U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 8

CLEAN WATER ACT § 404 ENFORCEMENT: REMOVAL/RESTORATION PLANS AND HABITAT MITIGATION/MONITORING PROPOSALS

INTRODUCTION

These guidelines are designed to assist respondents in the preparation of (1) removal and restoration plans and (2) habitat mitigation and monitoring plans associated with projects required under EPA administrative orders. They have been developed from the experiences of many cases and are intended to be merely guidelines. In the event of a conflict between an administrative order and these guidelines, the administrative order controls.

For answers to questions regarding the interpretation of these guidelines or of acceptable restoration and mitigation for a specific project, please contact the person at EPA Region 8 in the Technical Enforcement Program who is handling the case.

CLEAN WATER ACT § 404 ENFORCEMENT:

GENERAL GUIDELINES FOR DEVELOPMENT OF REMOVAL AND RESTORATION PLANS

I. GENERAL INFORMATION

The following guidelines serve as general specifications for preparing removal and restoration plans to remediate the unpermitted filling of wetlands. As environmental conditions vary from site to site, precise specifications will depend upon the environment conditions peculiar to the site in question. The size of the wetland area to be restored, its biological and physical characteristics, and the level of disturbance the wetland has experienced will further define the scope and complexity of the restoration plan. In most cases, the types of information listed below represent only the minimum required to formulate an acceptable removal and restoration plan.

When these guidelines are incorporated into an EPA administrative order, the recipient of the order should obtain the approval of EPA's technical representative on the case before departing from the general specifications outlined below.

II. RECOMMENDED REMOVAL AND RESTORATION PLAN FORMAT

The removal and restoration plan should be presented using the following six subsections when possible. An explanation of the kind of information that should be included in each subsection is provided.

1. Existing Physical Conditions

A. A surveyed site plan depicting property boundaries, streets, buildings, waterbodies (with ordinary high water line indicated), wetlands, FEMA 100-year floodplain (if applicable), areas of unpermitted fill, elevation contours, and other ground surface features at a scale no greater than 1":40'. This plan shall include a cross-section view of the site which shows soil depths, fill depths, and average depth to groundwater across the site.

B. A narrative description of existing physical conditions, including the area of the site; area of unpermitted fill; existing wetlands (including the types of vegetation); the soil types present (including the types of unpermitted fill present); the hydrologic regime of the site; and other relevant information.

2. Proposed Physical Conditions

A. Using the site plan described in Subsection 1.A. as a base, show the exact areas where remedial activities will occur (e.g., removal of fill, replacing dredged material into ditches, etc.). Indicate proposed finished grades, expected ordinary high water elevations, the location of proposed plantings/seedings, and the location of all sediment and erosion control structures (e.g., hay bales, silt screens, etc.). This plan shall include a cross-section view of the site which shows proposed soil depths and average depth to groundwater across the site.

B. Provide a narrative description of the remedial work to occur, including the methods and equipment to be employed; how access to the site to perform the work will be obtained; how equipment will be brought to the site; the location of the ultimate disposal site for any removed fill; how the work will progress across the site; a listing of the plant species to be seeded/planted at the site; the sources of the plant material [*note*: as a rule, transplanting of plant stock will not be permitted]; the planting method(s) and scheme (i.e., physical layout of the how plant material will be installed); any methods to be used to minimize adverse impacts while remedial work is underway; the expected hydrologic regime of the site in its restored condition; and other relevant information.

C. Delineate the area(s) on the site to be restored by installation of flagging, sedimentation and erosion control structures, or other appropriate method. This delineation shall represent the limit of construction activities such that no work shall occur beyond those boundaries.

3. Actual Restored Physical Conditions

Using the site plan described in Subsection 1.A. as a base, show the actual physical conditions to exist at the site at the completion of grading activities (i.e., as "as-built" plan), including actual finished grades and all pertinent ground surface features. This plan shall include a cross-section view of the site which shows actual soil depths and average depth to groundwater across the site. This as-built plan shall be prepared and submitted prior to planting/seeding activities.

