City of Newport, Rhode Island

Application for State Assent: Vegetative Clearing & Stabilization Plan for Old Sediment Basin (North & South Easton Pond)

Department of Utilities, Newport Water Division

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Robert Schultz, Jr.: General Manager & Chief Engineer
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DAM SAFETY: INTERIM STABILIZATION REPORT

North & South Easton Pond in Vicinity of Old Sediment Basin

100 Bliss Mine Rd, Newport, RI 02840
2/20/25

1. INTRODUCTION

1.1. PURPOSE

This report details interim stabilization measures for the North Easton Pond embankment downstream of the auxiliary spillway near the old sediment basin. The area currently remains in violation of the Rhode Island Dam safety regulations, as identified in RIDEM NOV issued April 13, 2016, and has been increasingly impacted by intense storms. These measures outline priority work for dam safety compliance while adhering to Rhode Island Department of Environmental Management (RIDEM) dam safety regulations, Coastal Resources Management Council (CRMC) requirements, and other relevant regulations, guidance, and best practices.

The Easton Pond Dam system is essential to the drinking water supply for Aquidneck Island. North and South Easton Ponds serve as critical water impoundments. Failure to stabilize the embankment poses significant risks to potable water security, regulatory compliance, and infrastructure resilience.

1.2. NEWPORT WATER SYSTEM

The original Newport water works system dates back to 1876 when the City accepted George Norman's proposal to build the Easton Ponds and a waterworks system. In 1881, the Newport Water Works Company was incorporated and was later succeeded by the Newport Water Corporation in 1929. The City of Newport has owned and operated the water system since 1936. The City Charter indicates the City's legal authority to own and operate the water system. The water system is currently known as the City of Newport, Department of Utilities, Newport Water Division (NWD). The Station No. 1 Site, AP 11 Lot 731, Bliss Mine Road, has been developed with ongoing improvements, operations, and maintenance since 1876. Supporting aerial photos, plans, and other documentation have been previously provided and can be provided again on request.

The NWD is a division of the City of Newport Department of Utilities, which is responsible for the day-to-day operations and maintenance of the water system. The NWD water system consists of nine (9) surface water reservoirs, two (2) treatment plants, five (5) water storage facilities, nine (9) raw and treated water booster pump stations, and approximately 200 miles of distribution piping. There are 14,895 customer service accounts within the water system, including ten (10) connections with the Naval Station Newport, serving over 40,000 customers in Newport, Middletown, and Portsmouth. The NWD also maintains a wholesale connection with the PWFD, where water is sold wholesale to the Portsmouth Water and Fire District.

The adjacent North and South Easton Ponds are located in Newport and Middletown and are separated by an earthen embankment known as North Easton Pond Dam (NEPD). NEPD is an approximately 2,780-foot-long earthen dam with a maximum reported structural height of approximately 14-feet and an estimated hydraulic height of about 10-feet. The NEPD embankment divides the open waters of North Easton Pond (NEP) and South Easton Pond (SEP) to form a hydraulic barrier between the impoundments. NEPD primary spillway, a 130-foot-long concrete weir lined with riprap, is located at the southeastern corner of the reservoir. A 100-foot-wide auxiliary spillway and its discharge channel are situated at the southwestern corner of the reservoir, directly to the south of the NWD treatment plant. A vegetated sediment basin lies to the south of the NEPD auxiliary spillway between the two impoundments.

South Easton Pond Dam (SEPD) is directly downstream and south of NEP Dam. SEP Dam is surrounded by critical infrastructure including a state highway (Memorial Boulevard, Route 138A), an ultraviolet stormwater disinfection system, a sewage pumping station, and a public beach (Easton Beach). There are numerous residential and commercial properties in the direct vicinity of the dam, in addition to the roads and utilities that connect them. South Easton Pond was constructed in portions of what was previously a low-lying marsh area, necessitating a ringed embankment and moat around the impoundment. SEPD is an approximately 9,700-foot-long earthen dam with a maximum reported structural height of approximately 13 feet and a hydraulic height of about 10 feet. The embankment runs around 85% percent of the perimeter of the impoundment, with the NEPD along the northeastern side of the pond extending across the last 15% to fully surround the pond. These ponds function as storage and distribution reservoirs, collecting runoff from Bailey's Brook watershed. Water is pumped more than the system demand from the Paradise and Gardiner Ponds, which flows into NEP. The total storage capacity of the North and South Easton s Ponds is 685.1 MG, and the total usable capacity of the ponds is 650.8 MG and represents a critical portion of NWD safe yield. Without these reservoirs, Newport Water s capacity would decrease from 16 million gallons per day (MGD) to 7 MGD, posing a significant risk to public water supply reliability.

