COASTWIDE

COASTWIDE

Project Number	Project Proposals
CW-01	Coastwide Competitive Voluntary Canal Backfilling
CW-02	Coastwide Floating Marsh Restoration

CW-01

Coastwide Competitive Voluntary Canal Backfilling

DRAFT PPL22 PROJECT NOMINEE FACT SHEET
January 25, 2012

Project Name

Coastwide Competitive Voluntary Canal Backfilling

Coast 2050 Strategy

Coastwide Strategy: Restore/sustain marshes, Restore Swamps.

Project Location

"Coastwide", with locations to be selected through a competitive process. Dependent on locations proposed and proposal selection criteria based on factors known to be related to successful canal backfilling.

Problem

Canal dredging has contributed significantly to land loss in Louisiana, yet little has been done to reverse the damage caused by canals and spoil banks. Canals have turned marsh and swamps to open water, and spoilbanks have replaced wetlands with an upland environment. Spoilbanks also restrict water flow above and below the wetland surface and cause increased periods of flooding and drying of the wetlands behind them. Increased flooding can lead to stress and mortality of wetland vegetation, while drying the soil increases subsidence through oxidation of organic matter. These hydrologic alterations also limit sediment deposition in the adjacent wetlands.

Proposed Project Features

This project will backfill oil and gas, pipeline, and/or residential development canals at locations to be determined. Actual backfilling locations and features will be based on proposals from willing landowners. We want to stress the unique aspect of this proposed coastwide canal backfilling project, is to implement a completely voluntary program, to be based on proposals from landowners and mineral owners, to backfill canals. Proposals will be competitively selected based on criteria to be developed, that would represent factors considered to be most important to successful backfilling. This idea was specifically recommended last year by the CWPPRA Academic Assistance Group in response to a previous coastwide backfilling proposal.

Backfilling will involve removing the existing spoilbanks and disposing of the dredged material in the canals. While there is not sufficient sediment volume remaining in most spoilbanks to completely fill the canals to adjacent wetland elevation, typically there is enough to significantly shallow the canals, and over time some additional filling to the target elevation is observed. Those areas returned to adjacent wetland elevation rapidly revegetate without the need for planting. In addition, removal of the spoilbanks will restore natural hydrology across the wetland surface over a larger area in the vicinity of the canals.

Goals

- Backfill approximately 48 miles of canals by the end of year 4
- Convert approximately 852 acres of upland spoil bank habitat to emergent wetlands by the end of year 9
- Convert approximately 47 acres of open water (canal) to emergent wetlands by year 9
- Achieve a net benefit of approximately 881 ac over 20 years through conversion of spoil bank and canal to emergent wetland habitat
- Convert approximately 427 acres of open water (canal) to shallow water habitat by year 9
- Increase SAV cover from 10% to 59% in 427 acres of open water by year 9
- Convert 1326 acres of canal and spoilbank to emergent wetlands or shallow water habitat by year 9
- Partially restore hydrology over 76,352 ac of emergent wetlands[8], resulting in protection/restoration of an additional 83 net ac over 20 years
- Achieve a total net benefit of approximately 964 ac of emergent wetlands over 20 years

Preliminary Project Benefits

- Preliminary benefits=goals (see above)

Preliminary Construction Costs

The estimated construction cost, including 25% contingency is $24.3 million[10]

Preparer of Fact Sheet

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CW-02

Coastwide Floating Marsh Restoration

CW-02

PPL22 PROJECT NOMINEE
January 26, 2012

Project Name
Coastwide Floating Marsh Restoration

Coast 2050 Strategy
Coastwide Strategies: Vegetative Plantings; Terracing

Project Location
Coastwide

Problem
Significant areas of fresh marsh have converted to open water, and vegetation associations have changed from thick-mat maidencane (*Panicum hemitomon*) dominated marsh to thin-mat spikerush (*Eleocharis baldwinii*) dominated marsh. On a coastwide scale, there are about 290,000 acres of fresh interior open water and there are additional acres of thin mat floating marsh. Except for the active deltas receiving high mineral input (Atchafalaya Delta, Wax Lake Delta, Mississippi River Delta), much of this area has a high potential for restoration to a more stable thick-mat maidencane dominated marsh.

Goals
At selected areas across the coast, restore floating marsh using floating mat units using the design developed by the CWPPRA LA-05 Demonstration Project (Sasser et. al 2010). The units will provide and hold in place vegetative source material to create islands and lines of floating vegetation. These islands and lines can be used to 1) divide large areas of open water into smaller compartments, creating smaller water bodies with less wave energy, 2) connect shorelines to isolate existing coves; 3) form grids to establish the nucleus of new marsh that would expand over time and connect and intermesh with other natural or restored marsh units.

Proposed Solution
In each of 5 years (years 1, 3, 5, 7, and 9) install approximately 14,000 floating mat units. The floating mat units will be approximately 4 ft X 8 ft and will be planted with potted maidencane and stems. Nutria control will be provided via an enhanced incentive program in the area that surrounds the floating mat deployment.

For the first year, the floating mat units would be deployed at the Lake Hackberry Northeast site in a configuration that would consist of about 27,500 linear feet of "single row" groups of mat units and about 11,000 feet of "double row" groups.

For subsequent years, a site selection process similar to that used for the Coastwide Plantings Project (LA-39) would be utilized.

Preliminary Project Benefits
1) What is the total acreage benefited both directly and indirectly? Once vegetated, the mat units for each year of installations will occupy an estimated 40 acres for a project total of about 200 acres. The mat units will be arranged to reduce wave fetch, which would serve to reduce shoreline erosion and increase submerged aquatic vegetation. At the Lake Hackberry Northeast

site, about 1,000 acres would receive indirect benefits. Similar indirect benefits could be expected at other sites.

2) How many acres of wetlands will be protected/created over the project life? 200 acres created; acres protected has not yet been determined.

3) What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74% and >75%). Not yet determined

4) Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc The once continuous floating marshes are subject to "float" break-up and transport. The project will serve to create islands and lines of floating vegetation which will "weave" or "knit" together small islands, thereby restoring larger areas of floating marsh.

5) What is the net impact of the project on critical and non-critical infrastructure? With the Lake Hackberry Northeast site, restoration of floating marsh continuity in the vicinity of the GIWW will better allow the GIWW to serve as a conduit of Atchafalaya water to the east. Impacts to infrastructure for other sites has not yet been determined.

