

OPERATIONS & MAINTENANCE REPORT

**Woonasquatucket Greenway
Promenade Street, Kinsley Avenue, & Eagle Street
Providence, Rhode Island**

Prepared for:

City of Providence

Prepared by:

Horsley Witten Group, Inc.

DRAFT:

July 2021

Horsley Witten Group
Sustainable Environmental Solutions

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401-272-1717 • horsleywitten.com



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8/2/2021

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Woonasquatucket River Greenway Green Stormwater Infrastructure (GSI) Projects

STORMWATER OPERATION AND MAINTENANCE PLAN

1.0 INTRODUCTION

All stormwater management and controls are to be operated and maintained appropriately during regular operation of the site in the post-construction period. The Owners are to provide, inspect, and maintain all stormwater management and controls.

The following document provides the operation and maintenance (O&M) requirements for the Woonasquatucket River Greenway (WRG) street-side GSI, located along Eagle Street, Kinsley Ave, Providence Plaza and Promenade Street in Providence, Rhode Island. The stormwater controls identified in the plan provided in **Appendix A**, will be inspected regularly to prevent deficiencies in the effectiveness of the systems due to sediment build-up, damage, or deterioration. Permanent stormwater controls are to be operated and maintained appropriately during the regular operation of the site in the post-construction period as well as during the construction phase of the project.

2.0 RESPONSIBILITY FOR OPERATION AND MAINTENANCE

Owners: City of Providence Department of Public Works (DPW) Woonasquatucket River Watershed Council (WRWC)

Contacts: TBD TBD

Responsibility for the maintenance of the GSI and other stormwater structures is split between the DPW and WRWC, who together are responsible for the continuous operation and maintenance of the stormwater BMPs and associated drainage areas.

DPW responsibility includes:

- Drain inlets, catch basins, and drainage pipe piping.
- Catch basin sump maintenance including those associated with irrigating tree cells.
- Underdrains, cleanouts, and outlet structures within the bioretention areas
- Street sweeping

WRWC responsibility includes:

- Maintenance of the bioretention area forebays, inlet structures, and ponding areas
- Care of plants and ground cover within the bioretention areas

See **Appendix B** for a graphic of the division of responsibility.



3.0 GSI FUNCTION

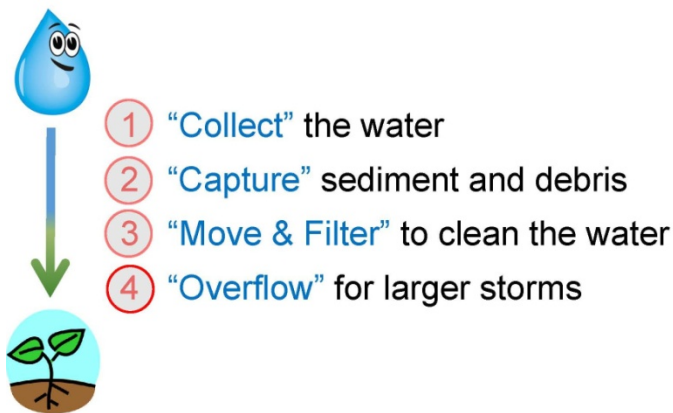
This section provides a general description and function of the GSI stormwater management system at the site. The areas to be maintained includes the following as shown in **Appendix A**.

Stormwater Areas

- Bioretention Areas
- Irrigating Tree Cells
- Associated Catch Basins, Manholes, and Drainage Pipes

How Does Green Infrastructure Work?

GSI practices are incorporated into the overall site improvements and landscape. GSI is nature-based approach to stormwater treatment and management. These stormwater practices or “treatment areas” are designed to mimic nature and use the natural filtration properties of soil and plants to remove pollutants from stormwater runoff prior to discharging to the City owned municipal drainage system. GSI relies on the following four basic steps to function properly. These four steps will be referenced throughout this Guide.



If one of these steps does not function properly, the entire system can be compromised and the area itself could be contributing to maintenance problems. This can lead to a landscape nuisances, more frequent maintenance, and costly repairs or improvements.

4.0 MAINTENANCE & INSPECTION SCHEDULE AND TASKS

The maintenance objective for these practices includes maintaining the hydraulic and pollutant removal capacity of the systems and maintaining healthy native, vegetative cover. This section describes the required O&M measures for each site. Also included is a plan showing the location of the items to be inspected and maintained (**Appendix A**), as well as a specific O&M Maintenance Checklists (**Appendix C**) that Maintenance Staff can use during inspections.

During the six months immediately after construction, all BMP practices should be inspected monthly as well as after precipitation events of at least 1.0 inch to ensure that the system is functioning properly. The following activities are recommended during the first six month after

construction and will be the responsibility of the WRWC with oversight and assistance from City DPW:

- Inspection of bioretention areas inlet, swale, sediment forebay, and side slopes for erosion gullyng. Repair/re-vegetate as necessary.
- Proper grass seed establishment and satisfactory growth. Additional loam and overseeding may be required within the first 6 months to correct bare spots and thin growth.
- Watering as required to establish and maintain grass.
- Loam and seed any void areas or washouts along the bioretention bed caused by precipitation runoff.

Thereafter, inspections shall be conducted twice annually (spring and fall) and after major storm events, which are those greater than or equal to the 1-year, 24-hour precipitation event (2.71" in Providence County). The following tasks are recommended as specified or as needed basis and broken into four main categories as identified on the attached O&M Site Plan.

4.1 COLLECT (Inflow) – Drainage Conveyance Structures

Stormwater runoff is collected from the paved surface via overland flow through the following structures.

- **Catch Basins**
- **Curb Inlets**
- **Drop Inlets**

All drainage conveyance structures should be inspected annually (spring and fall) and after major storm events to monitor for proper operation, collection of solids, litter and/or trash, and structural deterioration. The structures should be cleaned annually, or when the depth of sediment impedes proper flow. Curb Inlets should be inspected for sediment build-up at entrances, which may cause blockage and re-direction of flow away from the applicable facility. Accumulated sediment shall be removed and disposed of properly.

The catch basins, manholes and pipes will be cleaned annually or when the depth of sediment exceeds one half the sump depth and repaired when required. Sediments shall be removed by clamshell or vacuum-truck; they will not be removed by flushing. Collected sediment will be disposed of properly in a pre-approved off-site location.

4.2 CAPTURE – Pretreatment Practices

Stormwater is directed from the drop inlets and catch basins via HDPE pipe. The catch basins capture sediment and debris in the sump then discharge to the bioretention areas or the existing drainage network.

The curb inlets direct runoff from the roadway into the sediment forebays of the bioretention areas.



Sediment Forebay (Bioretention Areas): The sediment forebay functions as pretreatment for the primary practice. A general inspection and maintenance of the forebay shall be conducted twice annually (spring and fall) and after major storm events. Maintenance work consists of the following:

- Removal of any trash and/or debris.
- Removal of sediment when buildup is greater than or equal to 2 inches. Sediment should be removed by hand or shovel in all typical sediment forebays. Any plants damaged or removed during sediment removal should be replaced with the same plant genus and species to be provided by landscape architect. Sediment shall be disposed of off-site in a pre-approved location.
- Correction of any side slope erosion gully, animal burrowing or slope slumping, and replanting as necessary.
- Correct any settling of the weirs/check dams between the sediment forebay and the primary treatment area. Ensure that weirs/check dams are level. Correct any erosion that has occurred around the edges of the weir.
- Remove and replace vegetation as necessary, using the appropriate species to be provided by landscape architect.

4.3 MOVE & FILTER - Stormwater Treatment Practices

The stormwater filtering and infiltrating systems should be regularly inspected to ensure proper performance and to prevent deficiencies in the effectiveness of the systems due to sediment build-up, damage, or deterioration. The following operation and maintenance provisions should be provided:

Filtering Systems

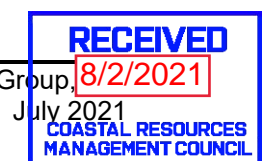
Bioretention Areas

General maintenance of the bioretention area falls under landscaping practices. A general inspection and maintenance of the bioretention area shall be conducted twice annually (spring and fall) and after major storm events. Maintenance work consists of the following:

- Removal of any trash and/or debris.
- Correction of any side slope erosion gully, animal burrowing or slope slumping, and replanting as necessary.
- If standing water is observed in the bioretention 48 hours after a storm event, the top 6 inches of the bioretention soil/mulch area shall be roto-tilled or cultivated to breakup any hard-packed sediment and replenished with mulch and replanted. The underdrain system shall be snaked and/or flushed. Replant with species as shown on Construction Plans.
- In a worst-case scenario, the entire filter bed may need to be re-installed. Upon failure, excavate bioretention soil, rake the pea gravel to loosen, inspect underdrain trench to determine if it has been compromised, repair as necessary, replace soil, replant, and mulch.

Plant maintenance is critical to the function of the bioswales and should include the following:

- Cut back grasses, sedges, and rushes annually in the spring.



- Remove and replace vegetation as necessary, using the appropriate species as shown on the Construction Plans. If at least 50 percent vegetation coverage is not established after two years, a reinforcement planting should be performed. When replacing a plant, place the new plant in the same location as the old plant, or as near as possible to the old location. The exception to this recommendation is if plant mortality is due to initial improper placement of the plant (i.e., in an area that is too wet or too dry) or if diseased/infected plant material was used and there is risk of persistence of the disease or fungus in the soil. The best time to plant is in early to mid-fall or early to mid-spring. Plants should be planted as soon as possible after purchase to ensure the best chance of survival. If possible, new plants should be approximately the same size as those that are being replaced. If surrounding plants have already become well established, care may need to be given to the new plants to ensure successful growth.
- Plant Thinning: Separation of herbaceous vegetation rootstock should occur when over-crowding is observed, or approximately once every 3 years.
- Mowing: Mowing of the bioretention area is NOT necessary or recommended. By design, plants in bioretention areas are meant to flourish throughout the growing season, leaving dry standing stalks during the dormant months. When mowing near bioretention areas, either use a mulching blade, or point the mower away from the bioretention area. Fresh grass clippings are high in nitrogen and should not be applied to bioretention areas, as they will compromise the facility's pollutant reduction effectiveness.
- Weeding: Weeding should be limited to invasive and exotic species, which can overwhelm the desired plant community. However, native non-invasive volunteer species are often desirable, as they add to the diversity of the plant community. Non-chemical methods (hand pulling and hoeing) are preferable; chemical herbicides should be avoided.
- Fertilizing: Proper selection of plant species and support during establishment of vegetation should eliminate the need for fertilizers and pesticides.
- Watering: Watering is necessary during the first few weeks after planting, and during drought conditions. During drought conditions, plants should be watered a minimum of every seven to ten days.

Bioretention Maintenance Schedule		
<i>General Maintenance</i>		
Task	Frequency	Time of the Year
Site Inspection	Min. once per year & after major storm events.	Spring thru Fall
Debris removal	Min. once per year & after major storm events.	Spring thru Fall
Sediment removal	Min. once per year or when sediment is > 3" in sediment forebay; Ensure sediment does not cause blockage of flume inlet	April



<i>Plant Maintenance</i>		
Task	Frequency	Time of the Year
Plant Cutting/Thinning	Annually	Early Spring
Weeding	As needed	April-October
Watering	Drought conditions only	July-August
Plant Replacement	As required	Spring or Fall preferred
Fertilizing	Should not be required	
<i>Mulch Maintenance</i>		
Task	Frequency	Time of the Year
Remove & replace existing mulch	Once every two years or as required	April
Re-mulch void areas	Min. 2x per year & after major storm events as needed	July & November
<i>Filter Bed Maintenance</i>		
Task	Frequency	Time of the Year
Tilling	As needed	If standing water does not drain after 48 hours
Soil Media Replacement	As needed	If standing water does not drain after tilling (see above)
Snow Removal	Not required	Not required

Irrigating Systems

Irrigating Tree Cells

These systems allow gradual uptake of stormwater by the trees planted within the cells. A general inspection and maintenance of the cells shall be conducted once annually (spring) and after major storm events. Maintenance work consists of the following:

- Inspection, cleaning and repair of inlets.
- Remove any bottles, cans or large debris. Evacuate accumulated sand/trash and other matter with designated equipment.
- Remove any debris or obstruction surrounding the overflow/outlet pipes.
- Inspecting all cells at least once a year.
- The catch basins sump will be cleaned annually or when the depth of sediment exceeds one half the sump depth and repaired when required. Sediments shall be removed by clamshell or vacuum-truck; they will not be removed by flushing. Collected sediment will be disposed of properly in a pre-approved off-site location.



OVERFLOW – Outlets

When the capacity of the storage is exceeded the treatment practices will direct the overflow runoff. When the water level exceeds the capacity of the tree cell or bioretention areas, overflow is discharged back into the existing drainage system.

Maintenance work consists of the following:

- Trash & Debris Removal at the grates or inlets
- Keep clear and remove trash and leaf litter accumulation.

4.4 SURROUNDING AREA - Other Routine Maintenance

Other routine maintenance should include removal of trash and litter from paved and perimeter areas, and street sweeping a minimum of once per year after the spring thaw. The pipes draining the site should be inspected annually for proper operation. Specific considerations when maintaining the parking lots, roadway surfaces, and grounds are as follows:

- Pet Waste Removal: Pet waste should be picked up and disposed of properly to reduce bacteria levels in stormwater.
- Snow Removal: Plowed or shoveled snow piles should not block the flume inlet structure or be placed in the bioretention area. Note that snow removal is NOT recommended in the bioretention area.
- De-icing: When de-icing compounds are necessary for the parking lot and sidewalk, the least harmful chemicals should be used. Excessive salting of the parking lot/sidewalks should be avoided. Use of large amounts of sand should also be avoided, since it may obstruct the conveyance system. Ice removal is NOT recommended in the bioretention area.



5.0 LONG-TERM POLLUTION PREVENTION PLAN

Long-term pollution prevention measures implemented at each project site will further reduce pollutants in stormwater discharges after construction. The following practices will be employed on an on-going basis.

Spill Prevention and Control Measures

To minimize the risk of spills or other accidental exposure of materials and substances to stormwater runoff, the following material management practices will be used throughout the project:

- An effort will be made to store only enough products required for operation and maintenance of the facility.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, the maximum amount of a product will be used before disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed.
- The site superintendent will be issued the O&M to ensure proper use and disposal of materials.

To reduce the risk associated with hazardous materials used on the site, the following practices will be used:

- Products will be kept in original containers unless they are not resealable.
- Original labels and material safety data sheets will be retained and kept on-site; they contain important product information.
- If surplus product must be disposed of, manufacturers' or local and state recommended methods for proper disposal will be followed.

Materials or substances listed below may be present on-site for operation and maintenance:

- Materials List:
 - Concrete
 - Fertilizers
 - Asphalt
 - Petroleum Based Products
 - Paints (enamel and latex)
 - Cleaning Solvents
 - Wood
 - Tar
 - Adhesives
 - Sealants

The following product-specific practices will be followed on-site:

- Petroleum Products - All on-site vehicles will be monitored for leaks and receive preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which area clearly labeled. Any asphalt substances



used on-site will be applied according to the manufacturers' recommendations.

- **Fertilizers** – Fertilizers shall be slow release, low-nitrogen types (< 5%) and phosphorous free and shall not be used within 25 feet of a resource area. Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Products will be stored in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.
- **Paints** – All containers will be tightly sealed and stored indoors when not required for use. Excess paint will not be discharged to the storm and/or sewer system but will be properly disposed of according to the manufacturers' instructions or state and local regulations.
- **Concrete Trucks** – Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.

Lawn/Landscaping Maintenance

Lawn and landscaping maintenance will be conducted with minimal use of fertilizers and pesticides to protect nearby water resources. Fertilizers utilized for landscaping and lawn care shall be slow release, low-nitrogen types (< 5%) and phosphorous free and shall not be used within 25 feet of a resource area. Pesticides and herbicides shall not be used within 100 feet of a wetland resource area. Fertilizer will be applied a maximum three times during the growing season, and pesticides will be applied sparingly, as needed, following the manufacturer's directions for application. Any fertilizer/pesticide that lands on paved surfaces such as sidewalks and/or parking areas will be swept up and removed immediately to prevent it from entering the storm drain network. Geese will be discouraged from foraging on the lawn areas to reduce nutrient and bacteria inputs from their droppings.

