Infiltration / Inflow Analysis
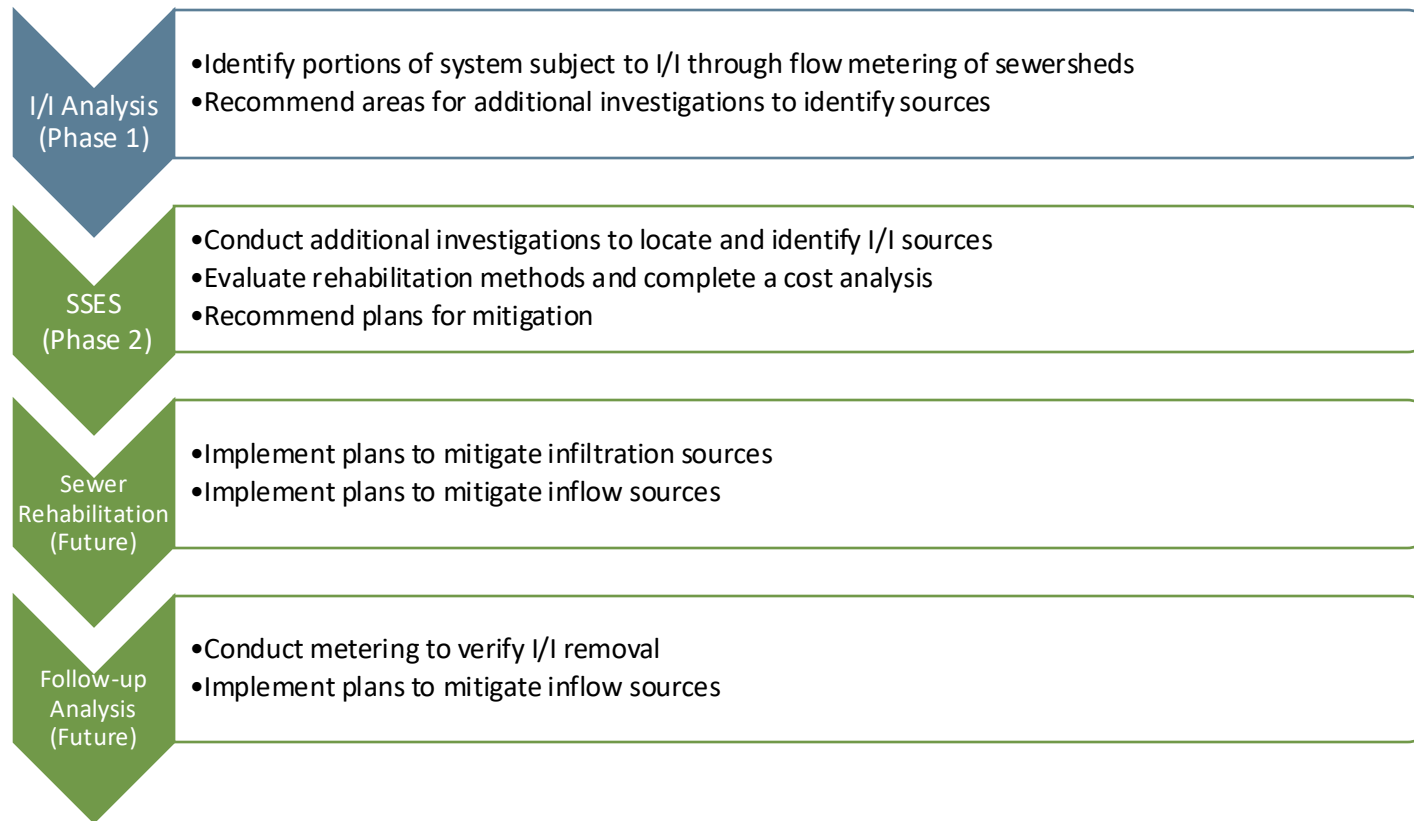
East Granby, CT

January 22, 2025

BETA

Sewer System Evaluation Regulatory Approved Approach

I/I Analysis (Phase 1)
- Identify portions of system subject to I/I through flow metering of sewersheds
- Recommend areas for additional investigations to identify sources

