



# Haverhill Stormwater Improvements Project

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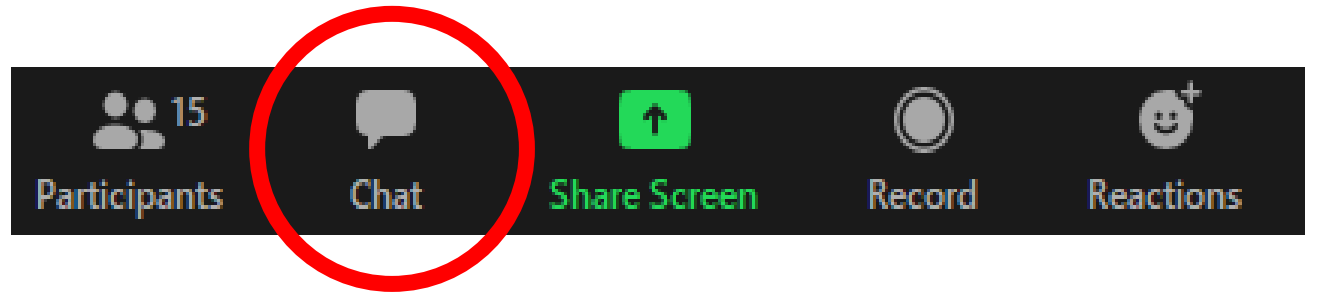
## Design Development

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*East Hills and Homewood Communities*

*October 13, 2022*

# Zoom Overview



- **Recording Meeting**

- Recording, presentation slides, and notes will be posted to project webpage
- [www.pgh2o.com/haverhill](http://www.pgh2o.com/haverhill)

- **During Presentation**

- Participants will be muted
- To ask a question use the chat box below

- **How to Use Chat in Zoom**

- Click on the chat icon that looks like a cartoon bubble at the bottom of screen
- Type question in dialogue box then press enter to send
- All attendees will receive your question

- **When Presentation Pauses or Ends**

- We will respond to questions individually
- We will allow attendees to unmute microphones (press \*6 on phone) to enable verbal Q&A

# Agenda

- Welcome and Introductions
- Stormwater Overview
- Project Overview
- Preliminary Design
- Question and Answer



# Project Team

## **Project Owner: PWSA**

- **Design Project Manager:** Ryan Quinn
- **Stormwater Inspector:** Samantha Young
- **Education and Outreach Associate:** Elaine Hinrichs

## **Property Owner: City of Pittsburgh**

- **Project Manager:** Michael Panzitta

## **Project Designer: Ethos Collaborative**

- **Project Manager:** Barton Kirk
- **Project Manager:** Damon Weiss
- **Project Landscape Architect:** Matt Zambelli

## **Project Partner: Upstream Pittsburgh**

- **Community Engagement Manager:** Rose Flowers
  - **Programs Assistant:** Aaron Birdy
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# Stormwater Overview

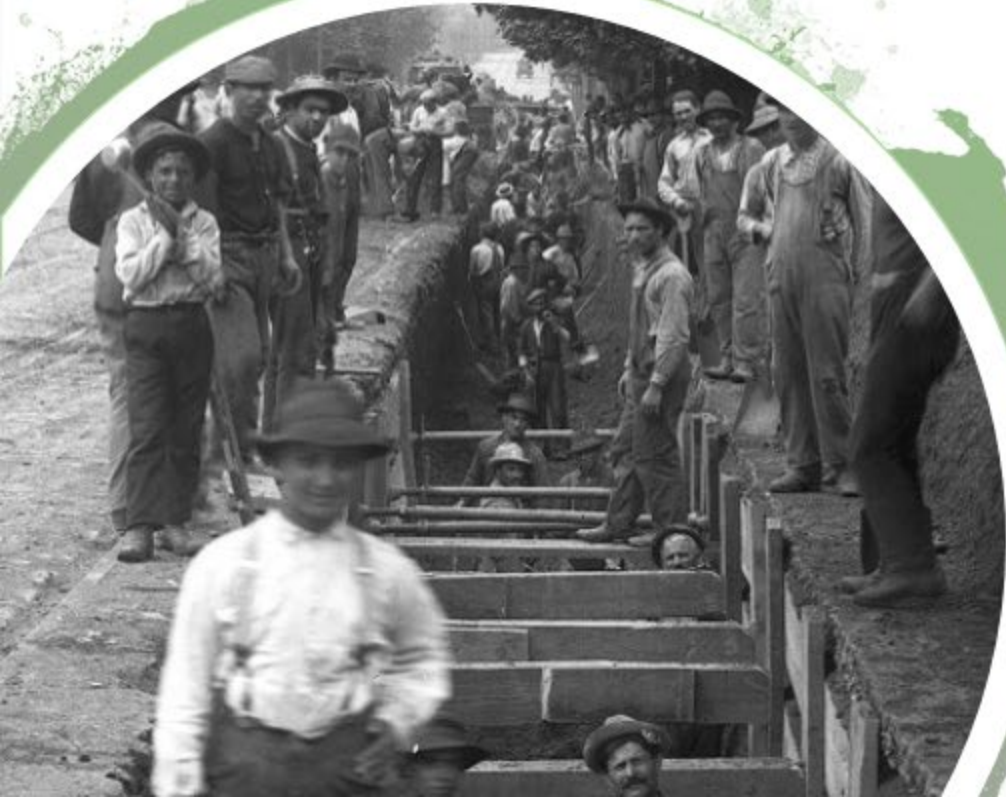
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*Pittsburgh has a stormwater  
management problem.*



# Our system was not built for this volume of stormwater

- We have more pavement and hard surfaces than we did 100 years ago
- We have more rain, and localized severe storms, than the system is built to handle





## Too much stormwater + sewer water = pollution in our rivers

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It doesn't take much to overflow the system – it can happen with just an inch of rainfall or less.





# PWSA is stepping up

To tackle our stormwater challenges, PWSA is building an innovative stormwater management system, designed to absorb or redirect as much rainwater as possible *before* it enters our overburdened sewer system and mitigate flooding.







