Revised Alternatives Analysis (AA) Report

229 Homer Street Site
BCP Site No. C905044
Olean, New York

June 2017

0225-015-002

Prepared For:

Benson Construction and Development, LLC

Prepared By:

TurnKey Environmental Restoration, LLC

In Association With:

Benchmark Environmental Engineering & Science, PLLC

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Certification

I, Thomas H. Forbes, certify that I am currently a NYS registered professional engineer as defined in 6NYCRR Part 375 and this Revised Alternatives Analysis (AA) Report was prepared in general accordance with applicable statutes and regulations and in general conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10); and activities were performed in general accordance with the DER-approved work plan and any DER-approved modifications.

DATE: 6-22-17

SEAL:

1.0 INTRODUCTION

This Revised Alternatives Analysis (AA) Report has been prepared on behalf of Benson Construction and Development, Inc. (Benson) for the 229 Homer Street Site in the City of Olean, Cattaraugus County, New York (Site; see Figures 1 and 2).

Benson elected to pursue cleanup and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP), and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC or Department) in 2015 (BCP Site No. C905044). On November 25, 2015, the Remedial Investigation/Interim Remedial Measures/Alternatives Analysis (RI/IRM/AA) Work Plan (Ref. 1) was approved by the NYSDEC with concurrence from the New York State Department of Health (NYSDOH). TurnKey Environmental Restoration, LLC, in association with Benchmark Environmental Engineering & Science, PLLC (TurnKey-Benchmark), performed RI activities at the Site in November and December 2015. An RI/AA Report was submitted to NYSDEC in August 2016 (Ref. 2).

In November 2016, the Department issued a Decision Document (DD) that selected a remedy to clean up the 229 Homer Street Site. The original selected remedy involved excavation and off-site disposal of up to 40,000 tons of contaminated soil as the main remedial component. Based on evaluations conducted during the design phase of the project, it was determined that complete excavation of all petroleum impacted subsurface soil would not be achievable due to the presence of such contaminated soils adjacent to and/or under the existing on-site building and the railroad tracks adjacent to the Site. Structural concerns limit the ability to excavate near the building and adjacent railroad tracks.

This Revised AA Report evaluates and proposes an alternative remedy to the one described in the November 2016 DD. The proposed revised remedy addresses the concerns noted above and also reduces greenhouse gas emissions and conserves commercial landfill space when compared to the other remedies evaluated.

1.1 Purpose and Scope

This Revised AA Report has been prepared on behalf of Benson to evaluate another remedial alternative for the Site; specifically, using Air Sparge/Soil Vapor Extraction (AS/SVE) as the main remedial component to supplement the large-scale excavation to address petroleum-impacted and grossly contaminated soil (GCS) above and below the

groundwater table. The proposed remedial alternative is evaluated using criteria set forth in DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 3) and 6NYCRR 375-1.8(f) and compares the proposed remedy to the previously evaluated remedies.

The August 2016 RI Report submitted to the Department contains the comprehensive RI and historic soil, groundwater and soil vapor data; fate and transport of constituents of concern; and a qualitative risk assessment. This Revised AA Report, which is based on the finding of the 2016 RI Report, does not repeat the information contained in the RI Report; however, Tables 1 through 7 have been included for reference.

2.0 REMEDIAL ALTERNATIVES EVALUATION

2.1 Remedial Action Objectives

The remedial actions for the 229 Homer Street Site must satisfy Remedial Action Objectives (RAOs). RAOs are site-specific statements that convey the goals for minimizing substantial risks to public health and the environment. For the 229 Homer Street Site, appropriate RAOs have been defined as:

Soil/Fill RAOs

- Remove subsurface infrastructure (i.e., abandoned process piping) to prevent potential discharge of contaminants to surrounding soil/fill.
- Remove, treat, or mitigate GCS to the degree possible to protect public health and the environment and prevent further degradation of on-site and off-site groundwater quality.
- Prevent ingestion/direct contact with contaminated soil/fill.
- Prevent migration of contaminants that may further result in groundwater or surface water contamination.
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil/fill.

Groundwater RAOs

- Prevent ingestion of groundwater containing contaminant levels exceeding NYSDEC Class GA GWQS/GVs or with evidence of LNAPL or nuisance characteristics.
- Prevent degradation of on-site and off-site water quality.

Subsurface Piping RAOs

- Remove or mitigate subsurface petroleum piping to protect public health and the environment and to prevent further degradation of on-site and off-site soil/fill and groundwater quality.

Soil Vapor

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

2.2 General Response Actions

General Response Actions (GRAs) are broad classes of actions that are developed to achieve the RAOs and form the foundation for the identification and screening of remedial technologies and alternatives.

The GRAs available to address the RAOs for soil/fill include:

- Institutional controls (e.g., Site Management Plan, Environmental Easement)
- Engineering controls (e.g., cover system)
- Treatment (e.g., in-situ or ex-situ)
- Excavation and off-site disposal

The GRAs available to address the RAOs for groundwater include:

- Monitored natural attenuation
- Institutional controls
- Engineering controls (e.g., pump-and-treat)
- Treatment (e.g., in-situ or ex-situ)

The GRAs available to address the RAOs for subsurface product piping include:

- Removal and off-site disposal/recycling
- Cleaning and capping in-place

The GRAs available to address the RAOs for soil vapor include:

- Engineering controls (e.g., ASD system)
- Removal and off-site disposal/recycling of product piping and contents

2.3 Standards, Criteria, and Guidance

According to DER-10 Section 1.3(b)71, standards, criteria, and guidance (SCGs) refers to: "*standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable or not directly applicable but are relevant and appropriate, unless good cause exists why conformity should be dispensed with, and with consideration being given to guidance determined, after the exercise of scientific and engineering judgment, to be applicable. This term incorporates both the CERCLA concept of 'applicable or relevant and appropriate requirements' (ARARs)*

and the USEPA's 'to be considered' (TBCs) category of non-enforceable criteria or guidance. For purposes of this Guidance, 'soil SCGs' means the soil cleanup objectives and supplemental soil cleanup objectives identified in 6NYCRR 375-6.8 and the Commissioner Policy on Soil Cleanup Guidance (CP-Soil)."

Additional discussions concerning the specific chemical-, action-, and location-specific SCGs that may be applicable, relevant, or appropriate to remedy selection for the Site are presented below. In each case, the identified SCGs are generally limited to regulations or technical guidance in lieu of the environmental laws from which they are authorized, as the laws are typically less prescriptive in nature and inherently considered in the regulatory and guidance evaluations. Table 8 summarizes the SCGs by media that may be applicable or relevant and appropriate to the Site.

2.3.1 Chemical-Specific SCGs

Chemical-specific SCGs are usually health- or risk-based concentrations in environmental media (e.g., air, soil, water), or methodologies that when applied to site-specific conditions, result in the establishment of concentrations of a chemical that may be found in, or discharged to, the ambient environment. The determination of potential chemical-specific SCGs for a site is based on the nature and extent of contamination; potential migration pathways and release mechanisms for site contaminants; reasonably anticipated future site use; and likelihood that exposure to site contaminants will occur.

Previous sampling events during Phase II (Ref. 4) and RI activities included the collection and analysis of surface soil/fill, subsurface soil/fill, sub-slab and indoor air, and groundwater samples.

One of the remedial alternatives to be assessed for the Site is a Track 4 cleanup for soil/fill. This approach requires institutional controls (e.g., groundwater and land use restrictions, Site Management Plan, and Environmental Easement) and engineering controls (e.g., a soil cover system, active SSD systems in future buildings) as components of the final remedy to reduce future potential exposure to impacted soil/fill.

Site-specific action levels (SSALs) were developed for the Site. These SSALs will be applicable to soil/fill that greatly exceeds commercial use soil cleanup objectives (CSCOs), has the potential to impact groundwater, or otherwise represents an unacceptable risk to public health or the environment in the context of reasonably anticipated future use and a Track 4 cleanup and therefore require corrective action. These SSALs were developed based

on the removal of source areas, including areas that have a greater potential for contaminant migration, and the feasibility of achieving the SSALs based on the nine factors outlined in 6NYCRR Part 375-1.8(f) and described in Section 7.4. The SSALs only apply to a Track 4 cleanup with a cover system to be installed over all areas with remaining soil/fill concentrations above CSCOs, a Site Management Plan (SMP), and Environmental Easement. The following SSALs were developed and used to designate soil/fill areas requiring remediation:

- Total PAHs>500 mg/kg; this alternative Soil Cleanup Level was employed in lieu of individual CSCOs, per NYSDEC Commissioner Policy on Soil Cleanup Guidance (CP-51; Ref. 5).
- GCS (defined as soil exhibiting the presence of mobile petroleum product).

2.3.2 Location-Specific SCGs

Location-specific SCGs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they are in a specific location. Some examples of these unique locations include floodplains, wetlands, historic places, and sensitive ecosystems or habitats. The location of the site is a fundamental determinant of its impact on human health and the environment.

2.3.3 Action-Specific SCGs

Action-specific SCGs are restrictions placed on particular treatment or disposal technologies. Examples of action-specific SCGs are effluent discharge limits and hazardous waste manifest requirements.

2.4 Evaluation of Alternatives

In addition to achieving RAOs, NYSDEC's BCP calls for remedy evaluation using the following criteria set forth in DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 3) and 6NYCRR 375-1.8(f):

- **Overall Protectiveness of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.

- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.
- **Long-Term Effectiveness and Permanence**. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (i) the magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals), (ii) the adequacy of the engineering and institutional controls intended to limit the risk, (iii) the reliability of these controls, and (iv) the ability of the remedy to continue to meet RAOs in the future.
- **Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment**. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, and volume of Site contamination. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the contamination at the Site.
- **Short-Term Impacts and Effectiveness**. This criterion is an evaluation of the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. This includes a discussion of how the identified adverse impacts and health risks to the community or workers at the Site will be controlled, and the effectiveness of the controls. This criterion also includes a discussion of engineering controls that will be used to mitigate short-term impacts (i.e., dust control measures), and an estimate of the length of time needed to achieve the remedial objectives.
- **Implementability**. The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.
- **Cost-Effectiveness**. Capital, operation, maintenance, and monitoring costs are estimated for each remedial alternative and presented on a present worth basis. A remedy is cost effective if the costs are proportional to the overall effectiveness.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy. Therefore, community acceptance will be evaluated based on comments to be received from the public in

response to Fact Sheets and other planned Citizen Participation activities, including a public comment period for the AAR.

2.5 Anticipated Future Land Use Evaluation

In developing and screening remedial alternatives, NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land be factored into the evaluation of remedial alternatives. The regulations identify 16 criteria that must be considered. These criteria and the resultant outcome for the 229 Homer Street Site are presented below.

1. *Current use and historical and/or recent development patterns:* The 229 Homer Street Site was historically a portion of a larger petroleum refinery and bulk storage facility commonly known as the former Socony-Vacuum facility. The Site and surrounding area were historically developed as a petroleum refinery with numerous ASTs and heavy industrial operations; and current surrounding land use is a mixed commercial and residential area in the City of Olean. The Site is currently used for commercial purposes and future site uses are anticipated to remain generally consistent. **Accordingly, commercial site redevelopment would be consistent with historic site use.**
2. *Applicable zoning laws and maps:* The Site is located in an area of the City zoned for Commercial (Com 1) use. **Use in a commercial capacity is therefore consistent with current zoning.**
3. *Brownfield opportunity areas as designated set forth in GML 970-r:* The Brownfield Opportunity Area (BOA) Program provides municipalities and community based organizations with assistance to complete revitalization plans and implementation strategies for areas or communities affected by the presence of brownfield sites, and site assessments for strategic sites. **The subject property lies within the designated Northwest Quadrant BOA within the City of Olean.**
4. *Applicable comprehensive community master plans, local waterfront revitalization plans as provided for in EL article 42, or any other applicable land use plan formally adopted by a municipality:* The Site lies within the boundaries of the City of Olean Comprehensive Development Plan 2005-2025. **Site remediation and redevelopment is consistent with the redevelopment plan.**
5. *Proximity to real property currently used for residential use, and to urban, commercial, industrial, agricultural, and recreational areas:* The adjacent and surrounding land is predominantly commercial and industrial with some adjacent and nearby vacant land. Residential land use is located nearby to the northeast and southeast of the Site. The property located less than one-quarter mile to the southwest of the Site has been converted from recreational land to commercial use. **Maintaining the**

use of the Site in a commercial capacity is consistent with surrounding property.

6. *Any written and oral comments submitted by members of the public on the proposed use as part of the activities performed pursuant to the citizen participation plan:* **No comments have been received from the public relevant to Site use concerns.**

7. *Environmental justice concerns, which include the extent to which the proposed use may reasonably be expected to cause or increase a disproportionate burden on the community in which the site is located, including low-income minority communities, or to result in a disproportionate concentration of commercial or industrial uses in what has historically been a mixed use or residential community:* **Nearby and adjacent property is actively used in a commercial capacity. Maintaining use of the site in a commercial capacity does not pose environmental justice issues.**

8. *Federal or State land use designations:* The property is designated Commercial Land Use (COM 1) by the City of Olean (Real Property GIS). **Reuse in a restricted capacity (commercial) is consistent with the current land use designation.**

9. *Population growth patterns and projections:* The City of Olean, encompassing 6.2 square miles, has a population of 14,452 (2010 US Census Bureau), a decrease of 5.8% from the 2000 US Census (15,347 people) and, as such, the redevelopment of the site is not expected to have a significant impact on the housing market**. Reuse of the Site in a non-residential capacity does not materially affect opportunities for residential growth.**

10. *Accessibility to existing infrastructure:* Access to the Site is from Homer Street. Utilities (sewer, water, electric) that service adjacent and nearby properties are present along this corridor. **Existing infrastructure supports reuse in a commercial capacity**.

11. *Proximity of the site to important cultural resources, including federal or State historic or heritage sites or Native American religious sites*: **No such resources or sites are known to be present on or adjacent to the Site.**

12. *Natural resources, including proximity of the site to important federal, State, or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species:* Two Mile Creek is located off-site along the northwestern property border. Two Mile Creek traverses numerous current and historical commercial/ industrial properties in the area of the Site. **Commercial redevelopment of the 229 Homer Street Site will not adversely affect this water body. If necessary, a Stormwater Pollution Prevention Plan will be prepared during future Site redevelopment.**

13. *Potential vulnerability of groundwater to contamination that might emanate from the site, including proximity to wellhead protection and groundwater recharge areas and other areas identified by the Department and the State's comprehensive groundwater remediation and*

protection program established set forth in ECL article 15 title 31: Currently, there are no known deed restrictions on the use of groundwater at the Site. Municipal water is supplied or available to the Site and all surrounding properties. The municipal water supply is derived from the following sources:

- Ischua Creek (a tributary of Olean Creek) at the City of Olean's Water Filtration Plan, 1332 River Street, approximately 3,000 feet east (cross-gradient) of the Site.
- Groundwater supply wells:
  - Well Site M18: 104 Richmond Ave., approximately 3.0 miles southeast of the Site.
  - Well Sites M37/38: 1900 East River Rd., approximately 4.0 miles southeast of the Site.

Potable water service is provided off-site and on-site by the local municipal water authority. **The cleanup to restricted use conditions will not pose a drinking water threat.**

14. *Proximity to flood plains:* Although the Cattaraugus County Parcel Viewer indicates the 100-year Zone A flood plain traverses the northwestern portion of the Site, it does not line up with the current alignment of Two Mile Creek. According to Figure 2 in the May 2008 Phase I ESA prepared by GZA GeoEnvironmental (Ref. 6), Two Mile Creek formerly traversed the southwestern portion of the Site (observed in a 1961 aerial photograph). The 1980 aerial photograph shows the current alignment of the Creek, off-site along the northwestern property boundary. Since Two Mile Creek is off-site and the Site will be covered with one foot of gravel, there is no risk of significant soil erosion due to flooding. **As such, cleanup to commercial standards does not pose a threat to surface water.**
15. *Geography and geology:* The Site is located within the Allegheny River valley, with the primary bedrock type that forms the bedrock surface in the Olean area consisting predominantly of Upper Devonian shale, siltstone, and sandstone of the Conewango and Conneaut Groups. Surface soils within the vicinity of the Site are described as Red Hook silt loam. Former development cycles of the Site have impacted both the surface and subsurface geology. **Geography and geology are consistent with a commercial or industrial re-use.**
16. *Current institutional controls applicable to the site:* **No institutional controls are currently present that would affect redevelopment options.**

Based on the above analysis, continued use of the Site in a commercial capacity is consistent with past and current development and zoning on and near the Site, and does not pose additional environmental or human health risk.

