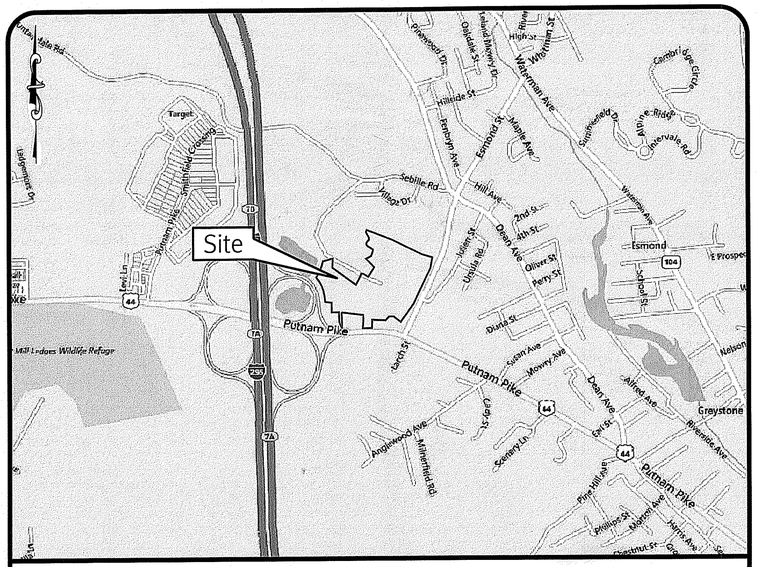
RIDEM Submission Plans

Smithfield Village

Located on Putnam Pike & Esmond Street
Smithfield, Rhode Island

Assessor's Plat 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21

Environmental Management
JUL 16 2018
Office of Water Resources



Location Map Scale: 1"=1000'

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0290
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

SESC / O&M

The Soil Erosion and Sediment Control Plan (SESC) and Operations and Maintenance Plan (O&M) are required documents with this plan set and must be maintained by the contractor and owner onsite.

RIDOT

The Proposed Improvements Will Not Increase the Rate of Stormwater Runoff Onto the State Highway. All Work Within the State Right of Way Must Conform to the RI Standard Specifications, Details, and Addendums.

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
Boston • Providence • Newport

BRANDON D. CARR
9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

This regulatory submission set shall not be used for construction purposes unless stamped 'Issued for Construction' and signed by a DiPrete Engineering representative.

The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By
4	06-13-2018	RIDEM Response to Comments	D.R.N.
3	05-08-2018	Order of Approval Response to Comments	D.R.N.
2	04-16-2018	RIDEM Response to Comments	D.R.N.
1	03-09-2018	RIDEM RFI / Order of Approval	D.R.N.
0	10-11-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Cover Sheet

Smithfield Village

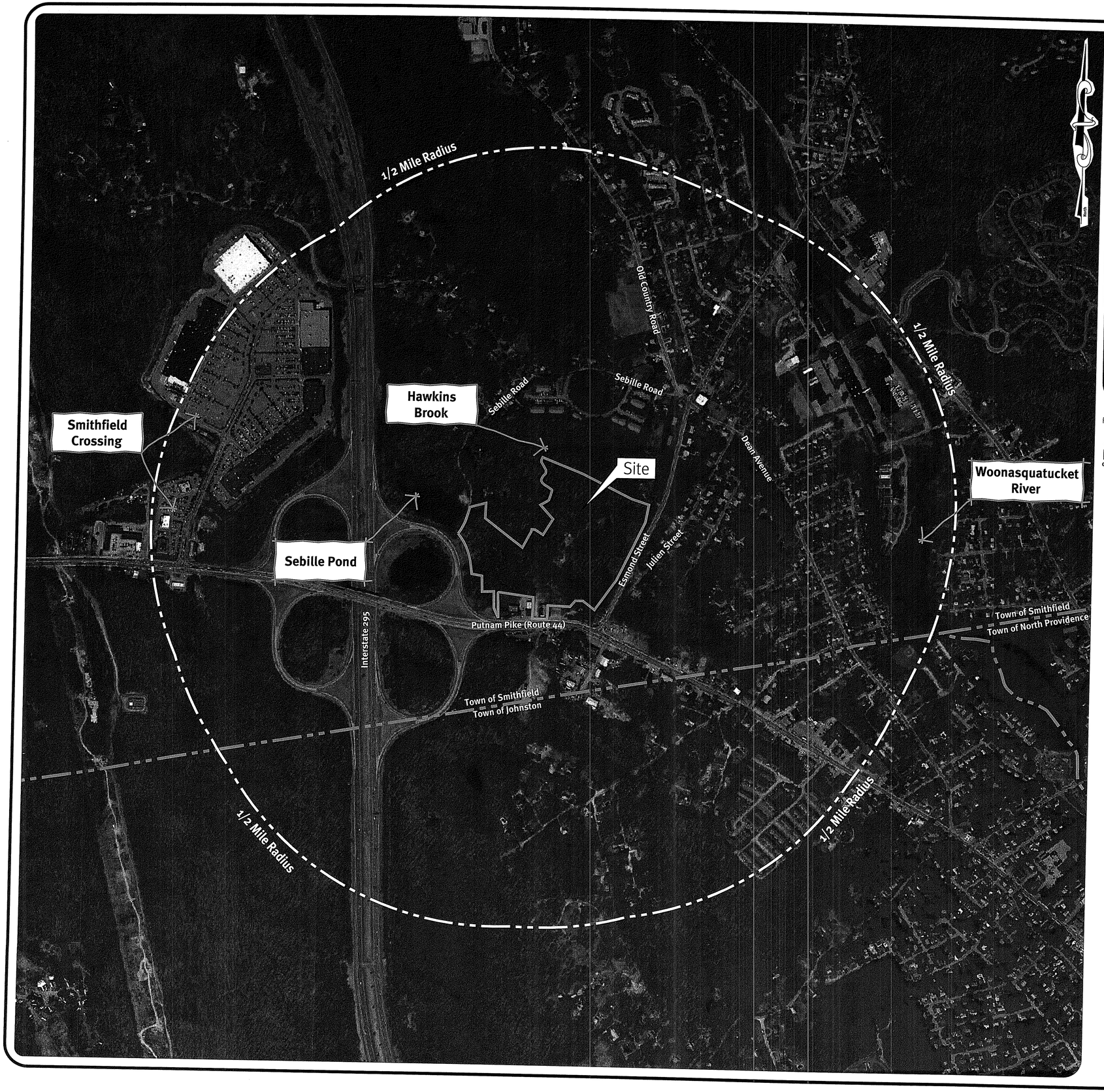
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

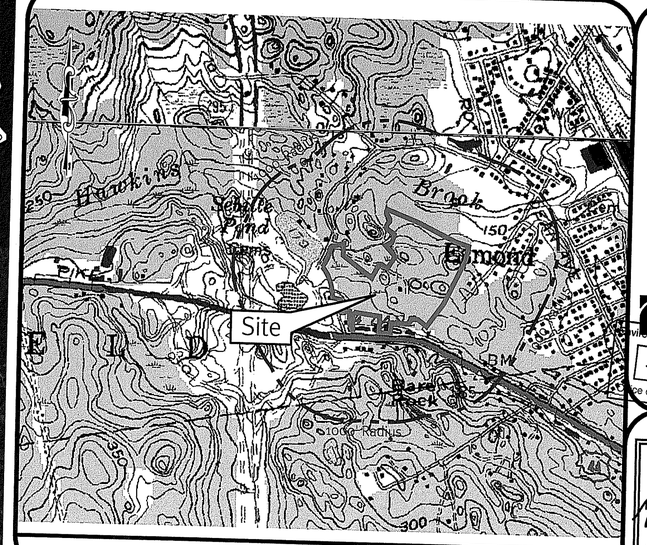
Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

DE Job No: 0717-022.A05 Copyright 2018 by DiPrete Engineering Associates, Inc.

SHEET 1 OF 30

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USGS Map Scale: 1"=800'

Photo Obtained from the ARCGIS 2008 Orthophotography.

Scale: 1"=400'
0 200' 400' 800'

Legend:

PROPERTY LINE

1000' RADIUS LINE

HALF MILE RADIUS LINE

APPROXIMATE TOWN LINE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
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Two Stafford Court Cranston, RI 02920
Tel 401-943-1000 Fax 401-464-6006 www.diprete-eng.com

RECEIVED
Department of Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
No. 9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
4	7-6-2018	DEM Response to Comments	D.R.N.
3	06-13-2018	Revised Planting Notes & Comments	D.R.N.
2	05-10-2018	RIDEM Response to Comments	D.R.N.
1	04-06-2018	RIDEM Response to Comments	D.R.N.
0	03-05-2018	RIDEM RFI / Letter of Approval	D.R.N.
0	12-11-2017	RIDEM Pre-Application Meeting	D.R.N.
0	10-31-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Aerial Half Mile Radius

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 304, 31 & 314, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

DE Job No: 0717-022-A05 Copyright 2018 by DiPrete Engineering Associates, Inc.

General Notes:

1. THE SITE IS LOCATED ON THE TOWN OF SMITHFIELD ASSESSOR'S PLAT 29 LOT 66A, ASSESSOR'S PLAT 30 LOTS 20, 29, 30, 30A, 31 & 31A AND ASSESSOR'S PLAT 35 LOTS 13 & 21.

2. THE SITE IS APPROXIMATELY 26.8± ACRES AND IS ZONED PD (PLANNED DEVELOPMENT).

3. THE OWNER OF AP 29 LOT 66A, AP 30 LOT 20, AP 35 LOTS 13 & 21 IS:
   CHURCHILL & BANKS PROPERTIES, LLC
   10 GREENE STREET
   PROVIDENCE, RI 02903

   THE OWNER OF AP 30 LOTS 29, 30, 30A, 31, & 31A IS:
   WALTER E. & NORMA M. PATERSON
   PO BOX 17023
   SMITHFIELD, RI 02917

4. THIS SITE IS LOCATED IN FEMA FLOOD ZONE X. ZONE X ARE AREAS WHERE THERE IS MINIMAL FLOODING. REFERENCE FEMA FLOOD INSURANCE RATE MAP 44007C0282G, MAP REVISED MARCH 2, 2009.

5. THE BOUNDARY LINE AS SHOWN ON THIS PLAN DEPICTS A CLASS I SURVEY AS PERFORMED BY DIPRETE ENGINEERING ASSOCIATES, INC. THE PLAN ITSELF CONFORMS ONLY TO A CLASS III STANDARD AS ADOPTED BY RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS. THIS PLAN IS NOT TO BE CONSTRUED AS A CLASS I BOUNDARY PLAN AND IS NOT SUITABLE FOR RECORDING AS A CLASS I STANDARD.

6. THE SITE IS NOT WITHIN A GROUNDWATER PROTECTION AREA, NATURAL HERITAGE AREA, OR A GROUNDWATER PROTECTION OVERLAY DISTRICT.

7. THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE PROJECT PLANS AND THE CONTRACTOR/ OWNER MUST MAINTAIN THESE DOCUMENTS AS PART OF A FULL PLAN SET:

   - SOIL EROSION AND SEDIMENT CONTROL PLAN (SESC). THE SESC CONTAINS THE FOLLOWING:
     - EROSION CONTROL MEASURES
     - SHORT TERM MAINTENANCE
     - ESTABLISHMENT OF VEGETATIVE COVER
     - CONSTRUCTION POLLUTION PREVENTION
     - SEQUENCE OF CONSTRUCTION
   - OPERATIONS AND MAINTENANCE PLAN (O&M). THE O&M CONTAINS THE FOLLOWING:
     - LONG TERM MAINTENANCE
     - LONG TERM POLLUTION PREVENTION

8. THIS PLAN SET REFERENCES RIDOT STANDARD DETAILS (DESIGNATED AS RIDOT STD X.X.X.). RIDOT STANDARD DETAILS ARE AVAILABLE FROM RIDOT AND ONLINE AT: HTTP: //WWW.DOT.RI.GOV/BUSINESS/CONTRACTORSANDCONSULTANTS.PHP.

9. THE SITE IS TO BE SERVICED BY PUBLIC WATER AND PUBLIC SEWER.

10. THE DRAINAGE SYSTEM IS DESIGNED TO MEET THE TOWN OF SMITHFIELD SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WITH THE USE OF CATCH BASINS, CULVERTS, AND UNDERGROUND DRAINAGE BASINS. THE STORMWATER MANAGEMENT SYSTEM MEETS THE RIDEM BEST MANAGEMENT PRACTICES.

11. TEST PITS & SOIL EVALUATIONS WERE COMPLETED BY DIPRETE ENGINEERING ON 9/1/16, 9/2/2016 & 6/28/2017.

Soil Information:

(REFERENCE: USDA NATURAL RESOURCES CONSERVATION SERVICE)

SOIL NAME	DESCRIPTION
CoD	CANTON–CHARLTON–ROCK OUTCROP COMPLEX, 15 TO 35 PERCENT SLOPES
CeC	CANTON AND CHARLTON FINE SANDY LOAMS, VERY ROCKY, 3 TO 15 PERCENT SLOPES
Rf	RIDGEBURY, WHITMAN, AND LEICESTER EXTREMELY STONY FINE SANDY q LOAMS
Ss	SUDBURY SANDY LOAM
SuB	SUTTON VERY STONY FINE SANDY LOAM, 0 TO 8 PERCENT SLOPES
UD	UDORTHENTS–URBAN LAND COMPLEX

Soil Erosion and Sedimentation Control Notes:

1. THE CONTRACTOR IS RESPONSIBLE FOR ALL SOIL EROSION AND SEDIMENT CONTROL ONSITE. THE CONTRACTOR IS TO NOTIFY THE DESIGN ENGINEER, THE DIRECTOR OF PUBLIC WORKS, THE TOWN ENGINEER, AND RI DEPT. OF ENVIRONMENTAL MANAGEMENT AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.

2. ALL EROSION CONTROL, TEMPORARY SWALES, TEMPORARY SEDIMENTATION TRAPS, ETC. SHALL BE INSTALLED PER THE RHODE ISLAND SOIL EROSION AND SEDIMENTATION CONTROL LATEST EDITION AND THE SOIL EROSION SEDIMENTATION CONTROL PLAN (SESC).

3. TEMPORARY SWALES SHALL BE USED TO CONTROL RUNOFF DURING CONSTRUCTION OF THE PROPOSED ROADWAY. TEMPORARY SWALES SHALL BE VEGETATED AFTER CONSTRUCTION. EROSION CONTROL MATS SHALL BE INSTALLED IF NECESSARY TO PREVENT EROSION AND SUPPORT VEGETATION. AFTER CONSTRUCTION IS COMPLETE AND TRIBUTARY ARES TO THE SWALES HAVE BEEN STABILIZED, THE TEMPORARY SWALES SHALL BE CLEARED AND FINAL DESIGN, INCLUDING INSTALLATION OF THE GRASS SWALE SHALL BE PER THE DESIGN PLANS.

4. ONCE THE SEDIMENTATION TRAP IS NO LONGER REQUIRED AND ALL TRIBUTARY AREAS HAVE BEEN STABILIZED, THE TEMPORARY SEDIMENTATION BASIN SHALL CLEANED AND BROUGHT TO FINAL DESIGN GRADES.

5. INLET PROTECTION SHALL BE INSTALLED ON ALL CATCH BASINS ONCE CONSTRUCTED.

6. SEE SECTION 2.2 OF THE SESC FOR SEQUENCE OF CONSTRUCTION ACTIVITY.SEQUENCE OF CONSTRUCTION PROVIDED IN SESC MAY BE MODIFIED AS FIELD CONDITIONS WARRANT WITH PRIOR APPROVAL FROM THE OWNER OR OWNER'S REPRESENTATIVE.

7. SEE SECTION 2.2 OF THE SESC FOR PROJECT PHASING.

8. CONTRACTOR MAY MODIFY SEQUENCE OF CONSTRUCTION WITH APPROVAL FROM DESIGN ENGINEER.

9. FOR CONSTRUCTION PHASING SEE SECTION 2.2 OF SOIL EROSION AND SEDIMENT CONTROL PLAN.

10. IF CONCRETE TRUCKS ARE WASHED OUT ONSITE, ALL WASHOUT MUST BE COMPLETED IN THE DESIGNATED CONCRETE WASHOUT AREA.

Demolition Notes:

1. ALL EXISTING UTILITIES SHOWN ARE FROM VISIBLE INFORMATION, DRAWINGS FROM OTHERS, OR INFORMATION PROVIDED TO DIPRETE ENGINEERING AND ARE SUBJECT TO CHANGE. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM AFOREMENTIONED PLANS OF RECORD AND ARE APPROXIMATE ONLY. PRIOR TO CONSTRUCTION, THE PROPER UTILITY ENGINEERING DEPARTMENTS SHALL BE CONTACTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR. CALL THE DIG SAFE CENTER TOLL FREE AT 1-888-344-7233 72 HOURS PRIOR TO EXCAVATION. NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO EXCAVATION. ANY DAMAGE TO UTILITIES WHICH ARE SHOWN ON THE PLANS OR DETAILED BY DIG SAFE SHALL BE THE SITE CONTRACTORS RESPONSIBILITY.

2. CONTRACTOR TO OBTAIN ALL FEDERAL, STATE, AND MUNICIPAL APPROVALS PRIOR TO THE START OF CONSTRUCTION.

3. CONTRACTOR TO PERFORM DAILY SWEEPING AT CONSTRUCTION ENTRANCES DURING DEMOLITION AND CONSTRUCTION TO MINIMIZE SEDIMENTS ON PUTNAM PIKE AND ESMOND STREET.

4. ANY DAMAGE TO EXISTING BUILDING AND PROPERTY CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) ALL MATERIALS INDICATED ON THE PLANS UNLESS SPECIFIED OTHERWISE HERE IN. R&D MATERIALS TO INCLUDE BUT NOT LIMITED TO PAVEMENT, GRAVEL, CATCH BASINS, MANHOLES, GRATES/FRAMES/COVERS, AND ANY EXCESS SOIL THAT IS NOT INCORPORATED INTO THE WORK.

6. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, ALL DISTURBED AREAS INCLUDING THE CONTRACTOR'S STOCKPILE AND STAGING AREAS WITHIN THE LIMIT OF WORK SHALL BE RESTORED TO MATCH THE DESIGN PLANS.

Traffic Notes:

1. DURING CONSTRUCTION TRAFFIC CONES ARE TO BE USED FOR SEPARATION OF ACTIVE TRAFFIC FROM WORK ZONE.

2. DURING CONSTRUCTION FLAGGERS SHALL BE EMPLOYED TO ENSURE SAFETY FOR INTERACTION OF CONSTRUCTION VEHICLES AND ACTIVE TRAFFIC.

3. ALL SIGNS, FLAGGERS, TRAFFIC CONTROL DEVICES, AND TEMPORARY TRAFFIC ZONE ACTIVITIES SHALL MEET THE REQUIREMENTS OF THE MUTCD LATEST EDITION AND SUBSEQUENT ADDENDA.

4. TEMPORARY CONSTRUCTION SIGNS SHALL BE MOUNTED ON RIDOT APPROVED SUPPORTS AND SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE.

5. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES CURRENT EDITION.

As-Built Notes:

1. ALL COMPONENTS OF THE DRAINAGE MUST BE ASBUILT PRIOR TO COVERING. ENGINEER TO BE NOTIFIED PRIOR TO COVERING SURVEY ASBUILT LOCATIONS. ENGINEER WILL NOT ACCEPT FIELD MEASUREMENTS FROM THE SITE CONTRACTOR.

RIDOT Notes:

1. ALL WORK TO BE DONE WITHIN THE STATE RIGHT OF WAY (ROW) SHALL CONFORM TO RI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AMENDED AUGUST 2013 WITH ALL REVISIONS AND ADDENDA. STANDARD DETAILS FOR THIS WORK ARE RI STANDARD DETAILS 1998 EDITIONS WITH ALL REVISIONS.

2. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, INCLUDING ALL REVISIONS.

3. NO LANE OR SHOULDER CLOSURES SHALL BE PERFORMED WITHIN THE STATE'S R.O.W. DURING PEAK TRAFFIC HOURS.

4. SEWER AND WATER CONNECTIONS WITHIN THE STATE R.O.W. WILL REQUIRE A SEPARATE RIDOT UTILITY PERMIT. CONTRACTOR TO OBTAIN BEFORE CONSTRUCTION.

5. THE DRAINAGE SYSTEM IS DESIGNED TO DECREASE BOTH STORM WATER RUNOFF RATE DISCHARGE, AND STORM WATER RUNOFF VOLUME TO THE STATE RIGHT-OF-WAY FROM PRE-DEVELOPMENT TO POST-DEVELOPMENT. THERE WILL BE NO INCREASE IN RUNOFF TO THE STATE RIGHT OF WAY FROM THE PROPOSED DEVELOPMENT.

Layout and Materials:

1. DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.

2. CURB RADII ARE 5 FEET ADJACENT TO DRIVE AISLES AND 2 FEET ADJACENT TO PARKING SPACES UNLESS OTHERWISE NOTED. ROADWAY INTERSECTION CURB RADII ARE 10 FEET UNLESS OTHERWISE NOTED.

3. CURBING SHALL BE PRECAST CONCRETE OR AS LABELED ON THE PLANS.

4. SIDEWALK SHALL BE CONCRETE OR AS LABELED ON THE PLANS.

5. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.

6. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.

7. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.

8. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.

ADA Notes:

1. ALL IMPROVEMENTS SHALL COMPLY WITH THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG)" BY THE DEPARTMENT OF JUSTICE.

2. MAXIMUM RUNNING SLOPE ALONG ALL ACCESSIBLE PATHS OF TRAVEL SHALL BE 4.5% OR 0.045 '/, AND MAXIMUM CROSS SLOPE ALONG ALL ACCESSIBLE PATHS OF TRAVEL SHALL BE 0.015'/,.

3. MAXIMUM SLOPE IN ALL DIRECTIONS FOR ALL ACCESSIBLE PARKING SPACES AND LOADING AREAS SHALL BE 0.015'/,.

4. A 5'x5' LANDING WITH A MAXIMUM SLOPE OF 1.5% OR 0.015'/, IN ALL DIRECTIONS SHALL BE PROVIDED IN FRONT OF ALL PUBLICLY ACCESSIBLE BUILDING ENTRANCES/EGRESSES.

5. SIDEWALK CURB RAMPS SHALL COMPLY WITH DIPRETE ENGINEERING DETAILS THAT MEET OR EXCEEDING RIDOT STANDARDS 43.3.0, 43.3.1, & 43.4.1 AS SHOWN ON THE DETAIL SHEET.

6. PLEASE NOTE THAT THE GRADING AND PLAN VIEWS AS WELL AS THE STANDARD DETAILS MAY NOT SHOW THE DETAIL NECESSARY TO CONSTRUCT WALKWAYS AND RAMPS TO ADA STANDARDS. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LEVEL OF CARE NECESSARY TO BE CERTAIN THAT THE CONSTRUCTED PRODUCT MEETS ADA STANDARDS. IN THE EVENT OF ANY CONFLICTS THE CONTRACTOR SHALL NOTIFY THE DESIGNER BEFORE CONSTRUCTION FOR ADVICE IN FINDING A RESOLUTION.

Grading and Utility Notes:

1. CONTRACTOR TO OBTAIN ALL FEDERAL, STATE, AND MUNICIPAL APPROVALS PRIOR TO THE START OF CONSTRUCTION.

2. CONSTRUCTION TO COMMENCE UPON RECEIPT OF ALL NECESSARY APPROVALS.

3. ALL WORK PERFORMED HEREIN SHALL BE GOVERNED BY THE RHODE ISLAND STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION AND TOWN OF SMITHFIELD STANDARD SPECIFICATIONS AND DETAILS.

4. THE CONTRACTOR SHALL COORDINATE WITH ALL OF THE APPROPRIATE UTILITY COMPANIES FOR AGREEMENTS TO SERVICE THE PROPOSED BUILDING. THIS SHALL BE DONE PRIOR TO CONSTRUCTION. NO REPRESENTATIONS ARE MADE BY DIPRETE ENGINEERING THAT UTILITY SERVICE IS AVAILABLE.

5. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING FINISH GRADING AND DRAINAGE AROUND THE BUILDING TO ENSURE SURFACE WATER AND/OR GROUND WATER ARE DIRECTED AWAY FROM THE STRUCTURE.

6. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.

7. ALL PROPOSED UNDERGROUND UTILITIES SERVING THE SITE AND BUILDINGS TO BE COORDINATED WITH APPLICANT, ARCHITECT, AND ENGINEER PRIOR TO INSTALLATION.

8. ALL RETAINING WALLS AND STEEP SLOPES ARE SHOWN SCHEMATICALLY ONLY AND DIPRETE ENGINEERING IS NOT PROVIDING THE DESIGN OF THESE ITEMS. THE ACTUAL WALLS AND SLOPES ARE TO BE BUILT UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER AND CERTIFIED TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT. SHOP DRAWINGS TO BE SUBMITTED PRIOR TO CONSTRUCTION.

9. ALL CUT AND FILL AREAS ARE TO BE DONE UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER WITH TESTING AND CERTIFICATION TO BE PROVIDED TO THE APPLICANT AT THE COMPLETION OF THE PROJECT. DIPRETE ENGINEERING ASSOCIATES, INC. IS NOT PROVIDING THE FILL SPECIFICATION, GEOTECHNICAL ENGINEERING, STRUCTURAL ENGINEERING SERVICES, OR SUPERVISION AS PART OF THESE DRAWINGS.

10. NO STOCKPILING OF MATERIAL TO BE LOCATED IN THE RIGHT OF WAY AND NO OPEN TRENCHES ARE TO BE LEFT OVERNIGHT.

11. ALL LOAM IN DISTURBED AREAS TO BE STOCKPILED FOR FUTURE USE.

12. ALL EXCESS SOIL, TREES, ROCKS, BOULDERS, AND OTHER REFUSE, SHALL BE DISCARDED OFF SITE IN AN ACCEPTABLE MANNER AT AN APPROVED LOCATION. STUMPS SHALL BE GROUND ONSITE OR REMOVED.

13. NO STUMP DUMPS ARE PROPOSED ONSITE.

DRAINAGE

ALL DRAINAGE PIPING TO BE HIGH-DENSITY POLYETHYLENE (HDPE) WITH WATERTIGHT JOINTS WHERE INSTALLED WITHIN THE SEASONAL HIGH GROUNDWATER, UNLESS NOTED OTHERWISE ON THE PLANS OR IN THE SPECIFICATIONS. ALL STORMWATER PIPE WITHIN THE STATE'S RIGHT OF WAY TO BE REINFORCED CONCRETE PIPE (RCP) PIPE.

DRAINAGE STRUCTURES TO BE AS FOLLOWS (UNLESS OTHERWISE NOTED ON PLANS):

- CATCH BASINS ALONG CURBING TO BE RIDOT STD. 4.4.0, TYPE F FRAME, 4' DIAMETER WITH APRON STONE.
- CATCH BASINS NOT ALONG CURBING TO BE RIDOT STD 4.4.0, 4' DIAMETER
- SINGLE FRAME CATCHBASIN GRATES TO BE RIDOT STD. 6.3.2
- DOUBLE FRAME CATCHBASIN GRATES TO BE RIDOT STD. 6.3.2
- HIGH CAPACITY CATCHBASIN GRATES TO BE RIDOT STD 6.3.4 AND INSTALLED ANYWHERE GRADES ARE 6% AND STEEPER
- MANHOLES TO BE RIDOT STD. 4.2.0, 4.2.1 OR 4.2.2 AS REQUIRED
- DRAINAGE MANHOLE COVERS TO BE RIDOT STD 6.2.1
- DROP INLETS TO BE RIDOT STD. 4.5.0, 4.5.1 OR 4.5.2.
- APRON STONE, WHERE REQUIRED, TO BE RIDOT STD 7.1.7 OR 7.1.8.
- HEADWALLS TO BE RIDOT STD 2.1.0.

ALL DRAINAGE STRUCTURES MUST BE WATERTIGHT.

DRAINAGE CONNECTIONS FROM ALL ROOF LEADERS (RL) ARE SHOWN FOR SCHEMATIC PURPOSES ONLY. THE LEVEL OF DETAIL SHOWN DOES NOT INCLUDE ALL JOINTS THAT MAY BE REQUIRED FOR CONSTRUCTION. ALL FITTINGS & PIPE SLOPES TO TIE INTO MAIN TRUNK LINE TO BE FIELD FIT BY CONTRACTOR.

