

NAE-2006-1350  
Earl's marina  
2015 report

## COTTONWOOD RD. MITIGATION PLAN MONITORING REPORT 09-09-15

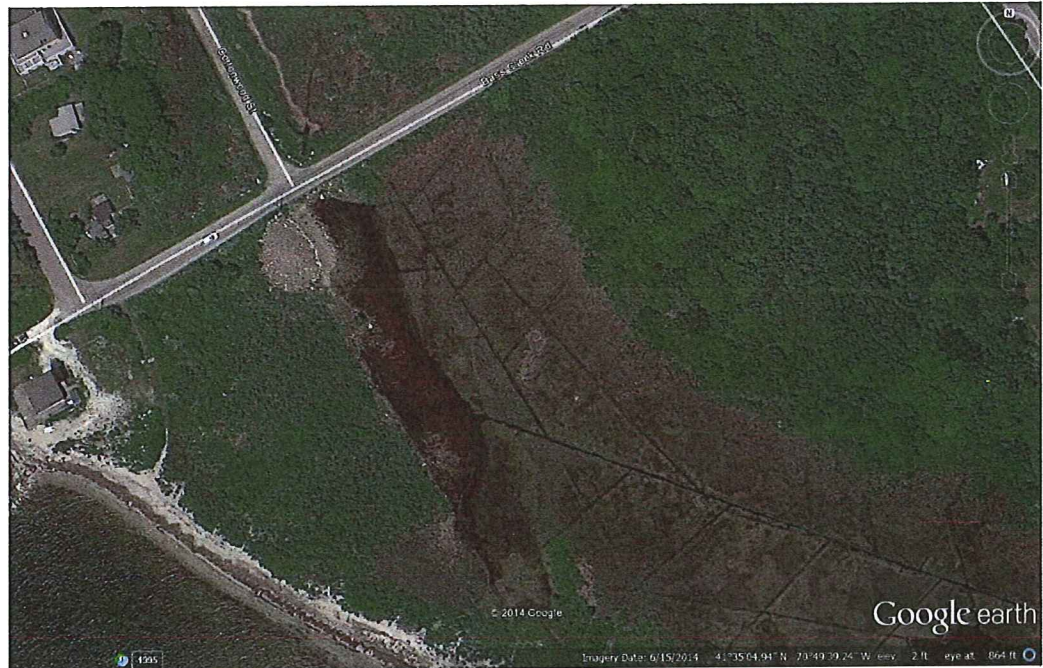


FIGURE 1 – PROJECT BIRD'S EYE 2014

Prepared for the Army Corps of Engineers

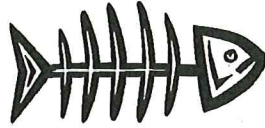
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## Land and Sea Engineering



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FIGURE 1 – PROJECT BIRD’S EYE 2013 POST CONSTRUCTION

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AS-BUILT PHOTOS

AS-BUILT PLAN (PREPARED BY LAND & SEA ENGINEERING)

# Earl's Marina Mitigation Report

PREPARED FOR THE ARMY CORPS OF ENGINEERS

## 1.0 GENERAL INFORMATION

### 1.1 Introduction

The project was constructed by New England Wetland Restorations utilizing there native stock plants from the New England area. The mitigation area was mechanically excavated with a backhoe, bulldozer, and loader, and all the non-native fill and rocks was loaded into dump trucks and disposed of at approved locations. The site was graded to approximately .2 feet below Mean High Water based on the current tidal epic. Several of the surrounding trenches had the vegetation cleaned out of them as per the plan to allow salt water to get to the site. The site was planted with Spartina Alterniflora on an 18" grid along with Spartina Patens Seed in some of the areas that would not receive the water needed in the fringe areas.

Our observations revealed that the previous project was not constructed properly and really did not function as originally designed. Both culverts that were installed by the NOAA project were installed to high and were to small and did not allow the proper flow of water to the marshes. They also allowed fresh water to build up on the North and South sides of Bass Creek Road which is helping the invasive species to grow rather than get rid of it. We highly recommend that both of the culverts be reconfigured to what was originally submitted to the town. All of the original mosquito ditches should also be cleaned out in order to improve the hydraulics of the marsh.

