FACT SHEET
EXPLANATION OF SIGNIFICANT DIFFERENCE
K – PATCHOGUE MGP SITE

Village of Patchogue / Suffolk County / Site No. 152182 / October 2017

Prepared by the New York State Department of Environmental Conservation
Division of Environmental Remediation

1.0 INTRODUCTION

The purpose of this notice is to describe the progress of the remediation at the Patchogue Former Manufactured Gas Plant (MGP) Site and to inform the public about a modification to the selected remedy.

The Patchogue Former MGP Site is located at 234 West Main Street in the Village of Patchogue (Figure 1: Site Location). This property is owned by KeySpan Gas East Corporation d/b/a National Grid. In March 2011, the New York State Department of Environmental Conservation (NYSDEC or "the Department") issued a Record of Decision (ROD) which identified the remedy selected to clean up the site.

The ROD specified remedial activities for the MGP site and also for the adjacent property to the east, 212 West Main Street, referred to as the "Off-Site Property", which is under lease by National Grid. This document describes a change to the remedy as it will apply to the Off-Site Property. All remedial activities on the more heavily contaminated MGP site will remain unchanged.

The March 2011 ROD specified that an approximately 0.25-acre area of the Off-Site Property was to be addressed by excavating impacted soils and backfilling with clean imported soils. The current design, as presented in this Explanation of Significant Difference (ESD), calls for the use of in-situ solidification (ISS) as an alternative to excavation in that area. ISS is recommended because it will minimize short term human and environmental impacts while maintaining the same degree of long-term protectiveness to the environment. It will reduce the risk of causing damage to the existing building on the Off-Site Property, reduce truck traffic to and from the site, and result in an overall lower remediation cost.

ISS is already a large part of the remedy selected for the main MGP site. This change extends ISS to the Off Site Property as well.

This ESD will become part of the Administrative Record for the Site. The information presented here is a summary; more detailed information can be found in documents that have been placed in the repositories.

1.1 Contacts and Repositories

Although this is not a request for comments, interested persons are invited to contact the Department's

Project Manager for this Site to obtain more information or have questions answered. The project contacts and repositories are listed below.

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Patchogue-Medford Library
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New York State Department of Environmental Conservation
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2.0 SITE DESCRIPTION AND ORIGINAL REMEDY

2.1 Site Description and History

Location: The Patchogue Former MGP Site is located at 234 West Main Street in the Village of Patchogue, Town of Brookhaven, Suffolk County. The specific area addressed by this ESD is the Off-Site Property (approximately 0.25 acres) at 212 West Main Street, immediately east of the main MGP site, in an area between the existing building (currently leased by National Grid) and the Patchogue River.

Site Features: The site is generally rectangular and encompasses approximately 3.6 acres, with a maximum length (north-south) of approximately 680 feet and a maximum width (east-west) of approximately 180 feet. The site is enclosed by a lockable chain-link fence, and is informally divided into three areas: The Northern area, the Central/Core area, and the Southern area. Most of the former gas manufacturing operations described below took place in the Central/Core area.

The topography of the site is relatively flat, with a typical elevation of approximately five feet above mean

sea level (msl). The site is, in general, bordered as follows:

- To the north by West Main Street, beyond which is a commercial property, formerly occupied by Briarcliff College, and Patchogue Lake;
- To the east by an unpaved access driveway and two commercial properties, beyond which is the Patchogue River;
- To the south by a residential area; and
- To the west by a steep slope, beyond which are commercial and residential areas.

Current Zoning: The site is zoned for industrial use. It is in an area of mixed commercial and residential usage, and is currently undeveloped and vacant.

2.2 Historic Uses That Led to the Need for Remedial Action

The site operated as a manufactured gas plant (MGP) from 1904 to 1926. MGPs such as this converted coal and/or petroleum products into a flammable gas which was used in the surrounding community, for purposes similar to natural gas usage today. Gas manufacturing operations at the Patchogue Site were conducted on a small scale and for a relatively short period. After only a few years of operations, the Patchogue Gas Company was sold to the Long Island Lighting Company (LILCO). Within a few years of the sale, gas production at the site ceased. Gas was purchased from the Suffolk County Gas and Electric plant in Bay Shore and distributed from the Patchogue Plant from 1914 through 1918. Gas production facilities remained at Patchogue for several years, but appear to have been used only on a standby basis

From 1918 through the 1970s, the facility served as a gas storage facility. During this period, a 60,000-cubic foot gas holder and seven horizontal, above ground storage tanks were used to store gas produced elsewhere. The gas storage and distribution facility remained until the 1970s when LILCO sold the property to a third party. From the mid-1970s through early 2005, the site was used as a refrigerator equipment and scrap storage yard.

