



**US Army Corps  
of Engineers.**  
Philadelphia District

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Philadelphia, PA 19107-3390  
ATTN: CENAP-OP-R

# Public Notice

Public Notice No. <b>SPECIAL PUBLIC NOTICE</b>	Date <b>OCT 12 2004</b>
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Application No.	File No.
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In Reply Refer to:  
**Regulatory Branch**

## Summary

The Philadelphia District Corps of Engineers is hereby issuing the attached final Mitigation and Monitoring Guidelines. These final Guidelines must be considered when developing compensatory mitigation for unavoidable aquatic resource impacts authorized by the Corps Regulatory Program pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. This would include Regional General Permits, Nationwide Permits, State Programmatic General Permits (Category III activities in Pennsylvania), and Individual Permit (Standard Permit) actions. The Philadelphia District will apply these final guidelines within our regulatory boundaries in Delaware, New Jersey and Pennsylvania. These guidelines will become effective on **November 1, 2004**. Please ensure that mitigation plans submitted in support of a Section 404 or Section 10 permit application address the items specified in the attached final Mitigation and Monitoring Guidelines, where appropriate.

In addition to the requirements identified in the final guidelines, there may be other guidance or policy documents from Federal or State agencies, which we have tried to consider and supplement in the current effort. For example, there are interagency mitigation papers published for the State of Maryland (*Maryland Compensatory Mitigation Guidance, August 1994*), Regulatory Guidance Letter #02-2 and the National Academy of Science recommendations. These Guidelines do not supersede existing Federal or State laws or regulations, but rather are intended to supplement existing programs. It should be further noted the guidelines we have developed are based upon science and policies, as they exist at this time. As such, these mitigation and monitoring guidelines will be periodically reviewed and modified as necessary

## Background

As a result of the recommendations of the National Academy of Sciences findings and the resulting National Mitigation Action Plan, the U.S. Army Corps of Engineers has commenced several national initiatives to improve the success of compensatory mitigation overall and in the context of a regional watershed approach. In response to the initiatives originating from the National Mitigation Action Plan, the Philadelphia District issued a special public notice on December 19, 2003, which announced the draft Philadelphia District Mitigation and Monitoring Guidelines for review and comment. The public notice was sent to all interested parties, including appropriate State and Federal agencies.

The main purpose for the draft Mitigation and Monitoring Guidelines was to assist applicants in the preparation of compensatory mitigation and monitoring plans. The draft Guidelines included a Compensatory Mitigation Plan Checklist and Guidance Supplement developed by the Corps in coordination with the Environmental Protection Agency. The one page Checklist and supporting Supplement were intended to be used as a technical guide by permit applicants preparing compensatory mitigation plans to identify the types and extent of information that the Corps may need to assess the likelihood of a mitigation proposal's success. In addition, the draft Guidelines included the National Academy of Science's recommendations with implementing clarification for the development and implementation of compensatory mitigation projects.

### **Discussion of Comments**

In response to the public notices from the Philadelphia District, Baltimore District, as well as other Corps Districts throughout the region, comments were received from the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Pennsylvania Department of Environmental Protection, and the Pennsylvania Department of Transportation.

A general consensus of the comments recommended that one consistent set of "Guidelines" be developed among the three Corps Districts within Pennsylvania (Baltimore, Philadelphia, and Pittsburgh) for use within the regulatory boundaries of the Commonwealth of Pennsylvania. To address this recommendation, the Baltimore, Philadelphia, and Pittsburgh Districts have jointly developed the enclosed final Guidelines. It should be further noted that the Corps District Offices normally strive to develop consistency across all district boundaries to the maximum extent practicable. This effort benefits the Corps and the regulated public. We believe that the mitigation guidelines we have developed jointly with the Baltimore District will also benefit regulatory initiatives and decisions throughout the Philadelphia District, including New Jersey and Delaware. As such, these guidelines will be applied within our regulatory boundaries in Pennsylvania, Delaware, and New Jersey.