SANITARY SEWER

ALL SANITARY SEWER PIPING TO BE SDR 35 UNLESS NOTED OTHERWISE ON THE PLANS OR IN THE SPECIFICATIONS. ALL SEWER IMPROVEMENTS MUST COMPLY WITH THE SMITHFIELD SEWER AUTHORITY RULES AND REGULATIONS. CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

WATER

ALL WATER MAINS TO BE CONCRETE LINED DUCTILE IRON PIPE (CLDIP). ALL WATER MAIN IMPROVEMENTS MUST COMPLY WITH THE SMITHFIELD WATER REGULATIONS. CONTRACTOR TO PROVIDE SHOP DRAWINGS AND SUBMITTALS TO THE ENGINEER OF RECORD FOR APPROVAL FOR ALL WATER IMPROVEMENTS AND APPURTENANCES INCLUDING BUT NOT LIMITED TO PIPES, VALVES, FITTINGS, HEAT ENCLOSURES, AND BACKFLOWS. ALL COMPONENTS OF THE WATER SYSTEM TO BE ASBUILT PER SMITHFIELD WATER REQUIREMENTS. ALL COMPONENTS OF THE WATER SYSTEM TO BE INSPECTED BY SMITHFIELD WATER. CONTRACTOR TO COORDINATE ALL IMPROVEMENTS WITH SMITHFIELD WATER TO ENSURE INSPECTOR IS ON SITE.

ELECTRIC/TELECOM/GAS

PROPOSED GAS, ELECTRIC, CABLE AND DATA UTILITIES ARE SHOWN SCHEMATICALLY AND ARE PROPOSED TO BE UNDERGROUND. OWNER & CONTRACTOR TO COORDINATE FINAL DESIGN WITH APPROPRIATE UTILITY COMPANIES. ALL WORK TO BE IN ACCORDANCE WITH EACH UTILITY COMPANY'S STANDARDS AND DETAILS AS WELL AS LOCAL AND FEDERAL REGULATIONS. THIS INCLUDES BUT IS NOT LIMITED TO, POLES, TRANSFORMERS, PULL BOXES, CONCRETE PADS, CONCRETE ENCASEMENTS AND CONDUITS. CONNECTION POINTS FOR ELECTRIC AND TELECOM UTILITIES, AT THE EXISTING INFRASTRUCTURE, ARE CURRENTLY SHOWN AS UNDERGROUND UTILITIES. THESE UTILITIES MAY BE UNDERGROUND OR OVERHEAD AND WILL BE COORDINATED WITH NATIONAL GRID PRIOR TO CONSTRUCTION.

SITE LIGHTING

SITE LIGHTING (TEMPORARY AND PERMANENT) MUST BE DIRECTED AWAY FROM AND SHIELDED FROM ENVIRONMENTALLY SENSITIVE AREAS AND ABUTTING LANDS. EXACT LOCATIONS OF LIGHT POLE TO BE COORDINATED WITH OTHER UTILITIES AND TO BE LOCATED WITHIN THE STREET RIGHTS OF WAY. FINAL LIGHTING AND CONDUIT LOCATIONS BY OTHERS.

Abbreviations Legend

AP	ASSESSOR'S PLAT
BC	BOTTOM OF CURB
BT	BOTTOM OF TESTHOLE
BIT	BITUMINOUS (BERM)
BIO	BIORETENTION
BW	BOTTOM OF WALL (FINISHED GRADE AT BOTTOM OF WALL)
CB	CATCH BASIN
(C)	CALCULATED
℄	CENTERLINE
(CA)	CHORD ANGLE
CLDIP	CONCRETE LINED DUCTILE IRON PIPE
CO	CLEAN OUT
CONC	CONCRETE
(D)	DEED
DCB	DOUBLE CATCH BASIN
DI	DROP INLET
DMH	DRAINAGE MANHOLE
DP	DETENTION POND
EOP	EDGE OF PAVEMENT
ESC	EROSION AND SEDIMENT CONTROL
EX	EXISTING
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
GFE	GARAGE FLOOR ELEVATION
GWT	GROUND WATER TABLE
HC	HANDICAPPED
HW	HEADWALL
HC	HIGH CAPACITY CATCH BASIN GRATE
HDPE	HIGH DENSITY POLYETHYLENE
ID	INLINE DRAIN
INV	INVERT
IP	INFILTRATION POND
LF	LINEAR FEET
LOD	LIMIT OF DISTURBANCE
LP	LIGHT POLE
(M)	MEASURED
N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRE
PE	POLYETHYLENE
P	PROPERTY LINE
PR	PROPOSED
PVC	POLYVINYL CHLORIDE
R	RADIUS
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RIHB	RHODE ISLAND HIGHWAY BOUND
RL	ROOF LEADER
ROW	RIGHT OF WAY
S	SLOPE
SD	SUBDRAIN
SED	SEDIMENT FOREBAY
SE	SLAB ELEVATION
SF	SQUARE FOOT
SFL	STATE FREEWAY LINE
SFM	SEWER FORCE MAIN
SHL	STATE HIGHWAY LINE
SMH	SEWER MANHOLE
SNDF	SAND FILTER
SS	SIDE SLOPE
STA	STATION
TC	TOP OF CURB
TD	TRENCH DRAIN
TF	TOP OF FOUNDATION
TRANS	TRANSITION
TW	TOP OF WALL (FINISHED GRADE AT TOP OF WALL)
TYP	TYPICAL
UDS	UNDERGROUND DETENTION SYSTEM
UIS	UNDERGROUND INFILTRATION SYSTEM
UP	UTILITY POLE
WO	WALKOUT
WQ	WATER QUALITY

Existing Legend

(AS SHOWN ON PROPOSED PLANS)

NOT ALL ITEMS SHOWN WILL APPEAR ON PLANS

PROPERTY LINE
ASSESSORS LINE
BUILDING
BRUSHLINE
TREELINE
GUARDRAIL
FENCE
RETAINING WALL
STONE WALL
MINOR CONTOUR LINE
MAJOR CONTOUR LINE
WATER LINE
SEWER LINE
SEWER FORCE MAIN
GAS LINE
ELECTRIC LINE
OVERHEAD WIRES
DRAINAGE LINE
SOILS LINES
50' PERIMETER WETLAND
100' RIVERBANK WETLAND
200' RIVERBANK WETLAND
FEMA BOUNDARY
STREAM
WETLAND LINE & FLAG

NAIL FOUND/SET
DRILL HOLE FOUND/SET
BOUND FOUND/SET
SIGN
BOLLARD
SOIL EVALUATION
CB CATCH BASIN
DCB DOUBLE CATCH BASIN
DMH DRAINAGE MANHOLE
FES FLARED END SECTION
GUY POLE
ELECTRIC MANHOLE
UP UTILITY/POWER POLE
LIGHTPOST
SMH SEWER/SEPTIC MANHOLE
SEWER VALVE
CLEANOUT
HYDRANT
IRRIGATION VALVE
WATER VALVE
WELL
MONITORING WELL
UNKNOWN MANHOLE
GAS VALVE
BENCH MARK
STREAM FLOW DIRECTION

Proposed Legend

NOT ALL ITEMS SHOWN WILL APPEAR ON PLANS

PROPERTY LINE
BUILDING SETBACKS
TREELINE
CHAINLINK FENCE
GUARDRAIL (RIDOT STD 34.2.0, 34.4.0 OR APPROVED EQUAL)
RETAINING WALL
MINOR CONTOUR LINE
MAJOR CONTOUR LINE
SPOT ELEVATION
EDGE OF PAVEMENT
BITUMINOUS BERM (RIDOT STD 7.5.1)
CONCRETE CURB (RIDOT STD 7.1.0)
BUILDING FOOTPRINT
BUILDING OVERHANG
ASPHALT PAVEMENT
HEAVY DUTY ASPHALT PAVEMENT
HEAVY DUTY CONCRETE
CONCRETE SIDEWALK
ASPHALT SIDEWALK
SAWCUT LINE
SIGN (RIDOT STD 24.6.2 AS APPLICABLE)
SINGLE LIGHT
DOUBLE LIGHT
OVERHANGING LIGHT
ACCESSIBLE PARKING SPACE SYMBOLS

DRAINAGE LINE
ROOF LEADER
SEWER FORCE MAIN
GAS LINE
WATER LINE
HYDRANT ASSEMBLY
WATER SHUT OFF
WATER VALVE
THRUST BLOCK
SEWER LINE
ELECTRIC, TELEPHONE, CABLE LINE
LIMIT OF DISTURBANCE – NO EROSION CONTROL
STRAW WATTLE, SILT FENCE (RIDOT STD 9.2.0) OR APPROVED EQUAL AT LIMIT OF DISTURBANCE
2:1 SLOPES
UNDERGROUND INFILTRATION OUTLINE
POND ACCESS
RIP RAP
SAND FILTER
CATCH BASIN
DOUBLE CATCH BASIN
MANHOLE
FLARED END SECTION
HEAD WALL

Site Callouts Legend

7.3.0	RIDOT STD GRANITE CURB
7.3.1	RIDOT STD 3' GRANITE TRANSITION CURB
7.5.1	RIDOT STD BITUMINOUS ASPHALT BERM
7.3.8	RIDOT STD GRANITE APRON STONE
20.1.0	PAVEMENT MARKINGS ARROWS AND ONLY
4DY	4" EPOXY RESIN PAVEMENT MARKINGS– DOUBLE YELLOW
4W	4" PAINTED WHITE MARKINGS
4W4S	4" WHITE STRIPING 2' ON CENTER AT 45°
6WS	6" WHITE EPOXY RESIN PAVEMENT MARKINGS– SKIP PATTERN
6W	6" WHITE EPOXY RESIN PAVEMENT MARKINGS
12W	STOP LINE (REFERENCE MUTCD SECTION 3B.16)
ADA	ADA SPACE PAVEMENT MARKINGS SHALL COMPLY WITH ALL ADA AND MUTCD REGULATIONS AND REQUIREMENTS.
ADAV	VAN ADA SPACE PAVEMENT MARKINGS SHALL COMPLY WITH ALL ADA AND MUTCD REGULATIONS AND REQUIREMENTS.
CWK	CROSSWALK PAVEMENT MARKINGS. SOLID 2' WHITE LINES SPACED 4' OC (REFERENCE MUTCD SECTION 3B.18)
YL	YIELD LINE (REFERENCE MUTCD SECTION 3B.16)

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0896
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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Boston • Providence • Newport

Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
No. 9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

This regulatory submission set shall not be used for construction purposes unless stamped 'issued for construction' and signed by a DiPrete Engineering representative.

The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
0	10-31-2017	RIDEM Submission	D.R.N.
1	04-26-2018	RIDEM Response to Comments	D.R.N.
2	05-25-2018	RIDEM Response to Comments	D.R.N.
3	06-06-2018	RIDEM Response to Comments	D.R.N.
4	06-13-2018	RIDEM Response to Comments	D.R.N.
5	07-16-2018	RIDEM Letter of Approval	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

General Notes & Legend

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant:
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

SHEET 3 OF 30

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Z:\demain\projects\0717-022br putnam pike\autocad drawing\0717-022-cnsr.dwg Plotted: 6/13/2018

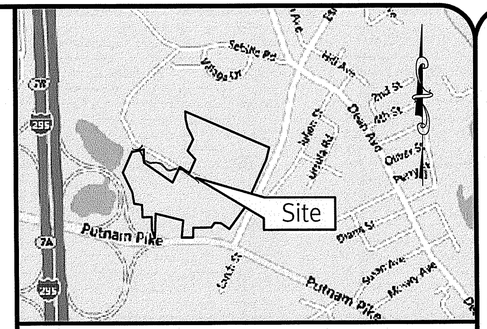
Legend

NOT ALL ITEMS SHOWN WILL APPEAR ON THE SURVEY

BUILDING		▲/△	NAIL FOUND/SET
AP	ASSESSOR'S PLAT	●/◉	DRILL HOLE FOUND/SET
N/F	NOW OR FORMERLY	⊙/◎	IRON ROD/PIPE FOUND/SET
(D)	DEED	■/□	BOUND FOUND/SET
(M)	MEASURED		SIGN
(CA)	CHORD ANGLE		BOLLARD
HC	HANDICAPPED		SOIL EVALUATION
	PROPERTY LINE	© CB	CATCH BASIN
	ASSESSORS LINE	© DCB	DOUBLE CATCH BASIN
	TREELINE	© DMH	DRAINAGE MANHOLE
	GUARDRAIL	FES	FLARED END SECTION
	FENCE		GUY POLE
	RETAINING WALL	© EMH	ELECTRIC MANHOLE/HANDHOLE
	STONE WALL	UP	UTILITY/POWER POLE
	MINOR CONTOUR LINE		LIGHTPOST
10	MAJOR CONTOUR LINE	SMH	SEWER/SEPTIC MANHOLE
W	WATER LINE		SEWER VALVE
S	SEWER LINE		CLEANOUT
SFM	SEWER FORCE MAIN		HYDRANT
G	GAS LINE		IRRIGATION VALVE
E	ELECTRIC LINE		WATER VALVE
OHW	OVERHEAD WIRES		WELL
D	DRAINAGE LINE		MONITORING WELL
			UNKNOWN MANHOLE
			GAS VALVE
		B-1	WETLAND FLAG
			BENCH MARK
			SHRUB
			TREE

Plan References:

1. LAND OF HUBERT, AMANDA & EUGENE THIBODEAU IN SMITHFIELD, RI. PLAN BY GLENN RAWLIN RIPLS 593. DATED NOVEMBER18, 1957. PLAT CARD 90.
2. PLAN OF LAND DOWNED BY DAVID BALFOUR AND OTHERS SMITHFIELD, RI. PLAN BY H. WALSH, ENG. DATED AUGUST, 1928. PLAT CARD 58.
3. RHODE ISLAND HIGHWAY PLAN 474.
4. RHODE ISLAND HIGHWAY PLAN 1351.
5. RHODE ISLAND HIGHWAY PLAN 1353.
6. RHODE ISLAND HIGHWAY PLAN 1681.
7. RHODE ISLAND HIGHWAY PLAN 2002.
8. RHODE ISLAND HIGHWAY PLAN 2338.



Locus Map Not To Scale

General Notes

1. THE PARCEL IS FOUND ON ASSESSOR'S PLAT 29, LOT 66A, ASSESSOR'S PLAT 30, LOTS 20, 29, 30, 30A, 31 & 31A, AND ASSESSOR'S PLAT 35, LOTS 13 & 21, PROVDENCE COUNTY, RHODE ISLAND.
2. THE OWNER OF:
   - LOT 66A IS CHURCHILL & BANKS PROPERTIES, LLC PER DEED BOOK 293, PAGE 74
   - LOT 29 IS WALTER E. & NORMA M. PATERSON PER DEED BOOK 27, PAGE 179 & DEED BOOK 21, PAGE 490.
   - LOT 30 IS WALTER E. & NORMA M. PATERSON PER DEED BOOK 28, PAGE 4. (DEED BOOK 110, PAGE 828.)
   - LOT 30A IS WALTER E. & NORMA M. PATERSON PER DEED BOOK 27, PAGE 179.
   - LOT 31 IS WALTER E. & NORMA M. PATERSON PER DEED BOOK 110, PAGE 828.
   - LOT 31A IS WALTER E. & NORMA M. PATERSON PER DEED BOOK 27, PAGE 179.
   - LOT 13 IS CHURCHILL & BANKS PROPERTIES, LLC PER DEED BOOK 293, PAGE 70.
   - LOT 21 IS CHURCHILL & BANKS PROPERTIES, LLC PER DEED BOOK 293, PAGE 70.
3. BASED ON GRAPHICAL PLOTTING ONLY, THE PARCEL IS LOCATED IN X PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP 44007C0282G, DATED MARCH 2, 2009. THIS DESIGNATION MAY CHANGE BASED UPON REVIEW BY A FLOOD ZONE SPECIALIST OR BY THE RESULTS OF A COMPREHENSIVE FLOOD STUDY.
4. THERE WERE NO CEMETERIES, GRAVE SITES AND OR BURIAL GROUNDS OBSERVED WITHIN THE LIMITS OF THE SURVEY.
5. FIELD SURVEY PERFORMED BY DIPRETE ENGINEERING IN APRIL, 2017. THIS PLAN REFLECTS ON THE GROUND CONDITIONS AS OF THAT DATE.
6. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT. DIPRETE ENGINEERING IS NOT RESPONSIBLE FOR ANY UNKNOWN OR UNRECORDED EASEMENTS, DEEDS OR CLAIMS THAT A TITLE REPORT WOULD DISCLOSE.
7. SITE SUBJECT TO AN ELECTRICAL EASEMENT IN DEED BOOK 27, PAGE 467.

Curve Table

CURVE	LENGTH	DELTA	RADIUS	TANGENT	CHORD LENGTH	CHORD BEARING
C1	19.09'	99°00'10"	11.05'	12.94'	16.81'	S48°07'56"W
C2	282.33'	33°50'29"	478.00'	145.42'	278.24'	N23°48'12"W
C3	165.83'	20°00'10"	475.00'	83.77'	164.99'	N26°29'35"E

Line Table

LINE	BEARING	LENGTH
L1	N3°20'07"E	111.75'
L2	N0°39'53"W	72.00'
L3	N1°27'06"W	142.06'
L4	S88°28'10"W	100.00'
L5	N1°31'07"W	135.99'
L6	N80°08'37"W	89.55'
L7	N7°52'53"W	87.02'
L8	N16°29'30"E	80.34'
L9	N74°31'23"E	141.96'
L10	S2°02'27"W	129.49'
L11	N28°05'12"E	154.73'
L12	N11°48'32"E	20.21'
L13	S86°27'23"E	28.55'
L16	S57°54'16"E	81.23'
L17	N32°05'44"E	157.36'
L18	S7°27'25"E	154.78'
L19	N52°07'57"W	29.09'
L20	N52°31'47"W	96.00'
L21	N89°33'11"W	65.14'
L22	S40°58'13"W	69.79'

Overall Site
1,168,554 SQUARE FEET
(26.83 ACRES)

This Plan Should Be Indexed By The Following Streets:

- Esmond Street
- Putnam Pike (Route 44)
- Sebille Road
- Interstate 295

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0710
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE
Charles A. Horbert

Surveyor's Certificate

THIS SURVEY HAS BEEN CONDUCTED AND THE PLAN HAS BEEN PREPARED PURSUANT TO SECTION 9 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON JANUARY 1, 2016, AS FOLLOWS:

TYPE OF SURVEY: COMPREHENSIVE BOUNDARY SURVEY
MEASUREMENT SPECIFICATION: CLASS I

THE PURPOSE FOR THE CONDUCT OF THE SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS: PERIMETER RETRACEMENT PERFORMED BY DIPRETE ENGINEERING FOR THE PURPOSE OF SITE ENGINEERING AND PERMITTING.

9/29/17
ROBERT G. BABCOCK, RIPLS #2504, COA #LS.000A160

ROBERT G. BABCOCK
No. 2504
PROFESSIONAL LAND SURVEYOR

Scale: 1"=80'
0 40' 80' 160'

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
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Environmental Manage
JUL 16 2018
Office of Water Resour

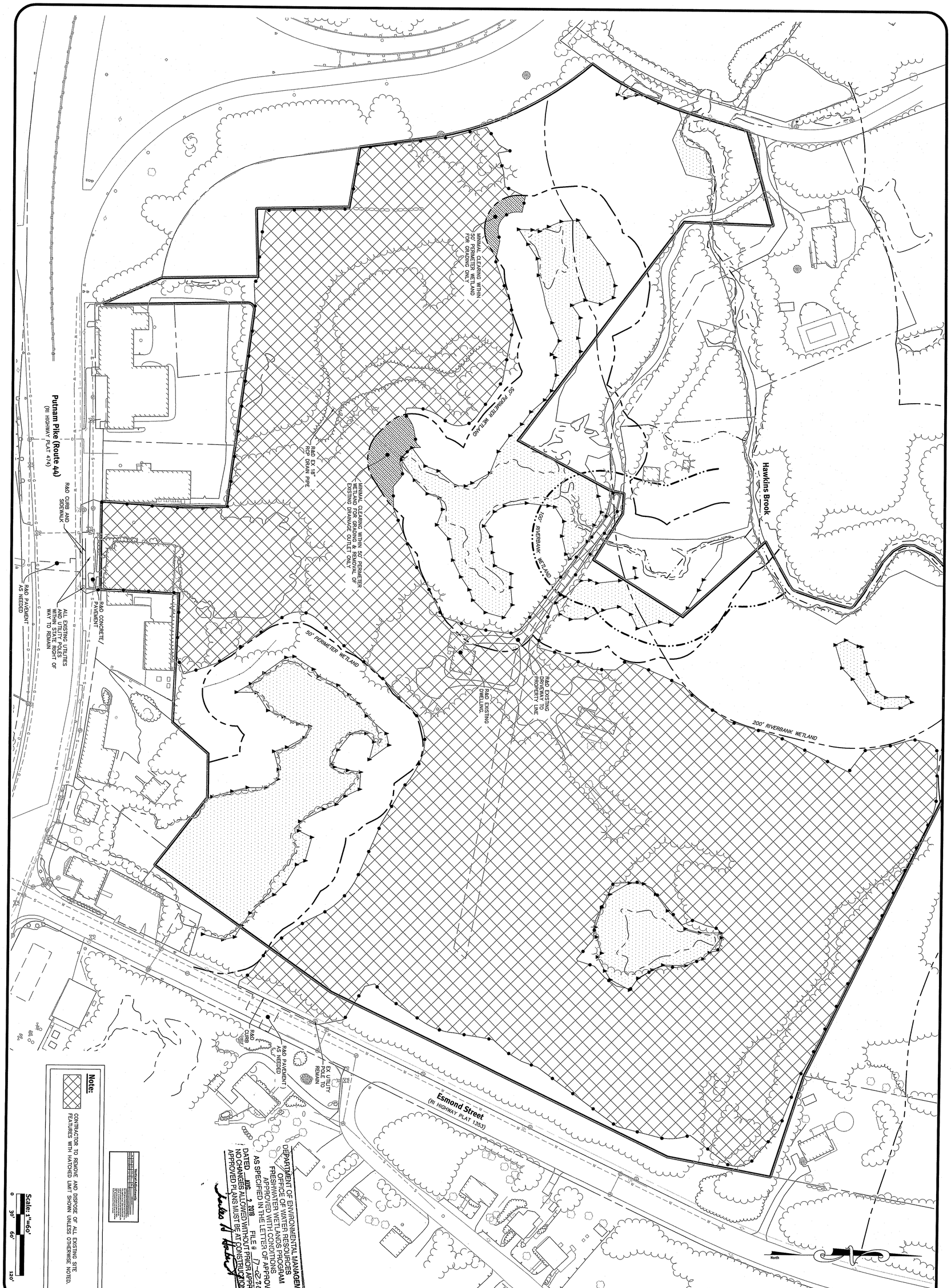
No.	Date	Description	By:
0	9/27/17	Boundary Survey	MTI
		Drawn By: MTI	

Boundary Survey
Smithfield Village
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island
Client
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

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SHEET 4 OF 30

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Demolition Plan

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

SHEET 5 OF 30

DE Job No: 0717-022-A05 Copyright 2018 by DiPrete Engineering Associates, Inc.

No.	Date	Description	By:
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	Order of Approval Response to Comments	D.R.N.
3	05-16-2018	RIDEM Response to Comments	D.R.N.
2	04-26-2018	RIDEM RETC / Order of Approval	D.R.N.
1	03-05-2018	RIDEM RETC / Order of Approval	D.R.N.
0	10-11-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. | Design By: B.D.C.

This regulatory submission set shall not be used for construction purposes unless stamped 'Issued for Construction' and signed by a DiPrete Engineering representative.

The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

BRANDON D. CARR
REGISTERED PROFESSIONAL ENGINEER
CIVIL

JUL 16 2018
Office of Water Resources

DiPrete Engineering
Environmental Management
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
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Construction Phasing:

1- FLAG/SURVEY LIMIT OF DISTURBANCE
INSTALL PERIMETER EROSION CONTROL DEVICES (SILT FENCE)

2- CLEAR AND GRUB SITE, INSTALL TEMPORARY SWALES AND SEDIMENTATION TRAPS

3- BEGIN MASS GRADING.

4- INSTALL PROPOSED ROADWAYS AND UTILITIES. STABILIZE ALL AREAS OUTSIDE OF ROADWAY.

5- CONSTRUCT FOUNDATION WALLS.

Hawkins Brook

Temporary Sediment Trap A (SEE DETAIL)

Temporary Sediment Trap B (SEE DETAIL)

Temporary Sediment Trap C (SEE DETAIL)

Temporary Sediment Trap D (SEE DETAIL)

Temporary Sediment Trap E (SEE DETAIL)

50' PERIMETER WETLAND

100' RIVERBANK WETLAND

200' RIVERBANK WETLAND

SILT FENCE AND/OR STRAW BALES PLACED AT LIMIT OF DISTURBANCE WHERE DOWN GRADIENT OF CONSTRUCTION ACTIVITIES (TYP)

TEMPORARY BERM AROUND INFILTRATING AREAS

CONSTRUCTION STAGING, STOCKPILE AREA AND CONCRETE WASHOUT AREA. STRAW BALES TO BE PLACED AROUND OUTER LIMIT OF AREA SITE CONTRACTOR TO MODIFY STOCKPILE AND STAGING AREAS AS DIRECTED BY GENERAL CONTRACTOR AND APPROVED BY SITE ENGINEER.

CONTRACTOR TO LOCATE AND STAKE LIMIT OF WORK IN THE FIELD PRIOR TO CLEARING. CONTRACTOR TO NOTIFY SITE ENGINEER WHEN STAKE OUT IS COMPLETE. IF LIMIT OF WORK EXTENDS INTO EXISTING TREES AND REMOVAL OF TREES LARGER THAN 6" IS NECESSARY TO INSTALL SITE IMPROVEMENTS, CONTRACTOR TO NOTIFY DESIGN ENGINEER PRIOR TO ANY TREE REMOVAL.

FUTURE BUILDING OUTLINE (TYP)

12' CONSTRUCTION ACCESS PATH (TYP)

INLET SEDIMENTATION CONTROL TO BE INSTALLED IN EXISTING CATCH BASINS (TYP)

LIMIT OF DISTURBANCE (TYP)

PRIMARY CONSTRUCTION ENTRANCE (RIDOT STD 9.9.0)

SECONDARY CONSTRUCTION ENTRANCE (RIDOT STD 9.9.0)

Esmond Street (RI HIGHWAY PLAT 1853)

Putnam Pike (Route 44) (RI HIGHWAY PLAT 474)

TH-1 GWT=132"
TH-2 GWT=36" L=132"
TH-3 GWT=144"
TH-4 GWT=120"
TH-5 GWT=120"
TH-6 GWT=132"
TH-7 GWT=108"
TH-8 GWT=96" L=66"
TH-9 GWT=96"
TH-10 GWT=48"
TH-11 GWT=72"
TH-12 GWT=30"
TH-13 GWT=22"
TH-14 GWT=22"
TH- GWT=18"

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0270
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Charles A. Horbert

Legend

PROPERTY LINE	50' PERIMETER WETLAND
EX MAJOR FOOT CONTOUR 160	100' RIVERBANK WETLAND
EX MINOR FOOT CONTOUR 158	200' RIVERBANK WETLAND
CONSTRUCTION ENTRANCE (RIDOT STD 9.9.0)	WETLAND LINE & FLAGS
PR TEMPORARY SWALE	STREAMLINE
SILT FENCE (RIDOT 9.2.0)	TREELINE
LIMIT OF DISTURBANCE	BRUSHLINE
INFILTRATING AREA (TO BE PROTECTED BY STRAW WATTLE)	

Scale: 1"=60'
0 30' 60' 120'

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
Tel 401-943-1000 Fax 401-464-6006 www.diprete-eng.com
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Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
6/15/18
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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The contractor is responsible for all of the means, methods, safety precautions and requirements and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	Drawn By: D.R.N. / Design By: B.D.C.
5.	06-13-2018	RIDEM Response to Comments	D.R.N.
4.	05-25-2018	RIDEM Response to Comments	D.R.N.
3.	05-15-2018	RIDEM Response to Comments	D.R.N.
2.	04-26-2018	RIDEM RFFC Order of Approval	D.R.N.
1.	03-16-2018	RIDEM Pre-Application Meeting	D.R.N.
0.	10-13-2017	RIDEM Submission	D.R.N.

