G.D.E. INVESTMENTS LA, LLC MITIGATION BANK

ADAPTIVE MANAGEMENT PLAN

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G.D.E. INVESTMENTS LA, LLC MITIGATION BANK
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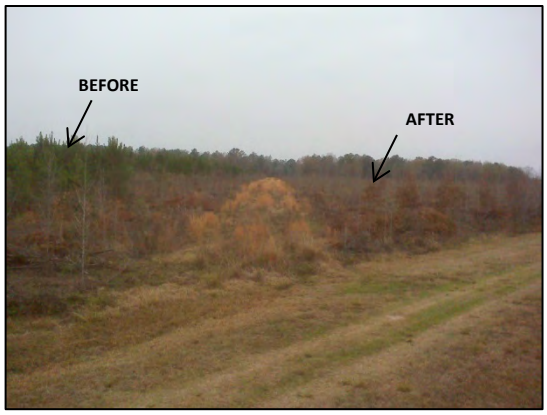
Introduction

The purpose of this document is to address the adaptive management plan for G.D.E. Investments LA, LLC Mitigation Bank (Bank) located in Evangeline Parish, Louisiana. In addition, this document provides data of the conditions and operations that are currently taking place. The goal of the Adaptive Management Plan is to describe procedures to: (1) reduce the number undesirable tree species within the Bank and (2) adjust the hard mast tree to soft mast tree ratio to meet the requirement of the Mitigation Banking Instrument (MBI).

Plan for Adaptive Management

Within the Bank, natural recruitment of various pine species has occurred. This recruitment has contributed to pines as being the dominant species within the mitigation bank. To reduce the number of pines, a small skid steer loader with a forestry cutter attachment has been and will continue to be used to precision clear pines and other invasive tree species, such as Chinese Tallow. Existing planted trees will be avoided to the extent practicable. The operator has been instructed to avoid any significant disturbance of soils. Five (5) new permanent monitoring plots have been added to the twelve (12) previously existing permanent monitoring plots. At the completion of the removal of pine and tallow trees, all seventeen (17) permanent monitoring plots will be revisited to determine effectiveness of the removal activities, determine the presence of invasive species, such as, Chinese Tallow, determine the hard mast to soft mast ratio and estimate the density of surviving trees per acre. Should the hard mast to soft mast ratio or density of trees per acre criteria not be met, additional trees will be planted in order to meet the requirement set forth within the MBI for the Bank. If necessary to control invasive species, such as, Chinese tallow, an aerial application of a broad spectrum, systemic herbicide, such as, Clearcast, will be applied to impacted areas on an acre by acre basis.

Skid Steer with Forestry Cutter Attachment



Before and After Thinning

Preliminary Survey

On August 19, 2014, a J.M. Burguieres Co., LTD biologist visited the Bank to inspect the process and determine the extent of completion of non-desirable tree removal (Exhibit 1). Seventeen (17) random

plots were observed for species present and approximate density of trees within a fifteen (15) foot radius. Data and photos from the visit are located in Attachment A. The results of the informal survey indicate that the process of removing pine and tallow trees appears to be effective with minimal impact to previously planted species. Overall densities of trees per acre are compliant with the MBI with the exception of Plot 09 (~123 trees per acre). Pre-removal of non-desirable trees can be seen in Plot 17. At the time of the survey, it was estimated that approximately 80% of the removal of excessive pines and tallow trees has been completed.

ATTACHMENT A

G.D.E. INVESTMENTS LA, LLC MITIGATION BANK
ADAPTIVE MANAGEMENT PLAN

SAMPLE PLOT #01

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Five (5) trees observed in 15 foot radius: roughly 308 trees per acre.

Trees present: Sweetgum, Red maple, Oaks

Juncus sp. present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall of 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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ADAPTIVE MANAGEMENT PLAN

SAMPLE PLOT #02

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Nine (9) trees observed in 15 foot radius: roughly 554 trees per acre.