4. Monitoring/Measures of Success

A. Normally, monitoring shall be performed midway through and near the end of the first and second growing seasons, then annually near the end of each successive growing season for the duration of the required monitoring period. Monitoring shall be performed for a period of three to

five years, depending upon the scope and complexity of the remedial efforts required.

B. A monitoring plan shall incorporate a simple statistical approach to assessing relative success or failure of restoration efforts (e.g., transects with sampling stations for measuring parameters such as percent areal cover in each vegetative stratum). A permanent photographic record shall be included as part of the monitoring plan.

C. Depending upon the scope and complexity of the remedial efforts, general criteria to measure success shall be determined by EPA. These criteria shall be directly related to reestablishing the structural components of the aquatic ecosystem being restored. A general provision shall be included to allow for corrective action to be taken, at the direction of EPA, should monitoring show that criteria for success are not being met.

D. A report shall be prepared and submitted after each monitoring event which describes the environmental conditions at the site and assesses relative success or failure of restoration efforts. This report shall include photographic evidence as well. This report shall identify any problems discovered and recommend appropriate corrective action to ensure the success of restoration.

5. Inspections

The plan shall provide for inspections by EPA personnel after installation of all sedimentation and erosion control structures, after completion of grading activities, after completion of initial planting/seeding activities, and after monitoring indicates that the criteria for success have been attained.

6. Schedule

A comprehensive schedule integrating all removal, restoration, inspection, and monitoring activities as well as report/product submissions shall be included.

CLEAN WATER ACT § 404 ENFORCEMENT:

GENERAL GUIDELINES FOR DEVELOPMENT OF HABITAT MITIGATION AND MONITORING PROPOSALS

I. GENERAL INFORMATION

Submission of a mitigation and monitoring proposal as described in these guidelines will not be a substitute for complete compliance with the Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Mitigation under the Clean Water Act Section 404(b)(1) Guidelines dated November 7, 1989, which took effect on February 7, 1990. Therefore, mitigation proposals will only be considered if avoidance and minimization have been fully pursued.

Although all the individual components presented here may not be applicable to every project, a proposal should address each heading in the guidelines. Appendix A provides text and figure format guidelines.

II. PLACE OF MITIGATION AND MONITORING PROPOSAL IN CLEAN WATER ACT § 404 PERMIT PROCEDURE

1. Individual Permit

If a respondent is applying for an individual permit from the U.S. Army Corps of Engineers (the "Corps") and proposes mitigation, it is preferable that a preliminary mitigation and monitoring plan be submitted along with application materials. A detailed preliminary mitigation plan should generally not be completed until a final jurisdictional map has been accepted by EPA, and the area of fill to be mitigated for has been identified. The final mitigation plan will usually be submitted following the public comment period and Corps review of the preliminary plan.

2. Nationwide Permit

If a respondent is requesting confirmation of a project's qualification for a Corps nationwide permit and proposes mitigation, a detailed mitigation and monitoring plan must be submitted with the request for confirmation.

3. Final Submission

The final submission of all mitigation and monitoring plans must be in a *single* document. It must contain up-to-date versions of all materials, even if other versions were submitted earlier in the application process.

III. EPA/CORPS POLICY

In general, the goal of both EPA and the Corps is to permit no net loss of functions and values of wetland habitat. The replacement ratio of wetland acreage required to achieve this goal is typically *at least* 1:1, and is often higher. The attainment of replacement functions and values and an acreage replacement ratio are usually included in final success criteria associated with the completion of a respondent-permittee's mitigation responsibility.

V. SUMMARY OF RECOMMENDED MITIGATION AND MONITORING PROPOSAL FORMAT

The mitigation and monitoring proposal should be presented using the following nine subsections when possible. Detailed explanations of the kind of information that should be included in each subsection is provided in Section VI below.

