

Attleboro Landfill, Peckham Street, Attleboro

Proposed Closure Project - Fact Sheet - March 2015

This Fact Sheet has been developed to provide specific information on a new conceptual proposal to close the former Attleboro Landfill – Phase B area. The former Attleboro Landfill, located on Peckham Street, near the Norton town line, consists of two areas: the unlined and capped 32-acre Phase A and the unlined and uncapped 11-acre Phase B. The project proponents' conceptual proposal would cap the unlined Phase B area and provide funds to maintain the cap and monitor groundwater and surface water for Phase A and Phase B for 30 years in accordance with the Massachusetts Department of Environmental Protection (MassDEP) Solid Waste Regulations.

MassDEP requires that all unlined landfills be properly closed and monitored. Project proponents are required to conduct a community informational session and public comment period. MassDEP will review the proposal and consider all public comments submitted. A public informational session has been scheduled for Tuesday, March 10th at 6:00 p.m at the Solmonese School in Norton. The public comment period will begin on March 10th and end on April 10th, 2015. Refer to the last page for contact information and where to submit comments.

WHAT IS THE MAIN ENVIRONMENTAL CONCERN WITH UNLINED LANDFILLS?

The main concern with unlined landfills is the generation of leachate and its effect on the surrounding environment including groundwater, surface water, and wetlands sediments. Leachate is generated by rainwater percolating through waste disposed at a landfill. Once in contact with the solid waste, the percolating water becomes contaminated and flows out of the bottom of the waste into soils and groundwater. Properly capping, often referred to by MassDEP as “closing”, an unlined landfill significantly reduces the generation of leachate by up to 99% and associated impacts to the surrounding environment including surface waters and wetlands are thus significantly controlled.

WHAT IS A LANDFILL CAP?

The landfill cap is a multi-layered cover system that consists of three primary layers:

1. Protective layers (sand drainage layer and vegetative support layer)
2. Low permeability (non-porous) layer (plastic geomembrane or clay)
3. Gas vent layer (6 inch gas vent/subgrade layer)

The protective layers shield the low permeability layer from the elements, punctures, and provide a durable low maintenance surface. The low permeability layer is designed to minimize leachate production by preventing rainwater from coming into contact with waste and prevents contaminants in the solid waste from impacting rainwater that is shed from the cap as stormwater. This figure illustrates a cross section of the final cover system. **Re-CRETE™ will be the base layer for the cap.**

HOW DOES A CAP MINIMIZE THE RISK FROM AN UNLINED LANDFILL?

A landfill cap is designed to mitigate long term risk that landfilled waste poses to the environment. A cap serves a variety of specific purposes, including controlling rainwater from running through the solid waste, promoting surface water runoff while minimizing erosion, preventing direct human and animal contact with the waste, and controlling gas emissions and odors. Phase B of the Attleboro Landfill presents a risk because it is not lined and has not been properly capped. All landfills that currently accept Massachusetts resident's household trash have liners ("lined landfills") that collect the leachate. Older landfills such as the Attleboro Landfill are unlined and do not have a liner system placed under the waste pile to collect leachate. Capping an unlined landfill is the safest and most cost effective way to reduce leachate generation, stop contaminated stormwater runoff into surrounding wetlands and surfacewaters, and eliminate the potential for people to come into direct contact with the waste. Also, a properly designed and constructed cap will control landfill gas by preventing its migration offsite and adding controls that will eliminate odors. A properly closed landfill includes 30-year maintenance and monitoring plan, guaranteed by funds dedicated by the project proponent, to make sure the cap remains intact and that changes in the groundwater are detected and addressed before they could present a threat to public health or the environment.

FACTORS THAT DETERMINE THE NECESSARY HEIGHT OF THE LANDFILL

There are three primary factors that determine the height of a landfill cap. First, the area of waste disposal (landfill size) and shape needs to be determined to identify the area to be capped. Second, the site needs to be graded and shaped to ensure that the cap will be stable, will appropriately shed and control stormwater, and will maintain a vegetation support on the top layer. The MassDEP solid waste regulations specify the cap have a final top slope of not less than 5%. Third is a consideration of

whether the project needs to bring in materials such as the fines generated from recycling construction and demolition debris materials to grade and reshape the landfill as well as generate revenue to offset closure and post-closure 30-year monitoring and maintenance costs.

