Guidance to Complete a Habitat Quality Assessment for the Purpose of Adjusting the Default Mitigation Ratios Specified in Policy 4.17 of the West Eugene Wetlands Plan

City of Eugene
Parks and Open Space Division
1820 Roosevelt Blvd.
Eugene, OR 97402

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1. Introduction

The West Eugene Wetlands Plan (WEWP) is a land use and wetland conservation plan that designates wetland sites for development, restoration and protection. Policy 4.17 of the WEWP provides a framework for determining mitigation requirements for all types of impacted wetlands within the WEWP area. Specifically, Table1, *Mitigation Replacement Ratios for Good to Excellent Quality Habitat* (WEWP 2004, p. 21), presents mitigation replacement ratios for both private mitigation and mitigation through the use of a wetland mitigation bank. The ratios in Table1 assume the wetland to be impacted is "good to excellent quality wetland habitat". If the site to be impacted is not considered a "good to excellent quality" site, a reduction in the mitigation replacement ratio is possible. This Habitat Quality Assessment (HQA) is used to determine if mitigation replacement ratios for impacted wetlands within the WEWP area can be reduced from the ratios shown in Table 1 of Policy 4.17.

The following guidance provides detailed information on how to collect and submit data and other information needed to determine the habitat quality rating. The process requires the applicant to collect field data on the wetlands to be impacted and then submit this information to the City of Eugene Mitigation Bank Coordinator, at Parks and Open Space Division, 1820 Roosevelt Boulevard, Eugene, OR, (email: trevor.h.taylor@ci.eugene.or.us). Data is to be collected by a qualified professional between May 1 and July 30. All determinations of mitigation ratios shall be completed by City of Eugene wetlands program staff, consistent with WEWP policy. If you have questions about the process or guidance please contact Trevor Taylor at 541-682-4888.

In Section 1.1, below, the complete text of WEWP Policy 4.17. An online version of the WEWP is also available at the following URL: http://www.eugene-or.gov/wetlands.

1.1. Policy 4.17 in the West Eugene Wetlands Plan

The following text in this subsection is copied verbatim from Policy 4.17 in the West Eugene Wetlands Plan (2004, page 20-21).

The City of Eugene shall calculate mitigation requirements for all wetland impacts within the West Eugene Wetlands Plan area using the applicable ratio from Table 1 below, subject to the provisions in A through D below. In no case shall a ratio of less than 1:1 be allowed.

A. For impact sites with recent disturbance, the City of Eugene shall determine mitigation ratios based upon an analysis of habitat type on the site as of April 2, 1999, as determined by aerial photo analysis. No reduction in ratios for fair to poor quality habitat shall be allowed for recently disturbed impact sites.

B. The City of Eugene shall calculate mitigation requirements for impact sites with more than one habitat type by multiplying the appropriate ratio by the number of acres impacted for each habitat type and summing the resulting acreage for each habitat type.

C. Ratios shown in Table 1 for wet prairie, shrub/scrub, forested and emergent wetlands are for impacts to good to excellent quality habitat. Impact sites that contain one or more plant species designated as rare in the West Eugene Wetlands Plan shall be considered good to excellent habitat. Impact sites containing these habitat types of fair to poor quality can be evaluated for lower

replacement ratios only if the applicant submits field data according to the following provisions:

(1) Habitat quality shall be determined by the City of Eugene, based upon field conditions as represented in field data submitted by the applicant on forms provided by the City. Field data shall be collected between May 1 and July 30 by a qualified professional, shall include distribution data for all plant species present and shall include data from sampling points in the center of the wetland area.

(2) For sites containing wet prairie, shrub/scrub, forested and emergent wetlands of fair quality the ratio can be reduced by 0.25:1 and for sites containing these habitat types of poor quality the ratio can be reduced by 0.5:1.

D. The ratios for privately constructed mitigation (i.e., not purchased through a state/federal approved wetland mitigation bank) are based upon construction of the mitigation concurrent with the permitted filling of a wetland. If private mitigation is constructed prior to the wetland impact, the ratio can be reduced by 0.25:1.

Table 1: Mitigation Replacement Ratios for Good to Excellent Quality Habitat
(Mitigation acres: Impact Acres)

Wetland Habitat Type (impact site)	**Private Mitigation**			**Mitigation Bank[2]**
	Restoration[1]	Creation	Enhancement	
Wet Prairie	2:1	2.25:1	2.5:1	1.75:1
Other Wetland Types: shrub/scrub, emergent, forest	1.5:1	1.75:1	2:1	1.25:1
Disturbed Wetlands: Agricultural, crop land, pasture, old field, fill.	1:1	1.25:1	1.5:1	1:1

Notes about Table 1:

(1) Restoration is the preferred mitigation method for the West Eugene Wetlands program. To encourage restoration, it is given the lowest ratio of the three mitigation methods.

(2) This column shows the mitigation replacement ratios that will apply to those who are meeting their mitigation requirements through a public or private mitigation bank or mitigation bank program approved by the Oregon Division of State Lands and the U.S. Army Corps of Engineers (i.e., these ratios apply to "customers" of the "bank"). Participants in the mitigation bank pay a fee into the "bank" in lieu of constructing their own mitigation project. The mitigation replacement ratio determines how many acres of mitigation credit must be purchased for each acre of wetland impact. The ratio does not address how credits are produced by the mitigation bank. The ratios are lower than for private mitigation because state and federal approval of mitigation banks requires that the majority of mitigation projects be constructed prior to selling credits.

