October 4, 2019 Reference No. 11137172

Mr. Michael Belveg
Assistant Engineer (Environmental)
Division of Environmental Remediation
New York State Department of Environmental Conservation
615 Erie Boulevard West
Syracuse, New York 13204

Dear Mr. Belveg:

Re: Supplemental Investigation Work Plan - Southern Terminals
Cold Springs Terminal Site, Hillside Road, Lysander, New York
NYSDEC Spill No. 89-04923

1. Introduction

On behalf of the Respondents to the Southern Terminals Consent Order executed by the New York State Department of Environmental Conservation (NYSDEC) on August 25, 2016, GHD has prepared this Supplemental Investigation Work Plan for the Cold Springs Terminal Site, located along Hillside Road in Lysander, New York (Site). The purpose of this Work Plan is to collect and evaluate data to refine the remedial strategy for the Site. The Work Plan also addresses the need to replace several wells damaged/destroyed, presumably by the Site Owners and/or their contractors and agents, during aboveground storage tank (AST) removal activities on the Southern Terminal (ST) portion of the Site.

Activities within this Work Plan include:

- Repair/replacement and installation monitoring infrastructure
- Additional data collection activities required to refine the remedial approach and finalize remedial system design
- Light non-aqueous phase liquid (LNAPL) recovery activities
- Submission of a Revised Remedial Action Work Plan (RAWP)

2. Background

The Cold Springs Terminal Site is comprised of three former Petroleum Bulk Storage (PBS) facilities on Hillside Road in the Town of Lysander, Onondaga County, New York. A Site Location Map is provided as Figure 1. A Site Map is included as Figure 2. The terminal occupies approximately 6 total acres, with the Northern Terminal (NT) consisting of 2.75 acres north of Hillside Road, and the Southwestern and Southeastern Terminals, collectively the ST, consisting of approximately 1.75 and 1.6 acres, respectively.

Throughout their operational histories, the facilities handled gasoline, Jet-A fuel, kerosene, diesel, and fuel oil. NYSDEC-mandated environmental activities were initiated following a 1989 spill of an unknown volume of gasoline; however, other spills have been documented. Multiple investigations have occurred during the Site's regulatory history. Historical remedial actions at the Site have included manual and automated LNAPL recovery as well as soil vapor extraction (SVE). These activities were performed adjacent to Hillside Road beneath the southernmost portion of the NT, and in northern portions of the ST properties. Reportedly, over an 18-year period between 1990 and 2008 (prior to the involvement of these Respondents in the response activities at the Site), an estimated 12,800 gallons of LNAPL was removed from Site as liquid and soil vapor (GES, 2015).

In compliance with the NYSDEC-approved Supplemental Site Investigation Work Plan (2012), AECOM performed various Site investigations on the ST properties to determine viability of vacuum-enhanced groundwater extraction (VEGE) and multi-phase extraction (MPE) remedial alternatives for residual LNAPL at the Site (2014). Based on the results of the pilot test, GES (2015) prepared a RAWP for VEGE at approximately 40 groundwater extraction points located on the ST and southern portion of the NT properties.

In June 2019 and pursuant to authorization from NYSDEC, GHD performed a limited Monitoring Well Assessment and LNAPL Gauging Event (GHD, 2019). The purpose of GHD's evaluation was to assess the Site and current monitoring well network conditions. While the majority of NT wells were located, only 49 of the 84 anticipated monitoring wells on the ST property were located. Of those, four monitoring wells could not be gauged as a result of damage and an additional nine wells were observed to be in poor condition. Overall, LNAPL was measured in thicknesses varying from approximately 0.01 feet at S5 to 3.48 feet at A10. The apparent extent of LNAPL is generally consistent with historical observations; however, monitoring wells in several areas of historically observed LNAPL could not be located and/or gauged. As such, GHD has identified a number of monitoring wells for replacement or repair. Summaries of monitoring well conditions and LNAPL measurements collected during the event are included as Tables 1 and 2 and are presented on Figures 3 and 4, respectively.

A follow-up conference call between NYSDEC, GHD, and ST was held on September 11, 2019. At that time, NYSDEC requested that LNAPL recovery begin during 2019. As such, GHD has proposed the installation of recovery wells and vacuum-enhanced fluid recovery (VEFR) events (Section 4.0).

3. Objectives

The objectives of this Supplemental Investigation Work Plan are to collect additional data sufficient to refine the engineering design for the NYSDEC-approved RAWP.

4. Scope of Work

The following sections summarize the Scope of Work for this Supplemental Investigation Work Plan. The investigation is broken into three phases based on field investigation/monitoring infrastructure installation, data collection, and additional remedial activities.

Section 4.1 includes information regarding repair/replacement and installation of monitoring infrastructure required at the Site. Section 4.2 summarizes preliminary additional data collection activities required to refine the remedial approach for the Site and finalize remedial system design. Section 4.3 summaries LNAPL recovery activities and submission of the Revised RAWP.

