Waste Management Division
PO Box 95, 29 Hazen Drive
Concord, NH 03302

Type of Submittal (Check One-Most Applicable)

☐ Work Scope ☐ Reimbursement Request	☐ Remedial Action • Remedial Action Plan • Bid Plans and Specifications • Remedial Action Implementation Report ☐ Treatment System and POE O&M ☐ Activity and Use Restriction
☐ UST Facility Report ☐ AST Facility Report	
☐ Emergency/Initial Response Action ☐ Groundwater Quality Assessment	☐ Temporary Surface Water Discharge Permit
☐ Initial Site Characterization ☐ Site Investigation • Site Investigation Report • Revised Supplemental Site Investigation Report • GMZ Delineation • Source Area Investigation • Data Submittal • Annual Summary Report ☒ Brownfields Related Document ☐ Closure Documentation	☐ Groundwater Management Permit • Permit Application • Renewal Application • Deed Recordation Documentation • Abutter Notification Documentation • Release of Recordation ☐ Data Submittal ☐ Annual Summary Report

PHASE II ADDITIONAL INVESTIGATION WORK PLAN
Dagostino Rose Farm
Oak Street Extension
Exeter, New Hampshire
NHDES Site #201203003

Judd Newcomb

Digitally signed by Judd Newcomb
DN: cn=Judd Newcomb, o=Credere Associates, LLC, ou, email=jnewcomb@crederellc.com, c=US
Date: 2016.04.04 13:52:33 -04'00'

Prepared For:
Rockingham Planning Commission
156 Water Street
Exeter, NH 03833
Phone: (603) 778-0885
Contact: Ms. Theresa Walker

Prepared By:
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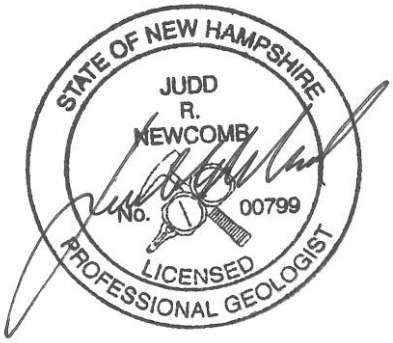
April 1, 2016



Recommended Risk Category (check one)

☐ 1. Immediate Human Health Risk (Impacted water supply well, etc.)	☐ 4. Surface Water Impact	☐ 7. Alternate Water Available/Low Level Groundwater Contamination (<1,000 X AGQS)
☐ 2. Potential Human Health Risk (Water supply well within 1,000' or Site within SWPA)	☐ 5. No Alternate Water Available/No Existing Wells in Area	☐ 8. No AGQS Violation/No Source Remaining
☐ 3. Free Product or Source Hazard	☐ 6. Alternate Water Available/High Level Groundwater Contamination (>1,000 X AGQS)	☐ Closure Recommended

CREDERE ASSOCIATES, LLC
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April 1, 2016

Michael McCluskey
Waste Management Division
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095
Via Email: michael.mccluskey@des.nh.gov

SUBJECT: Phase II Additional Investigation Work Plan
Dagostino Rose Farm Property, NHDES Site #201203003
Oak Street Extension, Exeter, New Hampshire

Dear Mr. McCluskey:

Credere Associates, LLC (Credere) has prepared this work plan for the above referenced property (the Site) to outline the proposed methodology, sample justification, and analyses to perform Phase II Additional Investigation at the Site.

An initial Preliminary Phase II ESA was completed on April 5, 2013, using funding from the Rockingham Planning Commission (RPC) Brownfields Assessment program; however, only petroleum assessment funds were available at that time. Therefore, only petroleum related recognized environmental conditions (RECs) identified in Credere's April 23, 2012, Phase I ESA were previously assessed. To complete the assessment of hazardous substance related RECs, RPC submitted an Assessment Grant Application for funding through New Hampshire Department of Environmental Services (NHDES) Brownfields Revolving Loan Fund (RLF). The subgrant was awarded and RPC retained Credere to perform the additional assessment work. Credere prepared a Supplemental Phase II ESA Work Plan dated July 2, 2015, to assess the remaining hazardous material related RECs at the Site in accordance with the recommendations of Credere's April 5, 2013, Preliminary Phase II ESA recommendations, and NHDES' May 5, 2015, Preliminary Phase II ESA review letter. Credere completed the Supplemental Phase II ESA work that identified fill materials and soil/sediment containing polycyclic aromatic hydrocarbons (PAHs) and/or lead in soil/sediment at concentrations above the NHDES' Soil Remediation Standards (SRS). Results were summarized in a draft Phase II ESA dated November 9, 2015. NHDES reviewed the document and provided comments in a January 27, 2016 response letter.

