Report #

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State Historic Preservation Office Report Cover Page

Title: Cultural Resource Survey of the Mulino State Airport Environmental Assessment, Clackamas County, Oregon

REPORT

Author(s): Ron L. Adams, Andrea Blaser, and Lucie Tisdale

Agency/Client: Archaeological Investigations Northwest, Inc. (AINW)

District/Contractor: Century West Engineering Corporation

Agency/Client Report#: AINW Report No. 3973 Project Acres: 240 Survey Acres: 240

LOCATION

County(ies): Clackamas

Township:		Range:		Section(s):	Township:		Range:		Section(s):
4	S	2	E	1 and 26					

TESTING

Archaeological Permit Number(s): Accession Number:

Reports submitted to: Tribes: UOMNCH: LCIS: Curation:

Report Addresses Testing:

CONSULTATION

Have tribes been contacted or consulted? List tribes:

List any other groups contacted or consulted:

PA/MOA

Report is associated with: PA MOA

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State Historic Preservation Office Report Location Continuation Sheet

County(ies):

Township:

Range:

Section(s):

Report #

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State Historic Preservation Office Report Summary of Resources and NRHP Eligibility

RESOURCES

	Archaeological: Site:	Isolate:	Built Environment:	TCP:	HPRCSIT:	Other:
Count:	1	0	0	0	0	0

***Please be sure all archaeological forms have been submitted on-line**

EVALUATE PROPERTIES UNDER ALL FOUR CRITERIA.
BE SURE TO INCLUDE JUSTIFICATION IN THE REPORT

NRHP ELIGIBILITY

Oregon On-Line Form #:	Trinomial: Temp# or Name:	Criterion A:	Criterion B:	Criterion C:	Criterion D:
	17/2634-1	Not Eligible	Not Eligible	Not Eligible	Not Eligible

CULTURAL RESOURCE SURVEY OF THE

MULINO STATE AIRPORT ENVIRONMENTAL ASSESSMENT,

CLACKAMAS COUNTY, OREGON

Prepared For
Century West Engineering Corporation

Portland, Oregon

February 27, 2018

REPORT NO. 3973

Archaeological Investigations Northwest, Inc.

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CULTURAL RESOURCE SURVEY OF THE MULINO STATE AIRPORT ENVIRONMENTAL ASSESSMENT, CLACKAMAS COUNTY, OREGON

PROJECT:	Grading improvements, tree removal, and fence installation
TYPE:	Cultural Resource Survey
LOCATION:	Sections 1 and 26, Township 4 South, Range 2 East, Willamette Meridian
USGS QUAD:	*Molalla, Oreg.*, 7.5-minute, 1954
CITY:	Mulino
COUNTY:	Clackamas
PROJECT AREA:	240 acres
AREA SURVEYED:	240 acres
FINDINGS:	***Archaeological Resources:*** • One archaeological site was identified (temporary resource number 17/2634-1). The site consists of the remnants of a historic-period railroad alignment. • The archaeological site is recommended to be not eligible for listing in the National Register of Historic Places (NRHP). ***Historic Resources:*** • Only two historic-period buildings remain at the Mulino State Airport, which was established in 1949. These two individual historic buildings and the potential Mulino State Airport Historic District are recommended not eligible for listing in the NRHP. **A finding of "No Historic Properties Affected" is recommended** if a small portion of the APE on the east side of the Molalla River that was not surveyed is avoided.
PREPARERS:	Ron L. Adams, Ph.D., R.P.A., Andrea Blaser, M.S., and Lucie Tisdale, M.A., R.P.A.

INTRODUCTION

The Oregon Department of Aviation is proposing to improve the Mulino State Airport as part of the airport's five year capital improvement program. The multiyear improvements consist of grading of the Runway 14 Runway Safety Area (2018), obstruction removal near the north detention pond (2018), the removal of trees in the Runway 14-32 south approach and transitional surfaces (2019), and the installation of fencing (2020) (Figures 1 and 2). The Federal Aviation Administration (FAA) has requested that an Environmental Assessment (EA) be conducted in order to evaluate the potential impacts of these proposed improvements.

Century West Engineering Corporation subcontracted with Archaeological Investigations Northwest, Inc. (AINW), to perform a cultural resource survey for the Mulino State Airport EA. The cultural resources survey was done to meet the federal standards under Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulations under 36 CFR 800. The survey was also conducted in accordance with state laws addressing significant archaeological sites (ORS 358.910) and significant buildings and structures that are publicly owned (ORS 358.653). AINW professionals who meet the professional qualifications of the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation performed the work.

AINW conducted a pedestrian survey of the project's Area of Potential Effects (APE). The 240-acre APE encompasses the location of planned airport improvements (Figure 2) as well as locations identified for obstruction removal (Figure 2). The APE is primarily located on state-owned land. However, a small portion of the APE along the bank of the Molalla River is located on privately owned land. This area was not surveyed for archaeological or historic resources due to landowner access issues (Figure 2).

LOCATION AND ENVIRONMENTAL SETTING

The project area is in the hamlet of Mulino in the southern portion of Section 17 and the northern and eastern portions of Section 20, Township 4 South, Range 2 East, Willamette Meridian (Figure 1). The project area encompasses river terrace landforms on the north and south sides of the Molalla River, a major waterway of the Willamette River drainage system that flows into the Pudding River near the city of Canby approximately 13 kilometers (km) (8 miles [mi]) northwest of Mulino. The portion of the APE on the north side of the Molalla River is a largely treeless expanse covered with grasses on a high terrace, while the APE on the south side of the river is on a lower terrace with a mix of wooded areas with native trees and areas covered with non-native grasses and invasive vegetation.

More broadly, the project area is located within the northeastern portion of the Willamette Valley Physiographic Province, which, as described by Franklin and Dyrness (1973), is characterized by broad alluvial flats that surround the Willamette River and its tributaries from Cottage Grove, Oregon, in the south to the mouth of the Willamette River in the north. The Willamette Valley Physiographic Province is part of a continental shelf comprised of pre-Tertiary rocks that are overlain by successive layers of alluvium (Orr et al. 1992). The valley was formerly a marine basin that gradually became exposed as the uplifting Coast Range Mountains moved the ocean shoreline further to the west and completely exposed the valley by the Miocene geological epoch. During the Pleistocene epoch, the Willamette Valley was

repeatedly inundated when an enormous ice dam periodically broke, causing large amounts of water, ice, and rubble from an expansive ice-age lake in present-day Montana to flood the region all the way to the southern end of the Willamette Valley. These massive flood events, known as the Missoula Floods, deposited large quantities of silts, sand, clay, and ice-rafted erratic boulders throughout the valley (Orr and Orr 1996:323, 326, 334-335).

Prior to the beginning of Euroamerican settlement in the Willamette Valley in the mid-nineteenth century, prairie and oak woodlands dominated the landscape. This oak savannah landscape was found throughout the Willamette Valley and was, in part, the result of centuries of annual burning of grasslands on the part of Native peoples. These burning episodes created large prairies interspersed with stands of fire-resistant white oaks and riparian woodlands along the floodplains of major drainages. Annual burning also promoted the growth of important food plants, and the fresh growth of grasses and forbs that followed the fires would have attracted wild game. Native peoples in the area likely practiced annual burning for 3,000 years or more prior to the arrival of Euroamericans (Bowen 1978; Boyd 1986; Franklin and Dyrness 1973).

Native vegetation currently present within the APE and its vicinity has been altered due to historic-period and modern agricultural activities, which has led to the dominance of introduced cultivated crops and associated invasive species of weedy grasses. Non-native grasses associated with the landscaping of the airport were prevalent within the northern portion of the APE. Stands of native trees, such as Douglas-fir, bigleaf maple, and western redcedar, were present within the south side of the APE on the south side of the Molalla River, although much of this area was also covered with invasive, non-native vegetation.

CULTURAL SETTING

Native Peoples – Prehistoric Period

Until recently, the earliest pre-contact occupation of the project vicinity was generally considered to have begun approximately 12,000 years ago based on the presence of Clovis fluted projectile points that have been found in the Willamette Valley (Ozbun and Fagan 1996). However, relatively recent evidence from other locations in the region suggests the earliest human presence in western Oregon was before 12,000 years ago (Haynes 1991; Kenady et al. 2001; Kopperl, Miss, and Hodges 2010; Kopperl, Taylor, Miss, Ames, and Hodges 2015; Waters et al. 2011). Based on evidence from very early archaeological sites (dating to the Clovis- and pre-Clovis periods) in other parts of North America, it is likely that people during these times were highly mobile and relied on large and small game hunting and gathering wild plant foods for subsistence (Ames and Maschner 1999:66; Carlson 1990:60).

In the Pacific Northwest, the period following the Clovis- ad pre-Clovis-periods is generally referred to as the Archaic period (11,000 to 5500 B.P.). Archaeological deposits in the region that date to the early part of the Archaic period are typically referred to as dating to the Windust Phase, and are marked by the presence of broad, stemmed Windust projectile points, large scrapers, flaked cobble tools, and rare items such as lanceolate points, burins, and bone tools (Leonhardy and Rice 1970:4). The Windust Phase was followed by the Cascade Phase "…named for its hallmark artifact, the lanceolate Cascade projectile point" (Leonhardy and Rice 1970:6).

Archaeological evidence indicates that for the majority of the Archaic period, people practiced a broad spectrum subsistence strategy that emphasized terrestrial resources. Commonly found material culture dating to this period includes dart points that would have been hafted on spears and launched with an atlatl or throwing stick. As the climate changed towards the end of the Archaic period, people's subsistence strategy shifted towards a greater use of riverine resources (Ames 1994:64-66; Ames and Maschner 1999:67-86).

In the nearby Portland Basin, the Archaic period is represented by upland sites that have been dated based on artifact typology that resembles Early Archaic period assemblages elsewhere. The suite of artifacts thought to characterize this period includes large stemmed (Windust and Mahkin shouldered types) and lanceolate (Cascade type) projectile points, flaked cobbles (choppers), debitage, fire-cracked rock (FCR), and a few less common artifact types such as bola stones and edge-ground cobbles. The typical position of these Portland Basin sites on higher-elevation Pleistocene-age landforms supports, but does not confirm, this typological dating.

In the Pacific Northwest, the period following the Archaic period is referred to as the Pacific period (5500 B.P. to A.D. 1775); this period was marked by the emergence of complex hunter-gatherers who lived in large, semi-permanent villages. Warmer and drier conditions of the early Holocene gave way to cool and wet climates, and oceans rose to approximately modern levels. These changes produced environments similar to those we know today in the region, and pre-contact people adapted to the use of resources associated with temperate rain forests and productive fisheries. The Pacific period is characterized by a shift from semi- to full sedentism (Ames 1994), and villages were located in places with abundant resources. Some resource procurement activities took place away from the main residential areas; however, these resources were generally transported back to the main camps. The material cultural of this period included a continuation of the dart points associated with the Archaic period, which was followed by the introduction of smaller notched points indicative of bow and arrow technology, bone tools, and ground stone milling equipment (Ames and Maschner 1999:88-96). Subsistence during this period became increasingly focused on seasonally abundant food resources, such as salmon and camas, and by the development of storage technology for preserving food for the winter months (Wessen 1990).

Native Peoples – Contact Period

The project APE lies within the area traditionally inhabited by the Northern Molala people. As a group, the Northern Molala inhabited the northern part of the Cascade mountain region in Oregon, and their territory extended into the northeastern end of the Willamette Valley, encompassing the area around the Molalla River. Several winter village locations inhabited by the Northern Molala were located adjacent to the Molalla River within approximately 5 km (3.1 mi) of the current project area (Zenk and Rigsby 1998:439, 440).

Based on ethnohistoric documentation and historic observations, deer and elk appear to have been the most important food resources of the Northern Molala. Various smaller animals, such as coyotes, bobcats, and birds, were also hunted. Salmon, steelhead, camas, tarweed seeds, hazelnuts, and huckleberries were prominent among the seasonally available food resources procured by the Molalla. Meat, fish, and berries were all dried for purposes of preservation and storage for later consumption (Zenk and Risby 1998:440, 441).

The largest settlements occupied by the Northern Molala were winter villages located in sheltered, low-lying areas inhabited by extended family groups living in rectangular plank houses made from cedar and hemlock bark. Each winter village contained at least one of these houses. Individuals and small family groups dispersed to different locations at other times of year when they occupied smaller camps situated in resource procurement areas, such as hunting grounds in the Cascade Mountains and prairies in lowland areas (Zenk and Rigsby 1998:441).

The patterns of traditional life had begun to change prior to the permanent presence of Euroamericans in the region. The introduction of diseases, such as smallpox and malaria in the late 1700s and early 1800s, had a devastating impact on native groups, causing mortality rates of 90% or higher for groups in the Willamette Valley (Hajda 1994). Euroamerican settlement of the region increased, and in the 1850s, the Northern Molala signed treaties which ceded ownership of most of their traditional lands to the United States government (Zenk and Rigsby 1998:44, 445).

Historical Background

The Willamette Valley was one of the main destinations of the first Euroamerican settlers in the Pacific Northwest region beginning in the 1840s. The pattern of early settlement generally progressed from north to south along the fertile bottomlands and foothill prairies of the valley. Most settlements were made under the provisional government and the Donation Land Claim Act. By the 1850s, the Willamette Valley was seen as an oasis in the West, as its fertile soils and mild climate provided an impetus to traverse great distances to stake a claim and own land at no cost. The settled Willamette Valley lands were generally level wetlands or prairies that were divided into farms ranging in size from 160 to 1,000 or more acres.

The initial settlers in the Mulino area tended to arrive from Missouri, Illinois, and Indiana (Koler/Morrison Planning Commission 1990:6). Among the early homesteaders in the area were Richard and Cynthia Howard, who migrated to Oregon with their six children in 1846 (Oregon Historical Society 2017). Richard Howard built a flour mill in Mulino in 1851 on his Donation Land Claim adjacent to Mill Creek approximately 0.5 km (0.3 mi) northeast of the project APE (Lynch 1973:441; Oregon Historical Society 2017). Howard's Mill is listed on the National Register of Historic Places (NRHP) and is the oldest industrial building in the state of Oregon (Koler/Morrison Planning Commission 1990:9).