Pet Waste Management

Field users will be encouraged to pick up after their pets with signage along lawn areas.

Solid Waste Management

Trash receptacles will be provided on-site for solid waste management at the site during facility operations.

Snow Management/Removal Plan

Plowed snow collected from the roadway will not be directed to the bioswales.

Pavement Sweeping Schedules

The roadway will be swept annually after spring snowmelt.

Illicit Discharges

All wastewater will be connected to in approved locations.

Personnel Training

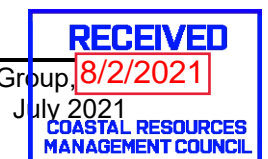
All contracted personnel or city employees retained to maintain the site will be given a copy of this Plan and will receive training in applicable practices and implementation to prevent pollutants from entering the stormwater system.



6.0 ESTIMATED OPERATION AND MAINTENANCE BUDGET

The estimated average annual operating and maintenance budget for the proposed system is shown below:

Bioretention Areas (11):	\$11,000
Source: Center for Watershed Protection (CWP)	(\$1,000/each)
Tree Cell Irrigation System (1):	\$1,000
	(\$1,000/system)
Catch Basins, Drop Inlet, Drain Manholes (50):	
	\$10,000
Source: Massachusetts Highway Department	(\$200/basin)
Other Routine Maintenance:	\$3,000
Removal of trash and litter	
Pipe network/outlet inspections	
Landscape/planting maintenance	
Total:	\$25,000



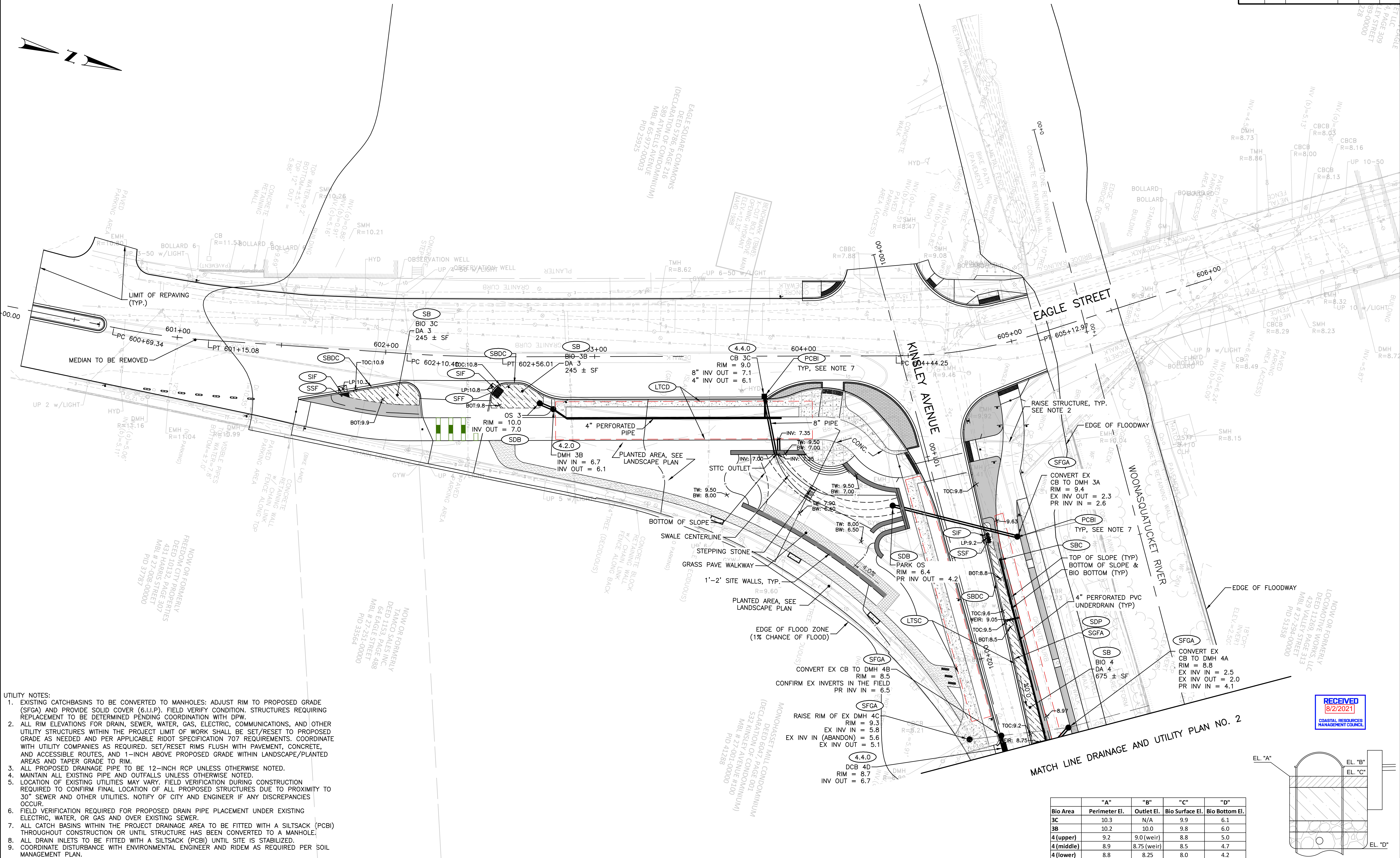
APPENDIX A

Site Plan

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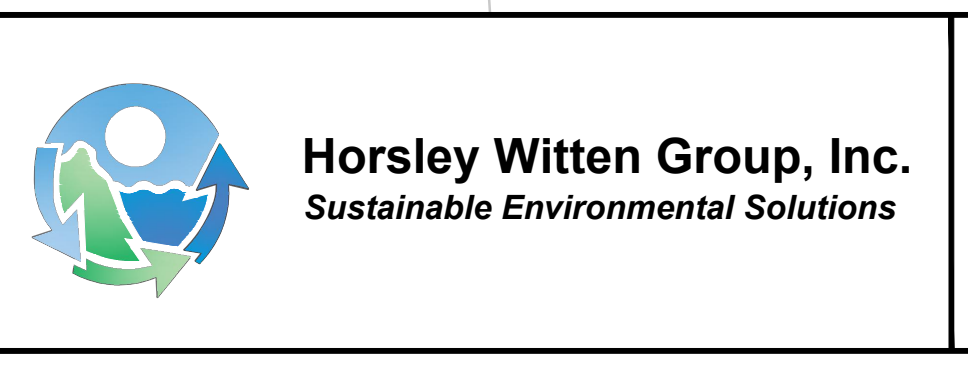
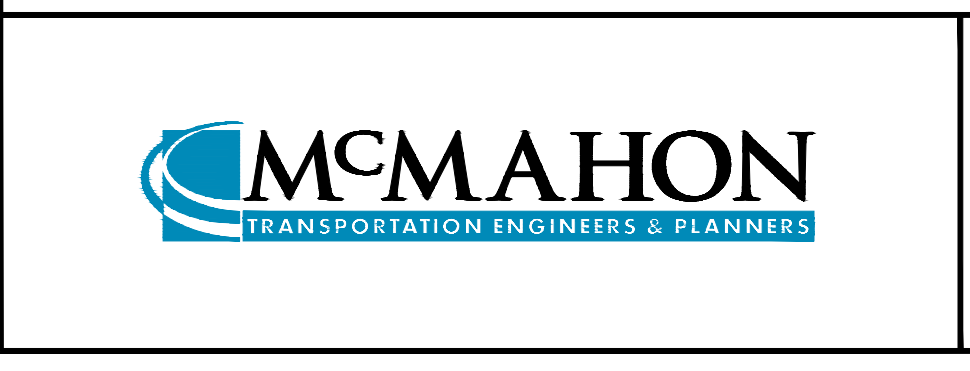
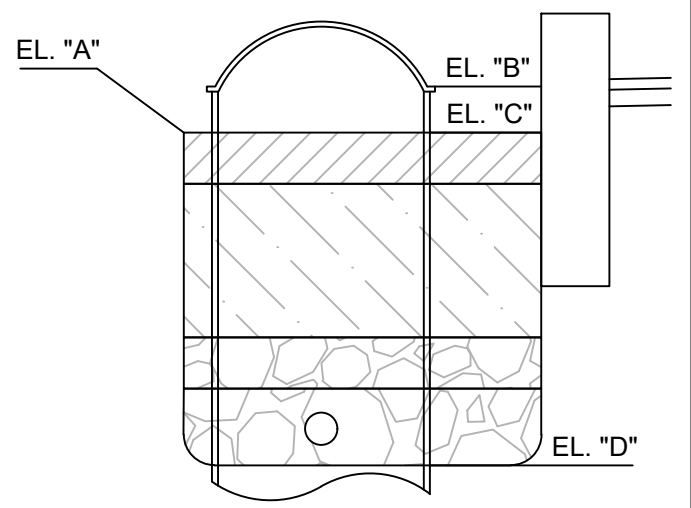
8/2/2021

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- UTILITY NOTES:**
- EXISTING CATCHBASINS TO BE CONVERTED TO MANHOLES: ADJUST RIM TO PROPOSED GRADE (SFGA) AND PROVIDE SOLID COVER (6.I.L.P.). FIELD VERIFY CONDITION. STRUCTURES REQUIRING REPLACEMENT TO BE DETERMINED PENDING COORDINATION WITH DPW.
 - ALL RIM ELEVATIONS FOR DRAIN, SEWER, WATER, GAS, ELECTRIC, COMMUNICATIONS, AND OTHER UTILITY STRUCTURES WITHIN THE PROJECT LIMIT OF WORK SHALL BE SET/RESET TO PROPOSED GRADE AS NEEDED AND PER APPLICABLE RIDOT SPECIFICATION 707 REQUIREMENTS. COORDINATE WITH UTILITY COMPANIES AS REQUIRED. SET/RESET RIMS FLUSH WITH PAVEMENT, CONCRETE, AND ACCESSIBLE ROUTES, AND 1-INCH ABOVE PROPOSED GRADE WITHIN LANDSCAPE/PLANTED AREAS AND TAPER GRADE TO RIM.
 - ALL PROPOSED DRAINAGE PIPE TO BE 12-INCH RCP UNLESS OTHERWISE NOTED.
 - MAINTAIN ALL EXISTING PIPE AND OUTFALLS UNLESS OTHERWISE NOTED.
 - LOCATION OF EXISTING UTILITIES MAY VARY. FIELD VERIFICATION DURING CONSTRUCTION REQUIRED TO CONFIRM FINAL LOCATION OF ALL PROPOSED STRUCTURES DUE TO PROXIMITY TO 30" SEWER AND OTHER UTILITIES. NOTIFY OF CITY AND ENGINEER IF ANY DISCREPANCIES OCCUR.
 - FIELD VERIFICATION REQUIRED FOR PROPOSED DRAIN PIPE PLACEMENT UNDER EXISTING ELECTRIC, WATER, OR GAS AND OVER EXISTING SEWER.
 - ALL CATCH BASINS WITHIN THE PROJECT DRAINAGE AREA TO BE FITTED WITH A SILTSACK (PCBI) THROUGHOUT CONSTRUCTION OR UNTIL STRUCTURE HAS BEEN CONVERTED TO A MANHOLE.
 - ALL DRAIN INLETS TO BE FITTED WITH A SILTSACK (PCBI) UNTIL SITE IS STABILIZED.
 - COORDINATE DISTURBANCE WITH ENVIRONMENTAL ENGINEER AND RIDEM AS REQUIRED PER SOIL MANAGEMENT PLAN.

	"A"	"B"	"C"	"D"
Bio Area				
3C	10.3	N/A	9.9	6.1
3B	10.2	10.0	9.8	6.0
4 (upper)	9.2	9.0 (weir)	8.8	5.0
4 (middle)	8.9	8.75 (weir)	8.5	4.7
4 (lower)	8.8	8.25	8.0	4.2



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 DATE: AUGUST 2021
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 OF: 11

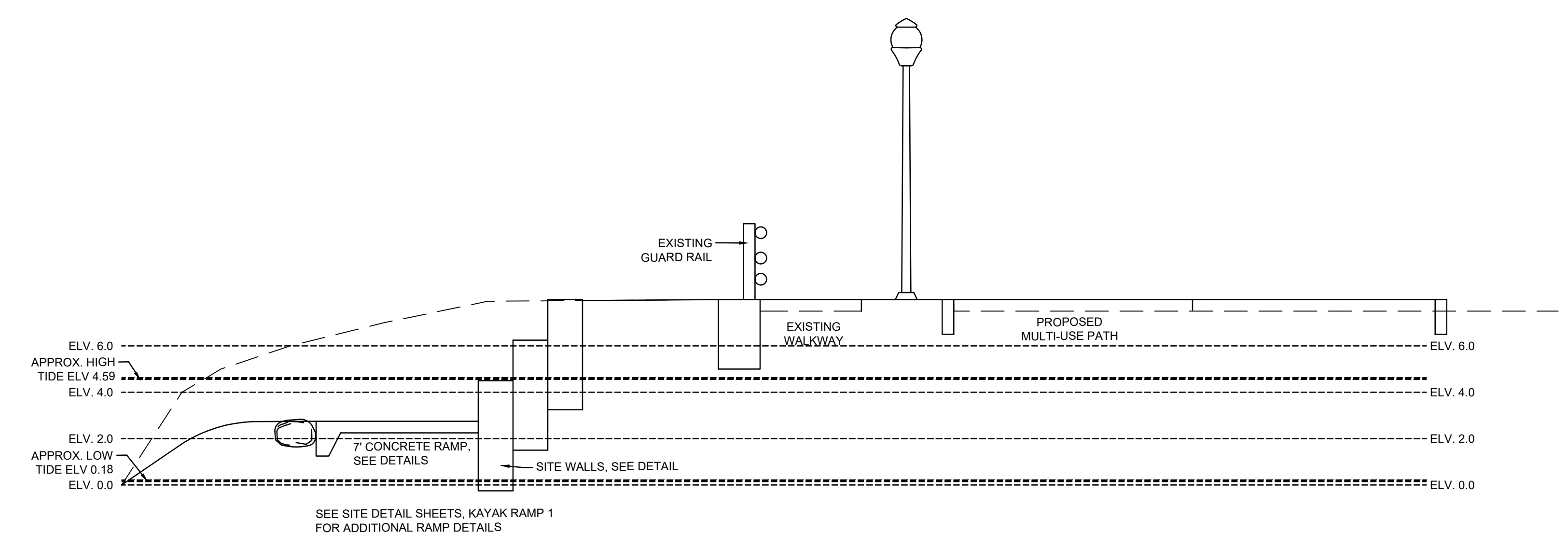
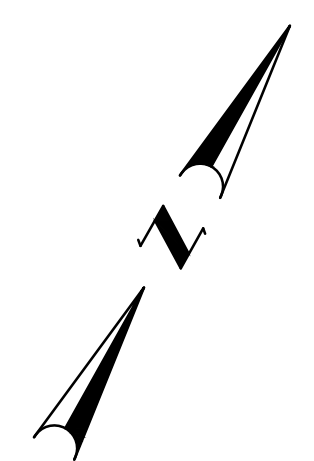
SCALE: 1" = 20'
 GRAPHIC SCALE

