ANNUAL REPORT NO. 3 AND REQUEST FOR CERTIFICATE OF COMPLIANCE

NSTAR BOAT SLIP REMEDIATION PROJECT

180 MacArthur Drive / 1 Pine Street
New Bedford, Massachusetts

Presented to:
New Bedford Conservation Commission
City Hall, Room 304
133 William Street
New Bedford, MA 02740

Prepared for:
NSTAR Electric & Gas Corporation
One NSTAR Way, NE250
Westwood, MA 02090-9230

Presented by:
B E A L S + T H O M A S
Beals and Thomas, Inc.
32 Court Street
Plymouth, MA 02360

In Conjunction with:
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Biodrawversity, LLC
422 West Street
Amherst, MA 01002

Prepared in compliance with Order of Conditions SE 49-660

January 2014

171405RP004

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January 30, 2014

City Of New Bedford
Conservation Commission
City Hall, 133 William Street
New Bedford, MA 02740

Via: Email: sarah.porter@newbedford-ma.gov and FedEx

Reference: Annual Report No. 3 and Request for Certificate of Compliance
NSTAR Boat Slip Remediation Project
DEP File No. SE 49-660
180 MacArthur Drive / 1 Pine Street
New Bedford, Massachusetts
B+T Project No. 1714.05

Dear Commissioners:

On behalf of NSTAR Electric and Gas Corporation, Beals and Thomas, Inc. respectfully submits this third and final annual post-construction report for the above-referenced project, in accordance with Special Condition 54 of the Order of Conditions issued on November 28, 2010.

As you are aware, a Partial Certificate of Compliance was requested for the completed work and stabilization of the site and was issued by the Commission on February 13, 2012. This Partial Certificate notes, "Monitoring of the benthic habitat for two more years is the remaining task per Condition #54." The enclosed annual report (No. 3 of 3) indicates that the benthic habitat has successfully re-established at the remediation site, and that the boat slip stability and integrity are consistent with final approved plans and the Order of Conditions.

Based on the successful results detailed further in the enclosed report, we respectfully request issuance of a final Certificate of Compliance for the project. Enclosed please find a check in the amount of $150.00 made payable to the City of New Bedford for the associated filing fee.

We trust you will find that this report adequately documents the success of the mitigation area and the stability and integrity of the inner and outer slips. We look forward to meeting with the Commission to discuss the Request for Certificate of Compliance.

Please advise as to which hearing date the Commission will review this Request. Should you have any comments or questions, please do not hesitate to contact us.

Very truly yours,

BEALS AND THOMAS, INC.

Stacy H. Minihane

Stacy H. Minihane, PWS
Associate

Enclosures

cc: Mr. Daniel Watton, NSTAR Gas (via email: daniel.watton@nstar.com, and 2 copies via US Mail)
Mr. Eric LaMontagne, NSTAR Gas (via email: eric.lamontagne@nstar.com)
Mr. Timothy Condon, Lightship Engineering (via email: tcondon@lightshipengineering.com)
Mr. James Ash, GEI Consultants, Inc. (via email: jash@geiconsultants.com)
Mr. Bill Simons, GEI Consultants, Inc. (via email: bsimons@geiconsultants.com)

MKS/SHM/ejl/cp/171405RP004

BEALS AND THOMAS, INC.

Vendor ID: 1261 City of New Bedford

Check Amount : 150.00

Check # : 19115 19115

Date : 01/30/2014

Invoice #	Date	Invoice Amount	Gross Payment	Discount	Net Payment	Notes
1014106	01/30/2014	$150.00	$150.00		$150.00	

HOLD TO LIGHT TO VIEW WATERMARK IN PAPER. HEAT SENSITIVE RED IMAGE DISAPPEARS WITH HEAT. DETECTION CIRCLE REVEALS A LOCK WHEN TESTED

19115

BEALS AND THOMAS, INC.
RESERVOIR CORPORATE CENTER
144 TURNPIKE ROAD
SOUTHBOROUGH, MASSACHUSETTS 01772

Middlesex Savings Bank 22
SOUTHBOROUGH, MA 01772

53-7122-2113

EZShield™ Check Fraud Protection for Business

DATE
01/30/2014

AMOUNT
$150.00

THE SUM OF ONE HUNDRED FIFTY DOLLARS 00/100 ONLY

PAY TO THE ORDER OF

City of New Bedford
133 William Street
New Bedford, MA 02740

AUTHORIZED SIGNATURE

Security features. Details on back.

⑈019115⑈ ⑆211371227⑆ 800308165⑈

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APPENDICES

1.0 INTRODUCTION

This Annual Report (No. 3) has been prepared in compliance with the City of New Bedford Conservation Commission's Special Condition #54 of the Order of Conditions (SE49-660) issued November 28, 2010. This Condition states the following:

> *The Conservation Commission shall require that annual reports to be submitted by the last day of each year for 3 years. These reports shall be prepared by a wetland scientist with a minimum of 5 years experience and shall document the success of the mitigation area and include photographs of the benthic habitats and dates of inspection. If for some reason the benthic habitat is not supporting marine organisms, the wetland scientist shall provide recommendations to remedy the problem. Annual reporting shall continue until the Commission has 3 successive years of reports indicating a healthy benthic habitat is established. These reports shall also provided technical information prepared and Stamped by a Professional Engineer regarding both the inner and outer slips in terms of its stability and integrity.*

2.0 PROJECT DESCRIPTION

The project consisted of the remediation of a boat slip located at 180 MacArthur Drive / 1 Pine Street in New Bedford, Massachusetts. This project entailed two components, Inner Slip and Outer Slip; and was within the limits of Polychlorinated Biphenyls (PCB) contamination for the New Bedford Harbor Superfund Site. The overall goals of the project were to achieve a condition of No Substantial Hazard, and to eliminate the Immediate Response Action (IRA) condition. The remediation work on the boat slip was completed on December 15, 2011, and a Permanent Solution was achieved for both the Inner Slip and Outer Slip in accordance with the Massachusetts Contingency Plan (MCP).