# Project Overview

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Haverhill Stormwater  
Improvements Project

# Project Area





Renovation and repair of green stormwater infrastructure (GSI)



Remediation of landslide and seep impacts on road and drainage

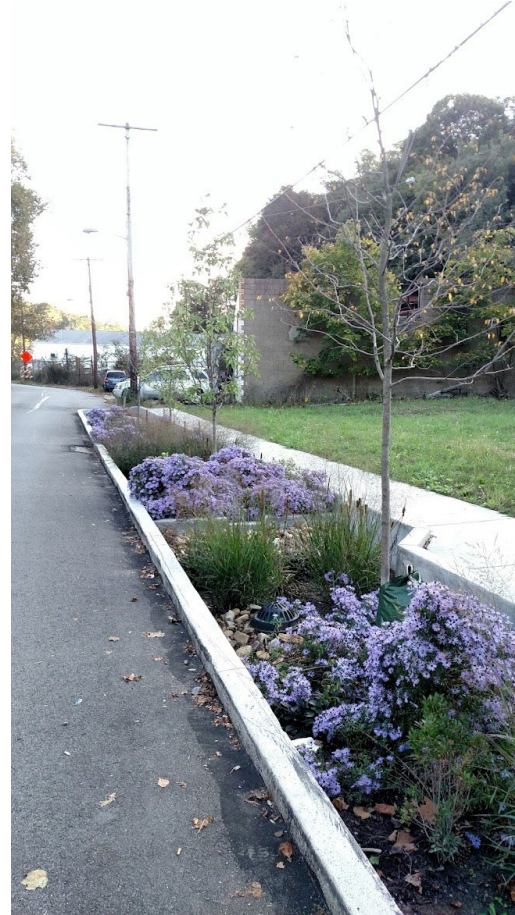


# PROJECT SCOPE

# Haverhill Stormwater Improvements Project

## Design Development

## BACKGROUND



UpstreamPgh's Rosedale Runoff Reduction Project

Rosedale Runoff  
Reduction Project



# Haverhill Stormwater Improvements Project

## Design Development

# BACKGROUND

**2016**

Oakwood & Batavia GSI facilities are constructed by PJ Dick Construction as the second component of the larger Rosedale Runoff Reduction Project led by the Upstream PGH

**2014**

The Rosedale Runoff Reduction project was initiated by the Upstream PGH (formerly Nine Mile Run Watershed Association or NMRWA)



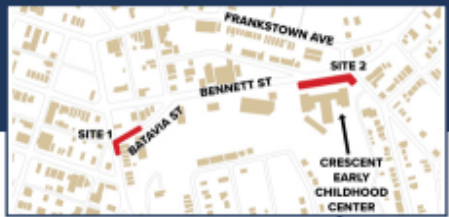
**2018 - 2022**

Temporary measures are installed to control erosion from seep and mitigate sediment loading to Oakwood Street GSI facility.



**2015**

Oakwood Street and Batavia Street and Crescent Elementary School identified as a high capture area for potential stormwater project.



**2017 - 2018**

Real-time GSI Monitoring systems installed at both Batavia Street and Oakwood Street bioretention facilities. Heavy sediment loading from landslide and seep flow is observed during install and delay Oakwood Street facility monitoring install until summer of 2018. Upstream PGH first reports seep to City and PWSA



**2022**

PWSA and city initiate Haverhill Stormwater Project to address ongoing issues related to seep, erosion, and ongoing structural issues observed at GSI facilities. Ethos Collaborative is awarded the project and begins joint project with PWSA and the City of Pittsburgh.

## Partners

### Developer

UpstreamPgh

### Design & Planning

- Stormworks
- Landbase Systems
- Ethos Collaborative
- Operation Better Block

### Funding

- The Heinz Endowments
- Richard King Mellon Foundation
- Commonwealth Financing Authority

### Construction

- PJ Dick
- Stormworks
- OBB Junior Green Corps

### Agency

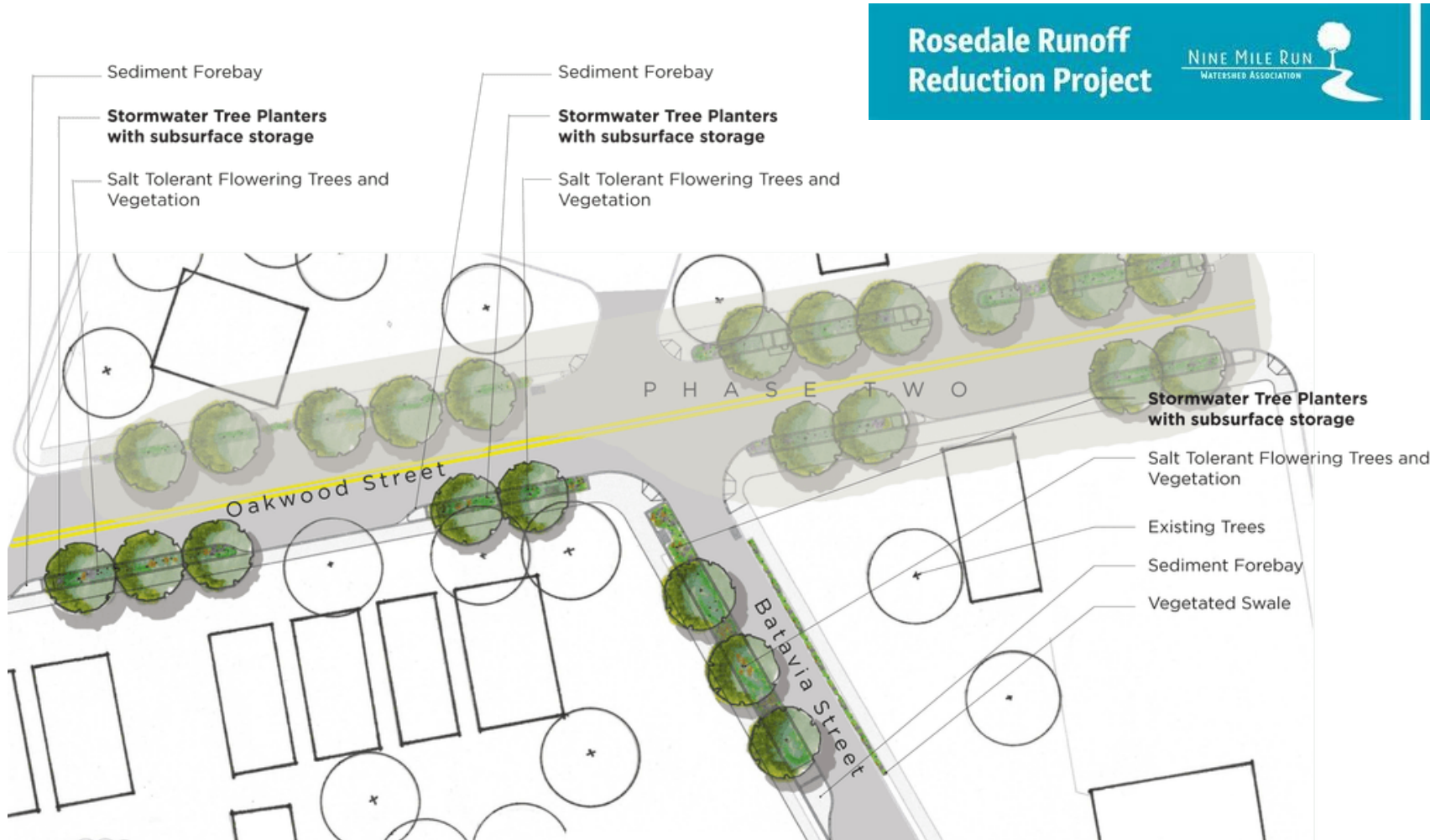
- City of Pittsburgh
- PWSA
- ALCOSAN

# Timeline of Project Partnership

# Haverhill Stormwater Improvements Project

## Design Development

# BACKGROUND



- Original two-phase concept by UpstreamPgh (then Stormworks) & Ethos Collaborative (then Urban Rain Studio) in 2014

