NARRAGANSETT BAY COMMISSION

PHASE III COMBINED SEWER OVERFLOW PROGRAM

OF-217 CONSOLIDATION CONDUIT

CONTRACT NO. 308.05C

60% DESIGN
DECEMBER 2020

STATE OF RHODE ISLAND

GINA RAIMONDO _____ GOVERNOR

RHODE ISLAND
INFRASTRUCTURE BANK

MERRILL W. SHERMAN _____ CHAIRMAN

JEFFREY R. DIEHL _____ EXECUTIVE DIRECTOR AND CEO

Narragansett Bay Commission

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LAURIE A. HORRIDGE _____ EXECUTIVE DIRECTOR

KATHRYN KELLY, P.E. _____ CSO PROGRAM MANAGER

DAVID C. BOWEN, P.E. _____ ENGINEERING MANAGER

PROGRAM MANAGEMENT TEAM

Stantec

PARE

DESIGN TEAM

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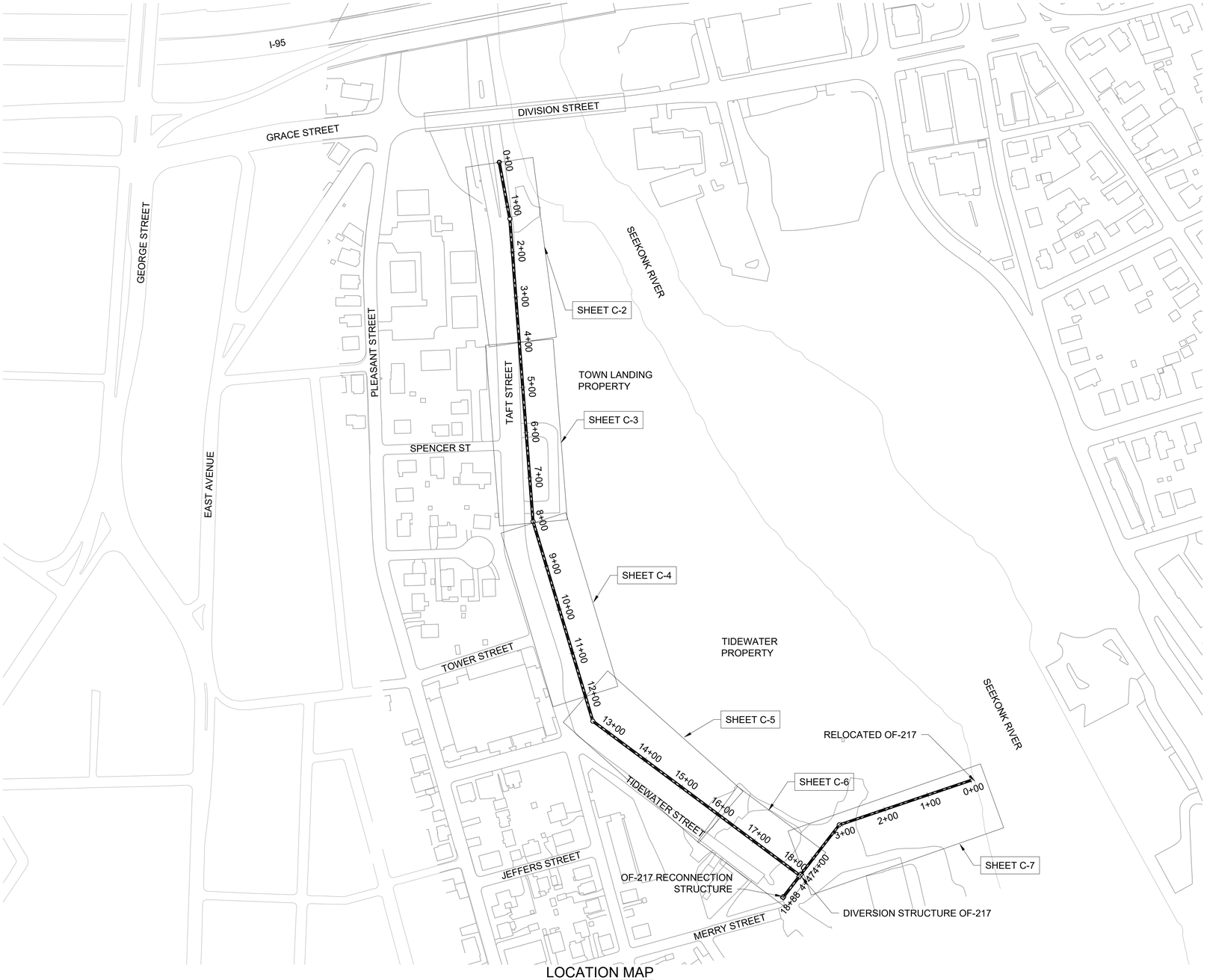
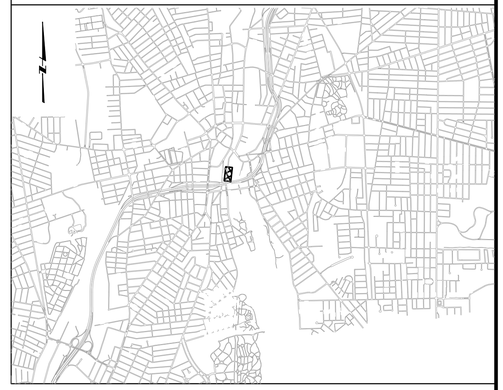
SAR ENGINEERING, INC.

McMILLEN JACOBS ASSOCIATES



LOCATION MAP

KEY PLAN



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

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN J. PAYNE
CHECKED J. D'ALESIO

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Narragansett Bay Commission

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PHASE III COMBINED SEWER
OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
GENERAL

OF-217 CONSOLIDATION CONDUIT
LOCATION AND VICINITY MAP

SHEET
G-1
195130227

LIST OF DRAWINGS

GENERAL

GEOTECHNICAL

CIVIL

TRAFFIC

INSTRUMENTATION AND CONTROL

STRUCTURAL

ELECTRICAL

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-4_IIIA-5_LIST_OF_DRAWINGS.dwg PLOT DATE: Monday, December 28, 2020 5:27:39 PM

BY: JAIME PAYNE

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NBC CONTRACT NO 308.05C
GENERAL

OF-217 CONSOLIDATION CONDUIT
LIST OF DRAWINGS

SHEET
G-2
195130227

GENERAL SYMBOLOGY

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

MATERIAL SYMBOLOGY

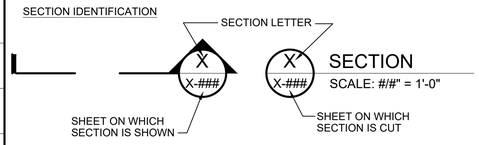
- CONCRETE (PLAN AND SECTION)
- GROUT OR SAND (PLAN AND SECTION)
- BRICK (PLAN AND SECTION)
- STEEL/METAL/FRP (SMALL SCALE SECTION)
- GRATING OR SOLID FRP GRATING (SECTION)
- FINISHED GRADE
- GRAVEL/DRAINROCK/AGGREGATE BASE

PIPING ENDS (SINGLE-LINE)

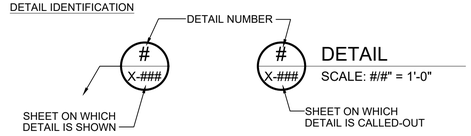
- PIPE MATERIAL CHANGE
- PUSH-ON JOINT - BELL AND SPIGOT
- PUSH-ON JOINT - RESTRAINED
- SLEEVE TYPE COUPLING
- SLEEVE TYPE COUPLING - RESTRAINED

REFERENCE SYMBOLS

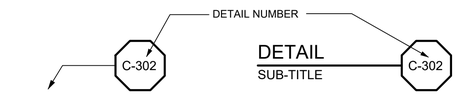
SECTION IDENTIFICATION



DETAIL IDENTIFICATION

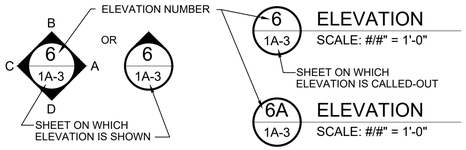


STANDARD DETAIL IDENTIFICATION



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

INTERIOR ELEVATION IDENTIFICATION



EXTERIOR ELEVATION IDENTIFICATION

MISCELLANEOUS

- A — SHEET KEY NOTES
- ℄ — CENTERLINE
- ### — COORDINATE POINT
- Ø — 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

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

SCALE: NO SCALE

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Stantec PARE

NBC CONTRACT NO 308.05C
GENERAL

OF-217 CONSOLIDATION CONDUIT SYMBOLS

SHEET G-3

195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-5_GENERAL.dwg
PLOT DATE: Monday, December 28, 2020 4:55:08 PM
BY: JAIMIE PAYNE

A	AIR / AMPERE
A/C	AIR CONDITIONING
A/R	AIR RELEASE
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	ANCHOR BOLT
ABAN	ABANDON
ABND	ABANDONED
ABBR	ABBREVIATION
ABS	ABSOLUTE TEMPERATURE
AC	ACTIVATED CARBON / ASPHALTIC CONCRETE / ALTERNATING CURRENT
ACI	AMERICAN CONCRETE INTERNATIONAL
ACOUS	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
APPD	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
AV/AR	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
BWV	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
DET	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
FAB	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
FN	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
GRD	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
HWD	HARDWOOD
HWL	HIGH WATER LEVEL
HWO	HANDWHEEL OPERATED
HYD	HYDRAULIC / HYDRANT
I/O	INPUT/OUTPUT
I&O	INSIDE AND OUTSIDE
IBC	INTERNATIONAL BUILDING CODE
ID	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	KILOVOLT 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)
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NF	NEAR FACE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GRADE / NATURAL GAS
NIC	NOT IN CONTRACT
NO	NUMBER / NORMALLY OPEN
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE
NPT	NATIONAL PIPE THREAD
NRCP	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
PRCT	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	PLUG 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
RR	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 /
S/O	SOUTH OF
SAM	SAMPLE
SAN	SANITARY
SBR	STYRENE BUTADIENE (RUBBER)
SC	SECONDARY CLARIFIER
SCCP	STEEL CYLINDER CONCRETE PIPE
SCD	SCREWED
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	SERIES
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	TELEPHONE
TEMP	TEMPERATURE / TEMPORARY
TF	TOP OF FOOTING
TH	TEST HOLE
THK	THICK / THICKNESS
THR	THRESHOLD
THR'D	THREADED
TK	TANK / TACK
TL	TRAVERSE LINE
TOC	TOP OF CONCRETE
TOE	THREAD ONE END
TOL	TOILET
TOM	TOP OF MASONRY
TOP	TOP OF PIPE
TOPO	TOPOGRAPHIC

TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TELEPHONE POLE
TR	TRACT
TRANS	TRANSMITTER / TRANSITION /TRANSMISSION
TS	TRAFFIC SIGNAL
TSB	TOP SET BASE
TSC	TRAFFIC SIGNAL CONDUIT
TV	THERMOSTATIC VALVE / TELEVISION
TW	THERMOMETER WELL /TRAVELED WAY
TYP	TYPICAL
UB	UNION BONNET
UBC	UNIFORM BUILDING CODE
UC	UNDER-CROSSING
UG	UNDERGROUND
UGC	UNDERGROUND CONDUIT
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNID	UNIDENTIFIED
UNO	UNLESS NOTED OTHERWISE
UOI	UNLESS OTHERWISE INDICATED
UPS	UNINTERRUPTABLE POWER SUPPLY
UR	URINAL
USA	UNDERGROUND SERVICE ALERT
USGS	UNITED STATES GEOLOGICAL SURVEY
UV	ULTRAVIOLET
UW	UTILITY WATER
V	VALVE / VERTICAL / VENT / VOLT / VOLUME
VAC	VACUUM
VAR	VARIES / VARIABLE
VB	VALVE BOX
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VOL	VOLUME
VPI	VERTICAL POINT OF INTERSECTION
VSL	VERTICALLY SLOTTED
VTC	VENT TO CEILING
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
VWM	VERIFY WITH MANUFACTURE
W	WEST / WASTE / WIDTH / WIDE FLANGE / WATER
W/	WITH
W/O	WEST OF / WITHOUT
WC	WATER COLUMN / WATER CLOSET
WCO	WALL CLEANOUT
WD	WOOD
WDW	WINDOW
WH	WATER HEATER
WI	WROUGHT IRON
WM	WATER METER
WOG	WATER, OIL, OR GAS
WP	WATERPROOFING / WORKING PRESSURE / WORK POINT
WPJ	WEAKEN PLANE JOINT
WS	WATER SURFACE
WSTP	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWP	WATER WORKING PRESSURE
XCONN	CROSS CONNECTION
XS	EXTRA STRONG
XSEC	CROSS SECTION
XXS	DOUBLE EXTRA STRONG
YD	YARD
YR	YEAR
Z	ZERO / ZONE
ZN	ZINC
#	POUND
&	AND
@	AT

FOR ADDITIONAL ABBREVIATIONS SEE:

CIVIL - GENERAL CIVIL SHEETS
PIPING - PIPING SCHEDULE
ELECTRICAL - GENERAL ELECTRICAL SHEETS
INSTRUMENTATION - GENERAL INSTRUMENTATION SHEETS

OTHER ABBREVIATIONS CONFORM TO ANSI STANDARD ABBREVIATIONS Z32.2.3

REV 080116

BY: JAIMIE PAYNE
PLOT DATE: Monday, December 28, 2020 4:55:08 PM
DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-5_GENERAL.dwg

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

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN J. PAYNE
CHECKED J. D'ALESIO

60% DESIGN PHASE - DECEMBER 2020

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BETA www.BETA-Inc.com

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

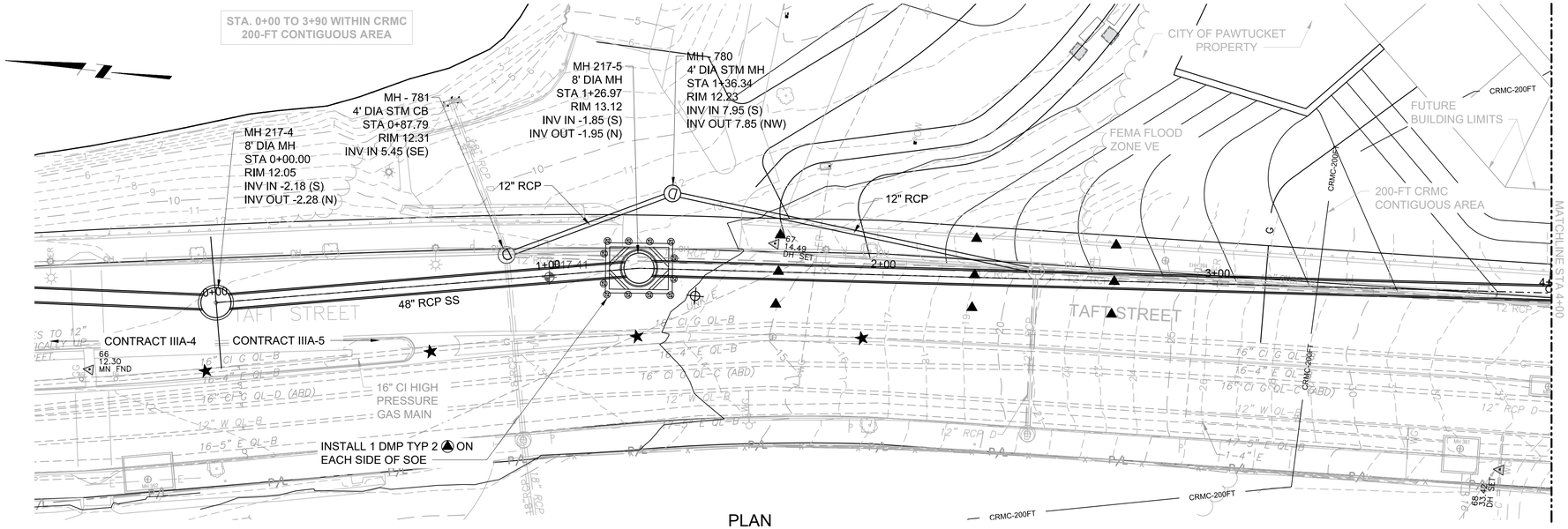
Stantec PARE

NBC CONTRACT NO 308.05C
GENERAL

OF-217 CONSOLIDATION CONDUIT
ABBREVIATIONS

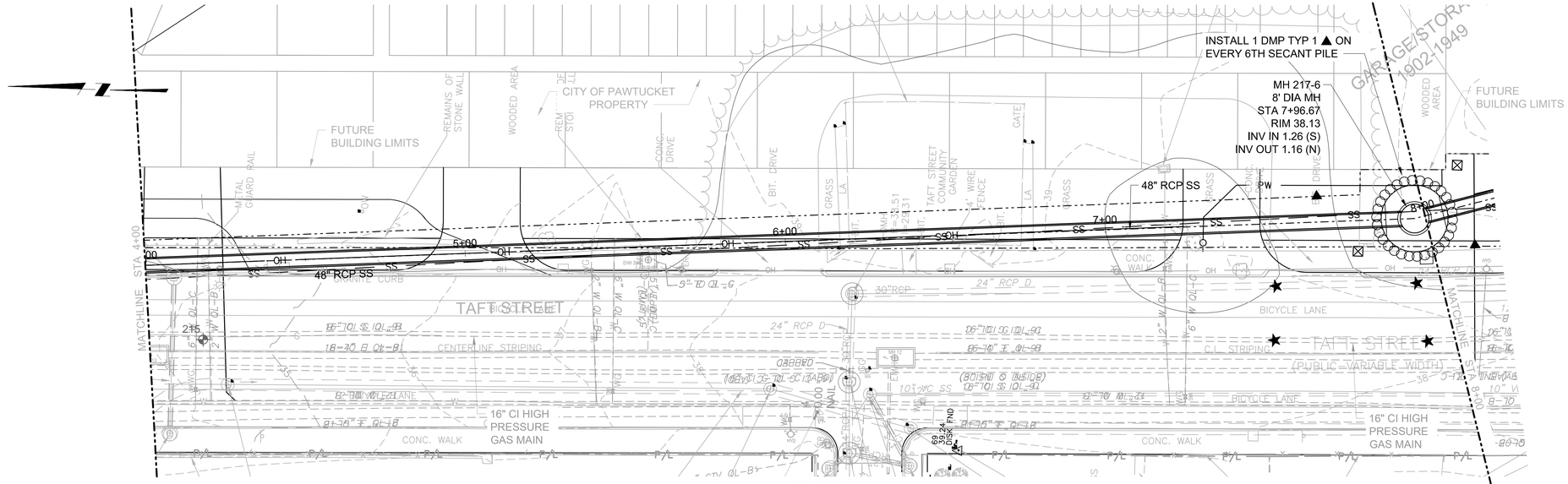
SHEET
G-4

195130227



PLAN

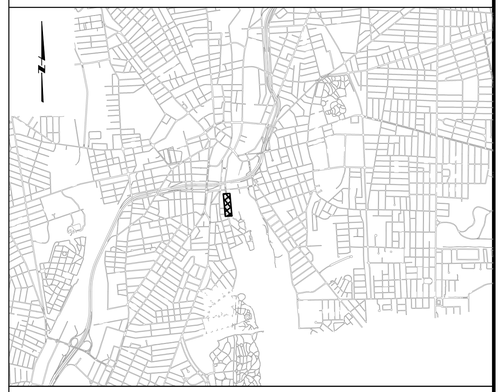
SCALE:1" = 20'



PLAN

SCALE:1" = 20'

KEY PLAN



GENERAL SHEET NOTES

1. UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
2. 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
3. REFER TO SHEET B-4 FOR INSTRUMENTATION DETAILS.
4. REFER TO SHEET B-5 FOR INSTRUMENTATION SUMMARY TABLES.

INSTRUMENTATION LEGEND

- 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: 0 ½ 1 — 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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McMILLEN JACOBS ASSOCIATES

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.06C
GEOTECHNICAL

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

SHEET
B-1
195130227

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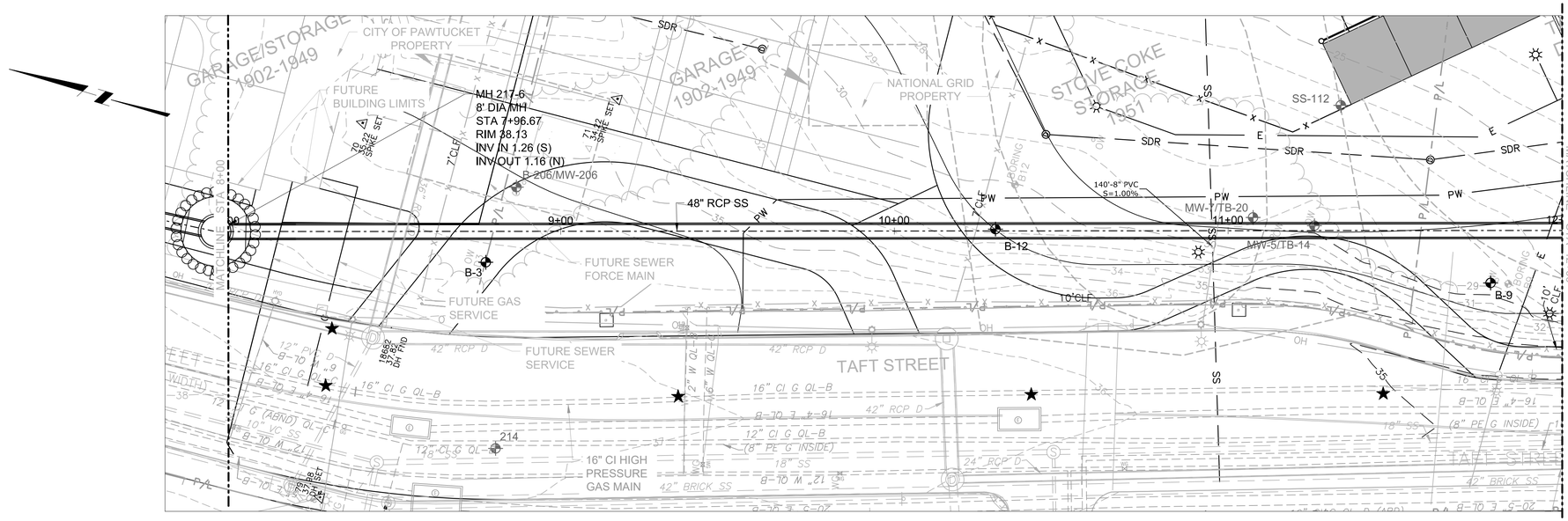
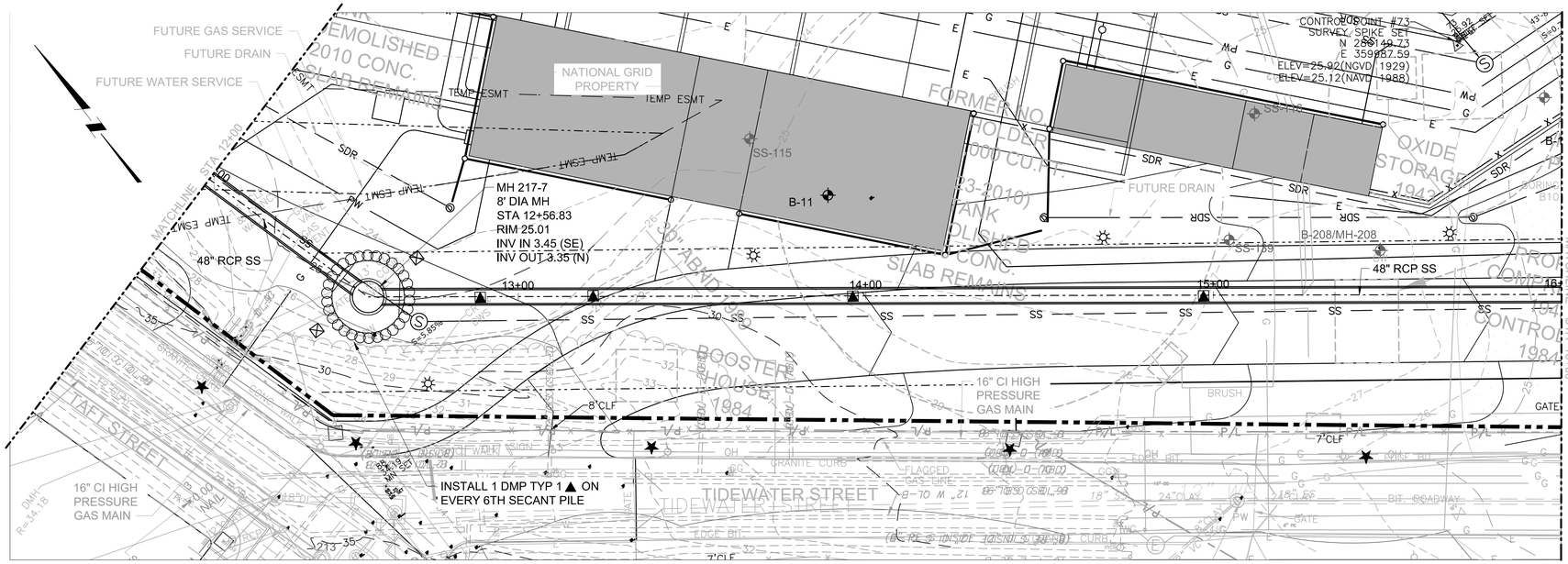
BY: NOWAK, DAVID



PLAN

SCALE:1" = 20'



PLAN

SCALE:1" = 20'

KEY PLAN

GENERAL SHEET NOTES

1. UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
2. 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
3. WORK IS IN PROPERTY OWNED BY NATIONAL GRID/ CITY OF PAWTUCKET.
4. REFER TO SHEET B-4 FOR INSTRUMENTATION DETAILS.
5. REFER TO SHEET B-5 FOR INSTRUMENTATION SUMMARY TABLES.

INSTRUMENTATION LEGEND

- 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: 0 ½ 1 — 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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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.06C
GEOTECHNICAL

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

SHEET
B-2
195130227

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BY: NOWAK, DAVID

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PLOT DATE: Wednesday, December 23, 2020 3:55:54 PM
BY: NOWAK, DAVID

REV	DATE	BY	DESCRIPTION
1			

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K O'HARA
DRAWN S WILBUR
CHECKED T MUINDI

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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

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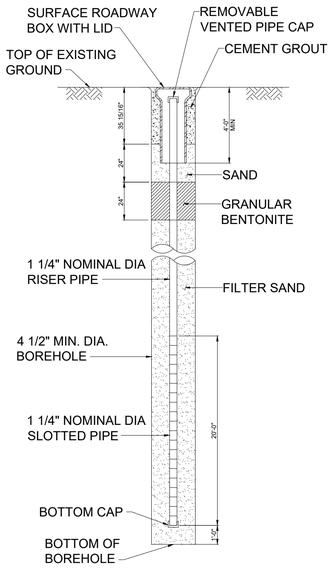
NBC CONTRACT NO 308.06C
GEOTECHNICAL

OF-217 CONSOLIDATION CONDUIT
INSTRUMENTATION PLAN STA. 16+00 - 17+66, STA. 0+00 - 4+48

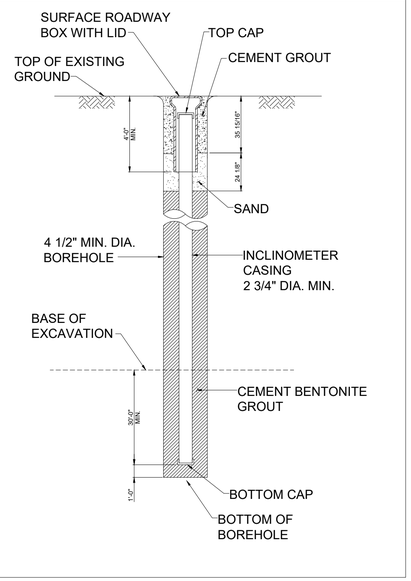
SHEET
B-3

195130227

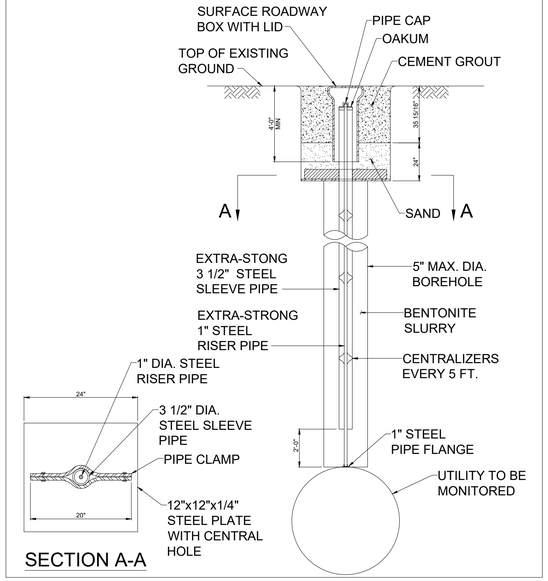
OBSERVATION WELL (OW)



INCLINOMETER (INCL)



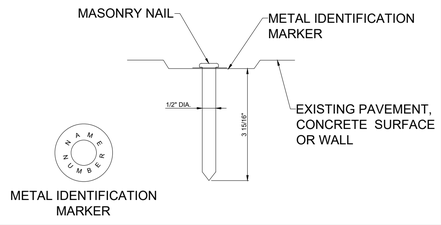
UTILITY MONITORING POINT (UMP)



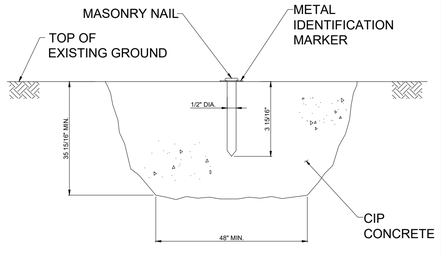
SECTION A-A

DEFORMATION MONITORING POINT - DMP TYPE 1

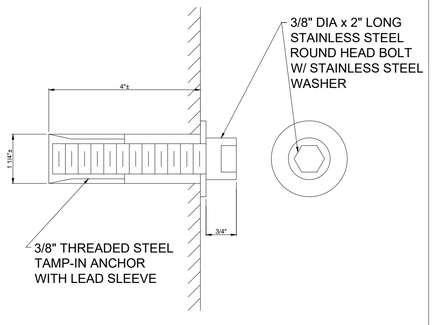
WITHIN PAVEMENT



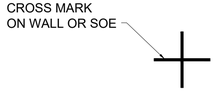
WITHIN SOIL



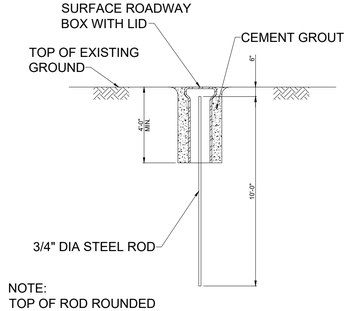
DEFORMATION MONITORING POINT - DMP TYPE 2



OR USE



DEFORMATION MONITORING POINT - DMP TYPE 3



NOTE:
TOP OF ROD ROUNDED AND PUNCHMARKED

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K OHARA
DRAWN S WILBUR
CHECKED T MUINDI

60% DESIGN PHASE - DECEMBER 2020

NOT FOR CONSTRUCTION

McMILLEN JACOBS ASSOCIATES

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
GEOTECHNICAL

OF-217 CONSOLIDATION CONDUIT INSTRUMENTATION DETAILS

SHEET
B-4
195130227

INSTRUMENT RESPONSE LEVELS		
INSTRUMENT TYPE	INSTRUMENT VALUES[1]	
	REVIEW (INCH)	ALERT (INCH)
DEFORMATION MONITORING POINT (DMP TYPE 1)	$\frac{3}{4}$	1
DEFORMATION MONITORING POINT (DMP TYPE 2)	$\frac{3}{4}$	1
DEFORMATION MONITORING POINT (DMP TYPE 3)	$\frac{3}{4}$	1
INCLINOMETER	$\frac{3}{4}$	$1\frac{1}{2}$
UTILITY MONITORING POINT	$\frac{3}{4}$	$1\frac{1}{2}$
SEISMOGRAPH	FOR FREQUENCIES LESS THAN 40 HZ, PPV[2] REVIEW LEVEL = TBD IPS[3]	FOR FREQUENCIES LESS THAN 40 HZ, ALERT PPV = TBD IPS

NOTES

1. ALL UNITS ARE IN INCHES UNLESS OTHERWISE NOTED ON TABLE.
2. PPV MEANS PEAK PARTICLE VELOCITY.
3. IPS MEANS INCHES PER SECOND.

