

4.19 WETLANDS AND STREAMS

This section provides detailed descriptions of wetlands and other aquatic resources impacted by the proposed runway extension. A Geographic Information Systems (GIS) program was used to calculate impacts to wetlands and other waters, based on the proposed areas of disturbance, and a US Army Corp of Engineers jurisdictional determination for Gness Field in August 2009.

Public scoping comments regarding the Proposed Project were received by Marin County in August 2008. Concerns were raised about the project's impacts on wetlands.

4.19.1 ENVIRONMENTAL SETTING

4.19.1.1 Regulatory Framework

The Clean Water Act (CWA), Section 404 requires applicants obtain a permit from the U.S. Army Corps of Engineers (USACOE) to place dredged or fill material into aquatic sites within CWA jurisdiction including wetlands, streams, and open waters. The CWA Section 404 (b) (1) Guidelines (40 Code of Federal Regulations (CFR) Part 230, Subparts B-F) requires a sequencing process to first avoid, then minimize, and finally provide compensatory mitigation for impacts to aquatic resources during the CWA Section 404 permit process. The CWA Section 404 (b) (1) Guidelines also limits the USACOE to permitting the least environmentally damaging practicable alternative to accomplish the project purpose. This section has been developed to identify the least environmentally damaging practicable alternative that meets the project purpose of allowing existing aircraft at DVO to operate at Maximum Gross Take Off Weight under hot weather and other adverse weather conditions (see Runway Analysis - Appendix D for details). Portions of the Detailed Study Area (DSA) also are within Rivers and Harbors Act (RHA), Section 10, jurisdiction. In this instance it is anticipated that meeting CWA Section 404 permit requirements would also address any RHA Section 10 permit requirements.

In addition to the CWA and RHA, the Federal Aviation Administration (FAA) must also follow Executive Order (EO) 11990 Protection of Wetlands and Department of Transportation Order 5660.1A *Preservation of the Nation's Wetlands*, which require federal assistance to construct an activity in a wetland can only be provided when (1) there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making a finding under EO 11990, the FAA may take into account economic, environmental and other pertinent factors.

4.19.2 METHODOLOGY

A review of historic and recent aerial photographs, topographic maps, and soils survey data was conducted before a wetland delineation occurred in March and April 2008. Biologists visually inspected the entire site and collected data at points within potential wetland areas in accordance with recent court decisions.¹ Observations were recorded on Wetland Determination Data Forms for the Arid West Region. Correlations were developed between the three parameters (vegetation, hydrology, and soils) to make wetland determinations in accordance with the USACOE wetland delineation manual (USACOE Waterways Experiment Station, Environmental Laboratory, 1987) and appropriate regional supplements to the manual. The determination of other waters of the U.S. was identified based on the potential presence or absence of an ordinary high water mark as defined in 33 CFR 328.3(e).

4.19.3 EXISTING CONDITIONS

WETLANDS

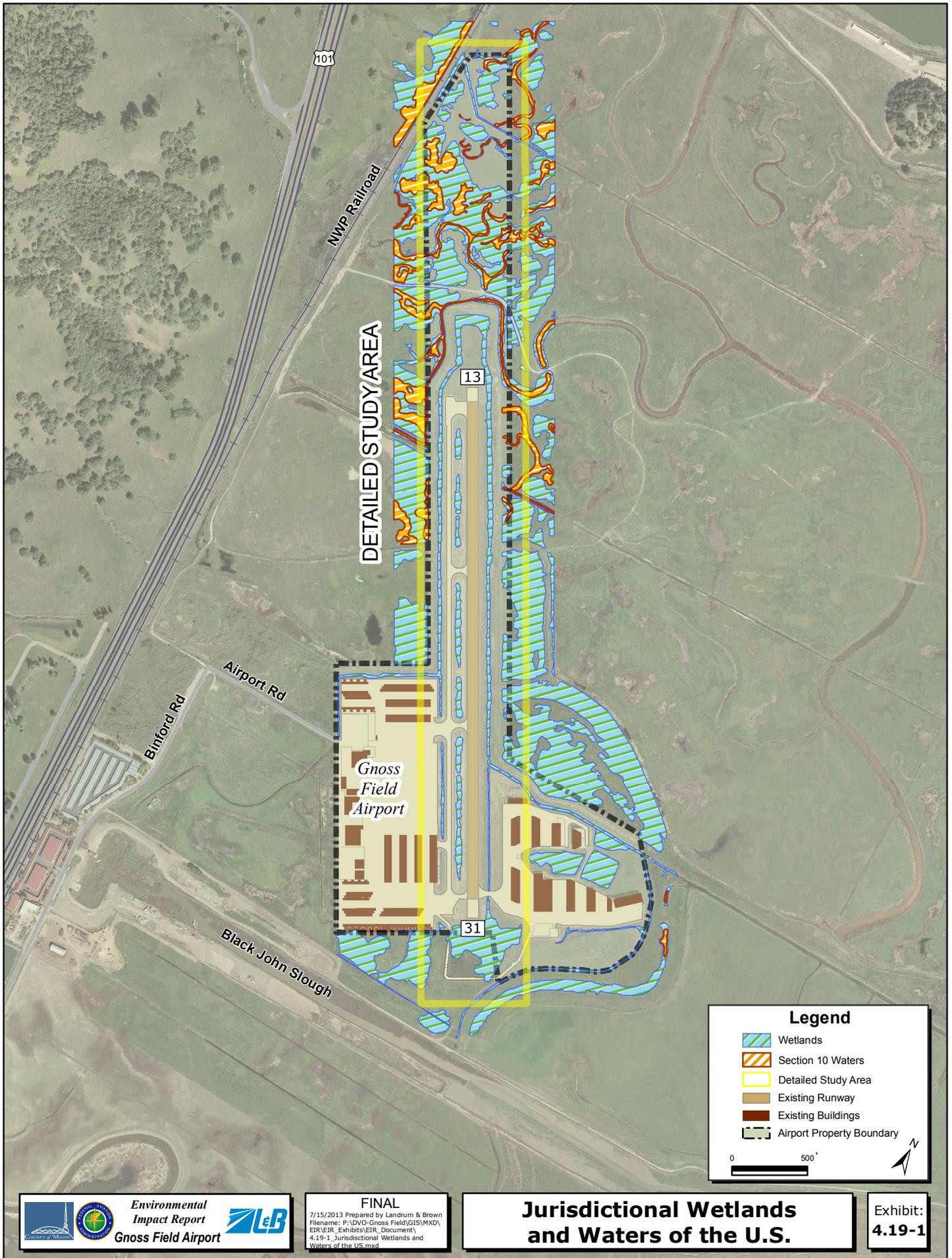
The USACOE issued a CWA and RHA jurisdictional determination for Gness Field in August 2009. A copy of the jurisdictional wetland determination letter and map from the USACOE is included in Appendix J, *Wetlands* of this document. The USACOE determined all wetlands on the Airport are within CWA jurisdiction and a portion of the wetlands on the Airport are also within RHA jurisdiction. Jurisdictional wetlands located within the DSA are shown in Chapter Four, *Affected Environment* on Exhibit 4-9, *Wetlands and Waters of the U.S.*