The 1852 General Land Office (GLO) cadastral survey map of Township 4 South, Range 2 East, Willamette Meridian, depicts a mill race at the approximate location of Richard Howard's mill in the eastern portion of section 17 and western portion of section 16. Tracts of cultivated land are also shown within approximately 0.8 km (0.5 mi) south and east of the project APE in the eastern portion of section 17 and southern portion of section 20 (GLO 1852). A road is also depicted extending the length of the airport property from north to south in sections 17 and 20, with two roads intersecting this road from opposite directions near the north bank of the Molalla River (GLO 1852).

Mulino remained relatively isolated into the beginning of the twentieth century, as railroad transport into the community did not occur until 1915, when the Willamette Valley Southern Railway, a subsidiary of the Portland Railway Light and Power Company, began operating an electric rail line between Oregon City and Mt. Angel (Thompson 2008:79-81). The Willamette Valley Southern has the distinction of being the last interurban railway constructed in the Willamette Valley. Passenger service

on the railway ceased in 1933, although freight service along the line persisted until 1938 (Thompson 2008:79).

The alignment of the Willamette Valley Southern Railway is depicted on the 1928 Metsker's Atlas of Clackamas County extending from north to south through the APE and over the Molalla River. By this time, the land within the APE had been subdivided into numerous private holdings (Metsker Maps 1928). The railroad tracks and associated bridge over the Molalla River were no longer present by the time of the 1954 U.S. Geological Survey (USGS) 7.5-minute Molalla topographic quadrangle map, as it is labeled an "Old Railroad Grade" on the USGS map (USGS 1954). Portions of this remnant railroad grade are also visible on a 1953 aerial photo of the airport and the surrounding vicinity.

The airport in Mulino was built in 1949 as a private facility by Ralph Kappler, who operated a lumber mill in Molalla (Bellman and Chapman 1995). Kappler used airplanes to scout for new logging locations and to observe the status of his 15,000 acre tree farm (Bellman and Chapman 1995). During the mid-twentieth century, the airport had two intersecting turf runways that were each 640 meters (m) (2,100 feet [ft]) long (State of Oregon 2017).

A 1953 aerial photo of the Mulino Airport and a 1954 USGS map depicts many buildings and roads within the current airport property that are no longer extant (USGS 1953, 1954). Many of these buildings were removed during the 1980s when the Port of Portland, who took ownership of the airport in 1988, was preparing to construct the airport's current runway, Runway 14-32, west of the airport's original turf runways (USGS 1954; Wenzel 1987). The 1953 aerial photo and 1954 USGS map also indicate that the railroad tracks for the former Willamette Valley Southern Railway were no longer present by the early 1950s, although portions of the grade extending through the current airport property are present on the 1953 aerial and the grade is labeled on the 1954 USGS map (USGS 1953,1954).

The primary use of land surrounding the APE has been, and continues to be, farming and other agricultural-related activities, although small-scale commercial development is present in the central portion of Mulino around the intersection of Oregon Highway 213 and South Mulino Road. Hops, berries, peas, and flax were main market products from the 1870s through the early 1900s. The overall character and setting of the project area remains rural (*Canby Herald* 1997:77, 84; Koler/Morrison Planning Consultants 1990:11).

PREVIOUS CULTURAL RESOUCE STUDIES

Archaeological Resources

AINW reviewed archaeological site and survey records in the Oregon Archaeological Records Remote Access (OARRA) system maintained by the Oregon State Historic Preservation Office (SHPO), and materials in the AINW library to determine if cultural resources have been identified in or near the project APE and to determine whether cultural resource surveys have been previously conducted in or near the APE. General Land Office and other historical maps, historical photographs, and other relevant documents were reviewed to determine the potential for historic-period archaeological resources within the project APE.

The records review indicates that there have been two previous surveys that have covered portions of the current APE, both of which were conducted for airport development by John Woodward. In 1980, Woodward conducted a pedestrian survey of the then proposed Mulino Airport that overlaps the current APE. The survey identified one archaeological site located approximately 200 m (660 ft) northeast of the current airport property, consisting of pre-contact lithic artifacts, although a site form was not prepared for these finds. Details of the site are very limited and include information from a local informant who had claimed to have collected spear points from the site (Woodward 1980).

The second survey of the airport was conducted by Woodward in 1987, and consisted of a pedestrian archaeological survey of the northeastern portion of the current airport property. No archaeological resources were identified during the survey (Woodward 1987).

The nearest archaeological survey to the current APE was conducted for the OR 213: Cascade Highway South at Mulino Project, which included areas to the immediate north and east of the Mulino Airport property. The work consisted of a pedestrian survey as well as subsurface reconnaissance and archaeological testing (Bland and Connolly 2006; Bland et al. 2009). The investigations resulted in the identification of three archaeological sites (35CL334, 35CL335, and 35CL336) and four archaeological isolates (Isolates 1 through 4). All three of the archaeological sites are located within 200 m (660 ft) to the east and northeast of the current APE (Bland et al. 2009).

The four archaeological isolates found during the archaeological work for the OR 213 project were found between 100 and 600 m (330 and 1969 ft) northeast of the current APE. These isolates were all found during shovel testing associated with the project (Bland et al. 2009).

Other archaeological sites in the general vicinity of the current APE are illustrative of the pre-contact use of the area. Included among these resources are two subsurface scatters of pre-contact lithic artifacts (35CL125 and 35CL126) containing cryptocrystalline silicate and obsidian flakes along with FCR fragments identified approximately 0.8 km (0.5 mi) northwest of the Molalla Airport property during archaeological investigations for the Northwest Pipeline system expansion project (Fagan et al. 1992). Additionally, a scatter of artifacts on a plowed field (35CL48) consisting of projectile points, pestle fragments, bone fragments, and historic-period artifacts was found during an archaeological survey for a paving company approximately 1.6 km (1 mi) northwest of the current APE (Woodward 1981).

Approximately 1.9 km (1.2 mi) south of the current APE, a resource consisting of a historic service station and associated residential buildings (Five Oaks Station), along with buried glass, metal, and ceramic artifacts (site 35CL288) was identified during an archaeological survey of Oregon highway 213: Liberal Way to Molalla Avenue (Schablitsky 2003).

Numerous other cultural resource studies have been conducted within 3.2 km (2 mi) of the current APE. These include surveys conducted for a Milk Creek bank stabilization project (Goodwin and Ogle 2017), a cultural resources inventory for a timber sale (Philipek 1985), a cultural resources survey for a cellular communications site (Stipe 2009); an archaeological survey for a fiber optic line installation (Craig and Tipton 2013), a cultural resource survey for a channel restoration (Hatz 2000), a cultural resource survey for a proposed railcar bridge (Buchanan and Ellis 2007), archaeological surveys for Oregon highway 213 improvements (Bland 2006; Connolly 1987), and cultural resource surveys for block

valve work locations for a natural gas pipeline (Adams et al. 2011). No cultural resources were identified for these studies.

The Mulino Airport vicinity has the potential to contain both pre-contact and historic-period archaeological sites due to historic developments that have occurred nearby and within the airport property as well as the presence within the APE terrace landforms adjacent to the Molalla River, which represent the kinds of settings at which pre-contact archaeological sites are typically found in the surrounding area. Because of this potential for archaeological resources, a pedestrian archaeological survey of the entire APE was conducted with particular emphasis on identifying areas where additional archaeological investigations may be needed.

Historic Resources

A search of the Oregon Historic Sites Database revealed that the Mulino State Airport has been previously documented as a historic resource. The airport was documented as eligible for listing in the NRHP for the OR 213 @ Mulino Road survey and inventory project in 2005. No inventory form is attached to this database record.

ARCHAEOLOGICAL FIELD SURVEY METHODS AND FINDINGS

The archaeological pedestrian survey was conducted on November 27 and December 4, 2017, by AINW supervising archaeologist/ethnologist Ron L. Adams, Ph.D., R.P.A., along with AINW staff archaeologists Joey Veysey, B.A., Lea Loiselle, B.A., Meghan Johnson, B.A., and Colin Skinner, B.S. Dr. Adams supervised the work in the field, and AINW Senior Archaeologist Lucie Tisdale, M.A., R.P.A., managed the project and provided general oversight.

The pedestrian survey was accomplished by walking parallel transects spaced no more than 20 m (66 ft) apart within the portion of the project's APE on Mulino State Airport property on the north and south sides of the Molalla River. The survey did not include land within an area of proposed tree removal on the east side of the Molalla River, which was on private property that was not accessible (Figures 2 and 3).

The surveyed area on the north sides of the Molalla River was uniformly covered with grasses. In these conditions, mineral soil visibility was greatest (5% to 30%) adjacent to the runways where grasses were shorter than in other parts of the project area (Photos 1 and 2). However, the areas adjacent to the runways also appeared to have been impacted the greatest as a result of past airport developments as the land was very level (likely the result of grading) and at a lower grade than much of the surrounding landscape (Photo 3). Tall weedy grasses and scattered patches of Himalayan blackberry covered much of the area further away from the runways in the southern and western portions of the APE on the north side of the Molalla River, limiting visibility to between 0% and 10% (Photo 4), although patches of bare sediment with 80% to 90% visibility were present near the north bank of the Molalla River. Small trees and shrubs, including Douglas-fir, non-native paper birch, pine, and scotch broom, were also present above the bank on the north side of the Molalla River (Photo 5). The northern end of the airport property was a cow pasture covered with pasture grasses and very low mineral soil visibility (0% to 5%) (Photo 6).

The potions of the APE on the southern side of the Molalla River consisted of grasses and variable coverage of trees and shrubs that included Himalayan blackberry, Scotch broom, western redcedar, big leaf maple, vine maple, Douglas-fir, and noble fir. Mineral soil visibility was variable in these conditions, ranging from 5% to 80%, with the greatest mineral soil visibility conditions encountered within a fenced horse pasture (Photos 7 and 8). Much of the ground within this southern portion of the APE appeared to be disturbed, as there were relatively thick patches of Scotch Broom in much of the area. John Wilson of the Oregon Department of Aviation, who escorted the AINW archaeological survey crew to the airport property on the south side of the Molalla River, stated that a Christmas tree farm was previously on the property, which likely accounted for the presence of noble fir trees and the apparently disturbed nature of much of the soil in this portion of the APE (Photo 9).

17/2634-1

The one archaeological resource identified during the survey is an archaeological site (temporary number 17/2634-1) consisting of remnants of the Willamette Valley Southern Railway, an electric railroad line for passenger service, which extended on a north-south alignment through Mulino on its route between Oregon City and Mt. Angel between 1915 and 1933; freight service along the railroad line continued until 1938 (Thompson 2008:79-81). The railroad line remnants include a downgrading trench cut into the landscape on the north side of the Molalla River at the location of the former railroad trestle approach on the former railroad alignment. This downward grade appears to have been created to better coincide with the substantially lower elevation of the south side of the Molalla River in comparison to the north side of the river. Other observed features associated with the railroad line include two concrete remnants of the former trestle within the Molalla River, a remnant of the railroad grade now used as a gravel road on the south side of the Molalla River, and a remnant cobble-covered levee segment on the south side of the Molalla River adjacent to the railroad alignment likely used for the protection of the grade from flood waters. A remnant pole was also found adjacent to the railroad grade on the south side of the river that may have been used to support the overhead electrical cables for the railroad line (Photos 10 through 14). A State of Oregon Archaeological Site Form for 17/2634-1 is appended to this report.

Site 17/2634-1 has no known associations with significant people that would potentially make it eligible under Criterion B. The features present at the site (the levee, trestle remnants, remnant grade, and downgrading trench) do not embody distinctive characteristics of a type, period, or method of construction that would make them potentially eligible under Criterion C. Under Criterion D, the site does not yield significant data that would supplement the written documentation of the Willamette Valley Southern Railway and qualify it as eligible for listing in the NRHP.

Given its distinction as the last interurban railway constructed in the Willamette Valley and its overall association with the pattern of developing interurban railroad lines throughout the Willamette Valley in the early twentieth century, existing remnants of the Willamette Valley Southern Railway would in general have the potential to be eligible for listing in the NRHP under Criterion A (Thompson 2008). However, the remnants recorded as site 17/2634-1 are in a very fragmented state and likewise do not convey integrity of feeling and association. As such, site 17/2634-1 is recommended not eligible for listing in the NRHP, although remnants of the former Willamette Valley Southern Railway elsewhere on its former alignment may retain better integrity and therefore may be eligible for listing in the NRHP.

Areas of Expected Archaeological Resources

In addition to site 17/2634-1, three areas were identified where additional archaeological investigations may be needed within the surveyed APE. The areas include terrace landforms on the north and south sides of the Molalla River (Areas 1 and 2) (Figure 3). These terrace landforms are characteristic of the type of setting where many pre-contact archaeological sites have been identified in the general vicinity of the APE. A third identified area consists of the eastern portion of the cow pasture at the north end of the APE. The cow pasture is to the west of a previously identified pre-contact site that was observed during a 1980 survey for the Molalla airport but was never formally recorded on a site form (Woodward 1980) (Figure 3). The eastern portion of the cow pasture has a higher probability of containing artifacts given its proximity to this site and the fact that it has been impacted by airport development to a lesser degree than other nearby portions of the APE.

In addition to the three identified areas, there is an area on the eastern bank of the Molalla River that will need to be surveyed once landowner access is granted (Figure 2). Dependent on how or where a tree is removed in this area will determine if shovel tests will be needed.

HISTORIC RESOURCES FIELD SURVEY AND FINDINGS

Methodology

AINW Senior Architectural Historian/Historian Andrea Blaser, M.S, completed a survey of the project APE on December 5, 2017, to identify and document historic resources. For the purposes of this survey, historic resources are considered to be buildings, structures, sites, objects, and districts that are 45 years in age or older (i.e., constructed in or before 1972). Although historic resources must typically be at least 50 years in age to be eligible for listing in the NRHP, including resources that will reach or surpass this threshold in five years, extends the validity of AINW's survey results through planning and construction phases of the project.

Prior to conducting the field survey a review of historical information, maps, and aerial photographs was done to pinpoint the locations of historic resources in the APE. These resources were then photographed to document their current context, and notes were taken pertaining to their physical features. Surrounding modern infrastructure at the airport was also observed and photographed, but was not documented for this project.

Clackamas County Assessment and Taxation records indicate that two 1960s buildings may be located on land parcels that overlap the southern portion of the APE that was not surveyed (Figure 2). If tree clearing is proposed on these parcels, AINW recommends that the area should be surveyed to document and evaluate historic resources.

