AECOM
250 Apollo Drive
Chelmsford, MA 01824

978.905.2100 tel
978.905.2101 fax

Memorandum

To	Donald Campbell (National Grid)	Page 1
CC	William Ryan (National Grid)	
Subject	Former Equity Works Manufactured Gas Plant Site (NYSDEC Site No. 224050) 252 Maspeth Avenue Parcel Long-Term Site Management Assessment	
From	Mark McCabe and Pete Cox (AECOM)	
Date	September 14, 2020	

National Grid installed an automated non-aqueous phase liquid (NAPL) recovery system at the Equity Works site in 2014 as an Interim Remedial Measure (IRM). The system consists of 23 collection wells at “on-site” and “perimeter” locations (all of which are on-site) and has collected over 22,000 gallons of mixed fluids (NAPL/water emulsion). Although the 2017 draft Feasibility Study (FS) for the site, submitted to the NYSDEC on July 3, 2017, recommends that the NAPL recovery system be the final remedy given the active commercial businesses on the three parcels (222 Maspeth, 252 Maspeth and 254 Maspeth), in 2019 the New York State Department of Environmental Conservation (NYSDEC) required the performance of an excavation and In-Situ Solidification (ISS) IRM on the 222 Maspeth parcel during a break in commercial operations. The 222 Maspeth Avenue IRM is currently being designed.

The current NAPL recovery activities require long-term access for National Grid to monitor and maintain multiple recovery wells on the 252 Maspeth Avenue parcel. Recently, the tenants who have occupied the parcel for the last several years have vacated the site. In response to the vacancy, the owners of the 252 Maspeth Avenue parcel (Owners) are evaluating potential development of the parcel and have indicated to National Grid and NYSDEC a preference for an IRM on their property similar to the IRM being designed for 222 Maspeth Avenue. The Owners prefer a short-duration remediation that would be considered a final remedy for the parcel, i.e. without the need for long-term monitoring access, and allow flexibility to pursue additional future site redevelopment (including, possibly, a covered warehouse on the property).

The purpose of this memorandum is to summarize impacts on the 252 Maspeth Avenue parcel and present a preliminary evaluation of potential remedial alternatives using the general Remedy Selection guidelines provided in of DER-10.

Summary of Media Impacts – 252 Maspeth Avenue Parcel

The areal distribution of visible soil impacts on the 252 Maspeth Avenue parcel are illustrated on Figure 1 (above the meadow mat at approximately 20 feet below ground surface (bgs) and Figure 2 (above the intermediate clay at approximately 42 feet bgs). The area of impacted soil has been defined using the following criteria:

- Locations where concentrations in subsurface soils that are greater than the NYSDEC CP-51 criteria for PAHs or NYSDEC Part 375 commercial criteria for other constituents.
- Locations where observations from boring logs indicate the presence of “lenses” or zones of more concentrated residuals such as NAPL.
- Locations where observations from boring logs indicate the presence of lesser observations of impacts including NAPL blebs, stringers, and coating.

The locations where exceedances of those criteria or impacts have been observed are summarized in Table 1.

A review of the results indicates that visual NAPL impacts are present across the 252 Maspeth Avenue parcel at depths that generally range from 12 to 45 feet bgs. Note that visual NAPL has also been observed in a limited area below the intermediate clay at depths from 63 to 96 ft bgs.

Conceptual Site Model and Risk Assessment

Complete exposure pathways have not been identified for potential receptors on the 252 Maspeth Avenue parcel for the current use of the property. Potable water is provided by the City of New York, and areas containing environmental impacts are covered by asphalt or developed property. However, future construction workers performing excavation work may potentially be exposed to impacts in soil. The potential construction worker pathway is addressed by an Interim Site Management Plan (ISMP) that requires that subsurface work be conducted by OSHA-trained personnel using a site-specific HASP, and coordination with National Grid’s SIR Department.

Remedial Action Goals and Objectives

The goal for remedial activities on the 252 Maspeth Avenue parcel will be to eliminate or mitigate the potential risk posed by MGP-related residual impacts and remove source material to the extent practicable. Achieving the remedial goals for the parcel will require that the remediation activities result in the management of the potential exposure pathways and the removal of sources of MGP-related residual impacts to the extent practicable given the physical limitations of the parcel. Therefore, the following generic remedial action objectives (RAOs) that have been developed by NYSDEC were used in the development and evaluation of long-term remedial alternatives for the parcel:

- Prevent ingestion/direct contact with contaminated media.
- Prevent migration of source material, to the extent practicable.
- Remove source material, to the extent practicable.

IRM Alternatives – 252 Maspeth Avenue Parcel

As discussed between NYSDEC and National Grid in a recent communication, two general options could be considered in addition to the existing NAPL recovery IRM for the parcel: 1) the excavation and off-site disposal of impacted soil at “shallow” depths to the water table to address a potential direct contact risk during any future site redevelopment, and 2) removal/treatment of NAPL impacts in the saturated zone as part of a permanent remedy for the site. The alternatives for the IRM evaluation have been identified as follows:

- Alternative 1 – NAPL Recovery Using the Existing System

- Alternative 2 – NAPL Recovery – Expanded Well Network
- Alternative 3 – Excavation of Shallow Soil
- Alternative 4 – Solidification of NAPL Impacted Media

Each of the proposed alternatives is described below.

