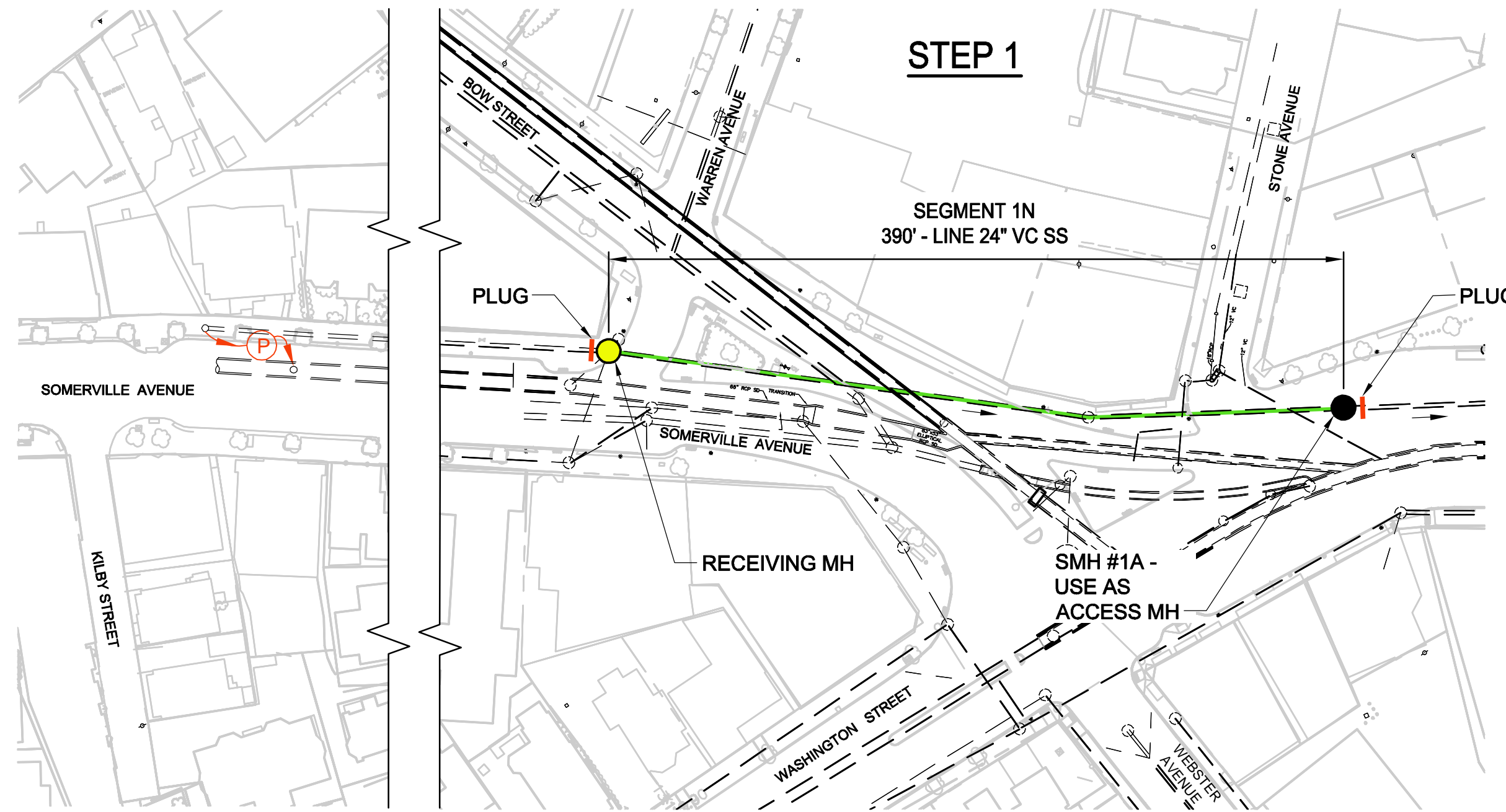
**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER LINING PLAN**  
**LOGISTICS PLAN - 60"/66"/72"/84" CS LINING**

DESIGNED: RJB CHECKED: KMM DRAWN: KLN CHECKED: RJB	 Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487	SHEET <h1 align="center">SD-91</h1>
REF. ACC.	CONT.	SCALE: 1"=60' DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143		

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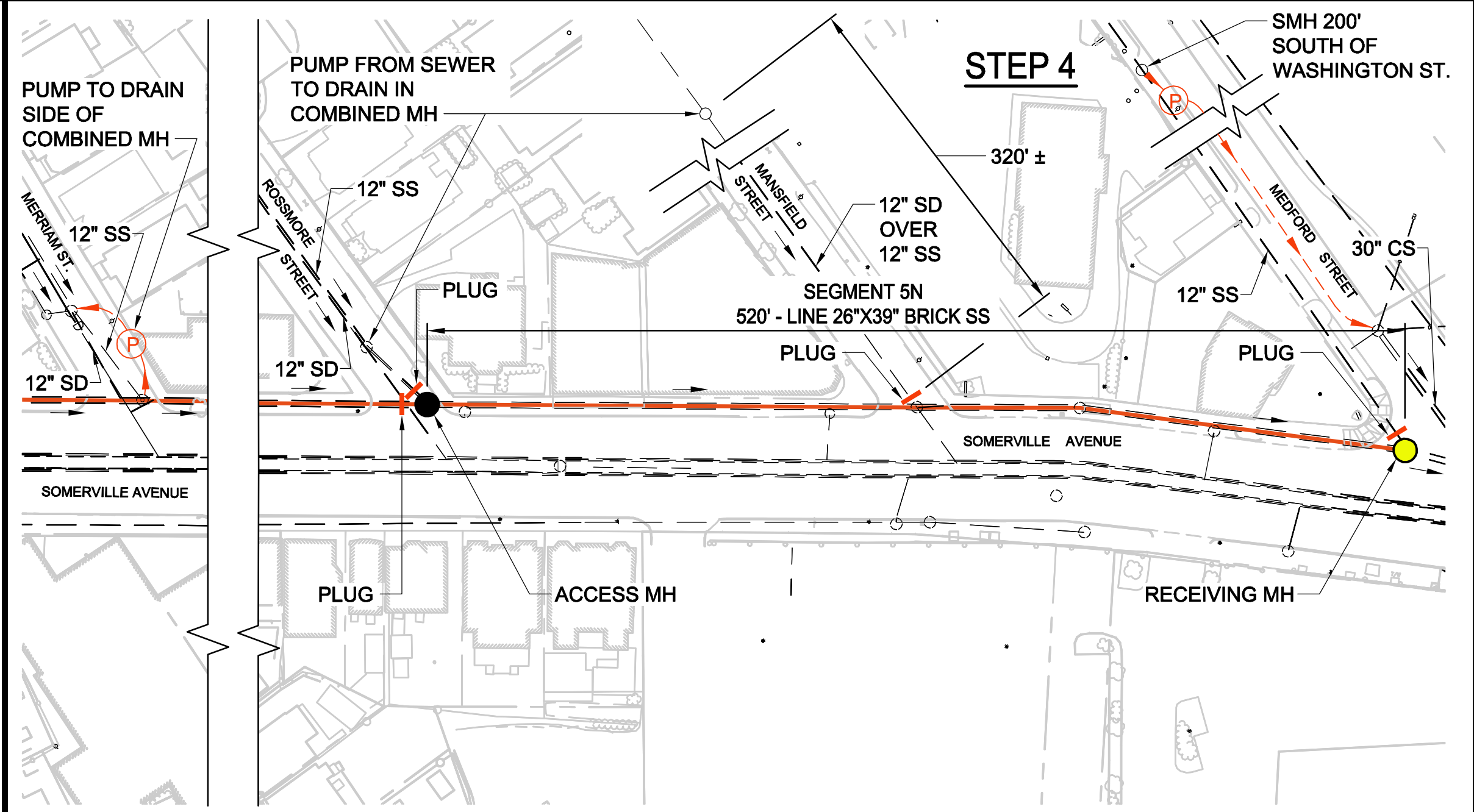
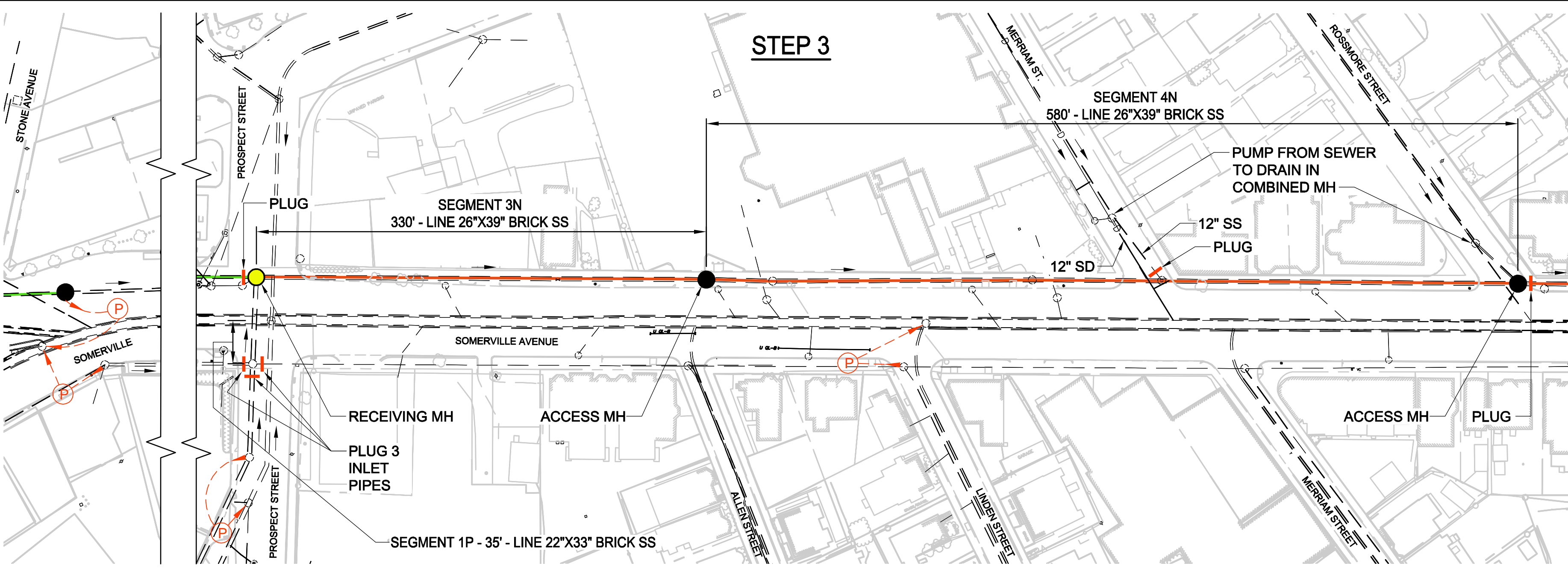
**NOTES:**

1. INSTALL LINING AFTER SMH #1A IS INSTALLED.
2. FOR SMH #1A AND SEWER RELOCATION, SEE SHEETS SD-41 AND SD-42.



**NOTES:**

1. INSTALL LINING AFTER SMH #1E IS INSTALLED.
2. FOR SMH #1E, SEE SHEETS SD-41 AND SD-42.



**GENERAL NOTES:**

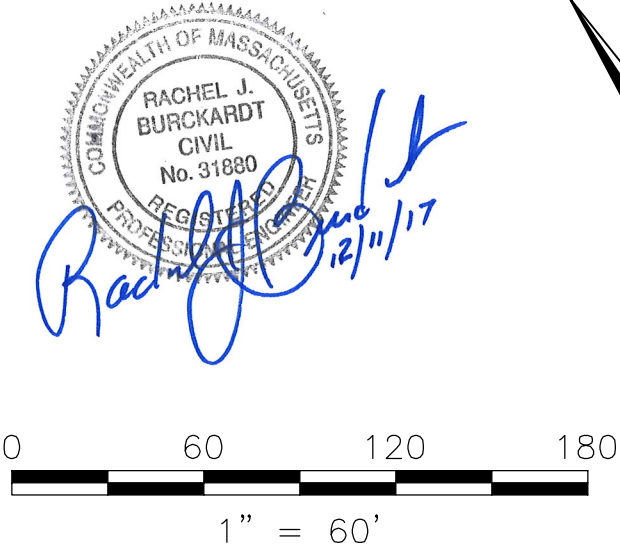
1. THIS SHEET SHOWS A SUGGESTED SEQUENCING AND LOGISTICS PLAN FOR SEWER LINING. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE SEQUENCING AND LOGISTICS PLAN, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND OBTAINING CITY APPROVAL FOR THE TRAFFIC MANAGEMENT PLANS FOR SEWER LINING.

**LEGEND**

- LINE VC SEWER
- LINE VC SEWER
- ACCESS MH FOR LINING
- RECEIVING MH FOR LINING
- ⊕ BYPASS PLUMBING
- ⊕ PLUG

**NOTES:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-11 THRU G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-21 THRU G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-1 THRU W-6.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-1 THRU SD-6.
7. FOR UTILITY PLAN, SEE SHEETS U-1 THRU U-6.
8. FURNISH AND INSTALL CURED-IN-PLACE LINING IN EXISTING COMBINED & SANITARY SEWERS AS INDICATED.
9. PROVIDE BYPASS PUMPING AND TEMP. PIPE PLUGS AS INDICATED. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.
10. AT UPSTREAM END OF SEGMENT TO BE LINED, PROVIDE DOUBLE PLUGS.



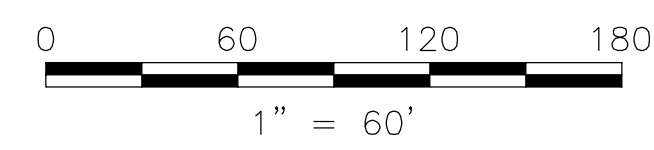
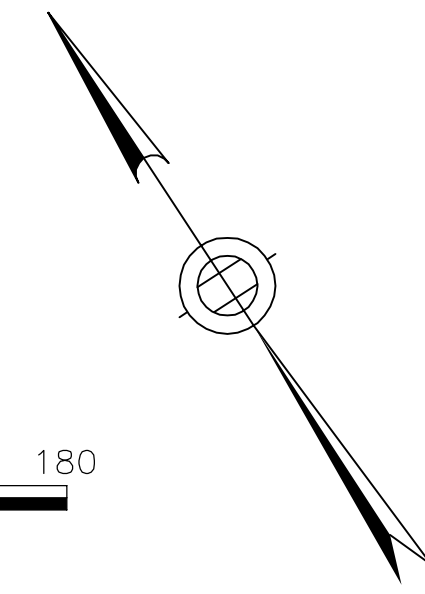
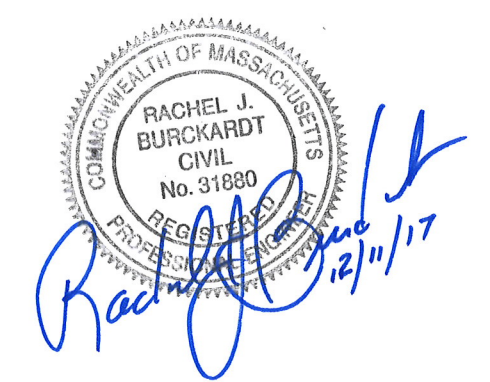
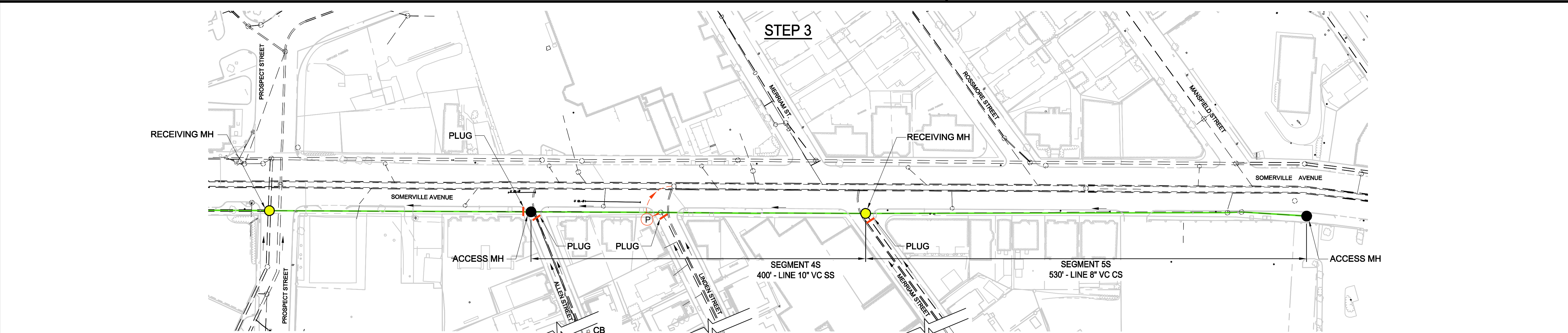
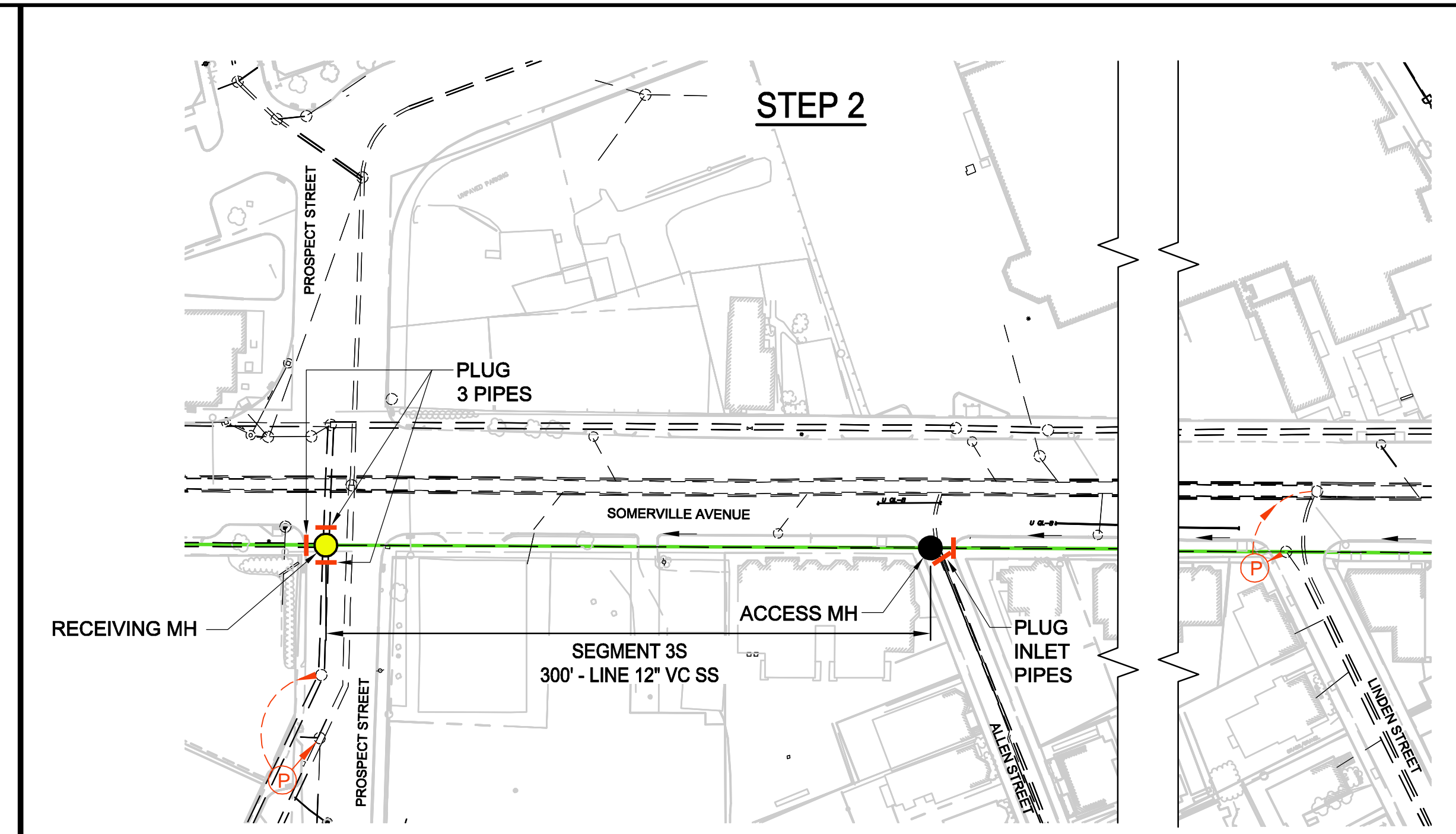
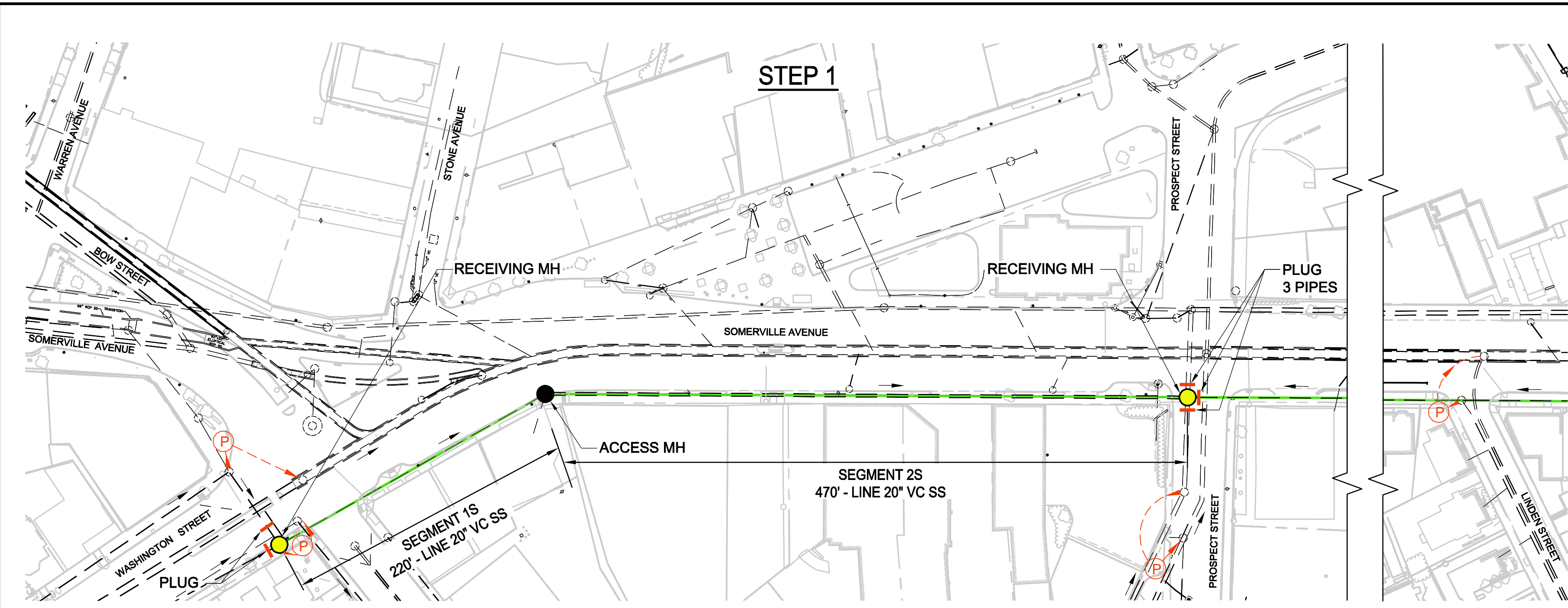
ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**SEWER LINING PLAN**  
**LOGISTICS PLAN - NORTH SIDE 24" & 26"x39" SEWER LINING**

DESIGNED: RJB	Parsons Brinckerhoff, Inc. 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)482-8487		SHEET
CHECKED: KMM			<b>SD-92</b>
DRAWN: KLN			
CHECKED: RJB	REF.	CONT.	SCALE: 1"=60'
	ACC.		DATE: DEC 2017
CITY OF SOMERVILLE 93 HIGHLAND AVENUE SOMERVILLE, MA 02143			

NO.	DATE	REVISIONS	BY

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**GENERAL NOTES:**

1. THIS SHEET SHOWS A SUGGESTED SEQUENCING AND LOGISTICS PLAN FOR SEWER LINING. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE SEQUENCING AND LOGISTICS PLAN, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND OBTAINING CITY APPROVAL FOR THE TRAFFIC MANAGEMENT PLANS FOR SEWER LINING.