6) To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects With the Lake Hackberry Northeast site, this project will contribute to the concept of using the GIWW to serve as a conduit of Atchafalaya water to the east. Synergy associated with other sites has not yet been determined.

Identification of Potential Issues
The proposed project has the following potential issues: no issues presently identified.

Preliminary Construction Costs
$ 3.2 million (including 25%contingency) X 5 = $16 million

Preparer of Fact Sheet
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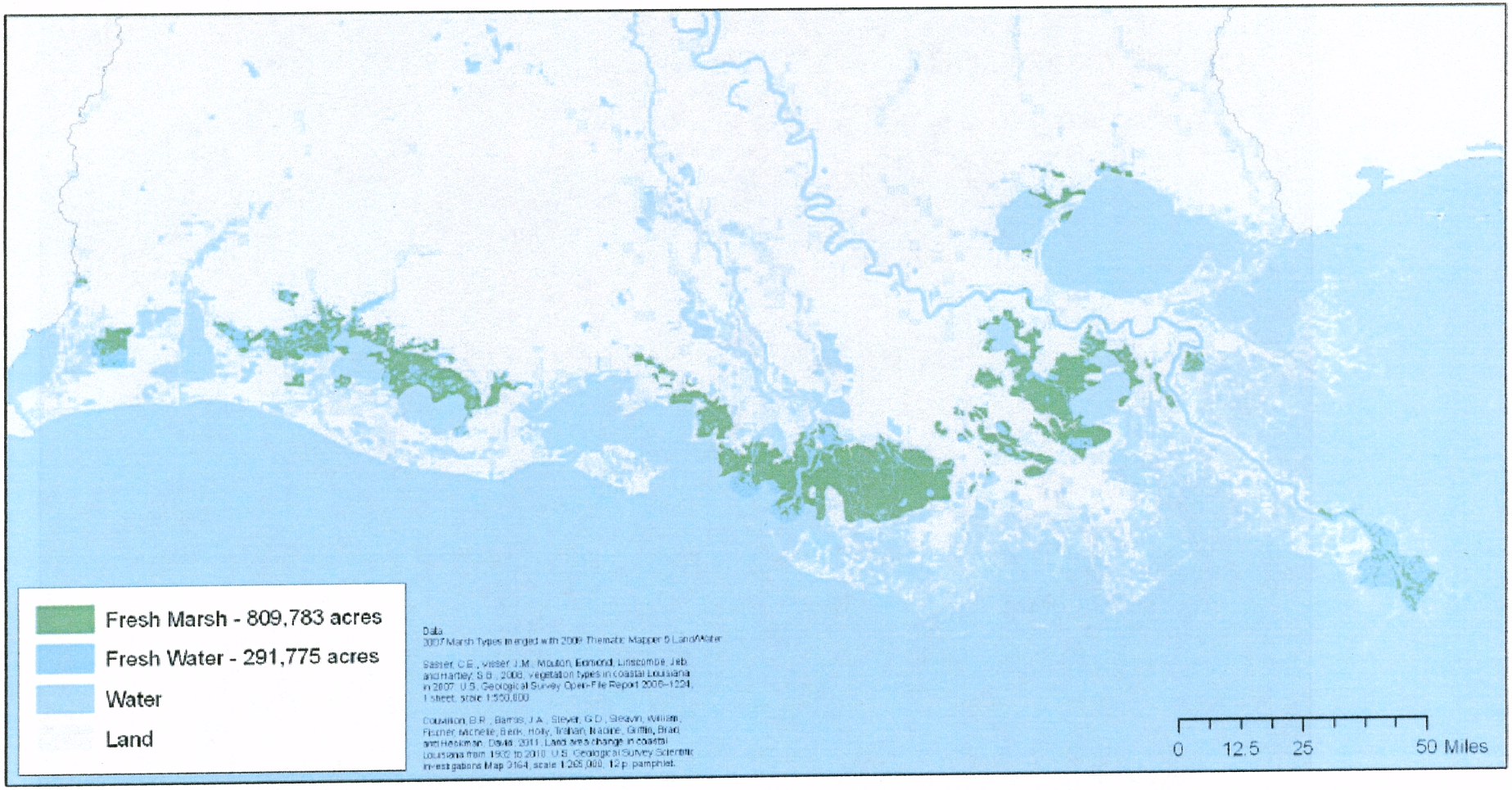
Sasser, C.E. , J. M. Visser, C. E. Mayence, M.W. Hester, B.J. Milan, J. Gore, L.Stanton,M.D. Materne, E. Evers. 2010. Floating marsh Creation Demonstraion Project (LA-05) Monitoring and Comprehensive Final Project Report 2004-2009. 108pp, plus Appendix.