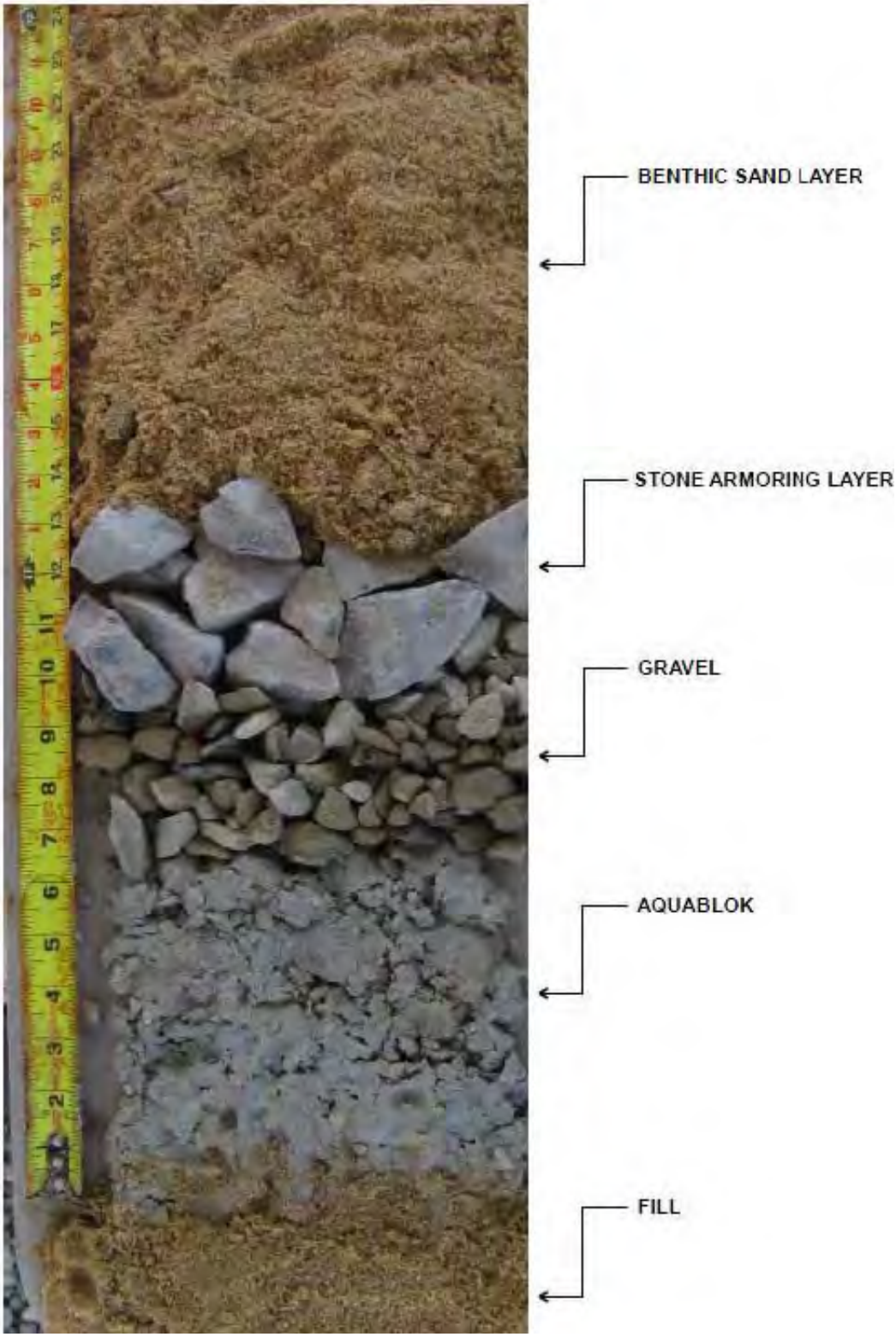
A new sheet pile cutoff wall was installed across the entrance to the Inner Slip to create an on-site containment structure (i.e. confined disposal facility (CDF)). Another sheet pile wall was installed inside the CDF to form two cells. Cell 1 is approximately 50 feet in width and 20 foot in length from the mouth of the Inner Slip. Cell 2 consists of the remainder of the Inner Slip. The top of the wall elevation is approximately +2 ft mean low water (MLW).

Outer Slip

Approximately 1,350 cy of shallow, visibly tar-impacted sediments from select areas of the Outer Slip were removed. Dredging was performed by a clamshell dredge with an environmental bucket, and dredged material was deposited in the CDF. When the dredge could not deposit the dredged material over the cut-off wall into the CDF, transfer barges and/or a crane were used. Turbidity curtains and booms were used to separate the dredging work area from the outer harbor, and a turbidity curtain was maintained around the dredge barge.

Approximately 200 cy of sand were used to backfill the dredged area of the Outer Slip. A minimum two-foot thick layer was placed over the backfill and existing sediment in order to cap the Outer Slip area. The two-foot cap is comprised of a six-inch low permeability material, overlain by a three-inch layer of ¾ inch diameter stone to protect the cap during installation of a subsequent three-inch layer of 2 to 3-inch diameter stone armor, followed by a twelve-inch layer of clean sand to support benthic habitat. The cap covers an area of approximately 18,000 sf and required approximately 1,525 cy of capping material.

