

Appendix 0

Archaeological Reconnaissance Survey



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CULTURAL RESOURCES ASSOCIATES, LTD.



**Archaeological Reconnaissance Survey for the
Deschutes County Landfill Project, Moon Pit
Property, Deschutes County, Oregon**



Archaeological Reconnaissance Survey for the Deschutes County Landfill Project, Moon Pit Property, Deschutes County, Oregon

This document has been redacted for
Confidential Information on March 12, 2024

Prepared by
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February 2, 2024

WillametteCRA Report No. 22-80 Moon Pit
Portland, Oregon

Prepared for
Parametrix, Inc.
Seattle, Washington



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Report Details


Project Name:	Deschutes County Landfill Moon Pit
Agency:	Deschutes County
Client:	Parametrix
Project Undertaking:	Landfill Siting
County(ies):	Deschutes
Legal Description:	Township 19S, Range 14E, Sections 1-2, 11-12 Township 19S, Range 15E, Section 7
USGS Quad(s):	<i>Horse Ridge, Oregon and Millican, Oregon 7.5-minute</i>
Project Acreage:	~560
Survey Acreage:	~100
Permit Number(s):	N/A
Field Note Location:	WillametteCRA, Portland Office
Fieldwork Type:	Reconnaissance Survey
Fieldwork Dates:	September 5 and 6, 2023
Field Personnel:	Michelle North and Matt Goodwin
Findings:	
Recommendations:	Formal Archaeological Survey

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Introduction

On behalf of Deschutes County, Parametrix, Inc. (Parametrix) contracted Willamette Cultural Resources Associates, Ltd. (WillametteCRA) to conduct a reconnaissance survey of the Moon Pit property project area in support of the Deschutes County Landfill Siting Project, Phase 2. The Moon Pit project area encompasses approximately 560 acres of a single privately owned parcel (191400000200) in Sections 2, 11, and 12, Township 19 South, Range 14 East, and Section 7, Township 19 South, Range 15 East, Willamette Meridian, in Deschutes County, Oregon (Figures 1 and 2).

Deschutes County is in the process of scouting potential sites for a new landfill. Phase 1 of this project identified six potential locations. Desktop review and assessment of several variables including cultural resources further narrowed this selection to two potential sites. The Moon Pit property project area is one of the two potential landfill sites being further investigated during Phase 2. There is currently no federal nexus for the project. However, the project must comply with county permitting processes, which require consultation with the Oregon State Historic Preservation Office (SHPO) to ensure cultural resources that are important, eligible, or listed in the National Register of Historic Places (NRHP) will not be impacted by the project. This report was created as an internal planning document and is not intended to satisfy project cultural resource requirements.

The purpose of the reconnaissance survey is to gather additional information about the archaeological sensitivity of the Moon Pit project area and assist in providing recommendations for further actions that may be necessary to address cultural resources requirements. Most of the project parcel has been developed as a gravel and rock mine/quarry. The surrounding area is sparsely developed and characterized by large open areas dotted with rabbitbrush, sagebrush, and sparse juniper, bordered by low hills and upland plateaus. The Bureau of Land Management Oregon Badlands Wilderness Area is immediately north and west of the project area. [REDACTED]

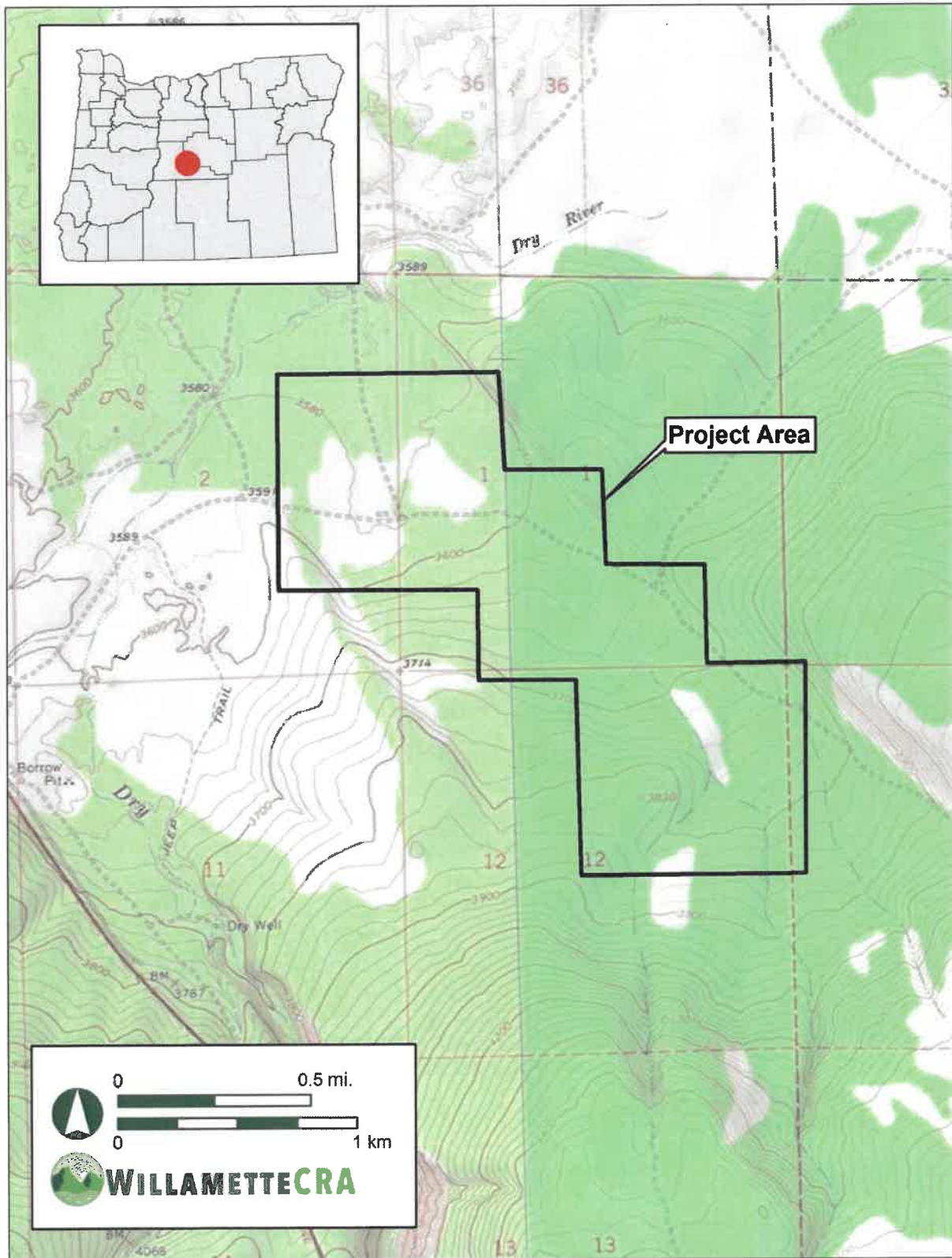


Figure 1. Project location map.

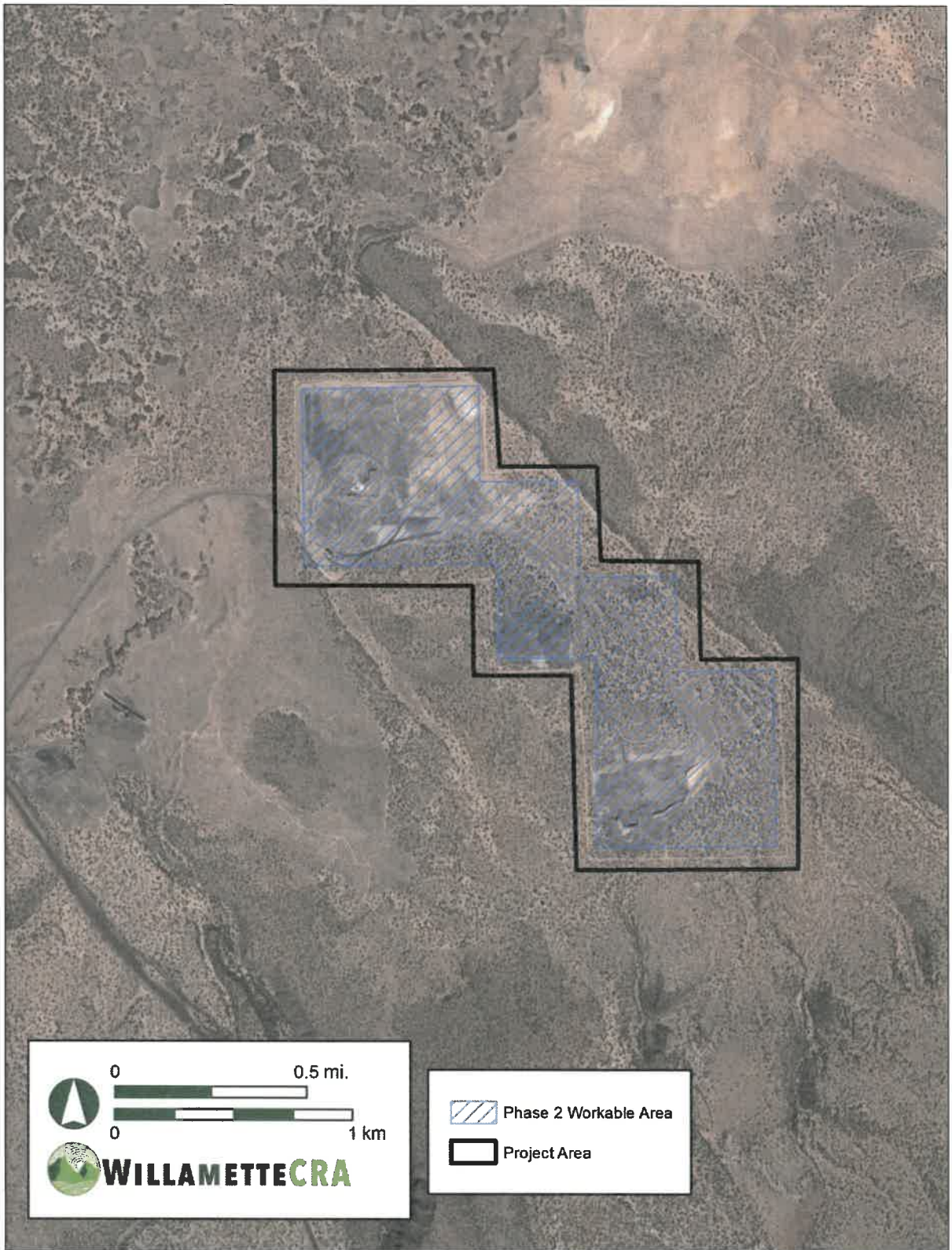


Figure 2. Project configuration on modern aerial imagery.