2. General Guidance for the Habitat Quality Assessment.

2.1. When to Use the Habitat Quality Assessment

The HQA is required only when seeking to reduce the mitigation replacement ratios in Table 1, Policy 4.17, of the West Eugene Wetlands Plan. When an applicant of a wetland fill permit (also known as the Joint Fill Permit Application) for a site located within the WEWP boundaries believes the site habitat quality is less than good to excellent, the HQA is used to determine the appropriate mitigation ratios. At this point a wetland delineation report should already exist for the site and an applicant has initiated discussion of the impact to jurisdictional wetland with the regulatory agencies. The HQA is designed as a rapid assessment tool to evaluate wetland habitat quality within the WEWP area. The HQA enables the City, plus State and Federal regulatory agencies, to assess and determine the wetland replacement ratios for wetlands proposed for fill within the WEWP. Only jurisdictional wetlands within the WEWP plan boundaries require wetland habitat quality assessments, and *only when the applicant seeks to reduce the mitigation replacement ratio listed in Table 1 of WEWP Policy 4.17*.

The HQA is not designed to be used on sites with recent disturbance. Policy 4.17(A) states "recently disturbed impact sites" shall not be allowed a reduction in ratio for fair to poor quality. Recent disturbance is generally defined as post 1999 activities such as selective harvesting, clear cutting, construction of berms, or ditches, and agricultural activities such as burning, disking, plowing, or herbicide application. In addition, "atypical situations" as defined in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual are considered disturbances that would exclude an applicant from the HQA process.

The HQA does not try to establish the economic values present in a wetland; it only helps to identify a site's relative habitat quality based on vegetation and function. The HQA is different than a wetland delineation report in that the purpose of the HQA is to determine the wetland habitat type and assess the quality within a jurisdictional wetland. A wetland delineation report focuses on defining the edge or boundary of jurisdictional wetlands.

2.2. Landowner's Permission

It is important to obtain permission from the land-owner(s) before going on the landowner(s) property.

2.3. Time Involved

The time necessary to rate wetlands will vary from as little as thirty minutes to several hours. Larger sites with dense brush may involve strenuous effort. In some cases the use of aerial photographs, topographic maps, other documents, or a combination of these resources with field observations will be necessary for a complete evaluation. In some cases, it may be necessary to visit the wetland more than once.

2.4. Experience and Qualifications Needed

It is important that the person completing the rating have experience and/or education in the identification of natural wetland features, indicators of wetland function, vegetation classes, and the ability to identify wetland plant species, including grasses, forbs, shrubs, and trees. We recommend that qualified wetland

consultants or wetland experts be used to rate most sites, particularly the larger and more complex ones. This will help ensure that results are repeatable.

2.5. How the Wetland Habitat Assessment Process Works

The Habitat Quality Assessment system has five (5) forms that need to be completed:

- □ Form 1: Site Conditions and History
- □ Form 2: Plant Species Checklist
- □ Form 3: Vegetation Assessment Data Form
- □ Form 4: Habitat Type Rating System
- □ Form 5: Site Assessment & Summary

This document instructs the user on how to collect information about the wetland, and apply the Habitat Type Rating System in a step-by-step process. We recommend careful reading of the Guidance before filling out the forms. The wetland habitat quality rating for large sites can be based on different ratings for each habitat type polygon (i.e. primary vegetation community) within the impact wetland site. Each habitat polygon is assessed a replacement ratio based on the vegetation community and quality assessment data. It is important to perform the entire assessment and complete all of the forms for a site. The habitat type and quality ratings are used by City staff to determine the total mitigation requirements for the site. This determination by City staff is forwarded to the Oregon Department of State Lands and U.S. Army Corps of Engineers for use in the Joint Fill Permit Application process.

2.6. Overview on How to Prepare a Habitat Assessment Report

1. Obtain aerial photo of site and tax lot map.
2. Determine area to be impacted by proposed development.
3. Determine wetlands to be impacted by proposed development.
4. Provide information about site conditions and recent management.
5. Determine site wetland habitat types and size.
6. Survey for rare plants. (map species, locations, and numbers if found over aerial photo)
7. Collect species diversity and abundance data for each habitat type in sample plots.
8. Summarize findings on Form 5 and prepare narrative description of vegetation communities.
9. Submit documentation (narrative summary, all data forms and maps) to the Mitigation Bank Coordinator, City of Eugene, Parks and Open Space Division.
10. The Mitigation Bank Coordinator shall call within 10 business days to schedule a field verification visit.
11. Within 10 business days after the field visit, the Bank Coordinator shall send a letter to the Oregon Department of State Lands, the U.S. Army Corps of Engineers and to the consultant/land owner, summarizing the mitigation requirements for the site.

3. Detailed Guidance for the Habitat Quality Assessment

3.1. Obtain aerial photo of site and tax lot map

Air photos can be obtained from the University of Oregon Map Library or on line at: http://libweb.uoregon.edu/map/orephoto/cityindex.htm

In addition, WAC Corporation, 520 Conger Street, Eugene OR (phone: 541-342-5169) may also be able to provide recent air photos for the WEWP area. Tax maps can be obtained from the City of

Eugene Permit and Information Center (PIC), 99 W. 10th Avenue, Eugene, OR (phone: 541.682.5086). The PIC is open Monday to Friday 1:00 p.m. to 5:00 p.m.

Choose a scale for the map which provides sufficient room to clearly present all pertinent details. The site map(s) shall be at a scale suitable for the site size and for legibility.
For most purposes, an appropriate map scale is 1 inch = 100 feet. Site map(s) must be clear and legible.

Site maps must contain as a minimum:

1. The boundaries of the entire parcel(s) subject to the HQA; or
2. If only a portion of the parcel(s) was assessed, the study area boundary in relation to the parcel boundaries;
3. Numbered habitat polygons and labeled sample plot locations corresponding to data forms (see section 3.6 of this guidance);
4. Title, North arrow and scale bar.

3.2. Determine wetlands impacted by development

Overlay the site development plan boundary on the site air photo/tax lot map. The site development plan boundary is the same as the "impact area" identified in the applicant's Joint Wetland Permit Application. Overlay the wetland delineation boundary(s) for the site on the air photo/tax map base. The overlap of the site development plan with the wetlands boundaries should allow you to determine the wetlands to be impacted by the development. The impacted wetlands are the ones that will require a HQA.