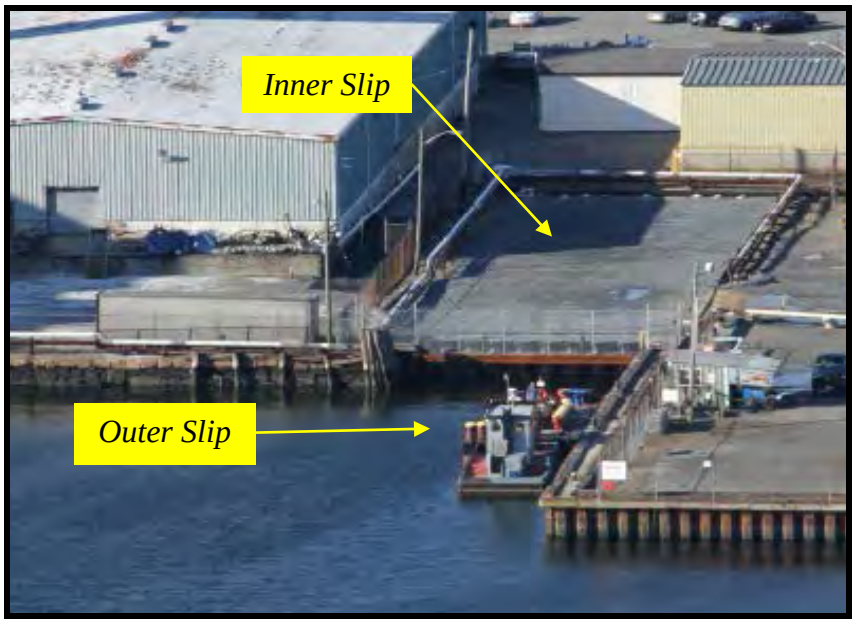
Cross Section of Outer Slip Cap



Inner Slip

After the entire 1,350 cy of contaminated sediment from the Outer Slip were transferred to the Inner Slip, all of the sediment inside the CDF was solidified by adding approximately 3,000 cy of Portland cement, resulting in volume expansion of 20 percent.

The Inner Slip was capped to eliminate the exposure pathway to Oil and Hazardous Material (OHM) in the solidified dredged material. The cap consists of an approximately three-foot thick layer of clean gravel, underlain by a geotextile demarcation layer.



Completed Project, Photograph courtesy NSTAR

3.0 BENTHIC HABITAT ASSESSMENT

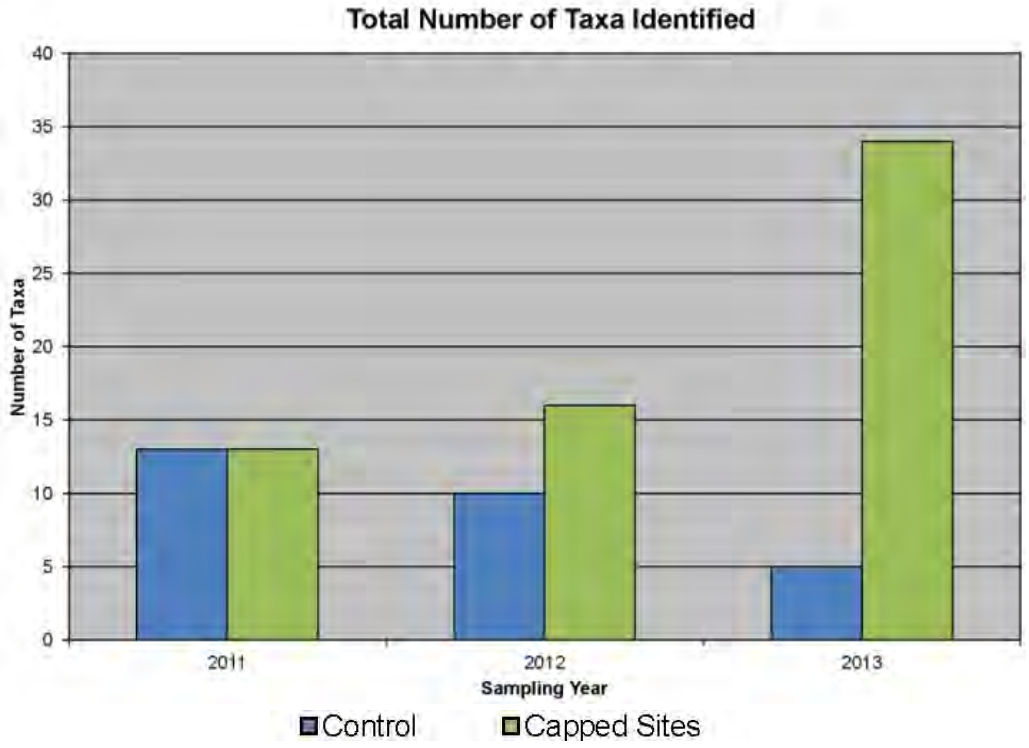
Field work associated with the third post-construction benthic habitat assessment was conducted on November 22, 2013 by Biodrawversity, LLC. A report detailing the methodology and findings, as well as a comparison to the 2011 and 2012 results, is provided in Appendix A.

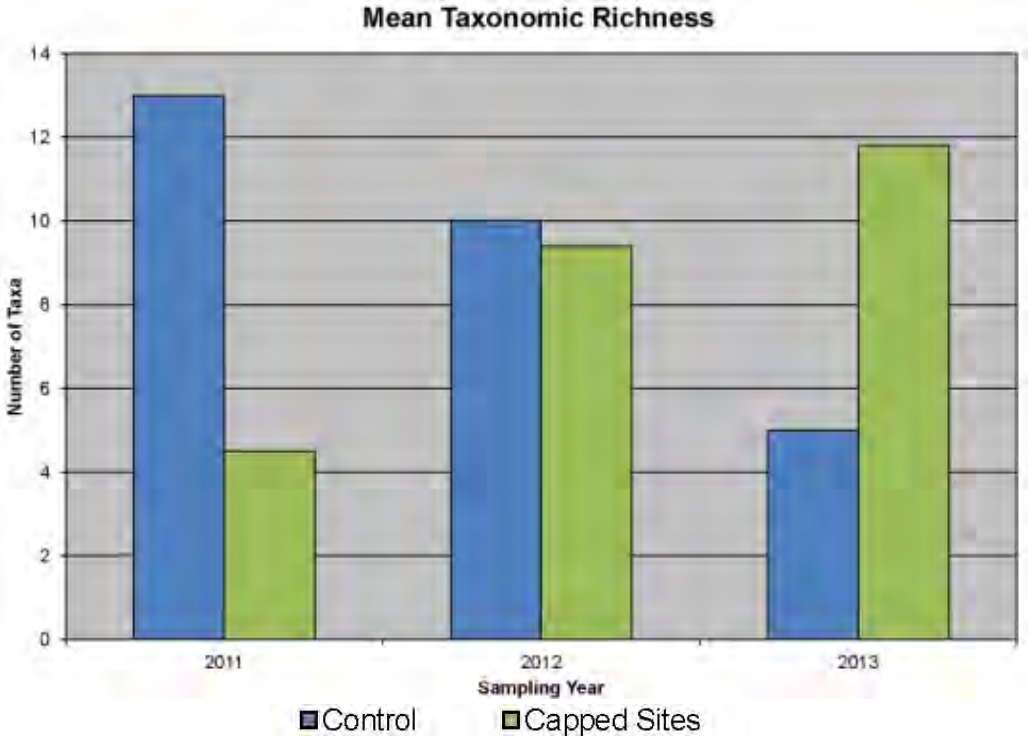
The benthic habitat assessment methodology ensures that the capped area is appropriately represented in sampling, resulting in a suitable assessment as to the habitat functioning of the capped area as a whole. Specifically, establishing 10 sampling locations within the capped area each year helps to ensure a broad and representative assessment of current conditions.

