

\* SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

## CERTIFICATION

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO 435-RICR-00-01, 1.9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON APRIL 28, 2018, AS FOLLOWS:

TYPE OF BOUNDARY SURVEY: MEASUREMENT / ACCURACY SPECIFICATION:  
COMPREHENSIVE BOUNDARY SURVEY /

DATA ACCUMULATION: III

TOPOGRAPHIC SURVEY: T-1

THE PURPOSE FOR CONDUCTING THIS SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:

BOUNDARY & TOPOGRAPHIC SURVEY FOR THE FUTURE DEVELOPMENT OF THE PROPERTY.

BY: RICHARD S. LIPSITZ, P.L.S.  
WATERMAN ENGINEERING COMPANY (COA No. LS.0004483)

REG. NO. 1837

DATE 11/17/2022

## SEEDING FOR TEMPORARY VEGETATIVE COVER

### PURPOSE:

- TO STABILIZE THE SOIL WITH VEGETATION FOR ONE TO 12 MONTHS
- TO REDUCE DAMAGE FROM WIND AND/OR WATER EROSION & SEDIMENTATION UNTIL PERMANENT STABILIZATION IS ACHIEVED

### APPLICABILITY:

- STABILIZING DISTURBED CONSTRUCTION AREAS WHICH HAVE BEEN INACTIVE FOR OVER 14 DAYS
- ON EXPOSED SOILS THAT HAVE THE POTENTIAL FOR PRODUCING SEDIMENT & CAUSING ON-OR OFF-SITE DAMAGES, SUCH AREAS MAY INCLUDE ROAD BANKS, STOCKPILES, BORROW PITS AS WELL AS OTHER UNSTABLE OR DISTURBED AREAS
- FOLLOWING SOIL PREPARATION AND TOPSOILING AS REQUIRED IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)**
- NOT FOR STABILIZING AREAS THAT ARE TO BE LEFT ACTIVE FOR MORE THAN ONE YEAR

### INSTALLATION REQUIREMENTS:

#### SITE PREPARATION

- INSTALL NEEDED EROSION CONTROL MEASURES SUCH
- GRADE AS NEEDED

#### SEEDING PREPARATION

- LOOSEN THE SOIL TO A DEPTH OF THREE TO FOUR INCHES WITH A SLIGHTLY ROUGH SURFACE. THIS PREPARATION MAY BE ACCOMPLISHED BY RAKING, DISCING, DRAGGING A SECTION OF CHAIN LINK FENCE AND/OR TRAVELING THE AREA WITH TRACKED EQUIPMENT. OVER COMPACTION SHOULD BE AVOIDED AND TRACKED EQUIPMENT CLEAT MARKS SHALL BE PERPENDICULAR TO THE ANTICIPATED DIRECTION OF SURFACE FLOW

#### SOIL AMENDMENTS

- APPLY LIMESTONE & FERTILIZER ACCORDING TO SOIL RECOMMENDATIONS SUCH AS THOSE OFFERED BY THE UNIVERSITY OF RHODE ISLAND SOIL TESTING LABORATORY OR OTHER RELIABLE SOURCES
- A pH RANGE OF 6.2 TO 7.0 IS OPTIMAL FOR PLANT GROWTH OF MOST GRASS SPECIES
- IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TESTING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 300 POUNDS PER ACRE OR 7.5 POUNDS PER 1,000 SQUARE FEET USING FERTILIZER OF THE FOLLOWING:
  - 10 PERCENT AVAILABLE NITROGEN (N)
  - 10 PERCENT AVAILABLE PHOSPHORIC ACID (P)
  - 10 PERCENT AVAILABLE POTASSIUM (K)

- FERTILIZER SHOULD ALWAYS BE APPLIED TO MEET THE REQUIREMENTS OF THE SITE. THE ADDITION OF SUPPLEMENTARY NITROGEN MAY CAUSE POLLUTION OF DRINKING WATERS AND SALINITY OF ECOSYSTEMS
- NUTRIENTS SHOULD BE PRIMARILY SLOW RELEASE (WHETHER SYNTHETIC OR ORGANIC, AND IF THE SITE IS NOT TO BE FERTILIZED AFTER ESTABLISHMENT THEN 5.4 LBS SLOW RELEASE NITROGEN PER 1,000 SQUARE FEET IS NECESSARY TO PREVENT NUTRIENT DEFICIENCY AND PLANT DEATH. SLOW RELEASE NUTRIENTS ARE NOT SALT-BASED, AND SO WILL NOT BURN GRASS. SLOW RELEASE NITROGEN IS ALSO KNOWN AS WATER INSOLUBLE NITROGEN. CLASS 4 BIOSOLIDS SHOULD BE CONSIDERED AS A SOURCE OF INEXPENSIVE SLOW RELEASE NUTRIENTS FOR ROADSIDES OR OTHER AREAS WITH MINIMAL PEDESTRIAN TRAFFIC
- SEE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. SEEDING FOR TEMPORARY VEGETATIVE COVER. FIGURE 1 FOR CALCULATING THE FERTILIZER APPLICATION RATES

### SEEDING

- SELECT SEED USING RECOMMENDATION GIVEN IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. SEEDING FOR TEMPORARY VEGETATIVE COVER. FIGURE 2
- ONLY USE SEED THAT IS LABELED IN ACCORDANCE WITH THE PROVISIONS OF THE RHODE ISLAND SEED ACT OF 1986 VOLUME 8, TITLE 2, CHAPTER 6 (AND ITS AMENDMENTS)
- APPLY SEED UNIFORMLY BY HAND, CYCLO-SEEDER, DRILL, CATTLEPICKER TYPE SEEDER OR HYDROSEEDER (SLURRY SEED & FERTILIZER) ACHIEVING GOOD SEED TO SOIL CONTACT
- HYDROSEEDING, WHICH INCLUDES MULCH, MAY BE LEFT ON THE SOIL SURFACE
- SEEDING RATES MUST BE INCREASED 10 PERCENT WHEN HYDROSEEDING

### MULCHING

- APPLY MULCH ACCORDING TO THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. MULCHING

### IRRIGATION

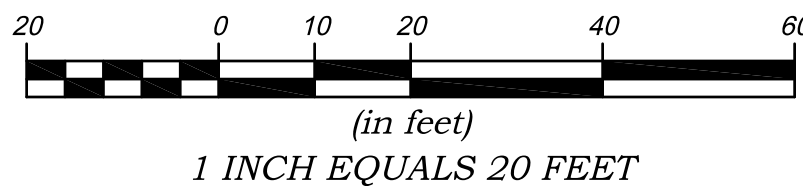
- IRRIGATION/WATERING MAY BE NECESSARY TO ESTABLISH NEWLY SEEDED AREAS SHOULD DROUGHT CONDITIONS OCCUR AFTER EMERGENCE OF SEED. IRRIGATION/WATERING SHOULD NOT EXCEED THE APPLICATION RATE OF THE SOIL AND RESULT IN EROSION

### INSPECTION, MAINTENANCE & REMOVAL REQUIREMENTS

- SEEDING AREAS SHOULD BE INSPECTED AT LEAST ONCE PER WEEK & WITHIN 24 HOURS FOLLOWING A PRECIPITATION EVENT WITH A RAINFALL AMOUNT OF 0.25 INCH OR GREATER FOR EROSION AND SEED AND MULCH MOVEMENT
- WHERE EROSION HAS OCCURRED OR SEED HAS MOVED, THE CAUSE OF THE FAILURE SHOULD BE IDENTIFIED AND THE AREA RESEEDED AND REMULCHED. IF THE WIND WAS THE CAUSE OF THE MOVEMENT, THE EROSION DAMAGE SHOULD BE REPAIRED (RESEED AND REMULCH) AND SUPPLEMENTED WITH MULCH ANCHOR. SHOULD CONCENTRATED RUNOFF BE THE CAUSE OF FAILURE, ADDITIONAL MEASURES TO CONTROL WATER AND SEDIMENT MOVEMENT SHOULD BE INSTALLED. THE EROSION DAMAGE REPAIRED, AND THE AREA RESEEDED WITH THE NEW MULCH AND ANCHORING OR USE TEMPORARY EROSION CONTROL BLANKET. CAUTION SHOULD BE USED WHEN USING SYNTHETIC PRODUCTS AS THEY MAY BE DIFFICULT TO REMOVE PRIOR TO THE ESTABLISHMENT OF THE PERMANENT VEGETATIVE COVER
- TEMPORARY VEGETATIVE COVER SHALL NOT BE CONSIDERED ESTABLISHED UNTIL GROUND COVER (APPROXIMATELY 80% VEGETATIVE SURFACE COVER) CONTROLS SOIL EROSION AND WITHSTANDS SEVERE WEATHER CONDITIONS

RHODE ISLAND DEPT. of ENVIRONMENTAL MANAGEMENT  
RHODE ISLAND POLLUTION DISCHARGE ELIMINATION  
SYSTEM SUBMISSION

## GRAPHIC SCALE



### COPYRIGHT

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WATERMAN ENGINEERING CO.  
CIVIL ENGINEERS & SURVEYORS  
40 SUTTON AVENUE  
EAST PROVIDENCE, RI 02914-2006

SAYLES STREET  
(PUBLIC - 40' 12" WIDTH)  
(UNIMPROVED)

N/F  
A.P. 47, LOT 209  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 210  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 211  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 212  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 213  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 214  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 215  
ROLAND REALTY, INC.

N/F  
A.P. 47, LOT 216  
ROLAND REALTY, INC.

## NOTES / REFERENCES

- SEE SHEET 2 FOR EXISTING NOTES & REFERENCES.
- SEE SHEET 1 FOR THE FOLLOWING NOTES & LEGENDS: EXISTING & PROPOSED LEGENDS, GENERAL NOTES, LAYOUT & MATERIAL NOTES, SOIL EROSION & SEDIMENTATION CONTROL NOTES, DEMOLITION NOTES, TRAFFIC NOTES, AS-BUILT NOTES, RIOT NOTES, GRADING & UTILITY NOTES, ABBREVIATION LEGEND, SOIL INFORMATION AND SITE CALLOUT LEGEND. ADDITIONAL NOTES MAY BE FOUND ON OTHER DRAWING SHEETS.

## SEEDING FOR PERMANENT VEGETATIVE COVER

### PURPOSE:

- TO PERMANENTLY STABILIZE DISTURBED OR ERODIBLE SOILS WITH VEGETATION COVER
- TO PREVENT THE SEPARATION AND TRANSPORT OF SEDIMENT BY WATER, WIND AND/OR GRAVITY

### APPLICABILITY:

- ON SITES WITH DISTURBED OR ERODIBLE SOILS (VEGETATION REMOVED, TOPSOIL DISTURBED OR SOIL COMPACTED)
- ON SITES WHERE THE SUSPENSION OF WORK IS EXPECTED TO EXCEED ONE YEAR
- ON SITES WHERE SLOPES LESS THAN 100 FEET LONG AND 2:1 OR FLATTER HAVE BEEN DISTURBED
- FOLLOWING SOIL PREPARATION AND TOPSOILING AS REQUIRED IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)**
- NOT FOR BEDROCK CUTS OR PILES

NOTE: FOR SLOPES STEEPER THAN 2:1, SEE THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)**, SLOPE STABILIZATION METHODS

NOTE: APPROPRIATE COASTAL SPECIES MUST BE USED IN COASTAL SETTINGS

### INSTALLATION REQUIREMENTS

#### INTENDED USE

- THE ULTIMATE INTENDED USE AND MAINTENANCE REQUIREMENTS OF THE AREA SHALL BE CONSIDERED WHEN CHOOSING A PERMANENT SEED MIXTURE IDENTIFIED IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. SEEDING FOR PERMANENT VEGETATIVE COVER. FIGURES 1 & 3
- MAINTENANCE MAY BE CONSIDERED AS ACTIVE AREAS TO BE MOVED AND PASSIVE AREAS NOT TO BE MOVED. ACTIVE MAINTENANCE WILL REQUIRE SOME LEVEL OF MOVING DEPENDING ON THE INTENDED USE WHILE PASSIVE MAINTENANCE WILL REQUIRE NO FURTHER MOVING AND LITTLE, IF ANY, MAINTENANCE

#### TIME OF THE YEAR

- FOR NON-NATIVE SPECIES THE RECOMMENDED SEEDING DATES ARE APRIL 1 THROUGH JUNE 15 AND AUGUST 15 THROUGH SEPTEMBER 30. THE FINAL SEEDING DATE MAY BE EXTENDED 15 DAYS IN NEWPORT COUNTY
- FOR NATIVE SPECIES SEEDING DATES FOR BEST RESULTS ARE AUGUST TO SEPTEMBER. SELECTING SEED MATERIALS AND TIMING OF SEEDING IS CRITICAL. IF NATIVE SEEDS ARE TO BE SELECTED AND TIME OF SEEDING IS NOT IDEAL FOR SEEDING, THEN TEMPORARY SEEDING MAY BE DONE TO PROTECT THE SITE UNTIL OPTIMUM SEEDING DATES CAN BE REACHED

#### SITE PREPARATION

- INSTALL NEEDED EROSION CONTROL MEASURES
- THE SITES INTENDED USE, IN CONCERT WITH THE EXISTING SOIL FERTILITY WILL DETERMINE IF TOPSOIL IS NEEDED. THE LOWER THE SITE IS IN NATURALITY AND TEXTURE THE GREATER THE NEED FOR TOPSOIL
- GRADE AS NEEDED
- PREPARE THE SITE IN ACCORDANCE WITH SOIL PREPARATION AND TOPSOILING AS REQUIRED IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)**
- PERMANENT SEEDING SHOULD NOT OCCUR ON SLOPES STEEPER THAN 2:1. SLOPES STEEPER THAN 2:1 MAY DEVELOP SHALLOW OR DEEP SURFACE FAILURES UNDER DISTURBED CONDITIONS. THEREFORE, TO ENSURE SOIL STABILITY AT THIS SITE INVESTIGATION IS NECESSARY TO DETERMINE IF OTHER MEASURES (I.E. BENCHING, STRUCTURAL) ARE NEEDED PRIOR TO SEEDING

#### SEEDING PREPARATION

- LOOSEN THE SOIL TO A DEPTH OF THREE TO FOUR INCHES WITH A SLIGHTLY ROUGH SURFACE. THIS PREPARATION MAY BE ACCOMPLISHED BY RAKING, DISCING, DRAGGING A SECTION OF CHAIN LINK FENCE AND/OR TRAVELING THE AREA WITH TRACKED EQUIPMENT. OVER COMPACTION SHOULD BE AVOIDED AND TRACKED EQUIPMENT CLEAT MARKS SHALL BE PERPENDICULAR TO THE ANTICIPATED DIRECTION OF SURFACE FLOW
- APPLY TOPSOIL IF NECESSARY IN ACCORDANCE WITH SOIL PREPARATION AND TOPSOILING AS REQUIRED IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)**

#### SOIL AMENDMENTS

- APPLY LIMESTONE & FERTILIZER ACCORDING TO SOIL TESTS SUCH AS THOSE OFFERED BY SOIL TESTING LABORATORIES AT THE UNIVERSITY OF CONNECTICUT AND THE UNIVERSITY OF MASSACHUSETTS OR OTHER RELIABLE SOURCES
- IN GENERAL, IT IS DESIRABLE TO MINIMIZE THE USE OF FERTILIZERS IN AREAS ADJACENT TO ALL WETLANDS AND SURFACE WATERS SO AS TO PREVENT THE EUTROPHICATION OF THESE WATERS
- IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TESTING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 300 POUNDS PER ACRE OR 7.5 POUNDS PER 1,000 SQUARE FEET USING FERTILIZER OF THE FOLLOWING:
  - 10 PERCENT AVAILABLE NITROGEN (N)
  - 20 PERCENT AVAILABLE PHOSPHORIC ACID (P)
  - 20 PERCENT AVAILABLE POTASSIUM (K)

- A pH RANGE OF 6.2 TO 7.0 IS OPTIMAL FOR PLANT GROWTH OF MOST GRASS SPECIES
- APPLY GROUND LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) USING RATES GIVEN IN **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. SEEDING FOR PERMANENT VEGETATIVE COVER. FIGURE 1
- WITH THE EXCEPTION OF HYDROSEEDING, WORK LINE AND FERTILIZER INTO THE SOIL AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING AND/OR DISCING OPERATION SHOULD BE DONE IN THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUILT-UP SOILS AND CHALKY SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE
- REMOVE FROM THE SURFACE ALL STONES, BRICKS, LARGER THAN 4 INCHES IN ANY DIMENSION, REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLOUDS OR OTHER UNSUITABLE MATERIAL
- AREAS NOT YET MOVED CAN BE TRACKED WITH CLEATED EARTHMOVING EQUIPMENT PERPENDICULAR TO THE SLOPES (SEE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: SURFACE ROUGHENING)
- IN AREAS WHERE TEMPORARY EROSION CONTROL BLANKETS ARE TO BE USED THE SEED BED SHALL BE PREPARED IN ACCORDANCE WITH THE BLANKET'S MANUFACTURER'S RECOMMENDATIONS
- INSPECT SEEDBED JUST BEFORE SEEDING. IF SOIL IS COMPACTED, CRUSTED OR HARDENED, SCARIFY THE AREA PRIOR TO SEEDING

- SEED WITH PERMANENT SEED MIXTURE WITHIN SEVEN DAYS FOLLOWING THE ESTABLISHMENT OF FINAL GRADE OR WHEN GRADING WORK WITHIN THE LIMIT OF DISBURSANCE IS TO BE SUSPENDED FOR A PERIOD OF MORE THAN ONE YEAR