Wetland communities at DVO include depressional seasonal wetlands, riverine seasonal wetlands, slope seep wetlands, high brackish marsh wetlands, perennial drainage and ditches/canals totaling 74.70 acres.² Approximately 78.9 percent (58.96 acres) of the delineated wetlands are high brackish marsh wetlands, approximately 4.8 percent (3.59 acres) are depressional seasonal wetlands, and approximately 0.7 percent (0.52 acres) are riverine seasonal wetlands.

Additionally, approximately 4.0 percent (2.95 acres) of the delineated wetlands are seep, approximately 3.3 percent (2.49 acres) are perennial drainage, and approximately 8.3 percent (6.20 acres) are ditches. **Table 4.19-1** provides a summary of the existing wetlands located at DVO. See also **Exhibit 4.19-1, Wetlands**

¹ Solid Waste Agency of Northern Cook County v. the U.S. Army Corps of Engineers, 531 U.S. 159, 2001 and Rapanos v. United States and Carabell v. United States, 126 S. Ct. 2208, 2006.

² *Delineation of Wetlands and Request for Clean Water Act and Rivers and Harbors Act Jurisdictional Determination for Gness Field Airport Marin County, California*, Prepared by Foothill Associates, March 2009.



DETAILED STUDY AREA

Gross Field Airport

Legend

- Wetlands
- Section 10 Waters
- Detailed Study Area
- Existing Runway
- Existing Buildings
- Airport Property Boundary

0 500'

BACK OF EXHIBIT 4.19-1

**Table 4.19-1
SUMMARY OF WETLANDS AND OTHER WATERS
Gross Field Airport**

Classification	Wetlands in the DSA (Acres)		
	Section 404 Only Waters ¹	Section 404 and Section 10 Waters ²	Total
Depressional Seasonal Wetland	3.59	0.00	3.59
Riverine Seasonal Wetland	0.52	0.00	0.52
Slope Seep Wetland	1.89	1.06	2.95
High Brackish Marsh Wetland	51.56	7.40	58.96
Perennial Drainage	1.81	0.67	2.48
Ditch/Canal	5.82	0.38	6.20
Total	65.20	9.51	74.70

1 Section 404 of the CWA

2 Section 10 of the RHA – all wetlands within RHA jurisdiction are also within CWA jurisdiction.

Source: *Delineation of Wetlands and Request for CWA and RHA Jurisdictional Determination for Gness Field Airport Marin County, California*, Prepared by Foothill Associates, July 2009. See Appendix J.

4.19.4 ENVIRONMENTAL IMPACTS AND MITIGATION

4.19.4.1 Significance Criteria

FEDERAL THRESHOLDS OF SIGNIFICANCE

According to FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, a significant impact occurs if the proposed action would:

- Adversely affect the function of a wetland to protect the quality or quantity of municipal water supplies, including sole source, potable water aquifers;
- Substantially alter the hydrology needed to sustain the functions and values of the affected wetland or any wetlands to which it is connected;
- Substantially reduce the affected wetland’s ability to retain floodwaters or storm associated runoff, thereby threatening public health, safety or welfare (this includes cultural, recreational, and scientific resources important to the public, or property);
- Adversely affect the maintenance of natural systems that support wildlife and fish habitat or economically-important timber, food, or fiber resources in the affected or surrounding wetlands;
- Promote development of secondary activities or services that would affect the resources mentioned in items (1) through (4) in this section; or
- Be inconsistent with applicable state wetland strategies.

