Corps of Engineers, New Orleans District Modified Charleston Method
MVN MCM

Guidebook for the Use of the Excel Workbook

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New Orleans District

In Consultation With:

US Environmental Protection Agency
US Fish and Wildlife Service
National Marine Fisheries Service
Louisiana Department of Wildlife and Fisheries

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I. Introduction

The Corps of Engineers, New Orleans District Modified Charleston Method (MVN MCM) is a variation of the Charleston Method, a mitigation assessment technique developed by the Corps of Engineers Charleston District and presented in their Standard Operating Procedure issued September 19, 2002. The New Orleans District (CEMVN), in collaboration with the Interagency Review Team (IRT), has modified this assessment method to account for: 1) regional wetland differences, 2) the compensatory mitigation regulations found at 33 CFR Part 332 and 3) CEMVN's "Compensatory Mitigation Standard Operating Procedures". The revisions include redefining factor and option descriptions, adjusting option values based on these revisions, adding factors that may negatively affect mitigation projects and incorporating the "Proximity Factor" that calculates a weighting factor to be used when a mitigation project is located outside the watershed in which the adverse impact occurs. To retain the model integrity of the Charleston Method for each of the factors that were redefined, the weighting of the Charleston Method factor was distributed among the newly defined MVN MCM factors based on the overall weighting of the original factor in the Charleston Method. For example, in the MVN MCM, Net Improvement becomes a product of two sub-factors; mitigation type and maintenance/management and Existing Conditions becomes two sub-factors; existing vegetative condition and existing hydrologic conditions. The product or sum of the two sub-factors in the MVN MCM does not exceed the maximum or minimum values for factor in the Charleston Method.

Like the Charleston Method, the MVN MCM is a conditional assessment model, that is, the MVN MCM does not measure functional capacity directly but considers the functional quality of the impacted site weighed against the perceived functional lift of the mitigation project. The model consists of evaluation criteria (factors) weighted for their importance. Each factor has a number of options that qualify the site conditions for that factor. The evaluator selects the option that best fits conditions for the site under consideration. Options used in the tables are defined so as to establish a clear and understandable interpretation of the existing conditions at the impacted and the mitigation site and are intended to provide consistent results among users with diverse backgrounds. Option values were assigned based on the knowledge and expertise of the interagency teams involved in the development of the Charleston Method and subsequently the MVN MCM. These teams were comprised of environmental and/or natural resource staff from the U.S. Army Corps of Engineers (Corps), the Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NMFS), and various state environmental and/or natural resource agencies.

Future modifications of the MVN MCM may be required as a result of revised regulations, guidance, changes in the role of mitigation types and/or as experience is gained with this methodology. These revisions may incorporate worksheets designed to calculate preservation credits, creation credits and buffer credits. The CEMVN policy has been to use restoration (re-establishment and rehabilitation) and enhancement projects as the primary sources of mitigation for project impacts. Preservation and creation have been used in CEMVN only on a limited

basis and only in unique situations where impacts were either exceedingly poor wetland sites or resulted in limited and/or temporary loss of some of the wetland functions, usually habitat. Restoration and enhancement opportunities are widely available in Louisiana and therefore these types of mitigation projects will continue to be the primary source of mitigation in CEMVN. The model includes some provisions to provide additional credits for inclusion of existing wetlands (preservation) and upland areas within a compensatory mitigation project to the degree that the protection and management of such areas is an enhancement of aquatic functions and increases the overall ecological functioning of the mitigation site, or of other aquatic resources within the watershed. Such enhancement is reflected in the amount of credit attributed to the mitigation project.

The MVN MCM has a wide range of applications. The foremost application for which the workbook has been designed is to assist project managers in efficiently and consistently quantifying adverse impacts associated with permit applications and environmental benefits associated with mitigation projects. By determining the adverse and beneficial impacts, the project manager is assured that unavoidable impacts to wetland functions are fully compensated by the applicant's mitigation plan. That mitigation plan may include the purchase of credits from an appropriate mitigation bank, implementation of an individual permittee-responsible mitigation project, or a combination of the two. Additionally, applicants and mitigation bank sponsors also will find utility in the MVN MCM. The MVN MCM can assist applicants in evaluating the scale of compensatory mitigation that would be required by an impact. Although the monetary value of the mitigation project is not computed, with a little research, applicants should be able to produce a value for any mitigation alternative. Bank sponsors can evaluate a potential bank site to predict potential banking credits available depending upon different restoration/enhancement techniques.

This guidebook is structured such that the definitions and explanations of factors and options used in a particular worksheet are provided in that worksheet discussion. Factor tables and sample worksheets are also provided in that section. Not included is a discussion of the rationale of the weighting of each factor or the value assigned to each option. The weighting of each factor remains the same as the Charleston Method except in those cases where the factor in the Charleston Method has been deleted or redefined as multiple factors. In those cases, the weighting was distributed among the revised factors based on the overall weighting in the Charleston Method to retain the model's integrity. The value of each option is a product of discussions among the interagency team developing the MVN MCM and generally follows the range developed for the Charleston Method.

II. Definitions

For the purposes of this part, the following terms are defined:

Assessment technique - the method by which improvement/deterioration of wetland functions are calculated.
Baldcypress/tupelo swamp - forested, alluvial swamps growing on intermittently exposed soils. The soils are inundated or saturated by surface water or ground water on a nearly permanent basis throughout the growing season except during periods of extreme drought.
Bayhead swamp - extremely variable community ranging from a shrub dominated swamp to a mature swamp forest with evergreen shrubs forming the primary understory and midstory. Although very similar to wooded seeps, the community is well-developed and swamp-like, and occurrences are relatively sizable (typically at least a few acres). Bayhead Swamps occur in the heads of creeks or branches, at the base of slopes, in acid depressions in pine flatwoods, and borders of swamps in north, central, western, and southeastern Louisiana. Soils are usually very acid, sandy in texture, primarily colluvial in origin, and are saturated, inundated, or at least moist throughout the growing season. They are often deep and "mucky".
Bottomland Hardwood forest - a forested, alluvial wetland occupying broad floodplain areas that flank large river systems.
Buffer - an upland, wetland, and/or riparian area that protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses.
Coastal Prairie - This is the prairie region of southwestern Louisiana which may occur on "islands" or "ridges" surrounded by marsh. The region is underlain by an impervious clay pan 6 to 18 inches below the surface that prevents downward percolation of water and inhibits upward movement of capillary water. Soils are typically circum-neutral to alkaline, saturated in winter, and often very dry in late spring and fall. The vegetation is quite diverse and dominated by grasses.
Compensatory mitigation - the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.
Compensatory mitigation project - the project performed by the permittee as a requirement of a DA permit (i.e., permittee-responsible mitigation), that produces the credits to offset project impacts.
Condition - the relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.
Credit - a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved.
Cumulative Impact - the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.
DA - Department of the Army.

Debit - a unit of measure (e.g., a functional or areal measure or other suitable metric) representing the loss of aquatic functions at an impact or project site. The measure of aquatic functions is based on the resources impacted by the authorized activity.
Dominant Impact - the work responsible for degrading/improving the wetland functions.
Ecologically preferable - the replacement of impacted wetland functions of one wetland type with a different wetland type that has different morphological and biological features, but is considered to be a more valuable and/or threatened habitat type than the impacted aquatic site.
Enhancement - the manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.
Establishment (creation) - the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and functions.
Forested batture – a community developed on the slope between the natural levee crest and major streams/rivers. It is a pioneer community which is first to appear on newly formed sand bars and river margins. The area receives sands and silts with each flood. The soils are semi-permanently inundated or saturated. Soil inundation or saturation by surface water or groundwater occurs periodically for a major portion of the growing season.
Functional capacity - the degree to which an area of aquatic resource performs a specific function.
Functions - the physical, chemical, and biological processes that occur in ecosystems.
Hydrologic Unit Code (HUC) - a way of identifying all of the drainage basins in the United States in a nested arrangement. Drainage basins in the United States have been divided and subdivided at four different levels and each assigned a unique hydrologic unit code (HUC) consisting of eight digits based on these four levels. The four levels from largest to smallest are regions, sub-regions, accounting units, and cataloging units. The 8-digit HUC (Cataloging Unit) serves as the primary service area for most banks in the New Orleans District.
Impact - To affect or influence changes in the function and quality of wetlands, especially in a significant or undesirable manner.
In-kind - a resource of a similar structural and functional type to the impacted resource.
Interagency Review Team (IRT) - an interagency group of federal, tribal, state, and/or local regulatory and resource agency representatives that reviews documentation for, and advises the district engineer on, the establishment and management of a mitigation bank or an in-lieu fee program.
Mitigation bank - a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. The operation and use of a mitigation bank are governed by a mitigation banking instrument.
Mitigation Banking Instrument (Instrument) - the legal document for the establishment, operation, and use of a mitigation bank.
Net Improvement - the level of enhancement and/or restoration of the functions of an aquatic site being used for mitigation.
Off-site - an area that is neither located on the same parcel of land as the impact site, nor on a parcel of land contiguous to the parcel containing the impact site.