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1					
11					

WOONASQUATUCKET RIVER GREENWAY
 PROVIDENCE RHODE ISLAND

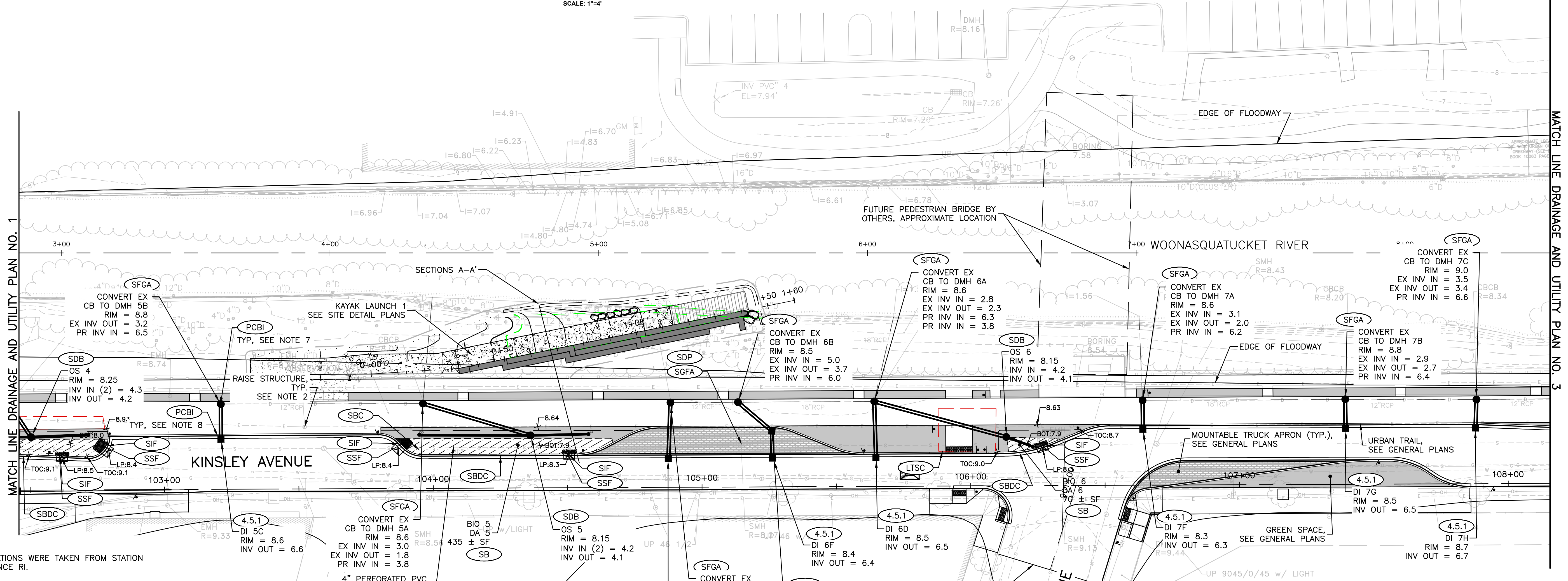
DRAINAGE AND UTILITY PLAN

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KAYAK LAUNCH 1 - SECTION A-A'
SCALE: 1"=4'

NOW OR FORMERLY
REALTY PARTNERSHIP, LLC
BARBARA S. RUBIN
DEED 8515, PAGE 247
459 VALLEY STREET
MIL # 27-295-00000
PID 51357

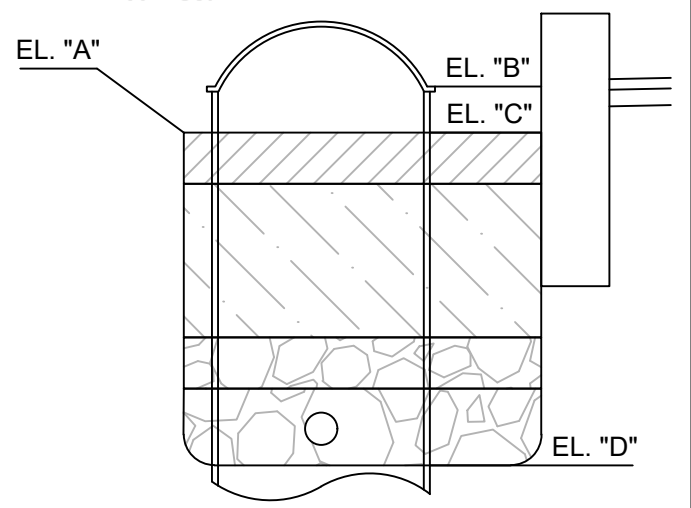


TIDE NOTES:
1. MHW & MLW ELEVATIONS WERE TAKEN FROM STATION 8454000, PROVIDENCE RI.

- UTILITY NOTES:**
- EXISTING CATCHBASINS TO BE CONVERTED TO MANHOLES: ADJUST RIM TO PROPOSED GRADE (SFGA) AND PROVIDE SOLID COVER (G.I.I.P.). FIELD VERIFY CONDITION. STRUCTURES REQUIRING REPLACEMENT TO BE DETERMINED PENDING COORDINATION WITH DPW.
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 - COORDINATE DISTURBANCE WITH ENVIRONMENTAL ENGINEER AND RIDEM AS REQUIRED PER SOIL MANAGEMENT PLAN.

NOW OR FORMERLY
WOONASQUATTUCKET VALLEY
COMMUNITY BUILD, INC
DEED 8741, PAGE 146
37 SIMS AVENUE
MIL # 27-273-00000
PID 37652

FORMERLY
JEED 5538, PAGE 054
1 SIMS AVENUE
MIL # 27-273-00000
PID 37655

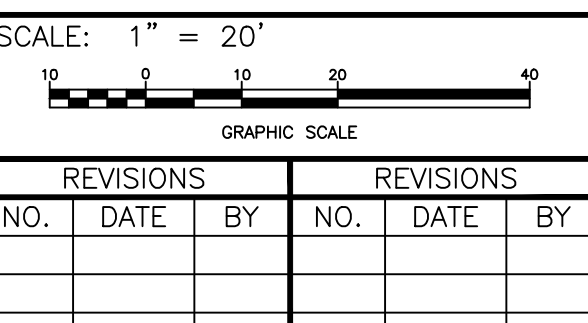


	"A"	"B"	"C"	"D"
Bio Area				
Perimeter El.	8.8	8.25	8.0	4.2
Outlet El.	8.3	8.15	7.9	4.1
Bio Surface El.	8.3	8.15	7.9	4.1
Bio Bottom El.				



WOONASQUATTUCKET RIVER GREENWAY

DESIGNED BY: EH/ML
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DATE: AUGUST 2021
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OF: 11



WOONASQUATTUCKET RIVER GREENWAY DRAINAGE AND UTILITY PLAN

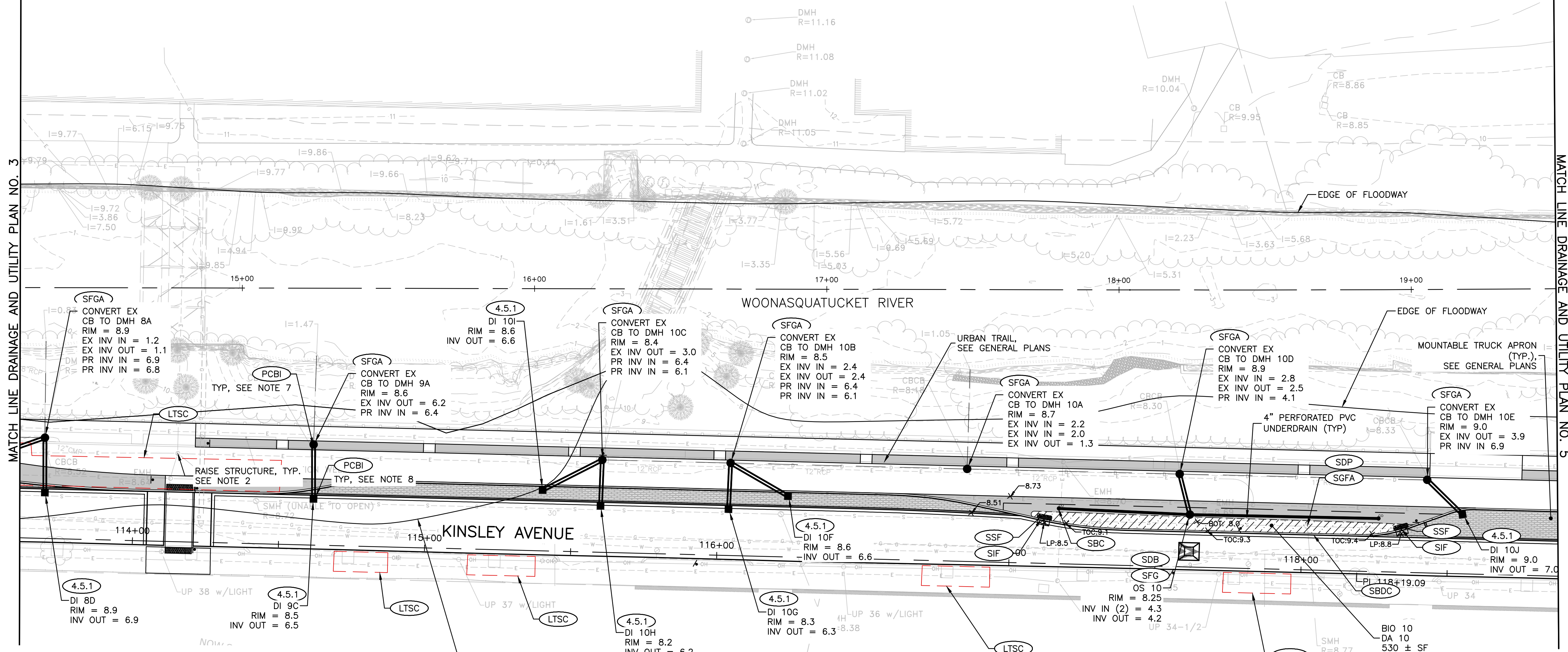


FORMERLY
CO MEMBERS
PAGE 131
CK STREET
79-00000
344

NOW OR FORMERLY
FOUNDRY ALCO MEMBERS
DEED 10718, PAGE 131
38 HEMLOCK STREET
MBL # 27-278-00000
PID 38843

MATCH LINE DRAINAGE AND UTILITY PLAN NO. 3

MATCH LINE DRAINAGE AND UTILITY PLAN NO. 5

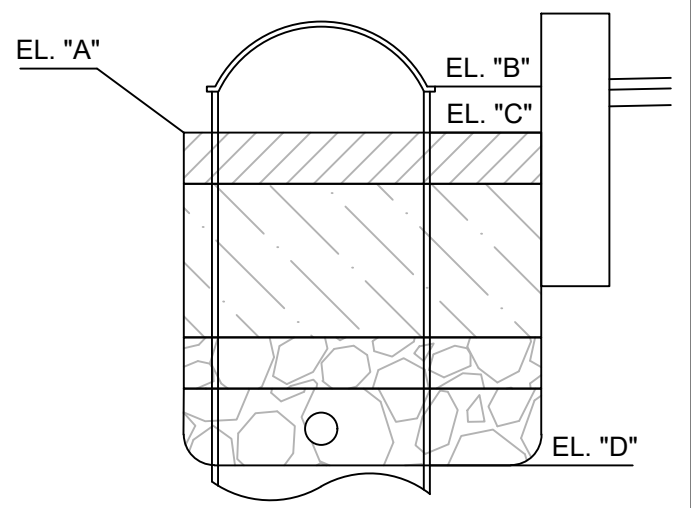


- UTILITY NOTES:**
- EXISTING CATCHBASINS TO BE CONVERTED TO MANHOLES: ADJUST RIM TO PROPOSED GRADE (SFGA) AND PROVIDE SOLID COVER (6.I.I.P). FIELD VERIFY CONDITION. STRUCTURES REQUIRING REPLACEMENT TO BE DETERMINED PENDING COORDINATION WITH DPW.
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 - COORDINATE DISTURBANCE WITH ENVIRONMENTAL ENGINEER AND RIDEM AS REQUIRED PER SOIL MANAGEMENT PLAN.



NOW OR FORMERLY
JACOB LICHT INC.
DEED 2227, PAGE 105
350 KINSLEY AVENUE
MBL # 27-016-00000
PID 38358

	"A"	"B"	"C"	"D"
Bio Area				
10	8.5	8.25	8.0	4.2
11	9.2	9.05	8.8	5.0



WOONASQUATUCKET RIVER GREENWAY

DESIGNED BY: EH/ML
CHECKED BY: JF
DATE: AUGUST 2021
SHEET: 4
OF: 11

SCALE: 1" = 20'
GRAPHIC SCALE

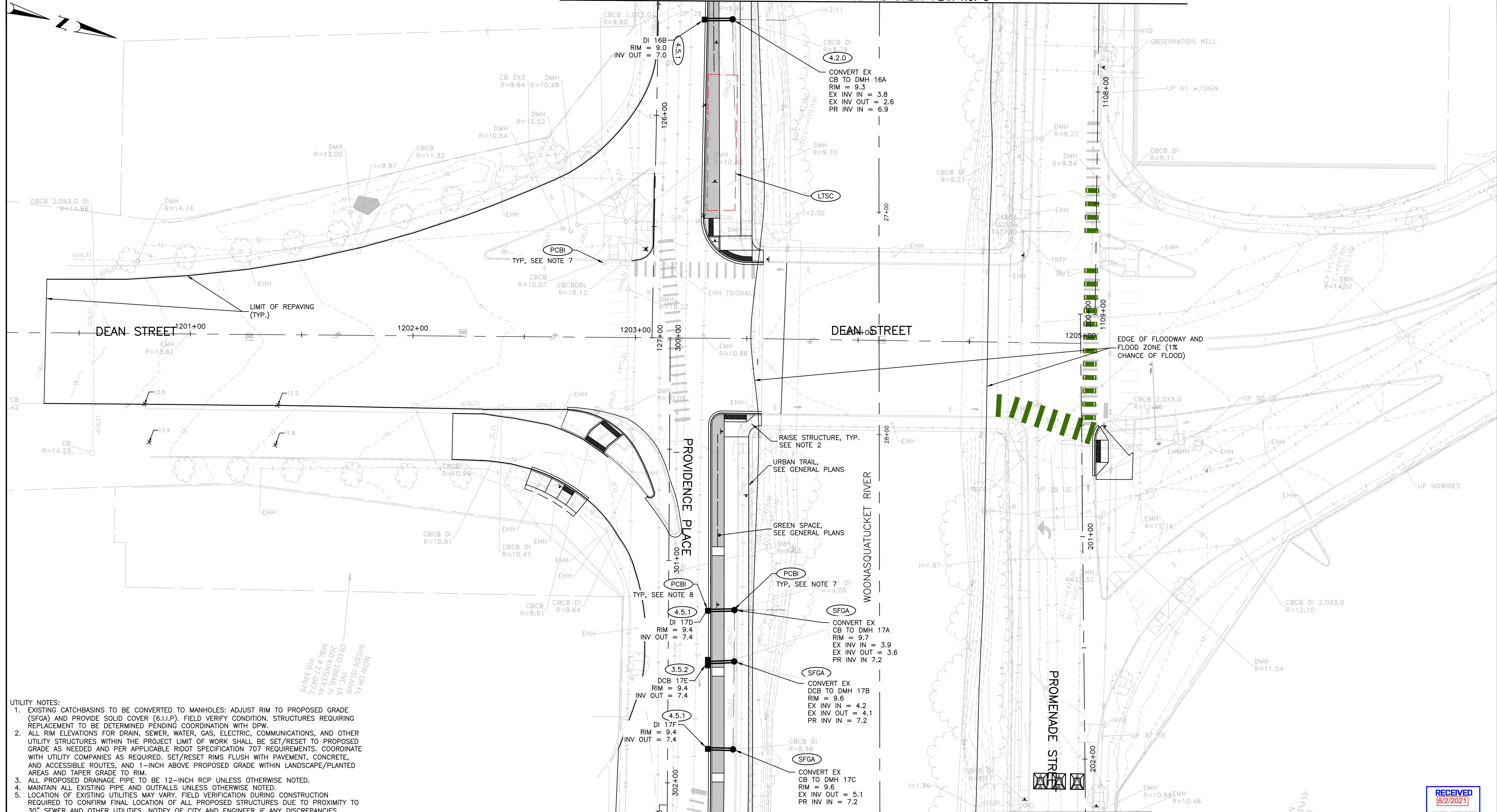
REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY

PROVIDENCE RHODE ISLAND

DRAINAGE AND UTILITY PLAN

MATCH LINE DRAINAGE AND UTILITY PLAN NO. 5



- UTILITY NOTES:**
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 - COORDINATE DISTURBANCE WITH ENVIRONMENTAL ENGINEER AND RIDEM AS REQUIRED PER SOIL MANAGEMENT PLAN.