INSTRUMENT TYPE	READING FREQUENCY [1]			
	X ≤ 50'	50' < X ≤ 100'	100' < X ≤ 150'	150' < X
DEFORMATION MONITORING POINT (DMP TYPE 1)	ONCE PER DAY	TWO TIMES A WEEK	ONCE PER WEEK	ONCE PER MONTH
DEFORMATION MONITORING POINT (DMP TYPE 2)				
DEFORMATION MONITORING POINT (DMP TYPE 3)				
INCLINOMETER				
UTILITY MONITORING POINT				
SEISMOGRAPH	TBD			

NOTE

1. X IS THE DISTANCE FROM INSTRUMENTATION TO CONSOLIDATION CONDUIT ACTIVELY UNDER CONSTRUCTION..

INSTRUMENTATION SUMMARY		
SYMBOL	INSTRUMENT TYPE	MINIMUM QUANTITY
⊕	OBSERVATION WELL (OW)	1
▲	DEFORMATION MONITORING POINT (DMP TYPE 1)	20
◭	DEFORMATION MONITORING POINT (DMP TYPE 2)	50
◭	DEFORMATION MONITORING POINT (DMP TYPE 3)	8
☒	INCLINOMETER (INCL)	4
★	UTILITY MONITORING POINT (UMP)	25
⏃	SEISMOGRAPH	1

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

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NBC CONTRACT NO 308.05C
GEOTECHNICAL

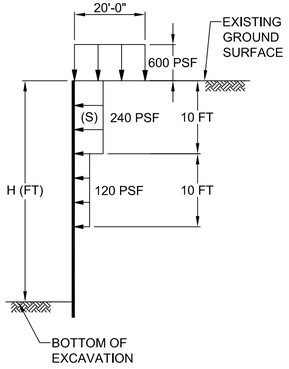
OF-217 CONSOLIDATION CONDUIT
INSTRUMENTATION SCHEDULES

SHEET
B-5

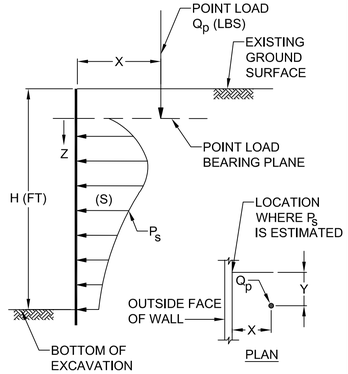
195130227

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

TRAFFIC AND CONSTRUCTION EQUIPMENT LOAD



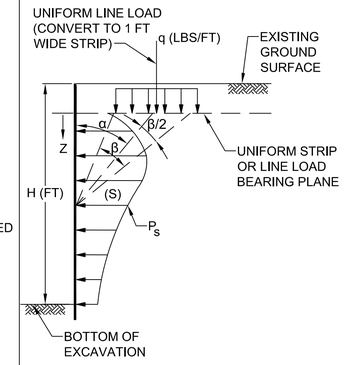
POINT LOAD



$$P_s = Q_p \frac{X^2 Z}{R^5} \text{ (PSF) WHERE } R = \sqrt{X^2 + Y^2 + Z^2}$$

REFERENCE: SPANGLER, ET. AL. (1962)

UNIFORM LINE OR STRIP LOAD



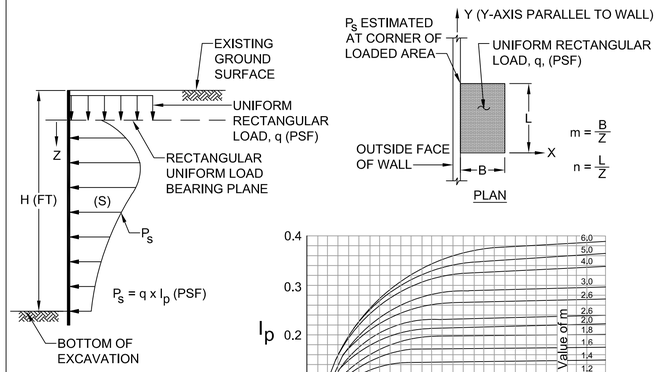
$$P_s = \frac{q}{\pi} (\beta - \sin\beta \cos 2\alpha) \text{(PSF) FOR FLEXIBLE WALLS}$$

$$P_s = \frac{2q}{\pi} (\beta - \sin\beta \cos 2\alpha) \text{(PSF) FOR RIGID WALLS}$$

WHERE α AND β ARE IN RADIANS

REFERENCE: U.S. ARMY C.O.E. EM 1110-2-2502 (1989)

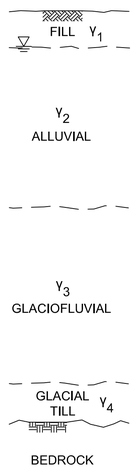
UNIFORM RECTANGULAR LOAD



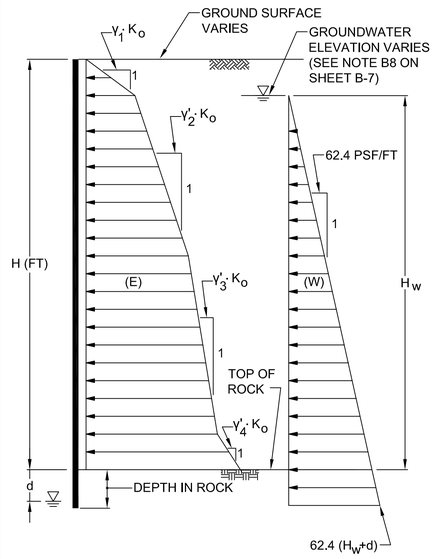
REFERENCE: NAVAL DESIGN MANUAL 7.02 (1986)

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

GENERALIZED SOIL PROFILE



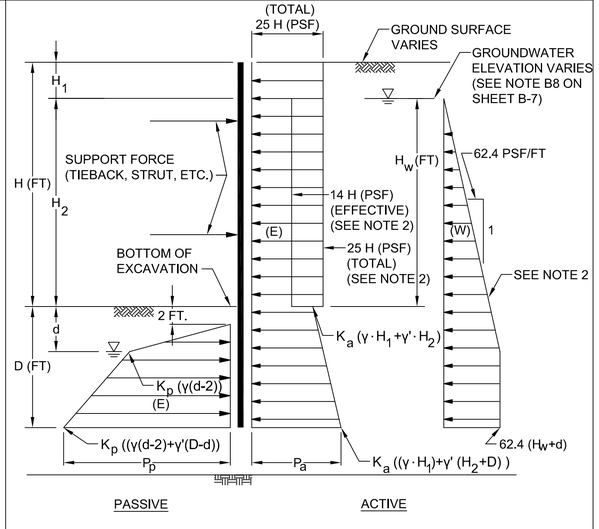
RIGID WALL SUPPORT SYSTEMS



AT-REST

d : DEPTH TO GROUNDWATER TABLE INSIDE EXCAVATION (FT)

FLEXIBLE WALL SUPPORT SYSTEMS



LEGEND

H_1: THICKNESS OF FILL ABOVE GROUND WATER ELEVATION OUTSIDE EXCAVATION
H_2: THICKNESS OF GLACIOFLUVIAL & GLACIOLACUSTRINE
D : DEPTH FROM BOTTOM OF EXCAVATION TO BOTTOM OF SUPPORT WALL
d : DEPTH TO GROUNDWATER TABLE INSIDE EXCAVATION (FT)

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 BRACING SYSTEM.	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)] AXIAL LOADS FROM END WALL BRACING MEMBERS (E)+(S)+(W)], WHERE APPLICABLE	100% OF [(DL)+(LL)+(E)+(S)+(W)] 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)] AXIAL LOADS FROM END WALLS [(E)+(S)+(W)], WHERE APPLICABLE	FOR PRIMARY BRACING MEMBERS: 100% OF [(DL)+(LL)+(E)+(W)+(S)] FOR WALLS: 120% OF ALLOWABLE UNIT STRESSES
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 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, γ (PCF)	EFFECTIVE UNIT WEIGHT, γ' (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	58	32°	NA	0.47	0.31	3.26
ALLUVIAL	120	63	30°	NA	0.5	0.33	3.00
GLACIOFLUVIAL	125	63	32°	NA	0.47	0.31	3.26
GLACIAL TILL	135	68	34°	NA	0.44	0.28	3.54

NOTES:

1. FOR MINIMUM DESIGN CRITERIA FOR EXCAVATION SUPPORT NOTES, SEE SHEET B-7.
2. SEE SHEET B-7, NOTE B10

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K. OHARA
DRAWN D. NOWAK
CHECKED T. MUINDI

60% DESIGN PHASE - DECEMBER 2020

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McMILLEN JACOBS ASSOCIATES

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
GEOTECHNICAL

OF-217 CONSOLIDATION CONDUIT
MINIMUM DESIGN CRITERIA FOR EXCAVATION SUPPORT

SHEET B-6

195130227

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, 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 CONCRETE DIAPHRAGM WALLS, SECANT PILE WALLS, CASED DRILLED SHAFTS AND SIMILAR SUPPORT SYSTEMS.

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-6 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 BE LIMITED TO INSTRUMENT RESPONSE LEVELS SPECIFIED ON B-5.

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-6 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-6.

B6. THE TEMPORARY EXCAVATION SUPPORT SYSTEM SHALL BE CONSIDERED TO BE SUBJECTED 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.

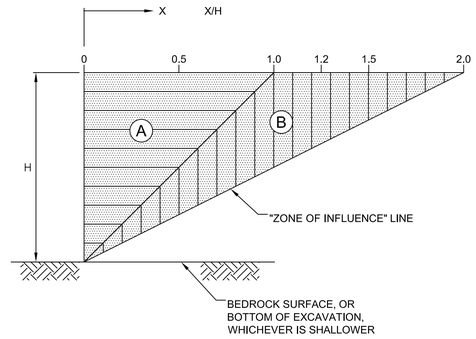
E3. EVALUATION OF PROTECTION REQUIREMENTS FOR STRUCTURES IS DEPENDENT ON MANY FACTORS, WHICH INCLUDE IMPLEMENTED CONSTRUCTION PROCEDURES AND DETAILS, MAGNITUDE AND TYPES OF MOVEMENT ANTICIPATED, SUBSURFACE CONDITIONS, AND PROXIMITY OF STRUCTURES TO THE EXCAVATION. AT LOCATIONS WHERE STRUCTURES ARE FOUNDED 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 B-5 FOR INSTRUMENTATION RESPONSE LEVELS.

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.

(A) 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.

(B) PROTECTION ZONE B: STRUCTURES WHICH ARE FOUNDED OR LOCATED WITHIN THIS ZONE GENERALLY WILL NOT REQUIRE PROTECTION, UNLESS THE STRUCTURES ARE PARTICULARLY SENSITVE TO MOVEMENTS, OR SUBSURFACE SOILS ARE SENSITIVE TO CONSTRUCTION VIBRATION.

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED K. OHARA
DRAWN D.NOWAK
CHECKED T.HENNINGS

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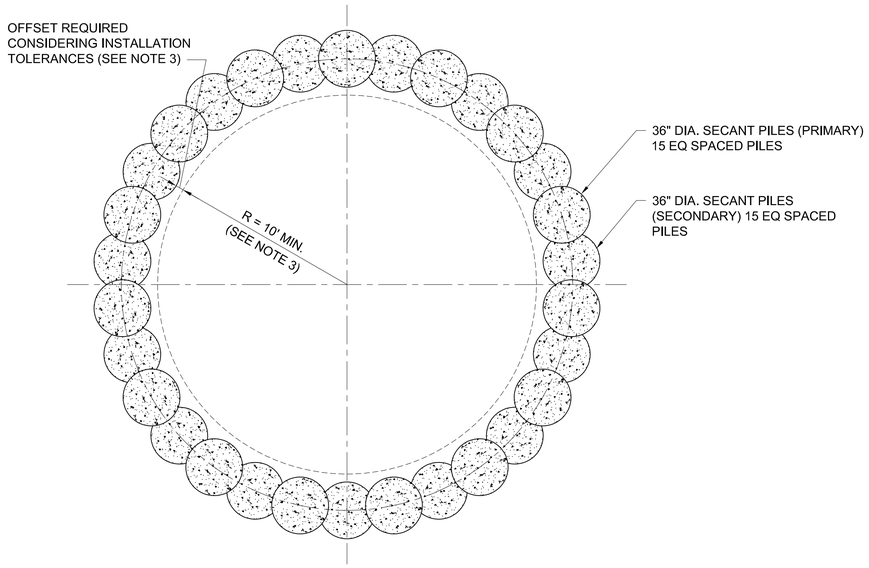
NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER
OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
GEOTECHNICAL

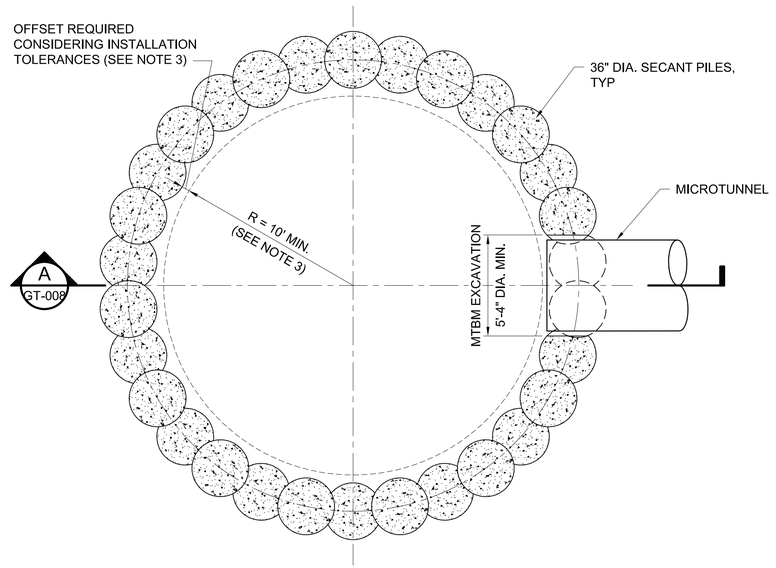
OF-217 CONSOLIDATION CONDUIT
NOTES FOR ANALYSIS AND DESIGN

SHEET
B-7
195130227



SECANT PILE SHAFT PLAN AT GROUND LEVEL

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



SECANT PILE SHAFT PLAN AT MICROTUNNEL SPRINGLINE

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

NOTES

1. THIS DRAWING DEPICTS A REFERENCE DESIGN FOR WHICH THE CONTRACTOR MAY CHOOSE TO DEVELOP TO A FINAL DESIGN. REGARDLESS IF THE CONTRACTOR CHOOSES TO USE THE REFERENCE DESIGN, THE CONTRACTOR'S FINAL DESIGN SHALL INCORPORATE DESIGN AND CONSTRUCTION REQUIREMENTS SPECIFIED HERE AND ELSEWHERE IN THE CONTRACT DOCUMENTS.

2. REFERENCE DESIGN ASSUMPTIONS:
   a. PLAIN CONCRETE DESIGN IN ACCORDANCE WTH ACI-318-19
   b. F'c = 4000 PSI
   c. INSTALLATION TOLERANCES:
      i. IN-PLAN LOCATION: 1-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. MTBM LAUNCHING SHAFTS AT MH-217-6 AND MH-217-7 SHALL BE CONSTRUCTED USING SECANT PILE, SLURRY DIAPHRAGM OR CUTTER SOIL MIXING WALL METHOD AND PROVIDE A MINIMUM 20-FEET CLEAR OF INSIDE DIAMETER CONSIDERING INSTALLATION TOLERANCES.

4. CONTRACTOR TO DESIGN AND PROVIDE SOFT EYES IN SHAFT WALL AT MTBM PENETRATIONS AND REINFORCEMENT NECESSARY TO SUPPORT SAME PENETRATIONS THROUGH THE SHAFT WALL.

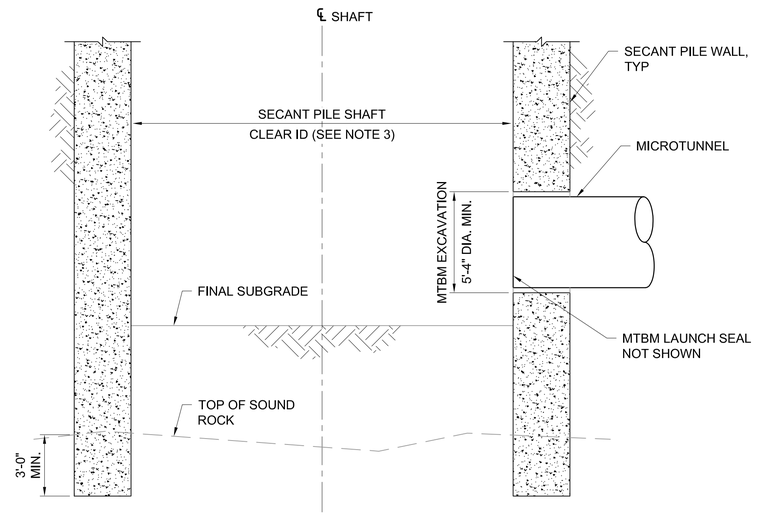
5. CONTRACTOR TO DESIGN SHAFT TO ACCOMMODATE ANTICIPATED MTBM JACKING LOADS.

6. CONTRACTOR TO DESIGN AND PROVIDE A REINFORCED CONCRETE SHAFT CAPPING BEAM.

7. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

8. SHAFT AT MH-217-6 TO BE USED FOR TWO MTBM LAUNCHES

9. 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.



A GT-008 SECTION

SCALE: N.T.S.

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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

60% DESIGN PHASE - DECEMBER 2020

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NBC CONTRACT NO 308.05C

GEOTECHNICAL

OF-217 CONSOLIDATION CONDUIT
SECANT PILE SHAFT REFERENCE DESIGN

SHEET

B-8

195130227

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, PETROLIUM 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-7 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 DETAIL C-602 FOR RIGID PIPE AND C-601 FOR FLEXIBLE PIPE. PIPE INSTALLED BY MICROTUNNELING SHALL BE IN ACCORDANCE WITH SPECIFICATION 02314 AND 02317. PIPING WITHIN THE TIDEWATER PROPERTY, THROUGH AND INCLUDING MH 217-6 SHALL BE LINED IN ACCORDANCE WITH SPECIFICATION SECTION 09907. 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 PRIOR TO THE START OF CONSTRUCTION.
   a. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER (SEE LANDSCAPE PLANS FOR FINAL GROUNDCOVER).
   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 STRAW, 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.

PERMITTING

XXXXXX
XXXX

XXXXX
XXXXX

NATIONAL GRID POLICY REQUIREMENTS

NATIONAL GRID 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 COATING 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 SHALL 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 NATIOANL 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 15TH AND APRIL 15TH. ALL SCHEDULED WORK SHOULD BE COMPLETED BETWEEN APRIL 15TH AND NOVEMBER 15TH. AS GAS USAGE PEAK DURING THE MONTHS OF DECEMBER TO MARCH DRIVEN BY HEATING NEEDS, 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

15. 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".
16. 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

17. 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

18. 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 GRIDS 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 SUPPORT DISTRIBUTION AND TRANSMISSION POLES WHEN EXCAVATION IS PERFORMED ADJACENT TO THIS ELECTRICAL INFRASTRUCTURE.
6. CONTRACTOR SHALL PERFORM ALL WORK IN A MANNER TO NOT EXCEED THE GROUND VIBRATION AND MOVEMENT DISPLACEMENT LIMITS OUTLINED IN SECTION 02 22 13 – MOVEMENT AND VIBRATION ASSESSMENT.
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

8. 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 GENERATED FROM DEMOLITION ACTIVITIES. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONSISTENT WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
9. NOISE SHALL BE STRICTLY CONTROLLED IN ALL AREAS REQUIRING DEMOLITION. NOISE CONTROL AND MONITORING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 01065– PROJECT SAFETY AND HEALTH SPECIFICATIONS AND SECTION 01560 – TEMPORARY CONTROLS.
10. VIBRATION SHALL BE STRICTLY CONTROLLED IN ALL AREAS REQUIRING DEMOLITION. VIBRATION CONTROL AND MONITORING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 02 22 13 – MOVEMENT AND VIBRATION ASSESSMENT.
11. 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.
12. CONTRACTOR SHALL ALSO COMPLY WITH CONDITIONS CONTAINED IN SITE-SPECIFIC PERMITS OR LICENSES OBTAINED BY OWNER.
13. CONTRACTOR SHALL FOLLOW ALL GUIDELINES AND PROCEDURES LISTED IN THE NATIONAL GRID CONTRACTOR SAFETY REQUIREMENTS DOCUMENTS INCLUDED IN THE CONTRACT DOCUMENTS.
14. 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.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE SITE-SPECIFIC AIR MONITORING REQUIREMENTS AS SPECIFIED IN SECTION 01 35 43 – ENVIRONMENTAL PROCEDURES. 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.
16. 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 PERIMETER ACTION LEVELS ARE NOT EXCEEDED AS SPECIFIED IN SECTION 01 35 43 – ENVIRONMENTAL PROCEDURES.
17. WORKERS WORKING WITHIN 25-FEET OF THE COASTAL FEATURE INCLUDING, BUT NOT LIMITED TO, THE TOP OF THE EXISTING RIVERBANK, THE EDGE OF THE EXISTING GRANITE STONE BLOCK WALL, THE EDGE OF THE EXISTING BULKHEAD, THE EDGE OF THE PROPOSED CONTAINMENT WALL AND STEEL PILE BULKHEAD SYSTEMS, AND THE TOP OF THE PROPOSED REVETMENT SLOPE SHALL BE REQUIRED TO WEAR PERSONAL FLOTATION DEVICES (PFDS) CONSISTENT WITH SECTION 01065 – PROJECT SAFETY AND HEALTH SPECIFICATIONS.

STOP WORK AUTHORITY

18. 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.
19. 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.
20. 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.
21. SAFETY REPRESENTATIVE SHALL MEET AT LEAST MONTHLY WITH …

EMPLOYEE TRAINING

22. 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, TWENTY-FOUR (24) HOURS OF "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.
23. ANNUAL MEDICAL MONITORING IN COMPLIANCE WITH OSHA 29 CFR 1926.6

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.
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.

BY: JAIMIE PAYNE
PLOT DATE: Monday, December 28, 2020 4:55:09 PM
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REV	DATE	BY	DESCRIPTION
1	5/13/20	JP	STANTEC COMMENTS

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN J. PAYNE
CHECKED J. D'ALESIO

60% DESIGN PHASE - DECEMBER 2020

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Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT NOTES

SHEET
GC-1
195130227

GENERAL CIVIL SYMBOLS

- NEW
- EXISTING
- FUTURE
- EXISTING TO BE REMOVED OR DEMOLISHED
- CENTERLINE
- EARTH (IN SECTION)
- COMPACTED EARTH (IN SECTION)
- S=0.0123 — SLOPE ON PAVED SURFACE
- 3:1 — BERM SLOPE (HORZ TO VERT)

TOPOGRAPHY AND MAPPING SYMBOLS

- 125 — MAJOR CONTOURS
- MINOR CONTOURS
- TOP OF SLOPE
- TOE OF SLOPE
- P/L — PROPERTY LINE
- R/W — RIGHT-OF-WAY LINE
- EASEMENT LINE
- TEMP ESMT — TEMPORARY EASEMENT LINE
- TRAIL OR DIRT ROAD
- FLOW LINE
- FLOOD HAZARD AREA
- EDGE OF WETLANDS
- GUARDRAIL (PERMANENT)
- GUARDRAIL (REMOVABLE)
- VEGETATION
- WELL

GEOTECHNICAL SYMBOLS

- B-X — SOIL BORING LOCATION
- TEST PIT LOCATION
- XX — OBSERVATION HOLE
- MW — MONITORING WELL

PIPING AND UTILITIES

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

- G — UTILITIES (SIZE WHERE NOTED)
- G — G — G — UNDERGROUND

G	NATURAL GAS LINE
W	WATER
PW	POTABLE WATER
FIRE	FIRE SUPPLY WATER LINE
SDR	STORM DRAIN
SS	SANITARY SEWER
TEL	TELEPHONE
COMM	COMMUNICATIONS LINE
FOC	FIBER OPTIC CABLE
CATV	CABLE TV
E	POWER
UNID	UNIDENTIFIED
ABND	ABANDONED UTILITY

- PP — 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)
- FH — FIRE HYDRANT (IN PLAN)
- FH — FIRE HYDRANT (IN PROFILE)
- MH — MANHOLE (IN PLAN)
- MH — MANHOLE (IN PROFILE)
- COTG / PCOTG — CLEANOUT TO GRADE OR PRESSURE CLEANOUT TO GRADE (IN PLAN)
- COTG / PCOTG — 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

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

- BM-XX — BENCH MARK
- ### — SITE COORDINATES (SEE TABLE ON DRAWINGS)
- N XXXXXXX / E XXXXXXX — SITE COORDINATES
- EL XXXX.XX — MONUMENT
- HORIZONTAL CONTROL POINT
- VERTICAL CONTROL POINT
- HORZ AND VERT CONTROL POINT
- XXX.XX — FINISHED ELEVATION
- (XXX.XX) — EXISTING ELEVATION
- DELTA

STRUCTURES

- SITE OR RETAINING WALL
- x — x — FENCE (CHAINLINK)
- FENCE (WOOD)
- STRUCTURE
- STRUCTURE (BELOW GRADE)
- CB / CB — CATCH BASIN

REV 050215

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

SCALE: NO SCALE

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CHECKED J. D'ALESIO

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Narragansett Bay Commission

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PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT SYMBOLS

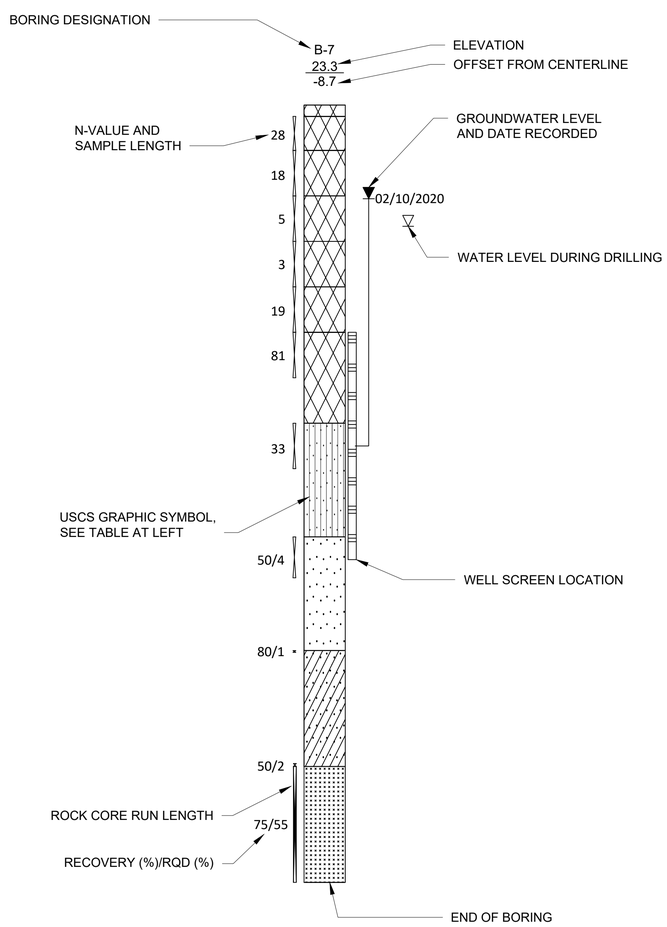
SHEET GC-2

195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-5_GENERAL.dwg
PLOT DATE: Monday, December 28, 2020 4:55:10 PM
BY: JAIMIE PAYNE

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
	SANDS (less than 50% retained on No. 4 sieve)	CLEAN SANDS (less than 5% fines)	SW		WELL-GRADED SAND
			SP		POORLY GRADED SAND
		SANDS (with 5 to 12% fines)	SW-SM		WELL-GRADED SAND WITH SILT
			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
		ORGANIC	OL		LOW PLASTICTIY ORGANIC CLAY
	SILTS & CLAYS (liquid limit greater than 50)	INORGANIC	MH		ELASTIC SILT
			CH		FAT CLAY
		ORGANIC	OH		HIGH PLASTICTIY ORGANIC CLAY
HIGHLY ORGANIC SOILS	PRIMARILY ORGANIC MATTER		PT		PEAT

BORING LEGEND:



NOTES:

1. ALL ELEVATIONS ARE IN FEET AND REFER TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NVGD29).
2. POSITIVE OFFSET = RIGHT OF CENTERLINE, LOOKING UP STATION.
3. NEGATIVE OFFSET = LEFT OF CENTERLINE, LOOKING UP STATION.
4. 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

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-5_GENERAL.dwg
PLOT DATE: Monday, December 28, 2020 4:55:10 PM
BY: JAIMIE PAYNE

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN J. PAYNE
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT
LEGEND AND NOTES

SHEET
GC-3
195130227

SEEKONK RIVER

TOWN LANDING

TIDEWATER PROPERTY

48" PIPE

TEMPORARY CONSTRUCTION EASEMENT

MH 217-6

COMPOST FILTER SOCK

CONTRACTOR ACCESS ROAD (NBC)

SUPPORT EQUIPMENT

48" PIPE

TAFT STREET

TOWER STREET

TIDEWATER STREET

MH 217-7

GROUNDWATER TREATMENT DISCHARGE LINE TO SEWER

TWO 2" PROPANE (GAS)
3" PROPANE (LIQUID)

30" ABANDONED

TRAILERS (NAT. GRID)

PROPOSED GRADING ASSUMED PART OF NATIONAL GRID EFFORT AND COMPLETE PRIOR TO NBC CONSTRUCTION

48" PIPE

GROUNDWATER TREATMENT

CONSTRUCTION ENTRANCE TO BE CONSTRUCTED BY NATIONAL GRID

STOCKPILE AREA (NAT. GRID)

STOCKPILE AREA (NAT. GRID)

CONTRACTOR ACCESS ROAD (NAT. GRID)

42" PIPE

MH 217-10

NBC STOCKPILE AREA OFFSITE DISPOSAL 400CY

42" PIPE

DIVERSION STRUCTURE 217

48" PIPE

CB EROSION CONTROL (TYP.)