On-site - an area located on the same parcel of land as the impact site, or on a parcel of land contiguous to the impact site.
Out-of-kind - a resource of a different structural and functional type from the impacted resource.
Performance standards - observable or measurable physical (including hydrological), chemical and/or biological attributes that are used to determine if a compensatory mitigation project meets its objectives.
Permittee-Responsible Mitigation - an aquatic resource restoration, establishment, enhancement, and/or preservation activity undertaken by the permittee (or an authorized agent or contractor) to provide compensatory mitigation for which the permittee retains full responsibility.
Pine flatwoods - habitat occurs primarily in the lower Florida Parishes and southwest Louisiana on essentially flat, low-relief areas with a high water table. They may infrequently occur in central Louisiana. Soils are normally mesic but may be saturated in winter and may become dry in summer. Soils are generally strongly acidic and fine sandy or silty.
Pine plantation – monoculture stands of pine trees managed for silvicultural purposes. These areas are typically in rows, are burned and or mechanically maintained on a regular basis such that very little midstory or understory plant communities exist.
Pine savanna - floristically rich, herb-dominated wetlands, that are naturally sparsely stocked with Pinus palustris (longleaf pine). They historically dominated the Gulf Coastal Plain flatwood regions of southeast and southwest Louisiana. The term "savannah" is classically used to describe expansive herb-dominated areas with scattered trees. Wet savannahs occupy the poorly drained and seasonally saturated/flooded depressional areas and low flats, while the non-wetland flatwoods occupy the better drained slight rises, low ridges and "pimple mounds" (only southwest LA). Pine savannahs are subject to a highly fluctuating water table, from surface saturation/shallow flooding in late fall/winter/early spring to growing-season droughtiness. Soils are hydric, very strongly acidic, nutrient poor, fine sandy loams and silt loams, low in organic matter.
Preservation - the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.
Re-establishment - the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.
Reference aquatic resources - a set of aquatic resources that represent the full range of variability exhibited by a regional class of aquatic resources as a result of natural processes and anthropogenic disturbances.
Rehabilitation - the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.
Release of credits - a determination by the district engineer, in consultation with the IRT, that credits associated with an approved mitigation plan are available for sale or transfer, or in the case of an in-lieu fee program, for fulfillment of advance credit sales. A proportion of projected credits for a specific mitigation bank or in-lieu fee project may be released upon approval of the mitigation

plan, with additional credits released as milestones specified in the credit release schedule are achieved.
Restoration - the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: reestablishment and rehabilitation.
Riparian areas - lands adjacent to streams, rivers, lakes, and estuarine/marine shorelines. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality.
Service area - the geographic area within which impacts can be mitigated at a specific mitigation bank or an in-lieu fee program, as designated in its instrument.
Services - the benefits that human populations receive from functions that occur in ecosystems.
Sponsor - any public or private entity responsible for establishing, and in most circumstances, operating a mitigation bank or in-lieu fee program.
Standard permit - a standard, individual permit issued under the authority of section 404 of the Clean Water Act and/or sections 9 or 10 of the Rivers and Harbors Act of 1899.
Temporal loss - the time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer may determine that compensation for temporal loss is not necessary, unless the resource has a long development time.
Watershed - a land area that drains to a common waterway, such as a stream, lake, estuary, wetland, or ultimately the ocean.
Watershed approach - an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by DA permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA permits.
Watershed plan - a plan developed by federal, tribal, state, and/or local government agencies or appropriate non-governmental organizations, in consultation with relevant stakeholders, for the specific goal of aquatic resource restoration, establishment, enhancement, and preservation. A watershed plan addresses aquatic resource conditions in the watershed, multiple stakeholder interests, and land uses. Watershed plans may also identify priority sites for aquatic resource restoration and protection. Examples of watershed plans include special area management plans, advance identification programs, and wetland management plans.

Waters of the United States – means:

(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.

(8) Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

III. The Workbook

A. General Information

For a mitigation plan to fully offset a project's adverse impacts, the credits produced by the restoration/enhancement mitigation project must be equal to or greater than the value of the wetland functions adversely impacted by the project. Instead of measuring the site's ability to perform a specific wetland function, MVN MCM assesses the potential of the site to perform wetland functions using a suite of factors. A factor is an element, circumstance, or influence which contributes to the overall quality of the site. Each factor is defined by a list of options that qualify the factor based on conditions at the impact/mitigation site. Selecting the option that best fits the site conditions for that factor and then summing all the factor values determines the overall value of the impact.

The factors used to evaluate the adverse impacts differ from those used to evaluate the restoration/enhancement mitigation project. In evaluating adverse impacts associated with a project constructed in wetlands, the model considers the wetland type, how well the wetlands functioned prior to project construction, how those wetland functions will be impacted as well as duration of that adverse impact. Finally, we determine the degree of cumulative effect the proposed project would have on the natural, physical and/or social environments of the area. To evaluate a project that has beneficial effects on wetlands, the model considers the net level of functional change, degree of maintenance required to perpetuate the project, existing and future anthropogenic influences and how well these projects are legally protected. If credits resulting from the project are to be used to compensate for wetland impacts associated with other projects, we also look at the location of the mitigation project relative to the location of the impacted site, the timing of the implementation of the mitigation relative to the adverse impacts and whether functional replacement is achieved.

The MVN MCM Microsoft Excel workbook is composed of six worksheets: "Summary", "Impacts", "Bank", "Restoration", "Comments" and "Multiple Banks." Other worksheets, such as a "Buffer", "Preservation" and/or "Creation" worksheet, may be added in the future. These are still under review and are not included in this edition of the workbook. Completion of these worksheets will depend on whether these methods of compensations become acceptable for compensating wetland impacts and on the availability of staff time and resources. If new worksheets are developed, the workbook and the guidebook will be revised to include these worksheets. Revised workbooks and guidebooks will be posted on the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS) located at http://geo.usace.army.mil/ribits/index.html.

The guidebook provides a discussion of each worksheet and includes definitions for each factor and option associated with that worksheet. Examples of how to use each worksheet are included within the text to assist users in understanding and demonstrating the functionality of the worksheet. In the workbook, each worksheet will include descriptions for each factor and will identify the different options associated with that factor. The definitions of each factor are in the worksheet as comments that are displayed when you place the cursor over the cell containing that specific factor (look for cells with red triangle in upper right corner).

The workbook and individual worksheets are password protected. Information can only be entered into specific cells as denoted by a cell being underlined or by a request to select an option. To enter information, highlight the cell with the cursor and either type in the information or use the pull-down list to populate the cell. Only appropriate responses will be accepted.

The structures of the tables in 'Impacts' worksheet, 'Restoration' worksheet, and 'Bank' worksheet, are designed to enhance the display of selected options and discern the values determined by those options. The user selects the appropriate option for each factor in the top table and the results of the selections are displayed in the lower table.

B. Calculating Adverse Impacts

The "Impacts" worksheet is used to calculate the probable impacts a project would have on wetland functions at a particular project site. The probable impacts of a project are determined by evaluating each of the factors associated with this worksheet and selecting the option within each factor that best fits the conditions found at that site. As each option is selected, the value for that option is automatically populated in the spreadsheet. The sum of values is then multiplied by the acreage of the project site to determine the number of credits impacted by the project. In some cases, the project site will need to be divided into more than one area in the worksheet. Under these conditions, the number of credits impacted for each area is summed to produce an overall number of credits impacted for the project.

1. Factors Used in the Impacts worksheet

There are six factors associated with the "Impacts" worksheet: Priority Category, Existing Vegetative Condition, Existing Hydrologic Condition, Duration, Dominant Impact, and Cumulative Impact. Following is a discussion of each factor and the options associated with those factors:

a. **Priority Category**: This factor considers the rarity of the habitat type within the CEMVN boundary and the difficulty involved in replacement of that habitat. Habitat classification and rarity information was obtained from the Louisiana Department of Wildlife and Fisheries[*]. Additional information regarding the habitat types can be found in Section II.

- **Primary priority** areas are those that are extremely rare and/or exhibit extreme difficulty in restoration. Impacts to primary priority areas should be rigorously avoided and minimized. Compensation for impacts in these areas should emphasize replacement nearby and in the same watershed. Designated Primary Priority. (r = 3.0)

    - Areas include:
        - National Estuarine Sanctuaries
        - State-Designated Natural And Scenic Rivers
        - National Wildlife Refuges

[*] Louisiana Natural Heritage Program. 2004. Terrestrial wildlife habitat types of Louisiana. Louisiana Department of Wildlife and Fisheries, Baton Rouge, LA. 30pp.

- All Tidal Waters
- State Wildlife Management Areas
- Mitigation Banks/Areas
- Anadromous Fish Spawning Waters
- Occupied Habitat for Federally-listed Threatened and Endangered Species

o *And the following categories of rare or imperiled aquatic systems:*
- Marsh (All Types)
- Bottomland Hardwood Forest
- Coastal Prairie
- Baldcypress/tupelo swamp
- Live Oak Natural Levee Forest (Chenier)
- Hillside Seepage Bog
- Pine Savanna
- Bayhead Swamp/Forested Seep

o **Secondary priority** areas include the following categories of vulnerable or uncommon aquatic systems that do not fall into the designated primary priority category (r = 2.0):

o Forested Batture
o Submerged Aquatic Habitat
o Mixed Pine-Hardwood Forest
o Pine Flatwoods

o **Tertiary priority** areas include the following categories of aquatic systems that do not fall into the designated primary priority category (r =1.0):

o Pine Plantations
o Degraded Primary And Secondary Habitats
o Sand Bar
o Supra-Tidal Marsh

o **Low Priority** areas include the following categories of aquatic systems (r = 0.5):

o Exotic-Infested Wetland Forest (i.e., more than 50 percent of stems are of exotic/nuisance species within degraded primary and secondary habitats)
o Mud Flats
o Farmed Wetlands
o Wet Pastures
o Non-Vegetated Open Water or Open Water with Floating Aquatics

b. **Existing Habitat Condition**: Habitat is defined as the part of the physical environment in which plants and animals live, and wetlands are among the most productive habitats in the world. They provide food, water, and shelter for fish, shellfish, birds, and mammals, and they

serve as a breeding ground and nursery for numerous species. The factor "Existing Habitat Condition" considers the degree of site disturbance relative to the ability of the site to provide for biological functions. This factor evaluates site disturbances relative to the existing functional state of the system.

