

Textron, Inc.
Former Gorham Manufacturing Facility, Providence, RI
Remedial Action Completion Report: Phase II Area – Mashapaug Inner Cove,
Phase III Area – Northeast Upland And Parcel C
Project No.: 3652160001
February 12, 2016



APPENDIX J
WILDLIFE MANAGEMENT SUMMARY PLAN

**RAWP- Appendix I
Wildlife Management Plan
Former Gorham Manufacturing Site
333 Adelaide Ave.
Providence, RI**

Introduction

Textron presents this work plan for managing aquatic wildlife during remedial activities within the Mashapaug Inner Cove at the former Gorham Manufacturing Site, 333 Adelaide Avenue, Providence RI (See Figure 9). Per the Rhode Island Department of Environmental Management's Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act Rule 10.a, Wildlife and Wildlife Habitat, wetlands serve as an important function for wildlife and wildlife habitat. The objectives of this plan are to provide the methods for the management and treatment of wildlife in the Mashapaug Pond Inner Cove slated for remediation. The proposed remediation of sediment will require the installation of a temporary dam at the mouth of the Inner Cove, dewatering, and excavation in the dry of contaminated sediment, followed by restoration. The Wildlife Management Plan outlines the steps needed to protect fish, amphibians, reptiles and any freshwater mollusks that are known to occur in the Cove. This work plan will identify the sequence of steps to relocate fish and other aquatic wildlife from areas of the Inner Cove to Mashapaug Pond focusing on non-lethal means to relocate wildlife. However, it is important to recognize that some mortality to fish and aquatic wildlife may occur despite the contractors best efforts. No threatened or endangered species are known to be present within the Project vicinity.

Site Description and Overview

The former Gorham Manufacturing Facility (the Site) is situated on a 37 acre parcel at 333 Adelaide Avenue in Providence, Rhode Island. Between 1890 and 1985, sterling silver and plated silverware, as well as bronze castings, were manufactured on-site. Based on multiple investigations of surface water and sediment of Mashapaug Inner and Outer Cove, including several Screening Level Ecological Risk Assessments (SLERA), Amec Foster Wheeler determined that the sediments in the Inner Cove are impacted and remedial action is required in order to eliminate human health and ecological risks from contamination and create productive reuse of the Site.

Mashapaug Pond is a Class B fresh water lake, and its applicable designated uses are primary and secondary contact recreation and fish and wildlife habitat (RIDEM, 2009). The Inner Cove consists largely of open water, approximately 2.8 acres in area and 3-4 feet in depth, and is characterized as highly eutrophic. It has been determined that when remediation of sediments in the Inner Cove is complete, there will be reduced risk to ecological receptors throughout Mashapaug Pond and the surrounding area.

Wildlife management and monitoring will take place prior to, and throughout remediation activities at the Mashapaug Inner Cove and Pond during the dewatering of Mashapaug Inner Cove. No threatened or endangered species are known to be present within the Project vicinity. A combination of methods for removing aquatic wildlife will be used prior to and during dewatering of the cove, including a technique using seine nets and noise makers to herd fish, as well as capturing and manually transporting wildlife. Best professional judgment will be used in determining sequence of activities, best management practices and safety in handling and transporting wildlife.

Wildlife Habitat Assessment

The main habitat of concern during remedial activities and dewatering of the Inner Cove is the aquatic environment. The RIDEM Geographic Data Viewer was used to determine the presence of rare species habitat. Based on the available maps, no rare species habitat were identified in the vicinity of the project site. On June 20, 2006, a MACTEC biologist visited Mashapaug Cove and Mashapaug Pond to conduct a reconnaissance level habitat assessment. During the field visit mammals, birds, herptiles, and benthic organisms observed by direct observation (sight) or tracks were recorded. Juvenile fish were observed along the shoreline, but could not be identified, and fish observed jumping in the center of the Cove were tentatively identified as carp. No amphibians were observed and none were heard calling. Mallard ducks, as well as one of the nesting pairs of swans were observed foraging within the Inner and Outer Cove.

Conceptual Plan and Methodology

Fish herding will be used prior to dewatering of the Inner Cove and before the temporary dam is constructed to herd fish into the Mashapaug Outer Cove. This method will involve a seine net; a fine mesh net with weights at the bottom and floats at the top which is positioned vertically in the water column. Methods which may increase effectiveness and/or efficiency include conducting seining operations at dawn or dusk (i.e., during low-light conditions). Small mesh sizes will be used as they are more effective across the full range of fish size (and age class). An underwater noise maker, such as a sopras sub underwater air signal or equivalent may also be used to help herd fish towards the Outer Cove prior to the use of the seine net. The seine net will extend from the eastern bank of the Inner Cove peninsula to the southeastern corner of the Inner Cove. The southern end of the seine net will be moved westerly to reach the tip of the western bank of the peninsula separating the Inner and Outer Cove. If it is found that debris at the bottom of the Inner Cove hinders this approach the alternative method is to place multiple noise makers around the southern bank of the Inner Cove beginning at dawn for half a day in order to scare wildlife away from the Inner Cove.

Once fish have been herded out of the Inner Cove, the seine net will be held in place within the Outer Cove, north of the proposed temporary dam. The dam will then be installed between the two peninsulas between the Inner and Outer Cove (Figure 9). Pumps will be placed in the Inner Cove to begin dewatering the area. To avoid entrainment, impingement, or injury to any remaining fish or other aquatic wildlife, and to avoid contaminated sediment, the pump intakes will be placed just below the water surface, pumping at approximately 0.5 feet/second velocity. A screened structure will surround the water intake structures with an approximate 1-2" mesh size. The intake screen shall be monitored during operations to ensure that the screening has not collapsed and that there are no openings or blockage.