**LEGEND**

- LINE VC SEWER
- ACCESS MH FOR LINING
- RECEIVING MH FOR LINING
- ⊖ P ⊕ BYPASS PLUMBING
- ⊖ ⊕ PLUG

**NOTES:**

1. FOR LEGEND AND ABBREVIATIONS, SEE SHEET G-4.
2. FOR GENERAL NOTES, SEE SHEET G-5.
3. FOR EXISTING SURFACE CONDITIONS, SEE SHEETS G-11 THRU G-16.
4. FOR EXISTING SUBSURFACE CONDITIONS, SEE SHEETS G-21 THRU G-26.
5. FOR WATER MAIN IMPROVEMENTS, SEE SHEETS W-1 THRU W-6.
6. FOR SEWER SEPARATION PLAN & PROFILE, SEE SHEETS SD-1 THRU SD-6.
7. FOR UTILITY PLAN, SEE SHEETS U-1 THRU U-6.
8. FURNISH AND INSTALL CURED-IN-PLACE LINING IN EXISTING COMBINED & SANITARY SEWERS AS INDICATED.
9. PROVIDE BYPASS PUMPING AND TEMP. PIPE PLUGS AS INDICATED. FOR FLOW RATES, SEE TABLE 01562-1 IN THE SPECIFICATIONS.
10. AT UPSTREAM END OF SEGMENT TO BE LINED, PROVIDE DOUBLE PLUGS.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
SEWER LINING PLAN  
LOGISTICS PLAN - SOUTH SIDE 20" & 12" SEWER LINING**

DESIGNED: RJB  
CHECKED: KMM  
DRAWN: KLN  
CHECKED: RJB

**WSP** **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

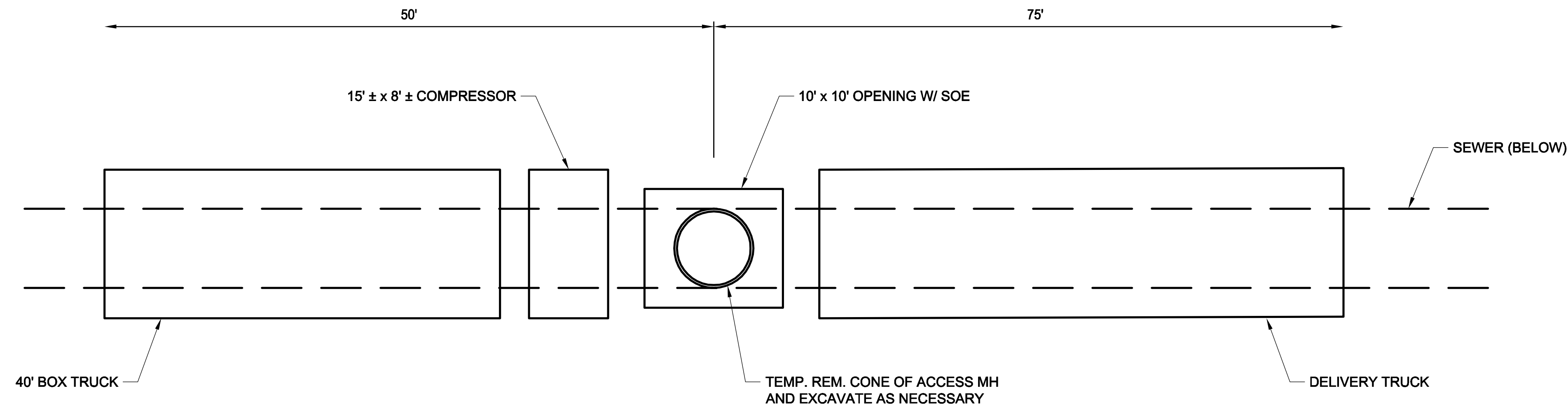
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DATE: DEC 2017

SHEET  
**SD-93**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

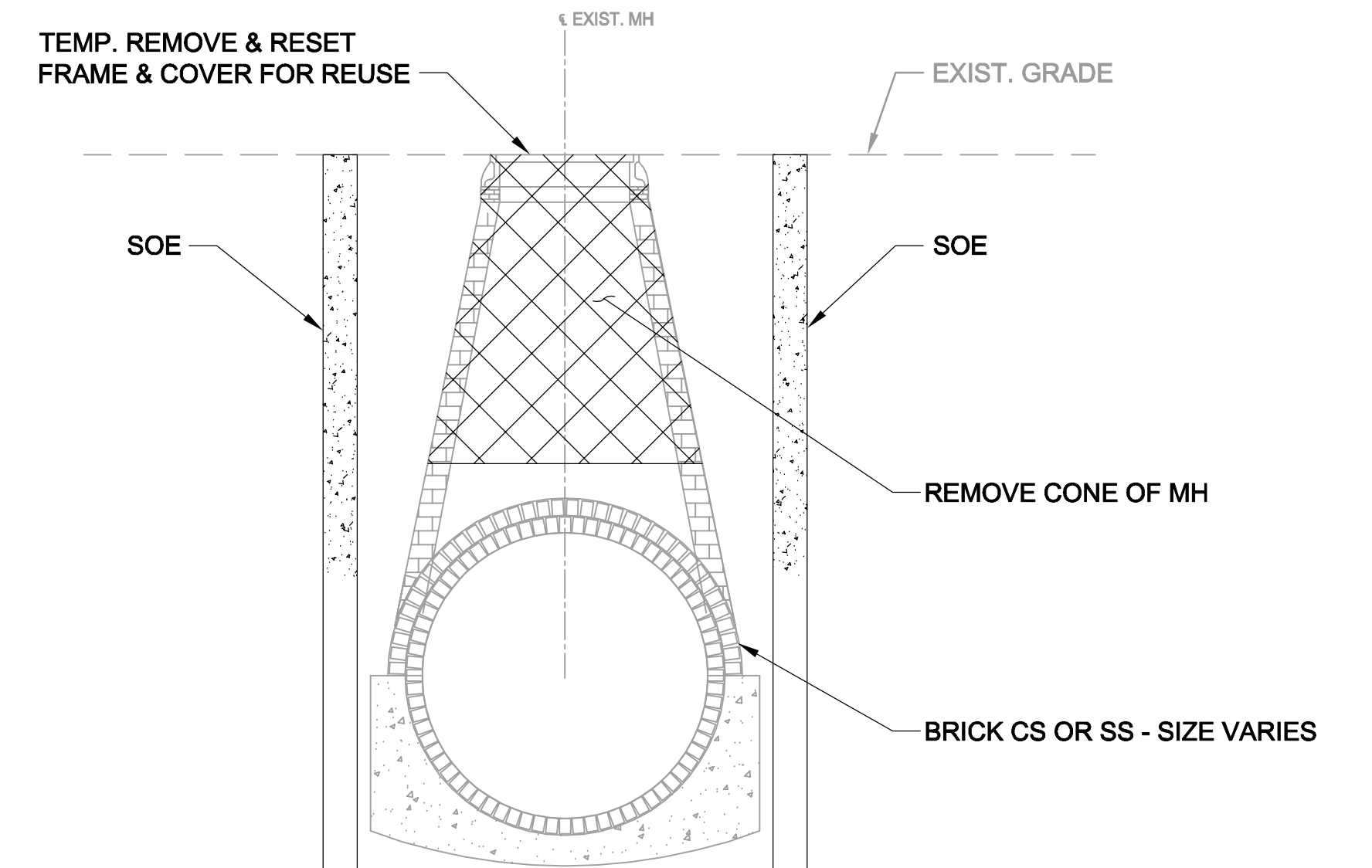
NO.	DATE	REVISIONS	BY

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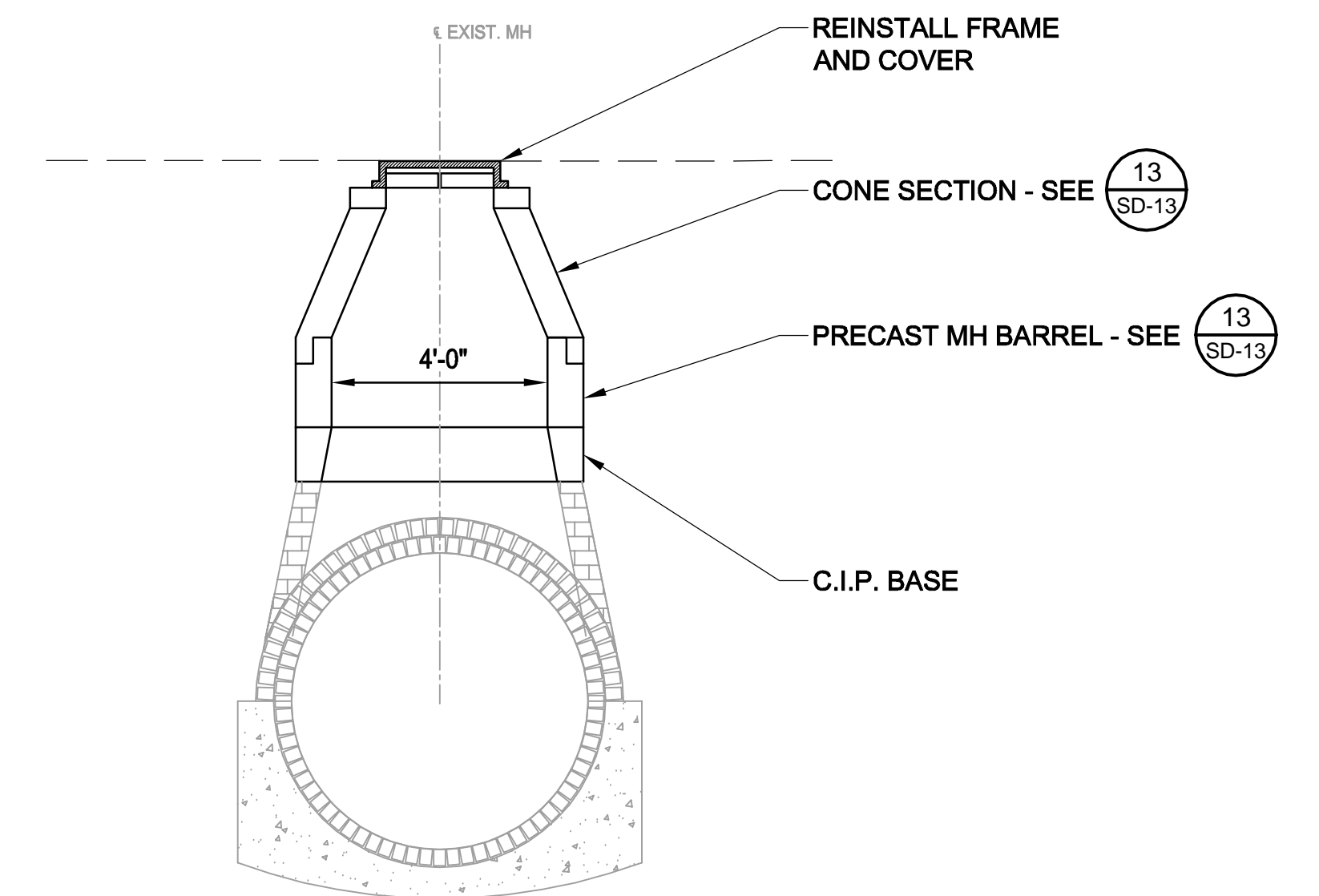
**TYP. SETUP AT ACCESS MH**

SCALE: N.T.S.



**DETAIL AT ACCESS MH FOR BRICK CS OR SS**

SCALE: N.T.S.



**RESTORE MH FOR BRICK CS OR SS**

SCALE: N.T.S.

Professional Engineer Seal for Rachel J. Burckardt, Civil, No. 31680, dated 12/11/17.

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
SEWER LINING DETAILS**

DESIGNED: RJB  
CHECKED: KMM  
DRAWN: KLN  
CHECKED: RJB

**WSP** | **PARSONS BRINCKERHOFF**  
Parsons Brinckerhoff, Inc.  
75 Arlington St. Boston, MA 02116  
PH. (617)426-7330 FAX (617)482-8487

REF. CONT.  
ACC.

SCALE: N.T.S.  
DATE: DEC 2017

SHEET  
**SD-94**

CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

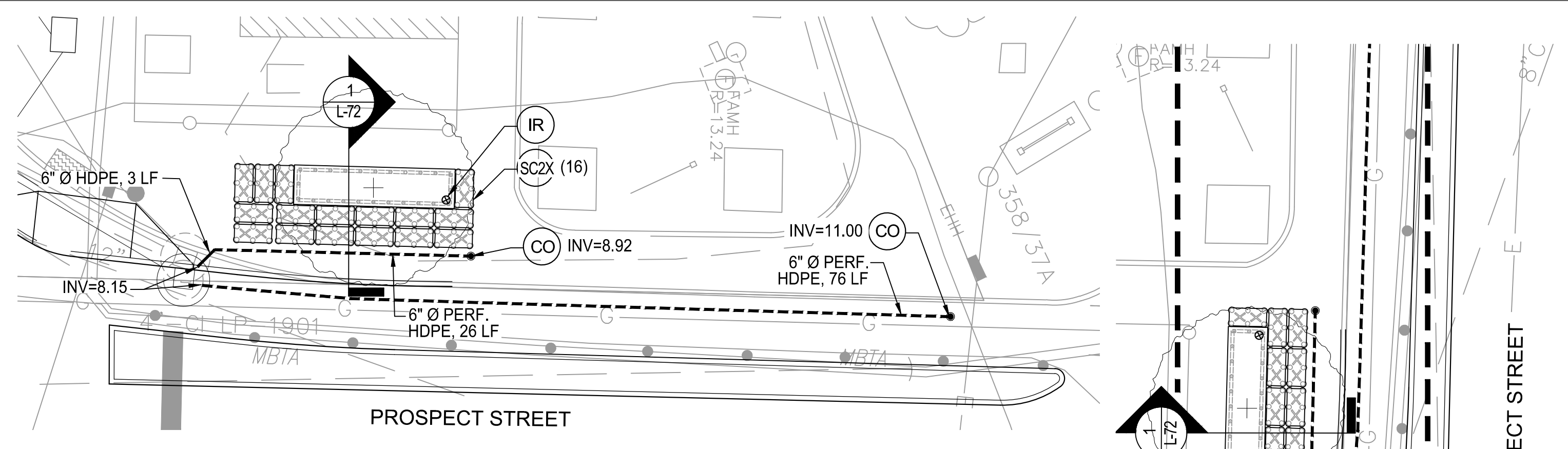


**NOTES:**

- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-12.
- FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-22.
- FOR GRADING PLAN, SEE SHEET L-32.
- FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-62.
- FOR PLANTING PLAN, SEE SHEET L-42.
- FOR STREETScape MATERIALS PLAN, SEE SHEET L-2.
- FOR IRRIGATION PLAN, SEE SHEET I-2.

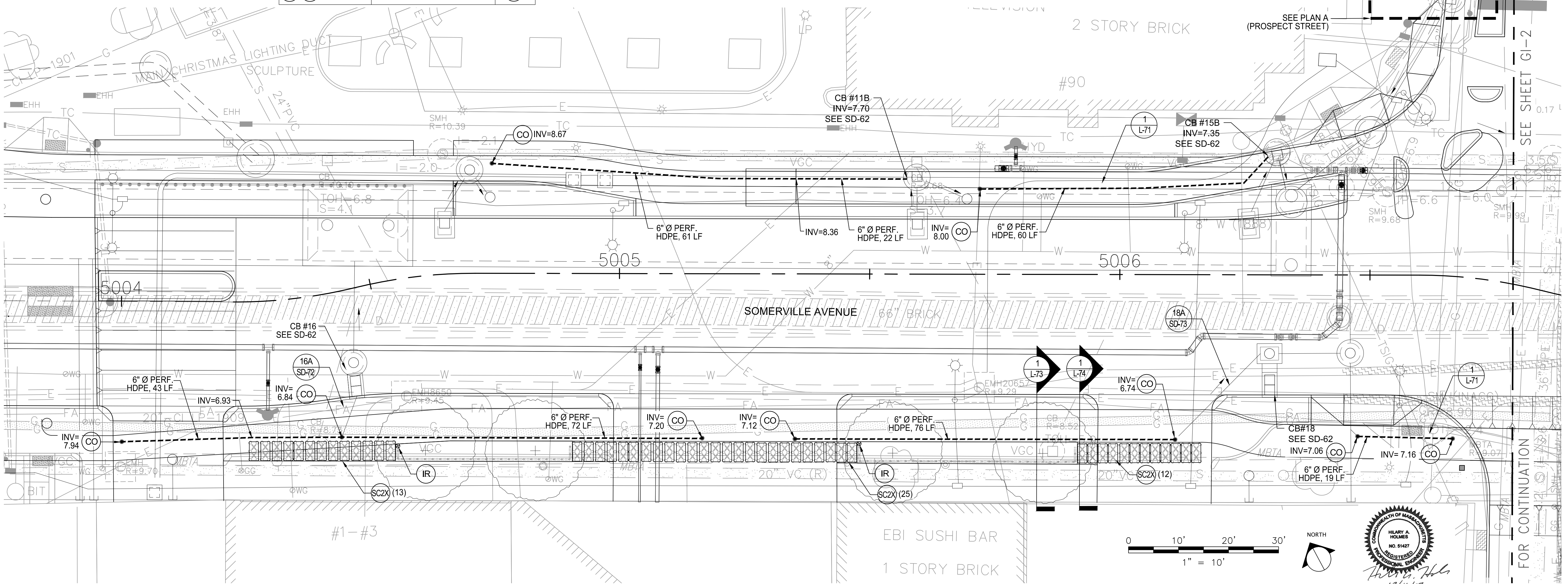
**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION	DETAIL
---	6"Ø PERFORATED HDPE UNDERDRAIN		(AD)	AREA DRAIN (GRATE)	(5) (G-101)
—	6"Ø SOLID HDPE PIPE		(SP)	STORMWATER PLANTER	(1) (G-100)
○	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	(BB)	BIORETENTION BASIN	(2) (G-100)
□	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	(TC)	TOP OF CURB	
○	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	(BC)	BOTTOM OF CURB	
●	CLEANOUT	(2) (G-101)	(FG)	FINISH GRADE	
⊕	SOIL CELL INSPECTION RISER	(1) (G-102)	(INV)	INVERT	
⊙	OVERFLOW STRUCTURE (DOMED GRATE)	(5) (G-101)	(LF)	LINEAR FEET	
●	DRAIN BASIN (SOLID COVER)	(5) (G-101)			
⊙	OBSERVATION WELL	(1) (G-101)			
(SC1X)(SC2X)	SOIL CELL - 1X OR 2X SYSTEM	(2) (G-102)			



**PLAN A (PROSPECT STREET)**

SCALE: 1" = 10'-0"



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GREEN INFRASTRUCTURE ENLARGEMENT PLAN**  
**SHEET 1 OF 6**

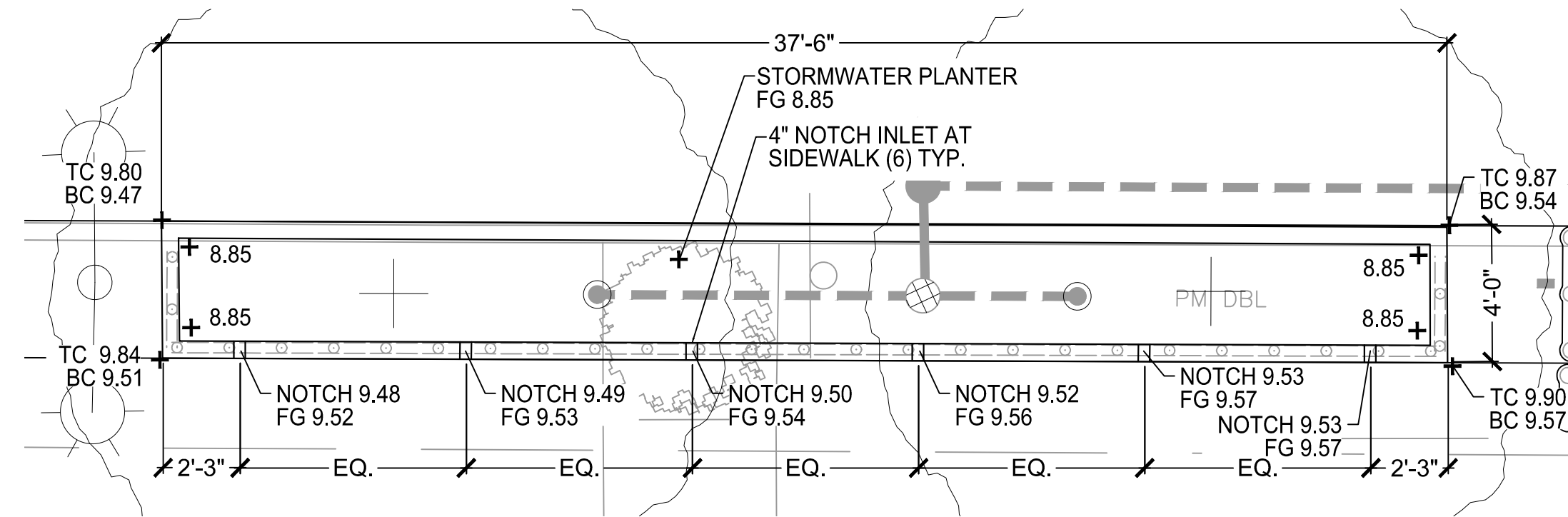
DESIGNED: HH	 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)462-8487	 27 Congress St. Salem, MA 01970 PH. (978)750-0096 FAX (978)740-0097	SHEET
CHECKED: EA			GI-1
DRAWN: AK/NB	REF.	CONT.	SCALE: AS NOTED
CHECKED: DB	ACC.		DATE: DEC 2017

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

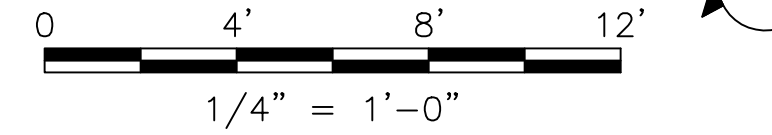
**NOTES:**

1. FOR GENERAL NOTES, SEE SHEET G-5.
2. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-12 AND G-13.
3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-22 AND G-23.
4. FOR GRADING PLAN, SEE SHEET L-32 AND L-33.
5. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-62 AND SD-63.
6. FOR PLANTING PLAN, SEE SHEET L-42 AND L-43.
7. FOR STREETScape MATERIALS PLAN, SEE SHEET L-2 AND L-3.
8. FOR IRRIGATION PLAN, SEE SHEET I-2 AND I-3.



