COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the matter of: **Randy E. Jordan, Brian H. Jordan** and **Lighthouse Environmental Management, LLC**	File No.: ACO-CE-15-9002-3R6W

ADMINISTRATIVE CONSENT ORDER
AND
NOTICE OF NONCOMPLIANCE

I. THE PARTIES

1. The Department of Environmental Protection ("Department" or "MassDEP") is a duly constituted agency of the Commonwealth of Massachusetts established pursuant to M.G.L. c. 21A, § 7. MassDEP maintains its principal office at One Winter Street, Boston, Massachusetts 02108, and its Central Regional Office at 8 New Bond Street, Worcester, Massachusetts 01606.

2. Randy E. Jordan resides at 51 Muschopauge Road, in Rutland, Massachusetts. Brian H. Jordan resides at 120 Bushy Lane, Rutland, Massachusetts. The mailing address for both Randy E. Jordan and Brian H. Jordan (referred to jointly herein as the "Jordans") for the purpose of this Consent Order is 51 Muschopauge Road, Rutland, MA 01543.

3. Lighthouse Environmental Management, LLC ("Lighthouse") is a Massachusetts limited liability company with its principal offices located at 184 Stone Street, in Clinton, Massachusetts. Lighthouse's mailing address for the purpose of this Consent Order is 184 Stone Street, Clinton, MA 01510.

4. The Jordans and Lighthouse are hereafter collectively referred to herein as "Respondents."

II. STATEMENT OF FACTS AND LAW

5. MassDEP is responsible for the implementation and enforcement of M.G.L. c. 111, §§ 142A-142O and the associated Air Pollution Control Regulations at 310 CMR 6.00, 310 CMR 7.00,

and 310 CMR 8.00; M.G.L. c. 131, § 40 and the associated Wetlands Regulations at 310 CMR 10.00; M.G.L. c. 111, §§ 150A and 150A1/2 and the associated Solid Waste Management Regulations at 310 CMR 19.000 and Site Assignment Regulations for Solid Waste Facilities at 310 CMR 16.00; and M.G.L. c. 21E and the Massachusetts Contingency Plan ("MCP") at 310 CMR 40.0000. MassDEP has authority under M.G.L. c. 21E, § 6 to specify reasonable requirements to regulate activities which may cause, contribute to, or exacerbate a release of oil or hazardous materials, to prevent and control and to counter the effects of such releases. MassDEP also has authority under M.G.L. c. 111, § 2C to issue orders for violations of any statute or regulation MassDEP is authorized to enforce.

6. The Jordans own the real property located off East County Road in Rutland, Massachusetts (the "Property") by virtue of a deed recorded at the Worcester Registry of Deeds in book 39319, page 245.

7. Lighthouse is an operator at the Property, and has contracted to arrange for the transport, disposal, storage or treatment of soil and fill materials at the Property and at an adjacent parcel of land located off East County Road and Overlook Road in Rutland, Massachusetts that is owned by William Williams by virtue of a deed recorded at the Worcester Registry of Deeds in book 13187, page 253 ("Williams Property").

8. The following facts and allegations have led MassDEP to issue this Consent Order:

A. In September 2012, Respondents began importing and placing soil and fill materials at the Property in accordance with a "Soil Management Plan" dated September 24, 2012 and prepared for Overlook Farm by EnviroTrac Ltd. to level a newly cleared and graded portion of the Property to be used for corn fields.

B. In the early spring of 2013, MassDEP received calls from several town boards in Rutland and from the Worcester Department of Public Works ("Worcester DPW") with concerns related to the quality of the clay-like soils that had been deposited on the Property and the potential for the soils to migrate through the wetlands to the downstream Quinapoxet Reservoir, which is part of public water supply systems.

C. During an inspection on June 14, 2013, MassDEP personnel observed sediment-laden runoff discharging from a breached sedimentation basin on the Williams Property that was collecting silt-laden runoff from the Property. The discharge caused turbidity and sedimentation to off-site wetlands and tributary streams that eventually flow into the Quinapoxet Reservoir. This discharge resulted in sedimentation of Bank in violation of the performance standards at 310 CMR 10.54 and sedimentation of Bordering Vegetated Wetlands in violation of the performance standards at 310 CMR 10.55.

D. On September 12, 2013, Mass-DEP issued a Notice of Noncompliance (NON) to Respondents for the violations described in paragraph 8.C above. The NON required Respondents to submit a "Comprehensive Erosion Control Plan" designed or approved

by a Professional Engineer by September 29, 2013. Respondents submitted the Comprehensive Erosion Control Plan prepared by EcoTec Inc.

E. On March 31, 2014, MassDEP received an email from the Worcester DPW Reservoir Division with photographs showing siltation of wetlands at a location off-site, north of the previous event of June 14, 2013.

F. During an inspection of the Property and the Williams Property on April 1, 2014, MassDEP personnel observed that one of the new basins (Settling Basin #1), constructed in response to the NON issued by MassDEP on September 29, 2013, was leaching turbid water through the basin wall and discharging it off site into wetlands. This basin collects water from the Property. The silt-laden discharge resulted in alteration/filling of approximately 700 square feet of Bordering Vegetated Wetlands in violation of the performance standards at 310 CMR 10.55(4).

G. On June 25, 2014, the parties met to discuss the violations observed by MassDEP on April 1, 2014. Respondents agreed to submit to MassDEP a revised Surface Water Management Plan to reduce run-off from the Property to the Williams Property, with improved basin structure outlets.

H. On September 9, 2014, Quinn Engineering Inc. submitted the revised Surface Water Management Plan to MassDEP on behalf of Respondents. MassDEP contacted Quinn Engineering on this same date and requested that additional details be included on the plan.

I. On September 17, 2014, Quinn Engineering Inc. submitted a final revised Surface Water Management Plan to MassDEP on behalf of Respondents.

J. On September 19, 2014, the parties met again to discuss the Surface Water Management Plan and construction sequences with timelines. MassDEP approved the Surface Water Management Plan at the meeting.

K. On April 24, 2015, Lighthouse submitted to MassDEP a "Soil Re-Use Management Plan for Overlook Farms, Rutland, Massachusetts" ("SRMP") prepared by D'Amore Associates, Inc. The SRMP is attached to this Consent Order (Attachment A) and incorporated by reference. The SRMP establishes the criteria for acceptance of soil and other fill materials at the Property and the abutting Williams Property. Fill materials may include certain soils originating from sites where a release of oil or hazardous materials, as defined in 310 CMR 40.0006 ("OHM"), has or may have occurred.

L. Respondents propose to conduct further filling and grading at the Property as shown on the "Estimated Phase 4 (Finished) Grading Plan" prepared by Quinn Engineering, Inc. dated August 28, 2014 and Revised March 2, 2015, (the "Grading Plan") included as Figure 4 in the SRMP (the "Project"). Neither the Project nor this Consent Order includes the abutting Williams Property.

M. The placement, dumping, disposing or reuse of soil containing oil and hazardous material into the environment is a release as that term is defined in M.G.L. c. 21E § 2. Depending on the site-specific conditions and the nature of the OHM present in the soil, such releases may have significant adverse human health and environmental effects.

N. MassDEP's "Similar Soils Provision Guidance, WSC#-13-500" dated September 4, 2014 (the "Similar Soils Policy") addresses the specific requirements of 310 CMR 40.0032(3) and the criteria by which a Licensed Site Professional ("LSP") may determine that soil may be moved without prior notice to or approval from the Department. The Similar Soils Policy is not applicable to the excavation and movement of soil from locations other than Disposal Sites as defined in M.G.L. c. 21E § 2, nor to the management of soils considered Remediation Wastes as defined in the MCP at 310 CMR 40.0006. Moreover, nothing in the Similar Soils Policy eliminates, supersedes or otherwise modifies any local, state or federal requirements that may also apply to the movement or management of soil, for this Project or other similar projects, including any local, state or federal permit or approvals that must be obtained before placing soil at a receiving location.

III. DISPOSITION AND ORDER

For the reasons set forth above, MassDEP hereby issues, and Respondents hereby consent to, this Order:

9. The parties have agreed to enter into this Consent Order because they agree that it is in their own interests, and in the public interest, to proceed promptly with the actions called for herein rather than to expend additional time and resources litigating the matters set forth above. Respondents enter into this Consent Order without admitting or denying the facts or allegations set forth herein. However, Respondents agree not to contest such facts and allegations for purposes of the issuance or enforcement of this Consent Order.

10. MassDEP's authority to issue this Consent Order is conferred by the statutes and regulations cited in Part II of this Consent Order.

11. Respondents shall perform the following actions:

A. Effective immediately, Respondents shall take every measure to prevent further violations of the Wetlands Protection Act;

B. Respondents will immediately implement the Surface Water Management Plan as approved by MassDEP on September 19, 2014 including operation and maintenance of basins and conveyances decribed in the plan;

C. Within 30 days of the effective date of this Consent Order, all drainage structures depicted in the "Surface Water Management Plan" will be completed and operational;

D. Effective immediately, and continuing for a period of one year from the effective date of this Consent Order, Respondents shall monitor and record turbidity for any rainfall event that results in a discharge of water at the final outlet of the basins to Wetland Resource Areas. Respondents will immediately report to MassDEP any visible turbidity discharging to Wetland Resource Areas.

E. Upon the effective date of this Consent Order, Respondents shall perform any and all activities related to the Project in compliance with M.G. L. c.21E, the MCP the Similar Soils Policy, and all other applicable local, state and federal laws and regulations.

F. Upon the effective date of this Consent Order, Respondents shall perform any and all activities related to the Project in compliance with the SRMP, as amended from time to time with the written consent of all parties.

G. Respondents shall ensure that Project activities do not result in a Condition of Air Pollution with respect to dust, noise and odors pursuant to 310 CMR 7.01.

H. Respondents shall install and maintain a minimum of three (3) groundwater monitoring wells and monitor the groundwater quality at these wells in accordance with the SRMP to assess potential changes to environmental conditions at the Property during and after the Project.

I. Respondents shall not accept soil and fill materials that have not been adequately characterized pursuant to the SRMP prior to transport to the Property. Soil and fill materials shall be subject to a suite of required field screening methods and laboratory analyses, to demonstrate that chemical constituents in the soil are within the site-specific Soil Acceptance Criteria identified in the SRMP. Chemical characterization shall be completed by collection of soil samples and analysis by a Massachusetts state-certified laboratory. Averaging of concentrations shall not be allowed. The analytical suite with appropriate laboratory methods required for soil acceptance, and frequency of sampling requirements, are specified in the SRMP.

J. Respondents shall ensure that soils and fill materials imported to the Property during the Project, with the exception of loads quarantined or rejected in accordance with the quality control measures in the SRMP, shall not be removed from the Property either during or at any time after completion of the Project.

K. Respondents shall cease accepting soil from a sending site when any load from such site is rejected as a result of field screening; visual or olfactory Quality Assurance/Quality Control ("QA/QC") inspection by Respondents, as specified in Section 5.2 of the SRMP; or the QA/QC testing conducted by the Independent Third Party, as specified in paragraph 11.P below, until Respondents receive a written explanation and assurance from the sending site that no additional similar loads will be transported to the Property.

L. Respondents shall ensure that soil and fill materials quarantined for QA/QC testing by the Third Party Inspector are either accepted and reused, or rejected and removed from the Property, within thirty (30) days of deposition. Loads of soil or fill materials that are rejected as a result of field screening, or visual or olfactory QA/QC inspection by Respondents, shall be removed from the Property within 7 days of deposition. For each rejected load, Respondents shall collect the following information for reporting to MassDEP in the next Construction Status Report, as specified in paragraph 11.R. below:

i. the reasons the load was rejected;

ii. the name and address of the hauler;

iii. the license plate number of the truck/tractor;

iv. the name and address of the generator; and

v. the corrective actions taken by Respondents.

M. Respondents shall engage the services of a Licensed Site Professional ("Project LSP") to oversee the activities agreed to in this Consent Order. The Project LSP shall, at a minimum:

i. Continuously observe the work for compliance with the SRMP and provide recommendations for corrective actions to Respondents;

ii. Review all Soil Profile Packages, as that term is used in the SRMP, and provide written recommendations for acceptance or denial to Respondents;

iii. Conduct the on-site quality control procedures pursuant to the SRMP; and

iv. Perform the periodic collection and analysis of groundwater samples pursuant to the SRMP. Any contractual relationship between Respondents and the Project LSP for work required hereunder shall require the Project LSP, as a condition of the contract, to implement work consistent with the provisions of this Consent Order.

N. Respondents shall comply with the following restrictions:

i. Soil and fill materials approved for use at the property shall contain no more than 5% Asphalt, Brick and Concrete ("ABC") material. Any such ABC material must measure less than 6 inches in any dimension.

ii. No wood, metal, wire, plastic, textile, ceramic, ash, tires, pipe, potential asbestos-containing material, construction/demolition waste, or other debris shall be accepted.

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Additionally, soil must be free of municipal solid waste and any material subject to a MassDEP waste ban.

iii. The acceptance of Remediation Waste, as defined at 310 CMR 40.0006, is prohibited.

O. Respondents shall obtain all applicable local, state and federal permits or approvals that may be required by the Project.

P. Independent Third Party Inspections: Respondents shall engage the services of a qualified, independent individual (the "Independent Third Party") to perform monthly inspections of the Property for compliance with the requirements of this Consent Order including, but not limited to, the SRMP, Surface Water Management Plan and Grading Plan. The Independent Third Party must hold certification as a Massachusetts Registered Professional Engineer or as an LSP, and must be approved, in writing, by MassDEP. Respondents shall be responsible for the timely performance of the activities required of the Independent Third Party in this Consent Order.

i. The Independent Third Party inspections shall be unannounced and randomly timed during normal operating hours.

ii. During each inspection, the Independent Third Party shall, at a minimum:

a) 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;

b) Inspect the soil and fill materials that are being unloaded and/or 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;

c) Collect grab soil samples from a minimum of 1 load of soil being delivered to the Property (if any arrive during the inspection) and submit the collected samples to a Massachusetts certified laboratory for the soil profile analyses specified in the SMP for QA/QC purposes. Respondents shall stockpile this load in a designated quarantine area pending the results of the analyses and provide the Third Party Inspector a copy of the Material Shipping Record or Bill of Lading for the load;

d) Collect a minimum of 6 spot elevation measurements within the filled areas of the Property with respect to established benchmarks; and,

e) Inspect all erosion control measures including but not limited to, silt fence, hay bales, temporary basins and swales.

iii. The Independent Third Party shall have the authority to immediately stop work on the Project and notify MassDEP and the local conservation commission upon observing any violation of the Wetlands Protection Act.

iv. The Independent Third Party shall prepare an inspection report documenting the findings for each inspection and shall submit such report to Respondents and MassDEP on or before the 15th of each month. Each inspection report shall include, but not be limited to:

a) Observations of practices that are not compliant with the SMP and/or Consent Order;

b) Observations of solid or hazardous waste, stained soils, odors and sheens;
c) The results of the QA/QC testing of the soil samples collected during the inspection, including, but not limited to the following, providing that the QA/QC results for a given inspection may be submitted in the next monthly report if not available for submittal with the inspection report:

1. A copy of the Material Shipping Record or Bill of Lading for the load of soil that was sampled during the inspection, if any;

2. The analytical results in a tabular format comparing the results to the applicable RCS-1 Reportable Concentrations and Acceptance Criteria identified in the SMP;

3. A clear statement regarding whether any of the analytical results equal or exceed any applicable Reportable Concentration or Acceptance Criteria; and

4. The laboratory analytical reports and chain of custody documents;

d) Observations of airborne dust and dust control measures employed;

e) A plan showing spot elevation measurements and locations using the Grading Plan as a base plan, and a statement regarding whether the measured elevations comply with the Grading Plan;

f) Specific recommendations for repairs, replacement or changes to erosion control measures at the Property; and

g) Status updates of the actions taken by Respondents to implement the recommendations made in prior inspection reports, if any.

Q. Respondents shall submit to MassDEP each quarter a status report ("Construction Status Report") on the status of the Project. The initial Construction Status Report shall be submitted within thirty (30) days of the issuance of this Consent Order but not later than 7 days before the date Respondents start construction at the Property. The initial Construction Status Report shall include, without limitation:

   i. The projected schedule for the project, including, but not limited to:

      a) Commencement of construction,

      b) Major construction milestones, and

      c) Completion of construction;

   ii. The name and contact information for an on-call Property contact; and

   iii. The results of the pre-construction groundwater monitoring, including boring logs and well construction reports for all of the monitoring wells, well elevations, groundwater gauging measurements, tabulated analytical results and laboratory analysis reports with chains of custody.

R. After submittal of the initial Construction Status Report, Respondents shall submit each subsequent quarterly Construction Status Report on or before the 15th day of the month following each three-month reporting period until the Project is completed. Each such Quarterly Construction Status Report shall include, without limitation:

   i. A summary of the filling activities conducted at the Property during the prior 3-month reporting period, including a tabulated list of source locations, tons of material from each source location since the last report, cumulative tons of material from each source;

   ii. Major activities Respondents anticipate performing during the next 3-month reporting period;

   iii. Any changes to the project schedule, the Independent Third Party, the Project LSP, and the on-call contact information;

   iv. Actions Respondents have taken or a schedule for actions Respondent intends to take in response to recommendations for corrective actions made by the Independent Third Party, if any;

   v. Actions taken in response to the QA/QC results reported by the Independent Third Party Inspector, if any;

vi. A summary of the loads rejected as a result of visual or olfactory QA/QC inspection by Respondents, or the QA/QC testing conducted by the Independent Third Party, including but not limited to: the reasons the load was rejected, the name and address of the hauler, the license plate number of the truck/tractor, the name and address of the generator, and the corrective actions taken by Respondents; and

vii. The results of any groundwater monitoring conducted during the reporting period.

viii. The Construction Status Report shall be signed by the Project LSP and shall include the following certification signed by Respondents:

> I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties both civil and criminal for submitting false information.

S. Respondents shall maintain all slopes to be no steeper than 3:1 horizontal to vertical during and post-construction.

T. Respondents shall not exceed the maximum elevations shown in the Grading Plan.

U. The final stabilization of the top of the fill shall be by planting of crops or other vegetative cover on 2 feet of topsoil overlaying 2 feet of granular fill (fine sandy loam or coarser).

V. Respondents shall notify MassDEP, in writing, if Respondents intend to terminate the Project before achieving the maximum finish grading shown in the Grading Plan. Respondents' failure to perform Project-related filling activities for any contiguous 6-month period shall be deemed by MassDEP to be Respondents' termination of the Project.

W. Respondents shall perform the following closure activities upon achieving the proposed fill subgrade elevations, or upon Respondents' termination of the Project before achieving the proposed fill subgrade elevations:

i. Within 60 days of achieving the proposed fill subgrade elevations or terminating the Project, Respondents shall address all outstanding recommendations made by the Project LSP and/or Independent Third Party;

ii. Within 90 days of achieving the approved fill subgrade elevations or terminating the Project, Respondents shall stabilize all slopes by applying suitable materials and establishing a vegetative cover or other cover specified in the Grading Plan;

iii. Within 180 days of achieving the approved fill subgrade elevations or terminating the Project, Respondents shall submit to MassDEP an As-Built Plan prepared and stamped by a Massachusetts Registered Land Surveyor or Professional Engineer. The As-Built Plan shall show the final elevations at the Property and any permanent stormwater management features; and

iv. Respondents shall continue monitoring the groundwater in accordance with the SRMP.

X. Respondents shall maintain records of all soil accepted at the Property, including but not limited to Generator applications, Soil Submittal Packages, soil profiles, Project LSP Recommendations and Acceptance/Approval documents, for a minimum of 7 years after the completion of the work. Any and all records, including records in electronic and paper form, shall be made available to MassDEP for inspection and reproduction upon request.

12. MassDEP reserves the right to require Respondents to take any and all actions necessary to ensure that the activities conducted at the Property do not cause any nuisance conditions including, but not limited to, dust, noise, odor or wetlands impacts.

13. MassDEP reserves the right to require Respondents to take any and all corrective actions recommended by the Project LSP and/or the Independent Third Party within a reasonable time. Respondents' failure to complete such corrective actions shall be considered a violation of this Consent Order.

14. For the purposes of this Consent Order, the Project will commence upon the execution of this Consent Order by MassDEP. Soil and fill materials placed, dumped, disposed or reused at the Property prior to execution are not included in the Project.

15. Unless submitted via eDEP or except as otherwise provided herein, all notices, submittals and other communications required by this Consent Order shall be directed to:

Mary Jude Pigsley, Acting Regional Director
MassDEP Central Regional Office
8 New Bond Street
Worcester, MA 01606

Such notices, submittals and other communications shall be considered delivered by Respondents upon receipt by MassDEP.

16. For purposes of M.G.L. c. 21A, § 16 and 310 CMR 5.00, this Consent Order shall also serve as a Notice of Noncompliance for Respondents' noncompliance with the requirements cited in Part II above. MassDEP hereby determines, and Respondents hereby agree, that the deadlines set forth above constitute reasonable periods of time for Respondents to take the actions described.

17. Force Majeure

A. MassDEP agrees to extend the time for performance of any requirement of this Consent Order if MassDEP determines that such failure to perform is caused by a Force Majeure event. The failure to perform a requirement of this Consent Order shall be considered to have been caused by a Force Majeure event if the following criteria are met: (1) an event delays performance of a requirement of this Consent Order beyond the deadline established herein; (2) such event is beyond the control and without the fault of Respondents and Respondents' employees, agents, consultants, and contractors; and (3) such delay could not have been prevented, avoided or minimized by the exercise of due care by Respondents or Respondents' employees, agents, consultants, and contractors.

B. Financial inability and unanticipated or increased costs and expenses associated with the performance of any requirement of this Consent Order shall not be considered a Force Majeure Event.

C. If any event occurs that delays or may delay the performance of any requirement of this Consent Order, Respondents shall immediately, but in no event later than 5 days after obtaining knowledge of such event, notify MassDEP in writing of such event. The notice shall describe in detail: (i) the reason for and the anticipated length of the delay or potential delay; (ii) the measures taken and to be taken to prevent, avoid, or minimize the delay or potential delay; and (iii) the timetable for taking such measures. If Respondents intends to attribute such delay or potential delay to a Force Majeure event, such notice shall also include the rationale for attributing such delay or potential delay to a Force Majeure event and shall include all available documentation supporting a claim of Force Majeure for the event. Failure to comply with the notice requirements set forth herein shall constitute a waiver of Respondents' right to request an extension based on the event.

D. If MassDEP determines that Respondents' failure to perform a requirement of this Consent Order is caused by a Force Majeure event, and Respondents otherwise comply with the notice provisions set forth in paragraph C above, MassDEP agrees to extend in writing the time for performance of such requirement. The duration of this extension shall be equal to the period of time the failure to perform is caused by the Force Majeure event. No extension shall be provided for any period of time that Respondents' failure to perform could have been prevented, avoided or minimized by the exercise of due care. No penalties shall become due for Respondents' failure to perform a requirement of this Consent Order during the extension of the time for performance resulting from a Force Majeure event.

E. A delay in the performance of a requirement of this Consent Order caused by a Force Majeure event shall not, of itself, extend the time for performance of any other requirement of this Consent Order.

18. Actions required by this Consent Order shall be taken in accordance with all applicable federal, state, and local laws, regulations and approvals. This Consent Order shall not be construed as, nor operate as, relieving Respondents or any other person of the necessity of complying with all applicable federal, state, and local laws, regulations and approvals.

19. Respondents understand, and hereby waive, their right to an adjudicatory hearing before MassDEP on, and judicial review of, the issuance and terms of this Consent Order and to notice of any such rights of review. This waiver does not extend to any other order issued by the MassDEP.

20. This Consent Order may be modified only by written agreement of the parties hereto.

21. MassDEP hereby determines, and Respondents hereby agree, that any deadlines set forth in this Consent Order constitute reasonable periods of time for Respondents to take the actions described.

22. The provisions of this Consent Order are severable, and if any provision of this Consent Order or the application thereof is held invalid, such invalidity shall not affect the validity of other provisions of this Consent Order, or the application of such other provisions, which can be given effect without the invalid provision or application, provided however, that MassDEP shall have the discretion to void this Consent Order in the event of any such invalidity.

23. Nothing in this Consent Order shall be construed or operate as barring, diminishing, adjudicating or in any way affecting (i) any legal or equitable right of MassDEP to issue any additional order or to seek any other relief with respect to the subject matter covered by this Consent Order, or (ii) any legal or equitable right of MassDEP to pursue any other claim, action, suit, cause of action, or demand which MassDEP may have with respect to the subject matter covered by this Consent Order, including, without limitation, any action to: (a) enforce this Consent Order in an administrative or judicial proceeding; (b) recover costs incurred by MassDEP in connection with response actions conducted at the Site; and (c) recover damages for injury to and for destruction or loss of natural resources pursuant to M.G.L. c. 21E, § 5 or 42 U.S.C. 9601, et seq.

24. Nothing in this Consent Order shall be construed or operate as barring, diminishing, adjudicating or in any way affecting MassDEP's authority to: (a) perform response actions at the Site or (b) require Respondents to conduct response actions at the Site or take other actions beyond those required by this Consent Order in order to comply with all applicable laws and regulations including, without limitation, M.G.L. c. 21E and the MCP.

25. This Consent Order shall not be construed or operate as barring, diminishing, adjudicating, or in any way affecting, any legal or equitable right of MassDEP or Respondents with respect to any subject matter not covered by this Consent Order.

26. This Consent Order shall be binding upon Respondents and upon Respondents' heirs, successors and assigns. Respondents shall not violate this Consent Order and shall not allow or suffer Respondents' members, managers, employees, agents, contractors or consultants to violate this Consent Order. Until Respondents have fully complied with this Consent Order, Respondents shall provide a copy of this Consent Order to each successor or assignee at such time that any succession or assignment occurs.

27. Respondents shall pay stipulated civil administrative penalties to the Commonwealth in accordance with the following schedule if Respondents violate any provision of this Consent Order:

For each day, or portion thereof, of each violation, Respondents shall pay stipulated civil administrative penalties in the following amounts:

Period of Violation	Penalty per day
1st through 15th days	$250.00 per day;
16th through 30th days	$500.00 per day;
31st day and thereafter	$1,000.00 per day.

Stipulated civil administrative penalties shall begin to accrue on the day a violation occurs and shall continue to accrue until the day Respondents correct the violation or completes performance, whichever is applicable. Stipulated civil administrative penalties shall accrue regardless of whether MassDEP has notified Respondents of a violation or act of noncompliance. All stipulated civil administrative penalties accruing under this Consent Order shall be paid within thirty (30) days of the date MassDEP issues Respondents a written demand for payment. If simultaneous violations occur, separate penalties shall accrue for separate violations of this Consent Order. The payment of stipulated civil administrative penalties shall not alter in any way Respondents' obligation to complete performance as required by this Consent Order. MassDEP reserves its right to elect to pursue alternative remedies and alternative civil and criminal penalties which may be available by reason of Respondents' failure to comply with the requirements of this Consent Order. In the event MassDEP collects alternative civil administrative penalties, Respondents shall not be required to pay stipulated civil administrative penalties pursuant to this Consent Order for the same violations.

Respondents reserve whatever rights they may have to contest MassDEP's determination that Respondents failed to comply with the Consent Order and/or to contest the accuracy of MassDEP's calculation of the amount of the stipulated civil administrative penalty. Upon exhaustion of such rights, if any, Respondents agree to assent to the entry of a court judgment if such court judgment is necessary to execute a claim for stipulated penalties under this Consent Order.

28. Failure on the part of MassDEP to complain of any action or inaction on the part of Respondents shall not constitute a waiver by MassDEP of any of its rights under this Consent Order. Further, no waiver by MassDEP of any provision of this Consent Order shall be construed as a waiver of any other provision of this Consent Order.

29. Respondents agree to provide MassDEP, and MassDEP's employees, representatives and contractors, access at all reasonable times to the Property for purposes of conducting any activity related to its oversight of this Consent Order. Notwithstanding any provision of this Consent Order, MassDEP retains all of its access authorities and rights under applicable state and federal law.

30. The undersigned certify that they are fully authorized to enter into the terms and conditions of this Consent Order and to legally bind the party on whose behalf they are signing this Consent Order.

31. This Consent Order shall become effective on the date that it is executed by MassDEP.

Consented To:

LIGHTHOUSE ENVIRONMENTAL MANAGEMENT, LLC

By: _____ 7/24/15
Kevin Francis Gervais, Manager
184 Stone Street, Clinton, MA 01510

Federal Employer Identification No.: 45-3734525

Date:

RANDY E. JORDAN

By: Randy E. Jordan 7/24/15
51 Muschopauge Road, Rutland, MA 01543

Social Security Number (on file- please fill out attached page for SS#)

Date:

BRIAN H. JORDAN

By: _____ 7/24/15
120 Bushy Lane, Rutland, MA 01543

Social Security Number (on file- please fill out attached page for SS#)

Date:

Issued By:

DEPARTMENT OF ENVIRONMENTAL PROTECTION

By: _____
Mary Jude Pigsley, Acting Regional Director
MassDEP Central Regional Office
8 New Bond Street
Worcester, MA 01606

Date: 8/5/15

ATTACHMENT A

Revised Soil Re-Use Management Plan

for

Jordan Property and Williams Property
East County Road and 29 Overlook Road
Rutland, Massachusetts 01543

Prepared for:

Lighthouse Environmental Management, LLC

April 24, 2015

D'AMORE ASSOCIATES, INC.
148 Ponakin Road
Lancaster, Massachusetts 01523

Environmental Engineering / Ground Water Consulting

Contents

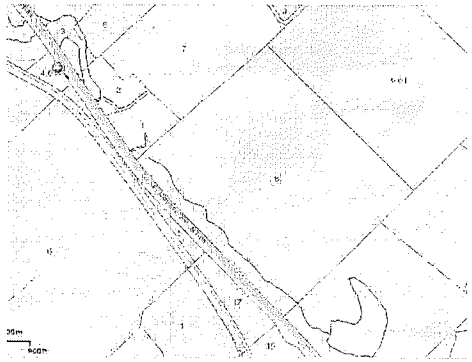
1 Introduction

The following is a Revised Soil Re-Use Management Plan, (SRMP) prepared in support of the planned continued and expanded use for commercial farming of portions of two parcels of land in Rutland, MA, referred to as the Site, as described and depicted below:

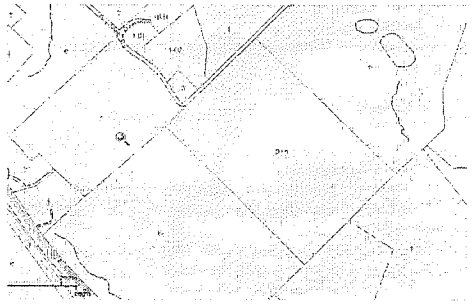
- The Jordan Parcel: 51 Muschopauge Road, Assessor's Lot 067-A-8 (73.52 acres); and
- The Williams Parcel: 29 Overlook Road, Assessor's Lot 067-A-9.01 (54.81 acres);

(Lot designations and acreage from Rutland Assessors records).

Jordan Parcel:



Williams Parcel:



This revised plan provides an update and supersedes all previous SRMPs including:

- The original SRMP prepared by EnviroTrac Ltd. for a portion of the Site in September 2012;
- The revised SRMP prepared by EnviroTrac Ltd. in May 2013; and
- An amendment to the May 2013 SRMP prepared by D'Amore Associates, Inc. in May 2014.

The purposes for preparing this Revised SRMP are:

1. To incorporate the May 2014 amendment into the SRMP, which was prepared following publication of the Similar Soils Provision Guidance (WSC# 13-500); and
2. To include revisions to the SRMP recommended by MassDEP.

The Soil Acceptance Criteria Table for the Site was revised based upon the recently published Similar Soils Provision Guidance (WSC# 13-500) document issued by the Massachusetts Department of Environmental Protection (MassDEP) dated October 2, 2013 and the recent changes to reportable concentrations for the following elemental metals: cadmium, chromium (total), chromium (VI), lead and nickel that became effective on April 25, 2014.

Recommended revisions to the SMRP by MassDEP are associated with the Administrative Consent Order (ACO) that DEP is developing for the project.

This revised SMP addresses fill will be received from sending facilities, placed and graded the Jordan portion of the "Site". The only activities that will occur on the Williams portion of the site will be the operation and management of the storm water control structures and to place and grade topsoil, which is already stockpiled on site on less than 10% of the Williams parcel. Grading plans for both parcels are included in this revised SMP and will be discussed in later sections. A temporary construction easement on the Williams parcel will be developed to allow for maintenance of the storm water control measures.

1.1 Revised SRMP Objectives

The Site Owners and Lighthouse intend to conduct the soil management operations with approved "clean" fill and natural and re-worked natural soils from off-site locations that are considered to be the following:

- Non-Massachusetts Contingency Plan (MCP) regulated soils (i.e., less than RCS-1). Soils that are recognized to contain anthropogenic fill materials (reworked natural soil or soil with some small proportion of anthropogenic material) from non-MCP regulated sites, or other soils

brought from an MCP-regulated site that are < RCS-1 standards, non-impacted, and not considered part of a Disposal Site as defined in the MCP by the sending LSP. This soil is also MCP restricted in that it must also meet MCP "anti-degradation provisions" at 310 CMR 40.0032. This requirement is addressed through the development of "Soil Acceptance Criteria" presented in this plan; or

- Naturally occurring, non-impacted soils that do not originate from within affected layers on an MCP site or a site with filling activities and are not otherwise regulated.

Soils from on-going and proposed projects will be delivered to the appropriate section of the Site as specified by Lighthouse and the Owners and will be placed and tracked in accordance with procedures in this plan.

1.2 Contact Information

The Owner of the Parcel 67-A-9.01 is: William Williams, 29 Overlook Road, Rutland, MA 01543. Mr. Williams and Randy Jordan cooperatively manage farm operations on this parcel.
The owners of Parcel 067-A-8 are Wayne R. Jordan, Randy E. Jordan, and Brian H. Jordan, 51 Muschopauge Road, Rutland, MA 01543. Farm operation is provided by Mr. Randy Jordan.
The Operations Manager of the Site for soil placement operations is:

- Lighthouse Environmental Management, LLC, (Mr. Kevin Francis Gervais), 184 Stone Street, , Clinton, MA Cell Number: (617) 699-5245

The "Site LSP" reviewing candidate soil packages is:

- Denis D'Amore, D'Amore Associates, Inc.
  148 Ponakin Road
  Lancaster, MA 01523
  (978)368-1802 - Office
  (978)807-8301 - Cell

While the project is ongoing, the operations manager or his designee will be on call 24/7 to address any issues.

2 Background

2.1 Site Conditions

The Site is currently a farm and will continue to be used for these purposes with addresses at 29 Overlook Road and East County Road in Rutland, Massachusetts. The Site is located in a wooded area of Rutland about 1/4 mile northeast of Route 68 (East County Road) and is accessible from intersecting Wachusett Street which in turn intersects Overlook Road.

The Jordan and Williams properties are located in an agricultural zoned area. The Williams property has an Agricultural Preservation Restriction (APR) approved by the United States Department of Agriculture (USDA). The general site locus is shown on **Figure 1.** A detail of the existing topography is depicted on **Figure 2.** This map also shows the legal property parcel designations, recently mapped wetland boundaries in the vicinity of the soil placement areas, and USDA surface soil designations prepared by Thompson-Liston Associates, Inc. (TLA).

The portion of the property where soil has been placed from September 2012 to the present under the existing SRMP is on the Jordan parcel, with a small area (topsoil only) on the Williams parcel.

The project area was previously cornfield (in part) and woodland (in part) that was cleared in late 2011 to prepare for farming of corn primarily. The area was extremely stony with numerous boulders and minimal topsoil. In order to create a tillable soil the stones and boulders will be covered with layers of structural soil and finished with topsoil. The new topsoil will be amended with a previously permitted "Biomix" of short paper fiber, and/or compost that was placed on the Jordan parcel. The MassDEP approved Permit WRP WP30 for the Biomix placement based on soil background information prepared by New England Organics in August 2011, which is included in **Attachment A**.

2.2 Wetlands

There are bordering vegetated wetlands ("BVW") and a 100-foot buffer zone to the southeast and southwest of the work area, as shown on **Figure 2**. The National Resource Conservation Service (NRCS) prepared a figure that roughly located these wetland areas by GPS. The NRCS figure also plotted the perimeter of an area labeled "0.7 acre" with the notation "no hydric soils". The 0.7 acre area is isolated from identified wetlands and streams on and near the site, and therefore is not a bordering wetland. It has also been evaluated for possible consideration as Isolated Land Subject to Flooding ("ILSF") in accordance with Massachusetts Wetland Regulations. Based upon this evaluation, the area

does not qualify as ILSF. There are no hydric soils in this area in question and aerial photographs provided by Mass DEP do not depict this area as subject to flooding.

EcoTec Inc. of Worcester, MA (EI) delineated vegetated wetlands in the vicinity of the proposed work area in April, 2013 in accordance with state and federal delineation criteria. Wetland boundary flags were located by instrument survey and plotted on an *Existing Conditions Plan* (revised May 23, 2013) by Thompson-Liston Associates of Boylston, MA. The Existing Conditions Plan and other supporting materials were filed with the Rutland Conservation Commission on May 23, 2013 as part of a Wetlands Protection Act Request for Determination of Applicability. Following a public hearing, the Conservation Commission issued a Determination of Applicability on July 8, 2013 stating that:

1. Bordering Vegetated Wetland delineations shown on the submitted plan are accurate (noting that there are wetlands on other portions of the properties, not germane to the subject project); and
2. The so-called "0.7 acre isolated depression" is not an Area Subject to Jurisdiction under the Wetlands Protection Act.

The Determination of Applicability and its findings are valid for three years (until July 8, 2016). All soil placement activities are proposed outside of the delineated wetlands and associated 100 foot Buffer Zones. The Determination of Applicability, existing conditions plan and proposed soil grading plan are attached.

Muschopauge Brook, a mapped perennial stream, flows southeasterly across the western portion of the Jordan property, then easterly more than 500 feet south of the Williams property. No soil placement has occurred or is proposed within the 200 foot Riverfront Area associated with the Brook. There is also a 200 foot "Zone A" Protective Radius associated with the Muschopauge Brook due to its status as a tributary to the Quinapoxet Reservoir which is part of the City of Worcester drinking water supply and tributary to Wachusett Reservoir. Wachusett Reservoir is part of the metropolitan Boston water supply, administered by the Department of Conservation and Recreation (DCR). These areas are shown on **Figure 3**. No work is proposed within the Zone A as part of this project.

There is also no project Site runoff directed toward Muschopauge Pond, which is the Town of Rutland water supply, as Site runoff is captured by Muschopauge Brook. There are no municipal groundwater supply wells or mapped aquifers on the property. A public water supply and IWPA Protective Radius is located about ½ mile north and upgradient (Supply No. 2257010-02G).

2.3 Topography and Geology

Topography in the fill area is generally rolling and drains to wetland areas on the property and ultimately Muschopauge Brook southwest and southeast of the property. Grades on the Site are moderate and include exposed boulders and some ledge faces that are in the process of being covered and graded by soil imported under this SRMP. The USDA information indicates that the soil type is a loamy sand of the Peru-Marlow, Charlton-Paxton, and Charlton Chatfield Series as shown on Figure 2. The available water capacity of the soils is low with depth to water being greater than five feet. The topography in the area of soil re-use will be modified to create the necessary soil cover for planting and runoff control with engineered slopes.

The Site is located in a surficial geologic formation known as a glacial ground moraine. Glacial ground moraines consist of a veneer of till or glacial till, deposited directly from glacial ice over bedrock. Till consists of rock fragments ground by glacial ice with materials ranging from silt size particles to boulders.

The bedrock in the area of the Site is mapped as metamorphic rocks of the New Hampshire- Maine Sequence.

2.4 Water Supplies

The Muschopauge Brook flows across the western portion of the Jordan property outside of the project limits. This brook runs southeast then east and discharges into the Quinapoxet Reservoir about 1.5 miles away. This reservoir is used by the City of Worcester for drinking water supply purposes and is tributary to Wachusett Reservoir. Runoff from the area of the Site does not enter Muschopauge Pond, which is a source of drinking water for the Town of Rutland. There are six private wells adjacent to the Jordan and Williams parcels. There is a public water supply well located about ½ mile north of the Site. The water supply is considered topographically upgradient of the planned re-use area.

2.5 MCP Designation

Based upon land use and adjacent resource areas, the site would be designated S-1/GW-1 according to the Massachusetts Contingency Plan (MCP).

3 Regulatory Jurisdiction History and Activities Associated with the Site

The Site includes existing cornfields as well as areas that were previously wooded land that was cleared in 2011 to permit the farming of corn. The permit to import Biomix material was approved in 2011. The permit for the Biomix required approvals from the Board of Health, Conservation Commission and MassDEP. During the approval process, no issues were reportedly raised concerning the past use or the presence of potentially hazardous materials in the material or on the Site, or adjoining properties according to the Owners. According to MassDEP's Searchable Sites Database, there are no reportable releases near the Site. Release tracking number (RTN) 2-19106 was assigned to Jordan Farm on January 30, 2014 for the presence of nickel and chromium in fill brought onto the site in excess of the reportable concentration, which at that time was 20 mg/kg for nickel and 30 mg/kg for chromium. In May2014, the reportable concentrations for both metals were increased to 600 (nickel) and 100 (chromium), well in excess of the maximum concentrations of these metals in samples collected at the Site.

Soils were imported to the Jordan Farm re-use area from September 2012 to March 2013 and approval packages were posted on the Lighthouse web site. State and local agencies recently reviewed the original SRMP and provided inquiries requiring elaboration by the Owner, Lighthouse, and EnviroTrac in March 2013 regarding the origin and quality of imported soils, confirmation of wetland areas/boundaries, and history and planned use on the APR portion of the land.

A "Cease and Desist" order was filed by the Rutland Board of Health (BOH) in early March 2013 in order for them to review the information in the existing SRMP. The SRMP and soil re-use approval package information was provided to MassDEP (Bureau of Waste Site Cleanup and Resource Protection), Mass Department of Conservation and Recreation (DCR), National Resources Conservation Service (NRCS), and City of Worcester at the request of BOH. After review of this information, the BOH unanimously lifted the order on March 18, 2013 pending provision of a Revised SRMP that summarizes responses to all of the inquiries. A copy of the letter from the Town of Rutland to this effect is provided in **Attachment C**.

Lighthouse contracted with Mr. Paul McManus LSP, PWS of EI and TLA to coordinate with MassDEP, NRCS, DCR and local Rutland agencies to define wetland resource areas, prepare the necessary stormwater control map, which was superseded by the grading plans by Quinn Engineering attached as **Figure 4**, implement runoff controls, and document those activities in a Project NPDES

SWPPP that is provided in **Attachment D.** Attachment D also contains the NPDES EPA/CGP-NOI filing relative to the SWPPP.

Upon achievement of the final planned topography for the project (refer to Figure 4), the remaining two feet of fill material must be a suitable topsoil for the optimum crop growth. That material is being provided from a Site in New Hampshire which is described in **Attachment D** by Arthur Allen, CPSS of EI. Attachment D describes the characteristics and quality of the topsoil, and planned amendments for use, and also addresses the APR-NRCS Filling Material Criteria for Agricultural Applications.

Finally, as specified in the town's letter in Attachment C, agencies may opt to selectively collect representative soil samples from incoming truck loads for analysis as coordinated with Lighthouse and D'Amore prior to collection at their expense. D'Amore will be present during this sampling to agree on the soil collected for analysis and the type of analysis.

Approval of soil packages to the Site is on-going and approval packages are available for review from Lighthouse or D'Amore. The Acceptance Criteria Table for re-use of soil at the Site was modified and is discussed in upcoming sections.

4 Need for Additional Soil Fill

Approximately 215,500 tons of soil has been imported to date, the majority of which is on the Jordan property. The majority of the imported soil has been placed on the lower portion of the Jordan parcel, with lesser amounts placed in the higher elevation portion of the Jordan parcel, and a small percentage (topsoil only) placed on the Williams parcel (refer to grading plan, Figure 4)

Fill materials used at depth to date include mostly natural, non-impacted silty clay, with some granular urban fill blended in, as there is no specific soil type specified for the Site. The final cover will be blended with topsoil as described in the Soil Blending Report (refer to **Attachment E**). It is estimated that about 200,000 additional tons of soil (including topsoil) will be brought in that complies with updated Acceptance Criteria. In total, the current soil import is about 60 % complete.

Certain management practices have been and will be exercised by the Owner, Operator, and Operations Manager (Mr. Kevin Francis Gervais of Lighthouse) to maintain the designed grading to prevent substantial changes in runoff patterns toward the stream area and buffer zones located to the southwest/southeast.

The total period of time expected to import the necessary remaining soils is 48 months. The physical quality of the additional soil will be pre-approved by the Operator and Owner depending on the area where it will be used but is anticipated to include the same mixture of sand, silt, and clay until the final two feet when the topsoil will be placed.

5 Screening and Testing Requirements for Soil Acceptance

5.1 Similar Soils Provision Guidance (WSC# 13-500) Background

The Similar Soils Provision Guidance policy was developed to address the very specific application of an MCP provision (310 CMR 40.0032(3)) that allows certain soils to be managed (and re-used) without prior notice to, or approval from, MassDEP with the specific intent of crafting an instrument to assist in managing re-use of soil in reclamation and development projects such as the Site. The policy describes four requirements that must be met before managed soil can be moved to and re-used (or disposed) at a new location without notice to or approval from MassDEP. Those requirements are that the managed soil:

1. Must Not Be a Hazardous Waste.
2. Must Be Less Than Reportable Concentrations (RCs).
3. Must Not Create a Notifiable Condition at the Receiving Location.
4. Must Not Be Significantly More Contaminated Than Soil at the Receiving Location (also referred to as the "anti-degradation provision").

While these requirements are discussed in detail in the guidance document, which has been included as **Attachment F**, the focus of this SRMP revision is Requirement # 4, which establishes threshold criteria for a number of semi-volatile organic compounds (referred to as SVOCs) and a number of metals.

MassDEP has established several approaches to characterizing receiving site conditions including:

1. Assuming the soils at the receiving location are natural background:

In lieu of sampling for SVOCs and metals at the proposed receiving locations, which can be an expensive undertaking, MassDEP has established concentrations of these constituents in "natural" soil for RSC-1 and RCS-2 locations (refer to Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil (May, 2002) in **Attachment G**).

2. Sampling the soils at the receiving location:

This requires that a sufficient number of samples be taken at locations selected to provide an understanding of the concentrations of OHM present and the distribution of OHM throughout the receiving location.

3. Providing Technical Justification for an Alternative Approach:

MassDEP recognized that there may be situations for which a different combination of analytical and non-analytical information available for both the source and receiving locations is sufficient to conclude that the nature and concentrations of OHM in the soils are not significantly different.

MassDEP developed a multiplying factor to the maximum values of the OHM concentrations in both the soil at the receiving location and the soil proposed to be disposed of or reused that varies depending upon the concentration in the soil at the receiving location to determine the acceptability of soil at a receiving location, which is as follows:

If the concentration in soil at the receiving location for a given OHM is:	Then use a multiplying factor of:
< 10 mg/kg	10
10 mg/kg ≤ *x* <100 mg/kg	7.5
100 mg/kg ≤ *x* <1,000 mg/kg	5
≥ 1,000 mg/kg	2.5

In this manner, MassDEP established limits to the concentration of OHM in soil for re-use assuming natural background conditions at RCS-1in Attachment E.

5.2 Field Screening/Visual Criteria

Soil to be placed at the Sitewill require field screening and analytical testing to conform with MCP requirements and to demonstrate that the material is chemically and structurally suitable for the project. The characterization of the candidate soil will be done under supervision of a Qualified Environmental Professional (QEP)/LSP considering the MassDEP policies/guidance for characterization including the Similar Soils Provision Guidance (WSC# 13-500), "Due Diligence" (HW93-01H), and "Landfill Soil Re-use" (COMM-97-001) policies. Soil sampling will be done in-situ or ex-situ as justified by the QEP/LSP using discrete or composite samples to develop an adequate representation of the soil quality in consideration of soil disposition. The physical suitability will be reviewed and approved by the Owner and Lighthouse.

Lighthouse or a specified representative will conduct periodic screening of soils that will be shipped to the Site to make sure soils are as represented. Incoming soils may also be tested by Town of Rutland or City of Worcester personnel who are trained in sample collection with prior coordination with and notice to Lighthouse, D'Amore, and the Owner on the samples to be collected and analytes planned. These analyses will be funded by the party collecting the samples and results will be provided to Lighthouse, D'Amore, and the Owner for review.

Candidate soil must be evaluated by the generator for the following screening criteria and these results must be addressed in the soil profiling package prepared by the generator. Candidate soil being placed in the Site shall not exceed the following field screening/visual criteria:

- Field screening results of soil headspace from representative samples must not exhibit a reading of Total Organic Vapors (TOV) in the jar headspace exceeding 2 (two) parts per million by volume (ppmV) due to volatile constituents. Frequency of screening will be one per every 50 CY. Screening may be performed at the sending site or at the receiving Site by Lighthouse or another designated party as appropriate. If screening at the receiving Site results in exceedances to the criteria above, the load(s) will be rejected.
- Visually, the soil must not exhibit any staining, odors, or other discolorations indicative of oil and hazardous material (OHM) releases as demonstrated by the representative of the soil to be imported. Fill brought to the site will be inspected for these characteristics upon arrival by Lighthouse staff, who may reject loads based upon their observations.
- Loads rejected on the basis of visual, olfactory or PID screening will be immediately removed from the site.
- The urban fill soils must not contain any refuse, trash or solid debris. The soil may contain ancillary non-coated or non-painted brick pieces or non-coated/stained or non- impregnated concrete pieces < 3" diameter or cobbles less than 6 (six) inches diameter if it is contained within certain fill soils in very small quantities. **This material must be less than 5% of the fill material.** If soils contain more than this amount, the above-listed excluded material must be physically separated and sent to a designated construction and demolition (C&D) or permitted Asphalt, Brick, Concrete (ABC) disposal facility by the generator. Loads received at the Site that contain more than the acceptable amount of solid debris will be rejected by Lighthouse or the Owner and sent back to the site of origin at the generator's cost.
- Soil may contain naturally deposited silt and clay and a certain portion of naturally occurring organic content and moisture since drainage of the soil can occur on the Site while it is being stored, blended, and re-worked as supervised by Lighthouse. The physical quality will be reviewed by Lighthouse and soil placed near the top of the planned grade will be placed in accordance with the soil blending plan. No dredge spoils will be allowed unless permitted by MassDEP.
- Upon arrival of the trucks at the Site, each incoming load will be visually and olfactorily inspected and may be field screened with a PID by Lighthouse or another designated party and discrete soil samples may be collected from a representative number of loads to prepare a composite sample from the candidate property for confirmatory analysis by the Owner or Lighthouse at their discretion.
- Random Third Party QA/QC sampling will occur on a monthly basis. The load selected for QA/QC sampling will be segregated on a quarantined area until receipt of the laboratory

results. If the results are above the Acceptance Criteria, Lighthouse will have one month to remove the soil from the Site.

- If a load is rejected based upon Lighthouse QA/QC procedures (i.e., visual/olfactory, PID screening) or independent Third Party QA/QC procedures, Lighthouse will cease accepting soil from the sending facility until the situation is corrected. Information regarding rejected loads will be included in monthly and quarterly status reports.

6 Laboratory Analytical Testing Requirements

Each sample (also referred to as "test profile" in the following sections) should be analyzed for the following parameters:

- Volatile Organic Compounds (VOCs) by EPA Method 8260;
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270;
- Total MCP-14 by EPA Methods 6010, 7470 (for mercury) and 7010 (for thallium) (refer to Table 1 for analyte list);
- Pesticides by EPA Method 8081 (may be excluded or limited based on site history);
- Herbicides by EPA Method 8151 (may be excluded or limited based on site history);
- Total Petroleum Hydrocarbons (TPH) (summation of EPH fractions can be substituted);
- Reactivity (cyanide/sulfide) by EPA Method Ch. 7.3;
- pH/Corrosivity by EPA Method 9045;
- Ignitibility/flashpoint by EPA Method 1010;
- Specific Conductance (Conductivity) by EPA Method SM2540 ; and
- Any other potential constituents based on location-specific history.
- Analysis for hexavalent chromium will be required on every sample that exceeds RCS-1 for total chromium.
- TCLP analysis will be required of each sample that exceeds potential threshold values.
- Averaging of concentrations is not acceptable.
- Soil containing arsenic >RCS-1 from anywhere is not acceptable.

