Kenneth J. Hopkins
Mayor

Frank Corrao, P.E.
Director of Public Works

DEPARTMENT OF PUBLIC WORKS
CITY HALL, ROOM 109
869 PARK AVENUE
CRANSTON, RHODE ISLAND 02910

July 2, 2025

Mr. Thomas Ardito
Restore America's Estuaries
601 13th St. NW
Washington, D.C. 20005

Re: 2021 SNEP Watershed Grant Closeout – SNEPWG21-6-CRAN2
Project: Urban Green Infrastructure Construction Projects, Spectacle Pond Watershed

Mr. Ardito,

The City of Cranston is pleased to provide the enclosed executive summary for the above-mentioned project. Please consider the executive summary as our final report.

Project costs for design, construction, and outreach totaled $123,560. Reimbursement requests were submitted and approved totaling $81,549.60. Total project costs were lower than originally estimated mainly due to favorable construction bids received by the City.

It was a pleasure working with RAE on this meaningful project. Please feel free to contact me at (401) 780-3173 with any questions or comments.

The undersigned verifies that the descriptions of activities and expenditures in this progress report are accurate to the best of my knowledge; and that the activities were conducted in agreement with the grant contract. I also understand that matching fund levels established in the grant contract must be met.

By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the Federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (U.S. Code Title 18, Section 1001 and Title 31, Sections 3729–3730 and 3801–3812).

Sincerely,

Edward J Tally

Edward Tally
Environmental Program Manger

CC: Frank Corrao, P.E., Director of Public Works; Justus Davis, RAE; Derek Bonin, Project Specialist

Executive Summary
Urban Green Infrastructure Construction Projects, Spectacle Pond Watershed, Spectacle Pond, Cranston, RI

Project Summary

This project built on previous successes in the watershed implemented as a part of the 2019 Cranston SNEP Grant and improved water quality to this urban pond. This project included the construction of an underground infiltration stormwater treatment unit in the adjacent neighborhood as a demonstration project for both neighborhood residents and City DPW maintenance crews. Public outreach was conducted to empower residents to take proactive steps in reducing phosphorus runoff into Spectacle Pond, thereby promoting a healthier environment for the community, and the Lower Pawtuxet River Watershed

Applicant Organization Name and Address

City of Cranston
Cranston City Hall
869 Park Avenue
Cranston, RI 02910

Application Point of Contact and Project Leader

Edward Tally
Environmental Engineer
etally@cranstonri.org
401-780-3173

List of Partner Organizations

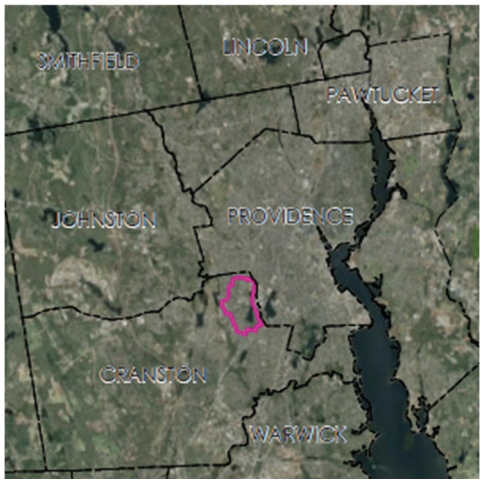
Save The Bay
Fuss and O'Neill
Providence Stormwater Innovation Center

Location of Project

Spectacle Pond, Cranston, RI
41°47'24.2"N 71°26'34.8"W

Cost

Grant Request $150,000 **Location**
Non-Federal Match $50,000; 33% Grant Match
Total $200,000



Spectacle Pond Watershed

Project Background:

Spectacle Pond is within a highly urbanized watershed located in the City of Cranston, Rhode Island. This pond is part of the Pawtuxet River watershed and is impaired for phosphorus-related impairments. Elevated phosphorus concentrations have resulted in a number of water quality impacts in this urban surface water. These impacts include substantial algal blooms and low dissolved oxygen conditions. A Total Maximum Daily Load (TMDL) has been prepared to restore this pond (September 2007).

Figure 1-1: Spectacle Pond, Watershed, and Surrounding Area

Water quality issues in Spectacle Pond also influence water quality and the phosphorous impairment in the Roger Williams Park Pond system. Spectacle Pond serves as the headwaters to the Roger Williams Park Ponds system by overflowing into a culvert that drains to Mashapaug Pond that then discharges to the Roger Williams Park Ponds via culverts.