Results

There are only two buildings at the Mulino State Airport that were constructed during the historic period: a hangar constructed circa 1949 and a Pilot Lounge/Airport Management Office that was constructed circa 1968 (Photos 15 and 16). Both of these historic resources are located on South Airport

Road, and are documented in a baseline table that is attached to this report (Table 1). The baseline table includes the name, description, discussion of historical integrity, NRHP eligibility recommendation, and representative photograph(s) for each of these resources. Historic resource locations are mapped on Figure 4, along with the locations of primary buildings and structures at the Mulino State Airport that were constructed during the modern period.

Discussion on NRHP Eligibility of Historic Resources and the Mulino State Airport

The two individual historic resources identified at the Mulino State Airport are recommended to be not eligible for listing in the NRHP. Each of these buildings have been modified since their original date of construction, diminishing their historical integrity and the strength of their potential associations with significant events under Criterion A and their potential to be good examples of types, periods, and/or methods of construction under Criterion C. Neither of these buildings has a known association with a significant person of the past under Criterion B.

In addition to the modifications that have occurred to each of these two historic buildings, the surrounding landscape of the Mulino State Airport has been extensively modified since the airport was first established in 1949. During the mid-twentieth century, the airport was privately owned and featured minimal infrastructure. The focal point of the airport was two turf runways, Runway 2/20 and Runway 12/30, which crossed one another in the area between OR 213 to the east and South Airport Road to the west (Photo 17). These runways have since been abandoned and replaced by a much larger runway, Runway 14-32, which was constructed circa 1990 in an area west of the original runways. Several buildings were removed to make way for this new runway during the 1980s (Wenzel 1987).

The construction of Runway 14-32 corresponds with the airport's transition from private ownership to public ownership under the Port of Portland in 1988 (Oregon Department of Aviation 2013). Between 1988 and 1992, the Port oversaw the completion of a parallel taxiway to Runway 14-32, aircraft parking ramps, and utility and lighting updates (Century West Engineering 2015). Private facility developments were also completed under the Port's tenure of ownership, including the first of three T-hangars that are located near the intersection of South Airport Road and South Mulino Road. The other two T-hangers were constructed after ownership of the airport was transferred from the Port of Portland to the Oregon Department of Aviation in 2007 (Photo 18). Also since this change in ownership, two historic-period T-hangers were removed from their location adjacent to South Airport Road (Photo 19), and a historic building to the north was removed and replaced with the current Oregon Pilot's Association building (Photo 20).

It is AINW's opinion that the Mulino State Airport, a potential historic district, is not eligible for listing in the NRHP. Aforementioned changes to the airport's layout and infrastructure have left only two historic-period buildings at an airport that no longer reflects its historical appearance. These modifications have also diminished the airport's historical integrity of location, setting, design, materials, workmanship, feeling, and association. This diminished historical integrity limits the airport's potential to be eligible for listing in the NRHP for associations with significant events (Criterion A) or with important people of the past (Criterion B), or for architectural or engineering significance (Criterion C).

SUMMARY AND RECOMMENDATIONS

AINW has completed a cultural resource survey for the Mulino State Airport Environmental Assessment. A pedestrian archaeological survey of the project APE resulted in the identification of one archaeological site consisting of the remnants of a historic-period railroad (17/2634). This resource is recommended to be not eligible for listing in the NRHP and no further work is recommended for the site.

However, three areas of expected pre-contact archaeological resources were identified within portions of the APE. No ground disturbance is currently planned for these locations. For any future work at these locations, subsurface archaeological testing is recommended to determine whether buried archaeological sites and/or isolates are present. Likewise, archaeological pedestrian survey and possibly shovel testing is recommended if ground disturbing work is planned for the portion of the APE on private property that was not surveyed for the current report.

A historic resource survey of the Mulino State Airport identified two historic-period buildings that are recommended not eligible for listing in the NRHP. The airport itself, which was established in 1949, has been extensively modified and is not eligible for listing in the NRHP as a historic district.

A small portion of the APE where tree removal may take place was not surveyed due to a lack of landowner permission. If this area is avoided by the project, then AINW recommends no further work for cultural resources and a finding of "No Historic Properties Affected" for the Mulino State Airport Environmental Assessment. If tree removal is proposed at this location, an archaeological pedestrian survey and the documentation of historic resources is recommended.

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TABLE 1

HISTORIC RESOURCES IDENTIFIED IN THE APE

Name	Description	Integrity	NRHP Recommendation	Photograph
Hangar	This circa 1949 hangar building has an internal wood frame that has been supplemented with steel I-beams at oversized openings. The building is capped with a slight gable roof, and is clad with modern corrugated metal siding.	Modifications to the structural system and cladding of the building, in addition to changes to the Mulino State Airport, diminish its integrity of design, setting, materials, workmanship, feeling, and association.	Recommended Not Eligible/ Non-Contributing	
Pilot Lounge/ Airport Management Office	This circa 1968 Ranch-style building is clad with T1-11 siding, has a mixture of vinyl and wood windows, and is capped with a cross gable roof with exposed beams and eave returns. The central crossing gable has been modified to allow for floor to ceiling windows, and the garage has been converted and infilled.	Modifications to the plan, fenestration, and siding of the building, in addition to changes to the Mulino State Airport, diminish its integrity of design, setting, materials, workmanship, feeling, and association.	Recommended Not Eligible/ Non-Contributing	 

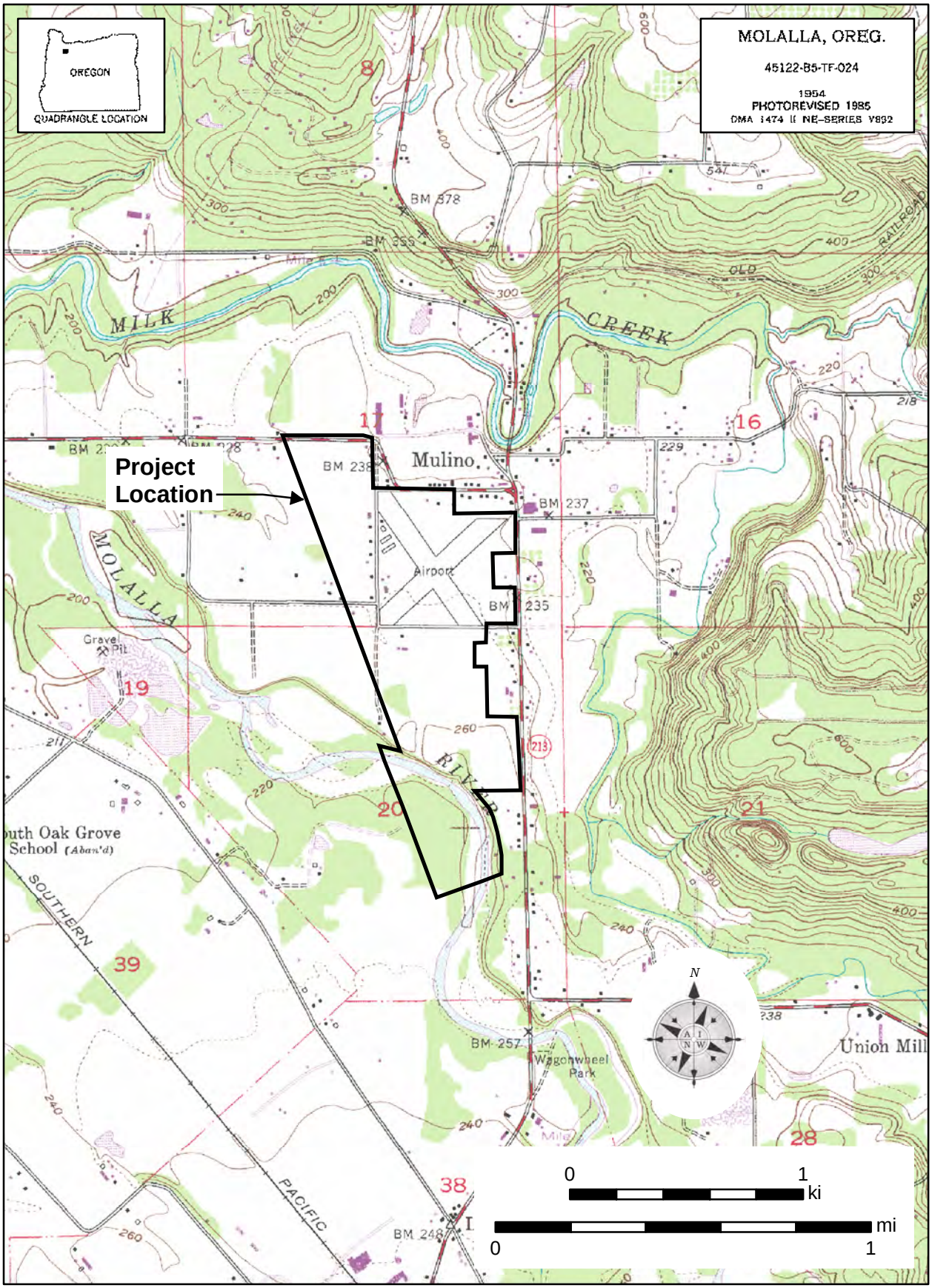


Figure 1. Mulino State Airport EA project location.

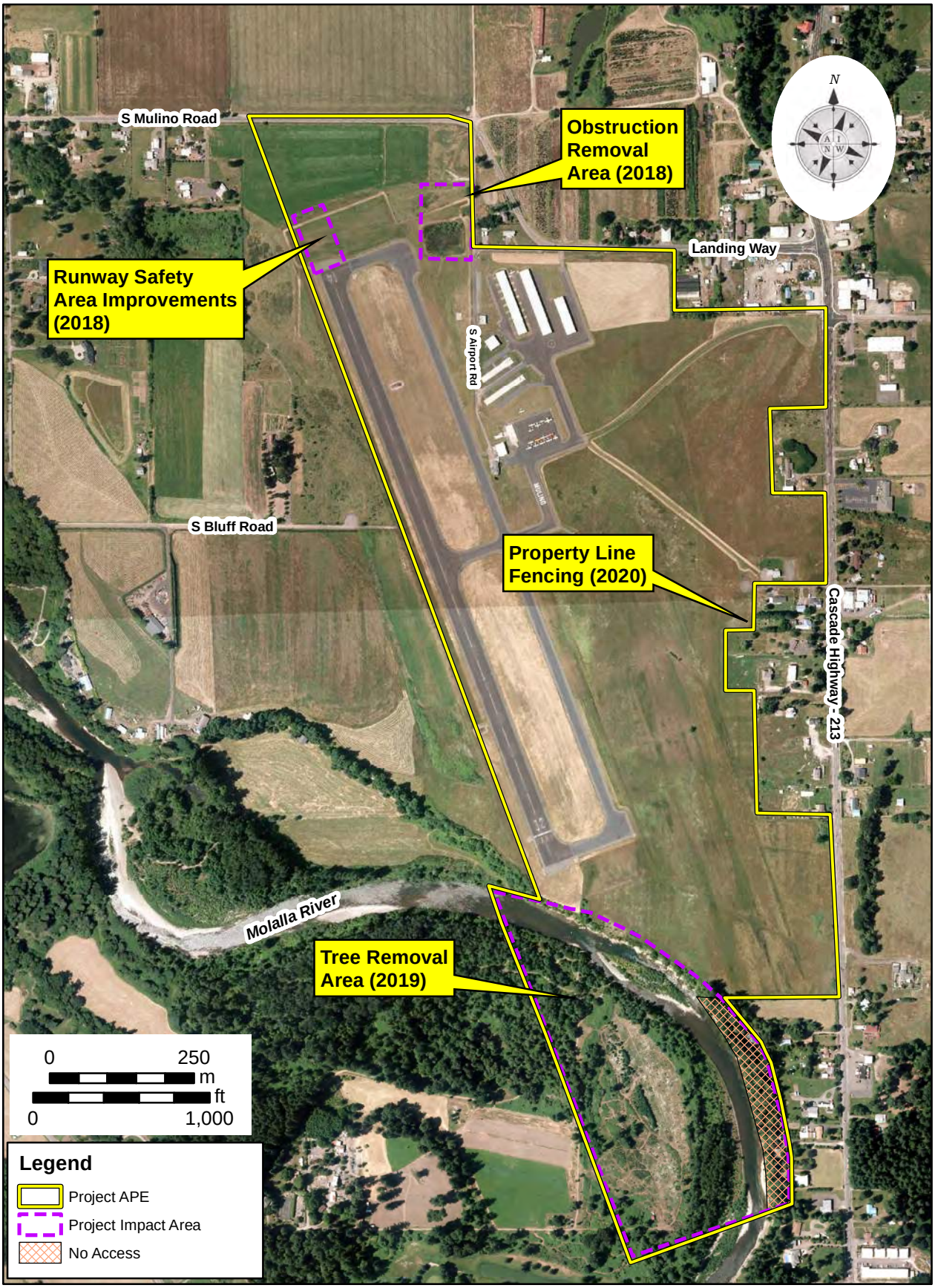


Figure 2. Mulino State Airport EA APE showing locations of proposed airport improvements.