Any deviation from this sampling protocol must be clearly explained in the Request for Approval soil package.

7 Minimum Sampling Frequencies

The following are minimum sampling frequencies established by MADEP for soil re-use at the Site:

Soil Category	General Source/Origin Description	Minimum Test Profile Frequency
1	Naturally Deposited Soil: Not from an area of known or suspected high background levels of constituents (i.e., arsenic belt, Boston Blue clay); not proximate to urban fill soil; no MCP disposal sites nearby; and no industrial or manufacturing history.	1 test profile per 1,000 cubic yards (1,500-1,700 tons) for initial review. Supplemental testing of specific areas for specific contaminants that exceed any Soil Acceptance Criteria (SAC) to define/confirm limits of acceptable soil at 1 test per 100 cu. yd.
2	Naturally Deposited Soil: In proximity to urban fill or an MCP disposal site.	1 test profile per 1,000 cubic yards (1,500-1,700 tons) for initial review. Supplemental testing of specific areas for specific contaminants that exceed any SAC to define/confirm limits of acceptable soil at 1 test per 100 cu. yd.
3	Naturally Deposited Marine Soils and Boston Blue Clay: From areas of known or Suspected naturally occurring high background levels of constituents or otherwise regulated soil.	1 test profile per 1,000 cubic yards (1,500-1,700 tons) for initial review. Test Profile must include MCP-14 metals. Supplemental testing of specific areas for specific contaminants that exceed any SAC to define/confirm limits of acceptable soil at 1 test per 100 cu. yd.
4	Urban Fill Soil	1 test profile per 500 cubic yards (750-850 tons) for initial review. Test Profile must include MCP-14 metals. Supplemental testing of specific areas for specific contaminants that exceed any SAC to define/confirm limits of acceptable soil at 1 test per 100 cu. yd. Additional test parameters such as cyanide and asbestos may be required.
5	Soil from Industrial, Commercial or Manufacturing site with history of any of the following: tannery, textiles, chemical/paint production, circuit board manufacturing, plating/metal finishing, foundry operations, coal gasification, dry cleaning, salvage yards, pesticide/herbicide use, storage or distribution. A LSP, LSRP or LEP must provide a report detailing why such soils conform to the SAC.	1 test profile per 500 cubic yards (750-850 tons) for initial review. Test Profile must include MCP-14 metals. Supplemental testing of specific areas for specific contaminants that exceed any SAC to define/confirm limits of acceptable soil at 1 test per 100 cu. yd. Additional test parameters such as cyanide may be required.
6	Soil from sources not otherwise described above where historic test data indicate potential exceedance of any SAC or where past use or storage of OHM at more than household quantities.	1 test profile per 500 cubic yards (750-850 tons) for initial review. Supplemental testing of specific areas for specific contaminants that exceed any SAC to define/confirm limits of acceptable soil at 1 test per 100 cu. yd. Additional test parameters based on historic test data may be required.

Test profile soil samples should be multi-point composite samples with the exception of VOC samples, which should be a grab sample of the highest PID screening result for that test profile.

For acceptance purposes, soil density will be considered 1.5 tons per cu. yd. for soil sampled from a stockpile, and no greater than 1.7 ton per cu. yd. for soil sampled in-situ via borings or test pits. Further technical justification will be required for acceptance of soil with assumed density greater than 1.7 ton per cu. yd.

8 Site Soil Acceptance Criteria

The following table summarizes MADEP's derivation of the Soil Acceptance Criteria (SAC) for the Site:

VOCs (EPA 8260)	List analytes individually, with criteria based on 10% of RCS-1. For analytes with no RCS-1 value.
SVOCs (EPA 8270)	Similar Soil Policy Table 2. For analytes not listed in Table 2: 10% of RCS-1. For analytes with no RCS-1: to be determined on a case by case basis.
EPH	Each carbon range 1/2 RCS-1. Target analytes from Similar Soil Policy Table 2
TPH	1/2 RCS-1 (i.e., 500 mg/kg)
Pesticides (EPA 8081)	ND Trace levels of pesticides/herbicides can be accepted on a case by case basis
Herbicides (EPA 8151)	ND Trace levels of pesticides/herbicides can be accepted on a case by case basis
PCBs (EPA 8082)	10% of RCS-1 for total PCBs
MCP-14 (with Vanadium)	Similar Soil Policy Table 2 or calculate site specific criteria
Hexavalent Chromium	Similar Soil Policy Table 2 or calculate site specific criteria
Specific Conductance (EPA SM2540)	2000 umhos/cm (1/2 Comm 97 limit)
Flashpoint (EPA 1010)	>140
pH/Corrosivity (EPA 9045)	5.0-9.0
Reactive Sulfide/Cyanide (EPA Ch. 7.3)	500/250
PID Screening	<2 ppmV
asbestos fibers	ND

The Site Soil Acceptance Criteria have been revised to reflect limiting concentrations for SVOCs and metals for a RCS-1 receiving location assuming natural background conditions that have been established in the Similar Soils Provision Guidance and MADEP's recommendations for other constituents set forth in the above referenced table. The revised Site Soil Acceptance Criteria are presented in **Table 1 (attached)**.

9 Soil Approval and Placement

Once the generator's Engineer, QEP or LSP representative has approved the analytical results as described in this plan, a generator representative shall forward the results of the soil profile package or pre-characterization study in letter format with attachments to Lighthouse who will provide initial feedback on the potential acceptance of a given soil. After initial approval is gained, the package will be sent to the Site LSP for review. Characterization results from each candidate property will be reviewed to confirm that the soil meets the requirements set forth in this plan. The Site LSP will then prepare an acknowledgement and approval letter to the owner/Lighthouse confirming the acceptance of the soil for confirmatory signature by Lighthouse The letter will specify the approved quantity, the quantity to be shipped, dates, restrictions (if any), and other pertinent items. The letter will be forwarded by Lighthouse or the Site LSP to the generator.

9.1 Soil Package Submittal Requirements

The majority of the soil that is scheduled to be placed in the Site is contemplated to originate from large construction projects where the soils have either been pre-characterized during the engineering phase of the development or characterized from stockpiled soil. All soils to be placed in the Site will be pre-characterized by the generator using appropriate characterization guidelines established in **Sections 5 through 7** of this SRMP and sampling results shall be demonstrated to meet the SAC limits in **Table 1**.

Prior to placement of material at the Site, the Site LSP will review the pre-characterization data packages of all potential candidate soils prior to acceptance of the materials. This will be done to demonstrate that the soils from the generator's property are in compliance with the Acceptance Criteria and other provisions of this plan. The Site LSP, Owner or Lighthouse may also request to review any environmental investigative reports regarding potential oil & hazardous material (OHM) release(s) and soil quality at the originating property. Prior to transporting any materials to the Site, generators must submit the following information in writing to the Owner and Project LSP for review and approval:

A Soil Profile Package shall be prepared by the candidate site owner/generator and Engineering Consultant/LSP, signed and dated for review by the owner/ Lighthouse and the Site LSP. The following information is required in the Soil Profile Package to obtain approval for the reuse of soil at the above referenced location:

1. Application letter addressed to Lighthouse and the Site LSP with information contained as described below.
2. Name of property owner (generator), and Engineering Consultant/LSP/QEP.
3. Project Name and Location, MCP Release Tracking Number (if applicable), and MCP history relative to candidate soils. Brief description of Site history including; a) current and past uses, b) soil category (refer to Section 7) and c) a description/source of any release(s) that have impacted the soil.
4. Boring logs and test pit logs or physical description of the material (sand, silt, clay, etc.).
5. The quantity of soil planned for reuse, and the number of soil samples collected and a description of how the samples were collected.
6. A site sketch or map of the soils depicting sampling locations and field screening results. An explanation as to why discrete or composite sampling was done to develop representative data.
7. The analytical data sheets and a summary of the analytical results in comparison to Acceptance Criteria in the Site Revised Soil Re-use Management Plan, demonstrating that results meet the criteria.
8. Discussion of shipment schedule, transporter (if known), and other pertinent coordination items.
9. Completed and signed Material Shipping Record (MSR) or Bill of Lading (BOL).

The Soil Profiling Package must be sent electronically to Lighthouse which will be reviewed, and; if acceptable, forwarded to the Site LSP. The Site LSP will review the package and will issue a letter of acknowledgement and acceptance to Lighthouse or the generator for countersignature. The package will then be forwarded to the generator.

If sufficient analytical data is not available from the generator, the owner, Lighthouse or the Site LSP, will require that the generator of the soils collect additional samples. This will ensure that, at a minimum, all concentrations of potential contaminants in the material are less than the Acceptance Criteria set forth in this plan and the equivalent frequency of testing requirements established in **Sections 5 through 7** of this SRMP. This will enable Lighthouse to provide the necessary background information to verify that material deposited in the Site is acceptable.

In some cases, crushed bedrock may also be accepted and physical/chemical analysis of the rock will be determined on a case-by-case basis for its intended use.

9.2 Soil Placement and Tracking

Once the analytical data from the proposed generator's property has been reviewed and approved by the owner, Lighthouse, and the Site LSP, the soils will be designated to a specific area which will be logged into the facility's database, with the estimated quantity. All soils being placed in the applicable area will require a MassDEP Material Shipping Record (MSR) or Bill-of- Lading (BOL) to accompany each truckload. The designated area will be noted on all MSRs or BOLs. The Site LSP will periodically inspect the Site and records on file at the Site for conformance with this plan.

The fill material will be spread in loose lifts not exceeding 24 inches. Soil placement will be outside of any established wetland buffer zones and compacted by multiple passes with a bulldozer. Materials will be spread and compacted daily. When grading and compacting material, no slope shall be greater than 3:1.

Lighthouse will maintain a daily log of the following activities:

- Name of trucking firm transporting fill material to the site.
- Weight and source of material for each truck.
- Physical characteristic and results of headspace screening if any for each truck.
- Location of the fill placed in the site.

The scale is located at the entrance to the Site. Directions to the Site from I-190 are provided in **Attachment H.** Once the truck has been weighed on a certified scale it will be directed to place the material into a specific area. The appropriate paperwork will be left on site at a designated location or handed directly to on-site personnel. The Soil piles will be placed within the designated area to be filled and will be spread out by the Site earth-works contractor until the desired grade is met. Then the area will be noted and coded in the files.

If the on-site personnel deem the material to be suspect after dumping, the load will be rejected and coordination made for it to be re-loaded and sent back to the generator for additional testing, at the generator's expense. If loads are received that contain large pieces of solid waste, the pieces will be segregated and stockpiled for re-loading and transport back to the site of origin at the generator's expense.

10 Other Considerations

10.1 Site Access and Quantity Estimating

Directions to the site are provided in Attachment G and the Site is about 12 miles from I-190. Prior to shipment, trucks will be weighed at a certified scale. Access will be through the access road into the Site and to the given phase area as directed by Lighthouse. Roadways will be maintained for truck access. Hours of operation are 7:00 am to 4:30 pm from Monday to Friday and some Saturdays. The Site Operations Manager maintains the appropriate equipment year-round to spread, dry, and compact the soils.

10.2 Dust and Sediment Control

The Owner will utilize the following measures to control fugitive dust and sediment associated with transporting, spreading and compacting soil to fill the Site:

- Filling operations shall be suspended when winds speeds exceed 40 mile per hour or when wind carries dust beyond the property line despite implementation of dust control measures.
- An operational water truck will be used when needed. Water will be applied to control dust as needed to prevent visible dust emissions and offsite dust impacts.
- Truck and trailer dumping of soil will be conducted in a manner to minimize fugitive dust generation.
- A gravel tracking pad will be constructed, if needed, at the equipment/vehicle site exit point to remove soil buildup from wheels and tracks and to assist in minimizing track-out onto public ways.
- Roads from the Site will be swept as needed to control fugitive dust and tracking of soil/sediment onto the public way.
- Erosion controls have been installed at the wetland buffer zones. Erosion controls include a series of sediment traps, hay bales, flocculent polymer ("floc logs") and crushed stone filter berms. The SWPPP provides final documentation on wetland buffer zones and runoff protection.

10.3 Health and Safety

Site specific Health and Safety measures will be implemented by the Operator to specify the types of personal protection, and engineering controls, to manage physical hazards associated with soil work. No environmental monitoring will be necessary as soils are < RCS-1 and will not constitute unacceptable exposures to contaminated soil through ingestion, dermal contact and inhalation.

10.4 Ground Water Monitoring

One upgradient and two downgradient monitoring wells will be installed in the saturated overburden. One week after they are installed, the wells will be purged and sampled for all the acceptance criteria described in Section 6. Two years after completion of the project, the downgradient wells will be purged and sampled for all the acceptance criteria described in Section 6. During operation of the facility, the wells will be sampled annually for MCP-14 metals (dissolved) and VOCs.

11 Inspections, Monitoring and Reporting

The following record keeping and reporting will be conducted at the site:

- Lighthouse will keep daily and weekly tally sheets of soil that comes into the facility along with notes as to the observable characteristics of the soil.
- The general locus of where soil is placed in the Site will be noted on a site plan.

The following inspections and reports will be required:

A. Independent Third Party Inspections

Independent Third Party inspects will occur monthly and include:

i. Observe the practices involved in the receipt and/or placement of soil and fill materials at the Property;
ii. Inspect the soil and fill materials that are being unloaded and/or 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;
iii. Collect one QA/QC soil sample for laboratory testing for all of the parameters listed in Section 6.0.
iv. Collect a minimum of six spot elevation measurements within the filled areas of the Property with respect to established benchmarks using a hand-held GPS; and
v. Inspect all erosion control measures including but not limited to, silt fence, hay bales, temporary basins and swales.

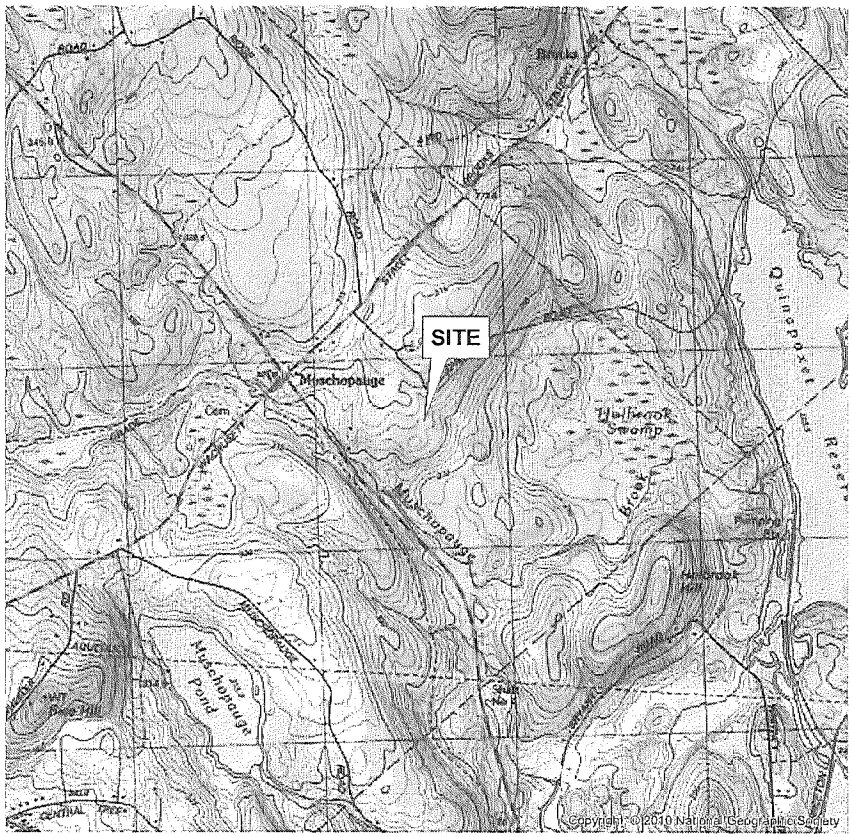
B. Independent Third Party Inspection Reports

Monthly reports will be prepared by Independent Third Party and submitted to Lighthouse and DEP and must include the information required in the Administrative Consent Order (ACO).

C. Construction Status Reports

Construction Status Reports certified by Lighthouse and the Project LSP will be prepared quarterly by Lighthouse and must include the information required in the ACO.

Figures



0.45 0.225 0 0.45 0.9

Miles

Scale: 1:24,000

29 Overlook Road
Rutland, Massachusetts 01543-2014

FIGURE 1

SITE LOCUS MAP
UNITED STATES GEOLOGICAL SURVEY
WACHUSETT MTN. AND PAXTON, MASS. QUADRANGLES

Contour Interval: 3 m

Latitude/Longitude:
42° 24' 45" North
71° 53' 50" West

N
W E
S

EnviroTrac
Environmental Services

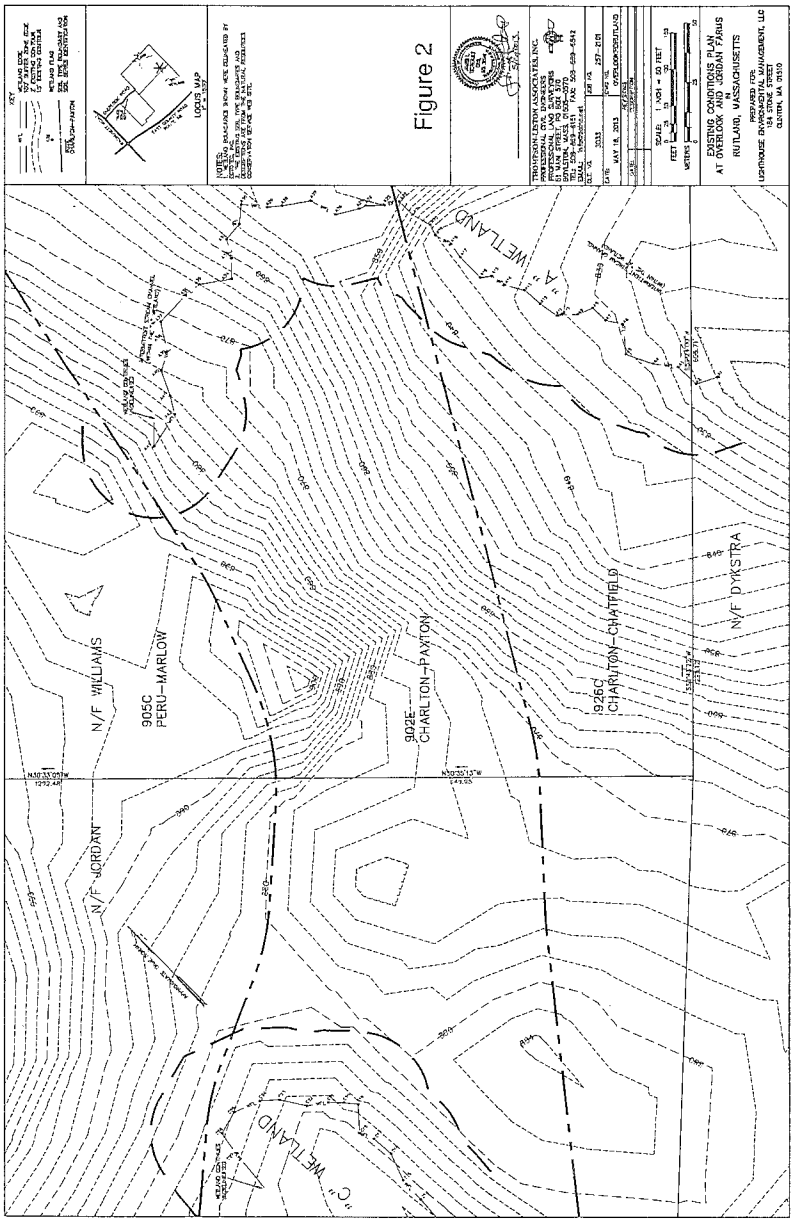


Figure 2

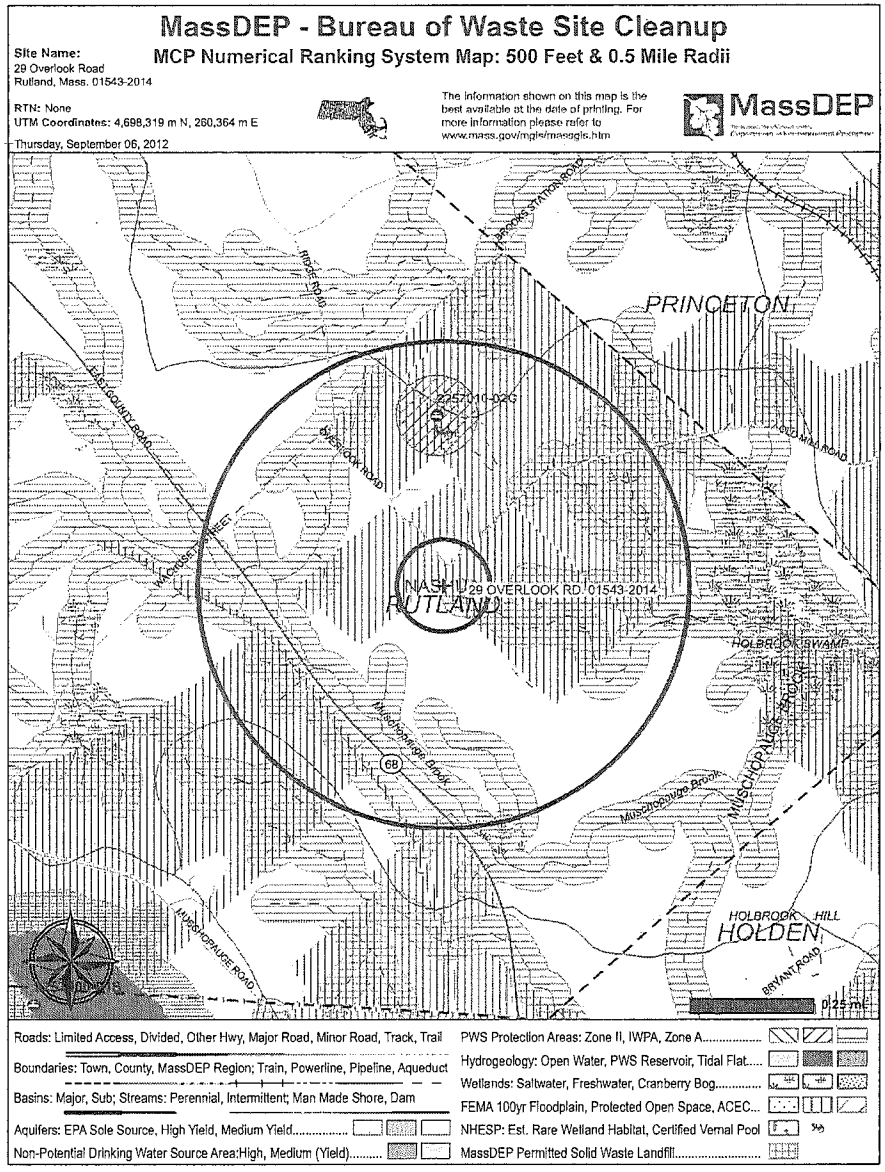
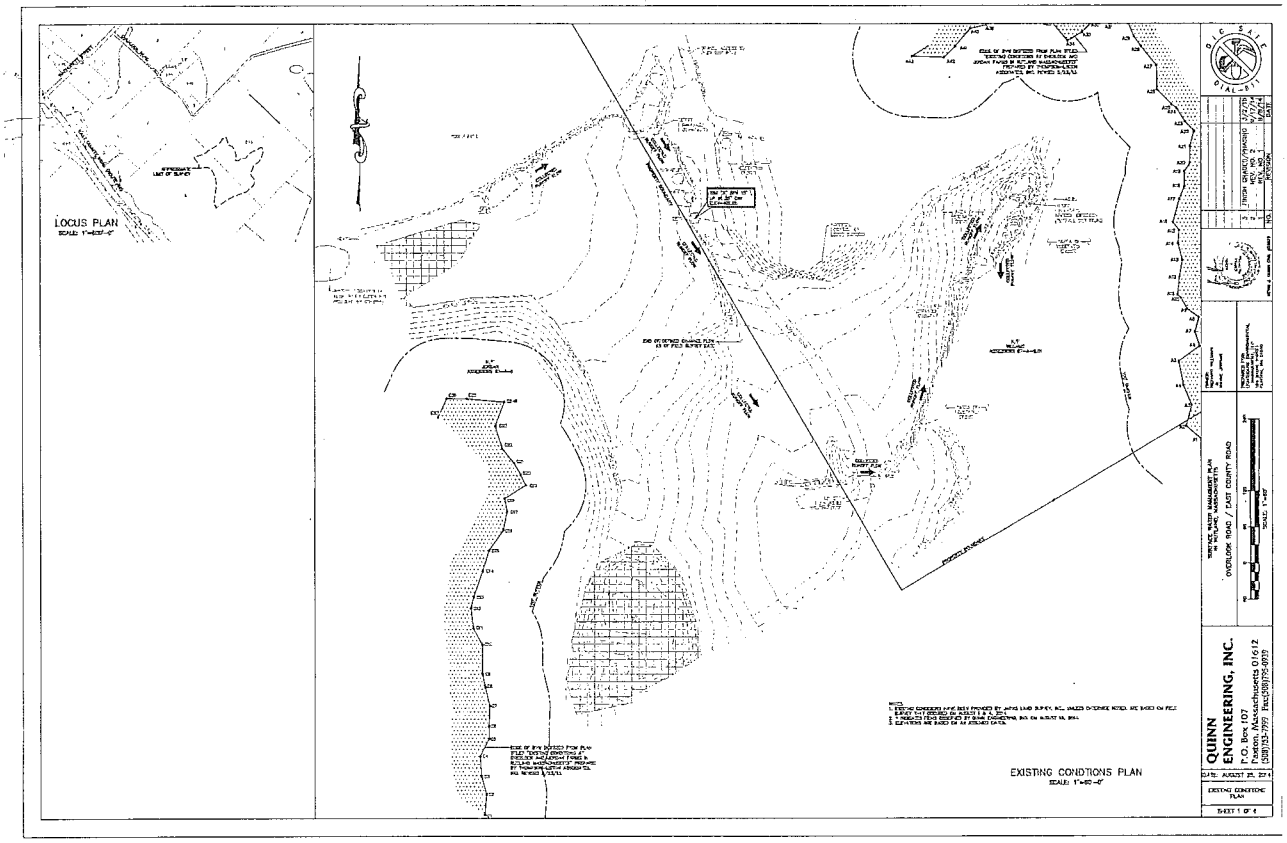
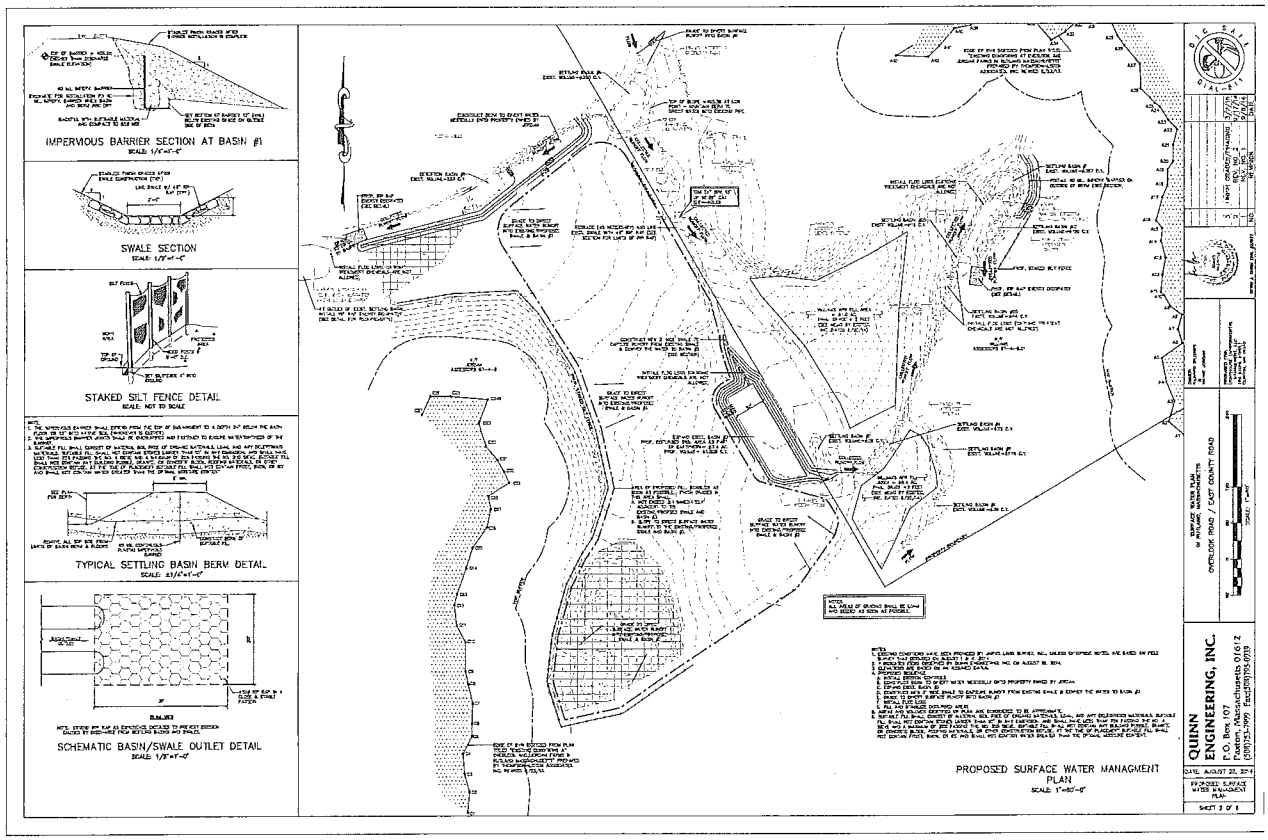
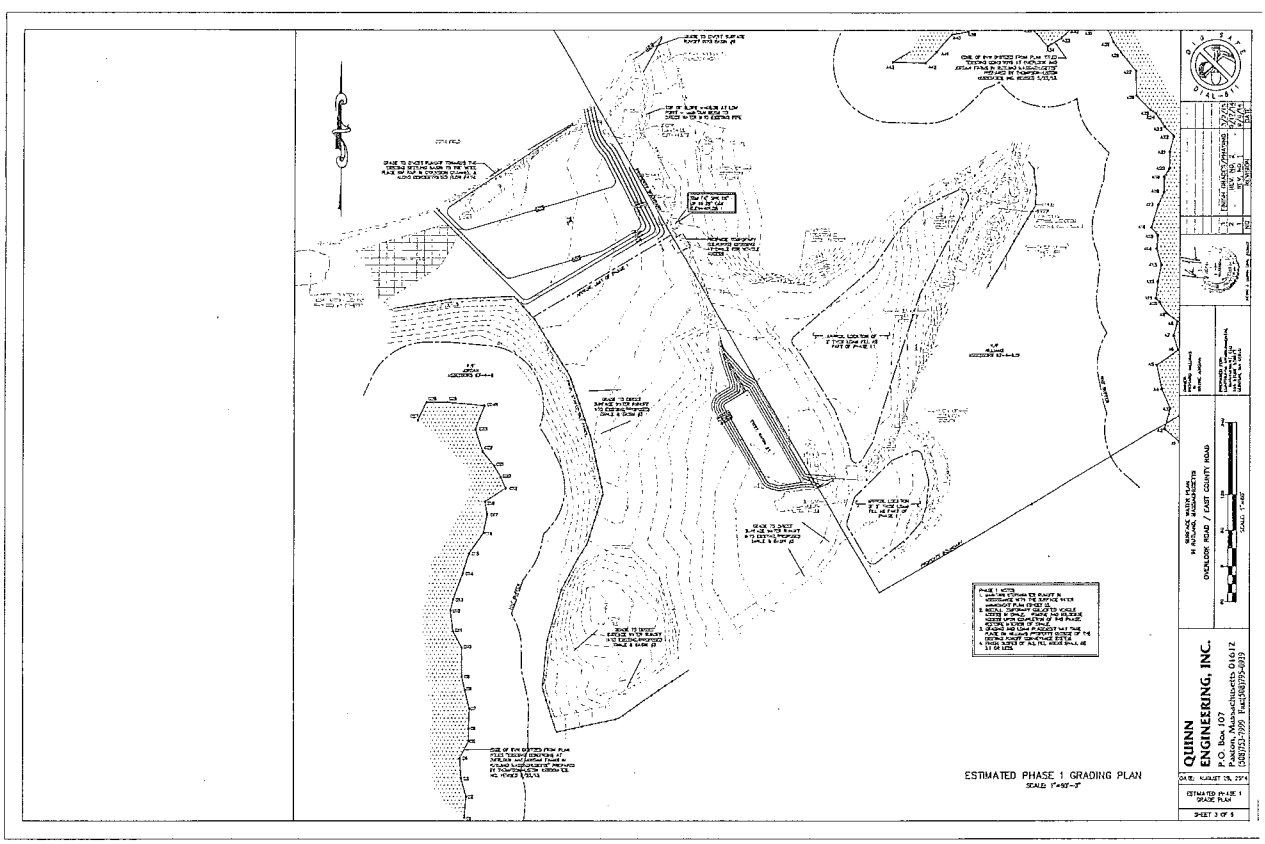
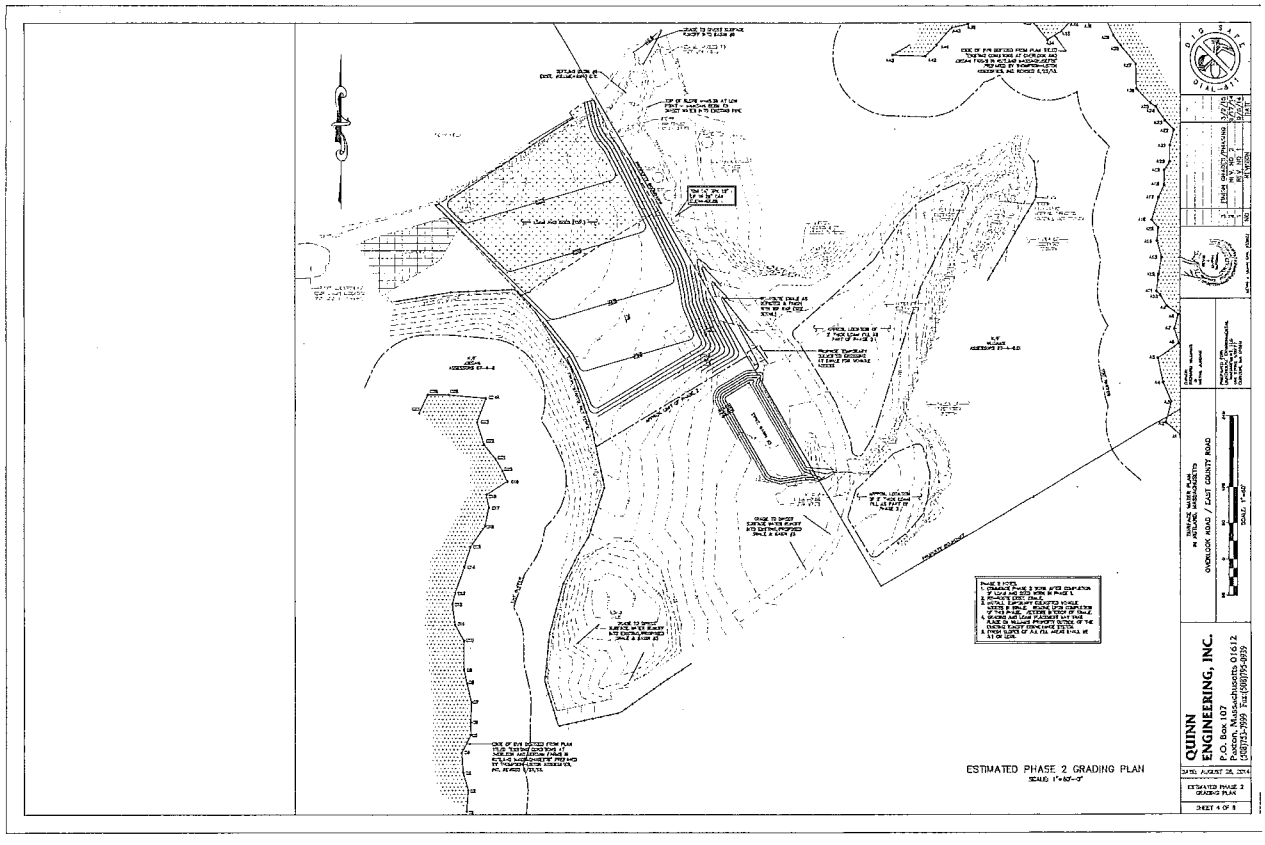


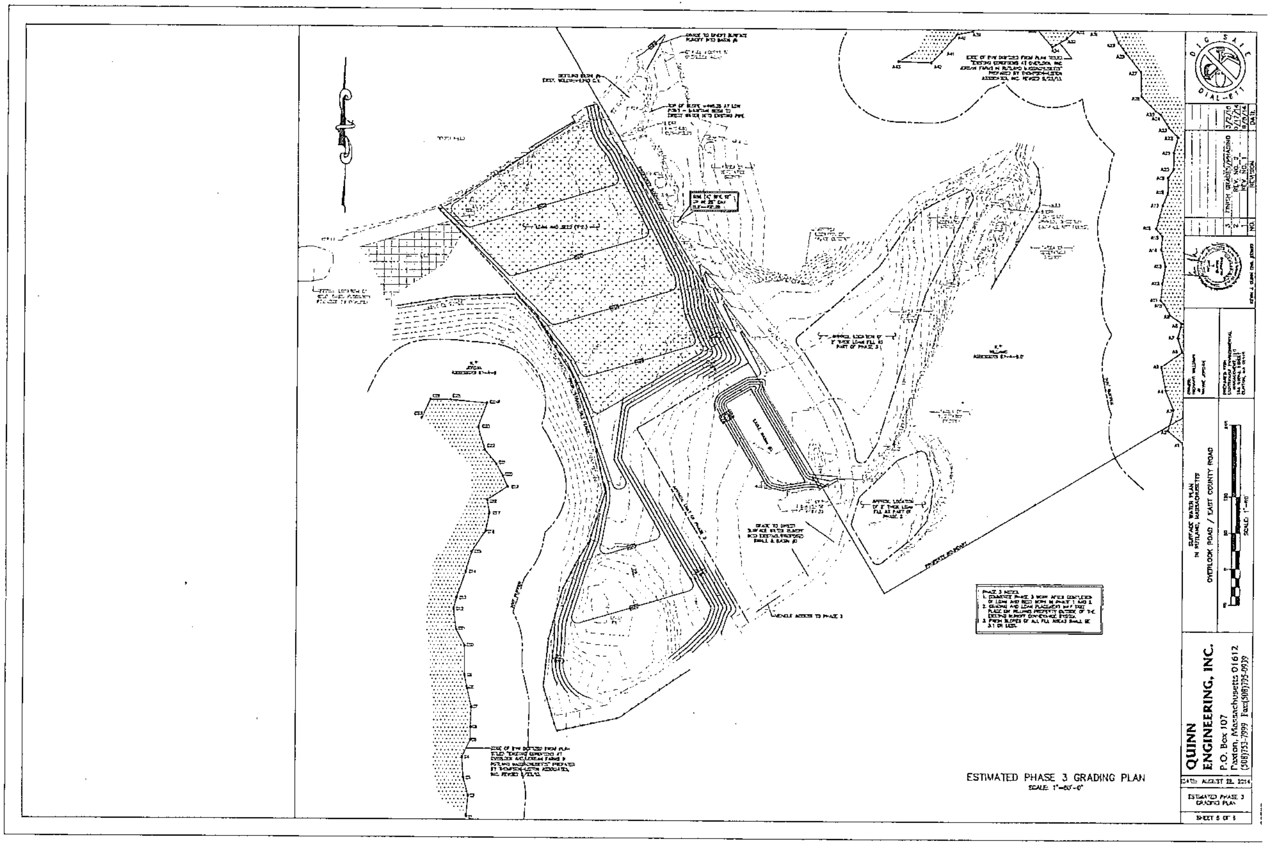
Figure 3

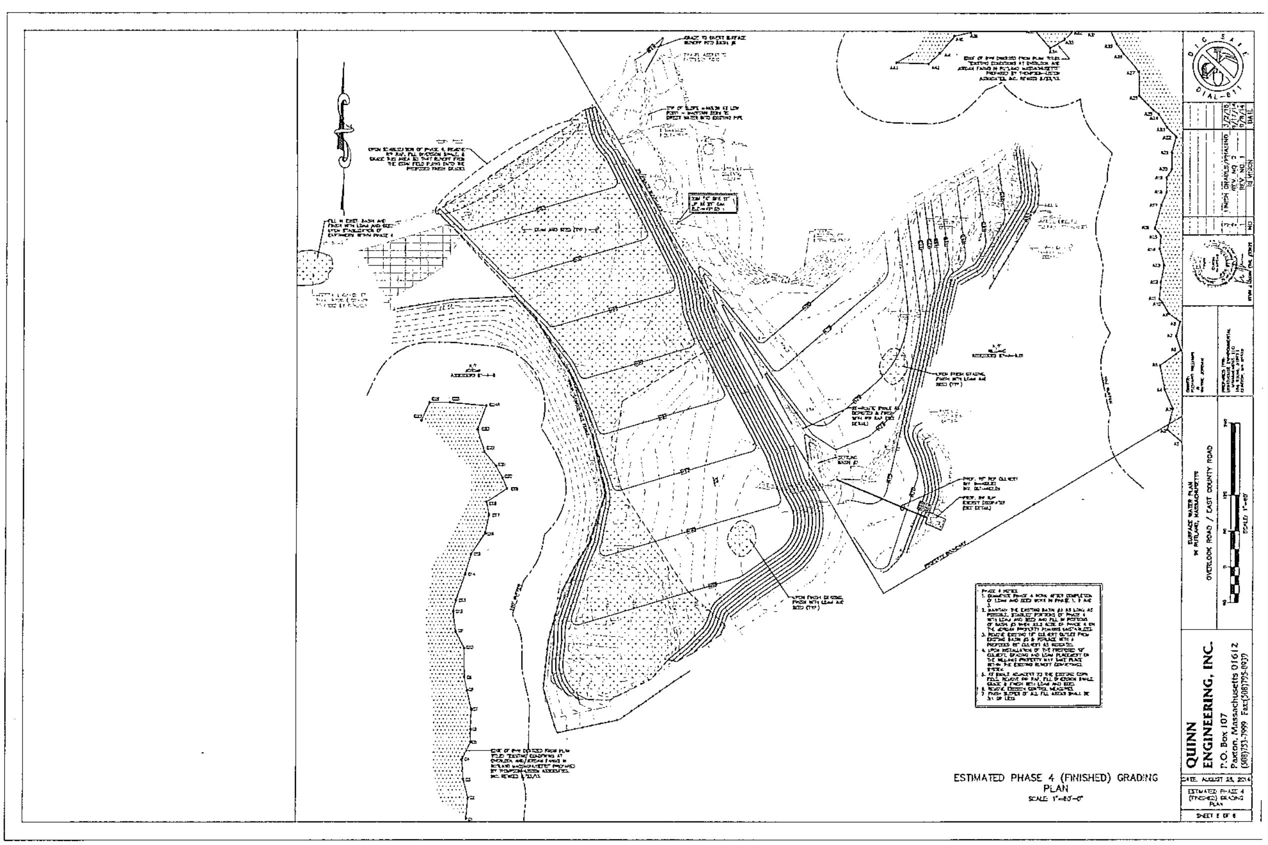

LOCUS PLAN
SCALE: 1"=600'-0"
EXISTING CONDITIONS PLAN
SCALE: 1"=80'-0"
QUINN ENGINEERING, INC.
P.O. Box 107
Foxboro, Massachusetts 01612
(508)753-7999 Fax(508)795-0939
OVERLOOK ROAD / EAST COUNTY ROAD
DATE: AUGUST 25, 2014
EXISTING CONDITIONS PLAN
SHEET 1 OF 4


IMPERVIOUS BARRIER SECTION AT BASIN #1
SCALE: 1/4"=1'-0"
SWALE SECTION
SCALE: 1/2"=1'-0"
STAKED SILT FENCE DETAIL
SCALE: NOT TO SCALE
TYPICAL SETTLING BASIN BERM DETAIL
SCALE: 3/4"=1'-0"
SCHEMATIC BASIN/SWALE OUTLET DETAIL
SCALE: 1/8"=1'-0"
PROPOSED SURFACE WATER MANAGMENT PLAN
SCALE: 1"=80'-0"
QUINN ENGINEERING, INC.
P.O. Box 107
Foxboro, Massachusetts 01612
(508)753-7999 Fax(508)795-0939
OVERLOOK ROAD / EAST COUNTY ROAD
DATE: AUGUST 25, 2014
PROPOSED SURFACE WATER MANAGEMENT PLAN
SHEET 2 OF 4


ESTIMATED PHASE 1 GRADING PLAN
SCALE: 1"=50'-0"
QUINN ENGINEERING, INC.
P.O. Box 107
Paxton, Massachusetts 01612
(508)753-7599 Fax:(508)755-6919
OVERLOOK ROAD / EAST COUNTY ROAD
SCALE: 1"=40'
DATE: AUGUST 26, 2014
ESTIMATED PHASE 1 GRADING PLAN
SHEET 3 OF 5


ESTIMATED PHASE 2 GRADING PLAN
SCALE: 1"=50'-0"
QUINN ENGINEERING, INC.
P.O. Box 107
Paxton, Massachusetts 01612
(508)753-7599 Fax:(508)755-6919
OVERLOOK ROAD / EAST COUNTY ROAD
SCALE: 1"=40'
DATE: AUGUST 26, 2014
ESTIMATED PHASE 2 GRADING PLAN
SHEET 4 OF 5


QUINN ENGINEERING, INC.
P.O. Box 107
Paxton, Massachusetts 01612
(508)753-7999 Fax(508)795-0939
ESTIMATED PHASE 3 GRADING PLAN
SCALE: 1"=80'-0"
OVERLOOK ROAD / EAST COUNTY ROAD


QUINN ENGINEERING, INC.
P.O. Box 107
Paxton, Massachusetts 01612
(508)753-7999 Fax(508)795-0939
ESTIMATED PHASE 4 (FINISHED) GRADING PLAN
SCALE: 1"=80'-0"
OVERLOOK ROAD / EAST COUNTY ROAD

Tables

TABLE 1

SUMMARY OF SOIL ACCEPTANCE CRITERIA , Revised 7/9/2014

OVERLOOK FARMS, RUTLAND, MA

Parameter	Standards		Acceptance Criteria		Comments (refer to notes below)
	Concentration in "Natural" Soil	MCP RCS-1 Reportable Concentrations		Calculated Acceptance Criteria	
GC/MS SEMI VOC/PAHs BY 8270D (mg/kg)					
1,1-Biphenyl	NE	0.05	<	0.005	*
1,2,4-Trichlorobenzene	NE	2	<	0.2	*
1,2-Dichlorobenzene	NE	9	<	0.9	*
1,3-Dichlorobenzene	NE	1	<	0.1	*
1,4-Dichlorobenzene	NE	1	<	0.1	*
2,4,5-Trichlorophenol	NE	4	<	0.4	*
2,4,6-Trichlorophenol	NE	1	<	0.1	*
2,4-Dichlorophenol	NE	1	<	0.1	*
2,4-Dimethylphenol	NE	1	<	0.1	*
2,4-Dinitrophenol	NE	3	<	0.3	*
2,4-Dinitrotoluene	NE	1	<	0.1	*
2,6-Dinitrotoluene	NE	100	<	10	*
2-Chloronaphthalene	NE	1,000	<	100	*
2-Chlorophenol	NE	1	<	0.1	*
2-Methylnaphthalene	0.5	0.7	<	<0.7	**
2-Methylphenol	NE	NE		NE	***
2-Nitrophenol	NE	100	<	10	*
3,3'-Dichlorobenzidine	NE	3	<	0.3	*
3+4-Methylphenol	NE	NE		NE	***
4-Bromophenyl phenyl ether	NE	100	<	10	*
4-Chloroaniline	NE	1	<	0.1	*
4-Nitrophenol	NE	100	<	10	*
Acenaphthene	0.5	4	<	<4	**
Acenaphthylene	0.5	1	<	<1	**
Acetophenone	NE	1,000	<	100	*
Aniline	NE	1,000	<	100	*
Anthracene	1	1,000	<	<10	**
Azobenzene	NE	NE		NE	***
Benzo[a]anthracene	2	7	<	<7	**
Benzo[a]pyrene	2	2	<	<2	**
Benzo[b]fluoranthene	2	7	<	<7	**
Benzo[g,h,i]perylene	1	1,000	<	<10	**
Benzo[k]fluoranthene	1	70	<	<10	**
Bis(2-chloroethoxy)methane	NE	500	<	50	*
Bis(2-chloroethyl)ether	NE	1	<	0.1	*
Bis(2-ethylhexyl) phthalate	NE	90	<	9	*
Butyl benzyl phthalate	NE	100	<	10	*
Chrysene	2	70	<	<20	**

TABLE 1

SUMMARY OF SOIL ACCEPTANCE CRITERIA , Revised 7/9/2014

OVERLOOK FARMS, RUTLAND, MA

Parameter	Standards		Acceptance Criteria		Comments (refer to notes below)
	Concentration in "Natural" Soil	MCP RCS-1 Reportable Concentrations		Calculated Acceptance Criteria	
Dibenz(a,h)anthracene	0.5	0.7	<	<0.7	**
Dibenzofuran	NE	100	<	10	*
Diethyl phthalate	NE	10	<	1	*
Dimethyl phthalate	NE	0.7	<	0.07	*
Di-n-butyl phthalate	NE	50	<	5	*
Di-n-octyl phthalate	NE	1,000	<	100	*
Fluoranthene	4	1,000	<	<40	**
Fluorene	1	1,000	<	<10	**
Hexachlorobenzene	NE	1	<	0.1	*
Hexachlorobutadiene	NE	30	<	3	*
Hexachloroethane	NE	1	<	0.1	*
Indeno[1,2,3-cd]pyrene	1	7	<	<7	**
Isophorone	NE	100	<	10	*
Naphthalene	0.5	4	<	<4	**
Nitrobenzene	NE	500	<	50	*
n-Nitrosodimethylamine	NE	50	<	5	*
Pentachlorophenol	NE	3	<	0.3	*
Phenanthrene	3	10-600	<	<10	**
Phenol	NE	1	<	0.1	*
Pyrene	4	1,000	<	<40	**
GC/MS VOA BY 8260C (mg/kg)					
1,1,1,2-Tetrachloroethane	NE	0.1	<	0.01	*
1,1,1-Trichloroethane	NE	30	<	3	*
1,1,2,2-Tetrachloroethane	NE	0.005	<	0.0005	*
1,1,2-Trichloroethane	NE	0.1	<	0.01	*
1,1-Dichloroethane	NE	0.4	<	0.04	*
1,1-Dichloroethene	NE	3	<	0.3	*
1,1-Dichloropropene	NE	NE		NE	***
1,2,3-Trichlorobenzene	NE	NE		NE	***
1,2,3-Trichloropropane	NE	100	<	10	*
1,2,4-Trichlorobenzene	NE	2	<	0.2	*
1,2,4-Trimethylbenzene	NE	1,000	<	100	*
1,2-Dibromo-3-Chloropropane	NE	10	<	1	*
1,2-Dibromoethane	NE	0.1	<	0.01	*
1,2-Dichlorobenzene	NE	9	<	0.9	*
1,2-Dichloroethane	NE	0.1	<	0.01	*
1,2-Dichloropropane	NE	0.1	<	0.01	*
1,3,5-Trimethylbenzene	NE	10	<	1	*
1,3-Dichlorobenzene	NE	3	<	0.3	*

