

June 8, 2007

Mr. John Carrigan, Chief  
Solid Waste Division  
Northeast Regional Office  
Massachusetts Department of Environmental Protection  
205B Lowell Street  
Wilmington, MA 01887

**RE: Request for Beneficial Use Determination  
Former Nike Missile Site, 133 Oxbow Road, Wayland**

Dear Mr. Carrigan:

On behalf of the Town of Wayland Board of Selectmen, BETA Group, Inc. (BETA) is pleased to present this request for a Beneficial Use Determination (BUD) from the Massachusetts Department of Environmental Protection (MassDEP). The Town of Wayland (the Town) wishes to reuse existing in-place foundation concrete as fill at the above-reference property (the Site). The scope of work for this BUD application was discussed and agreed to during a BUD pre-application meeting attended by representatives of the Town, BETA, and the MassDEP at the MassDEP Northeast Regional offices on March 9, 2007. The Town is requesting a Category 3 BUD.

**SITE DESCRIPTION**

The 14.6-acre Site consists of two lots located at 133 Oxbow Road in Wayland, Massachusetts. The Site is the former location of the support buildings and missile silos of the Boston Area Nike Battery 73. The Site was decommissioned as a missile base in 1974 and was completely closed in 1997. The Town obtained the Site in 2005, acquiring Lot 1 from the National Park Service and Lot 2 from the General Services Administration (GSA). Lot 1 consists of approximately 10.71 acres and contains two decommissioned and emptied underground concrete missile silos. Lot 2 consists of approximately 2.75 acres and was formerly occupied by the base's supporting above-grade buildings and structures. These buildings were demolished in the winter of 2005-2006 by a contractor for the Town of Wayland. The demolition debris from the above ground structures has been transported off-Site for recycling, reuse or disposal.

The underground silos on Lot 1 are empty and the hydraulic missile lift systems have reportedly been drained of hydraulic oil. Construction plans for the silos are not readily available. The silos both have the same design with a main room in which missiles were stored and a small connecting underground control room. The interior dimensions of the main room are approximately 49 feet wide, 60 feet long and 12 feet high. Access to the silos is via a stairway with a concrete and steel bulkhead entrance at the ground surface. The control room has a separate ladder and hatchway entrance/exit and is connected to the main missile room by a short

hallway. The interior walls and ceilings are painted. The thicknesses of the concrete walls, floors, and roofs of the silos are unknown. The ceilings of the silos are approximately six feet below ground surface. The ground surface above the silos is covered by a concrete pad that is approximately six inches thick. The asphalt pavement that formerly surrounded this concrete was removed during the aboveground building demolition in 2005-2006. The missile door openings are closed by hydraulic lift platforms (one at each silo) that are in the up position, flush with the surrounding surface grade. Most of the steel fittings, stanchions, and vents formerly located in the concrete at the surface have been cut off flush with the surface concrete and transported off-Site. For additional security, the Town has placed pre-cast concrete panels over the silos' missile and bulkhead doors. The entire silo area is surrounded by a chain link fence. Refer to Attachments B-D for a site locus, site plan, and photos of the silos.

## **PREVIOUS WORK**

### **Assessment**

CMG Environmental, Inc. (CMG) prepared a Phase I Environmental Site Assessment report for the Site dated October 2003. A subsequent Limited Environmental Site Assessment (LESA) was performed by Bois Consulting Company, Inc., (Bois) documented in a report dated March 19, 2004. Bois concluded that asbestos-containing materials and lead-based paint (LBP) were found in various structures throughout the Site including the silos. The silos contained vinyl asbestos floor tiles and LBP on the silos' walls and ceilings. Soil samples collected and analyzed from various suspect areas of the Site did not contain "significant contamination issues." Groundwater samples collected and analyzed from three groundwater monitoring wells did not contain detectable concentrations of extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), volatile organic compounds, or dissolved metals. Depth to groundwater was measured at 42 to 50 feet below surface grade. Bois found that the approximately one foot of standing water in the mechanical trenches located in the center of each silo contained detectable concentrations of metals (above RCGW-1 reportable concentrations) and VPH.

A lead paint survey was performed at the Site for the Town by Axiom Partners, Inc. in January 2004. Axiom used a hand-held x-ray fluorescence analyzer to measure the lead content in nine painted surfaces on and in the missile silos. The results of the survey are included in Attachment E. In summary, with the exception of safety striping and stairwell paint, the silos' painted surfaces typically contain low levels of lead.

### **Asbestos-containing Building Materials Removal**

The Town retained an asbestos abatement contractor to remove asbestos containing building materials from the Site buildings in September and October 2005. The abatement included the removal of the vinyl asbestos floor tiles from the silos.