Alternative 1 – NAPL Recovery Using the Existing System

The following discussion provides a summary of the activities associated with the on-going operation of the NAPL recovery system.

NAPL recovery wells are installed within the areas of the 222, 252 and 254 Maspeth Avenue parcels (the Site) where NAPL saturation has been observed. Five wells were installed at appropriate locations within the central areas of the Site to reduce the quantity of NAPL from likely source areas and an additional 18 wells along the perimeter of the Site to control the potential for off-site migration. The locations of the 23 recovery wells are illustrated on Figure 3.

The recovery wells are designed to accommodate the potential variability in site conditions associated with long-term NAPL recovery. All well risers are constructed of 6-inch diameter schedule 40 polyvinyl chloride (PVC). Recovery well screens are constructed of 6-inch diameter 0.020-inch slot wire wrap stainless steel. Five-foot and ten-foot lengths of screen are used, as required, to address soil intervals where NAPL (i.e., saturated thickness greater than 1-inch) have been observed at the locations. Each well is equipped with a 5-foot long, 6-inch diameter, stainless steel sump to collect NAPL prior to recovery.

Data collected during an initial monitoring period indicated that NAPL collection rates at 13 of the 23 locations (2 on-site and 11 perimeter) warranted the installation of fixed-speed pumps to support automated recovery. The pumps are controlled by timers. The remaining 10 locations are monitored as part of the quarterly site inspection activities, with NAPL removed manually by air-lift pumping techniques (hereinafter “gauging” locations). Note that nine recovery wells (6 automated and 3 gauging) are located on the 252 Maspeth parcel and are estimated to produce approximately 60% of the NAPL collected by the system based on available data collected during NAPL recovery operations to date.

The system for managing the automated collection of NAPL includes a control trailer, which is a free-standing shipping container located in an open area of the 254 Maspeth Avenue parcel. System controls include a Supervisory Control and Data Acquisition (SCADA) system to control pumping rates, log data, track significant events as identified by system instrumentation and facilitate communications related to significant alarm conditions. Collected NAPL is accumulated in a small (500-gallon capacity) double-walled polyethylene tank located above ground in the system’s control trailer.

The accumulated NAPL is collected as required for transport by a licensed contractor for recycling as an alternative fuel. Representative samples of the contents of the tank are collected and submitted for waste characterization on an annual basis as required by the disposal facility.

Since system startup through July 31, 2020, the system has operated with an average on-line factor of 98% without incidents or unplanned releases. Based on system measurements, approximately 24,800 gallons of mixed fluids have been collected from the recovery system and recycled as an alternative fuel. A review of site data indicates a decreasing trend in the quantity of NAPL collected, and it’s expected that automated wells will be converted to manual collection wells over time.

National Grid provides a report on the system's performance to NYSDEC on an annual basis. The report documents system performance and any proposed upgrades to improve the collection of NAPL.

Alternative 2 – NAPL Recovery – Expanded Well Network

The general description of the NAPL recovery system would be consistent with Alternative 1; however, additional recovery wells would be installed on the 252 Maspeth Avenue parcel to decrease the operating period for the system. National Grid would determine the number and location of the additional recovery wells in consultation with NYSDEC.

Alternative 3 – Excavation of Shallow Soil

Approximately 8,000 square feet (sq.ft.) of the 252 Maspeth parcel are accessible for excavation. The estimate assumes a 10-foot setback from the perimeter walls as a protective measure for the structures. The excavation to address the potential for a direct contact risk for construction workers would extend to the water table at approximately 6 ft bgs and remove up to 1,600 cubic yards (cy) of soil assuming 0.5 ft of surface asphalt. Note that the excavated quantity would be slightly less to allow for the required sloping of the sidewalls of the excavation.

Site preparation activities would include removal of the asphalt from the surface from the parcel, protection of the existing recovery wells, delineation of soil stockpile/loading areas, and construction of decontamination pads/facilities.

The soil would be excavated at an expected rate of 200 cy per day. Waste characterization sampling would be conducted pre-excavation for acceptance at the selected disposal facility to provide for direct loading for transport. Material would be transported using appropriate procedures/ documentation (waste profile sheets/manifests). Trucks would be inspected, decontaminated as necessary, and covered prior to leaving the site.

Once the excavation depth is reached, samples would be collected from the base and sidewalls to document site conditions. The excavation would be backfilled using common borrow from a clean off-site source that meets the criteria of NYSDEC 6 NYCRR 375 and the NYSDEC per and polyfluoroakyl substances (PFAS) guidelines. The excavation area would be graded, and the asphalt surface of the parcel would be replaced in kind.

Remediation support equipment (stockpile areas, decontamination area, and site trailers) would be removed, and site features would be restored. Remediation activities are expected to be completed within a 2-month period.

