



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

July 28, 2016

Zachary Schulman
LSDP 15, LLC
Lake Street Development Partners,
180 North Stetson Ave, Ste#3500
Chicago, IL 60601

RE: Final Approval
Application for: BWP SW 37 Post-Closure Use - Minor
Ground Mounted Solar Photovoltaic (PV) Array
Transmittal #: X271012

AT: Former Cape Resources Construction & Demolition Landfill
0 & 280 Old Falmouth Road
Marston Mills,
Barnstable, MA 02648
Facility ID #: 39054 Regulated Object #: 172310

Dear Mr. Zensky:

The Massachusetts Department of Environmental Protection, Solid Waste Management Section (the "MassDEP"), has completed its Administrative and Technical review of the referenced Post-Closure Use permit application (the "Application") for the former Cape Resources C&D Landfill (the "Landfill") located at 0 & 280 Old Falmouth Road in Marston Mills Barnstable, Massachusetts.

MassDEP has determined the Application and supplemental submittal are administratively and technically complete and hereby **Approves** the Post-Closure Use of the Landfill for a 3.7 megawatt ("MW") AC solar photovoltaic ("PV") array, subject to conditions as specified herein.

I. SUBMITTALS:

The Application consists of a bound report prepared by Kennedy/Jenks Consultant. ("Engineer") signed by Michael Clark, Massachusetts Registered Civil Engineer No. 34142 and eighteen drawings (36" x 24") prepared by Meridian Associates signed by Richard E. Waitt Jr.

Massachusetts Registered Civil Engineer No. 34776 on behalf of LSDP 15, LLC. The Application is signed by Zachary Schulman for LSDP 15, LLC and by Richard E. Waitt Jr on behalf of Meridian Associates.

The site assignment for the Landfill was issued by the Barnstable Board of Health on January 11, 1978 and was submitted to MassDEP on July 11, 2016.

II. APPLICATION REVIEW AND DECISION PROCESS:

The Application was submitted and reviewed pursuant to the provisions of 310 CMR 19.029(2): Applicable Permit Procedures and 310 CMR 19.033: *Permit Procedure for an Application for a Permit Modification or Other Approval*. According to these review procedures, MassDEP's decision regarding the proposed activities shall be either: a "Provisional Decision" pursuant to 310 CMR 19.033(4)(a); or a non-provisional decision pursuant to 310 CMR 19.033(4)(b). MassDEP has determined that non-provisional decision is appropriate for this Application.

MassDEP reviewed the Application in accordance with the applicable regulatory requirements contained at 310 CMR 19.000, (the "*Regulations*") as adopted under MGL c.111, §150A, and its "*Landfill Technical Guidance Manual, revised May 1997*" (the "*Manual*") concerning the design, operation and maintenance of a solid waste landfill.

III. SITE DESCRIPTION:

The former Cape Resource C&D Stump Dump was Located at 0 and 280 Old Falmouth Road in the Village of Marston Mills in the Town of Barnstable, Massachusetts. The Landfill operated as a private C&D landfill unit until it was closed in 1997. The approximate coordinates of the Site are 70°24'21" N latitude and 41°40'01" longitude. The private landfilling operation occupied approximately 12.9 acres of the Eastern Lot portion of the 38 acre Site. The landfill material included primarily wood waste on the northern portion (approximately 9.0 acres) and C&D waste on southern portion (approximately 3.9 acres). In February 1996, the Landfill owner filed a Landfill Removal Plan proposing to remove the C&D debris and related cover material (a total approximately 129,500 cubic yards). In the subsequent months, the landfill material was excavated, screened, segregated and removed from the site for offsite disposal at Barnstable Landfill.

A final site closure plan ("Plan") was submitted by Cushing, Goings & Kirschner, Inc in February 1997. The Plan described an existing 30 feet high screening berm to be modified and proposed second screening berm of approximately 14 feet in height. These berms are located on the east side of the property and constructed of wood waste and are capped in-place with a low-permeability cover and a vegetative stabilization layer. MassDEP approved the final closure plan on December 15, 1998. The PV array will be limited to areas off of the existing capped screening berms. (Refer to Condition #6)

IV. POST-CLOSURE USE SOLAR ARRAY PROPOSAL SUMMARY:

EAC Organics Inc ("Owner") is the owner of the Landfill and submitted a May 23, 2016, correspondence stating their support for LSDP 15, LLC ("LSDP") to construct the ground solar

photovoltaic array at the Landfill. Hereinafter, LSDP shall be referred to as the "Applicant". The Applicant and all construction and maintenance personnel associated with the solar photovoltaic installation on the Landfill shall be referred to as the "Applicant's Contractors".

