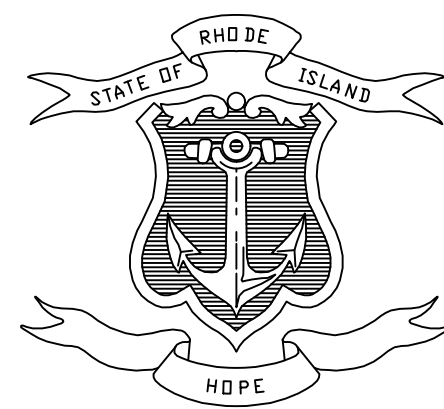


NARRAGANSETT BAY COMMISSION

PHASE III COMBINED SEWER OVERFLOW PROGRAM  
OF-217 CONSOLIDATION CONDUIT

CONTRACT NO. 308.05C

90% DESIGN  
APRIL 2021



STATE OF RHODE ISLAND

DANIEL J. MCKEE \_\_\_\_\_ GOVERNOR



RHODE ISLAND  
INFRASTRUCTURE BANK

MERRILL W. SHERMAN \_\_\_\_\_ CHAIRMAN

JEFFREY R. DIEHL \_\_\_\_\_ EXECUTIVE DIRECTOR  
AND CEO



VINCENT J. MESOLELLA JR. \_\_\_\_\_ CHAIRMAN

LAURIE A. HORRIDGE \_\_\_\_\_ EXECUTIVE DIRECTOR

KATHRYN KELLY, P.E. \_\_\_\_\_ CSO PROGRAM MANAGER

DAVID C. BOWEN, P.E. \_\_\_\_\_ ENGINEERING  
MANAGER

PROGRAM MANAGEMENT TEAM



DESIGN TEAM



## LIST OF DRAWINGS

### GENERAL

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|-----|---------------------------|
| G-1 | LIST OF DRAWINGS          |
| G-2 | LOCATION AND VICINITY MAP |
| G-3 | SYMBOLS                   |
| G-4 | ABBREVIATIONS             |

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| GC-2 | SYMBOLS  |
| GC-3 | LEGEND & NOTES   |
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| C-2  | CONSOLIDATION CONDUIT PLAN AND PROFILE I: STA 0+00 - 4+00    |
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| C-4  | CONSOLIDATION CONDUIT PLAN AND PROFILE III: STA 8+00 - 12+00 |
| C-5  | CONSOLIDATION CONDUIT PLAN AND PROFILE IV: STA 12+00 - 16+00 |
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|-----|---|
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|-----|-----------------------------------|
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|-----|---|
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| S-3 | OF-217 REVETMENT PLAN AND SECTION                   |
| S-4 | OF-217 DIVERSION STRUCTURE FLOATABLE SCREEN DETAILS |

### ELECTRICAL

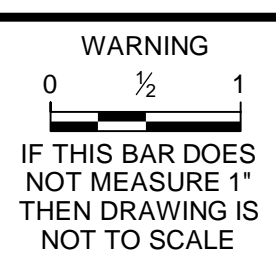
|      |   |
|------|---|
| GE-1 | NOTES & SYMBOLS   |
| GE-2 | ABBREVIATIONS   |
| E-1  | SITE PLAN, DUCTBANK SECTIONS, AND OF-217 DIVERSION STRUCTURE PLAN |
| E-2  | CONDUIT RISER DIAGRAM AND DETAILS                                 |

BY: JAIME PAYNE

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT\_III\4\_III\5\_LIST\_OF\_DRAWINGS.dwg PLOT DATE: Monday, April 19, 2021 4:05:34 PM

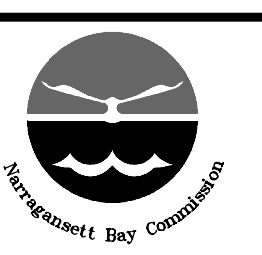
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| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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|----------|-------------|
| DESIGNED | C. CRONIN   |
| DRAWN    | J. PAYNE    |
| CHECKED  | J. D'ALESIQ |

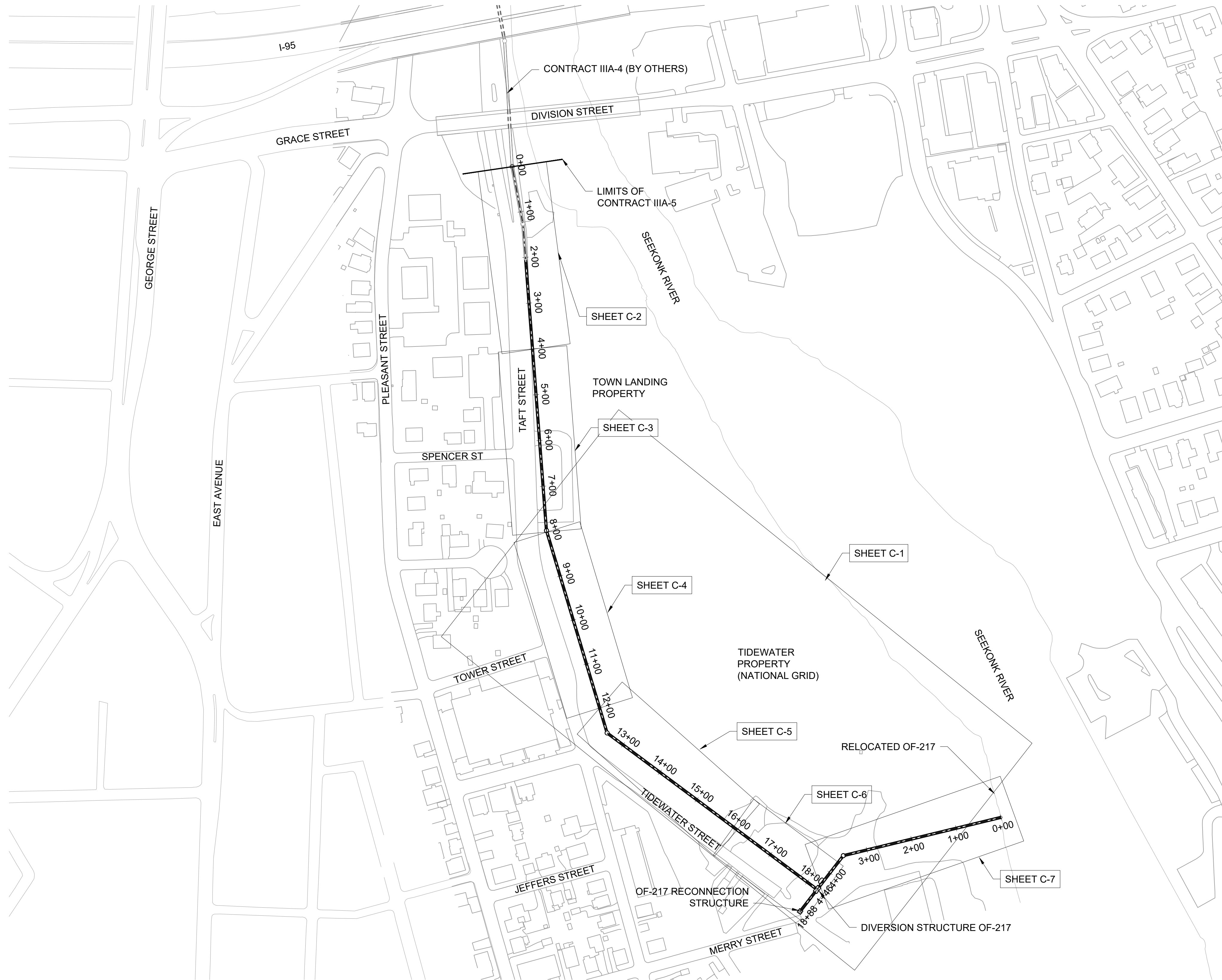
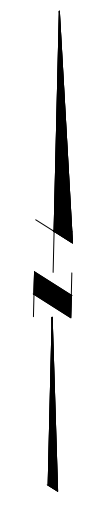
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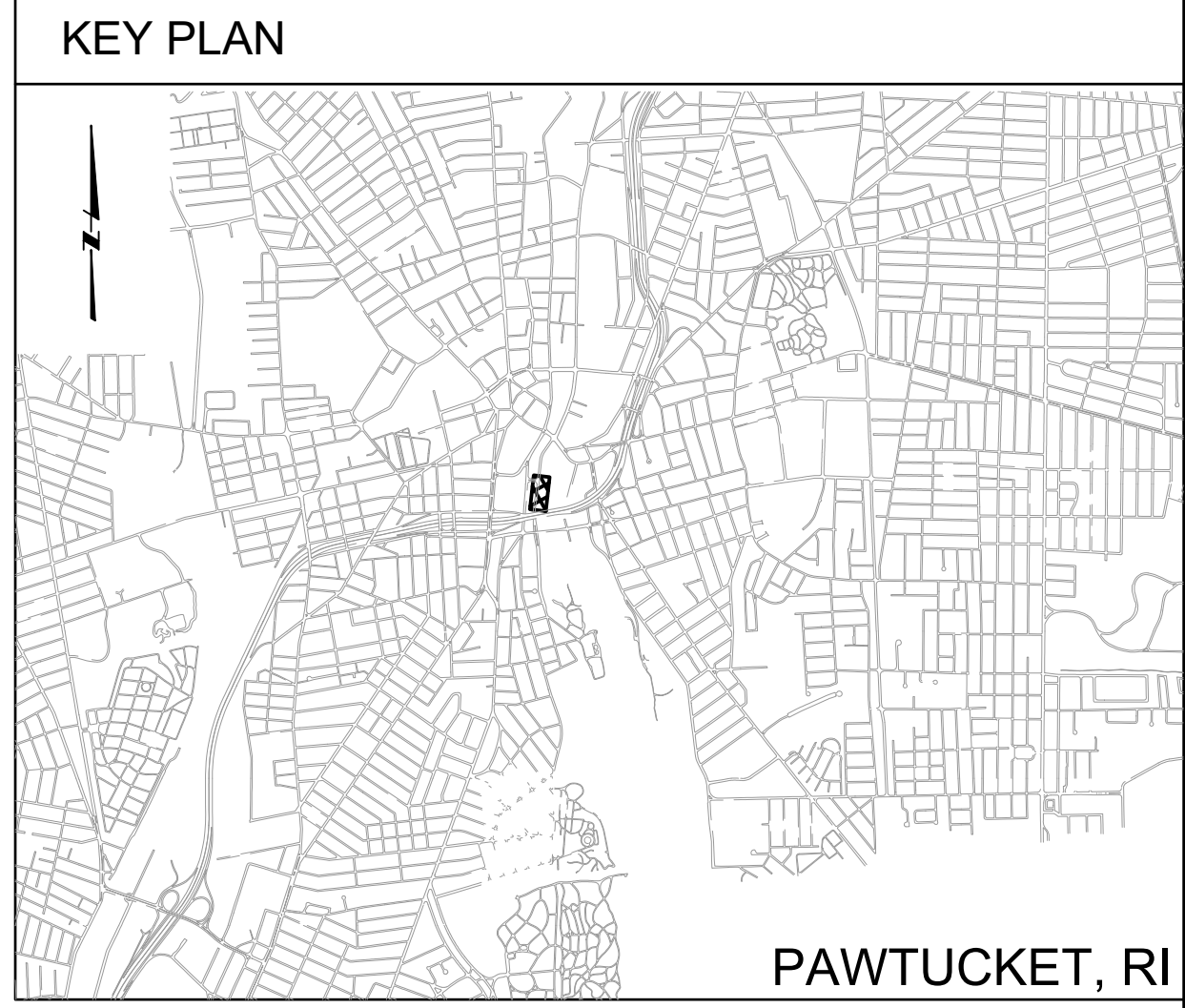
NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM  
**Stantec** **PARE**

NBC CONTRACT NO 308.05C  
GENERAL  
OF-217 CONSOLIDATION CONDUIT  
LIST OF DRAWINGS  
SHEET  
G-1  
195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT\_IIA-4\_IIA-5\_LOCATION\_MAP.dwg PLOT DATE: Monday, April 19, 2021 1:38:27 PM BY: JAMIE PAYNE



LOCATION MAP



PAWTUCKET, RI

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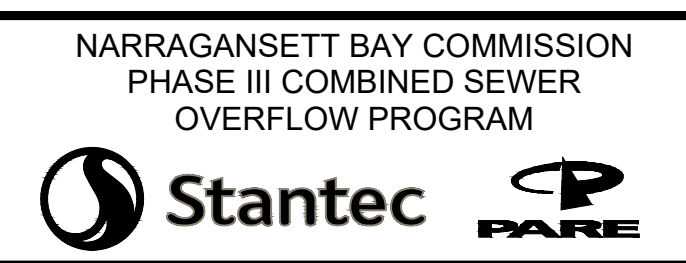
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| SCALE    | WARNING   |
| NO SCALE | <p>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE</p> |

|          |              |
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| DESIGNED | C. CRONIN    |
| DRAWN    | J. PAYNE     |
| CHECKED  | J. D'ALESSIO |

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
GENERAL

OF-217 CONSOLIDATION CONDUIT  
LOCATION AND VICINITY MAP

SHEET  
G-2  
195130227

BY: JAMIE PAYNE

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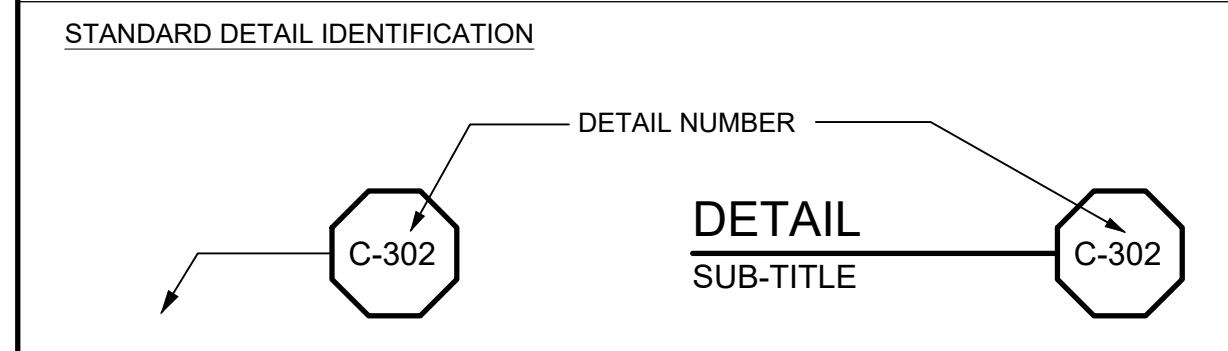
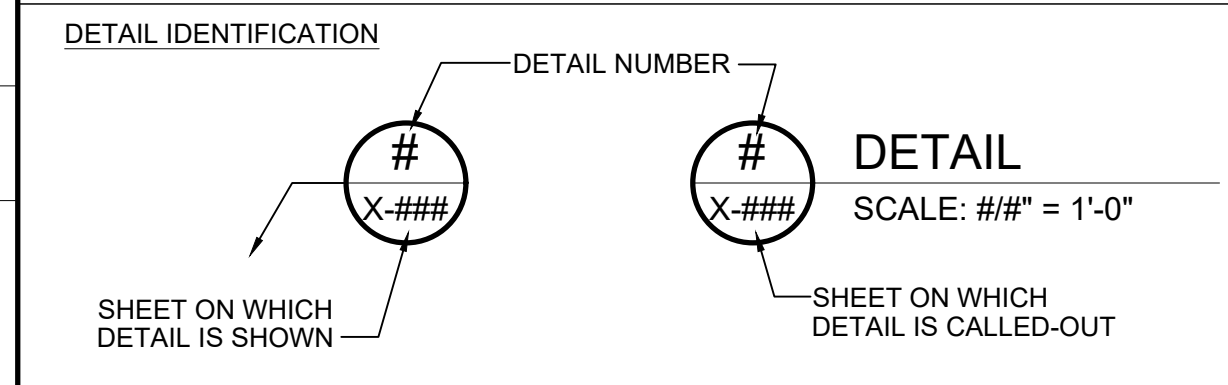
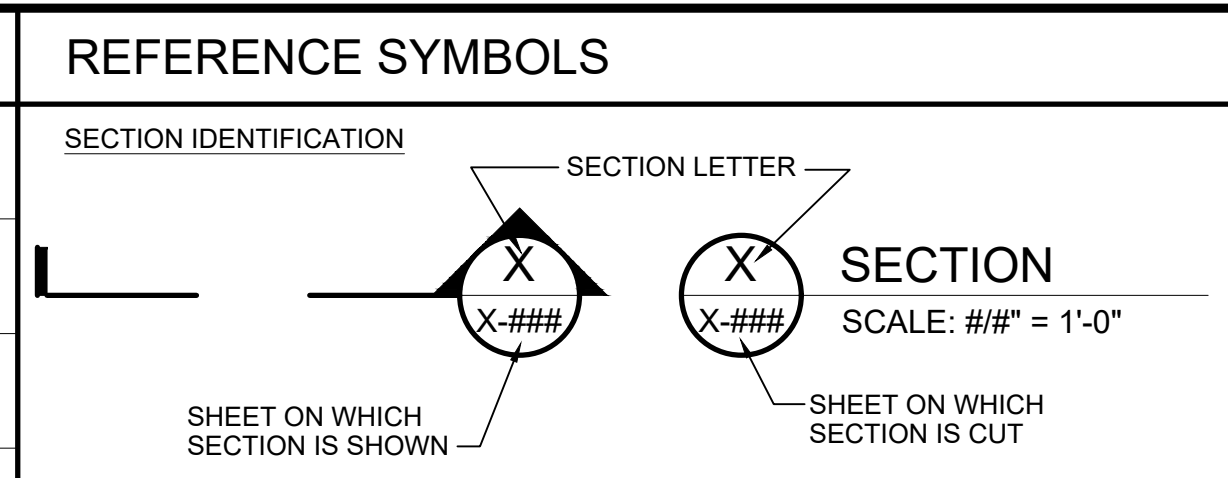
| GENERAL SYMBOLOGY |                                      |
|-------------------|--------------------------------------|
|                   | NEW CONSTRUCTION                     |
|                   | EXISTING (SCREENED)                  |
|                   | FUTURE (PHANTOM)                     |
|                   | EXISTING TO BE REMOVED OR DEMOLISHED |

**MATERIAL SYMBOLOGY**

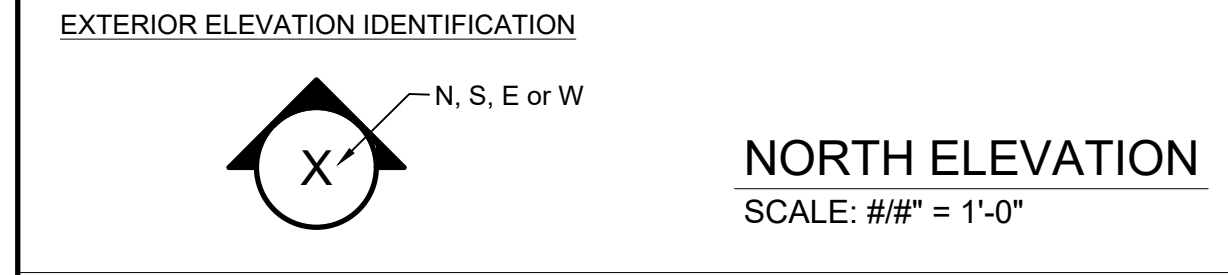
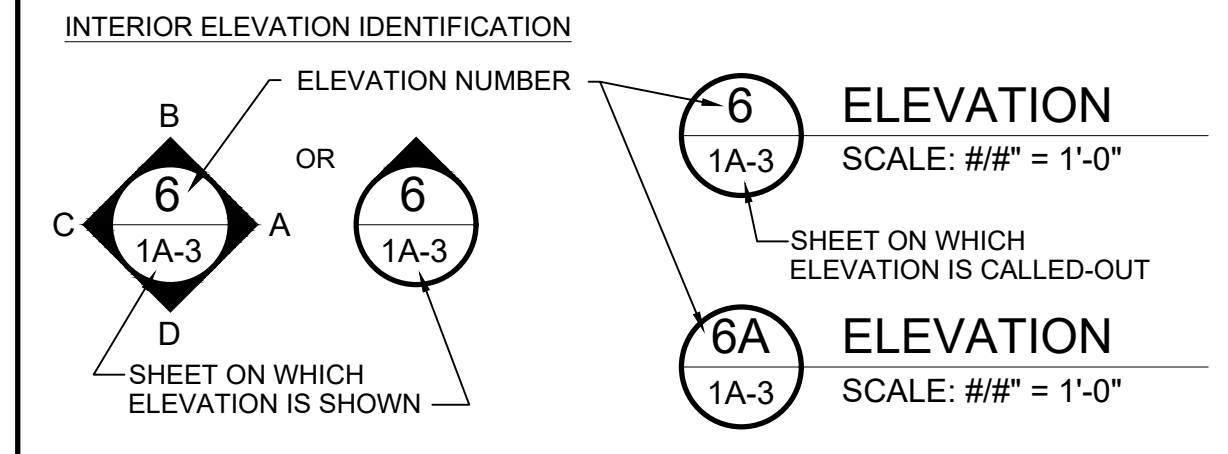
|  |  |
|--|--|
|  | CONCRETE (PLAN AND SECTION)            |
|  | GROUT OR SAND (PLAN AND SECTION)       |
|  | BRICK (PLAN AND SECTION)               |
|  | STEEL/METAL/FRP (SMALL SCALE SECTION)  |
|  | GRATING OR SOLID FRP GRATING (SECTION) |
|  | FINISHED GRADE                         |
|  | GRAVEL/DRAINROCK/AGGREGATE BASE        |

| PIPING ENDS (SINGLE-LINE) |                                 |
|---------------------------|---------------------------------|
|                           | PIPE MATERIAL CHANGE            |
|                           | PUSH-ON JOINT - BELL AND SPIGOT |
|                           | PUSH-ON JOINT - RESTRAINED      |

|  |                                   |
|--|-----------------------------------|
|  | SLEEVE TYPE COUPLING              |
|  | SLEEVE TYPE COUPLING - RESTRAINED |



STANDARD DETAILS ARE LOCATED ON DISCIPLINE GENERAL SHEETS, IN NUMERICAL ORDER



**MISCELLANEOUS**

|  |                   |
|--|-------------------|
|  | SHEET KEY NOTES   |
|  | CENTERLINE        |
|  | COORDINATE POINT  |
|  | ROUND OR DIAMETER |

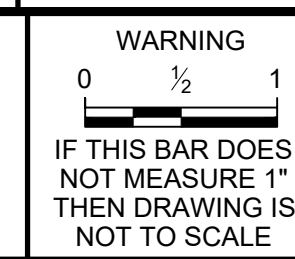
DISCIPLINE SPECIFIC SYMBOLS ARE SHOWN ON THE DISCIPLINE GENERAL DRAWINGS.  
 FOR WELDING SYMBOLS USE AMERICAN WELDING SOCIETY STANDARD SYMBOLS.  
 REV 012216

| MISCELLANEOUS |             |
|---------------|-------------|
|               | WATER LEVEL |

| CONTROL SYMBOLS |  |
|-----------------|--|
|                 | BM-XX BENCH MARK                         |
|                 | SITE COORDINATES (SEE TABLE ON DRAWINGS) |
|                 | SITE COORDINATES                         |
|                 | MONUMENT                                 |
|                 | HORIZONTAL CONTROL POINT                 |
|                 | VERTICAL CONTROL POINT                   |
|                 | HORZ AND VERT CONTROL POINT              |
|                 | FINISHED ELEVATION                       |
|                 | EXISTING ELEVATION                       |
|                 | DELTA                                    |

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

| SCALE    |
|----------|
| NO SCALE |



|                            |
|----------------------------|
| DESIGNED <u>C. CRONIN</u>  |
| DRAWN <u>J. PAYNE</u>      |
| CHECKED <u>J. D'ALELIO</u> |

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|---|------------------------------------|--------------|
| NARRAGANSETT BAY COMMISSION<br>PHASE III COMBINED SEWER<br>OVERFLOW PROGRAM | NBC CONTRACT NO 308.05C<br>GENERAL | SHEET<br>G-3 |
| OF-217 CONSOLIDATION CONDUIT<br>SYMBOLS                                     |                                    | 195130227    |

BY: JAMIE PAYNE

PLOT DATE: Monday, April 19, 2021 1:38:49 PM

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|         |  |
|---------|--|
| A       | AIR / AMPERE   |
| A/C     | AIR CONDITIONING   |
| A/R     | AIR RELEASE  |
| AASHTO  | AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS |
| TS      | ANCHOR BOLT  |
| AB      | ABANDON  |
| ABAN    | ABANDONED  |
| ABND    | ABBREVIATION   |
| ABBR    | ABBREVIATION   |
| ABS     | ABSOLUTE TEMPERATURE   |
| AC      | ACTIVATED CARBON / ASPHALTIC CONCRETE / ALTERNATING CURRENT        |
| ACI     | AMERICAN CONCRETE INTERNATIONAL                                    |
| ACOUST  | ACOUSTIC / ACOUSTICAL  |
| ACP     | ASBESTOS CEMENT PIPE / ASPHALTIC CONCRETE PAVEMENT                 |
| ADD     | ADDITIONAL   |
| ADH     | ADHESIVE   |
| ADJ     | ADJUSTABLE   |
| AFF     | ABOVE FINISHED FLOOR   |
| AISC    | AMERICAN INSTITUTE OF STEEL CONSTRUCTION                           |
| ALT     | ALTERNATE  |
| ALUM    | ALUMINUM / ALUM  |
| AMB     | AMBIENT  |
| ANSI    | AMERICAN NATIONAL STANDARDS INSTITUTE                              |
| API     | AMERICAN PETROLEUM INSTITUTE                                       |
| APFD    | APPROVED   |
| APPROX  | APPROXIMATE  |
| APPURTS | APPURTENANCES  |
| ARCH    | ARCHITECTURE   |
| ASME    | AMERICAN SOCIETY OF MECHANICAL ENGINEERS                           |
| ASPH    | ASPHALT  |
| ASTM    | AMERICAN SOCIETY FOR TESTING AND MATERIALS                         |
| AT      | ACOUSTICAL TILE  |
| ATM     | ATMOSPHERE   |
| AVIAR   | AIR VACUUM AND AIR RELEASE VALVE                                   |
| AVE     | AVENUE   |
| AWPA    | AMERICAN WOOD PRESERVERS ASSOCIATION                               |
| AWS     | AMERICAN WELDING SOCIETY   |
| AWWA    | AMERICAN WATER WORKS ASSOCIATION                                   |
| B&S     | BELL AND SPIGOT  |
| B/W     | BACK OF WALL / BACK OF WALK  |
| BC      | BEGIN CURVE / BOLT CIRCLE / BETWEEN CENTERS / BACK OF CURVE        |
| BCR     | BEGIN CURB RETURN  |
| BD      | BOARD  |
| BDRY    | BOUNDARY   |
| BF      | BLIND FLANGE / BOTTOM OF FOOTING                                   |
| BFP     | BACK FLOW PREVENTER  |
| BFV     | BUTTERFLY VALVE  |
| BHP     | BRAKE HORSEPOWER   |
| BLDG    | BUILDING   |
| BLK     | BLACK / BLOCK  |
| BLKG    | BLOCKING   |
| BLVD    | BOULEVARD  |
| BM      | BEAM / BENCH MARK  |
| BO      | BLOW-OFF ASSEMBLY  |
| BOD     | BIOCHEMICAL OXYGEN DEMAND  |
| BOP     | BOTTOM OF PIPE   |
| BOT     | BOTTOM   |
| BPV     | BACK PRESSURE VALVE  |
| BRK     | BRICK / BREAK  |
| BSMT    | BASEMENT   |
| BT      | BOLT   |
| BTU     | BRITISH THERMAL UNIT   |
| BV      | BALL VALVE   |
| BVC     | BEGIN VERTICAL CURVE   |
| BWW     | BACK WATER VALVE   |
| C       | CENTIGRADE / CHANNEL / CEMENT                                      |
| C&G     | CURB AND GUTTER  |
| CAB     | CABINET / CRUSHED AGGREGATE BASE                                   |
| CAP     | CAPACITY   |
| CATS    | CASING TEST STATION  |
| CATV    | CABLE TELEVISION   |
| CB      | CATCH BASIN / CHALKBOARD / CURB                                    |
| CC      | CLOSED CIRCUIT TV / CENTER TO CENTER                               |
| CD      | CEILING DIFFUSER   |
| CEM     | CEMENT   |
| CF      | CURB FACE / CUBIC FOOT   |
| CFH     | CUBIC FEET PER HOUR  |
| CFM     | CUBIC FEET PER MINUTE  |
| CFS     | CUBIC FEET PER SECOND  |
| CHEM    | CHEMICAL   |
| CHG     | CHANGE   |
| CHKD    | CHECKERED  |
| CI      | CAST IRON  |
| CIP     | CAST IRON PIPE / CAST IN PLACE                                     |
| CIPP    | CAST IN PLACE PIPE   |
| CJ      | CONSTRUCTION JOINT   |
| CL      | CENTERLINE   |
| CL2     | CHLORINE   |
| CLF     | CHAIN LINK FENCE   |
| CLG     | CEILING  |
| CLOS    | CLOSET   |
| CLR     | CLEAR / CLEARANCE  |
| CMB     | CRUSHED MISCELLANEOUS BASE   |
| CMC     | CEMENT MORTAR-COATED   |
| CML     | CEMENT MORTAR-LINED  |
| CML&C   | CEMENT MORTAR-LINED AND COATED                                     |
| CMP     | CORRUGATED METAL PIPE  |
| CMU     | CONCRETE MASONRY UNIT  |
| CO      | CLEANOUT   |
| COL     | COLUMN   |
| COMM    | COMMUNICATIONS CABLE   |
| COMP    | COMPRESSOR   |
| CONC    | CONCRETE / CONCENTRIC  |
| COND    | CONDENSER / CONDENSATE   |
| CONN    | CONNECTION   |
| CONST   | CONSTRUCT / CONSTRUCTION   |
| CONT    | CONTINUED / CONTINUOUS   |
| CONTR   | CONTRACTOR   |
| COORD   | COORDINATE   |
| COR     | CORNER   |
| COTG    | CLEANOUT TO GRADE  |
| CPLG    | COUPLING   |
| CPVC    | CHLORINATED POLYVINYL CHLORIDE                                     |
| CS      | CAST STEEL   |
| CSP     | CORRUGATED STEEL PIPE  |
| CSTS    | CURRENT SPAN TEST STATION  |
| CT      | CERAMIC TILE   |
| CTR     | CENTER   |
| CTS     | CORROSION TEST STATION   |
| CTSK    | COUNTERSUNK  |
| CU      | COPPER / CUBIC   |

|        |   |
|--------|---|
| CULV   | CULVERT   |
| CV     | CHECK VALVE   |
| CY     | CUBIC YARD  |
| CYL    | CYLINDER  |
| d      | PENNY   |
| DAD    | DOUBLE ACTING DOOR                                      |
| DAFT   | DISSOLVED AIR FLotation THICKENER                       |
| DB     | DIRECT BURY   |
| DBL    | DOUBLE  |
| DC     | DIRECT CURRENT  |
| DEG    | DEGREE  |
| DETS   | DETAIL  |
| DF     | DRINKING FOUNTAIN / DOUGLAS FIR                         |
| DG     | DOOR GRILL  |
| DH     | DOUBLE HUNG   |
| DI     | DUCTILE IRON  |
| DIA    | DIAMETER  |
| DIAG   | DIAGONAL  |
| DIAPH  | DIAPHRAGM   |
| DIFF   | DIFFUSER / DIFFERENTIAL                                 |
| DIP    | DUCTILE IRON PIPE                                       |
| DIR    | DIRECTION   |
| DISCH  | DISCHARGE   |
| DISP   | DISPENSER   |
| DL     | DEAD LOAD   |
| DMH    | DROP MANHOLE  |
| DN     | DOWN  |
| DO     | DISSOLVED OXYGEN / DITTO                                |
| DR     | DOOR / DRAIN  |
| DS     | DRENCH SHOWER AND EYE WASH                              |
| DT     | DRAIN TILE  |
| DWG    | DRAWING   |
| DWLS   | DOWELS  |
| DWY    | DRIVEWAY  |
| E      | EAST  |
| E/O    | EAST OF   |
| EA     | EACH  |
| EB     | EXPANSION BOLT OR ANCHOR                                |
| EC     | END CURVE   |
| ECC    | ECCENTRIC   |
| ECR    | END CURB RETURN   |
| EF     | EACH FACE / EXHAUST FAN                                 |
| EFF    | EFFLUENT  |
| EG     | EXISTING GRADE / EDGE OF GUTTER / EXHAUST GRILLE        |
| EGL    | ENERGY GRADE LINE                                       |
| EL     | ELEVATION   |
| ELEC   | ELECTRICAL / ELECTRONIC                                 |
| EN     | EDGE NAILING  |
| ENCL   | ENCLOSURE   |
| ENG    | ENGINE  |
| ENGR   | ENGINEER  |
| ENT    | ENTRANCE  |
| EP     | EDGE OF PAVEMENT  |
| EPT    | ETHYLENE PROPYLENE                                      |
| EQ     | EQUAL   |
| EQUIP  | EQUIPMENT   |
| ESMT   | EASEMENT  |
| ETB    | EMULSION TREATED BASE                                   |
| ETC    | ET CETERA   |
| EVAP   | EVAPORATOR  |
| EVC    | END VERTICAL CURVE                                      |
| EW     | EACH WAY / EYE WASH                                     |
| EX     | EXISTING  |
| EXC    | EXCAVATION  |
| EXH    | EXHAUST   |
| EX-HY  | EXTRA HEAVY   |
| EXIST  | EXISTING  |
| EXP    | EXPANSION   |
| EXT    | EXTERIOR / EXTENSION                                    |
| EXTR   | EXTRUDED  |
| F      | FAHRENHEIT / FINISH                                     |
| F TO F | FACE TO FACE  |
| F&C    | FRAME AND COVER   |
| F&I    | FURNISH AND INSTALL                                     |
| F&B    | FABRICATE / FABRICATION / FABRICATED                    |
| FAI    | FRESH AIR INTAKE  |
| FB     | FLAT BAR / FLOOR BEAM / FIELD BOOK                      |
| FCO    | FLOOR CLEANOUT  |
| FD     | FLOOR DRAIN   |
| FDR    | FEEDER  |
| FE     | FIRE EXTINGUISHER / FINAL EFFLUENT                      |
| FEM    | FEMALE (PIPE THREAD)                                    |
| FF     | FLAT FACE / FAR FACE / FINISHED FLOOR                   |
| FG     | FINISHED GRADE  |
| FH     | FIRE HYDRANT / FLAT HEAD                                |
| FIG    | FIGURE  |
| FIN    | FINISHED  |
| FIX    | FIXTURE   |
| FL     | FLOWLINE / FLOOR  |
| FLEX   | FLEXIBLE  |
| FLG    | FLANGE / FLOORING                                       |
| FLGD   | FLANGED   |
| FLOCC  | FLOCCULATOR / FLOCCULATION                              |
| FLR    | FLOOR   |
| FLSG   | FLASHING  |
| FM     | FACTORY MUTUAL (LAB APPROVED) / FORCE MAIN              |
| FMH    | FLEXIBLE METAL HOSE                                     |
| FMU    | FIELD NAILING   |
| FND    | FOUNDATION  |
| FOC    | FACE OF CONCRETE / FIBER OPTIC CABLE                    |
| FOM    | FACE OF MASONRY   |
| FOS    | FACE OF STUDS   |
| FOW    | FACE OF WALL  |
| FPC    | FLEXIBLE PIPE COUPLING                                  |
| FPM    | FEET PER MINUTE   |
| FPS    | FEET PER SECOND   |
| FPTS   | FOREIGN PIPE TEST STATION                               |
| FR     | FRAME   |
| FRP    | FIBERGLASS REINFORCED PLASTIC                           |
| FS     | FINISHED SURFACE / FAR SIDE / FLOOR SINK / FORGED STEEL |
| FT     | FEET / FOOT   |
| FTG    | FOOTING   |
| FUR    | FURRING   |
| FUT    | FUTURE  |
| FV     | FIELD VERIFY  |
| FWD    | FORWARD   |

|       |   |
|-------|---|
| G     | GAS                                       |
| GA    | GAGE / GAUGE                              |
| GAL   | GALLON                                    |
| GALV  | GALVANIZED                                |
| GANC  | GUY ANCHOR                                |
| GB    | GRADE BREAK                               |
| GEN   | GENERAL / GENERATOR                       |
| GFA   | GROOVED FLANGE ADAPTER                    |
| GI    | GALVANIZED IRON                           |
| GIP   | GALVANIZED IRON PIPE                      |
| GL    | GLASS / GROUND LINE / GRADE LINE          |
| GLB   | GLUE LAMINATED BEAM / GLULAM              |
| GLV   | GLOBE VALVE                               |
| GM    | GAS METER                                 |
| GP    | GUY POLE                                  |
| GPD   | GALLONS PER DAY                           |
| GPH   | GALLONS PER HOUR                          |
| GPM   | GALLONS PER MINUTE                        |
| GR    | GRADE                                     |
| GRV   | GRADE / GROUND                            |
| GRTG  | GRATING                                   |
| GSP   | GALVANIZED STEEL PIPE                     |
| GV    | GATE VALVE                                |
| GYP   | GYPSUM                                    |
| H     | HIGH / HEIGHT                             |
| H&V   | HEATING AND VENTILATING                   |
| H/B   | HOSE BIBB                                 |
| HC    | HOUSE CONNECTION                          |
| HDR   | HEADER                                    |
| HDW   | HARDWARE                                  |
| HDWL  | HEADWALL                                  |
| HEX   | HEXAGONAL                                 |
| Hg    | MERCURY                                   |
| HGL   | HYDRAULIC GRADE LINE                      |
| HGR   | HANGER                                    |
| HM    | HOLLOW METAL                              |
| HORZ  | HORIZONTAL                                |
| HP    | HIGH POINT / HORSE POWER / HIGH PRESSURE  |
| HPG   | HIGH PRESSURE GAS                         |
| HR    | HEAT RETURN / HOUR                        |
| HSL   | HORIZONTALLY SLOTTED                      |
| HSS   | HOLLOW STRUCTURAL SECTION                 |
| HTG   | HEATING                                   |
| HTR   | HEATER                                    |
| HV    | HORIZONTAL AND VERTICAL CONTROL POINT     |
| HVAC  | HEATING, VENTILATION AND AIR CONDITIONING |
| HW    | HOT WATER / HEADWORK                      |
| HWL   | HARDWOOD                                  |
| HWO   | HIGH WATER LEVEL                          |
| HYD   | HANDWHEEL OPERATED                        |
| I/O   | INPUT/OUTPUT                              |
| I&O   | INSIDE AND OUTSIDE                        |
| IBC   | INTERNATIONAL BUILDING CODE               |
| IF    | INSIDE DIAMETER                           |
| IF    | INSIDE FACE                               |
| IJTS  | INSULATING JOINT TEST STATION             |
| IN    | INCH                                      |
| INCL  | INCLUDE / INCLUDING                       |
| INFL  | INFLUENT                                  |
| INSL  | INSULATION / INSULATING / INSULATED       |
| INSP  | INSPECTION                                |
| INST  | INSTRUMENT                                |
| INT   | INTERIOR                                  |
| INV   | INVERT                                    |
| IP    | IRON PIPE                                 |
| IPS   | IRON PIPE SIZE                            |
| IRRG  | IRRIGATION                                |
| JAN   | JANITOR                                   |
| JC    | JUNCTION CHAMBER                          |
| JCT   | JUNCTION                                  |
| JS    | JUNCTION STRUCTURE                        |
| JSTS  | JOISTS                                    |
| JT    | JOINT                                     |
| k     | KILO                                      |
| K     | KELVIN / KARAT                            |
| kg    | KILOGRAM                                  |
| km    | KILOMETER                                 |
| kV    | KILOVOLT                                  |
| kVA   | KILOWATT AMPERE                           |
| kW    | KILOWATT                                  |
| kWh   | KILOWATT HOUR                             |
| L     | LITER / LENGTH / ANGLE                    |
| LAB   | LABORATORY                                |
| LAM   | LAMINATED                                 |
| LAT   | LATERAL                                   |
| LAV   | LAVATORY                                  |
| LB    | POUND                                     |
| LCP   | LOCAL CONTROL PANEL                       |
| LCS   | LOCAL CONTROL STATION                     |
| LD    | LOCAL DEPRESSION                          |
| LDG   | LANDING                                   |
| LEV   | LEVEL                                     |
| LF    | LINEAR FOOT                               |
| LG    | LENGTH / LONG                             |
| LH    | LAMP HOLE / LEFT HAND                     |
| LL    | LIVE LOAD                                 |
| LLH   | LONG LEG HORIZONTAL                       |
| LLV   | LONG LEG VERTICAL                         |
| LOC   | LOCATION                                  |
| LOL   | LAYOUT LINE                               |
| LONG  | LONGITUDINAL                              |
| LP    | LOW POINT / LOW PRESSURE / LAMP POST      |
| LPG   | LIQUID PETROLEUM GAS                      |
| LT    | LEFT / LIGHT                              |
| LTS   | LIME TREATED SOIL                         |
| LW    | LOW WATER                                 |
| LWL   | LOW WATER LEVEL                           |
| LWR   | LOWER                                     |
| m     | METER                                     |
| M     | MALE (PIPE THREAD)                        |
| MA    | MILLIAMPS                                 |
| MACH  | MACHINE                                   |
| MAG   | MAGNETIC                                  |
| MAINT | MAINTENANCE                               |
| MAN   | MANUAL                                    |
| MAS   | MASONRY                                   |

|         |  |
|---------|--|
| MAT     | MATERIAL   |
| MAX     | MAXIMUM  |
| MB      | MAIL BOX / MACHINE BOLT                                  |
| MCC     | MOTOR CONTROL CENTER                                     |
| MCR     | MIDDLE OF CURB RETURN                                    |
| MEAS    | MEASURE  |
| MECH    | MECHANICAL   |
| MED     | MEDIUM   |
| MEMB    | MEMBER   |
| MFR     | MANUFACTURER   |
| MFRD    | MANUFACTURED   |
| MGD     | MILLION GALLONS PER DAY                                  |
| MH      | MANHOLE / MAINTENANCE HOLE                               |
| MHT     | MEAN HIGH TIDE   |
| MHW     | MEAN HIGH WATER  |
| MI      | MALLEABLE IRON / MILE                                    |
| MICRON  | 1/1,000,000 METER  |
| MIL     | MILITARY / 1/1,000TH INCH                                |
| MIN     | MINIMUM / MINUTE   |
| MIR     | MIRROR   |
| MISC    | MISCELLANEOUS  |
| MK      | MARK   |
| MLW     | MEAN LOW WATER   |
| mm      | MILLIMETER   |
| MO      | MOTOR OPERATED / MASONRY OPENING                         |
| MOD     | MODEL  |
| MON     | MONUMENT   |
| MOR     | MORTAR   |
| MS      | MOP SINK   |
| MSL     | MEAN SEA LEVEL   |
| MTC     | MECHANICAL-TYPE COUPLING                                 |
| MTD     | MOUNTED  |
| MTG     | MOUNTING   |
| MTL     | METAL  |
| MTR     | MOTOR  |
| N       | NORTH  |
| NaOCl   | SODIUM HYPOCHLORITE                                      |
| NaOH    | SODIUM HYDROXIDE (CAUSTIC SODA)                          |
| NIC     | NON-ILY CLOSED   |
| NCH     | NATIONAL ELECTRICAL CODE                                 |
| NEMA    | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION            |
| NF      | NEAR FACE  |
| NFPA    | NATIONAL FIRE PROTECTION ASSOCIATION                     |
| NG      | NATURAL GRADE / NATURAL GAS                              |
| NIC     | NOT IN CONTACT   |
| NO      | NUMBER / NORMALLY OPEN                                   |
| NOM     | NOMINAL  |
| NPS     | NOMINAL PIPE SIZE  |
| NPT     | NATIONAL PIPE THREAD                                     |
| NRCPP   | NON-REINFORCED CONCRETE PIPE                             |
| NRS     | NON-RISING STEM  |
| NS      | NEAR SIDE  |
| NTS     | NOT TO SCALE   |
| OBJ     | OBJECT   |
| OC      | ON CENTER / OVER-CROSSING                                |
| OD      | OUTSIDE DIAMETER / OVERALL DIMENSION                     |
| OE      | OUTER EDGE   |
| OF      | OVERFLOW / OUTSIDE FACE                                  |
| OFD     | OVERFLOW DRAIN   |
| OFF     | OFFICE   |
| OH      | OVER HEAD  |
| OHW     | OVERHEAD WIRES   |
| OPER    | OPERATOR / OPERATING                                     |
| OPNG    | OPENING  |
| OPP     | OPPOSITE   |
| ORIG    | ORIGINAL   |
| OS&Y    | OUTSIDE SCREW AND YOKE                                   |
| OSA     | OUTSIDE AIR  |
| OSHA    | OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION            |
| OWG     | OIL WATER GAS  |
| OZ      | OUNCE  |
| P       | POLE / PAGE / PIPE                                       |
| P/S     | POLE AND SHELF   |
| PA      | PLANTING AREA  |
| PART    | PARTITION  |
| PAVMT   | PAVEMENT   |
| PB      | POLYBUTYLENE / PULL BOX                                  |
| PC      | POINT OF CURVATURE / PRIMARY CLARIFIER / PORTLAND CEMENT |
| PCC     | PORTLAND CEMENT CONCRETE / POINT OF COMPOUND CURVE       |
| PCOTG   | PRESSURE CLEANOUT TO GRADE                               |
| PCVC    | POINT OF COMPOUND VERTICAL CURVE                         |
| PE      | PLANT EFFLUENT / POLYETHYLENE / POLYELECTROLYTE POLYMER  |
| PG      | PRESSURE GAGE  |
| pH      | RECIPROCAL LOG OF HYDROGEN ION CONCENTRATION             |
| PI      | PLANT INFLUENT / POINT OF INTERSECTION                   |
| PK      | PARKING  |
| PL      | PLATE / PROPERTY LINE / PLACE                            |
| PLAS    | PLASTER / PLASTIC  |
| PLT     | PLANT  |
| PLWD    | PLYWOOD  |
| PM      | PRESSED METAL  |
| PNEU    | PNEUMATIC  |
| PNL     | PANEL  |
| POB     | POINT OF BEGINNING                                       |
| POC     | POINT OF CONNECTION                                      |
| POT     | POINT OF TANGENT   |
| PP      | POWER POLE / POLYPROPYLENE                               |
| PPD     | POUNDS PER DAY   |
| PPH     | POUNDS PER HOUR  |
| PPM     | POUNDS PER MINUTE  |
| PR      | PAIR   |
| PRC     | POINT OF REVERSE CURVE                                   |
| PRECAST | PRECAST  |
| PREFAB  | PREFABRICATED  |
| PRESS   | PRESSURE   |
| PROF    | PROFILE  |
| PRV     | PRESSURE REGULATING, RELIEF OR REDUCING VALVE            |
| PRVC    | POINT OF REVERSE VERTICAL CURVE                          |
| PS      | PRESSURE SWITCH  |
| PSF     | POUNDS PER SQUARE FOOT                                   |
| PSI     | POUNDS PER SQUARE INCH                                   |
| PSIA    | POUNDS PER SQUARE INCH ABSOLUTE                          |
| PSIG    | POUNDS PER SQUARE INCH GAUGE                             |
| PT      | POINT OF TANGENCY / PAINT / PRESSURE                     |
| PTFE    | POLYTETRAFLUOROETHYLENE (TEFLON)                         |
| PV      | PUG VALVE  |

|       |   |
|-------|---|
| PVC   | POLYVINYL CHLORIDE  |
| PVDF  | POLYVINYLIDENE FLUORIDE (KYNAR)                           |
| PW    | POTABLE WATER   |
| QT    | QUARRY TILE   |
| QTY   | QUANTITY  |
| QUAD  | QUADRANGLE / QUADRANT                                     |
| R     | RADIUS / RISER / RATE OF SLOPE                            |
| R&O   | ROCK AND OIL  |
| R/W   | RIGHT OF WAY  |
| RAC   | RECYCLED ASPHALT CONCRETE                                 |
| RAG   | RETURN AIR GRILLE   |
| RAP   | RECLAIMED ASPHALT PAVEMENT                                |
| RAS   | RETURN ACTIVATED SLUDGE                                   |
| RC    | REINFORCED CONCRETE                                       |
| RCP   | REINFORCED CONCRETE PIPE                                  |
| RD    | ROAD / ROOF DRAIN / ROUND                                 |
| RED   | REDUCER / REDUCING  |
| REF   | REFERENCE / REFER / REFRIGERATOR                          |
| REG   | REGULATING  |
| REINF | REINFORCE / REINFORCED                                    |
| REQD  | REQUIRED  |
| RESIL | RESILIENT   |
| RET   | RETAINING / RETURN  |
| REV   | REVISION  |
| REW   | RECLAIMED WATER   |
| RF    | ROOF / RAISED FOUNDATION / ROUGH FACE                     |
| RFG   | ROOFING   |
| RGE   | REGISTERED GEOTECHNICAL ENGINEER                          |
| RH    | REDHEAD / RIGHT HAND                                      |
| RM    | ROOM  |
| RO    | ROUGH OPENING   |
| RPM   | REVOLUTIONS PER MINUTE                                    |
| RHR   | RAILROAD  |
| RS    | RISING STEM   |
| RSL   | RAW SLUDGE  |
| RT    | RIGHT   |
| RTP   | REINFORCED THERMOSETTING PLASTIC                          |
| RTU   | REMOTE TERMINAL UNIT                                      |
| RW    | REDWOOD   |
| RWL   | RAINWATER LEADER  |
| S     | SOUTH / SCUM / SINK / SECOND / SLOPE / SOUTH OF           |
| S/O   | SOUTH OF  |
| SAM   | SAMPLE  |
| SAN   | SANITARY  |
| SBR   | STYRENE BUTADIENE (RUBBER)                                |
| SC    | SECONDARY CLARIFIER                                       |
| SCOP  | STEEL CYLINDER CONCRETE PIPE                              |
| SCWD  | SCHEDULED   |
| SCFM  | STANDARD CUBIC FEET PER MINUTE                            |
| SCH   | SCHEDULE  |
| SD    | SANITARY DRAIN / SMOKE DETECTOR                           |
| SDR   | STANDARD THERMOPLASTIC PIPE DIMENSION RATIO / STORM DRAIN |
| SEC   | SECONDARY / SECTION                                       |
| SER   | SERIAL  |
| SETT  | SETTING   |
| SF    | SQUARE FOOT   |
| SH    | SHOWER  |
| SHELV | SHELVING  |
| SHT   | SHEET   |
| SHTG  | SHEATHING   |
| SIM   | SIMILAR   |
| SL    | SLUDGE  |
| SLDG  | SLIDING   |
| SLG   | SLUICE GATE   |
| SOG   | SLAB ON GRADE   |
| SOLN  | SOLUTION  |
| SP    | STATIC PRESSURE / SPARE CHEMICAL                          |
| SPEC  | SPECIFICATION   |
| SPK   | SPIKE   |
| SQ    | SQUARE  |
| SS    | STAINLESS STEEL / SANITARY SEWER / SERVICE SINK           |
| SSB   | SELECT SUB-BASE   |
| SSPWC | STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION      |
| SSU   | SECONDS SAYBOLT UNIVERSAL                                 |
| ST    | STREET / STATE  |
| STA   | STATION   |
| STC   | SLEEVE-TYPE COUPLING                                      |
| STD   | STANDARD  |
| STK   | STAKE   |
| STL   | STEEL   |
| STM   | STEAM   |
| STR   | STRAIGHT / STRUCTURAL                                     |
| SU    | STEAM LINE  |
| SUCT  | SUCTION   |
| SV    | SOLENOID VALVE  |
| SW    | SIDEWALK  |
| SWD   | SIDEWALK DRAIN  |
| SWGR  | SWITCHGEAR  |
| SWR   | SIDEWALL REGISTER   |
| SY    | SQUARE YARD   |
| SYM   | SYMMETRICAL / SYMBOL                                      |
| SYS   | SYSTEM  |
| T     | THERMOSTAT / TREAD OF STAIR / TANGENT                     |
| T&B   | TOP AND BOTTOM  |
| T&G   | TONGUE AND GROOVE   |
| TAN   | TANGENT   |
| TB    | TACK BOARD  |
| TBE   | THREAD BOTH ENDS  |
| TBM   | TEMPORARY BENCH MARK                                      |
| TC    | TOP OF CURB   |
| TCV   | TEMPERATURE CONTROL VALVE                                 |
| TEL   |   |

CIVIL GENERAL NOTES

GENERAL

- 1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTORS EXPENSE.
3. ALL BUILDING COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR BUILDING.
4. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD GUNITE, PIPING, ROCK RUBBLE ETC. AT AN APPROVED LANDFILL OR OTHER SUITABLE DISPOSAL SITE IN ACCORDANCE WITH SPECIFICATION SECTION 02200 AND 02075.
5. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.

UTILITIES

- 1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL CONTACT DIGSAFE TO LOCATE EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES IN THE LOCATIONS IDENTIFIED ON THE DRAWINGS AND FOR POINTS OF CONNECTION, PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
2. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN IN-PLACE.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATIONS AND SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER.
5. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLEUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.
6. REFER TO B-6 FOR INFORMATION RELATED TO PROTECTION OF STRUCTURES.

PIPING

- 1. THE CONTRACTOR SHALL COMPLY WITH THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM) POLICY CRITERIA FOR THE SEPARATION OF WATER MAINS AND SANITARY SEWERS.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 36 INCHES OF COVER ON ALL PIPELINES UNLESS OTHERWISE SHOWN OR DIRECTED.
3. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
4. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, PULL BOXES AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR SPECIFIED. MANHOLES IN OPEN FIELDS SHALL BE SET ONE FOOT ABOVE GRADE. APPROXIMATE RIM ELEVATIONS ARE SHOWN ON DRAWINGS.
5. ALL PIPE TRENCHING AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAILS C-101, C-901, AND C-902. PIPE INSTALLED BY MICROTUNNELING SHALL BE IN ACCORDANCE WITH SPECIFICATION 02314 AND 02317. PIPING WITHIN THE TIDEWATER PROPERTY, THROUGH MH 217-6 SHALL BE LINED IN ACCORDANCE WITH SPECIFICATION SECTION 09007. THE PIPING SHOWN ON THESE PLANS SPECIFIC TO WATER PIPING SHALL BE RESTRAINED JOINT DESIGN AT ALL SLEEVE TYPE COUPLINGS.

EROSION CONTROL

- 1. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR WORK DURING THE CONSTRUCTION, SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER IN RHODE ISLAND PRIOR TO THE START OF CONSTRUCTION.
a. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER.
b. ALL SLOPE PROTECTION SWALES SHALL BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.
c. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION CONTROL MEASURES CONTAINED WITHIN THE CONTRACT SPECIFICATIONS OR AS REQUIRED BY THE CITY, DISTRICT, OR OTHER REGULATORY AUTHORITY. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (E.G. HYDROSEEDING, MULCHING OF STORM SAND BAGGING, DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS INTO EXISTING PUBLIC STREETS, WATERWAYS, OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS.

SURVEY AND CONTROL

SURVEY INFORMATION PROVIDED BY BRYANT AND ASSOCIATES INC. NOV 2019. VERTICAL DATUM IS NGVD29 AND HORIZONTAL DATUM IS RI STATE PLANE COORDINATE SYSTEM.
APPROXIMATE PROPERTY LINE INFORMATION PROVIDED BY THE CITY OF PAWTUCKET.

BENCHMARKS / CONTROL POINTS

Table with 5 columns: POINT #, POINT DESCRIPTION, EASTING, NORTHING, ELEVATION. Contains 19 rows of survey data points.

PERMITTING

XXXXXX
XXXX
XXXXX
XXXXX

NATIONAL GRID GAS POLICY REQUIREMENTS

NATIONAL GRID GAS POLICY REQUIREMENTS THAT PERTAIN TO THIS PROJECT

GENERAL

- 1. CONTRACTOR SHALL FOLLOW THE GUIDELINES LISTED IN NATIONAL GRID'S "GUIDELINES FOR WORKING AROUND GAS UTILITIES".
2. DEPTH OF GAS FACILITIES ARE UNKNOWN AND COULD BE SHALLOW. USE CAUTION WHEN WORKING IN THE VICINITY OF ANY GAS FACILITY, HAND DIGGING ONLY.
3. NATIONAL GRID REQUIRES A MINIMUM OF ONE FOOT OF SEPARATION BETWEEN CROSSING UTILITIES AND EXISTING GAS FACILITIES.
4. NATIONAL GRID REQUIRES A MINIMUM OF THREE FEET OF SEPARATION BETWEEN THE GAS MAIN AND THE PARALLEL FACILITY FOR STEEL AND PLASTIC GAS MAINS. FOR CAST IRON GAS MAIN SEE LINE ITEM FOR ENCROACHMENT GUIDELINES.
5. AT A PROPOSED UTILITY AND CRITICAL GAS MAIN CROSSING, A NATIONAL GRID GAS DAMAGE PREVENTION INSPECTOR MUST BE ON SITE WHEN CROSSING. CALL JON MACLEAN AT 781-296-2046 OR ED SOUZA AT 401-283-9159.
6. IF A GAS MAIN IS EXPOSED OR GOING TO BE EXPOSED CALL NATIONAL DISPATCH OFFICE AT 877-304-1203 FOR AN INSPECTOR TO BE DISPATCHED TO THE SITE TO INSPECT THE LINE BEFORE BACKFILL.
7. IF A GAS MAIN OR GAS MAIN COVER IS DAMAGED CALL NATIONAL DISPATCH OFFICE AT 877-304-1203 FOR AN INSPECTOR TO BE DISPATCHED TO THE SITE FOR REPAIR BEFORE BACKFILL.
8. FOR ANY EXPOSED GAS FACILITY, PROVIDE BACKFILL MATERIALS AND COMPACT THE BACKFILL MATERIALS IN ACCORDANCE WITH NATIONAL GRID'S "GUIDELINES FOR BACKFILL AND COMPACTION AROUND GAS PIPES".
9. WHEN CROSSING OR EXPOSING A STEEL OR PLASTIC GAS FACILITY SUPPORT MAY BE REQUIRED. FOLLOW THE GUIDELINES LISTED AND ILLUSTRATED IN NATIONAL GRID'S "SUPPORT REQUIREMENTS FOR EXPOSED & UNDERMINED STEEL OR PLASTIC GAS FACILITIES", DOCUMENT (DWG NO. CNST-6045).
10. ALL GAS VALVE BOXES SHALL BE ADJUSTED TO THE NEW ROAD/SIDEWALK SURFACE. VALVE BOXES, IF REQUIRED FOR REPLACEMENT, CAN BE OBTAINED AT NATIONAL GRID'S PROVIDENCE LOCATION, 477 DEXTER STREET, PROVIDENCE, RI OR LINCOLN LOCATION, 642 GEORGE WASHINGTON HIGHWAY (QUANTITIES 5 OR LESS). GAS VALVE BOXES NEED TO BE ACCESSIBLE AT ALL TIMES TO BE OPERATED BY NATIONAL GRID IN THE EVENT OF AN EMERGENCY.
11. ALL CATHODIC PROTECTION BOXES (BOXES THAT CONTAIN WIRES THAT GO DOWN TO THE GAS MAIN) SHALL BE ADJUSTED TO THE NEW ROAD/SIDEWALK SURFACE. CARE SHOULD BE EXERCISED WHEN ADJUSTING SO AS NOT TO DAMAGE THE WIRES. IF THE WIRES ARE DAMAGED OR IF ASSISTANCE IS NEEDED, CONTACT NATIONAL GRID CORROSION ENGINEER TO VISIT THE SITE. CONTACT RICK LEPAGE 508-948-8432 OR MIKE HARMON 781-953-2545. NEW BOXES, IF REQUIRED, CAN BE OBTAINED AT NATIONAL GRID'S PROVIDENCE FACILITY, 477 DEXTER ST, PROVIDENCE, RI OR NATIONAL GRID'S LINCOLN FACILITY, 642 GEORGE WASHINGTON HIGHWAY, LINCOLN, RI (QUANTITIES 5 OR LESS). CONTRACTOR SHALL FOLLOW THE GUIDELINES LISTED IN NATIONAL GRID'S "GUIDELINES FOR WORKING AROUND CORROSION CONTROL SYSTEM COMPONENTS", DOCUMENT ATTACHED.
12. DUE TO SYSTEM RELIABILITY AND PUBLIC SAFETY CONCERNS, IT IS NATIONAL GRID'S PRACTICE TO RESTRICT ALL CONSTRUCTION WORK ON OR NEAR GAS FACILITIES BETWEEN NOVEMBER 15<sup>TH</sup> AND APRIL 15<sup>TH</sup>. ALL SCHEDULED WORK SHOULD BE COMPLETED BETWEEN APRIL 15<sup>TH</sup> AND NOVEMBER 15<sup>TH</sup> AS GAS USAGE PEAK DURING THIS MONTH. NATIONAL GRID'S PRIORITY IS TO PROVIDE OUR CUSTOMERS WITH SAFE AND RELIABLE GAS SERVICE. ANY WORK ON OR NEAR THE GAS FACILITY WILL EXPOSE OUR CUSTOMERS TO UNNECESSARY RISK. EXCEPTIONS WILL BE CONSIDERED ON A CASE BY CASE BASIS. APPROVALS FROM GAS CONTROL, OPERATIONAL ENGINEERING, AND PROJECT ENGINEERING WILL BE REQUIRED FOR THESE CASES.
13. FOR A GAS LEAK CALL 800-640-1595
14. FOR A DAMAGED GAS FACILITY CALL 800-870-1664.

CAST IRON INVOLVEMENT

- 1. IF EXCAVATING PARALLEL TO OR CROSSING A CAST IRON GAS FACILITY THEN ENCROACHMENT OF THE CAST IRON LINE IS A POSSIBILITY AND A CONCERN WHERE REPLACEMENT MAY BE REQUIRED. WHENEVER AN EXCAVATION IS IN THE VICINITY OF A CAST IRON GAS MAIN CONTACT NATIONAL GRID ENCROACHMENT ENGINEER TO BE ON SITE, CALL CHRIS FERRANTI AT 401-465-9064. GUIDELINES IN AVOIDING AN ENCROACHMENT ARE LISTED IN NATIONAL GRID'S "CAST IRON GAS MAIN ENCROACHMENT PREVENTION".
2. IF EXCAVATING PARALLEL TO OR CROSSING A CAST IRON FACILITY THAT IS GREATER THAN 8", THIS LINE IS NOT COVERED UNDER THE ENCROACHMENT GUIDELINES AND LAW. NATIONAL GRID DOES NOT ALLOW MORE THAN 10' OF GAS MAIN TO BE EXPOSED AND ONLY ALLOWS (1) BELL & SPIGOT JOINT TO BE EXPOSED. IF A BELL & SPIGOT JOINT IS EXPOSED SAID JOINT MUST BE LEAK CLAMPED BEFORE BACKFILL UNLESS A CLAMP IS ALREADY IN PLACE. PROVIDE BACKFILL MATERIALS AND COMPACT THE BACKFILL MATERIALS IN ACCORDANCE WITH NATIONAL GRID'S "GUIDELINES FOR BACKFILL AND COMPACTION AROUND GAS PIPES. MINIMUM 95% COMPACTION OF THE SOIL BELOW A CAST IRON IS ALWAYS REQUIRED. ALWAYS CALL NATIONAL GRID DAMAGE PREVENTION DEPARTMENT FOR AN INSPECTOR TO BE DISPATCHED TO SITE. CALL JONATHAN MACLEAN AT 781-296-2046 OR ED SOUZA AT 401-283-9159.

REGULATOR STATION

- 1. NATIONAL GRID REQUIRES NOTIFICATION OF CONSTRUCTION WORK WITHIN 200 FT OF A GAS REGULATOR STATION FOR SAFETY MONITORING DURING CONSTRUCTION. PLEASE CALL NATIONAL GRID I&R SUPERVISOR MIKE ROMANO AT 617-910-7854 OR GEORGE MAERKLE AT 401-595-8276 WHEN DIGGING WITHIN 200 FT OF REGULATOR STATION.

ABANDONED GAS MAIN

- 1. NATIONAL GRID WILL PURGE OUR OLD GAS MAIN OF GAS, WIPE TEST SAMPLE THE INSIDE OF THE PIPE, CAP THE ENDS AND ABANDON IN PLACE. PIPE FOUR INCHES AND LESS IN DIAMETER CAN'T BE SAMPLED; THIS PIPE WILL BE ASSUMED TO BE CONTAMINATED. IF THE WIPE TEST RESULTS SHOW PCB CONTAMINATION AND A SECTION OR SECTIONS NEED TO BE REMOVED BY THE CONTRACTOR THEN THERE ARE TWO POSSIBILITIES: IF THE QUANTITY TO BE REMOVED IS SMALL THE CONTRACTOR COULD TRANSPORT THE REMOVED SECTIONS WITH SEALED ENDS TO EITHER OUR ALLENS AVE FACILITY AT 642 ALLENS AVE IN PROVIDENCE OR OUR DEXTER ST FACILITY AT 477 DEXTER ST IN PROVIDENCE AND PLACE THEM IN OUR RED OPEN TOP "PIPE TO BE CLEANED" CONTAINER ON SITE. NATIONAL GRID WOULD THEN HANDLE THE CLEANING AND PROPER DISPOSAL. OR THE CONTRACTOR COULD HIRE CLEAN HARBORS TO DELIVER AN OPEN TOP CONTAINER TO THE SITE, PLACE THE REMOVED SECTION INTO THE DUMPSTER AND THEN ARRANGE TO HAVE CLEAN HARBORS PICK UP THE CONTAINER. THE CHARGES ASSOCIATED WITH DELIVERY, ONSITE RENTAL AND PICK UP OF THE DUMPSTER WOULD BE THE CONTRACTORS RESPONSIBILITY AND NATIONAL GRID'S RESPONSIBILITY WILL BE FOR THE CLEANING AND PROPER DISPOSAL. NATIONAL GRID ALSO REQUIRES THAT THE OPEN PIPE ENDS OF THE ABANDONED PIPE REMAINING IN THE GROUND BE CAPPED OR SEALED WITH EXPANDING FOAM.

TIDEWATER SITE ACCESS

TIDEWATER SITE ACCESS

- 1. THE TIDEWATER SITE HAS SOIL AND GROUNDWATER CONTAMINATION. CONTRACTOR SHALL WORK IN STRICT ACCORDANCE WITH THEIR HEALTH AND SAFETY PLAN AND THE REQUIREMENTS OF NATIONAL GRID.
2. MULTIPLE CONTRACTORS WILL BE WORKING ON THE SITE CONCURRENTLY AND SOME OF THE WORK SPACE IS SHARED. THE CONTRACTOR SHALL BE REQUIRED TO ATTEND COORDINATION MEETINGS FOR THE MULTIPLE CONTRACTS. PROJECTS INCLUDE: NATIONAL GRID - SITEWIDE REMEDY DESIGN WHICH INCLUDES INSTALLATION OF A MEMBRANE CAP OVER THE SITE. FORTUITOUS PARTNERS: CONSTRUCTION OF A NEW SOCCER STADIUM AND AMENITIES.
3. CONTRACTOR SHALL MAINTAIN ACCESS TO NATURAL GAS AND ELECTRICAL SUBSTATION INFRASTRUCTURE BY NATIONAL GRID EMPLOYEES AT ALL TIMES DURING THE PERFORMANCE OF THE WORK. NO SEPARATE PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROVIDING THIS ACCESS OR FOR DELAYS CAUSED BY ON-GOING SITE OPERATIONS.
4. CONTRACTOR SHALL MAINTAIN ACCESS TO THE PAVED AREA ON THE NORTHWEST SIDE OF THE SUBSTATION AT ALL TIMES TO ALLOW MOBILIZATION AND STAGING OF A TRAILER MOUNTED MOBILE SUBSTATION. NO SEPARATE PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROVIDING THIS ACCESS OR FOR DELAYS CAUSED BY THE PRESENCE OF THE MOBILE SUBSTATION.
5. CONTRACTOR SHALL COORDINATE WITH NATIONAL GRID ELECTRIC TO TEMPORARILY REFORM DISTRIBUTION AND TRANSMISSION POLES WHEN EXCAVATIONS ARE PERFORMED ADJACENT TO THIS ELECTRICAL INFRASTRUCTURE.
6. CONTRACTOR SHALL PERFORM ALL WORK IN A MANNER TO NOT EXCEED THE GROUND VIBRATION LIMITS OUTLINED IN NATIONAL GRID REQUIREMENTS FOR WORK IN VICINITY OF GAS MAINS.
7. CONTRACTOR SHALL PROVIDE SIGNAGE, BARRICADES, AND/OR TEMPORARY PROTECTIVE STRUCTURES TO PROTECT EXISTING MONITORING WELLS FROM DAMAGE. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER IN THE EVENT ANY MONITORING WELL TO REMAIN IS DAMAGED. MONITORING WELLS DAMAGED BY CONTRACTOR SHALL BE REPLACED AT NO COST TO OWNER.

SELECTIVE DEMOLITION & CONSTRUCTION

- 1. DUST SHALL BE STRICTLY CONTROLLED IN ALL AREAS REQUIRING DEMOLITION. CONTRACTOR SHALL PROVIDE AND EMPLOY DUST CONTROL MEASURES TO MITIGATE THE RELEASE OF VISIBLE AIRBORNE PARTICULATE MATTER AND/OR FUGITIVE DUST BEYOND THE LIMITS OF WORK. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONSISTENT WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. NOISE SHALL BE STRICTLY CONTROLLED IN ALL AREAS. NOISE CONTROL AND MONITORING SHALL BE PERFORMED IN ACCORDANCE WITH CONTRACT DOCUMENTS.
3. VIBRATION SHALL BE STRICTLY CONTROLLED IN ALL AREAS. VIBRATION CONTROL AND MONITORING SHALL BE PERFORMED IN ACCORDANCE WITH CONTRACT DOCUMENTS.
4. CONTRACTOR SHALL AT ALL TIMES BE SOLELY RESPONSIBLE FOR EXERCISING REASONABLE PRECAUTION TO PROTECT THE HEALTH, SAFETY, AND WELFARE, OF ALL ON-SITE PERSONNEL, THE PUBLIC AND THE ENVIRONMENT DURING PERFORMANCE OF THE WORK DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF FEDERAL, STATE AND LOCAL HEALTH AND SAFETY AND OCCUPATIONAL HEALTH AND SAFETY STATUTES AND CODES.
5. CONTRACTOR SHALL ALSO COMPLY WITH CONDITIONS CONTAINED IN SITE-SPECIFIC PERMITS OR LICENSES OBTAINED BY OWNER.
6. CONTRACTOR SHALL FOLLOW ALL GUIDELINES AND PROCEDURES LISTED IN THE NATIONAL GRID CONTRACTOR SAFETY REQUIREMENTS DOCUMENTS INCLUDED IN THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL ESTABLISH AND MAINTAIN SUPPORT, CONTAMINATION REDUCTION AND EXCLUSION ZONES AT THE SITE IN ACCORDANCE WITH OSHA 29 CODE OF FEDERAL REGULATIONS (CFR) 1910.120.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE SITE-SPECIFIC AIR MONITORING REQUIREMENTS. THE AIR MONITORING REQUIREMENTS INCLUDE, BUT ARE NOT LIMITED TO, MONITORING FREQUENCY, ACTION LEVELS, MONITORING EQUIPMENT, MONITORING LOCATIONS AND SPECIFIC RESPONSE ACTIONS TO BE TAKEN IN THE EVENT THAT ANY ACTION LEVELS ARE TRIGGERED.
9. CONTRACTOR SHALL BE REQUIRED TO CONDUCT THE WORK IN A MANNER THAT PREVENTS VAPOR EMISSIONS AND FUGITIVE DUST THAT MAY IMPACT PUBLIC HEALTH OR RESULT IN NUISANCE CONDITIONS. CONTRACTOR SHALL CONTROL VAPOR EMISSIONS AND DUST SO THAT PERMETER ACTION LEVELS ARE NOT EXCEEDED.
10. WORKERS WORKING WITHIN 25-FEET OF THE COASTAL FEATURE INCLUDING, BUT NOT LIMITED TO THE EDGE OF THE CONTAINMENT WALL AND STEEL PILE BULKHEAD SYSTEMS SHALL BE REQUIRED TO WEAR PERSONAL FLOTATION DEVICES (PFDs).

STOP WORK AUTHORITY

- 1. SHOULD ANY UNFORESEEN SAFETY-RELATED FACTOR, HAZARD, OR CONDITION WHICH POSES A POTENTIAL THREAT OF PHYSICAL INJURY OR HARM TO SITE PERSONNEL OR THE ENVIRONMENT BECOME EVIDENT DURING THE PERFORMANCE OF THE WORK, ALL SITE PERSONNEL SHALL HAVE AUTHORITY AS GRANTED BY OSHA REGULATIONS TO ISSUE A STOP WORK DIRECTIVE.
2. IF A STOP WORK DIRECTIVE IS ISSUED, CONTRACTOR MUST IMMEDIATELY TAKE PRUDENT CORRECTIVE ACTION TO SECURE THE WORK AND PROVIDE SAFE CONDITIONS FOR SITE PERSONNEL AND THE ENVIRONMENT. THIS CORRECTIVE ACTION SHALL BE FOLLOWED BY AN IMMEDIATE ORAL (AND FOLLOWED UP WITH WRITTEN) INCIDENT REPORT TO PROGRAM MANAGER AND THE PROPERTY OWNER (NATIONAL GRID). THE INCIDENT REPORT SHALL BE PROVIDED AS SOON AS POSSIBLE BUT, AT A MINIMUM, BY 10 A.M. THE NEXT DAY. CONTRACTOR SHALL CONDUCT AN INVESTIGATION AND PROVIDE A WRITTEN REPORT INCORPORATING RESULTS OF THE INVESTIGATION IF DIRECTED TO DO SO BY THE PROGRAM MANAGER OR THE PROPERTY OWNER.
3. CONTRACTOR SHALL NOT CHARGE STANDBY TIME DURING STOP WORK DIRECTIVES INITIATED BY OWNER OR ENGINEER. IN ACCORDANCE WITH PUBLISHED NATIONAL GRID SAFETY REQUIREMENTS, IN RESPONSE TO CONTRACTOR'S NEAR MISS, UNSAFE ACTION OR REPORTABLE SAFETY INCIDENT, SHOULD CONTRACTOR REFUSE TO OBEY A STOP WORK DIRECTIVE, CONTRACTOR SHALL IMMEDIATELY BE EXCUSED FROM THE SITE. RETURN COMPLETE AND ACCURATE HEALTH AND SAFETY RECORDS FOR ALL CONTRACTOR AND SUBCONTRACTOR EMPLOYEES ASSIGNED TO THE SITE AT ALL TIMES.
4. SAFETY REPRESENTATIVE SHALL MEET AT LEAST MONTHLY WITH THE CONTRACTOR AND PMCM.

EMPLOYEE TRAINING

- 1. PRIOR TO THE INITIATION OF THE WORK, CONTRACTOR AND ALL SUBCONTRACTORS SHALL CERTIFY THAT ALL PERSONNEL ASSIGNED TO PERFORM OR SUPERVISE WORK AT THE SITE HAVE RECEIVED, AND THAT NEW HIRES WILL RECEIVE, PRIOR TO BEING ALLOWED ON THE SITE, APPROPRIATE TRAINING IN COMPLIANCE WITH OSHA 29 CFR 1926.65/1910.120. THE TRAINING FOR PERSONNEL WORKING IN THE VICINITY OF ENVIRONMENTALLY IMPACTED SITE MATERIAL SHALL CONSIST OF A MINIMUM OF FORTY (40) HOURS OF HEALTH AND SAFETY TRAINING, IF THE JOB IS "ON THE JOB" TRAINING, AND EIGHT (8) HOURS OF REFRESHER TRAINING ANNUALLY THEREAFTER. TRAINING REQUIREMENTS FOR PERSONNEL OR SUBCONTRACTORS NOT EXPECTED TO ENCOUNTER IMPACTED MATERIALS SHALL BE SPECIFICALLY DESCRIBED IN THE SITE-SPECIFIC HASP. IN ADDITION, THE DESIGNATED SUPERVISORY PERSONNEL SHALL HAVE A MINIMUM OF EIGHT (8) HOURS ADDITIONAL SPECIALIZED TRAINING FOR MANAGING HAZARDOUS WASTE OPERATIONS IN COMPLIANCE WITH OSHA 29 CFR 1926.65/1910.120E.

ANNUAL MEDICAL MONITORING

- 2. ANNUAL MEDICAL MONITORING IN COMPLIANCE WITH OSHA 29 CFR 1926.65

GAS MAIN ENCROACHMENT COORDINATION

- 1. FOR INTRUSIVE OR EARTH DISTURBING WORK 15 FEET OR CLOSER TO STEEL GAS FACILITIES, NATIONAL GRID REQUIRES LEAK SURVEYS BEFORE AND AFTER CONSTRUCTION ACTIVITIES WHICH CREATE VIBRATION ON A DAILY BASIS.
2. FOR INTRUSIVE OR EARTH DISTURBING WORK 12 FEET OR CLOSER TO STEEL GAS FACILITIES, NATIONAL GRID REQUIRES DAILY LEAK SURVEYS AS WELL AS VIBRATION MONITORING USING SEISMOGRAPHS. VIBRATION LEVELS SHALL NOT EXCEED 5.0 IN/SEC AS MONITORED BY NATIONAL GRID'S DAMAGE PREVENTION INSPECTORS. WORK CLOSER THAN 10 FEET FROM THE LINE WILL REQUIRE RELAY OF THE LINE.
3. FOR INTRUSIVE OR EARTH DISTURBING WORK 25 FEET OR CLOSER TO CAST IRON FACILITIES, NATIONAL GRID REQUIRES DAILY LEAK SURVEYS BEFORE AND AFTER VIBRATION ACTIVITIES, AS WELL AS VIBRATION MONITORING USING SEISMOGRAPHS. VIBRATION LEVELS SHALL NOT EXCEED 5.0 IN/SEC AS MONITORED BY NATIONAL GRID'S DAMAGE PREVENTION INSPECTORS. WORK CLOSER THAN 10 FEET FROM THE LINE WILL REQUIRE RELAY OF THE LINE.

TIDEWATER - SOIL MANAGEMENT

- 1. CONTRACTOR IS DIRECTED TO SPECIFICATION SECTION 02076 - SOIL MANAGEMENT TIDEWATER, FOR INFORMATION RELATIVE TO THE TIDEWATER SITE AND
- MANAGEMENT AND DISPOSAL OF SOIL
- EQUIPMENT AND VEHICLE DECONTAMINATION
- DUST CONTROL

TIDEWATER - HEALTH AND SAFETY REQUIREMENTS

- 1. CONTRACTOR IS DIRECTED TO SPECIFICATION SECTION 01065 - PROJECT SAFETY AND HEALTH, FOR INFORMATION RELATIVE TO THE TIDEWATER SITE.
2. TIDEWATER HEALTH AND SAFETY REQUIREMENTS ARE ALSO INCLUDED IN APPENDIX C - NATIONAL GRID HEALTH & SAFETY REQUIREMENTS.

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BY: JAMIE PAYNE

Table with columns: REV, DATE, BY, DESCRIPTION. Contains one row: 1, 5/13/20, JP, STANTEC COMMENTS.