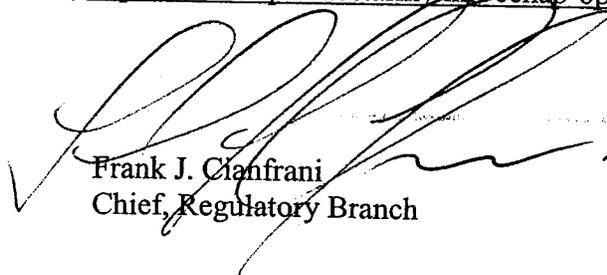
Overall, comments varied with regard to the "level of detail" needed in developing the guidelines. Some commenters wanted more prescriptive discussions and implementing procedures, while other commenters wanted the focus to be more on flexibility rather than detail. We have developed these guidelines to facilitate a regional and/or project-specific flexibility inherent in a watershed approach. The final guidelines focus on assisting applicants with preparation of compensatory mitigation and monitoring plans by identifying the types and extent of information that agency personnel may need to assess the likelihood of success of a mitigation proposal. The final guidelines set a minimum level of information needed by the agency to evaluate compensatory mitigation. In all circumstances, the level of information required for a mitigation plan should be commensurate with the scope of the proposed impacts to aquatic resources, consistent with the guidance from Regulatory Guidance Letter 93-2 on the appropriate

level of analysis for compliance with the Section 404 (b)(1) Guidelines. The Corps project managers will continue to make mitigation decisions on a case-by-case basis and in accordance with national policy.

Several commenters requested clarification on the applicability of the Guidelines to projects being processed under State Programmatic General Permits (SPGPs). We have provided clarification that the Guidelines should be considered with all Federal permit actions that may require compensatory mitigation for impacts to aquatic resources. In general, the Corps will require compensatory mitigation by special condition for most unavoidable permanent wetland and stream impacts.

It was also recommended that an adaptive management plan should only be required if the post-construction monitoring report concluded that the mitigation site is not functioning as planned. The purpose of an adaptive management program is to provide a plan that identifies and prepares for unanticipated site conditions or changes (e.g., flooding, drought, invasive species, seriously degraded site, etc). Advance planning for potential challenges through an adaptive management plan will allow for projects to start with a better understanding of best management practices and innovations relevant to the goals and objectives of the mitigation project. The adaptive management plan not only informs for what might be done differently, but also provides for an action plan to implement appropriate remedial measures. Monitoring of wetland functions and processes (e.g., water-level fluctuations, sediment accretion and erosion, plant flowering, and bird nesting) is an important component of an adaptive management program that provides for early identification of potential problems and remedial actions. The adaptive management plan may also identify the financial assurance mechanisms that could be used to implement these remedial actions to correct the unexpected problems.

For additional information, or to get a copy of the guidelines please contact Mr. Edward Bonner of my staff at (215) 656-5932 or write to the above address. If you have access to the world-wide web, the guidelines will be posted on the Philadelphia District home page at the following address; <http://www.nap.usace.army.mil/eenap-op/regulatory>.



Frank J. Cianfrani  
Chief, Regulatory Branch

**MITIGATION AND MONITORING GUIDELINES  
PHILADELPHIA DISTRICT  
REGULATORY PROGRAM  
U.S. ARMY CORPS OF ENGINEERS  
November 2004**

**I. Applicability:** These Guidelines should be considered with all Federal permit actions requiring compensatory mitigation for aquatic resource impacts under the Corps Regulatory Program pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899. This includes General Permits, Nationwide Permits (NWP), State Programmatic General Permits (Category III Activities), and Individual Permit (Standard Permit) actions. These Guidelines do not address mitigation for categories of effects other than ecological (e.g., historic, cultural, aesthetic, etc.)

These Guidelines will be periodically reviewed and modified as the National Mitigation Action Plan is implemented over the next 3-5 years and our knowledge base on mitigation increases. In addition to the requirements set forth herein, there may be other individual guidance provided by Federal or State agencies. The Corps will work closely with all appropriate State regulatory counterparts to reduce the likelihood of conflicting mitigation permit requirements. These Guidelines do not supercede existing Federal or State laws or regulations.