The Applicant has proposed to develop a 3.70 MW AC solar photovoltaic ("PV") array installation on approximately 25 acres of the 38 acres of the property.

The PV array tentatively consists of the following components pending final selection of array components:

- Approximately 15,675, 315- Watt (W) PV modules, racked five modules high (in landscape orientation);
- Two 2,200-kilowatt (kW) transformers units will be installed on concrete slabs;
- Racking system will include a post-driven foundation system in the areas of the property that are not improved with a capped berm; and
- The modules will be interconnected with underground electrical conduit for direct current (DC) conductors.

Solar Glare Analysis/Remediation: According to the Applicant, Solar PV panels are designed to absorb as much light as possible to optimize performance. Based on the Applicant's study, the flat solar PV modules proposed for this project are less reflective than concrete. The Applicant's claim that based on their study potential glare impacts does not pose a significant issue. (Refer to Condition #8)

Storm Water: The majority of the existing stormwater runoff generated in the project area flows to two man-made temporary basins onsite, have no outlets and do not discharge offsite. The proposed drainage system has been broken down into five subcatchments SC100, SC200, SC300 SC400 and SC500. The proposed drainage system have been designed to completely store the 100-year storm event volume prior to factoring in the exfiltration rates of the parent sand material. The design proposes to remove all of the fill within the footprint of the basin down to the parent sand material and replacing the fill with clean granular sand.

Site Security: Site security will include a 6-foot tall chain-link fence surrounding the PV array to restrict access to the Site from Old Falmouth Road and the abutting properties. The proposed fence will be a driven-post fence located off of the capped berms. The condition of the fence and observations related to Site security will be performed during the regular maintenance and monitoring activities.

Health and Safety: As stated in the Application, as a condition of this permit, MassDEP is requiring that a Solar Array Construction Period Health and Safety Plan and a Post Closure Operations and Maintenance Health and Safety Plan be submitted and that personnel training be provided for employees who access the solar array areas. (Refer to Condition #7)

Decommissioning Plan and Financial Assurance Mechanism: As Conditions of this permit, the Applicant is required to submit to MassDEP for review and approval a detailed decommissioning and site restoration plan and a decommissioning cost estimate and establish a Financial Assurance Mechanism in order that sufficient funds are available to properly decommission the solar PV

array system and all of its appurtenant structures and features, and to properly restore the Landfill/Site to its original conditions. (Refer to Condition #10)

V. PERMIT DECISION WITH CONDITIONS:

MassDEP, having determined the information in the Application is satisfactory and in accordance with its authority granted pursuant to M.G.L. c.111, s. 150A, and 310 CMR 19.000, hereby **APPROVES** the Post-Closure Use of the Former Cape Resources C&D Landfill for a Solar Photovoltaic Array subject to the conditions identified herein.

1. Permit Limitations: The issuance of this approval is limited to the proposed Solar Photovoltaic Array at the Site Assigned parcel as detailed in the Application and does not relieve the Applicant from the responsibility to comply with all other regulatory or permitting requirements. Post-Closure Use construction shall proceed in complete compliance with the approved plans, MassDEP's regulations and requirements, the Manual or as required by this Approval. There shall be no deviation from this Approval without prior consent from MassDEP. MassDEP shall be consulted prior to any deviation from the approved design. MassDEP may require a permit modification application for significant design modifications.
2. Regulatory Compliance: The Applicant, Engineer and Applicant's Contractors shall fully comply with all applicable local, state and federal laws, regulations and policies, by-laws, ordinances and agreements. This includes but is not limited to, 310 CMR 19.142: *Post-Closure Requirements*, 310 CMR 19.143: *Post-Closure Use of Landfills*, and 310 CMR 19.043: *Standard Conditions*. Applicable federal regulations include, but are not limited to, 29 CFR Part 1910, OSHA standards governing employee health and safety in the workplace and all applicable local, state and federal electrical codes and permits, including National Electrical Code (NEC), 2011 Edition, Article 690-"Solar Photovoltaic (PV) Systems", as amended.
3. Notification of Construction: The Applicant shall notify MassDEP, Southeast Regional Office solid waste section chief, in writing (e-mail is acceptable) when the post-closure use construction commences and again when construction is completed.
4. Certification Report: Within ninety (90) days of completing the installation of the solar photovoltaic array, MassDEP shall be provided with a certification report for MassDEP's records. All construction work shall be completed under the supervision of a Massachusetts Registered Professional Engineer who shall have sufficient staff on-site to provide quality assurance/quality control (QA/QC) oversight for all construction work at the Landfill. The report shall be signed and stamped by a Massachusetts-registered professional engineer and include, at a minimum, written certification from the supervising engineer that the project was performed in accordance with MassDEP regulations, requirements and the approved Post Closure Use permit application. The report shall include a project narrative, as-built drawings depicting all pertinent site features and photographs representative of the construction processes and completed work.