Overall, the third annual assessment documents that the benthic habitat is supporting marine organisms, and has improved considerably when compared to the first and second assessments undertaken post-construction, and, perhaps most significantly, when compared to the control site. Specifically, a total of 35 unique taxa were identified in the survey area in 2013. Multiple genera and individuals of snails, bivalves, and polychaete worms were present in the samples. Several other crustaceans (shrimp, crabs, barnacles, amphipods) were also collected and observed.

Taxonomic richness has substantially increased in the capped area since the initial benthic assessment undertaken in 2011, and now exceeds the taxonomic richness of the control site. Total taxonomic richness improved from 13 in 2011 to 16 in 2012 to 34 in 2013. More significantly, mean taxonomic richness per site improved from 4.5 in 2011 to 9.4 in 2012 to 11.8 in 2013. Mean taxonomic richness was more similar between the capped area (9.4) and control site (10) in 2012 than it was in 2011 (4.5 in the capped area vs. 13 in the control site), and is actually higher in the capped area in 2013 (11.8 in the capped area vs. 5 in the control site). While polychaete worms were the most common species across all 3 years, the capped area supported more live mollusks and crustaceans in 2013 than in previous years and, more importantly, than in the control site.

The sampling sites with the highest taxonomic richness in 2011 (8) were located adjacent to the uncapped areas of the harbor, indicating that species were beginning to migrate from the uncapped area to the capped area approximately one year after the completion of construction. By 2013, the taxonomic richness of the capped area was higher than that of the control site, indicating that the benthos has recovered and the capped area now provides a fully functioning habitat. Furthermore, the capped area now contains even greater diversity than the control site. Refer to the tables below, which depict the successful reestablishment of the benthic habitat in the remediation area over time.


Total Number of Taxa Identified
40
35
30
25
20
15
10
5
0
Number of Taxa
2011
2012
2013
Sampling Year
Control
Capped Sites


Mean Taxonomic Richness
14
12
10
8
6
4
2
0
Number of Taxa
2011
2012
2013
Sampling Year
Control
Capped Sites

While the capped sites represent a larger geographic area than the control, the data above suggests that the taxonomic diversity of the capped area is now similar to or greater than the diversity of the surrounding established habitat of the harbor.

Based upon the results to date, the benthic habitat is supporting marine organisms and a healthy benthic habitat has become established within the capped area in compliance with the City of New Bedford Conservation Commission's Special Condition #54 of the Order of Conditions (SE49-660) issued November 28, 2010. Accordingly, no further benthic monitoring should be necessary.

As noted in the report in Appendix A, video footage was recorded; this footage will be available to the Conservation Commission upon request.

4.0 STABILITY AND INTEGRITY OF INNER AND OUTER SLIPS

The stability and integrity of the inner and outer slips was reviewed by GEI Consultants, Inc. on November 14, 2013. The Engineer of Record indicated that no significant weakening or corrosion was observed on the slip or associated structures, and that no tar-related sheen was observed on the water surface. Refer to Appendix B for the Engineer's certification as to the inner and outer slip stability and integrity.

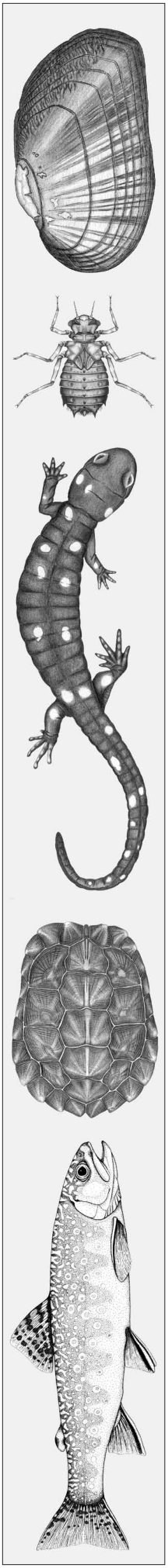
5.0 REQUEST FOR CERTIFICATE OF COMPLIANCE

A Partial Certificate of Compliance was requested for the completed work and stabilization of the site, and was issued by the Commission on February 13, 2012. This Partial Certificate notes, "Monitoring of the benthic habitat for two more years is the remaining task per Condition #54." Due to the successful re-establishment of benthic habitat at the remediation site and the continued stability and integrity of the boat slip, as documented herein, Special Condition #54 of Order of Conditions SE49-660 has been satisfied. Therefore, we respectfully request issuance of a final Certificate of Compliance for the project. Appendix C provides the Filing Fee Calculation Worksheet and Request for Certificate of Compliance form. A check in the amount of $150.00 made payable to the City of New Bedford is included with this report to cover the associated filing fee.

