Report #

SHPO Use

Year: 2020

State Historic Preservation Office Report Cover Page

Title: Archaeological Reconnaissance Survey for the Airport Way and 82nd Avenue Interchange Project, Multnomah County, Oregon

REPORT

Author(s): Michelle North, Donald Shannon, Todd Ogle, and Breanne Taylor

Agency/Client: HDR Engineering, Inc., Portland, Oregon

District/Contractor: Willamette Cultural Resources Associates, Ltd., Portland, Oregon

Agency/Client Report#: WillametteCRA 20-16 Project Acres: 61.5 Survey Acres: 61.3

LOCATION

County(ies): Multnomah

Township:		Range:		Section(s):	Township:		Range:		Section(s):
1	N	2	E	8, 9, 16, 17					

TESTING

Archaeological Permit Number(s): n/a Accession Number: n/a

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

Report Addresses Testing: ☐

CONSULTATION

Have tribes been contacted or consulted? No List tribes:

List any other groups contacted or consulted:

PA/ MOA

Report is associated with: PA ☐ MOA ☐

REPORTS WITHOUT A COMPLETE AND ACCURATE COVER PAGE AND APPROPRIATE ADDITIONAL PAGES MAY BE RETURNED. CHECK THE SHPO WEBSITE TO MAKE SURE YOU HAVE THE MOST CURRENT VERSION.

Report #

SHPO Use

State Historic Preservation Office Report Summary of Resources and NRHP Eligibility

RESOURCES

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

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

NRHP ELIGIBILITY

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

Oregon On-Line Form #:	Trinomial: Temp# or Name:	Criterion A:	Criterion B:	Criterion C:	Criterion D:

Legal description: T1N, R2E, Sec. 16, 17, 8, 9
County: Multnomah
USGS quad: *Mount Tabor, OR*
Project Acreage: ~85
Acres Surveyed: ~83
Findings: Negative
Fieldnotes: WillametteCRA
Curation: N/A

Archaeological Reconnaissance Survey for the Airport Way and 82nd Avenue Interchange Project Multnomah County, Oregon

Prepared by
Michelle North, M.S.
David Ellis, M.P.A.
Todd Ogle, M.A.
Breanne Taylor, M.A.

November 17, 2020

Prepared for
HDR Engineering, Inc.
Portland, Oregon

Willamette Cultural Resources Associates, Ltd.

Portland and Seattle

WillametteCRA Report Number 20-16

Table of Contents

Introduction 1
Environmental and Cultural Setting 4
Environmental Setting 4
Regional Precontact Archaeological Context 5
Native Peoples 7
Historic Background and Map Review 10
Previous Investigations 12
Previous Archaeology 12
Previously Recorded Historic Properties 18
Methods 18
Expectations 18
Pedestrian Survey Methods 19
Results 19
Central Area 19
NE Area 23
S Area 25
Conclusions and Recommendations 25
References Cited 27

List of Figures

Figure 1. Project location map. 2
Figure 2. Project configuration map on a modern aerial 3
Figure 3. 1852 GLO map with API in black. 11
Figure 4. 1860 GLO map with API in black. 11
Figure 5. 1897 USGS topographic map. 12
Figure 6. 1940 USGS topographic map. 13
Figure 7. Filling in process for the original airport's north and south runway in 193613
Figure 8. The Portland-Columbia Airport in 1938. 14
Figure 9. Map depicting possible shovel probing locations in the API. 20
Figure 10. Project API south side of Airport Way 21
Figure 11. Possible shovel probing location on the north side of Airport Way 22
Figure 12. Overview of survey area along the south side of Airport Way 22

Figure 13. Drainage and possible shovel probing location along NE 82nd Ave. 23
Figure 14. NE Area, unpaved strip and part of gravel lot 24
Figure 15. Overview of S Area.....25

List of Tables

Table 1. Previous Archaeological Studies within 1 mi. of the Project API. 15
Table 2. Previously Recorded Archaeological Resources within 1 mi. of the Project API.....17

Introduction

On behalf of the Port of Portland, HDR Engineering, Inc. (HDR), contracted Willamette Cultural Resources Associates (WillametteCRA) to conduct an archaeological baseline survey and literature review in advance of the Airport Way and 82nd Avenue Interchange project. The Port of Portland is proposing grade separating the eastbound travel lanes to improve traffic operations at the intersection of 82nd Ave and Airport way, in Portland OR (Figures 1 and 2). The project is located in Township 1 North, Range 2 East, sections 8, 9, 16, and 17, Willamette meridian (see Figure 1). The proposed project would include elevating eastbound NE Airport way, installing U-turns, enhancing pedestrian and bike crossings, adding an eastbound auxiliary lane between NE 82nd and the NE Mt Hood Avenue Interchange, and associated utility relocation and installation.

WillametteCRA's investigation consisted of background research, records review, and a pedestrian survey of the project API. WillametteCRA reviewed records on file with the Oregon State Historic Preservation Office (SHPO) to identify nearby areas previously subject to archaeological studies and previously recorded archaeological sites that may be impacted by the proposed project. WillametteCRA also examined historical maps and records to assess the potential for historic-period archaeological resources. On May 8th, 2020 WillametteCRA archaeologists Michelle North and Patrick Reed conducted a pedestrian survey of the API. Michelle North returned to conduct supplemental survey on May 21st and September 2nd after the project Area of Potential Impact (API) was modified. This report presents the details of our investigation and provides recommendations for future work.

The project is taking place on land owned by the Port of Portland. There is no federal nexus at this time, but the current investigation was undertaken in anticipation of eventual federal funding for the project that would require compliance with Section 106 of the National Historic Preservation Act.

The Project API is located on a total of approximately 85 acres situated in northeast Portland, just south of the Columbia River (see Figures 1 and 2). The API is heavily developed, with paved surfaces present over much of the areas slated for improvement. We have divided the API into three discrete areas to organize our discussion (see Figure 2):

1. The Central Area follows Airport way on both sides continuously for approximately 1.9 kilometers (km) (1.2 miles [mi.]), and from the intersection with NE 82nd Ave south along this road for approximately 400 meters (m) (1300 feet [ft.]), branching out to encompass a large lot to the west. This area occupies approximately 81 acres.

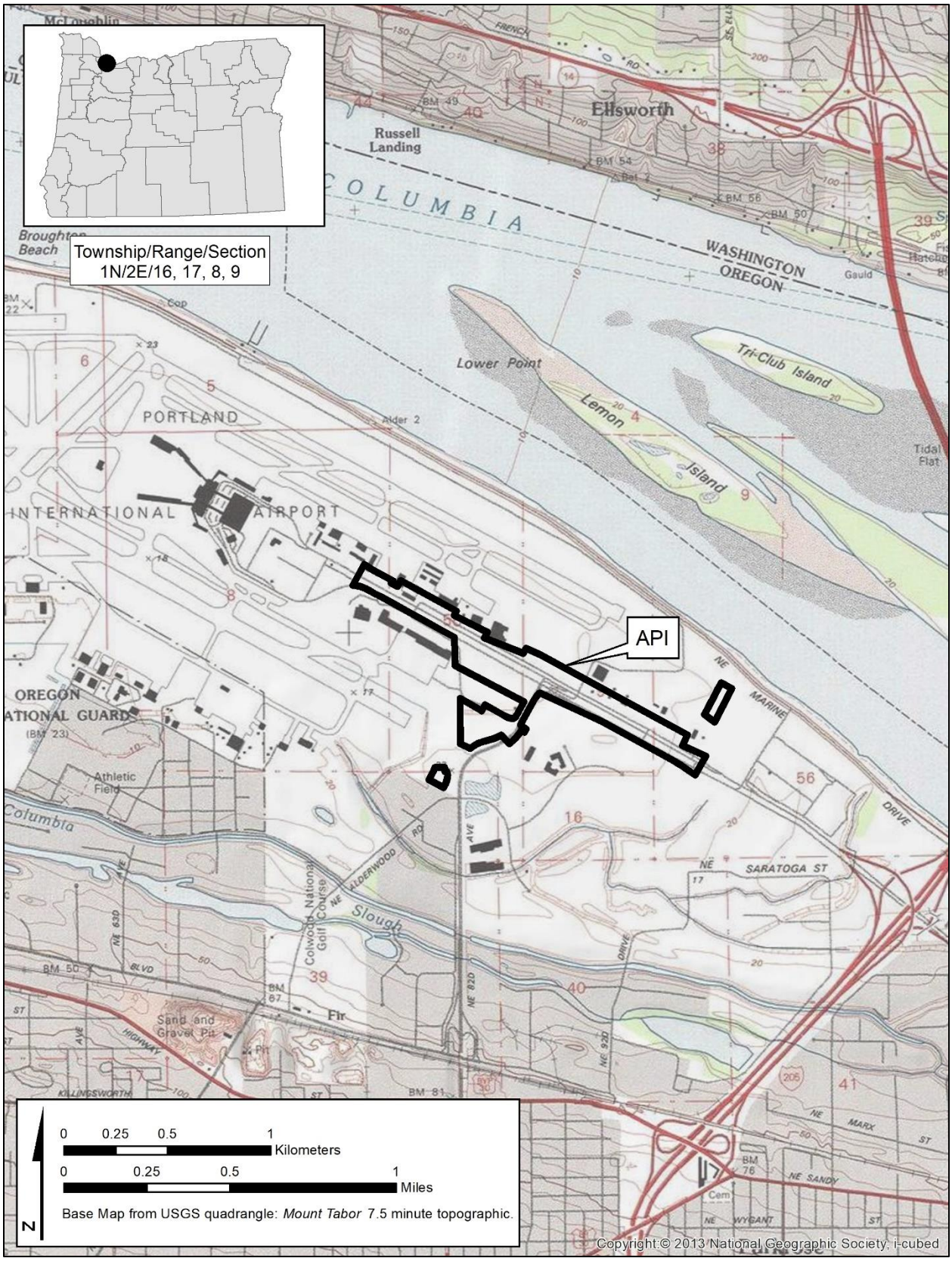


Figure 1. Project location map.