Erosion & Sediment Control Plan

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel (401-273-8010

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SHEET 6 OF 30

z:\domain\projects\0717-022br putnam pike\autocad drawings\0717-022-esc.dwg Plottext: 6/13/2018

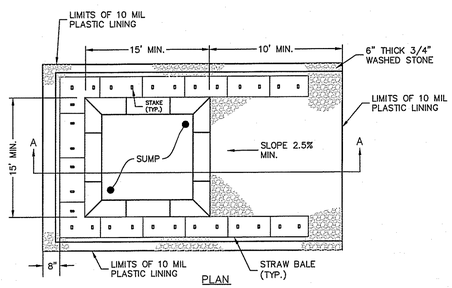
Erosion Control Notes:

1. THE SITE CONTRACTOR IS RESPONSIBLE FOR ALL SOIL EROSION AND SEDIMENT CONTROL ON SITE. THE SITE CONTRACTOR IS TO NOTIFY THE OWNER, DESIGN ENGINEER AND RI DEPT. OF ENVIRONMENTAL MANAGEMENT AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION.
2. THE SITE CONTRACTOR SHALL PLACE EROSION CONTROLS PRIOR TO DEMOLITION AND MAINTAIN THESE EROSION CONTROLS THROUGHOUT DURATION OF THE PROJECT.
3. CONTRACTOR TO PROVIDE INLET SEDIMENT CONTROL AND STORMWATER FILTRATION DEVICES AT ALL EXISTING CATCH BASINS DOWNGRADIENT FROM THE LIMIT OF DISTURBANCE.
4. STOCKPILE AND CONCRETE WASHOUT LOCATIONS TO BE DETERMINED BY CIVIL ENGINEER, AND SITE CONTRACTOR PRIOR TO CONSTRUCTION. NO STOCKPILING OF MATERIAL TO BE LOCATED IN RIGHT OF WAY AND NO OPEN TRENCHES ARE TO BE LEFT OVERNIGHT. ALL EXCESS SOIL, TREES, ROCKS, BOULDERS, AND OTHER REFUSE, SHALL BE DISCARDED OFF SITE AS DIRECTED BY THE OWNER.
5. SITE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL. DUST CONTROL TREATMENTS SHALL BE APPLIED AS NECESSARY TO CONTROL AND REDUCE THE AMOUNT OF DUST THAT MAY CAUSE OFF SITE DAMAGE, BE A HEALTH HAZARD TO HUMANS, WILDLIFE, AND PLANT LIFE, OR POSE A HAZARD TO TRAFFIC SAFETY. DUST CONTROL TREATMENTS SHALL BE CONSISTENT WITH RIDEM BEST MANAGEMENT PRACTICES.
6. IF CONCRETE TRUCKS ARE WASHED OUT ON SITE, ALL WASHOUT MUST BE COMPLETED IN THE DESIGNATED CONCRETE WASHOUT AREA.

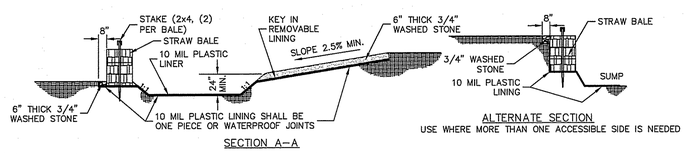


Inlet Sediment Control Devices

NOT TO SCALE



PLAN



SECTION A—A

ALTERNATE SECTION

USE WHERE MORE THAN ONE ACCESSIBLE SIDE IS NEEDED



WASHOUT SIGN

NOTES:

1. PIT IS SPECIFICALLY DESIGNATED, DIKED AND IMPERVIOUS CONTAINMENT TO PREVENT CONTACT BETWEEN CONCRETE WASH AND STORMWATER.
2. WASH WATER SHALL NOT BE ALLOWED TO FLOW TO SURFACE WATER.
3. FACILITY MUST HOLD SUFFICIENT VOLUME TO CONTAIN CONCRETE WASTE WITH A MINIMUM FREEBOARD OF 12."
4. FACILITY SHALL NOT BE FILLED BEYOND 95% CAPACITY UNLESS A NEW FACILITY IS CONSTRUCTED.
5. SAW CUT PORTLAND CEMENT CONCRETE, RESIDUE FROM SAWCUT & GRINDING TO BE DISPOSED OF IN THE PIT.
6. CONCRETE WASHOUTS SHALL BE LOCATED A MINIMUM OF 100' FROM DRAINAGE WAYS, INLETS, & SURFACE WATERS.
7. MANUFACTURED CONCRETE WASHOUT DEVICES MAY BE USED IF REMOVED FROM THE SITE WHEN 95% FULL CAPACITY.

CONCRETE WASHOUT AREA

(NOT TO SCALE)

GENERAL NOTES:

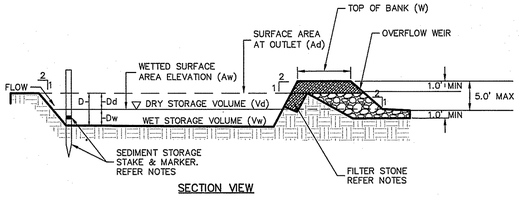
1. THE TEMPORARY SEDIMENT TRAPS SHALL MEET ALL REQUIREMENTS FOR TEMPORARY SEDIMENT TRAPS OUTLINED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST REVISION) SECTION SIX: SEDIMENT CONTROL MEASURES
2. THE TEMPORARY SEDIMENT TRAPS SHALL HAVE AN INITIAL STORAGE VOLUME OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER EXCEPT FOR THE EXCAVATED WET STORAGE AREA WHERE SLOPES SHALL NOT EXCEED 1.5:1.
4. THE OUTLET SHALL BE LOCATED AT THE MOST DISTANT HYDRAULIC POINT FROM THE INLET.
5. THE OUTLET CONSISTS OF A PERVIOUS STONE DIKE WITH A CORE OF MODIFIED RIPRAP AND FACED ON THE UPSTREAM SIDE WITH STONE.
6. TEMPORARY SEDIMENT TRAPS MUST OUTLET ONTO STABILIZED GROUND.
7. MAXIMUM HEIGHT OF A TEMPORARY SEDIMENT TRAP EMBANKMENT IS LIMITED TO 5 FEET.
8. SIDE SLOPES OF THE EMBANKMENT SHALL BE 2:1 OR FLATTER.
9. MODIFIED RIPRAP: SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.10.03.2.
10. FILTER STONE: SHALL MEET THE REQUIREMENTS OF RIDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SUBSECTION M.01.03 TABLE I, COLUMN V FILTER STONE.

TOP WIDTH VS HEIGHT
H=HEIGHT OF EMBANKMENT
W=TOP WIDTH OF EMBANKMENT

H (ft)	W (ft)
1.5	2.0
2.0	2.0
2.5	3.0
3.0	2.5
3.5	3.0
4.0	3.0
4.5	4.0
5.0	4.5

SEDIMENT TRAP DIMENSIONS	A*	B	C	D	E
TRIBUTARY DRAINAGE AREA (ac)	4.90	3.80	2.46	1.53	2.90
WET STORAGE DEPTH (Dw) (ft)	2.50	2.50	2.00	2.00	2.00
DRY STORAGE DEPTH (Dd) (ft)	1.00	1.50	1.00	1.00	1.00
TOTAL DEPTH (D) (ft)	3.50	4.00	3.00	3.00	3.00
BOTTOM OF TRAP AREA (Ab) (sq.ft)	4,400	2,590	2,750	1,360	2,630
WETTED SURFACE AREA (Aw) (sq.ft)	5,820	3,930	3,740	2,000	3,820
SURFACE AREA AT OUTLET (Ad) (sq.ft)	7,050	4,800	4,270	2,350	4,450

* TEMPORARY TRAP A IS LOCATED WITHIN A PROPOSED INFILTRATION AREA. THE BOTTOM OF THE TEMPORARY TRAP SHALL BE A MINIMUM OF 2 FT ABOVE THE BOTTOM OF THE PROPOSED INFLTRATION POND. AFTER THE TEMPORARY TRAP IS NOT LONGER NEEDED, THE AREA WILL BE EXCAVATED AND BROUGHT DOWN TO PROPOSED GRADE.



SECTION VIEW

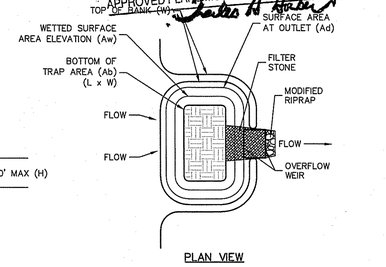
INSPECTION, MAINTENANCE, AND REMOVAL REQUIREMENTS:

1. INSTALL "SEDIMENT STORAGE" STAKE WITH A MARKER AT ONE HALF OF THE WET STORAGE VOLUME.
2. INSPECT THE TEMPORARY SEDIMENT TRAP AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL AMOUNT OF 0.25 INCH OR GREATER.
3. CHECK THE OUTLET TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT.
4. CHECK FOR SEDIMENT ACCUMULATION AND FILTRATION PERFORMANCE.
5. WHEN SEDIMENTS HAVE ACCUMULATED TO ONE HALF THE MINIMUM REQUIRED VOLUME OF THE WET STORAGE, DEWATER THE TRAP AS NEEDED, REMOVE SEDIMENTS AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS.
6. DISPOSE OF THE SEDIMENT REMOVED FROM THE BASIN IN A SUITABLE AREA.
7. THE TEMPORARY SEDIMENT TRAP MAY BE REMOVED AFTER THE CONTRIBUTING DRAINAGE AREA IS STABILIZED.

INSTALLATION NOTES:

1. CLEAR, GRUB AND STRIP ANY VEGETATION AND ROOT MAT FROM ANY PROPOSED EMBANKMENT AND OUTLET AREA.
2. REMOVE STONES AND ROCKS WHOSE DIAMETER IS GREATER THAN THREE (3) INCHES AND OTHER DEBRIS.
3. EXCAVATE WET STORAGE AND CONSTRUCT THE EMBANKMENT AND/OR OUTLET AS NEEDED TO ATTAIN THE NECESSARY STORAGE REQUIREMENTS.
4. USE ONLY FILL MATERIAL FOR THE EMBANKMENT THAT IS FREE FROM EXCESSIVE ORGANICS, DEBRIS, LARGE ROCKS (OVER SIX (6) INCHES) OR OTHER UNSUITABLE MATERIALS. COMPACT THE EMBANKMENT IN 9-INCH LAYERS BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED
5. STABILIZE THE EARTHEN EMBANKMENT USING ANY OF THE FOLLOWING MEASURES, SEEDING FOR TEMPORARY VEGETATION COVER; SEEDING FOR PERMANENT VEGETATIVE COVER; OR SLOPE PROTECTION, IMMEDIATELY AFTER INSTALLATION

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
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NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
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PLAN VIEW

Temporary Sediment Trap Details

NOT TO SCALE

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
6/13/18
REGISTERED PROFESSIONAL ENGINEER CIVIL

This regulatory submission set shall not be used for construction purposes unless stamped 'Issued for Construction' and signed by a DiPrete Engineering representative.

The contractor is responsible for all of the means, methods, safety precautions and requirements, and the DiPrete Engineering role in the implementation of this plan and design.

No.	Date	Description	By:
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	Order of Approval Response to Comments	D.R.N.
3	05-29-2018	RIDEM WRC Order of Approval	D.R.N.
2	05-25-2018	RIDEM WRC Order of Approval	D.R.N.
1	04-16-2018	RIDEM WRC Order of Approval	D.R.N.
0	3/30/2017	Preliminary Submission	D.R.N.

Design By: B.D.C.
Drawn By: D.R.N.

Erosion & Sediment Control Details

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 304, 31 & 32A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

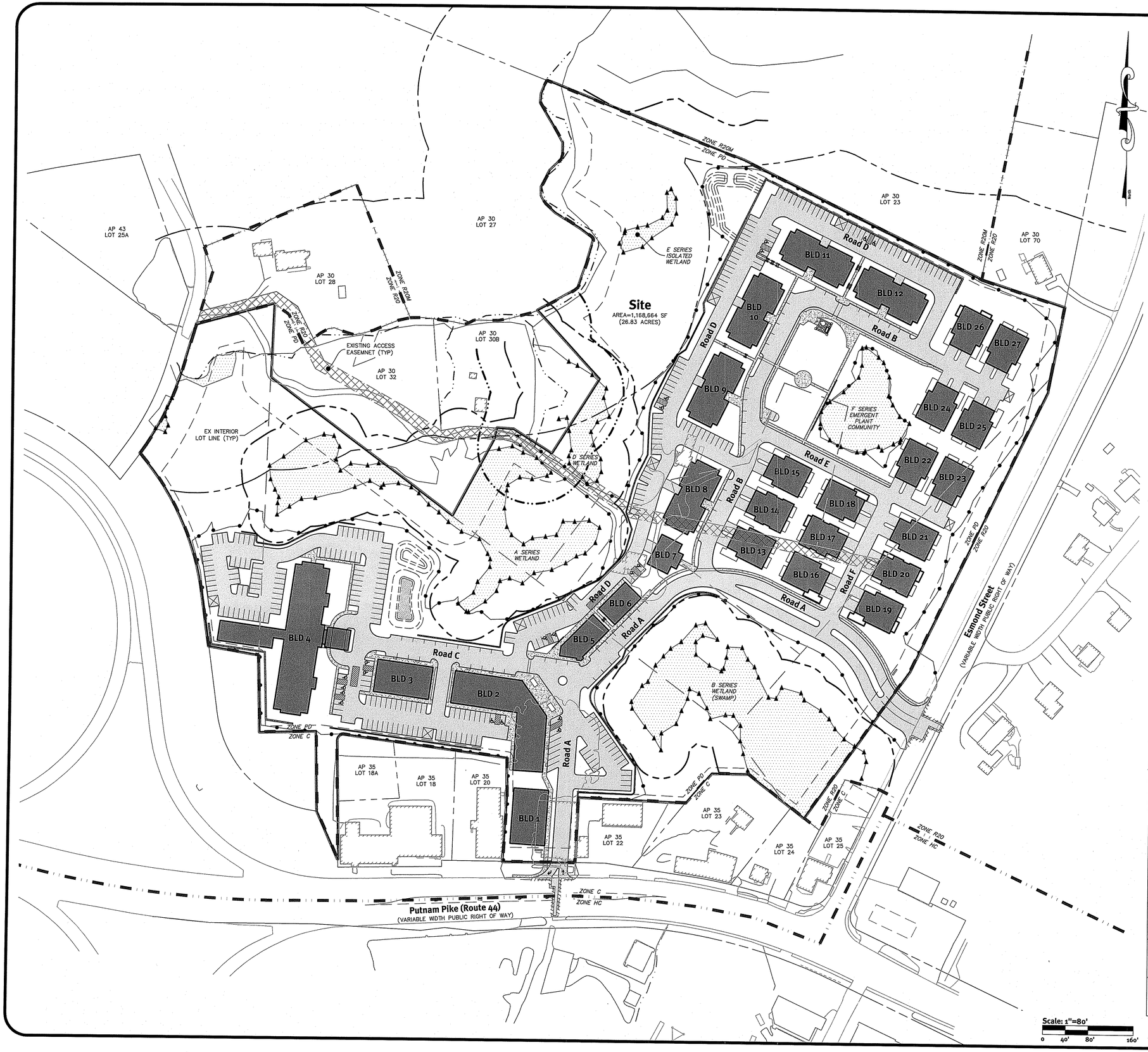
Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-3010

DE Job No: 0717-022-A05

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SHEET 7 OF 30

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Development Data:

TOTAL SITE AREA:	26.83± ACRES
TOTAL NUMBER OF BUILDINGS:	27
TOTAL NUMBER OF UNITS:	124 (RESIDENTIAL)

Dimensional Regulations:

CURRENT ZONING:	PD (SPECIAL DISTRICT)*	
	REQUIRED	PROVIDED
MINIMUM LOT AREA:	N/A	N/A
MINIMUM FRONTAGE AND LOT WIDTH:	N/A	N/A
MINIMUM FRONT AND CORNER SIDE YARD:	25'	29'(BLD 1&2)
MINIMUM SIDE YARD:	10'	10'(BLD 1)
MINIMUM REAR YARD:	50'	112'(BLD 9)
MAXIMUM STRUCTURE HEIGHT:	3 STORIES	3 STORIES
MAXIMUM LOT COVERAGE:	N/A	N/A

* THIS SITE FALLS UNDER THE SPECIAL ZONING DISTRICT OF THE PUTNAM PIKE/ESMOND STREET PLANNED DEVELOPMENT DISTRICT. REFER TO ZONING ORDINANCE SECTION 9.3 FOR MORE INFORMATION.

Parking Regulations:

HOTEL PARKING:

PARKING USE:	HOTEL (BLD 4)
PARKING REQUIREMENT:	1 SPACE PER ROOM
HOTEL ROOMS:	100 ROOMS
PARKING CALCULATION:	100 X 1/ROOM = 100 SPACES
ADA PARKING REQUIRED:	4 SPACES
REQUIRED PARKING SPACES:	100 SPACES
PARKING SPACES PROVIDED:	100 SPACES
ADA PARKING PROVIDED:	4 SPACES

RETAIL/OFFICE PARKING:

PARKING USE:	RETAIL/OFFICE (BLD 1-3, 5-6 (LOWER LEVELS) & 7)
PARKING REQUIREMENT:	1 SPACE PER 310 SF±
RETAIL/OFFICE SPACE:	33,600 SF
PARKING CALCULATION:	33,600 X 1/310 SF = 109 SPACES
ADA PARKING REQUIRED:	5 SPACES
REQUIRED PARKING SPACES:	109 SPACES
PARKING SPACES PROVIDED:	127 SPACES
ADA PARKING PROVIDED:	10 SPACES

RESIDENTIAL PARKING:

PARKING USE:	RESIDENTIAL (BLD 5-6 (UPPER LEVELS) & 8-27)
PARKING REQUIREMENT:	1.5 SPACES PER UNIT
RESIDENTIAL UNITS:	124 UNITS
PARKING CALCULATION:	1.5 X 124 UNITS = 186 SPACES
ADA PARKING REQUIRED:	6 SPACES
REQUIRED PARKING SPACES:	186 SPACES
PARKING SPACES PROVIDED:	186 SPACES
ADA PARKING PROVIDED:	6 SPACES

SITE TOTALS:

TOTAL PARKING REQUIRED:	395 SPACES
TOTAL ADA PARKING REQUIRED	15 SPACES
TOTAL PARKING PROVIDED:	413 SPACES.
TOTAL ADA PROVIDED:	20 SPACES

Loading Spaces:

LOADING SPACE REQUIREMENT: 1 SPACE PER FIRST 10,000 SF FLOOR AREA DEVOTED TO COMMERCIAL USE
+ 1 SPACE PER ADDITIONAL 20,000 SQ FT THEREAFTER

TOTAL COMMERCIAL SPACE: 51,530 SF (BLD 1-3, 5-6 (LOWER LEVELS) & 7)
LOADING SPACES REQUIRED: 2 SPACES

LOADING SPACES PROVIDED: 2 SPACES

Planting Notes:

1. ALL PLANT MATERIAL SHALL CONFORM, IN ALL RESPECTS, TO THE GUIDELINES OF "THE AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION, INC. ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST TWO (2) YEARS.
2. PLANT SUBSTITUTION SELECTION MUST BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
3. ALL PLANTS TO BE PLANTED SO THAT AFTER SETTLEMENT THEY BEAR THE SAME RELATION TO THE SURROUNDING GROUND AS TO THEIR ORIGINAL GRADE BEFORE DIGGING.
4. CREATE SAUCER AROUND INDIVIDUAL PLANTS CAPABLE OF HOLDING WATER. ALL PLANTS TO BE FLOODED WITH CLEAN WATER TWICE WITHIN THE FIRST 24 HOURS OF PLANTING. ADDITIONAL WATERING SHALL BE MADE AS REQUIRED TO KEEP PLANTS FROM WILTING AND DRYING OUT UNTIL FINAL ACCEPTANCE.
5. RECOMMENDED DATES FOR PLANTING ARE MARCH 15 TO JUNE 15 AND SEPTEMBER 15 TO NOVEMBER 15.
6. PLANTING SHALL CONFORM TO THE RHODE ISLAND STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION AND STANDARD DETAILS.

Native Evergreen Screen Planting Note:

PLANTINGS PROPOSED ALONG THE EDGE OF PERIMETER AND RIVER BANK WETLANDS AT THE EDGE OF THE LIMIT OF DISTURBANCE TO BE SELECTED FROM APPENDIX B: "VEGETATION GUIDELINES AND PLANTING LIST" FROM THE RI STORMWATER DESIGN AND INSTALLATION STANDARDS MANUAL AND/OR THE RHODE ISLAND COASTAL PLANT GUIDE (TYP).

PLANT SCHEDULE

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT
	CT	9	Chamaecyparis thyoides	Atlantic White Cedar	5/6` B&B @ 10` OC
	JV	12	Juniperus virginiana	Eastern Red Cedar	5/6` B&B @ 10` OC
	JVC	25	Juniperus virginiana `Cupressifolia`	Hillspire Juniper	5/6` B&B @ 8` OC
	TO	14	Thuja occidentalis	American Arborvitae	5/6` B&B @ 10` OC

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OFFICE OF WATER RESOURCES
WETLANDS MANAGEMENT

Environmental Management
JUL 16 2018
Office of Water Resources

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BRANDON D. CARR
9801
6/15/18
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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No.	Date	Description	By
5.	06-13-2018	RIDEM Response to Comments	D.P.N.
4.	06-06-2018	Order of Approval Response to Comments	D.P.N.
3.	05-25-2018	RIDEM RESPONSE to Comments	D.P.N.
2.	05-07-2018	RIDEM Response to Comments	D.P.N.
1.	03-06-2018	RIDEM R.F.I. Order of Approval	D.P.N.
0.	12-20-2017	Preliminary Submission	D.P.N.

Drawn By: D.P.N. | Design By: B.D.C.

Overall Site Layout

Smithfield Village

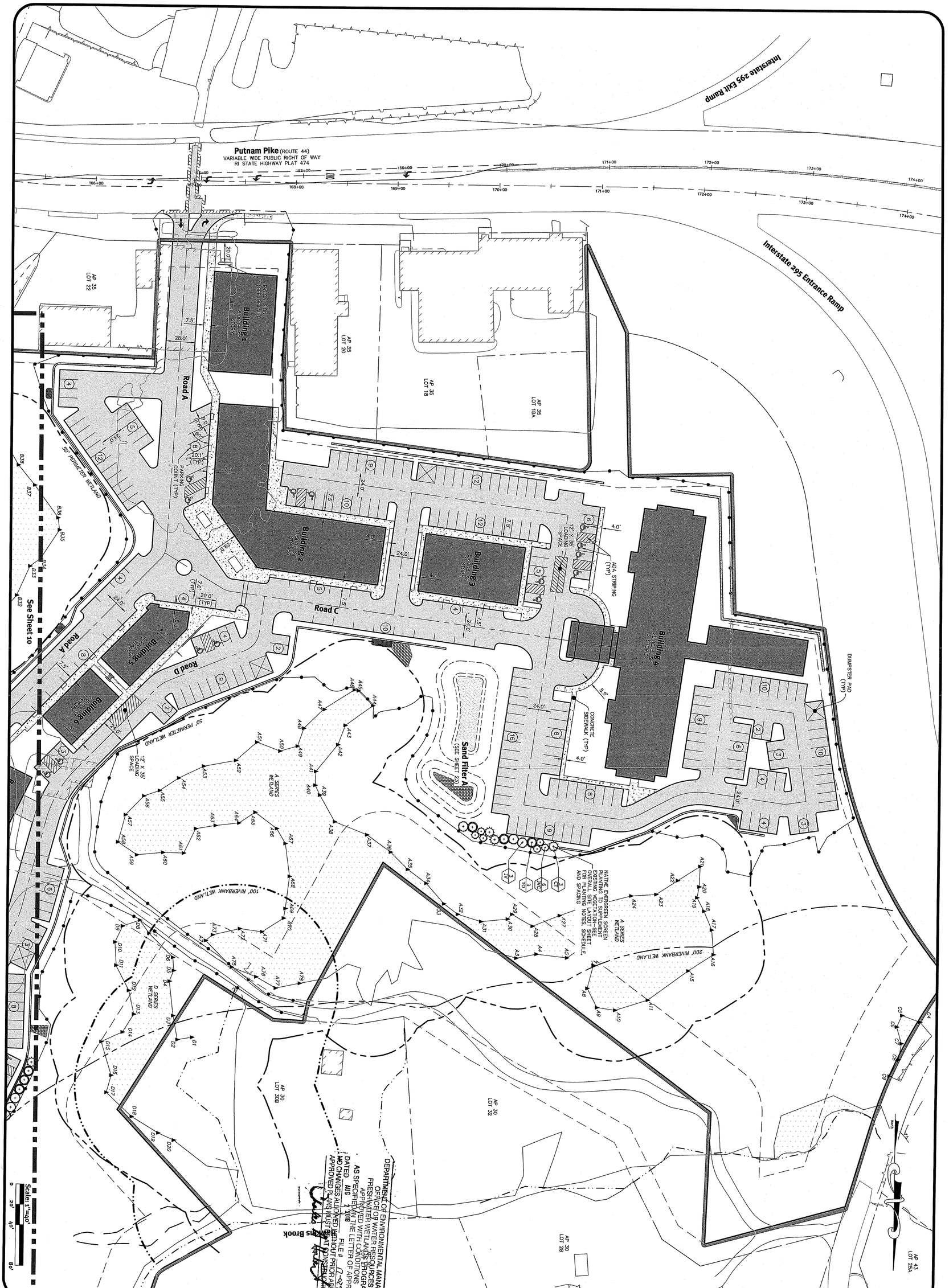
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 304-31 & 314, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-272-8010

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APPROVED WETLANDS DELINEATION
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4	06-06-2018	Order of Approval Response to Comments	D.R.N.
3	05-15-2018	RIDEM Response to Comments	D.R.N.
2	04-26-2018	RIDEM RETC / Order of Approval	D.R.N.
1	03-05-2018	RIDEM RETC / Order of Approval	D.R.N.
0	10-11-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. | Design By: B.D.C.

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The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

BRANDON D. CARR
REGISTERED PROFESSIONAL ENGINEER
No. 19801
STATE OF RHODE ISLAND

JUL 16 2018
Environmental Managem
Soil & Water Resource

SHEET 9 OF 30

Site Layout - 1

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
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Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
6/15/18
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8	6-13-2018	RIDEM Response to Comments	D.R.N.
7	06-05-2018	Order of Approval Response to Comments	D.R.N.
6	05-10-2018	RIDEM Response to Comments	D.R.N.
5	04-06-2018	Order of Approval Response	D.R.N.
4	03-05-2018	RIDEM RFI's / Order of Approval	D.R.N.
3	10-31-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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Site Layout - 2

Smithfield Village

AP 29 Lot 66A, AP 30 LOTS 20, 29, 30, 304, 31 & 39A, AP 35 LOTS 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-2600

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Wetland Buffer Planting Notes:

1. The intent of the wetland buffer zone restoration notes and plant list is to establish desirable wetland indicator vegetation while suppressing noxious and invasive weeds species.
2. The buffer zone restoration area should be finish graded with a minimum of 8" of organic, nutrient rich, and friable planting soil. If existing soils are used an organic, weed free compost may be added as an amendment to native soils to create a suitable planting medium. See note 4 on amending existing native soils.
3. The planting soil shall be installed in 4" lifts and be LIGHTLY bucket compacted or raked and compacted by foot. The top 4 inches shall be compacted by foot only and prepared as a planting and seed bed. The soil should should not be "glazed" but remain firm under foot while easily raked and manipulated by hand for planting and seeding.
4. Existing native soils that are a suitable planting medium (i.e. mostly a native soil mix with relatively low amount of gravel or parent stone material) may be amended with a weed free organic compost. If native soils are used, the soil should be should be exhausted of noxious and invasive weeds in the existing seed bank. The compost should be "tilled" or mixed into the top 3"-4" of the finish grade soil profile.
5. The restoration area shall be planted with the trees and shrubs listed in the Restoration Plant List and seeded with the specified mix.
6. Seed to soil contact is the most important component of any seeding. Ideally, the seed should be broadcast by hand or with a spreader. The seed must be sown to ¼" to ½" depth and covered with a weed free straw mulch. The restoration area may also be hydro-seeded, but the best results are accomplished by first seeding by hand, sowing the seed, then covering the area with hydro- fiber mulch and tackifier at the rate specified by the operator.
7. Watering may be necessary if the area is seeded and planted between June 1 and August 30th . Local weather and rainfall amounts and intervals should be monitored relative to plant germination (seeds) and vitality in the first growing season.
8. Any plant or seed substitutions may require approval from the permitting agency.