Once the Inner Cove has been pumped down so that one foot of water remains the area will be monitored for any remaining aquatic fauna. Any existing fauna will be transported in 5-gallon buckets or other suitable containers outside of the excavation area and to inundated areas of Mashapaug Pond. Best professional judgment and safe handling practices will be used in properly transporting wildlife. The remaining water will be pumped out for groundwater treatment and discharge into the Outer Cove, and sump pumps will be used to maintain a depressed water table below the depth of sediment removal. Sediment removal will be completed and the Inner Cove and fringe wetlands restored.

If mute swans are found to be nesting they will need to be removed due to their aggressive nature and threat to worker safety. Mute Swans are an invasive species that displace native wildlife and deplete the aquatic vegetation that is habitat and food for other wildlife. Preliminary investigation in the spring before the start of the project will determine if mute swans appear to

be nesting in the area and proper methods will be taken. Lethal action may be required and/or adding of eggs to prevent hatching. It is best to addle eggs and place them back in the nest to insure the female will not lay more eggs.

After completion of the Inner Cove sediment removal and restoration, the sump pumps will be removed to allow natural groundwater recharge of the Inner Cove. After the Inner Cove is recharged two to three feet, the dam will slowly be removed in order to let the Inner Cove refill without turbulence, preventing erosion or scour. The process in which this is done is dependent on the type of dam used and the manufacturer's removal guidelines. Wildlife habitat will then be allowed to naturally re-populate the Inner Cove.

**Implementation of the Wildlife Management Plan
 Former Gorham Manufacturing Site
 333 Adelaide Ave.
 Providence, RI**

Methodology

On August 6, 2015, Amec Foster Wheeler oversaw the implementation of the Mashapaug Inner Cove Dewatering Plan and Wildlife Management Plan, approved under the July 9, 2015 Order of Approval. Noise makers were employed along the southern shore line of the Inner Cove on August 3, 2015 by Charter Contracting Company, LLC (Charter). This was done to encourage the movement of the aquatic wildlife out of the Inner Cove prior to the installation of the turbidity curtain and Port-A-Dam. ESS Group, Inc. (ESS), a subcontractor to Charter, determined that using a seine net to herd aquatic wildlife out of the Inner Cove, as discussed in the Wildlife Management Plan dated March 12, 2015, would not be feasible due to abundant debris present on the cove's bottom. Charter installed the turbidity curtain on August 4, 2015 and completed the construction of the Port-A-Dam on August 5, 2015. They began the dewatering of the Mashapaug Inner Cove that afternoon. The water level within the Inner Cove was dropped to approximately one foot of water using one (1) 12-inch pump with a pumping velocity of approximately 120 gallons per minute. The surface water was discharged between the Port-A-dam and the turbidity curtain.

During the dewatering of the Inner Cove Charter and ESS collected the aquatic wildlife from the Inner Cove using hand nets. The wildlife was then transported in 5 gallon buckets to the waters on the opposite side of the Port-A-dam. This continued until all of the water was removed from the Inner Cove except for 1 foot of water immediately near the base of the Port-A-dam.

Aquatic wildlife species were collected and identified by an ESS biologist. The following table summarizes the type and approximate quantity of the species discovered and transported to the Mashapaug Outer Cove on August 6, 2015:

**Table 1.
 Species Collected in Mashapaug Inner Cove on August 6, 2015**

Common Name	Scientific Name	Approximate Quantity
Brown Bullhead	<i>Ictalurus nebulosus</i>	6
Yellow Bullhead	<i>Ameiurus natalis</i>	1
Bluegill	<i>Lepomis macrochirus</i>	13
Green Sunfish	<i>Lepomis cyanellus</i>	125+
Pumpkin Seed Sunfish	<i>Lepomis gibbosus</i>	4
Large Mouth Bass	<i>Micropterus salmoides</i>	16
Black Crappie	<i>Pomoxis nigromaculatus</i>	13
Fallfish	<i>Semotilus corporalis</i>	1
Common Carp	<i>Cyprinus Carpio</i>	23
Crayfish	Species unknown	2
Painted Turtle	<i>Chrysemys picta picta</i>	1
Snapping Turtle	<i>Chelydra serpentina</i>	3
TOTAL COUNT:		208+

Following the removal of the aquatic wildlife from the Inner Cove the remaining surface water and construction dewatering water was discharged to the infiltration gallery located at the northern end of the Phase III Area where any residual sediment settles within the temporary structure and the water infiltrates into the groundwater table and discharges into the Mashapaug Pond.

On morning of August 28, 2015, someone accessed the western peninsula and made approximately ten vertical cuts below the water line of the dam liner. This caused a failure of the western end of the Port-A-dam and the Inner Cove to refill with water. Amec Foster Wheeler notified Joe Martell and Neal Personeaus, RIDEM, of the damage between August 30th and 31st. Amec confirmed that Charter would follow the previously approved dewatering plan to restore the Inner Cove for sediment removal. Any wildlife found within the Inner Cove would be relocated by hand net as much as possible. Between August 29 and September 9, 2015 Charter repaired the the Port-A-dam and pumped the water back out of the Inner Cove following the approved Dewatering Plan. Some wildlife were found in the Inner Cove and were later transported outside the Port-A-dam. Due to the soft sediment material in the middle of the cove, this area was inaccessible and Charter was not able to relocate all aquatic life.



Photo 1

Facing west, View of Mashapaug Inner Cove and Port-A-dam after approximately 3 hours of pumping; Charter/ESS catching and relocating aquatic wildlife to Outer Cove.



Photo 2

Facing west, View of Inner Cove, Port-A-dam and turbidity curtain after pumping was complete.



Photo 3

View of Carp prior to transporting to the Outer Cove.



Photo 4

View of several small fish prior to transporting to the Outer Cove.