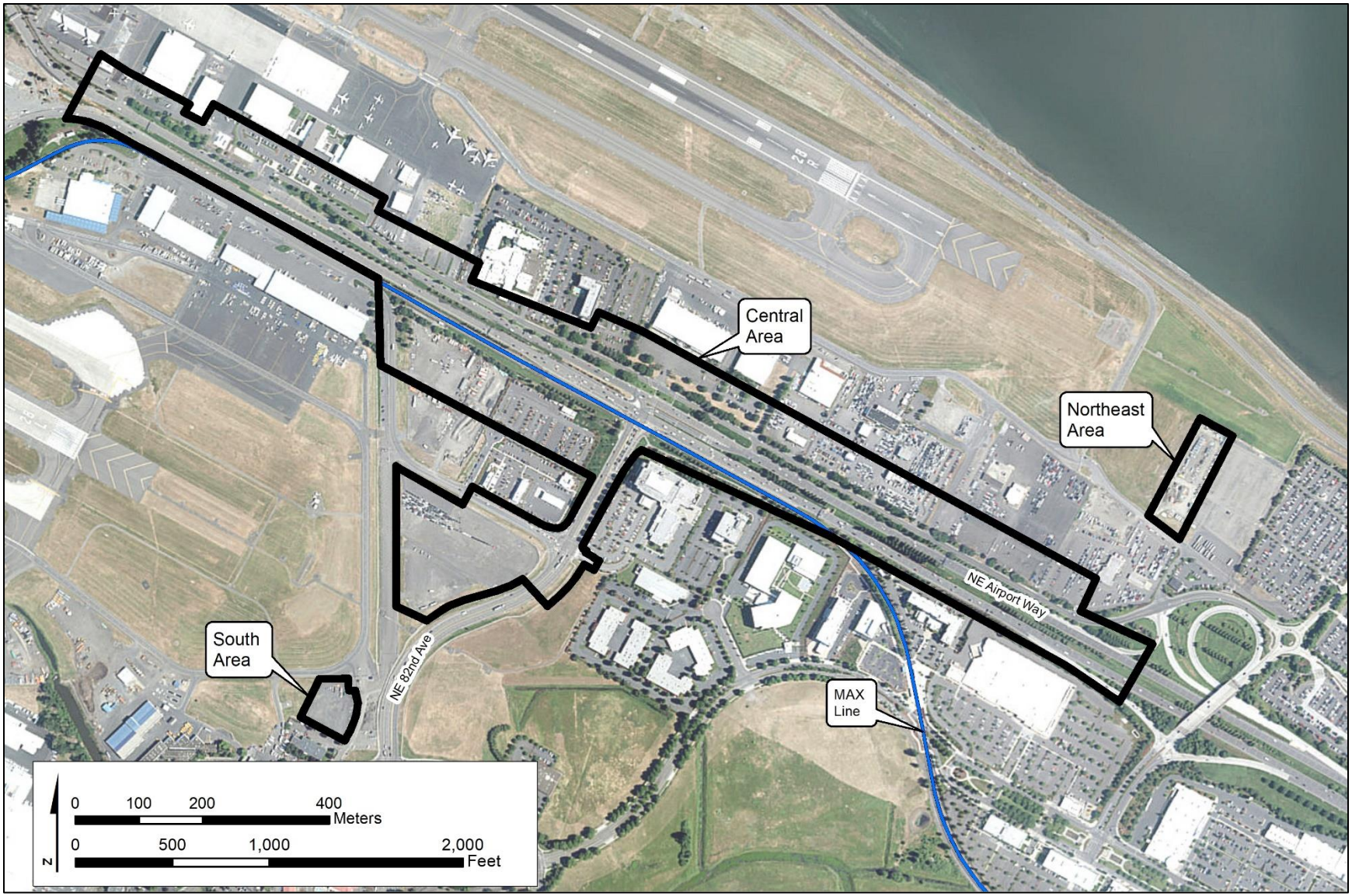


Figure 2. Project configuration map on a modern aerial

2. The NE Area is a separate lot that encompasses 2.5 acres located to the northeast of the Central Area. This area is located closest to the Columbia River.

3. The S Area is located on an approximately 1.5-acre lot to the south of the Central Area, to the northwest of the intersection of NE 82nd Ave and NE Alderwood Rd.

Environmental and Cultural Setting

Environmental Setting

The project is located in the Columbia River floodplain within the Willamette Valley, a broad structural depression bounded to the west and east respectively by the Coast and Cascade mountain ranges. This physiographic province is characterized by gently sloping alluvial flats and low hills (Franklin and Dyrness 1988). The valley's near-surface sediments are the result of a series of late-Pleistocene glacial outburst floods (i.e., the "Missoula" or "Bretz" floods) that scoured eastern Washington and the Columbia Gorge. These floods formed large temporary lakes behind chokepoints, including Lake Allison that inundated the Willamette Valley, reaching over 350 feet (ft.) above mean sea level (amsl). These floodwaters deposited large amounts of fine sediment throughout the valley and rafted large glacial erratics as far south as Eugene (O'Connor et al. 2001). Following the cessation of the late Pleistocene flood events, local streams eventually resumed normal drainage, deposited alluvium across the landscape, and incised their modern channels.

A combination of sea level change, regional subsidence, Cascade uplift, and sedimentary infilling have resulted in drastic changes to the Columbia River floodplain during the Holocene (last 10,000 years). Based on the identification of Mazama ash in cores at the I-205/Airport Way interchange, it is apparent that approximately 15 m (50 ft.) of alluvial sediment has accumulated over the last 6,800 years in the project vicinity (Gates 1994:80, 199, Figure 24).

In the Portland Basin, geologists have identified three main Holocene age geomorphic surfaces: the Winkle, Ingram, and Horseshoe terraces. The oldest of these formations, the Winkle terrace, is found between 15 and 30 m (50-100 ft.) amsl, well above the project vicinity. The Ingram terrace, found between 15 m (50 ft.) amsl and near the current Columbia River elevation, is estimated to be between 5,000 and 550 years old. Much of the Columbia River floodplain is part of the Ingram terrace. The more recent Horseshoe terrace is found within incised sloughs and tributary channels, and is subject to periodic erosion and deposition associated with annual floods. The Ingram terrace is typically associated with Sauvie and Quatama soils, and the Horseshoe terrace is dominated by Rafton and Pilchuck soils (Kuper and Lawes 1994:9-11). Soils in the API are mapped as Pilchuck-Urban land complex, Rafton silt loam, and Sauvie silt loam (NRCS 2020).

The Pilchuck series consists of very deep, excessively and somewhat excessively drained soils that form in gravelly and sandy alluvium. Pilchuck soils are found on flood plain environments. Urban complex soils include soils that have been disturbed, and areas covered by structures or pavement. Rafton series soils consist of very deep, very poorly drained soils that formed in recent silty alluvium. Like the Pilchuck series, these soils are found on flood plains. Sauvie silt loam consists of deep, poorly drained soils that form mainly in alluvium on the Columbia River flood plain. Soils within the project area are currently protected from inundation or erosion by dikes and levees.

The project API is located on the southern Columbia River floodplain. The distance of the API from the river ranges from about 150 m (500 ft.) to 1.4 km (0.9 mi.). The elevation ranges from 20 to 33 ft. amsl. The vicinity is in a developed area, and the vast majority is either paved, heavily landscaped, or modified by the importation of fill and the construction of below ground utilities.

Vegetation, where present within the project API, consists of grasses, ornamental shrubs, rhododendron (*Rhododendron ferrugineum*), cedar (*Cedrus sp.*), pine (*Pinus sp.*), ash (*Fraxinus sp.*), and oak (*Quercus sp),* among others. Vegetation was generally densest in the landscaped road right of way. However, much of the area is developed and lacked vegetation.

As mapped in 1852 (General Land Office [GLO] 1852), the entire project vicinity was a large "wet prairie" and associated complex network of shallow sloughs, lakes, and ponds. This setting changed very little until the initiation of diking and drainage projects on the floodplain in the late 1910s and through the 1920s and 1930s. The annual spring floods on the Columbia largely prevented any agricultural use of the floodplain other than grazing cattle and producing forage crops for hay. Construction of the Columbia River dike in 1919 ended the threat of flooding except in exceptional years (e.g., the 1948 Vanport flood) and allowed production of row crops. Many of the smaller wetlands in the area were drained by Multnomah County Drainage District in the 1920s and 1930s.

Regional Precontact Archaeological Context

Northwest precontact archaeology focuses broadly on land-use, or the strategies people employ for interacting with their physical and cultural environment (Aikens et al. 2011; Draper 1988; Jenkins et al. 2004; Schalk et al. 1994). At its most basic, land-use is related to mobility, which revolves around the frequency a group's primary residence is moved. Archaeologists artificially divide mobility into two types to simplify its study: residential and logistical, which are points on a continuum (Schalk et al. 1994). In residentially mobile systems (often termed foragers in the archaeological literature), people move their primary residence (i.e., residential base camp, base camp) regularly, often with some frequency. As a result, sites are broadly similar in content and little differentiation among sites is evident.