3.3. Provide Site Conditions and History (Form 1)

The site description sections 1-3 on Form 1 are intended to help the reviewer think about the site and field conditions in order to interpret the data in the report. Information that is most helpful includes: recent and current management practices, historic land use on the site, approximate extent of wetlands on adjacent parcels that might affect site conditions, existing surface and/or submerged drainage systems, slope and direction of water flow. Site topographic maps and color photos are also helpful.

3.4. Determine Site Habitat Types and Size

The eight different wetlands types identified in the WEWP are described below. Use the summaries to categorize the wetlands to be impacted into vegetation classes. Each habitat polygon has to be at least ¼ acre or greater in size. Vegetation types are distinguished on the basis of the uppermost layer of vegetation (forest, shrub, wet prairie etc.) that provides more than 30% surface cover within the area of its distribution. The classification of vegetation used for the habitat quality assessment is based on the "Cowardin" classification, and the criteria for these categories are adapted from Cowardin (1979).

Indicate on Form 1, Site Conditions and History, section 4 which of the following vegetation communities are present

Vegetation Community	Description
Forested	Areas where woody vegetation over 20 ft. (6 m) tall (such as cottonwood, ash, etc.) cover >30% of the ground. Trees need to be

Vegetation Community	Description
	partially rooted in the wetland in order to be counted towards the estimates of cover. In West Eugene forested wetland mostly consist of Oregon ash and cottonwood, which can grow in seasonally saturated soils.
Scrub/shrub	Areas where woody vegetation ranging from 3 to 20 feet (1 to 6 m) tall is the top layer. The shrub vegetation must provide at least 30% cover and be the uppermost layer. These areas often used to be wet prairie where shrubby vegetation now grows and areas where willow thickets grow along streams. Wet prairie vegetation often coexists among the shrubs. Examples of common shrubs in West Eugene wetlands include nootka rose, young Oregon ash and/or black cottonwood, Douglas' hawthorn, Douglas' spiraea, willows, and red-osier dogwood.
Wet Prairie	A herbaceous plant community typically dominated by *Deschampsia cespitosa* (tufted hairgrass) that is seasonally flooded or saturated. Perched water tables and relatively impermeable clay soils are often present in this wetland type. Wet prairies are usually wet in the late spring and gradually dry out during the summer, being completely dry by late summer. Hummocky microtopography is characteristic of this wetland type.
Emergent	Areas with rooted, herbaceous wetland plants that may be temporarily or permanently flooded at the base but are nearly always exposed at the upper portion. These wetlands occur in low-lying areas or topographical depressions, which are inundated for part of the growing season. This type of wetland has a variety of vegetation types. To count as a wetland community, the emergent vegetation must provide at least 30% cover of the ground and be the upper-most layer. In general the plants in these wetlands include grasses, sedges, rushes and other plants adapted to wetland habitats. Cattails and bulrushes are good examples of plants in the "emergent" plant type.
Vernal Pool	Areas covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall. May contain areas of bare ground.
Agricultural Wetland	This wetland type describes recently or currently cultivated areas. Farming occurred mostly on areas of wet prairie, and has similar hydrology to that wetland type, although the hydrology has often been modified by installation of drainage ditches. Because of constant plowing and land smoothing, the hummocky microtopography of the wet prairie is not evident on this wetland. Non-native grass seed is the main crop grown on agricultural wetland.
Pasture/Old Field Wetland	Pasture/old field wetland type includes all sites that are dominated by non-native plant species not in active cultivation. Old fields are areas that have an agricultural or disturbance history but are left fallow for at least one year. The vegetation that exists in these areas is weedy, non-native grasses and forbs. These vegetation conditions are also present where a wetland was filled, with the fill acting as a seed bed of non-

Vegetation Community	Description
	native species. Similar to the agricultural wetland, many of these areas were historically wet prairie grasslands.

3.5. Survey for rare plants

WEWP Policy 4.17(C) states, "Impact sites that contain one or more plant species designated as rare in the West Eugene Wetlands Plan shall be considered good to excellent habitat". Indicate on Form 1 the presence of any species listed on the WEWP rare plant list, and indicate on the on the site map the general location. For purposes of this assessment, consider a minimum 50-foot radius around each rare plant or plant population (which ever is greater) to be the area of good to excellent habitat. Beyond the 50-foot radius, the habitat type and/or habitat quality rating may change.

3.6. Collect species diversity and abundance data for each habitat type

3.6.1. General Notes on Data Collection

This section provides guidance on collecting data on the distribution of all plant species present including: species diversity (number of species) and species abundance (per cent cover) using sample plots. The first step is to determine the primary vegetation communities present on the site (see section 3.4 above). This can be done by a) walking the site and mapping the major vegetation communities or b) by reviewing the wetland delineation report, air photos and other pertinent information about the site. Use the vegetation communities' descriptions in section 3.4 above as a guide to classify the major wetland types to be impacted on the site. Each wetland vegetation type is to be mapped as a habitat polygon on the site map and referred to when completing Forms 2 and 3.

3.6.2. Labeling Habitat Polygons and Sample Plots

Use the following list of Habitat Type Codes to label each habitat type(s) polygon on a site map or air photo.

Habitat Type	Habitat Type Code
Forested	FO
Scrub/shrub	SS
Wet Prairie	WP
Emergent	EM
Vernal Pool	VP
Agricultural	AG
Pasture/old field	PO

If there is more than one occurrence of a habitat type on a site, number each of the occurrences separately. For example, if a site has three wet prairie polygons, label the polygons as follows: WP1, WP2, and WP3. For a site with two scrub/shrub habitat polygons, label the polygons as follows: SS1 and SS2.