These ponds and the moat are not naturally occurring but rather manmade structures designed in the 1800s specifically to supply drinking water for the City of Newport. The water supply system has significantly changed since its initial construction. Due to the impacts of the increased scale of operations, urbanization, climate change, and aging infrastructure, action to strengthen the resiliency of these structures is necessary and overdue. In fact, the

NWD has been actively working on these issues since the late 1980s; this is documented in the 1991 USDA Flood Prevention Evaluation for Ellery Road and Eustis Avenue (1991 USDA Study). While flooding and water quality issues predate this study, numerous studies, reports, engineering design, and construction have followed including but not limited to:

- Easton Pond Dam and Moat Study
- Easton Beach Ultraviolet Light Disinfection Pilot Study Report
- Easton Beach Ultraviolet Light Disinfection Preliminary Design Report
- Easton Beach Ultraviolet Light Disinfection Final Design and Bid Documents
- Complete Permitting and Associated Bidding Bid and Construction
- Easton Beach Ultraviolet Light Disinfection
- South Easton Pond Dam Repairs and Improvements Design and Construction
- Easton Pond Dam Spillways and Lawton Valley Reservoir Dam Evaluation and Design Project
- Climate Resiliency Assessment Technical Memorandum - North and South Easton Pond Reservoirs
- Easton Pond Dam North Spillway Repairs

1.3. 2007 NOR'EASTER DAM IMPACTS

In April 2007, a powerful nor'easter struck Newport, Rhode Island, causing significant damage to the dam system of SEP & NEP. This required an emergency response from City workers and crews from Naval Station Newport to stabilize the embankments and prevent a breach. Immediate stabilization efforts included reinforcing the eroded sections with stone riprap to mitigate further erosion. Following the emergency repairs, a long-term solution was designed, permitted, and constructed, culminating in the 2013 completion of the articulated concrete matting system on a portion of south, north, and west embankments to enhance structural resilience and prevent future failures.

1.4. 2020 ABANDONMENT OF LEGACY PIPELINES

Numerous legacy issues, such as the 2020 abandonment of legacy pipelines in response to water loss by conduit, such legacy conditions continue to require ongoing and preventive maintenance while we sign, permit, and fund long-term solutions.

1.5. RECENT FILLING AND STABILIZATION

Over the last few years, beneficial reuse and strategic filling by NWD has been employed to maintain and enhance these structures, helping to improve their stability, resilience, and longevity. The interim project focuses on stabilizing the sediment basin to extend its functional lifespan and stabilize the NEPD while the design and permitting phases for a long-term resilience project proceed.

This approach aligns with projected climate conditions. Present-day 50-year inland precipitation events could exceed the capacity of both dams, leading to overtopping at existing low points in their embankments. Flow transfer currently occurs near the sediment basin and over the SEP.

Modeling indicates that, under present-day conditions, overtopping due to inland flooding would occur during a 10-year storm event, while saltwater intrusion would result from a 10-year coastal surge event; both of which have been observed in recent intense storms. Under projected 2070 climate conditions, the SEPD s capacity would be exceeded by a 10-year inland flood, significantly increasing the risk of overtopping and failure for storms of smaller return periods.

Additionally, overtopping of the existing dam embankments due to coastal surge could occur during present-day 100-year (SEPD) and 200-year (NEPD) events. By 2070, this risk escalates, with overtopping predicted during 5-year (SEPD) and 50-year (NEPD) coastal surge events. Overtopping and subsequent erosion remain critical failure mechanisms for both structures.