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DESIGNED: C. CRONIN
DRAWN: J. PAYNE
CHECKED: J. D'ALELIO

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NARRAGANSETT BAY COMMISSION PHASE III COMBINED SEWER OVERFLOW PROGRAM
Stantec logo

NBC CONTRACT NO 308.05C
CIVIL
OF-217 CONSOLIDATION CONDUIT NOTES
SHEET GC-1
195130227

BY: JAIMIE PAYNE

PLOT DATE: Monday, April 19, 2021 1:38:51 PM

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### GENERAL CIVIL SYMBOLS

|  |                                      |
|--|--------------------------------------|
|  | NEW                                  |
|  | EXISTING                             |
|  | FUTURE                               |
|  | EXISTING TO BE REMOVED OR DEMOLISHED |
|  | CENTERLINE                           |
|  | EARTH (IN SECTION)                   |
|  | COMPACTED EARTH (IN SECTION)         |
|  | SLOPE ON PAVED SURFACE               |
|  | BERM SLOPE (HORZ TO VERT)            |

### TOPOGRAPHY AND MAPPING SYMBOLS

|  |     |                         |
|--|-----|-------------------------|
|  | 125 | MAJOR CONTOURS          |
|  |     | MINOR CONTOURS          |
|  |     | TOP OF SLOPE            |
|  |     | TOE OF SLOPE            |
|  |     | PROPERTY LINE           |
|  |     | RIGHT-OF-WAY LINE       |
|  |     | EASEMENT LINE           |
|  |     | TEMPORARY EASEMENT LINE |
|  |     | TRAIL OR DIRT ROAD      |
|  |     | FLOW LINE               |
|  |     | FLOOD HAZARD AREA       |
|  |     | EDGE OF WETLANDS        |
|  |     | GUARDRAIL (PERMANENT)   |
|  |     | GUARDRAIL (REMOVABLE)   |
|  |     | VEGETATION              |
|  |     | WELL                    |

### GEOTECHNICAL SYMBOLS

|  |                      |
|--|----------------------|
|  | SOIL BORING LOCATION |
|  | TEST PIT LOCATION    |
|  | OBSERVATION HOLE     |
|  | MONITORING WELL      |

### PIPING AND UTILITIES

UTILITIES (SINGLE LINE) SEE PIPE SCHEDULE FOR ADDITIONAL PIPING INFO

|  |                              |
|--|------------------------------|
|  | UTILITIES (SIZE WHERE NOTED) |
|  | UNDERGROUND                  |
|  | NATURAL GAS LINE             |
|  | WATER                        |
|  | POTABLE WATER                |
|  | FIRE SUPPLY WATER LINE       |
|  | STORM DRAIN                  |
|  | SANITARY SEWER               |
|  | TELEPHONE                    |
|  | COMMUNICATIONS LINE          |
|  | FIBER OPTIC CABLE            |
|  | CABLE TV                     |
|  | POWER                        |
|  | UNIDENTIFIED                 |
|  | ABANDONED UTILITY            |

|  |  |
|--|--|
|  | POWER POLE   |
|  | BURIED ACCESS MANOLE (IN PLAN) LOCATE ON SIDE SHOWN          |
|  | BURIED ACCESS MANHOLE (IN PROFILE)                           |
|  | BLOWOFF (IN PROFILE) LOCATE ON SIDE SHOWN                    |
|  | BLOWOFF (IN PLAN)  |
|  | BLOWOFF (IN PROFILE)   |
|  | FIRE HYDRANT (IN PLAN)                                       |
|  | FIRE HYDRANT (IN PROFILE)                                    |
|  | MANHOLE (IN PLAN)  |
|  | MANHOLE (IN PROFILE)   |
|  | CLEANOUT TO GRADE OR PRESSURE CLEANOUT TO GRADE (IN PLAN)    |
|  | CLEANOUT TO GRADE OR PRESSURE CLEANOUT TO GRADE (IN PROFILE) |
|  | GATE VALVE   |
|  | BUTTERFLY VALVE  |
|  | ECCENTRIC PLUG VALVE   |
|  | LUBRICATED PLUG VALVE  |

### DRAINAGE SYMBOLS

|  |                     |
|--|---------------------|
|  | RIPRAP              |
|  | HAY BALE            |
|  | SILT FENCE          |
|  | COMPOST FILTER SOCK |

### ROAD AND PAVING SYMBOLS

|  |   |
|--|---|
|  | ASPHALT CEMENT PAVING                                 |
|  | CONCRETE PAVING (HEAVY DUTY)                          |
|  | GRAVEL PAVING   |
|  | CONCRETE PAVING (LIGHT DUTY) SIDEWALKS ETC...         |
|  | CONCRETE CURB   |
|  | CONCRETE CURB AND GUTTER                              |
|  | DROP INLET CATCH BASIN                                |
|  | CURBSIDE DROP INLET CATCH BASIN WITH LOCAL DEPRESSION |
|  | SIDE INLET CATCH BASIN WITH LOCAL DEPRESSION          |
|  | CONCRETE WALK   |
|  | DRIVEWAY/ACCESS RAMP                                  |

### CONTROL SYMBOLS

|  |  |
|--|--|
|  | BENCH MARK                               |
|  | SITE COORDINATES (SEE TABLE ON DRAWINGS) |
|  | SITE COORDINATES                         |
|  | SITE COORDINATES                         |
|  | MONUMENT                                 |
|  | HORIZONTAL CONTROL POINT                 |
|  | VERTICAL CONTROL POINT                   |
|  | HORZ AND VERT CONTROL POINT              |
|  | FINISHED ELEVATION                       |
|  | EXISTING ELEVATION                       |
|  | DELTA                                    |

### STRUCTURES

|  |                         |
|--|-------------------------|
|  | SITE OR RETAINING WALL  |
|  | FENCE (CHAINLINK)       |
|  | FENCE (WOOD)            |
|  | STRUCTURE               |
|  | STRUCTURE (BELOW GRADE) |
|  | CATCH BASIN             |

### SURVEY SYMBOLS

|  |                                       |
|--|---------------------------------------|
|  | GAS VALVE                             |
|  | WATER VALVE                           |
|  | UNKNOWN VALVE                         |
|  | HYDRANT                               |
|  | UTILITY POLE                          |
|  | UTILITY POLE WITH LIGHT               |
|  | GUY WIRE                              |
|  | CATCH BASIN                           |
|  | DRAIN MANHOLE                         |
|  | SANITARY MANHOLE                      |
|  | TELEPHONE MANHOLE                     |
|  | SIGNAL HAND HOLE                      |
|  | ELECTRIC HAND HOLE                    |
|  | SIGN                                  |
|  | ELECTRIC RISER                        |
|  | EXISTING CONTOUR                      |
|  | DECIDUOUS TREE                        |
|  | CONIFEROUS TREE                       |
|  | DECIDUOUS SHRUB                       |
|  | CONIFEROUS SHRUB                      |
|  | BORING                                |
|  | LIGHT                                 |
|  | LIGHT POLE                            |
|  | LANDSCAPED AREA                       |
|  | CURB RAMP & DETECTABLE WARNING SYSTEM |
|  | TRAFFIC LOOP DETECTOR                 |
|  | IRRIGATION HANDHOLE                   |
|  | TEST PIT                              |
|  | OBSERVATION WELL                      |

REV 050215

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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DRAWN J. PAYNE  
CHECKED J. D'ALESSIO

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM  
NBC CONTRACT NO 308.05C  
CIVIL  
OF-217 CONSOLIDATION CONDUIT  
SYMBOLS

SHEET  
GC-2  
195130227

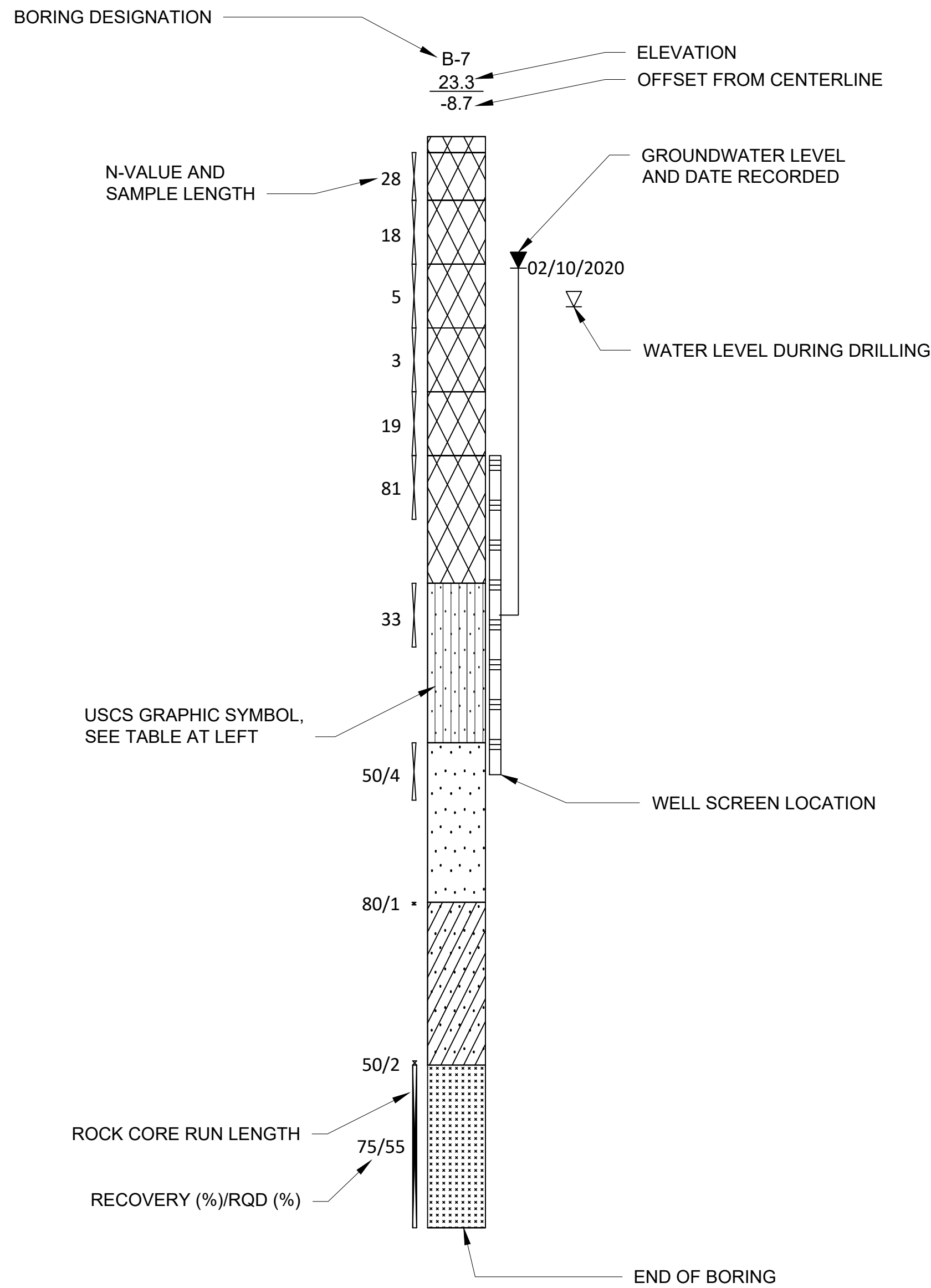
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| UNIFIED SOIL CLASSIFICATION SYSTEM (Based on ASTM D2488 & D2487) |   |                                    |   |                              |                                |
|--|---|------------------------------------|---|------------------------------|--------------------------------|
| MAJOR DIVISIONS  |   | GROUP/GRAPHIC SYMBOL               | TYPICAL DESCRIPTION                           |                              |                                |
| COARSE-GRAINED SOILS (50% or more retained on No. 200 sieve)     | GRAVELS (more than 50% retained on No. 4 sieve) | CLEAN GRAVELS (less than 5% fines) | GW  |                              | WELL-GRADED GRAVEL             |
|  |   |                                    | GP  |                              | POORLY GRADED GRAVEL           |
|  |   | GRAVELS (with 5 to 12% fines)      | GW-GM   |                              | WELL-GRADED GRAVEL WITH SILT   |
|  |   |                                    | GW-GC   |                              | WELL-GRADED GRAVEL WITH CLAY   |
|  |   |                                    | GP-GM   |                              | POORLY GRADED GRAVEL WITH SILT |
|  |   |                                    | GP-GC   |                              | POORLY GRADED GRAVEL WITH CLAY |
|  | GRAVELS WITH FINES (more than 12% fines)        | GM                                 |   | SILTY GRAVEL                 |                                |
|  |   | GC                                 |   | CLAYEY GRAVEL                |                                |
|  |   | GC-GM                              |   | SILTY CLAYEY GRAVEL          |                                |
|  |   | CLEAN SANDS (less than 5% fines)   | SW  |                              | WELL-GRADED SAND               |
|  |   |                                    | SP  |                              | POORLY GRADED SAND             |
|  |   |                                    | SANDS (less than 50% retained on No. 4 sieve) | SW-SM                        |                                |
|  | SW-SC   |                                    |   | WELL-GRADED SAND WITH CLAY   |                                |
|  | SP-SM   |                                    |   | POORLY GRADED SAND WITH SILT |                                |
|  | SP-SC   |                                    |   | POORLY GRADED SAND WITH CLAY |                                |
|  | SANDS WITH FINES (more than 12% fines)          | SM                                 |   |                              | SILTY SAND                     |
|  |   | SC                                 |   |                              | CLAYEY SAND                    |
|  |   | SC-SM                              |   | CLAYEY SAND WITH SILT        |                                |
| FINE-GRAINED SOILS (50% or more passes No. 200 sieve)            | SILTS & CLAYS (liquid limit less than 50)       | INORGANIC                          | ML  |                              | SILT                           |
|  |   |                                    | CL  |                              | LEAN CLAY                      |
|  |   |                                    | CL-ML   |                              | CLAY WITH SILT                 |
|  | SILTS & CLAYS (liquid limit greater than 50)    | INORGANIC                          | MH  |                              | ELASTIC SILT                   |
|  |   |                                    | CH  |                              | FAT CLAY                       |
|  |   |                                    | OH  |                              | HIGH PLASTICITY ORGANIC CLAY   |
| HIGHLY ORGANIC SOILS   | PRIMARILY ORGANIC MATTER                        | PT                                 |   | PEAT                         |                                |

**BORING LEGEND:**



**NOTES:**

- ALL ELEVATIONS ARE IN FEET AND REFER TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NVDG29).
- POSITIVE OFFSET = RIGHT OF CENTERLINE, LOOKING UP STATION.
- NEGATIVE OFFSET = LEFT OF CENTERLINE, LOOKING UP STATION.
- THE SOIL STRATIGRAPHY SHOWN IS GENERALIZED INTERPRETATION BASED ON THE SAMPLES COLLECTED WITHIN EACH BORING. NO ATTEMPT WAS MADE TO INTERPOLATE SOIL STRATIGRAPHY BETWEEN BORINGS AS THE DISTRIBUTION OF MATERIALS IS VARIABLE AND NON-UNIFORM IN BOTH VERTICAL AND HORIZONTAL DIRECTIONS.

**BEDROCK LEGEND:**

| GRAPHIC SYMBOL | DESCRIPTION  |
|----------------|--------------|
|                | SILTSTONE    |
|                | SANDSTONE    |
|                | CONGLOMERATE |

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
|     |      |    |             |

|          |  |                     |
|----------|--|---------------------|
| SCALE    | WARNING  | DESIGNED C. CRONIN  |
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|          |  | CHECKED J. D'ALELIO |

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

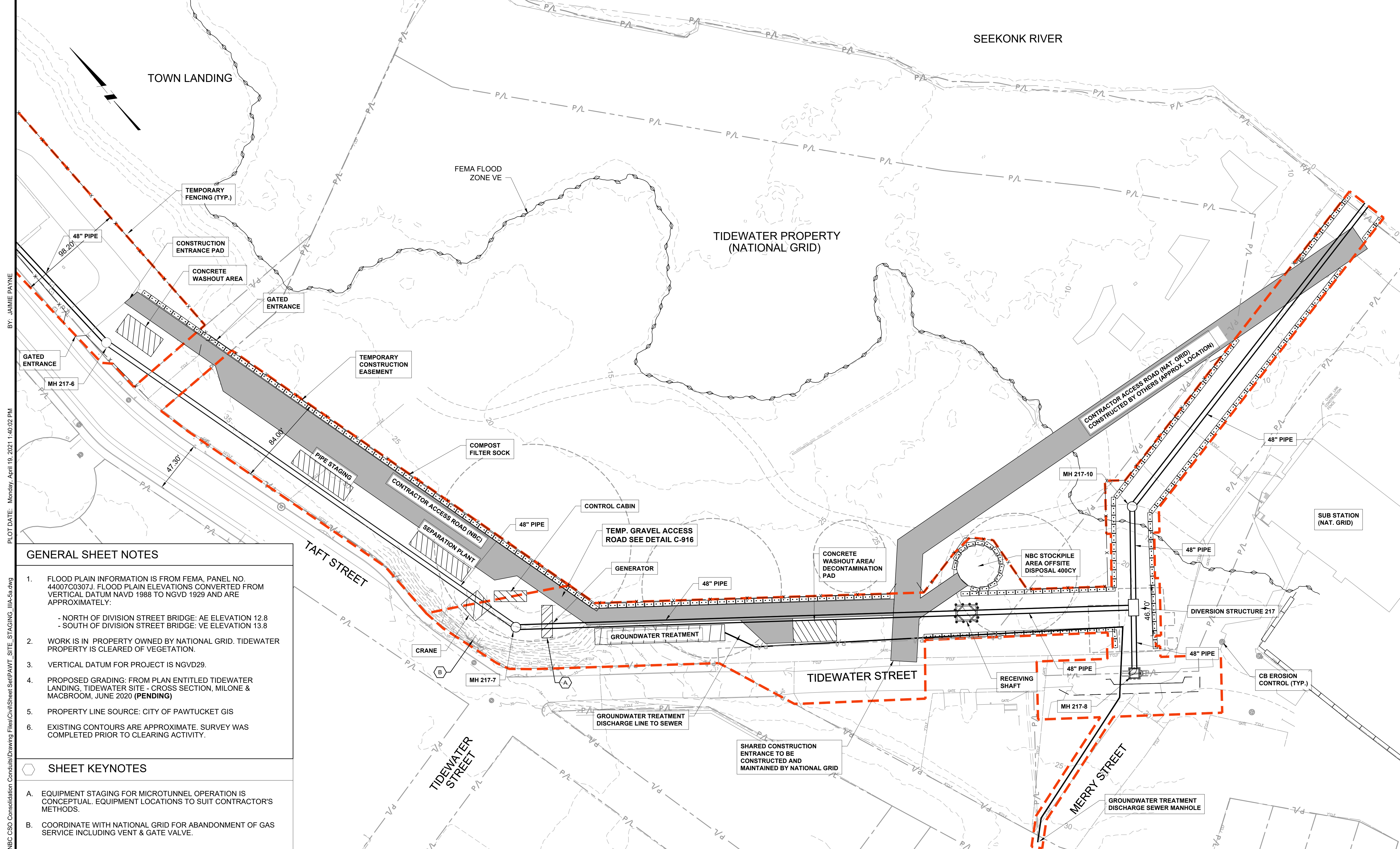


NBC CONTRACT NO 308.05C  
CIVIL

OF-217 CONSOLIDATION CONDUIT  
LEGEND AND NOTES

SHEET  
GC-3  
195130227





**GENERAL SHEET NOTES**

1. FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:  
 - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8  
 - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
2. WORK IS IN PROPERTY OWNED BY NATIONAL GRID. TIDEWATER PROPERTY IS CLEARED OF VEGETATION.
3. VERTICAL DATUM FOR PROJECT IS NGVD29.
4. PROPOSED GRADING: FROM PLAN ENTITLED TIDEWATER LANDING, TIDEWATER SITE - CROSS SECTION, MILONE & MACBROOM, JUNE 2020 (PENDING)
5. PROPERTY LINE SOURCE: CITY OF PAWTUCKET GIS
6. EXISTING CONTOURS ARE APPROXIMATE. SURVEY WAS COMPLETED PRIOR TO CLEARING ACTIVITY.

**SHEET KEYNOTES**

- A. EQUIPMENT STAGING FOR MICROTUNNEL OPERATION IS CONCEPTUAL. EQUIPMENT LOCATIONS TO SUIT CONTRACTOR'S METHODS.
- B. COORDINATE WITH NATIONAL GRID FOR ABANDONMENT OF GAS SERVICE INCLUDING VENT & GATE VALVE.

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 PLOT DATE: Monday, April 19, 2021 1:40:02 PM  
 BY: JAMIE PAYNE

| REV | DATE       | BY | DESCRIPTION                             |
|-----|------------|----|---|
| 1   | 10/21/2020 | JP | ALIGNMENT UPDATE TO ACCOMMODATE STADIUM |

SCALE: 1" = 40'

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED: C. CRONIN  
 DRAWN: R. GREENWAY  
 CHECKED: C. CRONIN

90% DESIGN PHASE - APRIL 2021

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NARRAGANSETT BAY COMMISSION  
 PHASE III COMBINED SEWER  
 OVERFLOW PROGRAM




NBC CONTRACT NO 308.05C  
 CIVIL

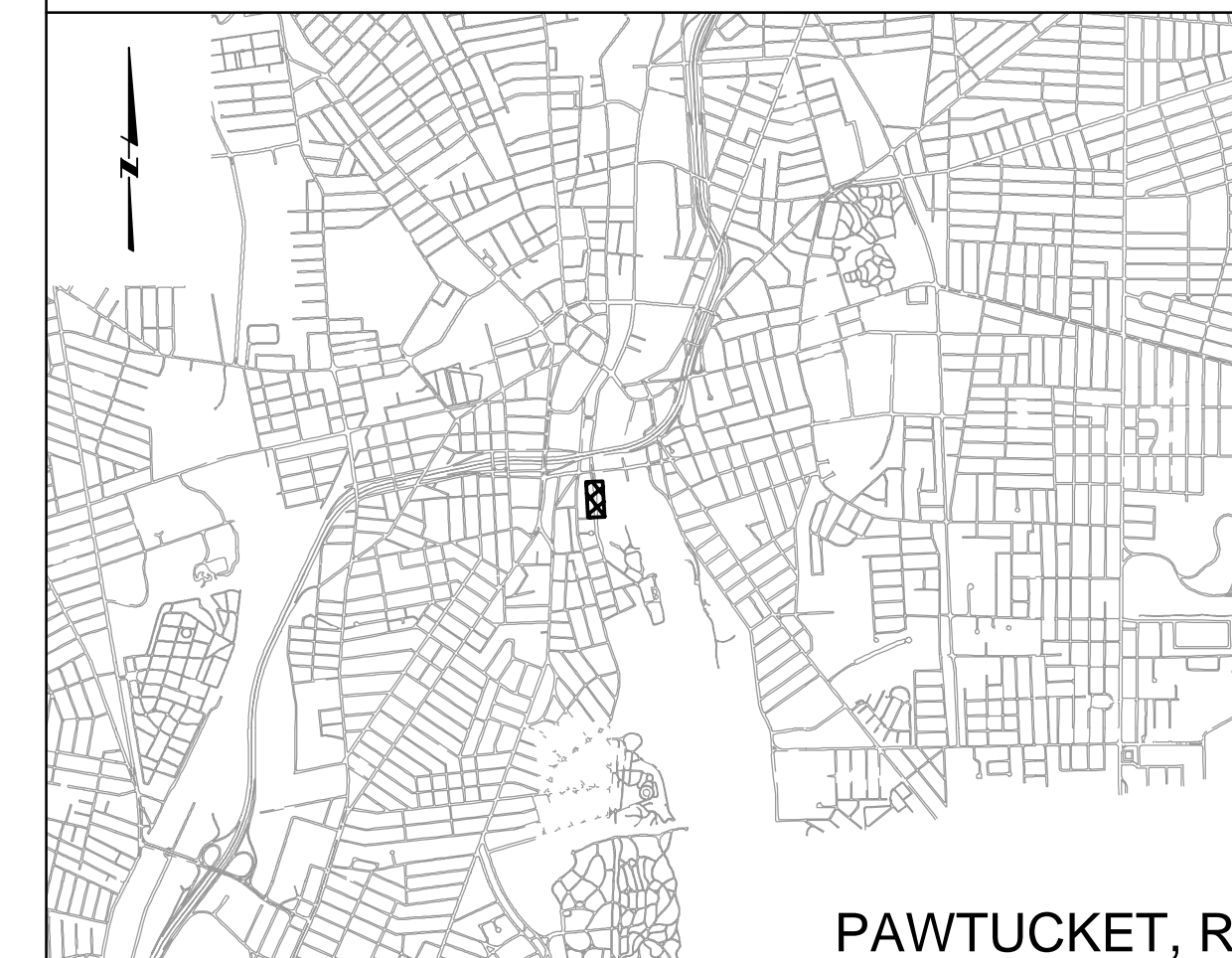
OF-217 CONSOLIDATION CONDUIT  
 CONCEPTUAL STAGING SCHEMATIC - TIDEWATER SITE

SHEET  
**C-1**  
 195130227

BY: JAIMIE PAYNE

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Civil\Sheet Set\PAWT\_Site\_Plan\_&\_Profile\_IIIa-5\_ALTs.dwg, OT DATE: Monday, April 19, 2021 2:57:26 PM

KEY PLAN

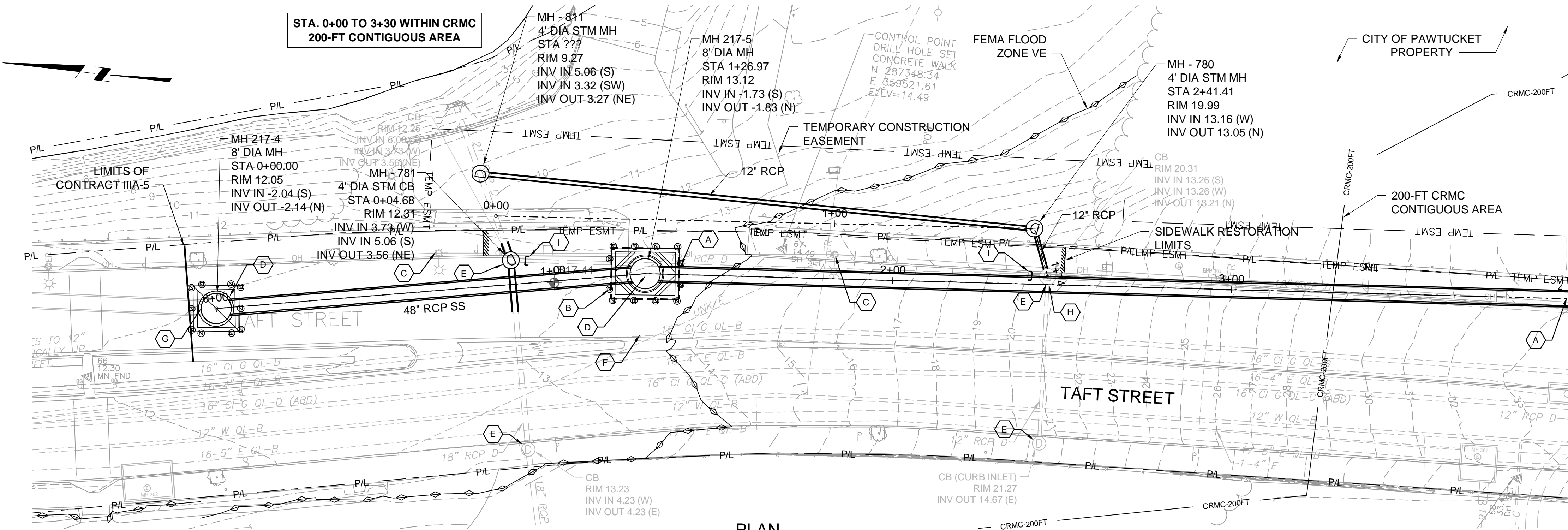


GENERAL SHEET NOTES

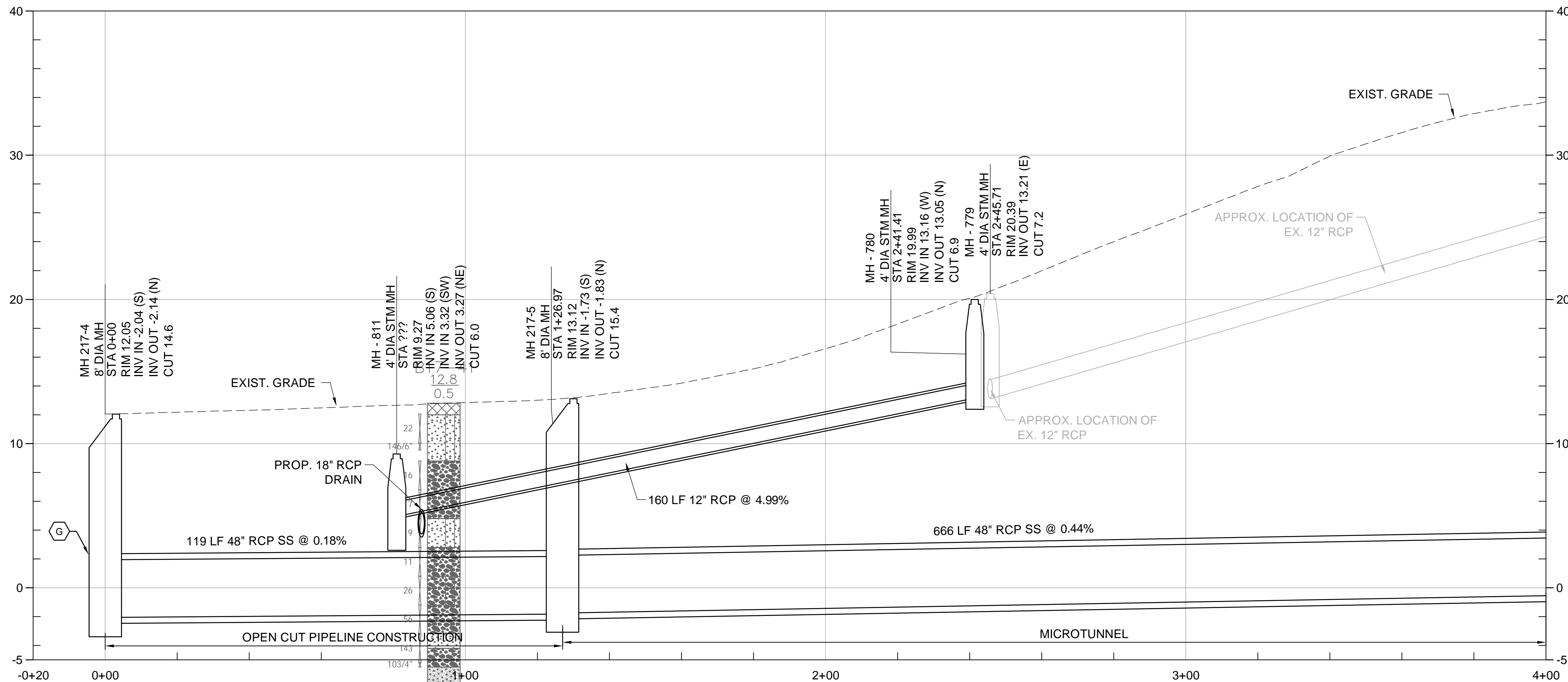
- UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
- FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
  - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
  - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
- VERTICAL DATUM FOR PROJECT IS NGVD29.

SHEET KEYNOTES

- A. MICROTUNNEL: STATION 1+26 TO STATION 4+00
- B. EXCAVATION FOR MH 217-5 TO BE CONSTRUCTED AS RECEIVING PIT FOR MICROTUNNEL OPERATION. SOLDIER PILE AND LAGGING SOE SYSTEM SHOWN IS CONCEPTUAL. CONTRACTOR IS FULLY RESPONSIBLE FOR SELECTING SPECIFIC SOE SYSTEM TYPE AND DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.
- C. COORDINATE WITH NATIONAL GRID FOR TEMPORARY POWER SHUT OFF FOR OVERHEAD WIRES AND SUPPORT POLES AS REQUIRED TO FACILITATE INSTALLATION OF RECEIVING SHAFT, EQUIPMENT, AND STRUCTURES. PROVIDE TEMPORARY STREET LIGHTING FOR DURATION OF POWER INTERRUPTION AND FOR FULL LENGTH OF STREET WHERE LIGHTING HAS BEEN IMPACTED.
- D. PROVIDE SEALED AND BOLTED MANHOLE COVERS
- E. TYPICAL CATCH BASIN EROSION CONTROL
- F. SEE "GAS MAIN ENCROACHMENT COORDINATION" NOTES ON SHEET GC-1.
- G. PROVIDE PENETRATION IN NORTH FACE OF MANHOLE TO RECEIVE 48" RCP PIPE TO BE INSTALLED BY OTHERS. CONSTRUCT TEMPORARY BRICK BULKHEAD IN PENETRATION.. INVERT TO BE CONSTRUCTED BY OTHERS.
- H. MODIFY EXISTING CATCH BASIN TO ACCEPT NEW DISCHARGE PIPE AND ABANDON EXISTING DISCHARGE PIPE
- I. PLUG & ABANDON EXISTING DRAIN PIPE.



PLAN  
SCALE: 1" = 20'



PROFILE  
SCALE: 1" = 20' (H)  
1" = 5' (V)

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

|         |  |
|---------|--|
| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |              |
|----------|--------------|
| DESIGNED | C. CRONIN    |
| DRAWN    | J. PAYNE     |
| CHECKED  | J. D'ALESSIO |

90% DESIGN PHASE - APRIL 2021

**NOT FOR CONSTRUCTION**

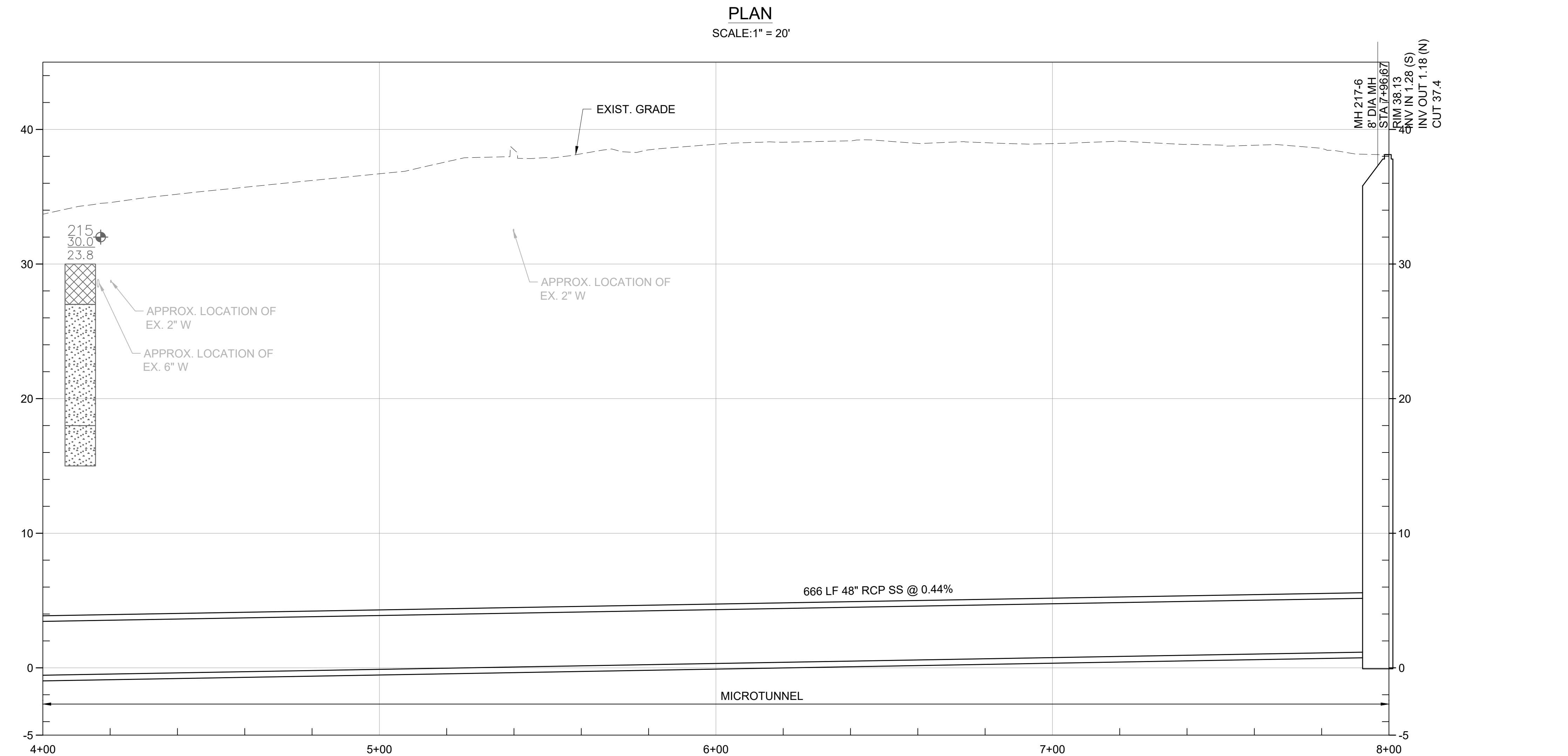
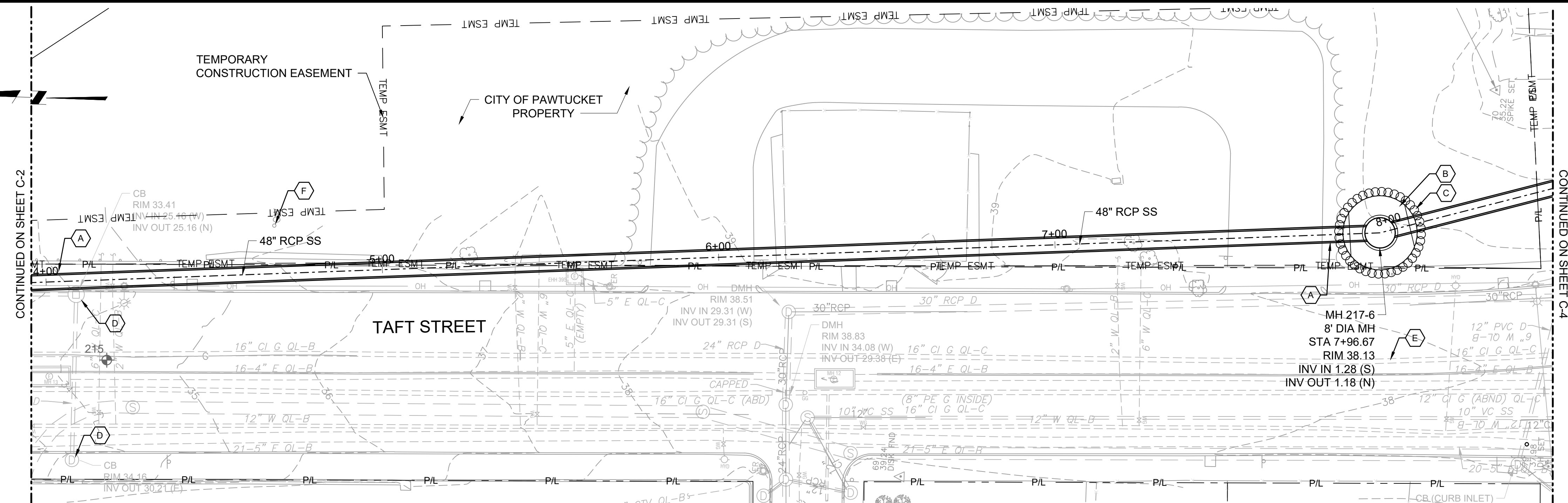
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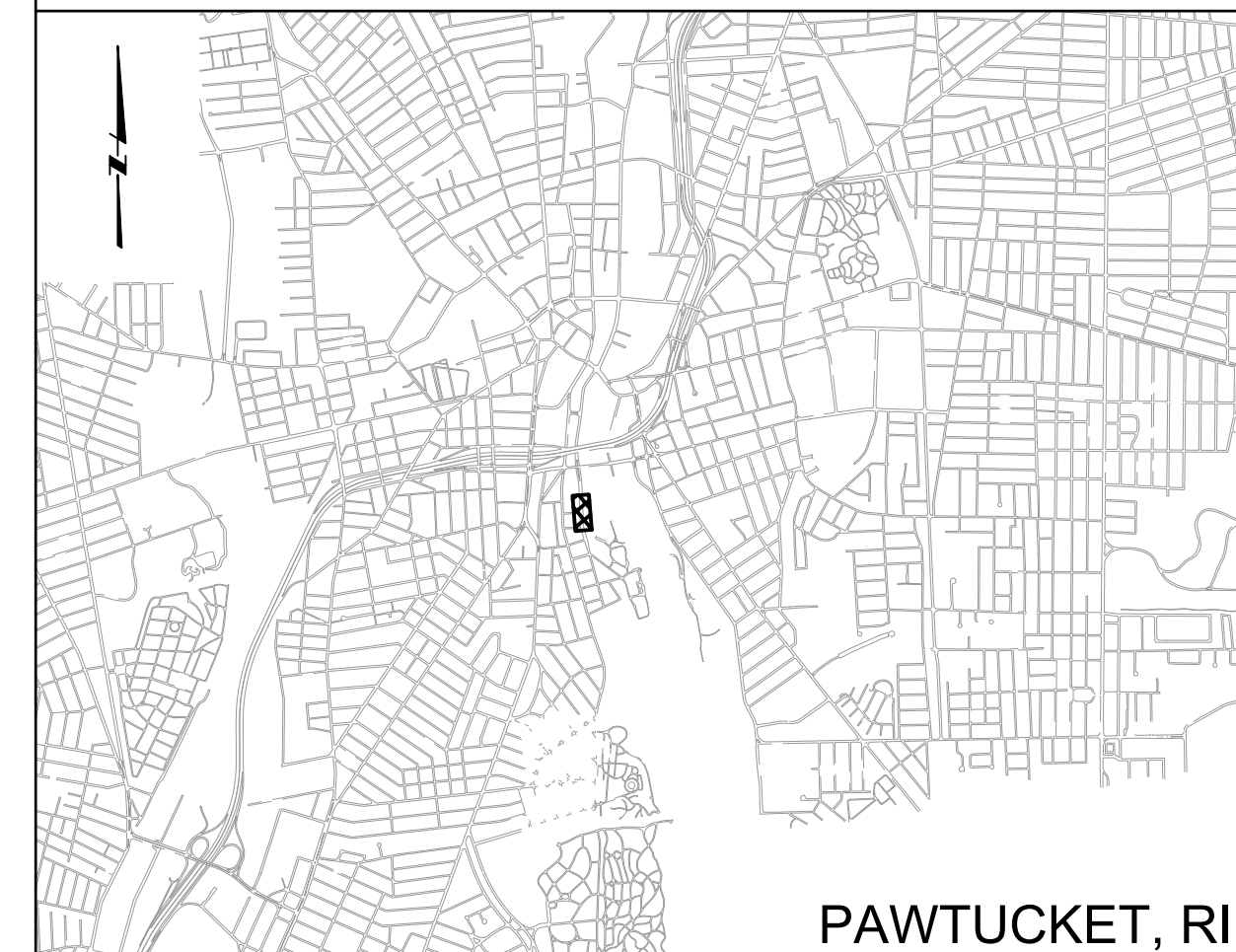
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|---|----------------------------------|--------------|
| NARRAGANSETT BAY COMMISSION<br>PHASE III COMBINED SEWER<br>OVERFLOW PROGRAM | NBC CONTRACT NO 308.05C<br>CIVIL | SHEET<br>C-2 |
| OF-217 CONSOLIDATION CONDUIT<br>PLAN AND PROFILE I: STA 0+00 - 4+00         |                                  | 195130227    |

BY: JAMIE PAYNE

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT\_SITE\_PLAN\_&\_PROFILE\_ILA-5\_ALT3.dwg | DATE: Monday, April 19, 2021 1:41:25 PM



KEY PLAN



GENERAL SHEET NOTES

- UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
- FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
  - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
  - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
- WORK IS IN PROPERTY OWNED BY THE CITY OF PAWTUCKET
- VERTICAL DATUM FOR PROJECT IS NGVD29.

SHEET KEYNOTES

- MICROTUNNEL: STATION 4+00 TO STATION 8+00
- EXCAVATION FOR MH 217-6 TO BE CONSTRUCTED AS WORKING SHAFT AND RECEIVING PIT FOR MICROTUNNEL OPERATION. SUPPORT OF EXCAVATION LIMITS BASED ON SECANT PILE CONSTRUCTION. CONTRACTOR RESPONSIBLE FOR DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.
- COORDINATE WITH NATIONAL GRID FOR TEMPORARY POWER SHUT OFF FOR OVERHEAD WIRES AND SUPPORT POLES AS REQUIRED TO FACILITATE INSTALLATION OF RECEIVING SHAFT, EQUIPMENT, AND STRUCTURES. PROVIDE TEMPORARY STREET LIGHTING FOR DURATION OF POWER INTERRUPTION AND FOR FULL LENGTH OF STREET WHERE LIGHTING HAS BEEN IMPACTED.
- TYPICAL CATCH BASIN EROSION CONTROL
- SEE "GAS MAIN ENCROACHMENT COORDINATION" NOTES ON SHEET GC-1.
- PRIOR TO MICROTUNNEL OPERATIONS FILL EXISTING MONITORING WELL WITH GROUT.

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

|         |  |
|---------|--|
| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |             |
|----------|-------------|
| DESIGNED | C. CRONIN   |
| DRAWN    | B. MARINI   |
| CHECKED  | J. D'ALESIO |

90% DESIGN PHASE - APRIL 2021

NOT FOR CONSTRUCTION

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

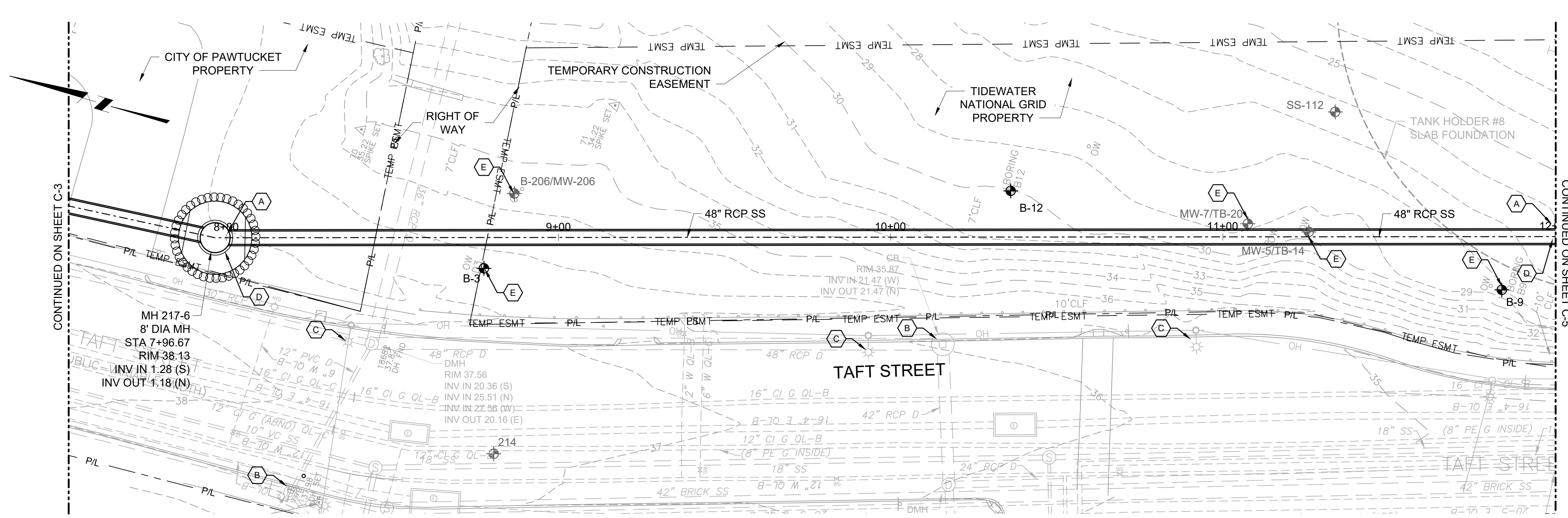
NBC CONTRACT NO 308.05C  
CIVIL

OF-217 CONSOLIDATION CONDUIT  
PLAN AND PROFILE II: STA 4+00 - 8+00

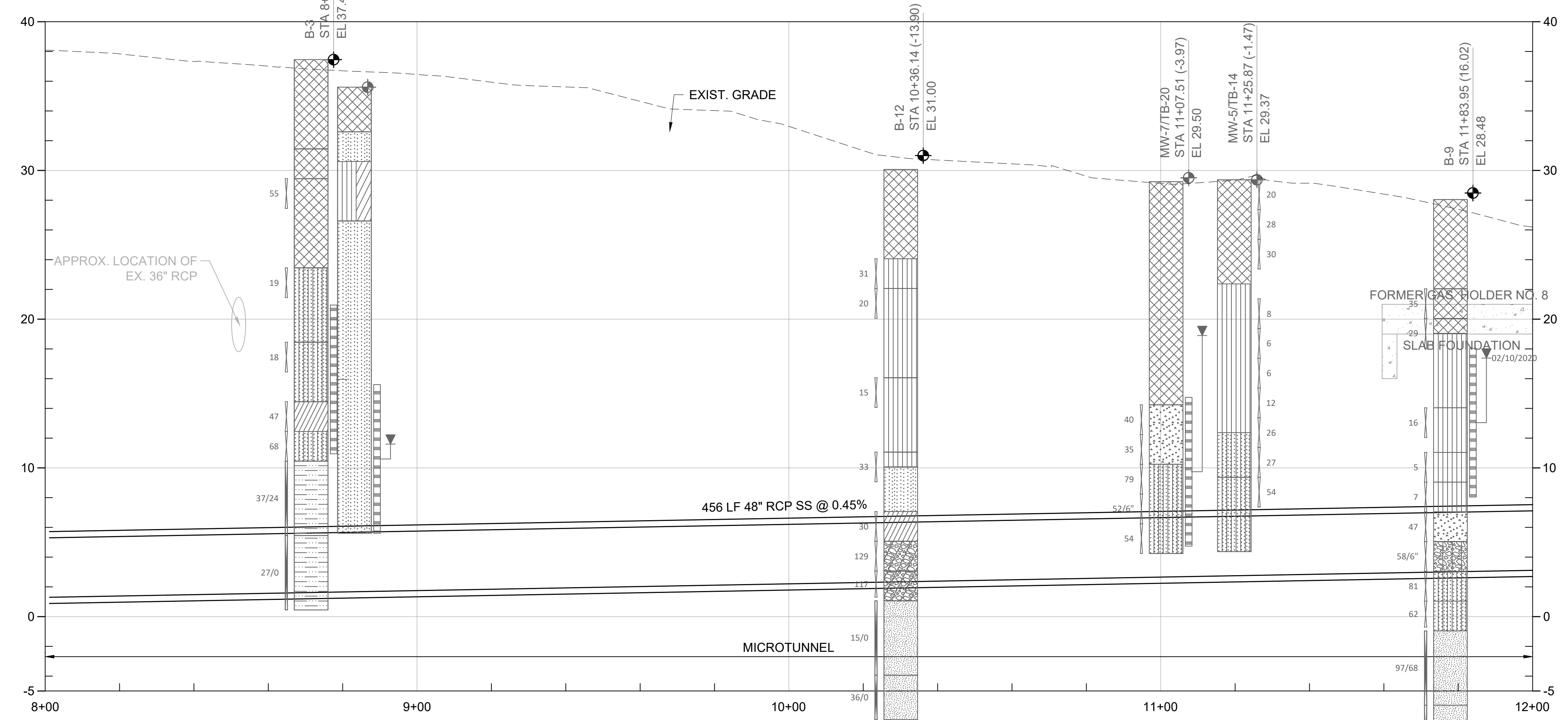
SHEET  
C-3  
195130227

BY: JAMIE PAYNE

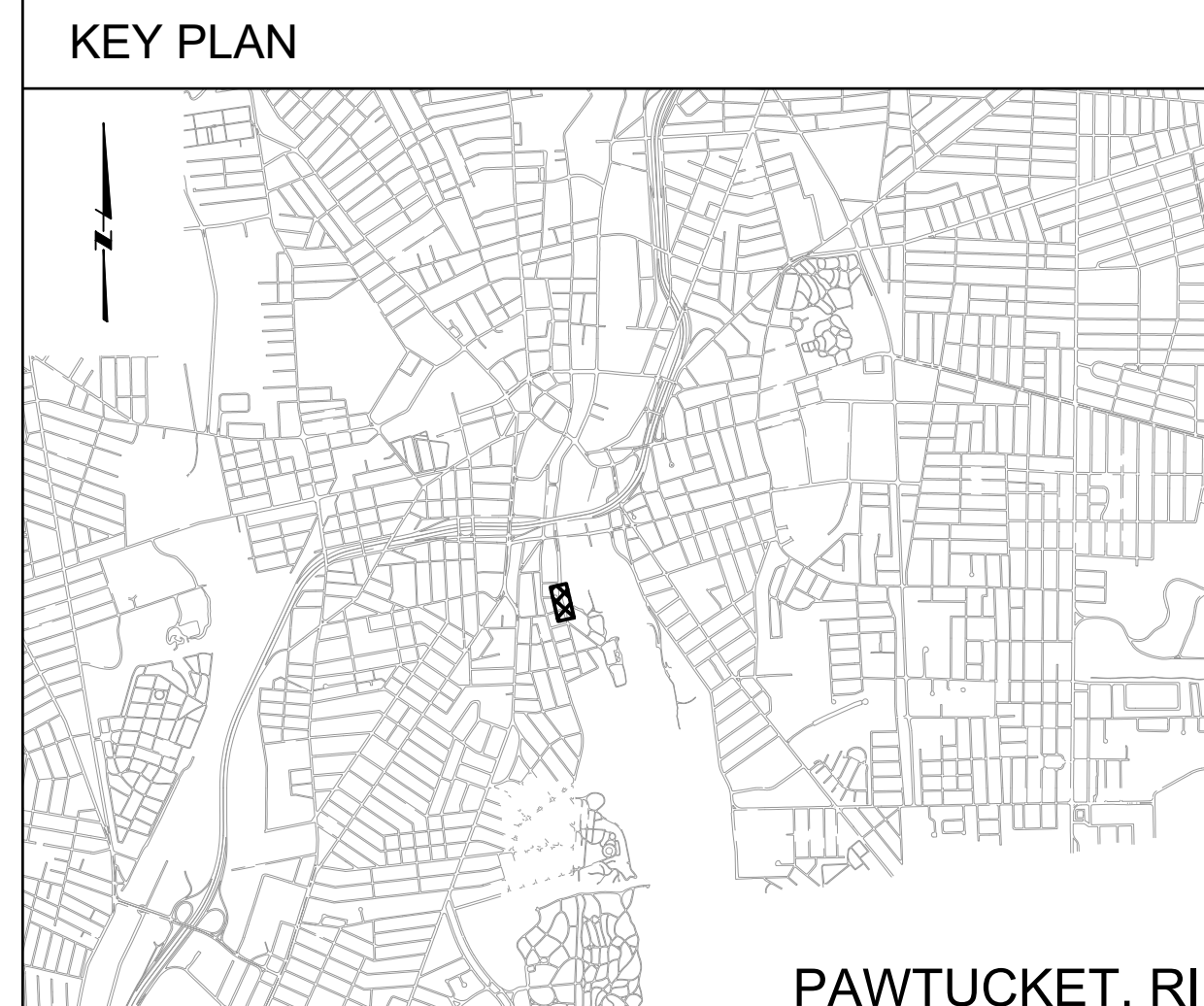
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PLAN  
SCALE: 1" = 20'



PROFILE  
SCALE: 1" = 20' (H)  
1" = 5' (V)



- GENERAL SHEET NOTES**
- UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
  - FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
    - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
    - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
  - WORK IS IN PROPERTY OWNED BY NATIONAL GRID/ CITY OF PAWTUCKET.
  - VERTICAL DATUM FOR PROJECT IS NGVD29.
  - EXISTING CONTOURS ARE APPROXIMATE.

- SHEET KEYNOTES**
- MICROTUNNEL: STATION 8+00 TO STATION 12+00
  - TYPICAL CATCH BASIN EROSION CONTROL
  - COORDINATE WITH NATIONAL GRID FOR TEMPORARY POWER SHUT OFF FOR OVERHEAD WIRES AND SUPPORT POLES AS REQUIRED TO FACILITATE INSTALLATION OF RECEIVING SHAFT, EQUIPMENT, AND STRUCTURES. PROVIDE TEMPORARY STREET LIGHTING FOR DURATION OF POWER INTERRUPTION AND FOR FULL LENGTH OF STREET WHERE LIGHTING HAS BEEN IMPACTED.
  - CONCRETE PIPE AND MANHOLES ON TIDEWATER SITE ARE TO BE LINED WITH GEOPOLYMER LINING SYSTEM: STATION 8+00 TO 12+00. MH 217-6 IS NOT TO BE LINED.
  - PRIOR TO MICROTUNNEL OPERATIONS FILL EXISTING MONITORING WELL WITH GROUT, COORDINATE WITH NATIONAL GRID.

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

SCALE AS SHOWN

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED: C. CRONIN  
DRAWN: B. MARINI  
CHECKED: J. D'ALESIO

90% DESIGN PHASE - APRIL 2021

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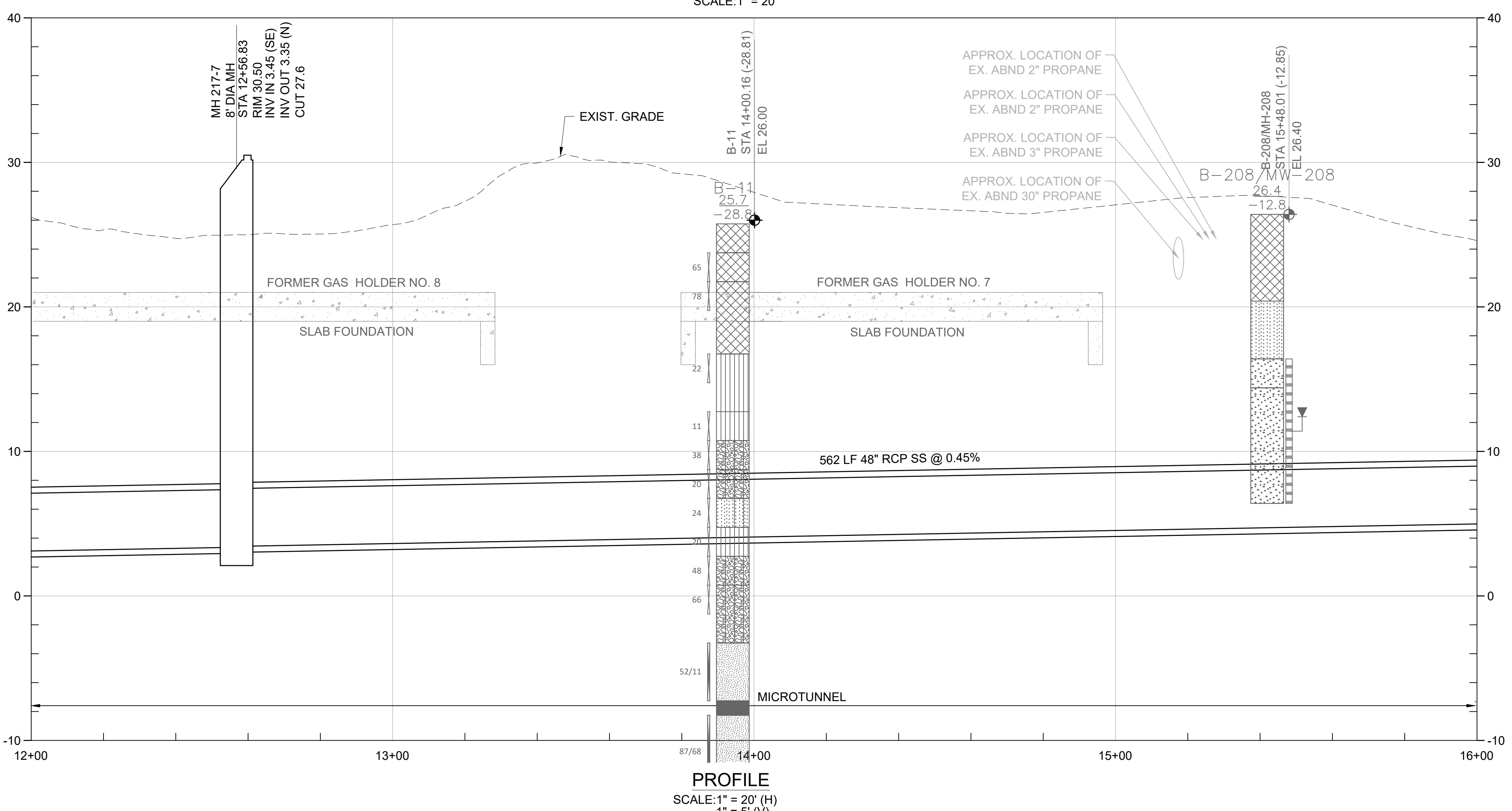
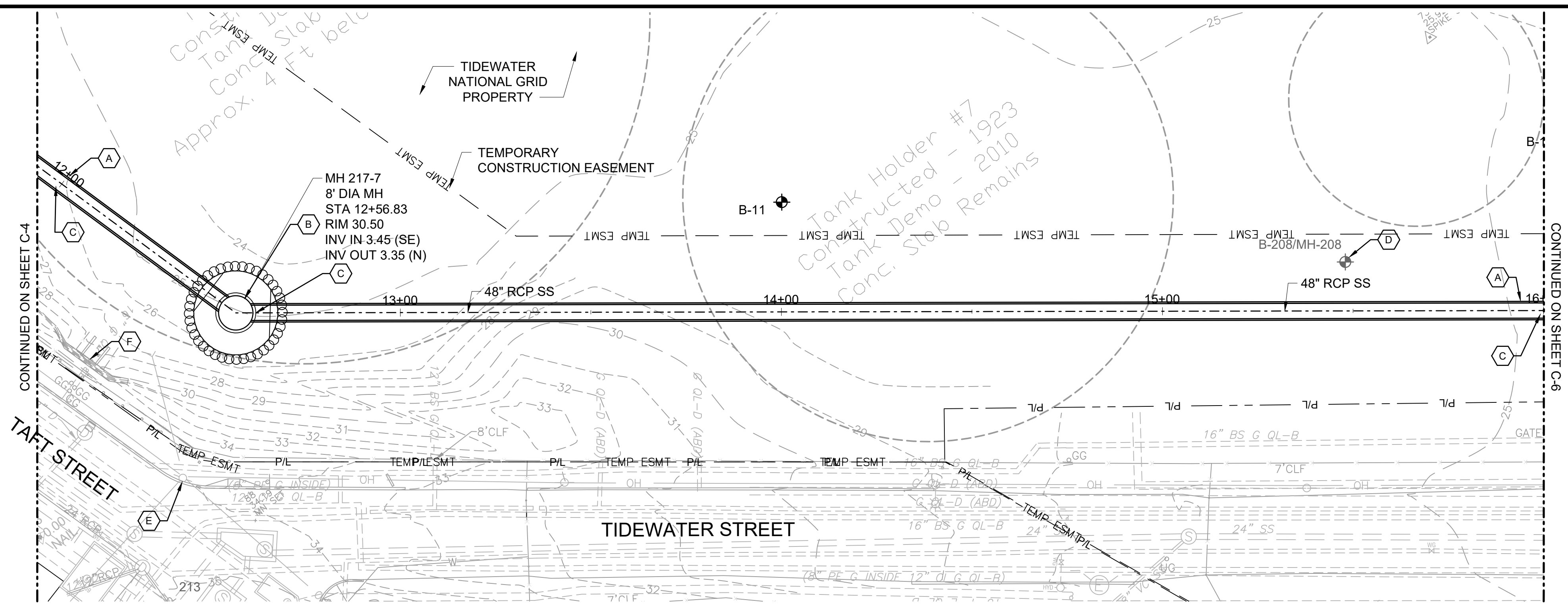
NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
CIVIL

OF-217 CONSOLIDATION CONDUIT  
PLAN AND PROFILE III: STA 8+00 - 12+00

BY: JAMIE PAYNE

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Civil\Sheet\Set\PAWT\_SITE\_PLAN & PROFILE.dwg; LOT DATE: Monday, April 19, 2021 1:42:48 PM



- GENERAL SHEET NOTES**
- UTILITY INFORMATION DEPICTED, PROVIDED BY NATIONAL GRID
  - FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
    - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
    - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
  - WORK IS IN PROPERTY OWNED BY NATIONAL GRID
  - VERTICAL DATUM FOR PROJECT IS NGVD29.
  - EXISTING CONTOURS ARE APPROXIMATE.

- SHEET KEYNOTES**
- MICROTUNNEL: STATION 12+00 TO STATION 16+00
  - EXCAVATION AT MH 217-7 TO BE CONSTRUCTED AS WORKING SHAFT IN SUPPORT OF MICROTUNNEL OPERATION. SECANT PILE SOE SYSTEM SHOWN. CONTRACTOR IS RESPONSIBLE FOR DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.
  - CONCRETE PIPE AND MANHOLES ON TIDEWATER SITE ARE TO BE LINED WITH GEOPOLYMER LINING SYSTEM: STATION 12+00 TO 16+00
  - PRIOR TO MICROTUNNEL OPERATIONS FILL EXISTING MONITORING WELL WITH GROUT. COORDINATE WITH NATIONAL GRID.
  - SUPPORT POLE IN COORDINATION WITH NATIONAL GRID IF GUY WIRE IS REMOVED DURING CONSTRUCTION.
  - COORDINATE WITH NATIONAL GRID FOR ABANDONMENT OF GAS SERVICE INCLUDING VENT & GATE VALVE.

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

SCALE AS SHOWN

**WARNING**  
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DESIGNED C. CRONIN  
DRAWN B. MARINI  
CHECKED J. D'ALESIO

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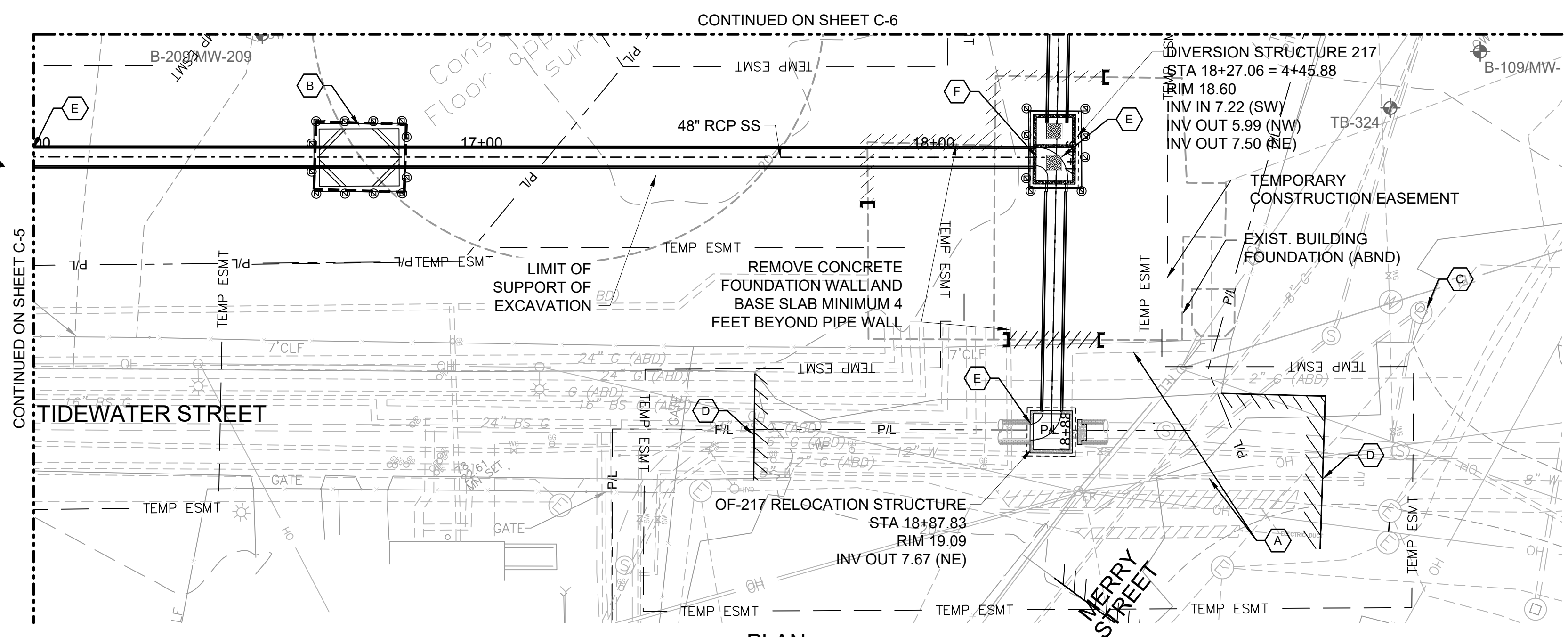
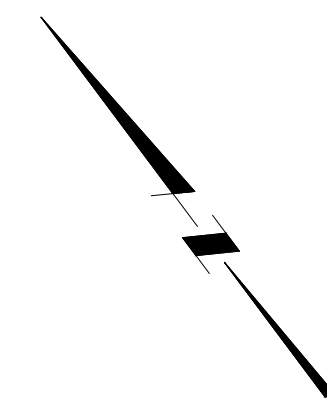
NBC CONTRACT NO 308.05C  
CIVIL

OF-217 CONSOLIDATION CONDUIT  
PLAN AND PROFILE IV: STA 12+00 - 16+00

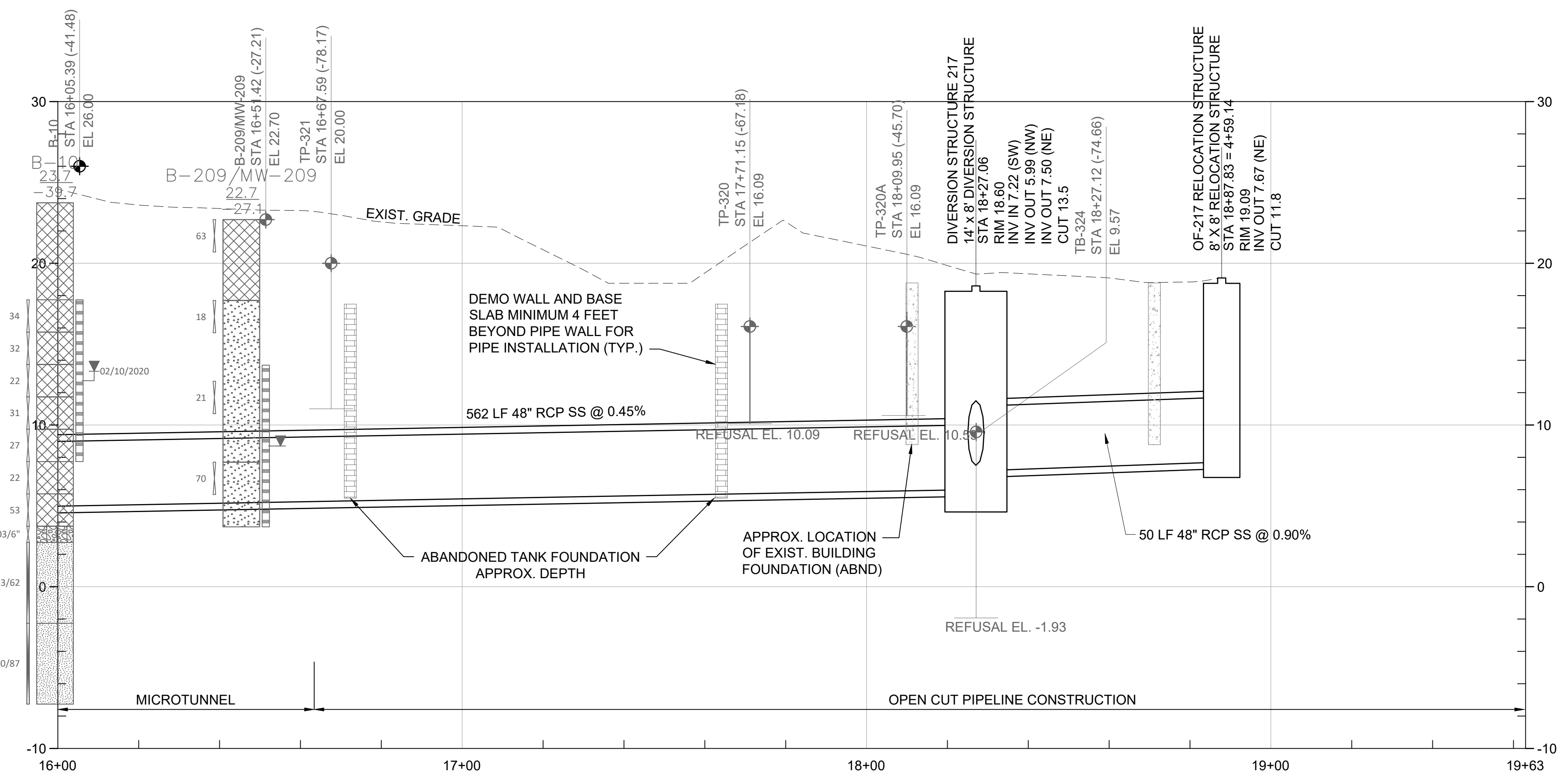
SHEET C-5  
195130227

BY: JAMIE PAYNE

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Civil\Sheet\Set\PAWT\_SITE\_PLAN\_& PROFILE\_ILM-5\_ALT3.dwg PLOT DATE: Monday, April 19, 2021 1:43:24 PM



PLAN  
SCALE: 1" = 20'



PROFILE  
SCALE: 1" = 20' (H)  
1" = 5' (V)



- GENERAL SHEET NOTES**
- UTILITY INFORMATION DEPICTED, PROVIDED BY NATIONAL GRID
  - FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
    - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
    - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
  - WORK IS IN PROPERTY OWNED BY NATIONAL GRID
  - RELIEF HOLDER 4: APPROX. DEPTH INFORMATION BASED ON TEST PIT PERFORMED BY OTHERS AND INCLUDED IN PROJECT SPECIFICATIONS AS APPENDIX F. INFORMATION BEYOND DEPTH DEPICTED IS UNKNOWN.
  - VERTICAL DATUM FOR PROJECT IS NGVD29.
  - EXISTING CONTOURS ARE APPROXIMATE.

- SHEET KEYNOTES**
- RELOCATE WATER MAIN: STATION 18+88. SEE SHEET C-8.
  - SOLDIER PILE AND LAGGING SOE SYSTEM SHOWN IS CONCEPTUAL. CONTRACTOR IS RESPONSIBLE FOR SELECTING SOE SYSTEM TYPE AND DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.
  - TYPICAL CATCH BASIN EROSION CONTROL
  - PAVEMENT SAW-CUT LIMIT
  - CONCRETE PIPE, STRUCTURES AND MANHOLES ON TIDEWATER SITE ARE TO BE LINED WITH GEOPOLYMER LINING SYSTEM: STATION 16+00 TO 18+88
  - CONSTRUCT TEMPORARY BRICK BULKHEAD IN NORTHWEST FACE CONSOLIDATION CONDUIT PENETRATION OF THE DIVERSION STRUCTURE.

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

SCALE AS SHOWN

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED: C. CRONIN  
 DRAWN: B. MARINI  
 CHECKED: J. D'ALESIO

90% DESIGN PHASE - APRIL 2021

NOT FOR CONSTRUCTION

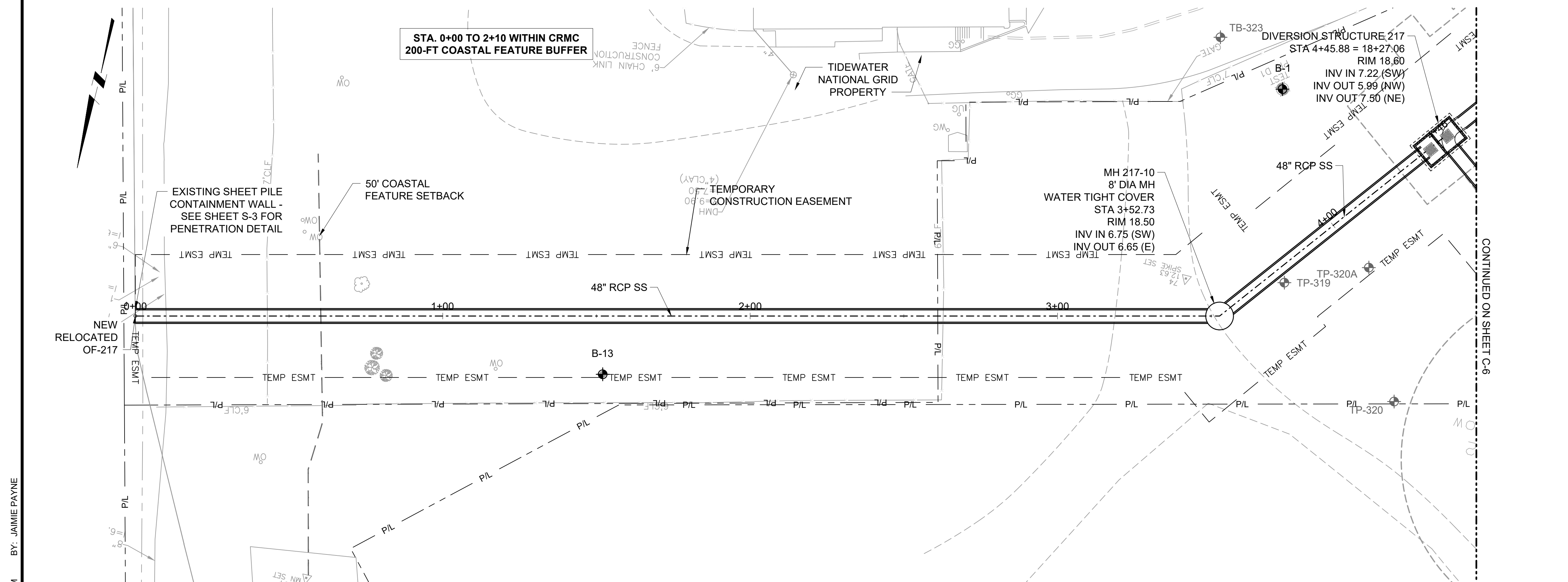
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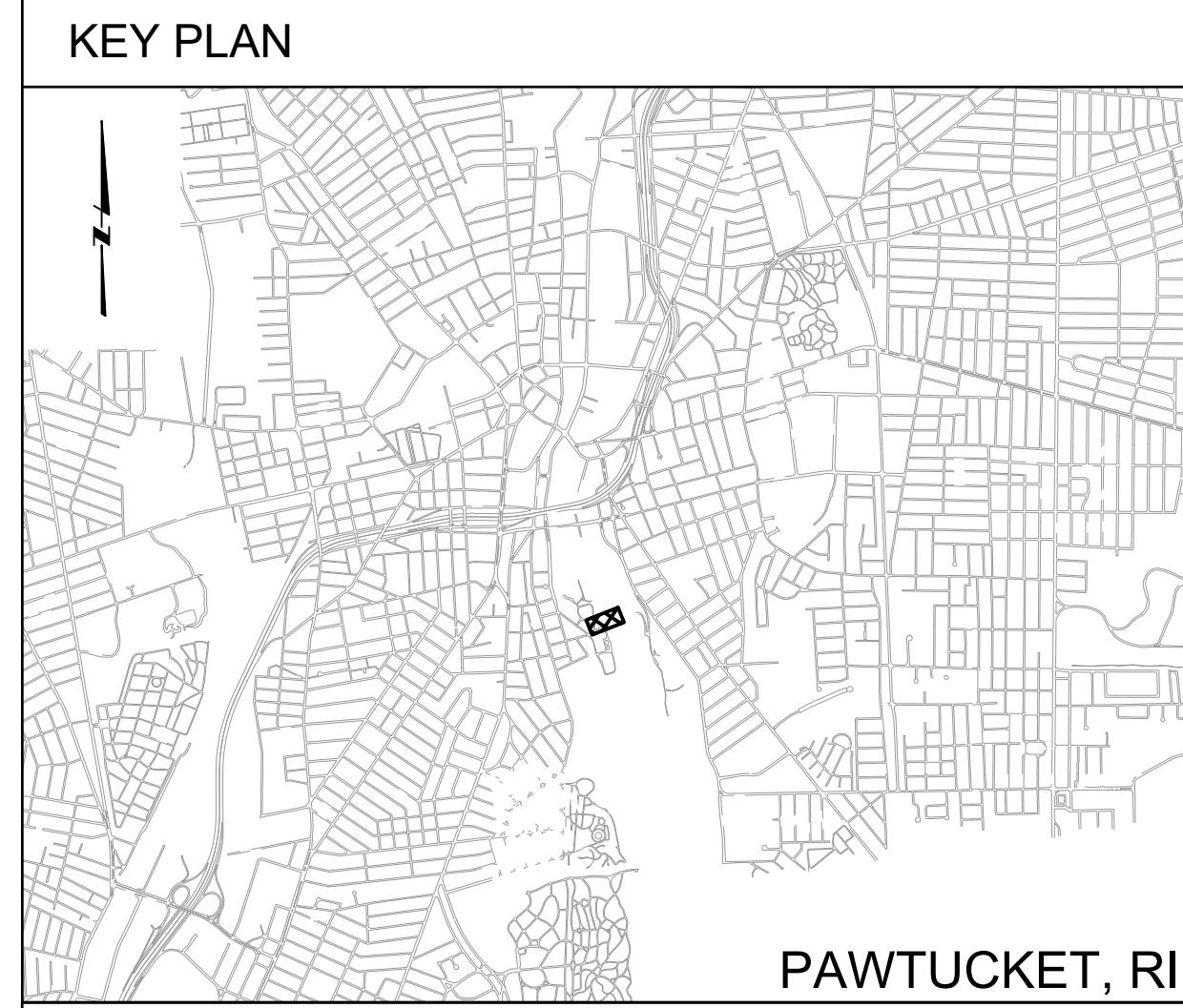
NBC CONTRACT NO 308.05C  
 CIVIL

OF-217 CONSOLIDATION CONDUIT  
 PLAN AND PROFILE V: STA 16+00 - 18+88

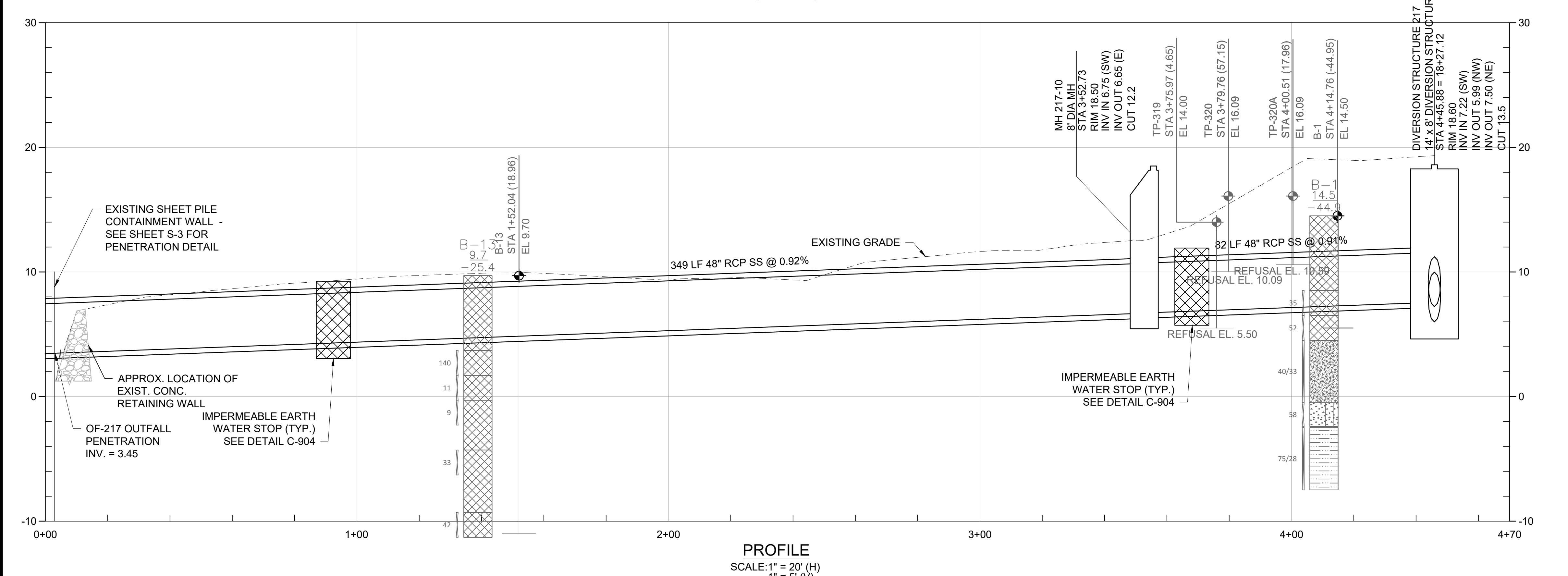
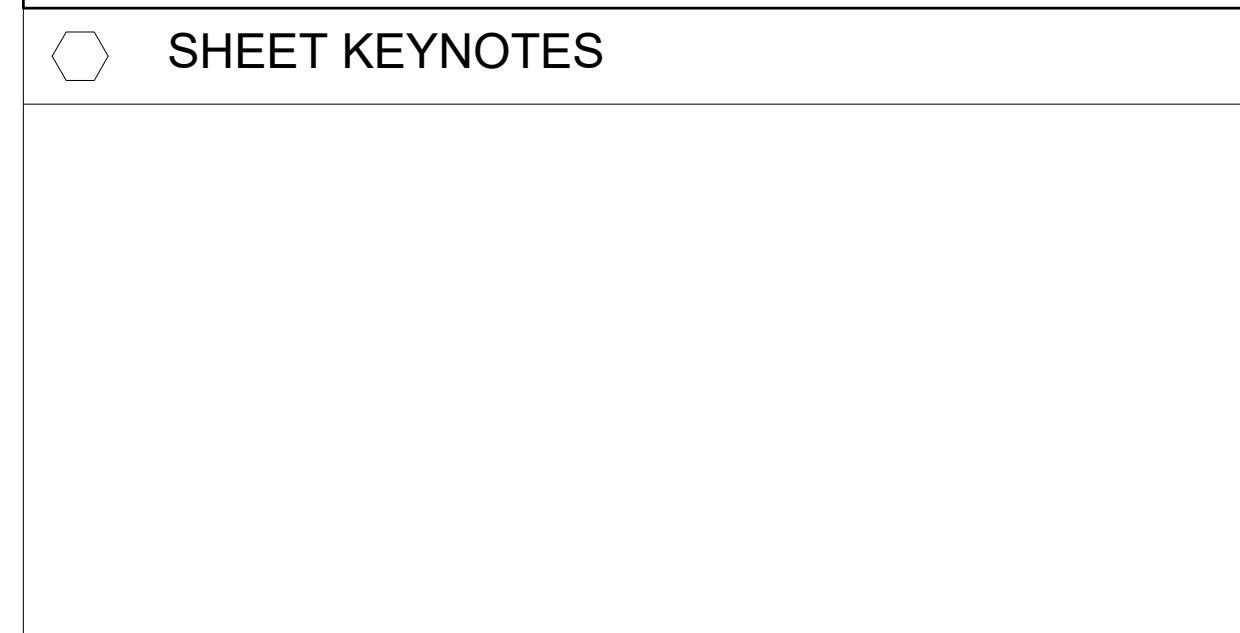
SHEET C-6  
 195130227



PLAN  
SCALE: 1" = 20'



- GENERAL SHEET NOTES**
- UTILITY INFORMATION DEPICTED, PROVIDED BY NATIONAL GRID
  - FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
    - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
    - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
  - WORK IS IN PROPERTY OWNED BY NATIONAL GRID
  - VERTICAL DATUM FOR PROJECT IS NGVD29.
  - EXISTING CONTOURS ARE APPROXIMATE.



