TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

SOIL MANAGEMENT PLAN

SEWELL STREET SITE DEVELOPMENT
SEWELL STREET GROVELAND, MA 01834

Prepared for:
Sewell Street Materials, LLC
7 Hemlock Lane
Groveland, MA 01834

Prepared by:
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867

August 22, 2018

Updated: November 14, 2019

Sewell Street Materials, LLC
Sewell Street Reclamation Project
Soil Management Plan - August 22, 2018
Revision Tracking

Date	Section	Page Number	Revision
November 2019	3.0	pg.4	**Chemical Criteria Section**; Added language to the 3rd paragraph to further clarify laboratory reporting limit requirements. Added language to the 4th paragraph to further clarify laboratory reporting limit requirements.
	3.2	Table 1, pg. 11-12	**Updated Table 1;** • Total Metals: Acceptance criteria limits changes to be consistent with Saugus and or other reclamation facilities • SVOCs: Acceptance criteria limits changes to be consistent with Saugus and or other reclamation facilities. All other SVOCs not listed will be considered on a case by case basis. • Total VOCs added text: "To be considered on a case by case basis" • Pesticides and Herbicides added Text: "To be considered on a case by case basis"
	3.2	Table 1, notes, pg. 12	**Updated Table 1, Notes** 1. VOCs shall be less than 10% of their RCS-1 value or 0.1 mg/kg, whichever is greater. To be considered on a case by case basis. 2. In addition, or in lieu of TPH, the summation of extractable petroleum hydrocarbons (EPH) fractions may be utilized for TPH comparison and acceptance on a case by case basis. 3. Pesticides and Herbicides must not be detected at applicable RCS-1 levels and at MassDEP Compendium of Analytical Methods appropriate levels. 4. Soil with odor control agent applied at point of origin may be considered. MSDS and other product information must be provided for review prior to acceptance. 5. Total organic vapor screening following MassDEP Jar Headspace Screening Procedures referenced in Policy #WSC 94-400 Attachment 2 modified to use isobutylene response factor.
	Appendix E-2	32	Added Source Profile

TABLE OF CONTENTS

1.0 BACKGROUND

The proposed Reclamation project location is Sewell Street in Groveland, Massachusetts and is identified as the parcel in Plan Book 424, Plan 29. The subject site is located at the end of Sewell Street and Nelson Street and is zoned Industrial in the Town of Groveland

Historically, the site was used as a quarry for the production of gravel and most recently as a fill location for the Central Artery / Tunnel project. However, no significant amounts of materials were brought to the site by this project and the pit remains essentially empty.

Site access is located off Sewell Street and the site is being prepared for the construction of industrial condominiums. The proposed project includes the clearing of minor scrub bushes. No clearing or disturbance will take place within 100-feet of any wetlands, as indicated on the site plans. The site has been defined as a potential habitat for threatened Blanding Turtles and Blue Spotted Salamanders and has been addressed by Oxbow Associates, Inc. as detailed in Appendix A MESA and Wetlands Permitting for Quarry Reclamation Project. There will be no new impervious area added as part of the proposed clearing project. The project will include semi-permanent placement of silt fence along the site boundaries and will serve as a visible and physical barrier between the work area and surrounding properties.

It is anticipated that the reclamation project will accept 225,000-cubic yards of material and will be completed in approximately 1.5 years. This is based upon the size of the area to be filled; projections of volumes of fill material likely available and anticipated daily operations at the site. The Property owner including "involved parties" identified in section 2.0 of this Plan have met with the Town on several occasions regarding this project, see Appendix B.

An electronic Notice of Intent (eNOI) and a Storm Water Pollution Prevention Plan (SWPPP) were prepared and implemented in accordance with United States Environmental Protection Agency (USEPA) National Pollutant Discharge Elimination System (NPDES) requirements for a Construction General Permit (CGP) disturbing over 1 acre of land. A copy of the SWPPP along with the eNOI is included in Appendix C.

1.1 TOPOGRAPHY, GEOLOGY AND SOILS

The topography of the site consists of a relatively flat-bottomed quarry with a steep blasted edge along the western side of the pit. The highest elevation on the site exists in the southwest corner of the property and is approximately 153 feet (NAD 83) and the lowest elevation on the site exists at the edge of the northeast corner along Sewell Road and is approximately 78 feet (NAD 83).

1.2 GROUNDWATER MONITORING

A total of four (4) groundwater monitoring wells were installed as shown on the construction drawings, included herein, to establish background levels for groundwater at the project site and to complete annual monitoring of the groundwater. The approximate locations of the wells are shown on the enclosed Grading Plan prepared by Millennium Engineering, Inc., 62 Elm Street Salisbury, MA 01952. Based on test pitting at the site, the groundwater flow appears to be from south to north across the site. The four (4) monitoring wells were installed a minimum of 10-feet into groundwater by drilling or coring into rock.

Appendix D-1 includes a copy of the Well Installation Reports for MW-1, MW-2, MW-3 and MW-4.

The wells will be sampled using low-flow sampling procedures, and the first round of samples will be analyzed for the presence of polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), total MCP-14 metals, volatile organic compounds (VOCs), herbicides, pesticides, and extractable petroleum hydrocarbons (EPH). Samples collected for MCP-14 metals shall include both filtered and unfiltered containers; the unfiltered sample containers shall be analyzed initially by the laboratory, with an option to analyze the filtered sample should the unfiltered samples contain elevated levels of the MCP-14 metals.

Following the first round of sampling, the groundwater monitoring wells will be sampled on an annual basis through the duration of the project. All rounds of groundwater sampling will be performed under the direct supervision of the Project LSP who will be present on-site when sampling occurs. After the initial sampling round, and dependent on analytical results, the testing parameters for the annual testing may be limited to VOCs and MCP-14 metals. The final sampling will include all testing parameters.

The results of the sampling data will be added to this plan as Appendix D-2 as obtained. A final sampling event will be performed two (2) years after completion of the project.

2.0 PARTIES INVOLVED

Several parties will be involved with the placement of fill material associated with the project at Sewell Street.

Property Owner:
Groveland Realty Trust, LLC
7 Hemlock Lane
Groveland, MA 01834

Filling Operations and Site Manager:
Sewell Street Materials, LLC
7 Hemlock Lane
Groveland, MA 01834

Project LSP, Review and Approval of Submittal Packages:
Independent Consultant/MA Licensed Site Professional (LSP) Services

TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
Philip M. Peterson, MSEM, LSP #5753
William J. Mallio, Ph.D., LSP #4966

3.0 SOIL ACCEPTANCE CRITERIA

Soil Acceptance Criteria has been established for various constituents in soil intended for use as fill material at the Sewell Street site. The criteria were based on review of available and applicable soil standards, guidelines, values, criteria, and background levels established by the Massachusetts Department of Environmental Protection (MassDEP) in various regulations, guidelines, and MassDEP technical guidance documents including the Interim Policy on the Re-Use of Soil for Large Reclamation Projects, Policy #COMM-15-01 dated August 28, 2015, the Similar Soils Provision Guidance WSC#-13-500 dated September 4, 2014 (Similar Soils Guidance) and concentration ranges of typical contaminants detected in historic urban fill, naturally-deposited soil, Boston Blue Clay, and other soil.

The site is classified as an RCS-1 site. The Acceptance Criteria were established to be protective of surrounding natural resource areas including nearby wetland areas.

GROUNDWATER CLASSIFICATION

A portion of the site is located within a Current Drinking Water Source Area:

(a) MassDEP Phase I Site Assessment Map (see Figure 1) and MassGIS mapping (see Figure 4) shows a portion of the site is located within the Zone II for a public water supply. As discussed further herein, only soil that meets the requirements for less than RCS-1 will be accepted and placed within the filling area including the area designated as a Zone II.

(b) MassDEP Phase I Site Assessment Map shows the site is not within the Interim Wellhead Protection Area for a public water supply;

(c) A review of MassGIS mapping and the MassDEP Phase I Site Assessment Map shows the site is not within the Zone A of a Class A surface water body used as a public water supply; and

(d) A review of the Town of Groveland Board of Health drilling permits, and interviews with the Board of Health and Water and Sewer Commission employees revealed the fill portion of the project is not within 500 or 1,000 feet of a private water supply well.

The site is not located within a Potential Drinking Water Source Area:

(a) A review of the Town of Groveland utilities shows the property is within 500 feet of a public water supply distribution pipeline;

(b) The property is not within an area designated by the municipality specifically for the protection of groundwater quality to ensure its availability for use as a source of potable water supply. There is no local ordinance or bylaw adopted by the municipality for protection of groundwater at the site, there is no inter-municipal agreement approved by the Town of Groveland, and no executed inter-governmental contract for the purchase or sale of drinking water derived from the site; and

(c) MassGIS mapping shows the property is not within a Potentially Productive Aquifer that has not been excluded as a Non-Potential Drinking Water Source Area. This is a non-potential Drinking Water Source as this groundwater underlies land that has been developed for heavy industry as of January 1, 1996. This Industrial Zoning Area has been in industrial use (granite quarrying and material processing) for over 120 years encompassing an area greater than 100 acres.

(d) Accordingly, the site is subject to RCGW-1 reporting criteria.

Additional Considerations

On August 1, 2018 the Massachusetts Division of Fisheries & Wildlife under the MA Endangered Species Act (G.L. c.131A) issued the Sewell Street Quarry Reclamation Project their Conservation and Management Permit No. 018-326.DFW. Attachment A includes the MA Endangered Species Act-Conservation and Management Permit No. 018-326. This Permit authorizes the Take of the State-listed Blanding's Turtle (Emydoidea blandingii), which is listed as Threatened pursuant to the MESA. The Take arises out of the acceptance of fill to reclaim an abandoned stone quarry (Phase I) and subsequent development (Phase II) of ±9.4 acres of the ±27.7 acre site located on Sewell Street in the town of Groveland, Massachusetts; parcels 47-022, 47-024, 47-025A, 47-029, 47- 030, 47-032B, 47-032D, 53-004A (Book 36048, Page 264, Southern Essex County Registry of Deeds; the "Property") and generally bound by Salem Street to the north, Uptack Avenue and undeveloped land to the east, and undeveloped land to the south and west. Attachment A includes the MA Endangered Species Act-Conservation and Management Permit No. 018-326.

Chemical Criteria

Chemical constituents within candidate soil must be less than established Acceptance Criteria. Criteria were established for the following (pursuant to DEP Policy #COMM-15-01);MCP-14 Metals, Semi-volatile Organic Compounds (SVOCs), Total Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs), pH/corrosivity, Specific Conductance, Moisture Content/Free Liquids, Reactivity (cyanide and sulfide), Ignitibility/Flash Point, Herbicides, Pesticides, and other potential constituents based on location-specific history.

Reporting limits for laboratory tests must be appropriate and adequate for evaluation and comparison to Acceptance Criteria. MassDEP Compendium of Analytical Methods (CAM) and Reporting Limits must be utilized for all CAM analytes.

For analytes with no RCS-1 values, assuming there is no reason to believe they would be present in a soil sample, the allowable limit is less than the reporting limit (RL) of that analyte as established by the "typical" CAM procedure (i.e., no need to employ special techniques like SIM).

Laboratory reporting limits must be low enough to allow comparison to Acceptance Criteria, with the exception of those volatile and semi-volatile organic contaminants listed in CAM as having poor purging efficiency/difficulties achieving reporting limits, which may be evaluated by project LSPs on a case by case basis, provided that reporting limits are less than RCS-1 concentrations. Environmental samples shall be collected, labeled, and preserved in accordance with established protocols for the respective analysis, and submitted to the analytical laboratory under chain-of-custody procedures. Laboratory environmental analyses for the following parameters shall be in accordance with the latest version of the specified test method provided in Soil Chemical Testing Requirements included in section 3.2 of this SMP.

Averaging of concentrations will not be allowed to meet Soil Acceptance Criteria. Soil containing a constituent at a concentration equal to or exceeding Soil Acceptance Criteria will not be accepted. All soil must meet Soil Acceptance Criteria as established herein.

Visual, Olfactory, and Field Screening Criteria

All soil intended for reuse in the Sewell Street Reclamation Project as filling and grading material will meet visual, olfactory and field screening criteria prior to being accepted and/or placed. Visual inspection of soil is to be performed at time of soil borings, test pits, stockpile sampling, at time of excavation, and/or upon arrival at the project site prior to acceptance and placement. R&D Site Developments, LLC will have an authorized representative on-site on a full-time basis to observe off-loading of trucks and perform visual inspections of soil.

Soil will exhibit no indication of staining or other discoloration indicative of a release or impact of oil or hazardous material or other nuisance conditions. Soil and fill materials approved for use at the property shall contain no more than 5% by volume asphalt, brick, and concrete (ABC) material. Any such ABC material must measure less than 6 inches in any dimension and acceptance of such soil will be considered on a case-by-case basis. Soil and fill materials approved for use at the property may contain only incidental, randomly dispersed, de minimis quantities of ash and/or solid wastes, as defined in 310 CMR 16.00 and 310 CMR 19.00 and be collectively present at less than 1% by volume.

Loads arriving with material not meeting acceptance criteria or determined to contain contaminants at levels at or exceeding acceptance criteria based on quality assurance/quality control sampling will be rejected and removed from the Sewell Street site at the expense of the Generator of that material. Loads not meeting acceptance criteria at the time of delivery to the project site due to debris, odors, or other nonconformance with Acceptance Criteria will be rejected prior to off-loading or reloaded immediately by the facility operator. Such loads will be removed from the project site immediately in the truck they were delivered in.

Should testing or observations indicate soil as delivered is not below Acceptance Criteria, then the Generator of that soil and the party contracting with Sewell Street Materials, LLC for placement of soil will promptly remove such soil from the project site in a time period not to exceed seven (7) days. Additional soil will not be accepted from a source where soil failed a QA/QC test or soil was rejected by the facility upon arrival, until appropriate resolution is reached. If the Generator of the soils fails to act, the rejected soil will be removed from the site within fourteen-days of delivery by R&D Site Development, LLC.

Soil will not emit nuisance odors such as petroleum, chemicals, solvent, and/or organic material/hydrogen sulfide as described on soil boring or test pit logs, stockpile-sampling plans, and/or upon arrival at the project location. Soil with natural organic/hydrogen sulfide odor that is mixed with an odor reducing agent at the location of origin will be evaluated on a case-by-case basis. The Safety Data Sheets (SDS) for all odor-reducing products are required with soil submittal packages.

Soil must be field screened for Total Organic Vapors (TOV) following the MassDEP Jar Headspace Screening Procedure (MassDEP Policy #WSC-94-400, modified to be based upon an isobutylene response factor rather a Benzene standard) at time of sample collection from borings, test pits, stockpiles or other locations or at the time of excavation and loadout. Soil must also be field screened at the time of excavation and load out to the Sewell Street site at a frequency of one (1) field screening test per approximately 50 cubic yards of soil. These samples shall be preferentially obtained from soils displaying potential signs of contamination, such as discoloration or odors, if present. Soil must contain less than 5 parts per million volume (ppmv) TOV above ambient background by the jar headspace screening procedure to meet Acceptance Criteria. Natural organic soils which exhibit TOV screening levels above 5 ppmv may be considered for acceptance on a case-

by-case basis provided the following: results of analytical testing, particularly VOC analysis, for the soil that exceeded the 5 ppmv TOV value identifies no exceedances of acceptance criteria; or source of elevated TOV screening levels can be attributed to a source other than oil or hazardous material (such as hydrogen sulfide interference on PID).

Soil mixed with bentonite, or other slurry material, will be accepted on a case-by-case basis. A description of the process and materials generating the soil with slurry must be provided. The SDS for all slurry and additive products must be submitted for review. If needed, pH must be adjusted to meet Acceptance Criteria prior to arrival at the fill site. Soil with slurry mixture is subject to field screening for pH upon arrival at the fill site and subject to rejection if Acceptance Criteria are not met.

Soil will contain no free liquid at the time of loading or upon arrival at the project site. Soil containing free liquid will be rejected upon arrival and inspection.

Source Site History and Use Criteria

Relevant site history of each soil origin/source with regard to the presence, use, disposal, and/or release of oil or hazardous material must be provided in submittal packages prior to acceptance at Sewell Street. Reports including MCP phase reports: URAMs, RAMS, LRAs, ASTM Environmental Site Assessment Reports, or similar documentation must be submitted and will be reviewed with regard to suitability of soil as fill material for this project.

Soil that meets the definition of Remediation Waste as defined in Section 40.0032 of the MCP will **not** be considered for reuse at the Sewell Street Project site.

3.1 SOIL SAMPLING APPROACH

A composite approach is preferred in obtaining samples for chemical analysis. Each composite sample subjected to chemical testing should be comprised of at least 8 sub-samples obtained throughout the area/volume being evaluated. However, in no case shall soil displaying apparent signs of contamination (i.e., staining, discoloration, odors, or elevated PID readings) be composited/mixed with soils that do not display these signs. If present, these suspicious soils shall be sampled or composited for separate analyses.

An LSP, or other qualified environmental professional, must justify the representativeness and usability of any testing data obtained from discrete soil samples or composite samples with less than 5 sub-samples.

3.2 SOIL CHEMICAL TESTING REQUIREMENTS

Testing is required on soil proposed for acceptance as fill material from sources such as developed areas with historic urban fill soil, locations identified as an MCP Disposal Site or other oil or hazardous material release or spill locations, locations with history of manufacturing or industrial use, locations with current or past chemical or petroleum storage, or soil known to contain naturally-occurring elevated levels of metals including Boston Blue Clay and soil from Worcester County with arsenic.

Upon review of initial submittal package information from a soil source, source-specific supplemental testing of specific areas for specific contaminants where the proposed soil is adjacent to other soils with exceedance(s) of acceptance criteria to define/confirm limits of acceptable soil may be required at the

discretion of the reviewing LSP prior to acceptance of proposed soil.

Required Test Parameters

Test parameters required on soil to be considered for acceptance include:

- Volatile Organic Compounds (EPA 8260)
- Semi-volatile Organic Compounds (EPA 8270 full list)
- Metals: MCP 14 metals
- PCBs
- Total Petroleum Hydrocarbons (summation of EPH Fractions may be substituted)
- Hexavalent Chromium if Total Chromium > 100 mg/kg
- pH/Corrosivity
- Specific Conductance (conductivity; may be limited based on site history)
- Field Screening for Total Organic Vapors (PID following MassDEP Jar Headspace Screening Procedure based upon an isobutylene response factor)
- Herbicides (may be excluded or limited based on site history)
- Pesticides (may be excluded or limited based on site history)
- Ignitibility/Flash point (may be excluded or limited based on site history)
- Reactive Cyanide (may be excluded or limited based on site history)
- Reactive Sulfide (may be excluded or limited based on site history)
- TCLP for any analyte exceeding EPA TCLP Trigger Values (20 times rule)
- Net Acid Generation (for shipments of blasted or excavated bedrock)
- Others as deemed prudent based on soil source site history.

Current and appropriate versions of applicable methods are to be used in accordance with the MassDEP CAM. Reporting limits for analyses must be appropriate for comparison to Acceptance Criteria. Generator and Qualified Environmental Professional/LSP must ascertain data is appropriate for use as intended.

Required Chemical Testing and Frequency

Initial testing is required at the minimum frequencies below. Additional testing may be required for the following situations when an Acceptance Criteria is exceeded within or in proximity to soil requested for reuse at Sewell Street:

	Source/Origin Description	Minimum Sampling Frequency
1	**Naturally Deposited Soils** Not from an area of known or suspected high background levels of metals, not proximate to urban fill soil, not proximate to MCP Disposal Site No industrial/commercial history. No agricultural history with likely pesticide/ herbicide use	**No testing required with Generator and Qualified Environmental Professional / LSP Statement** including documentation of site background / area conditions.
2	**Boston Blue Clay, Marine Soils, and other naturally deposited soils from known or suspected areas of elevated metals.** Not proximate to urban fill soil, Not proximate to MCP Disposal Site No industrial or manufacturing history No agricultural history with likely pesticide/herbicide use	**1 test profile per 1,000 cubic yards** (1,500 – 1,700 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of **1 sample/100 cubic yards** to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.
3	**Urban Fill Soil** Urban Fill and other soil in areas where impacts would be expected from lead paint, oils, pesticides/herbicides use, and other anthropogenic activities. No industrial or manufacturing history	**1 test profile per 500 cu yds** (750-850 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of **1 sample / 100 cubic yards** to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.

	Source/Origin Description	Minimum Sampling Frequency
4	**Industrial Soils** – Soil from current or former Industrial, Commercial, or Manufacturing site with history of Tannery, Textiles, Chemical/Paint Production, Circuit Board manufacturing, Plating/Metal finishing, Foundry operations, Coal Gasification, Dry Cleaning, Salvage Yards, or Herbicide / Pesticide use, storage or distribution facilities. No soil or fill shall be obtained from or immediately contiguous to such locations unless an LSP, LSRP, or LEP provides a report detailing why such soils conform to acceptance criteria.	Minimum **1 test profile per 500 cu yds** (750-850 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of **1 sample/100 cubic yards** to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria. Additional test parameters such as cyanide must be included as appropriate.
5	**Other** – Soil from source not otherwise described above where historic test data indicate exceedance of Acceptance Criteria, or where past use or site history indicated use or storage of oil or hazardous materials at more than household quantities, or use of pesticide/herbicides	Minimum **1 test profile per 500 cu yds** (750-850 ton). If any acceptance criteria are exceeded, supplemental in-situ or ex-situ (stockpile) samples must be obtained at a minimum frequency of **1 sample/100 cubic yards** to confirm limits of acceptable soils for the contaminant(s) that exceeded acceptance criteria.
6	Rock: Blasted or excavated ledge or bedrock.	One test for perchlorate per 500 cy, unless Generator demonstrates that no perchlorate blasting agents were used. One geochemical characterization profile per 500 cy including Acid Base Accounting and Net Acid Generation Potential
The more conservative sampling protocol shall apply to soils that meet more than one of the above		

Analytical results for VOCs, SVOCs, metals, PCBs, EPH/TPH, and Herbicides/Pesticides must be expressed on dry-weight basis. If a proposed shipment of soil falls into more than one category, the more conservative sampling protocol shall apply.

Test Data Quality and Usability

Test data provided for review and acceptance must be considered current. If aged data (greater than one (1) year old) is to be utilized for acceptance, then a statement from the qualified environmental professional making the submittal must be provided indicating site conditions have not changed since collection of data and that no documented releases that may impact site conditions have occurred since data was collected.

Prior to submittal, the environmental professional making the submittal must perform a QA/QC evaluation of the data to document that data is representative and usable for its intended purpose. This evaluation must include a justification of the representativeness of analytical data obtained for discrete soil samples or composite samples with less than 5 sub-samples.

Table 1 – Acceptance Criteria

Parameter Analyzed	Concentration In "Natural" Soil	MCP <RCS-1 Reportable Concentrations	Acceptance Criteria
MCP 14 Metals (mg/kg)			
Antimony	**1**	**20**	**<20**
Arsenic	**20**	**20**	**<20**
Barium	**50**	**1,000**	**<1000**
Beryllium	**0.4**	**90**	**<90**
Cadmium	**2**	**70**	**<70**
Chromium (Total)	**30**	**100**	**<100**
Chromium (III)	**30**	**1,000**	**<225**
Chromium (VI)	**30**	**100**	**<100**
Lead	**100**	**200**	**<200**
Mercury	**0.3**	**20**	**<20**
Nickel	**20**	**600**	**<600**
Silver	**0.6**	**100**	**<100**
Selenium	**0.5**	**400**	**<400**
Thallium	**0.6**	**8**	**<8**
Vanadium	**30**	**400**	**<400**
Zinc	**100**	**1,000**	**<1000**
Total VOCs (mg/kg)	**NA**	**NA**	**<10% RCS-1 or 0.1 mg/kg (1) (8) Whichever is greater, to be considered on a case by case basis.**
SVOCs - Targets (mg/kg)			
Acenaphthene	**0.5**	**4**	**<4**
Acenaphthylene	**0.5**	**1**	**<1**
Anthracene	**1**	**1,000**	**<1,000**
Benzo(a)anthracene	**2**	**7**	**<7**
Benzo(b)fluoranthene	**2**	**7**	**<7**
Benzo(a)pyrene	**2**	**2**	**<2**
Benzo(k)fluoranthene	**1**	**70**	**<70**
Benzo (g,h,i)perylene	**1**	**1,000**	**<1,000**
Indeno(1,2,3-cd)pyrene	**1**	**7**	**<7**
Chrysene	**2**	**70**	**<70**
Dibenzo(a,h)anthracene	**0.5**	**0.7**	**<0.7**
Fluoranthene	**4**	**1,000**	**<1,000**
Fluorene	**1**	**1,000**	**<1,000**
2-Methylnaphthalene	**0.5**	**0.7**	**<0.7**
Naphthalene	**0.5**	**4**	**<4**
Phenanthrene	**3**	**1,000**	**<10**
Pyrene	**4**	**3,000**	**<1,000**
All other SVOCs			**Considered on a case by case basis.**

Parameter Analyzed	Concentration In "Natural" Soil	MCP <RCS-1 Reportable	Acceptance Criteria
PCBs (mg/kg)	**NA**	**3**	**< 0.1**
TPH (mg/kg)	***See note 2 below***	**1000**	**<500 (2)**
Waste Characteristics			
pH (Corrosivity)	**NA**		**5-9 typical, 4-11 considered**
Reactive sulfide (mg/kg)	**NA**		**<500**
Reactive cyanide (mg/kg)	**NA**		**<250**
Pesticides and Herbicides (mg/kg)	**NA**		**<10% RCS-1 or 0.05 (3) To be considered on a case by case basis.**
Free Liquid/Paint Filter Test	**NA**		**No Free Liquid**
Flashpoint (Degrees F)	**NA**		**>140**
Conductivity (umhos/cm)	**NA**		**<2,000**

Notes:

1. VOCs shall be less than 10% of their RCS-1 value or 0.1 mg/kg, whichever is greater. To be considered on a case by case basis.
2. In addition, or in lieu of TPH, the summation of extractable petroleum hydrocarbons (EPH) fractions may be utilized for TPH comparison and acceptance on a case by case basis.
3. Pesticides and Herbicides must not be detected at applicable RCS-1 levels and at MassDEP Compendium of Analytical Methods appropriate levels.
4. Soil with odor control agent applied at point of origin may be considered. MSDS and other product information must be provided for review prior to acceptance.
5. Total organic vapor screening following MassDEP Jar Headspace Screening Procedures referenced in Policy #WSC 94-400 Attachment 2 modified to use isobutylene response factor.

4.0 SOIL SUBMITTAL PROCESS

A soil submittal package must be provided by representatives of each soil source/origin for review and approval by representatives of Sewell Street Materials, LLC. A complete submittal package will be forwarded to email: grovelandapprovals@gmail.com

The owner will perform an initial review to establish whether the submittal is complete, and soil is appropriate for reuse as fill material at Sewell Street. The submittal will then be assigned an Acceptance Code and forwarded to the Project LSP to complete a final review and approval.

An LSP Opinion, provided by the site of generation, is required for proposed soil shipments that originate from RCS-1 locations acknowledging that the RCS-1 standards are not exceeded and the LSP Opinion shall demonstrate, pursuant to the provisions of the MCP that the proposed soil is exempt from the notification requirements of the MCP and is not otherwise considered Remediation Waste.

Upon completion of the submittal review process and written determination by the Project LSP that soil meets acceptance criteria, an Acceptance Letter will be issued. The Acceptance Letter will reference the assigned Acceptance Code, will state a review of information as provided was performed and found adequate and appropriate for acceptance, the quantity of soil that is approved, any samples/soils that are not acceptable, and any other conditions applicable to the acceptance of applicable the soil. The property owner will retain soil submittal packages and Approval Letters.

A complete submittal package must contain the following:

- Soil / Site information as specified in Appendix E-1 and E-2;
- LSP/QEP Opinion Letter stating relevant site history and use, and a statement that the soil requested for acceptance at Sewell Street meets Acceptance Criteria established in this plan;
- Appropriate Shipping Papers signed by an LSP/Qualified Environmental Professional and the Generator;
- Laboratory test data reports with Chain of Custody and QA/QC for the soil samples intended for reuse at Sewell Street;
- A Data Summary Table comparing soil test data to the Sewell Street Acceptance Criteria; and
- Supplemental site investigation reports or information supporting acceptance of subject soil at Sewell Street.
- Copies of soil submittal form is included in Appendix E.
- Soil Acceptance Criteria for use in a data comparison table are listed in Table 1.

The assigned Acceptance Code must be placed at the top of each page of the intended shipping papers. Trucks will not be allowed access to the Sewell Street site without an Acceptance Code on shipping papers.

5.0 SITE ACCESS, QUANTITY DETERMINATION AND SITE REJECTION OF MATERIAL

Directions to the site are:

- ◊ Take Rt. 128 / I-95 North toward the New Hampshire border
- ◊ Take the MA-133 W exit, EXIT 54B, toward Georgetown
- ◊ Merge onto East Main St.
- ◊ E Main St becomes Salem St/MA-97
- ◊ Turn left onto Salem Street
- ◊ Turn left onto Sewell Street

Trucks will be weighed at the on-site certified scale to determine the quantity of soil delivered. Access will be through the access road into the Site and roadways will be maintained for truck access. Hours of operation are 7:00 am to 5:00 pm from Monday to Friday.

The owner maintains the appropriate equipment year-round to spread, dry, process, and compact the soils.

Loads deemed unacceptable by the Facility Operations Personnel will be rejected from the site. No additional loads will be accepted from the source in question until the Generator, Generator's LSP and the party contracting for placement of soil at Sewell Street, provide appropriate explanation and assurance that no additional similar loads will be delivered to the project site.

6.0 THIRD PARTY INSPECTOR

R&D Site Development will contract with an Independent Third Party Inspector

The Independent Third Party Inspector shall be a Licensed Site Professional, Professional Engineer, or other qualified environmental professional approved by MassDEP. They shall conduct unannounced and randomly timed monthly inspections during normal operating hours. During each inspection, at a minimum, the Independent Third Party Inspector shall:

- Observe the practices involved in the receipt and/or placement of soil and fill materials at the Property, to the extent that such activities are occurring;
- Inspect the soil and fill materials that are being unloaded and/or placed/recently placed during the inspection, if any, and inspect all areas of the Property where soil and fill materials have been placed since the previous inspection;
- Collect a grab sample of any area or load of soil that appears to be contaminated, based upon staining, discoloration, odors, or PID readings. If no area or load appears to be contaminated, collect a composite soil sample from a minimum of one load of soil being delivered or that had been delivered to the Property since the previous inspection, and submit the collected sample to a laboratory for the soil profile analyses specified in the Soil Management Plan. The composite sample shall consist of a minimum of 5 to 10 subsamples from the load(s) under evaluation.
- Inspect all erosion control measures including but not limited to, silt fence, hay bales, temporary basins and swales.

The Independent Third Party shall have the authority and shall immediately stop work on the Project for any activity that is in significant noncompliance with the approved Soil Management Plan and shall immediately notify MassDEP thereof.

The Independent Third Party shall prepare an inspection report documenting the findings for each inspection and shall submit such report to the Facility Operators and MassDEP on or before the 21st of each month.

Loads or areas of soil selected for sampling performed by the Independent Third Party Inspector will be segregated pending receipt of test results. Should the test results indicate that contaminants detected in soil are not below all Acceptance Criteria, then the Generator and/or party contracting for soil placement shall be immediately notified of the need to remove the soil from the site. If the Generator and/or party contracting for soil placement fail to remove unacceptable soil within 7 days of notification then R&D Site Development will remove the soil from the project site within 14 days of receipt of the laboratory results for proper off-site management or disposal. Groveland Realty Trust, LLC will seek recovery from the Generator and/or party contracting for soil placement for all costs associated with removal of any unacceptable soil from the Sewell Street Reclamation Project site.

Other sampling and testing may be performed by Sewell Street Reclamation Project should soil as received appear to be inconsistent with the characterization data and information used to obtain acceptance.

Soil deemed not meeting Acceptance Criteria due to debris, odors, or other observations at the time of

arrival at the Reclamation Project site will not be accepted and will be reloaded into the truck upon which it arrived and reject the load. No additional loads will be accepted from that source until appropriate explanation and assurance that no additional similar loads will be delivered to the Sewell Street Reclamation Project site is provided by the Generator, Generator's LSP, and the party contracting delivery of soil to the Reclamation Project site.

7.0 MONTHLY REPORT SUBMITTALS TO MASSDEP

Monthly reports shall be submitted electronically to MassDEP by the 21st of each month, using eDEP Transmittal Form BWSC 126, Section B(2), under a Release Tracking Number (RTN) that will be issued by MassDEP for the site.

The monthly reports shall include the following:

1. The total tons of soil received by the site in the previous month; the total tons of soil received by the site since the signing of the ACO; and the estimated total tons of capacity remaining at the site;
2. A tabulation showing the origin/addresses of the sources of soil received during the previous month:
   a. for each address, the total tons received for the month
   b. for each address, affirmation that the required PID screening at 1 sample/50 yd^3 was conducted at the point of generation, and affirmation that soil with headspace concentrations > 5 ppmV was either rejected or approved after further evaluation by an LSP.
3. A notation on any problems or issues experienced during the previous month; any noteworthy activities expected in the upcoming month, and any significant changes in the project design, schedule, or on-property contact persons
4. A report by the Independent Third Party Inspector, to include:
   - Notations on any practices that are not compliant with the SMP and/or Consent Order;
   - Notations on whether solid or hazardous waste, stained soils, odors, or sheen were observed at the fill site;
   - Notations on airborne dust and dust control measures employed;
   - Specific recommendations, if any, for repair, replacement or changes to erosion control measures at the Property;
   - Status updates of actions taken by Respondent to implement the recommendations made in prior inspection reports, if any; and
   - The results and laboratory analytical report(s) for the soil sample(s) collected during the inspection, including, but not limited to the following, providing that the testing results for a given inspection may be submitted in the next monthly report if not available for submittal with the inspection report:
     - ❖ the analytical results in a tabular format comparing the results to the Acceptance Criteria identified in the Soil Management Plan.
     - ❖ a clear statement regarding whether any of the Acceptance Criteria were exceeded.
     - ❖ the laboratory analytical reports and chain of custody documentation
5. Any other information or data deemed to be significant and/or noteworthy by the Facility Owner or Project LSP.