- **Condition 1:** Provides high quality wildlife and fisheries habitat. This condition pertains to ecosystems that are in balance and show little or no anthropogenic disruption. (r = 3.0)

- **Condition 2:** Provides good quality wildlife and/or fisheries habitat. This condition pertains to forested ecosystems that exhibit high tree-species diversity but exhibit a small amount of disturbance, i.e., logged areas with a trees 35 to 50 years old, or fire-dependent ecosystems that exhibit a lack of burning but otherwise function to provide good quality habitat. For Marshes, this condition pertains to project areas with sub-optimal vegetative cover (<70% but > 50%), retaining high interspersion, perhaps showing initial signs of fragmentation or some anthropogenic impacts (a marsh buggy scar, a pipeline crossing, a ditch, etc.) with little or no access concerns (levees or marsh management structures). (r = 2.4)

- **Condition 3:** Provides moderate quality wildlife and/or fisheries habitat. This condition pertains to forest ecosystems that are missing typical canopy components due to past timber harvesting, are intensively managed as pine plantation, or are being overgrazed. Silvicuture practices resulted in a forest dominated by species typically found in the midstory, such as boxelder or ironwood. Managed pine plantations are typically bedded and are managed exclusively for loblolly or slash pine. Overgrazed forests usually have a sparse or absent groundcover and midstory strata. For marshes, open water and non-vegetated area cover >50%, marsh is partially impounded, or pipelines and roads fragment marsh into areas <100 acres in size. (r = 1.0)

- **Condition 4:** Provides low quality wildlife and/or fisheries habitat. This condition pertains to wetlands that have been impacted by previous land use (does not include areas harvested under the silviculture exemption) and recovery limited to pioneer or exotic species; willow thickets, Chinese tallow thickets. For Marshes, little vegetative cover (substantially fragmented) or when the vegetation is dominated by invasives, areas that have been substantially impacted by development (road crossings, oil fields) and management (impoundments) and exhibit limited wildlife and fishery use of these areas. (r = 0.5)

- **Condition 5:** Provides little habitat value for most wildlife and fisheries species throughout most of the year. This condition pertains to wet areas that have lost most of their habitat value due to annual/recurring maintenance/agricultural practices; farmed wetlands, maintained wet pasture. For Marshes, this condition pertains to highly degraded or contaminated marshes that may still fall under Regulatory jurisdiction. (r = 0.1)

c. **Existing Hydrologic Condition**: This factor considers the degree of hydrologic disturbance relative to the ability of the site to perform its normal physical and chemical functions. Hydrologic functions are those related to the quantity of water that enters, is stored in, or leaves a wetland. These functions include such factors as the reduction of flow velocity, the

role of wetlands as ground-water recharge or discharge areas, and the influence of wetlands on atmospheric processes. Water-quality functions include the trapping of sediment, pollution control, and the biochemical processes that take place as water enters, is stored in, or leaves a wetland. This factor evaluates site disturbances relative to the normal (unaltered) functional state of the system.

- **Condition 1:** For this condition, site hydrology and water quality is generally unaffected and existing disturbances do not alter hydrologic patterns such that the reach and condition of waters of the U.S. are unaltered (sea level rise should not be used to argue for or against disturbance). Examples; a utility line through a forested area may be a disruption to the habitat but does not alter sheetflow; a pipeline in non-tidal areas where pre-project elevations were restored. (r = 3.0)

- **Condition 2:** For this condition, site hydrology has been impaired by site disturbances but recovery of hydrologic functions could be reversed through natural processes. Site disturbances such as logging ruts, shallow bedding activities associated with forestry practices, shallow abandoned ditches, old road dumps with shallow ditches or minor earthen dikes that impair flow causing minor ponding or have a minor shadow effect or redirect flow but do not affect water quality or surface water retention time. Water quality is unimpaired. (r = 2.4)

- **Condition 3:** For this condition, site hydrology and water quality functions have been impaired by site disturbances. The site has regularly maintained ditches that effectively reduce surface water retention time, is downstream from developed areas where excessive water or water containing high levels of sediments, nutrients, hydrocarbons or other pollutants are directed onto the site affecting surface water quality, or water is directed away from the site by roadway or other earthen embankments reducing the duration that surface water remains on the site. Full functional recovery could be done with most of the work done on the site or immediately off site. (r = 1.0)

- **Condition 4:** For this condition, site hydrology and water quality functions have been seriously impaired by site disturbances such that the site no longer performs many of those functions. Full functional recovery would require major restoration efforts on and especially off the project site. For example: filled areas, excavated areas, or major drainage canals that effectively remove water from distant areas and adjacent wetlands. (r = 0.5)

- **Condition 5:** For this condition, site hydrology and water quality functions have been permanently impaired by site or off-site disturbances such that the site no longer performs many of those functions. Functions cannot be restored. For example: pumped areas that have subsided to such an extent that restoring hydrologic connections to outside wetlands would permanently flood the area. (r = 0.1)

d. **Duration**: This factor considers the length of time the adverse impacts are expected to last. The options are as follows:

- 0 to 1 years (r = 0.0)
- 1 to 3 years (r = 0.1)

- 3 to 5 years (r = 0.5)
- 5 to 10 years (r = 0.8)
- Over 10 years (r = 1.0)

e. **Dominant Impact**: The following defines the possible options associated with this factor.

- **Clear** means to remove vegetation with minimal disturbance to the existing topography (r = 0.5).

- **Draining** means ditching, channelization, or excavation that results in the removal of water from an aquatic area causing the area, or a portion of the aquatic area, to change over time to a different type of aquatic area or to a non-aquatic area (r = 2.0).

- **Dredge** means to dig, gather, pull out, or excavate from a "water of the United States" (r = 2.5).

- **Fill** means depositing material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a water body (r = 2.5).

- **Impound** means to collect or confine the flow of a riverine system by means of a dike, dam, or other man made barrier. Impoundments may result in the formation of ponds, lakes, reservoirs, detention basins, etc. OR, as in flood dikes or levees, they may limit the reach of high waters (r = 1.5).

- **Shading** means to shelter or screen by intercepting radiated light or heat. More problematic in marsh habitats where shading would lead to open water habitat. Examples of projects causing shading impacts include bridges, piers, and buildings on pilings (r = 1).

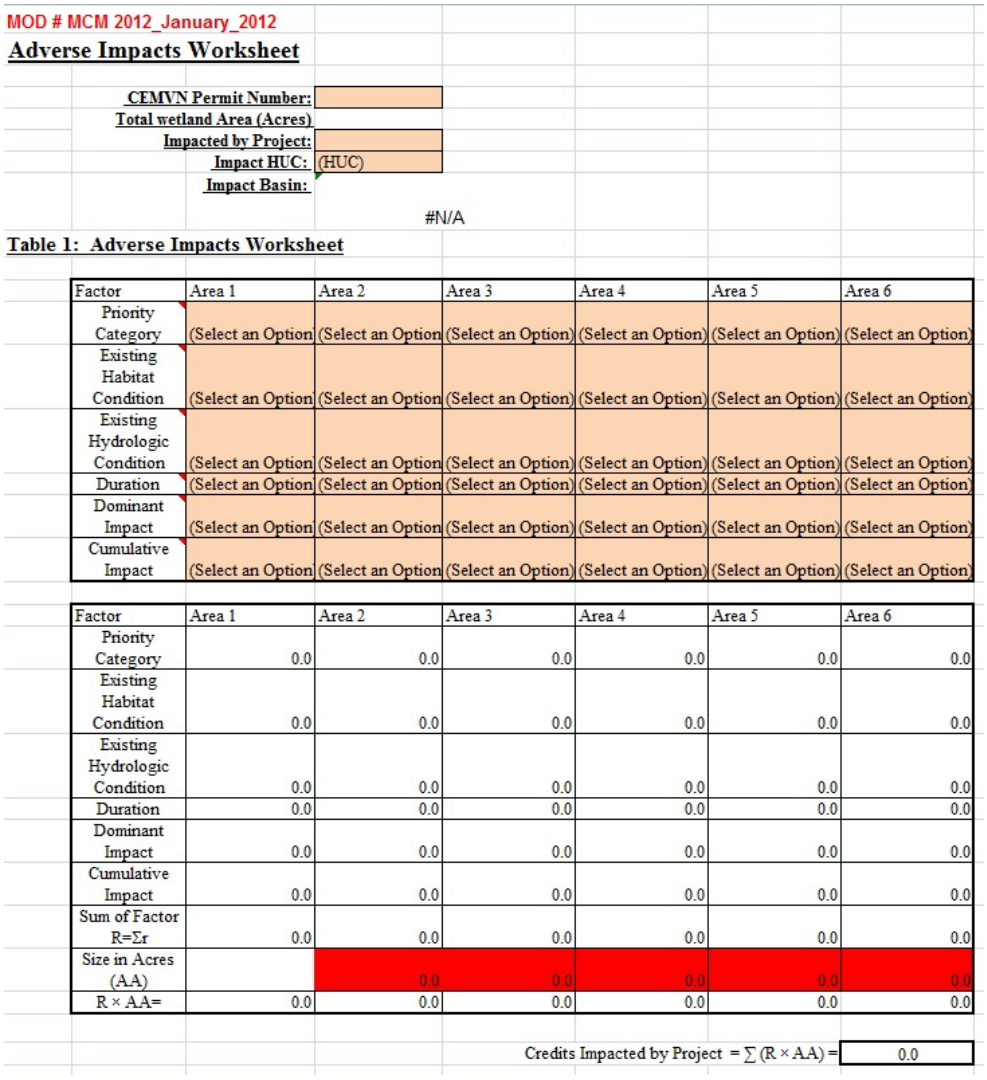
f. **Cumulative Impact** ($r = y\Sigma AA_i$): This factor estimates the potential cumulative and indirect impacts of the proposed project (r), where "*y*" is the estimated magnitude of secondary impacts. Cumulative Impact is an evaluation of the cumulative adverse impacts to aquatic sites for the overall project. Cumulative Impact equals the sum of acreage for all areas times "*y*" for that option. Cumulative Impact is calculated for each option this way. The degree (high, medium, or low) of cumulative impact is determined in the evaluation process of the DA permit application. The following "y" values will be utilized in this factor calculation:

- **High (y = 0.025)**
- **Medium (y = 0.005)**
- **Low (y = 0.001)**

2. The Worksheet

Information can be entered either by typing in the options or selected from a pull down list in the worksheet (see Figure 1). The CEMVN permit number must be entered at the top of the worksheet. The cumulative acres of impact should be entered into the "Total Wetland Area

Impacted by the Project" at the top of the Worksheet. The user also must enter the total acres of each individual Area of Impact at the bottom of the Worksheet. The sum of these areas should equal that value entered in the "Total Wetland Area Impacted by Project." The Worksheet provides for separating the impacted site into as many as six Areas of Impact. There may be reasons to separate the impacted site into more than one area due to variation of one or more of the factors considered. For example, there may be more than one habitat impacted or the habitat may vary in quality across the site or there may be different dominant impact types or duration of those impacts.[1] All the remaining information is entered into the worksheet through pull-down lists. Choosing an option for a factor from the pull-down list will populate the cell with the appropriate r-value for that option.