**II. Purpose:** The purpose of these Mitigation and Monitoring Guidelines ("Guidelines") is to improve the overall success of compensatory mitigation proposals, to help applicants understand policies and requirements associated with compensatory mitigation for aquatic resource impacts, and to improve predictability and consistency. These recommendations are intended to be used by applicants, agents, and consultants as a guide for the development of compensatory mitigation plans as required to minimize adverse impacts to aquatic resources under the Corps Regulatory Program pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899. These are suggestions only that may not be suitable in every situation, and do not guarantee the success of a mitigation project or the acceptance of a mitigation plan for a given permit application.

It is important to note that the first element of mitigation is avoidance and minimization of impacts, and all mitigation proposals are evaluated on a case-by-case basis during review of permit applications in accordance with all relevant laws, regulations, and guidance. These guidelines are intended to provide a background level for the information that may be required in the permit evaluation process. The level of analysis and documentation of mitigation plans will continue to be commensurate with the scope of the proposed impacts to aquatic resources.

**III. Federal Mitigation Policy and Guidance**

- a) Environmental Protection Agency, Section 404(b)(1) Guidelines (40 CFR 230), Guidelines for Specification of Disposal sites for Dredged or Fill Material.

- b) Department of the Army, Section 404 Permit Regulations, Corps 1986 Consolidated Rule (33 CFR 320.4(r)).
- c) Council on Environmental Quality (CEQ) Mitigation Policy (40 CFR 1508.20) of CEQ's Implementing Regulations for National Environmental Policy Act (NEPA) and 40 Questions.
- d) 1990 Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the Department of the Army (DA) concerning the Determination of Mitigation under the Clean Water Act Section 404(b)(1) Guidelines.
- e) Federal Guidance on the Appropriate Level of Analysis for Compliance with the Section 404(b)(1) Guidelines (RGL 93-2, dated August 23, 1993).
- f) 1995 Federal Guidance on Establishment, Use, and Operation of Mitigation Banks (Banking Guidance, published in the Federal Register on November 28, 1995).
- g) 2000 Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation under Section 404 of the CWA and Section 10 of the Rivers and Harbors Act (In-Lieu Fee Guidance).
- h) Nationwide Permit Regulation (Issuance of Nationwide Permits Notice, published in Federal Register on January 15, 2002).
- i) Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 (RGL 02-2, dated December 24, 2002).
- j) Federal Guidance on the Use of the TEA-21 Preference for Mitigation Banking to Fulfill Mitigation Requirements Under Section 404 of the Clean Water Act (July 11, 2003).

**IV. General Mitigation Considerations:** Mitigation plans should be developed to replace impacted and lost functions of the aquatic ecosystem at a minimum 1:1 functional replacement ratio (i.e., no net loss of functions). This replacement ratio may be increased depending on system values, likelihood of success, timing, location, and type of proposed mitigation. Stream mitigation measures should also provide a minimum 1:1 functional replacement. Functional assessment techniques are required to evaluate the existing conditions and mitigation measures; however, acreage and/or linear feet may be used as a surrogate for measuring mitigation ratios. The proposed functional assessment methodology should be approved by the Corps District office.

Compensatory mitigation is defined as, the restoration, enhancement, creation, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable impacts. Mitigation options may also include mitigation banking and in-lieu-fee arrangements. Mitigation banking and in-lieu-fee arrangements may facilitate a watershed approach to mitigating impacts to waters of the U.S. Project managers will work with applicants to determine suitable options on a case-by-case basis.

The level of analysis and documentation of mitigation plans should be commensurate with the level of impact to aquatic resources. For individual permits, compensatory mitigation will generally be required by the Corps for most unavoidable impacts to wetlands and streams requiring such a permit. For nationwide permits, compensatory mitigation will be required for most unavoidable permanent wetland and stream impacts requiring a preconstruction notification (PCN) under the NWP program. For general permits and State Programmatic General Permits (Category III), the Corps will generally require compensatory mitigation by special condition for most unavoidable permanent wetland and stream impacts.

The development of performance standards is an integral element in the development of a successful compensatory mitigation and monitoring program. It is recommended that the Corps be involved as early as possible to develop specific, measurable performance standards and methodologies that will be used to track progress toward achieving the approved success criteria. Performance standards should be developed consistent with the intended mitigation goals and objectives. When these performance standards are included in the Section 404 permit as a special condition, they become legally binding upon the permittee.