In logistically mobile systems (or collectors), the primary residence (i.e., village, residential base, hamlet) is rarely moved, sometimes not at all. Here, the primary residence is relatively permanent, often occupied year-round by some segment of the larger group. Subsets of the larger group (i.e., task or logistical groups) move temporarily to specific locales (temporary foraging camp, field camps) where these smaller groups procure and process the resource before returning to the base camp with stores for later consumption. Sites differ by function and resource targeted in logistically organized systems. Beyond more permanent residential sites (e.g., villages) a series of functionally differentiated logistical sites are also found. Logistical or field camps vary in size and are positioned to exploit one or multiple resources.

Our understanding of precontact land-use in the Willamette Valley prior to about 3,500 years ago is limited. But broadly speaking people practiced some form of highly mobile land-use, with shorter site occupation, and little use of storage and generalized diets. Archaeological sites of this age are broadly similar, with little functional differentiation. These sites are more commonly found in the foothills and higher elevation parts of the surrounding Cascade Mountain range. Some evidence suggests an increase in use of plants and fish and more intensive use of lowland parts of the valley at certain times (Ames and Maschner 1999; Cheatham 1988; O'Neill et al. 2004), but these lifeways are poorly understood. To what degree the geoarchaeological constraints associated with floodplain archaeology (i.e., deeply buried or eroded sites) has impacted our understanding of the archaeological record is unclear.

After 3,500 years ago, occupation of the Willamette lowlands appears to have intensified, with the first and only confirmed house structure recorded in the lowland valley (White 1975). Most sites in the Portland Basin, located in the northern Willamette Valley, date back approximately 3000 years, to this period of intensification. However, the lack of earlier occupation sites in lower elevation areas is likely more a reflection of alluvial deposition in the floodplain prior to sea level stabilization, than a lack of occupation (Pettigrew 1990).

Archaeologically, after 1,500 years ago, sites show more complexity, greater size and functional differentiation associated with complex logistical mobility systems, like those described ethnographically. During this period artifacts found throughout the valley include highly curated stone mortars, bowls and artistic pieces, as well as the presence of large burial mounds filled with elaborate goods (e.g., copper, dentalium, anthropomorphic decorated tools, whale bone clubs, etc. (Strong 1930). These assemblages are typically associated with permanent, semi-sedentary villages. In the Portland Basin, the assemblages associated with the well documented sites of Cathlapotle (45CL1) and Meir (35CO5) reflect the complexity of this time period.

Cathlapotle and Meier are large Chinookan villages sites situated, like others from the period, adjacent waterways in the Columbia River Floodplain (Ames and Sobel 2009). Both sites display

evidence of large populations, semi-permanent occupation, storage, and large complex assemblages which include, among others, highly curated ground stone pieces (Ames and Sobel 2009, 2013).

As mentioned above, the vast majority of sites dating to all time periods are found on the floodplain terraces of the Willamette River and its tributary creeks and streams, and near the Columbia River. Based on previous research by Cody (2019), Ellis (1996), and Cheatham (1988) effectively all high-intensity sites, regardless of time period, are located in floodplain settings.

Native Peoples

At the time of European American contact, various Chinookan-speaking groups occupied the Columbia River valley from The Dalles area to the Pacific Ocean. Ethnographers today differentiate the Chinook primarily on this linguistic variation. European American concepts of territoriality, land, and resource ownership are rarely applicable to the present study area. Ties of kinship through relation and marriage usually defined where individuals lived and rights of access to resource locations. As individuals often married outside their home villages, most families had networks of relationships that crossed both linguistic and cultural boundaries.

While salmon was the primary staple, Chinookan peoples also hunted game and waterfowl among the numerous marshes, lakes, and streams in surrounding low-lying areas and collected roots such as wapato, fruits, and berries (Silverstein 1990:536). The traditional significance of plants and animals are rooted within the customs, beliefs, and practices of the Tribes and evident through traditional patterns of land use, which see little distinction between natural and cultural resources.

Written descriptions of Chinookan life begin with the first European American explorations of the lower Columbia River. The first documented European American to navigate the area was Lt. William Broughton of the H.M.S. *Chatham* in 1792. Broughton's exploration was brief and other than referencing a few villages along the Columbia River, Broughton provided little information on Native peoples area (Vancouver 1984:II:754-760).

Much better information is provided in the journals of the Lewis and Clark Expedition, which passed through the research area in the fall of 1805 and the spring of 1806. The accounts of the fall journey through the area are brief as the expedition was anxious to reach the Pacific before winter set in. On November 4, 1805, however, they visited the Ne-er-cho-kioo village, which was situated at or near the modern location of Portland International Airport (the expedition's maps show the village on the south side of the Columbia near the downstream end of Government Island). The following spring, on their return eastward, the expedition stopped briefly on the north side of the Columbia opposite this village. William Clark visited the village a second time a few days later on his way to explore the lower Willamette River, at which time he provided a further account of the village and named it for the first time. Clark stopped briefly at Ne-er-cho-ki-oo again on his return

from the Willamette, adding only that the plankhouse was the home of eight families (Moulton 1991:64).

From Clark's descriptions, it is clear that Ne-er-cho-ki-oo had year-round residents who occupied a "large double house" constructed of cedar planks and typical of the plankhouses of the lower Columbia region. The inhabitants were related to another group who spent the winter at the village, occupying more temporary dwellings. The visitors lived for the remainder of the year at the Cascades of the Columbia. The "double house" is likely to have been two smaller plankhouses with a common roof. Clark described another village a short distance upriver of Ne-er-cho-ki-oo that had a house consisting of "Seven apartments or rooms in Square form about 30 feet each room opening into a passage which is quit[e] through the house," all of which had a common roof (Moulton 1991:64-65). The Ne-er-cho-ki-oo house was probably of similar construction; i.e., two houses separated by a narrow passage but with a shared roof. Lewis and Clark also reported "double" houses at the Cascades (Moulton 1991:110).

The name "Ne-er-cho-ki-oo" appears to represent a misunderstanding by Lewis and Clark of the Chinookan term that translates as "they went back home" (French and French 1998:362; Moulton 1991:61 fn 18). The village therefore does not again appear in the historical record with that name. Instead, there are references to a village at approximately the same location described as the home of the "Cath-lal-thlalah Tribe." An 1838 census by the Hudson's Bay Company (HBC) listed this settlement as a winter village, with a summer village at the Cascades

By the 1840s the character of the Native settlements throughout the lower Columbia River drainage had been radically altered by the epidemics of introduced European diseases. A smallpox epidemic in the 1770s is estimated to have killed about a third of the Native population, and Native peoples experienced periodic outbreaks of smallpox and other diseases through the 1860s. For the people of the lower Columbia, the most devastating epidemic was an outbreak of malaria in the 1830s, which destroyed entire villages in a matter of days or weeks. Boyd (1999:Table 3) has estimated that Cathlamet, Multnomah, Clackamas, and Cascades populations declined from about 12,000 in about 1800 to 300 by the 1850s (a population loss of almost 98%). This was undoubtedly a terrifying and devastating experience for the indigenous people of the region. The oral tradition of the effects of the epidemic continued until at least the 1930s among some of the groups affected.

The first major expansion of European American settlements began in the 1840s, as thousands of American settlers flooded into western Oregon and Washington. They met with minimal resistance from the Native groups that had been devastated by the epidemics described above. There was a brief period through the 1840s when the new settlers and the Native populations lived uneasily side by side. By 1850, however, the need to clear Indian title to the land to provide a legal basis for the land claims of American settlers led to a series of treaty negotiations beginning in 1851.

The first treaties signed with the tribes of western Oregon would have established several Indian reserves in the Willamette Valley. These treaties were never ratified by Congress due to opposition by American settlers. A second round of treaties, one of which included the Chinookan groups of the Clackamas and lower Willamette river drainages, was ratified (Beckham 1990; Kappler 1904:II:665), and two reservations (Siletz and Grand Ronde) were established by executive order shortly thereafter. With creation of the reservations, federal troops began the process of relocating the Willamette Valley groups to the reservations. Some of the Chinookans of the Clackamas and lower Willamette river areas moved to the Warm Springs and Yakama reservations where they could be with their upriver relatives.

One of the groups signing the 1855 Willamette Valley treaty were the "Wa-lal-la band," who were described as occupying "the southern banks of the Columbia River between the Willamette and Sandy, though they claim a considerable tract north of the Columbia, commencing a few miles above Fort Vancouver and extending to the Cascade Falls" (Joel Palmer, Oregon Superintendent of Indian Affairs, to George W. Manypenny, Commissioner of Indian Affairs, letter, January 23, 1855). The "Wa-lal-la" and the "Cath-lal-thlalah Tribe" were probably the same group as "wa" and "cathla" were often interchangeable prefixes in place names ("wa" means "place of," "cathla" means "people of" [Hajda 1984:320]). Their treaty territory and their northern claims extending to the Cascades offer supporting evidence that these groups were the same and establish their continuing presence in the area into the early 1850s.