FIGURES

FIGURES

Figure 1

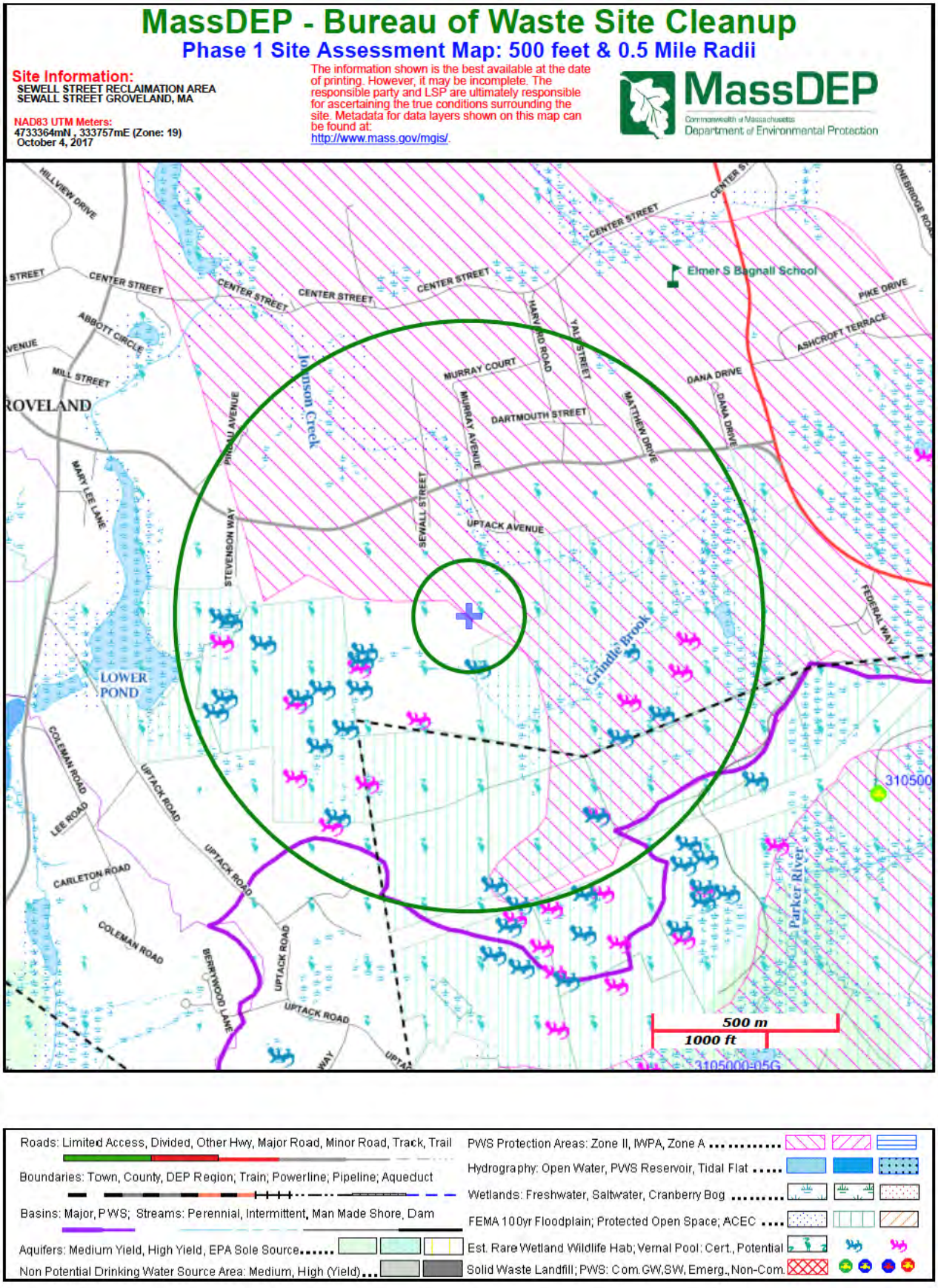
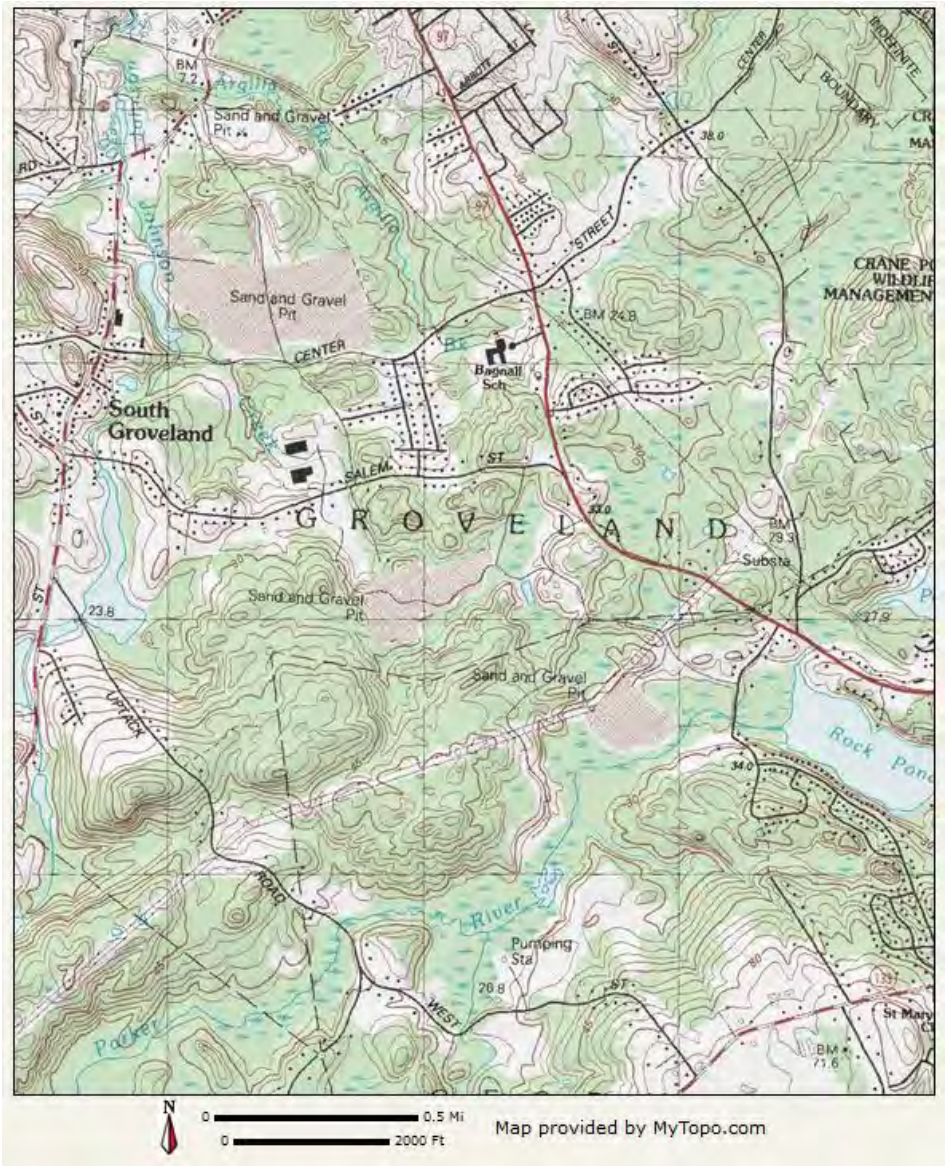

MassDEP - Bureau of Waste Site Cleanup
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii
Site Information:
SEWELL STREET RECLAIMATION AREA
SEWALL STREET GROVELAND, MA
NAD83 UTM Meters:
4733364mN , 333757mE (Zone: 19)
October 4, 2017
The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:
http://www.mass.gov/mgis/.
MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection
Elmer S Bagnall School
CENTER STREET
HILLVIEW DRIVE
ABBOTT CIRCLE
MILL STREET
ROVELAND
MURRAY COURT
DARTMOUTH STREET
MURRAY AVENUE
HARVARD ROAD
YALE STREET
MATTHEW DRIVE
DANA DRIVE
PIKE DRIVE
ASHCROFT TERRACE
PINGRY AVENUE
Johnson Creek
MARY LEE LANE
STEVENSON WAY
SEWALL STREET
UPTACK AVENUE
Grindle Brook
FEDERAL WAY
LOWER POND
COLEMAN ROAD
LEE ROAD
UPTACK ROAD
CARLETON ROAD
BERRYWOOD LANE
Parker River
310500
500 m
1000 ft
3105000-05G
Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

Figure 2



	R&D Site Development, LLC Sewell Street Groveland, MA
	FIGURE 2 TOPOGRAPHY MAP

Figure 3

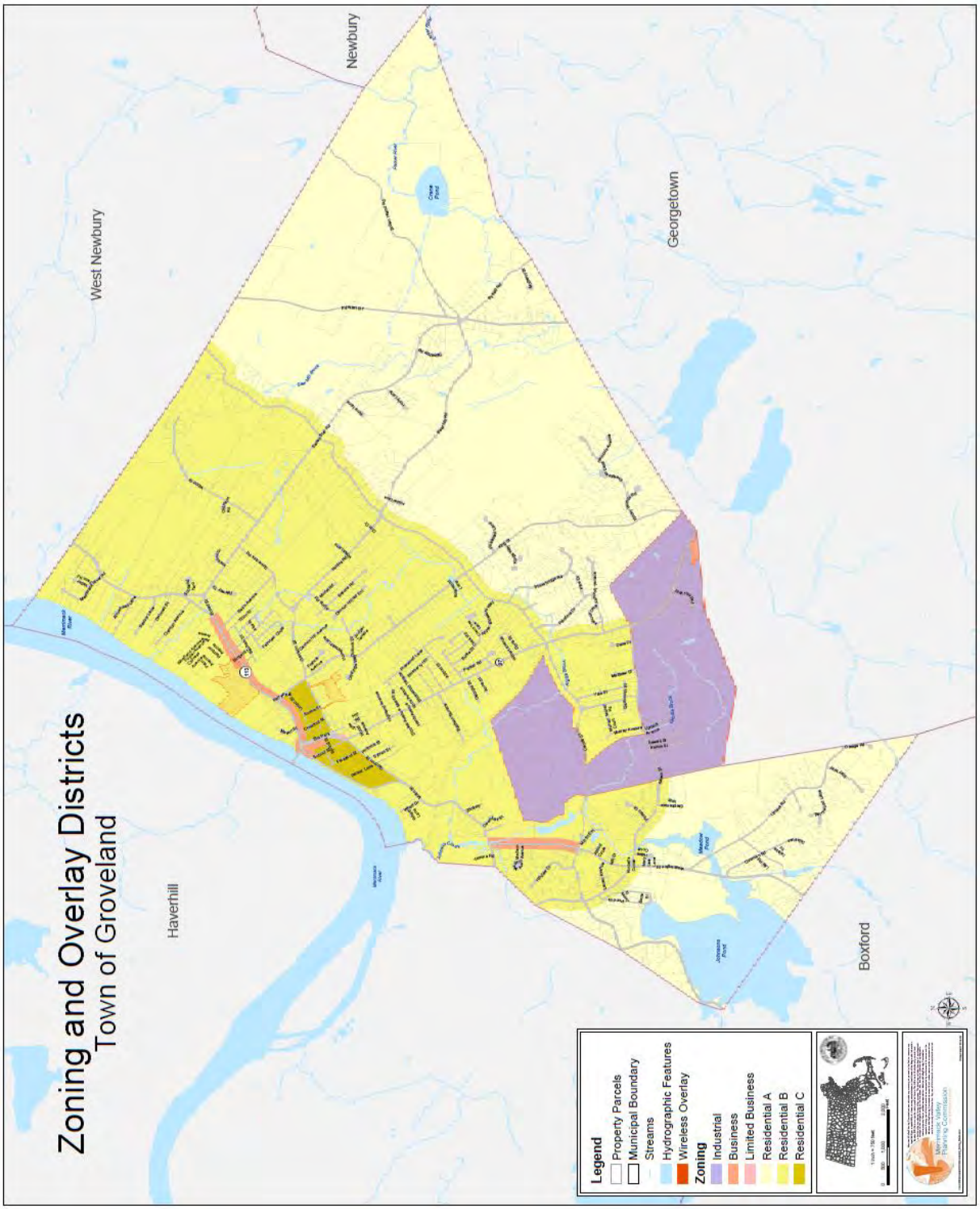
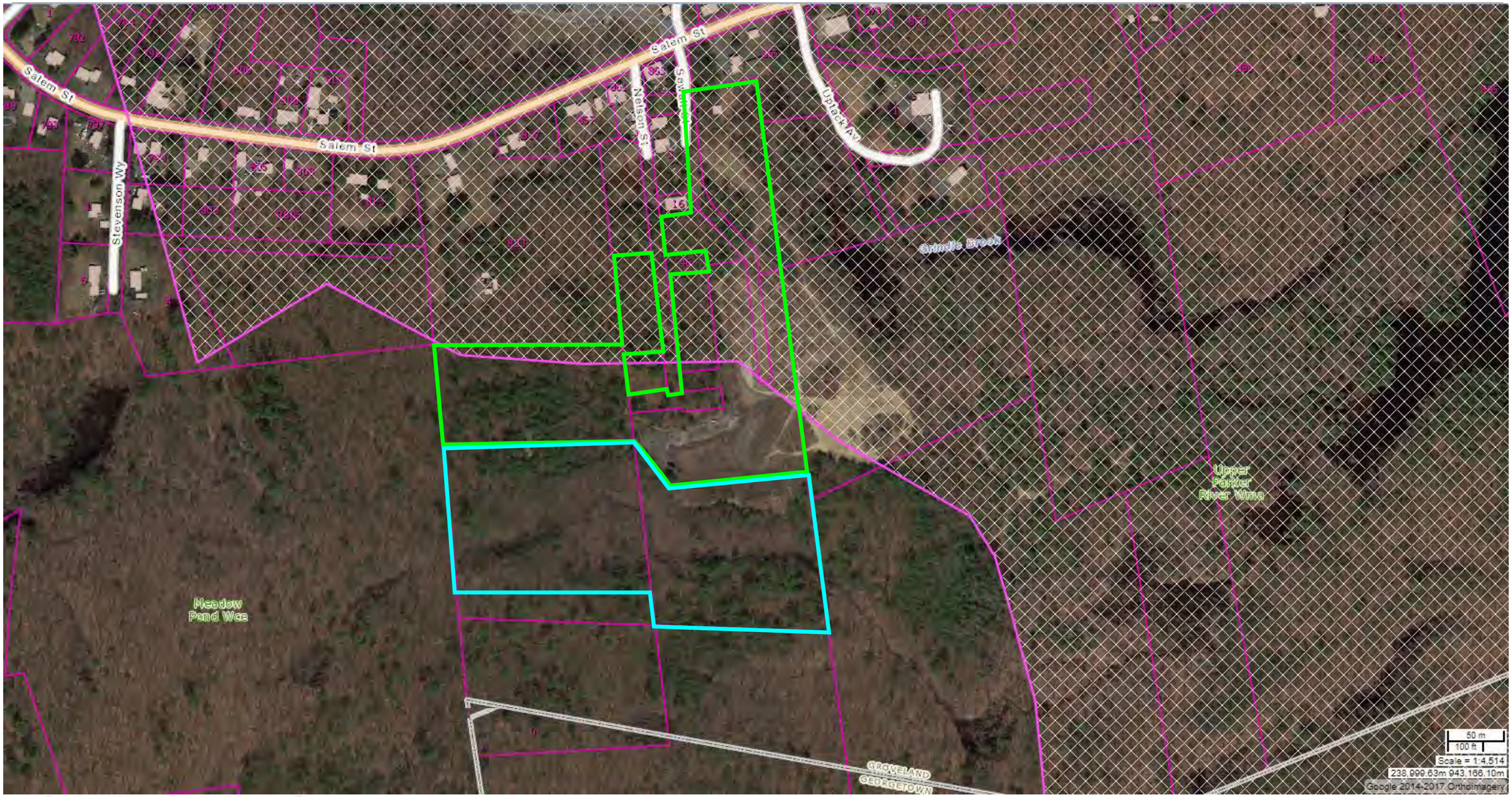

Zoning and Overlay Districts
Town of Groveland
Newbury
West Newbury
Georgetown
Haverhill
Boxford
Legend
Property Parcels
Municipal Boundary
Streams
Hydrographic Features
Wireless Overlay
Zoning
Industrial
Business
Limited Business
Residential A
Residential B
Residential C

Figure 4 MassGIS Zone II Map



IWPAs

Zone Is

Zone IIs

Tax Parcels for Query

Detailed Features

Tax Parcels

Approximate Limits of Fill Area

Approximate Limits of Proposed Conservation Restriction

GIS Data Source:
2017 Drone Imagery: Oxbow Associates, Inc.
Property Boundary: Millenium Engineering, Inc.
2013 Orthophotograph, Open Space, Parcel data:
Bureau of Geographic Information (MassGIS),
Commonwealth of Massachusetts, Executive
Office of Technology and Security Services

Oxbow Associates, Inc.
Wetlands Delineation and Permitting
Wildlife Studies • Herpetology
Vernal Pool Ecology
P.O. BOX 971
ACTON, MASSACHUSETTS 01720
PHONE: (978) 929-9058
FAX: (978) 635-1892
WEB: www.oxbowassociates.com

N
W E
S

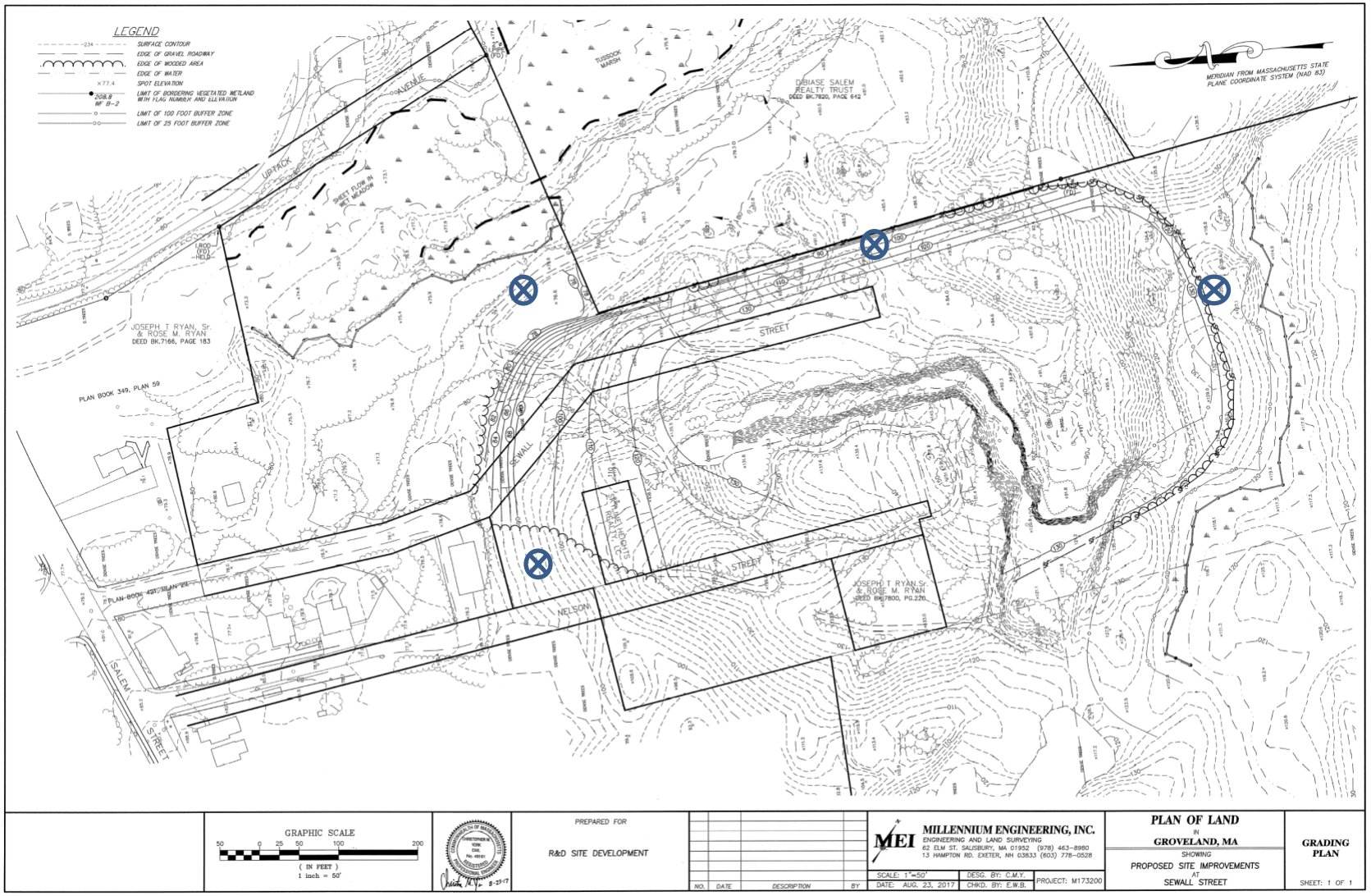
1:1,200

1 inch = 100 feet

0 75 150
Feet

Figure 4.
Limit of Quarry Filling
2017 Drone Imagery
Sewell Street Quarry Reclamation
Sewell Street
Groveland, MA

Figure 5 Monitoring Well Locations ⊗



DRAWINGS - CONSTRUCTION

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50'

PREPARED FOR

R&D SITE DEVELOPMENT

NO.	DATE	DESCRIPTION	BY

MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=50' | DESG. BY: C.M.Y. | PROJECT: M173200
DATE: SEPT. 7, 2017 | CHKD. BY: E.W.B.

PLAN OF LAND
IN
GROVELAND, MA
SHOWING
PROPOSED SITE IMPROVEMENTS
AT
SEWELL STREET

GRADING PLAN

SHEET: 1 OF 1

E:\pdskproj-2017\M173200\dwg\M173200-0.dwg 9/7/2017 12:02:47 PM EDT

PLAN BOOK 349, PLAN 59

PLAN BOOK 421, PLAN 29

SALEM STREET

NELSON STREET

SEWELL STREET

SCALE TRAILER

SKYLINE HEIGHTS REALTY, LC

JOSEPH T. RYAN Sr. & ROSE M. RYAN
DEED BK 7800, PG.220

100' WETLAND BUFFER

PHASE 2A NESTING HABITAT & OPEN SPACE B 1.5 Ac.±

APPROX. VERNAL POOL

PHASE 2 - LIMIT OF AREA NOT WITHIN PROTECTED AREA 14.9 Ac.±

OPEN SPACE A 10.8 Ac.

MERIDIAN FROM MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)

LEGEND

- SURFACE CONTOUR
- EDGE OF GRAVEL ROADWAY
- EDGE OF WOODED AREA
- EDGE OF WATER
- ×77.4 SPOT ELEVATION
- SLOPE ARROW
- 208.8 WF B-2 LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
- LIMIT OF 100 FOOT BUFFER ZONE
- LIMIT OF 25 FOOT BUFFER ZONE
- SF SILT FENCE
- LIMIT OF QUARRY FILLING ACTIVITY – PHASE 1 *
- LIMIT OF AREA NOT WITHIN PROTECTED AREA – PHASE 2 *
- NESTING HABITAT
- OPEN SPACE

* FILING PURSUANT TO WPA MAY BE REQUIRED

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60'

PREPARED FOR

R&D SITE DEVELOPMENT

NO.	DATE	DESCRIPTION	BY

MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=60' | DESG. BY: C.M.Y.
DATE: JUL. 25, 2018 | CHKD. BY: E.W.B.
PROJECT: M173200

PLAN OF LAND
IN
GROVELAND, MA
SHOWING
PROPOSED SITE IMPROVEMENTS
AT
SEWELL STREET

PHASE 2

PLAN BOOK 349, PLAN 59

PLAN BOOK 421, PLAN 29

JOSEPH T RYAN Sr.
& ROSE M. RYAN
DEED BK.7166, PAGE 183

JOSEPH T RYAN Sr.
& ROSE M. RYAN
DEED BK.7800, PG.220

SKYLINE HEIGHTS REALTY, LLC

SALEM STREET

NELSON STREET

SEWELL STREET

100' WETLAND BUFFER

SCALE TRAILER

PHASE 1 – LIMIT OF QUARRY FILLING ACTIVITY – 8.6 Ac.

PHASE 1A NESTING HABITAT OPEN SPACE B 1.5 Ac.±

APPROX. VERNAL POOL

APPROX. VERNAL POOL

APPROX. VERNAL POOL

APPROX. VERNAL POOL

DENSE TREES

MERIDIAN FROM MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)

LEGEND

- 234 — SURFACE CONTOUR
- EDGE OF GRAVEL ROADWAY
- EDGE OF WOODED AREA
- EDGE OF WATER
- ×77.4 — SPOT ELEVATION
- SLOPE ARROW
- 208.8 WF B-2 — LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
- LIMIT OF 100 FOOT BUFFER ZONE
- LIMIT OF 25 FOOT BUFFER ZONE
- SF — SILT FENCE
- LIMIT OF QUARRY FILLING ACTIVITY – PHASE 1 *
- LIMIT OF AREA NOT WITHIN PROTECTED AREA – PHASE 2 *
- NESTING HABITAT
- OPEN SPACE

* FILING PURSUANT TO WPA MAY BE REQUIRED

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60'

PREPARED FOR

R&D SITE DEVELOPMENT

NO.	DATE	DESCRIPTION	BY

MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=60' | DESG. BY: C.M.Y. | PROJECT: M173200
DATE: JUL. 25, 2018 | CHKD. BY: E.W.B.

PLAN OF LAND
IN
GROVELAND, MA
SHOWING
PROPOSED SITE IMPROVEMENTS
AT
SEWELL STREET

PHASE 1 & 1A

APPENDIX A – MESA AND WETLANDS PERMITTING FOR QUARRY RECLAMATION PROJECT

OXBOW ASSOCIATES, INC.

Wetlands Delineation and Permitting • Wildlife Studies • Herpetology • Vernal Pool Ecology

September 20, 2017

Mr. William Daley
R & D Site Development
7 HEMLOCK LN
GROVELAND MA 01834

Re: Lot 22 & Lot 25A Sewell Street
Groveland, MA
Status Update: MESA and Wetlands Permitting for Quarry Reclamation Project

Dear Mr. Daley:

As you are aware, Oxbow Associates, Inc. (OA) obtained an Order of Conditions MA DEP File No. 030-0413) under the Wetlands Protection Act and the Groveland Wetlands Bylaw for work related to the filling of the former Aggregate Industries quarry at the subject property on behalf of a prior owner in 2013. At the same time we had arrived at a conceptual mortality avoidance scheme and other measures that would allow the project to proceed in compliance with the standards at 321 CMR 10.23 to obtain a Conservation and Management Permit (NHESP File No. 12-31388). The permitting process was not completed at that time, despite measures being agreed upon with the regulatory authority- in the course of correspondence and meetings.

Currently, the condition of the premises has deteriorated further with regard to its ability to be utilized (for nesting habitat) by the state "Threatened", Blanding's Turtle (*Emydoiddea blandingii*). During the four year interval of inaction on the premises, virtually all of the former quarry has become re-vegetated, much as it was prior to its clearing, prior to review or approvals in 2012. In that regard, the open canopy habitat required for nesting by Blanding's turtles is virtually absent from the site, with less than a quarter acre of suitable area remaining in peripheral areas. In contrast, we have observed evidence of significant nesting on the adjacent property that does have suitable substrate and exposure, to the immediate east.

In view of the above, we anticipate a similar approval process under the Massachusetts Endangered Species Act (MESA), analogous to that nearly completed in 2013 for a similar set of activities. This approval remains to be finalized, but we anticipate the primary components of the approval to require isolation of the work area during the active season for Blanding's turtle (15 April – 1 November), possible creation of an area of nesting habitat (tree removal) outside the quarry footprint, and preservation of portions of the rear/south portion of the premises so as to define and limit the ultimate alteration of migratory habitat for Blanding's Turtle and/or Blue-spotted Salamander.

P.O. Box 971 • Acton, Massachusetts 01720-0971
Telephone: 978.929.9058 • 978.635.1892 • E-mail: butler@oxbowassociates.com

Under current conditions, the quarry zone has no definable habitat value for Blue-spotted Salamander, and at best has some low-quality nesting habitat near the adjacent property or wood line to the south. The quarry basin does not have well drained soils suitable for turtle nesting; most of the material in the basin is rock flour tailings or other fine grain, poorly drained mineral material. The quarry similarly does not have open canopy habitat to provide necessary insolation to Blanding's or other reptile nests; low growth canopy cover is nearly 100% as shown in recent drone orthophotography we have generated, as well as ground observation. It is also evident that there is no mature forest within the quarry; this habitat type is required by Blue-spotted Salamander during non-breeding periods. Therefore, the protective measures for compliance with the applicable MESA performance standards will largely be isolation of the site during the reclamation of the quarry basin, which all parties already anticipate.

In short, we have a scheme for approval, based largely on prior local and State approval processes. Refinements of peripheral matters (geographically speaking) such as land preservation (outside the quarry), potential nesting site creation (outside the quarry) or other refinements remain to be finalized. Nonetheless, the ability to initiate and complete the filling of the quarry basin with suitably selected materials will not be withheld due to either the requirements of the Wetlands Protection Act, or the Massachusetts Endangered Species Act.

Please feel free to contact me for further information or for permitting updates at your convenience.

Sincerely,

Oxbow Associates, Inc.

Brian O. Butler, President

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

MA ENDANGERED SPECIES ACT (G.L. c.131A)
CONSERVATION AND MANAGEMENT PERMIT

DATE		1 August 2018
CONSERVATION PERMIT NO.:		018-326.DFW
NHESP FILE NO.		12-31388
PERMIT HOLDER		William Daley R&D Site Development 7 Hemlock Lane Groveland, MA 01834
PROJECT		*Phase 1: Sewell Street Quarry Reclamation; Phase 2: Future Development*

Pursuant to the authority granted in the Massachusetts Endangered Species Act ("MESA") (G.L. c. 131A) and its implementing regulations (321 CMR 10.23), the Director of the Massachusetts Division of Fisheries & Wildlife (the "Division") hereby issues a Conservation and Management Permit (the "Permit") to R&D SITE DEVELOPMENT (the "Permit Holder"). This Permit authorizes the Take of the State-listed Blanding's Turtle (*Emydoidea blandingii)*, which is listed as Threatened pursuant to the MESA. The Take arises out of the acceptance of fill to reclaim an abandoned stone quarry (Phase I) and subsequent development (Phase II) of ±9.4 acres of the ±27.7 acre site located on Sewell Street in the town of Groveland, Massachusetts; parcels 47-022, 47-024, 47-025A, 47-029, 47-030, 47-032B, 47-032D, 53-004A (Book 36048, Page 264, Southern Essex County Registry of Deeds; the "Property") and generally bound by Salem Street to the north, Uptack Avenue and undeveloped land to the east, and undeveloped land to the south and west (Attachment 1 and 7).

I. Site Description and Project Description

The Property is 27.7 acres and comprised of the above-noted eight (8) parcels. The Property contains a former stone quarry used by Aggregate Industries until around the 1990s and a detention basin. At some point since 1990, a silty clay material was placed over a portion of the former quarry. The former quarry is roughly L shaped with the lowest elevation of approximately 90 feet along the steep westerly side. There is a steep, almost vertical, two-tiered slope on a portion of the westerly side of the former quarry. Abutting the former quarry to the east is an open, succeeding sandy area under separate ownership. The remainder of the property outside the former quarry includes some areas of former disturbance now succeeding, wetland, and intact forest. Two certified vernal pools are located on the southern portion of the Property.

As proposed, the project will occur in two phases on the approximately 27.7 acre site composed of eight (8) individual parcels. *Phase 1* (Attachment 3, Sheet 1 of 3, Phase 1 and 1A) includes the reclamation of an approximately 6.5 acre quarry expected to be completed by the end of 2020. The quarry will be filled to a maximum elevation of 130-feet with approximately 225,000 cubic yards of material. The project will also build a scale pad and have an onsite work trailer to process trucks arriving with fill material. The reclamation project is being undertaken in accordance with the MA Department of Environmental Protection's Interim Policy on the Re-use of Soil for Large Reclamation Projects (Policy # COMM-13-01, dated August 28, 2015). Phase 1 of the project includes an infiltration trench that will sheet water from the southern end of the former quarry to the existing stormwater detention pond. *Phase 1A* (Attachment 3, Sheet 1 of 3, "Phase 1 and 1A") of the project will be the top-dressing of a 1.5 acre area of the site as a turtle nesting area.

The Proponent has not yet determined the use of the site for *Phase 2*, but the footprint of the future development is shown in the submitted materials (Attachment 3, Sheet 2 of 3, "Phase 2") and could include development of up to approximately 5.5 acres of the reclaimed quarry and approximately 9.2 acres outside the quarry for commercial, industrial, or residential uses. The *Environmental Notification Form* examined an alternative that consisted of 30,000 square feet of light manufacturing or warehouse building with paved access from Sewell Street. Until this Phase is designed, it is unclear if the work will include onsite waste treatment or drilling of wells, both of which will require additional review by the Division.

The Division issued a MESA determination on March 7, 2018 and found that the Project (Phase 1, 1A, and 2; collectively, the "Work" and the "Project") will result in a Take of Blanding's Turtle through interference with feeding, sheltering, migrating and nesting (321 CMR 10.18). Collectively, the Project will result in a loss of approximately 9.4 acres of Blanding's Turtle habitat, and pose the risk of directly harming or killing individuals of this species during construction and future use.

II. Performance Standards

Under the authority granted by and in accordance with MGL c131A§3 and 321 CMR 10.23, the Director may permit the Take of a State-listed species for conservation and management purposes provided that there is a long-term Net Benefit to the conservation of the impacted species. If the Director determines that the applicant for a permit has avoided, minimized and mitigated impacts to the State-listed species consistent with the following Performance Standards, then the Director may issue a conservation and management permit, provided:

(a) the applicant has adequately assessed alternatives to both temporary and permanent impacts to State-listed species;
(b) an insignificant portion of the local population would be impacted by the Project or Activity, and;
(c) the applicant agrees to carry out a conservation and management plan that provides a long-term Net Benefit to the conservation of the State-listed species that has been approved by the Director, as provided in 321 CMR 10.23(5), and shall be carried out by the applicant.

The Director has determined that the applicant for this Permit has met the above noted Performance Standards and that the conservation and management plan described herein provides a long-term Net Benefit to the conservation of the Blanding's Turtle.

Pursuant to this Permit, the Permit Holder has elected to the long-term Net Benefit Performance Standard by (a) permanently protecting ±12.3 acres to the south of the limits of work pursuant to Chapter 184 of the General Laws, (b) and creating and maintaining ±1.5 acres of nesting habitat within the proposed permanent land protection, and (c) prior to the initiation of Phase 2, creation of a Division-approved escrow fund to provide perpetual management funds for the nesting habitat. To ensure avoidance and minimization of impacts to individual turtles, the Permit Holder has proposed to (a) install temporary and, ultimately, permanent turtle barriers prior to commencement of work for each phase or subphase , and (b) implement a Division-approved turtle protection plan during all work. Therefore, the Project can be permitted pursuant to the MESA. This Permit is issued to condition the Project and to provide a long-term Net Benefit to Blanding's Turtle.

III. Documents and Plans of Record

In accordance with the documents, plans and plans of record submitted to the Division entitled:

A. CONSERVATION AND MANAGEMENT PERMIT APPLICATION SEWELL STREET QUARRY RECLAMATION GROVELAND, MA (dated May 30, 2018, prepared Oxbow Associates, Inc.), "Application";
B. NHESP FILE NUMBER 12-31399 SUPPLEMENTAL MATERIALS SEWELL STREET QUARRY RECLAMATION GROVELAND, MASSACHUSETTS, "Supplemental Information";
    a. FIGURE 1. USGS SITE LOCUS SEWELL STREET QUARRY RECLAMATION SEWELL STREET GROVELAND, MA, "Locus Map"; Attachment 1;
    b. FIGURE 4. NHESP APPROVED SITE DIVISION 2017 DRONE IMAGERY SEWELL STREET QUARRY RECLAMATION SEWELL STREET GROVELAND, MA, "Overview"; Attachment 2;
C. PHASE I & 1A and PHASE 2, PHASE I & 1A and PHASE 2 (Plan sheet 1 and 2, of 3 sheets entitled "PLAN OF LAND IN GROVELAND, MA SHOWING PROPOSED SITE IMPROVEMENTS AT SEWELL STREET"), dated July 25, 2018, Prepared by Millennium Engineering, "Project Plans" or "Plans of Record"; Attachment 3;
D. *DRAFT* DECLARATION OF RESTRICTION, "DOR"; Attachment 4;
E. BLANDING'S TURTLE NESTING HABITAT OPERATION AND MANAGEMENT PLAN SEWELL STREET QUARRY RECLAMATION SEWELL STREET, GROVELAND, prepared by Oxbow Associates, Inc.; Attachment 5;
F. *DRAFT* ESCROW AGREEMENT, Habitat Management; Attachment 6;
G. NHESP OPEN SPACE PLAN (Plan sheet 3, of 3 sheets entitled ""PLAN OF LAND IN GROVELAND, MA SHOWING PROPOSED SITE IMPROVEMENTS AT SEWELL STREET"), dated July 25, 2018, Prepared by Millennium Engineering, "Plan of Land"; Attachment 7.
H. BLANDING'S TURTLE PROTECTION PLAN FOR SEWELL STREET QUARRY RESTORATION AND DEVELOPMENT SEWELL STREET, GROVELAND, MA, dated July 25, 2018, prepared by Oxbow Associates, Inc.; Attachment 8.

and any other plans and documents referenced herein or submitted to the Division.

IV. General Conditions:

Therefore, based on the information currently in the record, the Director grants a Permit for this Project subject to the following conditions to ensure compliance with the Massachusetts Endangered Species Act ("MESA") (G.L. c. 131A) and its implementing regulations (321 CMR 10.23):

1.		The Project authorized by this Permit shall be completed within five (5) years from the date of issuance. If needed, the Permit Holder shall submit a written request to the Division for an extension of time to complete said Project and the Division will review the Project pursuant to MESA for any continuing impacts as described herein and for any new impacts to any State-listed species found subsequent to the issuance date of this Permit.
2.		This Permit shall not preclude the review of future projects on the Property that are subject to the Wetlands Protection Act regulations (310 CMR 10.37, 10.58(4)(b), 10.59), as applicable, by the Natural Heritage & Endangered Species Program ("NHESP") of the Division.
3.		The work authorized by this Permit will occur in two phases, with potential sub-phases within Phase 2. *Phase 1* includes the installation of a scale pad to accept clean fill and the subsequent raising of the abandoned stone quarry to a maximum ground elevation of 130 ft. *Phase 1A* will convert a ±1.5 acre area of the site to turtle nesting habitat. *Phase 2* will include development of the site for commercial, light industrial or other such uses. While the Permit Holder has not yet determined the final use of site for Phase 2, the maximum, proposed footprint for future development is 5.5 acres, shown in the submitted materials. Development within Phase 2 may occur as a single project, or may be divided into sub-phases. Collectively, Phase 1, 1A and 2, are the Project or the "Work"; (Attachment 2). The Work also includes any other on-

		site activity required by the Division as a condition of this Permit.
4.		Division representatives shall have the right to enter and inspect the Property subject to this Permit at reasonable hours to evaluate Permit compliance and require the submittal of any reasonable information not otherwise required by this Permit but deemed necessary by the Division to complete its evaluation.
5.		Any proposed change to any plan identified in this Permit, or to the State-listed species conservation plan required by way of this Permit, shall require the Permit Holder to inquire of the Division, in writing, whether the change is significant enough to require the filing of a new Conservation and Management Permit Application, and or require additional long-term Net Benefit for affected State-listed species. The Division retains the right to require the submittal of additional, reasonable information to evaluate the plan change.
6.		This Permit shall apply to, and inure to the benefit of, the Permit Holder and any successor-in-interest of the Permit Holder, or to a subsequent successor-in-control of the Property or portion thereof subject to this Permit should the Permit Holder convey its record ownership of the Property to said successor-in-control, as well as to any contractor or other person performing Work conditioned by this Permit. Within three (3) days of the transfer of an interest in the Property or a portion thereof, any successor-in-interest or subsequent successor-in-control [i.e., subsequent owners or operators] of the Property or a portion thereof shall provide the Division with a letter indicating (1) that the successor is the successor-in-interest of the Permit Holder or the successor-in-control [i.e., current owner or operator] of the Property or a portion thereof, and (2) that said successor will perform the obligations of the Permit Holder as set forth in this Permit. If the Permit Holder determines that the successor-in-control of the Property or portion thereof should be a Homeowners Association, Condominium Association, Commercial Owners Associations or the like whose members are the owners of all or a portion of the constructed units, the Permit Holder shall submit to the Division for review of compliance with the terms and provisions of this Permit all proposed documents creating said Homeowners Association, Condominium Association, or the like and defining the rights, powers, and responsibilities of said Association and its members. No such Association's documents shall be signed, recorded, or be deemed legally effective in any manner without the express written approval of the Division for the Property. The Division's review and approval of such documents are limited to ensuring compliance with this Permit.
7.		Prior to the start of Work, the Permit Holder shall notify the Division in writing of the name, address, email, business and home telephone numbers of the project supervisor(s) and/or contractor(s) responsible for compliance with this Permit. The Permit Holder shall provide updated information in writing to the Division should new or additional project supervisors and/or contractors be hired after Work has commenced. Within three (3) days of the start of Work, the Permit Holder shall send a letter to the Division stating the date upon which Work commenced.
8.		Prior to the start of Work, the text of this Permit shall be recorded by the Permit Holder in the Registry of Deeds or the Land Court for the district in which the Property is located so as to become a record part of the chain of title of the Property. In the case of recorded land, the Permit shall be noted in the Registry's Grantor Index under the name of the owner of the Property upon which the proposed Work is to be done. In the case of registered land, the Permit shall be noted on the Land Court Certificate of Title of the owner of the Property upon which the proposed Work is done. The Permit Holder shall submit to the Division a date-stamped and signed copy of said recorded Permit showing the date and book and page of recording of said Permit within five (5) days after recording and/or filing, as applicable. No Work shall begin on the Property until the Permit is recorded and said recorded copy is submitted to the Division, except as otherwise approved by the Division in writing.