MOD # MCM 2012_January_2012

Adverse Impacts Worksheet

CEMVN Permit Number:	
Total wetland Area (Acres) Impacted by Project:	
Impact HUC:	(HUC)
Impact Basin:	

#N/A

Table 1: Adverse Impacts Worksheet

Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Priority Category	(Select an Option	(Select an Option	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Existing Habitat Condition	(Select an Option	(Select an Option	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Existing Hydrologic Condition	(Select an Option	(Select an Option	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Duration	(Select an Option	(Select an Option	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Dominant Impact	(Select an Option	(Select an Option	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Cumulative Impact	(Select an Option	(Select an Option	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)

Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Priority Category	0.0	0.0	0.0	0.0	0.0	0.0
Existing Habitat Condition	0.0	0.0	0.0	0.0	0.0	0.0
Existing Hydrologic Condition	0.0	0.0	0.0	0.0	0.0	0.0
Duration	0.0	0.0	0.0	0.0	0.0	0.0
Dominant Impact	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Impact	0.0	0.0	0.0	0.0	0.0	0.0
Sum of Factor R=Σr	0.0	0.0	0.0	0.0	0.0	0.0
Size in Acres (AA)		0.0	0.0	0.0	0.0	0.0
R × AA=	0.0	0.0	0.0	0.0	0.0	0.0

Credits Impacted by Project = ∑ (R × AA) = 0.0

Figure 1. Impacts Worksheet

[1] IF more than 6 "areas' are required to properly analyze the project impacts, the worksheet must be modified to add additional columns. Using two or more worksheets to compute impacts for a single project will result in underestimating project impacts. Please contact the MVN MCM administrator to modify the worksheet for your use.

3. Example Using the Adverse Impact Worksheet

The following example illustrates the use of the worksheet.

Permit Number MVN-2008-0000: Company XYZ proposes to construct a 20-acre residential development in Ascension Parish immediately south of Gonzales, Louisiana. The project, as proposed, would impact approximately 10 acres of bottomland hardwood forest (BLH) and 5 acres of wet pasture (WP). According to the U.S. Fish and Wildlife Service, these forested wetlands provide high quality habitat. This project site exhibits little evidence of disturbance both vegetatively and hydrologically. There are no field ditches. Surrounding land use is similar to that proposed by the applicant. The applicant proposes to fill the wetlands and slope the area to provide drainage to the site. The applicant will utilize an in-kind mitigation bank that is located within the same 8-digit HUC. How many credits would the applicant be responsible for replacing?

First step: Input site information:

a) Enter the permit number.

b) Enter the total wetland acres to be impacted by the proposed project

c) Select from the pull-down list the HUC in which the impact occurs (in this case 08070204). Selecting the HUC also populates the major watershed in which the impact occurs.

Second step: Determine how many work areas will be required. Onsite wetlands are of two habitat types, so we will need to use at least two areas. There is only one Dominant impact type, filling of the wetlands, for both habitat types therefore, we still only need two areas for the project to fully evaluate the adverse impacts. Now enter the acreage for each area in the "Size in Acres" row for columns "Area 1" and "Area 2".

Third step: Determine which option to select for each factor in "Area 1" and "Area 2".

a) Priority Category: BLH is identified in the primary priority category and WP is identified in the low priority category. Therefore, select primary for "Area 1" and low for "Area 2". The r-values are "Area 1" = 3.0 and "Area 2" = 0.5.

b) Existing Vegetation: Based on U.S Fish and Wildlife information and the definitions for the different classes, BLH at the impact site is a "Condition 1" while WP would be "Condition 5". Select the appropriate option for each area. The r-values are "Area 1" = 3.0 and "Area 2" = 0.1.

c) Existing Hydrology: Both the BLH and WP wetlands areas exhibit undisturbed hydrology. Select "Condition 1" for both areas. The r-value for both "Area 1" and "Area 2" = 3.0

d) Duration: Because the proposed future land use is for a residential subdivision, it is anticipated that the impact would be long-term. Therefore, we will select "over 10 years" for both areas.

e) Dominant Impact: The applicant indicates that all wetlands on site would be filled. Therefore, the option for both areas would be "fill" and r-values for both are 2.5.

f) Cumulative Impact: The project is comparable to surrounding land uses and would not likely spur increased development within the area. Therefore, the project would have a low cumulative effect on area resources.

Last step: Enter the acreage in "Size of Area (AA)" in appropriate column.

Having completed selecting options in the Adverse Impact Worksheet, the required credits for each area is calculated and summed at the bottom of the worksheet. Our completed worksheet is included as Figure 2. Additionally, the permit number, total number of credits required and the acreage impacted by the proposed project are carried over from the "Impacts" worksheet to the "Summary" worksheet (see Figure 3).

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Adverse Impacts Worksheet

CEMVN Permit Number:	MVN-2008-0000
Total wetland Area (Acres)	
Impacted by Project:	15.0
Impact HUC:	08070204
Impact Basin:	Lake Pontchartrain/Breton Sound/Chandeleur Sound

Table 1: Adverse Impacts Worksheet

Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Priority Category	Primary	Low	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Existing Habitat Condition	Condition 1	Condition 5	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Existing Hydrologic Condition	Condition 1	Condition 1	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Duration	Over 10	Over 10	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Dominant Impact	Fill	Fill	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Cumulative Impact	Low	Low	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)

Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Priority Category	3.0	0.5	0.0	0.0	0.0	0.0
Existing Habitat Condition	3.0	0.1	0.0	0.0	0.0	0.0
Existing Hydrologic Condition	3.0	3.0	0.0	0.0	0.0	0.0
Duration	1.0	1.0	0.0	0.0	0.0	0.0
Dominant Impact	2.5	2.5	0.0	0.0	0.0	0.0
Cumulative Impact	0.0	0.0	0.0	0.0	0.0	0.0
Sum of Factor R=Σr	12.5	7.1	0.0	0.0	0.0	0.0
Size in Acres (AA)	10.0	5.0	0.0	0.0	0.0	0.0
R × AA=	125.2	35.6	0.0	0.0	0.0	0.0
					Credits Impacted by Project = ∑ (R × AA) =	160.7

Figure 2: Impact worksheet for MVN 2008-0000 example.

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SUMMARY WORKSHEET

Mitigation Summary Worksheet For Permit Application #	MVN-2008-0000
Mitigation will be performed at:	(No Bank Selected)
AND/OR Mitigation will be permittee-responsible and performed at:	
	0

1. Impacts to be Mitigated	Credits	Acres
	160.7	15.0

2. Out of Basin Factor	Required	Value
Permittee-Responsible Mitigation	No	1.00
Mitigation Bank	No	1.00

3. Permittee-Responsible Mitigation Credit Summary	Credits	Acres
	0.0	0.0

4. Banking Mitigation Credit Summary	Credits	Acres
	160.7	0.0

IV. Grand Totals	Credits	Acres
	160.7	0.0

Figure 3: Summary Worksheet for MVN 2008-0000 example.

C. Required Mitigation Credits to be obtained from a Restoration/Enhancement Project

1. Factors Used in the "Restoration" Worksheet.

The "Restoration" worksheet is used to calculate the benefits to wetland functions generated by site restoration or enhancement work. The benefits generated by a project are determined by evaluating each of the seven factors associated with this worksheet by selecting the option within each factor that best describes the mitigation work. As each option is selected, the value for that option is automatically populated in the spreadsheet. The sum of values is then multiplied by the acreage of the project site to determine the number of credits impacted by the project. In some cases, the project site will need to be divided into more than one area in the worksheet depending on differences that may occur on the site or type of mitigation proposed. When there is more than one area, the number of credits generated for each area is summed to produce an overall number of credits available at the project site.

a. *Net Improvement*: This factor is an evaluation of the net level of functional change to a site associated with a proposed compensatory mitigation action. It does not consider the amount

of work required to produce that lift. Characterizations of mitigation sites and mitigation actions are identified based on the wetland project type definitions found in 33 CFR 332.2. Net improvement values range from 0.1 to 4.0. Activities resulting in self-sustaining hydrology are valued greater than those that have potentially negative hydrologic influences remaining or require active hydrologic management. The Net Improvement Factor is divided into two sub factors; Mitigation Types and Maintenance/Management requirements. The product of these two numbers determines the overall score for net improvement.

- Mitigation Types:

o **Re-establishment 1**. Site is a former wetland having lost the necessary hydrologic component to support hydrophytic vegetation. Potential sites include agricultural areas or maintained pasture areas. The sponsor proposes to manipulate the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Sponsor to plant site with species determined to be appropriate for soil and restored hydrologic conditions. All evidence of surface hydrologic disturbance to be eliminated (i.e. adjacent or internal drainage ditches absent or filled, spoil banks/berms removed, road beds degraded to adjacent ground elevations, and other potentially negative influences to site hydrology removed).

OR: Site is predominantly open water. Sponsor to deposit dredged material to an elevation conducive to tidal marsh re-establishment, plant dredged material and restore/create small tidal channels for fisheries access. (m = 4.0)

o **Re-establishment 2**. Site is a former wetland having lost the necessary hydrologic component to support hydrophytic vegetation. Potential sites include agricultural areas or maintained pasture areas. The sponsor proposes to manipulate the physical, chemical, or biological characteristics of a site with the goal of returning natural or historic functions to a former wetland. Sponsor to plant site with species determined to be appropriate for soil and restored hydrologic conditions. Surface hydrologic disturbance remain such that surface water is intercepted or redirected to specific points (i.e., internal drainage ditches remain evident; spoil banks or berms have been gapped but not removed, etc.) or, internal or adjacent hydrologic disturbances exist over which the Sponsor has no control. (m = 3.5)

o **Rehabilitation 1**. Proposed site is a degraded wetland; most functions have been severely impacted by prior land use such that it does not exhibit the general characteristics of target-type ecosystem. Site is farmed wetlands, wet pasture, crawfish pond constructed in former wet areas that have been out of agricultural production for less than five years, and areas dominated by Chinese tallow tree. The proponent proposes to repair natural or historic functions by planting species determined to be appropriate for soil and restored hydrologic conditions; or, Proposed site is an existing wetland system that is comprised of a fire depressed vegetation regime and lacks herbaceous positive indicator species typical of pine flatwood/savanna or prairie systems. All evidence of on-site surface hydrologic disturbances to be eliminated, i.e. internal drainage ditches absent or filled, spoil banks/berms removed, road beds degraded to adjacent ground elevations, complete degradation of bedding and other potentially negative influences to site hydrology removed. Sponsor to plant site with species determined to be appropriate for soil and restored hydrologic conditions. (m = 3.0)