Spectacle Pond could be a significant surface water resource within this urban watershed. Residential neighborhoods abut the pond with existing road rights-of-ways that could provide access for canoes and kayaks. A public park also abuts the southeastern corner of the pond. Current water quality issues in the pond limit its value to these urban neighborhoods.

Green infrastructure is typically an important approach to disconnecting urban runoff from impaired waters such as Spectacle Pond. The goal of this project is to follow the guidance outlined in the Spectacle Pond Watershed Phosphorus Investigation and Water Quality Improvement Plan developed by Fuss and O'Neill as a part of the Cranston 2019 SNEP Grant to continue implementation of green infrastructure to improve Spectacle Pond water quality. A summary of these documents are outlined below:

Spectacle Pond Limnological Investigation:

The Limnological Investigation was finalized in December of 2022 to estimate the relative contribution of internal cycling to total phosphorus loading in the pond. The results of the study indicate that only 1% of the phosphorus loading or approximately 5.6lbs is from internal sources. External sources including those from stormwater runoff, inlet sources, and waterfowl dominate the P loading at 99%. This study also explored recommendations including infiltration systems, tree filters, bioswales, and limiting access of waterfowl to areas that drain to pond. More detailed review of potential external treatment options was explored in the Spectacle Pond Phosphorus Reduction Plan.

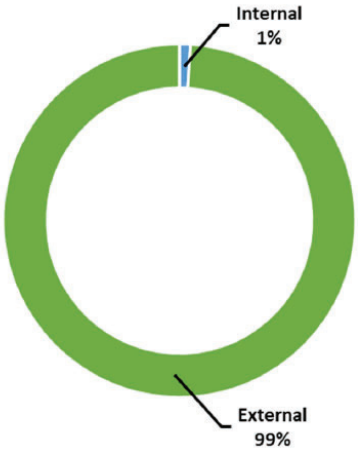


Figure 5-1: Relative Contributions of Internal and External Loading

Spectacle Pond Phosphorus Reduction Plan:
The phosphorus reduction plan was developed through desktop review and site visits. Fourteen (14) locations were selected for consideration. Structural and non-structural BMPs were evaluated for the identified sites. Cost estimates were developed with an estimated $1.85 million in structural projects. The following expected benefits were calculated if all the structural improvements were implemented:

- Total phosphorus removal of 7.8 lbs
- TSS load reduction of 4,195 lbs

The return on investment on a per lb removal basis creates additional challenges. The City will be working closely with RIDEM, funding organizations, and seeking out collaborative partners to make water quality improvements more manageable.

Project Description:

In December, 2021 the City entered into a competitive grant application process with the Southeast New England Program (SNEP), funded by U.S. Environmental Protection Agency (EPA) through a collaboration with Restore America's Estuaries (RAE).

The major elements of this project were to:

- Engage neighborhood residents in the construction of green infrastructure that can be reused in similar urban watersheds. The goal is to add value to the neighborhood beyond just addressing water quality such that residents become advocates for implementation.
- Install an underground infiltration basin at the easterly end of Pomham Street.

The project was managed and coordinated by the City of Cranston's Department of Public Works. The City was supported by several other team members as follows:

- Fuss and O'Neill to develop the water quality improvement plans and planning and designing green infrastructure.
- Universal Excavating, a construction contractor, selected through a competitive public bidding process.
- Save the Bay, who provided their expertise in site selection.
- Providence Stormwater Innovation Center (SIC) who collaborated with the City on outreach components of the project.

Major project tasks are described in further detail below.

1. Prepare QAPP: QAPP will follow USEPA guidance documents.

2. Design and Construct Demonstration Project

- ***Identify Bioretention Basin Approach:*** Several types of bioretention basins exist. Conceptual designs were considered and ultimately an underground infiltration stormwater treatment unit was selected.
- ***Develop Design:*** Included collecting in-situ data on soils and groundwater and completing a site-specific design for the demonstration project including hydraulic and phosphorus removal calculations. Construction documents were prepared.
- ***Bid Construction of Demonstration Project:*** The City bid the project and awarded the bid for construction to the lowest qualified bidder.
- ***Complete Construction of Demonstration Project:*** The selected contractor completed the construction of the project under the supervision of the design engineer and the City in May 2024.