Palmer, the Oregon Superintendent of Indian Affairs cited above, established some temporary locations to which Indians were relocated while arrangements were made for establishing the more permanent reservations. One of these temporary locations was at the present site of Portland International Airport. There are only a few, brief references to this camp. Lot Whitcomb, who Palmer had assigned responsibility for creating this temporary "reserve," was instructed to "proceed to the Indian Village on the bank of the Columbia River a few miles above Switzler's and direct those Indians to repair at once to the designated encampment" (Joel Palmer, Oregon Superintendent of Indian Affairs, to Lot Whitcomb, letter, October 19, 1855, National Archives Microfilm M2, Roll 5, page 537). From the Whitcomb and Palmer correspondences it is clear that the encampment was occupied beginning in late October/early November 1855 and had been vacated by early April 1856.

Some Native people, both those who had traditionally lived in the lower Columbia River drainage and those from outside the area, were drawn to the lower Willamette River by the spread of American settlement and the rise of the cities of Oregon City and Portland, as well as smaller communities. Chinookan peoples continued to practice some traditional subsistence activity, as well as working as laborers in these newly established cities and on nearby farms.

Historic Background and Map Review

The earliest descriptions of the project vicinity come from the members of the Lewis and Clark expedition. During their return voyage in 1806, Lewis described the lowlands south of the Columbia River as a mosaic of forested uplands, riparian forest, prairies, and wetland ponds and sloughs (Moulton 1991:55). More detailed depictions of the area come from the early GLO maps (GLO 1852), in which the general project API is displayed as a "wet prairie" surrounded by a complex network of swales and shallow sloughs, lakes, and ponds (Figure 3). The original surveyor described the general area of Township 1 North, Range 2 East as "first rate clay loam with gravel, timber fir, maple, cedar, alder, ash, vine maple" (Hunt 1852).

Three farmsteads are depicted in the 1852 GLO in the vicinity of the API (see Figure 3). The farmsteads are located along the Columbia Slough 1.2 km south, 2.1 km southwest, and 4 km southeast of the API, respectively. Two of these farms have a mapped structure. A road labeled "road from Portland to the mouth of the Sandy River" is mapped on the 1852 GLO map running south of the API, along Columbia Slough. (GLO 1852). The entire API is located within the "wet prairie"; no developments are shown within this area (GLO 1852).

The majority of the API is located within the 276-acre donation land claim of Henry Holtgreive and the 265-acre claim of Charles Stevenson (Figure 4; GLO 1860). A small portion of the western most API is within the claim of Eryine J. Taylor, which the surveyor noted had been abandoned (GLO 1860). The South Area is located within the 637-acre claim of Thomas Cully (Figure 4; GLO 1860).

The USGS topographic maps from the late 19th and early 20th centuries continue to depict the area as a network of sloughs, marshes, and lakes (USGS 1897; USGS 1905). Developments include a network of trails between Columbia Boulevard and the Columbia River (Figure 5). Structures are visible along Columbia Boulevard, as well as near the river, and occasionally in the wetlands adjacent to trails, (USGS 1897; 1905). The setting changed very little until the initiation of diking and drainage projects on the floodplain in the late 1910s and through the 1920s and 1930s.

Drastic changes to the environment began in 1917 with the establishment of the Multnomah County Drainage District No. 1. By 1920, the drainage district had constructed an extensive system of drainage ditches and dikes along the Columbia River; these dikes were raised twice prior to 1950 (Small 1994:19). These activities changed the hydrologic regime of the project vicinity, controlling or eliminating effects of annual floods that averaged 5.2 m (17 ft.) in elevation on a typical year, reaching as high as 10 and 10.6 m (33 and 35 ft.) during 50- and 100-year floods, respectively. Controlling these floodwaters eliminated the erosion and deposition that maintained the mosaic wet prairie/timbered environment described above. Prior to this diking, annual spring floods on the

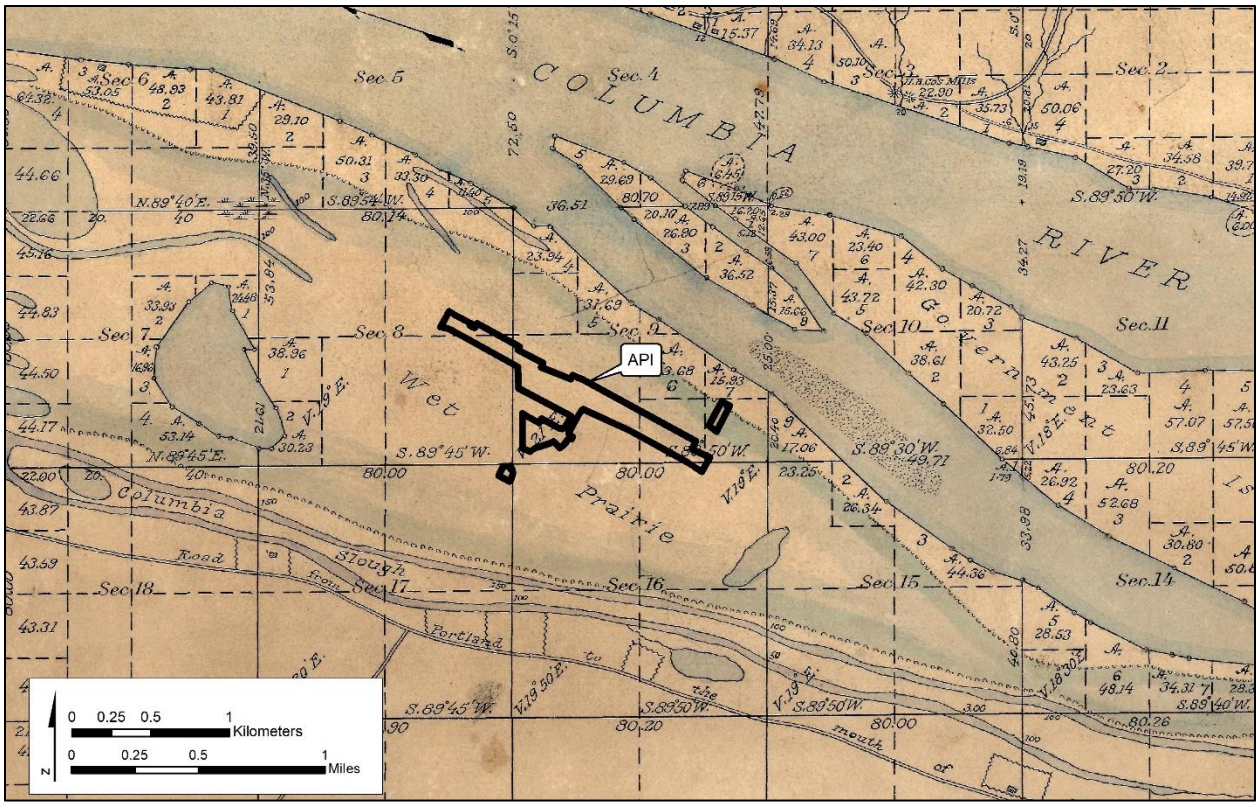


Figure 3. 1852 GLO map with API in black.

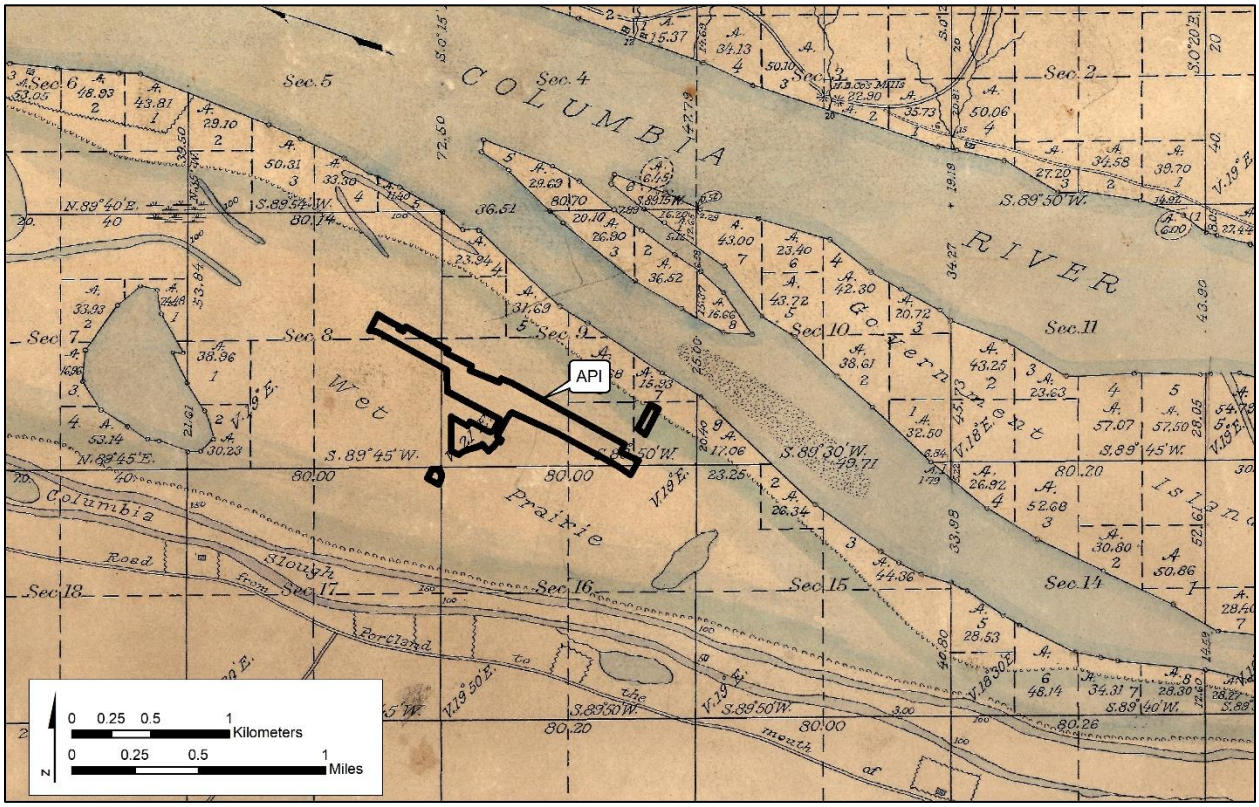


Figure 4. 1860 GLO map with API in black.