PROFILE  
SCALE: 1" = 20' (H)  
1" = 5' (V)

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Civil\Sheet\Set\PAWT\_Site\_Plan\_& Profile\_III-A-5\_ALT3.dwg PLOT DATE: Monday, April 19, 2021 1:43:58 PM BY: JAMIE PAYNE

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |             |
|----------|-------------|
| DESIGNED | C. CRONIN   |
| DRAWN    | J. PAYNE    |
| CHECKED  | J. D'ALELIO |

90% DESIGN PHASE - APRIL 2021

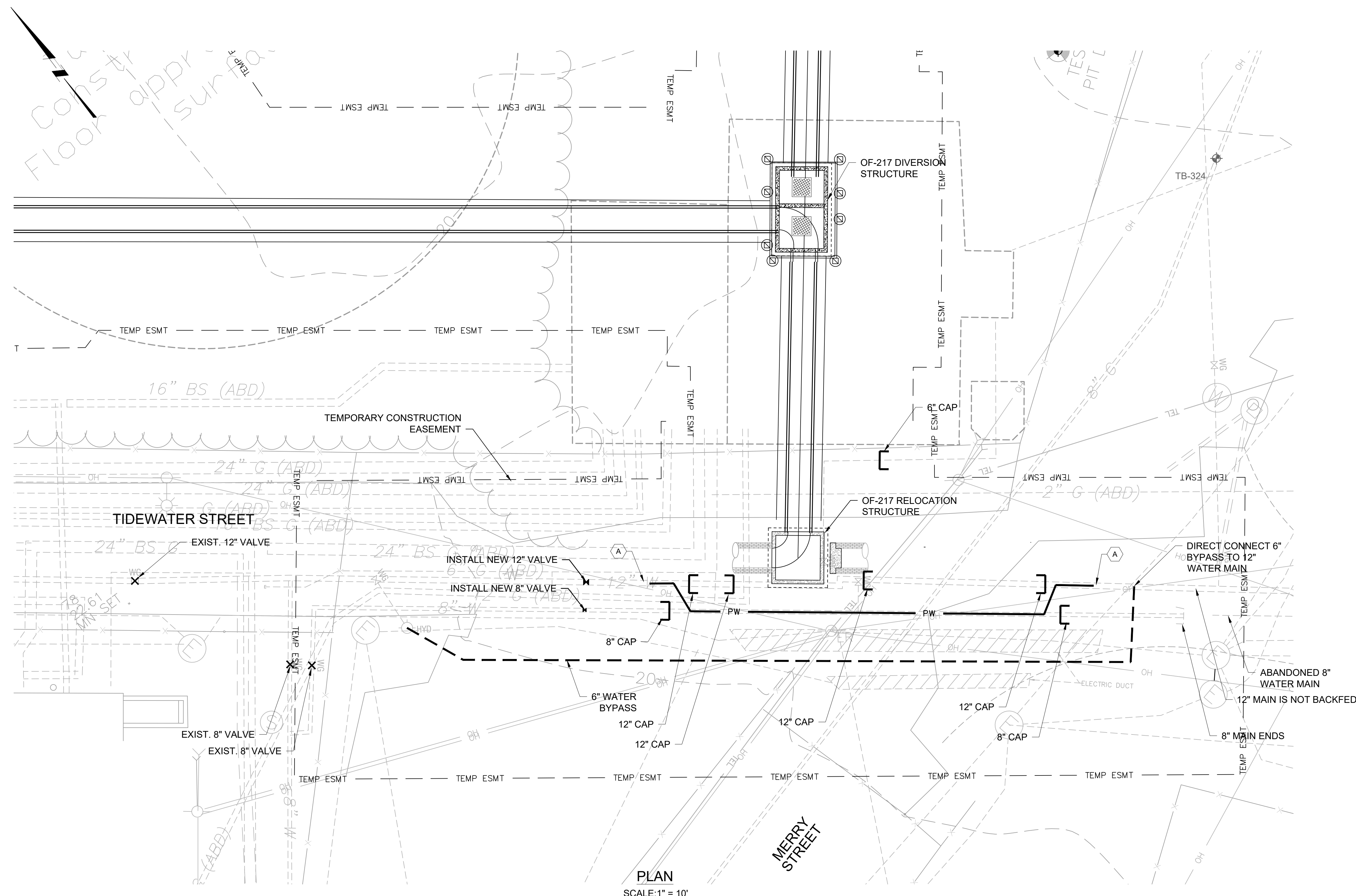
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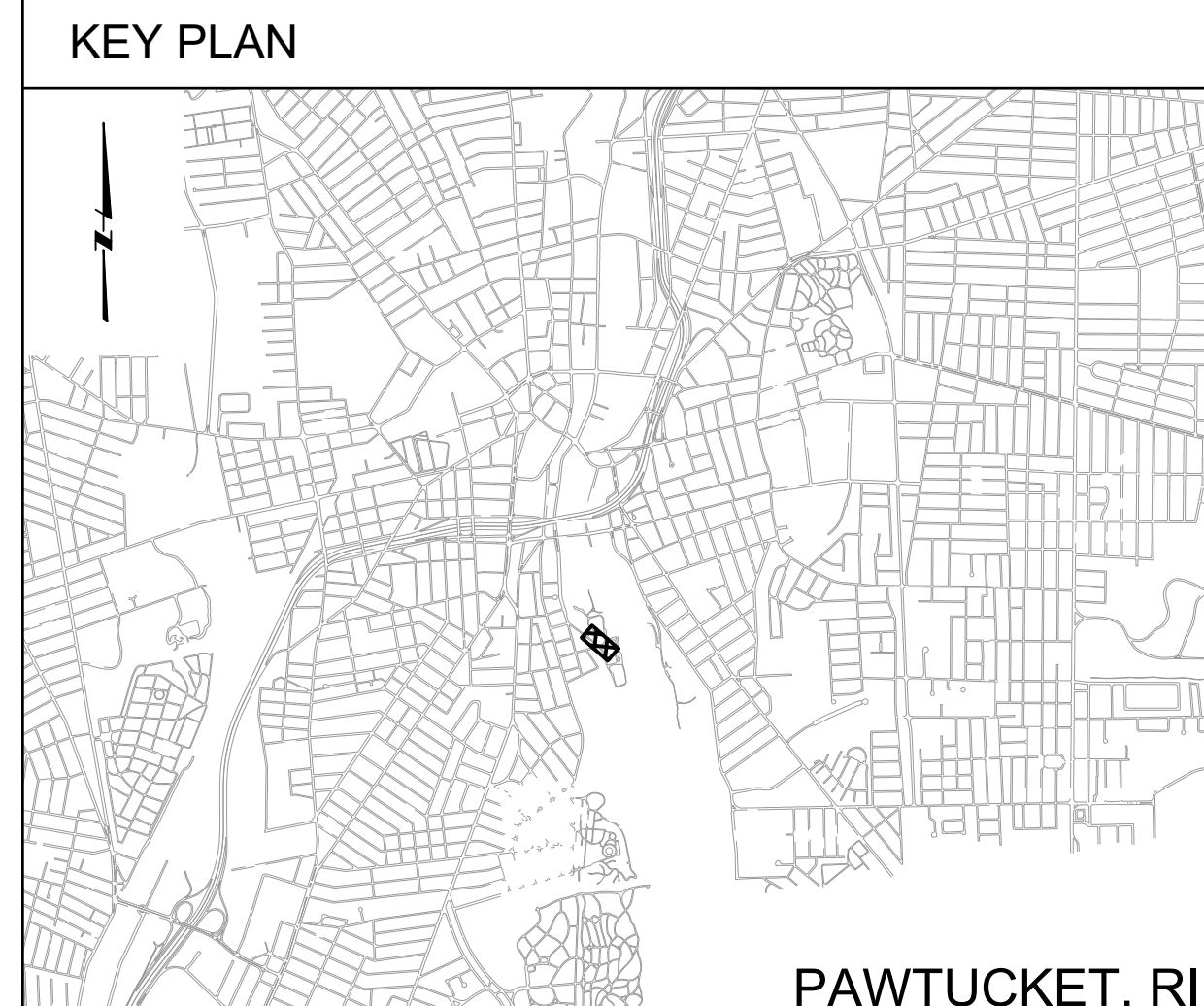


BY: JAMIE PAYNE

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PLAN  
SCALE: 1" = 10'



- GENERAL SHEET NOTES**
- UTILITY INFORMATION DEPICTED, PROVIDED BY NATIONAL GRID
  - FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
    - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
    - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
  - WORK IS IN PROPERTY OWNED BY NATIONAL GRID
  - VERTICAL DATUM FOR PROJECT IS NGVD29.
  - WATER MAIN RELOCATION WILL REQUIRE NIGHT WORK. ACCESS TO THE SUBSTATION MUST BE MAINTAINED AT ALL TIMES.

- SHEET KEYNOTES**
- A. RELOCATE WATER MAIN. COORDINATE WATER SHUTDOWNS WITH NATIONAL GRID

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
|     |      |    |             |

|                   |   |
|-------------------|---|
| SCALE<br>AS SHOWN | <p>WARNING<br/>IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE</p> |
|-------------------|---|

DESIGNED C. CRONIN  
DRAWN R. GREENWAY  
CHECKED J. D'ALESIO

90% DESIGN PHASE - APRIL 2021

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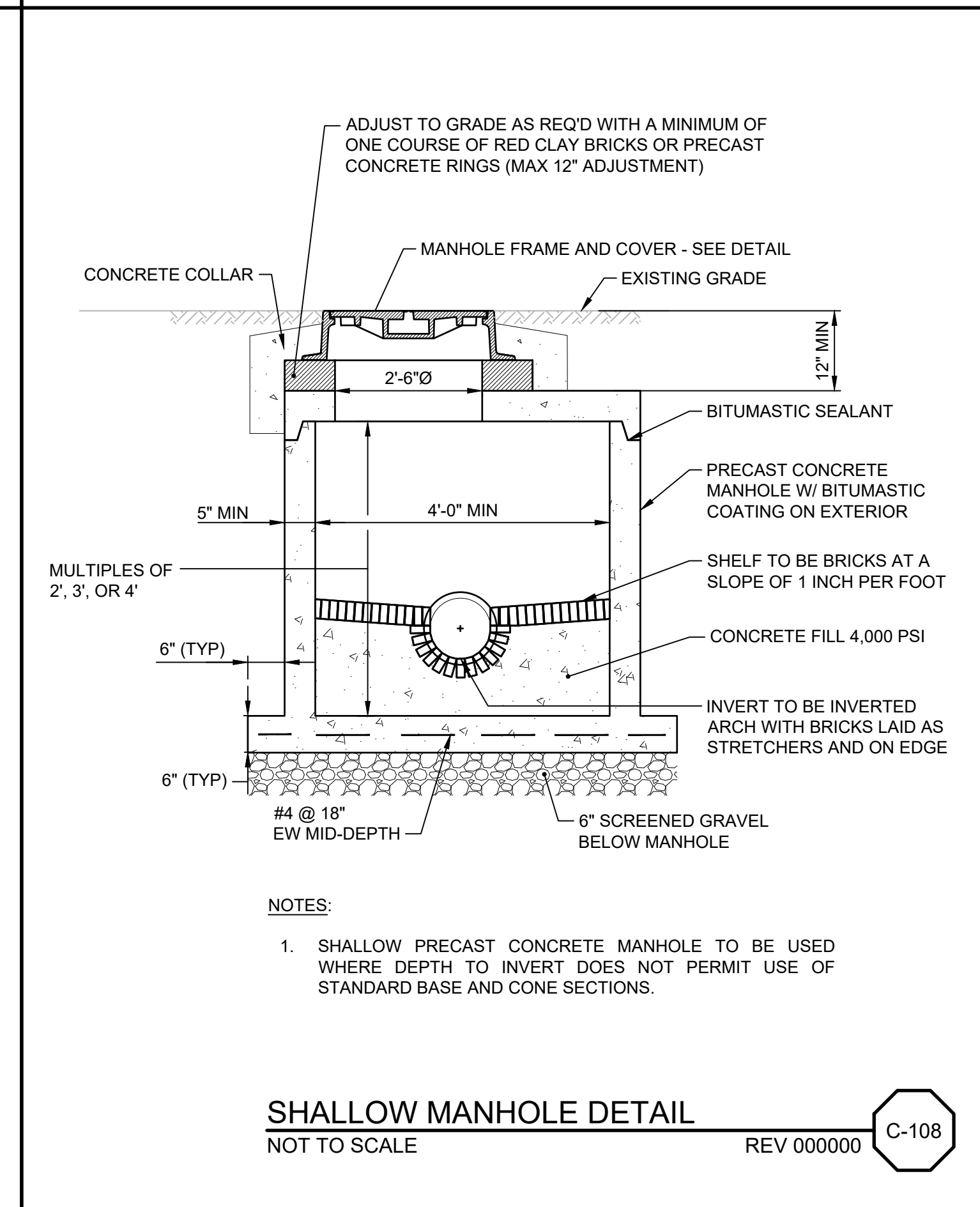
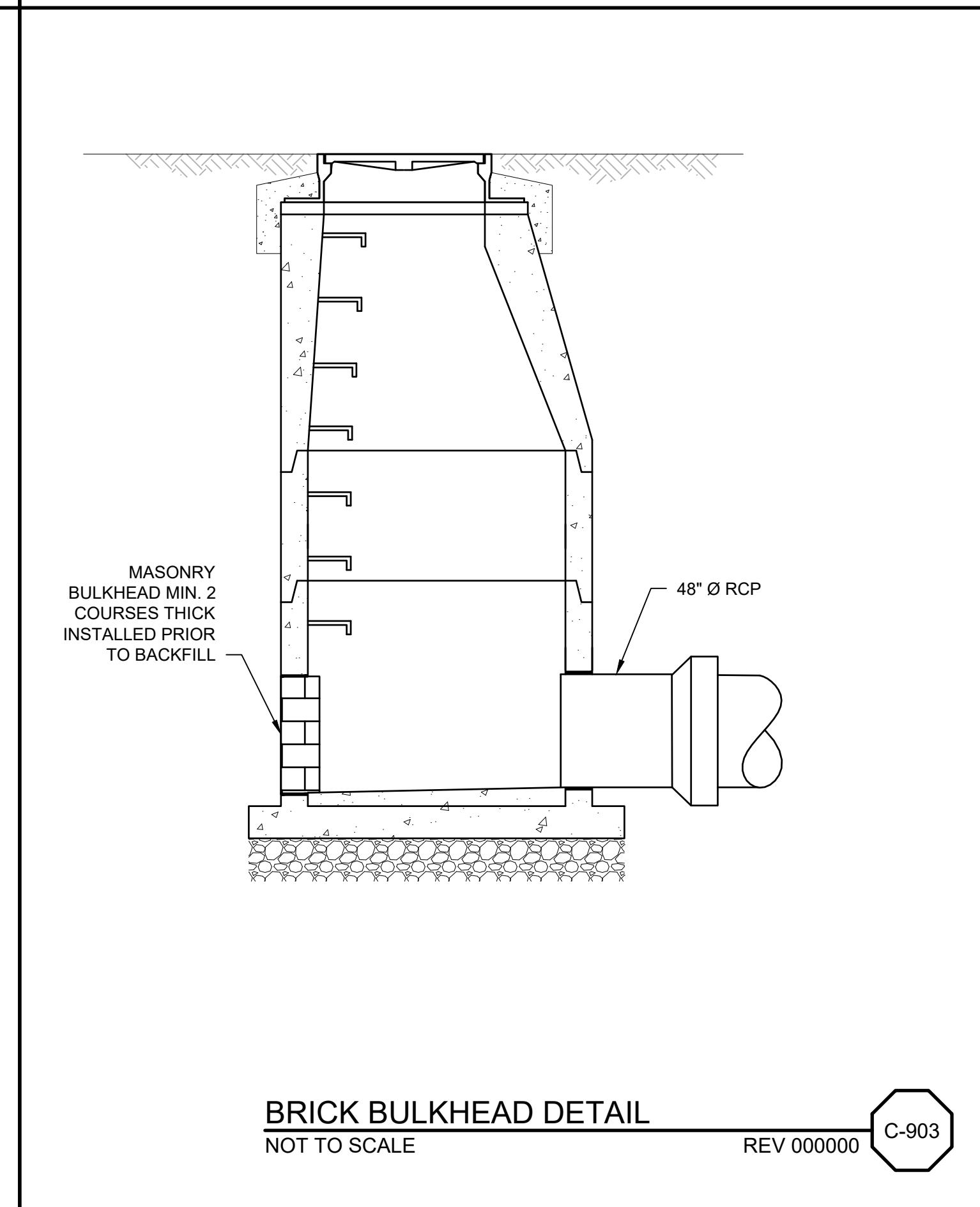
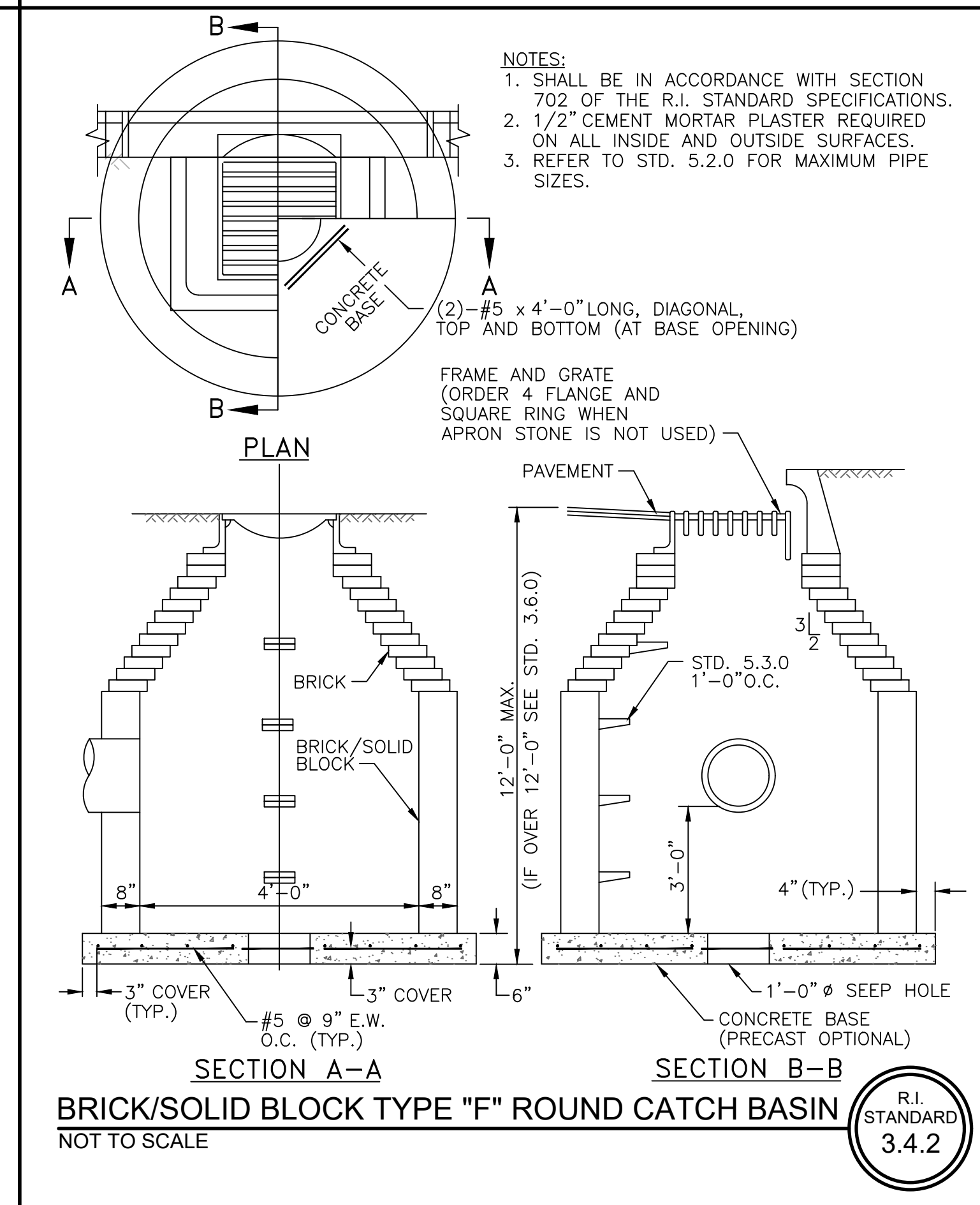
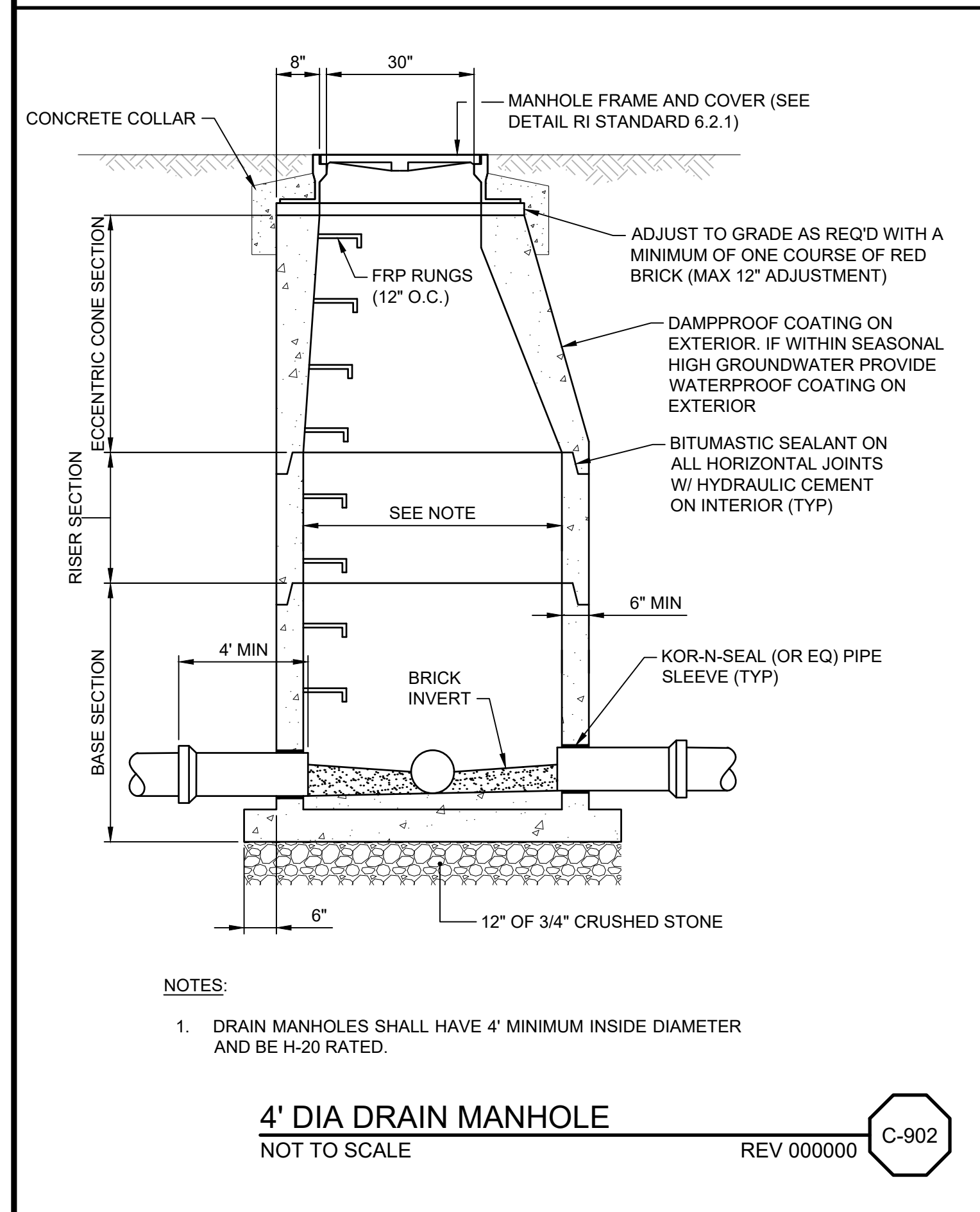
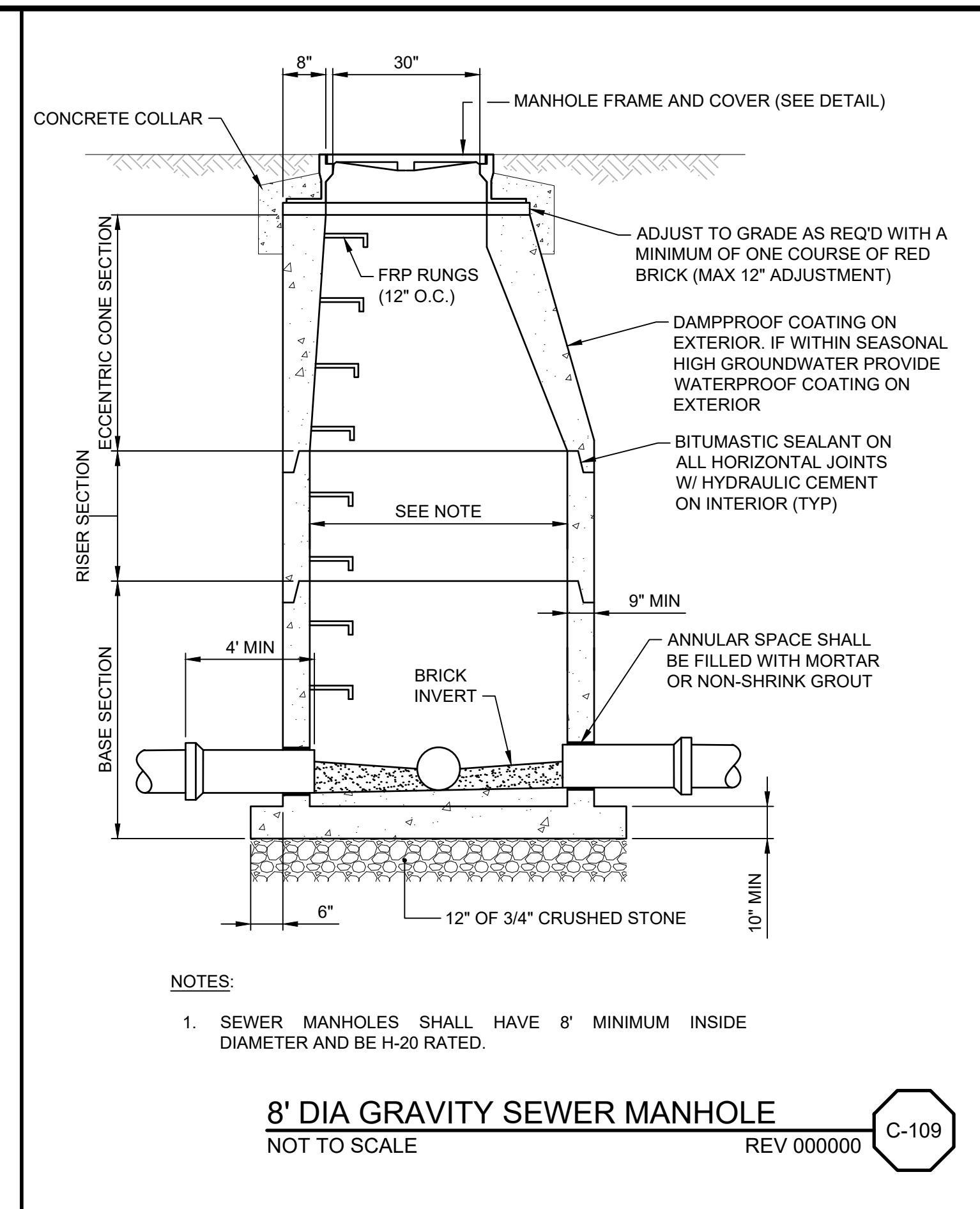
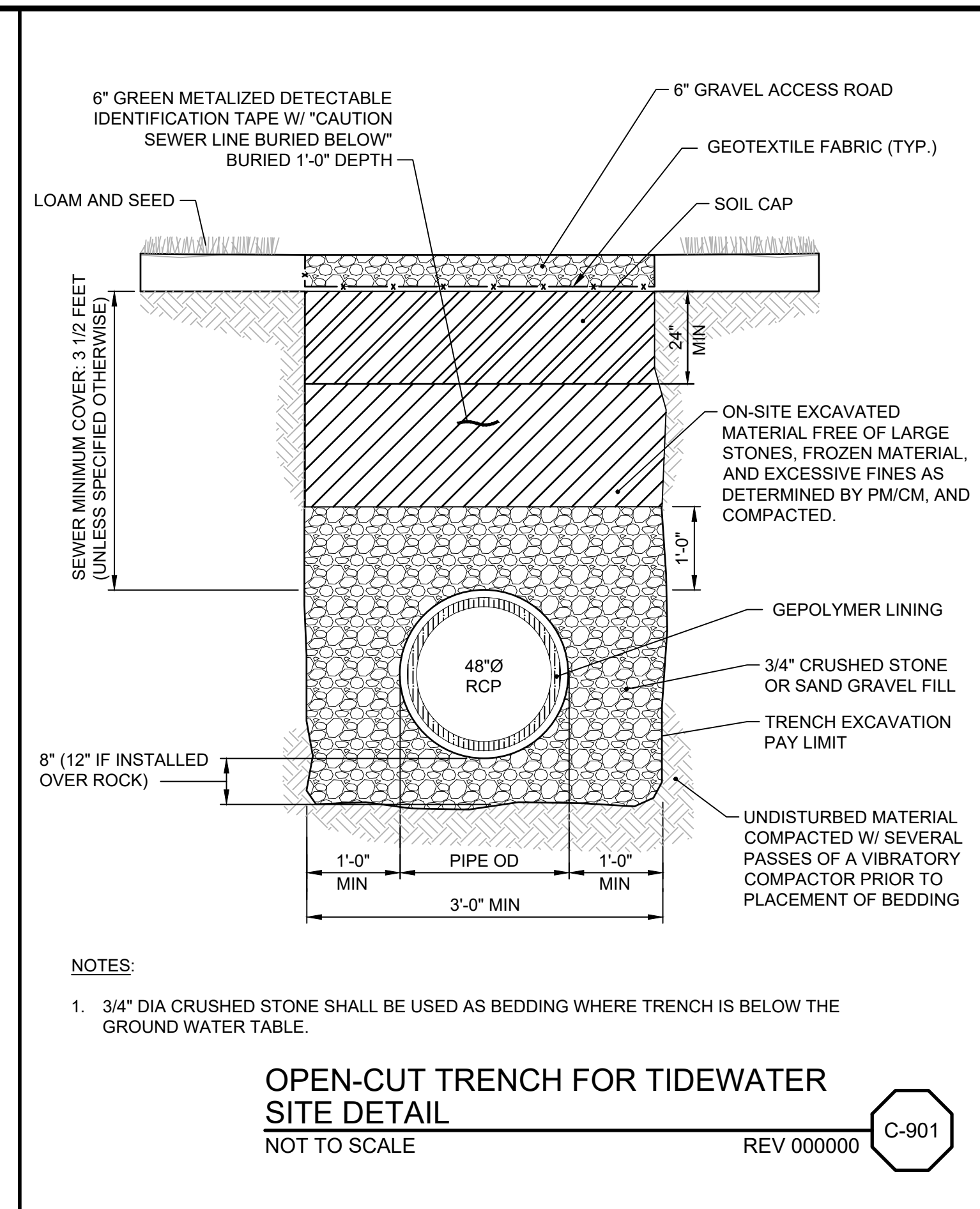
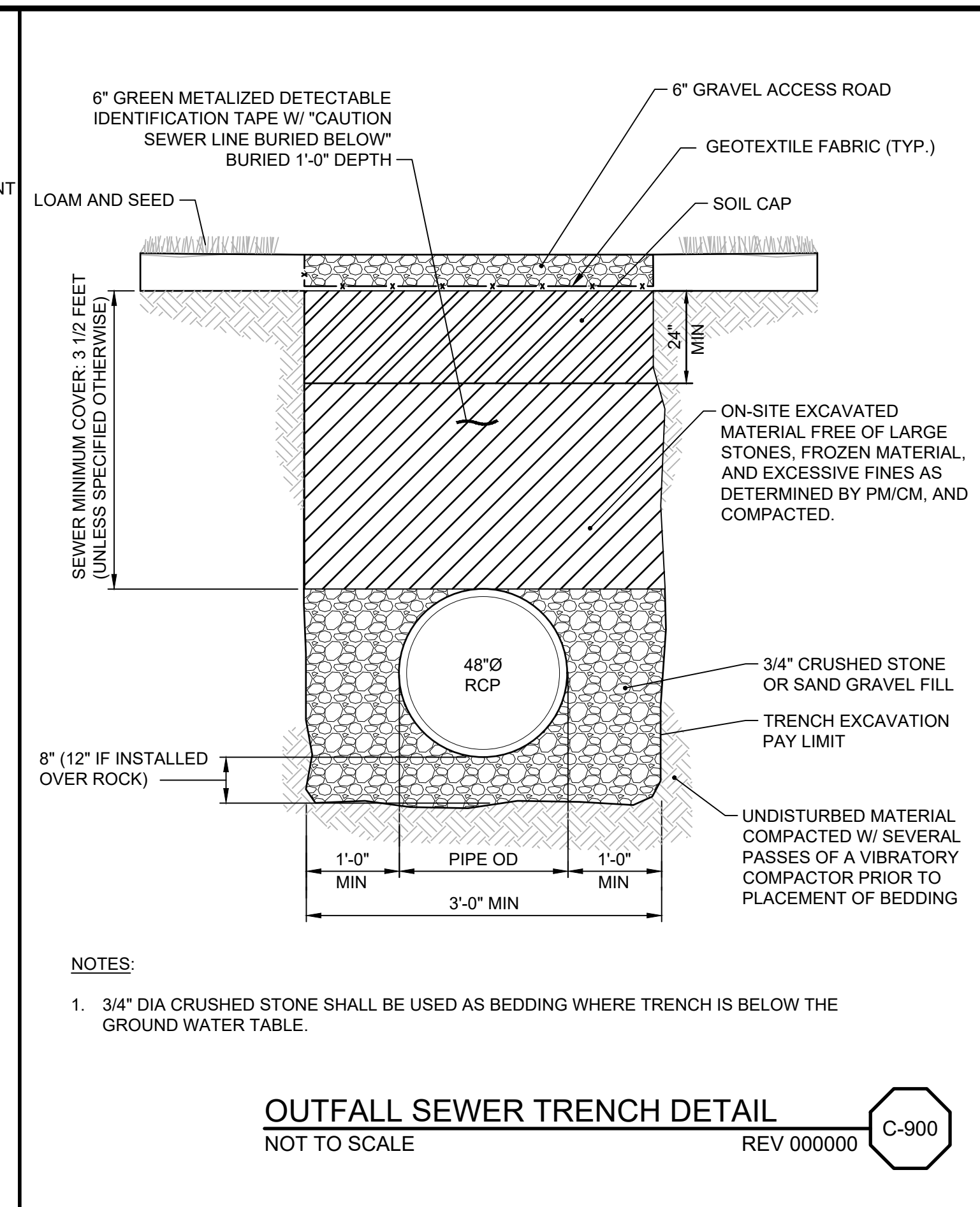
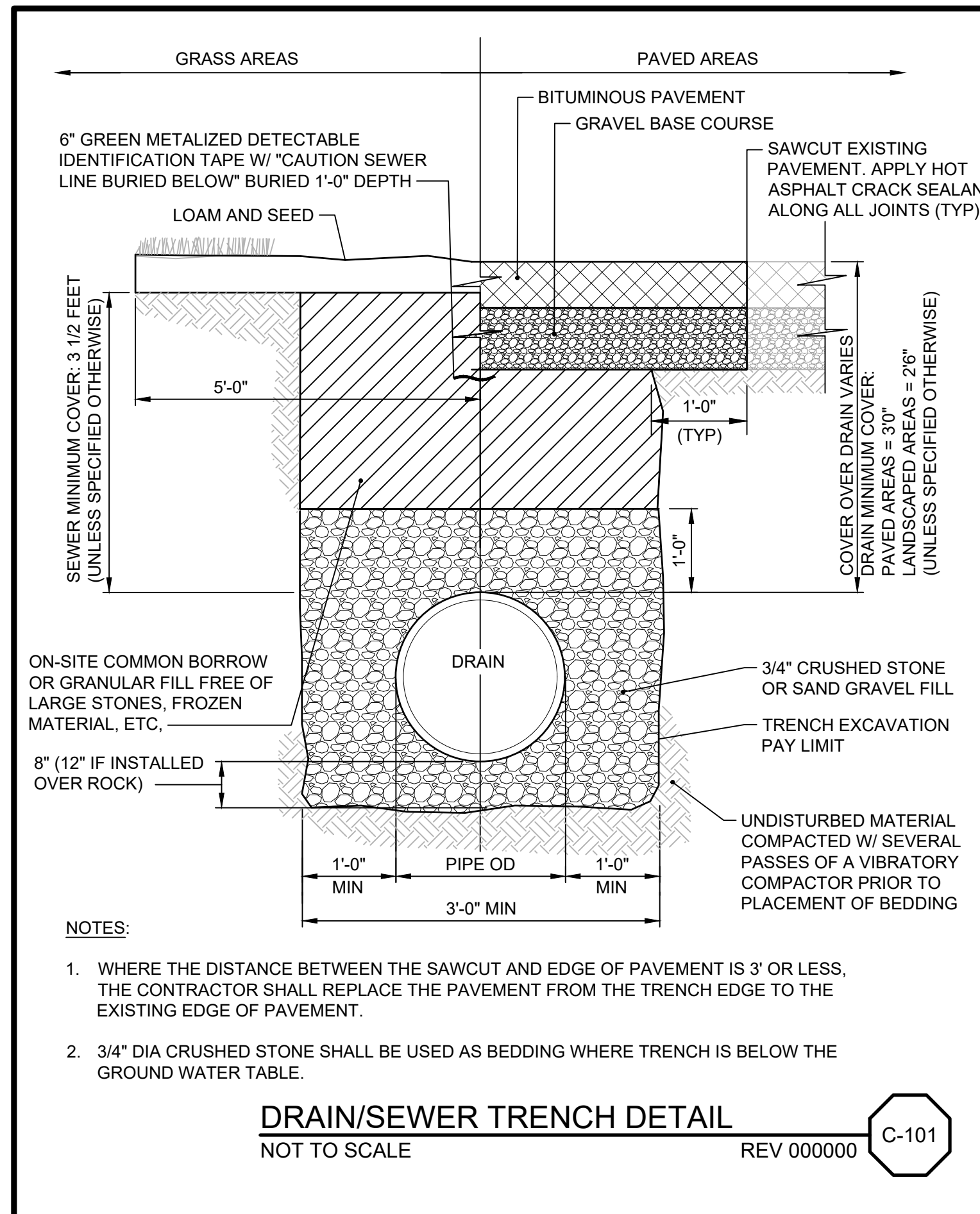


NBC CONTRACT NO 308.05C  
CIVIL

OF-217 CONSOLIDATION CONDUIT  
WATER RELOCATION PLAN

SHEET  
C-8  
195130227





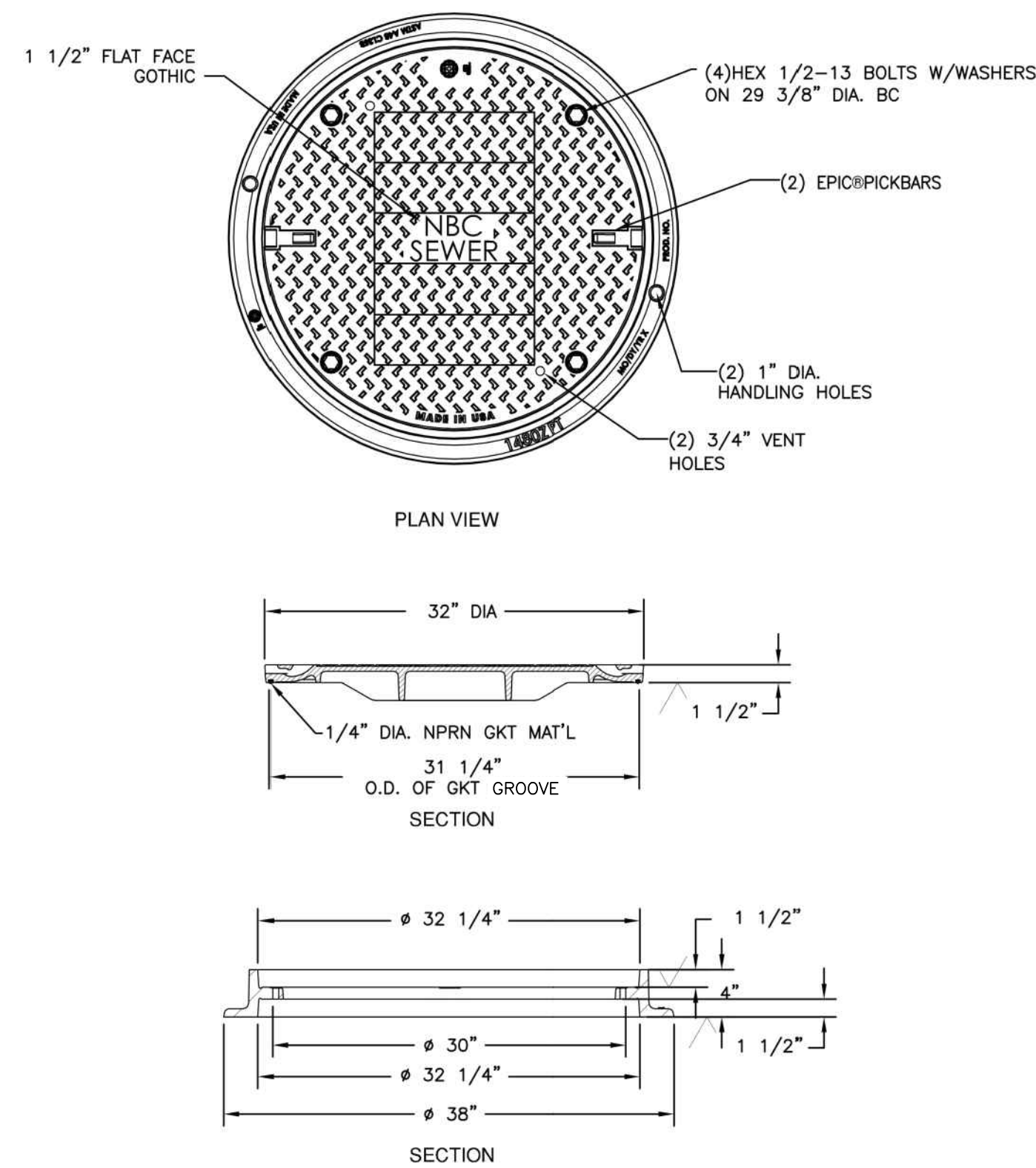
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| SCALE    | AS SHOWN   |
| WARNING  | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |
| DESIGNED | C. CRONIN  |
| DRAWN    | C. MARSHALL  |
| CHECKED  | J. D'ALELIO  |

90% DESIGN PHASE - APRIL 2021

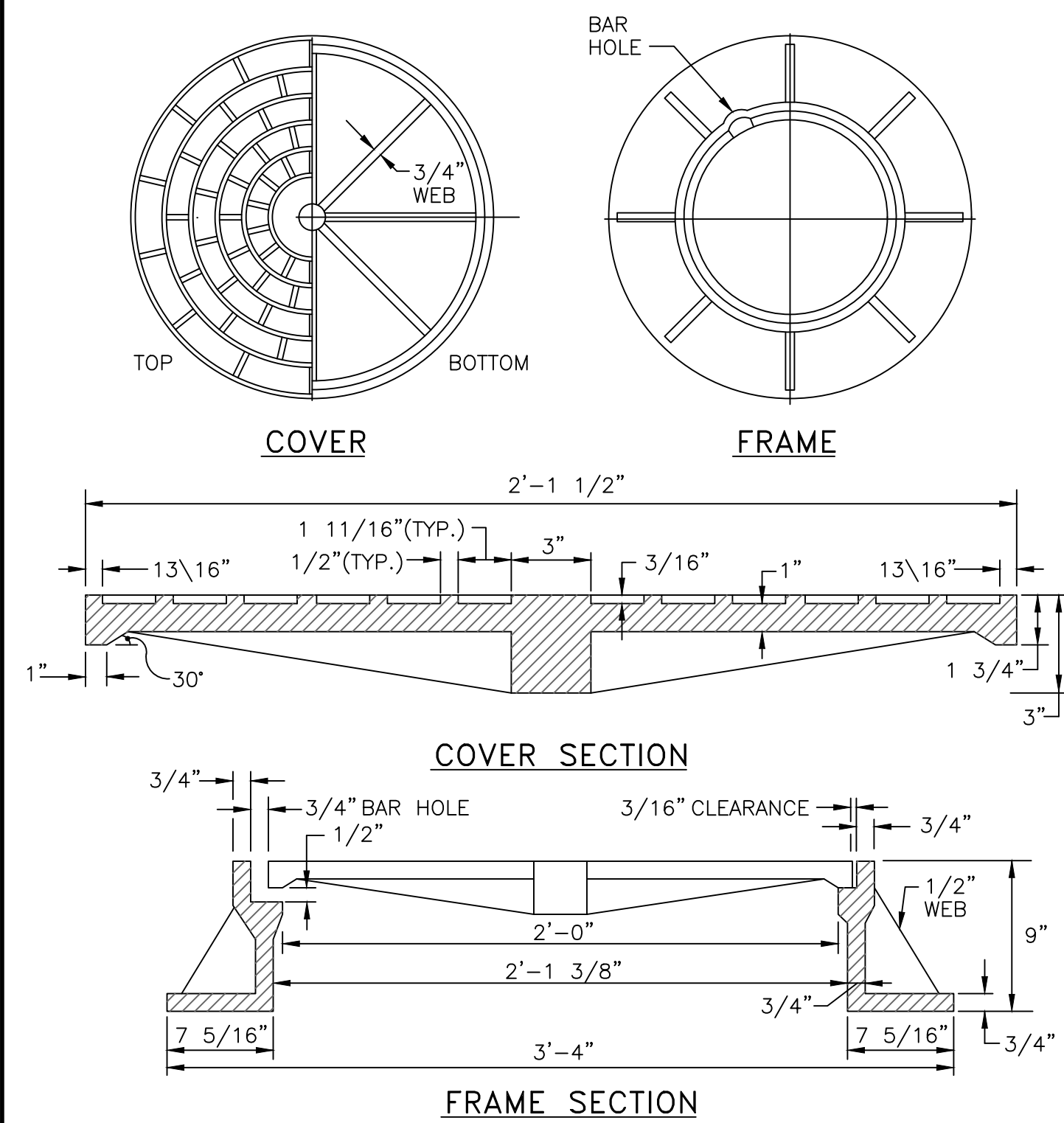
NOT FOR CONSTRUCTION

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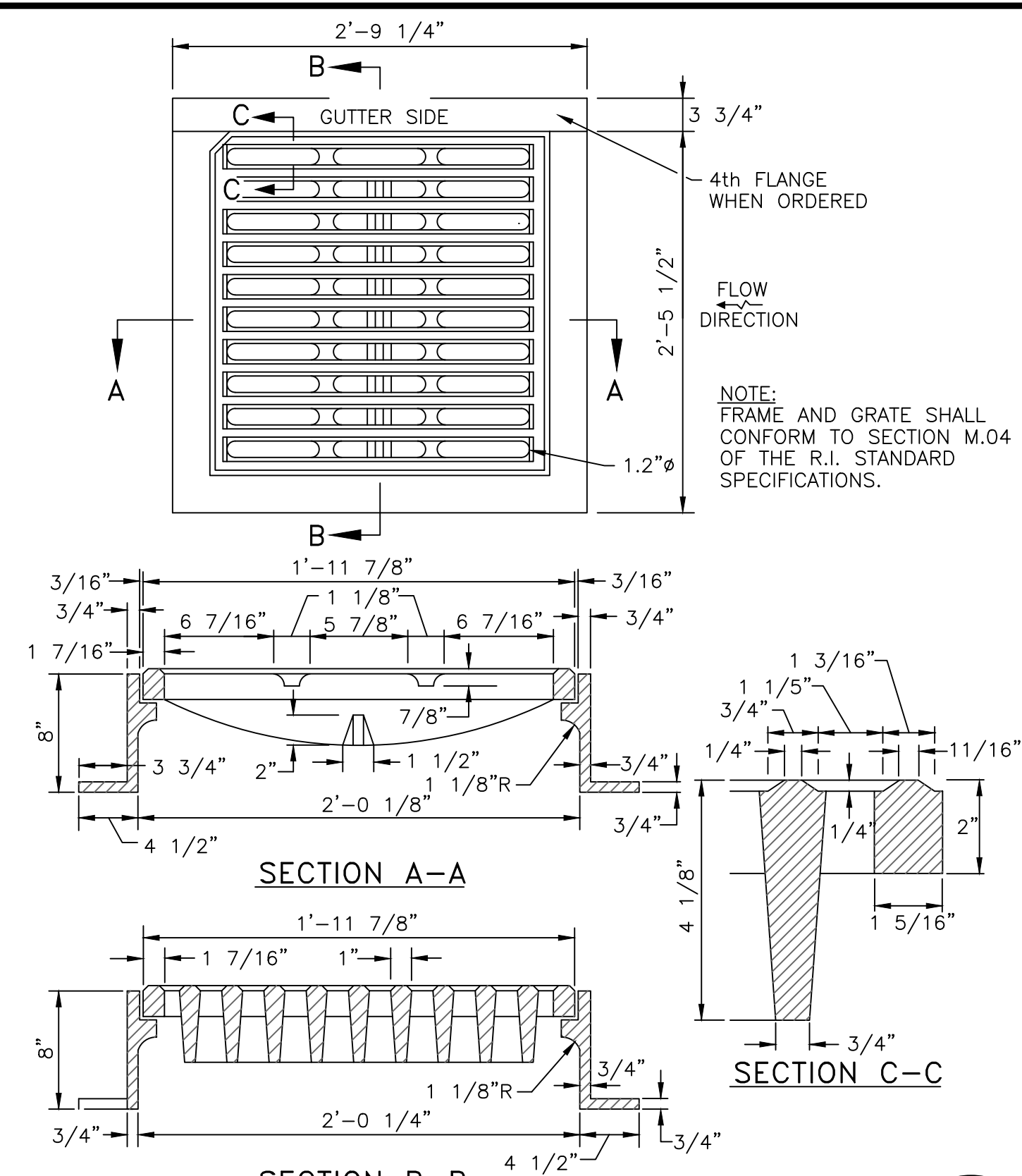




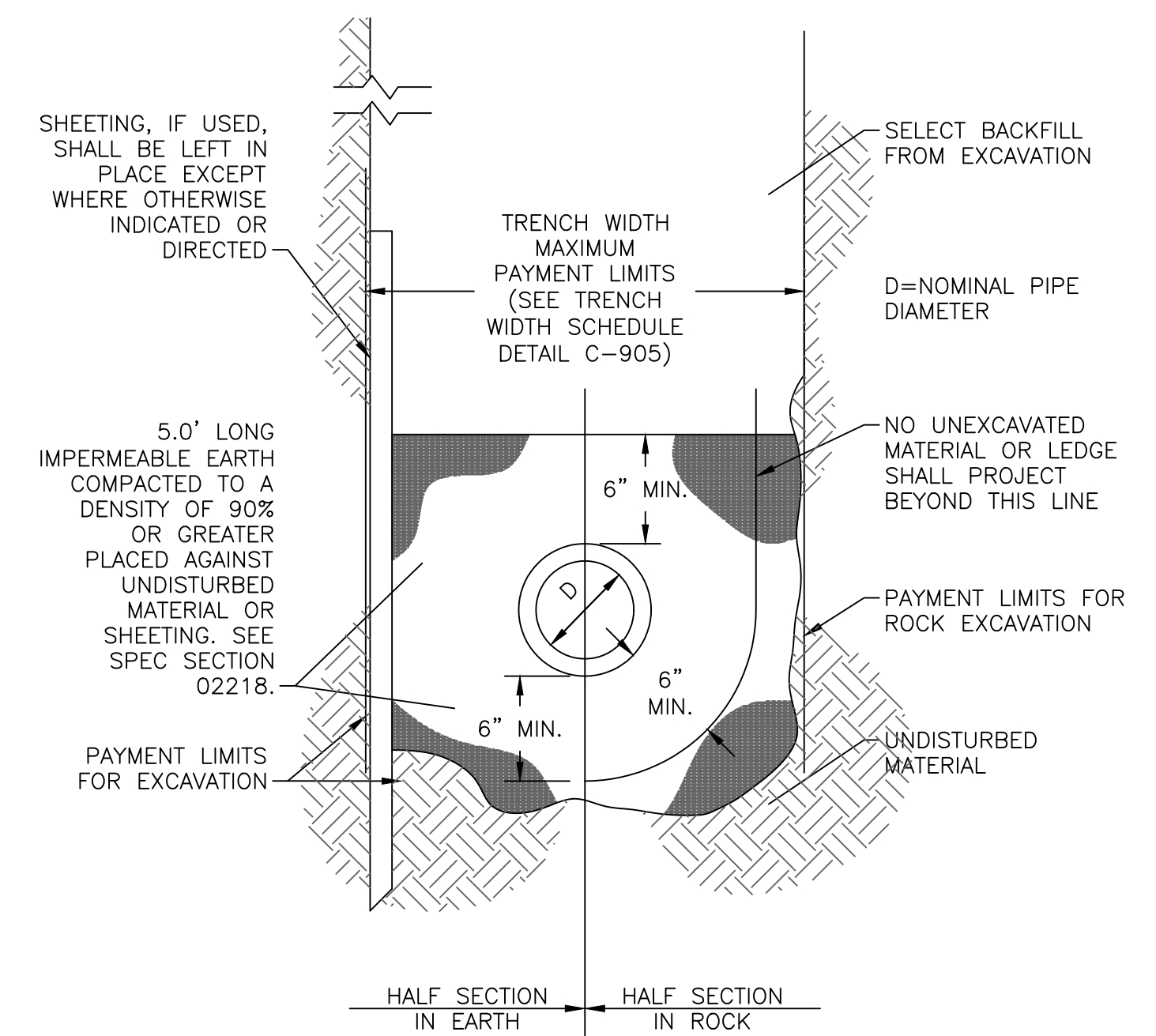
**SEWER MANHOLE FRAME AND COVER**  
NOT TO SCALE REV 000000 C-107



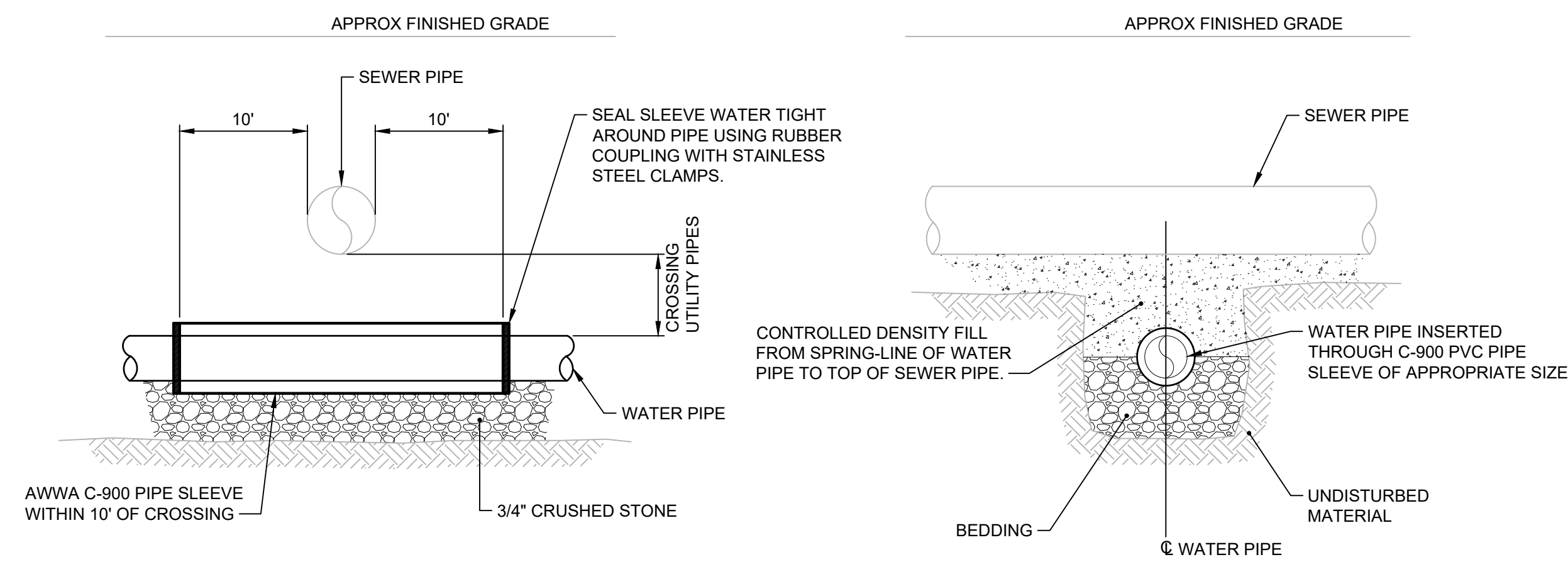
**HEAVY-DUTY ROUND FRAME AND COVER**  
NOT TO SCALE R.I. STANDARD 6.2.1



**SQUARE FRAME AND GRATE (BICYCLE SAFE)**  
NOT TO SCALE R.I. STANDARD 6.3.2

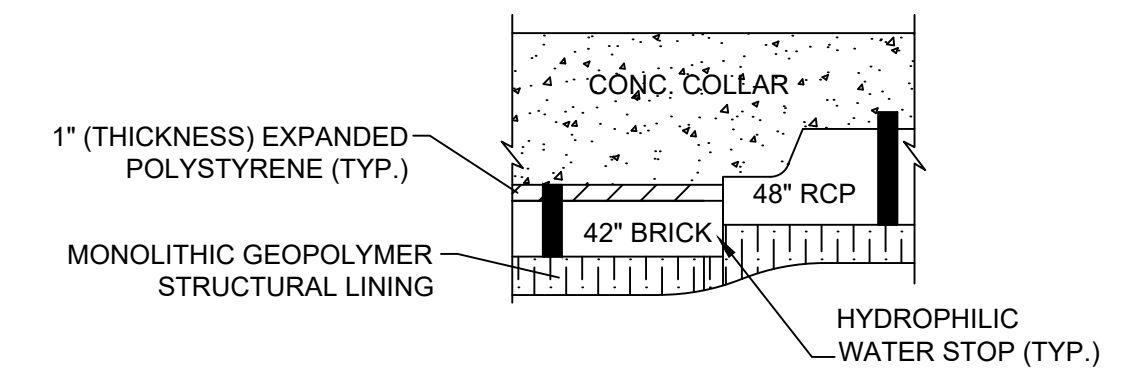
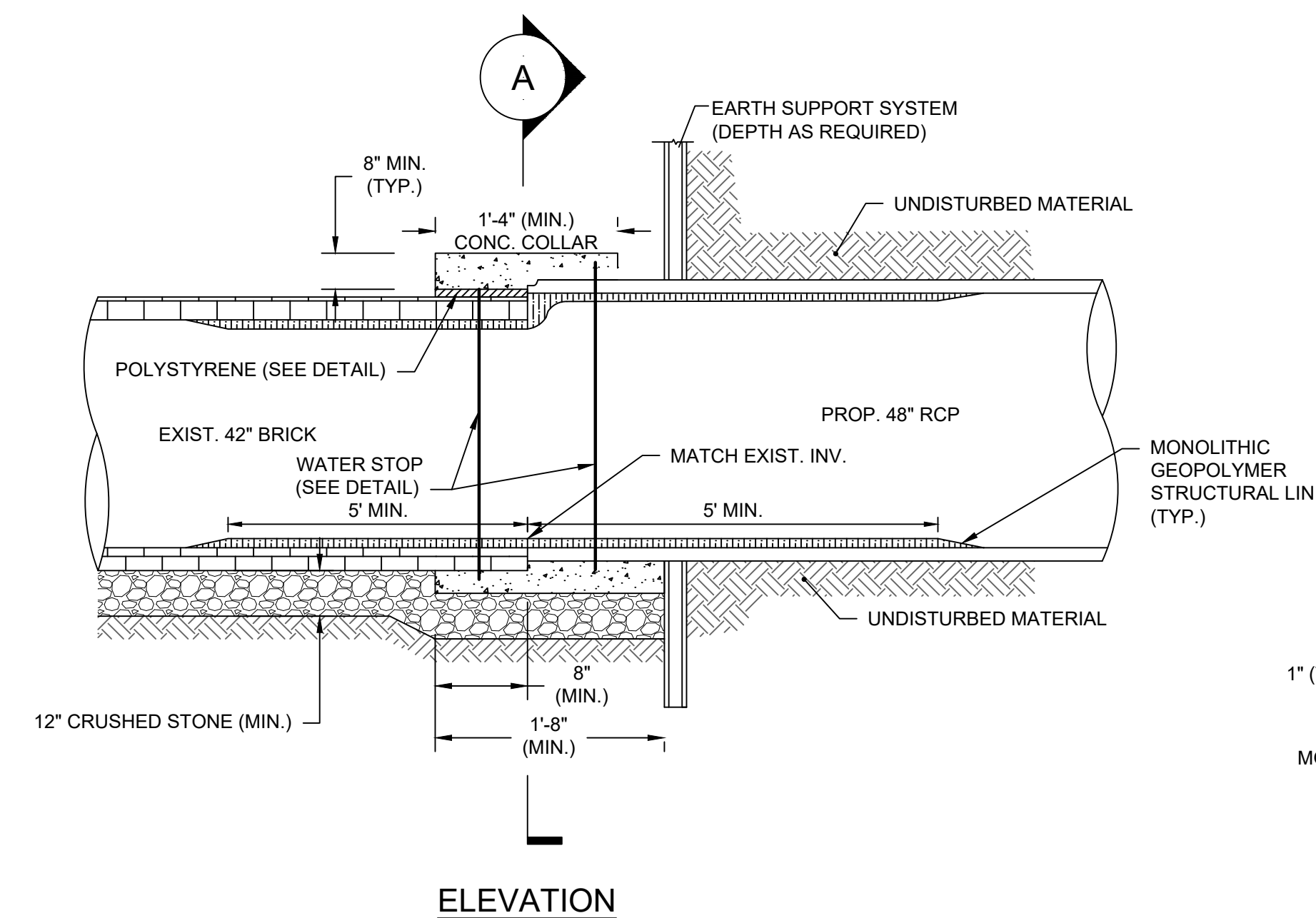


**TRENCH SECTION FOR IMPERMEABLE EARTH WATER STOP**  
NOT TO SCALE REV 000000 C-904



- NOTES:**
- WHERE SEWER CANNOT BE INSTALLED 18" BENEATH WATER, OR WHERE SEWER AND WATER PIPING ARE WITHIN 10 FEET OF EACH OTHER, PROPOSED WATER OR SEWER PIPE SHALL BE SLEEVED INSIDE AN AWWA C-900 PVC PIPE OF APPROPRIATE DIAMETER WITHIN 10 FEET OF THE CROSSING.
  - CONTRACTOR MAY ELECT TO ENCASE PIPE WITHIN CONCRETE INSTEAD OF USING PIPE SLEEVES, AT NO ADDITIONAL EXPENSE TO THE OWNER. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AFTER 28 DAYS. CONCRETE ENCASEMENT SHALL EXTEND A MINIMUM OF 6" AROUND THE PIPE IN ALL DIRECTIONS.

**WATER/SEWER CROSSING DETAIL**  
NOT TO SCALE REV 000000 C-112



**CONCRETE COLLAR DETAIL**  
NOT TO SCALE REV 000000 C-109

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
|     |      |    |             |

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|---------|--|
| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |             |
|----------|-------------|
| DESIGNED | C. CRONIN   |
| DRAWN    | J. PAYNE    |
| CHECKED  | J. D'ALELIO |

90% DESIGN PHASE - APRIL 2021

**NOT FOR CONSTRUCTION**

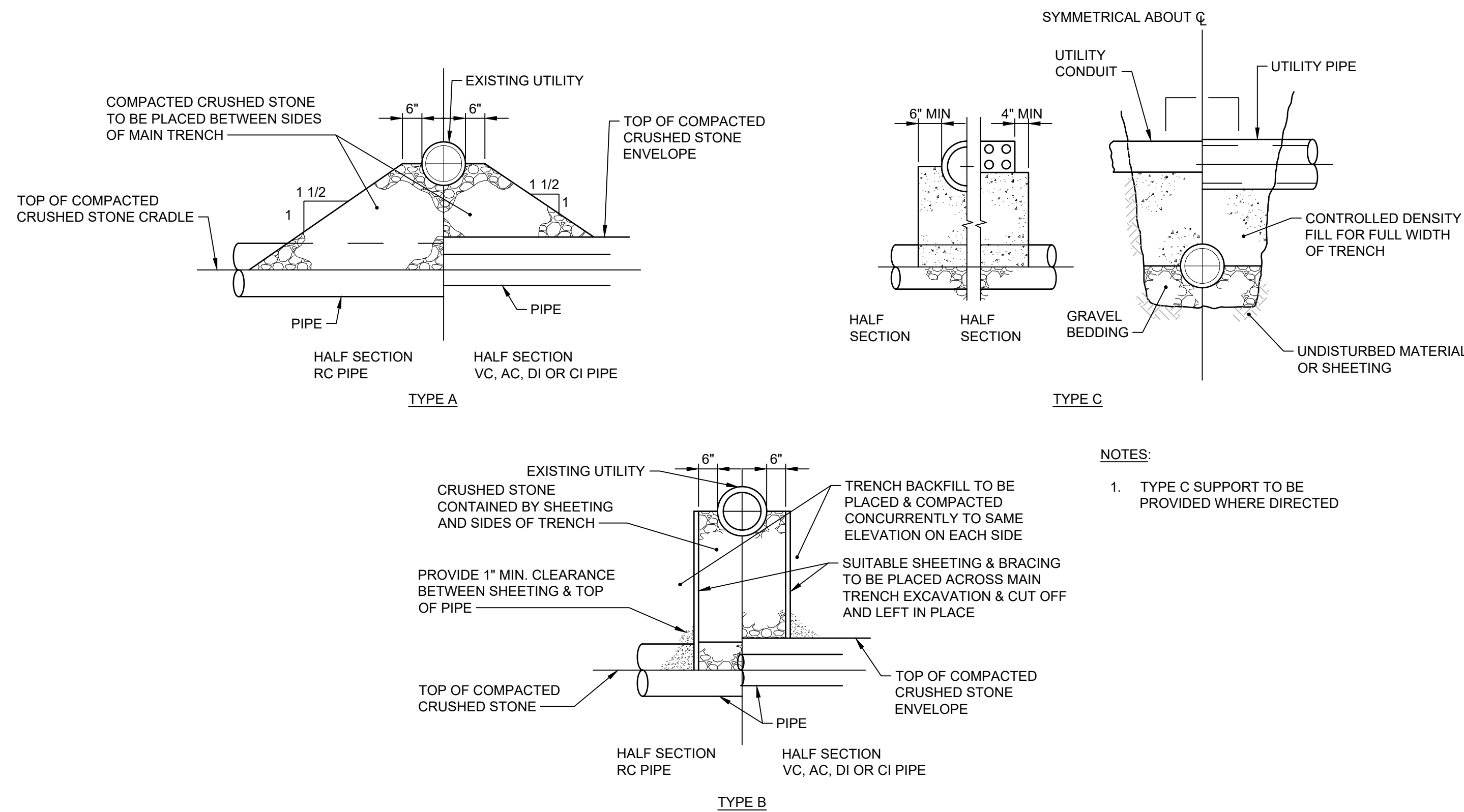
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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
CIVIL  
OF-217 CONSOLIDATION CONDUIT  
CIVIL DETAILS II

SHEET  
**C-10**  
195130227



**TYPICAL SUPPORTS FOR UTILITIES**  
NOT TO SCALE REV 000000 C-113

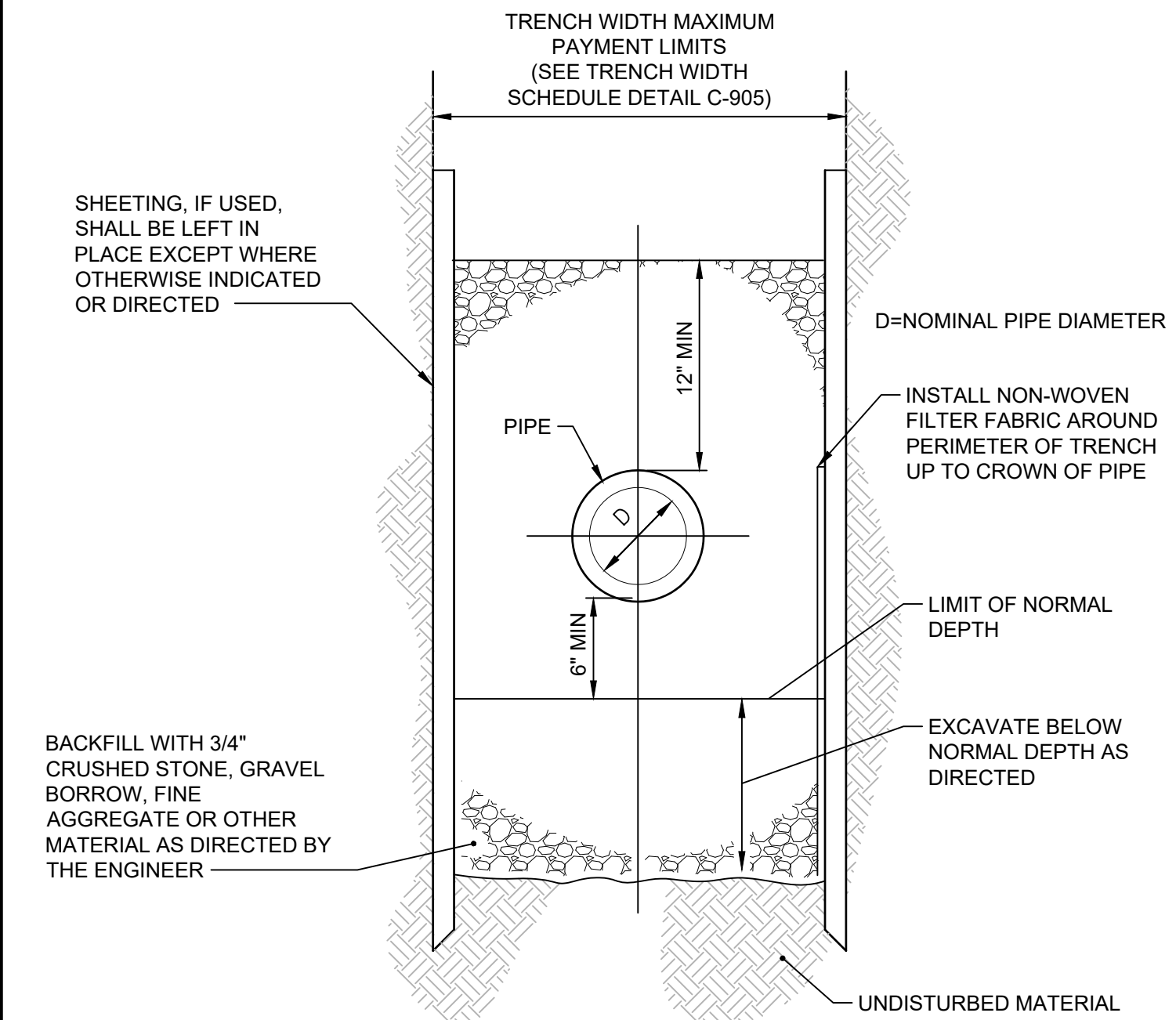
| DIAMETER OF PIPE D IN INCHES | MAXIMUM PAYMENT LIMITS |              |   |              |  |              |
|------------------------------|------------------------|--------------|---|--------------|--|--------------|
|                              | TRENCH WIDTH IN FEET   |              | TEMPORARY TRENCH PAVEMENT WIDTH IN FEET |              | PERMANENT TRENCH PAVEMENT WIDTH IN FEET* |              |
|                              | TRENCH DEPTH           | TRENCH DEPTH | TRENCH DEPTH                            | TRENCH DEPTH | TRENCH DEPTH                             | TRENCH DEPTH |
| 12 AND SMALLER               | < OR = 10'             | > 10' TO 20' | < OR = 10'                              | > 10' TO 20' | < OR = 10'                               | > 10' TO 20' |
| 15                           | 5.00                   | 6.00         | 6.00                                    | 7.00         | 8.00                                     | 9.00         |
| 18                           | 5.25                   | 6.25         | 6.25                                    | 7.25         | 8.25                                     | 9.25         |
| 21                           | 5.75                   | 6.75         | 6.75                                    | 7.75         | 8.75                                     | 9.75         |
| 24                           | 6.00                   | 7.00         | 7.00                                    | 8.00         | 9.00                                     | 10.00        |
| 27                           | 6.25                   | 7.25         | 7.25                                    | 8.25         | 9.25                                     | 10.25        |
| 30                           | 6.50                   | 7.50         | 7.50                                    | 8.50         | 9.50                                     | 10.50        |
| 36                           | 7.00                   | 8.00         | 8.00                                    | 9.00         | 10.00                                    | 11.00        |
| 42                           | 7.50                   | 8.50         | 8.50                                    | 9.50         | 10.50                                    | 11.50        |
| 48                           | 8.00                   | 9.00         | 9.00                                    | 10.00        | 11.00                                    | 12.00        |
| 54                           | 8.50                   | 9.50         | 9.50                                    | 10.50        | 11.50                                    | 12.50        |
| 60                           | 9.00                   | 10.00        | 10.00                                   | 11.00        | 12.00                                    | 13.00        |
| 66                           | 9.50                   | 10.50        | 10.50                                   | 11.50        | 12.50                                    | 13.50        |
| 72                           | 10.00                  | 11.00        | 11.00                                   | 12.00        | 13.00                                    | 14.00        |

**TRENCH WIDTH SCHEDULE**

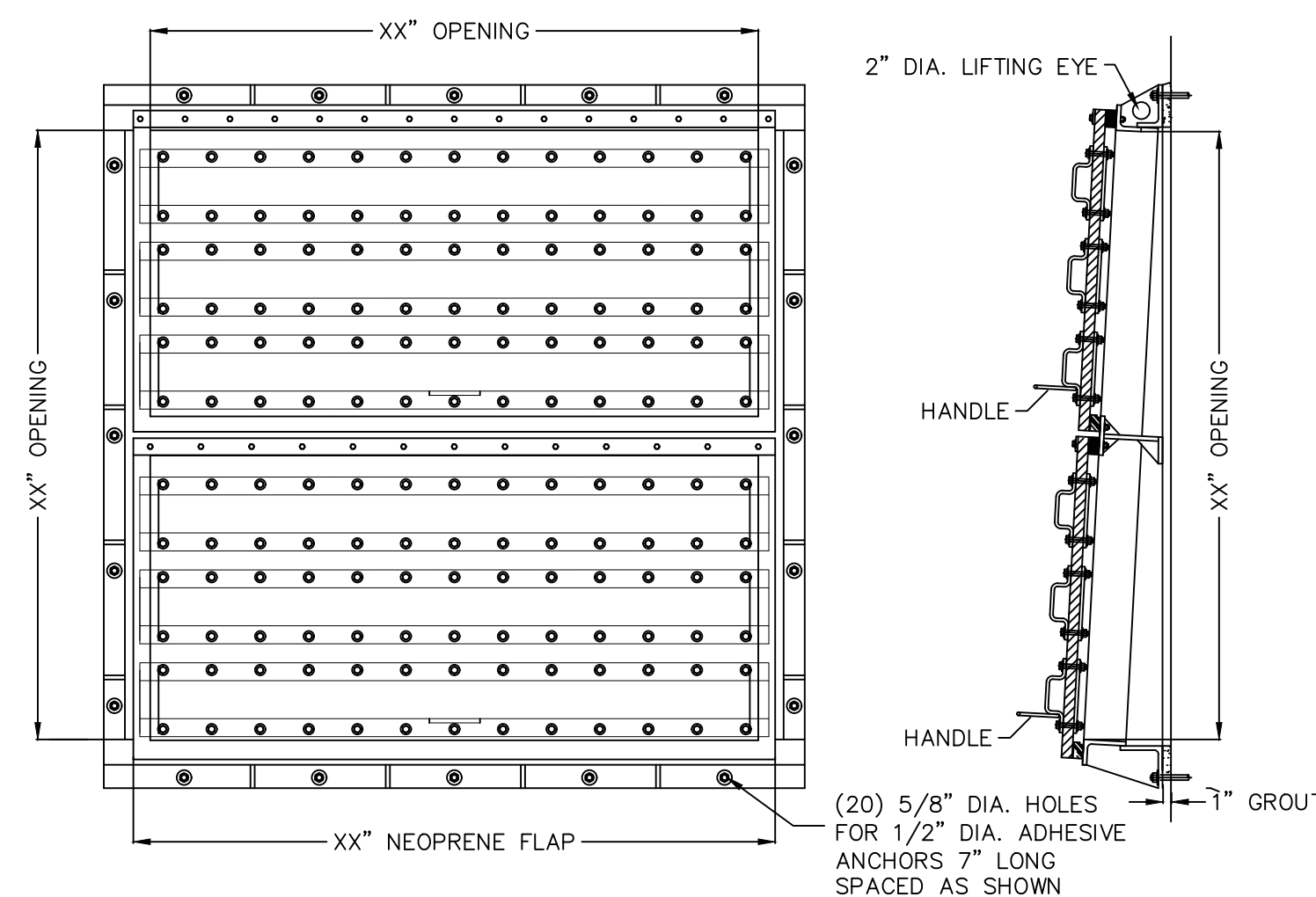
**NOTES:**

- PERMANENT TRENCH PAVEMENT INCLUDES 1' CUT BACK OF TEMPORARY PAVEMENT ALONG EACH SIDE OF THE TRENCH.
- TRENCH DEPTH MEASURED FROM THE EXISTING GROUND SURFACE TO 6" BELOW THE BOTTOM OF THE CONSTRUCTED PIPE.
- QUANTITIES FOR PAYMENT SHALL BE IN ACCORDANCE WITH THE ABOVE LIMITS OR THE ACTUAL WIDTHS, WHICHEVER IS LESS.

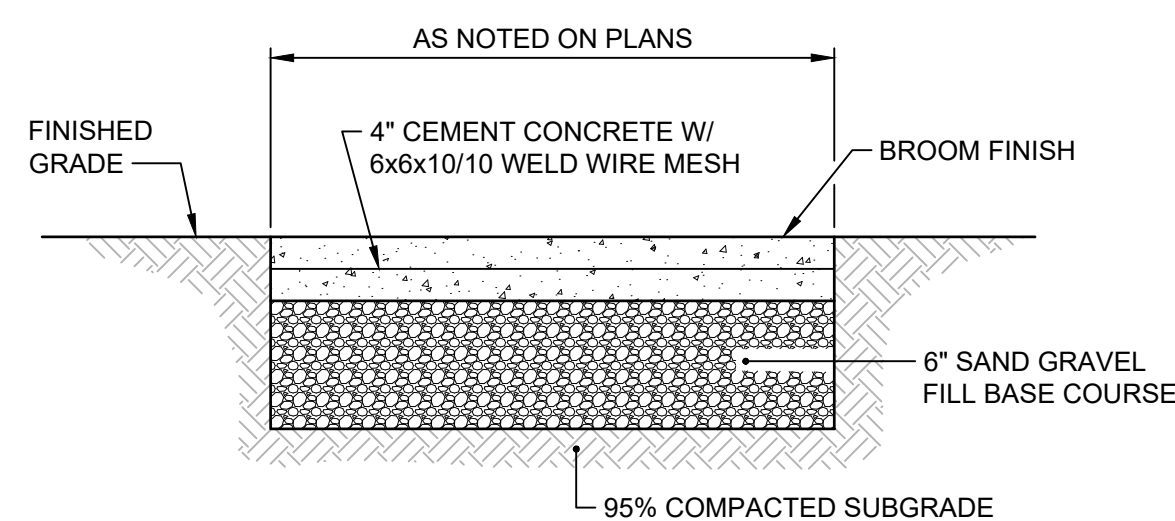
**TRENCH WIDTH SCHEDULE**  
NOT TO SCALE REV 000000 C-905



**TRENCH SECTION (TO BE USED WHERE UNSUITABLE FOUNDATION MATERIAL EXISTS BELOW NORMAL DEPTH)**  
NOT TO SCALE REV 000000 C-906



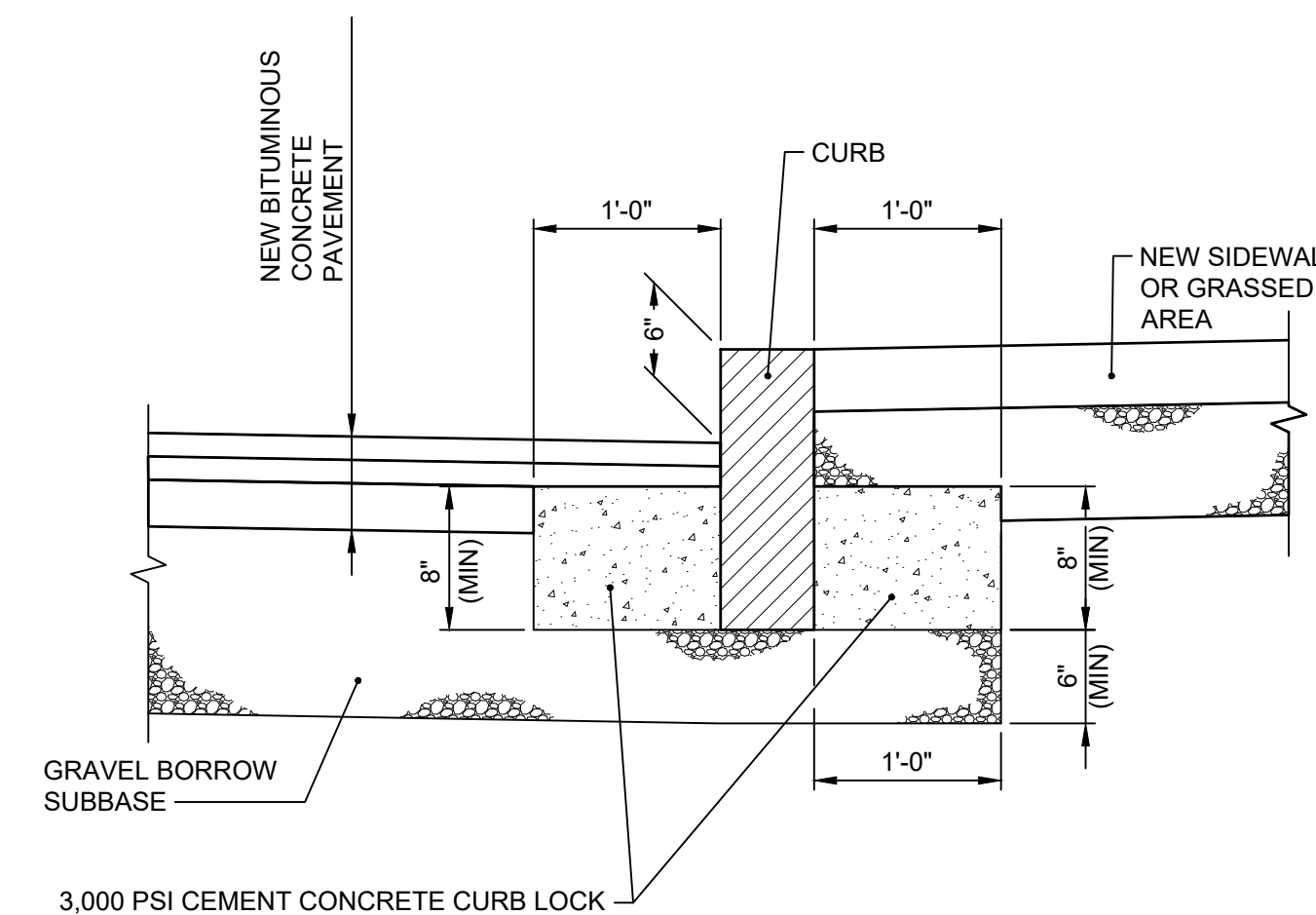
**TYPICAL FLAP GATE DETAIL**  
NOT TO SCALE REV 000000 C-907



**NOTES:**

- CONCRETE SIDEWALK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
- WIRE MESH SHALL BE IN ACCORDANCE WITH SECTION M.05.02 OF THE R.I. STANDARD SPECIFICATIONS.