Alternative 4 –Solidification of NAPL-Impacted Media

As discussed above, approximately 8,000 sq. ft. of the parcel would be accessible for solidification. Solidification would involve the introduction of cement slurry (grout) into impacted media to decrease permeability and increase strength. Treatment would create a solidified mass that would eliminate the potential for MGP residuals to migrate from the parcel and "isolate" the areas of impact from groundwater flow. Solidification would control the ability of source material to adversely affect groundwater. This alternative also assumes that existing NAPL recovery well infrastructure within the parcel will be abandoned prior to the solidification work and NAPL recovery activities on the parcel will be discontinued following solidification. Any required post-remedy monitoring would be performed from adjacent off-property locations.

Vadose zone soils would be removed to provide a working platform to access the impacted saturated zone soil. The excavated soil (1,600 cy) would be transported off-site for disposal. The underlying media would then be treated from 6 ft to 45 ft. bgs to address approximately 7,400 cy of NAPL impacts. Note that a limited quantity of NAPL impacts would remain at depths below the "reach" of the solidification equipment.

The grout would be produced in an on-site batch plant consisting of two large skid-mounted cone-bottomed mixing tanks. The tanks would be fed by two reagent silos equipped with internal bag houses. The silos would be charged as required throughout the program using a pneumatic truck unloading operation.

The grout mixture would be incorporated using an auger, typically 6 to 8 ft in diameter to form over-lapping columns. The mixing action would distribute any impacts that exists in saturated zones throughout the column to eliminate the potential for the NAPL to be mobile. Subsequently, the cured grout/soil mixture would decrease the permeability of the treated area to form a solidified monolith that would effectively isolate the source material from the aquifer. It is expected that the permeability of the source area can be reduced to less than 10^{-6} cm/sec and that the unconfined compressive strength would be increased to greater than 50 pounds per square inch.

Specified quality assurance and quality control procedures would be conducted to ensure that the proper mixing occurred and that the treated material met the required performance standards. Sample cores for visual inspection to evaluate mixing will be collected at a rate of 1 borehole/ 5,000 sq. ft. of treated area. Wet column samples will be collected at a frequency of 1 sample/500 cubic yards of treated material and submitted for laboratory analysis for permeability and unconfined compressive strength.

The solidification process proceed at an expected rate of 250 to 350 cy per day and would generate an excess of the grout/soil mixture, or spoils, at a rate of up to 25%, by volume, of the area to be treated (12,000 cy – NAPL impacts and overlying soil). This would provide for the generation of an estimated 3,000 cy of spoils.

Backfill meeting the required NYSDEC criteria would be obtained from a commercial off-site source to restore the site grade and the asphalt surface would be restored in kind. It is estimated that site mobilization, solidification, soil management, site restoration and demobilization would be completed within a 6 to 8-month period.

Alternative Evaluation

As required in DER-10, the alternatives were evaluated based on the following criteria:

- *Overall Protection of Human Health and the Environment*—considers how the remedial alternative prevents or mitigates potential risks under current and likely future conditions. Alternatives that maintain the current condition of no significant risk, or that permanently reduce or eliminate exposure pathways under any reasonable future site use without causing significant risks during implementation, are rated **High**. A **Medium** rating is applied to alternatives that provide adequate protection of human health and the environment but have one or more potential drawbacks, such as reliance on long-term maintenance or institutional controls, or uncertainty regarding the final levels of impact. A **Low** rating applies to alternatives that do not protect against reasonably foreseeable future exposures to site impacts or may increase the likelihood of certain exposure scenarios (e.g. increased mobility or toxicity).

- *Compliance with Standards, Criteria and Guidance Values (SCGs)*—addresses whether the remedy will meet the remedial goals and SCGs for the parcel. For the purpose of this evaluation, the principal applicable standards/criteria have been assumed to be the NYSDEC Part 375 soil criteria for restricted commercial use. A **High** rating is given to an alternative that is expected to achieve all the remedial goals and either achieves the SCGs or is expected to result in significant reductions (90% or more) in current concentrations. A **Medium** rating is given if an alternative will achieve the remedial goals but is not expected to achieve the SCGs. A **Low** rating is given if an alternative is not expected to achieve most of the remedial goals and SCGs.
- *Long-Term Effectiveness and Permanence*—evaluates the magnitude of remaining risks and the adequacy and reliability of controls. Alternatives receive a **High** rating if an alternative has been successfully implemented at another MGP site under similar conditions and demonstrated long-term effectiveness without the need for controls. Alternatives with a **Medium** rating result in impacts remaining in place and may require long-term maintenance/ controls. A **Low** rating is given to alternatives that do not remove or treat impacts, do not provide adequate controls to prevent future exposure scenarios, or rely on on-going maintenance of controls that will be difficult to assure. A rating of **Unacceptable** is given to technologies that have been tested under similar conditions and were found to be ineffective.
- *Reduction in Toxicity, Mobility, And Volume (TMV)*—considers the quantity of impacts that are permanently destroyed, immobilized, or otherwise treated. The degree to which the treatment may be irreversible and the nature and amount of treatment residuals are considered. Alternatives that remove impacts from the site or that fully treat (i.e., mineralize) impacts receive a **High** rating. A **Medium** rating is provided to alternatives that immobilize impacts, reduce impacts to less toxic forms, or provide only partial treatment. Treatment alternatives that are reversible or provide no significant reduction in toxicity, mobility, or volume receive a **Low** rating. A rating of **Unacceptable** is given to technologies, which under similar circumstances increased the toxicity, mobility, or volume of contaminants.
- *Short-Term Effectiveness*—evaluates potential risks to the public, remediation workers, and the environment during implementation of the remedy. The duration of remedial activities is also considered. Alternatives with minimal intrusive site work receive a **High** rating for short-term effectiveness. Alternatives that pose short-term risks that can be effectively managed receive a rating of **Medium**. Alternatives receive a rating of **Low** if they present significant short-term risks and the ability to fully control these risks is uncertain. In general, alternatives that include bringing partially treated or untreated impacts to the surface receive a Medium rating if potential exposures are short and easily controlled. If impacts are brought to the surface over a long period and exposures are difficult to control, a **Low** rating is given to the alternative. A rating of **Unacceptable** is given to alternatives that, despite implementation of control technologies, would still present unacceptable risks to receptors.
- *Implementability*—considers potential obstacles to construction of the remedy at the site. The availability of personnel and equipment to implement the remedy is considered as is the need for permits and the likelihood of obtaining regulatory approvals. Site owner acceptance of the alternative is also a key issue. The expected effectiveness and ability to monitor the effectiveness of the alternative are also considered. Alternatives that are known to have been successfully implemented at similar sites receive a **High** rating. Alternatives that are likely to be implemented successfully but where uncertainty exists in terms of effectiveness, ability to confirm treatment, or require extensive permitting receives a **Medium** rating. A **Low** rating is given to alternatives that are expected to be difficult to implement. A rating of **Unacceptable** is given to alternatives that are not possible to implement.