Tasks and Objectives

The objective of this additional investigation is to address data gaps and NHDES concerns remaining after completion of the Supplemental Phase II Investigation. Based on the NHDES' January 27, 2016, response letter to Credere's Phase II ESA, and our discussions during a meeting at the Site on February 26, 2016, Credere proposes the following tasks to fill certain data gaps identified at the Site:

- Installation of a soil boring/monitoring well adjacent to the location of CA-TP-103 to further assess the composition of layers of varying fill material and to assess groundwater beneath the previously observed fill. The data obtained from this effort may be useful in determining if the material can remain in place with an appropriate cover system and be registered as a pre-1981 landfill.
- Sample material in or beneath the newly identified culvert behind the Packing House to assess if any previously unidentified petroleum or hazardous materials have been released to the environment.
- Collect surface soil samples to further assess the extent of lead impacts around CA-SS-1 in the former greenhouse area and perform a supplemental X-ray fluorescence (XRF) grid screening program in the area of the former Greenhouses to assess the extent of lead impacts
- Collect additional sediment samples within the pond to the east of the Packing house to further assess the extent of lead in sediment presumed to have been discharged through a drain pipe from the former greenhouses.
- Collect sediment samples to further assess PAH and lead impacts in the detention area located across the driveway to the south of the pond, and/or downslope within Norris Brook.

Sample Design

To meet these objectives, Credere proposes collection of the samples outlined in **Table 1**. **Table 1** includes a list of proposed samples, sample justification, and proposed analyses based on previously identified contaminants of concern (COCs). Proposed sample locations are depicted on the attached **Figure 2**.

Methodology

Soil Boring Advancement and Soil Sampling (CA-SB-103)

To assess the layers of fill material observed in test pit CA-TP-103 as well as other materials present below the maximum reach of the test pitting excavator, one soil boring (CA-SB-103) will be advanced adjacent to the location of CA-TP-103 as close to the top of the slope as accessible with the hollow stem auger drilling rig. Soil samples will be collected during drilling in continuous 2-foot intervals using a decontaminated split-spoon sampler. Split spoon samples will be individually logged, evidence of contamination will be noted, and soil will be field screened for total volatile organic compounds (VOCs) using a Thermo 580B OVM photoionization detector (PID) (or similar) calibrated with a 100 part per million by volume (ppm_v) isobutylene gas with a response factor of 1.0 ppm_v. Soil will be screened in accordance with the NHDES HWRB-12 jar headspace technique SOP.

One soil sample will be collected from the first encountered native soil (i.e., the native clay/silt) beneath the observed layers of fill. Native soil is anticipated to be encountered beneath a layer of coal ash and clinker previously encountered at approximately 13 feet. The

soil sample will be submitted for laboratory analysis of PAHs, VOCs, pesticides and RCRA 8 metals.

Surface Soil Sampling and Screening

To assess if potential releases of petroleum or hazardous materials may have occurred through the previously unidentified culvert to the west of the Packing House, a representative sample will be collected from material accumulated in the culvert, or in the absence of material in the culvert, from surface soil directly beneath the culvert's discharge location (CA-SS-105). The sample will be collected using decontaminated hand tool and placed directly into laboratory glassware after removing any organic detritus. As there are no known COCs for this portion of the Site, the sample will be laboratory analyzed for VOCs, semi-VOCs (SVOCs), pesticides, RCRA 8 metals, and total petroleum hydrocarbons (TPH).

To further assess the extent of lead-impacted soil in the former greenhouse area, Credere will collect six (6) soil samples CA-SS-101A through CA-SS-101F in the vicinity of previous surface soil CA-SS-101. Each soil sample will be evenly spaced radially around and approximately five feet away from CA-SS-1. Samples will be submitted for laboratory analysis of lead, and any evidence of paint in the samples or surrounding area will be noted.