Appendices

Appendix A

Benthic Habitat Assessment Report



Eric Las
Beals + Thomas, Inc.
144 Turnpike Road
Southborough, MA 01772-2104

biodrawversity
ecological consulting
and communications

January 28, 2014

REPORT

Third Assessment of the Benthic Invertebrate Community at a Remediation Site in New Bedford Harbor, Massachusetts

Biodrawversity LLC was contracted by Beals + Thomas, Inc., to characterize the benthic invertebrate community of an 8,000 ft^2 area of New Bedford Harbor that was capped in 2011 to contain sediment-bound contaminants (Figure 1). This was the third annual post-capping survey that was conducted. This report compares the 2011-2013 results to assess the re-establishment of the benthic invertebrate community in the project area.

METHODS

- Two biologists completed the fieldwork on November 22, 2013. Weather was overcast with showers, air temperature of 55 degrees, and light southwest winds.
- Survey methods were the same as those used in 2011 and 2012, and samples were collected in the same general area. Ten sites were selected throughout the capped area, and one control site was established just outside the capped area (Figure 1, Table 1). At each site, biologists collected 5-7 Ekman dredge samples and combined these into a single composite sample per site, for a total of 58 grabs and 11 composite samples. Water depth and GPS locations of each site were recorded.
- At six capped sites, biologists lowered a video camera that was attached to a monitor and laptop computer to record a 3-5 minute video clip. This helped document habitat conditions and large/mobile invertebrates that may not have been collected with the Ekman dredge. Complications with the

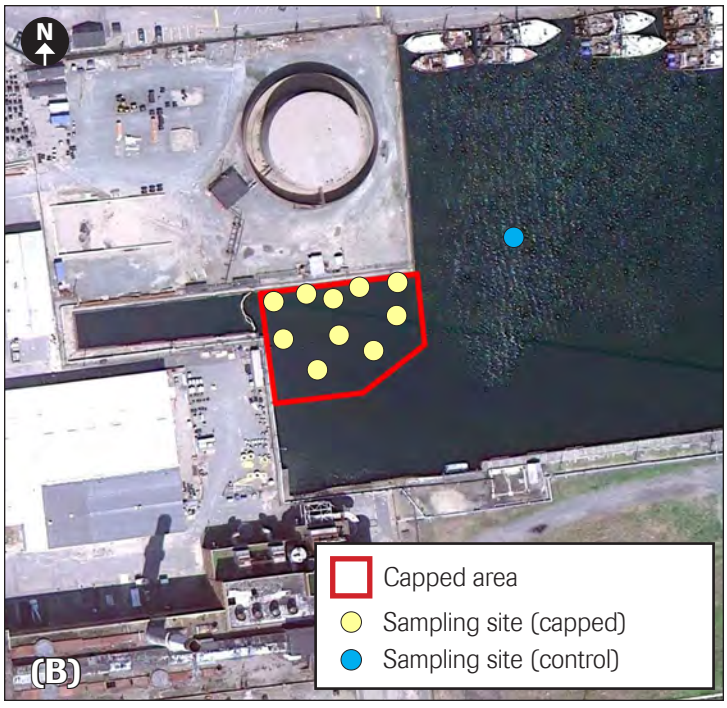


Figure 1. (A) New Bedford Harbor, MA, showing approximate location of the benthic invertebrate survey. **(B)** Location of sampling sites in relation to the capped area.

Table 1. Locations, number of samples and video taken, and habitat conditions at each survey site.

Site	Latitude	Longitude	Ekman Grabs	Video	Depth (ft)	Substrate
1	41.631438	-70.919268	7	Yes*	18.0	Silt/muck, sand, fine gravel
2	41.631396	-70.919364	5	Yes*	17.2	Silt/muck, sand, fine gravel, shells
3	41.631379	-70.919578	5	Yes	18.0	Silt/muck, sand, fine gravel, shells
4	41.631346	-70.919783	5	Yes	16.5	Silt/muck, sand, fine gravel, shells
5	41.631287	-70.919480	5	Yes	15.5	Silt/muck, sand, shells
6	41.631349	-70.919230	5	Yes	14.0	Silt/muck, sand, shells
7	41.631258	-70.919224	5	No	15.5	Silt/muck, sand, fine gravel, shells
8	41.631233	-70.919715	6	No	16.0	Silt/muck, sand, shells
9	41.631339	-70.919618	5	No	17.0	Silt/muck, sand, shells
10	41.631390	-70.919398	5	No	17.0	Silt/muck, sand
Control	41.631467	-70.918824	5	No	18.0	Silt/muck, shells

*Video observed but not recorded.

recording device did not permit video to be recorded at all of the sampling locations.

- After collection, the benthic samples were first rinsed through a coarse sieve. All of the retained materials, except coarse mineral substrates, were placed into a two-quart sample container.
- The material that passed through the coarse sieve was collected in a five-gallon bucket, and subsequently rinsed through a fine (600 micrometer) sieve. All or a subsample of the retained material was added to the two-quart sample container.
- Samples were preserved with 90 percent alcohol in the field. In the evening, alcohol was decanted from each sample and fresh 70 percent alcohol was added.
- In the laboratory, invertebrates were removed from each sample and identified using keys of Weiss (1995) and Smith (1964) under a dissecting microscope. Taxonomic lists were compiled for each site.

RESULTS

Benthic Community: A total of 35 unique taxa were identified in the survey area in 2013 (Table 2). Multiple genera and individuals of snails, bivalves, and polychaete worms were present in the samples. Polychaete worms were numerically dominant; commonly encountered polychaete genera included *Pectinaria*, *Nereis*, *Streblospio*, and *Glycera*. Common snails included *Ilyonassa*, *Crepidula*, *Littorina*, and an unidentified bubble snail (Suborder Cephalospidea). Common bivalves included *Mulinia*,

Setup for recording video footage (a), the camera for shooting the video (b), and the Ekman dredge for collecting samples (c).

The study area.

Tullina, and *Mercenaria*. Hermit crabs (*Pagurus*) were infrequently captured but usually seen on video, and several other crustaceans (shrimp, crabs, barnacles, amphipods) were also collected and observed.