- *Cost Effectiveness*—compares the effectiveness of the alternative to its cost. Alternatives receive a **High** rating if they are determined to be effective (ratings of Medium/High for the criteria for permanence, reduction of TMV and short-term effectiveness) and the cost is expected to be in the lower range of alternatives that provide a similar benefit. A **Medium** rating is applied if the effectiveness ratings are Medium/High and the cost is expected to be in the mid -to upper-range of alternatives that provide similar benefit. A Low rating will be used if the alternative has received a one of more Low ratings for effectiveness or implementability, regardless of cost.
- *Land Use*—evaluates the ability of a remedy to allow the use of the site/surroundings for purposes that are consistent with its current, intended or reasonably anticipated uses. A **High** rating will be applied to alternatives that maintain or elevate the use of a site so that it is consistent with area zoning, e.g. industrial, commercial, residential, and surroundings. A **Medium** rating will be applied to alternatives that maintain the use of the site and that use is not consistent with area zoning. A **Low** rating will be used for alternatives that do not maintain the current use of the site.

A summary of the results from this evaluation as well as a review of these alternatives on their ability to meet the site-specific remedial goals and RAOs is presented in Table 2. The results from the evaluation are discussed below.

- Alternative 3 - Excavation of Shallow Soil was rated Low for the criteria that define the environmental benefit of the alternatives, i.e. Overall Protection, Compliance with SCGs, Long-Term Effectiveness and reduction of Toxicity, Mobility and Volume. The rating was primarily due to the fact that the alternative would not address the majority of the NAPL impacts on the parcel.

- Alternatives 1 (NAPL Recovery – Existing System), 2 (NAPL Recovery - Expanded Network) and 4 (Solidification) were determined to have similar environmental benefits and each uses a Site Management Plan to maintain the current commercial use of the parcel.

- The NAPL Recovery Alternatives (Alternatives 1 and 2) received higher ratings than Alternative 4 (Solidification) for Short-Term Effectiveness, Implementability and Cost Effectiveness.
  - The infrastructure for NAPL Recovery Using the Existing System (Alternative 1) is already in place and the capital costs have been expended.
  - The installation of additional recovery wells for Alternative 2 could be completed with a minimum of disruption to site activities and with a relatively small capital cost that can likely be recovered through a shortened operating period for the system.

  Note, however, that the Owner is currently investigating the potential for constructing a building on the property. The possibility that Alternative 4 (Solidification) would eliminate the NAPL recovery infrastructure from the parcel could gain support from the Owner.

It should also be noted that a comprehensive remediation of the property may still be necessary in the future should Alternatives 1, 2, or 3 be implemented as an IRM for the parcel, and some incremental cost benefits would be achieved by completing an Alternative-4-like remediation on 252 Maspeth Avenue in conjunction with 222 Maspeth Avenue IRM. The cost for a future remedy similar to Alternative 4 is anticipated to be higher than present costs for Alternative 4 due to changes in regulations, regulatory standards and emerging contaminants.