Within each habitat polygon, label sample plots according to the following guidelines:

a) Every habitat polygon must be at least ¼ acre in size (minimum size of a habitat polygon) and have at least one sample plot.
b) For larger habitat polygons (larger that 2.5 acres), up to 10 sample plots may be required in locations that best represent the overall habitat within the polygon being assessed. The number of sample plots required will vary with the complexity and diversity of the habitat on the site. For example, a field with vegetation composed of a large ryegrass monoculture will not require more than one or two sample plots to characterize, while a small site, with a several habitat communities may require numerous sample plots to accurately characterize the vegetation. Some professional judgment will need to be exercised.
c) Label the sample plots within each habitat polygon alphabetically. Examples:
    i. A site containing one wet prairie habitat polygon and three sample plots would be labeled as follows: WP1a, WP1b, and WP1c.
    ii. A site with two Scrub/shrub polygons, containing three sample plots each, would use the following labeling system: SS1a, SS1b, SS1c and SS2a, SS2b, SS2c.

3.6.3. Plant Species Checklist:

Using the Plant Species Checklist (Form 2) survey each mapped habitat polygon and indicate on the checklist the relative abundance of all species within each habitat polygon using the following categories:

Code	Name	Quantitative Description
D	Dominant	> 25 percent cover
C	Common	15 – 25 percent cover
U	Uncommon	3 – 15 percent cover
T	Trace	1 individual plant – 3 percent cover

When using these categories of cover, consider each species individually and its percent cover over the habitat polygon. Use one checklist per habitat polygon. Write a brief (one or two paragraphs) descriptive summary of the vegetation found in each habitat polygon (refer to Example HQA, in Section 7 of this Guidance).

3.6.4. Primary Vegetation Communities:

Using sample plots located so as to provide the best overall description of a community, identify the primary vegetation communities within the wetland area. The size of the sample plots is the same as for wetland delineations: a 5-foot radius circle for herbaceous and shrub vegetation and a 30-foot diameter circle for trees. For each sample plot, record all plant species with at least 10% cover using ocular estimates. Depending on the habitat type, use the following plot radii: 5 ft. for wet prairie, emergent, vernal pool, agriculture field or old pasture, 30 ft. for shrub-scrub or forest (measure tree saplings less than 45 inches high in shrub layer). When trees and shrubs together cover less than 30% of an area, the zone is assigned to the dominant plant type below the shrub (e.g. emergent, wet prairie, bare ground etc.) if these have greater than 30% cover.

Record the name of each species, its wetland indicator symbol, strata, whether it is a native or non-native species and its cover value. Collect the data using the Vegetation Assessment Data Form (refer to Form 3). Next, calculate the total percent cover and percent cover of native species for each sample plot, and extrapolate the sample plot information to adjust the mapped vegetation communities on a site map or recent aerial photo. Also indicate the cover of native shrubs and trees, as well as the presence of hummocky topography. The habitat polygon label (e.g. WP1) should correspond to the specific sample plot. Indicate the location of each sample plot on the map. **Please note: sample plot locations must be permanently marked in the field so that field data can be verified by City staff.**

3.6.5. Apply the Habitat Rating System

For each habitat type mapped, refer to the appropriate section of Form 4 *Habitat Type Rating System* to determine a quality rating to each habitat polygon delineated on the site map. Form 4 consists of four parts or sections:

4.1 Wet Prairie, Agricultural Field, Old Field, or Pasture
4.2 Vernal Pool and Emergent
4.3 Scrub-Shrub
4.4 Forest

Each habitat polygon will need to be rated separately in Form 4. Feel free to add sheets to Form 4 as required for the site. Compare your total score to the point scale at the bottom of Form 4 to obtain your approximate habitat quality rating. City of Eugene wetlands program staff will make the final rating determination after field verification and review of the report.

3.7. Completing the Site Summary and Assessment

Summarize the data from all plots within each habitat polygon on Form 5: Site Summary and Assessment Form. Begin by listing the habitat polygon type code and number (e.g. WP1, WP2, EM1, EM2, etc.) for all habitat type polygons mapped within the assessment area. For each habitat polygon, list the sample plot letter(s) within the habitat polygon, and the number of acres encompassed by the habitat polygon. Within each habitat polygon, record whether rare plants were found (refer to Form 1), the total number of native species observed (refer to Form 2), the average relative native percent cover found over all plots (refer to Form 3), and the range of native cover values (Form 3). Use the results on Forms 4.1 through 4.4 to complete Habitat Type Polygon Total Score column of Form 5.

3.8. Summarize Findings and Prepare Report

Prepare a report summarizing the methods used and findings. Briefly discuss each vegetation community delineated within the wetland area. Attach all maps, forms, and air photos. Feel free to provide other relevant information about the site, such as color photos, topographic map, historical photos, and other information if available.

4. Submittal of Completed Documents and Maps

The completed Wetland Habitat Quality Assessment report shall be submitted to the City of Eugene at the following location:

Wetlands Mitigation Bank Coordinator
ATTN: Wetland Habitat Quality Assessment
City of Eugene, Parks and Open Space Division
1820 Roosevelt Boulevard
Eugene, OR 97402

4.1. Data Submittal Requirements

A complete Habitat Quality Assessment report will include the following information:

- □ A narrative summary of the site describing methods used and findings.
- □ Fully completed Site Conditions and History form (see Form 1).
- □ Fully completed Plant Species Checklist data form for each vegetation polygon (see Form 2).
- □ Map or air photo of site indicating location of each vegetation polygon and each sample plot corresponding to data Form 3 – Vegetation Assessment data form.
- □ Fully completed Vegetation Assessment data form for each sample plot (see Form 3).
- □ Fully completed Rating Form (Form 4) for each habitat polygon.
- □ Fully completed Site Data Summary and Assessment Form (see Form 5).
- □ Complete copy of the site's Wetland Delineation Report (include all data sheets and maps).

4.2. Process of Verification of Field Data

Upon receipt of the complete information for the site, City staff shall:

1. Call applicant or applicant's representative within 10 business days of submittal to schedule a site visit, and begin the review and approval process.
2. Determine the habitat quality rating for each vegetation community.
3. Determine the mitigation replacement requirements for the site.
4. Report the findings and conclusions to the Oregon Department of State Lands and U.S. Army Corps of Engineers within 10 business days of completing the site visit.