Natural and Cultural Background

Environmental Setting

The project area is situated southeast of Bend at the foot of Horse Ridge within the High Lava Plains physiographic province of Central Oregon (Franklin and Dyrness 1988). The province is characterized by young lava flows of moderate relief interspersed with numerous cinder cones and lava buttes. Newberry Crater, part of the Paulina Peak shield volcano, is the largest peak in the area and is located approximately 20 miles (mi.) southwest of the project. Because the bedrock in this area is porous and the climate is generally dry, many streams and drainages are seasonal. During the Pleistocene the area held extensive lakes, which are now dry basins.

Horse Ridge is at the margin between the Oregon Badlands Wilderness Area and the Millican Valley. The Oregon Badlands Wilderness Area is a rootless shield volcano that formed when a lava tube developed a hole in its roof, forming an irregularly shaped crater that distributed lava in all directions (Bureau of Land Management [BLM] 2023). The Millican Valley is a high desert basin bound by lava flows and volcanic ridges uplifted by the Brothers Fault Zone (McKay et al. 2017; Vanaman 2007). The basin once contained Lake Millican, one of the northernmost water bodies in the Pleistocene Great Basin pluvial system. The basin was drained during the late Pleistocene when the northern margin of the lake was breached, creating an outburst flood that connected the lake to the Crooked and Deschutes rivers through the Dry River Canyon (McKay et al. 2017; Vanaman 2007). Other prominent landforms in the area include the previously discussed Dry River Canyon, situated approximately 1.3 mi. to the south, and Pine Mountain. Pine Mountain is an eroded volcanic peak located approximately 10 mi. to the south.

The Natural Resources Conservation Service (NRCS) identifies two soil types within the Moon Pit project area, Clovkamp loamy sand and Stookmoor Westbutte sandy loam. Clovkamp soils are shallow, somewhat excessively drained soils that form in volcanic ash above older gravelly alluvium. A typical soil profile consists of loamy sand that transitions to a gravelly loamy fine sand, above extremely gravelly sand. Clovkamp loamy sand is found on lava plains. Stookmoor Westbutte soils are moderately shallow, well drained soils that form in volcanic ash above residuum and colluvium. A typical soil profile consists of a stony loam, which transitions into a very cobbly loam, above very cobbly clay loam and bedrock (NRCS 2023).

Precontact Archaeological Context

The project area lies near the boundary of the Plateau and Northern Great Basin culture areas. The PGT-PG&E Pipeline Expansion Project (PEP) is one of the most comprehensive large-scale archaeological efforts to examine precontact land-use in this region (Atwell et al. 1995; Bryson et al. 1995; Schalk et al. 1994, 1995). We have used this study, in combination with other regional studies, to synthesize the following summary of precontact land-use in the project area.

Prior to about 7,600 years ago, people in the region employed a highly mobile land-use system (Schalk et al. 1995). Site frequency is low, and there is little diversity among excavated assemblages. Sites of this age are broadly similar in content, and logistical mobility was uncommon or not employed regularly. Archaeological evidence indicates that lithic technology was more formal, with limited expedient tool use, and tool stone was directly procured from individual sources, suggesting larger territories. Ground stone was rare. Diet was generalized, and while people consumed plant resources, the focus was likely on small and medium sized mammals.

After about 7,600 calibrated years before present (cal BP), robust, semisubterranean structures appear in the archaeological record, although they are infrequent. The number of sites increases, as does the level of diversity among assemblage types (Schalk et al. 1995:9–28), suggesting some use of logistical mobility. This period likely saw people adopting a system with brief winter sedentism in pithouses. Evidence for storage during this time is low. However, a noticeable increase in handstones and milling stones combined with an increase in the number of sites located in upland plant collection areas suggest people were making greater use of plants (probably seeds). An increased focus on larger mammals is also found. This led PEP archaeologists to speculate cold weather sedentism may have been possible with some storage of seed and intensive winter hunting.

Between about 4,500 years ago and contact with European Americans, people adopted a much different land-use strategy, based on longer sedentary occupations, increased logistical organization and likely food storage. However, this system varied considerably during the late Holocene. In general, pithouse sites become more common, usually found in small clusters of houses (Schalk et al. 1995:9–30). People increasingly used more informal tools and intensively focused on large mammals and plants. Handstones and milling stones decreased dramatically, replaced by mortars, which probably reflects an increased use of roots in place of seeds (Couture et al. 1986). Over the last circa 3,000 years, evidence suggests people increased trade dramatically with most tool stone procured indirectly (Schalk et al. 1995:9–31).

Assemblage type diversity along with the number of house sites peaks between about 3,000 and 1,500 years ago, possibly signifying the highest level of logistical organization during the Holocene (Schalk et al. 1995). After 1,500 years ago these measures both decline but reasons for this are unclear. The decline may represent people moving into fewer, larger house sites and even more intense logistical organization, both of which may result in an overall decline in the frequency of sites on the landscape.

This description of precontact land-use is generally derived from data compiled from sites within the larger high-desert region. However, while small variations probably existed on a local level, this description likely still reflects broad land-use patterns through time within the Millican Valley.

Native Peoples

The project area is within an area of overlapping interest and cultural significance to the Tenino and Northern Paiute people, specifically, the Hunipui band.

The Tenino

The Tenino are part of the 'Western Columbia River Sahaptin' language group; itself a subgroup of the larger Sahaptin language family, that also included the Walla Walla, Lower Snake, Palouse, Wanapam, Yakima, Kittittas, Upper Cowlitz, and Klickitat (Hunn and French 1998:378).

The topographic diversity of the Tenino territory played a key role in how their economic and social life were organized throughout the year. This territory lies within a semi-arid basin, whose major hydrological features were the John Day and Deschutes rivers. These drainages are bordered to the west by the upland valleys along the East Cascade foot slopes and to the east by the Blue and Ochoco mountains (Thorson et al. 2003).

Ethnographic and ethnohistoric documentation describes villages as consisting of 2 to 20 houses, with populations ranging from about 30 to 400 people. (Hunn and French 1998:385–388). Each village group's main settlements consisted of a permanent winter village and a major fishing locality. Secondary or tertiary sites were also common but were not usually occupied for long periods and these localities were rarely the subject of intensive recurrent occupation every year. However, the winter village location of some groups also doubled as a major fishing or plant processing locality (e.g., the Tygh valley Tenino; Jenkins and Connolly 1994). Thus, for some groups the winter village and a major resource locality would be the same settlement, with an additional plant/fishing (whichever resource was furthest from the main winter village) locality making up the second major settlement. However, it should be considered that our understanding of the non-riverine portion of the Tenino economy and social organization is poorly understood. Ethno-historical documentation exists largely from the Lewis and Clark expedition, which never ventured far from the Columbia, and from intermittent accounts by early European fur-traders from the Hudson's Bay Company in the 1820s and 1830s (Hunn and French 1998:394). Proper ethnographic work did not take place until the 1930s (Murdock 1938; Spier 1935; Spier and Sapir 1930).

The annual Tenino subsistence round began in the spring, when task groups and families would leave winter villages to first exploit wet meadow crops such as camas, false onion, and 'Indian Carrot,' followed by drier soil plants in upland settings; e.g., lomatiums, desert parsley, and bitterroot (Hunn and French 1998:380–383). Around June, groups would reconvene around their principal fishing locations (typically after the major flooding episodes of the major rivers) for the seasonal harvest of salmon and other fish. Fish were harvested by spearing, gaffing, dip and set netting, gill and seine netting, hook and line, and in weirs and traps. At least five species of Pacific salmon and two species of suckers were of primary importance and were acquired

alongside major rivers, such as the Columbia and its confluence with the Deschutes and John Day rivers. However, Warm Springs' accounts also suggest that trout and eels/lamprey were also major fishing staples (Hunn and French 1998:380–383; Zucker et al. 1987). These are typically caught along smaller tributaries or in slower moving, shallower bends within the John Day or Deschutes rivers, notably quite different settings than salmon fishing sites.

During the end of the major fish runs, typically in August to early September, groups would move back into upland areas to acquire and process fruits, especially huckleberries. Like the plants mentioned above, typical processing involved the drying and pounding of the edible plant tissues into cakes or kinds of flour, which were light and easy to preserve/store for winter and trade (Hunn and French 1998). Fall consisted of continued hunting of mammals, especially deer/elk, which were also acquired alongside all other activities throughout the year as encountered. Additionally, bighorn sheep, pronghorn, and black bear were and continue to be hunted in the region.

The Hunipui

The Northern Paiute belong to the Western Numic language group, an offshoot of the Uto-Aztecan linguistic family (Fowler and Liljeblad 1986:435). The subgroup known in English as the Hunipui are traditionally called huniputÖka, based on their harvest of Seepweed (*Sueda depressa*), a lakeshore perennial whose seeds are an important part of the seasonal round, typically harvested in late summer and stored and eaten throughout the year (Couture 1978:91). This is a system of naming based on an association with a specific resource and its habitat that is consistent with other Northern Paiute groups, i.e., "tibadika?a, pine nut eaters" (Fowler and Liljeblad 1986:436).

The Northern Paiute traditional economy was based on a seasonal cycle of hunting, gathering (plants and insects, especially crickets), and fishing throughout their homeland, by family groups known as nanobia?a ("neighbors together"), and who settled in socially flexible residence patterns (Fowler and Liljeblad 1986:436). The material culture consisted of various seasonally available plants, animals, and mineral sources, including but not limited to trees and grasses, deer, and birds. Plants used for food and medicine were varied (Fowler and Liljeblad 1986) and made the most of the local ecology, and included sagebrush, juniper, camas, bitterroot, wild onion, and biscuitroot, and various berries (Fowler and Liljeblad 1986:443; O'Grady 2006:11), as well as the trees and plant species that grew on lakeshores and marshland that were used for clothing, tools, and dwellings. The diversity of plant life along lakes and marshland fostered migratory birds, as well as resident mammals and fish, all of which were part of the traditional economy.

Important food resources also included mammals, divided between seasonal and year-round game species, including deer, elk, mountain sheep, and antelope; various rabbits, beaver, raccoons, porcupines, muskrats, and marmots; as well as bison in the precontact period

(O'Grady 2006). Rabbit drives were conducted using nets and occasionally with fire (Steward 1938:38–39; Whiting 1950:20), and large game was hunted using bows and arrows (Fowler and Liljeblad 1986:439). Fish species included but were not limited to chub, northern pike minnows, salmon in the Malheur and Drewsey basins, and trout (O'Grady 2006:16).

Paiute social organization is described as egalitarian, flexible, often related to harvest of traditional foods, and based on the nuclear family (Fowler and Liljeblad 1986:446). Social organization also included an expanded kin network based on various levels of relationship. For example, various groups came together for collective salmon fishing or cricket collecting, then dispersed into smaller groups to hunt and gather roots and seeds (O'Grady 2006:18). Winter dwellings were conical or dome-shaped, built of wood frames covered with layers of sewn tule mats (Fowler and Liljeblad 1986:444), and people ate stored foods throughout the winter, occasionally supplemented by fresh catches.