MATCH LINE DRAINAGE AND UTILITY PLAN NO. 7



WOONASQUATUCKET RIVER GREENWAY

DESIGNED BY: EH/ML
 CHECKED BY: JF
 DATE: AUGUST 2021
 SHEET: 6
 OF: 11

SCALE: 1" = 20'
 GRAPHIC SCALE

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY

PROVIDENCE RHODE ISLAND

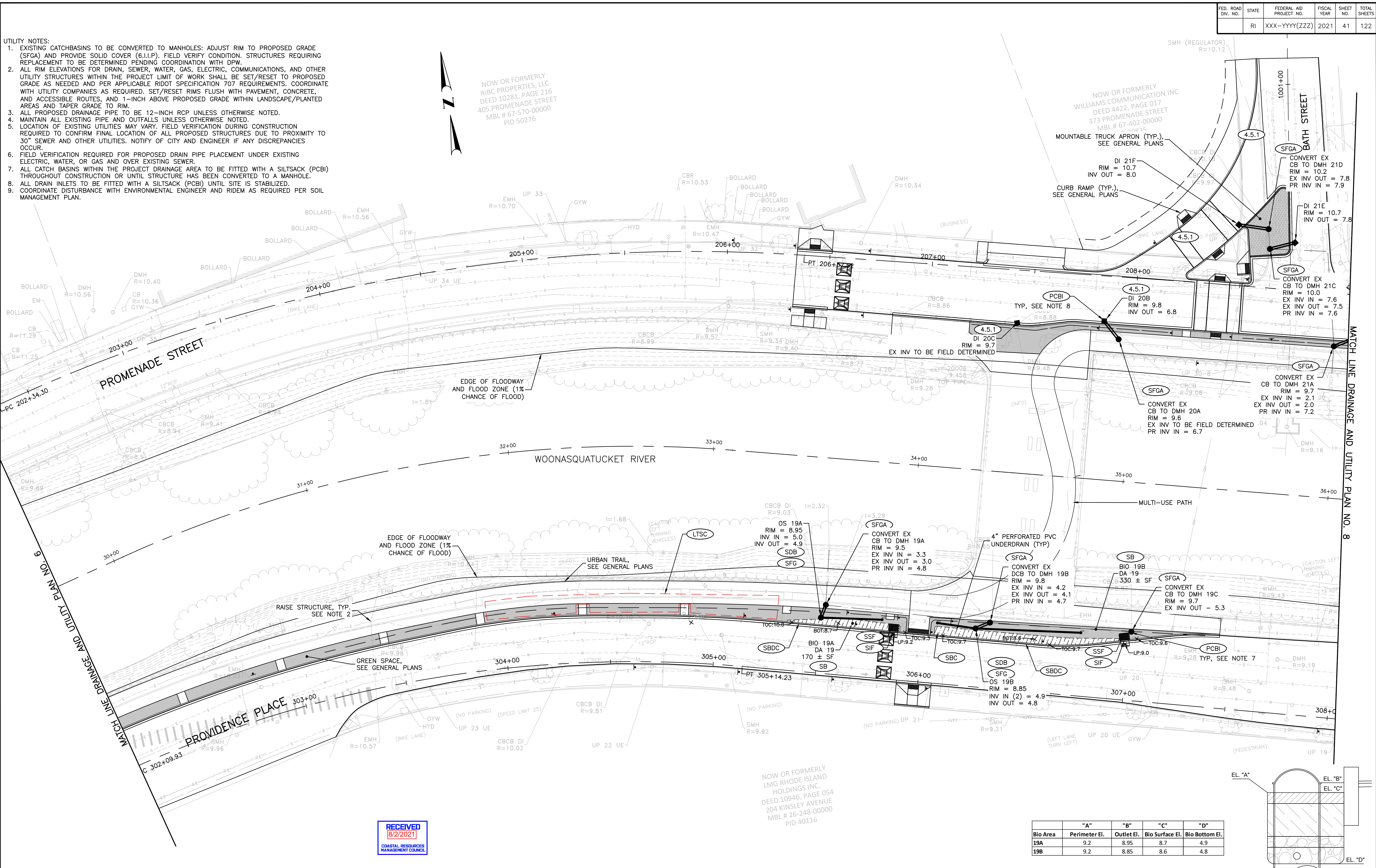
DRAINAGE AND UTILITY PLAN

- UTILITY NOTES:
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 - COORDINATE DISTURBANCE WITH ENVIRONMENTAL ENGINEER AND RIDEM AS REQUIRED PER SOIL MANAGEMENT PLAN.

NOW OR FORMERLY
RIBC PROPERTIES, LLC
DEED 10281, PAGE 216
405 PROMENADE STREET
MBL # 67-570-00000
PID 50276

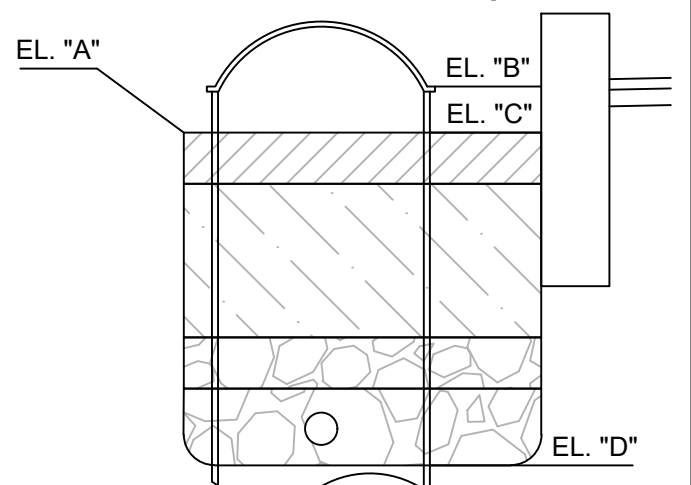
NOW OR FORMERLY
WILLIAMS COMMUNICATION INC
DEED 4422, PAGE 017
373 PROMENADE STREET
MBL # 67-402-00000
PID 50315

NOW OR FORMERLY
LMG RHODE ISLAND
HOLDINGS INC.
DEED 10946, PAGE 054
204 KINSLEY AVENUE
MBL # 26-248-00000
PID 40116



RECEIVED
8/2/2021
COASTAL RESOURCES
MANAGEMENT COUNCIL

	"A"	"B"	"C"	"D"
Bio Area	Perimeter El.	Outlet El.	Bio Surface El.	Bio Bottom El.
19A	9.2	8.95	8.7	4.9
19B	9.2	8.85	8.6	4.8



WOONASQUATUCKET RIVER GREENWAY

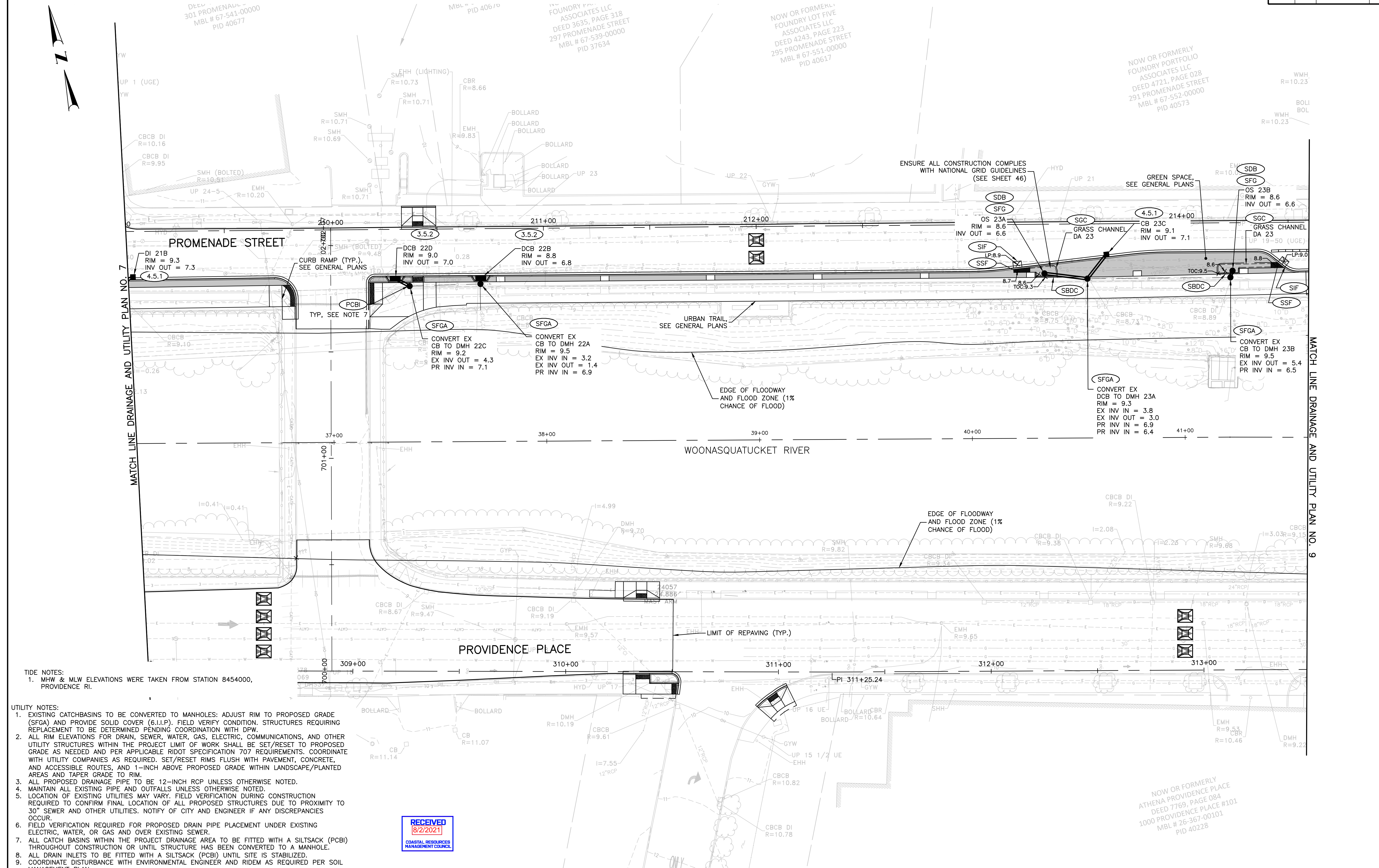
DESIGNED BY: EH/ML
CHECKED BY: JF
DATE: AUGUST 2021
SHEET: 7
OF: 11

SCALE: 1" = 20'

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY DRAINAGE AND UTILITY PLAN

PROVIDENCE RHODE ISLAND



TIDE NOTES:
 1. MHW & MLW ELEVATIONS WERE TAKEN FROM STATION 8454000, PROVIDENCE RI.

- UTILITY NOTES:
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WOONASQUATUCKET RIVER GREENWAY

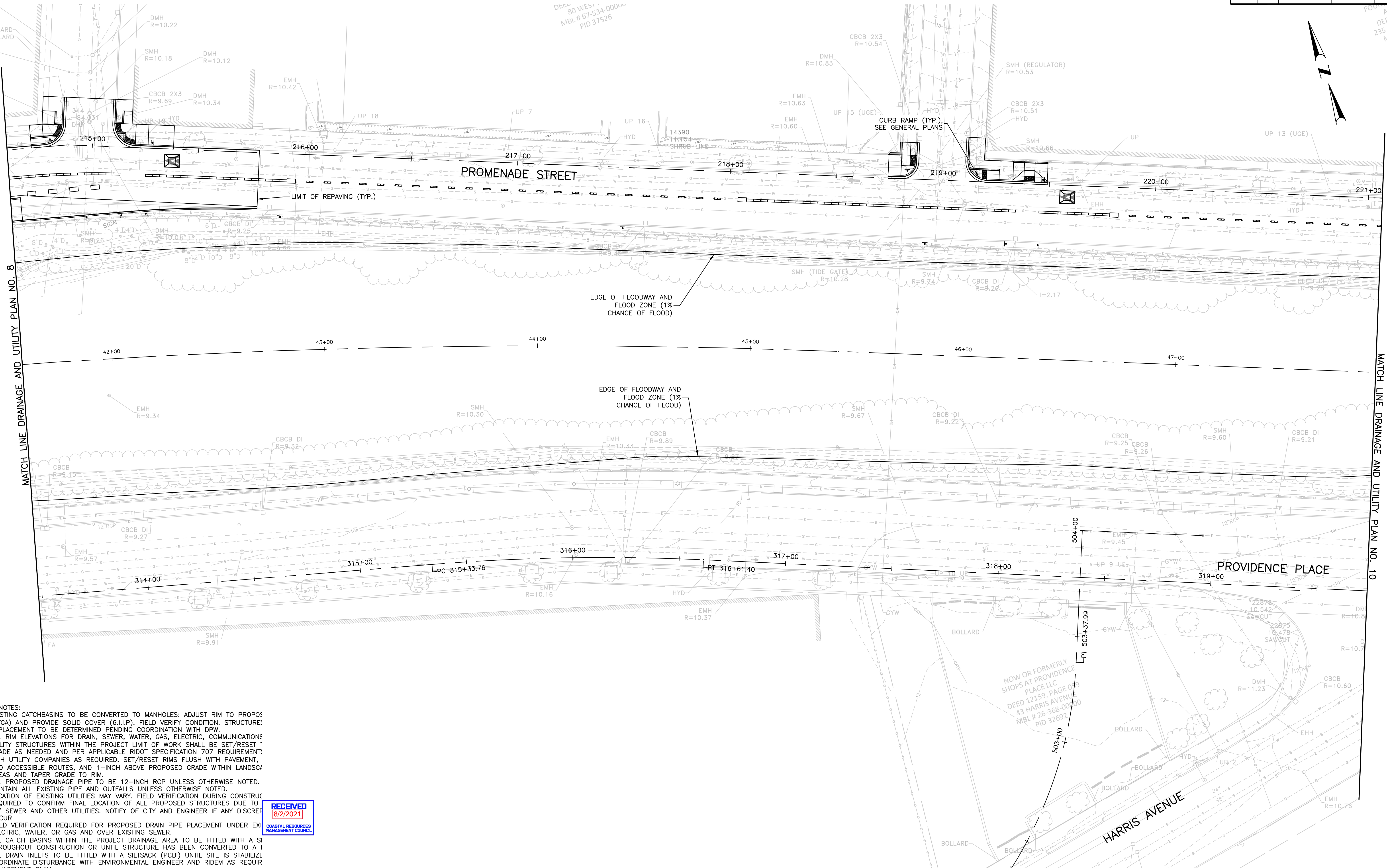
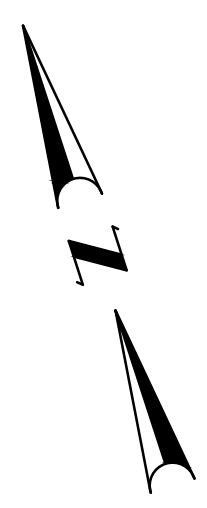
DESIGNED BY: EH/ML
 CHECKED BY: JF
 DATE: AUGUST 2021
 SHEET: 8
 OF: 11

SCALE: 1" = 20'

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY
 PROVIDENCE RHODE ISLAND
 DRAINAGE AND UTILITY PLAN

DEED 80 WES 1
 MBL # 67-534-000w
 PID 37526



- UTILITY NOTES:
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NOW OR FORMERLY SHOPS AT PROVIDENCE PLACE LLC
 DEED 12159, PAGE 079
 43 HARRIS AVENUE
 MBL # 26-368-000w
 PID 32692



WOONASQUATUCKET RIVER GREENWAY

DESIGNED BY: EH/ML
 CHECKED BY: JF
 DATE: AUGUST 2021
 SHEET: 9
 OF: 11

SCALE: 1" = 20'