Capped Sites: A total of 34 unique taxa were found in all capped sites combined. Average taxonomic richness per site was 11.8, and ranged from eight to 17 taxa. Polychaete worms were numerically dominant, but there was high taxonomic richness of gastropods and bivalves. In addition to live animals, there was also high abundance of shells in the dredge samples, particularly for those samples collected near the retaining wall.

Control Site: Taxonomic richness in the control site was 5, which is the lowest for the 11 composite samples collected in 2013. Invertebrate abundance in the control sample was also very low. Of the taxa collected at the control site, the only taxon not also collected in the capped area was the black-fingered mud crab, *Panopeus*.

DISCUSSION

A total of 41 unique taxa were identified in the three years combined (Table 2, Table 3). Overall, the number of taxa collected decreased slightly from 2011 to 2012 (19 to 17) but then increased considerably in 2013 (35). Polychaete worms were dominant in all years, both in terms of taxonomic richness and overall abundance, but the taxonomic richness and abundance of mollusks and crustaceans increased significantly in 2013. A higher level of taxonomic resolution would undoubtedly bolster taxonomic richness statistics, but taxonomic resolution in this report is adequate to meet the objective of documenting invertebrate recolonization in the capped area.

In the capped areas alone, the number of taxa collected increased over the study period, from 13 in 2011, to 16 in 2012, and to 34 in 2013 (Table 3). More significant, mean taxonomic richness per site in the capped area was 4.5 (range: 2-9) in 2011 compared to 9.4 (range: 7-13) in 2012, and 11.8 (range: 8-17) in 2013. This large increase from 2012 to 2013 was due mainly to a much greater number of crustacean, gastropod, and bivalve taxa. This increase was evident both for live animals and for the amount of shell material in the benthic samples. Compared to the pure clean sand in the 2011 samples, the benthic samples in 2013 contained a much higher amount of algae, detritus, and shells, and the bottom appeared to be more heterogeneous.

Table 2. Comparison of taxa collected at each survey site, and overall taxonomic richness, 2011-2013.

			2011 Sampling Site											2012 Sampling Site											2013 Sampling Site											Control			Capped		
Class/Order	Family	Genus/Species	C	1	2	3	4	5	6	7	8	9	10	C	1	2	3	4	5	6	7	8	9	10	C	1	2	3	4	5	6	7	8	9	10	2011	2012	2013	2011	2012	2013
Amphipoda	Ampeliscidae	Undetermined																			x																			x		
Amphipoda	Ampithoidae	Undetermined												x		x	x	x	x	x	x	x	x	x										x				x			x	x
Amphipoda	Undetermined						x					x		x	x			x						x													x			x		x	
Bivalvia	Arcidae	*Anadara*																													x											x
Bivalvia	Cardiidae	*Laevicardium*																								x				x												x
Bivalvia	Mactridae	*Mulinia*	x									x											x			x	x			x	x	x	x	x	x	x				x	x
Bivalvia	Nuculidae	*Nucula*																																x								x
Bivalvia	Ostreidae	*Crassostrea*																											x												x
Bivalvia	Tellinidae	*Tellina*																												x	x	x	x	x							x
Bivalvia	Veneridae	*Mercenaria*	x								x																		x		x	x	x	x	x		x			x		x
Cirripedia	Archaeobanalidae	*Semibalanus*																								x	x		x					x								x
Decapoda	Crangonidae	*Crangon*	x			x																				x								x		x				x		x
Decapoda	Paguridae	*Pagurus*	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x	x			x		x	x	x	x	x	x	x	x			x	x		x	x	x
Decapoda	Palaemonidae	*Palaemonetes*																								x																x
Decapoda	Panopeidae	*Panopeus*																							x																	
Decapoda	Portunidae	*Callinectes*																															x								x
Decapoda	Upogebiidae	*Upogebia*																																x								x
Gastropoda	Calyptraeidae	*Crepidula*																							x	x	x	x	x		x		x	x								x
Gastropoda	Cephalospidea*	Undetermined	x								x		x								x				x	x	x	x		x	x		x	x		x			x	x	x
Gastropoda	Cerithiidae	*Bittium*																																x								x
Gastropoda	Columbellidae	*Anachis*																									x															x
Gastropoda	Columbellidae	*Mitrella*																																x	x							x
Gastropoda	Cylichnidae	*Acteocina*																															x			x						x
Gastropoda	Littorinidae	*Littorina*																								x	x		x		x											x
Gastropoda	Melongenidae	*Busycotypus*																																x								x
Gastropoda	Muricidae	*Nucella*																																	x								x
Gastropoda	Nassariidae	*Ilyanassa*	x																								x	x		x	x		x		x							x
Holothuroidae																																		x								x
Hydrozoa	Undetermined		x											x	x			x	x	x				x	x	x																
Oligochaeta	Undetermined		x	x	x	x			x					x	x	x	x	x	x	x	x	x	x	x			x			x	x									x	x	x
Polychaeta	Capitellidae	*Mediomastus*									x			x		x		x	x	x	x			x																x		
Polychaeta	Cirratulidae	*Tharyx*	x											x	x	x	x	x	x	x						x	x	x		x			x	x		x	x			x	x
Polychaeta	Glyceridae	*Glycera*	x					x		x	x	x	x		x			x	x	x		x	x			x			x		x	x	x	x	x	x			x	x	x
Polychaeta	Nereidae	*Nereis*	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				x	x	x	x		x	x	x	x	x			x	x	x
Polychaeta	Onuphidae	*Diopatra*										x	x																					x								x	
Polychaeta	Orbinidae	*Haploscoloplus*	x														x	x			x		x	x		x	x							x	x		x				x	x
Polychaeta	Paraonidae	*Aricidea*																x	x																						x		
Polychaeta	Pectinariidae	*Pectinaria*	x			x				x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x
Polychaeta	Phyllodocidae	*Phyllodoce*							x			x																													x		
Polychaeta	Sabelidae	*Sabella*													x																				x		x					x	x
Polychaeta	Spionidae	*Polydora*									x	x																													x		
Polychaeta	Spionidae	*Streblospio*	x									x		x	x	x	x	x	x	x	x	x			x	x	x	x	x					x	x	x	x	x	x	x	x	x
Polychaeta	Spionidae	Unidentified												x	x	x		x		x			x													x					x	x
Polychaeta	Undetermined					x			x				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x
		Total Unique Taxa	13	3	3	6	2	2	4	3	8	8	6	10	11	9	9	13	11	10	8	7	9	7	5	14	13	8	12	9	10	9	17	17	9	13	10	5	13	16	34

*Some taxa do not count toward overall taxonomic richness if other specimens in the sample belong to the same taxonomic group and are identified to a lower taxonomic level.