European American Colonization

The first non-Native presence in the Central Oregon high desert was likely transient traders with the Hudson's Bay Company who traveled through the area in the 1820s and 1830s (LaLande 2023). Some emigrants traveling to the Willamette Valley also passed through the high desert on their journey to the Cascade wagon road passes. However, European American settlement during this early period was limited due to the rugged terrain of the Ochoco Mountains and the ongoing conflicts with Native American tribes in the region, which persisted until the 1860s.

During the mid-nineteenth century, the Homestead Act of 1862 and the subsequent establishment of more transportation routes drew farmers, cattle ranchers, and sheep herders to Central Oregon (Hanson 2018:9), especially around Bend, Oregon, which provided one of the few areas where wagon trains could efficiently ford the Deschutes River (Brogan 1964; McArthur and McArthur 2003). The population of central Oregon increased steadily during the 1870s and 1880s as ranchers moved their cattle herds to the sage flats of the high desert. In 1916, Deschutes County was established from the western portion of Crook County, with Bend serving as the county seat (State of Oregon 2023).

Early farmers in the central Oregon high desert were dry-land farmers, meaning that they farmed without the aid of irrigation. This kind of farming was challenging in the arid environment, but success was found with cereal crops, and certain legumes such as alfalfa (Tonsfeldt and Claeysens 2004). Irrigation efforts in the early twentieth century increased agriculture which led to the growth of towns and cities like Bend and brought new agricultural settlers into Deschutes County. By 1907, the Central Oregon Canal was constructed, diverting water from the Deschutes River. Newly irrigated lands continued to be the major impetus for settlement in Deschutes County through the 1910s and 1920s (Central Oregon Irrigation District 2023).

The nearest settlement to the project area, the town of Millican, is named after George Millican, a stockman who established a ranch in the area in the late 1800s (McArthur and McArthur 2003). While the population has never been large, ranching and agriculture did bring in more settlers, and the Millican post office was established in 1913. In 1920 William Rahn became postmaster (McArthur and McArthur 2003). However, the population of the area contracted sometime after, and for a time Rahn was the sole resident of the town.

Historic Map Review

At the time of the earliest mapping of the project area by General Land Office (GLO) surveyors in 1880, the project area was depicted as undeveloped, and no human made features were specifically mapped within or near it (GLO 1880). A feature marked “Dry Bed of River” is depicted running from southwest to northeast within the northwest corner of the parcel and two small ravines are mapped approximately 1 mi. to the east (Figure 3). The Deschutes National Forest is mapped approximately 5 mi. southeast of the project (GLO 1880).

The next available map of the project is the United States Geological Survey (USGS) topographic *Crescent, OR* from 1957. At this time the Moon Pit project area is simply labeled “lava” and the Dry River and Highway 20 are depicted to the south and west. Historic aerial imagery of the project area from 1963 depicts it as an undeveloped desert with a few informal roads and trails passing through it (Nationwide Environmental Title Research [NETR] 1963). Though the 1963 imagery displays some evidence of modern human use of the property (informal roads/trails), no buildings or structures are indicated within 5 mi. of the project parcel.

The 1969 USGS topographic maps (*Horse Ridge, OR*, and *Millican, OR*) depict three intermittent streams entering the southeast portion of the parcel, running southeast-northwest (USGS 1969; Figure 4). Unimproved roads traverse the northern half of the parcel and a feature labeled “jeep trail” is mapped near the northwestern portion of the project area, aligned roughly north-south and connecting to an unimproved road in the north (now called Horse Ridge Rd; USGS 1969). A small remnant segment of the “jeep trail” is still visible in modern aerial imagery (NETR 2020). Borrow pits are mapped approximately 0.7 mi. to the southwest and 1.25 mi. west/southwest of the project, along the alignment of US Highway 20 (see Figure 4). A small grouping of buildings, including a residence and three outbuildings, currently extant at the southeast corner of the property is not apparent on USGS quad maps or on the 1963 or 1982 aerial photographs (NETR 1963, 1982) The grouping of buildings is first indicated on the 1994 aerial photograph, in its current location (NETR 1994).

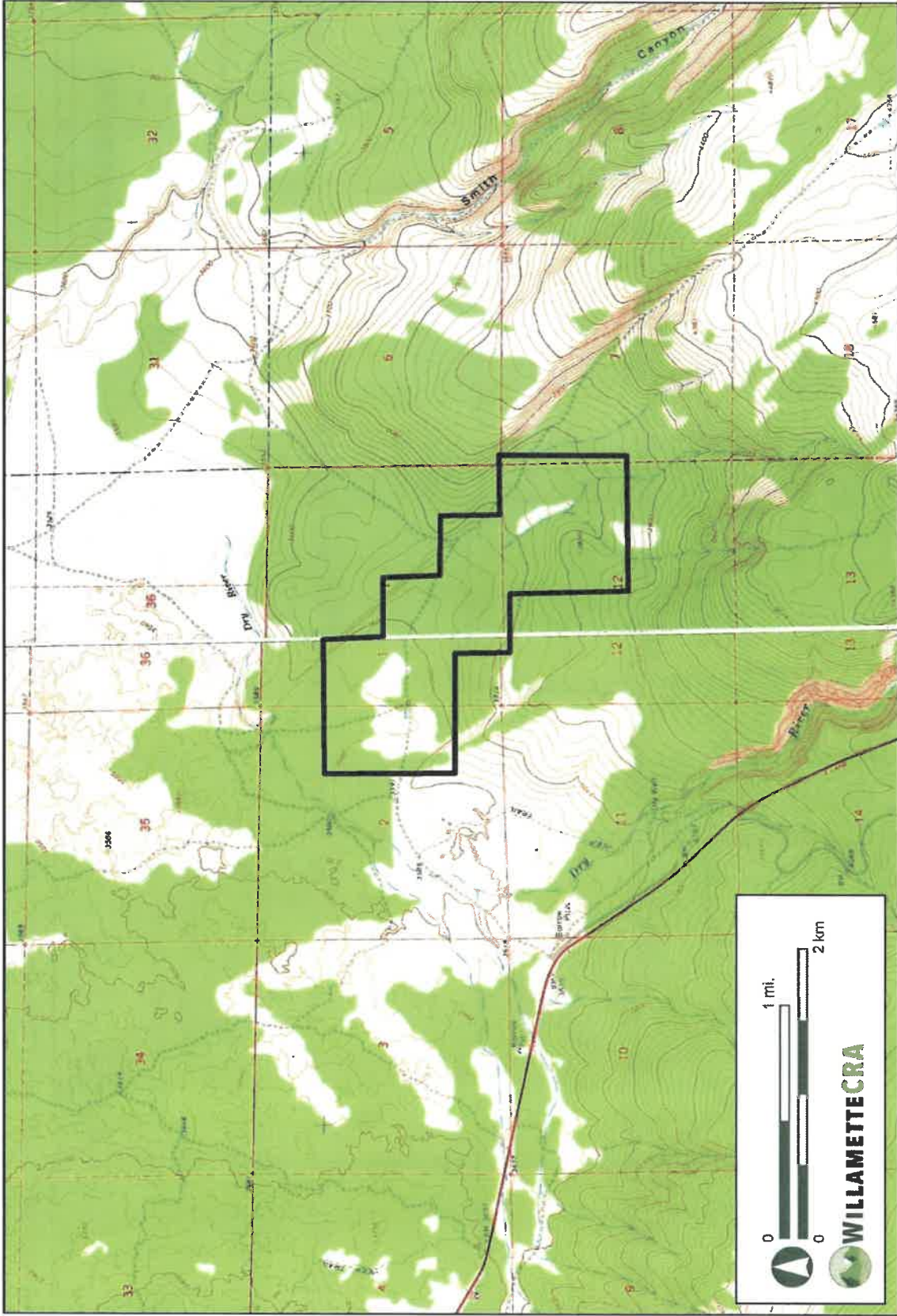


Figure 4. USGS 1969 topographic maps Millican, OR and Horse Mountain, OR.

Previous Archaeological Studies

A review of the SHPO GIS database has identified nine previous archaeological investigations within approximately 1 mi. of the project area (Table 1). Of these investigations, three overlapped with the current project area (Olander 2014; Thomas 1983; Todd et al. 1995). [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] Previous investigations in the broader area have been primarily associated with roadwork along Highway 20 (e.g., Connolly 1999), transmission and fiberoptic line projects (e.g., Fulton and Fulton 1999; Sharp et al. 1998), and ranching infrastructure (e.g., Todd 1989).

One of the investigations that overlapped with the Moon Pit project parcel, Thomas (1983), performed a pedestrian survey for a proposed stockwater pipeline [REDACTED]

The Bureau of Land Management conducted a large-scale (~ 33,000 acres) archaeological inventory survey for the Criterion Land Exchange project (Todd et al. 1995). Fieldwork consisted of surface inspection; no subsurface investigations were performed. Two of the land exchange areas slightly overlapped with the northwest portion of the Moon Pit project parcel. [REDACTED]

[REDACTED]

In 2014, Historical Research Associates, Inc. conducted a cultural resource survey of 13 extra work spaces associated with the Bonneville Power Administration's Pacific Direct Current Intertie project (Olander 2014). Of the 13 areas, 1 is completely encompassed by the current Moon Pit project parcel. Olander (2014) conducted a pedestrian survey. Ground surface visibility was noted as 100 percent and the area described as "cleared and bladed." [REDACTED]

[REDACTED]