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY
 PROVIDENCE RHODE ISLAND
DRAINAGE AND UTILITY PLAN

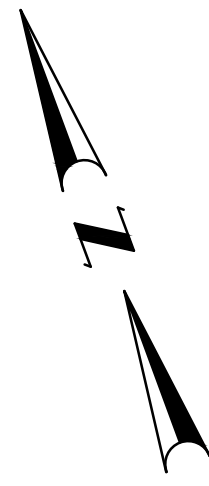
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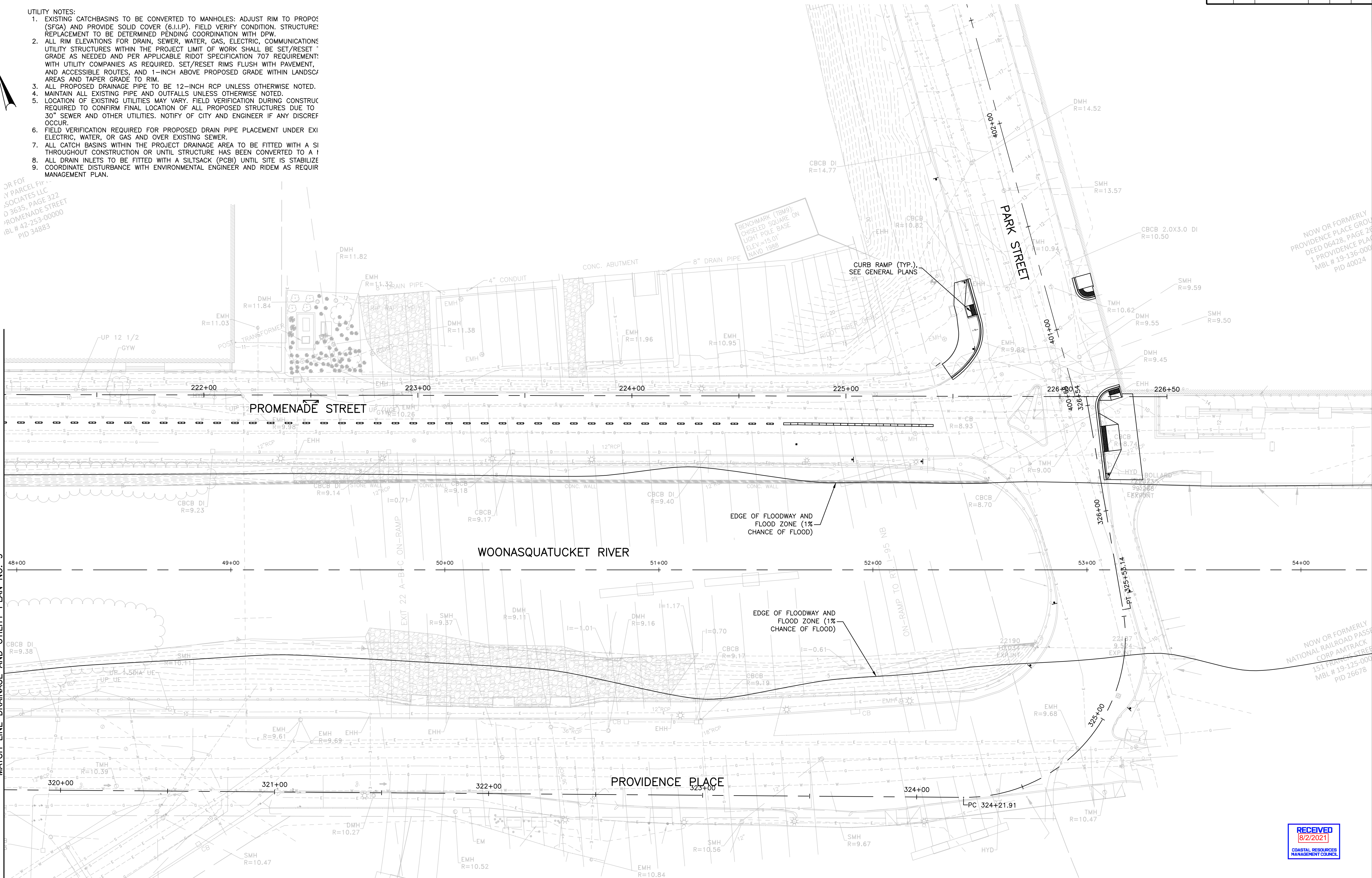
FOR PARCEL FIRM SOCIATES LLC D 3635, PAGE 322 PROMENADE STREET IBL # 42-253-00000 PID 34883

NOW OR FORMERLY PROVIDENCE PLACE GROUP DEED 06428, PAGE 27 1 PROVIDENCE PLACE MBL # 19-136-000 PID 40024

NOW OR FORMERLY NATIONAL RAILROAD PASSING CORP AMTRACK 151 PROMENADE STREET MBL # 19-125-000 PID 26678



MATCH LINE DRAINAGE AND UTILITY PLAN NO. 9



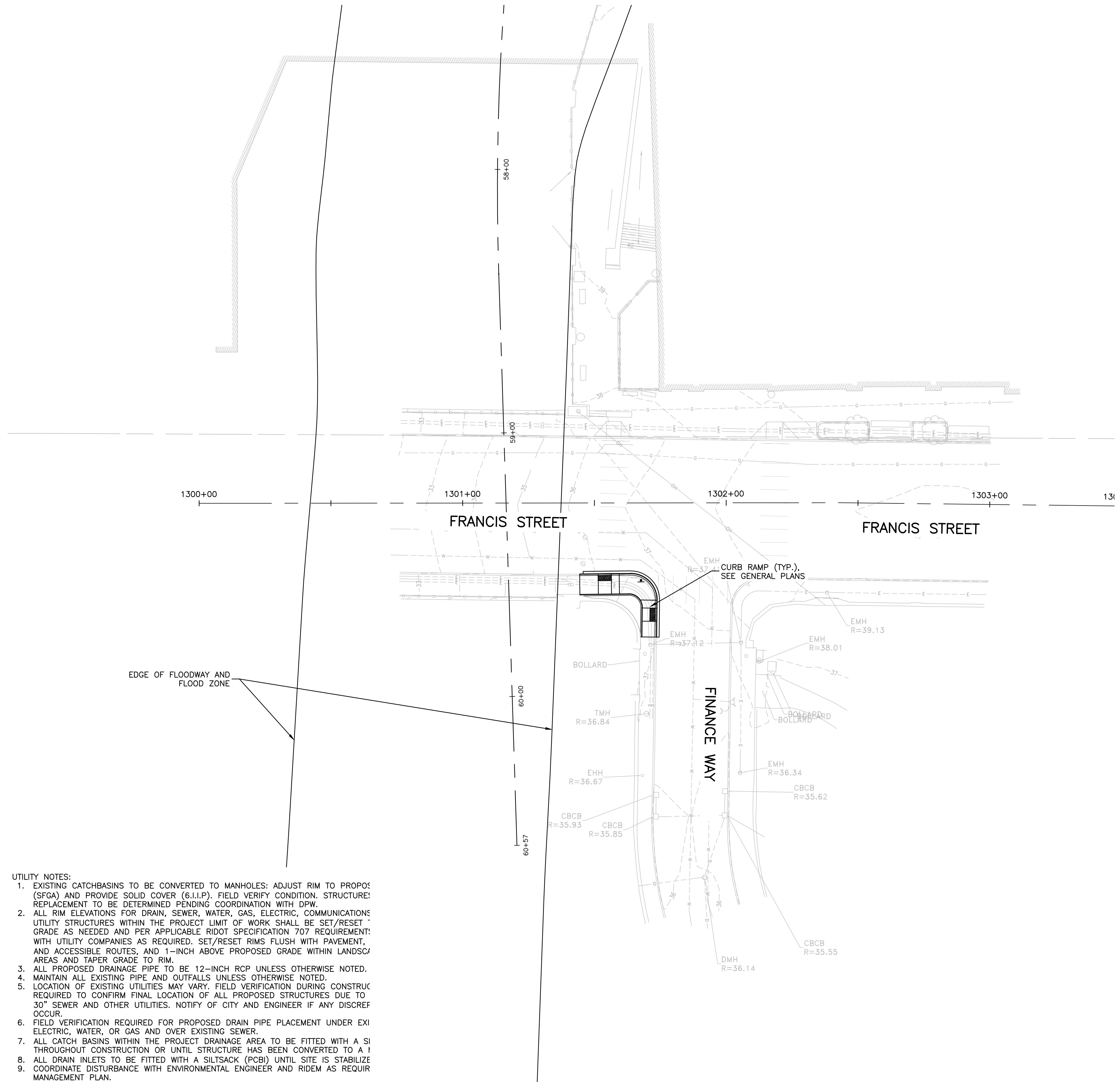
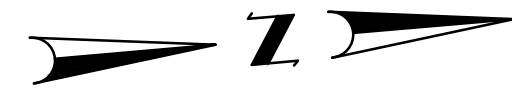
WOONASQUATUCKET RIVER GREENWAY

DESIGNED BY: EH/ML
 CHECKED BY: JF
 DATE: AUGUST 2021
 SHEET: 10
 OF: 11

SCALE: 1" = 20'

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY
 PROVIDENCE RHODE ISLAND
 DRAINAGE AND UTILITY PLAN

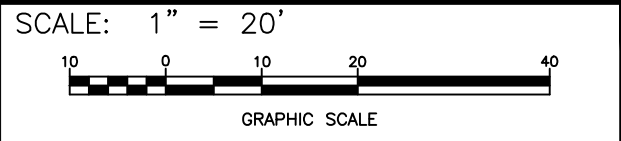


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WOONASQUATUCKET RIVER GREENWAY

DESIGNED BY: EH/ML/EB
 CHECKED BY: JF
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 SHEET: 11
 OF: 11

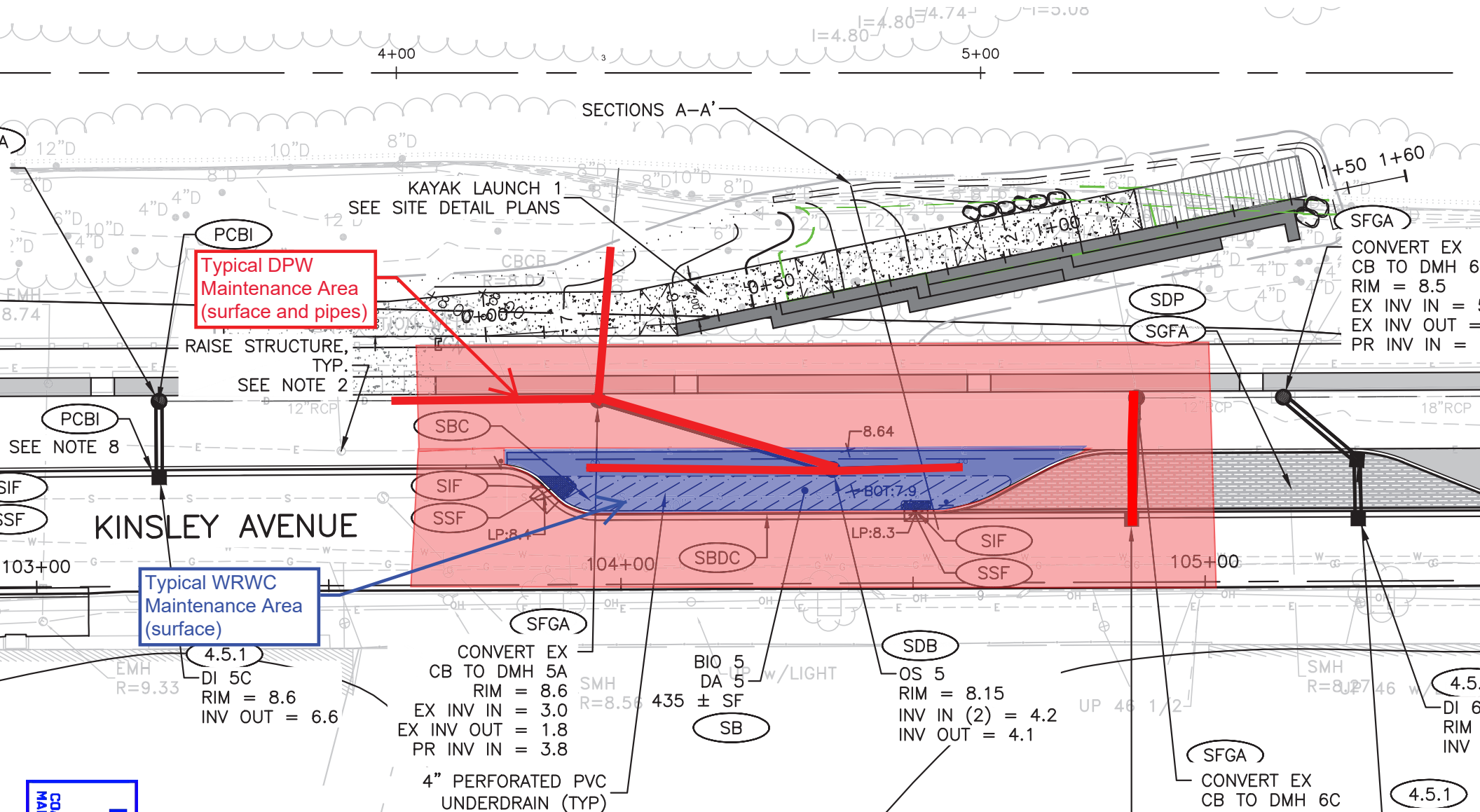


REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

WOONASQUATUCKET RIVER GREENWAY
 PROVIDENCE RHODE ISLAND
DRAINAGE AND UTILITY PLAN

APPENDIX B

Division of Maintenance Responsibility



RECEIVED
8/2/2021
COASTAL RESOURCES
MANAGEMENT COUNCIL

APPENDIX C

Maintenance Checklist Forms



Bioretention Areas
Operation and Maintenance Checklist
Woonasquatucket River Greenway
Providence, Rhode Island

Date:
 Time:
 Inspector:
 Location:
 p

Maintenance Item	Description	Maintenance Required? (Y/N)
1. Conveyance Structures - Inspect annually and after major storm events (1-yr storm or greater)		
Bioretention Inlet	Overflow Structure	
Debris Cleanout	Remove all trash, debris, and sediment from all structures annually or when sediment buildup is half the depth from the invert to the bottom, as applicable. *	
Manholes/Outlets	Remove sediment from flume inlet regularly or when a build-up is noticed that impacts inflow. If inlet becomes blocked, the bioretention area will not receive the proper flow.	
Emergency Spillways	Check for settling gulying or erosion. Ensure spillway is level. Repair as necessary if damaged or settling. Return to design grades.	
2. Sediment Forebay– Inspect annually and after major storm events (1-yr storm or greater)		
Debris Cleanout	Remove all trash and debris from the swale and forebay.	
Sediment/Organic Debris Removal	Sediment build-up shall be removed and properly disposed of when build-up is greater than or equal to 3 inches. *	
Side Slopes	Repair as necessary if signs of erosion gullies, animal burrowing, or slumping are observed.	
Weirs/Check dams	Look for areas of erosion in the swale, particularly near the inlets and weirs/check dams. Repair/replace splash pads as necessary.	
Vegetation Maintenance	Ill-established, dead or severely diseased plants will be removed and replaced annually. See Sheet LA-1 of Construction Plans for appropriate species.	



Maintenance Item	Description	Maintenance Required? (Y/N)
3. Bioretention Area– Inspect at least bi-annually and after major storm events the first year; then annually and after major storm events (1-yr storm or greater)		
Debris Cleanout	Remove all trash and debris from the surface of the bioretention system.	
Side Slopes	Repair as necessary if signs of erosion gullies, animal burrowing, or slumping are observed.	
Sediment/Organic Debris Removal	If standing water is observed in the bioretention area 48 hours after a storm event, the bottom 6 inches shall be rototilled or cultivated to breakup any hard-packed sediment and replenished with mulch. *	
Vegetation Maintenance / Replacement	Monitor the bioretention soil for proper pH, erosion, and aeration. Well-aged (minimum 6 months), shredded hardwood mulch shall be replaced bi-annually as needed, and ill-established, dead or severely diseased plants will be removed and replaced annually. See Sheet LA-1 of Construction Plans for appropriate species. Grasses, sedges, and rushes should be cut back annually in the spring.	
Water Draining properly	Ensure standing no standing water for more than 48 hours. If standing water check cleanouts for clogging or aerate.	
4. Routine Grounds Maintenance – Inspect annually		
Debris Removal	Remove trash from perimeter areas.	
Pavement Sweeping	Sweep parking lot minimum once a year after spring thaw.	
Contributing drainage area	Contributing drainage area stabilized	
Drainage Network	Ensure proper operation.	