5. Subsurface Soil Gas Migration Monitoring: MassDEP records do not indicate if the 30 foot existing berm includes any wood waste below the ground surface. Prior to commencement of construction the Applicant shall provide MassDEP with design details of the berm constructed and/or determine if:
- 1) The concentration of explosive gases in sub-surface soils exceeds 25% of the lower explosive limit between the berm and the proposed solar array.
 - 2) The concentration of explosive gases in sub-surface soils exceeds 25% of the lower explosive limit between the berm and the property line.

As specified in solid waste management regulations at 310 CMR 19.132 (5) (h),

“Except in buildings, structures and underground utility conduits for which 310 CMR 19.132(5)(g) applies, when, at any time, the concentration of explosive gasses exceeds 25% of the lower explosive limit (LEL) at the property boundary or beyond, excluding gas control, gas recovery and leachate collection system components, the owner/operator shall:

- 1. take immediate action to protect human health and safety;*
- 2. notify the Department’s Regional Office that covers the municipality in which the facility is located within 24 hours of the finding; and*
- 3. undertake the actions specified under 310 CMR 19.150: Landfill Assessment Requirements and 19.151: Corrective Action Requirements as required by the Department.”*

- If a gas well(s)/probe(s) with an exceedance is in close proximity to buildings, structures and/or utility conduits, the applicant shall monitor the interior of the buildings, structures and utility conduits for landfill gases. The building and its utility conduits should be monitored for percent methane, volatile organic compounds, oxygen and hydrogen sulfide.
 - All confined spaces within all buildings, should be screened for combustible gases. Wherever there are penetrations/cracks in building/structure foundations, the area in its immediate vicinity should be screened for combustible gases.
 - If at any time monitoring detects the presence of any combustible gases at or in excess of 10% of the lower explosive limit at any location within a building or within any utility conduits on site or off-site, WMDSM shall notify MassDEP's Bureau of Waste Site Cleanup-Emergency Response Section (508) 946-2850 within two (2) hours of the exceedance as per 310 CMR 40.0321(1) (a) of the regulations.
6. Buried Solid Waste: No construction activity will take place over the berms existing on the site. If any buried solid waste, including wood waste, is discovered during construction of the PV array, construction activity shall cease and MassDEP will be notified immediately.

7. Health and Safety: The Applicant, Engineers and Applicant's Contractors are responsible to ensure all necessary precautions are taken to protect the health and safety of workers and the general public during both the construction phase and during the operation and maintenance phase of the post-closure use.

A site specific Solar Array Construction Period Health and Safety Plan shall be developed and submitted to MassDEP (for its files) prior to the beginning of any construction work.