All activities will be conducted in accordance with NYSDEC *DER-10/Technical Guidance for Site Investigation and Remediation* (DER-10). NYSDEC will be provided with at least one week verbal and written notice of all field activities.

4.1 Phase I

4.1.1 Monitoring Well Repair and Replacement

GHD will repair three ST monitoring wells (A3, A12, A14) identified as damaged during 2019 monitoring well assessment activities. A total of ten nested monitoring well pair locations will be installed in central portions of the Southwestern and Southeastern terminals intended to replace remedial system performance wells (as identified in the NYSDEC-approved RAWP) and/or monitoring wells that historically contained greater than 1 foot of LNAPL that could not be located or were determined to be heavily damaged during the 2019 monitoring well assessment. These wells will also be used to fill in data gaps regarding LNAPL distribution. Five large-diameter wells will be installed for use in conjunction with LNAPL recovery activities.

Prior to initializing any subsurface intrusive activities, GHD or its drilling vendor will complete a New York State One-Call utility mark out to prevent accidental damage to underground utilities. GHD will retain a New York State Licensed drilling contractor to advance soil borings for monitoring and recovery well installation via hollow-stem auger (HSA). Borings will be continuously sampled via MacroCore and disposable acetate sleeves for geologic logging and screening purposes. Each sample will be screened for the presence of volatile organic compounds (VOCs) utilizing a photoionization detector (PID) equipped with a 10.6 eV lamp calibrated to 100 parts per million (ppm) by volume of isobutylene. Borings for monitoring well installation will be advanced to the top of the till layer that underlays the Site at a depth of approximately 20 feet; borings intended for installation of LNAPL recovery wells will be advanced to 12 to 15 feet bgs based on observations of LNAPL and the groundwater table at each location.

Upon completion of soil boring, each boring will be converted to a groundwater monitoring well or LNAPL recovery well. Newly installed monitoring well pairs will be constructed of 2-inch schedule 40 polyvinyl chloride (PVC). Deep wells in the pair will be screened across the gravel layer identified in historical reports as located immediately above the glacial till, e.g., 17 to 20 feet below ground surface (bgs). Shallow monitoring wells will be screened across the groundwater table observed at each boring location,

e.g., 5 to 15 feet bgs. Screens will be 0.010-inch slotted (10-slot) well screen. Annular space will be backfilled with #00N sand, bentonite, and grout to the surface. Each well will be fitted with a locking J-plug and finished at the surface with flush-mount well boxes. Nested well pairs will allow the ST Group to evaluate flow patterns and groundwater conditions in different lithological zones as opposed to wells that are screened across multiple zones. Information from wells screened in the gravel zone will also be of assistance in determining if reinjection of extracted and treated groundwater is a viable option during operation of the VEGE system.

Recovery wells will be constructed of a minimum of 6-inch schedule 80 PVC with 10 feet of 10-slot screen spanning the water table and LNAPL zone. Annular space will be backfilled with #00N sand to the top of the well screen, followed by a minimum of one foot of bentonite, and grouted to the surface. Each recovery well will be finished at the surface with a flush-mount well box or manhole, dependent on well size.

Newly installed monitoring and recovery wells will be developed prior to use for sample collection no earlier than 24 hours following installation. A submersible pump will be used to purge each well until temperature, conductivity, pH, and turbidity of the purge water have stabilized as measured on a Yellow Spring Instrument (YSI) water quality meter or similar equipment. Existing wells which may be utilized as part of the monitoring network in the future will also be re-developed.

Investigation-derived waste (IDW) generated during monitoring/recovery well installation will be containerized for characterization and off-Site disposal. Consumable IDW will be disposed of as municipal waste.

A summary of proposed monitoring and recovery wells to be installed is included as Figure 5. Recovery wells on the Southeastern Terminal are contingent on field observations and determinations; however, 2-inch PVC monitoring wells will be installed, at a minimum.

4.1.2 Soil Gas Probe Installation

To facilitate an assessment of deep soil gas concentrations and to support quantification of natural mass losses via vapor losses (both hydrocarbons and biogenic gases) in the subsurface both shallow and deep soil gas probes will be installed on the Southern Terminal property.

A direct-push rig will be utilized to advance up to four soil borings to approximately 2 feet above the LNAPL layer for deep soil gas probe installation. Deep soil gas probes will be constructed utilizing a 6-inch stainless steel soil gas insert with poly tubing to surface. Up to a 1-foot sand pack will be placed around and above the screen, followed by at least 1 foot of bentonite and grout to surface. Up to four additional shallow soil probes will be installed to approximately 1 foot bgs utilizing a 6-inch stainless steel soil gas insert and poly tubing to surface. A 6-inch sand pack will be placed to the top of the screen, followed by bentonite to surface. Each soil gas probe will be finished at the surface with a flush-mount well box. Proposed soil gas probe locations are shown on Figure 6. Soil gas probes on the Southeastern Terminal are contingent on field observations and determinations.