TABLE 1

SUMMARY OF SOIL ACCEPTANCE CRITERIA , Revised 7/9/2014

OVERLOOK FARMS, RUTLAND, MA

Parameter	Standards		Acceptance Criteria		Comments (refer to notes below)
	Concentration in "Natural" Soil	MCP RCS-1 Reportable Concentrations		Calculated Acceptance Criteria	
1,3-Dichloropropane	NE	500	<	50	*
1,4-Dichlorobenzene	NE	1	<	0.1	*
1,4-Dioxane	NE	0.2	<	0.02	*
2,2-Dichloropropane	NE	NE		NE	***
2-Butanone (MEK)	NE	4	<	0.4	*
2-Chlorotoluene	NE	100	<	10	*
2-Hexanone	NE	100	<	10	*
4-Chlorotoluene	NE	NE		NE	***
4-Isopropyltoluene	NE	NE		NE	***
4-Methyl-2-pentanone (MIBK)	NE	NE		NE	***
Acetone	NE	6	<	0.6	*
Acrolein-Screen	NE	NE		NE	***
Benzene	NE	2	<	0.2	*
Bromobenzene	NE	100	<	10	*
Bromochloromethane	NE	0.005	<	0.0005	*
Bromodichloromethane	NE	0.1	<	0.01	*
Bromoform	NE	0.1	<	0.01	*
Bromomethane	NE	1	<	0.1	*
Carbon disulfide	NE	100	<	10	*
Carbon tetrachloride	NE	5	<	0.5	*
Chlorobenzene	NE	1	<	0.1	*
Chlorodibromomethane	NE	0.005	<	0.0005	*
Chloroethane	NE	100	<	10	*
Chloroform	NE	0.2	<	0.02	*
Chloromethane	NE	100	<	10	*
cis-1,2-Dichloroethene	NE	0.1	<	0.01	*
cis-1,3-Dichloropropene	NE	NE		NE	***
Dibromochloromethane	NE	0.005	<	0.0005	*
Dibromomethane	NE	500	<	50	*
Dichlorodifluoromethane	NE	1,000	<	100	*
Diethyl ether	NE	100	<	10	*
Di-Isopropyl ether	NE	NE		NE	***
Ethylbenzene	NE	40	<	4	*
Hexachlorobutadiene	NE	6	<	0.6	*
Isopropylbenzene	NE	1,000	<	100	*
Methyl tert-butyl ether	NE	0.1	<	0.01	*
Methylene Chloride	NE	0.1	<	0.01	*
m-Xylene & p-Xylene	NE	100	<	10	*
Naphthalene	NE	4	<	0.4	*

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OVERLOOK FARMS, RUTLAND, MA

Parameter	Standards		Acceptance Criteria		Comments (refer to notes below)
	Concentration in "Natural" Soil	MCP RCS-1 Reportable Concentrations		Calculated Acceptance Criteria	
n-Butylbenzene	NE	NE		NE	***
N-Propylbenzene	NE	100	<	10	*
o-Xylene	NE	100	<	10	*
sec-Butylbenzene	NE	NA		NE	***
Styrene	NE	3	<	0.3	*
Tert-amyl methyl ether	NE	NE		NE	***
Tert-butyl ethyl ether	NE	NE		NE	***
tert-Butylbenzene	NE	100	<	10	*
Tetrachloroethene	NE	1	<	0.1	*
Tetrahydrofuran	NE	500	<	50	*
Toluene	NE	30	<	3	*
trans-1,2-Dichloroethene	NE	1	<	0.1	*
trans-1,3-Dichloropropene	NE	NE		NE	***
Trichloroethene	NE	0.3	<	0.03	*
Trichlorofluoromethane	NE	1,000	<	100	*
Vinyl chloride	NE	0.7	<	0.07	*
GC SEMI VOA BY 8100 Modified					
TPH	NE	1,000	<	500	1/2 RCS-1 per MADEP
MA EPH Aliphatic/Aromatic Ranges by MADEP CAM IV B					
C9-C18 Aliphatic	NE	1,000	<	500	1/2 RCS-1 per MADEP
C19-C36 Aliphatic	NE	3,000	<	1,500	1/2 RCS-1 per MADEP
C11-C22 Aromatic	NE	1,000	<	500	1/2 RCS-1 per MADEP
Pesticides BY 8081B (mg/kg)					
4,4'-DDD	NE	8	<	0.15	
4,4'-DDE	NE	6	<	0.15	
4,4'-DDT	NE	6	<	0.15	
Aldrin	NE	0.08	<	0.08	
alpha-BHC	NE	50	<	0.15	
beta-BHC	NE	10	<	0.15	
Chlordane (technical)	NE	5	<	0.15	
delta-BHC	NE	10	<	0.15	
Dieldrin	NE	0.08	<	0.08	
Endosulfan I	NE	0.5	<	0.15	
Endosulfan II	NE	0.5	<	0.15	
Endosulfan sulfate	NE	NA	<	0.15	
Endrin	NE	10	<	0.15	
Endrin ketone	NE	NA	<	0.15	
gamma-BHC (Lindane)	NE	0.003	<	0.003	
Heptachlor	NE	0.3	<	0.15	

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OVERLOOK FARMS, RUTLAND, MA

Parameter	Standards		Acceptance Criteria		Comments (refer to notes below)
	Concentration in "Natural" Soil	MCP RCS-1 Reportable Concentrations		Calculated Acceptance Criteria	
Heptachlor epoxide	NE	0.1	<	0.1	
Hexachlorobenzene	NE	0.7	<	0.15	
Methoxychlor	NE	200	<	0.15	
PCBs BY 8082A (mg/kg)					
PCB-1016	NE	1	<	0.1	
PCB-1221	NE	1	<	0.1	
PCB-1232	NE	1	<	0.1	
PCB-1242	NE	1	<	0.1	
PCB-1248	NE	1	<	0.1	
PCB-1254	NE	1	<	0.1	
PCB-1260	NE	1	<	0.1	
PCB-1262	NE	1	<	0.1	
PCB-1268	NE	1	<	0.1	
Herbicides BY 8151A (mg/kg)					
2,4,5-T	NE	NA	<	0.03	
2,4-D	NE	NA	<	0.03	
2,4-DB	NE	NA	<	0.03	
Dalapon	NE	NA	<	0.03	
Dicamba	NE	NA	<	0.03	
Dichlorprop	NE	NA	<	0.03	
Dinoseb	NE	NA	<	0.03	
Silvex (2,4,5-TP)	NE	100	<	0.03	
METALS BY various methods (see notes below) (mg/kg)					
Antimony	1	20	<	10	**
Arsenic	20	20	<	20	**
Barium	50	1,000	<	375	**
Beryllium	0.4	90	<	4	**
Cadmium	2	70	<	20	**
Chromium (Total)	30	100	<	<100	**
Chromium (Tri)	30	1,000	<	225	**
Chromium (Hex)	30	100	<	<100	**
Copper	40	NE	<	300	**
Lead	100	200	<	200	**
Mercury	0.3	20	<	3	**
Nickel	20	600	<	150	**
Selenium	0.5	400	<	5	**
Silver	0.6	100	<	6	**
Thallium	0.6	8	<	6	**
Vanadium	30	400	<	225	**

TABLE 1

SUMMARY OF SOIL ACCEPTANCE CRITERIA , Revised 7/9/2014

OVERLOOK FARMS, RUTLAND, MA

Parameter	Standards		Acceptance Criteria		Comments (refer to notes below)
	Concentration in "Natural" Soil	MCP RCS-1 Reportable Concentrations	Calculated Acceptance Criteria		
Zinc	100	1000	<	500	**
GENERAL CHEMISTRY BY MOISTURE (%)					
Percent Solids	NE	NA		NA	
GENERAL CHEMISTRY BY SM 2510B (umhos/cm)					
Specific Conductance (umhos/cm)	NE	NA		2000	
Flashpoint (EPA 1010)	NE	NA	>	140	
pH/Corrosivity (EPA 9045)	NE	NA		5.0-9.0	
Reactive Sulfide/Cyanide	NE	NA		500/250	
PID SCREENING	NE	NA	<	10 ppmv	
asbestos fibers	NE	NA		ND	

NOTES:

VOC is volatile organic compounds

PAH is polycyclic aromatic hydrocarbons

VOA is volatile organic analysis

PCB is polychlorinated biphenyls

TPH is total petroleum hydrocarbons

NE is Not Established

VOCs/Pest/Herbs: No VOCs can be accepted. Trace levels of pesticides/herbicides can be accepted on a case by case basis

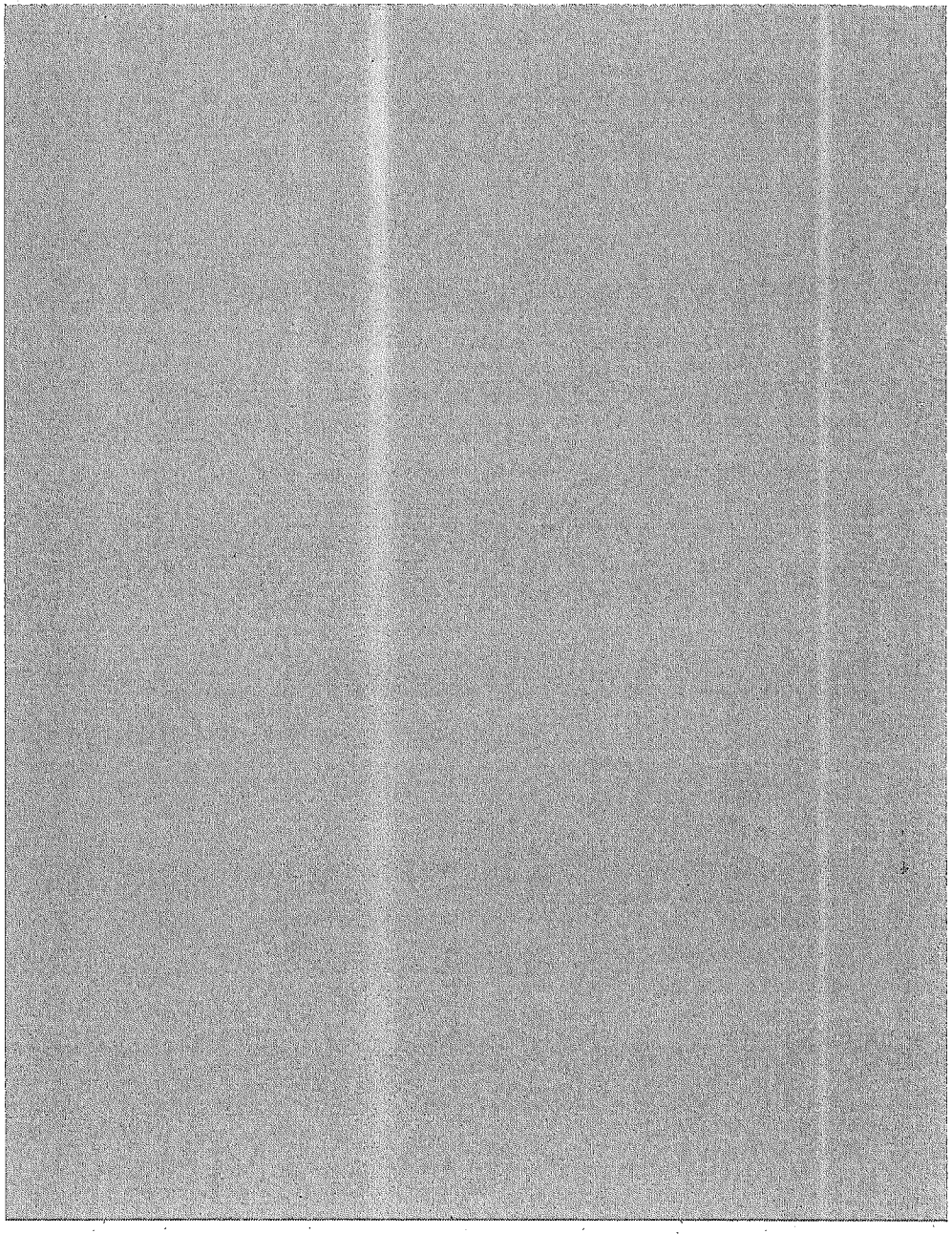
^ Represents one-half of the laboratory detection limit

* Represents 10% of RCS-1 concentration

** Refer to WSC 13-500, Table 2, Limiting Soil Concentration

*** To be determined on a case by case basis

MCP-14 Metals (EPA Methods 6010 and 7470 (for mercury) and 7010 for thallium))	
Antimony	Mercury
Arsenic	Nickel
Barium	Selenium
Beryllium	Silver
Cadmium	Thallium
Chromium	Vanadium
Lead	Zinc



Attachments

Attachment A

BioMix Report

Jordan Dairy Farm Biomix Project

Located on Overlook Road, Rutland, Ma

August 17, 2011

SUBMITTED BY

James Talvy
New England Organics
138 North Main Street
West Brookfield, MA, 01585
Mobile Phone: (508) 612-0945
Office Phone: (603) 228-6428

Project Description

7/1/2011

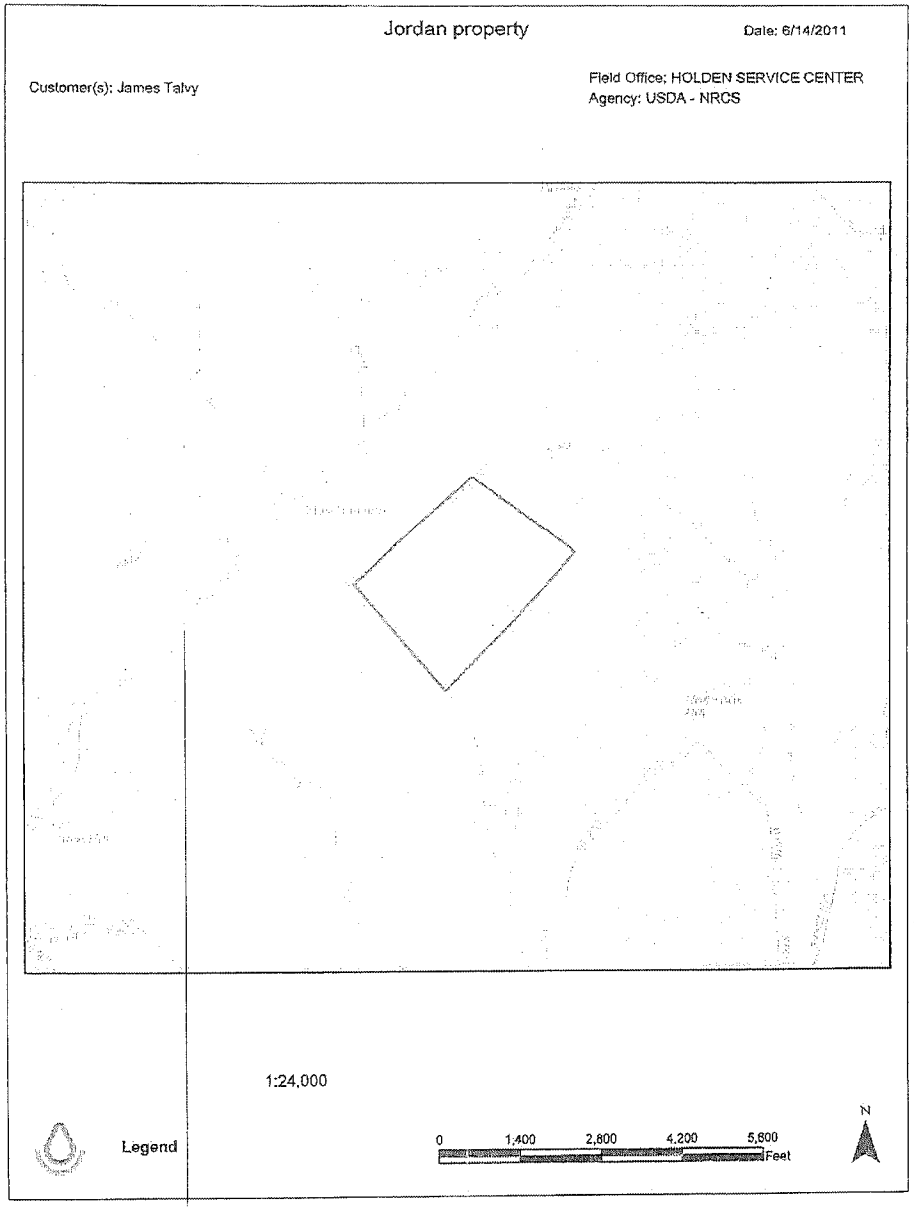
New England Organics proposes the creation of new crop fields for the expansion of the Jordan Dairy Farm in Rutland, Massachusetts. This particular site was previously a woodland area, which was cleared for the purpose of creating new farmland. During the clear cutting process which involved the removal of stumps and large rocks, the growth layer was altered. To improve this area, a manufactured topsoil will be created on site through a blending process which will combine short paper fiber, existing soil and compost to help create new organic material. This type of manufactured topsoil, known as Biomix, results in a new nutrient balanced growth medium. The erosion resistance and high water holding capacity make Biomix an ideal product for creating and maintaining the nutrient level within the soil. The paper fiber used to produce this product originates at the Erving Paper Mill, located in Erving, Massachusetts. The wastewater treatment plant in Erving also collects a small amount of residential sanitary wastewater. The sanitary flow represents about 2% of the total flow to the wastewater treatment facility.

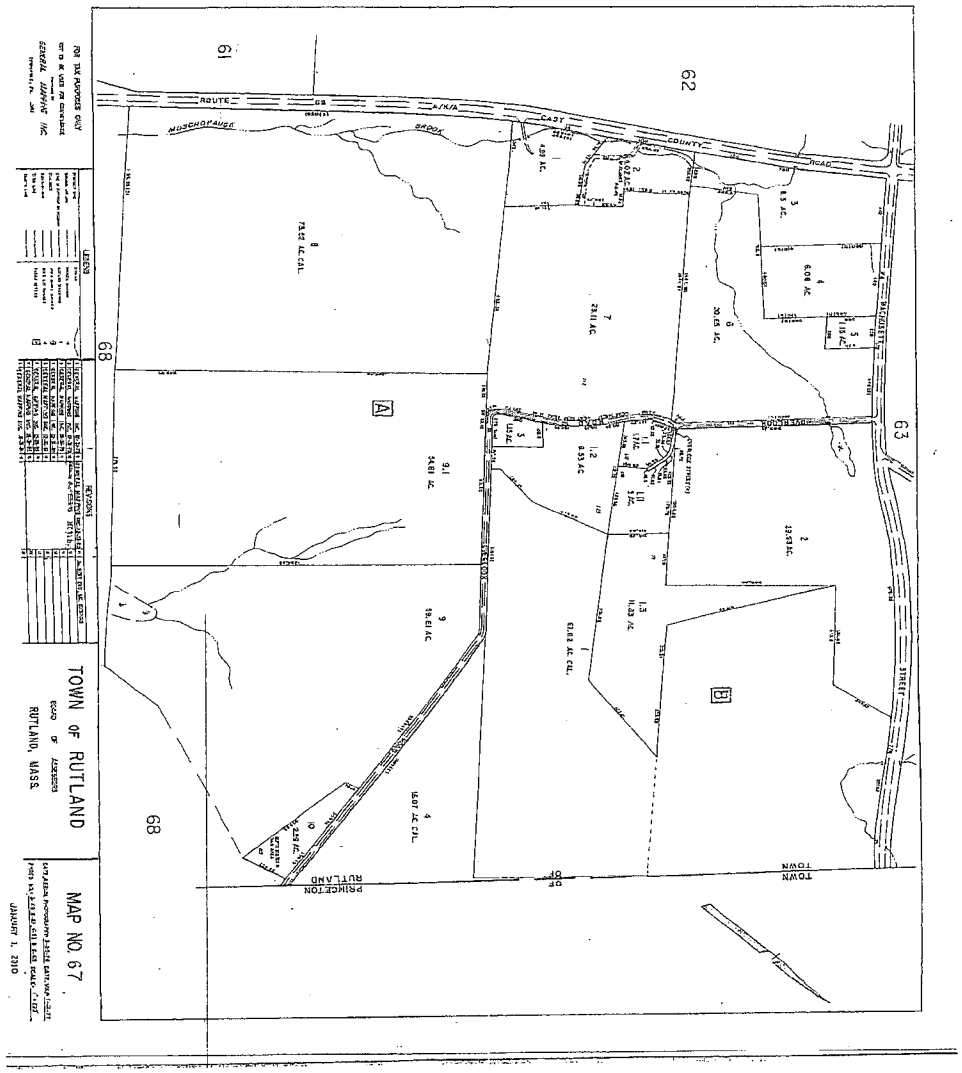
The Biomix product will be applied to the land in question using traditional agricultural incorporation methods. New England Organics guarantees the growth of grass on land used for their Biomix projects. The company personnel will also monitor the project at all stages, and will follow up with land owners after the project has been completed. By doing this, the people of New England Organics will assure the operators and town administrators that the job was completed as planned.

The Biomix program has, as its main purpose, the revegetation of disturbed lands, specifically the land owned by the operators of Jordan Farm. There are several

advantages to the Biomix product when compared to natural loams. These include higher levels of moisture retention, and erosion resistance, both important factors on damaged land being restored. In addition, the use of Biomix increases the sustainability of the land in question: Parcels of land onto which Biomix has been incorporated do not require the high levels of maintenance or fertilizer other types of land used for plant growth and other commercial uses typically require. Furthermore, due to the fact that natural sources of nitrogen are used in the production of Biomix, high use of potentially harmful synthetic sources of nitrogen are not necessary on areas of land onto which Biomix has been applied.

James Talvy
138 North Main Street
West Brookfield, MA. 01585
(508) 612-0945
james.talvy@casella.com



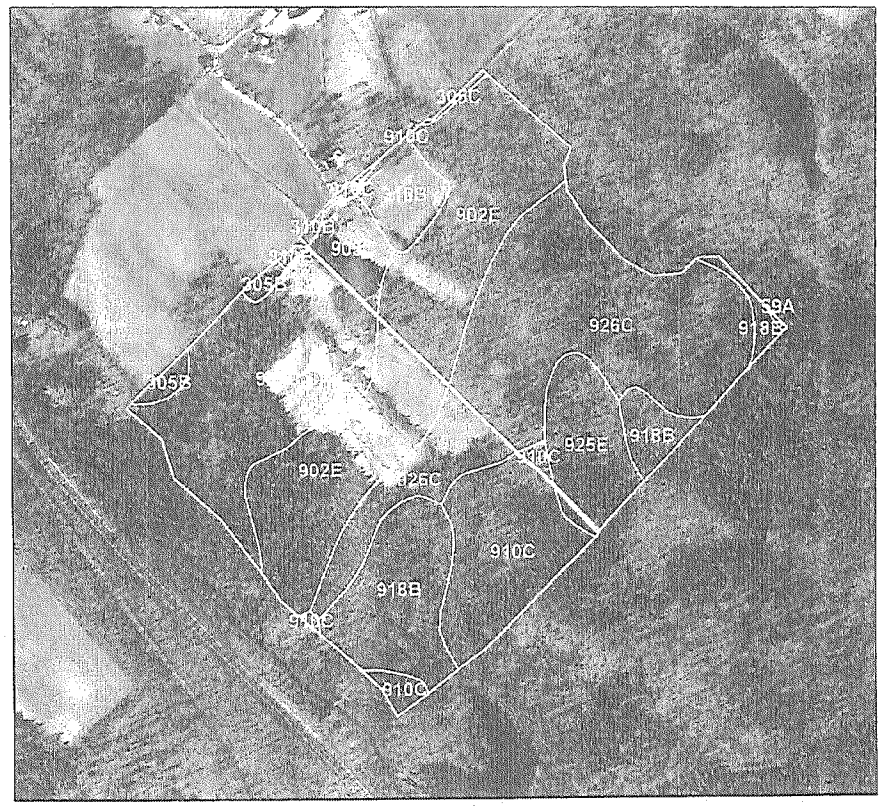


Jordan property

Date: 6/14/2011

Customer(s): James Talvy

Field Office: HOLDEN SERVICE CENTER
Agency: USDA - NRCS



Legend

Soils Map

Export_Output

CLU polygons, Worcester County

1:6,622

0 390 780 1,170 1,560 Feet

N

Client: New England Organics (MA)
Client Designation: Jordan Job

Sample ID:	Randy Jordan
Lab Sample ID:	99939.01
Matrix:	soil
Date Sampled:	5/16/11
Date Received:	5/27/11

		Analytical Matrix	Units	Date of Analysis	Method	Analyst
Cadmium	< 0.5	SolTotDry	mg/kg	6/7/11	6020	DS
Chromium	21	SolTotDry	mg/kg	6/7/11	6020	DS
Copper	8.5	SolTotDry	mg/kg	6/7/11	6020	DS
Lead	29	SolTotDry	mg/kg	6/7/11	6020	DS
Mercury	< 0.1	SolTotDry	mg/kg	6/7/11	6020	DS
Nickel	11	SolTotDry	mg/kg	6/7/11	6020	DS
Phosphorus	700	SolTotDry	mg/kg	6/7/11	6020	DS
Potassium	1700	SolTotDry	mg/kg	6/7/11	6020	DS
Zinc	47	SolTotDry	mg/kg	6/7/11	6020	DS

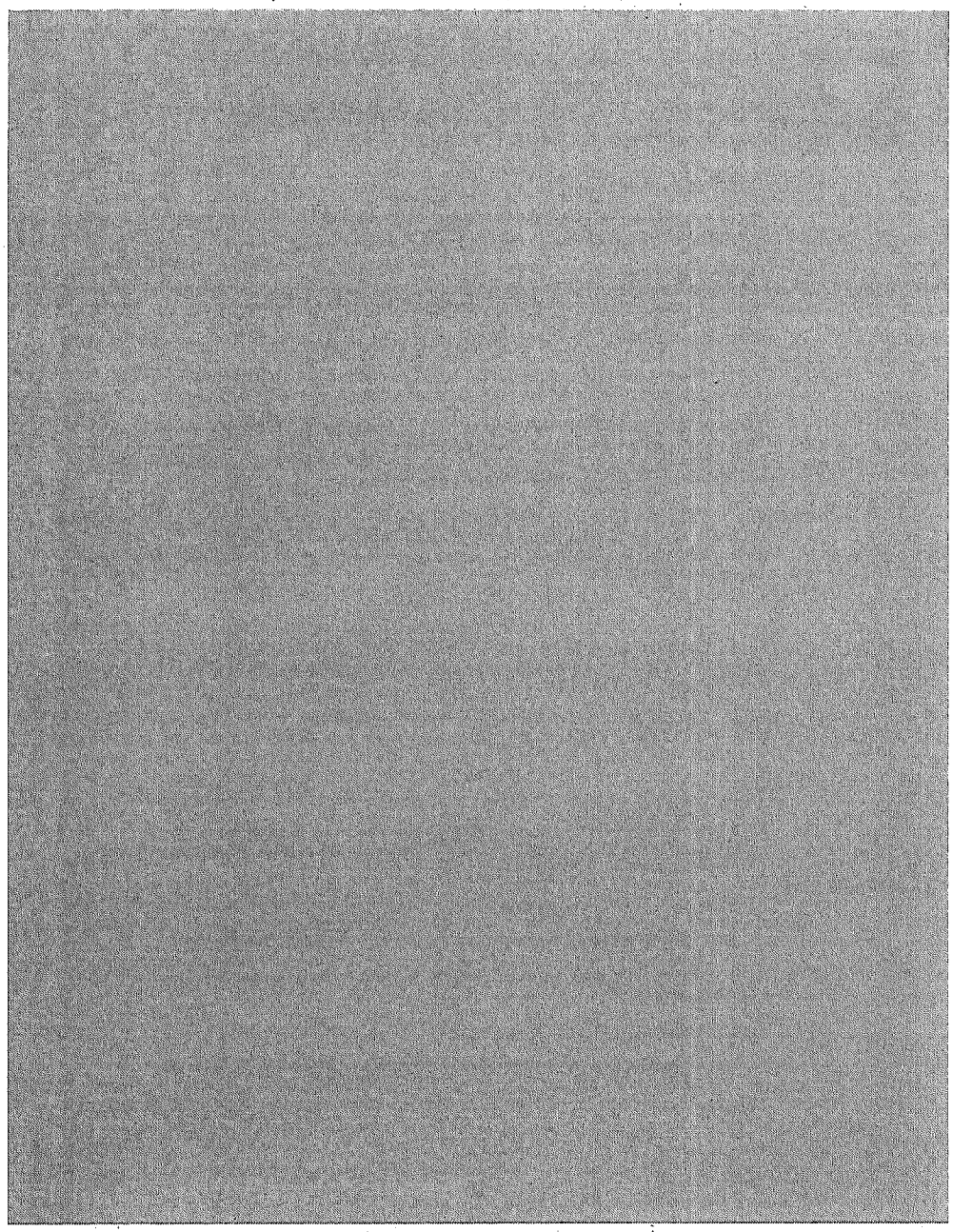
Client: New England Organics (MA)
Client Designation: Jordan Job

Sample ID:	Randy Jordan
Lab Sample ID:	99939.01
Matrix:	soil
Date Sampled:	5/16/11
Date Received:	5/27/11
% Solid:	70.4
Units:	mg/kg
Date of Extraction/Prep:	6/2/11
Date of Analysis:	6/3/11
Analyst:	JW
Extraction Method:	3540C
Analysis Method:	8082
Dilution Factor:	1

PCB-1016	< 0.02
PCB-1221	< 0.02
PCB-1232	< 0.02
PCB-1242	< 0.02
PCB-1248	< 0.02
PCB-1254	< 0.02
PCB-1260	< 0.02
TMX (surr)	96 %R
DCB (surr)	96 %R

Acid cleanup was performed on the sample and associated Batch QC.

The sample was extracted past the hold time.



Attachment B

Determination of Applicability and Associated Documents

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A. General Information

Important:
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

From:

Rutland Conservation Commission
Conservation Commission

To: Applicant

Kevin F. Gervais, Lighthouse Env. Mgmt. ,LLC
Name

The Green Building, 184 Stone Street
Mailing Address

Clinton | MA | 01510
City/Town | State | Zip Code

Property Owner (if different from applicant):

Randy Jordan, C. Richard Williams
Name

29 Overlook Rd.
Mailing Address

Rutland | MA | 01543
City/Town | State | Zip Code

1. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:

Title	Date
Existing Conditions Plan at Overlook and Jordan Farms	May 16, 2013
Revised Flag C24, Test Plots Added	May 23, 2013

2. Date Request Filed:

June 11, 2013

B. Determination

Pursuant to the authority of M.G.L. c. 131, § 40, the Conservation Commission considered your Request for Determination of Applicability, with its supporting documentation, and made the following Determination.

Project Description (if applicable):

Filling and grading of land to create fields for crop production.

Project Location:

Overlook Road
Street Address

Rutland
City/Town

67
Assessors Map/Plat Number

8 & 9.1
Parcel/Lot Number

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Determination (cont.)

The following Determination(s) is/are applicable to the proposed site and/or project relative to the Wetlands Protection Act and regulations:

Positive Determination
Note: No work within the jurisdiction of the Wetlands Protection Act may proceed until a final Order of Conditions (issued following submittal of a Notice of Intent or Abbreviated Notice of Intent) or Order of Resource Area Delineation (issued following submittal of Simplified Review ANRAD) has been received from the issuing authority (i.e., Conservation Commission or the Department of Environmental Protection).

☐ 1. The area described on the referenced plan(s) is an area subject to protection under the Act. Removing, filling, dredging, or altering of the area requires the filing of a Notice of Intent.

☒ 2a. The boundary delineations of the following resource areas described on the referenced plan(s) are confirmed as accurate. Therefore, the resource area boundaries confirmed in this Determination are binding as to all decisions rendered pursuant to the Wetlands Protection Act and its regulations regarding such boundaries for as long as this Determination is valid.

Areas A, B, and C as shown on plan are delineated accurately, other areas subject to the Wetlands Protection Act exist on these properties and are not bound by this delineation.
0.7 acre isolated depression is not protected by the Wetlands Protection Act as determined by the absence of hydric soils.

☐ 2b. The boundaries of resource areas listed below are not confirmed by this Determination, regardless of whether such boundaries are contained on the plans attached to this Determination or to the Request for Determination.

☐ 3. The work described on referenced plan(s) and document(s) is within an area subject to protection under the Act and will remove, fill, dredge, or alter that area. Therefore, said work requires the filing of a Notice of Intent.

☐ 4. The work described on referenced plan(s) and document(s) is within the Buffer Zone and will alter an Area subject to protection under the Act. Therefore, said work requires the filing of a Notice of Intent or ANRAD Simplified Review (if work is limited to the Buffer Zone).

☐ 5. The area and/or work described on referenced plan(s) and document(s) is subject to review and approval by:

Name of Municipality

Pursuant to the following municipal wetland ordinance or bylaw:

Name | Ordinance or Bylaw Citation

B. Determination (cont.)

☐ 6. The following area and/or work, if any, is subject to a municipal ordinance or bylaw but not subject to the Massachusetts Wetlands Protection Act:

☐ 7. If a Notice of Intent is filed for the work in the Riverfront Area described on referenced plan(s) and document(s), which includes all or part of the work described in the Request, the applicant must consider the following alternatives. (Refer to the wetland regulations at 10.58(4)c. for more information about the scope of alternatives requirements):

☐ Alternatives limited to the lot on which the project is located.

☐ Alternatives limited to the lot on which the project is located, the subdivided lots, and any adjacent lots formerly or presently owned by the same owner.

☐ Alternatives limited to the original parcel on which the project is located, the subdivided parcels, any adjacent parcels, and any other land which can reasonably be obtained within the municipality.

☐ Alternatives extend to any sites which can reasonably be obtained within the appropriate region of the state.

Negative Determination
Note: No further action under the Wetlands Protection Act is required by the applicant. However, if the Department is requested to issue a Superseding Determination of Applicability, work may not proceed on this project unless the Department fails to act on such request within 35 days of the date the request is post-marked for certified mail or hand delivered to the Department. Work may then proceed at the owner's risk only upon notice to the Department and to the Conservation Commission. Requirements for requests for Superseding Determinations are listed at the end of this document.

☐ 1. The area described in the Request is not an area subject to protection under the Act or the Buffer Zone.

☐ 2. The work described in the Request is within an area subject to protection under the Act, but will not remove, fill, dredge, or alter that area. Therefore, said work does not require the filing of a Notice of Intent.

☐ 3. The work described in the Request is within the Buffer Zone, as defined in the regulations, but will not alter an Area subject to protection under the Act. Therefore, said work does not require the filing of a Notice of Intent, subject to the following conditions (if any).

☐ 4. The work described in the Request is not within an Area subject to protection under the Act (including the Buffer Zone). Therefore, said work does not require the filing of a Notice of Intent, unless and until said work alters an Area subject to protection under the Act.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 2 – Determination of Applicability
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Determination (cont.)

☐ 5. The area described in the Request is subject to protection under the Act. Since the work described therein meets the requirements for the following exemption, as specified in the Act and the regulations, no Notice of Intent is required:

Exempt Activity (site applicable statutory/regulatory provisions)

☐ 6. The area and/or work described in the Request is not subject to review and approval by:

Name of Municipality

Pursuant to a municipal wetlands ordinance or bylaw.

Name | Ordinance or Bylaw Citation

C. Authorization

This Determination is issued to the applicant and delivered as follows:

☐ by hand delivery on ________ Date

☒ by certified mail, return receipt requested on 7-8-2013 Date

This Determination is valid for **three years** from the date of issuance (except Determinations for Vegetation Management Plans which are valid for the duration of the Plan). This Determination does not relieve the applicant from complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

This Determination must be signed by a majority of the Conservation Commission. A copy must be sent to the appropriate DEP Regional Office (see http://www.mass.gov/dep/about/region.findyour.htm) and the property owner (if different from the applicant).

Signatures: [signatures]

06/18/2013
Date

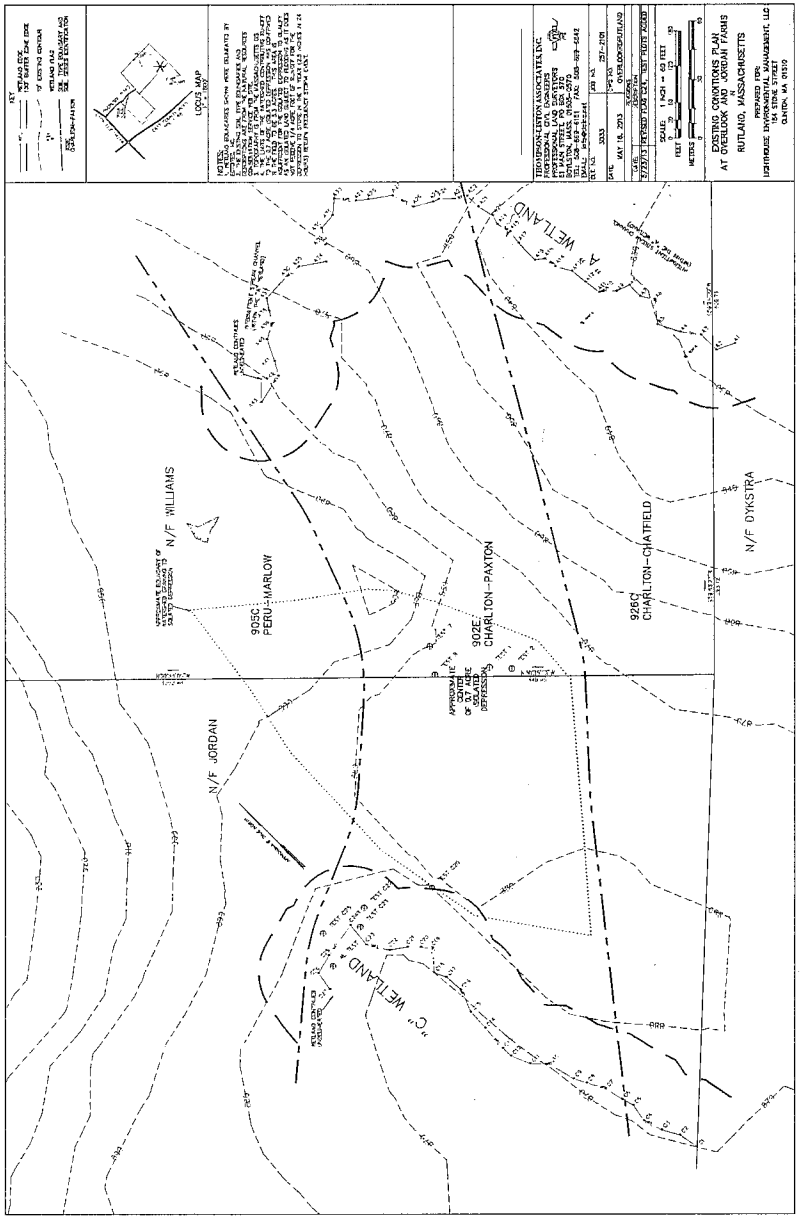
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

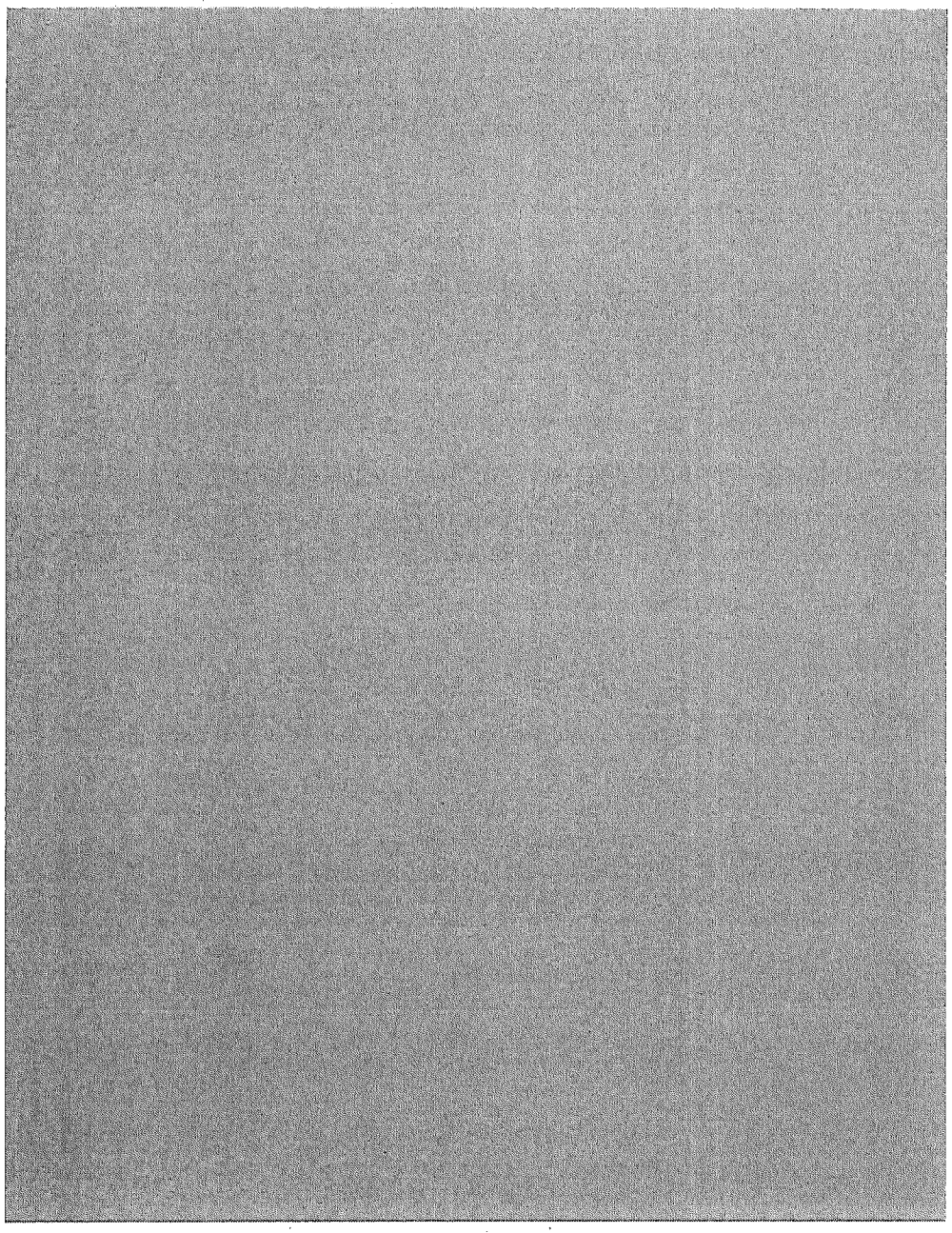
WPA Form 2 – Determination of Applicability

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

D. Appeals

The applicant, owner, any person aggrieved by this Determination, any owner of land abutting the land upon which the proposed work is to be done, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office (see http://www.mass.gov/dep/about/region.findyour.htm) to issue a Superseding Determination of Applicability. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and Fee Transmittal Form (see Request for Departmental Action Fee Transmittal Form) as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Determination. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant if he/she is not the appellant. The request shall state clearly and concisely the objections to the Determination which is being appealed. To the extent that the Determination is based on a municipal ordinance or bylaw and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.





Attachment C

Town of Rutland "Soil Project Expectations" letter (March 2013)

TOWN OF RUTLAND

MASSACHUSETTS

Office of the Board of Health
250 Main Street
Rutland, MA 01543
508-886-4102

*********REVISED**********

March 25, 2013

Kevin Gervais
Lighthouse Environmental Management, LLC
184 Stone Street
Clinton, MA 01510
CERTIFIED MAIL: 7003 3110 0001 9942 7070

Philip Guerin
City of Worcester, DPW, 18 East Worcester Street, Worcester, MA 01608
CERTIFIED MAIL: 7002 2030 0000 2950 2679

RE: Soil Re-use Overlook, Rutland, MA

At the Rutland Board of Health meeting on March 18, 2013, the Rutland Board of Health lifted the cease & desist order to suspend trucking of soils at Overlook, 29 Overlook Drive.

The following issues were discussed and expectations are as follows:

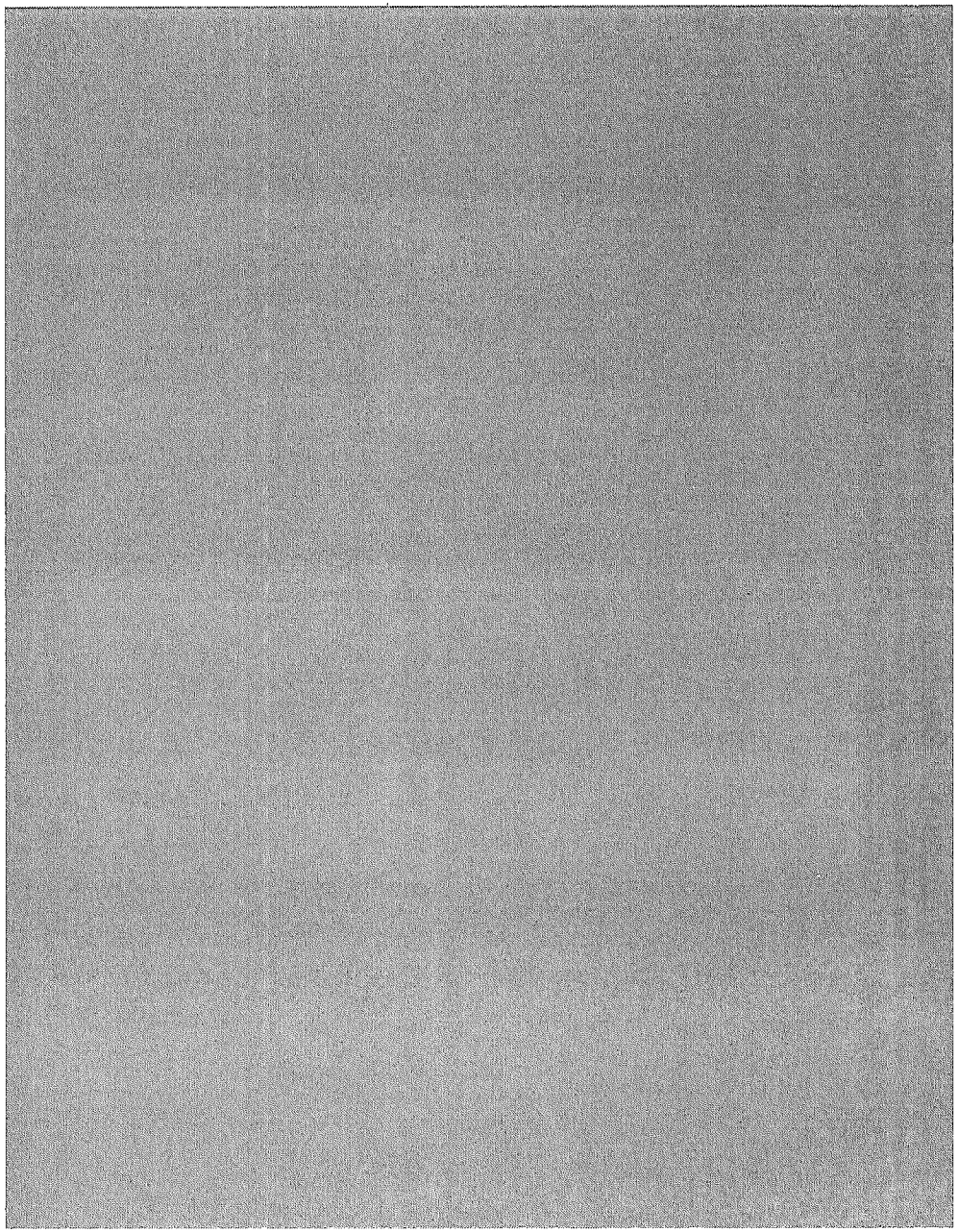
- **Sampling tests of soils** - frequency & cost will be determined between Worcester Department of Public Works and Lighthouse Environmental Management. A copy of the sample soil results will be sent to all interested parties.
- **Erosion Control Protocol** – more extensive erosion control plan will be agreed upon between Worcester Department of Public Works and Lighthouse Environmental Management.
- **Rutland Board of Health acting as negotiator** – The Board of Health will act as a negotiator regarding issues pertaining to the sampling of soils (number of soils taken and/or sample issue).

If you have any questions regarding these expectations, please contact the Board of Health at 508-886-4102. Thank you for your cooperation in this matter.

Sincerely,

Scott Gilroy
Chairman

cc: Charles R. Williams, Overlook, 35 Overlook Road, Rutland, MA 01543
Randy Jordan, 51 Muschopauge Road, Rutland, MA 01543
Lee Adams, DEP Regional Director, 627 Main Street, Worcester, MA 01608
Cheryl Poirier, DEP, 627 Main Street, Worcester, MA 01608
Gregory Root, DEP, 627 Main Street, Worcester, MA 01608
Richard Stromberg, EnviroTrac, 2 Merchant Street, Suite 2, Sharon, MA 02067
Kevin Scherer, City of Worcester, DPW, Moy Ranch Road, Route 31, Holden, MA 01520
Rutland Board of Selectmen
Rutland Department of Public Works
Rutland Conservation Commission



Attachment D

Project Storm Water Pollution Protection Plan (SWPPP) and EPA CGP/NOI

NPDES FORM 3510-9	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 NOTICE OF INTENT (NOI) FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER AN NPDES GENERAL PERMIT	Form Approved. OMB Nos. 2040-0004

Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section II of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section I of this form. Submission of this NOI also constitutes notice that the operator identified in Section II of this form meets the eligibility requirements of Parts 1.1 and 1.2 of the CGP for the project identified in Section III 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.

I. Approval to Use Paper NOI Form

Have you been given approval from the Regional Office to use this paper NOI form*? ☐ Yes ☐ NO

If yes, provide the reason you need to use this paper form, the name of the EPA Regional Office staff person who approved your use of this form, and the date of approval:

Reason for using paper form:

Name of EPA staff person:

Date approval obtained:

* **Note: You are required to obtain approval from the applicable Regional Office prior to using this paper NOI form.**

II. Permit Information: Tracking Number (EPA Use Only) MAR12AK26

Permit Number: MAR120000 (see Appendix B of the CGP for the list of eligible permit numbers)

III. Operator Information

Name: Lighthouse Environmental Management LLC

Phone: (978)706-1782 Fax (Optional): (978)706-1784

Email: kevin@lighthousemgmt.com

IRS Employer Identification Number (EIN): 45-3734525

Point of Contact (First Name, Middle Initial, Last Name): Kevin F Gervais

Mailing Address:

Street: 184 Stone Street

City: Clinton State: MA Zip: 01510

NOI Preparer (Complete if NOI was prepared by someone other than the certifier):

Prepared by (First Name, Middle Initial, Last Name): Kevin F Gervais

Organization: Lighthouse Environmental Management LLC

Phone: (978)706-1782 Fax (Optional): (978)706-1784

E-mail: kevin@lighthousemgmt.com

IV. Project/Site Information

Project/Site Name: Overlook and Jordan Farms

Project/Site Address:

Street/Location: Overlook Road

City: Rutland State: MA Zip: 01543

County or similar government subdivision: Worcester

For the project/site for which you are seeking permit coverage, provide the following information:

Latitude/Longitude (Use one of three possible formats, and specify method)

Latitude 1.	42,23,48	N(degrees, minutes, seconds)	Longitude 1.	71,54,26	W(degrees, minutes, seconds)
2.		N(degrees, minutes, decimal)	2.		W(degrees, minutes, decimal)
3.		N(degrees, decimals)	3.		W(degrees, decimals)

Latitude/Longitude Data Source: ☐ U.S.G.S topographical map ☐ EPA Web Site ☐ GPS ☑ Other: Acme Mapper

If you used a U.S.G.S. topographic map, what was the scale?

Horizontal Reference Datum: ☐ NAD 27 ☐ NAD 83 or WGS 84 ☑ Unknown

Is your project/site located in Indian Country lands, or located on a property of religious or cultural significance to an Indian tribe? ☐ Yes ☑ No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including name of Indian reservation, if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property:

Are you requesting coverage under this NOI as a "federal operator" as defined in Appendix A? ☐ Yes ☑ No

Estimated Project Start Date: 11/01/2012 Estimated Project Completion Date: 03/01/2016

Estimated Area to be Disturbed (to the nearest quarter acre): 125.0

Have earth-disturbing activities commenced on your project/site? ☑ Yes ☐ No

If yes, is your project an emergency-related project? ☐ Yes ☑ No

Have stormwater discharges from your project/site been covered previously under an NPDES permit? ☐ Yes ☑ No

If yes, provide the Tracking Number if you had coverage under EPA's CGP or the NPDES permit number if you had coverage under an EPA individual permit:

V. Discharge Information

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

Are there any surface waters within 50 feet of your project's earth disturbances? ☐ Yes ☑ No

Receiving Waters and Wetlands Information: (Attach a separate list if necessary)

Surface water(s) to which discharge	Impaired Water	Listed Water Pollutant(s)	Tier 2, 2.5 or 3	Source	TMDL Name and Pollutant
Muschopauge Brook	No		Yes	Massachusetts DEP web site	

Describe the methods you used to complete the above table: Please refer to the Source(s) in the above table.