Additionally to further assess the extent of lead impacts, Credere will screen surface soil in a grid pattern focused around CA-SS-101 and the remainder of the former greenhouse area using an XRF. Soil will be screened for concentrations relative to the SRS of 400 mg/kg, and will be presumed to be impacted if XRF screening results exceed 240 parts per million (ppm) (40% error range for the XRF relative to the NHDES SRS). Each location will be screened in triplicate and the average of the three readings will be taken to represent the concentration at that location. XRF precision will be assessed by performing precision measurements at two soil screening location. A seven (7) time replicate will be performed and the relative standard deviation (RSD) will be calculated (RSD = (SD/mean concentrations) x 100). RSD should not exceed 20 percent.

Sediment Sampling

To further assess the extent of lead in sediment within the pond to the east of the Packing house, three sediment samples (CA-SED-103 through CA-SED-105) will be collected in an arc approximately 5 feet south of the drain pipe discharge location and CA-SED-100. Samples will be collected from accessible bank or exposed bottom (i.e., if the water is low) of each location using hand tools (i.e., a decontaminated bulb corer) or with a submersible sediment sampler (e.g., a Ponar brand sampler). Each sample will be placed directly into laboratory glassware after decanting any surface water, and submitted for laboratory analysis of lead.

To further assess PAHs and lead in the detention area to the south of the road and downslope to Norris Brook, two additional sediments samples (CA-SED-106 and CA-SED-107) will be collected form the detention area and one additional sediment sample (CA-SED-108) will be collected from Norris Brook. Samples within the detention area will be biased toward the

location receiving discharge water from the pond's overflow discharge culvert, and the second will be biased toward where any detained water pools before draining through or overtopping the detention area. The sample within Norris Brook will be biased to the area at the base of the slope receiving any water from the detention area. Each sample will be collected using decontaminated hand tools and be placed directly in laboratory glassware after decanting any surface water. The samples will then be submitted for laboratory analysis of PAHs and lead. The presence of any asphalt or other roadway related runoff (e.g., salt and sand) will be noted as a potential source material for the previously detected PAHs in sediment sample CA-SED-101.

Monitoring Well Installation and Groundwater Sampling

Soil borings CA-SB-103 will be completed as groundwater monitoring well CA-MW-103 using at least 10 feet of 2-inch diameter 0.010-inch slotted PVC screen with at least 5 feet of screen below the depth of the water table to allow for groundwater table fluctuations and enough solid PVC riser to reach the ground surface. The well annulus will be filled with no larger than No. 2 washed silica sand, and a bentonite seal will be installed above the screen. The well will be finished with a standpipe and concrete collar.

The new well will be developed by overpumping and agitation methods. The well will be purged until a total of at least three well volumes have been removed and turbidity has been reduced to less than 10 NTUs. Credere will allow at least 14 days for the monitoring wells to equilibrate with the surrounding aquifer prior to sampling.

Following installation, the newly installed monitoring well and previously installed wells' top of PVC elevation will be attempted to be surveyed to an onsite benchmark, if available, or an arbitrary datum, if necessary. However, due to the distribution of wells over an approximate 400 to 500 foot area and seasonally dense vegetation, previous attempts to survey all wells installed at the Site have been unsuccessful. To date this has not affected the outcome of investigations at the Site as no contaminants have been identified in groundwater at the Site and groundwater flow obviously flows southward with topography and area streamflow.

If top of well elevations were able to be surveyed (all or in part of the Site's network), depth to groundwater and non-aqueous phase liquid (NAPL) thickness, if present, will then be measured in all onsite wells relative to the top of well elevation to allow for the calculation of relative groundwater elevations and the determination of groundwater flow direction at the Site.

Credere will then sample each well using low-flow sampling methodologies or no-purge methodologies where appropriate. Wells will be purged at a stable flow rate with a peristaltic pump to avoid drawdown of the water level. Purging will occur by one of the following methods:

1. If a stable flow rate is achieved, groundwater will be periodically monitored for temperature, pH, oxidation-reduction potential, specific conductivity, dissolved

oxygen, and turbidity using a multi-parameter meter and an in-line flow-through cell until parameters have stabilized over a period of three readings, spaced at least 5 minutes apart or at a spacing to allow for a complete exchange of flow through the flow-through cell based on the flow-through cell volume and flow rate. If parameters do not stabilize within a period of 2 hours or before a maximum purge volume of 5 well volumes, samples will be collected with field note justification of attempts to achieve stabilization and data will be reviewed for evidence of bias.