In 1999, LILCO and Brooklyn Union Gas merged to form KeySpan Corporation. KeySpan Gas East Corporation (a subsidiary of KeySpan Corporation) reacquired the Site in 2005 for the purposes of remediation and currently maintains ownership of the site. In 2008, National Grid acquired KeySpan Corporation and its subsidiaries. In 2016, National Grid secured a short-term lease for the adjacent 212 East Main Street property for purposes of remediation.

2.3 Nature and Extent of Impacted Material

- The principal environmental contaminant at this site is coal tar, which was produced as a waste product of the gas manufacturing operations. Coal tar is a dark, oily liquid with a characteristic, unpleasant odor. It was released from subsurface structures and piping into subsurface soils during the period when gas manufacturing was under way.
- Contaminants such as coal tar are referred to as Non-Aqueous Phase Liquids (NAPLs), which are resistant to natural decay. The tar contains both volatile and semi-volatile organic compounds. Specific volatile organic compounds (VOCs) of concern in the tar are benzene, toluene, ethylbenzene and xylenes (collectively known as BTEX compounds). Specific semi-volatile organic compounds of concern are the polycyclic aromatic hydrocarbons (PAHs).
- Most of the MGP-related impacts at the site are within the top 10 to 12 feet of soil near the former MGP structures in the Central/Core Area. The degree of MGP-related contamination decreases rapidly with distance from the source areas, but thin lenses or layers that are saturated

and/or partially saturated with coal tar extend beyond the site boundary into the Off-Site Area.

3.0 CURRENT STATUS

The 95% Remedial Design Report (RDR) is being finalized and, after approval by the Department, will be used to develop bid documents to procure a remedial contractor to implement the remedy. After the contractor is procured, the RDR will be finalized.

Interim remedial and site preparation work has already been completed at the site, including:

1. Relocating the utility corridor from the western side of the site, which was completed in July 2012;
2. Clearing existing trees, vegetation and fencing (ongoing); and
3. Securing the site by installing new fencing around the perimeter (ongoing).

The remedial activities in the western portion of the site were implemented in June-July 2012 to create a "utility corridor" in which utility poles and overhead lines were reinstalled to prepare for the implementation of the remedial activities for the remainder of the site. National Grid addressed impacted soil identified in the northwestern corner of the site (around the former MW-2 well cluster) as well as those that required capping on the western side of the site, by means of off-site disposal.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCE

4.1 New Information

To support the design of the excavation support system for the Off-Site Property excavation, a multi-phase supplemental investigation was conducted. The investigation will be documented in the 95% and Final RD Reports. The soil beneath the Off-Site Property consist of 11 to 14 feet of fill overlying native sands. The fill is very loose to medium dense sand with varying amounts of silt and gravel. Because the upper fill layer is very loose at some locations, heavy vibrations during construction have the potential of causing differential settlement beneath the nearby building. Therefore, it is not recommended that driven sheet-piles be used as a means of excavation support.

The geotechnical investigation also found evidence of more extensive NAPL contamination in the Off Site Area than had been previously known. Combined with the concerns regarding settlement of the nearby building, excavation of the Off Site Property is no longer recommended.

4.2 Comparison of Changes with Original Remedy

The remedy for the Off-Site Property area is modified from Excavation with Off-Site Treatment and Disposal to In-Situ Solidification (ISS). The modified remedy is consistent with the remedial action objectives for public health and environmental protection, while also minimizing the length of construction, construction impacts to the public and the environment, resources used, and overall cost of remediation. ISS has been used with success in several other MGP remediation sites (as well as for the on-site cleanup at this site) and has been found to be an effective alternative to excavation and fill techniques, particularly in conditions such as those occurring at the Patchogue Former MGP Site.