2.6 Volume, Nature, and Extent of Contamination

Estimation of the volume, nature, and extent of media that may require remediation to satisfy the RAOs or that needs to be quantified to facilitate evaluation of remedial alternatives is presented in this section. For the unrestricted use scenario, the cleanup goal would involve achieving unrestricted SCOs (USCOs). For the reasonably anticipated future use scenario, the cleanup goal would involve achieving CSCOs and SSALs. The volume and extent of media requiring cleanup under these scenarios is presented in Sections 2.6.1 and 2.6.2. In all instances, these volume estimates (and associated cost estimates presented later in this AA Report) are projected based on data collected and observations made during the Phase II and RI activities.

2.6.1 Comparison to Unrestricted SCOs (Track 1 Cleanup)

Exceedances of the USCOs were noted in several of soil/fill samples collected, primarily for petroleum semi-volatile organic compounds (SVOCs) (specifically, polycyclic aromatic hydrocarbons; PAHs) and metals (i.e., arsenic) to varying degrees depending on the media. Elevated concentrations of gasoline range organics (GROs) and diesel range organics (DROs) are also present together with GCS and nuisance conditions indicating widespread petroleum impact. Due to the ubiquitous nature of the constituents observed in Site soil/fill, the extent to which they exceeded the USCOs, and the field evidence of impacts, the entire 3.34-acre property defines the Track 1 Cleanup area. The depth of impact varies significantly across the Site. Since impacts were observed at the bottom of test pits (15 fbgs) and well borings (up to 18 fbgs), a conservative depth of impact of 20 fbgs has been assumed. Thus, the volume of impacted soil/fill requiring remediation under the unrestricted use scenario is approximately 107,770 cubic yards.

2.6.2 Comparison to Commercial SCOs (Track 4 Cleanup)

The soil/fill data indicates certain areas with exceedances of the Part 375 CSCOs for several ubiquitous constituents. Four soil samples from test pits, one surface soil sample, and one soil sample from the boring investigation exhibited exceedance of the CSCOs for SVOCs and/or metals. However, many of the samples that did not exceed CSCOs exhibited nuisance conditions (odor, elevated PID, sheen); contained elevated concentrations of GROs and DROs; and/or contained GCS.

2.6.3 Groundwater Impacts

During the RI sampling work, petroleum-like sheen was observed on groundwater in wells MW-2 through MW-5. Petroleum-like odors were noted on groundwater at all five wells (MW-1 through MW-5).

2.7 Alternatives Evaluation

In addition to the evaluation of alternatives to remediate to the likely end use of the Site, NYSDEC regulation and policy calls for evaluation of more restrictive end-use scenarios, such as an unrestricted use scenario (considered under 6NYCRR Part 375 to be representative of cleanup to pre-disposal conditions), and a scenario less restrictive than the reasonably anticipated future use. Per NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 3), evaluation of a "no action/no further action" alternative is also required to provide a baseline for comparison against other alternatives. The alternatives evaluated include:

- Alternative 1: No Further Action
- Alternative 2: Unrestricted Use (Track 1) Cleanup
- Alternative 3: Commercial Use (Track 4) Cleanup (Excavation)
- Alternative 4: Commercial Use (Track 4) Cleanup (AS/SVE)

2.7.1 Alternative 1 – No Further Action

Under this alternative, the Site would remain in its current state, with no remediation or controls in place.

Overall Protection of Public Health and the Environment – In its current state, the Site is not protective of human health and the environment, due to the presence of contamination remaining on-site above SCGs; the absence of engineering controls (e.g., cover system); and the absence of institutional controls to prevent more restrictive forms of future site use (e.g., unrestricted, residential, and restricted residential) or the export of Site soils to uncontrolled off-site locations. Accordingly, no further action is not protective of public health and does not satisfy the RAOs.

Compliance with SCGs – Under the current and reasonably anticipated future use scenario (commercial), the contamination detected in on-site soil/fill and groundwater does not comply with applicable SCGs.

Long-Term Effectiveness and Permanence – The no further action alternative involves no remedial activities, equipment, institutional controls, or facilities subject to maintenance, and provides no long-term effectiveness or permanence toward achieving the RAOs.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – The no action alternative does not reduce the toxicity, mobility, or volume of contamination beyond natural degradation/attenuation and, therefore, this alternative is not protective of public health and does not satisfy any of the RAOs.

Short-Term Impacts and Effectiveness – The contamination on-site does pose short-term risks to on-site workers and the environment. Therefore, implementation of the no further action alternative does not satisfy the RAOs.

Implementability – No technical or administrative implementability issues are associated with the no further action alternative.

Cost-Effectiveness – There would be no capital or long-term operation, maintenance, or monitoring costs associated with the no further action alternative.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public in response to Fact Sheets and other planned citizen participation activities, including a public comment period for the RI/AA Report.

2.7.2 Alternative 2 – Unrestricted Use (Track 1) Cleanup

An unrestricted use alternative would necessitate remediation of all soil/fill where concentrations exceed the USCO per 6NYCRR Part 375. For unrestricted use scenarios, excavation and off-site disposal of impacted soil/fill is generally regarded as the most applicable remedial measure because engineering controls cannot be used to supplement the

remedy. As such, the unrestricted use alternative assumes that those areas that exceed USCOs would be excavated and disposed at an off-site commercial solid waste landfill. Therefore, the entire 3.34-acre Site would need to be excavated to approximately 20 fbgs to achieve USCOs. The estimated total volume of impacted soil/fill that would be removed from the Site is approximately 107,770 cubic yards. In order to access impacted material at depth, the building would need to be demolished. Piping extending beyond the property line will be cut, capped, and located by GPS.

Based on removal of all source areas, groundwater remediation and monitoring would not be necessary, as concentrations would be expected to decrease significantly. In addition, a restriction on groundwater use would be included as part of the remedial program per 6NYCRR Part 375.

Overall Protection of Public Health and the Environment – Excavation and off-site disposal to USCOs would be protective of public health under any reuse scenario. However, this alternative would permanently use and displace approximately 107,770 cubic yards of valuable landfill airspace, causing ancillary environmental issues due to reduced landfill capacity, and require excavating, transporting, and placing 107,770 cubic yards of clean soil from an off-site borrow source to backfill the excavation, also contributing to significant detrimental off-site environmental issues. The unrestricted use alternative would achieve the corresponding Part 375 SCOs, which are designed to be protective of public health under any reuse scenario.

Compliance with SCGs – The excavation and off-site disposal would need to be performed in accordance with applicable, relevant, and appropriate SCGs. Soil excavation activities would necessitate preparation of and adherence to a Community Air Monitoring Plan (CAMP) in accordance with Appendices 1A and 1B of DER-10.

Long-Term Effectiveness and Permanence – The unrestricted use alternative would achieve removal of all residual impacted soil/fill; therefore, no soil/fill exceeding the USCOs would remain on the Site. As such, the unrestricted use alternative would provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – Through removal of all impacted soil/fill, LNAPL, and subgrade piping, the unrestricted use alternative would reduce the toxicity, mobility, and volume of Site contamination permanently and significantly. However, since this alternative transfers Site soil/fill from one environment to another, an overall reduction of toxicity and volume would not occur. Mobility of soluble constituents would be reduced in the commercial landfill with a liner, cover system, and leachate collection.

Short-Term Impacts and Effectiveness – The principal advantage of a large-scale excavation to achieve USCOs is reliability of effectiveness in the long-term. In the short-term, there would be significant increase in exposure of impacted soil/fill to on-site workers and the community under this alternative. Remaining excavation activities would be completed over an approximate 6-month period, and backfilling would take approximately two months. Commercial construction equipment would be used, a health and safety plan would be followed, and community air monitoring would be completed during excavation activities. However, primary disadvantages include increased truck traffic during excavation and backfill; noise; and air emissions, including fugitive dust and odors. This action would result in potential storm water impacts at the borrow source(s) and on-site; diesel fuel consumption on the order of 73,500 gallons (assuming 80 miles round trip to a local landfill; 8 miles per gallon) to transport the 7,350 truckloads of impacted soil/fill, with several thousands of gallons also consumed by excavation and grading equipment. The USEPA's estimated CO_2 generation rate for diesel engines is approximately 22.2 pounds per gallon of diesel consumed. Accordingly, this alternative would produce over 1.6 million pounds of greenhouse gas. Therefore, this alternative represents a significant adverse effect in the short-term; however, the RAOs would be achieved once the soil/fill is removed from the Site and backfill soils are in place (est. 12 months).

Implementability – Excavation of impacted soil/fill to depths of 20 fbgs in sandy silt and gravel poses several technical implementability concerns. Sloughing of excavation walls could occur; shoring/stabilizing excavation sidewalls may be necessary. Groundwater and/or storm water handling, treatment, and/or discharge/disposal would be required. Given the high volume of soil/fill required for removal, a high volume of truck traffic on a

relatively small Site would be needed to transport the impacted soil/fill off-site. Administrative implementability issues may include the need for rezoning of the area to allow for unrestricted uses, which are not consistent with current surrounding land use or the reasonably anticipated future use of the Site; coordinating and securing disposal contracts with numerous permitted off-site landfills since no single location may be able to accept the volume of soil/fill generated under this alternative; and difficulty locating local borrow sources for such a large volume of backfill.

Cost-Effectiveness – The capital cost of implementing the unrestricted use alternative is estimated at $17.5 million. Table 9 provides a detailed breakdown of these costs.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public in response to Fact Sheets and other planned citizen participation activities.

2.7.3 Alternative 3 – Commercial Use (Track 4) Cleanup (Excavation)

Under Alternative 3, the Site would be cleaned up to facilitate reasonably anticipated commercial or industrial use, including:

- Removing and transferring an estimated minimum 2,500 linear feet of piping to a recycling facility. Extracting and properly disposing off-site the contents of the piping. Piping extending beyond the property line will be cut, capped, and located by GPS.
- Excavating GCS encountered during pipe removal activities.
- Excavating GCS and petroleum-impacted soil on the eastern portion of the Site not associated with known subsurface piping (targeted excavations within the estimated 1.84 acres).
- Following excavation, re-creating the on-site drainage swale along the eastern property boundary, and placing 12 inches of clean soil or gravel followed by 6 inches of rip rap for erosion protection.
- Managing impacted water during remedial activities.
- Engineering Controls:

- Placing a cover system including building foundations, hardscape, asphalt, or a minimum 12 inches of clean soil or gravel.
- Installing an ASD system within the existing building as well as future buildings.

- Institutional Controls:
  - Implementing an SMP including an Environmental Easement, EC/IC Plan, Site Monitoring Plan, Excavation Work Plan, O&M Plan, Site use limitations, and groundwater use restrictions.

Figure 3 shows the general area of petroleum impact. Figure 4 shows the approximate locations of the piping and GCS to be removed. Based on the findings of the Phase II and RI, GCS was identified near subsurface piping on the northeast and southeast portions of the Site as well as areas east of the existing building ranging in depths between approximately 5 to 14 fbgs, with the highest impacts generally noted in the 5 to 13 fbgs range. Based on observations of petroleum impacts within sample locations TP-6, TP-12, TP-18, and TP-23, it is possible that petroleum impacts extend beneath the building. During excavation activities, GCS and/or petroleum-impacted soil will be removed to the extent feasible and safe, and any GCS and/or petroleum-impacted soil observed to extend beneath the building will be documented so that it can be properly handled in the future in accordance with the Site Management Plan.

The excavation would be backfilled with clean overburden soil/fill and the upper foot of undisturbed soil/fill from the northwestern portion of the Site. The areas of the Site not covered by the building, concrete aprons, and undisturbed gravel would receive a cover as described above under Engineering Controls.

Specific details of the remediation will be provided in the Remedial Action Work Plan (RAWP) and submitted to the Department for review and approval.

Overall Protection of Public Health and the Environment – This alternative meets NYSDEC requirements for a Track 4 cleanup under the BCP regulations and is protective of public health and the environment. The RAOs for the Site would be satisfied through the planned extent of remedial activities including removal of piping and associated GCS; installation of ASD systems in the existing and future buildings to mitigate potential VOC vapor intrusion concerns associated with possible GCS and/or petroleum impacts

beneath the building; and the use of EC/ICs to prevent potential future exposure, and limit the future use to commercial/industrial purposes. Groundwater quality will be monitored over time in accordance with the SMP and is expected to continue to improve via natural attenuation as the contamination sources have been removed. Furthermore, groundwater is not used for drinking water purposes in the area of the Site; drinking water is supplied by the local municipality. Accordingly, the Commercial (Track 4) Use Cleanup alternative is protective of public health and fully satisfies the soil, groundwater, subsurface piping, and soil vapor RAOs.

Compliance with SCGs – The planned remedial activities will be performed in accordance with applicable, relevant, and appropriate SCGs including NYSDEC DER-10. The SMP will include an EC/IC Plan that describes the procedures for the implementation and management of all EC/ICs at the Site; a Site Monitoring Plan that describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, including the soil cover system and all affected site media; an Excavation Work Plan to address any impacted soil/fill encountered during post-development intrusive and/or maintenance activities; an O&M Plan that describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the Site; and a Site-wide inspection program to assure that the EC/ICs placed on the Site have not been altered and remain effective.

Long-Term Effectiveness and Permanence – Removal of piping, GCS and/or petroleum-impacted soil, and construction of a cover system will prevent direct contact with soil/fill exceeding CSCOs and SSALs. Installation of an ASD system within the existing and future buildings will mitigate potential on-site VOC vapor intrusion concerns associated with possible GCS beneath the building. An SMP will address any impacted soil/fill encountered during future Site intrusive/ maintenance activities, and provides a mechanism to assure that the EC/ICs placed on the Site have not been altered and remain effective. Furthermore, an Environmental Easement for the Site will be filed with Cattaraugus County, which will limit future Site use to industrial/commercial uses, restrict groundwater use, and reference the Department-approved SMP. As such, this alternative will provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – This alternative will reduce the toxicity, mobility, and volume of COCs significantly and permanently. Removal of piping GCS and/or petroleum-impacted soil, and construction of a cover system will prevent direct contact with soil/fill exceeding CSCOs and SSALs. Installation of an ASD system within the existing and future buildings will mitigate potential on-site VOC vapor intrusion concerns associated with possible GCS beneath the building. The SMP will include an Excavation Work Plan to address any impacted soil/fill encountered during future Site intrusive/maintenance activities and a Site-wide inspection program to assure that the EC/ICs placed on the Site have not been altered and remain effective. Accordingly, this alternative satisfies this criterion.

Short-Term Impacts and Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment will be controlled during implementation of the remedy. During intrusive remedial activities, including excavation and cover system placement, increased truck traffic and handling of contaminated soil/fill could cause adverse short-term effects. Community air monitoring for vapors, dust particulates, and odors will be performed during intrusive activities to assure conformance with community air monitoring action levels. The potential for chemical exposure and physical injury are reduced through safe work practices; proper personal protection equipment (PPE); environmental monitoring; establishment of work zones and Site control; and appropriate decontamination procedures. The planned remedial activities will be completed within one construction season and performed in accordance with a Department-approved Work Plan, including a health and safety plan (HASP) and CAMP.

Implementability – No technical or action-specific administrative implementability issues are associated with the Commercial Use (Track 4) Cleanup alternative. However, some impacts may remain beneath the building to inaccessibility.

Cost – The capital cost of implementing a Commercial Use (Track 4) alternative is estimated at $5.5 million. Total O&M costs are estimated at $307,000. The total 30-year cost of this alternative is approximately $5.8 million. Table 10 presents the capital and O&M cost estimate.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public in response to Fact Sheets and other planned citizen participation activities.

2.7.4 Alternative 4 – Commercial Use (Track 4) Cleanup (AS/SVE)

Under Alternative 4, the Site would be cleaned up to facilitate reasonably anticipated commercial or industrial use, including:

- Removing and transferring an estimated minimum 2,500 linear feet of piping to a recycling facility. Extracting and properly disposing off-site the contents of the piping. Piping extending beyond the property line will be cut, capped, and located by GPS.
- Excavating up to 5,000 tons of GCS encountered during pipe removal activities.
- Air Sparge/Soil Vapor Extraction (AS/SVE) to address petroleum-impacted soil on the eastern portion of the Site not associated with known subsurface piping.
- Engineering Controls:
  - Placing a cover system including building foundations, hardscape, asphalt, or a minimum 12 inches of clean soil or gravel.
  - Installing an ASD system within the existing building as well as future buildings.
- Institutional Controls:
  - Implementing an SMP including an Environmental Easement, EC/IC Plan, Site Monitoring Plan, Excavation Work Plan, O&M Plan, Site use limitations, and groundwater use restrictions.