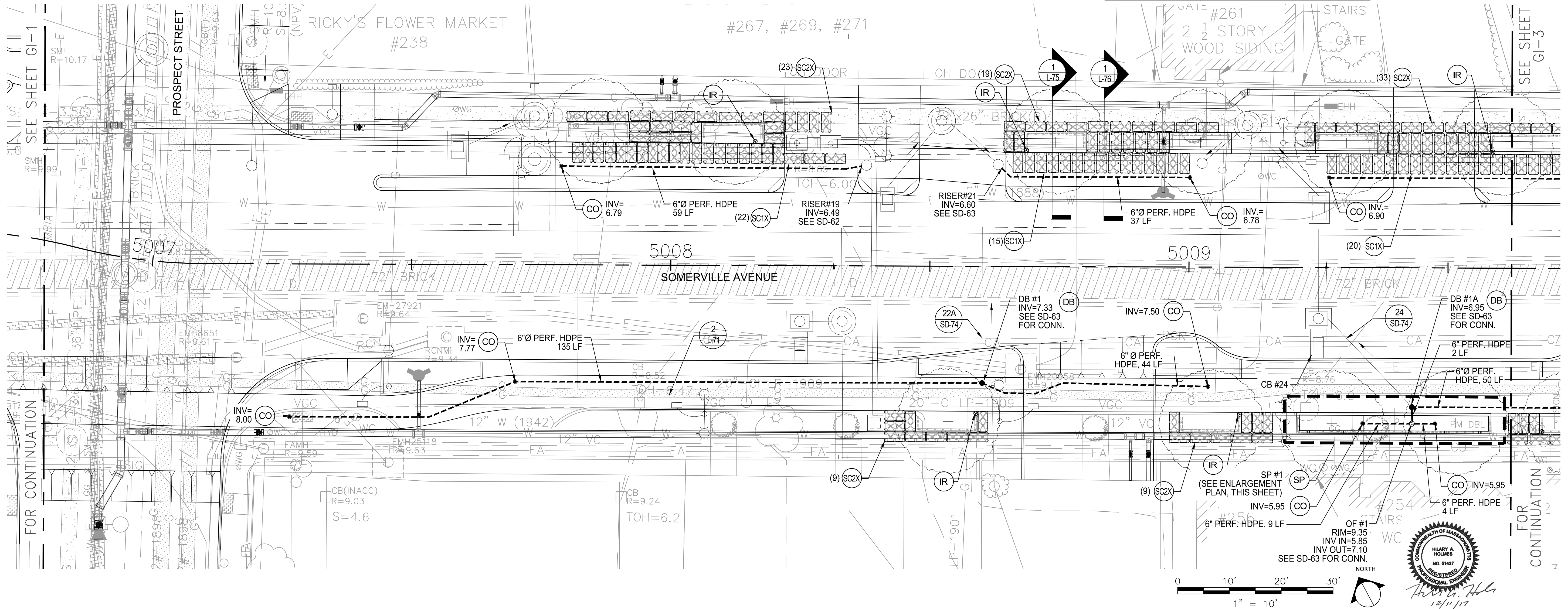
**SP #1 - LAYOUT AND GRADING ENLARGEMENT PLAN**

SCALE: 1/4" = 1'-0"



**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION	DETAIL
---	6"Ø PERFORATED HDPE UNDERDRAIN		AD	AREA DRAIN (GRATE)	5 (G-10)
—	6"Ø SOLID HDPE PIPE		SP	STORMWATER PLANTER	1 (G-10)
○	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	BB	BIORETENTION BASIN	2 (G-10)
○ □ □ □ □	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	TC	TOP OF CURB	
○	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	BC	BOTTOM OF CURB	
○ ●	CLEANOUT	2 (G-10)	FG	FINISH GRADE	
○ ⊕	SOIL CELL INSPECTION RISER	1 (G-10)	INV	INVERT	
○ ⊗	OVERFLOW STRUCTURE (DOMED GRATE)	5 (G-10)	LF	LINEAR FEET	
○ ●	DRAIN BASIN (SOLID COVER)	5 (G-10)			
○ ⊕	OBSERVATION WELL	1 (G-10)			
○ ⊗ ⊗	SOIL CELL - 1X OR 2X SYSTEM	2 (G-10)			



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

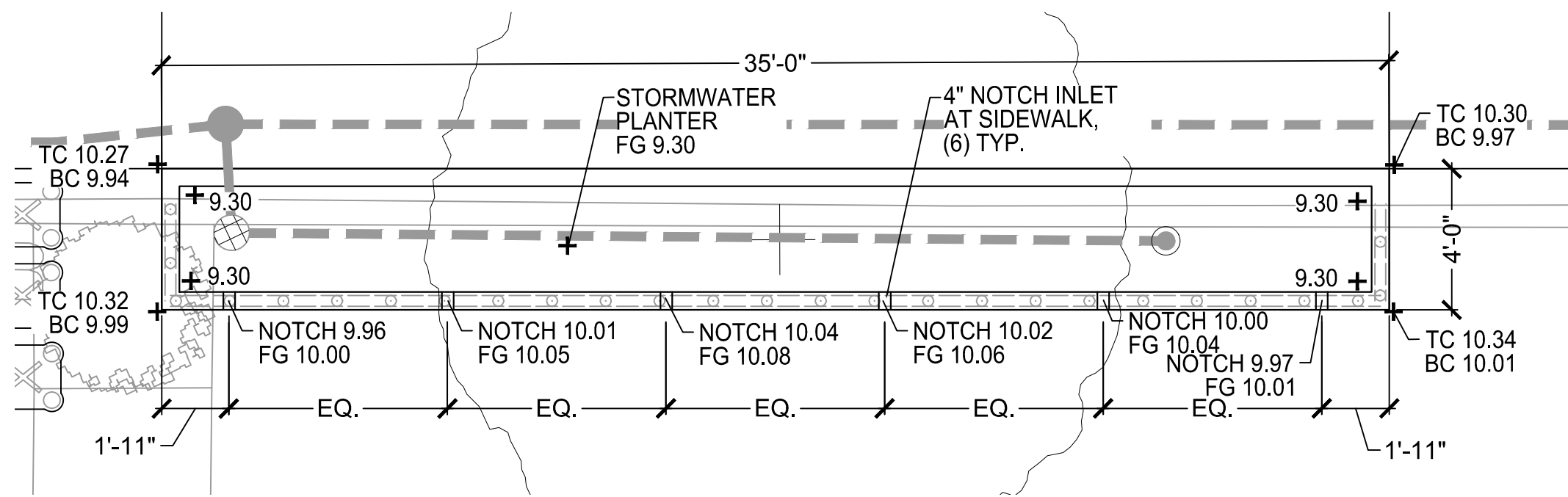
**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GREEN INFRASTRUCTURE ENLARGEMENT PLAN**  
**SHEET 2 OF 6**

DESIGNED: HH	 75 Arlington St. Boston, MA 02116 PH. (617)428-7330 FAX (617)462-8487	 27 Congress St. Salem, MA 01970 PH. (978)750-0096 FAX (978)740-0097	SHEET
CHECKED: EA			REF.
DRAWN: AK/NB	ACC.	SCALE: AS NOTED	<b>GI-2</b>
CHECKED: DB	DATE: DEC 2017		

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

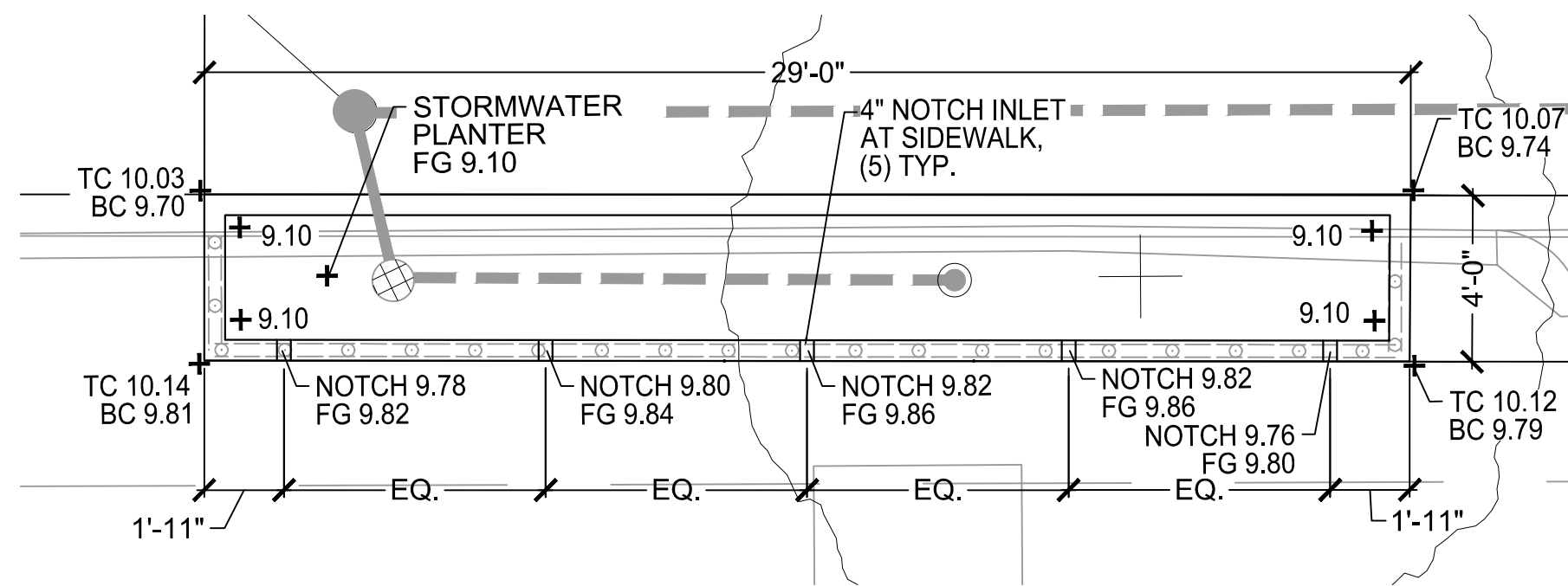
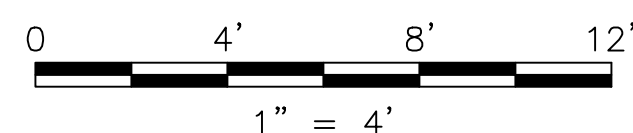
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NO.	DATE	REVISIONS	BY



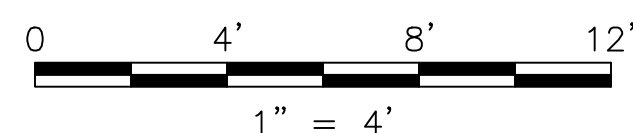
**SP #2 - LAYOUT AND GRADING ENLARGEMENT PLAN**

SCALE: 1/4" = 1'-0"



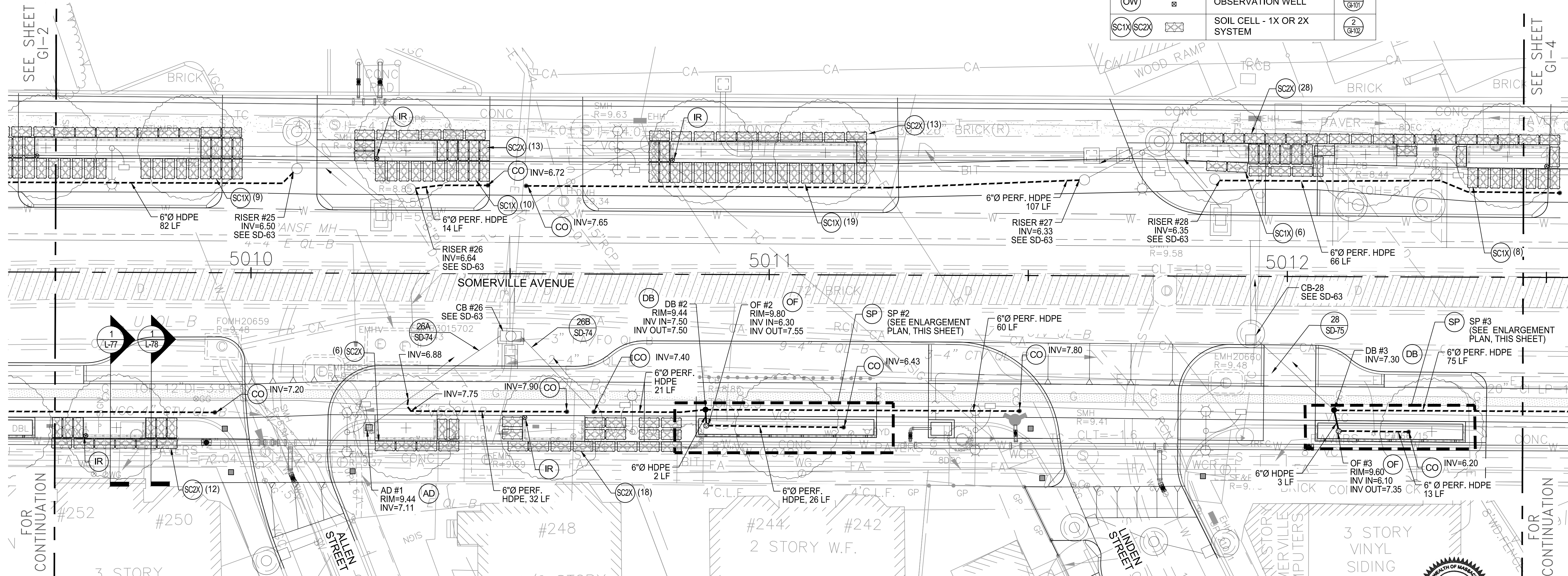
**SP #3 - LAYOUT AND GRADING ENLARGEMENT PLAN**

SCALE: 1/4" = 1'-0"



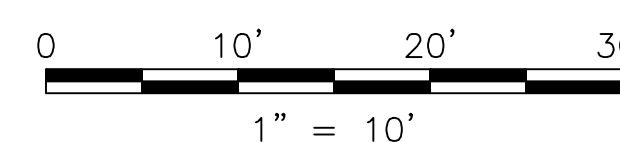
**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION	DETAIL
---	6"Ø PERFORATED HDPE UNDERDRAIN		(AD)	AREA DRAIN (GRATE)	(5) (3/10)
—	6"Ø SOLID HDPE PIPE		(SP)	STORMWATER PLANTER	(1) (3/10)
○	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	(BB)	BIORETENTION BASIN	(2) (3/10)
□	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	TC	TOP OF CURB	
○	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	BC	BOTTOM OF CURB	
○	CLEANOUT	(2) (3/10)	FG	FINISH GRADE	
⊕	SOIL CELL INSPECTION RISER	(1) (3/10)	INV	INVERT	
⊙	OVERFLOW STRUCTURE (DOMED GRATE)	(5) (3/10)	LF	LINEAR FEET	
●	DRAIN BASIN (SOLID COVER)	(5) (3/10)			
⊗	OBSERVATION WELL	(1) (3/10)			
(SC1X) (SC2X)	SOIL CELL - 1X OR 2X SYSTEM	(2) (3/10)			



**NOTES:**

- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-13.
- FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-23.
- FOR GRADING PLAN, SEE SHEET L-33.
- FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-63.
- FOR PLANTING PLAN, SEE SHEET L-43.
- FOR STREETSCAPE MATERIALS PLAN, SEE SHEET L-3.
- FOR IRRIGATION PLAN, SEE SHEET I-3.



**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GREEN INFRASTRUCTURE ENLARGEMENT PLAN**  
**SHEET 3 OF 6**

DESIGNED: HH	 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)462-8487	 27 Congress St. Salem, MA 01970 PH. (978)750-0096 FAX (978)740-0097	SHEET
CHECKED: EA			REF.
DRAWN: AK/NB	ACC.	SCALE: AS NOTED	DATE: DEC 2017
CHECKED: DB			<b>GI-3</b>

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

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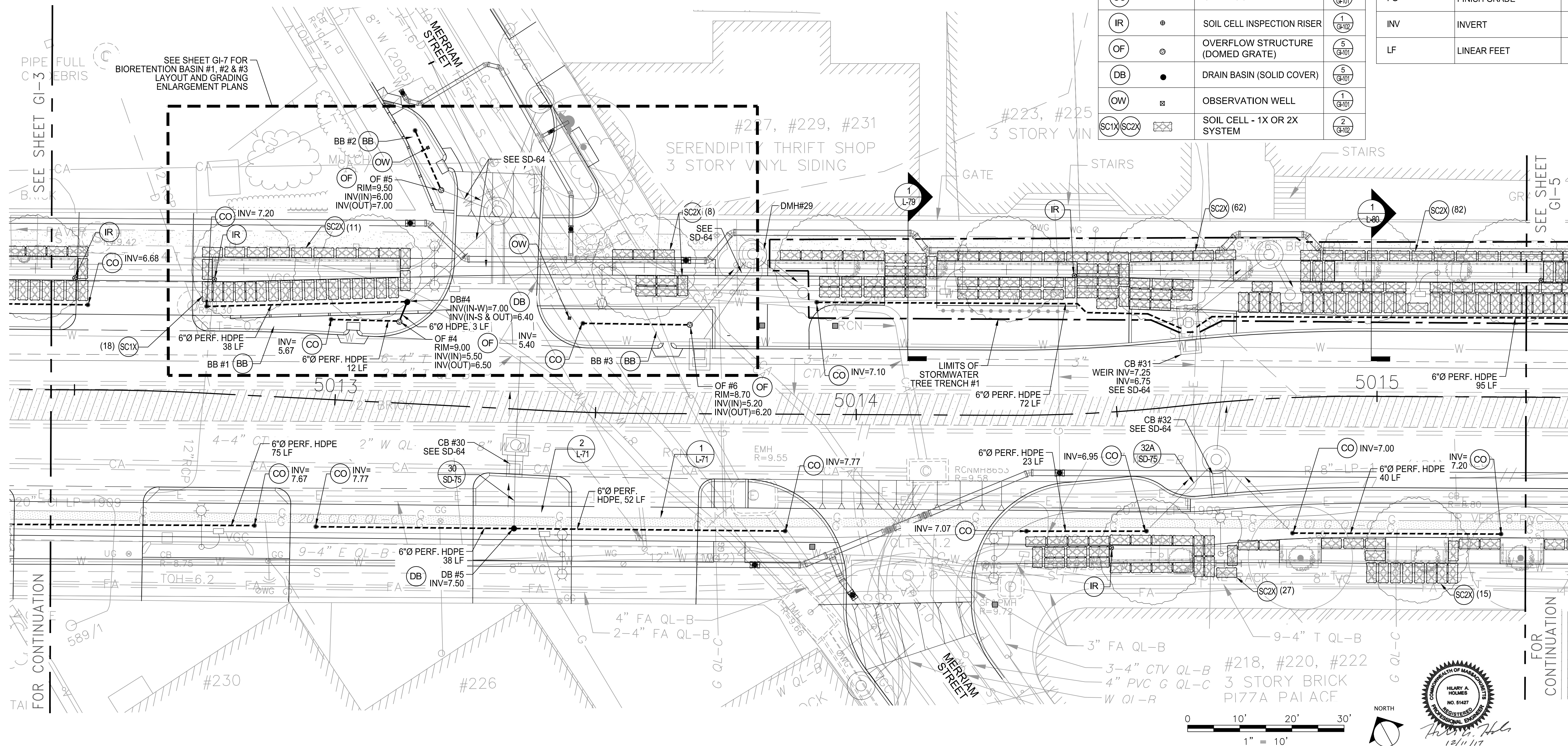
NO.	DATE	REVISIONS	BY

**NOTES:**

1. FOR GENERAL NOTES, SEE SHEET G-5.
2. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-13 AND G-14.
3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-23 AND G-24.
4. FOR GRADING PLAN, SEE SHEET L-33 AND L-34.
5. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-63 AND SD-64.
6. FOR PLANTING PLAN, SEE SHEET L-43 AND L-44.
7. FOR STREETScape MATERIALS PLAN, SEE SHEET L-3 AND L-4.
8. FOR IRRIGATION PLAN, SEE SHEET I-3 AND I-4.

**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION	DETAIL
---	6"Ø PERFORATED HDPE UNDERDRAIN		(AD)	AREA DRAIN (GRATE)	(5) (G-101)
—	6"Ø SOLID HDPE PIPE		(SP)	STORMWATER PLANTER	(1) (G-100)
○	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	(BB)	BIORETENTION BASIN	(2) (G-100)
○ □ □ □ □ □	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	TC	TOP OF CURB	
○	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	BC	BOTTOM OF CURB	
○	CLEANOUT	(2) (G-101)	FG	FINISH GRADE	
⊕	SOIL CELL INSPECTION RISER	(1) (G-102)	INV	INVERT	
⊙	OVERFLOW STRUCTURE (DOMED GRATE)	(5) (G-101)	LF	LINEAR FEET	
●	DRAIN BASIN (SOLID COVER)	(5) (G-101)			
⊗	OBSERVATION WELL	(1) (G-101)			
(SC1X) (SC2X)	SOIL CELL - 1X OR 2X SYSTEM	(2) (G-102)			



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETSCAPE IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GREEN INFRASTRUCTURE ENLARGEMENT PLAN**  
**SHEET 4 OF 6**

DESIGNED: HH	 75 Arlington St. Boston, MA 02116 PH. (617)428-7330 FAX (617)462-8487	 27 Congress St. Salem, MA 01970 PH. (978)750-0096 FAX (978)740-0097	SHEET
CHECKED: EA			REF.
DRAWN: AK/NB	ACC.	SCALE: 1"=10'	GI-4
CHECKED: DB	DATE: DEC 2017		

CITY OF SOMERVILLE  
 93 HIGHLAND AVENUE  
 SOMERVILLE, MA 02143

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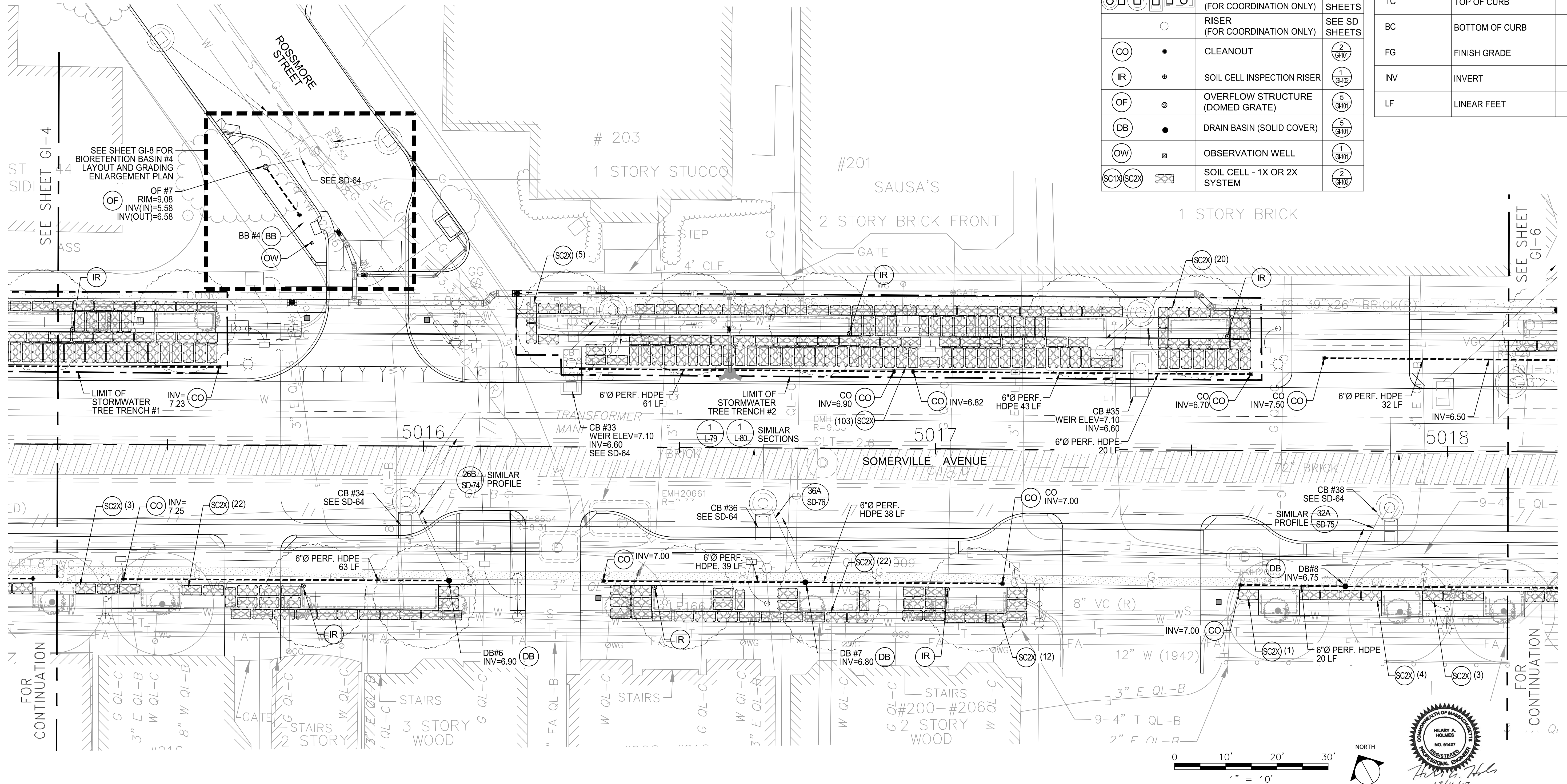
NO.	DATE	REVISIONS	BY

**NOTES:**

- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-14 AND G-15.
- FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-24 AND G-25.
- FOR GRADING PLAN, SEE SHEET L-34 AND L-35.
- FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-64 AND SD-65.
- FOR PLANTING PLAN, SEE SHEET L-44 AND L-45.
- FOR STREETScape MATERIALS PLAN, SEE SHEET L-4 AND L-5.
- FOR IRRIGATION PLAN, SEE SHEET I-4.