9.		At the completion of Work the Permit Holder shall submit to the Division a written request for a Certificate of Permit Compliance, including as-built plans and other supporting materials demonstrating the completion of Work and compliance with all conditions herein.
10.		Any land protected to achieve a long-term Net Benefit associated with this Permit, shall remain undeveloped and protected as habitat for State-listed species in perpetuity.
11.		The Permit Holder shall comply with all Conditions and Special Conditions contained within this Permit and complete the Project consistent with all Division-approved plans and supporting documents except as otherwise approved by the Division in writing.
12.		The Permit Holder shall submit in writing any documents, plans, reports, or other items required for submission in accordance with this Permit, for review and written approval by the Division, unless otherwise stipulated in this Permit or by the Division in writing.
13.		This Permit does not relieve the Permit Holder or any other person of the necessity of complying with all applicable federal, state, or local statues, ordinances, bylaws, or regulations, including but not limited to, those administered by the Dracut Conservation Commission and the Massachusetts Department of Environmental Protection. This Permit does not grant any property rights or any exclusive privileges; it does not authorize injury to private property or invasion of property rights.
14.		All contractor(s) employed to implement the aspects of the Project, shall be provided a copy of this Permit prior to commencement of Work. Said contractor(s) may be held responsible with the Permit Holder for violations of the Permit performed by the contractor(s).
15.		This Permit prohibits any activity or work not specifically authorized by this Permit, unless approved in writing by the Division prior to such additional work. All Work shall be in conformance with the Plans of Records. Any changes, updates, or revisions to the proposed project or any additional work beyond that shown on the Plans of Record shall require additional review and approval prior to implementation, subject to General Condition #5. The Division maintains the right to require an immediate cessation of Work, in whole or in part, should the Plans of Record approved by the Permit (or any sheet, details, schematic, or collar note therein) prove to inaccurately reflect site conditions, standard construction methodologies, or practical construction considerations sufficient to require a change to the Plans of Record.
16.		Prior to the start of Work, adequate erosion and sedimentation control measures shall be implemented, including any necessary controls not specifically referenced in the Plans of Record, and be maintained in effect throughout Project construction and until the Property has become stabilized with adequate vegetative cover or via alternate means, as approved by the Division. Structural failure of erosion and sedimentation controls may be subject to enforcement action subject to General Condition 18.
17.		Failure to maintain an appropriate standard of care at any time during the installation or post-installation components of the Plans of Record, including but not limited to failure to restore and adequately control surface hydrology, planting at inappropriate times of year, failures to reach adequate surface hydrology, failure to provide adequate substrate, failure to implement adequate horticultural practices (such as irrigation, disease and pest control), failure to maintain erosion and sedimentation control, failure to adequately control invasive plant species, or the loss of required plantings or seeding, shall be deemed non-compliance with this Permit at the sole discretion of the Division subject to General Condition 18.
18.		A violation of any condition of this Permit will result in an unauthorized Take pursuant to M.G.L. c. 131A

		and may be subject to civil and or criminal penalties pursuant to M.G.L. c. 131A.

V. Special Conditions:

19.		Authorized Construction and Uses: This Permit authorizes construction and uses on the Property as described above. All Work shall be confined to the area of the Property within the limits of Work as shown on the Project Plan (Attachment 3).
20.		Declaration of Restriction, an approximately 1.5-acre portion of Parcel 47-029 and the entirety of the approximately 10.4-acre Parcel 53-004A: The Permit Holder has submitted a draft Declaration of Restriction to the Division which has been approved (Attachment 4). Prior to the initiation of Work, the Permit Holder shall provide proof to the Division of appropriate recordation of the approved Declaration of Restriction. Any violation of the Declaration of Restriction, as recorded is a violation of this Permit in accordance with General Condition 18. The Declaration of Restriction text included herein as an attachment to this Permit is a draft document and only included for reference. The Declaration shall be recorded as a separate instrument with a separate recording Book and Page from this Permit in the chain of title in order to meet the requirements of this condition.
21.		Permanent Conservation of the Open Space: In order to provide a Net Benefit to the conservation of the Blanding's Turtle, the Permit Holder has elected to protect, in perpetuity, the Open Space Parcel shown as "Open Space A [10.8 a.]" and "Open Space B" [1.5 a.] on the Project Plans (Attachment 3) and the Plan of Land in Groveland, MA – NHESP Open Space Plan (Attachment 7), which constitute an approximately 6.2-acre portion of Parcel 47-029 and the entirety of the approximately 6.1-acre Parcel 53-004A. The approved plan includes temporary impacts within the Open Space for accepting fill to a maximum elevation of 130 feet within the 1.5-acre portion of Parcel 47-029 (Phase 1) and top-dressing the same areas with suitable nesting matrix and plantings (Phase 1A). The Permit Holder has elected to gift the Open Space land through deeding in fee to the MA Division of Fisheries & Wildlife (MADFW). The transfer must include access and easement provisions to ensure that the Permit Holder can comply with the requirements of this Permit to create and maintain the nesting area (see Special Condition 26 and 27, herein) on the 1.5-acre portion of Parcel 47-029 (Phase 1) and top-dressing the same areas with suitable nesting matrix and plantings (Phase 1A). Therefore, the Permit Holder shall transfer the Open Space to the MADFW, no later than **December 1, 2018,** unless otherwise allowed by the Division in writing. The Permit Holder shall, within 2 working days of said transfer, provide written documentation of the completion of the transfer in fee to the MADFW with a deed approved by the Division in writing.
22.		Alternative Land Protection if Unable to Fulfill Special Condition 21: If the MADFW Board does not vote in favor of accepting the gift of the Open Space, the Permit Holder shall provide an alternative mechanism to achieve permanent protection pursuant to M.G.L. 184 in the form of a Conservation Restriction. In this circumstance, the Permit Holder shall have until **January 1, 2019, unless otherwise allowed in writing by the Division, to submit a draft Conservation Restriction with a letter of intent from a qualified** holder indicating their willingness to hold a Conservation Restriction an assent to the Division-provided Conservation Restriction template. The Division will review any proposed changes to the Conservation Restriction template for compliance with the MESA and this Permit. No later than 30days

		after Division approval of the text of draft Conservation Restriction, the Permit Holder shall provide written proof of submission of the draft Conservation Restriction and all necessary materials to the MA Executive Office of Environmental Affairs-Division of Conservation Services (EEA-DCS) to initiative a review of Conservation Restriction pursuant to the provisions of G.L.c. 184, Section 32 on the Open Space ("Parcel A", and "Parcel B"). The Conservation Restriction may be held by the MADFW, Town of Groveland Conservation Commission or any other qualified entity. After approval of a draft Conservation Restriction, any changes in the form of said Conservation Restriction other than typographical or grammatical changes must be approved in writing by the Division before said changes are submitted to the EEA-DCS for approval. If the EEA-DCS requires changes, the Permit Holder shall immediately notify the Division in writing of the requested changes so that the Division can review said proposed changes for compliance with the terms and provisions of this Permit. If the Division determines that said proposed changes to the Conservation Restriction are inconsistent with the purposes of this Permit, the Division shall have sixty (60) days after receipt of said notice to discuss said proposed changes with the EEA-DCS in order to seek deletion or modification of the requested changes. The executed Conservation Restriction shall be **recorded in the Registry of Deeds or the Land Court** for the district in which the Property is located so as to become a record part of the chain of title of the Property, **within 60 days of approval by the EEA-DCS**. Work shall cease if said Conservation Restriction is not recorded and copies thereof received by the Division by this date, provided, however, that the Division may extend this date from time to time if the failure to execute and record said Conservation Restriction results from circumstances beyond the control of Permit Holder and so long as the Permit Holder continues in good faith to seek to execute and record said Conservation Restriction.
23.		<u>Prior to initiation of Work on Phase 2 or any subphase thereof:</u> A. All pre-construction conditions note herein must be completed and compliance with said Conditions documented in writing to the Division. B. The Permit Holder must provide the Division written proof of the completion of all MEPA actions. C. The Division must review and approve of the proposed project and plan including, but not limited to, walls, curbing, stormwater systems, wells, temporary and permanent turtle barriers, as consistent with the Permit and Condition 5, herein.
24.		<u>Work Timing</u>: All Work shall occur during the Blanding's Turtle Inactive season or shall comply with a Division-approved Blanding's Turtle protection plan. All Work located internal to, or directly upon a structure (i.e., residential building, shed, or garage), or within a paved area, may occur at any time of year, but still may require a perimeter turtle-barrier. A. Blanding's Turtle Active Season: April 16-November 14. B. Blanding's Turtle Inactive Season: November 15 – April 15
25.		<u>Blanding's Turtle Protection Plan</u>: Should the Permit Holder wish to conduct work during the active season on any phase or subphase, a Blanding's Turtle Protection Plan shall be submitted for Division review and approval that includes specific consideration for working within and around Blanding's Turtle nesting habitat. Said Blanding's Turtle Protection Plan must be approved by the Division **prior to initiation of work within the Active Season on any Phase or subphase thereof**. A. <u>Phase 1 and Phase 1A</u> – The Division has reviewed and approved the Turtle Protection Plan (<u>Attachment 8</u>) to be implemented by Oxbow Associates, Inc. or another Division-approved biologist subject to the following additional requirements.

		1. A full perimeter check of the barrier to ensure the integrity of the barrier and gates must be conducted by the qualified biologist between March 15 and April 15, unless a later date is allowed by the Division due to snow. 2. A full perimeter check of the barrier to ensure the integrity of the barrier and gates must be conducted by the qualified biologist during the month of May, in advance of the initiation of nesting season on June 1. 3. At the end of each Active Season, a report shall be submitted to the Division demonstrating compliance with this Condition. B. Phase 2 or any subphase thereof – The Permit Holder must submit a Turtle Protection Plan for Division review and written approval.. Any changes to a Division-approved Turtle Protection Plan shall be submitted to the Division for review and approval.
26.		Creation of Nesting Habitat: In order to provide a Net Benefit to the conservation of the Blanding's Turtle, the Permit Holder has elected to create ±1.5 acres of the areas identified as "Nesting Habitat Open Space B" as high-quality, functional Blanding's Turtle nesting habitat, as described in the BLANDING'S TURTLE NESTING HABITAT OPERATION AND MANAGEMENT PLAN (Attachment 5). The Nesting Habitat shall be created within 60 days of the completion of Work on Phase 1, or by March 1, 2021, whichever occurs first. These dates may be extended by the Division. The Permit Holder shall provide written notification to the Division and fee owner of the area that the nesting habitat has been created. The Division may also conduct onsite visits and provide recommendations to be implemented at the cost of the Permit Holder.
27.		Long-term Monitoring and Management of Blanding's Turtle Nesting Habitat: In order to provide a Net Benefit to the conservation of the Blanding's Turtle, the Permit Holder shall maintain ±1.5 acres of the areas identified as "Nesting Habitat Open Space B" as high-quality Blanding's Turtle nesting habitat, as described in BLANDING'S TURTLE NESTING HABITAT OPERATION AND MANAGEMENT PLAN (Attachment 5). The Permit Holder shall implement a long-term habitat monitoring plan for created nesting habitat. **During the second, third and fifth years following creation of nesting habitat, and at five (5) year intervals thereafter**, a qualified, Division-approved wildlife biologist shall prepare and deliver a site evaluation report to the Division and the Permit Holder by December 31st of that year. Said report shall describe: i) current habitat conditions (including photographs and detailed descriptions) as well as the condition of the permanent turtle barrier (see Special Condition #29, below); ii) management activities conducted during the previous five year period, with an assessment of the success or failure of said management activities in achieving the desired habitat conditions; iii) habitat management recommendations to be conducted during the next five year period; and iv) recommended modifications to the Management Plan (Attachment 5), if any. The Permit Holder shall take all reasonable measures necessary to implement the recommendations of the biologist to maintain and enhance high quality nesting habitats, provided that said recommendations are pre-approved in writing by the Division. The Permit Holder shall work with the Division to adaptively refine the type and frequency of management activities, as necessary, pursuant to the Management Plan (Attachment 5) and long-term habitat monitoring plan outlined above.
28.		Blanding's Turtle Nesting Habitat Management Fund: In order to ensure adequate funding for implementation of long-term monitoring and management activities in accordance with the Management Plan (Attachment 5), **prior to the start of Work on Phase 2 or prior to the transfer of title or ownership interest in the Property, other than the Open Space, the Permit Holder shall deposit $7,500.00 into an escrow account**, subject to an Escrow Agreement in substantially the same form as Attachment 6, which

		has been approved. Any proposed revisions to said Escrow Agreement must be submitted to the Division for review and written approval prior to implementation of said changes. The Permit Holder, subject to prior Division approval, may draw earnings from the escrow account to pay for long-term monitoring and management activities in accordance with the Management Plan (Attachment 5). At no time shall the balance of said escrow account be less than $5,000.00 unless pre-approved in writing by the Division.
29.		Installation and Maintenance of Permanent Turtle Barriers: Prior to the initiation of Phase 2, the Permit Holder shall submit a written plan detailing the permanent barrier system proposed for the entire Site. The Permit Holder may request that the installation of the permanent barrier occur in sub-phases subject to Division approval. The Barrier Plan must include the locations, descriptions, engineering details and all other relevant details of a permanent turtle barrier for Division review and approval. The barrier must exclude turtles from ingress into the Phase 2 area, be buried 6 inches in the ground, and have a minimum of 3-feet above ground. The barrier must include 1-way gates to allow turtles within the barrier system to escape out. Once installed, turtle barriers shall be regularly inspected and maintained pursuant to a Division-approved Operations and Maintenance Plan. Any proposed revisions to the Operations and Maintenance Plan must be submitted to the Division for review and written approval prior to implementation of said changes.
30.		Conservation Restriction Bounds & Signs **:** A. **Prior to the initiation of Work on Phase 1**, the permanent bounds and signs labelled as "Iron Pin/Rod" and "Proposed Sign", respectively, shown on the PLAN OF LAND (Attachment 7) shall be permanently installed, with the exception of the 7 (seven) bounds and 6 (six) signs proposed on the north side of the 1.5 acres nesting area. B. **Prior to any work on Phase 2 and whichever occurs earlier; 60 days after completion of Work on Phase 1, or March 1, 2021,** the 7 (seven) bounds and 6 (six) signs proposed on the north side of the 1.5 acres nesting area labelled as, "Iron Pin/Rod" and "Proposed Sign", respectively, shown as Phase 1A (Attachment 7) shall be permanently installed. This shall occur prior to final approval of the Nesting Area subject to Special Condition 26. After both 30.A and 30.B, a Massachusetts Registered Land Surveyor shall certify to the Division in writing that permanent bounds and signs are located as shown on the Plan, unless the MADFW directs otherwise as part of the fee-transfer process. Said permanent bounds and signage shall be maintained in good condition by the Permit Holder, and repaired or replaced, as necessary.
31.		Curbing: Any curbing installed within the Phase 2 area shall be low-profile "Cape-cod Berm" style curbing to allow turtles to escape and enter the one-way gates, if internal to the the Phase 2 area.
32.		Amendment Request: The Permit Holder shall have the right to request that this Permit be Amended to include additional work on abutting Properties and the associated changes to the Plans of Record. The Division retains the right to require the submittal of additional, reasonable information (e.g., plans, narrative materials, proposed timelines for work), to evaluate the plan change and to determine compliance with Condition 5 in full.
33.		Construction Staff Education: All construction, landscaping, and other sub-contractors associated with the Project shall be informed in writing of the likely presence of State-listed species on the Property and what measures should be implemented to minimize direct harm to State-listed species. Further, no

		wildlife shall be removed from the Property without approval of a qualified wildlife biologist or the Division except as necessary to receive veterinary treatment in the case of harm during construction.
34.		Reporting State-listed Species Observations: The Division shall be notified, in the form of an NHESP Rare Animal or Plant Observation Form, within ten (10) days of the observation of any State-listed species within or outside the limits of Work. Preferably notification will be through the Division's data submittal tool, the Vernal Pool & Rare Species (VPRS) Information System. VPRS and our paper observations forms can be found at: www.mass.gov/dfw/nhesp/vprs.
35.		Notice of Appeal Rights: This Determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.23. Any person aggrieved by this decision shall have the right to an adjudicatory hearing at the Division pursuant to M.G.L. c. 30A, s.11 in accordance with the procedures for informal hearings set forth in 801 CMR 1.02 and 1.03. Any notice of claim for an adjudicatory hearing shall be made in writing and be accompanied by a filing fee in the amount of $500.00. The notice of claim shall be sent to the Division by certified mail, hand delivered or postmarked within twenty-one (21) days of the date of the Division's Determination to: Mark S. Tisa Director Division of Fisheries and Wildlife Field Headquarters One Rabbit Hill Road Westborough, MA 01581 Any notice of claim for an adjudicatory hearing shall include the following information: 1. The file number for the project; 2. The complete name, address and telephone number of the person filing the request, and the name, address and telephone number of any authorized representative; 3. The specific facts that demonstrate that a party filing a notice of claim satisfies the requirements of an "aggrieved person," including but not limited to (a) how they have a definite interest in the matters in contention within the scope of interests or area of concern of M.G.L. c. 131A or the regulations at 321 CMR 10.00 and (b) have suffered an actual injury which is special and different from that of the public and which has resulted from violation of a duty owed to them by the Division; 4. A clear statement that an adjudicatory hearing is being requested; 5. A clear and concise statement of facts which are grounds for the proceeding, the specific objections to the actions of the Division and the basis for those objections; and the relief sought through the adjudicatory hearing; and a statement that a copy of the request has been sent by certified mail or hand delivered to the applicant and the record owner, if different from the applicant.

Mark S. Tisa, Director
Massachusetts Division of Fisheries & Wildlife

On this 1st day of August 2018, before me, the undersigned notary public, personally appeared Mark S. Tisa, Director, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

MELANY CHEESEMAN
Notary Public
Commonwealth of Massachusetts
My Commission Expires
January 24, 2025

Melany Cheeseman, Notary Public
My Commission expires: January 24, 2025

Conservation Permit 018-326.DFW
Issued this 1st day of August, 2018
Work must be completed by: 1 August, 2023

ACKNOWLEDGEMENT AND ACCEPTANCE OF ALL TERMS OF THIS CONSERVATION PERMIT

The undersigned below agrees that commencement of any work authorized by and described in this Conservation and Management Permit constitutes acknowledgement and acceptance of all terms of this Permit.

Signatory 1 Organization

COMMONWEALTH OF MASSACHUSETTS

On this _____day of _____, 20___, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification which was _____ to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

Notary Public

_____

SEAL

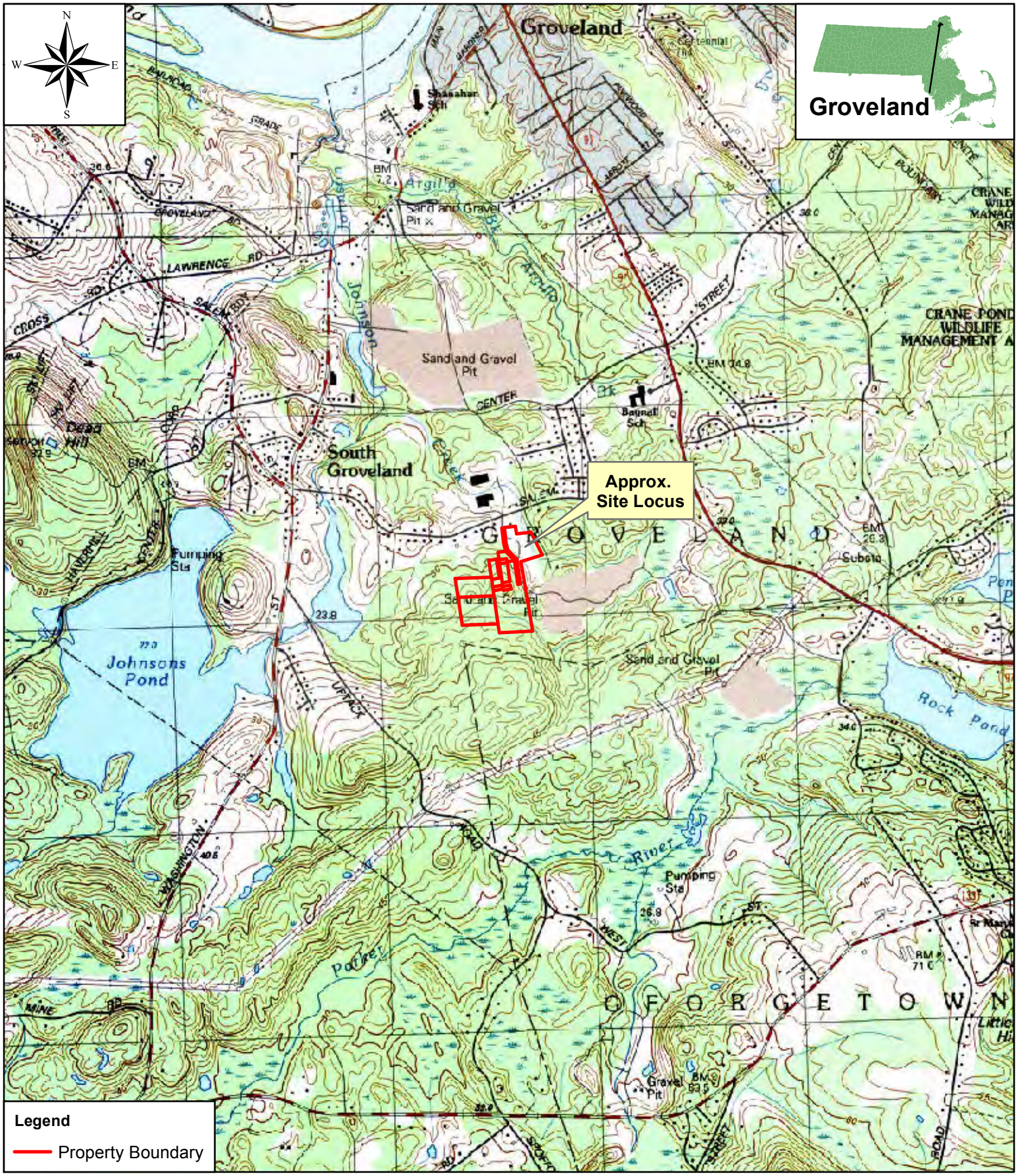
My commission expires: _____

Distribution List

Town of Groveland Select Board
Town of Groveland Planning Board
Town of Groveland Conservation Commission
Patricia Huckery, DFW Northeast Wildlife District Office
Brian Butler, Oxbow Associates, Inc.
MA DEP Northern Regional Office, Wetlands
Paige Czepiga, Analyst, MA Environmental Policy Act Office

Attachment 1

FIGURE 1. USGS SITE LOCUS SEWELL STREET QUARRY RECLAMATION SEWELL STREET GROVELAND, MA. "Locus Map"



Oxbow Associates, Inc.
Wetlands Delineation and Permitting
Wildlife Studies • Herpetology
Vernal Pool Ecology
P.O. BOX 971
ACTON, MASSACHUSETTS 01720
PHONE: (978) 929-9058
FAX: (978) 635-1892
WEB: www.oxbowassociates.com

1:24,000

1 inch = 2,000 feet

0 2,000 4,000
Feet

Figure 1.
USGS Site Locus
Sewell Street Quarry
Reclamation
Sewell Street
Groveland, MA

Attachment 2

FIGURE 4. NHESP APPROVED SITE DIVISION 2017 DRONE IMAGERY SEWELL STREET QUARRY RECLAMATION SEWELL STREET GROVELAND, MA. “Overview”

Property Boundary
Area Not within CR
Nesting Area (to be CR)
Proposed CR
Unuseable Land
Protected & Recreational Open Space
Town Boundary

SALEM STREET
NELSON STREET
UPTA NUE

Divisions	Area (ac.)
Area Not within CR	13.7
Nesting Area (to be CR)	1.5
Proposed CR	10.5
Unuseable Land	2.8
Total	**28.5**

Town of Groveland
Department of Fish and Game
Department of Fish and Game
Department of Fish and Game

GIS Data Source:
2017 Drone Imagery: Oxbow Associates, Inc.
Property Boundary: Millenium Engineering, Inc.
2013 Orthophotograph, Open Space, Parcel data:
Bureau of Geographic Information (MassGIS),
Commonwealth of Massachusetts, Executive
Office of Technology and Security Services

Oxbow Associates, Inc.
Wetlands Delineation and Permitting
Wildlife Studies • Herpetology
Vernal Pool Ecology
P.O. BOX 971
ACTON, MASSACHUSETTS 01720
PHONE: (978) 929-9058
FAX: (978) 635-1892
WEB: www.oxbowassociates.com

N
W
E
S

1:1,800

1 inch = 150 feet

0 150 300
Feet

Figure 4.
NHESP Approved Site Division
2017 Drone Imagery
Sewell Street Quarry Reclamation
Sewell Street
Groveland, MA

Attachment 3

PHASE I & 1A and PHASE 2 (Plan sheet 1 and 2, of 3 sheets entitled "PLAN OF LAND IN GROVELAND, MA SHOWING PROPOSED SITE IMPROVEMENTS AT SEWELL STREET"), dated July 25, 2018, Prepared by Millennium Engineering, "Project Plans" or "Plans of Record";

PLAN BOOK 349, PLAN 59

PLAN BOOK 421, PLAN 29

SALEM STREET

NELSON STREET

SEWELL STREET

SCALE TRAILER

SKYLINE HEIGHTS REALTY, LC

JOSEPH T. RYAN Sr. & ROSE M. RYAN
DEED BK 7800, PG.220

100' WETLAND BUFFER

PHASE 2A NESTING HABITAT & OPEN SPACE B 1.5 Ac.±

APPROX. VERNAL POOL

PHASE 2 - LIMIT OF AREA NOT WITHIN PROTECTED AREA 14.9 Ac.±

OPEN SPACE A 10.8 Ac.

MERIDIAN FROM MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)

LEGEND

- SURFACE CONTOUR
- EDGE OF GRAVEL ROADWAY
- EDGE OF WOODED AREA
- EDGE OF WATER
- ×77.4 SPOT ELEVATION
- SLOPE ARROW
- 208.8 WF B-2 LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
- LIMIT OF 100 FOOT BUFFER ZONE
- LIMIT OF 25 FOOT BUFFER ZONE
- SF SILT FENCE
- LIMIT OF QUARRY FILLING ACTIVITY – PHASE 1 *
- LIMIT OF AREA NOT WITHIN PROTECTED AREA – PHASE 2 *
- NESTING HABITAT
- OPEN SPACE

* FILING PURSUANT TO WPA MAY BE REQUIRED

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60'

PREPARED FOR

R&D SITE DEVELOPMENT

NO.	DATE	DESCRIPTION	BY

MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=60' | DESG. BY: C.M.Y.
DATE: JUL. 25, 2018 | CHKD. BY: E.W.B.
PROJECT: M173200

PLAN OF LAND
IN
GROVELAND, MA
SHOWING
PROPOSED SITE IMPROVEMENTS
AT
SEWELL STREET

PHASE 2

PLAN BOOK 349, PLAN 59

PLAN BOOK 421, PLAN 29

JOSEPH T RYAN Sr.
& ROSE M. RYAN
DEED BK.7166, PAGE 183

JOSEPH T RYAN Sr.
& ROSE M. RYAN
DEED BK.7800, PG.220

SKYLINE HEIGHTS REALTY, LLC

SALEM STREET

NELSON STREET

SEWELL STREET

100' WETLAND BUFFER

SCALE TRAILER

PHASE 1 – LIMIT OF QUARRY FILLING ACTIVITY – 8.6 Ac.

PHASE 1A NESTING HABITAT OPEN SPACE B 1.5 Ac.±

APPROX. VERNAL POOL

APPROX. VERNAL POOL

APPROX. VERNAL POOL

APPROX. VERNAL POOL

DENSE TREES

MERIDIAN FROM MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)

LEGEND

- 234 — SURFACE CONTOUR
- EDGE OF GRAVEL ROADWAY
- EDGE OF WOODED AREA
- EDGE OF WATER
- ×77.4 — SPOT ELEVATION
- SLOPE ARROW
- 208.8 WF B-2 — LIMIT OF BORDERING VEGETATED WETLAND WITH FLAG NUMBER AND ELEVATION
- LIMIT OF 100 FOOT BUFFER ZONE
- LIMIT OF 25 FOOT BUFFER ZONE
- SF — SILT FENCE
- LIMIT OF QUARRY FILLING ACTIVITY – PHASE 1 *
- LIMIT OF AREA NOT WITHIN PROTECTED AREA – PHASE 2 *
- NESTING HABITAT
- OPEN SPACE

* FILING PURSUANT TO WPA MAY BE REQUIRED

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60'

PREPARED FOR

R&D SITE DEVELOPMENT

NO.	DATE	DESCRIPTION	BY

MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=60' | DESG. BY: C.M.Y. | PROJECT: M173200
DATE: JUL. 25, 2018 | CHKD. BY: E.W.B.

PLAN OF LAND
IN
GROVELAND, MA
SHOWING
PROPOSED SITE IMPROVEMENTS
AT
SEWELL STREET

PHASE 1 & 1A

Attachment 4

DRAFT DECLARATION OF RESTRICTION, "DOR"

Copy of draft, Approved document for reference as an attachment to the Permit issued pursuant to the MA Endangered Species Act. This Restriction must be recorded as its own instrument in the Registry of Deeds pursuant to this Permit.

DECLARATION OF RESTRICTION

THIS DECLARATION OF RESTRICTION (hereinafter the "Declaration") is made this _____ day of _____, 20___, by R&D Site Development, 7 Hemlock Lane, Groveland, MA 01834(hereinafter the "Declarant").

WITNESSETH

WHEREAS, Declarant is the owner of that certain parcels of land known as Sewell Street Quarry Reclamation (Parcels: 47-022, 47-024, 47-025A, 47-029, 47-030, 47-032B, 47-032D, 53-004A) located in the Town of Groveland, Essex County, Massachusetts (hereinafter the "Property"), shown on "Plan of Land in Groveland, MA – NHESP Open Space Plan" dated July 25, 2018, prepared by Millennium Engineering, Inc., and recorded in the Essex County District Registry of Deeds at Plan Book _____ as Plan _____ (the "Plan"); and

WHEREAS, the Property contains important habitat, and migration routes for wildlife including the Blanding's turtle *(Emydoidea blandingii)*, which at the time of this recording is listed as Threatened pursuant to the Massachusetts Endangered Species Act (MESA) (G.L. c. 131A:3 and 321 CMR 10.23); and

WHEREAS, Declarant desires to protect a significant contiguous area of this rare species habitat as an integral part of the development of the Property; and

WHEREAS, the Property is subject to the terms and provisions of MA Endangered Species Act [G.L. c. 131A]; and

WHEREAS, Declarant desires and agrees that the southern approximately 6.2-acre portion of Parcel 47-029 and the entirety of the 6.1-acre Parcel 53-004A, inclusive, shown on "Plan of Land in Groveland, MA - NHESP Open Space Plan" as the dotted fill pattern, dated July 25, 2018, which Proposed CR in total contain approximately 12.3 acres as shown on said Plan, shall be maintained in perpetuity as habitat and Proposed CR, subject to the Prohibited Acts and Uses and Reserved Rights set forth below;

NOW, THEREFORE, Declarant hereby voluntarily declares and imposes **in perpetuity** upon the Proposed CR the following covenants, conditions and restrictions for the benefit of Declarant, the Commonwealth of Massachusetts Division of Fisheries and Wildlife [hereinafter the "Division"], and said Property shall be held, transferred, sold, conveyed, occupied and used subject to the covenants, conditions, and restrictions hereinafter set forth.

1. **Prohibited Acts and Uses.** Subject to the exceptions set forth in Section 2 below, the following acts and uses are prohibited in the Proposed CR:

   A. Construction or placing of any building, tennis court, landing strip, mobile home, swimming pool, fences, asphalt or concrete pavement, sign, billboard or other

advertising display, antenna, tower, or other temporary or permanent structure or facility in, on, above or below said Proposed CR.

B. Mining, excavating, dredging or removing soil, loam, peat, gravel, sand, rock or other mineral resource or natural deposit.

C. Placing, filling, storing or dumping of soil, refuse, trash, vehicle bodies or parts, rubbish, debris, junk, waste or other substance of material whatsoever or the installation of underground storage tanks; except as provided below to create the nesting habitat on the 1.5 acres.

D. Cutting, removing or otherwise destroying trees, grasses or other vegetation or disturbance of shrubs, ground, forest floor or leaf litter.

E. The use of motorized vehicles of any kind, except as required by the police, fire department or any other governmental agents in carrying out their lawful duties; and except as necessary to create the nesting habitat on the 1.5 acres shown on the plan.

F. The further subdivision of the Proposed CR, except for the purpose of effecting a transfer of the CR, or a portion thereof, to the Division or to a third party approved by the Division.

G. Activities substantially detrimental to drainage, flood control, water conservation, erosion control or soil conservation.

H. Any other use of or activity on the Proposed CR which would materially impair significant conservation interests thereon unless necessary for the protection of the conservation interest that are the subject of this restrictive covenant.

2. **Reserved Rights.** Notwithstanding any provisions herein to the contrary, Declarant reserves to itself and its successors and assigns the right to:

A. establish, enforce, waive, alter and amend such additional rules, regulations, covenants, conditions and restrictions governing use of the Proposed CR as are not otherwise prohibited by this Declaration of Restriction as agreed to in writing by the Division and allowed by applicable federal, state or local law or regulation, and

B. conduct or permit the following activities in the Proposed CR if such acts do not materially impair significant conservation interests:

1) Selective cutting or pruning of trees and vegetation to maintain access to and over existing footpaths located thereon and for protection of persons and property from imminent risks of harm or damage to persons and structures.

2) Construct fences or necessary boundary markers on the Proposed CR upon written consent by the Division, such consent not to be unreasonably withheld.

3) Habitat management activities, including forestry, may be permissible with prior written approval from the Natural Heritage and Endangered Species Program of the Division of Fisheries and Wildlife (the "Division"), its successors and assigns;

4) Reclamation of the historic quarry within the approximately 1.5-acre portion of Parcel 47-029, the "Nesting Area". The Declarant shall have the right to the following:

(a) To place fill material in accordance with the MA Department of Environmental Protection's Interim Policy on the Re-use of Soil for Large Reclamation Projects (Policy # COMM-13-01, dated August 28, 2015) to a maximum elevation of 130 feet (NGVD 1929), as shown in "Plan of Land in Groveland, MA Phase 1 & 1A", dated July 25, 2018, within the Nesting Area.

(b) To top-dress the Nesting Area with appropriate nesting habitat substrate and planting.

(c) The use of vehicles or equipment to place the soils or material necessary for the creation and maintenance of the nesting habitat, and for access thereafter.

(d) Construct, repair and maintain temporary turtle barriers.

(e) Construct, repair and maintain permanent turtle barriers along the northerly edge of the Nesting Area with Division review and approval as to the location and form.

Declarant retains the authority and obligation to manage and maintain said Nesting Area as high quality nesting habitat unless and until a grantee assumes said obligation by written instrument, subject to the approval of the Division.

3. **Monuments and Signage.** The Declarant and the Declarant's Successors shall maintain in good condition any, bounds, monuments, markers and signs shown on the Plan, demarcating the boundaries of the Proposed CR, and shall repair and or replace said monuments and signage on an as needed basis.

4. **Term - Binding Effect In Perpetuity.** This Declaration of Restriction and its provisions herein set forth shall run with the Proposed CR as shown on said Plan **in perpetuity** from the date of recordation in the Essex County District Registry of Deeds and shall be binding upon Declarant, Declarant's successors and assigns, and any other party having an ownership interest in said Proposed CR or claiming to have an interest with respect to said Proposed CR as tenants, invitees, licenses or otherwise, and all of the respective heirs, successors, grantees, mortgages, assigns, agents, contractors, subcontractors and employees of the foregoing.

This Declaration of Restriction is hereby intended and declared to be in perpetuity and no re-recordation of this Declaration of Restriction under G.L. c. 184, ss. 23-30 or any other law shall ever be necessary in order to maintain the full legal effect and authority hereof and Declarant and its successors and assigns, including but not limited to all subsequent owners of the Proposed CR, hereby waive all their legal right to and shall forego any action in law or equity of any kind whatsoever attempting to contest the validity of any provision of this Declaration of Restriction and shall not, in any enforcement action, raise the invalidity of any provision of this Declaration of Restriction.

Notwithstanding anything inconsistent or to the contrary set forth above, the Town and the Division are hereby authorized, jointly and severally, to record and file any notices and/or instruments that the Town and/or the Division deem appropriate to assure the legal validity and enforceability in perpetuity of this Declaration of Restriction and the Declarant, on behalf of itself and its successors and assigns, hereby appoints the Town and the Division as its and their attorney-in-fact to jointly or severally execute, acknowledge, deliver and record any such notice or instrument on its and/or their behalf. Without limiting the forgoing, the Declarant and its successors and assigns agree to execute any such notices and instruments upon request of the Town or the Division.

5. **Enforceability.** The Town and the Division, jointly and severally, shall have the authority and right to enforce this Declaration of Restriction and are benefitted parties.

The Town and the Division, jointly and severally, shall have the right to enter the Proposed CR, in a reasonable manner and at reasonable times, for the purposes of (i) inspecting the Proposed CR to determine compliance with this Declaration of Restriction; (ii) enforcing this Declaration of Restriction; and (iii) taking any other action which may be necessary or appropriate.

The Town and the Division, jointly and severally, shall have the right to bring proceedings at law or equity against any party or parties violating or attempting to violate the terms of this Declaration of Restriction to enjoin them from so doing and to cause any such violation to be remedied, including but not limited to restoration of the portion of the Proposed CR adversely affected, after providing written notice to such party or parties and all mortgagees of record if the names and addresses of such parties and mortgagees have been provided in writing to the Town and the Division.

6. **Severability.** If any court or other tribunal of competent jurisdiction determines that any provision of this Declaration of Restriction is invalid or unenforceable, such provision shall be deemed to have been modified automatically to conform to the requirements for validity and enforceability as determined by such court or tribunal. In the event the provision invalidated is of such a nature that it cannot be so modified, the provision shall be deemed deleted from this instrument as though it had never been included herein. In either case, the remaining provisions of this instrument shall remain in full force and effect.

7. **Non-Waiver.** Any election by the Town and/or the Division as to the manner and timing of its right to enforce this Declaration of Restriction or otherwise exercise its rights hereunder shall not be deemed or construed to be a waiver of such rights.

8. **Access.** This Declaration of Restriction does not grant to the Town, the Division, the general public, or to any other person or entity any right to enter upon the Property except the right of the Town and the Division to enter the Property at reasonable times and in a reasonable manner for the purpose of inspecting the same to determine compliance herewith and enforcing this Declaration of Restriction as set forth in Section 5 above.

9. **Incorporation Into Deeds, Mortgages, Leases and Instruments of Transfer.** Declarant and Declarant's successors and assigns, including all subsequent owners of the Proposed CR or portions thereof, shall incorporate this Declaration of Restriction, in full or by reference, into all

deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer by which an interest in and/or a right to use the Proposed CR or any portion thereof is conveyed. Any such deed, mortgage or other interest purporting to convey any portion of the Proposed CR without including this Declaration of Restriction in full or be reference shall be deemed and taken to include said Declaration of Restriction in full even though said Declaration of Restriction is not expressly described or referenced therein.