5. Glossary & References

5.1. Glossary

The following terms are commonly used in the Habitat Quality Assessment Guidance. These definitions are intended to be explanatory and are not adopted as policy.

Agricultural Wetland or Disturbed Wetland: areas where wetland soils and hydrology remain but native wetland plants have been removed to allow a crop to be grown.

Aerial Cover: The measure of dominance that defines the degree to which above ground portions of plants (not limited to those rooted in a sample plot) cover the ground surface. It is possible for the total aerial cover in a community to exceed 100 percent because (a) most plant communities

consist of two or more vegetation strata; (b) aerial cover is estimated by vegetative layer; and (c) foliage within a layer may overlap.

Delineation: Determining the boundaries of a jurisdictional wetland. The delineation may be marked in the field or on a map or air photo.

Dominate Species: As used herein, a plant species that exerts a controlling influence on or defines a character of a community.

Forb: A non-woody and non-graminoid plant, also known as a broad-leaved herb, including wildflowers and plants which some refer to as "weeds".

Frequency (vegetative): The distribution of individuals of a species in an area. It is quantitatively expressed as

$$\frac{\text{Number of samples containing species A}}{\text{Total number of samples}} \text{ X } 100$$

Habitat: The environment occupied by individuals of a particular species, population, or community.

Habitat Type Polygon: A mapped boundary within which the same plant community or dominate species occurs through out.

Joint Wetland Permit Application: Fill or removal activities planned in jurisdictional wetlands require permits from either the U.S. Army Corps of Engineers (see Section 404 Permit) or the Oregon Department of State Lands (under the state Removal Fill Law). In Oregon the regulatory agencies have developed a single permit application for authorization to develop in a wetland.

Mitigation Bank: A mitigation bank is a wetland, stream, or other aquatic resource area that has been restored, established, enhanced, or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources permitted under Section 404 or a similar state or local wetland regulation. A mitigation bank may be created when a government agency, corporation, nonprofit organization, or other entity undertakes these activities under a formal agreement with a regulatory agency. The 1995 Banking Guidance established a structure for banking that is characterized by four distinct components: The value of a bank is defined in "compensatory mitigation credits." A bank's instrument identifies the number of credits available for sale and requires the use of ecological assessment techniques to certify that those credits provide the required ecological functions. Although most mitigation banks are designed to compensate only for impacts to various wetland types, within the past five years, banks have been developed to compensate specifically for impacts to streams (i.e., stream mitigation banks).

Mitigation Credits: Through a wetland bank system, credits may be purchased from a mitigation bank to compensate for permitted wetland development. A predetermined formula sets the amount of payment into the bank required prior to issuing permits for development.

Native Plant: Plants that occurred naturally in the west Eugene area prior to Euro-American settlement.

Plant Community: All of the plant populations occurring in a shared habitat or environment.

Primary Vegetation Community: the assemblage of plant species that exerts a controlling influence on or define the character of a community.

Sample Plot: An area of land used for measuring or observing existing conditions.

Section 404 Permit: A permit issued by the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act which allows an activity (e.g., filling) within a wetland. A 404 permit usually requires compensation or mitigation for the allowed use in a wetland.

WEWP: The West Eugene Wetlands Plan as adopted and amended.

Wetlands: "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

5.2. References

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. US Fish and Wildlife Service FWS/OBS-79/31, 103 pp. Available on line at: http://www.fws.gov/nwi/Pubs_Reports/Class_Manual/class_titlepg.htm

U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetland Delineation Manual*. Department of the Army Waterways Experimental Station Technical Report Y-87-1. The online edition is available at the following URL: http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf.

U.S. Fish and Wildlife Service. 1999. National List of Plants that Occur in Wetlands. Available at: http://www.fws.gov.nwi.bha/list88.html (1993 Northwest Region 9 Supplement.

City of Eugene and Lane County. 2004. *West Eugene Wetlands Plan*. City of Eugene, OR. The online edition is available at the following URL: http://www.eugene-or.gov/wetlands, and then click on the link for "Plan".

6. Forms

6.1. Form 1: Site Conditions & History

Site Name: _____ **Date:** _____

Consultant: _____

1) Existing Conditions:

_____

_____

_____

_____

2) Recent Management History:

_____

_____

_____

_____

3) Have any of the following management actions taken place on the site within the last 5 years? Please indicate the type, location, extent, and timing on this form and the site map.

❑ Soil Disturbance ❑ Hydrologic Alteration ❑ Herbicide Application ❑ Grazing

_____

_____

_____

_____

❑ Other plant community altering activity (please describe) _____

_____

_____

4) Indicate below (✓) which of the following vegetation types are present on the site.

❑	**Forested**	where trees have >30% cover.
❑	**Scrub/shrub**	Areas where shrubs(woody plants such as willows and small trees under 20 feet in height) have >30% cover.
❑	**Wet Prairie**	A herbaceous plant community typically dominated by *Deschampsia cespitosa* (tufted hairgrass), seasonally flooded or saturated.
❑	**Emergent**	Areas with rooted, herbaceous wetland plants that may be temporarily or permanently flooded at the base but are nearly always exposed at the upper portion. The emergent vegetation must provide at least 30% cover of the ground and be the upper-most layer.
❑	**Vernal Pool**	Areas covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall.
❑	**Agricultural Wetland**	This wetland type describes recently or currently cultivated areas. Often dominated by non-native grass species.
❑	**Pasture/Old Field Wetland**	Pasture/old field wetland type includes all sites that are dominated by non-native plant species not currently in active cultivation, but have a history of agricultural use.

5) Indicate if any of the following plant species listed below (considered rare for the purposes and policies of the WEWP) have been found on the site.