1.6. 2070 RESILIENCY PROJECT

Newport has continued to work with Fuss & O Neill, Inc. (F&O) on two alternatives to improve the resilience of the NEPD and SEPD against future intense coastal and inland storms in Newport and Middletown, Rhode Island from a previous phase of work summarized in Fuss & O Neill s Report titled Climate Change Resiliency Assessment - Technical Memorandum North and South. This resulted in a December 2023 design report that is essentially a continuation of the previous work.

The recommended plan is as follows: now in active design, advance to a permitted shovel-ready project.

1.6.1. EMBANKMENTS

A total of 7,900 feet of embankments surrounding the NEP and SEP would be raised and armored, and 1,150 feet would just be armored.

Raised to an elevation of 13.4 feet for the NEP embankments to limit overtopping due to inland flooding and

Raised to an elevation of 12.1 feet for the SEP embankments to limit overtopping due to inland and coastal flooding.

Armored with Articulated Concrete Block (ACB) matting, similar to the repairs done on the SEP western embankment, to reduce risk of erosion and protect against wave action, moat flows, and overtopping events.

1.6.2. SPILLWAYS

The NEP auxiliary spillway was removed and replaced in kind in the Summer of 2023.

The removal and reconstruction of the SEP primary spillway and the installation of a hydraulically powered crest gate. The SEP primary spillway would be widened from its current hydraulic width of 100 feet and height of 4.5 feet to have a hydraulic width of 120 feet and 7 feet to prevent saltwater intrusion through the SEP spillway. The gate would connect to constructed concrete piers on either side of the gate.

1.6.3. TIDAL GATE(S)

Tidal gates at J Paul Braga Jr. Memorial Field would span across the Moat and perpendicular to the SEP north embankment to prevent saltwater intrusion through the NEP auxiliary spillway. The final location and any required modifications to the Moat will be designed and permitted under the 2070 Resiliency Project.

1.6.4. 2070 RESILIENCY PROJECT COST AND FUNDING

The current design poses substantial mitigation benefits from risks under current conditions, including the mitigation of loss of services, including potable water, sanitary sewer, electric, UV plant generators, and emergency response. Additionally, the design mitigates traffic detours, embankment breach repairs, roadway repair costs, UV plant damage, and, most importantly, loss of life.

The budgetary opinion of construction costs associated with embankment raising, armoring alternatives, and hydraulic barriers is $37.0 to 52.2 million. Even with these conditions, the peak water surface elevations in NEP Dam still exceed the dams proposed embankment elevations during the ½ PMF event; the embankment separating NEPD and SEPD should be designed and constructed to overtop without forming a breach. As design advances, we will look to maximize flow from North to South.

The only funding option for this project is FEMA s Building Resilient Infrastructure and Communities (BRIC) grant. The future of this program is currently unknown as the BRIC notice of funding was removed for changes that align with the new administration. The program would fund 75% of the final design and construction costs if awarded. The NWD would need to provide a 25% match, about $10.5 million.

2. INTERIM STABILIZATION PROJECT

The interim project is developed in alignment with dam safety regulations and critical drinking water supply protections, acknowledging prior dam safety violations and an existing consent agreement. Given the increased storm frequency and intensity we ve experienced in recent years, additional structural reinforcements are required to prevent further damage and risks until the long-term resiliency plan can be implemented. The sediment basin is no longer used for its original purpose, resulting in vegetation, safety, maintenance issues, increased seepage concerns, and the associated risk of structural failure, necessitating urgent mitigation measures.