WETLAND BUFFER RESTORATION PLANT LIST; 7,700 sq.ft

COMMON NAME	BOTANICAL NAME	QTY	SIZE	SPACING	GROUPS
SHRUBS					
Highbush Blueberry	*Vaccinum corymbosum*	60	2'-3'	6' o.c.	5,10,15
Sweet Pepperbush	*Clethra alnifolia*	60	2'-3'	6' o.c.	5,10,15
TREES					
Black Tupelo	*Nyssa sylvatica*	5	4'-6'	20' o.c	1,3
SEED					
New England Conservation/ Wildlife Mix		1 lb/ 1500 sq.ft: 5 lbs Throughout			

*Plant list notes:
1. Plant species listed are available as conservation grade nursery stock.
2. Shrub plants of the same genus and species should be planted in groups according to the spacing listed. The space between groups of different shrub species should be 2x the spacing listed.
3. Trees are to be spaced according to the spacing shown and be no closer than 6' to the nearest shrub.

Road Removal Area Planting Notes:

1. This restoration planting plan assumes the road bed and associated base material will be removed and loam topsoil will be used to replace the excavated material.
2. The road bed and associated base shall be removed down to native soil or to a minimum of 12 inches to accommodate the placement of an organic, nutrient rich, and friable planting soil. The replacement soil should match adjacent grades.
3. The planting soil shall be installed in lifts 3" to 6" (dependent on total depth of excavation) and LIGHTLY bucket compacted. The top 6 inches shall be compacted by foot only and prepared as a planting and seed bed (i.e. loose, friable soil surface).
4. The area shall be planted with the trees and shrubs listed in the Restoration Plant List and seeded with the specified mix.
5. Seed to soil contact is the most important component of any seeding. Ideally, the seed should be broadcast by hand or with a spreader. The seed must be sown to ¼" to ½" depth and covered with a weed free straw mulch. The restoration area may also be hydro-seeded, but the best results are accomplished by first seeding by hand, sowing the seed, then covering the area with hydro- fiber mulch and tackifier at the rate specified by the operator.
6. Watering may be necessary if the area is seeded and planted between June 1 and August 30th . Local weather and rainfall amounts and intervals should be monitored relative to plant germination (seeds) and vitality in the first growing season.
7. Any plant or seed substitutions may require approval from the permitting agency.

ROAD REMOVAL PLANT LIST; 7,000 sq.ft

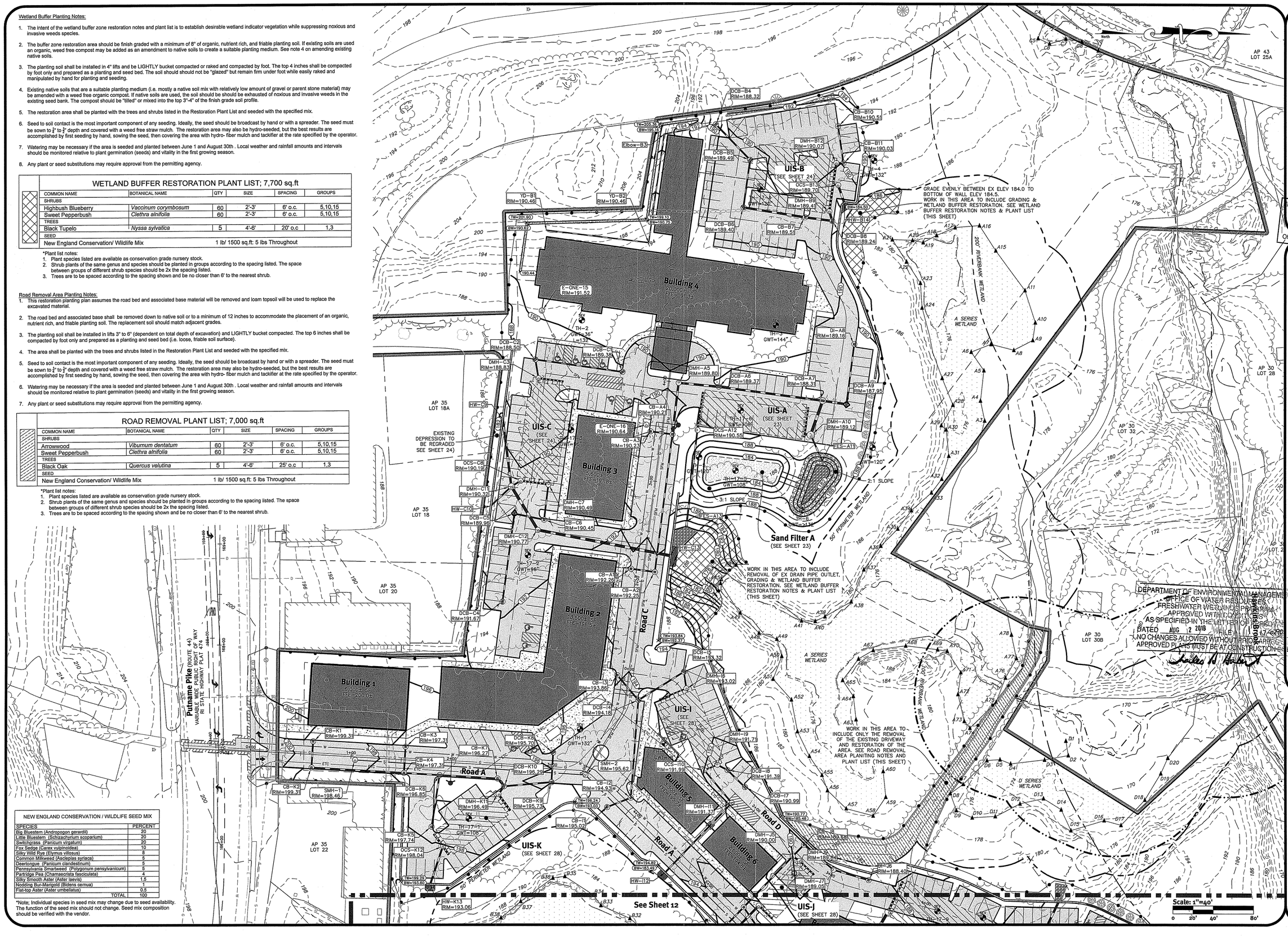
COMMON NAME	BOTANICAL NAME	QTY	SIZE	SPACING	GROUPS
SHRUBS					
Arrowwood	*Viburnum dentatum*	60	2'-3'	6' o.c.	5,10,15
Sweet Pepperbush	*Clethra alnifolia*	60	2'-3'	6' o.c.	5,10,15
TREES					
Black Oak	*Quercus velutina*	5	4'-6'	25' o.c	1,3
SEED					
New England Conservation/ Wildlife Mix		1 lb/ 1500 sq.ft: 5 lbs Throughout			

*Plant list notes:
1. Plant species listed are available as conservation grade nursery stock.
2. Shrub plants of the same genus and species should be planted in groups according to the spacing listed. The space between groups of different shrub species should be 2x the spacing listed.
3. Trees are to be spaced according to the spacing shown and be no closer than 6' to the nearest shrub.

NEW ENGLAND CONSERVATION / WILDLIFE SEED MIX

SPECIES	PERCENT
Big Bluestem (Andropogon geradii)	20
Little Bluestem (Schizachyrium scoparium)	20
Switchgrass (Panicum virgatum)	20
Fox Sedge (Carex vulpinoidea)	10
Silky Wild Rye (Elymus villosus)	5
Common Milkweed (Asclepias syriaca)	5
Deertongue (Panicum clandestinum)	5
Pennsylvania Smartweed (Polygonum pensylvanicum)	5
Partridge Pea (Chamaecrista fasciculata)	4
Silky Smooth Aster (Aster laevis)	1.5
Nodding Bur-Marigold (Bidens cernua)	1
Flat-top Aster (Aster umbellatus)	0.5
TOTAL	100

*Note; Individual species in seed mix may change due to seed availability. The function of the seed mix should not change. Seed mix composition should be verified with the vendor.



DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
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JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
6/15/2018
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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The contractor is responsible for all of the means, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	Office of Approval Response to Comments	D.R.N.
3	05-25-2018	RIDEM Review	D.R.N.
2	04-26-2018	RIDEM Letter of Approval	D.R.N.
1	03-05-2018	RIDEM Submission of Approval	D.R.N.
0	01-31-2018	Issued for Permitting	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Grading Plan - 1

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-272-8010

Scale: 1"=40'
0 20' 40' 80'

SHEET 11 OF 30

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z:\Details\projects\0717-022\Dr putnam pike\autocad drawings\0717-022-grad.dwg Plotted: 6/13/2018

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BRANDON D. CARR
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CIVIL

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No.	Date	Description	Drawn By: D.K.N.	Design By: B.D.C.
5	06-13-2018	RIDEM Response to Comments	D.K.N.	
4	05-25-2018	Order of Approval Responses to Comments	D.K.N.	
3	05-10-2018	RIDEM Response to Comments	D.K.N.	
2	04-06-2018	RIDEM Response to Comments	D.K.N.	
1	03-05-2018	RIDEM 1st Letter of Approval	D.K.N.	
0	10-12-2017	RIDEM Submission	D.K.N.	

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED JUL 16 2018 FILE # 17-0270
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Grading Plan - 2

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-3000

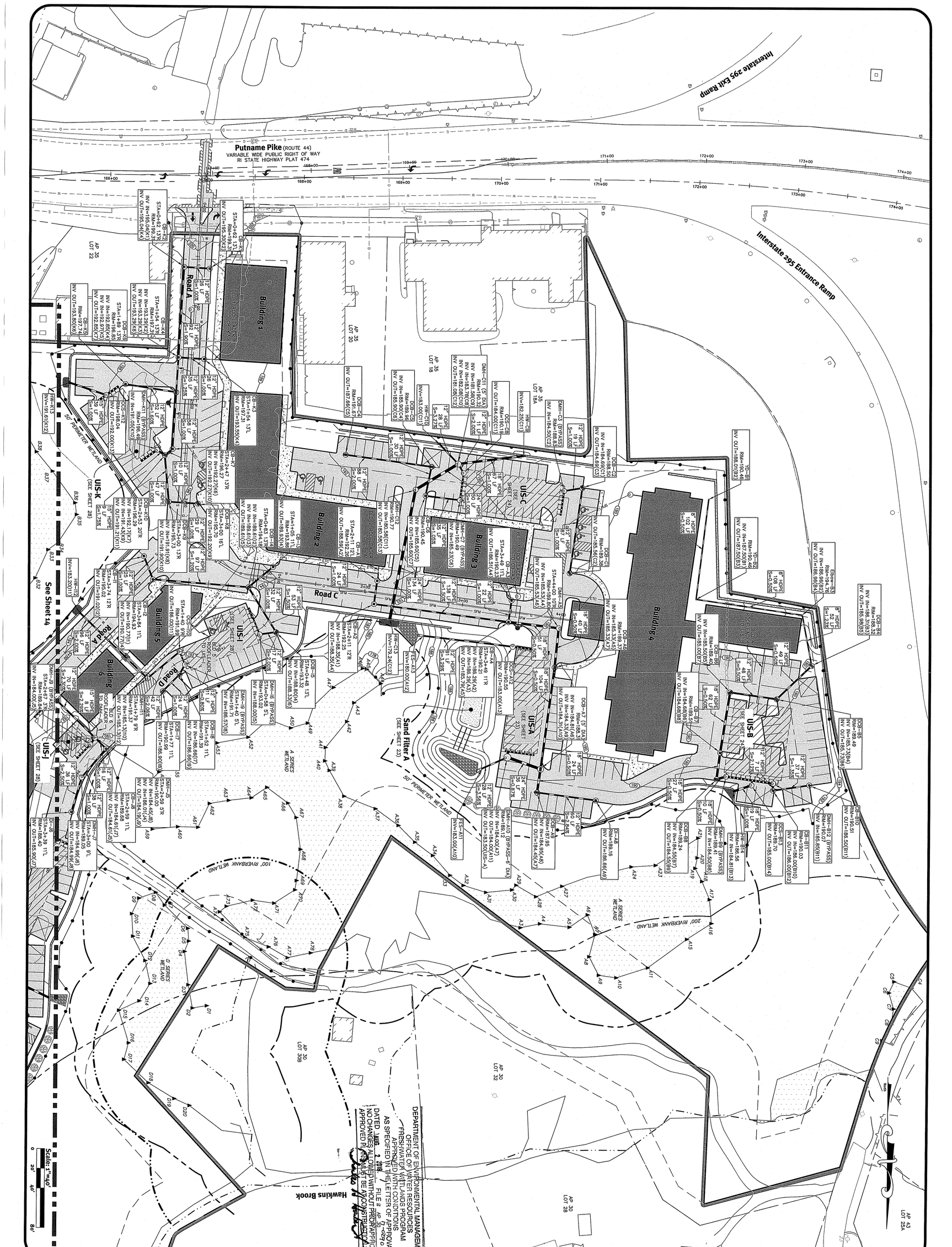
DE Job No: 0717-022-A05 Copyright 2018 by DiPrete Engineering Associates, Inc.

SHEET 12 OF 30

Scale: 1"=40'
0 20' 40' 80'

I:\Main\projects\0717-022\pr putnam pike\autocad drawings\0717-022-grad.dwg Plotted: 6/13/2018

z:\domain\projects\0717-022br putnam pike\autocad drawings\0717-022-utdr.dwg Plotted: 6/13/2018



Drainage Plan - 1

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

SHEET 13 OF 30

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No.	Date	Description	By:
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	Order of Approval Response to Comments	D.R.N.
3	05-30-2018	RIDEM Response to Comments	D.R.N.
2	04-26-2018	RIDEM RETC / Order of Approval	D.R.N.
1	01-06-2018	RIDEM RETC / Order of Approval	D.R.N.
0	10-31-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. | Design By: B.D.C.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THIS LETTER OF APPROVAL
DATED JUNE 2 2018 FILE # AP 30-0270
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE ACCEPTED BY

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REGISTERED PROFESSIONAL ENGINEER
BRANDON D. CARR
No. 9801
STATE OF RHODE ISLAND

Environmental Management
JUL 16 2018
Office of Water Resources

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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9801
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No.	Date	Description	By:
7	7-16-2018	RIDEM Response to Comments	D.R.N.
6	06-22-2018	Order of Approval Responses to Comments	D.R.N.
5	05-18-2018	RIDEM Response to Comments	D.R.N.
4	04-06-2018	RIDEM Response to Comments	D.R.N.
3	03-06-2018	RIDEM FE'c / Order of Approval	D.R.N.
2	01-26-2018	RIDEM Submission	D.R.N.
1	10-13-2017	RIDEA Submission	D.R.N.
0	10-13-2017	Preliminary Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0270
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Drainage Plan - 2

Smithfield Village

AP 30 Lot 664, AP 35 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

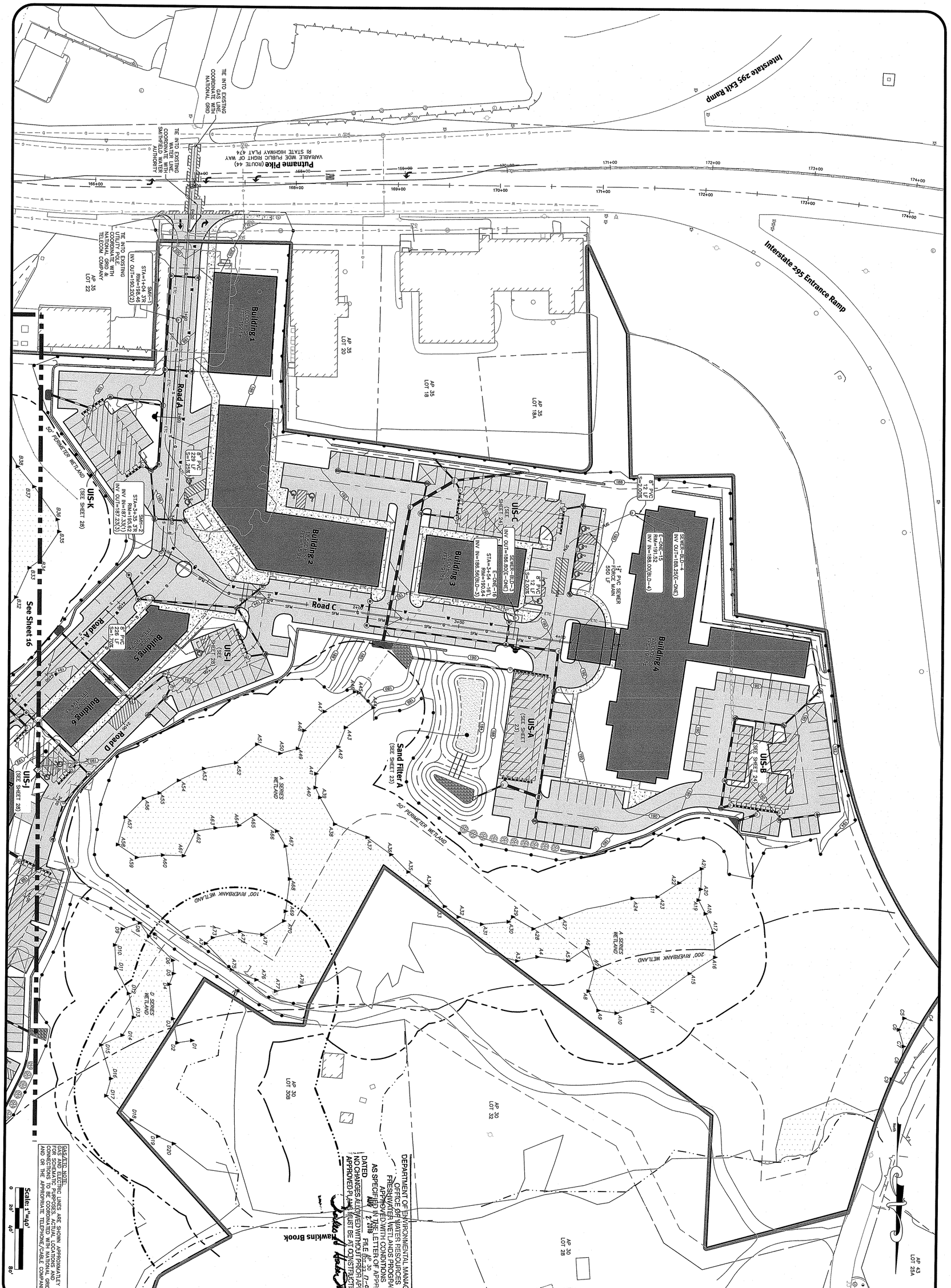
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SHEET 14 OF 30

Scale: 1"=40'
0 20' 40' 80'

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z:\demain\projects\0717-022br putnam pike\autocad drawings\0717-022-util.dwg Plotted: 6/13/2018



GAS & ELECTRIC LINES ARE SHOWN APPROXIMATELY FOR SCHEMATIC PURPOSES. ACTUAL LOCATIONS AND CONFIGURATIONS TO BE COORDINATED WITH NATIONAL GRID AND/OR THE APPROPRIATE TELEPHONE/CABLE COMPANIES.

Scale: 1"=40'
0 20' 40' 80'

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Office of Water Resources
JUL 16 2018

Utility Plan - 1

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

SHEET 15 OF 30

No.	Date	Description	By:
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	Order of Approval Response to Comments	D.R.N.
3	05-10-2018	RIDEM Response to Comments	D.R.N.
2	04-26-2018	RIDEM RETC / Order of Approval	D.R.N.
1	03-05-2018	RIDEM RETC / Order of Approval	D.R.N.
0	10-11-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. | Design By: B.D.C.

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BRANDON D. CARR
No. 9801
REGISTERED PROFESSIONAL ENGINEER
STATE OF RHODE ISLAND

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Pump Station Detail

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No.	Date	Description	By
5.	06-13-2018	RIDEM Response to Comments	D.R.N.
4.	06-06-2018	Order of Approval Response to Comments	D.R.N.
3.	05-30-2018	RIDEM Response to Comments	D.R.N.
2.	03-26-2018	RIDEM Response to Comments	D.R.N.
1.	03-06-2018	RIDEM RFI / Order of Approval	D.R.N.
	12-22-2017	Preliminary Submission	D.R.N.

Design By: B.D.C.
Drawn By: D.R.N.

Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
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This plan set shall not be used for construction purposes unless stamped "Issued for Construction" and signed by a DiPrete Engineering representative.

Utility Plan - 2

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

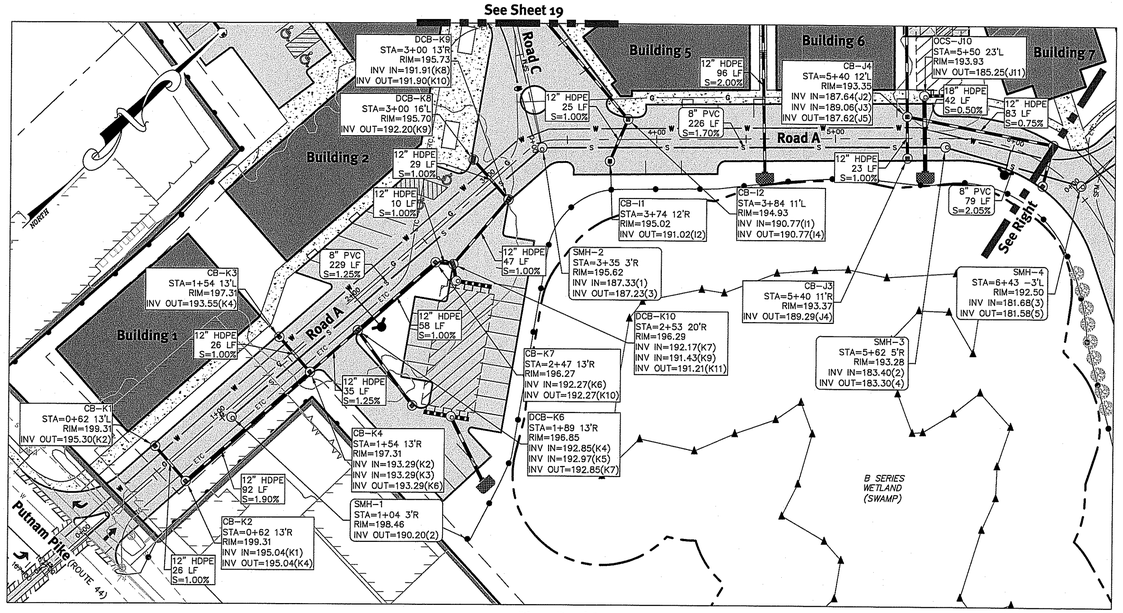
Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

DE Job No: 0717-022-A05

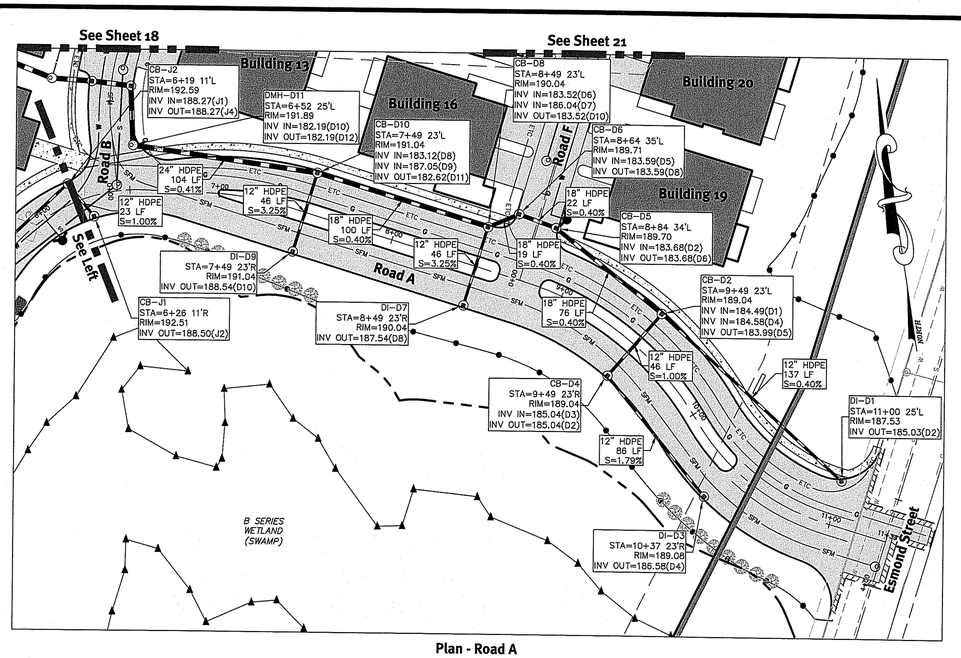
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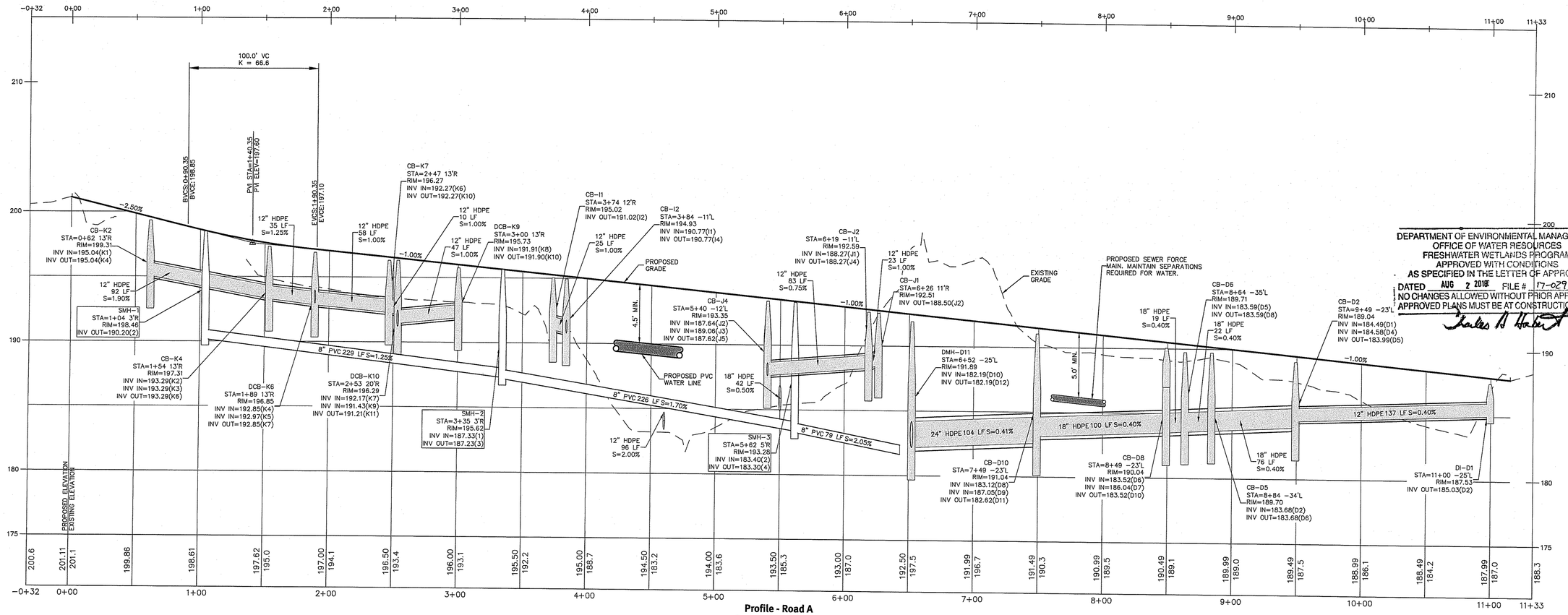
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Plan - Road A
(Sta. -0+32 To 6+20)



Plan - Road A
(Sta. 6+20 To 11+34)



Profile - Road A
Sta. -0+32 To 11+33

DEPARTMENT OF ENVIRONMENTAL MANAGEME
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FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0270
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Jake A Haber

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No.	Date	Description	By
5.	06-22-2018	RIDEM Response to Comments	D.R.N.
4.	06-06-2018	Order of Approval Response to Comments	D.R.N.
3.	06-06-2018	RIDEM Response to Comments	D.R.N.
2.	05-16-2018	RIDEM Response to Comments	D.R.N.
1.	03-06-2018	RIDEM REC'd Order of Approval	D.R.N.
	10-13-2017	RIDEM Submission	D.R.N.

Design By: B.D.C.
Drawn By: D.R.N.