ATTLEBORO LANDFILL – BACKGROUND INFORMATION

The Attleboro Landfill is a 55-acre site assigned facility that was used for solid waste disposal since the early 1940's. The City of Attleboro operated an open dump on the property from the 1940's until 1975. From 1975 to 1995, Attleboro Landfill, Inc. (ALI) operated a landfill on 32 of the 55 acres (Phase A). The unlined Phase A portion of the landfill has been capped and properly closed. The remaining unlined, uncapped area (Phase B), approximately 11 acres of solid waste, must be properly capped and closed, and the entire landfill must be monitored and maintained to comply with state solid waste regulations.

In 2005, MassDEP issued an Administrative Order and penalty to ALI to comply with the solid waste regulation's landfill closure requirements. After review of its corporate records, ALI and MassDEP agreed that there were insufficient corporate funds to close and cap the Phase B area and the remaining funds were best directed to maintaining the Phase A area and continued groundwater monitoring. In response to the Order, ALI has proposed closure proposals through which sufficient revenue would be generated to cover the construction of the cap and comprehensive post closure maintenance and monitoring.

In 2004, ALI entered into an agreement with End Cap Technology, LLC (End Cap) to close the landfill. Over a nine year period, End Cap developed several proposals and held community informational sessions. Those proposals were met with significant community opposition, primarily due to concerns with potential impacts from the number of trucks required to bring in the proposed volume of soil to be used for grading and shaping. In December 2012, End Cap requested that MassDEP suspend review of the proposal and terminated its agreement with ALI.

In November 2014 an ALI representative, Enviro-Cycle submitted a conceptual proposal that would: close the remaining unlined portion of the landfill (Phase B); provide funding for long term maintenance and monitoring for the entire landfill area (Phase A and B); and facilitate a potential post closure future use for solar energy generation.

MassDEP has determined that Enviro-Cycle's conceptual proposal is consistent with MassDEP's landfill closure requirements, and that Enviro-Cycle's proposal will generate significantly less truck traffic than previous closure proposals for the landfill.

CURRENT LANDFILL – PROPOSAL

In December 2014, Enviro-Cycle, LLC, on behalf of ALI, submitted to MassDEP a Conceptual Alternative Closure Plan for the Phase B area. The alternative proposes to use Re-Crete™ to regrade the site to support the necessary landfill cover. Re-Crete™ is a lightweight low strength concrete made by using

construction and demolition (C&D) fines mixed with cement. C&D fines are small particles of debris, composed largely of wood, plaster, unrecyclable plastics, and sheetrock that fall through crushing equipment and conveyor systems at approved C&D processing facilities. C&D facilities are regulated and inspected routinely by MassDEP. C&D facilities inspect the construction and demolition debris for unacceptable materials (i.e., municipal solid waste, vehicle batteries, oil or hazardous materials, appliances, etc.) and the construction and demolition debris fines are tested for a wide list of constituents to ensure they are acceptable for reuse as grading and shaping material at Massachusetts landfills. Re-Crete™ combines dry cement, water, and C&D fines that would be mixed at the landfill property. Re-Crete™ is trademarked and has a patent issued by the U.S. Patent and Trademark Office. The patent includes the method for incorporating construction and demolition (C&D) fines into a concrete mixture that can be used in a variety of applications, including limited structural concrete, and applications requiring low strength concrete. MassDEP considers ReCrete™ to be acceptable for use as grading and shaping under the landfill cap and no additional permits for its specific use are required under this proposal.

