



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NORTHEAST REGIONAL OFFICE

205B Lowell Street, Wilmington, MA 01887 • (978) 694-3200

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This is an electronic facsimile of a document on file with the Massachusetts Department of Environmental Protection.

Ed Petrilak, Landfill Manager
Town of Hull
Department of Public Works
253 Atlantic Ave.
Hull, MA 02045

RE: HULL – Solid Waste
Hull Landfill
Phase 1B Post Closure Use – Wind Turbine
Certification of Completion
FMF # 39384

Dear Mr. Petrilak:

The Massachusetts Department of Environmental Protection, Northeast Regional Office, Bureau of Waste Prevention, Solid Waste Section (MassDEP) has received certification, dated January 2007, by SEA Consultants, Inc., Cambridge, Massachusetts, of the completion of restoration of the cap on Phase I of the Hull Sanitary Landfill pursuant to construction of a wind turbine at that location.

On August 23, 2005 MassDEP approved construction of a 1.8 MW electric generation wind turbine at the Hull Sanitary Landfill. As approved, the wind turbine was to be constructed within the Phase I area of the landfill adjacent to the Phase II (operating) area of the landfill. Construction included removal of approximately 600 square feet of the existing HDPE membrane of the Phase I cap, placement of 35 piles and a 20 foot square pile cap, placement of a 10 foot square switch gear foundation and electrical duct banks, and restoration of the HDPE membrane and other areas of the Phase I cap disturbed during construction. The project also included erection of two (2) new utility poles within the Phase II area of the landfill. During construction approximately 5300 square feet of the Phase I cap was disturbed.

Restoration of the HDPE membrane included placement of a overlay membrane, welded to the existing membrane, covering the disturbed area, with the exception of the pile cap of the wind turbine. The new HDPE membrane was welded to a HDPE ledger cast into the pile cap. A spray on membrane system was applied to sides and bottom of the pile cap to maintain continuity of the membrane across the pile cap.

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

One Winter Street, Boston, MA 02108 • Phone (617) 654-6500 • Fax (617) 556-1049 • TDD # (800) 298-2207

DEP on the World Wide Web: <http://www.state.ma.us/dep>

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Maintaining the existing conditions of the Phase I cap, a minimum of 12 inches of drainage sand and 6 inches of loam were placed over the HDPE membrane.

Construction of the wind turbine commenced during the fall of 2005, with the wind turbine foundation installed during December 2005 and January 2006. The HDPE membrane restoration was completed in April 2006, with replacement of the cover soils completed in May 2006.

MassDEP has determined that the restoration of the Phase I cap as required pursuant to installation of the wind turbine has been completed.

Sincerely,

Sincerely,

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

DCA

David C. Adams
Environmental Engineer
Solid Waste Management

JAC

John A. Carrigan
Section Chief
Solid Waste Management

JAC/DCA/dca

enclosure: Fact Sheet

cc:

John Murdock
Hull Municipal Lighting Plant
15 Edgewater Road
Hull, MA 02045

Hull Board of Health
253 Atlantic Ave.
Hull, MA 02045
kobrien@town.hull.ma.us

Stephen Wright
SEA Consultants, Inc.
485 Massachusetts Avenue
Cambridge, MA 02139-4018
stephen.wright@seacon.com

Representative Garrett J. Bradley
State House Room 443

Boston, MA 02133
Rep.GarrettBradley@hou.state.ma.us

William S. Abbott
Simonds Winslow Willis & Abbott, PA
50 Congress Street Suite 925
Boston, MA 02109

Samantha Woods
Weir River Watershed Association
P.O. Box 1112
Hull, MA 02045

Kevin Karo
kkaro@ci.brockton.ma.us

FACT SHEET

Hull Landfill

Post Closure Use – Wind Turbine

Certification of Completion

Facility:
address: Hull Sanitary Landfill
George Washington Boulevard/Logan Avenue
Hull, MA

ID: Facility Number: 39384
Regulated Object Number: 172619
Solid Waste ID Number: SL0142.002
Solid Waste Permit Number: NESW-LF-047

location¹: Longitude 70° 51' 24" W Latitude 42° 15' 41" N
MSPCS: 253,080 mN 890,280 mE Mainland Zone NAD83

Site Owner: Town of Hull
Department of Public Works
address: 253 Atlantic Avenue
Hull, MA 02045

PCU Operator: Hull Municipal Lighting Plant
address: 15 Edgewater Road
Hull, MA 02045

MEPA: The proposed application does not trigger a MEPA review.

Current Application:

Type: Construction Completion Certification
Transmittal Number: none
date: January 2, 2007

Engineer of record: Sea Consultants, Inc.
485 Massachusetts Avenue
Cambridge, MA 02139
Stephen Wright, P.E.

¹ For reference only. Approximate location of turbine, estimated from MassGIS 2005 orthophoto of site.

Related actions: Secretary Executive Office of Environmental Affairs
March 18, 2005
Denial of petition for “Fail Safe” review

MassDEP
Deferral of repair of cap penetration
approved: July 25, 2005

MassDEP
Post-Closure Use
Wind Turbine
File # W060537
approved: August 23, 2005

Submittals pursuant to this application:

report: Construction Certification Report for
Wind Turbine at Hull Sanitary Landfill
January 2007

plans: Construction of Wind Turbine Foundation
and Related Landfill Cap Restoration Work
at Hull Sanitary Landfill
Hull, Massachusetts
DEP Construction
Certification Report
Record Drawings
January 2007

Discussion:

Pursuant to plans approved August 23, 2005 the Town of Hull Municipal Lighting Plant erected a 1.8 MW electric generating wind turbine at the Hull Sanitary Landfill. The wind turbine was erected within the previously completed and capped Phase I portion of the landfill.

Construction included removal and replacement of a small segment of the existing HDPE membrane of the cap, construction of a switching station and related electrical ducts, installation of a pile foundation to support the turbine, and replacement of the disturbed soil layers of the cap within the construction area. The project also included installation of two (2) new utility poles within the Phase II (the active operating area) portion of the landfill.

Within the area disturbed by the construction, a new 40 mil HDPE membrane (FML) was placed, overlaying the existing membrane and joining to the pile cap of the turbine foundation. A spray-on membrane system was applied to the sides and beneath the pile cap to maintain continuity of the membrane across the pile cap.

The switch gear foundation and its related electric ducts were constructed totally within the loam and drainage sand layers, above the FML. Piles for the foundation of the turbine are bedded in bedrock below the landfill. The FML is joined to the pile cap with an expansion bellows, such that movement of the pile cap does not transmit stress to the FML.

Sand used to restore the gas vent layer beneath the FML has a permeability of at least 5.5×10^{-2} cm/sec (specified minimum 1.0×10^{-3} cm/sec). The restored gas vent layer has been placed to a depth of 18 inches (specified minimum 12 inches).

Sand used to restore the drainage layer above the FML has a permeability of 5.9×10^{-2} cm/sec (specified minimum 1.0×10^{-3} cm/sec). The restored drainage layer has been placed to a depth of 12 to 16 inches (specified minimum 12 inches).

The soil used to restore the loam (topsoil) layer has an organic content of 7.7% (specified minimum 6%). The restored loam layer has been placed to a depth of 6 to 11 inches (specified minimum 6 inches).

Settlement platforms have been established in the vicinity of the turbine foundation. The platforms will be surveyed annually to monitor settlement during the remaining operating life of Phase II. Further visual observation of the ground surface at the turbine will be conducted during bi-monthly landfill inspections currently performed at the landfill pursuant to the landfill's permitted operations.