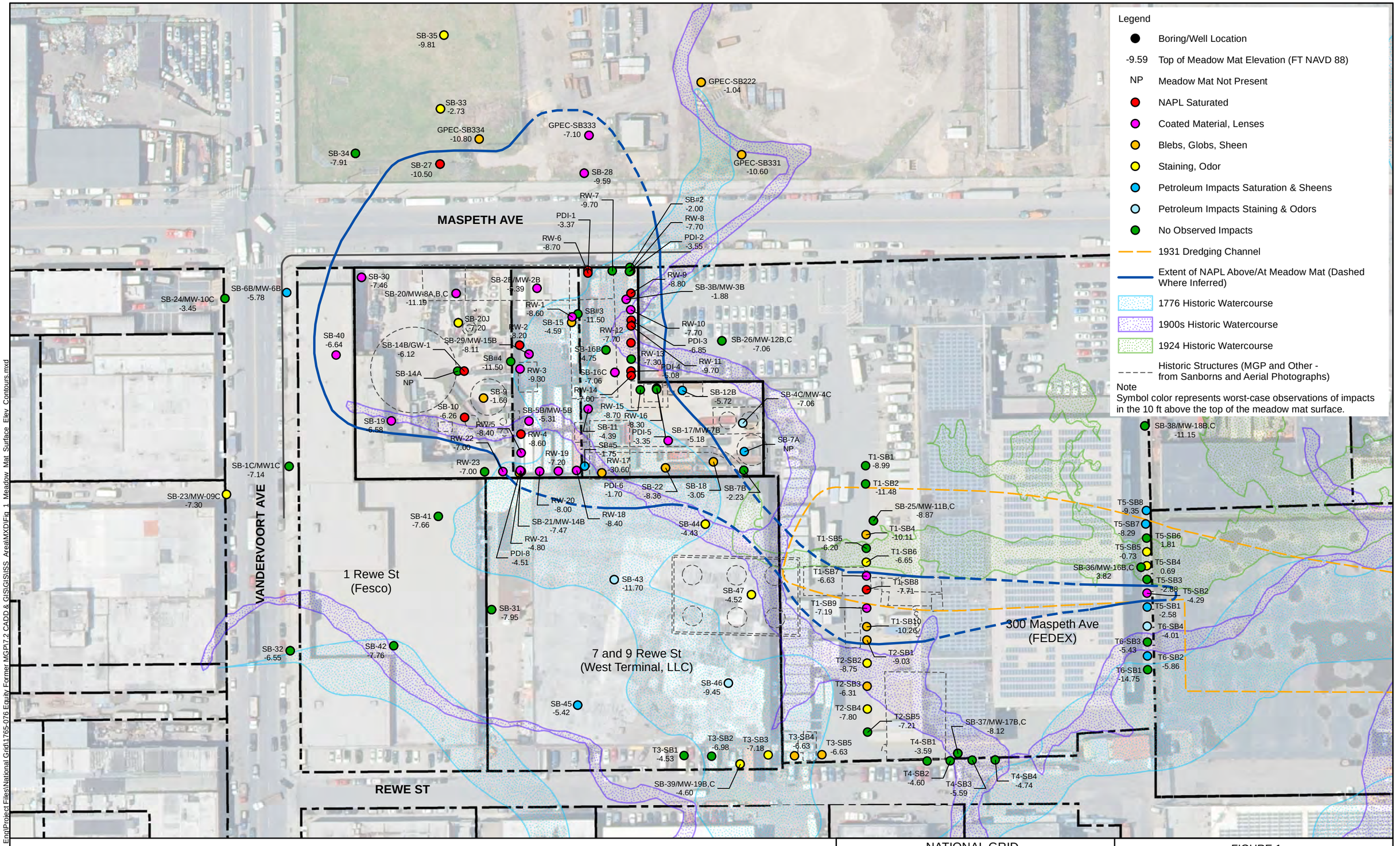
Recommended Alternative

As indicated above, NAPL Recovery and Solidification would provide similar environmental benefits, but the continued use of NAPL recovery would provide additional benefits in terms of implementability, short term effectiveness, and cost effectiveness. NAPL Recovery – Extended Well Network (Alternative 2) is proposed as the recommended remedial alternative for the IRM for the 252 Maspeth Avenue parcel. The recommendation is based on the following:

- The documented effectiveness of NAPL recovery at the Site;
- The ability of the system to remove, rather than immobilize NAPL;
- The likelihood that the operation of additional wells on the 252 Maspeth Avenue parcel would shorten the operating period for the system: and
- The fact that, currently, there is no definitive plan by the Owner on a future redevelopment for the parcel.

It is acknowledged that the recommendation of this remedial alternative is not the Owner's stated preference, and would likely require additional access conditions and costs, not identified or quantified herein, to National Grid.

Figures



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NATIONAL GRID
FORMER EQUITY WORKS MGP SITE
BROOKLYN, NY
60137362.400

DATE: 09/14/2020 | DRWN: JB

FIGURE 1
MEADOW MAT SURFACE ELEVATIONS AND VISUAL/OLFACTORY OBSERVATIONS

Path: P:\Jobs\Rem_Eng\Project Files\National Grid\1765-076 Equity Former MGP\7.2 CADD & GIS\GIS\SS_Area\MXD\Fig_1_Meadow_Mat_Surface_Elev_Contours.mxd

Legend

- Approximate Limits ISS
- NAPL Saturated
- Coated Material, Lenses
- Blebs, Globs, Sheen
- Staining, Odor
- -29 No Observed Impacts
- NP Top of Intermediate Clay Elevation (FT NAVD 88)
- Intermediate Clay Not Present
- Intermediate Clay Surface Elevation Contour (FT NAVD 88) Dashed Where Inferred
- Interpreted Limits of Intermediate Clay Unit
- Extent of NAPL Above/At Intermediate Clay
- Topographic Slope of Intermediate Clay Surface
- Equity Property Line
- Property Lines
- Historic Structures (MGP and Other - from Sanborns and Aerial Photographs)

Notes

1. Symbol color represents worst-case observations of impacts in the 10 ft above the top of the clay surface.
2. The following points were not used to generate the clay contours based on professional judgement: SB-28, SB-9, RW-10, SB-21, PDI-2, RW-6, RW-5, RW-11, SB-37, PDI-8, PDI-4, PDI-6.