# Haverhill Stormwater Improvements Project

## Design Development

**Stormwater Planter Bed:**  
Collects street runoff and allows it slowly soak into the soil, subsurface storage and/or back to the PWSA sewer



**Subsurface Stormwater Storage:**  
Modular underground stormwater storage chambers detain large volumes of stormwater collected and filtered by planter beds



**Sediment Forebay:**  
Intercepts and filters coarse sediment and debris prior to planter beds



## Anatomy of Green Stormwater Infrastructure (GSI)

# Haverhill Stormwater Improvements Project

## Design Development

## BACKGROUND



2016 Prior to Construction



2017 After Construction



# Haverhill Stormwater Improvements Project

## Design Development



2018 Landslide on Haverhill St.



Sediment and seep water inundated stormwater planters



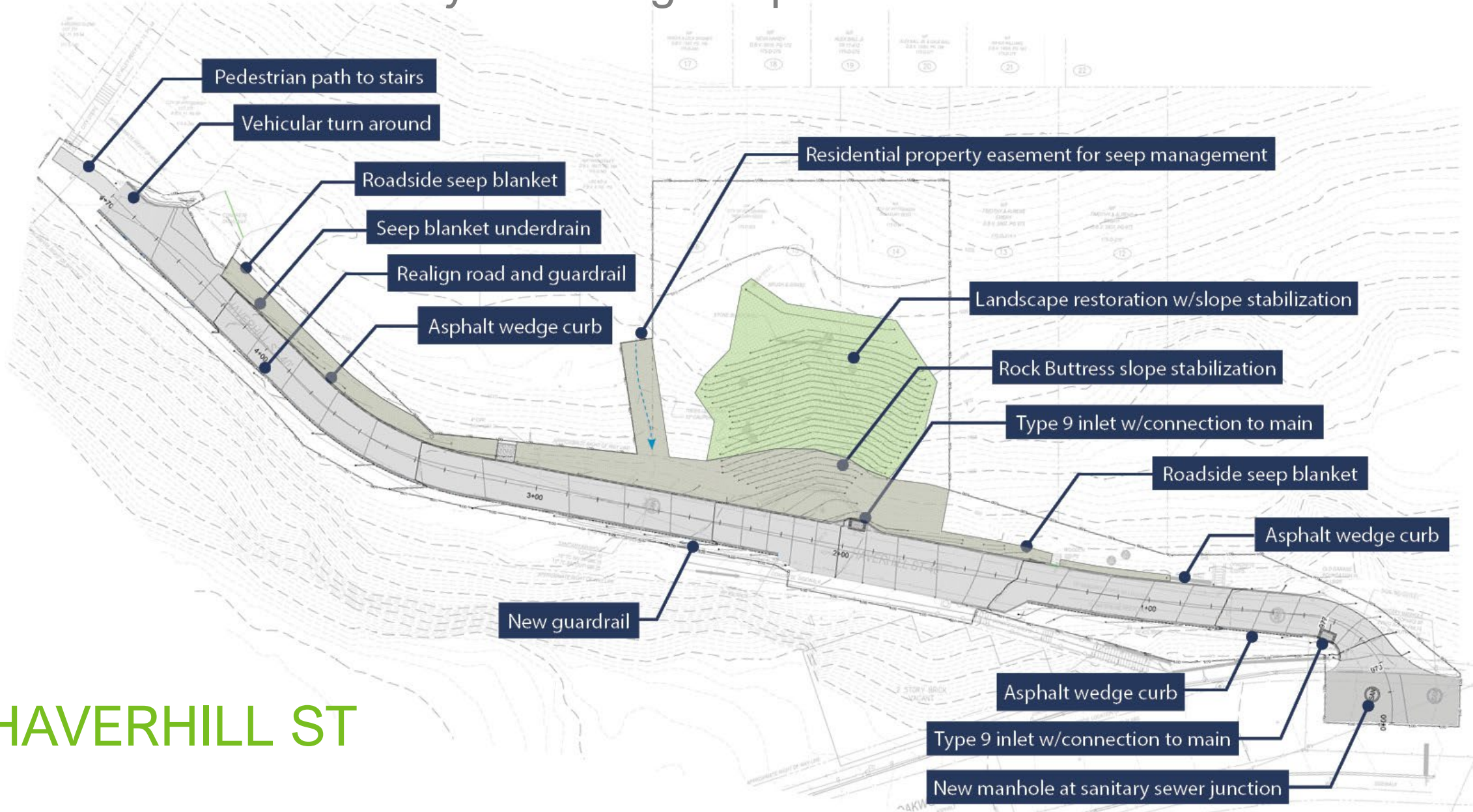
Repeated vehicle strikes damaged trees and infrastructure