3.Public Engagement: Understand stormwater quality issues in general and how they impact Spectacle pond. Stormwater Innovation Center provides services in association with public outreach including development of signage, website content, mailers, and public outreach events.

Budget:

For this grant the City of Cranston did not use grant funding or match for staff and other City resources or to claim any indirect costs for the management of this project. This maximized the value of the SNEP investment in this project to preparing deliverables. The City provided its match as cash as funded by the City's existing budget.

Cost Item or Category	Cost Basis	RAE SNEP Request	Total Non-Fed Match	Match Source	Total Project Cost
Contractual					
Environmental Engineering Consultant	QAPP Development Bioretention Basin Designs	$37,500	$12,500	Cash from City Budget	$50,000
Providence Stormwater Innovation Center	Outreach	$7,500	$2,500	Cash from City Budget	$10,000
General Contractor for Bioretention Basin Construction and Engineering	Construction of Bioretention Basin	$105,000	$35,000	Cash from City Budget	$140,000
Total Contractual		$150,000	$50,000		$200,000

We are happy to report that the budget for the Providence Stormwater Innovation Center and the General Contractor for construction both came in under budget at a total cost of $8,294 and $61,120 respectively. Due to an unanticipated wetlands permit requirement the Environmental Consulting went over budget by approximately $5,000. The final total project cost was $123,511.69.

Construction

- In April of 2022 competitive bids were received from three qualified contractors. Universal Excavating, INC was the lowest bidder at $59,800 and was selected by the City to install the stormwater control. Based on the design the underground stormwater treatment unit removes approximately 0.64 lbs of total phosphorus per year.
- In May, 2022 Universal Excavating Inc. mobilized and ordered materials for the project. The contractor and the DPW communicated with the neighbors on schedule and any coordination.
- Construction occurred over a three-day period with final restoration completed on May 30, 2024.
- $61,120 was spent on the construction of the underground infiltration stormwater treatment unit which include installation of two manholes and three rows of underground infiltration chambers. The City match was originally budgeted at $35,000 but due to the reduced bid price decreased to $20,371.30.

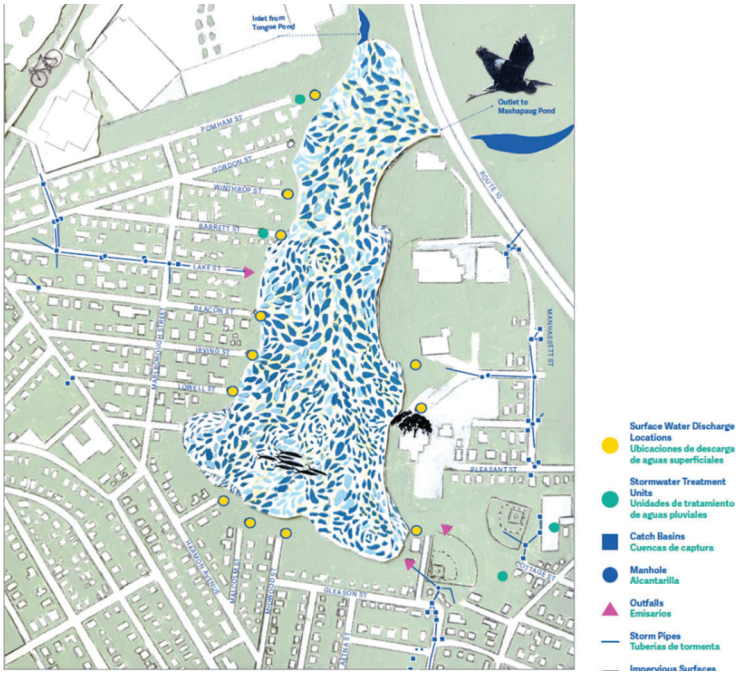
Outreach Communications and Project Partners:

The City worked with the SIC to implement a strategic outreach program. Ryan Kopp, Holly Ewald, and Alexandrea Ionescu were the representatives of SIC that worked on this project. SIC began the process by reviewing various reports provided to us, including the "Limnological Investigation" and the "Phosphorus Reduction Plan." During this process, SIC was particularly intrigued by the Spectacle Pond Water Quality Map, which illustrates the different pathways water reaches Spectacle Pond or is being treated and infiltrated into the soil (see image below). This inspired SIC to create a link between the infrastructure itself, where people live in relationship with these different types of infrastructures – surface discharge locations, stormwater treatment units, catch basins, manholes, outfalls, storm pipes, and where the boundary of the watershed is in order to invite them through the following questions to ponder on their own relationship with the pond, and the watershed:

- Have you ever thought about how water flows into Spectacle Pond?
- Or its journey to other bodies of water?
- Can you locate your home on the map?
- And see how close it is to where water enters the pond?