A preliminary mitigation plan should be submitted with the formal application materials or the request for verification to facilitate a timely and effective review. A preliminary mitigation plan should generally include a discussion of how on-site impacts to aquatic resources were avoided and minimized and how the proposed compensatory mitigation will appropriately compensate for the remaining unavoidable impacts. A final mitigation and monitoring plan should generally not be prepared until the Corps has accepted the final jurisdictional map for the impact area and the mitigation site, and has agreed that the preliminary mitigation plan would likely compensate for the remaining unavoidable impacts.

Construction of the compensatory mitigation project should generally be in advance or concurrent with the authorized impacts to the extent practicable, and completed no later than the first full growing season following the impacts from authorized activities. In-lieu fee arrangements and mitigation banks should follow the guidance consistent with the Banking and In-Lieu-Fee provisions with regard to timing of mitigation construction. In addition, some Federal-aid highway projects may have legal and contractual requirements regarding the timing of mitigation that may conflict with the policy for advance or concurrent mitigation.

Pre-application meetings are encouraged to facilitate the evaluation of potentially complex or controversial projects and to discuss mitigation requirements and opportunities. In addition, pre-construction meetings between contractors, environmental consultants, and the project manager are encouraged for larger, more complex, and/or higher risk mitigation projects to ensure permit compliance.

Compensatory mitigation projects generally should not be designed with untreated stormwater inputs as their hydrology source because these sites may not replace functions of any wetland other than a severely degraded one. If the mitigation objective is wildlife habitat or maintenance of threatened or endangered species, then it may be inappropriate to route stormwater directly into the mitigation site without pretreatment. The additional inputs of sediments, nutrients, metals, and hydrocarbons may not be compatible with the primary objectives. In addition, invasive weedy species may gain a competitive edge in such situations.

- V. **Compensatory Mitigation Plan Checklist and Supplement (Enclosure A):** Enclosure A contains a one-page checklist with an attached supplement explaining the one page checklist in more detail. The checklist and supplement should serve as a technical guide for permit applicants preparing compensatory mitigation plans to offset impacts to aquatic resources authorized under the Clean Water Act Section 404 and the Rivers and Harbors Act Section 10 programs. The purpose of the checklist is to identify the types and extent of information that the Corps needs to assess the likelihood of success of a mitigation proposal.

The one page checklist identifies the items that are generally required when developing compensatory mitigation plans. Although every mitigation plan may not need to include each specific item, applicants should address as many as possible and indicate, when appropriate, why a particular item was not included (For example, permit applicants who will be using a mitigation bank would not be expected to include detailed information regarding the proposed mitigation bank site since that information is included in the bank's enabling instrument). The supplement should be referred to for a further explanation of specific checklist items. Additional information that may be needed by the Natural Resources Conservation Service (NRCS) to satisfy the Swampbuster provisions of the Food Security Act is also included.

**Compensatory Mitigation Site Design Considerations- National Academy of Science (NAS) Recommendations (Enclosure B):** Enclosure B summarizes the NAS "Compensating For Wetland Losses Under the Clean Water Act" report on mitigation and includes the Corps' implementation clarification for the development and review of mitigation projects. These design considerations are provided to guide the planning and implementing of compensatory mitigation projects so as to increase the likelihood of mitigation

# SUPPLEMENT: COMPENSATORY MITIGATION PLAN CHECKLIST

This document is intended as a technical guide for Clean Water Act (CWA) Section 404 permit applicants<sup>2</sup> preparing compensatory mitigation plans. Compensatory mitigation is required to offset impacts that cannot be avoided and minimized to the extent practicable. The purpose of this document is to identify the types and extent of information that agency personnel need to assess the likelihood of success of a mitigation proposal. Success is generally defined as: a healthy sustainable wetland/water that – to the extent practicable – compensates for the lost functions of the impacted water in an appropriate landscape/watershed position. This checklist provides a basic framework that will improve predictability and consistency in the development of mitigation plans for permit applicants. Although every mitigation plan may not need to include each specific item, applicants should address as many as possible and indicate, when appropriate, why a particular item was not included (For example, permit applicants who will be using a mitigation bank would not be expected to include detailed information regarding the proposed mitigation bank site since that information is included in the bank's enabling instrument). This checklist can be adapted to account for specific environmental conditions in different regions of the U.S.