2. If a stable flow rate cannot be achieved, purging will be ceased and the no-purge sampling method will be implemented. Tubing will be placed at the desired pump intake, one tubing volume will be purged, and samples will be collected. The wells will not be permitted to be pumped dry.

Groundwater samples will be collected immediately after the pump and directly into the appropriate bottle ware in order of decreasing volatility. Sample volume to be analyzed for dissolved metals will be field filtered with a 0.45-micron in-line filter. Groundwater samples will be stored on ice and submitted to ARA for analysis of PAHs, VOCs, pesticides and dissolved RCRA-8 metals.

Reporting

Following receipt of sampling results, Credere will prepare a succinct Supplemental Phase II Investigation Letter report that will include summaries of the objectives, site description and background, methodologies, sample results, conclusions, and recommendations concerning any additional site characterization or remediation recommendations.

Credere will compare the soil analytical results to the June 2015 NHDES Table 600-2 Soil Remediation Standards (SRSs) and groundwater analytical results to the Table 600-1 Ambient Groundwater Quality Standards (AGQSs).

Sediment results will be compared to the threshold effect concentrations (TEC) and probable effect concentrations (PEC) referenced in the NHDES' DRAFT Evaluation of Sediment Quality Guidance Document dated April 2005.

Please let us know if there are any questions or concerns with this proposed scope of work for the Site. If you should have any questions or require clarification on any element of this work plan, please do not hesitate to contact me at (207) 828-1272, extension 16 or via e-mail at jnewcomb@crederellc.com.

