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**Attachments**

Attachment MWP-A-Maps & Figures

Attachment MWP-B-Cost Analysis Report

Attachment MWP-C-Assessment Method(s)

Attachment MWP-D-Species List

Attachment MWP-E-JD

Attachment MWP-F-Title Opinion

Attachment MWP-G-Acceptance Letter Template

Attachment MWP-H-DNR Attachment (if appropriate)

MITIGATION WORK PLAN FOR BOTTOMLAND HARDWOOD HABITAT

**[Information in brackets and red font are instructions to be followed during the composition of this document. Information in black font is considered required language and any changes requested in this language must be provided with a supportive comment as to the reason for such changes. Changes will be considered on a case-by-case basis. Changes in the standard language may result in extended review time]**

# I. Bank Property

## *A. Property Location*

The center point of the property is located at latitude [**Coordinates in decimal degrees**] and longitude **[Coordinates in decimal degrees]** in **[Name]** Parish, Louisiana (See Attachment A). The location includes all or portions of **Sections**, **Township** and **Range**. The property is located approximately [**xx**] miles [**Compass Direction]** from **[Town Name]**, Louisiana. The property is located in the Hydrologic Unit Code (HUC) **[HUC], [Name of HUC]**.

Driving directions to the site are as follows: **[Give directions from the largest nearby city].**

## B. Property Ownership

The property owner is [**XXXX XXXXX]** (Owner), who/which has owned the property for [**XX]** years.

## C. Property Legal Definition

A certain parcel of land, together with all buildings and improvements thereon, and all of the rights, ways, privileges, servitudes, prescriptions, advantages and appurtenances thereunto belonging, or in anywise appertaining, situated as stated above and more fully described as follows:

**[INSERT LEGAL DESCRIPTION OF THE PROPERTY TO BE ENCUMBERED BY THE CONSERVATION SERVITUDE HERE].**

The perimeter of the Property is defined by the following coordinates in decimal degrees:

**Latitude \_\_\_\_\_\_\_\_ N and Longitude –\_\_\_\_\_\_\_\_ W**

**Latitude \_\_\_\_\_\_\_\_ N and Longitude –\_\_\_\_\_\_\_\_ W**

**Latitude \_\_\_\_\_\_\_\_ N and Longitude –\_\_\_\_\_\_\_\_ W**

**Latitude \_\_\_\_\_\_\_\_ N and Longitude –\_\_\_\_\_\_\_\_ W**

**Latitude \_\_\_\_\_\_\_\_ N and Longitude –\_\_\_\_\_\_\_\_ W**

**Latitude \_\_\_\_\_\_\_\_ N and Longitude –\_\_\_\_\_\_\_\_ W**

## D. Recorded Liens, Encumbrances, Easements, Servitudes or Restrictions

Clear and merchantable title to the Property has been documented by a title report/opinion (Attachment B) generated by **[Company Name]** which was **updated two weeks prior to execution of the conservation servitude.**  Any exceptions to the real estate title not subordinated to the conservation servitude are listed below:

**[PROVIDE A DETERMINATION AS TO WHETHER OR NOT THERE ARE ANY RECORDED LIENS, ENCUMBRANCES, EASEMENTS, SERVITUDES, OR RESTRICTIONS ON THE PROPERTY THAT CAN NOT BE SUBORDINATED TO THE CONSERVATION SERVITUDE OR WOULD OTHERWISE AFFECT THE RESTORATION/ENHANCEMENT/ PRESERVATION EFFORTS ON THE PROPERTY CONTRARY TO THIS MBI.]**

# II. Objective

## *A. Aquatic Resource Type and Functions to be Restored/Enhanced/Preserved*

This Bank will **[Method(s) of Compensation]** **[X]** acres of bottomland hardwood forest (BLH).

As defined by *The Natural Communities of Louisiana* published in 2009 by the Louisiana Department of Wildlife and Fisheries (LDWF) and the Louisiana Natural Heritage program (LNHP), BLH forests are forested, alluvial wetlands occupying broad floodplain areas that flank large river systems. BLH forests may be called fluctuating water level ecosystems characterized and maintained by a natural hydrologic regime of alternating wet and dry periods. These forests support distinct assemblages of plants and animals associated with particular landforms, soils, and hydrologic regimes. They are important natural communities for maintenance of water quality, providing a very productive habitat for a variety of fish and wildlife, and are important in regulation of flooding and stream recharge.

This project will **[Identify the wetland functions that will be restored, enhanced, and/or preserved from this mitigation bank].**

## *B. Watershed Contributions*

1. Watershed Need

**[Describe the needs of the watershed, ecoregion, physiographic province, or other geographic area interest for wetland restoration/enhancement/preservation and how this compensatory mitigation project would address those needs]**

2. Watershed Benefits

**[How this compensatory mitigation project would address the needs listed above]**

# III. Site Selection

**[Describe all factors considered during the site selection process. This should include:**

**1. Consideration of watershed needs**

**2. Onsite alternatives where applicable.**

**3. The practicability of accomplishing ecologically self-sustaining aquatic**

**resource restoration, establishment, enhancement, and/or preservation at the**

**compensatory mitigation project site. (See 33 CFR § 332.3 (d)].**

# IV. Site Protection Instrument

A conservation servitude placed over [insert acreage] will serve as the site protection instrument. (See Section X. Long-Term Protection and Maintenance, Subsection A. “Conservation Servitude” of this MBI.)