Fresh Marsh - 809,783 acres
Fresh Water - 291,775 acres
Water
Land
Data
2007 Marsh Types merged with 2009 Thematic Mapper 5 Land/Water
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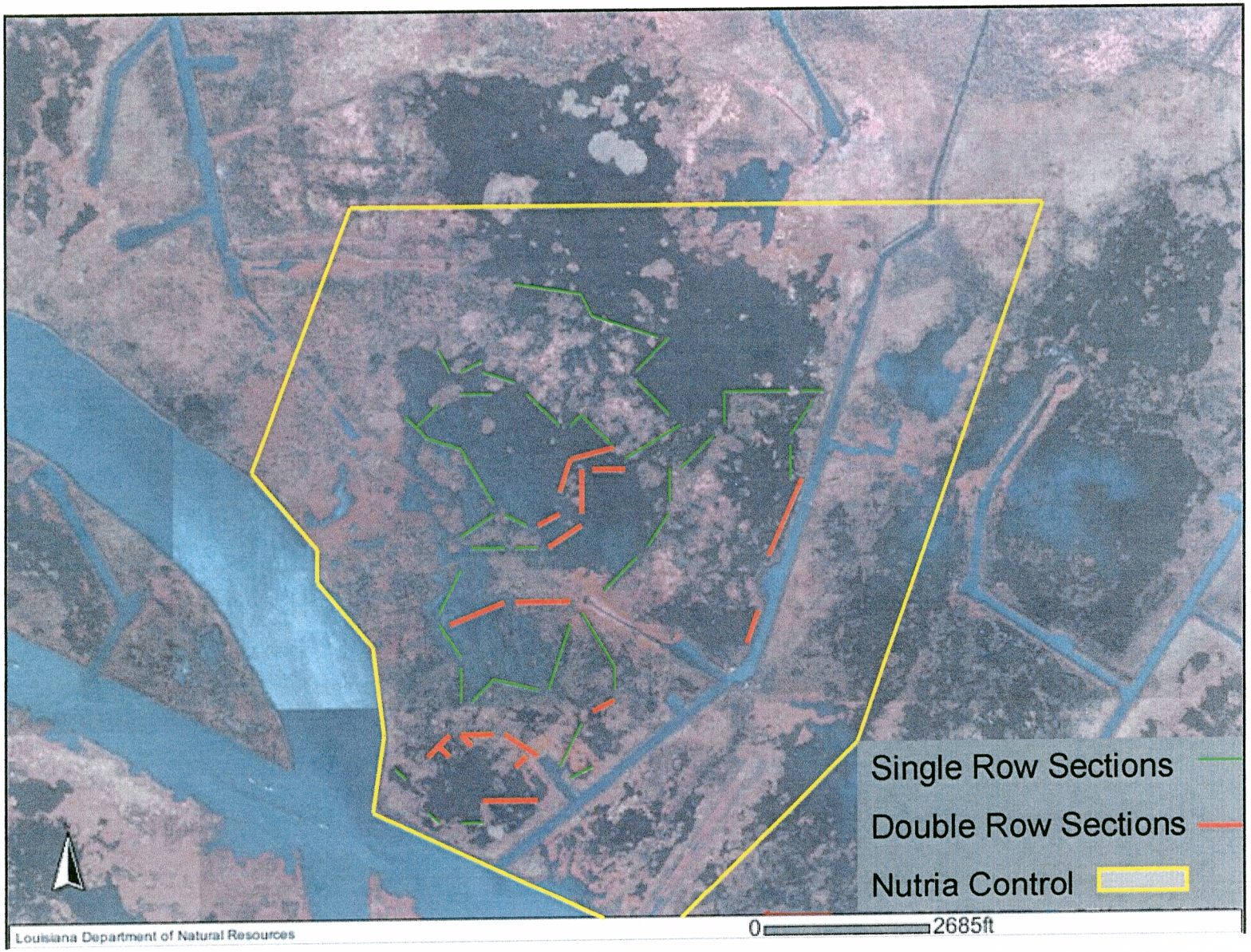
Coulton, B.R., Barras, J.A., Steyer, G.D., Stedvin, William, Fischer, Michelle, Beck, Holly, Trahan, Nadine, Griffin, Brad, and Heckman, Dave, 2011, Land area change in coastal Louisiana from 1932 to 2010: U.S. Geological Survey Scientific Investigations Map 3164, scale 1:265,000, 12 p. pamphlet.
0
12.5
25
50 Miles

LAKE HACKBERRY NORTHEAST FLOATING MARSH RESTORATION



PPL 22
Regional Planning Team
January 26, 2012

Region 2
Barataria Basin

Coastwide Floating Marsh Restoration

MONITORING AND COMPREHENSIVE FINAL PROJECT REPORT
2004-2009

FLOATING MARSH CREATION DEMONSTRATION PROJECT (LA-05)

Submitted to:
Office of Coastal Protection and Restoration

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Baton Rouge, LA 70894-5071

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Prepared by:
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[2]LSU School of the Coast & Environment
[3]ULL Institute for Coastal Ecology and Engineering
[4]UNO Department of Biological Sciences
[5]ULL Department of Biology