The change is based on the following:

1. ISS protects public health and environment by solidifying the contamination and preventing the continued migration of contaminants in the subsurface and transfer to groundwater and vapor. Direct exposure to contaminated soil will be minimized by the installation of a four-foot soil cover, which is necessary to protect the solidified mass from freeze/thaw cycles, and the implementation of an environmental easement and Site Management Plan.
2. Compared to excavation, ISS involves a significant reduction in the volume of the materials that need to be handled (e.g., excavation, backfill, transportation/disposal) and in the implementation time. This reduces the construction impacts to the surrounding community, such as the truck traffic, construction-associated noise, and dust and odor emissions.
3. ISS results in a significant reduction in the vibrations as compared to the installation of earth support systems, such as driving of sheet piles that would be required to implement the excavation remedy. Because of this, it offers a significant reduction in the risk of causing damage to the surrounding structures.
4. ISS can be implemented closer to the building than the excavation would have extended, thus addressing a larger volume of the impacted soils.
5. The reduction of the truck traffic, the volume of materials that need to be handled and conditioned, as well the elimination of the need to operate a dewatering system under ISS results in a significant reduction in the amount of energy used (e.g., fuel, electricity) as compared to the excavation, reducing the carbon footprint of the remedy.
6. ISS is already being employed within the site.
7. ISS can be implemented at a lower cost than excavation.

Overall, it is apparent that ISS offers significant practical advantages over excavation, with an equivalent level of protection.

The Off-Site Property owner will be under an agreement to implement the remedy and the Site Management Plan on the Off-Site Property area.

Cost: The modified ISS alternative remedy to the Off-Site Property area will reduce the estimated capital cost of implementation.

There are no changes to other elements of the previously selected remedy.

5.0 SCHEDULE AND MORE INFORMATION

The anticipated schedule for the implementation of the remedy is presented below. Members of the public can refer to the contacts listed below to obtain additional information about this project and the change.

Milestone	Milestone Date
95% Remedial Design Report (RDR)	October 2017
100% RDR	January 2018
Field Implementation of Remedy	April 2018

Attachments:

Figure 1: Site Location
Figure 2: Remedial Action Plan

If you have questions or need additional information you may contact any of the following:

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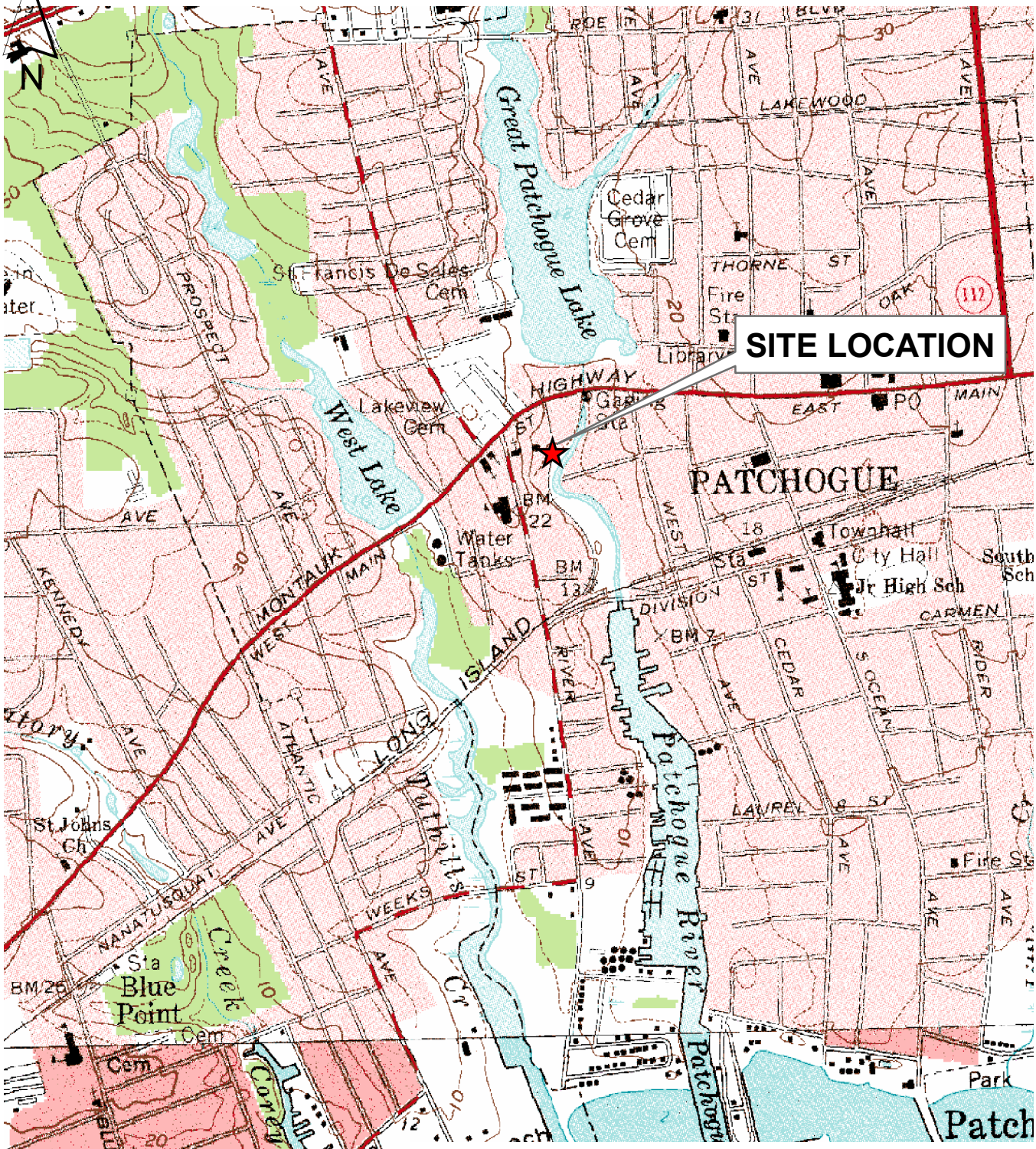
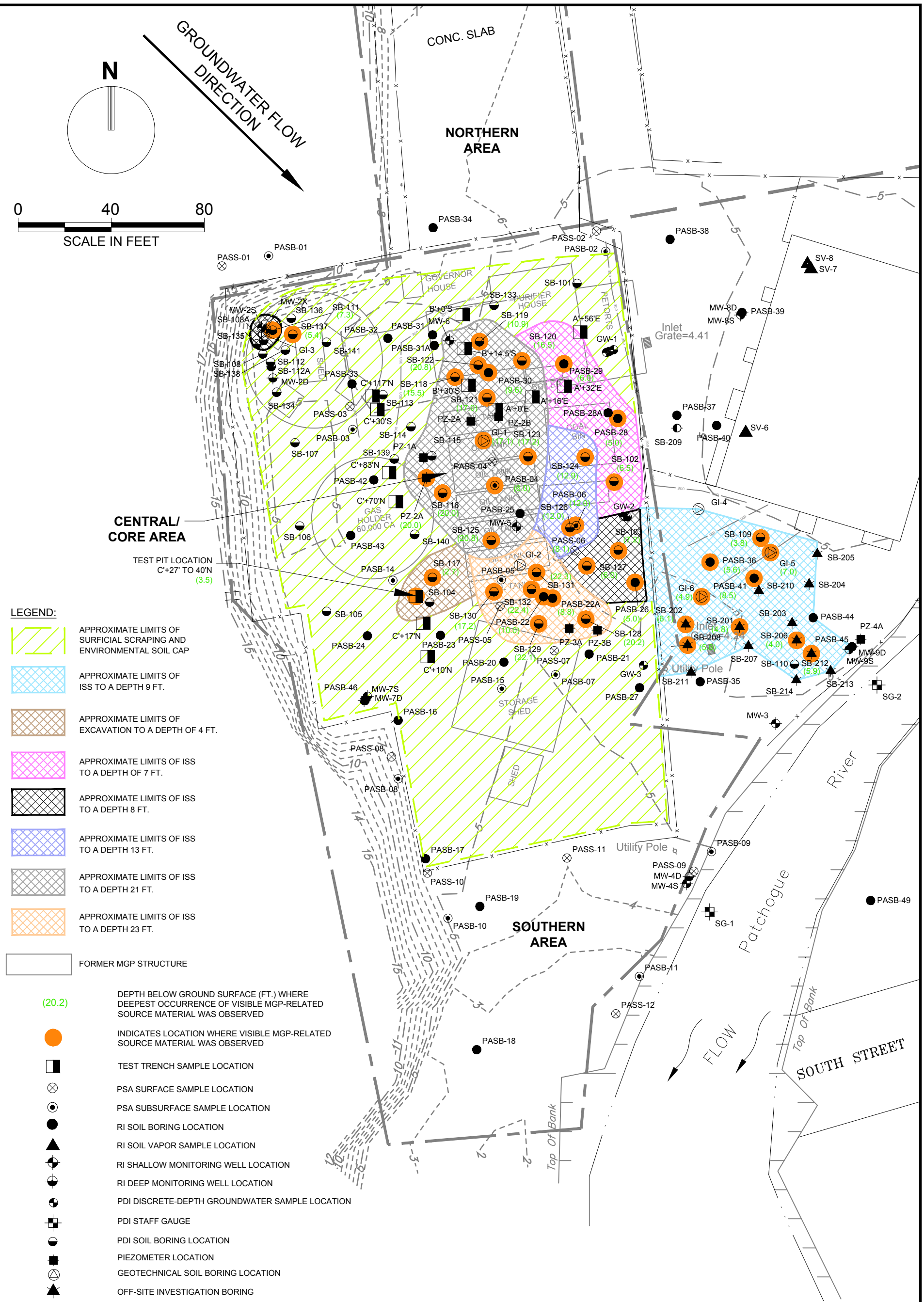