The area was observed for 1 week and no predators were observed in the area so the fencing was not installed as it was not necessary. The site was monitored on a daily basis for an additional 30 days and some of the invasive species that was starting to come back was removed by the contractor. Some of the existing fill was so deep below grade that it was left in place as sand & gravel is a great foundation for high marsh plants.

### 1.2 Site Location

The site location for the proposed mitigation is located on West Island, Fairhaven, MA. The area's are depicted on the plan and delineates the impact area and the location of the mitigation sites and proposed trenching remediation. Please refer to the cover page for a bird's eye aerial view of the finished project. The longitude and latitude of the project site is approximately N 41-35-05 W 70-49-39. Furthermore, the applicable watershed is Cape Cod Watershed with an 8 digit Hydrologic Unit Code of 01090002<sup>1</sup>.

### 1.3 Mitigation Area Report Fall 2015

The required square footage of mitigation area is approximately 8,400 SF for marsh creation and approximately 1,300 linear feet of trench vegetation removal. This introduction of additional tidal flow will also positively affect other wetland areas by eradicating invasive species and establishing more upland and lowland marsh communities. Approximately 15,000 s.f of marsh was permitted and restored to insure the project was a success. The main reason for this increase was the recommendation from our restoration expert who advised that the project would not be successful due to hydraulic issues if it were not extended farther to

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<sup>1</sup> Referenced from [www.epa.gov](http://www.epa.gov) "Surf your watershed"  
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the South. In Fall 2015 there was a huge gain to 95% survival rate in the south section of the site from the original planting based on samples of counted plants. The North part of the project is still getting to much fresh water due to the town beach. This was not done as part of the original construction as we wanted to see if we could get enough water without the work. We feel that this will also eradicate a large amount of Phragmites that was not affected by the NOAA project. We recommend that all visible rocks are removed and more plants are planted in bare areas in the fall of 2015 to supplement the cover. The plants that did survive are doing well and are all active with seed pods at this time. Salinity measurements were taken and the incoming tide does bring salt water with a comparable ppt for the survival of marsh grass at high tide only. During spring and other rain events fresh water is not transported away from the marsh due to the blockage of the culvert by the town beach being poorly designed and also filled with sediment. This problem will continue to occur unless more extensive work is done in the project area.

It is also evident that the ground has uplifted .2 to .3 tenths of a foot and some of the areas are too high to support a healthy marsh. We recommend these areas be replanted with *spartina patens* in these areas. The previous effort failed for unknown reasons.

## 2.0 AS-BUILT PLAN

The AS-BUILT plan includes as-built and proposed grades, a scale in the range of 1"=30', all items on the plan are legible and electronic PDFS are available. (see previous reports for plans)

## 3.0 INVASIVE SPECIES

The existing invasive species (Phragmites) in the project area were to be removed and disposed of at an approved location. The remaining Phragmites surrounding the area will be introduced to more salt water and die back over the upcoming seasons. This will be done by cleaning out the long trench to the town beach. Any new invasive species that enter the growing area such as Phragmites or pepperweed will be removed by a qualified person at the appropriate time of year if it does not die back naturally. Due to the poor construction of the NOAA project and the inlet channel not being maintained the Phragmites continues to be a major problem in the entire marsh. We highly recommend that the channel from the bay to the marsh be dredged out to provide salt water to the marsh.

## 4.0 REFERENCES

1. West Island Beach Salt Marsh Restoration Document prepared for NOAA by the Louis Berger Group, Inc.
2. Directions for completing Mitigation Plan provided by the U.S. Army Corps of Engineers New England District Regulatory Division provided in "New England District" Compensatory Mitigation guidance dated 07-20-2010