### SEEDING

- APPLY SELECTED SEED AT RATES PROVIDED IN THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. SEEDING FOR PERMANENT VEGETATIVE COVER. FIGURE 3. UNIFORMITY OF SEEDING IS CRITICAL. CYCLO-SEEDER, DRILL, CATTLEPICKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED, FERTILIZER ACHIEVING GOOD SEED TO SOIL CONTACT) WHERE RELATIVELY SMALL AREAS ARE TO BE SEED WITH A PREMIX THAT IS LESS THAN 1/2 ACRE AND WHERE THE PURCHASE OF LARGE VOLUMES OF SEED ARE UNNECESSARY. SEED MIX NO. 1 IS RECOMMENDED. INOCULATE ALL LEGUME SEED WITH THE CORRECT TYPE AND AMOUNT OF INOCULANT
- ONLY USE SEED THAT IS LABELED IN ACCORDANCE WITH THE PROVISIONS OF THE RHODE ISLAND SEED ACT OF 1986 (VOLUME 8, TITLE 2, CHAPTER 6) AND ITS AMENDMENTS
- NORMAL SEEDING DEPTH IS FROM 0.25 TO 0.5 INCH. HYDROSEEDING WHICH ARE MULCHED MAY BE LEFT ON THE SOIL SURFACE WHERE FEASIBLE. EXCEPT WHERE EITHER A CATTLEPICKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER OR LIGHT DRAG. SEEDING OPERATIONS SHOULD BE ON THE CONTOUR
- FIRST CRACK SEEDING CAN BE USED TO IMPROVE THE DENSITY OF PERMANENT SEEDING. FIRST CRACK SEEDING MUST BE DONE IN LATE WINTER OR EARLY SPRING. SUITABLE WEATHER CONDITIONS ARE FREEZING NIGHTS AND THAWING DAYS WITH LITTLE OR NO SNOW COVER. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING IS USED
- HYDRAULIC APPLICATION (HYDROSEEDING) IS A SUITABLE METHOD EXCEPT ON SEVERELY STEEP SLOPES. WHEN HYDROSEEDING, A SEEDBED IS PREPARED IN THE CONVENTIONAL WAY AND HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND TO REMOVE SURFACE STONES LARGER THAN TWO INCHES IN DIAMETER. GENERALLY, SLOPES GREATER THAN 2:1 ARE NOT RECOMMENDED. WHERE SLOPES EXCEEDING 2:1 ARE UNAVOIDABLE, SUPPLEMENTAL MULCH, MATTING AND/OR STRUCTURAL EROSION CONTROLS ARE RECOMMENDED
- LIME SHOULD BE APPLIED AND THOROUGHLY INCORPORATED INTO THE SOIL PRIOR TO SEEDING. FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. USE OF STRAW MULCH HELD WITH ADHESIVE MATERIALS OR 500 LBS PER ACRE OF WOOD FIBER MULCH IS RECOMMENDED FOR PROTECTION FROM SOIL EROSION. WHERE WOOD MULCH IS RECOMMENDED, THE RECOMMENDED RATE FOR HYDROMULCH IS 1,500 LBS PER ACRE ON FLATS AND 3,000 LBS PER ACRE ON SLOPES. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING
- APPLY MULCH ACCORDING TO THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. MULCHING
- IF SEEDING CANNOT BE DONE WITHIN THE SEEDING DATES, USE THE **RHODE ISLAND SOIL EROSION & SEDIMENT CONTROL (SESC) HANDBOOK (LATEST EDITION)** SECTION FOUR: EROSION CONTROL MEASURES. MULCHING MEASURE TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD

### IRRIGATION

- IRRIGATION/WATERING MAY BE NECESSARY TO ESTABLISH NEWLY SEEDED AREAS SHOULD DROUGHT CONDITIONS OCCUR AFTER EMERGENCE OF SEED. IRRIGATION/WATERING SHOULD NOT EXCEED THE APPLICATION RATE OF THE SOIL AND RESULT IN EROSION

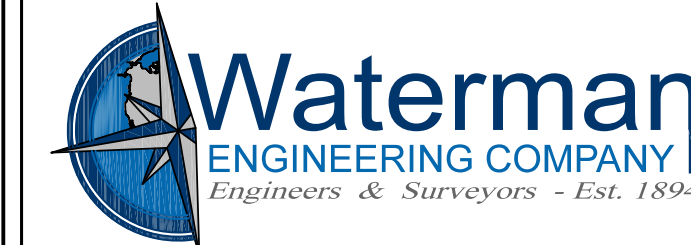
### INSPECTION, MAINTENANCE & REMOVAL REQUIREMENTS

- LIME ACCORDING TO A SOIL TEST OR AT A MINIMUM EVERY 2 TO 3 YEARS USING A RATE OF ONE TON PER ACRE (50 LBS PER 1,000 SQ. FT.)
- WHERE GRASSES PREDOMINATE, FERTILIZER IS SO INDICATED BY A SOIL TEST. CUSTOMARY APPLICATIONS ARE BIENNIAL BROADCASTS OF 500 LBS OF 16-4-8 (LAWN FERTILIZER) OR EQUIVALENT PER ACRE (12 LBS PER 1,000 SQ. FT.) AT LEAST 30% OF THE FERTILIZER AVAILABLE NITROGEN MUST BE IN A SLOW RELEASING FORM
- WHERE LEGUMES PREDOMINATE, FERTILIZER ACCORDING TO A SOIL TEST OR EVERY THREE YEARS, BROADCAST 300 LBS OF 0-20-20 OR EQUIVALENT PER ACRE (7.5 LBS PER 1,000 SQ. FT.)
- PERMANENT VEGETATIVE COVER SHALL NOT BE CONSIDERED ESTABLISHED UNTIL GROUND COVER (APPROXIMATELY 90% VEGETATIVE SURFACE COVER) CONTROLS SOIL EROSION AND WITHSTANDS SEVERE WEATHER CONDITIONS

NO.	DATE	REVISION	CHECKED BY
4	11/07/2022	REVISED PER 09/20/2022 ADMINISTRATIVE SUBDIVISION PLAN	BJT
3	09/15/2021	REVISED FOR MAJOR LAND DEVELOPMENT	BJT
2	08/30/2021	ADDED UTILITY RIMS & INVERTS AND SURVEY UPDATE	RSL

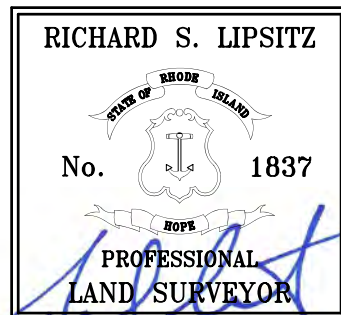
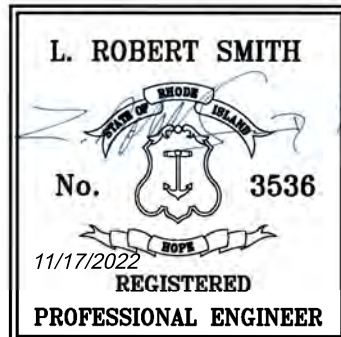
GRADING PLAN  
A.P. 47, LOTS 118, 119, 126, 127, 145, 204, 832 & 834  
SWAN STREET & SAYLES STREET  
PROVIDENCE, RHODE ISLAND

COLETTA GROUP LLC  
7715 POST ROAD, SUITE 204  
NORTH KINGSTOWN, RHODE ISLAND 02852



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\* SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

### CERTIFICATION

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO 435-RICR-00-00-1.9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON APRIL 28, 2018, AS FOLLOWS:

TYPE OF BOUNDARY SURVEY: MEASUREMENT / ACCURACY SPECIFICATION:  
COMPREHENSIVE BOUNDARY SURVEY /  
OTHER TYPE OF SURVEY: /  
DATA ACCUMULATION: III  
TOPOGRAPHIC SURVEY: T-1

THE PURPOSE FOR CONDUCTING THIS SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:  
BOUNDARY & TOPOGRAPHIC SURVEY FOR THE FUTURE DEVELOPMENT OF THE PROPERTY.

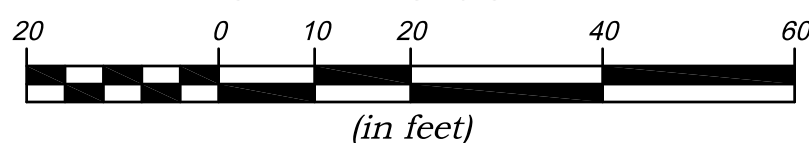
BY: RICHARD S. LIPSITZ, P.L.S.  
WATERMAN ENGINEERING COMPANY (COA No. LS.0004483)

1837  
DATE

SWAN STREET  
(PUBLIC - 40.12' WIDTH)

SAYLES STREET  
(PUBLIC - 40.12' WIDTH)  
(UNIMPROVED)

GRAPHIC SCALE



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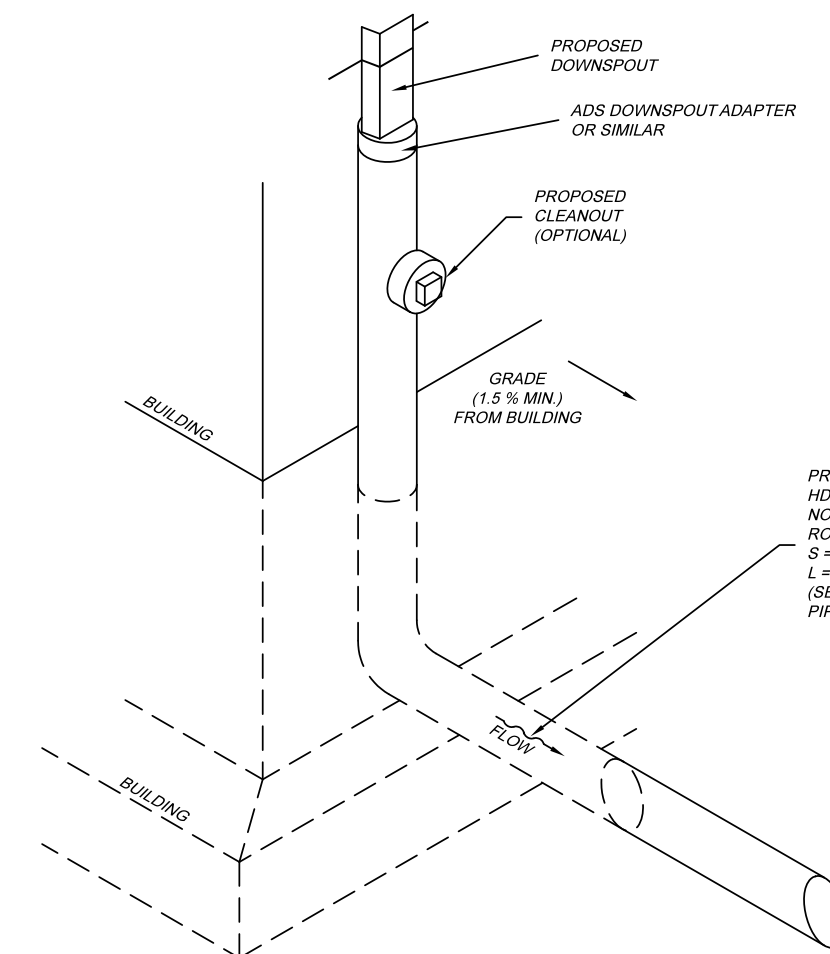
THESE DRAWINGS ARE THE PROPERTY OF THE ENGINEER/SURVEYOR AND HAVE BEEN PREPARED FOR THE OWNER. FOR THIS PROJECT AT THIS SITE AND ARE NOT TO BE USED FOR ANY OTHER PURPOSE, LOCATION OR OWNER WITHOUT WRITTEN CONSENT OF THIS OWNER OR ONE OF ITS DIRECTORS.

WATERMAN ENGINEERING CO.  
CIVIL ENGINEERS & SURVEYORS  
40 SUTTON AVENUE  
EAST PROVIDENCE, RI 02914-2006

### NOTES / REFERENCES

- SEE SHEET 2 FOR EXISTING NOTES & REFERENCES.
- SEE SHEET 1 FOR THE FOLLOWING NOTES & LEGENDS: EXISTING & PROPOSED LEGENDS, GENERAL NOTES, LAYOUT & MATERIAL NOTES, SOIL EROSION & SEDIMENTATION CONTROL NOTES, DEMOLITION NOTES, TRAFFIC NOTES, AS-BUILT NOTES, RIDOT NOTES, GRADING & UTILITY NOTES, ABBREVIATION LEGEND, SOIL INFORMATION AND SITE CALLOUT LEGEND. ADDITIONAL NOTES MAY BE FOUND ON OTHER DRAWING SHEETS.
- CONTRACTOR TO VERIFY THAT ALL STRUCTURES ARE COMPATIBLE WITH FRAME & GRATE.
- CONTRACTOR IS RESPONSIBLE TO PROVIDE SHOP DRAWINGS AND SPECIFICATIONS FOR ALL DRAINAGE RELATED ITEMS FOR REVIEW AND APPROVAL BY THE ENGINEER, PRIOR TO ORDERING.
- ALL STRUCTURES SHALL BE DESIGNED FOR H-20 LOADING.
- UNLESS OTHERWISE NOTED, ALL SOLID DRAINAGE PIPE SHALL BE N-12 HOPE OR APPROVED EQUAL. PIPE BEDDING SHALL BE IN CRUSHED STONE OR GRAVEL BORROW COMPACTED TO 95% DRY DENSITY (MODIFIED PROCTOR METHOD). PIPE SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S REQUIREMENTS.
- CONTRACTOR SHALL PROVIDE AS-BUILT PLANS THAT INCLUDE DRAINAGE SYSTEM (PIPE INVERTS, OUTLET CONTROL STRUCTURES, STORMWATER BASIN LOCATION AND GRADES, AND INVERTS).
- THE INSTALLATION OF THE STORMWATER MANAGEMENT SYSTEM SHALL BE INSPECTED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE ENGINEER BEFORE AND DURING THE INSTALLATION OF THE STORMWATER MANAGEMENT SYSTEM FOR INSPECTIONS. AFTER EXCAVATION OF THE STORMWATER AREA, A BOTTOM BED INSPECTION TO OBSERVE THE REMAINING SOILS WILL BE REQUIRED BY THE ENGINEER. CONTRACTOR SHALL COORDINATE.
- ROOF DRAINS FROM THE PROPOSED DEVELOPMENT SHALL BE DIRECTED TO THE STORMWATER BEST MANAGEMENT PRACTICE (BMP). CONTRACTOR TO COORDINATE WITH ARCHITECT ON ROOF DRAIN LOCATIONS.
- LANDSCAPING SHALL BE PROVIDED IN ACCORDANCE WITH THE ZONING ORDINANCE. AT A MINIMUM PERMANENT SEEDING WITH NATIVE VEGETATION OR HYDROSEEDING, HAY OR STRAW WILL BE REQUIRED FOR STABILIZING DISTURBED OR ERODIBLE SOILS, WHERE THE SUSPENSION OF WORK IS EXPECTED TO EXCEED 1 YEAR, AND WHERE SLOPES LESS THAN 100 FEET LONG AND 2:1 OR FLATTER HAVE BEEN DISTURBED.

INTERSTATE ROUTE 95



ROOF DOWNSPOUT / SUB-SURFACE ROOF LEADER DETAIL  
(N.T.S.)