1. PROJECT DESCRIPTION

A. Location of Project
B. Brief Summary of Overall Project
C. Responsible Parties
D. Jurisdictional Areas to be Filled
E. Type(s), Functions, and Values of the Jurisdictional Areas

2. GOAL(S) OF MITIGATION

A. Type(s) of Habitat to be Created
B. Functions and Values of Habitat to be Created
C. Time Lapse

3. FINAL SUCCESS CRITERIA

A. Target Functions and Values
B. Target Hydrological Regime
C. Target Jurisdictional Acreage to be Created

4. PROPOSED MITIGATION SITE

A. Location and Size of Mitigation Area
B. Ownership Status
C. Existing Functions and Values of Mitigation Area
D. Present and Proposed Uses of Mitigation Area
E. Jurisdictional Delineation (if applicable)
F. Present and Proposed Uses of All Adjacent Areas
G. Zoning

5. IMPLEMENTATION PLAN

A. Rationale for Expecting Implementation Success
B. Responsible Parties
C. Site Preparation
D. Planting Plan
E. Schedule
F. Irrigation Plan
G. As-Built Conditions

6. MAINTENANCE DURING MONITORING PERIOD

A. Maintenance Activities
B. Responsible Parties
C. Schedule

7. MONITORING PLAN

A. Performance Criteria
B. Monitoring Reports
C. Annual Reports
D. Schedule

8. COMPLETION OF MITIGATION

A. Notification of Completion
B. Corps Confirmation

9. CONTINGENCY MEASURES

A. Initiating Procedures
B. Alternative Locations for Contingency Mitigation
C. Funding Mechanism
D. Responsible Parties

VI. DETAILED RECOMMENDED MITIGATION AND MONITORING PROPOSAL FORMAT

Detailed information to be included in each subsection of the mitigation and monitoring proposal is presented below. The nine subsections should be preceded by a one-page summary of the report contents.

1. PROJECT DESCRIPTION

A. Location of Project

1. Describe
2. Provide:
   a. Road map with site location clearly indicated
   b. USGS quad map with project site outlines (clear photocopy is acceptable)

B. Brief Summary of Overall Project

In one or two paragraphs, describe the overall project (not just the jurisdictional area to be filled). Include type of development and project size.

C. Responsible Parties

Provide the name(s), title(s), address(es), and phone number(s) of the applicant(s)[1], including the contact person(s) if the applicant is a company, and of the preparer(s) of the mitigation plan.

D. Jurisdictional Areas to be Filled

Provide a full-size topo base map with verified Corps/EPA jurisdictional area(s) and area(s) of proposed fill outlines. (See Appendix A for map format information.)

E. Type(s), Functions, and Values of the Jurisdictional Areas

1. Type: e.g., seasonal wetland, vernal pool, freshwater marsh, playa, etc.

2. Functions and Values

Formal procedures to assess functions and values of wetlands have not yet been adopted. Therefore, to assist in evaluation of the project, a knowledgeable professional should provide a summary of the functions and values of the wetland to be filled. Any jurisdictional areas other than wetlands should also be assessed for functions and values. Examples of features to be addressed are:

[1] The "applicant" refers to the permit applicant, who will in most instances be the respondent.

Water Quality
- ground water
- recharge/discharge
- flood storage
- other

Habitat
- rare/threatened/endangered species
- known or probable wildlife use
- plant communities
- complete species list
- known or probable fish, shellfish, and aquatic vertebrate use
- other

Recreational Use
- non-consumptive (e.g., birdwatching, walking)
- consumptive (e.g., fishing, hunting)

2. GOAL(S) OF MITIGATION

This refers to the long-term goals, which may not be reached until some years after the applicant's mitigation responsibilities have been completed.

A. Type(s) of Habitat to be Created

If out-of-kind, present rationale. (Refer to Subsection 1.E.1 above.)