# V. Baseline Information

This section contains both the historical and current ecological and physical information about the Bank Site.

## *A. Land Use*

1. Historical Land Use

**[Identify and describe the history of land use for the Bank. Starting with the oldest obtainable property record, provide the time-frame of each type of land use as well as the source of such information. If the property has a logging history please provides the date that it was last logged.]**

2. Current Land Use

**[Identify the official land use(s) of the site and within one mile of the site boundary. Identify the source of this information and reference a map that should be provided that shows these land uses and follows the requirements identified in the most current “Checklist for Mitigation Bank Drawings”.]**

## *B. Soils*

**[Provide the following:**

**1. A soil map as an attachment showing all soil types on the Bank site and**

**reference the attachment in this Section.**

**2. An identification and description of the soils on the Bank site using the most**

**current Natural Resource Conservation Service (NRCS) Soils Layer.**

**3. A substantiation for each soil type as to whether NRCS has identified the soil,**

**as hydric or non-hydric for this parish location (the Bank site).**

**4. A discussion describing how past land uses may have impacted the soils.**

**5. Details on the source of information including the year that it was**

**collected and/or published.]**

## *C. Hydrology*

1. Historical Hydrology and Drainage Patterns

**[Provide the following:**

**1. A description of the sources of water that historically affected the Bank site**

**and drainage patterns of these sources prior to any artificial, human-induced**

**impacts to that hydrology.**

**2. Provide a map showing this “pre-impact” drainage pattern as an attachment**

**and reference it in this section.**

**3. Include the historical hydrology patterns of the site on the above map.**

**4. Provide a description of all impacts to drainage that have occurred over time**

**inclusive of approximate time frames of such changes.]**

**5. Provide a copy of the Corps issued JD with a reference number.**

2. Existing Hydrology and Drainage Patterns

**[Provide the following:**

**1. A description of sources of water currently affecting the Bank and the current**

**drainage patterns that exist on the Bank site.**

**2. Provide a map as an attachment showing the existing drainage patterns on the**

**Bank site.**

**3. Describe all current impacts to drainage on the site and describe how these**

**Impacts have altered the hydrologic regime of the site.**

**4. Describe what challenges, if any, these impacts will have on the sponsor’s**

**ability to restore hydrologic restoration to the site.**

## *D. Vegetation*

1. Historical Plant Community

**[Provide a description of the habitat type(s) that historically occurred on the Bank site while providing a time frame for the presence of this/these habitat type(s) as well as a reference for the source of such information. Discuss any changes that have occurred over the years while giving approximate time frames for such changes as well as probable reasons for such changes and give reference support for this information.]**

2. Existing Plant Community

**[Provide the following:**

**1. A Description of the existing plant communities located on the Bank site.**

**2. A species list of those individuals in each community. This list should include**

**exotic/invasive species, percentage of each, maximum DBH of dominant**

**species, and the percent overstory, midstory, and understory in each**

**community.**

**3. A map that clearly shows the location and acreage of the different communities**

**that exist on the Bank site.**

**4. A map that clearly shows the existing elevations of the Bank site.**

**5. Provide a reference number for the above mentioned map in this section.**

# VI. Description of Work

This Bank will provide **[Insert Amount]** acres of **[Resource Type]** to compensate for unavoidable wetland impacts for the **[Watershed Name]** area (See Attachment MWP-A). In order to accomplish this task, the Sponsor shall complete the following soils/hydrologic and habitat work.

## *A. Soils/Hydrologic Work Plan*

**[Provide detailed work descriptions and written specifications for all work that is intended to affect the current hydrology of the Bank site including but not limited to the following:**

**1. Complete description of all construction methods used with timing and**

**sequence. If work is to be performed in phases provide an explanation of the**

**reason for such decision as well as a map depicting the different phases..**

**2. Complete description of all work.**

**3. Provide plan views and cross sectional views of all work, with appropriate**

**legends on the drawings to depict the work that is being done.**

**4. Maps that identify the location of adjacent waterways and are referenced in this**

**section.**

**5. Proposed grading plan, including elevations and slopes of substrates with**

**drawings that depict such work.**

**6. Soil management and erosion control measures.**

**7. An explanation of how the completion of such work will support this**

**restoration project.]**

## *B. Vegetation Work Plan*

**[For each habitat type that is being restored/and or enhanced provide specific information and specifications on the restoration plan, including but not limited to:**