## BACKGROUND

# EXISTING CONDITIONS

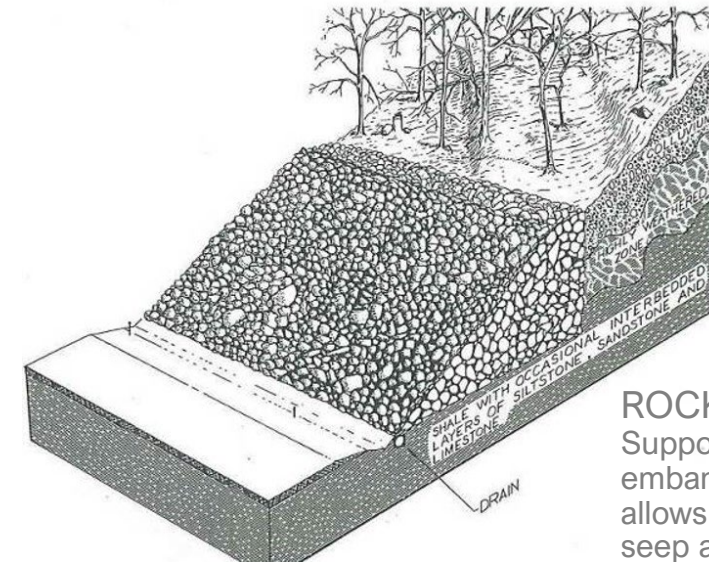
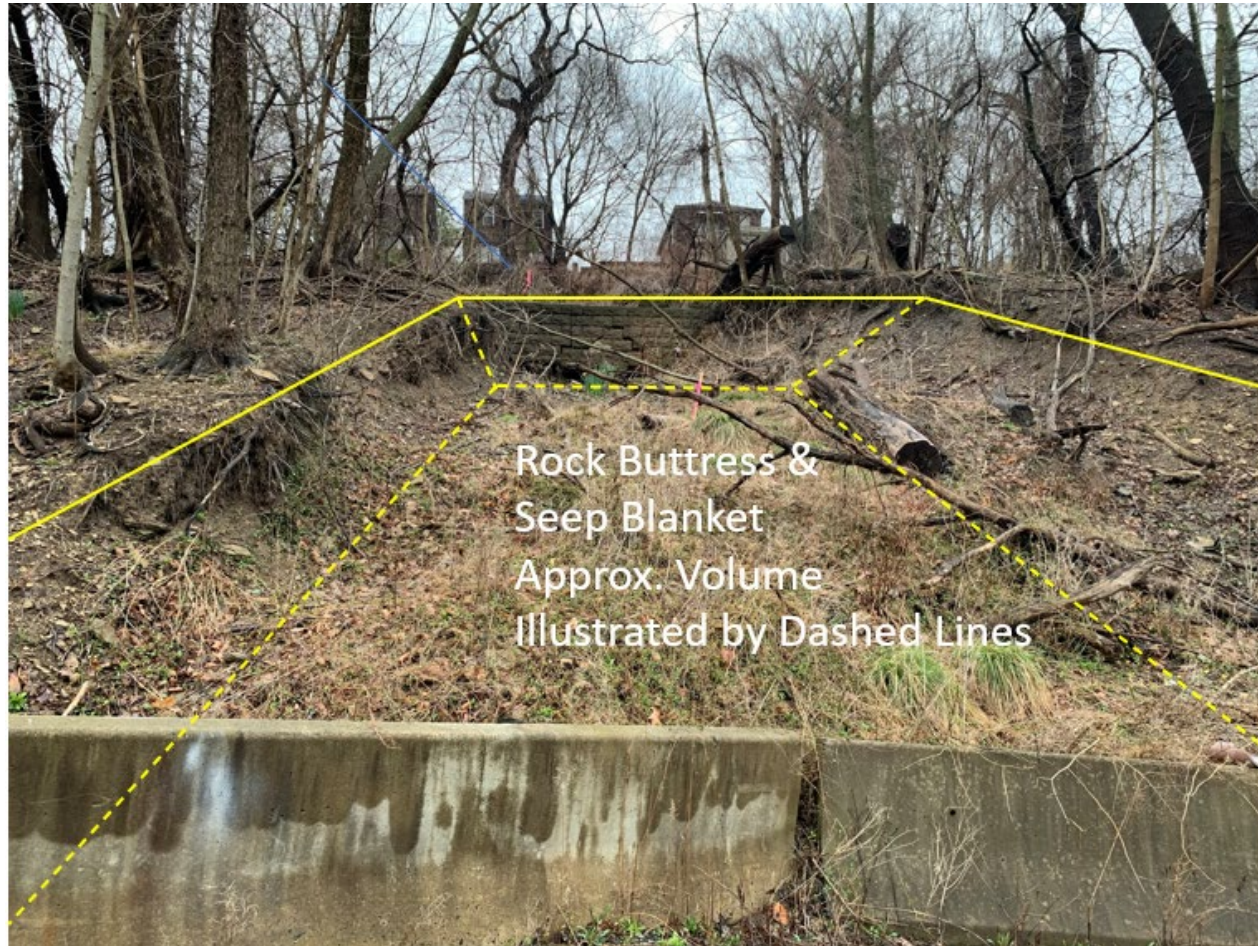


# Landslide / Roadway / Drainage Improvements



**Haverhill St**

# Refined Landslide Mitigation = Rock Toe + Soil Embankment

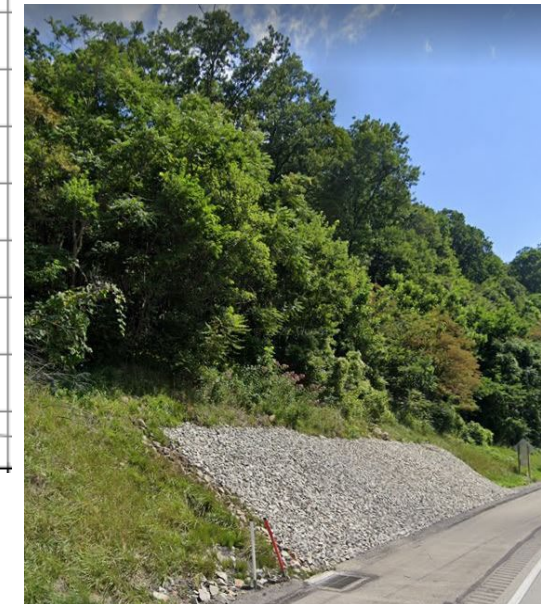
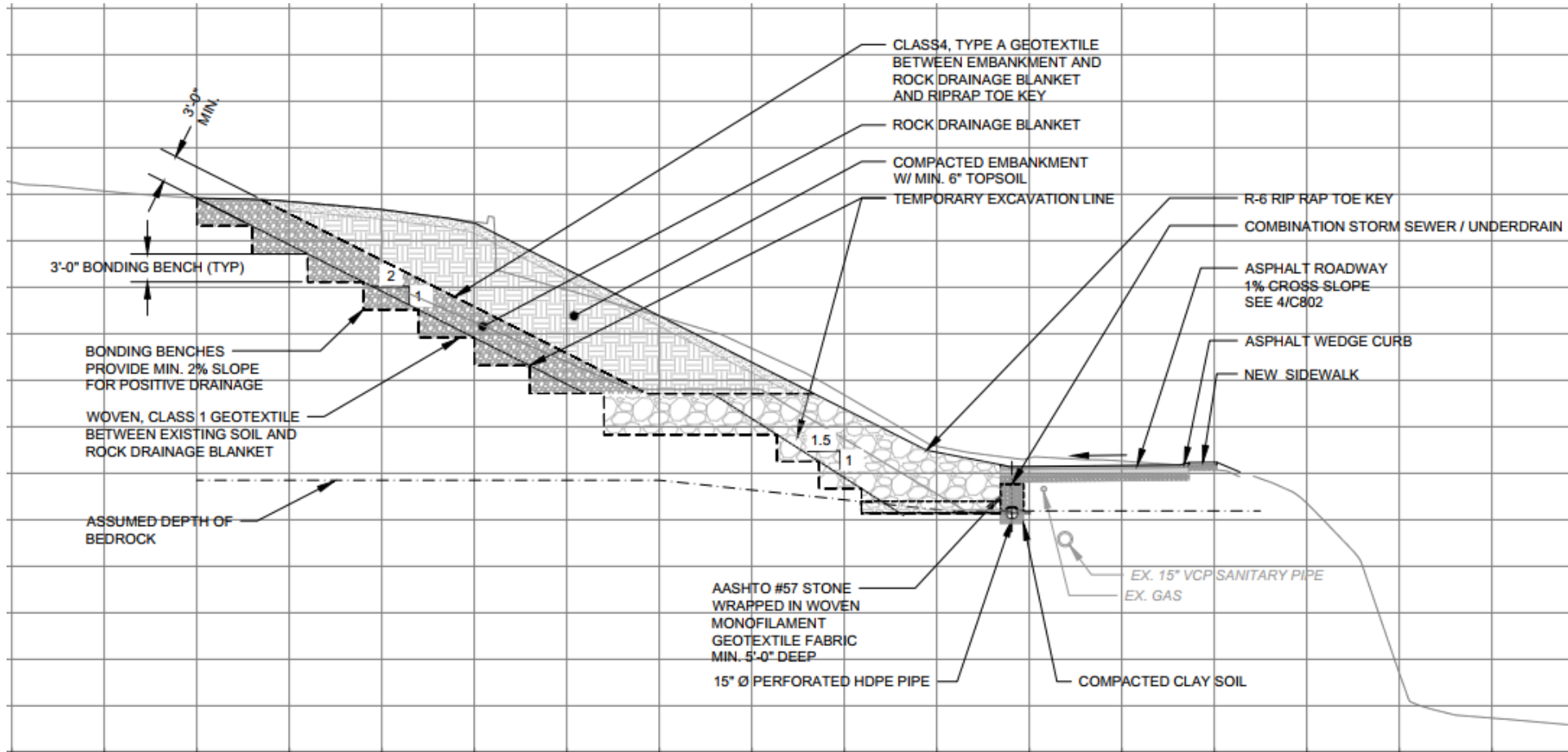