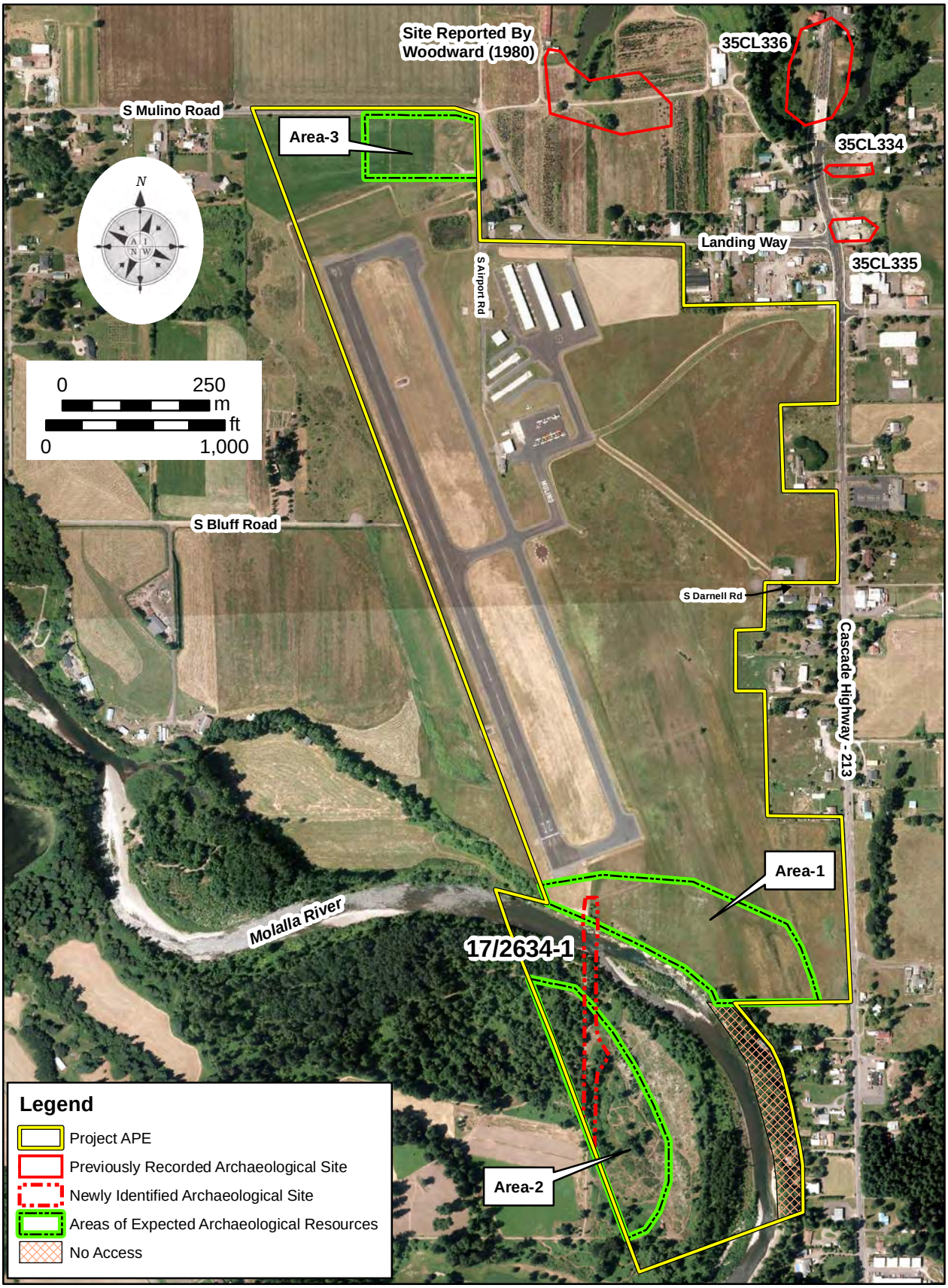


Figure 3. Mulino State Airport EA APE showing nearby previously recorded archaeological sites, archaeological site 17/2634-1, areas of expected archaeological resources, and no access area.

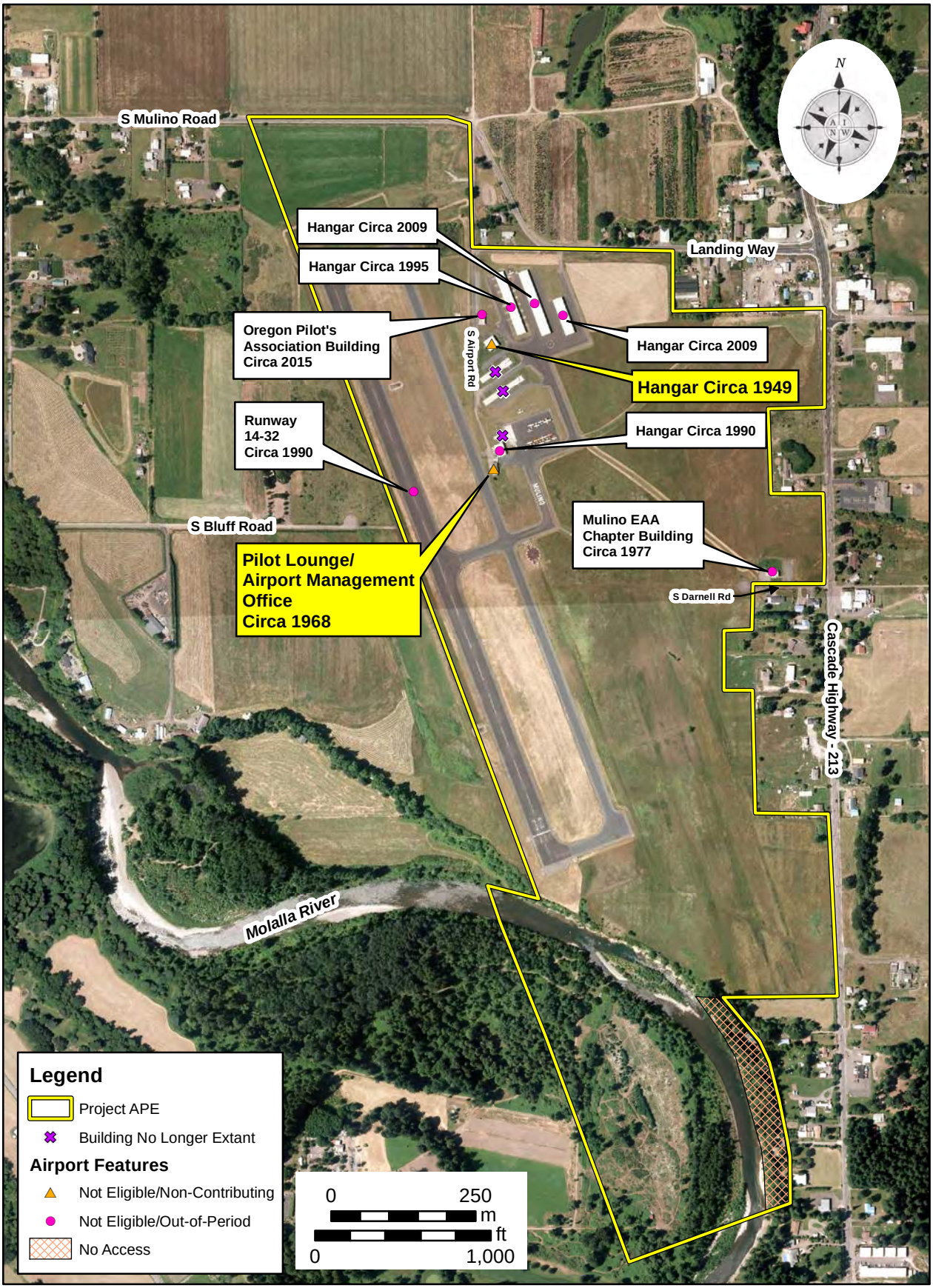


Figure 4. Mulino State Airport EA APE showing the airport features and two historic buildings (with yellow labels), both of which are recommended not eligible for listing in the NRHP. The buildings marked with purple crosses are no longer extant.

Photo 1. Pedestrian survey adjacent to the north end of the airport runways at the location of the proposed runway safety area improvements. The view is towards the east.

Photo 2. Pedestrian survey conditions northeast of the airport runways encompassing the airport stormwater detention pond and obstruction remocal area. The view is towards the east.

Photo 3. View showing the elevation difference between the runway area at left and natural grade at right. The view is towards the southeast.

Photo 4. Tall grasses and patches of Himalayan blackberries on the north side of the Molalla River. The view is towards the south.

Photo 5. Pedestrian survey near the north bank of the Molalla River. The view is towards the northwest.

Photo 6. Pedestrian survey conditions at the northern end of the APE within the cow pasture. The view is towards the west.

Photo 7. Typical pedestrian survey conditions on the south side of the Molalla River. The view is towards the south.

Photo 8. Pedestrian survey conditions in the horse pasture on the south side of the Molalla River. The view is towards the north.

Photo 9. Open area with scattered noble fir trees (in background) on the south side of the Molalla River. The view is towards the south.

Photo 10. Downgrading trench feature on the north side of the Molalla River along the alignment of the former Willamette Valley Southern Railway (site 17/2634-1). The view is towards the east-southeast.

Photo 11. Concrete and wood remnant of the former Willamette Valley Southern Railway trestle crossing the Molalla River (site 17/2634-1). The view is towards the north.

Photo 12. Remnant grade of the former Willamette Valley Southern Railway (site 17/2634-1) extending through the southwestern portion of the APE. The view is towards the north.

Photo 13. Cobble-covered levee remnant near the alignment of the former Willamette Valley Southern Railway (site 17/2634-1). The view is towards the norheast.

Photo 14. Remnant pole adjacent to the remnant grade of the former Willamette Valley Southern Railway (site 17/2634-1). The view is towards the southeast.

Photo 15. A hangar constructed in 1949 is located near the airport entrance. The view is facing east.

Photo 16. A Pilot Lounge/Airport Office constructed circa 1968 is located adjacent to a modern taxiway used in association with Runway 14-32. The view is facing south.

Photo 17. Turf taxiways now cross through the former location of turf runways at the Mulino State Airport. The view is facing northwest from the Mulino EAA Chapter Building at South Darnell Road.

Photo 18. Modern T-hangers located southeast of the intersection of South Airport Road and South Mulino Road. The view is facing southeast.

Photo 19. Historic-period T-hangars were once located at the concrete pads where the plane at center is parked. The view is facing northeast from South Airport Road.

Photo 20. The current Oregon Pilot's Association building (at left) recently replaced a historic-period building at the Mulino State Airport. The view is facing south-southeast.

APPENDIX

STATE OF OREGON ARCHAEOLOGICAL SITE RECORD

State of Oregon Archaeological Site Record

Administrative Data

Smithsonian Number:		**Alt Site Nbrs:**	17/2634-1
Site Name:		**Form Type:**	New
Managing Office*:	Oregon - State (general, describe)	**County:**	Clackamas
Owners(s):	Oregon - State (general, describe)		
Ownership/Management Notes:	Oregon Department of Aviation		

National Register Status:

Status	Role	Date	Author
Not Eligible	Fieldworker	12/05/2017	Ron Adams

Site Identification

Site Type	• Other		
Features*:	• Bridge • Historic Structure Remains • Other • Railroad Grade/Trestle	**Cultural Periods(s)*:**	• Early 20th Century (1900-1930) • Depression/WWII (1929-1950)

Dimensions:	**Length**	205	**Width**	20	**Units**	Meters	**Area**	4100 Sq m
Depth of Cultural Deposits	0 cm							
General Age	Historic							

Location Data

Legal Description:

Township	Range	Section	¼	¼	¼	DLC	Meridian
4 S	2 E	20	W	SW	NE		Willamette
4 S	2 E	20	NW	NW	SE		Willamette

UTM Coordinates

Type	East	North	Method	Zone	Datum
Centerpoint	532420	5006300	GPS < 1m	10	83

Map References

Map Name/Year	Revision Year
MOLALLA 7'	1985

Access Description

From the intersection of S. Mulino Rd. and Oregon Highway 213, proceed west on S. Mulino Rd. for 460 meters (m) (1509 feet[ft]) until reaching Landing Way. Continue straight (west) on Landing Way for 125 m (410 ft) until reaching S. Airport Rd. Turn left (south) on S. Airport Rd. and proceed for 130 m (427 ft) to the south and park vehicle in gravel parking lot on the north side of the gate to the Mulino Airport. From this point, proceed on foot (with prior permission from the airport) for approximately 1 kilometer (km) (0.6 miles [mi]) to the north end of the site.

Environmental Data

Province	Willamette Valley
Basin	Willamette
Subbasin	MOLALLA R
Drainage Name	Molalla River
Elevation	From 213 To 258 ft
Aspect	Aspect: NW
Depositional Environment	• Alluvial • Aeolian
Soil Description	The site encompasses areas with dark brown silt loams and dark brown sandy loams.
Vegetation Description	
Culturally Significant Vegetation	• Oregon Grape • Western Red Cedar

Water Sources

Name	Type	Stream Type	Stream Class	Distance	Direction
Molalla River	River	Perennial	3	0 *meters*	0 *deg*

Site Setting	The site is oriented along a former railroad alignment that crosses the Molalla River and encompasses low terrace/floodplain environments on the south side of the river and a high terrace on the north side of the river.

Site Description

Site Description	The site consists of remnants of the Willamette Valley Southern Railway, an electric railroad line which extended between the cities of Oregon City and Mt. Angel between 1915 and 1938. The line accommodated passenger service from 1915 to 1933, and freight service continued on the line until 1938 (Thompson 2008:79-81). The remnants of the railroad line that comprise the site include a downgrading trench on the north side of the Molalla River that represents a downgrade of the railroad alignment as it approached the former railroad crossing over the Molalla River. The trench measures approximately 5 m (16.4 ft) in width and 50 m (164 ft) in length. From north to south, the elevation of the trench descends from the natural grade to approximately 4 m (13.1 ft) below natural grade as it approaches the Molalla River. Other remnants of the former railroad consist of two bridge remnants within the Molalla River, one near the north bank of the river and one near the south bank of the river. Both of the bridge remnants are comprised primarily of concrete. The portion of the former bridge near the north bank of the river was nearly completely submerged by the river and difficult to discern at the time of site recordation. The portion of the former bridge near the north bank of the river was larger and a large portion of it was exposed above water. This bridge remnant was made from pebble aggregate concrete and wood pilings with wood boards on what was likely the bridge deck. Features identified on the south side of the Molalla River include a remnant of the railroad grade now used as a gravel road that measures 5.5 m (18 ft) in width at the top and is raised approximately 2.5 m (8.2 ft) above the surrounding landscape. The grade was topped with rounded pebbles and cobbles and extended a length of approximately 100 m (330 ft) from the point where it tapers into the surrounding landscape in the north to the south end of the investigated area. The gravel road on the former railroad grade continues for several hundred meters to the south beyond the investigated area. It seems likely that the portion of the railroad alignment north of the grade was raised on a wooden trestle that continued to the north across the Molalla River. On the western slope of the grade was a remnant pole measuring 41 centimeters (cm) (16 inches [in]) in diameter that may have previously been used as a support for the railroad's overhead electrical cables. A smaller berm feature identified on the south side of the Molalla River consists of a cobble-covered berm measuring approximately 2.5 m (8.2 ft) wide, 1.5 m (4.9 ft) tall, and 30 m (100 ft) long. This berm is oriented in a SW-NE alignment and its southern end is located approximately 10 m (33 ft) northeast of the remnant railroad grade. The function of this berm is unknown, although it may have been constructed as a levee to protect the railroad from floodwaters approaching from the east and southeast. Historical maps that depict the former railroad grade extending through the area include the 1928 Metsker's Atlas of Clackamas County, which depicts the Willamette Valley Southern Railway line extending from north to south over the Molalla River in an alignment coinciding with the site location (Metsker Maps 1928). The railroad tracks and associated bridge over the Molalla River were no longer present by the time of the 1954 U.S. Geological Survey (USGS) 7.5-minute Molalla topographic quadrangle map, as it is labeled an "Old Railroad Grade" on the USGS map (USGS 1954). Portions of this remnant railroad grade are also visible on a 1953 aerial photo of the airport and the surrounding vicinity.
Dates of Use	From: 1915 — To: 1938 — BP/AD/BC: AD — Method: Historic Record
Site Observations	Present: Wood Other — Quantity: 26 Present: Other — Quantity: 2
Estimated Counts	Prehistoric: 0 Historic: 28

Rock Art

No Rock Art Specified

Site Condition

Visit Date	12/04/2017
Site Condition	Poor- Site Damage between 60% and 95%
Field Recorder	Ron Adams, Archaeological Investigations Northwest, Inc.
Artifacts Collected?	No

Activities/Work Performed	Pedestrian Survey
Impacts/Impact Agents	• Water/Inundated • Erosion • Other
Protective Measures Recommended	No protective measures are recommended for the site, as it is recommended to be not eligible for listing in the NRHP. There will likely be no impacts to the site resulting from proposed work associated with the Mulino Airport Master Plan for which the archaeological survey was conducted.