**1. List of plant communities to be established.**

**2. Complete species list and the percentage of each species planted. (Note: 60%**

**hard mast (defined for the purpose of the document as all *Quercus* and *Carya***

**species) to 40% soft mast ratio, with plantings on 9 ft. x 9 ft. spacing, unless**

**otherwise approved by CEMVN in conjunction with the IRT). Note: if these**

**percentages are not appropriate for the proposed site then detailed**

**information, including reference documents, will need to be provided to**

**support a deviation from the ratio requirement as stated in this template.**

**3. Methodology used for the establishment of desired plant communities.**

**4. Discussion of regeneration.**

**5. Species distribution.**

**6. Planting methods.**

**7. Herbivory minimization and control plan.**

**8. Weed species minimization and control plan.**

**9. Exotic nuisance vegetation control and management plan]**

# VII. Maintenance Plan

**[Provide a detailed description and schedule of the perceived maintenance requirements for the Bank, throughout the different work phases, to support the restoration efforts. This information should reflect the maintenance that is required to insure the continued viability of the resource once initial construction is completed and before the long-term milestones have been achieved.]**

# VIII. Performance Standards

In order for the Bank to be considered acceptable for mitigating wetland impacts associated with DA permits, the Property will be restored in accordance with the Mitigation Work Plan such that it meets wetland criteria as described in the 1987 Corps of Engineers Wetland Delineation Manual (the 1987 Manual) as well as the November 2010 Regional Supplement for the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0. Performance standards (success criteria) used to measure the success of the Bank are provided below.

## *A. Initial Success Criteria*

1. *Hydrology*: Ground surface elevations must be conducive to establishment and support of hydrophytic vegetation, and re-establishment and maintenance of hydric soil characteristics. To that end, all alterations of the natural topography (ditching, spoil banks, land leveling, bedding, fire breaks, etc) that have affected the duration and extent of surface water have been removed or otherwise rendered ineffective in accordance with this Mitigation Work Plan.

2. *Vegetation*: A minimum of 250 planted seedlings per acre must survive through the end of the second spring following the planting (i.e., Year 1). Those surviving seedlings must be representative both in species composition and percentage identified in this Mitigation Work Plan. This criterion will apply to initial plantings, as well as, any subsequent replanting that may be needed to meet this requirement.

## *B. Interim Success Criteria*

1. *Hydrology*: By year 5 (**four** years following attainment of the one-year survivorship criteria) site hydrology will be restored such that the Property meets the wetland criterion as described in the 1987 Manual as well as the November 2010 Regional Supplement to the Corps of Engineers wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0. The Sponsor will provide the CEMVN bank project manager with a wetland delineation to accompany the 5 year monitoring report used in evaluating interim success criteria.

*2. Vegetation and Vegetative Plantings:* a. For a given planting, a minimum of 250 seedlings/saplings per acre must be present (with a 60 to 40 hard mast to soft mast ratio) at the end of the fourth year (i.e. Year 5) following successful attainment of the one-year survivorship criteria. Trees established through natural recruitment may be included in this tally; however, no less than 125 hard mast-producing seedlings per acre must be present. Surviving hard mast seedlings must be representative of the species composition and percentage identified in this Mitigation Work Plan. Exotic/invasive species may not be included in this tally. If the Sponsor does not feel the above percentages are appropriate for the site, the Sponsor will provide appropriate supporting information to substantiate the request to adjust these percentages.

b. By Year 5 (four years following successful attainment of the one-year survivorship criteria) the Bank and the perimeter will be virtually free (approximately 5% or less on an acre-by-acre basis) of exotic/invasive vegetative species.

c. Developing plant community must exhibit characteristics and diversity indicative of a viable native forested wetland community commensurate with stand age and site conditions by Year 5. Achievement of wetland vegetation dominance is defined as a vegetation community where more than 50% of all dominant species are facultative (FAC) or wetter, using “routine delineation methods” as described in the 1987 Manual as well as the November 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0.

## *C. Long-Term Success Criteria (Year 8 and beyond)*

1. Forest canopy coverage exceeds eighty percent of forested land mass as measured by an approved method. Forest canopy species abundance and composition is consistent with the restoration goals identified in the restoration plan (Section IV of this Work Plan) and credit assessment methodologies. The long-term species composition should fall within the range of 50:50 to 40:60 soft mast to hard mast ratio. If the Sponsor does not feel the above percentages are appropriate for the site, the Sponsor will provide appropriate supporting information to substantiate the request to adjust these percentages.

2. When forest canopy coverage exceeds eighty percent, the Bank will be essentially void of exotic/invasive vegetation (all seed-producing trees removed from Bank and perimeter and less than 3% of the understory on an acre per acre basis). An active treatment program will continue as part of the long-term maintenance program.

3. If thinning to maintain or enhance the ecological value of the Bank is determined necessary by the IRT at this time, the Sponsor/Steward will develop a thinning plan in coordination with the IRT. Thinning operations shall be performed by the Sponsor/Steward per the requirements of the thinning plan.

4. The Sponsor will provide documentation that the “Long-Term Maintenance and Protection” escrow account is fully funded.

5. If CEMVN in conjunction with the IRT is questioning the wetland status of the site, the Sponsor shall provide the CEMVN bank project manager with a wetland delineation for review and verification by CEMVN.