FIGURE 1

SITE LOCATION

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
PATCHOGUE, NEW YORK

P:\GIS\National_Grid\Patchogue\Patchogue_Site_Location.mxd



LEGEND:

- APPROXIMATE LIMITS OF SURFICIAL SCRAPING AND ENVIRONMENTAL SOIL CAP
- APPROXIMATE LIMITS OF ISS TO A DEPTH 9 FT.
- APPROXIMATE LIMITS OF EXCAVATION TO A DEPTH OF 4 FT.
- APPROXIMATE LIMITS OF ISS TO A DEPTH OF 7 FT.
- APPROXIMATE LIMITS OF ISS TO A DEPTH 8 FT.
- APPROXIMATE LIMITS OF ISS TO A DEPTH 13 FT.
- APPROXIMATE LIMITS OF ISS TO A DEPTH 21 FT.
- APPROXIMATE LIMITS OF ISS TO A DEPTH 23 FT.
- FORMER MGP STRUCTURE
- (20.2) DEPTH BELOW GROUND SURFACE (FT.) WHERE DEEPEST OCCURRENCE OF VISIBLE MGP-RELATED SOURCE MATERIAL WAS OBSERVED
- INDICATES LOCATION WHERE VISIBLE MGP-RELATED SOURCE MATERIAL WAS OBSERVED
- TEST TRENCH SAMPLE LOCATION
- PSA SURFACE SAMPLE LOCATION
- PSA SUBSURFACE SAMPLE LOCATION
- RI SOIL BORING LOCATION
- RI SOIL VAPOR SAMPLE LOCATION
- RI SHALLOW MONITORING WELL LOCATION
- RI DEEP MONITORING WELL LOCATION
- PDI DISCRETE-DEPTH GROUNDWATER SAMPLE LOCATION
- PDI STAFF GAUGE
- PDI SOIL BORING LOCATION
- PIEZOMETER LOCATION
- GEOTECHNICAL SOIL BORING LOCATION
- OFF-SITE INVESTIGATION BORING
- PROPERTY LINE
- FENCE
- TOPOGRAPHIC CONTOUR
- UNDERGROUND ELECTRIC

Brown AND Caldwell

SCALE: 1" = 40'

JOB NUMBER: 149322

DATE: August 24, 2017

REMEDIAL ACTION PLAN

NATIONAL GRID
PATCHOGUE FORMER MGP SITE
VILLAGE OF PATCHOGUE, NEW YORK

FIGURE
2

Path: \\bcusrfp01\projects\National_Grid\Patchogue\149322_NG_Patchogue_RDR_CAD\2-SHEETS\C-CIVIL File Name: FIG 2 Plot Date: August 24, 2017 4:21 PM Cadd User: Alan Santiago