- **Rehabilitation 2.** Proposed site is a degraded wetland; most functions have been severely impacted by prior land use such that it does not exhibit the general characteristics of target-type ecosystem. Site is farmed wetlands, wet pasture, crawfish pond constructed in wet areas that have been out of agricultural production for less than five years, and areas dominated by Chinese tallow tree. The proponent proposes to repair natural or historic functions by planting species determined to be appropriate for soil and restored hydrologic conditions. or, Proposed site is an existing wetland system that is comprised of a fire depressed vegetation regime and lacks herbaceous positive indicator species typical of pine flatwood/savanna or prairie systems. Surface hydrologic disturbance remain such that surface water is intercepted or redirected to specific points (i.e. internal drainage ditches remain evident; spoil banks or berms have been gapped but not removed, etc.) or, internal or adjacent hydrologic disturbances exist over which the Sponsor has no control; (m = 2.7)

- **Enhancement 1**. Proposed site is a wetland (undisturbed or degraded) site. The proponent proposes to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present (i.e., pine plantation conversion back to mixed pine/hardwood system). Multiple functions have been altered or degraded. Bank proponent to implement multiple functional improvements necessary to substantially counteract or correct multiple functional deficiencies including removing minor hydrologic disturbances or render major hydrologic disturbances ineffective and replacing existing vegetation structure with a preferable vegetation suite; (m = 2.3)

- **Enhancement 2.** Proposed site is a wetland (undisturbed or degraded) site. The proponent proposes to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present (i.e., pine plantation conversion back to mixed pine/hardwood system). A single functional improvement is necessary to substantially counteract or correct a single functional deficiency; either restore surface hydrology or replacing existing vegetation structure with a preferable vegetation. (m = 2.0)

- **Hydric Inclusions**. Site is a functioning wetland and integral to the functionality of adjacent wetlands or aquatic resources. Credit granted may not exceed 10% of credit generated by cumulative sum of re-establishment, rehabilitation, and enhancement credits. (m = 0.6)

- **Non-Hydric Inclusions**. Site is not a wetland (non-hydric inclusion(s) within the proposed mitigation site but due to landscape positioning is integral to functionality of adjacent wetlands or aquatic resources. Credit granted may not exceed 10% of credit generated by cumulative sum of re-establishment, rehabilitation, and enhancement credits. (m = 0.4)

- **Buffers**. A maximum of 200 foot corridor along the perimeter of the site which is integral to functionality of adjacent wetlands or aquatic resources and provides a barrier between the site and adjacent properties. Credit granted may not exceed 10% of credit generated by cumulative sum of re-establishment, rehabilitation, and enhancement credits. (m = 0.2)

It should be noted that credit will only be granted for hydric, and non-hydric inclusions and buffers that are included within the conservation servitude (see Section C.1.c).

- Maintenance/Management Requirement:

- **Self-Sustaining**: Project site functions without dependence on structural management. Example: levee breached, internal and external ditches rendered ineffective at onset of project; culverts exist only to improve sheetflow across project site. (m = 1.0).

- **Short-term Management**: dikes, culverts or other structures either installed or to remain in place temporarily or vegetative controls required initially all to provide protection for vegetative plantings until they have become established. Examples: plugs in perimeter ditches, temporary structures to control hydrology for no more than 5 years. (m = 0.9).

- **Passive Management**: Open culverts or other passive management structures that are required for habitat restoration and require monitoring and irregular repair or replacement to maintain hydrology. (m = 0.4).

- **Active Management**: Tidal exchange or overflow from adjacent river under active management. Gated structures or variable crest weirs that function to regulate water levels and/or salinities working in conjunction with dikes or natural landscape features to effectively manage surface hydrology, i.e., greentree reservoirs, marsh management projects, areas within existing leveed areas. **OR**: Site is maintained by methods other than natural means, i.e., mowing to reduce competition from shrubs or trees. (m = 0.1).

b. *Control:* This factor focuses on the mechanism for enforcing land protection. Related terms are:

- **Conservancy:** means transferring fee title to a qualified, experienced, non-profit conservation organization or government agency that guarantees perpetual protection for wetlands; public access provided subject to title and conservation restrictions; long-term manager established to comply with mitigation monitoring and management plan. (m = 0.6).

- **Conservation Servitude:** means a conservation servitude granted pursuant to the Louisiana Conservation Servitude Act, R.S. 9:1271 et seq. and recorded in the Mortgage and Conveyances Records Office of the parish (m = 0.4).

- **Deed Restrictions:** means restrictions placed on a property by a private individual or business enterprise binding on current and future owners and are recorded on the deed to the property (m = 0.1).

- **Subdivision Covenant** means restrictions placed on land use as part of a agreement intended to preserve, sustain, or preserve the ambiance of a development with oversight by a property owners association or other similar, formally chartered, non-profit organization (m = 0.0).

- **No Controls** placed on property, Section 404 of the Clean Water Act the only regulating tool to protect wetlands on the property (m = -0.5).

c. Temporal Lag: This factor considers the temporal loss of wetland or aquatic area functions due to a time lag in the ability of the enhanced, restored, or created mitigation area to replace most of the functions lost at the impact site. Different systems will require different time to reach levels of functional capacity similar to the impact site. The following table provides temporal lag estimates for common wetland ecosystems.

Temporal Lag	**Habitat Type**
0 to 5 years (m = 0.0)	Prairie
5 to 10 years (m = -0.1)	Marsh
10 to 20 Years (m = -0.2)	Pine Savanna
Over 20 Years (m = -0.3)	Bottomland Hardwood Forest Baldcypress Swamp Mixed Pine-Hardwood Forest

d. *Credit Schedule*: Refers to the time when the mitigation will be performed relative to the impact for which it compensates (i.e. timing of mitigation). Related terms include:

- **Schedule 1**. Mitigation completed prior to project impacts occurring (m = 0.4).

- **Schedule 2**. Mitigation completed concurrently with or prior to the next growing season (m = 0.3).

- **Schedule 3**. Mitigation project implemented one or more planting seasons after the impact has occurred but financial assurances are in place to guarantee that the mitigation project is completed or that an alternative mitigation plan can be funded (m = 0.2).

- **Schedule 4**. Mitigation completed more than one full year after the impact has occurred (m = 0.0).

e. **Kind:** This factor is used to compare the relative functions and values of the mitigation site to the impacted site.

- **Category 1** is in-kind (r = 0.4);

- **Category 2** is mixed in-kind and out-of-kind, but of similar ecological value. (r = 0.3)
- **Category 3** is out-of-kind but is ecologically preferable. (r = 0.2)

- **Category 4** is out-of-kind, not preferable but of equivalent or high ecological value. (r = 0.1)

- **Category 5** is out-of-kind, but only practicable solution. (r = 0.0)

*The user should select Category I for the kind factor when implementing primary category habitat type mitigation for impact to low priority habitat types.

f. **Location:** This factor is used to compare the relative location of the mitigation site to the impact site. Ranking criteria are*:*

- **Zone 1** If utilizing a mitigation bank, the impact occurs within the bank's primary service area. If a PRM, the mitigation project site is within the same 8-digit HUC as the impact. (r = 0.4).

- **Zone 2** If utilizing a mitigation bank, the impact occurs within the bank's secondary service area. If a PRM, the mitigation project site is within the same river basin as the impact. (r = 0.3).

- **Zone 3** If utilizing a mitigation bank, the impact occurs outside of the bank's primary and secondary service area. If a PRM, the mitigation project site is located outside of the river basin as the impact. (r = 0.0).

There are eight river basins within CEMVN as recognized by the Louisiana Department of Environmental Quality and the Louisiana Department of Natural Resources. The major watersheds and 8-digit HUC's within each river basin are as follows:

Lake Pontchartrain Basin	08070202: Amite River
	08070203: Tickfaw River
	08070204: Lake Maurepas
	08070205: Tangipahoa River
	08090201: Liberty Bayou - Tchefuncta River
	08090202: Lake Pontchartrain
	08090203: Eastern Louisiana Coastal
Mississippi River Basin	08070100: Lower Mississippi River - Baton Rouge
	08070201: Bayou Sara - Thompson Creek
	08090100: Lower Mississippi River - New Orleans
Terrebonne Basin	08070300: Lower Grand River
	08090302: West - Central Louisiana Coastal
Atchafalaya Basin	08080101: Atchafalaya River
Vermillion-Teche Basin	08080102: Bayou Teche
	08080103: Vermillion River
Barataria Basin	08090301: East - Central Louisiana Coastal
Mermentau Basin	08080201: Mermentau Headwaters
	08080202: Mermentau
Calcasieu Basin	08080203: Upper Calcasieu River
	08080204: Whiskey Chitto River
	08080205: West Fork Calcasieu
	08080206: Lower Calcasieu

CEMVN utilizes only two service areas for marsh impacts, the deltaic and Chenier plains. For viewing purposes within the MVN MCM Workbook, those service areas are identified without HUC listings. For marsh impacts, the deltaic plain service area includes HUCs 08070204, 08070205, 08090201, 08090203, 08090100, 08090302, 08090301, 08080101, 08080102, and those portions of 08080103 within Iberia Parish while the chenier plain service area includes HUCs 08080202, 08080206, and those portions of 08080103 within Vermilion Parish.

*CEMVN does not consider any secondary service areas for marsh; therefore, the only selections applicable will be Zone 1 and Zone 3.

In relation to Zone 3, 33 CFR Part 332 stresses functional replacement within the same watershed where practicable, even to the point of mitigating out-of-kind if in-kind mitigation is not available within the watershed. Therefore, Zone 3 is unlikely to be approved. Should it be approved, the amount of credits required will be adjusted using a proximity factor developed by the Mobile District.

g. *Negative influences*: This factor refers to anthropogenic influences, both internal and external to the mitigation project that negatively impact wetland functions of that site. Negative influences affect the ability of the wetland to provide quality wildlife/fisheries habitat and the ability to manage the restoration/enhancement project effectively. The degree of the impact is dependent upon the size of the mitigation projects. Larger mitigation projects have the ability to buffer some effects of negative influences by distancing the majority of the mitigation project from the negative influence. The smaller the mitigation project, the greater impact any negative influence would have on the wetland functions attributable to that mitigation project. Therefore, size is included in the negative influence factor as a sub-factor.