10. **Recordation/Registration.** Declarant shall record and/or register this Declaration of Restriction with the appropriate Registry of Deeds and/or Land Registration Office upon the earlier of (i) thirty (30) days of its date of execution or (ii) the conveyance of the first Lot located on the Plan to a *bona fide* purchaser.

11. **Amendment and Release.** No amendment or release of this Declaration of Restriction shall be effective unless it has been approved in writing by the Division [hereinafter the Division Approval] and said amendment or release and the requisite Division Approval has been recorded with the appropriate Registry of Deeds and/or Land Registration Office. This unilateral Declaration of Restriction shall expire and have no force and effect, and shall be superseded if the underlying fee is transferred to said Division of Fisheries & Wildlife, or Department of Fish & Game, or a third party approved by the Division.

IN WITNESS WHEREOF William Daley, has caused these presents to be signed, acknowledged and delivered in its name and behalf this _____ day of _____, 20___.

By: _____

COMMONWEALTH OF MASSACHUSETTS

_____, ss. _____, 20___

On this day before me, the undersigned notary public, personally appeared(name), proved to me through satisfactory evidence of identification, which was ☐ photographic identification with signature issued by a federal or state governmental agency, ☐ oath or affirmation of a credible witness, ☐ personal knowledge of the undersigned, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

_____
Notary Public

SEAL

My Commission Expires:_____

Attachment 5

BLANDING'S TURTLE NESTING HABITAT OPERATION AND MANAGEMENT PLAN SEWELL STREET QUARRY RECLAMATION SEWELL STREET, GROVELAND, prepared by Oxbow Associates, Inc.

Conservation & Management Permit

Blanding's Turtle Nesting Habitat
OPERATION AND MANAGEMENT PLAN
Sewell Street Quarry Reclamation
Sewell Street, Groveland

1.0 Specifications for Project Site Areas

1.1 Turtle Nesting Habitat Creation – Specifications (see CMP)

Specimens of native bunch grasses, such as little bluestem (*Schizachyrium scoparius*), will be sparsely planted throughout the area (30-35 feet on center). Sparse vegetation (vs. more dense planting) will provide some shelter for adult and hatchling turtles, while increasing the longevity of the nesting area (open, sandy habitat) by reducing the rate of vegetative succession. Even if hummocks placed in the field perish over time, they act as aggregation points for additional growth and persist for several seasons as new growth is established.

Maintenance of the turtle nesting area, i.e., vegetation removal to maintain open canopy conditions, removal of undesirable plant species and removal of accumulated topsoil, will be accomplished with annual site inspections integrated into the Operations and Maintenance Manual for any future development on the premises (see below). Inspections will be conducted annually between August 1 and September 30 by R&D Site Development, or successor/managers with brief photographic/narrative reports filed with the Massachusetts Division of Fisheries and Wildlife referencing the Permit Number issued for the CMP (by December 31 of any calendar year).

2.0 Project Site Operation and Maintenance

2.1 Project Site Turtle Nesting Habitat Construction

Turtle nesting habitat of approximately 1.5 acres will be filled to near proposed finish grades with material from elsewhere on the Site to adjust the elevation to suitable conditions favorable for a turtle nesting site as indicated on the approved site plan materials referenced in the CMP. Following the rough grading, the area will be contoured and covered with 6-8 inches of sand (expected to be wholly derived from the Site) and will be sparsely planted with native bunch grasses (app. 30-35' centers) without additional loam or topsoil, as proposed in the Conservation and Management Permit Application.

The intent of the native bunch grass plantings is not to create a vegetated landscape, rather these features are intended to provide cover for emerged hatchlings and nuclei for growth of mosses and forbs. The planted bunch grasses do not need to survive or thrive in order to meet the intended conditions.

A modest amount of physical objects (up to 10) will also be added to the nesting habitat. These might include short tree butts (4-6') and/or boulders. These features will break up the openness of the nesting landscape and provide shading and cover locations for hatchlings and adult turtles.

Measures to abate and control erosion will be implemented as needed in an iterative manner during construction and may include integration of water bars or other measures to deter erosion of the nesting substrate.

2. Project Site Turtle Nesting Monitoring and Maintenance

The nesting habitat area will be maintained to exhibit **less than 50% vegetative cover and a well-drained, burrowable surface soil.** By implementing annual inspections, conditions can be maintained in a desirable, early-successional state. The intent is to encourage a persistent ground condition mimicking that of an abandoned gravel extraction area ten, to fifteen years post-abandonment – in the absence of invasive plant species. Features to be encouraged include encrusting lichens and adventitious mosses, patches or specimens of (native) herbaceous or woody vegetation and natural surface sorting effects of wind and rain on the mineral soil substrate.

The nutrient-poor soil will discourage growth of non-natives, but inspections and control will assure that undesirable species or communities do not become established. At the time that adventitious vegetation approaches or exceeds 50% coverage the vegetation will be removed by manual, mechanical or legally applied herbicidal means. All active maintenance of these areas will occur between **November 1 and May 1**, inclusive.

The prescription for O & M in this area is as follows:

1. Inspect and photo-document (at least four standardized compass points) the nesting area condition(s) between August 1 and September 30 in each calendar year following construction.
2. Provide a brief report, with at least four photographs from consistent, established viewpoints to NHESP by December 31 of each calendar year – referencing **Conservation Permit No. 018-326.DFW/NHESP File No. 12-313188**.
3. If vegetation growth approaches 50% of ground cover, the site will be restored to bare ground, retaining, or replacing the bunch grass plantings (30-35' centers).
4. If pernicious exotic vegetation including species listed as invasive by the Massachusetts Invasive Plants Advisory Group (MIPAG) (http://www.massnrc.org/mipag/invasive.htm) become established, control and eradication will commence immediately, with notice provided to NHESP of the prescribed actions and timelines.
5. The nesting habitat will be maintained with a predominantly mineral surface soil (sand/gravel), largely free of exotic vegetation and with less than 50% vegetative cover on an ongoing basis by the fee holder of the property to the adjacent north.

Attachment 6

DRAFT ESCROW AGREEMENT, Habitat Management

ESCROW AGREEMENT

This ESCROW AGREEMENT (this "Agreement") is entered into as of this ____ day of _____, _____ by and between the Massachusetts Division of Fisheries and Wildlife, by and through the Natural Heritage and Endangered Species Program, having a principal place of business at 1 Rabbit Hill Road, Westborough, Massachusetts, 01581 ("Division"); _____{ *permit holder/responsible party*} having a principal place of business at _____ {*business address for permit holder/responsible party*}; and _____ {*escrow agent name*}, having a principal place of business at _____{*escrow agent address*} ("Escrow Agent"). The Division, _____ *permit holder/responsible party*} and Escrow Agent are referred to herein collectively as the "Parties".

1. Recitals

a. The Conservation and Management Permit No. _____.DFW ("Permit") issued by the Division to _____ {*permit holder*} contains financial assurance provisions in paragraph #__ {*insert paragraph from issued permit*} of the Special Conditions section requiring that _____ {*responsible party*} ensure that funds are available in the sum of _____ ($___) (the "Funds") for the management of habitat, and/or conservation research, for the benefit of Blanding's Turtle, *Emydoidea blandingii* {*list all species; Common name, scientific name*}, populations in Massachusetts (hereinafter referred to as "Division-approved mitigation activities").

b. The Parties agree the Funds shall be paid by owner {*responsible party*} to the Escrow Agent and held in an interest bearing escrow account ("Escrow Account") (further defined in 2 below) and expended pursuant to the terms and conditions described below to mitigate for the "take" of State-listed species and their habitat, as described in the Permit in connection with the _____ {*basic description of project*} (the "Project"), located in Groveland {*municipality of project*}, Massachusetts.

The Parties enter into this Agreement for the purpose of defining the terms and conditions under which the Funds shall be held and disbursed.

NOW THEREFORE, after consideration of the above recitals, _____{*responsible party*}, the Division and the Escrow Agent hereby covenant and agree as follows:

2. Escrow Account

a. Prior to the start of work, which is defined as the start of any soil or vegetation disturbance, William Daley {*responsible party*} shall deliver to Escrow Agent the Funds, in the amount of $7,500.00 .

b. All funds delivered by _____{*responsible party*} to the Escrow Agent shall be deposited by the Escrow Agent in an interest bearing account or held in obligations by the US Government at one or more banks ("Depository Bank"), said account(s) to be at all times insured by the Federal Deposit Insurance Corporation and which shall pay interest on the Funds at a reasonable rate. The Escrow Agent shall ensure that all such account(s) are in the name of the owner/William Daley{*responsible party*} only. In

addition, the taxpayer information, including tax identification number, provided by the Escrow Agent to the Depository Bank shall be for the _____{*responsible party*} only. The Depository Bank shall be entitled to charge the Escrow Account for services related to maintenance of the Escrow Account at a rate not exceeding the Bank's standard charges to other customers for similar services.

c. The Escrow Account shall be opened by the Escrow Agent and funds may be withdrawn only by the Escrow Agent and no other person. Disbursements shall be made from the Escrow Account only in accordance with the terms of this Agreement.

d. The Escrow Agent shall maintain a record of all deposits, income, disbursements, and other transactions of the Escrow Account. Upon request, the Escrow Agent shall provide to any of the Parties a written accounting of all transactions. The Parties shall have the right to inspect all books and records of the Escrow Agent relating to the Escrow Account at reasonable times upon request. Escrow Agent's computation of the Funds is correct in the absence of manifest error.

e. The Escrow Agent shall keep possession of the book(s) and bank statements of the Escrow Account until such time as it is terminated in accordance with the terms of this Agreement, or until a successor Escrow Agent is appointed as provided herein.

3. Disbursements

From time to time, the Owner or Division may, on or before the date which is 25 years from the date of this Agreement, request in writing that the Escrow Agent to deliver all or portions of the Funds, plus any interest thereon, to be used for operation and maintenance (O&M) of the nesting habitat such that the standing balance in the escrow account remains at $7500 (Attachment 1). Upon receipt of such written request, the Escrow Agent shall deliver the requested portion of the Funds to the Owner or any party designated in writing by the Division. Delivery of the Funds in accordance with the terms of this Agreement shall be made by cashier's check, or by federal funds wire transfer, at the option of the payee.

a. The Escrow Agent may make disbursements to the Depository Bank for services rendered in maintaining said account.

b. If the O&M tasks are not, in whole or in part, implemented to the satisfaction of the Division, the Division or any party designated in writing by the Division shall have the right to use all or a portion of the Funds to correct or complete any such O&M activities in accordance with the Permit and any other written requirements of the Division.

c. If, at the end of 25 years from the date of this Agreement, any portion of the Funds is still held in escrow under this Agreement, then the Division shall, within six (6) months after such 25 year date, develop a plan for the use of any remaining Funds by the Division or any party designated in writing by the Division for the implementation of Division-approved mitigation activities in accordance with such plan

4. Termination of Agreement

This Escrow Agreement shall terminate, and the Escrow Agent shall be relieved of all

liability, after all funds in the Escrow Account have been properly disbursed in accordance with the terms and conditions of this Agreement. When the Escrow Account is terminated, the Escrow Agent shall provide a final accounting of all transactions hereunder to the Parties.

5. Duties and Liabilities of Escrow Agent

a. The sole duty of the Escrow Agent under this Agreement is to receive funds from ____ {*responsible party*} and to hold the funds for disbursement according to Section 3 above. The Escrow Agent shall be under no duty to pass upon the adequacy of any documents, to determine whether any of the Parties are complying with the terms and provisions of this Escrow Agreement, or to determine the identity or authority of any person purporting to be a signatory authorized by ____ {*responsible party}* or the Division.

b. The Escrow Agent may conclusively rely upon, and shall be protected in acting on, a statement, certificate, notice, requisition, order, approval, or other document believed by the Escrow Agent to be genuine and to have been given, signed and presented by a duly authorized agent of ____ {*responsible party*}or the Division. The Escrow Agent shall have no duty or liability to verify any statement, certificate, notice, request, requisition, consent, order, approval or other document, and its sole responsibility shall be to act only as expressly set forth in this Agreement. The Escrow Agent shall not incur liability for following the instructions contemplated by this Agreement or expressly provided for in this Agreement or other written instructions given to the Escrow Agent by the Parties. The Escrow Agent shall be under no obligation to institute or defend any action, suit or proceeding in connection with this Escrow Agreement, unless first indemnified to its satisfaction. The Escrow Agent may consult with counsel of its choice including shareholders, directors, and employees of the Escrow Agent, with respect to any question arising under or in connection with this Agreement, and shall not be liable for any action taken, suffered or omitted in good faith. The Escrow Agent shall be liable solely for its own willful misconduct.

c. The Escrow Agent may refrain from taking any action, other than keeping all property held by it in escrow if the Escrow Agent: (i) is uncertain about its duties or rights under this Escrow Agreement; (ii) receives instructions that, in its opinion, are in conflict with any of the terms and provisions of this Agreement, until it has resolved the conflict to its satisfaction, received a final judgment by a court of competent jurisdiction (if it deems such action necessary or advisable), or it has received instructions executed by both ____ {*responsible party}* and the Division.

d. Escrow Agent is acting, and may continue to act, as legal counsel to ____ {*responsible party}* in connection with the subject transaction, whether or not the Funds are being held by Escrow Agent or have been delivered to a substitute impartial party or a court of competent jurisdiction. *{If the preceding sentence is not applicable, then use the following sentence}* Escrow Agent is not acting as counsel to ____ {*responsible party}* in Escrow Agent's capacity as escrow agent.

e. Each of the Parties admits, acknowledges and represents to each of the other Parties that it has had the opportunity to consult with and be represented by

independent counsel of such party's choice in connection with the negotiation and execution of this Agreement. Each of the Parties further admits, acknowledges and represents to the other Parties that it has not relied on any representation or statement made by the other Parties or by any of their attorneys or representatives with regard to the subject matter, basis or effect of this Agreement.

6. Escrow Agent's Fee

a. Payments for services provided by Escrow Agent shall not be made from Escrow Funds.

7. Investment Risk

a. In no event shall the Escrow Agent have any liability as a result of any loss occasioned by the financial difficulty or failure of any institution, including Depository Bank, or which holds United States Treasury Bills, or other securities, or for failure of any banking institution, including Depository Bank, to follow the instructions of the Escrow Agent. Without limiting the generality of the foregoing, in no event shall the Escrow Agent incur any liability as the result of any claim or allegation that the Escrow Agent should have invested the escrow funds in United States Treasury Bills rather than hold same on deposit at the Depository Bank, or vice versa.

8. Notices

a. All notices permitted or required by this Agreement shall be in writing and shall be deemed duly provided when deposited in the United States mail, postage prepaid, certified or registered mail, return receipt requested, to the other Parties at the addresses set forth in the first paragraph of this Agreement. The Party providing notice may choose alternate methods, including hand delivery, Federal Express, or other recognized overnight courier. Notices provided by hand delivery; Federal Express or other recognized overnight courier shall be deemed duly provided when received at the addresses set forth in the first paragraph of this Agreement.

b. All notices, certification, authorizations, requests or other communications required, or permitted to be made under this Escrow Agreement shall be delivered as follows:

To the DIVISION:

Assistant Director for the Natural Heritage and Endangered Species Program
ATTN: Regulatory Review, CMP 018-326
Division of Fisheries and Wildlife
1 Rabbit Hill Road, North Drive
Westborough, MA 01581

To_____:

Company, Address, & Contact numbers

To the Escrow Agent:

Company, Address, & Contact numbers

or to such other place or to the attention of such other individual as a Party from time to time may designate by written notice to all other Parties.

9. Resignation, Removal, or Successor Escrow Agent

a. If, for any reason, the Escrow Agent is unable or unwilling to continue to act as Escrow Agent, he/she shall give written notice to the other Parties of his/her inability or unwillingness to continue as Escrow Agent. The parties shall agree upon a successor agent, formally appoint the successor agent, and provide written notification to the Escrow Agent of the subsequent appointment within ten (10) business days. The Escrow Agent shall then, within three (3) business days after receiving notice of subsequent appointment, deliver to the successor escrow agent all cash and other property held by the Escrow Agent under this Escrow Agreement. Upon such delivery, all obligations of the Escrow Agent under this Escrow Agreement shall automatically cease and terminate. If no successor escrow agent is designated within the prescribed ten (10) day period, or if notice of subsequent appointment is not received within such period, then the Escrow Agent may, at its option at any time thereafter, deposit the funds and any documents then being held by it in escrow into any court having appropriate jurisdiction, and upon making such deposit, shall thereupon be relieved of and discharged and released from any and all liability hereunder, including without limitation any liability arising from the Funds, or any portion thereof so deposited.

b. The Escrow Agent may be removed at any time by a written instrument or concurrent instruments signed by the Division and ___ {*responsible party}* and delivered to the Escrow Agent.

c. If at any time hereafter, the Escrow Agent shall resign, be removed, be dissolved, or otherwise become incapable of acting, or the position of the Escrow Agent shall become vacant for any of the foregoing reasons or for any other reason, the Parties hereto shall promptly appoint a successor Escrow Agent. Upon appointment, such successor Escrow Agent shall execute and deliver to his/her predecessor and to the Parties hereto an instrument in writing accepting such appointment hereunder. Thereupon, without further act, such successor Escrow Agent shall be fully vested with all the rights, immunities, and powers, and shall be subject to all the duties and obligations of his/her predecessor, and the predecessor Escrow Agent shall promptly deliver all books, records, and, other property and monies held by him/her hereunder to such successor Escrow Agent.

10. Interest

a. All interest income accrued on funds in the Escrow Account shall become part of the Escrow Account and shall remain in the Escrow Account. The ___ {*responsible party}* has the responsibility to pay federal and state taxes on the accrued interest on its funds in the Escrow Account, and the Escrow Agent may disburse funds from the Escrow Account for such purpose. Said disbursement may be made by the Escrow Agent only after receiving a written confirmation from ___ {*responsible party}*, with a copy sent to the Division, of all itemized federal and state tax liabilities incurred by interest accrued on the Escrow Account.

11. Miscellaneous

a. This Escrow Agreement shall be binding upon, and shall inure to the benefit of the respective Parties hereto and their successors and assigns.

b. This Agreement shall be governed by and be construed in accordance with the laws of the Commonwealth of Massachusetts.

c. This Agreement shall be interpreted as an instrument under seal.

d. This Agreement may be executed in any number of counterparts, each of which shall constitute an original, and all counterparts shall constitute one Agreement.

e. This Escrow Agreement may not be amended, altered, or modified except by written instrument duly executed by all of the Parties hereto.

f. If the term, condition or provision of this Agreement, or the application thereof to any circumstances or party hereto, ever shall be held to be invalid or unenforceable, then in each such event the remainder of this Agreement or the application of such term, condition, or provision to any other circumstance or party hereto (other than those as to which it shall be invalid or unenforceable) shall not be thereby affected, and each term, condition and provision hereof shall remain valid and enforceable to the fullest extent permitted by law.

g. Each individual and entity executing this Agreement hereby represents and warrants that he, she or it has the capacity set forth on the signature pages hereof with full power and authority to bind the party on whose behalf he, she or it is executing this Agreement to the terms hereof.

12. Effective Date

a. This Agreement shall take effect on the latest date of execution by the DIVISION, _____, or Escrow Agent.

[SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF, the parties have caused this Escrow Agreement to be duly executed as of the day and year first written above.

FOR THE MASSACHUSETTS DIVISION
OF FISHERIES AND WILDLIFE:

_____
Name:
Title:

COMMONWEALTH OF MASSACHUSETTS

_____, ss _____ __, 20__

On this __ day of ___, 20__, before me, the undersigned notary public, personally appeared _____, and proved to me through satisfactory evidence of identification, which were _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

_____
Notary Public
My commission expires:

FOR _____ (proponenet):

Company Name

By: _____.

By: _____
Name: _____
Its: _____

STATE OF _____

_____, ss _____ __, 20__

On this __ day of ___, 20___, before me, the undersigned notary public, personally appeared _____, and proved to me through satisfactory evidence of identification, which were _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

_____
Notary Public
My commission expires:

FOR THE ESCROW AGENT:

Company Name

By: _____
Name:
Title:

COMMONWEALTH OF MASSACHUSETTS

_____ ss. _____ __, 20__

On this __ day of ___, 20 , before me, the undersigned notary public, personally appeared _____, and proved to me through satisfactory evidence of identification, which were _____, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

_____
Notary Public
My commission expires:

Attachment 7

NHESP Open Space Plan (Plan sheet 3, of 3 sheets entitled ""PLAN OF LAND IN GROVELAND, MA SHOWING PROPOSED SITE IMPROVEMENTS AT SEWELL STREET"), dated July 25, 2018, Prepared by Millennium Engineering, "Plan of Land"


MERIDIAN FROM MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)
SALEM STREET
NELSON STREET
(40' WIDE - PRIVATE)
SEWELL STREET
(40' WIDE - PRIVATE)
PLAN BOOK 421, PLAN 29
LOT 47-25A
24,826 S.F.
=0.570 AC.
SKYLINE HEIGHTS REALTY, LC
LOT 47-24
36,000 S.F.
=0.826 AC.
LOT 47-32D
16,122 S.F.
=0.370 AC.
LOT 47-32B
34,570 S.F.
=0.794 AC.
JOSEPH T RYAN, SR. & ROSE M. RYAN
DEED BK.7800, PG.22
LOT 47-29
444,672 S.F.
=10.208 AC.
PHASE 1A -
NESTING HABITAT
1.5 Ac.
LOT 47-30
175,722 S.F.
=4.034 AC.
LOT 53-4A
266,022 S.F.
=6.107 AC.
OPEN SPACE A
10.8 Ac.
PROPOSED CONSERVATION SIGN (TYP.)
D.H.S.B. T.B.S.
STONE BOUND FND. (HELD)
CONSERVATION RESTRICTION AREA BEYOND THIS POINT MGL CH. 184 §31-34
¼"x½" LG. PIN HD. BOLTS WITH NUTS & LOCK WASHERS
LETTERING 1.5" HIGH (MIN)
ALUMINUM OR GALVANIZED STEEL POST
24"
36"-42" ABOVE GROUND
SIGN DETAIL
NO SCALE
1 1/4" LETTERING
SIGN ATTACHED TO POST WITH 3/8" LAG BOLTS (TYP)
6"x6"x8' PRESSURE TREATED WOODEN POST
FINISHED GRADE
5 1/2"
3"
2'-0"
4'-0"
3'-6" MINIMUM
CONSERVATION RESTRICTION POST & SIGN DETAIL
NO SCALE

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60'

PREPARED FOR

R&D SITE DEVELOPMENT

NO.	DATE	DESCRIPTION	BY

MILLENNIUM ENGINEERING, INC.
ENGINEERING AND LAND SURVEYING
62 ELM ST. SALISBURY, MA 01952 (978) 463-8980
13 HAMPTON RD. EXETER, NH 03833 (603) 778-0528

SCALE: 1"=60'	DESG. BY: C.M.Y.	PROJECT: M173200
DATE: JUL. 25, 2018	CHKD. BY: E.W.B.	

PLAN OF LAND
IN
GROVELAND, MA
SHOWING
PROPOSED SITE IMPROVEMENTS
AT
SEWELL STREET

NHESP OPEN SPACE PLAN

SHEET: 3 OF 3

Attachment 8

BLANDING'S TURTLE PROTECTION PLAN FOR SEWELL STREET QUARRY RESTORATION AND DEVELOPMENT SEWELL STREET, GROVELAND, MA, dated July 25, 2018, prepared by Oxbow Associates, Inc.

Blanding's Turtle Protection Plan for
Sewell Street Quarry Restoration and Development
Sewell Street, Groveland, MA

July 25, 2018

Prepared for:
MA Natural Heritage & Endangered Species Program
NHESP File #12-31388

Prepared by:
Oxbow Associates, Inc.
P.O. Box 971
Acton, MA 01720

On behalf of:
R&D Site Development
7 Hemlock Lane
Groveland, MA 01834

Oxbow Associates, Inc. (OA) has prepared this Turtle Protection Plan to avoid incidental mortality to Blanding's turtles (*Emydoidea blandingii)* during the course of filling and grading at the subject Site.

This protection plan is comparable to similar measures required by NHESP for analogous projects in the Commonwealth. OA will utilize Scientific Collecting Permit 250.18WRA previously issued for this property by the Massachusetts Division of Fisheries and Wildlife (MDFW) for the implementation of this plan. A brief memorandum will be provided to NHESP within 10 days of completion of the turtle clearing surveys. This will include date, time, conditions, personnel, hours-on-site, and results. The memo report will include the NHESP tracking number and contact information for the individual filing the report. OA will prepare and submit Rare Animal Observation forms, as needed.

The Project is the restoration and development of an abandoned quarry located at Sewell Street in Groveland for which a Conservation and Management Permit is being issued. We are seeking approval for work associated with all aspects of the Phase 1 filling and grading construction sequence, as described in the Conservation and Management Permit, and the Site Plans (see "Plan of Land in Groveland, MA – Phase 1 & 1A" site plan, last revised July 20, 2018 by Millennium Engineering, Inc., attached herewith). As described in the approved protocol submitted to NHESP on April 27, 2018, a ±2.8 acre portion of the Phase 1 site has already been isolated and surveys for the target species have been completed (see email communication from R. Strohsahl on May 30, 2018). The remaining Phase 1 area, approximately 5.5 acres, is proposed to be isolated with silt fence and surveyed for Blanding's turtles using the methods described below.

Blanding's Turtle Protection Precautions

At the project site, OA will conduct a pre-construction inspection including an evaluation of the equipment access routes to determine construction methods that will minimize the likelihood of harming any Blanding's turtles. This Turtle Protection Plan is intended to also cover work associated with the proposed habitat mitigation project, which is contained within the limit of work.

There are five general components to the turtle protection plan:

1. **Administration of a worker training program**
   Prior to initial construction work, the construction crew, project foreman, and site engineers will be provided a brief (est. 20 minutes) introductory session on Blanding's turtle biology, behavior and conservation by Oxbow Associates, Inc.. Laminated posters with images of turtles, contact information for a qualified biologist and instructions regarding proper protocol if a Blanding's turtle is encountered will be provided. These posters will be given to the construction supervisor and available at the site office trailer for review by all workers.

2. **Installation of a Turtle Barrier Fence**
   Prior to the commencement of site work, the area will be sequestered with siltation fencing to function as turtle barriers. Once installed, OA will confirm that the barrier is installed properly (trenched-in, hay bales on the work side of fence only [if needed], secure and taut, etc.) and the fence will be inspected weekly by the contractor for the duration of the project during the turtle active season (April 15 – Oct. 15). Temporary gates (e.g., 18 or 24" PVC half-cut culverts or equivalent) will be fitted to each construction access point and closed at the end of each work-day. Any turtles found during the fence installation or inspection shall be reported to the turtle biologist then relocated outside the barrier to a safe location with suitable habitat.

   The barrier will consist of a standard; 36-inch silt fence trenched-in the ground approximately 6 inches, staked approximately every 8 feet, and will be installed around the limit of work. Use of a ditch-witch and chain saws will allow the turtle barrier (silt fence) to be installed with very low probability of injuring or killing individual animals. Any other methods using larger machinery must be approved by the NHESP. Moveable gates made with corrugated PVC 18-inch or larger, half culverts, or wooden gates will be used at the construction access locations (See Photos).

PVC Culvert “Gate”

Wooden “Gate”

3. **Maintenance of Turtle Barrier Fence**
   The fence will be inspected weekly by the contractor for the duration of the project, and the construction access point (e.g., wooden barriers/half culverts) must be closed at the end of each work day. If any damage occurs to the turtle barrier, it must be repaired immediately, and the turtle biologist notified.

4. **Clearing surveys immediately prior to initiating upland work**
   Upon confirmation that the barrier is installed correctly and all construction access roads are equipped with moveable turtle barriers (gates), visual surveys shall be conducted by qualified turtle biologists. The limit of work enclosed by the fence (5.5± acres) will be surveyed prior to any tree clearing or earthwork. OA estimates a total of 22 person-hours (5.5 acres x 4hr = 22hrs). These surveys shall occur under appropriate weather conditions for reptile surveys and no more than two consecutive days of survey can be completed before skipping one day.

   NOTE ON SEASONAL RESTRICTION: If the work is delayed until after October 15 and before April 15 (winter), surveys for turtles and the turtle barrier may be avoided depending on the estimated duration of construction and current conditions. Any work start without animal clearing must be approved by NHESP.

5. **Turtle observations, relocations, and reporting**
   Any turtles encountered (state-listed or common) during site work will be reported to the turtle biologist, and the turtle biologist shall relocate the turtle to a nearby location outside of the work area with similar conditions. This will be completed under guidelines specified in the Scientific Collecting Permit from MDFW. Documentation will include standard morphometric data (mass, carapace length and depth), age as determined by annuli count, determination of sex, description of behavior and local environment at time of capture, and photographs taken of the animal. Any turtles found will be recorded using hand-held GPS receivers with sub-meter accuracy.

APPENDIX B - CORRESPONDENCE WITH TOWN OF GROVELAND

7 Hemlock Lane
Groveland, Ma. 01834
Office: 978 374-4353

01/09/18

Sewall St. Reclamation Project

General Conditions:

1.) It is R&D's intention to fill said property to the design elevations submitted in the Soil Management Plan for future development.

2.) R&D will supply the Town with a $ 75,000.00 Performance Bond for any damage that may incur to Sewell or Salem St.

3.) R&D will obtain a permit from MassDEP as legally required for the Reclamation process to take place.

4.) Hours of Operation will be from 7:00am - 5:00pm Monday thru Friday. There will be no Operations or Truck traffic on Saturdays, Sundays or Holidays except to control any dust, flooding or maintenance.

5.) R&D will maintain Dust Control measures on site at all times

6.) R&D will maintain a Sweeper on Site at all times

7.) Trucks will use laid out routes as specified in the Soil Management Plan.

8.) Entrances will be secured during non operations

9.) R&D will keep roadways and entrances clean at all times

10.) R&D will copy Town on all DEP correspondence

11.) R&D will meet with all abutters prior to address any comments or concerns

12.) R&D will fully comply with the current Order of Conditions issued by the Groveland Conservation Commission

13.) R&D will supply the Town with a Certificate of Insurance naming the Town additional insured.

Town of Groveland
Board of Selectmen

R&D Site Development

1/23/18

APPENDIX C - STORM WATER POLLUTION PREVENTION PLAN / ENOI

Stormwater Pollution Prevention Plan for:

Sewell Street
Groveland, MA 01834

Operator(s):

Bill Daley
7 Hemlock Lane
Groveland, MA 01834
(781) 820-0227

Owner:

Groveland RT, LLC
7 Hemlock Lane
Groveland, MA 01834
(781) 820-0227

Emergency 24-Hour Contact:

Bill Daley
7 Hemlock Lane
Groveland, MA 01834
(781) 820-0227

Prepared By:

Millennium Engineering, Inc.
62 Elm Street
Salisbury, MA 01952
(978) 463-8980

SWPPP Preparation Date:

8 / 28 / 2017

Estimated Project Dates:

Project Start Date: 9 / 18 / 2017
Project Completion Date: 4 / 27 / 2018

SECTION 1: PROJECT/SITE INFORMATION

Groveland RT, LLC proposes to fill an old gravel pit. Elevations within the project site range from 153.00' to 77.00' in the wetland resource area. These elevations are based upon 1988 NAVD.

The existing site contains an old gravel pit that has become overgrown in spots with scrub vegetation. The rest of the site is undeveloped woodland. Wetland resource areas are present along the westerly and southerly property lines. Stormwater runoff patterns generally flow from west to east across the property into the wetlands. See the accompanying plan for a more detailed description of the existing site conditions and topography.

The site consists of multiple soil groups: Scarboro mucky fine sandy loam, 6A (Hydrologic Soil Group D); Pits, gravel, 600 (No Hydrologic Soil Group); Hinckley loamy sand, 253D (Hydrologic Soil Group A); Rock outcrop-Charlton-Hollis complex, 717 (No Hydrologic Soil Group); Sutton fine sandy loam, 411B (Hydrologic Soil Group B); and Deerfield loamy fine sand, 256A (Hydrologic Soil Group A).

SECTION 2: EROSION AND SEDIMENT CONTROL BMPS

2.1 Minimize Disturbed Area and Protect Natural Features and Soil

Topsoil

Topsoil stripped from the immediate construction area can be temporarily stockpiled on site providing that the perimeter of the stockpiles are properly staked with silt fence at the toe of slope. The stockpiles shall be in areas that will not interfere with construction and at least 15 feet away from areas of concentrated flows or pavement. The area shall be inspected weekly for erosion and immediately after storm events. Areas on or around the stockpile that have eroded shall be stabilized immediately with erosion controls.

2.2 Stabilize Soils

Temporary Stabilization

- All vegetated areas which do not exhibit a minimum of 85% vegetative growth by Oct. 15th, or which are disturbed after Oct. 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The placement of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt events.
- All ditches or swales which do not exhibit a minimum of 85% vegetative growth by Oct. 15th, or which are disturbed after Oct. 15th, shall be stabilized with stone or erosion control blankets appropriate for the design flow conditions.
- After November 15th, incomplete road surfaces, where work has stopped for the winter season, shall be protected with a minimum of 3 inches of crushed gravel.

2.3 Protect Slopes

Geotextile erosion control blankets shall be used to provide stabilization for slopes exceeding 3:1. Prepare soil before installing erosion control blanket, including any necessary application of lime, fertilizer, and seed. Begin at the top of the slope by anchoring the blanket in a 6" deep x 6" wide trench with approximately 12" extended beyond the upslope portion of the trench. Anchor the blanket with a row of staples/stakes approximately 12" apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to compacted soil and fold remaining 12" portion of back over seed and compacted soil. Secure over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the blanket. Roll erosion control blanket either down or horizontally across the slope. Blanket will unroll with appropriate side against the soil surface. All blankets must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide. When using the dot system, staples/stakes should be placed through each of the colored dots corresponding to the appropriate staple pattern. The edges of parallel blankets must be stapled with approximately 2"-5" overlap. Consecutive blankets spliced down the slope must be placed end over end (shingle style) with an approximate 3" overlap. Staple through overlapped area, approximately 12" apart across entire blanket's width. In loose soil conditions, the use of staple or stake lengths greater than 6" may be necessary to properly anchor the blanket.

2.4 Establish Perimeter Controls and Sediment Barriers

Silt fence shall be installed along the edge of clearing. The silt fence shall be installed before construction begins. Wooden posts shall be doubled and coupled at filter cloth seams. Filter cloth shall be fastened securely to support netting with ties spaced every 24" at top, midsection, and bottom. When two sections of filter cloth adjoin each other, they shall be overlapped by 6 inches, folded and stapled. Woodchips shall be installed at downslope side of silt fence and shall remain after silt fence is removed. Silt fence shall be removed upon completion of the project and stabilization of all soil.

Maintenance:
1. Silt fence shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any repairs that are required shall be made immediately.
2. If the fabric on the silt fence shall decompose or become ineffective during the expected life of the fence, the fabric shall be replaced promptly.
3. Sediment deposits shall be inspected after every storm event. The deposits shall be removed when they reach approximately one-half the height of the barrier.
4. Sediment deposits that are removed or left in place after the fabric has been removed shall be graded to conform with the existing topography and vegetated.

2.5 Establish Stabilized Construction Entrance

A stabilized construction entrance shall be installed before construction begins on the site. The stone anti-tracking pad shall remain in place until the subgrade of pavement is installed.

1. Stone shall be 1-2" stone, reclaimed stone, or recycled concrete equivalent.

2. The length of the stabilized entrance shall not be less than 50'.
3. The thickness of the stone for the stabilized entrance shall not be less than 6".
4. Geotextile filter cloth shall be placed over the entire area prior to placing the stone.
5. All surface water that is flowing to or diverted toward the construction entrance shall be piped beneath the entrance. If piping is impractical, a berm with 5:1 slopes that can be crossed by vehicles may be substituted for the pipe.
6. The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top-dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, washed, or tracked onto public rights-of-way must be removed promptly.
7. Wheels shall be cleaned to remove mud prior to entrance onto public rights-of way. When washing is required, it shall be done on an area stabilized with stone which drains into an approved sediment trapping device.

SECTION 3: GOOD HOUSEKEEPING BMPs

3.1 Material Handling and Waste Management

Waste Materials

All waste materials will be collected and disposed of into two metal trash dumpsters in the materials storage area. Dumpsters will have a secure watertight lid, be placed away from stormwater conveyances and drains, and meet all federal, state, and municipal regulations. Only trash and construction debris from the site will be deposited in the dumpster. No construction materials will be buried on-site. All personnel will be instructed regarding the correct disposal of trash and construction debris. Notices that state these practices will be posted in the office trailer and the individual who manages day-to-day site operations will be responsible for seeing that these practices are followed.

Recycling

Wood pallets, cardboard boxes, and other recyclable construction scraps will be disposed of in a designated dumpster for recycling. The dumpster will have a secure watertight lid, be placed away from stormwater conveyances and drains and meet all local and state solid-waste management regulations. Only solid recyclable construction scraps from the site will be deposited in the dumpster. All personnel will be instructed regarding the correct procedure for disposal of recyclable construction scraps. Notices that state these procedures will be posted in the office trailer, and the individual who manages day-to-day site operations will be responsible for seeing that these procedures are followed.

Dust Control

A water tank shall be kept on-site to control dust.

3.2 Establish Proper Building Material Staging Areas

Construction equipment and maintenance materials will be stored at the combined staging area and materials storage areas. A watertight shipping container will be used to store hand tools, small parts, and other construction materials.

Nonhazardous building materials such as packaging material (wood, plastic, and glass) and construction scrap material (brick, wood, steel, metal scraps and pipe cuttings) shall be stored in a separate covered storage facility adjacent to the shipping container. Very large items such as framing materials and stockpiled lumber shall be stored in the open in the materials storage area. Such materials shall be elevated on wood blocks to minimize contact with runoff.

3.3 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

All major equipment/vehicle fueling and maintenance will be performed off-site. A small fuel tank will be kept on-site in the trailer. When vehicle fueling must occur on-site, the fueling activity will occur in the staging area. Only minor equipment maintenance may occur on-site. All equipment fluids generated from maintenance activities will be disposed of into designated drums stored on spill pallets in accordance with Part 3.1. Absorbent, spill-cleanup materials and spill kits shall be available at the combined staging and materials storage area. Drip pans will be placed under all equipment receiving maintenance and vehicles and equipment parked overnight. All equipment and vehicle washing shall be performed off-site.