**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION	DETAIL
---	6"Ø PERFORATED HDPE UNDERDRAIN		AD	AREA DRAIN (GRATE)	5 (G-107)
—	6"Ø SOLID HDPE PIPE		SP	STORMWATER PLANTER	1 (G-107)
○	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	BB	BIORETENTION BASIN	2 (G-107)
□ □ □ □ □	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	TC	TOP OF CURB	
○	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	BC	BOTTOM OF CURB	
○	CLEANOUT	2 (G-107)	FG	FINISH GRADE	
⊕	SOIL CELL INSPECTION RISER	1 (G-107)	INV	INVERT	
⊙	OVERFLOW STRUCTURE (DOMED GRATE)	5 (G-107)	LF	LINEAR FEET	
●	DRAIN BASIN (SOLID COVER)	5 (G-107)			
⊗	OBSERVATION WELL	1 (G-107)			
SC1X SC2X	SOIL CELL - 1X OR 2X SYSTEM	2 (G-107)			



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GREEN INFRASTRUCTURE ENLARGEMENT PLAN**  
**SHEET 5 OF 6**

DESIGNED: HH	 75 Arlington St. Boston, MA 02116 PH. (617)428-7330 FAX (617)462-8487	 27 Congress St. Salem, MA 01970 PH. (978)750-0096 FAX (978)740-0097	SHEET
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DRAWN: AK/NB			<b>GI-5</b>
CHECKED: DB			

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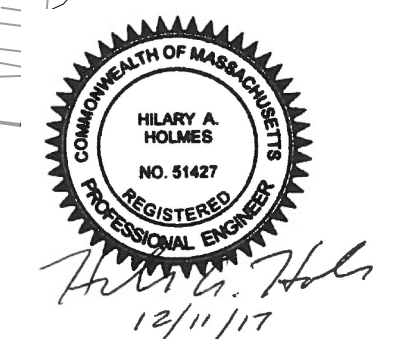
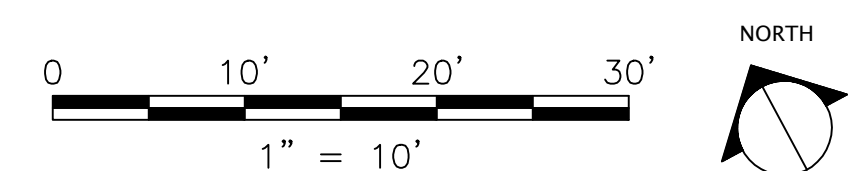
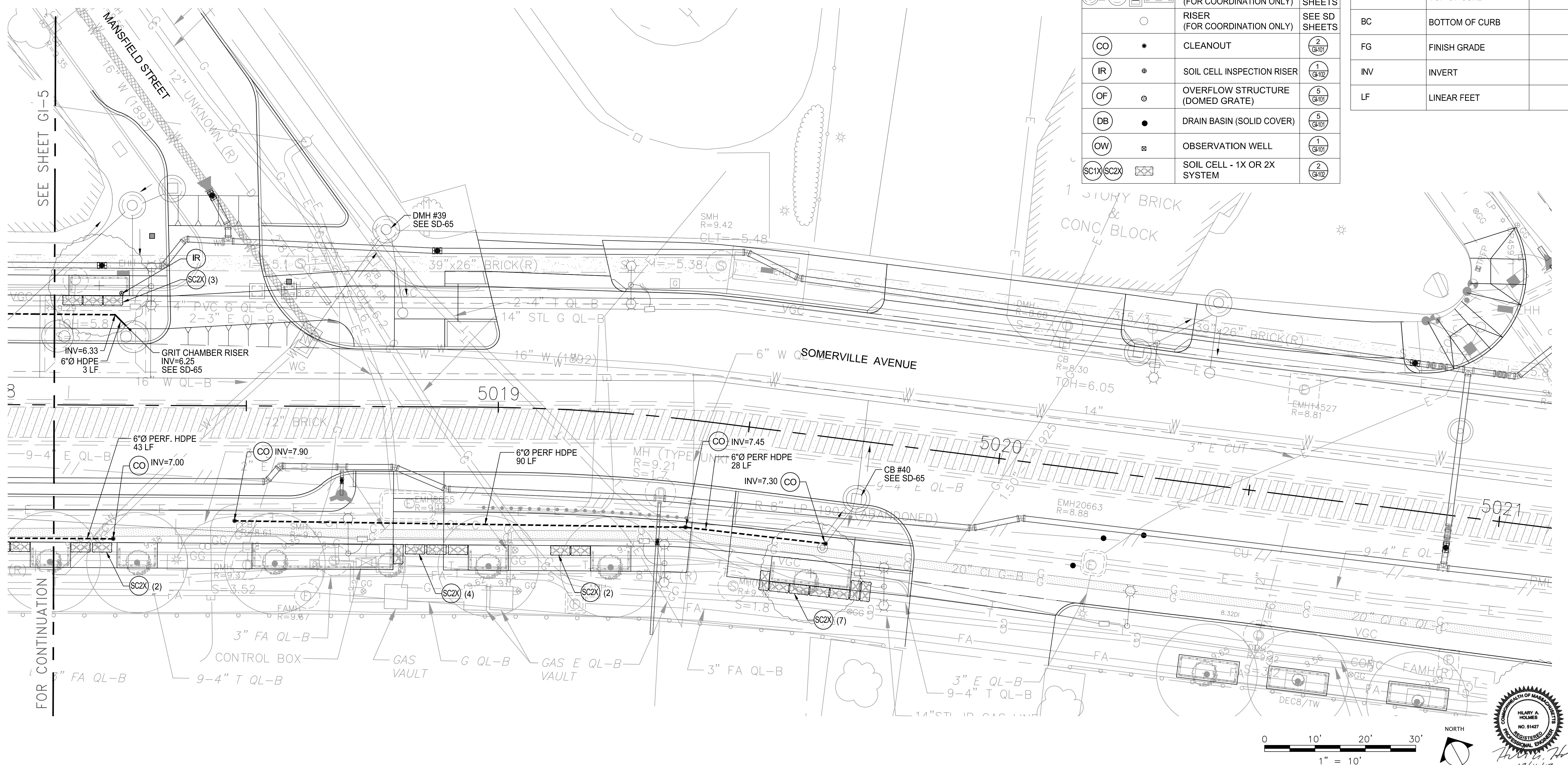
NO.	DATE	REVISIONS	BY

**NOTES:**

1. FOR GENERAL NOTES, SEE SHEET G-5.
2. FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-15.
3. FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-25.
4. FOR GRADING PLAN, SEE SHEET L-35.
5. FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-65.
6. FOR PLANTING PLAN, SEE SHEET L-45.
7. FOR STREETScape MATERIALS PLAN, SEE SHEET L-5.
8. FOR IRRIGATION PLAN, SEE SHEET I-5.

**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION	DETAIL
---	6"Ø PERFORATED HDPE UNDERDRAIN		(AD)	AREA DRAIN (GRATE)	(5) (G-101)
—	6"Ø SOLID HDPE PIPE		(SP)	STORMWATER PLANTER	(1) (G-100)
(O)	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	(BB)	BIORETENTION BASIN	(2) (G-100)
(□)	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	TC	TOP OF CURB	
(○)	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	BC	BOTTOM OF CURB	
(●)	CLEANOUT	(2) (G-101)	FG	FINISH GRADE	
(⊕)	SOIL CELL INSPECTION RISER	(1) (G-102)	INV	INVERT	
(⊙)	OVERFLOW STRUCTURE (DOMED GRATE)	(5) (G-101)	LF	LINEAR FEET	
(●)	DRAIN BASIN (SOLID COVER)	(5) (G-101)			
(○)	OBSERVATION WELL	(1) (G-101)			
(SC1X)(SC2X)	SOIL CELL - 1X OR 2X SYSTEM	(2) (G-102)			



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**  
**CONTRACT CP-2/CP-3**  
**SEWER SEPARATION AND WATER REPLACEMENT**  
**GREEN INFRASTRUCTURE ENLARGEMENT PLAN**  
**SHEET 6 OF 6**

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DRAWN: AK/NB			<b>GI-6</b>
CHECKED: DB			

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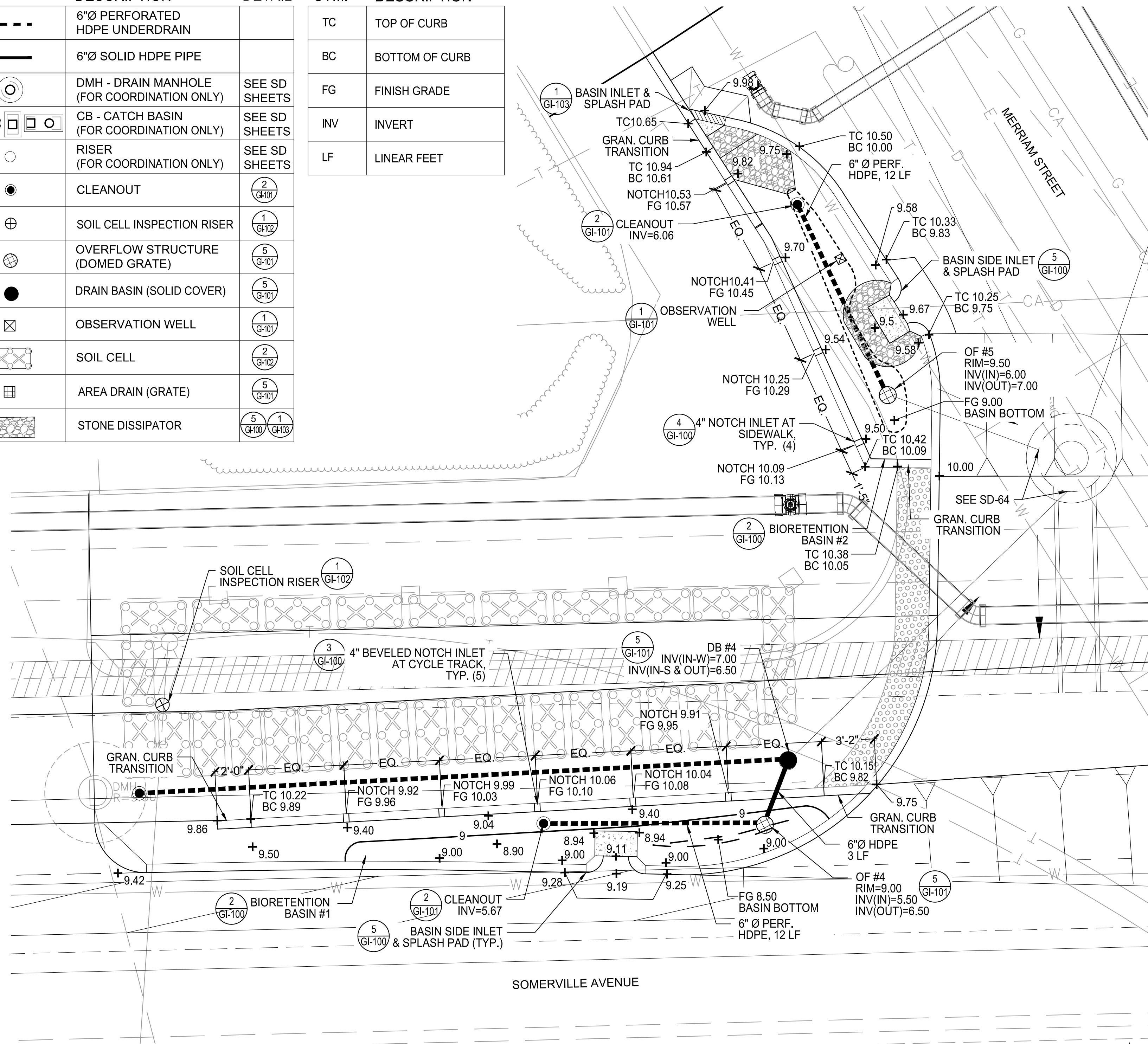
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NO.	DATE	REVISIONS	BY

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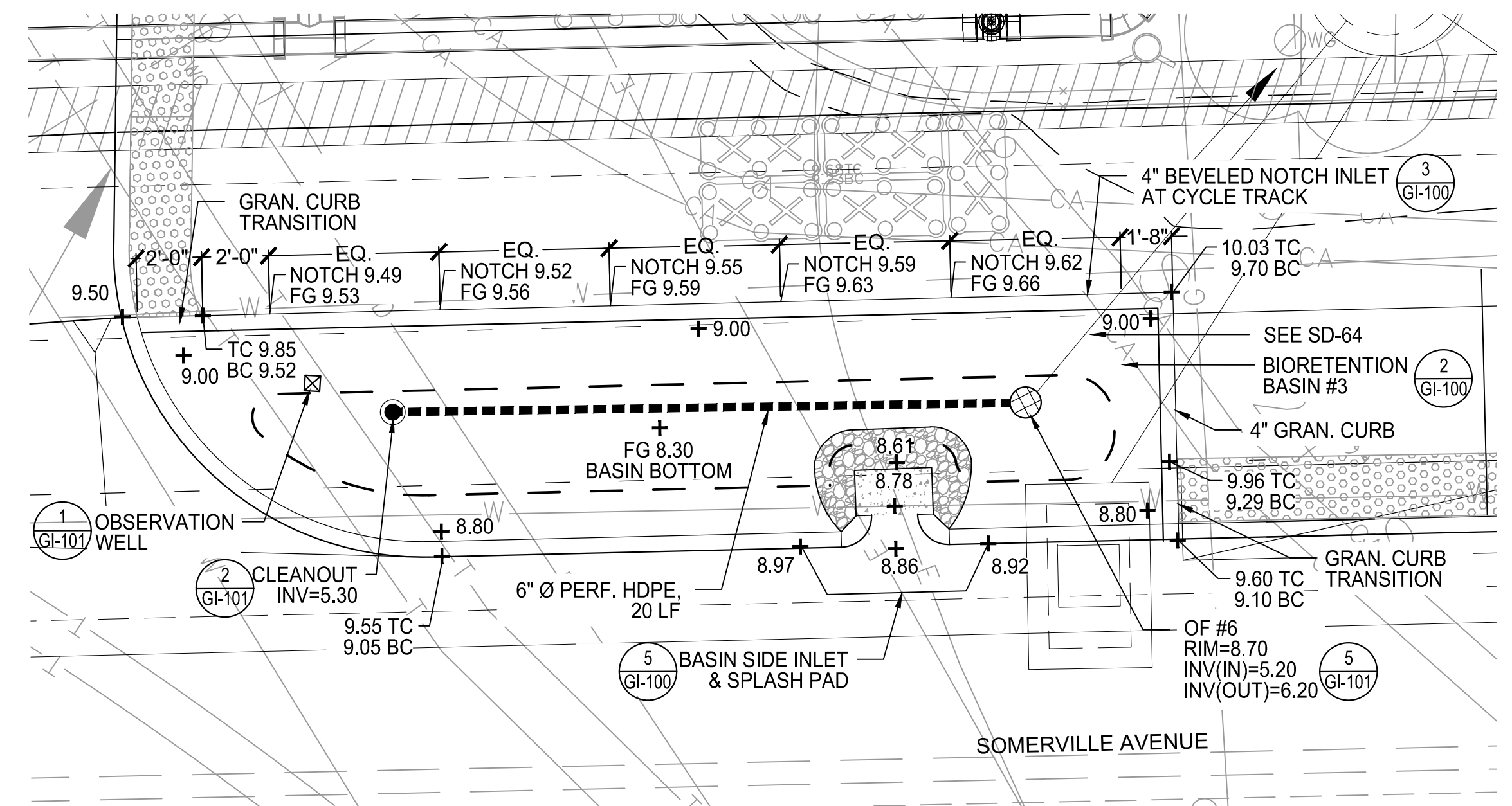
**LEGEND**

SYM.	DESCRIPTION	DETAIL	SYM.	DESCRIPTION
----	6"Ø PERFORATED HDPE UNDERDRAIN		TC	TOP OF CURB
—	6"Ø SOLID HDPE PIPE		BC	BOTTOM OF CURB
⊙	DMH - DRAIN MANHOLE (FOR COORDINATION ONLY)	SEE SD SHEETS	FG	FINISH GRADE
⊙ ⊙ ⊙ ⊙ ⊙	CB - CATCH BASIN (FOR COORDINATION ONLY)	SEE SD SHEETS	INV	INVERT
○	RISER (FOR COORDINATION ONLY)	SEE SD SHEETS	LF	LINEAR FEET
●	CLEANOUT	(2) GI-101		
⊕	SOIL CELL INSPECTION RISER	(1) GI-102		
⊗	OVERFLOW STRUCTURE (DOMED GRATE)	(5) GI-101		
●	DRAIN BASIN (SOLID COVER)	(5) GI-101		
⊠	OBSERVATION WELL	(1) GI-101		
⊠	SOIL CELL	(2) GI-102		
⊠	AREA DRAIN (GRATE)	(5) GI-101		
⊠	STONE DISSIPATOR	(5) GI-101		



**BIORETENTION BASINS 1 & 2 - LAYOUT AND GRADING PLAN**

SCALE: 1/4" = 1'-0"



**BIORETENTION BASIN 3 - LAYOUT AND GRADING PLAN**

SCALE: 1/4" = 1'-0"

**NOTES:**

- FOR GENERAL NOTES, SEE SHEET G-5.
- FOR SURFACE EXISTING CONDITIONS, SEE SHEET G-14.
- FOR SUBSURFACE EXISTING CONDITIONS, SEE SHEET G-24.
- FOR GRADING PLAN, SEE SHEET L-34.
- FOR SURFACE DRAINAGE PLAN, SEE SHEET SD-64.
- FOR PLANTING PLAN, SEE SHEET L-44.
- FOR STREETScape MATERIALS PLAN, SEE SHEET L-4.
- FOR IRRIGATION PLAN, SEE SHEET I-4.
- LOCATION AND DEPTH OF EXISTING UTILITIES SHALL BE FIELD VERIFIED PRIOR TO BASIN CONSTRUCTION. NOTIFY THE ENGINEER IMMEDIATELY OF ANY CONFLICTS. INSTALL UTILITY SLEEVES AND ANTI-SEEP COLLARS AS REQUIRED AND COORDINATE INSTALLATION WITH UTILITY COMPANY.
- COORDINATE BIORETENTION BASIN ELEVATIONS WITH ROADWAY CURB AND SIDEWALK ELEVATIONS.