3. INTERIM PROJECT OBJECTIVES

The Interim primary objectives of this interim stabilization effort are:

- Prevent further sediment loss and environmental degradation.
- Improve site stability and reduce problematic vegetation coverage.
    - Phragmites grow back very quickly
    - Even if cut, its underground rhizomes
    - Phragmites cut in spring or early summer; they can regrow to nearly full height (10- 15 feet) by late summer.
    - If the area is not adequately addressed, Phragmites will require indefinite maintenance combined with herbicide treatment.
    - Mitigate vegetative cover for burrowing animals.
- Enhance flood resilience in the short term, installing riprap protection to mitigate erosion.
- Maintain compliance with regulatory requirements while planning long-term improvements.
- Address dam safety concerns and ensure continued compliance with the consent agreement.
- Prioritize the protection of the critical drinking water supply system.
- Mitigate seepage risks through reinforcement strategies and controlled drainage improvements, if necessary.
- Leverage beneficial reuse and controlled filling efforts to reinforce embankments and improve long-term stability.
- Allow for a complete regular inspection and monitoring without interference from vegetation.

4. SITE CONDITIONS & CHALLENGES

4.1. CURRENT CONDITIONS

- The SEPD (State ID#585, Federal ID# RI09101) is comprised of earthen embankments and a spillway structure enclosing the SEP.
- The NEPD (State ID#584, Federal ID# RI09103) is comprised of an earthen embankment berm, primary spillway, auxiliary spillway, sediment basin and separates NEP & SEP.
- The SEPD embankment extends from the emergency overflow auxiliary spillway of the NEP running along the western perimeter and continuing along Memorial Boulevard, reaching a height of approximately 13 feet from toe to crest.
- The embankment continues along the eastern border of the SEP in Middletown, connecting to the NEP overflow primary spillway.
- The NEPD embankment between NEP & SEP serves a critical water quality function by increasing detention time in NEP and protecting pressure mains carrying raw and treated water to the distribution system.
- The Moat is a manmade channel that surrounds the SEP on its west, south, and east sides. The southern end of the Moat meets the eastern portion at the spillway to the SEP. It then flows under Memorial Boulevard, splitting Easton Beach and Atlantic Beach before entering Easton s Bay between the two beaches.
- A smaller embankment forms the southwestern boundary of the NEP near the treatment plant, with an approximate height of 5 feet and grassed downstream slopes.
- Upstream slopes of all embankments were originally armored with riprap or stone, but severe scarp formation and high vegetation growth are now evident.
- Localized erosion is continuously being addressed by NWD maintenance crews responsible for mowing embankment crests and downstream slopes.
- Historical modifications include repairs after hurricane damage in 1938 and 1985 and after nor easter damage in 2007, with portions of the embankment reconstructed to restore dam integrity.
- Over the past few years, controlled filling and beneficial reuse efforts have been implemented to improve embankment integrity, mitigate erosion, enhance overall flood resilience, and protect water supply.
- Trespassing and passive use have caused localized trampling and path formation,

resulting in ruts directly impacting erosion and channeling. This is particularly concerning in areas of legacy riprap more suitable to disturbance.

4.2. IDENTIFIED CHALLENGES

- Potential coastal surge and saltwater intrusion during extreme weather events.
  - Modeling indicated that saltwater intrusion would occur in a present-day 10-year coastal surge event.
- Potential capacity exceedance and overtopping during inland precipitation events.
  - Modeling indicated that overtopping resulting from inland flooding would occur in a present-day 10-year storm event.
- Insufficient spillway capacity to manage increased flood levels.
- Encroachment of invasive vegetation affecting inspection, maintenance and structural integrity.
- Compliance with the consent agreement regarding dam safety and stabilization.
- Increased suspected seepage identified in visual inspections due to deteriorating structural conditions and lack of effective drainage.
- The auxiliary spillway is only intended to be activated in flood conditions; however, the existing system is vulnerable in most storm events, such as a present-day 10-year storm event that could result in overtopping via inland flooding.
- Seepage pathways in the old sediment basin are contributing to water loss and stability concerns, requiring mitigation efforts to maintain the integrity of the drinking water supply system.
- The Moat serves three critical purposes:
  - Provides a pathway for stormwater to discharge around the drinking water supply without entering it. Several stormwater outfall pipes collect runoff from surrounding areas and discharge into the Moat.
  - Prevents saltwater intrusion into the drinking water supply. Tidal flow backs up into the Moat, but an impoundment structure prevents this flow from contaminating the ponds.
  - Provides a discharge path when SEP reaches full capacity.
- The Moat receives flow from multiple sources, including:

- Groundwater discharge and sanitary sewer overflow.
- Tidal backflow.
- Stormwater discharge from land adjacent to the ponds.
- Stormwater runoff from Memorial Boulevard.
- Overflow from SEP.
- Wave Avenue Pump Station.