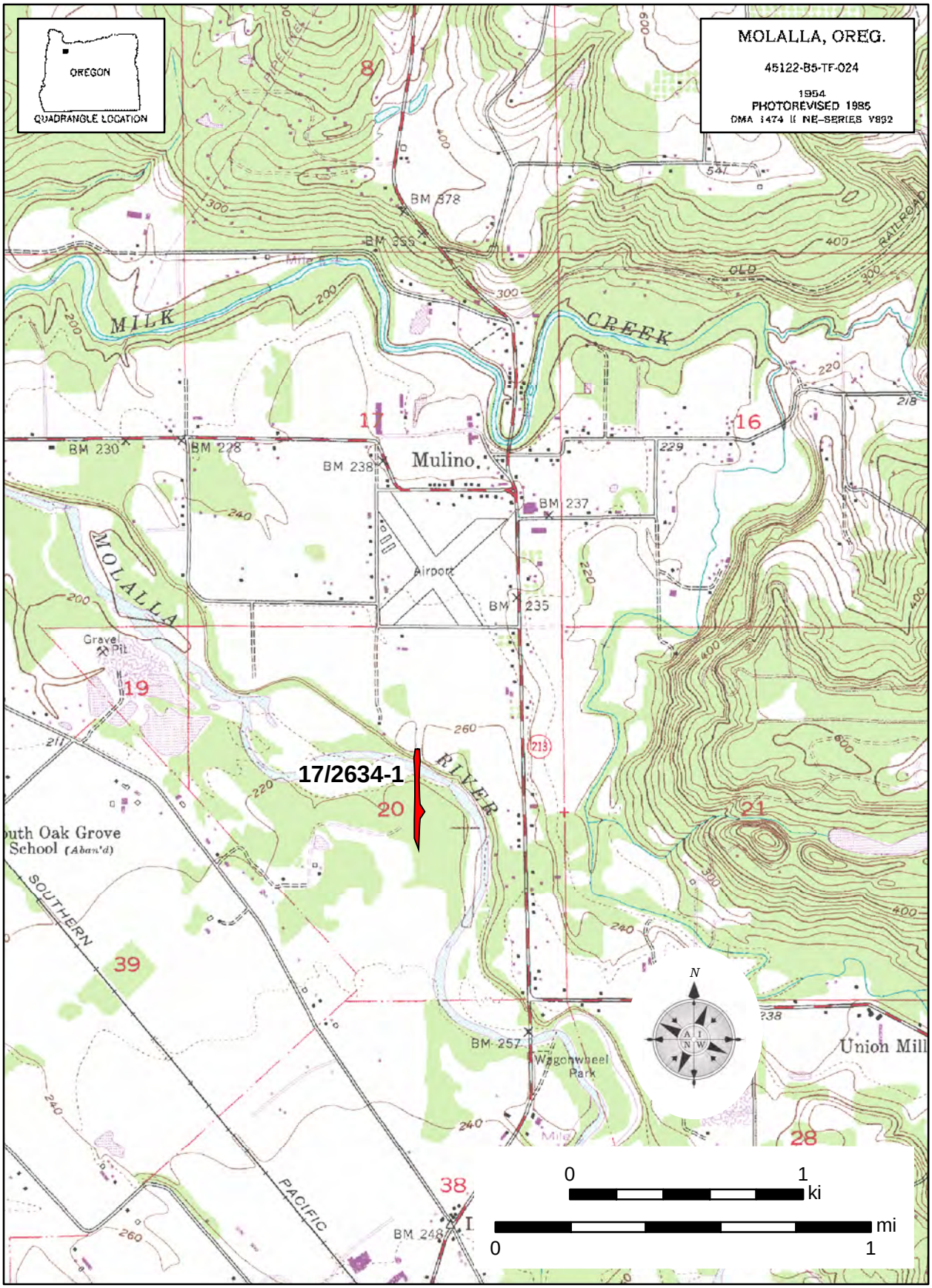
Bibliographic References

Author	Publication Year	Title	Agency/Organization	Primary Reference	User Agency
Metsker Maps	1928	Metsker's Atlas of Clackamas County, Oregon	Charles F. Metsker, Portland, Oregon, and Tacoma, Washington	Yes	
Thompson, Richard	2008	Images of Rail: Willamette Valley Railways	Arcadia Publishing	Yes	
U.S. Geological Survey (USGS)	1954	Molalla, Oreg. 7.5-minute topographic quadrangle	U.S. Geological Survey	Yes	

Files Uploads

- Site 172634-1 Quad Location.pdf
- Site 172634-1 Sketch Map.pdf
- 172634-1 Site Form Photos.pdf

Form Entry Recorder:	Ron Adams	Date: 12/05/2017


OREGON
QUADRANGLE LOCATION
MOLALLA, OREG.
45122-B5-TF-024
1954
PHOTOREVISED 1985
DMA 1474 II NE-SERIES V892
MILK
CREEK
MOLALLA
RIVER
Mulino
Airport
Gravel Pit
BM 378
BM 359
BM 230
BM 228
BM 238
BM 237
BM 235
BM 257
BM 248
Wagonwheel Park
Union Mill
South Oak Grove School (Aban'd)
SOUTHERN PACIFIC
RAILROAD
OLD
PIPE LINE
17/2634-1
8
11
16
19
20
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28
38
39
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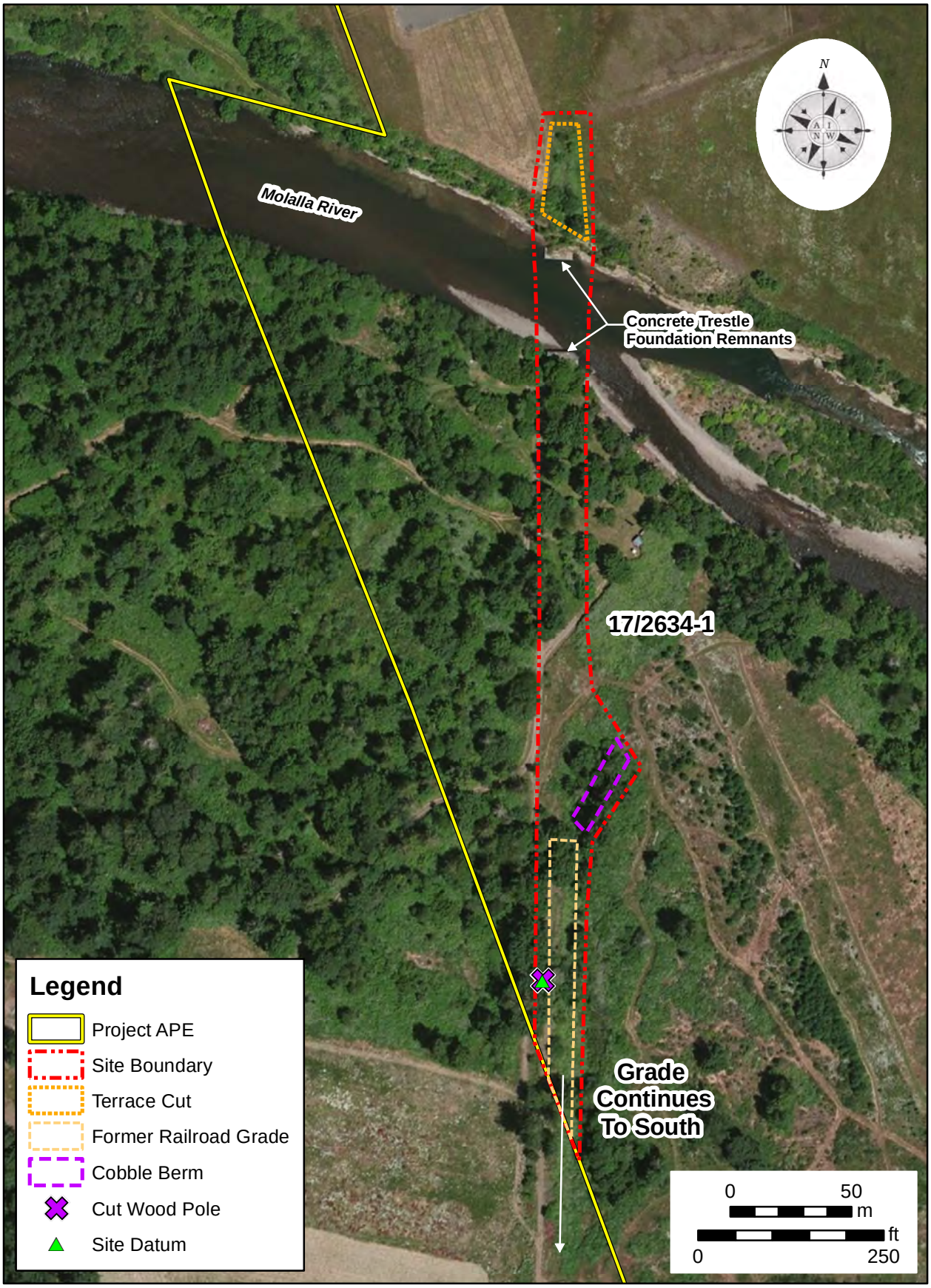
1


N
Molalla River
Concrete Trestle
Foundation Remnants
17/2634-1
Grade
Continues
To South
Legend
Project APE
Site Boundary
Terrace Cut
Former Railroad Grade
Cobble Berm
Cut Wood Pole
Site Datum
0
50
m
ft
0
250

State of Oregon Archaeological Site Record
Site Form

Photos

Smithsonian Number:

Alt Site Numbers: 17/2634-1

Downgrading trench feature on the north side of the Molalla River at 17/2634-1. The view is towards the east-southeast.

View from area of former trestle approach looking south across the Molalla River along the former alignment of the Willamette Valley Southern Railway. A large remnant of the former concrete railroad trestle is visible near the south bank of the river.

State of Oregon Archaeological Site Record Site Form

Photos, continued

Smithsonian Number:

Alt Site Numbers: 17/2634-1

View of concrete railroad trestle remnant (denoted by red arrow) near the north bank of the Molalla River and the downgrading trench opening to the former bridge approach at 17/2634-1. The view is towards the northeast.

View of concrete railroad trestle remnant at 17/2634-1 near the south bank of the Molalla River. The view is towards the north.

State of Oregon Archaeological Site Record Site Form

Photos, continued

Smithsonian Number:

Alt Site Numbers: 17/2634-1

Remnant railroad grade on raised berm on the south side of the Molalla River at 17/2634-1. The view is towards the north.

Remnant wooden pole adjacent to remnant railroad grade on the south side of the Molalla River at 17/2634-1. The view is towards the southeast.

State of Oregon Archaeological Site Record Site Form

Photos, continued

Smithsonian Number:

Alt Site Numbers: 17/2634-1

Cobble-covered levee adjacent to the former railroad alignment at 17/2634-1. The view is towards the southwest.

Cobble-covered levee adjacent to the former railroad alignment at 17/2634-1. The view is towards the southeast.

From:	Callahan, Sean (FAA)
To:	thpo@grandronde.org; Robert Kentta (rkentta@ctsi.nsn.us); Ms. Roberta Kirk (roberta.kirk@ctwsbnr.org)
Subject:	Emailing: Map_Mulino Airport Obstruction Removal Project, Pjc Des_Mulino Obstruction Removal Project
Date:	Monday, January 08, 2018 12:56:00 PM
Attachments:	Map_Mulino Airport Obstruction Removal Project.pdf Pjc Des_Mulino Obstruction Removal Project.pdf

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The Federal Aviation Administration (FAA) would like to initiate consultation with you in accordance with Section 106 of the National Historic Preservation Act of 1966, and implementing regulations 36 CFR Part 800 for the aforementioned project. We are also initiating consultation in accordance with Executive Order 13175, Consultation and Coordination with Indian and Tribal Governments and FAA Executive Order 1210.20, American Indian and Alaska Native Tribal Consultation Policy and Procedures. I have attached the APE and Project description for your review.

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
1601 Lind Ave SW - Suite 250, Renton, WA 98057-3356
425-227-2629

From:	Callahan, Sean (FAA)
To:	THPO@grandronde.org; Robert Kentta (rkentta@ctsi.nsn.us); Ms. Roberta Kirk (roberta.kirk@ctwsbnr.org)
Subject:	Government to Government Consultation
Date:	Friday, March 22, 2019 7:46:00 AM
Attachments:	Survey_Rpt_Mulino State Airport EA-CRS Rpt 3973.pdf

This letter is in furtherance of our consultation initiated with the Confederated Tribes of the Grand Ronde Community of Oregon, Warm Springs Reservation, and Siletz Indians on January 8, 2018, wherein an Area of Potential Effect (APE) and project description was prepared by a Consultant for the proposed obstruction removal and other improvements and was submitted to your office.