Enviro-Cycle's proposal for the Phase B area minimizes the amount of material needed to construct the minimum 5% grade required by MassDEP for closure and it provides for funding for future monitoring and maintenance of the entire landfill, a community mitigation fund, and repavement of Union Street. Once grading is completed with ReCrete™, the final multi-layered cap will be constructed. The landfill site owner will not receive any payment as part of this project and funds raised will be used to pay project-specific costs.

If the proposed project proceeds to grade, shape and cap the Phase B area, at a rate of 200 tons per day, it is expected to take about two years to complete. If the same amount of materials are delivered and utilized at twice that rate, i.e., 400 tons per day, the project would take approximately one year.

TRAFFIC ASSOCIATED WITH THE PROPOSED PHASE B LANDFILL AREA CLOSURE PROJECT

Cement would be trucked to the site using 25-ton tank trucks and stored in an on-site silo. The C&D fines would be trucked using tractor/semi-trailers. The proposal estimates the delivery of approximately 200 to 400 tons per day of material that would require between 10 to 20 truck trips per day. This proposal to use Re-Crete™ results in about 10% fewer truck trips compared to using soils to achieve the minimum 5% grade required for the entire site and about 75% fewer truck trips than the previous project proposal submitted by End Cap, as shown in a **project proposal comparison table** on the next page. Because of the nature of the imported materials, far fewer trucks would be needed.

The proposed main delivery route will use Interstate 495. Vehicles would travel through Norton via Route 140, to Route 123, to South Worcester Street, and onto Union Road. Enviro-Cycle has met with Norton town officials to discuss delivery routes and will develop schedules that minimize delivery during busy periods. Schedules would be adjusted seasonally to take into account different activities occurring within the town (e.g., school bus pick up and drop off). A 20 MPH strict speed restriction would be imposed on all delivery vehicles utilizing South Worcester Street and Union Road and will be written in a delivery agreement between Enviro-Cycle and the C&D processing facilities and their materials haulers.

To put this proposal in perspective with a standard landfill closure that complies with MassDEP requirements, the following table provides a comparison of the truck trips necessary to deliver material to the site for cap construction under three scenarios: 1) a standard 5% soils landfill closure using soils only for grading and shaping; 2) the previous End Cap proposal; and 3) the current proposal using Re-Crete™. The truck deliveries were calculated based on the carrying capacity of the trucks and the difference in density (weight of the material per cubic yard) between soil and Re-Crete™. Basically, larger trucks can be used with Re-Crete as the C&D fines are much lighter than soil.

PROJECT PROPOSAL COMPARISON TABLE

Item	Standard DEP Closure		Re-Crete™ Closure		End Cap Closure	
	Volume (CY) cubic yards	Truck Deliveries	Volume (CY)	Truck Deliveries	Volume (CY)	Truck Deliveries
Material necessary to bring site to 5% grades	140,000	10,200 ¹	201,000	9,136 ²	650,000	47,272 ¹
Sand Layer (12 inches)	24,000	1,745 ¹	24,000	1,745 ¹	24,000	1,745 ¹
Plantable Soil (12 inches)	16,000	1,163 ¹	16,000	1,163 ¹	16,000	1,163 ¹
Cement				450 ³		

Notes: 1. Truck trips = (total volume x 1.6 tons per c.y.)/22 tons per load

2. Truck trips = (total volume x 1.0 tons per c.y.)/22 tons per load

3. Truck trips = (total volume x 1.0 tons per c.y. x 6% cement)/25 tons per load

CALCULATION OF TRUCKS AND MATERIALS NEEDED

The current proposal involves the acceptance of construction and demolition (C&D) material to reshape and grade the landfill area by filling 201,000 cubic yards of air space. After the C&D materials are compacted, the in-place density of the C&D materials mixed with the cement to form Re-Crete, is 1 ton per cubic yard. To fill 201,000 cubic yards of air space 201,000 tons of C&D materials are required.