SSES (Phase 2)
- Conduct additional investigations to locate and identify I/I sources
- Evaluate rehabilitation methods and complete a cost analysis
- Recommend plans for mitigation

Sewer Rehabilitation (Future)
- Implement plans to mitigate infiltration sources
- Implement plans to mitigate inflow sources

Follow-up Analysis (Future)
- Conduct metering to verify I/I removal
- Implement plans to mitigate inflow sources

Infiltration

- **Groundwater that enters the sewer collection system**

  o Faulty Pipe Joints

  o Cracks in pipe

  o Structurally impaired sewer manholes

Structurally Sound Pipe

Cracks in Pipe

Offset Joint

Inflow

- **Stormwater (rainwater) that enters the sewer collection system**

  o Illicit Connections

   • Sump Pumps

   • Drainage Infrastructure

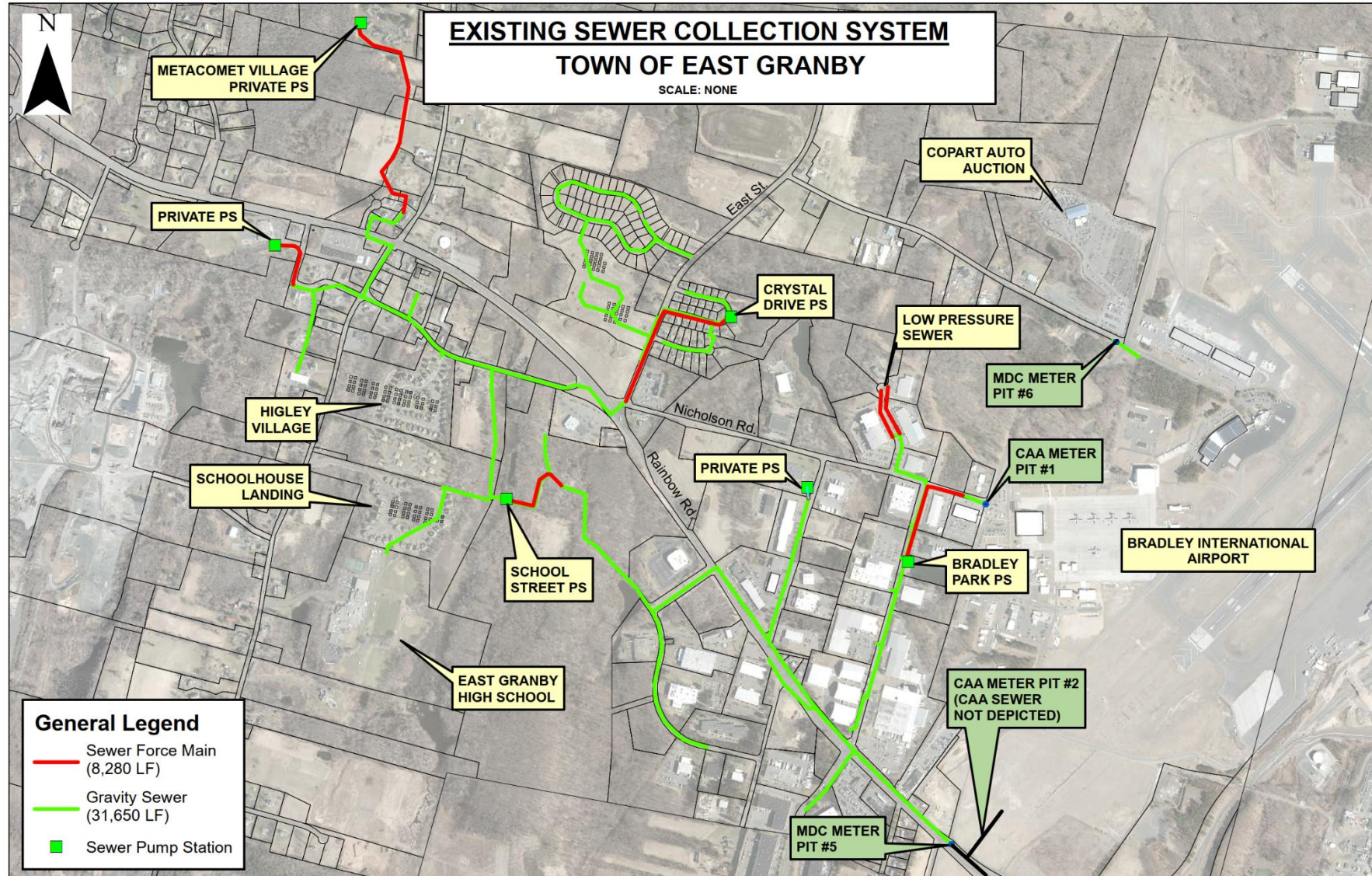   • Roof Leaders

  o Sewer Manhole Covers

**Damaged Sewer
Manhole Cover**