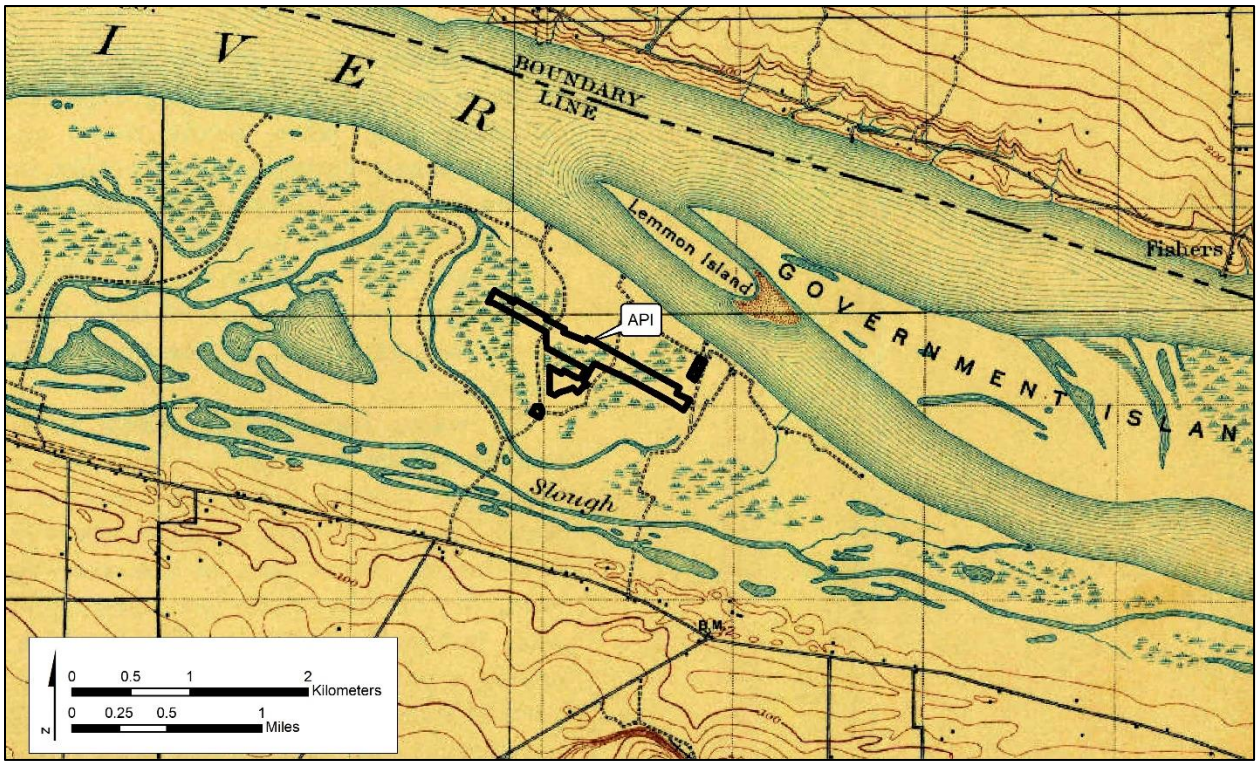


Figure 5. 1897 USGS topographic map.

Columbia largely prevented any agricultural use of the floodplain other than grazing cattle and producing forage crops for hay.

Construction of Portland-Columbia Airport – the predecessor of the current PDX – began in the spring of 1936. Before the construction of the original airport in 1936, there was a moderate amount of relief in surface elevations resulting from remnant waterways. The Works Progress Administration and U.S. Army Corps of Engineers hydraulically dredged sand from the Columbia River to use as fill to raise the grade of the ground surface in preparation for airport construction (USGS 1940) (Figures 6-8). The general vicinity of the current project API saw substantial commercial growth in the latter half of the twentieth century, with developments related to the airport, shipping, and manufacturing. This is characteristic of the area today, as well as the more recent addition of retail businesses.

Previous Investigations

Previous Archaeology

WillametteCRA staff reviewed records on file with the State Historic Preservation Office (SHPO) and at the WillametteCRA offices to determine if previous archaeological studies have been conducted or archaeological sites have been previously recorded in the project vicinity. Our review determined that 41 previous cultural resource investigations have been conducted within an

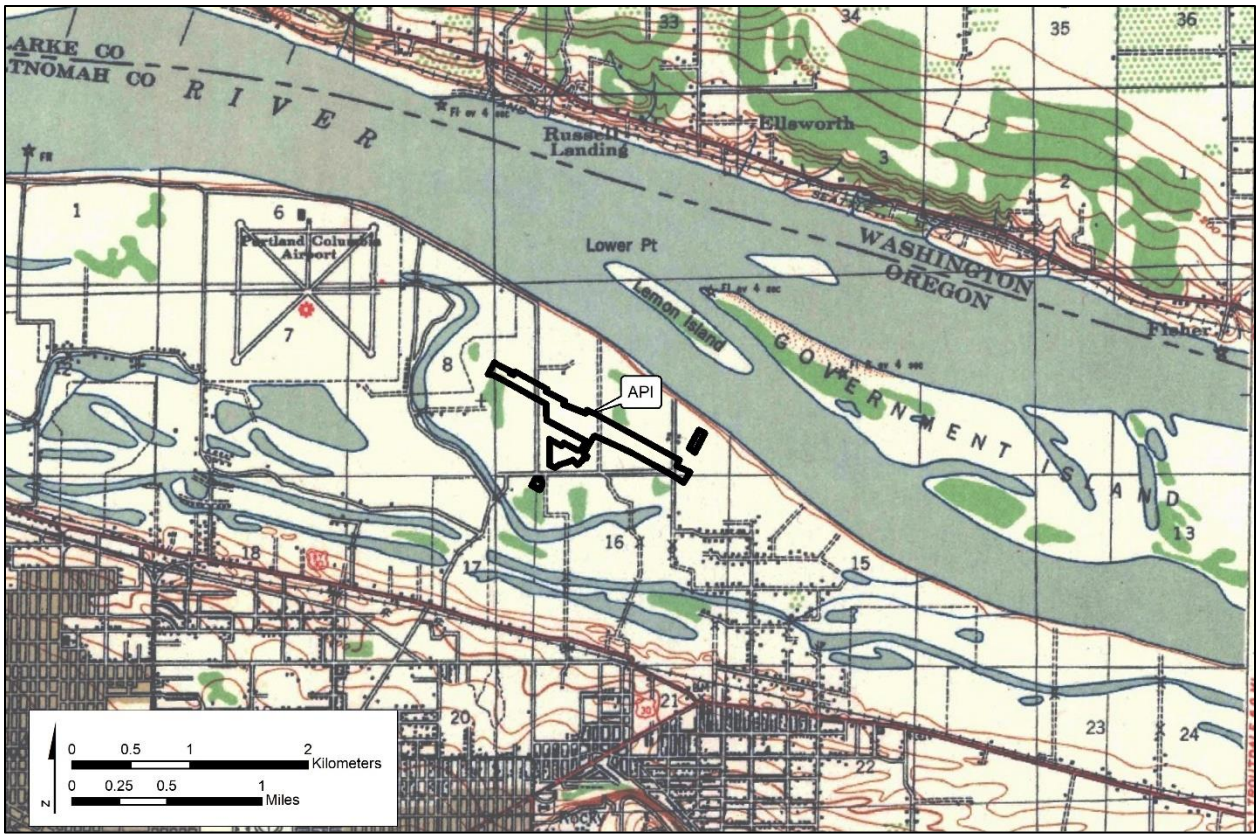


Figure 6. 1940 USGS topographic map.


Figure 7. Filling in process for the original airport's north and south runway in 1936. Photo provided by the Port.



Figure 8. The Portland-Columbia Airport in 1938. Note the remnant slough and wetlands. Photo provided by the Port.

approximately 1-mile radius of the project API, eleven of which have occurred within or overlapped with the current API (Table 1).

The majority of previous studies have been related to dredging or bank stabilization along the Columbia River (e.g., Freed 1982) road improvements (e.g., Ogle 2011), airport improvements (e.g., Wichlacz 2013; Ogle et al. 2008; Ellis 1998), and private development (e.g., Williams et al. 2014). Five of the previous studies located partially within the current API are related to the Portland International Center Project, which included the construction of a light rail station, new roads, improvements to existing roadways, utility installation, and planned commercial development (e.g., Ellis 1998; Musil 1996). Sixteen of the previous studies involved subsurface testing, six of which are within, or overlapping the current API.

No archaeological resources have been recorded within the project API. Three archaeological sites, and seven archaeological isolates have been identified within approximately 1-mi. of the API (Table 2). Six of these resources are historic-era, three are precontact, and one has both precontact and historic components (see Table 2). The resource located closest to the API is a precontact isolate composed of lithic debitage. This isolate is located near the NE Area, the segment of API closest the Columbia River. The nearest archaeological sites are described below.