B. Functions and Values of Habitat to be Created

Identify, describe, and provide location of any local reference site if different from the wetland to be filled. (Refer to Subsection 1.E.2. above.)

C. Time Lapse

Describe how many years it is likely to take for the long-term goal habitat to develop.

3. FINAL SUCCESS CRITERIA

These are the criteria that are proposed by the applicant for Corps approval and are used to determine completion of permittee's mitigation responsibilities. Fulfillment of these criteria should indicate that the mitigation area is progressing well toward the habitat

type, functions, and values which constitute the long-term goal of this mitigation. For mitigation plantings, final success criteria will not be considered to have been met until a minimum of two years after all human support (e.g., irrigation, replanting, rodent control, and fertilization) has ceased. Major factors to be considered are:

A. Target Functions and Values

- wildlife species
- percentage vegetation cover and/or density
- approximate plant height criteria (shrubs and trees)
- plant and animal species diversity
- root development
- canopy stratification
- other quantifiable measures of success

B. Target Hydrological Regime

- source(s) of water
- discharge point(s)
- area(s) affected by seasonal flooding
- direction(s) of flow
- size (and map) of watershed

C. Target Jurisdictional Acreage To Be Created

Where applicable, a wetlands delineation must be submitted for Corps approval as a part of the final success criteria.

4. PROPOSED MITIGATION SITE

A. Location and Size of Mitigation Area

1. Describe location, including rationale for choice. If offsite, indicate distance from project site.

2. Provide the following maps:

a) full-size copy of USGS quad map with the mitigation location outlined
b) road map marked with the site location
c) base topo map with the proposed mitigation area outlined and acreage indicated. (See Appendix A for figure format information.)

B. Ownership Status

1. Indicate who presently owns the mitigation site. If any owner is different from the permit applicant(s), describe and explain the availability of the property. Describe and explain any easements or encroachments that the property carries. If any of the property is located on public land, describe and explain what arrangements, if any, have been discussed with the managing agency.

2. Indicate expected ownership of the mitigation area following completion of the mitigation project. Identify who will be responsible for long-term management and protection of the area. Describe and explain what if any long-term management plan been prepared for the area. If an entity other than the applicant will assume management responsibilities following completion of mitigation project, describe and explain any signed, written agreement that the manager will manage the area in conformance with goals of the mitigation. Include copies of any written plans or agreements.

3. Indicate what entity, if any, controls water flow to or from the site. Identify and describe the party who is to maintain water control structures. Describe and explain what arrangements have been made to guarantee appropriate water flow in the mitigation area during and after the establishment of the mitigation project.

C. Existing Functions and Values of Mitigation Area

(Refer to Section I.E. above.)

D. Present and Proposed Uses of Mitigation Area

Briefly describe all known present and proposed uses of the mitigation area. Discuss non-native landscape plantings, pipelines, powerlines, roads, distance and location of nearest structures, if any, etc., on the property containing the mitigation site.

E. Jurisdictional Delineation (if applicable)

Describe any jurisdictional areas that are already present on the mitigation site. Provide a topo base map of the site with jurisdictional areas (and any proposed fill) indicated. Describe the probable future of the mitigation area as habitat if left undisturbed.

F. Present and Proposed Uses of All Adjacent Areas

Briefly describe all known present and proposed uses of all property sharing a common border with the property containing the mitigation.

G. Zoning

Give all present and proposed zoning designations for the mitigation site and adjoining properties, including city, county, BCDC, etc.

5. IMPLEMENTATION PLAN

A. Rationale for Expecting Implementation Success

May refer to previous relevant experience of applicant and/or implementation consultant or to other similar and successful mitigation projects. Include hydrology and soils information.

B. Responsible Parties

Provide the name(s), title(s), address(es), and phone numbers of the person(s) responsible for implementing the mitigation project.