## 1. Mitigation Goals and Objectives

### **Impact Site**

- a. Describe and quantify the aquatic resource type and functions that will be impacted at the proposed impact site. Include temporary and permanent impacts to the aquatic environment.
- b. Describe aquatic resource concerns in the watershed (e.g. flooding, water quality, habitat) and how the impact site contributes to overall watershed/regional functions. When available, identify watershed or other regional plans that describe aquatic resource objectives related to the Section 404 Program.

### **Mitigation Site**

- c. Describe and quantify the aquatic resource type and functions for which the mitigation project is intended to compensate.
- d. Describe the contribution to overall watershed/regional functions that the mitigation site(s) is intended to provide.

## 2. Baseline Information - for proposed impact site, proposed mitigation site & if applicable, proposed reference site(s).

- a. Location
  1. Coordinates (preferably using DGPS) & written location description (including block, lot, township, county, Hydrologic Unit Code (HUC) number, as appropriate and pertinent.
  2. Maps (e.g., site map with delineation (verified by the Corps), map of vicinity, map identifying location within the watershed, NWI map, NRCS soils map, zoning or planning maps; indicate area of proposed fill on site map).
  3. Aerial/Satellite photos.
- b. Classification – Hydrogeomorphic as well as Cowardin classification, Rosgen stream type, NRCS classification, as appropriate.
- c. Quantify wetland resources (acreage) or stream resources (linear feet) by type(s).

<sup>2</sup> The checklist may be used in other federal or state programs as well; however, additional information may be needed to satisfy specific program requirements. For example, Attachment A indicates additional information needed by the Natural Resources Conservation Service (NRCS) to satisfy the Swampbuster provisions of the Food Security Act.

- d. Assessment method(s) used to quantify impacts to aquatic resource functions (e.g., HGM, IBI, WRAP, etc.); explain findings. The same method should be used at both impact and mitigation sites.
- e. Existing hydrology
  1. Water budget. Include water source(s) (precipitation, surface runoff, groundwater, stream) and losses(s). Provide budgets for both wet and dry years.
  2. Hydroperiod (seasonal depth, duration, and timing of inundation and/or saturation), percent open water.
  3. Historical hydrology of mitigation site if different than present conditions
  4. Contributing drainage area (acres).
  5. Results of water quality analyses (e.g., data on surface water, groundwater, and tides for such attributes as pH, redox, nutrients, organic content, suspended matter, DO, heavy metals).
- f. Existing vegetation
  1. List of species on site, indicating dominants.
  2. Species characteristics such as densities, general age and health, and native/non-native/invasive status.
  3. Percent vegetative cover; community structure (canopy stratification).
  4. Map showing location of plant communities.
- g. Existing soils
  1. Soil profile description (e.g., soil survey classification and series) and/or stream substrate (locate soil samples on site map).
  2. Results of standard soils analyses, including percent organic matter, structure, texture, permeability.
- h. Existing wildlife usage (indicate possible threatened and endangered species habitat).
- i. Historic and current land use; note prior converted cropland.
- j. Current owner(s)
- k. Watershed context/surrounding land use.
  1. Impairment status and impairment type (e.g., 303(d) list) of aquatic resources.
  2. Description of watershed land uses (percent ag, forested, wetland, developed).
  3. Size/Width of natural buffers (describe, show on map).
  4. Description of landscape connectivity: proximity and connectivity of existing aquatic resources and natural upland areas (show on map).
  5. Relative amount of aquatic resource area that the impact site represents for the watershed and/or region (i.e., by individual type and overall resources).

### **3. Mitigation Site Selection & Justification**

- a. Site-specific objectives: Description of mitigation type(s)<sup>3</sup>, acreage(s) and proposed compensation ratios.
- b. Watershed/regional objectives: Description of how the mitigation project will compensate for the functions identified in the Mitigation Goals section 1(c).
- c. Description of how the mitigation project will contribute to aquatic resource functions within the watershed or region (or sustain/protect existing watershed functions) identified in the Mitigation Goals section 1(d). How will the planned mitigation project contribute to landscape connectivity?
- d. Likely future adjacent land uses and compatibility (show on map or aerial photo).
- e. Description of site selection practicability in terms of cost, existing technology, and logistics.