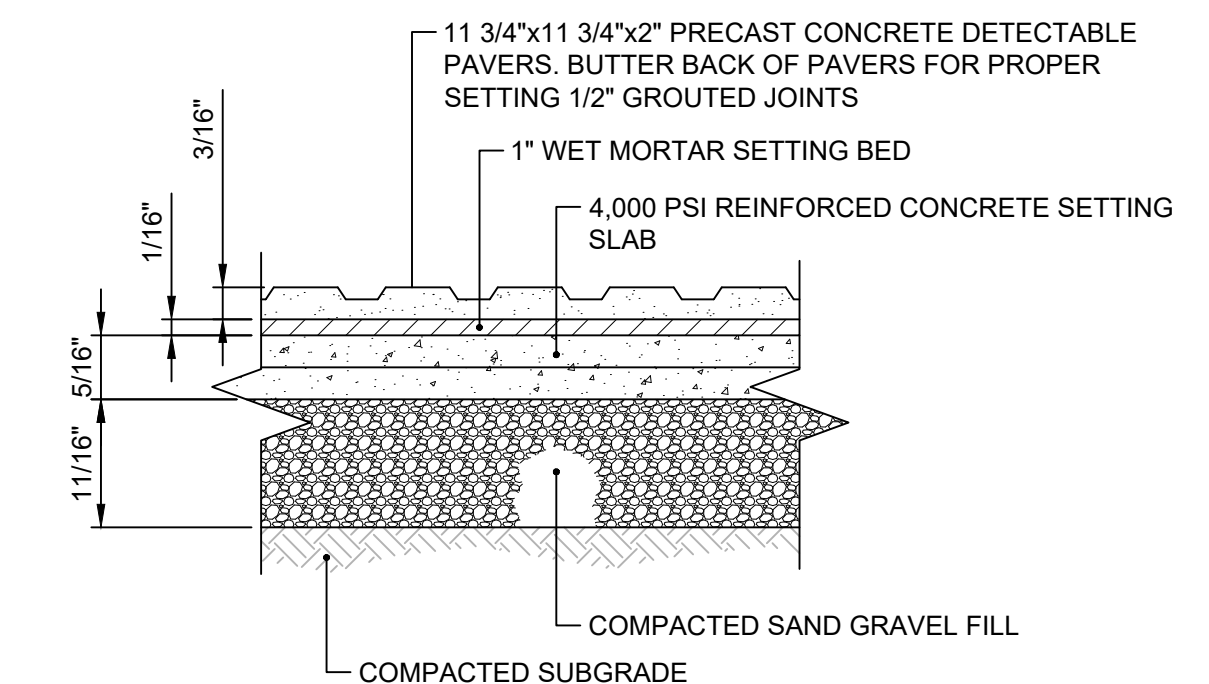
**TYPICAL CEMENT CONCRETE SIDEWALK**  
NOT TO SCALE REV 000000 C-202



**NOTES:**

- SHALL BE IN ACCORDANCE WITH SECTION 906 OF THE R.I. STANDARD SPECIFICATIONS.
- PROVIDE CEMENT CONCRETE CURB LOCK ON ALL CURBS.

**CURB SETTING DETAIL**  
NOT TO SCALE REV 000000 C-203



**DETECTABLE WARNING PAVER**  
NOT TO SCALE REV 000000 C-204

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
|     |      |    |             |

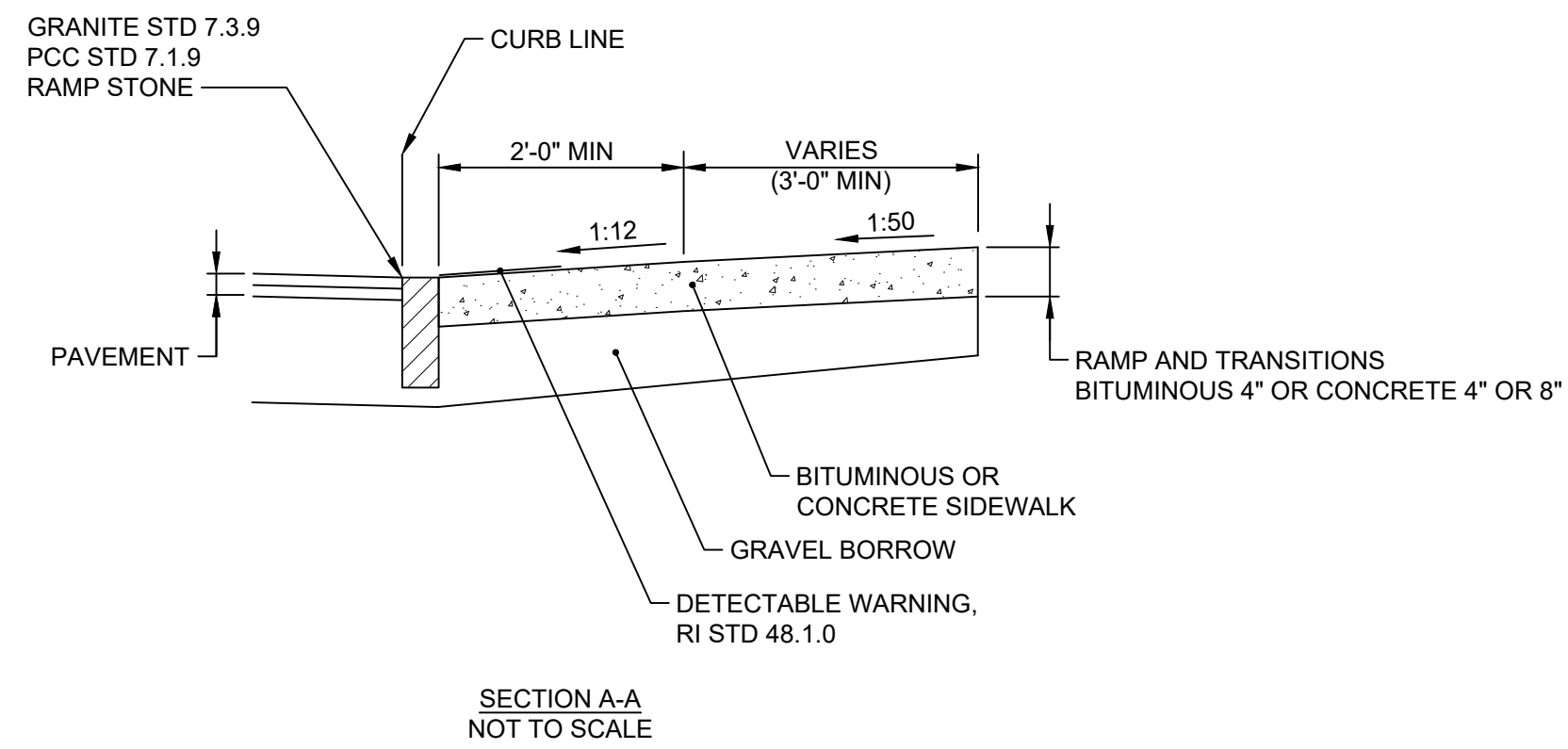
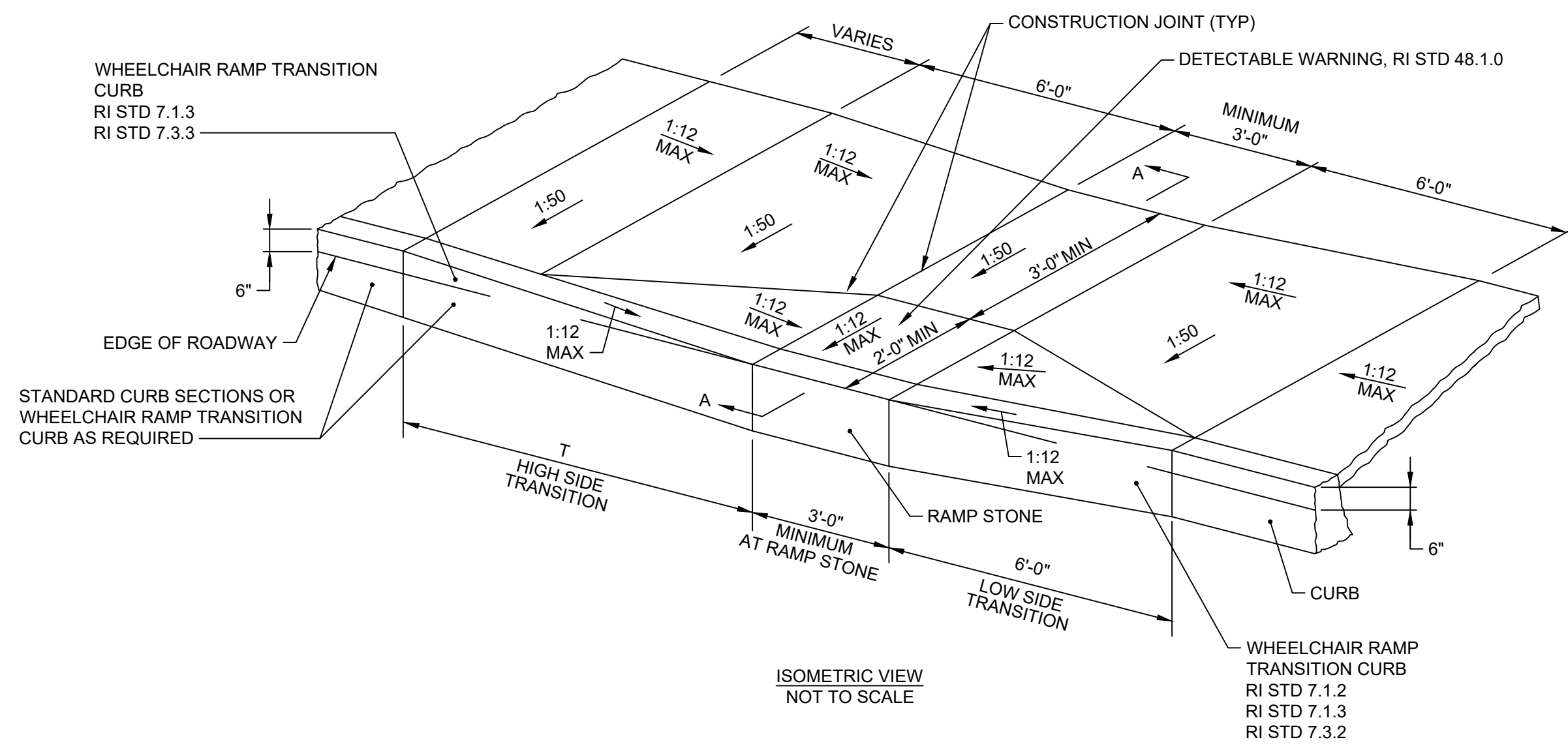
|          |  |
|----------|--|
| SCALE    | AS SHOWN   |
| WARNING  | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |
| DESIGNED | C. CRONIN  |
| DRAWN    | C. MARSHALL  |
| CHECKED  | J. D'ALESSIO   |

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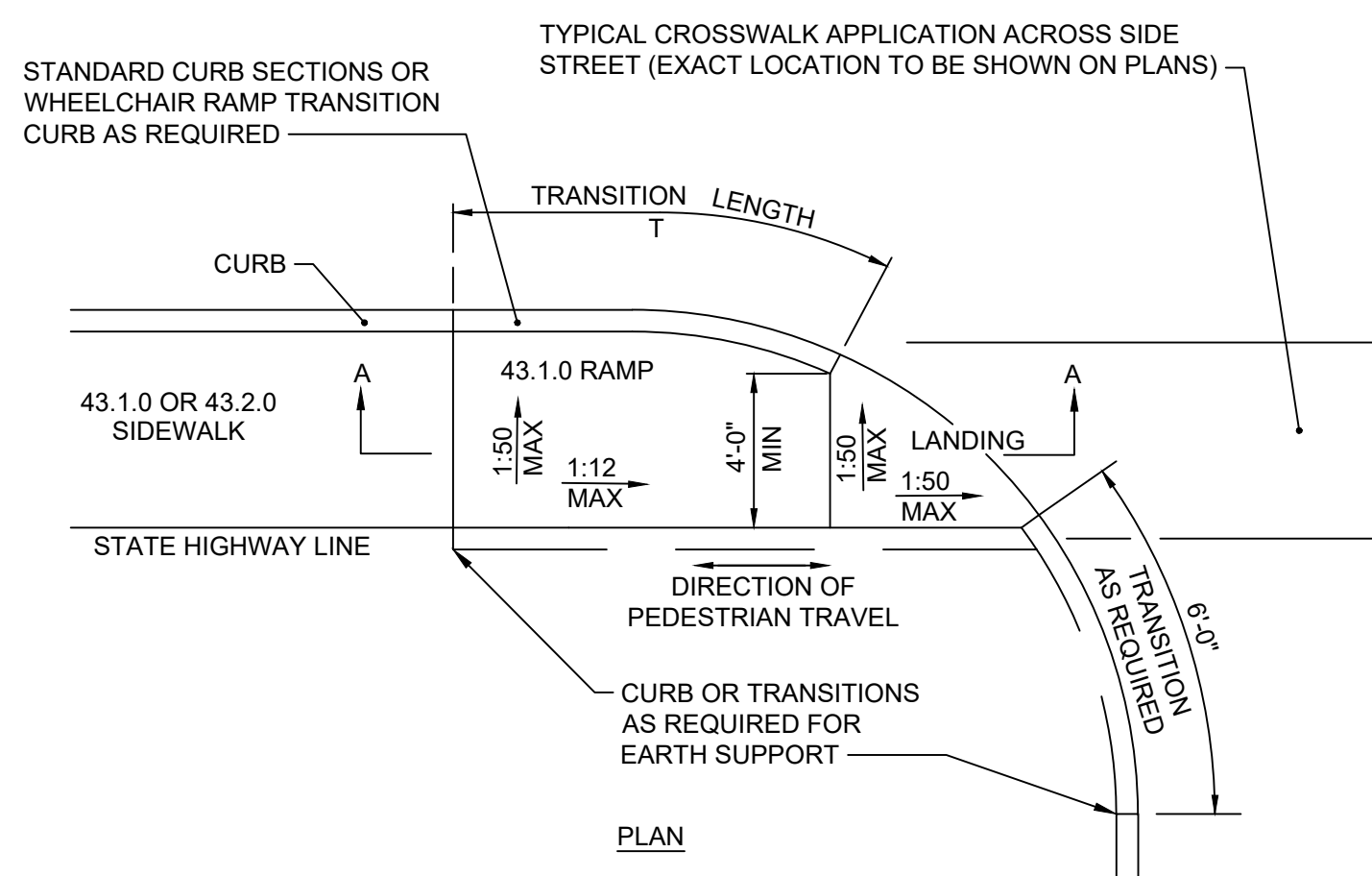
| ROADWAY PROFILE GRADE | T (FT) |
|-----------------------|--------|
| 0.00                  | 6.0    |
| 0.01                  | 7.0    |
| 0.02                  | 8.0    |
| 0.03                  | 9.5    |
| 0.04                  | 11.5   |
| 0.05                  | 15.0   |

**NOTES:**

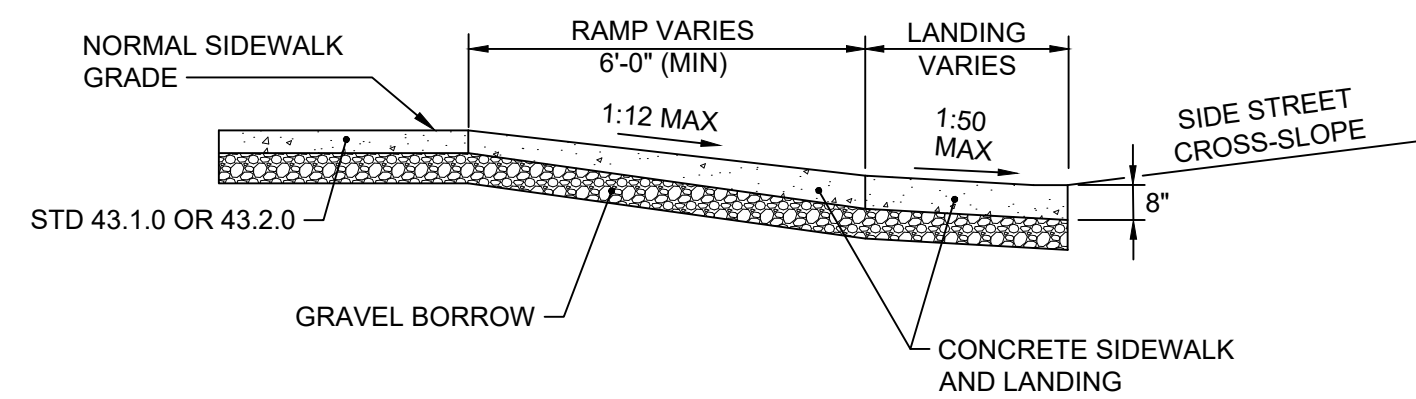
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, THE WHEELCHAIR RAMP WILL BE PLACED SUCH THAT THE OBSTRUCTION FALLS OUTSIDE OF THE RAMP.
3. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK, AND IT IS TO BE CENTERED WHENEVER POSSIBLE.
4. DRAINAGE FACILITIES ARE TO BE LOCATED UP-GRADE OF ALL WHEELCHAIR RAMPS.
5. LOCATION OF WHEELCHAIR RAMPS IS AS SHOWN ON CONTRACT DRAWINGS.
6. IN NO INSTANCE SHALL THE SIDEWALK CROSS SLOPE EXCEED 1:50 EXCEPT WITHIN THE RAMP AREA.
7. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 3'-0" SHALL BE MAINTAINED.
8. THE WHEELCHAIR RAMP SLOPE AND SIDE SLOPES (TRANSITIONS), MUST NOT EXCEED 1:12. HOWEVER, THESE SLOPES MAY BE FLATTER THAN 1:12 WHEN WARRANTED BY SURROUNDING CONDITIONS.
9. WHERE THE ROAD PROFILE EXCEEDS 5% THE HIGH SIDE TRANSITION LENGTH (T) SHALL BE EIGHTEEN FEET (18'-0").
10. IN NO CASE, WHERE A STOP LINE IS WARRANTED, SHALL A RAMP BE PLACED BEHIND THE STOP LINE.
11. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.
12. THE WHEELCHAIR RAMP SHALL BE CENTERED RADIALLY, OPPOSITE THE RADIUS POINT WHEN POSSIBLE.
13. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
14. 8" CONCRETE DEPTH FOR RADIUS WHEELCHAIR RAMPS ONLY. USE 4" DEPTH FOR TANGENT (MID-BLOCK) LOCATIONS

**WHEELCHAIR RAMP**  
NOT TO SCALE

R.I. STANDARD  
43.3.0



| ROADWAY GRADE | T    |
|---------------|------|
| 0.00          | 6.0  |
| 0.01          | 7.0  |
| 0.02          | 8.0  |
| 0.03          | 9.5  |
| 0.04          | 11.5 |
| 0.05          | 15.0 |

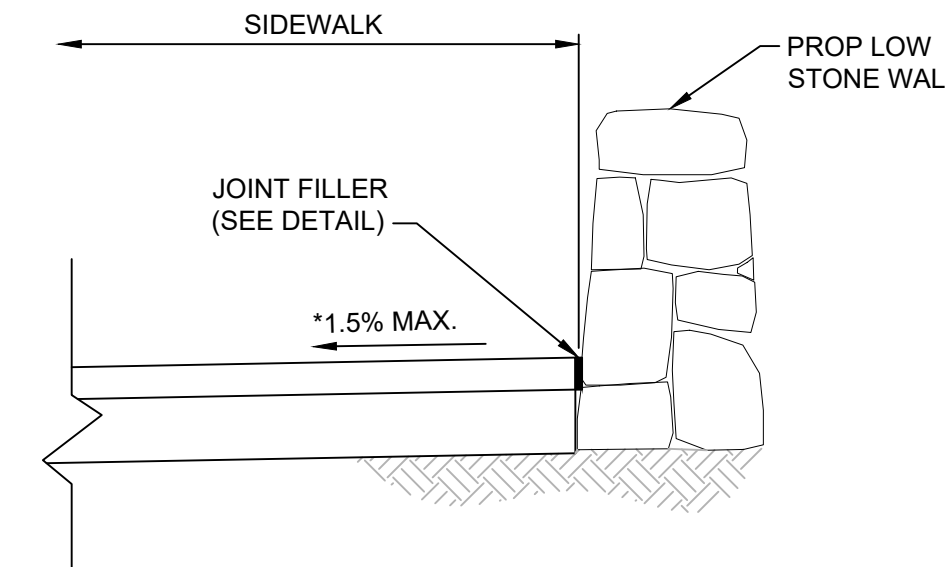


**NOTES:**

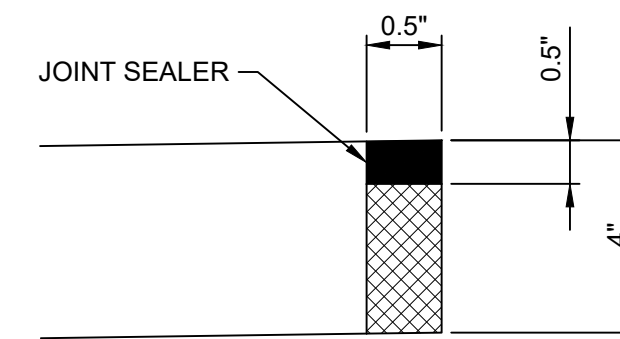
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. THIS DETAIL IS TO BE USED ONLY WHEN STATE RIGHT-OF-WAY IS LIMITED TO BACK OF SIDEWALK, AND SIDEWALK IS NARROW WITH NO PEDESTRIAN TRAFFIC FROM SIDE STREET.
3. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, IF POSSIBLE, THE OBSTRUCTION SHALL BE PLACED SUCH THAT IT FALLS OUTSIDE OF THE RAMP.
4. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK, AND IT IS TO BE CENTERED WHENEVER POSSIBLE.
5. DRAINAGE FACILITIES ARE TO BE LOCATED UP-GRADE OF ALL WHEELCHAIR RAMPS.
6. LOCATION OF WHEELCHAIR RAMPS IS AS SHOWN ON CONTRACT DRAWINGS.
7. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB.
8. WHERE THE ROAD PROFILE EXCEEDS 5% THE TRANSITION LENGTH (T) SHALL BE EIGHTEEN FEET (18'-0").
9. THE ENTRANCE OF THE WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.
10. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
11. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 4'-0" SHALL BE MAINTAINED.

**WHEELCHAIR RAMP FOR LIMITED RIGHT-OF-WAY AREAS**  
NOT TO SCALE

R.I. STANDARD  
43.3.1



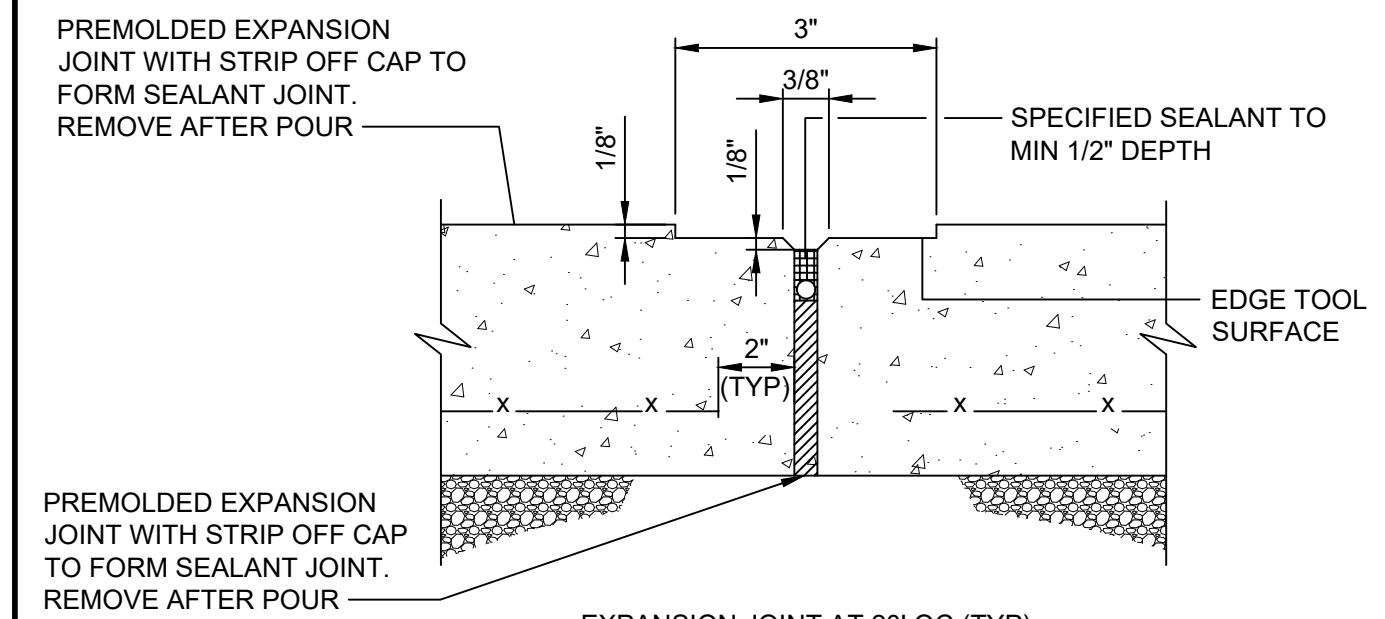
DETAIL FOR SIDEWALK AT STONEWALL (NOT TO SCALE)



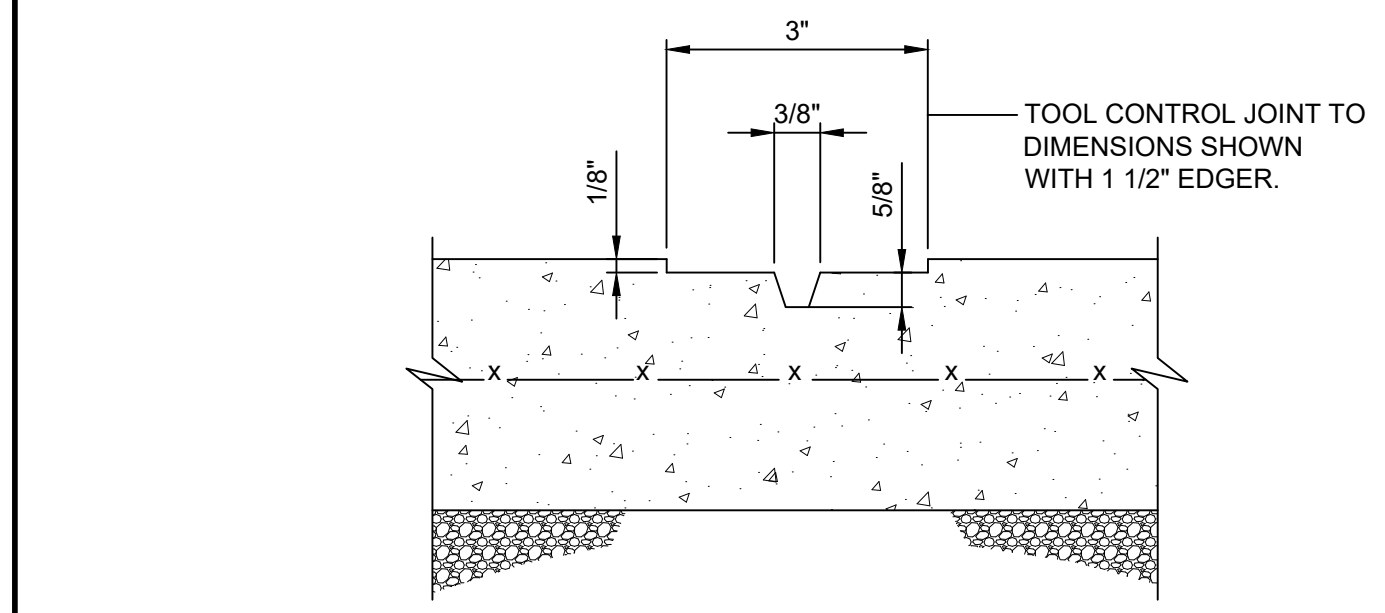
DETAIL FOR PREFORMED JOINT FILLER AND SEALER (NOT TO SCALE)

**DETAIL FOR SIDEWALK AT STONE WALL**  
NOT TO SCALE

REV 000000 C-908



EXPANSION JOINT AT 20' OC (TYP)



CONTROL JOINT AT 5' OC (TYP)

**NOTES:**

1. EXPANSION JOINTS (EJ) 20 FEET OC UNLESS OTHERWISE NOTED.
2. CONTROL JOINTS (CJ) 5 FEET OC UNLESS OTHERWISE NOTED.
3. WHERE EXISTING AND NEW CONCRETE SIDEWALKS MEET, SAWCUT EXISTING WALK AND INSTALL EXPANSION JOINT AND DOWELS AS SHOWN. DRILL EXISTING CONCRETE WALK EDGE TO RECEIVE STEEL DOWELS AT EXPANSION JOINT.

**EXPANSION & CONTROL JOINTS FOR SIDEWALK PAVING**  
NOT TO SCALE

REV 000000 C-205

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
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| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

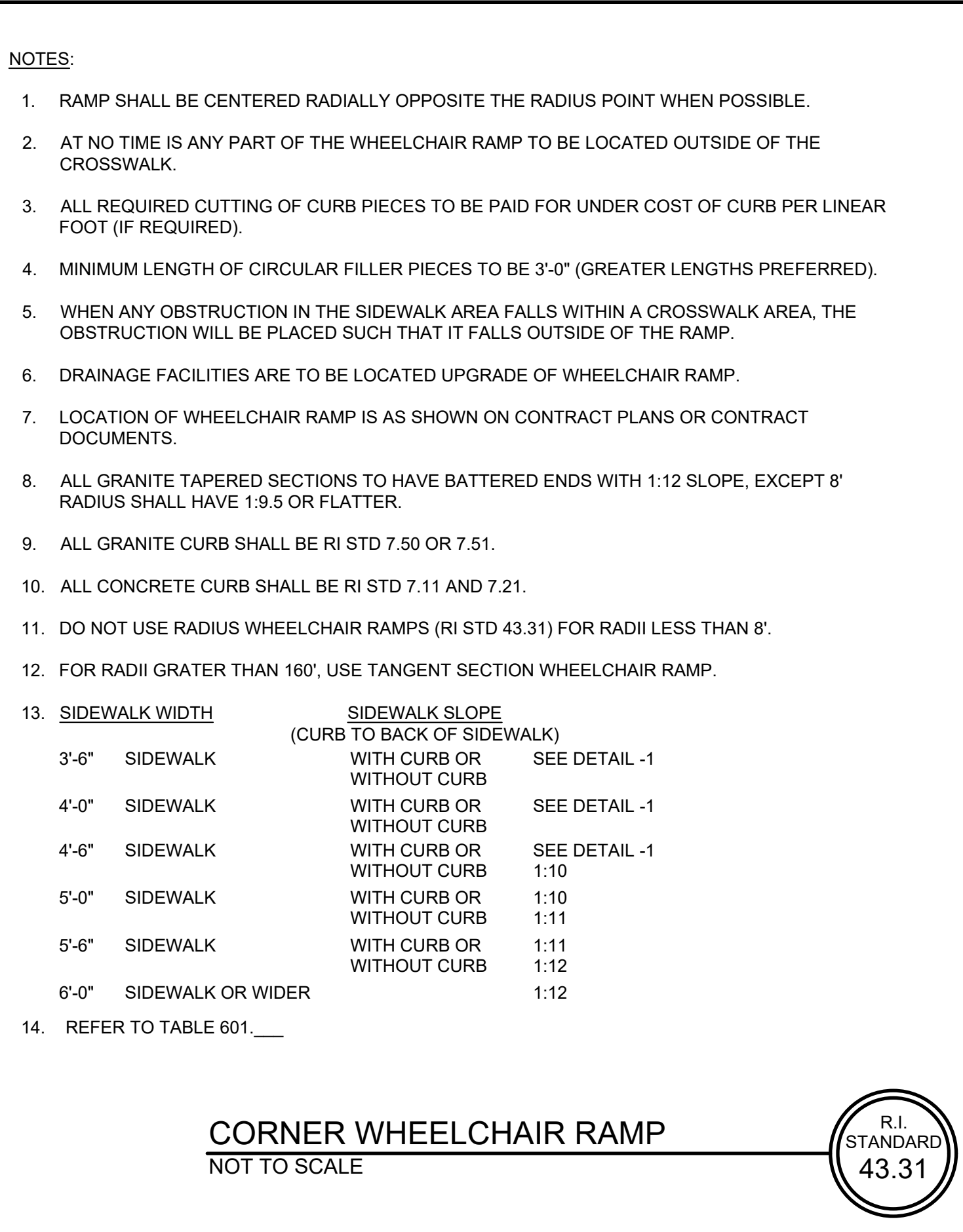
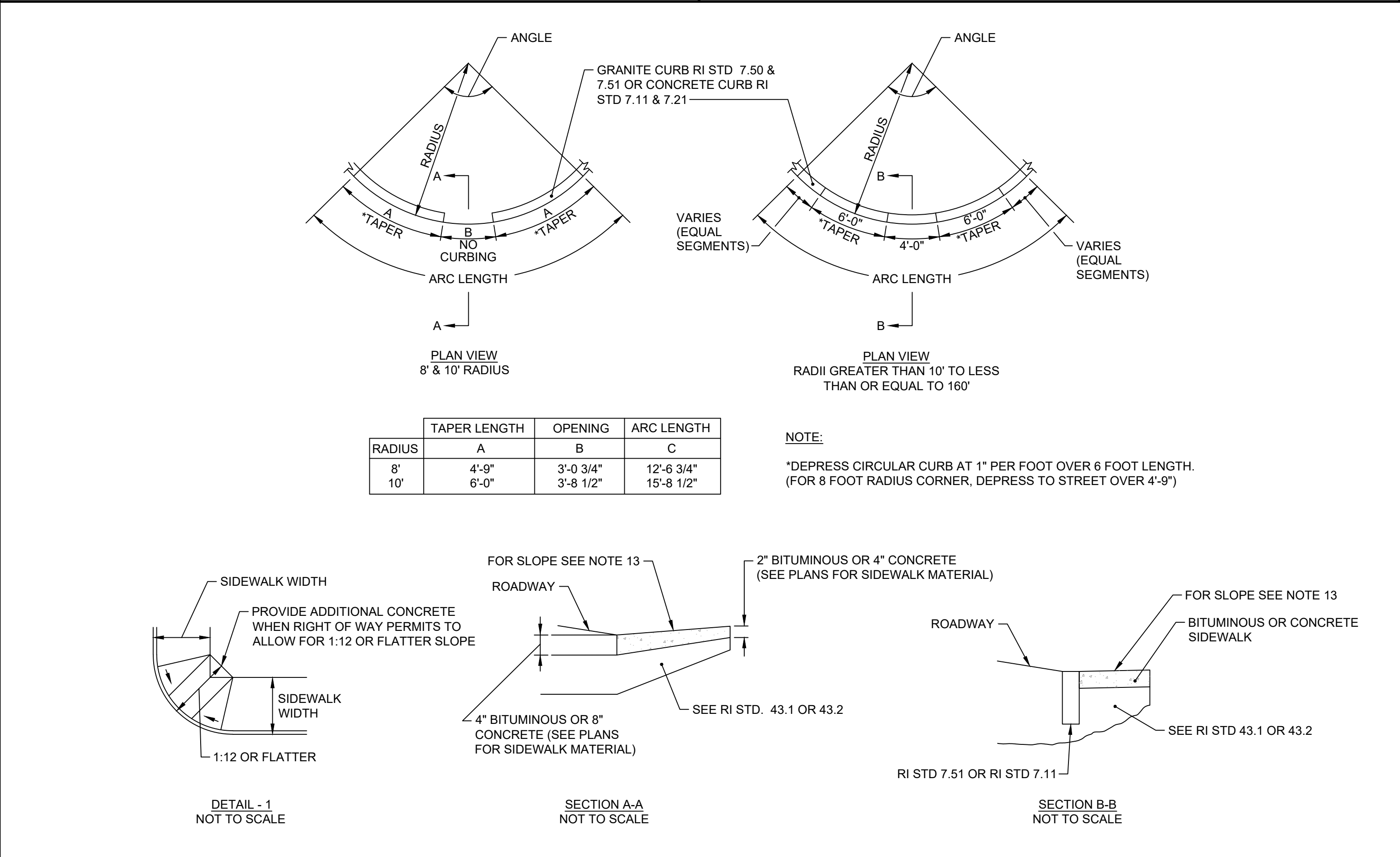
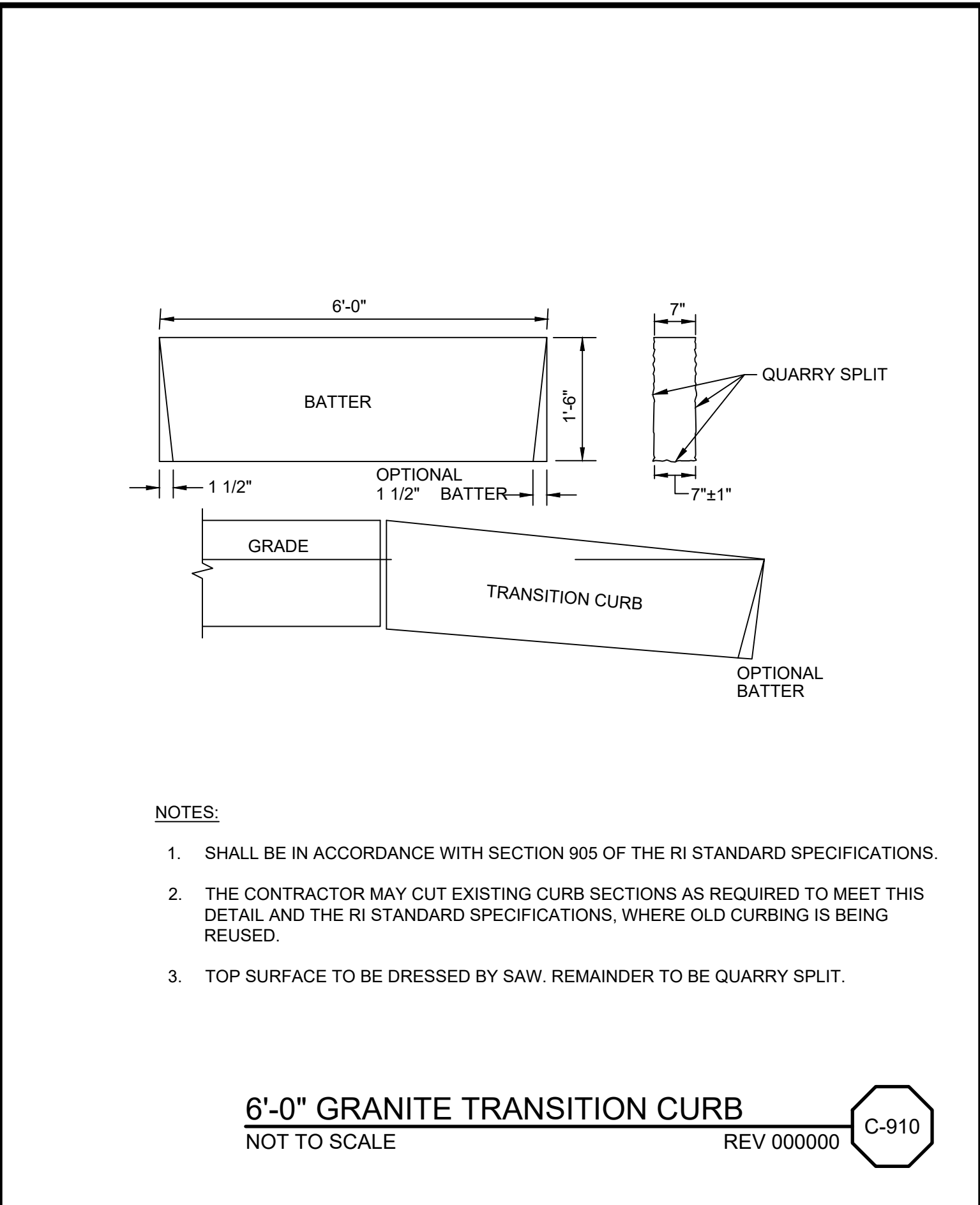
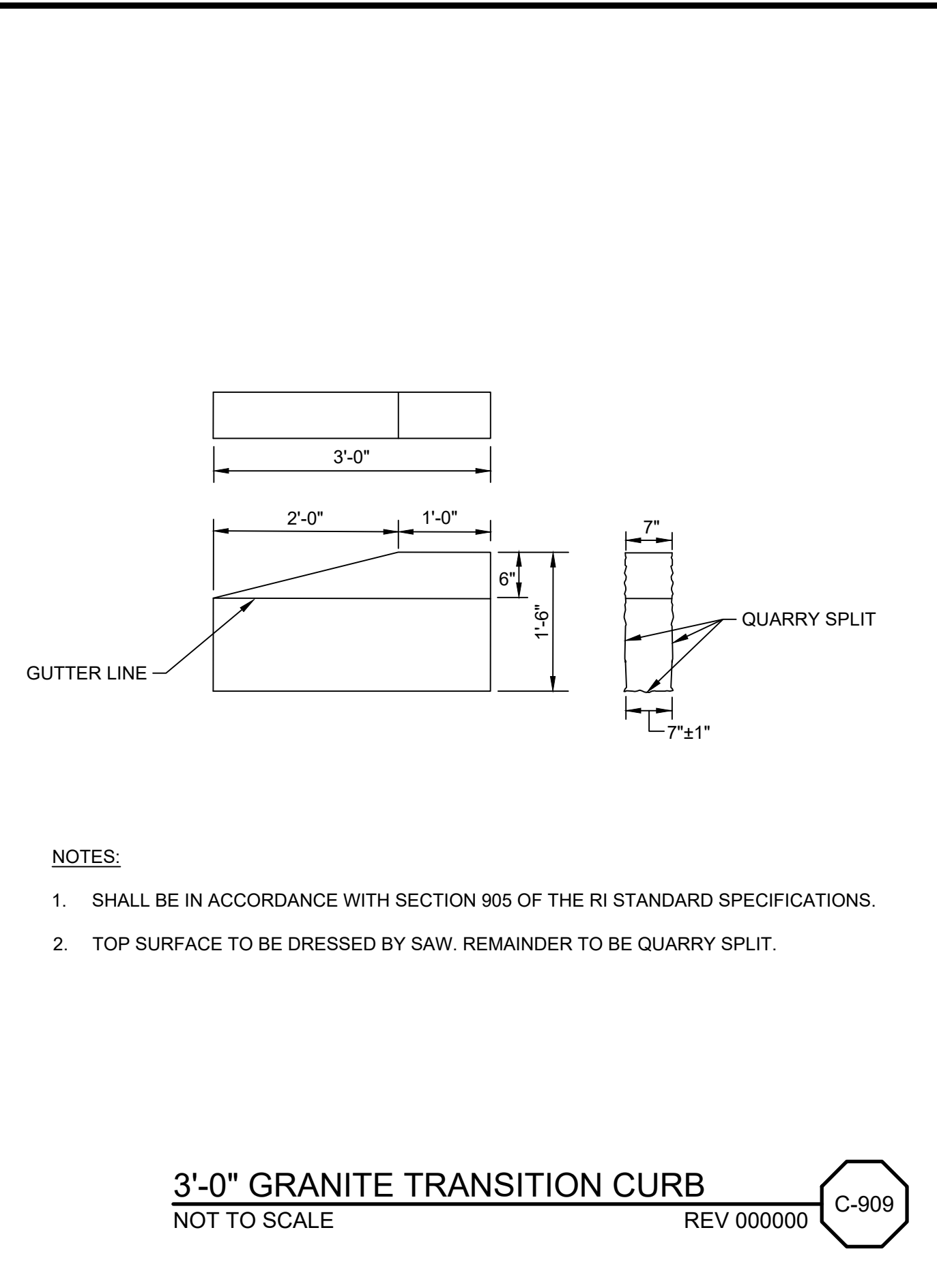
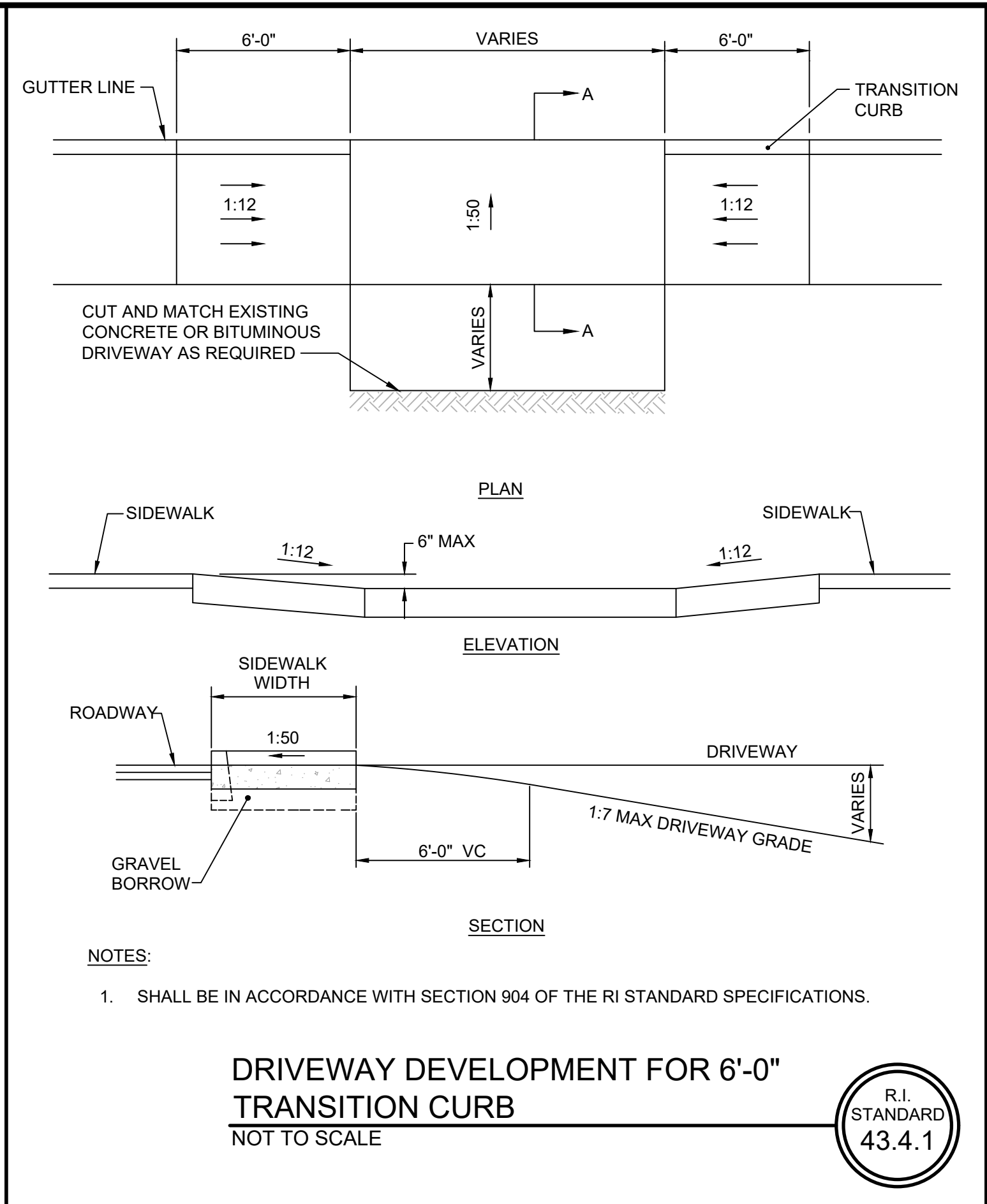
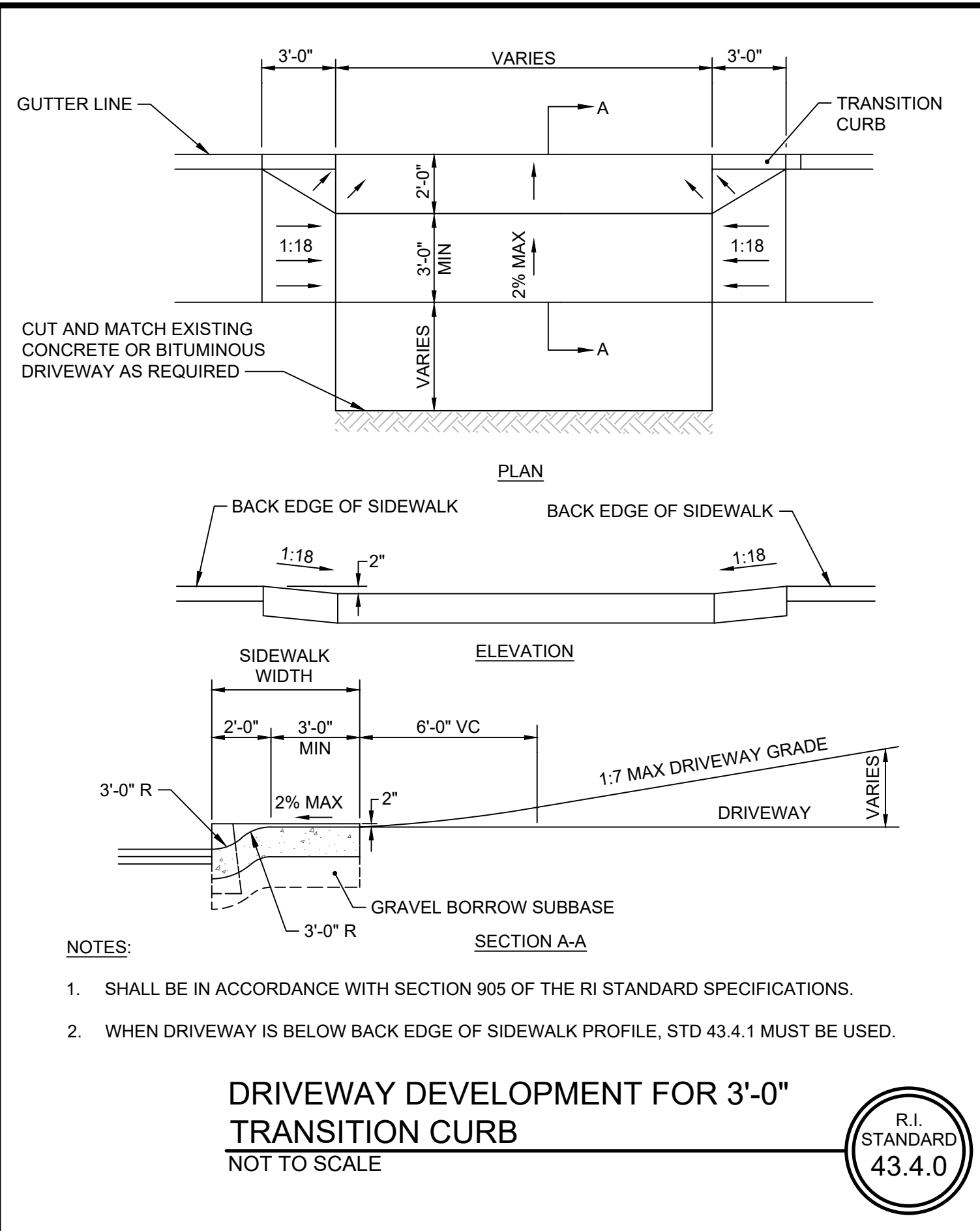
|          |              |
|----------|--------------|
| DESIGNED | C. CRONIN    |
| DRAWN    | C. MARSHALL  |
| CHECKED  | J. D'ALESSIO |

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NBC CONTRACT NO 308.05C  
CIVIL  
OF-217 CONSOLIDATION CONDUIT  
CIVIL DETAILS IV

SHEET  
C-12  
195130227



| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
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|----------|--|
| SCALE    | AS SHOWN   |
| WARNING  | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |
| DESIGNED | C. CRONIN  |
| DRAWN    | C. MARSHALL  |
| CHECKED  | J. D'ALELIO  |

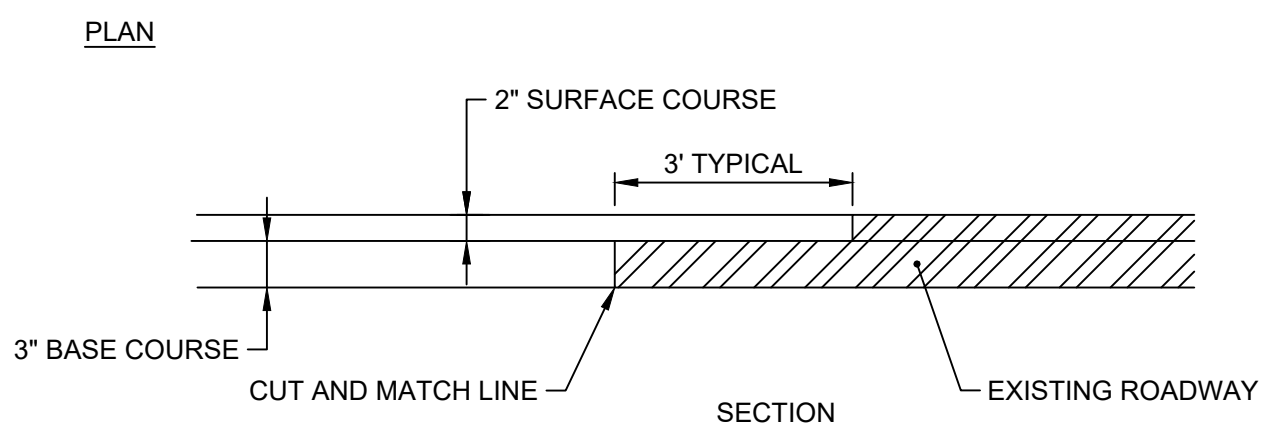
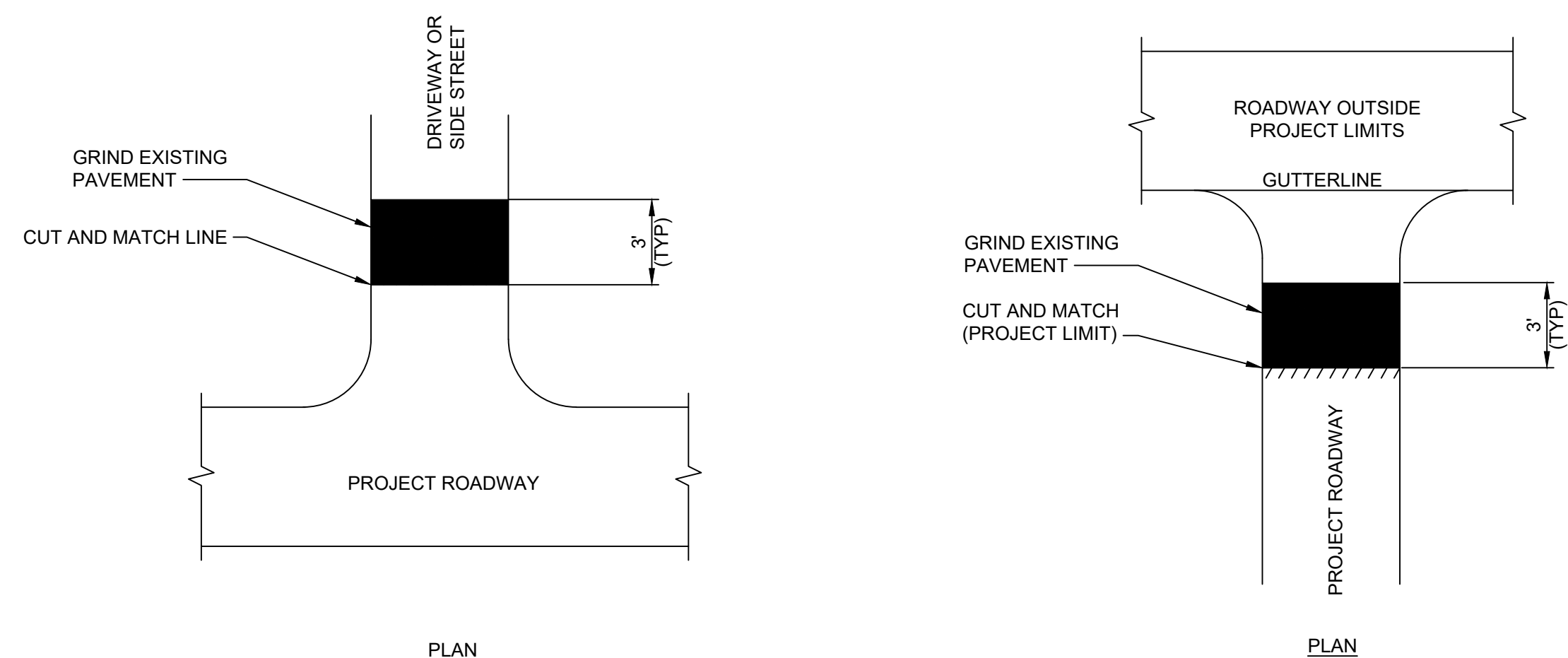
90% DESIGN PHASE - APRIL 2021

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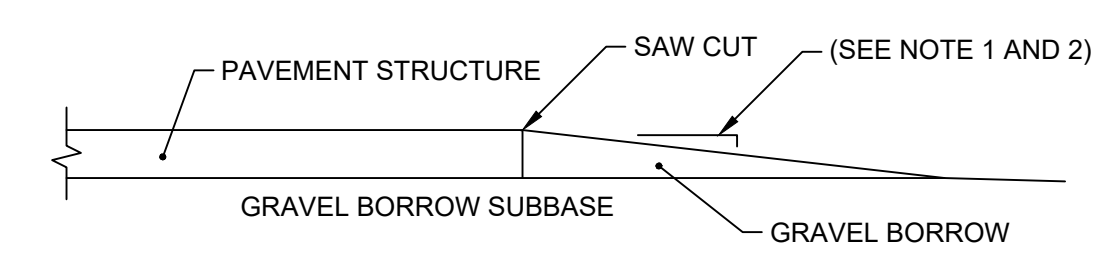


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|---|---------------|
| NBC CONTRACT NO 308.05C<br>CIVIL                | SHEET<br>C-13 |
| OF-217 CONSOLIDATION CONDUIT<br>CIVIL DETAILS V | 195130227     |



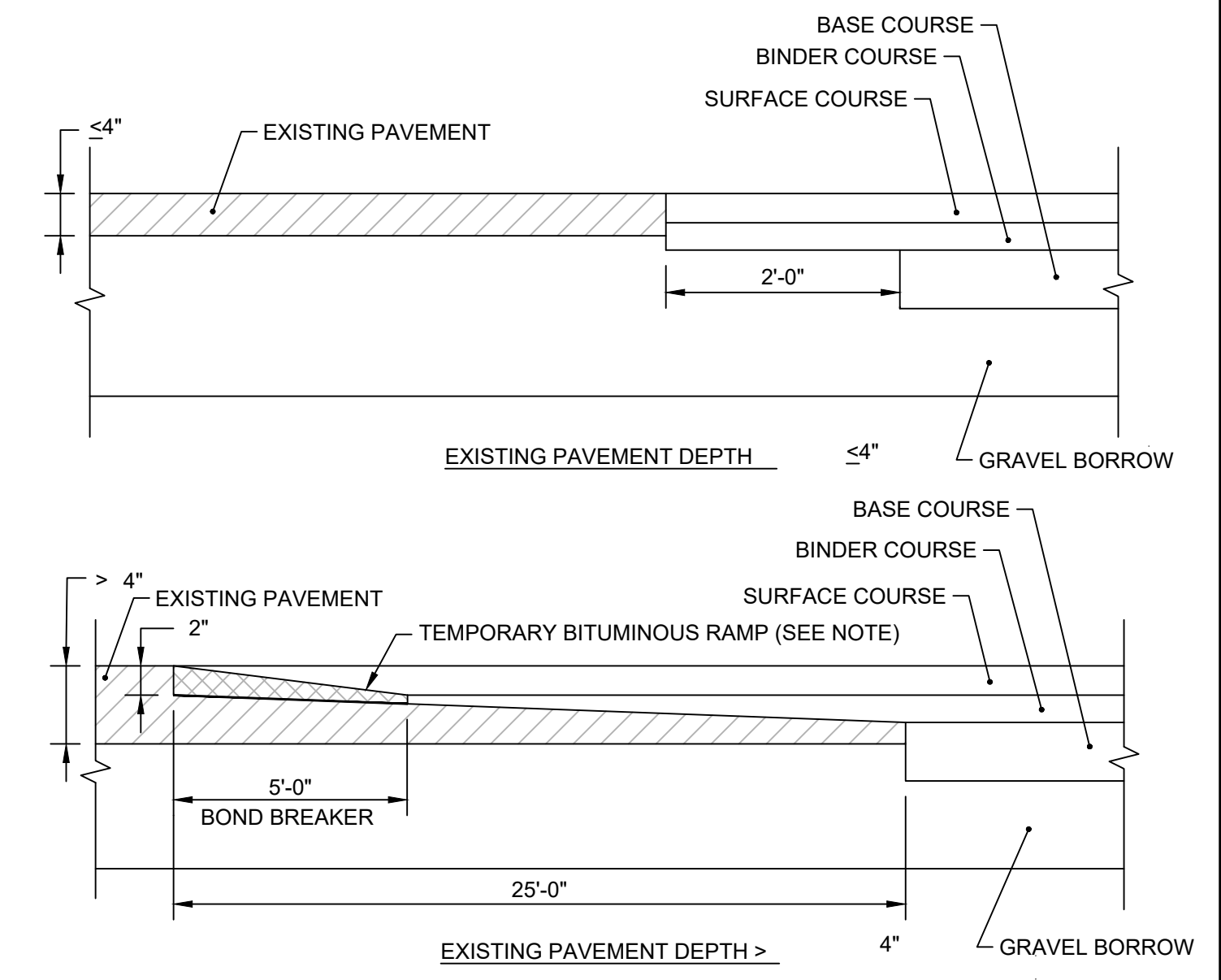
NOTES:  
1. ACTUAL LOCATIONS OF CUT AND MATCH LINES TO BE DETERMINED IN THE FIELD.

**PROJECT LIMITS CUT AND MATCH DETAIL**  
NOT TO SCALE REV 000000 C-912



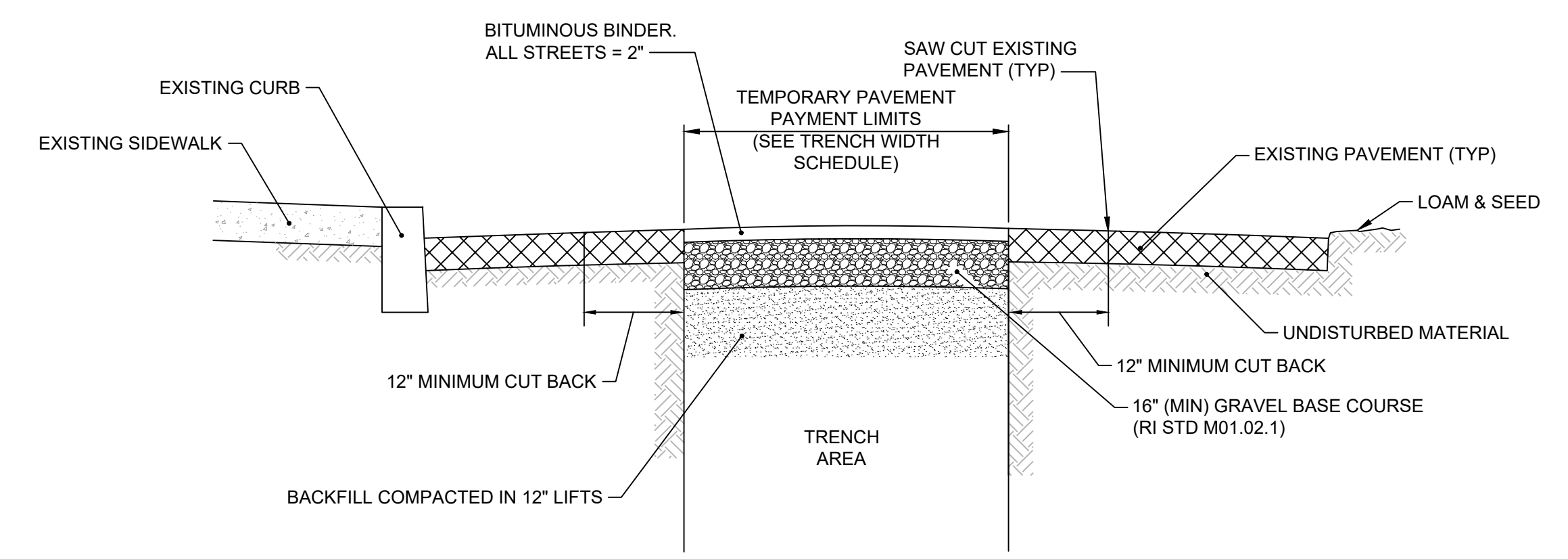
NOTES:  
1. TRANSVERSE DROP-OFF:  
POSTED SPEED < 35 MPH: 5 FEET HORIZONTALLY TO 1 INCH VERTICALLY  
POSTED SPEED > 35 MPH: 10 FEET HORIZONTALLY TO 1 INCH VERTICALLY  
2. LONGITUDINAL DROP-OFF (OUTSIDE EDGES OF PAVEMENT):  
POSTED SPEED < 35 MPH: DROP-OFFS > 3\"/>

**PAVEMENT REMOVAL DROP-OFF DETAIL**  
NOT TO SCALE R.I. STANDARD 47.1.0



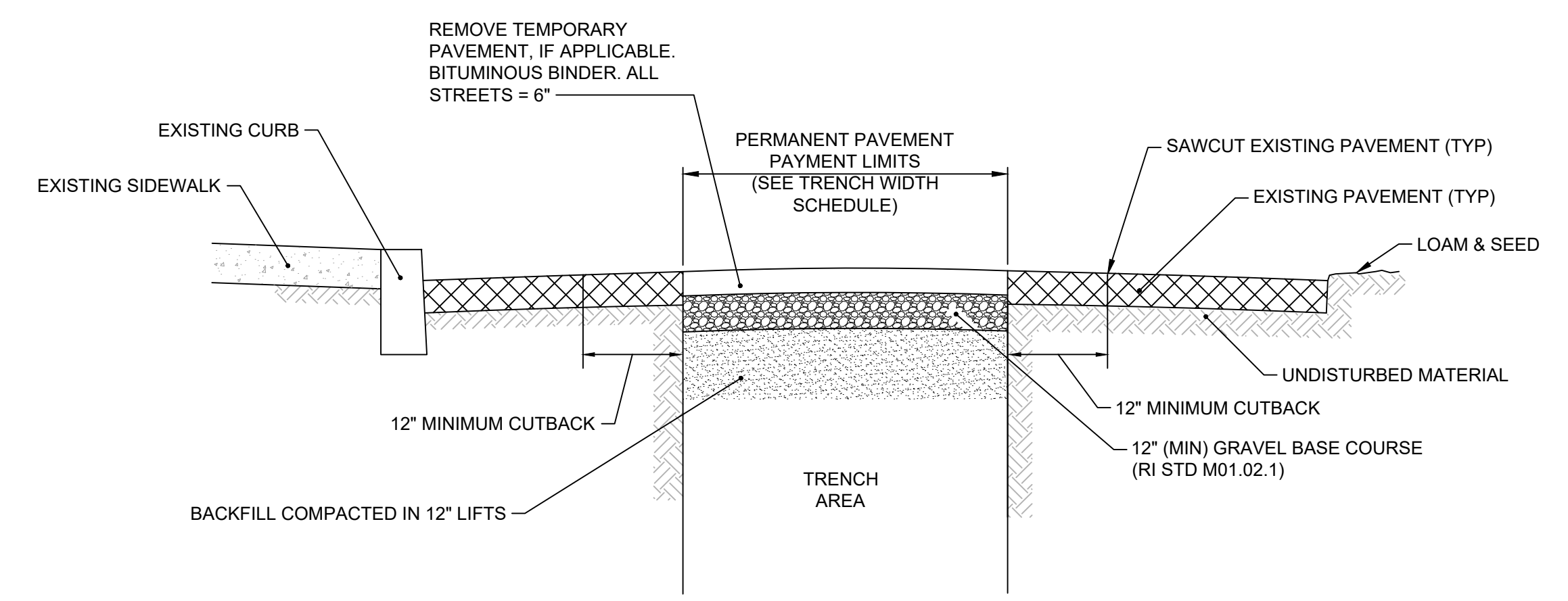
NOTES:  
1. A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0\"/>

**TRANSVERSE PAVEMENT CUT AND MATCH**  
NOT TO SCALE R.I. STANDARD 47.1.1



NOTES:  
1. CONTRACTOR TO VARY PAVEMENT THICKNESS TO MAINTAIN A MINIMUM CROSS SECTIONAL SLOPE EQUALING 0.02 FT/FT OR %.

**TEMPORARY TRENCH-WIDTH PAVEMENT**  
NOT TO SCALE REV 000000 C-913



NOTES:  
1. CONTRACTOR TO VARY PAVEMENT THICKNESS TO MAINTAIN A MINIMUM CROSS SECTIONAL SLOPE EQUALING 0.02 FT/FT OR %.

**PERMANENT TRENCH-WIDTH PAVEMENT**  
NOT TO SCALE REV 000000 C-914

| REV | DATE | BY | DESCRIPTION |
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|     |      |    |             |

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AS SHOWN

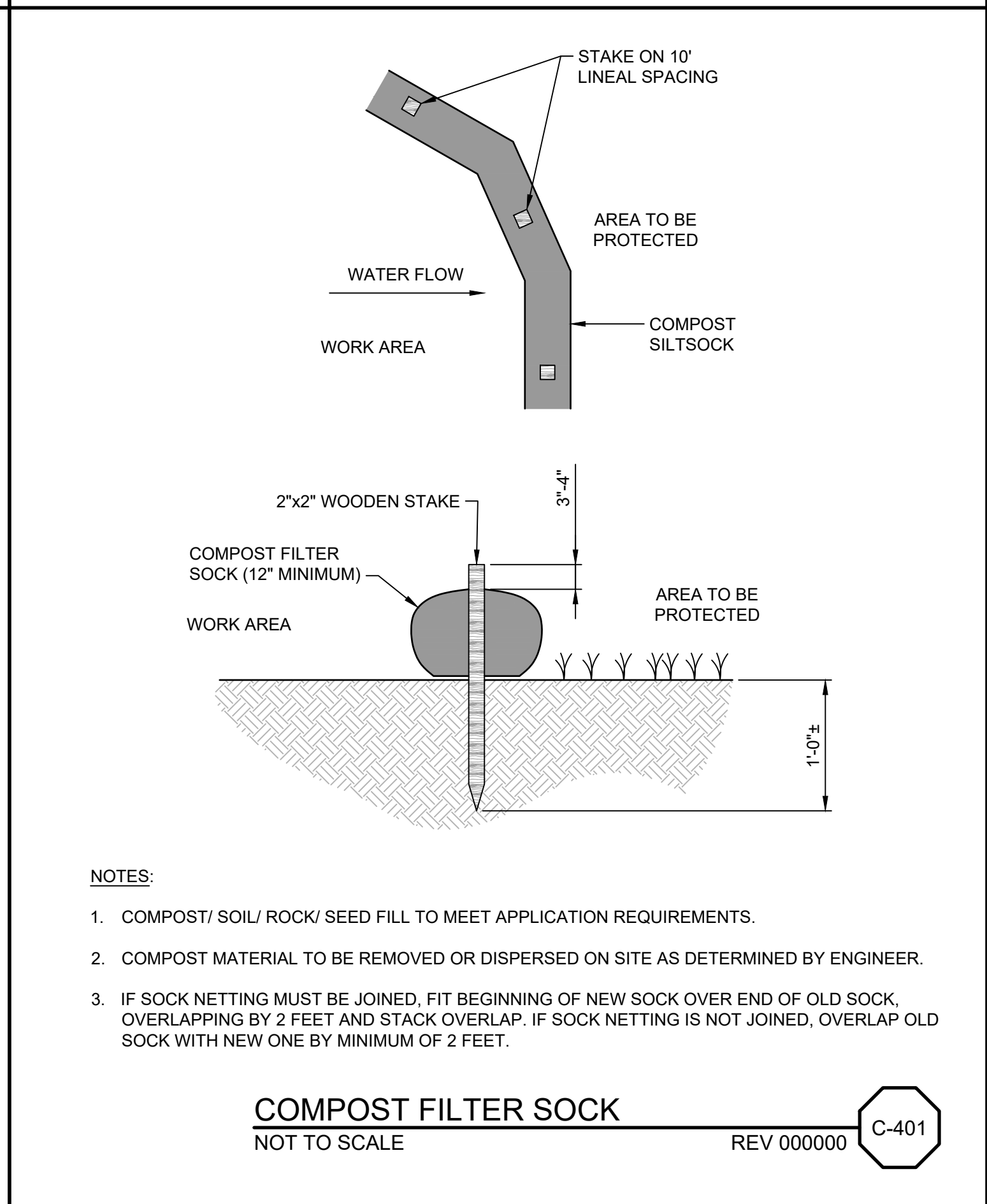
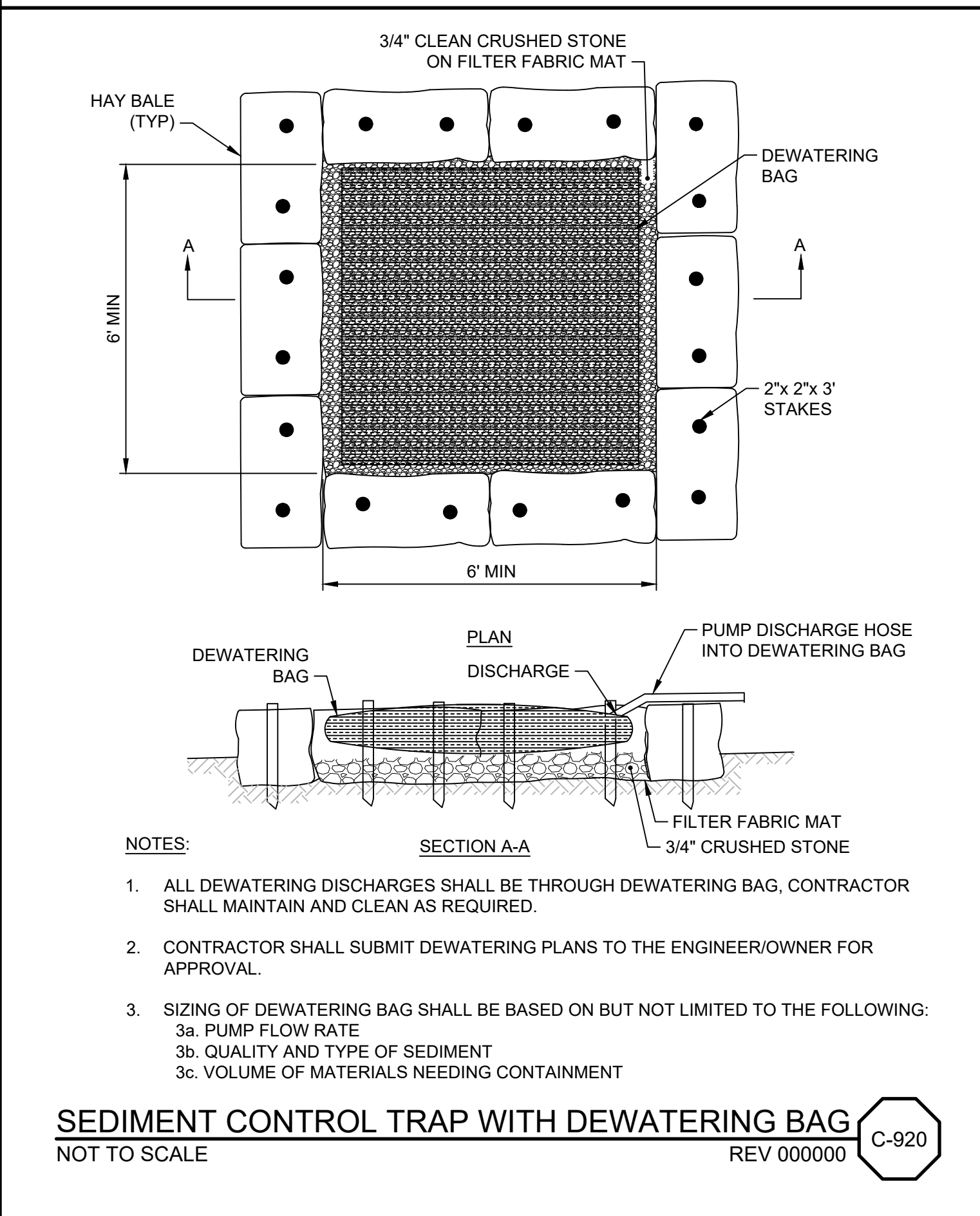
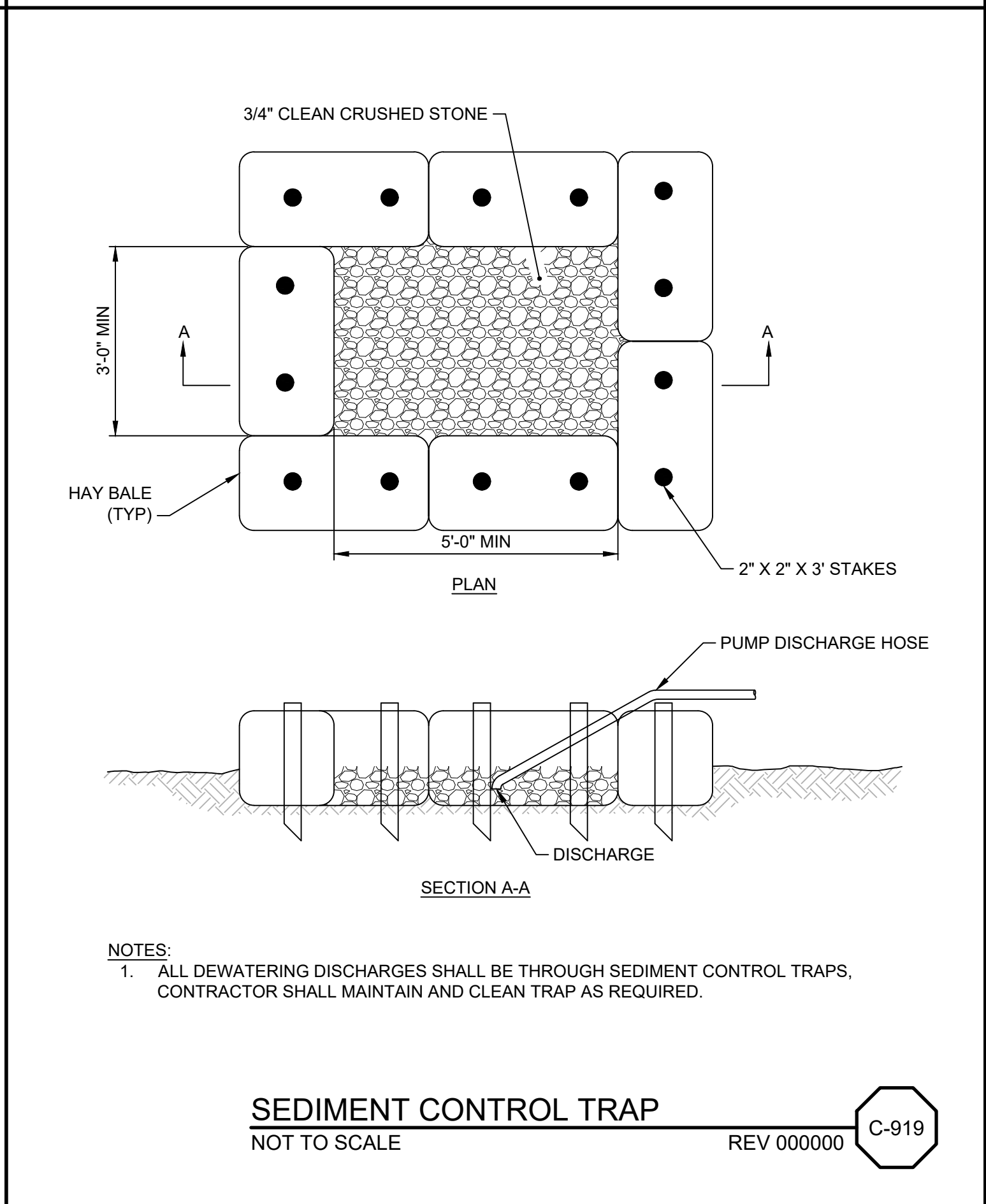
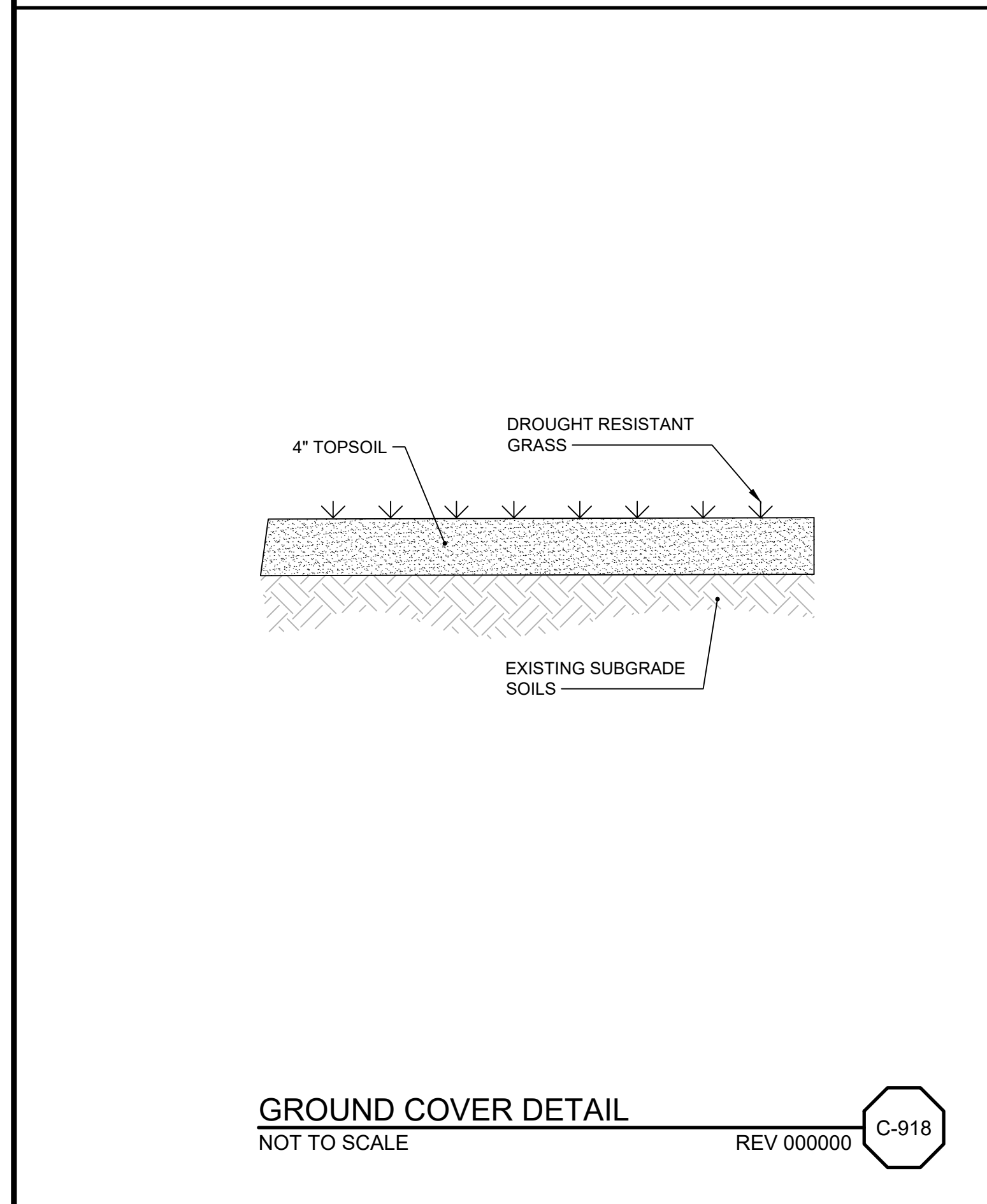
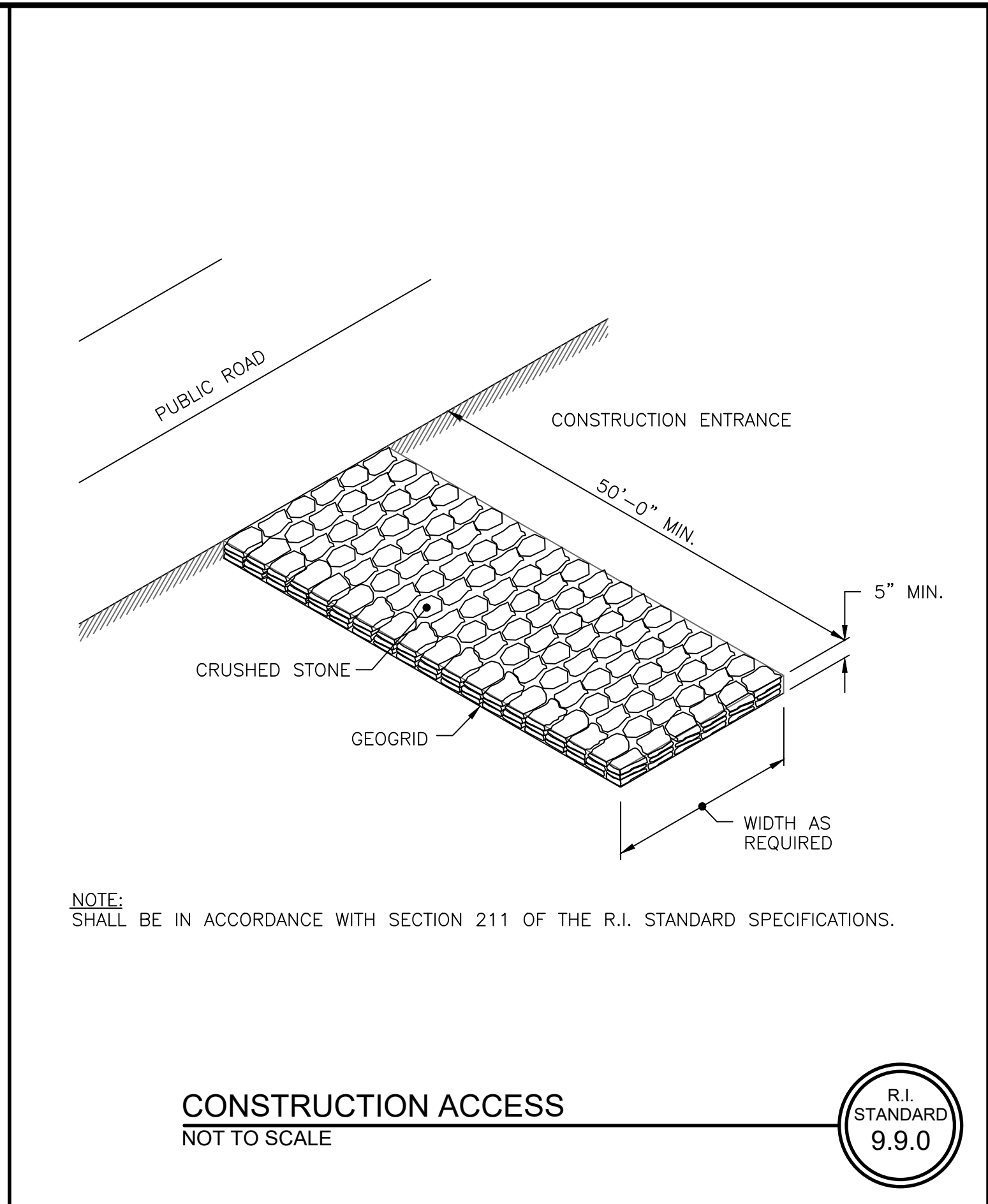
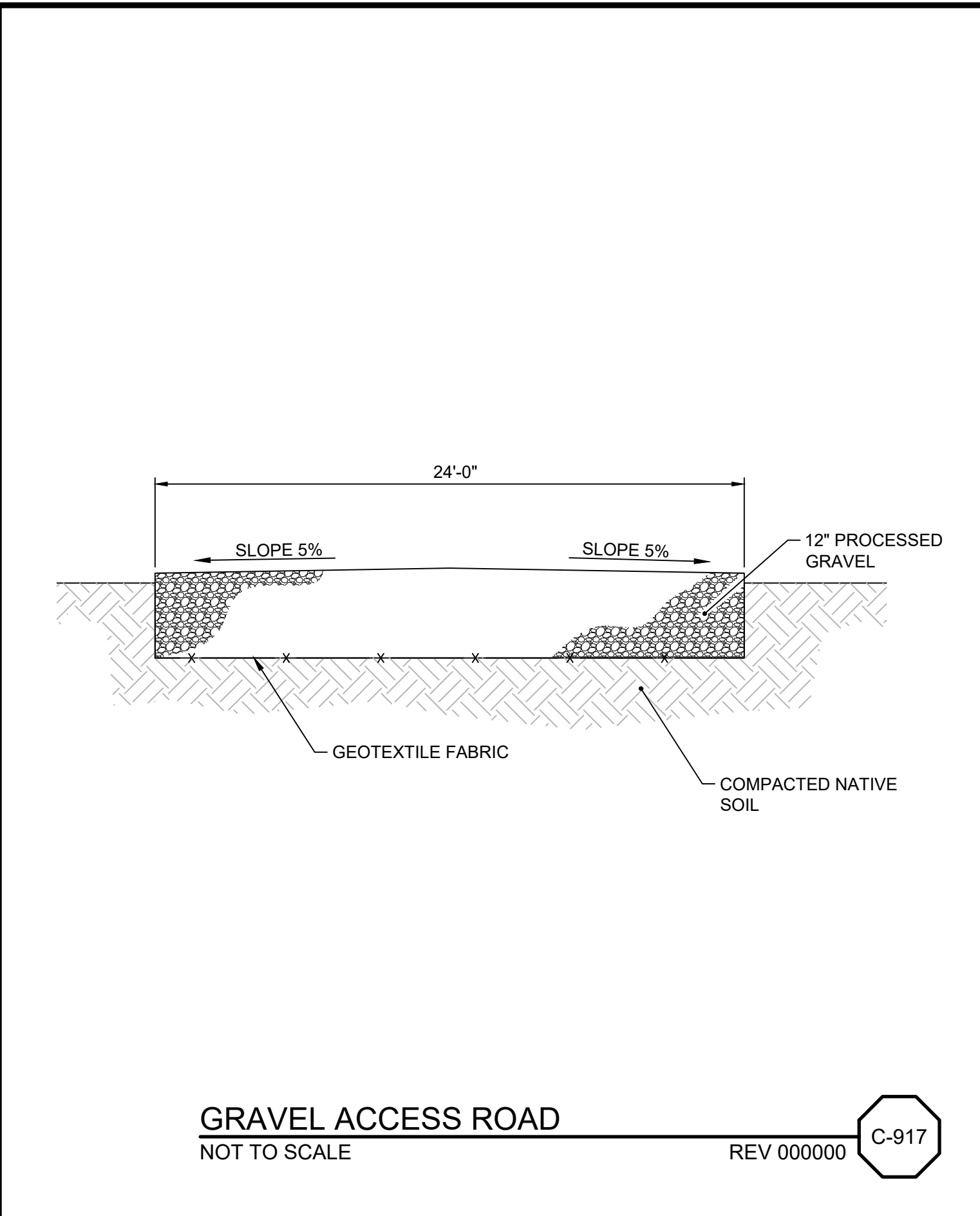
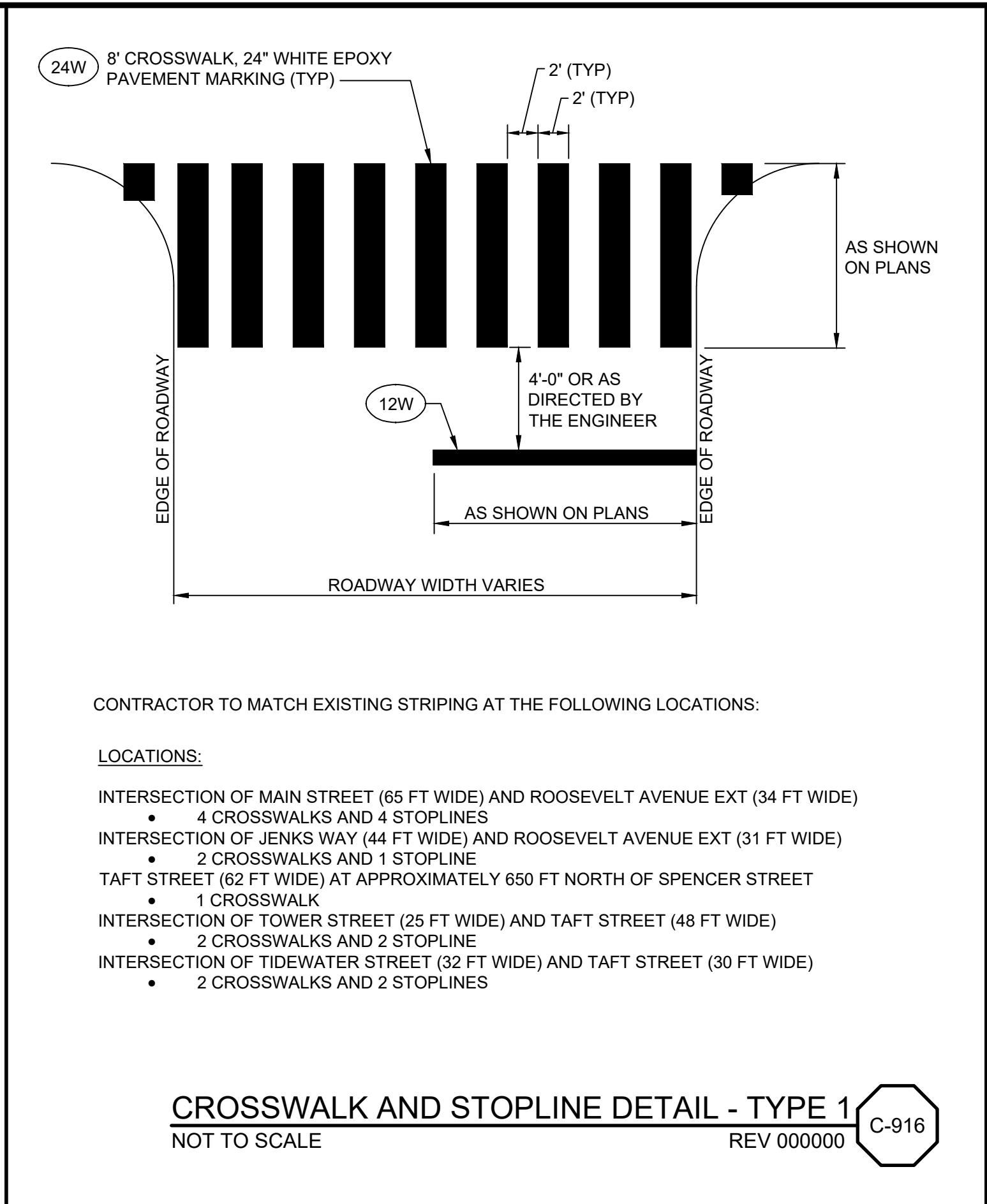
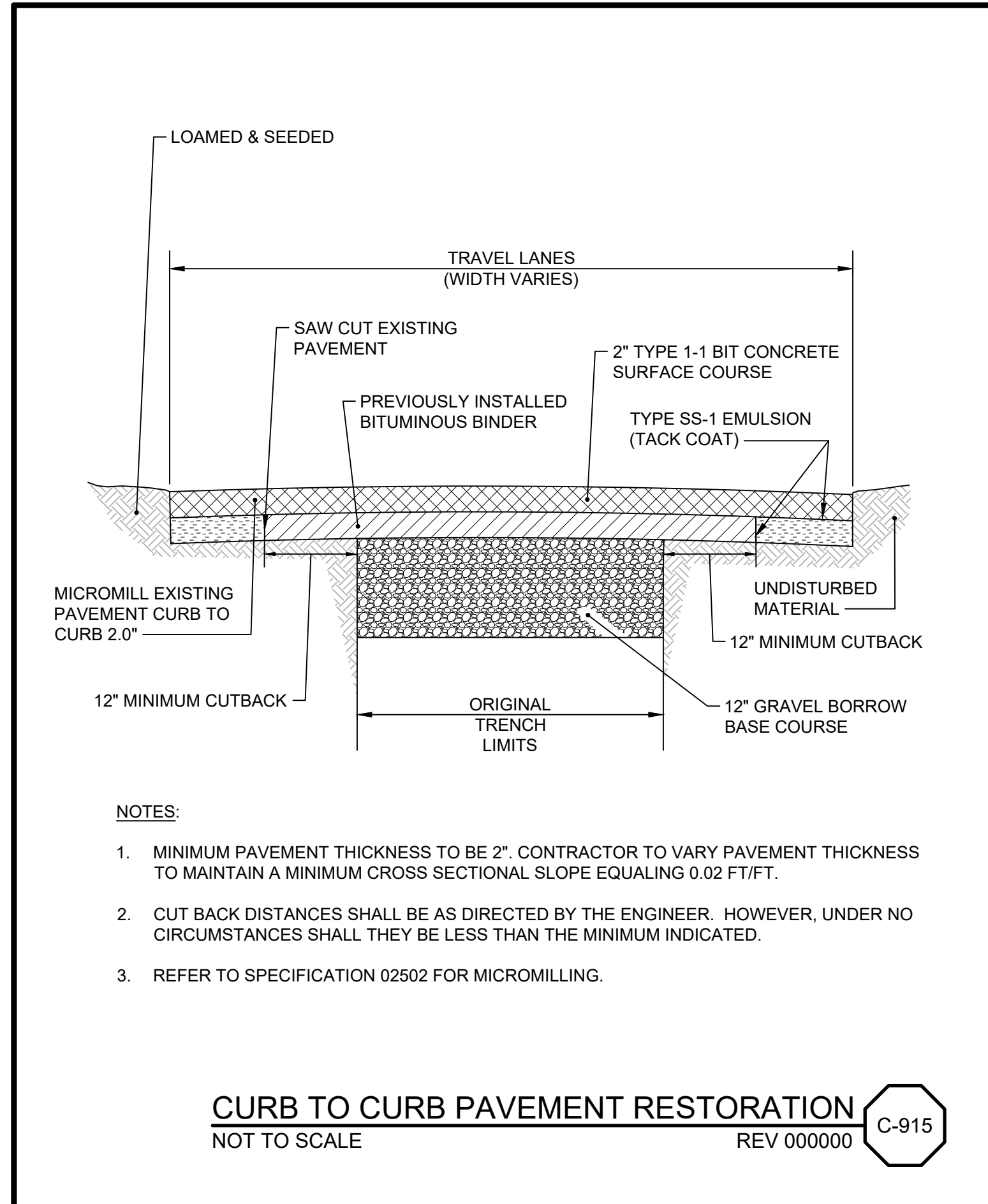
WARNING  
IF THIS BAR DOES NOT MEASURE 1\"/>