C. Site Preparation

1. Describe plans for grading, hydrologic changes, water control structures, soil amendments, erosion control, bank stabilization, equipment and procedures to be used, site access control, etc., as applicable. Include a description of exotic vegetation control techniques, planting hole excavation methods (e.g., auguring, hand digging), and the size of the planting hole (e.g., twice size of container).

2. Provide base topo maps showing planned site preparation. (See Appendix A for figure format information.)

3. Provide representative coss-sections of the mitigation site with elevations and scale indicated.

4. Provide the name, title, address, and phone number of the person supervising or providing biological monitoring during grading activities.

D. Planting Plan

1. Briefly describe the planting plan and methods

2. Provide a table of species to be planted, including numbers, spacing, types of propagules, pot sizes, etc.

3. Indicate the source-locale of seeds, plant plugs, cuttings, etc.

4. Show planting and species locations on a base topo map. (See Appendix A for figure format information.)

5. If transplanting is to be done, describe the storage method and duration.

6. Describe any expected volunteer native revegetation that is included in mitigation planning.

E. Schedule

Provide a schedule in the form of a legible flow chart showing intended timing of site preparation and plantings.

F. Irrigation Plan

1. Describe irrigation method(s), estimated frequency, and amount during dry months.

2. Indicate water source(s) for the mitigation area.

3. Show the planned irrigation system and/or water flow on base topo (may be included on the planting plan map).

G. As-Built Conditions

The plan should specify that the applicant will:

1. Submit a report to EPA within 6 weeks of the completion of site preparation and planting, describing the as-built status of the mitigation project. If avoidance is incorporated into development project design, describe the as-built status of the development project, including and deviations from the original plan in the vicinity of, or that will affect, jurisdictional area(s). Submit separate reports for grading and planting work if not completed within six weeks of each other.

2. Provide topo maps showing as-built contours of the mitigation area. Indicate the location of plantings and any other installations or structures.

6. MAINTENANCE DURING MONITORING PERIOD

A. Maintenance Activities

Describe planned maintenance activities, including irrigation system inspection, plant replacement, weeding, water structure inspection, fertilization, erosion control, herbivore protection, trash removal, and/or any other such activities.

B. Responsible Parties

Identify the persons/entities responsible for financing and carrying out maintenance activities, including names, titles, addresses, and phone numbers.

C. Schedule

Provide a table showing the schedule of maintenance inspections.

7. MONITORING PLAN

A. Performance Criteria

Provide yearly target criteria to be met, as appropriate, based on reasonably-paced progress toward final success criteria. (Refer to Section III.)

B. Monitoring Methods

1. Describe the monitoring methods. If using sampling methods, include sample sizes, statistical justification for sampling regime, and data analyses to be performed. If appropriate, include assessment of natural population growth by target species.

2. Provide samples of all proposed data sheets.

3. Photos shall be taken during each monitoring period. They shall be taken from the same vantage point and in the same direction every year, and shall reflect material discussed in the monitoring report.

When percent cover estimates are made of herbaceous vegetation, photographs shall be taken of sampling quadrants.

C. Annual Reports

1. Annual reports shall be submitted which present monitoring results. They shall assess both attainment of yearly target criteria and progress toward final success criteria.

2. Annual reports shall include the following:

a. A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities for that year.

b. A copy of any Corps permit attached. Special Conditions and any subsequent Letters of Modification shall be included as an appendix.

c. Analysis of all quantitative monitoring data.

d. Prints of all included monitoring photographs (photocopies are not acceptable).

e. Maps identifying monitoring areas, transects, planting zones, etc., as appropriate. (See Appendix A for figure format information.)

3. Copies of all field data sheets shall be available for Corps review as needed.

D. Schedule

Since planting and/or site modification may not occur when planned, monitoring and performance criteria shall be tied to the actual implementation date rather than to predetermined years (e.g., the first annual report shall be delivered on (month, day) of the year following the first growing season after planting.)