48" PIPE

RECEIVING SHAFT

MH 217-8

TIDEWATER STREET

MERRY STREET

GROUNDWATER TREATMENT DISCHARGE SEWER MANHOLE

PROPOSED GRADING: FROM PLAN ENTITLED TIDEWATER LANDING, TIDEWATER SITE - CROSS SECTION, MILONE & MACBROOM, JUNE 2020

PROPERTY LINE SOURCE: CITY OF PAWTUCKET GIS

REV	DATE	BY	DESCRIPTION
1	10/21/2020	JP	ALIGNMENT UPDATE TO ACCOMMDATE STADIUM

SCALE: 1" = 40'

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C CRONIN
DRAWN R GREENWAY
CHECKED C CRONIN

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PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec
PARE

NBC CONTRACT NO 308.05C

CIVIL

OF-217 CONSOLIDATION CONDUIT STAGING PLAN - TIDEWATER SITE

SHEET
C-1

195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_SITE_STAGING_IIIA-5a.dwg
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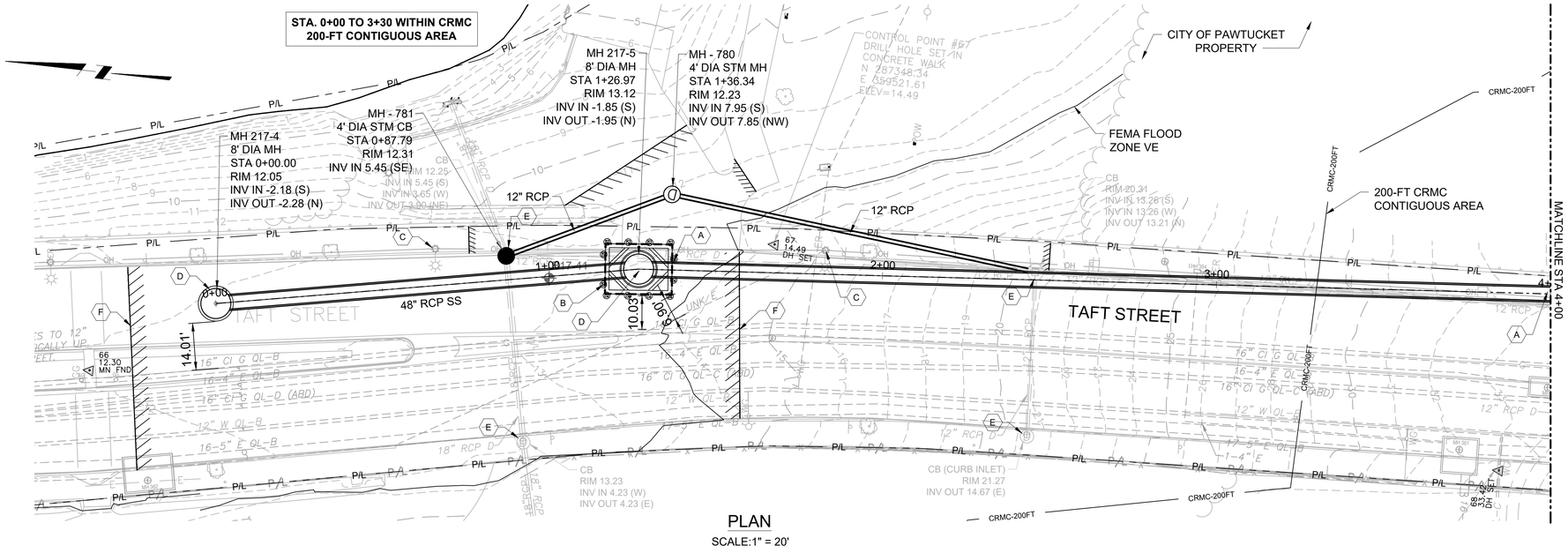
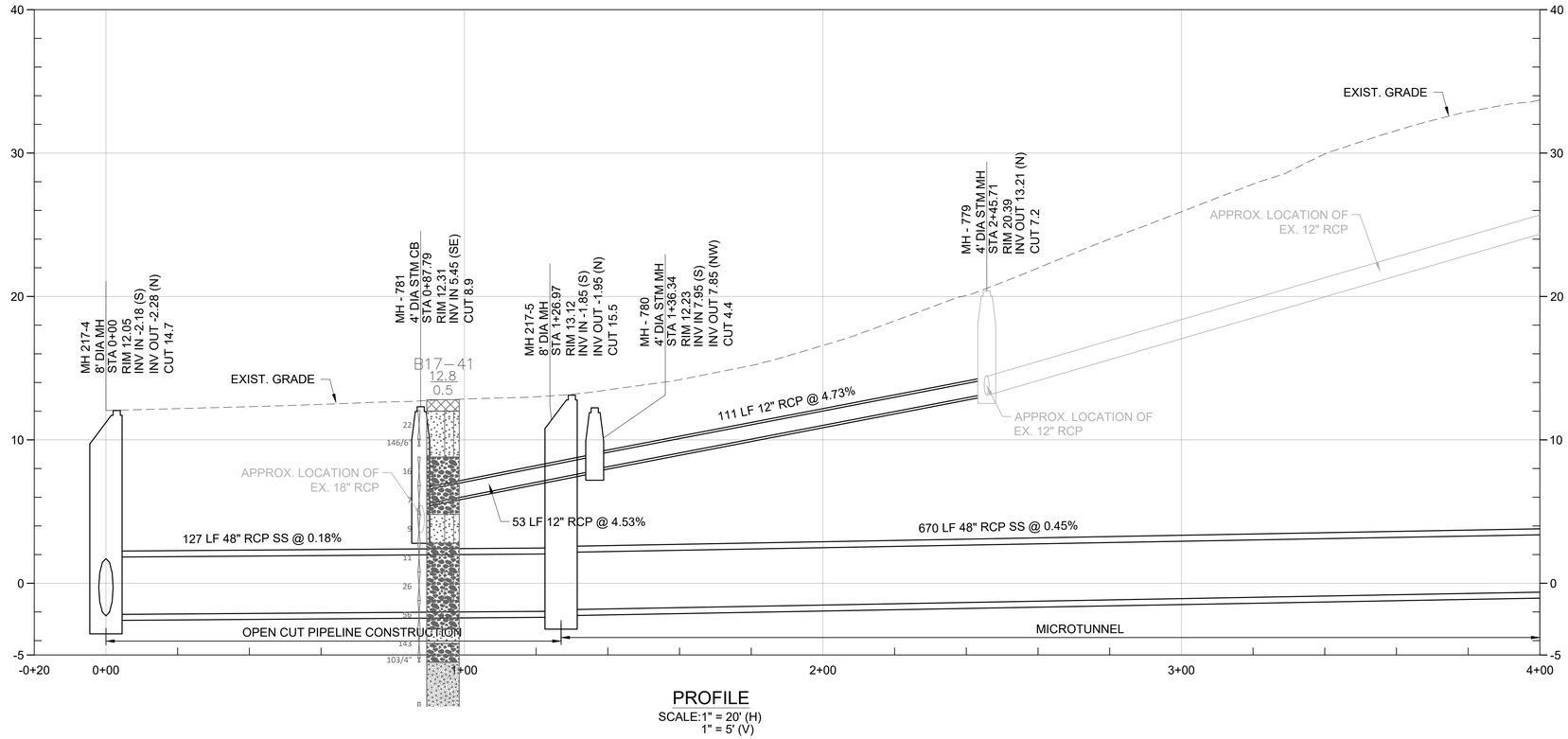
BY: JAIMIE PAYNE

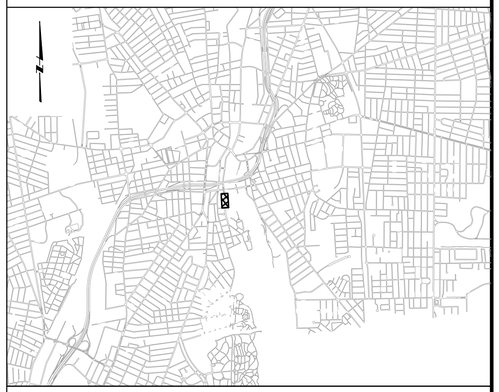


PLAN
SCALE:1" = 20'



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

KEY PLAN



GENERAL SHEET NOTES

1. UTILITY INFORMATION DEPICTED, PROVIDED BY BSI ENGINEERING INC.
2. 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

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 RESPONSIBLE FOR SELECTING SOE SYSTEM TYPE AND DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.

C. COORDINATE WITH CITY AND NATIONAL GRID TO ISOLATE AND REMOVE ELECTRIC LIGHT POLE & OVERHEAD WIRES

D. PROVIDE SEALED AND BOLTED MANHOLE COVERS

E. TYPICAL CATCH BASIN EROSION CONTROL

F. PAVEMENT SAW-CUT LIMITS

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C CRONIN
DRAWN J PAYNE
CHECKED J. D'ALESIO

60% DESIGN PHASE - DECEMBER 2020

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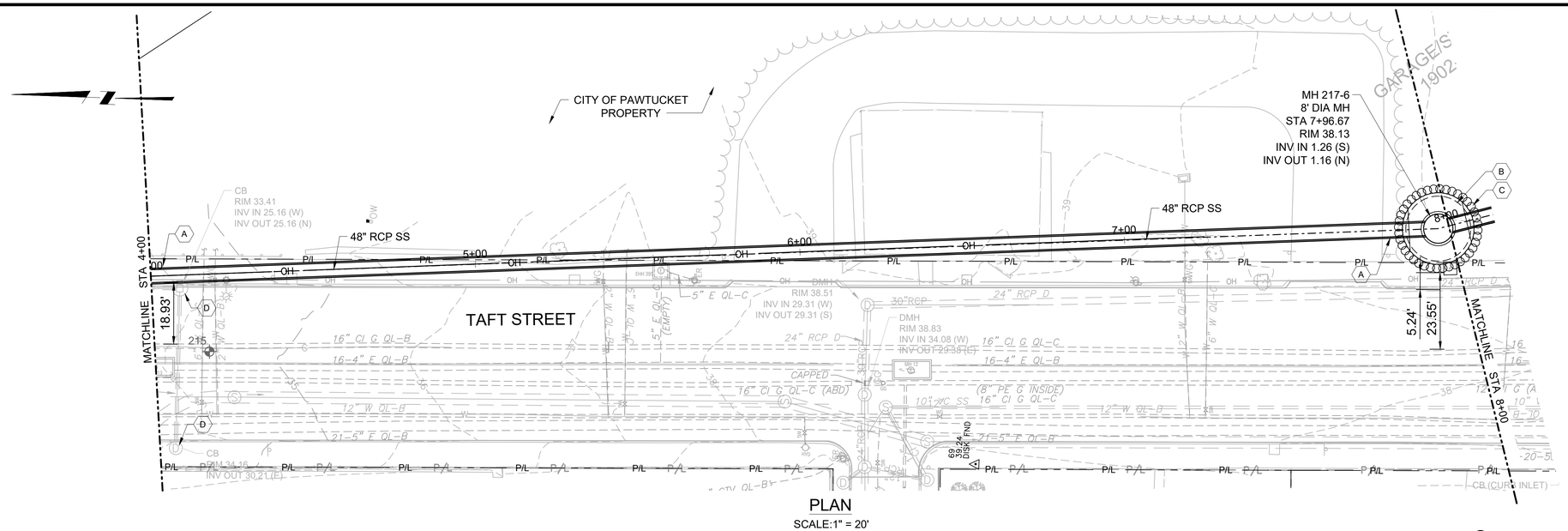
NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM
Stantec PARE

NBC CONTRACT NO 308.06C
CIVIL

OF-217 CONSOLIDATION CONDUIT
PLAN AND PROFILE I: STA 0+00 - 4+00

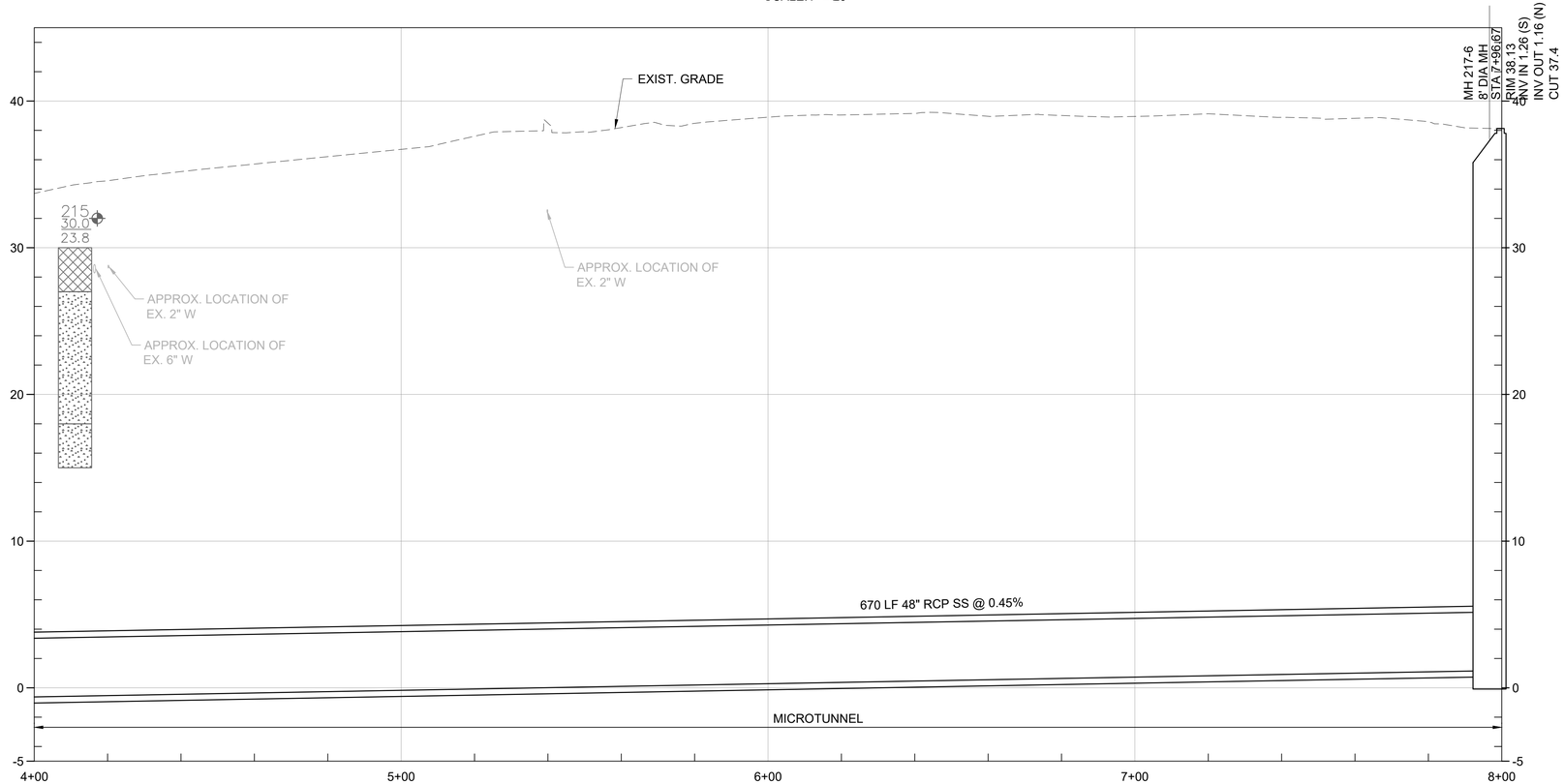
SHEET
C-2
195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_SITE_PLAN_&_PROFILE_IIIA-5_ALT3.dwg LOT DATE: Monday, December 28, 2020 4:59:03 PM BY: JAIMIE PAYNE



PLAN

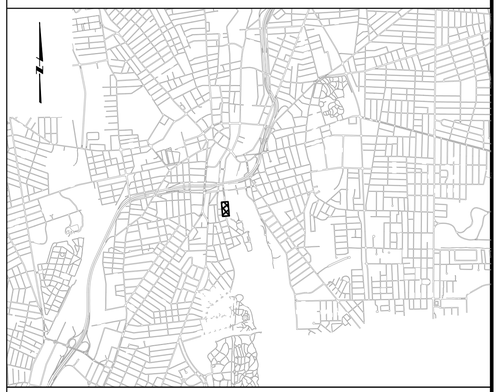
SCALE:1" = 20'



PROFILE

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

KEY PLAN



GENERAL SHEET NOTES

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   - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
   - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
3. WORK IS IN PROPERTY OWNED BY THE CITY OF PAWTUCKET

SHEET KEYNOTES

A. MICROTUNNEL: STATION 4+00 TO STATION 8+00

B. EXCAVATION FOR MH 217-6 TO BE CONSTRUCTED AS WORKING SHAFT IN SUPPORT OF MICROTUNNEL OPERATION. SECANT PILE SOE SYSTEM SHOWN IS CONCEPTUAL. CONTRACTOR IS RESPONSIBLE FOR SELECTING SOE SYSTEM TYPE AND DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.

C. SUPPORT OF EXCAVATION LIMITS BASED ON SECANT PILE CONSTRUCTION

D. TYPICAL CATCH BASIN EROSION CONTROL

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — 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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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.06C
CIVIL

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

SHEET
C-3

195130227

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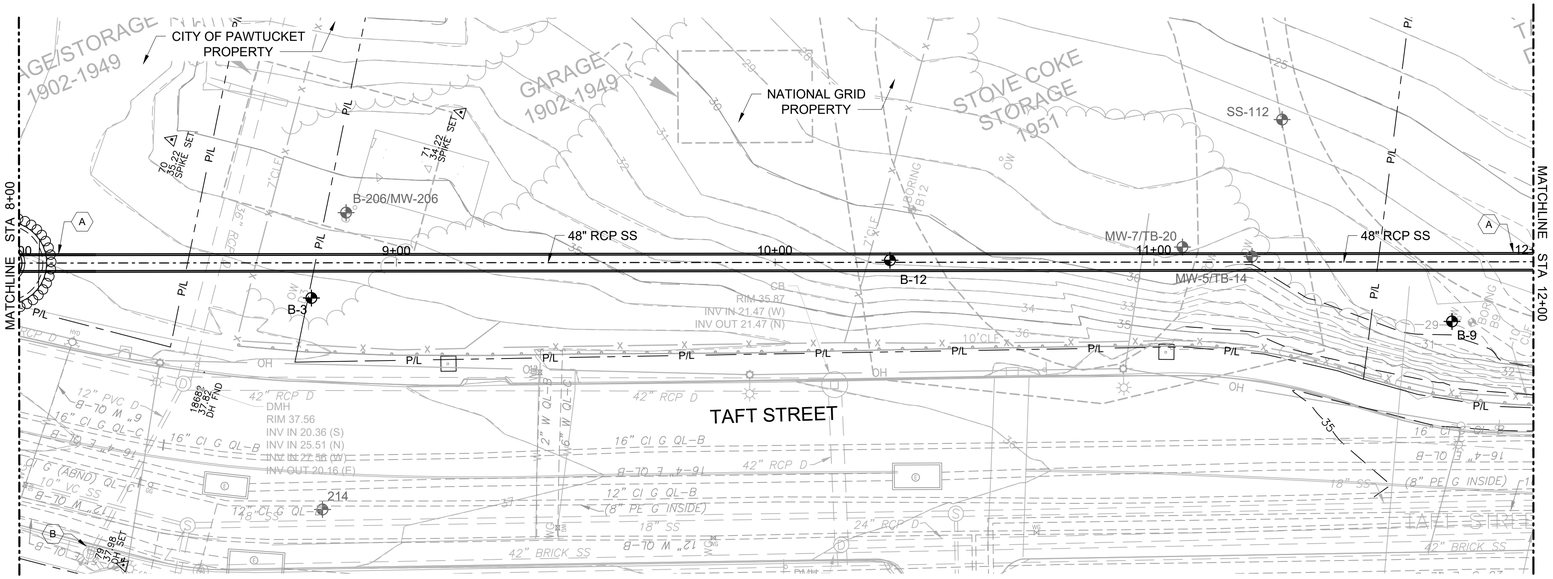
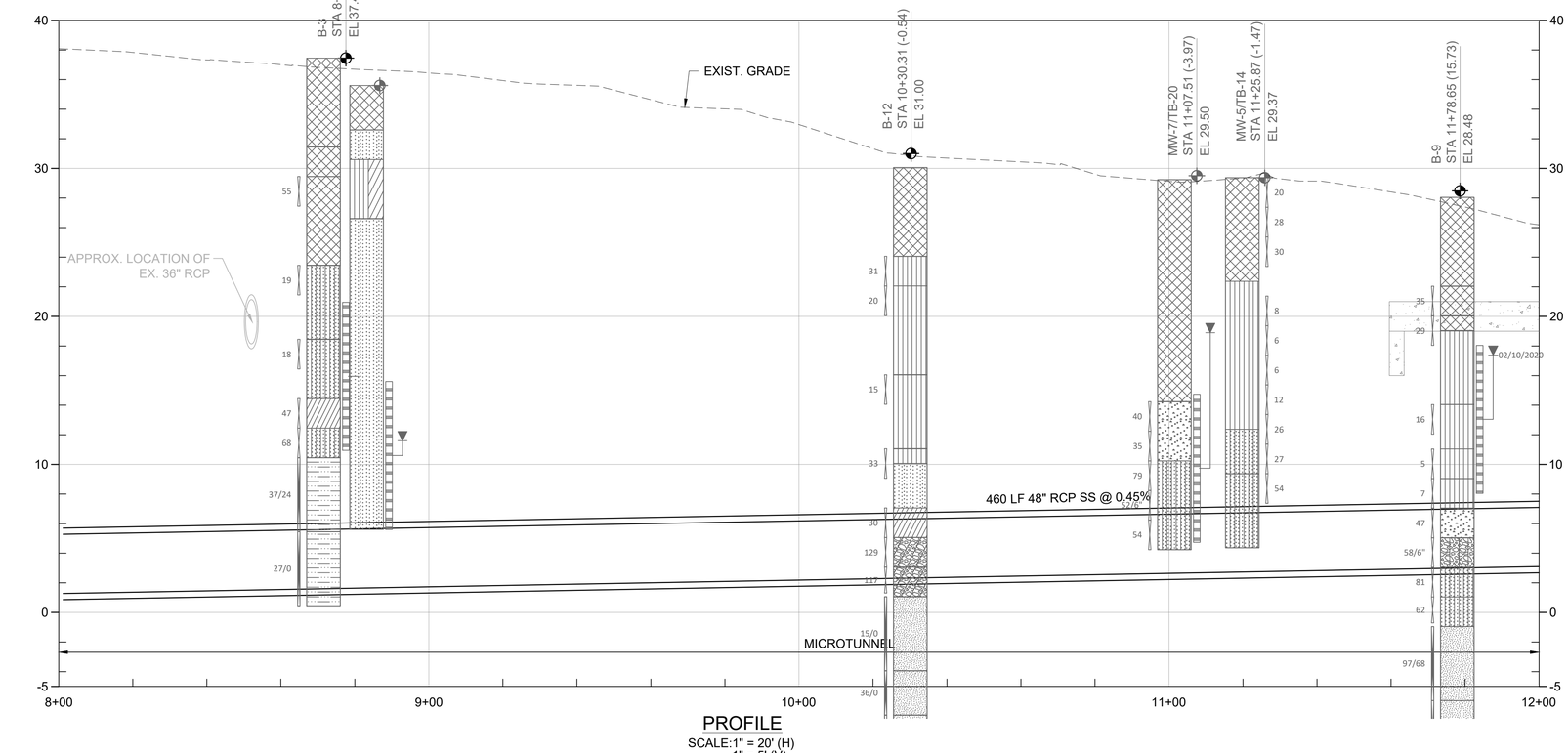


PLAN

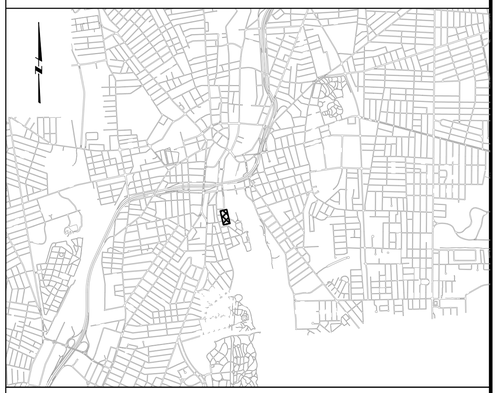
SCALE:1" = 20'



PROFILE

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

KEY PLAN



GENERAL SHEET NOTES

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2. 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
3. WORK IS IN PROPERTY OWNED BY NATIONAL GRID/ CITY OF PAWTUCKET.

SHEET KEYNOTES

A. MICROTUNNEL: STATION 8+00 TO STATION 12+00

B. TYPICAL CATCH BASIN EROSION CONTROL

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_SITE_PLAN_&_PROFILE_IIIA-5_ALT3.dwg PLOT DATE: Monday, December 28, 2020 5:00:33 PM BY: JAIMIE PAYNE

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

SCALE: AS SHOWN

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

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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

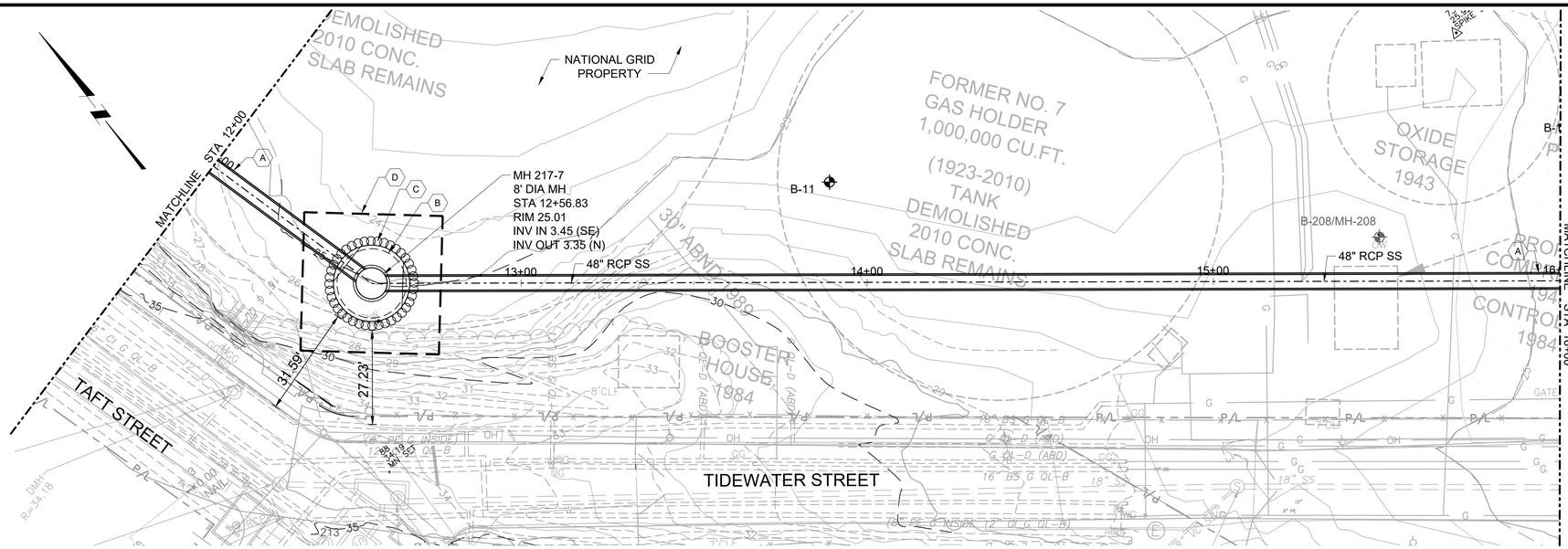
NBC CONTRACT NO 308.06C

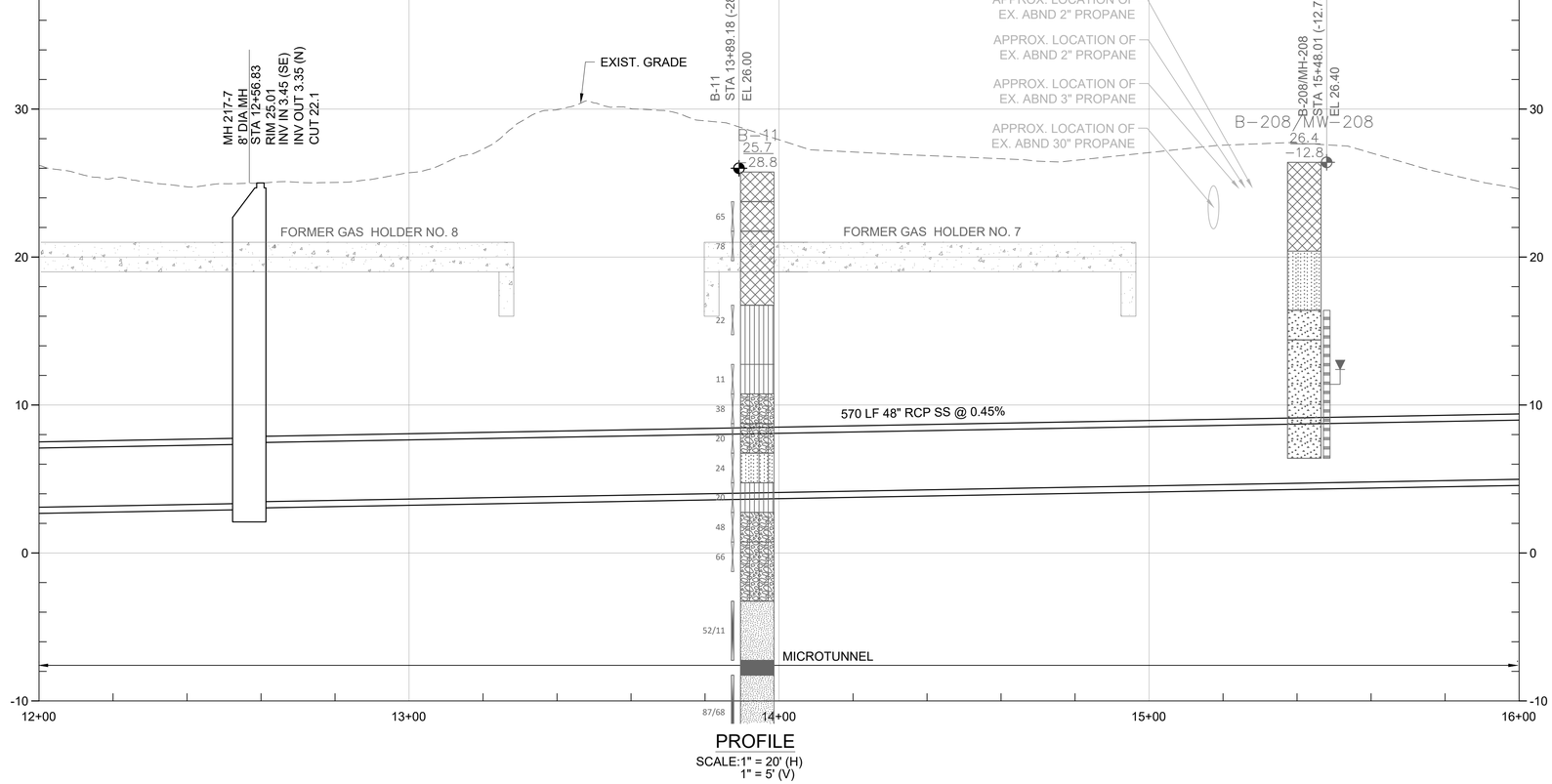
CIVIL

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

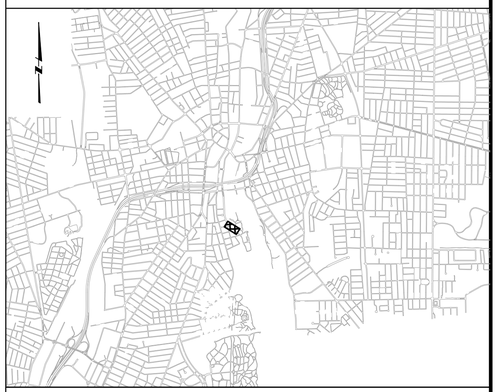
SHEET C-4

195130227





KEY PLAN



GENERAL SHEET NOTES

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   - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
   - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
3. WORK IS IN PROPERTY OWNED BY NATIONAL GRID

SHEET KEYNOTES

A. MICROTUNNEL: STATION 12+00 TO STATION 16+00

B. EXCAVATION AT 12+50 TO BE CONSTRUCTED AS WORKING SHAFT IN SUPPORT OF MICROTUNNEL OPERATION. SECANT PILE SOE SYSTEM SHOWN IS CONCEPTUAL. CONTRACTOR IS RESPONSIBLE FOR SELECTING SOE SYSTEM TYPE AND DESIGNING SOE IN ACCORDANCE WITH CRITERIA IN THE CONTRACT DOCUMENTS.