FEDERAL JURISDICTION OF THE WATERS OF THE UNITED STATES

The USACOE regulates discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. "Discharges of fill material" are defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines [33 CFR §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a Federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge would comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present.

CEQA THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the California Environmental Quality Act, a project would generally have a significant effect on wetlands if it would have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrologic interruption, or other means.

MARIN COUNTY GOALS

The Natural Systems and Agriculture Element of the Marin Countywide Plan, adopted November 6, 2007, establishes policies to protect the County's natural resources and ensure that design of the built environment is compatible with its natural setting, which includes the following goals.

- Goal BIO-1 Enhance Native Habitat and Biodiversity. Effectively manage and enhance native habitat, maintain viable native plant and animal populations, and provide for improved biodiversity throughout the County.
- Goal BIO-3 Wetland Conservation. Require all feasible measures to avoid and minimize potential adverse impacts on existing wetlands and to encourage programs for restoration and enhancement of degraded wetlands.
- Goal BIO-4 Riparian Conservation. Protect and, where possible, restore the natural structure and function of riparian systems.

4.19.4.2 Environmental Impacts of the Proposed Project

Impact 4.19-1: Fill approximately ~~12.6~~11.83 acres of wetlands and aquatic resources (potentially significant unless mitigated).

Fill material would be needed for the extension of the perimeter levees and the runway extension.³ The amount of fill was determined from the design profile, the pavement structural section width, and side slopes required to meet FAA design standards and the existing site topography. In addition, construction staging activities (material storage, equipment staging, etc.) would be conducted on site in close proximity to where the runway extension would occur.

As a result of the fill material and the construction staging activities, all of the wetlands within the area disturbance would be impacted through filling (See **Exhibit 4.19-2, Area of Disturbance**). For the purposes of this analysis, the area of disturbance for the project was estimated to be a total of 23.35 acres (23.02 acres on the north side and 0.33 acres on the south side). The construction of the Proposed Project would result in the following impacts on wetlands and aquatic resources within the area of disturbance:

- Fill 10.29 acres of High Brackish Marsh wetland
- Fill 0.59 acres of perennial drainage
- Fill 1.57 acres of ditches/canals
- Fill 0.15 acres of depressional seasonal wetland

As part of the Proposed Project, 0.77 acres of new ditch/canal wetlands would be created to extend the drainage ditches around the runway and RSA on the north side of the Airport. Therefore, this would result in an overall decrease in area of 0.80 acres of ditch/canal features. Although the ditch/canal system would be extended in length, there would be a net decrease in the area of ditch/canal due to the irregular shape of the existing drainage system ditch versus the more uniform shape of the proposed drainage system ditch. The replacement ditch/canal system would extend around the new runway and taxiway extensions and would serve the same hydrologic function as the existing ditch/canal, which is to collect surface water and to transport it west to east across the site towards the Petaluma River. The proposed project as designed would fit in with the existing topography to avoid and minimize impacts to wetlands to the extent practical. In addition, the project sponsor proposes to minimize the potential direct and secondary impacts on wetlands by requiring all construction activities be conducted pursuant to guidelines included in FAA, *Standards for Specifying Construction of Airports*⁴ and locally required Best Management Practices.

³ Preliminary Design Report Runway Extension Gness Field Marin County, California FAA AIP Project No. 3-06-0167-08. Cortright & Seibold, December 20, 2002.

⁴ FAA, *Standards for Specifying Construction of Airports*, Item P-156, *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control*, AC 150/5370-10A, February 17, 1989.

In total, the Proposed Project would impact approximately 11.83 acres of wetlands regulated under Section 404 of the CWA, of which 2.66 acres are also regulated under Section 10 of the RHA. A summary of the wetland impacts is provided in **Table 4.19-2**.

**Table 4.19-2
ACREAGE OF WETLANDS AND OTHER WATERS FILLED BY PROPOSED PROJECT
Gnoss Field Airport**

Wetland Type	Acreage Filled
Depressional Seasonal	0.15
Riverine Seasonal I	0.00
Slope Seep	0.00
High Brackish Marsh	10.29
Perennial Drainage	0.59
Ditch/Canal*	1.57 removed <u>0.77 created</u> 0.80 net impact
TOTAL	11.83

