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ADDENDUM TO NEW ENGLAND DISTRICT COMPENSATORY MITIGATION GUIDANCE: COMPENSATION FOR IMPACTED AQUATIC RESOURCE FUNCTIONS

The Council on Environmental Quality (CEQ) has defined mitigation in its regulations at 40 CFR 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts. The Clean Water Act Section 404(b)(1) Guidelines establish environmental criteria which must be met for activities to be permitted under Section 404. Both the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency have a national goal of no overall net loss of wetland functions, as explained in the agencies' 1990 Memorandum of Understanding (<http://www.usace.army.mil/cw/cecwo/reg/mou/mitigate.htm>). This goal is achieved through mitigation of aquatic resource impacts. This addendum uses the terms "mitigation" and "compensation" interchangeably to refer to compensatory mitigation.

The New England District, U.S. Army Corps of Engineers, has examined its aquatic resource mitigation requirements for Department of Army permits over the past decade. We have decided to implement compensatory mitigation ratio guidance as part of the ongoing process to improve the overall success of aquatic resource mitigation being required through the Regulatory Program. The New England District already has two documents on compensatory mitigation in place: a Mitigation Plan Checklist and Mitigation Plan Checklist Guidance, both dated January 12, 2007 and posted on the District website (www.nae.usace.army.mil). The District is joining many other Corps districts in establishing standard guidelines, including ratio "rules of thumb," for compensatory mitigation. These ratios provide guidance for all compensatory aquatic resource mitigation required by New England District. They are particularly designed for direct permanent impacts, but additional mitigation may be required to address indirect (secondary) impacts (impacts resulting from the fill activities to areas which are not directly filled, but whose functions are impacted from the nearby fill activities, e.g., fragmenting wildlife habitat, alteration of hydrology, removal of vegetation, etc.), as well. The ratios are based on:

- Complexity of system impacted,
- Likelihood of mitigation success,
- Degree to which functions are replaced, and
- Temporal losses for certain functions (e.g., water quality renovation).

While these ratios will be the starting point for developing appropriate compensatory mitigation, there continues to be flexibility on a project-by-project basis in order to achieve the most appropriate mitigation for a specific project. The functions and levels of functions impacted are important in determining adequate and appropriate compensation. Some of the factors to be considered in developing the project-specific compensation include:

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- The functions provided by the proposed impact site (including the level of those functions).
- The functions provided by the proposed compensatory mitigation project (including the estimated level of those functions upon completion of construction and when monitoring is complete).
- The method of compensatory mitigation (e.g., restoration, creation).
- The likelihood of success of the compensatory mitigation project.
- Temporal losses of aquatic resource functions.
- The risk and uncertainty associated with the proposed compensatory mitigation project.
- The distance between the impact site and the compensatory mitigation project site.

This flexibility may lead to compensatory mitigation deemed adequate and appropriate which is at a lower ratio than included here. It may also lead to project-specific ratios which are higher than depicted here, so that unavoidable impacts to high quality wetlands may be adequately mitigated and/or indirect and secondary impacts may be addressed. A proven mitigation methodology from an applicant and confidence that the proposed plan substantially reduces the risks inherent in wetland construction may also be considered in determining the appropriate ratios for a specific project. The New England District will also work closely with state regulatory agencies to achieve as much consistency as possible, given differing state and federal legislative and program requirements; however, these guidelines are designed to meet the federal compensation requirements and may not meet state requirements.

This addendum was originally on public notice from 1 May 2007 to 31 May 2007. Twenty-five comments were received during and after the comment period. Responses to the comments are in a document posted on the New England District website:

<http://www.nae.usace.army.mil/reg/index.htm> under "Mitigation." Changes from the draft addendum include:

- Reduction of the recommended buffer zone around restoration, creation, and enhancement projects from 200' to 100',
- Counting of the recommended buffer as upland preservation credit,
- Changing of several of the ratio numbers,
- Giving a range to account for differing qualities of impacted wetlands, and
- Increasing the ratio for submerged aquatic vegetation based on research from the University of New Hampshire.

Recommended Ratios (see Table)

It is extremely important to mitigate for affected functions, generally by replacing the same type of system impacted. This will vary with watershed and landscape considerations; the mitigation should be functionally and geographically appropriate. These ratios were developed with the presumption of in-kind compensation (which will not always be appropriate) and ranges are meant to reflect the quality of aquatic resource and the level of functions impacted. In cases where out-of-kind compensation is performed, project-specific ratios should be developed. Out-of-kind compensation should not be used solely to reduce the required amount of mitigation based on the ratios. The requirement for higher ratios for impacts to higher quality systems or to those systems whose functions take longer to develop will not be reduced if a lower ratio form of mitigation is