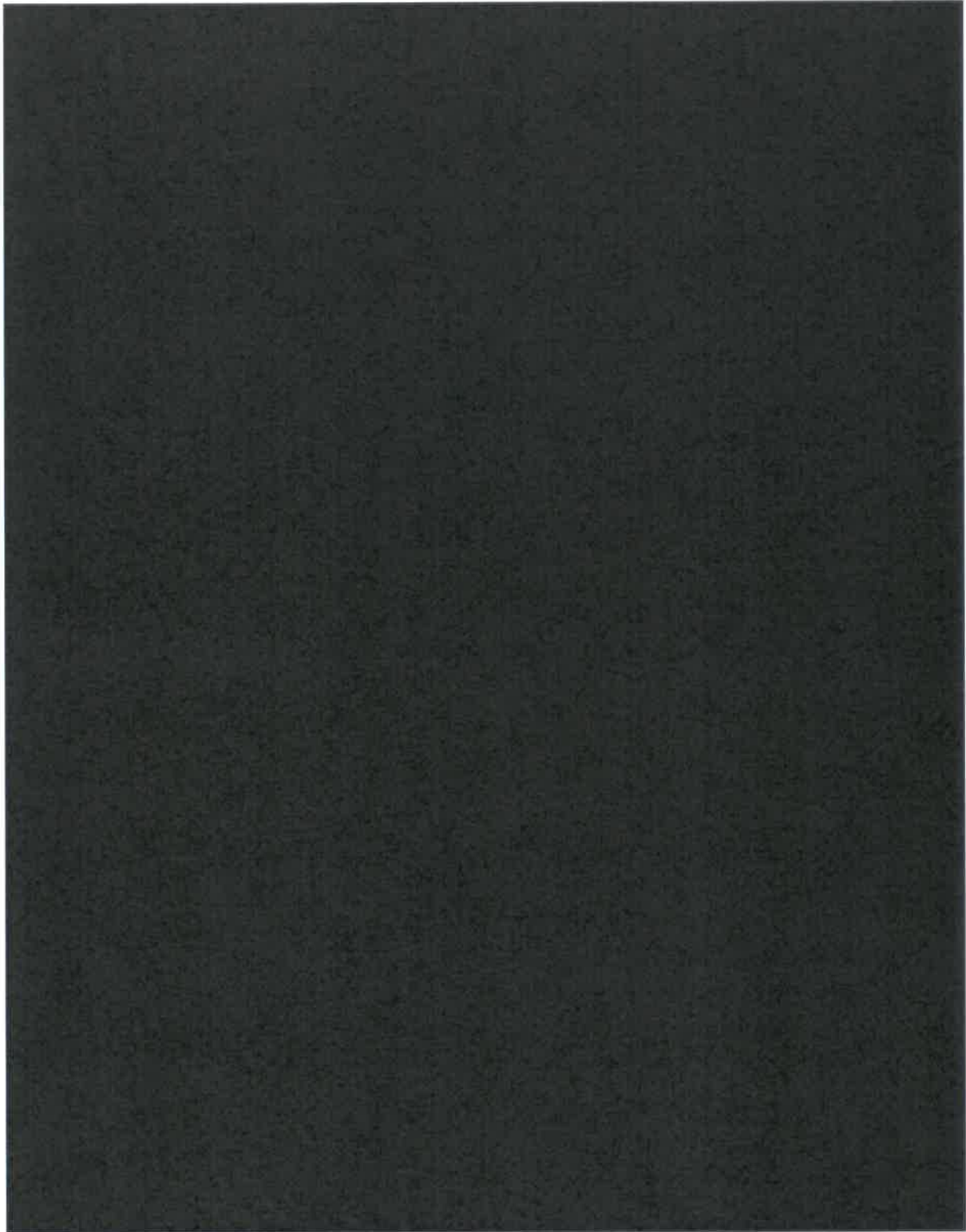
Table 1. Previous Archaeological Studies Within Approx. 1 Mi. of the Project Area.

SHPO Biblio No.	Reference	Type of Work	[REDACTED]	Field Investigations Within Project Area?
5123	Thomas 1983	Pedestrian Survey	■	Yes
16147	Todd et al. 1995	Cultural Resources Overview	■	Yes
26615	Olander 2014	Pedestrian Survey	■	Yes
79	Toepel and Beckham 1978	Literature Review	■	No
4063	Loring and Loring 1981	Thematic Overview	■	No
10423	Todd 1989	Pedestrian Survey	■	No
16772	Connolly 1999	Pedestrian Survey	■	No
16744	Sharp et al. 1998	Pedestrian Survey	■	No
16745	Fulton and Fulton 1999	Monitoring, Trenching,	■	No

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

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]



[REDACTED]

[REDACTED]

Expectations

The proposed project is located on a parcel that encompasses both a relatively level lowland and gentle slopes leading up to Horse Ridge in the south, and a level upland area in the northwest part of the project. Relic drainages bisect the property in the southeast and east. Intensive mining quarrying activity has modified the topography and hydrology of the project parcel over the last 20–30 years. [REDACTED]

[REDACTED] portions of the parcel undisturbed by mining/quarrying activity have a moderate to high probability of containing precontact archaeological resources. [REDACTED]

[REDACTED]

Extant buildings and structures within the parcel do not date to the historic period and there are no historic built environment resources within or in the immediate vicinity of the Moon Pit project area. We feel there is a low probability for the project area to contain historic-period archaeological resources.

Result of Reconnaissance Survey

On September 5 and 6, 2023, WillametteCRA archaeologists Michelle North and Matt Goodwin conducted a reconnaissance survey of the proposed Moon Pit project area (Table 3 and Figure 6). The reconnaissance survey included visual inspection of approximately 100 of the 560 project acres. The goal was to characterize the topography, assess past disturbances, inspect the area for archaeological resources, and identify areas with a higher probability of containing archaeological resources. [REDACTED]

[REDACTED]

During the reconnaissance survey, opportunistic portions of each of the project quadrants were walked using meandering transects spaced approximately 20 meters (m) apart. Ground surface visibility at the time of survey was good (50–75%). [REDACTED]

[REDACTED]

Most of the project parcel has been developed as a gravel and rock mine/quarry. The mine/quarry areas are set in a landscape that includes both a relatively level lowland, and gentle slopes leading up to Horse Ridge in the south and a level upland area in the northwest part of the project (Figure 7–12). In the southeast portion of the project area, evidence of ephemeral seasonal drainages such as shallowly to moderately incised channels and rounded gravels was observed. Vegetation at the time of survey consisted primarily of rabbitbrush, sagebrush, and juniper. Where the project area begins to slope upward in the south and northwest, juniper trees are larger and more common (see Figures 8, 11, and 12).

Portions of the project area to the east and west of the developed mining/quarry areas have been moderately impacted by road building and use as storage/staging areas for the mining operation (see Figure 8), and historic imagery suggests that these areas had been minimally impacted in the past by unimproved roads and two-track “jeep trails.”

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

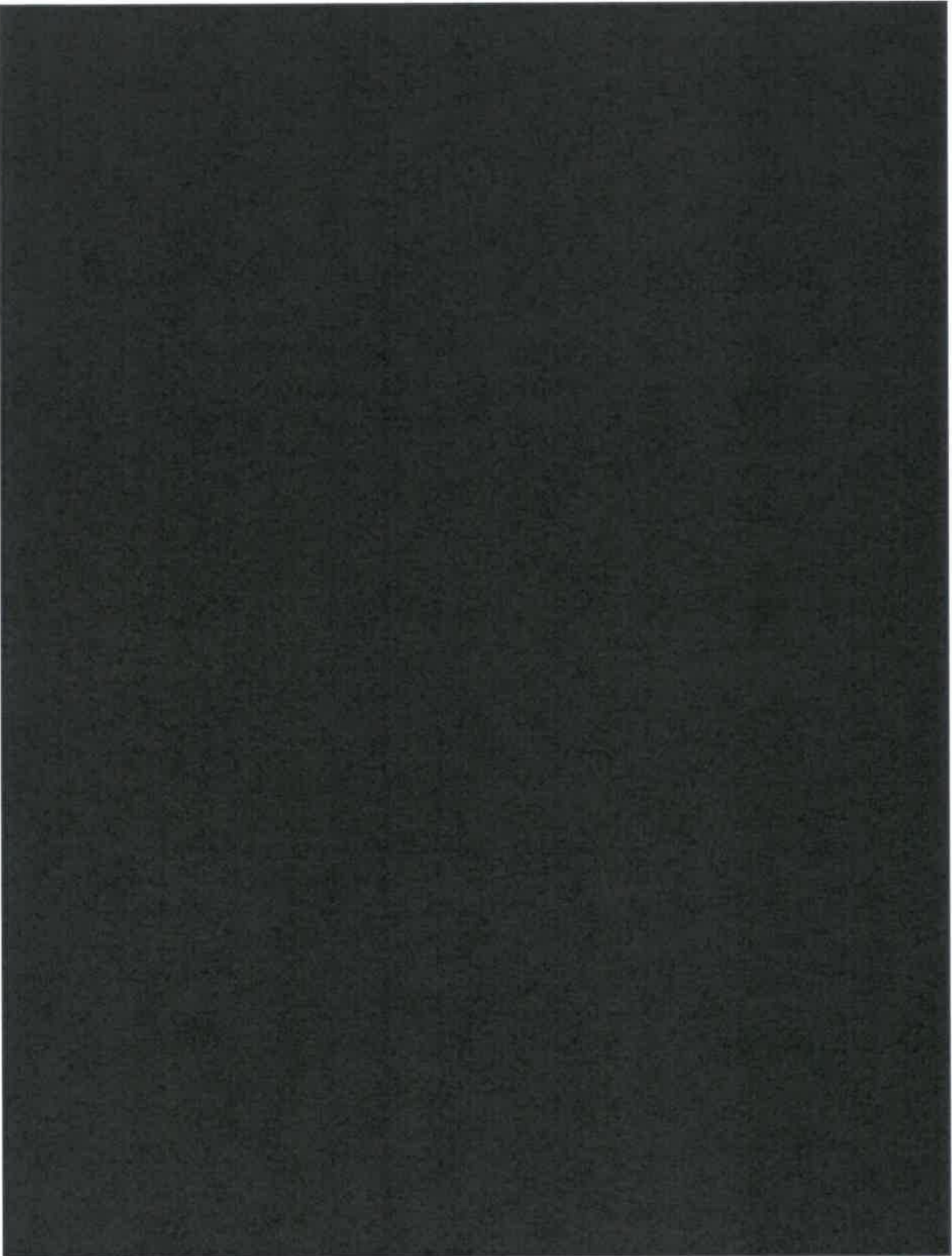




Figure 7. Overview of SE portion of the project area. Note open mine area across center. View north.