Rare Plants:

Common Name	**Scientific Name**
❑ white-topped aster	*Aster curtus*
❑ Willamette daisy	*Erigeron decumbens var. decumbens*
❑ shaggy horkelia	*Horkelia congesta*
❑ Bradshaw's lomatium	*Lomatium bradshawii*
❑ Timwort	*Cicendia quadrangularis*

6.2. Form 2: Plant Checklist

Site Name: _____Date Collected: _____ Consultant: _____

Habitat Polygon: _____ Checklist Page 1

Indicate the abundance of each species using the appropriate category: D = Dominant (>25%), C = Common (15-24%), U = Uncommon (3-14%), T = Trace (1 plant to 3%). Species considered rare by the WEW Plan are listed at the end of the form.

	Acer macrophyllum		Briza minor		Castilleja tenuis		Deschampsia cespitosa
	Achillea millefolium		Brodiaea coronaria		Ceanothus sp.		Deschampsia danthonioides
	Agrostis exarata		Brodiaea sp.		Centarium erythraeae		Deschampsia elongata
	Agrostis stolonifera/capillaris		Bromus carinatus		Centaurea pratensis		Dianthus armeria
	Aira caryophyllea		Bromus hordeaceus		Centaurium muhlenbergii		Dichelostemma congestum
	Alisma lanceolatum		Bromus inermis		Centunculus minimus		Dipsacus fullonum
	Alisma triviale		Bromus rigidus		Cerastium glomeratum		Downingia elegans
	Allium amplectens		Calandrinia ciliata		Cichorium intybus		Downingia sp.
	Alnus rubra		Callitriche heterophylla		Cirsium arvense		Downingia yina
	Alopecurus geniculatus		Callitriche stagnalis		Cirsium vulgare		Echinochloa crus-galli
	Alopecurus pratensis		Callitriche verna		Collomia grandiflora		Eleocharis acicularis
	Amelanchier alnifolia		Calystegia sepium		Commandra umbellata		Eleocharis obtusa
	Anagallis arvensis		Camassia leichtlinii var. suksdorfii		Conium maculatum		Eleocharis palustris
	Anaphalis margaritacea		Camassia quamash var. maxima		Convolvulus arvensis		Eleocharis quadrangulata
	Anthemis cotula		Cardamine oligosperma		Crataegus monogyna		Elymus elymoides
	Anthoxanthum odoratum		Cardamine penduliflora		Crataegus monogyna x suksdorfii		Elymus glaucus
	Anthriscus caucalis		Carex densa		Crataegus suksdorfii		Epilobium brachycarpum
	Aristida oligantha		Carex feta		Crepis capillaris		Epilobium ciliatum
	Arrhenatherum elatius		Carex obnupta		Cuscuta sp.		Epilobium densiflorum
	Aster hallii		Carex ovalis		Cynosurus cristatus		Epilobium pygmaeum
	Avena fatua		Carex pachystachya		Cynosurus echinatus		Equisetum arvense
	Barbarea orthoceras		Carex pellita		Cyperus eragrostis		Equisetum sp.
	Beckmannia syzigachne		Carex species		Cyperus squarrosus		Erechtites minima
	Berberis aquifolium		Carex stipata		Cytisus scoparius		Eriophyllum lanatum
	Betula cf pendula/pubescens		Carex tumulicola		Dactylis glomerata		Eryngium petiolatum
	Bidens cernua		Carex unilateralis		Danthonia californica		Festuca arundinacea
	Bidens frondosa		Carex vesicaria		Daucus carota		Festuca rubra
	Brassica rapa		Carex feta		Delphinium menzeisii		Downingia yina

Site Name: _____Date Collected: _____ Consultant: _____

Habitat Polygon: _____ Checklist Page 2

	Fragaria virginiana		Juncus ensifolius		Lotus unifoliolatus		Navarretia squarrosa
	Fraxinus latifolia		Juncus marginatus		Ludwigia palustris		Nemophila menziesii
	Galium aparine		Juncus nevadensis		Lupinus bicolor		Nemophila parviflora
	Galium parisiense		Juncus oxymeris		Lupinus polyphyllus		Oenanthe sarmentosa
	Galium trifidum		Juncus patens		Lupinus rivularis		Orthocarpus bracteosus
	Galium triflorum		Juncus tenuis		Luzula comosa		Panicum acuminatum ssp. fasc.
	Gentiana sceptrum		Kickxia elatine		Lycopus americanus		Panicum capillare ssp. capillare
	Geranium dissectum		Koeleria macrantha		Lythrum hyssopifolia		Parentucellia viscosa
	Geranium spp.		Lactuca saligna		Lythrum portula		Paspalum distichum
	Geum macrophyllum		Lactuca serriola		Lythrum salicaria		Perideridia gairdneri
	Glyceria occidentalis		Lamium purpureum		Madia elegans		Perideridia oregana
	Gnaphalium palustre		Lasthenia glaberrima		Madia glomerata		Phalaris aquatica
	Gnaphalium purpureum		Lathyrus aphaca		Madia sativa		Phalaris arundinacea
	Gnaphalium uliginosum		Lathyrus latifolius		Malus fusca		Phleum pratense
	Gratiola ebracteata		Lathyrus sphaericus		Malus xdomestica		Phlox gracilis
	Grindelia integrifolia		Leersia oryzoides		Matricaria discoidea		Physocarpus capitatus
	Heracleum lanatum		Leontodon taraxacoides		Mazus japonicus		Plagiobothrys figuratus
	Heterocodon rariflorum		Lepidium campestre		Melilotus alba		Plagiobothrys scouleri
	Holcus lanatus		Lepidium sp.		Mentha piperita		Plantago lanceolata
	Hordeum brachyantherum		Leucanthemum vulgare		Mentha pulegium		Plantago major
	Hordeum geniculatum		Ligustrum sp.		Mentha spicata		Plectritis congesta
	Hypericum anagalloides		Lindernia dubia		Microseris laciniata		Poa annua
	Hypericum perforatum		Linum bienne		Mimulus guttatus var. dep.		Poa compressa
	Hypochaeris radicata		Lolium multiflorum		Moenchia erecta		Poa pratensis
	Iris pseudacorus		Lolium perenne		Montia fontana		Polygonum aviculare
	Isoetes nutalli		Lomatium nudicaule		Montia linearis		Polygonum douglasii
	Isoetes sp.		Lomatium utriculatum		Myosotis discolor		Polygonum hydropiperoides
	Juncus acuminatus		Lonicera ciliosa		Myosotis laxa		Polygonum persicaria
	Juncus articulatus		Lonicera hispidula		Myosotis verna (Jepson)		Polypogon monspeliensis
	Juncus bolanderi		Lotus corniculatus		Myriophyllum aquaticum		Polystichum munitum
	Juncus bufonius		Lotus formosissimus		Myosurus minimus		Populus trichocarpa
	Juncus effusus		Lotus micranthus		Navarretia intertexta		Potentilla gracilis