100 cubic yard trailers will be used to transfer un-compacted C&D materials. The capacity by weight of these trailers is approximately 22 tons. These trucks are larger than those that carry soils because the C&D materials are lighter than soils, but the weight of the loaded trucks is similar for both. The transfer of 201,000 tons of C&D materials will require 9,136 truck deliveries. $(201,000 \div 22 = 9,136)$

The previous End Cap proposal estimated that 650,000 cubic yards of soils were needed. Soils have a density of approximately 1.6 tons per cubic yard; therefore 1,040,000 tons of soils would be required. Soils would be transferred in 20 yard dump trucks with a 22 ton capacity. At 22 tons per load, 1,040,000 tons would require 47,272 truck deliveries. $(1,040,000 \div 22 = 47,272)$

The previous End Cap proposal required 1,040,000 tons of soils to be brought to the landfill whereas far less materials are required with the Re-Crete™. The Re-Crete™ proposal is approximately 1/5th of the tonnage and approximately 1/5th of the truck deliveries from the previous End Cap proposal.

According to the proponent, an advantage of using Re-Crete™ for the landfill closure is that the delivery of the material to the landfill will be strictly controlled. The project proponent will contract with no more than four C&D recycling facilities and delivery times will be assigned for each facility.

COMMUNITY BENEFITS

The closure of the Phase B portion of the landfill would eliminate a potential source of contamination to ground and surface water in this portion of the City of Attleboro and in downstream areas in the Town of Norton. Completion of this project would allow the landfill to be certified closed and in compliance with MassDEP solid waste regulations. A post-closure fund would be established for groundwater monitoring and maintenance of both Phase A and B portions of the landfill for the remainder of the post-closure period. As part of this proposal, the operator will pay \$201,000 towards a community mitigation fund and would repave Union Road from South Worcester Street up to the landfill.

Although separate and distinct from the MassDEP Solid Waste requirements to close, monitor, and maintain the landfill cap, discussions on future use include the installation of a solar energy farm. The solar project is not a component of this conceptual proposal but the landfill is being capped to potentially facilitate the future use of the Phase B area of the landfill for a solar energy farm by the grading the Phase B slope to the south, for maximum solar exposure, and keeping the maximum slope under 5% for ease of construction. Between three and four megawatts of electrical power generation capability could be facilitated. The solar farm could: complement the landfill closure project; provide a long term means of paying taxes on the property; and, potentially provide Attleboro and Norton with supplemental income and green power.

PROJECT PROPOSAL REVIEW STEPS

Enviro-Cycle, LLC has submitted a conceptual closure plan to MassDEP for review. MassDEP determined the conceptual plan is consistent with Department regulation and policy. The project proponent is required to schedule a community session to inform the community, answer questions, and conduct a 30 day public comment period. Public comments are reviewed and responded to by the Proponent.

A formal proposal that addresses the comments received will be submitted. MassDEP will review the proposal and all public comments and the proponent's responses. The proposal may be clarified or modified, or may not be implemented depending on a number of factors including, for example, the ability of the proponent to adequately address public comments, logistical issues, and/or the financial viability of the project.

After the conceptual proposal has been presented, the MassDEP permit review process typically involves four elements that may be conducted simultaneously:

- Initial Site Assessment (ISA) - Evaluates existing information and develops a Scope of Work for:

- Comprehensive Site Assessment (CSA) - Defines the nature and extent of contamination and potential risk;
- Corrective Action Alternatives Analysis (CAAA) – Evaluates options for a standard final cover system;
- Corrective Action Design (CAD) – Designs the site specific final cap system.

ENVIRONMENTAL INVESTIGATIONS/RESULTS

The Attleboro landfill has an extensive monitoring network which has already generated a significant amount of information necessary to complete the environmental assessment required by MassDEP. The extent of off-site waste has been identified. MassDEP will require additional investigations, for example, the installation of additional monitoring wells to complete the assessment work done to date. The additional investigations will be conducted during landfill closure and summarized in a Comprehensive Site Assessment permit application report.

At the conclusion of its review of the CAD application and the “interim assessment report”, MassDEP will issue a “Provisional Decision” and open a 21 day public comment period on the Provisional Decision. At the conclusion of the 21 day public comment period, MassDEP will review the public comments and issue its Final Decision on the CAD application.