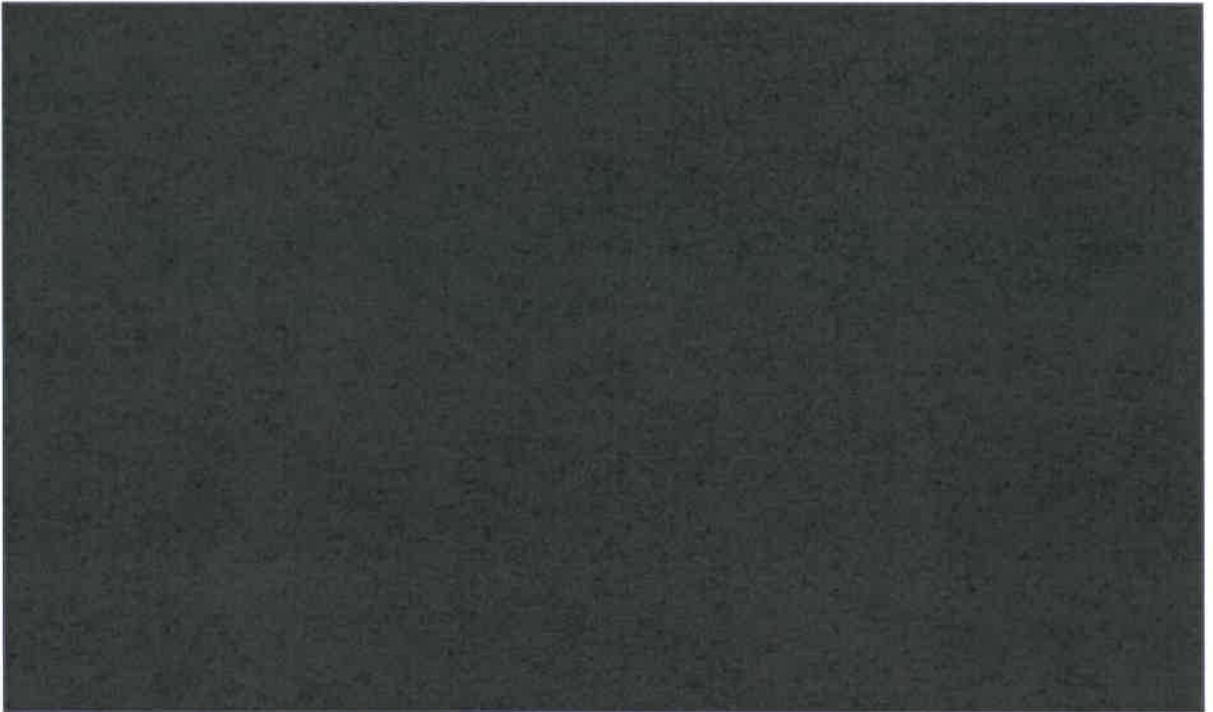
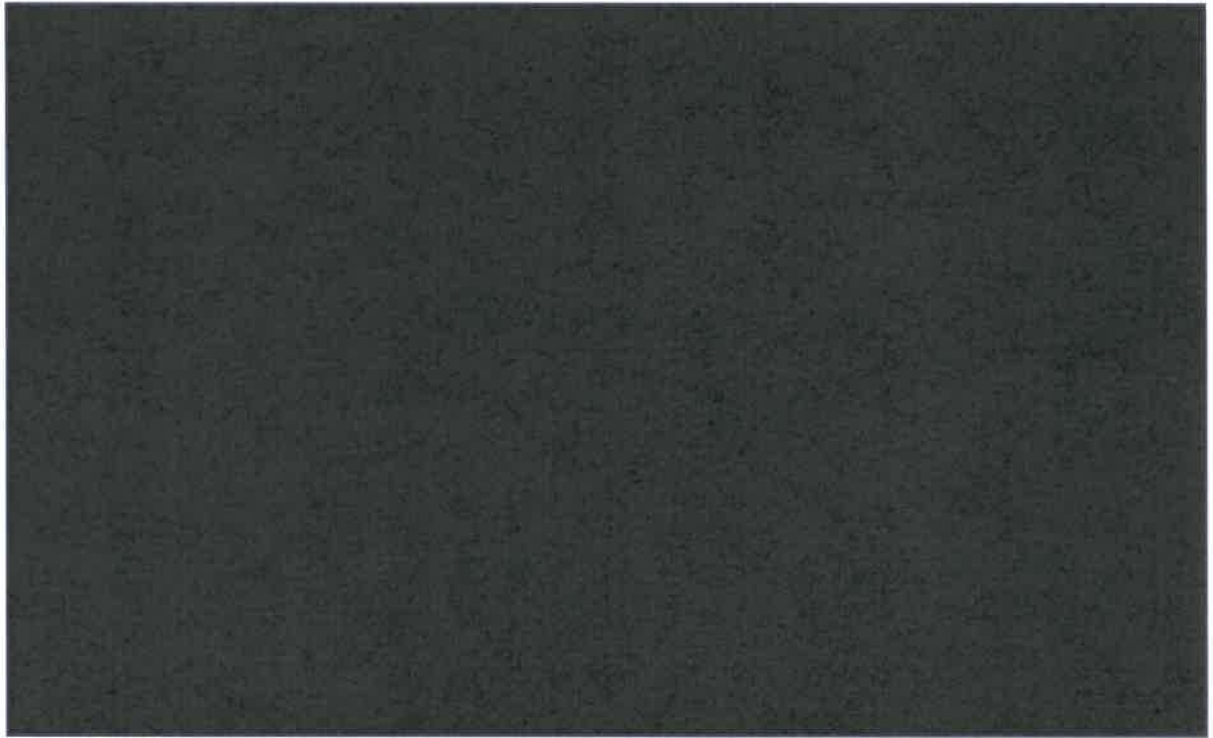
Figure 8. View southwest of the SE portion of project area. Note open mine area upper center.



Figure 9. Overview of open mine area in the northern portion of the project. View northeast.

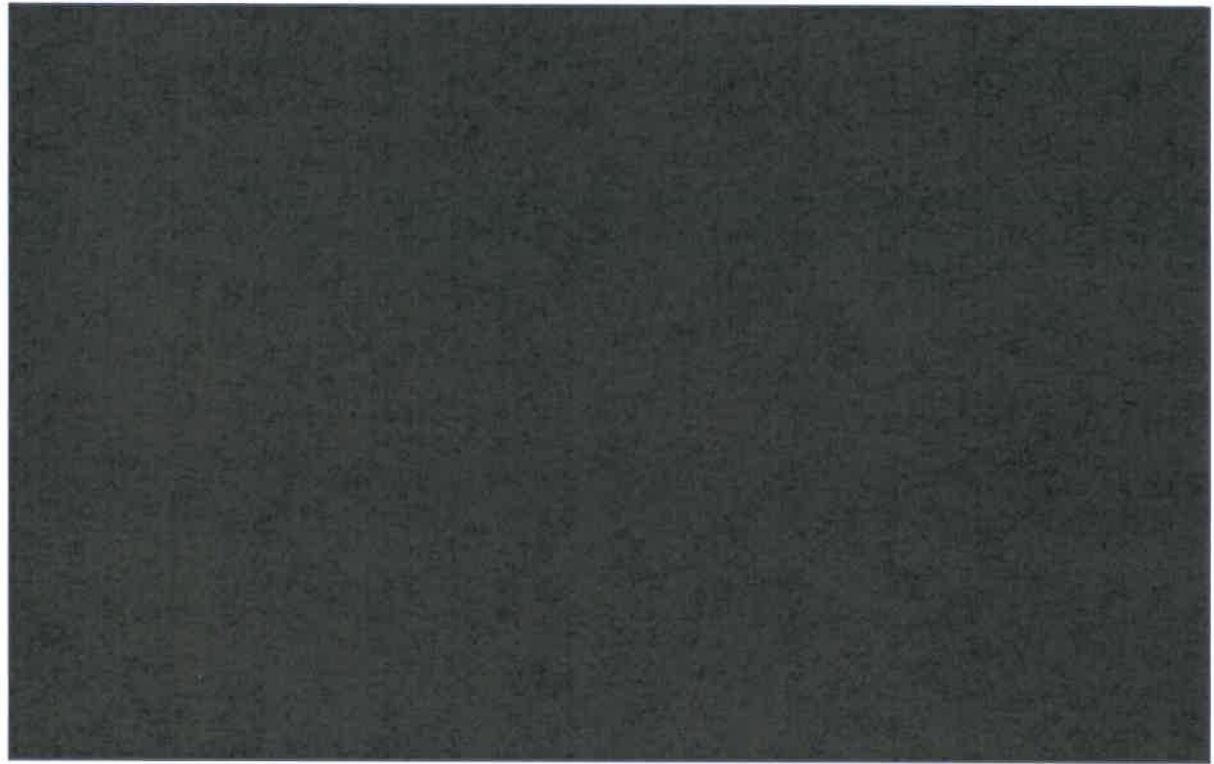
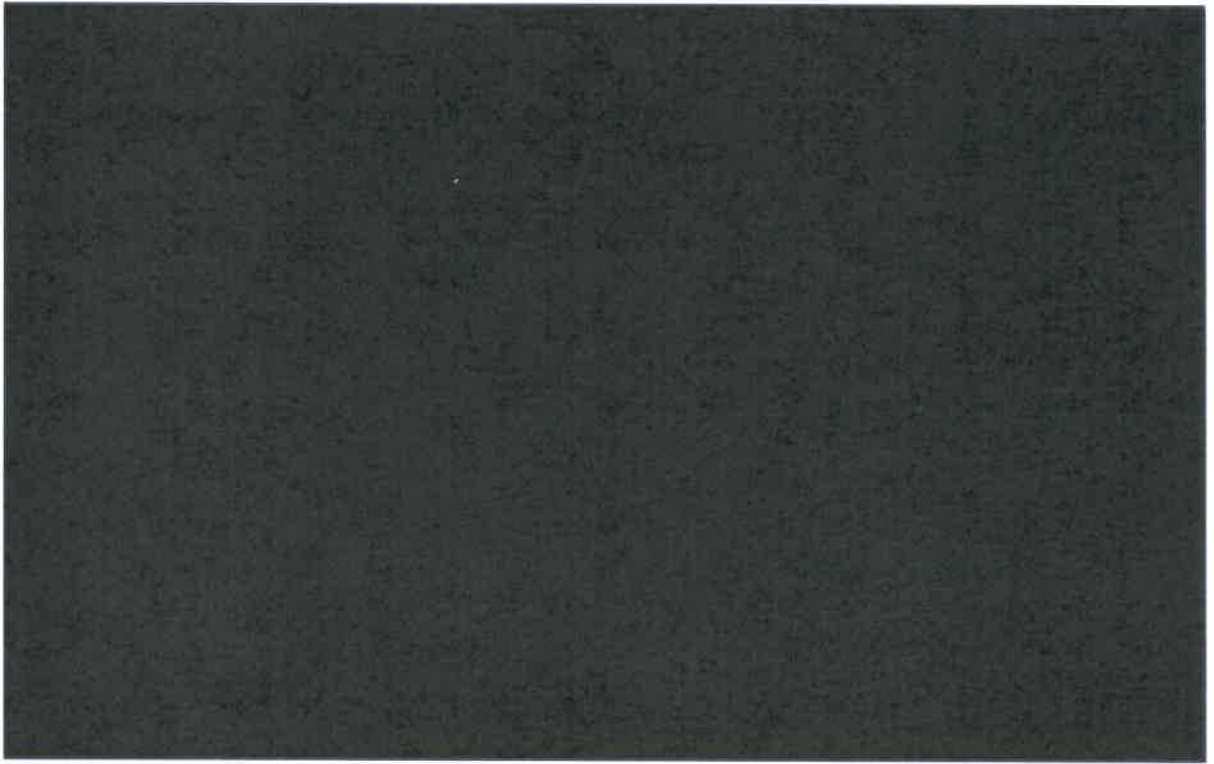


Figure 10. View from the north margin of the project, looking southeast across the entire parcel.