*Sediment shall be disposed of offsite in a pre-approved location.

Comments:

Actions to be Taken:



Soil Erosion and Sediment Control Plan For: Woonasquatucket Greenway

Providence Place, Kinsley Avenue, & Promenade Street
Providence, Rhode Island

Owner:

City of Providence
Martina Haggerty, Jess Pflaumer
444 Westminster Street
Providence, RI 02903
401-680-8519
jpflaumer@providenceri.gov

Operator:

*TO BE DETERMINED UPON
CONTRACT AWARD*

Company Name
Name
Address
City, State, Zip Code
Telephone Number
Email Address

Estimated Project Dates:

Start Date: Spring 2022
Completion Date: TBD

SESC Plan Prepared By:

Horsley Witten Group
Jonathan Ford, PE (RI PE#8784)
55 Dorrance Street, Suite 200
Providence, RI 02903
401-272-1717
jford@horsleywitten.com

**SESC Plan
Preparation Date:**

July 16, 2021

**SESC Plan Revision
Date:**

OWNER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the site owner and operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.


Owner Signature: _____ Date: 7/28/21

Owner Name: Bonnie Nickerson

Owner Title: Director

Company Name: City of Providence

Address: 444 Westminster Street, Providence, RI 02903

Phone Number: 401-680-8519

Email Address: _____



OPERATOR CERTIFICATION

Upon contract award, the OPERATOR must sign this certification statement before construction may begin.

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the owner/operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.

Operator Signature:

Date

Contractor Representative: Name

Contractor Title: Title

Contractor Company Name: Company Name (if applicable)

Address: Mailing Address

Phone Number: Phone Number

Email Address: Email



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INTRODUCTION

This Construction Site Soil Erosion and Sediment Control Plan (SESC Plan) has been prepared for the City of Providence for the Woonasquatucket Greenway. In accordance with the RIDEM Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity (RIPDES Construction General Permit (“CGP”)), projects that disturb one (1) or more acres require the preparation of a SESC Plan. This SESC Plan provides guidance for complying with the terms and conditions of the RIPDES Construction General Permit and Minimum Standard 10 of the RI Stormwater Design and Installation Standards Manual. In addition, this SESC Plan is also consistent with Part D of the *RI SESC Handbook* entitled “Soil Erosion and Sediment Control Plans”. This document does not negate or eliminate the need to understand and adhere to all applicable RIPDES regulations.

The purpose of erosion, runoff, and sedimentation control measures is to prevent pollutants from leaving the construction site and entering waterways or environmentally sensitive areas during and after construction. This SESC Plan has been prepared prior to the initiation of construction activities to address anticipated worksite conditions. The control measures depicted on the site plan and described in this narrative should be considered the minimum measures required to control erosion, sedimentation, and stormwater runoff at the site. Since construction is a dynamic process with changing site conditions, it is the operator’s responsibility to manage the site during each construction phase so as to prevent pollutants from leaving the site. This may require the operator to revise and amend the SESC Plan during construction to address varying site and/or weather conditions, such as by adding or realigning erosion or sediment controls to ensure the SESC Plan remains compliant with the RIPDES Construction General Permit. Records of these changes must be added to the amendment log attached to the SESC Plan, and to the site plans as “red-lined” drawings. Please Note: **Even if practices are correctly installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site.**

It is the responsibility of the site owner and the site operator to maintain the SESC Plan at the site, including all attachments, amendments and inspection records, and to make all records available for inspection by RIDEM during and after construction. (RIPDES CGP - Part III.G)

The site owner, the site operator, and the designated site inspector are required to review the SESC Plan and sign the Party Certification pages (Section 8). The primary contractor (if different) and all subcontractors (if applicable) involved in earthwork or exterior construction activities are also required to review the SESC Plan and sign the certification pages before construction begins.

Any questions regarding the SESC Plan, control measures, inspection requirements, or any other facet of this document may be addressed to the RIDEM Office of Water Resources, at 401-222-4700 or via email: water@dem.ri.gov.



ADDITIONAL RESOURCES

Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908-5767
phone: 401-222-4700
email: water@dem.ri.gov

RIDEM *RI Stormwater Design and Installation Standards Manual* (RISDISM) (as amended)
<http://www.dem.state.ri.us/programs/benviron/water/permits/ripdes/stwater/t4guide/desman.htm>

RI Soil Erosion and Sediment Control Handbook
<http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/stormwater-manual.php>

RIDEM 2013 RIPDES Construction General Permit
<http://www.dem.ri.gov/pubs/regs/regs/water/ripdesca.pdf>

Rhode Island Department of Transportation *Standard Specifications for Road and Bridge Design and Other Specifications* and *Standard Details* <http://www.dot.ri.gov/business/bluebook.php>

RIDEM Office of Water Resources Coordinated Stormwater Permitting website
<http://www.dem.state.ri.us/programs/benviron/water/permits/swcoord/index.htm>

RIDEM RIPDES Stormwater website
<http://www.dem.state.ri.us/programs/benviron/water/permits/ripdes/stwater/index.htm>

RIDEM Water Quality website (for 303(d) and TMDL listings)
<http://www.dem.ri.gov/programs/benviron/water/quality/index.htm>

RIDEM Rhode Island Natural Heritage Program
<http://www.dem.ri.gov/programs/bpoladm/plandev/heritage/index.htm>

RIDEM Geographic Data Viewer – Environmental Resource Map
<http://www.dem.ri.gov/maps/index.htm>

Natural Resources Conservation Service - Rhode Island Soil Survey Program
<http://www.ri.nrcs.usda.gov/technical/soils.html>

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: <http://websoilsurvey.nrcs.usda.gov>.

EPA NPDES – Stormwater Discharges from Construction Activities webpage:
<http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Discharges-From-Construction-Activities.cfm>

EPA Construction Site Stormwater Runoff Control BMP Menu
<http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control>.

SECTION 1: SITE DESCRIPTION



1.1 Project/Site Information

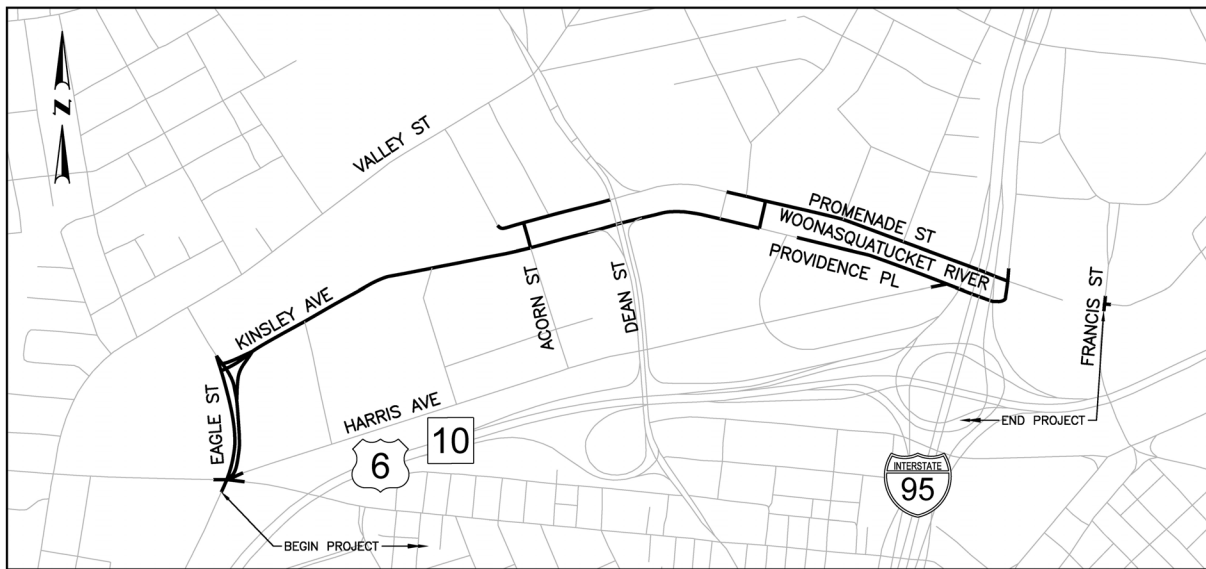
Project/Site Name:

Woonasquatucket Greenway

The Woonasquatucket River Greenway is a proposed multi-use bicycle/pedestrian path along the Woonasquatucket River in Providence, Rhode Island. The proposed improvements stretch from the Providence Place Mall to Eagle Square and include two pocket parks, two kayak launches, and related utility and landscape improvements. This section of the path will provide the connecting segment of the Woonasquatucket River Greenway to downtown Providence.

Project Street/Location:

Promenade Street, Providence Place, Eagle Street ,and Kinsley Avenue



The following are estimates of the construction site area:

- **Total Project Area** 13.8 acres
- **Total Project Area to be Disturbed** 2.4 acres (to erodible surface)

1.2 Receiving Waters

RIPDES CGP - Parts IV.A.7 & IV.A.8

List/description of separate storm sewer systems or drainage systems that may be impacted during construction and the water bodies that receive discharges from each storm sewer or drainage system:

City of Providence closed drainage system, with discharge to the Woonasquatucket River

List/description of receiving waters that may be impacted during construction:

Woonasquatucket River, which is on the 303(d) list for multiple impairments/causes. TMDLs exist for copper, lead, and zinc.



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INSERT PROJECT NAME

Are any of the receiving waters in the vicinity of the proposed construction project listed as being impaired or subject to a TMDL?

Yes No

If yes, List/provide description of 303(d)/TMDL waters and applicable TMDL requirements that must be addressed during construction:

TMDLs exist for copper, lead, and zinc.

1.3 *Natural Heritage Area Information*

RIPDES CGP - Part III.H

Are there any Natural Heritage Areas being disturbed by the construction activity or will discharges be directed to the Natural Heritage Area as a result of the construction activity?

Yes No **see below*

If yes, describe or refer to documentation which determines the likelihood of an impact on this area and the steps that will be taken to address any impacts.

The United States Department of the Interior, New England Ecological Services Field Office determined there are no threatened, endangered or candidate species within the project area. This notice was received January 02, 2020 and is provided in the attached appendix. Additional consultation has been submitted to NOAA through a NMFS EFH Assessment request on April 14th, 2021. The project may affect some migratory bird habitat when installing the kayak launch. RIDOT Natural resource unit has been contacted to determine project needs in relation to this.

A small portion of the project, at the bottom of the kayak launch, may affect the habitat of the Atlantic Herring or other fish species that use the river. The project team has submitted an EFH Assessment request for an abbreviated EFH consultation due to the minimal effects the project will have. This was submitted April 14, 2021, and feedback is expected within 30-60 days. There is 665 SF of wetland within the limit of disturbance for the proposed kayak launches, 510 SF of which will be restored.

1.4 *Historic Preservation/Cultural Resources*

Are there any historic properties, historic cemeteries or cultural resources on or near the construction site?

Yes No

Describe how this determination was made and summarize state or tribal review comments:

There are historic properties located adjacent to the project. However, the majority of the project is within the ROW and no historic properties will be affected by the proposed work. Public Archaeology Laboratory (PAL) completed a report indicating that the Woonasquatucket River Greenway project is unlikely to cause any direct or indirect effects on historic archeological sites or architectural properties.

If yes, describe or refer to documentation which determines the likelihood of an impact on this historic property, historic cemetery or cultural resource and the steps taken to address that impact including any conditions or mitigation measures that were approved by other parties.



1.5 Site Features and Constraints

List All Site Constraints and Sensitive Areas that require avoidance and protection through the implementation of control measures:

- The project is almost entirely located within existing City street rights-of-way, which are developed and almost completely impervious in their current condition.
- Portions of the proposed limit of work are located within the 100-year AE flood plain, as shown on the plans.
- The two proposed kayak launches are within the riverbank wetland, a freshwater resource directly associated with the tidal coastal river.

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: <http://websoilsurvey.nrcs.usda.gov>.

SECTION 2: EROSION, RUNOFF, AND SEDIMENT CONTROL

RIPDES Construction General Permit – Part III.J.1

The purpose of erosion controls is to prevent sediment from being detached and moved by wind or the action of raindrop, sheet, rill, gully, and channel erosion. Properly installed and maintained erosion controls are the primary defense against sediment pollution.

Runoff controls are used to slow the velocity of concentrated water flows. By intercepting and diverting stormwater runoff to a stabilized outlet or treatment practice or by converting concentrated flows to sheet flow erosion and sedimentation are reduced.

Sediment controls are the last line of defense against moving sediment. The purpose is to prevent sediment from leaving the construction site and entering environmentally sensitive areas.

This section describes the set of control measures that will be installed before and during the construction project to avoid, mitigate, and reduce impacts associated with construction activity. Specific control measures and their applicability are contained in Section Four: Erosion Control Measures, Section Five: Runoff Control Measures, and Section Six: Sediment Control Measures of the *RI SESC Handbook*. The *RI SESC Handbook* can be found at the following address:

<http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/stormwater-manual.php>

2.1 Avoid and Protect Sensitive Areas and Natural Features

Areas of existing and remaining vegetation and areas that are to be protected as identified in the Section 1.6 of the SESC Plan must be clearly identified on the SESC Site Plans for each Phase of Construction. Prior to any land disturbance activities commencing on the site, the Contractor shall physically mark limits of disturbance (LOD) on the site and any areas to be protected within the site, so that workers can clearly identify the areas to be protected.

Feature Requiring Protection	Construction Phase #	Method of Protection	Sheet #
Riverbank wetland	n/a	Fencing, sedimentation	48,49 & 90



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		barriers, erosion control blanket, "muscle wall" as required	
--	--	--	--

2.2 Minimize Area of Disturbance

Will >5 acres be disturbed in order to complete this project?

Yes No

Will <5 acres be disturbed or will disturbance activities be completed within a six (6) month window?

Yes No

Yes No

2.3 Minimize the Disturbance of Steep Slopes

Are steep slopes (>15%) present within the proposed project area?

Yes No

Due to the steep slopes along the riverbank, shoreline protection is proposed for both launches. Permanent protection is proposed upslope in both locations. For launch 1 (Kinsley Avenue), walls are proposed to reduce the amount of cut into the bank, and to provide seating spaces along the edge of the ramp to further promote a comfortable public connection to the river. Due to the steepness of the existing slopes, some type of structural stabilization is needed to accommodate space for the ramp. By utilizing the walls as proposed, the amount of disturbance and cut that would continue up the slope is minimized and public benefit is maximized.

For launch 2 (Promenade Street), a flexible geo-bag vegetated wall is proposed upslope from the ramp. In a few locations along this section the existing slope is currently 2:1. Utilizing the socks on the areas steeper than 2:1 along with an integral stabilizing seed mix, is proposed to better withstand flooding events. Temporary protection (erosion control blanket) is provided in all other areas within the floodway while plants become established.

See Site Detail Plans for additional detail including erosion and sediment control.

2.4 Preserve Topsoil

Site owners and operators must preserve existing topsoil on the construction site to the maximum extent feasible and as necessary to support healthy vegetation, promote soil stabilization, and increase stormwater infiltration rates in the post-construction phase of the project.

Will existing topsoil be preserved at the site?

Yes No

The majority of the project is proposed within highly disturbed and currently impervious areas. Limit of disturbance within the riverbank is minimized to maintain soil stabilization with existing vegetation. Wetland area will be revegetated with appropriate soil depth. Areas where infiltration devices are proposed will be tilled to restore infiltration capacity – though these practices are provided with



Soil Erosion and Sediment Control Plan - ATTACHMENTS
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underdrains. All soil excavation will be managed per the requirements of the approved Remedial Action Plan.

2.5 Stabilize Soils

Upon completion and acceptance of site preparation and initial installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, the operator shall initiate appropriate temporary or permanent stabilization practices during all phases of construction on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased.

Any disturbed areas that will not have active construction activity occurring within 14 days must be stabilized using the control measures depicted in the SESC Site Plans, in accordance with the *RI SESC Handbook*, and per manufacturer product specifications.