Inspect equipment/vehicle storage areas and fuel tank weekly and after storm events. Vehicles and equipment will be inspected on each day of use. Leaks will be repaired immediately, or the problem vehicle(s) or equipment must be removed from the project site. Keep ample supply of spill-cleanup materials on-site and immediately clean up spills and dispose of materials properly.

SECTION 4: FINAL STABILIZATION

Permanent Seeding

Loam and hydroseed any disturbed surfaces after the final design grades have been achieved. A minimum of 6" of loam shall be installed. Seed mix shall be 20 lbs./acre of tall fescue, 20 lbs./acre of creeping red fescue and 10 lbs./acre of birdsfoot trefoil. Lime shall be applied at a rate of 2 tons/acre.

Construction debris, trash and temporary BMPs (including silt fences, material storage areas, and inlet protection) will also be removed and any areas disturbed during removal will be seeded immediately.

SECTION 5: INSPECTIONS

Inspection Report Template – Field Version

Purpose

This Inspection Report Template (or "template") was designed to assist you in preparing inspection reports for EPA's 2012 Construction General Permit (CGP). If you are covered under the 2012 CGP, this template will enable you to create an inspection report form that is customized to the specific circumstances of your project and that complies with the minimum reporting requirements of Part 4.1.7 of the permit. Note that the use of this form is optional; you may use your own inspection report form provided it includes the minimum information required in Part 4.1.7 of the CGP.

If you are covered under a state CGP, this template may be helpful in developing a form that can be used for that permit; however it will need to be modified to meet the specific requirements of that permit. If your permitting authority requires you to use a specific inspection report form, you should not use this form.

Notes:

While EPA has made every effort to ensure the accuracy of all instructions and guidance contained in the Inspection Report Template, the actual obligations of regulated construction activities are determined by the relevant provisions of the permit, not by the template. In the event of a conflict between the Inspection Report Template and any corresponding provision of the 2012 CGP, you must abide by the requirements in the permit. EPA welcomes comments on the Inspection Report Template at any time and will consider those comments in any future revision of this document. You may contact EPA for CGP-related inquiries at cgp@epa.gov.

Overview of Inspection Requirements

Construction operators covered under the 2012 CGP are subject to the following requirements in Part 4:

Inspection Frequency (see Part 4.1.4)

You are required to conduct inspections either:

- Once every 7 calendar days; or
- Once every 14 calendar days and within 24 hours of a storm event of 0.25 inches or greater.

Your inspection frequency is increased if the site discharges to a sensitive water. See Part 4.1.3. Your inspection frequency may be decreased to account for stabilized areas, or for arid, semi-arid, or drought-stricken conditions, or for frozen conditions. See Part 4.1.4.

Areas That Need to Be Inspected (see Part 4.1.5)

During each inspection, you must inspect the following areas of your site:

- Cleared, graded, or excavated areas of the site;
- Stormwater controls (e.g., perimeter controls, sediment basins, inlets, exit points etc.) and pollution prevention practices (e.g., pollution prevention practices for vehicle fueling/maintenance and washing, construction product storage, handling, and disposal, etc.) at the site;
- Material, waste, or borrow areas covered by the permit, and equipment storage and maintenance areas;
- Areas where stormwater flows within the site;
- Stormwater discharge points; and
- Areas where stabilization has been implemented.

What to Check For During Your Inspection (see Part 4.1.6)

During your site inspection, you are required to check:

- Whether stormwater controls or pollution prevention practices require maintenance or corrective action, or whether new or modified controls are required;
- For the presence of conditions that could lead to spills, leaks, or other pollutant accumulations and discharges;
- Whether there are visible signs of erosion and sediment accumulation at points of discharge and to the channels and streambanks that are in the immediate vicinity of the discharge;
- If a stormwater discharge is occurring at the time of the inspection, whether there are obvious, visual signs of pollutant discharges; and
- If any permit violations have occurred on the site.

Inspection Reports (see Part 4.1.7)

Within 24 hours of completing each inspection, you are required to complete an inspection report that includes:

- Date of inspection;
- Names and titles of persons conducting the inspection;
- Summary of inspection findings;
- Rain gauge or weather station readings if your inspection is triggered by the 0.25 inch storm threshold; and
- If you determine that a portion of your site is unsafe to access for the inspection, documentation of what conditions prevented the inspection and where these conditions occurred on the site

Instructions for Using This Template

This Field Version of the Inspection Report Template is intended to be used in the field and filled out by hand. If you will be filling out the Inspection Report Template electronically (i.e., you will be typing in your findings), please use the Electronic Version of the Inspection Report Template available at www.epa.gov/npdes/stormwater/swppp. The Electronic Version includes text fields with instructions for what to enter.

Keep in mind that this document is a template and not an "off-the-shelf" inspection report that is ready to use without some modification. You must first customize this form to include the specifics of your project in order for it to be useable for your inspection reports. Once you have entered all of your site-specific information into these fields, you may print out this form for use in the field to complete inspection reports.

The following tips for using this template will help you ensure that the minimum permit requirements are met:

- **Review the inspection requirements.** Before you start developing your inspection report form, read the CGP's Part 4 inspection requirements. This will ensure that you have a working understanding of the permit's underlying inspection requirements.
- **Complete all required text fields.** Fill out <u>all</u> text fields. Only by filling out all fields will the template be compliant with the requirements of the permit. (Note: Where you do not need the number of rows provided in the template form for your inspection, you may leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)
- **Use your site map to document inspection findings.** In several places in the template, you are directed to specify the location of certain features of your site, including where stormwater controls are installed and where you will be stabilizing exposed soil. You are also asked to fill in location information for unsafe conditions and the locations of any discharges occurring during your inspections. Where you are asked for location information, EPA encourages you to reference the point on your SWPPP site map that corresponds to the requested location on the inspection form. Using the site map as a tool in this way will help you conduct efficient inspections, will assist you in evaluating problems found, and will ensure proper documentation.
- **Sign and certify each inspection report.** Each inspection report must be signed and certified by the permittee to be considered complete. Where your inspections are carried out by a contractor or subcontractor, it is recommended that you also have the form signed and certified by the inspector, in addition to the signature and certification required of the permitted operator. The template includes a signature block for both parties.
- **Include the inspection form with your SWPPP.** Once your form is complete, make sure to include a copy of the inspection form in your SWPPP in accordance with Part 7.2.12.4 of the CGP.
- **Retain copies of all inspection reports with your records.** You must also retain in your records copies of all inspection reports in accordance with the requirements in Part 4.1.7.3 of the 2012 CGP. These reports must be retained for at least 3 years from the date your permit coverage expires or is terminated.

Section-by-Section Instructions

You will find specific instructions corresponding to each section of the report form on the reverse side of each page. These instructions provide you with more details in terms of what EPA expects to be documented in these reports.

General Information

(see reverse for instructions)

ame of Project		CGP Tracking No.	NHR12AB74	Inspection Date	

spector Name, Title & ontact Information	
esent Phase of Construction	
spection Location (If multiple spections are required, ecify location where this spection is being nducted)	

spection Frequency *(Note: you may be subject to different inspection frequencies in different areas of the site. Check all that apply.)*

Standard Frequency: ☐ Weekly ☐ Every 14 days and within 24 hours of a 0.25" rain

Increased Frequency: ☐ Every 7 days and within 24 hours of a 0.25" rain (for areas of sites discharging to sediment or nutrient-impaired waters or to waters designated as Tier 2, Tier 2.5, or Tier 3)

Reduced Frequency:

- ☐ Once per month (for stabilized areas)
- ☐ Once per month and within 24 hours of a 0.25" rain (for arid, semi-arid, or drought-stricken areas during seasonally dry periods or during drought)
- ☐ Once per month (for frozen conditions where earth-disturbing activities are being conducted)

this inspection triggered by a 0.25" storm event? ☐ Yes ☐ No

f yes, how did you determined whether a 0.25" storm event has occurred?

☐ Rain gauge on site ☐ Weather station representative of site. Specify weather station source:

otal rainfall amount that triggered the inspection (in inches):

fe Conditions for Inspection

Did you determine that any portion of your site was unsafe for inspection per CGP Part 4.1.5? ☐ Yes ☐ No

If "yes", complete the following:

- Describe the conditions that prevented you from conducting the inspection in this location:

- Location(s) where conditions were found:

Instructions for Filling Out "General Information" Section

ne of Project
er the name for the project.

Tracking No.
r the tracking number that was assigned to your NOI application for permit coverage.

ection Date
r the date you conducted the inspection.

ector Name, Title & Contact Information
lde the name of the person(s) (either a member of your company's staff or a contractor or subcontractor) that conducted this inspection. Provide the inspector's e, title, and contact information as directed in the form.

ent Phase of Construction
project is being completed in more than one phase, indicate which phase it is currently in.

ection Location
r project has multiple locations where you conduct separate inspections, specify the location where this inspection is being conducted. If only one inspection is ducted for your entire project, enter "Entire Site." If necessary, complete additional inspection report forms for each separate inspection location.

ction Frequency
k the box that describes the inspection frequency that applies to you. Note that you may be subject to different inspection frequencies in different areas of your your project does not discharge to a "sensitive water" (i.e., a water impaired for sediment or nutrients, or listed as Tier 2, 2.5, or 3 by your state or tribe) and you ot affected by any of the circumstances described in CGP Part 4.1.4, then you can choose your frequency based on CGP Part 4.1.2 – either weekly, or every week and within 24 hrs of a 0.25 in storm event. For any portion of your site that discharges to a sensitive water, your inspection frequency for that area is fixed CGP Part 4.1.3 at weekly and within 24 hrs of a 0.25 inch storm event. If portions of your site are stabilized, are located in arid, semi-arid, or drought-stricken , or are subject to frozen conditions, consult CGP Part 4.1.4 for the applicable inspection frequency. Check all the inspection frequencies that apply to your ct.

his Inspection Triggered by a 0.25 Inch Storm Event?
were required to conduct this inspection because of a 0.25 inch (or greater) rain event, indicate whether you relied on an on-site rain gauge or a nearby er station (and where the weather station is located). Also, specify the total amount of rainfall for this specific storm event.

Conditions for Inspection
itions are not required where a portion of the site or the entire site is subject to unsafe conditions. See CGP Part 4.1.5. These conditions should not regularly occur, ould not be consistently present on a site. Generally, unsafe conditions are those that render the site (or a portion of it) inaccessible or that would pose a ont probability of injury to applicable personnel. Examples could include severe storm or flood conditions, high winds, and downed electrical wires.

site, or a portion of it, is affected by unsafe conditions during the time of your inspection, provide a description of the conditions that prevented you from cting the inspection and what parts of the site were affected. If the entire site was considered unsafe, specify the location as "Entire site"

Condition and Effectiveness of Erosion and Sediment (E&S) Controls (CGP Part 2.1)

(see reverse for instructions)

Type/Location of E&S Control (Add on additional sheet if necessary)	Repairs or Other Maintenance Needed?*	Corrective Action Required?*	Date on Which Maintenance or Corrective Action First Identified?	Notes
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		

* The permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. The permit requires maintenance to keep controls in effective operating condition and requires repairs if controls are not operating as intended. Corrective actions are triggered only for specific, serious conditions, which include: 1) A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 3; 2) You become aware that the stormwater controls you have installed and are maintaining are not effective enough for the discharge to meet applicable water quality standards or applicable requirements in Part 3.1; 3) One of the prohibited discharges in Part 2.3.1 is occurring or has occurred; or 4) EPA requires corrective actions as a result of a permit violation found during an inspection carried out under Part 4.2. If a condition on your site requires a corrective action, you must also fill out a corrective action form found at www.epa.gov/npdes/stormwater/swppp. See Part 5 of the permit for more information.

pe and Location of E&S Controls

vide a list of all erosion and sediment (E&S) controls that your SWPPP indicates will be installed and implemented at your site. This list must include at a minimum all
s controls required by CGP Part 2.1.2. Include also any natural buffers established under CGP Part 2.1.2.1. Buffer requirements apply if your project's earth-disturbing
ivities will occur within 50 feet of a surface water. You may group your E&S controls on your form if you have several of the same type of controls (e.g., you may
up "Inlet Protection Measures", "Perimeter Controls", and "Stockpile Controls" together on one line), but if there are any problems with a specific control, you must
arately identify the location of the control, whether repairs or maintenance or corrective action are necessary, and in the notes section you must describe the
cifics about the problem you observed.

pairs or Other Maintenance Needed?

wer "yes" if the E&S control requires a repair of any kind (due to normal wear and tear, or as a result of damage) or requires maintenance in order for the control
continue operating effectively. At a minimum, maintenance is required in the following specific instances: (1) for perimeter controls, whenever sediment has
cumulated to ½ or more the above-ground height of the control (CGP Part 2.1.2.2.b); (2) where sediment has been tracked-out onto the surface of off-site streets
ther paved areas (CGP Part 2.1.2.3.d); (3) for inlet protection measures, when sediment accumulates, the filter becomes clogged, and/or performance is
mpromised (CGP Part 2.1.2.9.b); and (4) for sediment basins, as necessary to maintain at least ½ of the design capacity of the basin (CGP Part 2.1.3.2.b). Note: In
ny cases, "yes" answers are expected and indicate a project with an active operation and maintenance program. You should also answer "yes" if work to fix the
blem is still ongoing from the previous inspection.

ective Action Needed?

wer "yes" if during your inspection you found any of the following conditions to be present (CGP, Part 5.2.1): (1) a required E&S control was never installed, was
lled incorrectly, or not in accordance with the corresponding CGP Part 2 or 3 requirement; (2) you become aware that the inadequacy of the E&S control has led
n exceedance of an applicable water quality standard; or (3) EPA requires corrective action for an E&S control as a result of a permit violation found during an
action carried out under Part 4.2. If you answer "yes", you must take corrective action and complete a corrective action report, found at
.epa.gov/npdes/stormwater/swppp. Note: You should answer "yes" if work to fix the problem from a previous inspection is still ongoing.

on Which Maintenance or Corrective Action First Identified?

de the date on which the condition that triggered the need for maintenance or corrective action was first identified. If the condition was just discovered during
spection, enter the inspection date. If the condition is a carryover from a previous inspection, enter the original date of the condition's discovery.

ach E&S control and the area immediately surrounding it, note whether the control is properly installed and whether it appears to be working to minimize
ent discharge. Describe any problem conditions you observed such as the following, and why you think they occurred as well as actions (e.g., repairs,
enance, or corrective action) you will take or have taken to fix the problem:

Failure to install or to properly install a required E&S control
Damage or destruction to an E&S control caused by vehicles, equipment, or personnel, a storm event, or other event
Mud or sediment deposits found downslope from E&S controls
Sediment tracked out onto paved areas by vehicles leaving construction site
Noticeable erosion at discharge outlets or at adjacent streambanks or channels
Erosion of the site's sloped areas (e.g., formation of rills or gullies)
E&S control is no longer working due to lack of maintenance

fer areas, make note of whether they are marked off as required, whether there are signs of construction disturbance within the buffer, which is prohibited
he CGP, and whether there are visible signs of erosion resulting from discharges through the area.

s, maintenance, or corrective action is required, briefly note the reason. If repairs, maintenance, or corrective action have been completed, make a note of
e it was completed and what was done. If corrective action is required, note that you will need to complete a separate corrective action report describing
dition and your work to fix the problem.

Condition and Effectiveness of Pollution Prevention (P2) Practices (CGP Part 2.3)

(see reverse for instructions)

pe/Location of P2 Practices dd on additional sheet if cessary)	Repairs or Other Maintenance Needed?*	Corrective Action Required?*	Date on Which Maintenance or Corrective Action First Identified?	Notes
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		
	☐Yes ☐No	☐Yes ☐No		

The permit differentiates between conditions requiring repairs and maintenance, and those requiring corrective action. The permit requires maintenance in keep controls in effective operating condition and requires repairs if controls are not operating as intended. Corrective actions are triggered only for specific, rious conditions, which include: 1) A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in nd/or 3; 2) You become aware that the stormwater controls you have installed and are maintaining are not effective enough for the discharge to meet ble water quality standards or applicable requirements in Part 3.1; 3) One of the prohibited discharges in Part 2.3.1 is occurring or has occurred; or 4) EPA corrective actions as a result of a permit violation found during an inspection carried out under Part 4.2. If a condition on your site requires a corrective action, t also fill out a corrective action form found at www.epa.gov/npdes/stormwater/swppp. See Part 5 of the permit for more information.

ype and Location of P2 Controls
ovide a list of all pollution prevention (P2) practices that are implemented at your site. This list must include all P2 practices required by Part 2.3.3, and those that are scribed in your SWPPP.

pairs or Other Maintenance Needed?
swer "yes" if the P2 practice requires a repair of any kind (due to normal wear and tear, or as a result of damage) or requires maintenance in order for the control continue operating effectively. Note: In many cases, "yes" answers are expected and indicate a project with an active operation and maintenance program.

rrective Action Needed?
swer "yes" if during your inspection you found any of the following conditions to be present (CGP, Part 5.2.1): (1) a required P2 practice was never installed, was talled incorrectly, or not in accordance with the corresponding CGP Part 2 requirement; (2) you become aware that the inadequacy of the P2 practice has led to exceedance of an applicable water quality standard; (3) one of the "prohibited discharges" listed in CGP Part 2.3.1 is occurring or has occurred, or (4) EPA quires corrective action for a P2 practice as a result of a permit violation found during an inspection carried out under Part 4.2. If you answer "yes", you must take rrective action and complete a corrective action report (see www.epa.gov/npdes/stormwater/swppp). Note: You should answer "yes" if work to fix the problem m a previous inspection is still ongoing.

e on Which Maintenance or Corrective Action First Identified?
vide the date on which the condition that triggered the need for maintenance or corrective action was first identified. If the condition was just discovered during inspection, enter the inspection date. If the condition is a carryover from a previous inspection, enter the original date of the condition's discovery.

es
each P2 control and the area immediately surrounding it, note whether the control is properly installed, whether it appears to be working to minimize or eliminate ution discharges, and whether maintenance or corrective action is required. Describe problem conditions you observed such as the following, and why you think occurred, as well as actions you will take or have taken to fix the problem:.

. Failure to install or to properly install a required P2 control
. Damage or destruction to a P2 control caused by vehicles, equipment, or personnel, or a storm event
. Evidence of a spill, leak, or other type of pollutant discharge, or failure to have properly cleaned up a previous spill, leak, or other type of pollutant discharge
. Spill response supplies are absent, insufficient, or not where they are supposed to be located
. Improper storage, handling, or disposal of chemicals, building materials or products, fuels, or wastes
. P2 practice is no longer working due to lack of maintenance

pairs, maintenance, or corrective action is required, briefly note the reason. If repairs, maintenance, or corrective action have been completed, make a note of date it was completed and what was done. *If corrective action is required, note that you will need to complete a separate corrective action report describing condition and your work to fix the problem.*

Stabilization of Exposed Soil (CGP Part 2.2)

(see reverse for instructions)

Stabilization Area (Add an additional sheet if necessary)	Stabilization Method	Have You Initiated Stabilization?	Notes
		☐ YES ☐ NO If yes, provide date: ☐ YES ☐ NO If yes, provide date: ☐ YES ☐ NO If yes, provide date: ☐ YES ☐ NO If yes, provide date: ☐ YES ☐ NO If yes, provide date:	

Description of Discharges (CGP Part 4.1.6.6)

(see reverse for instructions)

Was a stormwater discharge or other discharge occurring from any part of your site at the time of the inspection? ☐ Yes ☐ No

If "yes", provide the following information for each point of discharge:

Discharge Location (Add an additional sheet if necessary)	Observations
	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge? ☐ Yes ☐ No If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:
	Describe the discharge: At points of discharge and the channels and banks of surface waters in the immediate vicinity, are there any visible signs of erosion and/or sediment accumulation that can be attributed to your discharge? ☐ Yes ☐ No If yes, describe what you see, specify the location(s) where these conditions were found, and indicate whether modification, maintenance, or corrective action is needed to resolve the issue:

Instructions for Filling Out the "Stabilization of Exposed Soil" Table

tabilization Area
ist all areas where soil stabilization is required to begin because construction work in that area has permanently stopped or temporarily stopped (i.e., work will stop for 4 or more days), and all areas where stabilization has been implemented.

tabilization Method
or each area, specify the method of stabilization (e.g., hydroseed, sod, planted vegetation, erosion control blanket, mulch, rock).

ave You Initiated Stabilization
or each area, indicate whether stabilization has been initiated.

otes
or each area where stabilization has been initiated, describe the progress that has been made, and what additional actions are necessary to complete stabilization. ote the effectiveness of stabilization in preventing erosion. If stabilization has been initiated but not completed, make a note of the date it is to be completed. If abilization has been completed, make a note of the date it was completed. If stabilization has not yet been initiated, make a note of the date it is to be initiated, nd the date it is to be completed.

Instructions for Filling Out the "Description of Discharges" Table

ou are only required to complete this section if a discharge is occurring at the time of the inspection.

as a Stormwater Discharge Occurring From Any Part of Your Site At The Time of the Inspection?
ring your inspection, examine all points of discharge from your site, and determine whether a discharge is occurring. If there is a discharge, answer "yes" and mplete the questions below regarding the specific discharge. If there is not a discharge, answer "no" and skip to the next page.

charge Location (repeat as necessary if there are multiple points of discharge)
cation of discharge. Specify the location on your site where the discharge is occurring. The location may be an outlet from a stormwater control or constructed rmwater channel, a discharge into a storm sewer inlet, or a specific point on the site. Be as specific as possible; it is recommended that you refer to a precise point your site map.

scribe the discharge. Include a specific description of any noteworthy characteristics of the discharge such as color; odor; floating, settled, or suspended solids; m; oil sheen; and other obvious pollution indicators.

there visible signs of erosion or sediment accumulation? At each point of discharge and the channel and streambank in the immediate vicinity, visually assess ether there are any obvious signs of erosion and/or sediment accumulation that can be attributed to your discharge. If you answer "yes", include a description in space provided of the erosion and sediment deposition that you have found, specify where on the site or in the surface water it is found, and indicate whether dification, maintenance, or corrective action is needed to resolve the issue.

Contractor or Subcontractor Certification and Signature
(see reverse for instructions)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Contractor or Subcontractor: _____ Date:

Printed Name and Affiliation: _____

Certification and Signature by Permittee
(see reverse for instructions)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature of Permittee or
Duly Authorized Representative": _____ Date:

Printed Name and Affiliation: _____

Each inspection report must be signed and certified to be considered complete.

Contractor or Subcontractor Signature and Certification

Where a contractor or subcontractor is relied on to carry out the inspection and complete the inspection report, you should require the inspector to sign and certify each report. Note that this does not relieve the permitted operator of the requirement to sign and certify the inspection report as well.

Signature and Certification by Permittee

At a minimum, the inspection report must be signed by either (1) the person who signed the NOI, or (2) a duly authorized representative of that person. The following requirements apply to scenarios (1) and (2):

If the signatory will be the person who signed the NOI for permit coverage; as a reminder, that person must be one of the following types of individuals:

- *For a corporation:* A responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- *For a partnership or sole proprietorship:* A general partner or the proprietor, respectively.
- *For a municipality, state, federal, or other public agency:* Either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

If the signatory will be a duly authorized representative, the following requirements must be met:

- The authorization is made in writing by the person who signed the NOI (see above);
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- The signed and dated written authorization is included in the SWPPP. A copy must be submitted to EPA, if requested.

Corrective Action Report Form – Field Version

rpose

is Corrective Action Report Form is designed to assist you in preparing corrective action reports for EPA's 2012 onstruction General Permit (CGP). If you are covered under EPA's 2012 CGP, this form will enable you to eate a corrective action report that complies with the minimum reporting requirements of Part 5.4 of the ermit.

ou are only required to fill out this form if one of the corrective action triggering conditions in Part 5.2.1 or 5.3 ccurs on your site. Routine maintenance and repairs are generally not considered to be a corrective action ggering condition. Corrective actions are triggered only for specific, more serious conditions that are identified elow in the "Overview of Corrective Action Requirements."

you are covered under a state CGP, this form may be helpful in developing a report that can be used for that ermit; however it will need to be modified to meet the specific requirements of the permit. If your permitting ut hority requires you to use a specific corrective action report form, you should not use this form.

otes

hile EPA has made every effort to ensure the accuracy of all instructions and guidance contained in the orrective Action Report Form, the actual obligations of regulated construction activities are determined by the levant provisions of the permit, not by the form. In the event of a conflict between the Corrective Action eport Form and any corresponding provision of the 2012 CGP, you must abide by the requirements in the ermit. EPA welcomes comments on the Corrective Action Report Form at any time and will consider those omments in any future revision of this document. You may contact EPA for CGP-related inquiries at gp@epa.gov.

verview of Corrective Action Requirements

onstruction operators covered under the 2012 CGP are required to conduct corrective actions and report on rogress made in correcting the problem condition(s) in accordance with the following requirements:

Corrective Action Triggering Conditions (Parts 5.2.1 and 5.3)
Corrective action is required whenever any of the following conditions occur at your site:

- A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or 3;
- The stormwater controls (e.g., erosion and sediment controls or pollution prevention controls) that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards or applicable requirements in Part 3.1 of the permit;
- A Part 2.3.1 prohibited discharge has occurred or is occurring; or
- Any corrective actions required by EPA as a result of permit violations found during an inspection carried out under Part 4.2.

Deadlines for Completing Corrective Actions (Part 5.2.1)
You must complete corrective action (e.g., installing and making operational any new or modified control, correcting errors in installation, preventing, mitigating, or cleaning up spills or leaks making repairs) by no later than 7 calendar days from the time of discovery of the condition. If infeasible to complete the installation or repair within 7 calendar days, you must document why it is infeasible and document your schedule for completing the corrective action as soon as practicable.

Deadlines for Documenting Corrective Actions in a Report (Part 5.4)
You are required to complete a corrective action report for each of corrective action you take in accordance with the following deadlines.

- Within 24 hours of discovering the occurrence of a corrective action triggering condition, you must document the following:
  - The condition identified at your site;

- The nature of the condition identified; and
- The date and time of the condition identified and how it was identified

- Within 7 calendar days of discovering a triggering condition, you must document the following:
  - Any follow-up actions taken to review the design, installation, and maintenance of stormwater controls, including the dates such actions occurred;
  - A summary of stormwater controls modifications taken or to be taken, including a schedule of activities necessary to implement changes, and the date the modifications are completed or expected to be completed; and
  - Notice of whether SWPPP modifications are required as a result of the condition identified or corrective action.

structions for Using This Report Form

is Field Version of the Corrective Action Report Form is intended to be used in the field and filled out by hand. If ou will be filling out the Corrective Action Report Form electronically (i.e., you will be typing in your findings), ease use the Electronic Version of the Corrective Action Report Form available at ww.epa.gov/npdes/stormwater/swppp. The Electronic Version includes text fields with instructions for what to nter.

e following tips for using this form will help you ensure that the minimum permit requirements are met:

- Review the corrective action requirements. Before you fill out this corrective action report form, read the CGP's Part 5 corrective action requirements. This will ensure that you have a working understanding of the permit's underlying corrective action requirements.

- Complete a separate report for each condition that triggers corrective action. For each triggering condition on your site, you will need to fill out a separate corrective action report form.

- Complete all required text fields. Fill out all text fields. Only by filling out all fields will the form be compliant with the requirements of the permit. (Note: Where you do not need the number of rows provided in the corrective action report form, you leave those rows blank. Or, if you need more space to document your findings, you may add an additional sheet.)

- Sign and certify each corrective action report. Each corrective action report form must be signed and certified by the permittee to be considered complete. Where your corrective actions are carried out by a contractor or subcontractor, it is recommended that you also have the form signed and certified by the inspector, in addition to the signature and certification required of the permitted operator. The form includes a signature block for both parties.

- Include the corrective action report form with your SWPPP. Once your form is complete, make sure to include a copy of the corrective action report form in your SWPPP in accordance with Part 7.2.12.4 of the CGP.

- Retain copies of all corrective action reports with your records. You must retain copies of your corrective action reports in your records in accordance with the requirements in Part 5.4.4 of the 2012 CGP. These reports must be retained for at least 3 years from the date your permit coverage expires or is terminated.

ection-by-Section Instructions

ou will find specific instructions corresponding to each section of the report form on the reverse side of each age. These instructions were written in order to provide you with more details in terms of what EPA expects to be documented in these reports.

Section A – Initial Report (CGP Part 5.4.1)

(Complete this section within 24 hours of discovering the condition that triggered corrective action)

ne of Project		CGP Tracking No.	NHR12AB74	Today's Date	
e Problem First Discovered		Time Problem First Discovered			
ne and Contact Information of vidual Completing this Form					

al site conditions triggered the requirement to conduct corrective action (check the box that applies):

- ☐ A required stormwater control was never installed, was installed incorrectly, or not in accordance with the requirements in Part 2 and/or 3
- ☐ The stormwater controls that have been installed and maintained are not effective enough for the discharge to meet applicable water quality standards or applicable requirements in Part 3.1 of the permit
- ☐ A Part 2.3.1 prohibited discharge has occurred or is occurring
- ☐ EPA requires corrective action as a result of permit violations found during an EPA inspection carried out under Part 4.2

vide a description of the problem:

adline for completing corrective action (Enter date that is either: (1) no more than 7 calendar days after the date you covered the problem, or (2) if it is infeasible to complete work within the first 7 days, enter the date that is as soon as acticable following the 7th day):

If your estimated date of completion falls after the 7-day deadline, explain (1) why you believe it is infeasible to complete work within 7 days, and (2) why the date you have established for making the new or modified stormwater control operational is the soonest practicable timeframe:

Section B – Corrective Action Progress (CGP Part 5.4.2)

(Complete this section no later than 7 calendar days after discovering the condition that triggered corrective action)

ction B.1 – Why the Problem Occurred

ause(s) of Problem dd on additional sheet if necessary)	How This Was Determined and the Date You Determined the Cause
	1. 2.

ction B.2 – Stormwater Control Modifications to be Implemented to Correct the Problem

st of Stormwater Control Modification(s) eeded to Correct Problem Add on additional sheet if necessary)	Date of Completion	SWPPP Update Necessary?	Notes
		☐Yes ☐No If yes, provide date SWPPP modified:	
		☐Yes ☐No If yes, provide date SWPPP modified:	

Instructions for Filling Out the Initial Report (Section A)

u must complete Section A of the report form within 24 hours of discovering the condition that triggered corrective ion

me of Project
er the name for the project.

GP Tracking No.
ter the tracking number that was assigned to your NOI application for permit coverage.

day's Date
ter the date you completed this form.

ate/Time Problem First Discovered
ecify the date on which the triggering condition was first discovered. Also specify the time of the discovery.

ame/Contact Information
ovide the individual's name, title, and contact information as directed in the form.

te Condition That Triggered Corrective Action
nder the CGP, corrective action is required when one of 3 triggering conditions occurs at your site. See CGP Parts 5.2.1 nd 5.3. Check the box that corresponds to the condition that triggered this corrective action.

escription of the Site Condition
rovide a summary description of the condition you found that triggered corrective action under CGP Part 5.2.1 and the pecific location where it was found. Be as specific as possible about the location; it is recommended that you refer to a recise point on your site map. If you have already provided this explanation in an inspection report, you can refer to hat report.

eadline for Completing Corrective Action
his deadline is fixed in CGP Part 5.2.1. For all projects, the deadline is either: (1) no more than 7 calendar days after the date you discovered the problem, or (2) if it is infeasible to complete work within the first 7 days, as soon as practicable ollowing the 7th day. If your estimated date of completion falls after the 7-day deadline consistent with (2), above, explain (a) why you believe it is infeasible to complete work within 7 days, and (b) why the date you have established for making the new or modified stormwater control operational is the soonest practicable timeframe.

Instructions for Filling Out the Corrective Action Progress Table (Section B)

You must complete Section B of the report form no later than 7 calendar days after discovering the condition that riggered corrective action.

Section B.1 – Why the Problem Occurred
After you have had the opportunity to examine the problem more closely, provide details as to what you believe to be the cause of the problem, and specify the follow-up actions you took (along with the dates of such actions) to diagnose the problem. This is consistent with CGP Part 5.4.2.1.

Section B.2 – Stormwater Control Modifications to be Implemented
Provide a list of modifications you plan to make to your stormwater controls to correct the problem and the date you completed such work. Keep in mind that your work must be completed within the timeline specified in Section A for the completion of corrective action work.

Also, if a SWPPP modification is necessary consistent with Part 7.4.1.1 in order to reflect changes implemented at your site, indicate the date you modified your SWPPP. Keep in mind that SWPPP changes must be made within 7 days of discovering the problem that triggered this corrective action.

Space is provided for you to include additional notes or observations regarding the change that you implemented at your site to correct the problem.

Section C – Certification and Signature (CGP Part 5.4.3)

ction C.1 – Certification and Signature by Contractor or Subcontractor

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in cordance with a system designed to assure that qualified personnel properly gathered and evaluated the information bmitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for thering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and mplete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and prisonment for knowing violations."

gnature of Contractor or Subcontractor: _____ Date:

inted Name and Affiliation: _____

ection C.2 – Certification and Signature by Permittee

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in cordance with a system designed to assure that qualified personnel properly gathered and evaluated the information bmitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for thering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and mplete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and prisonment for knowing violations."

gnature of Permittee or
Duly Authorized Representative*: _____ Date:

inted Name and Affiliation: _____

Instructions for Signature and Certification (Section C)

Each corrective action report must be signed and certified to be considered complete.

Section C.1 – Contractor or Subcontractor Signature and Certification
Where a contractor or subcontractor is relied on to complete this report and the associated corrective action, you should require the individual(s) to sign and certify each report. Note that this does not relieve you of the requirement to sign and certify the report as well.

Section C.2 – Signature and Certification by Permittee
At a minimum, the corrective action report form must be signed by either (1) the person who signed the NOI, or (2) a duly authorized representative of that person. The following requirements apply to scenarios (1) and (2):

If the signatory will be the person who signed the NOI for permit coverage, as a reminder, that person must be one of the following types of individuals:

- *For a corporation:* A responsible corporate officer. For the purpose of this subsection, a responsible corporate officer means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
- *For a partnership or sole proprietorship:* A general partner or the proprietor, respectively.
- *For a municipality, state, federal, or other public agency:* Either a principal executive officer or ranking elected official. For purposes of this subsection, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA).

If the signatory will be a duly authorized representative, the following requirements must be met:

- The authorization is made in writing by the person who signed the NOI (see above);
- The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- The signed and dated written authorization is included in the SWPPP. A copy must be submitted to EPA, if requested.

SECTION 6: CERTIFICATION AND NOTIFICATION

I hereby certify, under the pains and penalties of perjury, that I have read and understand the documents contained within this Stormwater Pollution Prevention Plan (SWPPP). I pledge to remain in compliance with the SWPPP throughout the duration of my involvement (or duration of contract) with the construction of Freedom Way, until a Notice of Termination (NOT) has been submitted to and accepted by the US Environmental Protection Agency (US EPA).

Name: _____ Title: _____

Signature: _____ Date: _____

Name: _____ Title: _____

Signature: _____ Date: _____

SWPPP APPENDICES

Attach the following documentation to the SWPPP:

Appendix A – NOI and Acknowledgement Letter from EPA/State

Appendix B – General Location Map

Appendix C – Employee Training Log

Appendix D – Subcontractor Certifications/Agreements

Appendix E – Site Plans

Appendix A – NOI and Acknowledgement Letter from EPA/State

NPDES FORM 3510-9

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460
NOTICE OF INTENT (NOI) FOR THE 2017 NPDES CONSTRUCTION PERMIT

FORM Approved OMB No. 2040-0004

Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section III of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section II of this form. Submission of this NOI also constitutes notice that the operator identified in Section III of this form meets the eligibility requirements of Part 1.1 CGP for the project identified in Section IV of this form. Permit coverage is required prior to commencement of construction activity until you are eligible to terminate coverage as detailed in Part 8 of the CGP. To obtain authorization, you must submit a complete and accurate NOI form. Discharges are not authorized if your NOI is incomplete or inaccurate or if you were never eligible for permit coverage. Refer to the instructions at the end of this form.

Permit Information

NPDES ID: MAR1000V9

State where your construction site is located:
MA

Is your construction site located on Indian Country Lands? ☐ YES ☑ NO

Are you requesting coverage under this NOI as a *"Federal Operator"* as defined in Appendix A (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_a_-_definitions_508.pdf)?

☐ YES ☑ NO

Have stormwater discharges from your current construction site been covered previously under an NPDES permit? ☐ YES ☑ NO

Will you use polymers, flocculants, or other treatment chemicals at your construction site? ☐ YES ☑ NO

Has a Stormwater Pollution Prevention Plan (SWPPP) been prepared in advance of filing this NOI, as required? ☑ YES ☐ NO

Are you able to demonstrate that you meet one of the criteria listed in Appendix D (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_d_-_endangered_species_reqs_508.pdf) with respect to protection of threatened or endangered species listed under the Endangered Species Act (ESA) and federally designated critical habitat?

☑ YES ☐ NO

Have you completed the screening process in Appendix E (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_e_-_historic_properties_reqs_508.pdf) relating to the protection of historic properties?

☑ YES ☐ NO

Indicating "Yes" below, I confirm that I understand that CGP only authorized the allowable stormwater discharges in Part 1.2.1 and the allowable non-stormwater discharges listed in Part 1.2.2. Any discharges not expressly authorized in this permit cannot become authorized or shielded from liability under CWA section 402(k) by disclosure to EPA, state or local authorities after issuance of this permit via any means, including the Notice of Intent (NOI) to be covered by the permit, the Stormwater Pollution Prevention Plan (SWPPP), during an inspection, etc. If any discharges requiring NPDES permit coverage other then the allowable stormwater and non-stormwater discharges listed in Parts 1.2.1 and 1.2.2 will be discharged, they must be covered under another NPDES permit.

☑ YES ☐ NO

Operator Information

Operator Information

Operator Name: Bill Daley

Mailing Address:

Street/Location: 7 Hemlock Lane

City: Groveland State: MA Zip Code: 01834

County or Similar Government Subdivision: ESSEX

Operator Point of Contact Information

First Name, Middle Initial, LastName: Bill Daley

Title: Owner

Phone: 781-820-0227 Ext.