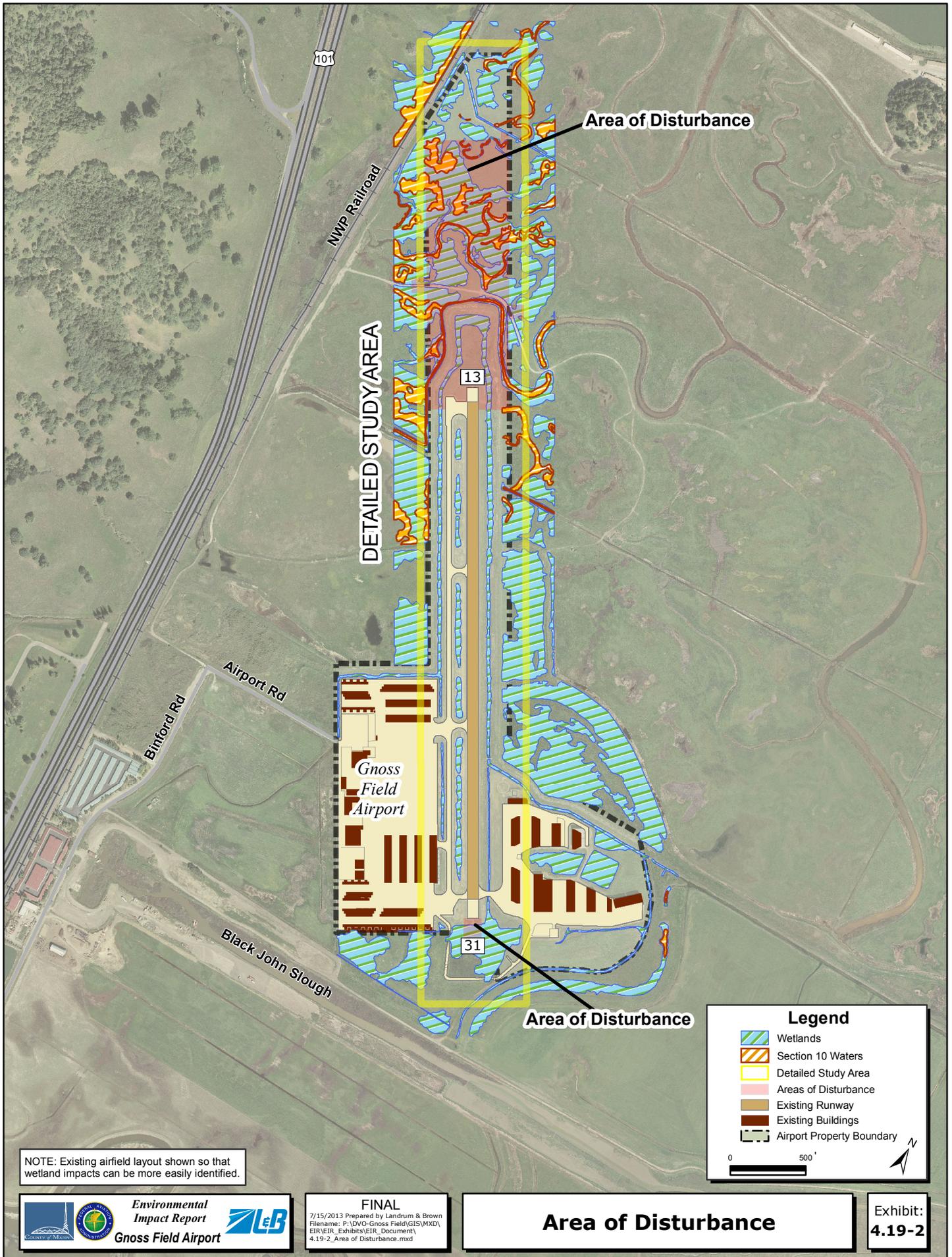
Note: The Proposed Project proposes to extend and maintain the ditch/canal system around the extended runway and taxiway, offsetting a portion of the area filled. It is expected that potential impacts to the ditch/canal would be temporary during construction.

Source: Landrum & Brown analysis, 2009.

Mitigation Measure 4.19-1: The Marin County Airport does not have enough property to mitigate for the fill of ~~12.61~~11.83 acres of wetlands on-site. In addition, the FAA would not support a mitigation program that created new wetlands on airport property north of the proposed runway extension. Accordingly, mitigation for filled wetlands, with the exception of the ditches/channel that will be mitigated on site, will have to be located off-site.

Regarding wetland and stream compensatory mitigation requirements, the U.S. Army Corp of Engineers (USACOE) relies on the agency's District Offices to review proposed compensatory mitigation plans on a case-by-case basis with consideration given to "guidelines" developed and utilized for permit applications within the District. To date, the USACOE San Francisco District Office has not set a policy for acceptable wetland or stream mitigation for this project. However, the USACOE regulations at 33 CFR 332.3 (b) identify the order of preference for different types of compensatory mitigation for aquatic impacts from most preferable to least preferable as:

- Mitigation bank credits
- In-lieu fee program credits
- Permittee-responsible mitigation under a watershed approach
- Permittee-responsible mitigation through on-site and in-kind mitigation
- Permittee-responsible mitigation through off-site and/or out-of-kind mitigation



NOTE: Existing airfield layout shown so that wetland impacts can be more easily identified.

Legend

-  Wetlands
-  Section 10 Waters
-  Detailed Study Area
-  Areas of Disturbance
-  Existing Runway
-  Existing Buildings
-  Airport Property Boundary

0 500'



BACK OF EXHIBIT 4.19-2

Marin County, as the Airport Sponsor, must develop a mitigation plan that will be acceptable to the USACOE. The following describes each of the options for each type of compensatory mitigation.

Use of USACOE Approved Mitigation Bank for Compensatory Mitigation of Aquatic Resources Impacts

The USACOE compensatory mitigation regulations at 33 CFR § 332 identify use of a USACOE-approved mitigation bank as the most preferable form of compensatory mitigation to offset unavoidable impacts to aquatic resources within CWA Section 404 or RHA Section 10 jurisdiction authorized by a USACOE permit. The USACOE San Francisco District maintains a listing of approved Wetland Mitigation Banks in the San Francisco Bay Area on its public website.⁵ As of December 2012, the Burdell Mitigation Bank was the only USACOE approved wetland mitigation bank that included Marin County in its service area.