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

**CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
BIORETENTION BASINS 1, 2 & 3  
ENLARGEMENT PLANS**

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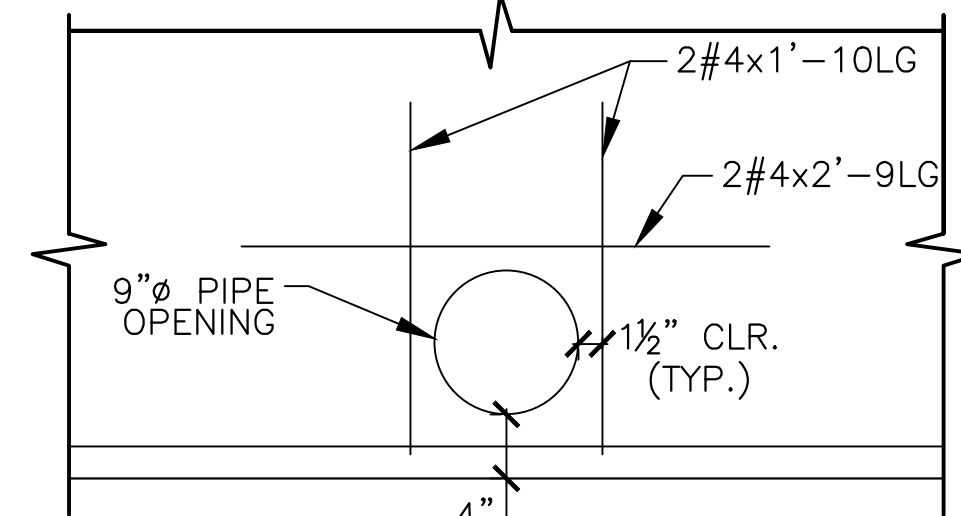
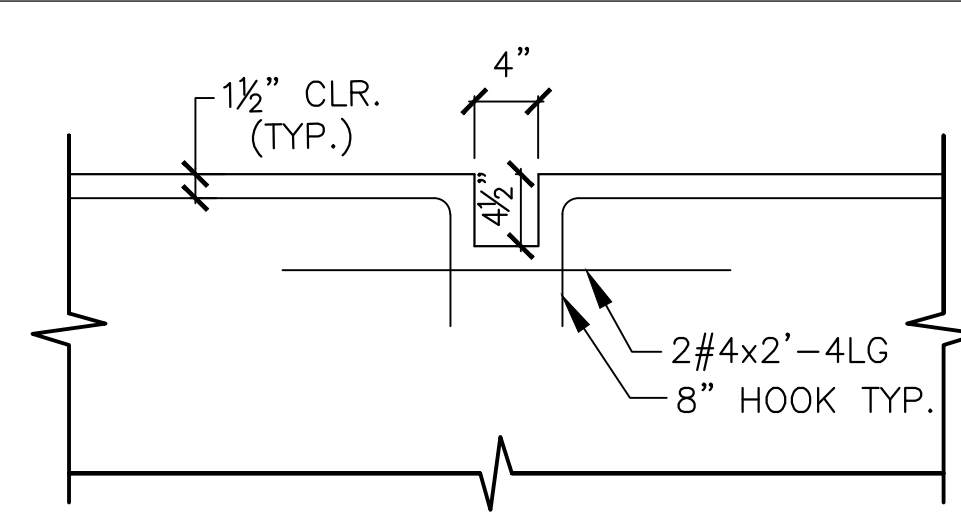
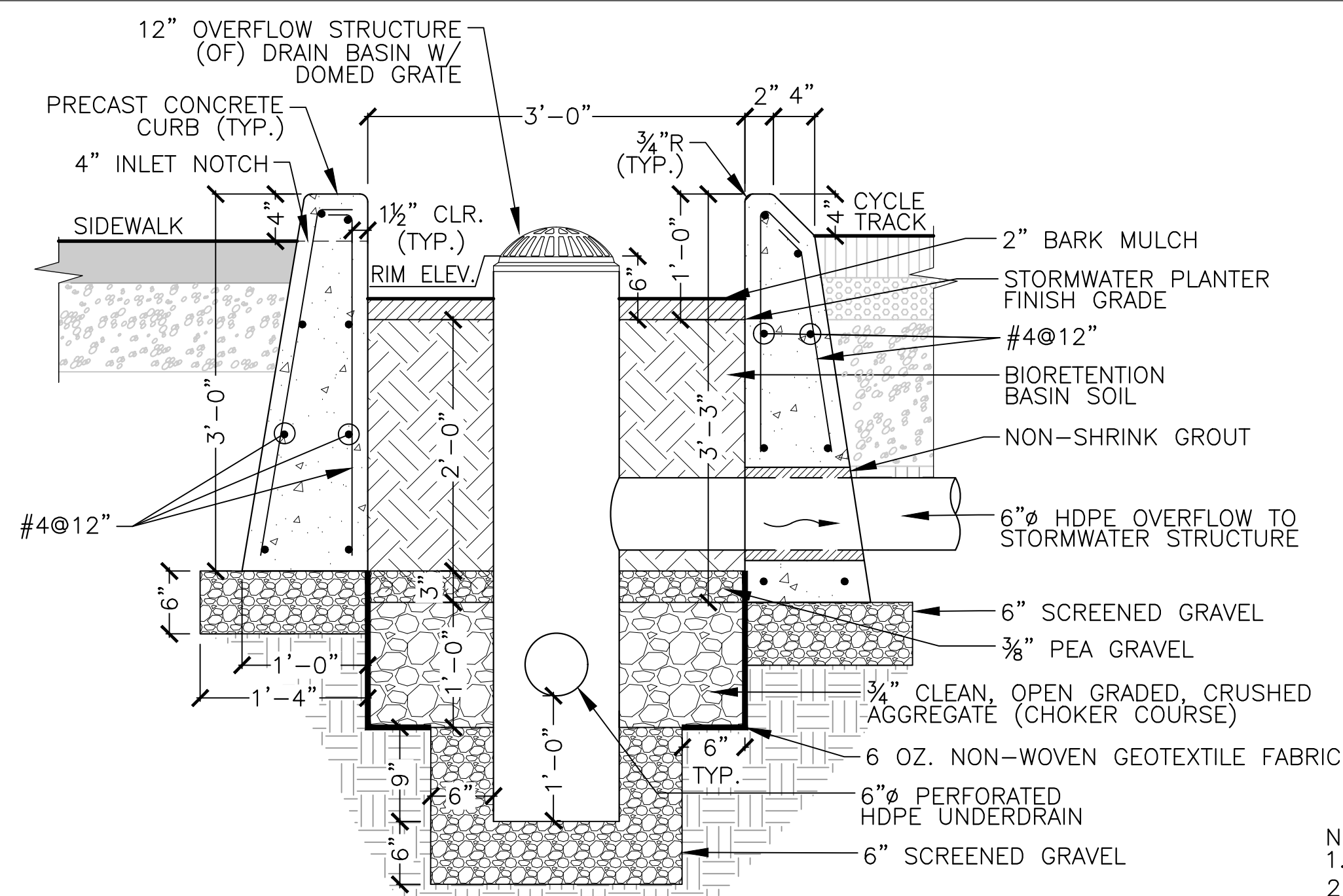
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93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

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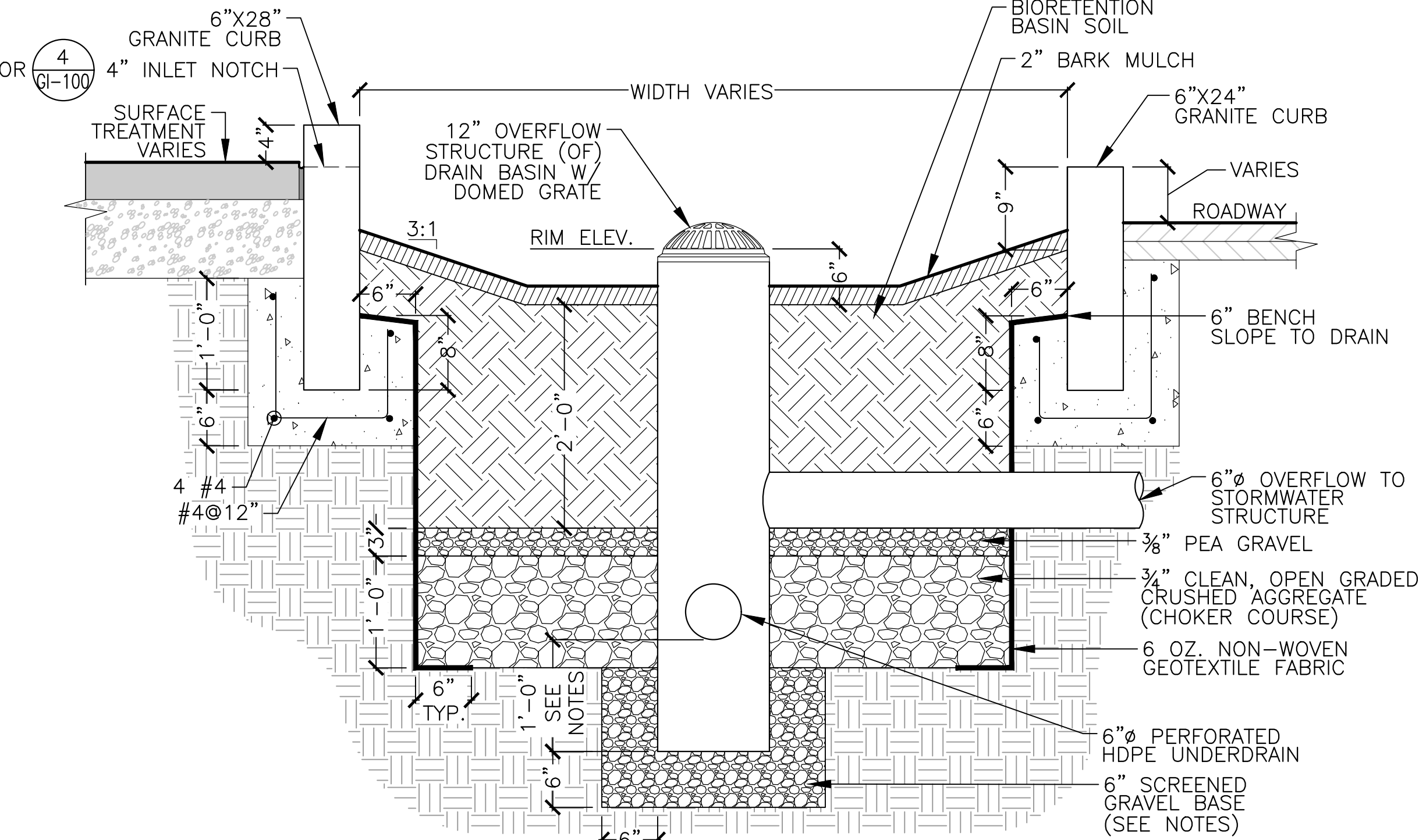
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- NOTES:  
 1. SEE 1/L-116 FOR 18" HT. TREE/PLANTING GUARD AT STORMWATER PLANTER.  
 2. ALL STONE SUBBASE IN THE STORMWATER PLANTER IS DOUBLE WASHED.  
 3. NOTCH IS 1/2" BELOW TOP OF CONCRETE SIDEWALK, SLOPE TO DRAIN.

**1 STORMWATER PLANTER SECTION (TYP.)**

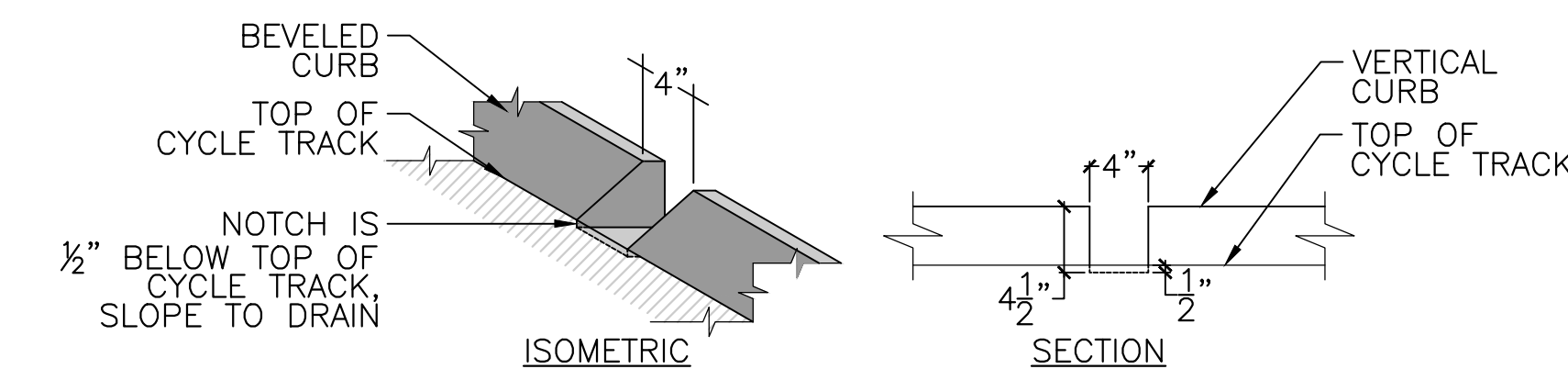
SCALE: NTS



- NOTES:  
 1. OVERFLOW STRUCTURES (OF) FOR BIORETENTION BASIN #1 AND #3 ARE LOCATED OVER THE BOX CULVERT. THE SUMP FROM INVERT OF UNDERDRAIN TO BOTTOM OF STRUCTURE SHALL BE 4 INCHES AT THESE LOCATIONS. SCREENED GRAVEL OR GROUT SHALL BE USED BETWEEN THE BOX CULVERT AND THE OVERFLOW DRAIN BASIN TO SET ELEVATION AS INDICATED ON PLANS.  
 2. ALL STONE SUBBASE IN THE BIORETENTION BASIN IS DOUBLE WASHED.

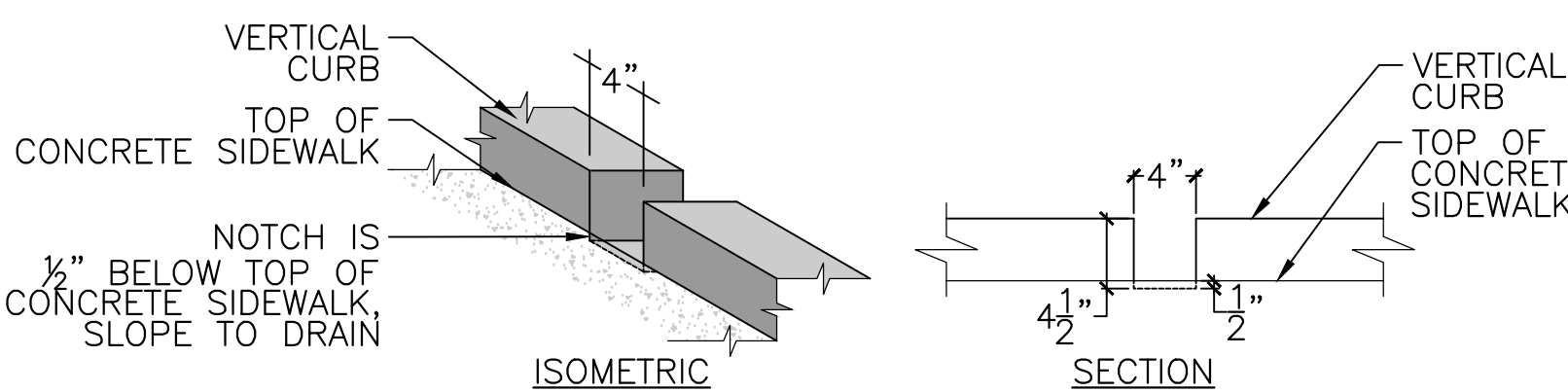
**2 BIORETENTION BASIN SECTION (TYP.)**

SCALE: NTS



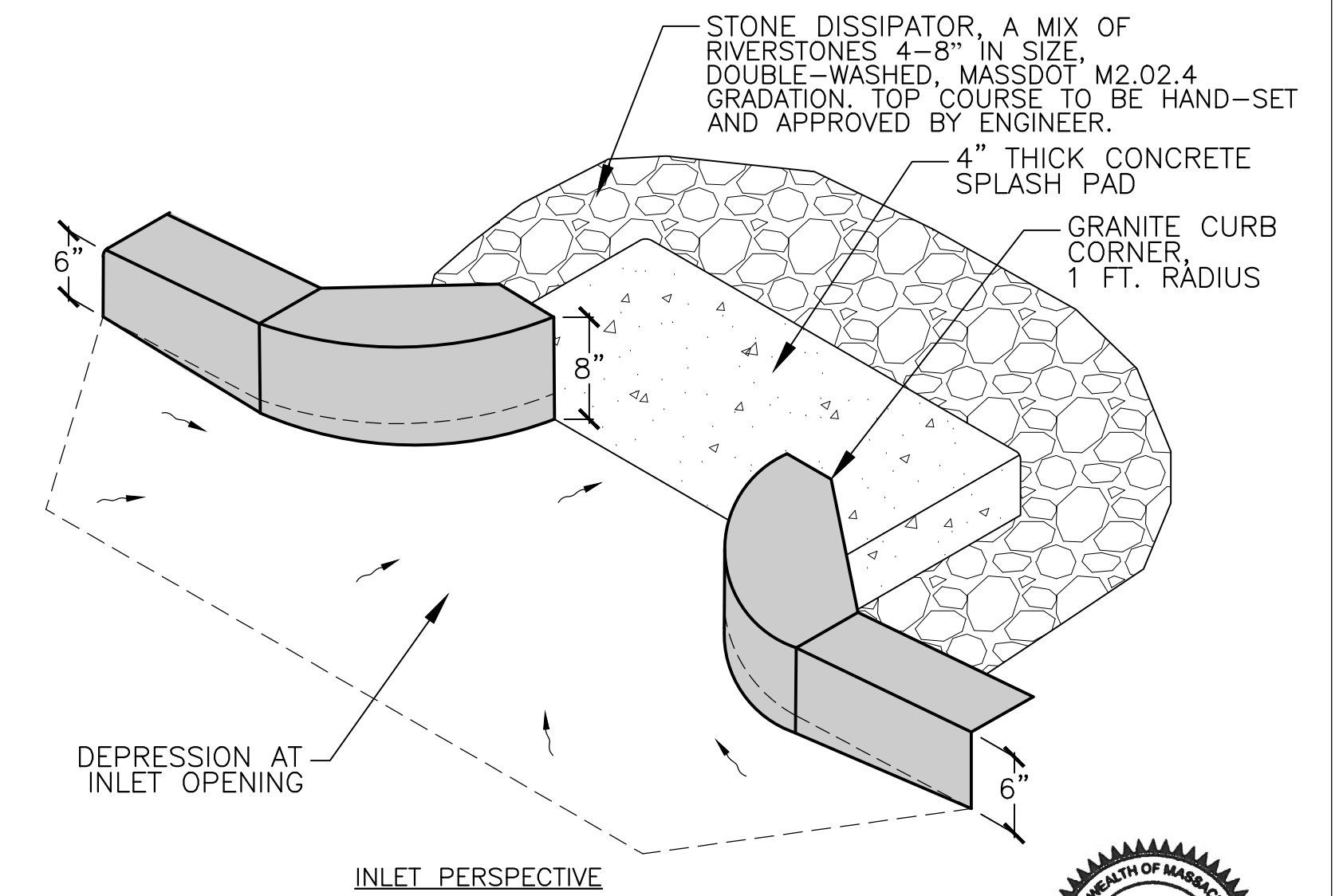
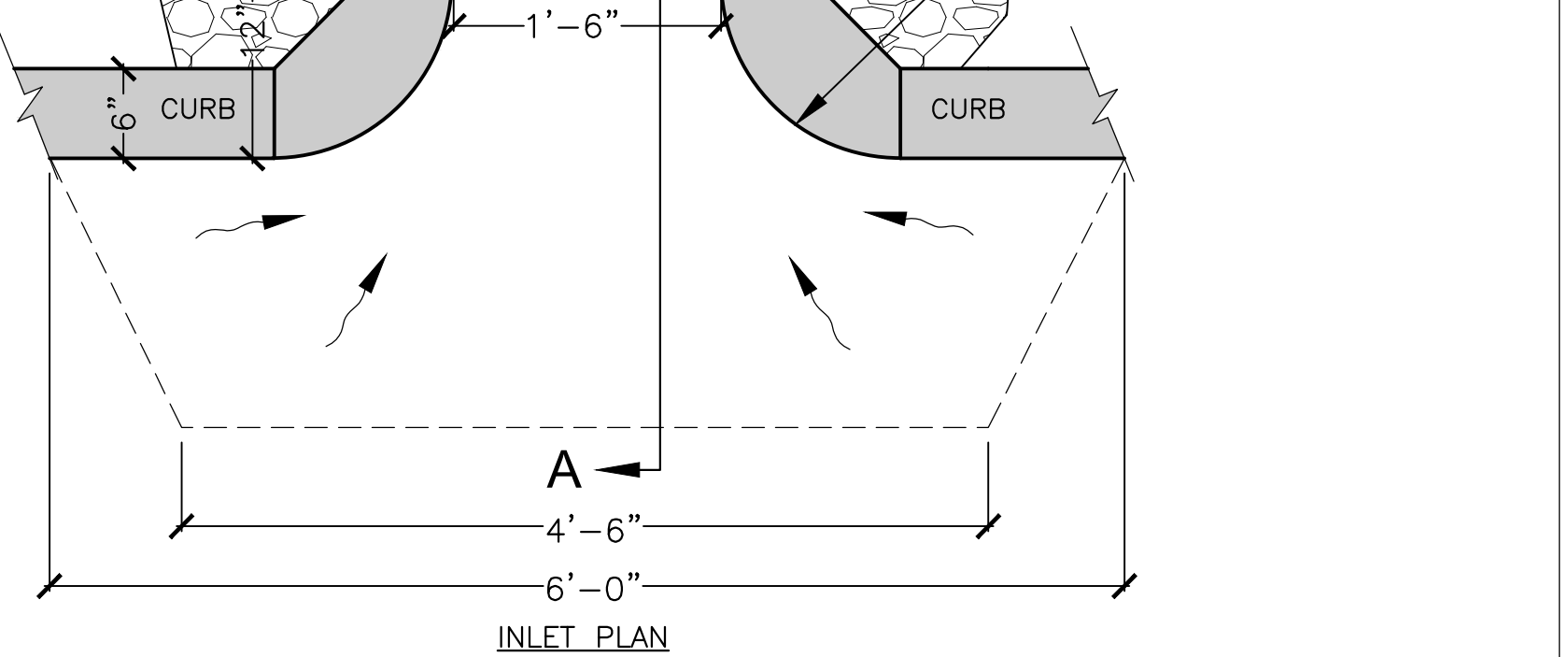
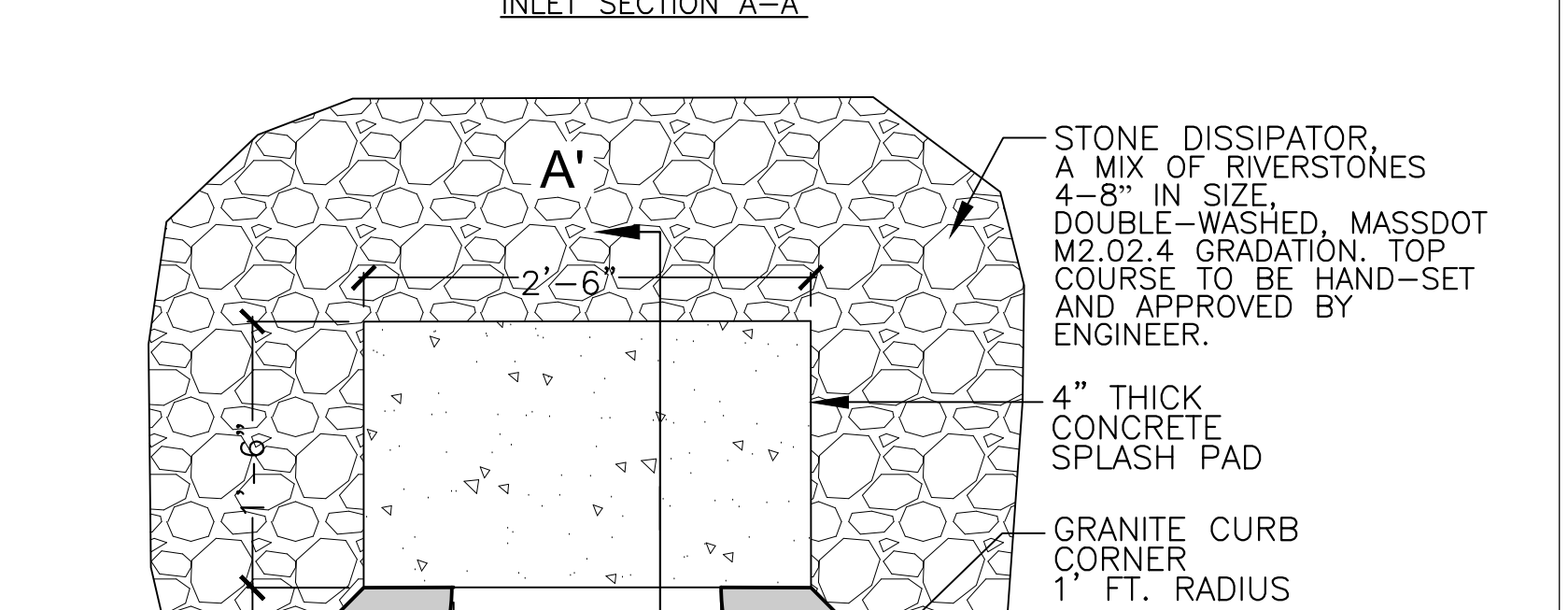
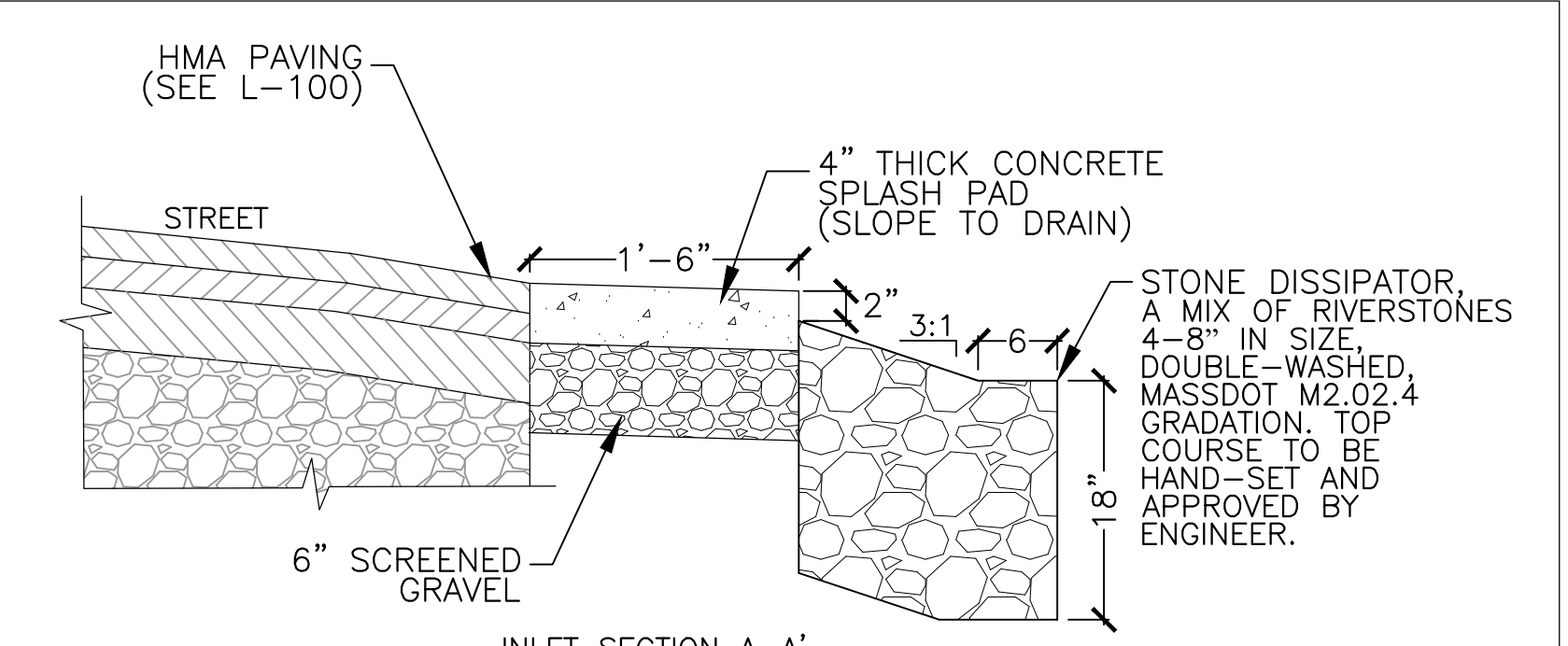
**3 4-INCH BEVELED NOTCH INLET AT CYCLE TRACK**