**REVEGETATED EMBANKMENT:**  
Native trees, shrubs, and perennial seed mix stabilize soil above stone

**ROCK TOE:**  
Supports soil embankment above and allows free drainage of seep and storm flow

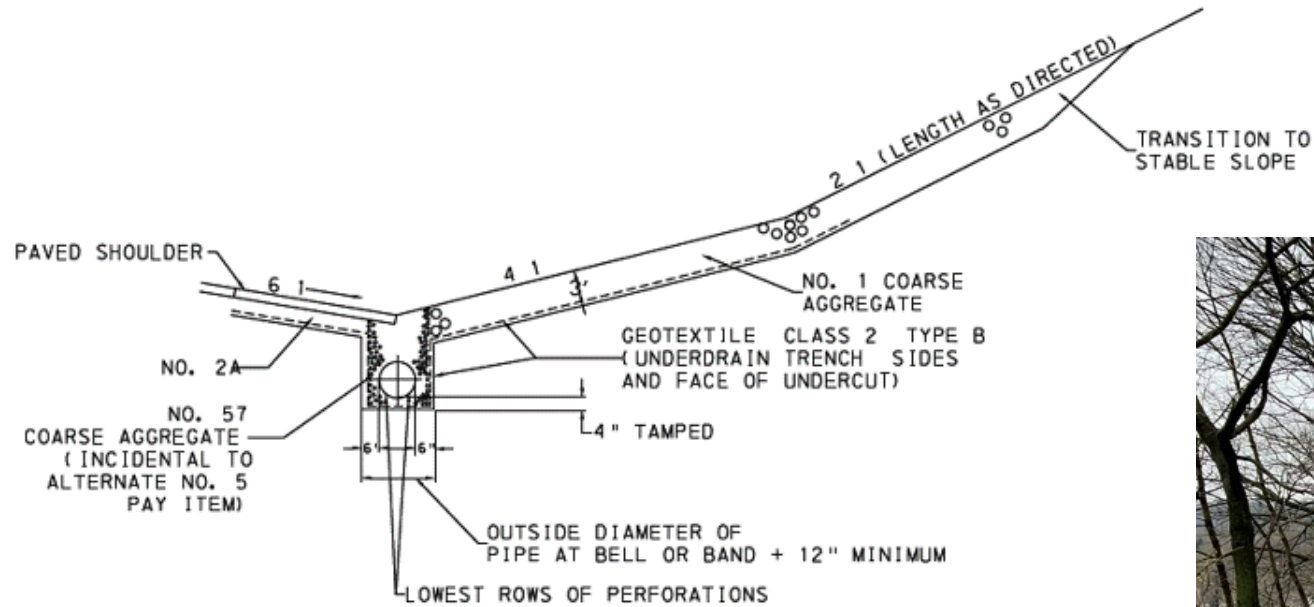
HAVERHILL ST

# Refined Landslide Mitigation = Rock Toe + Soil Embankment



HAVERHILL ST

# Seep Mitigation - Seep Blanket & Underdrain & Repaving



HAVERHILL ST

# Long-Term Health – Slope Stabilization Revegetation



ACER RUBRUM  
RED MAPLE



LIRIODENDRON TULIPIFERA  
TULIP TREE



QUERCUS RUBRA  