DESIGNED C. CRONIN  
DRAWN C. MARSHALL  
CHECKED J. D'ALELIO

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NBC CONTRACT NO 308.05C  
CIVIL  
OF-217 CONSOLIDATION CONDUIT  
CIVIL DETAILS VI



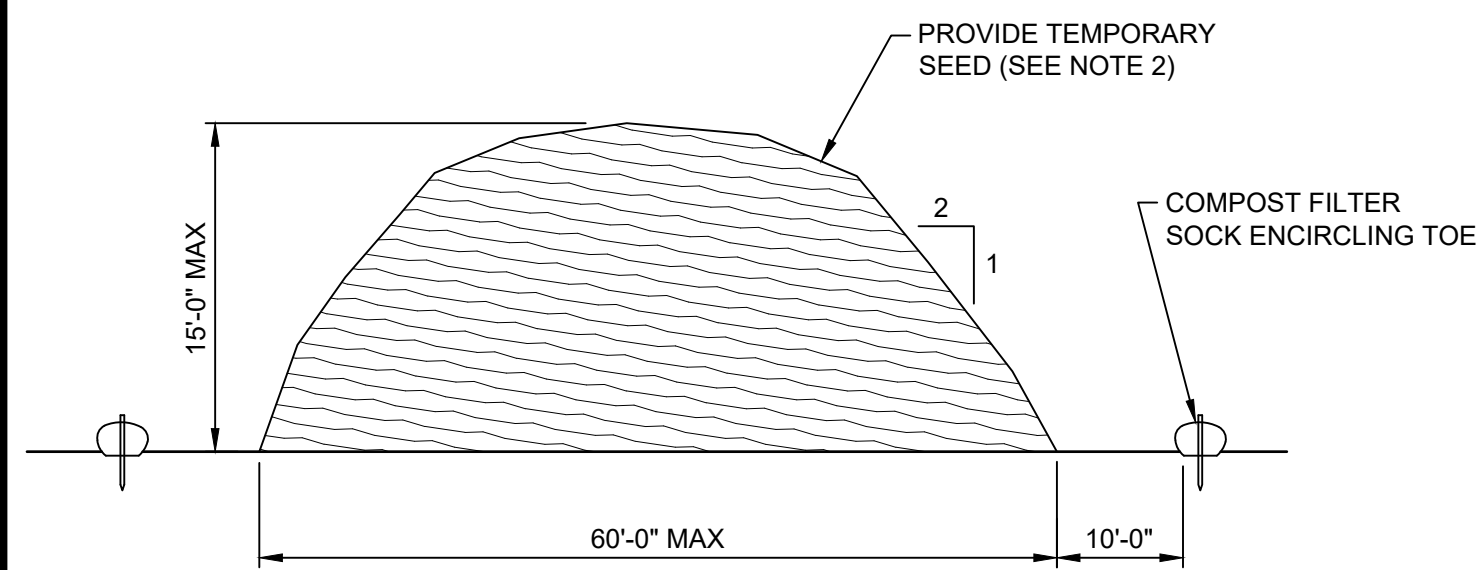
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|     |      |    |             |

SCALE AS SHOWN  
 WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE  
 DESIGNED C. CRONIN  
 DRAWN C. MARSHALL  
 CHECKED J. D'ALESSIO

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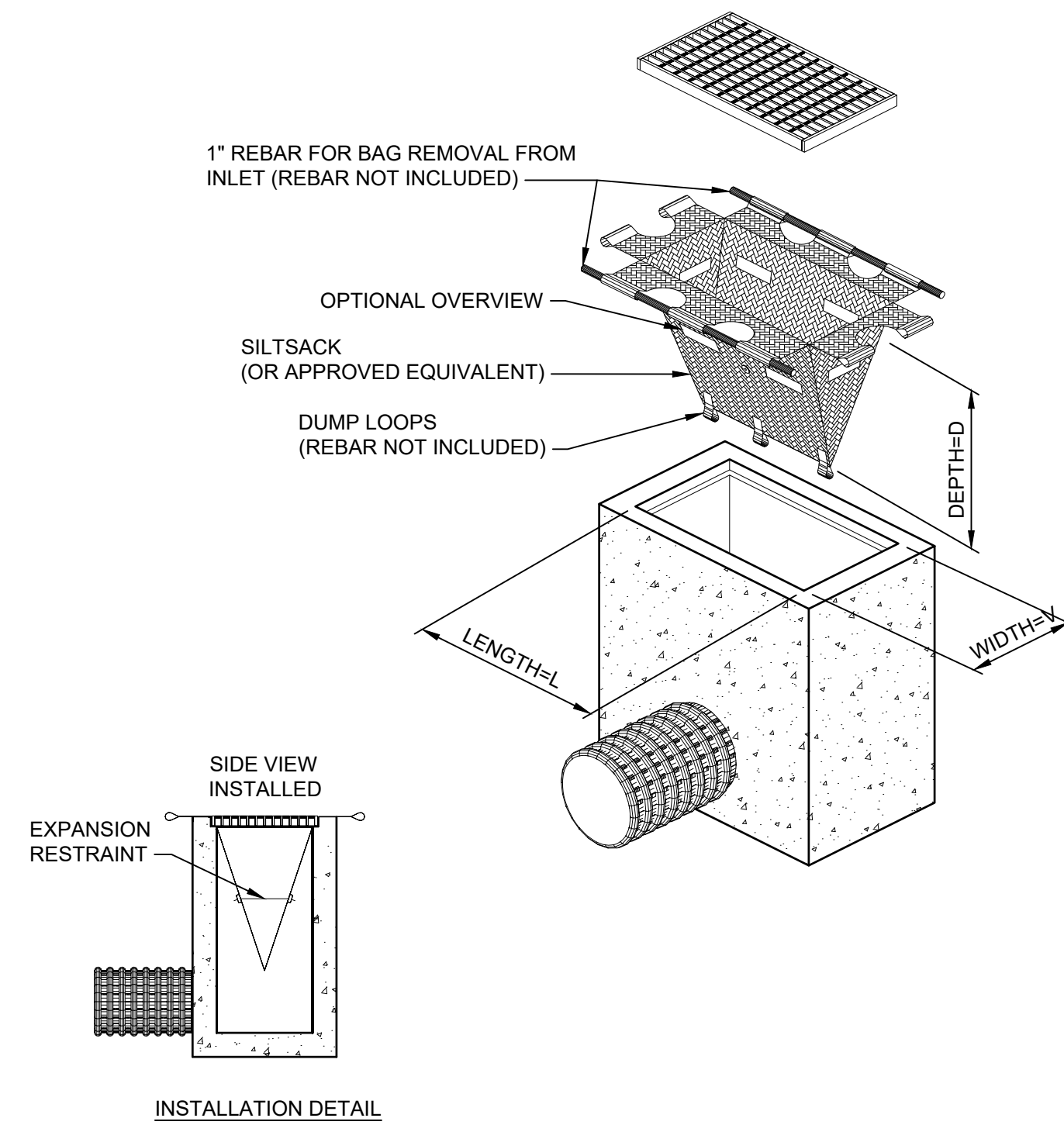


NARRAGANSETT BAY COMMISSION  
 PHASE III COMBINED SEWER OVERFLOW PROGRAM  
 NBC CONTRACT NO 308.05C  
 CIVIL  
 OF-217 CONSOLIDATION CONDUIT  
 CIVIL DETAILS VII  
 SHEET C-15  
 195130227

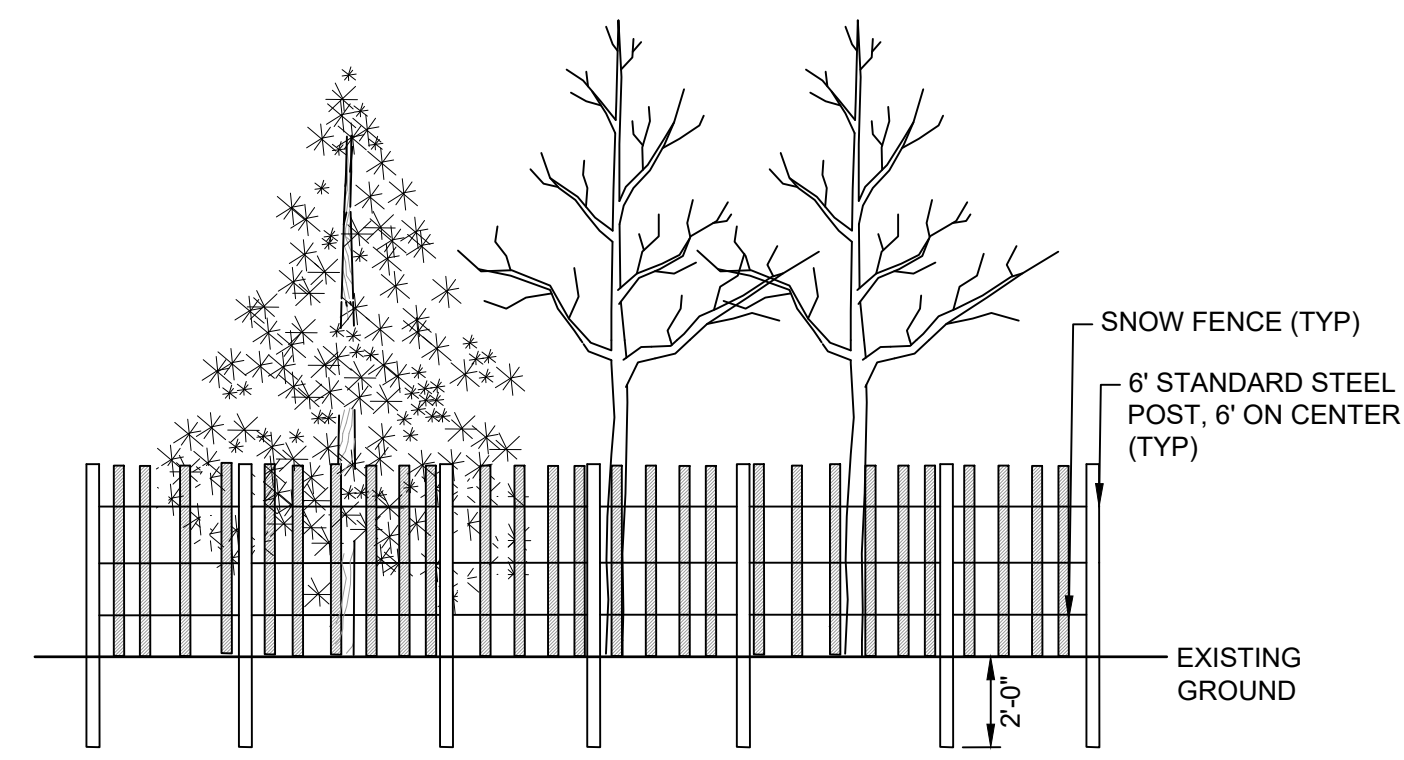


- NOTES:**
1. STOCKPILE AREA SHALL NOT EXCEED SPECIFIED DIMENSIONS WITHOUT APPROVAL FROM ENGINEER.
  2. STOCKPILED ERODIBLE MATERIAL THAT WILL NOT BE USED FOR GREATER THAN 14 DAYS SHALL BE STABILIZED WITH TEMPORARY SEED IMMEDIATELY FOLLOWING PLACEMENT. USE RIDOT STD M.18.10.5 SEED MIX.
  3. FOR STOCKPILING EXCESS MATERIAL ON THE TIDEWATER SITE, STOCKPILE AREA SHALL BE IN ACCORDANCE WITH SPECIFICATION 02076 SOIL MANAGEMENT TIDEWATER.

**ERODIBLE MATERIAL STOCKPILE**  
NOT TO SCALE REV 000000 C-402

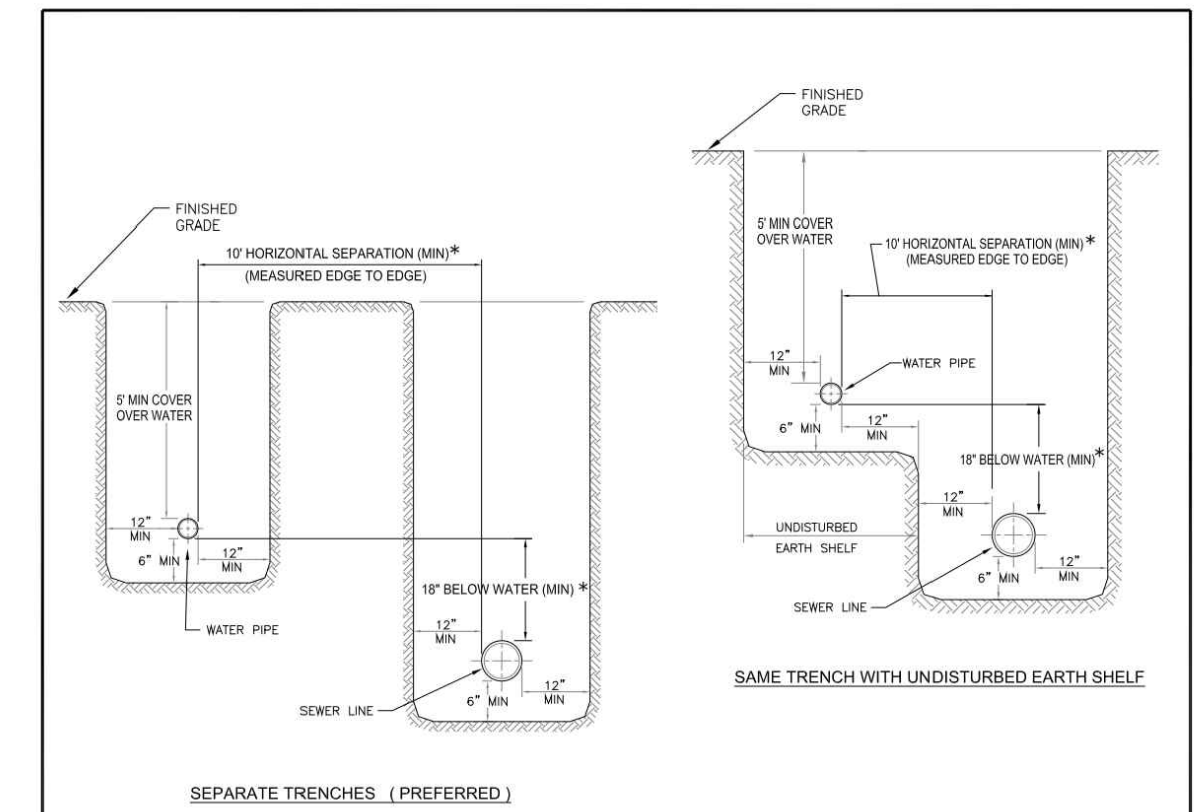


**TEMPORARY INLET PROTECTION**  
NOT TO SCALE REV 000000 C-403



- NOTES:**
1. TREE GROUP PROTECTION SHALL BE INSTALLED AT THE DRIP LINE OF THE TREES TO BE PROTECTED.

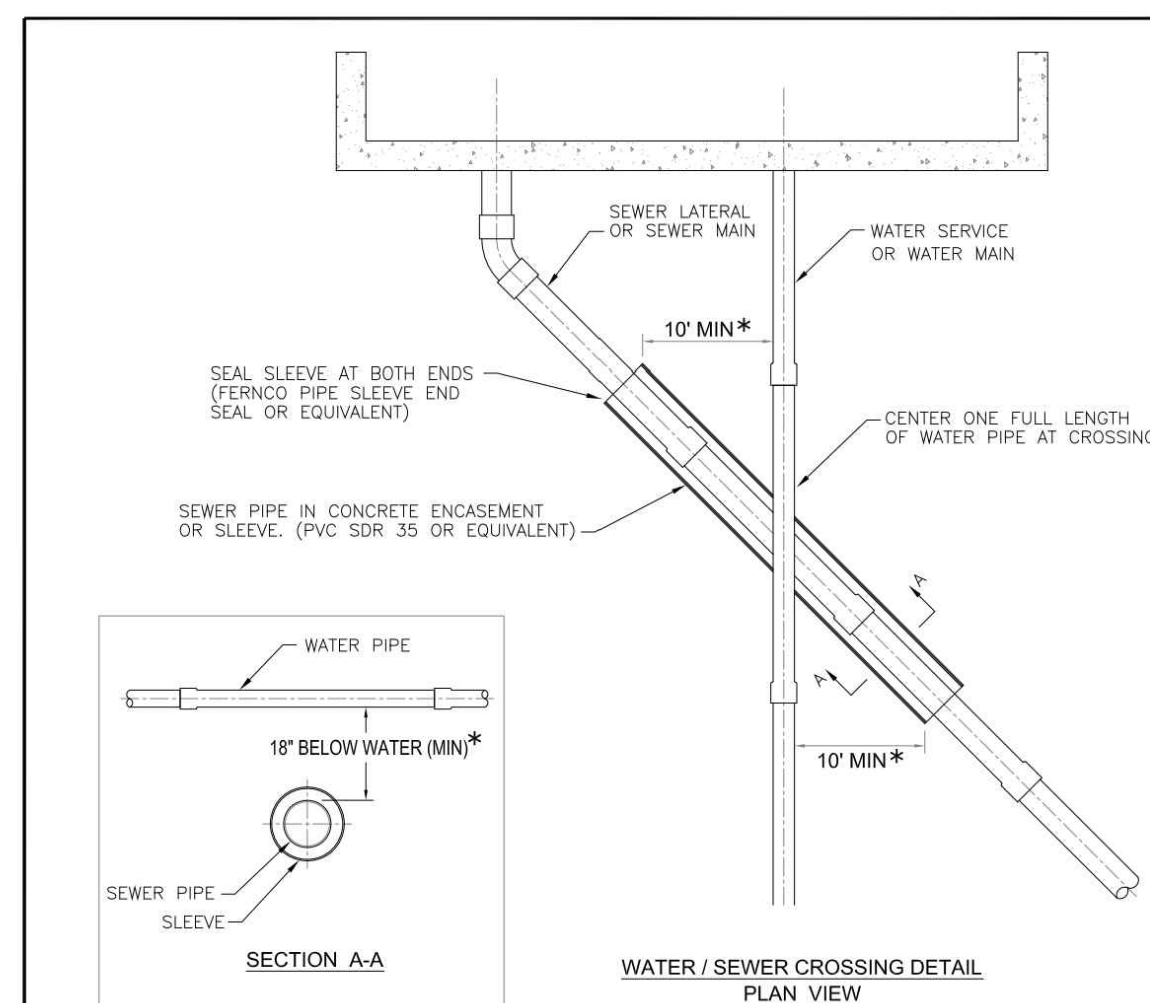
**TREE GROUP PROTECTION DETAIL**  
NOT TO SCALE REV 000000 C-404



- SEPARATE TRENCHES - (PREFERRED)**
- \* NO MINIMUM VERTICAL SEPARATION IS REQUIRED PROVIDED A 10 FOOT HORIZONTAL SEPARATION IS MAINTAINED BETWEEN WATER PIPE AND SEWER LINE.
- WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10 FOOT HORIZONTAL SEPARATION, A DEVIATION MAY BE GRANTED ON A CASE BY CASE BASIS. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER LINE CLOSER TO THE WATER PIPE PROVIDED THAT THE SEWER LINE AND WATER PIPE ARE LAID IN SEPARATE TRENCHES (OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER LINE) AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER LINE SHALL BE AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER PIPE.
- IF BOTH THE 10 FOOT MINIMUM HORIZONTAL AND 18 INCH MINIMUM VERTICAL SEPARATION CANNOT BE MAINTAINED, ONE OF THE FOLLOWING OPTIONS MUST BE USED FOR A DISTANCE THAT WILL PROVIDE THE REQUIRED 10 FOOT HORIZONTAL OR 18 INCH VERTICAL SEPARATION:
- OPTION A: CONSTRUCT SEWER LINE USING AWWA APPROVED WATER MAIN PIPE AND PRESSURE TEST TO 150psi.
- OPTION B: ENCASE SEWER LINE IN CONCRETE (MIN. 6 INCHES THICK) OR SLEEVE. (SEE PWSB STD. DETAIL 1.06 FOR SLEEVE DETAIL.)

|                          |  |               |
|--------------------------|--|---------------|
|                          | PAWTUCKET WATER SUPPLY BOARD                             |               |
|                          | WATER AND SEWER SEPARATION DETAIL FOR PARALLEL PLACEMENT |               |
| REVISION DATE: DEC. 2013 | NOT TO SCALE   | STD. NO. 1.05 |

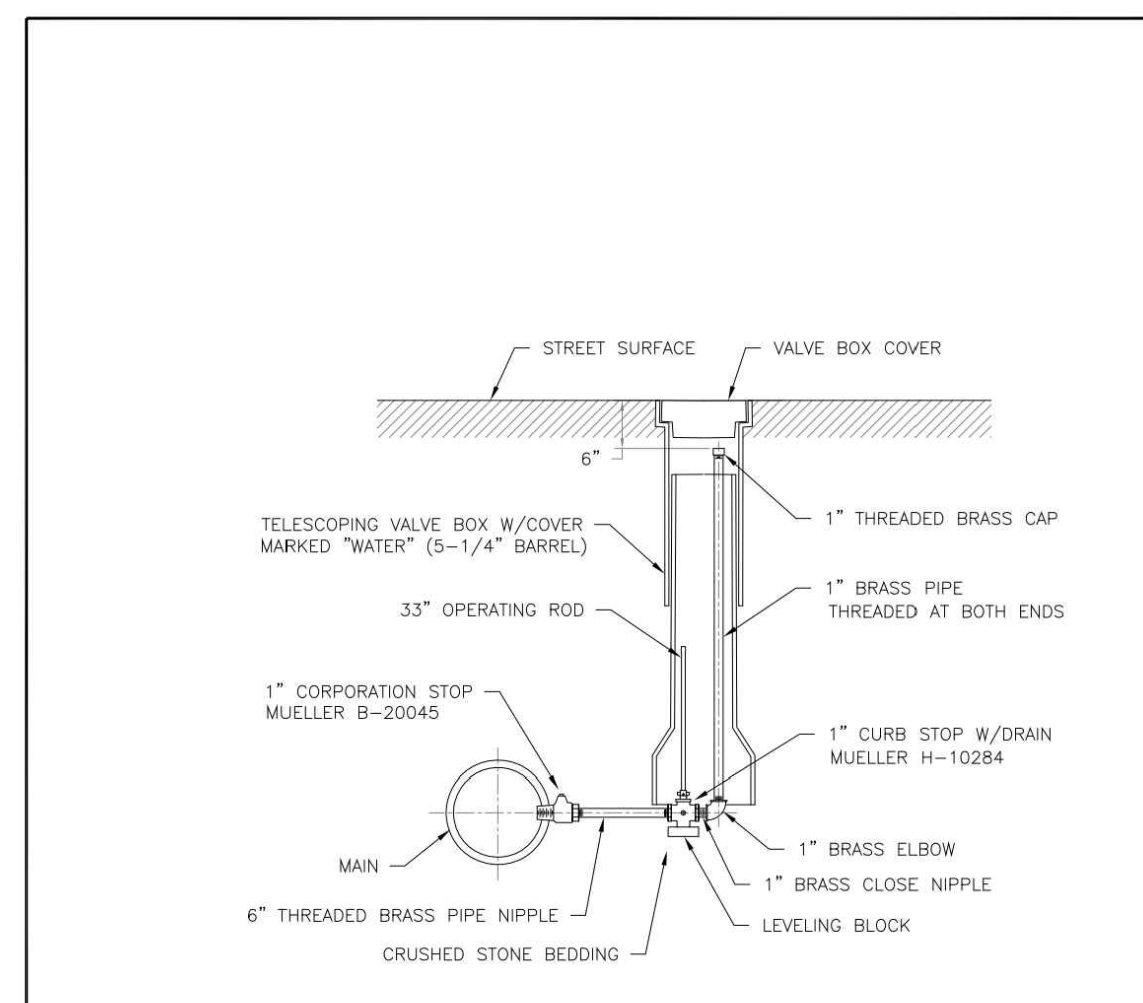
**WATER AND SEWER SEPARATION DETAIL FOR PARALLEL PLACEMENT**  
REV 000000 W-105



- \* IF THE 18 INCH MINIMUM VERTICAL SEPARATION CANNOT BE MAINTAINED, ONE OF THE FOLLOWING OPTIONS MUST BE USED FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PARALLEL TO THE WATER PIPE:
- OPTION A: CONSTRUCT SEWER USING AWWA APPROVED WATER MAIN PIPE AND PRESSURE TEST TO 150psi.
- OPTION B: ENCASE SEWER PIPE IN CONCRETE (MIN. 6 INCHES THICK) OR SLEEVE.

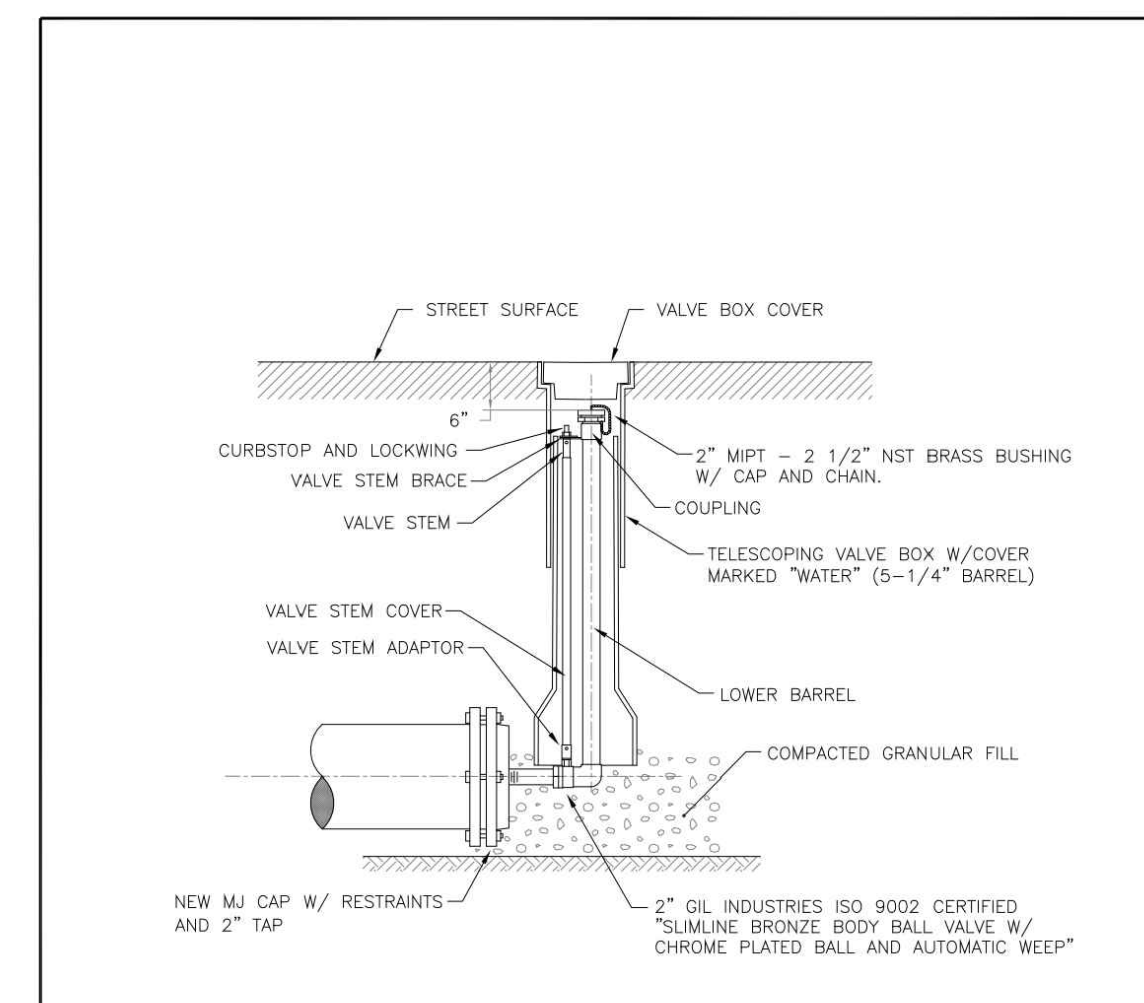
|                          |   |               |
|--------------------------|---|---------------|
|                          | PAWTUCKET WATER SUPPLY BOARD                  |               |
|                          | WATER AND SEWER SEPARATION DETAIL AT CROSSING |               |
| REVISION DATE: JAN. 2012 | NOT TO SCALE                                  | STD. NO. 1.06 |

**WATER AND SEWER SEPARATION DETAIL AT CROSSING**  
REV 000000 W-106



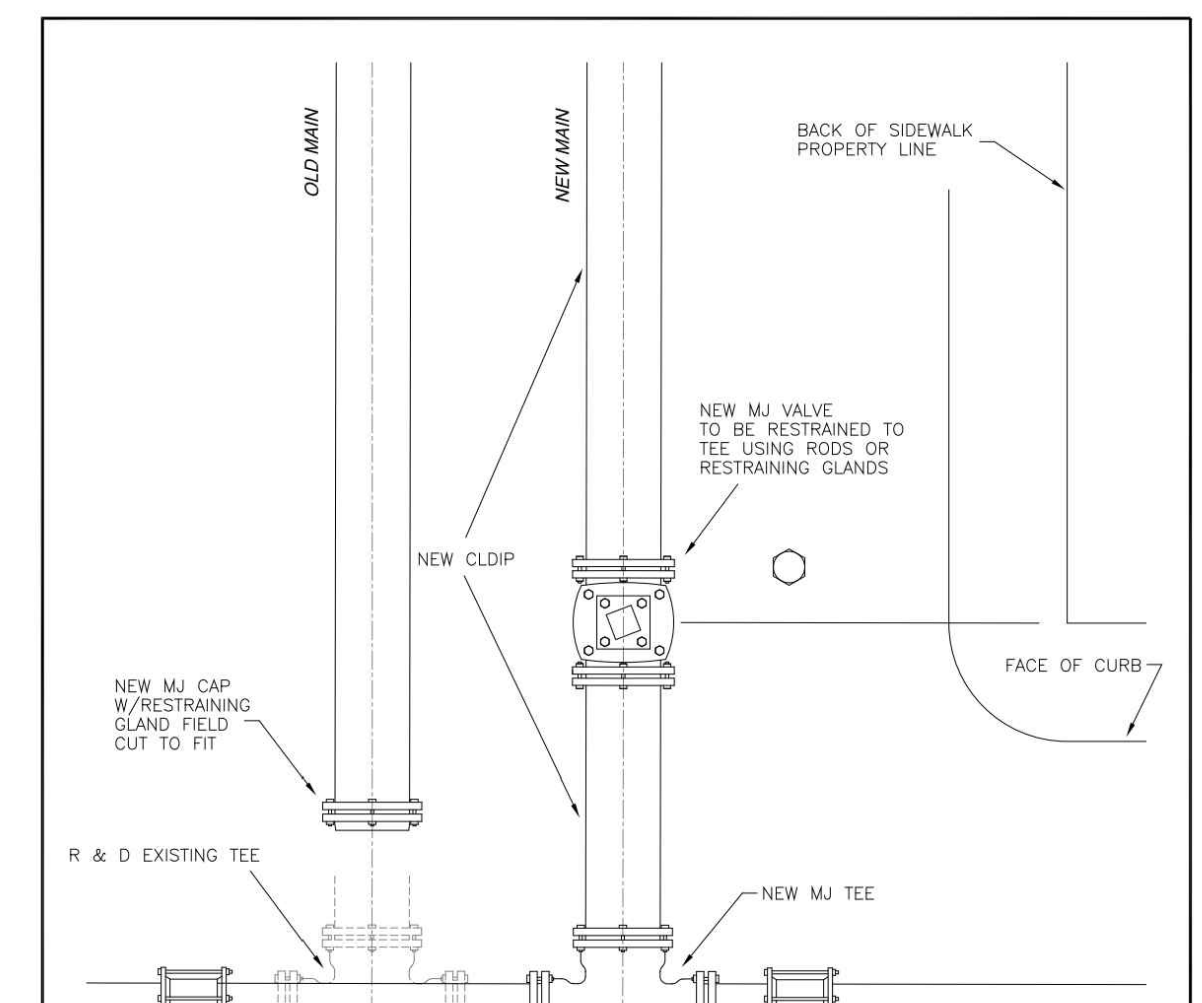
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|                          | PAWTUCKET WATER SUPPLY BOARD |               |
|                          | 1\"/>                        |               |
| REVISION DATE: FEB. 2006 | NOT TO SCALE                 | STD. NO. 3.05 |

**1\"/>**



|                         |                              |               |
|-------------------------|------------------------------|---------------|
|                         | PAWTUCKET WATER SUPPLY BOARD |               |
|                         | 2\"/>                        |               |
| REVISION DATE: MAY 2006 | NOT TO SCALE                 | STD. NO. 3.06 |

**2\"/>**



|                          |  |               |
|--------------------------|--|---------------|
|                          | PAWTUCKET WATER SUPPLY BOARD                 |               |
|                          | MAIN CONNECTION AT INTERSECTION (CUT-IN TEE) |               |
| REVISION DATE: FEB. 2006 | NOT TO SCALE                                 | STD. NO. 5.02 |

**MAIN CONNECTION AT INTERSECTION (CUT-IN TEE)**  
NOT TO SCALE REV 000000 W-502

|          |                                    |
|----------|------------------------------------|
| SCALE    | AS SHOWN                           |
| WARNING  | IF THIS BAR DOES NOT MEASURE 1\"/> |
| DESIGNED | C. CRONIN                          |
| DRAWN    | C. MARSHALL                        |
| CHECKED  | J. D'ALESSIO                       |

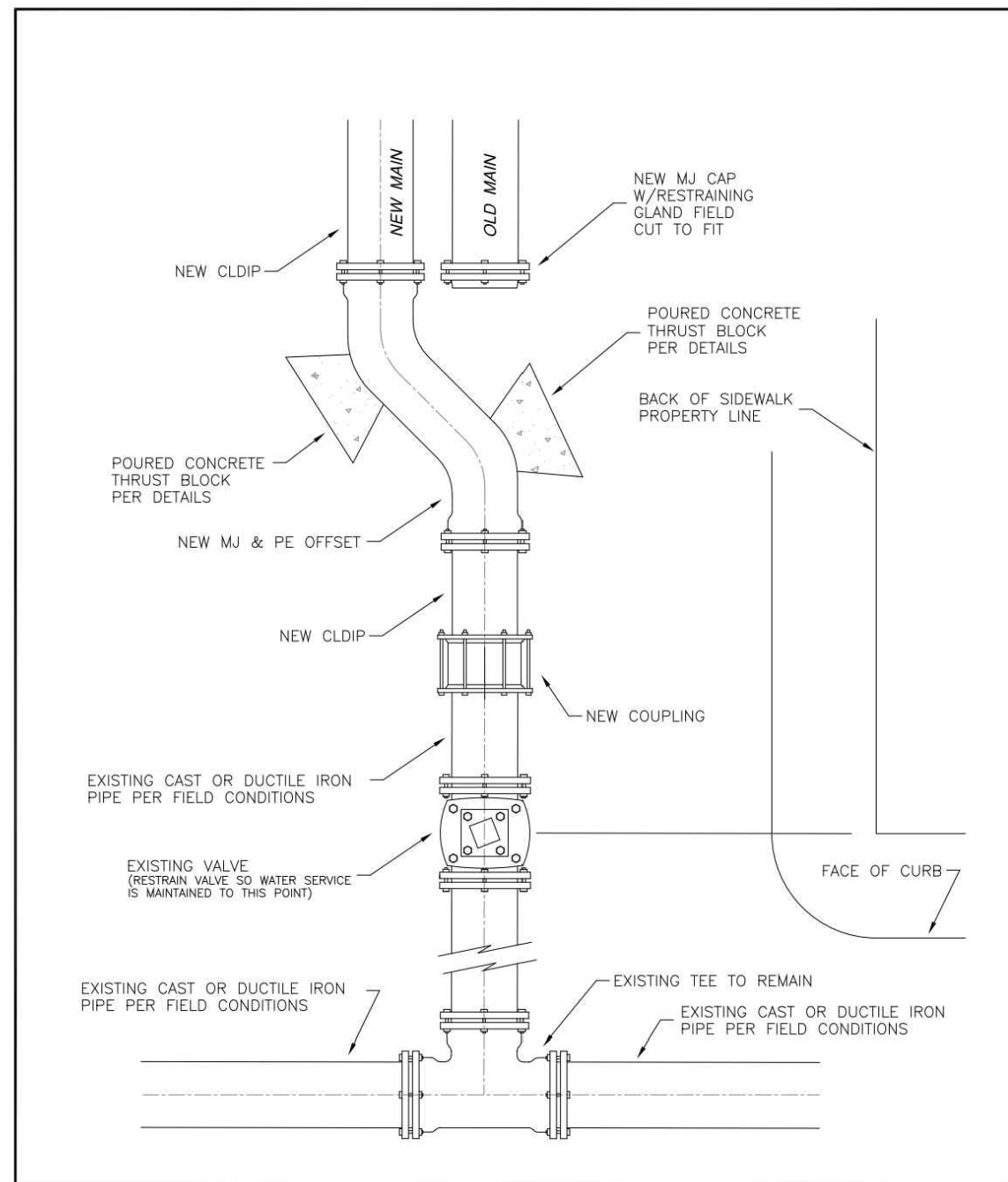
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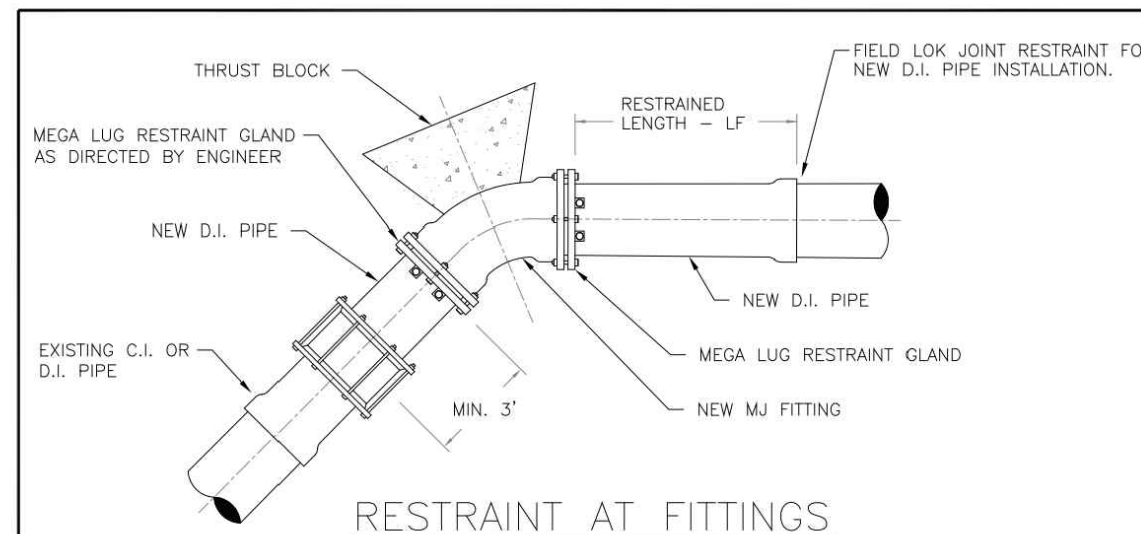






|                              |              |  |  |
|------------------------------|--------------|--|--|
| PAWTUCKET WATER SUPPLY BOARD |              | MAIN CONNECTION AT INTERSECTION (OFFSET) |  |
| REVISION DATE: FEB. 2006     | NOT TO SCALE | STD. NO. 5.03                            |  |

MAIN CONNECTION AT INTERSECTION (OFFSET) NOT TO SCALE REV 000000 W-503



**RESTRAINT AT FITTINGS**

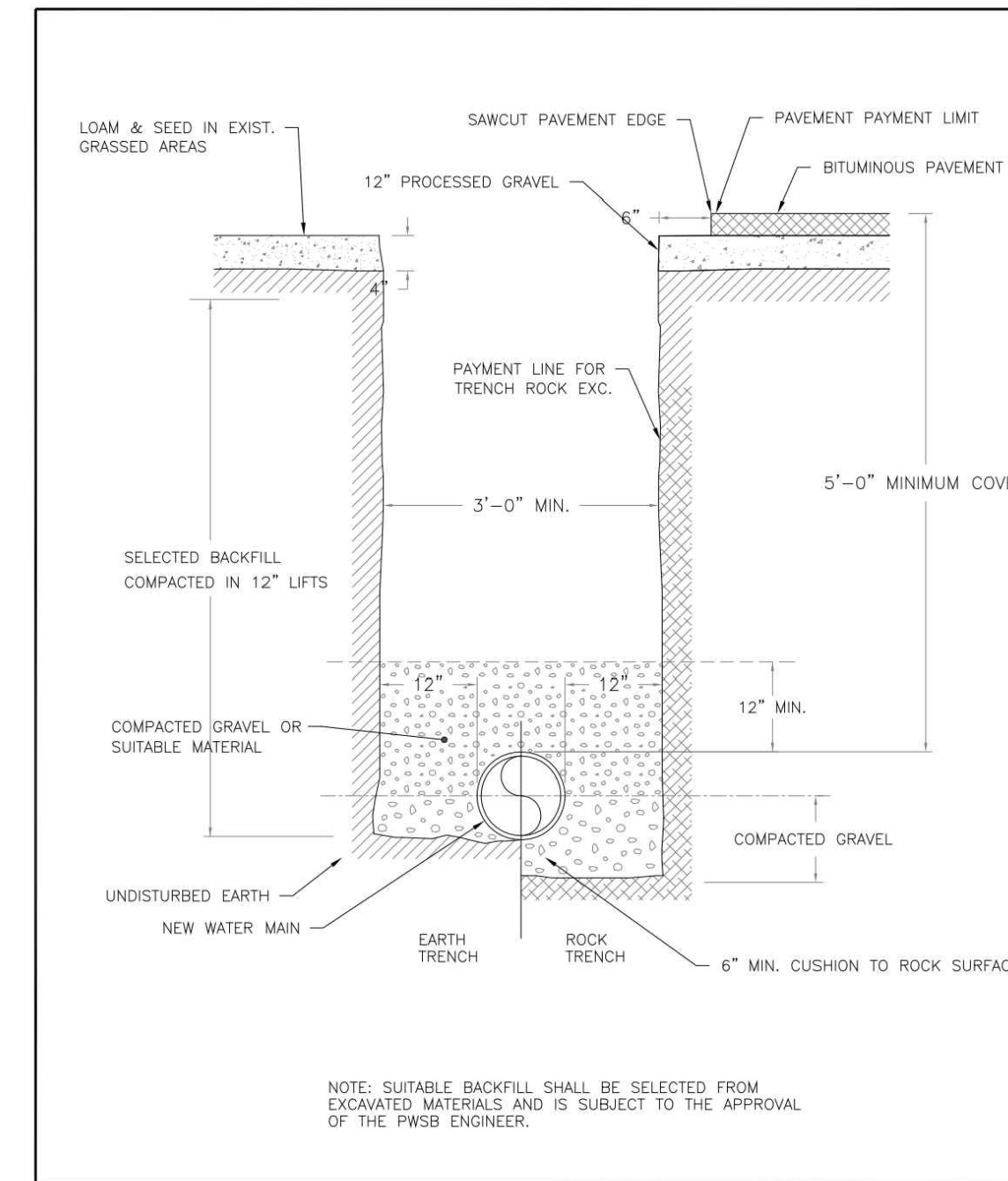
MINIMUM SURFACE AREA OF CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH - IN S.F. (SQUARE FEET)  
 MINIMUM RESTRAINED LENGTH OF PIPE ON EITHER SIDE OF FITTING - IN L.F. (LINEAR FEET)

| PIPE SIZE | PLUG LF | TEE LF | 90° BEND LF | 45° BEND LF | 22½° BEND LF | 11½° BEND LF |
|-----------|---------|--------|-------------|-------------|--------------|--------------|
| 6"        | 2.8     | 3.7    | 2.8         | 3.2         | 4.0          | 1.8          |
| 8"        | 4.8     | 4.8    | 4.8         | 4.3         | 6.8          | 2.3          |
| 10"       | 7.3     | 5.8    | 7.3         | 5.3         | 10.3         | 2.8          |
| 12"       | 10.3    | 6.9    | 10.3        | 6.3         | 14.5         | 3.3          |
| 16"       | 17.8    | 8.9    | 17.8        | 8.3         | 25.2         | 4.2          |
| 20"       | 27.5    | 10.8   | 27.5        | 10.2        | 38.9         | 5.1          |
| 24"       | 39.2    | 12.7   | 39.2        | 12.1        | 55.4         | 5.9          |

- ALL CONCRETE TO BE CLASS B (AE)
- THE "SF" VALUES IN THE ABOVE TABLE ARE BASED ON 3000 p.s.f. SOIL BEARING CAPACITY, 150 p.s.i. TEST PRESSURE AND A 1.5 FACTOR OF SAFETY.
- THE "LF" VALUES IN THE ABOVE TABLE ARE BASED ON A TYPE 3 LAYING CONDITIONS, A SAND SILT SOIL DESIGNATION, A 5 FOOT RUN LENGTH, 150 P.S.I. TEST PRESSURE AND A 1.5 FACTOR OF SAFETY AS USED IN THE "THRUST RESTRAINT DESIGN FOR DUCTILE IRON PIPE" COMPUTER PROGRAM BY THE DUCTILE IRON PIPE RESEARCH ASSOCIATION.
- IF SOIL CONDITIONS OR EXCAVATION LIMITS ENCOUNTERED DURING CONSTRUCTION MAKE IT UNFEASIBLE TO PLACE THRUST BLOCKS AGAINST UNDISTURBED EARTH OF THE PROPER BEARING CAPACITY, THE CONTRACTOR SHALL DESIGN AND PLACE SPECIAL REACTION BLOCKS OF SUFFICIENT WEIGHT TO RESIST FULL THRUST UNDER ALL CONDITIONS. THE DESIGN SHALL BE SUBJECT TO PWSB APPROVAL.
- MINIMUM SURFACE AREAS SHALL BE INCREASED BY 50% IF DEEMED NECESSARY BY THE ENGINEER.
- A MECHANICAL JOINT RESTRAINT SYSTEM MUST BE USED FOR VERTICAL BENDS.
- AT THE DISCRETION OF THE ENGINEER, A JOINT RESTRAINT SYSTEM MAY BE SUBSTITUTED FOR OR USED IN COMBINATION WITH PROPER THRUST BLOCKING.
- A 48 HR. CURING PERIOD MUST BE GIVEN BEFORE FULL LINE PRESSURE CAN BE APPLIED TO NEW CONCRETE THRUST BLOCKS.
- ANCHOR BLOCK DESIGN FOR PIPE LARGER THAN 24" SHALL BE REVIEWED ON AN INDIVIDUAL BASIS BY THE PWSB.

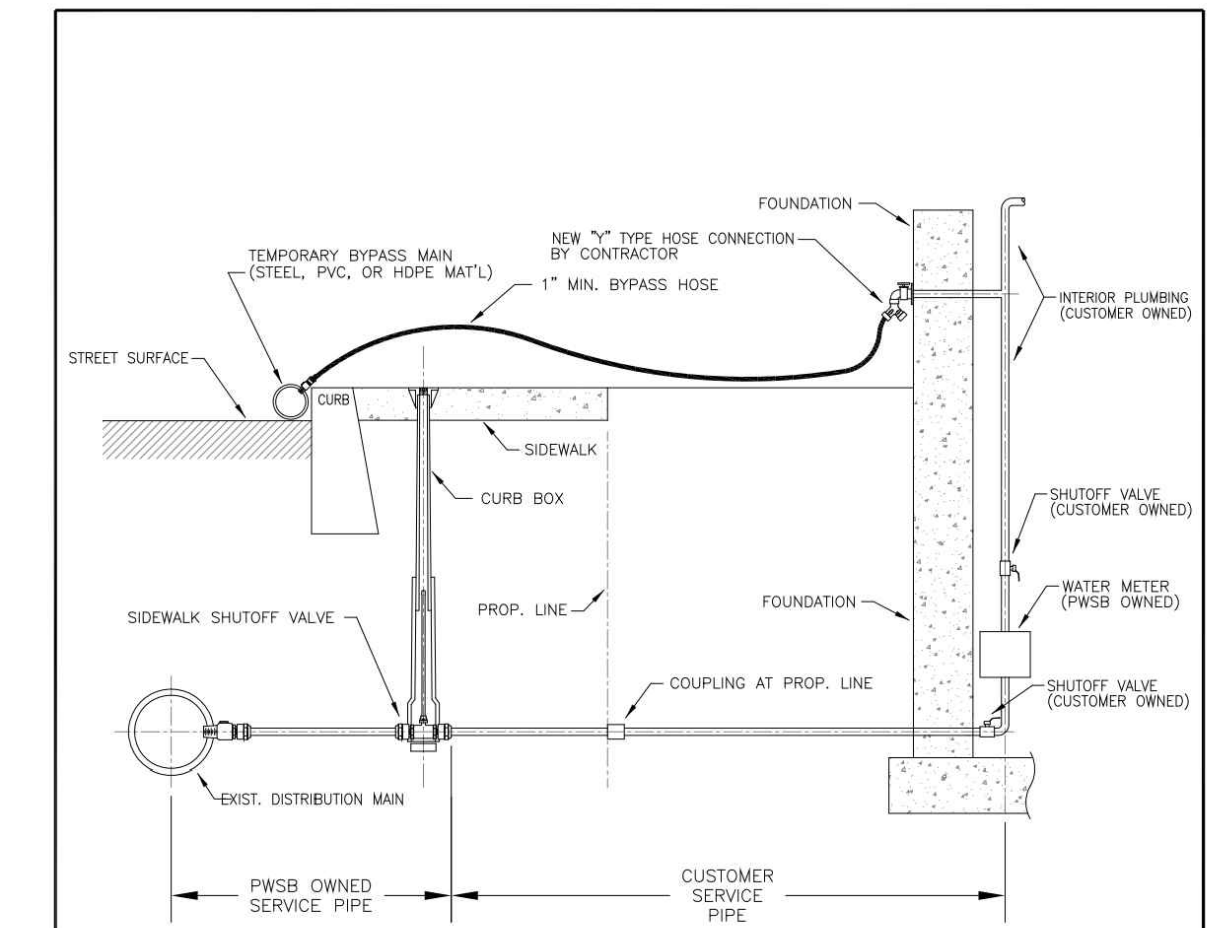
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| PAWTUCKET WATER SUPPLY BOARD |              | RESTRAINT AT FITTINGS |  |
| REVISION DATE: MAY 2006      | NOT TO SCALE | STD. NO. 5.04         |  |

RESTRAINT AT FITTINGS NOT TO SCALE REV 000000 W-504



|                              |              |                       |  |
|------------------------------|--------------|-----------------------|--|
| PAWTUCKET WATER SUPPLY BOARD |              | TYPICAL TRENCH DETAIL |  |
| REVISION DATE: MAY 2006      | NOT TO SCALE | STD. NO. 6.01         |  |

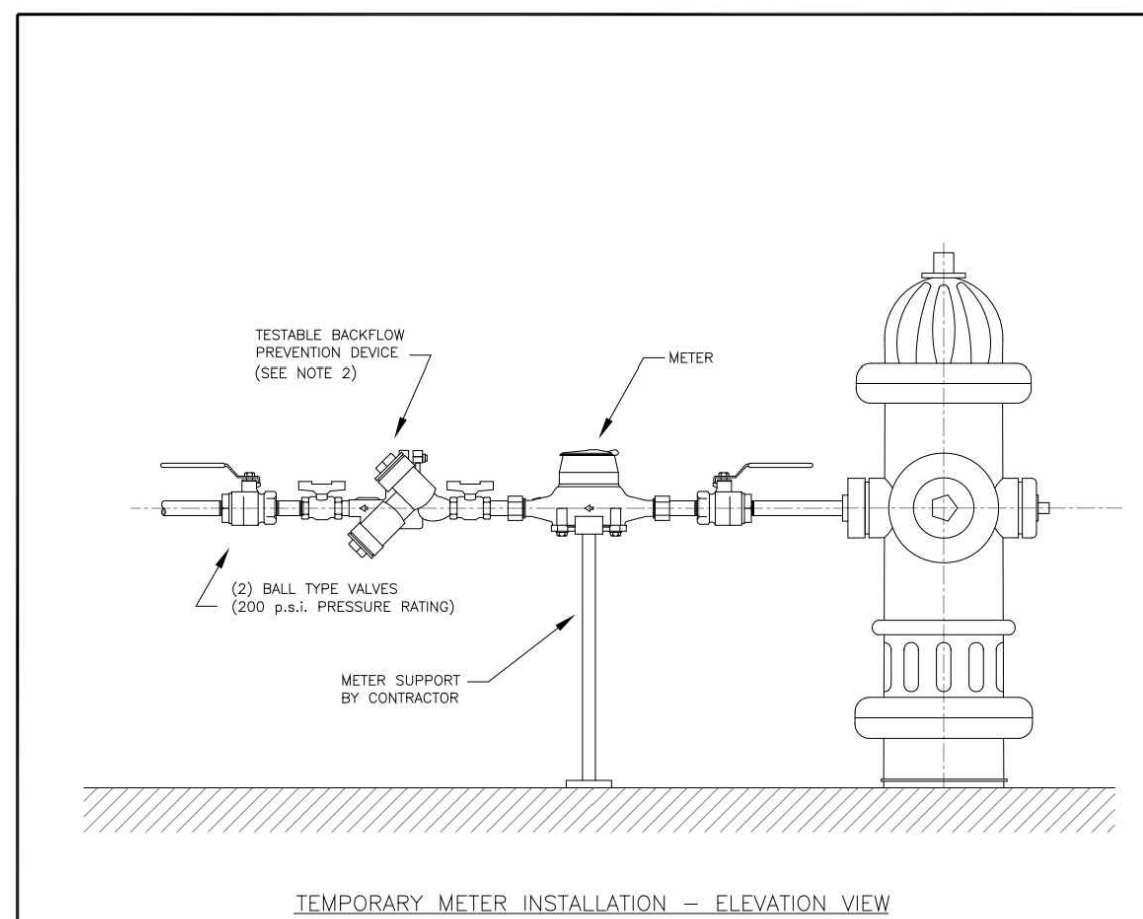
TYPICAL TRENCH DETAIL NOT TO SCALE REV 000000 W-601



- TEMPORARY BYPASS PIPING & SERVICE MATERIAL SHALL BE APPROVED BY THE PWSB PRIOR TO INSTALLATION AND SHALL BE NSF-61 AND/OR FDA APPROVED FOR CONTACT WITH DRINKING WATER AND SHALL BE INSTALLED IN ACCORDANCE WITH THE PWSB SPECIFICATIONS FOR "TEMPORARY BYPASS PIPING AND SERVICES" LATEST REVISION.
- PRIOR TO INSTALLATION, CONTRACTOR SHALL SUBMIT 2 COPIES OF BYPASS LAYOUT PLAN TO THE PWSB FOR REVIEW & APPROVAL.
- TEMPORARY BYPASS MAIN SHALL REQUIRE A MINIMUM OF TWO "FEED" CONNECTIONS TO EXISTING ACTIVE HYDRANTS OR MAINS, IF POSSIBLE.
- TEMPORARY REMOVAL OF WATER METERS SHALL BE PERFORMED BY PWSB METER DEPARTMENT PERSONNEL ONLY.

|                              |              |  |  |
|------------------------------|--------------|--|--|
| PAWTUCKET WATER SUPPLY BOARD |              | TYPICAL "TEMPORARY BYPASS PIPING" INSTALLATION |  |
| REVISION DATE: JAN 2011      | NOT TO SCALE | STD. NO. 8.01                                  |  |

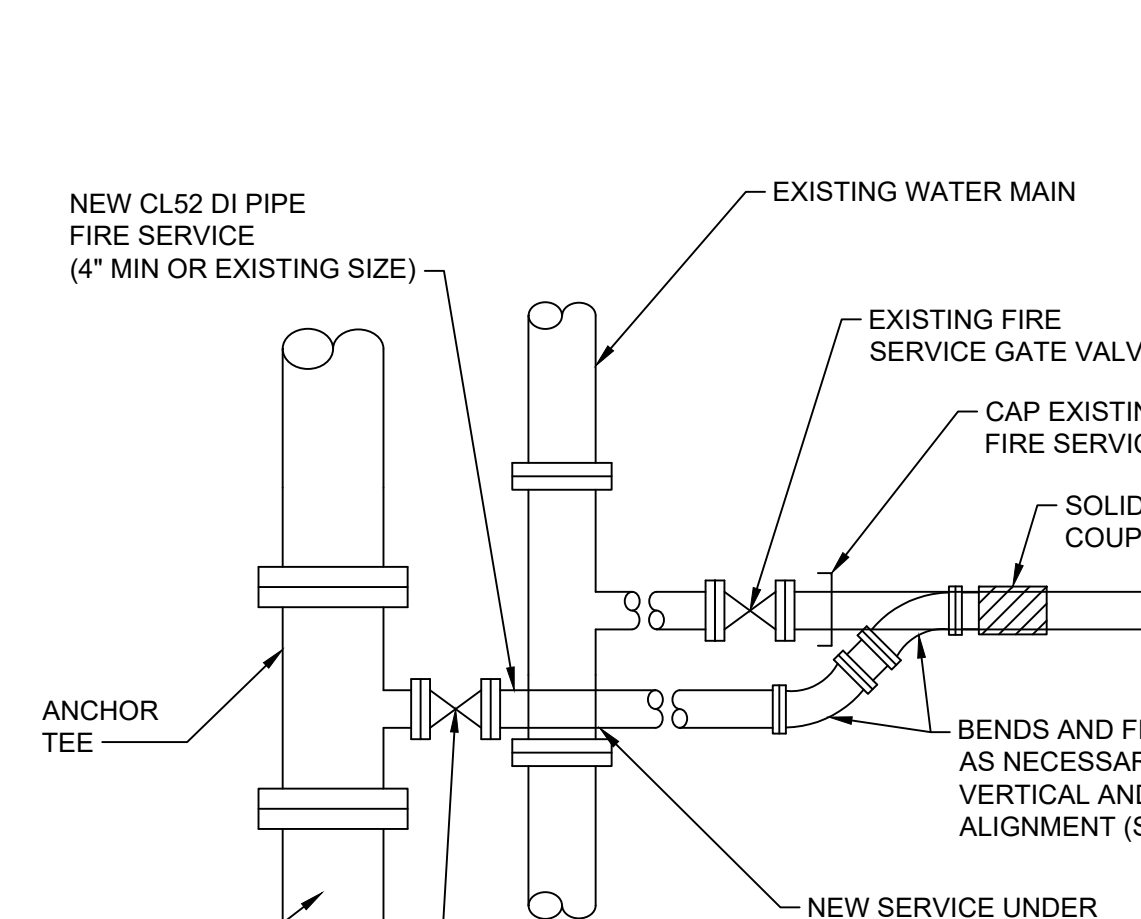
TYPICAL "TEMPORARY BYPASS PIPING" INSTALLATION NOT TO SCALE REV 000000 W-801



- TEMPORARY WATER SERVICE CONNECTION AT HYDRANT - ELEVATION VIEW
- NOTES:
- THE METER SHALL BE INSTALLED HORIZONTALLY.
  - TEMPORARY WATER SERVICE CONNECTIONS REQUIRE A PWSB APPROVED TESTABLE BACKFLOW PREVENTION DEVICE. ALL IN ACCORDANCE WITH SECTION 10 OF THE PWSB REGULATIONS, LATEST REVISION.
  - CONTRACTOR MUST NOTIFY THE PWSB METER DEPARTMENT WHEN THE METER INSTALLATION IS COMPLETE.

|                              |              |   |  |
|------------------------------|--------------|---|--|
| PAWTUCKET WATER SUPPLY BOARD |              | TEMPORARY WATER SERVICE CONNECTION AT HYDRANT |  |
| REVISION DATE: JAN. 2011     | NOT TO SCALE | STD. NO. 8.02                                 |  |

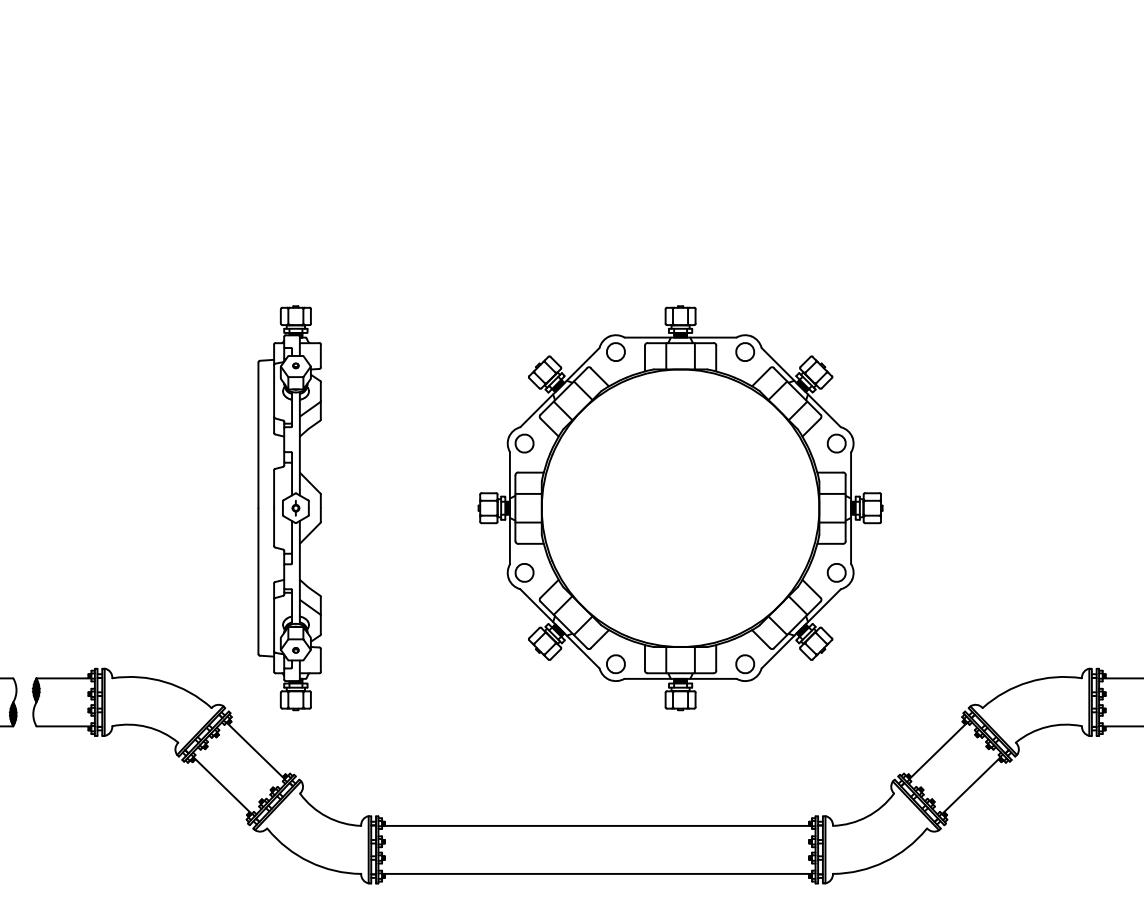
TEMPORARY WATER SERVICE CONNECTION AT HYDRANT NOT TO SCALE REV 000000 W-802



- TYPICAL FIRE SERVICE CONNECTION
- NOTES:
- ALL FITTINGS SHALL BE RESTRAINED.

|                              |              |                                 |  |
|------------------------------|--------------|---------------------------------|--|
| PAWTUCKET WATER SUPPLY BOARD |              | TYPICAL FIRE SERVICE CONNECTION |  |
| REVISION DATE: MAY 2006      | NOT TO SCALE | STD. NO. 8.01                   |  |

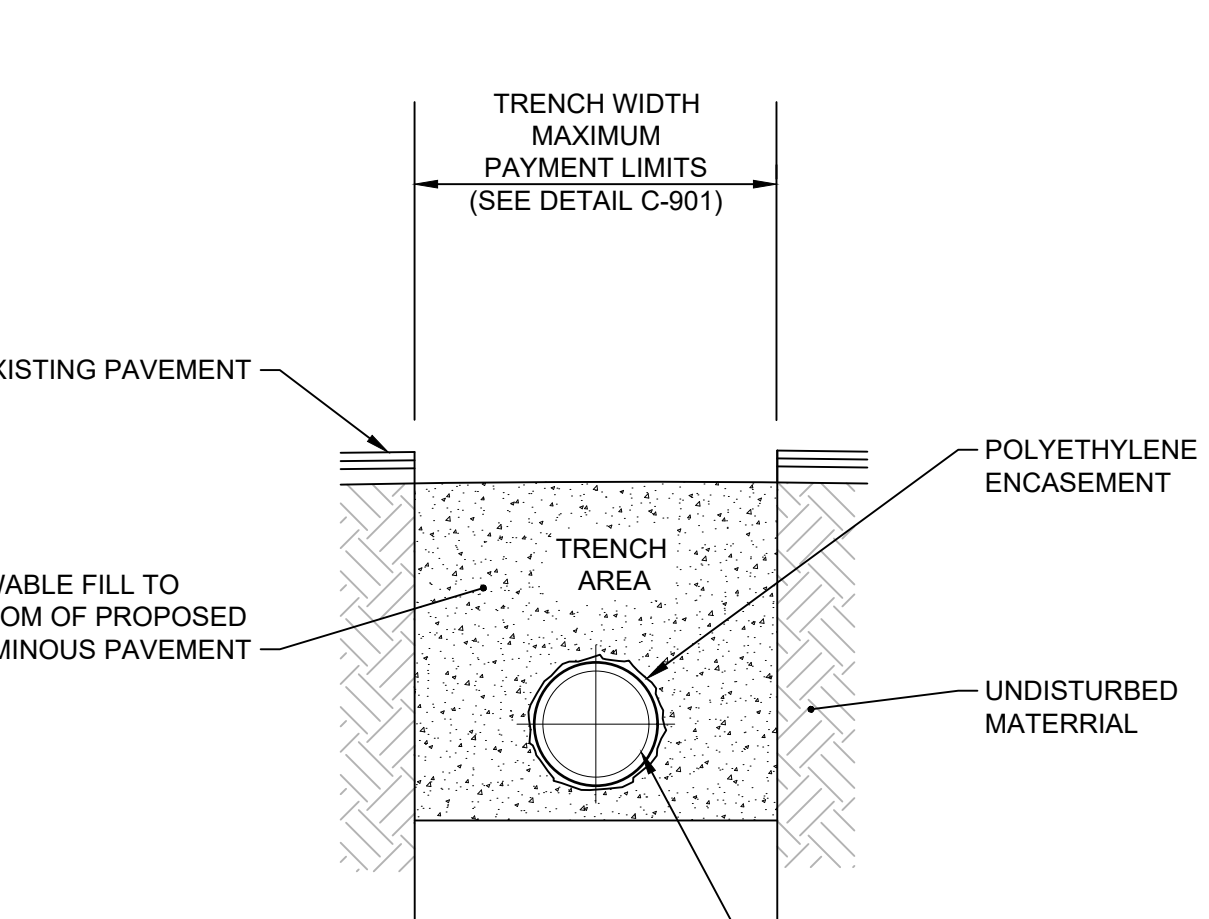
TYPICAL FIRE SERVICE CONNECTION NOT TO SCALE REV 000000 W-901



- TYPICAL THRUST RESTRAINT WEDGE ACTION TYPE JOINTS
- NOTES:
- DEVICES NEED TO BE PLACED BEYOND THE AREA OF RESTRAINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

|                              |              |   |  |
|------------------------------|--------------|---|--|
| PAWTUCKET WATER SUPPLY BOARD |              | TYPICAL THRUST RESTRAINT WEDGE ACTION TYPE JOINTS |  |
| REVISION DATE: MAY 2006      | NOT TO SCALE | STD. NO. 6.01                                     |  |

TYPICAL THRUST RESTRAINT WEDGE ACTION TYPE JOINTS NOT TO SCALE REV 000000 W-902



- FLOWABLE FILL BACKFILL OF DUCTILE IRON WATER PIPE
- NOTES:
- ALL DUCTILE IRON WATER PIPE THAT IS BACKFILLED WITH CONTROLLED DENSITY FILL MUST BE ENCASED WITH 4-MIL HDCL OR 8-MIL LLD POLYETHYLENE IN ACCORDANCE WITH ANS/AWWA C105/A2.5, METHOD OF INSTALLATION.
  - THE PIPE SHALL BE PROPERLY SECURED AND SUPPORTED TO PREVENT DISPLACEMENT DURING THE POURING OF CONTROLLED DENSITY FILL.

|                              |              |   |  |
|------------------------------|--------------|---|--|
| PAWTUCKET WATER SUPPLY BOARD |              | FLOWABLE FILL BACKFILL OF DUCTILE IRON WATER PIPE |  |
| REVISION DATE: JAN 2011      | NOT TO SCALE | STD. NO. 8.01                                     |  |

FLOWABLE FILL BACKFILL OF DUCTILE IRON WATER PIPE NOT TO SCALE REV 000000 W-903

|          |  |
|----------|--|
| SCALE    | AS SHOWN   |
| WARNING  | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |
| DESIGNED | C. CRONIN  |
| DRAWN    | C. MARSHALL  |
| CHECKED  | J. D'ALESSIO   |

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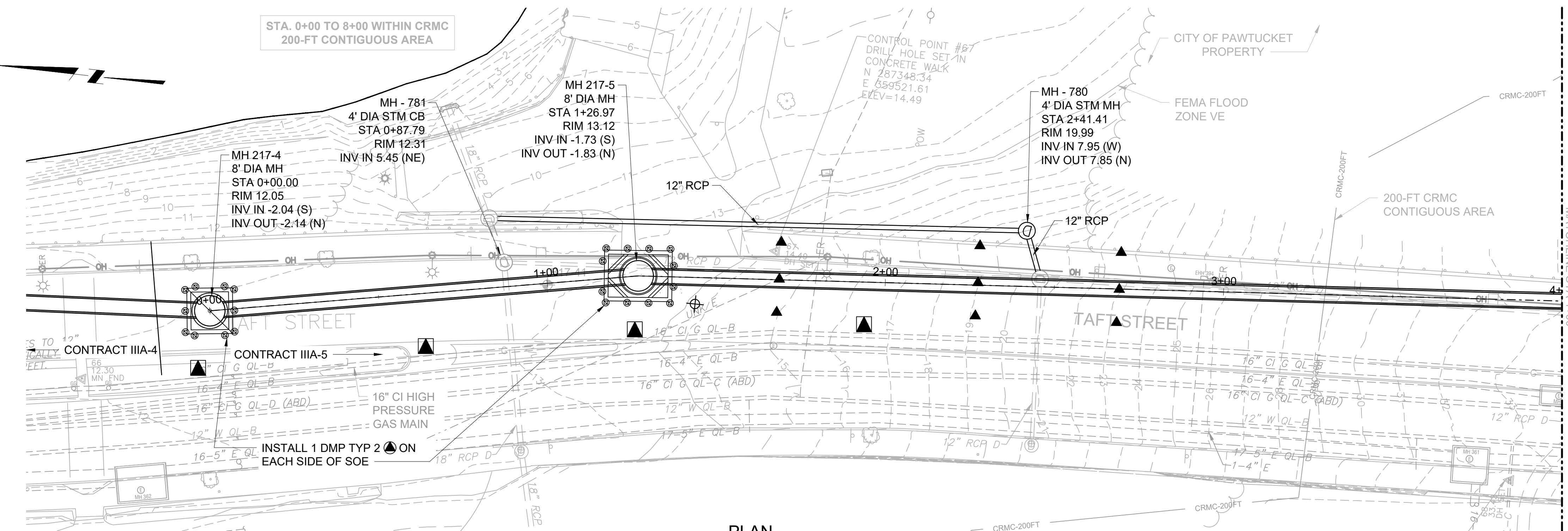
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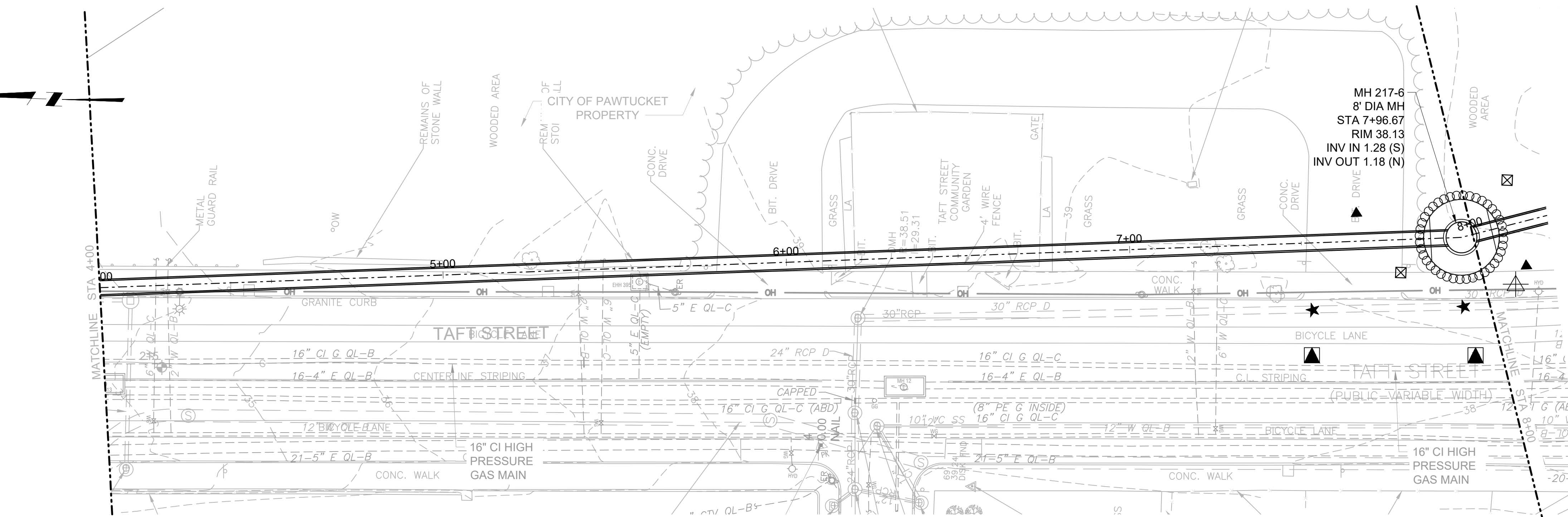
BY: OBRIEN, JANET

PLOT DATE: Thursday, April 15, 2021 3:11:43 PM

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PLAN  
SCALE: 1" = 20'



PLAN  
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

- UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
- FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
  - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
  - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
- REFER TO SHEET B-4 FOR INSTRUMENTATION DETAILS AND NOTES.
- REFER TO SPECIFICATION SECTION 02295 FOR INSTRUMENTATION REQUIREMENTS.