<sup>3</sup> That is, restoration, enhancement, creation or preservation: see Regulatory Guidance Letter (RGL) 02-2, Mitigation RGL, for definitions for these terms.

- f. If the proposed mitigation is off-site and/or out-of-kind, explain why on-site or in-kind options<sup>4</sup> are not practicable or environmentally preferable.
- g. Existing and proposed mitigation site deed restrictions, easements and rights-of-way. Demonstrate how the existence of any such restriction will be addressed, particularly in the context of incompatible uses.
- h. Explanation of how the design is sustainable and self-maintaining. Show by means of a water budget that there is sufficient water available to sustain long-term wetland or stream hydrology. Provide evidence that a legally defensible, adequate and reliable source of water exists.
- i. USFWS and/or NOAA Fisheries Listed Species Clearance Letter or Biological Opinion.
- j. SHPO Cultural Resource Clearance Letter.

#### **4. Mitigation Work Plan**

- a. Maps marking boundaries of proposed mitigation types; include DGPS coordinates.
- b. Timing of mitigation: before, concurrent or after authorized impacts; if mitigation is not in advance or concurrent with impacts, explain why it is not practicable and describe other measures to compensate for the consequences of temporal losses.
- c. Grading plan
  - 1. Indicate existing and proposed elevations and slopes.
  - 2. Describe plans for establishing appropriate microtopography. Reference wetland(s) can provide design templates.
- d. Description of construction methods (e.g., equipment to be used)
- e. Construction schedule (expected start and end dates of each construction phase, expected date for as-built plan).
- f. Planned hydrology
  - 1. Source of water.
  - 2. Connection(s) to existing waters.
  - 3. Hydroperiod (seasonal depth, duration, and timing of inundation and saturation), percent open water, water velocity.
  - 4. Potential interaction with groundwater.
  - 5. Existing monitoring data, if applicable; indicate location of monitoring wells and stream gauges on site map.
  - 6. Stream or other open water geomorphic features (e.g., riffles, pools, bends, deflectors).
  - 7. Structures requiring maintenance (show on map) Explain structure maintenance in section 6(c).
- g. Planned vegetation
  - 1. Native plant species composition (e.g., list of acceptable native hydrophytic vegetation). Under limited circumstances, non-native plant species may be considered only with approval from the Corps District office.
  - 2. Source of native plant species (e.g. salvaged from impact site, local source, seed bank) stock type (bare root, potted, seed) and plant age(s)/size(s).
  - 3. Plant zonation/location map (refer to grading plan to ensure plants will have an acceptable hydrological environment).
  - 4. Plant spatial structure – quantities/densities, % cover, community structure (e.g., canopy stratification).
  - 5. Expected natural regeneration from existing seed bank, plantings, and natural recruitment.

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<sup>4</sup> See Federal Guidance on the Use of Off-Site and Out-of-Kind Compensatory Mitigation under Section 404 of the CWA.

- h. Planned soils
  - 1. Soil profile
  - 2. Source of soils (e.g., existing soil, imported impact site hydric soil), target soil characteristics (organic content, structure, texture, permeability), soil amendments (e.g., organic material or topsoil).
  - 3. Erosion and soil compaction control measures.
- i. Planned habitat features (identify large woody debris, rock mounds, etc. on map).
- j. Planned buffer (identify on map).
  - 1. Evaluation of the buffer's expected contribution to aquatic resource functions.
  - 2. Physical characteristics (location, dimensions, native plant composition, spatial and vertical structure).
- k. Other planned features, such as interpretive signs, trails, fence(s), etc.

## **5. Performance Standards**

- a. Identify clear, precise, quantifiable parameters that can be used to evaluate the status of desired functions. These may include hydrological, vegetative, faunal and soil measures. (e.g., plant richness, percent exotic/invasive species, water inundation/saturation levels). Describe how performance standards will be used to verify that objectives identified in 3(b) and 3(c) have been attained.
- b. Set target values or ranges for the parameters identified. Ideally, these targets should be set to mimic the trends and eventually approximate the values of a reference wetland(s).