6. The Bank and the perimeter will be virtually free (approximately 1% or less on an acre-by-acre basis) of exotic/invasive vegetation.

# IX. Monitoring Requirements

The Sponsor agrees to perform all work necessary to monitor the Bank to demonstrate compliance with the success criteria established in this Mitigation Work Plan. The Sponsor will monitor the Bank in the spring of each monitoring year using the guidelines in Section VIII of this Mitigation Work Plan.

Surveys of permanent monitoring stations will occur in the following time frame:

**1**. Immediately following planting of the Bank to establish baseline information.

**2**. In Year 1, 5 and after achieving interim success criteria, monitoring will occur

every 3 years until an average canopy coverage of 80% is established and then it will

occur every 5 years thereafter.

**3**. If thinning is required after successfully achieving the long-term success criteria,

the site will be surveyed prior to and following the first thinning operation

following plantings.

4. If monitoring for any given year determines that the Bank is not progressing as expected, monitoring will continue on an annual basis until the Bank successfully meets or exceeds established milestones.

The survey of the permanent monitoring stations will collect data to evaluate the survival rate of planted vegetation; number, species and growth rates (average heights and diameter). In addition to planted seedlings, surveys will include the number by species of volunteering trees, shrubs and woody vines. Surveys will also collect information regarding colonizing plant species, the wetland plant status (scaled from obligate (OBL) to upland (UPL) of each and the number by species of exotic/noxious specimens.

## *A. Permanent circular monitoring stations*

Immediately following initial planting of the Bank, the Sponsor will randomly establish a permanent circular monitoring station for every 20 acres on the Bank. Each station will have a minimum area of 1/20th acre (radius=26 feet). Stations will be identified with a permanent marker (e.g., an 8-foot PVC pipe anchored with a metal T post at plot center) and coordinates will be recorded for each station. A map will be provided to CEMVN (See Reporting Protocols below) that depicts the location of the monitoring stations as well as a coordinating list containing the coordinates for each station. All individual planted seedlings/saplings falling within each monitoring station will be marked with a numbered tag that uniquely identifies each seedling. These seedlings shall also be marked with fluorescent flagging tape for ease of location of specimens for initial site visits. A document providing seedling information shall be presented (to CEMVN) for each monitoring station and this document shall not only list the specific tag number for each seedling within the monitoring station, but also the species (by scientific and common name), height, diameter, wetland rating, hard mast or soft mast categorization, and general condition of each stem.

To establish baseline information this data will be obtained immediately following the initial planting of the Bank site or phase of the Bank.

## *B. Transects*

“The Sponsor shall establish transects along planted rows to be used to determine overall survivorship of planted seedlings. Transects shall make up at least 3% of the total acreage of the site and arranged so that a representative sample of the entire site is obtained. The overall number of rows for the site shall be provided and the positioning of the transects shall be coordinated with the IRT prior to finalization of their location in the MBI and WP. Figure [**XXX]** in attachment MWP-A, shows the preliminary locations of transects and plots. The measurements (length x width) and location (GPS coordinates in decimal degrees) of each transect shall be provided along with the exact monitoring plot locations and depicted on a map that is submitted with the “As-Built” report for this Mitigation Bank. The beginning and ending points of each transect shall be marked with a permanent marker (e.g., an 8-foot PVC pipe anchored with a metal T-Post) and coordinates shall be recorded for these points as well.

To establish baseline information transects will be surveyed to determine the number by species of planted seedlings within 60 days of planting. The baseline survey shall record the species planted, wetland indicator status of such species, and the mast type of each species. Transects will be surveyed until successful attainment of the interim success criteria. Initial and interim transect surveys shall record the species present, the number of living seedlings for each species, the wetland indicator status of each species, the mast type of each species and describe the general condition of the seedlings. Any failed areas of plantings should be noted along with an explanation for the failure.

## *C. Wetland Delineation*

At year 5, the Sponsor will be required to submit a wetland delineation to demonstrate that the Property meets the wetland criterion as described in the 1987 Manual as well as the Regional Supplement of the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0.

To submit the information for a wetland delineation the Sponsor will collect necessary data for the Bank and provide it to CEMVN project manager for review and verification.

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## *D. Floristic Survey*

To document the attainment of the long-term success criteria the Sponsor will complete a comprehensive floristic survey for the Bank as part of the monitoring requirements.

A floristic survey should be comprehensive over the entire site, and should be conducted using systematic field techniques. This survey should provide a list of plants and communities existing on the site. If adverse conditions such as disease, drought, predation, or herbivory, etc. exist and have impacted the plantings then this information and these conditions need to be discussed in the report.

## *E. Photographs*

Digital images shall be taken from ground level at each monitoring station and from elevated positions throughout the Bank to document overall conditions. These ground level images should provide a North, South, East and West image for each station.

## *F. Qualitative Analysis*

The Sponsor shall evaluate the entire extent of the Bank (or phase of the Bank that this report represents) and provided observations concerning overall seeding survivorship, colonization of the Bank by volunteer plant species, wildlife utilization and any other information that is pertinent to achievement of initial success criteria.