RECOMMENDED COMPENSATORY MITIGATION RATIOS TABLE

Mitigation Impacts	Restoration¹ (re-establishment)	Creation (establishment)	Enhancement (rehabilitation)	Preservation (protection/ management)
Emergent Wetlands (ac)	2:1	2:1 to 3:1	3:1 to 10:1 ²	15:1
Scrub-shrub Wetlands (ac)	2:1	2:1 to 3:1	3:1 to 10:1 ²	15:1
Forested Wetlands (ac)	2:1 to 3:1	3:1 to 4:1	5:1 to 10:1 ²	15:1
Open Water (ac)	1:1	1:1	project specific ³	project specific
Submerged Aquatic Vegetation (ac)	3:1 to 5:1	project specific ⁴	project specific ⁵	project specific
Streams⁶ (lf)	2:1 ⁷	N/A	3:1 to 5:1 ⁸	10:1 to 20:1 ⁹
Mudflat (ac)	2:1	2:1	project specific	project specific
Upland¹⁰ (ac)	≥10:1 ¹¹	N/A	project specific	15:1 ¹²

¹ Assumes no irreversible change has occurred to the hydrology. If there has been such a change, then the corresponding creation ratio should be used.

² Based on types of functions enhanced and/or degree of functional enhancement.

³ Might include planting submerged and/or floating aquatics and/or removal of invasive species.

⁴ Rare cases, e.g., removal of uplands, old fill, etc.

⁵ E.g., remove pollutant source such as an outfall, remove moorings.

⁶ Note that this assumes both banks will be restored/enhanced/protected. If only one bank will be restored/enhanced/protected, use half the linear foot credit.

⁷ E.g., daylighting stream, elimination of concrete channel.

⁸ Enhancement of denuded banks and channelized streams = 3:1.

Enhancement of denuded banks when there is a natural channel = 4:1.

Enhancement when there are vegetated banks but the stream has been channelized = 5:1.

⁹ Preserving buffer beyond the 25-foot minimum up to 50 feet from channel = 10:1.

Preserving additional buffer 50 to 250 feet from channel = 15:1.

¹⁰ This refers to upland used for wetland mitigation, NOT mitigation for upland impacts, which are not regulated.

¹¹ Only applies if existing condition is pavement or structure AND should complement aquatic functions.

¹² 100' upland buffer recommended for restoration, creation, and enhancement sites would be credited here.

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selected which will not replace the impacted functions. Indeed, even higher ratios may be required to make the mitigation closer to compensating impacted functions. If it is deemed appropriate to compensate for lost forested wetlands with scrub-shrub or emergent wetlands, the higher ratio associated with forested wetlands should still be used. For example, if forested wetlands (compensation for which would generally be restoration of 3:1) were impacted but the only mitigation available was restoration of emergent wetlands (usually restoration of 2:1 for impacted emergent wetlands), the mitigation would still be at 3:1.

Several specific types of systems (e.g., vernal pools, riffle and pool complexes) are not specified here as they will generally require resource-specific and project-specific compensation. Although streams are included in the table for general guidelines for mitigation, we are working on more stream-specific mitigation guidelines which will include more detail related to work in these types of aquatic systems.

Greater mitigation requirements and ratios may be needed for projects near impaired waters to protect water quality. Impaired waters are those waters which do not meet state water quality standards (even after point sources of pollution have installed the minimum required levels of pollution control technology). It is the responsibility of the applicant to determine whether a project is in the vicinity of an impaired water by referring to a state's or tribe's Clean Water Act section 303(d) list and/or maps of impaired waters.

Compensatory mitigation that involves restoration, creation, and enhancement benefits greatly from the presence of upland buffer to prevent site degradation resulting from nearby activities and enhances long-term sustainability. It is recommended that a minimum buffer of 100' width be established for all wetland restoration, creation, and enhancement, except in exceptional cases. This buffer area would count toward upland preservation mitigation credit. A preserved buffer of a minimum of 25' from each bank is recommended for stream restoration and enhancement projects.

Compensatory Mitigation Guidelines

In order to more closely replace impacted functions, in-kind mitigation is generally preferred to out-of-kind mitigation for impacted resources that are not heavily degraded, provided this is appropriate in the landscape. It is important that mitigation be functionally and geographically appropriate in the overall watershed context, so in-kind mitigation may not be preferred in some situations. Out-of-kind mitigation may be preferred for heavily degraded systems or where it would be more beneficial to the overall watershed (at the U.S.G.S. Hydrologic Unit Code Level 8). Compensation should generally be located where it is most likely to be successful in replacing lost functions, taking into account aquatic habitat diversity, connectivity, and a natural balance of wetlands and uplands. Compensation should not be located in positions that will be detrimental to the compensation site (e.g., some on-site compensatory mitigation functions may be degraded by proximity to the project). Some functions (e.g., floodflow alteration) may need to be mitigated on-site, while others (e.g., wildlife habitat) should be mitigated off-site in most cases. If more than one compensation site is to be used, they do not need to be contiguous with each other. Again, overall watershed concerns may affect location of compensatory mitigation projects.