VI. Chemical Treatment Information

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

If yes, will you use cationic treatment chemicals* at your construction site? ☐ Yes ☑ No

If yes, have you been authorized to use cationic treatment chemicals by your applicable EPA Regional Office in advance of filing your NOI*? ☐ Yes ☐ No

If you have been authorized to use cationic treatment chemicals by your applicable EPA Regional Office, attach a copy of your authorization letter and include documentation of the appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

Please indicate the treatment chemicals that you will use: Anionic polyacrylamide flocculants

* Note: You are ineligible for coverage under this permit unless you notify your applicable EPA Regional Office in advance and the EPA office authorizes coverage under this permit after you have included appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

VII. Stormwater Pollution Prevention Plan (SWPPP) Information

Has the SWPPP been prepared in advance of filing this NOI? ☑ Yes ☐ No

SWPPP Contact Information:

First Name, Middle Initial, Last Name: Kevin F Gervais

Organization: Lighthouse Environmental Management LLC

Phone: (978)706-1782 Fax (Optional): (978)706-1784

E-mail: kevin@lighthousemgmt.com

VIII. 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 (only check 1 box)?

☑ A ☐ B ☐ C ☐ D ☐ E ☐ F

Provide a brief summary of the basis for criterion selection listed in Appendix D (e.g., communication with U.S. Fish and Wildlife Service or National Marine Fisheries Service, specific study):Publicly available information at the Massachusetts GIS web site using the OLIVER application

If you select criterion B, provide the Tracking Number from the other operator's notification of authorization under this permit:

If you select criterion C, you must attach a copy of your site map (see Part 7.2.6 of the permit), and you must answer the following questions:

What federally-listed species or federally-designated critical habitat are located in your "action area":

What is the distance between your site and the listed species or critical habitat (miles):

If you select criterion D, E, or F, attach copies of any letters or other communications between you and the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

IX. Historic Preservation

Are you installing any stormwater controls as described in Appendix E that require subsurface earth disturbance? (Appendix E, Step 1) ☑ Yes ☐ No

If yes, have prior surveys or evaluations conducted on the site have already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties? (Appendix E, Step 2) ☑ Yes ☐ No

If no, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? (Appendix E, Step 3) ☐ Yes ☐ No

If no, did the SHPO, THPO, or other tribal representative (whichever applies) respond to you within the 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? (Appendix E, Step 4) ☐ Yes ☐ No

If yes, describe the nature of their response:

☐	Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.
☐	No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls.
☐	Other:

X. Certification Information

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.

First Name, Middle Initial, Last Name: Kevin F Gervais

Title: Project Manager

Signature:

Date: Friday, May 10, 2013

E-mail: kevin@lighthousemgmt.com

Stormwater Pollution Prevention Plan (SWPPP)

For Construction Activities At:

Overlook and Jordan Farms
Overlook Road
Rutland, Massachusetts 01543

NPDES Permit Number: MAR12AK26

SWPPP Prepared For:

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SWPPP Prepared By:

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SWPPP Preparation Date:

May 7, 2013
Revised May 23, 2013

Estimated Project Dates:

Project Start Date: November 2012
Project Completion Date: March, 2016

Contents

SECTION 1: CONTACT INFORMATION/RESPONSIBLE PARTIES

1.1 Operator(s) / Subcontractor(s)

Operator(s):

Lighthouse Environmental Management, LLC
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184 Stone Street
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Tel: 978-706-1782 Fax: 978-706-1784
kevin@lighthousemgmt.com

Subcontractor(s):

Company Name:
Contact Name:
Address:
City, State, Zip Code:
Telephone Number:
Fax/Email:
Area of control (if more than one operator at site):

Emergency 24-Hour Contact:

Lighthouse Environmental Management, LLC
Gary Salter, Inspector
Tel: (508)331-1884

1.2 *Stormwater Team*

Role or Responsibility: Operator
Position: Company Owner
Name: Kevin Gervais, Manager
Telephone Number: (508)835-5905
Email: kevin@lighthousemgmt.com

Role or Responsibility: SWPPP preparer
Position: PE, PLS and CPESC
Name: Andrew B. Liston
Telephone Number: (508)869-6151
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Role or Responsibility: Inspection
Position: Inspector
Name: Gary Salter
Telephone Number: (508)331-1884
Email: gary@dmarenvironmental.com

Role or Responsibility: Inspection
Position: Alternate Inspector
Name: Joseph Lamoreaux
Telephone Number: (978)833-3142
Email:

SECTION 2: SITE EVALUATION, ASSESSMENT, AND PLANNING

2.1 *Project/Site Information*

Project Name and Address

Project/Site Name: Overlook and Jordan Farms
Project Street/Location: Overlook Road
City: Rutland
State: Massachusetts
ZIP Code: 01543
County or Similar Subdivision: Worcester County

Project Latitude/Longitude

(Use one of three possible formats, and specify method)

Latitude:	Longitude:
42° 23' 48" N (degrees/minutes/seconds)	71° 54' 26" W (degrees/minutes/seconds

Method for determining latitude/longitude:
☐ USGS topographic map (specify scale: _____) EPA Web site ☐ GPS
X Other (please specify): ACME MAPPER

Horizontal Reference Datum:
☐ NAD 27 NAD 83 or WGS 84 X Unknown or Assumed

If you used a U.S.G.S topographic map, what was the scale? _____

Additional Project Information

Is the project/site located on Indian country lands, or located on a property of religious or cultural significance to an Indian tribe? ☐ Yes ☒ No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including the name of Indian reservation if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property:

If you are conducting earth-disturbing activities in response to a public emergency, document the cause of the public emergency *(e.g., natural disaster, extreme flooding conditions)*, information substantiating its occurrence *(e.g., state disaster declaration)*, and a description of the construction necessary to reestablish effective public services:

Are you applying for permit coverage as a "federal operator" as defined in Appendix A of the 2012 CGP? ☐ Yes ☒ No

2.2 *Discharge Information*

Does your project/site discharge stormwater into a Municipal Separate Storm Sewer System (MS4)? ☐ Yes ☒ No

Are there any surface waters that are located within 50 feet of your construction disturbances?
☐ Yes ☒ No

Table 1 – Names of Receiving Waters

Name(s) of the first surface water that receives stormwater directly from your site and/or from the MS4 (note: multiple rows provided where your site has more than one point of discharge that flows to different surface waters)
1. **Muschopauge Brook flowing to Muschopauge Pond**
2.
3.
4.
5.

[Include additional rows as necessary.]

Table 2 – Impaired Waters / TMDLs (Answer the following for each surface water listed in Table 1 above)

	Is this surface water listed as "impaired"?	If you answered yes, then answer the following:		
		What pollutant(s) are causing the impairment?	Has a TMDL been completed?	Title of the TMDL document
1.	☐ YES ☒ NO		☐ YES ☐ NO	
2.	☐ YES ☐ NO		☐ YES ☐ NO	
3.	☐ YES ☐ NO		☐ YES ☐ NO	
4.	☐ YES ☐ NO		☐ YES ☐ NO	
5.	☐ YES ☐ NO		☐ YES ☐ NO	
6.	☐ YES ☐ NO		☐ YES ☐ NO	

Describe the method(s) you used to determine whether or not your project/site discharges to an impaired water: I used a USGS map to determine that runoff from this site will eventually go to Lake Quinsigamond.

Table 3 – Tier 2, 2.5, or 3 Waters (Answer the following for each surface water listed in Table 1 above)

	Is this surface water designated as a Tier 2, Tier 2.5, or Tier 3 water? (see Appendix F)	If you answered yes, specify which Tier (2, 2.5, or 3) the surface water is designated as?
1.	☒ YES ☐ NO	Tier 2 according to 314CMR 4.00

2.3 *Nature of the Construction Activity*

General Description of Project

Provide a general description of the construction project:

The Overlook and Jordan Farms project is the proposed regrading of an approximate 125 acre site spanning the property lines of the two farms. The work area covers two farms to be cleared and re-graded for improved planting. No part of the construction will impact federally listed endangered species or critical habitat. No part of this construction will impact historic properties.

Size of Construction Project

What is the size of the property (in acres), the total area expected to be disturbed by the construction activities (in acres), and the maximum area expected to be disturbed at any one time?

There is no complete survey of the two farms, but the holdings are larger than the 125 acre work area.

Total site disturbance will be approximately 125 acres.

The maximum area that might be disturbed at any time is variable but the area being worked has stabilization continuing on a rolling basis. No erosion was seen in the most recent (05-03-13) site visit by employees of Thompson-Liston Associates, Inc.

Construction Support Activities (only provide if applicable)

Describe any construction support activities for the project (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas)

The scope and nature of the project is such that it will not include construction support activities. Fill materials are being delivered to and spread on the site in order to provide for a more efficient and usable farming area.

2.4 *Sequence and Estimated Dates of Construction Activities*

This project will be worked in one continuing phase. Importation of fill for farm land improvement began in December 2011 with the clearing of the trees and the stripping of surface layers of soil (loam) on this site and the clearing of the property and regrading to create temporary settling basins to ensure that stormwater runoff does not leave the site. Siltation control barriers have also been and will be installed at the work limits where stormwater runoff can flow off site. A portion of this part of the work has been previously completed at the time of the filing of the stormwater Notice of Intent.

A new site entrance mat will be installed and a new construction staging and equipment storage area created and protected against erosion by a line of staked straw bales and siltation fencing. Next, the amendments, repairs, and cleaning of the various existing erosion control measures will carried out. In additional areas, new erosion control measures will be installed.

Rough grading and earthwork operations have taken and will continue to take place accompanied by the installation of additional erosion control measures including straw bale diversion dikes. The sediment traps and, if necessary, a drainage systems will then be installed, where required. Additional protective measures will also be installed.

More exposed surface areas will be permanently stabilized in accordance with the plans. The expected completion of work is March 2016.

2.5 *Allowable Non-Stormwater Discharges*

List of Allowable Non-Stormwater Discharges Present at the Site

Type of Allowable Non-Stormwater Discharge	Likely to be Present at Your Site?
Discharges from emergency fire-fighting activities	☐ YES ☒ NO
Fire hydrant flushings	☐ YES ☒ NO
Landscape irrigation	☐ YES ☒ NO
Waters used to wash vehicles and equipment	☐ YES ☒ NO
Water used to control dust	☐ YES ☒ NO
Potable water including uncontaminated water line flushings	☐ YES ☒ NO
Routine external building wash down	☐ YES ☒ NO
Pavement wash waters	☐ YES ☒ NO
Uncontaminated air conditioning or compressor condensate	☐ YES ☒ NO
Uncontaminated, non-turbid discharges of ground water or spring water	☐ YES ☒ NO
Foundation or footing drains	☐ YES ☒ NO
Construction dewatering water	☐ YES ☒ NO

2.6 *Site Maps*

Site Maps are included in Appendix A of this SWPPP.

SECTION 3: DOCUMENTATION OF COMPLIANCE WITH OTHER FEDERAL REQUIREMENTS

3.1 *Endangered Species Protection*

Eligibility Criterion

Under which criterion listed in Appendix D are you eligible for coverage under this permit?

☒ A ☐ B ☐ C ☐ D ☐ E

For reference purposes, the eligibility criteria listed in Appendix D are as follows:

Criterion A.	No federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's "action area" as defined in Appendix A of this permit.

Criterion B.	The construction site's discharges and discharge-related activities were already addressed in another operator's valid certification of eligibility for your action area under eligibility Criterion A, C, D, E, or F and there is no reason to believe that federally-listed species or federally-designated critical habitat not considered in the prior certification may be present or located in the "action area". To certify your eligibility under this Criterion, there must be no lapse of NPDES permit coverage in the other operator's certification. By certifying eligibility under this Criterion, you agree to comply with any effluent limitations or conditions upon which the other operator's certification was based. You must include in your NOI the tracking number from the other operator's notification of authorization under this permit. If your certification is based on another operator's certification under Criterion C, you must provide EPA with the relevant supporting information required of existing dischargers in Criterion C in your NOI form.
Criterion C.	Federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in or near your site's "action area," and your site's discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or critical habitat. This determination may include consideration of any stormwater controls and/or management practices you will adopt to ensure that your discharges and discharge-related activities are not likely to adversely affect listed species and critical habitat. To make this certification, you must include the following in your NOI: 1) any federally listed species and/or designated habitat located in your "action area"; and 2) the distance between your site and the listed species or designated critical habitat (in miles). You must also include a copy of your site map with your NOI.
Criterion D.	Coordination between you and the Services has been concluded. The coordination must have addressed the effects of your site's discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat, and must have resulted in a written concurrence from the relevant Service(s) that your site's discharges and discharge-related activities are not likely to adversely affect listed species or critical habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.
Criterion E.	Consultation between a Federal Agency and the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service under section 7 of the ESA has been concluded. The consultation must have addressed the effects of the construction site's discharges and discharge-related activities on federally-listed threatened or endangered species and federally-designated critical habitat. The result of this consultation must be either:
	i. a biological opinion that concludes that the action in question (taking into account the effects of your site's discharges and discharge-related activities) is not likely to jeopardize the continued existence of listed species, nor the destruction or adverse modification of critical habitat; or
	ii. written concurrence from the applicable Service(s) with a finding that the site's discharges and discharge-related activities are not likely to adversely affect federally-listed species or federally-designated habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

Criterion F.	Your construction activities are authorized through the issuance of a permit under section 10 of the ESA, and this authorization addresses the effects of the site's discharges and discharge-related activities on federally-listed species and federally-designated critical habitat. You must include copies of the correspondence between yourself and the Services in your SWPPP and your NOI.

Supporting Documentation

Provide documentation for the applicable eligibility criterion you select in Appendix D, as follows:

For criterion A, indicate the basis for your determination that no federally-listed threatened or endangered species or their designated critical habitat(s) are likely to occur in your site's action area (as defined in Appendix A of the permit). Check the applicable source of information you relied upon:

- ☐ Specific communication with staff of the U.S. Fish & Wildlife Service or National Marine Fisheries Service.
- ☒ Publicly available species list -- At the Mass. GIS web site using the Oliver application.
- ☐ Other source:

For criterion B, provide the Tracking Number from the other operator's notification of permit authorization:

Provide a brief summary of the basis used by the other operator for selecting criterion A, B, C, D, E, or F:

For criterion C, provide the following information:

Also, provide a brief summary of the basis used for determining that your site's discharges and discharge-related activities are not likely to adversely affect listed species or critical habitat:

For criterion D, E, or F, attach copies of any letters or other communication between you and the U.S. Fish & Wildlife Service or National Marine Fisheries Service concluding consultation or coordination activities.

3.2 *Historic Preservation*

Appendix E, Step 1

Do you plan on installing any of the following stormwater controls at your site? Check all that apply below, and proceed to Appendix E, Step 2.

- ☒ Dike
- ☒ Earthen Berm
- ☐ Catch Basin
- ☐ Pond
- ☒ Stormwater Conveyance Channel (e.g., ditch, trench, perimeter drain, swale, etc.)
- ☒ Culvert

- ☐ Other type of ground-disturbing stormwater control:

Appendix E, Step 2

If you answered yes in Step 1, have prior surveys or evaluations conducted on the site already determined that historic properties do not exist, or that prior disturbances at the site have precluded the existence of historic properties? ☒ YES ☐ NO

- If yes, no further documentation is required for Section 3.2 of the Template.
- If no, proceed to Appendix E, Step 3.

Appendix E, Step 3

If you answered no in Step 2, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? ☐ YES ☐ NO

If yes, provide documentation of the basis for your determination.

If no, proceed to Appendix E, Step 4.

Appendix E, Step 4

If you answered no in Step 3, did the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Office (THPO), or other tribal representative (whichever applies) respond to you within 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? ☐ YES ☐ NO

If no, no further documentation is required for Section 3.2 of the Template.

If yes, describe the nature of their response:

- ☐ Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.
- ☐ No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls.
- ☐ Other:

3.3 *Safe Drinking Water Act Underground Injection Control Requirements*

Do you plan to install any of the following controls? Check all that apply below.

- ☐ Infiltration trenches (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)
- ☐ Commercially manufactured pre-cast or pre-built proprietary subsurface detention vaults, chambers, or other devices designed to capture and infiltrate stormwater flow
- ☐ Drywells, seepage pits, or improved sinkholes (if stormwater is directed to any bored, drilled, driven shaft or dug hole that is deeper than its widest surface dimension, or has a subsurface fluid distribution system)

SECTION 4: EROSION AND SEDIMENT CONTROLS

Along with a series of scheduled inspections, the operator will utilize a series of BMP's in order to limit erosion and control sediment which results from any erosion.

These will include site entrance mats, erosion control barriers, straw bale diversion dikes, temporary settling basins, flocculants and jute mesh receiving media, temporary and permanent slope stabilization and runoff diversion swales. These BMP's are described in greater detail on attachments included in this SWPPP.

4.1 *Natural Buffers or Equivalent Sediment Controls*

Buffer Compliance Alternatives

Are there any surface waters within 50 feet of your project's earth disturbances? ☐ YES ☒ NO

Check the compliance alternative that you have chosen:

- ☒ I will provide and maintain a 50-foot undisturbed natural buffer.
- ☐ I will provide and maintain an undisturbed natural buffer that is less than 50 feet and is supplemented by additional erosion and sediment controls, which in combination achieves the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
- ☐ It is infeasible to provide and maintain an undisturbed natural buffer of any size, therefore I will implement erosion and sediment controls that achieve the sediment load reduction equivalent to a 50-foot undisturbed natural buffer.
- ☐ I qualify for one of the exceptions in Part 2.1.2.1.e. (If you have checked this box, provide information on the applicable buffer exception that applies, below.)

Buffer Exceptions

Which of the following exceptions to the buffer requirements applies to your site?

- ☐ There is no discharge of stormwater to the surface water that is located 50 feet from my construction disturbances.
- ☐ No natural buffer exists due to preexisting development disturbances that occurred prior to the initiation of planning for this project.
- ☐ For a "linear project" (defined in Appendix A), site constraints (e.g., limited right-of-way) make it infeasible for me to meet any of the CGP Part 2.1.2.1.a compliance alternatives.
- ☐ The project qualifies as "small residential lot" construction (defined in Part 2.1.2.1.e.iv and in Appendix A).

For Alternative 1 (see Appendix G, Part G.2.3.2.a):

For Alternative 2 (see Appendix G, Part G.2.3.2.b):

- ☐ Buffer disturbances are authorized under a CWA Section 404 permit.
- ☐ Buffer disturbances will occur for the construction of a water-dependent structure or water access area (e.g., pier, boat ramp, and trail).

4.2 *Perimeter Controls*

General

- Though other BMP's may be added as deemed necessary by the site contractor, the primary perimeter control will be a sedimentation control barrier as shown on attachments included in this SWPPP.

Specific Perimeter Controls

Sedimentation Control Barrier

Description

- Sedimentation control barriers will consist of a silt fence installed on stakes with the lower edge of the fencing keyed into the ground and backed by staked hay bales, the installation being as shown on attachments included in this SWPPP.

Installation

- Sedimentation control barriers were installed at the limit of work.

Maintenance Requirements

Maintenance of the sedimentation control barriers is to simply confirm that both elements, silt fence and staked hay bale are in place and have not deteriorated and that sediment deposited against the silt fence has not reached one-half the height of the silt fence. If so, sediment must be removed. If the condition of the silt fence or hay bales has deteriorated, that portion of the barrier over which they have must be replaced.

4.3 *Sediment Track-Out*

General

- The primary means by which the track out of sediment onto off site streets will be avoided will be through the use of site entrance mats during construction.

Specific Track-Out Controls

Site Entrance Mat

Description

- As shown on attachments included in this SWPPP, the site entrance mat will consist of a 6 inch layer of 1.5"--3.0" stone over a 6 inch thick layer of 3"--6" stone, the entire mat being 100 feet long and 26 feet wide at the site entrance.

Installation

- Exact dates of installation are not certain but a new site entrance mat will be installed before work resumes with site grading.

Maintenance Requirements

- Any sediment tracked out from the site shall be removed by the end of the same work day or by the end of the next work day if it occurred on a non-work day. The removal shall be by sweeping, shoveling, vacuuming the affected services or other efficient methods. Maintenance of the entrance mat itself shall consist of removing and replacing its stone if the voids between the stones are filled over one quarter of the mat's area.

4.4 Stockpiled Sediment or Soil

General

- Any stockpile created will be surrounded with silt fence or hay bales at least 10 feet from the base of the stockpile.

Specific Stockpile Controls

Silt fence

Description

- Silt fence will be installed, using Envirofence filter fabric attached to stakes 7.7 feet apart on center and with the bottom of the fencing keyed into a 6 inch x 6 inch trench on the stockpile side of the fence.

Installation

- The exact date if installation is uncertain but must be on the same day as a stockpile area is created.

Maintenance Requirements

- Silt fence installed around a stockpile must be inspected at the time of normal site inspections and must be replaced as necessary. Sediment deposited against the fence must be removed once it has reached half the height of the fence.

4.5 Minimize Dust

General

- Should dust become an issue, water will be sprayed to diminish airborne pollution.

Specific Dust Controls

Water spraying

Description

- Water will be sprayed from a truck if dust control requires.

Installation

- It is unlikely that dust control on this site will require water spraying and the timing of it will be determined by site conditions.

Maintenance Requirements

- The only maintenance requirement is for repeated applications where necessary, as determined by site conditions.

4.6 Minimize the Disturbance of Steep Slopes

General

- The creation of steep slopes on this site will be minimized and, in fact, nearly eliminated. That will be the primary means of minimizing the disturbance of such slopes during this project. Where such slopes occur, they will be treated with North American Green SC 150 erosion control blankets on slopes from 3:1 to 2:1, with C125 erosion control blankets where slopes are from 2:1 to 1.5:1 and with riprap for slopes steeper than that. Details of these applications are shown on attachments included in this SWPPP.

Specific Steep Slope Controls

North American Green SC150 Erosion Control Blanket

Description

- This is a double net straw-coconut blanket featuring a layer of 70% straw and 30% coconut fiber stitched with biodegradable thread between biodegradable natural fiber top and bottom nets and typically used on slopes 2:1 and flatter as shown on attachments included in this SWPPP.

Installation

- The date of installation is to be determined by the progress of site work.

Maintenance Requirements

- This erosion control blanket is expected to have a lifespan of 18 months before biodegrading. The only maintenance necessary is to ensure that it maintains contact with the underlying slope per the manufacturer's instructions.

Rip-rap slope stabilization

Description

- This is the application of 100 to 300 pound or larger stones placed over Mirafi 140N drainage fabric overlaying a 12 inch thick layer of gravel. The surface of the stones will be hand chinked to a nominally smooth finish through the placement of smaller pieces, as shown in the detail on attachments included in this SWPPP.

Installation

- The date of installation is to be determined by the progress of site work.

Maintenance Requirements

- The only maintenance is to move stones or install additional chinking as necessary in response to any slough or settling of the slope.

4.7 Topsoil

General

- Top soil will be imported at the conclusion of the general filling operation. Top soil will be laid to a depth of approximately 3 feet.

4.8 Soil Compaction

General

- In order to stabilize the site, loam will be spread over base imported material. The Owners will be planting farm grass or sowing the surface with rye as soon as is possible. These areas will be restricted from trucks passing over that location once it is stabilized

Specific Soil Compaction Controls

Description

- Vehicles will be restricted from passing over the location of the newly stabilized soils. The area will also be protected from stormwater runoff from exposed soil areas as these will inherently have a high amount of sediment which could disturb the stabilized areas.

Installation
- The exact date of the need to protect it from soil compaction is uncertain.

Maintenance Requirements
- The only maintenance requirement is to consistently protect against erosion.

4.9 Storm Drain Inlets

General
Catch basin or storm drain inlets are not and will not be present.

4.10 Constructed Stormwater Conveyance Channels

General
- No stormwater conveyance channels will be constructed for this project, only temporary runoff diversion swales.

4.11 Sediment Basins

General
- Though no specific locations for temporary settling basins are proposed as part of this design, it is mentioned as a BMP option for the contractor to utilize should the progress of work and weather conditions merit the installation of one. Many such basins are expected to be employed as work progresses. A temporary settling basin will be a created depression, that is typically of more than 10 feet in diameter and 2 feet in depth and have a stone overflow toward the discharge. Temporary settling basins will be used if a significant storm event is threatening so that runoff can be captured on site and pollutants allowed to settle out rather than simply flowing to perimeter barriers.

Specific sediment basins

Temporary settling basin
Description
- If a temporary settling basin is used on site it will be a created depression used to capture stormwater runoff from areas being worked at the time of an impending large rain event. The temporary settling basin will be more than a 10-foot diameter and more than 2 feet deep with an outlet directing any outflow toward other BMP's ensuring the best chance for removal of TSS and maintaining structural stability.

Installation
- These will be installed as necessary based upon site and weather conditions.

Maintenance Requirements
- Temporary settling basins must be cleaned out when deposited sediment within them has taken half of the original capacity of the basin.

4.12 Chemical Treatment

Soil Types
- The U.S.D.A Soil Survey of Worcester County, Northeastern Part, identifies soils on site as Paxton, Woodbridge-Paxton, and Peru-Marlow series soils categorized as hydrologic soil group "C" soils as well as Charlton-Chatfield series soils categorized as hydrologic soil group "B" soils.

Treatment Chemicals
List all treatment chemicals that will be used at the site and explain why these chemicals are suited to the soil characteristics: We may use anionic polyacrylamide blocks.

Describe the dosage of all treatment chemicals you will use at the site or the methodology you will use to determine dosage: A soil sample will be sent to Advanced Polymer Systems, Inc. in Georgia and that firm will determine the appropriate composition of flocculant blocks on a site with these soils.

Provide information from any applicable Material Safety Data Sheets (MSDS): Further data would have to be obtained from Advanced Polymer Systems, Inc.

Describe how each of the chemicals will be stored: The flocculant blocks will not be stored on site but immediately used upon their delivery. Temporarily, blocks may be stored in the construction trailer.

Include references to applicable state or local requirements affecting the use of treatment chemicals, and copies of applicable manufacturer's specifications regarding the use of your specific treatment chemicals and/or chemical treatment systems: We are not aware of any restriction on the use of anionic flocculant blocks.

Special Controls for Cationic Treatment Chemicals (if applicable)
If you have been authorized by your applicable Regional Office to use cationic treatment chemicals, include the official EPA authorization letter or other communication, and identify the specific controls and implementation procedures you are required to implement to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards: We do not propose to use any cationic treatment chemicals.

Schematic Drawings of Stormwater Controls/Chemical Treatment Systems
Provide schematic drawings of any chemically-enhanced stormwater controls or chemical treatment systems to be used for application of treatment chemicals: We may not use any chemical treatments on site. If we do use anionic polyacrylamide, it will be to clean water discharged from a temporary settling basin. Pumped water will pass over two or more flocculant blocks and then over jute mesh netting so that particles that were in solution will attach to the jute mesh.

Training
Describe the training that personnel who handle and apply chemicals have received prior to permit coverage, or will receive prior to the use of treatment chemicals: No special training is required for the use of anionic polyacrylamide blocks as would be supplied by Advanced Polymer Systems, Inc. or a similar product.

4.13 Dewatering Practices

General
- We do not expect to conduct any dewatering for this project.

4.14 Site Stabilization

Landscaping of areas on site
☒ *Vegetative* ☐ *Non-Vegetative*
☐ *Temporary* ☒ *Permanent*

Description
- Some exposed surfaces will be permanently stabilized with landscaping, mainly various types of grasses appropriate to agriculture.
- Plantings will commence within 14 days of the denoted areas being brought to grade and no longer within work areas for grading.

Installation
- The dates on which various landscaping elements will be installed are uncertain. The timing of installation is dependent on the completion of other preparatory work and on the season.
- The date of completion of installing landscaping is uncertain. Portions of the landscaping, such as the stabilization of slopes away from the grading area, may be completed earlier than in the other areas of grading.

Maintenance Requirements
- Maintenance requirements vary widely among the different plants and ground covers proposed. It will be the owner's responsibility to water, fertilize and maintain each particular planting as appropriate.

Site Stabilization Practice (only use this if you are <u>not</u> located in an arid, semi-arid, or drought-stricken area)
☐ *Vegetative* ☒ *Non-Vegetative*
☐ *Temporary* ☒ *Permanent*

Description
- Exposed surfaces with slopes greater than 2:1 will be permanently stabilized using riprap
- 100 to 300 pound riprap pieces will be set and chinked to a nominally smooth finish effectively preventing any erosion of the surface covered.
- A detail of proposed riprap installation is shown on attachments included in this SWPPP.

Installation
- It is not certain that riprap slope stabilization will be used on site and the timing of such installation cannot be determined at this time.
- The completion of the installation of riprap slope stabilization is therefore also uncertain.

Maintenance Requirements
- Maintenance of riprap slope stabilization typically consists of replacement of the small stone chinking in response to minor freeze thaw movement of stone. If larger movements or settling take place then heavy machinery must be used to regrade the slope and replace stone.

SECTION 5: POLLUTION PREVENTION STANDARDS

5.1 Potential Sources of Pollution

Construction Site Pollutants

Pollutant-Generating Activity	Pollutants or Pollutant Constituents (that could be discharged if exposed to stormwater)	Location on Site (or reference SWPPP site map where this is shown)
Waste disposal	Various debris pollutants, such as trash, and ruined sediment barrier fencing	Many areas of the site but especially near the construction trailer.

5.2 Spill Prevention and Response

Vehicles used on site will be fueled in a designated re-fueling location graded with spill berms to have capacity to contain a spill of even the entire fuel tank of any of the vehicles being used. Spills will be immediately reported to the operator and dealt with in accordance with state and local regulations.

5.3 Fueling and Maintenance of Equipment or Vehicles

General

- Vehicles will be refueled on site in a designated refueling area surrounded by spill berms to contain any spilled fuel. Construction personnel will be instructed in the use of a Spill Cleanup Kit and one will be kept on site at all times.

Specific Pollution Prevention Practices

Spill Berms
Description

- A refueling area surrounded by spill berms will be created near the construction trailer.
- A specific location is not indicated on the site plan but will be chosen to fit the ongoing construction.

Installation

- The designated refueling area will be created at the beginning of construction.

Maintenance Requirements

- The only maintenance requirements are to preserve the spill berms in good condition.

Spill Cleanup Kit
Description

- All construction personnel on site will be given instruction in the use of a spill cleanup kit and one will be maintained on site near the vehicle refueling area.
- A specific location is not for the vehicle refueling area is not indicated on the site plans but will be chosen to fit the ongoing construction.

Installation

- The cleanup kit will be on site when construction resumes.

Maintenance Requirements

- The only maintenance requirements are to replace the kit if it is used or in some way compromised in the course of construction.

5.4 Washing of Equipment and Vehicles

General

- There will be no washing of vehicles with soap or solvents on site. There may be plain water rinsing of construction vehicles if a water service has been installed.

Specific Pollution Prevention Practices

Pollution Prevention Practice # 1
Description

- Any vehicle washing will take place without the use of soap or solvents and will be done in a location such that direct runoff will be captured by either a temporary sediment basin or the drainage system.

Installation

- There will not be a designated location on site but washing will have to take place in a location that ensures that runoff is captured by either a sediment basin or the drainage system.

Maintenance Requirements

- There is no specific washing area to maintain.

5.5 Storage, Handling, and Disposal of Construction Products, Materials, and Wastes

5.5.1 Building Products

(Note: Examples include asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures.)

General

- No building products will be used or stored on site.

5.5.2 Pesticides, Herbicides, Insecticides, Fertilizers, and Landscape Materials

General

- Various landscape materials containing pollutants that could be washed off with stormwater runoff will be stored under tarps before being used.

Specific Pollution Prevention Practices

Protection from rain using tarps
Description

- The size of areas to be landscaped are relatively small so no new free standing structures will be created for the temporary storage of pesticides, herbicides, insecticides, fertilizers and landscaping materials. They will be stored under tarps.

Installation

- The exact time of storage of landscaping products is uncertain.

Maintenance Requirements

- Maintenance requirements are to simply confirm the condition of tarps being used and replace them as necessary.

5.5.3 Diesel Fuel, Oil, Hydraulic Fluids, Other Petroleum Products, and Other Chemicals

General

- The scope of the project is such that these fuels, oils and other chemicals may be stored on this site in a protected tank in the fueling area. Fuels are expected to be transported to the site as necessary by the site contractor.

5.5.4 Hazardous or Toxic Waste

(Note: Examples include paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds, acids.)

General

- No such material will be used on site.

5.5.5 Construction and Domestic Waste

(Note: Examples include packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, and other trash or building materials.)

General

- No such materials will be used on site.

5.5.6 Sanitary Waste

General

- Portable toilets may be used on site.

Specific Pollution Prevention Practices

Pollution Prevention Practice # 1

Description

- Standard size portable toilets may be temporarily installed on site in a location where the ground is level to avoid tipping and where there is no danger of their being accidentally struck by construction vehicles.

Installation

- The date of portable toilets being installed on site is uncertain as it will depend upon the timing of work on site.

Maintenance Requirements

- Portable toilets shall be cleaned and removed in accordance with standard practice.

5.6 Washing of Applicators and Containers used for Paint, Concrete or Other Materials

General

- No washout areas are proposed on site.

5.7 Fertilizers

General

- Minimal fertilizer use is expected.

Specific Pollution Prevention Practices

Pollution Prevention Practice # 1

Description

- The discharge of fertilizers containing nitrogen or phosphorus will be minimized through sparing application of fertilizers, through application at rates suggested by manufacturers, through application at the appropriate time of year for maximum uptake by proposed plantings and by avoiding application before forecast heavy rains.

Installation

- The date of use of fertilizers, if any, is uncertain.

Maintenance Requirements

- There are no specific maintenance requirements for the use of fertilizers.

5.8 Other Pollution Prevention Practices

General

- No other categories of pollution prevention practices are proposed for this project.

SECTION 6: INSPECTION AND CORRECTIVE ACTION

6.1 Inspection Personnel and Procedures

Personnel Responsible for Inspections

The following is a list of personnel who will be conducting site inspections:
Gary Salter, Inspector
Joseph Lamoreaux, Alternate Inspector
Kevin Gervais, Manager

Inspection Schedule

Specific Inspection Frequency

This site will be inspected on a bi-weekly schedule with additional inspections at the time of rainfalls of 0.25 inches or more.

Rain Gauge Location (if applicable)

The reference that will be used is the wunderground.com web site's station for the 01543 zip code.

Reductions in Inspection Frequency (if applicable)

- For the reduction in inspections in arid, semi-arid, or drought-stricken areas: This is not typically applicable in this location.

- For reduction in inspections due to frozen conditions: If extended frozen conditions are encountered, The inspector will submit an inspection form noting that an inspection was not conducted on the expected bi-weekly schedule due to such conditions.

Inspection Report Forms

Copies of blank inspection form are included in Appendix D.

6.2 *Corrective Action*

Personnel Responsible for Corrective Actions

The owner/certifier and the site contractor are responsible for taking corrective actions required to prevent erosion, control sediment and prevent the discharge of pollutants from the site.

Corrective Action Forms

The corrective action form is found in Appendix E.

6.3 *Delegation of Authority*

The Delegation of Authority form is found in Appendix J of this SWPPP. The following is a list of individuals, or positions within the company who have been duly authorized to sign inspection reports:

Insert Company or Organization Name: Lighthouse Environmental Management, LLC
Insert Name: Gary Salter
Insert Position: Inspector
Insert Address: 184 Stone Street
Insert City, State, Zip Code: Clinton, MA 01510
Insert Telephone Number: (508)331-1884
Insert Fax/Email:

SECTION 7: TRAINING

Table 7-1: Documentation for Completion of Training

Name	Date Training Completed

SECTION 8: CERTIFICATION AND NOTIFICATION

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.

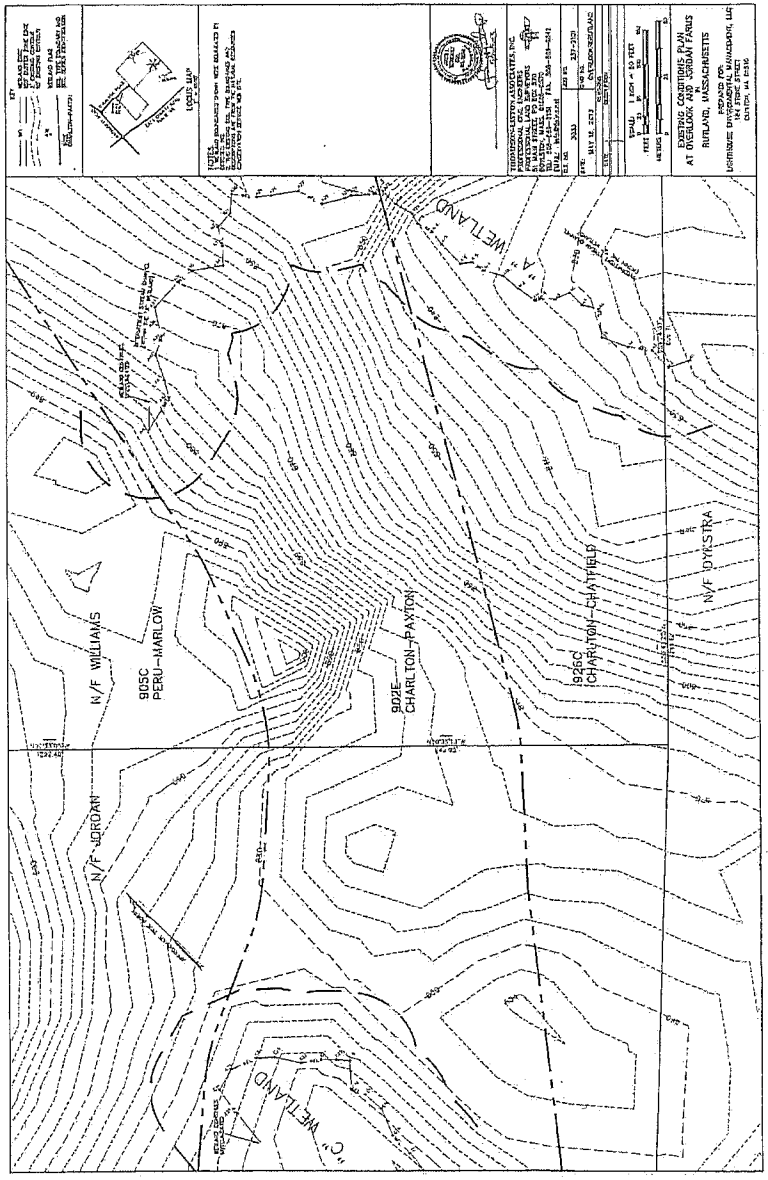
Name: Kevin Gervais Title: Manager

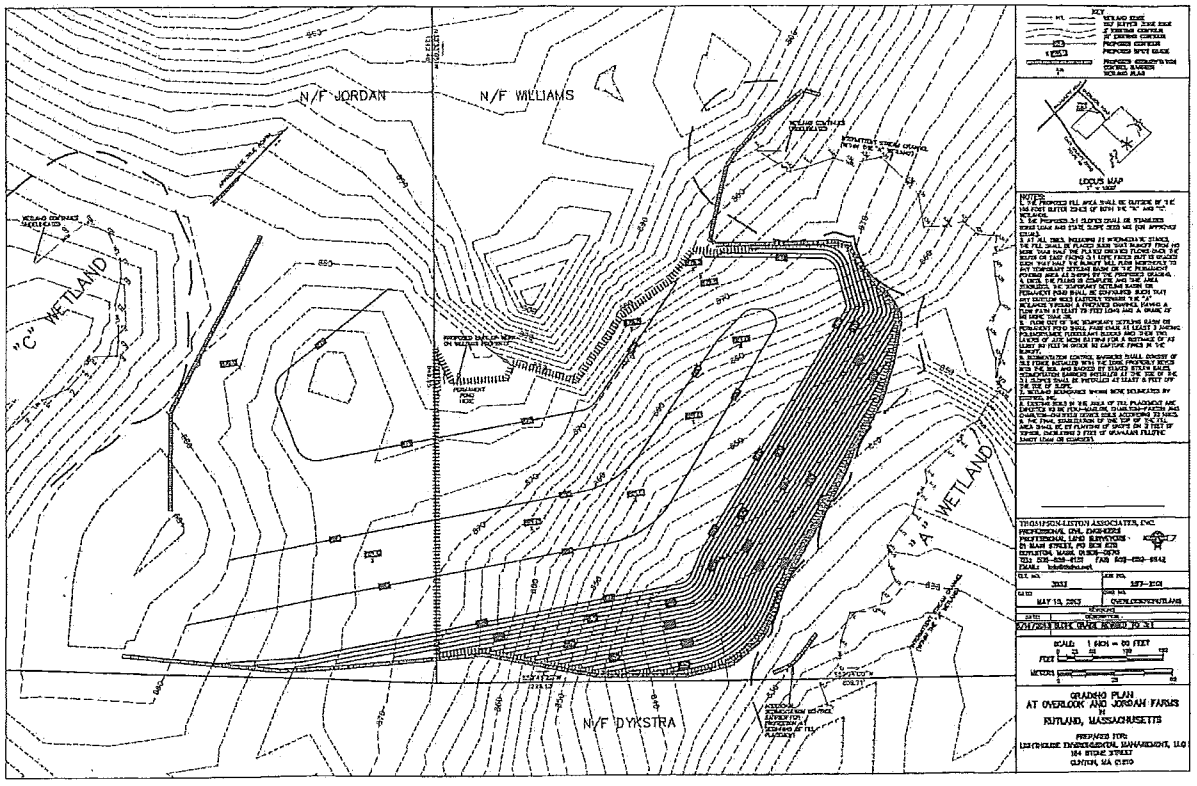
Signature: _____ Date: _____

SWPPP APPENDICES

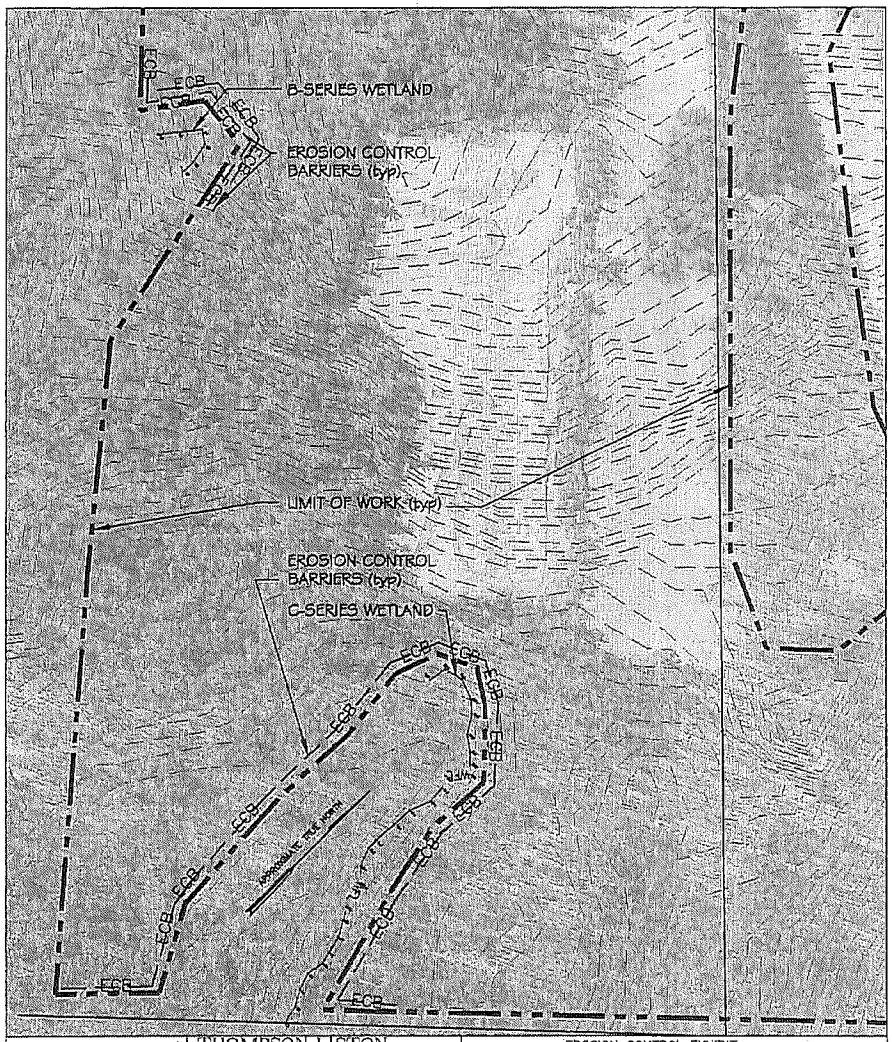
Appendix A – Site Maps

Site Plans of Overlook and Jordan Farms
Erosion Control Exhibit EX-A
Erosion Control Exhibit EX-B
Erosion Control Exhibit EX-C

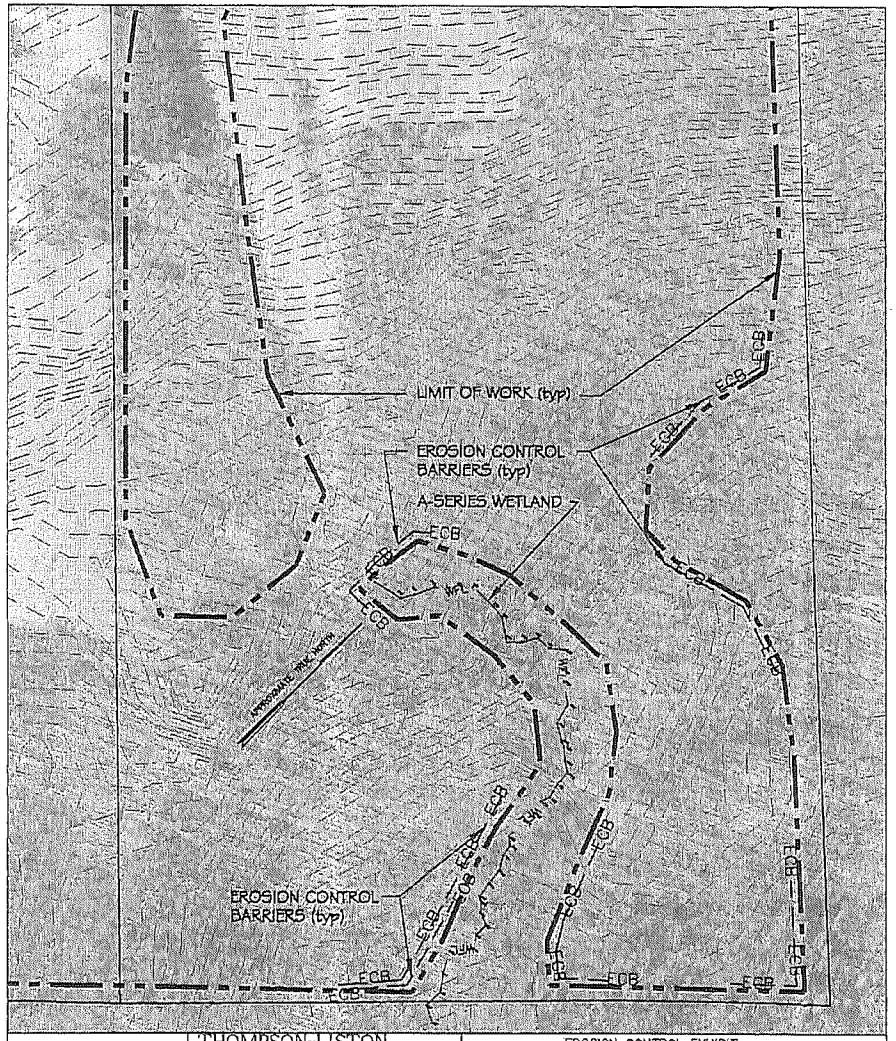



N/F JORDAN
N/F WILLIAMS
N/F DYKSTRA
"C" WETLAND
"A" WETLAND
LOCUS MAP
GRADING PLAN
AT OVERLOOK AND JORDAH FARMS
IN
RUTLAND, MASSACHUSETTS
PREPARED FOR:
LIGHTHOUSE ENVIRONMENTAL MANAGEMENT, LLC
184 STONE STREET
CLINTON, MA 01510
THOMPSON-LISTON ASSOCIATES, INC.
MAY 13, 2013
OVERLOOKRUTLAND


ECB
EROSION CONTROL BARRIER (typ)
APPROXIMATE TRUE NORTH
CONSTRUCTION TRAILOR AND SCALE
EROSION CONTROL BARRIER
LIMIT OF WORK
OVERLOOK ROAD
OVERLOOK ROAD
THOMPSON-LISTON ASSOCIATES, INC.
Professional Engineers Professional Land Surveyors
51 Main Street, Post Office Box 571
Oxford, Massachusetts 01540-0571
252-2101
DATE: MAY 1, 2013
SCALE: 1" = 200'
EROSION CONTROL EXHIBIT
LIGHTHOUSE ENVIRONMENTAL MANAGEMENT LLC
184 STONE STREET
CLINTON, MASSACHUSETTS
EX-A



257-2101 DATE: MAY 1, 2013 SCALE: 1"=200'	THOMPSON-LISTON ASSOCIATES, INC. *Professional Engineers Professional Land Surveyors* 51 Main Street, Post Office Box 570 Boylston, Massachusetts 01505-0570	EROSION CONTROL EXHIBIT LIGHTHOUSE ENVIRONMENTAL MANAGEMENT LLC 184 STONE STREET CLINTON, MASSACHUSETTS EX-B



257-2101 DATE: MAY 1, 2013 SCALE: 1"=200'	THOMPSON-LISTON ASSOCIATES, INC. *Professional Engineers Professional Land Surveyors* 51 Main Street, Post Office Box 570 Boylston, Massachusetts 01505-0570	EROSION CONTROL EXHIBIT LIGHTHOUSE ENVIRONMENTAL MANAGEMENT LLC 184 STONE STREET CLINTON, MASSACHUSETTS EX-C

Appendix B – Copy of 2012 CGP

The final 2012 CGP can be viewed at the below address:

http://www.epa.gov/npdes/pubs/cgp2012_finalpermit.pdf

Stormwater Pollution Prevention Plan (SWPPP)
Overlook and Jordan Farms
Rutland, MA

Appendix C – Copy of NOI and EPA Authorization email

Surabian Realty Company, Inc. SWPPP

Andrew Liston

From: Kevin Gervais [kevin@lighthousemgmt.com]
Sent: Thursday, May 09, 2013 5:37 PM
To: Andrew Liston
Subject: Fwd: Construction General Permit NOI Certification Key (ACTION REQUIRED)
Attachments: Attachment - 1.pdf; Attachment - 2.pdf

---------- Forwarded message ----------
From: <noreply@epa.gov>
Date: Thu, May 9, 2013 at 2:02 PM
Subject: Construction General Permit NOI Certification Key (ACTION REQUIRED)
To: kevin@lighthousemgmt.com
Cc: cgp@epa.gov

Company: Lighthouse Environmental Management LLC
ATTN: Kevin Gervais
Overlook Road
Rutland MA 01543

Project/Site: Overlook and Jordan Farms
Overlook Road
Rutland MA 01543

Permit Tracking Number: MAR12AK26

You have been assigned as the certifying official for one or more 2012 Construction General Permit (CGP) Notices of Intent (NOI) for the project/site noted above.

To certify and complete submission of your CGP NOI to EPA:

1) Login to your Central Data Exchange (CDX) Account at https://cdx.epa.gov/. If you do not have a CDX account, you will need to register a CDX account to the email address designated for the certifying official on the prepared NOI application. You will need to make sure that the eNOI:CGP program has been added to the account.
2) On the MY CDX Page, select the "eNOI:CGP" link (listed under available account profiles).
3) Click the "Load Application" button (if necessary). Select the Construction General Permit NOI link.
4) Click "Add Certification Key" in the frame on the left side of the page.
5)Copy the alpha-numeric Certification Key from this email (see below) and
6) Click the Add button. A confirmation message should be displayed showing that you have successfully added a record to your account to certify.
7) Click the "Home" link in the frame on the left side of the page. Click the permit number on the home page that you wish to review and certify.
8) Review the information provided on the application and choose an appropriate action at the bottom of the page. You will have an option to Cancel (Postpone), Reject, or Submit to EPA (Certify). If you obtained regional approval, and mailed in a hard copy paper application for processing, please disregard this email.