### RHODE ISLAND DEPT. of ENVIRONMENTAL MANAGEMENT RHODE ISLAND POLLUTION DISCHARGE ELIMINATION SYSTEM SUBMISSION

NO.	DATE	REVISION	CHECKED BY
4	11/07/2022	REVISED PER 08/20/2022 ADMINISTRATIVE SUBDIVISION PLAN	BJT
3	09/15/2021	REVISED FOR MAJOR LAND DEVELOPMENT	BJT
2	08/30/2021	ADDED UTILITY RIMS & INVERTS AND SURVEY UPDATE	RSL
PROJECT NO. 00-122			
SCALE: 1" = 20'			
DATE: 09/21/2020			
DRAWN BY: MS / BJT			
CHECKED BY: LRS / RSL			
FILENAME: 20122_2022_Mal+Devn_1003			
9 of 16 SHEETS			
DRAWING # C-7			



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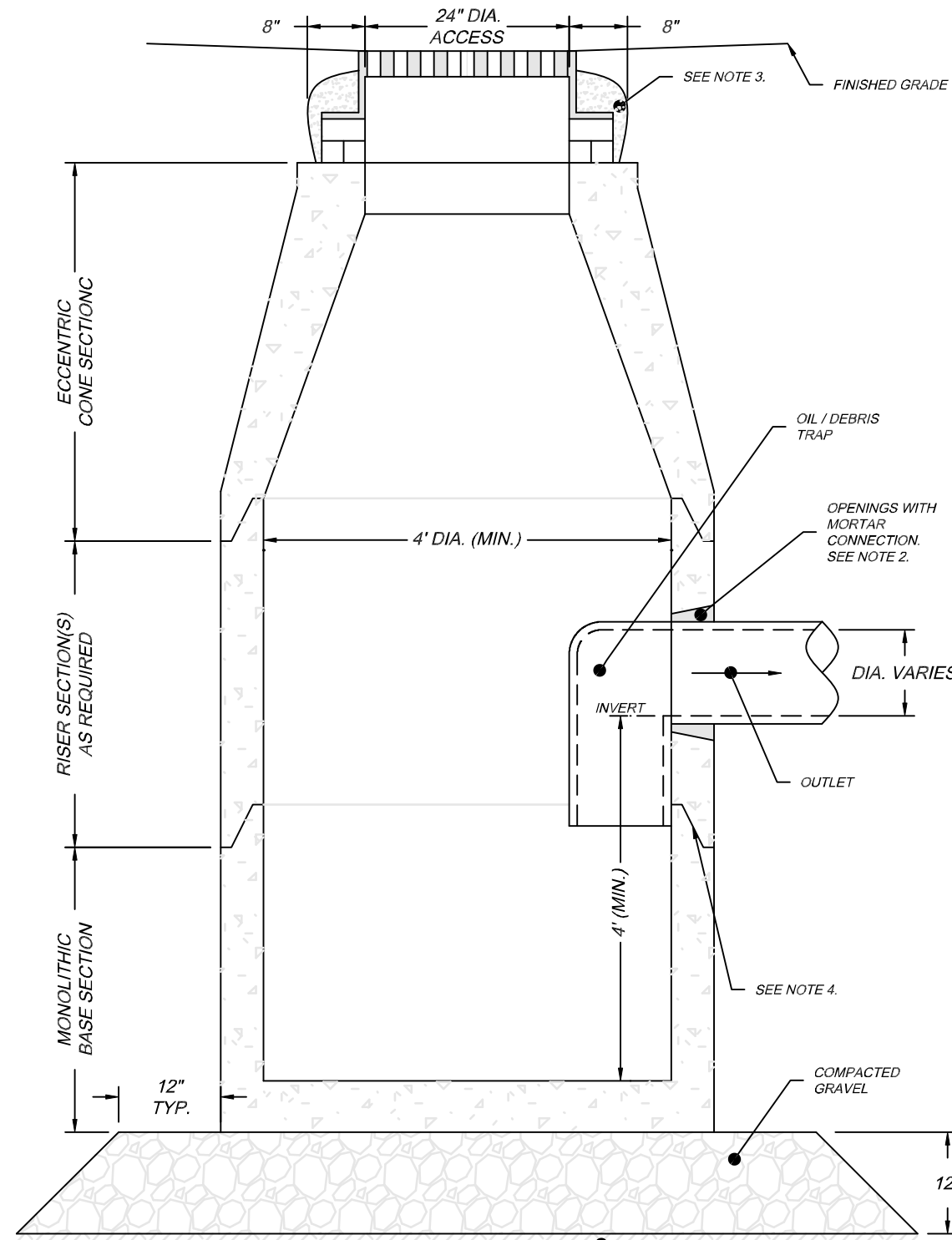






NOTES :

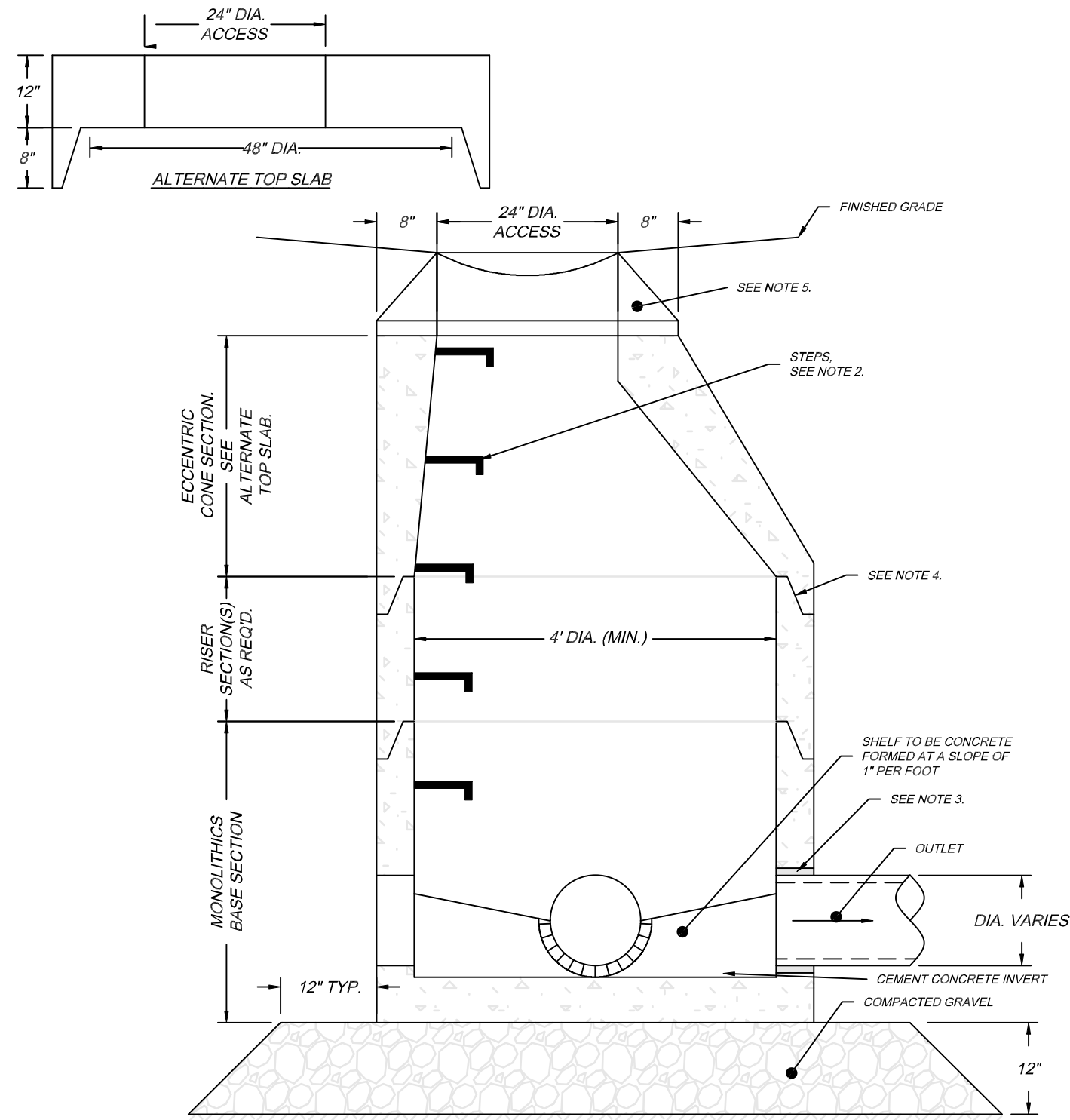
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE PIPE. MORTAR ALL PIPE CONNECTIONS.
3. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (TYP. 2 BRICK COURSES, 5 MAX).
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.



DEEP SUMP CATCH BASIN WITH HOOD  
(N.T.S.)

NOTES :

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATES WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLES STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
6. DRAIN MANHOLES PROVIDING ACCESS TO STORMTECH ISOLATOR ROWS SHALL BE CONSTRUCTED WITH 24" MIN. DEPTH SUMPS.

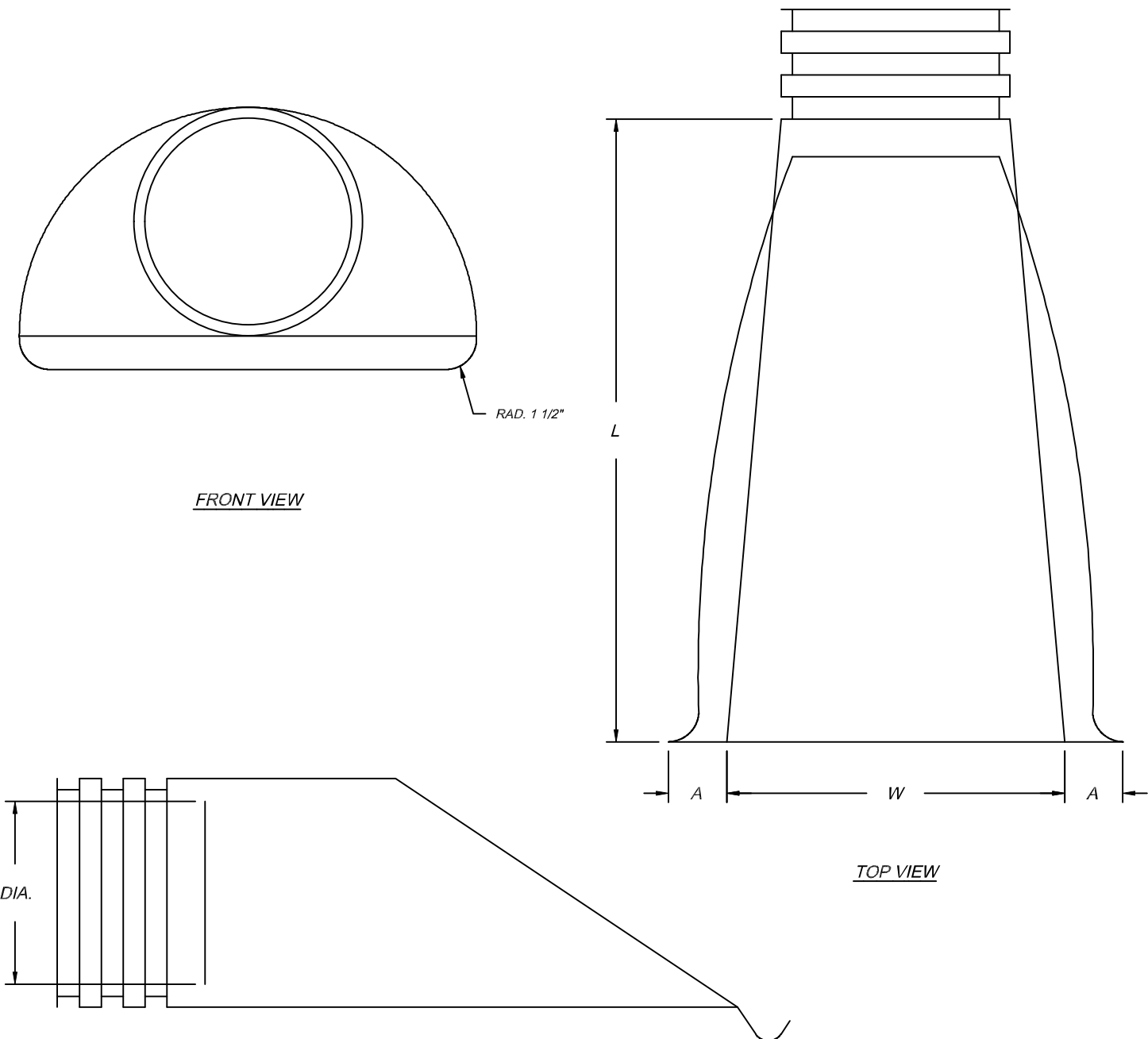


PRECAST DRAIN MANHOLE  
(N.T.S.)

NOTES :

1. JOINTS SHALL BE TONGUE AND GROOVE OR BELL AND SPIGOT AS REQUIRED TO CONFORM TO PIPE INSTALLED.
2. WALL THICKNESS SHALL CONFORM TO PIPE THICKNESS.

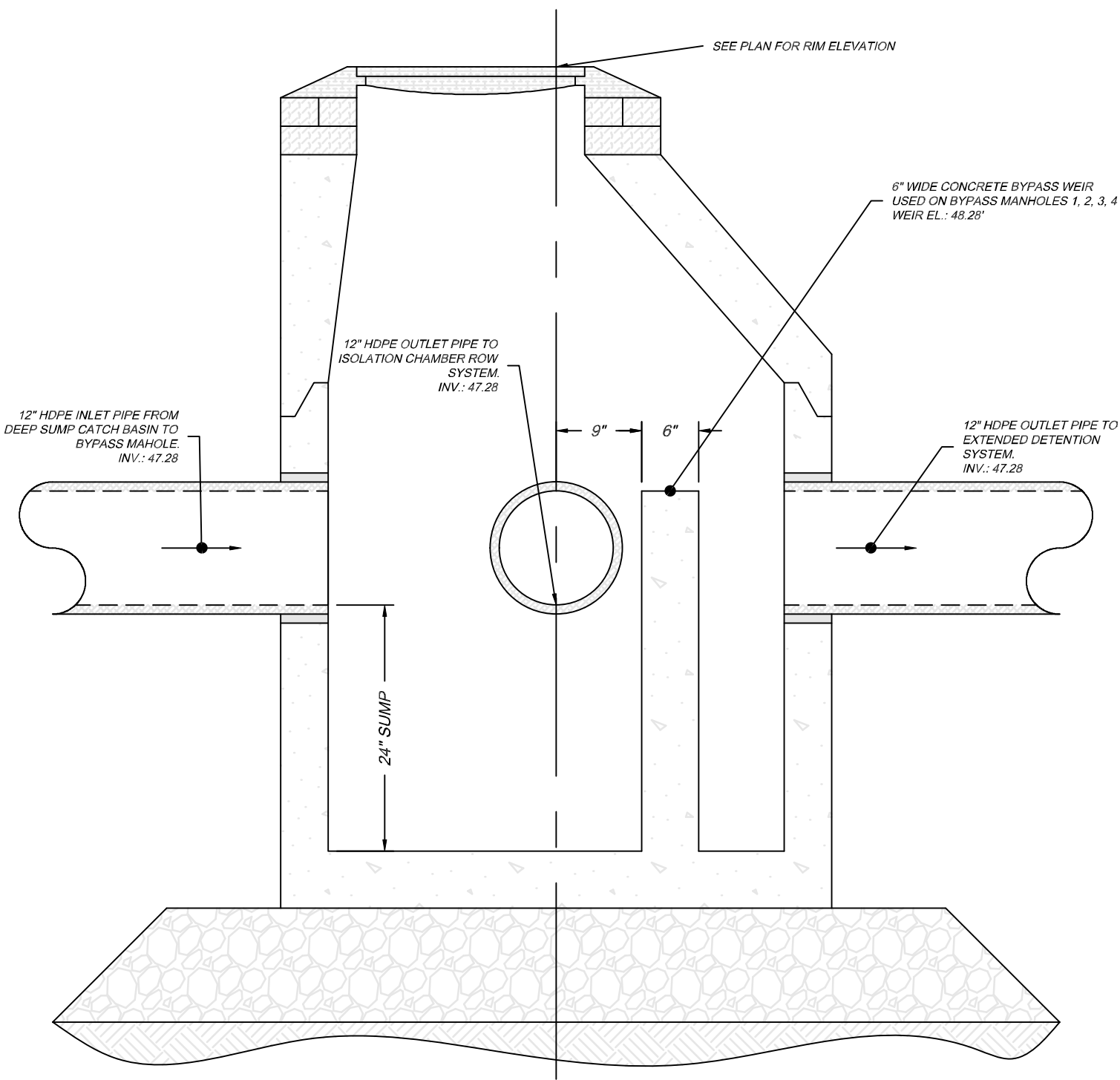
DIAMETER (IN.)	PIPE DIAMETER, IN.					
	12	15	18	24	30	36
A (IN.)	6.5	6.5	7.5	7.5	7.5	7.5
B (MAX.) (IN.)	10	10	15.0	18.0	22.0	25.0
H (IN.)	6.5	6.5	6.5	6.5	6.6	6.6
L (IN.)	25.0	25.0	32.0	36.0	58.0	58.0
W (IN.)	29.0	29.0	35.0	45.0	63.0	63.0



HDPE FLARED END SECTION (FLAMP)  
(N.T.S.)

NOTES :

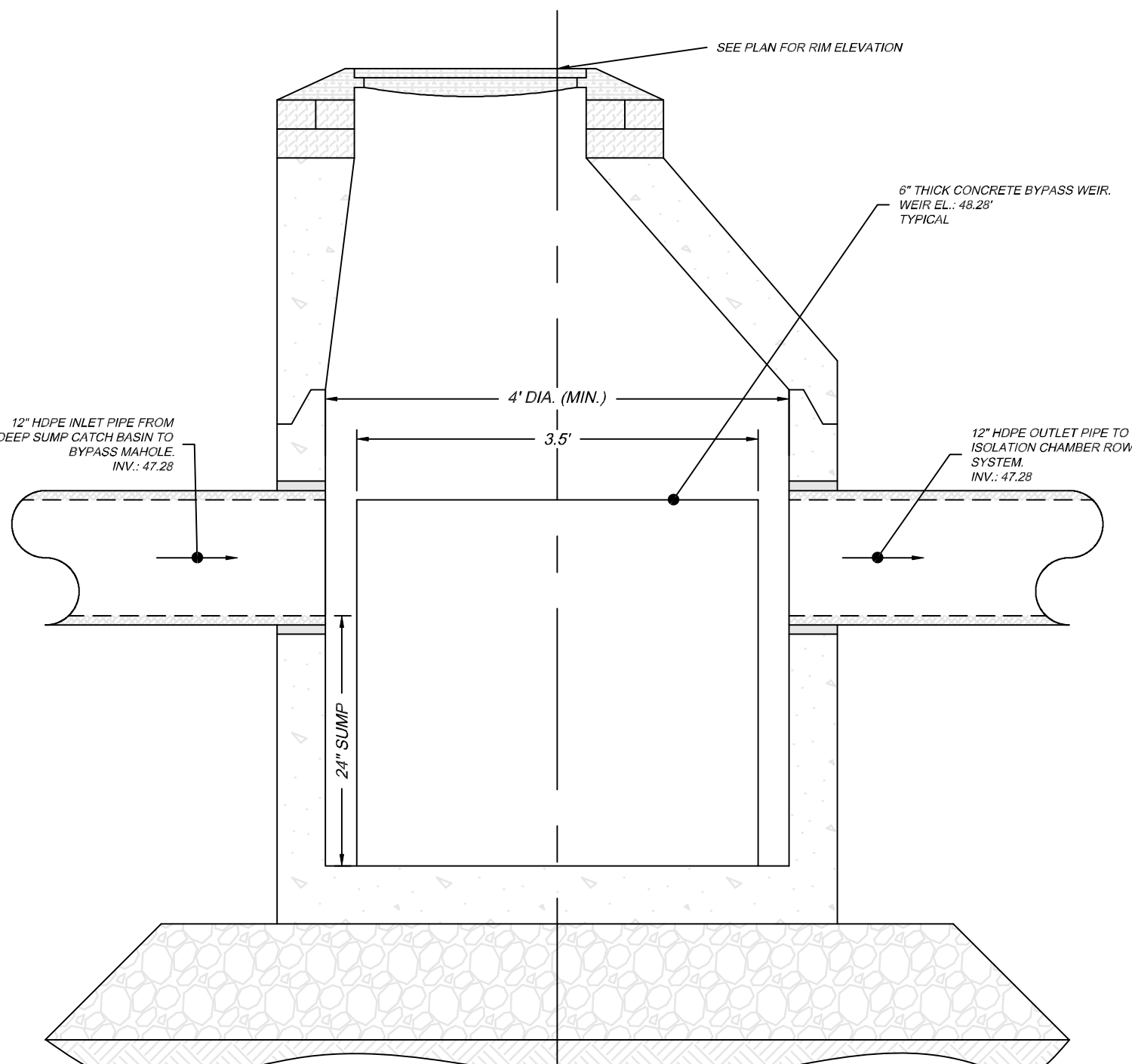
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATES WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLES STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
6. DRAIN MANHOLES PROVIDING ACCESS TO STORMTECH ISOLATOR ROWS SHALL BE CONSTRUCTED WITH 24" MIN. DEPTH SUMPS.