INSTRUMENTATION LEGEND

| SYMBOL | INSTRUMENT TYPE                           |
|--------|---|
|        | OBSERVATION WELL (OW)                     |
|        | DEFORMATION MONITORING POINT (DMP TYPE 1) |
|        | DEFORMATION MONITORING POINT (DMP TYPE 2) |
|        | DEFORMATION MONITORING POINT (DMP TYPE 3) |
|        | INCLINOMETER (INCL)                       |
|        | UTILITY MONITORING POINT (UMP)            |
|        | SEISMOGRAPH                               |

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

|         |  |
|---------|--|
| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |           |
|----------|-----------|
| DESIGNED | K. OHARA  |
| DRAWN    | S. WILBUR |
| CHECKED  | T. MUINDI |

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NBC CONTRACT NO 308.05C  
GEOTECHNICAL

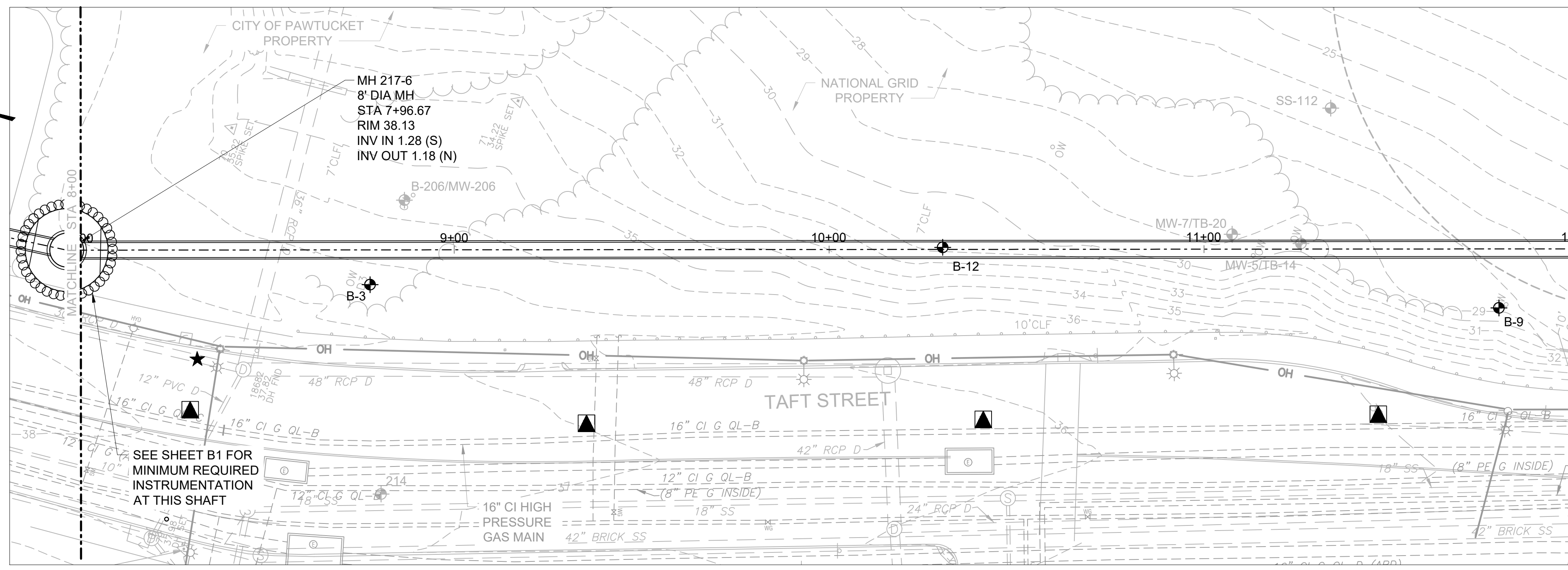
OF-217 CONSOLIDATION CONDUIT  
INSTRUMENTATION PLAN STA. 0+00 - 8+00

SHEET  
B-1  
195130227

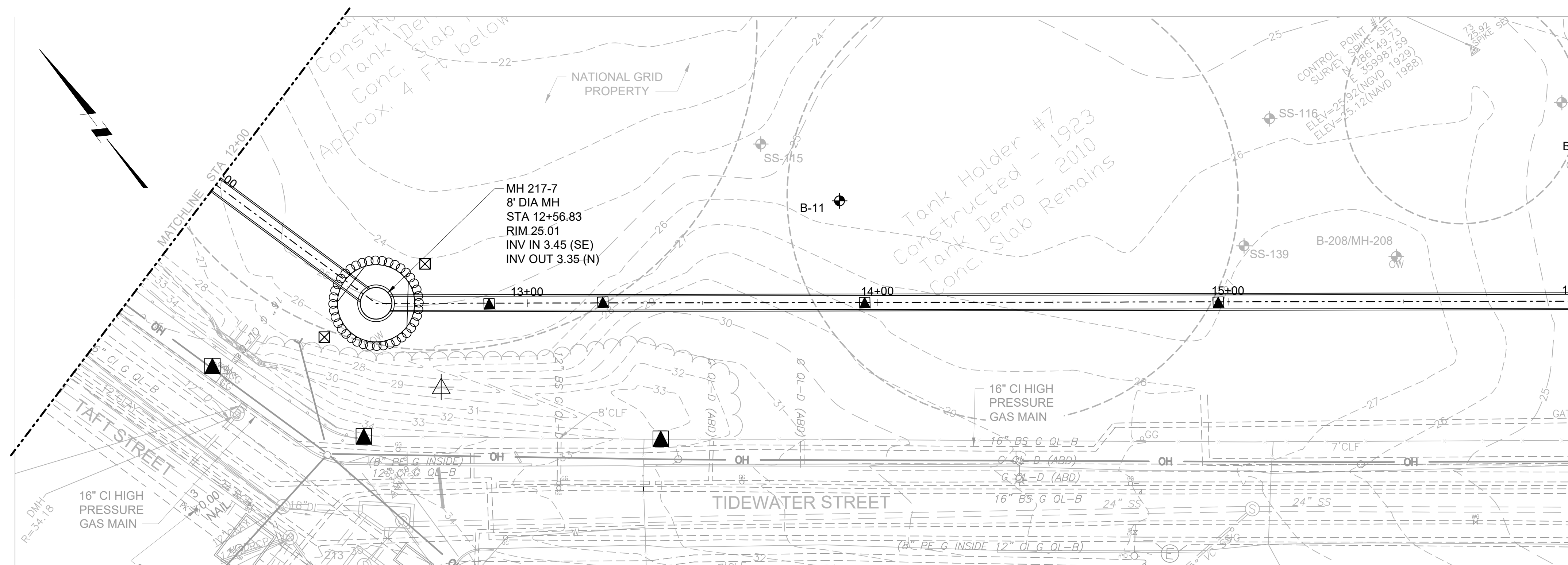
BY: OBRIEN, JANET

PLOT DATE: Thursday, April 15, 2021 3:17:38 PM

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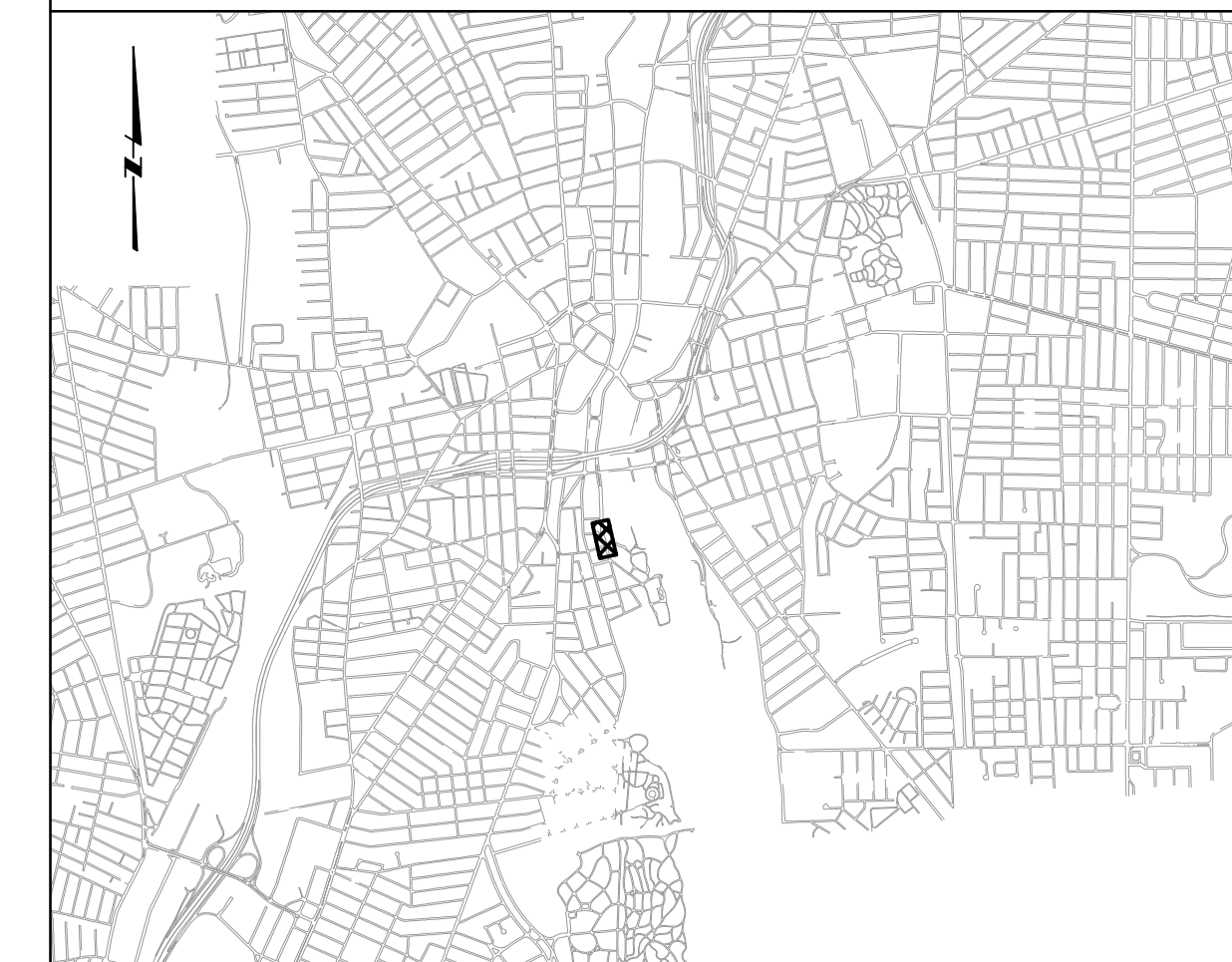


PLAN  
SCALE: 1" = 20'



PLAN  
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

- UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
- FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
  - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
  - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
- WORK IS IN PROPERTY OWNED BY NATIONAL GRID/ CITY OF PAWTUCKET.
- REFER TO SHEET B-4 FOR INSTRUMENTATION DETAILS AND NOTES.
- REFER TO SPECIFICATION SECTION 02295 FOR INSTRUMENTATION REQUIREMENTS.

INSTRUMENTATION LEGEND

| SYMBOL | INSTRUMENT TYPE                           |
|--------|---|
|        | OBSERVATION WELL (OW)                     |
|        | DEFORMATION MONITORING POINT (DMP TYPE 1) |
|        | DEFORMATION MONITORING POINT (DMP TYPE 2) |
|        | DEFORMATION MONITORING POINT (DMP TYPE 3) |
|        | INCLINOMETER (INCL)                       |
|        | UTILITY MONITORING POINT (UMP)            |
|        | SEISMOGRAPH                               |

| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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|---------|--|
| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |           |
|----------|-----------|
| DESIGNED | K. OHARA  |
| DRAWN    | S. WILBUR |
| CHECKED  | T. MUINDI |

90% DESIGN PHASE - APRIL 2021

NOT FOR CONSTRUCTION

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NBC CONTRACT NO 308.05C  
GEOTECHNICAL

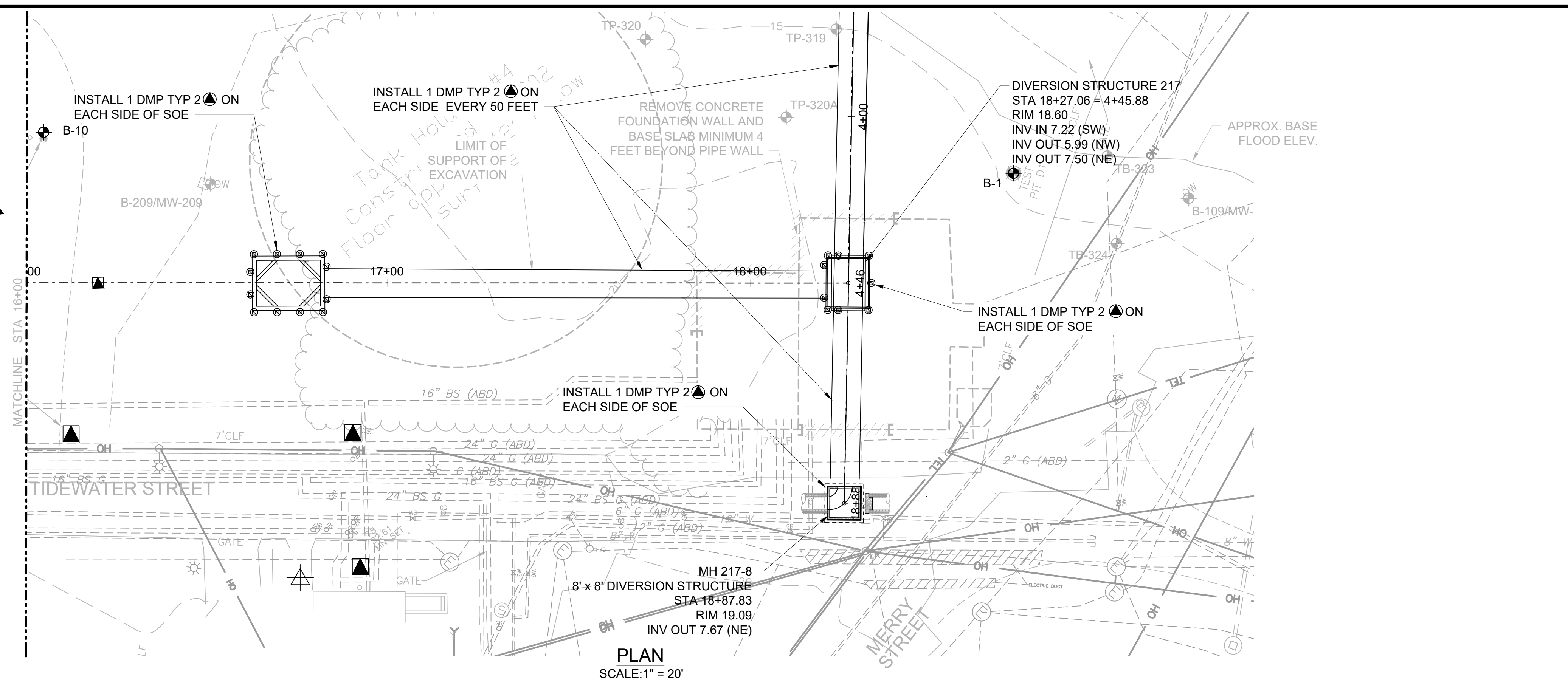
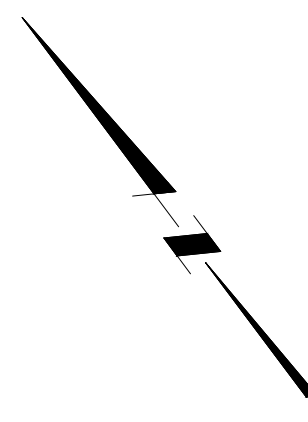
OF-217 CONSOLIDATION CONDUIT  
INSTRUMENTATION PLAN STA. 8+00 - 16+00

SHEET  
B-2  
195130227

BY: OBRIEN, JANET

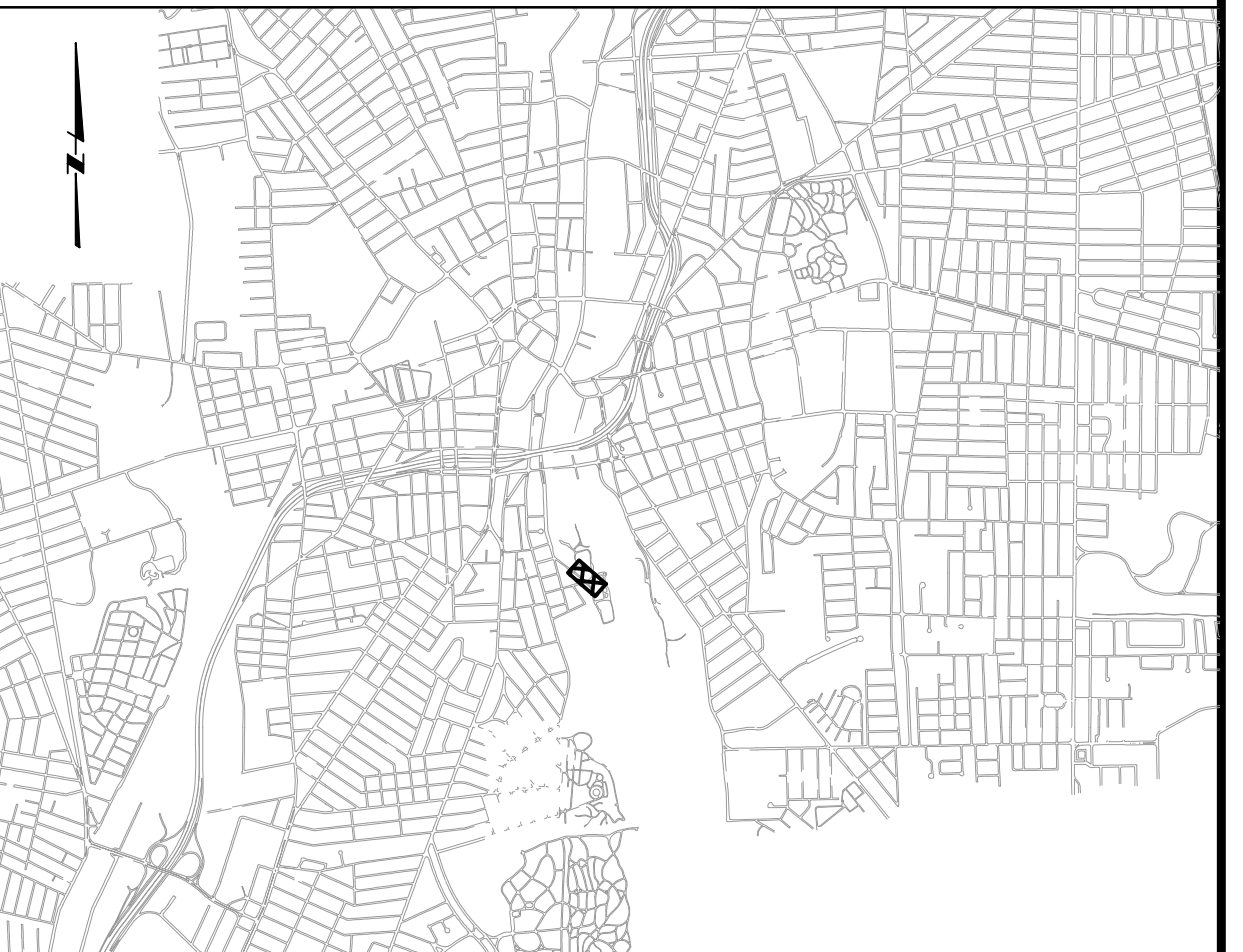
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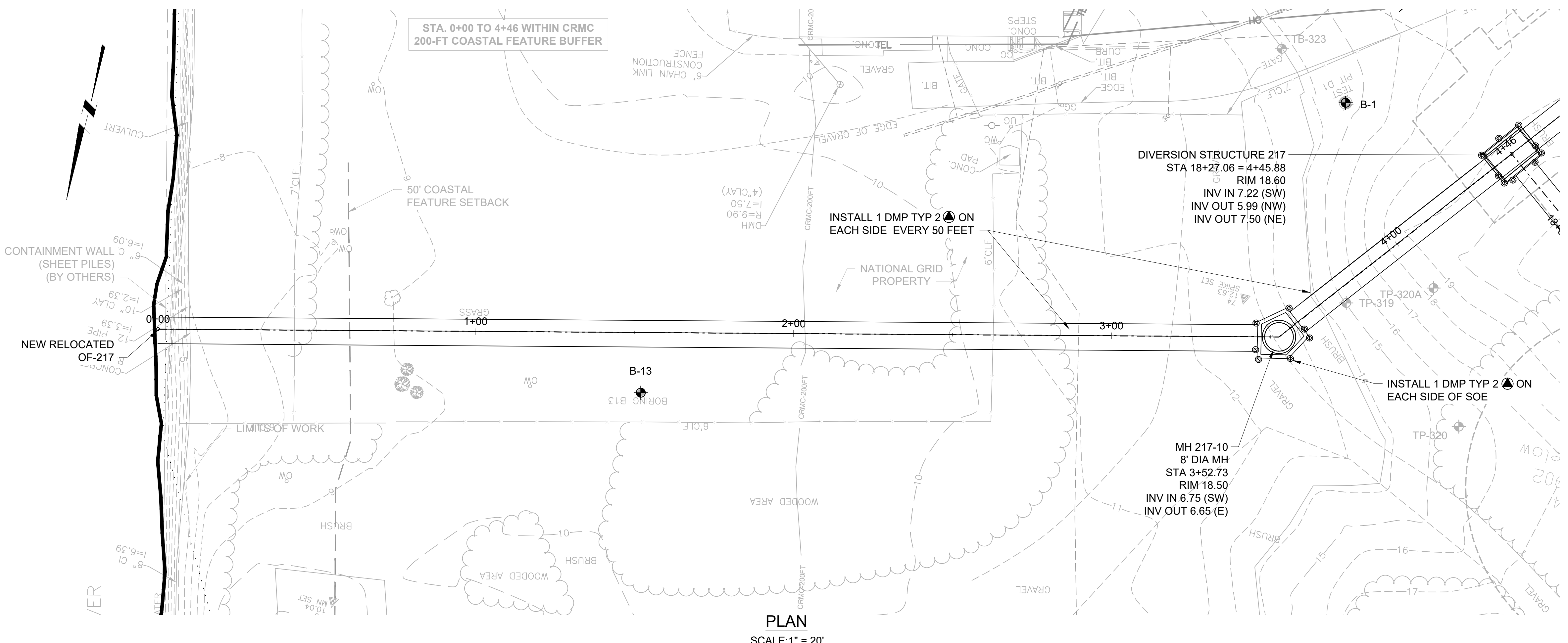
PLAN  
SCALE: 1" = 20'

KEY PLAN



GENERAL SHEET NOTES

- UTILITY INFORMATION DEPICTED, PROVIDED BY NATIONAL GRID
- FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
  - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
  - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
- WORK IS IN PROPERTY OWNED BY NATIONAL GRID
- REFER TO SHEET B-4 FOR INSTRUMENTATION DETAILS AND NOTES.
- REFER TO SPECIFICATION SECTION 02295 FOR INSTRUMENTATION REQUIREMENTS.



PLAN  
SCALE: 1" = 20'

INSTRUMENTATION LEGEND

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|        | INCLINOMETER (INCL)                       |
|        | UTILITY MONITORING POINT (UMP)            |
|        | SEISMOGRAPH                               |

| REV | DATE | BY | DESCRIPTION |
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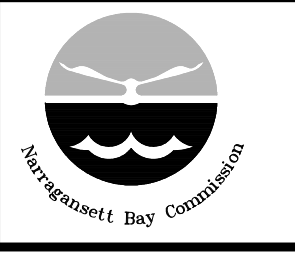
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| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

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|----------|----------|
| DESIGNED | K O'HARA |
| DRAWN    | S WILBUR |
| CHECKED  | T MUINDI |

90% DESIGN PHASE - APRIL 2021

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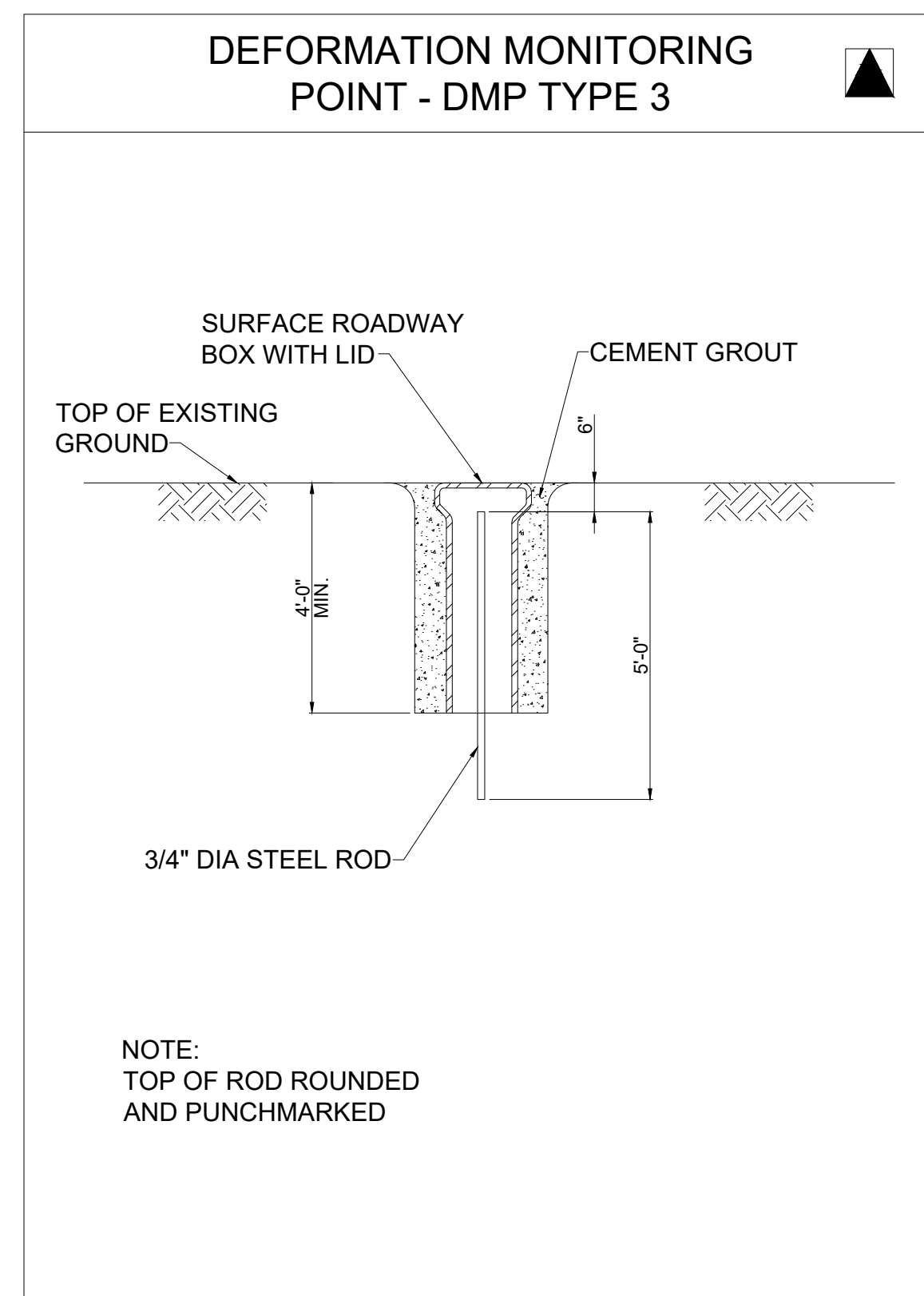
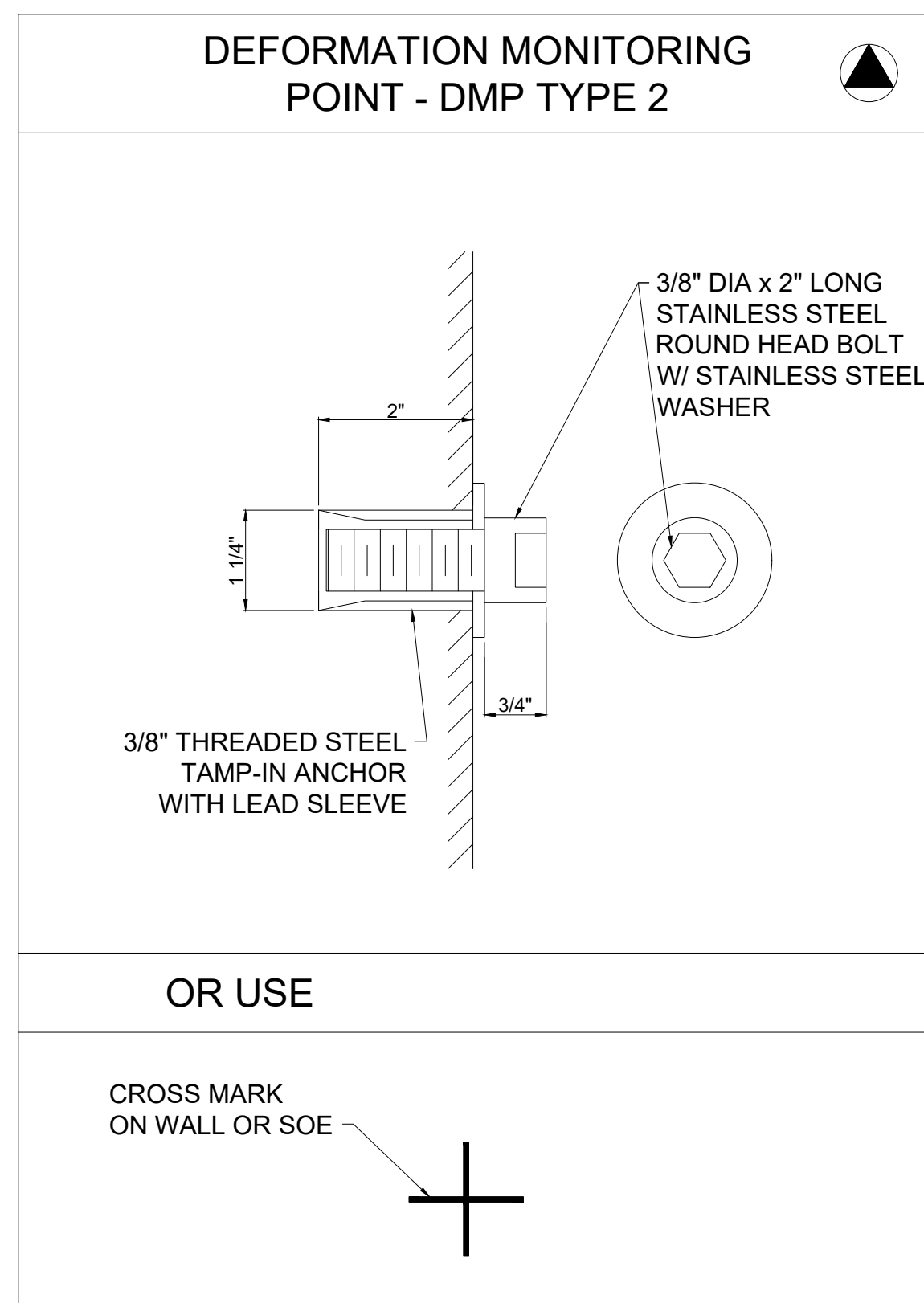
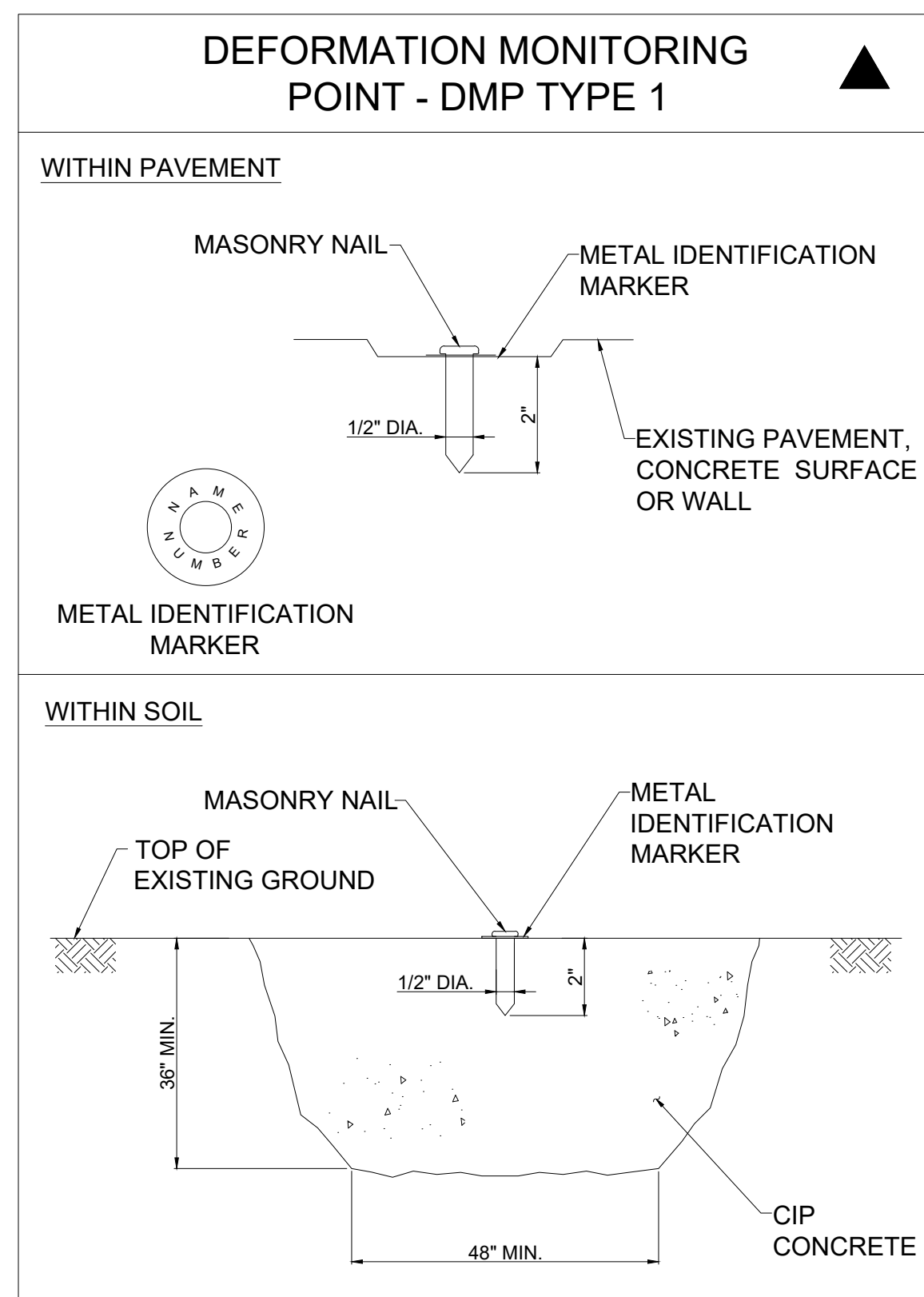
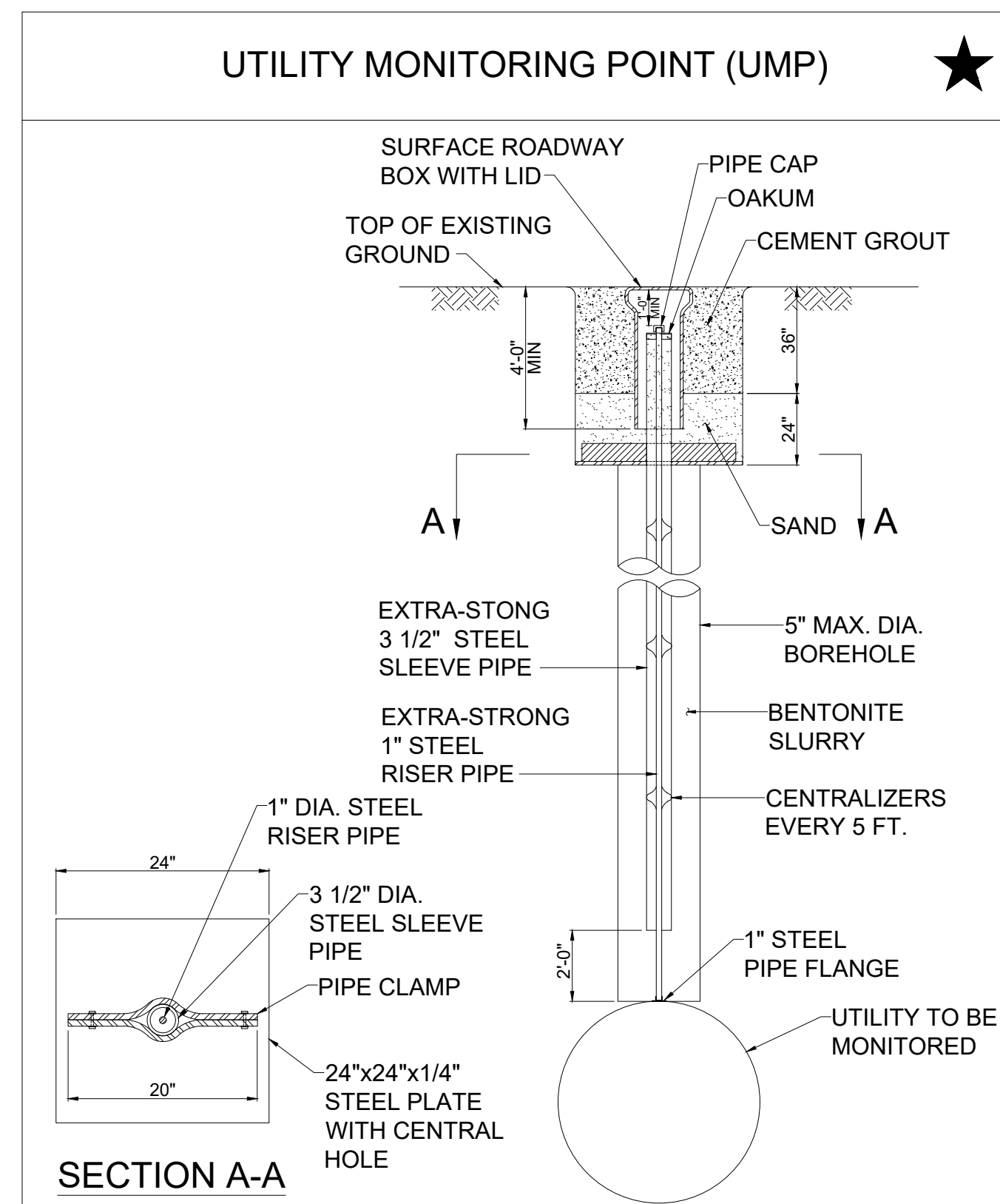
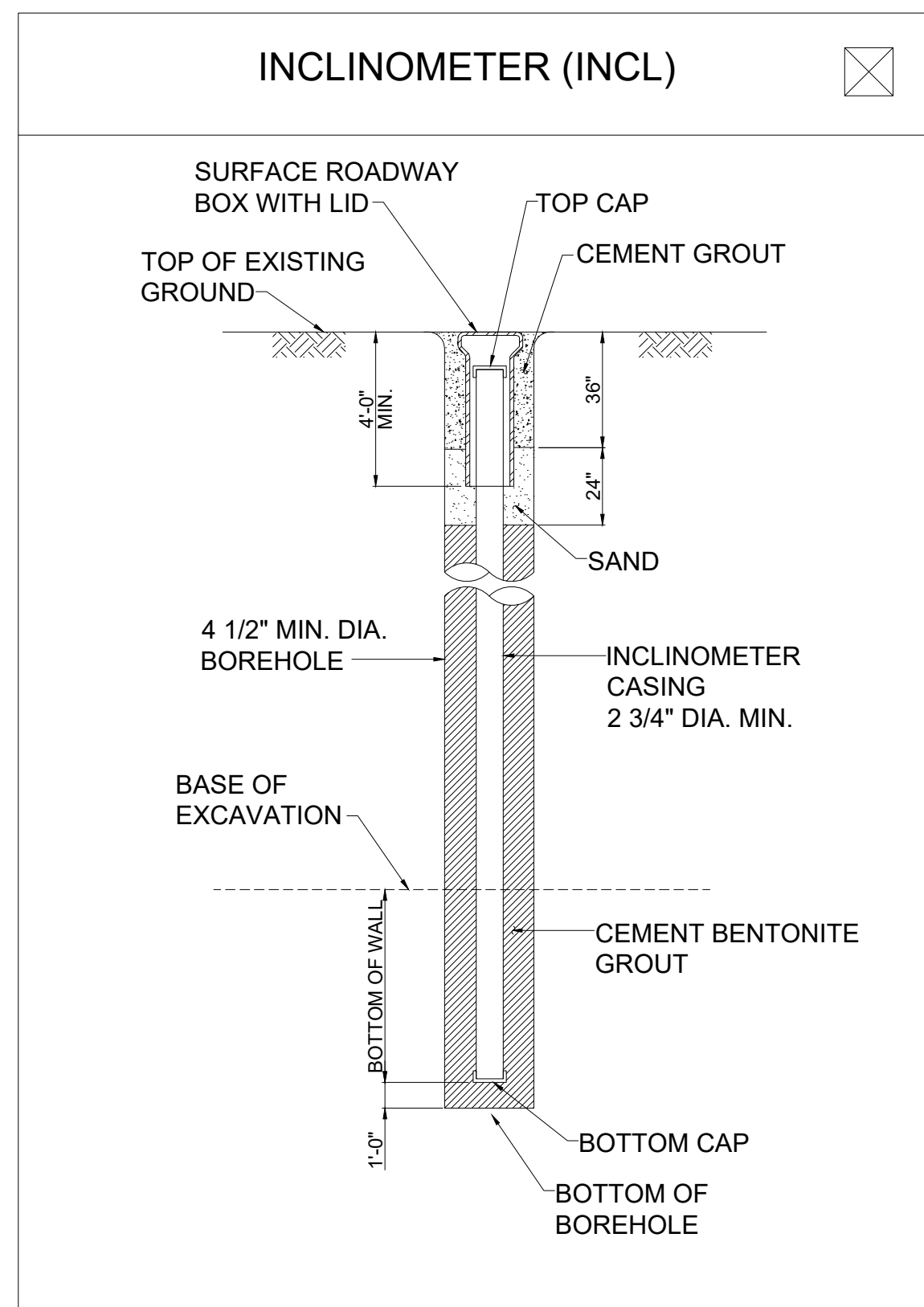
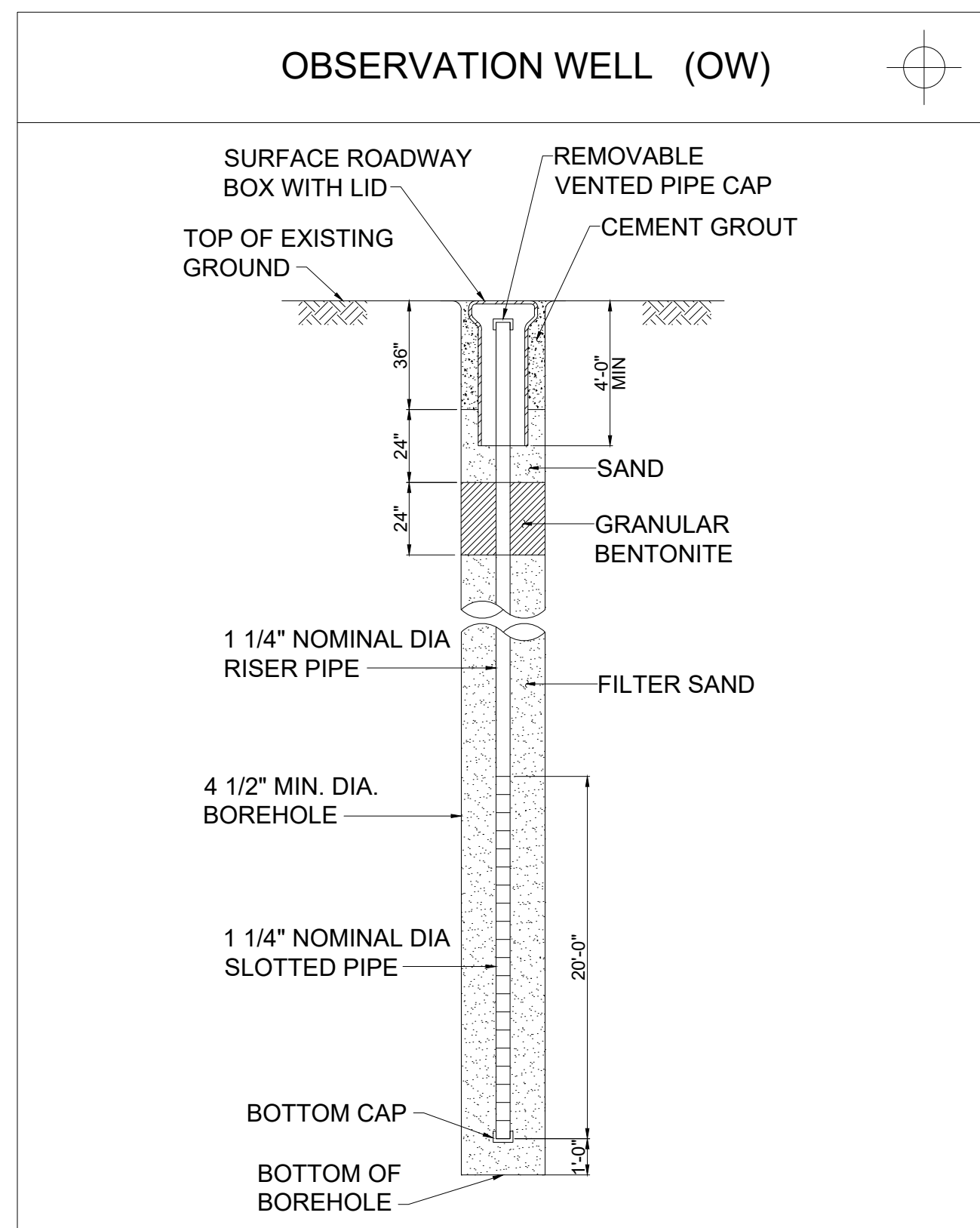
NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C  
GEOTECHNICAL

OF-217 CONSOLIDATION CONDUIT  
INSTRUMENTATION PLAN STA. 16+00 - 18+88, STA. 0+00 - 4+48

SHEET  
B-3  
195130227



- NOTES**
1. MATERIAL AND INSTALLATION DETAILS FOR ALL APPLICABLE INSTRUMENTS SHOWN ON THIS DRAWING ARE PROVIDED IN SECTION 02295 OF THE SPECIFICATIONS.
  2. INSTRUMENT LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE ADJUSTED TO ACCOMMODATE FIELD CONDITIONS, AS APPROVED BY PM.
  3. OBTAIN APPROVAL FROM PROPERTY OWNERS BEFORE INSTALLING ANY INSTRUMENTS ON PRIVATE PROPERTY.
  4. OBTAIN PERMITS AND APPROVALS FOR ALL INSTRUMENTATION TO BE INSTALLED IN THE RIGHT-OF-WAY.
  5. REMOVE INSTRUMENTS AND RESTORE LOCATIONS IN ACCORDANCE WITH THE SPECIFICATIONS.

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
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| SCALE    | AS SHOWN   |
| WARNING  | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |
| DESIGNED | J. OHARA   |
| DRAWN    | S. WILBUR  |
| CHECKED  | T. MUJINDI   |

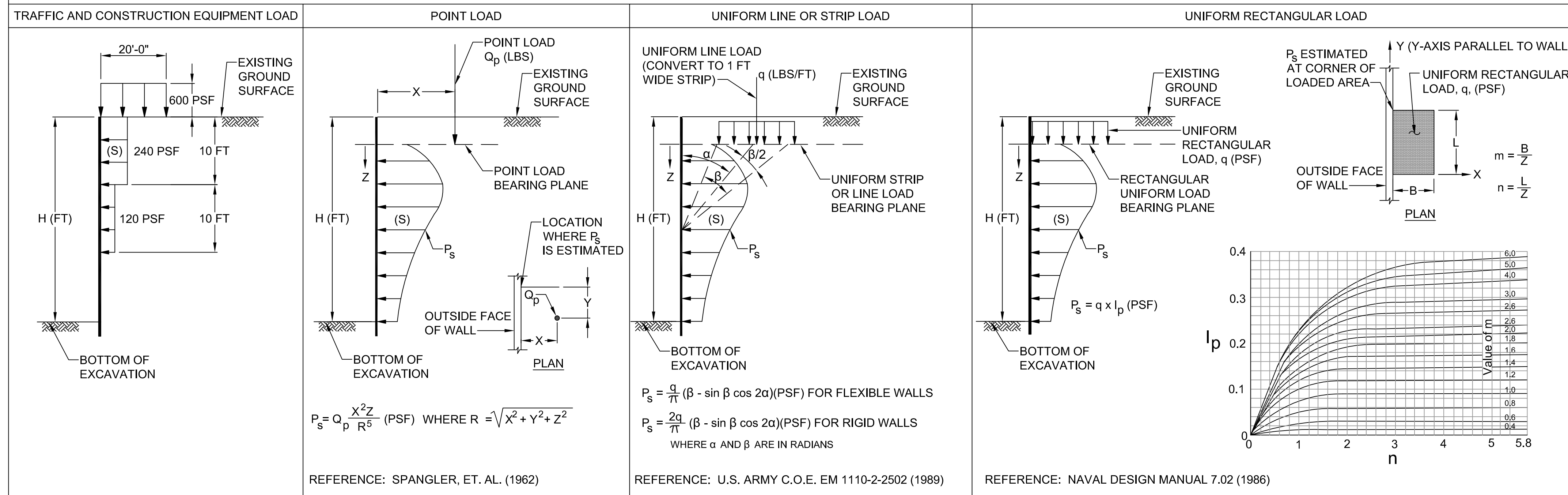
90% DESIGN PHASE - APRIL 2021

**NOT FOR CONSTRUCTION**

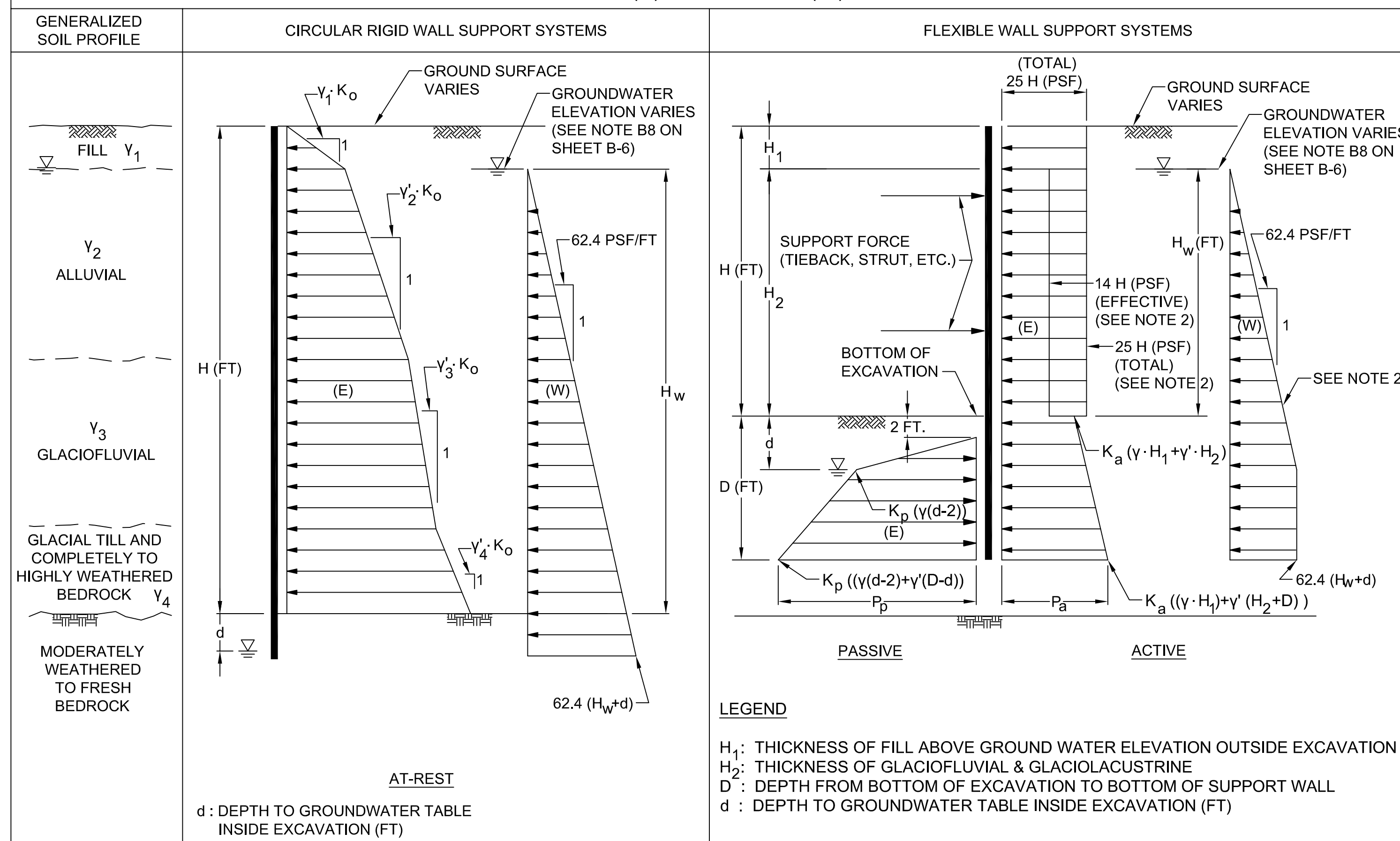
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**MINIMUM DESIGN CRITERIA FOR LATERAL EARTH PRESSURES:  
SURCHARGE (S)**



**MINIMUM DESIGN CRITERIA FOR LATERAL EARTH PRESSURES:  
SOIL (E) AND WATER (W)**



**MINIMUM DESIGN CRITERIA  
FOR TEMPORARY EXCAVATION SUPPORT SYSTEM COMPONENTS**

| STRUCTURE   | VERTICAL LOADS  |  | HORIZONTAL LOADS (E), (S) AND (W)  | DESIGN LOADING COMBINATIONS AND ALLOWABLE UNIT STRESSES      |
|---|---|--|--|--|
|   | DEAD LOADS (DL)   | LIVE LOADS (LL)  |  |  |
| WALL SYSTEM (ELEMENTS IN CONTACT WITH RETAINED EARTH)   | WEIGHT OF WALL  | REACTIONS FROM ALL LIVE LOADS INCLUDING APPLICABLE CONSTRUCTION EQUIPMENT LOADING, OTHER SURCHARGES, PEDESTRIAN WALKWAY LOADS, AND AASHTO HS20-44 LOADING, SEE NOTES | LOADS FROM LATERAL EARTH AND WATER PRESSURES AND LATERAL SURCHARGE PRESSURES [(E)+(S)+(W)]                 | 100% OF [(DL)+(LL)+(E)+(S)+(W)]                              |
| PRIMARY BRACING MEMBERS (MEMBERS CARRYING DIRECT LOADS INCLUDING WALES, STRUTS, CORNER BRACING, AND RAKERS) | REACTIONS FROM BRACING SYSTEM.  |  | AXIAL LOADS FROM END WALL BRACING MEMBERS (E)+(S)+(W), WHERE APPLICABLE                                    | CONFORM TO ACI 318 FOR REINFORCED CONCRETE DESIGN            |
| PRIMARY BRACING MEMBERS (MEMBERS CARRYING DIRECT LOADS INCLUDING WALES, STRUTS, CORNER BRACING, AND RAKERS) | WEIGHT OF PRIMARY BRACING MEMBER  |  | LOADS FROM WALL SYSTEM [(E)+(S)+(W)]   | FOR PRIMARY BRACING MEMBERS: 100% OF [(DL)+(LL)+(E)+(S)+(W)] |
| SECONDARY BRACING MEMBERS FOR SUPPORT OF INTERNAL BRACING MEMBERS (IF NECESSARY)                            | WEIGHT OF SECONDARY BRACING MEMBER PLUS WEIGHT OF SUPPORTED PRIMARY BRACING MEMBERS, WHERE APPLICABLE | AXIAL LOAD EQUAL TO 3% OF THE DESIGN AXIAL LOAD IN THE MORE HEAVILY LOADED ADJACENT PRIMARY BRACING MEMBER   | AXIAL LOADS FROM END WALLS [(E)+(S)+(W)], WHERE APPLICABLE   | FOR WALLS: 120% OF ALLOWABLE UNIT STRESSES                   |
|   |   |  | AXIAL LOAD EQUAL TO 3% OF THE DESIGN AXIAL LOAD IN THE MORE HEAVILY LOADED ADJACENT PRIMARY BRACING MEMBER | 120% OF ALLOWABLE UNIT STRESSES                              |

**PROPERTIES OF RETAINED SOIL**

| MATERIAL  | TOTAL UNIT WEIGHT, $\gamma$ (PCF) | EFFECTIVE UNIT WEIGHT, $\gamma'$ (PCF) | FRICTION ANGLE | UNDRAINED SHEAR STRENGTH $S_u$ (PSF) | AT-REST PRESSURE COEFFICIENT $K_o$ | ACTIVE PRESSURE COEFFICIENT $K_a$ | PASSIVE PRESSURE COEFFICIENT $K_p$ |
|---|-----------------------------------|--|----------------|--------------------------------------|------------------------------------|-----------------------------------|------------------------------------|
| FILL  | 125                               | 63                                     | 32°            | NA                                   | 0.47                               | 0.31                              | 3.26                               |
| ALLUVIAL  | 120                               | 58                                     | 30°            | NA                                   | 0.5                                | 0.33                              | 3.00                               |
| GLACIOFLUVIAL   | 125                               | 63                                     | 32°            | NA                                   | 0.47                               | 0.31                              | 3.26                               |
| GLACIAL TILL AND COMPLETELY TO HIGHLY WEATHERED BEDROCK | 135                               | 73                                     | 34°            | NA                                   | 0.44                               | 0.28                              | 3.54                               |

- NOTES:**
- FOR MINIMUM DESIGN CRITERIA FOR EXCAVATION SUPPORT NOTES, SEE SHEET B-6.
  - SEE SHEET B-6, NOTE B10 FOR IMPERMEABLE VERSUS PERMEABLE SUPPORT WALL DESIGN CONSIDERATIONS.

**NOTES FOR ANALYSIS AND DESIGN**

**A. GENERAL**

- A1. DUE TO A VARIETY OF PAST USES IN THE AREA, NUMEROUS OBSTRUCTIONS WILL BE ENCOUNTERED DURING INSTALLATION OF EXCAVATION SUPPORT SYSTEMS. TYPES OF OBSTRUCTIONS ANTICIPATED TO BE ENCOUNTERED INCLUDE: BOULDERS, GRANITE, CONCRETE OR BRICK FOUNDATION WALLS, AND CONCRETE FLOORS FROM PREVIOUS STRUCTURES, ABANDONED WOOD PILES, TANK FOUNDATIONS AND VARIOUS OTHER DEMOLITION AND CONSTRUCTION DEBRIS.
- A2. FLEXIBLE WALL SYSTEMS ARE CONSIDERED TO BE SOLDIER PILE AND LAGGING WALLS AND SIMILAR SUPPORT SYSTEMS. RIGID WALL SYSTEMS ARE CONSIDERED TO BE SECANT PILE WALLS.
- A3. METHODS OF PERMITTED ANALYSIS INCLUDE:
  - LIMIT EQUILIBRIUM METHOD SHALL BE USED FOR STRENGTH DESIGN .
  - NONLINEAR ANALYSIS USING ELASTO-PLASTIC WINKLER SPRINGS SHALL BE USED FOR DEFORMATION CONTROLLED DESIGN .
- A4. TEMPORARY EXCAVATION SUPPORT SYSTEMS SHALL BE DESIGNED AND CONSTRUCTED BY THE CONTRACTOR IN ACCORDANCE WITH CURRENT ENGINEERING PRACTICE, THE REQUIREMENTS OF THE CONTRACT DRAWINGS, AND APPLICABLE SPECIFICATIONS.
- A5. CONVENTIONAL CONSTRUCTION METHODS SHALL BE USED TO CONSTRUCT THE BELOW-GRADE SPACE. THE TEMPORARY EXCAVATION SUPPORT SYSTEM WALLS SHALL BE RESTRAINED BY TEMPORARY BRACING, AS NECESSARY, AS THE EXCAVATION IS CONDUCTED, AND THE PERMANENT SUBSTRUCTURE AND FOUNDATIONS SHALL BE CONSTRUCTED WITHIN THE TEMPORARY EXCAVATION SUPPORT SYSTEM.
- A6. DRIVING OR VIBRATING IS NOT PERMITTED TO INSTALL EXCAVATION SUPPORT WALL ELEMENTS.
- A7. THE CRITERIA ON SHEET B-5 AND THIS SHEET ARE MINIMUM CRITERIA. THE CONTRACTOR SHALL UTILIZE ADDITIONAL OR MORE CONSERVATIVE CRITERIA AS REQUIRED, TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS.
- A8. THE CONTRACTOR SHALL REVIEW THE DESIGN CRITERIA INCLUDED ON DRAWING B-6 AND CONDUCT WORK AS NECESSARY TO COMPLETE THE DESIGN. THE CONTRACTOR'S FINAL DESIGN AND ANY PROPOSED MODIFICATIONS WILL BE REVIEWED BY THE PROGRAM MANAGER/CONSTRUCTION MANAGER (PM/CM) IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS AND APPLICABLE SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE PM/CM, COMPLETE COMPUTATIONS, CROSS-SECTIONS, CONSTRUCTION SCHEDULE AND SEQUENCE, AND WORKING DRAWINGS FOR TEMPORARY EXCAVATION SUPPORT SYSTEMS. THE DESIGN SHALL BE IN ACCORDANCE WITH THE MINIMUM CRITERIA SPECIFIED AND INDICATED ON THIS DRAWING AND GOOD ENGINEERING PRACTICE, AND WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL COMPUTATIONS AND DESIGNS SHALL BE PREPARED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF RHODE ISLAND, RETAINED BY THE CONTRACTOR. THE PM'S/CM'S REVIEW WILL SOLELY BE TO DETERMINE COMPLIANCE WITH THE CONTRACT DOCUMENTS.
- A9. TEMPORARY EXCAVATION SUPPORT SYSTEMS SHALL BE ANALYZED AND DESIGNED FOR ALL CONDITIONS THAT CAN OCCUR DURING THE VARIOUS STAGES OF CONSTRUCTION. THESE CONDITIONS MAY INCLUDE: TEMPORARY OR PERMANENT ALTERATION OF THE SOILS, IN-SITU SOIL PROPERTIES CAUSED BY THE SELECTED METHODS OF CONSTRUCTION, INITIAL CANTILEVER CONDITION, INSTALLATION, RELOCATION, AND REMOVAL OF TEMPORARY BRACING, TIME RELATED EFFECTS, SOIL EXCAVATION BELOW BRACING ALREADY IN PLACE, SHRINKAGE OF CONCRETE, DEWATERING OF EXCAVATION, AND LOAD TRANSFER TO PERMANENT STRUCTURE.
- A10. ALL LATERAL PRESSURES ARE IN POUNDS PER SQUARE FOOT (PSF).
- A11. MAXIMUM LATERAL DEFORMATION ALONG FULL DEPTH OF THE EXCAVATION SHALL NOT EXCEED  $0.0025 \times$  EXCAVATION DEPTH OR 1/2", WHICHEVER IS GREATER.
- A12. IF THE LATERAL LOADING CONDITIONS ON OPPOSITE SIDES OF THE EXCAVATION ARE NOT EQUAL, THE TEMPORARY EXCAVATION SUPPORT SYSTEM DESIGN SHALL ACCOUNT FOR THE UNBALANCED LOADING. UNBALANCED LOADING COULD RESULT FROM UNEQUAL EXCAVATION LEVELS OR DIFFERENT LATERAL PRESSURE DISTRIBUTIONS AT THE PERIMETER OF THE SITE.

- A13. EXCAVATION AND BRACING RESTRICTIONS SHALL BE INCORPORATED INTO THE TEMPORARY EXCAVATION SUPPORT SYSTEM DESIGN AS FOLLOWS:
  - THE MAXIMUM VERTICAL DISTANCE BETWEEN THE LOWEST TEMPORARY BRACE AND THE EXCAVATION SUBGRADE SHALL NOT EXCEED 15 FT.
  - EXCAVATION FOR A LOWER SUBGRADE ELEVATION MAY NOT BEGIN UNTIL THE BRACE LEVEL ABOVE HAS BEEN INSTALLED.
- A14. THE MAXIMUM HEIGHT OF EXCAVATION FACE SHALL NOT EXCEED 4 FEET PRIOR TO INSTALLATION OF TEMPORARY LAGGING OR OTHER SHORING SYSTEM.
- A15. THE CONTRACTOR MAY BE REQUIRED TO ADJUST CONSTRUCTION OPERATIONS IF THE ENGINEER CONSIDERS THAT BASED ON INSTRUMENTATION READINGS, EXCESSIVE SETTLEMENTS, DEFORMATION AND/OR DEFLECTIONS OCCUR.

**B. LATERAL DESIGN PRESSURES**

- B1. MINIMUM DESIGN LOADING CONDITIONS SHALL BE DETERMINED BY ADDING TOGETHER THE LOADING DIAGRAMS SHOWN ON DRAWING B-5 FOR SOIL (E) AND WATER (W), WHERE APPLICABLE, AND THE COMBINATION OF APPLIED SURCHARGES (S). TRAFFIC AND CONSTRUCTION EQUIPMENT LOAD SHALL BE ASSUMED ON ANY SIDE OF THE WALL THAT IS ACCESSIBLE.
- B2. UNLESS INDICATED OTHERWISE, ALL LOADS FOR A GIVEN CONDITION MUST BE ADDED SO AS TO FORMULATE THE MAXIMUM TOTAL DESIGN LOADING.
- B3. LATERAL PRESSURE DUE TO TRAFFIC AND CONSTRUCTION EQUIPMENT IS BASED ON AN ASSUMED SURFACE SURCHARGE OF 600 PSF ACTING OVER A 20-FT. WIDE INFLUENCE AREA. THE CONTRACTOR SHALL DETERMINE IF THE 600 PSF VERTICAL SURCHARGE LOAD IS SUFFICIENT, AND SHALL MAKE ADDITIONAL ANALYSES FOR MORE CRITICAL CONSTRUCTION EQUIPMENT LOADING CONDITIONS, AND ACCOUNT FOR THESE IN THE DESIGN OF THE TEMPORARY EXCAVATION SUPPORT SYSTEM. THE CONTRACTOR SHALL ACCOUNT FOR CRITICAL SURCHARGE LOADINGS OR OTHER LOADING CONDITIONS NOT DESCRIBED HEREIN IN DESIGN AND CONSTRUCTION, SUBJECT TO THE REVIEW OF THE PM, PRIOR TO THE APPLICATION OF THE LOADING.
- B4. FOR UNIFORM VERTICAL SURCHARGE LOADING, LATERAL PRESSURES ARE DETERMINED AT VARIOUS DEPTHS BELOW THE CORNER OF THE LOADED AREA. WHEN THE RECTANGULAR LOADED AREA IS LOCATED AT A DISTANCE BEHIND THE WALL, THE PRINCIPLE OF LOAD SUPERPOSITION SHALL BE USED TO DETERMINE LATERAL PRESSURES AGAINST THE WALL. REFER TO SOIL MECHANICS, BY LAMBE AND WHITMAN, PAGE 104, FOR AN EXAMPLE OF USING THE PRINCIPLE OF SUPERPOSITION OF LOADS.
- B5. PASSIVE EARTH PRESSURES SHALL BE COMPUTED USING RANKINE EARTH PRESSURE THEORY AND THE SOIL PROPERTIES INDICATED ON DRAWING B-5.
- B6. THE TEMPORARY EXCAVATION SUPPORT SYSTEM SHALL BE CONSIDERED TO BE SUBJECT TO LATERAL SURCHARGE PRESSURES FROM LOADS ASSOCIATED WITH ADJACENT STRUCTURES AND GRADE INCREASES IF LOCATED WITHIN THE INFLUENCE ZONE. THE INFLUENCE ZONE IS DEFINED AS A 1H:1V LINE DRAWN FROM THE BOTTOM OF THE FINAL EXCAVATION LEVEL AT THE OUTSIDE FACE OF THE TEMPORARY EXCAVATION SUPPORT SYSTEM UPWARD AND OUTWARD AWAY FROM THE SITE TOWARD THE ADJACENT STRUCTURE OR GRADE INCREASE.
- B7. VALUES OF P ARE IN POUNDS PER SQUARE FOOT PER LINEAR FOOT OF WALL (PSF/LF).
- B8. THE EXISTING GROUNDWATER LEVEL VARIES AND MUST BE DETERMINED ON A SITE SPECIFIC BASIS FOR EACH TEMPORARY EXCAVATION SUPPORT DESIGN. THE DESIGN MUST ACCOUNT FOR THE MOST CRITICAL LOADING CONDITION, INCLUDING THE MAXIMUM LOWERING OF THE GROUNDWATER TABLE AND THE MAXIMUM WATER INGRESS INTO THE EXCAVATION. REFER TO SPECIFICATIONS FOR GROUNDWATER CONTROL REQUIREMENTS.
- B9. STRESSES DUE TO TEMPERATURE FLUCTUATIONS SHALL BE TAKEN INTO ACCOUNT IN THE DESIGN OF BRACING MEMBERS AND LOADS RESULTING FROM FROZEN SOILS SHALL BE CONSIDERED IF APPROPRIATE.
- B10. IF AN IMPERMEABLE EXCAVATION SUPPORT WALL IS INSTALLED, THEN EFFECTIVE LATERAL EARTH PRESSURES PLUS HYDROSTATIC PRESSURE SHALL BE USED FOR DESIGN. IF A PERMEABLE WALL SYSTEM IS INSTALLED THEN TOTAL LATERAL EARTH PRESSURES MUST BE USED FOR DESIGN.

**C. BRACING MEMBERS**

- C1. DESIGN OF BRACING MEMBERS SHALL SATISFY THE MOST CRITICAL CONDITIONS ANTICIPATED DURING THE CONSTRUCTION SEQUENCE
- C2. TEMPORARY INTERNAL BRACING MEMBERS (STRUTS, RAKERS, CORNER BRACES, WALES) SHALL BE STRUCTURAL GRADE STEEL, REINFORCED CONCRETE, OR A COMBINATION. NO WOOD SHIMS SHALL BE USED.
- C3. TEMPORARY BRACING MEMBERS SHALL NOT BE EMBEDDED IN PERMANENT STRUCTURES.
- C4. TEMPORARY BRACING MEMBERS SHALL BE REMOVED AT AN APPROPRIATE STAGE OF CONSTRUCTION AND IN SUCH A MANNER AS TO AVOID IMPACT LOADING ON NEW AND EXISTING STRUCTURES AND/OR PIPELINES OR ON OTHER MEMBERS OF THE TEMPORARY EXCAVATION SUPPORT SYSTEM.
- C5. ALL INTERNAL BRACING SHALL BE PRESTRESSED TO AT LEAST 50 PERCENT OF MAXIMUM DESIGN LOADS WHERE PASSIVE SOIL PRESSURE LIMIT PERMITS.

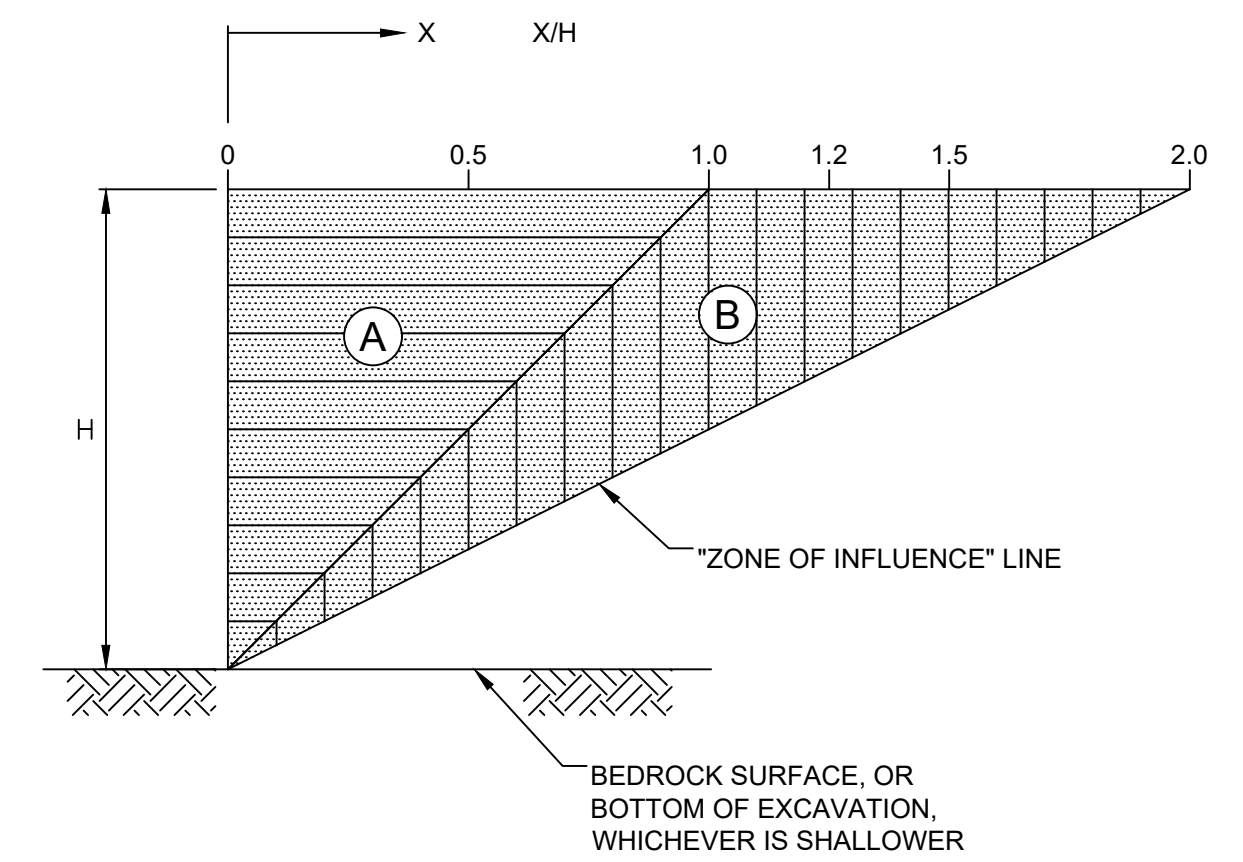
**D. TEMPORARY EXCAVATION SUPPORT SYSTEM TOE STABILITY DESIGN**

- D1. THE TOE OF THE TEMPORARY EXCAVATION SUPPORT SYSTEM PRIMARY ELEMENTS SHALL EXTEND A SUFFICIENT DISTANCE BELOW THE BOTTOM OF THE EXCAVATION IN ORDER TO LIMIT MOVEMENT AND TO ENSURE BOTTOM STABILITY AND ADEQUATE VERTICAL LOAD CAPACITY.
- D2. THE TOE OF THE TEMPORARY EXCAVATION SUPPORT SYSTEM WALL SHALL EXTEND A SUFFICIENT DISTANCE BELOW THE LOWEST EXCAVATION LEVEL TO PROVIDE VERTICAL LOAD CARRYING CAPACITY AND LIMIT HORIZONTAL MOVEMENT OF THE WALL. LOAD CARRYING CAPACITY OF THE WALL SHALL BE DETERMINED BY CONSIDERING BRACING SYSTEM LOADS. ONLY THE LENGTH OF THE WALL BELOW THE BOTTOM OF THE EXCAVATION SHALL BE CONSIDERED IN SKIN FRICTION AND/OR ADHESION CALCULATIONS.
- D3. EVALUATION OF THE REQUIRED TOE EMBEDMENT BELOW EXCAVATION SUBGRADE SHALL BE BASED ON THE NET RANKINE ACTIVE AND PASSIVE PRESSURES USING THE APPROPRIATE PRESSURE COEFFICIENTS PRESENTED IN THE SOIL PARAMETERS TABLE AND APPLICABLE SURCHARGE LOADING. FOR DETERMINING TOE EMBEDMENT, EITHER A FACTOR OF SAFETY EQUAL TO 1.5 SHALL BE APPLIED TO THE PASSIVE PRESSURE COEFFICIENT OR THE CALCULATED MINIMUM TOE EMBEDMENT SHALL BE INCREASED BY 20%.
- D4. IN SITUATIONS WHERE THE RETAINED SOIL IS NOT DEWATERED, THE DETERMINATION OF TOE PENETRATION MUST CONSIDER THE POTENTIAL FOR SEEPAGE GRADIENTS WHICH COULD CAUSE INSTABILITY AT THE BOTTOM OF THE EXCAVATION AND REDUCE THE STRENGTH OF SOILS AT THE TOE OF THE WALL.

**E. CRITERIA FOR PROTECTION OF STRUCTURES**

- E1. STRUCTURES INCLUDE EXISTING BUILDINGS, BRIDGES, UTILITIES, PAVEMENTS AND OTHER FACILITIES.
- E2. PROTECTION CRITERIA PRESENTED FOR FLEXIBLE WALL SYSTEMS ASSUME AVERAGE EXCAVATION AND BRACING PROCEDURES ARE UTILIZED.
- E3. EVALUATION OF PROTECTION REQUIREMENTS FOR STRUCTURES IS DEPENDENT ON MANY FACTORS, WHICH INCLUDE IMPLEMENTED CONSTRUCTION PROCEDURES AND DETAILS, MAGNITUDE AND TYPES OF MOVEMENT ANTICIPATED, SUBSURFACE CONDITIONS, AND PROXIMITY OF STRUCTURES TO THE EXCAVATION. AT LOCATIONS WHERE STRUCTURES ARE FOUNDED WITHIN THE ZONE OF INFLUENCE, AN EVALUATION OF PROTECTION REQUIREMENTS SHALL BE CONDUCTED BY THE CONTRACTOR ON A CASE BY CASE BASIS, CONSIDERING ALL RELEVANT FACTORS.
- E4. POSITIVE MEANS OF PROTECTION ARE DEFINED AS MEASURES WHICH MAY BE TAKEN TO CONTROL GROUND MOVEMENTS TO WITHIN ACCEPTABLE LIMITS OR, MEASURES WHICH PROVIDE ADDITIONAL SUPPORT FOR AFFECTED STRUCTURES. EVALUATION OF PROTECTION REQUIREMENTS FOR STRUCTURES GENERALLY BEGINS WITH SELECTING AND IMPLEMENTING EARTH SUPPORT, EXCAVATION AND BRACING TECHNIQUES TO MINIMIZE GROUND MOVEMENTS. IF ANTICIPATED GROUND MOVEMENTS ARE STILL EXPECTED TO EXCEED ACCEPTABLE LIMITS, THEN INDIRECT OR DIRECT STRUCTURE PROTECTION MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR ON A CASE BY CASE BASIS. INDIRECT PROTECTION MEASURES INCLUDE SUCH PROCEDURES AS PROVIDING A STIFFER RETAINING SYSTEM, COMPACTION GROUTING OR SLAB/FOOTING JACKING. DIRECT PROTECTION MEASURES INCLUDE SUCH PROCEDURES AS STANDARD UNDERPINNING PITS.
- E5. THE CONTRACTOR SHALL CONSIDER THE EFFECTS OF VIBRATIONS ON ADJACENT STRUCTURES FROM INSTALLATION OF THE TEMPORARY EARTH SUPPORT SYSTEM.
- E6. REFER TO SPECIFICATION SECTION 02295 FOR GEOTECHNICAL INSTRUMENTATION RESPONSE LEVELS AND READING FREQUENCIES.