The Burdell Mitigation Bank is located approximately 4,000 feet east of DVO. As of December 2012, there were 19 wetland mitigation credits available for sale from the Burdell Mitigation Bank⁶. As each credit can be used to mitigate for filling of 0.1 acre of wetlands, Marin County could complete compensatory wetland mitigation for 1.9 acres of wetland fill by purchasing all remaining credits available for sale from the Burdell Mitigation Bank. There are also 12 wetland mitigation credits that were purchased from the Burdell Mitigation Bank, which have not yet been used for a specific project. If those additional 12 credits became available and were purchased by Marin County, those credits could be used to provide compensatory mitigation for an additional 1.2 acres of wetland fill. As a maximum of 31 wetland mitigation credits providing compensation for 3.1 acres of wetland fill might be available from the Burdell Mitigation Bank, the Burdell Mitigation Bank could provide part, but not all, of compensatory wetland mitigation for wetland impacts for this project.

The Burdell Mitigation Bank has not been specifically approved for use by the USFWS to provide habitat compensation for impacts to the California clapper rail or the salt marsh harvest mouse. Marin County would need to seek specific authorization from the USFWS to determine whether purchase of wetland mitigation credits from the Burdell Mitigation Bank could also be credited towards the habitat compensation requirements needed to address the endangered species habitat compensation requirements of this project. If the USACOE approves additional mitigation banks with an adequate number and resource type of compensatory mitigation credits available to mitigate for the environmental impacts to aquatic resources prior to Marin County completing the permitting process for this proposed project, Marin County could consider purchasing compensatory mitigation credits from a newly approved mitigation bank to provide compensatory mitigation for the proposed project.

⁵ Approved Wetland Mitigation Banks, U.S. Army Corps of Engineers, San Francisco District, On-line at: <http://www.spn.usace.army.mil/Missions/Regulatory/MitigationBanks/ApprovedBanksfortheSanFranciscoRegulatoryDi.aspx>

⁶ E-mail from Burdell Mitigation Bank representative Anthony Georges to FAA Environmental Protection Specialist Douglas Pomeroy, December 18, 2012.

Use of USACOE-Approved In-Lieu Fee Program Compensatory Mitigation Bank Credits For Compensatory Mitigation of Aquatic Resources Impacts

The USACOE compensatory mitigation regulations at 33 CFR § 332 identify use of a USACOE-approved in lieu fee program as the second-most preferable form of compensatory mitigation to offset unavoidable impacts to aquatic resources within CWA Section 404 or RHA Section 10 jurisdiction authorized by a USACOE permit. No USACOE approved in-lieu fee programs are currently available for use as compensatory mitigation for environmental impacts to aquatic resources within the USACOE San Francisco District boundary, which includes Marin County and DVO.⁷

Use of USACOE Permittee-Responsible Mitigation under a Watershed Approach for Compensatory Mitigation of Aquatic Resources Impacts

The USACOE compensatory mitigation regulations at 33 CFR § 332 identify that when the USACOE intends to issue a permit for a regulated activity, and that activity is not in the service area of an approved mitigation bank or in lieu fee program that has an adequate number and resource type of compensatory mitigation credits available to mitigate for the environmental impacts to aquatic resources, that permittee-responsible compensatory mitigation is the only option. The USACOE compensatory mitigation regulations at 33 CFR § 332 identify Permittee-responsible mitigation under a watershed approach as the preferred method of permittee-responsible mitigation.

The USFWS *Draft Recovery Plan*⁸ identifies its goal as "...the comprehensive restoration and management of tidal marsh ecosystems." As the USFWS *Draft Recovery Plan*⁹ is a comprehensive, watershed level plan incorporating restoration and management of tidal marsh ecosystems, implementation of an aquatic resources and endangered species habitat compensation plan consistent with the USFWS *Draft Recovery Plan* would represent Permittee responsible mitigation under a watershed approach. The USFWS *Draft Recovery Plan*¹⁰, San Pablo Bay Recovery Unit¹¹ extends from Gallinas Creek in Marin County (at the southwestern end of the recovery unit) around San Pablo Bay north and east to Mare Island in Solano County, and includes Gness Field Airport within its boundaries. There are several current, proposed, or potential projects for compensatory mitigation for aquatic resources and endangered species within the USFWS San Pablo Bay Recovery Unit that could provide compensatory mitigation for wetland and aquatic impacts of the Proposed Project.

⁷ E-mail from Army Corps of Engineers, San Francisco District, Regulatory Division, North Section Supervisor, Laurie Monarres, to Federal Aviation Administration Environmental Protection Specialist Douglas Pomeroy, May 2, 2013.

⁸ Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, Sacramento Fish and Wildlife Office, Sacramento California, Executive Summary, pg. vii, 2010a.

⁹ Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, Sacramento Fish and Wildlife Office, Sacramento California, xvii+636pp, 2010a.

¹⁰ Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, Sacramento Fish and Wildlife Office, Sacramento California, Chapter III: Recovery Strategies, pg. 146, 2010a.

¹¹ Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, Sacramento Fish and Wildlife Office, Sacramento California, Chapter III: Recovery Strategies, pg. 146 and Figure III-3, pg. 149, 2010a.