Only areas that can be reasonably expected to have active construction work being performed within 14 days of disturbance will be cleared/grubbed at any one time. It is NOT acceptable to clear and grub the entire construction site if portions will not be active within the 14-day time frame. Proper phasing of clearing and grubbing activities shall include temporary stabilization techniques for areas cleared and grubbed that will not be active within the 14-day time frame.

All disturbed soils exposed prior to October 15 of any calendar year shall be seeded by that date if vegetative measures are the intended soil stabilization method. Any such areas that do not have adequate vegetative stabilization, as determined by the site operator or designated inspector, by November 15, must be stabilized through the use of non-vegetative erosion control measures. If work continues within any of these areas during the period from October 15 through April 15, care must be taken to ensure that only the area required for that day's work is exposed, and all erodible soil must be restabilized within 5 working days. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed (i.e. construction of a motocross track).

Temporary Vegetative Control Measures

Exposed stockpiles are not expected for this project. If necessary, they will be established with a vegetative cover as required and perimeter erosion controls will be provided.

Temporary Non-Vegetative Control Measures

Straw/hay should be applied to exposed soil stockpiles until a vegetative cover has been established.

Erosion control blanket is specified for areas of steep slopes within the limits of the kayak launch construction. See sheet 48.

Permanent Vegetative Control Measures

Permanent vegetative control measures will be established with landscaping and planting of open space areas as well as the implementation of LID GSI such as tree trenches and bioretention areas.

Permanent Non-Vegetative Control Measures

Sediment forebays will provide pretreatment for the bioretention area. Hooded deep sump catch basins will capture sediment prior to conveyance to the tree trenches.



2.6 Protect Storm Drain Outlets

Temporary or permanent outlet protection must be used to prevent scour and erosion at discharge points through the protection of the soil surface, reduction in discharge velocities, and through the promotion of infiltration. Outlets often have high velocity, high volume flows, and require strong materials that will withstand the forces of stormwater. Storm drain outlet control measures also offer a last line of protection against sediment entering environmentally sensitive areas.

All stormwater outlets that may discharge sediment-laden stormwater flow from the construction site must be protected using the control practices depicted on the approved plan set and in accordance with the *RI SESC Handbook*.

Will temporary or permanent point source discharges be generated at the site as the result of construction of sediment traps or basins, diversions, and conveyance channels?

Yes No

Inlet protection will be provided for the existing drainage curb inlets as noted on the Site Detail Plans.

2.7 Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices

Temporary measures shall be installed to protect permanent or long-term stormwater control and treatment measures as they are installed and throughout the construction phase of the project so that they will function properly when they are brought online.

Will long-term stormwater treatment practices be installed at the site?

Yes No

Onsite stormwater treatment includes hooded deep sump catch basins, sediment forebays and bioretention systems to capture sediment.

2.8 Divert or Manage Run-on from Up-gradient Areas

Is stormwater from off-site areas anticipated to flow onto the project area or onto areas where soils will be disturbed?

Yes No

Offsite areas do not contribute to surface water run onto the project limit of work.

2.9 Retain Sediment Onsite through Structural and Non-Structural Practices

SEDIMENT BARRIERS must be installed along the perimeter areas of the site that will receive stormwater from disturbed areas. This also may include the use of sediment barriers along the contour of disturbed slopes to maintain sheet flow and minimize rill and gully erosion during construction. Installation and maintenance of sediment barriers must be completed in accordance with the maintenance requirements specified by the product manufacturer or the *RI SESC Handbook*.

Will sediment barriers be utilized at the toe of slopes and other downgradient areas subject to stormwater impacts and erosion during construction?

Yes No



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INSERT PROJECT NAME

A sediment silt sock will be installed around the entire perimeter of the kayak launch construction areas. Additional sediment silt socks will be implemented at the base of any material stockpiles.

Will sediment barriers be utilized along the contour of slopes to maintain sheet flow and minimize rill and gully erosion during construction?

Yes No

Sediment silt socks will be implemented at the base of any material stockpiles.

SEDIMENT BARRIERS			
Construction Phase #	Sediment Barrier Type	Sediment Barrier is Labeled on Sheet #	Detail is on Sheet #
n/a	Silt sock	48	49

INLET PROTECTION will be utilized to prevent soil and debris from entering storm drain inlets. These measures are usually temporary and are implemented before a site is disturbed. ALL stormwater inlets &/or catch basins that are operational during construction and have the potential to receive sediment-laden stormwater flow from the construction site must be protected using control measures outlined in the *RI SESC Handbook*.

For more information on inlet protection refer to the *RI SESC Handbook*, Inlet Protection control measure.

Maintenance

The operator must clean, or remove and replace the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or as performance is compromised. Accumulated sediment adjacent to the inlet protection measures should be removed by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible.

Do inlets exist adjacent to or within the project area that require temporary protection?

Yes No

The following lists the proposed storm drain inlet types selected from Section Six of the *RI SESC Handbook*. Each row is unique for each phase and inlet protection type.



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INSERT PROJECT NAME

INLET PROTECTION			
Construction Phase #	Inlet Protection Type	Inlet Protection is labeled on Sheet #	Detail(s) is/are on Sheet #
n/a	Catch basin Insert	35-42	47

CONSTRUCTION ENTRANCES will be used in conjunction with the stabilization of construction roads to reduce the amount of sediment tracking off the project. This project has avoided placing construction entrances on poorly drained soils where possible. Where poorly drained soils could not be eliminated, the detail includes subsurface drainage.

Any construction site access point must employ the control measures on the approved SESC site plans and in accordance with the *RI SESC Handbook*. Construction entrances shall be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by construction vehicles. All construction access roads shall be constructed prior to any roadway accepting construction traffic.

The site owner and operator must:

1. Restrict vehicle use to properly designated exit points.
2. Use properly designed and constructed construction entrances at all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit.
3. When and where necessary, use additional controls to remove sediment from vehicle tires prior to exit (i.e. wheel washing racks, rumble strips, and rattle plates).
4. Where sediment has been tracked out from the construction site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment must be removed by the end of the same work day in which the track out occurs. Track-out must be removed by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.

Will construction entrances be utilized at the proposed construction site?

Yes No

The majority of the construction is within existing City streets. Construction entrances for kayak launch construction are not expected to be feasible or required.

STOCKPILE CONTAINMENT will be used onsite to minimize or eliminate the discharge of soil, topsoil, base material or rubble, from entering drainage systems or surface waters. All stockpiles must be located within the limit of disturbance, protected from run-on with the use of temporary sediment barriers and provided with cover or stabilization to avoid contact with precipitation and wind where and when practical.

Stock pile management consists of procedures and practices designed to minimize or eliminate the discharge of stockpiled material (soil, topsoil, base material, rubble) from entering drainage systems or surface waters.

For any stockpiles or land clearing debris composed, in whole or in part, of sediment or soil, you must comply with the following requirements:

1. Locate piles within the designated limits of disturbance.
2. Protect from contact with stormwater (including run-on) using a temporary perimeter sediment barrier.



Soil Erosion and Sediment Control Plan - ATTACHMENTS
INSERT PROJECT NAME

3. Where practicable, provide cover or appropriate temporary vegetative or structural stabilization to avoid direct contact with precipitation or to minimize sediment discharge.
4. NEVER hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or surface water.
5. To the maximum extent practicable, contain and securely protect from wind.

STOCKPILE CONTAINMENT				
Construction Phase #	Run-on measures necessary? (yes/no)	Stabilization or Cover Type	Stockpile Containment Measure	Sheet #

Are temporary sediment basins required at the site?

- Yes No

Areas of disturbance will be exposed for short duration of time. Proper perimeter controls are adequate.

2.10 Properly Design Constructed Stormwater Conveyance Channels

Are temporary stormwater conveyance practices required in order to properly manage runoff within the proposed construction project?

- Yes No

Except for kayak launches, no steep slopes exist for gullying erosion to occur. Perimeter sediment control is adequate. Kayak launch protection includes erosion control blanket for steep slopes and perimeter controls as shown on sheets 48 & 49.

2.11 Erosion, Runoff, and Sediment Control Measure List

It is expected that this table and corresponding Inspection Reports will be amended as needed throughout the construction project as control measures are added or modified.

Phase No. #		
Location/Station	Control Measure Description/Reference	Maintenance Requirement
Promenade Street, Kinsley Avenue, Providence Place, Eagle Street	Catch basin & inlet protection – Section Six <i>RI SESC Handbook</i> .	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Remove sediment when 50 percent of storage volume is achieved.
Kayak Launch – bank stabilization	Section 3 – Tree protection, stockpile management (if required) Section 4 – slope protection Section 6 – Silt sock, – <i>RI SESC Handbook</i> .	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Repair slope protection if soils and/or seed have washed away, and/or if the blanket has become dislodged or torn.



SECTION 3: CONSTRUCTION ACTIVITY POLLUTION PREVENTION

The purpose of construction activity pollution prevention is to prevent day to day construction activities from causing pollution.

This section describes the key pollution prevention measures that must be implemented to avoid and reduce the discharge of pollutants in stormwater. Example control measures include the proper management of waste, material handling and storage, and equipment/vehicle fueling/washing/maintenance operations.

Where applicable, include *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction* (as amended) specifications.

3.1 Existing Data of Known Discharges from Site

Are there known discharges from the project area?

Yes No

Describe how this determination was made:

Site surveys and utility research.

If yes, list discharges and locations:

See site plans for existing stormwater outfall locations to Woonasquatucket River.

Is there existing data on the quality of the known discharges?

Yes No

3.2 Prohibited Discharges

The following discharges are prohibited at the construction site:

- Contaminated groundwater, unless specifically authorized by the DEM. These types of discharges may only be authorized under a separate DEM RIPDES permit.
- Wastewater from washout of concrete, unless the discharge is contained and managed by appropriate control measures.
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance. Proper storage and spill prevention practices must be utilized at all construction sites.
- Soaps or solvents used in vehicle and equipment washing.
- Toxic or hazardous substances from a spill or other release.

All types of waste generated at the site shall be disposed of in a manner consistent with State Law and/or regulations.

Will any of the above listed prohibited discharges be generated at the site?

Yes No

- **Concrete and asphalt pavement debris**
- **Fuels and oils from construction vehicles**



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INSERT PROJECT NAME

- **Concrete washout. Concrete washout will be performed in a designated location (TBD).**
- **See *Soil Investigation Report and Remedial Action Work Plan* by CEC for additional information regarding soil management.**

3.3 Proper Waste Disposal

Building materials and other construction site wastes must be properly managed and disposed of in a manner consistent with State Law and/or regulations.

- A waste collection area shall be designated on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterbody or storm drain.
- All waste containers shall be covered to avoid contact with wind and precipitation.
- Waste collection shall be scheduled frequently enough to prevent containers from overflowing.
- All construction site wastes shall be collected, removed, and disposed of in accordance with applicable regulatory requirements and only at authorized disposal sites.
- Equipment and containers shall be checked for leaks, corrosion, support or foundation failure, or other signs of deterioration. Those that are found to be defective shall be immediately repaired or replaced.

Is waste disposal a significant element of the proposed project?

Yes No

Waste disposal of concrete and asphalt debris will typically not be stockpiled. Enclosed dumpsters for the removal of debris are not expected.

3.4 Spill Prevention and Control

All chemicals and/or hazardous waste material must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. All areas where potential spills can occur and their accompanying drainage points must be described. The owner and operator must establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. The operator must establish and make highly visible location(s) for the storage of spill prevention and control equipment and provide training for personnel responsible for spill prevention and control on the construction site.

Are spill prevention and control measures required for this particular project?

Yes No

Chemicals and or hazardous materials shall be stored in a temporary shelter to protect materials from rain and also to contain any potential spills.

3.5 Control of Allowable Non-Stormwater Discharges

Are there allowable non-Stormwater discharges present on or near the project area?

Yes No



Soil Erosion and Sediment Control Plan - ATTACHMENTS
INSERT PROJECT NAME

Are there any known or proposed contaminated discharges, including anticipated contaminated dewatering operations, planned on or near the project area?

Yes **to be determined* No

If yes, list the discharge types and the RIPDES individual permit number(s) or RIPDES Remediation General Permit Authorization number(s) associated with these discharges.

Dewatering may be required for tide management at kayak launch locations. See Soil Investigation Report and Remedial Action Work Plan by CEC for additional information regarding soil management.

3.6 Control Dewatering Practices

Site owners and operators are prohibited from discharging groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate control measures.

Examples of appropriate control measures include, but are not limited to, temporary sediment basins or sediment traps, sediment socks, dewatering tanks and bags, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. Uncontaminated, non-turbid dewatering water can be discharged without being routed to a control.

At a minimum the following discharge requirements must be met for dewatering activities:

1. Do not discharge visible floating solids or foam.
2. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area.
3. At all points where dewatering water is discharged, utilize velocity dissipation devices.
4. With filter backwash water, either haul it away for disposal or return it to the beginning of the treatment process.
5. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications.
6. Dewatering practices must involve the implementation of appropriate control measures as applicable (i.e. containment areas for dewatering earth materials, portable sediment tanks and bags, pumping settling basins, and pump intake protection.)

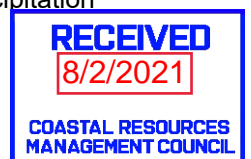
Is it at all likely that the site operator will need to implement construction dewatering in order to complete the proposed project?

Yes No

Dewatering may be required for tide management at kayak launch locations. See Soil Investigation Report and Remedial Action Work Plan by CEC for additional information regarding soil management. See sheets 48 & 49.

3.7 Establish Proper Building Material Staging Areas

All construction materials that have the potential to contaminate stormwater must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. Designated areas shall be approved by the site owner/engineer. Minimization of exposure is not required in cases where the exposure to precipitation



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and to stormwater will not result in the discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

Storage and staging of materials will be coordinated with overall staging for the project – TBD based on coordination with the selected contractor, City, and RIDOT. Storage will be provided to meet RIDEM requirements for location and minimizing exposure to minimize contamination.

3.8 Minimize Dust

Dust control procedures and practices shall be used to suppress dust on a construction site during the construction process, as applicable. Precipitation, temperature, humidity, wind velocity and direction will determine amount and frequency of applications. However, the best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time. Dust Control measures outlined in the *RI SESC Handbook* shall be followed. Other dust control methods include watering, chemical application, surface roughening, wind barriers, walls, and covers.

Exposure of bare soil will be minimal and will be limited at any one time, project is located within existing street rights-of-way. Dust control will be handled with the implementation of water treatment until surfaces are moist and may include dust control treatment agents such as calcium chloride, polymers and tackifiers vary greatly. Follow manufacturer's written instructions to assure appropriate application rates.

3.9 Designate Washout Areas

At no time shall any material (concrete, paint, chemicals) be washed into storm drains, open ditches, streets, streams, wetlands, or any environmentally sensitive area. The site operator must ensure that construction waste is properly disposed of, to avoid exposure to precipitation, at the end of each working day.

Will washout areas be required for the proposed project?

Yes No

Washout locations will be coordinated with overall staging for the project – TBD based on coordination with the selected contractor, City, and RIDOT. Washout will be provided to meet RIDEM requirements for location and detail to minimize contamination.

3.10 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Vehicle fueling shall not take place within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Designated areas shall be depicted on the SESC Site Plans, or shall be approved by the site owner.

Vehicle maintenance and washing shall occur off-site, or in designated areas depicted on the SESC Site Plans or approved of by the site owner. Maintenance or washing areas shall not be within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Maintenance areas shall be clearly designated, and barriers shall be used around the perimeter of the maintenance area to prevent stormwater contamination.

Construction vehicles shall be inspected frequently for leaks. Repairs shall take place immediately. Disposal of all used oil, antifreeze, solvents and other automotive-related chemicals shall be according to applicable regulations; at no time shall any material be washed down the storm drain or into any environmentally sensitive area.



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- Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling.
- In order to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater, one must:
 - Enclose or cover stored fuel;
 - Use a covered, paved area dedicated to vehicle maintenance and washing;
 - Develop a spill prevention and cleanup plan;
 - Prevent hazardous chemical leaks by properly maintaining vehicles and equipment;
 - Properly cover and provide secondary containment for fuel drums and toxic material; and
 - Properly handle and dispose of vehicle wastes and wash water.