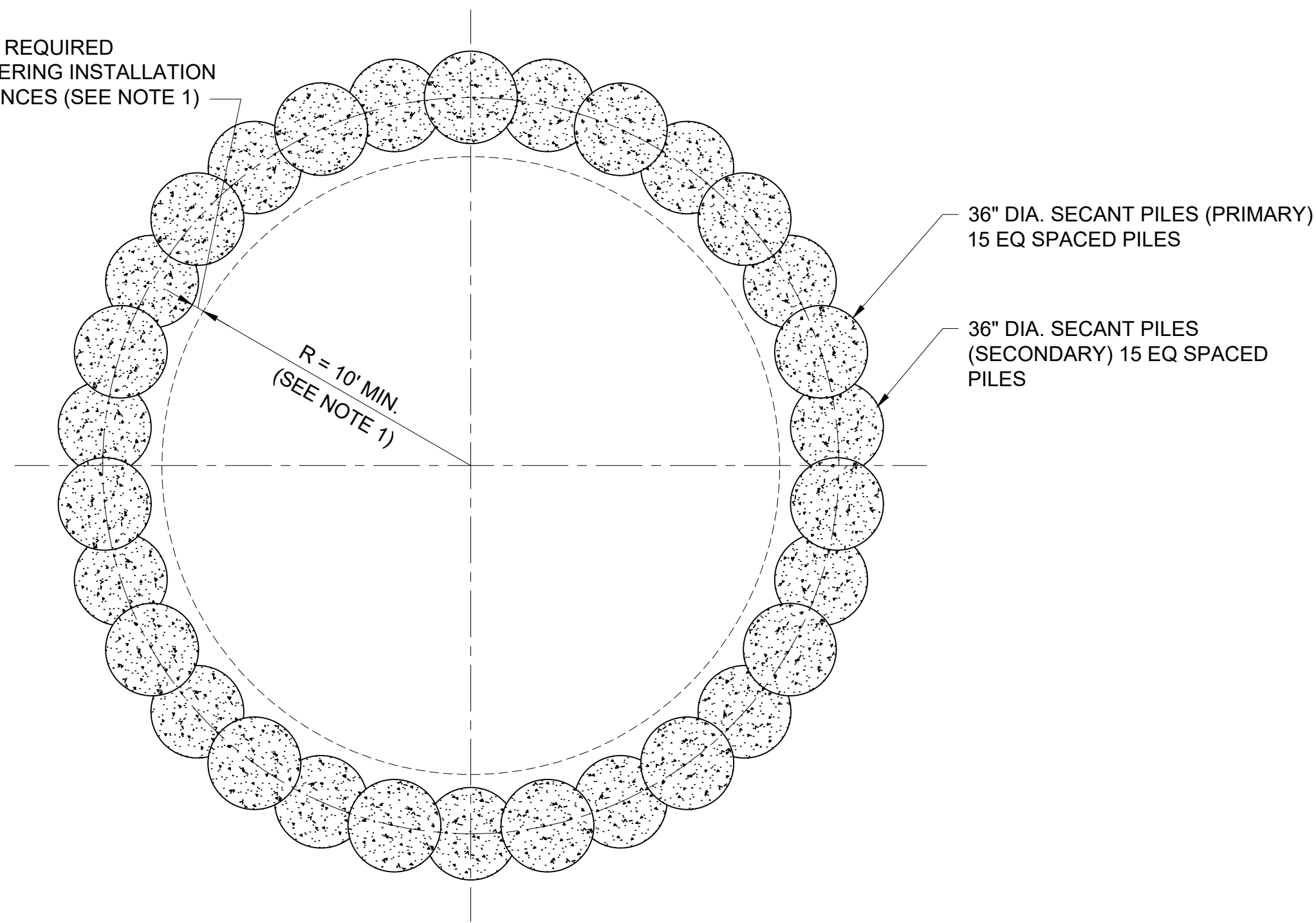
**PROTECTION CRITERIA**



**LEGEND**

- ZONE OF INFLUENCE: DEFINES A ZONE WITHIN WHICH SOIL MOVEMENTS ARE EXPECTED TO OCCUR AS A RESULT OF CONSTRUCTION. PROTECTION OF STRUCTURES FOUNDED OR LOCATED WITHIN THIS ZONE SHALL BE CONSIDERED BY THE CONTRACTOR.
- PROTECTION ZONE A: STRUCTURES WHICH ARE FOUNDED OR LOCATED WITHIN THIS ZONE GENERALLY WILL REQUIRE SOME POSITIVE MEANS OF PROTECTION. REFER TO NOTE E.4 FOR DEFINITION OF POSITIVE MEANS OF PROTECTION.
- PROTECTION ZONE B: STRUCTURES WHICH ARE FOUNDED OR LOCATED WITHIN THIS ZONE GENERALLY WILL NOT REQUIRE PROTECTION, UNLESS THE STRUCTURES ARE PARTICULARLY SENSITIVE TO MOVEMENTS, OR SUBSURFACE SOILS ARE SENSITIVE TO CONSTRUCTION VIBRATION.

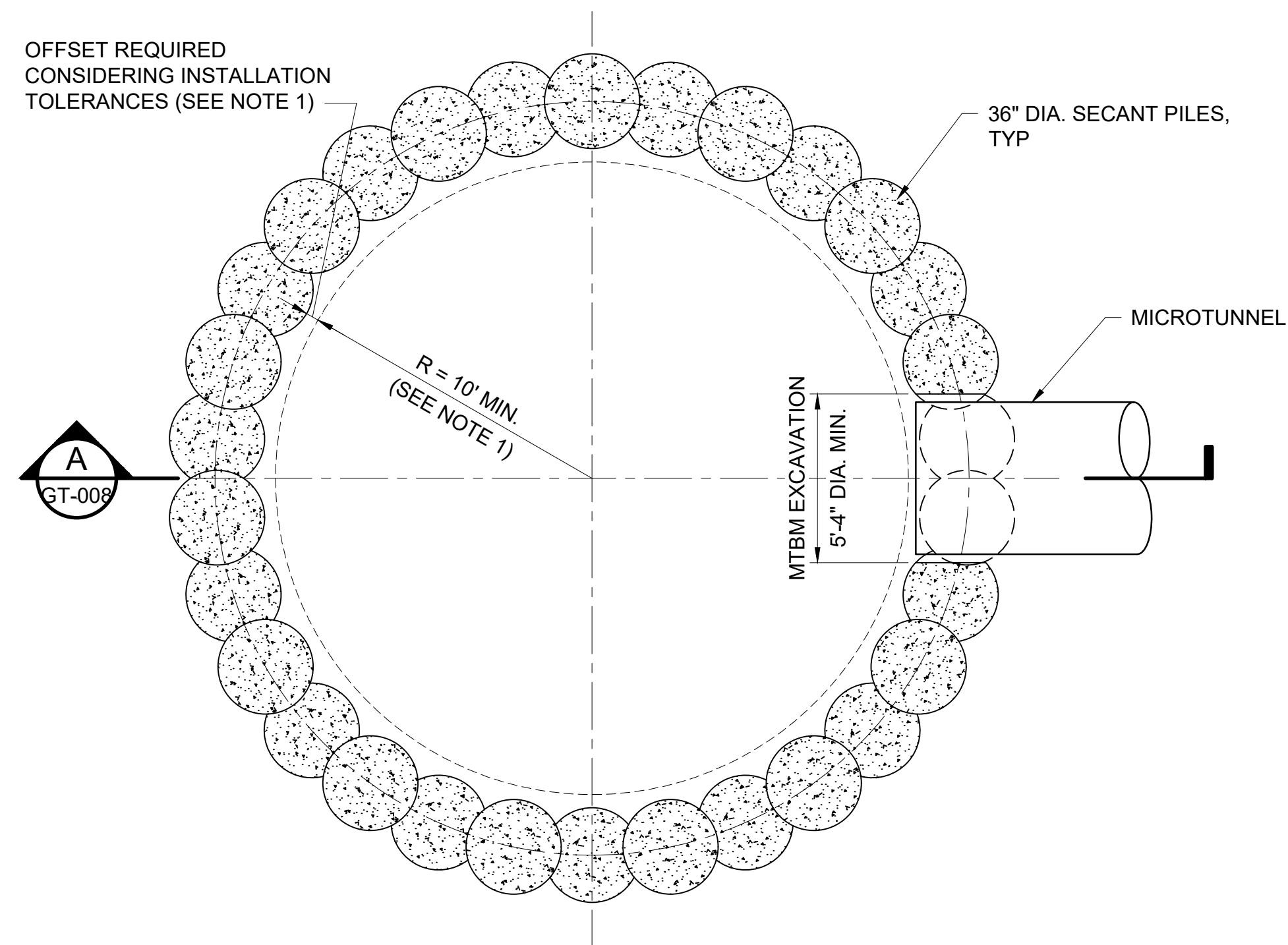
OFFSET REQUIRED  
CONSIDERING INSTALLATION  
TOLERANCES (SEE NOTE 1)



SECANT PILE SHAFT PLAN AT GROUND LEVEL

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

OFFSET REQUIRED  
CONSIDERING INSTALLATION  
TOLERANCES (SEE NOTE 1)

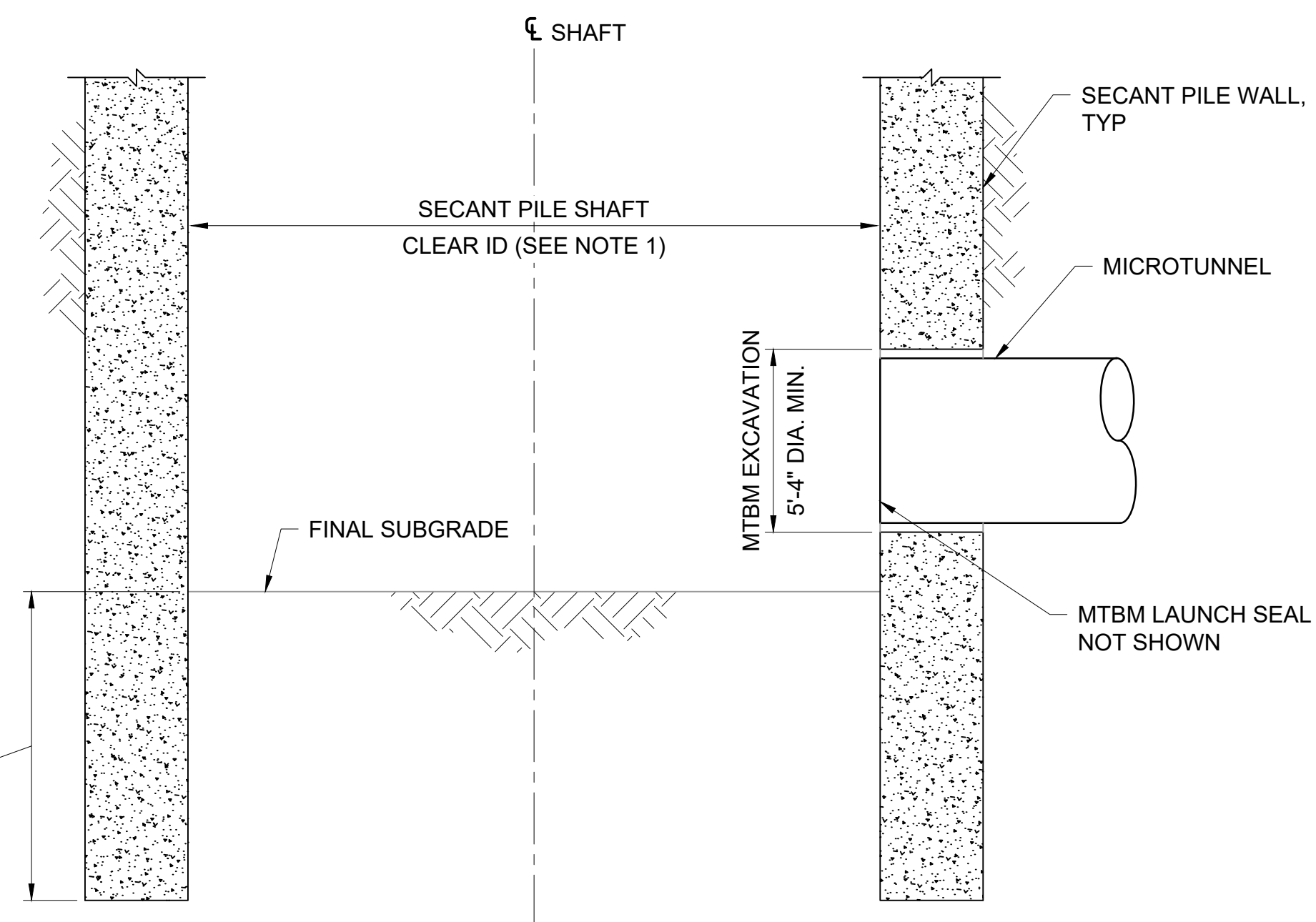


SECANT PILE SHAFT PLAN AT MICROTUNNEL SPRINGLINE

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

NOTES

1. MTBM LAUNCHING SHAFTS AT MH-217-6 AND MH-217-7 SHALL BE CONSTRUCTED USING THE SECANT PILE WALL METHOD AND PROVIDE A MINIMUM 20-FEET CLEAR OF INSIDE DIAMETER CONSIDERING INSTALLATION TOLERANCES.
2. THIS DRAWING DEPICTS A REFERENCE DESIGN FOR WHICH THE CONTRACTOR SHALL DEVELOP TO A FINAL DESIGN. THE CONTRACTOR'S FINAL DESIGN SHALL INCORPORATE DESIGN AND CONSTRUCTION REQUIREMENTS SPECIFIED HERE AND ELSEWHERE IN THE CONTRACT DOCUMENTS.
3. REFERENCE DESIGN ASSUMPTIONS:
  - a. PLAIN CONCRETE DESIGN IN ACCORDANCE WITH ACI-318-19
  - b.  $F_c = 4000$  PSI
  - c. INSTALLATION TOLERANCES:
    - i. IN-PLAN LOCATION: 1/2-INCH MAXIMUM
    - ii. OUT-OF-VERTICALITY: 0.5% MAXIMUM
  - d. DESIGN PRESSURES:
    - i. AT REST EARTH PRESSURES
    - ii. GROUND WATER LEVEL AT EL. 15.0
    - iii. SURCHARGE (BALANCED AND UNBALANCED)
  - e. SHAFT DESIGN DOES NOT CONSIDER MTBM JACKING LOADS OR REINFORCEMENT AT MTBM PENETRATION LOCATIONS
3. CONTRACTOR TO DESIGN AND PROVIDE SOFT EYES IN SHAFT WALL AT MTBM PENETRATIONS AND REINFORCEMENT NECESSARY TO SUPPORT SAME PENETRATIONS THROUGH THE SHAFT WALL.
4. CONTRACTOR TO DESIGN SHAFT TO ACCOMMODATE ANTICIPATED MTBM JACKING LOADS.
5. CONTRACTOR TO DESIGN AND PROVIDE A REINFORCED CONCRETE SHAFT CAPPING BEAM.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
7. SHAFT AT MH-217-6 TO BE USED FOR TWO MTBM LAUNCHES
8. SHAFT AT MH-217-7 TO BE USED FOR ONE MTBM LAUNCH TO RECEIVING PIT NEAR STA. 16+70; AND TO RECEIVE ONE MTBM LAUNCHED FROM SHAFT AT MH-217-6.



BOTTOM OF SECANT WALL TO BE A MINIMUM OF 5 FEET BELOW BOTTOM OF EXCAVATION OR EMBEDDED 5 FEET INTO MODERATELY WEATHERED TO FRESH BEDROCK AS DEFINED BY ISRM WEATHERING CLASSIFICATION SYSTEM WHICHEVER IS DEEPER.

A SECTION  
GT-008 SCALE: N.T.S.

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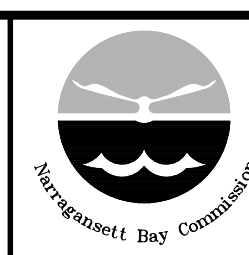
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| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |            |
|----------|------------|
| DESIGNED | D.NOWAK    |
| DRAWN    | D.NOWAK    |
| CHECKED  | T.HENNINGS |

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

Stantec

PARE

NBC CONTRACT NO 308.05C  
GEOTECHNICAL

OF-217 CONSOLIDATION CONDUIT  
SECANT PILE SHAFT REFERENCE DESIGN

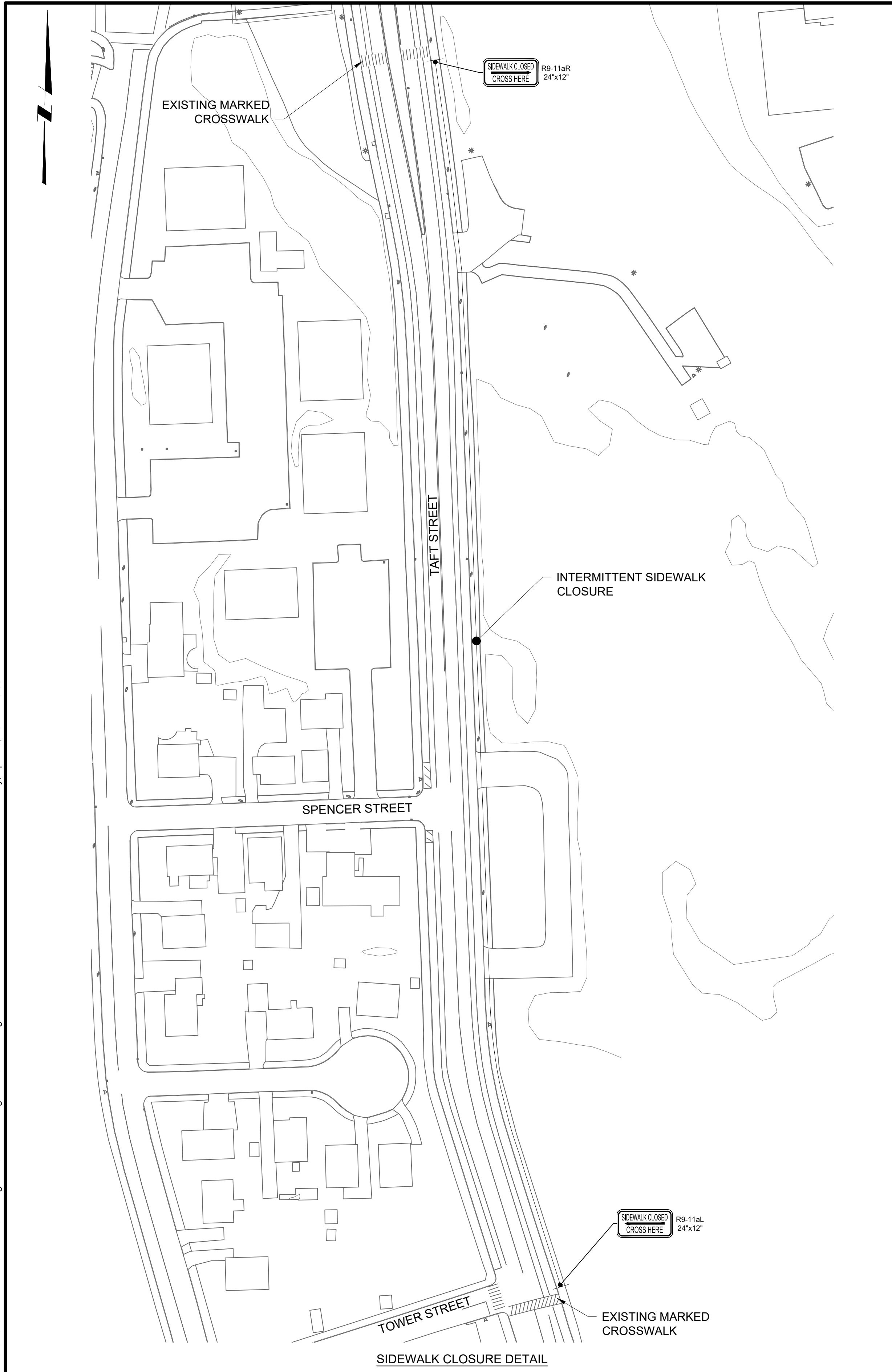
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B-7  
195130227



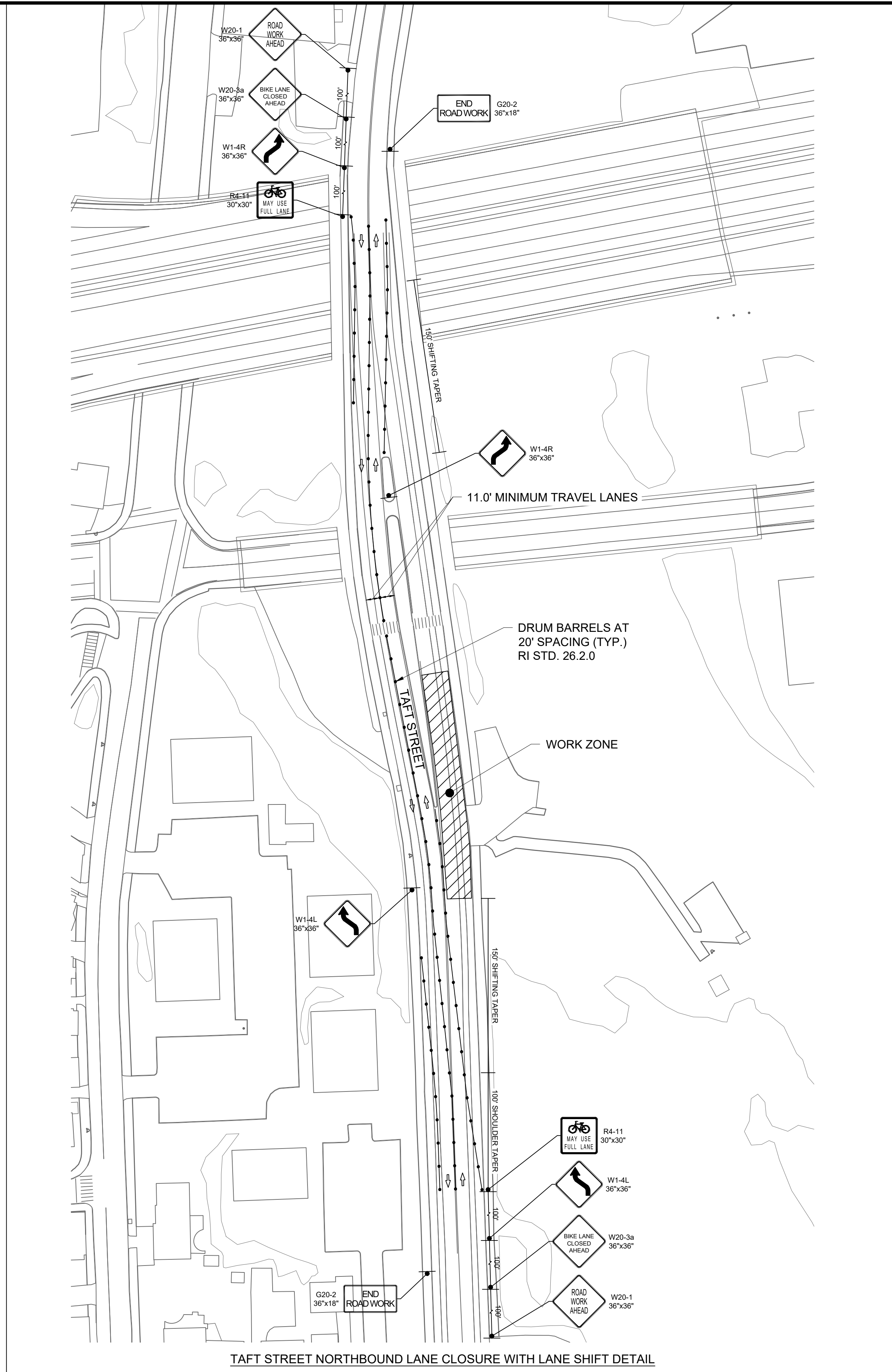
BY: JAMIE PAYNE

PLOT DATE: Monday, April 19, 2021 1:45:30 PM

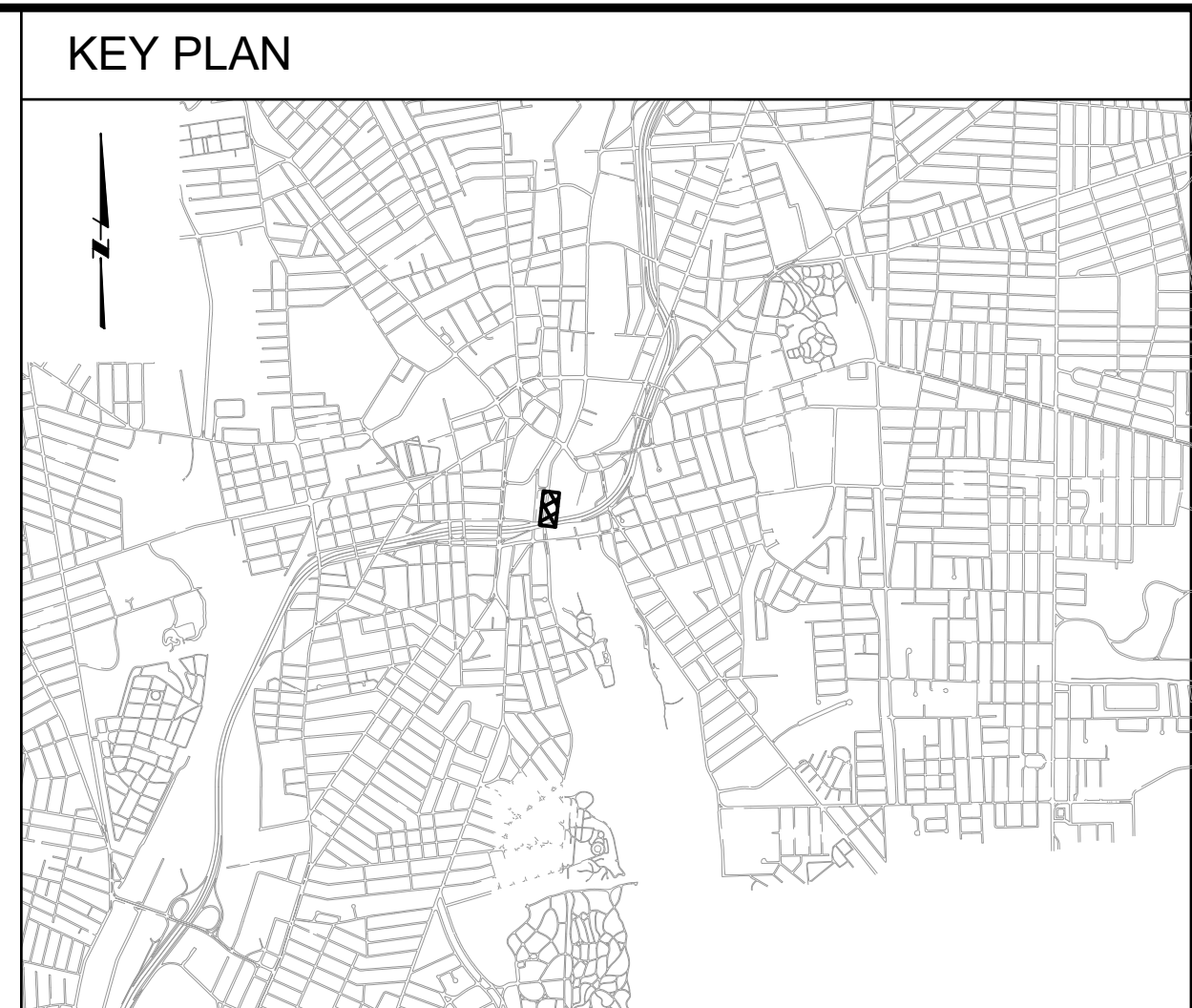
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SIDEWALK CLOSURE DETAIL



TAFT STREET NORTHBOUND LANE CLOSURE WITH LANE SHIFT DETAIL



GENERAL SHEET NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, RI STD. 26.2.0.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND UTILITIES AT ALL TIMES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL AND SAFETY DURING ALL WORK ACTIVITIES.

5. THE CONTRACTOR SHALL MAINTAIN CLEARANCE OF ALL VISION TRIANGLES AND INTERSECTIONS.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.

7. THE CONTRACTOR SHALL MAINTAIN ADEQUATE LIGHTING AND SIGNAGE AT ALL TIMES.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL ENVIRONMENTAL FEATURES AND RESOURCES.

9. THE CONTRACTOR SHALL MAINTAIN ADEQUATE RECORDS OF ALL WORK ACTIVITIES.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PUBLIC SAFETY FEATURES AND RESOURCES.

SHEET KEYNOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, RI STD. 26.2.0.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

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| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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| SCALE    | WARNING  |
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|          | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |             |
|----------|-------------|
| DESIGNED | H. PERALTA  |
| DRAWN    | T. JOUBERT  |
| CHECKED  | J. D'ALELIO |

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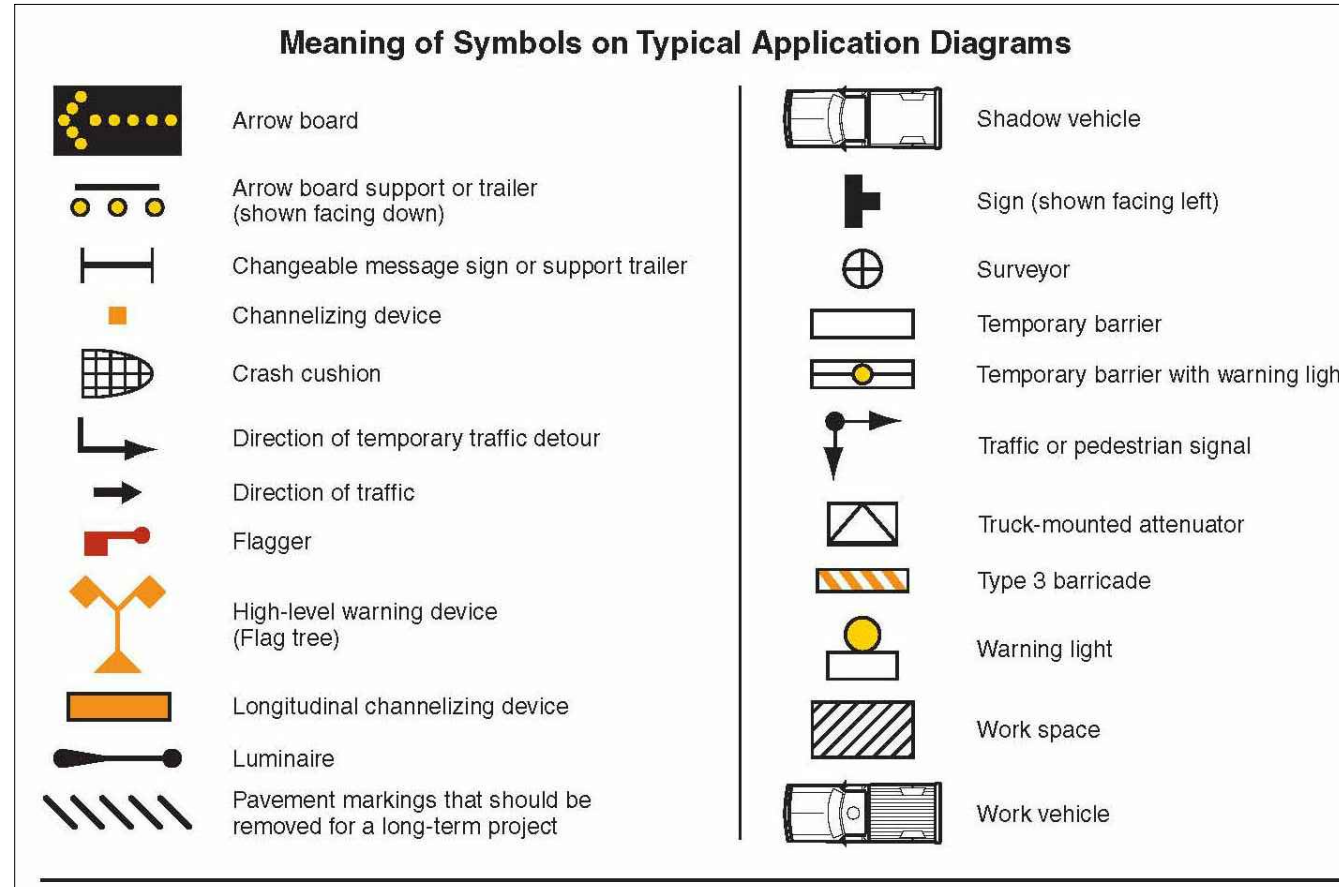
NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
TRAFFIC

OF-217 CONSOLIDATION CONDUIT  
TEMPORARY TRAFFIC CONTROL PLAN

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195130227

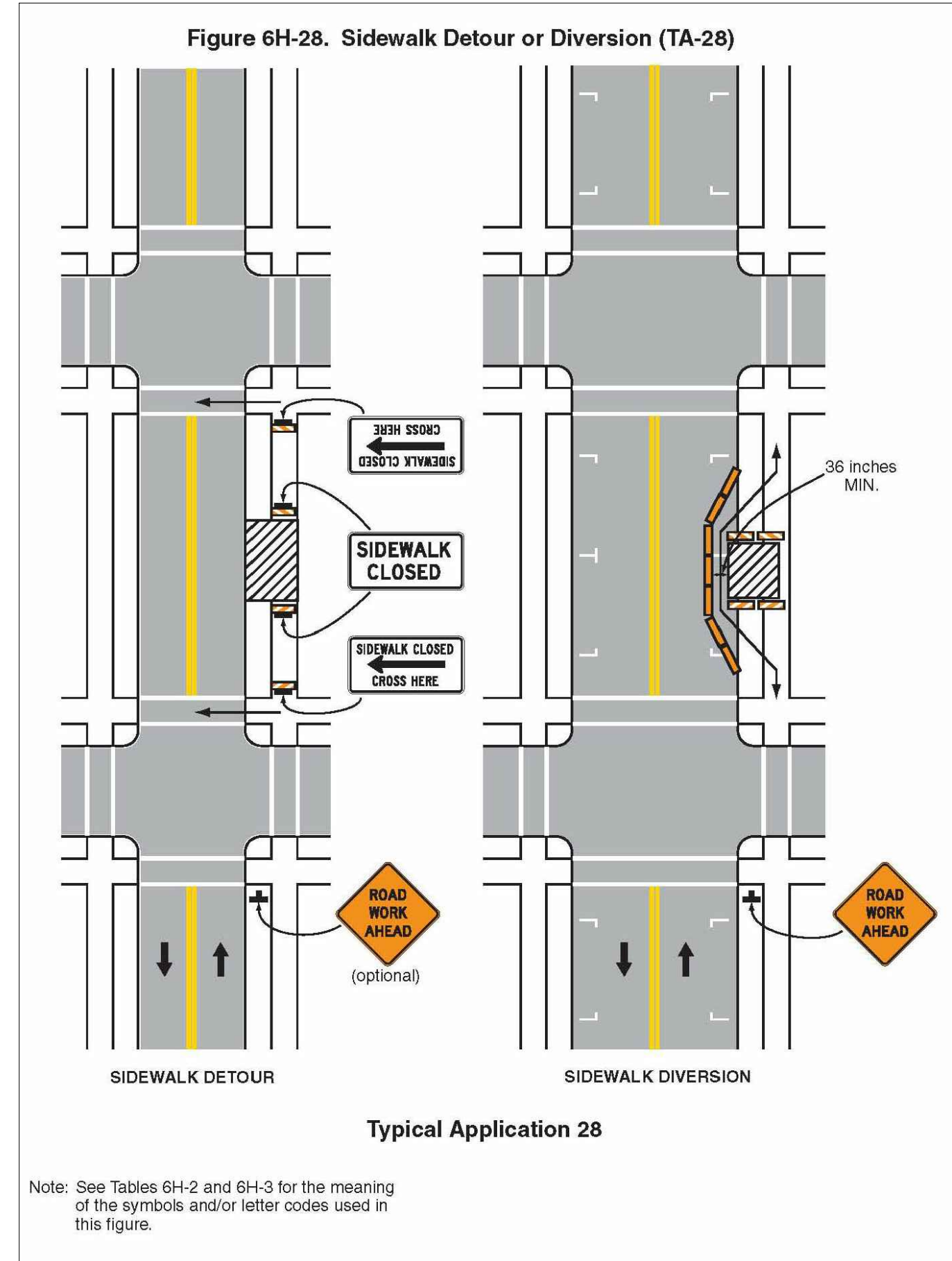
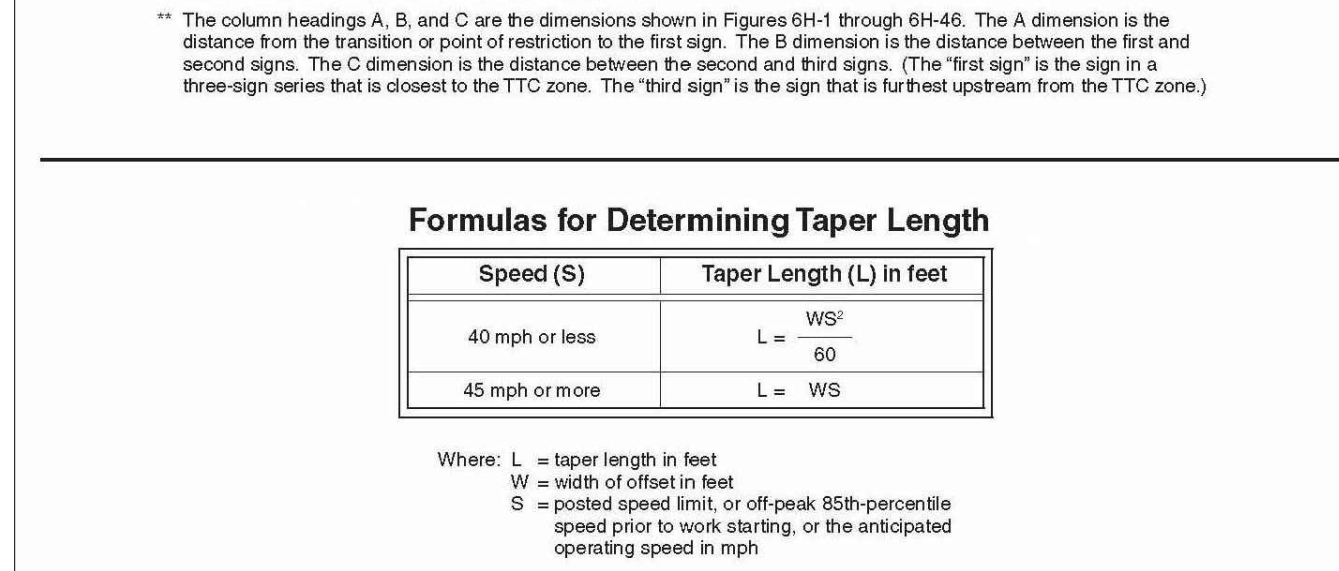
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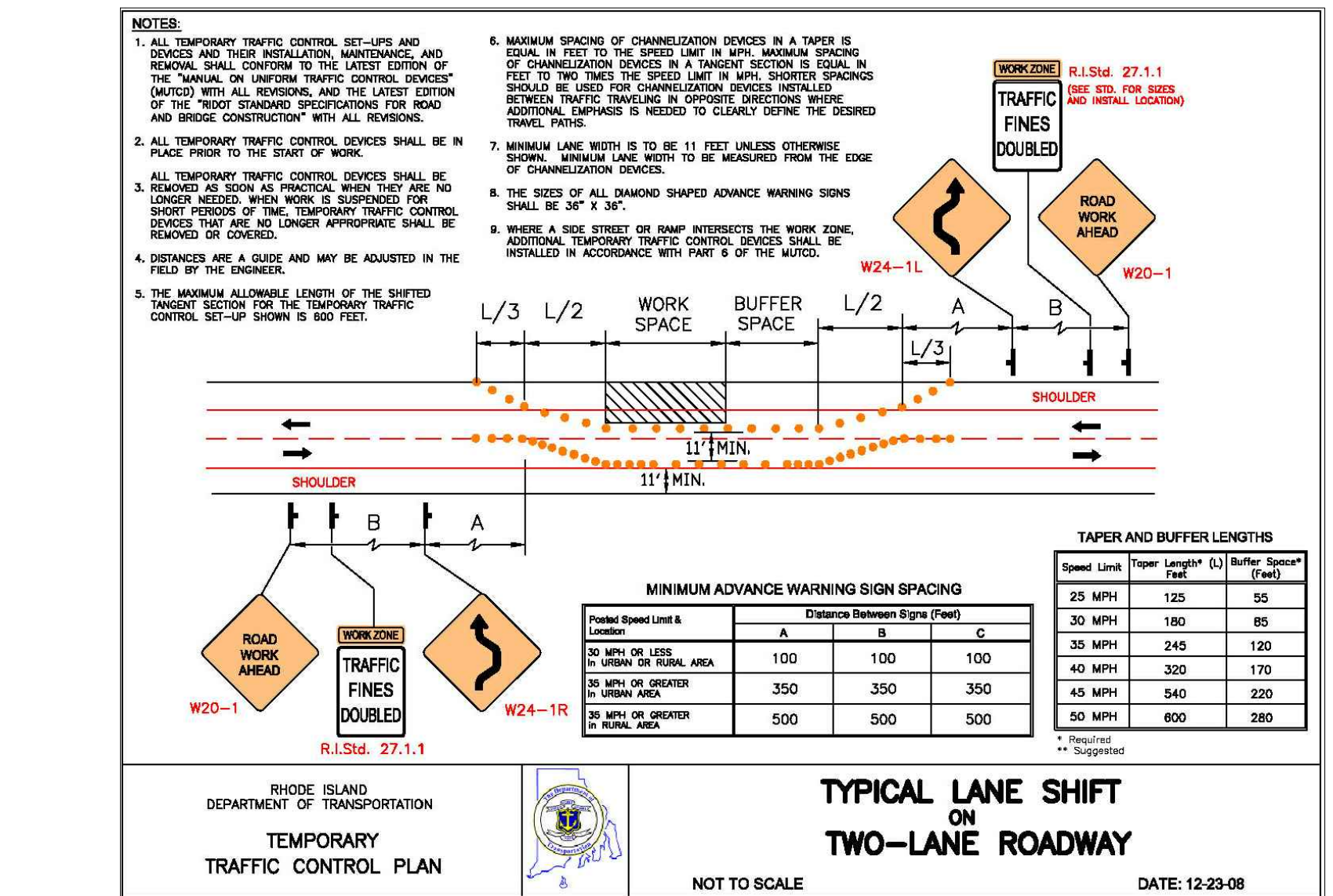
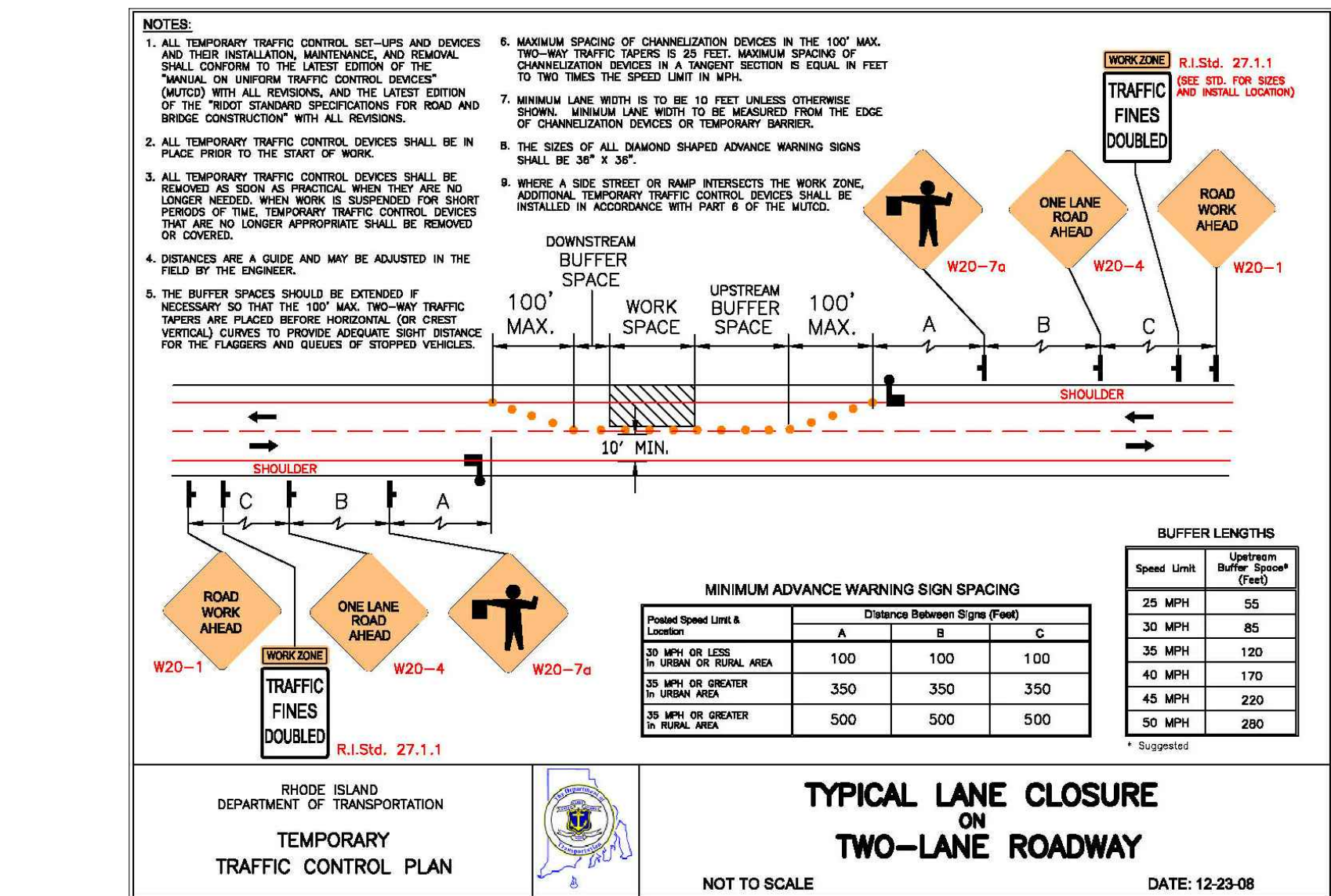
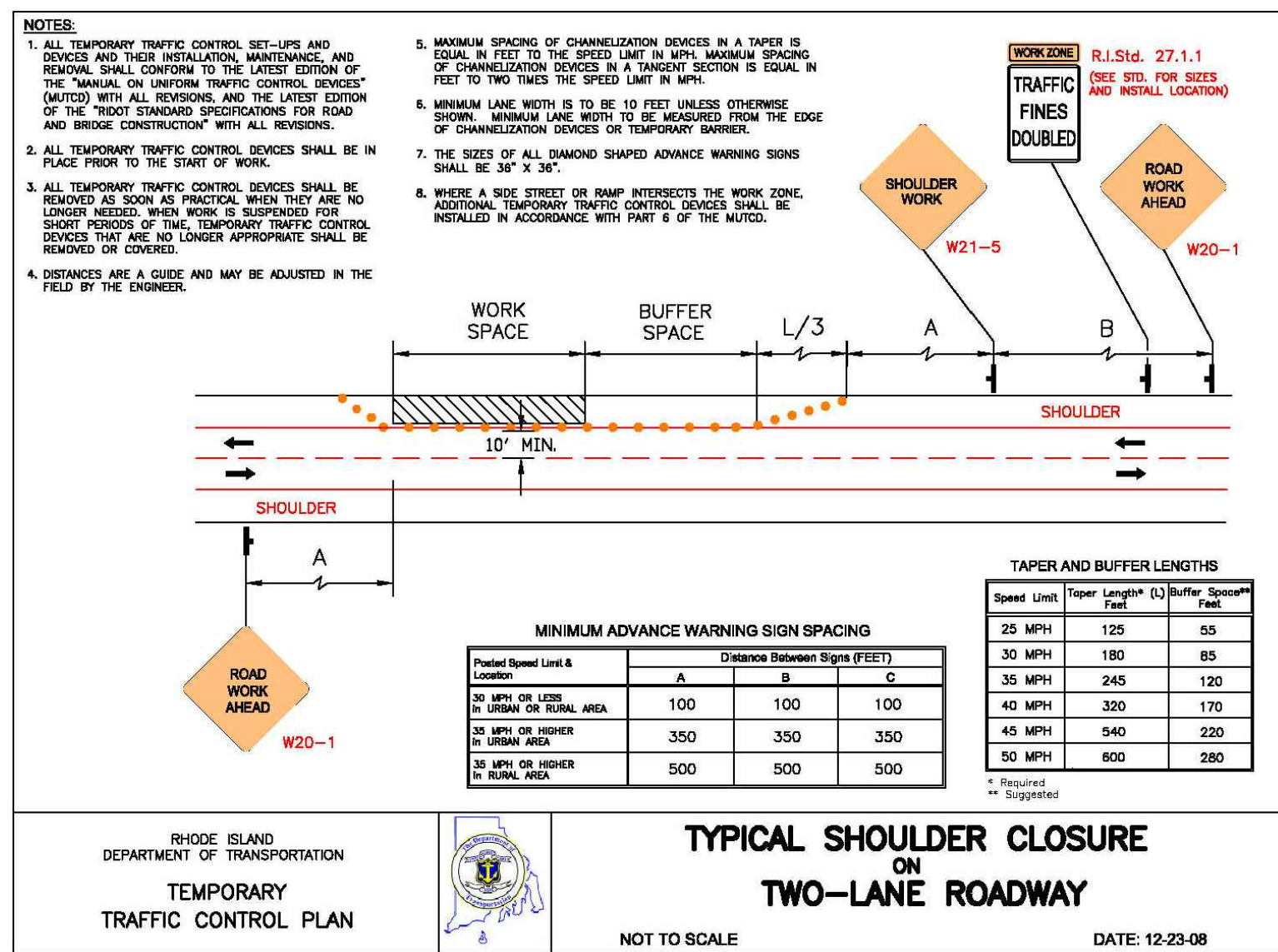
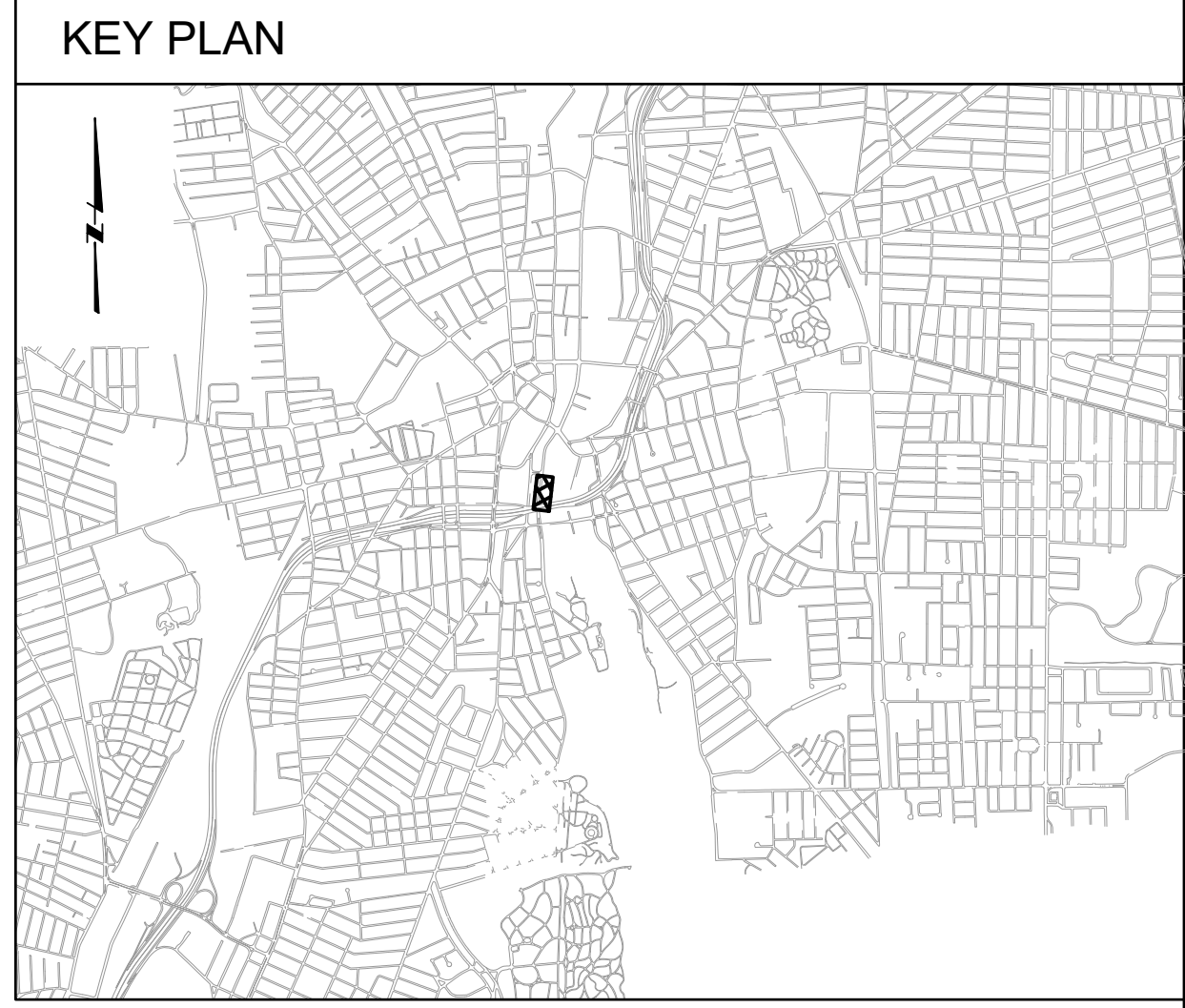
### Meaning of Letter Codes on Typical Application Diagrams

| Road Type            | Distance Between Signs** |            |            |
|----------------------|--------------------------|------------|------------|
|                      | A                        | B          | C          |
| Urban (low speed)*   | 100 feet                 | 100 feet   | 100 feet   |
| Urban (high speed)*  | 350 feet                 | 350 feet   | 350 feet   |
| Rural                | 500 feet                 | 500 feet   | 500 feet   |
| Expressway / Freeway | 1,000 feet               | 1,500 feet | 2,640 feet |

\* Speed category to be determined by highway agency  
 \*\* The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-4. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)



- ### TEMPORARY TRAFFIC CONTROL GENERAL NOTES:
- ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS, CHANNELIZING DEVICES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
  - ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T STANDARD SPECIFICATIONS, LATEST EDITION.
  - THE CONTRACTOR SHALL COVER ALL EXISTING AND/OR TEMPORARY SIGNS THAT ARE NOT RELEVANT TO THE TRAFFIC CONTROL REQUIRED DURING ANY PARTICULAR STAGE OF THE CONTRACT.
  - ADVANCE FLAGPERSON SIGNS (W20-7A) SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A FLAGPERSON OR A POLICE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLAQUE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.
  - POLICE OFFICERS (AND NOT FLAGPERSONS) SHALL BE UTILIZED WHEN WORK WILL IMPACT SIGNALIZED INTERSECTIONS AND LIMITED ACCESS HIGHWAYS.
  - POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.
  - ARROW PANELS SHALL BE SET IN THE FLASHING FOUR CORNERS CAUTION MODE UNLESS UTILIZED FOR A MERGING TAPER. ARROW PANELS SET IN THE FLASHING MODE SHALL NOT BE UTILIZED FOR LANE SHIFTS.
  - TEMPORARY CONSTRUCTION SIGNS AND OTHER WORKZONE TRAFFIC CONTROL DEVICES THAT ARE DAMAGED OR REQUIRE RELOCATION SHALL BE REPLACED AND/OR RELOCATED UNDER THE APPROPRIATE PAY ITEM.
  - THE PRIVATE VEHICLE OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. THEY MAY BE PARKED WITHIN THE STATE AND/OR CITY RIGHT-OF-WAY ONLY IN AREAS 30' BEYOND THE OUTSIDE EDGE OF THE TRAVEL LANES AND/OR IN AREAS APPROVED BY THE ENGINEER.
  - TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.
  - THE INTENDED VEHICLE PATHS THROUGH EACH WORK ZONE SHALL BE CLEARLY MARKED AT ALL TIMES. WATERBORNE PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE THE END OF THE WORK SHIFT ON ALL COLD-PLANNED AND NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT.
  - THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE TEMPORARY INTERFERENCE WITH OR CLOSURE OF ACCESS.
  - ONE SIDEWALK SHALL REMAIN OPEN AT ALL TIMES ALONG ROOSEVELT AVENUE EXTENSION AND TAFT STREET.

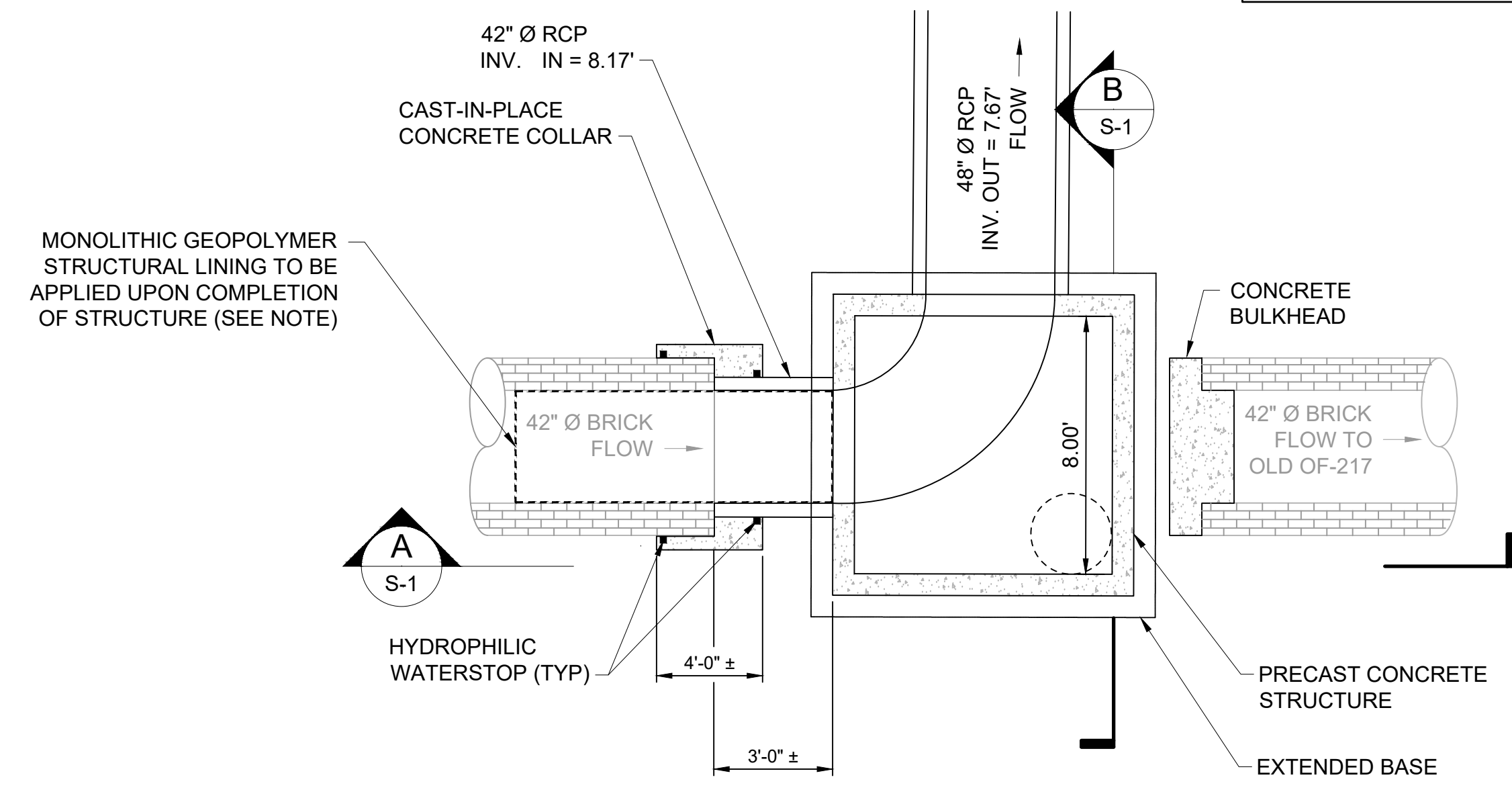
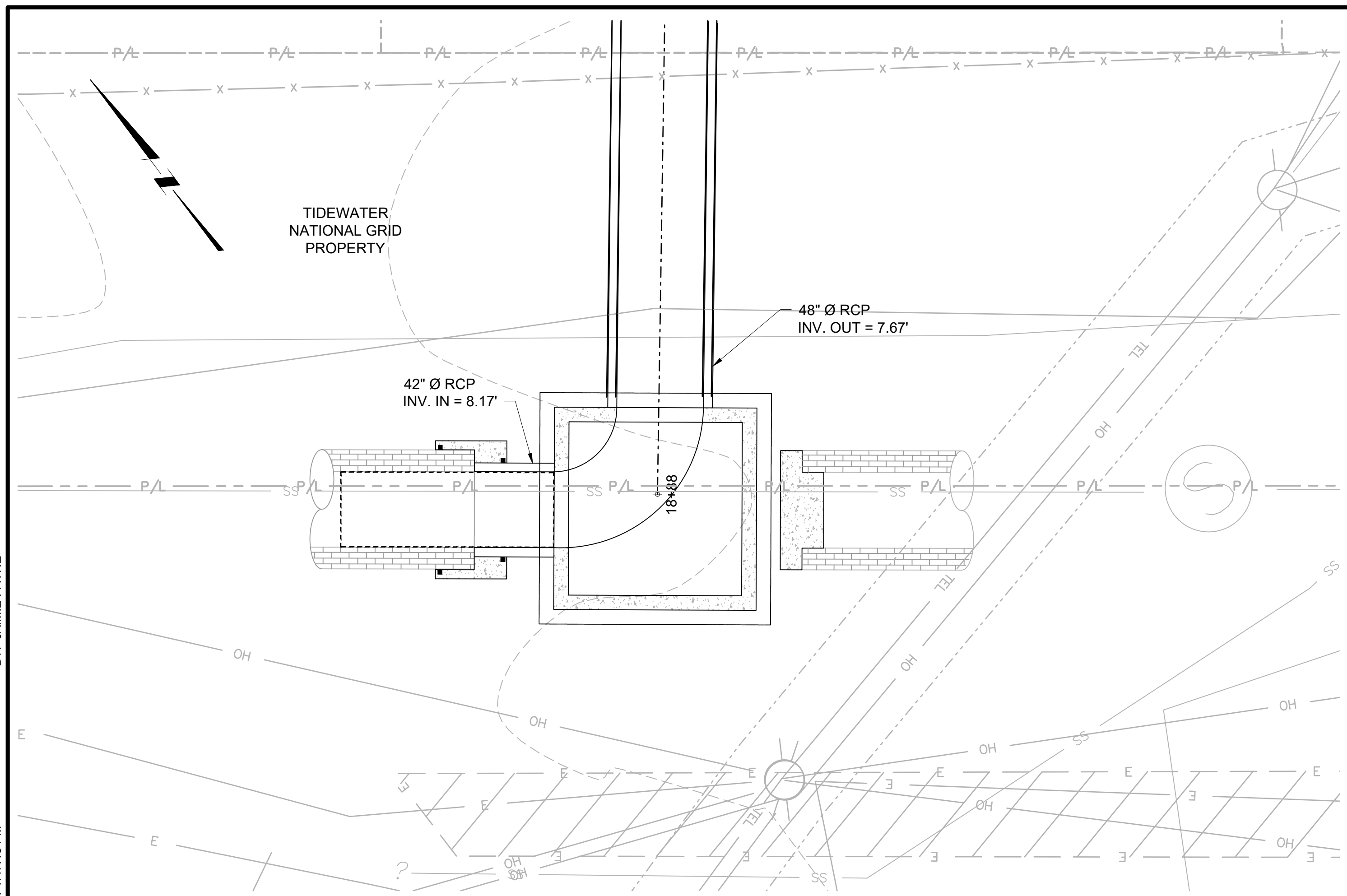


BY: JAMIE PAYNE

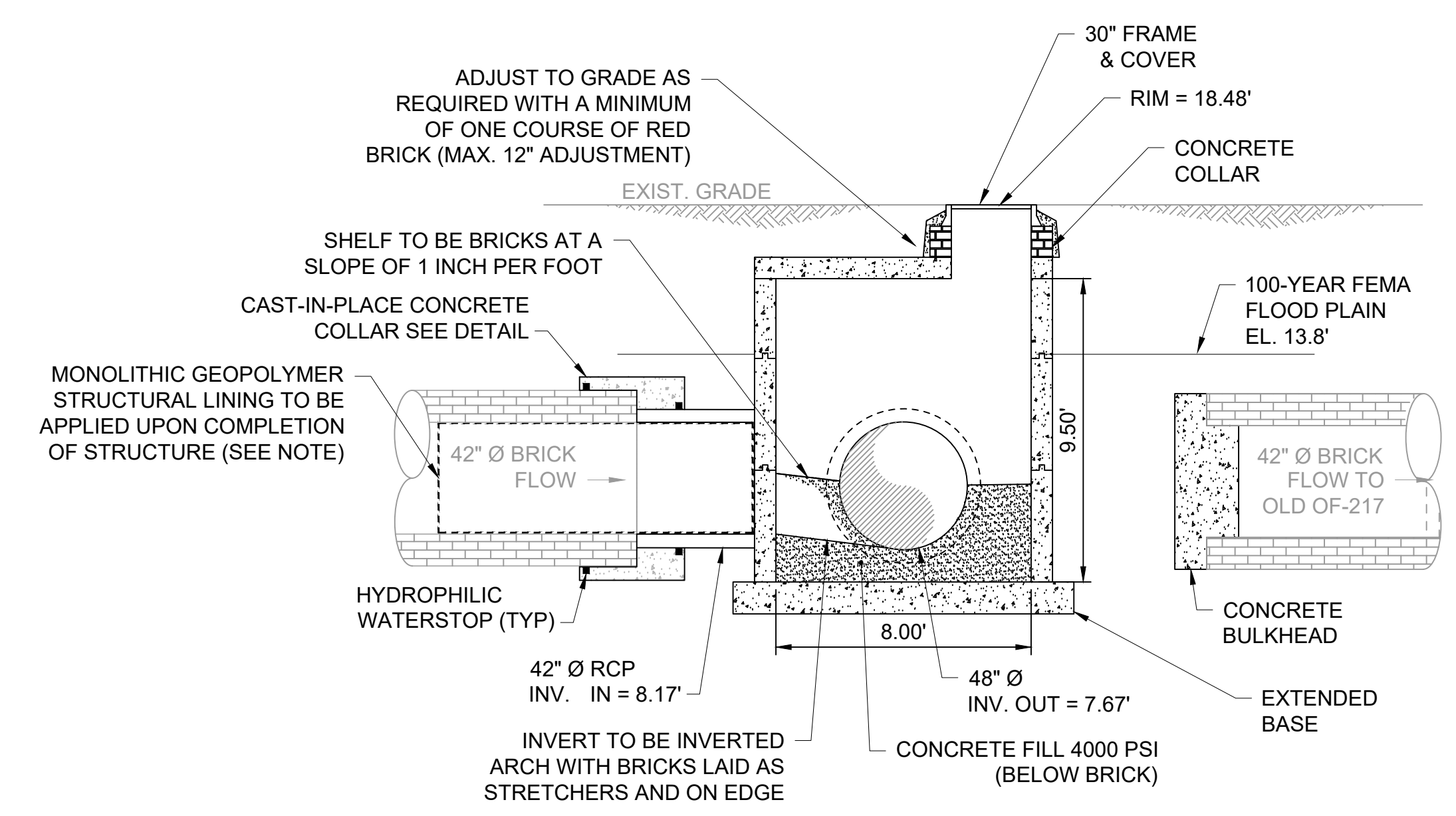
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**GENERAL SHEET NOTES**

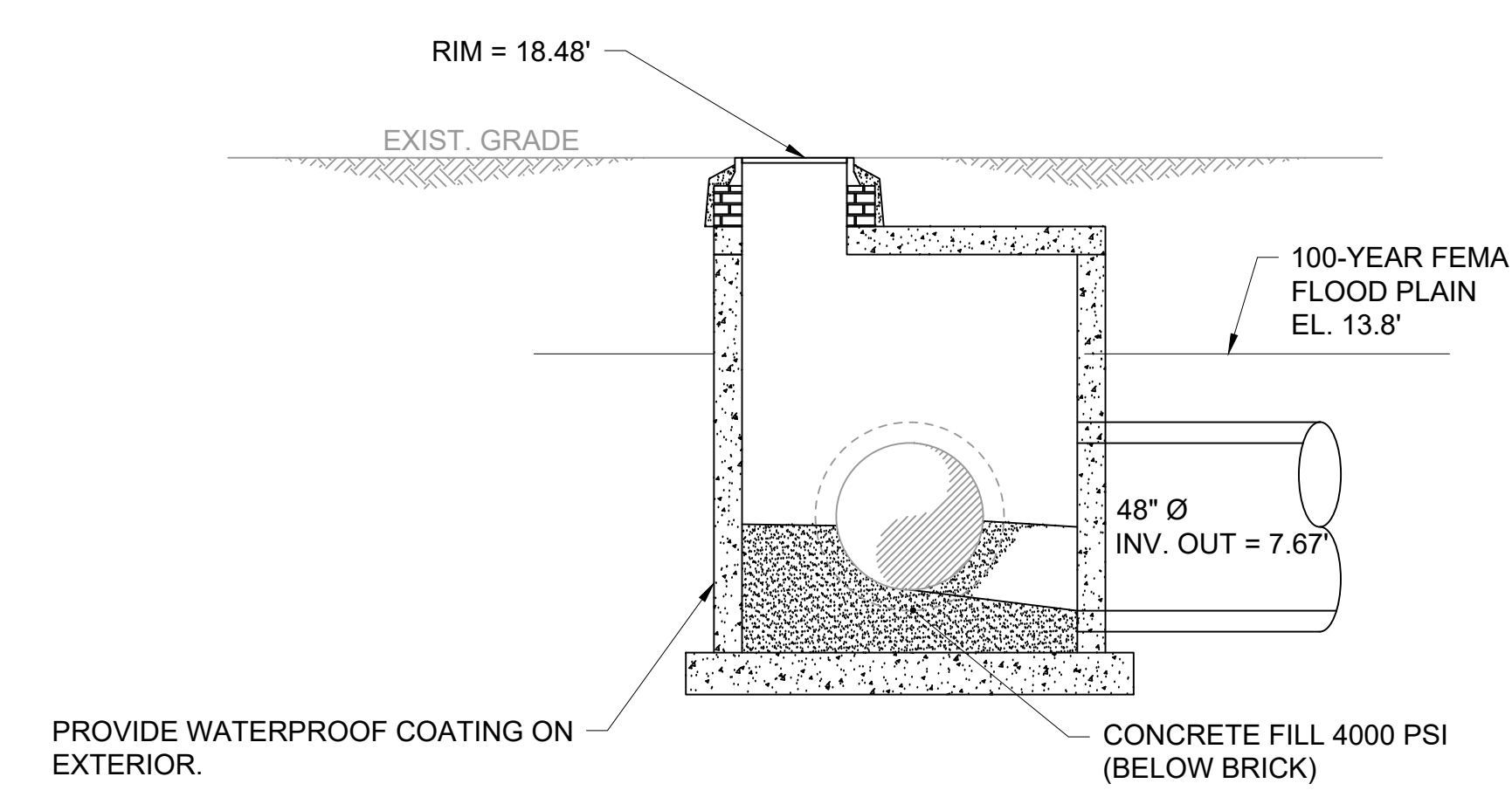
1. VERTICAL DATUM FOR PROJECT IS NGVD29.