5. DAM SAFETY

5.1. SAFETY & STRUCTURAL

Seepage & Stability Risks: Identified seepage could cause internal erosion, piping, and structural failure, requiring immediate mitigation.

Hydraulic Pressures & Overtopping Risks: Hydrologic modeling predicts system overtopping by inland flooding in a present-day 10-year storm event. Increased vulnerability to storm events, overtopping, and soil migration threatens embankment stability. These conditions have been experienced in recent storm conditions.

Structural Integrity of Spillways & Embankments: Previous assessments highlighted existing structural vulnerabilities, necessitating intervention for regulatory compliance and resilience. The City has updated its Operation & Maintenance Plan to include active monitoring during significant storms and inspections after one foot or greater storms. Additionally, the plan includes a minimum of once-a-year RTK Drone inspections and thermal inspections as needed.

Regulatory Obligations: This project aligns with prior dam safety consent agreements and ensures adherence to state-mandated maintenance protocols.

5.2. STABILIZATION WORK

5.2.1. FILLING OF OLD SEDIMENT BASIN:

Eliminates potential for uncontrolled seepage pathways, reducing hydraulic gradients and internal erosion risks.

Provides a stable inspection area for ongoing maintenance and compliance monitoring.

Reinforces embankment stability, mitigating failure indicators such as settlement, piping, and animal burrowing.

5.2.2. EROSION & SEEPAGE CONTROL MEASURES:

Installation of armored riprap on downstream slopes exceeding 3:1 to protect embankments.

Implementation of toe drains and relief wells to manage seepage and reduce subsurface pressure build-up, per US Army Corps of Engineers (USACE) design criteria if needed. Follow up material will be provided prior to installation for review and approval.

Vegetation management to limit root penetration and prevent soil destabilization. The area will be planted in alignment with our Vegetation Plan to ensure a low-maintenance program that effectively mitigates geese and other wildlife adversely impacting water quality and system stability while delivering a sustainable ecosystem for bees and other pollinators. See Appendix A for Vegetation Plan.

5.2.3. STRUCTURAL MONITORING ENHANCEMENTS:

The seepage visual monitoring points field is marked to track hydraulic changes.

To mitigate potential seepage pathways from the old sediment basin, an AquaBlok cutoff dam trench will be installed. AquaBlok, a bentonite-coated aggregate, will create a low-permeability barrier that effectively reduces water infiltration and controls subsurface migration. The trench will be strategically placed to intercept and block seepage, ensuring the structural integrity of the surrounding area while preventing contamination or unintended water movement. This installation is a proactive measure to enhance long-term stability and environmental protection

Routine inspection and embankment maintenance per the Operation & Maintenance Plan.

5.2.4. BENEFICIAL SOIL REUSE

North and South Easton Ponds were constructed in the late 1800s and underwent repairs in the 1930s. Due to the availability of existing glacial till with slowly permeable soil, construction utilized locally sourced materials. The naturally occurring fragipan in the area, which restricts water movement, was leveraged to enhance water retention. Fragipan is typically composed of **silt and fine sand,** but its dominant texture is usually **silt loam to silty clay loam**. This m, material is easily detained in the field by Feel Test (Ribbon Test), Sedimentation Test (Jar Test), Hand-Washing Test or Smear Test.

Test	Silt Loam	Silty Clay Loam
Feel (Ribbon) Test	Smooth, short ribbon (<1 inch)	Sticky, longer ribbon (1-2 inches)
Jar Test	Thick silt layer, minor clay	More clay, cloudier water
Hand-Washing Test	Washes off easily	Leaves sticky residue
Smear Test	Smooth, slight sheen	Sticky, resists spreading

Because the materials were locally sourced, they do not fully meet modern construction specifications. To address this, the city has implemented a soil management strategy for beneficial reuse, as the island's soil composition closely aligns with that originally used in the dam's construction.