These questions are found on the permanent sign, postcard and webpage too.

One of SIC objectives was to design a rendering for a permanent sign for Speck Field combining the Spectacle pond Water Quality Map with information on stormwater discharge locations and runoff sources. The goal is to help residents understand the connection between infrastructure and how water reaches the pond in relation to where they live in the watershed. To achieve this, SIC collaborated with graphic designers Tatiana Gómez and José R. Menéndez from Buena Gráfica Social Studio. In addition to the permanent sign, SIC also created a postcard delivered to the houses around Spectacle Pond.



SIC conducted a few site visits, including one afternoon where they mapped through walking each point on the map where water either reaches the pond through a dead end, or there is a stormwater treatment unit.
This gave SIC an embodied experience of the map before Holly started the rendering for the permanent sign and postcard.

Holly then started the process of creating a painted and collaged aerial map of Spectacle Pond and its neighborhood, collaborating with graphic designers Tatiana Gomez, Jose, and Alexandra during the process.

Holly and Alexandra interviewed Ryan Kopp (SIC) , Edward Tally (Cranston) , Stefan Bengston (FandO), and Derek Bonin (Cranston) with the following questions:

- What is a watershed?
- What is stormwater runoff and how does it affect the pond?
- How does water flow to the pond?
- Where does water go from Spectacle Pond?
- Why is excess phosphorus problematic in Spectacle Pond, and is this issue localized solely to Spectacle Pond?
- What is the TMDL (Total Maximum Daily Load) Implementation Plan?
- What initiatives is the city of Cranston undertaking to address this issue?
- What actions can the community take to address this issue?
- Is there a way nature filters water? What is a rain garden?

These questions reflect the four main categories found on the permanent sign, and webpage that residents would be able to read:

- Water Flow in the Watershed
- Why is Phosphorus a Problem?
- What Cranston Is Doing to improve Water Quality
- What Residents Can Do To Improve the Water Quality

Alexandra used these interviews with Ryan Kopp, Edward Tally, Stefan Bengston, and Derek Bonin to develop written content for the webpage, permanent sign and postcard. She edited and prepared this content to upload to the webpage, where residents can listen to the two educational interviews.

Alexandra documented the installation of the infiltration basins at Pomham St. with photographs and videos in May, 2024.

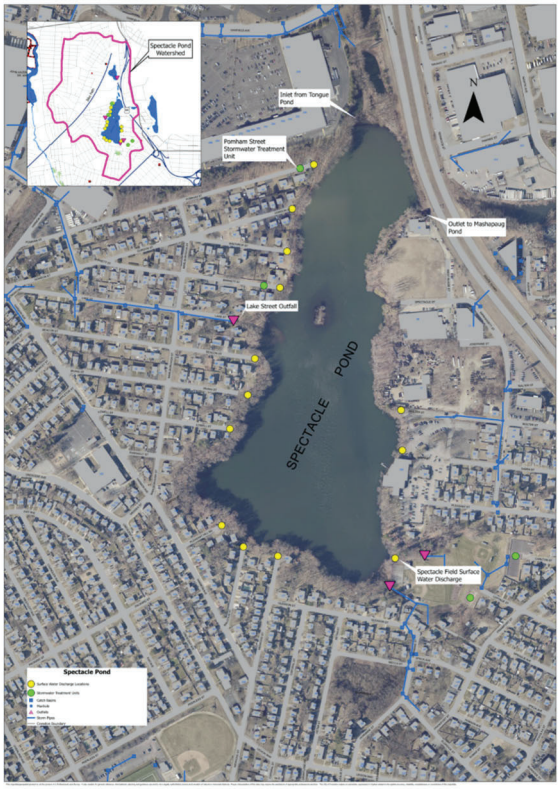
After a few revisions, the final layouts were delivered by the graphic designers in June, 2024. The Rhode Island Department of Transportation will fabricate and the Cranston Parks Department will install the 4' x 6' ft sign at Spectacle Pond Park in July, 2024.

Five hundred postcards were designed in June, 2024 and were delivered in July, 2024 to Spectacle Pond residents. The postcards feature the Spectacle Pond watershed on one side and information about the Ponham Street retrofit installation, tips for reducing phosphorus runoff, and a QR code for more information on the Cranston website on the other side.