NOTE:  
THE FULL CIRCUMFERENCE OF THE EXISTING 42" SEWER SHALL BE COATED WITH A MONOLITHIC GEOPOLYMER STRUCTURAL LINING TO A DISTANCE OF 20 LF FROM THE INTERIOR FACE OF THE PROPOSED STRUCTURE



NOTE:  
THE FULL CIRCUMFERENCE OF THE EXISTING 42" SEWER SHALL BE COATED WITH A MONOLITHIC GEOPOLYMER LINING TO A DISTANCE OF 20 LF FROM THE INTERIOR FACE OF THE PROPOSED STRUCTURE



| REV | DATE    | BY | DESCRIPTION      |
|-----|---------|----|------------------|
| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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| SCALE   | AS SHOWN   |
| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |             |
|----------|-------------|
| DESIGNED | C. CRONIN   |
| DRAWN    | B. MARINI   |
| CHECKED  | J. D'ALESIO |

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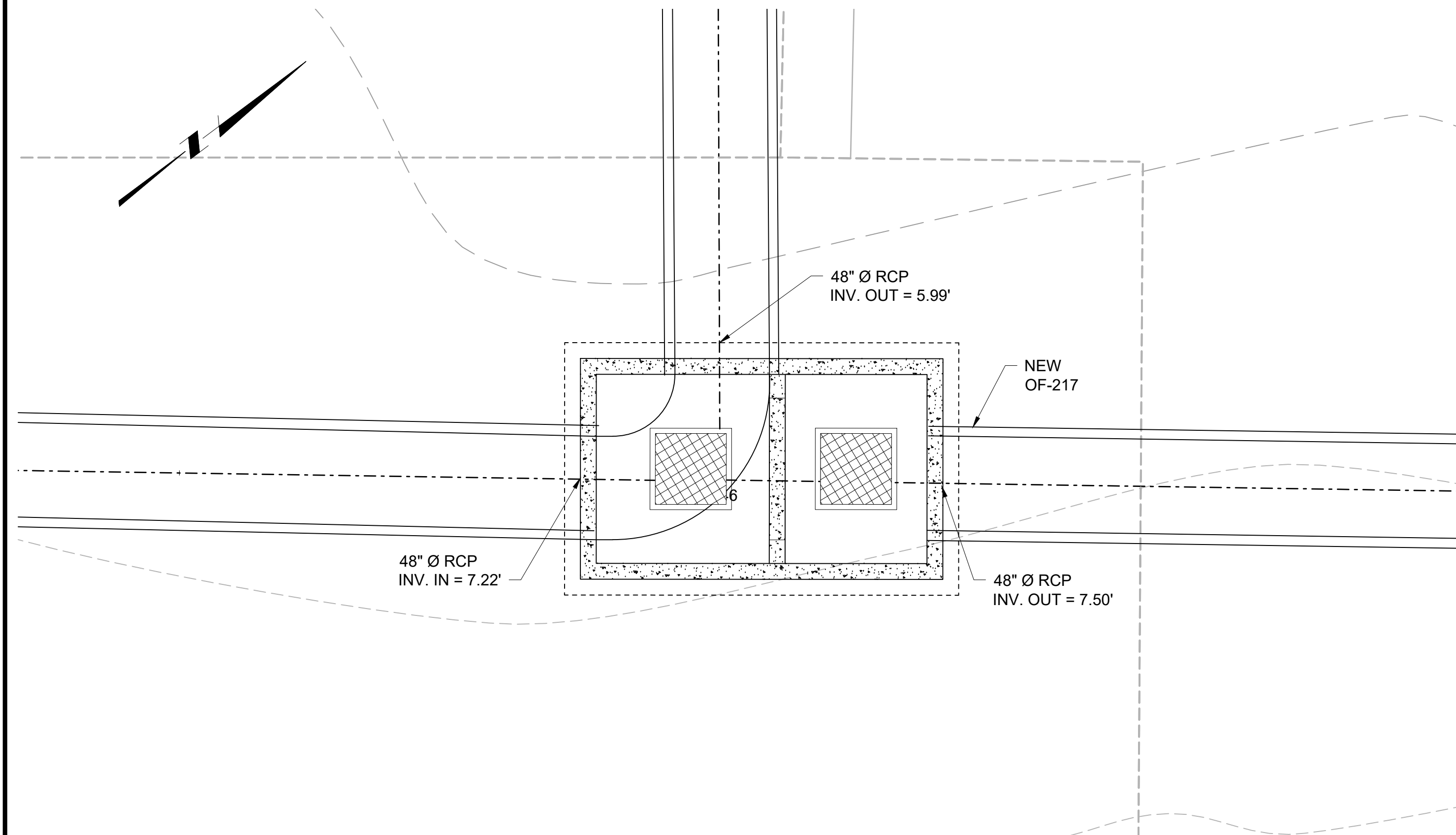


NBC CONTRACT NO 308.05C  
STRUCTURAL  
OF-217 CONSOLIDATION CONDUIT  
OF-217 RELOCATION STRUCTURE  
PLAN AND SECTIONS

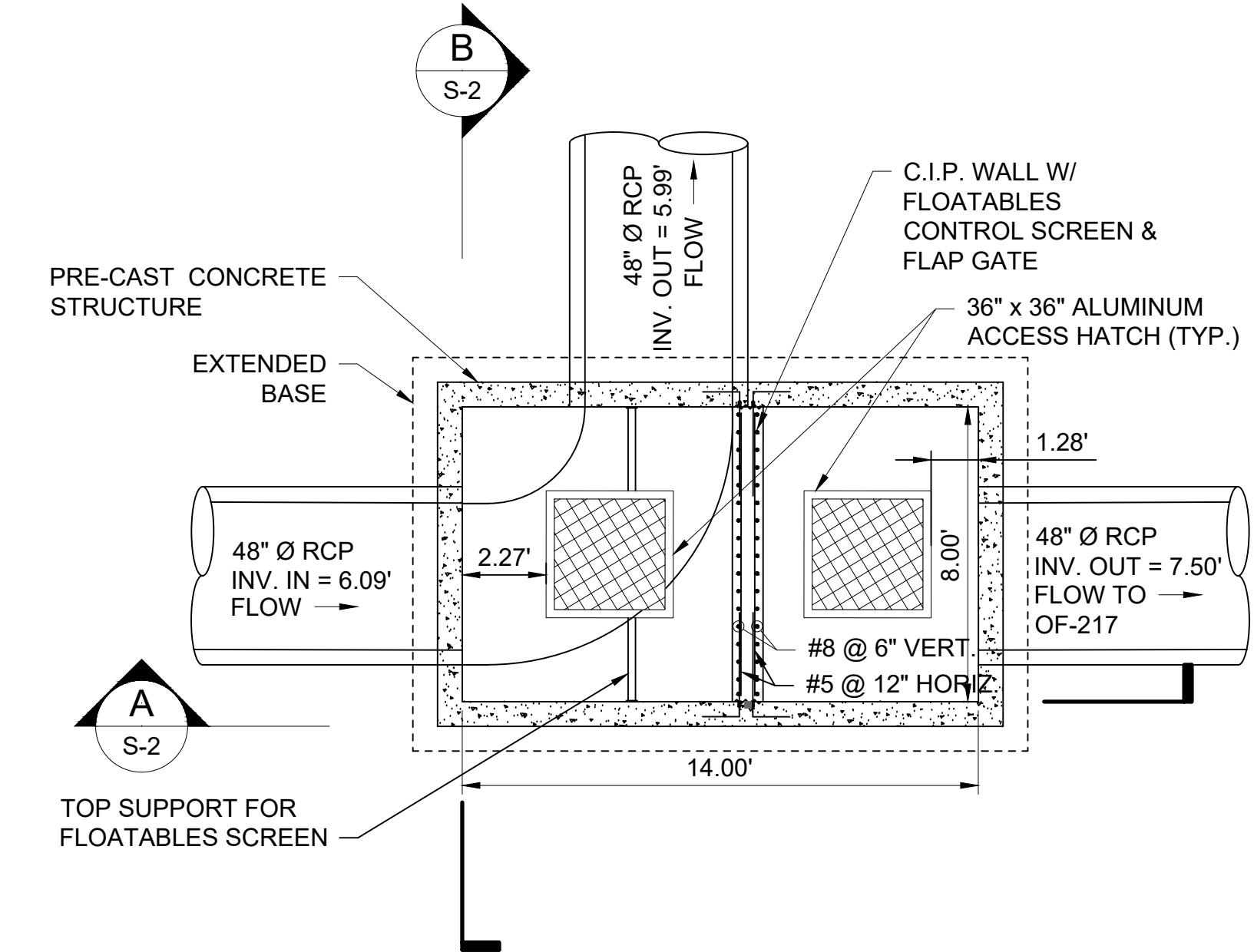
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GENERAL SHEET NOTES

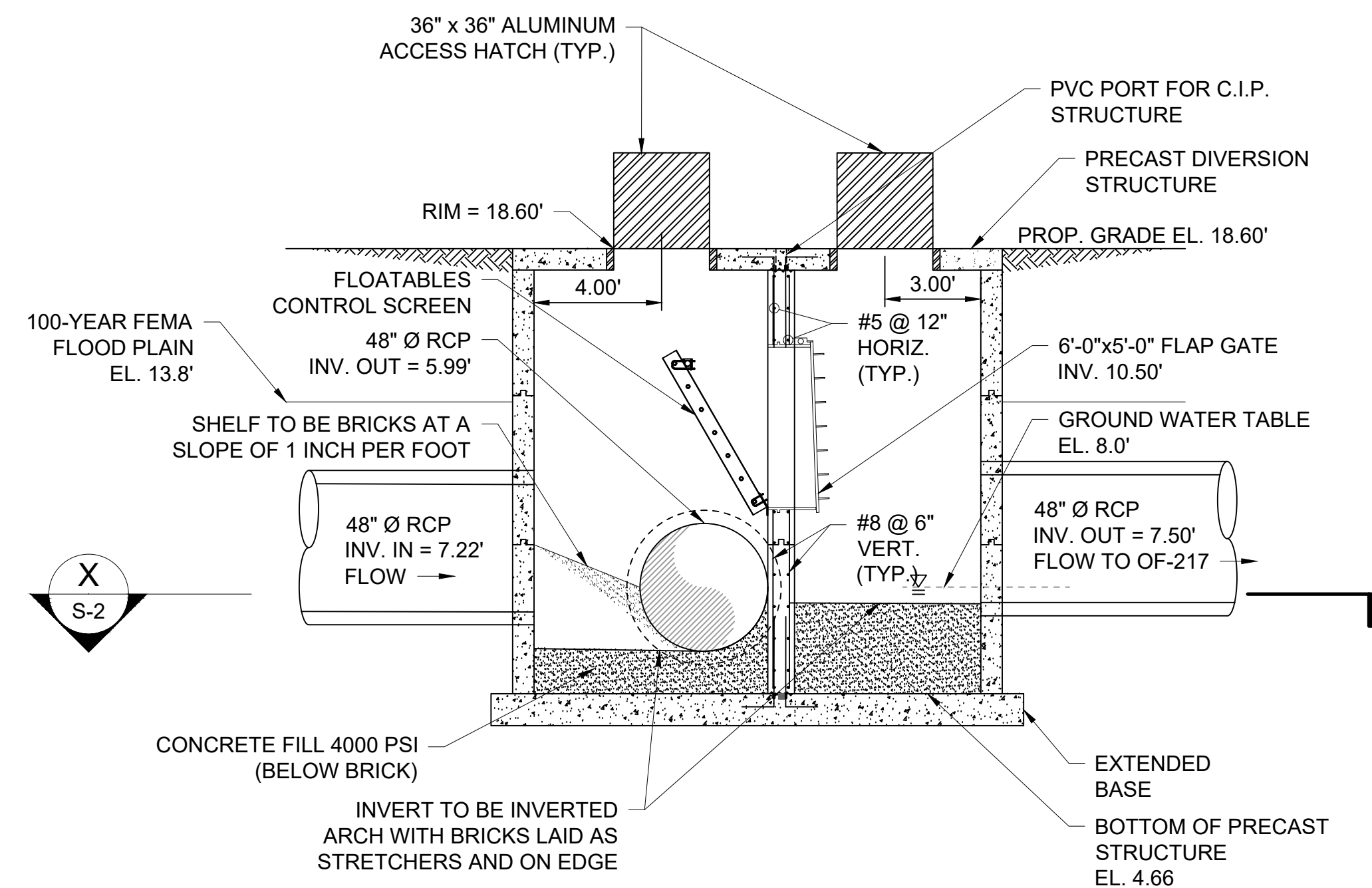
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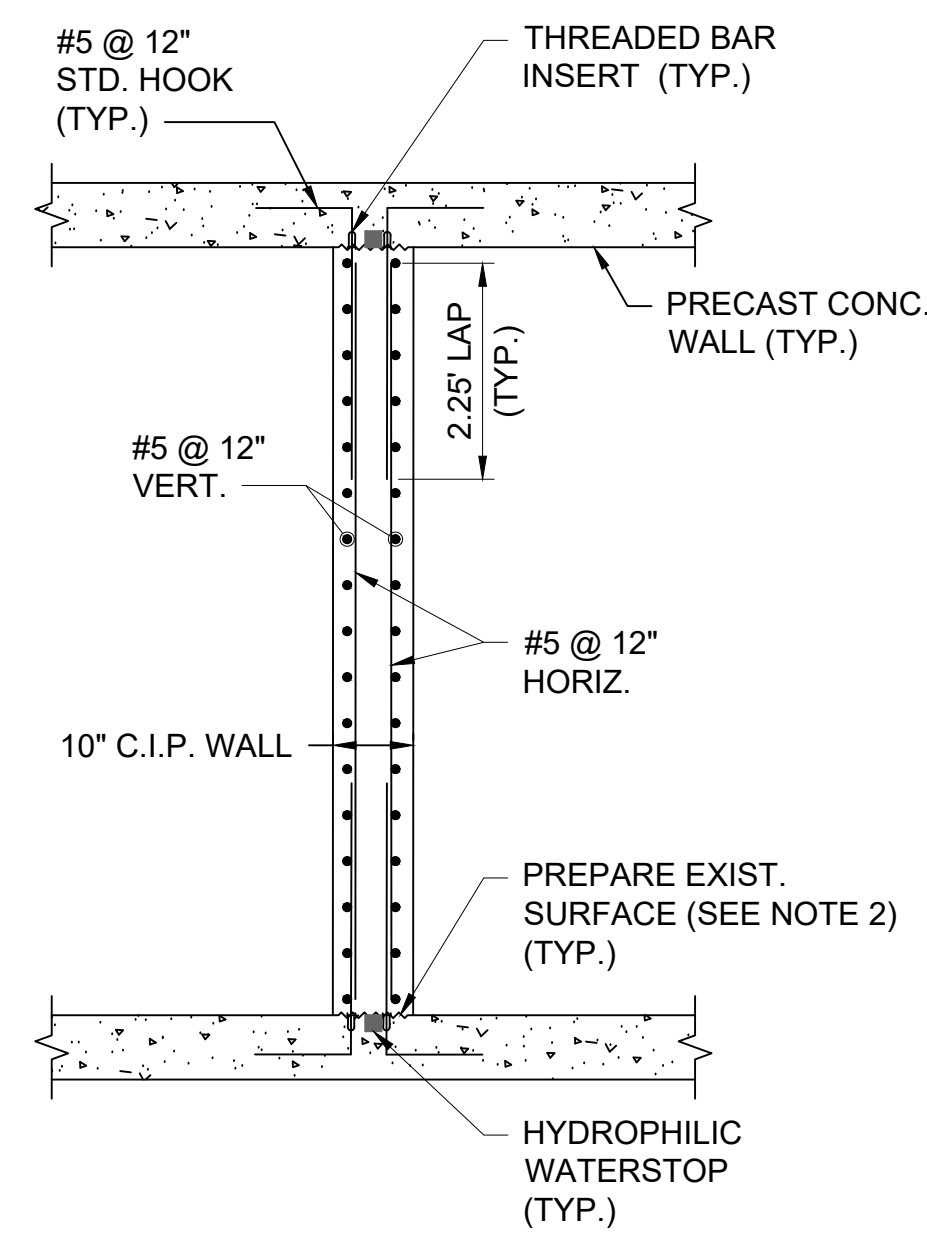
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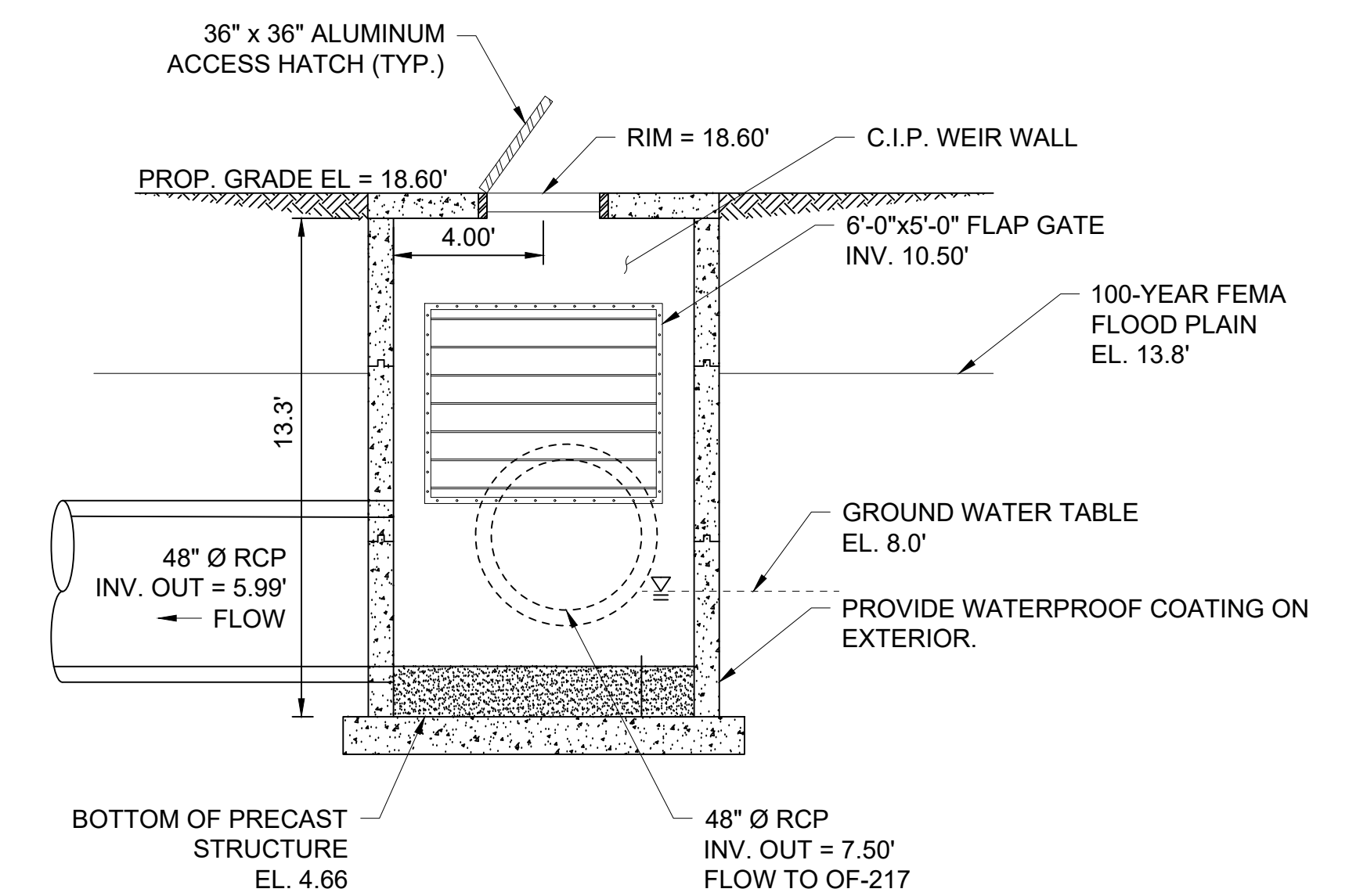
PLAN VIEW  
SCALE: 1/4" = 1'-0"



A SECTION  
S-2 SCALE: 1/4" = 1'-0"



X SECTION  
S-2 SCALE: 1/2" = 1'-0"



B SECTION  
S-2 SCALE: 1/3" = 1'-0"

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| 1   | 5/13/20 | JP | STANTEC COMMENTS |

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| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |              |
|----------|--------------|
| DESIGNED | C. CRONIN    |
| DRAWN    | B. MARINI    |
| CHECKED  | J. D'ALESSIO |

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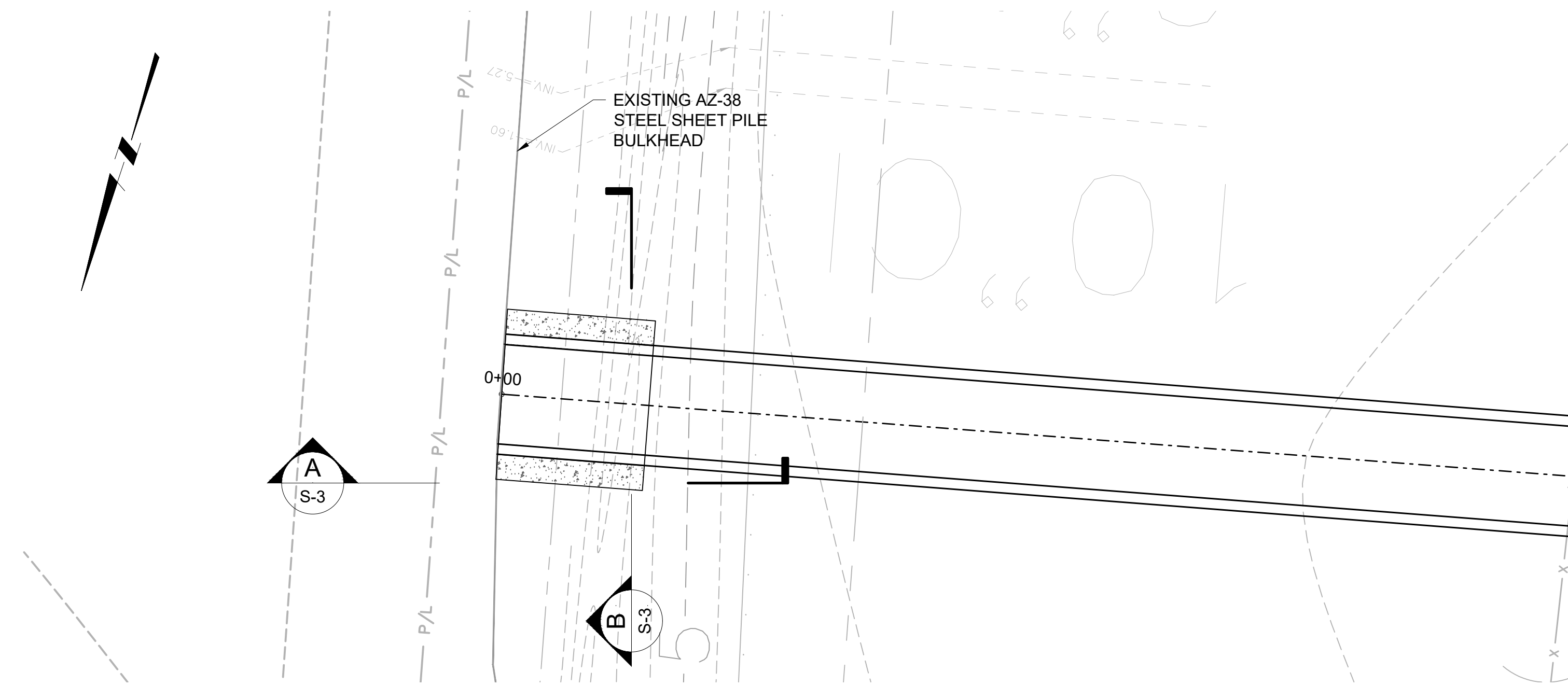
NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
STRUCTURAL  
OF-217 CONSOLIDATION CONDUIT  
OF-217 DIVERSION STRUCTURE  
PLAN AND SECTIONS

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S-2  
195130227

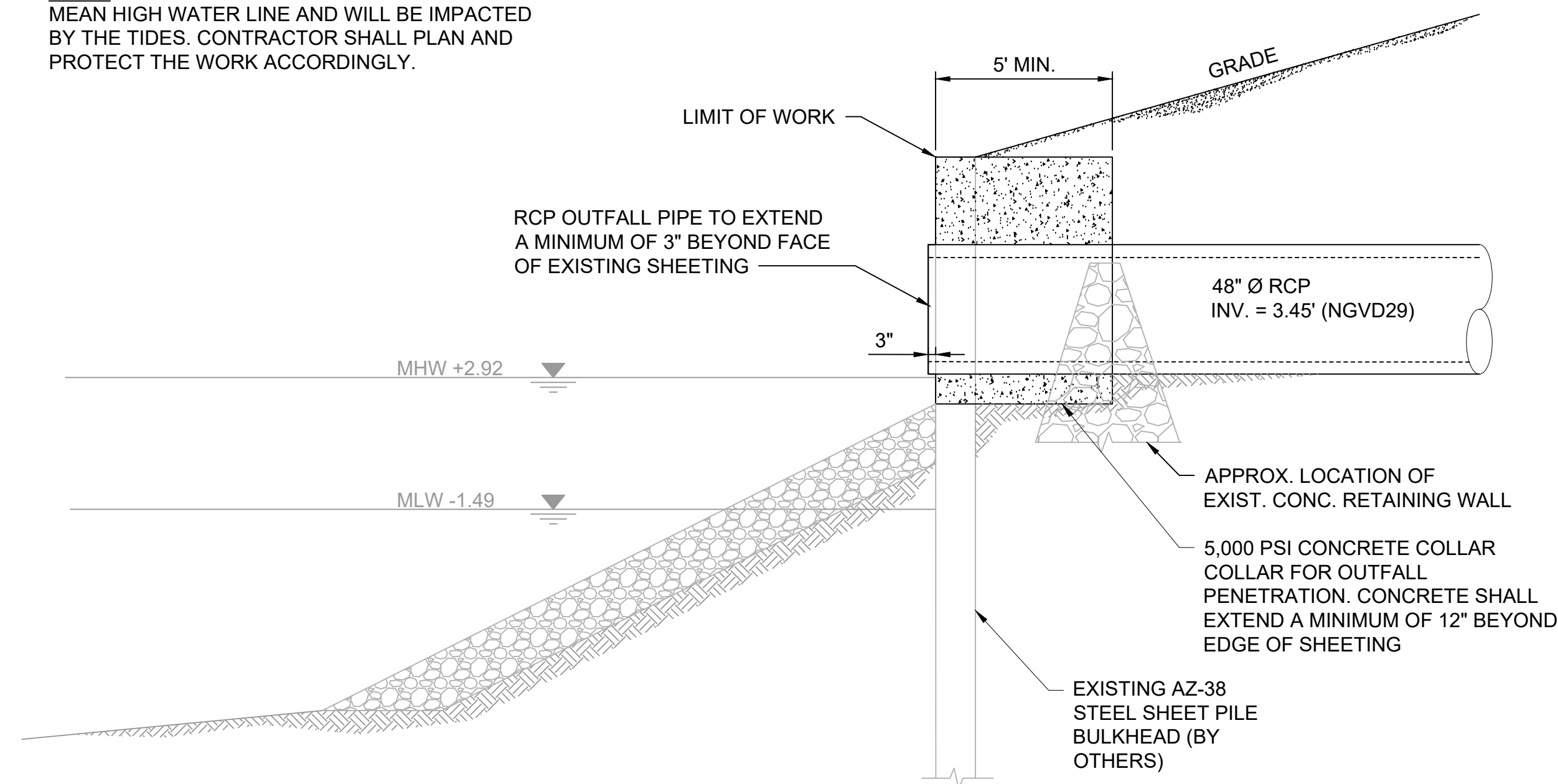
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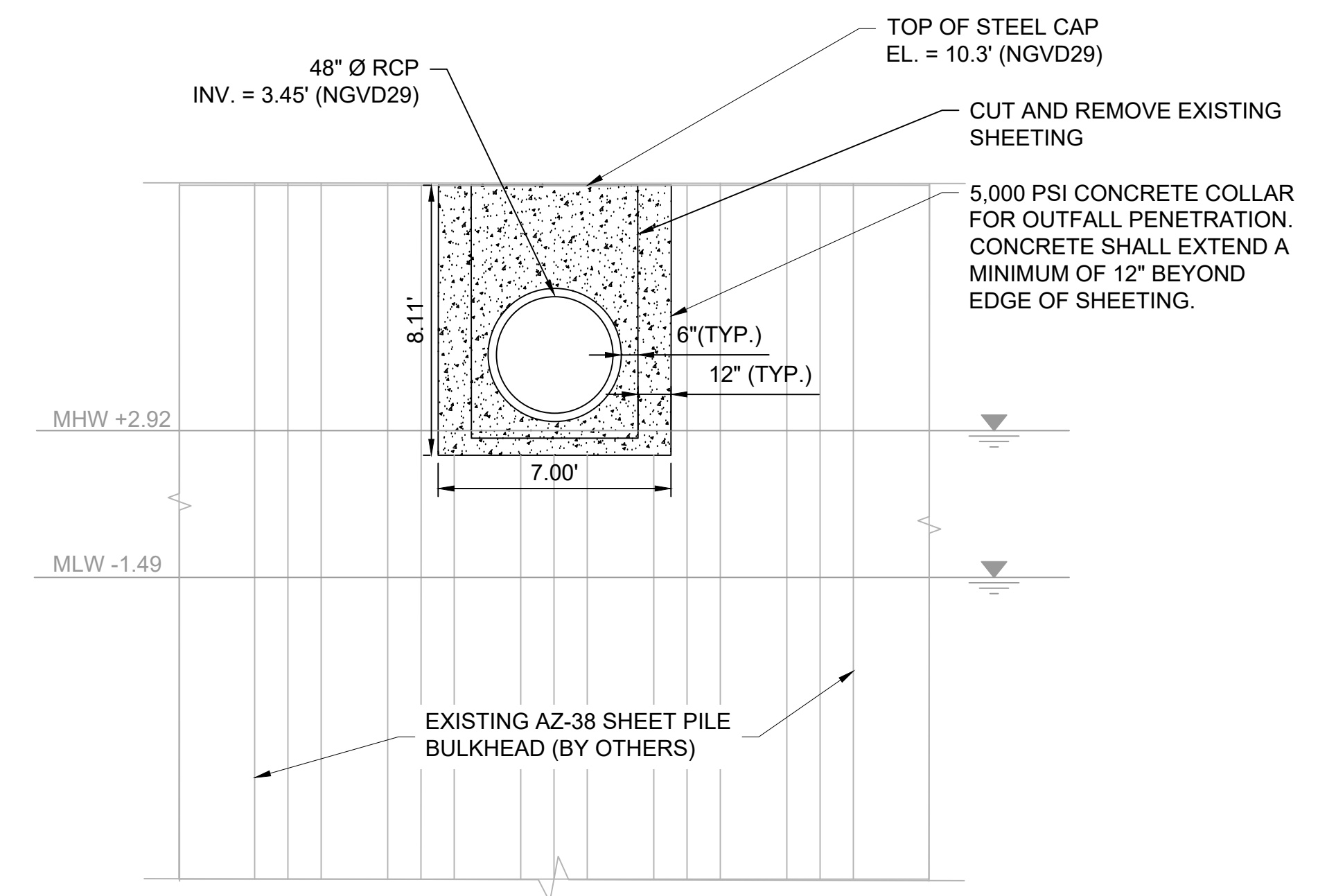


SITE PLAN VIEW  
SCALE: 1" = 4'-0"

NOTE: THE WORK AT THE OUTFALL IS ABOVE THE MEAN HIGH WATER LINE AND WILL BE IMPACTED BY THE TIDES. CONTRACTOR SHALL PLAN AND PROTECT THE WORK ACCORDINGLY.



A SECTION  
S-3 SCALE: 1/2" = 1'-0"



B SECTION  
S-3 SCALE: 1/2" = 1'-0"

BY: JAMIE PAYNE

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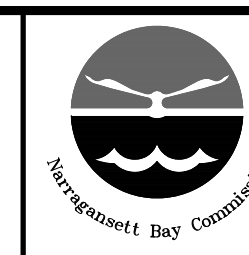
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| WARNING | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|          |             |
|----------|-------------|
| DESIGNED | C. CRONIN   |
| DRAWN    | B. MARINI   |
| CHECKED  | J. D'ALELIO |

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
STRUCTURAL  
OF-217 CONSOLIDATION CONDUIT  
OF-217 REVETMENT  
PLAN AND SECTION

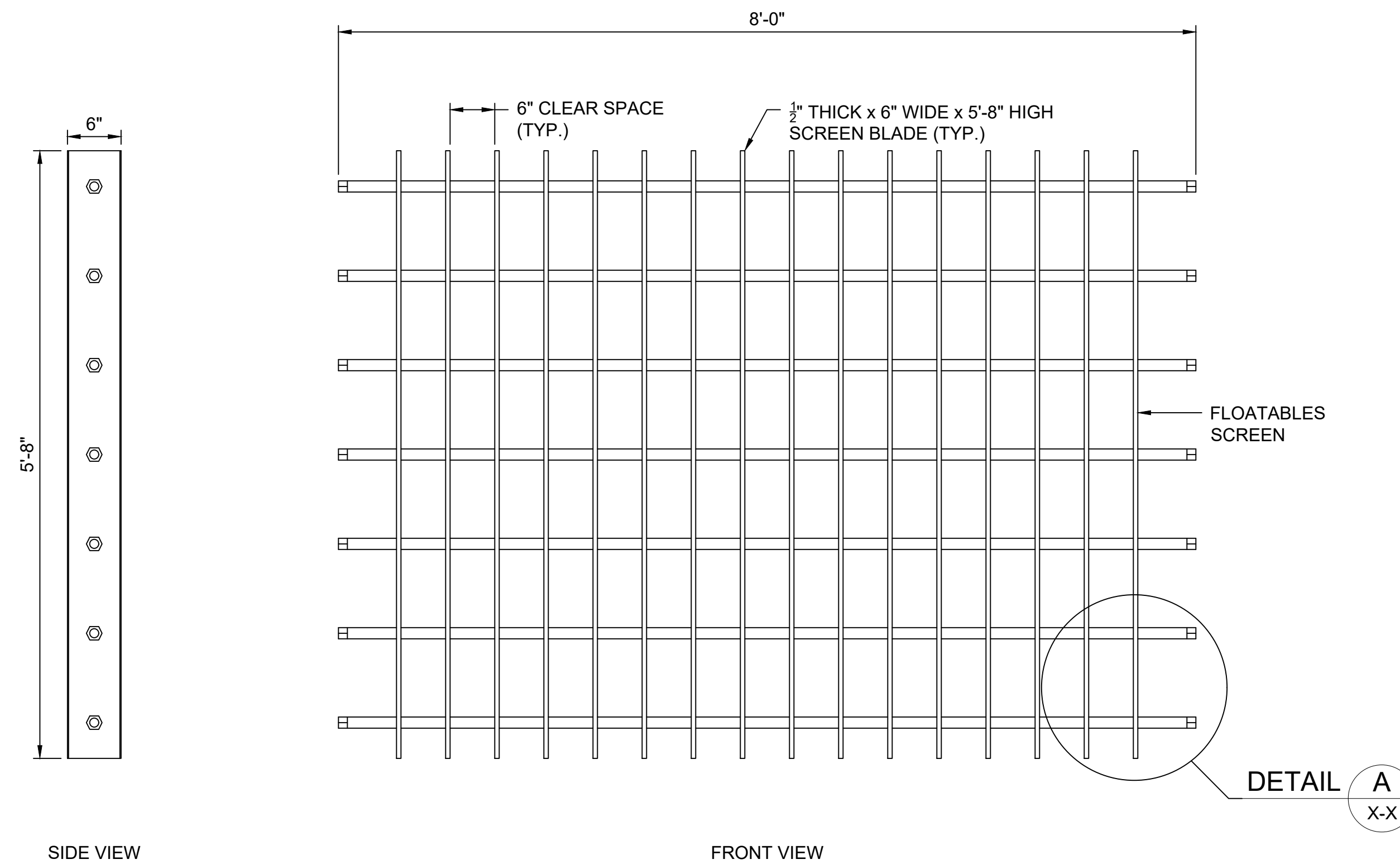
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BY: JAMIE PAYNE

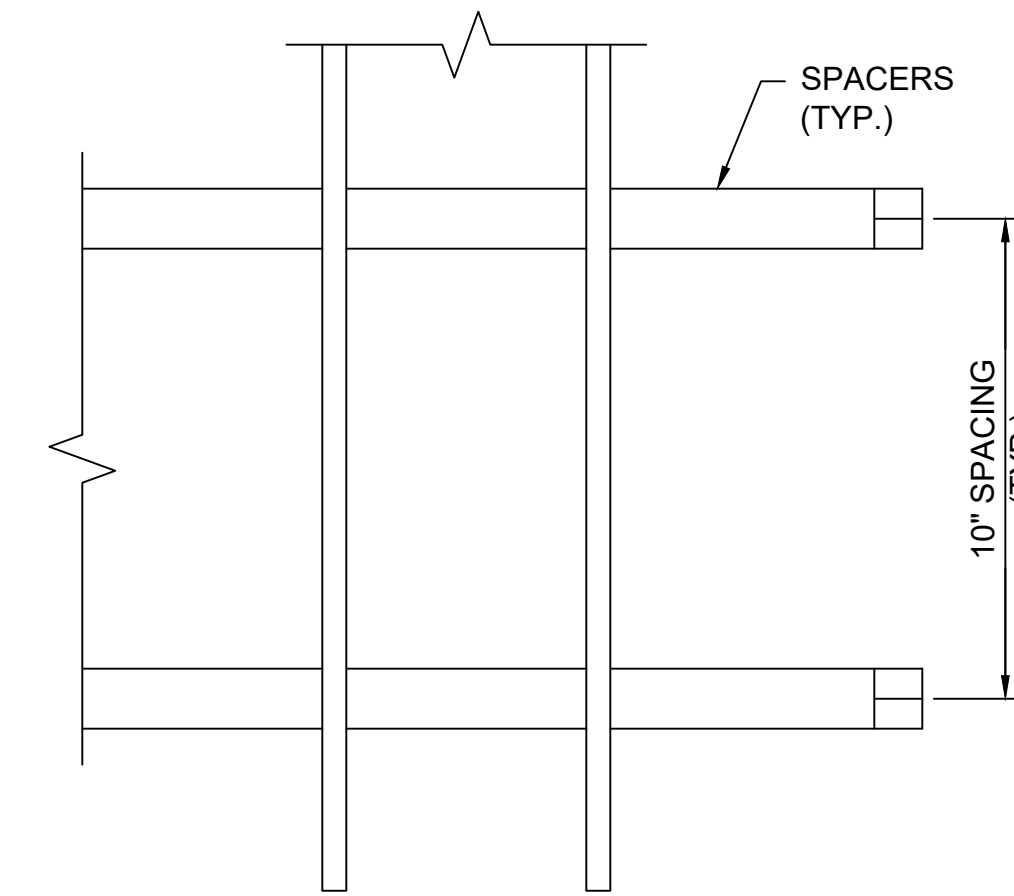
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**GENERAL SHEET NOTES**

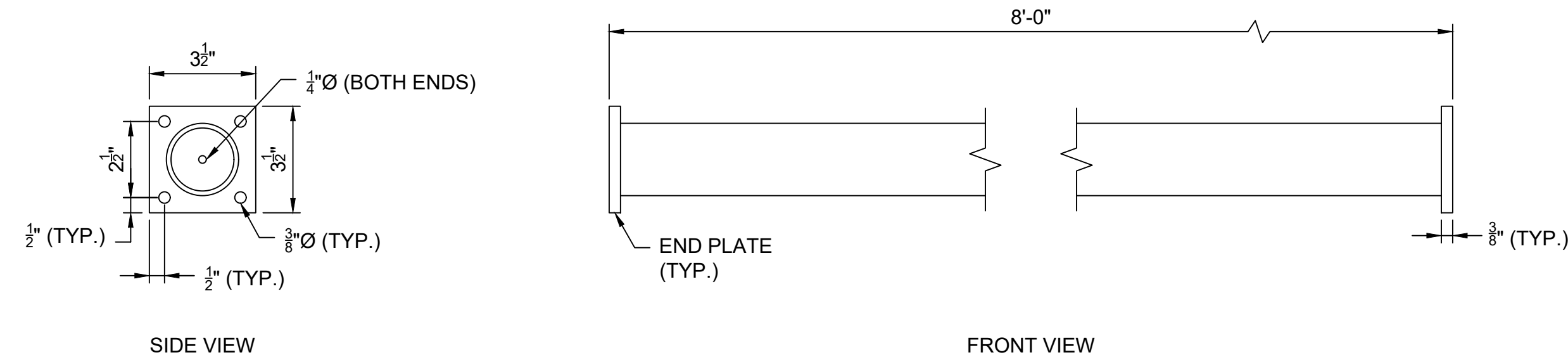
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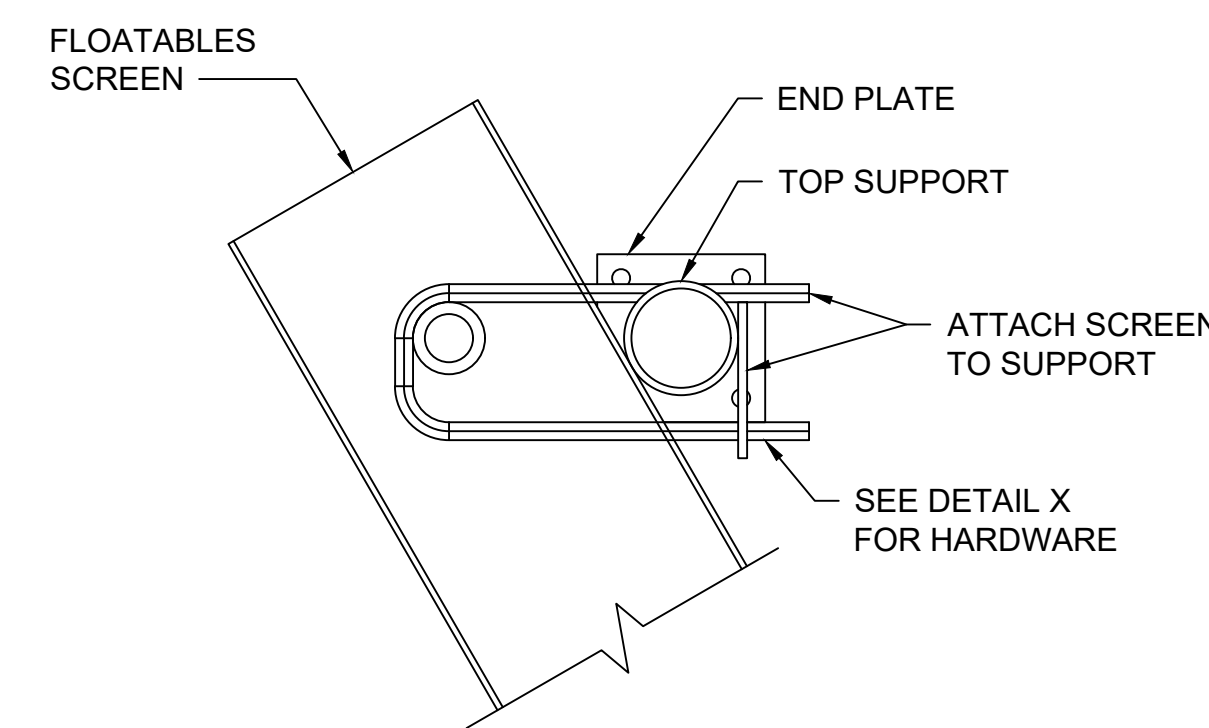
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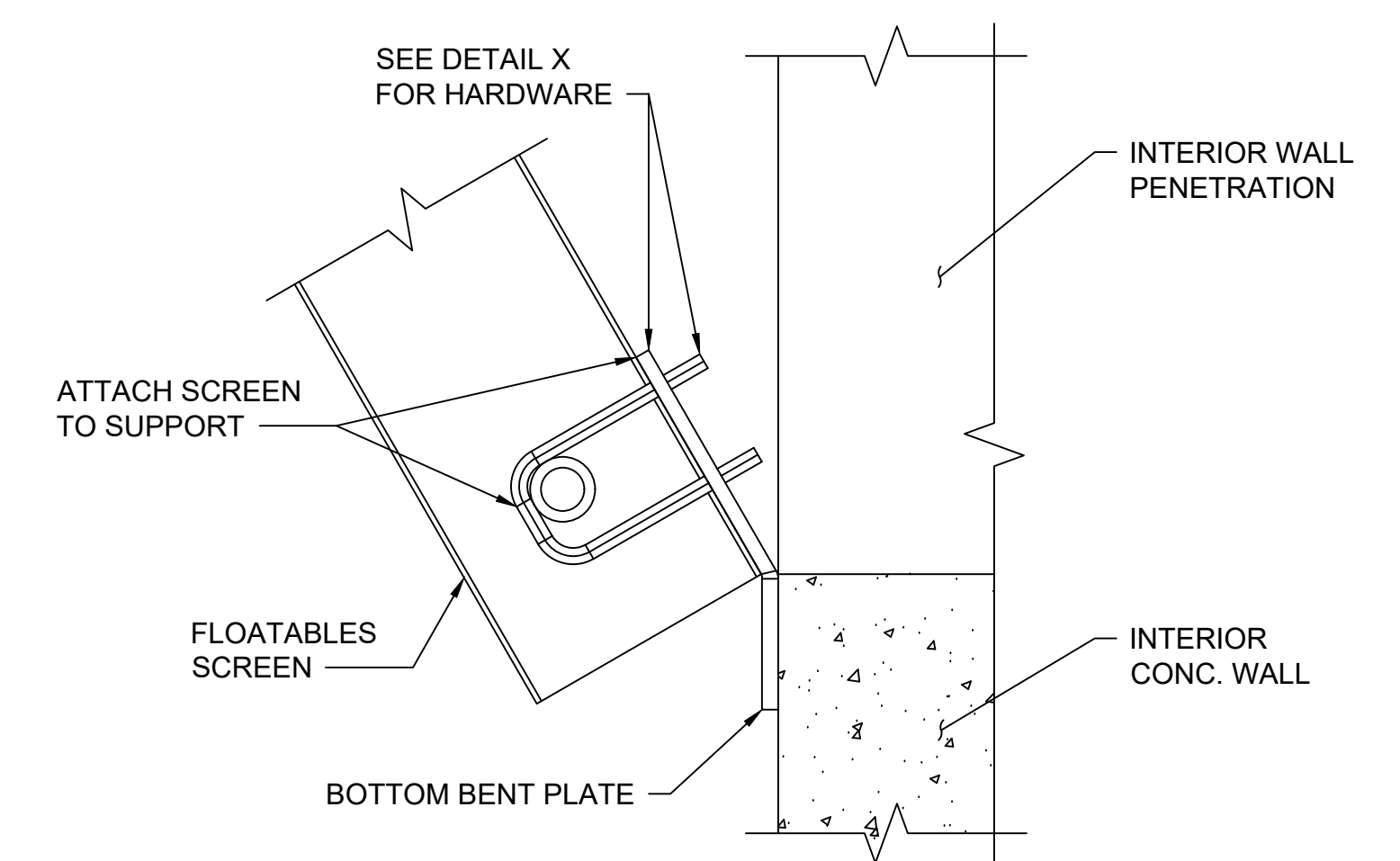
**A X-X DETAIL**  
SCALE: 3" = 1'-0"



**TOP SUPPORT**  
SCALE: 3" = 1'-0"



**A X-X DETAIL**  
SCALE: 3" = 1'-0"



**A X-X DETAIL**  
SCALE: 3" = 1'-0"

| REV | DATE | BY | DESCRIPTION |
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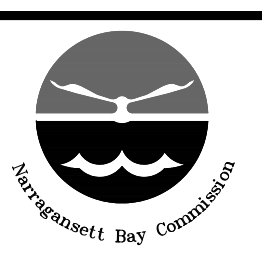
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| SCALE | WARNING  |
| SCALE | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

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|----------|-------------|
| DESIGNED | L. TSANG    |
| DRAWN    | B. NELSON   |
| CHECKED  | T. WARZECKI |

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NARRAGANSETT BAY COMMISSION  
PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

NBC CONTRACT NO 308.05C  
STRUCTURAL  
OF-217 CONSOLIDATION CONDUIT  
OF-217 DIVERSION STRUCTURE  
FLOATABLE SCREEN DETAILS



ELECTRICAL ABBREVIATIONS

A AMPERE, AUTOMATIC  
 AC ALTERNATING CURRENT  
 AF CIRCUIT BREAKER FRAME SIZE  
 AM AMMETER  
 ANN ANNUNCIATOR  
 AS ADJUSTABLE SPEED  
 AT AMPERE TRIP  
 ATS AUTOMATIC TRANSFER SWITCH  
 AUTO AUTOMATIC  
 AWG AMERICAN WIRE GAUGE

BATT BATTERY  
 BC BARE COPPER  
 BKR BREAKER

C CONDUIT, NUMBERS FOLLOWING INDICATE WIRE QUANTITIES AND WIRE GAUGE SIZES  
 CAP CAPACITOR  
 CB CIRCUIT BREAKER  
 CKT CIRCUIT  
 CLF CURRENT LIMITING FUSE  
 COM COMMON  
 COMM COMMUNICATIONS  
 COMP COMPARTMENT  
 CP CONTROL PANEL  
 CPT CONTROL POWER TRANSFORMER  
 CR CONTROL RELAY, CARD READER  
 CT CURRENT TRANSFORMER

DCS DISTRIBUTED CONTROL SYSTEM  
 DISC DISCONNECT  
 DISTR DISTRIBUTION  
 DPDT DOUBLE POLE DOUBLE THROW  
 DPST DOUBLE POLE SINGLE THROW

E EMERGENCY  
 EMT ELECTRICAL METALLIC TUBING  
 ENCL ENCLOSURE  
 ETM ELAPSED TIME METER

F FREQUENCY, FUSE, FIXED  
 FDR FEEDER  
 FLA FULL LOAD AMPS  
 FLUOR FLUORESCENT  
 FM FREQUENCY METER  
 FO FIBER OPTIC  
 FVR FULL VOLTAGE REVERSING  
 FVNR FULL VOLTAGE NON-REVERSING

GEN GENERATOR  
 GFCI GROUND FAULT CIRCUIT INTERRUPTER  
 GND GROUND

H HAND  
 HD HEAT DETECTOR  
 HH HAND HOLE  
 HID HIGH INTENSITY DISCHARGE  
 HOA HAND-OFF-AUTOMATIC  
 HPS HIGH PRESSURE SODIUM  
 HS HAND SWITCH  
 HZ HERTZ

IMC INTERMEDIATE METALLIC CONDUIT  
 INCAND INCANDESCENT  
 IND INDICATION  
 INST INSTANTANEOUS  
 I/O INPUT/OUTPUT  
 IS INTRINSICALLY SAFE  
 Isc SHORT CIRCUIT CURRENT, AMPS  
 ISO ISOLATION

J,JB JUNCTION BOX

KA KILO AMPERES  
 KAIC KILO AMP INTERRUPTING CURRENT  
 KCML KILO CIRCULAR MILS  
 KVA KILOVOLT AMPERE

L LOCAL  
 LCP LOCAL CONTROL PANEL  
 LCS LOCAL CONTROL STATION  
 LIT LEVEL INDICATING TRANSMITTER  
 LOC LOCAL  
 LOR LOCAL-OFF-REMOTE  
 LOS LOCKOUT STOP PUSHBUTTON  
 LP LIGHTING PANEL  
 LRA LOCKED ROTOR AMPS  
 LS LEVEL SWITCH  
 LTG LIGHTING  
 LTS LIGHTS

M MOTOR CONTACTOR COIL  
 mA MILLIAMPERE  
 MAINT MAINTENANCE  
 MCP MOTOR CIRCUIT PROTECTOR  
 MLO MAIN LUGS ONLY  
 MOV MOTOR OPERATED VALVE  
 MS MANUAL MOTOR STARTER  
 MTS MANUAL TRANSFER SWITCH

NEUT NEUTRAL  
 NP NAMEPLATE

O OPEN, OFF  
 OL OVERLOAD

PA PUBLIC ADDRESS  
 PB PUSHBUTTON, PULLBOX  
 PC PHOTOCCELL  
 PCM PROCESS CONTROL MODULE  
 PF POWER FACTOR  
 PFM POWER FACTOR METER  
 PH PHASE  
 PL PILOT LIGHT  
 PNLBD PANELBOARD  
 PP POWER PANELBOARD  
 POS POSITION  
 POT POTENTIOMETER  
 PRI PRIMARY  
 PT POTENTIAL TRANSFORMER  
 PTZ PAN-TILT-ZOOM  
 PWR POWER

R REMOTE  
 RECPT RECEPTACLE  
 RGS RIGID GALVANIZED STEEL  
 RMS ROOT MEAN SQUARE  
 RTU REMOTE TERMINAL UNIT  
 RVSS REDUCED VOLTAGE SOLID STATE

SEL SW SELECTOR SWITCH  
 SEQ SEQUENCE  
 SHLD SHIELDED  
 SIG SIGNAL  
 SP SPARE  
 SP HTR SPACE HEATER  
 SPDT SINGLE POLE DOUBLE THROW  
 SPST SINGLE POLE SINGLE THROW  
 SS 316 STAINLESS STEEL  
 SSM SOLID STATE METER  
 SSMP SOLID STATE MOTOR PROTECTOR  
 ST, SH SHUNT TRIP  
 STR STARTER  
 SSTU SOLID STATE TRIP UNIT  
 SW SWITCH  
 SWBD SWITCHBOARD  
 SWGR SWITCHGEAR

TACH TACHOMETER  
 TB TERMINAL BOX  
 TERM TERMINAL  
 TM REPEAT CYCLE TIMER  
 TD TIME DELAY RELAY  
 TS TEMPERATURE SWITCH  
 TSP TWISTED SHIELDED PAIR

UPS UNINTERRUPTIBLE POWER SUPPLY

V VOLTAGE, VOLTS  
 VA VOLT AMPERE  
 VAR VOLT AMPERE REACTIVE  
 VFD VARIABLE FREQUENCY DRIVE  
 VM VOLTMETER  
 VP VAPOR PROOF

W WATTS, WIRE  
 WM WATT METER  
 WP WEATHERPROOF

XFMR TRANSFORMER  
 XMTR TRANSMITTER  
 XP EXPLOSION PROOF

BY: MICHAEL COTTER

PLOT DATE: Thursday, March 18, 2021 3:09:59 PM

DWG FILE: C:\pwworkdir\05209686\05209686\05217 Electrical - 2013.dwg

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SCALE  
 NO SCALE

WARNING  
 0 1/2 1  
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED M.COTTER  
 DRAWN R.BEAUVAIS  
 CHECKED

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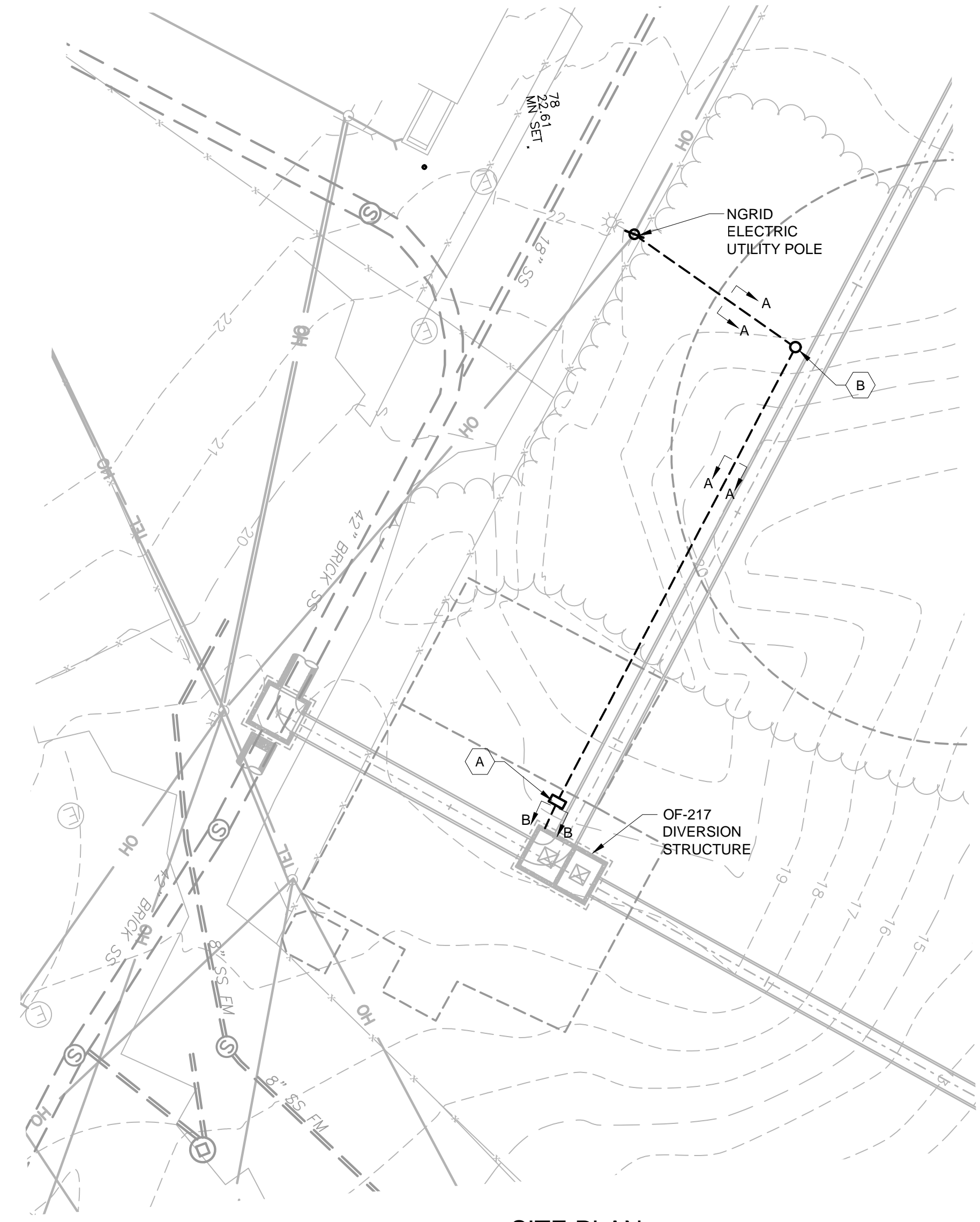


NBC CONTRACT NO 308.05C  
 ELECTRICAL  
 ABBREVIATIONS

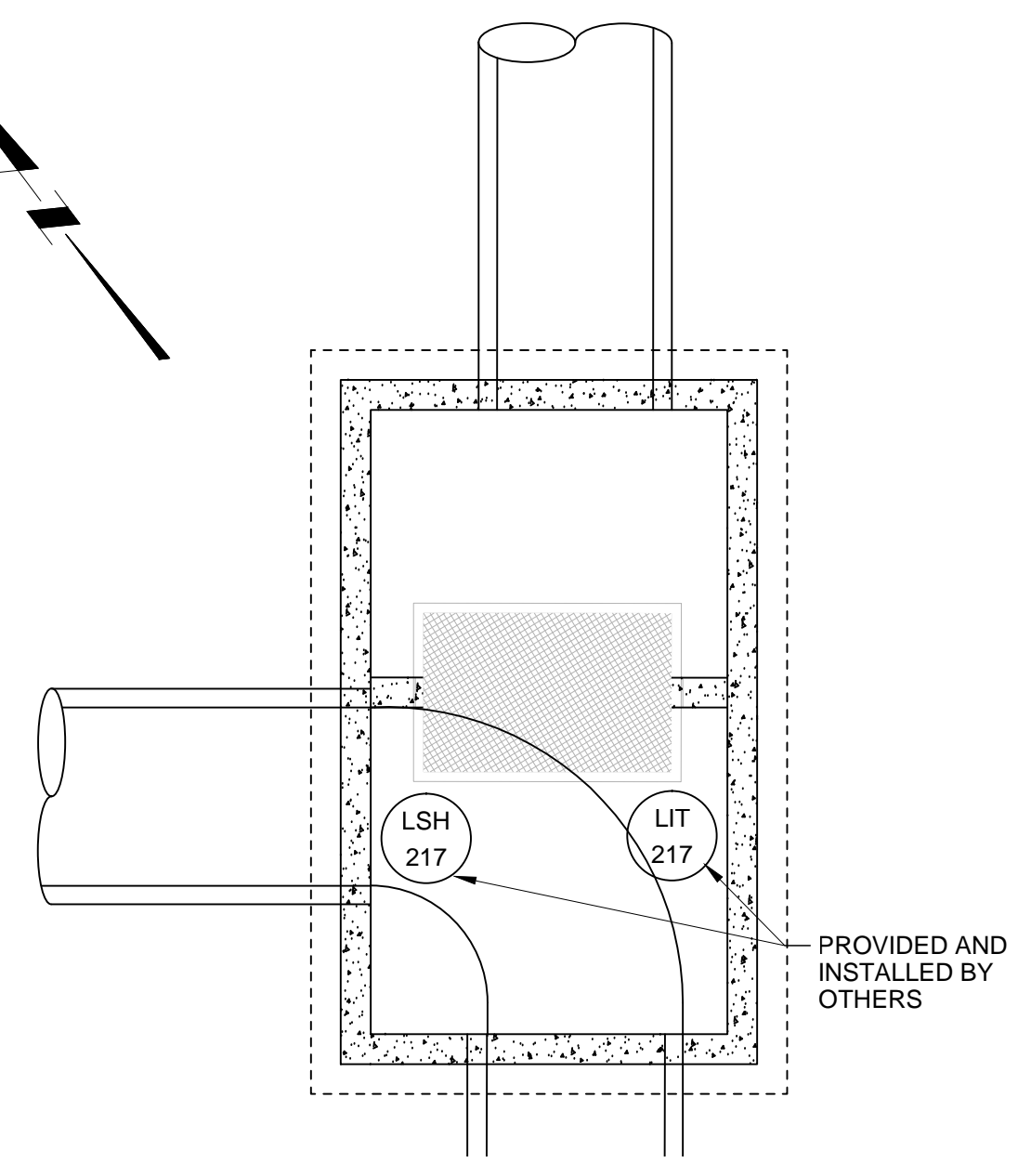
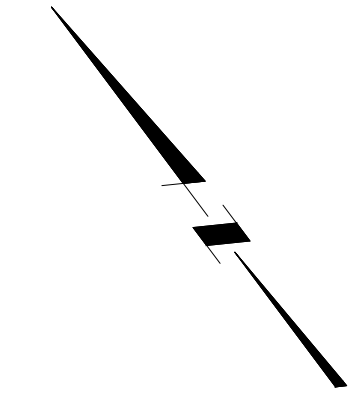
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 GE-2  
 195130227



BY: MICHAEL COTTIER  
 PLOT DATE: Tuesday, March 23, 2021 1:11:54 PM  
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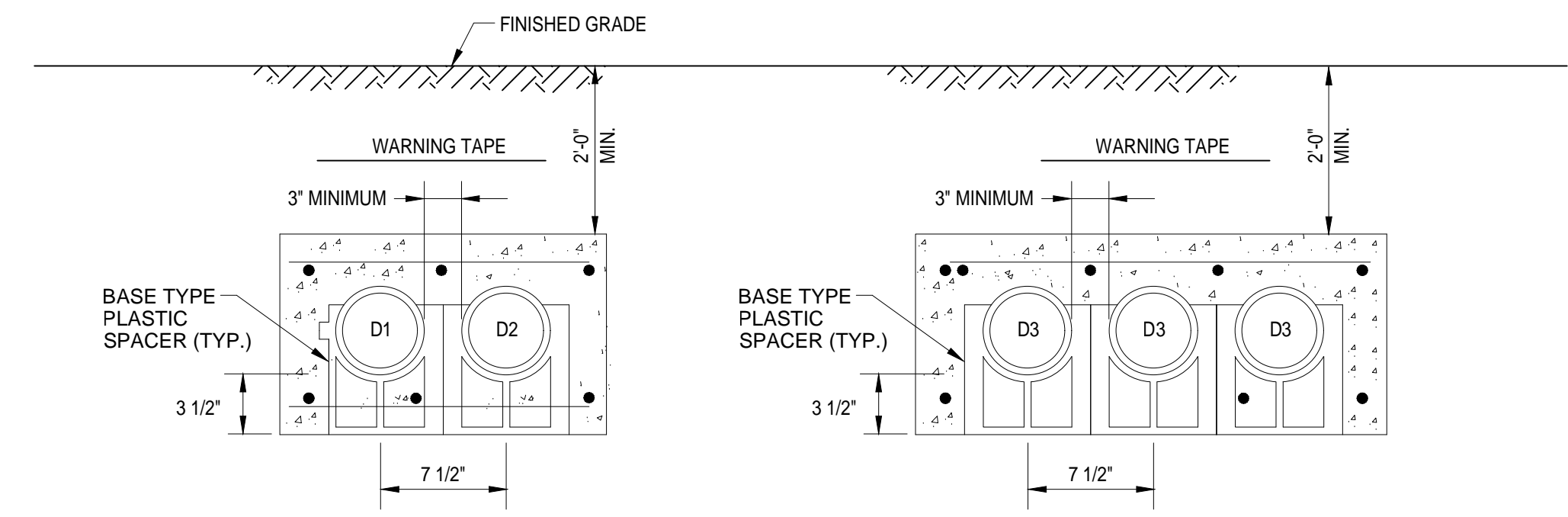


**SITE PLAN**  
SCALE: 1" = 20'



**OF-217 DIVERSION STRUCTURE**  
SCALE: 1/4" = 1'-0"

| DUCT / CABLE SCHEDULE |      |  |                      |   |
|-----------------------|------|--|----------------------|---|
| DUCT NO.              | SIZE | CONDUCTORS                                       | FROM                 | TO  |
| D1                    | 2"   | PULL STRING - SERVICE WIRING PROVIDED BY OTHERS  | UTILITY POLE         | STUB UP NEXT TO ELECTRICAL ENCLOSURE                  |
| D2                    | 2"   | PULL STRING - SPARE CONDUIT                      | UTILITY POLE         | STUB UP NEXT TO ELECTRICAL ENCLOSURE                  |
| D3                    | 3"   | PULL STRING - CABLE BY VENDER PROVIDED BY OTHERS | ELECTRICAL ENCLOSURE | OF-217 DIVERSION STRUCTURE LEVEL TRANSMITTER LOCATION |

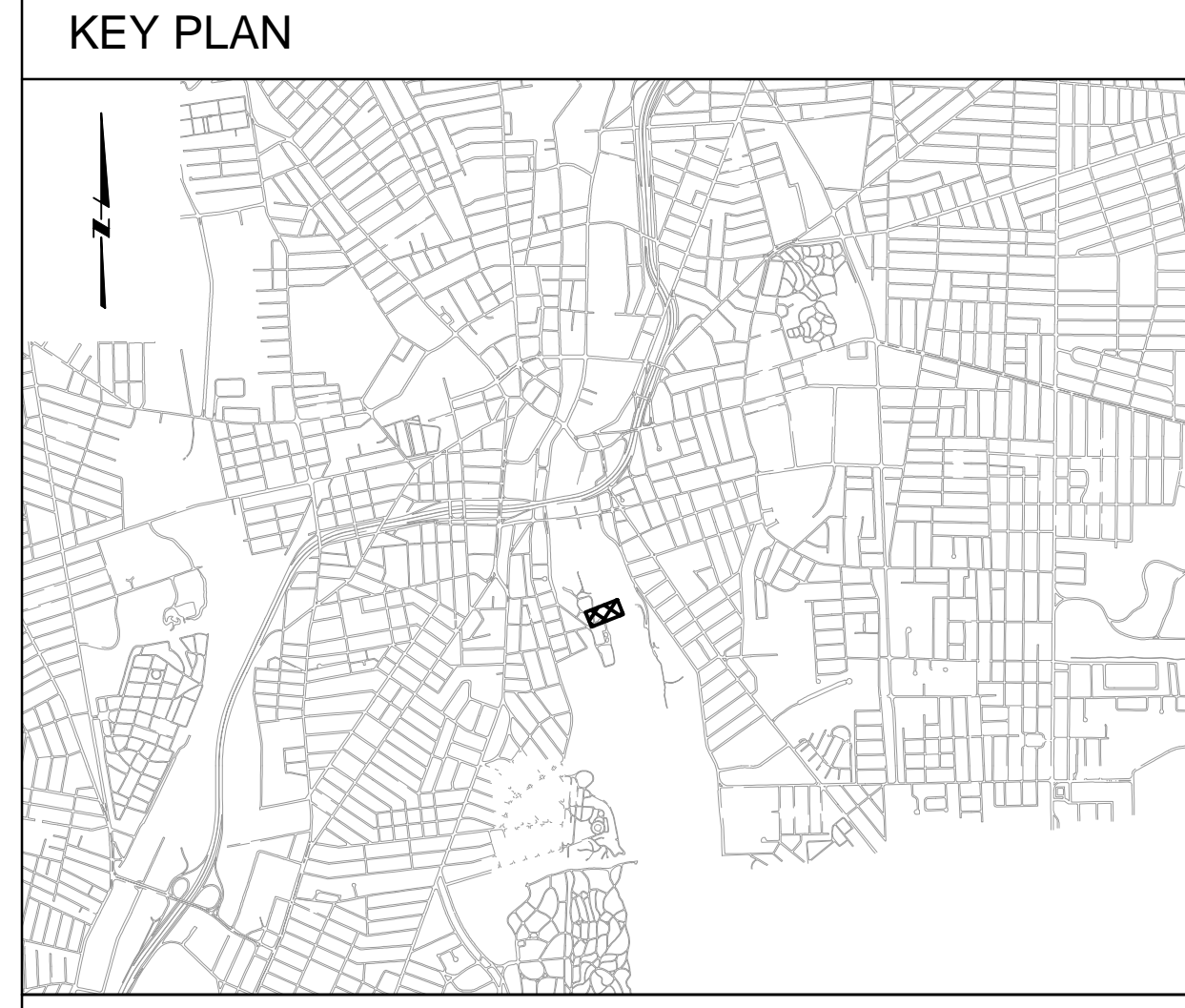


**SECTION A-A**

**SECTION B-B**

- NOTES:**
- BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE RED DUCT BANK MARKER TAPES, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
  - A MINIMUM OF 12' SEPARATION SHALL BE KEPT BETWEEN DUCT BANK SECTIONS WITHIN SAME TRENCH.
  - FOR REINFORCING REQUIREMENTS SEE CONCRETE SPECIFICATIONS.

**DUCTBANK SECTIONS**  
NO SCALE



**GENERAL SHEET NOTES**

- NONE

**SHEET KEYNOTES**

- 60"x36"x18", NEMA 3R STAINLESS STEEL TRAFFIC BOX ELECTRICAL ENCLOSURE MOUNTED ON CONCRETE BASE, REFER TO DRAWING E-2 DETAIL 3.
- ELECTRIC HANDHOLE, REFER DRAWING E-2 DETAIL 6.

| REV | DATE | BY | DESCRIPTION |
|-----|------|----|-------------|
|     |      |    |             |

SCALE: AS SHOWN

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED: M. COTTIER  
DRAWN: R. BEAUVAIS  
CHECKED: \_\_\_\_\_

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PHASE III COMBINED SEWER  
OVERFLOW PROGRAM

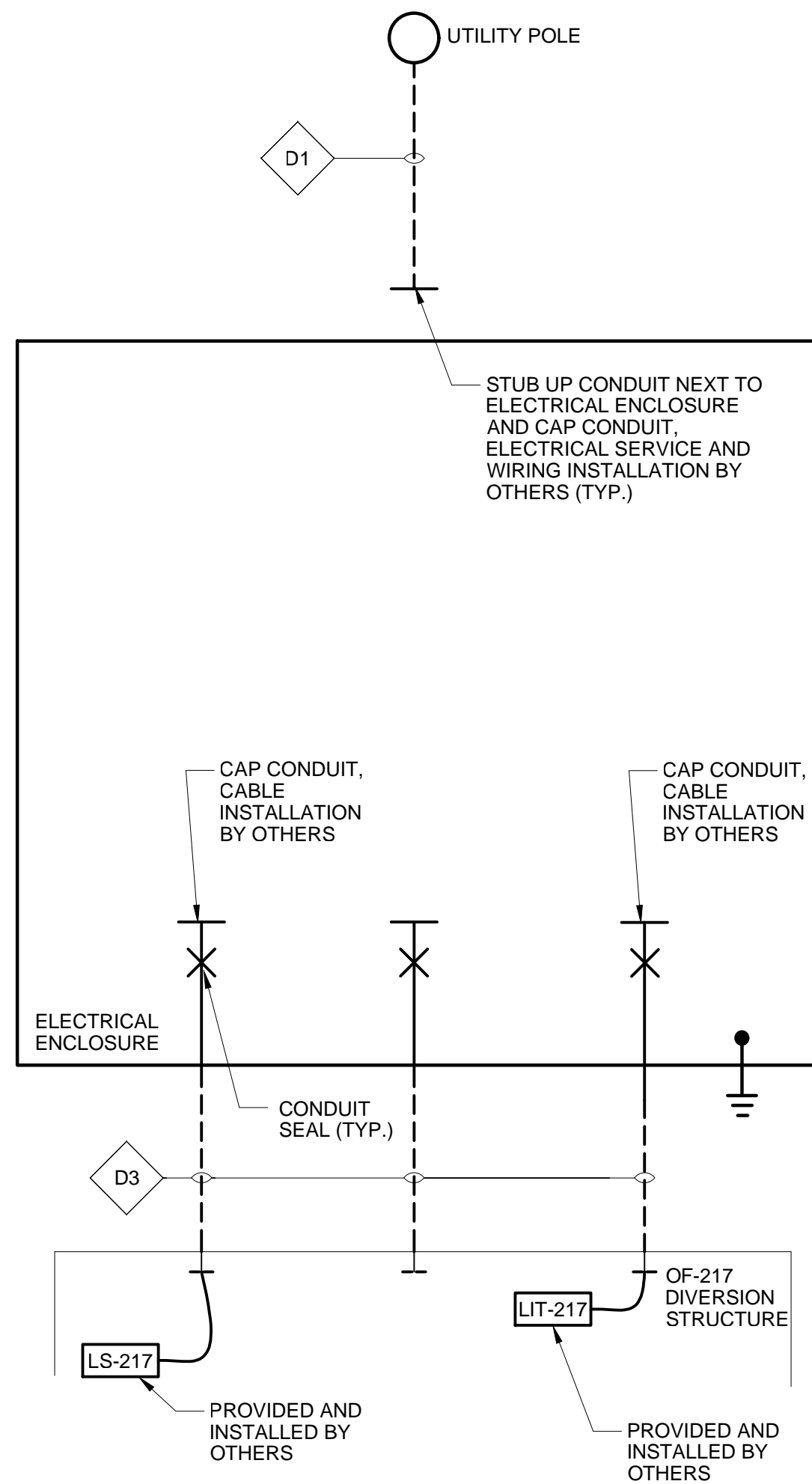
NBC CONTRACT NO 308.05C  
ELECTRICAL

SITE PLAN, DUCTBANK SECTIONS, AND  
OF-217 DIVERSION STRUCTURE PLAN

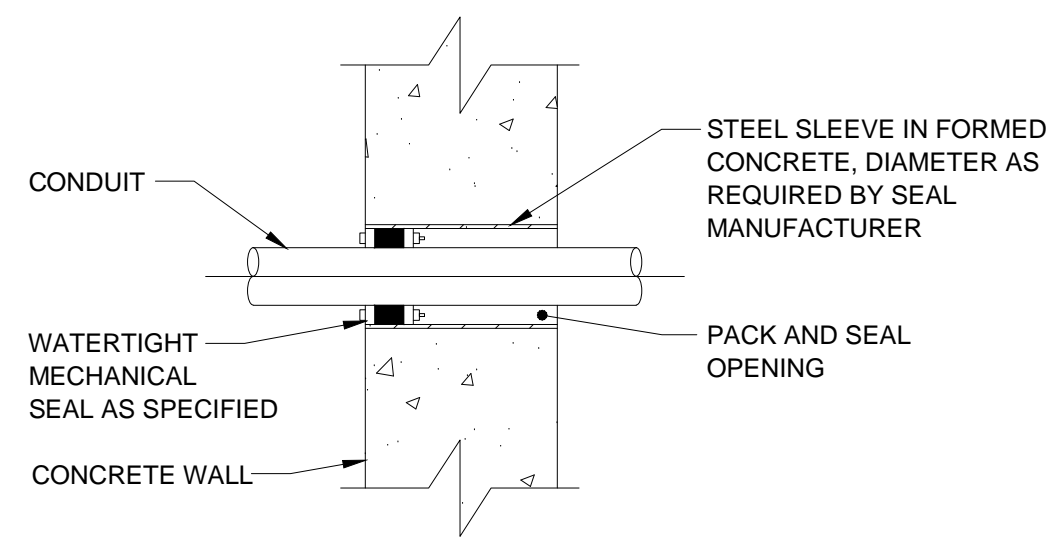
BY: MICHAEL COTTER

PLOT DATE: Thursday, March 18, 2021 3:26:22 PM

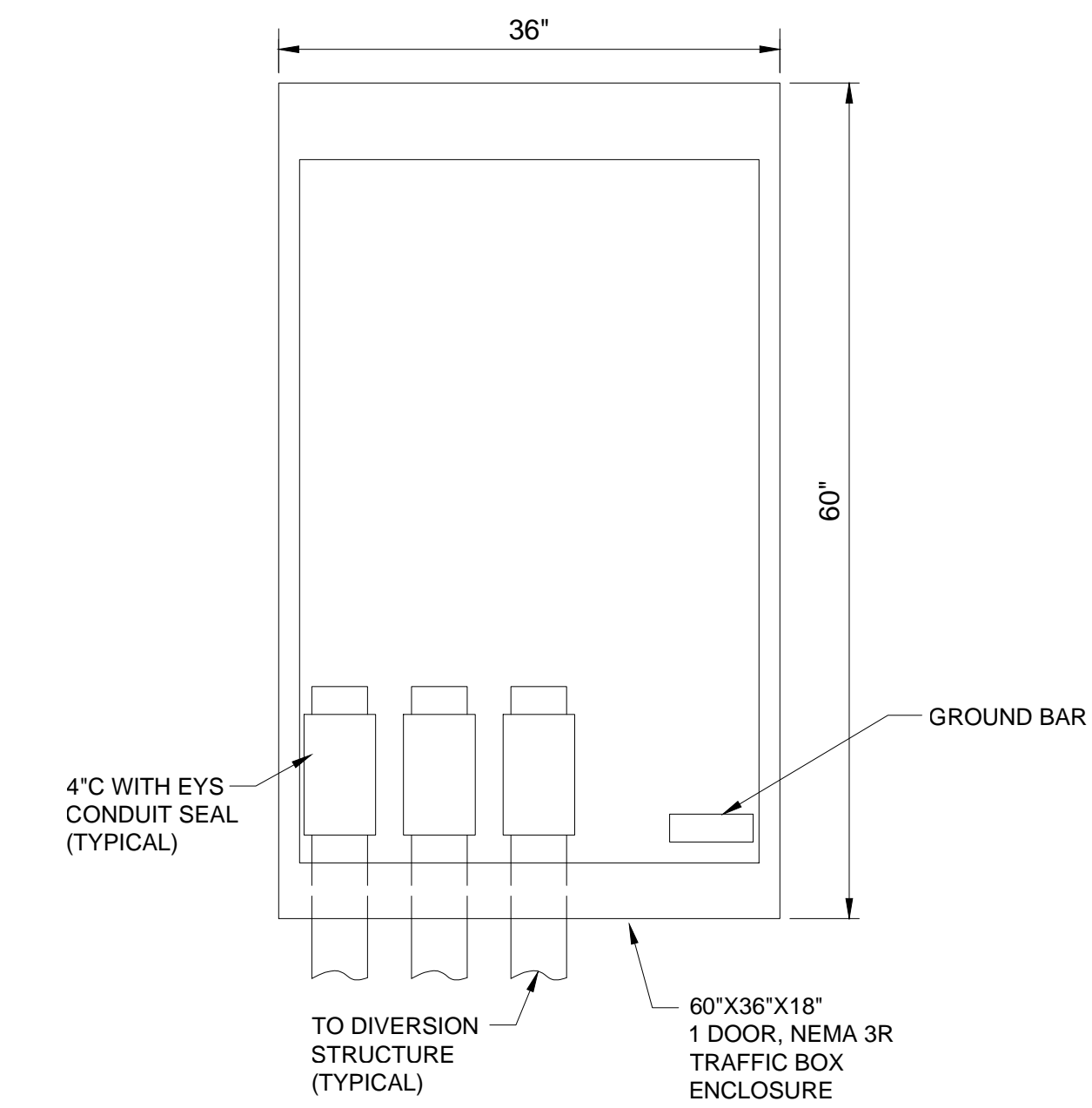
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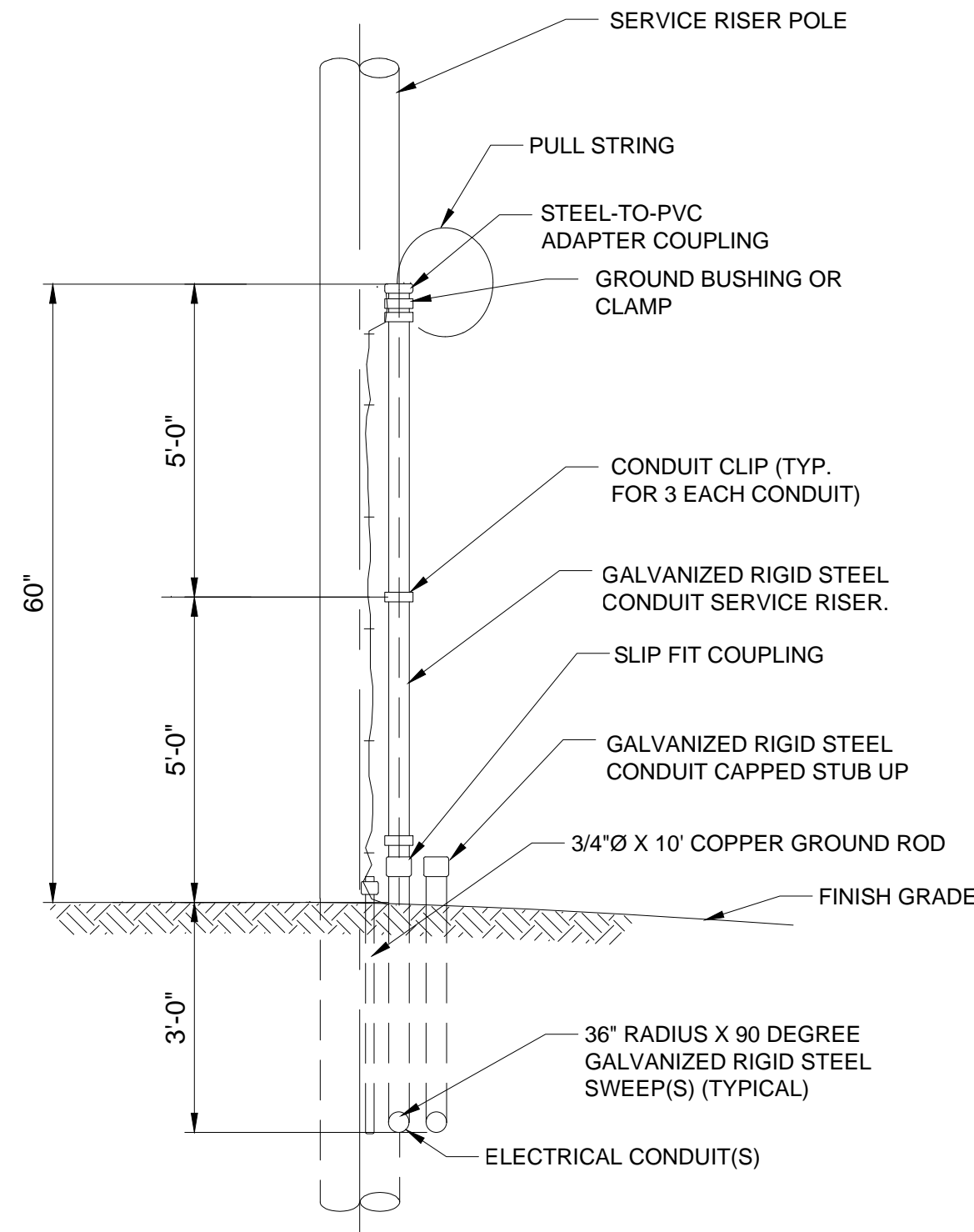
**1 CONDUIT RISER DIAGRAM**  
NOT TO SCALE



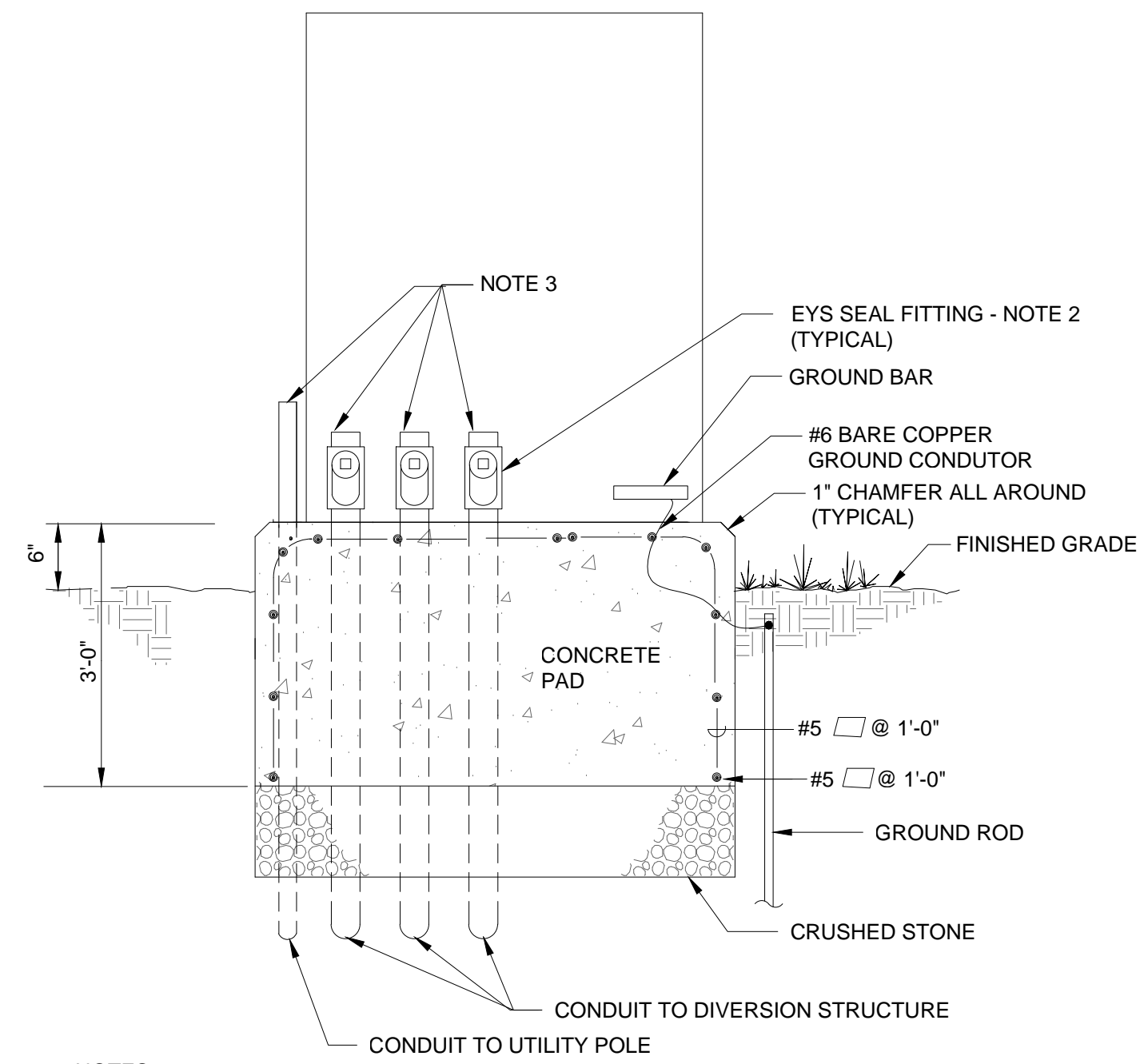
**4 CONDUIT THROUGH STRUCTURE WALL DETAIL**  
NOT TO SCALE



**2 ELECTRICAL ENCLOSURE INTERIOR LAYOUT**  
SCALE: 1" = 1'-0"



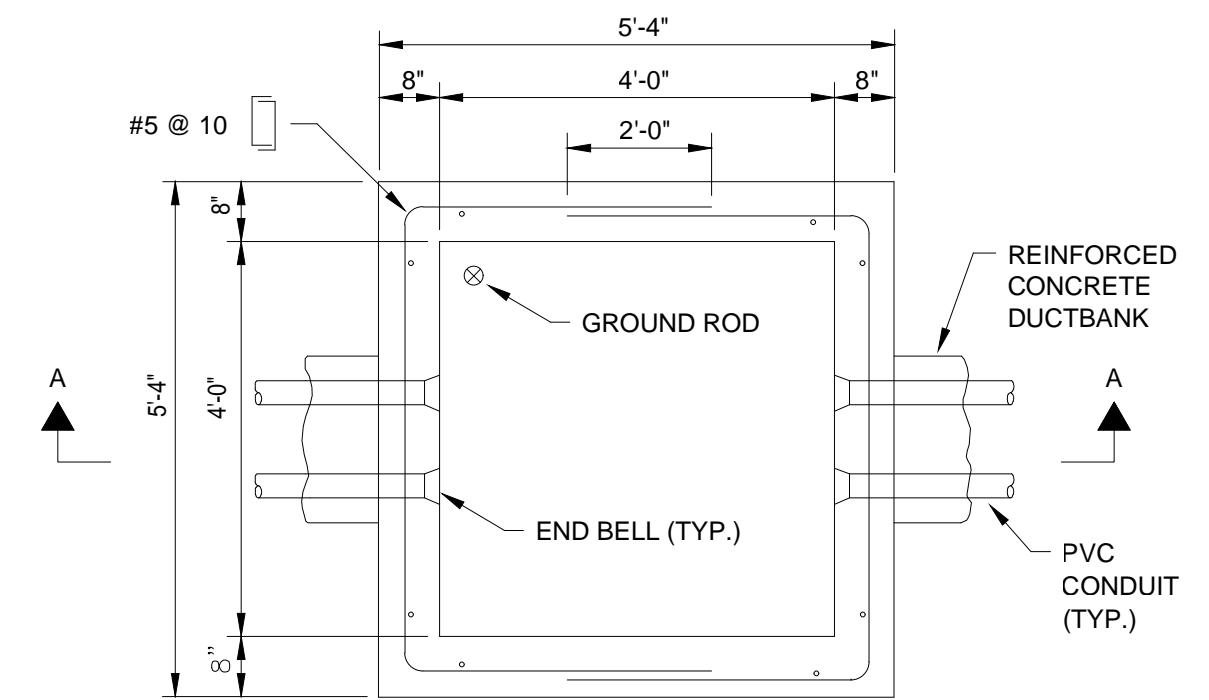
**5 SERVICE RISER POLE**  
NOT TO SCALE



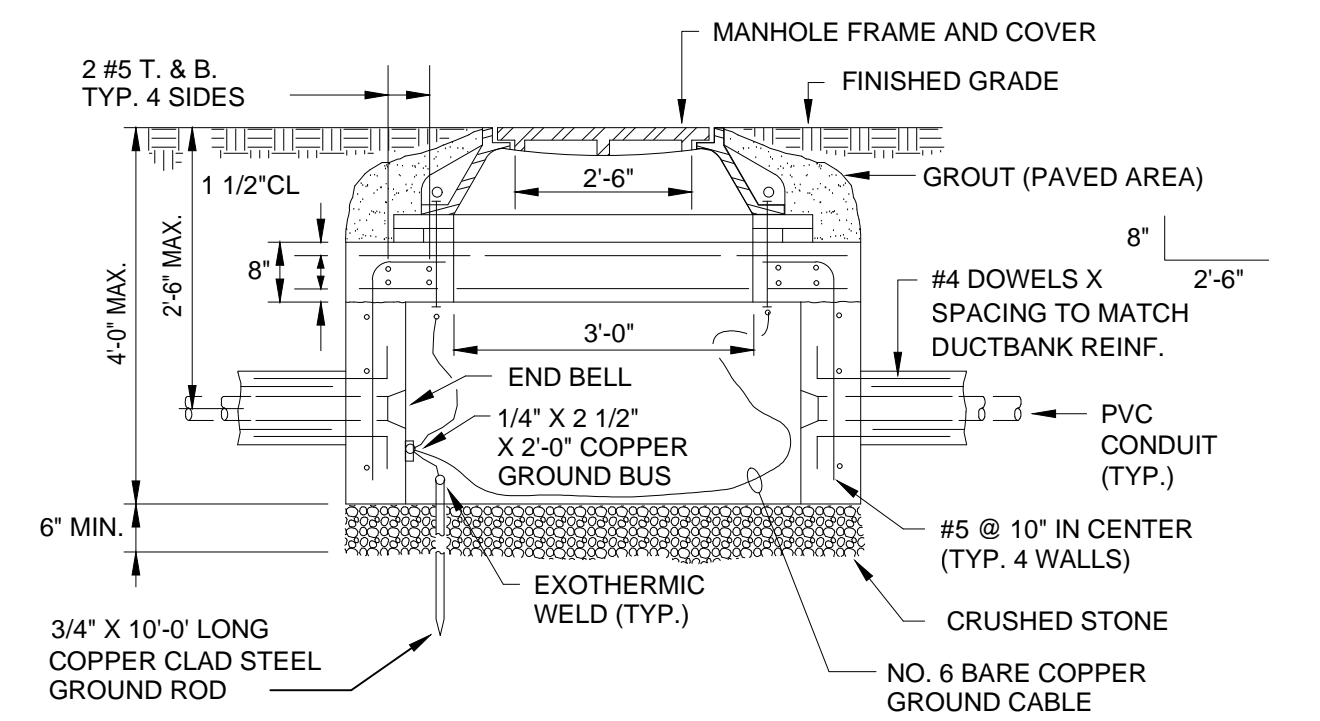
NOTES:

- FOR REINFORCING REQUIREMENTS SEE CONCRETE SPECIFICATIONS.
- EYS SEAL FITTINGS ARE NOT TO BE FILLED, INSTALLATION OF CABLE AND SEALANT WILL BE BY OTHERS.
- SEAL AND CAP THE ENDS OF CONDUITS.

**3 ELECTRICAL ENCLOSURE BASE DETAIL**  
NOT TO SCALE



**PLAN VIEW**



**SECTION A-A**

NOTES:

- CHIMNEY HEIGHT IS KEPT TO MINIMUM TO FACILITATE WIRE PULLING IN HANDHOLE FROM ABOVE GRADE
- CONCRETE TO HAVE MINIMUM STRENGTH OF 5,000 PSI AT 28 DAYS
- PROVIDE HANDHOLE FRAME, RING AND COVER.
- REFER TO DUCTBANK SECTIONS FOR THE REQUIRED NUMBER OF CONDUIT ENTRANCES. PROVIDE CONDUIT ENTRY SPACE ON NON-USED SIDES FOR A MINIMUM (4) 4" FUTURE CONDUITS.
- REFER TO SITE PLAN FOR HANDHOLE SIDES CONDUITS ARE ENTERING.

**6 ELECTRIC HANDHOLE DETAIL**  
NOT TO SCALE

| REV | DATE | BY | DESCRIPTION |
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| SCALE    | WARNING  |
| NO SCALE | IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE |

|                    |
|--------------------|
| DESIGNED M. COTTER |
| DRAWN R. BEAUVAIS  |
| CHECKED            |

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NBC CONTRACT NO 308.05C  
ELECTRICAL  
CONDUIT RISER DIAGRAM  
AND DETAILS

SHEET  
E-2  
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