C. SUPPORT OF EXCAVATION LIMITS BASED ON SECANT PILE CONSTRUCTION

D. APPROXIMATE LIMITS OF CAP DISRUPTION. GEOMEMBRANE-STYLE CAP INSTALLED BY NATIONAL GRID. ALL CAP DISTURBANCES AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AS DIRECTED BY NATIONAL GRID.

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — 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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PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.06C
CIVIL

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

SHEET C-5

195130227

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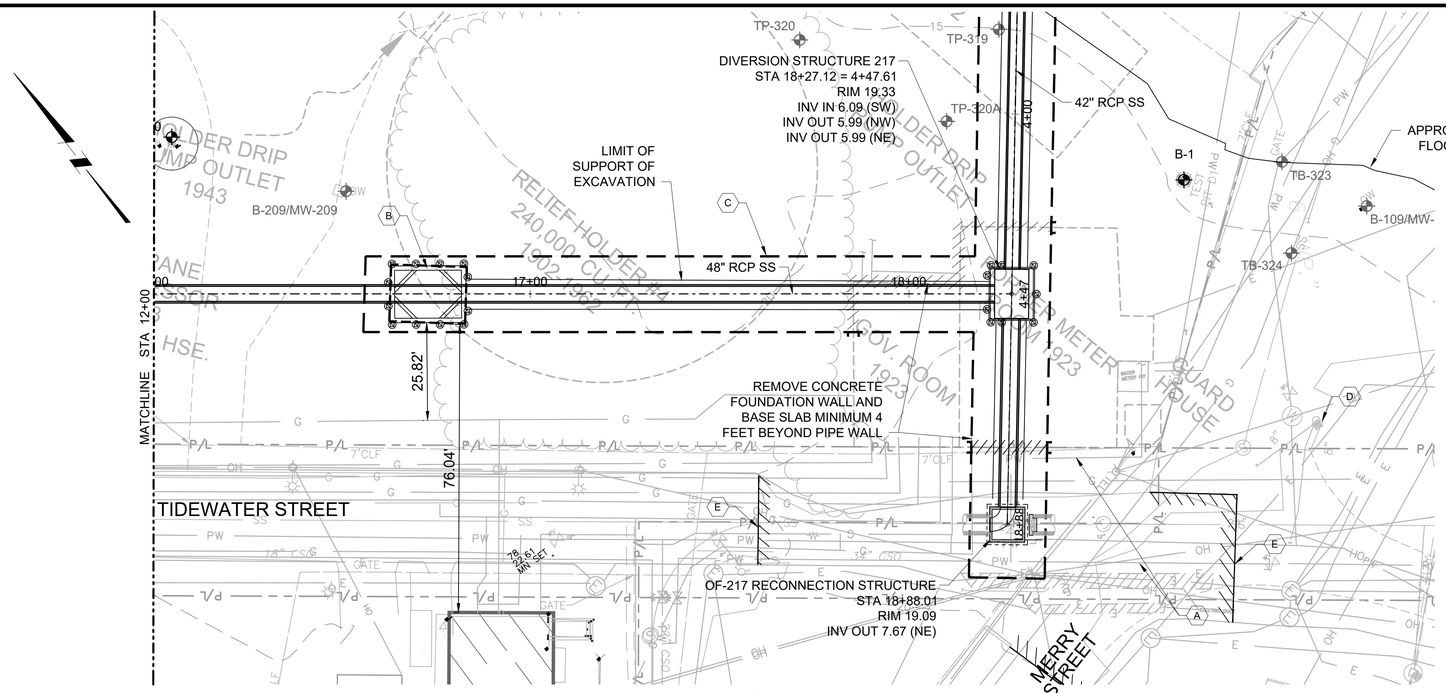
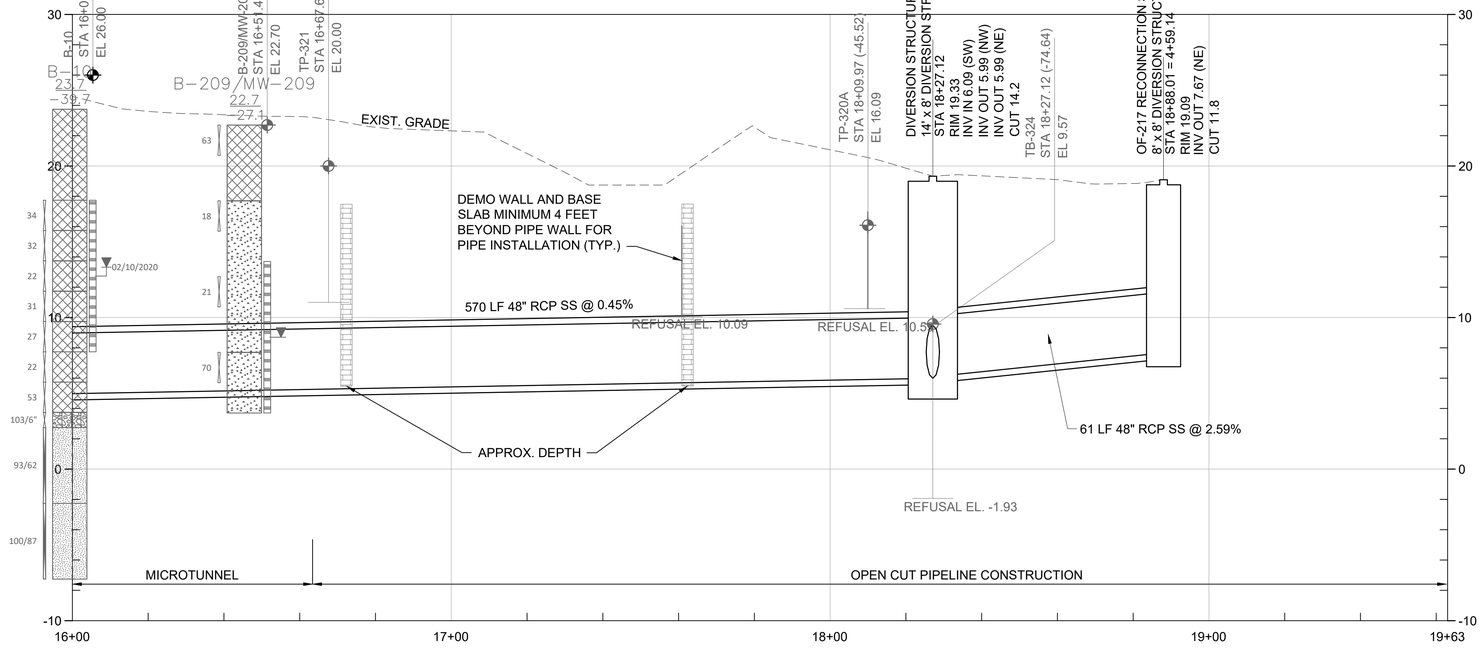


PLAN

SCALE:1" = 20'



PROFILE

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

KEY PLAN

GENERAL SHEET NOTES

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   - NORTH OF DIVISION STREET BRIDGE: AE ELEVATION 12.8
   - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
3. WORK IS IN PROPERTY OWNED BY NATIONAL GRID

SHEET KEYNOTES

A. RELOCATE WATER MAIN: STATION 18+88. SEE SHEET C-8.

B. 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.

C. APPROXIMATE LIMITS OF CAP DISRUPTION. GEOMEMBRANE-STYLE CAP INSTALLED BY NATIONAL GRID. ALL CAP DISTURBANCES AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AS DIRECTED BY NATIONAL GRID.

D. TYPICAL CATCH BASIN EROSION CONTROL

E. PAVEMENT SAW-CUT LIMIT

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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DRAWN B MARINI
CHECKED J. D'ALESIO

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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.06C
CIVIL

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

SHEET C-6

195130227

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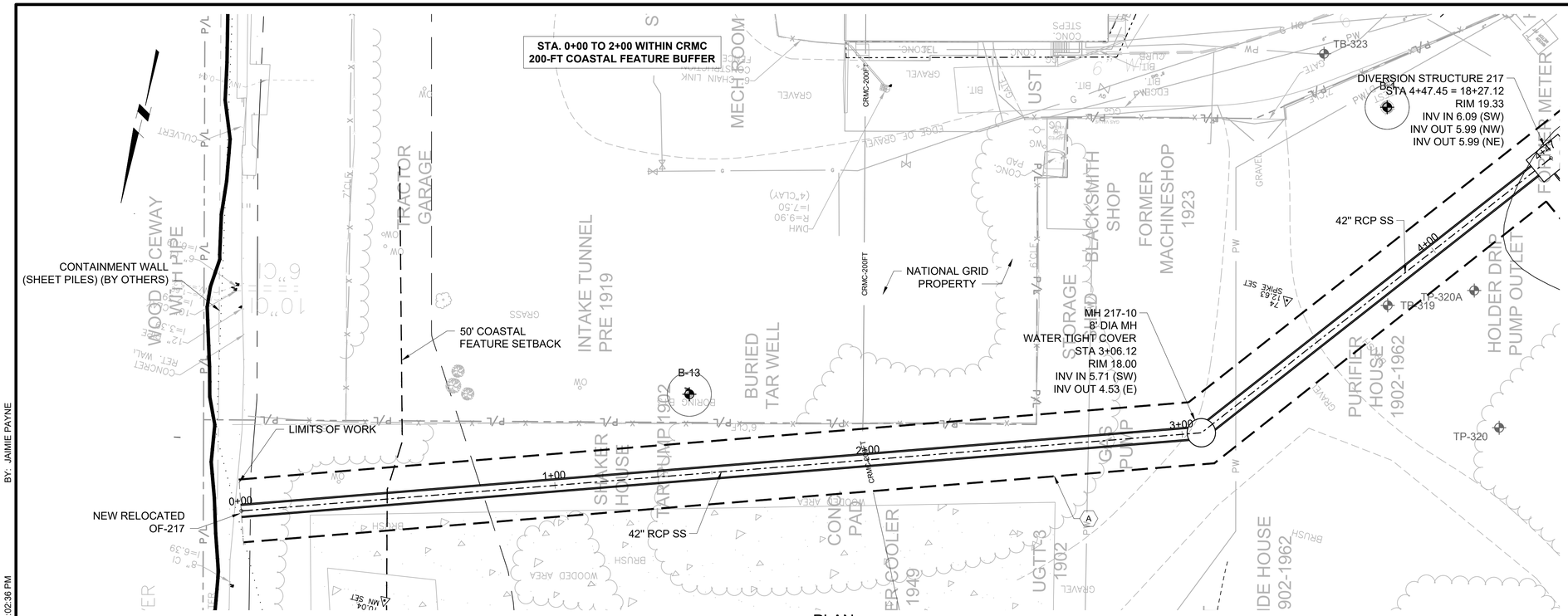

PLAN

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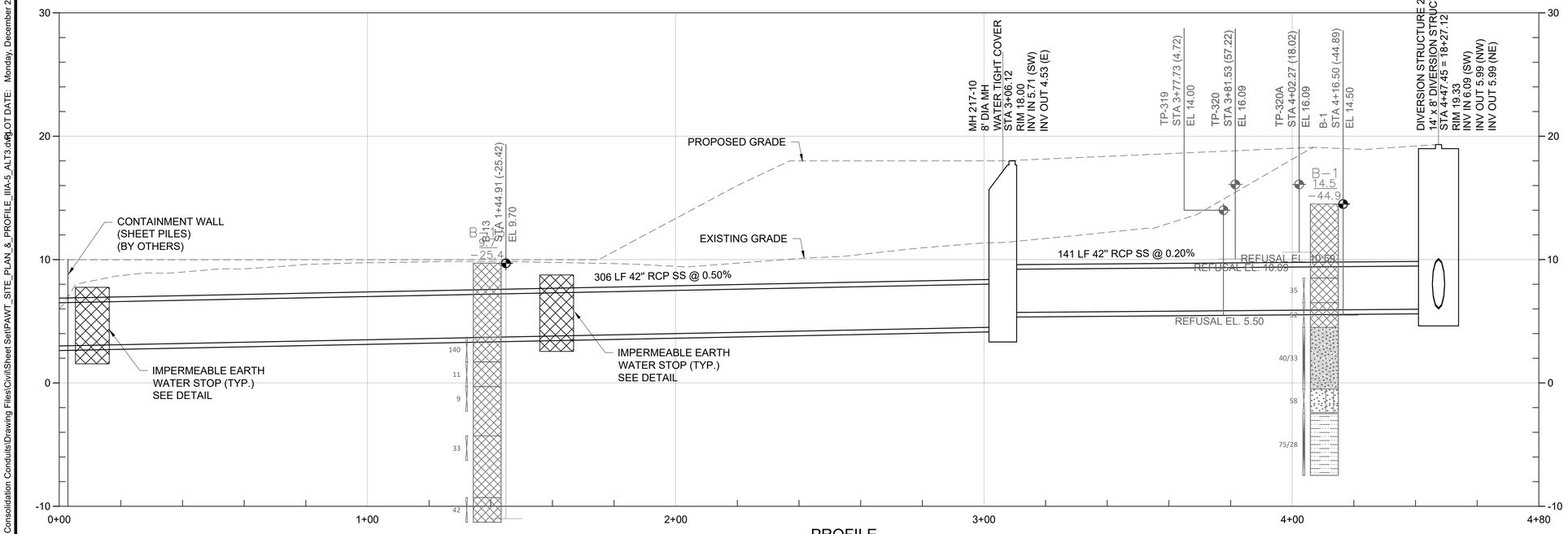

PROFILE

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

KEY PLAN

GENERAL SHEET NOTES

1. UTILITY INFORMATION DEPICTED, PROVIDED BY NATIONAL GRID
2. FLOOD PLAIN INFORMATION IS FROM FEMA, PANEL NO. 44007C0307J. FLOOD PLAIN ELEVATIONS CONVERTED FROM VERTICAL DATUM NAVD 1988 TO NGVD 1929 AND ARE APPROXIMATELY:
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   - SOUTH OF DIVISION STREET BRIDGE: VE ELEVATION 13.8
3. WORK IS IN PROPERTY OWNED BY NATIONAL GRID

SHEET KEYNOTES

A. APPROXIMATE LIMITS OF CAP DISRUPTION. GEOMEMBRANE-STYLE CAP INSTALLED BY NATIONAL GRID. ALL CAP DISTURBANCES AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AS DIRECTED BY NATIONAL GRID.

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C CRONIN
DRAWN J PAYNE
CHECKED J. D'ALESIO

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PHASE III COMBINED SEWER
OVERFLOW PROGRAM

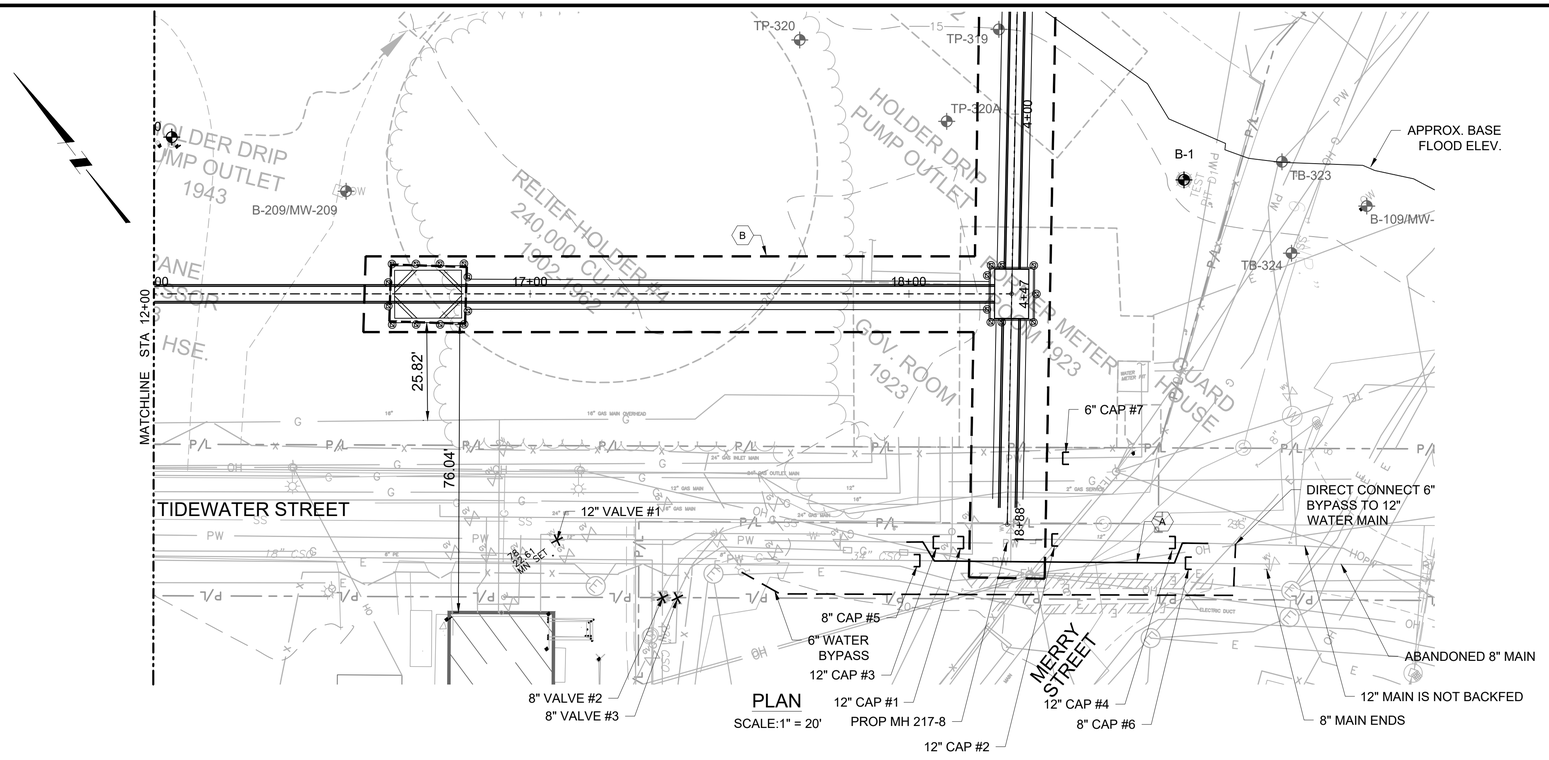
Stantec PARE

NBC CONTRACT NO 308.06C
CIVIL

OF-217 CONSOLIDATION CONDUIT
OF-217 OUTFALL PLAN AND PROFILE VI: STA 0+00 - 4+47

SHEET
C-7
195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_SITE_PLAN_&_PROFILE_IIIA-5_ALT3.dwg PLOT DATE: Monday, December 28, 2020 5:02:36 PM BY: JAIMIE PAYNE



PLAN
SCALE:1" = 20'

KEY PLAN

GENERAL SHEET NOTES

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SHEET KEYNOTES

A. RELOCATE WATER MAIN: STATION 18+88

B. APPROXIMATE LIMITS OF CAP DISRUPTION. GEOMEMBRANE-STYLE CAP INSTALLED BY NATIONAL GRID. ALL CAP DISTURBANCES AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR.

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C CRONIN
DRAWN R. GREENWAY
CHECKED

60% DESIGN PHASE - DECEMBER 2020

NOT FOR CONSTRUCTION

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Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

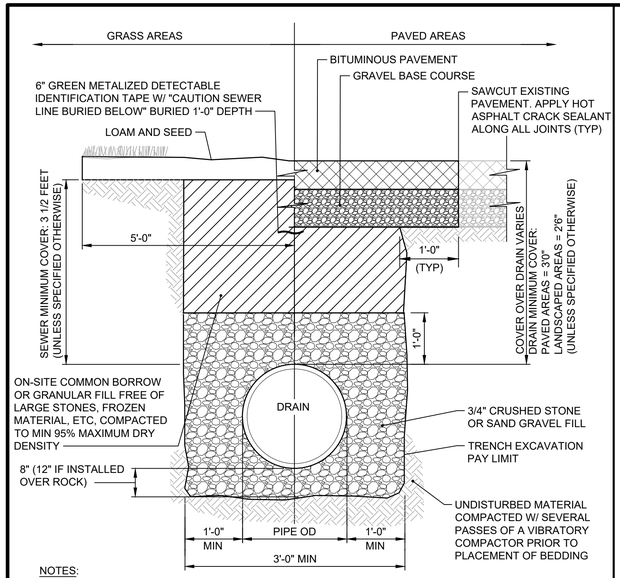
Stantec PARE

NBC CONTRACT NO 308.06C
CIVIL

OF-217 CONSOLIDATION CONDUIT
WATER RELOCATION PLAN

SHEET
C-8
195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_SITE_PLAN_&_PROFILE_IIIA-5_ALT3.dwg PLOT DATE: Monday, December 28, 2020 5:03:09 PM BY: JAIMIE PAYNE

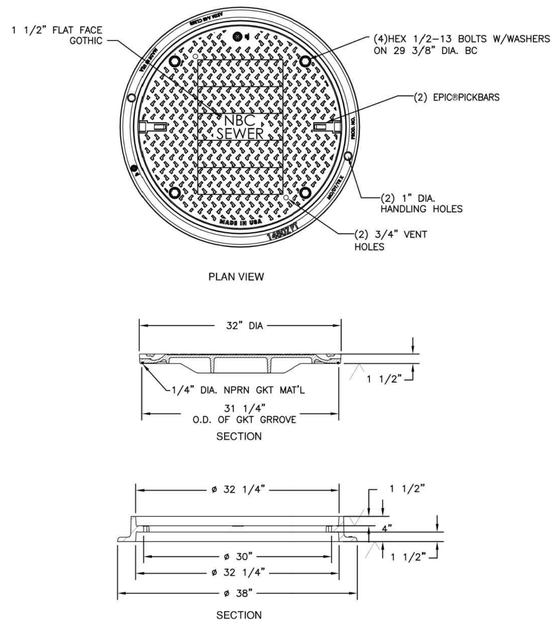


NOTES:

1. WHERE THE DISTANCE BETWEEN THE SAWCUT AND EDGE OF PAVEMENT IS 3' OR LESS, THE CONTRACTOR SHALL REPLACE THE PAVEMENT FROM THE TRENCH EDGE TO THE EXISTING EDGE OF PAVEMENT.
2. 3/4" DIA CRUSHED STONE SHALL BE USED AS BEDDING WHERE TRENCH IS BELOW THE GROUND WATER TABLE.

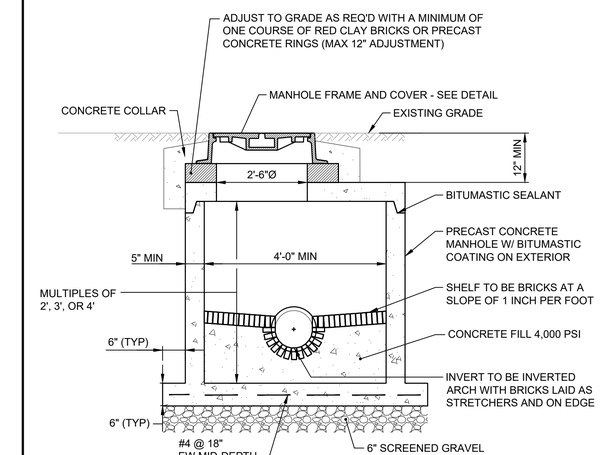
DRAIN/SEWER TRENCH DETAIL

NOT TO SCALE REV 000000 C-101



SEWER MANHOLE FRAME AND COVER

NOT TO SCALE REV 000000 C-107

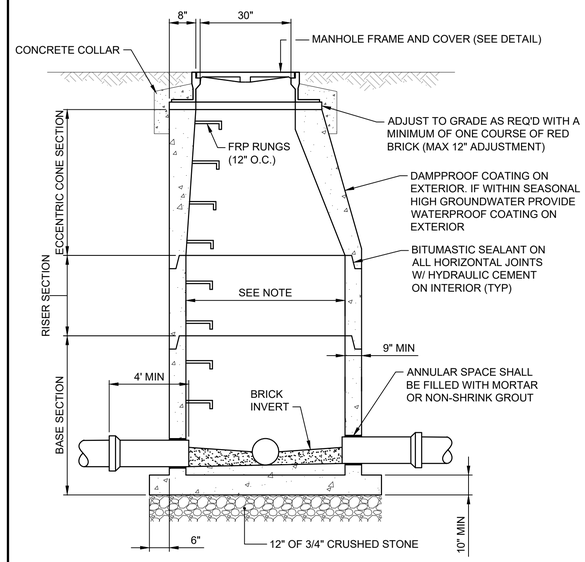


NOTES:

1. SHALLOW PRECAST CONCRETE MANHOLE TO BE USED WHERE DEPTH TO INVERT DOES NOT PERMIT USE OF STANDARD BASE AND CONE SECTIONS.

SHALLOW MANHOLE DETAIL

NOT TO SCALE REV 000000 C-108

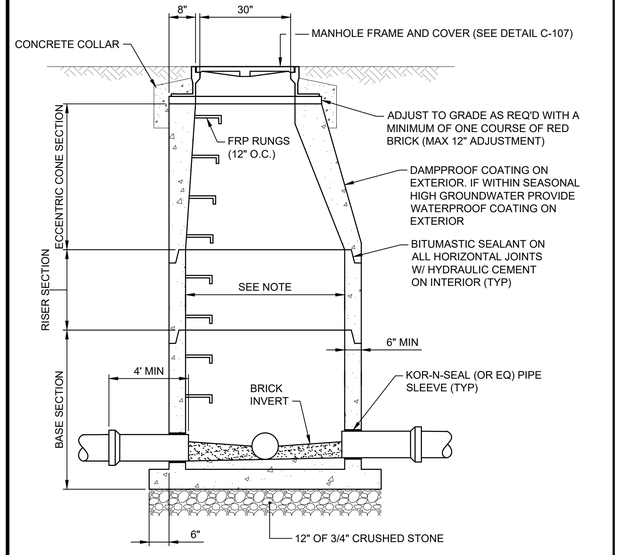


NOTES:

1. SEWER MANHOLES SHALL HAVE 8' MINIMUM INSIDE DIAMETER AND BE H-20 RATED.

8' DIA GRAVITY SEWER MANHOLE

NOT TO SCALE REV 000000 C-109

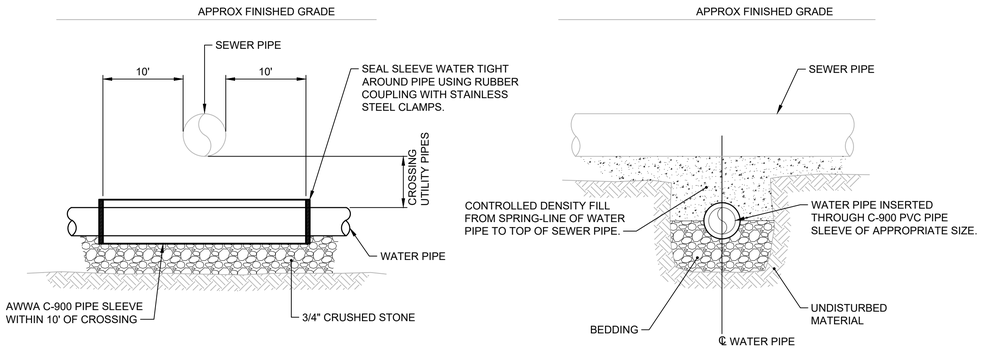


NOTES:

1. DRAIN MANHOLES SHALL HAVE 4' MINIMUM INSIDE DIAMETER AND BE H-20 RATED.

4' DIA DRAIN MANHOLE

NOT TO SCALE REV 000000 C-900

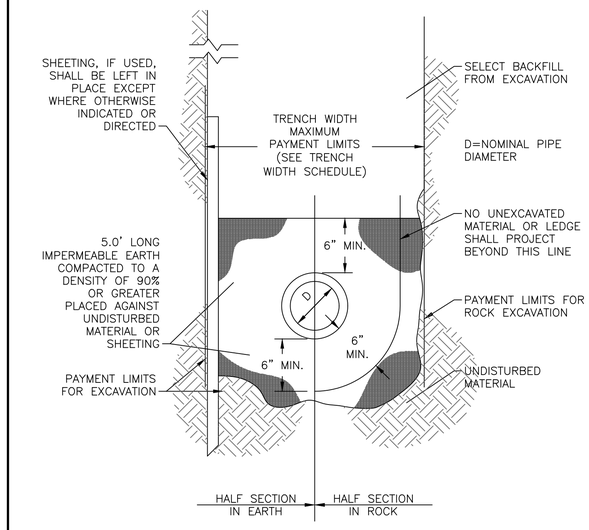


NOTES:

1. 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.
2. 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



TRENCH SECTION FOR IMPERMEABLE EARTH WATER STOP

NOT TO SCALE REV 000000 C-901

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN C. MARSHALL
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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PHASE III COMBINED SEWER OVERFLOW PROGRAM

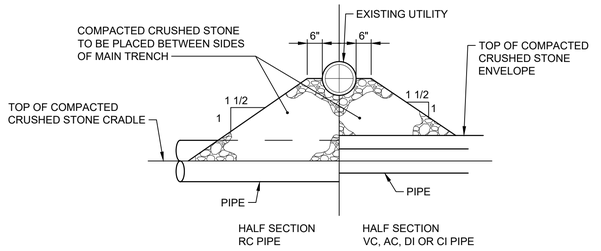
Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

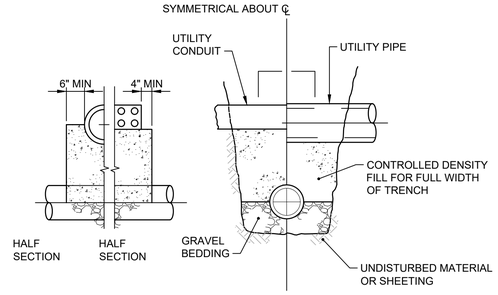
OF-217 CONSOLIDATION CONDUIT
CIVIL DETAILS I

SHEET C-9

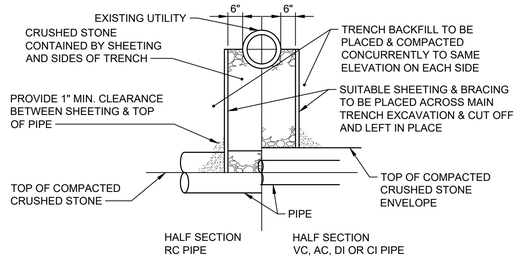
195130227



TYPE A



TYPE C



TYPE B

NOTES:

1. TYPE C SUPPORT TO BE PROVIDED WHERE DIRECTED

TYPICAL SUPPORTS FOR UTILITIES

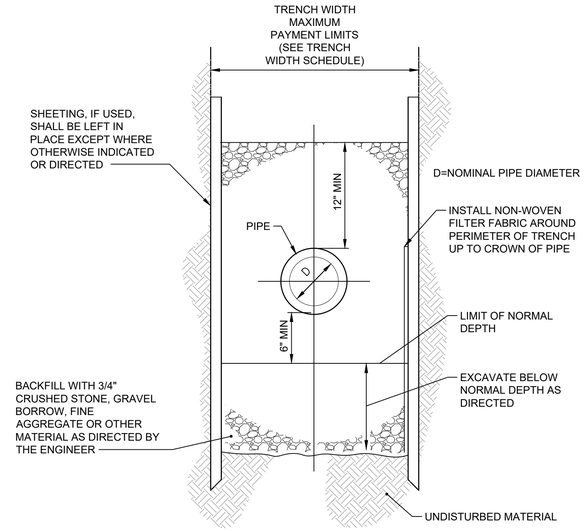
NOT TO SCALE REV 000000 C-113

MAXIMUM PAYMENT LIMITS						
DIAMETER OF PIPE D IN INCHES	TRENCH WIDTH IN FEET		TEMPORARY TRENCH PAVEMENT WIDTH IN FEET		PERMANENT TRENCH PAVEMENT WIDTH IN FEET*	
	TRENCH DEPTH		TRENCH DEPTH		TRENCH DEPTH	
	< OR = 10'	> 10' TO 20'	< OR = 10'	> 10' TO 20'	< OR = 10'	> 10' TO 20'
12 AND SMALLER	5.00	6.00	6.00	7.00	8.00	9.00
15	5.25	6.25	6.25	7.25	8.25	9.25
18	5.50	6.50	6.50	7.50	8.50	9.50
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:

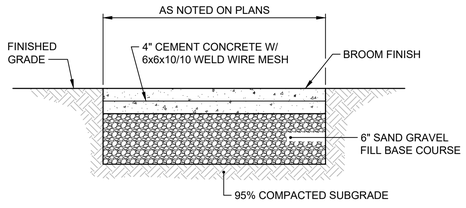
1. PERMANENT TRENCH PAVEMENT INCLUDES 1' CUT BACK OF TEMPORARY PAVEMENT ALONG EACH SIDE OF THE TRENCH.
2. TRENCH DEPTH MEASURED FROM THE EXISTING GROUND SURFACE TO 6" BELOW THE BOTTOM OF THE CONSTRUCTED PIPE.
3. QUANTITIES FOR PAYMENT SHALL BE IN ACCORDANCE WITH THE ABOVE LIMITS OR THE ACTUAL WIDTHS,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



TRENCH WIDTH SCHEDULE

TRENCH SECTION (TO BE USED WHERE UNSUITABLE FOUNDATION MATERIAL EXISTS BELOW NORMAL DEPTH)

NOT TO SCALE REV 000000 C-902

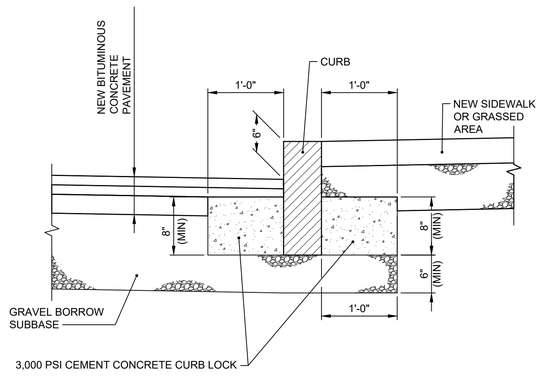


NOTES:

1. CONCRETE SIDEWALK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. WIRE MESH SHALL BE IN ACCORDANCE WITH SECTION M.05.02 OF THE RI STANDARD SPECIFICATIONS.