Potential Sites for Providing Compensatory Mitigation for Adverse Environmental Impacts to Wetlands and Aquatic Sites Associated With the Gness Field Airport Runway Extension Project

The potential compensatory mitigation projects for impacts to wetland and aquatic resources (which are also impacts to endangered species habitat) described below are all within the San Pablo Bay Recovery Unit identified in the USFWS Draft Recovery Plan and would represent compensatory mitigation options under a watershed approach. The USACOE Regulatory Program regulation 33 CFR §332 Compensatory Mitigation for Losses of Aquatic Resources §332.4 (b) Planning and Documentation, Public Review and Comment, allows USACOE permit applicants to keep confidential certain business information such as the exact location of a proposed compensatory mitigation site that has not yet been secured. Marin County would finalize its compensatory mitigation site and plan for impacts to wetlands and aquatic sites during the USACOE CWA permit process.

San Francisco Bay National Wildlife Refuge

Several San Francisco Bay National Wildlife Refuge (Refuge) projects needing funding are potential mitigation alternatives. Initial contact has been made with Mendel Stewart, Manager of the San Francisco Bay National Refuge and Don Brubaker, North Bay Refuges Manager within the San Francisco Bay National Wildlife Refuge. Several projects associated with the restoration of tidal marsh habitat areas were discussed. These projects, in general, are relatively large with multi-million dollar costs. As mitigation for impacts to wetlands, the County may contribute towards a larger effort that would be built in the appropriate timeframe. Impacts to wetlands would be compensated by the contribution of funding for in-kind habitat creation or restoration. Potential sites for the tidal marsh creation/restoration include:

- The Cullinan Ranch Restoration Project which is a 1,549 acre tidal marsh restoration project near Vallejo. The U.S. Fish and Wildlife Service and the California Department of Fish and Game issued a Final Environmental Impact Statement/Environmental Impact Report in May 2009, and the U.S. Fish and Wildlife Service issued a Record of Decision for this project on April 9, 2010. Construction of the site appears imminent and may begin in time to service the project;
- The Sonoma Creek Enhancement Project, which is a 500 acre project associated with the San Pablo Bay National Wildlife Refuge (NWR). The project would be implemented at the mouth of the Sonoma Creek where it enters the bay on the western bank. The project is being funded jointly by the NWR, Audubon Society, and the localized mosquito abatement district. Engineering and design of the project is complete, but permitting has yet to be completed. Contribution to this project may be a viable alternative; and
- Other alternatives are possible within the San Francisco Refuge complex, but timing and quantification of creation/restoration to complete mitigation are factors that would require continued coordination.

Offsite Restoration by Private Entity

A private individual was contacted regarding a parcel of land they indicated they owned that is approximately 7,500 feet from the Airport. The individual indicated interest in developing wetland habitat to sell for mitigation credits or develop a project-specific agreement with Marin County to use the property for as a project specific wetland mitigation site. There is the potential for Marin County to participate in a project specific wetland mitigation project on the site. By working with a private individual, it may be easier to negotiate terms and conditions to suit the project mitigation requirements.

Offsite Restoration by Conservation Group or Public Entity

The San Francisco Bay Joint Venture (SFBJV) is one of 18 Joint Ventures established under The Migratory Bird Treaty Act and funded under the annual Interior Appropriations Act. It brings together public and private agencies, conservation groups, development interests, and others to restore wetlands and wildlife habitat in San Francisco Bay watersheds and along the Pacific coasts of San Mateo, Marin, and Sonoma counties.

The Sonoma Land Trust's 2,327-acre Sears Point Wetlands and Watershed Restoration Project is one example of a potential off-site restoration site in which participation by Marin County might be considered allowable mitigation by the USACOE. The project is located in southern Sonoma County on the edge of San Pablo Bay between the Petaluma River and Tolay Creek. The project includes diked agricultural baylands, alluvial fans, hillslopes reaching up 400' above sea level, and numerous small drainages.¹²

Marin County could choose to implement its own wetland mitigation project in the Lower Novato Creek Watershed as identified in the USFWS April 3, 2013 Biological Opinion for the Proposed Project. The USFWS Draft Recovery Plan¹³ identifies the San Pablo Bay Recovery Unit near the mouth of the Novato Creek watershed adjacent to the Hamilton Field wetland restoration project as a potential tidal marsh restoration area. Such a project could potentially meet the compensatory wetland mitigation requirements of the Clean Water Act, Section 404, permitting process, and the habitat compensation requirements of the Endangered Species Act habitat compensation requirements identified in the USFWS Biological Opinion for the Proposed Project.

USFWS Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, San Pablo Bay Recovery Unit

¹² Sonoma Land Trust www.sonomalandtrust.org/pdf/SonomaBaylandsBrochure.pdf accessed November 4, 2011 and Bay Area Integrated Regional Water Management Plan <http://bairwmp.org/projects/sears-point-restoration-project> accessed on November 4, 2011.

¹³ Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California, Sacramento Fish and Wildlife Office, Sacramento California, xvii+636pp, 2010a.