Installation:

- Vehicle fueling, maintenance and/or washing will occur off-site, or in designated areas.
- Designated areas will be approved by the project engineer or responsible person.
- Areas will be clearly designated, and berms, sandbags, or other barriers will be used around the perimeter of the maintenance area to prevent stormwater contamination.
- Make available absorbent spill cleanup materials and spill kits in fueling areas and on fueling trucks.

Inspection and Maintenance:

- Inspect vehicles, equipment, and storage containers daily for leaks.
- Repair leaks immediately or remove problem vehicles or equipment from the project site.
- Keep ample supplies of spill cleanup materials onsite.
- Clean up spills and dispose of cleanup materials immediately.

3.11 Chemical Treatment for Erosion and Sediment Control

Chemical stabilizers, polymers, and flocculants are readily available on the market and can be easily applied to construction sites for the purposes of enhancing the control of erosion, runoff, and sedimentation. The following guidelines should be adhered to for construction sites that plan to use treatment chemicals as part of their overall erosion, runoff, and sedimentation control strategy.

The U.S. Environmental Protection Agency has conducted research into the relative toxicity of chemicals commonly used for the treatment of construction stormwater discharges. The research conducted by the EPA focused on different formulations of chitosan, a cationic compound, and both cationic and anionic polyacrylamide (PAM). In summary, the studies found significant toxicity resulting from the use of chitosan and cationic PAM in laboratory conditions, and significantly less toxicity associated with using anionic PAM. EPA's research has led to the conclusion that the use of treatment chemicals for erosion, runoff, and sedimentation control requires proper operator training and appropriate usage to avoid risk to aquatic species. In the case of cationic treatment chemicals additional safeguards may be necessary.

Application/Installation Minimum Requirements

If a site operator plans to use polymers, flocculants, or other treatment chemicals during construction the SESC plan must address the following:

1. Treatment chemicals shall not be applied directly to or within 100 feet of any surface water body, wetland, or storm drain inlet.
2. Use conventional erosion, runoff, and sedimentation controls prior to and after the application of treatment chemicals. Use conventional erosion, runoff, and sedimentation controls prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated stormwater is directed to a sediment control (e.g. temporary sediment basin, temporary sediment trap or sediment barrier) prior to discharge.



Soil Erosion and Sediment Control Plan - ATTACHMENTS
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3. Sites shall be stabilized as soon as possible using conventional measures to minimize the need to use chemical treatment.
4. Select appropriate treatment chemicals. Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction and to the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or treatment area. **Soil testing is essential. Using the wrong form of chemical treatment will result in some form of performance failure and unnecessary environmental risk.**
5. Minimize discharge risk from stored chemicals. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets), or provide equivalent measures, designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means (e.g., storing chemicals in covered areas or having a spill kit available on site).
6. Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier. You must also use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the supplier of the applicable chemicals, or document specific departures from these practices or specifications and how they reflect good engineering practice.

Will chemical stabilizers, polymers, flocculants or other treatment chemicals be utilized on the proposed construction project?

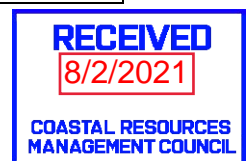
Yes No

3.12 Construction Activity Pollution Prevention Control Measure List

Complete the following table for each Phase of construction where Pollution Prevention Control Measures will be implemented. This table is to be used as part of the SESC Plan Inspection Report – please fill out accordingly.

It is expected that this table will be amended as needed throughout the construction project.

Phase No. #		
Location/Station	Control Measure Description/Reference	Maintenance Requirement
Right-of-Way Pollution Prevention	Catch basin & inlet protection – Section Six <i>RI SESC Handbook.</i>	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Remove sediment when 50 percent of storage volume is achieved.
Kinsley Avenue Kayak Launch	Section 3 – Tree protection, stockpile management (if required) Section 4 – slope protection Section 6 – Silt sock, <i>RI SESC Handbook.</i>	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Repair slope protection if soils and/or seed have washed away, and/or if the blanket has become dislodged or torn.



Soil Erosion and Sediment Control Plan - ATTACHMENTS
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Holden Street Kayak Launch	Section 3 – Tree protection, stockpile management (if required) Section 4 – slope protection Section 6 – Silt sock, <i>RI SESC Handbook</i> .	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Repair slope protection if soils and/or seed have washed away, and/or if the blanket has become dislodged or torn.
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SECTION 4: CONTROL MEASURE INSTALLATION, INSPECTION, and MAINTENANCE

4.1 Installation

Complete the installation of temporary erosion, runoff, sediment, and pollution prevention control measures by the time each phase of earth-disturbance has begun. All stormwater control measures must be installed in accordance with good judgment, including applicable design and manufacturer specifications. Installation techniques and maintenance requirements may be found in manufacturer specifications and/or the *RI SESC Handbook*.

See Woonasquatucket River Greenway Plans, sheets 35-42, 48 & 49.

4.2 Monitoring Weather Conditions

Anticipating Weather Events - Care will be taken to the best of the operator’s ability to avoid disturbing large areas prior to anticipated precipitation events. Weather forecasts must be routinely checked, and in the case of an expected precipitation event of over 0.25-inches over a 24-hour period, it is highly recommended that all control measures should be evaluated and maintained as necessary, prior to the weather event. In the case of an extreme weather forecast (greater than one-inch of rain over a 24-hour period), additional erosion/sediment controls may need to be installed.

Storm Event Monitoring For Inspections - At a minimum, storm events must be monitored and tracked in order to determine when post-storm event inspections must be conducted. Inspections must be conducted and documented at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt.

The weather gauge station and website that will be utilized to monitor weather conditions on the construction site is as follows:

Providence, TF Green Airport (KPVD).

4.3 Inspections

Per RI SESC Handbook – Part D:

Minimum Frequency - Each of the following areas must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt:

- a. All areas that have been cleared, graded, or excavated and where permanent stabilization has not been achieved;



Soil Erosion and Sediment Control Plan - ATTACHMENTS
INSERT PROJECT NAME

- b. All stormwater erosion, runoff, and sediment control measures (including pollution prevention control measures) installed at the site;
- c. Construction material, unstabilized soil stockpiles, waste, borrow, or equipment storage, and maintenance areas that are covered by this permit and are exposed to precipitation;
- d. All areas where stormwater typically flows within the site, including temporary drainage ways designed to divert, convey, and/or treat stormwater;
- e. All points of discharge from the site;
- f. All locations where temporary soil stabilization measures have been implemented;
- g. All locations where vehicles enter or exit the site.

Reductions in Inspection Frequency - If earth disturbing activities are suspended due to frozen conditions, inspections may be reduced to a frequency of once per month. The owner and operator must document the beginning and ending dates of these periods in an inspection report.

Qualified Personnel – The site owner and operator are responsible for designating personnel to conduct inspections and for ensuring that the personnel who are responsible for conducting the inspections are “qualified” to do so. A “qualified person” is a person knowledgeable in the principles and practices of erosion, runoff, sediment, and pollution prevention controls, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of the permit.

Recordkeeping Requirements - All records of inspections, including records of maintenance and corrective actions must be maintained with the SESC Plan. Inspection records must include the date and time of the inspection, and the inspector’s name, signature, and contact information.

General Notes

- A separate inspection report will be prepared for each inspection.
- The Inspection Reference Number shall be a combination of the RIPDES Construction General Permit No - consecutively numbered inspections. ex/ Inspection reference number for the 4th inspection of a project would be: RIR10#####-4
- Each report will be signed and dated by the Inspector and must be kept onsite.
- Each report will be signed and dated by the Site Operator.
- The corrective action log contained in each inspection report must be completed, signed, and dated by the site operator once all necessary repairs have been completed.
- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.

Failure to make and provide documentation of inspections and corrective actions under this part constitutes a violation of your permit and enforcement actions under 46-12 of R.I. General Laws may result.



4.4 Maintenance

Maintenance procedures for erosion and sedimentation controls and stormwater management structures/facilities are described on the SESC Site Plans and in the *RI SESC Handbook*.

Site owners and operators must ensure that all erosion, runoff, sediment, and pollution prevention controls remain in effective operating condition and are protected from activities that would reduce their effectiveness. Erosion, runoff, sedimentation, and pollution prevention control measures must be maintained throughout the course of the project.

Note: It is recommended that the site operator designates a full-time, on-site contact person responsible for working with the site owner to resolve SESC Plan-related issues.

4.5 Corrective Actions

If, in the opinion of the designated site inspector, corrective action is required, the inspector shall note it on the inspection report and shall inform the site operator that corrective action is necessary. The site operator must make all necessary repairs whenever maintenance of any of the control measures instituted at the site is required.

In accordance with the *RI SESC Handbook*, the site operator shall initiate work to fix the problem immediately after its discovery, and complete such work by the close of the next work day, if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance.

When installation of a new control or a significant repair is needed, site owners and operators must ensure that the new or modified control measure is installed and made operational by no later than seven (7) calendar days from the time of discovery where feasible. If it is infeasible to complete the installation or repair within seven (7) calendar days, the reasons why it is infeasible must be documented in the SESC Plan along with the schedule for installing the control measures and making it operational as soon as practicable after the 7-day timeframe. Such documentation of these maintenance procedures and timeframes should be described in the inspection report in which the issue was first documented. If these actions result in changes to any of the control measures outlined in the SESC Plan, site owners and operators must also modify the SESC Plan accordingly within seven (7) calendar days of completing this work.

SECTION 5: AMENDMENTS

This SESC Plan is intended to be a working document. It is expected that amendments will be required throughout the active construction phase of the project. **Even if practices are installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site for the entire duration of the project.**

The SESC Plan shall be amended within seven (7) days whenever there is a change in design, construction, operation, maintenance or other procedure which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives (i.e. the selected control measures are not effective in controlling erosion or sedimentation).

In addition, the SESC Plan shall be amended to identify any new operator that will implement a component of the SESC Plan.

All revisions must be recorded in the Record of Amendments Log Sheet, which is contained in Attachment G of this SESC Plan, and dated red-lined drawings and/or a detailed written description must be appended to the SESC Plan. Inspection Forms must be revised to reflect all amendments. Update the Revision Date and the Version # in the footer of the Report to reflect amendments made.



Soil Erosion and Sediment Control Plan - ATTACHMENTS
INSERT PROJECT NAME

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and operator. Any amendments to control measures that involve the practice of engineering must be reviewed, signed, and stamped by a Professional Engineer registered in the State of RI.

The amended SESC plan must be kept on file at the site while construction is ongoing and any modifications must be documented.

Attach a copy of the Amendment Log.

SECTION 6: RECORDKEEPING

RIPDES Construction General Permit – Parts III.D, III.G, III.J.3.b.iii, & V.O

It is the site owner and site operator's responsibility to have the following documents available at the construction site and immediately available for RIDEM review upon request:

- A copy of the fully signed and dated SESC Plan, which includes:
 - A copy of the General Location Map
INCLUDED AS ATTACHMENT A
 - A copy of all SESC Site Plans
INCLUDED AS ATTACHMENT B
 - A copy of the RIPDES Construction General Permit
INCLUDED AS ATTACHMENT C
 - A copy of any regulatory permits (RIDEM Freshwater Wetlands Permit, CRMC Assent, RIDEM Water Quality Certification, RIDEM Groundwater Discharge Permit, RIDEM RIPDES Construction General Permit authorization letter, etc.)
INCLUDED AS ATTACHMENT D
 - The signed and certified NOI form or permit application form
INCLUDED AS ATTACHMENT E
 - Completed Inspection Reports w/Completed Corrective Action Logs
INCLUDED AS ATTACHMENT F
 - SESC Plan Amendment Log
INCLUDED AS ATTACHMENT G

SECTION 7: PARTY CERTIFICATIONS

RIPDES Construction General Permit – Part V.G

All parties working at the project site are required to comply with the Soil Erosion and Sediment Control Plan (SESC Plan including SESC Site Plans) for any work that is performed on-site. The site owner, site operator, contractors and sub-contractors are encouraged to advise all employees working on this project of the requirements of the SESC Plan. A copy of the SESC Plan is available for your review at the following location: (TBD), or may be obtained by contacting the site owner or site operator.

The site owner and site operator and each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement.

I acknowledge that I have read and understand the terms and conditions of the Soil Erosion and Sediment Control (SESC) Plan for the above designated project and agree to follow the control measures described in the SESC Plan and SESC Site Plans.



Soil Erosion and Sediment Control Plan - ATTACHMENTS
INSERT PROJECT NAME

Site Owner:

City of Providence
Name & Title
44 Westminster Street
Providence, RI 02903

signature/date

Site Operator:

Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

signature/date

Designated Site Inspector:

Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

signature/date

SubContractor SESC Plan Contact:

Horsley Witten Group
Jonathan Ford, PE
55 Dorrance Street, Suite 200
Providence, RI 02903
401-272-1717 jford@horsleywitten.com

signature/date

LIST OF ATTACHMENTS

Attachment A - General Location Map

Attachment B - SESC Site Plans

Attachment C - Copy of RIPDES Construction General Permit and Authorization to Discharge *(To save paper and file space, do not include in DEM/CRMC submittal, for operator copy only)*

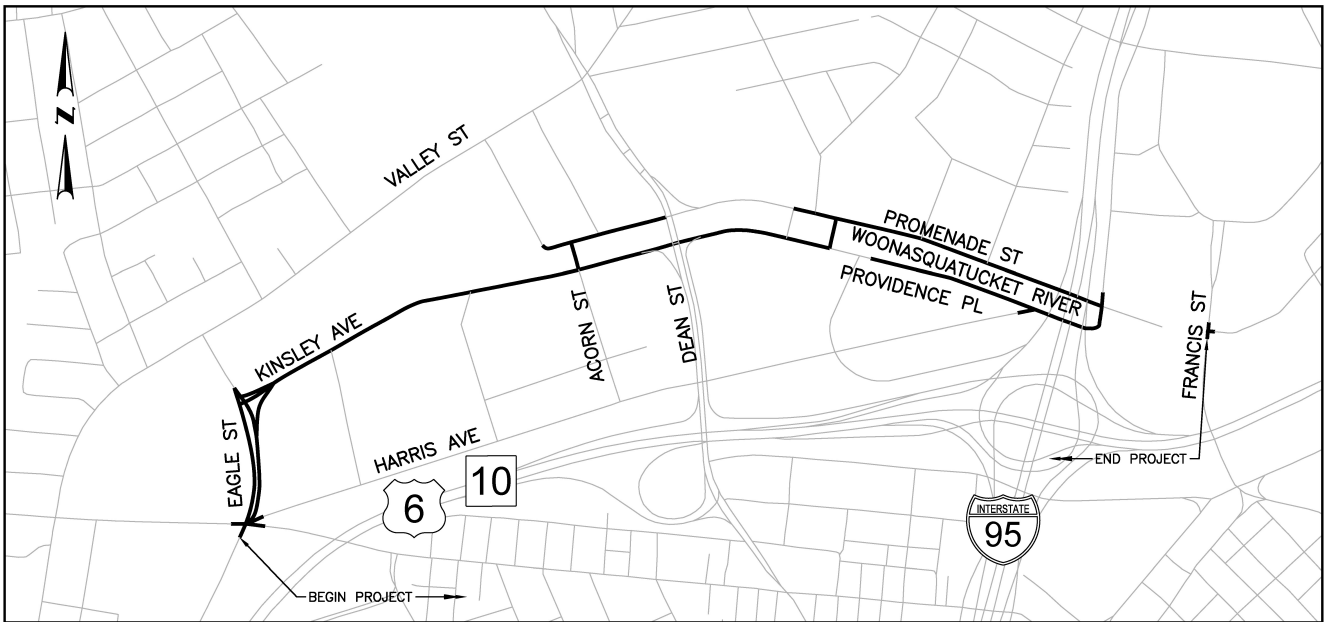
Attachment D - Copy of Other Regulatory Permits

Attachment E - Copy of RIPDES NOI

Attachment F - Inspection Reports w/ Corrective Action Log

Attachment G - SESC Plan Amendment Log





RECEIVED
8/2/2021
COASTAL RESOURCES
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