TYPICAL CEMENT CONCRETE SIDEWALK

NOT TO SCALE REV 000000 C-202

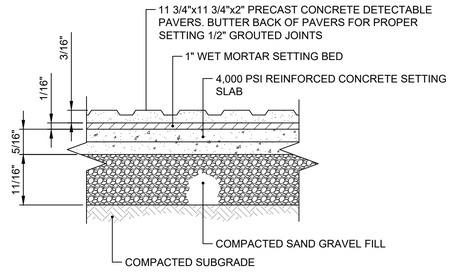


NOTES:

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

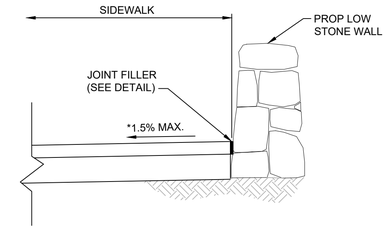
CURB SETTING DETAIL

NOT TO SCALE REV 000000 C-203

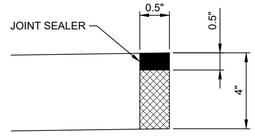


DETECTABLE WARNING PAVER

NOT TO SCALE REV 000000 C-204



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-903

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN C. MARSHALL
CHECKED

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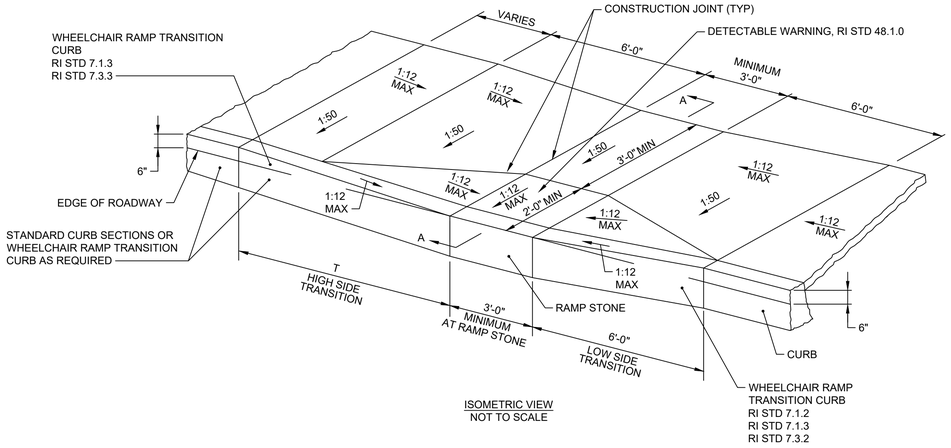
Stantec PARE

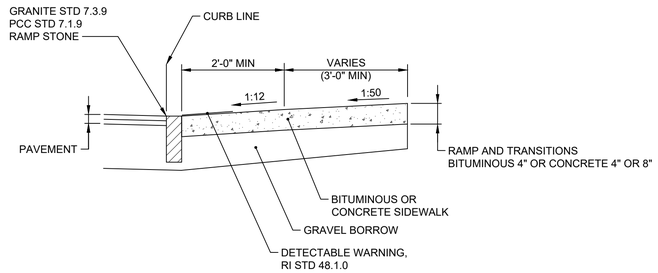
NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT
CIVIL DETAILS II

SHEET
C-10
195130227



ISOMETRIC VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

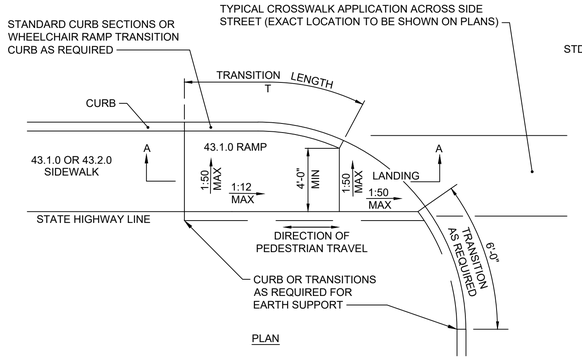
ROADWAY PROFILE GRADE	T (FT)
0.00	6.0
0.01	7.0
0.02	8.0
0.03	9.5
0.04	11.5
0.05	15.0

NOTES:

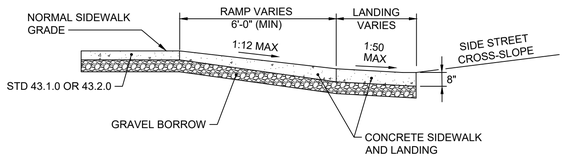
1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. WHEN ANY OBSTRUCTION LOCATED IN THE SIDEWALK FALLS WITHIN A CROSSWALK AREA, THE WHEELCHAIR RAMP WILL BE PLACED SUCH THAT THE OBSTRUCTION FALLS OUTSIDE OF THE RAMP.
3. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED 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



PLAN



SECTION A-A

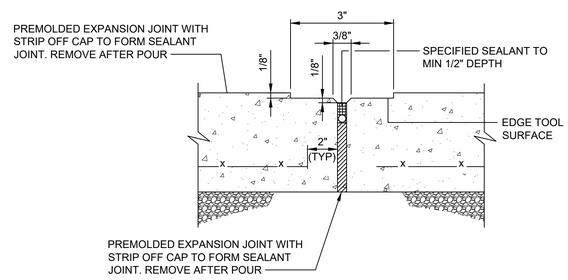
NOTES:

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.

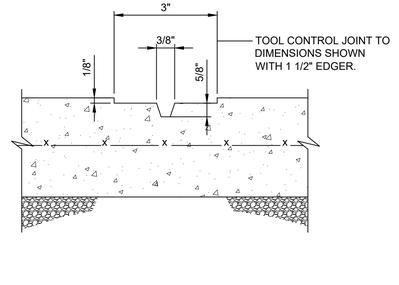
ROADWAY GRADE	T
0.00	6.0
0.01	7.0
0.02	8.0
0.03	9.5
0.04	11.5
0.05	15.0

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

R.I. STANDARD 43.3.1



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 AND CONTROL JOINTS FOR SIDEWALK PAVING
NOT TO SCALE

REV 000000

C-205

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN C. MARSHALL
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

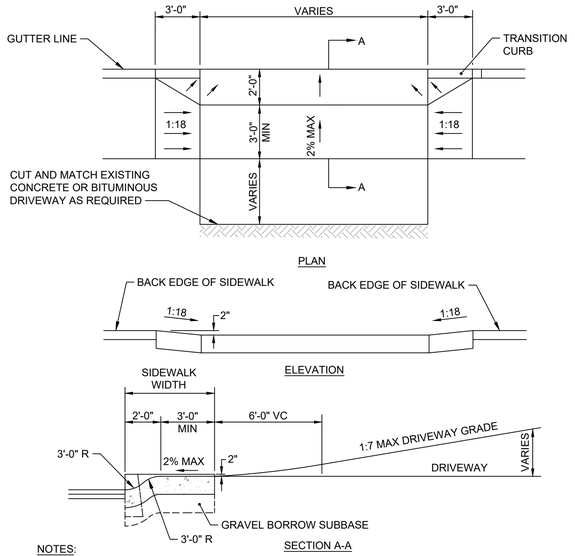
Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT
CIVIL DETAILS III

SHEET C-11

195130227



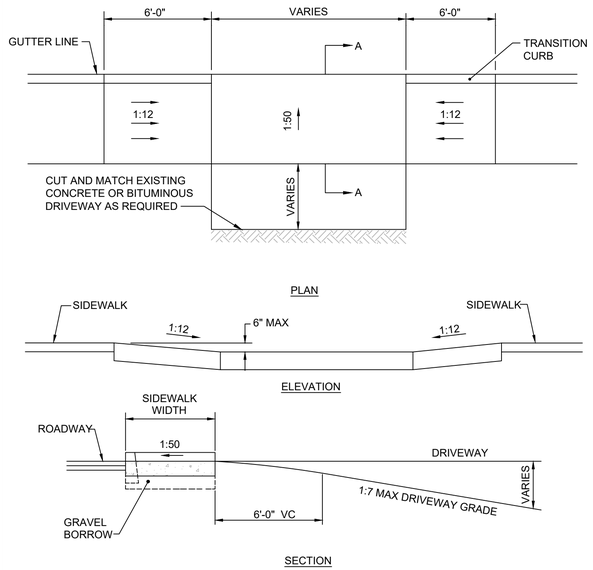
NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. WHEN DRIVEWAY IS BELOW BACK EDGE OF SIDEWALK PROFILE, STD 43.4.1 MUST BE USED.

DRIVEWAY DEVELOPMENT FOR 3'-0" TRANSITION CURB

NOT TO SCALE

R.I. STANDARD 43.4.0



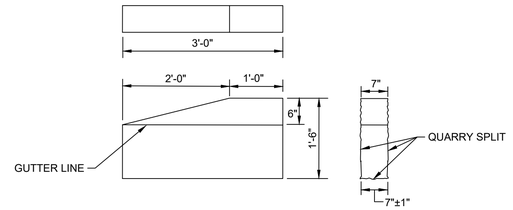
NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 904 OF THE RI STANDARD SPECIFICATIONS.

DRIVEWAY DEVELOPMENT FOR 6'-0" TRANSITION CURB

NOT TO SCALE

R.I. STANDARD 43.4.1

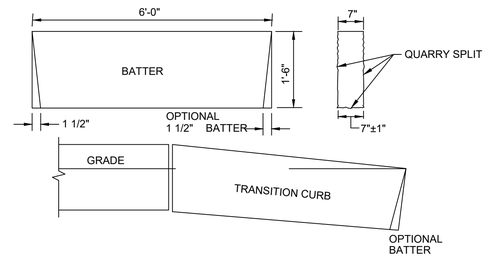


NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.

3'-0" GRANITE TRANSITION CURB

NOT TO SCALE REV 000000 C-904

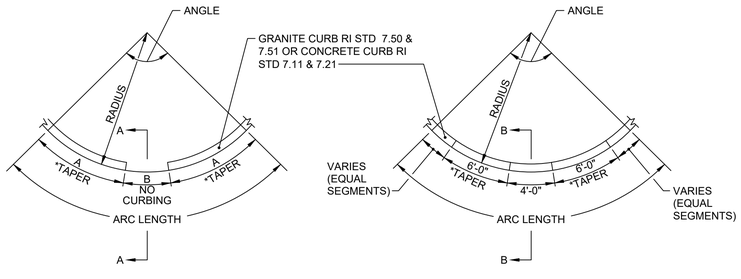


NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE RI STANDARD SPECIFICATIONS.
2. THE CONTRACTOR MAY CUT EXISTING CURB SECTIONS AS REQUIRED TO MEET THIS DETAIL AND THE RI STANDARD SPECIFICATIONS, WHERE OLD CURBING IS BEING REUSED.
3. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.

6'-0" GRANITE TRANSITION CURB

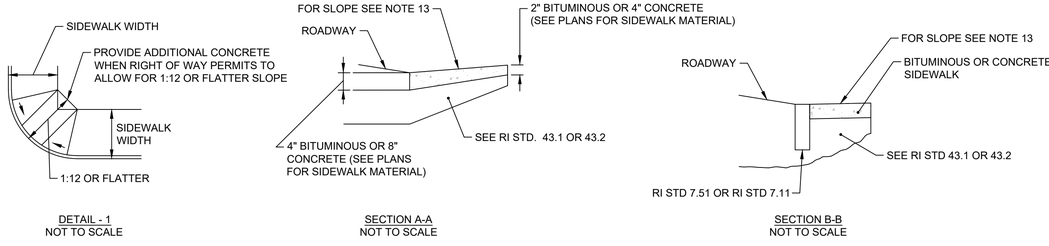
NOT TO SCALE REV 000000 C-905



RADIUS	TAPER LENGTH A	OPENING B	ARC LENGTH C
8'	4'-9"	3'-0 3/4"	12'-6 3/4"
10'	6'-0"	3'-8 1/2"	15'-8 1/2"

NOTE:

*DEPRESS CIRCULAR CURB AT 1" PER FOOT OVER 6 FOOT LENGTH. (FOR 8 FOOT RADIUS CORNER, DEPRESS TO STREET OVER 4'-9")



NOTES:

1. RAMP SHALL BE CENTERED RADIALLY OPPOSITE THE RADIUS POINT WHEN POSSIBLE.
2. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP TO BE LOCATED OUTSIDE OF THE CROSSWALK.
3. ALL REQUIRED CUTTING OF CURB PIECES TO BE PAID FOR UNDER COST OF CURB PER LINEAR FOOT (IF REQUIRED).
4. MINIMUM LENGTH OF CIRCULAR FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
5. WHEN ANY OBSTRUCTION IN THE SIDEWALK AREA FALLS WITHIN A CROSSWALK AREA, THE OBSTRUCTION WILL BE PLACED SUCH THAT IT FALLS OUTSIDE OF THE RAMP.
6. DRAINAGE FACILITIES ARE TO BE LOCATED UPGRADE OF WHEELCHAIR RAMP.
7. LOCATION OF WHEELCHAIR RAMP IS AS SHOWN ON CONTRACT PLANS OR CONTRACT DOCUMENTS.
8. ALL GRANITE TAPERED SECTIONS TO HAVE BATTERED ENDS WITH 1:12 SLOPE, EXCEPT 8' RADIUS SHALL HAVE 1:9.5 OR FLATTER.
9. ALL GRANITE CURB SHALL BE RI STD 7.50 OR 7.51.
10. ALL CONCRETE CURB SHALL BE RI STD 7.11 AND 7.21.
11. DO NOT USE RADIUS WHEELCHAIR RAMPS (RI STD 43.31) FOR RADII LESS THAN 8'.
12. FOR RADII GRATER THAN 160', USE TANGENT SECTION WHEELCHAIR RAMP.
13. SIDEWALK WIDTH / SIDEWALK SLOPE (CURB TO BACK OF SIDEWALK)

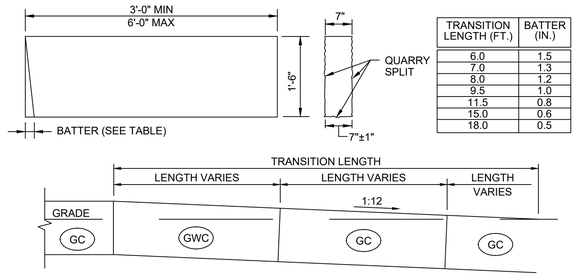
SIDEWALK WIDTH		SIDEWALK SLOPE (CURB TO BACK OF SIDEWALK)	
3'-6"	SIDEWALK	WITH CURB OR WITHOUT CURB	SEE DETAIL -1
4'-0"	SIDEWALK	WITH CURB OR WITHOUT CURB	SEE DETAIL -1
4'-6"	SIDEWALK	WITH CURB OR WITHOUT CURB	SEE DETAIL -1
5'-0"	SIDEWALK	WITH CURB OR WITHOUT CURB	1:10 1:11
5'-6"	SIDEWALK	WITH CURB OR WITHOUT CURB	1:11 1:12
6'-0"	SIDEWALK OR WIDER		1:12

14. REFER TO TABLE 601.___

CORNER WHEELCHAIR RAMP

NOT TO SCALE

R.I. STANDARD 43.31



TRANSITION LENGTH (FT.)	BATTER (IN.)
6.0	1.5
7.0	1.3
8.0	1.2
9.5	1.0
11.5	0.8
15.0	0.6
18.0	0.5

NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 905 OF THE R.I. STANDARD SPECIFICATIONS.
2. THE CONTRACTOR MAY CUT EXISTING CURB SECTIONS AS REQUIRED TO MEET THIS DETAIL AND THE R.I. STANDARD SPECIFICATIONS, WHERE OLD CURBING IS BEING REUSED.
3. MINIMUM LENGTH OF STRAIGHT OR CIRCULAR CURB FILLER PIECES TO BE 3'-0" (GREATER LENGTHS PREFERRED).
4. TOP SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.

GRANITE WHEELCHAIR RAMP TRANSITION CURB

NOT TO SCALE REV 000000 C-906

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN C. MARSHALL
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

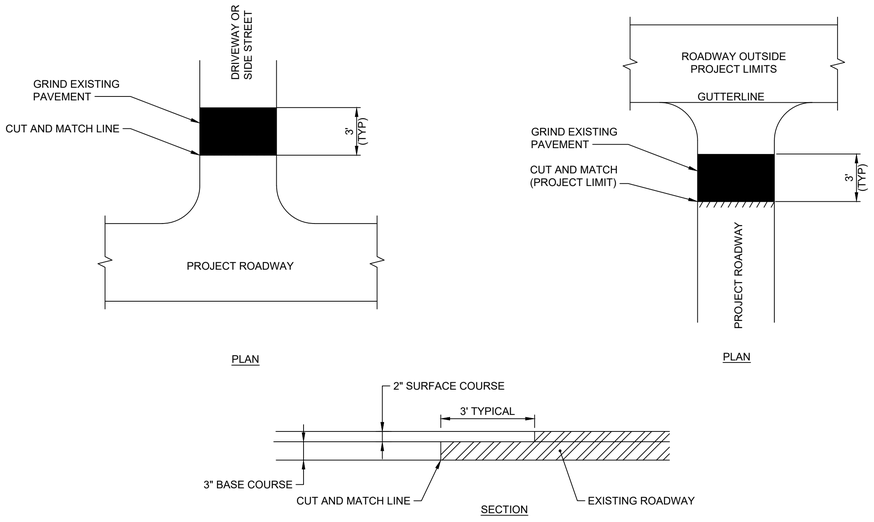
Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT
CIVIL DETAILS IV

SHEET C-12

195130227

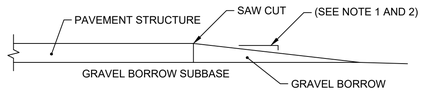


NOTES:

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-907

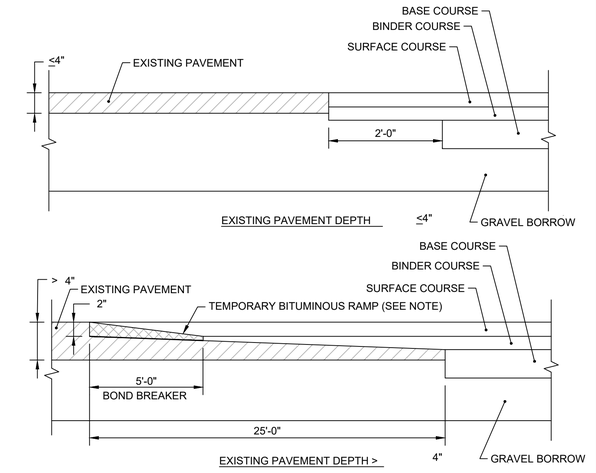


NOTES:

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" BUT < 5" SHALL BE TAPERED TO A 1:1 OR FLATTER SLOPE TO EXISTING GROUND ALL DROP-OFFS ≥ 5" SHALL BE TAPERED TO A 4:1 OR FLATTER SLOPE TO EXISTING GROUND.
   POSTED SPEED > 35 MPH: LONGITUDINAL DROP-OFFS WILL NOT BE PERMITTED WITHIN 2'-0" OF A TRAVEL LANE. THIS AREA MUST BE AT GRADE WITH THE TRAVEL LANE. HOWEVER, SHOULD THE CONTRACTOR'S APPROVED SEQUENCE OF OPERATIONS RESULT IN OVERNIGHT DROP-OFFS GREATER THAN THREE INCHES OCCURRING BETWEEN 2'-0" TO 6'-0" FROM A TRAVEL LANE, THEN THE DROP-OFFS SHALL BE TAPERED TO A 4:1 OR FLATTER SLOPE TO EXISTING GROUND.

PAVEMENT REMOVAL DROP-OFF DETAIL

NOT TO SCALE R.I. STANDARD 47.1.0

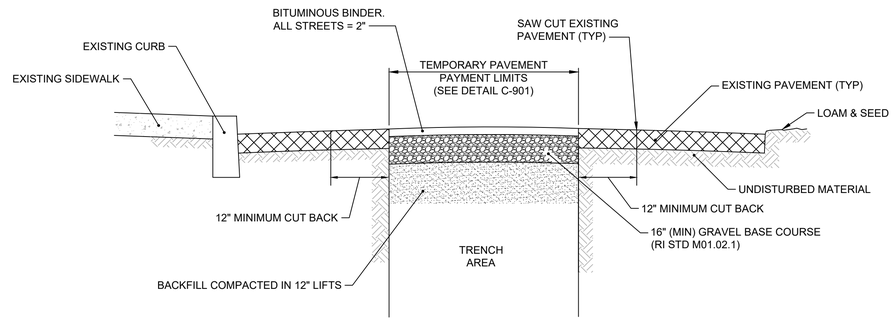


NOTES:

1. A BOND BREAKER (TAPERED OR EQUIVALENT) WILL BE PLACED 5'-0" FROM THE JOINT AND COVERED WITH THE BINDER COURSE AS THE TEMPORARY RAMP. PRIOR TO PLACING THE SURFACE COURSE, THE BINDER COURSE AND BOND BREAKER WILL BE REMOVED.

TRANSVERSE PAVEMENT CUT AND MATCH

NOT TO SCALE R.I. STANDARD 47.1.1

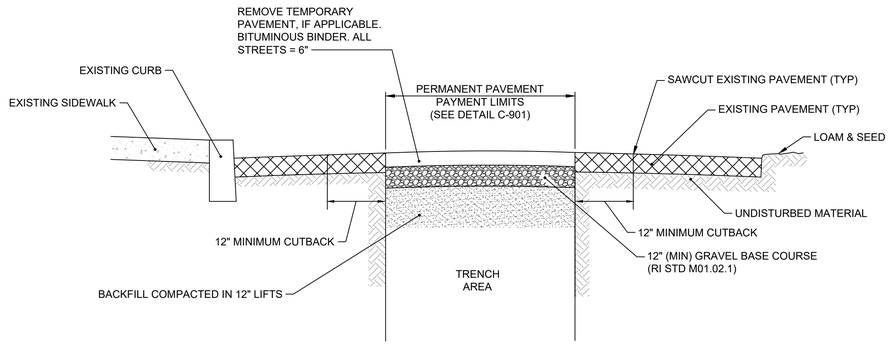


NOTES:

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-908



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-909

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN C. MARSHALL
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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NBC CONTRACT NO 308.05C
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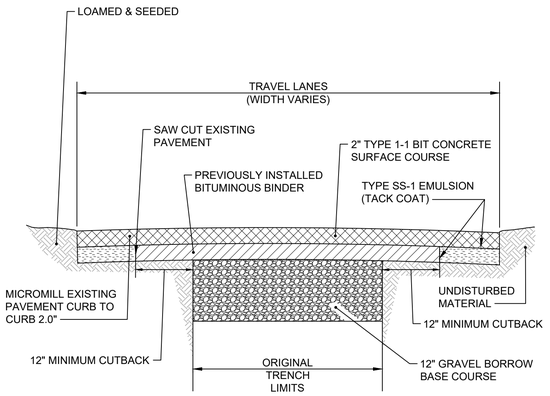
CIVIL DETAILS V

SHEET C-13

195130227

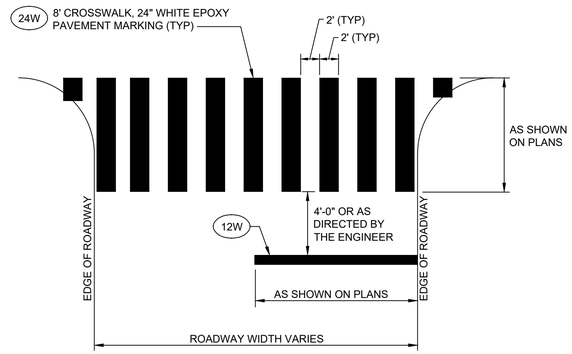


NOTES:

1. MINIMUM PAVEMENT THICKNESS TO BE 2". CONTRACTOR TO VARY PAVEMENT THICKNESS TO MAINTAIN A MINIMUM CROSS SECTIONAL SLOPE EQUALING 0.02 FT/FT.
2. CUT BACK DISTANCES SHALL BE AS DIRECTED BY THE ENGINEER. HOWEVER, UNDER NO CIRCUMSTANCES SHALL THEY BE LESS THAN THE MINIMUM INDICATED.
3. REFER TO SPECIFICATION 02502 FOR MICROMILLING.

CURB TO CURB PAVEMENT RESTORATION

NOT TO SCALE REV 000000 C-910



CONTRACTOR TO MATCH EXISTING STRIPING AT THE FOLLOWING LOCATIONS:

LOCATIONS:

INTERSECTION OF MAIN STREET (65 FT WIDE) AND ROOSEVELT AVENUE EXT (34 FT WIDE)
- 4 CROSSWALKS AND 4 STOPLINES

INTERSECTION OF JENKS WAY (44 FT WIDE) AND ROOSEVELT AVENUE EXT (31 FT WIDE)
- 2 CROSSWALKS AND 1 STOPLINE

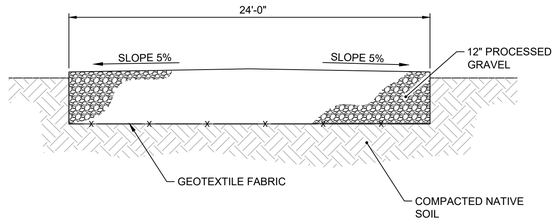
TAFT STREET (62 FT WIDE) AT APPROXIMATELY 650 FT NORTH OF SPENCER STREET
- 1 CROSSWALK

INTERSECTION OF TOWER STREET (25 FT WIDE) AND TAFT STREET (48 FT WIDE)
- 2 CROSSWALKS AND 2 STOPLINE

INTERSECTION OF TIDEWATER STREET (32 FT WIDE) AND TAFT STREET (30 FT WIDE)
- 2 CROSSWALKS AND 2 STOPLINES

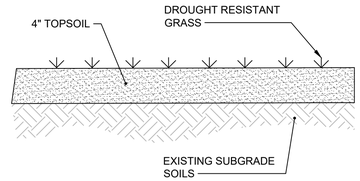
CROSSWALK AND STOPLINE DETAIL - TYPE 1

NOT TO SCALE REV 000000 C-911



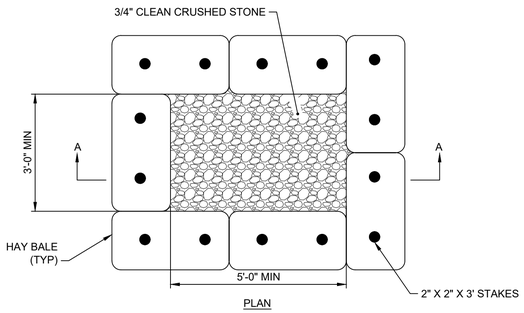
GRAVEL ACCESS ROAD

NOT TO SCALE REV 000000 C-912



GROUND COVER DETAIL

NOT TO SCALE REV 000000 C-913

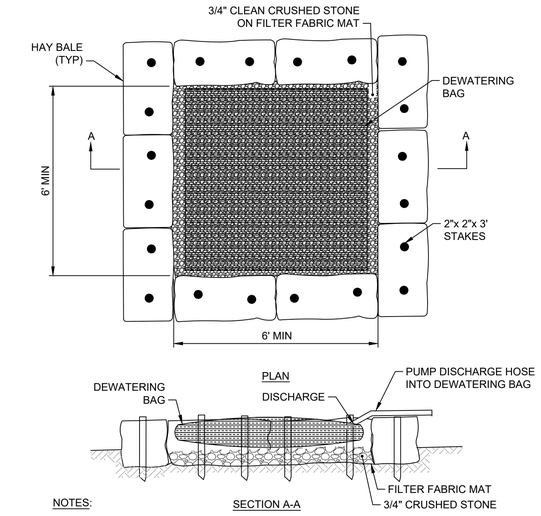


NOTES:

1. ALL DEWATERING DISCHARGES SHALL BE THROUGH SEDIMENT CONTROL TRAPS, CONTRACTOR SHALL MAINTAIN AND CLEAN TRAP AS REQUIRED.