Table 3. Total and average taxonomic counts in control and capped samples, 2011-2013.

Parameter	2011	2012	2013
# Taxa in Control Sample (n = 1)	13	10	5
# Taxa in Capped Samples (n = 10)	13	16	34
Total Taxa (n = 11)	19	17	35
Mean # Taxa in Capped Samples (n = 10)	4.5	9.4	11.8

Overall, these results suggest that the capped area has been naturally recolonized to the point where it supports a full suite of benthic species, including longer-lived mollusks like quahogs (*Mercenaria*).

In 2011, taxonomic richness was 13 in the control site compared to the mean taxonomic richness of 4.5 for the ten capped sites. This indicated that invertebrates were just starting to recolonize the capped area. In 2012, taxonomic richness was 10 in the control site compared to a mean taxonomic richness of 9.4 for the ten capped sites, and none of the taxa were found solely at the control site. This indicates that taxonomic richness in the capped area had increased to become similar to nearby uncapped areas. In 2013, taxonomic richness was 5 in the control site compared to a mean taxonomic richness of 11.8 in the capped site. This suggests that the capped area may now provide better habitat and support higher invertebrate diversity than some nearby control areas.

LITERATURE CITED

Weiss, H.M. 1995. Marine Animals of Southern New England nd New York: Identification keys to common nearshore and shallow water macrofauna. Bulletin 115, State Geological and Natural History Survey of Connecticut, Department of Environmental Protection, Hartford, CT.

Smith, R.I. 1964. Keys to the Marine Invertebrates of the Woods Hole Region. Contribution No. 11, Marine Biological Laboratory, Woods Hole, MA.

Appendix B

Stability and Integrity of Inner and Outer Slips – Engineer's Certification

ENGINEER'S CERTIFICATION

DEP File No. SE 49-660
Boat Slip Remediation Project
New Bedford, Massachusetts
Project No. 10092-0

As the Engineer of Record, I James Ash, hereby certify that the stability and integrity of the Boat Slip Remedial Action is consistent with the final approved plans, entitled "Remedial Action Design, 180 MacArthur Drive/1 Pine Street, New Bedford, MA in 28 sheets, dated November 2, 2010 and the Order of Conditions (OOC), issued November 29, 2010. A field inspection was conducted on November 14, 2013 to support this third of three annual reports required by the OOC. A field observation report and photographs are attached.

The Remedial Action was conducted as part of a Release Abatement Measure (RAM) under the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). The RAM was implemented for the Inner and Outer Boat Slip in the Acushnet River adjacent to the NSTAR facility located at 180 MacArthur Drive in New Bedford, Massachusetts.

The RAM was conducted under OOC (SE49-660) between June and November 2011. Construction work associated with the RAM included the following:

- Permanently closing off the Inner Slip bulkhead by installing a sheetpile cutoff wall across the entrance to the Inner Slip to create a Confined Disposal Facility (CDF) as defined in 310 CMR 9.02.
- Dredging a designated area containing visibly tar-impacted sediments from the Outer Slip (approximately 4,200 ft^2) and transferring the Outer Slip dredge spoils to the Inner Slip CDF.
- Solidifying transferred dredge spoils and underlying sediment and soil in the Inner Slip. The solidification zone was extended to refusal in order to solidify tar-impacted soil and sediment and to minimize contact with groundwater.
- Placing an aquatic cap and armoring system over contaminated sediment in the Outer Slip that extends approximately 10 feet beyond the estimated edge of impacts.
- Backfilling over the solidified material in the Inner Slip with a clean soil cap to match the surrounding grade.

To verify the stability and integrity of the work GEI personnel conducted a field inspection of the inner slip closure wall for structural distress or distortion and observed the outer slip for the presence of tar related sheen. GEI observed the following conditions on November 14, 2013:

- Visible tar related sheen was not observed in the outer slip.
- The inner slip closure wall consisting of sheet piles, wale beam, wale beam seat and associated supporting connections did not exhibit visible signs of distress, distortion, or significant corrosion.
- Changes to the inner slip sand and gravel cap were not observed.

Based on these field observations, the work meets the Remedial Action Design objectives and OOC requirements for the project.

James R. Ash, P.E., LSP
Vice President
P.E. License # 40414

FIELD OBSERVATION REPORT

Project :	NSTAR Parcel 180 MacAurthur Drive	**Date:**	November 14, 2013
Client :	NSTAR	**Page:**	1 of 2
GEI Proj. No.	100920		

Time of Arrival: 9:00 am **Departure:** 9:30 pm **Weather:** Sunny, 40s°F

GEI Representatives: Michael Flynn (author)

Persons Contacted: Daniel Watton (NSTAR)

Bulkhead Field Inspection

I performed a visual inspection of the steel sheet pile bulkhead. I performed the inspection near low tide. My observations are noted below:

Sheet Piles

I did not observe signs of distress or failure in the steel sheet piles. The marine side is coated with a tar epoxy. The tar epoxy appears to be in good condition and I did not observe any signs of chipping or wearing. I observed some marine growth on the bulkhead below the water level. Visibility below water was approximately three feet deep; growth began approximately one foot deep.

Waler

I did not observe signs of distress or distortion in the wale beam. Corrosion appears to be occurring, particularly at the top of the web. Corrosion is causing scaling to the top of the steel web. The top of the web was wet during the inspection. Trash, leaves, and other debris have also accumulated on the top of the web.