MASPETH AVE

REWE ST

VANDERVOORT AVE

1 Rewe St (Fesco)

7 and 9 Rewe St (West Terminal, LLC)

300 Maspeth Ave (FEDEX)

SB-35 -28.81
SB-33 -20.73
SB-34 NP
SB-27 -22.00
GPEC-SB222 -19.54
GPEC-SB334 -19.4
GPEC-SB333 -25.8
GPEC-SB331 -24.9
SB-28 -23.59
RW-7 -32.7
PDI-1 -35.37
RW-8 -32.7
PDI-2 -30.55
RW-6 -31.7
SB-30 NP
SB-6B/MW-6B NP
SB-24/MW-10C NP
SB-20/MW-18A,B,C -32.69
SB-2B/MW-2B -29.59
SB-29/MW-15B -34.61
SB-20J -24.20
RW-2 -35.2
RW-1 29.6
SB-15 -30.09
RW-12 -30.20
RW-5 -34.3
SB-3B/MW-3B -35.88
RW-10 -30.7
SB-16B -30.75
PDI-3 -33.85
SB-26/MW-12B,C -29.06
SB-40 NP
RW-3 -34.3
SB-16C -31.06
PDI-4 -26.08
RW-13 -30.3
RW-11 -29.70
RW-16 -30.3
SB-14B/GW-1 -31.12
SB-9 -26.96
RW-1 -29
RW-15 -28.7
PDI-5 -30.35
SB-4C/MW-4C -39.06
SB-10 -28.76
SB-5B/MW-5B -33.31
SB-19 NP
RW-4 -33.6
SB-11 -31.39
SB-17/MW-7B -33.18
RW-5 -29.4
RW-22 -28
RW-18 -32.4
SB-38/MW-18B,C -31.15
SB-1C/MW1C NP
SB-23/MW-09C NP
RW-23 -26
PDI-8 -32.51
RW-20 -34
RW-19 -34.2
RW-17 -30.6
PDI-6 29.70
SB-22 -24.36
SB-18 -31.05
RW-21 -31.8
SB-21/MW-14B -28.47
SB-41 -21.16
SB-44 -30.43
SB-25/MW-11B,C -31.87
SB-36/MW-16B,C -36.18
SB-43 -33.70
SB-47 -32.02
SB-31 -22.95
SB-42 NP
SB-32 NP
SB-46 -28.45
SB-45 -30.92
SB-37/MW-17B,C -28.12
SB-39/MW-19B,C -30.10