4.1.3 Monitoring Well Survey

Following monitoring well repair and replacement, GHD will retain a New York State Licensed Surveyor to complete a survey of all monitoring wells located on both the NT and ST properties. GHD has reviewed several historical reports for survey data for existing monitoring wells, however conflicting information exists across multiple reports, and the recent demolition activities have changed topographic data such that a full survey is warranted. Survey data will be used to calculate groundwater elevation data for use in Site potentiometric surface contours.

4.2 Phase II

4.2.1 Groundwater and LNAPL Gauging

Approximately two weeks following completion of monitoring well replacement/repair to allow wells to reach equilibrium, a comprehensive groundwater elevation and LNAPL gauging event will be completed. All wells on both the NT and ST will be included in this event. The gauging event will consist of recording the depth to the LNAPL surface (as applicable), depth to the water surface, and total depth of the well using an interface probe. Down-well equipment will be decontaminated between each well location utilizing an Alconox-water solution and tap water rinse.

4.2.2 Groundwater Sample Collection

In order to design a remedial system that will perform most efficiently, more data is required to determine the current flux of constituents of concern (COCs) entering the ST. Groundwater samples will be collected from NT monitoring wells BMW-5, BMW-12, BMW-13, BMW-14R, and piezometer PZ-102S for VOCs by United States Environmental Protection Agency (USEPA) Method 8260, semi-volatile organic compounds (SVOCs) by USEPA Method 8270, and lead via USEPA Method 6010.

In addition, groundwater samples from four to eight groundwater monitoring wells will be collected to evaluate natural source zone depletion (NSZD) on the ST portion of the Site. The monitoring wells will be chosen in source, up- and down-gradient, and cross-gradient areas based on results of the gauging event. If monitoring/recovery wells to be sampled contain LNAPL at the time of the groundwater sample collection, the wells will be bailed of product and allowed to recover. Low-flow sample methodology will be utilized to minimize water table drawdown and potential for free product in samples. Wells will be purged until field parameters of temperature, pH, conductivity, redox potential, and dissolved oxygen stabilize to within 10 percent of the previous reading for three consecutive readings as measured on a YSI (or similar). Measurements will be recorded on a monitoring well sampling log. Samples collected for NSZD evaluation will be analyzed for VOCs by USEPA Method 8260, SVOCs by USEPA Method 8270, total organic carbon, Fe^{2+}, Fe^{3+}, sulfate, sulfide, nitrate, dissolved methane, dissolved carbon dioxide, and petroleum degrader microbe count.

All groundwater samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory for analysis under

Chain-of-Custody procedures. IDW will be containerized for later off-Site disposal. Consumable IDW will be disposed of as municipal waste.

4.2.3 Hydraulic Conductivity Testing

Single-well hydraulic conductivity estimates will be obtained for NT wells BMW-12, BMW-13, and BMW-14R and at two to three newly installed deep nested monitoring wells (gravel zone) on the ST via slug tests. A known volume of water will be displaced in the well by inserting a PVC slug and the water level decline will be measured using a down-hole pressure transducer. Following equilibration, the slug will be removed and the water level rise in the well will be monitored. Multiple slug tests may be conducted in multiple wells to support analysis of data. Slug test displacement and recovery data will be analyzed using AQTESOLV (or similar) software to yield estimates of hydraulic conductivity in each well.

4.2.4 LNAPL Baildown Tests

To support the assessment of LNAPL mobility and recoverability at the site, LNAPL baildown tests will be conducted to determine LNAPL transmissivities in wells in the LNAPL zone. Wells to be tested will be determined following the comprehensive gauging event and will be focused in the area of future VEGE implementation. LNAPL baildown tests will be conducted in compliance with the American Petroleum Institute (API) LNAPL Transmissivity Workbook (2016). Data obtained during baildown tests will be utilized to calculate LNAPL transmissivities for use in system design.

4.2.5 Soil Gas Sample Collection

Soil gas samples will be collected from shallow and deep soil gas probes installed during Phase I of the Supplemental Investigation for NSZD evaluation. Soil gas probes will be purged of three volumes prior to sample collection. Samples will be collected over a one-hour period using individually certified-clean 6-liter Summa® canisters equipped with pre-calibrated flow controllers. The initial vacuum of each Summa® canister will be recorded immediately after opening; the final vacuum immediately prior to closure. Samples will be transported to a NYSDOH ELAP-certified laboratory for analysis of oxygen, carbon dioxide, methane, ethane, VOCs via USEPA Method TO-15, and total petroleum hydrocarbons (PHCs).