December, 2010

June 2006

September 2006

May 2007

LA-05

October 2007

July 2008

May 2009

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LA-05

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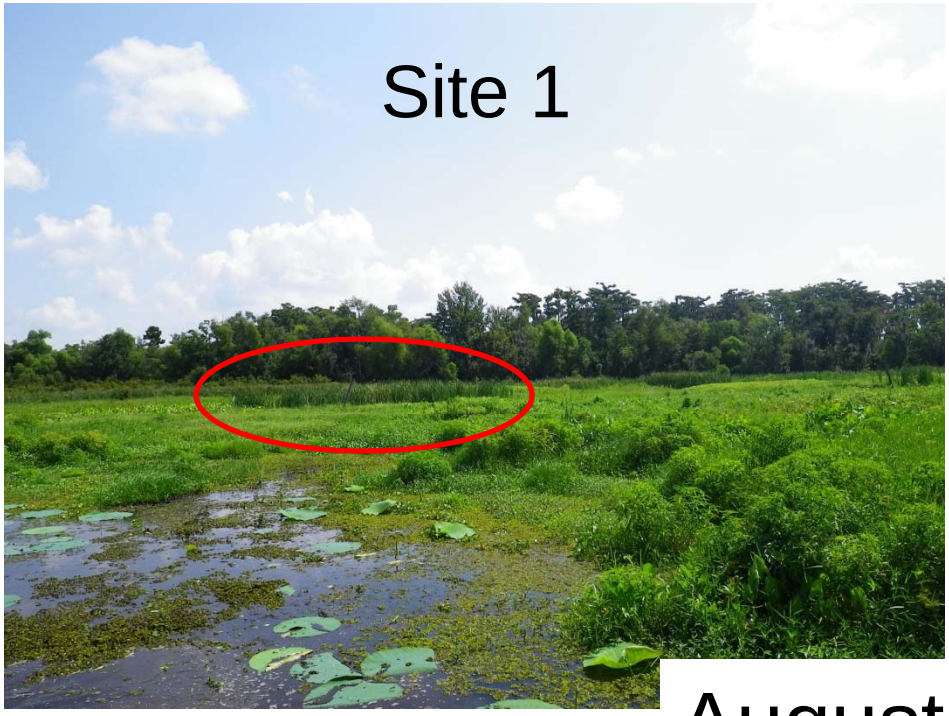
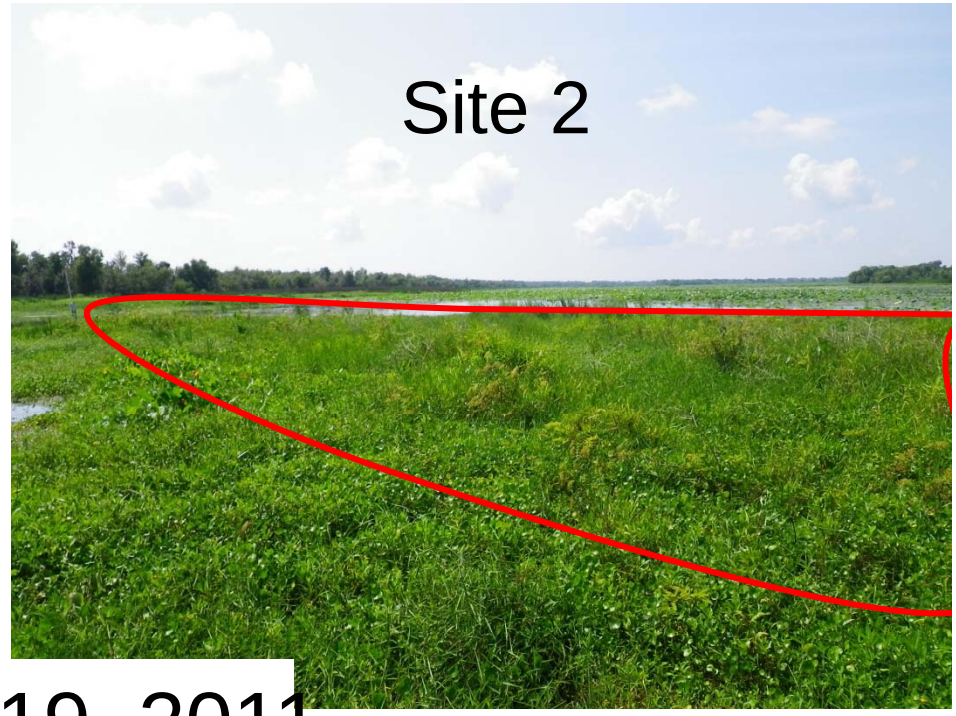
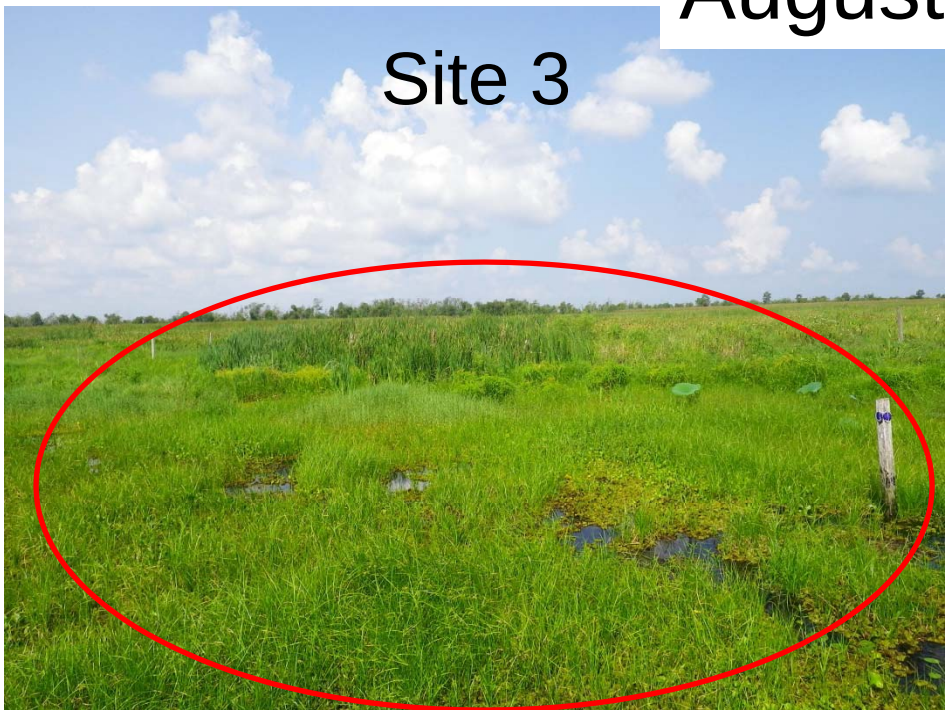
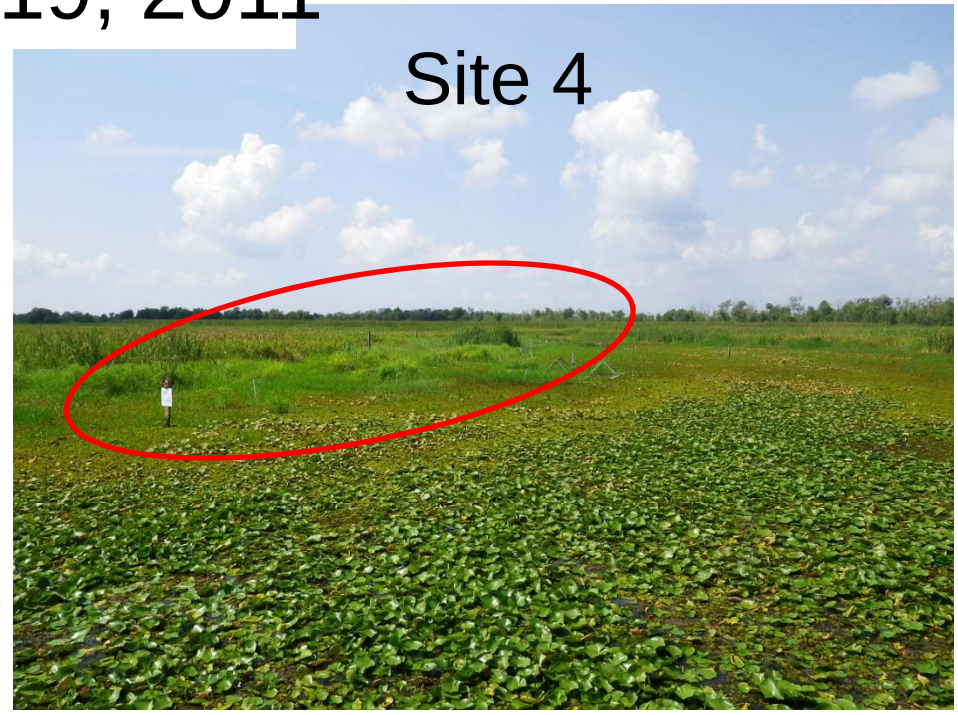