Table 1. Previous Archaeological Studies within 1 mi. of the Project API.

SHPO Report #	Reference	Type of Work	Archaeological Resources Identified within 1 mi? (Y/N)	Survey within API?
306	Cole and Pettigrew 1976	Pedestrian Survey	No	No
2102	Freed 1980	Pedestrian Survey	No	No
4219	Freed 1982	Pedestrian Survey	No	No
4818	Thomas 1979	Pedestrian Survey	No	Yes
4850	Moriuchi 1983	Pedestrian Survey	No	No
5023	Smith 1983	Pedestrian Survey	No	No
6495	Pettigrew 1985	Pedestrian Survey	No	No
10613	Burtchard 1989	Pedestrian survey, auger testing	No	No
12809	Reese et al 1990	Pedestrian Survey	Yes	No
14767	Musil 1994a	Pedestrian survey, auger testing	No	Yes
14770	Musil et al. 1994	Pedestrian survey, auger testing, monitoring	No	No
14867	Minor et a. 1994	Pedestrian survey, auger testing, test unit	No	Yes
14980	Musil 1994b	monitoring	No	No
15213	Musil 1995	Pedestrian survey, auger testing	No	Yes
15465	Musil 1996	Pedestrian survey, auger testing	No	Yes
15864	Minor 1996	monitoring	No	No
17008	Ellis and Kent 1999	Pedestrian survey	No	No
17799	Musil 2005	Pedestrian Survey, shovel probing	No	No
19509	Ellis 1998	Pedestrian survey, auger testing	No	Yes
19510	Ellis 1999a	Pedestrian survey, auger testing, monitoring	No	Yes
19511	Ellis 1999b	Monitoring	No	Yes
20025	Ames 1992	Context Statement	No	Yes
20994	Kent 2006	Pedestrian Survey	No	No
21479	Tasa et al. 2007	Pedestrian Survey	Yes	No

Table 1. Previous Archaeological Studies within 1 mi. of the Project API (cont.).

SHPO Report #	Reference	Type of Work	Archaeological Resources Identified within 1 mi? (Y/N)	Survey within API?
21637	Reese 2007	Windshield survey	No	No
22016	Ogle et al. 2008	Pedestrian survey, shovel probing, monitoring	Yes	No
22663	Buchanan et al. 2009	Pedestrian Survey	No	No
22741	Dasler 2009	Hydrographic survey	No	No
22927	Byram 2009	Trenching, test units	No	No
23151	Wilt and McClintock 2009	shovel probing	No	No
24997	Ogle 2011	Pedestrian survey	No	No
25367	Wilson 2011	Pedestrian survey, Shovel probing	Yes	No
25413	Freeman 1921	Narrative	No	No
25436	Marcotte et al. 2012	Literature Review	No	No
25989	Wichlacz 2013	Pedestrian survey, Shovel probing	Yes	No
26439	Williams et al. 2014	Pedestrian survey, Shovel probing	Yes	No
27510	Paraso and Taylor 2015	Pedestrian survey, Shovel probing	No	No
28908	Cannon and Heppner	Monitoring	No	Yes
29868	Wilt and Finley 2018	Pedestrian survey		No
30553	Chapman and Sarjeant 2019	Report unavailable	Report unavailable	Yes
30957	Orvald 2020	Report unavailable	Report unavailable	No

Note: All reports can be found at the Oregon SHPO. Only those reports referenced in text are included in the **References** section

Table 2. Previously Recorded Archaeological Resources within 1 mi. of the Project API.

Site or Isolate #	Approximate Distance to API (mi)	Site Type	General Age	Description/Materials	SHPO Report #	Reference
93567	0.2	Isolate	Precontact	Lithic scatter	22016	Ogle et al. 2008
35MU250	0.5	Site	Historic	Refuse scatter	26439	Williams et al. 2014
350336	0.5	Isolate	Historic	Whiteware fragment	26439	Williams et al. 2014
350337	0.7	Isolate	Historic	Aqua glass, barbed wire	26439	Williams et al. 2014
35MU119	0.8	Site	Precontact	Camp/Village	17867	Williams et al. 2014
227483	0.8	Isolate	Precontact and historic	Glass, projectile point fragment, CCS flakes	25367	Wilson 2011
301715	0.8	Isolate	Historic	Insulator	25989	Wichlacz 2013
107800	0.9	Isolate	Historic	Homestead	21479	Tasa et al. 2007
35MU158	1	Site	Historic	Refuse scatter	12809	Reese et al. 1990
40919	1	Isolate	Precontact	Stone bowl	19217	Zehendner and Fagan 2004

Note: All site forms can be found at the Oregon SHPO. Only those site forms referenced in text are included in the **References** section.

Archaeological site 35MU250 is a 19th century historic refuse scatter identified during subsurface probing in advance of development. The site consists of fragments of calcined bone, amethyst and colorless glass, ceramic, and metal. All artifacts were identified in the top 30 cm (Williams et al. 2014).

Archaeological site 35MU119 is a precontact lithic scatter located on a natural levee of the Columbia Slough. Recorded cultural material includes fire cracked rock, lithic debitage, and bone. Artifacts were recovered from 0-60 cm below surface during auger probing (Williams et al. 2014). .

Archaeological site 35MU158 is a historic refuse scatter dating to the late 19th and early 20th century. The site is visible on the surface and consists of artifacts related to domestic, structural and transportation themes (glass, ceramic, metal fasteners, and auto parts). The site may be associated with a series of structures present on the 1905 USGS topographic map (Reese et al. 1990).

Precontact archaeological sites and isolates in the vicinity are located primarily along the edge of the Columbia River, Columbia Slough, and along what the 1852 GLO map describes as a "wet prairie." Despite extensive previous survey, the area within the "wet prairie" does not contain any recorded sites. This is likely because artifacts relating to resource extraction and encampment are

more likely to be found along the margins of a highly productive marsh, as the area within it would be inhospitable to habitation, and forays into the area for resources are less likely to leave physical traces in the archaeological record.

Previously Recorded Historic Properties

WillametteCRA reviewed the Oregon Historic Sites Database to identify historic properties in the study area vicinity. The database lists four properties within approximately 1 mi. of the project API. None of these properties are within the proposed API. Two of the properties do not have an eligibility determination, and two are considered Eligible for listing on the Register. The closest recorded property to the API is the Sheraton Inn, which was constructed in 1974, and does not have an eligibility determination.

Methods

WillametteCRA archaeologists conducted a pedestrian survey on May 8th, May 21st, and September 2nd, 2020. The field crew consisted of Michelle North and Patrick Reed. Michelle North directed the work. The survey was conducted over multiple days to accommodate changes to the API.

Expectations

The general information provided in the precontact, ethnohistoric and historic contexts above was synthesized with known archaeological data and the environmental history to assess the likelihood of encountering archaeological materials in the project API. Our findings indicate that historically, the project API was a mosaic of sloughs, lakes, marshes and wet prairies. Based on previous archaeological studies in the area, such an environment would have been attractive for short-term, task-specific activities related to travel, hunting waterfowl, fishing, and harvesting wetland plants.

The project API is located in the middle of one of the wet prairies. We could expect to find flaked stone tools for hunting and plant harvesting, and possibly ground stone and fire-cracked rock for processing resources. These sites would be most likely located at the margins of the wetlands or adjacent to waterways, on slightly higher spots, such as natural levees or the edges of terrace remnants. Given this, the NE Area, located towards the margin of a wetland, has the highest potential to contain precontact resources. This is supported by the fact that the closest previously recorded resource is nearest this portion the API (see Table 2). However, given the proximity to productive wetland and the Columbia River, there is at least moderate potential for encountered precontact archaeological resources throughout the entire API. Further information regarding filling practices and previous disturbances may alter this expectation.

The project API is predominantly developed, and has been subject to previous disturbance. However, much of this disturbance has likely occurred as the result of filling and development in the historic era. Historic development in the API has been primarily related to small-scale farming after flood control measures were put in place along the Columbia, and landscape modification and construction associated with the airport. Historic items, if present, would likely include structural debris, including metal, brick, and lumber, and less likely, domestic debris such as glass and ceramic.

Pedestrian Survey Methods

WillametteCRA archaeologists conducted a survey of the API using pedestrian transects. Transects were generally spaced no greater than 10 m apart, depending on ground surface visibility and structural obstacles. Areas of zero visibility, or with safety concerns (e.g., the paved surface of Airport Way and MAX Line), were documented but not systematically surveyed. The road medians in the center of Airport way were also documented and photographed, but not systematically surveyed due to low visibility and evidence of previous extensive disturbance and modification.

No buildings were entered, and above ground resources were not documented as part of this survey. WillametteCRA conducted pedestrian survey to inspect the ground surface for archaeological resources, evaluate the landform for locations suitable for subsurface probes, and to identify past disturbance. In most areas, ground surface visibility was poor (<5%). Much of the API was covered in paved surfaces or dense ground cover (e.g. grasses), pedestrian survey therefore emphasized inspection of areas with greater surface visibility and identifying areas suitable for additional subsurface testing.

Results

This section provides the results of the survey. Results are further divided by area (Central Area, NE Area and S Area) below. No archaeological resources were identified during pedestrian survey. Sparse modern refuse was observed on the surface throughout the API.