An Archaeological Resources Memorandum for the proposed obstruction removal was prepared by Ron L. Adams, Andrea Blaser, and Lucie Tisdale, Archaeological Investigations Northwest, Inc. to address the potential for archaeological resources. A Pedestrian survey included a walkover of the entire APE. The 240-acre APE encompasses the location of planned airport improvements as well as locations identified for obstruction removal. The APE is primarily located on state-owned land. However, a small portion of the APE along the bank of the Molalla River is located on privately owned land.

The survey of the project APE resulted in the identification of one archaeological site consisting of the remnants of a historic-period railroad (17/2634). This resource is recommended to be not eligible for listing in the National Register of Historic Places (NRHP) and no further work is recommended for the site. A historic resource survey of the Airport identified two historic-period buildings that are recommended not eligible for listing in the NRHP. The airport itself, which was established in 1949, has been extensively modified and is not eligible for listing in the NRHP as a historic district.

Based upon the findings and recommendations in the memorandum, we have determined that our Federal undertaking will have No Historic Properties Affected and request your concurrence. Should you have any questions or wish to discuss aspects of the project in further detail, please do not hesitate to contact me at the information below.

Sean Callahan
Environmental Protection Specialist
F.A.A. – Northwest Mountain Region
Seattle Airports District Office
2200 S. 216th Street, Des Moines, WA. 98198
206-231-4143

Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
www.oregonheritage.org

April 18, 2019

Mr. Sean Callahan
FAA - NW Mountain Region
Seattle Airports Dist Off
1601 Lind Ave SW, Ste 250
Renton, WA 98057-3356

RE: SHPO Case No. 18-0039
FAA, MULINO STATE AIRPORT OBSTRUCTION REMOVAL PROJECT
Remove trees and runway 14 RSA improvements, fencing
26749 S Airport Rd Long 12235.41 Lat 4512.98, Canby, Clackamas County

Dear Mr. Callahan:

Our office recently received a report about the project referenced above. We have reviewed your report and find that we are not able to concur on your findings that the archaeological site 17/2634-1 (35CL419) is not eligible for the NRHP and thus project will have no effect on any known archaeological sites.

Our office does not agree that the resource has lost enough integrity to be considered not eligible. Since many of the accompaning land features remain and the general path of the RR has not been impeeded, our office feels that it retains significant integrity to convey its importance. Our office would advise that since all that is left of the RR is the grade and associated land features a case could easily be made for no adverse effect to the resource if those elements were not going to be impacted by the undertaking.

If you have not already done so, be sure to consult with all appropriate Indian tribes regarding your proposed project. If you have any questions regarding the information required to complete our review of this project, how to address any future discovery, or thus letter, feel free to contact our office.

This letter refers to archaeological resources only. Comments pursuant to a review for above-ground historic resources will be sent separately.

Sincerely,

Jamie French, M.A.
SHPO Archaeologist
(503) 986-0729
Jamie.French@oregon.gov

Oregon
Kate Brown, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE Ste C
Salem, OR 97301-1266
Phone (503) 986-0690
Fax (503) 986-0793
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April 18, 2019

Mr. Sean Callahan
FAA - NW Mountain Region
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1601 Lind Ave SW, Ste 250
Renton, WA 98057-3356

RE: SHPO Case No. 18-0039
FAA, MULINO STATE AIRPORT OBSTRUCTION REMOVAL PROJECT
Remove trees and runway 14 RSA improvements, fencing
26749 S Airport Rd Long 12235.41 Lat 4512.98, Canby, Clackamas County

Dear Mr. Callahan:

We have reviewed the materials submitted on the project referenced above, and we concur with the determination that the Mulino State Airport, Clackamas County is not eligible for listing in the National Register of Historic Places. We also concur that the proposed undertaking will result in no historic properties affected. This letter refers to above-ground historic resources only. Comments pursuant to a review for archaeological resources were sent separately.

Unless project actions change, this concludes the requirement for consultation with our office under Section 106 of the National Historic Preservation Act (per 36 CFR Part 800) for above-ground historic properties. Local regulations, if any, still apply and review under local ordinances may be required. Please feel free to contact me if you have any questions, comments or need additional assistance.

Sincerely,

Tracy Schwartz
Historic Preservation Specialist
(503) 986-0677
tracy.schwartz@oregon.gov

Archaeological Investigations Northwest, Inc.

3510 N.E. 122nd Ave. • Portland, Oregon 97230
Phone (503) 761-6605 • Fax (503) 761-6620

Vancouver Phone (360) 696-7473
E-mail: ainw@ainw.com
Web: www.ainw.com

May 21, 2019

Mr. Sean Callahan
Environmental Protection Specialist
Federal Aviation Administration – NW Mountain Region
2200 S 216th St
Des Moines, WA 98198

Re: Mulino State Airport Obstruction Removal Project
Mulino, Clackamas County, Oregon
AINW Report No. 3973
SHPO Case No. 18-0039

Dear Mr. Callahan:

This letter is in response to the Oregon State Historic Preservation Office (SHPO) letter addressed to you dated April 18, 2019, regarding the Mulino State Airport obstruction removal project. SHPO Archaeologist, Jamie French, M.A., reviewed our report and was not able to concur with your findings of "No Historic Properties Affected" for the project. I would like to discuss the project and the proposed work within and adjacent to site 35CL419 in hopes that Ms. French will change her no concurrence and concur with a "No Historic Properties Affected."

Within the approach air space of the Mulino State Airport are Runway Protection Zones (RPZ). RPZs function as protection and safety of people and property on the ground. Maintaining clearance of RPZs by removal of obstructions, or in the case of Mulino State Airport, trees above a certain height will be removed. All of the obstructions areas are located south of the Mulino River on private property that has an avigation easement (airspace right [aviation and navigation] over a particular defined ground area).

Site 35CL419 is the remnant of an electric railroad line called the Willamette Valley Southern Railway. All that remains of the Willamette Valley Southern Railway within one of the obstruction areas is the railroad grade, which is currently a graveled road. Ms. French states, "Since many of the accompanying land features remain and the general path of the RR has not been impeded, our office feels that it retains significant integrity to convey its importance." The SHPO may be making the argument for the railroad being eligible for listing in the National Register of Historic Places (NRHP) under Criterion A for its association with broad patterns of events regarding electric railroads and transportation in the Willamette Valley.

The only remaining portion of site 35CL419 is its alignment, which is currently a graveled road. Although remnants of the Willamette Valley Southern Railway may retain integrity elsewhere on its alignment outside of the current project's Area of Potential Effects, this portion of site 35CL419, within an

obstruction area, lacks integrity. The aspects of integrity that are important for archaeological sites nominated under Criterion A are location, design, materials, and association (National Register Bulletin 36: 35). The only aspect that conveys integrity in site 35CL419 is location. There is also no corroboration that the possible levee and pole found within the site are associated with the railroad.

However, to minimize ground disturbance around the site, the client is suggesting that trees adjacent to the railroad grade (since the grade is a graveled road and no trees are on it) will be cut flush to the ground surface with the roots left intact and that the trees are fallen in a direction away from the railroad grade, if possible. The trees will be cut into manageable sections on the ground and left where fallen or hauled out on trucks driven on the railroad grade. Since the railroad grade is already used as a graveled road, vehicles driven on the surface of the railroad grade will not substantially add damage to the site than what has already been impacted. Equipment used will be hand-tools, chain saws, etc. No chaining or dragging of the trees across the grade will be allowed. An archaeological monitor can be on-hand for monitoring of the work within and adjacent to site 35CL419.

It is AINW's opinion that the removal of trees in site 35CL419 would not impact or diminish the aspect that makes the railroad significant under Criterion A, and the role it played in providing passenger and freight service to Molalla. Since the planned removal of trees, which includes cutting at the ground level and leaving roots in place, will not involve impacts to the site, AINW recommends a finding of "No Historic Properties Affected." Please let me know if you or Ms. French need additional information.

Sincerely,

Lucie Tisdale

Lucie Tisdale, M.A., RPA
Senior Archaeologist

References

Little, Barbara, et al.
2000 *Guidelines for Evaluating and Registering Archeological Properties*. National Register Bulletin No. 36. U.S. Department of the Interior, National Park Service.

APPENDIX E

WETLAND RECONNAISSANCE MEMO

ESA

819 SE Morrison Street
Suite 310
Portland, OR 97214
503.274.2010 phone
503.274.2024 fax

www.esassoc.com

memorandum

date	January 31, 2019
to	Pete Murphy P.E., Century West Engineering
cc	Project file
from	Luke Johnson and Sarah Hartung, Environmental Science Associates
subject	Mulino State Airport Runway Protection Zone Wetland Reconnaissance

The Mulino State Airport, owned and operated by the Oregon Department of Aviation (ODA), proposes to perform obstruction removal of trees near the southern approach of Runway 32. This project will be funded by the Federal Aviation Administration (FAA) and therefore must comply with the requirements of the National Environmental Policy Act (NEPA). The six study areas include locations where trees may need to be removed because they penetrate protected airspace.

The purpose of this memorandum is to identify potential jurisdictional wetlands and waterways within the study areas. Project activities in or adjacent to wetlands and waterways may require permitting with the Oregon Department of State Lands (DSL) and the US Army Corps of Engineers (Corps) if they cannot be avoided.

STUDY AREA

The study area covers six distinct reconnaissance areas, named study areas R1 through R6, totaling approximately 60 acres within the southern approach of Runway 32 (Figure 1, attached).

The legal location of the six study areas is Section 20, Township 4, Range 2 East in Clackamas County, Oregon. Surrounding land use consists primarily of agricultural and residential uses. A total of 26 tax parcels intersect the six study areas.

METHODOLOGY

ESA conducted a wetland investigation in the six study areas according to methods defined in the *Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Western Mountains, Valleys and Coast Region Regional Supplement* to the 1987 Manual. The study was conducted based on a desktop analysis and a field visit where access was granted.

The desktop analysis involved reviewing existing data sources to determine the presence of potential wetlands, or those areas with a high probability of containing the three wetland parameters - hydric soils, hydrophytic plants, and wetland hydrology. These data sources included: geospatial data from the U.S. Fish and Wildlife Service

National Wetland Inventory (NWI), the U.S. Geological Survey National Hydrography Dataset (NHD), the Natural Resources Conservation Service (NRCS) Web Soil Survey, Oregon Department of Geology and Mineral Industries (DOGAMI) State LiDAR consortium (2014), and aerial imagery (Google Earth 1994-2017). The probability of wetlands within the six study areas was rated into three categories (low, medium, and high) according to the presence of at least one of the following: topographic depressions, located above OHWL and within the floodplain, NWI wetlands, hydric soils, and non-hydric soils with hydric inclusions. Portions of the study area that did not have at least one desktop parameter were not rated and were assumed to have a very low probability.

A combination of a water resources delineation and a windshield survey of the six study areas, dependent on site access, was conducted on October 2, 2018 by a Professional Wetland Scientist and a wetland technician. For the properties where access was allowed, a water resources delineation was conducted. For sites where access was not allowed or not accessible, a windshield survey was conducted. Portions of three study areas (R1, R3, and R5) were not surveyed during the field investigation nor the windshield survey due to either no permission to access, posted no trespassing signs, or locked gates at time of survey (Table 1). The study areas accessed were evaluated for signs of wetland conditions including swales or low spots, hydrophytic vegetation, or indicators of wetland hydrology such as saturation or ponding. Four sample plots (SP) were taken among the six study areas to assess soils, hydrology, and vegetation on-site. The locations and descriptions of site conditions and features were recorded in the field using an iPad tablet and ESRI Collector for ArcGIS.

Table 1. Study Area Access Summary

Study Area	Tax lot	Permission to access	Delineation conducted for entire area	Windshield conducted for portion area	Acres within Study Area
R1	42E20 00600U1	Yes	Yes	No	5.91
	42E20 NONTL	No	No	No	2.29
R2	42E20 01101	Yes	Yes	No	1.37
	42E20 01100	Yes	No	No	0.78
	42E20 01190	No	No	No	5.13
	42E20A 01500	No	No	No	0.05
	42E20DA00700	No	No	No	0.34
	42E20DA00800	No	No	No	0.36
	42E20DA00900	Yes	No	Yes	2.87
	42E20DA00901	No	No	No	3.23
	42E20DA01000	Yes	No	Yes	0.97
	42E20DA01100	Yes	Yes	Yes	1.44
	42E20DA01300	Yes	No	Yes	3.24
	42E20DD00200	Yes	No	Yes	5.72
	42E20DD00400	No	No	Yes	10.23
	42E20DD00500	No	No	Yes	2.89
	42E20DD00600	Denied	No	No	3.54
	42E20DD00604	Denied	No	No	0.40
	42E20DD00700	No	No	Yes	0.69
	42E29A 00300	No	No	No	3.13
R4	42E29A 00403	Yes	Yes	No	0.44
R5	42E29A WATER	Not sure	No	No	0.24
	42E29A 00300	Not sure	No	Yes	0.58

Study Area	Tax lot	Permission to access	Delineation conducted for entire area	Windshield conducted for portion area	Acres within Study Area
R6	42E29A 00403	Yes	Yes	No	1.39

DESKTOP FINDINGS

Nine portions of three study areas were identified in the wetland probability rating. Six areas were rated with high probability of wetlands. Only portions of study areas where a wetland delineation could not occur were included in the rating. Areas where a wetland delineation could occur, as described above, are summarized in a wetland delineation report for the project. Results of the wetland probability rating are shown in **Figure 3** and summarized in Table 2.