SCALE: NTS



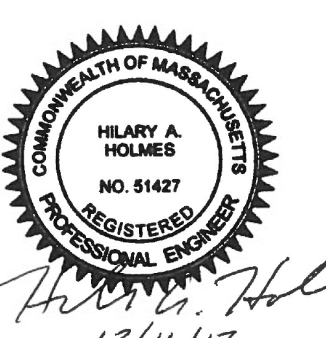
**4 4-INCH NOTCH INLET AT SIDEWALK**

SCALE: NTS



**5 BASIN SIDE INLET & SPLASH PAD**

SCALE: NTS



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

**SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS**

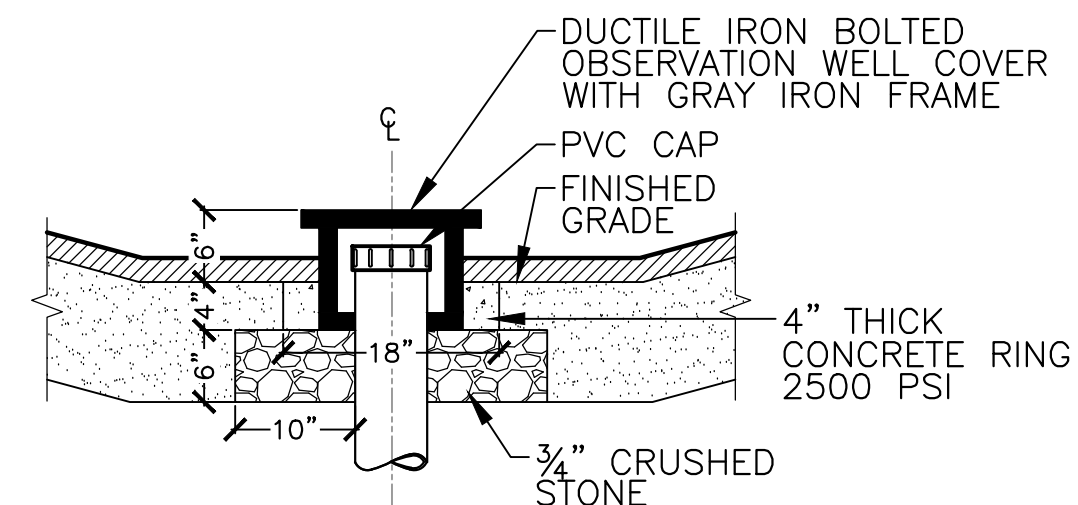
**CONTRACT CP-2/CP-3  
 SEWER SEPARATION AND WATER REPLACEMENT  
 GREEN INFRASTRUCTURE DETAILS  
 SHEET 1 OF 4**

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CHECKED: EA			GI-100
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CHECKED: DB	ACC.		DATE: DEC 2017

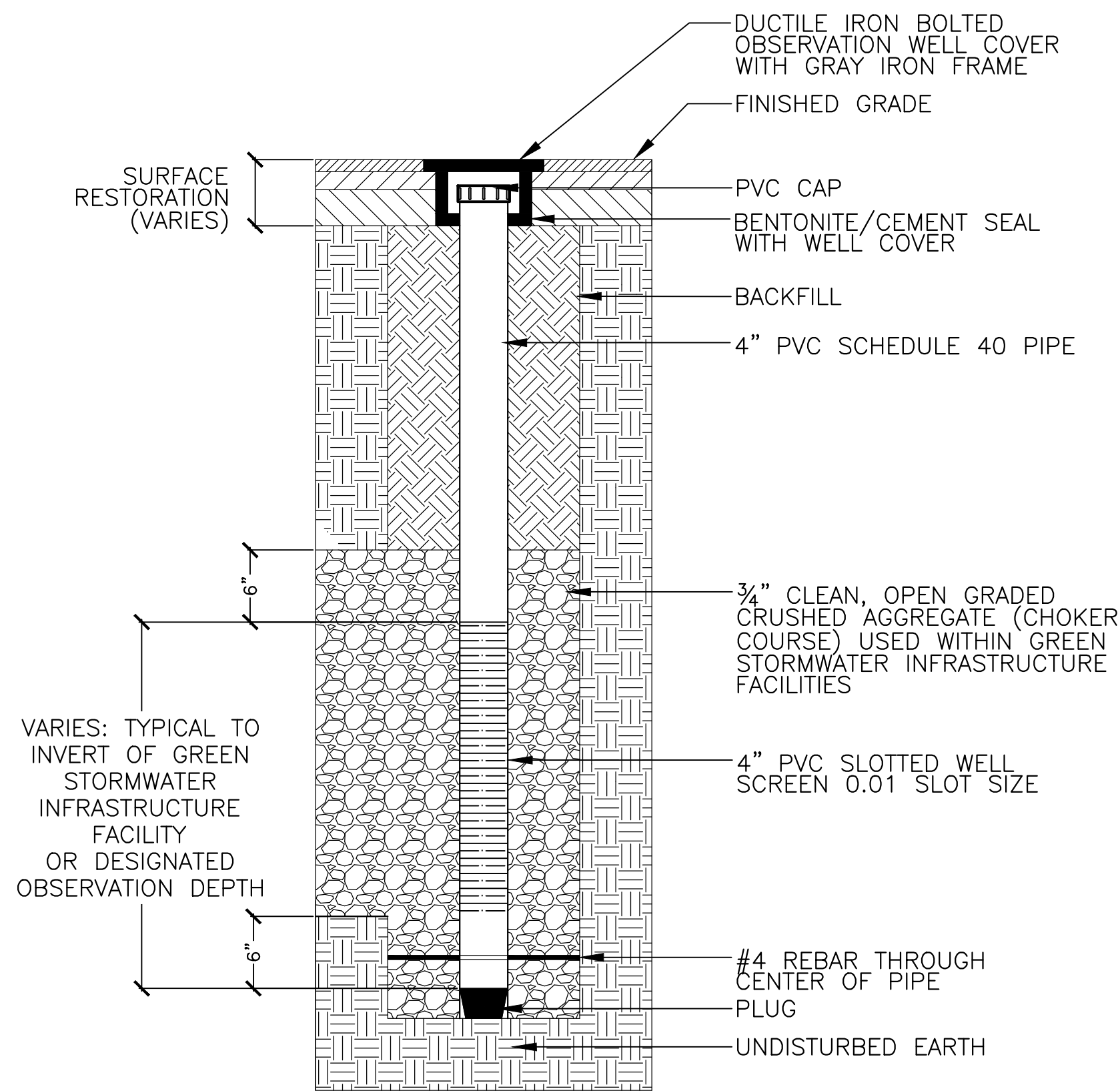
CITY OF SOMERVILLE  
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 SOMERVILLE, MA 02143

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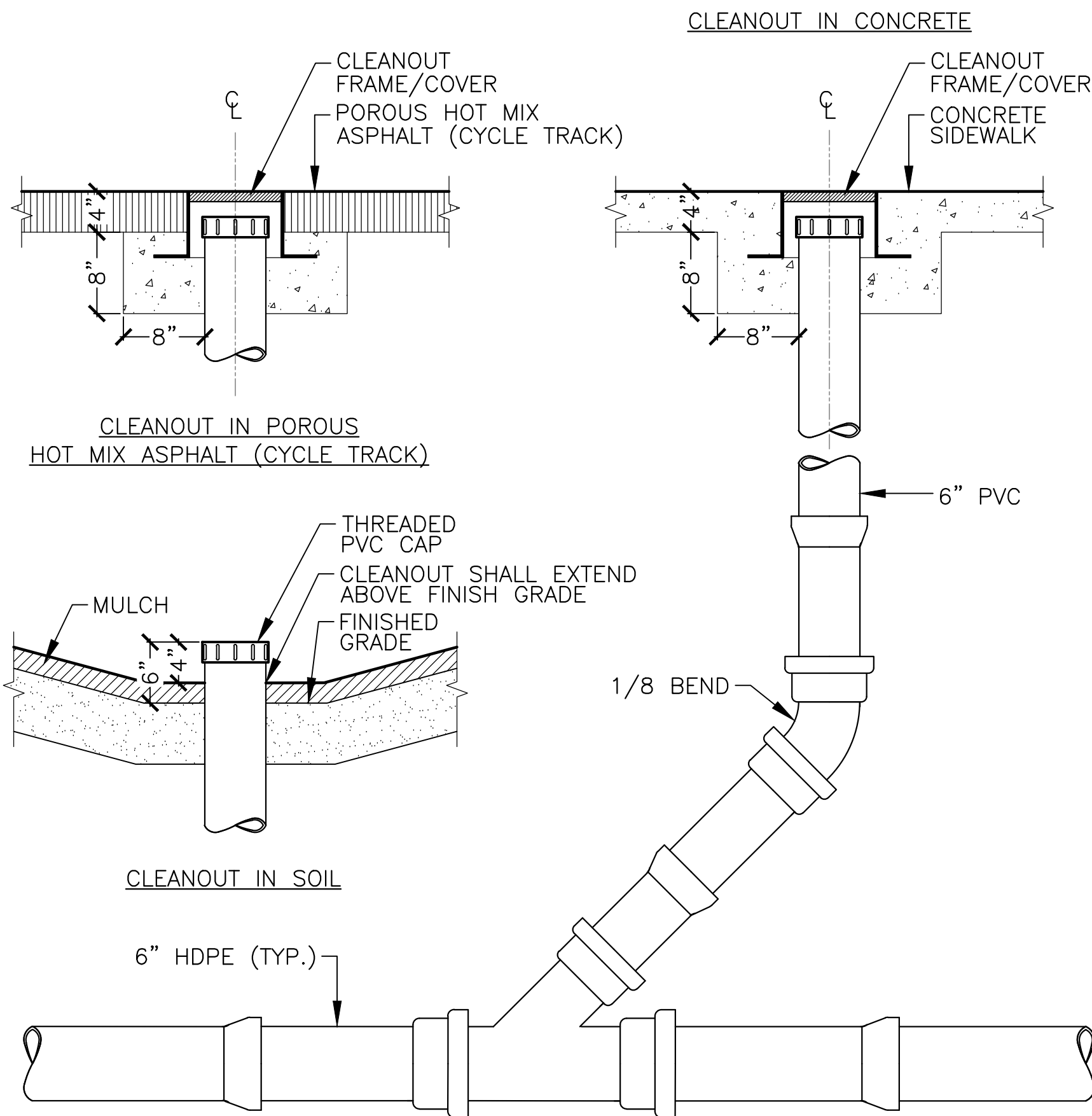
OBSERVATION WELL IN SOIL



OBSERVATION WELL IN PAVED SURFACE

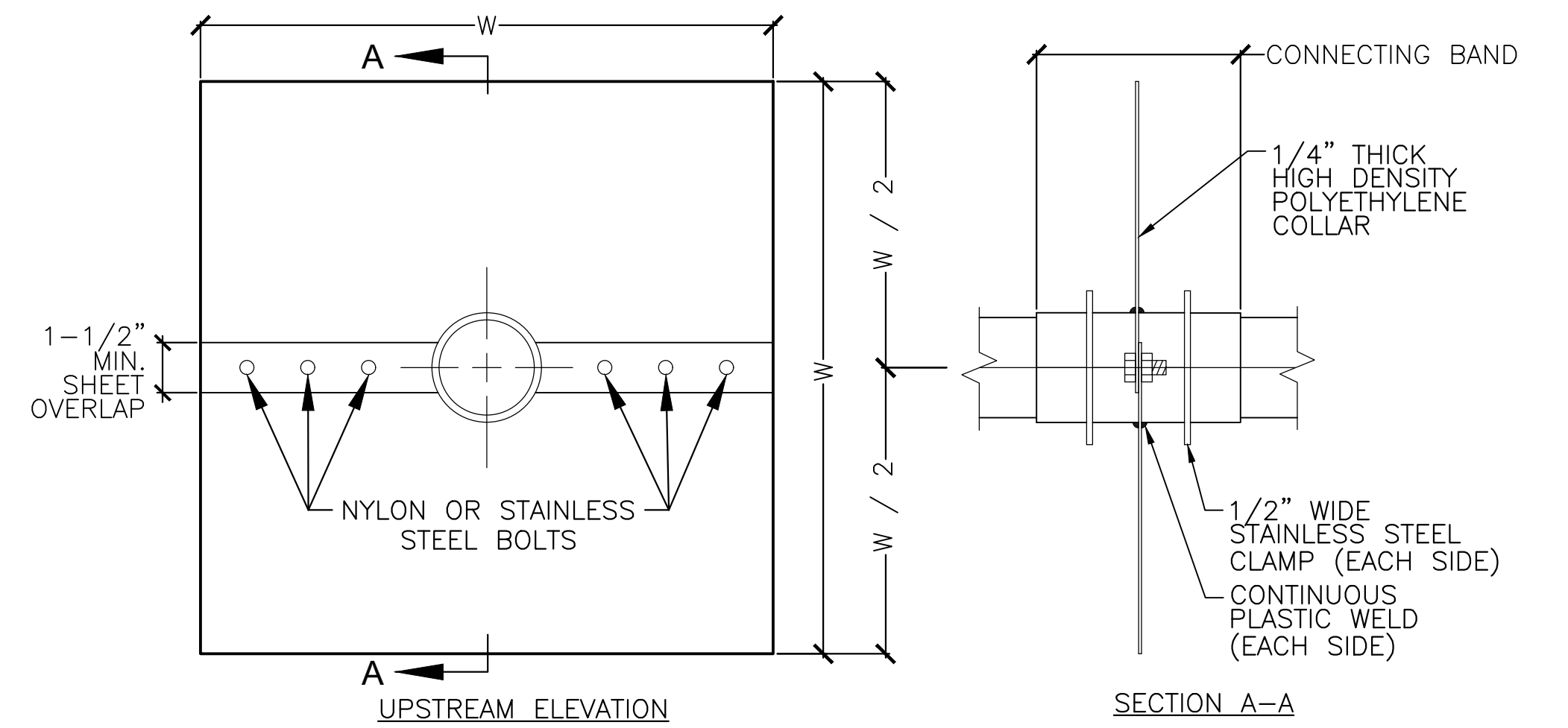
- NOTES:
1. WELL COVER SHALL BE SECURED IN CONCRETE SURROUND (1'-4" TOTAL DIAMETER) IF WELL IS NOT OTHERWISE SECURED BY SURFACE RESTORATION.
  2. THE UNSLOTTED DEPTH IS LOCATED ENTIRELY IN THE SUMP.
  3. THE #4 REBAR SHOULD BE 16" IN LENGTH.
  4. WELL CASING IS TO EXTEND 6" ABOVE COVER'S FRAME.

**1 OBSERVATION WELL**  
SCALE: NTS



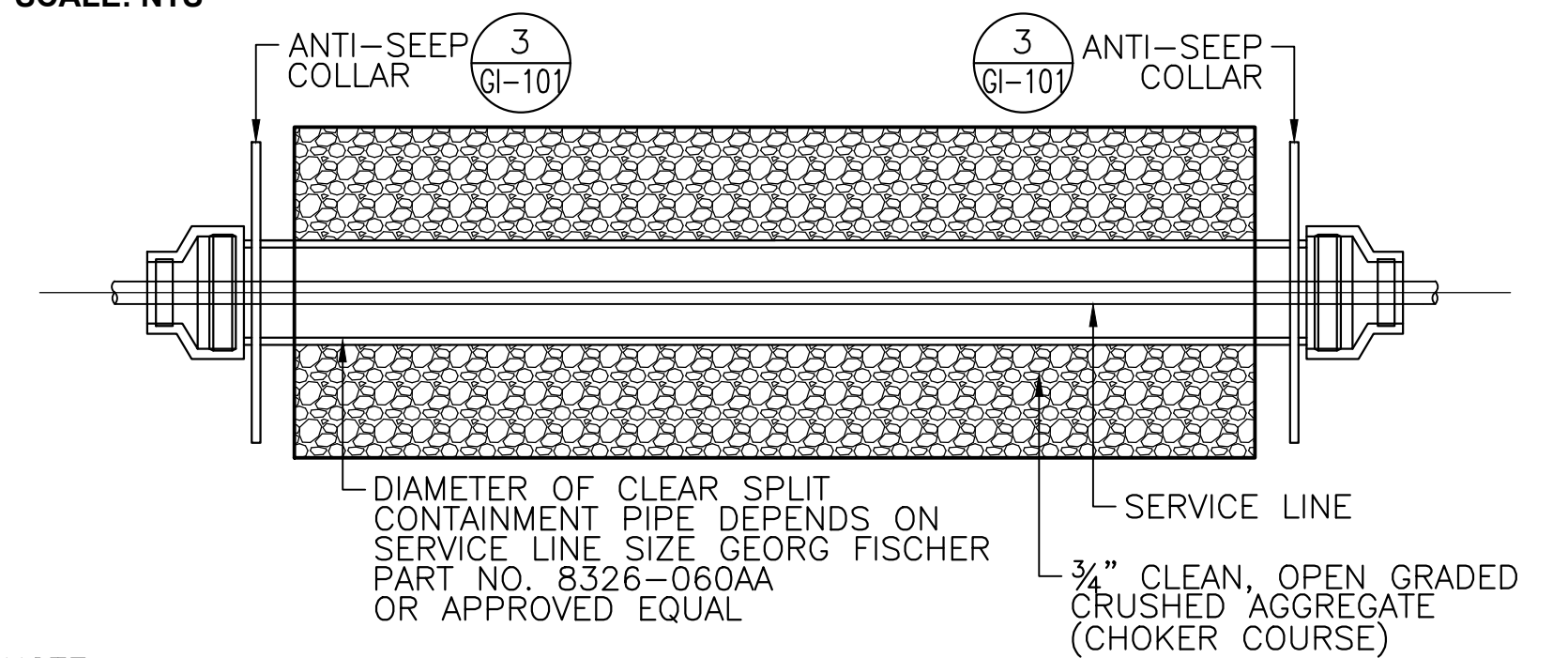
- NOTES:
1. 6" HDPE X 6" PVC WYE JOINT FOR INLINE SECTION OR 6-1/8" BEND AND 6" HDPE TO 6" PVC FOR END SECTION.
  2. THE CONCRETE COLLAR MUST HAVE GRAVEL BED OF 6" MIN.

**2 CLEANOUT**  
SCALE: NTS



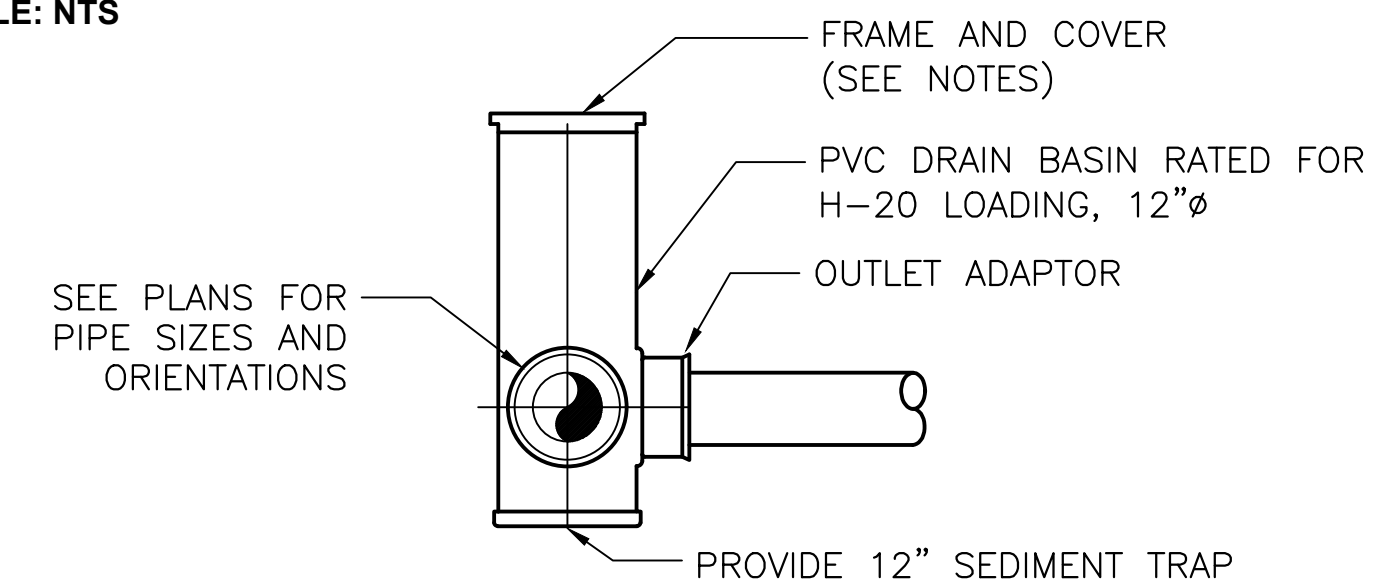
- NOTES:
1. CONNECTING BAND SHALL BE SEALED AT BOTH ENDS WITH NON-SHRINK GROUT.
  2. COLLAR MATERIAL SHALL BE RIGID POLYETHYLENE SHEET.
  3. STAINLESS STEEL SHALL BE GRADE 304 OR BETTER.
  4. DIMENSION "W" SHALL BE 3 TIMES THE DIAMETER OF THE INTERSECTING PIPE.