### **Development Plans/Requirements**

The Site has been acquired by the Town for two purposes: Lot 1, which is the subject of this BUD request, was acquired under an acquisition agreement with the National Park Service

requiring that the Town use the land exclusively for active or passive recreation. Passive recreation typically consists of conservation land with walking trails. Active recreation may include such things as playing fields. A copy of the deed containing the property use restrictions is attached. Lot 2 was purchased by the Town from the U.S. General Services Administration to be developed with up to 16 units of housing, with a preference given to affordable housing.

### **PROPOSED PROJECT**

As part of the Town's reuse of the Lot 2 portion of Site, the Town desires to partially demolish and fill the silos. Proceeding with this option requires applying to MassDEP for a BUD allowing for the closure in-place of the silos followed by the filling of the silos with a combination of such materials as demolition debris [asphalt, brick and concrete (ABC)] and clean soil. This option may also include the demolition of the concrete roofs of the silos (depending on their construction and such demolition's feasibility) with the roof material added as additional silo fill. Allowing these materials to be used at the site under a BUD will have the following benefits to the Town:

- Allow for a final closure of the former missile silos using an alternative to a financially infeasible closure by removal of concrete;
- Allow for the use as backfill of silo roof material as a substitute for commercially obtained sand and gravel; and
- Allow for the improvement of this Site to one usable for passive and/or active recreation.

### **BUD CATEGORY AND SILO DECOMMISSIONING METHOD(S)**

The Town of Wayland wishes to obtain a Beneficial Use Determination from the MassDEP that will allow for:

- Silo structural concrete to remain substantially in-place at the Site;
- Use of silo roof demolition debris as a portion of the fill for the interiors of the silos; and
- Final filling of the silos with non-BUD fill material.

The requested BUD is intended to apply only to the concrete from the two silos at the Site. As such, and as discussed with MassDEP, the Town is requesting a Category 3 BUD applicable to this "Restricted Application." A description of this material and the proposed activities for its use is provided below:

#### **Silo Concrete**

The interior dimensions of each silo's missile room are 60×49×12 feet. The wall thickness visible at doorways is 12 inches. The floors are 16+ inches thick and ceiling thickness is not known. The proposed closure of the silos will include the advancement of core holes of a sufficient number and size through the bottom of the silos to prevent a buildup of groundwater. Prior to coring, the water at the bottom of the hydraulic lift trenches will be removed and

transported off-site for disposal. Other than the possible enlargement of the missile doors for additional access for material placement using standard demolition equipment, no other processing of the silo concrete is proposed. All remaining metal associated with the hydraulic system will be removed from both of the silos for off-Site recycling. This will specifically include: the hydraulic pistons; lift platforms; missile bay doors; hydraulic piping, valves, and pumps; electrical equipment; manhole covers; and bulkhead doors; etc. Any reinforcing steel within concrete will remain.

The recently placed concrete panels covering the silos' entrances will be maintained in place until final filling is completed and/or roof demolition is started. The panels will be moved aside as necessary during the placement of fill in the silos and returned after each filling event (if needed).

### **Roof Material**

The Town proposes to use standard demolition equipment, such as an excavator with a hydraulic hammer to partially demolish the concrete roof of the silos. As the thickness of the silos' roofs is unknown, the Town proposes to demolish the roofs to the extent practical. The roof concrete debris will be used as the initial fill material for the filling of the silos. Any reinforcing steel exposed during demolition will be removed from the concrete for recycling prior to filling.

### **Proposed Fill Material**

The Town is proposing to subsequently fill both silos with a combination of imported off-Site soil, gravel, crushed rock, and/or crushed ABC to final grade. These materials will be determined to be suitable for use at the Site in compliance with applicable regulations including the Massachusetts Contingency Plan (310 CMR 40.0000) and the Massachusetts Solid Waste Regulations (310 CMR 16.00 and 19.00). Unless subsequent application is made by the Town to MassDEP, only materials that do not require a BUD will be used.

The amounts of each of these materials used will be determined upon the availability of each during the proposed filling period and final reuse plans. The interior dimensions of the silos' missile rooms are 60×49×12 feet with a resulting combined interior volume of approximately 71,000 cubic feet or 2,600 cubic yards. With the additional volume represented by the control rooms, hallways, hydraulic trenches, and stairwells, the combined total volume of both silos is estimated at approximately 80,000 cubic feet or 3,000 cubic yards.

Prior to transport to the Site, each fill material/source will be inspected by a designated representative of the Town. Each supplier will provide a letter certifying the source of the material. The letter will certify that the material is free of contamination. Upon identification of specific fill materials proposed for use at the Site, laboratory analyses may be performed as determined by the Town to be appropriate.