RED OAK



MAGNOLIA VIRGINIANA  
SWEETBAY MAGNOLIA



PRUNUS SARGENTII  
'SPIRE'  
'SPIRE' SARGENT CHERRY



CHAMAECYPARIS THYOIDES  
ATLANTIC WHITE CEDAR



JUNIPERUS VIRGINIANA  
EASTERN RED CEDAR



TAXODIUM DISTICHUM  
BALD CYPRESS



ARONIA ARBUTIFOLIA  
RED CHOKEBERRY



CLETHRA ANIFOLIA  
SUMMERSWEET

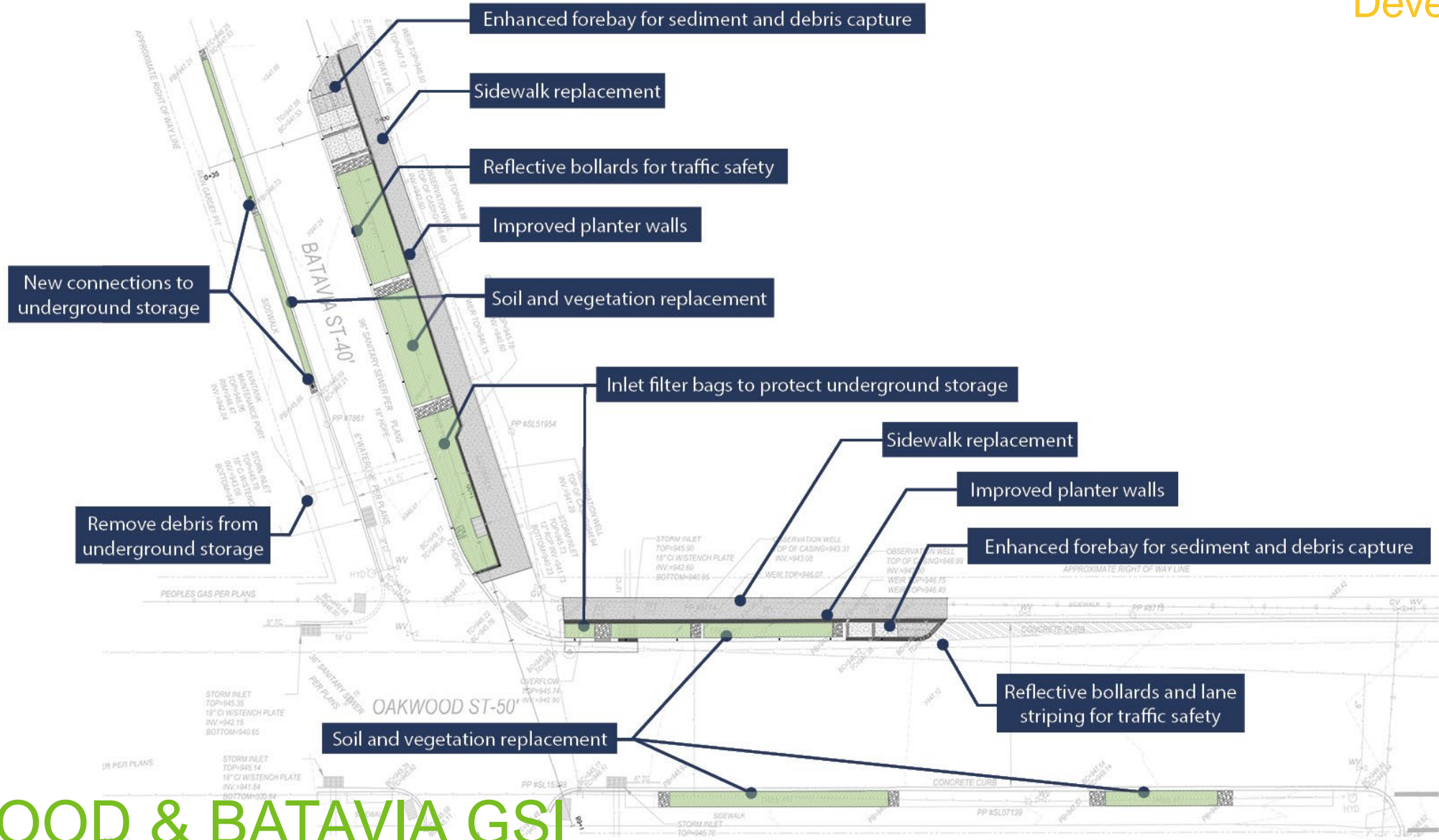


CORNUS SERICEA  
RED TWIG DOGWOOD



VIBURNUM TRILOBUM  
CRANBERRY BUSH

# Stormwater Planter Renovations

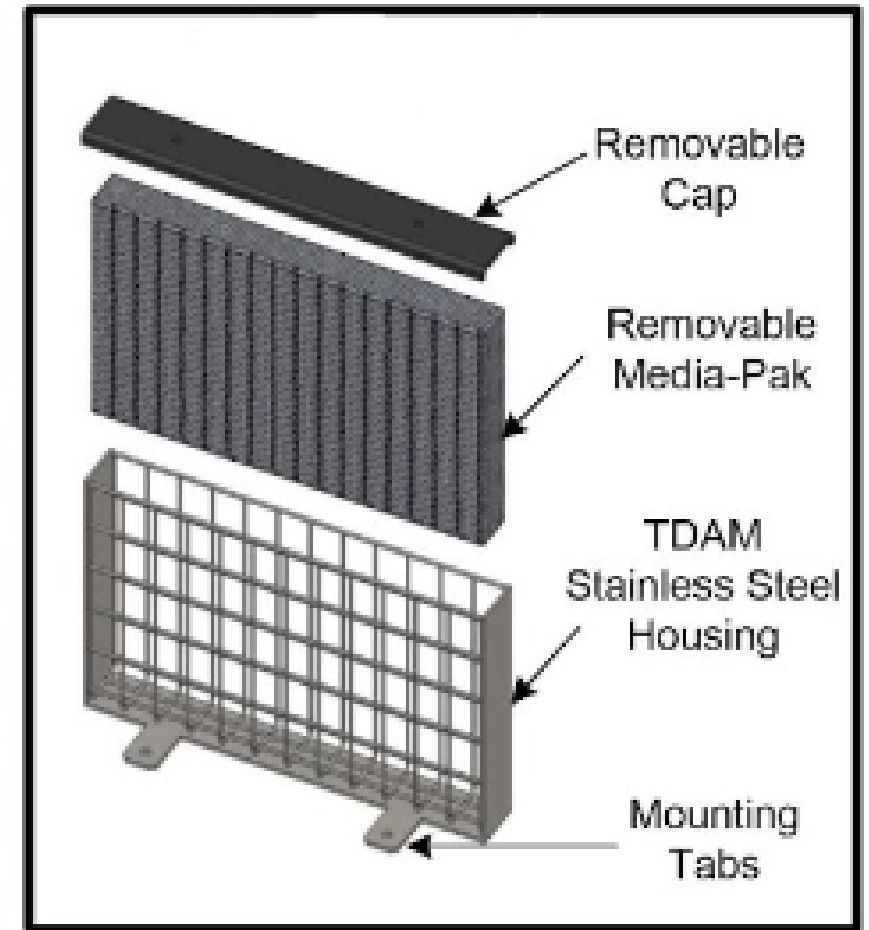
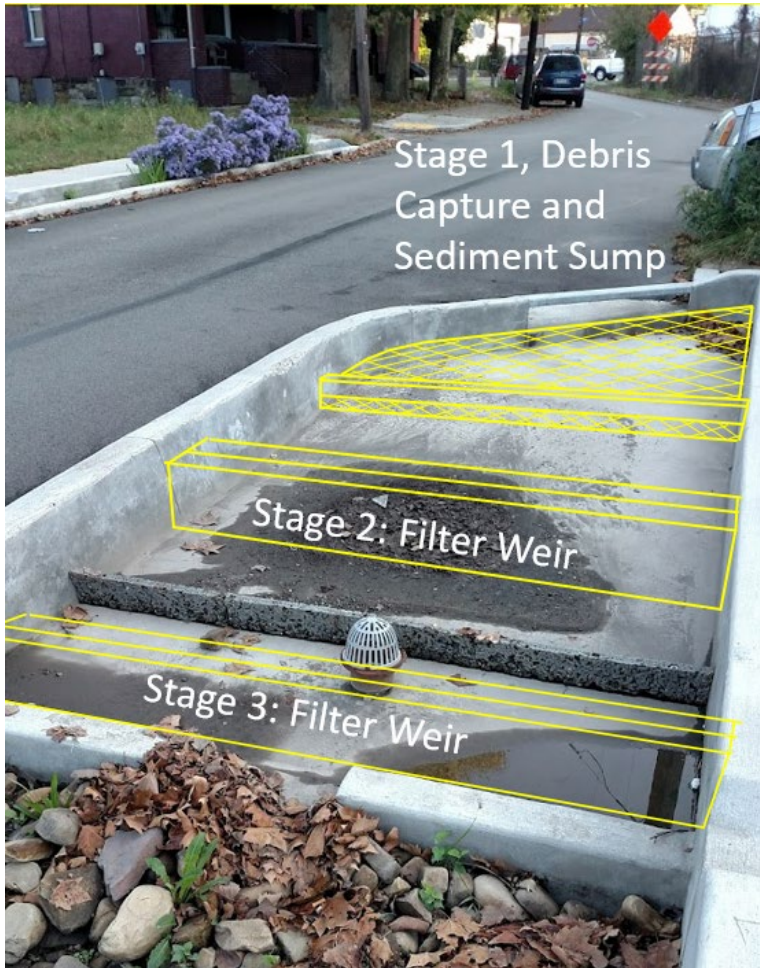