Trees present: Bitter pecan, Red maple, Oaks, American elm

Ground saturated with *Alternanthera phioxoides* (alligatorweed) and *Pontederia sp*. (pickerelweed) present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall of 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTHWEST

FACING NORTHEAST

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SAMPLE PLOT #03

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Ten (10) trees observed in 15 foot radius: roughly 610 trees per acre.

Trees present: Sweetgum, Red maple, Oaks

Ground saturated with *Alternanthera phioxoides* (alligatorweed) and *Pontederia sp*. (pickerelweed) present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall of 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #04

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Six (6) trees observed in 15 foot radius: roughly 369 trees per acre.

Trees present: Sweetgum, Red maple, Oaks

Ground saturated with *Alternanthera phioxoides* (alligatorweed) and *Pontederia sp*. (pickerelweed) present at the plot.

Small tallow trees observed at plot.

Excessive volunteer pine trees and tallow trees removed during the Fall of 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #05

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Five (5) trees observed in 15 foot radius: roughly 610 trees per acre.

Trees present: Green ash, Bitter pecan, Oaks

Area was recently cleared of pines.

Excessive volunteer pine trees and tallow trees removed during the Summer of 2014.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #06

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Four (4) trees observed in 15 foot radius: roughly 246 trees per acre.

Trees present: Oaks

Small tallow trees were observed at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall of 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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ADAPTIVE MANAGEMENT PLAN

SAMPLE PLOT #07

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Four (4) trees observed in 15 foot radius: roughly 246 trees per acre.

Trees present: Bitter pecans and Oaks

Area was recently cleared of pines.

Excessive volunteer pine trees and tallow trees removed during the Spring of 2014.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #08

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Six (6) trees observed in 15 foot radius: roughly 369 trees per acre.

Trees present: Pine Bitter pecan American elm, Oaks

Ground saturated with *Alternanthera phioxoides* (alligatorweed) and *Pontederia sp*. (pickerelweed) present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Spring of 2014.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #09

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Two(2) trees observed in 15 foot radius: roughly 123 trees per acre.

Trees present: Sweetgum and Bitter pecan

Excessive volunteer pine trees and tallow trees removed during the Spring of 2014.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #10

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Six (6) trees observed in 15 foot radius: roughly 369 trees per acre.

Trees present: Pine and Oaks

Excessive volunteer pine trees and tallow trees removed during the Spring of 2014.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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ADAPTIVE MANAGEMENT PLAN

SAMPLE PLOT #11

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Six (6) trees observed in 15 foot radius: roughly 369 trees per acre.

Trees present: Pine and Oaks

Excessive volunteer pine trees and tallow trees removed during the Fall 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #12

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Five (5) trees observed in 15 foot radius: roughly 308 trees per acre.

Trees present: Sweetgum, Bitter Pecan, Green ash, Oaks

Excessive volunteer pine trees and tallow trees removed during the Fall 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #13

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Seven (7) trees observed in 15 foot radius: roughly 431 trees per acre.

Trees present: Sweetgum, Red maple, Oaks

Juncus sp. present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #14

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Four (4) trees observed in 15 foot radius: roughly 246 trees per acre.

Trees present: Pine and Oaks

Excessive volunteer pine trees and tallow trees removed during the Fall 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #15

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Four (4) trees observed in 15 foot radius: roughly 246 trees per acre.

Trees present: Pine, Honey locust, Oaks

Juncus sp. present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #16

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Eight (8) trees observed in 15 foot radius: roughly 492 trees per acre.

Trees present: Sweetgum, Red maple, Oaks

Juncus sp. present at the plot.

Excessive volunteer pine trees and tallow trees removed during the Fall 2013.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST

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SAMPLE PLOT #17

DATE: 08/19/2014

SUMMARY OF OBSERVATIONS:

Nineteen (19) trees observed in 15 foot radius: roughly 1,170 trees per acre.

Trees present: Pine

This area was in the process of selective clearing.

Dominant species present was pine however it was noted that other planted trees were surviving.

Excessive volunteer pine trees and tallow trees currently being removed.

SAMPLE PLOT PHOTOGRAPHS

FACING NORTH

FACING EAST

FACING SOUTH

FACING WEST