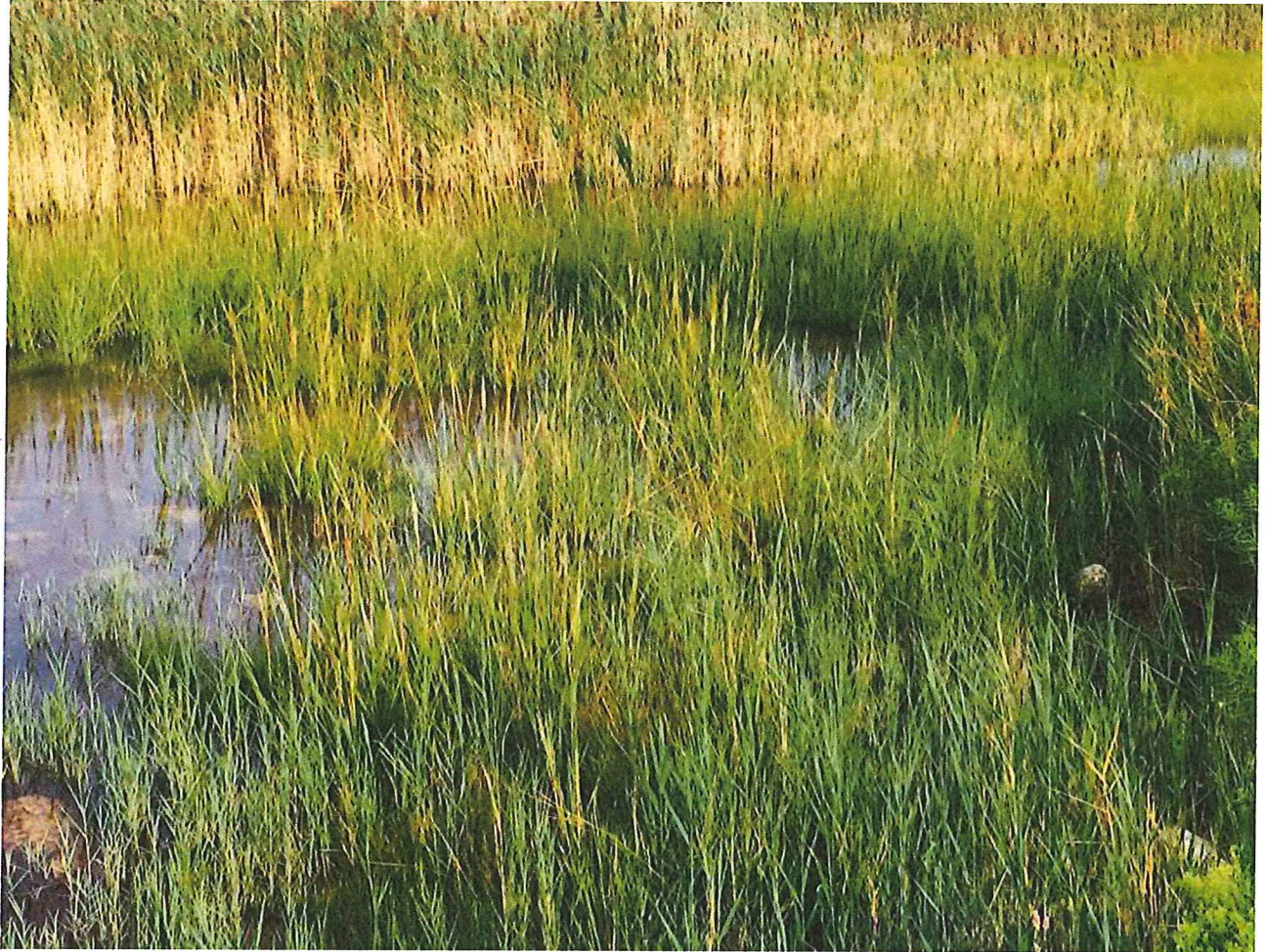
VIEW OF POOR MARSH SURVIVAL AREA





VIEW OF INLET AREA WITH INVASIVES STILL PRESENT





VIEW OF MARSH EXTENDING INTO DITCH WITH SEED PODS





VIEW OF SOUTH END OF MARSH 95% OVER 4,000 S.F.





VIEW OF HEALTHY GRASS WITH SOME UPLAND VEGETATION





VIEW OF MARSH WITH HIGH TIDE





VIEW OF PATENS AND PHRAG ON NORTH SIDE OF SITE



VIEW OF ORIGINAL PLANTING