Figure 4 shows the approximate locations of the piping and GCS to be removed. Figure 5 shows the proposed layout of the AS/SVE system. Specific details of the remediation will be provided in the Remedial Action Work Plan (RAWP) and submitted to the Department for review and approval.

Overall Protection of Public Health and the Environment – The proposed revised remedy meets NYSDEC requirements for a Track 4 cleanup under the BCP regulations and is protective of public health and the environment. The RAOs for the Site would be satisfied through the planned removal of GCS; in-situ air sparge and soil vapor

extraction, removal of piping and contents; installation of ASD systems in the existing and future buildings (office portions) to mitigate potential VOC vapor intrusion concerns associated with possible contaminated soil beneath the building; and the use of EC/ICs to prevent potential future exposure, and limit the future use to commercial/industrial purposes. Groundwater quality will be monitored over time in accordance with the SMP and is expected to continue to improve via natural attenuation as the contamination sources have been treated or removed. Furthermore, groundwater is not used for drinking water purposes in the area of the Site; drinking water is supplied by the local municipality. Accordingly, the proposed remedy is protective of public health and fully satisfies the soil, groundwater, and soil vapor RAOs. The proposed remedy is no less protective of human health and the environment than the original remedy.

Compliance with SCGs – The planned remedial activities will be performed in accordance with applicable, relevant, and appropriate SCGs including NYSDEC DER-10. The SMP will include an EC/IC Plan that describes the procedures for the implementation and management of all EC/ICs at the Site; a Site Monitoring Plan that describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, including the soil cover system and all affected site media; an Excavation Work Plan to address any impacted soil/fill encountered during post-development intrusive and/or maintenance activities; an O&M Plan that describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy; and, a Site-wide inspection program to assure that the EC/ICs placed on the Site have not been altered and remain effective. The proposed remedy is compliant with SCGs and no less compliant than the original remedy.

Long-Term Effectiveness and Permanence – Excavation and off-site disposal of GCS, in-situ air sparge, soil vapor extraction and removal of piping will permanently remove contaminants from the subsurface; and construction of a cover system will prevent direct contact with soil/fill exceeding CSCOs. Installation of an ASD system within the existing and future buildings will mitigate potential on-site VOC vapor intrusion concerns associated with possible contamination beneath the building. An SMP will address any impacted soil/fill encountered during future Site intrusive/maintenance activities, and provides a

mechanism to assure that the EC/ICs placed on the Site have not been altered and remain effective. Furthermore, an Environmental Easement for the Site will be filed with Cattaraugus County, which will limit future Site use to industrial/commercial uses, restrict groundwater use, and reference the Department-approved SMP. As such, the proposed remedy will provide long-term effectiveness and permanence. The proposed revised remedy is no less effective and permanent than the original remedy. As the proposed revised remedy addresses more GCS adjacent to and under the building, it may be considered slightly more effective in that regard than the original selected remedy.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – The proposed remedy will reduce the toxicity, mobility, and volume of COCs significantly and permanently. Removal of GCS, piping and piping contents; and treating impacted soil with air sparge and SVE will reduce toxicity, mobility and volume of contaminants. Construction of a cover system will prevent direct contact with soil/fill exceeding CSCOs. Installation of an ASD system within the existing and future buildings will mitigate potential on-site VOC vapor intrusion concerns for the building. The SMP will include an Excavation Work Plan to address any impacted soil/fill encountered during future Site intrusive/maintenance activities and a Site-wide inspection program to assure that the EC/ICs placed on the Site have not been altered and remain effective. Accordingly, the proposed remedy satisfies this criterion and is no less effective than the original remedy. As the proposed revised remedy addresses more GCS adjacent to and under the building, it may be considered slightly more effective in that regard than the original selected remedy.

Short-Term Impacts and Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment will be controlled during implementation of the remedy. During intrusive remedial activities, including excavation and cover system placement, associated truck traffic and handling of contaminated soil/fill could potentially cause adverse short-term effects. Community air monitoring for vapors, dust particulates, and odors will be performed during intrusive activities to assure conformance with community air monitoring action levels. The potential for chemical exposure and physical injury are reduced through safe work practices; proper personal protection equipment (PPE); environmental monitoring; establishment of work zones and Site control; and appropriate

decontamination procedures. The planned remedial activities will be completed within one construction season and performed in accordance with a Department-approved Work Plan, including a HASP and CAMP. The proposed remedy achieves the RAOs for the Site and will have less short-term impacts and risks to the community due to much lower volume of soil being excavated for off-site disposal and consequently less heavy truck traffic in the vicinity of the Site during implementation of the remedy.

Implementability – No technical or action-specific administrative implementability issues are associated with the proposed remedy. Air sparge and SVE are common remedial technologies with a track record of success when used on similar sites.

Cost – The capital cost of implementing the proposed remedy is estimated at $2.2 million. Total O&M costs are estimated at $809,000. The total 30-year cost of this alternative is approximately $3.0 million. Table 11 presents the capital and O&M cost estimate.

2.8 Comparison of Remedial Alternatives

The previous sections describe remedial alternatives for the 229 Homer Street Site and evaluate these alternatives against the screening criteria. Table 12 provides a comparison of the alternatives by media to identify remedial measures that will achieve the RAOs for the Site. While both Alternatives 3 and 4 could substantially achieve the RAOs, Alternative 3 (Commercial Track 4 Excavation) may not allow removal of all impacted soil due to structural concerns of excavating proximate an active railroad and the existing on-site building. Alternative 4 (Commercial Track 4 AS/SVE) is more favorable because petroleum saturated and vadose zone soil impacts beneath the on-site building and proximate the railroad would be actively addressed in-situ using AS/SVE. In addition, Alternative 4 is more cost effective when compared to Alternative 3.

2.9 Recommended Remedial Alternative

Based on the alternatives analysis evaluation, *Alternative 4 – Commercial Use (Track 4) Cleanup (AS/SVE)* is the recommended final remedial approach for the 229 Homer Street Site. This alternative is fully protective of public health and the environment; significantly less disruptive to the community; consistent with current and future land use; and represents

a more cost-effective approach than Alternatives 2 and 3 while fully satisfying the RAOs. The recommended remedial alternative would involve:

- Removing and transferring an estimated minimum 2,500 linear feet of piping to a recycling facility. Extracting and properly disposing off-site the contents of the piping. Piping extending beyond the property line will be cut, capped, and located by GPS.
- Excavating up to 5,000 tons of GCS encountered during pipe removal activities.
- Air Sparge/Soil Vapor Extraction (AS/SVE) to address petroleum-impacted soil on the eastern portion of the Site not associated with known subsurface piping.
- Engineering Controls:
  - Placing a cover system including building foundations, hardscape, asphalt, or a minimum 12 inches of clean soil or gravel.
  - Installing an ASD system within the existing building as well as future buildings.
- Institutional Controls:
  - Implementing an SMP including an Environmental Easement, EC/IC Plan, Site Monitoring Plan, Excavation Work Plan, O&M Plan, Site use limitations, and groundwater use restrictions.

This remedy is fully protective of public health and the environment; is advantageous over other remedies when evaluated against the remedy selection criteria; and fully satisfies the RAOs for the Site. The components and details of the remaining tasks will be more fully described in an RAWP.

3.0 POST-REMEDIAL REQUIREMENTS

3.1 Final Engineering Report

Following completion of the remedial measures, a Final Engineering Report (FER) will be submitted to the NYSDEC. The FER will include the following information and documentation, consistent with the NYSDEC regulations contained in 6NYCRR Part 375-1.6(c):

- Background and Site description.
- Summary of the Site remedy that satisfied the RAOs for the Site.
- Certification by a Professional Engineer to satisfy the requirements outlined in 6NYCRR Part 375-1.6(c)(4).
- Description of engineering and institutional controls at the Site.
- Site map showing the areas remediated.
- Documentation of imported materials.
- Documentation of materials disposed off-site.
- Copies of daily inspection reports and, if applicable, problem identification and corrective measure reports.
- Air monitoring data and reports.
- Photo documentation of remedial activities.
- Text describing the remedial activities performed; a description of any deviations from the Work Plan and associated corrective measures taken; and other pertinent information necessary to document that the site activities were carried out in accordance with this Work Plan.
- Analytical data packages and DUSRs.

3.2 Site Management Plan

The SMP covering the 229 Homer Street Site will be prepared and submitted concurrent with the FER. The purpose of the SMP is to assure that proper procedures are in place to provide for long-term protection of public health and the environment after remedial construction is complete. The SMP is comprised of four main components:

- Engineering and Institutional Control Plan

- Site Monitoring Plan
- Operation and Maintenance Plan
- Inspections, Reporting, and Certifications

3.2.1 Engineering and Institutional Control Plan

An institutional control in the form of an Environmental Easement will be necessary to limit future use of the Site to restricted (commercial or industrial) applications and prevent groundwater use for potable purposes or as industrial process water without prior approval from NYSDOH or an authorized county health department.

The Engineering and Institutional Control (EC/IC) Plan will include a complete description of all institutional and/or engineering controls employed at the Site, including the mechanisms that will be used to continually implement, maintain, monitor, and enforce such controls. The EC/IC Plan will include:

- A description of all EC/ICs on the Site.
- The basic implementation and intended role of each EC/IC.
- A description of the key components of the ICs set forth in the Environmental Easement.
- A description of the features to be evaluated during each required inspection and periodic review, including the EC/IC certification, reporting, and Site monitoring.
- A description of plans and procedures to be followed for construction of a soil cover system as required.
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the NYSDEC.

3.2.2 Site Monitoring Plan

The Site Monitoring Plan will describe the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, including:

- Sampling and analysis of all appropriate media (e.g., groundwater).
- Assessing compliance with applicable NYSDEC SCGs, particularly ambient groundwater standards and Part 375 SCOs for soil.
- Assessing achievement of the remedial performance criteria.

- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To address these issues adequately, this Site Monitoring Plan will provide information on:

- Sampling locations, protocol, and frequency.
- Information on all designed monitoring systems (e.g., well logs).
- Analytical sampling program requirements.
- Reporting requirements.
- Quality assurance/quality control (QA/QC) requirements.
- Inspection and maintenance requirements for monitoring wells.
- Monitoring well decommissioning procedures.
- Annual inspection and periodic certification.

Semi-annual groundwater monitoring to assess overall reduction in contamination on-site will be conducted for the first two years. The frequency thereafter will be discussed with the NYSDEC. Trends in contaminant levels in groundwater in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals.

3.2.3 Operation and Maintenance Plan

An Operation & Maintenance (O&M) Plan governing maintenance of the cover system will:

- Include the O&M activities necessary to allow individuals unfamiliar with the Site to maintain the soil cover system.
- Include an O&M contingency plan.
- Evaluate Site information periodically to confirm that the remedy continues to be effective for the protection of public health and the environment. If necessary, the O&M Plan will be updated to reflect changes in Site conditions or the manner in which the cover system is maintained.

3.2.4 Inspections, Reporting, and Certifications

Site-wide inspection will be conducted annually or as otherwise approved by the NYSDEC. All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in a Periodic Review Report (PRR).

The PRR will be submitted to the NYSDEC annually (or as otherwise approved) beginning 18 months after the Certificate of Completion or equivalent document is issued. The PRR will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. The PRR will include:

- Identification, assessment, and certification of all EC/ICs required by the remedy for the Site.
- Results of the required annual Site inspections and severe condition inspections, if applicable.
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format.
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (e.g., groundwater), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format.
- A Site evaluation that includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP, Record of Decision (ROD), or Decision Document.
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications.
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Site Monitoring Plan for the media being monitored.

- Recommendations regarding any necessary changes to the remedy and/or Site Monitoring Plan.
- The overall performance and effectiveness of the remedy.

The signed EC/IC Certification will be included in the PRR. For each institutional or engineering control identified for the Site, a Professional Engineer licensed to practice in New York State will certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the EC/ICs required by the remedial program was performed under my direction.
- The EC/ICs employed at this Site are unchanged from the date the control was put in place, or last approved by the NYSDEC.
- Nothing has occurred that would impair the ability of the control to protect the public health and environment.
- Nothing has occurred that would constitute a violation or failure to comply with any Site Management Plan for this control.
- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control.
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document.
- Use of the Site is compliant with the Environmental Easement.
- The EC systems are effective and performing as designed.
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices.
- The information presented in this report is accurate and complete.

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Plan will be submitted to the NYSDEC for approval. This Plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Plan until it is approved by the NYSDEC.

4.0 REFERENCES

1. TurnKey Environmental Restoration, LLC. *Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report Work Plan, 229 Homer Street Site, Olean, New York, BCP Site No. 905044*. May 2015 and revised November 2015.

2. TurnKey Environmental Restoration, LLC. *Remedial Investigation/Alternatives Analysis (RI/AA) Report, 229 Homer Street Site, Olean, New York, BCP Site No. 905044*. August 2016.

3. New York State Department of Environmental Conservation. *DER-10; Technical Guidance for Site Investigation and Remediation*. May 3, 2010.

4. TurnKey Environmental Restoration, LLC. *Phase II Environmental Investigation Report, 229 Homer Street Site, Olean, New York, BCP Site No. 905044*. February 2015.

5. New York State Department of Environmental Conservation. *CP-51/Soil Cleanup Guidance*. October 21, 2010.

6. GZA GeoEnvironmental of Buffalo, New York. *Phase I Environmental Site Assessment, 229 Homer Street, Olean, New York*. May 2008.

TABLES

TABLE 1

SAMPLING AND ANALYSIS SUMMARY

229 HOMER STREET SITE
OLEAN, NEW YORK

Sample Identifier	Data Source	Depth Sampled/ Screened (fbgs)	Analysis													Date Sampled	Comments
			TCL VOCs	TCL + STARS VOCs	TO-15 VOCs	TCL SVOCs	TCL SVOCs (Base Neutrals Only)	PCBs	TAL Metals	RCRA Metals	Lead	Pesticides	Herbicides	GRO	DRO		
Surface Soil/Fill																	
SS-1	Remedial Investigation	--	-	-		X	-	X	X	-	-	X	X	-	-	12/2/2015	
SS-2	Remedial Investigation	--	-	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
SS-3	Remedial Investigation	--	-	-		X	-	X	X	-	-	X	X	-	-	12/2/2015	
SS-4	Remedial Investigation	--	-	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
SS-5	Remedial Investigation	--	-	-		X	-	X	X	-	-	X	X	-	-	12/2/2015	
SS-6	Remedial Investigation	--	-	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
SS-7	Remedial Investigation	--	-	-		X	-	X	X	-	-	X	X	-	-	12/2/2015	
SS-8	Remedial Investigation	--	-	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
Subsurface Soil/Fill (Test Pits)																	
TP-1	Phase II Investigation	6-8	X	-		--	X	--	--	X	-	-	-	-	-	12/22/2014	
TP-5	Phase II Investigation	7-9	X	-		--	X	--	--	X	-	-	-	-	-	12/22/2014	
TP-6	Phase II Investigation	6-8	X	-		--	X	--	--	X	-	-	-	-	-	12/22/2014	
TP-8	Phase II Investigation	3-5	X	-		--	X	--	--	X	-	-	-	-	-	12/22/2014	
TP-9	Phase II Investigation	3-5	X	-		--	X	--	--	X	-	-	-	-	-	12/22/2014	
TP-12	Phase II Investigation	5-7	X	-		--	X	--	--	X	-	-	-	-	-	12/22/2014	
TP-13	Remedial Investigation	1-4	X	-		X	-		X	-	-	-	-	-	-	12/22/2014	
TP-13	Remedial Investigation	10-15	X	-		X	-	X	X	-	-	X	X	X	X	12/2/2015	
TP-14	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-	X	X	12/3/2015	MS/MSD
TP-14	Remedial Investigation	4-8	X	-		X	-	-	X	-	-	-	-	-	-	12/3/2015	
TP-15	Remedial Investigation	2-4	X	-		X	-	-	X	-	-	-	-	X	X	12/2/2015	
TP-15	Remedial Investigation	10-15	X	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
TP-16	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
TP-16	Remedial Investigation	10-15	X	-		X	-	X	X	-	-	X	X	X	X	12/2/2015	
TP-17	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
TP-17	Remedial Investigation	10-15	X	-		X	-	X	X	-	-	X	X	X	X	12/2/2015	MS/MSD
TP-18	Remedial Investigation	1-6	X	-		X	-	-	X	-	-	-	-	X	X	12/2/2015	
TP-18	Remedial Investigation	8-12	X	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
TP-19	Remedial Investigation	1-4	X	-		X	-	X	X	-	-	X	X	X	X	12/2/2015	
TP-19	Remedial Investigation	10-15	X	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
TP-20	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-	-	-	12/2/2015	
TP-20	Remedial Investigation	4-8	X	-		X	-	-	X	-	-	-	-	X	X	12/2/2015	
TP-21	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-			12/2/2015	
TP-21	Remedial Investigation	8-12	X	-		X	-	-	X	-	-	-	-	X	X	12/2/2015	
TP-22	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-			12/3/2015	
TP-22	Remedial Investigation	10-15	X	-		X	-	X	X	-	-	X	X	X	X	12/3/2015	
TP-23	Remedial Investigation	1-4	X	-		X	-	-	X	-	-	-	-	X	X	12/2/2015	
TP-23	Remedial Investigation	4-8	X	-		X	-	-	X	-	-	-	-	X	X	12/2/2015	
Blind Duplicate #1	Remedial Investigation	--	X	-		X	-	X	X	-	-	X	X	X	X	12/3/2015	
Blind Duplicate #2	Remedial Investigation	--	X	-		X	-		X	-	-	-	-	-	-	12/3/2015	