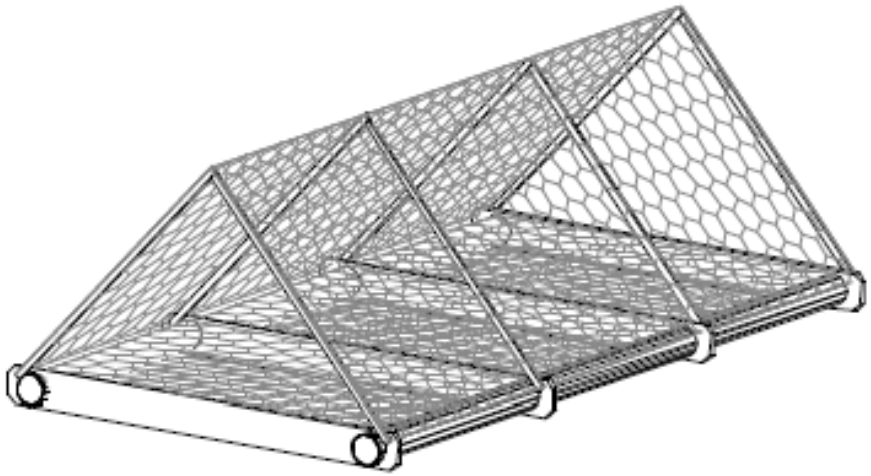
August 19, 2011

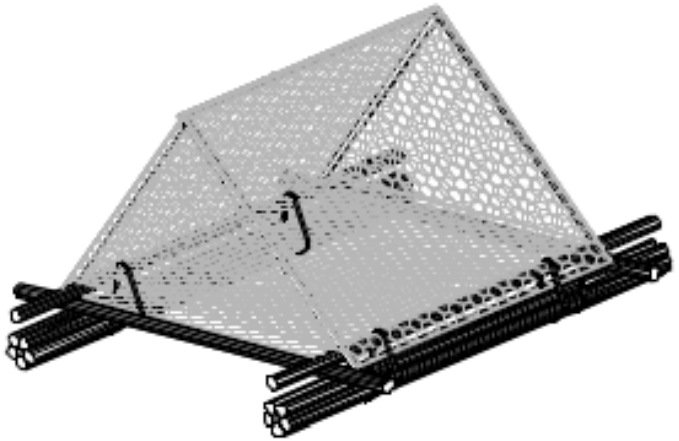




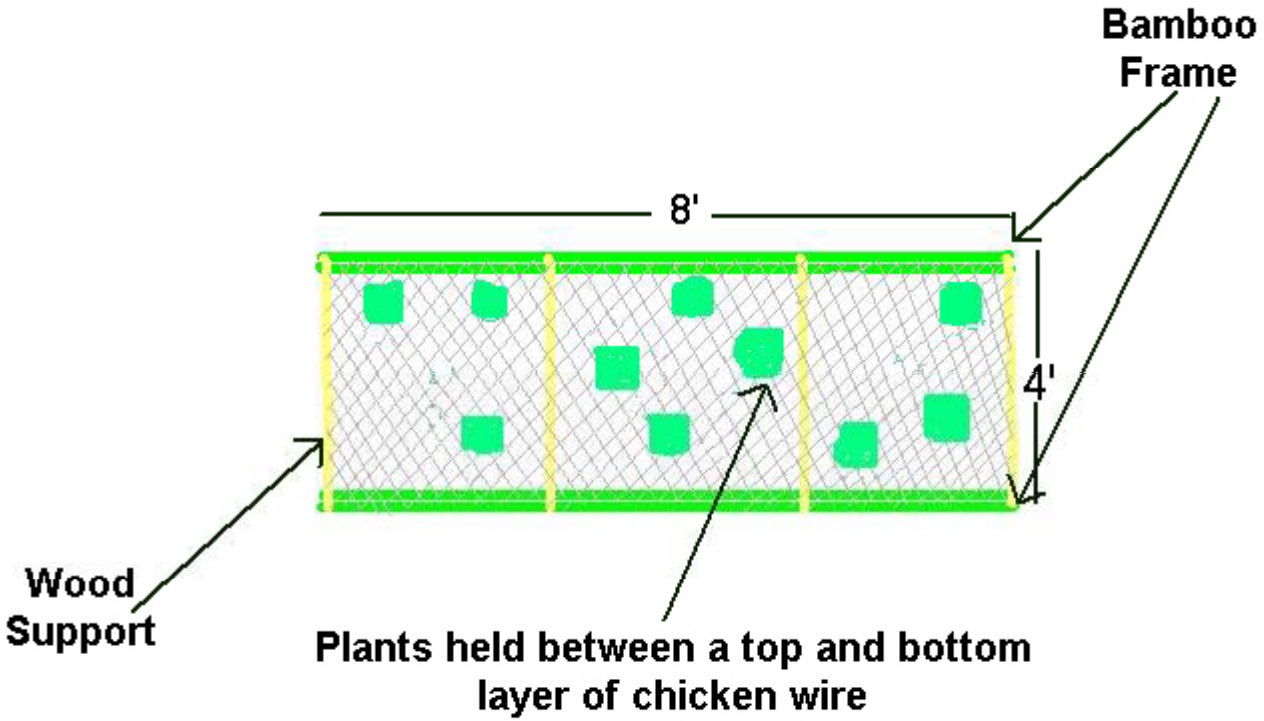
LA-05

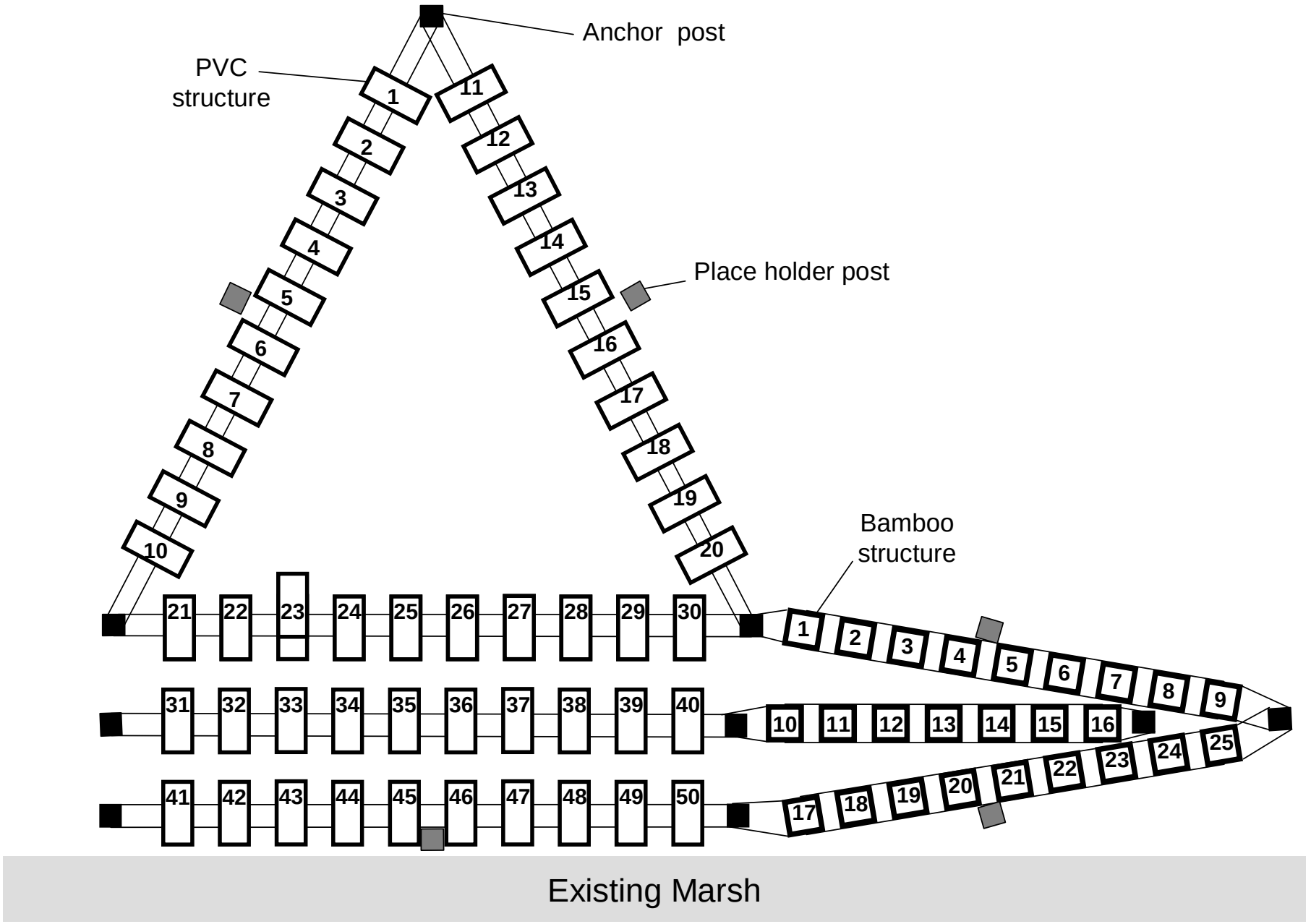
Floating Marsh Demo Project