Central Area

The Central Area, which comprises the bulk of the API, is located on approximately 81 acres along both sides of airport way, and south from the intersection with NE 82nd Ave for approximately 400 m, branching out to encompass a large lot to the west. This area had variable surface visibility, which generally ranged from 0 to 20%. Visibility varied due to development (e.g., paved surfaces), landscaping, and recent disturbance (Figure 9, Figure 10). This Central Area also contains the only locations considered viable for future subsurface shovel probing (see Figure 9).

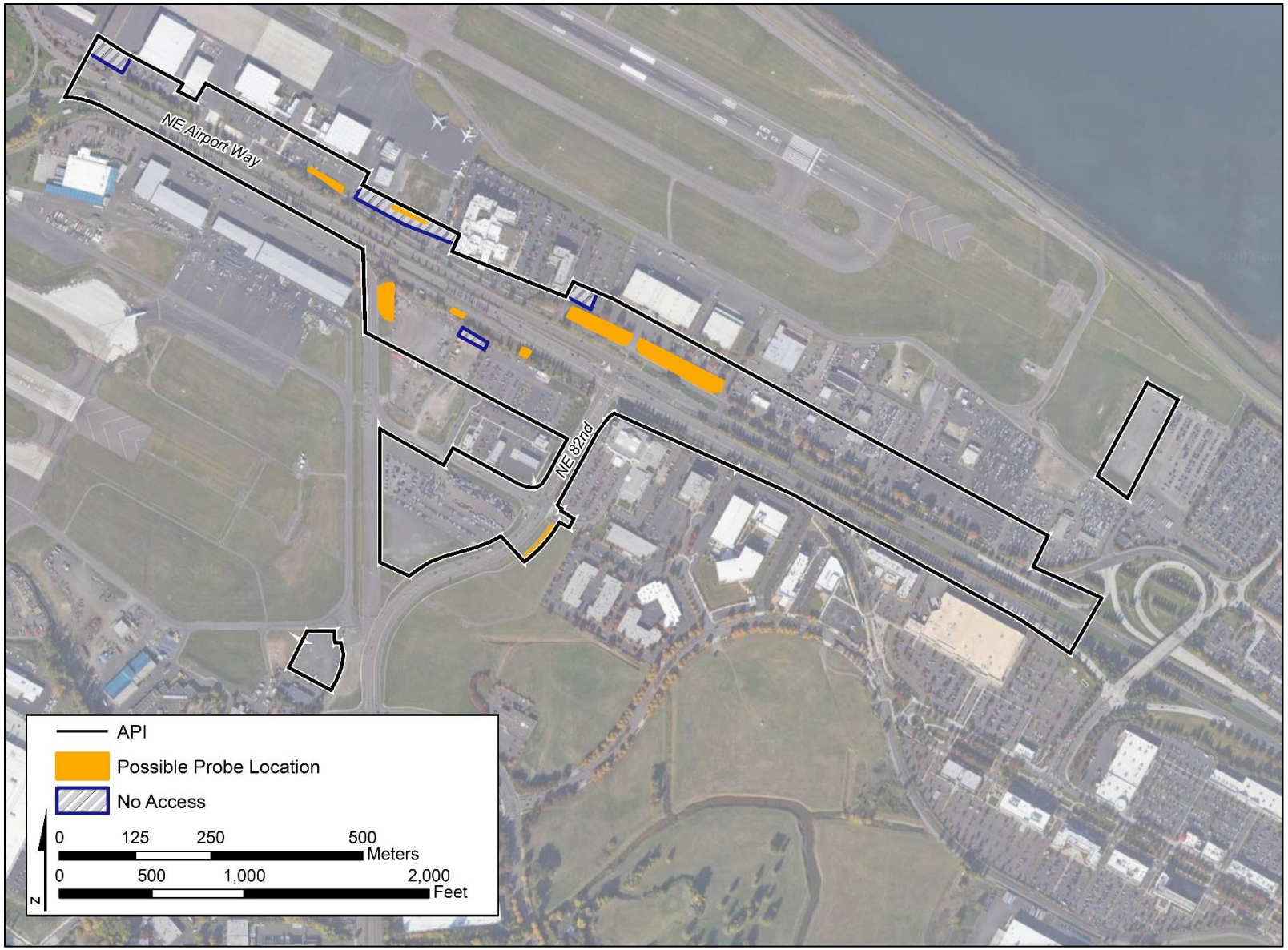


Figure 9. Map depicting possible shovel probing locations in the API.



Figure 10. Project API south side of Airport Way, note MAX line, paved surfaces, and landscaping, view west.

Four locations within the Central Area, totaling approximately 2 acres, were fenced off and not accessible for survey. Inspection through the chain link fences indicates that three of the four locations are gravel or paved lots with negligible surface visibility. The last inaccessible location appeared to have a moderately sized grassy area, which may be a good candidate for shovel probing (see Figure 9).

In one location on the north side of Airport Way, recent disturbance associated with utilities in the road right of way provided a soil profile with excellent visibility. This profile displayed roughly one ft. of imported fill above a buried surface. The adjoining landscaped lawn had evidence of few utilities, suggesting this is a suitable place for subsurface investigation (see Figure 9, Figure 11).

Two other locations north of NE Airport way were unpaved and did not display obvious evidence of previous disturbance, making them possible locations for future subsurface shovel probing (see Figure 9). One of these locations, as previously mentioned, was not accessible at the time of pedestrian survey.

Segments along the south side of Airport Way displayed signs of having been artificially raised several feet above the street grade (Figure 12). Utility access points were visible every 15-20 m along most unpaved portions along the south side of Airport Way. The exception to this was a small



Figure 11. Possible shovel probing location on the north side of Airport Way, view west.



Figure 12. Overview of survey area along the south side of Airport Way, note built up area adjacent road, view west.

grassy strip situated adjacent the MAX Line. This strip had evidence of multiple utilities. However, spaces between utilities exceeded 20 m in places. Additionally, there were no obvious signs of extensive filling or grading, offering the possibility of subsurface shovel probing (see Figure 9).

One location along NE 82nd, and another along NE Air Cargo Rd. to the west, are also viable locations for shovel probing in the Central Area. The location identified along on the east side of NE 82nd Ave is a field adjacent a drainage ditch. The drainage is artificially channelized, but the section of adjacent field within the API appears potentially undisturbed (Figure 13). The possible shovel probing location along NE Air Cargo Rd. is an unpaved, vegetated area, that does not appear graded or otherwise extensively disturbed (Figure 14).

NE Area

The NE area is an approximately 2.5-acre lot near the Columbia River. The majority of the NE Area is currently used as a parking lot. The lot is predominately covered in imported gravel with sections of pavement along the edges, and as a result, there was no ground surface visibility. A small section on the south side of the lot was not covered in gravel or pavement. Visibility in this area was approximately 10%. However, this section appears artificially built up, likely from grading during lot construction (Figure 15). Chunks of asphalt were visible mixed in with the soil. No excavation is anticipated for this portion of the API, it is currently planned as a staging area.



Figure 13. Drainage and possible shovel probing location along NE 82nd Ave, view south.



Figure 14. Possible probe location east of NE Air Cargo Rd., view north.



Figure 15. NE Area, unpaved strip and part of gravel lot, view southwest.



Figure 16. Overview of S Area, view southeast.

S Area

The S Area is a small, approximately 1.5-acre lot to the northwest of the intersection of NE 82nd Ave and NE Alderwood Rd. This area is entirely covered by imported gravel and asphalt, providing no ground surface visibility. The lot currently functions as a staging area for construction, with a trailer and several large construction vehicles parked on it at the time of survey (Figure 16).

Conclusions and Recommendations

WillametteCRA has completed a literature review and an archaeological survey for the proposed Airport Way and 82nd Avenue Interchange project. There are no previously recorded archaeological sites within the current project API. Forty one previous studies within a 1 mi. radius of the API have identified 10 archaeological resources. Historic maps indicate that the API was a highly productive network of wetlands that did not see development until well after flood control measures were implemented on the Columbia. After seasonal flooding was abated, the area surrounding the API was slowly developed, primarily in response to the construction of the Portland-Columbia Airport in the 1930s. Construction of this facility necessitated the filling of much of the original landscape, although the extent and regularity of fill within the API is currently unknown. Because the surface visibility within the API was generally poor, and the extent of past filling is currently unknown, it is

difficult to make broad statements about risk or likelihood of encountering archaeological resources during project activities without further information on subsurface deposits.

Based on the results presented above, WillametteCRA recommends that additional archaeological work should be conducted. Specifically, we recommend that subsurface shovel probes should be excavated in the areas identified during pedestrian survey (see Figure 9). Additional access permissions may be necessary for shovel probing to take place. Information gathered during subsurface probing will allow inspection of sediments in low visibility areas and further contribute to information on past filling and disturbance. These results will then inform decisions about archaeological monitoring going forward. Despite being located in the area deemed highest probability for encountering archaeological resources, we are not currently recommending the NE area for subsurface testing as this location is currently planned for use as a staging area and no excavation is anticipated.

References Cited

Aikens, C. Melvin, Thomas J. Connolly, and Dennis Jenkins L.
2011 *Oregon Archaeology.* Oregon State University Press, Corvallis.

Ames, Kenneth M., and Herbert D. G. Maschner
1999 *Peoples of the Northwest Coast: Their Archaeology and Prehistory*. Thames & Hudson, New York.