A small grouping of buildings, including a residence and three outbuildings, observed in the southeast corner of the property is not apparent on historic-era USGS quad maps or on the 1963 or 1982 aerial photographs (NETR 1963, 1982) The grouping of buildings is first indicated on the 1994 aerial photograph, in its current location (NETR 1994).



Conclusions and Recommendations

WillametteCRA has completed background research and a reconnaissance survey of the Moon Pit project area for the Deschutes County Landfill Siting Project. [REDACTED]

[REDACTED] Large portions of the project parcel have been developed as a gravel and rock mine/quarry and have been subjected to intensive ground-disturbing activity; however, portions of the project area to the east, west, and south of the mine/quarry area remain relatively undisturbed. [REDACTED]

Based on the information provided above, WillametteCRA recommends that all portions of the parcel not directly impacted by ground-disturbing mine/quarry activity have a moderate to high probability of containing archaeological resources (Figure 15). If the project includes the Moon Pit project area moving forward, we recommend that:

- A formal systematic archaeological survey is conducted of all portions of the project area not directly impacted by current or former mine/quarry activity (see Figure 15).

- [REDACTED]
- That an Oregon SHPO archaeological excavation permit is obtained prior to formal survey to allow for delineation of previously recorded resources and new resources identified during the survey using subsurface methods (i.e., shovel probing).

When a resource is identified and the project has the potential to impact it, then the resource needs to be delineated and formally evaluated under Oregon state law (assuming there is no federal nexus to the project). With some exceptions, evaluating whether an archaeological resource is significant requires an Oregon SHPO archaeological permit. To obtain a SHPO permit, a Secretary of Interior-qualified archaeologist on the Oregon SHPO's approved list must apply. The application requires a research design, which takes time to prepare. Once submitted, the application goes through a 30-day review period (realistically closer to 35 days) with SHPO during which time interested Tribes may comment. SHPO or Tribal comments or questions about the application may delay the process. Once the permit is obtained, field investigations may commence. The duration of the field investigations depends on the complexity of the resource. Once field investigations and post-field analysis are completed, the permit holder presents the findings (report and resource forms) to SHPO for concurrence. SHPO has 30 days to review the findings.

If the resource is determined significant, then impacts to the resource will need to be avoided or mitigated (e.g., archaeological data recovery, public interpretation, etc.); mitigation is specific to the individual resource and impact. If the resource is determined not significant, then the

resource is not protected by Oregon law and requires no avoidance or mitigation, and the project may proceed as planned. If SHPO disagrees with a finding or requests more information to support a finding, SHPO's review clock starts over at 30 days. Under State law, Oregon SHPO has the final say as to whether a resource is significant.

Should the project area or the scope of work change, these recommendations may not apply, and additional work may be necessary.

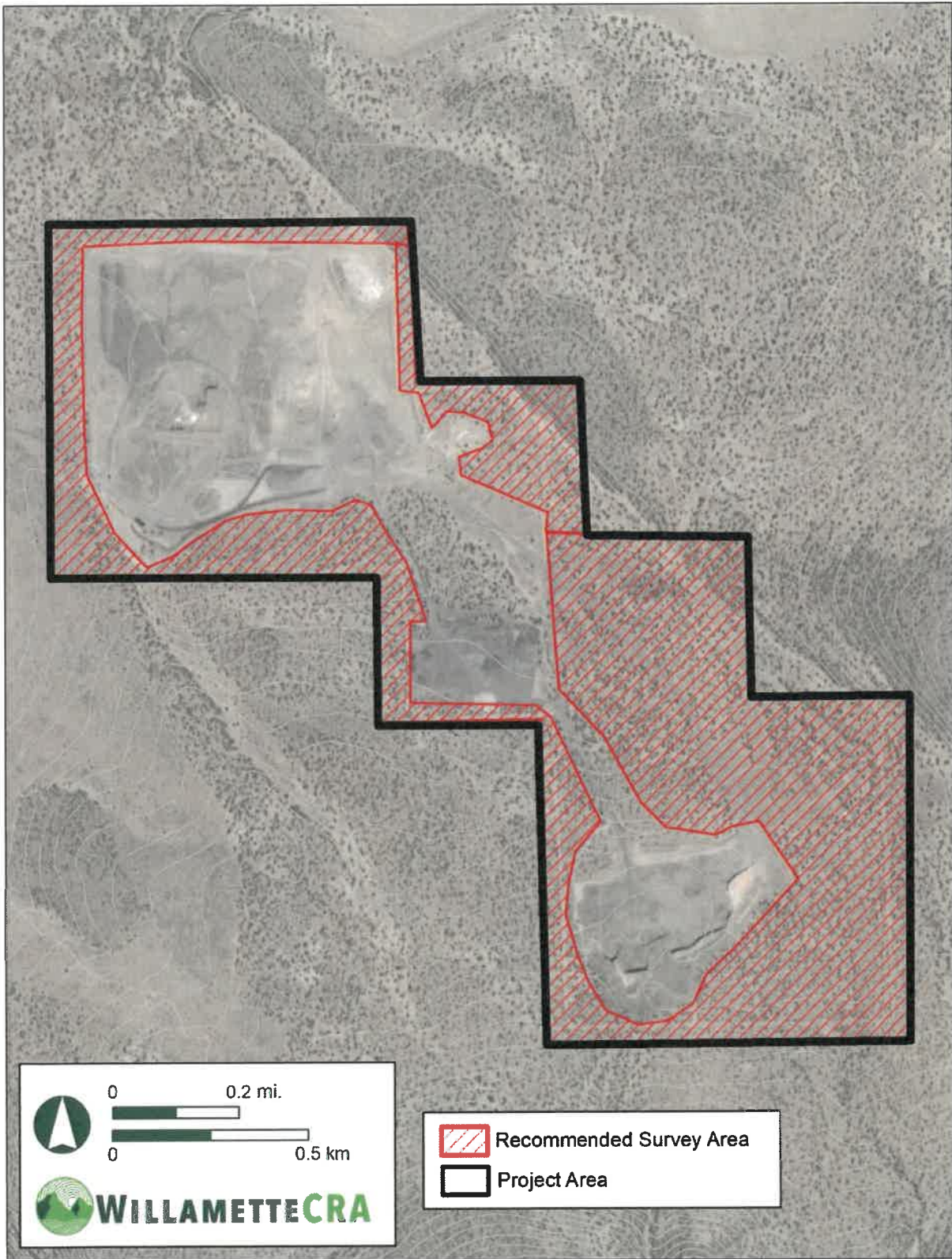


Figure 15. Moon Pit recommended systematic survey areas.

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**Archaeological Reconnaissance Survey for the
Deschutes County Landfill Project, Roth East
Property, Deschutes County, Oregon**



Archaeological Reconnaissance Survey for the Deschutes County Landfill Project, Roth East Property Deschutes County, Oregon

This document has been redacted for
Confidential Information on March 12, 2024

Prepared by
Michelle North
Matt Goodwin

February 2, 2024

WillametteCRA Report No. 22-80 Roth East
Portland, Oregon

Prepared for
Parametrix, Inc.
Seattle, Washington



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Report Details




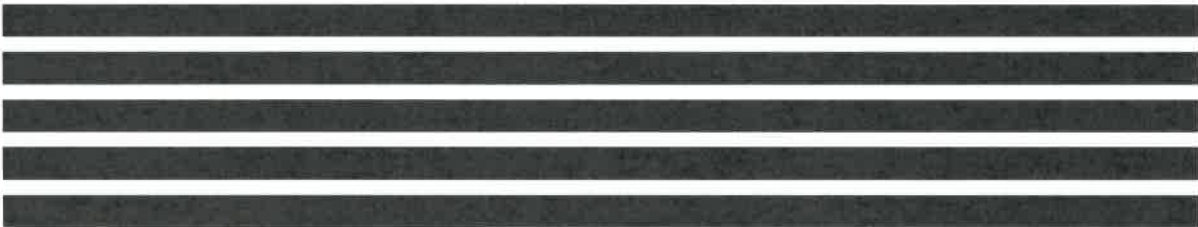
Project Name:	Deschutes County Landfill Roth East
Agency:	Deschutes County
Client:	Parametrix
Project Undertaking:	Landfill Siting
County(ies):	Deschutes
Legal Description:	Township 20S, Range 15E, Sections 11 and 12
USGS Quad(s):	<i>Pine Mountain, Oregon 7.5-minute</i>
Project Acreage:	~645
Survey Acreage:	~128
Permit Number(s):	N/A
Field Note Location:	WillametteCRA, Portland Office
Fieldwork Type:	Reconnaissance Survey
Fieldwork Dates:	September 6 and 7, 2023
Field Personnel:	Michelle North and Matt Goodwin
Findings:	
Recommendations:	Formal Archaeological Survey

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Introduction

On behalf of Deschutes County, Parametrix, Inc. (Parametrix) contracted Willamette Cultural Resources Associates, Ltd. (WillametteCRA) to conduct a reconnaissance survey of the Roth East property project area in support of the Deschutes County Landfill Siting Project, Phase 2. The Roth East project area encompasses approximately 645 acres of a single privately owned parcel (205000000301) in Sections 11 and 12, Township 20 South, Range 15 East, Willamette Meridian, in Deschutes County, Oregon (Figures 1 and 2).

Deschutes County is in the process of scouting potential sites for a new landfill. Phase 1 of this project identified six potential locations. Desktop review and assessment of several variables including cultural resources further narrowed this selection to two potential sites. The Roth East property project area is one of the two potential landfill sites being further investigated during Phase 2. There is currently no federal nexus for the project. However, the project must comply with county permitting processes, which require consultation with the Oregon State Historic Preservation Office (SHPO) to ensure cultural resources that are important, eligible, or listed in the National Register of Historic Places (NRHP) will not be impacted by the project. This report was created as an internal planning document and is not intended to satisfy project cultural resource requirements.