BYPASS MANHOLES 1, 2, 4 & 5  
(N.T.S.)

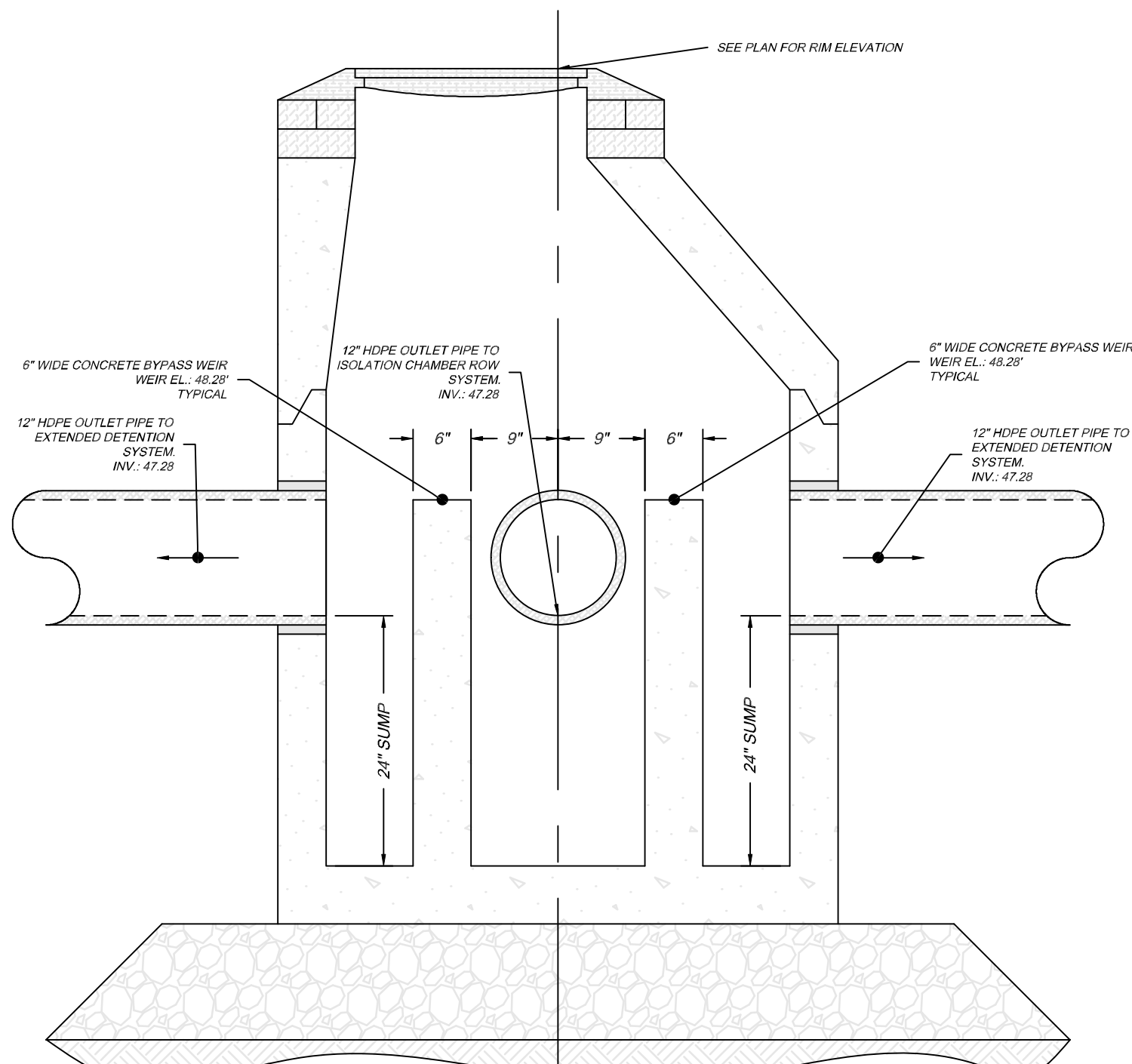
NOTES :

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATES WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLES STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
6. DRAIN MANHOLES PROVIDING ACCESS TO STORMTECH ISOLATOR ROWS SHALL BE CONSTRUCTED WITH 24" MIN. DEPTH SUMPS.



SECTION B-B

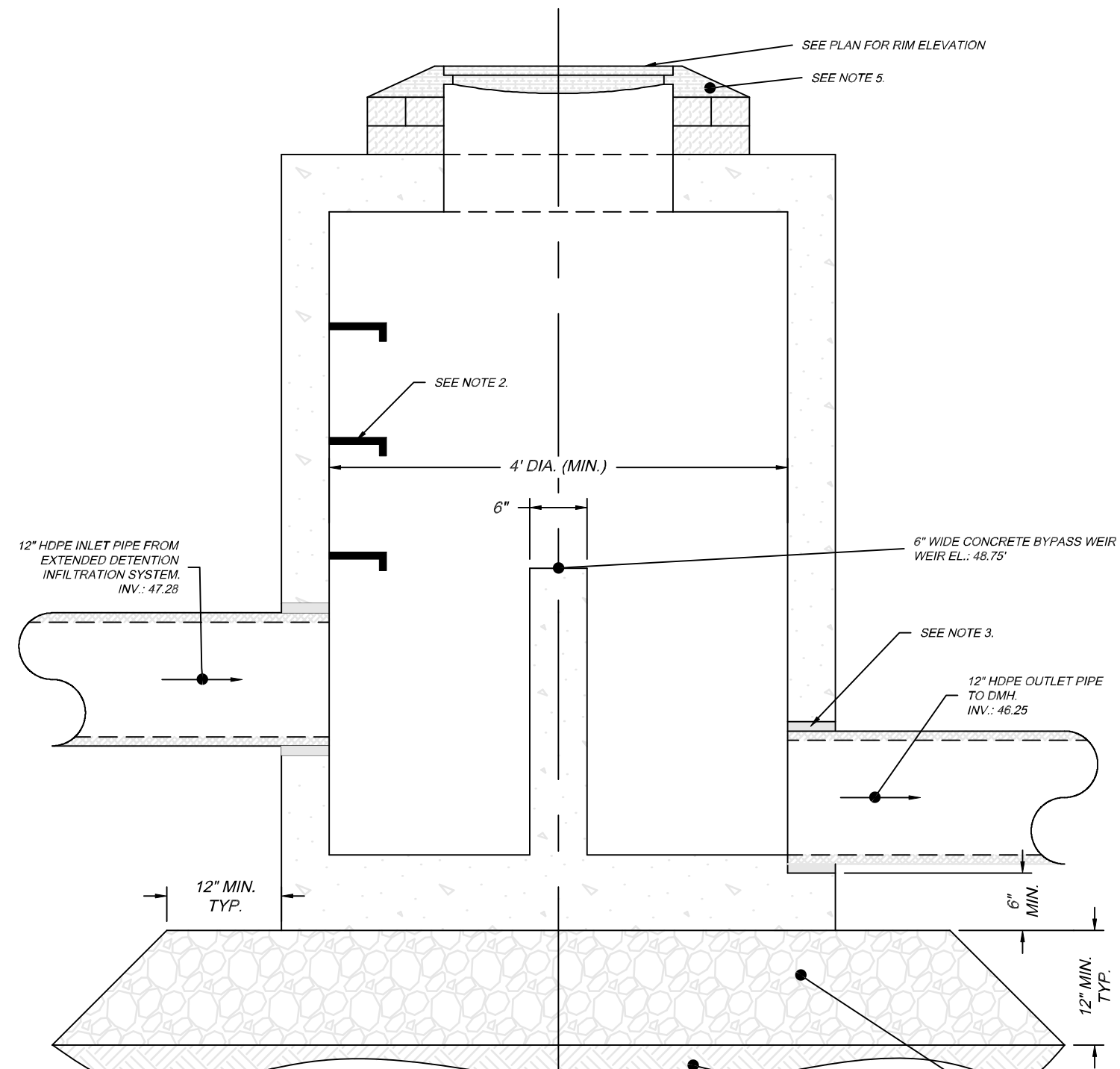
BYPASS MANHOLE 3  
(N.T.S.)



SECTION C-C

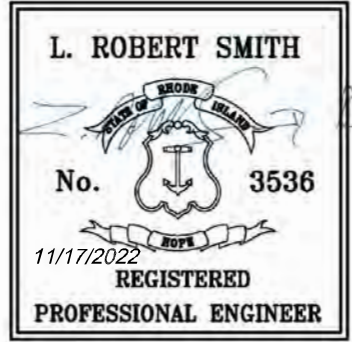
NOTES :

1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATES WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLES STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE BUTYL RUBBER.
5. OUTLET STRUCTURE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).



SECTION D-D

OUTLET STRUCTURE 1 & 2  
(N.T.S.)



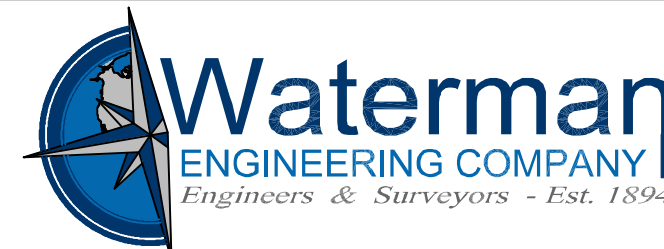
\* SIGNATURES MUST BE IN BLUE INK  
TO CONSTITUTE AN ORIGINAL PLAN

NOTES / REFERENCES

1. SEE SHEET 2 FOR EXISTING NOTES & REFERENCES.
2. SEE SHEET 1 FOR THE FOLLOWING NOTES & LEGENDS: EXISTING & PROPOSED LEGENDS, GENERAL NOTES, LAYOUT & MATERIAL NOTES, SOIL EROSION & SEDIMENTATION CONTROL NOTES, DEMOLITION NOTES, TRAFFIC NOTES, AS-BUILT NOTES, RIDOT NOTES, GRADING & UTILITY NOTES, ABBREVIATION LEGEND, SOIL INFORMATION AND SITE CALLOUT LEGEND. ADDITIONAL NOTES MAY BE FOUND ON OTHER DRAWING SHEETS.

RHODE ISLAND DEPT. of ENVIRONMENTAL MANAGEMENT  
RHODE ISLAND POLLUTION DISCHARGE ELIMINATION  
SYSTEM SUBMISSION

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NO.	DATE	REVISION	CHECKED BY
DRAINAGE DETAIL PLAN 2 A.P.47, LOTS 843 & 844 SWAN STREET & SAYLES STREET PROVIDENCE, RHODE ISLAND			PROJECT NO. 00-122 SCALE AS NOTED DATE 09/21/2020 DRAWN BY MS CHECKED BY LRS FILENAME: 091022_2022_MLS_HDWH_0002 -11- of -16- SHOTS DRAWING # C-9



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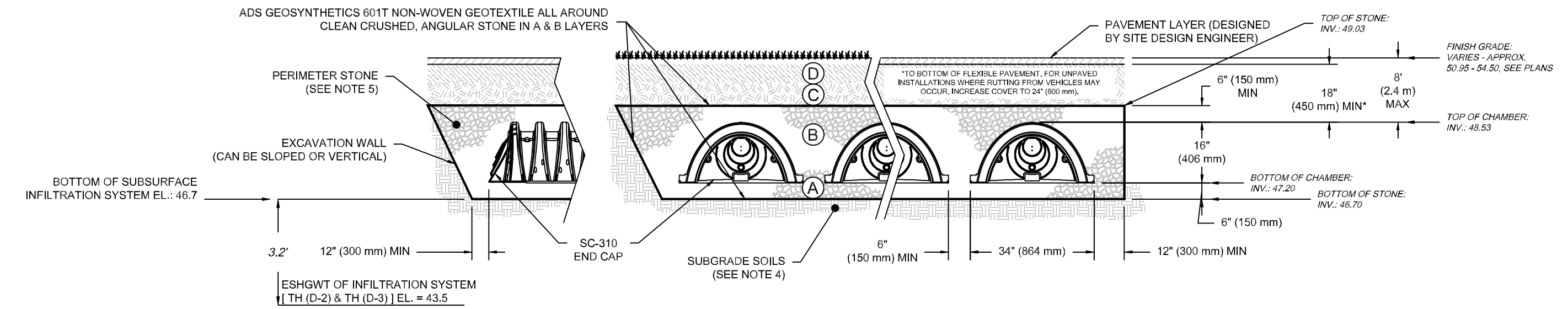
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ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	<b>FINAL FILL:</b> FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A
C	<b>INITIAL FILL:</b> FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145 <sup>1</sup> A-1, A-2-4, A-3 OR AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10
B	<b>EMBEDMENT STONE:</b> FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57
A	<b>FOUNDATION STONE:</b> FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
  - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
  - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
  - ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



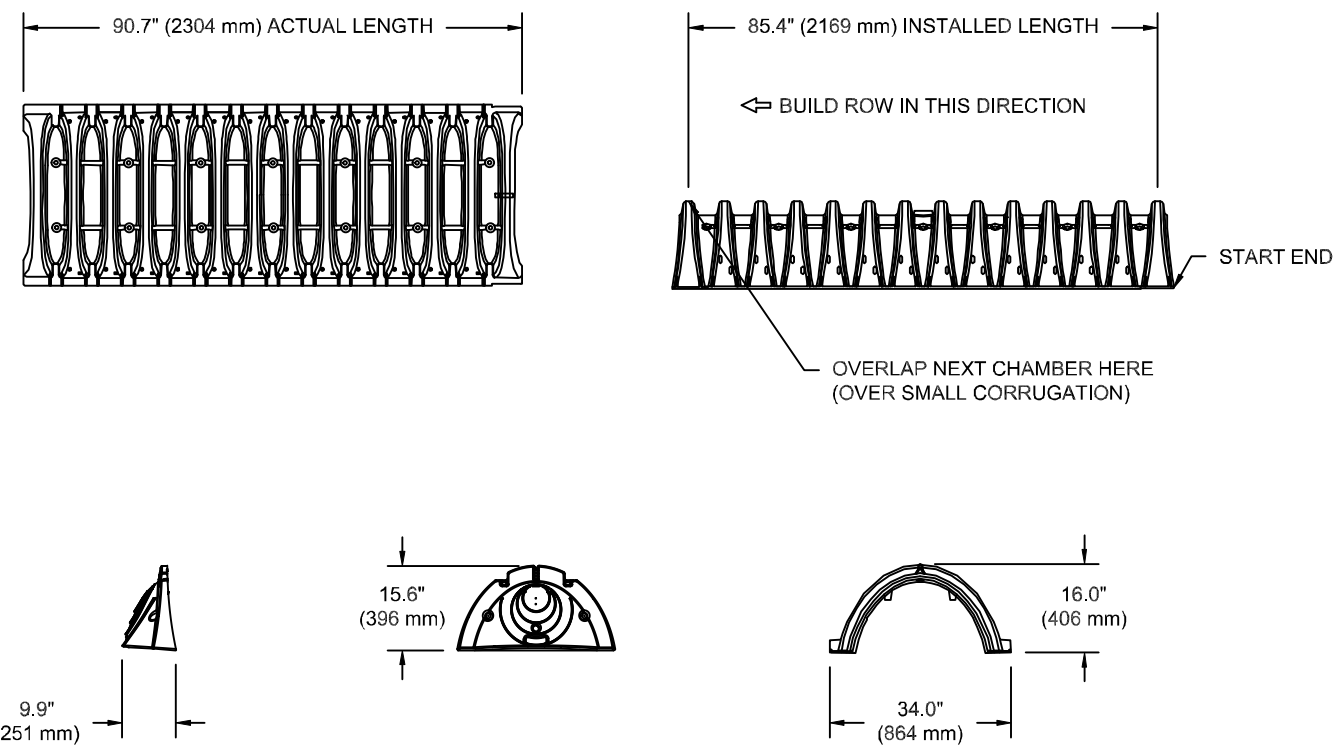
NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT<sup>2</sup>%, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-310 CROSS SECTION DETAIL

2

SC-310 TECHNICAL SPECIFICATIONS



**NOMINAL CHAMBER SPECIFICATIONS**  
SIZE (W X H X INSTALLED LENGTH) 34.0" X 16.0" X 85.4"  
CHAMBER STORAGE 14.7 CUBIC FEET  
MINIMUM INSTALLED STORAGE\* 31.0 CUBIC FEET  
WEIGHT 35.0 lbs.  
\*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS

PART #	STUB	A	B	C
SC310EP00T / SC310EP00TPC	6" (150 mm)	6.6" (244 mm)	5.8" (147 mm)	—
SC310EP00B / SC310EP00BPC	—	—	—	0.5" (13 mm)
SC310EP00T / SC310EP00TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	—
SC310EP00B / SC310EP00BPC	—	—	—	0.6" (15 mm)
SC310EP10T / SC310EP10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	—
SC310EP10B / SC310EP10BPC	—	—	—	0.7" (18 mm)
SC310EP12B	12" (300 mm)	13.5" (343 mm)	0.9" (23 mm)	—
SC310EP12B	12" (300 mm)	13.5" (343 mm)	—	0.9" (23 mm)

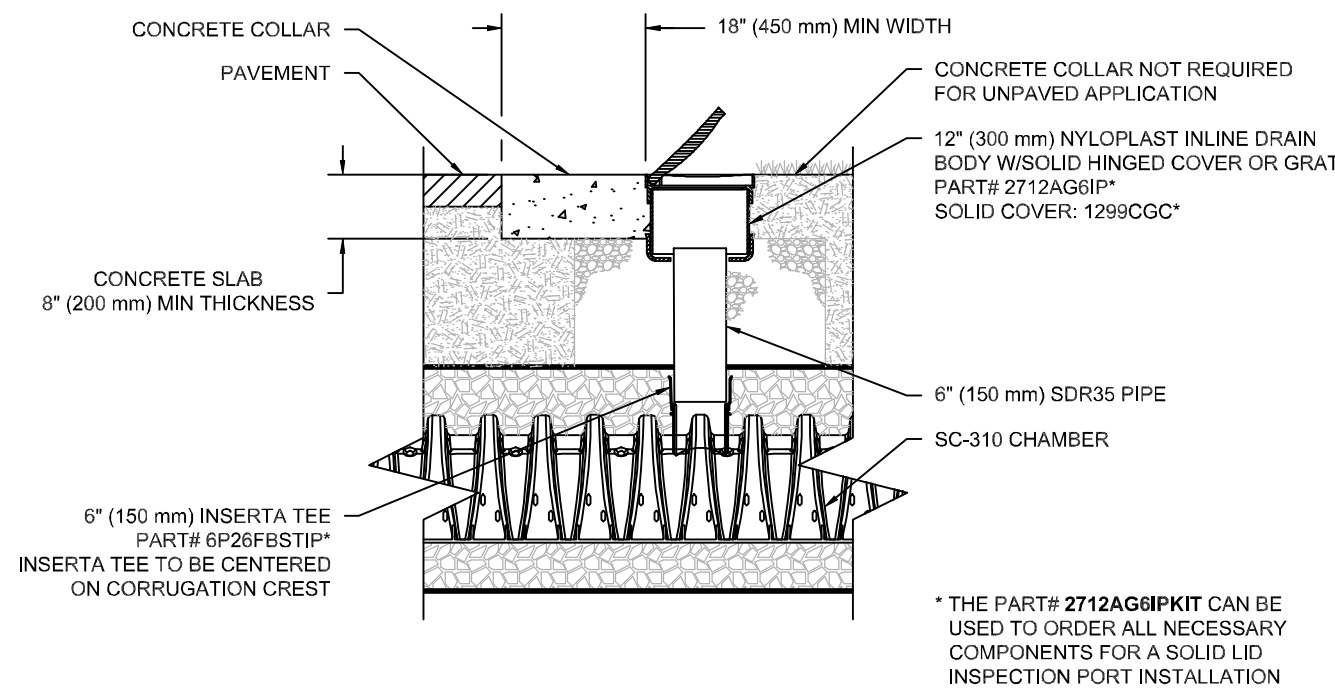
ALL STUBS, EXCEPT FOR THE SC310EP12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

\* FOR THE SC310EP12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

2

SC-310 TECHNICAL SPECIFICATIONS



SC-310 6" (150 mm) INSPECTION PORT DETAIL

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIUM ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
- i. MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
- ii. FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

SC-310 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (1-MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION: a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT<sup>2</sup>%, THE ABC IS DEFINED IN SECTION 6.2.8 OF ASTM F2922, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.35 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD. THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

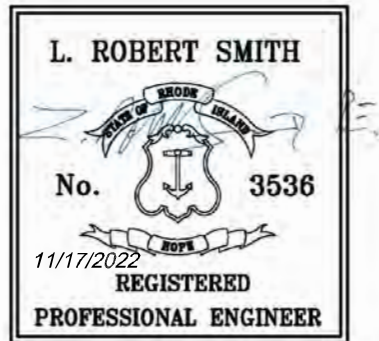
- STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONEHOOVER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELLED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4"-2" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER Tired LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



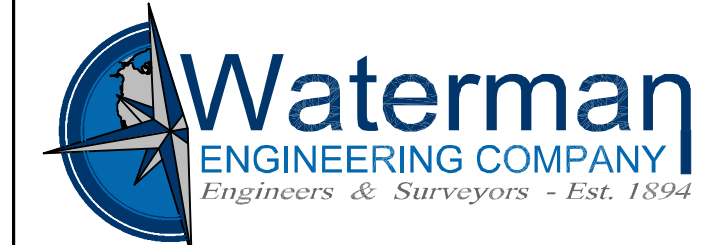
\* SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

NOTES / REFERENCES

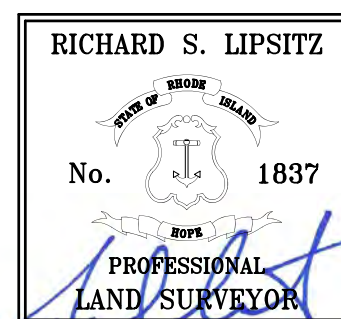
- SEE SHEET 2 FOR EXISTING NOTES & REFERENCES.
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RHODE ISLAND DEPT. of ENVIRONMENTAL MANAGEMENT  
RHODE ISLAND POLLUTION DISCHARGE ELIMINATION  
SYSTEM SUBMISSION

4	11/07/2022	REVISED PER 09/20/2022 ADMINISTRATIVE SUBDIVISION PLAN	BJT
3	09/15/2021	REVISED FOR MAJOR LAND DEVELOPMENT	BJT
2	08/30/2021	ADDED UTILITY RIMS & INVERTS AND SURVEY UPDATE	RSL
NO.	DATE	REVISION	CHECKED BY
PROJECT NO. 00-122			
SCALE AS NOTED			
DATE 09/21/2020			
DRAWN BY MS			
CHECKED BY: LRS			
FILENAME: 01122_2022_MSA-004-002			
-12- of -16- SHTS			
DRAWING # C-10			







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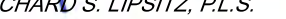
**CERTIFICATION**

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO  
435-RICR-00-00-19 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE  
BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON APRIL 28, 2016, AS FOLLOWS:

<u>TYPE OF BOUNDARY SURVEY:</u>	<u>MEASUREMENT / ACCURACY SPECIFICATION:</u>
COMPREHENSIVE BOUNDARY SURVEY	I
<u>OTHER TYPE OF SURVEY:</u>	
DATA ACCUMULATION	III
TOPOGRAPHIC SURVEY	III-1

THE PURPOSE FOR CONDUCTING THIS SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:

BOUNDARY & TOPOGRAPHIC SURVEY FOR THE FUTURE DEVELOPMENT OF THE PROPERTY.

BY:  1837 11/17/2022

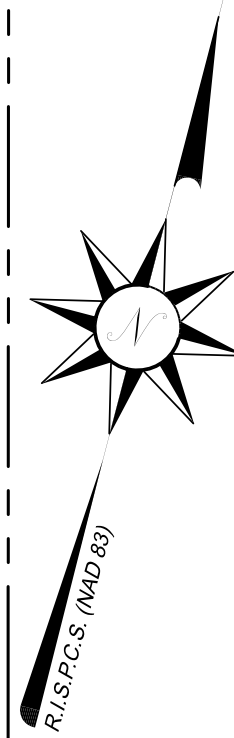
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RICHARD S. LIPSITZ, P.L.S. REG. NO. DATE  
WATERMAN ENGINEERING COMPANY (COA No. LS.000A483)

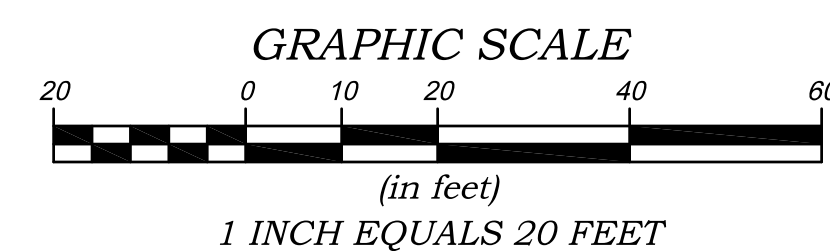
11/17/2022

NOTES / REFERENCES


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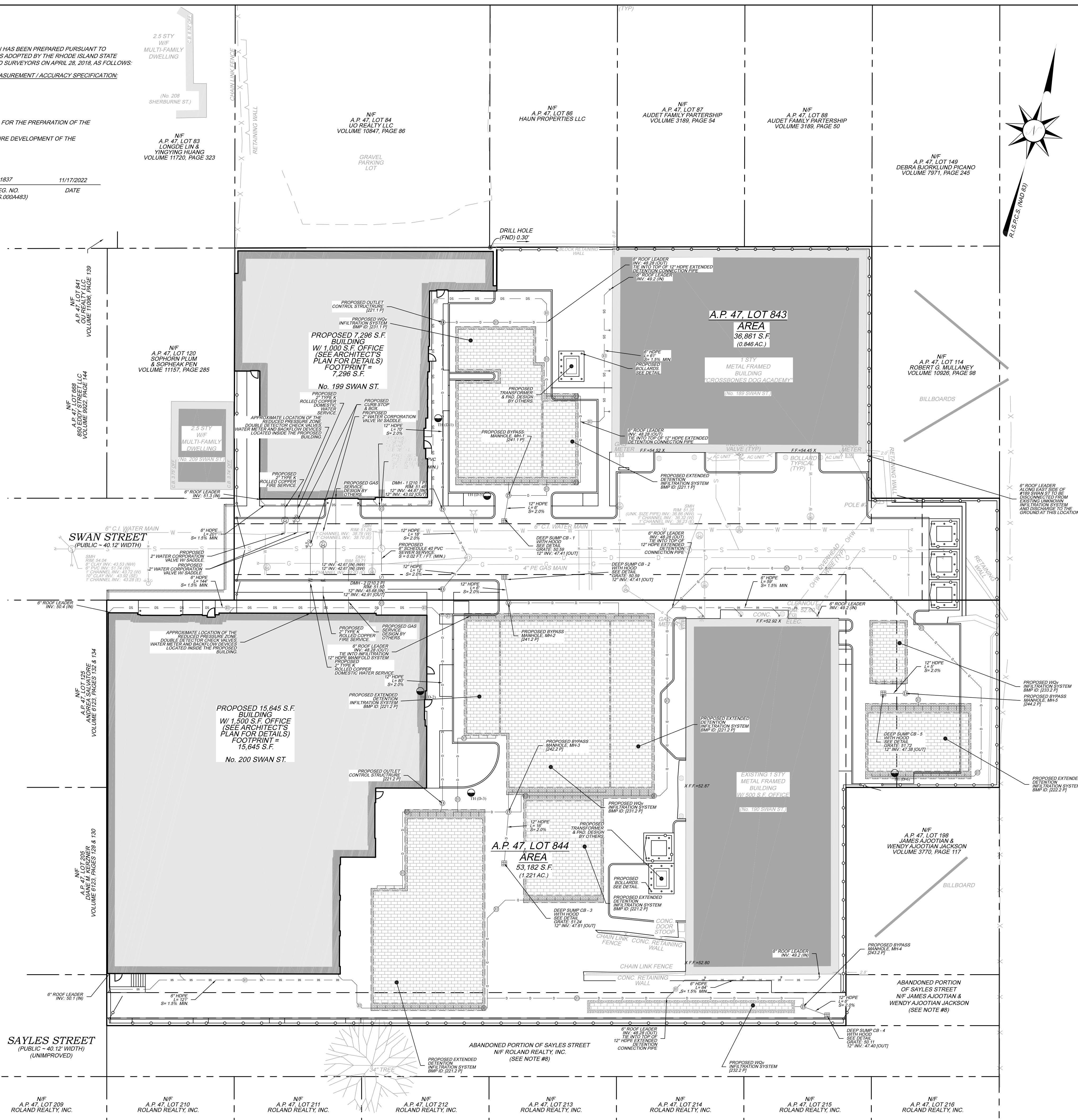
INTERSTATE ROUTE 95



**SAYLES STREET**  
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(UNIMPROVED)

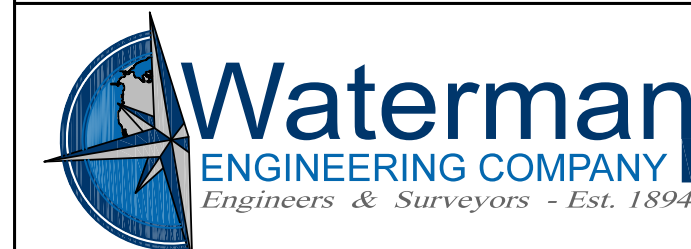
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WATERMAN ENGINEERING CO.  
CIVIL ENGINEERS & SURVEYORS  
46 SUTTON AVENUE  
EAST PROVIDENCE, RI 02914-2096