Certification Key: e6ee3f4c-55c7-45f8-856c-b7b5b4a119d5

If you have any questions, please call the EPA NOI Processing Center at 1-866-352-7755 (toll free) or send an email to noi@avanticorporation.com.

EPA NOI Processing Center
Operated by Avanti Corporation
1200 Pennsylvania Ave., NW
Mail Code: 4203M
Washington, DC 20460

Company: Lighthouse Environmental Management LLC
ATTN: Kevin Gervais
Overlook Road
Rutland MA 01543

Project/Site: Overlook and Jordan Farms
Overlook Road
Rutland MA 01543

Permit Tracking Number: MAR12AK26

You have been assigned as the certifying official for one or more 2012 Construction General Permit (CGP) Notices of Intent (NOI) for the project/site noted above.

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2) On the MY CDX Page, select the "eNOI:CGP" link (listed under available account profiles).
3) Click the "Load Application" button (if necessary). Select the Construction General Permit NOI link.
4) Click "Add Certification Key" in the frame on the left side of the page.
5)Copy the alpha-numeric Certification Key from this email (see below) and
6) Click the Add button. A confirmation message should be displayed showing that you have successfully added a record to your account to certify.
7) Click the "Home" link in the frame on the left side of the page. Click the permit number on the home page that you wish to review and certify.
8) Review the information provided on the application and choose an appropriate action at the bottom of the page. You will have an option to Cancel (Postpone), Reject, or Submit to EPA (Certify). If you obtained regional approval, and mailed in a hard copy paper application for processing, please disregard this email.

Certification Key: e6ae3f4c-55c7-45f8-856c-b7b5b4a119d5

If you have any questions, please call the EPA NOI Processing Center at 1-866-352-7755 (toll free) or send an email to noi@avanticorporation.com.

EPA NOI Processing Center
Operated by Avanti Corporation
1200 Pennsylvania Ave., NW
Mail Code: 4203M
Washington, DC 20460

NPDES FORM 3510-9	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 NOTICE OF INTENT (NOI) FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER AN NPDES GENERAL PERMIT	Form Approved. OMB Nos. 2040-0004

Submission of this Notice of Intent (NOI) constitutes notice that the operator identified in Section II of this form requests authorization to discharge pursuant to the NPDES Construction General Permit (CGP) permit number identified in Section I of this form. Submission of this NOI also constitutes notice that the operator identified in Section II of this form meets the eligibility requirements of Parts 1.1 and 1.2 of the CGP for the project identified in Section III 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.

I. Approval to Use Paper NOI Form

Have you been given approval from the Regional Office to use this paper NOI form*? ☐ Yes ☐ No

If yes, provide the reason you need to use this paper form, the name of the EPA Regional Office staff person who approved your use of this form, and the date of approval:

Reason for using paper form:

Name of EPA staff person:

Date approval obtained:

* Note: You are required to obtain approval from the applicable Regional Office prior to using this paper NOI form.

II. Permit Information: Tracking Number (EPA Use Only) MAR12AK25

Permit Number: MAR120000 (see Appendix B of the CGP for the list of eligible permit numbers)

III. Operator Information

Name: Lighthouse Environmental Management LLC

Phone: (978)706-1782 Fax (Optional): (978)706-1784

Email: kevin@lighthousemgmt.com

IRS Employer Identification Number (EIN): 45-3734525

Point of Contact (First Name, Middle Initial, Last Name): Kevin F Gervais

Mailing Address:

Street: 184 Stone Street

City: Clinton State: MA Zip: 01510

NOI Preparer (Complete if NOI was prepared by someone other than the certifier):

Prepared by (First Name, Middle Initial, Last Name): Kevin F Gervais

Organization: Lighthouse Environmental Management LLC

Phone: (978)706-1782 Fax (Optional): (978)706-1784

E-mail: kevin@lighthousemgmt.com

IV. Project/Site Information

Project/Site Name: Overlook and Jordan Farms

Project/Site Address:

Street/Location: Overlook Road

City: Rutland State: MA Zip: 01543

County or similar government subdivision: Worcester

For the project/site for which you are seeking permit coverage, provide the following information:

Latitude/Longitude (Use one of three possible formats, and specify method)

Latitude 1. 42.23.48 N(degrees, minutes, seconds) Longitude 1. 71.54.26 W(degrees, minutes, seconds)
2. _____ N(degrees, minutes, decimal) 2. _____ W(degrees, minutes, decimal)
3. _____ N(degrees, decimals) 3. _____ W(degrees, decimals)

Latitude/Longitude Data Source: ☐ U.S.G.S topographical map ☐ EPA Web Site ☐ GPS ☑ Other: Acme Mapper

If you used a U.S.G.S. topographic map, what was the scale?

Horizontal Reference Datum: ☐ NAD 27 ☐ NAD 83 or WGS 84 ☑ Unknown

Is your project/site located in Indian Country lands, or located on a property of religious or cultural significance to an Indian tribe? ☐ Yes ☑ No

If yes, provide the name of the Indian tribe associated with the area of Indian country (including name of Indian reservation, if applicable), or if not in Indian country, provide the name of the Indian tribe associated with the property:

Are you requesting coverage under this NOI as a "federal operator" as defined in Appendix A? ☐ Yes ☑ No

Estimated Project Start Date: 11/01/2012 Estimated Project Completion Date: 03/01/2016

Estimated Area to be Disturbed (to the nearest quarter acre): 125.0

Have earth-disturbing activities commenced on your project/site? ☑ Yes ☐ No

If yes, is your project an emergency-related project? ☐ Yes ☑ No

Have stormwater discharges from your project/site been covered previously under an NPDES permit? ☐ Yes ☑ No

If yes, provide the Tracking Number if you had coverage under EPA's CGP or the NPDES permit number if you had coverage under an EPA individual permit:

V. Discharge Information

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

Are there any surface waters within 50 feet of your project's earth disturbances? ☐ Yes ☑ No

Receiving Waters and Wetlands Information: (Attach a separate list if necessary)

Surface water(s) to which discharge	Impaired Water	Listed Water Pollutant(s)	Tier 2, 2.5 or 3	Source	TMDL Name and Pollutant
Muschopauge Brook	No		Yes	Massachusetts DEP web site	

Describe the methods you used to complete the above table: Please refer to the Source(s) in the above table.

VI. Chemical Treatment Information

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

If yes, will you use cationic treatment chemicals* at your construction site? ☐ Yes ☑ No

If yes, have you been authorized to use cationic treatment chemicals by your applicable EPA Regional Office in advance of filing your NOI*? ☐ Yes ☐ No

If you have been authorized to use cationic treatment chemicals by your applicable EPA Regional Office, attach a copy of your authorization letter and include documentation of the appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

Please indicate the treatment chemicals that you will use: Anionic polyacrylamide flocculants

* Note: You are ineligible for coverage under this permit unless you notify your applicable EPA Regional Office in advance and the EPA office authorizes coverage under this permit after you have included appropriate controls and implementation procedures designed to ensure that your use of cationic treatment chemicals will not lead to a violation of water quality standards.

VII. Stormwater Pollution Prevention Plan (SWPPP) Information

Has the SWPPP been prepared in advance of filing this NOI? ☑ Yes ☐ No

SWPPP Contact Information:

First Name, Middle Initial, Last Name: Kevin F Gervais

Organization: Lighthouse Environmental Management LLC

Phone: (978)705-1782 Fax (Optional): (978)706-1784

E-mail: kevin@lighthousemgmt.com

VIII. 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 (only check 1 box)?

☑ A ☐ B ☐ C ☐ D ☐ E ☐ F

Provide a brief summary of the basis for criterion selection listed in Appendix D (e.g., communication with U.S. Fish and Wildlife Service or National Marine Fisheries Service, specific study):Publicly available information at the Massachusetts GIS web site using the OLIVER application

If you select criterion B, provide the Tracking Number from the other operator's notification of authorization under this permit:

If you select criterion C, you must attach a copy of your site map (see Part 7.2.5 of the permit), and you must answer the following questions:

What federally-listed species or federally-designated critical habitat are located in your "action area":

What is the distance between your site and the listed species or critical habitat (miles):

If you select criterion D, E, or F, attach copies of any letters or other communications between you and the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

IX. Historic Preservation

Are you installing any stormwater controls as described in Appendix E that require subsurface earth disturbance? (Appendix E, Step 1) ☑ Yes ☐ No

If yes, have prior surveys or evaluations conducted on the site have already determined historic properties do not exist, or that prior disturbances have precluded the existence of historic properties? (Appendix E, Step 2) ☑ Yes ☐ No

If no, have you determined that your installation of subsurface earth-disturbing stormwater controls will have no effect on historic properties? (Appendix E, Step 3) ☐ Yes ☐ No

If no, did the SHPO, THPO, or other tribal representative (whichever applies) respond to you within the 15 calendar days to indicate whether the subsurface earth disturbances caused by the installation of stormwater controls affect historic properties? (Appendix E, Step 4) ☐ Yes ☐ No

If yes, describe the nature of their response:

☐	Written indication that adverse effects to historic properties from the installation of stormwater controls can be mitigated by agreed upon actions.
☐	No agreement has been reached regarding measures to mitigate effects to historic properties from the installation of stormwater controls.
☐	Other:

X. Certification Information

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.

First Name, Middle Initial, Last Name: Kevin F Gervais

Title: Project Manager

Signature: Date:

E-mail: kevin@lighthousemgmt.com

Appendix D – Copy of Inspection Form

Stormwater Construction Site Inspection Report

General Information			
Project Name	Overlook and Jordan Farms		
NPDES Tracking No.	MAR12AK26	**Location**	Overlook Road, Rutland
Date of Inspection		**Start/End Time**	
Inspector's Name(s)	Gary Salter		
Inspector's Title(s)			
Inspector's Contact Information	(508)331-1884		
Inspector's Qualifications			
Describe present phase of construction	First		

Type of Inspection:
☐ Regular ☐ Pre-storm event ☐ During storm event ☐ Post-storm event

Weather Information

Has there been a storm event since the last inspection? ☐Yes ☐No
If yes, provide:
Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):

Weather at time of this inspection?
☐ Clear ☐Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snowing ☐ High Winds
☐ Other: Temperature:

Have any discharges occurred since the last inspection? ☐Yes ☐No
If yes, describe:

Are there any discharges at the time of inspection? ☐Yes ☐No
If yes, describe:

Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1	Erosion control barriers	☐Yes ☐No	☐Yes ☐No	
2	Temp. settling basins	☐Yes ☐No	☐Yes ☐No	
3	Straw bale dikes	☐Yes ☐No	☐Yes ☐No	
4	Drainage swales	☐Yes ☐No	☐Yes ☐No	
5	Floc Blocks & Jute Mesh	☐Yes ☐No	☐Yes ☐No	
6	Temp basin Outlet controls	☐Yes ☐No	☐Yes ☐No	
7		☐Yes ☐No	☐Yes ☐No	
8		☐Yes ☐No	☐Yes ☐No	
9		☐Yes ☐No	☐Yes ☐No	
10		☐Yes ☐No	☐Yes ☐No	
11		☐Yes ☐No	☐Yes ☐No	

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
14		☐Yes ☐No	☐Yes ☐No	
15		☐Yes ☐No	☐Yes ☐No	
16		☐Yes ☐No	☐Yes ☐No	
17		☐Yes ☐No	☐Yes ☐No	
18		☐Yes ☐No	☐Yes ☐No	
19		☐Yes ☐No	☐Yes ☐No	
20		☐Yes ☐No	☐Yes ☐No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	☐Yes ☐No	☐Yes ☐No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	☐Yes ☐No	☐Yes ☐No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	☐Yes ☐No	☐Yes ☐No	
4	Are discharge points and receiving waters free of any sediment deposits?	☐Yes ☐No	☐Yes ☐No	
5	Are storm drain inlets properly protected?	☐Yes ☐No	☐Yes ☐No	
6	Is the construction exit preventing sediment from being tracked into the street?	☐Yes ☐No	☐Yes ☐No	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	☐Yes ☐No	☐Yes ☐No	
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	☐Yes ☐No	☐Yes ☐No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	☐Yes ☐No	☐Yes ☐No	
10	Are materials that are potential stormwater contaminants stored inside or under cover?	☐Yes ☐No	☐Yes ☐No	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	☐Yes ☐No	☐Yes ☐No	
12	(Other)	☐Yes ☐No	☐Yes ☐No	

Non-Compliance

Describe any incidents of non-compliance not described above:

CERTIFICATION STATEMENT

"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."

Print name and title: Gary Salter, Inspector

Signature: _____ **Date:** _____

Appendix E – Copy of Corrective Action Form

Corrective Action Log

Date	BMP Deficiency	Corrective action	Approved By

Stormwater Pollution Prevention Plan (SWPPP)
Overlook and Jordan Farms
Rutland, MA

Appendix F – SWPPP Amendment Log

No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]
1	Changed Inspector Added Inspection Form	May 22, 2013	Andrew B. Liston PE, PLA, CPESC

Surabian Realty Company, Inc. SWPPP

Appendix G – Subcontractor Certifications/Agreements

SUBCONTRACTOR CERTIFICATION
STORMWATER POLLUTION PREVENTION PLAN

Project Number: MAR12AK26

Project Title: Overlook and Jordan Farms

Operator(s): Lighthouse Environmental Management, LLC

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of 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 practices described in the SWPPP.

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

Company: Lighthouse Environmental Management, LLC

Address: 184 Stone Street, Clinton, MA 01510

Telephone Number: 978-706-1782

Type of construction service to be provided: Land filling and grading to improve the farms

Signature: _____

Title: _____

Date: _____

Appendix H – Grading and Stabilization Activities Log

Date Grading Activity Initiated	Description of Grading Activity	Description of Stabilization Measure and Location	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures Initiated

Appendix I – SWPPP Training Log

Stormwater Pollution Prevention Training Log

Project Name:

Project Location:

Instructor's Name(s):

Instructor's Title(s):

Course Location: _____ Date: _____

Course Length (hours): _____

Stormwater Training Topic: *(check as appropriate)*

- ☐ **Sediment and Erosion Controls**
- ☐ **Emergency Procedures**
- ☐ **Stabilization Controls**
- ☐ **Inspections/Corrective Actions**
- ☐ **Pollution Prevention Measures**

Specific Training Objective: _____

_____

Attendee Roster: *(attach additional pages as necessary)*

No.	Name of Attendee	Company
1		
2		
3		
4		
5		
6		
7		
8		

Stormwater Pollution Prevention Plan (SWPPP)
Overlook and Jordan Farms
Rutland, MA

Appendix J – Delegation of Authority Form

Delegation of Authority

I, Kevin Gervais, Manager, hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the Overlook and Jordan Farms construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

Gary Salter, Inspector	(name of person or position)
Lighthouse Environmental Management, LLC	(company)
184 Stone Street	(address)
Clinton, MA 01510	(city, state, zip)
(508)835-5905	(phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix I of EPA's Construction General Permit (CGP), and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix I.

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.

Name: Kevin Gervais, Manager

Company: Lighthouse Environmental Management, LLC

Title: Manager

Signature: _____

Date: _____

Surabian Realty Company, Inc. SWPPP

Appendix J – Delegation of Authority Form

Delegation of Authority

I, _____ (name), hereby designate the person or specifically described position below to be a duly authorized representative for the purpose of overseeing compliance with environmental requirements, including the Construction General Permit, at the _____ construction site. The designee is authorized to sign any reports, stormwater pollution prevention plans and all other documents required by the permit.

_____ (name of person or position)
_____ (company)
_____ (address)
_____ (city, state, zip)
_____ (phone)

By signing this authorization, I confirm that I meet the requirements to make such a designation as set forth in Appendix I of EPA's Construction General Permit (CGP), and that the designee above meets the definition of a "duly authorized representative" as set forth in Appendix I.

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.

Name: _____

Company: _____

Title: _____

Signature: _____

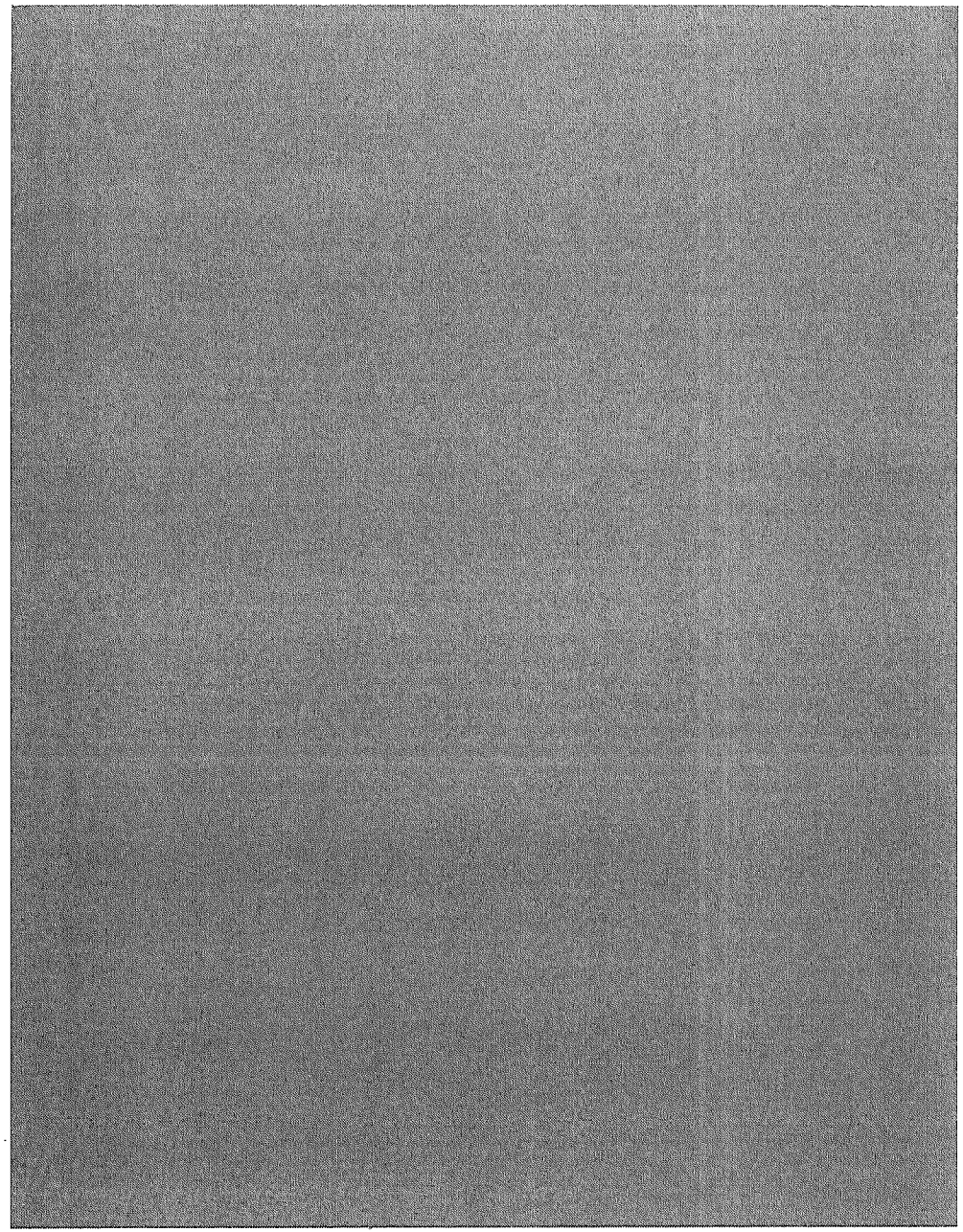
Date: _____

Stormwater Pollution Prevention Plan (SWPPP)
Overlook and Jordan Farms
Rutland, MA

Appendix K – Endangered Species Documentation

The Massachusetts GIS OLIVER viewer was used in May 2013 and no endangered species or habitats of endangered or threatened species were found to be located on or in close proximity to this site.

Surabian Realty Company, Inc. SWPPP



Attachment E

Loam Approval Package and Soil Blending Letter (EI)

EcoTec, Inc.
ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 / Fax: 508-752-9494

May 15, 2013

Michele Padula, Regional Planner
Agricultral Preservation Restriction Program
MA Dept of Agricultral Resources
251 Causeway St., Suite 500
Boston, MA 02114

Re: Overlook Farms, Rutland, MA

Subject: Soil for APR Land

Dear Ms. Padula:

I am a soil scientist contracted by Kevin Gervais of Lighthouse Management to help address the concerns that you raised pursuant to placement of off-site soils on Agricultural Preservation Restriction ("APR") program lands at Overlook Farms in Rutland, Massachusetts. I am taking this opportunity to provide you with information on the source and condition of topsoil that Mr. Gervais, and Mr. Williams (AKA: the landowner) intends to place on APR land including information on conformance with the "NRCS Filling Material Criteria for Agricultural Applications in Massachusetts" (the "Criteria"). The topsoil is presently being stockpiled on adjacent, non-APR land at Jordan Farm in Rutland. It is to be placed as a surface layer over an APR area that is presently un-farmed and had been wooded until it was cleared in 2011 to 2012. The Soil Management Plan depicts proposed soil volumes, contours, stratigraphy and control measures for the area to be filled. The un-farmed area is mapped by the Natural Resources Conservation Service ("NRCS") as a combination of Charlton-Paxton association, 15 to 45 percent slopes, extremely stony; and Charlton-Chatfield association, 3 to 15 percent slopes, extremely stony. The Land Capability Classes of the un-farmed area are 6s and 7s. Neither of the existing soil series in the un-farmed area are Prime Farmlands or Farmlands of State or Local Importance (as defined by NRCS). I have attached an overview photo of the existing APR area to be filled (see attached photo No. 1).

The source of the subject topsoil is a site under construction located at 700 Lafayette Road in Seabrook, NH. As noted in the attached Licensed Site Professional ("LSP") opinion letters, a portion of the site was historically occupied by an industrial facility and the entire property is being re-developed as a shopping center. Attached you will find an aerial photo locus map of the site as well as the site plan for re-development. The site has some history of contamination but has been remediated to the satisfaction of the New Hampshire Department of Environmental Services. The topsoil source locations are on

the perimeters of the site which were wooded, undeveloped and uncontaminated at the time the topsoils were removed. The soils have been thoroughly tested for contaminants and found to be consistent in quality and suitable for re-use. I researched available USDA-NRCS soil survey information for the soil source location and have attached the Custom Soil Resource Report which was generated. Available soil mapping indicates that the upland site perimeters consist of Soil Map Unit 313A which is known as Deerfield fine sandy loam. The Deerfield series is a moderately well drained soil developed in glacial outwash with a surface layer of fine sandy loam. Based on my evaluations of the soil, together with soil testing results discussed below, it is my opinion that the stockpiled topsoil is representative of a Deerfield soil. The primary agricultural limitations are the presence of a seasonally high water table combined with loamy sand and sand in the subsoil layers which creates the potential for low available water content in the topsoil horizon. The non-irrigated land capability classification of the Deerfield soil is 3w due to the potential for a seasonal high water table up to 18 inches below the surface. The USDA-NRCS soil survey notes that the Deerfield soil is a "Farmland of Local Importance".

Starting on May 1, 2013 I have been evaluating the topsoil being stockpiled at the Jordan Farm in Rutland. I observed and sampled the topsoil stockpile periodically including on May 1, 3, 7 & 10, 2013. I have found the topsoil to be loamy sand to sandy loam in texture and very dark grey brown to dark brown (i.e., Munsell colors 10YR 3/2 and 10YR 3/3) in color. Fine to medium-size, woody root fragments were present along with approximately 10% gravel and 2% cobble and stone. No trash or debris was noted. These characteristics are indicative of a native topsoil, consistent with the Deerfield soil series, which was supporting woody plant growth at the time it was removed. The brown color is indicative of a moderate level of organic matter (ca. 3 to 5%) consistent with a historically plowed and amended topsoil. On May 1, 2013 I took a composite sample of the soil which I sent to the University of Massachusetts ("UMASS") Soil Testing Lab for analysis of particle size, organic matter content, pH and nutrients. The results of the analysis are appended to this report and are referenced in my discussion of the NRCS Criteria (see attached). As of my latest inspection on May 10, 2013 it was estimated that approximately 50% of the total topsoil from the New Hampshire site had been brought to Rutland. On May 10, 2013 I took another composite sample and have sent that to the UMASS soil testing lab. I intend to take another composite sample for analysis when 100% of the New Hampshire topsoil has been brought to the site. I also intend to continue to evaluate the soil stockpile periodically, while it is being brought to the site, to ensure consistency with my findings to date. I have attached photos of the topsoil stockpile that I took during my evaluations.

In my professional opinion, the topsoil that I have examined to date (originating from 700 Lafayette Road in Seabrook, NH) is of high quality relative to its potential for crop growth and is suitable for use on the APR program lands at Overlook Farms in Rutland, MA. The only parameter that does not meet the NRCS Criteria is the organic matter content of 2.9 percent which is below the optimum recommended level of 5 percent. As

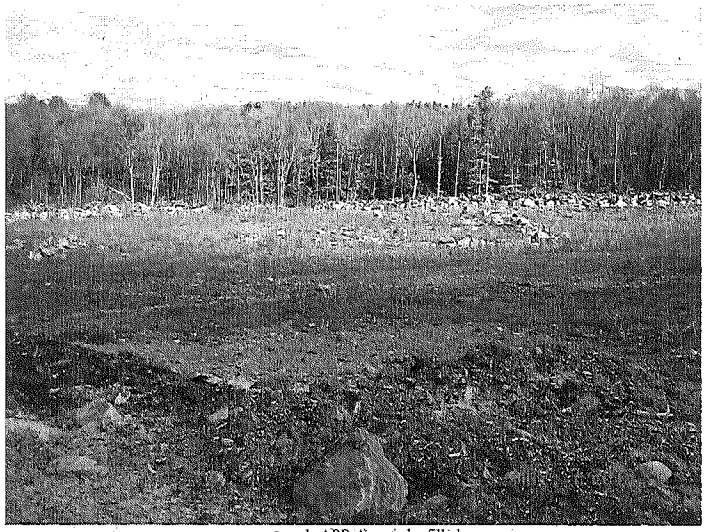
noted in the attached analysis of the criteria, it is my opinion that amending with organic matter, in accordance with standard agricultural practice, will quickly raise the organic matter content to the optimum level. For comparison purposes, Paxton soil is commonly found on the Overlook farm site and it is considered Prime Farmland soil when the stone content is low and it is on a gentle slope. The published organic matter content for Paxton topsoil ranges between 2 and 5 percent.

I have attached a brief description of my qualifications. Please do not hesitate to contact me if you have any questions concerning this or other matters.

Sincerely,

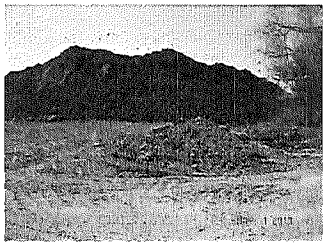
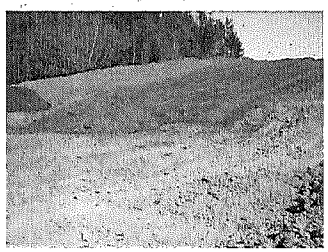
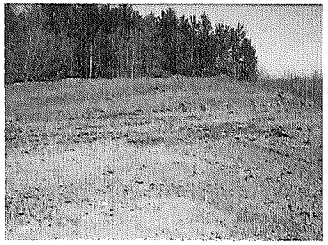
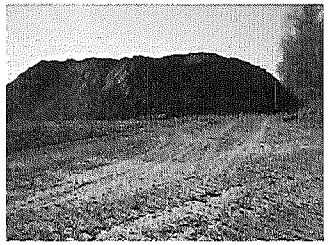
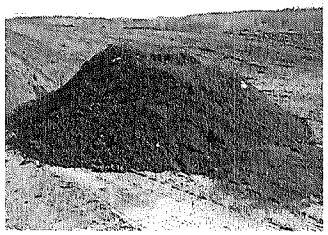
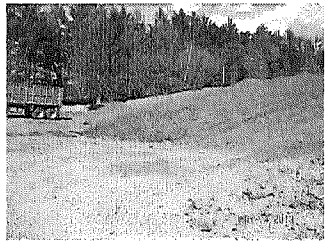
Arthur Allen, CPSS, CESSWI, CWS
Vice President
Soil & Environmental Scientist 10/soil/OverlookTopsoil 5.6.13.doc

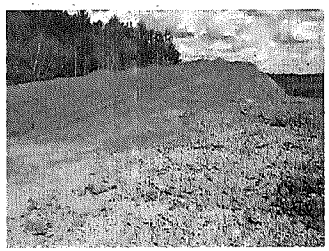
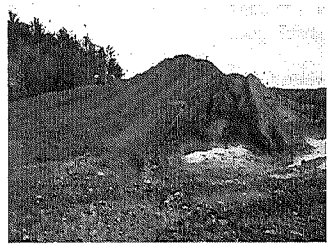
Attachments: 8 (Qualifications, EcoTec photos, Seabrook, NH locus; Seabrook, NH Site Plan; Soil Analysis Report, Custom Soil Resource Report, EnviroTrac letter, Wilcox & Barton letter w/ data)



1. APR Area to be filled

RUTLAND TOPSOIL STOCKPILE PHOTOS (AS DATED)

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 / Fax: 508-752-9494

Arthur Allen, CPSS, CWS, CESSWI
Vice President
Soil & Wetland Scientist

Arthur Allen is the Vice President of EcoTec, Inc. and has been a senior environmental scientist there since 1995. His work with EcoTec has involved wetland delineation, wildlife habitat evaluation, environmental permitting (federal, state and local), environmental monitoring, expert testimony, peer reviews, contaminated site assessment and the description, mapping and interpretation of soils. His clients have included private landowners, developers, major corporations and regulatory agencies. Prior to joining EcoTec, Mr. Allen mapped and interpreted soils in Franklin County, MA for the U.S.D.A. Natural Resources Conservation Service (formerly Soil Conservation Service) and was a research soil scientist at Harvard University's Harvard Forest. Since 1994, Mr. Allen has assisted the Massachusetts Department of Environmental Protection and the Massachusetts Association of Conservation Commissions as an instructor in the interpretation of soils for wetland delineation and for the Title V Soil Evaluator program.

Mr. Allen has a civil service rating as a soil scientist, an undergraduate degree in Natural Resource Studies and a graduate certificate in Soil Studies. His work on the Franklin County soil survey involved interpretation of landscape-soil-water relationships, classifying soils and drainage, and determining use and limitation of the soil units that he delineated. As a soil scientist at the Harvard Forest, Mr. Allen was involved in identifying the legacies of historical land-use in modern soil and vegetation at a number of study sites across southern New England. He has a working knowledge of the chemical and physical properties of soil and water and how these properties interact with the plants that grow on a given site. While at Harvard Forest he authored and presented several papers describing his research results which were later published. In addition to his aforementioned experience, Mr. Allen was previously employed by the Trustees of Reservations as a land manager and by the Town of North Andover, MA as a conservation commission intern.

Education:
1993-Graduate Certificate in Soil Studies, University of New Hampshire
1982-Bachelor of Science in Natural Resource Studies, University of Massachusetts

Professional Affiliations:
Certified Professional Soil Scientist (ARCPACS CPSS #22529)
New Hampshire Certified Wetland Scientist (#19)
Registered Professional Soil Scientist – Society of Soil Scientists of SNE [Board Member (2000-2006)]
Certified Erosion, Sediment & Stormwater Inspector (#965)
Massachusetts Arborists Association-Certified Arborist (1982 – 1998)
New England Hydric Soils Technical Committee member
Massachusetts Association of Conservation Commissions member
Society of Wetland Scientists member

Refereed Publications:
Soil Science and Survey at Harvard Forest. A.Allen. *In*: Soil Survey Horizons. Vol. 36, No. 4, 1995, pp. 133-142.
Controlling Site to Evaluate History: Vegetation Patterns of a New England Sand Plain. G.Motzkin, D.Foster, A.Allen, J.Harrod, & R.Boone. *In*: Ecological Monographs 66(3), 1996, pp. 345-365.
Vegetation Patterns in Heterogeneous Landscapes: The Importance of History and Environment. G.Motzkin, P.Wilson, D.R.Foster & A.Allen. In: Journal of Vegetation Science 10, 1999, pp. 903-920.

aabio.doc

NRCS Filling Material Criteria for Agricultural Applications in Massachusetts

Topsoil for Overlook Farms, Rutland, MA

Analysis by: Arthur Allen, CPSS of EcoTec, Inc.
May 15, 2013

This analysis pertains to topsoil which is being imported from a Deerfield soil area in Seabrook, NH. The topsoil has been evaluated by the author and found to be consistent with the Deerfield Soil Series descriptions. It is assumed that this topsoil will be spread at least 24 inches in depth as a finished surface layer over a low-lying area to be filled. The active rooting depth for annual agricultural crops such as sileage corn is typically 12 inches or less. Perennial crops do not typically root more than 24 inches deep. This analysis is based on field evaluation by the author, published soil survey information and soil testing results referenced in the cover letter to Michele Padula dated May 15, 2013.

A. The material has sufficient available water capacity within a depth of 1 meter, or in the root zone (root zone is the part of the soil that is penetrated or can be penetrated by plant roots) if it is less than 1 meter deep, to produce the commonly grown cultivated crops (cultivated crops include, but are not limited to, grain, forage, oilseed, vegetables, orchard, vineyard, and bush fruit crops) adapted to the region in 7 or more years out of 10 (more than 5 cm of available water), and,

   The Deerfield topsoil has an Available Water Capacity of 4.3 inches (10.9 cm) as published in the soil survey.

B. The material has a pH between 4.5 and 8.4 in all LAYERS within a depth of 1 meter or in the root zone if it is less than 1 meter deep; and,

   The tested Deerfield topsoil pH is 5.8. This material will form the root zone.

C. After spreading, the material has no water table or has a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and,

   The topsoil is free draining (published Ksat: 2.0 to 6.0 in/hr) and will be spread over a contoured surface that will allow lateral drainage over any more restrictive soils below. It is anticipated that seasonal high water tables will be no higher than 24 inches below the ground surface which is conducive to all common cultivated crops. The Soil Management Plan contains a cross-section of the proposed soil profile.

D. The land upon which the material is spread is not flooded frequently during the growing season (less often than once in 2 years); and,

   The land upon which the topsoil is to be spread is not presently "frequently flooded during the growing season". Following spreading, the finished grades will be significantly higher and contoured so as to prevent flooding.

E. After spreading, the product of K (erodibility factor) and percent slope is less than 4.2; and,

   The Deerfield topsoil product of K (0.17 published) and the proposed slope (3%) is 0.51 which is significantly less than 4.2 over the farmable area.

F. The material has a permeability rate of at least 0.15 cm per hour in the upper 50 cm; and,

The Deerfield topsoil has a published permeability rate of 15.24 cm per hour.

G. The material after spreading has a bulk density less than 1.62 grams per cubic centimeter throughout the upper 50 cm; and,

The Deerfield topsoil has a published bulk density of 1.00 gram per cubic centimeter. Compaction during spreading will be minimized by the use of tracked equipment, avoidance of spreading when the soils are saturated and minimizing the amount of equipment traffic over the finished soil surface.

H. Less than 10 percent of the upper 15 cm in the material consists of rock fragments greater than 7.5 cm in diameter; and,

The published Deerfield topsoil data indicates no rock fragments greater than 7.5 cm diameter. Based on field observations, the rock fragment content of the New Hampshire Deerfield topsoil is no more than 2 percent.

I. The material has organic matter content by dry weight of at least 5 percent in the upper 15 cm.

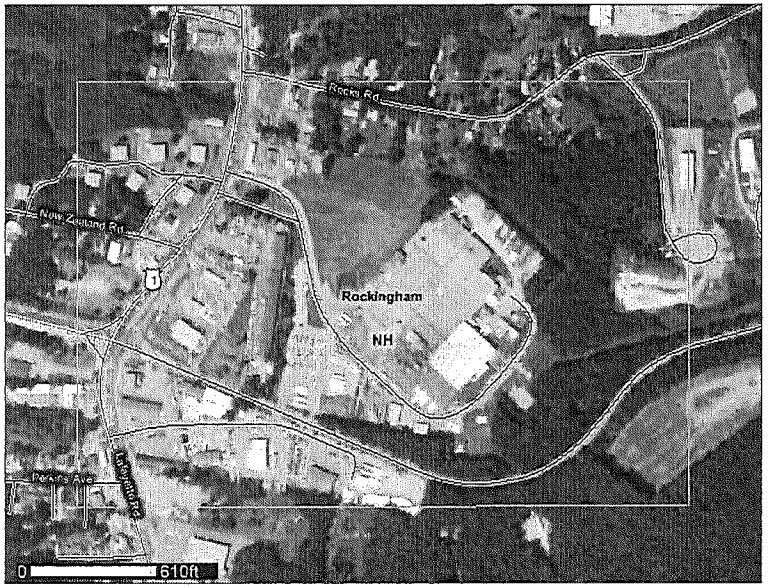
The New Hampshire Deerfield topsoil lab analysis indicates 2.9 percent organic matter. Organic matter amendments, with liming agents, will be added and tilled-in, consistent with standard agricultural practice, to reach 5 percent organic matter content.

USDA United States Department of Agriculture

NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Rockingham County, New Hampshire



May 2, 2013

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

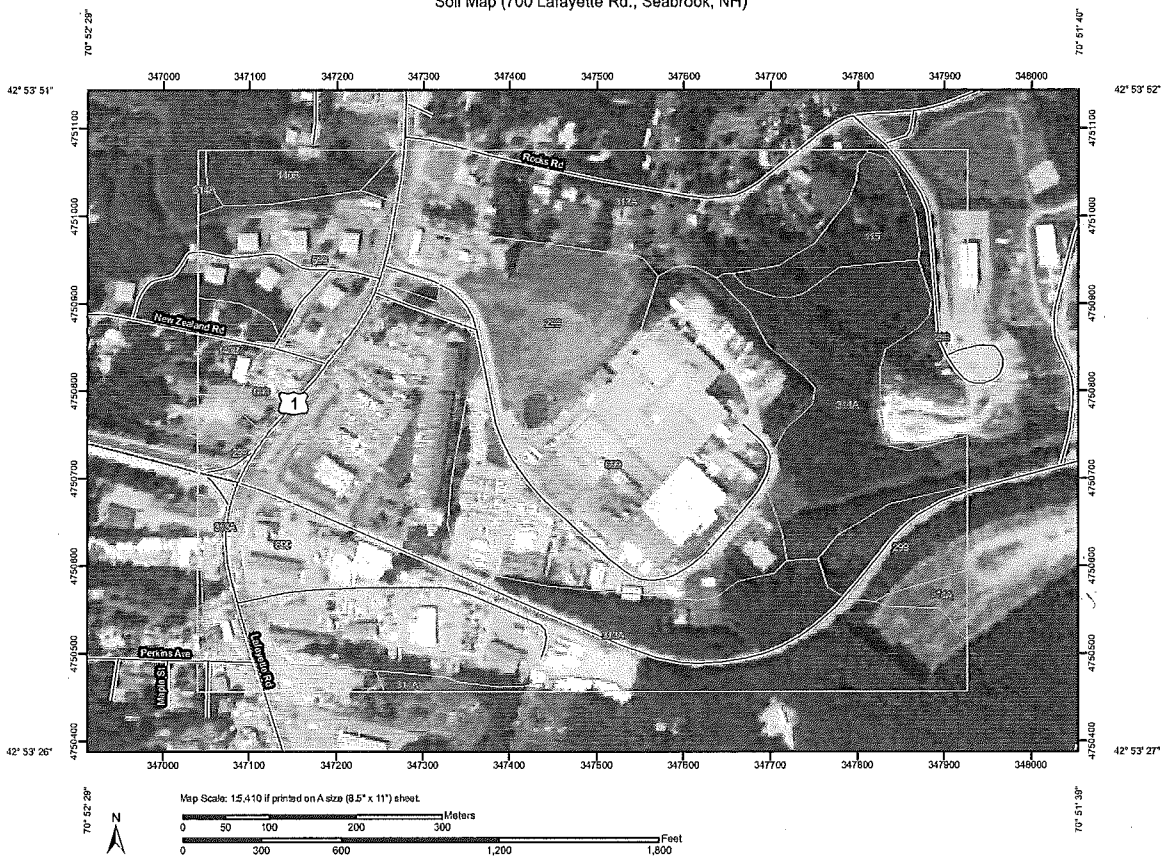
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map (700 Lafayette Rd., Seabrook, NH)



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:5,410 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 19N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Rockingham County, New Hampshire
Survey Area Data: Version 12, Sep 27, 2012

Date(s) aerial images were photographed: 7/31/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (700 Lafayette Rd., Seabrook, NH)

Rockingham County, New Hampshire (NH015)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
115	Scarboro muck	3.4	2.5%
140B	Chatfield-Hollis-Canton complex, 3 to 8 percent slopes, very stony	4.6	3.4%
299	Udorthents, smoothed	22.1	16.3%
313A	Deerfield fine sandy loam, 0 to 3 percent slopes	51.0	37.7%
314A	Pipestone sand, 0 to 5 percent slopes	13.3	9.8%
599	Urban land-Hoosic complex, 3 to 15 percent slopes	8.5	6.3%
699	Urban land	32.5	24.0%
Totals for Area of Interest		135.5	100.0%

Map Unit Descriptions (700 Lafayette Rd., Seabrook, NH)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been

observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Rockingham County, New Hampshire

115—Scarboro muck

Map Unit Setting
Elevation: 0 to 2,100 feet
Mean annual precipitation: 28 to 45 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 100 to 195 days

Map Unit Composition
Scarboro and similar soils: 80 percent
Minor components: 20 percent

Description of Scarboro

Setting
Landform: Outwash terraces

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: High (about 9.7 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 5w
Hydrologic Soil Group: D

Typical profile
0 to 12 inches: Mucky peat
12 to 16 inches: Sandy loam
16 to 60 inches: Sand

Minor Components

Chocorua
Percent of map unit: 10 percent
Landform: Bogs

Pipestone
Percent of map unit: 10 percent
Landform: Outwash terraces

140B—Chatfield-Hollis-Canton complex, 3 to 8 percent slopes, very stony

Map Unit Setting
Elevation: 0 to 1,600 feet
Mean annual precipitation: 28 to 46 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 60 to 180 days

Map Unit Composition
Chatfield and similar soils: 35 percent
Canton and similar soils: 20 percent
Hollis and similar soils: 20 percent
Minor components: 25 percent

Description of Chatfield

Setting
Parent material: Till

Properties and qualities
Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 6s
Hydrologic Soil Group: B

Typical profile
0 to 20 inches: Fine sandy loam
20 to 31 inches: Cobbly fine sandy loam
31 to 35 inches: Unweathered bedrock

Description of Hollis

Setting
Parent material: Till

Properties and qualities
Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.6 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 6s
Hydrologic Soil Group: D

Typical profile
0 to 2 inches: Fine sandy loam
2 to 13 inches: Cobbly fine sandy loam
13 to 17 inches: Unweathered bedrock

Description of Canton

Setting
Parent material: Till

Properties and qualities
Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.3 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 6s
Hydrologic Soil Group: B

Typical profile
0 to 5 inches: Gravelly fine sandy loam
5 to 21 inches: Gravelly fine sandy loam
21 to 60 inches: Loamy sand

Minor Components

Other inclusions
Percent of map unit: 8 percent
Landform: Depressions

Greenwood
Percent of map unit: 5 percent
Landform: Bogs

Newfields
Percent of map unit: 5 percent

Walpole
Percent of map unit: 5 percent
Landform: Depressions

Rock outcrop
Percent of map unit: 2 percent

299—Udorthents, smoothed

Map Unit Composition
Udorthents and similar soils: 100 percent

Description of Udorthents

Properties and qualities
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

313A—Deerfield fine sandy loam, 0 to 3 percent slopes

Map Unit Setting
Elevation: 0 to 1,000 feet
Mean annual precipitation: 28 to 55 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 120 to 200 days

Map Unit Composition
Deerfield and similar soils: 80 percent
Minor components: 20 percent

Description of Deerfield

Setting
Parent material: Sandy outwash derived mainly from granite, gneiss and schist

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.3 inches)

Interpretive groups
Farmland classification: Farmland of local importance
Land capability (nonirrigated): 3w
Hydrologic Soil Group: B

Typical profile
0 to 8 inches: Fine sandy loam
8 to 21 inches: Loamy sand
21 to 60 inches: Sand

Minor Components

Eldridge
Percent of map unit: 5 percent

Pipestone
Percent of map unit: 5 percent
Landform: Outwash terraces

Squamscott
Percent of map unit: 5 percent
Landform: Marine terraces

Windsor
Percent of map unit: 5 percent

314A—Pipestone sand, 0 to 5 percent slopes

Map Unit Setting
Elevation: 0 to 2,100 feet
Mean annual precipitation: 28 to 55 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 100 to 200 days

Map Unit Composition
Pipestone and similar soils: 75 percent
Minor components: 25 percent

Description of Pipestone

Setting
Landform: Outwash terraces

Properties and qualities
Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None

Available water capacity: Low (about 4.3 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 4w
Hydrologic Soil Group: B

Typical profile
0 to 6 inches: Sand
6 to 33 inches: Sand
33 to 60 inches: Sand

Minor Components

Chocorua
Percent of map unit: 5 percent
Landform: Bogs

Deerfield
Percent of map unit: 5 percent

Not named wet
Percent of map unit: 5 percent
Landform: Outwash terraces

Scarboro
Percent of map unit: 5 percent
Landform: Depressions

Squamscott
Percent of map unit: 5 percent
Landform: Marine terraces

599—Urban land-Hoosic complex, 3 to 15 percent slopes

Map Unit Setting
Elevation: 90 to 1,100 feet
Mean annual precipitation: 30 to 55 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 120 to 190 days

Map Unit Composition
Urban land: 55 percent
Hoosic and similar soils: 25 percent
Minor components: 20 percent

Description of Hoosic

Setting
Parent material: Outwash

Properties and qualities
Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (2.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.6 inches)

Interpretive groups
Farmland classification: Not prime farmland
Land capability (nonirrigated): 3s
Hydrologic Soil Group: A

Typical profile
0 to 8 inches: Gravelly fine sandy loam
8 to 15 inches: Very gravelly fine sandy loam
15 to 60 inches: Very gravelly coarse sand

Minor Components

Eldridge
Percent of map unit: 4 percent

Newfields
Percent of map unit: 4 percent

Scitico
Percent of map unit: 4 percent
Landform: Marine terraces

Squamscott
Percent of map unit: 4 percent
Landform: Marine terraces

Udorthents
Percent of map unit: 4 percent

699—Urban land

Map Unit Composition
Urban land: 85 percent
Minor components: 15 percent

Minor Components

Not named
Percent of map unit: 15 percent

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Map Unit Description (Brief, Generated) (700 Lafayette Rd., Seabrook, NH)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous

areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated) (700 Lafayette Rd., Seabrook, NH)

Rockingham County, New Hampshire

Map Unit: 115—Scarboro muck

Component: Scarboro (80%)

The Scarboro component makes up 80 percent of the map unit. Slopes are 0 to 3 percent. This component is on outwash terraces. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is very poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 6 inches during January, February, March, April, May, June, July, August, September, October, November, December. Organic matter content in the surface horizon is about 88 percent. Nonirrigated land capability classification is 5w. This soil meets hydric criteria.

Component: Chocorua (10%)

Generated brief soil descriptions are created for major components. The Chocorua soil is a minor component.

Component: Pipestone (10%)

Generated brief soil descriptions are created for major components. The Pipestone soil is a minor component.

Map Unit: 140B—Chatfield-Hollis-Canton complex, 3 to 8 percent slopes, very stony

Component: Chatfield (35%)

The Chatfield component makes up 35 percent of the map unit. Slopes are 3 to 8 percent. The parent material consists of till. Depth to a root restrictive layer, bedrock, lithic, is 20 to 40 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface

horizon is about 6 percent. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Canton (20%)

The Canton component makes up 20 percent of the map unit. Slopes are 3 to 8 percent. The parent material consists of till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Hollis (20%)

The Hollis component makes up 20 percent of the map unit. Slopes are 3 to 8 percent. The parent material consists of till. Depth to a root restrictive layer, bedrock, lithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Nonirrigated land capability classification is 6s. This soil does not meet hydric criteria.

Component: Other inclusions (8%)

Generated brief soil descriptions are created for major components. The Other inclusions soil is a minor component.

Component: Greenwood (5%)

Generated brief soil descriptions are created for major components. The Greenwood & ossipee soil is a minor component.

Component: Newfields (5%)

Generated brief soil descriptions are created for major components. The Newfields soil is a minor component.

Component: Walpole (5%)

Generated brief soil descriptions are created for major components. The Walpole soil is a minor component.

Component: Rock outcrop (2%)

Generated brief soil descriptions are created for major components. The Rock outcrop soil is a minor component.

Map Unit: 299—Udorthents, smoothed

Component: Udorthents (100%)

The Udorthents component makes up 100 percent of the map unit. Slopes are Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is excessively drained. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. This soil does not meet hydric criteria.

Map Unit: 313A—Deerfield fine sandy loam, 0 to 3 percent slopes

Component: Deerfield (80%)

The Deerfield component makes up 80 percent of the map unit. Slopes are 0 to 3 percent. The parent material consists of sandy outwash derived mainly from granite, gneiss and schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 27 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Eldridge (5%)

Generated brief soil descriptions are created for major components. The Eldridge soil is a minor component.

Component: Pipestone (5%)

Generated brief soil descriptions are created for major components. The Pipestone soil is a minor component.

Component: Squamscott (5%)

Generated brief soil descriptions are created for major components. The Squamscott soil is a minor component.

Component: Windsor (5%)

Generated brief soil descriptions are created for major components. The Windsor soil is a minor component.

Map Unit: 314A—Pipestone sand, 0 to 5 percent slopes

Component: Pipestone (75%)

The Pipestone component makes up 75 percent of the map unit. Slopes are 0 to 5 percent. This component is on outwash terraces. The parent material consists of

sandy outwash derived mainly from granite, gneiss and schist. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during January, February, March, April, May, June, October, November, December. Organic matter content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 4w. This soil meets hydric criteria.

Component: Chocorua (5%)

Generated brief soil descriptions are created for major components. The Chocorua soil is a minor component.

Component: Deerfield (5%)

Generated brief soil descriptions are created for major components. The Deerfield soil is a minor component.

Component: Not named wet (5%)

Generated brief soil descriptions are created for major components. The Not named wet soil is a minor component.

Component: Scarboro (5%)

Generated brief soil descriptions are created for major components. The Scarboro soil is a minor component.

Component: Squamscott (5%)

Generated brief soil descriptions are created for major components. The Squamscott soil is a minor component.

Map Unit: 599—Urban land-Hoosic complex, 3 to 15 percent slopes

Component: Urban land (55%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Hoosic (25%)

The Hoosic component makes up 25 percent of the map unit. Slopes are 3 to 8 percent. The parent material consists of outwash. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat excessively drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter

content in the surface horizon is about 4 percent. Nonirrigated land capability classification is 3s. This soil does not meet hydric criteria.

Component: Eldridge (4%)

Generated brief soil descriptions are created for major components. The Eldridge soil is a minor component.

Component: Newfields (4%)

Generated brief soil descriptions are created for major components. The Newfields soil is a minor component.

Component: Scitico (4%)

Generated brief soil descriptions are created for major components. The Scitico soil is a minor component.

Component: Squamscott (4%)

Generated brief soil descriptions are created for major components. The Squamscott soil is a minor component.

Component: Udorthents (4%)

Generated brief soil descriptions are created for major components. The Udorthents soil is a minor component.

Map Unit: 699—Urban land

Component: Urban land (85%)

Generated brief soil descriptions are created for major soil components. The Urban land is a miscellaneous area.

Component: Not named (15%)

Generated brief soil descriptions are created for major components. The Not named soil is a minor component.

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EnviroTrac
Environmental Services

April 29, 2013

VIA E-MAIL

Mr. Kevin Gervais
Lighthouse Environmental Management, Inc.
184 Stone Street, PO Box 931
Clinton, Massachusetts

Subject: Subject: Letter of Acceptance for "<RCS-1", Natural Loam and Granular Fill Soil for Re-use at the Overlook Farms Property, Rutland, Massachusetts

Sending Site: 700 Lafayette Road, Seabrook, NH

Dear Kevin:

EnviroTrac, Ltd (EnviroTrac) has been contracted by you to prepare a "Soil Management Plan" (SMP) and conduct periodic reviews of candidate soil packages for re-use at the above-referenced "<RCS-1" Site located at 29 Overlook Drive in Rutland, Massachusetts. EnviroTrac has collected background soil samples at the farm property and has reviewed analytical testing conducted on a mix of paper mill sludge ("Biomix") permitted by MassDEP to be placed on the property by New England Organics (August 17, 2011). Some testing done for this effort was also considered to represent background as described in the SMP. Soil cover was previously removed from portions of this area on the farm to underlying till and bedrock and the farm is accepting certain soils considered to be physically and chemically suitable to replace the sub-soil layer for growth of corn.