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tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com

Environmental Management
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Office of Water Resources

BRANDON D. CARR
9801
6/15/18
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Plan & Profile Road A

Smithfield Village

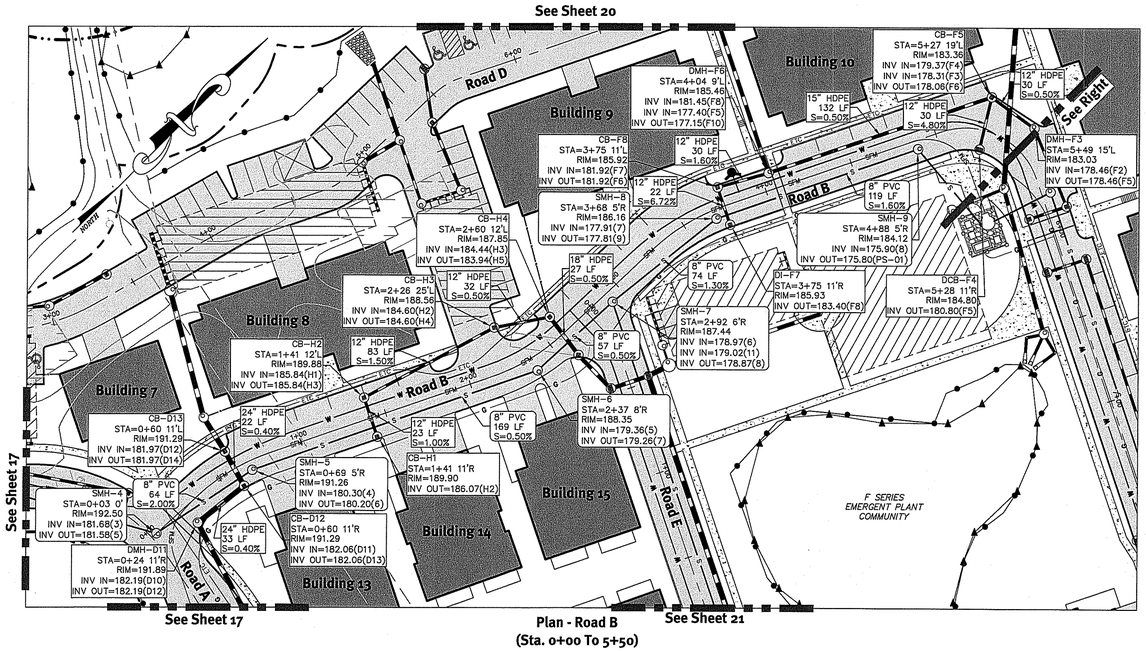
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 304, 313 & 314, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
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tel 401-273-8010

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SHEET 17 OF 30

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DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0296
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Vertical: 0 2' 4' 8'
Horizontal: 0 20' 40' 80'

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No.	Date	Description	By:
5.	06-15-2018	RIDEM Response to Comments	D.R.N.
4.	05-25-2018	RIDEM Response to Comments	D.R.N.
3.	05-15-2018	RIDEM Response to Comments	D.R.N.
2.	04-26-2018	RIDEM RECT Office Approval	D.R.N.
1.	03-26-2018	RIDEM RECT Office Approval	D.R.N.
0.	10-12-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Plan & Profile Road B

Smithfield Village

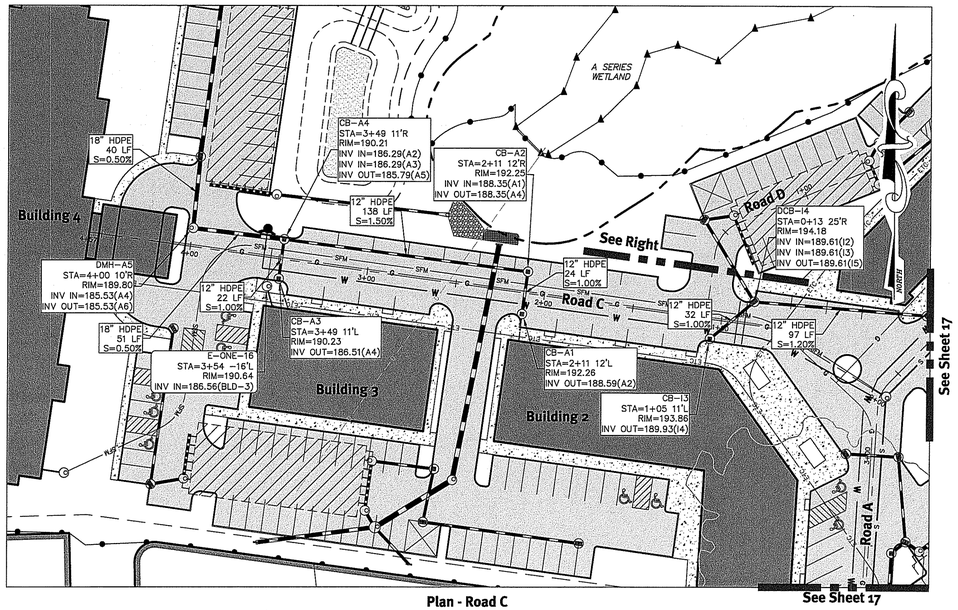
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
Tel 401-273-8010

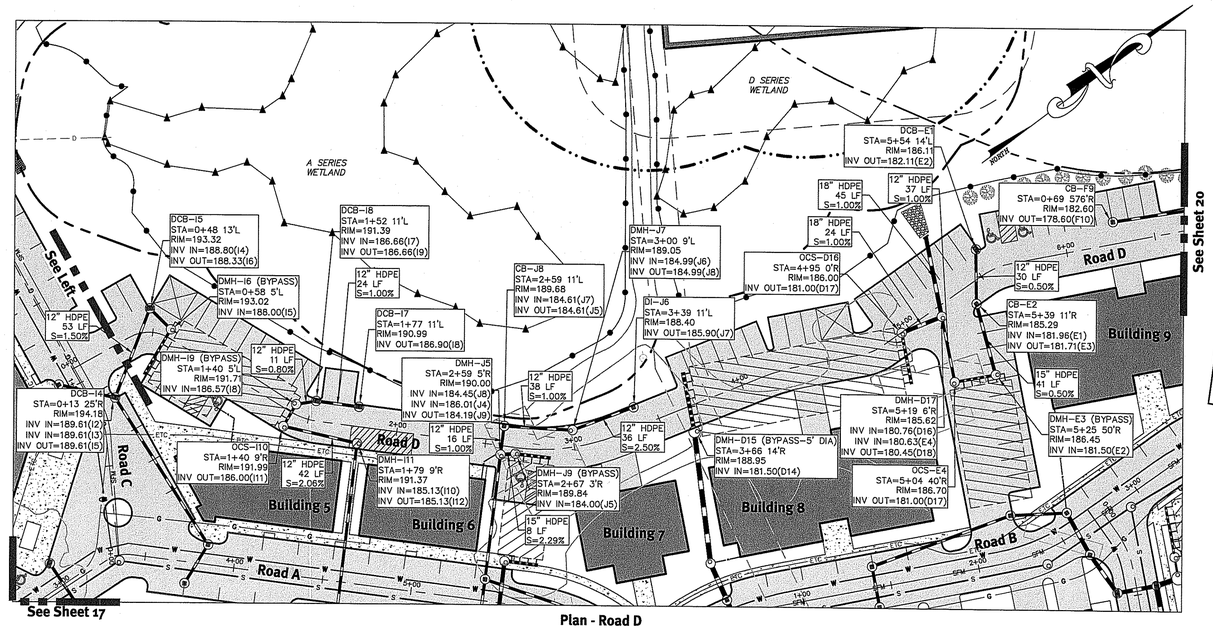
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SHEET 18 OF 30

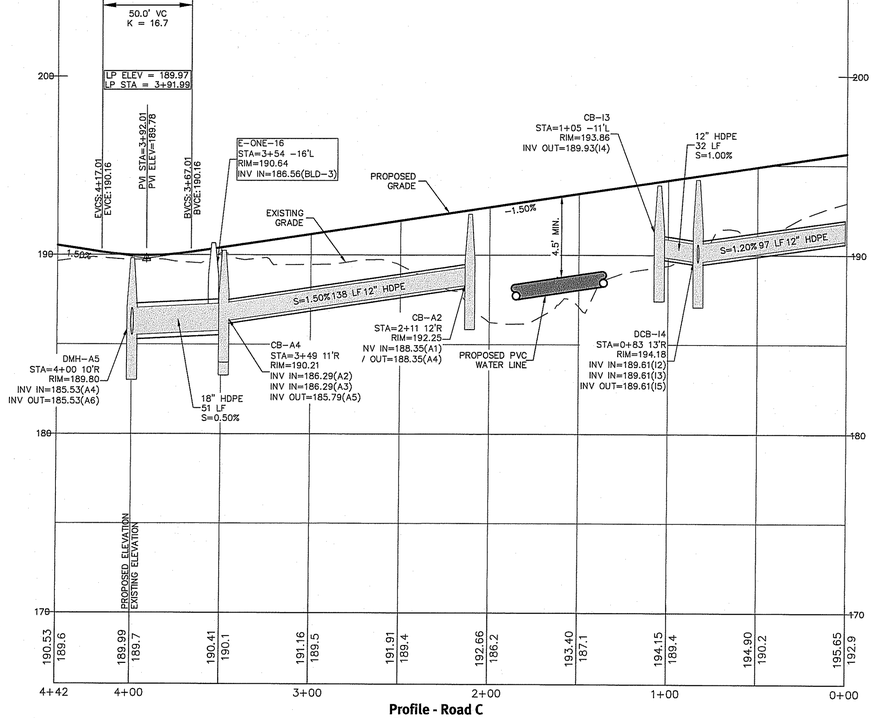
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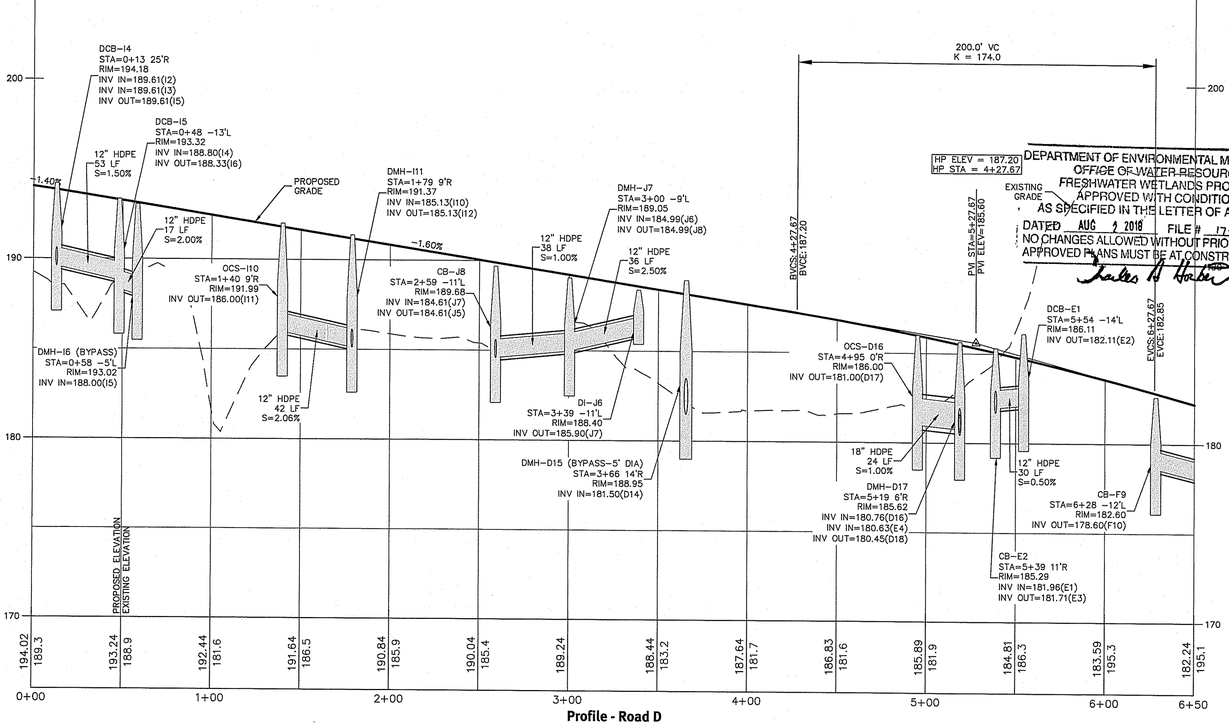
Plan - Road C
(Sta. 0+00 To 4+56)



Plan - Road D
(Sta. 0+00 To 6+50)



Profile - Road C
Sta. 0+00 To 4+42



Profile - Road D
Sta. 0+00 To 6+50

Vertical: 0 2' 4' 8'
Horizontal: 0 20' 40' 80'

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JUL 16 2018
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BRANDON D. CARR
9801
6/13/2018
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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No.	Date	Description	By
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	05-10-2018	RIDEM Response to Comments	D.R.N.
3	04-25-2018	RIDEM Response to Comments	D.R.N.
2	04-05-2018	RIDEM RFI / Order of Approval	D.R.N.
1	10-31-2017	RIDEM Submission	D.R.N.
0	10-31-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Plan & Profile Road C & Road D - Sta. 0+00 - 6+50

Smithfield Village
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

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Plan - Road D
Sta. 6+50 To 14+12

Profile - Road D
Sta. 6+50 To 14+12

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0279
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

Vertical: 0 2' 4' 8'
Horizontal: 0 20' 40' 80'

DiPrete Engineering
Environmental Management
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
Boston • Providence • Newport

JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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The contractor is responsible for all of the means, methods, safety precautions and requirements and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
5	06-15-2018	RIDEM Response to Comments	D.R.N.
4	05-02-2018	RIDEM Response to Comments	D.R.N.
3	04-26-2018	RIDEM Response to Comments	D.R.N.
2	04-06-2018	RIDEM RFC / Order of Approval	D.R.N.
1	03-12-2018	RIDEM Response to Comments	D.R.N.
0	10-31-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Plan & Profile Road D - Sta. 6+50 - 14+12

Smithfield Village

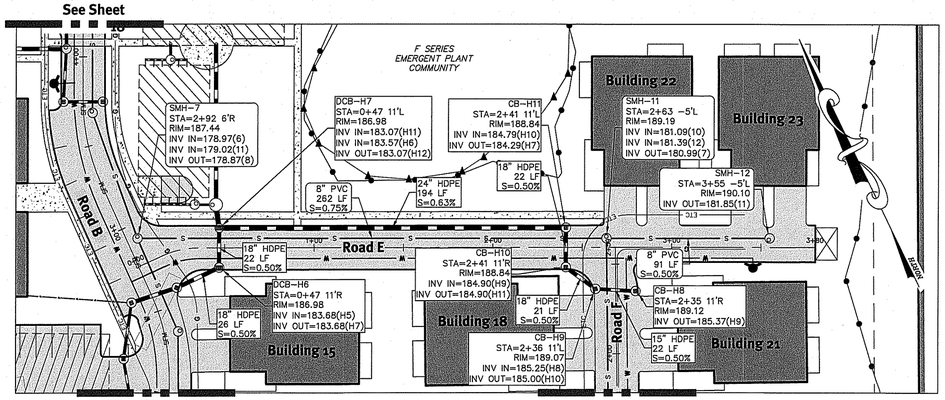
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

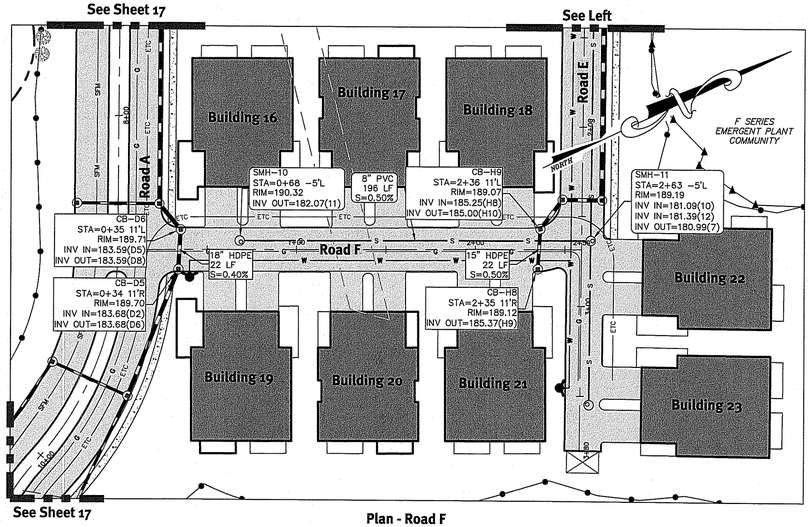
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SHEET 20 OF 30

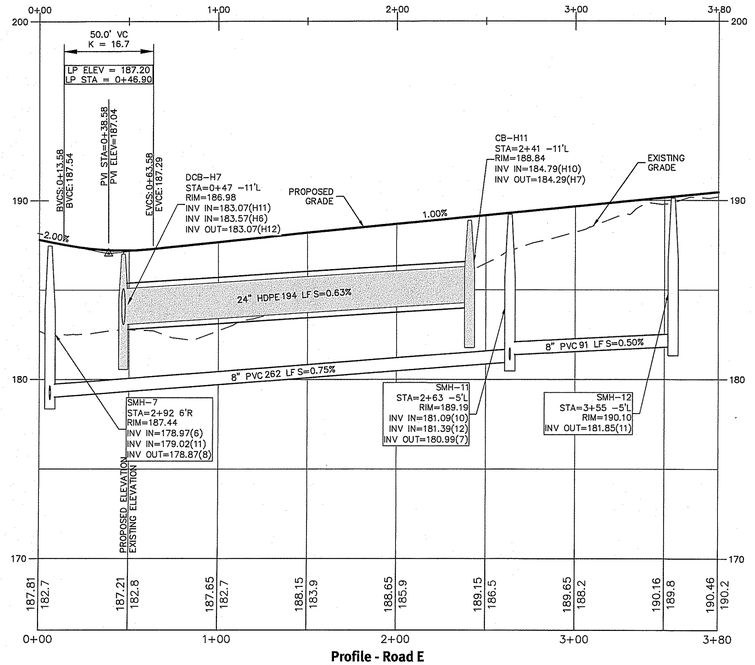
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Plan - Road E
(Sta. 0+00 To 3+80)



Plan - Road F
(Sta. 0+00 To 2+59)



Profile - Road E
Sta. 0+00 To 3+80

Profile - Road F
Sta. 0+00 To 2+59

Vertical: 0 2' 4' 8'
Horizontal: 0 20' 40' 80'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0228
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

No.	Date	Description	By:
5.	06-13-2018	RIDEM Response to Comments	D.R.N.
4.	05-25-2018	RIDEM Response to Comments	D.R.N.
3.	05-18-2018	RIDEM Response to Comments	D.R.N.
2.	04-26-2018	RIDEM RECFC Order of Approval	D.R.N.
1.	03-09-2018	RIDEM Submission	D.R.N.
0.	10-13-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

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DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
REGISTERED PROFESSIONAL ENGINEER
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Plan & Profile Road E & Road F

Smithfield Village

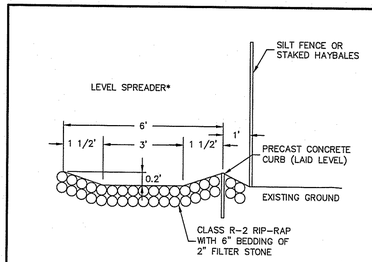
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

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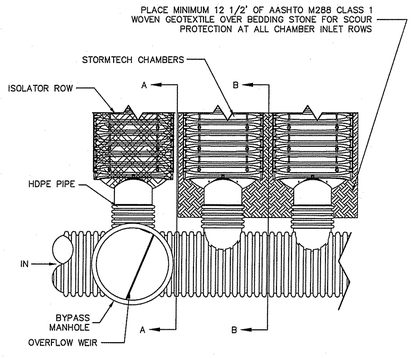
SHEET 21 OF 30

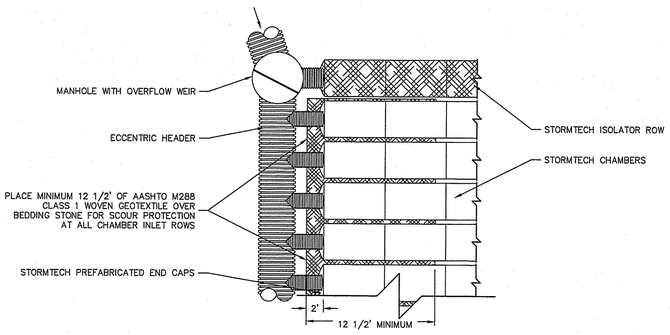
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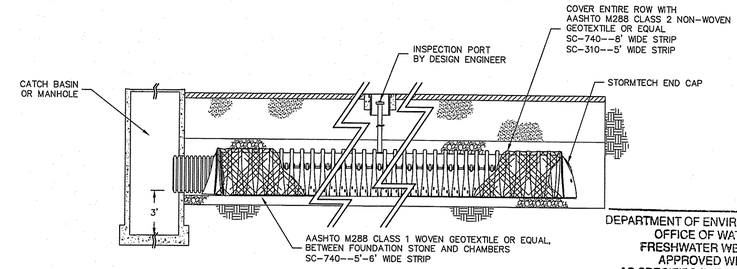
NOTE:
* LENGTHS AS SPECIFIED ON SITE PLANS

Level Spreader
NOT TO SCALE



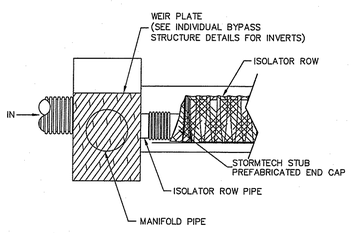


Stormtech Isolator Row Manifold Detail
NOT TO SCALE

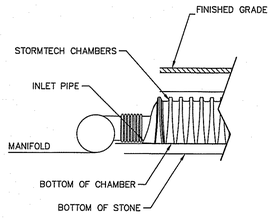


Stormtech Isolator Row Detail
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
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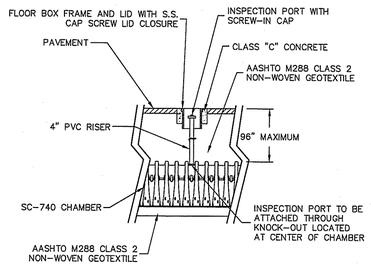


SECTION A-A

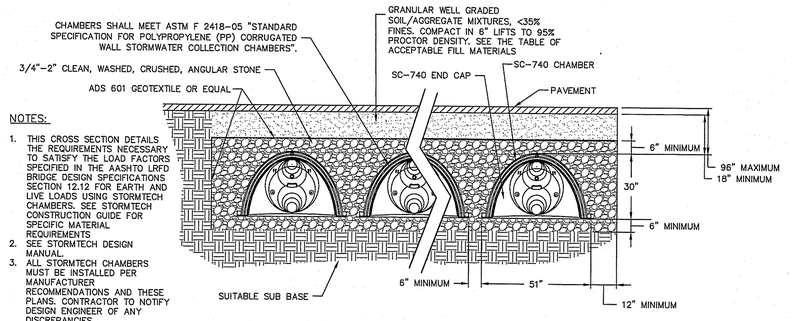


SECTION B-B

Typical Stormtech Elevations
NOT TO SCALE



Stormtech Inspection Port Detail
NOT TO SCALE



NOTES:
1. THIS CROSS SECTION DETAILS THE REQUIREMENTS NECESSARY TO SATISFY THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS USING STORMTECH CHAMBERS. SEE STORMTECH CONSTRUCTION GUIDE FOR SPECIFIC MATERIAL REQUIREMENTS
2. SEE STORMTECH DESIGN MANUAL.
3. ALL STORMTECH CHAMBERS MUST BE INSTALLED PER MANUFACTURER RECOMMENDATIONS AND THESE PLANS. CONTRACTOR TO NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES.

Stormtech SC-740 Typical Cross Section
NOT TO SCALE

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BRANDON D. CARR
9801
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CIVIL

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No.	Date	Description	By
7.	06-13-2018	RIDEM Response to Comments	D.K.N.
6.	06-13-2018	Order of Approval Response to Comments	D.K.N.
5.	05-10-2018	RIDEM Response to Comments	D.K.N.
4.	04-05-2018	RIDEM Response to Comments	D.K.N.
3.	03-05-2018	RIDEM RFI / Order of Approval	D.K.N.
2.	01-05-2018	RIDEM Submission	D.K.N.
1.	10-31-2017	RIDEM Submission	D.K.N.
0.			

Drawn By: D.K.N. Design By: B.D.C.