SEDIMENT CONTROL TRAP

NOT TO SCALE REV 000000 C-914

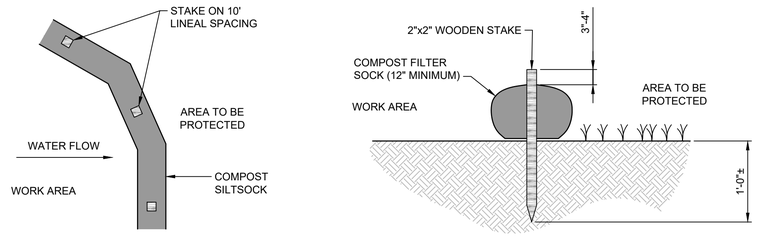


NOTES:

1. ALL DEWATERING DISCHARGES SHALL BE THROUGH DEWATERING BAG, CONTRACTOR SHALL MAINTAIN AND CLEAN AS REQUIRED.
2. CONTRACTOR SHALL SUBMIT DEWATERING PLANS TO THE ENGINEER/OWNER FOR APPROVAL.
3. SIZING OF DEWATERING BAG SHALL BE BASED ON BUT NOT LIMITED TO THE FOLLOWING:
   3a. PUMP FLOW RATE
   3b. QUALITY AND TYPE OF SEDIMENT
   3c. VOLUME OF MATERIALS NEEDING CONTAINMENT

SEDIMENT CONTROL TRAP WITH DEWATERING BAG

NOT TO SCALE REV 000000 C-915



NOTES:

1. COMPOST/ SOIL/ ROCK/ SEED FILL TO MEET APPLICATION REQUIREMENTS.
2. COMPOST MATERIAL TO BE REMOVED OR DISPERSED ON SITE AS DETERMINED BY ENGINEER.
3. IF SOCK NETTING MUST BE JOINED, FIT BEGINNING OF NEW SOCK OVER END OF OLD SOCK, OVERLAPPING BY 2 FEET AND STACK OVERLAP. IF SOCK NETTING IS NOT JOINED, OVERLAP OLD SOCK WITH NEW ONE BY MINIMUM OF 2 FEET.

COMPOST FILTER SOCK

NOT TO SCALE REV 000000 C-401

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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DRAWN C. MARSHALL
CHECKED

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PHASE III COMBINED SEWER
OVERFLOW PROGRAM

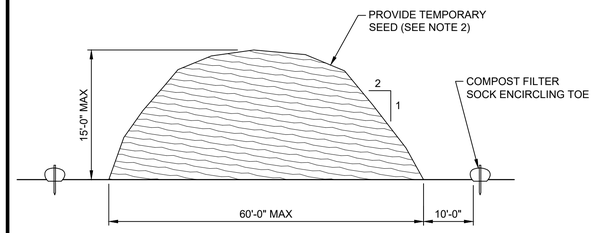
Stantec PARE

NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT
CIVIL DETAILS VI

SHEET C-14

195130227

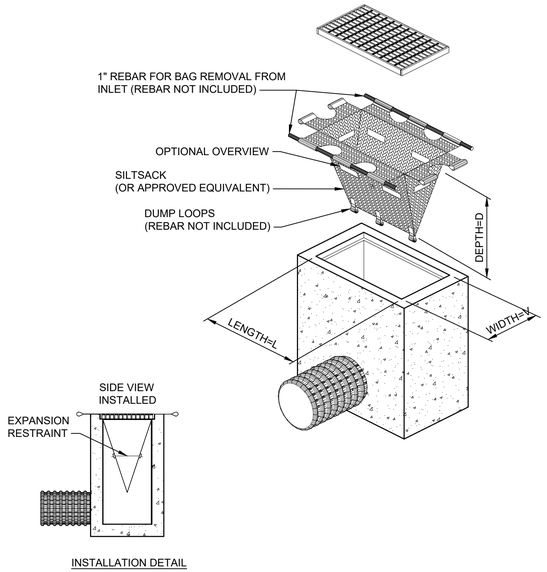


NOTES:

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.

ERODIBLE MATERIAL STOCKPILE

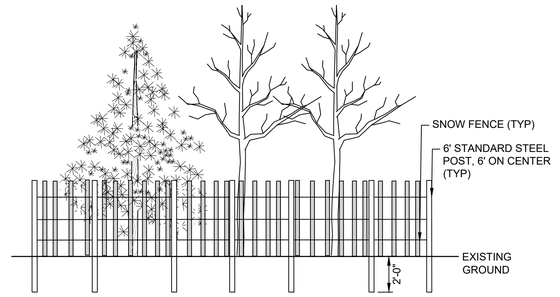
NOT TO SCALE — REV 000000 — C-402



INSTALLATION DETAIL

TEMPORARY INLET PROTECTION

NOT TO SCALE — REV 000000 — C-403

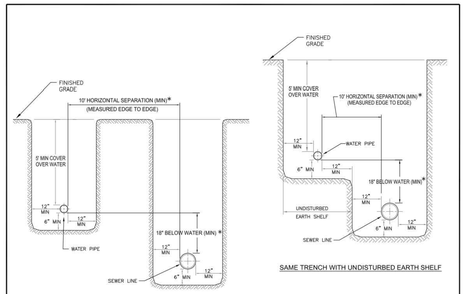


NOTES:

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



* 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:

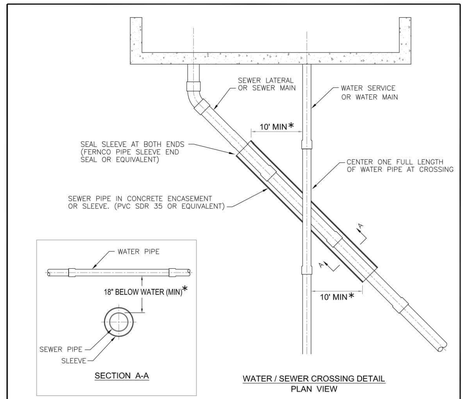
OPTION A: CONSTRUCT SEWER LINE USING AWWA APPROVED WATER MAIN PIPE AND PRESSURE TEST TO 150psi.

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	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:

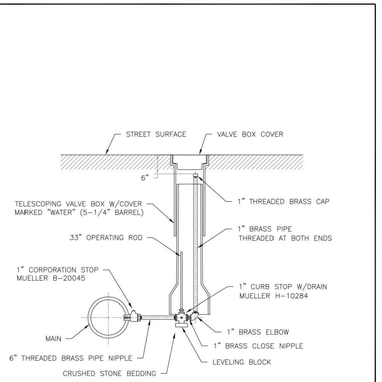
OPTION A: CONSTRUCT SEWER USING AWWA APPROVED WATER MAIN PIPE AND PRESSURE TEST TO 150psi.

OPTION B: ENCASE SEWER PIPE IN CONCRETE (MIN. 6 INCHES THICK) OR SLEEVE.

Pawtucket WATER SUPPLY BOARD	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

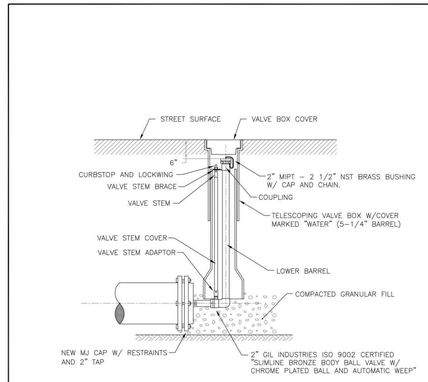
REV 000000 — W-106



Pawtucket WATER SUPPLY BOARD	PAWTUCKET WATER SUPPLY BOARD		
	1" BLOWOFF INSTALLATION		
	REVISION DATE: FEB. 2006	NOT TO SCALE	STD. NO. 3.05

1" BLOWOFF INSTALLATION

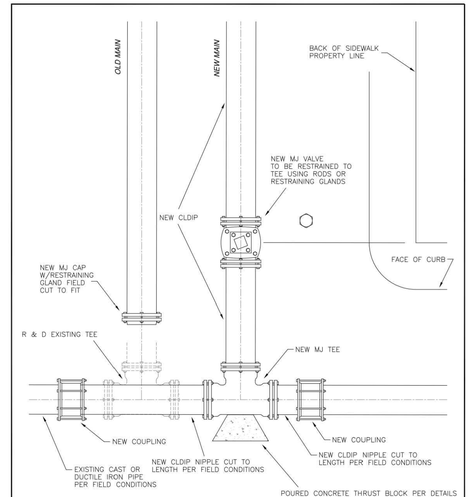
NOT TO SCALE — REV 000000 — W-305



Pawtucket WATER SUPPLY BOARD	PAWTUCKET WATER SUPPLY BOARD		
	2" BLOWOFF INSTALLATION		
	REVISION DATE: MAY 2006	NOT TO SCALE	STD. NO. 3.06

2" BLOWOFF INSTALLATION

NOT TO SCALE — REV 000000 — W-306



Pawtucket WATER SUPPLY BOARD	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

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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DRAWN C. MARSHALL
CHECKED

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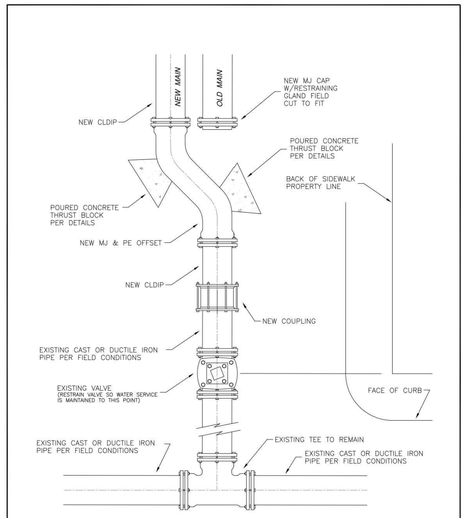
CIVIL DETAILS VII

SHEET C-15

195130227



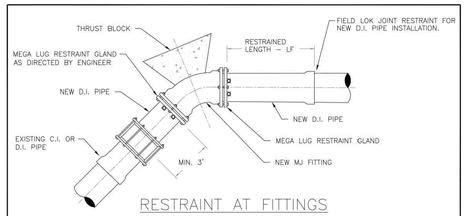
PAWTUCKET WATER SUPPLY BOARD

MAIN CONNECTION AT INTERSECTION (OFFSET)

REVISION DATE: FEB. 2006 | NOT TO SCALE | STD. NO. 5.03

MAIN CONNECTION AT INTERSECTION (OFFSET) W-503

NOT TO SCALE REV 000000



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 SF	PLUG LF	TEE SF	TEE LF	90° BEND SF	90° BEND LF	45° BEND SF	45° BEND LF	22½° BEND SF	22½° BEND LF	11¼° BEND SF	11¼° BEND LF
6"	2.8	37	2.8	32	4.0	18	2.1	7	1.1	4	1.0	2
8"	4.8	48	4.8	43	6.8	23	3.7	10	1.9	5	1.0	2
10"	7.3	58	7.3	53	10.3	28	5.6	12	2.8	6	1.4	3
12"	10.3	69	10.3	63	14.5	33	7.9	14	4.0	6	2.0	3
16"	17.8	89	17.8	83	25.2	42	13.6	17	7.0	8	3.5	4
20"	27.5	108	27.5	102	38.9	51	21.0	21	10.7	10	5.4	5
24"	39.2	127	39.2	121	55.4	59	30.0	25	15.3	12	7.7	6

1. ALL CONCRETE TO BE CLASS B (AE)
2. 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.
3. 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.
4. 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.
5. MINIMUM SURFACE AREAS SHALL BE INCREASED BY 50% IF DEEMED NECESSARY BY THE ENGINEER.
6. A MECHANICAL JOINT RESTRAINT SYSTEM MUST BE USED FOR VERTICAL BENDS.
7. AT THE DISCRETION OF THE ENGINEER, A JOINT RESTRAINT SYSTEM MAY BE SUBSTITUTED FOR OR USED IN COMBINATION WITH PROPER THRUST BLOCKING.
8. A 48 HR. CURING PERIOD MUST BE GIVEN BEFORE FULL LINE PRESSURE CAN BE APPLIED TO NEW CONCRETE THRUST BLOCKS.
9. ANCHOR BLOCK DESIGN FOR PIPE LARGER THAN 24" SHALL BE REVIEWED ON AN INDIVIDUAL BASIS BY THE PWSB.

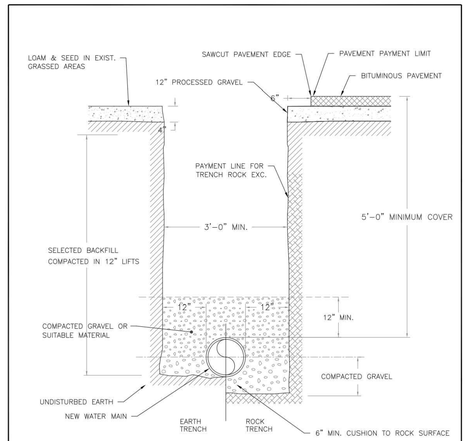
PAWTUCKET WATER SUPPLY BOARD

RESTRAINT AT FITTINGS

REVISION DATE: MAY 2006 | NOT TO SCALE | STD. NO. 5.04

RESTRAINT AT FITTINGS W-504

NOT TO SCALE REV 000000



NOTE: SUITABLE BACKFILL SHALL BE SELECTED FROM EXCAVATED MATERIALS AND IS SUBJECT TO THE APPROVAL OF THE PWSB ENGINEER.

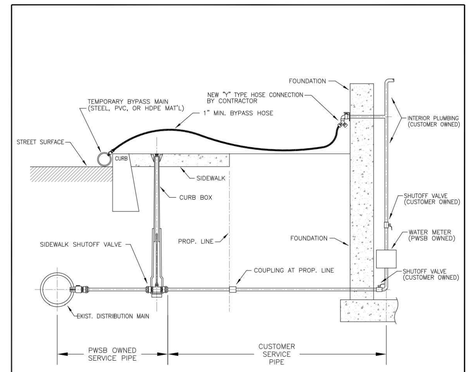
PAWTUCKET WATER SUPPLY BOARD

TYPICAL TRENCH DETAIL

REVISION DATE: MAY 2006 | NOT TO SCALE | STD. NO. 6.01

TYPICAL TRENCH DETAIL W-601

NOT TO SCALE REV 000000



1. 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.
2. PRIOR TO INSTALLATION, CONTRACTOR SHALL SUBMIT 2 COPIES OF BYPASS LAYOUT PLAN TO THE PWSB FOR REVIEW & APPROVAL.
3. TEMPORARY BYPASS MAIN SHALL REQUIRE A MINIMUM OF TWO "FEED" CONNECTIONS TO EXISTING ACTIVE HYDRANTS OR MAINS, IF POSSIBLE.
4. TEMPORARY REMOVAL OF WATER METERS SHALL BE PERFORMED BY PWSB METER DEPARTMENT PERSONNEL ONLY.

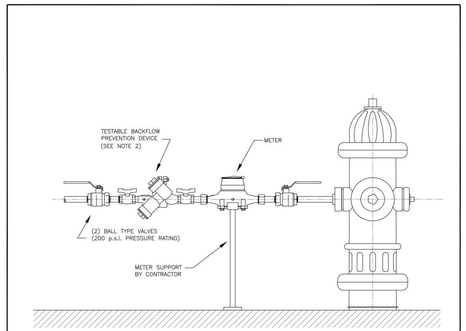
PAWTUCKET WATER SUPPLY BOARD

TYPICAL "TEMPORARY BYPASS PIPING" INSTALLATION

REVISION DATE: JAN 2011 | NOT TO SCALE | STD. NO. 8.01

TYPICAL "TEMPORARY BYPASS PIPING" INSTALLATION W-801

NOT TO SCALE REV 000000



TEMPORARY METER INSTALLATION – ELEVATION VIEW

NOTES

1. THE METER SHALL BE INSTALLED HORIZONTALLY.
2. TEMPORARY WATER SERVICE CONNECTIONS REQUIRE A PWSB APPROVED TESTABLE BACKFLOW PREVENTION DEVICE, ALL IN ACCORDANCE WITH SECTION 10 OF THE PWSB REGULATIONS, LATEST REVISION.
3. CONTRACTOR MUST NOTIFY THE PWSB METER DEPARTMENT WHEN THE METER INSTALLATION IS COMPLETE.

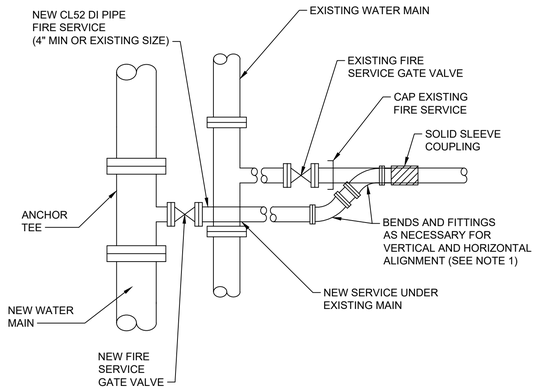
PAWTUCKET WATER SUPPLY BOARD

TEMPORARY WATER SERVICE CONNECTION AT HYDRANT

REVISION DATE: JAN. 2011 | NOT TO SCALE | STD. NO. 8.02

TEMPORARY WATER SERVICE CONNECTION AT HYDRANT W-802

REV 000000



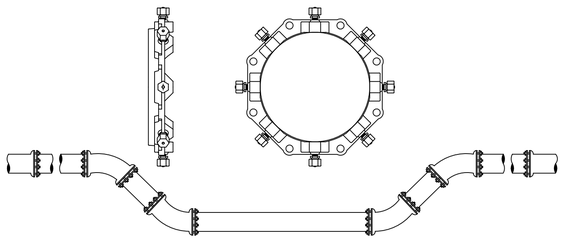
NOTES:

1. ALL FITTINGS SHALL BE RESTRAINED.

TYPICAL FIRE SERVICE CONNECTION
NOT TO SCALE

TYPICAL FIRE SERVICE CONNECTION W-901

NOT TO SCALE REV 000000

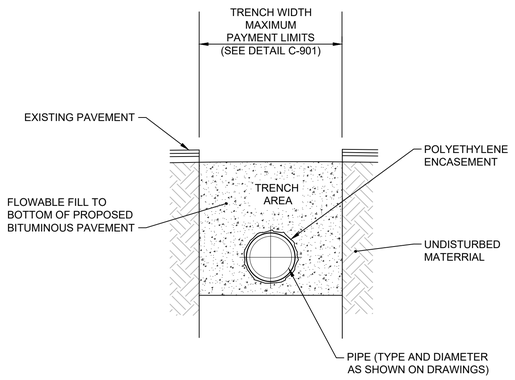


NOTES:

1. DEVICES NEED TO BE PLACED BEYOND THE AREA OF RESTRAINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

TYPICAL THRUST RESTRAINT WEDGE ACTION TYPE JOINTS W-902

REV 000000



NOTES:

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

FLOWABLE FILL BACKFILL OF DUCTILE IRON WATER PIPE W-903

REV 000000

REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED C. CRONIN
DRAWN C. MARSHALL
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

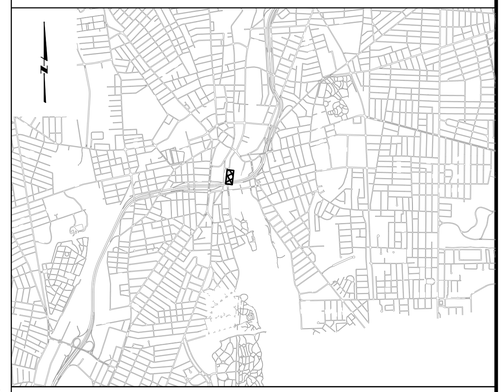
NBC CONTRACT NO 308.05C
CIVIL

OF-217 CONSOLIDATION CONDUIT
CIVIL DETAILS VIIi

SHEET C-16

195130227

KEY PLAN



GENERAL SHEET NOTES

1. DETOUR ON THIS SHEET SHALL ONLY BE IMPLEMENTED FOR CLOSURE OF TAFT STREET BETWEEN JENKS WAY AND SPENCER STREET.

SHEET KEYNOTES

LEGEND

DETOUR ROUTE

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

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED H. PERALTA
DRAWN T. JOUBERT
CHECKED J. D'ALESIO

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NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C
TRAFFIC

OF-217 CONSOLIDATION CONDUIT
TRAFFIC MANAGEMENT PLAN

SHEET
T-1
195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Traffic Management\TMP 1.dwg
PLOT DATE: Monday, December 28, 2020 5:07:51 PM
BY: JAIMIE PAYNE

DETOUR SIGN LEGEND

SIGN	DIMENSIONS	QUANTITY
END DETOUR	M4-8a	30 in. x 15 in.	2
DETOUR	M4-8	24 in. x 12 in.	2
DETOUR	M4-9L	30 in. x 24 in.	4
DETOUR	M4-9R	30 in. x 24 in.	4
	M6-3	21 in. x 15 in.	2
	R3-1	24 in. x 24 in.	1
ROAD CLOSED	R11-2	48 in. x 30 in.	1
ROAD CLOSED TO THRU TRAFFIC	R11-4	60 in. x 30 in.	2
ROAD WORK AHEAD	W20-1	36 in. x 36 in.	1
DETOUR AHEAD	W20-2A	36 in. x 36 in.	2
ROAD CLOSED AHEAD	W20-3	36 in. x 36 in.	2
ONE LANE ROAD AHEAD	W20-4	36 in. x 36 in.	1
TAFT ST	D3-1	30 in x 12 in.	6
ROOSEVELT AVE EXT	D3-2	30 in x 12 in.	5
ROOSEVELT AVE	D3-3	30 in x 12 in.	5
MAIN ST	D3-4	30 in x 12 in.	7

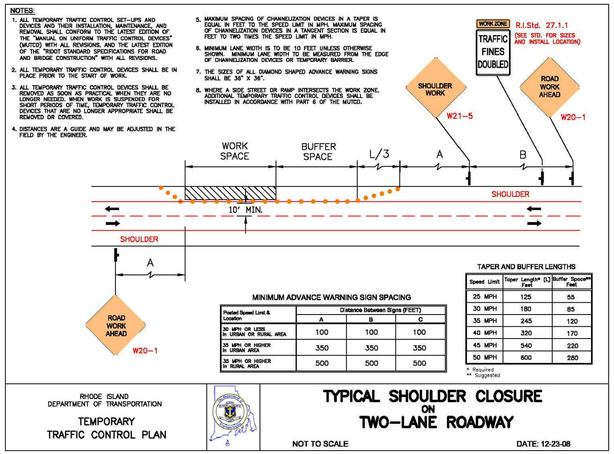
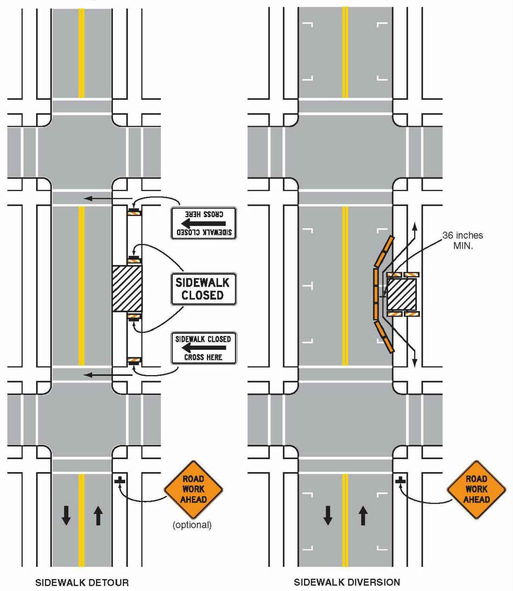


Figure 6H-28. Sidewalk Detour or Diversion (TA-28)

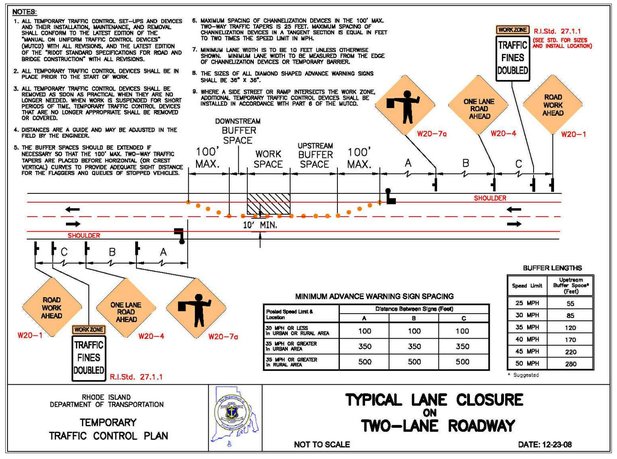


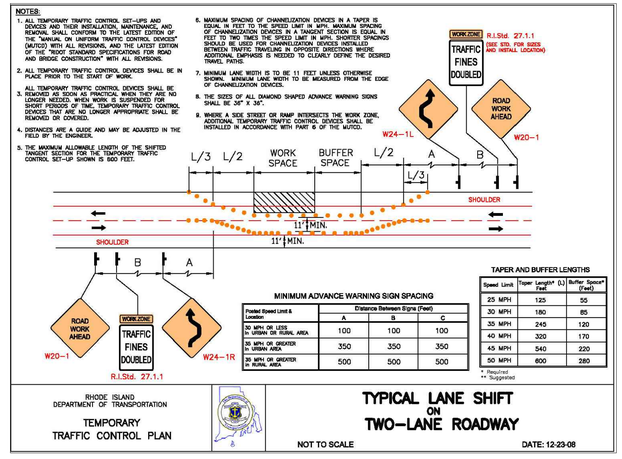
Typical Application 28

Note: See Tables 6H-2 and 6H-3 for the meaning of the symbols and/or letter codes used in this figure.

TEMPORARY TRAFFIC CONTROL GENERAL NOTES:

1. 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.
2. ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T STANDARD SPECIFICATIONS, LATEST EDITION.
3. 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.
4. 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.
5. POLICE OFFICERS (AND NOT FLAGPERSONS) SHALL BE UTILIZED WHEN WORK WILL IMPACT SIGNALIZED INTERSECTIONS AND LIMITED ACCESS HIGHWAYS.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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-PLANED AND NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT.
12. 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.
13. ONE SIDEWALK SHALL REMAIN OPEN AT ALL TIMES ALONG ROOSEVELT AVENUE EXTENSION AND TAFT STREET.





KEY PLAN

BY: JAIMIE PAYNE

PLOT DATE: Monday, December 28, 2020 5:13:58 PM

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Traffic Management\TMP DETAILS.dwg

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

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED H. PERALTA
DRAWN T. JOUBERT
CHECKED J. D'ALESIO

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PHASE III COMBINED SEWER OVERFLOW PROGRAM

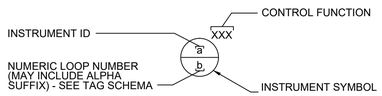
Stantec PARE

NBC CONTRACT NO 308.05C
TRAFFIC

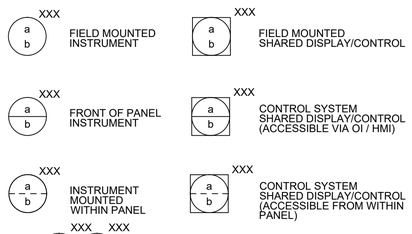
OF-217 CONSOLIDATION CONDUIT
TRAFFIC MANAGEMENT PLAN - DETAILS

SHEET
T-2
195130227

INSTRUMENTATION CALL - OUT



INSTRUMENT SYMBOLS



a INSTRUMENT IDENTIFICATION/TAG NUMBER (SEE TAG DESIGNATION FOR MORE INFO)

b INSTRUMENT LOOP NUMBER

XXX CONTROL FUNCTION

XXXV PRIMARY ELECTRICAL POWER (e.g. 24VDC, 120VAC, 220VAC, 480VAC)

NOTE1: IF INSTRUMENT POWER NOT INDICATED, REFER TO INSTRUMENT SCHEDULE FOR CONFIRMATION.

NOTE2: FOR NON-VENDOR PACKAGES (UNLESS SPECIFICALLY NOTED OTHERWISE), REFER TO INSTALLATION DETAILS FOR AIR DISTRIBUTION MANIFOLD DETAILS.

CONTROL FUNCTION DESIGNATIONS

AHC	AUTO/HOLD/CLOSE	OLH	OFF/LOW/HIGH
AM	AUTO/MANUAL	O/O	ON/OFF
AS	AIR SUPPLY	OSC	OPEN/STOP/CLOSE
DEV	DEVIATION	PID	PROPORTIONAL/ INTEGRAL/DERIVATIVE
E-STOP	EMERGENCY STOP (RED PUSH-PULL MUSHROOM-HEAD BUTTON WITH ACCIDENTAL TRIP GUARD	POT	POTENTIOMETER
ETM	ELAPSED TIME METER	RDY	READY
FOR	FORWARD/ OFF/ REVERSE	R/L	RAISE/LOWER
HML	HIGH/MID/LOW	RSL	RAISE/STOP/LOWER
HOA	HAND/OFF/AUTO	RST	RESET
HOR	HAND/OFF/REMOTE	SD	SHUTDOWN
LOR	LOCAL/OFF/REMOTE	SEL	SELECT
L/R	LOCAL/REMOTE	SP	SET POINT
MOA	MANUAL/OFF/AUTO	S/R	START/RESET
OC	OPEN/CLOSE	S/S	START/STOP
OCA	OPEN/CLOSE/AUTO	STR	START
		STP	STOP

NOTE:

1. REFER TO DRAWING GI-2 FOR ANALYTICAL INSTRUMENT DESIGNATIONS.

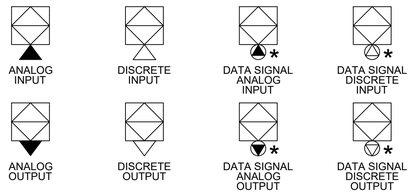
INSTRUMENT SYMBOLS - CONT

COMPUTING OR CONVERTING FUNCTIONS

Σ SUMMING	D DERIVATIVE	X^n EXPONENTIAL
X MULTIPLYING	AVG AVERAGING	+ BIAS
÷ DIVIDING	1:1 RATIO	HIGH LIMITING
$\sqrt{}$ SQ ROOT EXTRACTION	Δ DIFFERENCE	LOW LIMITING
P PROPORTIONAL	> HIGH SELECTING	LINEARIZER
∫ INTEGRAL	< LOW SELECTING	

E	VOLTAGE	R	RESISTANCE (ELECT)	A	ANALOG
I	CURRENT	D	DIGITAL	B	BINARY
P	PNEUMATIC			H	HYDRAULIC

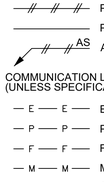
PLC / REMOTE I/O POINTS



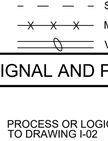
* FIELD NETWORK INTERFACE. SEE SPECIFICATION FOR MORE INFORMATION

INSTRUMENTATION LINE SYMBOLOGY

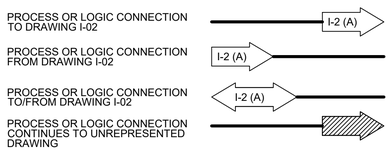
INSTRUMENT LINE DEFINITIONS
(UNLESS SPECIFICALLY NOTED OTHERWISE PER DRAWING LEGEND)



COMMUNICATION LINE DEFINITIONS
(UNLESS SPECIFICALLY NOTED OTHERWISE PER DRAWING LEGEND)



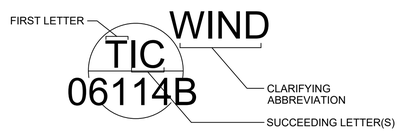
SIGNAL AND PROCESS OFF-PAGE CONNECTORS



NOTE: REFER TO INSTRUMENTATION LINE SYMBOLOGY FOR PROCESS AND LOGIC LINESTYLE DEFINITION.