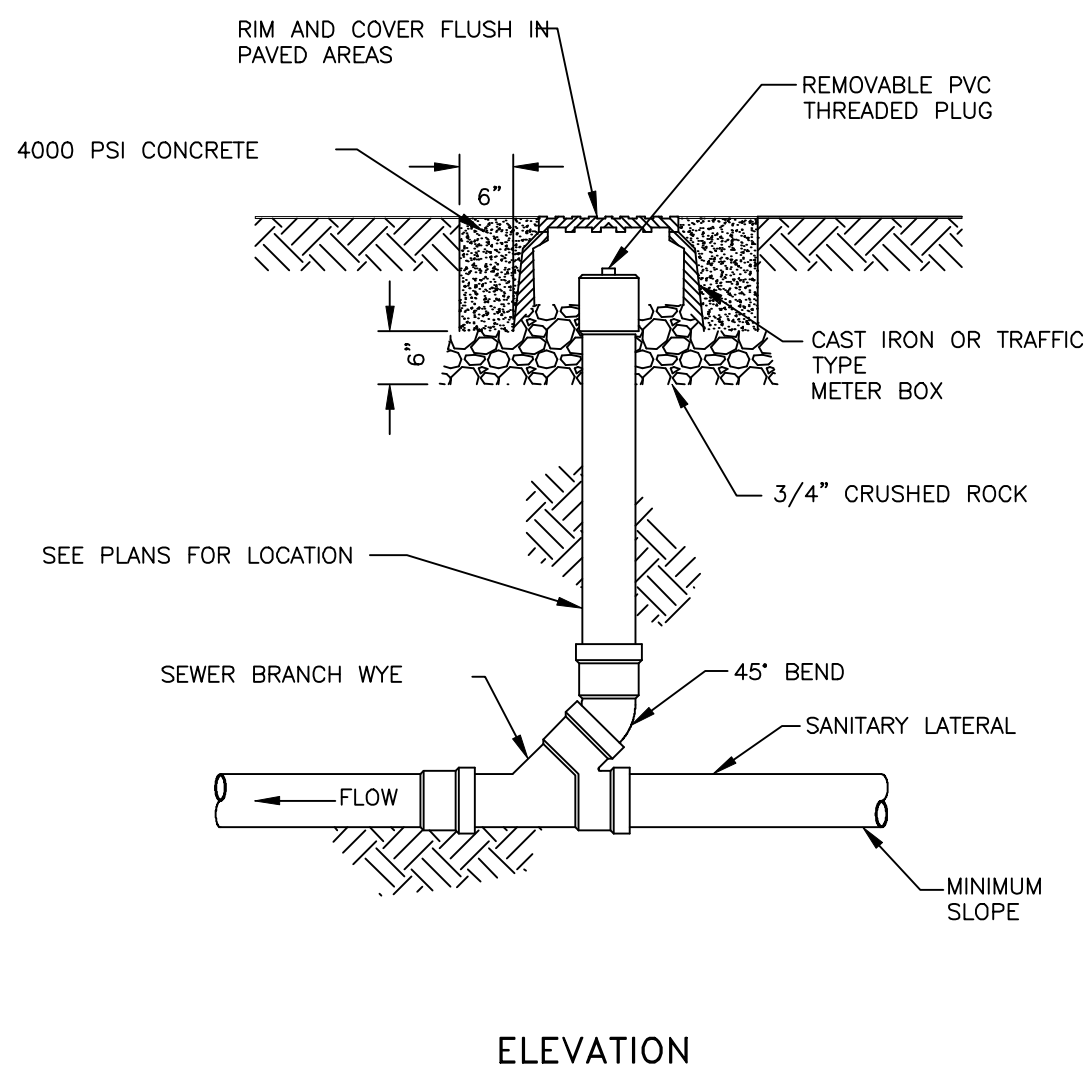
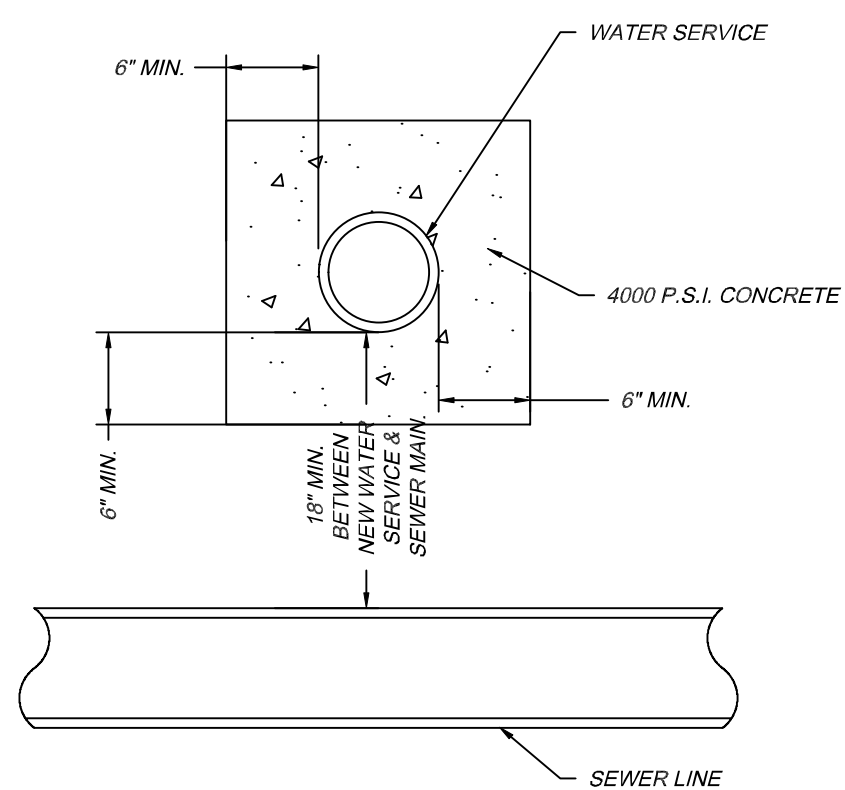
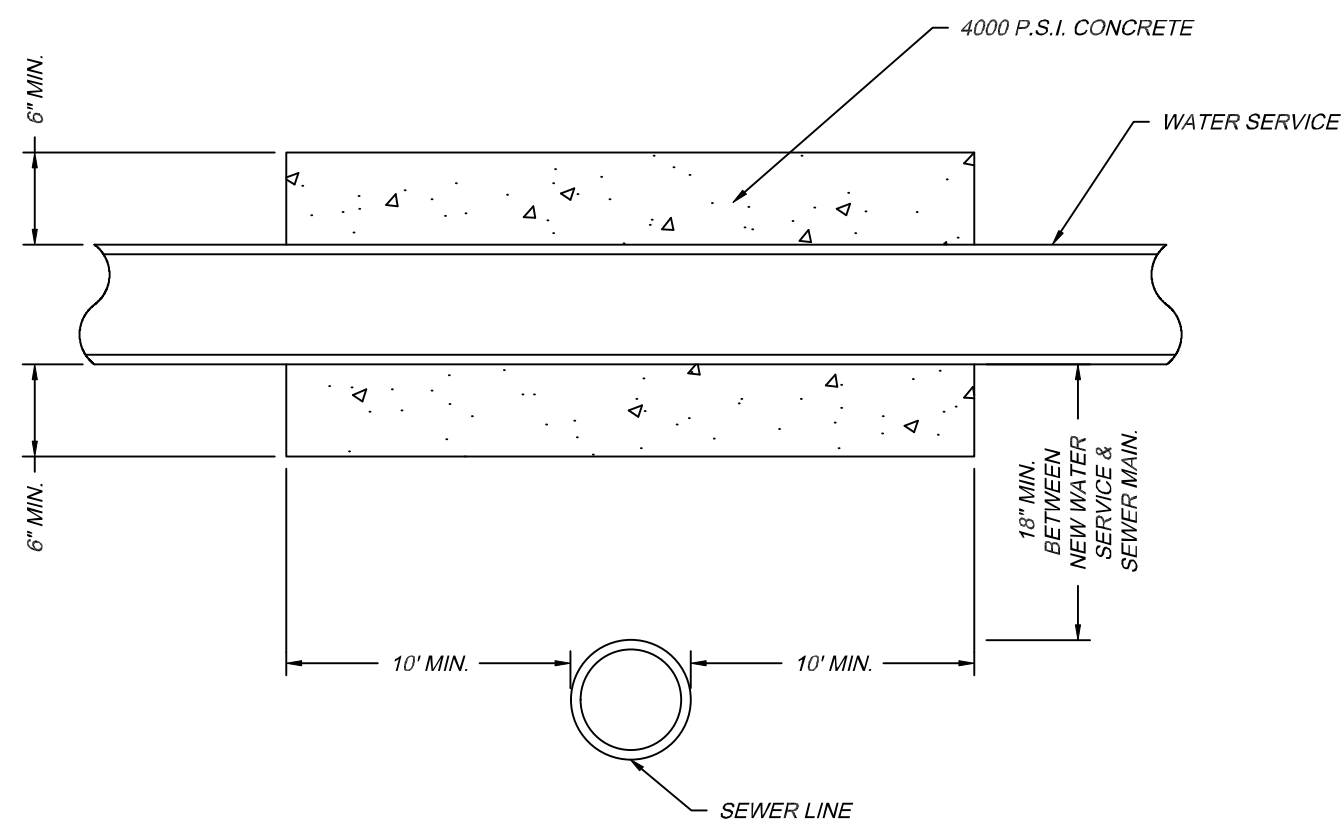
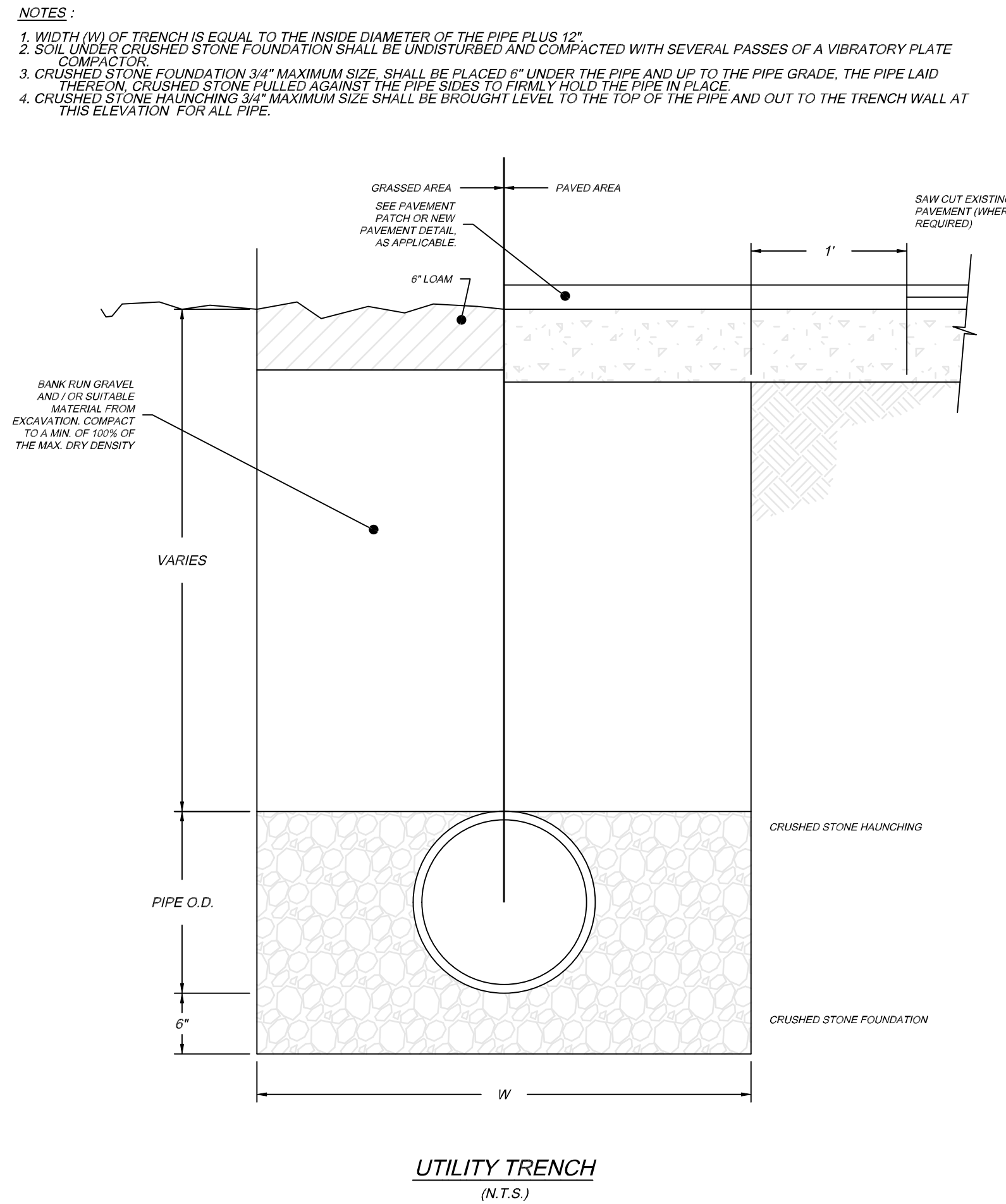
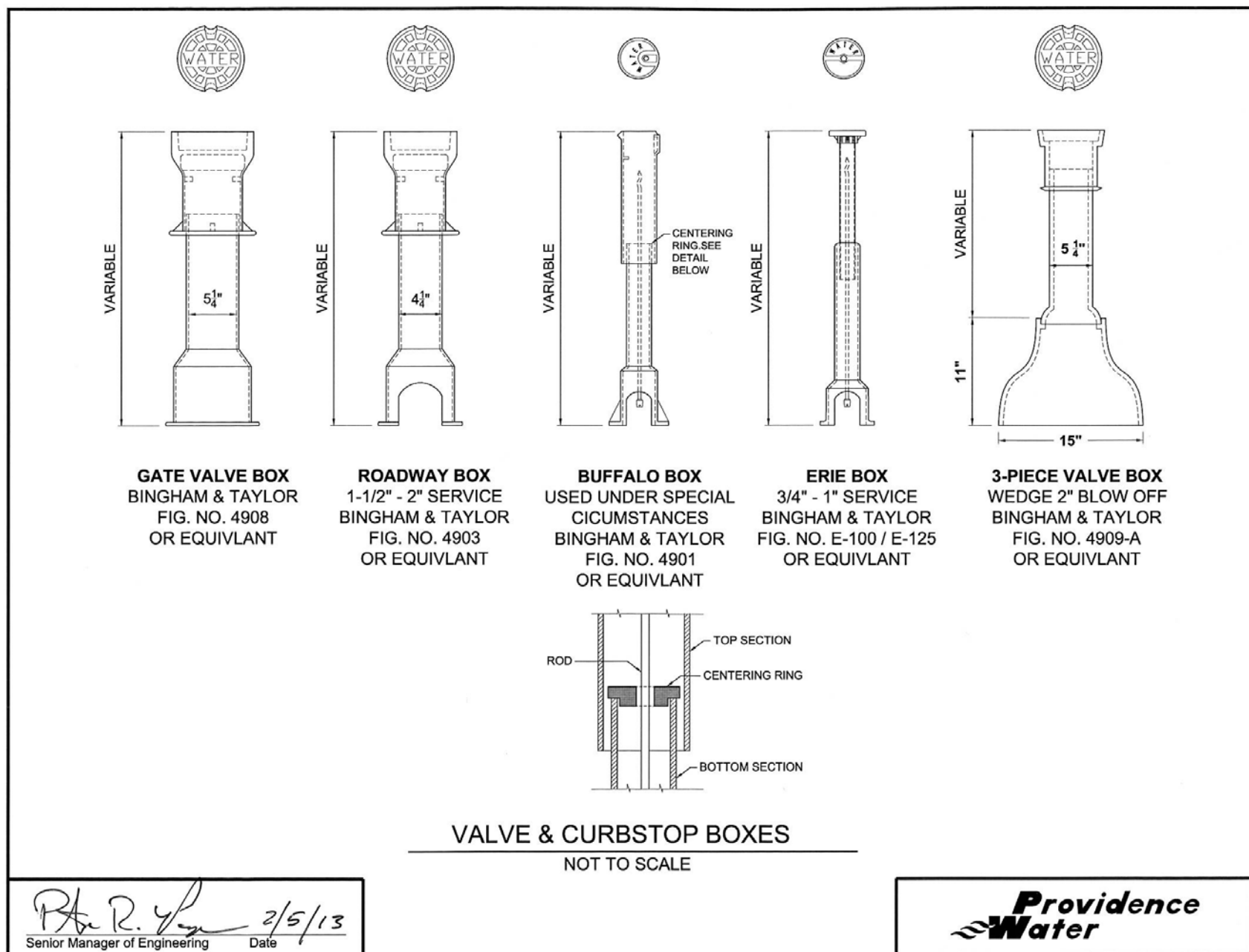
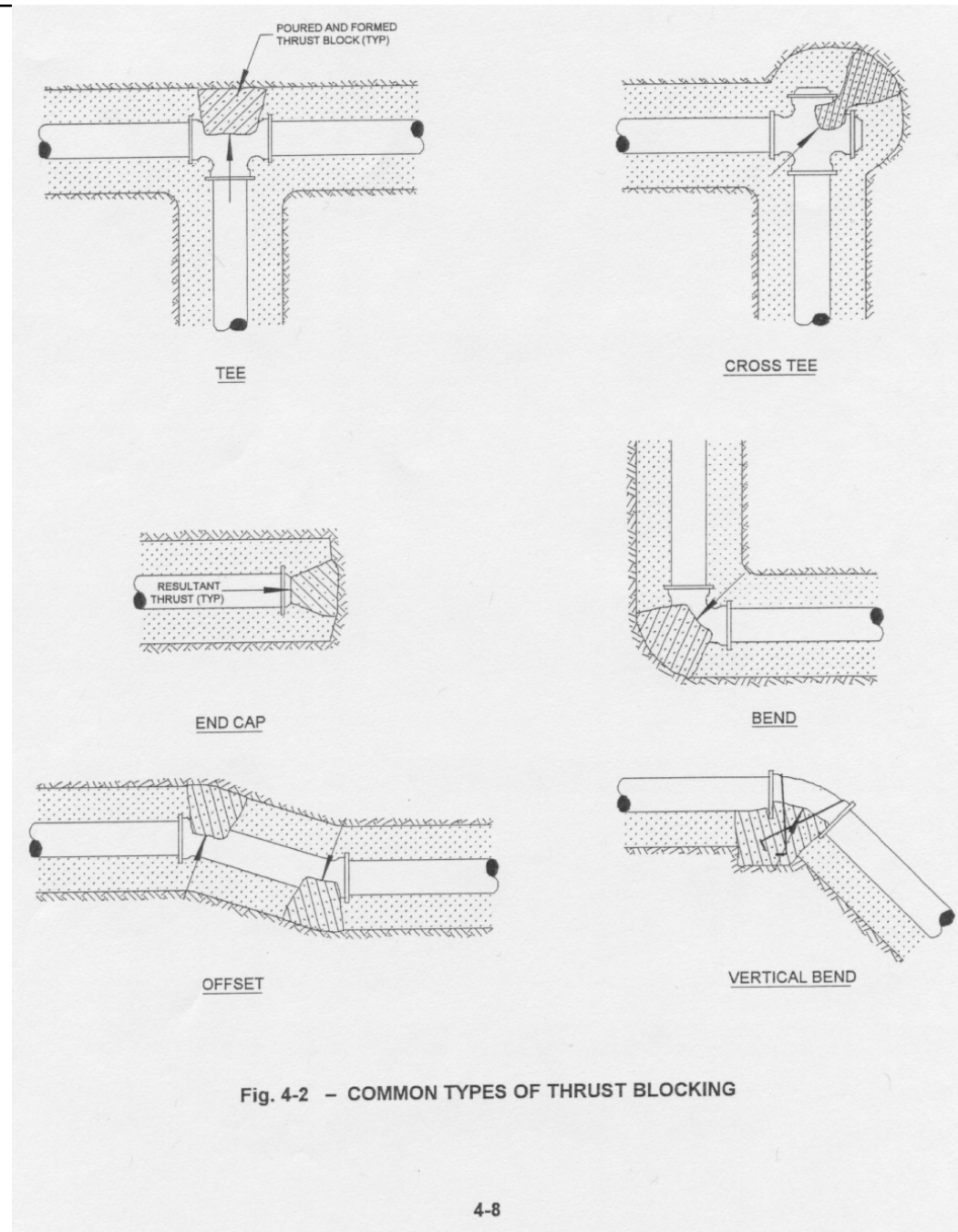
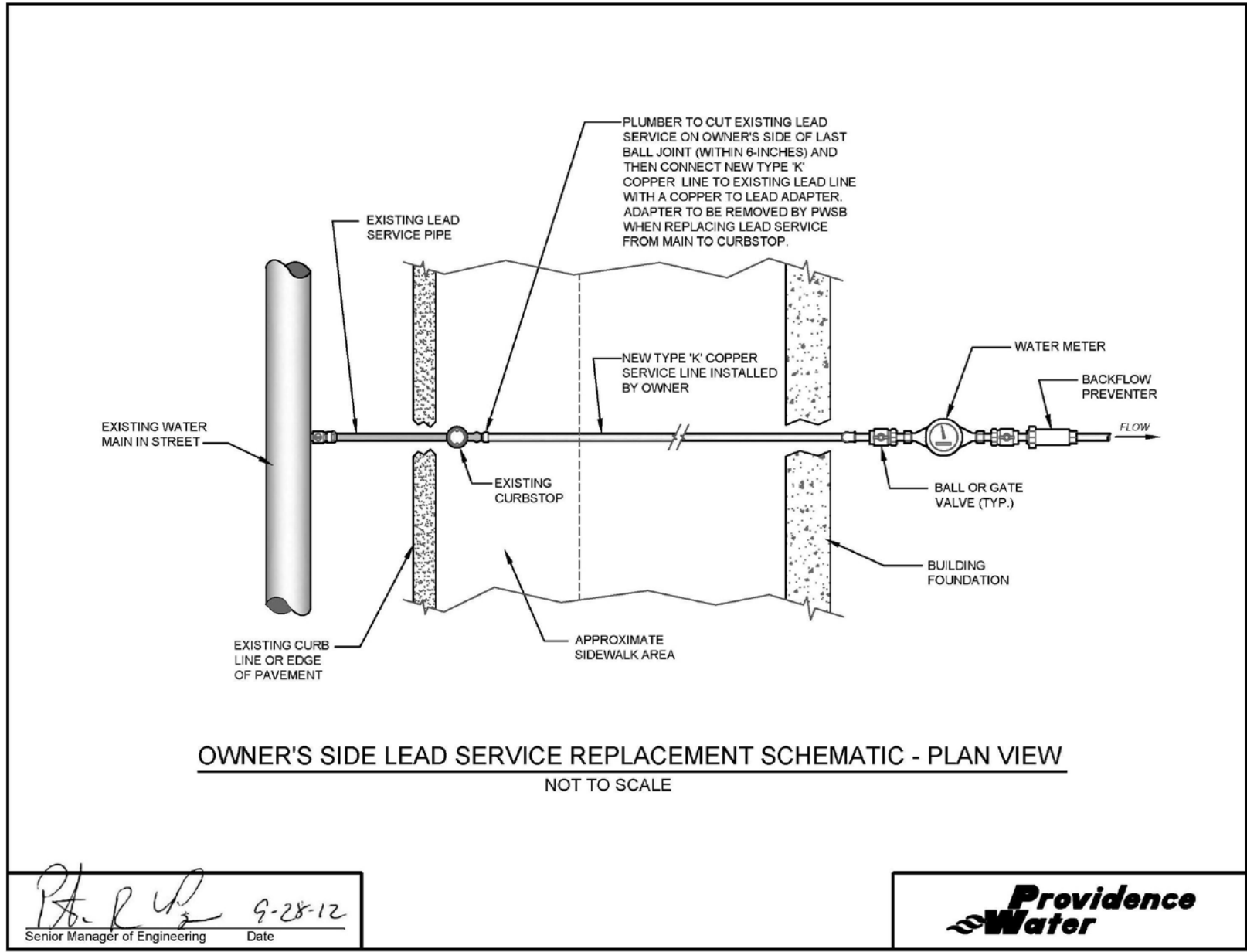
RHODE ISLAND DEPT. of ENVIRONMENTAL MANAGEMENT  
RHODE ISLAND POLLUTION DISCHARGE ELIMINATION  
SYSTEM SUBMISSION