-20 -22 -24 -26 -28 -30 -32 -34 -36 -38

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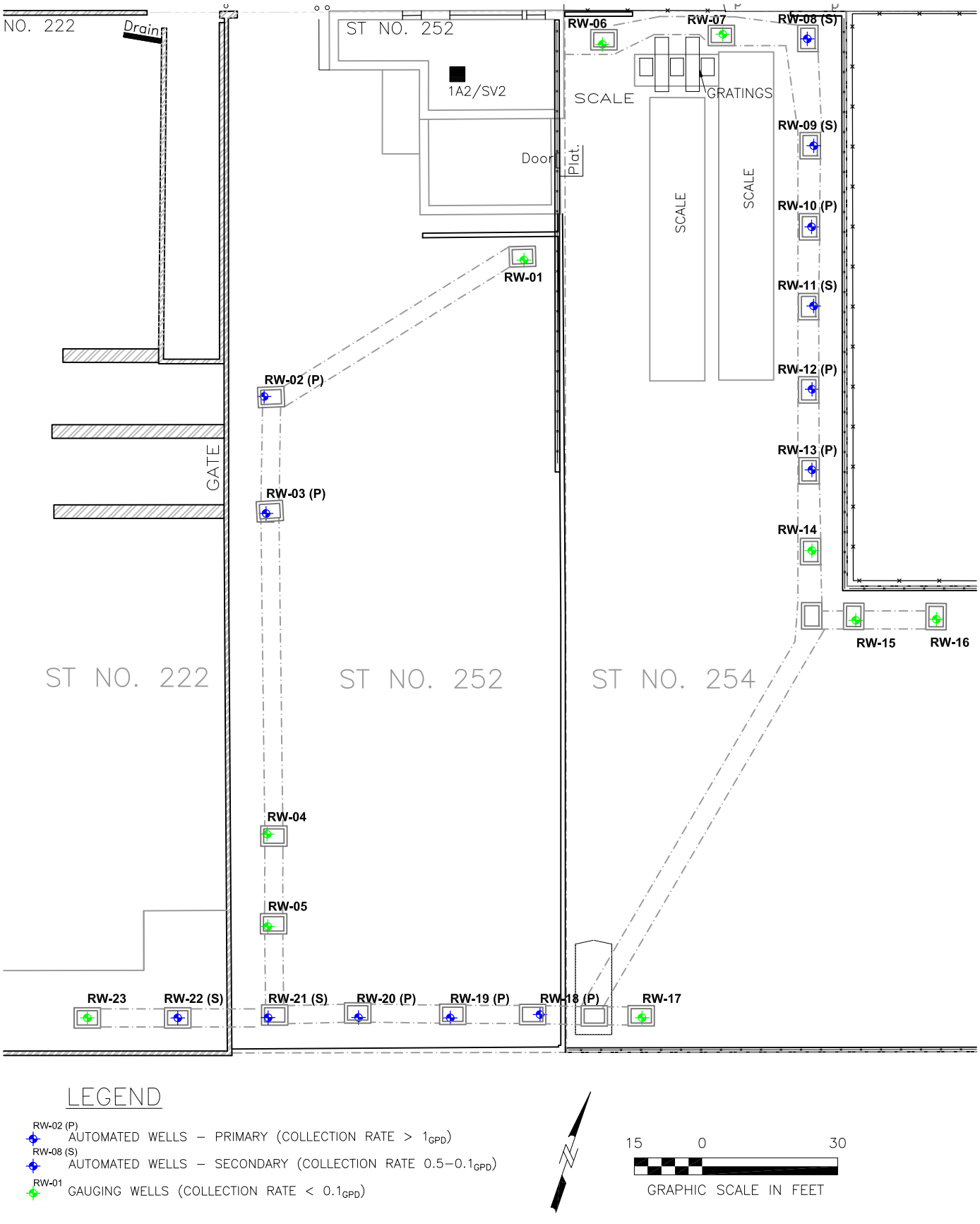
FIGURE 2
INTERMEDIATE CLAY SURFACE ELEVATION CONTOURS AND VISUAL/OLFACTORY OBSERVATIONS

Path: P:\Jobs\Rem_Eng\Project Files\National Grid\1765-076 Equity Former MGP\7.2 CADD & GIS\GIS\ISS_Area\MXD\Fig_2_Interm_Clay_Surface_Elev_Contours_Visual_O_O.mxd



LEGEND

RW-02 (P) AUTOMATED WELLS – PRIMARY (COLLECTION RATE > 1_{GPD})

RW-08 (S) AUTOMATED WELLS – SECONDARY (COLLECTION RATE $0.5–0.1_{GPD}$)

RW-01 GAUGING WELLS (COLLECTION RATE < 0.1_{GPD})

15 0 30

GRAPHIC SCALE IN FEET

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NATIONAL GRID FORMER EQUITY WORKS MGP SITE, BROOKLYN NY 60137362.660		**LOCATIONS OF AUTOMATED WELLS**
DATE: 09/14/2020	DRWN: JB	**FIGURE 3**

File: P:\Jobs\Rem_Eng\Project Files\National Grid\1765-076 Equity Former MGP\7.2 CADD & GIS\GIS\SS_Area\MXD\Fig_3_Location_of_Automated_Wells.dwg Layout: WELLS AND PUMPS User: Bourdeauj Plotted: Sep

Tables

Table 1
MGP Impact Summary - 252 Maspeth Avenue Parcel
Former Equity Works MGP Site

Location	Top Depth (ft bgs)	Bottom Depth (ft bgs)	NYSDEC Part 375 Soil Cleanup Objectives Commercial BTEX	CP-51 Total PAHs	Visible Impacts					
					Saturated	Lenses/ Stingers	Blebs	Coating	Sheen	Staining
SB-2B/MW-2B	10	12							x	
	12	14					x			
	14	16								x
	16	18				x				
	28	29								
	29	32				x				
	37	37.5				x				
SB-5B/MW-5B	5	6								x
	11	12								
	12	14								x
	14	16					x			
	16	17.3		x						
	17.3	17.5		x			x			
	17.5	18		x						
	18	20						x		
	26	27				x				
	28.5	29				x				
	30	34.5							x	
	34.5	35						x		
	43	43.5				x				
	43.5	47				x				
SB-15	10	12						x		
	12	16.5		x			x			
	16.5	18						x		
	24	26				x				
	26	30					x			
	30	32				x				
	32	36.25				x				
	38.5	38.7			x					
SB-21/MW-14B	5	10						x		
	15	20						x		
	20	22					x			
	30	33						x		
	39	40						x		
	40	43						x		
SB-29/MW-15B	10	15						x		
	15	17								x
	17	18						x		
	18	20								x
	20	21						x		
	21	23						x		
	30	35						x		
	38.5	40								x
	41	43			x					
	45	47.5					x			
	63	65						x		
	69	70								x
	75	80			x					
	80	81			x					
	91	92.5								x
	96	96.25							x	

Table 1 (Cont.)
MGP Impact Summary - 252 Maspeth Avenue Parcel
Former Equity Works MGP Site