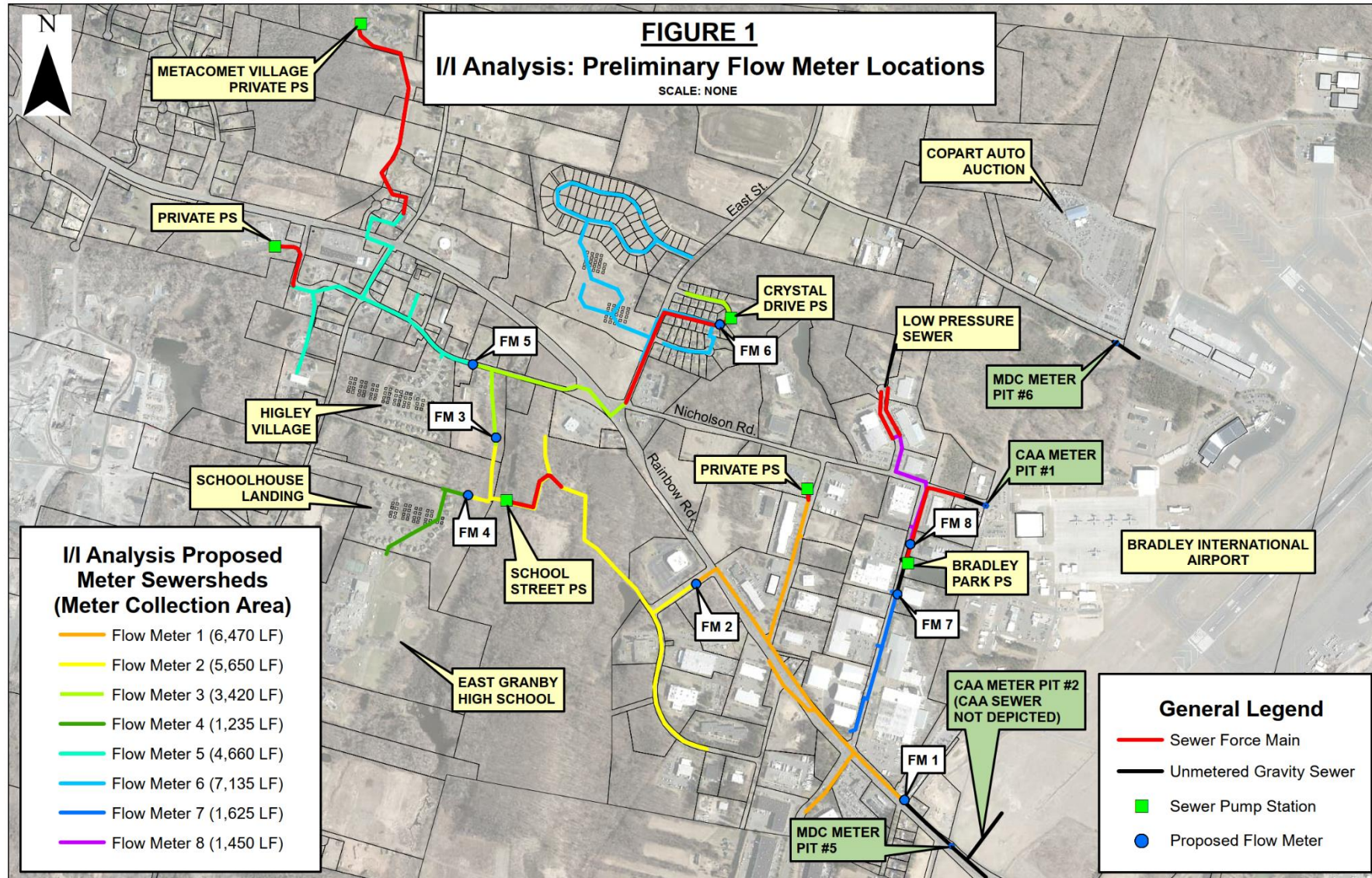**Sump Pump
Discharge to Sewer**

East Granby – Existing Sewer Collection System

Phase 1 - I/I Analysis

o Complete Flow Monitoring Study of existing Sanitary Sewer System (Spring of 2025)

- Evaluate sewer system in smaller segments (sub-areas)

- Flow Monitoring Goals

  ➢ Install flow meters in locations that will provide consistent data
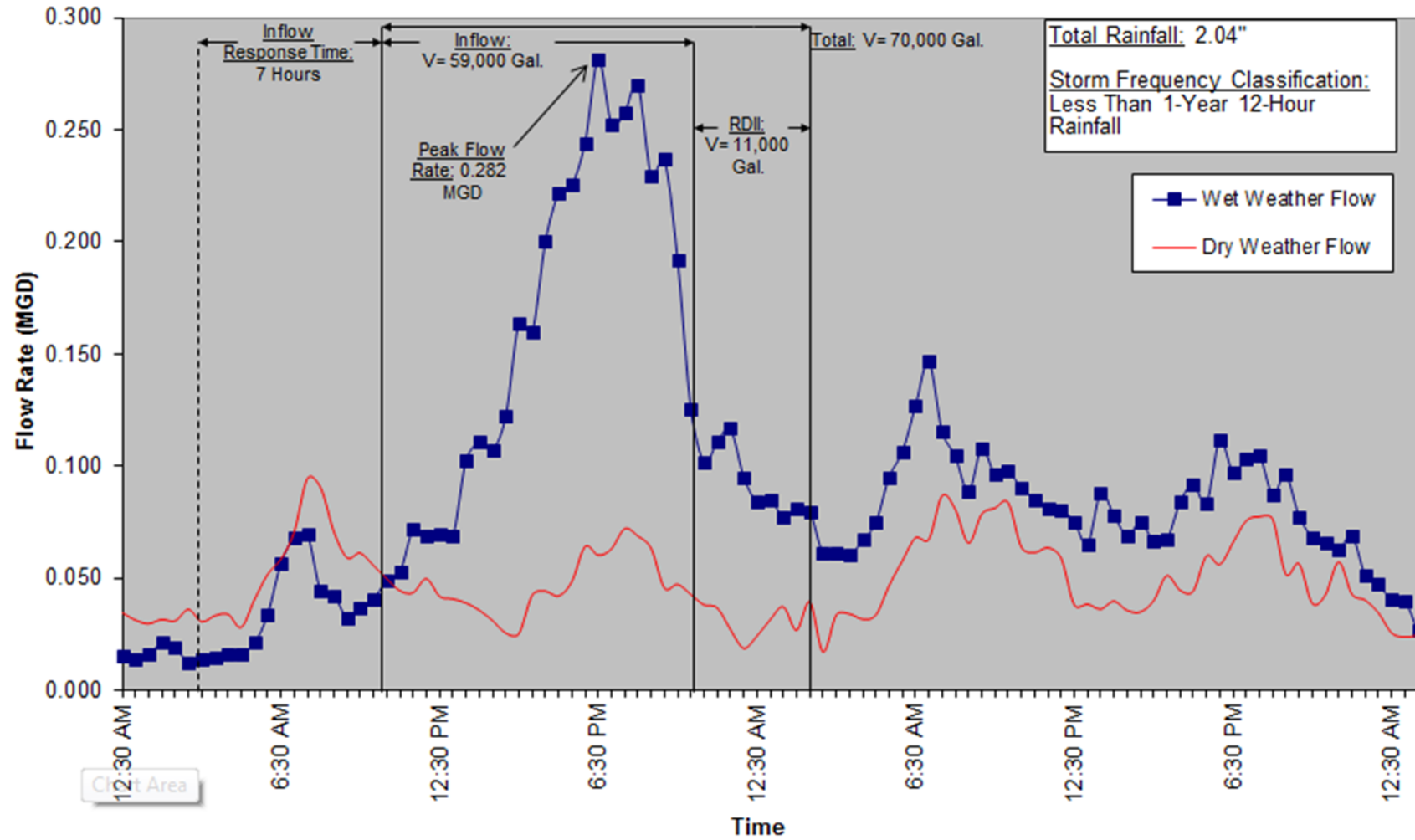
  ➢ Capture a significant rain event