The USFWS Draft Recovery Plan, Chapter III: Recovery Strategies, Section C. Restoration Maps, includes for the San Pablo Bay Recovery Unit Figure III-10 Segment D, Figure III-11 Segment E, Figure III-12 Segment F, and Figure III-13, Segment G, which all identify areas for "Near Term Restoration, Future Restoration, or Potential Restoration." These figures are provided in Appendix I (see U.S. Fish and Wildlife Service Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California (2010a) Chapter III: Recovery Strategies Figure III-10 Segment D, Figure III-11 Segment E, Figure III-12 Segment F, Figure III-13 Segment G, showing the boundaries of the San Pablo Bay Recovery Unit). These Restoration Maps include the projects previously described and additional areas that the USFWS considers appropriate for near term, future, or potential restoration to tidal marsh ecosystem. Developing a habitat compensation plan for endangered species at the compensation ratios identified in Table I-1 of Appendix I would also provide compensatory mitigation for impacts to aquatic resources.

Use of USACOE Permittee-Responsible Mitigation through On-Site and In-Kind Mitigation

The USACOE CWA and RHA regulatory program mitigation regulations at 33 CFR §332.3 (b)(1) state that compensatory mitigation projects should not be located where they will increase the risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur (e.g., near airports). As on-site and in-kind wetland mitigation for this project could potentially attract wildlife and increase the risk of aircraft-wildlife strikes, on-site, in-kind aquatic resource mitigation at DVO would be inconsistent with USACOE compensatory mitigation regulations and FAA Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports*. Therefore, on-site, in-kind compensatory mitigation for aquatic resources or endangered species that creates or enhances aquatic and/or endangered species habitat is considered impracticable. Reestablishment of vegetation in areas of temporary disturbance of aquatic resources or endangered species habitat that would not represent an additional attractant to wildlife hazardous to aircraft is considered practicable.

Use of USACOE Permittee-Responsible Mitigation through Off-Site and Out-Of-Kind Mitigation

The USACOE CWA and RHA regulatory program mitigation regulations at 33 CFR §332 identify that Permittee-Responsible Mitigation under a watershed approach is preferable to Permittee-Responsible Mitigation through an off-site and out-of-kind mitigation that has not been based on a watershed approach. As the USFWS Draft Recovery Plan for Tidal Marsh Ecosystems provides a watershed approach for providing compensatory mitigation for impacts to aquatic resources and endangered species for the proposed project, there is no need for the development of a separate compensatory mitigation proposal that does not utilize the existing watershed information.

The National Environmental Policy Act (NEPA), EO 11990 *Protection of Wetlands*, and Department of Transportation (DOT) Order 5660.1A *Preservation of the Nation's Wetlands*, all require consideration of mitigation measures for adverse

environmental impacts. The USACOE regulations at 33 CFR 332 describes compensatory mitigation requirements. The USACOE regulations at 33 CFR 332.3(b) identify the order of preference for different types of compensatory mitigation for aquatic impacts from most preferable to least preferable as:

- Mitigation bank credits
- In-lieu fee program credits
- Permittee responsible mitigation under a watershed approach
- Permittee responsible mitigation through on-site and in-kind mitigation
- Permittee responsible mitigation through off-site and/or out-of-kind mitigation

The USACOE mitigation regulations at 33 CFR 332.3(b)(1) state that compensatory mitigation projects should not be located where they will increase the risks to aviation by attracting wildlife to areas where aircraft wildlife strikes may occur (e.g. near airports). As on-site and in-kind wetland mitigation for this project could potentially attract wildlife and increase the risk of aircraft wildlife strikes, on-site, in-kind aquatic resource mitigation at DVO would be inconsistent with USACOE compensatory mitigation regulations and FAA Advisory Circular 150/5200-33B *Hazardous Wildlife Attractants on or Near Airports*.

USACOE mitigation regulations at 33 CFR 332.3(f) also require that compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions, and that a minimum one-to-one acreage or linear foot mitigation compensation ratio be used unless another functional or condition assessment method or other suitable metric is available to evaluate the loss of aquatic resource function.

The USACOE maintains a listing of approved Wetland Mitigation Banks in the San Francisco Bay Area.¹⁴ The following are noted as potential mitigation alternatives:

Marin Countywide Plan Policy BIO 3.2 states that where avoidance of wetlands is not possible, require provision of replacement habitat on-site through restoration and/or habitat creation at a minimum ratio of 2 acres for each acre lost (2:1 replacement ratio) for on-site mitigation and a minimum 3:1 replacement ratio for off-site mitigation. Mitigation wetlands should be of the same type as those lost and provide habitat for the species that use the existing wetland. Mitigation should also be required for incursion within the minimum WCA setback/transition zone. FAA regulations prohibit the creation of wetlands next to airports and would not allow the creation of wetland habitat on-site even though it would be possible to create new wetlands in the area around the airport. The County in implementing its wetland mitigation policy would have to take into consideration the FAA restriction in determining the appropriate ratio of compensatory mitigation.

¹⁴—Approved Wetland Mitigation Banks, U.S. Army Corps of Engineers, San Francisco District, On-line at: <http://www.spn.usace.army.mil/regulatory/banks.htm> / Updated October 19, 2011.