PDI-8	15	17							x	
	17	19					x			
	31	35							x	
	36.8	37						x		
	37	39								x
	39	41			x					
	41	43			x					
	43	47			x					
RW-1	17	20						x		
	20	24				x				
	24	25						x		
	25	26.5			x					
	26.5	40						x		
RW-2	15	16			x					
	18	19						x		
	34.5	35			x					
	36.5	46			x					
RW-3	20.5	21						x		
	32	32.5			x					
	37	43			x					
	45	46			x					
RW-4	20	21			x					
	44	46			x					
RW-5	18	21						x		
	32	35				x				
	38.5	42			x					
RW-18	19	21						x		
	33	40						x		
	40	45			x					
RW-19	15	20						x		
	43	47			x					
RW-20	19	21						x		
	37	47			x					
RW-21	16	17						x		
	17	18			x					
	39	45			x					
RW-22	18	20						x		
	25	35				x				
	35	41			x					

Table 2
IRM Alternatives Evaluation - 252 Maspeth Avenue Parcel
Former Equity Works MGP Site

Objective/Criteria	Alternative 1 NAPL Recovery Using the Existing System	Alternative 2 NAPL Recovery - Expanded Well Network	Alternative 3 Excavation of Shallow Soil	Alternative 4 Solidification of NAPL Impacted Impacted Media
Remedial Action Objectives				
Reduction of Contaminants	Will remove NAPL to its residual saturation point.	Will remove NAPL to its residual saturation point.	Will not significantly reduce contaminant levels.	Mixing will reduce NAPL concentrations to their residual saturation point, but will not significantly reduce contaminant levels.
Exposure Pathway Elimination	Exposure pathways would be addressed by the Site Management Plan.	Exposure pathways would be addressed by the Site Management Plan.	Exposure pathways would be addressed by the Site Management Plan.	Exposure pathways would be addressed by the Site Management Plan.
DER-10 Evalauation Criteria				
1 Overall Protection of Public Health and Environment	**Medium** - controls potential human health risk, but relies on long-term institutional controls to eliminate exposure pathways.	**Medium** - controls potential human health risk, but relies on long-term institutional controls to eliminate exposure pathways.	**Medium** - controls potential human health risk, but relies on long-term institutional controls to eliminate exposure pathways.	**Medium** - controls potential human health risk, but relies on long-term institutional controls to eliminate exposure pathways.
2 Compliance with Standards, Criteria and Guidance	**Medium** - achieves the remedial goals, but will not achieve compliance with NYSDEC soil cleanup objectives for commercial use of the parcel.	**Medium** - achieves the remedial goals, but will not achieve compliance with NYSDEC soil cleanup objectives for commercial use of the parcel.	**Low** - does not address source material and will not achieve compliance with NYSDEC soil cleanup objectives for commercail use of the parcel.	**Medium** - achieves the remedial goals, but will not achieve compliance with NYSDEC soil cleanup objectives for commercial use of the parcel.
3 Long-Term Effectiveness and Permanence	**Medium** - the approach is routinely used at MGP sites, but will require the use of long-term controls to address potential exposure pathways.	**Medium** - the approach is routinely used at MGP sites, but will require the use of long-term controls to address potential exposure pathways.	**Low** - the approach is routinely used, but will not remove singificant impacts.	**Medium** - the approach is routinely used at MGP sites, but will require the use of long-term controls to address potential exposure pathways.
4 Reduction of Toxicity, Mobility or Volume	**High** - will provide for the permanent removal of the most significant impacts over time and will control the migration of residuals.	**High** - will provide for the permanent removal of the most significant impacts over time and will control the migration of residuals.	**Low -** the approach will not signficantly affect the quantity or nature of the impacts.	**Medium -** will not remove a significant quantity of impacts, but will immobilize/contain NAPL to control the migration of residuals.
5 Short-Term Effectiveness	**High** - involves a minimum of intrusive site work.	**High** - involves a minimum of intrusive site work.	**Medium** - the alternative poses no significant risks to the public. There would be short term risks such as noise, dust, odor, that can be controlled.	**Medium** - the alternative poses no significant risks to the public. There would be short term risks such as noise, dust, odor, that can be controlled.
6 Implementability	**High** - the NAPL recovery system has already been implemented and is operational.	**High** - the installation of additional recovery wells could be accomplished using the existing design and with minimal disruption to the property.	**Medium** - excavation of soil has been successfuly implemented at other sites, but its effectiveness for the 252 parcel in uncertain.	**Medium** - the treatment of soil would be the most difficult to design and implement, but may have the support of the property owner.
Duration				
Implementation	10 years	10 years	2 months	6-8 months
Monitoring	> 10 years *	< 10 years **	>10 years*	Not required ***
7 Cost Effectiveness	High	High	Low	Medium
8 Land Use	**High** - will maintain the use of the property for restricted commercial use.	**High** - will maintain the use of the property for restricted commercial use.	**High** - will maintain the use of the property for restricted commercial use.	**High** - will maintain the use of the property for restricted commercial use.

Notes:

* Value used to indicate that long-term monitoring will likely be required
** Value used to indicate an improvement over the existing system due to an increrased number of recovery wells
*** Assumes that NAPL recovery activities on the parcel will be discontinued following treatment and the recovery well infrastructure will be abandoned.