More than one sub-factor may negatively influence restoration/enhancement potential of a mitigation site. Some influences may not have the same effect on all wetland types. For example, a utility corridor through a predominantly emergent marsh or pine savanna does not exert nearly the impact in these habitats as it would a forested ecosystem where it fragments the forest into smaller units having less habitat value. Therefore, when evaluating the impact a negative influence may have on the mitigation project, the user should consider the habitat type and management requirements of the mitigation project.

NOTE: The user should also understand that while each negative influence factor has a description for each option, CEMVN recognizes that not all situations may fit within the provided descriptions. The user is allowed to make a selection and use the comment tab to justify that selection should the mitigation site characteristics differ from those described within the MVN MCM.

- *Commercial and/or residential development.* This factor approximates the percentage of development found within one mile of the mitigation property boundary. If development borders one side of the mitigation project, then assume at minimum a moderate impact. If development occurs along two sides then assume the impact is serious. The proponent should provide information relative to future development in the area. Information could be from discussions with local government or city or parish zoning, planning documents or land use plans.

o **No Impact:** There is no development directly adjacent to the Site and less than 15% cumulative development within 1 mile radius of the perimeter of the site (m = 0.0).

o **Moderate**: The site is bordered on one side by development or between 15 - 30% cumulative development within 1 mile radius of the perimeter of the site (m = -0.25).

- **Serious**: The site is bordered on more than one side by development or greater than 30% cumulative development within 1 mile radius of the perimeter of the site (m = -0.5).

- *Oil & Gas Exploration/Production* – Potential impacts from oil and gas development.

- **No Impact:** There are no active or abandoned oil and gas wells on the site (m = 0.0).

- **Moderate**: No active oil and gas wells on the site and no more than one abandoned well closed in accordance with applicable regulations per 100 acres of the site (m = -0.25).

- **Serious:** Existing active oil and gas wells on the site or greater than one abandoned well per 100 acres of the site closed under applicable regulations (m = -0.5).

- *Size* – Although edge habitat produces habitat diversity and are used by many wildlife species, it is important to understand four concepts: 1) wildlife species which thrive in edge habitat are highly mobile and presently occur in substantial numbers, 2) edge habitat is quite available due to continual forest fragmentation from residential and/or commercial development and ongoing timber harvesting, 3) most wildlife species found in "edge" habitat are "generalists" in habitat use and are quite capable of existing in larger tracts, and 4) those species in greatest need of conservation are "specialists" in habitat use and require large forested tracts for maintaining populations. Therefore, the basic assumptions for this sub-factor are that larger tracts are less common, have a greater potential for habitat diversity, provide a greater degree of isolation and thereby offer higher quality habitat than smaller tracts.

- **Category 1** – Greater than 500 acres or adjacent to greater than 500 acres of wetlands either protected by legal instrument or due to its location within the landscape has a low probability of development (m= 0.0).

- **Category 2** – Between 500 and 100 acres or adjacent to between 500 and 100 acres of wetlands either protected by a legal instrument or due to its location within the landscape has a low probability of development (m = -0.25).

- **Category 3** - Less than 100 acres cumulative from proposed site and adjacent wetlands protected by a legal instrument or due to its location within the landscape has a low probability of development (m = -0.5).

- *Corridors* – Corridors adjacent and/or through a mitigation property may impact the restoration/enhancement work by removal of woody vegetation, generating noise that may be disruptive to wildlife, produce fragmentation, and altering surface hydrology beyond the control of the proponent. These corridors may be public and/or private. Private access roads will have little or no noise associated with them and may have less of a hydrologic impact if they are at grade (no ditching that divert surface flows) and may be made less intrusive through hydrologic restoration, however the fragmentation could occur unless width is minimized. Depending upon residential and commercial development in the area, public roads may or may not produce high noise levels. To evaluate the level of noise associated with these roads, the sponsor may want to

provide traffic data obtained from the local or state highway department for review. Local hydrology can be seriously impacted depending upon the highway maintenance schedule and highway design.

- **No Impact**: No highways bisect the site or are directly adjacent to the site. Lightly traveled public road directly adjacent to no more than one side of the site. No roadway, pipeline or utility corridors that fragment the habitat type or hinder mitigation site management are present on the site (m = 0.0).

- **Moderate:** A highway directly adjacent to only one side of the site, and does not bisect the site, or; A single lightly traveled public road, pipeline, or utility corridor bisects the site into no more than 2 fragments not less than 100 acres in size each (m = -0.25).

- **Serious:** A highway bisects the site, or; A single lightly traveled public road, pipeline, or utility corridor bisects the site into no more than 2 fragments less than 100 acres in size each, or; More than one lightly traveled public road, pipeline, or utility corridor bisects the site (m = -0.5).

2. The Worksheet

The only information to be entered into the worksheet is the mitigation project name and the mitigation project size in acres. The cumulative acres of the mitigation project from which credit is generated (include wetlands, buffers, and inclusions placed under conservation servitude) should be entered into the "Mitigation Project Size (Acres)" at the top of the Worksheet. The user also must enter the total acres of each individual mitigation area at the bottom of the Worksheet, the sum of these areas should equal that value entered in the "Mitigation Project Size (Acres). All the remaining information is entered into the worksheet through pulldowns (Figure 4). The pulldowns for the options in each factor when selected will populate the m-value cell with the appropriate value from the factor table.

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Table 2B: Proposed Restoration/Enhancement Mitigation Worksheet

Mitigation Project Na

Mitigation Project Size (Acres) Include Wetlands, Non-wetlands and Buffer Areas:	0.0
Mitigation Project HUC:	(HUC)
Mitigation Project Basin:	(Basin)
Impacted HUC:	08070204
Mitigation Project in the same basin as the impact:	Yes
Proximity Factor:	1.0

	Factors	Area 1	Area 2	Area 3	Area 4	Area 5
Net Improvement	Mitigation Type	(Select an Option)	(Select an Option	(Select an Option	(Select an Option	(Select an Option
	Maintenance/ Management Requirement	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Control	(Select an Option)	(Select an Option	(Select an Option	(Select an Option	(Select an Option
	Temporal Lag	(Select an Option)	(Select an Option	(Select an Option	(Select an Option	(Select an Option
	Credit Schedule	(Select an Option)	(Select an Option	(Select an Option	(Select an Option	(Select an Option
	Kind	(Select an Option)	(Select an Option	(Select an Option	(Select an Option	(Select an Option
	Location	(Select an Option)	(Select an Option	(Select an Option	(Select an Option	(Select an Option
Negative Influences on the mitigation site	Commercial/Residential Development	No Impact	No Impact	No Impact	No Impact	No Impact
	Oil & gas activities	No Impact	No Impact	No Impact	No Impact	No Impact
	Size	Category 1	Category 1	Category 1	Category 1	Category 1
	Corridors	No Impact	No Impact	No Impact	No Impact	No Impact

	Factors	Area 1	Area 2	Area 3	Area 4	Area 5
Net Improvement	Mitigation Type * Maintenance/ Management Requirement	0.0	0.0	0.0	0.0	0.0
	Control	0.0	0.0	0.0	0.0	0.0
	Temporal Lag	0.0	0.0	0.0	0.0	0.0
	Credit Schedule	0.0	0.0	0.0	0.0	0.0
	Kind	0.0	0.0	0.0	0.0	0.0
	Location	0.0	0.0	0.0	0.0	0.0
	Subtotal	0.0	0.0	0.0	0.0	0.0
Negative Influences on the mitigation site	Commercial/Residential Development	0.0	0.0	0.0	0.0	0.0
	Oil & gas activities	0.0	0.0	0.0	0.0	0.0
	Size	0.0	0.0	0.0	0.0	0.0
	Utility Corridors	0.0	0.0	0.0	0.0	0.0
	Sum of negative impacts	0.0	0.0	0.0	0.0	0.0
	Sum of m Factors	0.0	0.0	0.0	0.0	0.0
	Size of Area (Acres)		0.0	0.0	0.0	0.0
	M × A=	0.0	0.0	0.0	0.0	0.0
Acreage required for Permittee-responsible Mitigation project using required credits calculated in Adverse		0.0	0.0	0.0	0.0	0.0

Total Restoration/Enhancement Credits = ∑ (M × A) =	0.0
Total Available including buffers	0.0
Average Credit Per Acre =	0.0

	Buffers	Non-hydric inclusions	Hydric Inclusions
Credits per acre (M)	0.2	0.4	0.6
Size in Acres (A)		0.0	0.0
M × A =	0.0	0.0	0.0
Credits added to bank =			0.0

Figure 4: Restoration Worksheet

3. Example Using the Restoration Worksheet

The following example illustrates the use of the worksheet.

MVN-2008-0000: Company XYZ proposes to compensate on 30 acres that it owns adjacent to the proposed subdivision. The site has been determined to be non-jurisdictional due to the loss

of hydrology and is currently maintained as hayfields. The site is isolated from surrounding development by forested wetlands and is accessible by a maintained forest/field road. There are no rights-of-way or other encumbrances on the property. The soils indicate that the site probably could be converted back to bottomland hardwood forested wetlands if the field drains were plugged and natural recruitment was supplemented by hardwood plantings. XYZ indicates it will do whatever is necessary to get the highest mitigation credit available on the project site including donation of the site to the conservation organization "Land Trust". Included in the proposal is a 200-foot forested wetland buffer (24 acres) that the resource agencies have determined would sufficiently maintain the integrity of the mitigation site. In addition to this proposal, the applicant indicates that if necessary, it would be willing to go to a mitigation bank in the basin to complete its mitigation requirements if the onsite mitigation proposal is not sufficient. How many credits would the applicant's proposal yield and how much additional credit must be purchased from a bank?

First step: input site information:

a) Enter the site name.
b) Enter "54" for the "Mitigation Area Size" (30+24).
c) Select the appropriate HUC (in this case 08070204; selecting the HUC also populates the watershed).

Second step: determine how many work areas will be required. The applicant proposes a single mitigation project onsite mitigating for a single wetland type. We can enter "30.0" as the acreage for "Area 1" in cell D40 and "24.0" as the acreage for Buffer in cell C50.