Four tabling events were scheduled for July at locations frequently visited by Spectacle Pond residents:
- 2 events at Stop and Shop in Lowe's Plaza
- 1 event on a neighbor's lawn on Harmond Avenue
- 1 event at the Pawtuxet Village Farmers Market

These events aimed to provide residents with hands-on activities to understand the impact of urban runoff with a focus on Phosphorus from impervious surfaces on Spectacle Pond. Activities included interactive discussions, a demonstration on impervious vs. pervious surfaces, and a collective mapping exercise to engage participants (see image of the map to the right)

Spectacle Pond Water Quality



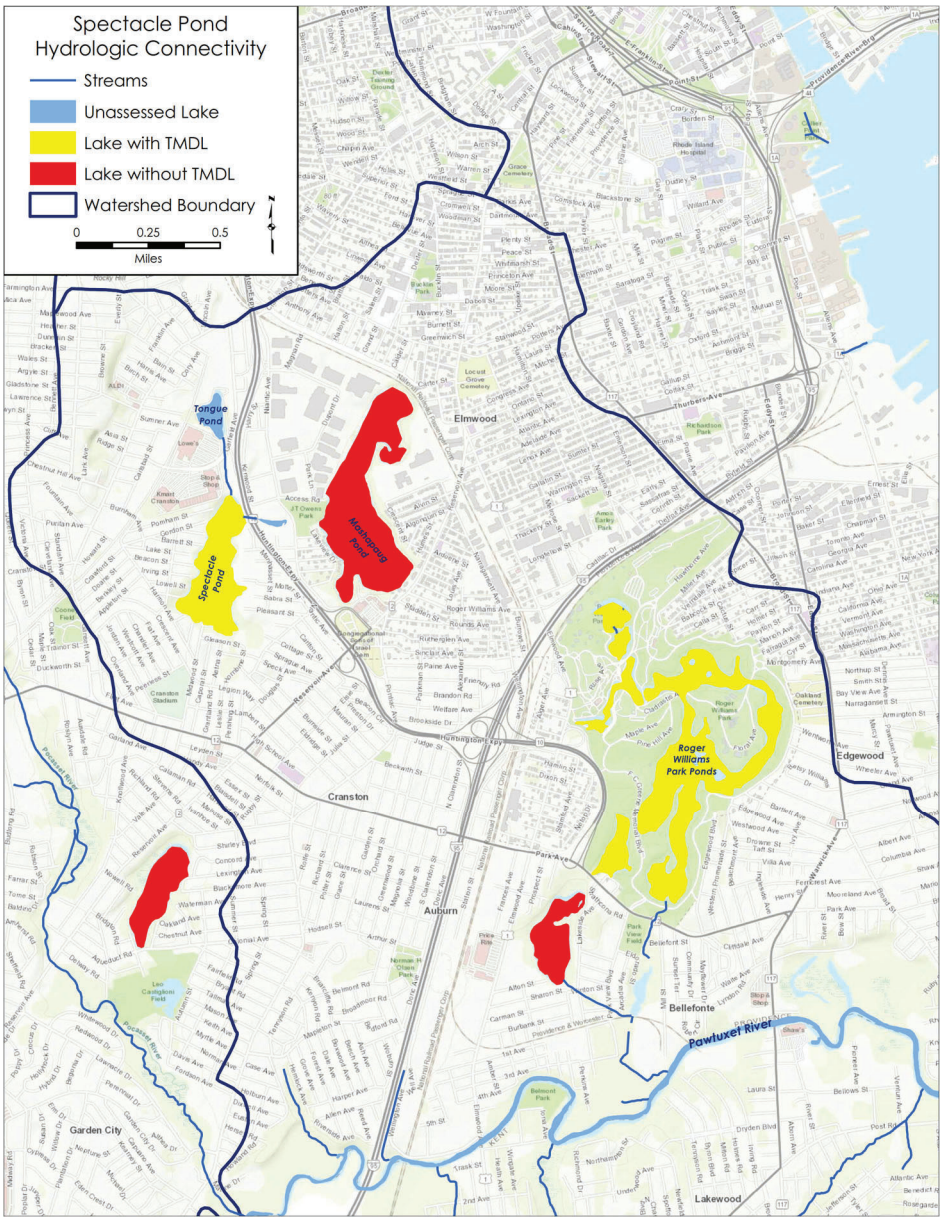
At these events, participants were encouraged to locate where in relationship with the pond they live and the infrastructure through which water reaches Spectacle Pond near their residences. They were also prompted to identify potential sources of phosphorus and nitrogen, discuss personal actions that may contribute to these issues, and explore the pathways through which pollutants reach Spectacle Pond.