The purpose of the reconnaissance survey is to gather additional information about the archaeological sensitivity of the Roth East project area and assist in providing recommendations for further actions that may be necessary to address cultural resources requirements. At the time of the field reconnaissance there were no standing structures on the property, and the only existing infrastructure consisted of informal dirt roads. The surrounding area is sparsely developed and characterized by large open areas dotted with rabbitbrush, sagebrush and sparse juniper, bordered by low hills and upland plateaus. [REDACTED]

[REDACTED]

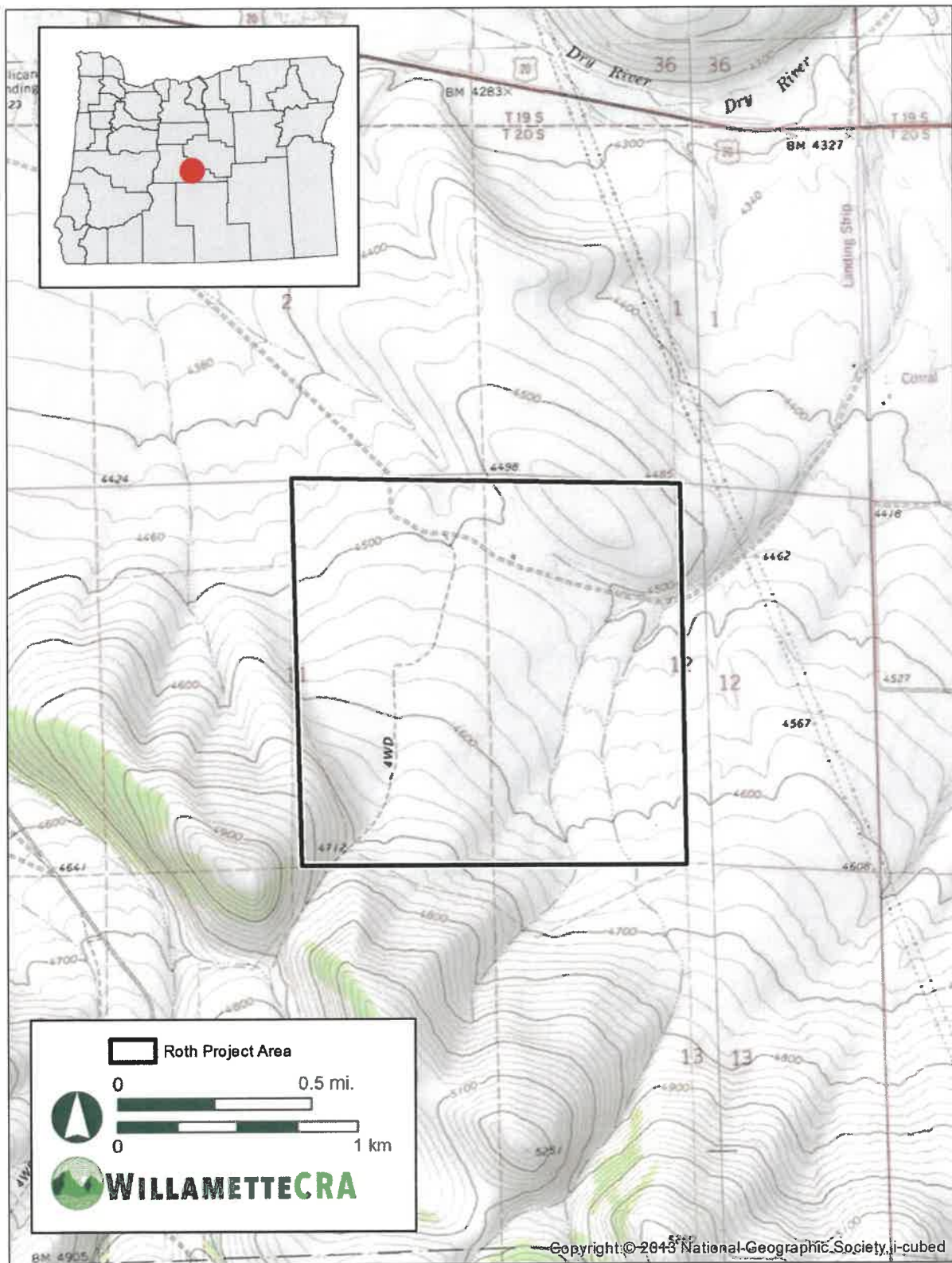


Figure 1. Project location map.

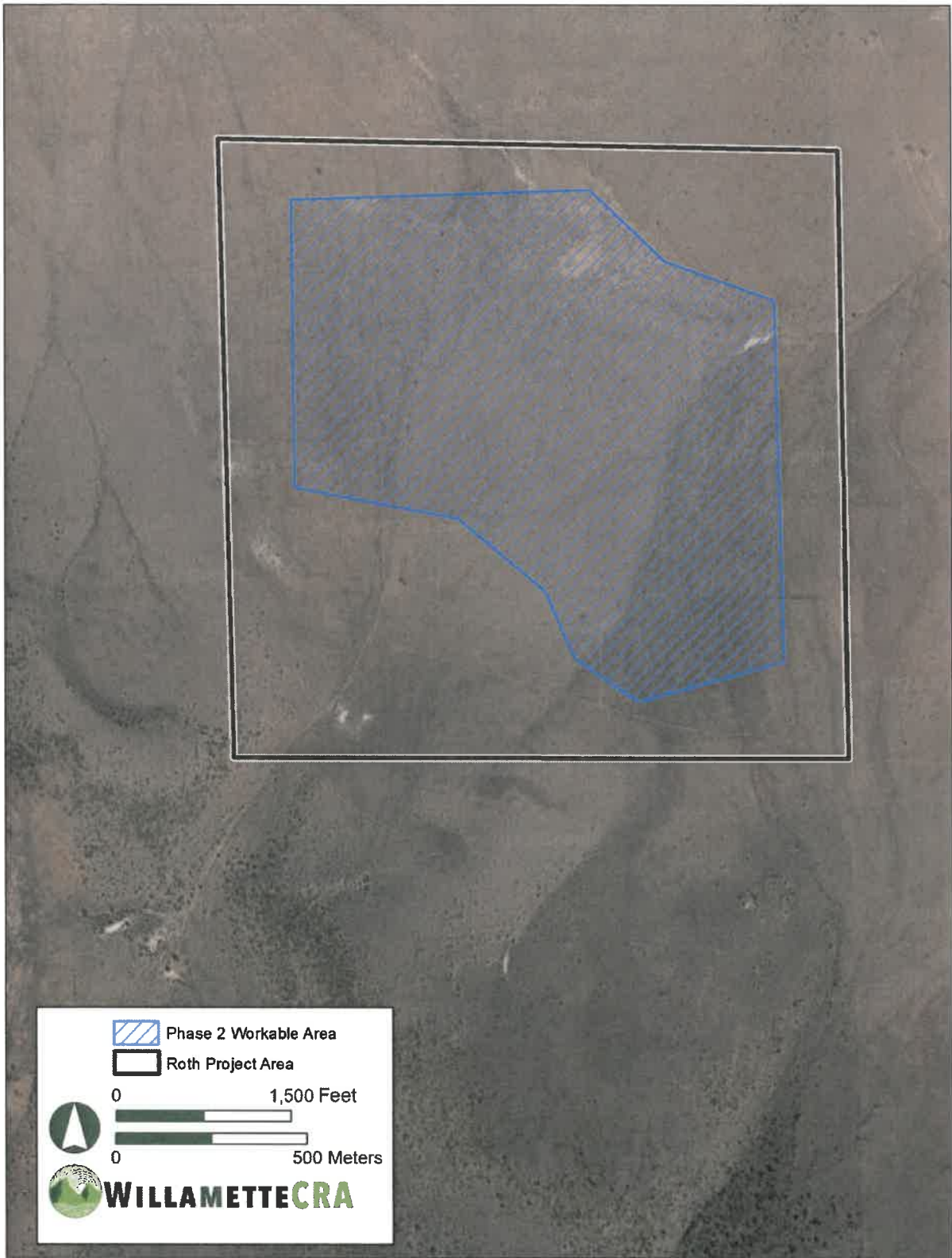


Figure 2. Project configuration on modern aerial imagery.

Natural and Cultural Background

Environmental Setting

The project area is situated in the vicinity of the Millican Valley within the High Lava Plains physiographic province of Central Oregon (Franklin and Dyrness 1988). The province is characterized by young lava flows of moderate relief interspersed with numerous cinder cones and lava buttes. Newberry Crater, part of the Paulina Peak shield volcano, is the largest peak in the area and is located approximately 16 miles (mi.) southwest of the project. Because the bedrock in this area is porous and the climate is generally dry, many streams and drainages are seasonal. During the Pleistocene the area held extensive lakes, which are now dry basins.

The Millican Valley is a high desert basin bound by lava flows and volcanic ridges uplifted by the Brothers Fault Zone (McKay et al. 2017; Vanaman 2007). The basin once contained Lake Millican, one of the northernmost water bodies in the Pleistocene Great Basin pluvial system. The basin was drained during the late Pleistocene when the northern margin of the lake was breached, creating an outburst flood that connected the lake to the Crooked and Deschutes rivers through the Dry River Canyon (McKay et al. 2017; Vanaman 2007). Other prominent landforms in the area include the previously discussed Dry River Canyon, situated approximately 1 mi. to the north, and Pine Mountain, an eroded volcanic peak located approximately 1.5 mi. to the south.

The Natural Resources Conservation Service (NRCS) identifies two soil types within the project area, Blayden loamy sand and Menbo stony loam. Blayden soils are shallow to duripan, well drained soils that form in volcanic ash above older alluvium. A typical soil profile consists of loamy sand that transitions to a gravelly loam, above cemented material. Blayden loamy sand is found on lava plains. Menbo soils are moderately deep, well drained soils that form in volcanic ash above colluvium. A typical soil profile consists of a stony loam, which transitions into a gravelly loam, above very cobbly clay loam and above bedrock. Menbo soils are found on hillslopes (NRCS 2023).

Precontact Archaeological Context

The project area lies near the boundary of the Plateau and Northern Great Basin culture areas. The PGT-PG&E Pipeline Expansion Project (PEP) is one of the most comprehensive large-scale archaeological efforts to examine precontact land-use in this region (Atwell et al. 1995; Bryson et al. 1995; Schalk et al. 1994, 1995). We have used this study, in combination with other regional studies, to synthesize the following summary of precontact land-use in the project area.

Prior to about 7,600 years ago, people in the region employed a highly mobile land-use system (Schalk et al. 1995). Site frequency is low, and there is little diversity among excavated assemblages. Sites of this age are broadly similar in content, and logistical mobility was

uncommon or not employed regularly. Archaeological evidence indicates that lithic technology was more formal, with limited expedient tool use, and tool stone was directly procured from individual sources, suggesting larger territories. Ground stone was rare. Diet was generalized, and while people consumed plant resources, the focus was likely on small and medium sized mammals.

After about 7,600 calibrated years before present (cal BP), robust, semisubterranean structures appear in the archaeological record, although they are infrequent. The number of sites increases, as does the level of diversity among assemblage types (Schalk et al. 1995:9–28), suggesting some use of logistical mobility. This period likely saw people adopting a system with brief winter sedentism in pithouses. Evidence for storage during this time is low. However, a noticeable increase in handstones and milling stones combined with an increase in the number of sites located in upland plant collection areas suggest people were making greater use of plants (probably seeds). An increased focus on larger mammals is also found. This led PEP archaeologists to speculate cold weather sedentism may have been possible with some storage of seed and intensive winter hunting.