TABLE 1

SAMPLING AND ANALYSIS SUMMARY

229 HOMER STREET SITE
OLEAN, NEW YORK

Sample Identifier	Data Source	Depth Sampled/ Screened (fbgs)	Analysis													Date Sampled	Comments
			TCL VOCs	TCL + STARS VOCs	TO-15 VOCs	TCL SVOCs	TCL SVOCs (Base Neutrals Only)	PCBs	TAL Metals	RCRA Metals	Lead	Pesticides	Herbicides	GRO	DRO		
Subsurface Soil/Fill (Borings)																	
MW-1	Remedial Investigation	8-12	X	-		X	-	-	X	-	-	-	-	X	X	12/3/2015	
MW-2	Remedial Investigation	8-12	X	-		X	-	-	X	-	-	-	-	X	X	12/4/2015	
MW-3	Remedial Investigation	6-10	X	-		X	-	-	X	-	-	-	-	X	X	12/4/2015	
MW-4	Remedial Investigation	8-12	X	-		X	-	-	X	-	-	-	-	X	X	12/4/2015	
MW-5	Remedial Investigation	2-4	X	-		X	-	-	X	-	-	-	-	X	X	12/3/2015	
HA-01	Remedial Investigation	2-4	X	-		X	-	-	X	-	-	-	-	X	X	12/8/2015	
Air sampling																	
SUBSLAB-1	Remedial Investigation	--			X											12/8/2015	
SUBSLAB-2	Remedial Investigation	--			X											12/8/2015	
INDOOR AIR-1	Remedial Investigation	--			X											12/8/2015	
OUTDOOR AMBIENT	Remedial Investigation	--			X											12/8/2015	

TABLE 2

MONITORING WELL CONSTRUCTION DETAILS

229 HOMER STREET SITE
OLEAN, NEW YORK

Well Identification			Well Elevations				Well Diameter (inches)	Well Screen Data		
Well Number	Well Type	Date Completed	TOR Elevation (fmsl)	Ground Elevation (fmsl)	Total Depth (fbTOR)	Bottom of Well Elevation (fmsl)		Length of Well Screen (feet)	Screen Interval (fmsl)	Screen Interval (fbTOR)
MW-1	OB	12/03/2015	1424.49	1424.90	20.00	1404.49	2	10	1414.49 to 1404.49	10.00 to 20.00
MW-2	OB	12/04/2015	1424.72	1425.16	20.00	1404.72	2	10	1414.72 to 1404.72	10.00 to 20.00
MW-3	OB	12/04/2015	1424.34	1424.83	20.00	1404.34	2	10	1414.34 to 1404.34	10.00 to 20.00
MW-4	OB	12/04/2015	1425.39	1425.67	20.00	1405.39	2	10	1415.39 to 1405.39	10.00 to 20.00
MW-5	OB	12/04/2015	1425.73	1426.06	20.00	1405.73	2	10	1415.73 to 1405.73	10.00 to 20.00

Abbreviations:

DTW = depth to water
fbgs = feet below ground surface
fbTOR = feet below top of riser
fmsl = feet above mean sea level
OB = Indicates a well completed in shallow unconsolidated overburden
TOR = top of riser

TABLE 3

SUMMARY OF GROUNDWATER ELEVATIONS

229 HOMER STREET SITE
OLEAN, NEW YORK

Location	Date	Grade	TOR Elevation [1] (fmsl)	DTP (if present) (fbTOR)	DTW (fbTOR)	Product Thickness (feet)	Groundwater Elevation [2] (fmsl)
MW-1	12/7/2015	1424.90	1424.49	NP	10.00	NP	1414.49
	12/8/2015	1424.90	1424.49	NP	10.24	NP	1414.25
MW-2	12/7/2015	1425.16	1424.72	NP	11.18	NP	1413.54
	12/8/2015	1425.16	1424.72	NP	11.27	NP	1413.45
MW-3	12/7/2015	1424.83	1424.34	NP	10.73	NP	1413.61
	12/8/2015	1424.83	1424.34	NP	10.82	NP	1413.52
MW-4	12/7/2015	1425.67	1425.34	NP	10.27	NP	1415.07
	12/8/2015	1425.67	1425.34	NP	10.32	NP	1415.02
MW-5	12/7/2015	1426.06	1425.73	NP	12.02	NP	1413.71
	12/8/2015	1426.06	1425.73	NP	12.02	NP	1413.71

Notes:

1. Wells surveyed on December 11, 2015.
2. All elevations are feet above mean sea level (fmsl).

TOR = Top of riser
DTP = Depth to product
DTW = Depth to water
fb = feet below
= Most recent sampling event, elevations used to generate isopotential map.

TABLE 4

SUMMARY OF SURFACE SOIL ANALYTICAL DATA

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2]	Commerical SCOs[2]	Sample Location							
			SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	SS-7	SS-8
Semi-Volatile Organic Compounds (SVOCs) - mg/kg [3]										
Benzo(a)anthracene	**1**	**5.6**	ND	ND	ND	ND	ND	0.2 J	ND	ND
Benzo(a)pyrene	**1**	**1**	ND	ND	ND	ND	ND	0.2 J	ND	ND
Benzo(b)fluoranthene	**1**	**5.6**	ND	ND	ND	ND	ND	0.24	ND	ND
Benzo(ghi)perylene	**100**	**500**	ND	ND	ND	ND	ND	0.15 J	ND	0.031 J
Benzo(k)fluoranthene	**0.8**	**56**	ND	ND	ND	ND	ND	0.12 J	ND	ND
Chrysene	**1**	**56**	ND	ND	ND	ND	ND	0.2 J	ND	ND
Fluoranthene	**100**	**500**	0.15 J	ND	ND	0.12 J	0.023 J	0.33	0.022 J	0.043 J
Indeno(1,2,3-cd)pyrene	**0.5**	**5.6**	ND	ND	ND	ND	ND	0.14 J	ND	ND
Phenanthrene	**100**	**500**	ND	ND	ND	ND	ND	0.11 J	ND	ND
Pyrene	**100**	**500**	ND	ND	ND	ND	ND	0.28	ND	0.037 J
Organochlorine Pesticides - mg/kg [3]										
alpha-BHC	**0.02**	**3.4**	ND	--	ND	--	ND	--	ND	--
beta-BHC	**0.036**	**3**	ND	--	0.032 J	--	ND	--	ND	--
delta-BHC	**0.04**	**500**	ND	--	ND	--	ND	--	ND	--
Methoxychlor	--	--	ND	--	ND	--	ND	--	0.0031 J	--
Herbicides - mg/kg										
2,4,5-T	--	--	ND	--	ND	--	ND	--	ND	--
Silvex (2,4,5-TP)	--	--	ND	--	ND	--	ND	--	ND	--
2,4-D	--	--	ND	--	ND	--	ND	--	ND	--
PCBs - mg/kg										
Total PCBs	**0.1**	**1**	ND	--	ND	--	ND	--	ND	--
Metals - mg/kg										
Aluminum	**--**	**--**	17400	9880	4490	7980	6520	14700	16100	12500
Arsenic	**13**	**16**	**13.4**	10.2	4.8	7	6.2	11.9	**21.9**	11.9
Barium	**350**	**400**	161	96	87.6	50.6	38.3	102	348	83.6
Beryllium	**7.2**	**590**	0.89	0.47	ND	0.33	0.3	0.74	0.91	0.62
Calcium	**--**	**--**	4060	9300	48000	11600	27700	4970	7620	11800
Chromium, total	**30**	**1500**	20.3	10.3	5.8	8.8	7.2	17.1	17.6	14.1
Cobalt	**--**	**--**	12.4	8.9	3.3	6	4.6	10.9	20.5	9.4
Copper	**50**	**270**	19.9	16.7	12.3	14.4	14.4	23.1	18.9	16.3
Iron	**--**	**--**	29000^	20400^	9980^	14400^	11800	25700^	32100^	23600
Lead	**63**	**1000**	31.5	15.4	12.9	13.4	9.2	27.4	17.2	15.7
Magnesium	**--**	**--**	3820	3160	3740	2960	5330	3790	4890	5440
Manganese	**1600**	**10000**	509	689	1040	477	388	523	**2200**	543
Nickel	**30**	**310**	24.8	17.1	10.4	12.8	10.5	22.3	**31.2**	19.4
Potassium	**--**	**--**	2680	1530	760	1040	1270	2970	3700	2390
Vanadium	**--**	**--**	27	14.6	10.5	12.9	11.4	22.5	23.2	19.5
Zinc	**109**	**10000**	**162**	52.3	51.1	66.1	48.3	84.9	71.7	65.4
Mercury	**0.18**	**2.8**	0.04	ND	ND	ND	ND	ND	ND	ND

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table.
2. NYSDEC CP-51 Soil Cleanup Guidance for Gasoline and Fuel Oil Contaminated Soils, October 2010.
3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparison to Part 375.

Definitions:

ND = Parameter not detected above laboratory detection limit.
"--" = No SCO available, or parameter not tested for.
J = Estimated value; result is less than the sample quantization limit but greater than zero.
^ = ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

Exceeds Unrestricted SCOs
Exceeds Commercial SCOs

TABLE 5A

SUMMARY OF SUBSURFACE SOIL/FILL ANALYTICAL DATA (PHASE II TEST PITS)

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2] (ppm)	Commerical SCOs[2] (ppm)	PHASE II SAMPLE LOCATION					
			TP-1 6 to 8 fbgs	TP-5 7 to 9 fbgs	TP-6 6 to 8 fbgs	TP-8 3 to 5 fbgs	TP-9 3 to 5 fbgs	TP-12 5 to 7 fbgs
Photoionization Detector (PID) - S.U.								
Interval or Maximum	--	--	598 to 1014	99.6 max	561 to 702	22 to 50	0.0	698 max
Volatile Organic Compounds (VOCs) - mg/kg [3]								
Acetone	**0.05**	**500**	**0.230 J**	**0.095**	**0.200 J**	0.017 J	0.0064 J	**0.075**
2-Butanone (MEK)	**0.12**	**500**	ND	0.014	ND	ND	ND	0.013
Chloroform	--	--	ND	ND	ND	ND	ND	ND
Cyclohexane	--	--	ND	ND	0.130 J	0.029 J	ND	0.00052 J
Isopropylbenzene (Cumene)	--	--	0.031 J	ND	0.015 J	ND	ND	ND
Methylcyclohexane	--	--	0.260	0.001 J	3.4	0.250	ND	0.014
Methyl acetate	--	--	ND	ND	ND	ND	ND	ND
n-Propylbenzene	**3.9**	**500**	0.054 J	ND	ND	ND	ND	ND
p-Cymene (p-isopropyltoluene)	--	--	0.025 J	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**3.6**	**190**	0.230 J	ND	0.085 J	ND	ND	0.110
1,3,5-Trimethylbenzene	**8.4**	**190**	0.370	ND	ND	ND	ND	0.052
n-Butylbenzene	**12**	**500**	0.032 J	ND	ND	ND	ND	ND
sec-Butylbenzene	**11**	**500**	0.051 J	ND	0.150	0.0059 J	ND	0.0032
Toluene	**0.7**	**500**	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	**5.9**	**500**	ND	ND	0.026 J	ND	ND	0.0012 J
Tentatively Identified Compounds	--	--	23 J	0.750 J	41 J	4.9 J	0.270 J	0.310 J
Semi-Volatile Organic Compounds (SVOCs) - mg/kg [3]								
Acenaphthene	**20**	**500**	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	**1**	**5.6**	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	**1**	**5.6**	ND	0.066 J	ND	ND	0.710	ND
Benzo(k)fluoranthene	**0.8**	**56**	ND	ND	ND	ND	0.220	ND
Benzo(g,h,i)perylene	**100**	**500**	ND	ND	ND	ND	0.260	ND
Benzo(a)pyrene	**1**	**1**	ND	ND	ND	ND	0.430	ND
Bis(2-ethylhexyl) phthalate	--	--	ND	ND	ND	ND	ND	ND
Chrysene	**1**	**56**	ND	0.053 J	ND	ND	0.660	ND
Dibenzo(a,h)anthracene	**0.33**	**0.56**	ND	ND	ND	ND	0.091 J	ND
Fluoranthene	**100**	**500**	ND	0.110	ND	ND	1.7	ND
Fluorene	**30**	**500**	ND	ND	ND	ND	0.074 J	ND
Indeno(1,2,3-cd)pyrene	**0.5**	**5.6**	ND	0.041 J	ND	ND	0.320	ND
Phenanthrene	**100**	**500**	0.057 J	0.076 J	0.500	ND	1.6	ND
Pyrene	**100**	**500**	ND	0.088 J	ND	ND	1.1	ND
Naphthalene	**12**	**500**	--	--	--	--	--	--
2-Methylnaphthalene	--	--	0.240	ND	5.4	ND	ND	ND

TABLE 5A

SUMMARY OF SUBSURFACE SOIL/FILL ANALYTICAL DATA (PHASE II TEST PITS)

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2] (ppm)	Commerical SCOs[2] (ppm)	PHASE II SAMPLE LOCATION					
			TP-1 6 to 8 fbgs	TP-5 7 to 9 fbgs	TP-6 6 to 8 fbgs	TP-8 3 to 5 fbgs	TP-9 3 to 5 fbgs	TP-12 5 to 7 fbgs
Metals - mg/kg								
Aluminum	--	--	--	--	--	--	--	--
Arsenic	13	16	9.5	7.5	6.8	5.1	7.2	6.9
Barium	350	400	78	50	78	50	59	55
Beryllium	7.2	590	--	--	--	--	--	--
Cadmium	2.5	9.3	ND	ND	ND	ND	ND	ND
Calcium	--	--	--	--	--	--	--	--
Chromium, trivalent	30	1500	11	9.2	6.6	5.8	8.5	7.9
Cobalt	--	--	--	--	--	--	--	--
Copper	50	270	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--
Lead	63	1000	4.2	11	4	4.5	4.8	5.2
Magnesium	--	--	--	--	--	--	--	--
Manganese	1600	10000	--	--	--	--	--	--
Mercury	0.18	2.8	ND	0.04 J	0.02 J	0.03 J	0.02 J	0.03 J
Nickel	30	310	--	--	--	--	--	--
Potassium	--	--	--	--	--	--	--	--
Sodium	--	--	--	--	--	--	--	--
Vandium	--	--	--	--	--	--	--	--
Zinc	109	10000	ND	ND	ND	ND	ND	ND

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in micograms per kilogram (ug/kg) and converted to milligram per kilogram (mg/kg) for comparison to SCOs.

Definitions:

mg/kg = milligrams per kilogram.
ND = Parameter not detected above laboratory detection limit.
-- = Sample not analyzed for parameter.
"--" = No SCO available, or parameter not tested for.
J = Estimated value; result is less than the sample quantitation limit but greater than zero .
F1= MS and/or MSD Recovery is outside acceptance limits.
F2= MS/MSD RPD exceeds control limits.