Site Name: _____Date Collected: _____ Consultant: _____

Habitat Polygon: _____ Checklist Page 3

	Prunella vulgaris var. lanceolata		Rumex conglomeratus		Sparganium emersum		Vicia hirsuta
	Prunella vulgaris var. vulgaris		Rumex crispus		Spergula arvensis		Vicia sativa
	Prunus avium		Rumex salicifolius		Spergularia rubra		Vicia tetrasperma
	Prunus sp.		Salix geyeriana		Spiraea douglasii		Vulpia bromoides
	Pseudotsuga menziesii		Salix hookeriana		Spiranthes romanzoffiana		Vulpia myuros
	Psilocarphus elatior		Salix lucida		Stellaria calycantha		Vulpia sp. (annual)
	Psilocarphus spp.		Salix scouleriana		Stellaria longipes		Wyethia angustifolia
	Pteridium aquilinum		Salix sessilifolia		Stellaria media		Zigadenus venenosus
	Pyrrocoma racemosa		Salix sitchensis		Symphoricarpos albus		
	Pyrus communis		Salix sp.		Taraxacum officinale		**RARE SPECIES**
	Quercus garryana		Sanicula sp.		Thalictrum polycarpum		Aster curtus
	Quercus kelloggii		Sanquisorba annua		Torilis arvensis		Cicendia quadrangularis
	Ranunculus alismaefolius		Sanquisorba minor		Toxicodendron diversiloba		Erigeron decumbens var. decumbens
	Ranunculus aquatilis		Saxifraga integrifolia		Trichostema lanceolatum		Horkelia congesta ssp. congesta
	Ranunculus arvensis		Saxifraga oregana		Trifolium dubium		Lomatium bradshawii
	Ranunculus flammula		Scirpus acutus		Trifolium hybridum		
	Ranunculus occidentalis		Scirpus microcarpus		Trifolium pratense		
	Ranunculus orthorhynchus		Scirpus tabernaemontani (validus)		Trifolium repens		
	Ranunculus repens		Senecio jacobaea		Trifolium subterraneum		
	Ranunculus sceleratus		Senecio sylvaticus		Trifolium variegatum		
	Ranunculus uncinatus		Senecio vulgaris		Triphysaria versicolor ssp. versicolor		
	Rhamnus purshiana		Sherardia arvensis		Triteleia hyacinthina		
	Rorippa curvisiliqua		Sidalcea campestris		Triticum aestivum		
	Rorippa nasturtium-aquaticum		Sidalcea virgata		Typha latifolia		
	Rosa eglanteria		Sisyrinchium californicum (Jep)		Verbascum blattaria		
	Rosa multiflora		Sisyrinchium hitchcockii		Verbascum thapsus		
	Rosa nutkana		Sisyrinchium idahoense		Veronica americana		
	Rosa pisocarpa		Solanum dulcamara		Veronica arvensis		
	Rubus armeniacus		Solanum nigrum		Veronica peregrina		
	Rubus laciniatus		Solidago canadensis		Veronica scutellata		
	Rubus ursinus		Sonchus asper		Viburnum ellipticum		
	Rumex acetosella		Sorghum halapense		Vicia cracca		

6.3. Form 3: Vegetation Assessment

Site Name: _____ Date Data Collected: _____

Consultant: _____

Habitat Polygon: _____ Plot Letter: _____

For each plot, record all plant species with at least 10% cover using ocular estimates. Depending on the habitat type, use the following plot radii: 5' for wet prairie, emergent, vernal pool, agriculture field or old pasture, 30' for shrub-scrub or forest (measure tree saplings less than 45" high in shrub layer). Record the name of each species, its wetland indicator symbol, strata, whether it is a native or non-native species and its cover value. Also indicate the total cover, relative native cover, the cover of native shrubs and trees, as well as the presence of hummocky topography.

	Species	Indicator Symbol[1]	Strata[2]	Origin[3]	% Cover[4]
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
	Total percent cover:				
	Relative native percent cover[5]:				
	Absolute percent cover of all native shrubs (if applicable):				
	Absolute percent cover of all native trees (if applicable):				
	Is hummocky topography present? (Yes or No)				

[1] – Record each species' indicator symbol (i.e., OBL, FACW, FAC, FACU, UPL, NOL) as listed in the "National List of Plant Species that Occur in Wetlands" published by the U.S. Fish and Wildlife Service available at http://www.fws.gov/nwi/bha/list88.html (Region 9, Northwest)

[2] – Record the strata where each species is located: herbs (H), shrub (S), or tree (T)

[3] – Indicate whether the species is native (N) or introduced (I)

[4] – Estimate the percent cover of each species present within the plot (10-100%)

[5] – Calculate the relative native percent cover by dividing the absolute native percent cover by the total percent cover.

6.4. Form 4: Rating System

Depending on the habitat type, use one of Forms 4.1-4.4 to assign a quality rating to each polygon delineated on your map. Each habitat polygon should have its own form. Use the results recorded on Forms 1-3 to fill in the blanks below by matching your results to their equivalent point score. Add up your total score and record it in the blank labeled 'Habitat Type Polygon Total Score.' Compare your total score to the point scale at the bottom of the page to obtain your approximate habitat quality rating. The final rating determination will be made by the Mitigation Bank Coordinator after field verification of the final report.