Typical Stormtech Details

Smithfield Village

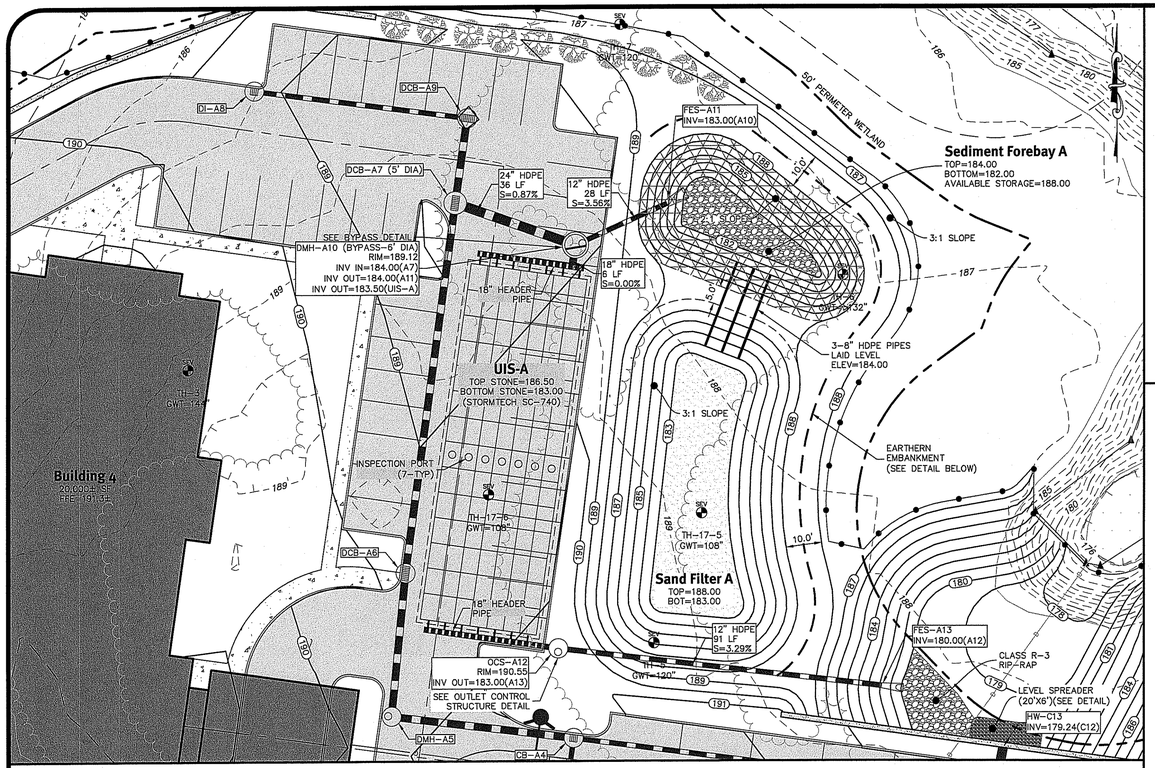
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

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10 Greene Street, Providence, Rhode Island 02903
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SHEET 22 OF 30

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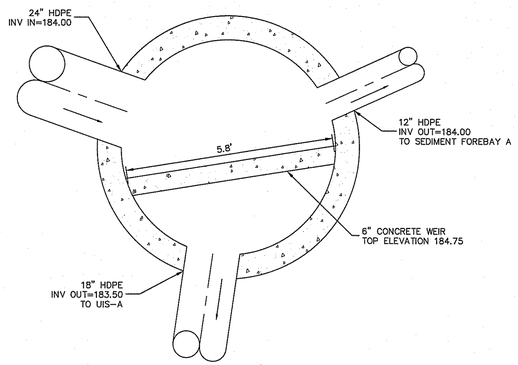
Sand Filter/Underground Infiltration System A (SF-A/UIS-A)

Scale: 1"=20'
0 10' 20' 40'

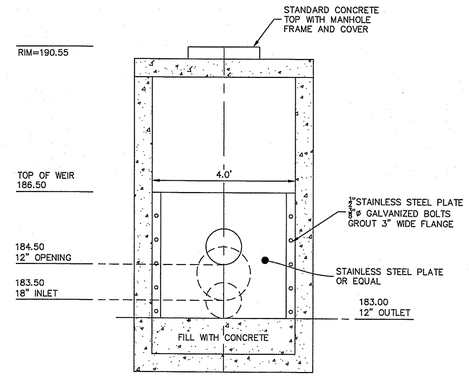
NOTE:
UIS-A WILL BE USED FOR PEAK MITIGATION, NOT WATER QUALITY TREATMENT. THEREFORE, UIS-A DOES NOT HAVE AN ISOLATOR ROW. SEE SHEET 22 FOR THE TYPICAL STORMTECH SYSTEM DETAILS

DESCRIPTION	UIS-A
TOP OF UIS STONE ELEVATION	186.50
MINIMUM COVER ELEVATION	187.83
BOTTOM OF UIS STONE ELEVATION	183.00
BOTTOM OF CHAMBERS ELEVATION	183.50
100 YEAR STORM ELEVATION	186.39
10 YEAR STORM ELEVATION	184.93
1 YEAR STORM ELEVATION	183.33
SEASONAL HIGH GWT ELEVATION	180.00
SOIL EVALUATION	TH-17-6

UIS-A System Parameters

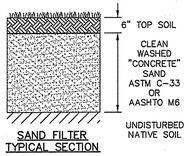


WQ Bypass DMH-A10 (6'Ø Manhole)
SCALE 1"=2'

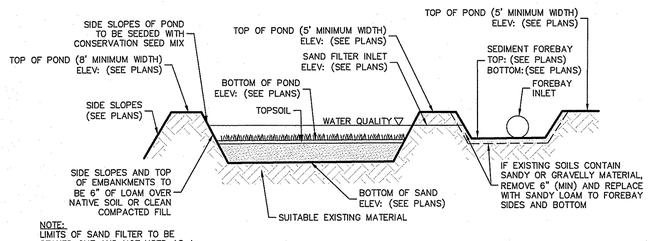


UIS A Outlet Control Manhole (OCS-A12)
SCALE: 1"=2'

DESCRIPTION	SF-A
TOP OF POND ELEVATION	188.00
100 YEAR STORM ELEVATION	186.01
10 YEAR STORM ELEVATION	184.97
1 YEAR STORM ELEVATION	184.77
WQ STORM ELEVATION	183.77
BOTTOM OF POND ELEVATION	183.00
TOP SOIL DEPTH	6"
SAND DEPTH	18"
BOTTOM OF SAND ELEVATION	181.00
SEASONAL HIGH GWT ELEVATION	180.00
SOIL EVALUATION	TH-5



SAND FILTER
TYPICAL SECTION

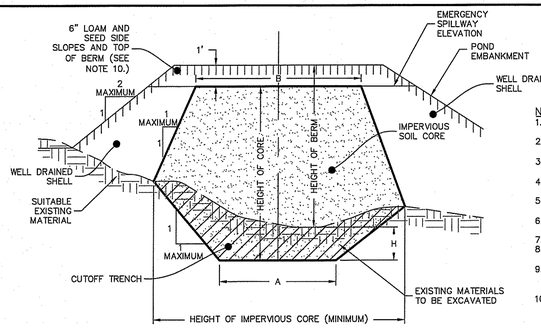


NOTE:
LIMITS OF SAND FILTER TO BE STAKED OUT AND NOT USED AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION (NO CONSTRUCTION TRAFFIC ALLOWED WITHIN FILTER LIMITS)

SAND FILTER
NOT TO SCALE

SEDIMENT FOREBAY
NOT TO SCALE

Sand Filter BMP System
NOT TO SCALE



BERM HEIGHT (FT)	TOP WIDTH OF CORE – B (FT)
0–6.5	8.2
6.6–9.8	9.2
9.9–13.1	9.8
13.2–16.4	10.8
16.5–19.7	11.5

NOTES:
1. IMPERVIOUS SOIL CORE TO BE PROVIDED FOR ALL POND EMBANKMENTS.
2. IMPERVIOUS SOIL CORE TO BE CONSTRUCTED OF MATERIAL CONSISTING OF SILT OR <200 SOIL.
3. WELL DRAINED SHELL TO BE CONSTRUCTED OF GRAVEL AND/OR SAND WITH LESS THAN 5% PASSING THE #200 SIEVE.
4. MINIMUM DEPTH OF CUTOFF TRENCH (H) SHALL BE 3/4 OF THE TOTAL BERM HEIGHT.
5. THE IMPERVIOUS CORE AT A MINIMUM SHALL EXTEND UP BOTH ABUTMENTS TO THE EMERGENCY SPILLWAY ELEVATION.
6. THE MINIMUM BOTTOM WIDTH (A) SHALL BE 5'-8', AND WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT.
7. SIDE SLOPES OF THE TRENCH SHALL BE NO STEEPER THAN 1:1.
8. IF BEDROCK IS ENCOUNTERED BELOW THE DAM THE CUT OFF TRENCH CAN BE REDUCED TO 1'x1' (AxH)
9. COMPACTION REQUIREMENTS FOR THE SHELL AND IMPERVIOUS CORE TO BE 95% OF THE MODIFIED PROCTOR PER ASTM D1557. ALL FILL TO BE PLACED IN LIFTS NOT EXCEEDING 12".
10. SIDE SLOPE OF POND EMBANKMENT TO BE 2:1 MAXIMUM. IF SIDE SLOPES ARE STEEPER THAN 2:1, SLOPE PROTECTION MUST BE UTILIZED ON POND EMBANKMENT. THIS INCLUDES, BUT NOT LIMITED TO, RIPRAP AND EROSION CONTROL MATS.
11. THE IMPERVIOUS CORE SHALL BE KEPT FREE FROM STANDING WATER DURING THE BACKFILL OPERATION.
12. ALL EMBANKMENTS TO BE DESIGNED BY A GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION. ALL EMBANKMENT INSTALLATIONS TO BE SUPERVISED BY A GEOTECHNICAL ENGINEER.

Pond Earthen Embankment
NOT TO SCALE

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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JUL 16 2018
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6/15/18
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4	05-30-2018	RIDEM Response to Comments	D.R.N.
3	05-22-2018	RIDEM Response to Comments	D.R.N.
2	04-04-2018	RIDEM RFFC / Close of Approval	D.R.N.
1	03-23-2018	RIDEM Submission	D.R.N.
0	10-12-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

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Sand Filter-UIS A

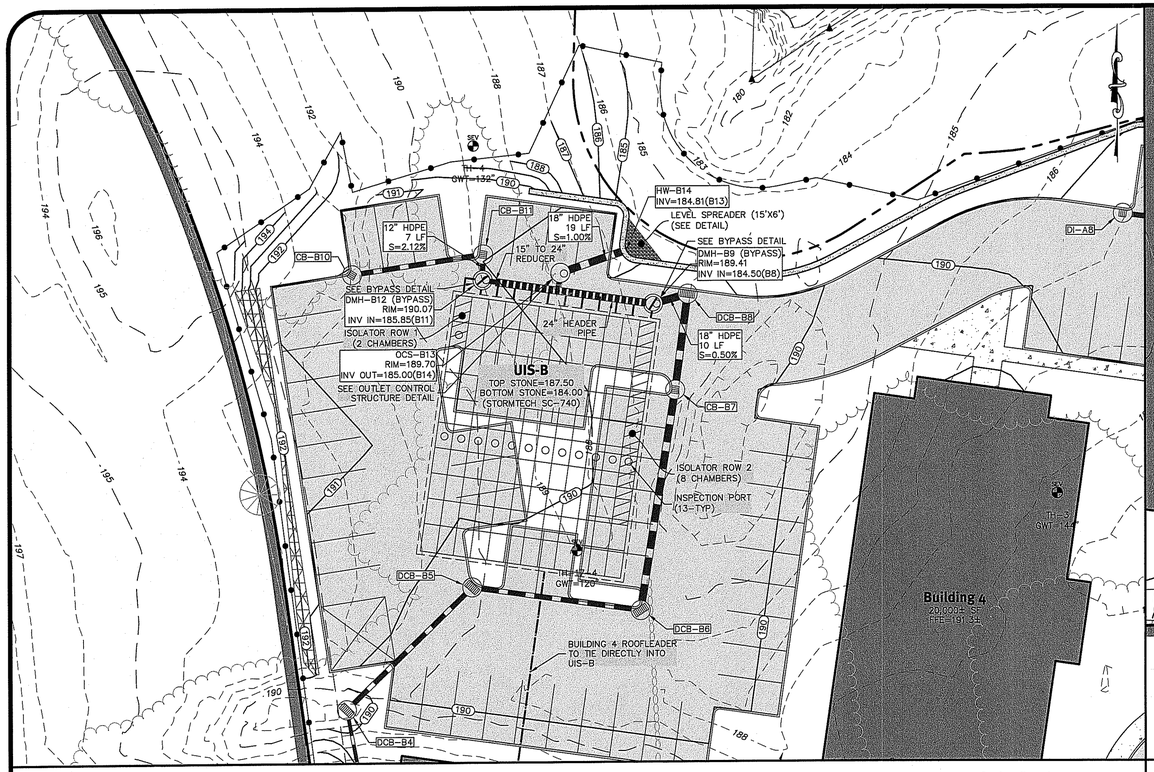
Smithfield Village
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
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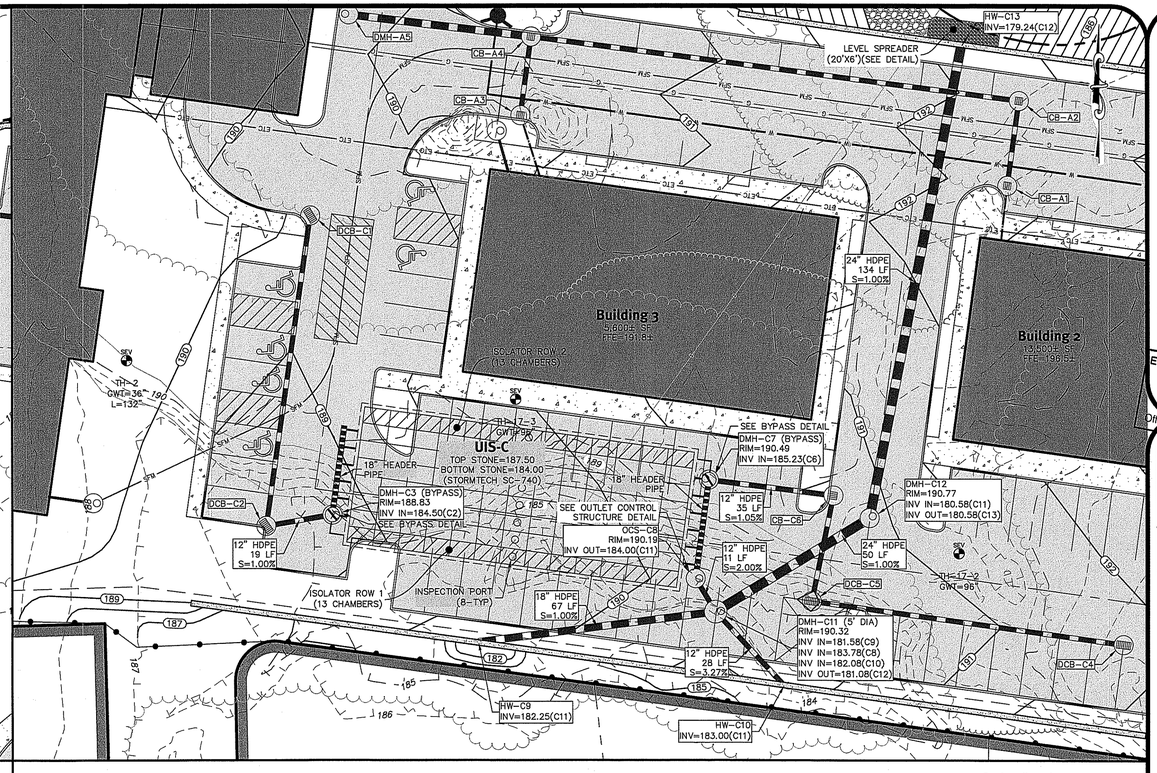
SHEET 23 OF 30

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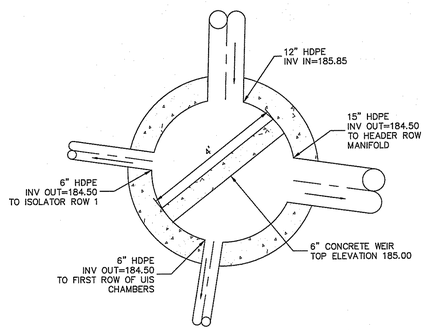
Underground Infiltration System B (UIS-B)

Scale: 1"=20'
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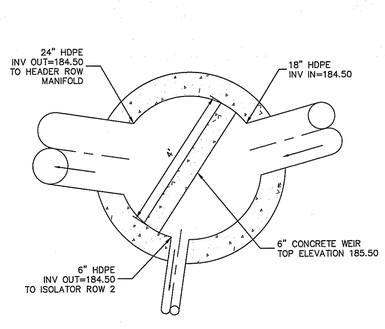
Underground Infiltration System C (UIS-C)

Scale: 1"=20'
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Isolator Row Bypass DMH-B12 (4'Ø Manhole)

SCALE 1"=2'



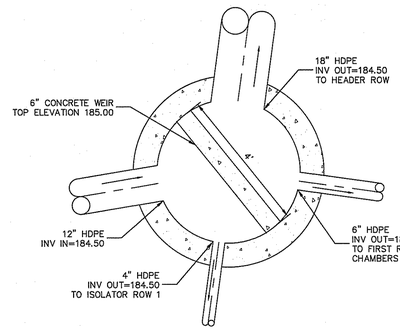
Isolator Row Bypass DMH-B9 (4'Ø Manhole)

SCALE 1"=2'

NOTE:
SEE SHEET 22 FOR TYPICAL STORMTECH UNDERGROUND INFILTRATION DETAILS AND SECTION VIEWS

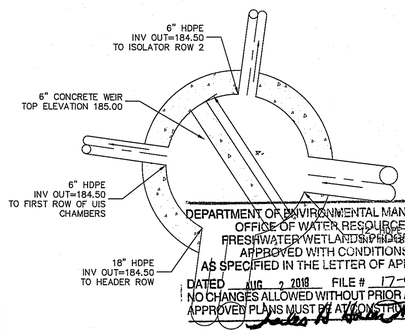
DESCRIPTION	UIS-B	UIS-C
TOP OF UIS STONE ELEVATION	187.50	187.50
MINIMUM COVER ELEVATION	188.83	188.83
BOTTOM OF UIS STONE ELEVATION	184.00	184.00
BOTTOM OF CHAMBERS ELEVATION	184.50	184.50
100 YEAR STORM ELEVATION	187.34	187.17
10 YEAR STORM ELEVATION	185.79	185.95
1 YEAR STORM ELEVATION	184.35	185.07
SEASONAL HIGH GWT ELEVATION	181.00	181.00
SOIL EVALUATION	TH-17-4	TH-17-3

UIS-B & UIS-C System Parameters



Isolator Row Bypass DMH-C3 (4'Ø Manhole)

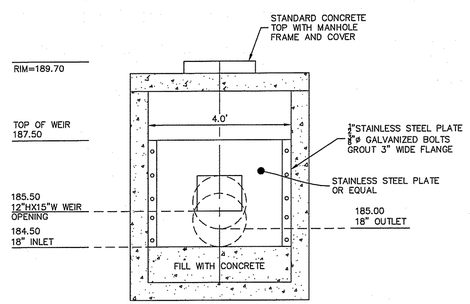
SCALE 1"=2'



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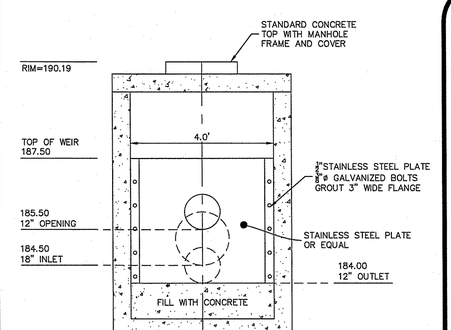
Isolator Row Bypass DMH-C7 (4'Ø Manhole)

SCALE 1"=2'



UIS B Outlet Control Manhole (OCS-B13)

SCALE: 1"=2'



UIS C Outlet Control Manhole (OCS-C8)

SCALE: 1"=2'

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1.	03-13-2017	RIDEM Submission	D.R.N.

Drawn By: D.R.N. | Design By: B.D.C.

Underground Systems B & C

Smithfield Village

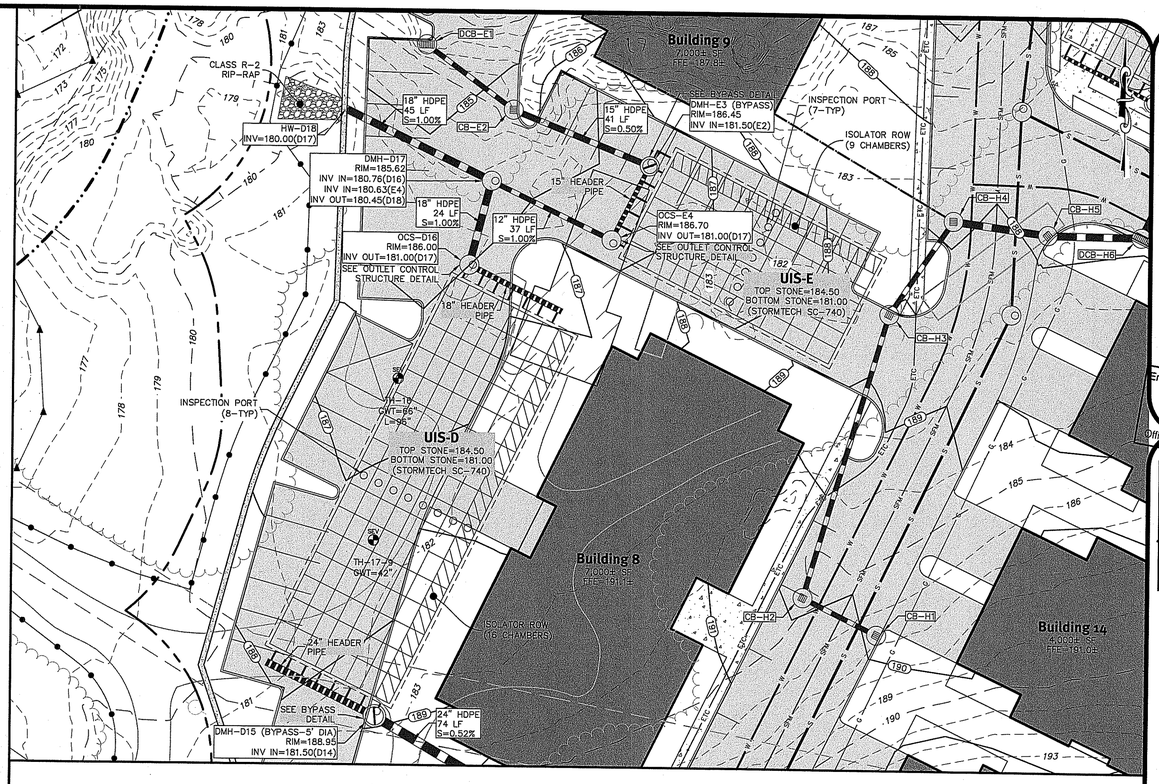
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Smithfield, Rhode Island

Applicant
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30 Greene Street, Providence, Rhode Island 02903
tel (401-273-8010

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SHEET 24 OF 30

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Underground Infiltration Systems D & E (UIS-D & UIS-E)

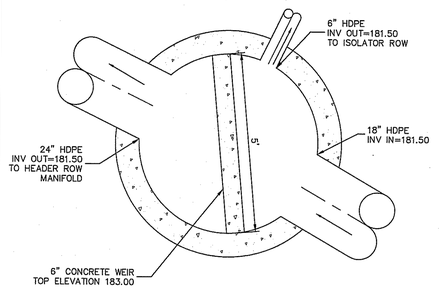
Scale: 1"=20'
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NOTE:
SEE SHEET 22 FOR TYPICAL STORMTECH UNDERGROUND INFILTRATION DETAILS AND SECTION VIEWS

DESCRIPTION	UIS-D	UIS-E
TOP OF UIS STONE ELEVATION	184.50	184.50
MINIMUM COVER ELEVATION	185.83	185.83
BOTTOM OF UIS STONE ELEVATION	181.00	181.00
BOTTOM OF CHAMBERS ELEVATION	181.50	181.50
100 YEAR STORM ELEVATION	184.26	184.18
10 YEAR STORM ELEVATION	182.40	182.40
1 YEAR STORM ELEVATION	181.41	181.50
SEASONAL HIGH GWT ELEVATION	178.50*	178.30*
SOIL EVALUATION	TH-17-9	TH-16

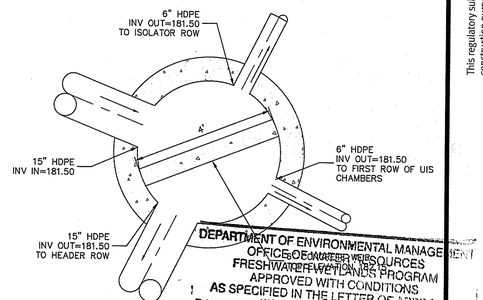
* UIS-D & UIS-E RECIEVE STORMWATER FROM RESIDENTIAL BUILDINGS/ROADWAYS. MINIMUM SEPARATION TO GWT IS 2 FT FOR RESIDENTIAL USES.

UIS-D & UIS-E System Parameters



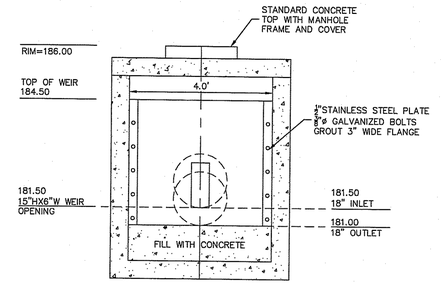
Isolator Row Bypass DMH-D15 (5'Ø Manhole)

SCALE 1"=2'



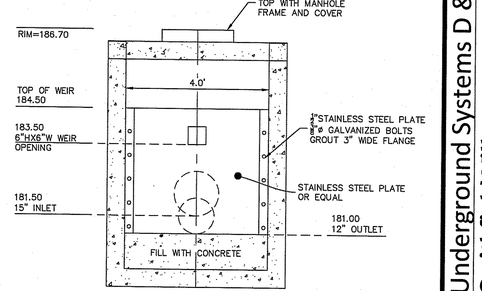
Isolator Row Bypass DMH-E3 (4'Ø Manhole)

SCALE 1"=2'



UIS D Outlet Control Manhole (OCS-D16)

SCALE: 1"=2'



UIS E Outlet Control Manhole (OCS-E4)

SCALE: 1"=2'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 2 2018 FILE # 17-0290
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
ASSENT MUST BE POSTED AT CONSTRUCTION SITE

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.dipretе-eng.com
Boston • Providence • Newport

Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
5	06-19-2018	DEM/FW Response to Comments	D.K.N.
4	06-19-2018	RIDEM Response to Comments	D.K.N.
3	06-19-2018	RIDEM Response to Comments	D.K.N.
2	04-26-2018	RIDEM RFC / Order of Approval	D.K.N.
1	04-26-2018	RIDEM Submission	D.K.N.
0	10-31-2017	RIDEM Submission	D.K.N.

Drawn By: D.K.N. Design By: B.D.C.

Underground Systems D & E

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

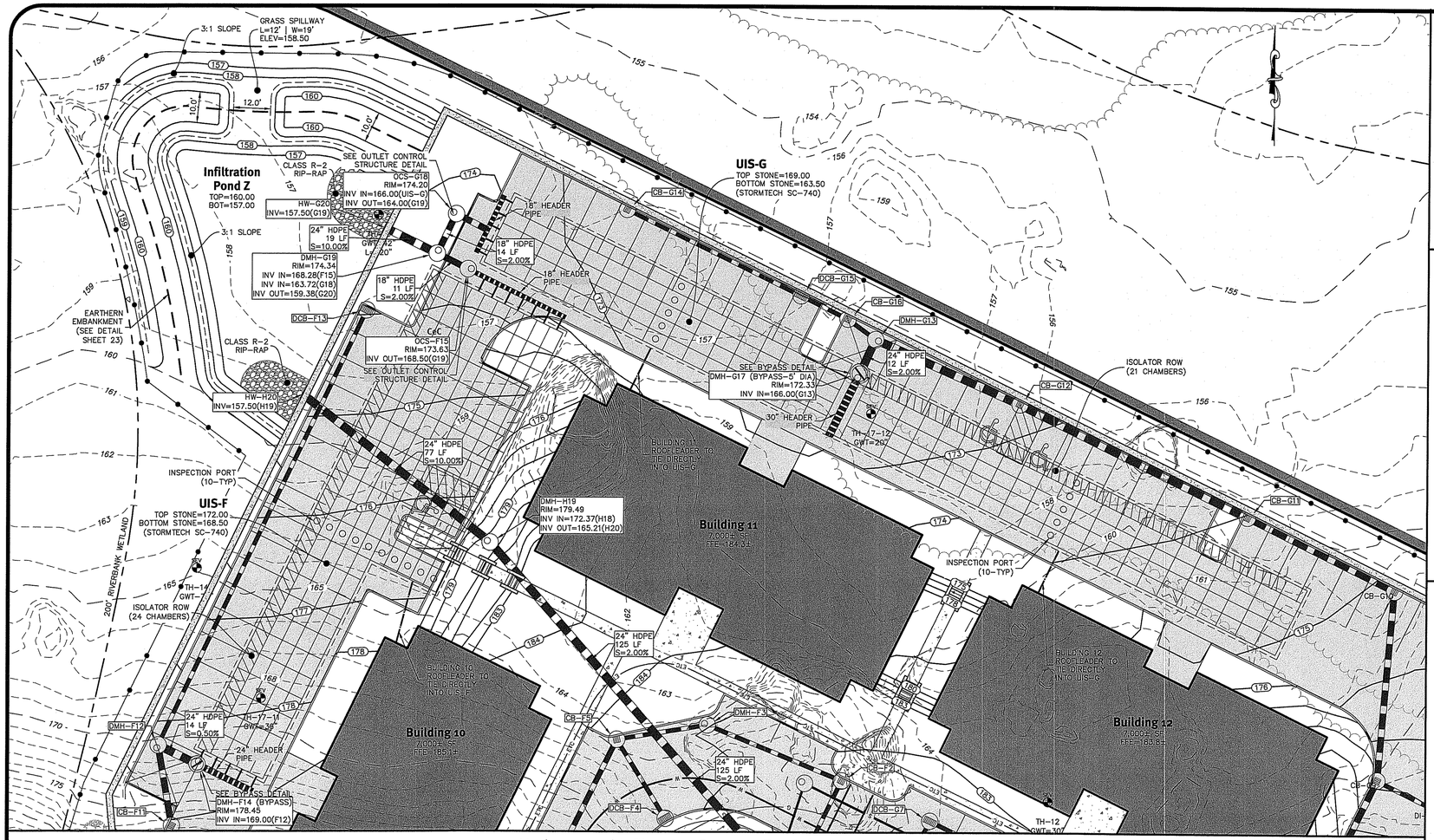
Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-9010

DE Job No: 0717-022-A05

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SHEET 25 OF 30

z:\domain\projects\0717-022br putnam pike\autocad drawings\0717-022-bmps.dwg Plotted: 6/13/2018

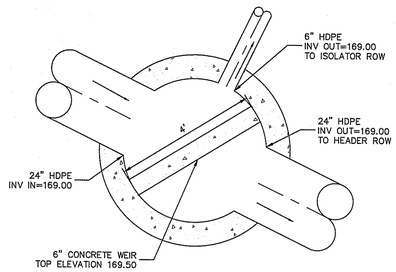


Underground Infiltration Systems F & G (UIS-F & UIS-G)
& Detention Pond Z

NOTE:
SEE SHEET 22 FOR TYPICAL STORMTECH UNDERGROUND INFILTRATION DETAILS AND SECTION VIEWS

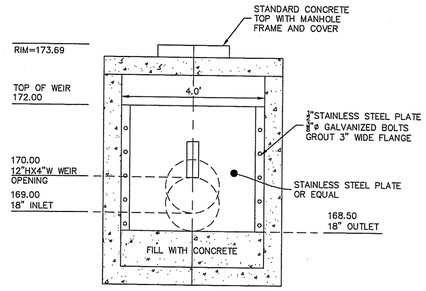
DESCRIPTION	UIS-F	UIS-G
TOP OF UIS STONE ELEVATION	172.00	169.00
MINIMUM COVER ELEVATION	173.33	170.33
BOTTOM OF UIS STONE ELEVATION	168.50	163.50
BOTTOM OF CHAMBERS ELEVATION	169.00	166.00
100 YEAR STORM ELEVATION	171.94	168.93
10 YEAR STORM ELEVATION	170.11	166.79
1 YEAR STORM ELEVATION	169.06	165.22
SEASONAL HIGH GWT ELEVATION	165.50	156.00
SOIL EVALUATION	TH-17-11	TH-17-2