Exceeds Unrestricted SCOs
Exceeds Commercial SCOs

TABLE 5B

SUMMARY OF SUBSURFACE SOIL/FILL ANALYTICAL DATA (RI TEST PITS)

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2] (ppm)	Commerical SCOs[2] (ppm)	REMEDIAL INVESTIGATION SAMPLE LOCATION																					
			TP-13 1 to 4 fbgs	TP-13 10 to 15 fbgs	TP-14 1 to 4 fbgs	TP-14 4 to 8 fbgs	TP-15 2 to 4 fbgs	TP-15 10 to 15 fbgs	TP-16 1 to 4 fbgs	TP-16 10 to 15 fbgs	TP-17 1 to 4 fbgs	TP-17 10 to 15 fbgs	TP-18 1 to 6 fbgs	TP-18 8 to 12 fbgs	TP-19 1 to 4 fbgs	TP-19 10 to 15 fbgs	TP-20 1 to 4 fbgs	TP-20 4 to 8 fbgs	TP-21 1 to 4 fbgs	TP-21 8 to 12 fbgs	TP-22 1 to 4 fbgs	TP-22 10 to 15 fbgs	TP-23 1 to 4 fbgs	TP-23 4 to 8 fbgs
Photoionization Detector (PID) - S.U.																								
Interval or Maximum	--	--	0.2	0.0	0.0	0.0	1.2	0.2	14.5 max	154 max	21.4	128 max	182.6 max	602.8 max	0.2	0.0	1.6	0.0	0.2	0.0	1.2	321.2 max	1.2 to 59.4	200 max
Volatile Organic Compounds (VOCs) - mg/kg [3]																								
Acetone	**0.05**	**500**	**0.16 B**	ND	ND	**0.055 U**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.12 B**	ND	ND	ND	ND	**0.063 U**
2-Butanone (MEK)	**0.12**	**500**	0.036 *	0.0041 J*	UJ	ND	0.0033 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.022 J*	ND	ND	ND	ND	ND
Chloroform	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	--	--	ND	ND	ND	ND	ND	ND	ND	ND	0.0089	1.2 F1 J	ND	2.5 DL	0.0012 J	ND	ND	ND	0.0066	ND	ND	0.890 U	ND	0.0028 J
Isopropylbenzene (Cumene)	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylcyclohexane	--	--	ND	ND	UJ	ND	ND	ND	ND	ND	0.01	0.87 F1 J	1.3 DL	22 DL	0.016	ND	ND	ND	0.007	ND	ND	ND	0.0011 J	0.014
Methyl acetate	--	--	ND	ND	UJ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	**0.7**	**500**	0.00055 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tentatively Identified Compounds (TICs)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gasoline Range Organics	--	--	--	ND	ND	--	ND	--	--	150 B	--	37 F1 B J	160 B	--	ND	--	--	ND	--	ND	--	170 B J	--	43 B
Semi-Volatile Organic Compounds (SVOCs) - mg/kg [3]																								
Acenaphthene	**20**	**500**	ND	ND	ND	ND	1.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	**100**	**500**	ND	ND	0.91 J F1	ND	1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	**100**	**500**	ND	ND	2.2 J F1	ND	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzaldehyde	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.17 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	**1**	**5.6**	ND	ND	**12**	ND	**13**	0.63 J	0.16 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	**1**	**5.6**	ND	ND	**13**	ND	**18 K**	0.69 J	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	**0.8**	**56**	ND	ND	**6.6 F1**	ND	ND	0.26 J	0.097 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	**100**	**500**	ND	ND	7.1 F1	ND	7.7	0.4 J	0.12 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7 J	ND
Benzo(a)pyrene	**1**	**1**	ND	ND	**9.8**	ND	**10**	0.5 J	0.14 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-ethylhexyl) phthalate	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	--	--	ND	ND	ND	ND	2.4 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	**1**	**56**	ND	ND	**10 F2**	ND	**11**	0.58 J	0.15 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	**0.33**	**0.56**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	--	--	ND	ND	ND	ND	2.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	**100**	**500**	ND	ND	19	ND	27	1	0.26	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.47 J	ND
Fluorene	**30**	**500**	ND	ND	0.63 J	ND	3.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	**0.5**	**5.6**	ND	ND	**6.7 F1 F2**	ND	**7.3**	0.37 J	0.12 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.51 J**	ND
Phenanthrene	**100**	**500**	ND	ND	5.1 F1	ND	16	0.26 J	0.11 J	ND	ND	1.3 F1 F2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	**100**	**500**	ND	ND	14	ND	19	0.86 J	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	**12**	**500**	ND	ND	ND	ND	0.63 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diesel Range Organics	--	--	--	ND	110 F1 J	--	410	--	--	1200	--	4100	340	--	ND	--	--	ND	--	ND	--	1800	--	240
Metals - mg/kg																								
Aluminum	--	--	21000	6510	17700	121000	8640	10400	16500	6280	14500	10700 J-	12500	8870	15300	12500	13700	15700	16600	8730	12800	5290	12800	7630
Arsenic	**13**	**16**	**21.6**	ND	**13.5**	9	**13.5**	8	**25.9**	6.1	12.1	8.1	8.7	8.8	**13.9**	12.5	**15.3**	10.2	**14.8**	4.7	11.8	3.9	11.9	7.6
Barium	**350**	**400**	133	33.5	106 F1 J-	91.9	93.7	140	192	67.2	150	90.5 F1 F2 J	51.4	85.9	58.5	114	111	116	94.4	56	102	31.6	74.7	86.8
Beryllium	**7.2**	**590**	1	0.26	0.97	0.53	0.74	0.43	1.1	0.3	0.73	0.56	0.63	0.46	0.73	0.59	0.71	0.62	0.67	0.38	0.72	0.26	0.65	0.38
Cadmium	**2.5**	**9.3**	ND	ND	ND	ND	0.49	ND	ND	ND	0.34	ND	ND	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	--	--	3430	1080	1470	442	21200	34300	1940	21600	5130	791 F2 J-	265	21000	143	852	812	821	619	1570	3220	750	19000	3760
Chromium, total	**30**	**1500**	21.9	7.1	20.1	12.4	10.8	12.4	18.6	6.6	16.5	11.1 J-	12.6	10	16.2	13.3	14.4	15.6	18.3	9.4	14.6	6	12.7	7.9
Cobalt	--	--	15.4	5	18	11.7	5.6	9.8	19.9	6	10.4	9	11.5	7.6	10.2	10.5	15.9	10.3	9.6	5.3	11.5	4.6	10.1	7.3
Copper	**50**	**270**	21	13.8	19.3	22	**111**	19.9	18.4	14.9	40.2	20.1 J-	17.9	20.2	18.5	23.1	19.1	15.4	12.3	21.1	15	16.8	13.5	28.5
Iron	--	--	39100	10600	33100	22800	21200	21900	41600	27200	26000	20300 J-	20300	18700	27000	26900	29100	24500	28000	12400	26600	9800	26500	16000
Lead	**63**	**1000**	27.6	6.1	18	14.9	**87.1**	9.7	27	14	**84.7**	12.6 J-	13.5	16.6	13.4	15.5	19.3	12.9	15.9	10.9	14.8	8.7	9	12.8
Magnesium	--	--	5070	1950	4910 J-	2850	3640	4890	4770	10600	3500	2530 J-	2680	8690	3110	2910	3140	3080	2980	2520	4040	1640	5040	2120
Manganese	**1600**	**10000**	660	114	666 J-	685	522	749	**1710**	**8610**	643	1020 F2 J	331	**1840**	320	766	1300	609	366	227	516	93.7	419	**2860**
Mercury	**0.18**	**2.8**	0.053	ND	ND	ND	0.08	ND	ND	ND	0.076	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	**30**	**310**	28.6	12.9	**31.3**	25.2	17.5	20.3	**35.3**	13.4	23.3	20.4	22.2	19.3	21.8	23.6	24.5	20.2	17.4	15.1	23.3	11.2	22.5	16.6
Potassium	--	--	2990	889	3430 F1 J	1520	1030	2290	3360	1010	2130	1840 F1 F2 J	1510	1740	1940	1950	2070	2170	1850	1590	2780	931	2510	1350
Sodium	--	--	ND	ND	309	ND	332	380	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	145	ND
Vandium	--	--	32.2	8.3	24.7	15.9	17.2	39.1	22	10.9	22.1	16.4 J-	16.5	15.3	22.3	17.4	21.8	22.8	27	12.1	17.6	8.7	18.3	11.9
Zinc	**109**	**10000**	80	57.5	76.6	60.3	**221**	52.5	78.6	51.7	135	58.6 J-	51.4	61	55.1	65.6	59.2	56.5	51.3	60.9	62.6	47.4	61.2	65.4

TABLE 5B

SUMMARY OF SUBSURFACE SOIL/FILL ANALYTICAL DATA (RI TEST PITS)

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2] (ppm)	Commerical SCOs[2] (ppm)	REMEDIAL INVESTIGATION SAMPLE LOCATION																				
			TP-13 1 to 4 fbgs	TP-13 10 to 15 fbgs	TP-14 1 to 4 fbgs	TP-14 4 to 8 fbgs	TP-15 2 to 4 fbgs	TP-15 10 to 15 fbgs	TP-16 1 to 4 fbgs	TP-16 10 to 15 fbgs	TP-17 1 to 4 fbgs	TP-17 10 to 15 fbgs	TP-18 1 to 6 fbgs	TP-18 8 to 12 fbgs	TP-19 1 to 4 fbgs	TP-19 10 to 15 fbgs	TP-20 1 to 4 fbgs	TP-20 4 to 8 fbgs	TP-21 1 to 4 fbgs	TP-21 8 to 12 fbgs	TP-22 1 to 4 fbgs	TP-22 10 to 15 fbgs	TP-23 1 to 4 fbgs	TP-23 4 to 8 fbgs
Organochlorine Pesticides - mg/kg [3]																							
alpha-BHC	**0.02**	**3.4**	--	ND	--	--	--	--	--	0.00044 J	--	0.00049 JNJ	--	--	ND	--	--	--	--	--	--	0.0019 J	--	--
beta-BHC	**0.036**	**3**	--	ND	--	--	--	--	--	0.00081 J	--	ND	--	--	ND	--	--	--	--	--	--	0.0043 J	--	--
delta-BHC	**0.04**	**500**	--	ND	--	--	--	--	--	ND	--	0.0011 J	--	--	ND	--	--	--	--	--	--	ND	--	--
Endosulfan sulfate	**2.4**	**200**	--	ND	--	--	--	--	--	ND	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--
Endrin ketone	**--**	**--**	--	ND	--	--	--	--	--	ND	--	ND	--	--	0.0022 NJ	--	--	--	--	--	--	ND	--	--
Methoxychlor	**--**	**--**	--	0.00057 J	--	--	--	--	--	ND	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--
Herbicides - mg/kg																							
2,4,5-T	--	--	--	ND	--	--	--	--	--	ND	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--
Silvex (2,4,5-TP)	--	--	--	ND	--	--	--	--	--	ND	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--
2,4-D	--	--	--	ND	--	--	--	--	--	ND	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--
PCBs - mg/kg																							
Total PCBs	**0.1**	**1**	--	ND	--	--	--	--	--	ND	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--

Notes:
1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in micograms per kilogram (ug/kg) and converted to milligram per kilogram (mg/kg) for comparison to SCOs.

Definitions:
mg/kg = milligrams per kilogram.
ND = Parameter not detected above laboratory detection limit.
-- = Sample not analyzed for parameter.
"--" = No SCO available, or parameter not tested for.
B = Compound was found in the blank and sample.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
J- = The analyte was positively identified; the associated numerical value is an estimated quantitiy that may be biased low.
DL = All compounds were identified in an analyisis at the secondary dilution factor.
F1= MS and/or MSD Recovery is outside acceptance limits.
F2= MS/MSD RPD exceeds control limits.
H = Sample was prepped or analyzed beyond the specified holding time.
* = LCS or LCSD is outside acceptance limits.

Exceeds Unrestricted SCOs
Exceeds Commercial SCOs

TABLE 5C

SUMMARY OF SUBSURFACE SOIL/FILL ANALYTICAL DATA (RI SOIL BORINGS)

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2] (ppm)	Commerical SCOs[2] (ppm)	REMEDIAL INVESTIGATION SAMPLE LOCATION					
			HA-01 2 to 4 fbgs	MW-1 8 to 12 fbgs	MW-2 8 to 12 fbgs	MW-3 6 to 10 fbgs	MW-4 8 to 12 fbgs	MW-5 2 to 4 fbgs
Photoionization Detector (PID) - S.U.								
Interval or Maximum	--	--	--	0.0	200 max	0.0	0.0	0.0
Volatile Organic Compounds (VOCs) - mg/kg [3]								
Acetone	**0.05**	**500**	ND	ND	**0.066 U**	0.046 U	ND	**0.054 U**
2-Butanone (MEK)	**0.12**	**500**	ND	ND	ND	ND	ND	0.0049 J*
Chloroform	--	--	0.0006 J	ND	ND	ND	ND	ND
Methylcyclohexane	--	--	ND	ND	0.026	ND	ND	ND
Tentatively Identified Compounds (TICs)	--	--	--	--	--	--	--	--
Gasoline Range Organics	--	--	ND	0.72 J	ND	ND	ND	ND
Semi-Volatile Organic Compounds (SVOCs) - mg/kg [3]								
Benzo(g,h,i)perylene	**100**	**500**	ND	ND	ND	ND	ND	0.12 J
Bis(2-ethylhexyl) phthalate	--	--	ND	ND	ND	ND	0.31	ND
Fluoranthene	**100**	**500**	ND	ND	ND	ND	0.041 J	0.32 J
Phenanthrene	**100**	**500**	ND	ND	ND	ND	ND	0.16 J
Pyrene	**100**	**500**	ND	ND	ND	ND	0.032 J	0.25 J
Diesel Range Organics	--	--	ND	9.1 J	1800	ND	10 J	7 J
Metals - mg/kg								
Aluminum	--	--	13500	10200 F1 J	8270	7960	8820	14200
Arsenic	**13**	**16**	**22.4**	4.1	8.5	7	12	11.5
Barium	**350**	**400**	79.5	59.4 F1 J-	83.9	65.8	81.4	60.6
Beryllium	**7.2**	**590**	0.76	0.53	0.38	0.38	0.43	0.61
Cadmium	**2.5**	**9.3**	ND	ND	ND	ND	ND	ND
Calcium	--	--	10300	6290 F1 F2 J-	1960	13100	1140	2900
Chromium, total	**30**	**1500**	15.7	13.6 J-	9.4	15.9	10.4	15
Cobalt	--	--	16.2	7.4	7.5	6.3	6.8	8.7
Copper	**50**	**270**	18	23.4 J-	20	19.1	17.6	17.6
Iron	--	--	29500	18100^F2 J-	14800 ^	15800 ^	19600 ^	22700 ^
Lead	**63**	**1000**	9.9	11.8	11.7	14.1	10.5	15.3
Magnesium	--	--	4830	2950 F1 J-	2750	3500	2350	2870
Manganese	**1600**	**10000**	548	277 F2 J-	231	492	263	522
Mercury	**0.18**	**2.8**	ND	ND	ND	ND	ND	ND
Nickel	**30**	**310**	27.8	24.3	18.2	15.5	17.8	17.6
Potassium	--	--	3040	1760 J-	1280	1350	1570	1970
Sodium	--	--	ND	ND	ND	182	ND	ND
Vandium	--	--	18.7	14 J-	12.7	13.3	13.4	20.7
Zinc	**109**	**10000**	64.1	79.9 F1 F2 J	66.2	52.1	54.1	45.2
Organochlorine Pesticides - mg/kg [3]								
alpha-BHC	**0.02**	**3.4**	--	--	--	--	--	--
beta-BHC	**0.036**	**3**	--	--	--	--	--	--
delta-BHC	**0.04**	**500**	--	--	--	--	--	--
Endosulfan sulfate	**2.4**	**200**	--	--	--	--	--	--
Endrin ketone	--	--	--	--	--	--	--	--
Methoxychlor	--	--	--	--	--	--	--	--

TABLE 5C

SUMMARY OF SUBSURFACE SOIL/FILL ANALYTICAL DATA (RI SOIL BORINGS)

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Unrestricted SCOs[2] (ppm)	Commerical SCOs[2] (ppm)	REMEDIAL INVESTIGATION SAMPLE LOCATION					
			HA-01 2 to 4 fbgs	MW-1 8 to 12 fbgs	MW-2 8 to 12 fbgs	MW-3 6 to 10 fbgs	MW-4 8 to 12 fbgs	MW-5 2 to 4 fbgs
Herbicides - mg/kg								
2,4,5-T	--	--	--	--	--	--	--	--
Silvex (2,4,5-TP)	--	--	--	--	--	--	--	--
2,4-D	--	--	--	--	--	--	--	--
PCBs - mg/kg								
Total PCBs	**0.1**	**1**	--	--	--	--	--	--

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives (SCOs).
3. Sample results were reported by the laboratory in micograms per kilogram (ug/kg) and converted to milligram per kilogram (mg/kg) for comparison to SCOs.