Third step: determine which option to select for each factor.

a) Net Improvement: The applicant proposes to establish a forested habitat and restore wetland hydrology on the non-jurisdictional site. By definition, the net improvement for this mitigation would be "Re-establishment I". Selecting "Re-establishment I" in the option cell populates the m-value; m = 4.

b) Maintenance/Management Requirement: The work required to restore wetland hydrology would require no future work to maintain. Therefore, the project is "Self-Sustaining". Select this option for area. The m-value = 1.0.

c) Control: The applicant indicated his willingness to contribute the site to a conservation organization. The option "transfer fee title" yields an m-value of 0.6.

d) Temporal Lag: By definition the hardwood plantings would not provide full compensation for adverse impacts for a period greater than 20 years; m = -0.3.

e) Credit Schedule: The mitigation work would be done concurrently to the beginning with the construction of the subdivision. By definition, the chosen option would be "schedule 2". Therefore, m = 0.3.

f) Kind: The mitigation plan provides for "in-kind" mitigation; m = 0.4.

g) Location: The mitigation site is located within the same 8-digit HUC; m = 0.4.

h) Negative Influences on the mitigation site: The information provided by the applicant indicates that there are no negative influences on the site and we agreed with its determination. The summing Negative Influences gives an m-value = 0.

Having completed selecting options in the Restoration Mitigation Worksheet, the credits expected to be accrued by the proposed restoration project is calculated and summed at the bottom of the worksheet. Our completed worksheet is included as Figure 5. Additionally, the mitigation site name, the credits accrued by the mitigation project and the acreage of the proposed mitigation project are carried over from the "Restoration Mitigation Table" worksheet to the "Summary Table" worksheet (Figure 6).

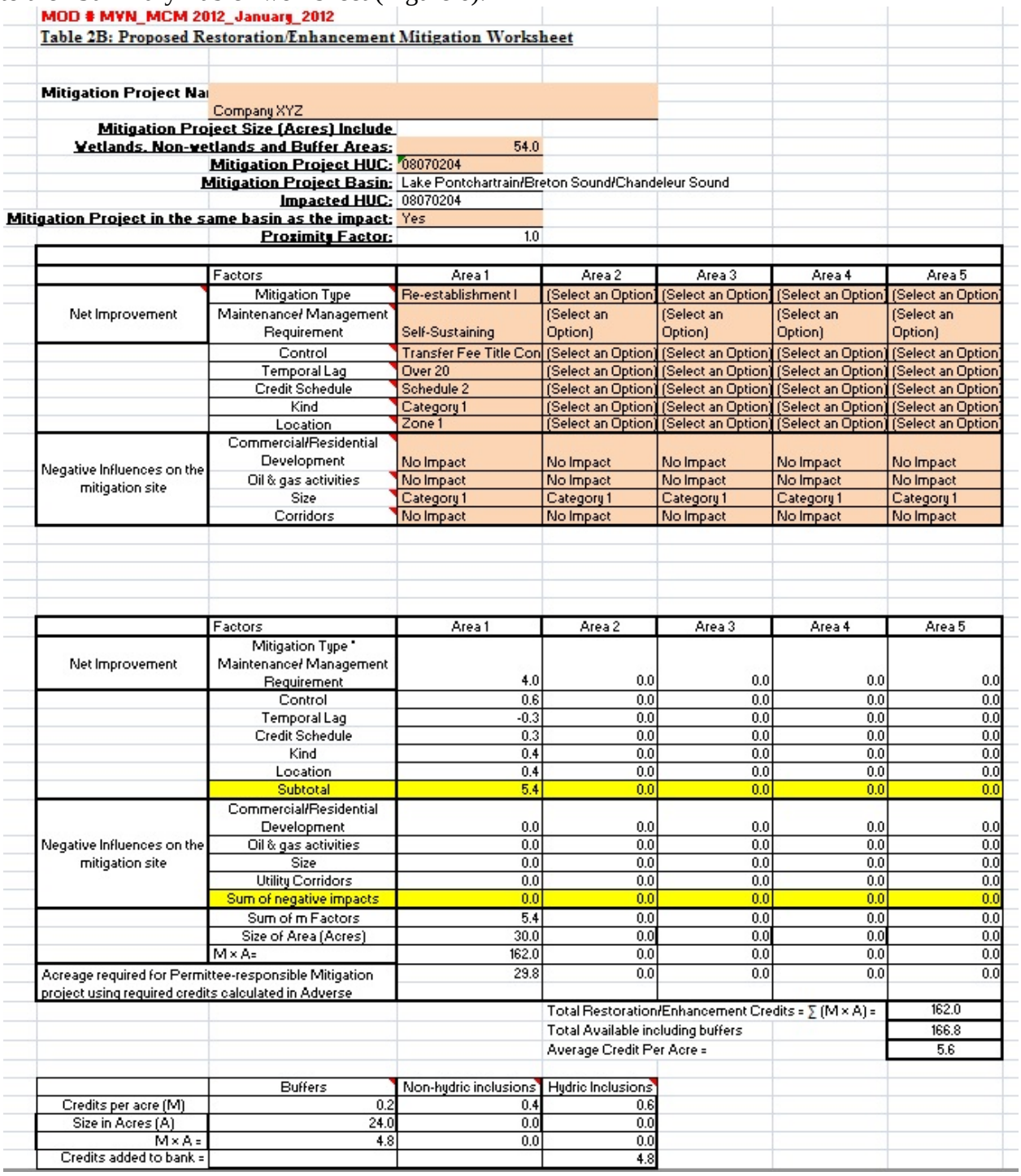

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Table 2B: Proposed Restoration/Enhancement Mitigation Worksheet

Mitigation Project Na	Company XYZ
Mitigation Project Size (Acres) Include Wetlands, Non-wetlands and Buffer Areas:	54.0
Mitigation Project HUC:	08070204
Mitigation Project Basin:	Lake Pontchartrain/Breton Sound/Chandeleur Sound
Impacted HUC:	08070204
Mitigation Project in the same basin as the impact:	Yes
Proximity Factor:	1.0

	Factors	Area 1	Area 2	Area 3	Area 4	Area 5
Net Improvement	Mitigation Type	Re-establishment I	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Maintenance/ Management Requirement	Self-Sustaining	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Control	Transfer Fee Title Con	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Temporal Lag	Over 20	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Credit Schedule	Schedule 2	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Kind	Category 1	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
	Location	Zone 1	(Select an Option)	(Select an Option)	(Select an Option)	(Select an Option)
Negative Influences on the mitigation site	Commercial/Residential Development	No Impact	No Impact	No Impact	No Impact	No Impact
	Oil & gas activities	No Impact	No Impact	No Impact	No Impact	No Impact
	Size	Category 1	Category 1	Category 1	Category 1	Category 1
	Corridors	No Impact	No Impact	No Impact	No Impact	No Impact

	Factors	Area 1	Area 2	Area 3	Area 4	Area 5
Net Improvement	Mitigation Type * Maintenance/ Management Requirement	4.0	0.0	0.0	0.0	0.0
	Control	0.6	0.0	0.0	0.0	0.0
	Temporal Lag	-0.3	0.0	0.0	0.0	0.0
	Credit Schedule	0.3	0.0	0.0	0.0	0.0
	Kind	0.4	0.0	0.0	0.0	0.0
	Location	0.4	0.0	0.0	0.0	0.0
	Subtotal	5.4	0.0	0.0	0.0	0.0
Negative Influences on the mitigation site	Commercial/Residential Development	0.0	0.0	0.0	0.0	0.0
	Oil & gas activities	0.0	0.0	0.0	0.0	0.0
	Size	0.0	0.0	0.0	0.0	0.0
	Utility Corridors	0.0	0.0	0.0	0.0	0.0
	Sum of negative impacts	0.0	0.0	0.0	0.0	0.0
	Sum of m Factors	5.4	0.0	0.0	0.0	0.0
	Size of Area (Acres)	30.0	0.0	0.0	0.0	0.0
	M x A=	162.0	0.0	0.0	0.0	0.0
Acreage required for Permittee-responsible Mitigation project using required credits calculated in Adverse		29.8	0.0	0.0	0.0	0.0

Total Restoration/Enhancement Credits = ∑ (M x A) =	162.0
Total Available including buffers	166.8
Average Credit Per Acre =	5.6

	Buffers	Non-hydric inclusions	Hydric Inclusions
Credits per acre (M)	0.2	0.4	0.6
Size in Acres (A)	24.0	0.0	0.0
M x A =	4.8	0.0	0.0
Credits added to bank =			4.8

Figure 5: Restoration Worksheet for MVN 2008-0000 example.

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SUMMARY WORKSHEET

Mitigation Summary Worksheet For Permit Application #	MVN-2008-0000
Mitigation will be performed at:	(No Bank Selected)
AND/OR Mitigation will be permittee-responsible and performed at:	Company XYZ

1. Impacts to be Mitigated	Credits	Acres
	160.7	15.0

2. Out of Basin Factor	Required	Value
Permittee-Responsible Mitigation	No	1.00
Mitigation Bank	Yes	#N/A

3. Permittee-Responsible Mitigation Credit Summary	Credits	Acres
	166.8	30.0

4. Banking Mitigation Credit Summary	Credits	Acres
	0.0	0.0

IV. Grand Totals	Credits	Acres
	166.8	30.0

Figure 6: Summary Worksheet for MVN 2008-000 example.

From the Summary worksheet, we can see that the proposed project would adversely impact 15 acres, which equates to a loss of 160.7 credits. The proposed mitigation plan offered by the applicant would restore 30 acres and provide an additional 24 acres as buffer located in the immediate vicinity of the proposed subdivision as forested wetlands. The proposed restoration plan is expected to produce 166.8 credits. The mitigation proposal would produce 6.1 credits more than the minimum necessary to fully compensate for the adverse impacts associated with the proposed subdivision. Therefore, we determine that the applicant's onsite mitigation plan is sufficient to fully compensate for the adverse impacts associated with the proposed subdivision.

D. Required Mitigation Credits to be Obtained from a Bank.

This is an abbreviated restoration/enhancement worksheet. By abbreviated we mean that a worksheet has been completed for each bank. The credit values, along with watershed information, are included in a table on the worksheet "Mitigation Bank Data"[2].

Information required on this worksheet is entered through pulldowns. Selecting a bank populates the HUCs associated with the mitigation bank's primary and secondary service areas. The

[2] The worksheet will be updated as new banks are established and existing banks are closed.

impact site's watershed information is carried over from the Adverse Impact worksheet. Also, when a particular mitigation bank is selected the credit calculation value for the bank is transferred into the "Sum of m Factors".