SAN FRANCISCO BAY NATIONAL WILDLIFE REFUGE

Several San Francisco Bay National Wildlife Refuge (Refuge) projects needing funding are potential mitigation alternatives. Initial contact has been made with Mendel Stewart, Manager of the San Francisco Bay National Refuge and Don Brubaker, North Bay Refuges Manager within the Several San Francisco Bay National Wildlife Refuge. Several projects associated with the restoration of tidal marsh habitat areas were discussed. These projects, in general, are relatively large with multi-million dollar costs. As mitigation for impacts to wetlands, the County may contribute towards a larger effort that would be built in the appropriate

timeframe. Impacts to wetlands would be compensated by the contribution of funding or purchase of credits for in-kind habitat creation or restoration. Potential sites for the tidal marsh creation/restoration include:

The Cullinan Ranch Restoration Project which is a 1,549-acre tidal marsh restoration project near Vallejo. The U.S. Fish and Wildlife Service and the California Department of Fish and Game issued a Final Environmental Impact Statement/Environmental Impact Report in May 2009, and the U.S. Fish and Wildlife Service issued a Record of Decision for this project on April 9, 2010. Construction of the site appears imminent and may begin in time to service the project;

The Sonoma Creek Enhancement Project, which is a 500-acre project associated with the San Pablo Bay National Wildlife Refuge (NWR). The project would be implemented at the mouth of the Sonoma Creek where it enters the bay on the western bank. The project is being funded jointly by the NWR, Audubon Society, and the localized mosquito abatement district. Engineering and design of the project is complete, but permitting has yet to be completed. Contribution to this project may be a viable alternative; and

Other alternatives are possible within the San Francisco Refuge complex, but timing and quantification of creation/restoration to complete mitigation are factors that would require continued coordination.

OFFSITE RESTORATION BY PRIVATE ENTITY

A private individual was contacted regarding a parcel of land they indicated they owned that is approximately 7,500 feet from the Airport. The individual indicated interest in developing salt marsh harvest mouse habitat to sell for mitigation credits or develop a project-specific agreement with Marin County for mitigation. There is the potential to fund this project with the purchase of mitigation credits which would be associated with the site. By working with a private individual, it may be easier to negotiate terms and conditions to suit the project mitigation requirements.

OFFSITE RESTORATION BY CONSERVATION GROUP OR PUBLIC ENTITY

The San Francisco Bay Joint Venture (SFBJV) is one of 18 Joint Ventures established under The Migratory Bird Treaty Act and funded under the annual Interior Appropriations Act. It brings together public and private agencies,

conservation groups, development interests, and others to restore wetlands and wildlife habitat in San Francisco Bay watersheds and along the Pacific coasts of San Mateo, Marin, and Sonoma counties.

The Sonoma Land Trust's 2,327-acre Sears Point Wetlands and Watershed Restoration Project is another example of a potential off-site restoration site in which participation by Marin County might be considered allowable mitigation by the U.S. Army Corps of Engineers. The project is located in southern Sonoma County on the edge of San Pablo Bay between the Petaluma River and Tolay Creek. The project includes diked agricultural baylands, alluvial fans, hillslopes reaching elevations of 400 feet above sea level, and numerous small drainages.

The impacts to jurisdictional ditch/canal features identified for the Proposed Project will be 'replaced in kind' on-site in an amount that would be at a minimum of 2:1. Therefore, permits for these identified impacts may not be necessary as the mitigation is built into the Proposed Project. Thereby reducing wetland impacts to a less-than-significant level.

An Individual Permit under Section 404 of the CWA would be required to construct the Proposed Project. Permitting under Section 10 of the RHA would also be required. As the owner and operator of the Airport, it will be the responsibility of Marin County to apply for all permits as required by all applicable regulatory agencies. The USACOE requires, in general, that if a practicable alternative does not exist that meets the purpose and need of the Proposed Project and avoids or minimizes impacts to wetlands and/or streams, compensatory mitigation in the form of preservation and/or restoration may be required.

As an alternative to the purchase of mitigation credits, or in conjunction with the purchase of mitigation credits, the project sponsor could prepare a specialized wetland mitigation plan in conjunction with its application for an Individual Permit. The wetland mitigation plan will be finalized during the USACOE Section 404 and RHA Section 10 permitting processes. It should be noted that the impacts to jurisdictional ditch/canal features identified for the project will be 'replaced in kind' on-site in an amount that would be at a minimum of 2:1. Therefore, permits for these identified impacts may not be necessary as the mitigation is built into the project.

Significance After Mitigation – Purchase of credits at a recognized mitigation bank or the approval of an alternative feasible wetland mitigation plan as part of the Section 404 and Section 10 Individual Permit requirements would reduce the wetland fill impacts of the project to a less-than-significant level.

Responsibility and Monitoring – The Marin County Department of Public Works shall be responsible for the Mitigation Monitoring and Reporting Plan which will incorporate the provisions of Mitigation Measure 4.19-1.

4.19.5 CUMULATIVE IMPACTS OF THE PROPOSED PROJECT

Wetland impacts are cumulative in that wetlands are a limited natural resource in the San Francisco Bay Area. The Marin Countywide Plan encourages in kind mitigation for filled wetlands at a ratio of 2:1, off-site not in kind mitigation for wetland lost is to be replaced at a 3:1 ratio. Likewise the US Army Corps of Engineers requires preparation and implementation of a wetland mitigation plan in the Corps permit process. Compliance with the wetland mitigation requirements of Marin County and US Army Corps of Engineers will ensure that the cumulative impacts on wetlands from the project is less-than-significant.

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