4.3 Phase III

4.3.1 LNAPL Recovery

As part of this Supplemental Investigation, ST Group will conduct LNAPL recovery activities at the Site. Based on results obtained during the comprehensive LNAPL and groundwater gauging event discussed in Section 4.2.1, the ST will utilize a subcontractor to perform a minimum of one VEFR event at each of the five newly installed recovery wells (to the extent they demonstrate a significant LNAPL thickness) utilizing a vac-truck. The necessity for additional VEFR events will be determined by weekly gauging at recovery wells within the source area.

LNAPL and water recovered will be transported off-Site for treatment and disposal or recycling.

4.3.2 Revised Remedial Action Work Plan

Upon completion of Phases I and II, a Revised RAWP for NYSDEC approval will be prepared. The Revised RAWP will be submitted to NYSDEC on or before January 17, 2020, based on contractor availability to complete tasks as proposed in this Supplemental Investigation Work Plan.

5. Implementation Schedule

A revised project schedule is included as Attachment A.

6. References

AECOM, 2014. *Pilot Test Summary Report, Cold Springs Terminals, Lysander, New York, NYSDEC Spill #: 89-04923.*

American Petroleum Institute (API), 2016. *API LNAPL Transmissivity Workbook: A Tool for Baildown Test Analysis*.

GHD, 2019. *Monitoring Well Assessment and LNAPL Gauging Event Letter Report, Southern Terminals, Cold Springs Terminal Site, Hillside Road, Lysander, New York.*

Groundwater & Environmental Services, Inc. (GES), 2015. *Remedial Action Work Plan, Cold Springs Terminal, Lysander, New York, NYSDEC Spills Incident #89-04923.*

Please do not hesitate to contact us with questions or if additional information is needed.