## *G. Hydrologic Conditions*

A description of the condition of any applicable hydrology altering features (culverts, ditches, plugs, etc.) and a general discussion of hydrologic conditions at monitoring stations shall be provided.

## *H. Ledgers*

The Sponsor will utilize the Regulatory In-Lieu Fee and Bank Information Tracking System (RIBITS) as a ledger to show all transactions. The Sponsor will input the following information: transaction date, permittee name, credits/acres sold, DA permit number and CUP permit number (if applicable). No other reporting measures are required.

# X. Monitoring Reports

Independent of the As-built report the Sponsor will submit monitoring reports documenting monitoring efforts at the Bank to the CEMVN by July 31st of the year monitoring occurs. Besides monitoring results for that monitoring year, reports will include a financial assurance report documenting withdrawals and deposits. The monitoring reports will follow the guidelines listed below:

The monitoring report will include data sufficient for comparison to the performance standards found in Section VIII. of this Work Plan. The Sponsor shall also include, in these reports, a discussion of all activities which took place at the Bank.

## *A. As-Built Report*

An as-built report will be submitted to CEMVN within 60 days following completion of all work required to restore or enhance special aquatic sites. The as-built report will describe in detail the work performed and provide a list of species planted, the number of each species, the hard or soft mast categorization, and the wetland rating. No deviation from the Mitigation Work Plan may occur without prior approval from the IRT. The as-built report will include a discussion of the coordination with IRT members, a description of and reasons for any approved deviation. The as-built report shall provide:

a. A survey showing finished grades and plantings with written documentation, plan view and cross sectional drawings of all construction and establishment work implemented on the bank.

b. Survey data collected from the permanent monitoring stations and transects. This survey data should include the number and species of the seedlings planted, timing of all work events, and maps showing the location (including latitude/longitude) of all monitoring stations as described in this Work Plan.

c. Detailed descriptions of site preparation, planting procedures, etc.

## *B. Initial Success Criteria Report*

The Sponsor shall monitor the Bank in the spring (March 15-May 31) of its second growing season following initial planting of the Bank. The Sponsor will provide an Initial Success Criteria Report by July 31st of that year.

The Sponsor shall provide details in accordance with this Mitigation Work Plan, on any maintenance/management work conducted on the Bank after submission of the As-Built Report. The Sponsor shall provide a brief description of any anticipated maintenance/management work to be conducted prior to attainment of interim success criteria.

**1. Vegetation**

**a. Permanent Circular Plot Data**

The Sponsor shall provide plot data in tabular form on all planted seedlings falling within each permanent circular monitoring plot as described and as established in accordance with Section IX. of this Mitigation Work Plan. A description of the general condition of the seedlings, including the number and species of surviving seedlings in each monitoring station, the tag number and a discussion of likely causes of mortality for the non-survivors shall be provided. A number (by species) of exotic/invasive species, including, a description of the generalized degree of distribution and whether they are seed bearing trees or seedlings will also be provided.

**b. Transect Data**

The Sponsor shall provide data in tabular form for the total number of planted seedlings as described in IX.B of this Mitigation Work Plan. A description of the general condition of the seedlings and the discussion of likely causes of mortality, if appropriate shall also be provided. Exotic/invasive species should be noted along with information on the generalized amount of each and whether they are seed bearing trees or seedlings.

**2. Hydrologic Data**

The Sponsor shall provide a description of the condition of any applicable hydrology altering features (culverts, ditches, plugs, etc.) and a general discussion of hydrologic conditions at monitoring stations.

**3. Photographs**

The Sponsor must submit digital photographs in accordance with section IX.E. of this Mitigation Work Plan.

**4. Qualitative Analysis**

The Sponsor must provide a qualitative analysis of the site as described in IX.F. of this Mitigation Work Plan.

**5. Funding**

The Sponsor shall provide CEMVN with copies of the most recent financial account statements for both the financial assurance accounts and the Long-term Maintenance and Protection Fund. If any escrowed funds were used, the Sponsor will include a narrative describing that use, the justification for that use and supporting documentation (e.g. receipts). The Sponsor shall also provide any justification for any requested release from financial assurance accounts.

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## *C. Interim Success Criteria Report*

The Sponsor shall monitor the Bank in the spring (March 15-May 31) of its fourth growing season following attainment of the one-year survivorship criteria for the Bank. The Sponsor will provide an Interim Success Criteria Report, and accompanying wetland delineation, by July 31st of that year.

