GSI AT WISSINOMING PARK
A CASE STUDY FOR MAXIMIZING “GREENED ACRES” THROUGH A UNIQUE DESIGN APPROACH

PRESENTED BY:
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Reconsidered Ground

American Geotechnical & Environmental Services, Inc.
AGENDA

- Project Purpose
- Historical Background
- Project Limits / Overview
- Site Considerations
- GSI Design Approach
- Coordination
- Closing
to provide a significant number of Greened Acres (GA’s) by directing stormwater from the surrounding neighborhood into proposed SMPs within the park...

**PROJECT PURPOSE**

- First flush runoff (up to 2”)
- Treat, detain, slow-release
- Advance objectives of GCCW
- Integrate with park setting
PROJECT LOCATION
Location – 40°01’27.12” N, 75°04’09.12” W
Source – USGS 7.5 minute Quadrangle – Frankford, PA-NJ 1997
HISTORICAL BACKGROUND

- Robert Cornelius
- 80-acre purchase in 1852
- Originally known as “Lawndale”
- Landscaping focus
- 2 headwater streams
  - Trib to Little Tacony Creek

(Credit: Frankford Historical Society)
HISTORICAL BACKGROUND

- Headwater streams / pond
- Drainage gutters

Historical walkways from Lawndale Estate with built-in drainage gutters

Approximate outline of present-day park limits, historical stream locations, and record of Robert Cornelius’s estate.

(Credit: R.L. Barnes, “New Map of the Consolidated City of Philadelphia,” 1855)
HISTORICAL BACKGROUND

• 1920, City purchased 42-acres
• Pond was beloved asset
• Paper streets.

Former pond in Wissinoming Park
(Credit: Frankford Historical Society)

Historical layout of Wissinoming Park, showing historical stream and pond locations.
HISTORICAL BACKGROUND

- Late-90’s - pond filled
- Recreation fields / rinks
- Impervious areas

Historical layout of Wissinoming Park, showing historical stream and pond locations.
PROJECT LIMITS / OVERVIEW

• Neighborhood
  • Combined Sewers
  • Downspout Connections

• Park
  • Recreation Areas / Open Space
  • Historical Stream

Approximate outline of drainage area to be directed into GSI at Wissinoming Park.
PROJECT LIMITS / OVERVIEW – PARK AREA

• Existing flood structure
• Open space w/ inlets
• Standing water observed

Outlet control structure located at low-point of hockey rink and basketball courts

Typical grate inlet in park

Standing water and poor drainage immediately south of the soccer field
PROJECT LIMITS / OVERVIEW - NEIGHBORHOOD

- Alleyways
- Clogged / Old inlets
- Standing water observed

Typical alleyway configuration in surrounding neighborhood

OMG inlet

Ponding adjacent to curb ramps at the corner of Van Kirk and Charles Streets

City Inlet (#2)
SITE CONSIDERATIONS

PARK
• Poor infiltration / shallow GW
• Trees & species diversity
• Recreational uses
• Trails & access
• Aesthetics
• Safety

Neighborhood
• Green Sewer / Connections
• ADA Compliance
• Utilities
• Flat grades
• Disconnection approach

Uprooted tree in existing swale with signs of mottled soil around its roots and standing water

Existing swale bottom consists of an abundance of invasive vegetation
• Existing swale area
• Sloping wetland complex
• Upland bioretention cells
• Micro-berms
• No-mow meadow “edge condition”
• GA’s = 22.7 ac.-in.
DESIGN APPROACH - SMP-1

SMP-1: Sloping Wetland Complex
Tree Impacts

- Diverse, mature species
- Avoided or minimized impacts to unique species/specimens (Bald Cypress, Beech forest, Red Oaks, etc.)
- Removed non-native species & unhealthy trees (Wh. Ash)
- Close coordination with PPR arborists
  - Critical root zone delineations
  - Hydrologic considerations
  - 1:1 replacement ratio
COORDINATION - SMP-1

Community Outreach
• Open space areas
• Trees / Meadows
• ATV access - boulders
• Site safety / pedestrian access

Proposed boulder locations to inhibit ATV access within wetland complex

Open space area near Comly & Charles
DESIGN APPROACH - SMP

- Existing sports fields
- Underground detention
- GA's = 19.0 ac.-in.

Soccer field playing surface, SMP-3

Underground detention chamber layout, SMP-3
Utility/External Coordination

- PECO, PGW, Verizon, Water (PWD)
- SEPTA – paved-over trolley rails (Frankford Ave)
- PSD – ADA ramps & TP&A (paving letter)
- PPR – park drainage
- PWD Collector Systems Unit / WS Design Branch
- PWD GSO – SMP maintenance & access
- PennDOT HOP – test pitting & design
- PADEP – Chap. 102/105
41.7 Greened Acres achieved through this project.

Project includes over **10,000 LF** of new green sewer piping.

**100** new storm drain inlets installed to capture & convey “first flush” runoff into park SMPs.

Neighborhood project area includes **75** proposed ADA ramps to be installed.

**67** native tree plantings within the park area.

Over **2000 LF** of recreation paths, including new wood chip and restored or new asphalt.

**4** improved crossings of swale (SMP-1), providing mobility, aesthetics, and site safety enhancements.
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