## OAKWOOD & BATAVIA GSI



# Debris & Sediment Capture – Enhanced Multi-Stage Forebays

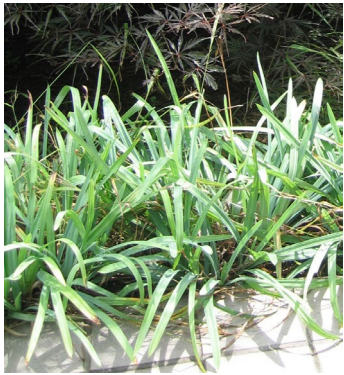
Haverhill  
Design  
Development



TRITON – TDAM SERIES FILTER

OAKWOOD & BATAVIA GSI

# Long-Term Health – Replace Soil, Trees, and Perennial Plantings



CAREX FLACCOSPERMA  
BLUE WOOD SEDGE



CAREX LAXICULMIS  
BUNNY BLUE SEDGE



CAREX STRICTA  
TUSsock SEDGE



CAREX VULPINOIDEA  
FOX SEDGE



DESCHAMPSIA CESPITOSA  
'GOLDTAU'  
GOLDTAU TUFTED HAIR GRASS



PANICUM VIRGATUM 'CAPE  
BREEZE'  
'CAPE BREEZE' SWITH GRASS



ASCLEPIAS TUBEROSA  
BUTTERFLY WEED



IRIS VERSICOLOR  
BLUE FLAG IRIS



LIATRIS SPICATA 'KOBOLD'  
'KOBOLD' BLAZING STAR



PAKERA AUREA  
GOLDEN RAGWORT



PYCANTHEMUM MUTICUM  
MOUNTIAN MINT



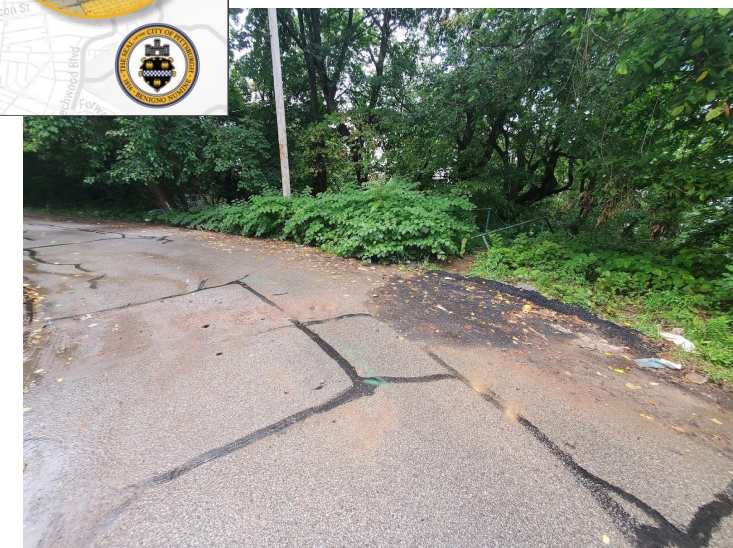
MAGNOLIA  
VIRGINIANA  
SWEETBAY MAGNOLIA

## OAKWOOD & BATAVIA GSI

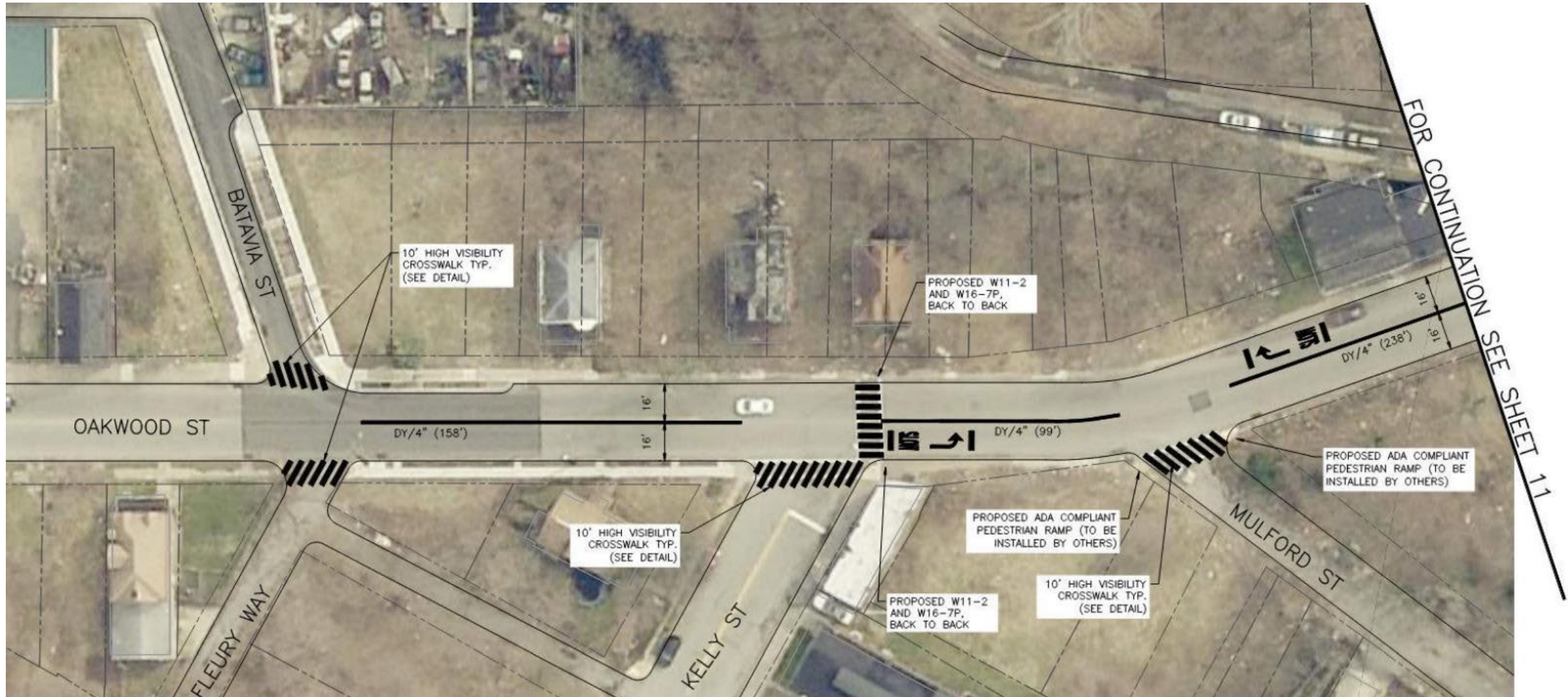
REVEGETATION PLANTING PLAN CONSISTS OF 160 GRASS AND PERENNIAL PLANTINGS AND 8 STREET TREES