Sincerely,

GHD

Alyssa Cruikshank

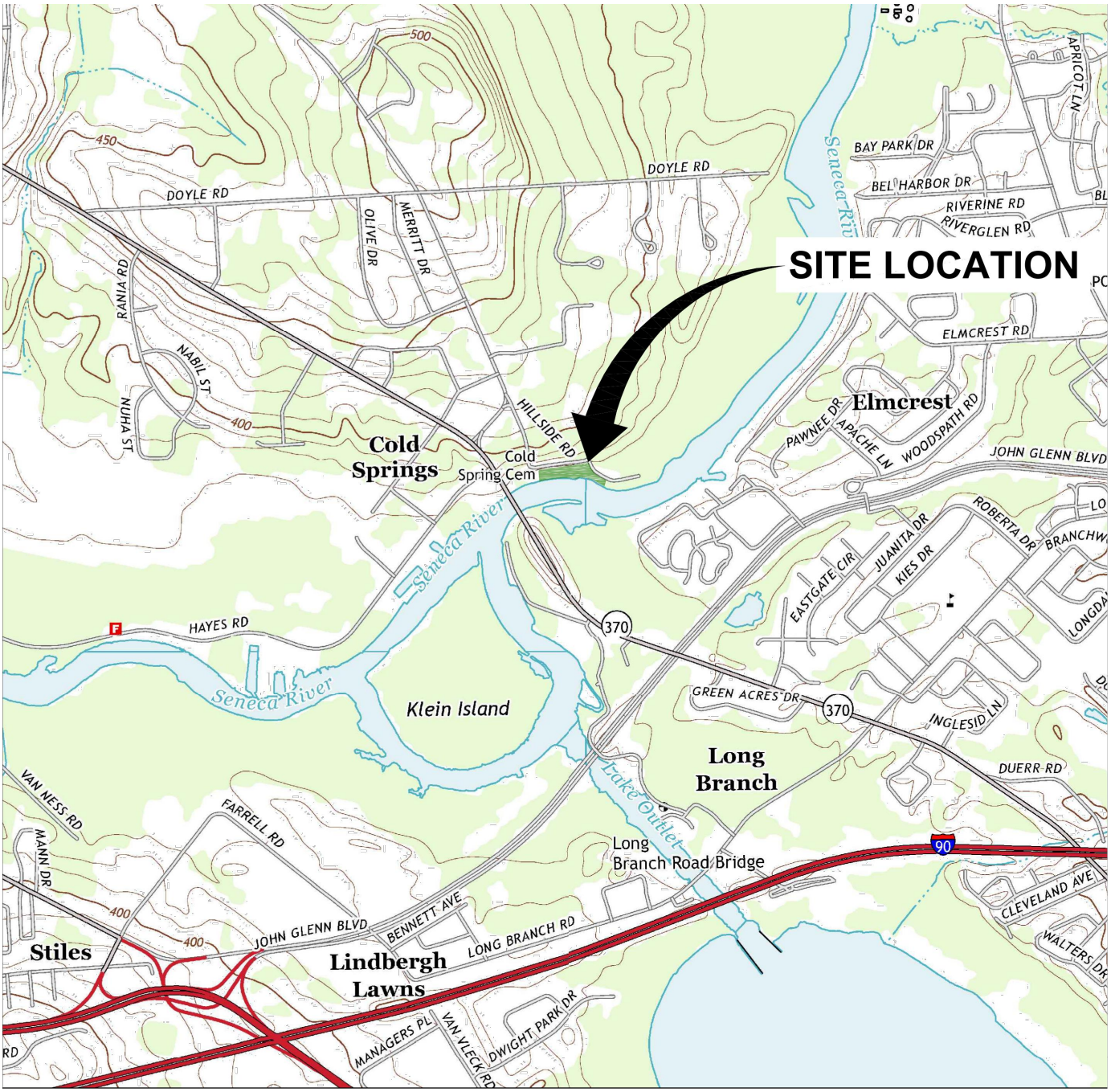
DJH/eew/2

Encl.

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – 2019 Well Assessment Summary
Figure 4 – Apparent LNAPL Thickness – June 6-7, 2019
Figure 5 – Proposed Monitoring and Recovery Well Locations
Figure 6 – Proposed Soil Gas Probe Locations
Table 1 – Monitoring Well Assessment Status

Table 2 – Apparent LNAPL Thicknesses
Attachment A – Project Schedule

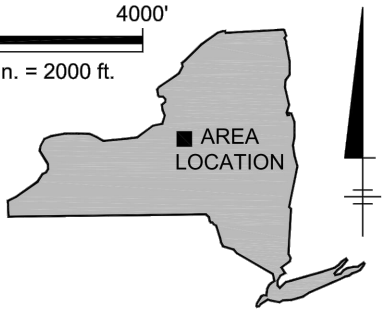
cc: Patrick Dworaczyk, Kinder Morgan
Harry Warner, NYSDEC
Ben Conlon, Esq., NYSDEC
Wendy Marsh, Esq., Hancock Estabrook, LLP
S. David Devaprasad, Esq., Devaprasad pllc
Dennis Hoyt, GHD



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., BALDWINSVILLE, BREWERTON, CAMILLUS & SYRACUSE WEST, NY, 2013.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



NEW YORK

2019Q1-Title Block

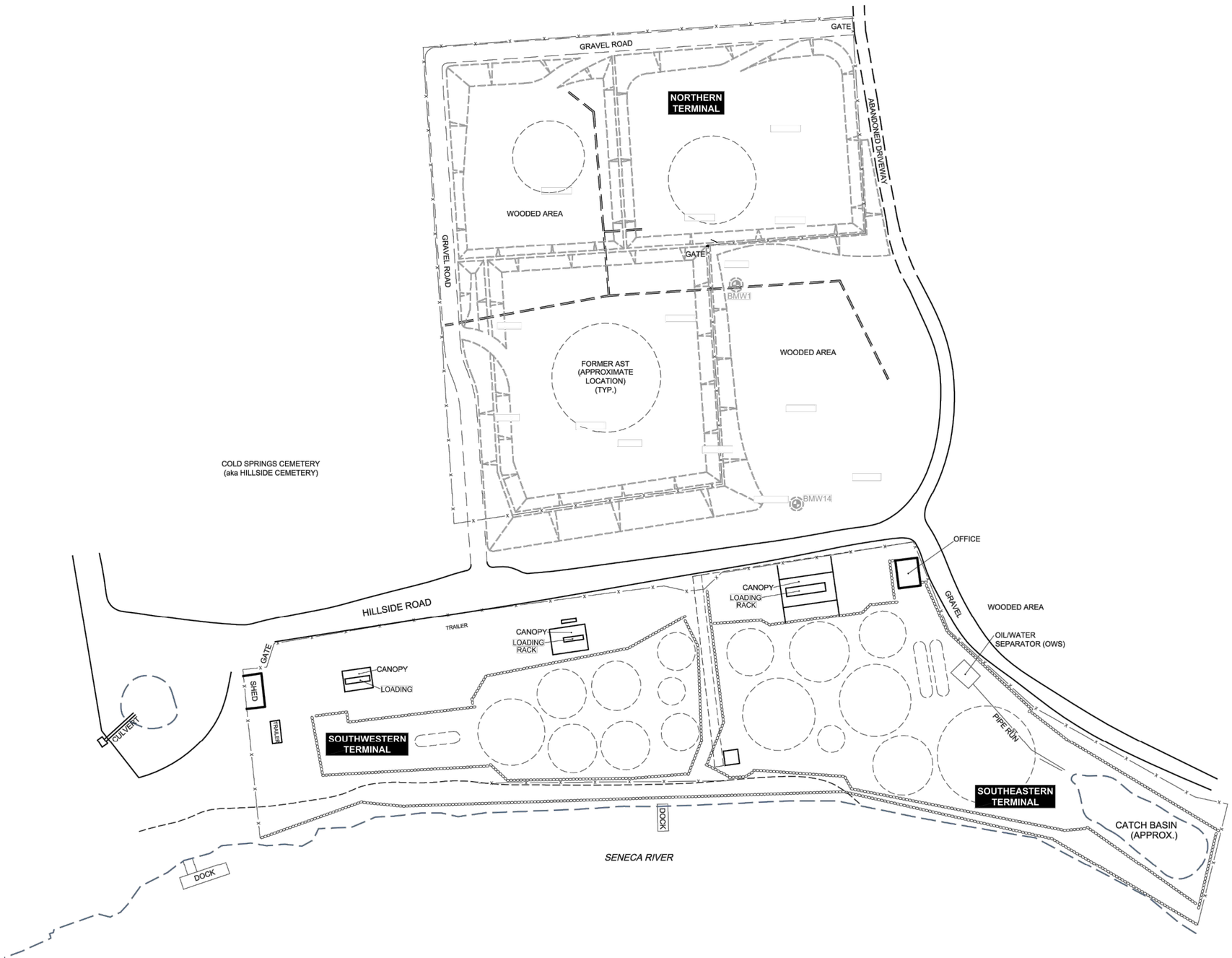
SOUTHERN TERMINALS GROUP
COLD SPRINGS TERMINAL SITE
HILLSIDE ROAD, LYSANDER, NEW YORK