UIS-F & UIS-G System Parameters



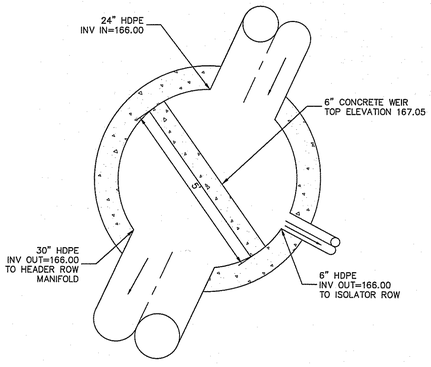
Isolator Row Bypass DMH-F14 (4'Ø Manhole)

SCALE 1"=2'



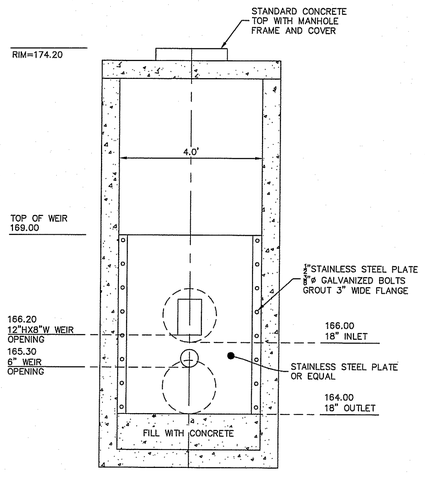
UIS F Outlet Control Manhole (OCS-F15)

SCALE: 1"=2'



Isolator Row Bypass DMH-G17 (5'Ø Manhole)

SCALE 1"=2'



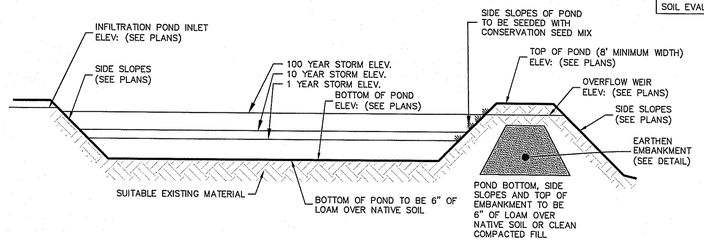
UIS G Outlet Control Manhole (OCS-G18)

SCALE: 1"=2'

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
AUG 2 2018
DATED _____ FILE # 17-0276
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE

DESCRIPTION	IP-Z
TOP OF POND ELEVATION	160.00
100 YEAR STORM ELEVATION	159.12
10 YEAR STORM ELEVATION	158.75
1 YEAR STORM ELEVATION	157.90
BOTTOM OF POND ELEVATION	157.00
SEASONAL HIGH GWT ELEVATION	154.00
SOIL EVALUATION	TH-15

NOTE:
LIMITS OF INFILTRATION POND TO BE STAKED OUT AND NOT USED AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION (NO CONSTRUCTION TRAFFIC ALLOWED WITHIN POND LIMITS)



Infiltration Pond Z

NOT TO SCALE

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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Environmental Management
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BRANDON D. CARR
9801
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The contractor is responsible for all of the means, methods, safety precautions and requirements, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
0	10-11-2017	RIDEM Submission	D.R.N.
1	01-05-2018	RIDEM RFI / Order of Approval	D.R.N.
2	04-05-2018	RIDEM Response to Comments	D.R.N.
3	05-02-2018	Order of Approval Response to Comments	D.R.N.
4	06-07-2018	RIDEM Response to Comments	D.R.N.
5	07-16-2018	RIDEM Response to Comments	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Underground Systems F & G
Smithfield Village

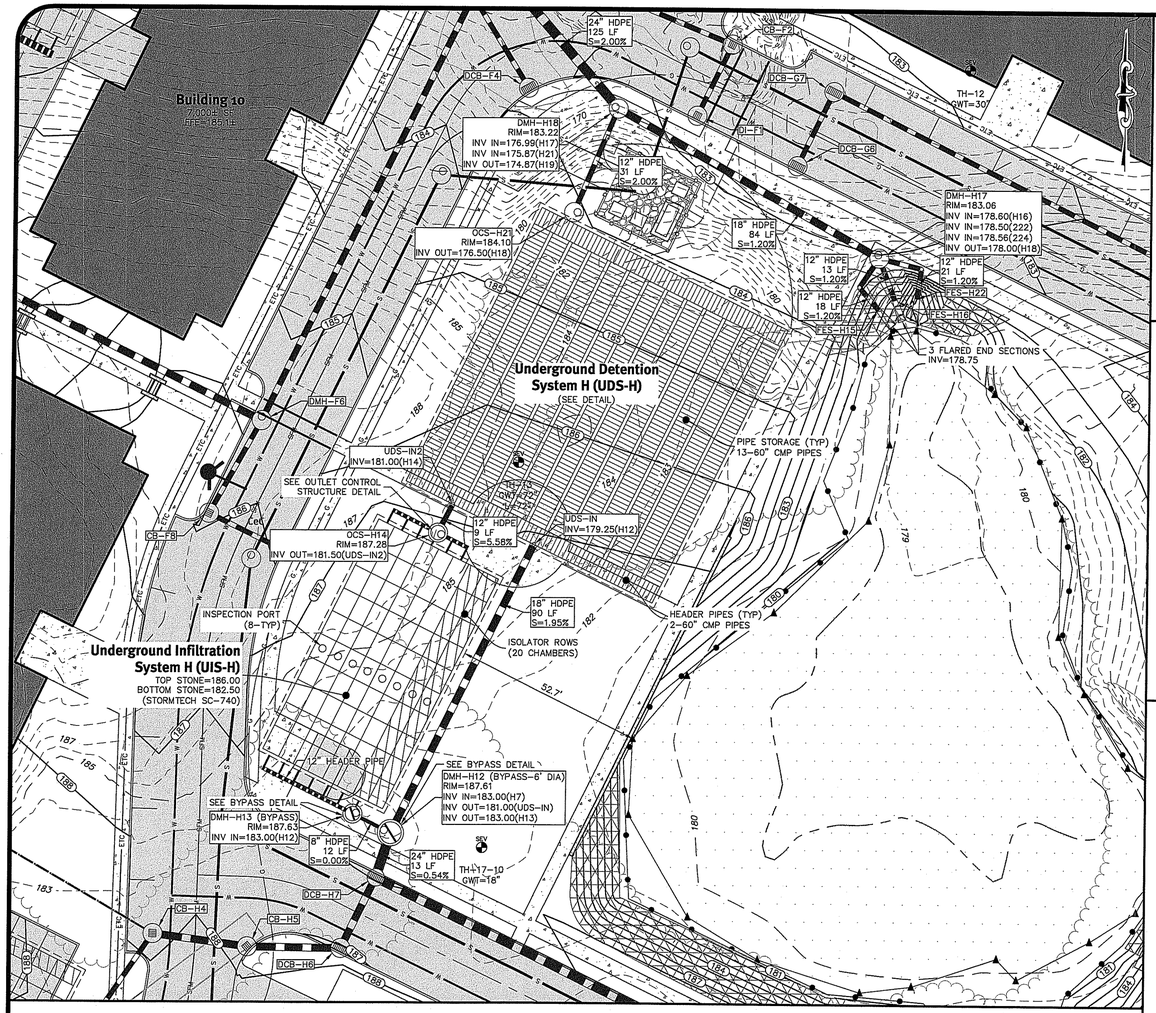
AP 29 Lot 66A, AP 29 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-3010

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SHEET 26 OF 30

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Underground Infiltration/Detention System H (UIS-H & UDS-H)

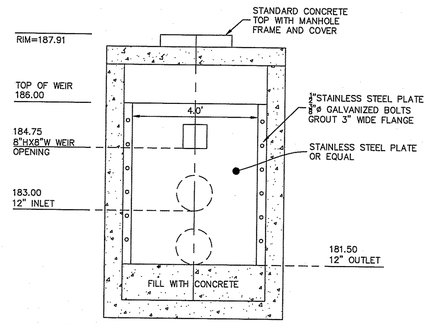
Scale: 1"=30'
0 15' 30' 60'

NOTE:
SEE SHEET 22 FOR TYPICAL STORMTECH UNDERGROUND INFILTRATION DETAILS AND SECTION VIEWS

DESCRIPTION	UIS-H	UDS-H
TOP OF STONE ELEVATION	186.00	182.50
MINIMUM COVER ELEVATION	187.33	184.00
BOTTOM OF STONE ELEVATION	182.50	177.00
BOTTOM OF CHAMBERS/PIPES	183.00	177.50
100 YEAR STORM ELEVATION	185.66	182.33
10 YEAR STORM ELEVATION	185.55	179.54
1 YEAR STORM ELEVATION	185.19	177.91
SEASONAL HIGH GWT ELEVATION	180.50*	178.00
SOIL EVALUATION	TH-17-10	TH-13

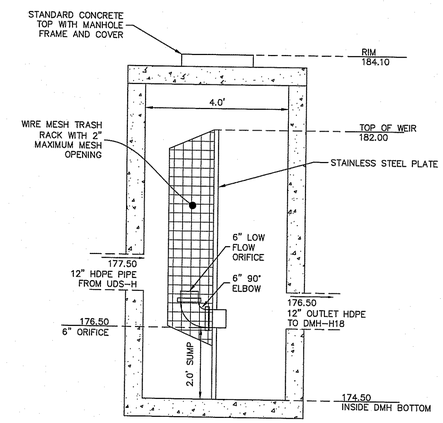
* UIS-H RECIEVES STORMWATER FROM RESIDENTIAL BUILDINGS/ROADWAYS. MINIMUM SEPARATION TO GWT IS 2 FT FOR RESIDENTIAL USES.

UIS-H & UDS-H System Parameters



UIS H Outlet Control Manhole (OCS-H14)

SCALE: 1"=2'



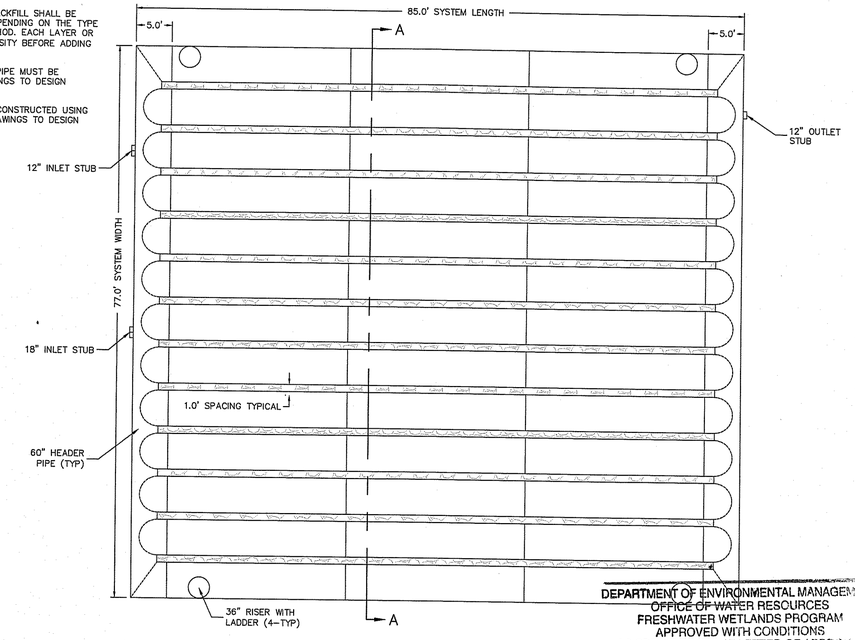
SECTION VIEW

UDS-H Outlet Control Structure (OCS-H21)

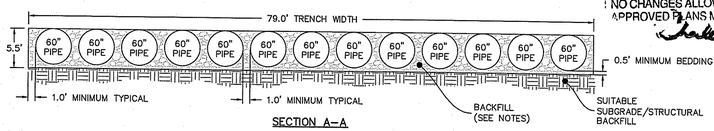
SCALE: 1"=2'

NOTES:

1. STRUCTURAL BACKFILL MATERIAL: SELECT MATERIALS SUCH AS BANK RUN GRAVEL OR OTHER PROCESSED GRANULAR MATERIALS LESS THAN 3 IN. MAXIMUM WITH EXCELLENT STRUCTURAL CHARACTERISTICS ARE PREFERRED. CONTRACTOR TO PROVIDE SIEVE ANALYSIS OF BACKFILL MATERIAL TO DESIGN ENGINEER PRIOR TO CONSTRUCTION.
2. STRUCTURAL BACKFILL PLACEMENT: STRUCTURAL BACKFILL SHALL BE PLACED IN LAYERS FROM 6 TO 12 IN. IN DEPTH DEPENDING ON THE TYPE OF MATERIAL AND COMPACTION EQUIPMENT OR METHOD. EACH LAYER OR "LIFT" SHALL BE COMPACTED TO 95% PROCTOR DENSITY BEFORE ADDING THE NEXT.
3. PIPE SHALL BE HDPE OR ALUMINIZED TYPE 2. ALL PIPE MUST BE WATERTIGHT. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO DESIGN ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
4. HEADER PIPE CAN BE CUSTOM MANUFACTURED OR CONSTRUCTED USING PIPE FITTINGS. CONTRACTOR TO PROVIDE SHOP DRAWINGS TO DESIGN ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.



PLAN VIEW
NOT TO SCALE

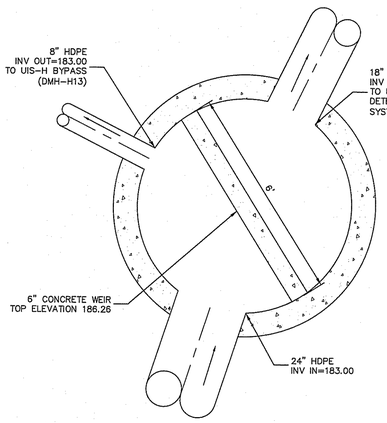


SECTION A-A

Underground Detention System

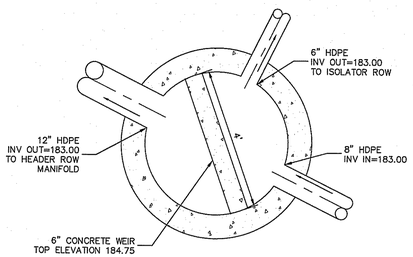
NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DATED AUG 9 2018 FILE # 17-0290
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



WQ Bypass DMH-H12 (6'Ø Manhole)

SCALE 1"=2'



Isolator Row Bypass DMH-H13 (4'Ø Manhole)

SCALE 1"=2'

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
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Environmental Management
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9801
6/13/2018
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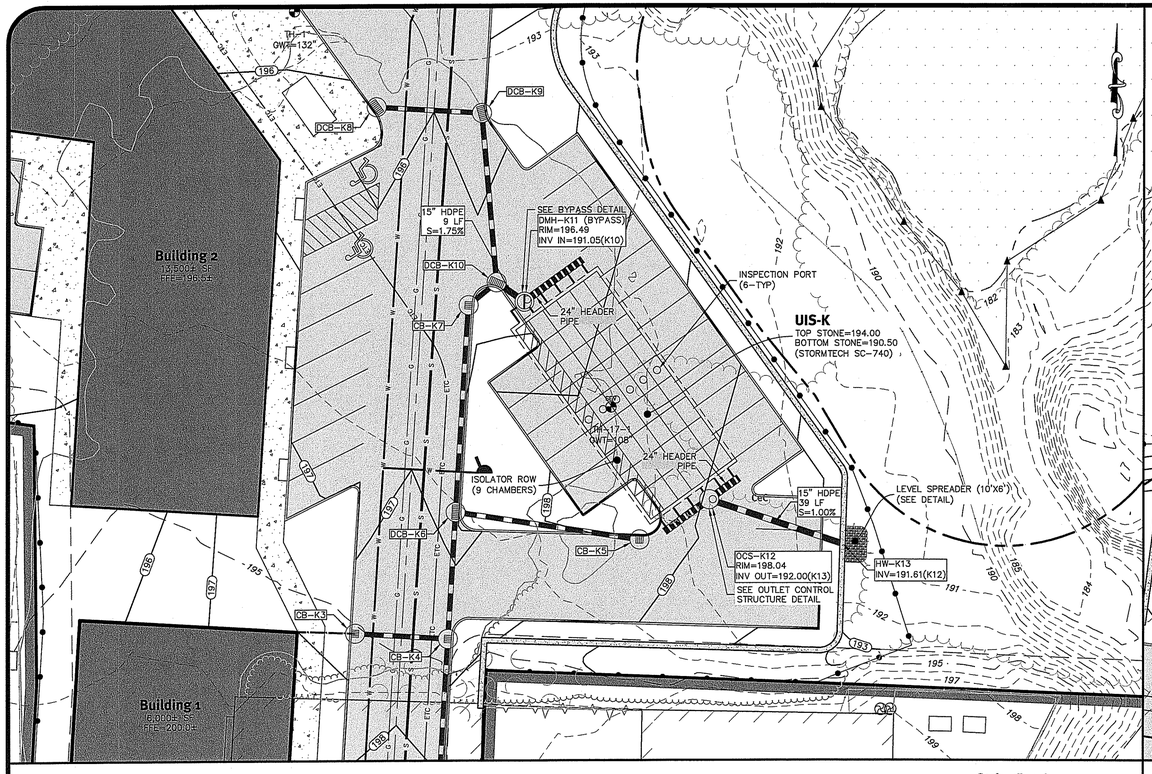
No.	Date	Description	By
		Design By: B.D.C.	
		Drawn By: D.R.N.	
5	06-12-2018	RIDEM Response to Comments	D.R.N.
4	06-08-2018	Order of Approval Response to Comments	D.R.N.
3	06-06-2018	RIDEM Response to Comments	D.R.N.
2	05-10-2018	RIDEM Response to Comments	D.R.N.
1	03-06-2018	RIDEM REC / Order of Approval	D.R.N.
	10-31-2017	Initial Submission	D.R.N.

Underground System H
Smithfield Village
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 304, 31 & 314, AP 35 Lots 13 & 21
Smithfield, Rhode Island
Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-272-8000

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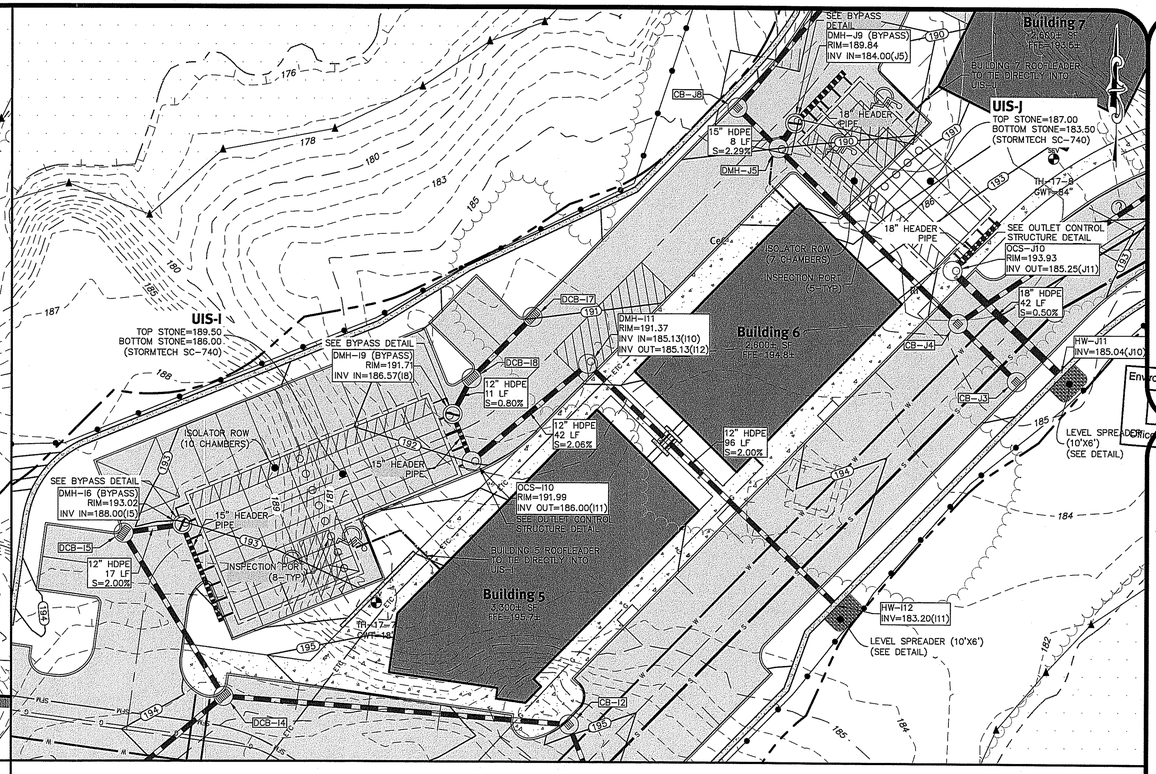
SHEET 27 OF 30

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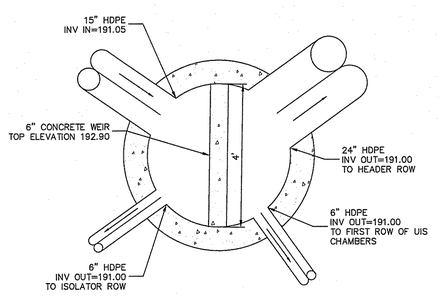
Underground Infiltration System K (UIS-K)

Scale: 1"=20'
0 10' 20' 40'



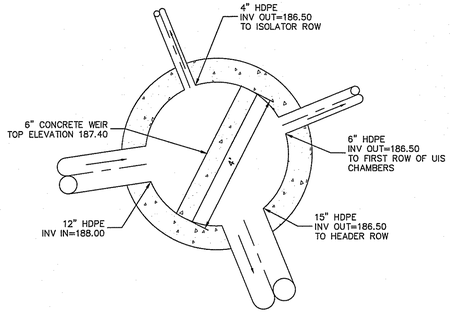
Underground Infiltration Systems I & J (UIS-I & UIS-J)

Scale: 1"=20'
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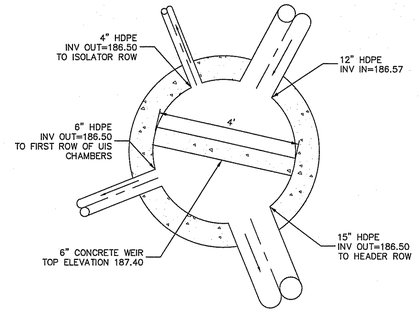
Isolator Row Bypass DMH-K11 (4'Ø Manhole)

SCALE 1"=2'



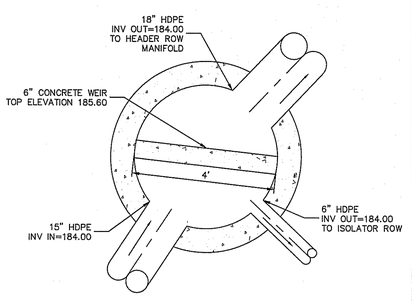
Isolator Row Bypass DMH-I6 (4'Ø Manhole)

SCALE 1"=2'



Isolator Row Bypass DMH-I9 (4'Ø Manhole)

SCALE 1"=2'



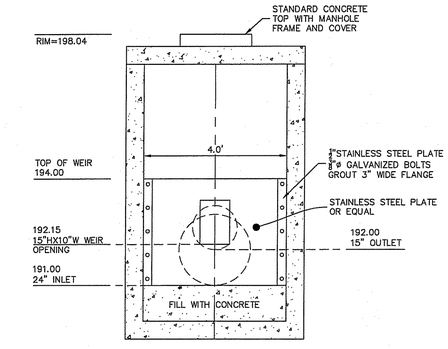
Isolator Row Bypass DMH-J9 (4'Ø Manhole)

SCALE 1"=2'

NOTE:
SEE SHEET 22 FOR TYPICAL STORMTECH UNDERGROUND INFILTRATION DETAILS AND SECTION VIEWS

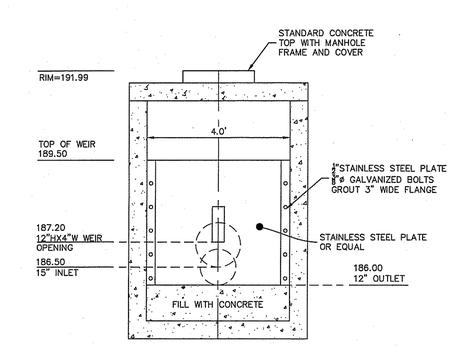
DESCRIPTION	UIS-I	UIS-J	UIS-K
TOP OF UIS STONE ELEVATION	189.50	187.00	194.00
MINIMUM COVER ELEVATION	190.83	188.33	195.33
BOTTOM OF UIS STONE ELEVATION	186.00	183.50	190.50
BOTTOM OF CHAMBERS ELEVATION	186.50	184.00	191.00
100 YEAR STORM ELEVATION	189.41	186.59	193.86
10 YEAR STORM ELEVATION	187.89	186.01	192.75
1 YEAR STORM ELEVATION	187.02	184.81	191.48
SEASONAL HIGH GWT ELEVATION	178.00	179.00	184.00
SOIL EVALUATION	TH-17-17	TH-17-8	TH-17-1

UIS-I, UIS-J & UIS-K System Parameters



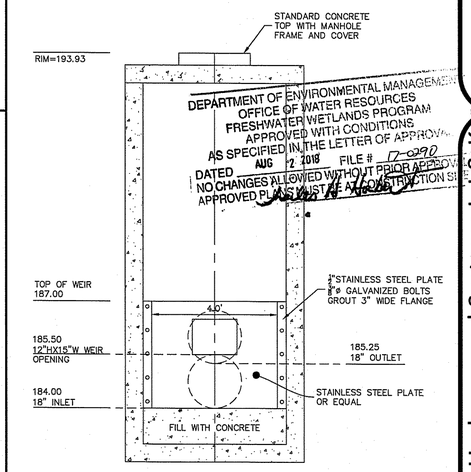
UIS K Outlet Control Manhole (OCS-K12)

SCALE: 1"=2'



UIS I Outlet Control Manhole (OCS-I10)

SCALE: 1"=2'



UIS J Outlet Control Manhole (OCS-J10)

SCALE: 1"=2'

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
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Environmental Management
JUL 16 2018
Division of Water Resources

BRANDON D. CARR
9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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The contractor is responsible for all of the means, methods, safety precautions and requirements, and all construction in the implementation of this plan and design.

No.	Date	Description	By
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	Order of Approval Response to Comments	D.R.N.
3	05-25-2018	RIDEM RFI - Order of Approval	D.R.N.
2	04-26-2018	RIDEM RFI - Order of Approval	D.R.N.
1	01-05-2018	RIDEM RFI - Order of Approval	D.R.N.
	12-15-2017	Preliminary Submission	D.R.N.

Drawn By: D.R.N. Design By: B.D.C.