6.4.1. Form 4.1: Wet Prairie/Agricultural Field Habitat

Site Name _____ Date _____

Consultant Name _____ Habitat Polygon Code _____

Form	Habitat Attribute	Points
1	**Are rare plants present?**	
	Yes	50
	No	0

Rare Plant Score _____

Form	Habitat Attribute	Points
2	**Total Native Species Diversity within the Habitat Polygon**	
	> or = 15	25
	10-14	10
	5-9	5
	<5	1

Native Species Diversity Score _____

Form	Habitat Attribute	Points
3	**Average *Deschampsia cespitosa* Percent Cover Calculated from Plot Forms**	
	> or = 25	20
	10-24	10
	5-10	5
	0-5	1

Deschampsia cespitosa Cover Score _____

Form	Habitat Attribute	Points
3	**Average Percent Native Cover Calcualted from Plot Forms**	
	> or = 60	25
	40-59	10
	25-49	5
	0-24	1

Average Native Cover Score _____

Form	Habitat Attribute	Points
3	**Is hummocky topography present in any plot?**	
	Yes	10
	No	0

Hummocky Topography Score _____

Habitat Type Polygon Total Score _____

Your 'Habitat Type Polygon Total Score' will fall into one of the categories listed to the right. Where your polygon falls in the point scale equates to an estimate of its quality rating.

Total Score Point Scale	Quality Rating
> or = 50	Excellent
40-49	Good
25-39	Fair
0-24	Poor

6.4.2. Form 4.2: Vernal Pool/Emergent Habitat

Site Name _____

Consultant Name _____

Date _____

Habitat Polygon Code _____

Form	Habitat Attribute	Points
1	**Are rare plants present?**	
	Yes	25
	No	0

Rare Plant Score _____

Form	Habitat Attribute	Points
2	**Total Native Species Diversity within the Habitat Polygon**	
	> or = 5	15
	3-4	10
	2	5
	0-1	1

Native Species Diversity Score _____

Form	Habitat Attribute	Points
3	**Average Percent Native Cover Calcualted from Plot Forms**	
	> or = 60	15
	45-59	10
	25-44	5
	0-24	1

Average Native Cover Score _____

Habitat Type Polygon Total Score _____

Your 'Habitat Type Polygon Total Score' will fall into one of the categories listed to the right. Where your polygon falls in the point scale equates to an estimate of its quality rating.

Total Score Point Scale	Quality Rating
> or = 25	Excellent
15-24	Good
5-10	Fair
0-5	Poor

6.4.3. Form 4.3: Scrub-Shrub Habitat

Site Name _____

Consultant Name _____

Habitat Polygon Code _____ Date _____

Form	Habitat Attribute	Points
1	**Are rare plants present?**	
	Yes	50
	No	0
2	**Total Native Species Diversity within the Habitat Polygon**	
	> or = 8	25
	5-7	10
	2-4	5
	0-1	1
3	**Average Percent Native Cover Calculated from Plot Forms**	
	> or = 70	25
	49-69	10
	30-49	5
	0-29	1
3	**Is hummocky topography present in any plot?**	
	Yes	10
	No	0
3	**Average Percent Cover of All Native Shrubs Calculated from Plot Forms**	
	> or = 50	20
	40-49	10
	30-39	5
	< 30	*

* The Shrub-Scrub habitat type must have at least a 30% cover of shrubs.

Rare Plant Score _____

Native Species Diversity Score _____

Average Native Cover Score _____

Hummocky Topography Score _____

Average Percent Cover of Shrubs Score _____

Habitat Type Polygon Total Score _____

Your 'Habitat Type Polygon Total Score' will fall into one of the categories listed to the right. Where your polygon falls in the point scale equates to an estimate of its quality rating.

Total Score Point Scale	Quality Rating
> or = 50	Excellent
40-49	Good
25-39	Fair
0-24	Poor

6.4.4. Form 4.4: Forested Wetland

Site Name _____

Consultant Name _____

Habitat Polygon Code _____ Date _____

Form	Habitat Attribute	Points
1	**Are rare plants present?**	
	Yes	50
	No	0
2	**Total Native Species Diversity within the Habitat Polygon**	
	> or = 8	25
	5-7	10
	2-4	5
	0-1	1
3	**Average Percent Native Cover Calculated from Plot Forms**	
	> or = 70	25
	49-69	10
	30-49	5
	0-29	1
3	**Is hummocky topography present in any plot?**	
	Yes	10
	No	0
3	**Average Percent Cover of All Native Trees Calculated from Plot Forms**	
	> or = 50	20
	40-49	10
	30-39	5
	< 30	*

* The Forest habitat type must have at least a 30% cover of trees.

Rare Plant Score _____

Native Species Diversity Score _____

Average Native Cover Score _____

Hummocky Topography Score _____

Average Percent Cover of Trees Score _____

Habitat Type Polygon Total Score _____

Your 'Habitat Type Polygon Total Score' will fall into one of the categories listed to the right. Where your polygon falls in the point scale equates to an estimate of its quality rating.

Total Score Point Scale	Quality Rating
> or = 50	Excellent
40-49	Good
25-39	Fair
0-24	Poor

6.5. Form 5: Site Summary

Site Name: _____Consultant Name: _____

Summarize the data from all plots within each habitat polygon in the below table. Begin by listing the habitat polygon code labeling each mapped area. For each habitat polygon, list the sample plot letter within the area, the habitat type, and the number of acres encompassed by the habitat polygon. Within each habitat polygon, record whether rare plants were found (Form 1), the total number of native species observed (Form 2), the average relative native percent cover found over all plots (Form 3), and the range of native cover values (Form 3), and the habitat type polygon total score (Form 4).

Habitat Type Code	Polygon Number	Plot Letters Summarized	Acres	Rare Species Present (Yes/No)	Native Species Diversity	Average Relative Percent Native Cover	Range of Relative Percent Native Cover Values	Habitat Type Polygon Total Score	For Office Use Only	
									HQA Rating	WEWP Ratio Reduction