Email: bill@rdsitedevelopment.com

Project/Site Information

Project/Site Name: Sewell Street

Project/Site Address

Street/Location: Sewell Street

City: Groveland State: MA Zip Code: 01834

County or Similar Government Subdivision: ESSEX

Latitude/Longitude: 42.7378°N, 71.0267°W

Latitude/Longitude Data Source: Map Horizontal Reference Datum: NAD 83

Project Start Date: 09/18/2017 Project End Date: 04/27/2018 Estimated Area to be Disturbed: 8

Types of Construction Sites:

- Commercial

Will there be demolition of any structure built or renovated before January 1, 1980? ☐ YES ☑ NO

Was the pre-development land use used for agriculture? ☐ YES ☑ NO

Have earth-disturbing activities commenced on your project/site? ☐ YES ☑ NO

Is your project located on a property of religious or cultural significance to an Indian tribe? ☐ YES ☑ NO

Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☐ YES ☑ NO

Are there any waters of the U.S. within 50 feet of your project's earth disturbances? ☐ YES ☑ NO

Are any of the waters of the U.S. to which you discharge designated by the state or tribal authority under its antidegradation policy as a Tier 2 (or Tier 2.5) water (water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water) or as a Tier 3 water (Outstanding National Resource Water)? See Appendix F (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_f_-_tier_3_tier_2_and_tier_2.5_waters_508.pdf)

☐ YES ☑ NO

001: Grindle Brook

Tier Designation: N/A

Is this receiving water impaired (on the CWA 303(d) list)? ☐ YES ☑ NO

Has a TMDL been completed for this receiving waterbody? ☐ YES ☑ NO

Stormwater Pollution Prevention Plan (SWPPP)

First Name, Middle Initial, LastName: Bill Daley

Title: Owner

Phone: 781-820-0227 Ext.

Email: bill@rdsitedevelopment.com

Endangered Species Protection

Using the instructions in Appendix D of the CGP, under which criterion listed in Appendix D are you eligible for coverage under this permit?
Criterion A

Provide a brief summary of the basis for criterion selection listed above (the necessary content for a supportive basis statement is provided under the criterion you selected.):

Used MassGIS online database.

Historic Preservation

Are you installing any stormwater controls as described in Appendix E (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_e_-_historic_properties_reqs_508.pdf) that require subsurface earth disturbances? (Appendix E (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_e_-_historic_properties_reqs_508.pdf), Step 1)

☐ YES ☑ NO

Certification Information

Certified By: Christopher York (YORKYB75)

Certified On: 08/29/2017 2:24 PM

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Signing an electronic document on behalf of another person is subject to criminal, civil, administrative, or other lawful action.

Appendix B – General Location Map


Greyhound Auto Body
Google

Appendix C – Employee Training Log

EMPLOYEE TRAINING LOG

Facility Name: Sewell Street NPDES Permit Number: MAR1000V9

* **Instructions:** This example form may be used to track employee training at your facility.

Employee Training	Completed By: _____ Title: _____ Date: _____

Instructions: Describe the employee-training program for your facility below. The program should, at a minimum, address spill prevention and response, and proper operation and cleaning of production and wastewater treatment systems. Provide a schedule for the training program and list the employees who attend the training sessions.

Training Topics	Brief Description of the Training Program and Materials	Schedule for Training (list dates)	Participants
Spill Prevention and Response			
Operation and Cleaning of Systems			
Feeding Procedures			
Other Topics (list):			
Other Topics (list):			

* Note: This is only an example of what an employee training log could look like. Facilities may use existing record systems if available.

Appendix D – Subcontractor Certifications/Agreements

Subcontractor Certification
Stormwater Pollution Prevention Plan

Project Number: MAR1000V9

Project Title: Sewell Street

Operator: Bill Daley

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Failure to comply with the SWPPP may result in termination of the contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I certify under the penalty of law that I have read and understand the terms and conditions of the SWPPP for the above designated project and agree to follow the BMPs and practices described in the SWPPP.

This certification is hereby signed in reference to the above named project:

Company: _____

Address: _____

Telephone #: _____

Type of construction service to be provided: _____

_____

Signature: _____

Title: _____

Date: _____

Appendix E – Site Plans

NPDES FORM 3510-9	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 NOTICE OF INTENT (NOI) FOR THE 2017 NPDES CONSTRUCTION PERMIT	FORM Approved OMB No. 2040-0004

Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section III of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section II of this form. Submission of this NOI also constitutes notice that the operator identified in Section III of this form meets the eligibility requirements of Part 1.1 CGP for the project identified in Section IV of this form. Permit coverage is required prior to commencement of construction activity until you are eligible to terminate coverage as detailed in Part 8 of the CGP. To obtain authorization, you must submit a complete and accurate NOI form. Discharges are not authorized if your NOI is incomplete or inaccurate or if you were never eligible for permit coverage. Refer to the instructions at the end of this form.

Permit Information

NPDES ID: MAR1000V9

State where your construction site is located:
MA

Is your construction site located on Indian Country Lands? ☐ YES ☑ NO

Are you requesting coverage under this NOI as a *"Federal Operator"* as defined in Appendix A (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_a_-_definitions_508.pdf)?

☐ YES ☑ NO

Have stormwater discharges from your current construction site been covered previously under an NPDES permit? ☐ YES ☑ NO

Will you use polymers, flocculants, or other treatment chemicals at your construction site? ☐ YES ☑ NO

Has a Stormwater Pollution Prevention Plan (SWPPP) been prepared in advance of filling this NOI, as required? ☑ YES ☐ NO

Are you able to demonstrate that you meet one of the criteria listed in Appendix D (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_d_-_endangered_species_reqs_508.pdf) with respect to protection of threatened or endangered species listed under the Endangered Species Act (ESA) and federally designated critical habitat?

☑ YES ☐ NO

Have you completed the screening process in Appendix E (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_e_-_historic_properties_reqs_508.pdf) relating to the protection of historic properties?

☑ YES ☐ NO

Indicating "Yes" below, I confirm that I understand that CGP only authorized the allowable stormwater discharges in Part 1.2.1 and the allowable non-stormwater discharges listed in Part 1.2.2. Any discharges not expressly authorized in this permit cannot become authorized or shielded from liability under CWA section 402(k) by disclosure to EPA, state or local authorities after issuance of this permit via any means, Including the Notice of Intent (NOI) to be covered by the permit, the Stormwater Pollution Prevention Plan (SWPPP), during an Inspection, etc. If any discharges requiring NPDES permit coverage other than the allowable stormwater and non-stormwater discharges listed in Parts 1.2.1 and 1.2.2 will be discharged, they must be covered under another NPDES permit.

☑ YES ☐ NO

Operator Information

Operator Information

Operator Name: Bill Daley

Mailing Address:

Street/Location: 7 Hemlock Lane

City: Groveland **State:** MA **Zip Code:** 01834

County or Similar Government Subdivision: ESSEX

Operator Point of Contact Information

First Name, Middle Initial, LastName: Bill Daley

Title: Owner

Phone: 781-820-0227 **Ext.**

Email: bill@rdsitedevelopment.com

Project/Site Information

Project/Site Name: Sewell Street

Project/Site Address

Street/Location: Sewell Street

City: Groveland **State:** MA **Zip Code:** 01834

County or Similar Government Subdivision: ESSEX

Latitude/Longitude: 42.7378°N, 71.0267°W

Latitude/Longitude Data Source: Map **Horizontal Reference Datum:** NAD 83

Project Start Date: 09/18/2017 **Project End Date:** 04/27/2018 **Estimated Area to be Disturbed:** 8

Types of Construction Sites:

- Commercial

Will there be demolition of any structure built or renovated before January 1, 1980? ☐ YES ☑ NO

Was the pre-development land use used for agriculture? ☐ YES ☑ NO

Have earth-disturbing activities commenced on your project/site? ☐ YES ☑ NO

Is your project located on a property of religious or cultural significance to an Indian tribe? ☐ YES ☑ NO

Discharge Information

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☐ YES ☑ NO

Are there any waters of the U.S. within 50 feet of your project's earth disturbances? ☐ YES ☑ NO

Are any of the waters of the U.S. to which you discharge designated by the state or tribal authority under its antidegradation policy as a Tier 2 (or Tier 2.5) water (water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water) or as a Tier 3 water (Outstanding National Resource Water)? See Appendix F (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_f_-_tier_3_tier_2_and_tier_2.5_waters_508.pdf)

☐ YES ☑ NO

001: Grindle Brook

Tier Designation: N/A

Is this receiving water impaired (on the CWA 303(d) list)? ☐ YES ☑ NO

Has a TMDL been completed for this receiving waterbody? ☐ YES ☑ NO

Stormwater Pollution Prevention Plan (SWPPP)

First Name, Middle Initial, LastName: Bill Daley

Title: Owner

Phone: 781-820-0227 **Ext.**

Email: bill@rdsitedevelopment.com

Endangered Species Protection

Using the Instructions in Appendix D of the CGP, under which criterion listed in Appendix D are you eligible for coverage under this permit? Criterion A

Provide a brief summary of the basis for criterion selection listed above (the necessary content for a supportive basis statement is provided under the criterion you selected.):

Used MassGIS online database.

Historic Preservation

Are you installing any stormwater controls as described in Appendix E (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_e_-_historic_properties_reqs_508.pdf) that require subsurface earth disturbances? (Appendix E (https://www.epa.gov/sites/production/files/2017-02/documents/2017_cgp_final_appendix_e_-_historic_properties_reqs_508.pdf), Step 1)

☐ YES ☑ NO

Certification Information

Certified By: Christopher York (YORKYB75)

Certified On: 08/29/2017 2:24 PM

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Signing an electronic document on behalf of another person is subject to criminal, civil, administrative, or other lawful action.

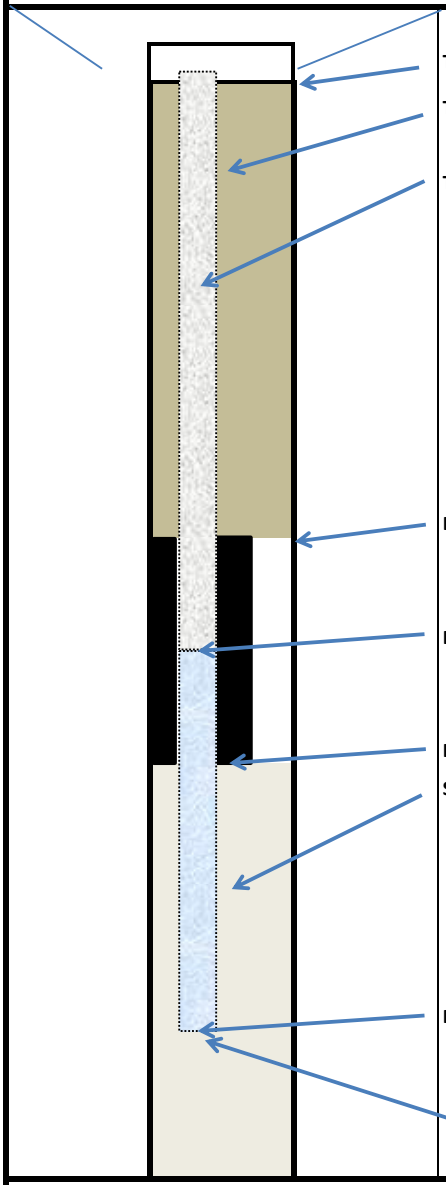
APPENDIX D-1 WELL INSTALLATION REPORTS

Bronson Drilling

Well Installation Report

Well No. MW-1

CLIENT	Sewell Street Materials, LLC	**FILE No.**	17-138
LOCATION	Sewell St., Groveland	**DATE**	6/12/18
PROJECT	Sewell St. Reclamation Project	**WORK DONE**	Install MW
INSPECTOR	TERRA		
DRILLERS	Bronson		
Ground Elevation:		GPS Coordinates:	



Type of Surface Seal:	Stand Pipe
Type of Backfill:	Sand to 5.25'
Type of Riser Pipe:	PVC - 0 -7.25'
Riser Pipe ID:	1"
Elevation Top of Seal:	5.25' - 6.25'
Type of Seal:	Bentonite
Elevation Top of Screen:	6.25'
Type of Screen:	Slotted PVC
Slot Size:	0.01
Elevation Bottom of Seal:	N/A
Sand Pack:	6.25' - 20.54'
Type of Sand Pack:	#2 Morie Sand
Elevation Bottom of Screen:	20.54'
Bottom of Well:	20.54'

Comments

4" HW Casing used

06/12/2018; At time of install, groundwater estimated at 10.65' below surface grade.

08/07/2018: TERRA checked GW, 10.01' below surface grade.

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

MW-1

SOIL BORING/MONITORING WELL INSTALLATION LOG

Drilling Co.:	Bronson Drilling
Foreman:	Dan Bronson
Vehicle:	AMS PowerProbe
Model:	9100-SK
Method:	Direct Push
Sampler:	5'
Hammer(lb):	NA
Fall(in):	NA
Boring Location:	MW-1
WTC Coordinates:	
Ground Surface Elevation:	Unknown
Date Started:	6/12/18
Date Completed:	6/12/18
GW depth at time of installation (ft):	10.65

DEPTH (ft)	PEN/REC (in)	Stratigraphic Interval (ft)	FIELD SCREENING (ppm Benzene)	SAMPLE DESCRIPTION	NOTES
0		0-5'	0.0	Brown, dry, organic top soil	
5		5-10'	0.0	Dry, light brown, fine SAND	
10		10-15'	0.0	Wet, light brown SAND	GW at 10.65'
15		15-20'		Wet, light brown SAND	
20				Boring terminated at 20.54'	

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/ft	DENSITY	BLOWS/ft	CONSISTENCY
0-4	V. LOOSE	<2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V DENSE	15-30	V.STIFF
		>30	HARD

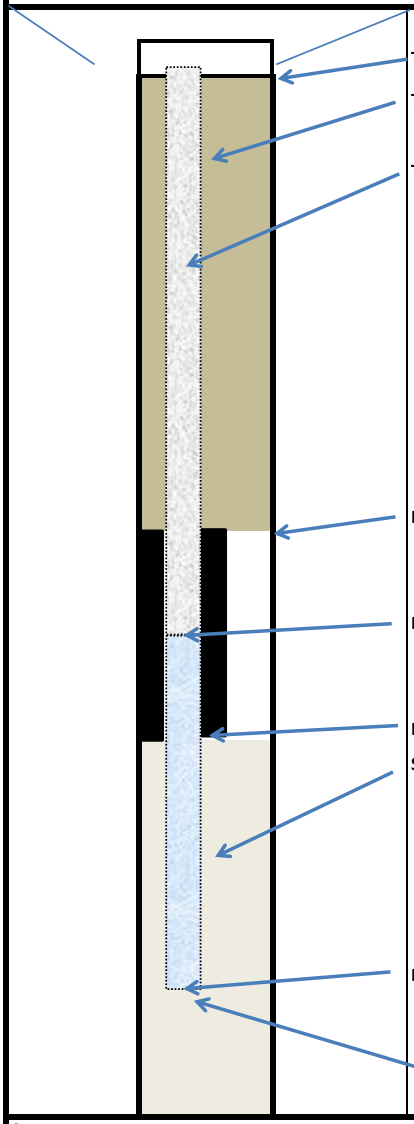
NOTES:

Bronson Drilling

Well Installation Report

Well No. MW-2

CLIENT	Sewell Street Materials, LLC	**FILE No.**	17-138
LOCATION	Sewell St., Groveland	**DATE**	6/12/18
PROJECT	Sewell St. Reclamation Project	**WORK DONE**	Install MW
INSPECTOR	TERRA		
DRILLERS	Bronson Drilling		
Ground Elevation:		GPS Coordinates:	



Type of Surface Seal:	Stand Pipe
Type of Backfill:	Sand to 3'
Type of Riser Pipe:	PVC - 0 - 5.12'
Riser Pipe ID:	1"
Elevation Top of Seal:	3' - 4.12'
Type of Seal:	Bentonite
Elevation Top of Screen:	5.12
Type of Screen:	Slotted PVC
Slot Size:	0.01
Elevation Bottom of Seal:	N/A
Sand Pack:	4.12' - 187'
Type of Sand Pack:	#2 Morie Sand
Elevation Bottom of Screen:	18.7'
Bottom of Well:	18.7'

Comments

4" HW Casing used

06/12/2018; At time of install, groundwater estimated at 8.12' below surface grade.

08/07/2018: TERRA checked GW, 6.25' below surface grade.

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

MW-2

SOIL BORING/MONITORING WELL INSTALLATION LOG

Drilling Co.:	Bronson Drilling
Foreman:	Dan Bronson
Vehicle:	AMS PowerProbe
Model:	9100-SK
Method:	Direct Push
Sampler:	5'
Hammer(lb):	NA
Fall(in):	NA
Boring Location:	MW-1
WTC Coordinates:	
Ground Surface Elevation:	Unknown
Date Started:	6/12/18
Date Completed:	6/12/18
GW depth at time of installation (ft):	8.12

DEPTH (ft)	PEN/REC (in)	Stratigraphic Interval (ft)	FIELD SCREENING (ppm Benzene)	SAMPLE DESCRIPTION	NOTES
0		0-5'	1.2	0-0.5' Topsoil, grass	
			0.0	0.5-1.5' Dry, brown, fine to medium SAND, some silt, some fine gravel	
			0.0	1.5-2' Fine SAND, some silt	
			0.2	2-2.5' Brown, fine to medium SAND, trace organics	
			0.0	2.5-3' Moist, fine to medium sand and organics	
			1.0	3-4.5' Brown to black, moist, fine sand and organics	
			0.0	4.5-5' Fine to medium SAND, wet organics	
5		5-10'	0.0	5-5.5' Wet, fine to coarse SAND, wet organics	GW at 8.12'
			0.0	5.5-6.5' Brown to black,wet, fine to coarse SAND, some fine to medium gravel	
			0.0	6.5-7' Wet, brown, fine to medium SAND	
			0.0	7' Wet, brown, fine to coarse SAND	
10		10-15'	0.0	Wet, brown, fine to coarse SAND	
15		15-19'	0.0	Wet, brown, fine to coarse SAND	
20				Boring terminated at 18.7'	

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/ft	DENSITY	BLOWS/ft	CONSISTENCY
0-4	V. LOOSE	<2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V DENSE	15-30	V.STIFF
		>30	HARD

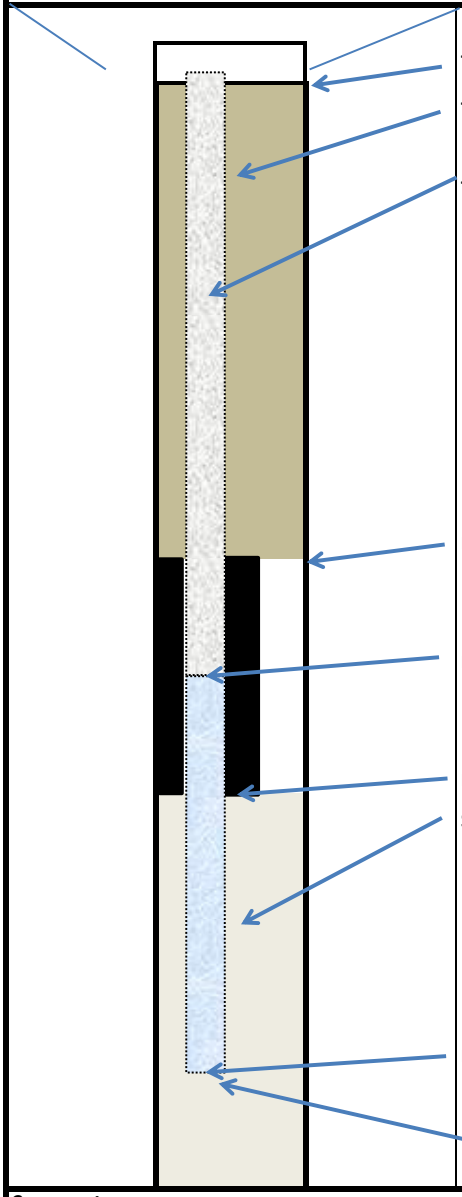
NOTES:

New England Boring Contractors

Well Installation Report

Recovery Well No.
MW-3

CLIENT	Sewell Street Materials, LLC	**FILE No.**	17-138
LOCATION	Sewell St., Groveland	**DATE**	7/25/18
PROJECT	Sewell St. Reclamation Project	**WORK DONE**	Install MW
INSPECTOR	TERRA		
DRILLERS	NEW ENGLAND BORING CONTRACTORS		
Ground Elevation:		GPS Coordinates:	



Type of Surface Seal:	Stand Pipe
Type of Backfill:	Native Material, G/S to 3'
Type of Riser Pipe:	PVC - 0-6.6'
Riser Pipe ID:	2"
Elevation Top of Seal:	3' - 5'
Type of Seal:	Bentonite
Elevation Top of Screen:	6.6'
Type of Screen:	Slotted PVC
Slot Size:	0.01
Elevation Bottom of Seal:	N/A
Sand Pack:	5' - 21.6'
Type of Sand Pack:	#2 Morie Sand
Elevation Bottom of Screen:	21.6'
Bottom of Well:	21.6'

Comments

4" HW Casing used

07/20/2018; Attempt to install MW-3. Encountered boulders and bedrock at 2.5' at multiple locations. Moving to MW-4. Re-scheduling install.

07/25/2018; At time of install, groundwater estimated at 11.6' below surface grade.

08/07/2018: TERRA checked GW, 8.95' below surface grade.

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

MW-3

SOIL BORING/MONITORING WELL INSTALLATION LOG

Drilling Co.: New England Boring
Foreman:
Vehicle: ATV
Model
Method: Drill Rig
Sampler: 5'
Hammer(lb): NA
Fall(in): NA

Boring Location: MW-3
WTC Coordinates:
Ground Surface Elevation: Unknown
Date Started: 7/25/18
Date Completed: 7/25/18
GW depth at time of installation (ft): 11.60

DEPTH (ft)	PEN/REC (in)	Stratigraphic Interval (ft)	FIELD SCREENING (ppm Benzene)	SAMPLE DESCRIPTION	NOTES
0		0-5'		0-2.5' Light brown SAND 2.5-5' Bedrock	
5		5-10'		Bedrock	GW at 9.25' (7/20/2018) GW at 9.9' (7/25/2018)
10		10-15'		Bedrock	
15		15-20'		Bedrock	
20		20-21.6'		Bedrock	
22				Boring terminated at 21.6'	

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/ft	DENSITY	BLOWS/ft	CONSISTENCY
0-4	V. LOOSE	<2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V.DENSE	15-30	V.STIFF
		>30	HARD

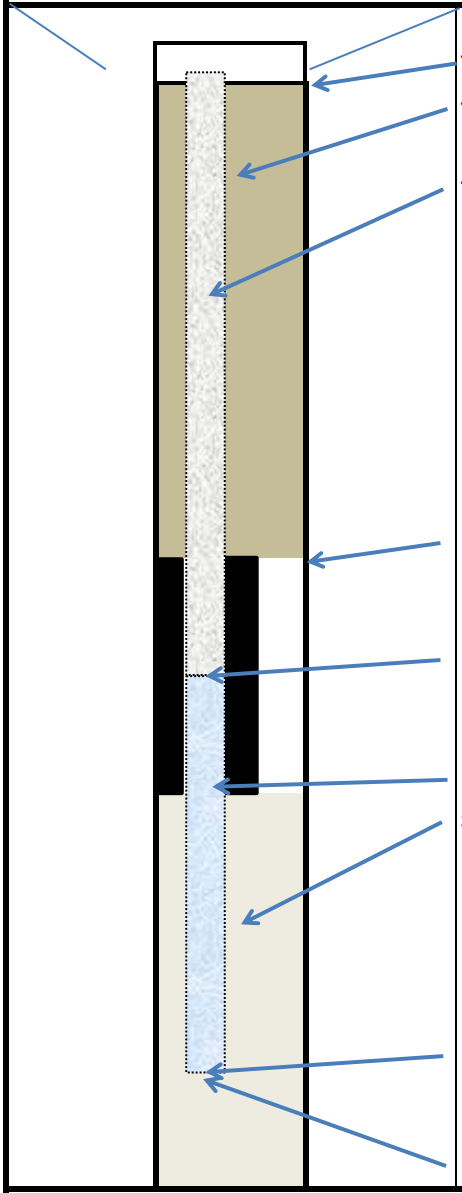
NOTES:

New England Boring Contractors

Well Installation Report

Well No. MW-4

CLIENT	Sewell Street Materials, LLC	**FILE No.**	17-138
LOCATION	Sewell St., Groveland	**DATE**	7/25/18
PROJECT	Sewell St. Reclamation Project	**WORK DONE**	Install MW
INSPECTOR	TERRA		
DRILLERS	NEW ENGLAND BORING CONTRACTORS		
Ground Elevation:		GPS Coordinates:	



Type of Surface Seal:	Stand Pipe
Type of Backfill:	Native Material, G/S to 2'
Type of Riser Pipe:	PVC - 0-4.9'
Riser Pipe ID:	2"
Elevation Top of Seal:	2' - 3'
Type of Seal:	Bentonite
Elevation Top of Screen:	4.9'
Type of Screen:	Slotted PVC
Slot Size:	0.01
Elevation Bottom of Seal:	N/A
Sand Pack:	3' - 24.9'
Type of Sand Pack:	#2 Morie Sand
Elevation Bottom of Screen:	24.9
Bottom of Well:	24.9

Comments

4" HW Casing used

07/20/2018; Encountered boulders and bedrock at 10.83', cored to 16.17'. Re-scheduling completion. Groundwater estimated at 9.25' below surface gr

07/25/2018; At time of install, groundwater estimated at 9.9' below surface grade.

08/07/2018: TERRA checked GW, 6.46' below surface grade.

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

MW-4

SOIL BORING/MONITORING WELL INSTALLATION LOG

Drilling Co.: New England Boring
Foreman:
Vehicle: ATV
Model
Method: Drill Rig
Sampler: 5'
Hammer(lb): NA
Fall(in): NA

Boring Location: MW-4
WTC Coordinates:
Ground Surface Elevation: Unknown
Date Started: 7/20/18
Date Completed: 7/25/18
GW depth at time of installation (ft): 9.25

DEPTH (ft)	PEN/REC (in)	Stratigraphic Interval (ft)	FIELD SCREENING (ppm Benzene)	SAMPLE DESCRIPTION	NOTES
0		0-5'		0-0.5' Leaf litter 0.5-5' Light brown SAND	
5		5-10'		Light brown SAND	GW at 9.25'
10		10-15'		Light brown SAND Boulder encountered at 10.83' 13' Light brown SAND 14.83' Bedrock	
15		15-20'		Bedrock	
20		20-25'		Bedrock	
25				Boring terminated at 24.9'	

GRANULAR SOILS		COHESIVE SOILS	
BLOWS/ft	DENSITY	BLOWS/ft	CONSISTENCY
0-4	V. LOOSE	<2	V. SOFT
4-10	LOOSE	2-4	SOFT
10-30	M. DENSE	4-8	M. STIFF
30-50	DENSE	8-15	STIFF
>50	V.DENSE	15-30	V. STIFF
		>30	HARD

NOTES:

APPENDIX D-2 GROUNDWATER SAMPLING RESULTS

PHOENIX
Environmental Laboratories, Inc.

Wednesday, October 03, 2018

Attn: Mr. James McMullen
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Project ID: SEWELL STREET
Sample ID#s: CB30806 - CB30810

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

Enclosed are revised Analysis Report pages. Please replace and discard the original pages. If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

SDG Comments

October 03, 2018

SDG I.D.: GCB30806

8260 Analysis:
1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 03, 2018

FOR: Attn: Mr. James McMullen
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		09/12/18	8:20
Location Code:	TERRA-ENV	Received by:	CP	09/13/18	15:49
Rush Request:	24 Hour	Analyzed by:	see "By" below		
P.O.#:	17-138				

Laboratory Data

SDG ID: GCB30806
Phoenix ID: CB30806

Project ID: SEWELL STREET
Client ID: MW-1

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Arsenic	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Barium	0.018	0.002	mg/L	1	09/15/18	CPP	SW6010C
Beryllium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Cadmium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Chromium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	10/01/18	TH	SW6010C
Mercury	< 0.0002	0.0002	mg/L	1	09/14/18	MGH	SW7470A
Nickel	0.002	0.001	mg/L	1	09/15/18	CPP	SW6010C
Lead	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Antimony	0.030	0.005	mg/L	1	09/15/18	EK	SW6010C
Selenium	< 0.010	0.010	mg/L	1	09/15/18	CPP	SW6010C
Thallium	< 0.0005	0.0005	mg/L	5	09/18/18	CPP	SW6020B
Vanadium	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Zinc	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Mercury Digestion	Completed				09/14/18	IG/IG	SW7470A
EPH Extraction	Completed				09/17/18	AK/AK	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				09/13/18		MADEP EPH-04
Extraction for Herbicide	Completed				09/17/18	IG/D	SW8151A
PCB Extraction	Completed				09/13/18	N	SW3510C
Extraction for Pest (2 Liter)	Completed				09/13/18	N	SW3510C
Semi-Volatile Extraction	Completed				09/13/18	P/R	SW3520C
Dissolved Metals Preparation	Completed				09/26/18	AG	SW3005A
Total Metals Digestion	Completed				09/14/18	AG/BF	
Total Metals Digestion MS	Completed				09/14/18	AG/BF	
Chlorinated Herbicides							
2,4,5-T	ND	2.3	ug/L	10	09/18/18	CW	SW8151A

Ver 2

Project ID: SEWELL STREET
Client ID: MW-1

Phoenix I.D.: CB30806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4,5-TP (Silvex)	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
2,4-D	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
2,4-DB	ND	47	ug/L	10	09/18/18	CW	SW8151A
Dalapon	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dicamba	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dichloroprop	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
Dinoseb	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
MCPA	ND	700	ug/L	10	09/18/18	CW	SW8151A
MCPP	ND	700	ug/L	10	09/18/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	63		%	10	09/18/18	CW	30 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1221	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1232	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1242	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1248	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1254	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1260	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1262	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
PCB-1268	ND	0.094	ug/L	1	09/14/18	PS	SW8082A
QA/QC Surrogates							
% DCBP	68		%	1	09/14/18	PS	30 - 150 %
% TCMX	59		%	1	09/14/18	PS	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDE	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDT	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
a-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Alachlor	ND	0.071	ug/L	1	09/14/18	CW	SW8081B
Aldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
b-BHC	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Chlordane	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
d-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Dieldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
Endosulfan I	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan II	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan Sulfate	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin Aldehyde	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin ketone	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Methoxychlor	ND	0.094	ug/L	1	09/14/18	CW	SW8081B
Toxaphene	ND	0.94	ug/L	1	09/14/18	CW	SW8081B
QA/QC Surrogates							

Project ID: SEWELL STREET
Client ID: MW-1

Phoenix I.D.: CB30806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
%DCBP (Surrogate Rec)	81		%	1	09/14/18	CW	30 - 150 %
%TCMX (Surrogate Rec)	63		%	1	09/14/18	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Acetone	ND	25	ug/L	1	09/14/18	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Benzene	ND	0.70	ug/L	1	09/14/18	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C

Project ID: SEWELL STREET
Client ID: MW-1

Phoenix I.D.: CB30806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hexachlorobutadiene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Styrene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	09/14/18	MH	SW8260C
Toluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	09/14/18	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	09/14/18	MH	70 - 130 %
% Dibromofluoromethane	94		%	1	09/14/18	MH	70 - 130 %
% Toluene-d8	98		%	1	09/14/18	MH	70 - 130 %
Semivolatiles							
1,2,4-Trichlorobenzene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,2-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,2-Diphenylhydrazine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,3-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,4-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
2,4,5-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4,6-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dimethylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2,6-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chloronaphthalene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Methylphenol (o-cresol)	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	9.4	ug/L	1	09/18/18	KCA	SW8270D

Project ID: SEWELL STREET
Client ID: MW-1

Phoenix I.D.: CB30806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
3,3'-Dichlorobenzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
3-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Bromophenyl phenyl ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chloro-3-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Chloroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chlorophenyl phenyl ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Acetophenone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Aniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzoic acid	ND	47	ug/L	1	09/18/18	KCA	SW8270D
Benzyl butyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethoxy)methane	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethyl)ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroisopropyl)ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Carbazole	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dibenzofuran	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Diethyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dimethylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-butylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-octylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Isophorone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodiphenylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Phenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	95		%	1	09/18/18	KCA	15 - 110 %
% 2-Fluorobiphenyl	72		%	1	09/18/18	KCA	30 - 130 %
% 2-Fluorophenol	54		%	1	09/18/18	KCA	15 - 110 %
% Nitrobenzene-d5	74		%	1	09/18/18	KCA	30 - 130 %
% Phenol-d5	62		%	1	09/18/18	KCA	15 - 110 %
% Terphenyl-d14	69		%	1	09/18/18	KCA	30 - 130 %
Semivolatiles (SIM)							
1,2,4,5-Tetrachlorobenzene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
2-Methylnaphthalene	ND	0.94	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benz(a)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(a)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Bis(2-ethylhexyl)phthalate	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Chrysene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Fluoranthene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)

Project ID: SEWELL STREET
Client ID: MW-1

Phoenix I.D.: CB30806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluorene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobenzene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobutadiene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorocyclopentadiene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachloroethane	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Nitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
N-Nitrosodimethylamine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachloronitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachlorophenol	ND	0.75	ug/L	1	09/17/18	HM	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyridine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	65		%	1	09/17/18	HM	15 - 110 %
% 2-Fluorobiphenyl	59		%	1	09/17/18	HM	30 - 130 %
% 2-Fluorophenol	53		%	1	09/17/18	HM	15 - 110 %
% Nitrobenzene-d5	63		%	1	09/17/18	HM	30 - 130 %
% Phenol-d5	62		%	1	09/17/18	HM	15 - 110 %
% Terphenyl-d14	61		%	1	09/17/18	HM	30 - 130 %
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
Total TPH 1,2*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	93		%	1	09/17/18	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	54		%	1	09/17/18	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	72		%	1	09/17/18	AW	40 - 140 %
% o-terphenyl (aromatic)	94		%	1	09/17/18	AW	40 - 140 %

Project ID: SEWELL STREET
Client ID: MW-1

Phoenix I.D.: CB30806

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
October 03, 2018
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 03, 2018

FOR: Attn: Mr. James McMullen
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		09/12/18	15:00
Location Code:	TERRA-ENV	Received by:	CP	09/13/18	15:49
Rush Request:	24 Hour	Analyzed by:	see "By" below		
P.O.#:	17-138				

Laboratory Data

SDG ID: GCB30806
Phoenix ID: CB30807

Project ID: SEWELL STREET
Client ID: MW-2

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Arsenic	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Barium	0.023	0.002	mg/L	1	09/15/18	CPP	SW6010C
Beryllium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Cadmium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Chromium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	10/02/18	TH	SW6010C
Mercury	< 0.0002	0.0002	mg/L	1	09/14/18	MGH	SW7470A
Nickel	0.006	0.001	mg/L	1	09/15/18	CPP	SW6010C
Lead	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Antimony	< 0.005	0.005	mg/L	1	09/15/18	EK	SW6010C
Selenium	< 0.010	0.010	mg/L	1	09/15/18	CPP	SW6010C
Thallium	< 0.0005	0.0005	mg/L	5	09/18/18	CPP	SW6020B
Vanadium	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Zinc	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Mercury Digestion	Completed				09/14/18	IG/IG	SW7470A
EPH Extraction	Completed				09/17/18	AK/AK	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				09/13/18		MADEP EPH-04
Extraction for Herbicide	Completed				09/17/18	IG/D	SW8151A
PCB Extraction	Completed				09/13/18	N	SW3510C
Extraction for Pest (2 Liter)	Completed				09/13/18	N	SW3510C
Semi-Volatile Extraction	Completed				09/13/18	P/R	SW3520C
Dissolved Metals Preparation	Completed				09/26/18	AG	SW3005A
Total Metals Digestion	Completed				09/14/18	AG/BF	
Total Metals Digestion MS	Completed				09/14/18	AG/BF	
Chlorinated Herbicides							
2,4,5-T	ND	2.3	ug/L	10	09/18/18	CW	SW8151A

Ver 2

Project ID: SEWELL STREET
Client ID: MW-2

Phoenix I.D.: CB30807

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4,5-TP (Silvex)	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
2,4-D	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
2,4-DB	ND	47	ug/L	10	09/18/18	CW	SW8151A
Dalapon	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dicamba	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dichloroprop	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
Dinoseb	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
MCPA	ND	700	ug/L	10	09/18/18	CW	SW8151A
MCPP	ND	700	ug/L	10	09/18/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	67		%	10	09/18/18	CW	30 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1221	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1232	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1242	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1248	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1254	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1260	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1262	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1268	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
QA/QC Surrogates							
% DCBP	69		%	1	09/14/18	AW	30 - 150 %
% TCMX	75		%	1	09/14/18	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDE	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDT	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
a-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Alachlor	ND	0.071	ug/L	1	09/14/18	CW	SW8081B
Aldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
b-BHC	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Chlordane	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
d-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Dieldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
Endosulfan I	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan II	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan Sulfate	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin Aldehyde	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin ketone	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Methoxychlor	ND	0.094	ug/L	1	09/14/18	CW	SW8081B
Toxaphene	ND	0.94	ug/L	1	09/14/18	CW	SW8081B
QA/QC Surrogates							

Project ID: SEWELL STREET
Client ID: MW-2

Phoenix I.D.: CB30807

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
%DCBP (Surrogate Rec)	81		%	1	09/14/18	CW	30 - 150 %
%TCMX (Surrogate Rec)	78		%	1	09/14/18	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Acetone	ND	25	ug/L	1	09/14/18	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Benzene	ND	0.70	ug/L	1	09/14/18	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C

Project ID: SEWELL STREET
Client ID: MW-2

Phoenix I.D.: CB30807

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hexachlorobutadiene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Styrene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	09/14/18	MH	SW8260C
Toluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	09/14/18	MH	70 - 130 %
% Bromofluorobenzene	95		%	1	09/14/18	MH	70 - 130 %
% Dibromofluoromethane	99		%	1	09/14/18	MH	70 - 130 %
% Toluene-d8	97		%	1	09/14/18	MH	70 - 130 %
Semivolatiles							
1,2,4-Trichlorobenzene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,2-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,2-Diphenylhydrazine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,3-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,4-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
2,4,5-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4,6-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dimethylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2,6-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chloronaphthalene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Methylphenol (o-cresol)	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	9.4	ug/L	1	09/18/18	KCA	SW8270D