8. Solar Glare Analysis/Remediation: The Applicant shall monitor the solar glare from the panels as they are installed to confirm that no off-site glare issues develop. No portion of the array shall cause reflective glare to any motorist in any direction or impact the general public. The Applicant shall take remedial actions if a problem develops during or after installation of the panels.
9. Transfer: No transfer of this permit shall be permitted except in accordance with the requirements of 310 CMR 19.044. The form established by MassDEP for permit transfers is the BWP SW 49 application form. Any time, the Applicant for this project do not include a municipal entity, the Applicant shall (or *MassDEP will require the Applicant to*) provide to MassDEP a financial assurance mechanism, in accordance with 310 CMR 19.051, for the costs of decommissioning and site restoration activities.
10. Decommissioning Plan Financial Assurance Mechanism: Pursuant to the provisions of 310 CMR 19.051, the Applicant shall establish a Financial Assurance Mechanism ("FAM") in order that sufficient funds are available to properly decommission the solar PV array system, and all of its appurtenant structures and features, and to properly restore the Site Assigned parcel to its original condition. The FAM shall be based on the MassDEP approved cost estimate and shall be "in-place" at least thirty (30) days prior to the start of construction. MassDEP has determined that the appropriate amount of the required FAM is \$70,000 per megawatt AC for. Accordingly, the required FAM amount for the 3.7 megawatt AC array proposed at the Landfill is \$259,000.
11. Entries and Inspections: In accordance with *310 CMR 19.043: Standard Conditions*, MassDEP and its agents and employees shall have the right to inspect the Landfill and any equipment, structure or land located thereon, take samples, recover materials or discharges, have access to and photocopy records, to perform tests and to otherwise monitor compliance with this permit and all environmental laws and regulations.
12. Reservation of Rights: MassDEP reserves the right to require additional assessment or action, as deemed necessary to protect and maintain an environment free from objectionable nuisance conditions, dangers or threats to public health, safety and the environment. MassDEP reserves all rights to suspend, modify or rescind this permit if it determines the solar array results in a threat to public health, safety or the environment.

This approval pertains only to the Solid Waste Management aspects of the proposal does not negate the responsibility of the owners or operators to comply with any other local, state or federal laws, statutes and regulations or enforcement actions, including orders issued by

another agency now or in the future. Nor does this approval limit the liability of the owners or otherwise legally responsible parties from any other applicable laws, statutes or regulations now or in the future.

VII. RIGHT TO APPEAL

Right to Appeal:

This approval has been issued pursuant to M.G.L. Chapter 111, Section 150A, and 310 CMR 19.033: Permit Procedure for an Application for a Permit Modification or Other Approval, of the “*Solid Waste Management Regulations*”. Pursuant to 310 CMR 19.033(5), any person aggrieved by the final permit decision, except as provided for under 310 CMR 19.033(4)(b), may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. Chapter 111, Section 150A and M.G.L. Chapter 30A no later than thirty days of issuance of the final permit decision to the Applicant. The standing of a person to file an appeal and the procedures for filing such an appeal shall be governed by the provisions of M.G.L. c. 30A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the permit by a court of competent jurisdiction, the permit decision shall be effective in accordance with the terms of 310 CMR 19.033(3).

Notice of Appeal:

Any aggrieved person intending to appeal a final permit decision to the Superior Court shall first provide notice of intention to commence such action. Said notices of intention shall include MassDEP Transmittal No. X271012 and shall identify with particularity the issues and reason why it is believed the final permit decision was not proper. Such notice shall be provided to the Office of General Counsel of MassDEP and the Regional Director for the regional office which processed the permit application, if applicable at least five days prior to filing of an appeal. The appropriate addresses to send such notices are:

Office of General Counsel
Department of Environmental Protection
One Winter Street
Boston, MA 02108

Regional Director
Department of Environmental Protection
20 Riverside Drive
Lakeville, MA 02347

No allegation shall be made in any judicial appeal of a final permit decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in 310 CMR 19.000, provided that a matter may be raised upon showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the environmental impact of the permitted activity.

Please direct any questions regarding this matter to me at (508) 946-2847 or Hersh Thakor (508) 946-2715 or Dan Connick (508) 946-2884 or write to the letterhead address.

Very truly yours,

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.

Mark Dakers, Chief
Solid Waste Management Section
Bureau of Air and Waste

D/HT/

P:\\Landfill Permits\\Solar Permits\\Barnstable\\Former Cape Resources\\Minor LF solar PCU 032016 X271012.docx

ec: Kennedyjenks.com
maxlamson@kennedyjenks.com
michaelclark@kennedyjenks.com

LSDP 15, LLC
schulman@lakestdev.com

Meridian Associates
maiwest@meridianassoc.com
mai@meridianassoc.com

Barnstable Board of Health
health@town.barnstable.ma.us

DOER
Seth.Pickering@state.ma.us

DEP-Boston
ATTN: R. Blanchet
S. Weinstein
T. Higgins
J. Doucett

DEP-SERO
ATTN: M. Pinaud
J. Viveiros
M. Dakers