8. COMPLETION OF MITIGATION

A. Notification of Completion

When the initial monitoring period is complete, and if the applicant believes that the final success criteria have been met, the applicant shall

notify the Corps when the annual report that documents this completion is submitted. If it is appropriate here, a current jurisdictional delineation of the created wetland areas should be submitted with the report. (This delineation shall be accompanied by legible copies of all field data sheets.)

B. Corps Confirmation

Following receipt of the report, the Corps may require a site visit to confirm the completion of the mitigation effort and any jurisdictional delineation.

9. CONTINGENCY MEASURES

A. Initiating Procedures

If an annual performance criterion is not met for all or any portion of the mitigation project in any year, or if the final success criteria are not met, the permittee shall prepare an analysis of the cause(s) of failure and, if determined necessary by the Corps, propose remedial action for approval.

B. Alternative Locations for Contingency Mitigation

Indicate specific alternative mitigation locations that may be used in the event that mitigation cannot be successfully achieved at the intended mitigation site. Include current ownership information for any offsite alternative locations.

C. Funding Mechanism

Indicate what funds will be available to pay for planning, implementation, and monitoring of any contingency procedures that may be required to achieve mitigation goals.

D. Responsible Parties

List names, addresses, and phone numbers of persons/entities responsible for implementing and monitoring contingency procedures.

APPENDIX A – FORMAT INFORMATION

A. Text Format Notes for Mitigation/Monitoring Proposals, As-Built Reports, and Annual Reports.

1. The Corps file number and the date of the report should be included in title-page reading.

2. Include a distribution page listing names, titles, companies/agencies and addresses of all persons/agencies receiving a copy of the report.

B. List of Figures to be Submitted

(Page and section numbers in parentheses indicate location of figure request in annotated outline. For recommended figure formats, refer to Section (C) below.)

1. Mitigation and Monitoring Proposal

   a. Jurisdictional Areas and Proposed Fill on Project Site *(p. 8, 1.D.)* (outlines and acreages indicated.).

   b. Location and Size of Mitigation Area

      – U.S.G.S. quad map *(p. 10, 4.A.2)*

      – road map *(p. 10, 4.A.2)*

      – topo map *(p. 10, 4.A.2)*

   c. Jurisdictional Areas and Any Proposed Fill on Mitigation Site *(p. 11, 4.E.)*

   d. Mitigation Site Preparation *(p. 12, 5.C.2)*
      (base topo map showing preparation plans)

   e. Planting Plan *(p. 13, 5.D.4)*

      – plan view of base topo

      – representative cross-sections

   f. Irrigation Plan *(p. 13, 5.F.3)* (may be on planting plan topo)

2. As-Built Report *(p. 14, 5.G.2)*

   a. Final site contours

   b. Plantings as installed

C. Figure Format Notes

- All maps and plans submitted shall be legible and include title, date of preparation, and date of submission.
- A legend shall be provided if symbols, patterns, or screens are used on the map or plan.
- If colors are used to indicate areas on the original map, color copies shall be included in all copies of the report submitted to the Corps.
- Indicate North and provide a scale and datum (if appropriate, i.e., tidal data).
- Scale and orientation shall be the same for all maps, except for detail sections.
- Base topo maps (i.e., for jurisdictional areas, location and size of mitigation areas, mitigation site preparation plans, planting plans, irrigation plans, and as-built reports) shall be full-size (1 inch = 100 feet or less, 1 inch = 200 feet for very large projects).
- USGS quad maps shall be full-size and full scale (may be photocopies, if clearly legible).

NOTE: Reduced copies of maps shall be bound with all documents to facilitate review by advisory agencies. For Corps review, at least two sets of full-sized copies shall accompany mitigation and monitoring proposal, and one set shall accompany each annual report.

D. Schedule

When submitting the mitigation and monitoring plan, the applicant shall indicate the month and date on which the yearly report will be delivered. If plan involves planting, this date should be made between growing seasons for the primary plants so that timely decisions can be made about any modifications to the plan.