



GILMORE & ASSOCIATES, INC.

FULL SERVICE CIVIL ENGINEERING & CONSULTING



GAS LINE SINKHOLE STABILIZATION PROJECT

Northampton County, PA

Gilmore & Associates, Inc. (G&A) was engaged to examine sinkhole activity that was threatening the stability of an existing high pressure gas line located on a utility property consisting of an old rail grade in Northampton County, PA. The site is situated over karst-prone carbonate limestone and G&A needed to rapidly address the problems to avoid potential impacts with winter use of the gas line. The scope of the project included several coordinate phases:

- Evaluation of stormwater runoff from an adjacent property as a catalyst to the formation and growth of the sinkholes.
- Desktop and field analysis of the karst features and recommendations for subsurface investigation techniques.
- Implementation of a phased subsurface investigation including geophysics (seismic refraction and microgravity) and a test boring program.
- Preparation of remedial recommendations; and the oversight of remedial stabilization activities.

Based on the results of the investigation activities, G&A prepared a report outlining options for stabilization and management of the stormwater runoff issue. Stabilization options were prepared based on relative risk and included pile support of the gas line and a high-mobility flowable fill treatment of the surface solution features. Following the initial reporting phase, as part of an assessment of the existing cathodic protection system, the gas company performed trench investigation adjacent to line over the full length of the study area. G&A was on site to observe the trenching and provide additional recommendations as needed. Surface grouting of existing and exhumed karst features was implemented.

In order to decrease the rate and/or probability of future sinkhole formation, G&A also provided recommendations for management of stormwater runoff. As the source of the surface runoff that was contributing to the ongoing subsidence was off site, and options to capture and gravity drain stormwater to discharge off site were problematic, G&A developed details for gravity infiltration of the stormwater into a stabilized onsite sinkhole feature.

Services Provided by G&A

- Geologic (Karst)
- Stormwater Consulting

Client Information
Confidential

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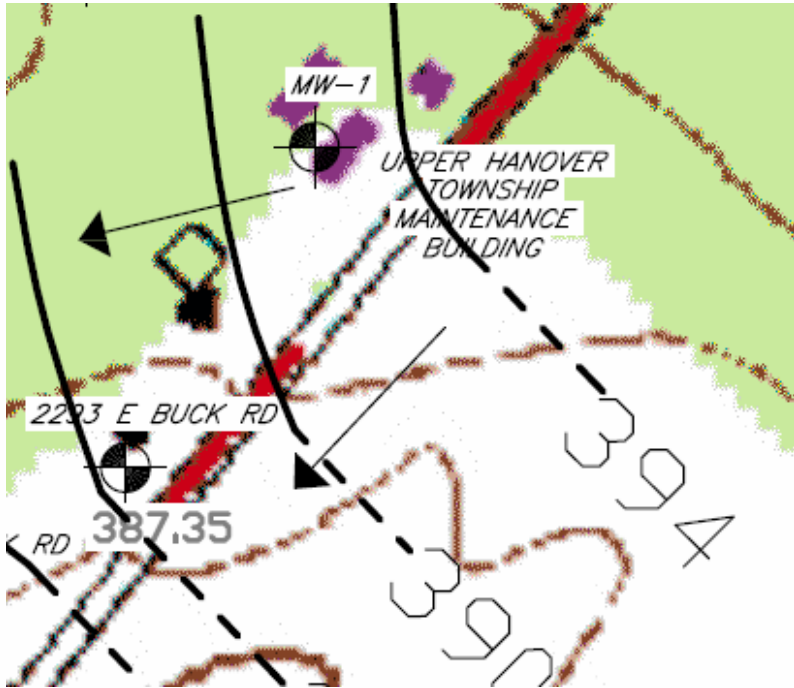
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UPPER HANOVER AUTHORITY HYDROGEOLOGIC STUDY

Gilmore & Associates, Inc. (G&A) conducted a site characterization and groundwater investigation pertaining to removal of one (1) 500-gallon unleaded gasoline UST and closure-in-place of one (1) 1,000-gallon diesel fuel UST. A release of petroleum had been reported during the removal activities of the former 500-gallon UST. The Site characterization performed by G&A consisted of review of existing files, soil sampling, site survey, installation of one (1) down-gradient monitoring well, conducting two (2) rounds sampling of 13 nearby potable water supply wells, meeting with PADEP, preparation of groundwater elevation contour maps, and reporting. The site characterization was conducted in order to ascertain whether a prior reported release of petroleum may pose a threat to site users, nearby residents, or the environment. G&A concluded that remediation was successful in removing contaminants from soil and that groundwater had not been negatively impacted by the release of petroleum.

The PADEP approved the closure of the two (2) former USTs and issued a release of liability under Act 2 regarding the reported petroleum release. G&A provided results of the sampling to nearby residents.



Services Provided by G&A

- UST Site Characterization and Remediation through PA Act 2

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GEORGE SCHOOL MOLLY DODD ANDERSON LIBRARY SUSTAINABLE SITE DESIGN Middletown Township, PA

Gilmore & Associates, Inc. provided engineering services for the design of a new library building, which will be certified under the U.S. Green Building Council (LEED®) gold certification program for environmentally enhanced construction. Sustainable site design included integration of site infrastructure with landscape restoration. Runoff from impervious surfaces, including roof, is captured in rain gardens where it infiltrates the soil. This is used by plants which filter the runoff before moving into the groundwater.



Services Provided by G&A

- Environmental Site Assessment
- Survey
- Geotechnical Services
- Site/Civil Design Services
- Local Development Approvals
- Stormwater Management Design
- LEED® Consulting & Credit Documentation
- Construction Administration



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KENSINGTON HIGH SCHOOL School District of Philadelphia

A new high school is under construction in the Kensington neighborhood of Philadelphia. In a unique turnkey project for the School District of Philadelphia, BSI and AP Construction formed a joint venture for this design-build project. As the civil engineering consultant, Gilmore & Associates provided services for survey, site evaluation and planning, civil and stormwater management design, PWD and Zoning approvals, bid documentation, and assistance with USGBC submittals.

Pursuant to the City of Philadelphia's Green Infrastructure Initiative, and with the goal of obtaining LEED® certification, the school was designed with many sustainable features. The 7.2 acres Brownfield site will incorporate recycled materials in retaining walls and landscaping, provide rainwater cisterns for water re-use, a geothermal heating system and vegetated rooftop areas. Stormwater management practices will reduce runoff, and provide water quality and flood control to meet the City's stringent Public Health and Safety Release Rate requirements for connection to combined sewer networks. The site design minimizes impervious cover with the use of grass-turf pavers, efficient walkway layouts, and porous paving infiltration beds. Stormwater features also include rain gardens and underground detention facilities.

G&A worked in conjunction with the architectural firms of SMP Architects and SRK Architects for the preparation of construction documents. Construction is underway and scheduled for completion by September 2010.



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