SITE LOCATION MAP

Project No. **111-37172**
Report No. **002**
Date **SEP 19**

FIGURE 1

Filename: N:\US\Buffalo\Legacy\Drawings-NIA\Drawings\10000000s\11137172 - Cold Springs\Report 2\CADD\Drawings\Figures\Report Figures\11137172 - Figures.dwg
Plot Date: 30 September 2019 - 2:19 PM



N

0 100'

GHD

SOUTHERN TERMINALS GROUP
COLD SPRINGS TERMINAL SITE
HILLSIDE ROAD, LYSANDER, NEW YORK

SITE MAP

Project No. **111-37172**
Report No. **002**
Date **SEP 19**

FIGURE 2

Filename: N:\US\Buffalo\Legacy\Drawings-NIA\Drawings\10000000s\11137172 - Cold Springs\Report 2\CADD\Drawings\Figures\Report Figures\11137172 - Figures.dwg
Plot Date: 30 September 2019 - 2:20 PM

LEGEND

BMW2 MONITORING WELL

WELL ASSESSMENT SUMMARY

- WELL FOUND, GOOD CONDITION, GAUGED
- WELL FOUND, GOOD CONDITION, NOT GAUGED
- WELL FOUND, POOR CONDITION, GAUGED
- WELL FOUND, DAMAGED, NOT GAUGED
- WELL NOT FOUND

NOTE:

1. THERE ARE TWO A6 SHOWN ON FIGURE

N

0 100'

GHD

SOUTHERN TERMINALS GROUP
COLD SPRINGS TERMINAL SITE
HILLSIDE ROAD, LYSANDER, NEW YORK

WELL ASSESSMENT SUMMARY

Project No. **111-37172**
Report No. **002**
Date **SEP 19**

FIGURE 3

Filename: N:\US\Buffalo\Legacy\Drawings-NIA\Drawings\10000000s\11137172 - Cold Springs\Report 2\CADD\Drawings\Figures\Report Figures\11137172 - Figures.dwg
Plot Date: 30 September 2019 - 2:20 PM

LEGEND

BMW2	MONITORING WELL
BMW1	MONITORING WELL NOT FOUND
3.33	LNAPL THICKNESS

LNAPL THICKNESS IN FEET

- 0-1
- 1-2
- 2-3
- 3-4

NOTE:

1. THERE ARE TWO A6 SHOWN ON FIGURE

N

0 100'

GHD

SOUTHERN TERMINALS GROUP
COLD SPRINGS TERMINAL SITE
HILLSIDE ROAD, LYSANDER, NEW YORK

APPARENT LNAPL THICKNESS
JUNE 6-7, 2019

Project No. **111-37172**
Report No. **002**
Date **SEP 19**

FIGURE 4

Filename: N:\US\Buffalo\Legacy\Drawings-NIA\Drawings\10000000s\11137172 - Cold Springs\Report 2\CADD\Drawings\Figures\Report Figures\11137172 - Figures.dwg
Plot Date: 30 September 2019 - 2:20 PM

LEGEND

- BMW2 MONITORING WELL
- BMW1 MONITORING WELL NOT FOUND / HEAVILY DAMAGED
- A12 MONITORING WELL TO BE REPAIRED
- PROPOSED NESTED MONITORING WELL LOCATION
- PROPOSED RECOVERY WELL LOCATION

N

0 100'

GHD

SOUTHERN TERMINALS GROUP
COLD SPRINGS TERMINAL SITE
HILLSIDE ROAD, LYSANDER, NEW YORK

PROPOSED MONITORING WELL AND RECOVERY WELL LOCATIONS

Project No. **111-37172**
Report No. **002**
Date **SEP 19**

FIGURE 5

Filename: N:\US\Buffalo\Legacy\Drawings-NIA\Drawings\10000000s\11137172 - Cold Springs\Report 2\CADD\Drawings\Figures\Report Figures\11137172 - Figures.dwg
Plot Date: 30 September 2019 - 2:20 PM