The SMP for the property was prepared (September 24, 2012) and documented the basis for acceptance of candidate soils at the Site believed to be accordance with applicable local and state regulations based on information from the owner at the time and other available correspondences. The re-use requirements were prepared that were considered suitable for the property and surrounding human and environmental receptors. Specifically, the SMP summarized local environmental conditions and addressed the "anti-degradation" requirements in the Massachusetts Contingency Plan (MCP) which specify chemical constituents of soils brought to a site that would not environmentally degrade existing conditions.

State and local agencies recently reviewed the original SMP and provided inquiries requiring elaboration by the Owner, Lighthouse, and EnviroTrac in March 2013. A "Cease and Desist" order was filed by the Rutland Board of Health (BOH) in early March 2013 in order for them to review the information in the SMP. The information was provided to MassDEP (Bureau of Waste Site Cleanup and Resource Protection), Mass Department of Conservation and Recreation (DCR), National Resources Conservation

Service (NRCS), and City of Worcester at the request of BOH. After review, the BOH unanimously lifted the order on March 18, 2013 pending provision of an SMP Supplement that updates runoff/wetland protection concerns by the agencies with a revised topographic soil-fill placement and wetlands protection map, storm water pollution protection plan, and potential periodic testing of incoming soils at the discretion of the City of Worcester or Town of Rutland in coordination with Lighthouse and ET . The SMP Supplement is expected to be submitted in May 2013 and the map will confirmed provide wetland boundaries, protective measures, and areas pre-agreed upon for continued placement of soil.

Based on EnviroTrac's experience at several other soil re-use sites similar to this one in central Massachusetts, and the planned use of the soil as part of an overall mix to support growing of corn, the subject soil is considered not to significantly exceed pre-existing background soil conditions and will pose no human or ecological risk based on the current and planned future use as a farm with the SMP Supplement. A Site Plan will be provided in the SMP Supplement that depicts the area where soil placement will occur as coordinated and tracked by you and the owner. The MassDEP Draft Guidance on Soil Re-use issued March 26, 2013 was also considered in evaluating data for this package in addition to the existing Acceptance Criteria that will be updated in the SMP Supplement. A copy of the updated Acceptance Criteria is included with this approval that was provided to the consultant.

EnviroTrac has received a package of information from Wilcox & Barton, Inc. (WB) dated April 29, 2013 summarizing a professional LSP opinion for re-use of up to 17,000 cy (25,500 tons) of near surface loam and granular fill material that was not located in previous waste storage or disposal areas as described by WB that are below MCP residential "RCS-1"soil standards and are consistent with updated Acceptance Criteria developed at the Overlook Farms Soil Re-use Site. The physical makeup of the candidate soils in this package have been discussed by you with the Owner and approved prior to EnviroTrac's submittal of this approval.

EnviroTrac has discussed this package with WB and reviewed their demonstration that the soil results in this package are adequately represented by the testing contained herein. The soil is currently stockpiled and has been characterized in the stockpile by WB and will be shipped using the unsigned straight BOL that contains no MassDEP Release Tracking Number (RTN) and will be signed for soil shipments. Soil data was collected for candidate soils at the above-referenced Sending Site by WB at a certain frequency deemed suitable as described in the attached package based on their familiarity with the sending site.

Samples were collected by WB from the stockpile as shown on the attached map to characterize the soil. WB collected 43 soil samples of the subject soils as shown on the attached data table. The soil was considered suitable for re-use at Overlook based on a sampling frequency of about 1 sample/500 cy of loam and structurally unsuitable granular fill.

The soil samples were analyzed in general conformance with parameters prescribed in MassDEP's "COMM-97-001" Policy for disposal/re-use characterization at Massachusetts Landfills according to WB while employing due diligence practices based on their knowledge of the Site. The loam/fill soil stratum at the near surface depths was collected in areas peripheral to areas where waste impacts were found on the site and

contains no debris, trash or other evidence of visual contamination or contamination using PID screening. Headspace volatile concentrations were evaluated with a photo-ionization detector (PID) by WB and no readings above 2 ppmv were detected.

Site Information

The following summarizes pertinent information for the Site. Please also refer to pertinent sections of the Soil Profile Package prepared as required and provided in Attachment A.

Site Address: 700 Lafayette Road, Seabrook, NH

Consultant Providing Analytical Information: Ms. Amy Roth, PG, LSP

MassDEP Disposal Site and Release Tracking Number: According to the information provided to EnviroTrac in the report, the material was generated in association with the excavations in vegetated areas at the above-referenced development project. No known NHDES or MCP-regulated releases have occurred to the subject soils and no known hazardous characteristics of soils were found. The results for the subject soils were below the unrestricted MCP "RCS-1" Reportable Concentrations.

Analytical Profiling Documents: The analytical reports were provided by e-mail to EnviroTrac by WB and are on file at EnviroTrac and WB.

Analyses Conducted and Frequency: Total Petroleum Hydrocarbons (TPH), semi volatile organic compounds (SVOCs), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), Resource Conservation and Recovery Act (RCRA) 8 Metals, conductance, and hazardous indicators were run as justified by WB. The Overlook Site requires analysis for pesticides/herbicides or a demonstration by an LSP that no use or unauthorized releases of these materials existed to the soils that would result in concentrations of significance. There was no history of pesticide/herbicide use or storage on the property that would affect the subject soil at these depths.

Total Estimated Quantity of Soils Requested to be Re-used: Up to 17,000 cy of select loam/fill soil as defined by WB from the locations and depths sampled as shown on the map in Attachment A.

Evaluation of Constituent Concentrations with Acceptance Criteria and Comments:

The constituents tested meet the updated Acceptance Criteria for the Overlook Farms Site with the following notes below:

- No VOCs were reported above detection limits except for very low detections of isopropyltoluene and toluene in 2 samples which were well below RCS-1. This together with the PID testing indicated the results were acceptable.

- A few SVOCs were detected in 2 samples slightly above Acceptance Criteria but most were ND or below criteria and the average was below criteria.

- Low levels of TPH were detected in some samples but all were below the updated Acceptance Criteria. No PCBs were detected.

- No metals were detected above updated Acceptance Criteria and conductance and hazardous indicator results were also ND or acceptable.

- WB has indicated only the soil represented by the samples in Attachment A will be sent.

- Solid debris, such as non-painted or coated concrete, bricks, wood, and rocks are not expected but if encountered, shall be of diameter less than 12 inches and constitute no greater than 5% of the quantity. There shall be no wooden timbers or other debris as indicated in the Plan.

- The soil will contain no free water and no noticeable nuisance odors, such as hydrogen sulfide or significant amount of sea shells which again are not expected based on the soil description provided.

- The soil will be shipped using the attached signed straight BOL that requires signature by the owner and LSP for shipment and placement will be logged by you or another authorized representative at Overlook Farms as stated in the plan

Acknowledgement and Acceptance

By review of the information provided, EnviroTrac hereby considers up to 17,000 cy (25,500 tons) of the subject soils, as represented by WB to EnviroTrac and you acceptable for re-use at the Overlook Farms Site in accordance with the SMP as long as they are physically suitable for agricultural use which has been coordinated and pre-determined by you and the Owner. The acceptance is subject to the periodic inspections at the Overlook Farms as described in the Plan and soils will be placed in areas for farming. This approval will be kept on file by you.

The soil will be shipped using the fully executed and updated shipping documentation (BOL) after coordination is made with you. You will log each soil load that is shipped to the facility and its final location.

Please call me at (781) 793-0074, ext.11 if you have questions.

Very Truly Yours,

Richard G. Stromberg, CPG, LSP
Principal Geologist

CC: A. Roth (WB)

This Acceptance is hereby acknowledged by the sending LSP:

_____
[Signature]

_____
[Print Name]

_____
[Title]

_____
[Date]

EnviroTrac

Wilcox & Barton INC.
ENVIRONMENTAL AND ENGINEERING SERVICES

April 29, 2013

Mr. Kevin Gervais
Lighthouse Environmental Management, LLC
184 Stone Street
Clinton, MA 01510

Re: Soil Disposal Opinion Letter
700 Lafayette Road, Seabrook, New Hampshire

Dear Mr. Gervais:

This Opinion Letter has been prepared on behalf of DDR Seabrook, LLC (DDR) concerning the reuse of excess soil generated at the above-referenced site. Redevelopment of the property has resulted in the generation of an estimated 17,000 cubic yards of excess topsoil and fill material deemed not to be significantly impacted by historical operations material. The excess soil will be transported under a straight Bill of Lading (BOL) to the Overlook Farms, 29 Overlook Road in Rutland, Massachusetts.

The source of the excess soil is an approximately 50-acre property that was used as an industrial manufacturing facility from its development in 1964 through 2004. The property was previously occupied by a 376,000-square foot manufacturing plant and several supporting structures and appurtenances including a hazardous waste storage area, boiler building, fuel storage building, electric substation, and wastewater treatment facilities. Facility operations included the manufacture and coating of plastic (injection molded) automotive parts and the extrusion of rubber parts. Facility wastewaters included sanitary wastewater, parts washing system discharges, paint booth water wall discharge, boiler blow down, spent deionization system regenerant solutions, lab sink discharges, and evaporative cooling process bleeds from air compressors, cooling, and injection molding processes. Wastewater was treated on site and discharged to groundwater via infiltration basins until 1998 when the facility was connected to the municipal sanitary sewer system. Operations ceased at the site in 2004 and site structures were subsequently demolished.

In September 2005, New Hampshire Department of Environmental Services (NHDES) approved an application for the subject property's admission into the State Brownfields Covenant Program. This site is identified in this program as NHDES #198705069. Significant site assessment and remediation activities were completed at the site between 2005 and 2013. On June 7, 2011, DDR Seabrook, LLC received a Certificate of Completion from NHDES indicating that:

1. All activities specified in the approved remedial action plan, with the exception of groundwater monitoring, have been completed;
2. The performance standards specified for the approved remedial action and the groundwater management permit have been achieved;
3. All monitoring requirements under the groundwater management permit are being met;
4. Any necessary activity and use restrictions have been implemented;

5. All penalty(ies) or fine(s) issued under the New Hampshire Statutes for Oil Spillage, Underground Storage Facilities, or Hazardous Waste Management have been paid;
6. All invoices associated with the Department's recoverable costs have been paid or waived; and
7. All fees or costs due under the Brownfields Program have been paid.

The Certificate of Completion and a Covenant Not to Sue issued by the NHDES were recorded in the Rockingham County Registry of Deeds in December 2012. Groundwater monitoring is to continue in accordance with the conditions of Groundwater Management Permit GWP-198705069-S-001.

The soil that is the subject of this Opinion Letter was generated during clearing and grubbing of wooded and vegetated areas on the property fringes away from the developed areas, former manufacturing buildings, and landscaped/maintained areas of the property. Field screening did not indicate visual or olfactory evidence of contamination. Soil was stockpiled and forty 8-point (minimum) composite samples were collected from the stockpile on March 14, 2013, for waste characterization analysis. The samples were composited from test pits dug into the pile to ensure representative sampling.

The soil samples were submitted to Con-Test Analytical Laboratory in East Longmeadow, Massachusetts, under standard chain of custody procedures for analysis of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, total petroleum hydrocarbons (TPH) by EPA Method 8100, RCRA 8 metals by EPA Methods 6010 and 7471, and polychlorinated biphenyls (PCBs) by EPA Method 8082. Three of the samples (LS-1 through LS-3), which were 30-point composites, were also analyzed for flashpoint, reactivity and pH. Based upon disposal facility requirements, an additional three 30-point composite soil samples (LS-41 through LS-43) were collected for analysis of specific conductance.

Based upon the analytical data, concentrations of all analytes are below the Massachusetts Contingency Plan (MCP) Reportable Concentrations for S-1 soils (RCS-1 thresholds), as shown on the attached table.

For comparison to the specific acceptance criteria for Overlook Farm, mean concentrations were calculated using one-half of the reporting limit for non-detect results.

- VOCs: The acceptance criteria for VOCs are specified as "Not Detected." All "detected" concentrations of VOCs were estimated concentrations detected below the reporting limit with two exceptions: p-isopropyltoluene in sample LS-11 and toluene in LS-14. All detected VOC concentrations are well below the RCS-1 thresholds, and all calculated mean concentrations can be classified as "not detected at or above the laboratory reporting limit."

- SVOCs: Two of the 40 composite samples, LS-10 and LS-30, contained individual SVOCs at concentrations exceeding the Overlook Farms criteria. However, the calculated mean concentrations of all detected SVOCs are well below the Overlook Farms criteria and the RCS-1 thresholds.

- PCBs: The reporting limits for the PCB Aroclors exceeded the Overlook Farms acceptance criteria of 0.1 milligrams per kilogram (mg/kg). However, the analytical detection limits for

Wilcox & Barton INC.
ENVIRONMENTAL AND ENGINEERING SERVICES

all Aroclors were well below the 0.1 mg/kg criteria and no Aroclors were detected by the laboratory.

- Metals: No metals were detected at concentrations exceeding Overlook Farms acceptance criteria or RCS-1 standards.

- Pesticides and Herbicides: The soil characterized by this submittal was not specifically analyzed for pesticides or herbicides due to its origin. The material was generated from clearing and grubbing of heavily vegetated and wooded areas of the site on the property fringes away from the developed areas, former manufacturing buildings, and landscaped/maintained areas of the property. Therefore, pesticides and herbicides were not identified as potential contaminants of concern. A review of historical data for developed areas of the revealed a few instances where pesticides and/or herbicides were analyzed in soil. No pesticides or herbicides have been detected in soil at the site throughout the course of assessment and remediation since 2005.

The soil to be transported under this straight BOL will be sent to Overlook Farms in Rutland, Massachusetts. Enviro-Trac Environmental Services (Enviro-Trac) has established updated criteria for acceptance of the material, and has reviewed the waste characterization data and indicated that it is acceptable for reuse at the Overlook Farms facility. The number (greater than 1 sample per every 500 cubic yards) and distribution of samples collected is adequate for characterization of the material. Based on a review of the site history information, the Overlook Farms acceptance criteria, and the laboratory data used to characterize the soil to be transported, it appears that this soil meets the criteria for reuse at Overlook Farms.

If you have any questions, or require further information, please contact me at (508) 548-2363.

Very truly yours,

WILCOX & BARTON, INC.

Amy Roth, P.G., LSP
Senior Project Geologist

Attachments: Laboratory Analytical Data Table

TABLE 1
SUMMARY OF SOIL DISPOSAL ACCEPTANCE CRITERIA

Overlook Farms
Rutland, Massachusetts

Analyte	Sample Name								Calculations			Standards		Acceptance Criteria	
	S-1 (upland)	S-2 (lowland)	NEG Sample	#1	#2	#3	#4	#5	Maximum Concentration	Average Concentration	3 x Average Concentration	Concentration in "Natural" Soil	Proposed MCP Reportable Concentrations: Draft 2013	Calculated Acceptance Criteria	MassDCP Allowable Soil Concentration Assuming Published Values
SEMI VOCs/PAHs BY 8270D (mg/kg)															
1,1-Biphenyl	–	–	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.19	0.56	NE	0.05	0.57	NE
1,2,4-Trichlorobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	2	0.67	NE
1,2-Dichlorobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	9	0.67	NE
1,3-Dichlorobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
1,4-Dichlorobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
2,4,5-Trichlorophenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	4	0.67	NE
2,4,6-Trichlorophenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
2,4-Dichlorophenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
2,4-Dimethylphenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
2,4-Dinitrophenol	ND (1.0)	ND (1.0)	–	ND (1.81)	ND (1.81)	–	–	–	ND	0.72	2.16	NE	3	2.16	NE
2,4-Dinitrotoluene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
2,6-Dinitrotoluene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	100	0.67	NE
2-Chloronaphthalene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1,000	0.67	NE
2-Chlorophenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
2-Methylnaphthalene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	0.5	0.7	0.47	<0.7
2-Methylphenol	–	–	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.19	0.56	NE	NA	0.56	NE
2-Nitrophenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	100	0.67	NE
3,3'-Dichlorobenzidine	ND (0.26)	ND (0.26)	–	ND (0.764)	ND (0.722)	–	–	–	ND	0.25	0.75	NE	1	0.75	NE
3+4-Methylphenol	–	–	–	ND (0.764)	ND (0.722)	–	–	–	ND	0.37	1.12	NE	NA	1.12	NE
4-Bromophenyl phenyl ether	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	100	0.67	NE
4-Chloroaniline	ND (1.0)	ND (1.0)	–	ND (0.764)	ND (0.722)	–	–	–	ND	0.44	1.31	NE	1	1.3	NE
4-Nitrophenol	ND (1.0)	ND (1.0)	–	ND (1.81)	ND (1.81)	–	–	–	ND	0.72	2.16	NE	100	2.16	NE
Acenaphthene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	0.5	4	0.47	<4
Acenaphthylene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	0.5	1	0.47	<1
Acetophenone	ND (0.52)	ND (0.52)	–	ND (0.764)	ND (0.722)	–	–	–	ND	0.30	0.90	NE	1,000	0.90	NE
Aniline	ND (0.52)	ND (0.52)	–	ND (1.81)	ND (1.81)	–	–	–	ND	0.60	1.79	NE	1,000	1.79	NE
Anthracene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	1.0	1,000	0.47	<10
Azobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	NA	0.67	NE
Benzo(a)anthracene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	2	7	0.47	<7
Benzo(a)pyrene	ND (0.26)	ND (0.26)	–	0.22	ND (0.181)	–	–	–	0.22	0.14	0.43	2	2	0.43	<2
Benzo(b)fluoranthene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	2	7	0.47	<7
Benzo(g,h,i)perylene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	1	1,000	0.47	<10
Benzo(k)fluoranthene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	1	70	0.41	<10
Bis(2-chloroethoxy)methane	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	500	0.67	NE
Bis(2-chloroethyl)ether	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
Bis(2-ethylhexyl) phthalate	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	200	0.67	NE
Butyl benzyl phthalate	ND (1.0)	ND (1.0)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.34	1.03	NE	100	1.03	NE
Chrysene	ND (0.26)	ND (0.26)	–	0.263	ND (0.181)	–	–	–	0.26	0.16	0.48	2	70	0.48	<20
Dibenz(a,h)anthracene	ND (0.26)	ND (0.26)	–	ND (0.191)	ND (0.181)	–	–	–	ND	0.11	0.33	0.5	0.7	0.33	<0.7
Dibenzofuran	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	100	0.67	NE
Diethyl phthalate	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	10	0.67	NE
Dimethyl phthalate	ND (1.0)	ND (1.0)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.34	1.03	NE	30	1.03	NE
Di-n-butyl phthalate	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	50	0.67	NE
Di-n-octyl phthalate	ND (1.0)	ND (1.0)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.34	1.03	NE	1,000	1.03	NE
Fluoranthene	ND (0.26)	ND (0.26)	–	0.467	ND (0.381)	–	–	–	0.47	0.22	0.68	4	1,000	0.68	<40
Fluorene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	1	1,000	0.47	<10
Hexachlorobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
Hexachlorobutadiene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	6	0.67	NE
Hexachloroethane	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
Indeno(1,2,3-cd)pyrene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	1	7	0.47	<7
Isophorone	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	100	0.67	NE
Naphthalene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	0.5	4	0.47	<4
Nitrobenzene	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	500	0.67	NE
n-Nitrosodimethylamine	–	–	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.19	0.56	NE	NA	0.56	NE
Pentachlorophenol	ND (0.52)	ND (0.52)	–	ND (1.81)	ND (0.181)	–	–	–	ND	0.39	1.17	NE	3	1.17	NE
Phenanthrene	ND (0.26)	ND (0.26)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.16	0.47	3	10	0.47	<10
Phenol	ND (0.52)	ND (0.52)	–	ND (0.381)	ND (0.381)	–	–	–	ND	0.22	0.67	NE	1	0.67	NE
Pyrene	ND (0.26)	ND (0.26)	–	0.349	ND (0.381)	–	–	–	0.35	0.21	0.62	4	1,000	0.62	<40

NOTES:

VOC is volatile organic compounds
PAH is polycyclic aromatic hydrocarbons
VOA is volatile organic analysis
PCB is polychlorinated biphenyls
TPH is total petroleum hydrocarbons
NA is Not Applicable
ND is Not Detected
– is Not Sampled

MassDEP 2013 refers to the MassDEP Draft Technical Update "Identifying When Soil Concentrations at a Receiving Location are 'Not significantly Lower Than Managed Soil'", MassDEP, 3/26/13.
Average Concentration: One-half of the laboratory detection limit was used to estimate the average concentrations of ND results.
Calculated Acceptance Criteria: Max of Max value but < RCS-1 (including 1/2 detection limits for ND samples) were used in determining the calculated acceptance criteria.
VOCs/Pest/Herbs: No VOCs can be accepted. Trace levels of pesticides/herbicides can be accepted on a case-by-case basis.
PCBs: No PCBs > 0.10 can be accepted.
TPH: TPH up to 1,000 ppm is acceptable from asphalt that was not from a fuel oil release.
Conductance: 500-1,000 umhos/cm can be accepted provided the concentrations of other metals are low enough.

Arsenic: Somewhat elevated in Worcester County as documented by MassDEP (20 ppm). A value of 20 was selected, but may range to 30 in natural non-impacted soils. Soils with >20 ppm of arsenic without exempt status cannot be accepted.
Cadmium: Acceptance criteria may increase to 4 ppm with revised RCS-1 by MassDEP
Chromium: For calculated acceptance criteria, Cr can be accepted up to 157 ppm with demonstration that Cr VI is <100 ppm.
Chromium III: Criteria for Cr III will be revised to 1,000 ppm per the draft MassDEP guidance; therefore, 157 was used.
Chromium VI: Per the draft MassDEP guidance, Cr VI must be shown to be ND or <100.
Lead: These are typical constituents in fill soils. Lead value of 67 ppm used at 3x average concentration.

Other Metals: Other metals will be evaluated on case-by-case basis.

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TABLE 1
SUMMARY OF SOIL DISPOSAL ACCEPTANCE CRITERIA

Overlook Farms
Rutland, Massachusetts

Analyte	Sample Name								Calculations			Standards		Acceptance Criteria	
	S-1 (upland)	S-2 (lowland)	NEG Sample	#1	#2	#3	#4	#5	Maximum Concentration	Average Concentration	3 x Average Concentration	Concentration in "Natural" Soil	Proposed MCP Reportable Concentrations: Draft 2013	Calculated Acceptance Criteria	MassDCP Allowable Soil Concentration Assuming Published Values
8260 VOC BY 8260C (mg/kg)															
1,1,1,2-Tetrachloroethane	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
1,1,1-Trichloroethane	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	30	ND	NE
1,1,2,2-Tetrachloroethane	ND (0.0019)	ND (0.0020)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.005	ND	NE
1,1,2-Trichloroethane	ND (0.0038)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
1,1-Dichloroethane	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.4	ND	NE
1,1-Dichloroethene	ND (0.0076)	ND (0.0080)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	3	ND	NE
1,1-Dichloropropene	ND (0.0038)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	NA	ND	NE
1,2,3-Trichlorobenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	NA	ND	NE
1,2,3-Trichloropropane	ND (0.0038)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	100	ND	NE
1,2,4-Trichlorobenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	2	ND	NE
1,2,4-Trimethylbenzene	ND (0.0038)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1,000	ND	NE
1,2-Dibromo-3-Chloropropane	ND (0.0038)	ND (0.0040)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.02	0.06	NE	10	ND	NE
1,2-Dibromoethane	–	–	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.05	0.15	NE	NA	ND	NE
1,2-Dichlorobenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	9	ND	NE
1,2-Dichloroethane	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
1,2-Dichloropropane	ND (0.0038)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
1,3,5-Trimethylbenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	10	ND	NE
1,3-Dichlorobenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1	ND	NE
1,3-Dichloropropane	ND (0.0019)	ND (0.0020)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	500	ND	NE
1,4-Dichlorobenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1	ND	NE
1,4-Dioxane	ND (0.19)	ND (0.20)	–	ND (3.07)	ND (3.03)	–	–	–	ND	1.21	3.63	NE	0.2	ND	NE
2,2-Dichloropropane	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	NA	ND	NE
2-Butanone (MEK)	ND (0.076)	ND (0.080)	–	ND (1.32)	ND (1.31)	–	–	–	ND	0.35	1.04	NE	4	ND	NE
2-Chlorotoluene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	100	ND	NE
2-Hexanone	ND (0.038)	ND (0.040)	–	ND (1.32)	ND (1.31)	–	–	–	ND	0.34	1.02	NE	100	ND	NE
4-Chlorotoluene	ND (0.0038)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	NA	ND	NE
4-Isopropyltoluene	–	–	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.06	NE	NA	ND	NE
4-Methyl-2-pentanone (MIBK)	ND (0.038)	ND (0.040)	–	ND (1.32)	ND (1.31)	–	–	–	ND	0.34	1.02	NE	0.4	ND	NE
Acetone	ND (0.19)	ND (0.20)	–	ND (2.54)	ND (2.51)	–	–	–	ND	0.68	2.04	NE	6	ND	NE
Acrolein	–	–	–	ND (5.07)	ND (5.03)	–	–	–	ND	2.53	7.68	NE	NA	ND	NE
Benzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	2	ND	NE
Bromobenzene	ND (0.0036)	ND (0.0040)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	100	ND	NE
Bromochloromethane	–	–	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.06	NE	NA	ND	NE
Bromodichloromethane	–	–	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.04	NE	0.1	ND	NE
Bromoform	ND (0.0036)	ND (0.0040)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.02	0.06	NE	0.1	ND	NE
Bromomethane	ND (0.019)	ND (0.017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.02	0.06	NE	1	ND	NE
Carbon disulfide	ND (0.011)	ND (0.010)	–	0.108	ND (0.101)	–	–	–	ND	0.04	0.13	NE	100	ND	NE
Carbon tetrachloride	ND (0.0033)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	5	ND	NE
Chlorobenzene	ND (0.0038)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1	ND	NE
Chlorodibromomethane	ND (0.0018)	ND (0.0017)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
Chloroethane	ND (0.019)	ND (0.017)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.05	NE	100	ND	NE
Chloroform	ND (0.0075)	ND (0.0068)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.4	ND	NE
Chloromethane	ND (0.019)	ND (0.017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.03	0.09	NE	100	ND	NE
cis-1,2-Dichloroethene	ND (0.0034)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
cis-1,3-Dichloropropene	ND (0.0019)	ND (0.0017)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
Dibromochloromethane	–	–	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.04	NE	0.005	ND	NE
Dibromomethane	ND (0.0038)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	500	ND	NE
Dichlorodifluoromethane	ND (0.018)	ND (0.017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.03	0.09	NE	1,000	ND	NE
Diethyl ether	–	–	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.05	0.15	NE	NA	ND	NE
Di-isopropyl ether	–	–	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.05	0.15	NE	NA	ND	NE
Ethylbenzene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	40	ND	NE
Hexachlorobutadiene	ND (0.0033)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	6	ND	NE
Isopropylbenzene	ND (0.0076)	ND (0.0068)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1,000	ND	NE
Methyl tert-butyl ether	ND (0.0076)	ND (0.0068)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
Methylene Chloride	ND (0.019)	ND (0.017)	–	ND (0.254)	ND (0.251)	–	–	–	ND	0.35	1.06	NE	0.1	ND	NE
m-Xylene & p-Xylene	ND (0.0076)	ND (0.0068)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.03	0.08	NE	300	ND	NE
Naphthalene	ND (0.0076)	ND (0.0068)	–	ND (0.0507)	ND (0.101)	–	–	–	ND	0.02	0.06	NE	4	ND	NE
n-Butylbenzene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	NA	ND	NE
N-Propylbenzene	ND (0.0030)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	100	ND	NE
o-Xylene	ND (0.0038)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	300	ND	NE
sec-Butylbenzene	ND (0.0076)	ND (0.0068)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.05	NE	NA	ND	NE
Styrene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	3	ND	NE
Tert-amyl methyl ether	ND (0.0019)	ND (0.0017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.03	0.08	NE	NA	ND	NE
Tert-butyl ethyl ether	ND (0.0019)	ND (0.0017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.03	0.08	NE	NA	ND	NE
tert-Butylbenzene	ND (0.0076)	ND (0.0068)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	100	ND	NE
Tetrachloroethene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1	ND	NE
Tetrahydrofuran	ND (0.019)	ND (0.017)	–	ND (5.07)	ND (5.03)	–	–	–	ND	1.27	3.80	NE	500	ND	NE
Toluene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	30	ND	NE
trans-1,2-Dichloroethene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	1	ND	NE
trans-1,3-Dichloropropene	ND (0.0019)	ND (0.0017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.01	0.04	NE	0.1	ND	NE
Trichloroethene	ND (0.0036)	ND (0.0034)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.01	0.04	NE	0.3	ND	NE
Trichlorofluoromethane	ND (0.019)	ND (0.017)	–	ND (0.101)	ND (0.101)	–	–	–	ND	0.03	0.08	NE	1,000	ND	NE
Vinyl chloride	ND (0.019)	ND (0.017)	–	ND (0.0507)	ND (0.0503)	–	–	–	ND	0.02	0.05	NE	1	ND	NE

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PAH is polycyclic aromatic hydrocarbons
VOA is volatile organic analysis
PCB is polychlorinated biphenyls
TPH is total petroleum hydrocarbons
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TPH: TPH up to 1,000 ppm is acceptable from asphalt that was not from a fuel oil release.
Conductance: 500-1,000 umhos/cm can be accepted provided the concentrations of other metals are low enough.

Arsenic: Somewhat elevated in Worcester County as documented by MassDEP (20 ppm). A value of 20 was selected, but may range to 30 in natural non-impacted soils. Soils with >20 ppm of arsenic without exempt status cannot be accepted.
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Chromium: For calculated acceptance criteria, Cr can be accepted up to 157 ppm with demonstration that Cr VI is <100 ppm.
Chromium III: Criteria for Cr III will be revised to 1,000 ppm per the draft MassDEP guidance; therefore, 157 was used.
Chromium VI: Per the draft MassDEP guidance, Cr VI must be shown to be ND or <100.
Lead: These are typical constituents in fill soils. Lead value of <200 ppm used.

Other Metals: Other metals will be evaluated on case-by-case basis.

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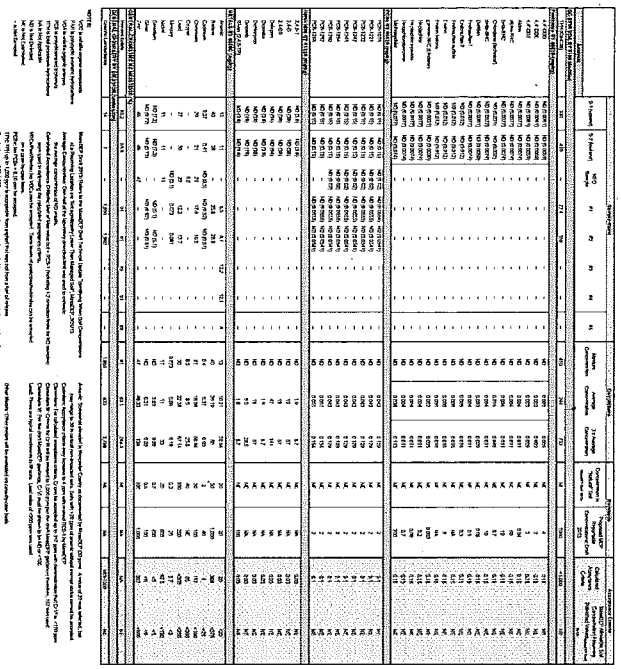

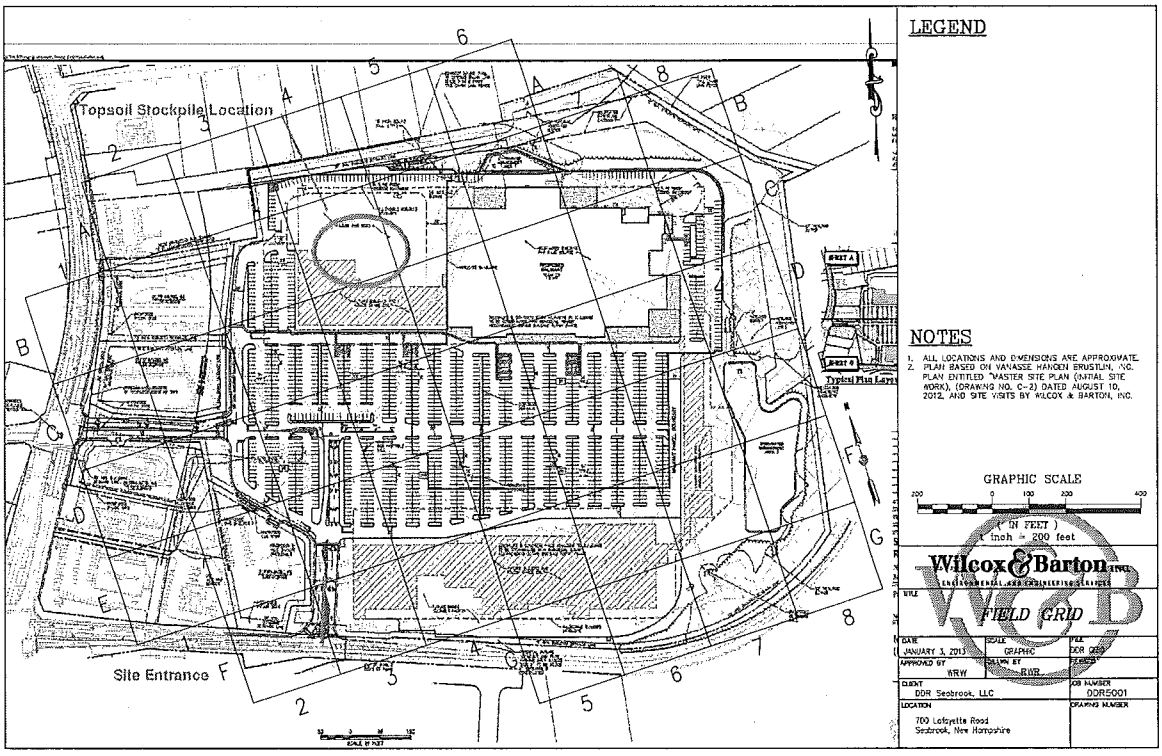
Topsoil Stockpile Location
Site Entrance
LEGEND
NOTES
1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. PLAN BASED ON VANASSE HANGEN BRUSTLIN, INC. PLAN ENTITLED "MASTER SITE PLAN (INITIAL SITE WORK), (DRAWING NO. C-2) DATED AUGUST 10, 2012, AND SITE VISITS BY WILCOX & BARTON, INC.
GRAPHIC SCALE
(IN FEET)
1 inch = 200 feet
Wilcox & Barton Inc.
FIELD GRID
DATE JANUARY 3, 2013
SCALE GRAPHIC
FILE DDR GRID
APPROVED BY MRW
DESIGN BY RJR
DRAWN BY RJR
CHECKED BY
CLIENT DDR Seabrook, LLC
JOB NUMBER DDR5001
LOCATION 700 Lafayette Road Seabrook, New Hampshire
DRAWING NUMBER

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration[3]	LS-1 1/16/2013	LS-2 1/16/2013	LS-3 1/16/2013	LS-4 3/12/2013	LS-5 3/12/2013	LS-6 3/12/2013	LS-7 3/12/2013	LS-8 3/12/2013	LS-9 3/12/2013	LS-10 3/12/2013
Volatile Organic Compounds (VOCs) by EPA Method 8260[1]													
Acetone	ND	6	0.029 J	0.089 UJ	0.018 J	0.020 J	0.017 J	0.062 U	0.052 U	0.029 J	0.070 U	0.058 U	0.021 J
Benzene	ND	2	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
n-Butylbenzene	ND	NS	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
sec-Butylbenzene	ND	NS	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
tert-Butylbenzene	ND	100	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
cis-1,2-Dichloroethene	ND	0.3	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
1,4-Dioxane	ND	0.2	--	0.089 UJ	0.073 UJ	0.069 UJ	0.070 UJ	0.062 UJ	0.052 UJ	0.073 UJ	0.070 UJ	0.058 UJ	0.075 UJ
Ethylbenzene	ND	40	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
Isopropylbenzene	ND	1,000	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
p-Isopropyltoluene	ND	100	0.0009	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
Naphthalene	ND	4	0.0014 J	0.0036 UJ	0.0029 UJ	0.0028 UJ	0.0028 UJ	0.0025 U	0.0021 U	0.0029 U	0.0028 U	0.0023 U	0.0030 U
n-Propylbenzene	ND	100	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
Tetrachloroethene (PCE)	ND	1	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
Toluene	ND	30	0.0007 J	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
Trichloroethene (TCE)	ND	0.3	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
1,2,4-Trimethylbenzene	ND	1,000	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
1,3,5-Trimethylbenzene	ND	10	--	0.0018 U	0.0015 U	0.0014 U	0.0014 U	0.0012 U	0.0010 U	0.0015 U	0.0014 U	0.0012 U	0.0015 U
Vinyl chloride	ND	0.6	--	0.0089 U	0.0073 U	0.0069 U	0.0070 U	0.0062 U	0.0052 U	0.0073 U	0.0070 U	0.0058 U	0.0075 U
Total Xylenes	ND	300	--	0.0054 U	0.0044 U	0.0042 U	0.0042 U	0.0037 U	0.0031 U	0.0044 U	0.0042 U	0.0035 U	0.0045 U
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270													
Acenaphthene	0.47	4	--	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.20 U
Acenaphthylene	0.47	1	--	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.20 U
Anthracene	0.47	1,000	0.10 J	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.16 J
Benzo(a)anthracene	0.47	7	0.16	0.21	0.23 U	0.20 U	0.11 J	0.20 U	0.22	0.21 U	0.21 U	0.20 U	0.44
Benzo(a)pyrene	0.43	2	0.16	0.22	0.23 U	0.20 U	0.13 J	0.20 U	0.23	0.21 U	0.21 U	0.20 U	0.39
Benzo(b)fluoranthene	0.47	7	0.20	0.37	0.16 J	0.17 J	0.18 J	0.20 U	0.31	0.21 U	0.13 J	0.20 U	0.47
Benzo(g,h,i)perylene	0.47	1,000	0.11 J	0.10 J	0.23 U	0.20 U	0.11 J	0.20 U	0.18 J	0.21 U	0.21 U	0.20 U	0.18 J
Benzo(k)fluoranthene	0.47	70	0.11 J	0.14 J	0.23 U	0.20 U	0.20 U	0.20 U	0.13 J	0.21 U	0.21 U	0.20 U	0.19 J
Benzoic Acid	NS	NS	0.55	1.5 J	1.9 J	1.8 J	1.1 UJ	0.21 J	1.2 UJ	0.25 J	0.24 J	0.39 J	1.2 UJ
Bis(2-Ethylhexyl)phthalate	0.67	200	0.20 J	0.40 U	0.45 U	0.40 U	0.39 U	0.40 U	0.32 J	0.41 U	0.42 U	0.40 U	0.40 U
Carbazole	NS	NS	--	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.20 U
Chrysene	0.46	70	0.17	0.24	0.23 U	0.11 J	0.16 J	0.20 U	0.24	0.21 U	0.13 J	0.20 U	0.45
Dibenz(a,h)anthracene	0.33	0.7	--	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.20 U
2,6-Dinitrotoluene	0.67	100	0.20 J	0.40 U	0.15 J	0.40 U	0.39 U	0.40 U	0.41 U	0.41 U	0.42 U	0.40 U	0.40 U
Fluoranthene	0.68	1,000	0.23	0.39	0.16 J	0.16 J	0.20	0.20 U	0.43	0.21 U	0.18 J	0.20 U	0.73
Fluorene	0.47	1,000	--	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.20 U
Indeno(1,2,3-cd)pyrene	0.47	7	0.12	0.12 J	0.23 U	0.20 U	0.12 J	0.20 U	0.22	0.21 U	0.096 J	0.20 U	0.22
Naphthalene	0.47	4	--	0.20 U	0.23 U	0.20 U	0.20 U	0.20 U	0.21 U	0.21 U	0.21 U	0.20 U	0.20 U
Phenanthrene	0.47	10	0.17	0.24	0.12 J	0.11 J	0.12 J	0.20 U	0.31	0.21 U	0.13 J	0.20 U	0.62
Phenol	0.67	1	0.22	0.46	0.55	0.40 U	0.39 U	0.40 U	0.41 UJ	0.41 U	0.42 U	0.40 U	0.40 U
Pyrene	0.62	1,000	0.27	0.30	0.23 U	0.14 J	0.24	0.20 U	0.54	0.21 U	0.24	0.20 U	0.75

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration[3]	LS-1 1/16/2013	LS-2 1/16/2013	LS-3 1/16/2013	LS-4 3/12/2013	LS-5 3/12/2013	LS-6 3/12/2013	LS-7 3/12/2013	LS-8 3/12/2013	LS-9 3/12/2013	LS-10 3/12/2013
Total Petroleum Hydrocarbons by EPA Method 8015													
TPH-Gasoline Range Organics	NS	NS	103	1.6 U	2.0 U	1.5 U	--	--	--	--	--	--	--
TPH-Diesel Range Organics	NS	NS		78	120	35	--	--	--	--	--	--	--
TPH (C9-C36)	<1,600	2,500		--	--	--	87 *B	100 *B	130 *B	120 *B	110 *B	75 *B	150 *B
Polychlorinated Biphenyls (PCBs)[2] by EPA Method 8082													
All Aroclors	0.1	2	--	*0.12 U*	*0.13 U*	*0.11 U*	*0.11 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*
RCRA 8 Metals by EPA Methods 6010 and 7471													
Arsenic	20	20	3.0	12 J	2.7 J	3.9	3.6	2.5 J	3.3	2.7 J	2.2 J	1.6 J	2.3 J
Barium	300	1,000	13.5	17	11	18	32 J	14	16	11	12	8.0	15
Cadmium	4	2	0.32	0.28 U	0.32 U	0.29 U	0.43	0.36	0.35	0.38	0.32	0.29	0.37
Chromium	157	30	9.7	13	7.0	11	11	8.8	9.8	9.8	9.4	7.4	11
Lead	<200	300	17.69	17	14	36	110	27	17	17	19	10	15
Mercury	0.7	20	0.071	0.054	0.053	0.12	0.15	0.092	0.045	0.083	0.088	0.073	0.049
Selenium	<5	400	--	*5.7 U*	*6.4 U*	*5.8 U*	*5.7 U*	*5.6 U*	*6.0 U*	*6.0 U*	*5.9 U*	*5.6 U*	*5.6 U*
Silver	<6	100	--	0.57 U	0.64 U	0.58 U	0.57 U	0.56 U	0.60 U	0.60 U	0.59 U	0.56 U	0.56 U
Hazardous Waste Characteristics													
Reactive Cyanide	NS	NS	--	3.9 U	4.0 U	3.9 U	--	--	--	--	--	--	--
Reactive Sulfide	NS	NS	--	19 U	20 U	19 U	--	--	--	--	--	--	--
pH (standard units)	NS	NS	--	5.5	4.7	5.2	--	--	--	--	--	--	--
Specific Conductance (µmhos/cm)	500-1000	NS	--	--	--	--	--	--	--	--	--	--	--
Ignitability (present/absent)	NS	NS	--	Absent	Absent	Absent	--	--	--	--	--	--	--

Only detected and selected other compounds listed; all other analytes were not detected.

Analytical results in milligrams per kilogram (mg/kg) unless otherwise noted.

1. All "detected" concentrations of VOCs were estimated concentrations below the reporting limit with two exceptions: p-isopropyltoluene in LS-11 and toluene in LS-14. All detected VOC concentrations are well below the RCS-1 thresholds.

2. Although the reporting limits for the PCB aroclors exceed the criteria of 0.1 mg/kg, the detection limits for the aroclors were well below the 0.1 mg/kg criteria and no aroclors were reported by the laboratory as having been detected.

3. Arithmetic average concentration calculated using half the reporting limit when analyte was not detected.

U	Not detected; reporting limit shown.
NS	No standard or criterion established.
J	Estimated concentration (below reporting limit or surrogate recovery is outside acceptance limits).
B	Detected in method blank; sample result >5x blank; result valid.
bold	Detected analyte.
italics	Reporting limit exceeds Overlook Farm criterion.
shaded	Detected concentration exceeds Overlook Farm criterion.
red	Concentration exceeds MCP RCS-1 threshold.
--	Not analyzed or mean concentration not calculated because all results were non-detect.
*	Sample contamination consists of heavy residual hydrocarbons similar to asphalt. Chromatogram also shows the presence of PAHs.
‡	310 CMR 40.1600.

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-11 3/12/2013	LS-12 3/12/2013	LS-13 3/12/2013	LS-14 3/12/2013	LS-15 3/12/2013	LS-16 3/12/2013	LS-17 3/12/2013	LS-18 3/13/2013	LS-19 3/13/2013	LS-20 3/13/2013
Volatile Organic Compounds (VOCs) by EPA Method 8260 [1]													
Acetone	ND	6	**0.029**	**0.031 J**	**0.023 J**	0.055 U	**0.024 J**	0.050 U	0.062 U	**0.019 J**	0.069 U	**0.020 J**	**0.015 J**
Benzene	ND	2	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
n-Butylbenzene	ND	NS	--	0.0013 U	0.0013 U	0.0011 U	0.0013 UJ	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
sec-Butylbenzene	ND	NS	--	0.0013 U	0.0013 U	0.0011 U	0.0013 UJ	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
tert-Butylbenzene	ND	100	--	0.0013 U	0.0013 U	0.0011 U	0.0013 UJ	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
cis-1,2-Dichloroethene	ND	0.3	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
1,4-Dioxane	ND	0.2	--	0.065 UJ	0.065 UJ	0.055 UJ	0.066 UJ	0.050 UJ	0.062 UJ	0.076 UJ	0.069 UJ	0.077 UJ	0.058 UJ
Ethylbenzene	ND	40	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
Isopropylbenzene	ND	1,000	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
p-Isopropyltoluene	ND	100	**0.0089**	**0.0021**	0.0013 U	0.0011 U	**0.0871 J**	**0.00050 J**	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
Naphthalene	ND	4	**0.0014**	0.0026 U	0.0026 U	0.0022 U	0.0026 UJ	0.0020 U	0.0025 U	0.0030 U	0.0028 U	0.0031 U	0.0023 U
n-Propylbenzene	ND	100	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
Tetrachloroethene (PCE)	ND	1	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
Toluene	ND	30	**0.0007**	0.0013 U	0.0013 U	0.0011 U	**0.0012 J**	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
Trichloroethene (TCE)	ND	0.3	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
1,2,4-Trimethylbenzene	ND	1,000	--	0.0013 U	0.0013 U	0.0011 U	0.0013 UJ	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
1,3,5-Trimethylbenzene	ND	10	--	0.0013 U	0.0013 U	0.0011 U	0.0013 U	0.0010 U	0.0012 U	0.0015 U	0.0014 U	0.0015 U	0.0012 U
Vinyl chloride	ND	0.6	--	0.0065 U	0.0065 U	0.0055 U	0.0066 U	0.0050 U	0.0062 U	0.0076 U	0.0069 U	0.0077 U	0.0058 U
Total Xylenes	ND	300	--	0.0039 U	0.0039 U	0.0033 U	0.0039 U	0.0030 U	0.0037 U	0.0045 U	0.0042 U	0.0046 U	0.0035 U
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270													
Acenaphthene	0.47	4	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Acenaphthylene	0.47	1	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Anthracene	0.47	1,000	**0.10**	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Benzo(a)anthracene	0.47	7	**0.16**	**0.27**	**0.11 J**	0.20 U	**0.12 J**	**0.21**	**0.19 J**	**0.12 J**	0.20 U	0.20 U	0.20 U
Benzo(a)pyrene	0.43	2	**0.16**	**0.28**	**0.13 J**	0.20 U	**0.13 J**	**0.19 J**	**0.20**	**0.11 J**	0.20 U	0.20 U	0.20 U
Benzo(b)fluoranthene	0.47	7	**0.20**	**0.38**	**0.19 J**	0.20 U	**0.17 J**	**0.23**	**0.29**	**0.16 J**	0.20 U	0.20 U	0.20 U
Benzo(g,h,i)perylene	0.47	1,000	**0.11**	**0.13 J**	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Benzo(k)fluoranthene	0.47	70	**0.11**	**0.14 J**	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Benzoic Acid	NS	NS	**0.55**	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	**0.20 J**	**0.27 J**	**0.18 J**	1.2 UJ	
Bis(2-Ethylhexyl)phthalate	0.67	200	**0.20**	0.39 U	0.39 U	0.40 U	0.42 U	0.40 U	0.40 U	0.41 U	0.41 U	0.40 U	0.41 U
Carbazole	NS	NS	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Chrysene	0.46	70	**0.17**	**0.29**	**0.15 J**	0.20 U	**0.14 J**	**0.24**	**0.21**	**0.13 J**	0.20 U	0.20 U	0.20 U
Dibenz(a,h)anthracene	0.33	0.7	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
2,6-Dinitrotoluene	0.67	100	**0.20**	0.39 U	0.39 U	0.40 U	0.42 U	0.40 U	0.40 U	0.41 U	0.41 U	0.40 U	0.41 U
Fluoranthene	0.68	1,000	**0.23**	**0.43**	**0.22**	0.20 U	**0.21**	**0.20 J**	**0.33**	**0.19 J**	0.20 U	0.20 U	0.20 U
Fluorene	0.47	1,000	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Indeno(1,2,3-cd)pyrene	0.47	7	**0.12**	**0.16 J**	**0.084 J**	0.20 U	0.21 U	**0.085 J**	**0.095 J**	0.20 U	0.20 U	0.20 U	0.20 U
Naphthalene	0.47	4	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Phenanthrene	0.47	10	**0.17**	**0.25**	**0.12 J**	0.20 U	**0.13 J**	**0.098 J**	**0.21**	**0.13 J**	0.20 U	0.20 U	0.20 U
Phenol	0.67	1	**0.22**	0.39 U	0.39 U	0.40 U	0.42 U	0.40 U	0.40 U	0.41 U	0.41 U	0.40 U	0.41 U
Pyrene	0.62	1,000	**0.27**	**0.45**	**0.23**	0.20 U	**0.19 J**	**0.35**	**0.26**	**0.17 J**	0.20 U	0.20 U	0.20 U

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-11 3/12/2013	LS-12 3/12/2013	LS-13 3/12/2013	LS-14 3/12/2013	LS-15 3/12/2013	LS-16 3/12/2013	LS-17 3/12/2013	LS-18 3/13/2013	LS-19 3/13/2013	LS-20 3/13/2013
Total Petroleum Hydrocarbons by EPA Method 8015													
TPH-Gasoline Range Organics	NS	NS	**103**	--	--	--	--	--	--	--	--	--	--
TPH-Diesel Range Organics	NS	NS		--	--	--	--	--	--	--	--	--	--
TPH (C9-C36)	<1,000	2,500		150 *B	110 *B	55 *B	210 *B	120 *B	120 *B	100 *B	84 *B	88 *B	80 *B
Polychlorinated Biphenyls (PCBs) [2] **by EPA Method 8082**													
All Aroclors	0.1	2	--	*0.11 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*
RCRA 8 Metals by EPA Methods 6010 and 7471													
Arsenic	20	20	**3.9**	**4.1**	**2.6 J**	**2.8**	**1.6 J**	**2.9**	**2.8 J**	**2.3 J**	**1.8 J**	**2.0 J**	**2.1 J**
Barium	300	1,000	**13.5**	**18**	**13**	**12**	**12**	**13**	**15**	**12**	**9.0**	**10**	**10**
Cadmium	4	2	**0.32**	**0.42**	**0.33**	**0.31**	**0.31**	**0.36**	**0.37**	**0.34**	0.30 U	**0.32**	**0.35**
Chromium	157	30	**9.7**	**11**	**9.1**	**9.8**	**7.6**	**10**	**12**	**8.0**	**7.5**	**8.2**	**8.7**
Lead	<200	300	**17.69**	**13**	**14**	**11**	**14**	**18**	**16**	**15**	**13**	**15**	**15**
Mercury	0.7	20	**0.071**	**0.053**	**0.076**	**0.073**	**0.035**	**0.11**	**0.077**	**0.056**	**0.14**	**0.088**	**0.085**
Selenium	<5	400	--	*5.7 U*	*5.7 U*	*5.5 U*	*5.9 U*	*5.7 U*	*5.7 U*	*5.8 U*	*5.9 U*	*5.8 U*	*5.6 U*
Silver	<6	100	--	0.57 U	0.57 U	0.55 U	0.59 U	0.57 U	0.57 U	0.58 U	0.59 U	0.58 U	0.56 U
Hazardous Waste Characteristics													
Reactive Cyanide	NS	NS	--	--	--	--	--	--	--	--	--	--	--
Reactive Sulfide	NS	NS	--	--	--	--	--	--	--	--	--	--	--
pH (standard units)	NS	NS	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance (umhos/cm)	300-1000	NS	--	--	--	--	--	--	--	--	--	--	--
Ignitability (present/absent)	NS	NS	--	--	--	--	--	--	--	--	--	--	--

Only detected and selected other compounds listed; all other analytes were not detected.
Analytical results in milligrams per kilogram (mg/kg) unless otherwise noted.