Table 2. Wetland Probability Rating

Study Area	Code	Probability Rating	Acres	Taxlots	Rationale
R1	R1a	High	0.13	42E20 NONTL	NWI wetlands; Topographic depressions; Within floodplain
	R1b	High	0.19	42E20 00600U1	
R3	R3a	High	1.23	42E20 01190	Mapped hydric soils; Within floodplain
	R3b	Medium	3.70	42E20 01190 42E20DD00400 42E29A 00300	Topographic depressions; Within floodplain
	R3c	High	0.06	42E29A 00300	Mapped hydric soils; Within floodplain
	R3d	Low	17.86	42E20DA00700 42E20DA00800 42E20DA00900 42E20DA01000 42E20DA01100 42E20DA01300 42E20DD00200 42E20DD00400 42E20DD00500 42E20DD00600 42E20DD00604 42E20DD00700	Non-Hydric soils (5% hydric inclusions); On river terrace
	R3e	High	0.07	42E29A 00300	Mapped hydric soils; Within floodplain
R5	R5a	Low	0.37	42E29A 00200	Non-Hydric soils (5% hydric inclusions); On river terrace
	R5b	High	0.19	42E29A 00300	Mapped hydric soils; Within floodplain

NATIONAL WETLAND INVENTORY

Study areas R1 and R2 contain approximately two acres of three different NWI mapped wetland types (Figure 1). These features are freshwater forested (PFO1A), freshwater shrub (PSS1F), and riverine (R3UBG) wetlands within the Molalla River floodplain. Table 3 summarizes the NWI wetlands mapped within each study area.

Table 3. Mapped NWI wetlands within the Study Areas

Study Area	Map Unit Name	Acres	Percent of Study area
R1	Freshwater forested/shrub (PFO1A)	0.67	8.1%
	Riverine (R3UBH)	1.00	12.0%
R2	Freshwater forested/shrub (PSS1F)	0.37	16.0%
	Riverine (R3UBH)	0.19	8.2%
R3 – R6	N/A	0	0

SOILS

Seven mapped soil units occur in the six study areas; only one mapped soil unit is considered hydric (NRCS, 2018). When combined with a local relief or hydrology that is conducive to wetland conditions, non-hydric soil units with greater than 2-percent hydric inclusions have a high likelihood to contain hydric soils. Five mapped soil units contain at least two-percent hydric inclusions. The one hydric soil within the study areas is Riverwash, which is a well-drained and frequently flooded soil comprised of stratified sand to gravel. Table 4 summarizes the mapped soil units within the study area.

Table 4. Mapped Soil Units in the Study area

Map Unit Symbol	Map Unit Name	Hydric Soil	Hydric Inclusions Present?	Landform of hydric inclusions	Study Areas
1A	Aloha silt loam, 0 to 3 percent slopes	No	Yes – 5%	Terraces	R3
1B	Aloha silt loam, 3 to 6 percent	No	Yes – 5%	Terraces	R3, R5
11	Camas gravelly sandy loam	No	Yes – 2%	Floodplains	R1, R2, R3, R4
19	Cloquato silt loam	No	Yes – 5%	Floodplains	R6
67	Newberg fine sandy loam	No	Yes – 3%	Floodplains	R1, R3
73	Riverwash	Yes	N/A	N/A	R2, R3, R5
92F	Xerochrepts and Haploxerolls, very steep	No	No	Terraces	R3, R5

TOPOGRAPHY

Four of the six study areas (R1, R2, R4, and R6) are on the west side of the Molalla River and are located within the floodplain. These four study areas range in elevation from approximately 215 - 235 feet above mean sea level. Using 2-foot elevation contours several depressions and swales were identified within the four study areas

located in the west floodplain. The northwest portions of study area R1 are have some of the lowest elevations of the six study areas, ranging from approximately 215 - 220 feet above mean sea level.

The majority of the two study areas located on the east side of the Molalla River (R3 and R5) range in elevation from approximately 225 – 280 feet above mean sea level. The southwest portions of study area R3 include a floodplain bench that ranges in elevation from 225 - 230.

FIELD SURVEY FINDINGS

A total of 0.27 acre of wetland was delineated in the field using routine delineation methods. These wetlands were included in the December 2018 Wetland Delineation Report for the Mulino State Airport. Additionally, 4.45 acres of a perennial river (Molalla River) was delineated. Wetlands S1 and S2 are located within study area R6. The ordinary high water line (OHWL) of the Molalla River was identified during the desktop analysis in five of the six study areas and was delineated in the field in three study areas (R1, R2, and R3). All of the water resources mapped by this investigation extend outside of the survey areas (Attachment 1, Figure 1). A total of three sample plots (SP) were taken during this wetland reconnaissance. Table 5 below summarizes the water resources delineated within the six study areas.

MOLALLA RIVER

The Molalla River is a 51-mile free-flowing tributary of the Willamette River that flows northwest from its headwaters near Table Rock Wilderness to its confluence near river-mile 36 of the Willamette. At the point that it enters study area R5, approximately river-mile 13, the Molalla River completes a north-west meander (Attachment 1, Figure 1).

Five of the six study areas contain a segment of the Molalla River OHWL (Table 5). The combined reach length of the Molalla River within the five study areas is approximately 4,000 linear feet (0.75 miles). The width of the river at ordinary high water (OHW) ranges from 180 to 215 feet. At the most upstream study area (study area R5), the river can be characterized as a large center channel scour pool downstream of a point bar along the west bank (Attachment 1, Figure 1). The most downstream portion of the OHWL (study area R1) is a river right scour pool that follows a two-channel riffle complex divided by an island.

The OHWL of the Molalla River was delineated in study areas R1, R2, and R4 using field indicators such as a vegetation break (a line indicating a shift in vegetation communities), deposition of debris, scour line, and water staining. For study areas where river access was not provided (R3, R5, R6), the OHWL was digitized during the desktop analysis using aerial photography and elevation contour data. The vegetation in the narrow, riparian corridor is composed principally of red alder (*Alnus rubra*, FAC), young cottonwood (*Populous balsamifera*, FAC), shrubby willow (*Salix* sp.), and several exotic species including extensive infestations of Himalayan knottweed (*Polygonum polystachyum*, FAC), English ivy (*Hedera helix*, NL), Himalayan blackberry, sweet cherry (*Prunus avium,* FACU), reed canary grass, Scotch broom (*Cytisus scoparius*, NL), and vinca (*Vinca major*, NL).

Table 5. Water resource delineation summary

Feature	Size (ac) in study area	HGM	Cowardin Class	Potentially Jurisdictional?*		Study Areas
				DSL	Corps	
Wetland S1*	0.17	Slope	Palustrine Scrub-Shrub	Yes	Yes	R6
Wetland S2*	0.10	Slope	Palustrine Scrub-Shrub	Yes	Yes	R6
Molalla River	4.45	Riverine	Riverine, Lower Perennial, Unconsolidated Bottom	Yes	Yes	R1, R2, R3, R4, R5

*Included in the December 2018 Wetland Delineation Report

CONCLUSION AND RECOMENDATION

For areas of R1, R3, and R5 where a wetland delineation could not be conducted, the likelihood of wetland presence was assigned a low, medium or high probability rating based on NWI, soil mapping, and landform (Table 1). An on-site wetland determination and staking of potential wetland boundaries is recommended for medium and high probability areas if trees are proposed be removed (Figure 3).

REFERENCES

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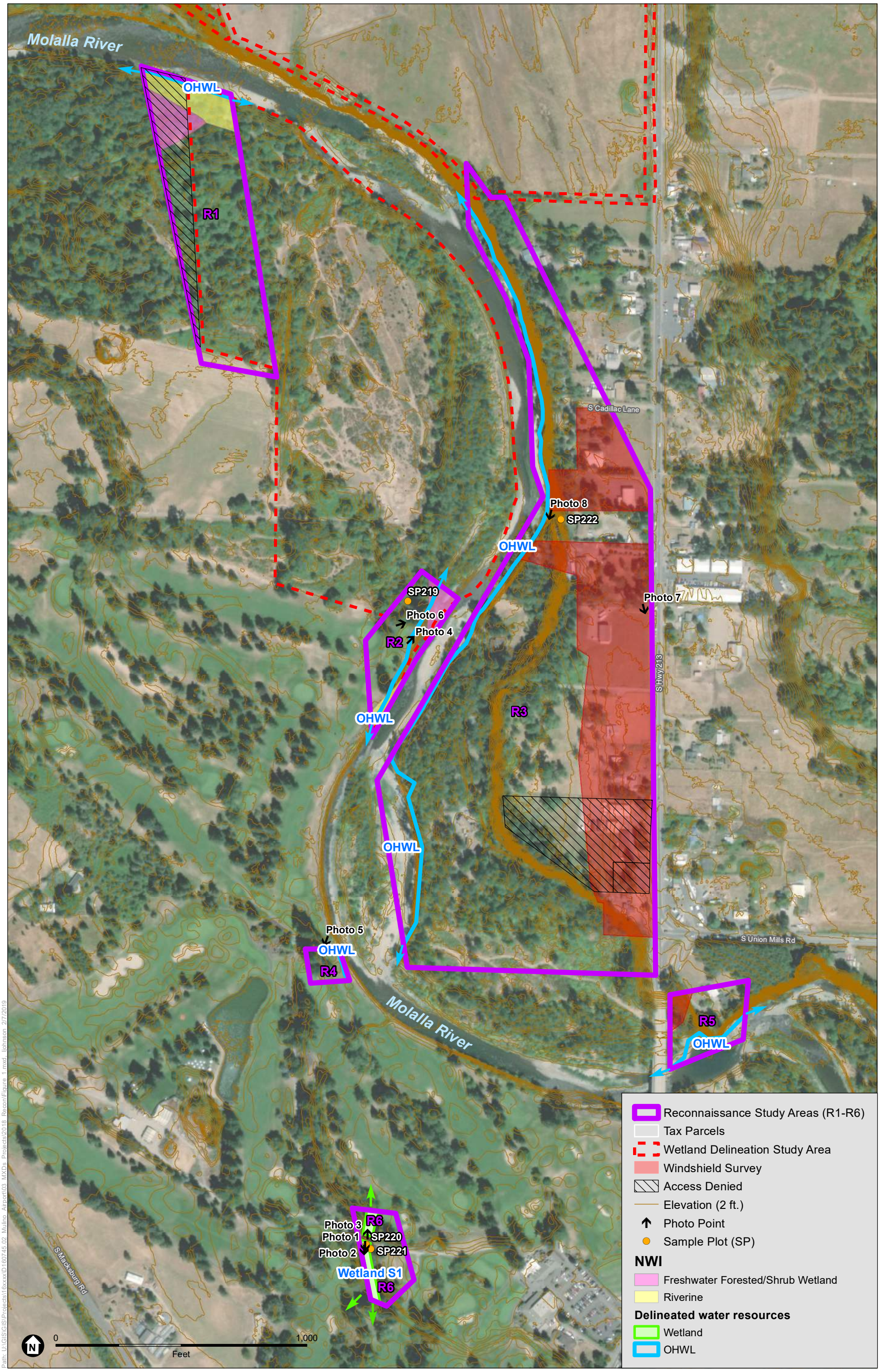
U.S. Geological Survey National Hydrography Dataset. Updated August 3, 2017. https://nhd.usgs.gov/NHD_High_Resolution.html Website accessed November 7, 2018.

Attachment 1:

Figure 1 – Overview

Figure 2 – Soils

Figure 3 – Wetland Detail



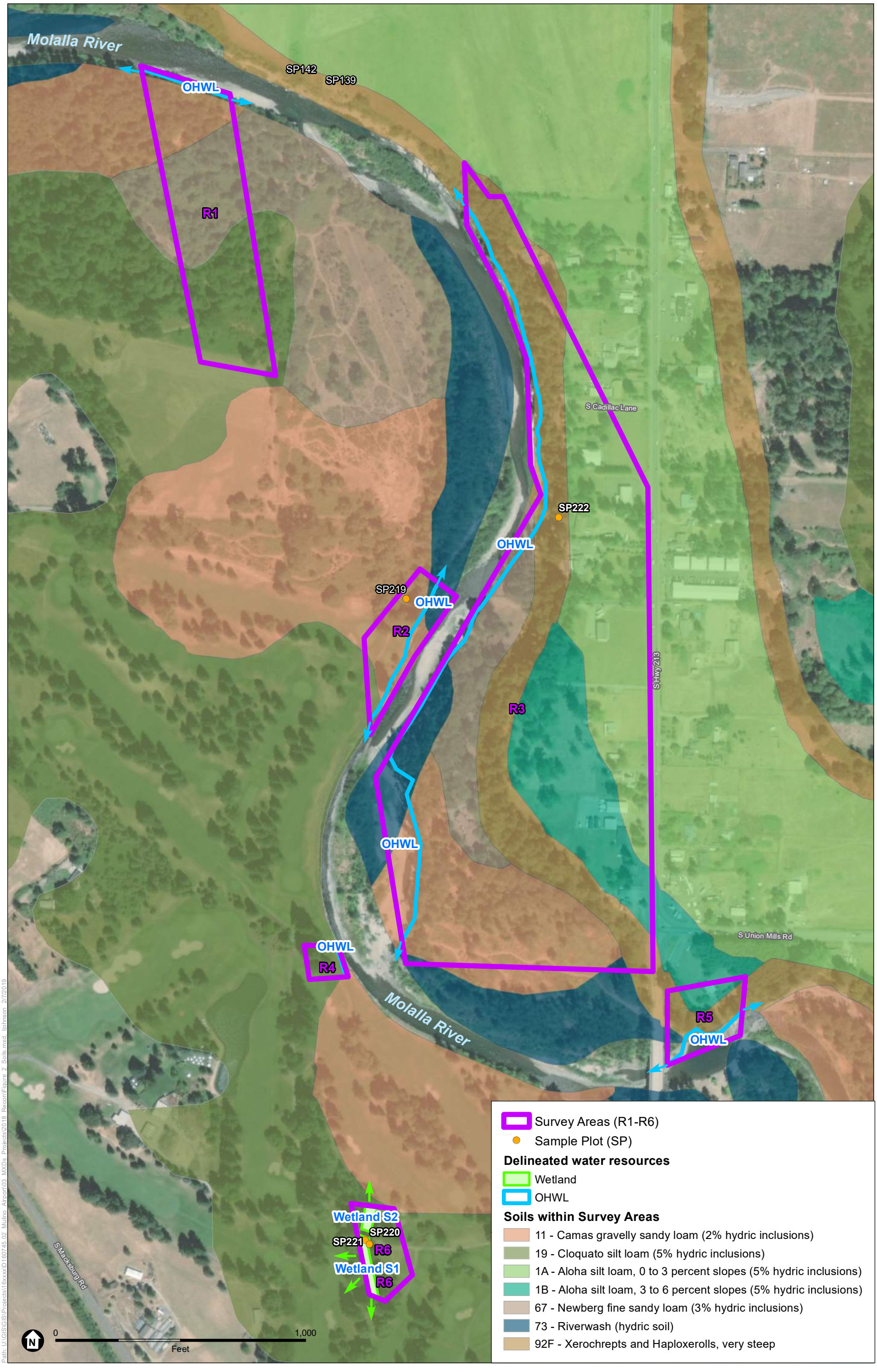
SOURCE: ESA, 2017; USDA NAIP, 2016; Open Street Maps, 2016; RLIS, 2017; DOGAMI LiDAR, 2014

NOTE: Study Areas R2, R4, and the east portion of R1 (within wetland delineation Study Area) were included in December 2018 Wetland Delineation Report.