**1. Vegetation**

Note: For a given planting, a minimum of 250 seedlings/saplings per acre must be present at the end of the fourth year (i.e. Year 5) following successful attainment of the one-year survivorship criteria. Trees established through natural recruitment may be included in this tally; however, no less than 125 hard mast-producing seedlings per acre must be present. Surviving hard mast seedlings must be representative of the species composition and percentage identified in this Mitigation Work Plan. Exotic/invasive species may not be included in this tally.

a. Permanent Circular Plot Data

The Sponsor shall provide plot data in tabular form on all planted seedlings falling within each permanent circular monitoring plot as described and as established in accordance with Section IX. of this Mitigation Work Plan. A description of the general condition of the seedlings, including the number and species of surviving seedlings in each monitoring station, the tag number and a discussion of likely causes of mortality for the non-survivors shall be provided. A number (by species) of exotic/invasive species, including, a description of the generalized degree of distribution and whether they are seed bearing trees or seedlings will also be provided.

b. Transect Data

The Sponsor shall provide data in tabular form for the total number of planted seedlings as described in IX.B of this Mitigation Work Plan. A description of the general condition of the seedlings and the discussion of likely causes of mortality, if appropriate shall also be provided. Exotic/invasive species should be noted along with information on the generalized amount of each and whether they are seed bearing trees or seedlings.

**2. Hydrologic Data**

The Interim Success Criteria will be reached by year 5 (4 years following attainment of the one-year survivorship criteria), and **the Sponsor will provide the CEMVN bank project manager with a wetland delineation** **to demonstrate that site hydrology has been restored** such that the Property meets the wetland criterion as described in the 1987 Manual as well as the November 2010 Regional Supplement to the Corps of Engineers wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.

**3. Photographs**

The Sponsor must submit digital photographs in accordance with section IX.E. of this Mitigation Work Plan.

**4. Qualitative Analysis**

The Sponsor must provide a qualitative analysis of the site as described in IX.F. of this Mitigation Work Plan. The Sponsor shall provide details on any maintenance/management work conduction on the Bank after submission of the Initial Success Criteria Report. The Sponsor shall provide a brief description of any anticipated maintenance/management work to be conducted prior to attainment of long-term success criteria. Note: By year 5, four years following successful attainment of the one-year survivorship criteria, the developing community must exhibit characteristics and diversity indicative of a viable native forested wetland community commensurate with stand age and site conditions; the Bank and the perimeter will be virtually free (approximately 5% or less on an acre-by-acre basis) of exotic/invasive vegetation.

**5. Funding**

The Sponsor shall provide CEMVN with copies of the most recent financial account statements for both the financial assurance accounts and the Long-term Maintenance and Protection Fund. If any escrowed funds were used, the Sponsor will include a narrative describing that use, the justification for that use and supporting documentation (e.g. receipts). The Sponsor shall also provide any justification for any requested release from financial assurance accounts.

## D. Long-Term Success Criteria Report

**1. Vegetation**

Permanent Circular Plot Data

The Sponsor shall provide plot data in tabular form on all tree seedlings/stems as well as natural recruitments, falling within each permanent circular monitoring plot as described and as established in accordance with Section IX. of this Mitigation Work Plan. The report should also include a description of the general condition/health of the tree seedlings/stems, the number, species type and DBH of surviving tree/seedlings/stems, as well as the percent canopy coverage in each monitoring station, the tag number and a discussion of likely causes of mortality for the non-survivors shall be provided. The number (by species) of exotic/invasive species, including, a description of the generalized degree of distribution and whether they are seed bearing trees or seedlings will also be provided.

**2. Hydrologic Data**

The Sponsor will provide supporting documentation that the hydrology achieved at year five still exists on the site by **supplying the CEMVN bank project manager with a wetland determination,** **to be reviewed and verified by CEMVN, to demonstrate that site hydrology has been restored** such that the Property meets the wetland criterion as described in the 1987 Manual as well as the November 2010 Regional Supplement to the Corps of Engineers wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.

**3. Photographs**

The Sponsor must submit digital photographs in accordance with section IX.E. of this Mitigation Work Plan. The Sponsor shall submit current aerial/imagery to provide verifiable data that overall forested canopy cover across the entire forested land mass as described in Section VIII.C.1 is present.

**4. Qualitative Analysis**

The Sponsor must provide a qualitative analysis of the site as described in IX.F. of this Mitigation Work Plan. The Sponsor shall provide details on any maintenance/management work conduction on the Bank after submission of the Interim Success Criteria Report. The Sponsor shall provide a brief description of any anticipated maintenance/management work to be conducted prior to attainment of long-term success criteria. Note: Long-Term Success Criteria Monitoring shall begin at year 8 (seven years following successful attainment of the one-year survivorship criteria) and continue every 3 years until 80% canopy coverage is achieved. The developing community must exhibit characteristics and diversity indicative of a viable native forested wetland community commensurate with stand age and site conditions; the Bank and the perimeter will be virtually free (approximately 3% or less on an acre-by-acre basis) of exotic/invasive vegetation.