Flow Monitoring Study (Phase 1)

FIGURE 1
I/I Analysis: Preliminary Flow Meter Locations
SCALE: NONE

Phase 1 - I/I Analysis Cont'

o Evaluate data

- Identify areas with excessive Infiltration / Inflow

  ➢ Comparing dry weather flow to wet weather flow = Inflow

  ➢ Comparing dry weather flow to water consumption data = Infiltration

o Prepare Summary Report

- Summarizes findings from the data

- Develop plan to target areas for further investigation (if necessary)

  ➢ Further investigation: CCTV, Smoke Testing, Flow Isolation (metering)

- Summary Report to be submitted to DEEP

Figure 6.13.1
Sanitary Flows on Addy Drive culdesac
Bristol, RI Manhole ID# 24-124
February 13, 2008 Rain Event

Questions?

Transportation & Traffic
- Highway & Roadway Design
- Complete Streets
- Impact, Circulation, & Parking Studies
- Traffic Calming
- Pedestrian/Bicycle Facilities
- Advanced Traffic Signal Systems

Landscape Architecture, Urban Design, Planning
- Master Planning & Visioning
- Streetscapes
- Bicycle & Pedestrian Trails
- Wayfinding & Visitor Experience
- School, Sports, & Recreational Facilities
- Green Infrastructure & Rain Gardens
- Parks & Open Spaces
- Climate Change Resilient Design & Planning

Water & Wastewater
- Water Storage & Distribution
- Wastewater Collection & Treatment
- Hydraulic Modeling
- Infiltration/Inflow Studies
- Facilities Planning
- Solid Waste Facilities & Biosolid Management

GIS & Asset Management
- Pavement Management
- Sign Inventory & MUTCD Compliance
- ADA Compliance
- Cemetery Mapping
- Web-based Applications
- Scanning & Retrieval Systems

Structural
- Bridge Inspections, Evaluations, & Ratings
- Design & Peer Reviews
- Highway & Pedestrian Bridge Design
- Design-Build
- Retaining Walls
- Culvert Design

Environmental
- LSP/LEP Services
- Brownfields Redevelopment
- Site Investigation & Remediation
- Hazardous Material Building Surveys Services
- Resource Area Boundary Delineation
- Ecological Services
- Permitting & Mitigation Design
- Municipal Peer Review & Expert Testimony

Civil/Site
- Sustainable Site Design & Permitting
- Land Use Management
- Master Planning
- Hydrology/Hydraulic Modeling & Design
- Watershed Studies
- Low Impact Development/ Green Solutions

Stormwater Management
- Stormwater Analysis & Best Management Practices Design
- EPA NPDES Permitting & Stormwater Pollution Prevention Plans
- MS4 Permit Assistance
- Municipal Facility Audits/Peer Reviews
- Climate Change Planning & Design
- IDDE Investigation Implementation

Construction
- Construction Administration/ Management
- Onsite Resident/Field Inspection Services
- Scheduling & Cost Estimating
- Constructability Evaluations
- Permitting, Testing, & Compliance

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