1. All "detected" concentrations of VOCs were estimated concentrations below the reporting limit with two exceptions: p-isopropyltoluene in LS-11 and toluene in LS-14. All detected VOC concentrations are well below the RCS-1 thresholds.

2. Although the reporting limits for the PCB aroclors exceed the criteria of 0.1 mg/kg, the detection limits for the aroclors were well below the 0.1 mg/kg criteria and no aroclors were reported by the laboratory as having been detected.

3. Arithmetic average concentration calculated using half the reporting limit when analyte was not detected.

U	Not detected; reporting limit shown.
NS	No standard or criterion established.
J	Estimated concentration (below reporting limit or surrogate recovery is outside acceptance limits).
B	Detected in method blank; sample result >5x blank; result valid.
bold	Detected analyte.
italics	Reporting limit exceeds Overlook Farm criterion.
Highlighted	Detected concentration exceeds Overlook Farm criterion.
red	Concentration exceeds MCP RCS-1 threshold.
--	Not analyzed or mean concentration not calculated because all results were non-detect.
*	Sample contamination consists of heavy residual hydrocarbons similar to asphalt. Chromatogram also shows the presence of PAHs.
‡	310 CMR 40.1600.

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-21 3/13/2013	LS-22 3/13/2013	LS-23 3/13/2013	LS-24 3/13/2013	LS-25 3/13/2013	LS-26 3/13/2013	LS-27 3/14/2013	LS-28 3/14/2013	LS-29 3/14/2013	LS-30 3/14/2013
Volatile Organic Compounds (VOCs) by EPA Method 8260 [1]													
Acetone	ND	6	**0.029**	0.054 UJ	0.073 UJ	0.061 UJ	0.081 UJ	0.078 UJ	0.071 UJ	0.066 UJ	**0.019** J	0.075 UJ	0.071 UJ
Benzene	ND	2	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
n-Butylbenzene	ND	NS	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
sec-Butylbenzene	ND	NS	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
tert-Butylbenzene	ND	100	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
cis-1,2-Dichloroethene	ND	0.3	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
1,4-Dioxane	ND	0.2	--	0.054 UJ	0.073 UJ	0.061 UJ	0.081 UJ	0.078 UJ	0.071 UJ	0.066 UJ	0.079 UJ	0.075 UJ	0.071 UJ
Ethylbenzene	ND	40	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
Isopropylbenzene	ND	1,000	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
p-Isopropyltoluene	ND	100	**0.0009**	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
Naphthalene	ND	4	**0.0014**	0.0022 U	0.0029 U	0.0025 U	0.0032 U	**0.0014** J	0.0028 U	0.0026 U	0.0031 U	0.0030 U	0.0028 U
n-Propylbenzene	ND	100	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
Tetrachloroethene (PCE)	ND	1	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
Toluene	ND	30	**0.0007**	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
Trichloroethene (TCE)	ND	0.3	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
1,2,4-Trimethylbenzene	ND	1,000	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
1,3,5-Trimethylbenzene	ND	10	--	0.0011 U	0.0015 U	0.0012 U	0.0016 U	0.0016 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U
Vinyl chloride	ND	0.6	--	0.0054 U	0.0073 U	0.0061 U	0.0081 U	0.0078 U	0.0071 U	0.0066 U	0.0079 U	0.0075 U	0.0071 U
Total Xylenes	ND	300	--	0.0033 U	0.0044 U	0.0037 U	0.0048 U	0.0047 U	0.0042 U	0.0039 U	0.0047 U	0.0045 U	0.0042 U
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270													
Acenaphthene	0.47	4	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U
Acenaphthylene	0.47	1	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U
Anthracene	0.47	1,000	**0.10**	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	**0.14** J
Benzo(a)anthracene	0.47	7	**0.16**	0.20 U	**0.099** J	0.20 U	**0.14** J	**0.092** J	0.20 U	**0.20** J	0.19 U	**0.23**	**0.67** J
Benzo(a)pyrene	0.43	2	**0.16**	0.20 U	0.20 U	0.20 U	**0.16** J	**0.11** J	0.20 U	**0.18** J	0.19 U	**0.21**	**0.62** J
Benzo(b)fluoranthene	0.47	7	**0.20**	0.20 U	**0.15** J	**0.11** J	**0.20** J	**0.15** J	**0.11** J	**0.22** J	**0.11** J	**0.24**	**0.73** J
Benzo(g,h,i)perylene	0.47	1,000	**0.11**	0.20 U	0.20 U	0.20 U	**0.14** J	**0.094** J	0.20 U	**0.13** J	0.19 U	**0.12** J	**0.33** J
Benzo(k)fluoranthene	0.47	70	**0.11**	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	**0.29** J
Benzoic Acid	NS	NS	**0.55**	1.2 UJ	**0.22** J	1.2 UJ	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ	**0.17** J	**0.20** J	1.1 UJ
Bis(2-Ethylhexyl)phthalate	0.67	200	**0.20**	0.40 U	0.41 U	0.40 U	0.41 U	0.39 U	0.39 U	0.39 U	0.38 U	**0.12** J	0.38 U
Carbazole	NS	NS	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	**0.091** J
Chrysene	0.46	70	**0.17**	0.20 U	**0.11** J	0.20 U	**0.16** J	**0.12** J	0.20 U	**0.21** J	**0.094** J	**0.23**	**0.69** J
Dibenz(a,h)anthracene	0.33	0.7	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	**0.11** J
2,6-Dinitrotoluene	0.67	100	**0.20**	0.40 U	0.41 U	0.40 U	0.41 U	0.39 U	0.39 U	0.39 U	0.38 U	0.39 U	0.38 U
Fluoranthene	0.68	1,000	**0.23**	0.20 U	**0.18** J	**0.14** J	**0.26**	**0.19** J	**0.12** J	**0.30** J	**0.12** J	**0.30**	**0.95** J
Fluorene	0.47	1,000	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U
Indeno(1,2,3-cd)pyrene	0.47	7	**0.12**	0.20 U	0.20 U	0.20 U	**0.16** J	**0.11** J	**0.093** J	**0.16** J	0.19 U	**0.15** J	**0.41** J
Naphthalene	0.47	4	--	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.20 U	0.19 U	0.19 U	0.19 U	0.19 U
Phenanthrene	0.47	10	**0.17**	0.20 U	**0.11** J	**0.097** J	**0.15** J	**0.097** J	0.20 U	**0.21** J	0.19 U	**0.24**	**0.71** J
Phenol	0.67	1	**0.22**	0.40 U	0.41 U	0.40 U	0.41 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.38 UJ	0.39 UJ	0.38 UJ
Pyrene	0.62	1,000	**0.27**	0.20 U	**0.16** J	0.20 U	**0.38**	**0.21**	**0.19** J	**0.46** J	**0.19** J	**0.50**	**1.4** J

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-21 3/13/2013	LS-22 3/13/2013	LS-23 3/13/2013	LS-24 3/13/2013	LS-25 3/13/2013	LS-26 3/13/2013	LS-27 3/14/2013	LS-28 3/14/2013	LS-29 3/14/2013	LS-30 3/14/2013
Total Petroleum Hydrocarbons by EPA Method 8015													
TPH-Gasoline Range Organics	NS	NS	103	--	--	--	--	--	--	--	--	--	--
TPH-Diesel Range Organics	NS	NS		--	--	--	--	--	--	--	--	--	--
TPH (C9-C36)	<1,000	2,500		86 *B	88 *B	110 *B	62 *	100 *	130 *	150 *	97 *	110 *	110 *
Polychlorinated Biphenyls (PCBs) [2] **by EPA Method 8082**													
All Aroclors	0.1	2	--	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.12 U*	*0.11 U*	*0.12 U*	*0.11 U*	*0.11 U*	*0.11 U*
RCRA 8 Metals by EPA Methods 6010 and 7471													
Arsenic	20	20	**3.0**	2.5 J	3.4	2.2 J	3.1	3.1	2.3 J	3.0	2.0 J	3.6	3.3
Barium	300	1,000	**13.5**	10	12	12	15	13	14	13	11	19	15
Cadmium	4	2	**0.32**	**0.30**	0.33	0.35	0.35	0.37	0.32	0.37	0.31	**0.40**	**0.38**
Chromium	157	30	**9.7**	**8.6**	**8.7**	11	**9.4**	10	**8.2**	11	10	12	11
Lead	<200	300	**17.69**	13	12	13	13	17	23	12	15	13	14
Mercury	0.7	20	**0.071**	0.062	0.062	0.077	0.063	**0.077**	**0.040**	**0.052**	**0.059**	**0.074**	**0.056**
Selenium	<5	400	--	*5.7 U*	*6.0 U*	*5.6 U*	*6.0 U*	*5.8 U*	*5.4 U*	*5.8 U*	*5.8 U*	*5.8 U*	*5.6 U*
Silver	<6	100	--	0.57 U	0.60 U	0.56 U	0.60 U	0.58 U	0.54 U	0.58 U	0.58 U	0.58 U	0.56 U
Hazardous Waste Characteristics													
Reactive Cyanide	NS	NS	--	--	--	--	--	--	--	--	--	--	--
Reactive Sulfide	NS	NS	--	--	--	--	--	--	--	--	--	--	--
pH (standard units)	NS	NS	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance (µmhos/cm)	500-1000	NS	--	--	--	--	--	--	--	--	--	--	--
Ignitability (present/absent)	NS	NS	--	--	--	--	--	--	--	--	--	--	--

Only detected and selected other compounds listed; all other analytes were not detected.

Analytical results in milligrams per kilogram (mg/kg) unless otherwise noted.

1. All "detected" concentrations of VOCs were estimated concentrations below the reporting limit with two exceptions: p-isopropyltoluene in LS-11 and toluene in LS-14. All detected VOC concentrations are well below the RCS-1 threshold.

2. Although the reporting limits for the PCB aroclors exceed the criteria of 0.1 mg/kg, the detection limits for the aroclors are well below the 0.1 mg/kg criteria and no aroclors were reported by the laboratory as having been detected.

3. Arithmetic average concentration calculated using half the reporting limit when analyte was not detected.

U	Not detected; reporting limit shown.
NS	No standard or criterion established.
J	Estimated concentration (below reporting limit) or surrogate recovery is outside acceptance limits).
B	Detected in method blank; sample result >5x blank; result valid.
bold	Detected analyte.
italics	Reporting limit exceeds Overlook Farm criterion.
shaded	Detected concentration exceeds Overlook Farm criterion.
red	Concentration exceeds MCP RCS-1 threshold.
--	Not analyzed or mean concentration not calculated because all results were non-detect.
*	Sample contamination consists of heavy residual hydrocarbon similar to asphalt. Chromatogram also shows the presence of PAHs.
‡	310 CMR 40.1600.

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-31 3/14/2013	LS-32 3/14/2013	LS-33 3/14/2013	LS-34 3/14/2013	LS-35 3/14/2013	LS-36 3/14/2013	LS-37 3/14/2013	LS-38 3/14/2013	LS-39 3/14/2013	LS-40 3/14/2013
Volatile Organic Compounds (VOCs) by EPA Method 8260[1]													
Acetone	ND	6	0.029	0.057 UJ	0.069 UJ	0.018 J	0.059 J	0.070 UJ	0.064 UJ	0.026 J	0.076 UJ	0.045 J	0.032 J
Benzene	ND	2	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
n-Butylbenzene	ND	NS	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
sec-Butylbenzene	ND	NS	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
tert-Butylbenzene	ND	100	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
cis-1,2-Dichloroethene	ND	0.3	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
1,4-Dioxane	ND	0.2	--	0.057 UJ	0.069 UJ	0.063 UJ	0.071 UJ	0.070 UJ	0.064 UJ	0.082 UJ	0.076 UJ	0.072 UJ	0.077 UJ
Ethylbenzene	ND	40	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
Isopropylbenzene	ND	1,000	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
p-isopropyltoluene	ND	100	0.0009	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
Naphthalene	ND	4	0.0014	0.0023 U	0.0028 U	0.0025 U	0.0028 U	0.0028 U	0.0026 U	0.0033 U	0.0030 U	0.0029 U	0.0031 U
n-Propylbenzene	ND	100	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
Tetrachloroethene (PCE)	ND	1	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
Toluene	ND	30	0.0007	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
Trichloroethene (TCE)	ND	0.3	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
1,2,4-Trimethylbenzene	ND	1,000	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
1,3,5-Trimethylbenzene	ND	10	--	0.0011 U	0.0014 U	0.0013 U	0.0014 U	0.0014 U	0.0013 U	0.0016 U	0.0015 U	0.0014 U	0.0015 U
Vinyl chloride	ND	0.6	--	0.0057 U	0.0069 U	0.0063 U	0.0071 U	0.0070 U	0.0064 U	0.0082 U	0.0076 U	0.0072 U	0.0077 U
Total Xylenes	ND	300	--	0.0034 U	0.0042 U	0.0038 U	0.0042 U	0.0042 U	0.0039 U	0.0049 U	0.0045 U	0.0043 U	0.0046 U
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270													
Acenaphthene	0.47	4	--	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Acenaphthylene	0.47	1	--	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Anthrazene	0.47	1,000	0.10	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Benzo(a)anthracene	0.47	7	0.16	0.19 U	0.24	0.12 J	0.15 J	0.21 U	0.18 J	0.16 J	0.20 U	0.20 U	0.12 J
Benzo(a)pyrene	0.43	2	0.16	0.19 U	0.25	0.13 J	0.14 J	0.21 U	0.18 J	0.17 J	0.20 U	0.20 U	0.12 J
Benzo(b)fluoranthene	0.47	7	0.20	0.19 U	0.34	0.19 J	0.19 J	0.13 J	0.27	0.22	0.20 U	0.20 U	0.14 J
Benzo(g,h,i)perylene	0.47	1,000	0.11	0.19 U	0.11 J	0.20 U	0.20 U	0.21 U	0.081 J	0.13 J	0.20 U	0.20 U	0.092 J
Benzo(k)fluoranthene	0.47	70	0.11	0.19 U	0.14 J	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Benzoic Acid	NS	NS	0.55	0.25 J	0.21 J	0.21 J	0.53 J	2.0	1.1 UJ	0.19 J	1.2 UJ	0.22 J	0.22 J
Bis(2-Ethylhexyl)phthalate	0.67	200	0.20	0.39 U	0.39 U	0.40 U	0.40 U	0.41 U	0.39 U	0.40 U	0.40 U	0.40 U	0.40 U
Carbazole	NS	NS	--	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Chrysene	0.46	70	0.17	0.19 U	0.27	0.15 J	0.16 J	0.11 J	0.21	0.18 J	0.20 U	0.20 U	0.14 J
Dibenz(a,h)anthracene	0.33	0.7	--	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
2,6-Dinitrotoluene	0.67	100	0.20	0.39 U	0.39 U	0.40 U	0.40 U	0.41 U	0.39 U	0.40 U	0.40 U	0.40 U	0.40 U
Fluoranthene	0.68	1,000	0.23	0.088 J	0.37	0.17 J	0.21	0.14 J	0.28	0.28	0.20 U	0.20 U	0.18 J
Fluorene	0.47	1,000	--	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Indeno(1,2,3-cd)pyrene	0.47	7	0.12	0.19 U	0.14 J	0.20 U	0.20 U	0.21 U	0.11 J	0.15 J	0.20 U	0.20 U	0.090 J
Naphthalene	0.47	4	--	0.19 U	0.19 U	0.20 U	0.20 U	0.21 U	0.19 U	0.20 U	0.20 U	0.20 U	0.20 U
Phenanthrene	0.47	10	0.17	0.19 U	0.25	0.11 J	0.16 J	0.14 J	0.19 J	0.19 J	0.20 U	0.20 U	0.24
Phenol	0.67	1	0.22	0.39 UJ	0.39 UJ	0.40 UJ	0.40 UJ	0.41 UJ	0.39 UJ	0.40 UJ	0.40 UJ	0.40 UJ	0.40 UJ
Pyrene	0.62	1,000	0.27	0.12 J	0.40	0.22	0.27	0.17 J	0.37	0.35	0.20 U	0.20 U	0.40

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
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Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-31 3/14/2013	LS-32 3/14/2013	LS-33 3/14/2013	LS-34 3/14/2013	LS-35 3/14/2013	LS-36 3/14/2013	LS-37 3/14/2013	LS-38 3/14/2013	LS-39 3/14/2013	LS-40 3/14/2013
Total Petroleum Hydrocarbons by EPA Method 8015													
TPH-Gasoline Range Organics	NS	NS	103	--	--	--	--	--	--	--	--	--	--
TPH-Diesel Range Organics	NS	NS		--	--	--	--	--	--	--	--	--	--
TPH (C9-C36)	<1,000	2,500		130 *	150 *	130 *	110 *	80 *	58 *	88 *	43 *	64 *	95 *
Polychlorinated Biphenyls (PCBs) [2] by EPA Method 8082													
All Aroclors	0.1	2	--	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U	0.11 U	0.12 U	0.11 U	0.12 U	0.12 U
RCRA 8 Metals by EPA Methods 6010 and 7471													
Arsenic	20	20	3.0	1.5 J	2.7 J	3.2	2.3 J	2.4 J	8.5	2.5 J	3.0	2.2 J	1.8 J
Barium	300	1,000	13.5	10	12	25	14	11	12	12	12	9.9	11
Cadmium	4	2	0.32	0.29 U	0.34	0.43	0.33	0.30	0.49	0.33	0.29 U	0.32	0.30 U
Chromium	157	30	9.7	7.7	8.7	12	10	8.9	15	12	7.9	8.1	8.1
Lead	<200	300	17.69	14	13	16	18	15	9.5	14	6.8	14	17
Mercury	0.7	20	0.071	0.048	0.052	0.043	0.072	0.11	0.024 J	0.075	0.021 J	0.083	0.12
Selenium	<5	400	--	5.8 U	5.6 U	5.6 U	5.8 U	5.8 U	5.7 U	5.8 U	5.7 U	5.7 U	6.0 U
Silver	<6	100	--	0.58 U	0.56 U	0.56 U	0.58 U	0.58 U	0.57 U	0.58 U	0.57 U	0.57 U	0.60 U
Hazardous Waste Characteristics													
Reactive Cyanide	NS	NS	--	--	--	--	--	--	--	--	--	--	--
Reactive Sulfide	NS	NS	--	--	--	--	--	--	--	--	--	--	--
pH (standard units)	NS	NS	--	--	--	--	--	--	--	--	--	--	--
Specific Conductance (umhos/cm)	500-1000	NS	--	--	--	--	--	--	--	--	--	--	--
Ignitability (present/absent)	NS	NS	--	--	--	--	--	--	--	--	--	--	--

Only detected and selected other compounds listed; all other analytes were not detected.

Analytical results in milligrams per kilogram (mg/kg) unless otherwise noted.

1. All "detected" concentrations of VOCs were estimated concentrations below the reporting limit with two exceptions: p-isopropyltoluene in LS-11 and toluene in LS-14. All detected VOC concentrations are well below the RCS-1 thresholds.

2. Although the reporting limits for the PCB aroclors exceed the criteria of 0.1 mg/kg, the detection limits for the aroclors are well below the 0.1 mg/kg criteria and no aroclors were reported by the laboratory as having been detected.

3. Arithmetic average concentration calculated using half the reporting limit when analyte was not detected.

U	Not detected; reporting limit shown.
NS	No standard or criterion established.
J	Estimated concentration (below reporting limit or surrogate recovery is outside acceptance limits).
B	Detected in method blank; sample result >5x blank; result valid.
bold	Detected analyte.
italics	Reporting limit exceeds Overlook Farm criterion.
shaded	Detected concentration exceeds Overlook Farm criterion.
red	Concentration exceeds MCP RCS-1 threshold.
--	Not analyzed or mean concentration not calculated because all results were non-detect.
*	Sample contamination consists of heavy residual hydrocarbons similar to asphalt. Chromatogram also shows the presence of PAHs.
‡	310 CMR 40.1600.

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-41 3/29/2013	LS-42 3/29/2013	LS-43 3/29/2013
Volatile Organic Compounds (VOCs) by EPA Method 8260[1]						
Acetone	ND	6	0.029	--	--	--
Benzene	ND	2	--	--	--	--
n-Butylbenzene	ND	NS	--	--	--	--
sec-Butylbenzene	ND	NS	--	--	--	--
tert-Butylbenzene	ND	100	--	--	--	--
cis-1,2-Dichloroethene	ND	0.3	--	--	--	--
1,4-Dioxane	ND	0.2	--	--	--	--
Ethylbenzene	ND	40	--	--	--	--
Isopropylbenzene	ND	1,000	--	--	--	--
p-Isopropyltoluene	ND	100	0.0009	--	--	--
Naphthalene	ND	4	0.0014	--	--	--
n-Propylbenzene	ND	100	--	--	--	--
Tetrachloroethene (PCE)	ND	1	--	--	--	--
Toluene	ND	30	0.0007	--	--	--
Trichloroethene (TCE)	ND	0.3	--	--	--	--
1,2,4-Trimethylbenzene	ND	1,000	--	--	--	--
1,3,5-Trimethylbenzene	ND	10	--	--	--	--
Vinyl chloride	ND	0.6	--	--	--	--
Total Xylenes	ND	300	--	--	--	--
Semivolatile Organic Compounds (SVOCs) by EPA Method 8270						
Acenaphthene	0.47	4	--	--	--	--
Acenaphthylene	0.47	1	--	--	--	--
Anthracene	0.47	1,000	0.10	--	--	--
Benzo(a)anthracene	0.47	7	0.16	--	--	--
Benzo(a)pyrene	0.43	2	0.16	--	--	--
Benzo(b)fluoranthene	0.47	7	0.20	--	--	--
Benzo(g,h,i)perylene	0.47	1,000	0.11	--	--	--
Benzo(k)fluoranthene	0.47	70	0.11	--	--	--
Benzoic Acid	NS	NS	0.55	--	--	--
Bis(2-Ethylhexyl)phthalate	0.67	200	0.20	--	--	--
Carbazole	NS	NS	--	--	--	--
Chrysene	0.46	70	0.17	--	--	--
Dibenz(a,h)anthracene	0.33	0.7	--	--	--	--
2,6-Dinitrotoluene	0.67	100	0.20	--	--	--
Fluoranthene	0.68	1,000	0.23	--	--	--
Fluorene	0.47	1,000	--	--	--	--
Indeno(1,2,3-cd)pyrene	0.47	7	0.12	--	--	--
Naphthalene	0.47	4	--	--	--	--
Phenanthrene	0.47	10	0.17	--	--	--
Phenol	0.67	1	0.22	--	--	--
Pyrene	0.62	1,000	0.27	--	--	--

Soil Samples - Summary of Analytical Results
Topsoil Stockpile
700 Lafayette Rd, Seabrook, New Hampshire
(see notes on alternate pages)

Sample Identification / Sample Date	Overlook Farm Acceptance Criteria	MCP Reportable Concentration ‡ RCS-1	Average Concentration	LS-41 3/29/2013	LS-42 3/29/2013	LS-43 3/29/2013
Total Petroleum Hydrocarbons by EPA Method 8015						
TPH-Gasoline Range Organics	NS	NS	103	--	--	--
TPH-Diesel Range Organics	NS	NS		--	--	--
TPH (C9-C36)	<1,000	2,500		--	--	--
Polychlorinated Biphenyls (PCBs) [2] by EPA Method 8082						
All Aroclors	0.1	2	--	--	--	--
RCRA 8 Metals by EPA Methods 6010 and 7471						
Arsenic	20	20	3.0	--	--	--
Barium	300	1,000	13.5	--	--	--
Cadmium	4	2	0.32	--	--	--
Chromium	157	30	9.7	--	--	--
Lead	<200	300	17.69	--	--	--
Mercury	0.7	20	0.071	--	--	--
Selenium	<5	400	--	--	--	--
Silver	<6	100	--	--	--	--
Hazardous Waste Characteristics						
Reactive Cyanide	NS	NS	--	3.9 U	3.9 U	3.9 U
Reactive Sulfide	NS	NS	--	19 U	20 U	20 U
pH (standard units)	NS	NS	--	6.2	5.6	5.6
Specific Conductance (µmhos/cm)	500-1000	NS	--	9.7	5.2	6.3
Ignitability (present/absent)	NS	NS	--	Absent	Absent	Absent

Only detected and selected other compounds listed; all other analytes were not detected.

Analytical results in milligrams per kilogram (mg/kg) unless otherwise noted.

1. All "detected" concentrations of VOCs were estimated concentrations below the reporting limit with two exceptions: p-isopropyltoluene in LS-11 and toluene in LS-14. All detected VOC concentrations are well below the RCS-1 thresholds.

2. Although the reporting limits for the PCB aroclors exceed the criteria of 0.1 mg/kg, the detection limits for the aroclors wer well below the 0.1 mg/kg criteria and no aroclors were reported by the laboratory as having been detected.

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red	Concentration exceeds MCP RCS-1 threshold.
--	Not analyzed or mean concentration not calculated because all results were non-detect.
*	Sample contamination consists of heavy residual hydrocarbons similar to asphalt. Chromatogram also shows the presence of PAHs.
‡	310 CMR 40.1600.

BOL No. _____ Work Order No. _____

PO No. DDR5001.2

STRAIGHT BILL OF LADING

Transporter 1 Brighter Horizons Environmental Corporation — Vehicle ID #: — Truck Plate #: — Trailer Plate #:

EPA ID # — Phone #: (978) 970-0500

Transporter 2 — Vehicle ID #:

EPA ID # — Phone #:

Designated Facility			**Generator**		
Overlook Farm			DDR Seabrook, LLC		
Facility EPA ID #			Generator EPA ID #		
None			None		
Address			Address		
29 Overlook Road			700 Lafayette Road		
City	State	Zip	City	State	Zip
Rutland	MA	01543	Seabrook	NH	03874

Containers No. & Size	Type	HM	Description of Materials	Total Quantity	Units Wt/Vol.
1	DT		A. Non-Hazardous, Non-regulated matter, None, None, NA topsoil for reuse		Tons
			B. DT		
			C.		
			D.		
			E.		

Special Handling Instructions

A. Topsoil for reuse. Call Wilcox & Barton, Inc. at (603) 369-4190 for additional information.

Generator Certification

This is to certify that the materials listed above are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation in accordance with the applicable federal and state DOT regulations.

DDR Seabrook, LLC Generator	Print Chris Wood (Agent for)	Sign	Date
Brighter Horizons Transporter 1	Print	Sign	Date
Transporter 2	Print	Sign	Date
Overlook Farm Received by	Print	Sign	Date

Receiving facility: Please return a signed copy of this BOL along with a completed weight slip to: Wilcox & Barton, Inc.
57 Hoit Road, Concord, NH
Fax: (603) 369-6630

BOL No. _____ Work Order No. _____

PO No. DDR5001.2

STRAIGHT BILL OF LADING

Transporter 1 Brighter Horizons Environmental Corporation — Vehicle ID #: — Truck Plate #: — Trailer Plate #:

EPA ID # — Phone #: (978) 970-0500

Transporter 2 — Vehicle ID #:

EPA ID # — Phone #:

Designated Facility			**Generator**		
Overlook Farm			DDR Seabrook, LLC		
Facility EPA ID #			Generator EPA ID #		
None			None		
Address			Address		
29 Overlook Road			700 Lafayette Road		
City	State	Zip	City	State	Zip
Rutland	MA	01543	Seabrook	NH	03874

Containers No. & Size	Type	HM	Description of Materials	Total Quantity	Units Wt/Vol.
1	DT		A. Non-Hazardous, Non-regulated matter, None, None, NA topsoil for reuse	~30	Tons
			B. DT		
			C.		
			D.		
			E.		

Special Handling Instructions

A. Topsoil for reuse. Call Wilcox & Barton, Inc. at (603) 369-4190 for additional information.

Generator Certification

This is to certify that the materials listed above are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation in accordance with the applicable federal and state DOT regulations.

DDR Seabrook, LLC Generator	Print Chris Wood (Agent for)	Sign Chris Wood	Date 4/29/2013
Brighter Horizons Transporter 1	Print	Sign	Date
Transporter 2	Print	Sign	Date
Overlook Farm Received by	Print	Sign	Date

Receiving facility: Please return a signed copy of this BOL along with a completed weight slip to: Wilcox & Barton, Inc.
57 Hoit Road, Concord, NH
Fax: (603) 369-6630

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

SOIL ANALYSIS REPORT FOR CORN SILAGE 05/13/13

SOIL AND PLANT TISSUE TESTING LAB
WEST EXPERIMENT STATION
UNIVERSITY OF MASSACHUSETTS
AMHERST, MA 01003

LAB NUMBER: S130508-107
BAG NUMBER: 0

SOIL WEIGHT: 6.11 g/5cc
CROP: FIELD CORN

ECOTEC, INC - A ALLEN
102 GROVE STREET
WORCESTER, MA 01605

COMMENTS: AALLEN@ECOTECINC.COM

SAMPLE ID: NP501 & NT501

LIMESTONE AND FERTILIZER RECOMMENDATIONS FOR SILAGE CORN:

Limestone requirement is 3.8 tons per acre or 170 lbs/1000 sq.ft.
Limestone containing at least 5-10% calcium carbonate equivalence from magnesium sources is recommended.

Nitrogen should be applied according to yield expectations.
Apply 140 lb/acre nitrogen on soils expected to yield less than 20 tons/acre.
Apply 160 lb/acre nitrogen on soils expected to yield between 20 and 24 tons/acre.
Apply 180 lb/acre nitrogen on soils expected to yield more than 24 tons/acre.

Apply 110-120 lb/acre P2O5 and 240-250 lb/acre K2O.
Use a starter fertilizer if planting before May 15.

Decrease N-P2O5-K2O by 5-3-6 lb/acre for each ton of dairy manure used if immediately incorporated, 2-3-6 per ton if not incorporated within 2 days.
If corn follows alfalfa reduce nitrogen by 60 lb/acre.
If corn follows birdsfoot trefoil or clover reduce nitrogen by 40 lb/acre.

MICRONUTRIENT		PPM	SOIL RANGE	MICRONUTRIENT		PPM	SOIL RANGE
Boron	(B)	0.2	0.1-2.0	Copper	(Cu)	0.4	0.3-8.0
Manganese	(Mn)	18.6	3 - 20	Iron	(Fe)	29.1	1.0- 40
Zinc	(Zn)	2.7	0.1- 70	Sulfur	(S)	11.2	1.0- 40

SOIL pH 5.8
BUFFER pH 6.4 ORGANIC MATTER: 2.9 % (Desirable range 4-10%)

NUTRIENT LEVELS:		PPM	Low	Medium	High	Very High
Phosphorus	(P)	1	XX			
Potassium	(K)	30	XXXXXXX			
Calcium	(Ca)	287	XXXXXXXXX			
Magnesium	(Mg)	30	XXXXXXX			

CATION EXCH CAP
7.1 Meq/100g

PERCENT BASE SATURATION
K= 1.1 Mg= 3.5 Ca=20.3

MICRONUTRIENT LEVELS
ALL NORMAL

EXTRACTABLE ALUMINUM: 167 ppm (Soil range: 10-250 ppm)

The lead level in this soil is low.

VISIT soiltest.umass.edu FOR FURTHER INFORMATION ON SOIL TESTING AT UMASS.

UMass Extension
CENTER FOR AGRICULTURE

Agriculture and Landscape Program
Soil and Plant Tissue Testing Laboratory

West Experiment Station
682 North Pleasant Street
University of Massachusetts
Amherst, MA 01003-9302
Phone: 413.545.2311
Email: soiltest@umass.edu
Website: soiltest.umass.edu

05/14/13

TEXTURAL ANALYSIS RESULTS

Customer Name: EcoTec, Inc.
Arthur Allen
102 Grove Street
Worcester, MA 01605

Sample ID: S130508-107

Customer Designation: NP501 & NT501

USDA SIZE FRACTIONS

Main Fractions	Size (mm)	Percent
Sand	0.05-2.0	86.6
Silt	0.002-0.05	8.7
Clay	< 0.002	4.8
Total	< 2.0	100.0

Sand Fractions	Size (mm)	Percent
Very Coarse	1.0-2.0	6.8
Coarse	0.5-1.0	21.5
Medium	0.25-0.5	30.6
Fine	0.10-0.25	21.3
Very Fine	0.05-0.10	6.4
		86.6

Silt Fractions	Size (mm)	Percent
Coarse	0.02-0.05	3.3
Medium	0.005-0.02	3.7
Fine	0.002-0.005	1.6
		8.7

PERCENT OF WHOLE SAMPLE PASSING

Size (mm)	Sieve #	%
2.00	#10	86.7
1.00	#18	80.8
0.50	#35	62.2
0.25	#60	35.7
0.10	#140	17.2
0.05	#270	11.7
0.02	20 um	8.8
0.005	5 um	5.5
0.002	2 um	4.2

USDA Textural Class = loamy coarse sand

Gravel Content = 13.3%

COMMENTS:

UMass Extension
CENTER FOR AGRICULTURE

Soil and Plant Tissue Testing Laboratory
West Experiment Station
682 North Pleasant Street
University of Massachusetts
Amherst, MA 01003
Phone: (413) 545-2311
e-mail: soiltest@psis.umass.edu
website: http://www.umass.edu/soiltest/

Soil Test Interpretation & Recommendations

The primary goal of soil testing is to provide guidelines for the efficient use of soil amendments, such as lime and fertilizers. The recommendations that we provide with your soil test report are specific to the crop selection that you identify on your soil sample submission form.

Numerical results reported on your soil test reflect the properties of the sample submitted and the testing procedures used by the UMass Soil and Plant Tissue Testing Laboratory. The analytical methods used by the UMass Laboratory were developed for climate and soil types common to the Northeastern U.S. Interpretation of the results, along with lime and fertilizer recommendations, are based on field and greenhouse trials conducted in Massachusetts and other Northeastern states.

Implementing the provided recommendations will correct the nutrient status of your soil for the crop that you indicated. It may or may not solve a given plant growth problem; other factors may need to be evaluated. Problems directly related to disease, insects, weather, and cultural practices cannot be diagnosed by a soil fertility test.

SOIL TEST RESULTS

Soil pH, Buffer pH, and pH adjustments -- Soil pH is a measure of the soil's acidity and is a primary factor controlling nutrient availability, microbial processes, and plant growth. When pH is maintained at the proper level, plant nutrient availability is optimized, toxic elements are often at reduced availability, and beneficial soil organisms are most active. Most plants grow best in a soil pH between 6 and 7, and the majority does best in the middle part of this range. Some notable acid-loving exceptions are blueberry and rhododendron, which grow well under the nutritional conditions imparted by soil acidity.

Due to the climate and geology of New England, soils here tend to be naturally acidic (4.5-5.5) and must often be amended with materials that neutralize soil acidity. Many products are available to accomplish this, but ground limestone is the most common. By convention, lime requirements are made in amounts (tons/acre or lb/1000 sq ft) of agricultural limestone to be added assuming Calcium Carbonate Equivalence (CCE) is 100%. Application rates for liming materials with higher or lower CCE should be adjusted accordingly.

Occasionally soil pH must be lowered, because either the plant requires acid soil or the soil was previously over-limed. Incorporating elemental sulfur is the most effective way to lower soil pH. Once applied, the sulfur oxidizes to sulfuric acid. One to two pounds of sulfur per 100 sq ft will lower the pH of most New England soils by approximately half a unit.

Buffer pH is a value used by the lab to determine lime requirement. It is the resulting pH after a buffering solution has been equilibrated with the soil. The change in pH of the buffering solution is a measure of the soil's capacity to resist pH change after lime has been added. The extent to which the buffer pH is lower than 6.8 is directly related to the amount of limestone needed.

Cation Exchange Capacity and Percentage Base Saturation–Cation exchange capacity (CEC) is an important measure of the ability of soils to retain and supply nutrients. The bulk of this capacity in limed New England soils resides in finely divided soil organic matter; a smaller contribution comes from the clay minerals in soil. The basic nutrient cations (positively charged ions) of Calcium (Ca^{++}), Magnesium (Mg^{++}), and Potassium (K^{+}), and the acidic cations of Aluminum (Al^{+++}) and Hydrogen (H^{+}) account for nearly all the absorbed cations in the soil. Very sandy soils with low organic matter commonly have CEC's less than 5 meq/100 g. New England soils with very high CEC's (greater than 40) are invariably rich in organic matter. A CEC between 10 and 15 is typical for most soils found in the region.

Individual Nutrients

Nitrogen (N) –Nitrogen is essential to nearly every aspect of plant growth. Nitrogen is absorbed from the soil as nitrate (NO_3^-) and ammonium (NH_4^+). Soil NO_3^- and NH_4^+ levels can fluctuate widely with soil and weather conditions over very short periods of time. For this reason, NO_3^- and NH_4^+ are not routinely tested, and we make recommendations based on the assumption that very little NO_3^- and NH_4^+ remain in the soil after the growing season; however, adjustments are often made for soils recently or continuously supplied with manure or compost, which contain nitrogen that will be released during the growing season.

Under certain specific conditions soil NO_3 testing can be useful for predicting fertilizer needs. The Pre-sidedress Soil Nitrate Test (PSNT) has been shown to successfully predict sidedress fertilizer N needs for a few crops (e.g., corn, pumpkin, peppers), but the PSNT requires stricter sampling (depth and timing) and handling than a standard soil fertility sample. Contact the laboratory for more information on this test.

Phosphorus (P) –Among other important functions, phosphorus provides plants with a means of using the energy harnessed by photosynthesis to drive its metabolism. A deficiency of this nutrient can lead to impaired vegetative growth, weak root systems, poor fruit and seed quality; and low yield; however excessive soil phosphorus levels are a concern due to the potential negative impact on

water quality. Phosphorus does not generally leach from soils, but where soil P levels are excessive, runoff losses can occur. Phosphorus enrichment is a leading source of water quality impairment of many lakes, streams, and rivers.

Soil phosphorus exists in a wide range of forms. Some phosphorus is present as part of soil organic matter and becomes available to plants as the organic matter decomposes. Most inorganic soil phosphorus is bound tightly to the surface of soil minerals (e.g., iron and aluminum oxides). Warm, moist, well-aerated soils at a pH level of about 6.5 optimize the release of both of these forms. Plants require fairly large quantities of phosphorus, but the levels of phosphorus available to plant roots at any given time are usually quite low. Soil tests attempt to assess the ability of soil to supply phosphorus from bound forms during the growing season. When a soil test indicates that phosphorus is low and fertilizer in needed, the rate recommended is intended to satisfy immediate crop needs and begin to build soil phosphorus levels to the optimum range (i.e., build and maintain). By convention, phosphorus recommendations are expressed, as P_2O_5 to correlate with fertilizer analysis.

If your soil test results indicate excessive, or *Very High*, soil phosphorus levels, phosphorus application should be significantly reduced or eliminated, and steps should be taken to minimize the risk of surface water contamination by limiting runoff losses.

Potassium (K) – Potassium rivals nitrogen as the nutrient absorbed in greatest amounts by plants. Like nitrogen, crops take up a relatively large proportion of plant-available potassium each growing season. Plants deficient in potassium are unable to utilize nitrogen and water efficiently and are susceptible to disease. Most available potassium exists as an exchangeable cation (see above). The slow release of potassium from native soil minerals and from fixed forms in clays can replenish some of the potassium lost by crop removal and leaching. This ability, however, is limited and variable. Fertilization is often necessary to maintain optimum yields.

When a soil test indicates that fertilizer potassium is required, the rate of fertilizer recommended is intended to satisfy crop needs and build soil potassium levels to the optimum range. Sandy soils with very low CEC will tend to lose substantial quantities due to leaching and will require more frequent applications of fertilizer. Even when soils test in the optimum range, some potassium generally is recommended to account for crop removal. By convention, potassium recommendations are expressed, as K_2O to correlate with fertilizer analysis.

Calcium (Ca) – Calcium is essential in the proper functioning of plant cell walls and membranes. Sufficient calcium must also be present in actively growing plant parts, especially storage organs such as fruits and roots. Properly limed soils with constant and adequate moisture will normally supply sufficient calcium to plants. If soil calcium levels are less than optimal and lime is not required, gypsum (calcium sulfate) may be recommended.

Magnesium (Mg) – Magnesium acts together with phosphorus to drive plant metabolism and is part of chlorophyll, a vital substance for photosynthesis. Like calcium, magnesium is ordinarily supplied through liming. If magnesium levels are low and lime is required, dolomitic lime (rich in Mg) will be recommended. If Mg is low and lime is not required, Epsom salts (magnesium sulfate) may be recommended.

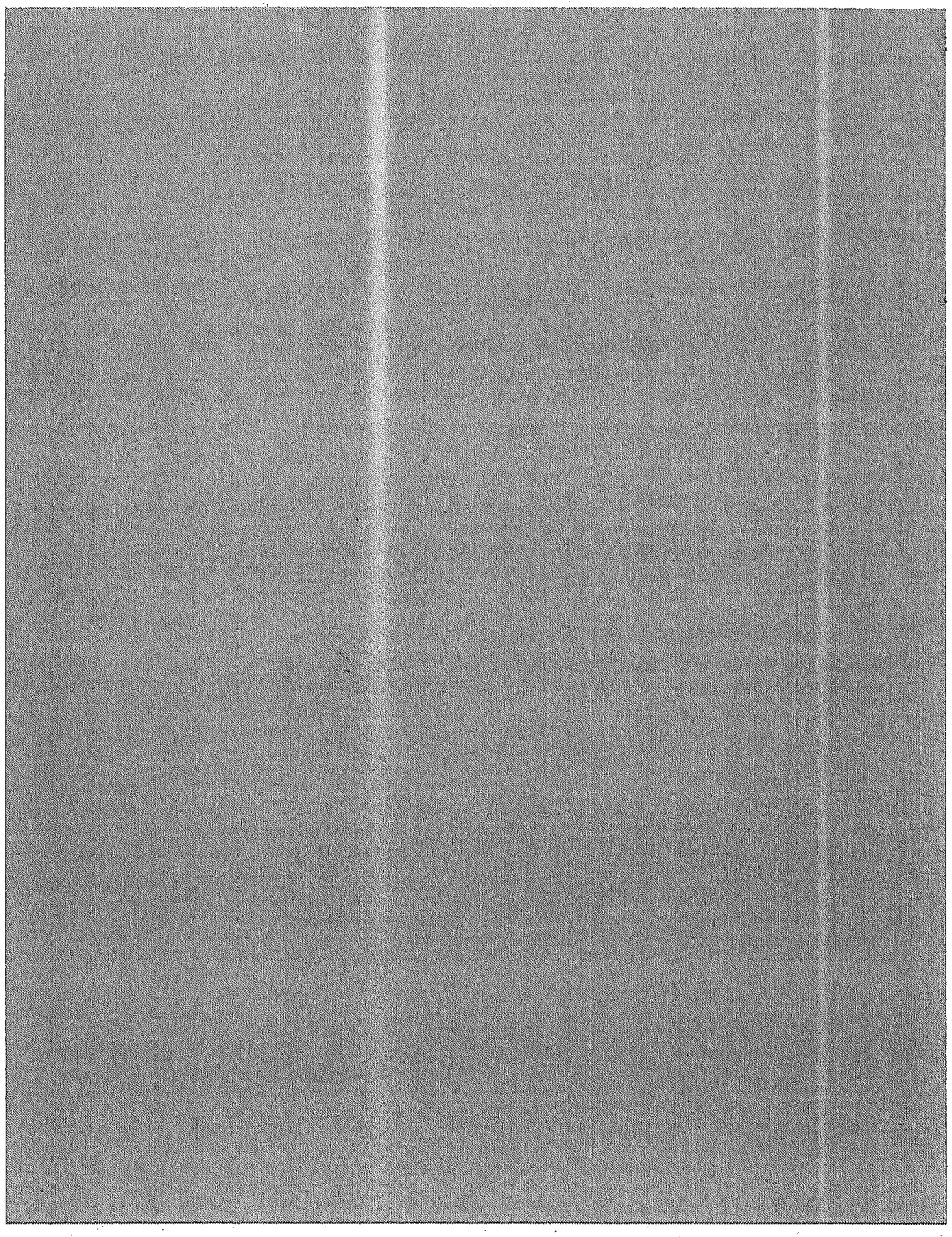
Micronutrients – Micronutrients are elements essential to plants, but required in very small amounts. In most properly limed soils they are available in sufficient quantities. Five of these (iron, manganese, zinc, copper, and boron) are tested routinely. Micronutrient deficiencies and response to micronutrient fertilizers rarely are observed in the Northeast. For this reason, soil test recommendations for micronutrients are not available. Your soil test values are compared to levels normally found in Northeast soils. When levels are below this range, we recommend collecting a plant tissue sample to determine if a deficiency exists and a micronutrient fertilizer is required.

Aluminum (Al)–Aluminum is not a plant nutrient and at elevated levels it can be extremely toxic to plant roots and limit the ability of plants to take up phosphorus by reducing phosphorus solubility. Aluminum sensitivity varies greatly with plant type. Acid-loving plants, such as rhododendrons and blueberries can tolerate moderately high aluminum levels, whereas lettuce, carrots and beets are very sensitive. Extractable aluminum increases greatly at soil pH below 5.5. Proper liming will lower aluminum solubility to acceptable levels.

Lead (Pb)–This laboratory routinely tests for extractable lead. Lead is naturally present in most New England soils in the range of 15-40 parts per million (ppm or mg/kg) total lead. At these levels lead generally is thought to present minimal danger to people or plants. Soil pollution with lead-based paint and the tetraethyl lead of past automotive fuels have increased soil lead levels to several thousand ppm in some places. Unless the estimated total lead level in your soil exceeds 150 ppm, it is simply reported as low and can be considered safe (assuming the sample submitted was representative of the area of concern). Estimated total lead levels above 300 ppm are a concern. In such cases, consult the separate insert on soil lead levels.

Soluble Salts–Soluble salts, such as those used on roads to promote melting and those present in many commercial (and some natural) fertilizers, can cause severe water stress and nutritional imbalances in plants. Generally, seedlings are more sensitive than established plants to elevated soluble salts levels, and great variation exists between plant species. Most soils tested by the UMass laboratory have values between 0.08 and 0.50 dS/m (mmho/cm) with the middle of range typical of most fertile mineral soils; values greater than 0.60 may cause damage to sensitive plants (such as onions, etc.). The level of soluble salts can change rapidly in the soil due to leaching, so the effects of time and growing conditions are important considerations when evaluating the significance of the soluble salts level. Excessive levels can often be corrected by leaching with liberal amounts (2- 4 inches) of fresh water. Normal off-season precipitation usually will correct salt problems resulting from over-fertilization.

Prepared by John Spargo, Assistant Extension Professor of Soil and Nutrient Management and Director, UMass Soil and Plant Tissue Testing Laboratory; Allen Barker, Professor of Soil Fertility and Plant Nutrition, Stockbridge School of Agriculture; and Tracy Allen, Laboratory Supervisor, UMass Soil and Plant Tissue Testing Laboratory. Revised January 2012.



Attachment F

Similar Soils Provision Guidance Policy (WSC#13-500)

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

October 2, 2013

Dear Interested Party:

The Massachusetts Department of Environmental Protection (MassDEP) is pleased to announce the publication of the "Similar Soils Provision Guidance" (WSC#-13-500). This guidance is provided to parties conducting response actions at disposal sites regulated under the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, to support the assessment and re-use of soil in compliance with the related provisions of the MCP.

This policy addresses the very specific application of an MCP provision (310 CMR 40.0032(3)) that allows certain soils to be managed (and re-used) without prior notice to, or approval from, the Department. MassDEP recognizes that this is but one piece of a much needed comprehensive soil management strategy. The Department is committed to working with external stakeholders to revise areas of regulation and policy to enhance, expedite and more efficiently manage the assessment and appropriate re-use of soil in reclamation and development projects.

I would like to thank the many program stakeholders who have provided valuable input in the development of this document.

Sincerely,

Benjamin J. Ericson
Assistant Commissioner
Bureau of Waste Site Cleanup

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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Similar Soils Provision Guidance

Guidance for Identifying When Soil Concentrations at a Receiving Location Are "Not Significantly Lower Than" Managed Soil Concentrations Pursuant to 310 CMR 40.0032(3)

October 2, 2013

WSC#-13-500

The information contained in this document is intended solely as guidance. This guidance does not create any substantive or procedural rights, and is not enforceable by any party in any administrative proceeding with the Commonwealth. Parties using this guidance should be aware that there may be other acceptable alternatives for achieving and documenting compliance with the applicable regulatory requirements and performance standards of the Massachusetts Contingency Plan.

I. Purpose and Scope

The Massachusetts Contingency Plan ("MCP", 310 CMR 40.0000) establishes conditions and requirements for the management of soil excavated at a disposal site. This guidance addresses the specific requirements of 310 CMR 40.0032(3) and the criteria by which a Licensed Site Professional ("LSP") may determine that soil may be moved without prior notice to or approval from the Department. Soil managed pursuant to 310 CMR 40.0032(3) may be transported using a Bill of Lading ("BOL"), but a BOL is not required. Attachment 1 provides a flowchart depiction of the Similar Soil regulations and guidance.

This guidance is not applicable to the excavation and movement of soil from locations other than M.G.L. Chapter 21E disposal sites, nor to the management of soils considered Remediation Waste under the MCP.

II. Relationship to Other Local, State or Federal Requirements

This guidance is intended to clarify and more fully describe regulatory requirements contained within the MCP. Nothing in this guidance eliminates, supersedes or otherwise modifies any local, state or federal requirements that apply to the management of soil, including any local,

state or federal permits or approvals necessary before placing the soil at the receiving location, including, *but not limited to,* those related to placement of fill, noise, traffic, dust control, wetlands, groundwater or drinking water source protection.

III. Requirements of 310 CMR 40.0032(3)

The requirements specified in 310 CMR 40.0032(3) are:

> (3) Soils containing oil or waste oil at concentrations less than an otherwise applicable Reportable Concentration and that are not otherwise a hazardous waste, and soils that contain one or more hazardous materials at concentrations less than an otherwise applicable Reportable Concentration and that are not a hazardous waste, may be transported from a disposal site without notice to or approval from the Department under the provisions of this Contingency Plan, provided that such soils:
> (a) are not disposed or reused at locations where the concentrations of oil or hazardous materials in the soil would be in excess of a release notification threshold applicable at the receiving site, as delineated in 310 CMR 40.0300 and 40.1600; and
> (b) are not disposed or reused at locations where existing concentrations of oil and/or hazardous material at the receiving site are significantly lower than the levels of those oil and/or hazardous materials present in the soil being disposed or reused.

There are therefore four requirements that must be met before the managed soil can be moved to and re-used (or disposed) at a new location without notice to or approval from MassDEP. Each requirement (A. through D.) is addressed below.

A. The Managed Soil Must Not Be a Hazardous Waste

310 CMR 40.0032(3) applies to soils containing oil or waste oil that are not otherwise a hazardous waste, and to soils containing hazardous materials that are not a hazardous waste. The MCP definition of hazardous waste (310 CMR 40.0006) refers to the definitions promulgated in the Massachusetts Hazardous Waste Regulations, 310 CMR 30.000.