SIC overarching goal was to empower residents to take proactive steps in reducing phosphorus runoff into Spectacle Pond, thereby promoting a healthier environment for the community, and the Lower Pawtuxet River Watershed.

Finally, the City worked with the project partner FandO on a presentation poster for participation in the SNEP Symposium held on June 12th, 2024 at Roger Williams University. Outreach materials can be found in supporting materials attached to this summary. The website content and videos can be viewed on the following website: https://www.cranstonri.gov/spectacle-pond-stormwater-management.aspx

MAPS, PHOTOS, DRAWINGS, AND ADDITIONAL INFORMATION

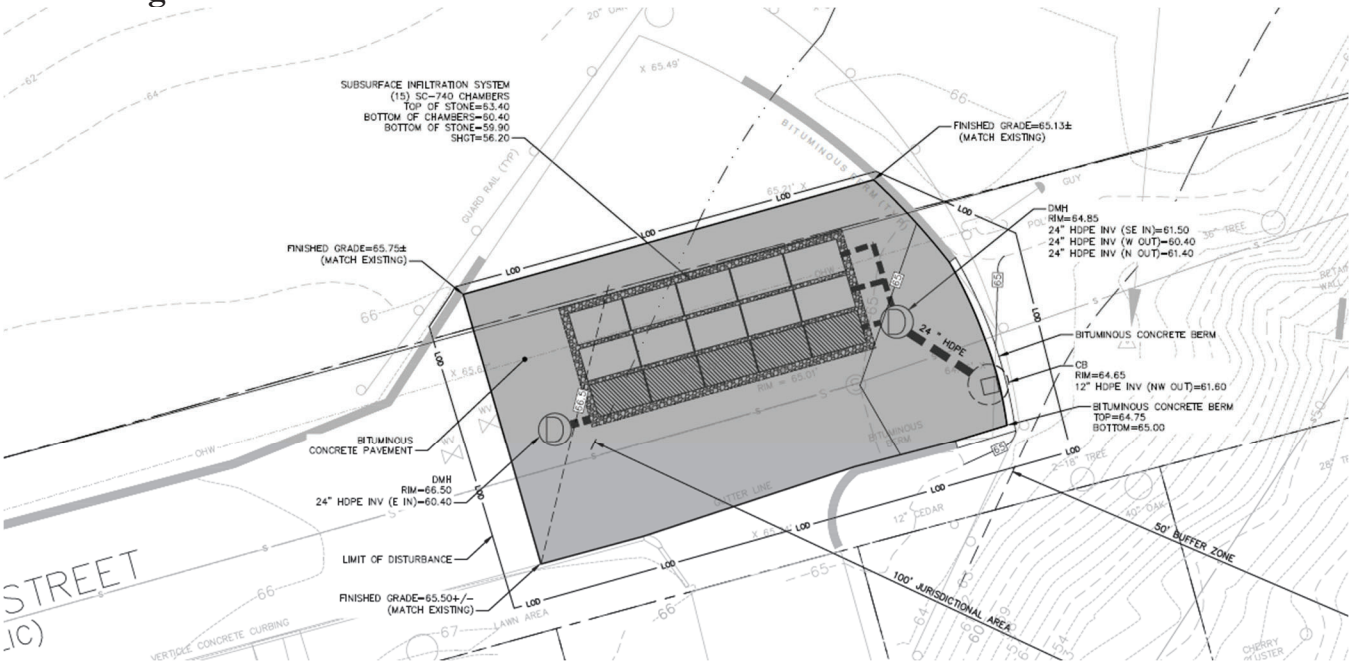
Spectacle Pond Location Relative to Mashapaug and Roger Williams Park Ponds



Dead end portion of Pomham Street selected for the underground infiltration stormwater treatment unit.

Test pits were dug at the end of Pomham Street by Cranston DPW staff.

Final design of stormwater treatment unit at the end of Pomham Street:



Setting deep sump catch basins with pretreatment device and diversion manholes. (May, 2024)

Photogaphs of Tabling Events: (June, 2024):

Spectacle Pond Water Quality