**5. Funding**

The Sponsor shall provide CEMVN with copies of the most recent financial account statements for both the financial assurance accounts and the Long-term Maintenance and Protection Fund. If any escrowed funds were used, the Sponsor will include a narrative describing that use, the justification for that use and supporting documentation (e.g. receipts). The Sponsor shall also provide any justification for any requested release from financial assurance accounts.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Table 1: Summation of Monitoring information requirements for BLH.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Information | Surveyed /Monitored | Report | Wetland Delineation | Notes |
| Baseline | Within 60 days of planting |  |  |  |
| As-Built | Within 60 days of planting | Within 60 days of planting |  | The Baseline information will be included in this report. |
| Initial (year 1) | In the spring (March 15-May 31) of its second growing season | By July 31st of the year of the second growing season |  |  |
| Interim (year 5) | In the spring (March 15-May 31) of its fourth growing season following one-year survivorship criteria | By July 31st of the year of fourth growing season following one-year survivorship criteria | Sponsor must provide a wetland delineation  with the Interim monitoring report. |  |
| Long-Term (Year 8) | In Spring (March 15-May 31) of its 3rdgrowing season following successful attainment of interim success criteria | By July 31st of the year of its 8th growing season following one-year survivorship criteria |  | If Long-Term Criteria is not achieved at this point then monitoring reports will be provided every 3 years until average canopy coverage of 80% is obtained. |

# XI. Bank Credits

## *A. Bank Service Area*

The Bank is established to provide compensation for impacts to **[HABITAT TYPE],** in U.S.G.S. Hydrologic Cataloging Unit (HUC) **[8-DIGIT HUC(s)]** of the **[WATERSHED NAME FOR HUC]** drainage basin. The primary service area would be the Louisiana Basin in which the bank is located which is **[BASIN NAME].**

## *B. Credit Determination*

Refer to Attachment MWP-C

## *C. Schedule of Credit Availability*

Upon submittal of all appropriate documentation by the Sponsor, and subsequent approval by CEMVN in consultation with the IRT, CEMVN will release credits for use by the Sponsor according to the following schedule:

1. Thirty percent (30%) of total anticipated project credits will be available for debiting upon confirmation that all items in Section XI. F (1-7) of the MBI have been completed.

2. An additional twenty percent (20%) of total anticipated credits will be available for debiting upon providing documentation that the vegetative plantings have been conducted and completion of the work necessary to restore site topography and wetland hydrology of the Bank as outlined in Section VI. of this Work Plan.

3. An additional twenty percent (20%) of the total anticipated credits would be released upon successfully completing the initial success criteria (Section VIII. A.)

4. An additional twenty percent (20%) of the total anticipated credits would be released upon successfully completing the interim success criteria (Section VIII B.).

5. The remaining ten percent (10%) of the total anticipated credits would be released once the long-term success criteria (Section VIII. C.) are met.

Table 2: Potential Credit Release Schedule for **XXXXX** Mitigation Bank:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Release** | **Action** | **Percentage** | **Credits** | **Comments** |
| 1 | All items in Section IX F. 1-7 of the BI | 30% |  |  |
| 2 | Documentation of vegetative plantings and completion of work necessary to restore site topography and wetland hydrology as outlined in this Mitigation Work Plan; documentation of baseline conditions and establishment of transects and monitoring plots (Section Xi. A&B). | 20% |  |  |
| 3 | Successful completion of Initial Success Criteria (minimum one year after completion of construction) as outlined in this Mitigation Work Plan. | 20% |  |  |
| 4 | Successful completion of Interim Success Criteria (at 4 years following successful attainment of one-year survivorship criteria) as outlined in this Mitigation Work Plan. | 20% |  |  |
| 5 | Successful attainment of Long-term Success Criteria as outlined in this Mitigation Work Plan. | 10% |  |  |

# XII. Adaptive management plan

**[Describe the management strategy to address unforeseen changes in site conditions or other components of the compensatory mitigation project. Include the party or parties responsible for implementation of adaptive management measures. The adaptive management plan will guide decisions for revising compensatory Mitigation Work Plans and the implementation of measures to address both foreseeable and unforeseeable circumstances that adversely affect compensatory mitigation success. (See § 332.7(c).)**

# XIII. Long-Term Protection and Maintenance

To ensure long-term sustainability of the resource, the Sponsor shall burden the property with a perpetual conservation servitude as described in Section X of this MBI.

# XIV. Funding

Section IX. A of this MBI provides specific details about the funding for the Construction and Establishment (C & E) Activities for the Bank.

## *A. Construction and Establishment (C&E) Funds*

**1. Estimate of C & E Funds Required [Describe in detail the method of assessing initial construction costs and ongoing management/establishment funds required for a third party to manage and monitor the lands through the first 15 years for forested systems, the first five years for pine savannas, the fires seven years for coastal prairie, and the firest five years for marsh systems. Include this information (itemization sheets) as an attachment (Attachment B) to this Mitigation Work Plan document**.

***2.* C&EFunding Mechanism**

To fund this account the Sponsor proposes to establish **(performance bonds, escrow accounts, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments, subject to the approval of CEMVN).**

***3.* C & E *Release Schedule***

The Financial assurances, with a balance equaling **[$XXXX.XX]** shall be reduced as success criteria are achieved and the probability decreases that those funds would be needed according to the following schedule:

**1**. Upon verification that all hydrologic modifications, construction, and planting as describe in this Mitigation Work Plan (Attachment C of the MBI) have been completed to the satisfaction of CEMVN, in consultation with the IRT, CEMVN shall advise the Sponsor and the financial institution that the C & E financial assurance may be reduced to $**[???]**.