Continuing the example of Company XYZ: Rather than performing a permittee-responsible mitigation project, the applicant proposes to mitigate at an appropriate bank. From a list of appropriate banks provided by the Corps' project manager, the applicant selected the Jambalaya Mitigation Bank to acquire necessary credits to mitigate the wetland impacts. This bank is located approximately 15 miles from the impacted site but within the same watershed and has BLH credits available.

To determine how many acres will be needed to fully compensate the loss of 160.7 credits, we must first determine the value per acre of the mitigation bank. Completing the worksheet, we determine that the value of the mitigation bank is 3.6 credits per acre (see figure 7).

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Table 2A: Mitigation to be Performed at a Mitigation Bank

Selected Bank	**Jambalaya Mitigation Bank**	
Mitigation Bank Primary Service Area	08070204	
Mitigation Bank Secondary Service Area	08070202, 08070203, 08070204, 08070205	
Impacted HUC	08070204	
Does impact occur within the Bank's Service Area	YES	
Out of Basin Factor	1.00	
Complete the mitigation worksheet for the bank by determining whether or not the mitigation is in-kind and the location of the impact relative to the	Factors	
	Kind	Category 1
	Location	Zone 1
	Kind	0.4
	Location	0.4
	Sum of m Factors	3.6

Figure 7. Mitigation from Bank Worksheet for MVN 2008-0000 example.

The amount of proposed mitigation credits is found in the "Summary Table". The Summary Table for the proposed subdivision with mitigation at the Jambalaya Mitigation Bank (Figure 8) shows that to fully compensate for the adverse impact would require that the applicant purchase 44.4 acres at this bank.

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SUMMARY WORKSHEET

Mitigation Summary Worksheet For Permit Application #	MVN-2008-0000
Mitigation will be performed at:	**Jambalaya Mitigation Bank**
AND/OR Mitigation will be permittee-responsible and performed at:	Company XYZ

1. Impacts to be Mitigated	Credits	Acres
	160.7	15.0

2. Out of Basin Factor	Required	Value
Permittee-Responsible Mitigation	No	1.00
Mitigation Bank	No	1.00

3. Permittee-Responsible Mitigation Credit Summary	Credits	Acres
	0.0	0.0

4. Banking Mitigation Credit Summary	Credits	Acres
	160.7	44.4

IV. Grand Totals	Credits	Acres
	160.7	44.4

Figure 8. Summary Worksheet for MVN 2008-0000 example.

E. Comments Worksheet

A Comment Worksheet is provided as a tab in the MVN MCM to provide the user a location to provide general information regarding the Adverse Impacts and Proposed Restoration/Enhancement Mitigation Worksheets as well as justification for each factor selection within those worksheets. General comments can be entered directly under the heading for each worksheet. Discussion for each factor selection may be entered immediately to the right of each worksheet factor listed. Figure 9 below shows a blank Comments Worksheet.

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MVN Permit Number: 0

Table 1: Adverse Impacts Worksheet

General Comments

	Factor	Comment
	Priority Category	
	Existing Habitat Condition	
	Existing Hydrologic Condition	
	Duration	
	Dominant Impact	
	Cumulative Impact	

Mitgation Project 0

Table 2B: Proposed Restoration/Enhancement Mitigation Worksheet

General Comments

	Factor	Comment
Net Improvement	Mitigation Type	
	Maintenance/ Management Requirement	
	Control	
	Temporal Lag	
	Credit Schedule	
	Kind	
	Location	
Negative Influences on the mitigation site	Commercial/Residential Development	
	Oil & gas activities	
	Size	
	Corridors	

Figure 9. Comments Worksheet

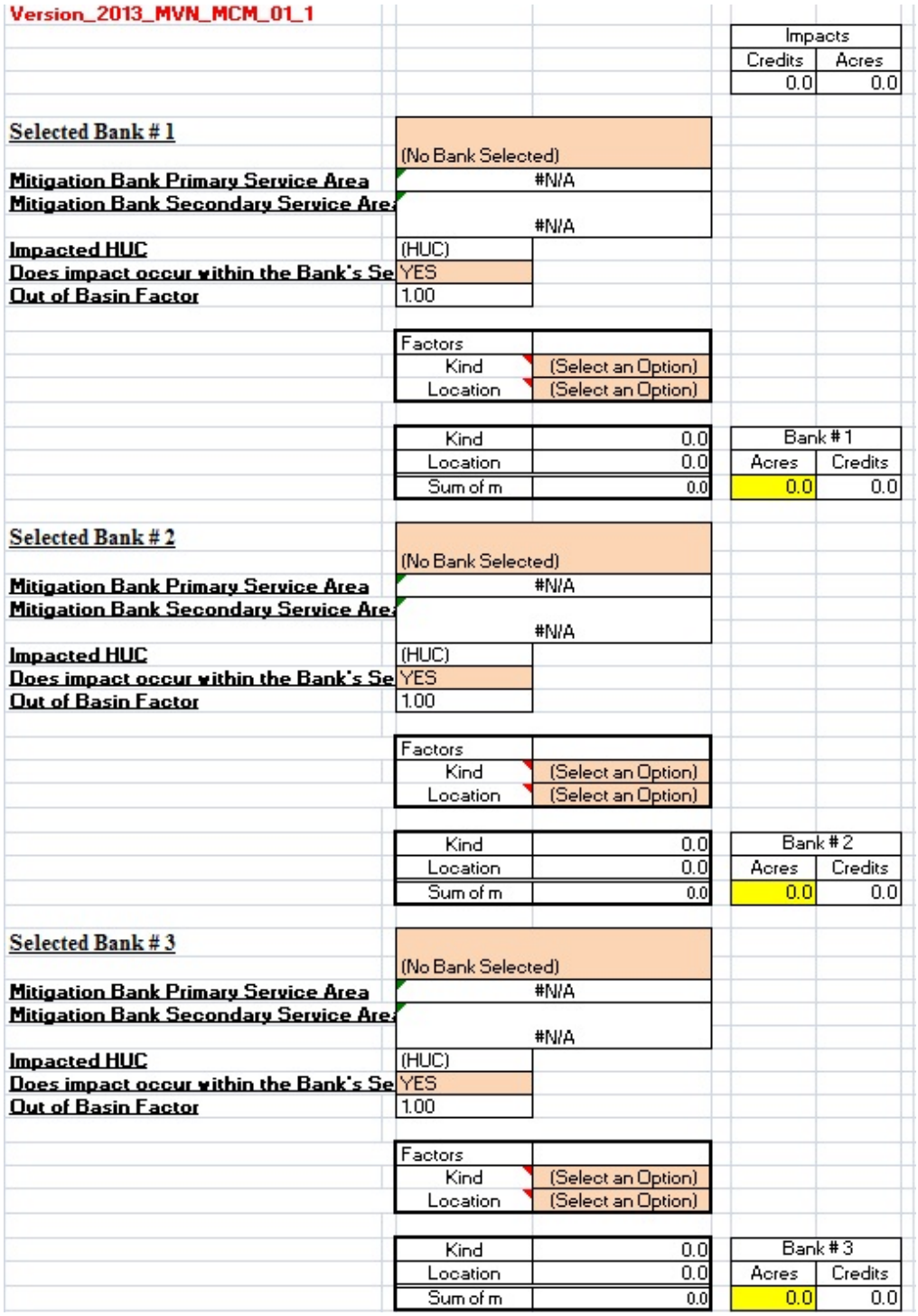
F. Multiple Bank Worksheet

The multiple bank worksheet in the MVN MCM exists for the benefit of the user to allow comparison of compensatory mitigation options. The multiple bank worksheet provides the user an interactive worksheet to either: (1) compare compensatory mitigation requirements from several mitigation banks for an impact to one habitat type; or (2) determine the compensatory

mitigation requirements for impacts to multiple habitat types. The multiple bank worksheet pulls credit and acreage data from the “Impact” worksheet into cells G4 and H4. The remaining cells in the multiple bank worksheet are interactive in that the user must select the options for each bank and enter acreage values for each bank. It will be incumbent upon the user to verify the credits provided from a bank equal those required from the impact.

When utilizing the multiple bank worksheet to compare compensatory mitigation requirements from different banks for an impact to a single habitat type, the user must determine the amount of acres required from each bank by dividing the Impact credits in cell G4 by the Sum of m for each perspective bank. Enter that number in the “Acres” cell for each bank, which is highlighted yellow.

*Users should be cautious of potential rounding errors when calculating outside the MVN MCM. Within CEMVN, regulatory credits are calculated in the form of acres, which are rounded to the nearest tenth of an acre. To simplify viewing, all of the factor values have been rounded to the nearest tenth. Please be aware of actual factor values which are listed in the Guidebook as well as in the notes of each factor definition.



Version_2013_MVN_MCM_01_1			Impacts	
			Credits	Acres
			0.0	0.0
Selected Bank # 1	(No Bank Selected)			
Mitigation Bank Primary Service Area	#N/A			
Mitigation Bank Secondary Service Area	#N/A			
Impacted HUC	(HUC)			
Does impact occur within the Bank's Se	YES			
Out of Basin Factor	1.00			
	Factors			
	Kind	(Select an Option)		
	Location	(Select an Option)		
	Kind	0.0	Bank # 1	
	Location	0.0	Acres	Credits
	Sum of m	0.0	0.0	0.0
Selected Bank # 2	(No Bank Selected)			
Mitigation Bank Primary Service Area	#N/A			
Mitigation Bank Secondary Service Area	#N/A			
Impacted HUC	(HUC)			
Does impact occur within the Bank's Se	YES			
Out of Basin Factor	1.00			
	Factors			
	Kind	(Select an Option)		
	Location	(Select an Option)		
	Kind	0.0	Bank # 2	
	Location	0.0	Acres	Credits
	Sum of m	0.0	0.0	0.0
Selected Bank # 3	(No Bank Selected)			
Mitigation Bank Primary Service Area	#N/A			
Mitigation Bank Secondary Service Area	#N/A			
Impacted HUC	(HUC)			
Does impact occur within the Bank's Se	YES			
Out of Basin Factor	1.00			
	Factors			
	Kind	(Select an Option)		
	Location	(Select an Option)		
	Kind	0.0	Bank # 3	
	Location	0.0	Acres	Credits
	Sum of m	0.0	0.0	0.0

Figure 10 – Multiple Banks Worksheet