The Department of Utilities Soil Management Plan allows for the reuse of excavated materials unless there are clear signs of contamination. Materials in this region are generally considered urban fill, which may include a mix of sand, gravel, brick, ash, cinders, and construction debris. The soil in the project area is primarily silty and sandy loam, aligning with regional material composition. However, reuse is restricted if the soil exhibits potential contamination indicators. Soil reuse poses many benefits, including reduced environmental impact & waste, improved soil quality, reduced erosion, and improved site drainage.

Indicators of potential contamination include visual, olfactory, textural & physical, and chemical & analytical indicators.

When soil shows indicators of potential contamination, the Soil Management Plan directs staff to follow a structured approach: identify, segregate, contain, document, and dispose.

Following the successful disposal, staff conduct post-work cleanup and documentation, including the decontamination of equipment, documentation of sampling results, disposal manifest & site conditions, and submission of reports as required. See Appendix B for Soil Management Plan.

6. HYDROLOGIC & HYDRAULIC CONSIDERATIONS

6.1. HYDRAULIC MODELING & RISK ASSESSMENT

HEC-RAS hydraulic modeling assessed spillway discharge under various storm return periods, modeling predicts system overtopping via inland flooding in a present-day 10-year storm event.

Visual confirmation of active seepage but not indicative of internal erosion and full scale of stability issues, necessitating targeted control measures and continuous monitoring.

Flood scenarios evaluated for future climate conditions show increased risks by 2070 without mitigation, but funding for the implementation of the long-term resiliency project remains unknown.

6.2. EMBANKMENT RESILIENCE & SPILLWAY DISCHARGE CONSIDERATIONS

Storm Resilience: Present-day 10-year storms pose a risk of overtopping, requiring the implementation of an interim stabilization project to stabilize our ponds and water supply until the recommended long-term project is funded and constructed.

Interconnectivity: NEPD embankment overtops during the present-day 50-year inland precipitation event could result in a domino breach scenario in which SEPD subsequently overtops and fails. In recent years, we ve increasingly experienced high-intensity, short-duration storm events that overwhelm our systems, necessitating expedited interim stabilization measures.

Failure Risk Mitigation: The NEP spillway overflows the South Pond embankment, increasing failure risk until long-term hardening measures are implemented. The interim project creates a controlled overflow design, ensuring dam safety without embankment breach formation.

7. IMPACT AVOIDANCE & MINIMIZATION STRATEGIES

7.1. RULES AND REGULATIONS FOR DAM SAFETY APPENDIX

1) Minimize the impacts of lowering the water elevation in a reservoir during a repair project, such as installing a temporary cofferdam. This is necessary to reduce detrimental impacts to fish and wildlife associated with the wetland environment and to reduce loss of aquatic vegetation that serves as wildlife habitat. If a dam owner is unable to install controls to maintain water in the reservoir to assist in protecting fish and wildlife habitat, the dam owner must specifically inform the Director of this situation and document in writing why water is not proposed to be maintained upstream of the dam during the repair activity. Efforts must be made to avoid drawdowns between April 15 to July 1, and to avoid significant drawdowns between October 15 and March 15.

    - The project, as proposed, has no impact on the water elevation in the reservoir.

2) Use best management practices for installing sediment and erosion controls to prevent sediment from entering adjacent waters of the state.

    - Erosion and sediment control (ESC) measures will be employed in accordance with the Rhode Island Soil Erosion and Sediment Control Handbook, as indicated in the drawings provided. Temporary controls will be used if necessary. Permanent controls generally consist of vegetation and riprap stone armor protection.

3) Minimize construction disturbance to keep disturbed soils and areas subject to erosion to a minimum.