Sincerely,
Credere Associates, LLC

Judd Newcomb, PG, CG
Project Manager

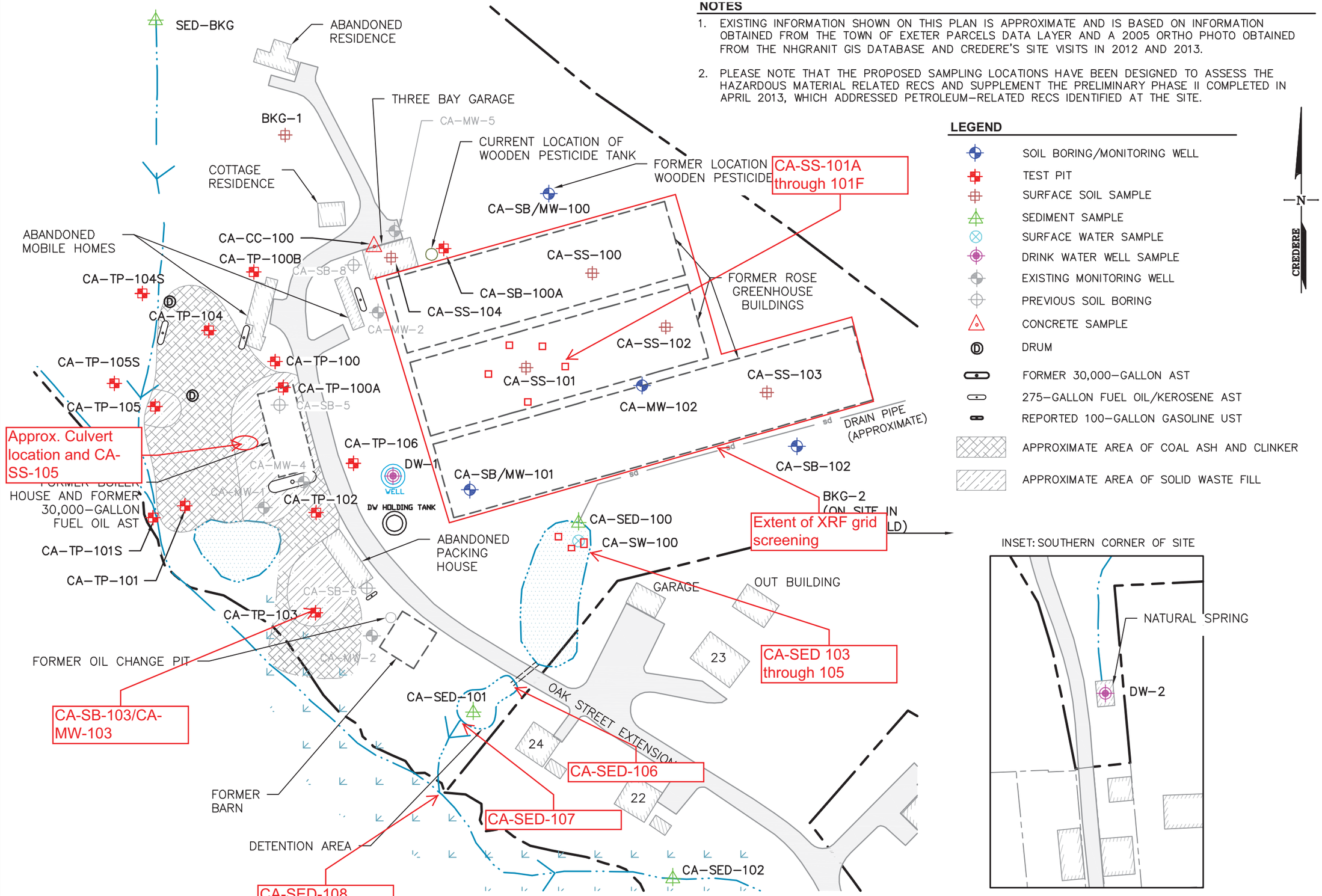

FIGURE 2
SAMPLE LOCATION PLAN

DAGOSTINO ROSE FARM PROPERTY
OAK STREET EXTENSION
EXETER, NEW HAMPSHIRE
NHDES #201203003

DRAWN BY: MTG
CHECKED BY: ASD
DATE: 11/09/2015
PROJECT: 15001275

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Table 1: Sample Summary Table
Dagostino Rose Farm Property
Oak Street Extension
Exeter, New Hampshire

Task	Proposed Sample IDs	Sample Depth (feet bgs)	Sample Type	Sample Rationale	Analytical Method
Assess Fill Material	CA-SB-103/ CA-MW-103	TBD	Subsurface soil (Native)	To further assess extent of fill material layers and impacts to groundwater beneath fill.	PAHs (EPA Method 8270D) Pesticides (EPA Method 8081B) RCRA 8 Metals (EPA Method 6010C or 6020A & 7471B) VOC (EPA Method 8260C)
		Screened interval	Groundwater		
Assesa and Delineate Surface Soil	CA-SS-105	Soil in Culvert or 0-0.5' directly beneath culvert	Surface soil	To assess potential releases through previously unidentified culvert	VOCs (EPA Method 8260C) TPH (EPA Method 8100) SVOCs (EPA Method 8270D) Pesticides (EPA Method 8081B) RCRA 8 metals (EPA Method 6010C or 6020A & 7471B)
	CA-SS-101A through CA-SS-101F	0-0.5	Surface Soil	To further assess the extent of lead impacts in surface soil in the former greenhouse area.	Lead (EPA Method 6010C or 6020A)
	Consecutively numbered grid points	NA	Surface soil		XRF Screening
Delineate and Further Evaluate Sediment	CA-SED-103	0-0.5	Sediment	To further assess extent of lead impacts near the discharge piipe in the pond to the east of the Packing House.	Lead (EPA Method 6010C or 6020A)
	CA-SED-104	0-0.5	Sediment		Lead (EPA Method 6010C or 6020A)
	CA-SED-105	0-0.5	Sediment		Lead (EPA Method 6010C or 6020A)
	CA-SED-106	0-0.5	Sediment	To further evaluate presence of PAHs and lead in sediment within the detention area.	PAHs (EPA Method 8270D) Lead (EPA Method 6010C or 6020A)
	CA-SED-107	0-0.5	Sediment		PAHs (EPA Method 8270D) Lead (EPA Method 6010C or 6020A)
	CA-SED-108	0-0.5	Sediment	To evaluate if PAHs or lead have impacted sediment in Norris Brook beneath the detention area.	PAHs (EPA Method 8270D) Lead (EPA Method 6010C or 6020A)

NA - not applicable
REC - recognized environmental condition
bgs - below ground surface
NHDES - New Hampshire Department of Environmental Services
VOC - volatile organic compounds
SVOC - semi-volatile organic compounds
PID - photoionization detector
TPH - total petroleum hydrocarbons
PAHs - polycyclic aromatic hydrocarbons
EPA - environmental protection agency
SRS - Soil Remediation Standard
LBP - lead-based paint
RCRA - Resource Conservation and Recovery Act
XRF - x-ray fluorescence