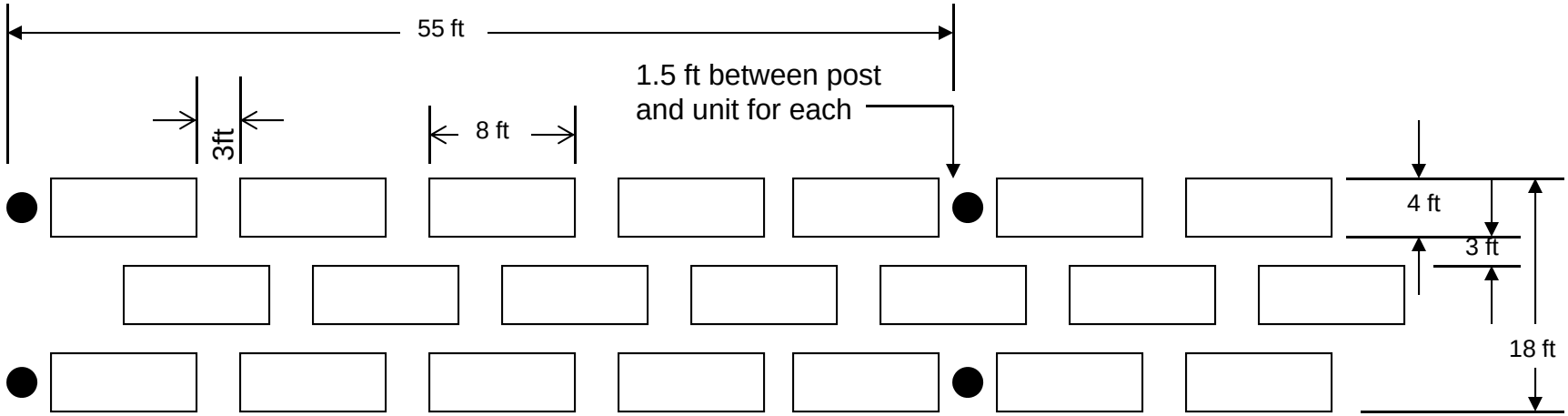




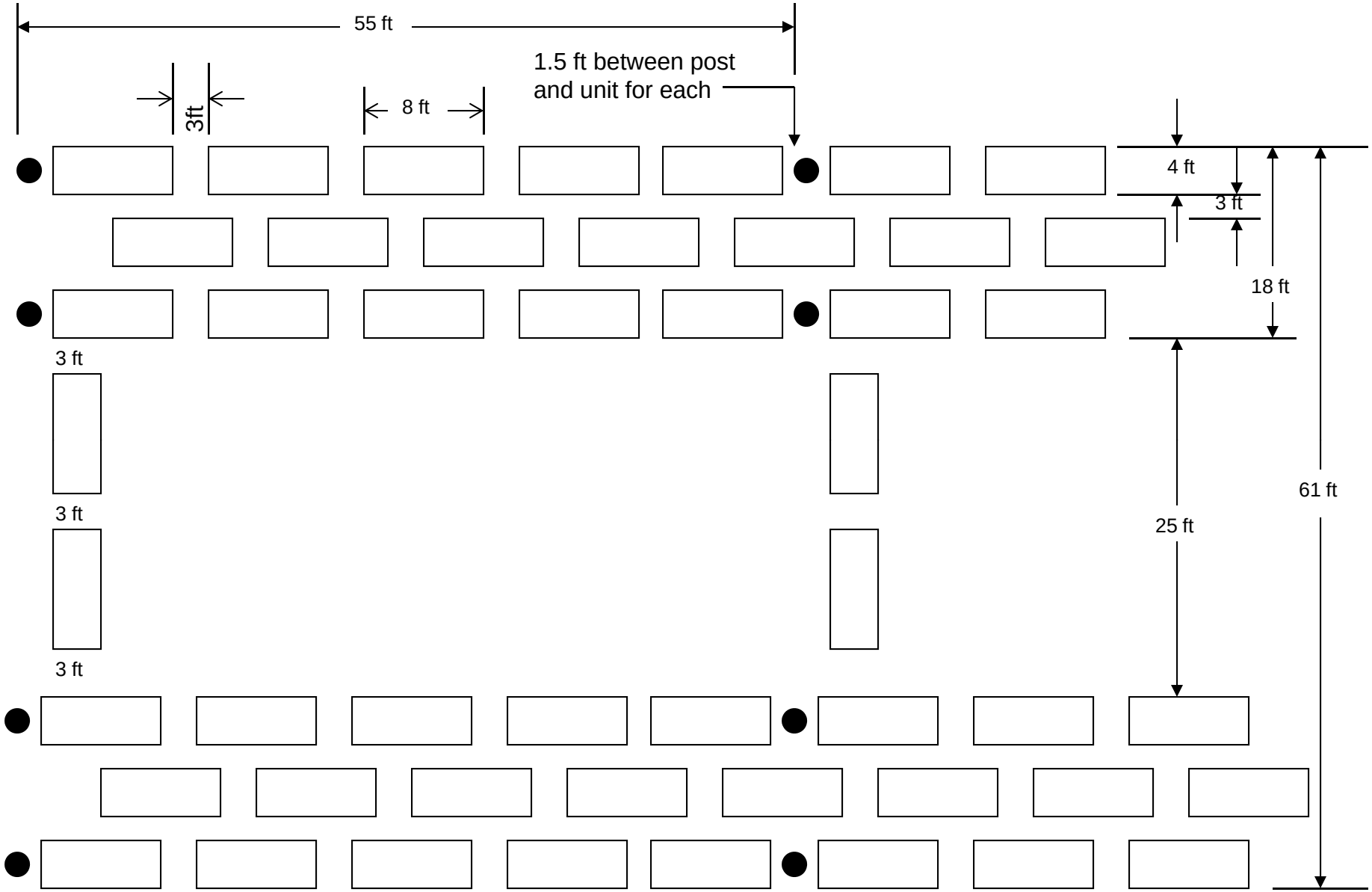
FLOATING MAT UNIT




Anchor post
PVC structure
Place holder post
Bamboo structure
Existing Marsh



Single Row Floating Mat Section (55 ft X 18 ft)