	FIRST LETTER		SUCCEEDING LETTER(S)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FORWARD
G			GAUGE, GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O			ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		REVERSE
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	INTRUSION	X AXIS			
Y	EVENT, STATE, OR PRESENCE	Y AXIS		COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

TAG SCHEMA



TYPICAL INSTRUMENT & CONTROL VALVE TAGGING

6640-180-TIC-06114B — INSTRUMENT SCHEDULE (FULL TAG)
TIC-06114B — P&ID (PARTIAL TAG)
6640 — PLANT ID
180 — PROCESS AREA
TIC — INSTRUMENT / VALVE ID
06114 — TAG NUMBER
B — SUFFIX

NOTE: REFER TO GENERAL SHEET GI-3 FOR STANDARD VALVE CALLOUTS.

TYPICAL EQUIPMENT TAG FORMAT

6640-180-MX-06114B — EQUIPMENT SCHEDULE (FULL TAG)
180-MX-06114B — P&ID (PARTIAL TAG)
6640 — PLANT ID
180 — PROCESS AREA
MX — EQUIPMENT ID
06114 — TAG NUMBER
B — SUFFIX

NOTE: REFER TO GENERAL SHEET GI-3 FOR STANDARD EQUIPMENT CALLOUTS.

SHEET NUMBER TAG FORMAT

6640-35I-01_A — SHEET SCHEDULE (FULL TAG)
35I-01 — P&ID BORDER (PARTIAL TAG)
6640 — PLANT ID
35 — PROCESS AREA
I — DISCIPLINE CODE
01 — SHEET NUMBER
A — REVISION

TYPICAL MANUAL VALVE TAG FORMAT

6640-180-V-06114B — MANUAL VALVE SCHEDULE (FULL TAG)
180-V-06114B — P&ID (PARTIAL TAG)
6640 — PLANT ID
180 — PROCESS AREA
V — VALVE
06114 — TAG NUMBER
B — SUFFIX

NOTE: REFER TO GENERAL SHEET GI-3 FOR STANDARD VALVE CALLOUTS.

TYPICAL PIPE LINE TAG FORMAT

6640-12-RW-CS08-1234 — PIPE LINE SCHEDULE (FULL TAG)
6640 — PLANT ID
12 — NOMINAL PIPE DIAMETER
RW — FLUID CODE
CS08 — PIPE SPEC
1234 — LINE NUMBER

EQUIPMENT SKID TAG FORMAT

6640-X-017 — SKID TAG
6640 — PLANT ID
X — SKID
017 — SKID NUMBER

VALVE SPECIFICATION TAG FORMAT

150VF4101 — SPECIFICATION NUMBER
150 — VALVE SIZE
VF — VALVE TYPE
41 — VALVE SUB-TYPE
01 — VALVE ENDS

TIE-IN POINT TAG FORMAT

6640-TP-0123 — SPECIFICATION NUMBER
6640 — PLANT ID
TP — TIE-IN POINT
0123 — TAG NUMBER

ABBREVIATIONS

ATM	ATMOSPHERE	NO	NORMALLY OPEN
DOL	DIRECT ONLINE STARTER	OI	OPERATOR INTERFACE
FOC	FIBER OPTIC CABLE	PC	PERSONAL COMPUTER
FOT	FIBER OPTIC TRANSCEIVER	PLC	PROGRAMMABLE LOGIC CONTROLLER
FVNR	FULL VOLTAGE NON-REVERSING STARTER	RIO	REMOTE I/O
HMI	HUMAN MACHINE INTERFACE	RVSS	REDUCED VOLTAGE SOLID-STATE STARTER
IA	INSTRUMENT AIR	RTU	REMOTE TERMINAL UNIT
LC	LOCKED CLOSED	TC	THERMOCOUPLE
LCP	LOCAL CONTROL PANEL	SOV	SOLENOID OPERATED VALVE
LCS	LOCAL CONTROL STATION	STP	SHIELDED TWISTED PAIR
LO	LOCKED OPEN	UPS	UNINTERRUPTABLE POWER SUPPLY
LSA	LIGHTNING SURGE ARRESTOR	UTP	UNSHIELDED TWISTED PAIR
MCC	MOTOR CONTROL CENTER	VCP	VENDOR CONTROL PANEL
MCP	MAIN CONTROL PANEL	VFD	VARIABLE FREQUENCY DRIVE
MOV	MOTOR OPERATED VALVE	VSD	VARIABLE SPEED DRIVE
MS	MOTOR STARTER	WIND	WINDING
MTR	MOTOR		
NC	NORMALLY CLOSED		

GENERAL INSTRUMENTATION NOTES

1. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE WILL BE EITHER BASED ON ISA STANDARD 5.1-INSTRUMENTATION SYMBOLS AND IDENTIFICATION OR DEFINED ELSEWHERE IN THE P&ID SET.
2. SEE ELECTRICAL AND GENERAL SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
3. SEE SPECIFICATION SECTION 17300 FOR COMPLETE DETAILS OF LOOP DRAWING SUBMITTAL REQUIREMENTS.
4. POWER SUPPLIES FOR INSTRUMENT LOOPS OR SYSTEMS SHALL BE FURNISHED BY THE INSTRUMENTATION SUPPLIER TO MEET THE VOLTAGE AND CURRENT REQUIREMENTS OF THE COMPONENTS IN EACH LOOP OR SYSTEM.
5. FIELD SWITCHES FOR ELECTRIC MOTOR OPERATION SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR. EXCEPTIONS (WHERE NOTED) ARE SWITCHES THAT ARE PART OF VENDOR PACKAGES.
6. VALVE ACTUATORS SHALL BE SUPPLIED WITH THE VALVE BY THE VALVE SUPPLIER, UNLESS OTHERWISE NOTED.

AREA NUMBERING

- GENERAL SHEETS:
  - GENERAL SYMBOLS AND NOMENCLATURE
  - CONTROL / COMMUNICATION NETWORK LAYOUT AND CONNECTIVITY
  - FIELD NETWORK LAYOUT AND CONNECTIVITY
  - NETWORK COMPONENT DETAILS
  - CONTROL PANEL DETAILS AND ELEVATIONS
  - CONTROL ROOM AND SERVER ROOM LAYOUTS
  - INSTRUMENT INSTALLATION DETAILS
- GSI SHEETS: CCTV AND ACCESS CONTROL SYSTEMS
  - SYSTEM NETWORK LAYOUT AND CONNECTIVITY
  - COMPONENT INSTALLATION DETAILS
- WTP AREA NUMBERING:
  - AREA 01 - 09: RAW WATER
  - AREA 10 - 19: PRELIMINARY TREATMENT
  - AREA 20 - 29: PRIMARY TREATMENT
  - AREA 30 - 39: SECONDARY TREATMENT
  - AREA 40 - 49: POST TREATMENT
  - AREA 50 - 59: STORAGE AND DISTRIBUTION
  - AREA 60 - 69: CHEMICAL STORAGE AND FEED SYSTEMS
  - AREA 70 - 79: WASTE HANDLING SYSTEMS
  - AREA 80 - 89: ANCILLARY PROCESS SYSTEMS
  - AREA 90 - 95: PLANT POWER
  - AREA 96 - 99: MISC
- WWTP AREA NUMBERING:
  - AREA 01 - 09: SEWAGE COLLECTION SYSTEMS
  - AREA 10 - 19: PLANT HEADWORKS
  - AREA 20 - 25: PRIMARY TREATMENT
  - AREA 25 - 29: CONTACT BASINS AND AERATION SYSTEMS
  - AREA 30 - 34: SECONDARY TREATMENT
  - AREA 35 - 44: MAIN PLANT CHEMICAL SYSTEMS
  - AREA 45 - 54: TERTIARY TREATMENT
  - AREA 55 - 59: RECLAIMED WATER SYSTEMS
  - AREA 60 - 79: SOLIDS HANDLING
  - AREA 80 - 89: PLANT WIDE PROCESS SUPPORT SYSTEMS
  - AREA 90 - 95: PLANT POWER
  - AREA 96 - 99: MISC

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESIGNED M COTTER
DRAWN R BEAUVAIS
CHECKED

60% DESIGN PHASE - DECEMBER 2020

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SAR ENGINEERING, INC.

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C

GENERAL INSTRUMENTATION AND CONTROLS

LEGEND & NOTES

SHEET: GI-1

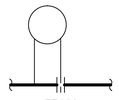
195130227

PLOT DATE: Monday, December 28, 2020 2:45:18 PM

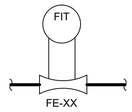
BY: JAIMIE PAYNE

DWG FILE: C:\pwworkdir\d0520974\OS-217 IC P&ID.dwg

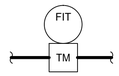
FLOW INSTRUMENTS



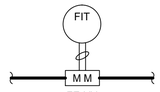
ORIFICE PLATE WITH VENA CONTRACTA, RADIUS, OR PIPE TAPS CONNECTED TO DIFFERENTIAL-PRESSURE -TYPE FLOW TRANSMITTER



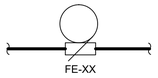
VENTURI TUBE WITH (DIFFERENTIAL PRESSURE) FLOW TRANSMITTER



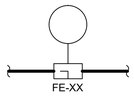
THERMAL MASS FLOW METER



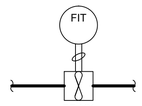
MAGNETIC FLOWMETER WITH REMOTE FLOW TRANSMITTER



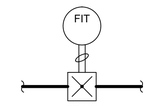
SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)



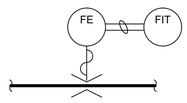
SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE



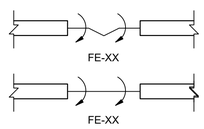
TURBINE OR PROPELLER TYPE FLOW METER



PADDLE WHEEL FLOW METER



FLUME WITH ULTRASONIC FLOW TRANSMITTER



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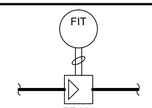
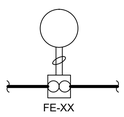
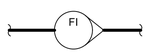


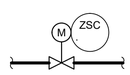


POSITIVE-DISPLACEMENT TYPE FLOW METER

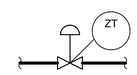


VARIABLE AREA FLOW INDICATOR (ROTAMETER)

POSITION INSTRUMENTS

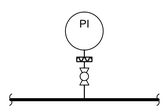


LIMIT SWITCH ON MOTORIZED VALVE INDICATING CLOSED POSITION

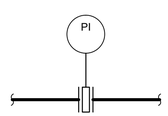


VALVE POSITION TRANSMITTER ON PNEUMATIC ACTUATED VALVE

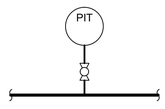
PRESSURE OR VACUUM INSTRUMENTS



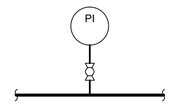
PROCESS LINE WITH DIAPHRAGM SEAL



PROCESS LINE WITH ANNULAR SEAL WITH FILLED SYSTEM

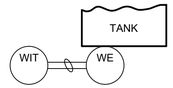


PRESSURE INDICATING TRANSMITTER

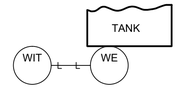


PRESSURE INDICATOR DIRECT - CONNECTED

WEIGHT INSTRUMENTS

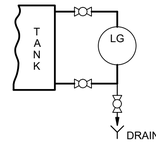


STRAIN GAUGE CONNECTED TO SEPARATE WEIGHT TRANSMITTER (TAG STRAIN GAUGE WE)

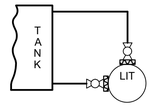


HYDRAULIC ACTUATED WEIGHT TRANSMITTER

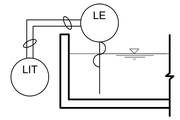
LEVEL INSTRUMENTS



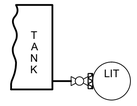
GAUGE GLASS (EXTERNALLY CONNECTED)



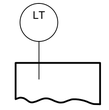
LEVEL TRANSMITTER, DIFFERENTIAL PRESSURE TYPE, (MOUNTED ON TANK)



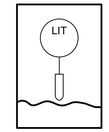
ULTRASONIC LEVEL TRANSMITTER



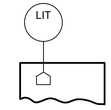
PRESSURE ACTUATED LEVEL TRANSMITTER



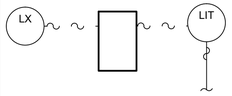
CAPACITANCE OR DIELECTRIC TYPE LEVEL TRANSMITTER



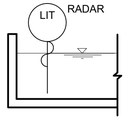
HYDROSTATIC TYPE LEVEL TRANSMITTER



LEVEL TRANSMITTER FLOAT ACTUATED TYPE

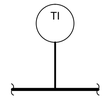


RADIOACTIVE OR SONIC TYPE LEVEL TRANSMITTER WITH INTEGRAL SENSOR

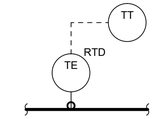


RADAR LEVEL TRANSMITTER

TEMPERATURE INSTRUMENTS

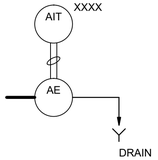


BIMETALLIC TYPE THERMOMETER, GLASS THERMOMETER, OR OTHER LOCAL UNCLASSIFIED TEMPERATURE INDICATOR



THERMOCOUPLE, RESISTANCE BULB (RTD) OR THERMISTOR (TH) TEMPERATURE TRANSMITTER WITH THERMOWELL

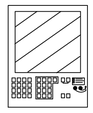
ANALYTICAL INSTRUMENTS



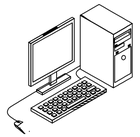
FLOW THROUGH ANALYZING ELEMENT WITH TRANSMITTER

ALK	ALKALINITY
CL_2	CHLORINE CONCENTRATION
COMB	COMBUSTIBLE GAS
CON	CONDUCTIVITY
DO	DISSOLVED OXYGEN
H_2S	HYDROGEN SULFIDE
LEL	LOWER EXPLOSIVE LIMIT
O_2	OXYGEN CONCENTRATION
O_3	OZONE
ORP	OXIDATION/REDUCTION POTENTIAL
PC	PARTICLE COUNTER
PH	HYDROGEN ION CONCENTRATION
SO_2	SULFUR DIOXIDE
TH	TOTAL HARDNESS
TURB	TURBIDITY
UV	ULTRA VIOLET

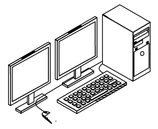
NETWORK AND CONTROL COMPONENTS SYMBOL LIBRARY



PANEL MOUNTED OPERATOR INTERFACE



DESKTOP / CONSOLE WORKSTATION

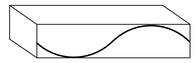


DUAL SCREEN WORKSTATION

LAPTOP

TOWER UPS

PANEL UPS



RACK MOUNT UPS

PRINTER

VARIABLE FREQUENCY DRIVE

STARTER

POWER MONITOR / MPRM

DIN-RAIL MOUNTED MODULAR ETHERNET SWITCH

FIBER TRANSCEIVER

REMOTE I/O CHASSIS

$COMPACTLOGIX_{TM}$ PLC

CONTROLLOGIX® PLC

SIEMENS PLC

RACK MOUNT SERVER

RACK MOUNT KVM SWITCH

RACK MOUNT DIGITAL VIDEO RECORDER

RACK MOUNT 15 PORT MEDIA CONVERTER CHASSIS

RACK MOUNT ROUTER

RACK MOUNT ETHERNET SWITCH REDUNDANT POWER SUPPLY

RACK MOUNT 24 PORT ETHERNET SWITCH

RACK MOUNT NETWORK ACCESSIBLE STORAGE

RACK MOUNT FIBER OPTIC PATCH PANEL

RACK MOUNT FIREWALL APPLICATION

FOUNDATION FIELDBUS MEGABLOCKS

LEASED LINE MODEM

INDUSTRIAL HARDENED SWITCH

YAGI ANTENNA

OMNI ANTENNA

SATELLITE ANTENNA

LATTICE TOWER

MONO-POLE TOWER

POLE-MOUNT CAMERA

CONTROL VALVE ACTUATOR NETWORK SYMBOL

PHONE

ACTIVE TERMINATOR

PASSIVE TERMINATOR

GAS DETECTOR NETWORK SYMBOL

REV	DATE	BY	DESCRIPTION

SCALE

NO SCALE

WARNING

0 ½ 1

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

DESIGNED M COTTER

DRAWN R BEAUVAIS

CHECKED

60% DESIGN PHASE - DECEMBER 2020

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SAR ENGINEERING, INC.

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C

GENERAL INSTRUMENTATION AND CONTROLS

SYMBOLS

SHEET

GI-2

195130227

PLOT DATE: Monday, December 28, 2020 2:45:57 PM

BY: JAIMIE PAYNE

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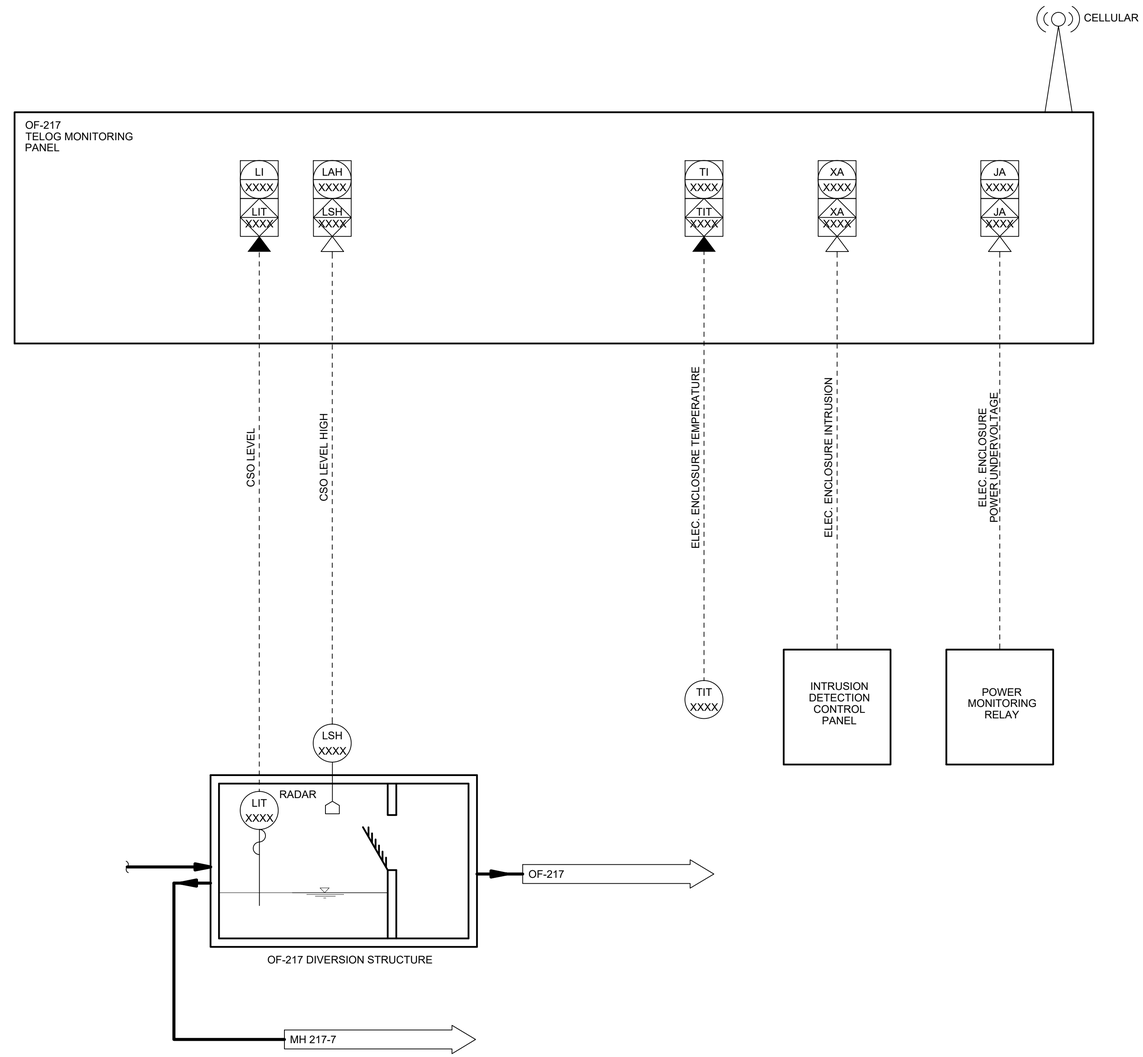

PLOT DATE: Monday, December 28, 2020 2:47:07 PM BY: JAIMIE PAYNE

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REV	DATE	BY	DESCRIPTION

SCALE

NO SCALE

WARNING

0 ½ 1

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

DESIGNED M COTTER

DRAWN R BEAUVAIS

CHECKED

60% DESIGN PHASE - DECEMBER 2020

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SAR ENGINEERING, INC.

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER
OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C

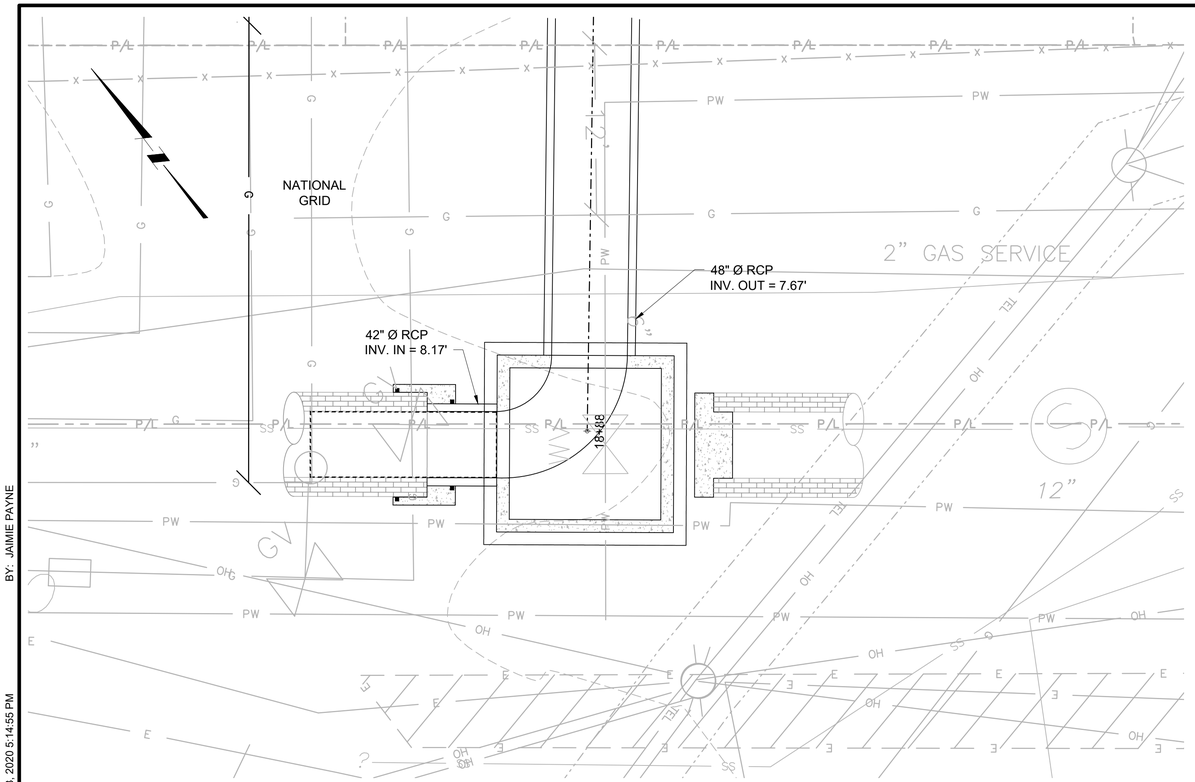
INSTRUMENTATION AND CONTROLS

OF-217 DIVERSION STRUCTURE P&ID DIAGRAM

SHEET

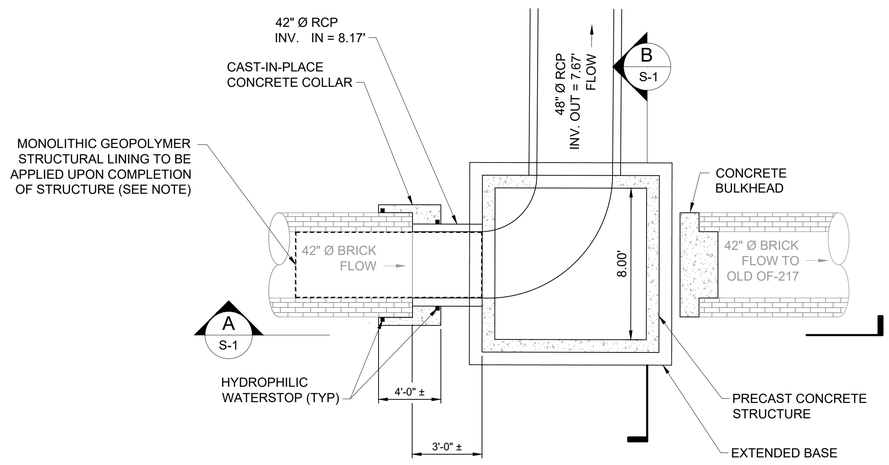
I-1

195130227



SITE PLAN VIEW

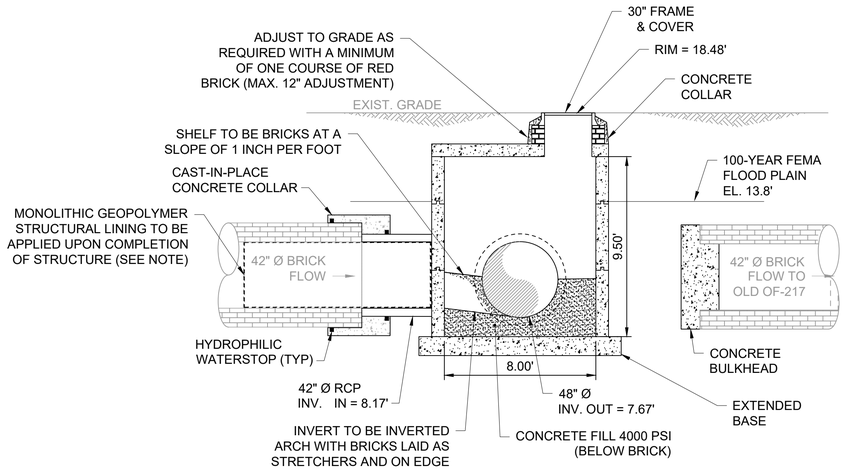
SCALE: 1" = 4'-0"



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

PLAN VIEW

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

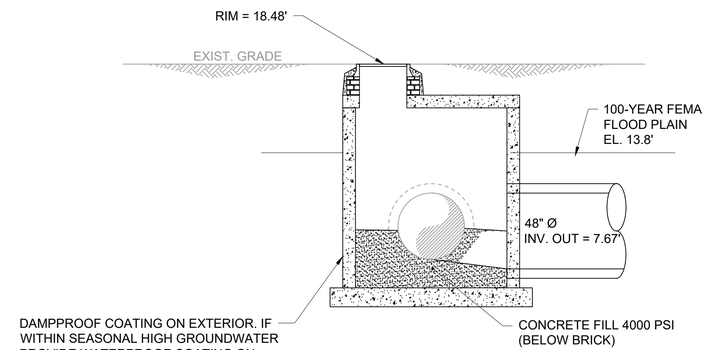


A SECTION

S-1

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

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



B SECTION

S-1

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

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — 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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Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER
OVERFLOW PROGRAM

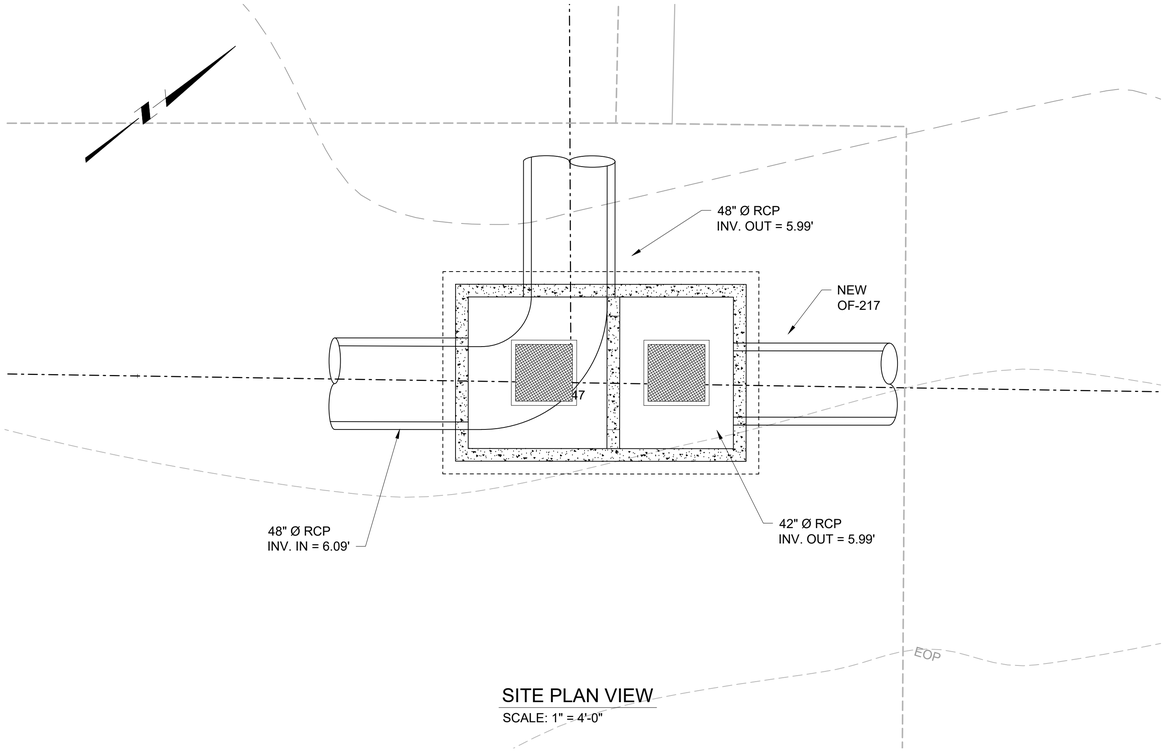
Stantec PARE

NBC CONTRACT NO 308.05C

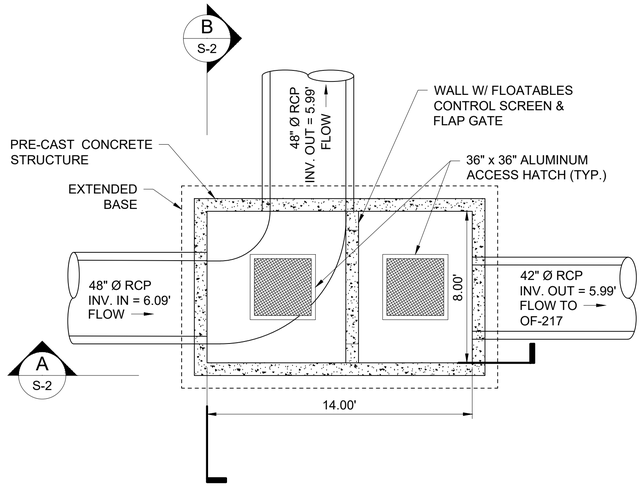
STRUCTURAL
OF-217 CONSOLIDATION CONDUIT
OF-217 RELOCATION STRUCTURE
PLAN AND SECTIONS