# Your Feedback – What We Heard From You

- Oakwood Street Traffic Calming / Pedestrian Safety
- Other Seeps, Springs, & Flooding Issues in the Broader Watershed
- General Stability of Slopes, City Steps, and Homes Along Haverhill
- Continued Engagement in Design Process



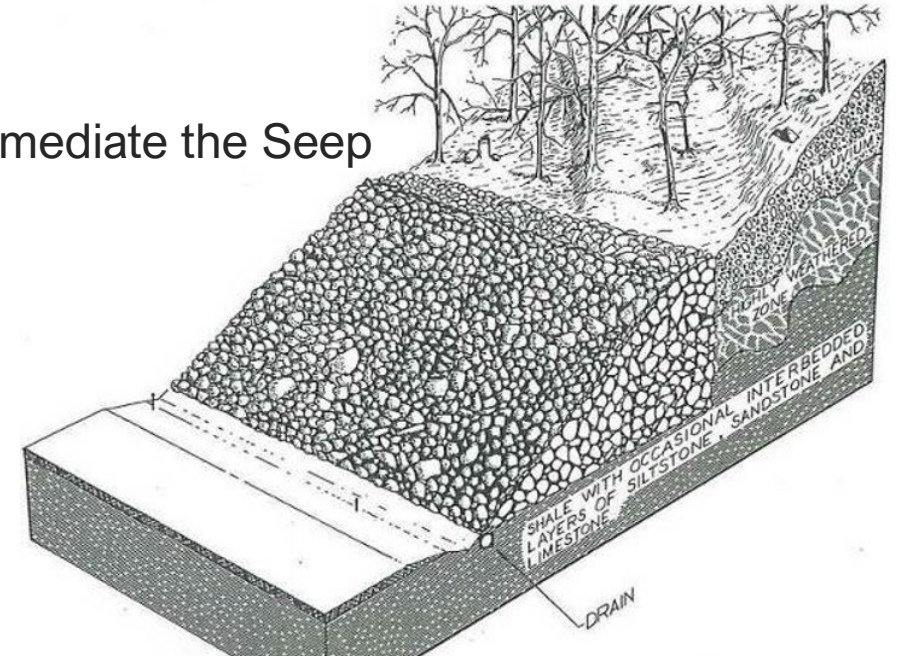
# DOMI – HOMEWOOD ACTIVE MOBILITY PLAN



# Intended Outcomes



Remediate the Seep

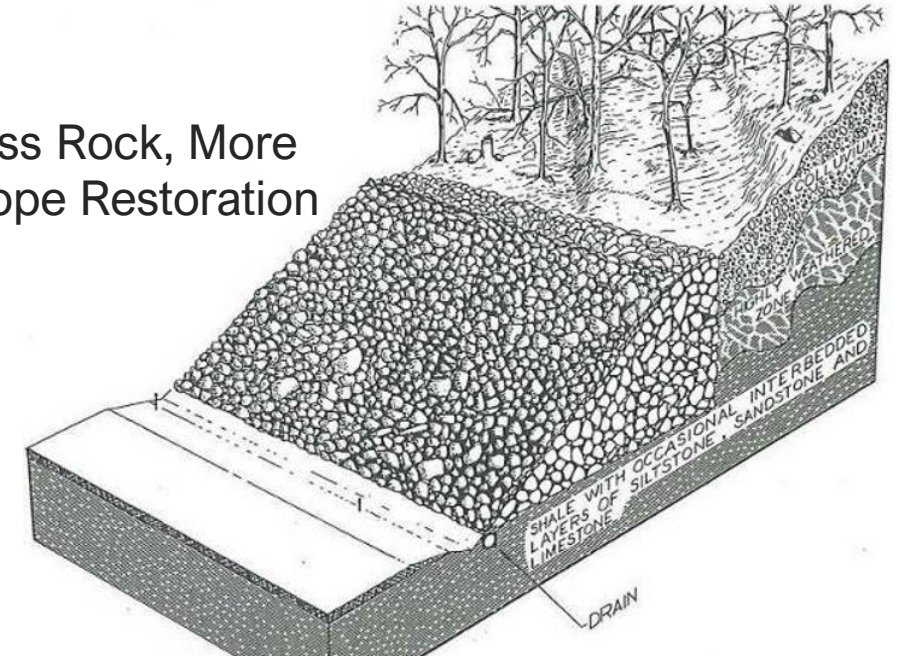


# Refined Solutions



Improved Forebays for Long-Term Function and Serviceability

Less Rock, More Slope Restoration



Improved Street and Slopes for Drainage Stability and Safety

# Current Project Schedule & What to Expect

- Final Design Complete - January
- Project Bid – March
- *Potential Haverhill Gas Main Replacement Mid Spring*
- PWSA Community Meeting – Prior to Construction Start, May
- Contractor Notice to Proceed – June
- Construction ~ 5 months – Complete by November
  - Periods of sidewalk and step closures on Haverhill
  - Periods of road closed / local traffic only on Haverhill – Requires dialog between contractors and residents
  - Periods of lane closures with flaggers on Oakwood
  - Schedule Is Subject to Change



# Project Contacts

## Design Questions:

Ryan Quinn

Design Project Manager

[rquinn@pgh2o.com](mailto:rquinn@pgh2o.com)

## General Project Questions:

Elaine Hinrichs

Education & Outreach Associate

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# Thank you

For more information, please visit  
[www.pgh2o.com/haverhill](http://www.pgh2o.com/haverhill)