Definitions:

mg/kg = milligrams per kilogram.
ND = Parameter not detected above laboratory detection limit.
-- = Sample not analyzed for parameter.
F1= MS and/or MSD Recovery is outside acceptance limits.
F2= MS/MSD RPD exceeds control limits.
J = Estimated value; result is less than the sample quantitation limit but greater than zero .
J- = The analyte was positively identified; the associated numerical value is an estimated quantitiy that may be biased low.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.

Exceeds Unrestricted SCOs
Exceeds Commercial SCOs

TABLE 6

SUMMARY OF GROUNDWATER ANALYTICAL DATA

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	NYSDEC Class GA GWQS[2]	Sample Location and Date				
		MW-1	MW-2	MW-3	MW-4	MW-5
		12/8/2015	12/8/2015	12/8/2015	12/8/2015	12/8/2015
TCL Volatile Organic Compounds (VOCs) - ug/L						
Acetone	**50**	29	14	ND	15	37
Benzene	**1**	ND	ND	ND	**1.5**	ND
Methylcyclohexane	**--**	1.2	4.9	100 DL	1.8	52
Toulene	**5**	ND	ND	ND	0.64 J	ND
Gasoline Range Organics [C6-C10]	**--**	8.9 J	520	490 J	76	290
TCL Semi-Volatile Organic Compounds (SVOCs) - ug/L						
2-Methylnaphthalene	**--**	ND	ND	ND	ND	3.2 J
Bis(2-ethylhexyl) phthalate	**5**	ND	ND	0.68 J	ND	ND
Diethyl phthalate	**50**	ND	ND	ND	0.25 J	ND
Di-n-octyl phthalate	**50**	ND	ND	0.73 J	ND	ND
Fluorene	**50**	ND	ND	0.7 J	ND	ND
Pentachlorophenol	**1**	ND	ND	**7.1 J**	ND	ND
Phenanthrene	**50**	ND	ND	0.75 J	ND	2.8 J
Diesel Range Organics [C10-C28]	**--**	620	30,000	2600 J	690	16,000
TAL Metals - ug/L (Total)						
Aluminum	**--**	44400	42900	6400	28800 F1J	37800
Arsenic	**25**	**46**	**43**	16	**34**	**45**
Barium	**1000**	810	**1400**	450	490 F1	**1700**
Beryllium	**3**	ND	2.1	ND	ND	2
Calcium	**--**	142	246000	50300	107000	166000
Chromium	**50**	49	**58**	6.2	34 J-	42
Cobalt	**--**	26	28	ND	17	18
Copper	**200**	160	190	20	120	140
Iron	**300**	**98900**	**92500**	**45600 J**	**82000**	**79600**
Lead	**25**	**97**	**120**	14	**63**	**56**
Magnesium	**35000**	**37900.0**	**54600**	7600	20600 F1	32700
Manganese	**300**	**12000**	**4000**	**5300**	**15600 J-**	**9000**
Nickel	**100**	63	70	ND	44	57
Potassium	**--**	13700	14000	4700	10000 F1J	12400
Sodium	**20000**	**49700**	**43500**	**37400**	**32800**	**37100**
Vanadium	**--**	69	65	9.5	47 J-	60
Zinc	**5000**	280	460	59	210	320

TABLE 6

SUMMARY OF GROUNDWATER ANALYTICAL DATA

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	NYSDEC Class GA GWQS[2]	Sample Location and Date				
		MW-1	MW-2	MW-3	MW-4	MW-5
		12/8/2015	12/8/2015	12/8/2015	12/8/2015	12/8/2015
TAL Metals - ug/L (Dissolved)						
Aluminum	--	UJ	UJ	UJ	3600 J-	UJ
Barium	**1000**	470 J-	820J-	360 J-	280 J-	**1100 J-**
Calcium	--	10400 J-	150000J-	43300 J-	87900 J-	128000J-
Chromium	**50**	UJ	UJ	UJ	4 J-	UJ
Cobalt	--	UJ	UJ	UJ	4.3 J-	UJ
Copper	**200**	UJ	UJ	UJ	10 J-	UJ
Iron	**300**	**11900 J-**	**4600 J-**	**29300 J-**	**26400 J-**	**7600 J-**
Magnesium	**35000**	22300 J-	21000 J-	5700 J-	11100 J-	16500 J-
Manganese	**300**	**11200 J-**	**820 J-**	**4500 J-**	**13400 J-**	**7000 J-**
Potassium	--	3100 J-	4800 J-	3100 J-	4100 J-	3300 J-
Sodium	**20000**	**48900 J-**	**43600 J-**	**36400 J-**	**32900 J-**	**36800 J-**
Vanadium	--	UJ	UJ	UJ	5.9	UJ
Zinc	**5000**	UJ	UJ	UJ	24	UJ
Organochlorine Pesticides ug/L						
4,4'-DDD	**0.3**	0.019 J J	ND	ND	ND	0.016 JNJ
Aldrin	**ND**	ND	ND	ND	ND	ND
alpha-BHC	**0.01**	**0.012 JNJ**	ND	**0.011 JNJ**	**0.014 JNJ**	**0.015 JNJ**
beta-BHC	**0.04**	ND	ND	ND	ND	ND
delta-BHC	**0.04**	0.033 J	ND	ND	ND	0.03 J NJ
Dieldrin	**0.004**	ND	**0.022 JNJ**	ND	**0.014 JNJ**	ND
Endrin aldehyde	**5**	0.02 J	ND	ND	ND	ND
gamma-BHC(Lindane)	**0.05**	ND	ND	ND	ND	ND
gamma-Chlordane	**0.05**	ND	ND	ND	ND	ND
Herbicides ug/L						
Herbicides were not detected at concentrations above laboratory detection limits						
Polychlorinated Biphenyls (PCBs) ug/L						
Total PCBs	**0.09**	ND	ND	ND	ND	ND

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC TOGS 1.1.1 Class GA Groundwater Quality Standards (GWQS).

Definitions:

ND = Parameter not detected above laboratory detection limit.
"--" = No GWQS available.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
J- = The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
UJ = The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.

BOLD = Sample result exceeds NYSDEC Class GA GWQS

TABLE 7A

SUMMARY OF SOIL VAPOR ASSESSMENT ANALYTICAL DATA

229 HOMER STREET SITE
OLEAN, NEW YORK

Parameter [1]	Sample Location			
	Subslab-1	Subslab-2	Indoor Air-1	Outdoor Ambient
Volatile Organics Compounds (VOCs) - ug/m^3				
1,1-dichloroethene	ND (<0.81)	ND (<140)	ND (<.81)	ND (<0.79)
1,1,1-trichloroethane	ND (<1.1)	ND (<180)	ND (<1.1)	ND (<1.1)
1,2,4-Trimethylbenzene	0.59 J	ND (<160)	1.2	ND (<0.98)
1,3,5-Trimethylbenzene	0.24 J	ND (<160)	0.35 J	ND (<0.98)
2,2,4-Trimethylpentane	0.42 J	ND (<160)	0.33 J	ND (<0.93)
4-Ethyltoluene	ND (<0.98)	ND (<160)	0.38 J	ND (<0.98)
Acetone	25	ND (<2,000)	22	3.6 J
Benzene	3.7	ND (<110)	0.83	0.6 J
Carbon disulfide	2.1	ND (<260)	ND (<1.6)	0.16 J
Carbon tetrachloride	0.39 J	ND (<210)	ND (<1.3)	0.42 J
Chloromethane	1.6	ND (<170)	1.1	0.83 J
cis-1,2-dichloroethene	ND (<0.79)	ND (<130)	ND (<0.79)	ND (<0.79)
Cyclohexane	1.9	ND (<110)	0.3 J	0.2 J
Dichlorodifluoromethane	8.9	29000	6.6	2.1 J
Ethylbenzene	0.7 J	ND (<150)	0.41 J	ND (<0.87)
m,p-Xylene	2.3	ND (<360)	1.4 J	0.34 J
Methyl Butyl Ketone (2-Hexanone)	5.9	ND (<340)	ND (<2.0)	ND (<2.0)
Methly Ethyl Ketone	13	ND (<250)	3.6	0.78 J
Methylene Chloride	0.9 J	ND (<290)	0.72 J	0.75 J
n-Heptane	5.9	ND (<140)	2	0.26 J
n-Hexane	4.8	ND (<120)	0.76	0.5 J
Styrene	0.46 J	63 J	0.21 J	ND (<0.85)
tert-Butyl alcohol	4.4 J	ND (<2500)	ND (<15)	ND (<15)
Tetrachloroethene (PCE)	0.16 J	ND (<230)	ND (<1.4)	ND (<1.4)
Toluene	8.7	ND (<130)	3.9	0.84
Trichloroethene (TCE)	ND (<1.1)	ND (<180)	ND (<1.1)	ND (<1.1)
Trichlorofluoromethane	1.2	ND (<190)	1.2	1.1 J
Vinyl Chloride	ND (<0.51)	ND (<85)	ND (<0.51)	ND (<0.51)
o-Xylene	0.87	ND (<150)	0.51 J	ND (<0.87)

Notes:

1. Only those parameters detected above the method detection limit, at a minimum of one location, are presented

Definitions:

ND = Parameter not detected above laboratory detection limit.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

"--" = No value available for the parameter. Or parameter not analyzed for.

TABLE 7B

COMPARISON OF SOIL VAPOR ASSESSMENT ANALYTICAL DATA TO NYSDOH DECISION MATRICES 1 AND 2

229 HOMER STREET SITE
OLEAN, NEW YORK

Sample Location	Carbon Tetrachloride		Trichloroethene (TCE)		Vinyl Chloride		Tetrachloroethene (PCE)		1,1-Dichloroethene		cis-1,2-Dichloroethene		1,1,1 -Trichloroethane	
	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 1	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 1	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 1	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 2	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 2	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 2	Lab Reported Concentration (ug/m^3)	Soil Vapor / Indoor Air Matrix 2
Subslab-1	0.39 J	NFA	ND (<1.1)	NFA	ND (<0.51)	NFA	0.16 J	NFA	ND (<0.81)	NFA	ND (<0.79)	NFA	ND (<1.1)	NFA
Subslab-2	ND (<210)		ND (<180)		ND (<85)		ND (<230)		ND (<140)		ND (<130)		ND (<180)	
Indoor Air-1	ND (<1.3)		ND (<1.1)		ND (<0.51)		ND (<1.4)		ND (<.81)		ND (<0.79)		ND (<1.1)	
2,2,4-Trimethylpentane														
Outdoor Ambient	0.42 J		ND (<1.1)		ND (<0.51)		ND (<1.4)		ND (<0.79)		ND (<0.79)		ND (<1.1)	

Notes:
ND = Not Detected
NFA = No further action.
Samples taken during August 2014 SSV investigation.

= NYSDOH Matrix 1 Compounds
= NYSDOH Matrix 2 Compounds

TABLE 8

STANDARDS, CRITERIA, AND GUIDANCE (SCGs)

229 HOMER STREET SITE
OLEAN, NEW YORK

Citation	Title	Regulatory Agency
General		
29CFR 1910.120	Hazardous Waste Operations and Emergency Response	US Dept. of Labor, OSHA
29CFR 1910.1000	OSHA General Industry Air Contaminants Standard	US Dept. of Labor, OSHA
29CFR 1926	Safety and Health Regulations for Construction	US Dept. of Labor, OSHA
Not Applicable	Analytical Services Protocol	NYSDEC
6NYCRR Part 608	Use and Protection of Waters	NYSDEC
6NYCRR Part 621	Uniform Procedures Regulations	NYSDEC
6NYCRR Parts 750-757	State Pollutant Discharge Elimination System	NYSDEC
Not Applicable	New York State Stormwater Management Design Manual	NYSDEC
Section 404	Clean Water Act	USACE
Soil/Fill		
6NYCRR Part 375	Environmental Remediation Programs	NYSDEC
DEC Policy CP-51	Soil Cleanup Guidance	NYSDEC
NYSDEC, June 2014	Technical Guidance for Screening Contaminated Sediments: LEL/SEL	NYSDEC
Groundwater		
6NYCRR Part 700-705	Surface Water and Ground Water Classification Standards	NYSDEC
TOGS 1.1.1	Ambient Water Quality Standards and Guidance Values	NYSDEC
TOGS 2.1.3	Primary and Principal Aquifer	NYSDEC
Air		
DER-10 Appendix 1B	Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites	NYSDEC
NYSDOH, October 2006	Final - Guidance for Evaluating Soil Vapor Intrusion in the State of NY	NYSDOH
Solid Waste		
6NYCRR 360	Solid Waste Management Facilities	NYSDEC
6NYCRR 364	Waste Transporters	NYSDEC

TURNKEY ENVIRONMENTAL RESTORATION, LLC

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 9

COST ESTIMATE FOR UNRESTRICTED USE (TRACK 1) ALTERNATIVE

229 HOMER STREET SITE
OLEAN, NEW YORK

Item	Quantity	Units	Unit Cost	Total Cost	Remarks
Piping Excavation, Cutting and Cleaning	2,500	LF	$ 38	$ 95,000	Assumes 2,500 LF of piping; actual quantity unknown
Loading/Transporting to Recycling Facility	2	LF	$ 300	$ 600	
Drum Samples	3	EA	$ 700	$ 2,100	Assumes Pipes are 1/2 full (liquid/precipitate)
Loading/Trucking Drums	2	EA	$ 1,000	$ 2,000	
Off-Site Disposal Drums	37	Drums	$ 500	$ 18,398	
Subtotal:				**$ 119,000**	
Building Demolition					
Lead/Asbestos Evaluation	1	LS	$ 10,000	$ 10,000	Allowance for Hazardous Material removal
Hazardous Material Abatement	1	LS	$ 10,000	$ 25,000	
Permit & Demolition	1	LS	$ 10,000	$ 10,000	
Loading/Trucking/Disposing C&D Material	36	TON	$ 45	$ 1,598	
Subtotal:				**$ 47,000**	
Impacted Soil/Fill Removal					
Sheet Pile along RR and Building	1	EST	$ 650,000	$ 650,000	
Soil/Fill Excavation and Loading	177,822	TON	$ 6	$ 1,066,930	3.34-acre area; 20 fbgs
Transporation and Disposal at TSDF	177,822	TON	$ 32	$ 5,690,291	1.5 tons per CY
Post-Excavation Confirmatory Sampling	265	EA	$ 375	$ 99,271	
Data Validation	265	EA	$ 105	$ 27,825	
Subtotal:			.	**$ 7,535,000**	
Backfilling/Site Restoration					
Import, Backfill, Place & Compact	177,822	TON	$ 22	$ 3,912,075	
Geotextile	145,000	SF	$ 1.50	$ 217,500	
2" Rip Rap for Drainage Swale	117	TON	$ 25	$ 2,917	6-inch layer
Backfill Characterization Sampling	252	Ea	$ 100	$ 25,210	VOCs
Data Validation	252	EA	$ 25	$ 6,302	
Backfill Characterization Sampling	125	EA	$ 500	$ 62,274	SVOCs, PCBs, Pesticides, Metals
Data Validation	125	EA	$ 80	$ 9,964	
Subtotal:				**$ 4,237,000**	
Groundwater & Odor Management					
Odor Control	1	LS	$ 150,000	$ 150,000	
GW Treatment System O&M	1	LS	$ 256,880	$ 257,000	
Subtotal:				**$ 407,000**	
Subtotal Capital Cost				**$ 12,345,000**	
Contractor Mobilization/Demobilization (5%)				$ 617,250	
Health and Safety (2%)				$ 246,900	
Engineering/Contingency (35%)				$ 4,320,750	
Total Capital Cost for Unrestricted Use (Track 1) Alternative				**$ 17,530,000**	

TurnKey Environmental Restoration, LLC

Benchmark Environmental Engineering & Science, PLLC

TABLE 10

COST ESTIMATE FOR COMMERCIAL USE (TRACK 4) ALTERNATIVE (EXCAVATION)