All ABC material brought to the site for placement within the silos will be limited to ABC that is determined by the Town to be suitable for placement within the silos prior to arrival at the Site. These requirements will include no asbestos, no wood or metal, no evidence of contamination in or on the material, and, if determined to be necessary, acceptable analytical results.

Fill material that has been determined to be suitable for use may be temporarily stored at the site pending placement within the silos.

### CONCRETE CHARACTERIZATION

#### Sampling Plan

After discussions with MassDEP during the March 9, 2007 pre-application meeting, and subsequent telephone conversations, the appropriate sampling for characterization of the silo concrete was determined to be:

- Collection of 1-2 samples of silo concrete for total Resource Conservation and Recovery Act (RCRA) eight metals in order to provide a baseline of metals content in the concrete;
- Toxicity Characteristic Leaching Procedure (TCLP) metal(s) on silo concrete for any metal whose total concentration exceeds twenty times the TCLP hazardous waste criteria; and
- Representative paint samples for analysis of lead and mercury by TCLP and Synthetic Precipitation Leaching Procedure (SPLP) extraction.

#### Concrete and Paint Sampling

On behalf of the Town, BETA has conducted sampling and analysis to characterize silo concrete for potential beneficial reuse at the Site. The sampling was performed under the direction of the following personnel:

**Table 1: Project Personnel**

Role	Name
Project Manager (BETA Group, Inc.)	David Billo, LSP
Concrete Sampling (BETA Group, Inc.)	David Billo, John Harte
Site Health & Safety Officer (BETA Group, Inc.)	David Billo, LSP
Toxicologist / Risk Assessor Town of Wayland	Cynthia Fuller, Wilcox & Barton, Inc.
Nike Site Reuse Advisory Committee - Contact Town of Wayland	Michael Gitten
Town Administrator	Frederic Turkington, Jr.
MassDEP Contact	David Adams, NE Region

### Sampling and Analysis

On April 6, 2007, BETA collected eleven concrete and paint samples from within the two silos at the Site. At each silo, one sample was collected from the unpainted floor, and one sample from each of the main paint colors on the walls and ceilings. In each of the main rooms, BETA collected the samples using an electric rotary hammer to chip out a sample from the concrete floor and to scrape a paint sample from the concrete walls. A minimal amount of wall concrete was included in each wall paint sample. In the stairwells, BETA collected the samples by removing paint chips from the walls by hand. Table 2 below provides a summary of the approximate square footages of each of the paint colors sampled.

**Table 2: Painted Concrete Square Footages**

Paint Location	Paint Color	Approx. Square Feet	Percentage of Painted Surfaces
<b>Silo 1</b>			
Main Room Upper Wall & Ceiling	White	4,880	76
Main Room Lower Wall	Blue	944	15
Stairwell Upper Wall & Ceiling	Off-White	308	5
Stairwell Lower Wall	Gray	196	3
Main Room & Stairwell Stripe	Yellow	69	1
<b>Silo 2</b>			
Main Room Upper Wall & Ceiling	White	4,830	79
Main Room Lower Wall	Blue	763	13
Stairwell Upper Wall & Ceiling	Off-White	308	5
Stairwell Lower Wall	Gray	196	3

BETA submitted the samples to Groundwater Analytical of Buzzards Bay, Massachusetts for analysis of total RCRA 8 metals, and lead and mercury by TCLP and SPLP extraction. Refer to Attachment F for the laboratory certificates of analysis.

### Laboratory Analytical Methods

Paint and concrete samples were submitted to the laboratory for analysis by the following analytical methods.

**Table 3: Laboratory Analysis Summary**

Analytical Parameter	Preparation Method	Determinative Method	Laboratory Conducting Analyses
Total Metals (except mercury)	3050B	6010B	Groundwater Analytical
Mercury	3050B	7471A	Groundwater Analytical
TCLP Extraction – Lead	1311	6010B	Groundwater Analytical
TCLP Extraction – Mercury	1311	7470A	Groundwater Analytical
SPLP Extraction - Lead	1312	6010B	Groundwater Analytical
SPLP Extraction - Mercury	1312	7470A	Groundwater Analytical

Neither of the concrete samples contained any metal whose total concentration exceeded twenty times the TCLP hazardous waste criteria. Therefore, analysis for TCLP metals were not performed on the concrete samples

**Sample Handling and Custody Requirements**

A standard chain-of-custody (CoC) program was followed during sample handling activities from the field through laboratory operations. The CoC program was designed to assure that each sample was accounted for at all times. Field data sheets, CoC records, and sample labels were completed for each sample collected. In general, the objective of the CoC identification and control system was to assure, to the extent practical, that all samples were uniquely identified, the correct samples were analyzed for the correct parameters, and samples were protected from loss or damage.