The types of mitigation in order of preference are restoration, creation, enhancement, and preservation. Restoration, provided there have been no irreversible changes to the hydrology,

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generally has the greatest likelihood of success. It is usually appropriately situated within the landscape. Successful wetland restoration and creation efforts replace impacted wetland acreage and function. Enhancement, restoring natural functions to an existing wetland which is degraded, yields some replacement of wetland function, but not wetland acreage. Since this form of mitigation increases levels of functions in existing functioning systems, a higher ratio is typically required than is required for mitigation involving restoration or creation.

Preservation is an important element of every compensatory mitigation project. The created, restored, and enhanced sites should be preserved in perpetuity, along with an appropriate buffer, to ensure the long term viability of these compensatory mitigation sites. Preservation alone may be considered for compensatory mitigation in exceptional circumstances. It results in neither an increase in wetland acreage, nor an increase in wetland functions. The goal of required compensatory mitigation is to prevent a net loss in wetland functions resulting from the project. In order to meet the goal of no net loss of wetland functions, the Corps expects mitigation comprised solely of preservation to be acceptable in rare circumstances. While preservation does not replace wetland functions, it does reduce future impacts and degradation to existing wetland functions. For this reason, appropriate preservation may be a suitable means of compensatory mitigation in situations where meaningful wetland restoration, creation, and/or enhancement opportunities have been exhaustively explored and do not exist, or are not practicable or ecologically desirable. The geographic area of consideration when looking for mitigation opportunities is expected to be broad. Due to such a lack of additional mitigation opportunities, an applicant may work with the Corps and other agencies to develop a suitable preservation package.

In its discussion of preservation, Regulatory Guidance Letter (RGL) 02-2 (<http://www.usace.army.mil/cw/cecwo/reg/rgls/RGL2-02.pdf>) states that (emphasis added):

“Districts **may give** compensatory mitigation credit when existing wetlands, or other aquatic resources are preserved in conjunction with establishment, restoration, and enhancement activities. However, Districts should only consider credit when the preserved resources will augment the functions of newly established, restored, or enhanced aquatic resources. Such augmentation may be reflected in the amount of credit attributed to the entire mitigation project. **In exceptional circumstances, the preservation of existing wetlands or other aquatic resources may be authorized as the sole basis for generating credits as mitigation projects.** Natural wetlands provide numerous ecological benefits that restored wetlands cannot provide immediately and may provide more practicable long-term ecological benefits. If preservation alone is proposed as mitigation, Districts will consider whether the wetlands or other aquatic resources: 1) perform important physical, chemical, or biological functions, the protection and maintenance of which is important to the region where those aquatic resources are located; and 2) are under demonstrable threat of loss or substantial degradation from human activities that might not otherwise be avoided. **The existence of a demonstrable threat will be based on clear evidence of destructive land use changes that are consistent with local and regional (i.e., watershed) land use trends, and that are not the consequence of actions under the permit applicant’s control.**”

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In regard to preservation of upland, RGL 02-2 states:

“Under limited circumstances, Districts may give credit for inclusion of 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.”

Following this guidance, suitable preservation as compensatory mitigation should make sense in the watershed context, provide protection of important aquatic resources, be near other protected resources to provide appropriate ecological continuities, and be sustainable in the long-term. Due to wetlands laws in all of the New England states that reduce development pressure on wetlands, New England District encourages upland preservation that protects aquatic functions over straight wetlands preservation.

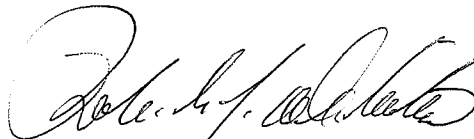
A sample hypothetical calculation of appropriate mitigation using the ratio guidance is posted on the New England District website: <http://www.nae.usace.army.mil/reg/index.htm> under “Mitigation.”

The guidelines in this addendum are implemented as of the date of this notice; however, these guidelines will not be used for compensatory mitigation proposals which have written approval from the Corps, even if a final permit decision has not been made for such projects.

This addendum represents policy guidance for the New England District. As such, it is not intended to represent a binding regulation, and is not intended to be enforceable against the Army Corps of Engineers by third parties. This guidance is intended as a starting point for analyzing compensatory mitigation for permit decisions, but based on the facts of a particular situation permit decisions may result in different results than the ratios set forth in this document.

Any questions regarding the District compensatory mitigation guidelines should be directed to Ruth Ladd at ruth.m.ladd@usace.army.mil, (978) 318-8818, (800) 343-4789, or, if calling from within Massachusetts, (800) 362-4367.

FOR THE DISTRICT ENGINEER:



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