229 HOMER STREET SITE
OLEAN, NEW YORK

Item	Quantity	Units	Unit Cost	Total Cost	Remarks
Piping Removal					
Piping Excavation, Cutting and Cleaning	4800	LF	$ 38	$ 182,400	Assumes 4,800 LF of piping; actual quantity unknown
Loading, Transportation to Recycling Facility	2	LS	$ 300	$ 600	
Drum Samples	3	EA	$ 700	$ 2,100	Assumes Pipes are 1/2 full (liquid/precipitate)
Loading/Trucking Drums	2	EA	$ 1,000	$ 2,000	
Off-Site Disposal Drums	71	Drums	$ 500	$ 35,325	
Subtotal:				**$ 223,000**	
Impacted Soil/Fill Removal					
Sheet Pile Along RR and Around Building	1	EST	$ 650,000	$ 650,000	
Excavate Clean Soils and Stockpile/Replace	23,700	CY	$ 12	$ 284,400	
Soil/Fill Excavation and Loading	37,300	TON	$ 5	$ 186,500	
Transporation and Disposal at TSDF	37,300	TON	$ 32	$ 1,193,600	1.5 tons per CY
Post-Excavation Confirmatory Sampling	136	EA	$ 375	$ 51,000	VOCs/SVOCs/Metals
Data Validation	136	EA	$ 60	$ 8,160	
Subtotal:				**$ 2,374,000**	
Backfilling/Cover System					
Grading Undisturbed Areas into Excavation	2,145	CY	$ 11	$ 23,595	
Backfilling Excavation with Crushed Gravel	40,600	TON	$ 20	$ 812,000	
Import and Place Cover Soils	3,000	TON	$ 20	$ 60,000	
Import and Place Top Soil	300	TON	$ 28	$ 8,400	
Import and Place RipRap in Ditches	200	TON	$ 32	$ 6,400	
Analytical	62	EA	$ 100	$ 6,209	VOCs
Data Validation	62	EA	$ 25	$ 1,552	
Analytical	29	EA	$ 500	$ 14,735	SVOCs, PCBs, Pesticides, Metals
Data Validation	29	EA	$ 80	$ 2,358	
Geotextile	80,000	SF	$ 1.50	$ 120,000	
Demarcation Layer	2	Rolls	$ 2,500	$ 5,000	
Site Restoration (Concrete, Landscaping, Seeding)	1	EST	$ 65,000	$ 65,000	6-inch layer
Subtotal:				**$ 1,126,000**	
Groundwater and Odor Management					
Odor Management	1	LS	$ 50,000	$ 50,000	
GW Extraction and Treatment System O&M	1	LS	$ 87,100	$ 87,100	
Subtotal:				**$ 138,000**	
Installation of Active SSD System					
Building Assessment & Performance Eval.	1	LS	$ 10,000	$ 10,000	
System Installation and Vacuum Testing	1	LS	$ 15,000	$ 15,000	
Subtotal:				**$ 25,000**	
Subtotal Capital Cost				**$ 3,886,000**	
Contractor Mobilization/Demobilization (5%)				$ 194,300	
Health and Safety (2%)				$ 77,720	
Engineering/Contingency (35%)				$ 1,360,100	
Total Capital Cost				**$ 5,519,000**	
Operation Maintenance & Monitoring:					
Groundwater Monitoring	39	Events	$ 5,946	$ 231,883	Quarterly (2 yrs), Semi-Annual (3 yrs), Annual (25 yrs)
Annual Certification	30	Yr	$ 2,500	$ 75,000	GW PRR
Total OM&M Cost				**$ 307,000**	
Total 30-Year Cost				**$ 5,826,000**	

TABLE 11

COST ESTIMATE FOR COMMERCIAL USE (TRACK 4) ALTERNATIVE (AS/SVE)

229 HOMER STREET SITE
OLEAN, NEW YORK

Item	Quantity	Units	Unit Cost	Total Cost
Piping Removal				
Piping Excavation, Processing, Transportation and Disposal	9600	LF	$ 38	$ 364,800
Drum Samples	7	EA	$ 700	$ 4,900
Loading/Trucking/Off-Site Disposal of Drums	75	Drums	$ 500	$ 37,500
Subtotal:				**$ 408,000**
Impacted Soil/Fill Removal				
Excavate Clean Soils and Stockpile/Replace	3,200	CY	$ 12	$ 38,400
Soil/Fill Excavation and Loading	5,120	TON	$ 5	$ 25,600
Transportation and Disposal, Fees and Taxes	5,120	TON	$ 35	$ 179,200
Odor and Dust Management	1	LS	$ 16,000	$ 16,000
Excavation Dewatering and Treatment	1	LS	$ 20,000	$ 20,000
Post-Excavation Confirmatory Sampling	40	EA	$ 375	$ 15,000
Data Validation	40	EA	$ 60	$ 2,400
Subtotal:				**$ 297,000**
Air Sparge/Soil Vapor Extraction System				
Pilot Study	1	LS	$ 30,000	$ 30,000
Remedial Design and Specifications	1	LS	$ 17,500	$ 17,500
AS/SVE System Construction				
AS/SVE Wells Drilling	1	LS	$ 56,300	$ 56,300
Force Main	1	LS	$ 116,500	$ 116,500
AS/SVE Systems, Biofilter, Electrical	1	LS	$ 236,700	$ 236,700
Subtotal:				**$ 457,000**
Backfilling/Cover System				
Cover System and Stormwater Engineering Report	1	LS	$ 5,000	$ 5,000
Cover Soil/Topsoil Characterization	1	LS	$ 4,000	$ 4,000
Excavation of Upper One Foot of Soil- Entire Site Area	7,600	T	$ 5	$ 38,000
Imported Bank Run Gravel (Material and Transportation)	7,600	T	$ 16	$ 121,600
Backfilling/Compaction	7,600	T	$ 5	$ 38,000
Import and Placement of Cover Soil and Top Soil in Vegetated Areas	1,800	T	$ 24	$ 43,200
Import and Placement of Cover Soil in Ditch	300	T	$ 16	$ 4,800
Import and Placement of Riprap in Ditch	200	T	$ 33	$ 6,600
Demarcation Material, Shipping and Handling	1	EST	$ 3,200	$ 3,200
Landscaping	1	LS	$ 6,000	$ 6,000
Hydroseed/Fertilize/Watering	1	EST	$ 5,000	$ 5,000
Transporation and Disposal, Fees and Taxes	2,400	TON	$ 35	$ 84,000
Subtotal:				**$ 359,400**
Installation of Active SSD System				
Building Assessment & Performance Eval.	1	LS	$ 10,000	$ 10,000
System Installation and Vacuum Testing	1	LS	$ 25,000	$ 25,000
Subtotal:				**$ 35,000**
Subtotal Capital Cost				**$ 1,557,000**
Contractor Mobilization/Demobilization (5%)				$ 77,850
Health and Safety (2%)				$ 31,140
Engineering, Construction Management, Reporting and Contingencies (35%)				$ 544,950
Total Capital Cost				**$ 2,211,000**
Operation Maintenance & Monitoring:				
Groundwater Monitoring	32	Events	$ 8,800	$ 281,600
Groundwater Monitoring Well Decommissioning	1	LS	$ 12,000	$ 12,000
AS/SVE System	3	Yrs	$ 135,000	$ 405,000
AS/SVE System Decommissioning	1	LS	$ 50,000	$ 50,000
Annual Certification	30	Yr	$ 2,000	$ 60,000
Total OM&M Cost				**$ 809,000**
Total 30-Year Cost				**$ 3,020,000**

Note: All quantities are estimates and subject to change.

TABLE 12

COMPARISON OF REMEDIAL ALTERNATIVES

229 HOMER STREET SITE
OLEAN, NEW YORK

Remedial Alternative	NYSDEC DER-10 Evaluation Criteria								
	1. Overall	2. SCGs	3. Eff & Perm	4. Reduction	5. Imp & Eff	6. Implement	7. Cost Eff	8. Community	9. Land Use
Alternative 1 - No Further Action						✓	$0	TBE	
Alternative 2 - Track 1 Cleanup	✓	✓	✓				$17.5 million	TBE	✓
Alternative 3 - Track 4 Cleanup (Excavation)	✓	✓	✓	✓		✓	$5.8 million	TBE	✓
Alternative 4 - Track 4 Cleanup (AS/SVE)	✓	✓	✓	✓	✓	✓	$3.0 million	TBE	✓

Notes:

1. Overall Protectiveness of Public Health and the Environment
2. Compliance with Standards, Criteria, and Guidance (SCGs)
3. Long-Term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment
5. Short-Term Impacts and Effectiveness
6. Implementability (Technical and Administrative)
7. Cost Effectiveness
8. Community Acceptance
9. Land Use

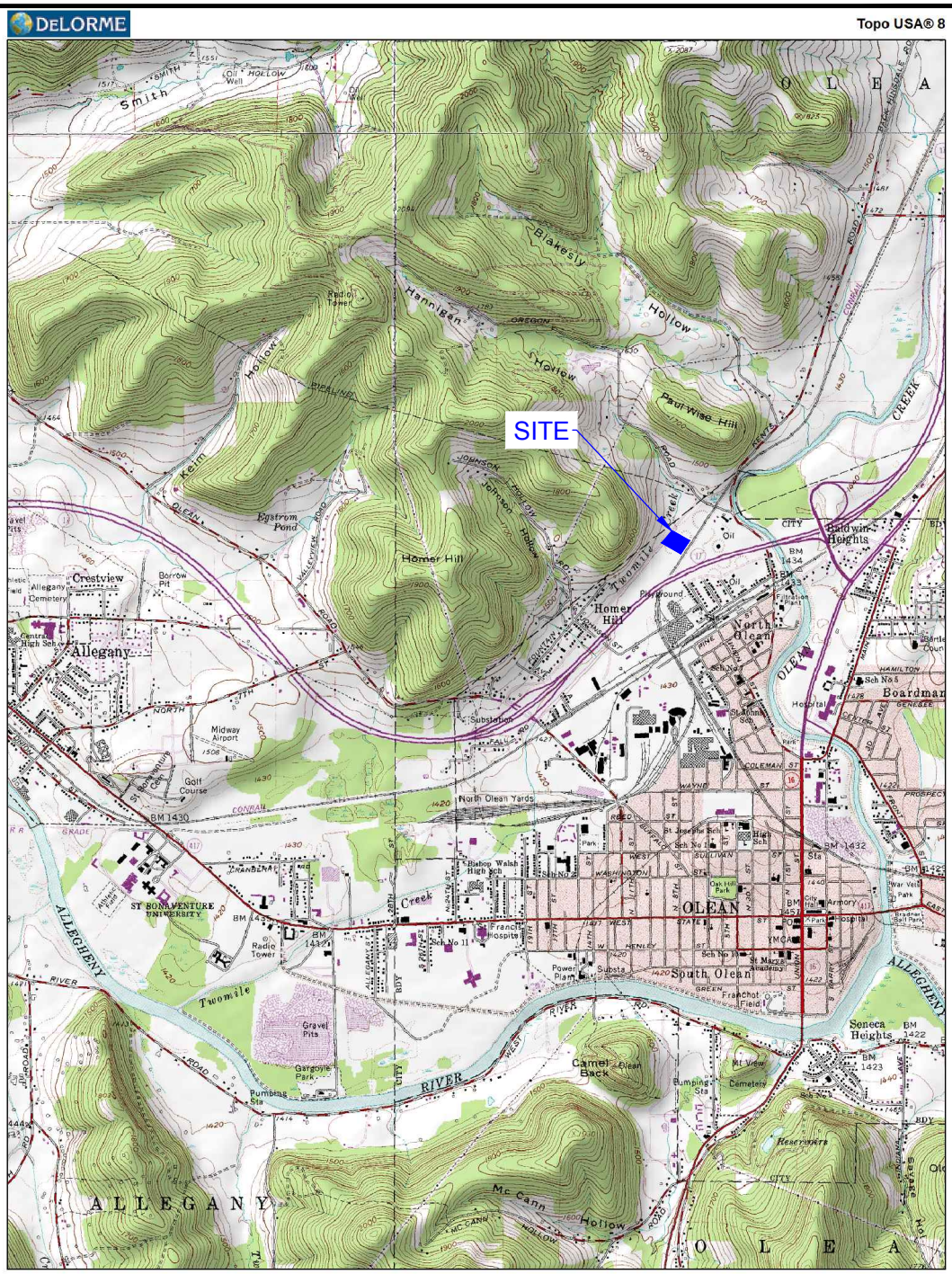
✓ = Alternative satisfies criterion

TBE = To be evaluated following public comment period

FIGURES

F:\CAD\TurnKey\Benson\229 Homer Street\Revised AA Report\Figure 1; Site Location and Vicinity Map.dwg

FIGURE 1



TurnKey Environmental Restoration, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0225-015-002

DATE: JUNE 2017

DRAFTED BY: RFL

SITE LOCATION AND VICINITY MAP

REVISED AA REPORT

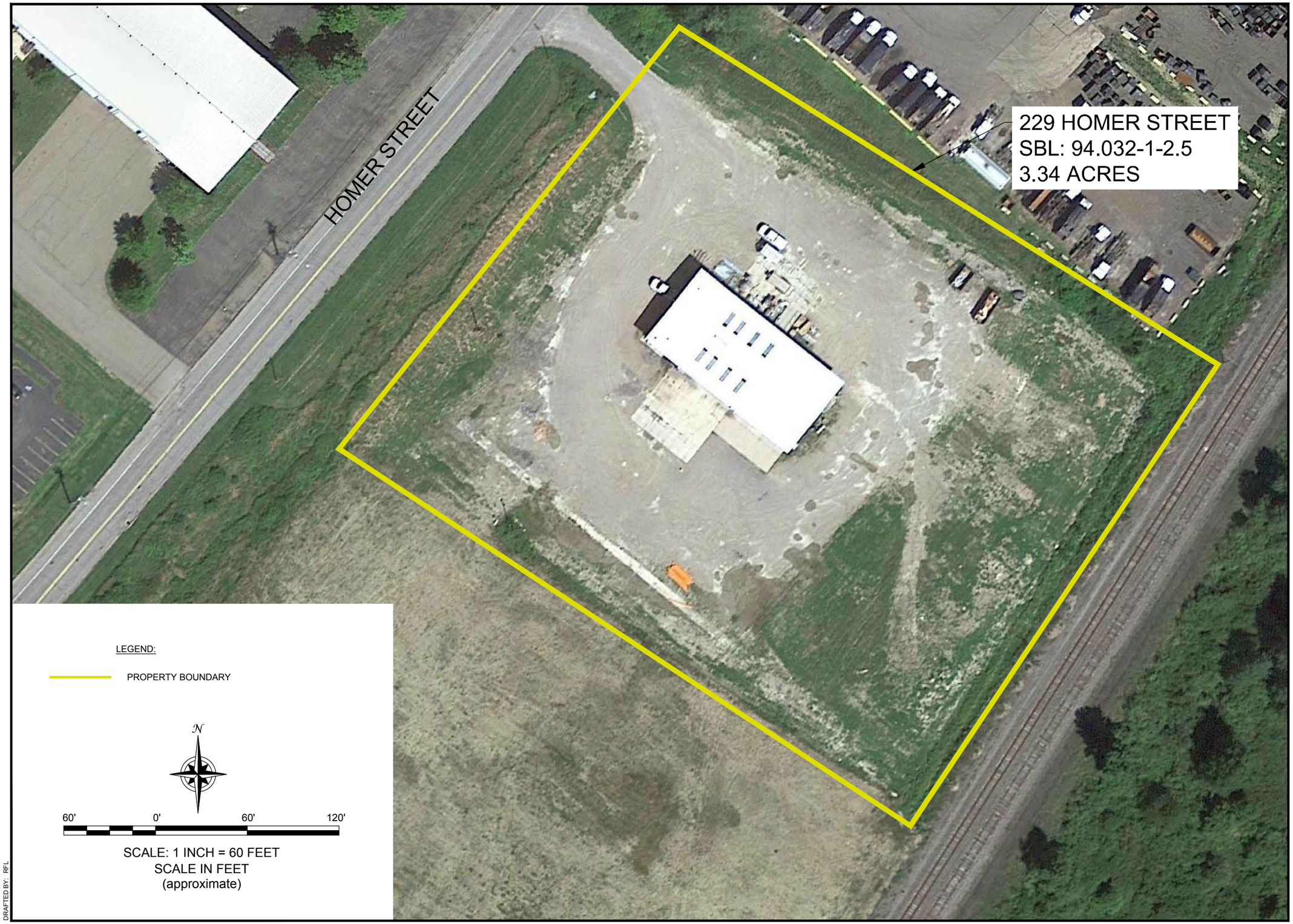
229 HOMER STREET SITE

OLEAN, NEW YORK

PREPARED FOR

BENSON CONSTRUCTION AND DEVELOPMENT, LLC

F:\CAD\TurnKey\Benson\229 Homer Street\Revised AA Report\Figure 2; Site Plan (aerial).dwg