BETA has conducted a review of the following items for the samples results provided in this BUD application:

**Total Metals Analyses**

- Chain of Custody
- Case narrative
- Presence of field and sample identifications (IDs)
- Holding times
- Preservation and cooler receipt
- Surrogate recoveries
- Laboratory blank data
- Spike data
- Laboratory Control Samples (LCS) (if metals spike recovery is out of control)

**TCLP & SPLP:**

- Chain of Custody
- Case narrative
- Presence of field and sample ID's
- Holding times

- Preservation and cooler receipt
- Percent solids
- TCLP blank
- Correct pH and weight of extraction fluid
- Spike recoveries for metals

All of the items were performed appropriately and support the usability of the data.

**Laboratory Analytical Results**

Refer to Table 1 contained in Attachment G for a summary of the laboratory analytical results. The complete laboratory certificates of analysis are included in Attachment F.

**Critical Contaminants of Concern**

The characterization of the painted concrete by laboratory analysis included analysis for the following critical contaminants of concern (CCCs):

**Table 4: Critical Contaminants of Concern**

Sample Location	CCC	Analysis	Maximum Detection	DEP Background*	UCL
Floor	Lead	Total	53 mg/Kg	100	3,000 mg/Kg
Floor	Cadmium	Total	1.6 mg/Kg	2	300 mg/Kg
Floor	Mercury	Total	< 0.017 mg/Kg	0.3	300 mg/Kg
Wall Paint	Lead	TCLP	2.0 mg/L	N/A	N/A
Wall Paint	Lead	SPLP	3.4 mg/L	N/A	N/A
Wall Paint	Mercury	TCLP	0.0003 mg/L	N/A	N/A
Wall Paint	Mercury	SPLP	0.0007 mg/L	N/A	N/A

*\*Background levels from DEP 2002 technical update "Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil" for metal concentrations in 'natural' soil.*

As summarized in Table 4, the concentrations of all identified CCCs are below both the DEP published background concentrations and the applicable Upper Concentration Limits (UCLs).

**RISK CHARACTERIZATION**

BETA retained Ms. Cynthia Fuller of Wilcox & Barton, Inc. to perform a BUD Risk Assessment in accordance with the guidance provided in the MassDEP's "Draft Interim Guidance Document for Beneficial Use Determination Regulations 310 CMR 19.060" dated March 18, 2004 and as discussed with MassDEP at the Pre-Application Meeting. Refer to Attachment G for a copy of the completed risk assessment. The risk assessment concluded that:

"The calculated weighted leachate concentrations of lead and mercury were below their applicable BUD GW-3 groundwater values and EPA surface water criteria. Therefore,



leaching of lead and mercury from paint on concrete surfaces in the silos will not adversely impact groundwater or surface water resources and the concrete is acceptable for beneficial use.”

#### **DEED RESTRICTION & EVALUATION AND CONTROL OF SIGNIFICANT RISKS**

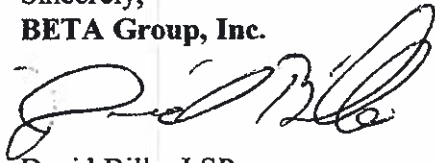
The silo concrete to be beneficially reused is located on a property obtained by the Town from the U.S. National Park Services under a deed that requires the Site to be used “exclusively for public park or public recreation purposes, in perpetuity.” Refer to Attachment H for a copy of the deed. Once the silo concrete is covered with imported fill, the use of the Site as a park or public recreation facility will prevent any exposure to the reused concrete for the foreseeable future.

#### **FINAL GRADING, LANDSCAPING, AND USE OF THE SITE**

The goal of the reuse to occur under this BUD is to allow the use of the Site for active or passive recreation. The exact methods that will be used for demolishing the silo roofs and processing the proposed secondary material as fill will be determined by the Town as dictated by Site conditions as they are encountered. The roof demolition and silo filling will be conducted to provide a stable final closure of the silos with appropriate subgrade material to support the determined final use.

On behalf of the Town of Wayland, we wish to thank MassDEP for its assistance in developing this application. If you have any question or comments, please call me at 781-255-1982.