## **6. Site Protection and Maintenance**

- a. Long-term legal protection instrument (e.g. conservation easement, deed restriction, transfer of title).
- b. Party(ies) responsible and their role (e.g. site owner, easement owner, maintenance implementation). If more than one party, identify primary party.
- c. Maintenance plan and schedule (e.g. measures to control predation/grazing of mitigation plantings, temporary irrigation for plant establishment, replacement planting, structure maintenance/repair, etc.).
- d. Invasive species control plan (plant and animal).

## **7. Monitoring Plan**

- a. Professional, certified, as-built plans with elevations in mitigation areas, water level elevations, and acreage of open water specified. Explanations of any deviations from the approved mitigation plan shall be provided. As-builts should also indicate the actual plantings. As-built plans should be certified by a professional engineer, accredited professional landscape architect, or licensed surveyor.
- b. Party(ies) responsible for monitoring. If more than one, identify primary party.
- c. Data to be collected and reported, how often and for what duration (identify proposed monitoring stations, including transect locations on map).
- d. Assessment tools and/or methods to be used for data collection monitoring the progress towards attainment of performance standard targets.
- e. Format for reporting monitoring data and assessing mitigation status.
- f. Monitoring schedule
- g. Photographs from stations with map identifying station locations.

## **8. Adaptive Management Plan**

- a. Party(ies) responsible for adaptive management.
- b. Identification of potential challenges (e.g., flooding, drought, invasive species, seriously degraded site, extensively developed landscape) that pose a risk to project success. Discuss how the design accommodates these challenges.
- c. Discussion of potential remedial measures in the event mitigation does not meet performance standards in a timely manner.
- d. Description of procedures to allow for modifications of performance standards if mitigation projects are meeting mitigation goals, but in unanticipated ways.

## **9. Financial Assurances**

- a. For each of the following, identify party(ies) responsible to establish and manage the financial assurance, the specific type of financial instrument, the method used to estimate assurance amount, the date of establishment, and the release and forfeiture conditions:
  1. Construction phase
  2. Maintenance
  3. Monitoring
  4. Remedial measures
  5. Project success
- b. Types of assurances (e.g., performance bonds, irrevocable trusts, escrow accounts, casualty insurance, letters of credit, etc.).
- c. Schedule by which financial assurance will be reviewed and adjusted to reflect current economic factors.



## COMPENSATORY MITIGATION PLAN CHECKLIST

Project Name: \_\_\_\_\_

CENAP-OP-R \_\_\_\_\_

- Mitigation Goals and Objectives
  - Describe functions lost at impact site.
  - Describe functions to be gained at mitigation site.
  - Describe overall watershed improvements to be gained.
  
- Baseline Information for Impact and Proposed Mitigation Sites Baseline.
  - Provide data on physical attributes of sites (soils, vegetation, hydrology).
  - Describe historic and existing land uses and resources impacted.
  - Describe reference site attributes if available.
  
- Mitigation Site Selection and Justification
  - Describe process of selecting proposed site.
  - Likelihood of success, future land use compatibility, etc.
  
- Mitigation Work Plan
  - Location.
  - Construction Plan.
  - Describe planned hydrology, vegetation, soils, buffers, etc.
  
- Performance Standards
  - Identify success criteria.
  - Compare functions lost and gained at impact and mitigation sites.
  - Describe soils, vegetation and hydrology parameter changes.
  
- Site Protection and Maintenance
  - List parties and responsibilities.
  - Provide evidence of legal protective measures.
  - Maintenance plan and schedule.
  
- Monitoring Plan
  - Provide monitoring schedule, identify party (ies) and responsibilities
  - Specify data to be collected, including assessment tools and methodologies
  
- Adaptive Management Plan
  - Identify party (ies) and responsibilities.
  - Remedial measures (financial assurances, management plan, etc.).
  
- Financial Assurances
  - Identify party (ies) responsible for assurances.
  - Specify type of assurance, contents and schedule.

Project Manager: \_\_\_\_\_

Date: \_\_\_\_\_