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NO.	DATE	REVISION	CHECKED BY
<p align="center"><b>UTILITY PLAN</b>  A.P.47, LOTS 843 &amp; 844  SWAN STREET &amp; SAYLES STREET  PROVIDENCE, RHODE ISLAND</p>			PROJECT NO. <u>00-122</u> SCALE: <u>1" = 20'</u> DATE: <u>09/21/2020</u> DRAWN BY: <u>MS / BJT</u> CHECKED BY: <u>LRS / RSL</u>
<p align="center"><b>COLETTA GROUP LLC</b>  7715 POST ROAD, SUITE 204  NORTH KINGSTOWN, RHODE ISLAND 02852</p>			FILENAME: <u>00122_2022_Mat.dwg, mcd</u> <u>13</u> of <u>16</u> SHEETS DRAWING # <u>C-11</u>



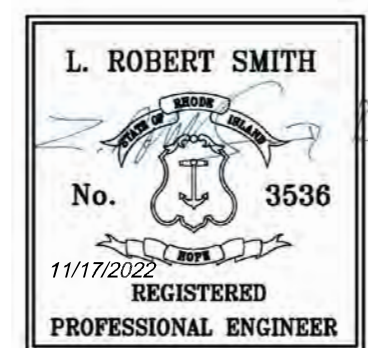
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East Providence, RI  
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Fax: (401) - 438 - 5773  
[www.watermanengineering.net](http://www.watermanengineering.net)





## NOTES / REFERENCES

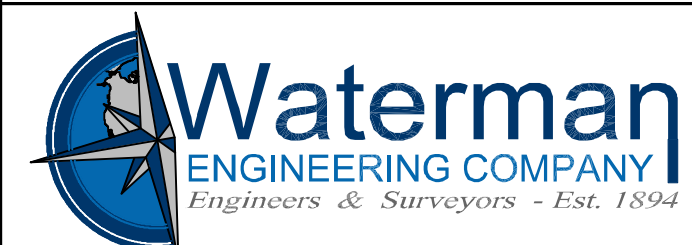
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## RHODE ISLAND DEPT. of ENVIRONMENTAL MANAGEMENT RHODE ISLAND POLLUTION DISCHARGE ELIMINATION SYSTEM SUBMISSION

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UTILITY DETAIL PLAN A.P. 47, LOTS 843 & 844 SWAN STREET & SAYLES STREET PROVIDENCE, RHODE ISLAND			PROJECT NO: 00-122 SCALE: AS NOTED DATE: 09/21/2020 DRAWN BY: MS
COLETTA GROUP LLC 7715 POST ROAD, SUITE 204 NORTH KINGSTOWN, RHODE ISLAND 02852			CHECKED BY: LRS FILENAME: 09122_2022_MultiDraw.mxd -14- of -16- SHOTS DRAWING # C-12



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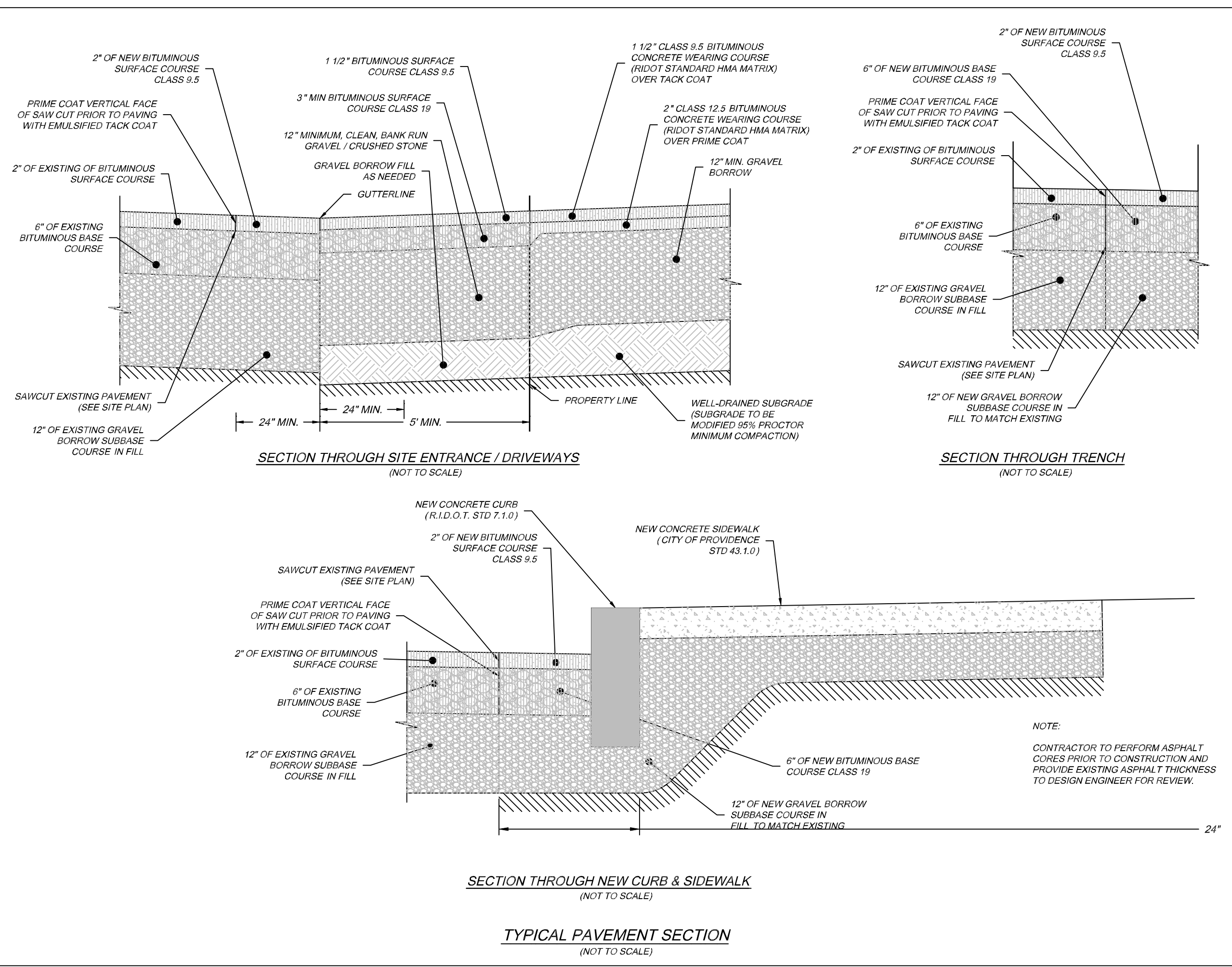
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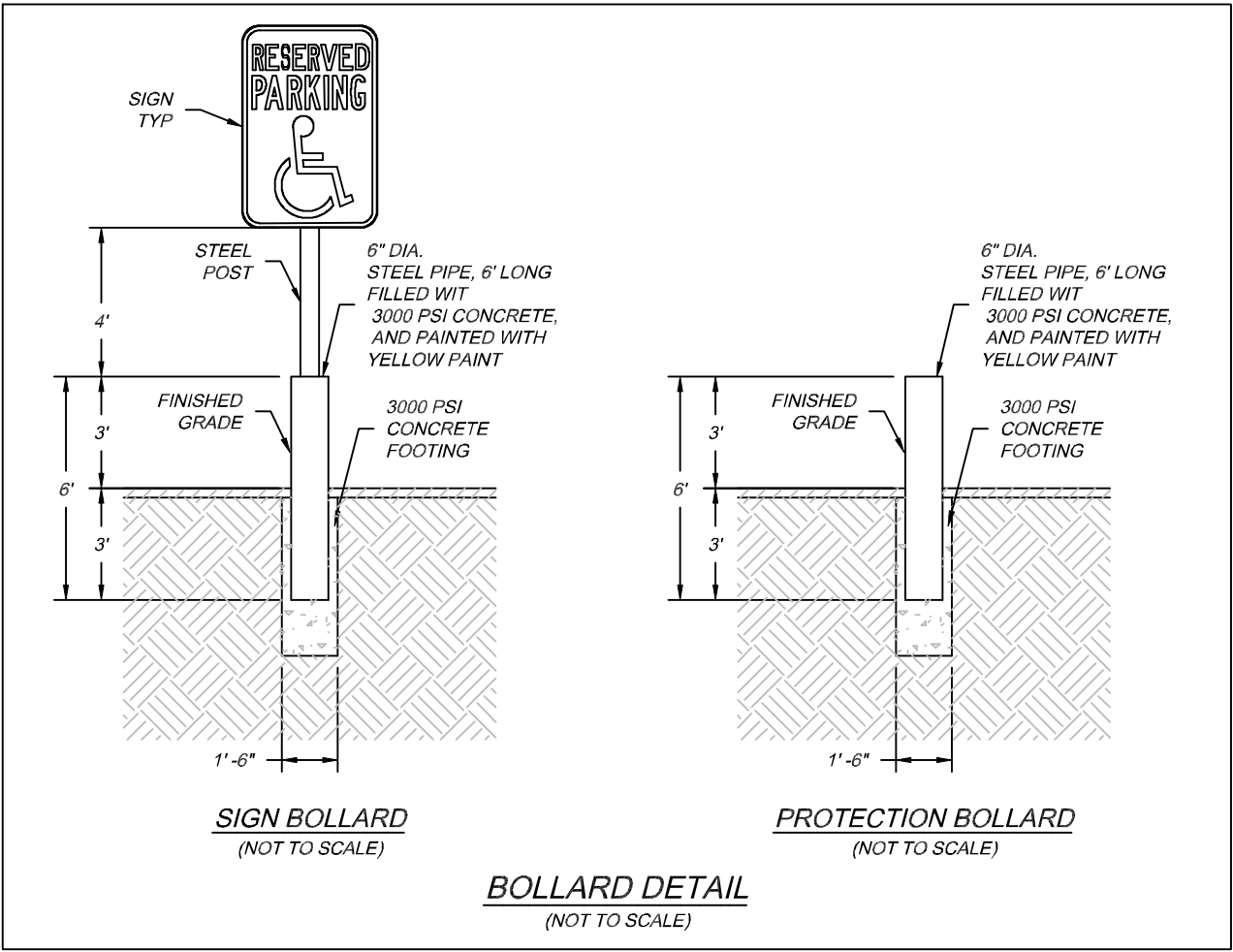
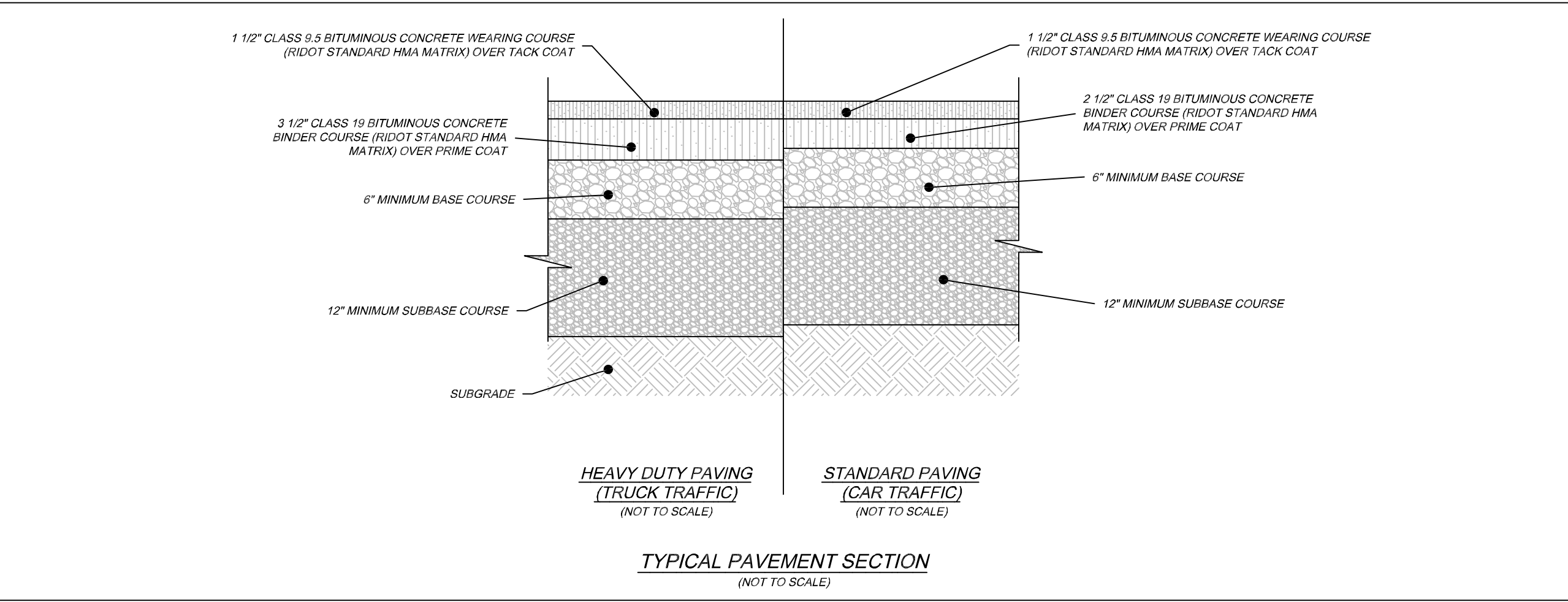
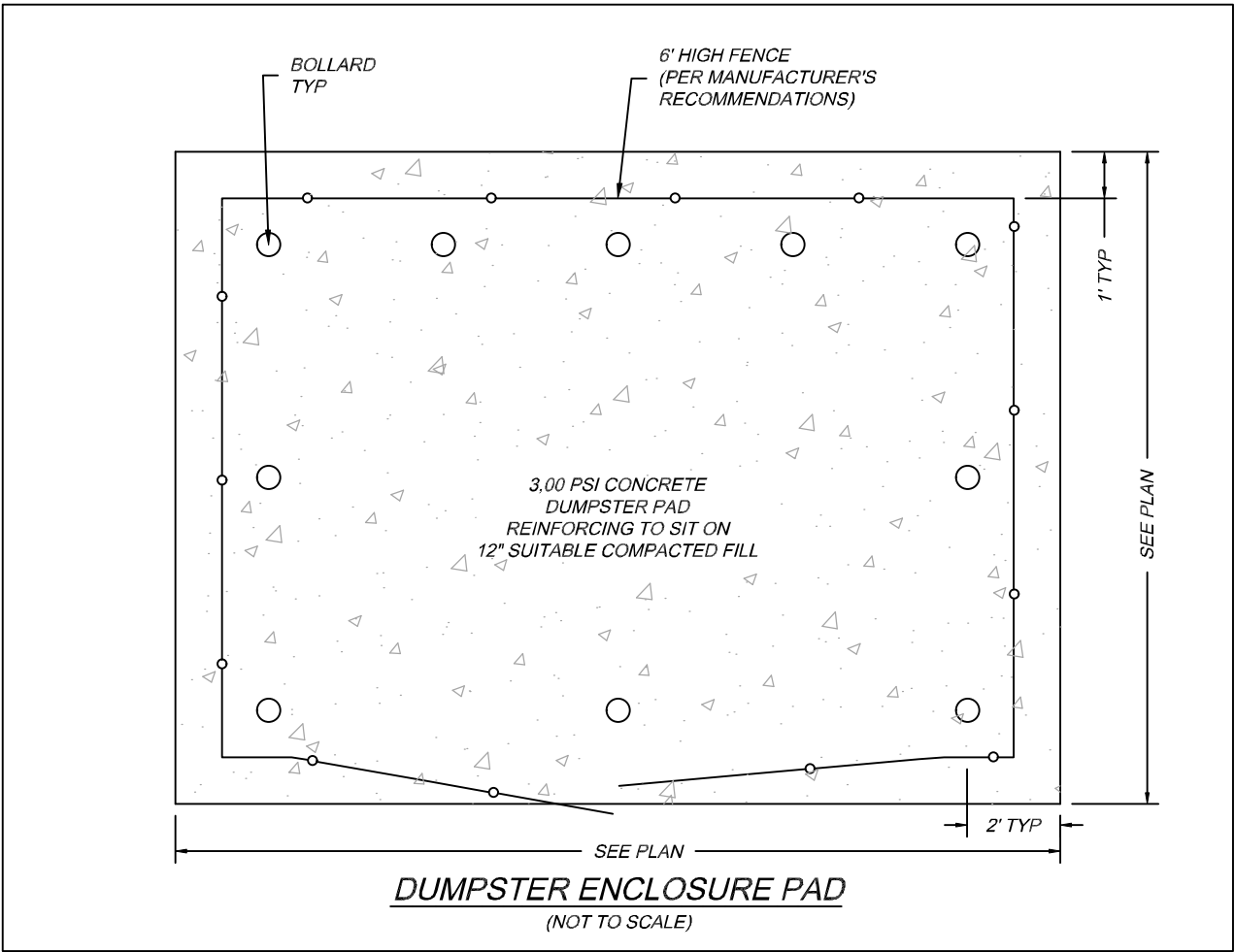
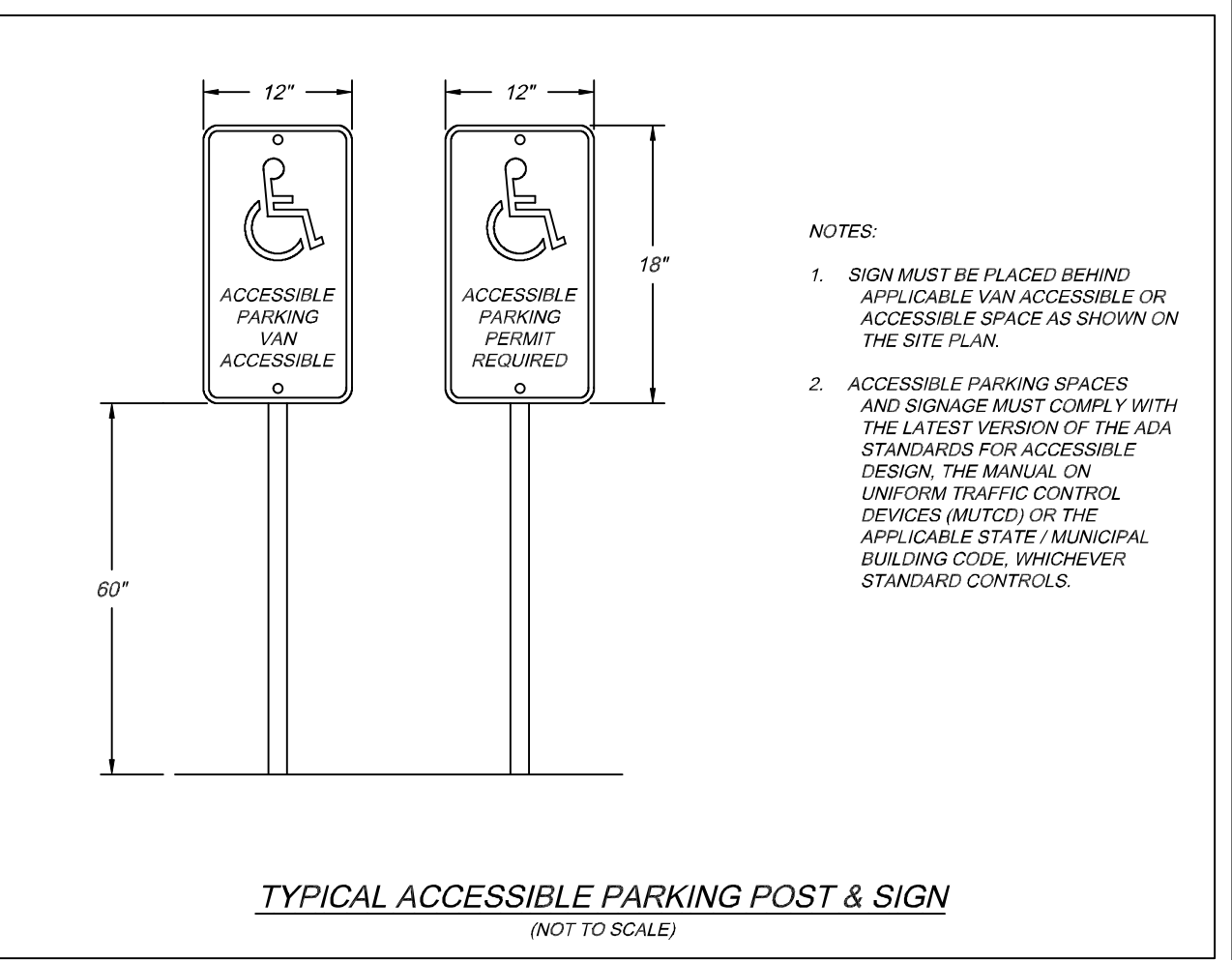
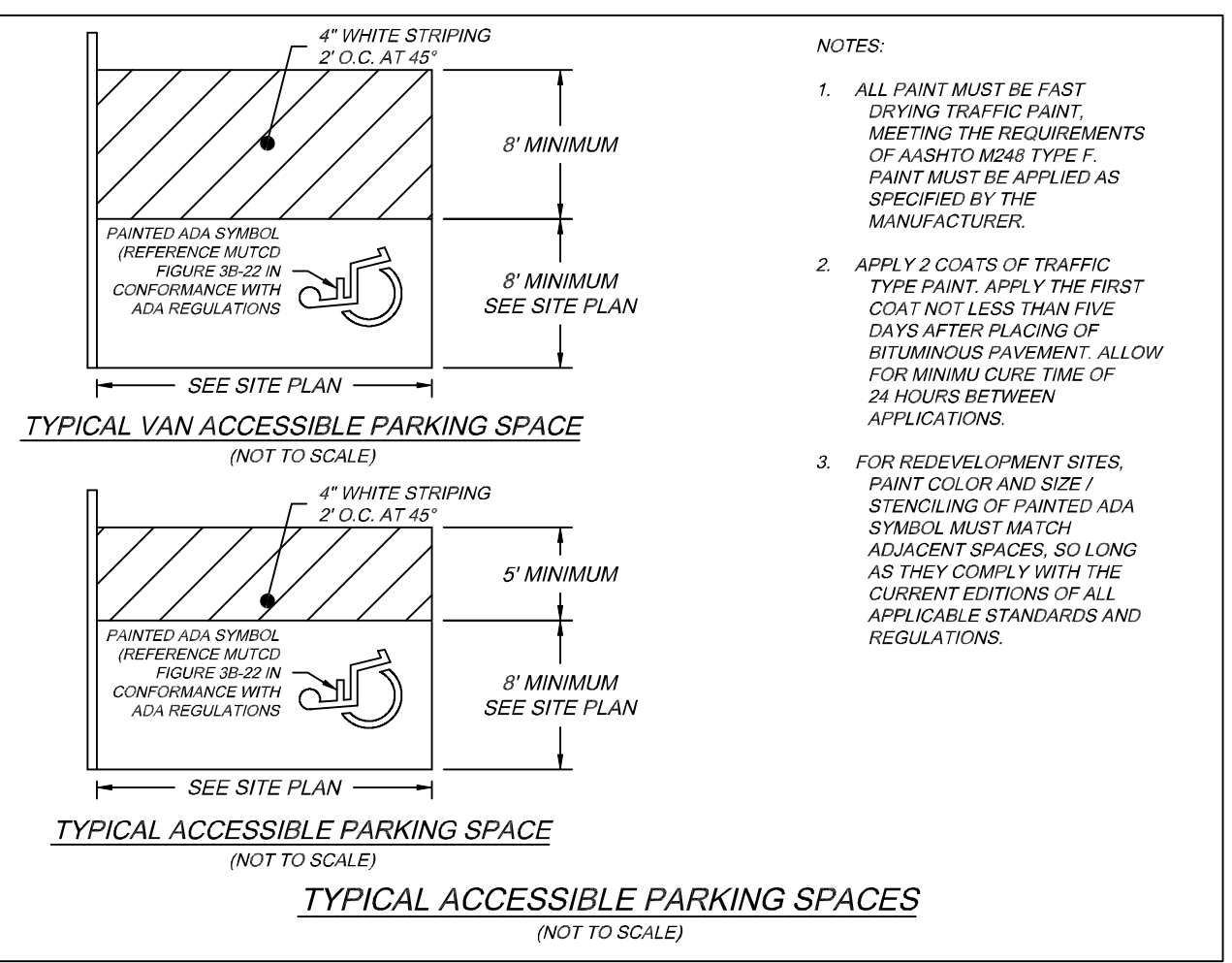
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WATERMAN ENGINEERING CO.  
CIVIL ENGINEERS & SURVEYORS  
46 SUTTON AVENUE  
EAST PROVIDENCE, RI 02914-2096