LEGEND

BMW2	MONITORING WELL
BMW1	MONITORING WELL NOT FOUND / HEAVILY DAMAGED
A12	MONITORING WELL TO BE REPAIRED
	PROPOSED SOIL GAS PROBE LOCATIONS

N

0 100'

GHD

SOUTHERN TERMINALS GROUP
COLD SPRINGS TERMINAL SITE
HILLSIDE ROAD, LYSANDER, NEW YORK

PROPOSED SOIL GAS PROBE LOCATIONS

Project No. **111-37172**
Report No. **002**
Date **SEP 19**

FIGURE 6

Filename: N:\US\Buffalo\Legacy\Drawings-NIA\Drawings\10000000s\11137172 - Cold Springs\Report 2\CADD\Drawings\Figures\Report Figures\11137172 - Figures.dwg
Plot Date: 30 September 2019 - 2:20 PM

Table 1

Monitoring Well Assessment Status
Southern Terminal
Lysander, New York
June 5 - 7, 2019

Southern Terminals				Northern Terminals			
	Well Located		Poor Condition/		Well Located		Poor Condition/
Monitoring Well ID	Y	N	Damaged	Monitoring Well ID	Y	N	Damaged
A1	X			B1	X		
A2	X			B2	X		
A3	X		Y	B3	X		
A4	X			B4	X		
A5	X		Y	B5	X		
A6	X			B6	X		
A6	X			B7	X		
A7	X			B8	X		
A8[(1)]		X		B9	X		
A9	X			B10	X		
A10	X			B11	X		
A11	X		Y	B12	X		
A12	X		Y	B13	X		
A13	X		Y	B14	X		
A14	X		Y	B15	X		
A15[(1)]		X		B16	X		
A16[(1)]		X		B18	X		
A17[(1)]		X		BH3	X		
A18	X			BMW1	X		
A19[(1)]		X		BMW2	X		
A20[(1)]		X		BMW4	X		
A21	X			BMW5	X		
A23	X			BMW6	X		
A24	X		Y	BMW7	X		
A25	X		Y	BMW8	X		
AMW1	X		Y	BMW9	X		
AMW2	X		Y	BMW12	X		
AMW3	X			BMW13	X		
AMW4	X			BMW14	X		
AMW5	X			CT19	X		
AMW6[(1)]		X		CT20	X		
AMW7	X			GWE-PTW	X		
AMW8	X		Y	HD1	X		
AMW9[(1)]		X		HD3A	X		
BMW6[(1)]		X		HD6	X		
BMW-15[(1)]		X		HD7	X		
CT4	X		Y	HD8	X		
HD4A[(1)]		X		MW-201	X		
HD5[(1)]		X		MW-202	X		
MWA	X			MW-203	X		
MWB	X			MW-204	X		
PZ102D	X			MW-205	X		
PZ102S	X			MW-206	X		
PZ103D	X			MW-207	X		
PZ103S	X			MW-208	X		
PZ104D[(1)]		X		MW-209	X		
PZ104S	X		Y	MW-210	X		

Table 1

Monitoring Well Assessment Status
Southern Terminal
Lysander, New York
June 5 - 7, 2019

Southern Terminals				Northern Terminals			
	Well Located		Poor Condition/		Well Located		Poor Condition/
Monitoring Well ID	Y	N	Damaged	Monitoring Well ID	Y	N	Damaged
PZ105D	X		Y	MW-211	X		
PZ105S	X			PZ101D	X		
S1	X		Y	PZ101S	X		
S2	X			PZ106S	x		
S3	X		Y	SB2[(1)]		X	
S4	X			SMW11	X		
S5	X			Unknown	X		
S6[(1)]		X					
S7[(1)]		X					
S8	X						
S9	X						
S10[(1)]		X					
S11[(1)]		X					
S12[(1)]		X					
S13	X						
S14[(1)]		X					
S15[(1)]		X					
S16[(1)]		X					
S17[(1)]		X					
S18	X						
S19[(1)]		X					
S20[(1)]		X					
S21[(1)]		X					
S22	X		Y				
S23	X		Y				
S24[(1)]		X					
S25[(1)]		X					
SMW1[(1)]		X					
SMW2[(1)]		X					
SMW3	X		Y				
SMW4[(1)]		X					
SMW5[(1)]		X					
SMW7[(1)]		X					
SMW8[(1)]		X					
SMW9[(1)]		X					
SMW10[(1)]		X					
SMW12	X						
UNKNOWN 1	X						
UNKNOWN 2	X						
UNKNOWN 3	X						

Notes:

[(1)] - Monitoring well not located

Table 2

Monitoring Well Assessment Status
Southern Terminal
Lysander, New York
June 5 - 7, 2019

Monitoring Well ID	Depth to LNAPL (feet bmp)	Depth to Water (feet bmp)	LNAPL Thickness (feet)	Well Total Depth (feet bmp)
A1	-	9.21	-	11.02
A2	-	9.47	-	12.10
A3	12.69	13.55	0.86	13.81
A4	-	DRY	-	10.60
A5	-	11.98	-	17.99
A6	-	-	-	-
A6	-	11.96	-	12.09
A7	-	11.55	-	11.74
A8[1]	-	-	-	-
A9	-	11.42	-	17.24
A10	7.96	11.44	3.48	14.11
A11	-	6.75	-	14.83
A12	6.01	7.18	1.17	13.95
A13	7.52	10.03	2.51	18.85
A14	9.13	11.52	2.39	21.62
A15[1]	-	-	-	-
A16[1]	-	-	-	-
A17[1]	-	-	-	-
A18	9.49	9.83	0.34	19.18
A19[1]	-	-	-	-
A20[1]	-	-	-	-
A21	-	8.80	-	10.33
A23	-	9.28	-	14.84
A24	-	8.15	-	13.04
A25	8.88	8.95	0.07	14.98
AMW1	-	12.11	-	15.38
AMW2[2]	-	-	-	-
AMW3	8.35	11.04	2.69	15.04
AMW4	-	DRY	-	10.19
AMW5	11.44	14.77	3.33	18.15
AMW6[1]	-	-	-	-
AMW7	-	10.38	-	16.49
AMW8	-	12.22	-	16.17
AMW9[1]	-	-	-	-
BMW6[1]	-	-	-	-
BMW-15[1]	-	-	-	-
CT4	-	14.29	-	14.39
HD4A[1]	-	-	-	-
HD5[1]	-	-	-	-
MWA	11.13	11.19	0.06	14.41
MWB	9.55	9.96	0.41	13.05
PZ102D	-	12.88	-	23.88
PZ102S	-	12.93	-	17.81
PZ103D	-	12.65	-	23.87
PZ103S	-	12.43	-	18.75
PZ104D[1]	-	-	-	-

Table 2

Monitoring Well Assessment Status
Southern Terminal
Lysander, New York
June 5 - 7, 2019

Monitoring Well ID	Depth to LNAPL (feet bmp)	Depth to Water (feet bmp)	LNAPL Thickness (feet)	Well Total Depth (feet bmp)
PZ104S	-	8.07	-	18.83
PZ105D	-	9.35	-	26.73
PZ105S	-	8.27	-	19.71
S1[2]	-	-	-	-
S2	11.14	11.71	0.57	18.22
S3	-	7.26	-	15.00
S4	-	6.68	-	10.60
S5	5.55	5.56	0.01	14.40
S6[1]	-	-	-	-
S7[1]	-	-	-	-
S8	-	6.20	-	16.63
S9	7.57	9.13	1.56	20.03
S10[1]	-	-	-	-
S11[1]	-	-	-	-
S12[1]	-	-	-	-
S13	8.19	8.66	0.47	15.19
S14[1]	-	-	-	-
S15[1]	-	-	-	-
S16[1]	-	-	-	-
S17[1]	-	-	-	-
S18	-	8.02	-	15.45
S19[1]	-	-	-	-
S20[1]	-	-	-	-
S21[1]	-	-	-	-
S22[2]	-	-	-	-
S23[2]	-	-	-	-
S24[1]	-	-	-	-
S25[1]	-	-	-	-
SMW1[1]	-	-	-	-
SMW2[1]	-	-	-	-
SMW3	-	6.84	-	17.00
SMW4[1]	-	-	-	-
SMW5[1]	-	-	-	-
SMW7[1]	-	-	-	-
SMW8[1]	-	-	-	-
SMW9[1]	-	-	-	-
SMW10[1]	-	-	-	-
SMW12	-	4.84	-	13.55
UNKNOWN 1	-	5.02	-	13.65
UNKNOWN 2	-	3.1	-	12.09
UNKNOWN 3	-	6.56	-	6.63

Notes:

[1] - Monitoring well not located

[2] - Monitoring located but not gauged due to damage

LNAPL - Light non-aqueous phase liquid

Table 2

Monitoring Well Assessment Status
Southern Terminal
Lysander, New York
June 5 - 7, 2019

Monitoring Well ID	Depth to LNAPL (feet bmp)	Depth to Water (feet bmp)	LNAPL Thickness (feet)	Well Total Depth (feet bmp)

ft bmp - Feet below measuring point
"-" - No data available
DRY - Monitoring well dry at time of gauging event

Attachment A
Project Schedule

Southern Terminals
Cold Springs Terminal Site, Hillside Road
Lysander, New York

Project Schedule