Double Row Floating Mat Section (55 ft X 61 ft)

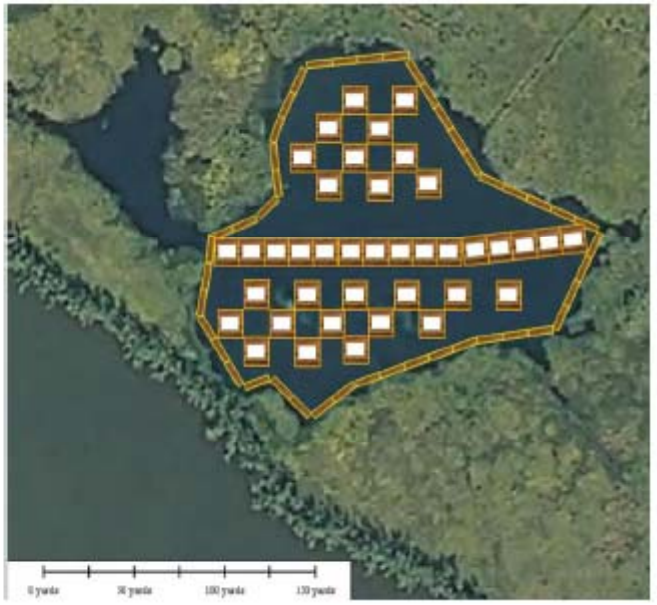
Example layout from LA-05 Final Report (Sasser, et. al, 2010)

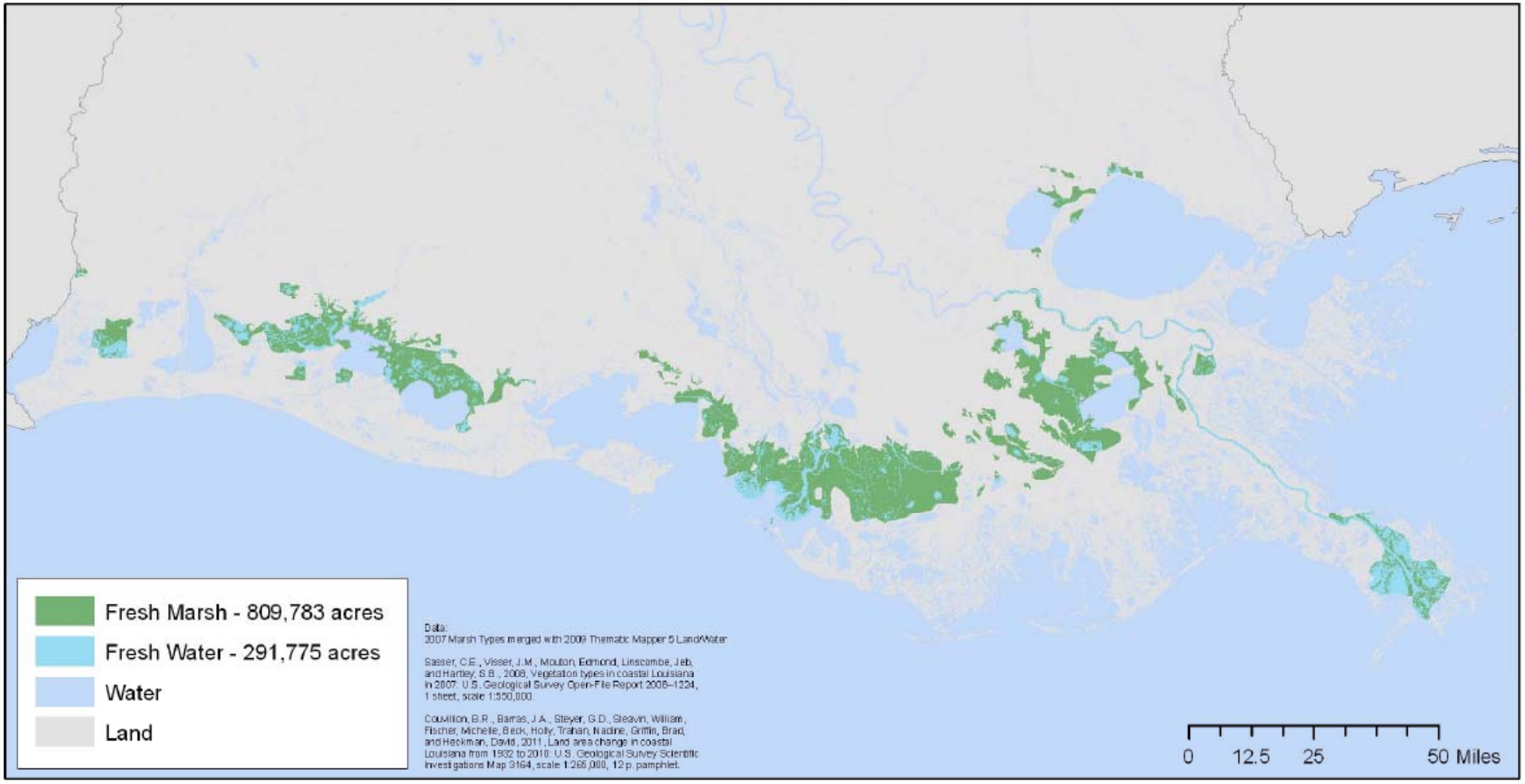
a.