    - As mentioned above, erosion and sediment control (ESC) measures will be employed in accordance with the Rhode Island Soil Erosion and Sediment Control Handbook. The area of disturbance will be limited only to what is deemed necessary for project construction activities, and staff will follow best practices relating to soil preparation, topsoiling, low-impact equipment, monitoring, and maintenance to minimize disruption.

4) Prevent any hazardous substances injurious to aquatic life used during the repair activity from entering any adjacent water and freshwater wetlands.

- All materials which could be a potential source of pollution, such as gasoline, diesel fuel, hydraulic oil, etc. will be stored in a safe location and properly disposed consistent with all applicable law and/or regulations. See Appendix B for Soil Management Plan.

5) Stabilize all disturbed soils following construction activities to ensure erosion will not take place.

    - Project will be implementing both temporary and permanent best management practices for sediment and erosion control. Additionally, project will follow the Vegetation Plan (Appendix A) to stabilize soil, prevent erosion, and maintain ecosystem health.

6) Minimize clearing of vegetation to that necessary to conduct the project and remove the slash material from adjacent freshwater wetlands and water bodies.

    - Removal of excessive woody vegetation that contributes to soil instability. Targeted clearing along embankments while preserving beneficial root systems and maintaining stability. Implementation of erosion and sediment control measures to prevent runoff impacts. Ensure vegetation management aligns with freshwater wetland and coastal management regulations.

7) Use only the amount of fill of other material necessary to complete the project and minimize the placement of material in any flood plain.

    - All filling is associated with the embankment stabilization and is necessary to ensure stability, proper operation, and ongoing maintenance. The amount of fill used is limited to only what is required to complete the project while minimizing placement within any floodplain. Materials to be used in the completion of project maintenance and repairs are consistent with materials currently used in the area. No new above-ground structures are proposed under this project. The Station No. 1, AP 11 Lot 731, Bliss Mine Road has been developed with ongoing improvements, operations and maintenance since 1876.

8) Replace, restore or mitigate alterations to freshwater wetlands as deemed necessary in the opinion of the Department.

    - The primary purpose of the project is to ensure the protection and continued viability of the drinking water complex. All freshwater wetlands within the project area play a critical role in this system.

7.2. STABILIZATION MEASURES

- Application of a stabilization seed mix suitable for wetland-adjacent areas.

- Use of biodegradable erosion control blankets to promote root establishment.
- Strategic placement of riprap in areas vulnerable to scour.
- Incorporate storm damage mitigation measures to address resiliency needs in the face of increasing extreme weather events.
- Reinforcement of embankments with geogrid riprap to prevent structural failure from repeated storm events and increased hydraulic pressure.
- Incorporation of controlled filling and beneficial reuse strategies to improve embankment stability and long-term resilience. See Appendix B for Soil Management Plan.

7.3. HYDROLOGIC & HYDRAULIC ENHANCEMENTS

- Temporary grading adjustments to improve drainage patterns.
- Clearing of obstructed spillways and installation of sediment control barriers.
- Monitoring and adaptive management during storm events as detailed in the Operation & Maintenance Plan.
- Installation of toe drains and relief wells to address seepage concerns and prevent internal erosion if needed. Subject to review and approval from Dam Safety.
- Consideration of cutoff walls or upstream impervious blankets at toe of proposed embankment to reduce seepage risks.

7.4. EROSION & SEDIMENTATION CONTROL PLAN (ESCP)

Erosion and sediment control (ESC) measures will be employed in accordance with the Rhode Island Soil Erosion and Sediment Control Handbook. Project will be implementing both temporary and permanent best management practices for sediment and erosion control.

8. CONCLUSION

The interim stabilization project for the old sediment basin provides a necessary bridge between current vulnerabilities and long-term resilience planning. By implementing targeted clearing, stabilization techniques, and beneficial reuse efforts, Newport can mitigate erosion risks while advancing efforts to secure funding and develop a comprehensive resilience strategy. The project prioritizes dam safety, critical drinking water supply protection, and continuous stabilization to address prior regulatory concerns and prevent future violations. The interim stabilization and later resiliency projects are necessary to protect the long-term reliability of Aquidneck Island s primary raw water supply and, subsequently, the public s health.