**3 ANTI-SEEP COLLAR**  
SCALE: NTS



- NOTE:
- ANTI-SEEP COLLAR AND UTILITY SLEEVE TO BE USED AT ALL LOCATIONS WHERE UTILITY SERVICE LINE PASSES THROUGH GREEN INFRASTRUCTURE, COORDINATE W/ UTILITY COMPANIES.

**4 UTILITY SLEEVE**  
SCALE: NTS



- NOTES:
1. BASE AND BACKFILL SHALL BE HAND PLACED AND TAMPED IN 6" LIFTS. PLACE ALL DRAIN BASINS ON 6" THICK SCREENED GRAVEL ON COMPACTED SUBGRADE.
  2. ALL FRAMES, COVERS, AND GRATES WITHIN PAVED SURFACES SHALL BE RATED FOR H-20 LOADS. AREA DRAINS (AD) SHALL HAVE A 12"x12" GRATE. DRAIN BASINS (DB) SERVING AS JUNCTION STRUCTURES SHALL HAVE A SOLID COVER. OVERFLOW STRUCTURES (OF) FOR BIORETENTION BASINS AND STORMWATER PLANTERS SHALL HAVE A DOMED GRATE, SEE DETAILS 1 AND 2 ON GI-100.
  3. SEE PLANS FOR INVERT AND RIM ELEVATIONS.
  4. TO BE MANUFACTURED BY NYLOPLAST, OR APPROVED EQUAL.

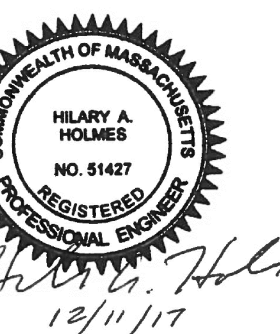
**5 DRAIN BASIN / AREA DRAIN / OVERFLOW STRUCTURE**  
SCALE: NTS

ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS  
CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
GREEN INFRASTRUCTURE DETAILS  
SHEET 2 OF 4

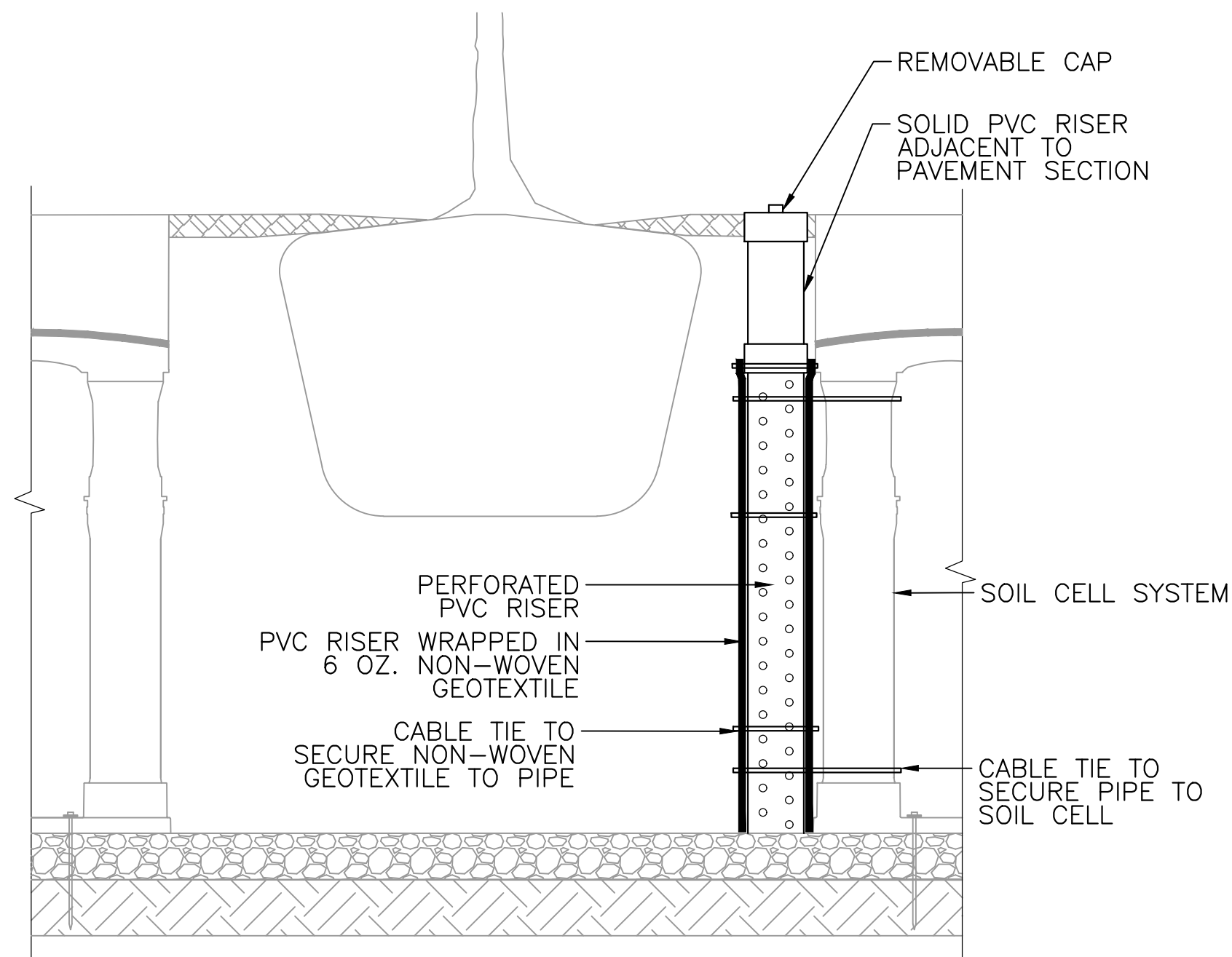
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SOMERVILLE, MA 02143



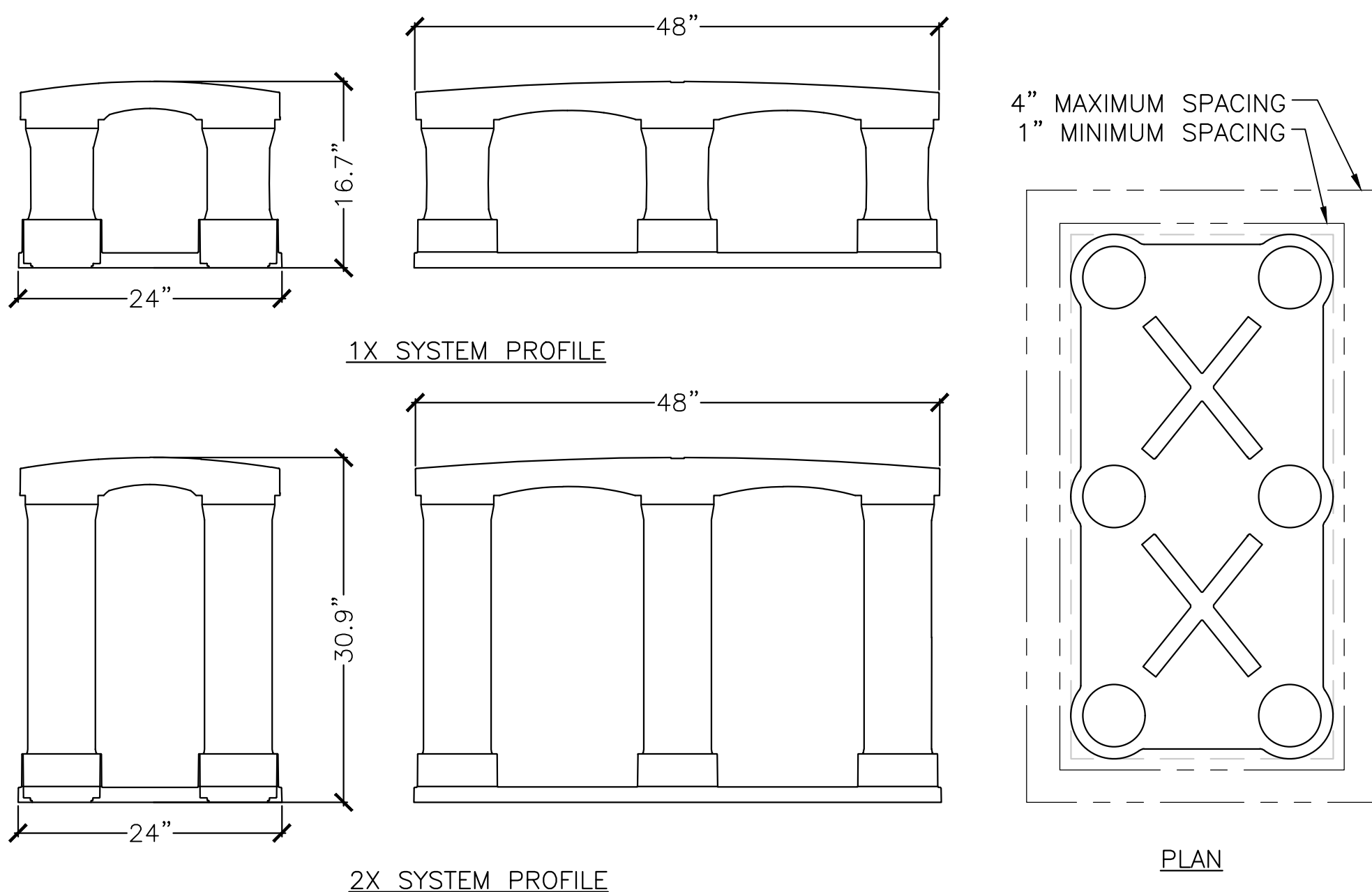
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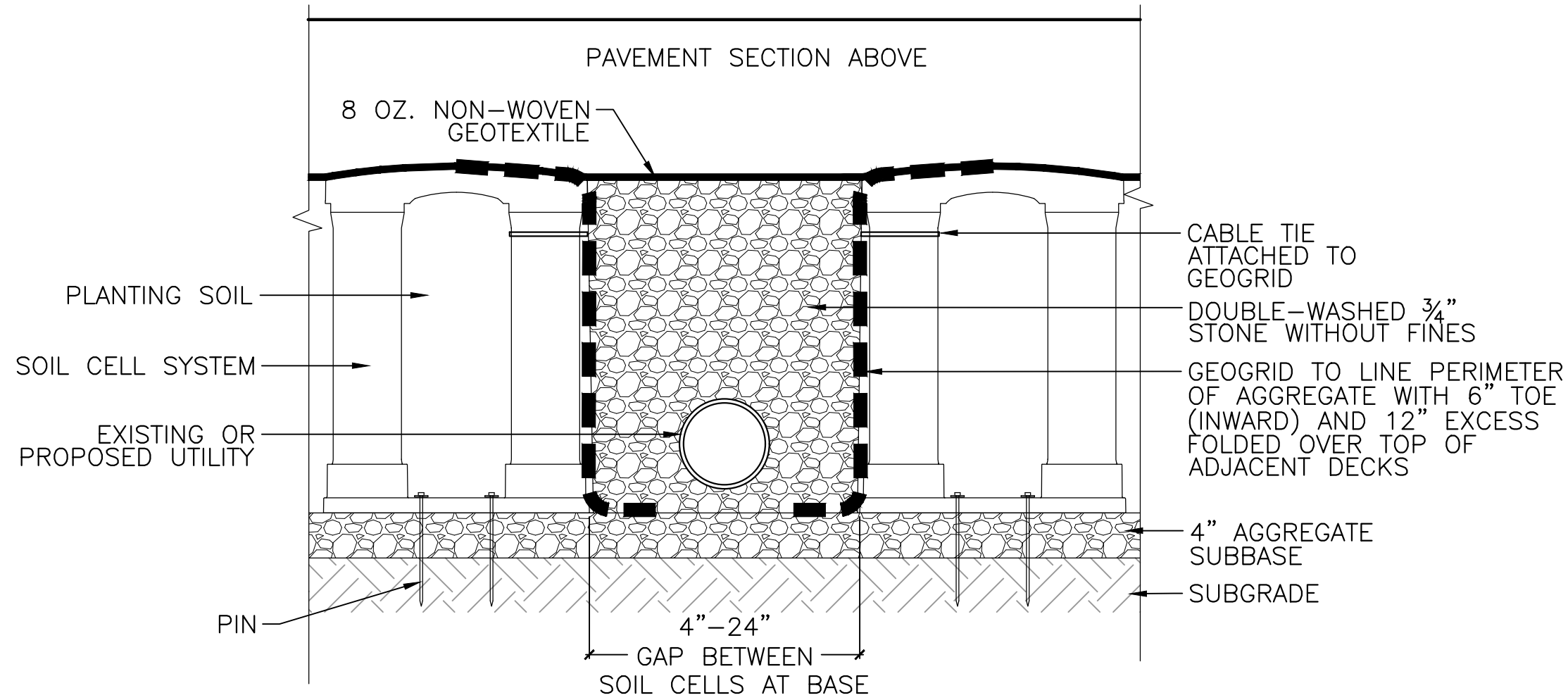
NOTE:  
1. COORDINATE INSPECTION RISER LOCATION AND INSTALLATION WITH PLANTER GUARDS.

**1 SOIL CELL INSPECTION RISER**  
SCALE: NTS



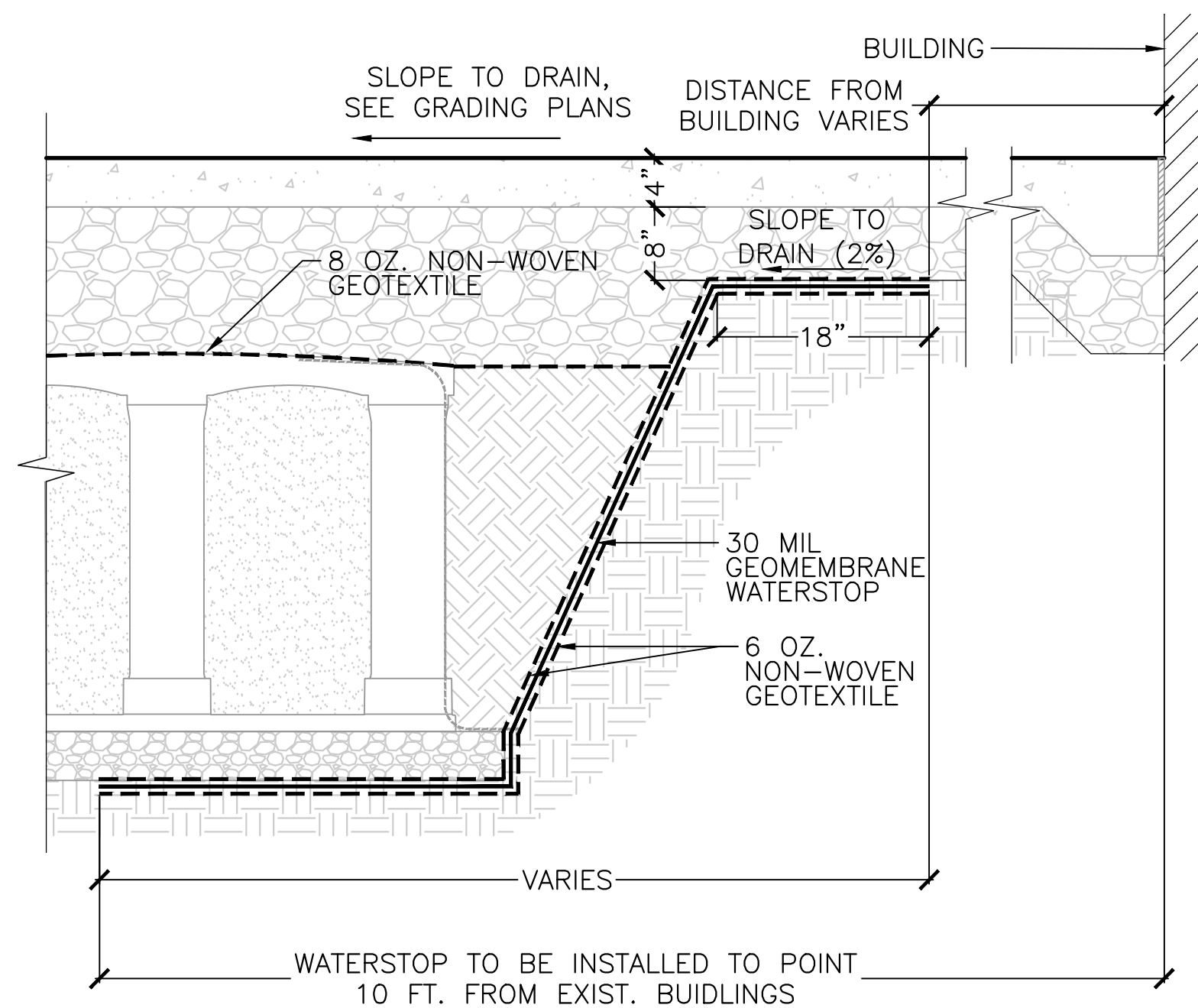
NOTE:  
1. BASIS OF DESIGN FOR THE SOIL CELLS IS SILVA CELL 2, 1X AND 2X SYSTEM MANUFACTURED BY DEEPROOT.

**2 SOIL CELL**  
SCALE: NTS



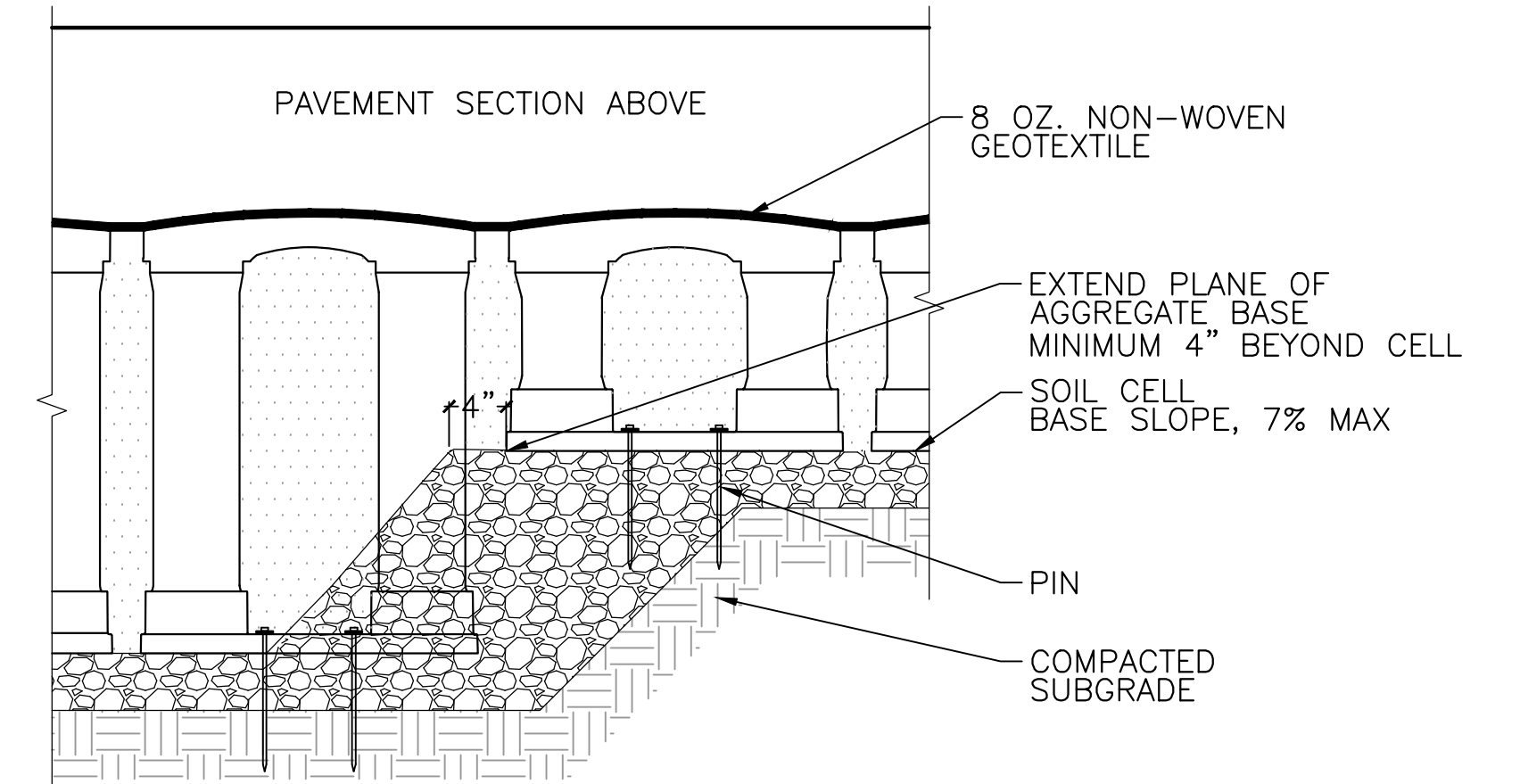
NOTES:  
1. THE UTILITY CONFLICT SHOWN ON THIS DETAIL IS AN EXAMPLE OF AN EXISTING OR PROPOSED CONDITION THAT MAY MAKE IT NECESSARY TO BRIDGE A LARGER THAN STANDARD GAP BETWEEN CELLS. THIS BRIDGING DETAIL IS USED WHEN THE LAYOUT REQUIRES SPACING BETWEEN SOIL CELLS.  
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

**3 SOIL CELL BRIDGING WITH AGGREGATE - SECTION**  
SCALE: NTS



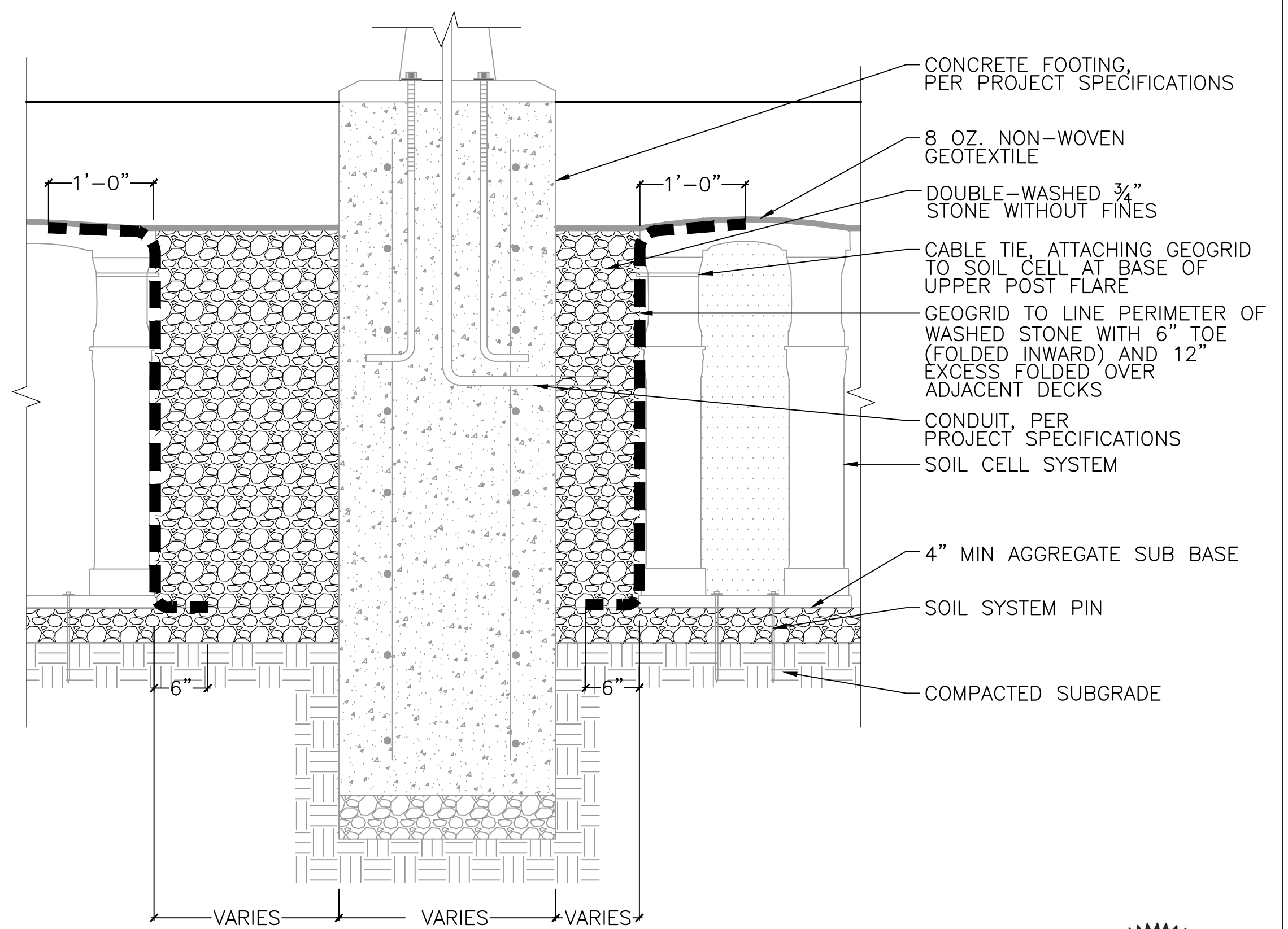
NOTES:  
1. WATER STOP TO BE INSTALLED AT LOCATIONS WHERE THE SOIL CELLS ARE WITHIN 10 FT. OF EXISTING BUILDINGS.  
2. LENGTH OF WATERSTOP VARIES BASED ON LOCATION AND DISTANCE FROM BUILDING.