Project ID: SEWELL STREET
Client ID: MW-2

Phoenix I.D.: CB30807

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
3,3'-Dichlorobenzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
3-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Bromophenyl phenyl ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chloro-3-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Chloroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chlorophenyl phenyl ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Acetophenone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Aniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzoic acid	ND	47	ug/L	1	09/18/18	KCA	SW8270D
Benzyl butyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethoxy)methane	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethyl)ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroisopropyl)ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Carbazole	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dibenzofuran	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Diethyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dimethylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-butylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-octylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Isophorone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodiphenylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Phenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	94		%	1	09/18/18	KCA	15 - 110 %
% 2-Fluorobiphenyl	72		%	1	09/18/18	KCA	30 - 130 %
% 2-Fluorophenol	48		%	1	09/18/18	KCA	15 - 110 %
% Nitrobenzene-d5	70		%	1	09/18/18	KCA	30 - 130 %
% Phenol-d5	59		%	1	09/18/18	KCA	15 - 110 %
% Terphenyl-d14	71		%	1	09/18/18	KCA	30 - 130 %
Semivolatiles (SIM)							
1,2,4,5-Tetrachlorobenzene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
2-Methylnaphthalene	ND	0.94	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benz(a)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(a)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Bis(2-ethylhexyl)phthalate	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Chrysene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Fluoranthene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)

Project ID: SEWELL STREET
Client ID: MW-2

Phoenix I.D.: CB30807

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluorene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobenzene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobutadiene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorocyclopentadiene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachloroethane	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Nitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
N-Nitrosodimethylamine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachloronitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachlorophenol	ND	0.75	ug/L	1	09/17/18	HM	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyridine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	68		%	1	09/17/18	HM	15 - 110 %
% 2-Fluorobiphenyl	59		%	1	09/17/18	HM	30 - 130 %
% 2-Fluorophenol	48		%	1	09/17/18	HM	15 - 110 %
% Nitrobenzene-d5	60		%	1	09/17/18	HM	30 - 130 %
% Phenol-d5	59		%	1	09/17/18	HM	15 - 110 %
% Terphenyl-d14	63		%	1	09/17/18	HM	30 - 130 %
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
Total TPH 1,2*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	85		%	1	09/17/18	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	46		%	1	09/17/18	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	64		%	1	09/17/18	AW	40 - 140 %
% o-terphenyl (aromatic)	85		%	1	09/17/18	AW	40 - 140 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
October 03, 2018
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 03, 2018

FOR: Attn: Mr. James McMullen
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		09/12/18	11:05
Location Code:	TERRA-ENV	Received by:	CP	09/13/18	15:49
Rush Request:	24 Hour	Analyzed by:	see "By" below		
P.O.#:	17-138				

Laboratory Data

SDG ID: GCB30806
Phoenix ID: CB30808

Project ID: SEWELL STREET
Client ID: MW-3

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Arsenic	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Barium	0.008	0.002	mg/L	1	09/15/18	CPP	SW6010C
Beryllium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Cadmium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Chromium	0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	10/01/18	TH	SW6010C
Mercury	< 0.0002	0.0002	mg/L	1	09/14/18	MGH	SW7470A
Nickel	0.003	0.001	mg/L	1	09/15/18	CPP	SW6010C
Lead	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Antimony	< 0.005	0.005	mg/L	1	09/15/18	EK	SW6010C
Selenium	< 0.010	0.010	mg/L	1	09/15/18	CPP	SW6010C
Thallium	< 0.0005	0.0005	mg/L	5	09/18/18	CPP	SW6020B
Vanadium	0.004	0.002	mg/L	1	09/15/18	CPP	SW6010C
Zinc	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Mercury Digestion	Completed				09/14/18	IG/IG	SW7470A
EPH Extraction	Completed				09/17/18	AK/AK	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				09/13/18		MADEP EPH-04
Extraction for Herbicide	Completed				09/17/18	IG/D	SW8151A
PCB Extraction	Completed				09/13/18	N	SW3510C
Extraction for Pest (2 Liter)	Completed				09/13/18	N	SW3510C
Semi-Volatile Extraction	Completed				09/13/18	P/R	SW3520C
Dissolved Metals Preparation	Completed				09/26/18	AG	SW3005A
Total Metals Digestion	Completed				09/14/18	AG/BF	
Total Metals Digestion MS	Completed				09/14/18	AG/BF	
Chlorinated Herbicides							
2,4,5-T	ND	2.3	ug/L	10	09/18/18	CW	SW8151A

Ver 2

Project ID: SEWELL STREET
Client ID: MW-3

Phoenix I.D.: CB30808

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4,5-TP (Silvex)	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
2,4-D	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
2,4-DB	ND	47	ug/L	10	09/18/18	CW	SW8151A
Dalapon	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dicamba	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dichloroprop	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
Dinoseb	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
MCPA	ND	700	ug/L	10	09/18/18	CW	SW8151A
MCPP	ND	700	ug/L	10	09/18/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	65		%	10	09/18/18	CW	30 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1221	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1232	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1242	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1248	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1254	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1260	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1262	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1268	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
QA/QC Surrogates							
% DCBP	77		%	1	09/14/18	AW	30 - 150 %
% TCMX	74		%	1	09/14/18	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDE	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDT	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
a-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Alachlor	ND	0.071	ug/L	1	09/14/18	CW	SW8081B
Aldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
b-BHC	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Chlordane	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
d-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Dieldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
Endosulfan I	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan II	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan Sulfate	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin Aldehyde	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin ketone	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Methoxychlor	ND	0.094	ug/L	1	09/14/18	CW	SW8081B
Toxaphene	ND	0.94	ug/L	1	09/14/18	CW	SW8081B
QA/QC Surrogates							

Project ID: SEWELL STREET
Client ID: MW-3

Phoenix I.D.: CB30808

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
%DCBP (Surrogate Rec)	104		%	1	09/14/18	CW	30 - 150 %
%TCMX (Surrogate Rec)	88		%	1	09/14/18	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Acetone	ND	25	ug/L	1	09/14/18	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Benzene	ND	0.70	ug/L	1	09/14/18	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C

Project ID: SEWELL STREET
Client ID: MW-3

Phoenix I.D.: CB30808

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hexachlorobutadiene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Styrene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	09/14/18	MH	SW8260C
Toluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	09/14/18	MH	70 - 130 %
% Bromofluorobenzene	94		%	1	09/14/18	MH	70 - 130 %
% Dibromofluoromethane	97		%	1	09/14/18	MH	70 - 130 %
% Toluene-d8	97		%	1	09/14/18	MH	70 - 130 %
Semivolatiles							
1,2,4-Trichlorobenzene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,2-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,2-Diphenylhydrazine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,3-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,4-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
2,4,5-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4,6-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dimethylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2,6-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chloronaphthalene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Methylphenol (o-cresol)	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	9.4	ug/L	1	09/18/18	KCA	SW8270D

Project ID: SEWELL STREET
Client ID: MW-3

Phoenix I.D.: CB30808

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
3,3'-Dichlorobenzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
3-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Bromophenyl phenyl ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chloro-3-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Chloroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chlorophenyl phenyl ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Acetophenone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Aniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzoic acid	ND	47	ug/L	1	09/18/18	KCA	SW8270D
Benzyl butyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethoxy)methane	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethyl)ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroisopropyl)ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Carbazole	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dibenzofuran	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Diethyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dimethylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-butylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-octylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Isophorone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodiphenylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Phenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	92		%	1	09/18/18	KCA	15 - 110 %
% 2-Fluorobiphenyl	66		%	1	09/18/18	KCA	30 - 130 %
% 2-Fluorophenol	45		%	1	09/18/18	KCA	15 - 110 %
% Nitrobenzene-d5	67		%	1	09/18/18	KCA	30 - 130 %
% Phenol-d5	50		%	1	09/18/18	KCA	15 - 110 %
% Terphenyl-d14	72		%	1	09/18/18	KCA	30 - 130 %
Semivolatiles (SIM)							
1,2,4,5-Tetrachlorobenzene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
2-Methylnaphthalene	ND	0.94	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benz(a)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(a)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Bis(2-ethylhexyl)phthalate	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Chrysene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Fluoranthene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)

Project ID: SEWELL STREET
Client ID: MW-3

Phoenix I.D.: CB30808

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluorene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobenzene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobutadiene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorocyclopentadiene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachloroethane	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Nitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
N-Nitrosodimethylamine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachloronitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachlorophenol	ND	0.75	ug/L	1	09/17/18	HM	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyridine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	69		%	1	09/17/18	HM	15 - 110 %
% 2-Fluorobiphenyl	57		%	1	09/17/18	HM	30 - 130 %
% 2-Fluorophenol	47		%	1	09/17/18	HM	15 - 110 %
% Nitrobenzene-d5	60		%	1	09/17/18	HM	30 - 130 %
% Phenol-d5	55		%	1	09/17/18	HM	15 - 110 %
% Terphenyl-d14	65		%	1	09/17/18	HM	30 - 130 %
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2*	ND	94	ug/L	1	09/18/18	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/18/18	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/18/18	AW	MAEPH 5/2004
Total TPH 1,2*	ND	94	ug/L	1	09/18/18	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	95		%	1	09/18/18	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	51		%	1	09/18/18	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	77		%	1	09/18/18	AW	40 - 140 %
% o-terphenyl (aromatic)	98		%	1	09/18/18	AW	40 - 140 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
October 03, 2018
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 03, 2018

FOR: Attn: Mr. James McMullen
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	GROUND WATER	Collected by:		09/12/18	13:15
Location Code:	TERRA-ENV	Received by:	CP	09/13/18	15:49
Rush Request:	24 Hour	Analyzed by:	see "By" below		
P.O.#:	17-138				

Laboratory Data

SDG ID: GCB30806
Phoenix ID: CB30809

Project ID: SEWELL STREET
Client ID: MW-4

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Arsenic	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Barium	0.009	0.002	mg/L	1	09/15/18	CPP	SW6010C
Beryllium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Cadmium	< 0.001	0.001	mg/L	1	09/15/18	CPP	SW6010C
Chromium	0.002	0.001	mg/L	1	09/15/18	CPP	SW6010C
Antimony (Dissolved)	< 0.005	0.005	mg/L	1	09/27/18	EK	SW6010C
Mercury	< 0.0002	0.0002	mg/L	1	09/14/18	MGH	SW7470A
Nickel	0.003	0.001	mg/L	1	09/15/18	CPP	SW6010C
Lead	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Antimony	< 0.005	0.005	mg/L	1	09/15/18	EK	SW6010C
Selenium	< 0.010	0.010	mg/L	1	09/15/18	CPP	SW6010C
Thallium	< 0.0005	0.0005	mg/L	5	09/18/18	CPP	SW6020B
Vanadium	< 0.002	0.002	mg/L	1	09/15/18	CPP	SW6010C
Zinc	< 0.004	0.004	mg/L	1	09/15/18	CPP	SW6010C
Mercury Digestion	Completed				09/14/18	IG/IG	SW7470A
EPH Extraction	Completed				09/17/18	AK/AK	SW3510C
MA Petroleum Hydrocarbon (EPH)	Completed				09/13/18		MADEP EPH-04
Extraction for Herbicide	Completed				09/17/18	IG/D	SW8151A
PCB Extraction	Completed				09/13/18	N	SW3510C
Extraction for Pest (2 Liter)	Completed				09/13/18	N	SW3510C
Semi-Volatile Extraction	Completed				09/13/18	P/R	SW3520C
Dissolved Metals Preparation	Completed				09/26/18	AG	SW3005A
Total Metals Digestion	Completed				09/14/18	AG/BF	
Total Metals Digestion MS	Completed				09/14/18	AG/BF	
Chlorinated Herbicides							
2,4,5-T	ND	2.3	ug/L	10	09/18/18	CW	SW8151A

Ver 2

Project ID: SEWELL STREET
Client ID: MW-4

Phoenix I.D.: CB30809

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
2,4,5-TP (Silvex)	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
2,4-D	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
2,4-DB	ND	47	ug/L	10	09/18/18	CW	SW8151A
Dalapon	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dicamba	ND	2.3	ug/L	10	09/18/18	CW	SW8151A
Dichloroprop	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
Dinoseb	ND	4.7	ug/L	10	09/18/18	CW	SW8151A
MCPA	ND	700	ug/L	10	09/18/18	CW	SW8151A
MCPP	ND	700	ug/L	10	09/18/18	CW	SW8151A
QA/QC Surrogates							
% DCAA	66		%	10	09/18/18	CW	30 - 150 %
Polychlorinated Biphenyls							
PCB-1016	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1221	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1232	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1242	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1248	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1254	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1260	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1262	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
PCB-1268	ND	0.094	ug/L	1	09/14/18	AW	SW8082A
QA/QC Surrogates							
% DCBP	70		%	1	09/14/18	AW	30 - 150 %
% TCMX	72		%	1	09/14/18	AW	30 - 150 %
Pesticides							
4,4' -DDD	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDE	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
4,4' -DDT	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
a-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Alachlor	ND	0.071	ug/L	1	09/14/18	CW	SW8081B
Aldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
b-BHC	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Chlordane	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
d-BHC	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Dieldrin	ND	0.001	ug/L	1	09/14/18	CW	SW8081B
Endosulfan I	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan II	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endosulfan Sulfate	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin Aldehyde	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
Endrin ketone	ND	0.047	ug/L	1	09/14/18	CW	SW8081B
g-BHC (Lindane)	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Heptachlor epoxide	ND	0.024	ug/L	1	09/14/18	CW	SW8081B
Hexachlorobenzene	ND	0.005	ug/L	1	09/14/18	CW	SW8081B
Methoxychlor	ND	0.094	ug/L	1	09/14/18	CW	SW8081B
Toxaphene	ND	0.94	ug/L	1	09/14/18	CW	SW8081B
QA/QC Surrogates							

Project ID: SEWELL STREET
Client ID: MW-4

Phoenix I.D.: CB30809

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
%DCBP (Surrogate Rec)	84		%	1	09/14/18	CW	30 - 150 %
%TCMX (Surrogate Rec)	75		%	1	09/14/18	CW	30 - 150 %
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	09/14/18	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Acetone	ND	25	ug/L	1	09/14/18	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Benzene	ND	0.70	ug/L	1	09/14/18	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	09/14/18	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C

Project ID: SEWELL STREET
Client ID: MW-4

Phoenix I.D.: CB30809

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Hexachlorobutadiene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Styrene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	09/14/18	MH	SW8260C
Toluene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	09/14/18	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	09/14/18	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	09/14/18	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	1	09/14/18	MH	70 - 130 %
% Bromofluorobenzene	98		%	1	09/14/18	MH	70 - 130 %
% Dibromofluoromethane	97		%	1	09/14/18	MH	70 - 130 %
% Toluene-d8	96		%	1	09/14/18	MH	70 - 130 %
Semivolatiles							
1,2,4-Trichlorobenzene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,2-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,2-Diphenylhydrazine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
1,3-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
1,4-Dichlorobenzene	ND	2.4	ug/L	1	09/18/18	KCA	SW8270D
2,4,5-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4,6-Trichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dichlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dimethylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2,4-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2,6-Dinitrotoluene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chloronaphthalene	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Chlorophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Methylphenol (o-cresol)	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
2-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
2-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
3&4-Methylphenol (m&p-cresol)	ND	9.4	ug/L	1	09/18/18	KCA	SW8270D

Project ID: SEWELL STREET
Client ID: MW-4

Phoenix I.D.: CB30809

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
3,3'-Dichlorobenzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
3-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4,6-Dinitro-2-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Bromophenyl phenyl ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chloro-3-methylphenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Chloroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Chlorophenyl phenyl ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
4-Nitroaniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
4-Nitrophenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Acetophenone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Aniline	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzidine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Benzoic acid	ND	47	ug/L	1	09/18/18	KCA	SW8270D
Benzyl butyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethoxy)methane	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroethyl)ether	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
Bis(2-chloroisopropyl)ether	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Carbazole	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dibenzofuran	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Diethyl phthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Dimethylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-butylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Di-n-octylphthalate	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Isophorone	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodi-n-propylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
N-Nitrosodiphenylamine	ND	4.7	ug/L	1	09/18/18	KCA	SW8270D
Phenol	ND	0.94	ug/L	1	09/18/18	KCA	SW8270D
QA/QC Surrogates							
% 2,4,6-Tribromophenol	85		%	1	09/18/18	KCA	15 - 110 %
% 2-Fluorobiphenyl	62		%	1	09/18/18	KCA	30 - 130 %
% 2-Fluorophenol	45		%	1	09/18/18	KCA	15 - 110 %
% Nitrobenzene-d5	57		%	1	09/18/18	KCA	30 - 130 %
% Phenol-d5	53		%	1	09/18/18	KCA	15 - 110 %
% Terphenyl-d14	68		%	1	09/18/18	KCA	30 - 130 %
Semivolatiles (SIM)							
1,2,4,5-Tetrachlorobenzene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
2-Methylnaphthalene	ND	0.94	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Acenaphthylene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benz(a)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(a)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(b)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(ghi)perylene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Benzo(k)fluoranthene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Bis(2-ethylhexyl)phthalate	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Chrysene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Dibenz(a,h)anthracene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Fluoranthene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)

Project ID: SEWELL STREET
Client ID: MW-4

Phoenix I.D.: CB30809

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Fluorene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobenzene	ND	0.04	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorobutadiene	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachlorocyclopentadiene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Hexachloroethane	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Indeno(1,2,3-cd)pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Naphthalene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Nitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
N-Nitrosodimethylamine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachloronitrobenzene	ND	0.09	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pentachlorophenol	ND	0.75	ug/L	1	09/17/18	HM	SW8270D (SIM)
Phenanthrene	ND	0.05	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyrene	ND	0.02	ug/L	1	09/17/18	HM	SW8270D (SIM)
Pyridine	ND	0.47	ug/L	1	09/17/18	HM	SW8270D (SIM)
QA/QC Surrogates							
% 2,4,6-Tribromophenol	69		%	1	09/17/18	HM	15 - 110 %
% 2-Fluorobiphenyl	55		%	1	09/17/18	HM	30 - 130 %
% 2-Fluorophenol	48		%	1	09/17/18	HM	15 - 110 %
% Nitrobenzene-d5	57		%	1	09/17/18	HM	30 - 130 %
% Phenol-d5	59		%	1	09/17/18	HM	15 - 110 %
% Terphenyl-d14	64		%	1	09/17/18	HM	30 - 130 %
MA EPH Aliphatic/Aromatic Ranges							
C11-C22 Aromatic Hydrocarbons 1,2*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
C19-C36 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
C9-C18 Aliphatic Hydrocarbons 1*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
Total TPH 1,2*	ND	94	ug/L	1	09/17/18	AW	MAEPH 5/2004
QA/QC Surrogates							
% 1-chlorooctadecane (aliphatic)	83		%	1	09/17/18	AW	40 - 140 %
% 2-Bromonaphthalene (Fractionation)	63		%	1	09/17/18	AW	40 - 140 %
% 2-Fluorobiphenyl (Fractionation)	85		%	1	09/17/18	AW	40 - 140 %
% o-terphenyl (aromatic)	85		%	1	09/17/18	AW	40 - 140 %

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference

RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

MAEPH:
1* Hydrocarbon range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.
2* C11-C12 Aromatic Hydrocarbons exclude the concentration of Target PAH analytes eluting in that range.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.

Phyllis Shiller, Laboratory Director
October 03, 2018
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

Analysis Report

October 03, 2018

FOR: Attn: Mr. James McMullen
Terra Environmental LLC
P.O. Box 473
Reading, MA 01867

Sample Information		Custody Information		Date	Time
Matrix:	WATER	Collected by:		09/12/18	
Location Code:	TERRA-ENV	Received by:	CP	09/13/18	15:49
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	17-138				

Laboratory Data

SDG ID: GCB30806
Phoenix ID: CB30810

Project ID: SEWELL STREET
Client ID: TRIP BLANKS

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Volatiles							
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,1,1-Trichloroethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,1,2,2-Tetrachloroethane	ND	0.50	ug/L	1	09/13/18	MH	SW8260C
1,1,2-Trichloroethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,1-Dichloroethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,1-Dichloroethene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,1-Dichloropropene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2,3-Trichlorobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2,3-Trichloropropane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2,4-Trichlorobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2,4-Trimethylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2-Dibromo-3-chloropropane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2-Dibromoethane	ND	0.25	ug/L	1	09/13/18	MH	SW8260C
1,2-Dichlorobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,2-Dichloroethane	ND	0.60	ug/L	1	09/13/18	MH	SW8260C
1,2-Dichloropropane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,3,5-Trimethylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,3-Dichlorobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,3-Dichloropropane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
1,4-Dichlorobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
2,2-Dichloropropane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
2-Chlorotoluene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
2-Hexanone	ND	5.0	ug/L	1	09/13/18	MH	SW8260C
2-Isopropyltoluene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
4-Chlorotoluene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
4-Methyl-2-pentanone	ND	5.0	ug/L	1	09/13/18	MH	SW8260C

Project ID: SEWELL STREET
Client ID: TRIP BLANKS

Phoenix I.D.: CB30810

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
Acetone	ND	25	ug/L	1	09/13/18	MH	SW8260C
Acrylonitrile	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Benzene	ND	0.70	ug/L	1	09/13/18	MH	SW8260C
Bromobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Bromochloromethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Bromodichloromethane	ND	0.50	ug/L	1	09/13/18	MH	SW8260C
Bromoform	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Bromomethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Carbon Disulfide	ND	5.0	ug/L	1	09/13/18	MH	SW8260C
Carbon tetrachloride	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Chlorobenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Chloroethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Chloroform	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Chloromethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
cis-1,2-Dichloroethene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
cis-1,3-Dichloropropene	ND	0.40	ug/L	1	09/13/18	MH	SW8260C
Dibromochloromethane	ND	0.50	ug/L	1	09/13/18	MH	SW8260C
Dibromomethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Dichlorodifluoromethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Ethylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Hexachlorobutadiene	ND	0.40	ug/L	1	09/13/18	MH	SW8260C
Isopropylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
m&p-Xylene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Methyl ethyl ketone	ND	5.0	ug/L	1	09/13/18	MH	SW8260C
Methyl t-butyl ether (MTBE)	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Methylene chloride	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Naphthalene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
n-Butylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
n-Propylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
o-Xylene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
p-Isopropyltoluene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
sec-Butylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Styrene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
tert-Butylbenzene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Tetrachloroethene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Tetrahydrofuran (THF)	ND	2.5	ug/L	1	09/13/18	MH	SW8260C
Toluene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Total Xylenes	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
trans-1,2-Dichloroethene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
trans-1,3-Dichloropropene	ND	0.40	ug/L	1	09/13/18	MH	SW8260C
trans-1,4-dichloro-2-butene	ND	5.0	ug/L	1	09/13/18	MH	SW8260C
Trichloroethene	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Trichlorofluoromethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Trichlorotrifluoroethane	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
Vinyl chloride	ND	1.0	ug/L	1	09/13/18	MH	SW8260C
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	1	09/13/18	MH	70 - 130 %
% Bromofluorobenzene	94		%	1	09/13/18	MH	70 - 130 %
% Dibromofluoromethane	102		%	1	09/13/18	MH	70 - 130 %

Project ID: SEWELL STREET
Client ID: TRIP BLANKS

Phoenix I.D.: CB30810

Parameter	Result	RL/ PQL	Units	Dilution	Date/Time	By	Reference
% Toluene-d8	97		%	1	09/13/18	MH	70 - 130 %

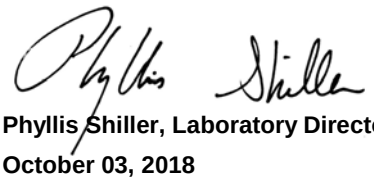
RL/PQL=Reporting/Practical Quantitation Level ND=Not Detected BRL=Below Reporting Level
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

TRIP BLANK INCLUDED.

Volatile Comment:
Where the LOD justifies lowering the RL/PQL, the RL/PQL of some compounds are evaluated below the lowest calibration standard in order to meet criteria.

If there are any questions regarding this data, please call Phoenix Client Services.



Phyllis Shiller, Laboratory Director
October 03, 2018
Reviewed and Released by: Rashmi Makol, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

October 03, 2018

QA/QC Data

SDG I.D.: GCB30806

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 447521 (mg/L), QC Sample No: CB30806 5X (CB30806, CB30807, CB30808, CB30809)													
ICP MS Metals - Aqueous													
Thallium	BRL	0.0005	<0.0005	<0.0005	NC	102			99.6			75 - 125	20
Comment:													
Laboratory water was used for the matrix spike.													
QA/QC Batch 447419 (mg/L), QC Sample No: CB30806 (CB30806, CB30807, CB30808, CB30809)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	82.2			85.9			75 - 125	30
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%													
QA/QC Batch 447520 (mg/L), QC Sample No: CB31422 (CB30806, CB30807, CB30808, CB30809)													
ICP Metals - Aqueous													
Antimony	BRL	0.005	<0.005	<0.005	NC	111			118			75 - 125	20
Arsenic	BRL	0.004	<0.004	<0.004	NC	104			114			75 - 125	20
Barium	BRL	0.002	0.101	0.099	2.00	105			103			75 - 125	20
Beryllium	BRL	0.001	<0.001	<0.001	NC	108			105			75 - 125	20
Cadmium	BRL	0.001	<0.001	<0.001	NC	105			98.6			75 - 125	20
Chromium	BRL	0.001	<0.001	<0.001	NC	103			100			75 - 125	20
Lead	BRL	0.002	<0.002	<0.002	NC	104			99.8			75 - 125	20
Nickel	BRL	0.001	0.042	0.042	0	104			94.7			75 - 125	20
Selenium	BRL	0.010	<0.010	<0.010	NC	102			107			75 - 125	20
Silver	BRL	0.001	<0.001	<0.001	NC	102			120			75 - 125	20
Vanadium	BRL	0.002	<0.002	<0.002	NC	102			104			75 - 125	20
Zinc	BRL	0.004	0.020	0.020	0	104			108			75 - 125	20
QA/QC Batch 449192 (mg/L), QC Sample No: CB38940 (CB30806, CB30807, CB30808, CB30809)													
ICP Metals - Dissolved													
Antimony	BRL	0.005	0.006	<0.005	NC	93.7			101			75 - 125	20

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

QA/QC Report

October 03, 2018

QA/QC Data

SDG I.D.: GCB30806

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 447365 (ug/L), QC Sample No: CB29461 (CB30806, CB30807, CB30808, CB30809)										
Polychlorinated Biphenyls - Ground Water										
PCB-1016	ND	0.050	79	93	16.3				40 - 140	20
PCB-1221	ND	0.050							40 - 140	20
PCB-1232	ND	0.050							40 - 140	20
PCB-1242	ND	0.050							40 - 140	20
PCB-1248	ND	0.050							40 - 140	20
PCB-1254	ND	0.050							40 - 140	20
PCB-1260	ND	0.050	84	95	12.3				40 - 140	20
PCB-1262	ND	0.050							40 - 140	20
PCB-1268	ND	0.050							40 - 140	20
% DCBP (Surrogate Rec)	78	%	95	92	3.2				30 - 150	20
% TCMX (Surrogate Rec)	64	%	91	103	12.4				30 - 150	20
Comment:										
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.										
QA/QC Batch 447656 (ug/L), QC Sample No: CB30806 (CB30806, CB30807, CB30808, CB30809)										
MAEPH - Ground Water										
C11-C22 Aromatic Hydrocarbons 1	ND	100	88	87	1.1				40 - 140	25
C19-C36 Aliphatic Hydrocarbons 1*	ND	100	78	83	6.2				40 - 140	25
C9-C18 Aliphatic Hydrocarbons 1*	ND	100	60	62	3.3				40 - 140	25
Total TPH 1,2*	ND	100	80	81	1.2				40 - 140	25
% 1-chlorooctadecane (aliphatic)	66	%	69	70	1.4				40 - 140	25
% 2-Bromonaphthalene (Fractionati	67	%	73	68	7.1				40 - 140	25
% 2-Fluorobiphenyl (Fractionation)	70	%	76	72	5.4				40 - 140	25
% 2-Methylnaphthalene BT			0	0	NC				0 - 5	
% Naphthalene BT			0	0	NC				0 - 5	
% o-terphenyl (aromatic)	62	%	66	65	1.5				40 - 140	25
Comment:										
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%										
QA/QC Batch 447657 (ug/L), QC Sample No: CB30806 10X (CB30806, CB30807, CB30808, CB30809)										
Chlorinated Herbicides - Ground Water										
2,4,5-T	ND	2.5	71	73	2.8				40 - 140	20
2,4,5-TP (Silvex)	ND	2.5	72	74	2.7				40 - 140	20
2,4-D	ND	5.0	109	112	2.7				40 - 140	20
2,4-DB	ND	50	40	44	9.5				40 - 140	20
Dalapon	ND	2.5	41	40	2.5				40 - 140	20
Dicamba	ND	2.5	82	85	3.6				40 - 140	20
Dichloroprop	ND	5.0	88	86	2.3				40 - 140	20
Dinoseb	ND	5.0	74	76	2.7				10 - 110	30
MCPA	ND	750	72	74	2.7				40 - 140	20
MCPP	ND	750	116	110	5.3				40 - 140	20
% DCAA (Surrogate Rec)	59	%	62	61	1.6				30 - 150	20

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Comment:											
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.											
QA/QC Batch 447366 (ug/L), QC Sample No: CB30806 (CB30806, CB30807, CB30808, CB30809)											
Pesticides - Ground Water											
4,4' -DDD	ND	0.003	88	93	5.5				40 - 140	20	
4,4' -DDE	ND	0.003	81	84	3.6				40 - 140	20	
4,4' -DDT	ND	0.003	88	92	4.4				40 - 140	20	
a-BHC	ND	0.002	80	88	9.5				40 - 140	20	
Alachlor	ND	0.005	NA	NA	NC				40 - 140	20	
Aldrin	ND	0.002	57	58	1.7				40 - 140	20	
b-BHC	ND	0.002	102	110	7.5				40 - 140	20	
Chlordane	ND	0.050	87	90	3.4				40 - 140	20	
d-BHC	ND	0.005	104	102	1.9				40 - 140	20	
Dieldrin	ND	0.002	86	90	4.5				40 - 140	20	
Endosulfan I	ND	0.005	94	101	7.2				40 - 140	20	
Endosulfan II	ND	0.005	99	103	4.0				40 - 140	20	
Endosulfan sulfate	ND	0.005	103	106	2.9				40 - 140	20	
Endrin	ND	0.005	93	99	6.3				40 - 140	20	
Endrin aldehyde	ND	0.005	94	97	3.1				40 - 140	20	
Endrin ketone	ND	0.005	100	104	3.9				40 - 140	20	
g-BHC	ND	0.002	82	89	8.2				40 - 140	20	
Heptachlor	ND	0.005	71	75	5.5				40 - 140	20	
Heptachlor epoxide	ND	0.005	89	95	6.5				40 - 140	20	
Hexachlorobenzene	ND	0.005	75	81	7.7				40 - 140	20	
Methoxychlor	ND	0.005	95	99	4.1				40 - 140	20	
Toxaphene	ND	0.20	NA	NA	NC				40 - 140	20	
% DCBP	82	%	92	100	8.3				30 - 150	20	
% TCMX	65	%	75	83	10.1				30 - 150	20	
Comment:											
A LCS and LCS duplicate were performed instead of a MS and MSD. Alpha and gamma chlordane were spiked and analyzed instead of technical chlordane. Gamma chlordane recovery is reported as chlordane in the LCS and LCSD											
QA/QC Batch 447355 (ug/L), QC Sample No: CB30806 (CB30806, CB30807, CB30808, CB30809)											
Semivolatiles (SIM) - Ground Water											
1,2,4,5-Tetrachlorobenzene	ND	0.50	51	44	14.7				30 - 130	20	
2-Methylnaphthalene	ND	0.02	53	46	14.1				30 - 130	20	
Acenaphthene	ND	0.02	60	52	14.3				30 - 130	20	
Acenaphthylene	ND	0.02	56	48	15.4				30 - 130	20	
Anthracene	ND	0.02	67	57	16.1				30 - 130	20	
Benz(a)anthracene	ND	0.02	64	54	16.9				30 - 130	20	
Benzo(a)pyrene	ND	0.02	66	55	18.2				30 - 130	20	
Benzo(b)fluoranthene	ND	0.02	73	62	16.3				30 - 130	20	
Benzo(ghi)perylene	ND	0.02	67	56	17.9				30 - 130	20	
Benzo(k)fluoranthene	ND	0.02	79	66	17.9				30 - 130	20	
Bis(2-ethylhexyl)phthalate	ND	0.5	66	55	18.2				30 - 130	20	
Chrysene	ND	0.02	74	64	14.5				30 - 130	20	
Dibenz(a,h)anthracene	ND	0.01	78	63	21.3				30 - 130	20	r
Fluoranthene	ND	0.02	67	57	16.1				30 - 130	20	
Fluorene	ND	0.02	64	57	11.6				30 - 130	20	
Hexachlorobenzene	ND	0.02	68	59	14.2				30 - 130	20	
Hexachlorobutadiene	ND	0.05	47	36	26.5				30 - 130	20	r
Hexachlorocyclopentadiene	ND	0.05	24	21	13.3				30 - 130	20	l
Hexachloroethane	ND	0.05	37	28	27.7				30 - 130	20	l,r

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Indeno(1,2,3-cd)pyrene	ND	0.02	65	54	18.5				30 - 130	20	
Naphthalene	ND	0.02	51	41	21.7				30 - 130	20	r
Nitrobenzene	ND	0.05	47	39	18.6				30 - 130	20	
N-Nitrosodimethylamine	ND	0.05	50	37	29.9				30 - 130	20	r
Pentachloronitrobenzene	ND	0.10	73	60	19.5				30 - 130	20	
Pentachlorophenol	ND	0.20	72	58	21.5				30 - 130	20	r
Phenanthrene	ND	0.02	64	55	15.1				30 - 130	20	
Pyrene	ND	0.02	67	57	16.1				30 - 130	20	
Pyridine	ND	0.50	32	12	90.9				30 - 130	20	l,r
% 2,4,6-Tribromophenol	60	%	64	54	16.9				15 - 110	20	
% 2-Fluorobiphenyl	57	%	51	44	14.7				30 - 130	20	
% 2-Fluorophenol	48	%	35	25	33.3				15 - 110	20	r
% Nitrobenzene-d5	55	%	44	36	20.0				30 - 130	20	
% Phenol-d5	58	%	39	29	29.4				15 - 110	20	r
% Terphenyl-d14	63	%	59	50	16.5				30 - 130	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 447355 (ug/L), QC Sample No: CB30806 (CB30806, CB30807, CB30808, CB30809)

Semivolatiles - Ground Water

1,2,4-Trichlorobenzene	ND	3.5	66	62	6.3				30 - 130	20	
1,2-Dichlorobenzene	ND	1.0	62	52	17.5				30 - 130	20	
1,2-Diphenylhydrazine	ND	1.6	88	86	2.3				30 - 130	20	
1,3-Dichlorobenzene	ND	1.0	60	51	16.2				30 - 130	20	
1,4-Dichlorobenzene	ND	1.0	61	53	14.0				30 - 130	20	
2,4,5-Trichlorophenol	ND	1.0	93	93	0.0				30 - 130	20	
2,4,6-Trichlorophenol	ND	1.0	91	89	2.2				30 - 130	20	
2,4-Dichlorophenol	ND	1.0	77	74	4.0				30 - 130	20	
2,4-Dimethylphenol	ND	1.0	84	79	6.1				30 - 130	20	
2,4-Dinitrophenol	ND	1.0	109	107	1.9				30 - 130	20	
2,4-Dinitrotoluene	ND	3.5	102	98	4.0				30 - 130	20	
2,6-Dinitrotoluene	ND	3.5	95	93	2.1				30 - 130	20	
2-Chloronaphthalene	ND	3.5	82	82	0.0				30 - 130	20	
2-Chlorophenol	ND	1.0	65	53	20.3				30 - 130	20	
2-Methylphenol (o-cresol)	ND	1.0	73	67	8.6				30 - 130	20	
2-Nitroaniline	ND	3.5	120	115	4.3				30 - 130	20	
2-Nitrophenol	ND	1.0	78	77	1.3				30 - 130	20	
3&4-Methylphenol (m&p-cresol)	ND	1.0	73	69	5.6				30 - 130	20	
3,3'-Dichlorobenzidine	ND	5.0	79	76	3.9				30 - 130	20	
3-Nitroaniline	ND	5.0	112	110	1.8				30 - 130	20	
4,6-Dinitro-2-methylphenol	ND	1.0	118	116	1.7				30 - 130	20	
4-Bromophenyl phenyl ether	ND	3.5	99	99	0.0				30 - 130	20	
4-Chloro-3-methylphenol	ND	1.0	97	102	5.0				30 - 130	20	
4-Chloroaniline	ND	3.5	58	76	26.9				30 - 130	20	r
4-Chlorophenyl phenyl ether	ND	1.0	97	95	2.1				30 - 130	20	
4-Nitroaniline	ND	5.0	93	91	2.2				30 - 130	20	
4-Nitrophenol	ND	1.0	96	96	0.0				30 - 130	20	
Acetophenone	ND	3.5	73	70	4.2				30 - 130	20	
Aniline	ND	3.5	16	<10	NC				30 - 130	20	l
Benzidine	ND	4.5	<10	<10	NC				30 - 130	20	l
Benzoic acid	ND	10	71	73	2.8				30 - 130	20	
Benzyl butyl phthalate	ND	1.5	108	92	16.0				30 - 130	20	

QA/QC Data

SDG I.D.: GCB30806

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Bis(2-chloroethoxy)methane	ND	3.5	75	75	0.0				30 - 130	20	
Bis(2-chloroethyl)ether	ND	1.0	68	58	15.9				30 - 130	20	
Bis(2-chloroisopropyl)ether	ND	1.0	60	54	10.5				30 - 130	20	
Carbazole	ND	5.0	98	95	3.1				30 - 130	20	
Dibenzofuran	ND	3.5	88	87	1.1				30 - 130	20	
Diethyl phthalate	ND	1.5	100	95	5.1				30 - 130	20	
Dimethylphthalate	ND	1.5	97	96	1.0				30 - 130	20	
Di-n-butylphthalate	ND	1.5	103	99	4.0				30 - 130	20	
Di-n-octylphthalate	ND	1.5	105	95	10.0				30 - 130	20	
Isophorone	ND	3.5	71	74	4.1				30 - 130	20	
N-Nitrosodi-n-propylamine	ND	3.5	85	84	1.2				30 - 130	20	
N-Nitrosodiphenylamine	ND	3.5	90	87	3.4				30 - 130	20	
Phenol	ND	1.0	54	45	18.2				30 - 130	20	
% 2,4,6-Tribromophenol	89	%	97	99	2.0				15 - 110	20	
% 2-Fluorobiphenyl	71	%	75	76	1.3				30 - 130	20	
% 2-Fluorophenol	49	%	50	40	22.2				15 - 110	20	r
% Nitrobenzene-d5	63	%	70	65	7.4				30 - 130	20	
% Phenol-d5	60	%	56	47	17.5				15 - 110	20	
% Terphenyl-d14	73	%	72	87	18.9				30 - 130	20	