Underground Systems I, J & K

Smithfield Village

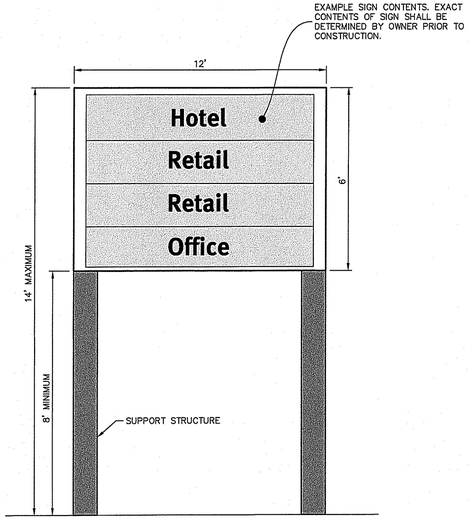
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 25 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel (401-272-8010

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SHEET 28 OF 30

z:\clients\projects\0717-022\br putnam pike\autocad drawings\0717-022-bmps.dwg Plotted: 6/13/2018

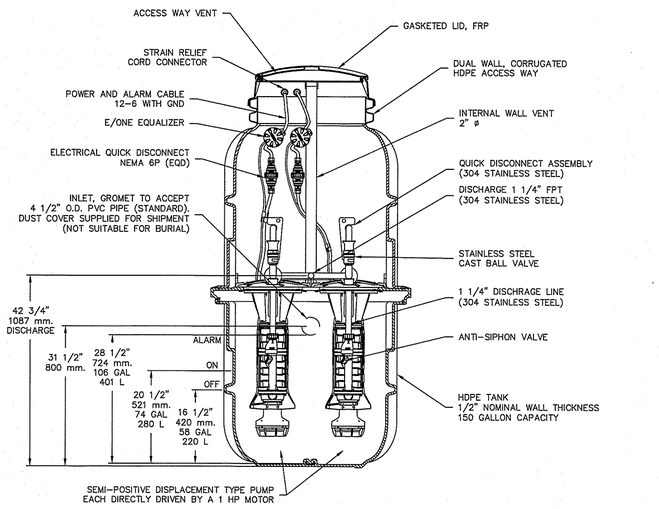


Pylon Sign Detail

NOT TO SCALE

OPTIONS:

- ☐ DH152 (HARD WIRED LEVEL CONTROLS)
- ☐ DR152 (WIRELESS LEVEL CONTROLS)

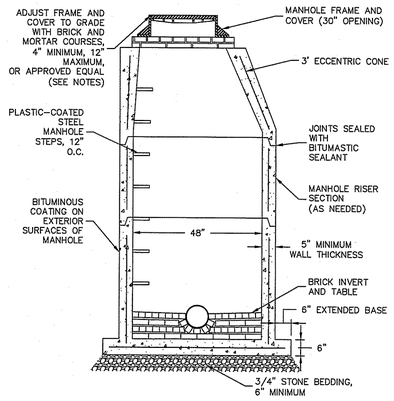


NOTE:
1. CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS
2. FIELD JOINTS REQUIRED FOR BOTH MODELS

E/One Sewer Systems Pump - Model DH152/DR152 (NA0052P02)

NOT TO SCALE

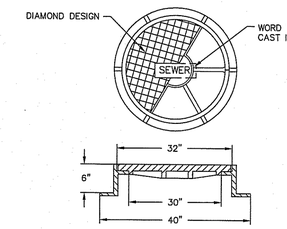
NOTES:
1. MANHOLE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM-C478.
2. INVERT AND TABLE SHALL CONSIST ENTIRELY OF BRICK AND MORTAR. NO SAND FILLER SHALL BE ALLOWED.
3. MANHOLES SHALL BE VACUUM TESTED PRIOR TO ACCEPTANCE, IN ACCORDANCE WITH THE SEWER AUTHORITY SANITARY RULES AND REGULATIONS. UNDER NO CIRCUMSTANCES WILL EXFILTRATION TESTING BE ACCEPTED.
4. BOLTED AND GASKETED COVERS SHALL BE USED ON MANHOLES IN OFF-ROAD AREAS.
5. TAPPING OF MANHOLES MUST BE AUTHORIZED AND INSPECTED BY THE SEWER AUTHORITY. THE ONLY APPROVED METHOD FOR TAPPING MANHOLES SHALL BE BY CORE-DRILLING THE MANHOLE AND INSTALLING A "KOR-N-SEAL" BOOT.
6. PRECAST CONCRETE GRADE RINGS, HDPE GRADE RINGS, OR OTHER RIM ADJUSTMENT PRODUCTS MAY BE USED IN LIEU OF BRICK AND MORTAR WITH THE PERMISSION OF THE SEWER AUTHORITY.



Sewer Manhole

NOT TO SCALE

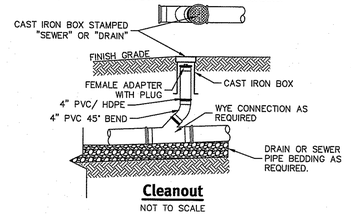
NOTE:
1. SEWER MANHOLE FRAME AND COVER SHALL BE LEBARON MODEL LC326-2 OR APPROVED EQUAL.



Water-Tight Sewer Manhole Frame & Cover Detail

NOT TO SCALE

NOTES:
1. ALL PIPE AND FITTINGS SHALL BE GASKETED SDR-35 PVC FOR SEWER, OR HDPE PIPE FOR DRAINAGE.
2. PIPE BEDDING AND BACKFILL FOR CLEANOUTS SHALL MEET APPLICABLE DRAINAGE AND SEWER SPECIFICATIONS UNLESS OTHERWISE NOTED BY ENGINEER.
3. FOR SEWER CLEANOUTS, A MINIMUM OF ONE CLEANOUT SHALL BE PLACED ON EACH LATERAL, 5' FROM THE STRUCTURE. FOR LONGER RUNS, CLEANOUTS SHALL BE LOCATED EVERY 100'. FOR DRAIN CLEANOUTS SEE PLANS FOR LOCATION AS REQUIRED.
4. ALL CLEANOUTS SHALL BE SLEEVED WITH A CAST-IRON BOX SET FLUSH WITHIN THE FINAL GRADE OF GRASS, HARDSCAPE, ROADWAYS OR CONCRETE AREAS. CAST IRON BOX NOT REQUIRED FOR STORMWATER BMP AREAS. COVERS SHALL BE INSCRIBED WITH THE WORD "SEWER." OR "DRAIN" ACCORDINGLY. FOR ROADWAY APPLICATIONS, THE CAST-IRON BOX MUST MEET H-20 LOADING.



Cleanout

NOT TO SCALE

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
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Boston • Providence • Newport

Environmental Management

JUL 16 2018

Office of Water Resources

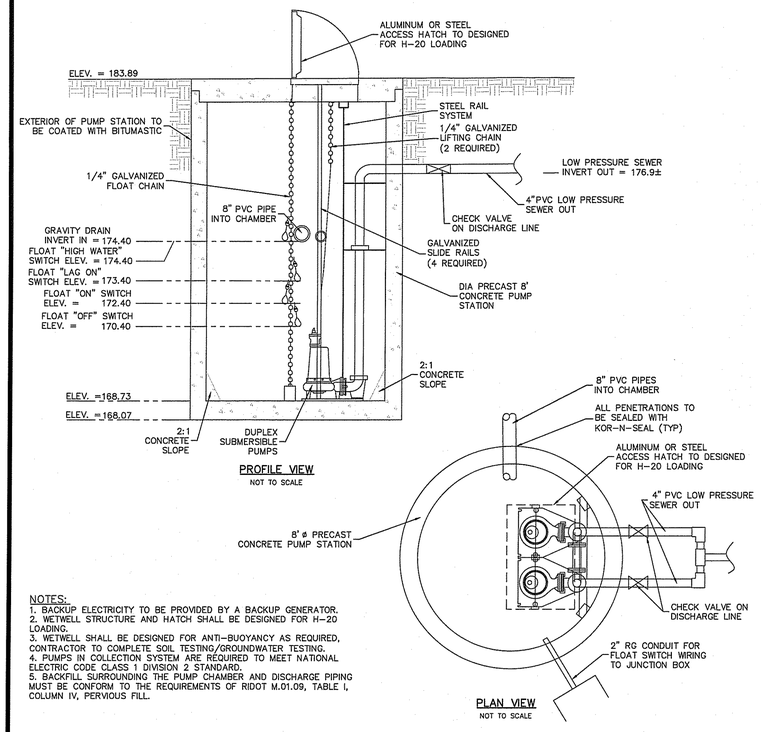
BRANDON D. CARR
9801
REGISTERED PROFESSIONAL ENGINEER
CIVIL

This regulatory submission set shall not be used for construction purposes unless stamped "Issued for Construction" and signed by a DiPrete Engineering representative.

The contractor is responsible for all of the means, methods, techniques, sequences and procedures and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
5	06-13-2018	RIDEM Response to Comments	D.R.N.
4	06-06-2018	RIDEM Response to Comments	D.R.N.
3	05-25-2018	RIDEM Letter of Approval	D.R.N.
2	04-26-2018	RIDEM Rev. 2 Submission	D.R.N.
1	03-15-2017	RIDEM Submission	D.R.N.
0	03-13-2017	RIDEM Submission	D.R.N.

Design By: B.D.C.
Drawn By: D.R.N.



PROFILE VIEW

NOT TO SCALE

PLAN VIEW

NOT TO SCALE

NOTES:
1. BACKUP ELECTRICITY TO BE PROVIDED BY A BACKUP GENERATOR.
2. WETWELL STRUCTURE AND HATCH SHALL BE DESIGNED FOR H-20 LOADING.
3. WETWELL SHALL BE DESIGNED FOR ANTI-BUOYANCY AS REQUIRED, CONTRACTOR TO COMPLETE SOIL TESTING/GROUNDWATER TESTING.
4. PUMPS IN COLLECTION SYSTEM ARE REQUIRED TO MEET NATIONAL ELECTRIC CODE CLASS 1 DIVISION 2 STANDARD.
5. BACKFILL SURROUNDING THE PUMP CHAMBER AND DISCHARGE PIPING MUST BE CONFORM TO THE REQUIREMENTS OF RIDOT M.01.09, TABLE I, COLUMN IV, PERVIOUS FILL.

Sewer Pump Station Detail

NOT TO SCALE

Sewer Line/Water Main Separation Policy For Design Of Sanitary Sewers

A. LATERAL PLACEMENT OF SEWERS AND WATER MAINS

SEWERS SHALL BE LAID AT LEAST 10' HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED OUTSIDE EDGE-TO-OUTSIDE EDGE. THERE IS NO MINIMUM VERTICAL SEPARATION REQUIRED PROVIDED THE 10' HORIZONTAL SEPARATION IS MAINTAINED.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10' HORIZONTAL SEPARATION, THE DIVISION MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATER MAIN, PROVIDED THAT:

1. THE SEWER AND WATER MAIN ARE LAID IN SEPARATE TRENCHES, OR
2. THE SEWER AND WATER MAIN MAY BE INSTALLED IN THE SAME TRENCH WITH THE WATER MAIN PLACED ON A BENCH OF UNDISTURBED EARTH, AND
3. IN EITHER CASE, THE CROWN OF THE SEWER SHALL BE AT LEAST 18" BELOW THE INVERT OF THE WATER MAIN.

IN SITUATIONS WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE FOLLOWING PROTECTION SHALL BE PROVIDED:

4. ENCASEMENT OF THE SEWER PIPE IN CONCRETE (MINIMUM 6" THICKNESS) OR A CARRIER PIPE FOR AT LEAST 10' EITHER SIDE OF THE AREA NOT COMPLYING WITH THE MINIMUM HORIZONTAL AND VERTICAL SEPARATION, OR
5. DESIGN AND CONSTRUCTION OF THE SEWER EQUAL TO WATER MAIN PIPE (CEMENT-LINED DUCTILE IRON OR OTHER AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE), AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS.

B. SEWERS CROSSING WATER MAINS

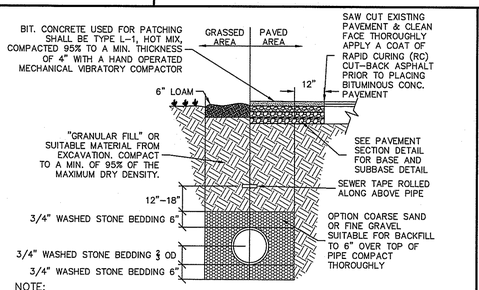
SEWERS CROSSING OVER WATER MAINS SHOULD BE AVOIDED, BUT IF CONDITIONS WARRANT THIS SITUATION, THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE. SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF 18" BETWEEN THE INVERT OF THE WATER MAIN AND THE CROWN OF THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.

WHERE CONDITIONS PREVENT AN 18" VERTICAL SEPARATION FROM BEING MAINTAINED, THE FOLLOWING METHODS SHALL BE SPECIFIED:

A. THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER MAIN PIPE (CEMENT-LINED DUCTILE IRON PIPE, PVC OR OTHER AWWA APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE) FOR A DISTANCE OF 12' ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS, OR

B. EITHER THE WATER MAIN OR THE SEWER MAY BE ENCASED IN CONCRETE (MINIMUM 6" THICKNESS) OR A CARRIER PIPE FOR A DISTANCE OF 12' ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN. THE CARRIER PIPE SHALL BE DESIGNED AND CONSTRUCTED OF MATERIALS WHICH ARE SATISFACTORY TO THE DIVISION, OR

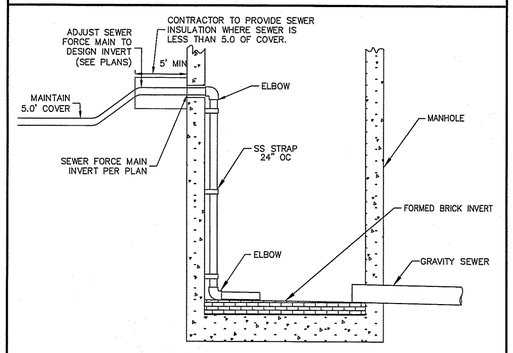
C. ANY OTHER METHODS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER, WHICH ENSURE ADEQUATE WATER TIGHTNESS AND ARE SATISFACTORY TO THE DIVISION.



NOTE:
1. WIDTH (W) OF TRENCH IS EQUAL TO THE INSIDE DIAMETER OF THE PIPE PLUS 12".
2. SOIL UNDER CRUSHED STONE FOUNDATION SHALL BE UNDISTURBED AND COMPACTED MATERIAL WITH SEVERAL PASSES OF A VIBRATORY PLATE COMPACTOR.
3. CRUSHED STONE FOUNDATION ¾" MAXIMUM SIZE, SHALL BE PLACED 6" UNDER THE PIPE ND UP TO THE PIPE LAID THEREON, CRUSHED STONE PULLED AGAINST THE PIPE SIDES TO FIRMLY HOLD THE PIPE IN PLACE.
4. CRUSHED STONE HUNCHING ¾" MAXIMUM SIZE SHALL BE BROUGHT LEVEL TO THE TOP OF THE PIPE AND OUT TO THE TRENCH WALL AT THIS ELEVATION FOR ALL PIPE.

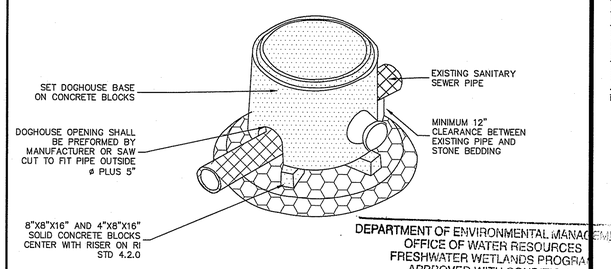
Sewer Line Trench Detail

NOT TO SCALE

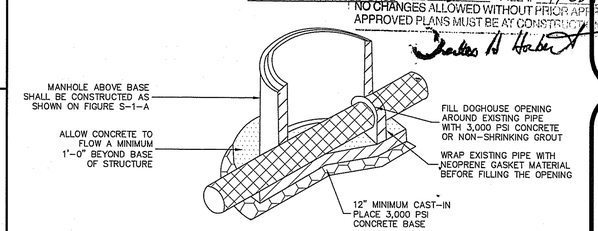


Typical Sewer Force Main Connection into Sewer Manhole

NOT TO SCALE



DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL
DOGHOUSE MANHOLE DATED: AUG 2 2018 FILE # 17-0270
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVED PLANS MUST BE AT CONSTRUCTION SITE



FOUNDATION SECTION VIEW

NOTES:
1. CONSTRUCT A FORMED INVERT FROM NEW SEWER LINE TO ALLOW FLOW TO THE EXISTING PIPE.
2. POUR A SHELF TO THE LOWER HALF OF THE EXISTING PIPE.
3. CUT AND REMOVE THE TOP HALF OF EXISTING PIPE TO WITHIN 6" OF THE MANHOLE WALLS AFTER THE INVERT AND SHELF HAVE BEEN FORMED AND THE MANHOLE HAS BEEN FULLY TESTED IN ACCORDANCE WITH THE SEWER AUTHORITY SPECIFICATIONS.

Typical Sewer Manhole Base (Doghouse Installation)

NOT TO SCALE

Detail Sheet - 1

Smithfield Village

AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

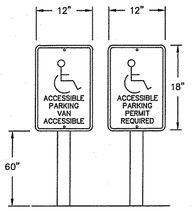
Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-272-8010

DE Job No: 0717-022-MDS

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SHEET 29 OF 30

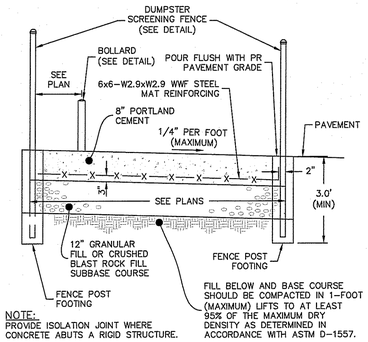
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NOTES:
1. SIGN SHALL BE PLACED BEHIND APPLICABLE VAN ACCESSIBLE OR ACCESSIBLE SPACE AS SHOWN ON SIGNAGE PLAN.
2. ACCESSIBLE PARKING SPACES AND SIGNAGE SHALL COMPLY WITH LATEST VERSION OF THE ADA STANDARDS FOR ACCESSIBLE DESIGN OR THE RI BUILDING CODE, WHICHEVER STANDARD CONTROLS.

Typical Accessible Parking Post & Sign

NOT TO SCALE

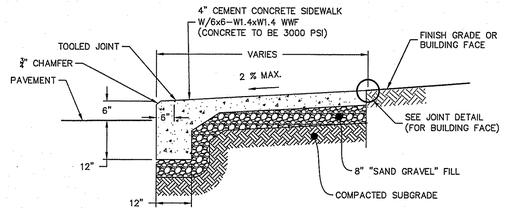


NOTE:
PROVIDE ISOLATION JOINT WHERE CONCRETE ABUTS A RIGID STRUCTURE.

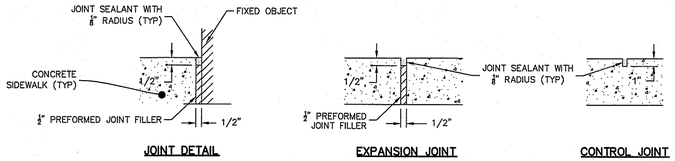
Concrete Dumpster Pad with Bollards and Fence

NOT TO SCALE

NOTE:
1. SEE SITE PLAN FOR SIDEWALK WIDTH AND GRADES.
2. SURFACE TEXTURE SHALL BE A LIGHT BROOMING, TRANSVERSE TO THE LENGTH OF THE WALK. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE, FREE OF SAGS AND SHORT GRADE CHANGES.
3. ALL IMPROVEMENTS SHALL COMPLY WITH THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG)" BY THE DEPARTMENT OF JUSTICE.
4. PROVIDE EXPANSION JOINTS AT MIN. 16 FT. O.C. WITH PREFORMED JOINT FILLER AND SEALANT.
5. PROVIDE CONTROL JOINTS AT 5' O.C.
6. SHALL BE IN ACCORDANCE WITH THE R.I. STANDARD SPECIFICATIONS.



SECTION

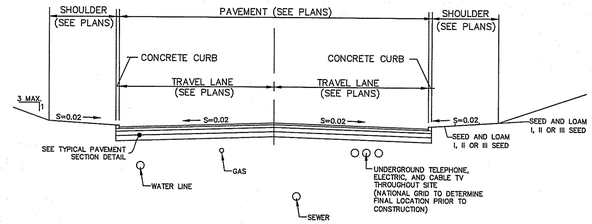


JOINT DETAIL | EXPANSION JOINT | CONTROL JOINT

Monolithic Concrete Sidewalk

NOT TO SCALE

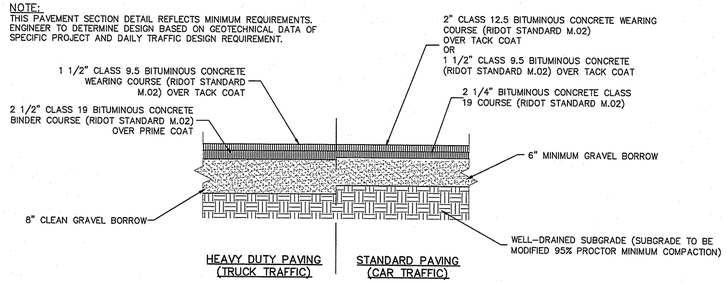
NOTE:
UNDERGROUND UTILITY TRENCH CONSTRUCTION TO CONFORM TO ALL APPLICABLE STANDARDS DETERMINED BY THE TOWN AND NATIONAL GRID PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR TO NOTIFY DIG SAFE PRIOR TO EXCAVATION.



Road Cross Section (Typical)

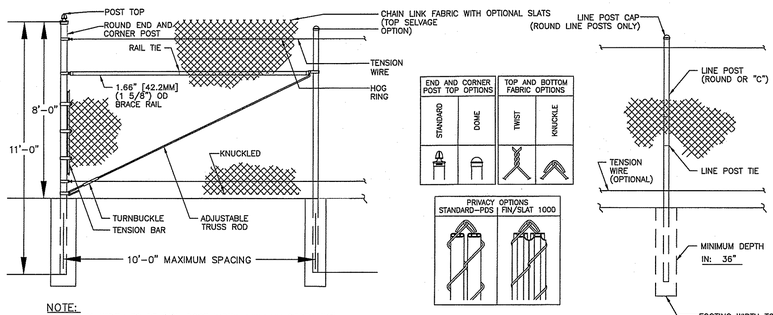
NOT TO SCALE

NOTE:
THIS PAVEMENT SECTION DETAIL REFLECTS MINIMUM REQUIREMENTS. ENGINEER TO DETERMINE DESIGN BASED ON GEOTECHNICAL DATA OF SPECIFIC PROJECT AND DAILY TRAFFIC DESIGN REQUIREMENT.



Typical Pavement Section

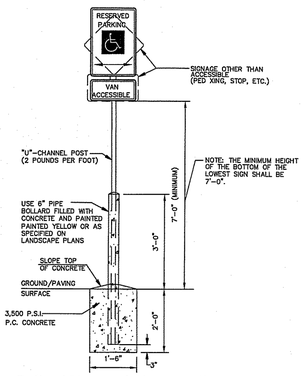
NOT TO SCALE



NOTE:
1. FOOTING WIDTH TO BE (4)X POST WIDTH. MINIMUM DEPTH 36".

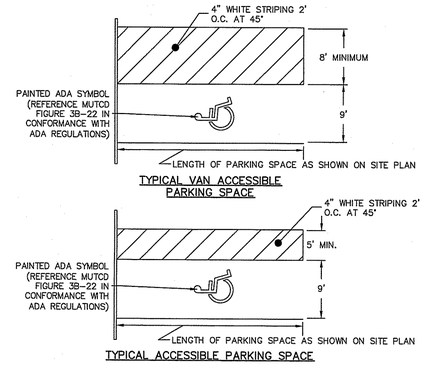
Dumpster Screening Fence Detail

NOT TO SCALE



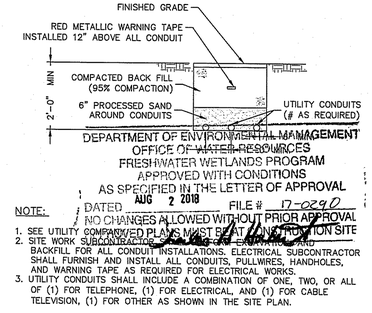
Bollard Mounted Sign Detail

NOT TO SCALE



Typical Accessible Parking Spaces

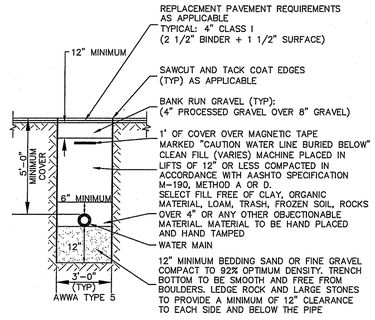
NOT TO SCALE



NOTE:
1. SEE UTILITY COMPANIES PLANS MUST BE AT CONSTRUCTION SITE
2. SITE WORK SUBCONTRACTOR SHALL BE RESPONSIBLE FOR BACKFILL FOR ALL CONDUIT INSTALLATIONS. ELECTRICAL SUBCONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS, PULLWIRES, HANDHOLES, AND WARNING TAPE AS REQUIRED FOR ELECTRICAL WORKS.
3. UTILITY CONDUITS SHALL INCLUDE A COMBINATION OF ONE, TWO, OR ALL OF (1) FOR TELEPHONE, (1) FOR ELECTRICAL, AND (1) FOR CABLE TELEVISION, (1) FOR OTHER AS SHOWN IN THE SITE PLAN.

Typical Utility Trench

NOT TO SCALE

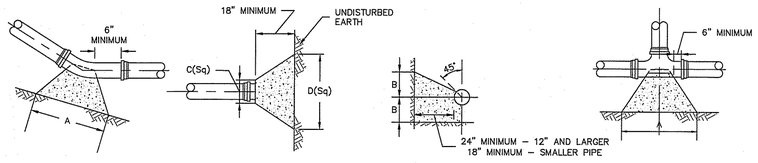


Water Trench Detail

NOT TO SCALE

NOTES:
1. ALL CONCRETE SHALL BE 4,000 P.S.I. @ 28 DAYS
2. CONCRETE THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH
3. FORMS TO BE USED AS NECESSARY
4. ALL BOLTS AND NUTS TO BE PROTECTED FROM CONCRETE AND EASILY ACCESSIBLE WHEN THRUST BLOCK INSTALLED
5. REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF RHODE ISLAND SHALL VERIFY CALCULATIONS DURING DESIGN TO MEET CONDITIONS OF PROJECT.

SIZE	TEES		PLUGS		90° BEND		45° BEND		22.5° BEND		11.25° BEND	
	A	B	C	D	A	B	A	B	A	B	A	B
6"	20"	10"	10"	21"	24"	12"	18"	9"	13"	7"	9"	5"
8"	26"	13"	12"	26"	32"	16"	24"	12"	17"	9"	12"	6"
10"	34"	17"	14"	34"	40"	20"	30"	15"	22"	11"	15"	8"
12"	41"	20"	16"	41"	48"	24"	35"	18"	25"	13"	18"	9"
16"	54"	27"	20"	54"	64"	32"	47"	23"	34"	17"	24"	12"



PLAN BENDS | PLAN & ELEVATION PLUGS | BENDS & TEES SECTIONS | PLAN TEES

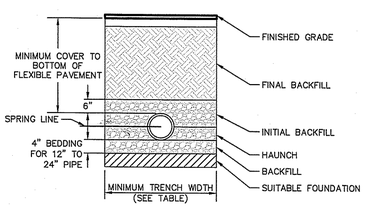
Thrust Block

NOT TO SCALE

INSTALLATION NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS, LATEST ADDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100MM) FOR 4"–24" (100MM–600MM); 6" (150MM) FOR 30"–60" (750MM–900MM).
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON–TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" ø PIPE AND 24" OF COVER FOR 54"–60" ø PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

PIPE ø	MINIMUM TRENCH WIDTH
6"	23"
8"	26"
12"	30"
15"	34"
24"	39"



HDPE Trench Detail

NOT TO SCALE

DiPrete Engineering
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Boston • Providence • Newport

Environmental Management
JUL 16 2018
Office of Water Resources

BRANDON D. CARR
9501
6/15/18
REGISTERED PROFESSIONAL ENGINEER
CIVIL

This regulatory submission set shall not be used for construction purposes unless stamped 'Issued for Construction' and signed by a DiPrete Engineering representative.

The contractor is responsible for all of the means, methods, techniques, sequences, procedures, and OSHA conformance in the implementation of this plan and design.

No.	Date	Description	By:
5.	06-13-2018	RIDEM Response to Comments	D.R.N.
4.	05-09-2018	RIDEM Response to Comments	D.R.N.
3.	04-26-2018	RIDEM RFI / Order of Approval	D.R.N.
2.	04-06-2018	RIDEM Response to Comments	D.R.N.
1.	03-13-2017	RIDEM Submission	D.R.N.
0.	10-31-2007	RIDEM Submission	D.R.N.

Design By: B.D.C.
Drawn By: D.R.N.

AUG 2 2018
DATED FILE # 17-0290
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
FOR CONSTRUCTION

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
FRESHWATER WETLANDS PROGRAM
APPROVED WITH CONDITIONS
AS SPECIFIED IN THE LETTER OF APPROVAL

Detail Sheet - 2

Smithfield Village
AP 29 Lot 66A, AP 30 Lots 20, 29, 30, 30A, 31 & 31A, AP 35 Lots 13 & 21
Smithfield, Rhode Island

Applicant
Churchill & Banks
10 Greene Street, Providence, Rhode Island 02903
tel 401-273-8010

SHEET 30 OF 30

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