**4 WATERSTOP**  
SCALE: NTS



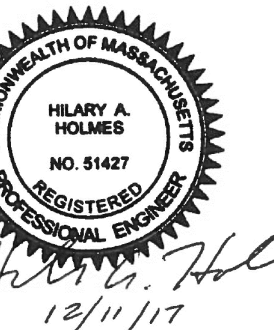
NOTES:  
1. AGGREGATE BASE COURSE SLOPES AT THE TRANSITION BETWEEN CELLS OF DIFFERENT DEPTHS.  
2. PLACE AND COMPACT AGGREGATE AT ITS NATURAL ANGLE OF REPOSE.  
3. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

**5 SOIL CELL GRADE CHANGE SURFACE - SECTION**  
SCALE: NTS



NOTE:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

**6 SOIL CELL BRIDGING AROUND FOOTING (SECTION)**  
SCALE: NTS



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

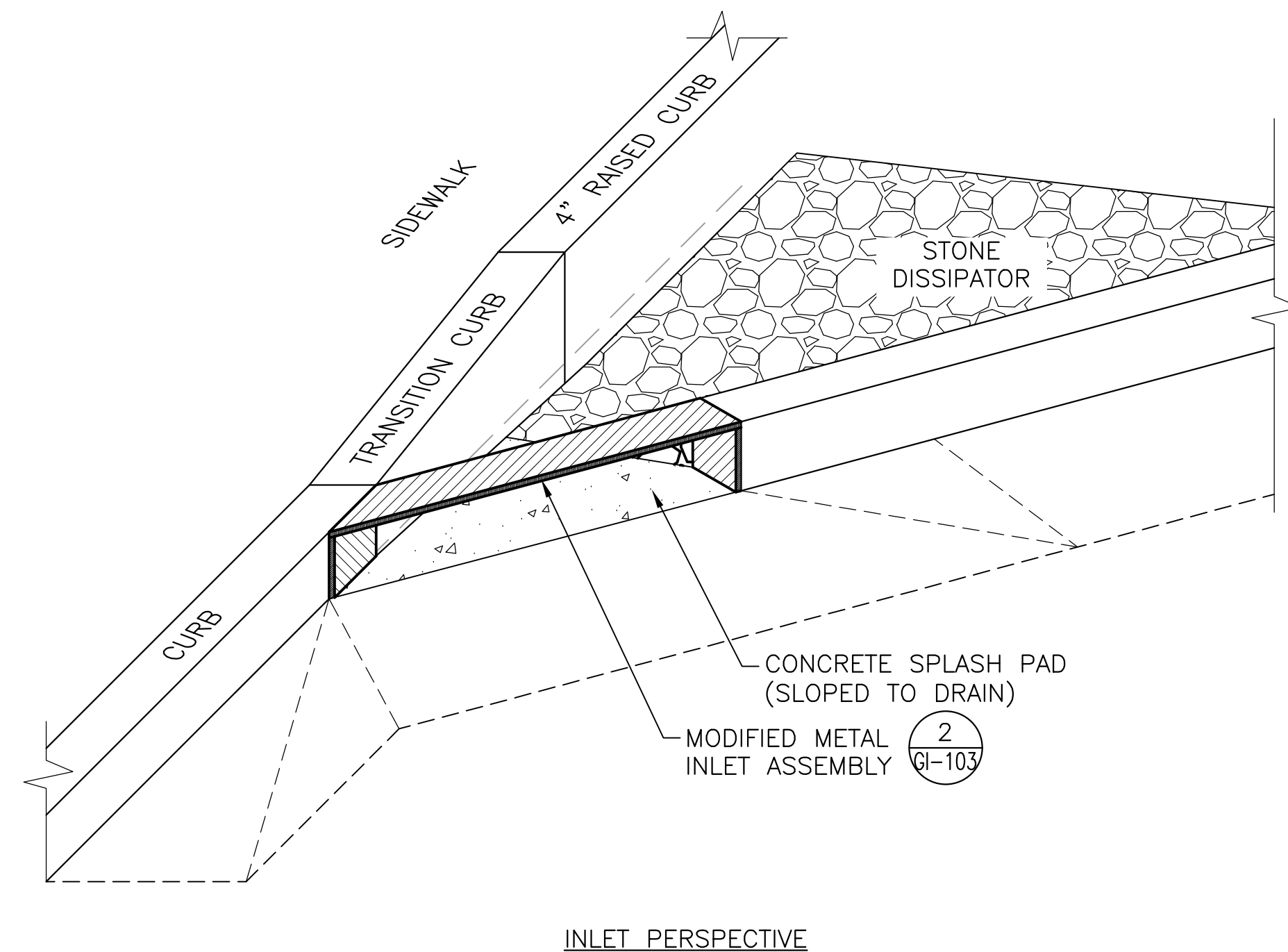
SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS  
CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
GREEN INFRASTRUCTURE DETAILS  
SHEET 3 OF 4

DESIGNED: HH	 75 Arlington St. Boston, MA 02116 PH. (617)426-7330 FAX (617)462-8487	 27 Congress St. Salem, MA 01970 PH. (978)750-0096 FAX (978)740-0097	SHEET
CHECKED: EA			REF.
DRAWN: AK/NB			DATE: DEC 2017
CHECKED: DB	ACC.		<b>GI-102</b>

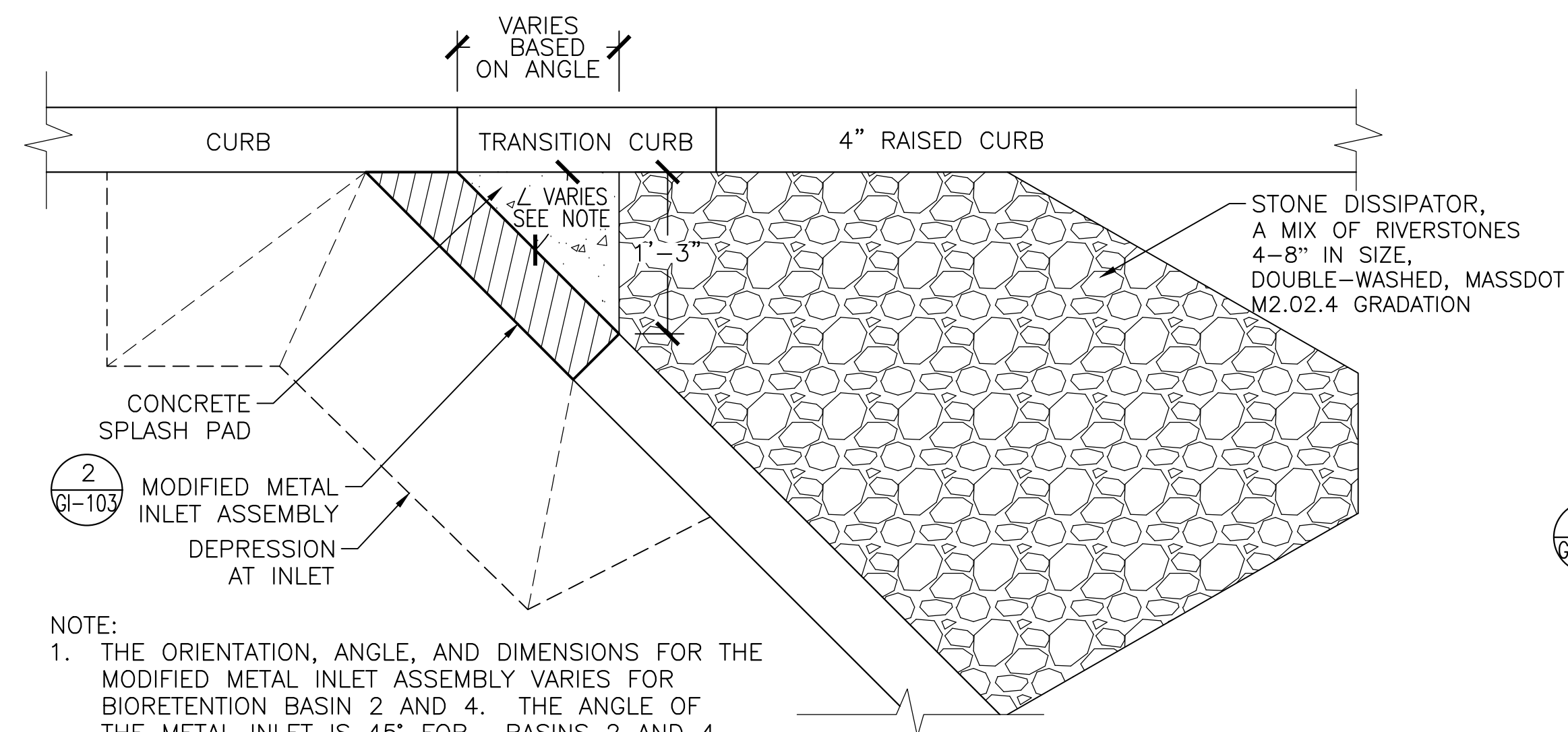
CITY OF SOMERVILLE  
93 HIGHLAND AVENUE  
SOMERVILLE, MA 02143

NO.	DATE	REVISIONS	BY

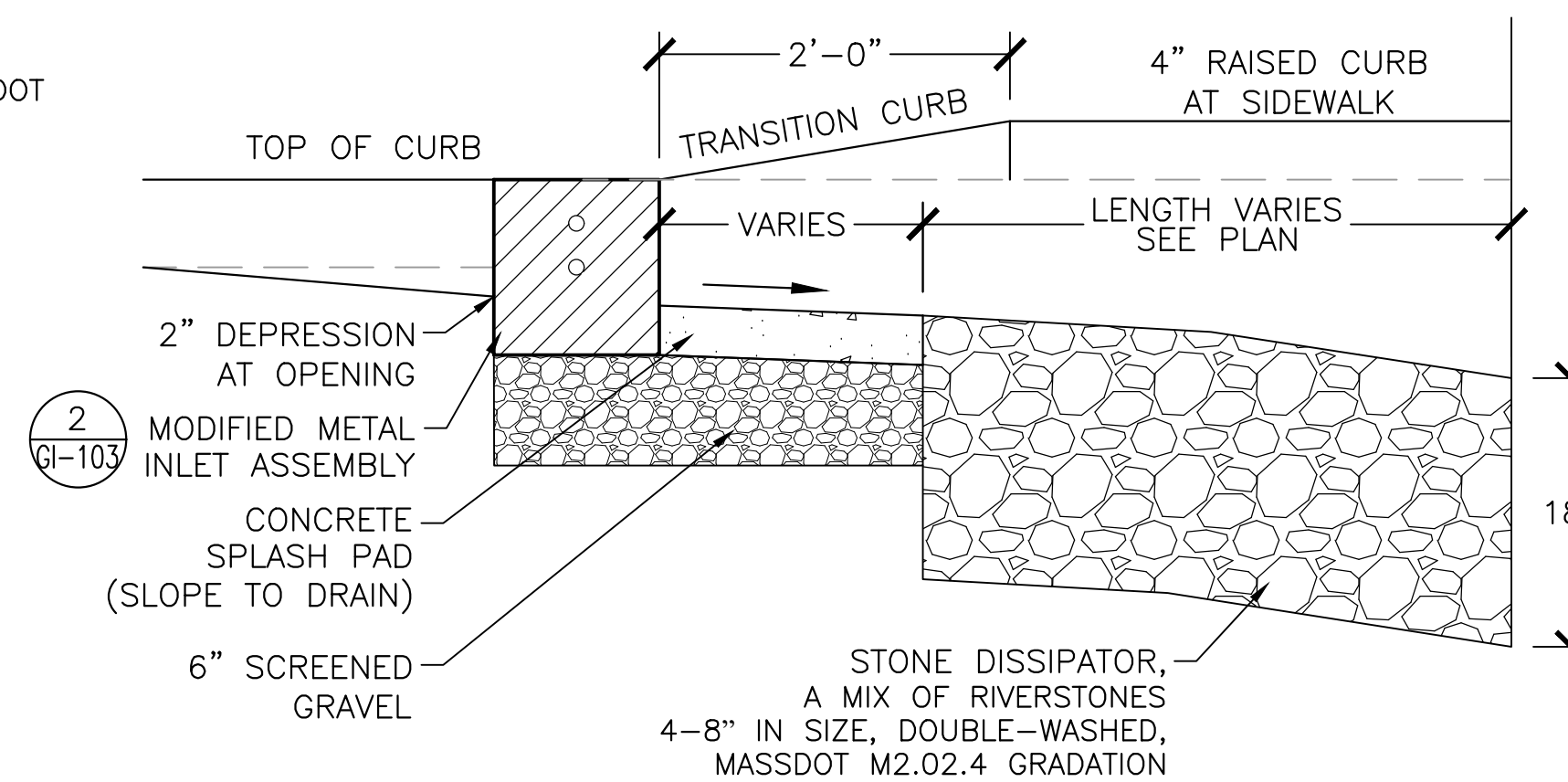
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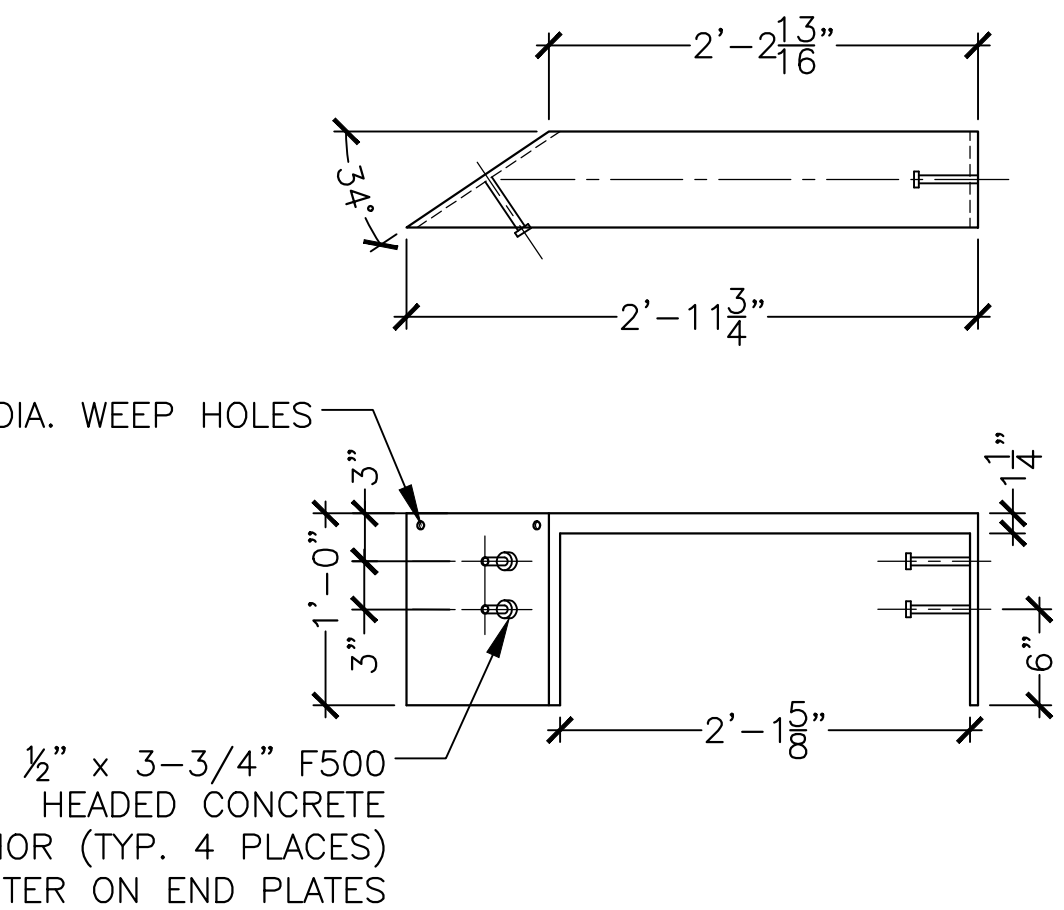
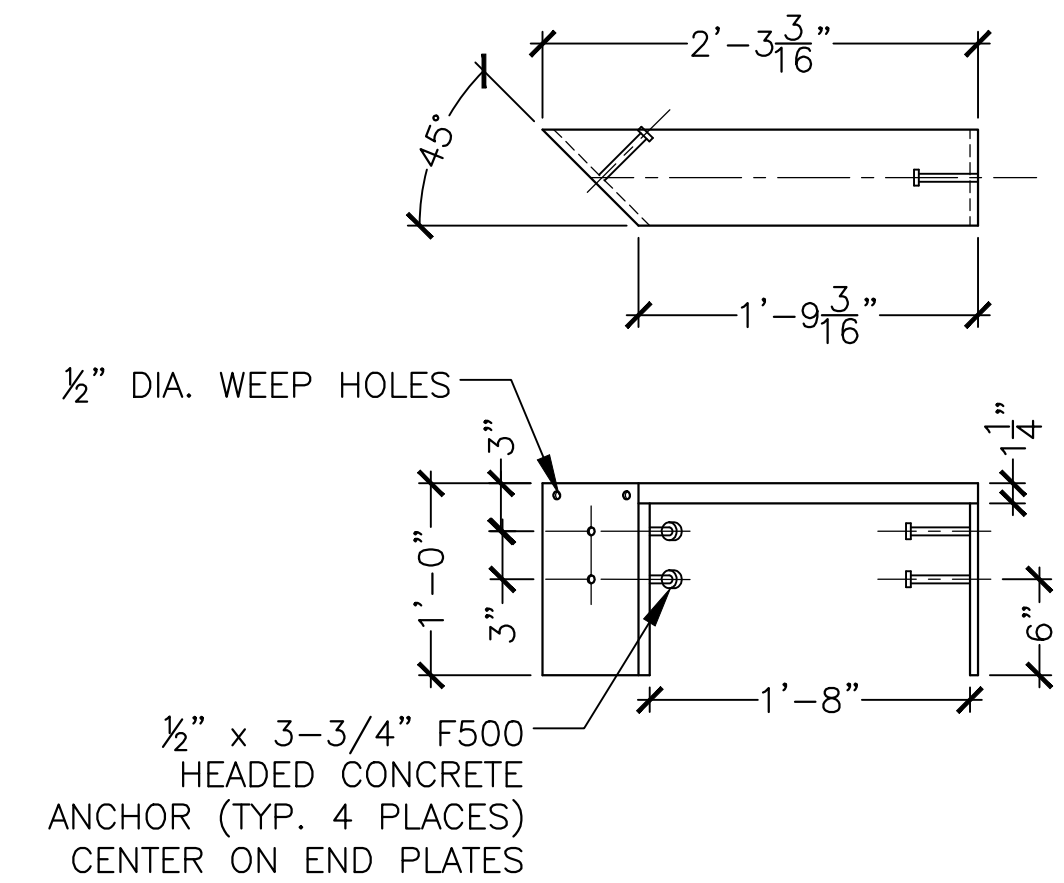
INLET PERSPECTIVE



INLET PLAN



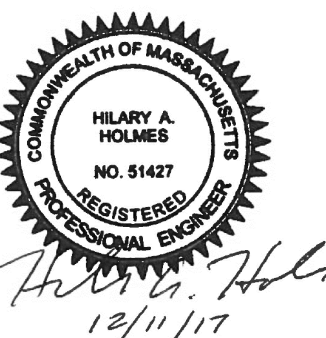
INLET SECTION



- NOTES:
1. THE ANGLE OF THE METAL INLET IS 45° FOR BASINS 2 AND 4.
  2. HEADED CONCRETE ANCHORS SHALL MEET THE REQUIREMENTS OF ASTM A-108.
  3. HSS 6 x 2 x 1/4 CHANNEL SHALL MEET THE REQUIREMENTS OF ASTM A-500 GRADE B.
  4. END PLATES SHALL MET THE REQUIREMENTS OF ASTM A-36.
  5. ENTIRE ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123.
  6. SINGLE BEVEL GROOVE WELD.
  7. ORIENTATION OF ANGLE VARIES, SEE GI-7 AND GI-8.

**1 BASIN INLET & SPLASH PAD**  
SCALE: NTS

**2 MODIFIED METAL INLET ASSEMBLY**  
SCALE: NTS



ALL ELEVATIONS REFER TO NAVD 88 VERTICAL DATUM

SOMERVILLE AVENUE UTILITY & STREETScape IMPROVEMENTS  
CONTRACT CP-2/CP-3  
SEWER SEPARATION AND WATER REPLACEMENT  
GREEN INFRASTRUCTURE DETAILS  
SHEET 4 OF 4

DESIGNED: HH			SHEET
CHECKED: EA			
DRAWN: AK/NB	REF.	CONT.	SCALE: AS NOTED
CHECKED: DB	ACC.		DATE: DEC 2017

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