- ADA NOTES
- ALL IMPROVEMENTS MUST COMPLY WITH THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG)" BY THE DEPARTMENT OF JUSTICE (CURRENT EDITION).
  - MAXIMUM RUNNING SLOPE ALONG ALL ACCESSIBLE PATHS OF TRAVEL MUST BE 4.5 % (0.045 FT / FT), AND MAXIMUM CROSS SLOPE ACROSS ALL ACCESSIBLE PATHS OF TRAVEL MUST BE 1.5 % (0.015 FT / FT).
  - ADA PARKING SPACES AND LOADING AREAS: THE STEEPEST SLOPE OF THE SPACE, MEASURED IN ANY DIRECTION (INCLUDING DIAGONAL), MUST BE LESS THAN OR EQUAL TO 2 % (0.02 FT / FT). WATERMAN ENGINEERING COMPANY GENERALLY RECOMMENDS A MAXIMUM OF 1.4 % (0.014 FT / FT) BE USED FOR BOTH RUNNING AND CROSS SLOPES IN ORDER TO COMPLY.
  - A MINIMUM 5' x 5' LANDING MUST BE PROVIDED IN FRONT OF ALL PUBLICLY ACCESSIBLE BUILDING ENTRANCES / EGRESSES. THE STEEPEST SLOPE OF THE LANDING, MEASURED IN ANY DIRECTION (INCLUDING DIAGONAL), MUST BE LESS THAN OR EQUAL TO 2 % (0.02 FT / FT). WATERMAN ENGINEERING COMPANY GENERALLY RECOMMENDS A MAXIMUM OF 1.4 % (0.014 FT / FT) BE USED FOR BOTH RUNNING AND CROSS SLOPES IN ORDER TO COMPLY.
  - FOR EVERY 6 (OR FRACTION OF 6) ADA PARKING SPACES, AT LEAST ONE MUST BE A VAN PARKING SPACE. FOR EXAMPLE, IF 7 ADA PARKING SPACES ARE REQUIRED, A MINIMUM OF 2 MUST BE VAN SPACES.
  - NOTWITHSTANDING THE NOTES LISTED ABOVE, TOWN OR STATE - SPECIFIC STANDARDS MAY BE MORE STRINGENT AND OVERRULE. IT IS THE RESPONSIBILITY OF THE USER OF THIS PLAN SET TO MAINTAIN COMPLIANCE WITH THE CONTROLLING STANDARD.
  - NOTE THAT THE GRADING / PLAN VIEWS AND DETAILS CONTAINED WITHIN THIS PLAN SET MAY NOT SHOW THE DETAIL NECESSARY TO CONSTRUCT WALKWAYS, RAMPS AND SPACES TO COMPLY WITH THE ABOVE REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LEVEL OF CARE NECESSARY TO BE CERTAIN THAT THE CONSTRUCTED PRODUCT MEETS ADA CONTROLLING STANDARDS. IN THE EVENT OF ANY NON-COMPLIANCE, THE CONTRACTOR MUST NOTIFY THE DESIGNER BEFORE CONSTRUCTION FOR ADVICE IN FINDING A RESOLUTION.



L. ROBERT SMITH  
No. 3536  
11/17/2022  
REGISTERED  
PROFESSIONAL ENGINEER

\* SIGNATURES MUST BE IN BLUE INK TO CONSTITUTE AN ORIGINAL PLAN

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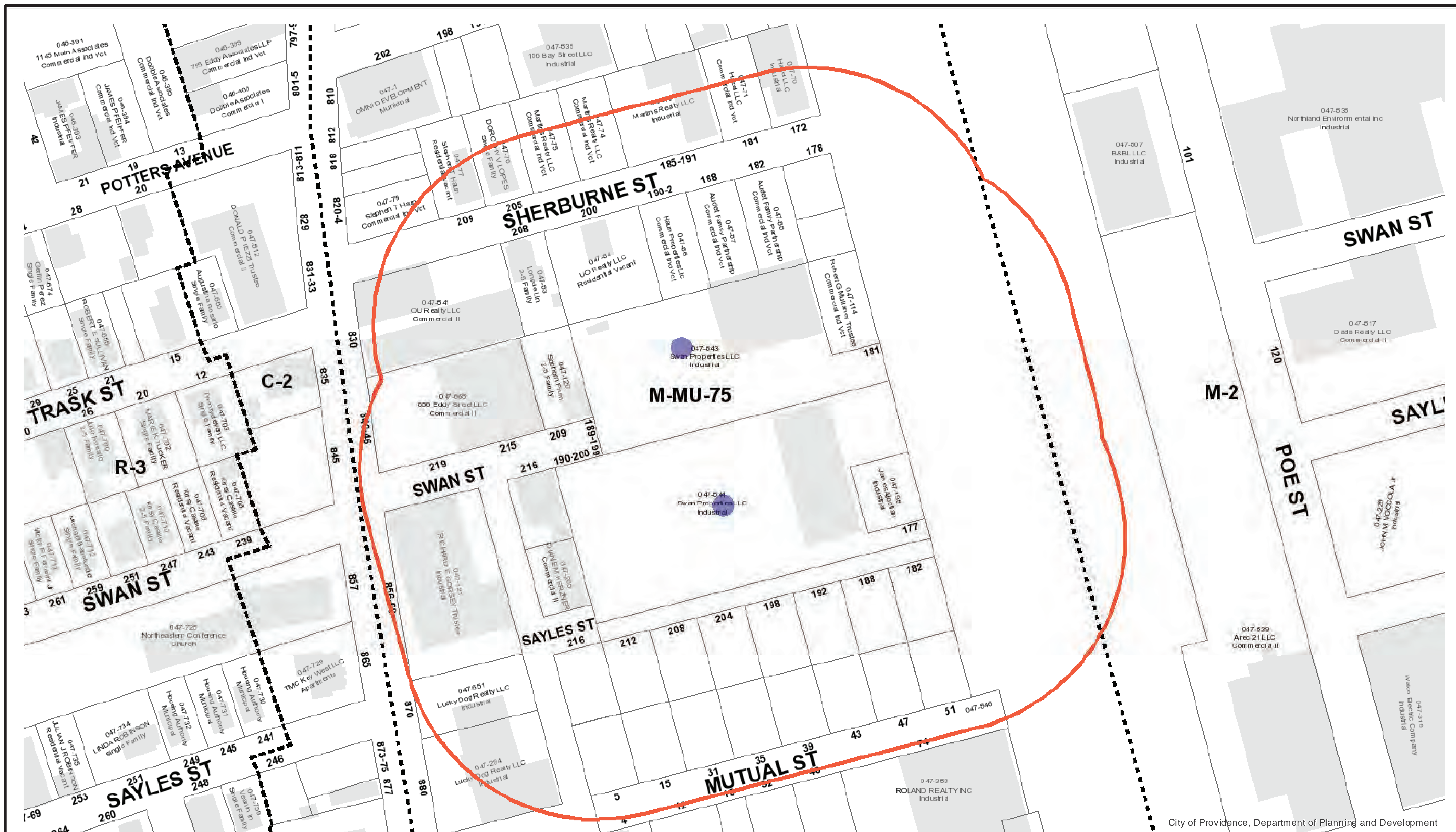
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COLETTA GROUP LLC 7715 POST ROAD, SUITE 204 NORTH KINGSTOWN, RHODE ISLAND 02852			

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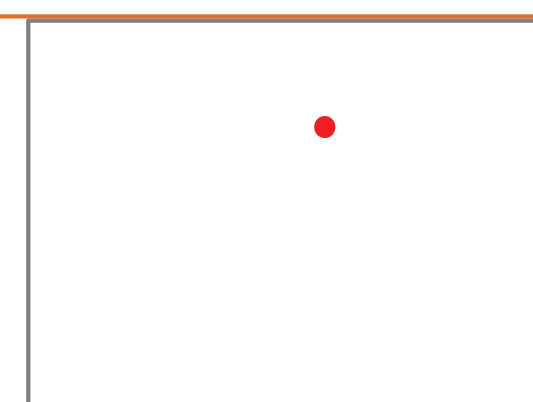


City of Providence, Department of Planning and Development

The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analyses.

Produced by the Providence Planning and Development GIS Lab.  
444 Westminister Street, Providence, R.I. 02903

Data Sources:  
Providence Geographic Information System  
Date: 11 /7/2 022



## 200' RADIUS PLAN



Group	Proportion of 'yes' answers
All respondents	~0.018
Non-users	~0.015
Users	~0.012

1 kbit = 0.1 kb



PROVIDENCE, RHODE ISLAND

PROVIDENCE THE CREATIVE CAPITAL

DEPARTMENT OF PLANNING AND DEVELOPMENT

JORGE O. ELORZA, MAYOR | BONNIE NICKERSON AICP, DIRECTOR