Comment:

Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

QA/QC Batch 447487 (ug/L), QC Sample No: CB31013 (CB30806, CB30807, CB30808, CB30809, CB30810)

Volatiles - Ground Water

1,1,1,2-Tetrachloroethane	ND	1.0	89	90	1.1				70 - 130	30	
1,1,1-Trichloroethane	ND	1.0	89	89	0.0				70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	0.50	93	98	5.2				70 - 130	30	
1,1,2-Trichloroethane	ND	1.0	93	89	4.4				70 - 130	30	
1,1-Dichloroethane	ND	1.0	92	92	0.0				70 - 130	30	
1,1-Dichloroethene	ND	1.0	88	88	0.0				70 - 130	30	
1,1-Dichloropropene	ND	1.0	88	86	2.3				70 - 130	30	
1,2,3-Trichlorobenzene	ND	1.0	87	93	6.7				70 - 130	30	
1,2,3-Trichloropropane	ND	1.0	93	99	6.3				70 - 130	30	
1,2,4-Trichlorobenzene	ND	1.0	90	90	0.0				70 - 130	30	
1,2,4-Trimethylbenzene	ND	1.0	92	92	0.0				70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	1.0	86	89	3.4				70 - 130	30	
1,2-Dibromoethane	ND	1.0	92	94	2.2				70 - 130	30	
1,2-Dichlorobenzene	ND	1.0	92	91	1.1				70 - 130	30	
1,2-Dichloroethane	ND	1.0	91	94	3.2				70 - 130	30	
1,2-Dichloropropane	ND	1.0	87	90	3.4				70 - 130	30	
1,3,5-Trimethylbenzene	ND	1.0	91	92	1.1				70 - 130	30	
1,3-Dichlorobenzene	ND	1.0	91	91	0.0				70 - 130	30	
1,3-Dichloropropane	ND	1.0	92	92	0.0				70 - 130	30	
1,4-Dichlorobenzene	ND	1.0	91	93	2.2				70 - 130	30	
2,2-Dichloropropane	ND	1.0	88	86	2.3				70 - 130	30	
2-Chlorotoluene	ND	1.0	90	93	3.3				70 - 130	30	
2-Hexanone	ND	5.0	87	87	0.0				40 - 160	30	
2-Isopropyltoluene	ND	1.0	94	94	0.0				70 - 130	30	
4-Chlorotoluene	ND	1.0	92	91	1.1				70 - 130	30	
4-Methyl-2-pentanone	ND	5.0	87	91	4.5				40 - 160	30	
Acetone	ND	5.0	80	80	0.0				40 - 160	30	
Acrylonitrile	ND	5.0	85	87	2.3				70 - 130	30	

QA/QC Data

SDG I.D.: GCB30806

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Benzene	ND	0.70	90	91	1.1				70 - 130	30
Bromobenzene	ND	1.0	91	92	1.1				70 - 130	30
Bromochloromethane	ND	1.0	92	94	2.2				70 - 130	30
Bromodichloromethane	ND	0.50	89	90	1.1				70 - 130	30
Bromoform	ND	1.0	85	88	3.5				70 - 130	30
Bromomethane	ND	1.0	96	93	3.2				40 - 160	30
Carbon Disulfide	ND	1.0	96	93	3.2				70 - 130	30
Carbon tetrachloride	ND	1.0	84	83	1.2				70 - 130	30
Chlorobenzene	ND	1.0	92	91	1.1				70 - 130	30
Chloroethane	ND	1.0	88	86	2.3				70 - 130	30
Chloroform	ND	1.0	91	92	1.1				70 - 130	30
Chloromethane	ND	1.0	67	69	2.9				40 - 160	30
cis-1,2-Dichloroethene	ND	1.0	92	91	1.1				70 - 130	30
cis-1,3-Dichloropropene	ND	0.40	87	88	1.1				70 - 130	30
Dibromochloromethane	ND	0.50	92	91	1.1				70 - 130	30
Dibromomethane	ND	1.0	92	89	3.3				70 - 130	30
Dichlorodifluoromethane	ND	1.0	80	80	0.0				40 - 160	30
Ethylbenzene	ND	1.0	89	89	0.0				70 - 130	30
Hexachlorobutadiene	ND	0.40	93	92	1.1				70 - 130	30
Isopropylbenzene	ND	1.0	90	89	1.1				70 - 130	30
m&p-Xylene	ND	1.0	90	91	1.1				70 - 130	30
Methyl ethyl ketone	ND	5.0	98	95	3.1				40 - 160	30
Methyl t-butyl ether (MTBE)	ND	1.0	87	89	2.3				70 - 130	30
Methylene chloride	ND	1.0	91	92	1.1				70 - 130	30
Naphthalene	ND	1.0	94	98	4.2				70 - 130	30
n-Butylbenzene	ND	1.0	91	90	1.1				70 - 130	30
n-Propylbenzene	ND	1.0	89	90	1.1				70 - 130	30
o-Xylene	ND	1.0	92	92	0.0				70 - 130	30
p-Isopropyltoluene	ND	1.0	90	89	1.1				70 - 130	30
sec-Butylbenzene	ND	1.0	95	94	1.1				70 - 130	30
Styrene	ND	1.0	91	91	0.0				70 - 130	30
tert-Butylbenzene	ND	1.0	90	90	0.0				70 - 130	30
Tetrachloroethene	ND	1.0	87	87	0.0				70 - 130	30
Tetrahydrofuran (THF)	ND	2.5	80	81	1.2				70 - 130	30
Toluene	ND	1.0	88	90	2.2				70 - 130	30
trans-1,2-Dichloroethene	ND	1.0	92	90	2.2				70 - 130	30
trans-1,3-Dichloropropene	ND	0.40	86	86	0.0				70 - 130	30
trans-1,4-dichloro-2-butene	ND	5.0	91	91	0.0				70 - 130	30
Trichloroethene	ND	1.0	87	90	3.4				70 - 130	30
Trichlorofluoromethane	ND	1.0	84	82	2.4				70 - 130	30
Trichlorotrifluoroethane	ND	1.0	84	83	1.2				70 - 130	30
Vinyl chloride	ND	1.0	86	84	2.4				70 - 130	30
% 1,2-dichlorobenzene-d4	101	%	102	101	1.0				70 - 130	30
% Bromofluorobenzene	95	%	100	100	0.0				70 - 130	30
% Dibromofluoromethane	94	%	98	97	1.0				70 - 130	30
% Toluene-d8	99	%	98	98	0.0				70 - 130	30

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.

l = This parameter is outside laboratory LCS/LCSD specified recovery limits.
r = This parameter is outside laboratory RPD specified recovery limits.

QA/QC Data

SDG I.D.: GCB30806

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller, Laboratory Director
October 03, 2018

Wednesday, October 03, 2018

Criteria: MA: GW1, S1

State: MA

Sample Criteria Exceedances Report

GCB30806 - TERRA-ENV

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units
CB30806	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CB30806	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CB30806	SB-WM	Antimony	MA / CMR 310.40.1600 / GW-1 (mg/l)	0.030	0.005	0.006	0.006	mg/L
CB30806	SB-WM	Antimony	MA / GROUNDWATER STANDARDS / GW-1	0.030	0.005	0.006	0.006	mg/L
CB30807	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CB30807	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CB30808	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CB30808	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CB30809	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CB30809	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L
CB30810	$8260GWR	1,2-Dibromoethane	MA / CMR 310.40.1600 / GW-1 (mg/l)	ND	0.25	0.02	0.02	ug/L
CB30810	$8260GWR	1,2-Dibromoethane	MA / GROUNDWATER STANDARDS / GW-1	ND	0.25	0.02	0.02	ug/L

MassDEP Analytical Protocol Certification Form

Laboratory Name: Phoenix Environmental Laboratories, Inc. **Project #:**

Project Location: SEWELL STREET **RTN:**

This Form provides certifications for the following data set: [list Laboratory Sample ID Number(s)]

CB30806, CB30807, CB30808, CB30809, CB30810

Matrices: ☑ Groundwater/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☑ Other: WATER

CAM Protocol (check all that apply below)

8260 VOC CAM II A ☑	7470/7471 Hg CAM III B ☑	MassDEP VPH CAM IV A ☐	8081 Pesticides CAM V B ☑	7196 Hex Cr CAM VI B ☐	MassDEP APH CAM IX A ☐
8270 SVOC CAM II B ☑	7010 Metals CAM III C ☐	MassDEP EPH CAM IV B ☑	8151 Herbicides CAM V C ☑	8330 Explosives CAM VIII A ☐	TO-15 VOC CAM IX B ☐
6010 Metals CAM III A ☑	6020 Metals CAM III D ☐	8082 PCB CAM V A ☑	9012 Total Cyanide/PAC CAM V1 A ☐	6860 Perchlorate CAM VIII B ☐	

Affirmative responses to questions A through F are required for "Presumptive Certainty" status

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature*) in the field or laboratory, and prepared/analyzed with method holding times? (* see narrative)	☑ Yes ☐ No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	☑ Yes ☐ No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	☑ Yes ☐ No
D	Does the laboratory report comply with all the reporting requirements speified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	☑ Yes ☐ No
E	a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 methods only: Was the complete analyte list reported for each method?	☑ Yes ☐ No ☐ Yes ☐ No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	☑ Yes ☐ No

Responses to questions G, H and I below is required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	☐ Yes ☑ No

Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056(2)(k) and WSC-07-350

H	Were all QC performance standards specified in the CAM protocol(s) achieved? See Sections: SVOA, SVOASIM Narrations .	☐ Yes ☑ No
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	☐ Yes ☑ No

All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Authorized Signature: Rashmi Makol

Date: Wednesday, October 03, 2018

Printed Name: Rashmi Makol

Position: Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

October 03, 2018

SDG I.D.: GCB30806

SDG Comments

Phoenix reporting levels may exceed those referenced in the CAM protocol. Please refer to criteria sheet for comparisons to requested MCP standards.

8260 Volatile Organics:
The following compounds from the MCP 8260 analyte list were not performed: TAME, diethyl ether, diisopropyl ether, 1,4 dioxane, and ETBE. 1,2-Dibromoethane doesn't meet GW-1 criteria, this compound is analyzed by GC/FID to achieve this criteria.

EPH Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-FID3 09/17/18-1 Adam Werner, Chemist 09/17/18

CB30806, CB30807, CB30808, CB30809

No significant modifications were made to the EPH method, as specified in Section 11.3 of the method.

The initial calibration (AL817AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (AR817BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 25% except for the following compounds:None.

QC (Batch Specific):

Batch 447656 (CB30806)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 25% with the following exceptions: None.
Additional EPH fractionation criteria: Breakthrough criteria (BT) is 0 to 5%

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Herbicide Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-ECD2 09/18/18-1 Carol Wohlmuth, Chemist 09/18/18

CB30806, CB30807, CB30808, CB30809

The initial calibration (HRB914AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (HRB914BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 447657 (CB30806)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 40 - 140 with the following exceptions: None.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

October 03, 2018

SDG I.D.: GCB30806

Herbicide Narration

All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
MCP 8151 additional criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Mercury Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

MERLIN 09/14/18 14:06 Mike Hornak, Chemist 09/14/18

CB30806, CB30807, CB30808, CB30809

The method preparation blank contains all of the acids and reagents as the samples; the instrument blanks do not.
The initial calibration met all criteria including a standard run at or below the reporting level.
All calibration verification standards (ICV, CCV) met criteria.
All calibration blank verification standards (ICB, CCB) met criteria.
The matrix spike sample is used to identify spectral interference for each batch of samples, if within 85-115%, no interference is observed and no further action is taken.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 447419 (CB30806)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 75-125%

ICP Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

BLUE 09/15/18 08:29 Cindy Pearce, Emily Kolominskaya, Tina Hall, Chemist 09/15/

CB30806, CB30807, CB30808, CB30809

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

BLUE 09/26/18 08:24 Cindy Pearce, Emily Kolominskaya, Chemist 09/26/18

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

Certification Report

October 03, 2018

SDG I.D.: GCB30806

ICP Metals Narration

CB30809

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

BLUE 10/01/18 11:05 Cindy Pearce, Emily Kolominskaya, Tina Hall, Chemist 10/01/

CB30806, CB30807, CB30808

The initial calibration met criteria.
The continuing calibration standards met criteria for all the elements reported. The linear range is defined daily by the calibration range.
The continuing calibration blanks were less than the reporting level for the elements reported.
The ICSA and ICSAB were analyzed at the beginning and end of the run and were within criteria.The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following ICP Interference Check (ICSAB) compounds did not meet criteria: None.

QC (Batch Specific):

Batch 447520 (CB31422)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 75 - 125 with the following exceptions: None.

Batch 449192 (CB38940)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 75 - 125 with the following exceptions: None.

ICPMS Metals Narration

Were all QA/QC performance criteria specified in the analytical method achieved? Yes.

Instrument:

ICPMS 09/18/18 14:10 Cindy Pearce, Chemist 09/18/18

CB30806, CB30807, CB30808, CB30809

The linear range is defined daily by the calibration range.
The following Initial Calibration Verification (ICV) compounds did not meet criteria: None.
The following Continuing Calibration Verification (CCV) compounds did not meet criteria: None.
The following samples did not meet internal standard criteria: None.

QC (Batch Specific):

Batch 447521 (CB30806)

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

Certification Report

October 03, 2018

SDG I.D.: GCB30806

ICPMS Metals Narration

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 75 - 125 with the following exceptions: None.
Laboratory water was used for the matrix spike.

PCB Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-ECD8 09/14/18-1 Adam Werner, Chemist 09/14/18

CB30806, CB30807, CB30808, CB30809

The initial calibration (PC911AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PC911BI) RSD for the compound list was less than 20% except for the following compounds: None.
The continuing calibration %D for the compound list was less than 15% except for the following compounds:None.

QC (Batch Specific):

Batch 447365 (CB29461)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

PEST Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

AU-ECD4 09/14/18-1 Carol Wohlmuth, Chemist 09/14/18

CB30806, CB30807, CB30808, CB30809

The initial calibration (PS829AI) RSD for the compound list was less than 20% except for the following compounds: None.
The initial calibration (PS829BI) RSD for the compound list was less than 20% except for the following compounds: None.
The Endrin and DDT breakdown does not exceed 15% except for the following compounds:None.
The Endrin and DDT breakdown does not exceed the maximum of 20% except for the following compounds:None.
The continuing calibration %D for the compound list was less than 20% except for the following compounds:None.

QC (Batch Specific):

Batch 447366 (CB30806)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 40 - 140 with the following exceptions: None.
All LCSD recoveries were within 40 - 140 with the following exceptions: None.
All LCS/LCSD RPDs were less than 20% with the following exceptions: None.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

October 03, 2018

SDG I.D.: GCB30806

PEST Narration

A LCS and LCS duplicate were performed instead of a MS and MSD. Alpha and gamma chlordane were spiked and analyzed instead of technical chlordane. Gamma chlordane recovery is reported as chlordane in the LCS and LCSD

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 447355 (Samples: CB30806, CB30807, CB30808, CB30809): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (Aniline, Benzidine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (4-Chloroaniline)

The LCS/LCSD RPD exceeds the method criteria for one or more surrogates, therefore there may be variability in the reported result. (% 2-Fluorophenol)

Instrument:

CHEM29 09/18/18-1 Harry Mullin, Chemist 09/18/18

CB30806, CB30807, CB30808, CB30809

For 8270 full list, the DDT breakdown and pentachlorophenol & benzidine peak tailing were evaluated in the DFTPP tune and were found to be in control.
For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Verification (CHEM29/SPLIT_0912):
94% of target compounds met criteria.
The following compounds had %RSDs >20%: 2,4-Dinitrophenol 32% (20%), 4,6-Dinitro-2-methylphenol 31% (20%), Benzidine 29% (20%)
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.046 (0.1)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM29/0918_06-SPLIT_0912) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
94% of target compounds met criteria.
The following compounds did not meet % deviation criteria: 2-Nitrophenol 22%H (20%), 4-Chloroaniline 37%H (20%), Benzoic acid 24%H (20%)
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 2-Nitrophenol 0.056 (0.1)
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 447355 (CB30806)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 30 - 130 with the following exceptions: Aniline(16%), Benzidine(<10%)

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

October 03, 2018

SDG I.D.: GCB30806

SVOA Narration

All LCSD recoveries were within 30 - 130 with the following exceptions: Aniline(<10%), Benzidine(<10%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: % 2-Fluorophenol(22.2%), 4-Chloroaniline(26.9%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

SVOASIM Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? No.

QC Batch 447355 (Samples: CB30806, CB30807, CB30808, CB30809): -----

One or more analytes is below the method criteria. A low bias for these analytes is possible. (Hexachlorocyclopentadiene)

The LCS and/or the LCSD recovery is below the method criteria. All of the other QC is acceptable, therefore no significant bias is suspected. (Hexachloroethane, Pyridine)

The LCS/LCSD RPD exceeds the method criteria for one or more analytes, but these analytes were not reported in the sample(s) so no variability is suspected. (Dibenz(a,h)anthracene, Hexachlorobutadiene, Hexachloroethane, Naphthalene, N-Nitrosodimethylamine, Pentachlorophenol, Pyridine)

The LCS/LCSD RPD exceeds the method criteria for one or more surrogates, therefore there may be variability in the reported result. (% 2-Fluorophenol, % Phenol-d5)

Instrument:

CHEM27 09/17/18-2 Harry Mullin, Chemist 09/17/18

CB30806, CB30807, CB30808, CB30809

For 8270 BN list, benzidine peak tailing was evaluated in the DFTPP tune and was found to be in control.

Initial Calibration Verification (CHEM27/SIM_0914):
90% of target compounds met criteria.
The following compounds had %RSDs >20%: 2-Methylnaphthalene 22% (20%), Acenaphthene 25% (20%), Hexachloroethane 32% (20%)
The following compounds did not meet recommended response factors: None.
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM27/0917_20-SIM_0914) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
85% of target compounds met criteria.
The following compounds did not meet % deviation criteria: Benz(a)anthracene 21%L (20%), Bis(2-ethylhexyl)phthalate 29%L (20%), Hexachloroethane 30%L (20%), Pentachlorophenol 30%L (20%)
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: None.
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

October 03, 2018

SDG I.D.: GCB30806

SVOASIM Narration

Batch 447355 (CB30806)

CB30806, CB30807, CB30808, CB30809

All LCS recoveries were within 30 - 130 with the following exceptions: Hexachlorocyclopentadiene(24%)
All LCSD recoveries were within 30 - 130 with the following exceptions: Hexachlorocyclopentadiene(21%), Hexachloroethane(28%), Pyridine(12%)
All LCS/LCSD RPDs were less than 20% with the following exceptions: % 2-Fluorophenol(33.3%), % Phenol-d5(29.4%), Dibenz(a,h)anthracene(21.3%), Hexachlorobutadiene(26.5%), Hexachloroethane(27.7%), Naphthalene(21.7%), N-Nitrosodimethylamine(29.9%), Pentachlorophenol(21.5%), Pyridine(90.9%)
Additional 8270 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is at least 10%. (Acid surrogates acceptance range for aqueous samples: 10-110%, for soils 30-130%)

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

VOA Narration

Were all QA/QC performance criteria specified in the MADEP document CAM achieved? Yes.

Instrument:

CHEM02 09/13/18-2 Michael Hahn, Chemist 09/13/18

CB30806, CB30807, CB30808, CB30809, CB30810

Initial Calibration Verification (CHEM02/VT-P0912):
96% of target compounds met criteria.
The following compounds had %RSDs >20%: Bromomethane 22% (20%), Tetrahydrofuran (THF) 24% (20%)
The following compounds did not meet recommended response factors: 1,2-Dibromo-3-chloropropane 0.037 (0.05), 2-Hexanone 0.069 (0.1), 4-Methyl-2-pentanone 0.086 (0.1), Acetone 0.040 (0.1), Bromoform 0.096 (0.1), Bromomethane 0.079 (0.1), Methyl ethyl ketone 0.056 (0.1), Tetrahydrofuran (THF) 0.043 (0.05)
The following compounds did not meet a minimum response factors: None.

Continuing Calibration Verification (CHEM02/0913P26-VT-P0912) (MCP Compliance):
Internal standard areas were within 50 to 200% of the initial calibration with the following exceptions: None.
99% of target compounds met criteria.
The following compounds did not meet % deviation criteria: Chloromethane 29%L (20%)
The following compounds did not meet maximum % deviations: None.
The following compounds did not meet recommended response factors: 1,2-Dibromo-3-chloropropane 0.035 (0.05), 2-Hexanone 0.063 (0.1), 4-Methyl-2-pentanone 0.081 (0.1), Acetone 0.037 (0.1), Bromoform 0.090 (0.1), Bromomethane 0.066 (0.1), Methyl ethyl ketone 0.050 (0.1), Tetrahydrofuran (THF) 0.038 (0.05)
The following compounds did not meet minimum response factors: None.

QC (Batch Specific):

Batch 447487 (CB31013)

CB30806, CB30807, CB30808, CB30809, CB30810

All LCS recoveries were within 70 - 130 with the following exceptions: None.
All LCSD recoveries were within 70 - 130 with the following exceptions: None.
All LCS/LCSD RPDs were less than 30% with the following exceptions: None.
A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.
Additional 8260 criteria: 10% of compounds can be outside of acceptance criteria as long as recovery is 10%.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

MCP Certification Report

October 03, 2018

SDG I.D.: GCB30806

VOA Narration

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

EPH Fractionation Standard

SDG I.D.: GCB30806

Effective Date(s): 10/20/17 - 10/20/18 **Analyst:** aw

AS #	TV	20ml	22ml	25ml	30ml	% Rec1	% Rec2	% Rec3	% Rec4	Rec Limits
2-Methylnapthalene bt	0	0.00	0.00	0.00	0.00					
Napthalene bt	0	0.00	0.00	0.00	0.00					
C9 - Nonane	40	25.00	24.00	25.00	24.00	62.5	60.0	62.5	60.0	
C-10 Decane	40	30.00	28.00	29.00	28.00	75.0	70.0	72.5	70.0	
1,2,3-Trimethylbenzene	40	31.00	32.00	32.00	30.00	77.5	80.0	80.0	75.0	
Napthalene	40	32.00	33.00	34.00	32.00	80.0	82.5	85.0	80.0	
2-Methylnaphthalene	40	33.00	34.00	36.00	33.00	82.5	85.0	90.0	82.5	
C12 - Dodecane	40	32.00	31.00	32.00	30.00	80.0	77.5	80.0	75.0	
Acenaphthalene	40	33.00	34.00	35.00	32.00	82.5	85.0	87.5	80.0	
Acenaphthene	40	33.00	34.00	35.00	33.00	82.5	85.0	87.5	82.5	
C14 - Tetradecane	40	34.00	33.00	34.00	32.00	85.0	82.5	85.0	80.0	
Fluorene	40	34.00	35.00	37.00	34.00	85.0	87.5	92.5	85.0	
C16 - Hexadecane	40	34.00	34.00	35.00	36.00	85.0	85.0	87.5	90.0	
Anthracene	40	36.00	38.00	39.00	37.00	90.0	95.0	97.5	92.5	
Phenanthrene	40	35.00	36.00	38.00	35.00	87.5	90.0	95.0	87.5	
C18 - Octadecane	40	35.00	34.00	36.00	35.00	87.5	85.0	90.0	87.5	
Fluoranthene	40	34.00	35.00	37.00	35.00	85.0	87.5	92.5	87.5	
Pyrene	40	34.00	35.00	37.00	35.00	85.0	87.5	92.5	87.5	
C20 - Eicosane	40	35.00	35.00	36.00	24.00	87.5	87.5	90.0	60.0	
C21 - Heneicosane	40	33.00	33.00	34.00	33.00	82.5	82.5	85.0	82.5	
C22 - Docosane	40	35.00	35.00	36.00	35.00	87.5	87.5	90.0	87.5	
Benzo(a)anthracene	40	36.00	34.00	36.00	35.00	90.0	85.0	90.0	87.5	
Chyrsene	40	32.00	35.00	37.00	32.00	80.0	87.5	92.5	80.0	
C24 - Tetracosane	40	36.00	36.00	37.00	36.00	90.0	90.0	92.5	90.0	
Benzo(b/k)fluoranthene (c	80	67.00	71.00	74.00	96.00	83.8	88.8	92.5	120.0	
Benzo(a)pyrene	40	33.00	34.00	36.00	33.00	82.5	85.0	90.0	82.5	
C26 - Hexacosane	40	35.00	35.00	35.00	34.00	87.5	87.5	87.5	85.0	
C28 - Octacosane	40	35.00	34.00	35.00	34.00	87.5	85.0	87.5	85.0	
Indeno/Dibenz(copk)	80	68.00	70.00	74.00	69.00	85.0	87.5	92.5	86.3	
Benzo(ghi)perylene	40	34.00	35.00	37.00	34.00	85.0	87.5	92.5	85.0	
C30 - Tricotane	40	35.00	34.00	35.00	34.00	87.5	85.0	87.5	85.0	
C32 - Dotriacontance	40	34.00	34.00	35.00	33.00	85.0	85.0	87.5	82.5	

EPH Fractionation Standard

Wednesday, October 03, 2018

SDG I.D.: GCB30806

Effective Date(s): 10/20/17 - 10/20/18 **Analyst:** aw

AS #	TV	20ml	22ml	25ml	30ml	% Rec1	% Rec2	% Rec3	% Rec4	Rec Limits
C34 - Tetratriacontane	40	34.00	33.00	34.00	33.00	85.0	82.5	85.0	82.5	
C36 - Hexatriacontane	40	33.00	32.00	34.00	32.00	82.5	80.0	85.0	80.0	
C38 - Octatriacontane	40	32.00	31.00	32.00	31.00	80.0	77.5	80.0	77.5	
C40 - Tetracontane	40	32.00	32.00	33.00	32.00	80.0	80.0	82.5	80.0	

Notes: EPH Frac Check Solution EPH05O-solvent transfer into hex, frac 1ml. Dilute 5x to run tv=40 fid3 10/20/17 Lot:111216-1063516

Cooler: Yes [x] No [ ]
Coolant: IPK [ ] ICE [x] No [ ]
Temp: 2.2 °C Pg 1 of 1

CHAIN OF CUSTODY RECORD

PHOENIX Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Data Delivery/Contact Options:
[ ] Fax:
[ ] Phone:
[x] Email: jmcmullen@terra-env.com

Customer: TERRA
Address: 154 Haven Street
Second Floor
Reading, MA 01867

Project: Sewell Street
Report to: TERRA
Invoice to: TERRA

Project P.O: 17-138

This section MUST be completed with Bottle Quantities.

Client Sample - Information - Identification

Sampler's Signature _____ Date: _____

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE**=Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe **OIL**=Oil
B=Bulk **L**=Liquid

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	MCP 14 Metals	VOCs	SVOCs	PCBs	EPH	Herbicides	Pesticides	HOLD	GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] HCl	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 250ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is
30806	MW-1	GW	9-12-18	0820	X	X	X	X	X	X	X					3	7			2				
30807	MW-2	GW	9-12-18	1520	X	X	X	X	X	X	X					3	7			2				
30808	MW-3	GW	9-12-18	1105	X	X	X	X	X	X	X					3	7			2				
30809	MW-4	GW	9-12-18	1315	X	X	X	X	X	X	X					3	7			2				
30810	Trip Blanks											X				2								

Relinquished by:	Accepted by:	Date:	Time:
		9-13-18	13:00
	TRAMM	9/13/18	1549

Comments, Special Requirements or Regulations:
Analyze unfiltered metals first. If detections above MCP GW-1 criteria analyze filtered metals.

Turnaround:
[ ] 1 Day*
[ ] 2 Days*
[ ] 3 Days*
[ ] Standard
[ ] Other
* SURCHARGE APPLIES

RI
[ ] Direct Exposure (Residential)
[ ] GW
[ ] Other

CT
[ ] RCP Cert
[ ] GW Protection
[ ] SW Protection
[ ] GA Mobility
[ ] GB Mobility
[ ] Residential DEC
[ ] I/C DEC
[ ] Other

MA
[x] MCP Certification
[ ] GW-1
[ ] GW-2
[ ] GW-3
[x] S-1
[ ] S-2
[ ] S-3
[ ] MWRA eSMART
[ ] Other

State where samples were collected: MA

Data Format
[x] Excel
[x] PDF
[ ] GIS/Key
[ ] EQuIS
[ ] Other

Data Package
[ ] Tier II Checklist
[ ] Full Data Package*
[ ] Phoenix Std Report
[ ] Other
* SURCHARGE APPLIES

Bobbi Aloisa

From: James McMullen <jmcmullen@terra-env.com>
Sent: Wednesday, September 26, 2018 11:56 AM
To: Bobbi Aloisa; Sarah Bell
Subject: RE: GCB30806 (Sewell Street)

Good Morning, Bobbi,

Please have the field filtered metal bottles for all 4 samples analyzed for Antimony.

Thank you,

James McMullen, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
T: 781-944-6851
M: 978-604-5057
Email:
jmcmullen@terra-env.com
Website
www.terra-env.com

From: Bobbi Aloisa <bobbi@phoenixlabs.com>
Sent: Tuesday, September 25, 2018 4:51 PM
To: James McMullen <jmcmullen@terra-env.com>; Sarah Bell <sarah@phoenixlabs.com>
Cc: Philip Peterson <ppeterson@terra-env.com>; Jesse Vaughan <jvaughan@terra-env.com>
Subject: RE: GCB30806 (Sewell Street)

Getting released to web now

Bobbi Aloisa
Vice President
Director of Client Services
Phoenix Environmental Laboratories
587 East Middle Turnpike
Manchester, CT 06040
Ph: 860-645-8728

From: James McMullen [mailto:jmcmullen@terra-env.com]
Sent: Tuesday, September 25, 2018 4:00 PM

To: Bobbi Aloisa; Sarah Bell
Cc: Philip Peterson; Jesse Vaughan
Subject: GCB30806 (Sewell Street)

Good Afternoon, Bobbi/Sarah,

Can the lab provide an update on the above referenced batch?

Thank you,

James McMullen, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
T: 781-944-6851
M: 978-604-5057
Email:
jmcmullen@terra-env.com
Website
www.terra-env.com

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

Sarah Bell

From: James McMullen <jmcmullen@terra-env.com>
Sent: Monday, October 01, 2018 8:57 AM
To: Bobbi Aloisa; Sarah Bell
Subject: RE: GCB30806 (Sewell Street)

Good Morning, Bobbi/Sarah,

Please expedite the filtered sample results to be released ASAP. All 4 samples for antimony.

Thank you,

James McMullen, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
T: 781-944-6851
M: 978-604-5057
Email:
jmcmullen@terra-env.com
Website
www.terra-env.com

From: Bobbi Aloisa <bobbi@phoenixlabs.com>
Sent: Wednesday, September 26, 2018 1:32 PM
To: James McMullen <jmcmullen@terra-env.com>; Sarah Bell <sarah@phoenixlabs.com>
Subject: RE: GCB30806 (Sewell Street)

Will do

Bobbi Aloisa
Vice President
Director of Client Services
Phoenix Environmental Laboratories
587 East Middle Turnpike
Manchester, CT 06040
Ph: 860-645-8728

From: James McMullen [mailto:jmcmullen@terra-env.com]
Sent: Wednesday, September 26, 2018 11:56 AM
To: Bobbi Aloisa; Sarah Bell
Subject: RE: GCB30806 (Sewell Street)

Good Morning, Bobbi,

Please have the field filtered metal bottles for all 4 samples analyzed for Antimony.

Thank you,

James McMullen, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
T: 781-944-6851
M: 978-604-5057
Email:
jmcmullen@terra-env.com
Website
www.terra-env.com

From: Bobbi Aloisa <bobbi@phoenixlabs.com>
Sent: Tuesday, September 25, 2018 4:51 PM
To: James McMullen <jmcmullen@terra-env.com>; Sarah Bell <sarah@phoenixlabs.com>
Cc: Philip Peterson <ppeterson@terra-env.com>; Jesse Vaughan <jvaughan@terra-env.com>
Subject: RE: GCB30806 (Sewell Street)

Getting released to web now

Bobbi Aloisa
Vice President
Director of Client Services
Phoenix Environmental Laboratories
587 East Middle Turnpike
Manchester, CT 06040
Ph: 860-645-8728

From: James McMullen [mailto:jmcmullen@terra-env.com]
Sent: Tuesday, September 25, 2018 4:00 PM
To: Bobbi Aloisa; Sarah Bell
Cc: Philip Peterson; Jesse Vaughan
Subject: GCB30806 (Sewell Street)

Good Afternoon, Bobbi/Sarah,

Can the lab provide an update on the above referenced batch?

Thank you,

James McMullen, Environmental Scientist
TERRA Environmental, LLC
159 Haven Street, 2nd Floor
Reading, MA 01867
T: 781-944-6851
M: 978-604-5057
Email:
jmcmullen@terra-env.com
Website
www.terra-env.com

APPENDIX E-1 PROFILE PACKAGE

Generator	
Project	
MCP Tracking Number **(if applicable)**	
Quantity of Soil	
Description of Soil	
Sampling Frequency	
Shipment Schedule	

ATTACHMENTS

- ◊ Completed Profile/Source Application, see Appendix E-2
- ◊ Site sketch showing soil origin, soil stockpiles, and location of all soil samples
- ◊ Laboratory Data
- ◊ Analytical Data table comparing all applicable results to the Sewell Street Acceptance Criteria provided.
- ◊ Signed & Stamped MSR is provided
- ◊ Field screening data used to support chemical composition provided.
- ◊ LSP Opinion Letter including description of site, contaminants, current and former site usage/history.

APPENDIX E-2 SOURCE PROFILE

TERRA ENVIRONMENTAL, LLC
PLANNING | CONSULTING | MANAGEMENT | REMEDIATION

Internal Use:
PSL: _____
Approval #: _____

SEWELL STREET RECLAMATION PROJECT GROVELAND, MA – SOURCE APPLICATION

A. CUSTOMER SITE INFORMATION

Project Name:	Onsite Customer Email:
Address:	Onsite Customer Name: Onsite Customer Cell:
Start Date: Completion Date:	Anticipated Cubic Yards: Anticipated Tons:

B. CUSTOMER (INVOICING INFORMATION):

Company:	Billing Contact Name: Phone #: Email:
Billing Address:	Project # or PO# Company Tax Id#:

C. GENERATOR INFORMATION:

Company Name:	Project Contact Name:
Company Address:	Project Phone #: Email:

D. CONSULTANT INFORMATION

Company:	LSP/PE/PG Name: License #
Address:	Office Cell Email:
Onsite LSP/PE/PG Rep. Name:	Onsite LSP/PE/PG Rep. Cell #

E. MATERIAL TYPE & QUANTITY

Material Type: _____ Cubic Yards (CY):_____ Tons:_____ Cubic Yards(CY) _____ / Number of Samples: _____ Frequency of 1 per _____ - CY
Material Type: _____ Cubic Yards (CY):_____ Tons:_____ Cubic Yards(CY) _____ / Number of Samples: _____ Frequency of 1 per _____ - CY

F. SOURCE APPLICATION SUBMITTAL CHECKLIST

Facility Name:	**Sewell Street Reclamation Project** **1 Sewell Street Groveland, MA**
Reclamation Project LSP:	**TERRA Environmental, LLC** Contact: Philip Peterson P.O. Box 473 Reading, MA 01867 Phone: 781-944-6851
Email Source Applications to:	ppeterson@terra-env.com

CIRCLE ONE

1. PE/PG/LSP Opinion Letter signed and certifying that soil meets SMRP acceptance criteria	**Yes / No**
2. PE/PG/LSP Opinion Letter signed and certifying that soil meets SMRP acceptance criteria	**Yes / No**
3. Select Soil Type Designation (1 thru 6), see SMP Section 3.2.	**Yes / No**
4. Description of current and former site usage/history is provided	**Yes / No**
5. Statement that soil is not part of a regulated hazardous waste site as designated by MADEP or equivalent designation in any jurisdiction.	**Yes / No**
6. Description of site and contaminants provided including a hazardous waste determination in accordance with Env-Hw 502 of the Hazardous Waste Rules.	**Yes / No**
7. Quantity of Soil provided	**Yes / No**
8. Site Plan indicating soil origin, soil stockpiles and location of all soil samples provided	**Yes / No**
9. Laboratory Testing and Frequency performed in accordance with SMP, Soil Origin and Soil Type designation.	**Yes / No**
10. Data Summary Table comparing all applicable results to SMP Acceptance Criteria, SMP Table 1	**Yes / No**
11. Analytical data reports for samples including QA/QC and Chain of Custody with chemical and physical quality of source material	**Yes / No**
12. Field Screening data and test pit/boring/stockpile logs to support chemical and physical composition	**Yes / No**
13. Material Shipping Record or equivalent signed and sealed, by Professional Engineer, Professional Geologist, Massachusetts Licensed Site Professional or equivalent qualification in the jurisdiction in which the source is located.	**Yes / No**

ATTACHMENT - 1

GENERATOR CERTIFICATION STATEMENT

SOURCE/PROJECT NAME: _____

CERTIFICATION STATEMENT: By signing this Attachment, I hereby certify that I have reviewed the documentation provided by _____under their PE/PG/LSP Opinion Letter dated_____ and have confirmed that it, and accompanying documents, contain true and accurate descriptions of this material and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided.

Signature of Source Generator Date

Printed Name of Source Generator

APPENDIX F – ORDER OF CONDITIONS

COPY

Town of

Groveland

Groveland, Massachusetts
Town Hall
183 Main Street
Groveland, MA 01834

Conservation Commission

January 11, 2018

Groveland Realty Trust, LLC
85-87 Boston ST
Everett, MA 02149

Re: Sewell St. (DEP file # 030-413)

Dear [redacted];

The Groveland Conservation Commission has been informed that additional work is being planned for the property above, with regard to filling of the existing quarry.

This property has an existing Order of Conditions on file with the Groveland Conservation Commission and the state Department of Environmental Protection. The Commission requests that information be submitted outlining the extent and amount of fill to be brought to the site and a time line for the work. In addition, the Order of Conditions that was issued in 2013 and extended to December of 2018, be recorded at the Salem Registry of Deeds before any work commences on the site.

Due to the previous filing, the Groveland Conservation Commission has jurisdictional oversite of the property and any changes to the existing plan on file must be updated and submitted to the Commission. There is a seasonal restriction that limits the time of year that work may be performed to after April 15, 2018. All work for 2018 must be stopped by November 1, 2018.

If you have any questions, please contact the Conservation Commission office at 978-556-7214.

Sincerely;

Heather Meninger
Chairperson