Ames, Kenneth M., and Elizabeth A. Sobel
2009 Finding and Dating Cathlapotle. *Archaeology in Washington* 15:5-32.
2013 Houses and Households. In *Chinookan Peoples of the Lower Columbia*, edited by Robert T. Boyd, Kenneth M. Ames and Tony A. Johnson, 125-145. Seattle: University of Washington Press.

Beckham, Stephen Dow
1990 History of Western Oregon Since 1846. In *Northwest Coas*t, edited by Wayne Suttles, pp. 180-188. Handbook of North American Indians, vol. 7, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Boyd, Robert Thomas
1999 *The Coming of the Spirit of Pestilence.* UBC Press, Vancouver and Toronto and University of Washington Press, Seattle and London.

Cheatham, Richard D.
1988 Late Archaic Settlement Pattern in the Long Tom Sub-basin, Upper Willamette Valley, Oregon. Unpublished Ph.D. dissertation, Department of Anthropology, University of Oregon, Eugene.

Cody, Tia R.
2019 LiDAR Predictive Modeling of Kalapuya Mound Sites in the Calapooia Watershed, Oregon. Unpublished Master's Thesis, Department of Anthropology, Portland State University, Portland.

Draper, John Allen
1988 A Proposed Model of Late Prehistoric Settlement Systems on the Southern Northwest Coast, Coos and Curry Counties, Oregon. Unpublished Ph.D. dissertation, Department of Anthropology, Washington State University, Pullman.

Ellis, David V.
1996 Locational Analysis and Chronology for the Willamette Valley Sites. In *Northwest Pipeline Corporation System Expansion Phase I: Phase 3 - Data Recovery and Site Treatment Reports for Oregon Segments*, pp. 12–1-- 12–72. Volume V, Part 1: Willamette Valley. Archaeological Investigations Northwest, Inc., Portland, Oregon.
1998 *Cultural Resources Inventory of the Proposed Airport Light-Rail Transit Project, Portland, Oregon*. Prepared for David Evans & Associates, Portland. AINW, Portland. On file with the Oregon SHPO, Salem.

Franklin, Jerry F., and Christopher T. Dyrness
1988 *Natural Vegetation of Oregon and Washington.* 2nd ed. Oregon State University Press, Corvallis.

Freed, Robert A.
1982 *Cultural Resource Investigation South Channel of Columbia River Dredging and Disposal Government Island, Multnomah County, Oregon*. On file with the Oregon SHPO, Salem.

French, David H., and Kathrine S. French
1998 Wasco, Wishram, and Cascades. In *Plateau*, edited by Deward E. Walker, Jr., pp. 360-377. Handbook of North American Indians, vol. 12, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Gates, Edward B.
1994 The Holocene Sedimentary Framework of the Lower Columbia River Basin. Unpublished Master's thesis, Department of Geology, Portland State University, Oregon.

General Land Office (GLO)
1852 *Plat of Township No. 1 North, Range No. 2 East, Willamette Meridian*. Microfiche on file, U.S. Bureau of Land Management, Oregon State Office, Portland, Oregon.
1860 *Plat of Township No. 1 North, Range No. 2 East, Willamette Meridian*. Microfiche on file, U.S. Bureau of Land Management, Oregon State Office, Portland, Oregon.

Hajda, Yvonne P.
1984 Regional Social Organization in the Greater Lower Columbia, 1792-1830. Unpublished Ph.D. dissertation, Department of Anthropology, University of Washington, Seattle

Hunt, Joseph
1852 *Field Notes of the Subdivisions of Township One North of Range Two East of the Willamette Meridian in the Territory of Oregon*. Microfiche copy on file, USDI Bureau of Land Management, Oregon State Office, Portland.

Jenkins, Dennis L., Thomas J. Connolly, and C. Melvin Aikens
2004 *Early and Middle Holocene Archaeology of the Northern Great Basin*. Anthropological Papers No. 62, University of Oregon, Eugene.

Kappler, Charles J. [editor & compiler]
1904 *Indian Affairs, Laws, and Treaties.* Vol. II (Treaties). Government Printing Office, Washington. D.C.

Kuper, H. Tom, and John L. Lawes
1994 Geology and Geomorphology. In *An Inventory and Assessment of Archaeological Resources in the Columbia South Shore for the City of Portland, Oregon*, by Rick Minor, Robert R. Musil, and Kathryn Toepel, Chapter 2. Submitted to the Bureau of Planning, City of Portland, Heritage Research Associates Report No. 165. Portland, Oregon.

Moulton, Gary E. (editor)
1991 *The Journals of the Lewis and Clark Expedition, March 23-June 9, 1806*. Vol. 7. 13 vols. University of Nebraska Press, Lincoln and London.

Musil, Robert R.
1996 *Additional Archaeological Assessment For The Portland International Center, Portland, Multnomah County, Oregon: Stage Ill.* Prepared for the Port of Portland, Portland.. HRA, Eugene. On file with the Oregon SHPO, Salem.

National Resource Conservation Service (NRCS)
2020 Web soil survey. Electronic document, http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx, accessed May 18, 2020.

O'Connor, Jim, Andrei Sarna-Wojcicki, Karl C. Wozniak, Danial J. Polette, and Robert J. Fleck
2001 *Origin, Extent, and Thickness of Quaternary Geologic Units in the Willamette Valley, Oregon*. U.S. Geological Survey, Professional Paper 1620. USDI and USGS in cooperation with Oregon Water Resources Department, Reston, Virginia.

Ogle, Todd
2011 *Programmatic Agreement SHPO Tracking NE Columbia Boulevard at NE 82oa Avenue Project, Key #15596, File Type C, Federal Aid # 5900(202)PE*. Prepared for ODOT, Salem. WillametteCRA, Portland. On file with the Oregon SHPO, Salem.

Ogle, Todd, David V. Ellis, and Paul S. Solimano.
2008 *A Cultural Resource Survey for the Proposed North Runway Extension Project at• Portland International Airport, Portland, Oregon*. Prepared for Reynolds, Smith & Hills, San Francisco. WillametteCRA, Portland. On file with the Oregon SHPO, Salem.

O'Neill, Brian L., Thomas E. Connolly, and Dorothy E. Freidel
2004 *A Holocene Geoarchaeological Record for the Upper Willamette Valley, Oregon: The Long Tom and Chalker Sites*. University of Oregon Anthropological Papers No. 61. Museum of Natural and Cultural History and Department of Anthopology, University of Oregon, Eugene.

Reese, Jo, John L. Fagan, William F. Willingham, and Bonnie J. Mills.
1990 *Report to the Oregon State Historic Preservation Office on Results of the Columbia River Shoreline Archaeological Survey*. Prepared for The State of Oregon, Salem. The Cultural Heritage Foundation, Portland. On file with the Oregon SHPO, Salem.

Pettigrew, Richard M.
1990 Prehistory of the Lower Columbia and Willamette Valley. In *Northwest Coast*, edited by Wayne Suttles, pp. 518–529. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Schalk, Randall F., Ricky G. Atwell, Robert U. Bryson, Clayton G. Lebow, Nancy D. Sharp, Craig Skinner, and Andrew J. Bailey
1994 Research Design for Prehistoric Archaeology. In *Archaeological Investigations, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California, Volume I: Project Overview, Research Design, and Archaeology*, edited by Michael J. Moratto, pp. 5–1 – 5–40. Submitted to Pacific Gas Transmission Company. INFOTECH Research, Inc., Eugene, Oregon.

Silverstein, Michael
1990 Chinookans of the Lower Columbia. In *Northwest Coast*, edited by Wayne Suttles, pp. 533-546. Handbook of North American Indians, vol. 7, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Small, Fred
1994 Native Vegetation Communities. In *An Inventory and Assessment of Archaeological Resources in the Columbia South Shore for the City of Portland, Oregon*, by Rick Minor, Robert R. Musil, and Kathryn Toepel, Chapter 3. Submitted to the Bureau of Planning, City of Portland. Heritage Research Associates Report No. 165, Eugene, Oregon.

Strong, Thomas Nelson
1930 *Cathlamet on the Columbia*. Metropolitan Press, Portland, Oregon.

United States Geological Survey (USGS)
1897 *Portland, Oregon—Washington*. 15-minute topographic map.
1905 *Portland, Oregon—Washington*. 15-minute topographic map.
1940 *Portland, Oregon—Washington*. 15-minute topographic map.

Vancouver, George
1984 [1798] *A Voyage of Discovery to the North Pacific Ocean and Round the World 1791-1795*. G. G. and J. Robinson, Paternoster-Row, and J. Edwards, Pall-Mall, England. 1984 facsimile reprint, 4 vol., edited by W. Kaye Lamb. The Hakluyt Society, London, England.

White, John R.
1975 A Proposed Typology of Willamette Valley Sites. In *Archaeological Studies in the Willamette Valley, Oregon*, edited by C. Melvin Aikens, pp. 17–140. University of Oregon Athropological Papers No. 8. Eugene.

Williams, Alexandra C., Judith A. Chapman, Elizabeth J. O'Brien, and John L. Fagan.
2014 *Cultural Resource Survey of the Colwood Industrial Park Project, Multnomah County, Oregon*. Prepared for Trammell Crow Portland Development, Inc., Portland. AINW, Portland. On file with the Oregon SHPO, Salem.

Wichlacz, Caitlin A.
2013 *A Cultural Resource Survey of the Portland International Airport Economy Lot E-Zone, Multnomah County, Oregon*. Prepared for Port of Portland, Portland. WillametteCRA, Portland. On file with the Oregon SHPO, Salem.