**2**. Upon verification by CEMVN, in consultation with the IRT, that the initial success criteria have been attained for all tracts to the satisfaction of CEMVN, in consultation with the IRT, CEMVN shall advise the Sponsor and the financial institution that the C & E financial that assurance may be reduced to $**[???].**

**3**. Upon verification by CEMVN, in consultation with the IRT, that the interim success criteria have been attained for all tracts to the satisfaction of CEMVN, in consultation with the IRT, CEMVN shall advise the Sponsor and the financial institution that the C&E financial assurance may be reduced to $**[???]**.

**4**. Upon verification by CEMVN, in consultation with the IRT, that the long-term success criteria have been attained for all tracts to the satisfaction of CEMVN, in consultation with the IRT, CEMVN shall notify the Sponsor and the financial institution that the remaining C&E financial assurance may be released to the Sponsor.

***(Sections 1- 4 above should be amended pursuant to the specifics of each mitigation work plan and should be based on the achievement of success criteria as well as the probability of future funds being required for maintenance and/or remedial work.)***

## *B. Long-Term Maintenance/Management Funds*

**1. Long-term Management Needs [DESCRIBE THE MAINTENANCE/MANAGEMENT FUNDS NEEDED FOR THE WORK AS DESCRIBED IN SECTION X. OF THIS MITIGATION WORK PLAN]**

**2. Annual Cost Estimates for Long-Term Needs**

The cost of long-term management is $ **XXXX** from year 16 to year 50. This amounts to $ **XXXX** when adjusted for inflation every five years. Attachment B contains a description of the necessary work and an itemization of costs to perform the work for long-term management and protection of the Bank.

**3. Long-Term Maintenance and Protection Funding Mechanism**

To ensure that sufficient funds are available to provide for the perpetual maintenance and protection of the Bank, the Sponsor is establishing the “Long-Term Maintenance and Protection” escrow account. This account will be administered by a federally-insured depository that is “well capitalized” or “adequately capitalized” as defined in Section 38 of the Federal Deposit Insurance Act. [**CHOOSE THE APPROPRIATE FUNDING MEHTOD OF THE TWO LISTED BELOW AND INCLUDED ONLY THAT LANGUAGE:]**

1. The account will be incrementally funded by deposit a minimum of $ **XXXX.XX** into the account per credit /acre sold at the time of credit sale. The deposit value per credit/acre must reflect, at a minimum, the total fund value divided by no more than 90% of anticipated credits. The deposit value per credit/acre must reflect, at a minimum, the total fund value divided by no more than 90% of the anticipated credits. OR

2. The account will be incrementally funded by deposit of a minimum of **$XXXX.XX** annually on the date of the initial deposit for a period not to exceed 15 years.

Once the account is fully funded **$XXXX.XX**, no incremental fund per credit sale is required (if funding per credit/acre sale), or additional annual deposits (if funding annually).

The account shall be fully funded by the time 70% of the total number of credits are sold or upon successful achievement of the Long-term Success Criteria, whichever occurs first. If the Long-term Success Criteria are met prior to fully funding the escrow account then the Sponsor must deposit into the escrow account the difference between the amount determined to be full funding and the account balance difference. Documentation that the account is fully funded is a pre-requisite for release of the remaining credits following attainment of the Long-term Success Criteria as identified in this Mitigation Work Plan. Accrued interest in excess of the value of the fully funded account may only be used for the administration, operation, maintenance and/or other purposed that directly benefit the Bank. The principal shall not be used and shall remain as part of the Bank’s assets to ensure that sufficient funds are available should perpetual maintenance responsibilities be assumed by a third party. The Sponsor or Long-term Steward may withdraw the accumulated interest only with written approval from CEMVN and only to be used to maintain the Bank. The Sponsor shall provide copies of depository account statements to CEMVN upon request and in their monitoring reports.

# XV. Other Information

## *A. Provisions of the MBI*

This mitigation bank site must adhere to all provisions as outlined in the **[Name of Bank]** Mitigation Bank instrument as signed by the Corps of Engineers, New Orleans District on **[Month Day, and Year]** for the **[MITIGATION BANK NAME]** Mitigation Bank.

## *B. List of contacts for BI Section XVI. Other Provisions (H. Notice)*

**[Insert physical addresses & contact information of the Owner, Sponsor, Servitude Holder and IRT members here (including CEMVN). Please make sure to include the title of the individual as well as the company/organization with which they are associated.]**

# XVI. Citations

**[The District Engineer may require additional information as necessary to determine the appropriateness, feasibility, and practicability of the compensatory mitigation project.]**

# XVII. Attachments

Attachment MWP-A-Maps & Figures

Attachment MWP-B-Cost Analysis Report

Attachment MWP-C-Assessment Method(s)

Attachment MWP-D-Species List

Attachment MWP-E-JD

Attachment MWP-F-Title Opinion

Attachment MWP-G-Acceptance Letter Template

Attachment MWP-H-DNR Attachment (if appropriate)