SHEET
S-1
195130227

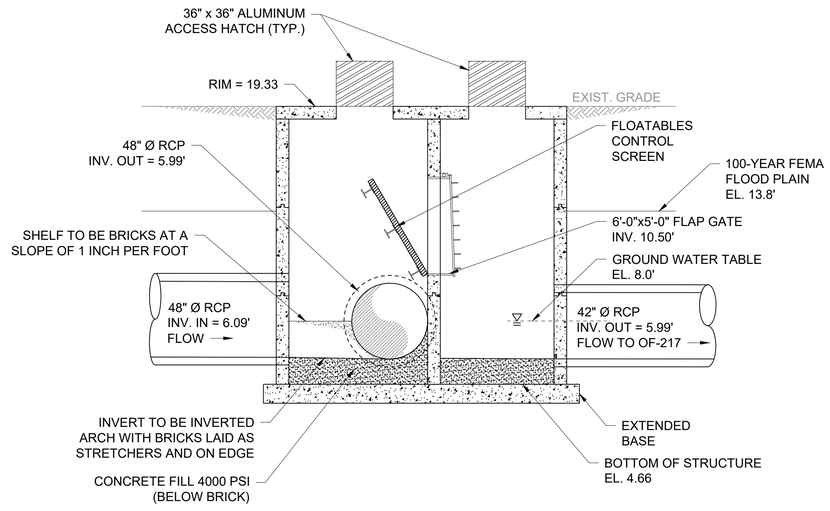
DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-5_DIVERSION STRUCTURES_PLAN_SECTION.dwg, Monday, December 28, 2020 5:14:55 PM
BY: JAIMIE PAYNE



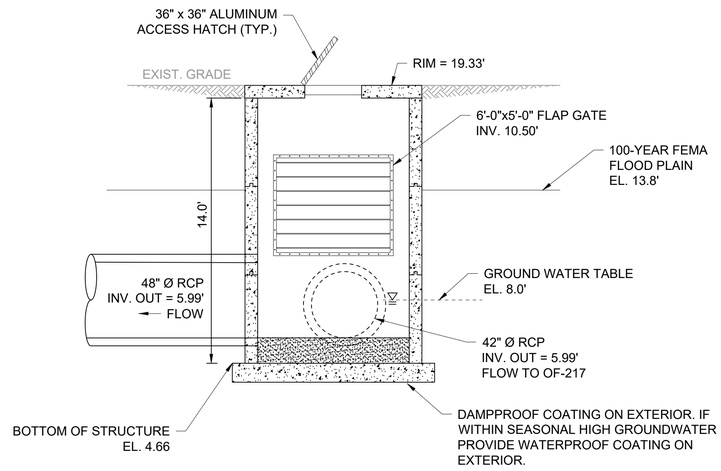
SITE PLAN VIEW
SCALE: 1" = 4'-0"



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



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



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

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

SCALE: AS SHOWN

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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DRAWN B MARINI
CHECKED J. D'ALESIO

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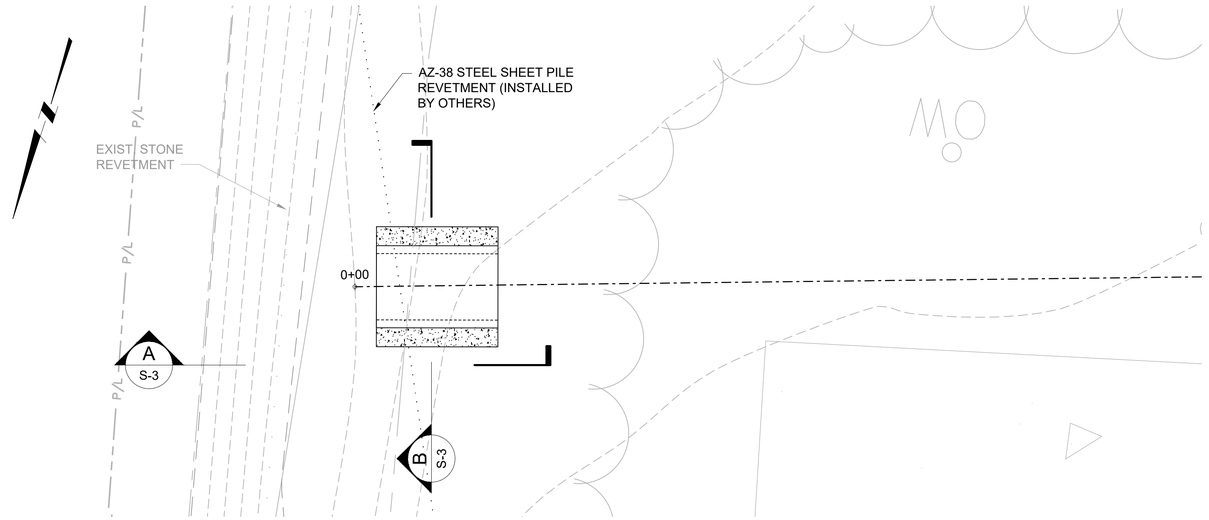
PHASE III COMBINED SEWER
OVERFLOW PROGRAM

Stantec PARE

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

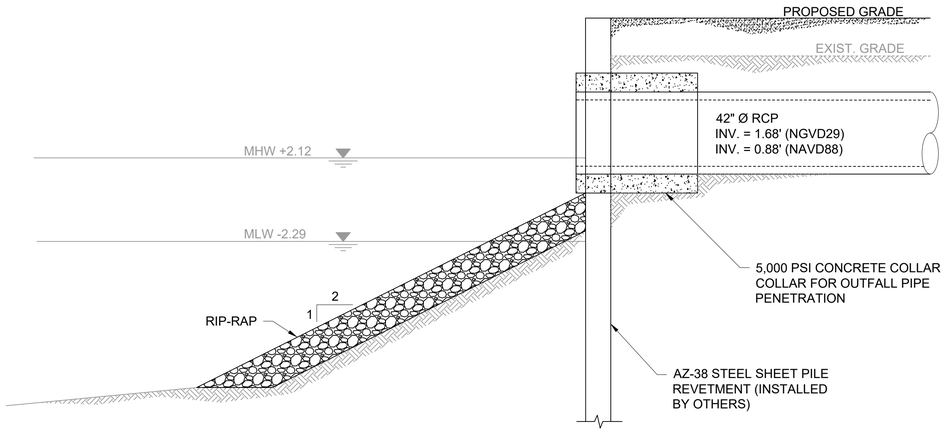
SHEET
S-2
195130227

DWG FILE: J:\6412 NBC CSO Consolidation Conduits\Drawing Files\Civil\Sheet Set\PAWT_IIIA-5_DIVERSION STRUCTURES_PLAN_SECTIONS.dwg, Monday, December 28, 2020 5:15:58 PM
BY: JAIMIE PAYNE



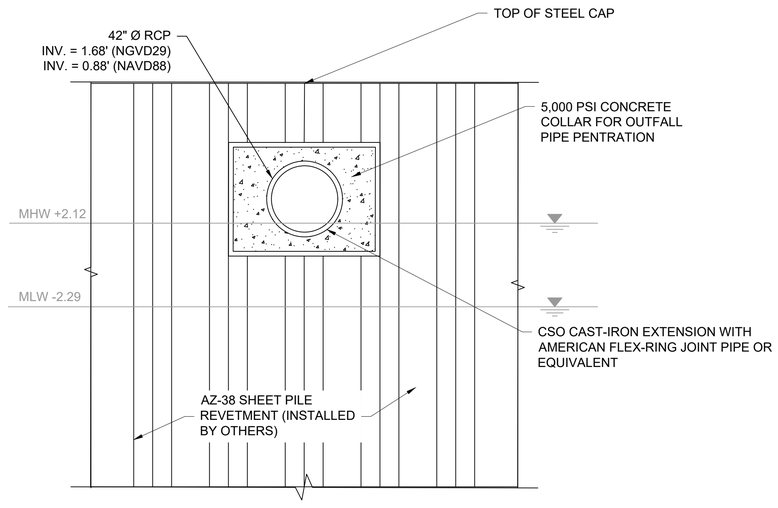
SITE PLAN VIEW

SCALE: 1" = 4'-0"



A S-3 SECTION

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



B S-3 SECTION

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

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

SCALE: AS SHOWN

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PHASE III COMBINED SEWER
OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C

STRUCTURAL

OF-217 CONSOLIDATION CONDUIT
OF-217 REVETMENT
PLAN AND SECTION

SHEET

S-3

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BY: JAIMIE PAYNE

SINGLE LINE DIAGRAM, SCHEMATIC DIAGRAM SYMBOLOGY AND PLAN SYMBOLOGY

LOC — THERMAL MAGNETIC CIRCUIT BREAKER
LOC = LOCATION
100 — FRAME (AMPS)
20 — TRIP (AMPS)

LOC — MCP CIRCUIT BREAKER
LOC = LOCATION
100 — CONTINUOUS AMPS
MCP — INSTANTANEOUS TRIP
MOTOR CIRCUIT PROTECTOR

LOW VOLTAGE DRAWOUT CIRCUIT BREAKER
100
20
(L-S-I-G)

L	LONG TIME
S	SHORT TIME
I	INSTANTANEOUS
G	GROUND FAULT

X — COMBINATION NEMA RATED STARTER WITH MCP DISCONNECT AND CONTROL POWER TRANSFORMER
40
MCP
*
ROMAN NUMERAL = NEMA SIZE
X = LOCATION
* = STARTER TYPE

(BLANK)	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
2S2W	TWO SPEED TWO WINDING
2S1W	TWO SPEED ONE WINDING

X — VARIABLE FREQUENCY DRIVE
VFD — X = AMPERE RATING

X — REDUCED VOLTAGE SOLID STATE STARTER
RVSS — X = AMPERE RATING

X / Y — PACKAGED EQUIPMENT
X = EQUIPMENT SIZE
Y = TYPE (KW, KVA, OR HP AS INDICATED)

GENERATOR
RATINGS AS INDICATED

TRANSFER SWITCH (MANUAL OR AUTOMATIC)
RATINGS AS INDICATED

X — METERING DEVICE
X = METER TYPE

WHM	WATT HOUR METER
WM	WATT METER
AM	AMMETER
VM	VOLTMETER
PFM	POWER FACTOR METER

480/120 — (3) — POTENTIAL TRANSFORMER
RATIO AND NUMBER OF PT'S AS INDICATED

100/5 — (3) — CURRENT TRANSFORMER
RATIO AND NUMBER OF CT'S AS INDICATED

GROUND FAULT CURRENT TRANSFORMER
RATIO AS INDICATED

5A — FUSE
SIZE AS INDICATED

X — MOTOR
X = HORSEPOWER
* = FULL LOAD AMPS

DELTA-WYE TRANSFORMER WITH
SECONDARY KVA SIZE AND VOLTAGE
RATIO AS INDICATED

MOV — ELECTRICAL MOTOR OPERATED VALVE, WITH INTEGRAL REVERSING STARTER

30A — DISCONNECT SWITCH
SIZE AS INDICATED

30A / 30A — FUSED DISCONNECT SWITCH
SIZE AS INDICATED

REV 01102013

SPD — SURGE PROTECTIVE DEVICE

SSM — SOLID STATE METERING DEVICE

SSMP — SOLID STATE MOTOR PROTECTIVE DEVICE

L O R — THREE - POSITION SELECTOR SWITCH

VACUUM OR PRESSURE SWITCH
CLOSE ON RISING PRESSURE

VACUUM OR PRESSURE SWITCH
OPEN ON RISING PRESSURE

FLOAT LEVEL SWITCH
CLOSE ON RISING LEVEL

FLOAT LEVEL SWITCH
OPEN ON RISING LEVEL

NORMALLY OPEN

NORMALLY CLOSED

NORMALLY OPEN HELD CLOSED

NORMALLY CLOSED HELD OPEN

TEMPERATURE SWITCH
CLOSE ON RISING TEMPERATURE

TEMPERATURE SWITCH
OPEN ON RISING TEMPERATURE

FLOW SWITCH
CLOSE ON INCREASING FLOW

FLOW SWITCH
OPEN ON INCREASING FLOW

E-STOP PUSHBUTTON

X — CONTROL RELAY OR COIL
X = DEVICE

CR	CONTROL RELAY
TD	TIME DELAY RELAY (TIMING RANGE AS INDICATED)
M	MOTOR STARTER
PC	PHOTOCELL

NORMALLY OPEN CONTACT

NORMALLY CLOSED CONTACT

TIMED CONTACTS
CONTACT ACTION IS DELAYED AFTER COIL IS:

ENERGIZED

TD1 — NORMALLY OPEN WITH TIME DELAY CLOSING

TD1 — NORMALLY CLOSED WITH TIME DELAY OPENING

DE-ENERGIZED

TD1 — NORMALLY OPEN WITH INSTANT CLOSING AND TIME DELAY OPENING

TD1 — NORMALLY CLOSED WITH INSTANT OPENING AND TIME DELAY CLOSING

START — NORMALLY OPEN PUSHBUTTON (MOMENTARY)

STOP — NORMALLY CLOSED PUSHBUTTON (MOMENTARY)

OFF ON — NO/NC MAINTAINED PUSHBUTTON

X — PILOT LIGHT
X = LENS COLOR

R	RED
G	GREEN
A	AMBER
W	WHITE

X — PILOT LIGHT (PUSH-TO-TEST)
X = LENS COLOR (SEE ABOVE)

HORN

ETM — ELAPSED TIME METER

HEATER

GROUND CONNECTION

CROSSING OF CONDUCTORS - NOT CONNECTED

CROSSING OF CONDUCTORS - CONNECTED

FUSE

VOLTAGE SURGE SUPPRESSOR

RECEPTACLES

X-# — 120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5-20R (WALL MOUNT)
X = PANELBOARD DESIGNATION
# = CIRCUIT DESIGNATION
* = TYPE

WP	WEATHERPROOF
XP	EXPLOSION PROOF
GFCI	GROUND FAULT CIRCUIT INTERRUPTER

CONDUIT AND RACEWAY SYMBOLOGY

EXPOSED OR CONCEALED CONDUIT

CONDUIT RUN (UNDERGROUND OR IN CONCRETE)

CONDUIT RUN (CHANGE IN ELEVATION)

CONDUIT TURNING UP

CONDUIT TURNING DOWN

CONDUITS GROUPED TOGETHER BUT SHOWN AS A SINGLE LINE FOR CLARITY

CONDUIT FROM FLOOR ABOVE TO FLOOR BELOW

CONDUIT CAPPED, OR SEALED

J — JUNCTION BOX OR FITTING

CONDUIT WITH EYS SEAL

MISCELLANEOUS ELECTRICAL SYMBOLOGY

POWER PANEL

DISCONNECT SWITCH

M — MOTOR

T — THERMOSTAT

HORN

COMBINATION STARTER

SPD — SURGE PROTECTION DEVICE

SPD — POWER MONITORING RELAY

XXX / XXXX — INSTRUMENTATION

LIGHTING SYMBOLOGY

X-#a — PENDANT OR CEILING MOUNT LUMINAIRE
X = LIGHTING PANEL DESIGNATION
# = CIRCUIT NUMBER
a = SWITCH DESIGNATION

PENDANT OR CEILING MOUNT LUMINAIRE - UNSWITCHED (NIGHT LIGHT)

WALL MOUNTED LUMINAIRE

POLE, BRACKET, ARM, AND STREETLIGHT

LED LUMINAIRE

LED LUMINAIRE - UNSWITCHED

EMERGENCY LUMINAIRE
BATTERY OPERATED

EXIT LIGHT, SHOWN WITH TWO ILLUMINATED SIDES, ARROWS INDICATE DIRECTION OF EXIT

A / * — LUMINAIRE CALLOUT
A = LUMINAIRE TYPE
* = APPROXIMATE MOUNTING HEIGHT AFF
CLG = CEILING MOUNT
(SEE LUMINAIRE SCHEDULE FOR MORE DETAILS)

S X-#a * — LIGHT SWITCH
X = LIGHTING PANEL DESIGNATION
# = CIRCUIT DESIGNATION
a = SWITCH DESIGNATION
* = SWITCH TYPE

3	3-WAY
4	4-WAY
D	DIMMER
M	MANUAL MOTOR STARTER

LIGHTING PANEL

GROUNDING SYMBOLOGY

GROUND ROD AND GROUND WELL

GROUND ROD (3/4" X 10'-0")

GROUND CONNECTION - BOLTED TYPE

GROUND CONNECTION - EXOTHERMIC TYPE

BARE COPPER GROUND TO GROUND WIRE IN SLAB, OR UNDERGROUND GROUND GRID, SIZE AS NOTED

EARTH GROUNDING

FIRE PROTECTION SYMBOLOGY

* — DETECTOR
X = TYPE

SD	SMOKE DETECTOR
HD	HEAT DETECTOR
CD	COMBINATION DETECTOR

SECURITY SYMBOLOGY

* / VC — VIDEO CAMERA
* = TYPE

F	FIXED
PTZ	PAN-TILT-ZOOM

* — SECURITY ACCESS DEVICE
* = TYPE

CR	CARD READER
KP	KEY PAD
PS	DIGITAL KEYPAD
DC	DOOR CONTACT

GENERAL ELECTRICAL NOTES

1. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST APPROVED SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
3. REFER TO SPECIFICATION SECTION 16130 FOR REQUIREMENTS RELATED TO FLEXIBLE CONDUIT INSTALLATION CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE
4. INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS. REFER TO SPECIFICATION SECTION 16130.
5. CONDUIT STUB-UPS SHALL NOT BE MORE THAN 6 INCHES FROM THE CENTERLINE OF TERMINAL BOXES.
6. IN THE EVENT OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AND THE ENGINEER SHALL APPROVE PROPOSED CHANGES BEFORE THEY ARE MADE.
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4 INCH (MINIMUM) AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. LOCATION OF PULLBOXES ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH MECHANICAL PIPING AND SHALL BE 6 INCHES (MINIMUM) AWAY FROM MECHANICAL PIPING FLOW LINES.
9. ONLY MAJOR PULLBOXES ARE SHOWN. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
10. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DWGS.
12. LUMINAIRES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LUMINAIRE TO THE FINISHED FLOOR. THE APPROPRIATE MOUNTING BRACKETS AND HARDWARE SHALL BE SUPPLIED.
13. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE CENTERLINE OF THE TOP CIRCUIT BREAKER OPERATING HANDLE IN THE UPPERMOST POSITION TO THE FINISHED FLOOR SHALL NOT EXCEED 6'-7".
14. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
15. CONNECTIONS BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOXES OR SIMILAR EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT.
16. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO MOTORS AND OTHER EQUIPMENT.
17. CONDUITS FOR FUTURE EQUIPMENT OR EXTENSIONS SHALL BE TERMINATED AS SHOWN IN DETAIL OR AS SPECIFIED.
18. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS SHALL BE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES WITH WEATHERPROOF COVERS.
19. ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY THE SCOPE OF WORK WITH FIELD CONDITIONS.
20. EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS.
21. FOR LIGHTING AND RECEPTACLE SYSTEMS, ONLY CIRCUIT NUMBERS ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS, WIRES,FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS, TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. ALL CONDUIT RUNS SHALL BE CONCEALED UNLESS INDICATED OTHERWISE. CIRCUIT LOADING SHALL BE AS INDICATED IN THE PANEL SCHEDULES. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL INCLUDE GROUND WIRE.

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING
0 ½ 1
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DESIGNED M COTTER
DRAWN R BEAUVAIS
CHECKED

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Narragansett Bay Commission
NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM
Stantec PARE

NBC CONTRACT NO 308.05C
GENERAL ELECTRICAL
NOTES & SYMBOLS

SHEET
GE-1
195130227

PLOT DATE: Monday, December 28, 2020 2:34:32 PM
BY: JAIMIE PAYNE
DWG FILE: C:\pwworkdir\d0520986\OF-217 Electrical - 2013.dwg

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
KCMIL	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	PHOTOCELL
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

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 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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SAR ENGINEERING, INC.

Narragansett Bay Commission

NARRAGANSETT BAY COMMISSION
PHASE III COMBINED SEWER OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C

ELECTRICAL

ABBREVIATIONS

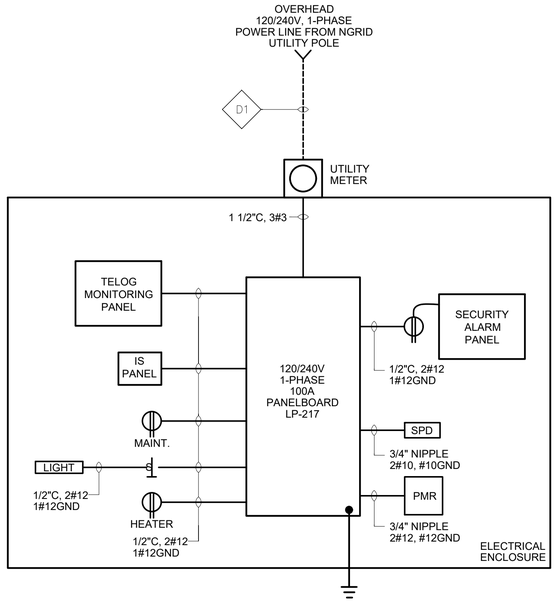
SHEET: GE-2

195130227

PLOT DATE: Monday, December 28, 2020 2:35:11 PM

BY: JAIMIE PAYNE

DWG FILE: C:\pwworkdir\d0520986\OF-217 Electrical - 2013.dwg



ONE LINE DIAGRAM
NOT TO SCALE

PANEL SCHEDULE

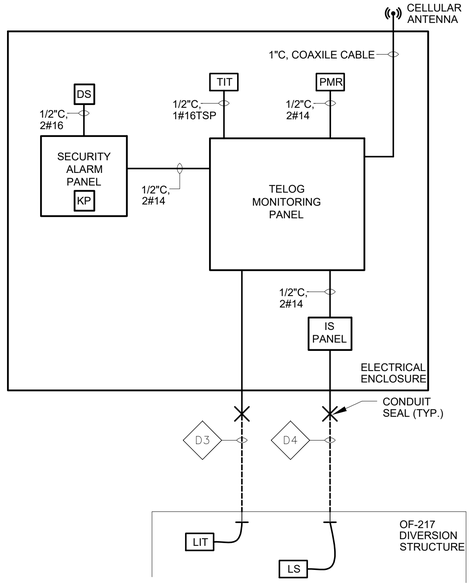
NO. LP-217 LOCATION: 0F-217 ELECTRICAL ENCLOSURE

120/240 V, 1 PH, 3 W, 100 A MAIN, 100% SOLID NEUTRAL; 100 A MCB
10,000 AIC AT 120 V FULL GROUND BUS - A MLO SURFACE MOUNT

	CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA) L1	LOAD (KVA) L2	BREAKER TRIP	BREAKER POLE		BREAKER POLE	BREAKER TRIP	LOAD (KVA) L1	LOAD (KVA) L2	DESCRIPTION OF LOAD	CIRCUIT
	1	ENCLOSURE LIGHT	0.05		20	1		1	20	0.50		TELOG MONITORING PANEL	2
*	3	ENCLOSURE RECEPTACLE		0.20	20	1		1	20		0.50	SECURITY ALARM PANEL	4
*	5	HEATER RECETPACLE	0.50		20	1		1	20	0.10		IS PANEL	6
	7	SPARE		-	20	1		1	20		-	SPARE	8
	9	SPARE	-		20	1		1	20	-		SPARE	10
	11	SPARE		-	20	1		1	20		-	SPARE	12
	13	SPARE	-		20	1		1	20	-		SPARE	14
	15	SPARE		-	20	1		1	20		-	SPARE	16
	17	SURGE PROTECTION DEVICE	-					2	20	-		POWER MONITORING RELAY	18
	19			-							-		20
		SUB-TOTAL CONNECTED	–	–						-	-	SUB-TOTAL CONNECTED	

* - PROVIDE GFCI BREAKER

SUB-TOTAL CONNECTED — KVA L1 = -
SUB-TOTAL CONNECTED — KVA L2 = -
TOTAL CONNECTED — KVA = -



CONTROL BLOCK WIRING DIAGRAM
NOT TO SCALE

REV	DATE	BY	DESCRIPTION

SCALE: NO SCALE

WARNING: 0 ½ 1 — IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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DRAWN R BEAUVAIS
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OVERFLOW PROGRAM
Stantec PARE

NBC CONTRACT NO 308.05C
ELECTRICAL
ONE LINE DIAGRAM
CONTROL BLOCK WIRING DIAGRAM, AND PANEL SCHEDULE

SHEET
E-1
195130227

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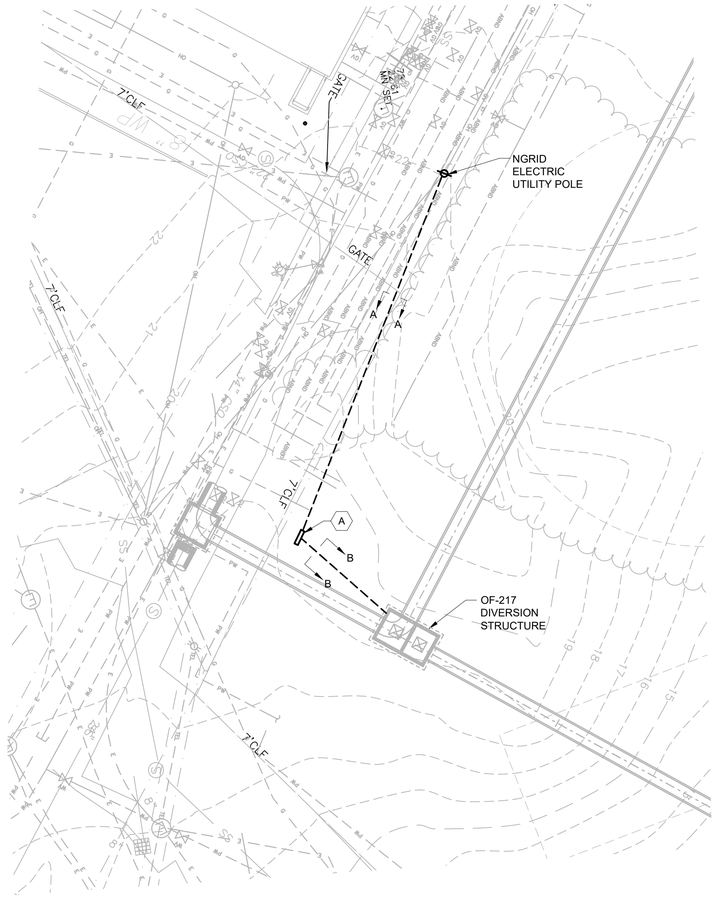
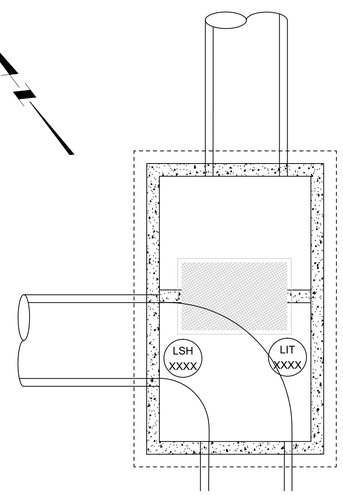


SITE PLAN

SCALE: 1" = 20'

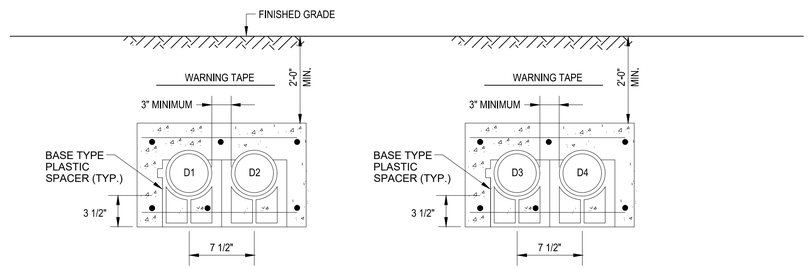


OF-217 DIVERSION STRUCTURE

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

DUCT / CABLE SCHEDULE

DUCT NO.	SIZE	CONDUCTORS	FROM	TO
D1	2"	3#3	UTILITY POLE	UTILITY METER
D2	2"	PULL STRING	UTILITY POLE	STUB UP BELOW UTIILITY METER
D3	1"	(1) #16TSP	TELOG MONITORING PANEL	OF-217 DIVERSION STRUCTURE LEVEL TRANSMITTER
D4	1"	(2) #14,	TELOG MONITORING PANEL	OF-217 DIVERSION STRUCTURE FLOAT SWITCHES



SECTION A-A

SECTION B-B

NOTES:

1. 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.
2. A MINIMUM OF 12" SEPARATION SHALL BE KEPT BETWEEN DUCT BANK SECTIONS WITHIN SAME TRENCH.

DUCTBANK SECTIONS

NO SCALE

KEY PLAN

GENERAL SHEET NOTES

1. NONE

SHEET KEYNOTES

A. NEMA 4X ALUMINUM ELECTRICAL ENCLOSURE, 48"X48"X12"

PLOT DATE: Monday, December 28, 2020 2:38:22 PM BY: JAIMIE PAYNE

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REV	DATE	BY	DESCRIPTION

SCALE: AS SHOWN

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DESIGNED M COTTER

DRAWN R BEAUVAIS

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PHASE III COMBINED SEWER
OVERFLOW PROGRAM

Stantec PARE

NBC CONTRACT NO 308.05C

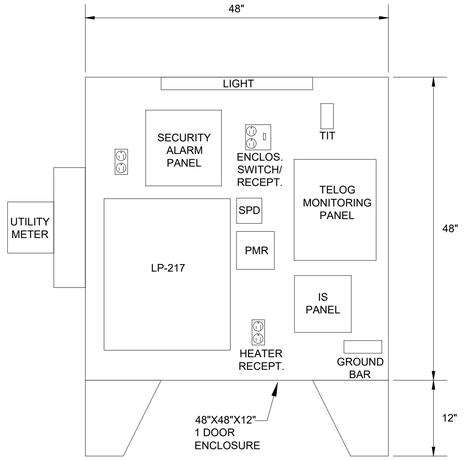
ELECTRICAL

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

SHEET

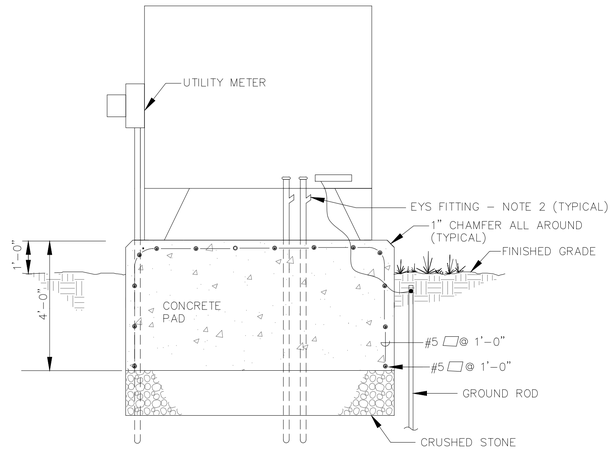
E-2

195130227



ELECTRICAL ENCLOSURE - EQUIPMENT LAYOUT

SCALE: 1" = 1'-0"



NOTES:

1. FOR REINFORCING REQUIREMENTS SEE STRUCTURAL SPECIFICATIONS.
2. TEMPORARY FILL EYS FITTINGS WITH ELECTRICAL SILICONE SEALANT PUTTY UNTIL PUMP STATION HAS BEEN COMPLETELY TESTED, COMMISSIONED, ACCEPTED BY OWNER.

ELECTRICAL ENCLOSURE BASE DETAIL

NOT TO SCALE

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Stantec PARE

NBC CONTRACT NO 308.05C
ELECTRICAL
DETAILS

SHEET
E-3
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