Sincerely,  
**BETA Group, Inc.**



David Billo, LSP  
Senior Project Manager

#### Attachments

- A. DEP Form BWP SW41
- B. Figure 1 – Site Locus
- C. Figure 2 Site Plan
- D. Photograph Log
- E. Axiom Lead Based Paint Analyses
- F. Laboratory Certificates of Analysis
- G. Wilcox & Barton Risk Assessment
- H. Lot 1 Deed

- C: Wayland Board of Health
  - A. Hanscom, BETA
  - M. Gitten, NSRAC
  - F. Turkington, Jr., Town of Wayland

**Nike Site Reuse Advisory Committee (NSRAC)  
Meeting Minutes  
March 31, 2005**

**Attendance:** P. Abramson, M. Gitten, I. Montague, B. O’Herlihy, O. Pitel, C. Pitt (8:06 pm), R. Regan (8:16 pm), G. Schuler, M. Staiti

**Open Meeting:** G. Schuler called the meeting to order at 8:03pm.

**Public Comment:** none

**Previous Minutes:** B. O’Herlihy moved to accept the draft minutes for March 17. I. Montague seconded the motion. The vote was 6-0 to accept the minutes with 1 abstention.

**Materials Distributed:** Agenda, Demolition of Buildings – permits summary – G. Schuler.

**Notes:**

- 1) M. Staiti was appointed to the NSRAC by the BOS but hadn’t been sworn in yet so could not vote.
- 2) Site demolition:
  - a) M. Gitten recommended manage asbestos & demo separate and can save money.
  - b) M. Staiti had Mark Maura of McManus Excavation Engineering and Ron Shales of TMC (an asbestos abatement company) walk the site to evaluate the demolition effort.
  - c) Can crush and use cinder block but not with lead paint. Need clean fill unlike landfill.
  - d) G. Schuler handed out list of permits/approvals needed to demo a site in Wayland.
  - e) Atlantic Blasting will review site in next couple of weeks.
  - f) Whether cap or fill, will need to put holes in the floor and take out all metals.
  - g) Rubble from buildings (not wood or metal but cinder block) kept on site like least cost.
  - h) Abate lead if leave on site. Test lead whether it will leach.
  - i) Study if plan to bury to convince won’t leach.
  - j) Asbestos contracts RFP to be drafted by M. Staiti for Abatement contractor & Air Monitor contractor.
  - k) Can consider ½ fill and cap.
  - l) BUD permit needed whether cap, fill or ½ fill. For storage, means 2 means of egress.
  - m) J. Ritter has the Municipal Bidding Form.
  - n) Water & Gas needed before repave Oxbow Road.
  - o) Building Inspector can waive fees; delegated by BOS.
  - p) G. Schuler to ask Board of Health & Building Inspector to waive fees for Affordable & recreation.

- q) G. Schuler to ask Water Department whether they will construct tap for property before Oxbow Road paved and waive permit fees.
- r) M. Gitten to get prices for lead testing.
- s) NSRAC can send out RFPs then bring estimates to BOS.
- t) State should waive fees because we're a Town.
- 3) D. Leard coordinate with Stubby to request signs be posted and fix fence.
- 4) Town owns Lot 2 & constructively own Lot 1. Expect deed recorded before Town Meeting. Lot 1 deed includes usage language.
- 5) G. Schuler reported Alf can do topographic survey. M. Gitten had a copy of 1978 map.
- 6) Housing Plan approved 3/24. Score in 40's. Commonwealth Capital Plan to BOS on April 4.
- 7) R. Regan to verify that have to wait for Commonwealth Capital Plan to be approved by State before able to submit PDF or whether there may be an overlap.
- 8) G. Schuler showed pictures of Acton 40B. 3 affordable units 2100 sq ft each; 12 units on 1 acre; \$530,000 market, \$200,000 affordable price.
- 9) M. Gitten recommended someone pursue Fields Pond Grant application which is a rolling grant. Application at <http://fieldspond.org/welcome.html> G. Schuler to review and draft including highlight connection to Bay Circuit Trail.
- 10) G. Schuler reported approval to remove evaluation of other Town Properties from PDF application.
- 11) B. O'Herlihy to draft press release/letter to editor reporting property acquisition and inviting residents to attend April 14 meeting. Also have J. Ritter mail to neighborhood.
- 12) R. Regan reported on meeting with State. Should get 40B application going. Best to have 40B before approach developers and request funding.
- 13) R. Regan reported 80% of median (approx \$65K for family of 4) maximum definition for 40B. Up to 120% of median still considered 'community housing'. What is needed to by average house in Wayland?
- 14) April meetings planned for April 7 & 14. May meetings are planned for May 12, 19 & 26. Connie will submit meetings for posting.

**Adjourn:** P. Abramson moved to adjourn the meeting at 10 pm. B. O'Herlihy seconded. Motion approved 8-0.

Respectfully Submitted,

Constance N. Pitt