LEGEND:

PROPERTY BOUNDARY

N

60' 0' 60' 120'

SCALE: 1 INCH = 60 FEET
SCALE IN FEET
(approximate)

DATE: JUNE 2017
DRAFTED BY: RFL

SITE PLAN (AERIAL)

REVISED AA REPORT
229 HOMER STREET SITE
OLEAN, NEW YORK
PREPARED FOR
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JOB NO.: 0225-015-002

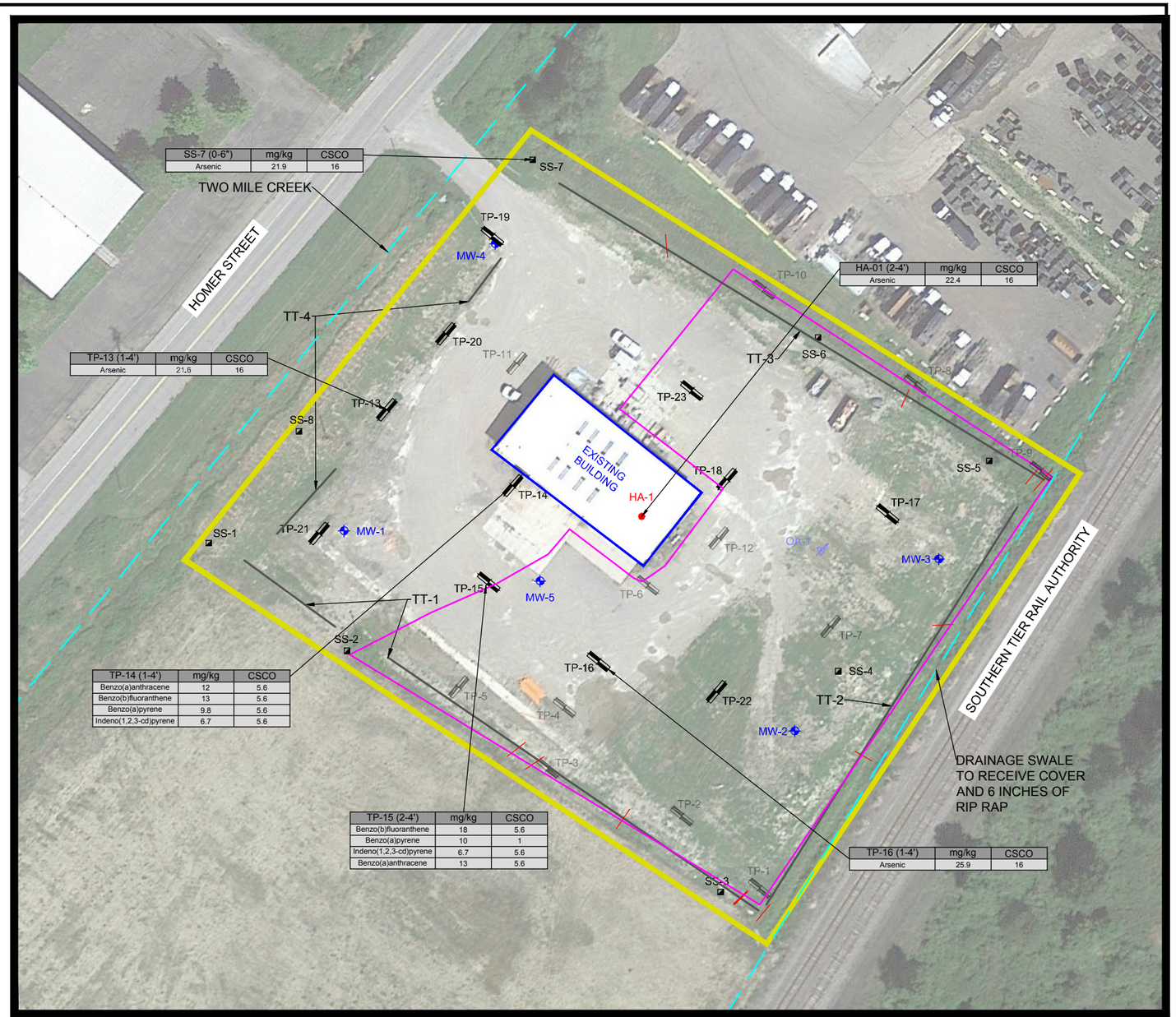
FIGURE 2

TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0635

F:\CAD\TurnKey\Benson\229 Homer Street\Revised AA Report\Figure 3, Track 4 Cleanup.dwg

LEGEND:

- SITE BOUNDARY
- GENERAL AREA OF PETROLEUM IMPACT
- IN PLACE PIPING ENCOUNTERED
- TEST TRENCH (4)
- TP-1 — PHASE II TEST PIT LOCATION (12)
- SS-1 — SURFACE SOIL SAMPLE (8)
- MW-1 — MONITORING WELL (5)
- TP-13 — RI TEST PIT (11)
- HA-1 — INTERIOR SOIL BORING



SAMPLE DESIGNATION → TP-15 (2-4')
ANALYTES → Benzo(b)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(a)anthracene
SOIL CONCENTRATION DETECTED → mg/kg: 18, 10, 6.7, 13
CONCENTRATION IN UNITS OF MG/KG → CSCO: 5.6, 1, 5.6, 5.6

NOTES:
1. ONLY ANALYSES EXCEEDING COMMERCIAL SOIL CLEANUP OBJECTIVES (CSCOs) SHOWN.
2. MG/KG = MILLIGRAMS PER KILOGRAM

N

80' 0' 80' 160'

SCALE: 1 INCH = 80 FEET
SCALE IN FEET
(approximate)

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SUITE 300
BUFFALO, NY 14218
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TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0225-015-002

GENERAL AREA OF PETROLEUM IMPACT FOR COMMERCIAL USE (TRACK 4) CLEANUP

REVISED AA REPORT

229 HOMER STREET SITE

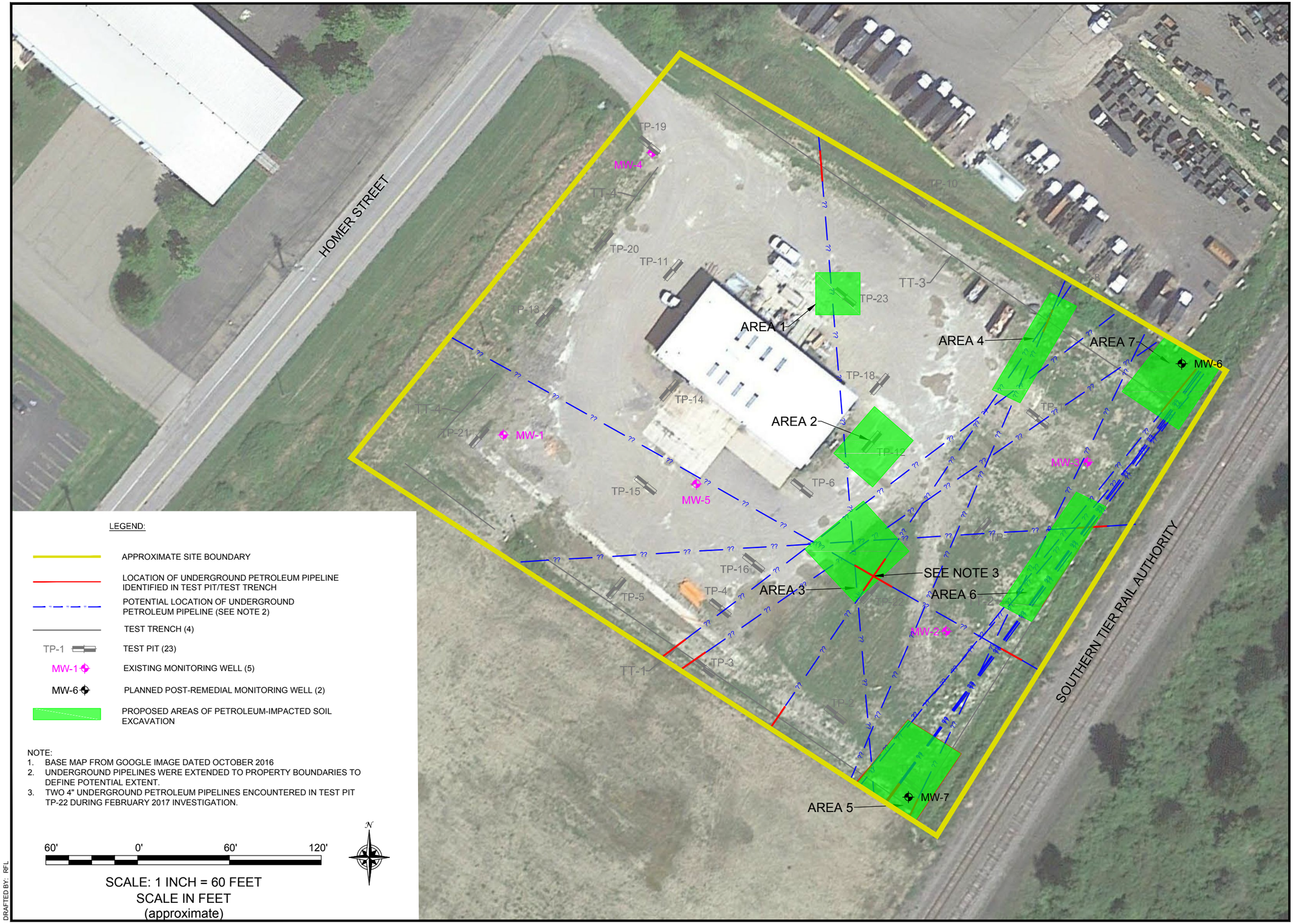
OLEAN, NEW YORK

PREPARED FOR

BENSON CONSTRUCTION AND DEVELOPMENT, LLC

FIGURE 3

F:\CAD\TurnKeyBenson\229 Homer Street\Revised AA Report\Figure 4; Pipes and Hot Spot Remediation.dwg



LEGEND:

- APPROXIMATE SITE BOUNDARY
- LOCATION OF UNDERGROUND PETROLEUM PIPELINE IDENTIFIED IN TEST PIT/TEST TRENCH
- POTENTIAL LOCATION OF UNDERGROUND PETROLEUM PIPELINE (SEE NOTE 2)
- TEST TRENCH (4)
- TP-1 TEST PIT (23)
- MW-1 EXISTING MONITORING WELL (5)
- MW-6 PLANNED POST-REMEDIAL MONITORING WELL (2)
- PROPOSED AREAS OF PETROLEUM-IMPACTED SOIL EXCAVATION

NOTE:
1. BASE MAP FROM GOOGLE IMAGE DATED OCTOBER 2016
2. UNDERGROUND PIPELINES WERE EXTENDED TO PROPERTY BOUNDARIES TO DEFINE POTENTIAL EXTENT.
3. TWO 4" UNDERGROUND PETROLEUM PIPELINES ENCOUNTERED IN TEST PIT TP-22 DURING FEBRUARY 2017 INVESTIGATION.

60' 0' 60' 120'

SCALE: 1 INCH = 60 FEET
SCALE IN FEET
(approximate)

N

DATE: JUNE 2017
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SUITE 300
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JOB NO.: 0225-015-002

PIPING AND GCS REMOVAL FOR COMMERCIAL USE (TRACK 4) CLEANUP

REVISED AA REPORT

229 HOMER STREET SITE

OLEAN, NEW YORK

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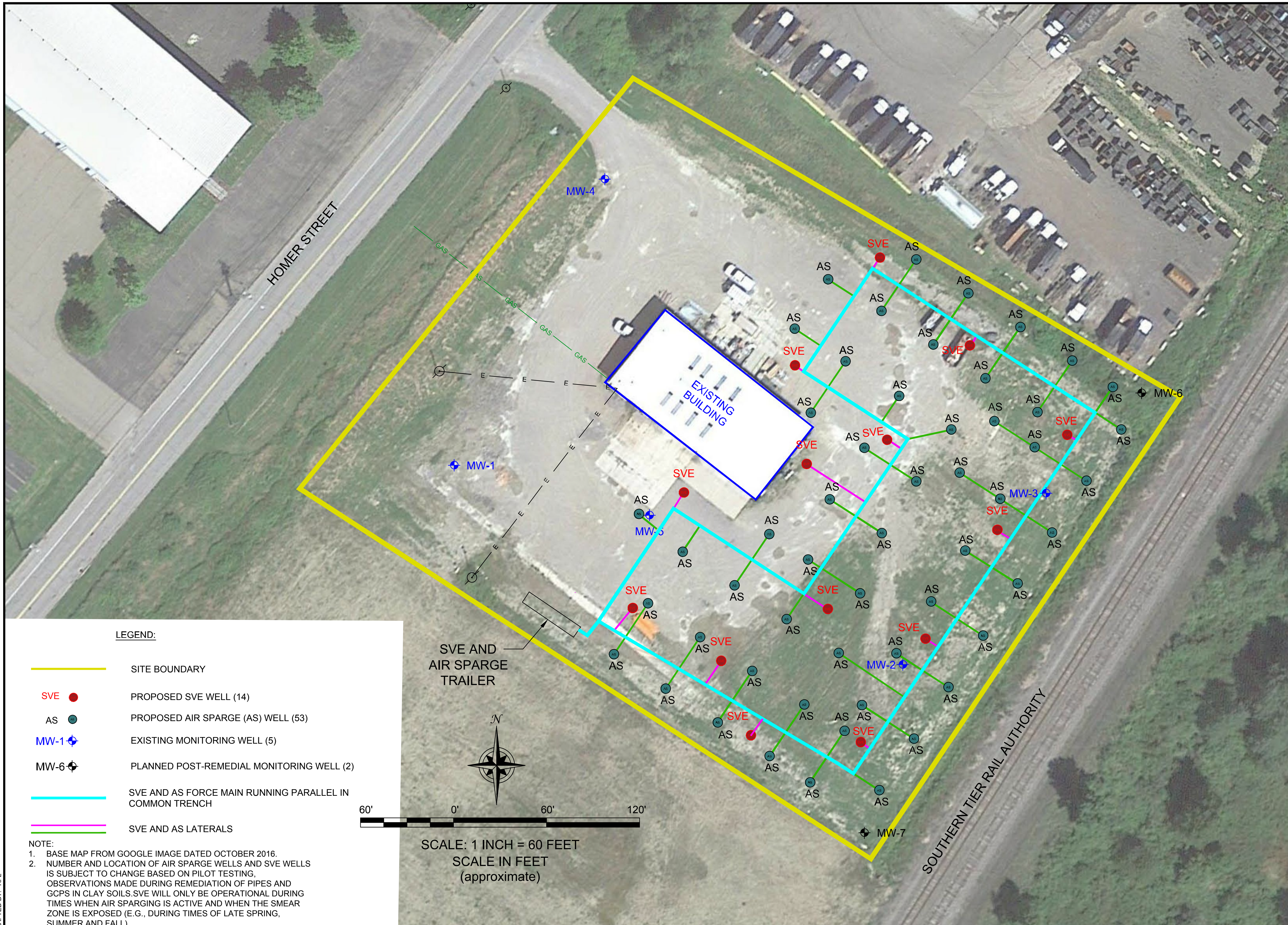
FIGURE 4

F:\CAD\TurnKey\Benson\229 Homer Street\Revised AA Report\Figure 5; SVE and AS Insitu Remediation.dwg



NOTE:
1. BASE MAP FROM GOOGLE IMAGE DATED OCTOBER 2016.
2. NUMBER AND LOCATION OF AIR SPARGE WELLS AND SVE WELLS IS SUBJECT TO CHANGE BASED ON PILOT TESTING, OBSERVATIONS MADE DURING REMEDIATION OF PIPES AND GCPS IN CLAY SOILS.SVE WILL ONLY BE OPERATIONAL DURING TIMES WHEN AIR SPARGING IS ACTIVE AND WHEN THE SMEAR ZONE IS EXPOSED (E.G., DURING TIMES OF LATE SPRING, SUMMER AND FALL).

DATE: JUNE 2017
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2558 HAMBURG TURNPIKE
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JOB NO.: 0225-015-002

CONCEPTUAL INSITU AS/SVE FOR COMMERCIAL USE (TRACK 4) CLEANUP

REVISED AA REPORT

229 HOMER STREET SITE

OLEAN, NEW YORK

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FIGURE 5