Connection (Tie Beam, Bearing Seat, Wale Beam Support Bracket)

I did not observe signs of distress or distortion at the north and south connections. Non-welded components appear to be bearing uniformly on the appropriate connection.

Other Observations

I did not observe tar-related sheen on the water surface near the bulkhead.

Attachments:
Pictures from Visual Inspection
Bulkhead Details
Picture of Bulkhead Components (during installation)

By: Michael Flynn **Reviewed By: Bill Simons**

GEI Consultants

FIELD OBSERVATION REPORT

Project :	NSTAR Parcel 180 MacAurthur Drive	**Date:**	November 14, 2013
Client :	NSTAR	**Page:**	2 of 2
GEI Proj. No.	100920		

Pictures of Wall Inspection:

General view of bulkhead.

Sheet pile (looking from above)

Top of waler.

South connection.

Appendix C

Filing Fee Calculation Worksheet

Request for Certificate of Compliance (WPA Form 8a)

CITY OF NEW BEDFORD
MASSACHUSETTS

CONSERVATION COMMISSION
2009 FILING FEE CALCULATION WORKSHEET*

PROJECT LOCATION:

180 MacArthur Drive/1 Pine Street **MAP** 42 ; 47 **LOT(S)** 160, 84, 287 ; 181, 241

APPLICANT: NSTAR Gas & Electric Corporation

CONSERVATION COMMISSION FEES (check all that apply):

( ) REQUEST FOR DETERMINATION OF APPLICABILITY
( ) NOTICE OF INTENT
( ) INQUIRY AS TO NEED FOR AN AMENDED ORDER**
( ) AMENDED ORDER OF CONDITIONS
( ) ANRAD (Abbreviated Notice of Resource Area Delineation)
( ) EXTENSION PERMIT
(✓) CERTIFICATE OF COMPLIANCE
( ) AFTER THE FACT FILING
( ) RESTORATION PLAN FEE (no NOI filing required)
( ) LIFTING AN ENFORCEMENT ORDER
( ) PENALTIES

(A.) ALTERATION FEES:
Application and field review of a project proposed in a Wetland Resource Area or its Buffer Zone is $150.00 plus the applicable alteration fee as follows

	AMOUNT DUE
• Application and Field Review Fee ($150.00)	$_____
• $0.50 X _____ SF Wetland Resource Area	$_____
• $0.05 X _____ SF Land Subject Coastal Flooding	$_____
• $0.20 X _____ SF Developed Riverfront Area	$_____
• $1.00 X _____ SF Undeveloped Riverfront Area	$_____
• $5.00 X _____ LF Coastal Bank	$_____
• $0.10 X _____ SF Buffer Zone	$_____

(B.) EXTENSION of an Order of Conditions:

• Minor Project ... $100.00 + _____ (¼ local fee from NOI)	$_____
• Other Projects … $200.00 + _____ (¼ local fee from NOI)	$_____

(C.) AMENDING A PERMIT:

- Written inquiry or request to appear to determine the need for an Amended Order:** ($50.00 fee) $_____
- Amending OOC: $150.00 + _____ (applicable alteration fee) $_____

(D.) RESOURCE BOUNDARY DELINEATION VERIFICATION USING AN RDA APPLICATION:

- $150.00 + $2.00 X _____ LF Wetland boundary $_____

(E.) ABBREVIATED RESOURCE AREA DELINEATION VERIFICATION (ANRAD)

- $150.00 + $1.00 X _____ LF Resource Area boundary $_____

(F.) RESOURCE BOUNDARY DELINEATION VERIFICATION CONDUCTED DURING A NOTICE OF INTENT REVIEW

- $150.00 + $3.00 X _____ LF Resource Area boundary $_____

(G.) DOCKS:

- $100.00 + $4.00 X _____ LF of dock $_____
- Add 150% to total fee if in significant shellfish habitat $_____

(H.) AFTER THE FACT FILING:

- All Total Fees are doubled $_____

(I.) RESTORATION PLAN FEE:

- ($150.00 + _____Alteration Fee) Multiplied by 2 $_____

(J.) LIFTING ON ENFORCEMENT ORDER:

- $150.00 fee $_____

(K.) CERTIFICATE OF COMPLIANCE:

- refer to "K" of the Fee schedule $ 150.00

(L.) PENALTIES:

- refer to "L" of the Fee schedule $_____

TOTAL AMOUNT DUE (including after-the-fact fee if applicable): $ 150.00

Notes:

* Please refer to the Conservation Commission Fee Schedule - Revised April 2009

** This is not required, but available for anyone who would like to appear to discuss the need to Amend.

Please make check or Money Order payable to: THE CITY OF NEW BEDFORD.
Cash is not Accepted.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 8A – Request for Certificate of Compliance

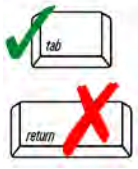
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

SE49-660
Provided by DEP

A. Project Information

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



Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

1. This request is being made by:

NSTAR Gas – Daniel Watton
Name

One NSTAR Way, NE 250
Mailing Address

Westwood	MA	02090
City/Town	State	Zip Code

(339) 987-7024
Phone Number

2. This request is in reference to work regulated by a final Order of Conditions issued to:

NSTAR Gas
Applicant

November 29, 2013	SE49-660
Dated	DEP File Number

3. The project site is located at:

180 MacArthur Drive/1 Pine Street	New Bedford
Street Address	City/Town
42 & 47	Lots 160, 84, 287, 181, 241
Assessors Map/Plat Number	Parcel/Lot Number

4. The final Order of Conditions was recorded at the Registry of Deeds for:

NSTAR Gas and Sprague Massachusetts Properties, LLC
Property Owner (if different)

Briston - South	9962	305
County	Book	Page

Certificate (if registered land)

5. This request is for certification that (check one):

☒ the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.

☐ the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

☐ the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

☒ Yes — If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order. **Certification included with previously issued Partial Certificate of Compliance. For certification of the monitoring completed in compliance with Special Condition 54, see the attached report.**

☐ No

B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see http://www.mass.gov/dep/about/region/findyour.htm).