b.

c.

d.

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0
12.5
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50 Miles

COASTWIDE FLOATING MARSH RESTORATION

Build on lessons learned in CWPPRA Demo Project (LA-05

Installations in Years 1, 3, 5, 7, 9

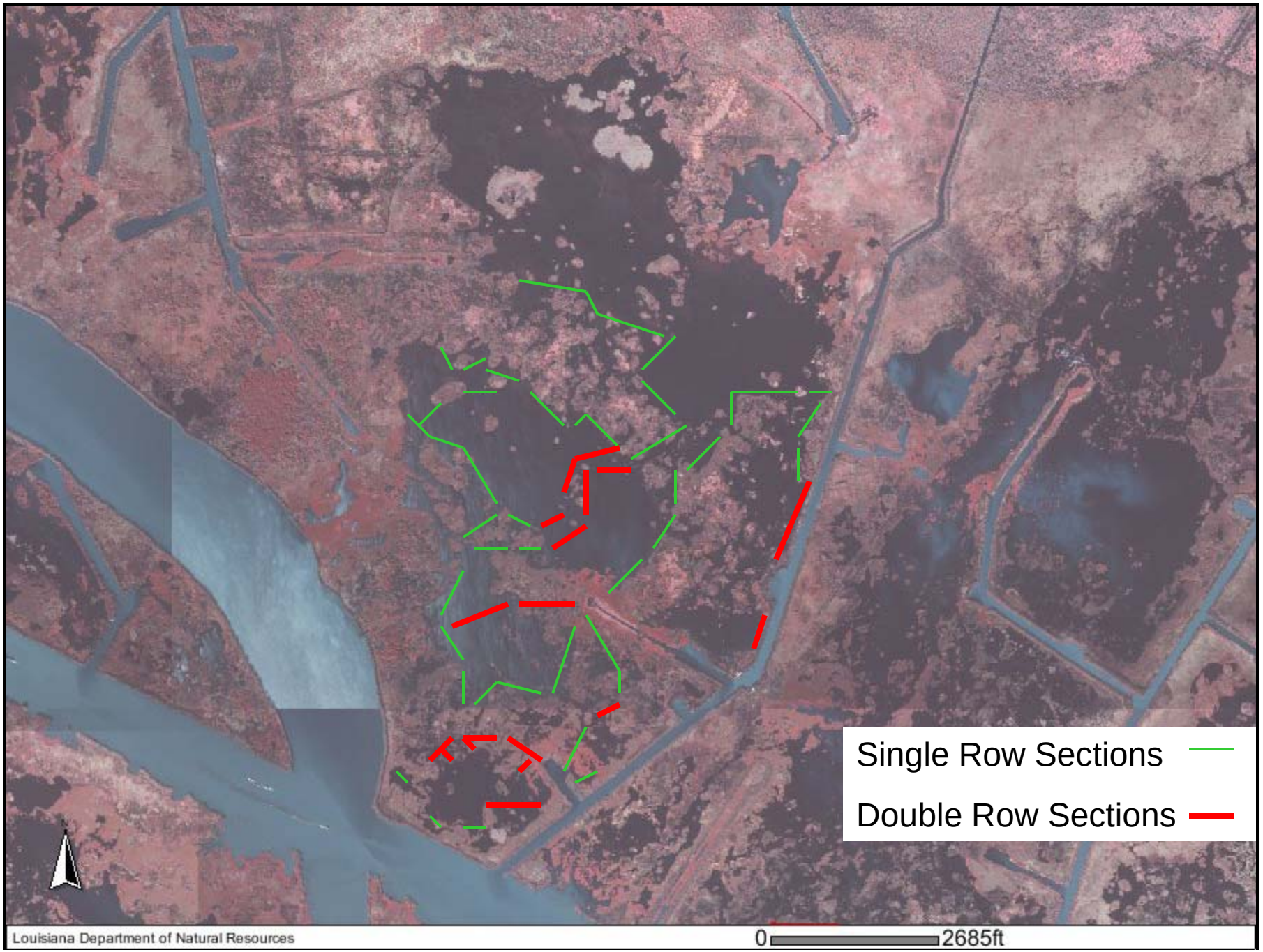
Install approximately 14,000 units in each of those years, some single row, some double row, plus additional incentive for nutria control

$3.2M / installation X 5 installations = $16M

Year 1 = Lake Hackberry Northeast

Selection Process similar to LA-39 for subsequent years.

LAKE HACKBERRY NORTHEAST FLOATING MARSH RESTORATION



LAKE HACKBERRY NORTHEAST FLOATING MARSH RESTORATION