160745.02 Mulino Airport Wetland Delineation

Figure 1: Study Areas
Mulino State Airport Wetland Reconnaissance
Clackamas County, OR

ESA



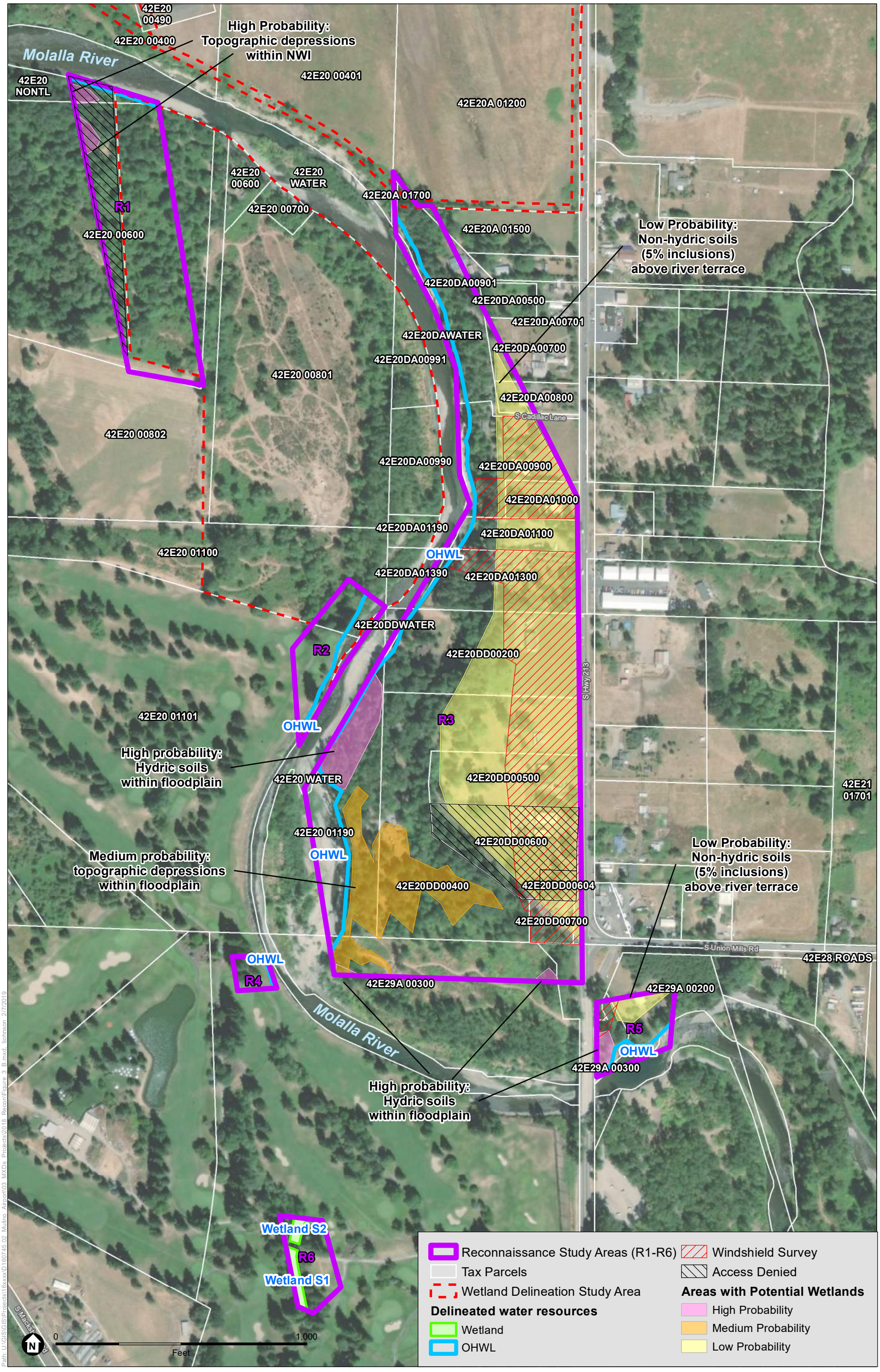
SOURCE: ESA, 2017; USDA NAIP, 2016; Open Street Maps, 2016; RLIS, 2017

NOTES: Study Areas R2, R4, and the east portion of R1 (within wetland delineation Study Area) were included in December 2018 Wetland Delineation Report.

160745.02 Mulino Airport Wetland Delineation

Figure 2: Soils
Mulino State Airport Wetland Reconnaissance
Clackamas County, OR

ESA



Path: U:\GIS\GIS\Projects\16xxxx\D160745.02_Mulino_Airport\03_MXDs_Projects\2018_Recon\Figure_3_B.mxd_lohnson_2/7/2019

SOURCE: ESA, 2017; USDA NAIP, 2016; Open Street Maps, 2016; RLIS, 2017

NOTE: Study Areas R2, R4, and the east portion of R1 (within wetland delineation Study Area) were included in December 2018 Wetland Delineation Report.

160745.02 Mulino Airport Wetland Delineation

Figure 3: Potential Wetland Areas
Mulino State Airport Wetland Reconnaissance
Clackamas County, OR

ESA

Attachment 2:

Datasheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Mulino State Airport | City/County: Clackamas County | Sampling Date: 2-Oct-2018
Applicant/Owner: Oregon Department of Aviation | State: OR | Sampling Point: SP219
Investigator(s): Sarah Hartung and Luke Johnson | Section, Township, Range: T4S,R2E,sec20
Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR): A - Willamette Meridian | Lat: 45.198028 | Long: -122.585389 | Datum: NAD83
Soil Map Unit Name: Cloquato silt loam | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present' Yes X No ____
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	
Hydric Soil Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	40	1	FACU
2. Pseudotsuga menziesii	5		FACU
3. Fraxinus latifolia	5		FACW
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	55	1	FAC
2. Symphoricarpos albus	15	1	FACU
3.			
4.			
5.			
	70	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Polystichum munitum	5		FACU
2. Phalaris arundinacea	30	1	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	35	= Total Cover	
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1=	
FACW species	x 2=	
FAC species	x 3=	
FACU species	x 4=	
UPL species	x 5=	
Column Totals: (A)		(B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:
____ 1- Rapid Test For Hydrophytic Vegetation
____ 2- Dominance Test is >50%
____ 3- Prevalence Index is ≤3.0[1]
____ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5- Wetland Non-Vascular Plants[1]
____ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP219

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	100					Si lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matr

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches):	NA	
Water Table Present?	Yes ___	No X	Depth (Inches):	>16	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches):	>16	

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Mulino State Airport | City/County: Clackamas County | Sampling Date: 2-Oct-2018
Applicant/Owner: Oregon Department of Aviation | State: OR | Sampling Point: SP220
Investigator(s): Sarah Hartung and Luke Johnson | Section, Township, Range: T4S,R2E,sec20
Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): Concave | Slope (%): 3
Subregion (LRR): A - Willamette Meridian | Lat: 45.198113 | Long: -122.585447 | Datum: NAD83
Soil Map Unit Name: Cloquato silt loam | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present' Yes X No ____
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes X** **No ____**

Remarks: Right Creek

Used to have diversion flow from the Mollala. Moist but not saturated.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	20	1	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5' R)			
1. Impatiens noli-tangere	50	1	FACW
2. Phalaris arundinacea	50	1	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1=
FACW species	x 2=
FAC species	x 3=
FACU species	x 4=
UPL species	x 5=
Column Totals: (A)	(B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:
____ 1- Rapid Test For Hydrophytic Vegetation
X 2- Dominance Test is >50%
____ 3- Prevalence Index is ≤3.0[1]
____ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5- Wetland Non-Vascular Plants[1]
____ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No ____**

Remarks: Right Creek

SOIL

Sampling Point: SP220

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100						
9-16	10YR 3/2	92	10YR 3/6	8	C	M	Si lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matr

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches):	NA	
Water Table Present?	Yes ___	No X	Depth (Inches):	>16	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches):	>16	**Wetland Hydrology Present? Yes X No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available

Remarks: Used to have diversion flow from the Mollala. Moist but not saturated.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Mulino State Airport | City/County: Clackamas County | Sampling Date: 2-Oct-2018
Applicant/Owner: Oregon Department of Aviation | State: OR | Sampling Point: SP221
Investigator(s): Sarah Hartung and Luke Johnson | Section, Township, Range: T4S,R2E,sec20
Landform (hillslope, terrace, etc.): Top of slope | Local relief (concave, convex, none): Convex | Slope (%): 3
Subregion (LRR): A - Willamette Meridian | Lat: 45.198069 | Long: -122.585381 | Datum: NAD83
Soil Map Unit Name: Cloquato silt loam | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present' Yes X No ____
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Top of natural swale called Right Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	5		FACU
2. Pseudotsuga menziesii	30	1	FACU
3.			
4.			
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	55	1	FAC
2. Acer macrophyllum	5		FACU
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Hypochaeris radicata	5	1	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5	= Total Cover	
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1= ____
FACW species ____	x 2= ____
FAC species ____	x 3= ____
FACU species ____	x 4= ____
UPL species ____	x 5= ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:
____ 1- Rapid Test For Hydrophytic Vegetation
____ 2- Dominance Test is >50%
____ 3- Prevalence Index is ≤3.0[1]
____ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5- Wetland Non-Vascular Plants[1]
____ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Top of natural swale called Right Creek

SOIL

Sampling Point: SP221

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	100					Si lo	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matr

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches):	NA	
Water Table Present?	Yes ___	No X	Depth (Inches):	>16	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches):	>16	

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Mulino State Airport | City/County: Clackamas County | Sampling Date: 2-Oct-2018
Applicant/Owner: Oregon Department of Aviation | State: OR | Sampling Point: SP222
Investigator(s): Sarah Hartung and Luke Johnson | Section, Township, Range: T4S,R2E,sec20
Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 25
Subregion (LRR): A - Willamette Meridian | Lat: 45.206093 | Long: -122.582733 | Datum: NAD83
Soil Map Unit Name: Xerochrepts and haploxerolls, very steep | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Dave's property
Dry rocky slope next to roadfill, no soil pit

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30' R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	30	1	FACU
2. Pseudotsuga menziesii	40	1	FACU
3.			
4.			
	70	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30' R)			
1. Rubus armeniacus	55	1	FAC
2. Sambucus racemosa	10		FACU
3. Symphoricarpos albus	10		FACU
4.			
5.			
	75	= Total Cover	
Herb Stratum (Plot size: 5' R)			
1. Schedonorus arundinaceus	5	1	FAC
2. Daucus carota	10	1	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: 30' R)			
1.			
2.			
	____	= Total Cover	

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1= ____
FACW species ____	x 2= ____
FAC species ____	x 3= ____
FACU species ____	x 4= ____
UPL species ____	x 5= ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:
____ 1- Rapid Test For Hydrophytic Vegetation
____ 2- Dominance Test is >50%
____ 3- Prevalence Index is ≤3.0[1]
____ 4- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
____ 5- Wetland Non-Vascular Plants[1]
____ 6- Problematic Hydrophytic Vegetation[1](Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Dave's property

SOIL

Sampling Point: SP222

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matr

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ **No X**

Remarks: Dry rocky slope next to roadfill, no soil pit

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery(B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (Inches):	NA	
Water Table Present?	Yes ___	No X	Depth (Inches):	>16	
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (Inches):	>16	

Wetland Hydrology Present? Yes ___ **No X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available

Remarks:

Attachment 3

Photos

Photo: 1	Looking: South	Notes: South of culvert inlet at north end of Wetland S1 looking south on Right Creek within Arrowhead golf course.

Photo: 2	Looking: South	Notes: Within swale and north of culvert inlet at south end of Wetland S1 looking north on Right Creek within Arrowhead golf course.

Photo: 3	Looking: North	Notes: South of culvert outlet at south end of Wetland S2 looking north on Right Creek of Arrowhead golf course.

Photo: 4	Looking: Northeast	Notes: Within study area R2 on river left (west) bank of Molalla River

Photo: 5	Looking: Southwest	Notes: Near northern edge of study area R5

Photo: 6	Looking: Northeast	Notes: Near Sp219 and near edge of golf course

Photo: 7	Looking: South	Notes: On driveway near edge of property access

Photo: 8	Looking: South	Notes: On accessed property near Sp222 and at toe of secondary river bluff

Oregon
Kate Brown, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

November 30, 2018

Oregon Department of Aviation
Attn: Matthew Maass
3040 25th Street SE
Salem, OR 97302

Re: WD # 2018-0480 Wetland Delineation Report for Aurora State Airport Improvements; Marion County; T4S R1W Sec. 2A, Tax Lots 90008, 90009, 90012, 90016 and Portions of 500, 501, 700, 90000, and 90010;
Marion County; T4S R1W Sec. 2D, Portions of Tax Lots 100 and 200

Dear Mr. Maass:

The Department of State Lands has reviewed the wetland delineation report prepared by ESA for the site referenced above. Please note that the study areas include only a portion of the tax lots described above (see the attached map). Based upon the information presented in the report, and additional information submitted upon request, we concur with the wetland boundaries as mapped in Figure 5 of the report. Please replace all copies of the preliminary wetland map with this final Department-approved map.

Within the study area, two wetlands were identified. However, the wetlands are exempt per OAR 141-085-0515 (7)(c); therefore, neither feature is subject to the requirements of the state Removal-Fill law.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will determine jurisdiction for purposes of the Clean Water Act.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5271 if you have any questions.

Sincerely,

Daniel Evans, PWS
Jurisdiction Coordinator

Approved by _____
Peter Ryan, PWS
Aquatic Resource Specialist

Enclosures

ec: Sarah Hartung, ESA
Marion County Planning Department (Maps enclosed for updating LWI)
Andrea Wagner, Corps of Engineers
Mike De Blasi, DSL