Under the federal Resource Conservation and Recovery Act of 1976 ("RCRA", 42 U.S.C. §§6901 *et. seq.*), the Massachusetts Hazardous Waste Management Act (M.G.L. c.21C), and the Massachusetts Hazardous Waste Regulations (310 CMR 30.000), soil is considered to contain a hazardous waste (hazardous waste soil) if, when generated, it meets either or both of the following two conditions:

- the soil exhibits one or more of the characteristics of a hazardous waste pursuant to 310 CMR 30.120 [such as exhibiting a characteristic of toxicity under 310 CMR 30.125 and 30.155 (Toxicity Characteristic Leaching Procedure, or TCLP)]; or
- the soil contains hazardous constituents from a listed hazardous waste identified in 310 CMR 30.130 or Title 40, Chapter I, Part 261 (Identification and Listing of Hazardous Waste) of the Code of Federal Regulations.

MassDEP has published a Technical Update entitled: *Considerations for Managing Contaminated Soil: RCRA Land Disposal Restrictions and Contained-In Determinations* (August 2010, http://www.mass.gov/eea/docs/dep/cleanup/laws/contain.pdf) that focuses on the determination of whether contaminated soil must be managed as a hazardous waste subject to RCRA requirements, and the presumptive approval process an LSP/PRP can use to document such a determination.

B. The Managed Soil Must Be Less Than Reportable Concentrations (RCs).

This requirement is intended to ensure that the soil being excavated and relocated from a disposal site is not "Contaminated Soil" and therefore neither "Contaminated Media" nor "Remediation Waste" as those terms are defined in 310 CMR 40.0006[1].

310 CMR 40.0361 sets forth two reporting categories for soil (RCS-1 and RCS-2). Reporting Category RCS-1 applies to locations with the highest potential for exposure, such as residences, playgrounds and schools, and to locations within the boundaries of a groundwater resource area. Reporting Category RCS-2 applies to all other locations.

Note that the "applicable Reportable Concentrations" referred to in 310 CMR 40.0032(3) may be the RCS-1 or RCS-2 criteria, depending upon which category would apply to the soils being excavated *at the original disposal site location*, not the RCs applicable to the soils at the receiving location (see Section III.C. below).

> **EXAMPLE:** If soil is being excavated from a disposal site at an RCS-2 location and the soil contaminant concentrations are found to be less than the RCS-2 criteria, then the soil is not "Contaminated Soil" since the soil is less than the release notification threshold established for RCS-2 soil by 310 CMR 40.0300 and 40.1600. The RCS-2 soil in this example is not "Contaminated Soil" even if one or more constituent concentration is greater than an RCS-1 value.

Also, the language at 310 CMR 40.0032(3) specifies the *applicable* RCs. If a notification exemption (listed at 310 CMR 40.0317) applies to the OHM in soil at its original location, then the corresponding Reportable Concentration is not *applicable*. Thus 310 CMR 40.0032(3) should be read to apply to soils containing concentrations of oil or hazardous material ("OHM") less than the applicable RCs *or* covered by a notification exemption. This interpretation of the requirement is consistent with the definition of Contaminated Soil, which uses the term "notification threshold" rather than "Reportable Concentration."

[1] Contaminated Soil - means soil containing oil and/or hazardous material at concentrations equal to or greater than a release notification threshold established by 310 CMR 40.0300 and 40.1600.

Contaminated Media - means Contaminated Groundwater, Contaminated Sediment, Contaminated Soil, and/or Contaminated Surface Water.

Remediation Waste - means any Uncontainerized Waste, Contaminated Media, and/or Contaminated Debris that is managed pursuant to 310 CMR 40.0030. The term "Remediation Waste" does not include Containerized Waste.

C. The Managed Soil Must Not Create a Notifiable Condition at the Receiving Location.

This requirement is intended to prevent the creation of new reportable releases that must be subsequently assessed and remediated.

If the contaminant concentrations in the soil being relocated are less than the RCS-1 criteria, then placement of the soil in any RCS-1 location would not create a new notifiable condition. There are, however, conditions that could result in a notifiable condition.

> First, if the soil is excavated from an RCS-2 location (as described in the example in Section III.B. above) with contaminant concentrations *between* the RCS-1 and RCS-2 criteria, then the placement of that soil at an RCS-1 receiving location would create a notifiable condition since one or more concentrations of OHM would then exceed the RCS-1 criteria in the RCS-1 receiving location.
>
> Second, a notification exemption that applies to the original location of the soil may not apply to the receiving location. (For example, the lead paint exemption at 310 CMR 40.0317(8) is specific to "the point of application.") In cases where a notification exemption applies only to the original location, the managed soil must be evaluated solely based on whether its OHM concentrations exceed the applicable RCs at the receiving location.

D. The Managed Soil Must Not Be Significantly More Contaminated Than the Soil at the Receiving Location.

This requirement has been referred to as the "anti-degradation provision" although it is more accurately described as the "Similar Soils Provision." 310 CMR 40.00032(3)(b) requires that the concentrations of OHM at the receiving location not be "significantly lower" than the relocated soil OHM concentrations. One could also say that the provision requires that "there is no significant difference between the relocated soil and the soil at the receiving location," or that "the soils being brought to the receiving location are similar to what is already there." This requirement embodies several considerations.

> First, as a general principle, M.G.L. c.21E is intended to clean up contaminated properties and leave them better than they started – even to clean sites to background conditions, if feasible. It would be inconsistent with this principle to then raise the ambient levels of contamination in the environment as a consequence of a response action conducted under the MCP.
>
> Second, despite the three other requirements (A. through C. above) of 310 CMR 40.0032(3), decisions about the movement of the managed soil will be based upon sampling of soil that is likely to have significant heterogeneity. The Similar Soils Provision is an additional measure to minimize the adverse effects of soil characterization that may not be representative of such heterogeneity.

Third, none of the criteria of 310 CMR 40.0032(3) address the question of whether the soil poses a *risk* in its original or receiving location, although the hazardous waste- and notification-related requirements seem to *imply* risk-based decision making. Put simply, soil that is not a hazardous waste and does not require notification may still pose incremental risk at the receiving location. The Similar Soils Provision is intended to ensure that the managed soil does not increase risk of harm to health, safety, public welfare or the environment at the receiving location, since it will be similar to what is already there.

The "not... significantly lower" language of 310 CMR 40.0032(3)(b) can be interpreted to mean either a quantitative "not statistically different" analysis, or a semi-quantitative, albeit somewhat subjective, approach. MassDEP does not believe that a statistics-driven quantitative approach is necessary when comparing managed soil to known or assumed background conditions, given (a) the relatively low concentrations at issue and (b) the cost of such an analysis, driven by the quantity of sampling needed to show a statistical difference.

The regulations imply that the LSP must have knowledge about the concentrations of OHM in the soil at the receiving location in order to apply the Similar Soils Provision. The regulations also imply that the new soil may contain concentrations of OHM that are *somewhat* higher than those levels at the receiving location – just not "significantly" higher.

MassDEP recognizes that there may be several approaches to address this "knowledge" issue when implementing the Similar Soils Provision of the MCP.

- **Assume the soils at the receiving location are natural background**.
  Sampling of the soil at the receiving location is not necessary if it is assumed that the concentrations of OHM there are consistent with natural background conditions. MassDEP acknowledges that there is a range of background levels, and that the concentrations at any given location may be lower than the statewide levels published by the Department[2], but the costs associated with determining site-specific background are not justified by likely differences. Further, the published "natural background" levels are similarly used in several areas of the MCP as an acceptable endpoint, including site delineation and the development of the MCP cleanup standards.

  Of course, routine due diligence about the receiving location may still reveal factors that would make the location inappropriate to receive the proposed fill material. Nothing in this guidance relieves any party of the obligation to conduct such due diligence and appropriately consider and act on information thereby obtained.

[2] *See* Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil (May, 2002) http://www.mass.gov/eea/docs/dep/cleanup/laws/backtu.pdf

- **Sample the soils at the receiving location**.
  The sampling plan should include a sufficient number of samples taken at locations selected to provide an understanding of the concentrations of OHM present and the distribution of OHM throughout the receiving location. In order to provide data appropriate for the Similar Soils comparison, the soil at the receiving location should be analyzed for constituents that are likely to be present there (e.g., naturally occurring metals) as well as any OHM known or likely to be present in the soil brought from the disposal site. If a receiving location has been adequately and comprehensively characterized, that data may then be used for comparison to the OHM concentrations in any subsequent soil deliveries - additional sampling is not required.

- **Provide Technical Justification for an Alternative Approach**
  There may be situations for which a different combination of analytical and non-analytical information available for both the source and receiving locations is sufficient to conclude that the nature and concentrations of OHM in the soils are not significantly different. Guidance on recognizing such conditions and the level of documentation that would be necessary to support such a technical justification is beyond the scope of this guidance.

Once the concentrations of OHM in the soils are known (or assumed consistent with this guidance), the LSP must compare the concentrations of the source and receiving locations and determine whether the concentrations at the receiving location are "significantly lower" than those in the soil proposed to be relocated from the disposal site. This comparison may be conducted in several ways, including analyses with appropriate statistical power and confidence. MassDEP has also developed a *rule-of-thumb* comparison to simplify this determination, as described in Section IV.

IV. Determining whether soils at the receiving location are "significantly lower" using a simplified approach

The simplified comparison shall be made using the *maximum* values of the OHM concentrations in both the soil at the receiving location and the soil proposed to be disposed of or reused, using discrete (not composite) samples.

Use of the maximum values is appropriate for several reasons. First, the provisions of 310 CMR 40.0032(3) include comparisons to Reportable Concentrations, and notification is triggered by any single value (i.e., maximum value) exceeding the RC. Second, soil is by its nature heterogeneous, and the use of maximum values is a means of minimizing sampling costs while addressing the expected variability of results. Third, if natural background levels are assumed at the receiving location, the MassDEP published background concentrations are upper percentile levels that are only appropriately compared to similar (e.g., maximum) values of the soil data set.

Note also that when using the maximum reported concentrations for comparison purposes, the typical or average concentration will be lower. This is important to recognize if/when the question of the risk posed by the soil is raised. For example, the RCS-1 and the Method 1 S-1 standard for arsenic are both 20 mg/kg. The Reportable Concentration is applied as a not-to-be-exceeded value, triggering the need to report the release and investigate further. However the S-1 standard is applied as an average value, considering exposure over time. At a location where the highest arsenic value found is less than 20 mg/kg, the average concentration would be well below the Method 1 S-1 standard.

The maximum concentration in the soil at the receiving location may be less than that in the proposed disposed/reused soil by some amount and not be considered "significantly lower." The question is how much lower is "significantly lower"? In this guidance, MassDEP establishes a multiplying factor to be applied to the concentration in the soil at the receiving location. The multiplying factor varies depending upon the concentration in the soil at the receiving location, as shown in Table 1.

Table 1. Receiving Soil Concentration Multiplying Factors

If the concentration in soil at the receiving location for a given OHM is:	Then use a multiplying factor of:
< 10 mg/kg	10
10 mg/kg ≤ *x* <100 mg/kg	7.5
100 mg/kg ≤ *x* <1,000 mg/kg	5
≥ 1,000 mg/kg	2.5

EXAMPLE: The soil at a receiving location that is considered RCS-1 is appropriately sampled and the maximum concentration of silver is found to be 6 mg/kg. Using Table 1, the concentration of silver at the receiving location would not be considered "significantly lower" than *10 x 6 mg/kg = 60 mg/kg*. Since 60 mg/kg is less than the silver RCS-1 value of 100 mg/kg, soil containing a maximum concentration that is less than 60 mg/kg silver could be reused at this location.

EXAMPLE: The soil at a receiving location that is considered RCS-1 is assumed to be consistent with natural background. The MassDEP published natural background level for arsenic is 20 mg/kg. Using Table 1, the concentration of arsenic at the receiving location would not be considered "significantly lower" than *7.5 x 20 mg/kg = 150 mg/kg*. However, since 150 mg/kg is greater than the arsenic RCS-1 value of 20 mg/kg, only soil containing a maximum concentration that is less than 20 mg/kg arsenic could be reused at this location. [The managed soil must not create a notifiable condition at the receiving location, see Section III.C. above.]

EXAMPLE: The soil at a receiving location that is considered RCS-2 is assumed to be consistent with natural background. The MassDEP published natural background level for benzo[a]anthracene is 2 mg/kg. Using Table 1, the concentration of benzo[a]anthracene at the receiving location would not be considered "significantly lower" than *10 x 2 mg/kg = 20 mg/kg*. Since 20 mg/kg is less than the benzo[a]anthracene RCS-2 value of 40 mg/kg, soil containing a maximum concentration that is less than 20 mg/kg benzo[a]anthracene could be reused at this location. [Note that due to the lower reportable concentration, RCS-1 receiving locations could only accept soil containing less than 7 mg/kg benzo[a]anthracene.]

The multiplying factors in Table 1 and the MassDEP published natural background levels can be used to establish concentrations of OHM in soil that would be acceptable for reuse at an RCS-1 receiving location, consistent with the requirements of 310 CMR 40.0032(3). Table 2 lists such concentrations. Note that soil that meets the criteria in Table 2 could be re-used at <u>any</u> location (RCS-1 or RCS-2). Similarly, Table 3 lists concentrations of OHM in soil that would be acceptable for reuse at an RCS-2 receiving location (but <u>not</u> RCS-1 locations).

If a chemical is not listed on these tables, then MassDEP has not established a natural background concentration[3]. This guidance is limited to the use of only MassDEP-published statewide background concentrations. Therefore an alternative approach, such as sampling the receiving location and comparing maximum reported concentrations, would be appropriate to meet the requirements of 310 CMR 40.0032(3).

[3] For example, MassDEP has not established natural background levels for PCBs, volatile organic compounds (VOCs) or petroleum-related constituents.

Table 2.
Limits to the Concentration of OHM in Soil for Re-Use
Assuming Natural Background Conditions at an RCS-1 Receiving Location
NOTE: THIS TABLE WILL BE REVISED IN THE FALL OF 2013 TO REFLECT RCS-1 REVISIONS

OIL OR HAZARDOUS MATERIAL	Concentration In "Natural" Soil mg/kg	Rule-of-Thumb Multiplier	Multiplied Value mg/kg	RCS-1 mg/kg	Limiting[1] Soil Concentration mg/kg
ACENAPHTHENE	0.5	10	5	4	< 4
ACENAPHTHYLENE	0.5	10	5	1	< 1
ALUMINUM	10,000	2.5	25000		< 25000
ANTHRACENE	1	10	10	1000	< 10
ANTIMONY	1	10	10	20	< 10
ARSENIC	20	7.5	150	20	< 20
BARIUM	50	7.5	375	1000	< 375
BENZO(a)ANTHRACENE	2	10	20	7	< 7
BENZO(a)PYRENE	2	10	20	2	< 2
BENZO(b)FLUORANTHENE	2	10	20	7	< 7
BENZO(g,h,i)PERYLENE	1	10	10	1000	< 10
BENZO(k)FLUORANTHENE	1	10	10	70	< 10
BERYLLIUM	0.4	10	4	100	< 4
CADMIUM	2	10	20	2	< 2
CHROMIUM (TOTAL)	30	7.5	225	30	< 30
CHROMIUM(III)	30	7.5	225	1000	< 225
CHROMIUM(VI)	30	7.5	225	30	< 30
CHRYSENE	2	10	20	70	< 20
COBALT	4	10	40		< 40
COPPER	40	7.5	300		< 300
DIBENZO(a,h)ANTHRACENE	0.5	10	5	0.7	< 0.7
FLUORANTHENE	4	10	40	1000	< 40
FLUORENE	1	10	10	1000	< 10
INDENO(1,2,3-cd)PYRENE	1	10	10	7	< 7
IRON	20,000	2.5	50000		< 50000
LEAD	100	5	500	300	< 300
MAGNESIUM	5,000	2.5	12500		< 12500
MANGANESE	300	5	1500		< 1500
MERCURY	0.3	10	3	20	< 3
METHYLNAPHTHALENE, 2-	0.5	10	5	0.7	< 0.7
NAPHTHALENE	0.5	10	5	4	< 4
NICKEL	20	7.5	150	20	< 20
PHENANTHRENE	3	10	30	10	< 10
PYRENE	4	10	40	1000	< 40
SELENIUM	0.5	10	5	400	< 5
SILVER	0.6	10	6	100	< 6
THALLIUM	0.6	10	6	8	< 6
VANADIUM	30	7.5	225	600	< 225
ZINC	100	5	500	2500	< 500

[1] Concentration of OHM in soil must be LESS THAN (not equal or greater than) this value.

Table 3.
Limits to the Concentration of OHM in Soil for Re-Use
Assuming Natural Background Conditions at an RCS-2 Receiving Location
NOTE: THIS TABLE WILL BE REVISED IN THE FALL OF 2013 TO REFLECT RCS-2 REVISIONS

OIL OR HAZARDOUS MATERIAL	Concentration In "Natural" Soil mg/kg	Rule-of-Thumb Multiplier	Multiplied Value mg/kg	RCS-2 mg/kg	Limiting[1] Soil Concentration mg/kg
ACENAPHTHENE	0.5	10	5	3000	< 5
ACENAPHTHYLENE	0.5	10	5	10	< 5
ALUMINUM	10,000	2.5	25000		< 25000
ANTHRACENE	1	10	10	3000	< 10
ANTIMONY	1	10	10	30	< 10
ARSENIC	20	7.5	150	20	< 20
BARIUM	50	7.5	375	3000	< 375
BENZO(a)ANTHRACENE	2	10	20	40	< 20
BENZO(a)PYRENE	2	10	20	4	< 4
BENZO(b)FLUORANTHENE	2	10	20	40	< 20
BENZO(g,h,i)PERYLENE	1	10	10	3000	< 10
BENZO(k)FLUORANTHENE	1	10	10	400	< 10
BERYLLIUM	0.4	10	4	200	< 4
CADMIUM	2	10	20	30	< 20
CHROMIUM (TOTAL)	30	7.5	225	200	< 200
CHROMIUM(III)	30	7.5	225	3000	< 225
CHROMIUM(VI)	30	7.5	225	200	< 200
CHRYSENE	2	10	20	400	< 20
COBALT	4	10	40		< 40
COPPER	40	7.5	300		< 300
DIBENZO(a,h)ANTHRACENE	0.5	10	5	4	< 4
FLUORANTHENE	4	10	40	3000	< 40
FLUORENE	1	10	10	3000	< 10
INDENO(1,2,3-cd)PYRENE	1	10	10	40	< 10
IRON	20,000	2.5	50000		< 50000
LEAD	100	5	500	300	< 300
MAGNESIUM	5,000	2.5	12500		< 12500
MANGANESE	300	5	1500		< 1500
MERCURY	0.3	10	3	30	< 3
METHYLNAPHTHALENE, 2-	0.5	10	5	80	< 5
NAPHTHALENE	0.5	10	5	40	< 5
NICKEL	20	7.5	150	700	< 150
PHENANTHRENE	3	10	30	1000	< 30
PYRENE	4	10	40	3000	< 40
SELENIUM	0.5	10	5	800	< 5
SILVER	0.6	10	6	200	< 6
THALLIUM	0.6	10	6	60	< 6
VANADIUM	30	7.5	225	1000	< 225
ZINC	100	5	500	3000	< 500

[1] Concentration of OHM in soil must be LESS THAN (not equal or greater than) this value.

V. Sampling Considerations

The soil proposed for disposal/re-use should be sampled at sufficient and adequately distributed locations so that the concentrations of the contaminants of concern in the soil are adequately characterized. This includes sampling for the purpose of MCP site assessment and sampling to characterize the soil in any given stockpile/shipment leaving the site. The factors listed below should be considered when developing and implementing such a sampling plan. Evaluation of release, source, and site specific conditions assist in developing the basis for the selection of field screening techniques, sampling methodologies, sampling frequencies, and the contaminants of concern (e.g., analytical parameters) used to characterize the soil. These include, but are not necessarily limited to the following:

- the type(s) and likely constituents known or suspected to be in the soil;
- current and former site uses, past incidents involving the spill or release of OHM, and past and present management practices of OHM at the site;
- the potential for the soil to contain listed hazardous waste or to be a characteristic hazardous waste;
- the presence or likelihood of any other OHM (e.g., chlorinated solvents, metals, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs) , halogenated volatile organic compounds (VOCs));
- visual/olfactory observations, field screening, analytical data, and/or in-situ pre-characterization data;
- soil matrix type - naturally occurring soil or fill/soil mixtures (e.g., homogeneous or heterogeneous soil conditions);
- the identification and segregation of discrete "hot spots";
- the concentration variability in the soil;
- the volume of soil;
- the current and likely future exposure potential at the receiving location, including the potential for sensitive receptors, such as young children, to contact the soil (for example, more extensive sampling of the stockpiles would be warranted for soil slated to be moved to a residential setting than for soil being moved to a secure, low-exposure potential regulated receiving facility); and
- any sampling requirements stipulated by the receiving location.

The assessment of the soil, including the nature and concentrations of OHM therein, is a component of the MCP site assessment and therefore must meet all applicable performance standards, including those for environmental sample collection, analysis and data usability[4]. The assessment should address the precision, accuracy, completeness, representativeness, and comparability of the sampling and analytical results used to determine whether the soil

[4] Additional guidance on data usability is available in Policy #WSC-07-350, MCP Representativeness Evaluations and Data Usability Assessments. http://www.mass.gov/eea/docs/dep/cleanup/laws/07-350.pdf

stockpiles meet the Similar Soils Provision requirements. The representativeness of any site assessment sampling data if used to characterize contaminant concentrations in soil to be moved and reused offsite should be carefully evaluated. Additional guidance on soil sampling considerations is available from U.S. EPA and other state environmental agencies.[5]

VI. Segregation and Management of Soils of Different Known Quality

Soil containing concentrations of OHM equal to or greater than the values listed in Table 3 cannot be managed using the streamlined approach described in this guidance. Such soil must be managed in a manner consistent with its regulatory classification, which may include management as a hazardous waste, as a remediation waste, or under a case-specific Similar Soils determination.

Segregation of soil of different quality should occur based upon *in-situ* pre-characterization sampling results. Stockpiles of soil are mixtures that would require more extensive sampling to document the effectiveness of any attempted post-excavation segregation.

The known presence of soil that exceeds the Table 3 concentrations and the subsequent segregation of soil is one factor that would indicate the need for more frequent sampling (at least in that area of soil excavation) as described in Section V.

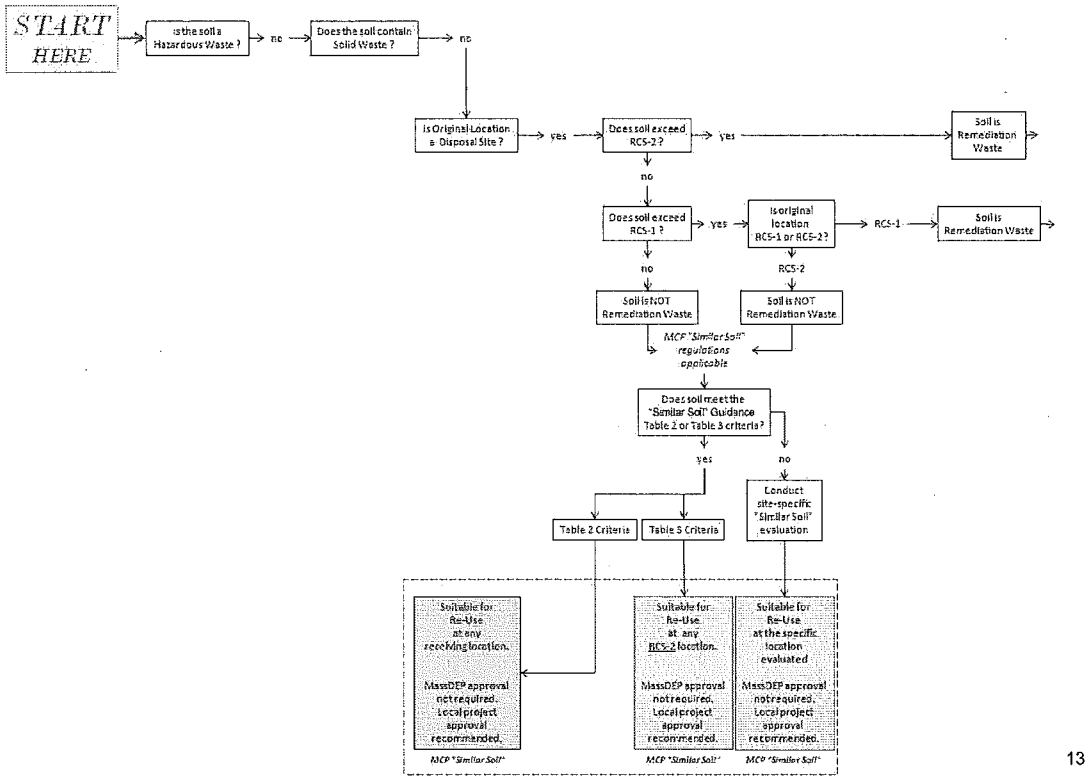
[5] Note that the guidance below are not specific to MGL Chapter 21E disposal sites and may not reflect MCP-specific considerations to determine the suitability of soils for offsite transport and use, such as for residential and other S-1 locations.

NJDEP. 2011. Alternative and Clean Fill Guidance for SRP Sites.
New Jersey Department of Environmental Protection Site Remediation Program
http://www.state.nj.us/dep/srp/guidance/srra/fill_protocol.pdf

USEPA. 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term.
Office of Solid Waste and Emergency Response (OSWER), Washington, DC
http://www.epa.gov/oswer/riskassessment/pdf/1992_0622_concentrationterm.pdf

USEPA. 1995. Superfund Program Representative Sampling Guidance Volume 1: Soil.
OSWER. Washington, DC.
(Note that guidance for determining the number of samples for statistical analysis is addressed in Section 5.4.1).
http://www.epa.gov/tio/download/char/sf_rep_samp_guid_soil.pdf

Attachment 1 – Similar Soil Flowchart



Attachment G

Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil

Massachusetts Department of ENVIRONMENTAL PROTECTION

technical update

Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil

Updates: Section 2.3 *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (1992)

Discussion

Polycyclic Aromatic Hydrocarbons ("PAHs") are ubiquitous and consistently present in the environment and are typically formed during the incomplete burning of organic material including wood, coal, oil, gasoline and garbage. PAHs are also found in crude oil, coal tar, creosote and asphalt. Historically, PAHs have been associated with human activities such as cooking, heating homes and industries and fuel for operating automobiles, although low levels of PAHs are also present in the environment from natural sources, such as forest fires. Their presence in the environment at higher concentrations is an artifact of habitation and is due to the widespread practice of emptying fireplaces, stoves, boilers, garbage, etc. in rural and urban areas over the past several hundred years. As a result, it is very common to detect "background" levels of PAHs in soils. Metals are both naturally occurring and found in man-made materials (such as paint, fuel, fertilizers and pesticides) widely distributed in the environment. Naturally occurring metals present in wood and coal are often found concentrated in ash residue.

DEP has obtained background data from various sources documenting the concentrations of PAHs and metals in soil affected by human activities, particularly soil associated with wood ash and coal ash. These levels are representative of typical concentrations found in areas with fill material, *not* pristine conditions. DEP has also compiled background soil data for metals that are representative of undisturbed, natural conditions.

The identification of generic values for PAHs and metals in soil is intended to streamline the risk characterization process (310 CMR 40.0900) and determination of applicable Response Action Outcome Category (310 CMR 40.1000). Nothing in this Technical Update obviates the need to establish location-specific background conditions for other purposes, such as compliance with the anti-degradation provisions of the Massachusetts Contingency Plan ("MCP") described at 310 CMR 40.0032(3).

Definition of Background (310 CMR 40.0006)

Background means those levels of oil and hazardous material that would exist in the absence of the disposal site of concern which are either:

(a) ubiquitous and consistently present in the environment at and in the vicinity of the disposal site of concern; and attributable to geologic or ecological conditions, or atmospheric deposition of industrial process or engine emissions;
(b) attributable to coal ash or wood ash associated with fill material;
(c) releases to groundwater from a public water supply system; or
(d) petroleum residues that are incidental to the normal operation of motor vehicles.

Basis of the Background Levels for Soil

The background levels were selected following an analysis of several datasets, including:

- Data (30-140 samples) collected to represent background at c.21E sites located in non-urban areas, gathered from a review of DEP files,
- Site-specific background samples generated for locations in Worcester (68 samples) and Watertown (17 samples),
- Data (750-1,000 samples) collected by Mass Highway Department as part of the Central Artery/Tunnel (CA/T) project and presented in a draft document *Background Soil Contaminant Assessment* (CDM, April 1996),
- Data (590 natural soil samples from depths of 10 to 70 feet) collected by Haley & Aldrich, Inc. in the Boston Area
- Preliminary data compiled by the Massachusetts Licensed Site professional Association from background data submitted by its members,
- Published data (62 samples) from ENSR, Inc. from 3 New England locations, and
- Generic background data published by the Agency for Toxic Substances and Disease Registry (ATSDR).

There is not one concentration of a chemical, of course, which can correctly be labeled ***the*** background level. Hundreds of years of human activities have only broadened the naturally occurring range of concentrations reported as "background", and this range is best thought of as a statistical distribution. In the evaluation of environmental contamination, we often select point values from the range of background levels, and consider these to be representative of background. The use of such point-value "background" levels is essentially a short-cut method that allows consideration of background in the absence of site-specific information. The intent of DEP policy is to protect public health while minimizing the routine site-specific determinations at sites in the statewide cleanup program.

"Natural" Soil

- Generally, the 90th percentile value from the MA DEP 1995 dataset was the point-value identified as background.
- In the absence of data in the MA DEP 1995 dataset, a lower percentile value from the CDM 1996 dataset was chosen as background.

Soil Containing Fill Material

- Generally, the 90th percentile value from the CDM 1996 dataset was point-value identified as background.
- In the absence of data in the CDM 1996 dataset, the 90th percentile value from the "natural" soil (MA DEP, 1995) dataset was chosen as background.

Applicability of the Values Listed in Table 1

Table 1 presents two lists of background concentrations: one for use with natural soils, and the second for use with soils containing either coal ash or wood ash associated with fill material, or other material consistent with the regulatory definition of background. The list for use with natural soils may be compared to site soil concentrations with no site-specific justification. The use of the list for soil containing fill material must be accompanied by documentation that the soil at the site does, in fact, contain coal ash or wood ash associated with fill material (or other material consistent with the regulatory definition of background). Such documentation may include information about the site history, soil strata, physical evidence or visual observations (including microscopic).

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Elevated chemical concentrations and/or and urban setting are not, *per se*, sufficient evidence to justify use of the higher background levels.

Comparison of Site Concentrations to the Background Levels for Soil

Section 2.3 of the DEP's *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (1995) describes the use of DEP-published generic background values. If the site investigation indicates the presence of fill material in the soil, and *all* reported concentrations of an oil or hazardous material ("OHM") fall below the applicable value published in Table 1, then it may concluded that the OHM is present at background concentrations. In other words, the values published in Table 1 are to be compared to the maximum reported concentration at the site. This Technical Update does not modify or change this comparison.

Table 1 lists background levels for "natural" soil and for soil containing coal ash and wood ash associated with fill material. A detailed summary of the data is attached in Appendix A. The applicability of these background concentrations to a site should be determined based upon the presence or absence of fill material containing coal ash or wood ash. If all contaminant concentrations are found to be equal to or less than the applicable background concentrations, a Class A-1 Response Action Outcome may be an option at the site, and no Activity and Use Limitation is required.

Background Concentrations Different Than The MADEP-Published Values

Appendix A describes the wide ranges seen in the distributions of background concentrations. MADEP's choice of point values within these ranges balances the need to eliminate background chemicals from the risk assessment with the need to retain for evaluation those chemicals whose presence is related to the disposal practices at the site.

It is inevitable that at some sites the use of the values listed in Table 1 will incorrectly require the assessment of some "true" background concentrations of OHM at the high end of the background range. Conversely, some chemicals that *are* related to the disposal practices at a site (and are not background) will be screened out of the risk assessment by the use of the Table 1 concentrations. The goal is to minimize **both** kinds of error.

In many cases, additional information about the location of the site, the nature of the soils or the known or suspected disposal practices may be used to justify the application of different literature values or site-specific background information. DEP's adoption of the generic, statewide values presented in this Technical Update does not negate the validity of site-specific background information, when such information is available and of appropriate data quality. The level of effort necessary for such a justification will depend on the specific circumstances. For example, such a justification would be straightforward for elevated arsenic concentrations in soil at a gasoline-release site in an area of the state known to have geological formations rich in arsenic. The level of effort would be significantly higher at a tannery site in the same area due to the facility's historic use of arsenic. Similarly, the presence of elevated chromium or barium concentrations in marine clay deposits could generally be attributable to natural background absent known or suspected sources of the chemical at the site.

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Minimizing Exposure to Soils Containing Elevated Background Material and/or Material Exempt from M.G.L. c.21E

As discussed in this Technical Update, M.G.L. Chapter 21E and the Massachusetts Contingency Plan (the statute and regulations) do not require remediation of chemicals present at levels consistent with background, even if such concentrations would otherwise pose a significant risk of harm to health, safety, public welfare or the environment. The statute also exempts several other environmental conditions (such as lead from lead paint or gasoline and pesticides applied according to their label) that could pose a Significant Risk.

While such conditions are not subject to regulation by DEP, the Department encourages parties to mitigate potential exposures whenever possible. Such mitigation measures could include:

- providing clean soil (down to a depth of 3 feet) in residential settings, and
- providing clean corridors for utility lines.

For Further Information

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References

Agency for Toxic Substances and Disease Registry (ATSDR). 1995. Polycyclic Aromatic Hydrocarbons (PAHs) (Update) August, 1995.

Bradley, L.J.N., Magee, B.H., and Allen, S.L. 1994. Background Levels of Polycyclic Aromatic Hydrocarbons (PAH) and Selected Metals in New England Urban Soils. Journal of Soil Contamination, 3(4):349-361

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Licensed Site Professional Association (LSPA) 2001. Summary of Selected Results, LSPA Anthropogenic Fill Soils Project, April 2001. Personal Communication.

Massachusetts Department of Environmental Protection (MA DEP). 1995. Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan. BWSC/ORS-95-141.

Table 1.
MADEP Identified Background Levels in Soil

OIL OR HAZARDOUS MATERIAL	Concentration in "Natural" Soil mg/kg	Concentration in Soil Containing Coal Ash or Wood Ash Associated With Fill Material mg/kg
ACENAPHTHENE[2]	0.5	2
ACENAPHTHYLENE[2]	0.5	1
ANTHRACENE[2]	1	4
ALUMINUM[1]	10,000	10,000
ANTIMONY	1	7
ARSENIC	20	20
BARIUM[1]	50	50
BENZO(a)ANTHRACENE[2]	2	9
BENZO(a)PYRENE[2]	2	7
BENZO(b)FLUORANTHENE[2]	2	8
BENZO(g,h,i)PERYLENE[2]	1	3
BENZO(k)FLUORANTHENE[2]	1	4
BERYLLIUM	0.4	0.9
CADMIUM	2	3
CHROMIUM (TOTAL)	30	40
CHROMIUM(III)	30	40
CHROMIUM(VI)	30	40
CHRYSENE[2]	2	7
COBALT[1]	4	4
COPPER	40	200
DIBENZO(a,h)ANTHRACENE[2]	0.5	1
FLUORANTHENE[2]	4	10
FLUORENE[2]	1	2
INDENO(1,2,3-cd)PYRENE[2]	1	3
IRON[1]	20,000	20,000
LEAD	100	600
MAGNESIUM[1]	5,000	5,000
MANGANESE[1]	300	300
MERCURY	0.3	1
METHYLNAPHTHALENE, 2-[2]	0.5	1
NAPHTHALENE[2]	0.5	1
NICKEL	20	30
PHENANTHRENE[2]	3	20
PYRENE[2]	4	20
SELENIUM	0.5	1
SILVER	0.6	5
THALLIUM	0.6	5
VANADIUM[1]	30	30
ZINC	100	300

(Values rounded to one significant figure.)

[1] In the absence of fill-specific data, the "natural" soil value has been adopted.

[2] In the absence of data specific to "natural" soil, a lower percentile value from the fill data set has been adopted.

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Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

	Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
Total PAHs							
CA/T Project	873	2.7	0.08	2.6	92	230	3000
ENSR - Urban Soils	62	10.97	2.292				167
Total Carcingenic PAHs							
CA/T Project	873	1.5	0.022	1.1	42	95	1200
ENSR - Urban Soils	62	4.86	0.68				78
Total Noncarcinogenic PAHs							
CA/T Project	873	1.9	0.08	1.6	54	140	1900
ENSR - Urban Soils	62	6.11	1.612				89
Acenaphthene							
CA/T Project	868	0.18	0.024	0.18	1.9	4.1	42
Med City/Mill Brook	67	NC	ND (64)	NC	NC	NC	1.7
ENSR - Urban Soils	62	0.128	ND (32)				3.4
Acenaphthylene							
CA/T Project	869	0.17	0.037	0.17	1	1.9	10
Med City/Mill Brook	67	NC	ND (65)	NC	NC	NC	0.76
ENSR - Urban Soils	62	0.133	ND (38)				1.1
Anthracene							
CA/T Project	872	0.2	0.033	0.2	3.8	10	130
Med City/Mill Brook	68	NC	ND (52)	NC	0.592	1.2	3.4
ENSR - Urban Soils	62	0.184	ND (8)				5.7
Benzo[a]pyrene							
CA/T Project	873	0.3	0.031	0.3	7.4	17	230
LSPA Project	489	0.44	ND (220)	0.44	15.3	NC	222
Watertown	17	0.95	0.6	NC	3.39	4.77	6.08
Med City/Mill Brook	67	NC	ND (43)	NC	2.02	3.3	9.7
ENSR - Urban Soils	62	0.686	ND (5)				13
ATSDR Range:			0.165				0.22
Benzo[a]anthracene							
CA/T Project	872	0.33	0.045	0.33	8.5	19	250
LSPA Project	490	0.563	ND (206)	0.563	17.6	NC	796
Watertown	17	0.411	0.021	0.48	2.52	6.04	6.05
Med City/Mill Brook	68	NC	ND (38)	NC	2.39	3.8	15
ENSR - Urban Soils	62	0.672	ND (4)				15
ATSDR Range:			0.169				59
Benzo[b]fluoranthene							
CA/T Project	873	0.68	0.045	0.4	8.4	18	270
LSPA Project	486	NC	ND (258)	NC	11	NC	250
Watertown	17	1.4	0.6	0.6	6.78	6.79	7.08
ENSR - Urban Soil	62	0.722	ND (7)				12
ATSDR Range:			15				62

Appendix A - Detailed Data Summary

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	Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
Benzo[g,h,i]perylene							
CA/T Project	871	0.2	0.045	0.2	3.1	7.7	77
Med City/Mill Brook	67	NC	ND (52)	NC	1.2	1.41	5.2
ENSR - Urban Soil	62	0.461	ND (26)				5.9
ATSDR Range:			0.9				47
Benzo[k]fluoranthene							
CA/T Project	869	0.21	0.045	0.21	4	9.7	150
LSPA Project	475	NC	ND (289)	NC	11.4	NC	110
Watertown	17	0.502	0.065	0.406	3.35	4.47	5.13
ENSR - Urban Soil	62	0.834	ND (3)				25
ATSDR Range:			0.3				26
Chrysene							
CA/T Project	873	0.35	0.022	0.35	7.3	18	240
LSPA Project	490	0.59	ND (204)	0.59	20.3	NC	420
Watertown	17	0.32	0.016	0.404	4.55	5.06	6.6
Med City/Mill Brook	68	NC	ND (42)	NC	2.1	3.6	14
ENSR - Urban Soil	62	0.844	ND (2)				21
ATSDR Range:			0.251				0.64
Dibenzo[a,h]anthracene							
CA/T Project	866	0.17	0.045	0.17	1.1	2.1	39
Watertown	17	0.195	0.155	NC	0.494	0.604	0.64
Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	1.6
ENSR - Urban Soils	62	0.245	ND (30)				2.9
Fluoranthene							
CA/T Project	873	0.89	0.035	0.61	14	33	490
Med City/Mill Brook	68	NC	ND (32)	0.376	4.2	11	40
ENSR - Urban Soils	62	1.38	ND (2)				39
ATSDR Range:			0.2				166
Fluorene							
CA/T Project	873	0.18	0.028	0.18	2.3	5.5	79
Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	2
ENSR - Urban Soils	62	0.141	ND (27)				3.3
Indeno[1,2,3-cd]pyrene							
CA/T Project	871	0.2	0.022	0.2	2.8	7	100
LSPA Project	475	NC	ND (304)	NC	6.3	NC	130
Watertown	17	1.752	1.2	NC	5.64	6.2	7.2
Med City/Mill Brook	68	NC	ND (50)	NC	1.5	2	6
ENSR - Urban Soil	62	0.532	ND (19)				6
ATSDR Range:			8				61
2-Methylnaphthalene							
CA/T Project	789	0.15	0.03	0.15	0.96	2.2	13
Med City/Mill Brook	68		ND (67)	NC	NC	NC	0.77
ENSR - Urban Soil	62	0.121	ND (43)				0.64

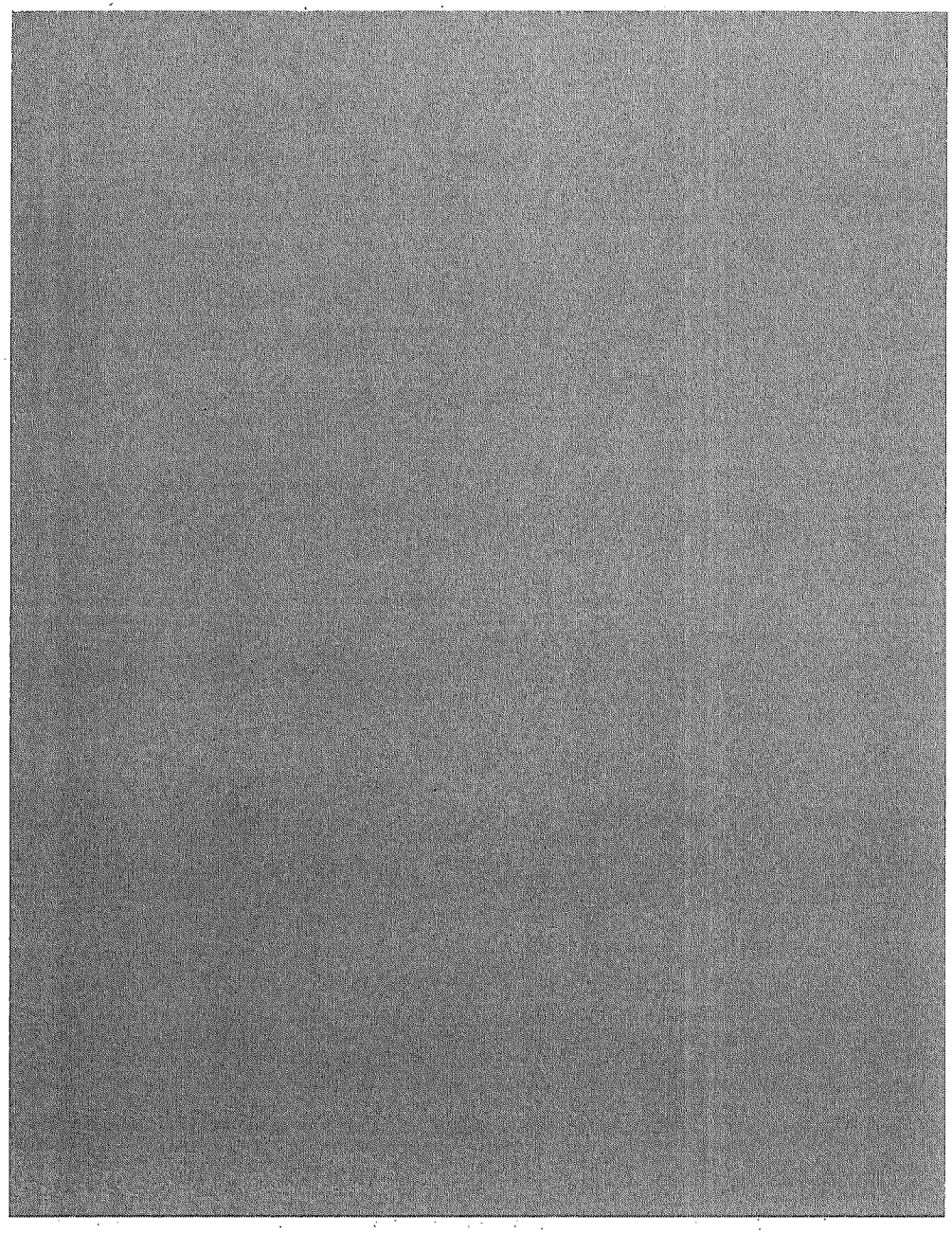
Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

		Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
				<---------- PERCENTILES ---------->				
Naphthalene								
	CA/T Project	867	0.17	0.016	0.17	1.4	3	28
	Med City/Mill Brook	68	NC	ND (65)	NC	NC	NC	1.9
	ENSR - Urban Soils	62	0.0917	ND (27)				0.66
Phenanthrene								
	CA/T Project	873	0.8	0.029	0.47	15	38	480
	Med City/Mill Brook	68	NC	ND (38)	NC	2.7	5.6	16
	ENSR - Urban Soils	62	0.788	ND (1)				36
Pyrene								
	CA/T Project	873	0.89	0.034	0.61	16	35	440
	Med City/Mill Brook	68	NC	ND (32)	0.343	4.29	9	30
	ENSR - Urban Soil	62	1.54	ND (1)				11
	ATSDR Range:			0.145				147
Aluminum								
	DEP 1995	30	5536	387	7800	13000	16000	24000
Antimony								
	DEP 1995	90	0.2	ND (0.002)	0.34	1.4	4.8	22
	CA/T Project	746	NC	0.25	1	7	12	160
Arsenic								
	DEP 1995	139	4.7	ND (0.1)	4.8	16.7	24.5	99
	CA/T Project	754	5.3	0.25	5.4	14	21	99
	H&A 2001	589	5.5	ND	5.57	11	12.9	23
Barium								
	DEP 1995	64	15	0.42	15.7	45.2	52.8	104
	H&A 2001	490	35	ND	35.7	80.9	89.3	680
Beryllium								
	DEP 1995	103	0.21	0.03	0.23	0.39	0.53	1.6
	CA/T Project	746	0.5	0.03	0.5	0.88	2	7.5
	H&A 2001	22	0.5	ND	0.63	1.15	1.2	1.3
Cadmium								
	DEP 1995	127	0.43	ND (0.01)	0.29	2.06	3.4	5.9
	CA/T Project	756	0.5	0.1	0.5	3	5	25
	H&A 2001	572	1.8	ND	1.26	1.63	1.63	3
Chromium								
	DEP 1995	147	10.3	0.02	10.6	28.6	38.8	105
	CA/T Project	756	13	1	15	39	50	530
	H&A 2001	589	22	ND	22	43.9	49.6	94
Cobalt								
	DEP 1995	10	0.8	ND (0.5)	NC	4.4	4.5	4.7
Copper								
	DEP 1995	103	7.7	ND (0.5)	7.3	37.7	56.1	160
	CA/T Project	742	34	1	30	170	320	5300
	H&A 2001	22	26	6	27	47.5	64.5	130

Appendix A - Detailed Data Summary

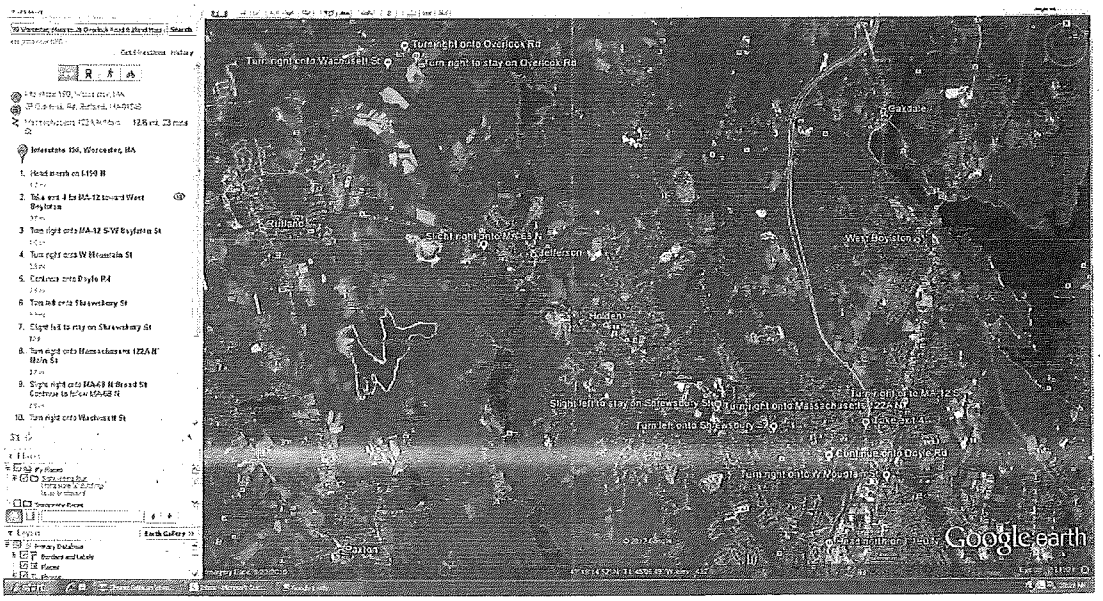
Levels of PAHs and Metals in Soil from Various Datasets
Appendix A - Detailed Data Summary

		Number of Samples	Geometric Mean or Median mg/kg	Minimum mg/kg	50th mg/kg	90th mg/kg	95th mg/kg	Maximum mg/kg
				<---------- PERCENTILES ---------->				
Iron								
	DEP 1995	30	6031	444	7200	17000	22500	50000
Lead								
	DEP 1995	141	19.5	1	19.1	98.7	158	326
	CA/T Project	850	51	0.05	53	570	1100	11000
	LSPA Project	457	83	ND (5)	83	640	NC	10600
	H&A 2001	583	15	ND	24.4	78.9	112	300
Magnesium								
	DEP 1995	30	1028	ND (250)	1300	4900	6700	11000
Manganese								
	DEP 1995	30	81.5	ND (3)	110	300	365	460
Mercury								
	DEP 1995	107	0.043	ND (0.0002)	0.066	0.28	0.43	1.4
	CA/T Project	785	0.15	0.001	0.15	1.4	2.6	23
	H&A 2001	583	0.2	ND	0.19	0.74	1.1	2.5
Nickel								
	DEP 1995	103	4.6	ND (0.5)	5.1	16.6	22.7	48
	CA/T Project	740	14	1	14	31	41	220
	H&A 2001	22	34.5	5	35	67.5	70	101
Selenium								
	DEP 1995	93	0.1	ND (0.0005)	0.17	0.5	1	4.6
	CA/T Project	756	0.5	0.1	0.5	1	2.1	57
	H&A 2001	426	0.84	ND	0.74	1.36	1.58	2.8
Silver								
	DEP 1995	117	0.09	ND (0.003)	0.07	0.58	0.91	82
	CA/T Project	756	1	0.19	1	5	7.3	81
	H&A 2001	335	0.64	ND	NC	NC	NC	0.64
Thallium								
	DEP 1995	71	0.1	ND (0.005)	NC	0.6	1.65	5
	CA/T Project	734	NC	0.035	1	5	5	50
Vanadium								
	DEP 1995	30	7.6	ND (1)	10.3	28.5	38.5	46.6
Zinc								
	DEP 1995	112	29.3	3.52	27.7	116.4	131.2	190
	CA/T Project	746	84	5.8	73	340	590	5000
	H&A 2001	22	67	15	58.5	103	106	120



Attachment H

Directions to Site


Interstate 190, Worcester, MA
1. Head north on I-190 N
2. Take exit 1 for MA-12 toward West Boylston
3. Turn right onto MA-12 S/W Boylston St
4. Turn right onto W Bl
5. Continue onto Doyle Rd
6. Turn left onto Shrewsbury St
7. Slight left to stay on Shrewsbury St
8. Turn right onto Massachusetts 122A N/Main St
9. Slight right onto MA-68 N/Broad St
Continue to follow MA-68 N
10. Turn right onto Wachusett St
Turn right onto Overlook Rd
Turn right onto Wachusett St
Turn right to stay on Overlook Rd
Oakdale
West Boylston
Slight right onto W
Holden
Slight left to stay on Shrewsbury St
Turn left onto Shrewsbury St
Turn right onto Massachusetts 122A N
Eliminate on Doyle Rd
Turn right onto W Boylston St
Google earth