Between about 4,500 years ago and contact with European Americans, people adopted a much different land-use strategy, based on longer sedentary occupations, increased logistical organization and likely food storage. However, this system varied considerably during the late Holocene. In general, pithouse sites become more common, usually found in small clusters of houses (Schalk et al. 1995:9–30). People increasingly used more informal tools and intensively focused on large mammals and plants. Handstones and milling stones decreased dramatically, replaced by mortars, which probably reflects an increased use of roots in place of seeds (Couture et al. 1986). Over the last circa 3,000 years, evidence suggests people increased trade dramatically with most tool stone procured indirectly (Schalk et al. 1995:9–31).

Assemblage type diversity along with the number of house sites peaks between about 3,000 and 1,500 years ago, possibly signifying the highest level of logistical organization during the Holocene (Schalk et al. 1995). After 1,500 years ago these measures both decline but reasons for this are unclear. The decline may represent people moving into fewer, larger house sites and even more intense logistical organization, both of which may result in an overall decline in the frequency of sites on the landscape.

This description of precontact land-use is generally derived from data compiled from sites within the larger high-desert region. However, while small variations probably existed on a local level, this description likely still reflects broad land-use patterns through time within the Millican Valley.

Native Peoples

The project area is within an area of overlapping interest and cultural significance to the Tenino and Northern Paiute people, specifically, the Hunipui band.

The Tenino

The Tenino are part of the 'Western Columbia River Sahaptin' language group; itself a subgroup of the larger Sahaptin language family, that also included the Walla Walla, Lower Snake, Palouse, Wanapam, Yakima, Kittittas, Upper Cowlitz, and Klickitat (Hunn and French 1998:378).

The topographic diversity of the Tenino territory played a key role in how their economic and social life were organized throughout the year. This territory lies within a semi-arid basin, whose major hydrological features were the John Day and Deschutes rivers. These drainages are bordered to the west by the upland valleys along the East Cascade foot slopes and to the east by the Blue and Ochoco mountains (Thorson et al. 2003).

Ethnographic and ethnohistoric documentation describes villages as consisting of 2 to 20 houses, with populations ranging from about 30 to 400 people. (Hunn and French 1998:385–388). Each village group's main settlements consisted of a permanent winter village and a major fishing locality. Secondary or tertiary sites were also common but were not usually occupied for long periods and these localities were rarely the subject of intensive recurrent occupation every year. However, the winter village location of some groups also doubled as a major fishing or plant processing locality (e.g., the Tygh valley Tenino; Jenkins and Connolly 1994). Thus, for some groups the winter village and a major resource locality would be the same settlement, with an additional plant/fishing (whichever resource was furthest from the main winter village) locality making up the second major settlement. However, it should be kept in mind that our understanding of the non-riverine portion of the Tenino economy and social organization is poorly understood. Ethno-historical documentation exists largely from the Lewis and Clark expedition, which never ventured far from the Columbia, and from intermittent accounts by early European fur-traders from the Hudson's Bay Company in the 1820s and 1830s (Hunn and French 1998:394). Proper ethnographic work did not take place until the 1930s (Murdock 1938; Spier 1935; Spier and Sapir 1930).

The annual Tenino subsistence round began in the spring, when task groups and families would leave winter villages to first exploit wet meadow crops such as camas, false onion, and 'Indian Carrot,' followed by drier soil plants in upland settings; e.g., lomatiums, desert parsley, and bitterroot (Hunn and French 1998:380–383). Around June, groups would reconvene around their principal fishing locations (typically after the major flooding episodes of the major rivers) for the seasonal harvest of salmon and other fish. Fish were harvested by spearing, gaffing, dip and set netting, gill and seine netting, hook and line, and in weirs and traps. At least five species of Pacific salmon and two species of suckers were of primary importance and were acquired alongside major rivers, such as the Columbia and its confluence with the Deschutes and John Day rivers. However, Warm Springs' accounts also suggest that trout and eels/lamprey were also major fishing staples (Hunn and French 1998:380–383; Zucker et al. 1987). These are

typically caught along smaller tributaries or in slower moving, shallower bends within the John Day or Deschutes rivers, notably quite different settings than salmon fishing sites.

During the end of the major fish runs, typically in August to early September, groups would move back into upland areas to acquire and process fruits, especially huckleberries. Like the plants mentioned above, typical processing involved the drying and pounding of the edible plant tissues into cakes or kinds of flour, which were light and easy to preserve/store for winter and trade (Hunn and French 1998). Fall consisted of continued hunting of mammals, especially deer/elk, which were also acquired alongside all other activities throughout the year as encountered. Additionally, bighorn sheep, pronghorn, and black bear were and continue to be hunted in the region.

The Hunipui

The Northern Paiute belong to the Western Numic language group, an offshoot of the Uto-Aztec linguistic family (Fowler and Liljeblad 1986:435). The subgroup known in English as the Hunipui are traditionally called huniputÖka, based on their harvest of Seepweed (*Sueda depressa*), a lakeshore perennial whose seeds are an important part of the seasonal round, typically harvested in late summer and stored and eaten throughout the year (Couture 1978:91). This is a system of naming based on an association with a specific resource and its habitat that is consistent with other Northern Paiute groups; i.e., “tibadikaʔa, pine nut eaters” (Fowler and Liljeblad 1986:436).

The Northern Paiute traditional economy was based on a seasonal cycle of hunting, gathering (plants and insects, especially crickets), and fishing throughout their homeland, by family groups known as nanobiaʔa (“neighbors together”), and who settled in socially flexible residence patterns (Fowler and Liljeblad 1986:436). The material culture consisted of various seasonally available plants, animals, and mineral sources, including but not limited to trees and grasses, deer, and birds. Plants used for food and medicine were varied (Fowler and Liljeblad 1986) and made the most of the local ecology, and included sagebrush, juniper, camas, bitterroot, wild onion, and biscuitroot, and various berries (Fowler and Liljeblad 1986:443; O’Grady 2006:11), as well as the trees and plant species that grew on lakeshores and marshland that were used for clothing, tools, and dwellings. The diversity of plant life along lakes and marshland fostered migratory birds, as well as resident mammals and fish, all of which were part of the traditional economy.

Important food resources also included mammals, divided between seasonal and year-round game species, including deer, elk, mountain sheep, and antelope; various rabbits, beaver, raccoons, porcupines, muskrats, and marmots; as well as bison in the precontact period (O’Grady 2006). Rabbit drives were conducted using nets and occasionally with fire (Steward 1938:38–39; Whiting 1950:20), and large game was hunted using bows and arrows

(Fowler and Liljebblad 1986:439). Fish species included but were not limited to chub, northern pike minnows, salmon in the Malheur and Drewsey basins, and trout (O'Grady 2006:16).

Paiute social organization is described as egalitarian, flexible, often related to harvest of traditional foods, and based on the nuclear family (Fowler and Liljebblad 1986:446). Social organization also included an expanded kin network based on various levels of relationship. For example, various groups came together for collective salmon fishing or cricket collecting, then dispersed into smaller groups to hunt and gather roots and seeds (O'Grady 2006:18). Winter dwellings were conical or dome-shaped, built of wood frames covered with layers of sewn tule mats (Fowler and Liljebblad 1986:444), and people ate stored foods throughout the winter, occasionally supplemented by fresh catches.

European American Colonization

The first non-Native presence in the Central Oregon high desert was likely transient traders with the Hudson's Bay Company who traveled through the area in the 1820s and 1830s (LaLande 2023). Some emigrants traveling to the Willamette Valley also passed through the high desert on their journey to the Cascade wagon road passes. However, European American settlement during this early period was limited due to the rugged terrain of the Ochoco Mountains and the ongoing conflicts with Native American tribes in the region, which persisted until the 1860s.

During the mid-nineteenth century, the Homestead Act of 1862 and the subsequent establishment of more transportation routes drew farmers, cattle ranchers, and sheep herders to Central Oregon (Hanson 2018:9), especially around Bend, Oregon, which provided one of the few areas where wagon trains could efficiently ford the Deschutes River (Brogan 1964; McArthur and McArthur 2003). The population of central Oregon increased steadily during the 1870s and 1880s as ranchers moved their cattle herds to the sage flats of the high desert. In 1916, Deschutes County was established from the western portion of Crook County, with Bend serving as the county seat (State of Oregon 2023).

Early farmers in the central Oregon high desert were dry-land farmers, meaning that they farmed without the aid of irrigation. This kind of farming was challenging in the arid environment, but success was found with cereal crops, and certain legumes such as alfalfa (Tonsfeldt and Claeysens 2004). Irrigation efforts in the early twentieth century increased agriculture which led to the growth of towns and cities like Bend and brought new agricultural settlers into Deschutes County. By 1907, the Central Oregon Canal was constructed, diverting water from the Deschutes River. Newly irrigated lands continued to be the major impetus for settlement in Deschutes County through the 1910s and 1920s (Central Oregon Irrigation District 2023).

The nearest settlement to the project area, the town of Millican, is named after George Millican, a stockman who established a ranch in the area in the late 1800s (MacArthur and MacArthur 2003). While the population has never been large, ranching and agriculture did bring in more

settlers, and the Millican post office was established in 1913. In 1920 William Rahn became postmaster (MacArthur and MacArthur 2003). However, the population of the area contracted sometime after, and for a time Rahn was the sole resident of the town.

Historic Map Review

At the time of the earliest mapping of the project area by General Land Office (GLO) surveyors in 1880, the project area was depicted as devoid of development, and no natural features or landforms were specifically mapped within it (GLO 1880). However, several ravines are mapped southeast of the project, and a prairie is depicted approximately 2 mi. to the south (Figure 3). Deschutes National Forest is mapped approximately 1 mi. south of the project (GLO 1880).

The next available map of the project is the United States Geological Survey (USGS) topographic *Crescent, OR* from 1957. At this time windmills/windpumps are depicted 1.5 mi. to the northwest and 0.4 mi. to the northeast and an airstrip is mapped approximately 1.3 mi. to the northwest (USGS 1957). Additionally, structures labeled “ranches” are located approximately 0.7 mi. to the northeast (USGS 1957). The Dry River, Millican, and Highway 20 are all present on the 1957 topographic map. Historic aerial imagery of the project area from 1963 depicts it as an undeveloped desert interspersed with informal roads and trails (Nationwide Environmental Title Research [NETR] 1963). The 1963 imagery also displays evidence of some agriculture on the property. However, the nearest visible structure is located approximately 0.6 mi. to the northeast of the project, off what is now Newt Morris Road.

The 1969 topographic map *Millican, OR* depicts two intermittent streams traversing the east half of the parcel running south-north (USGS 1969; Figure 4). A trail labeled “jeep trail” is mapped in the western half of the project area positioned roughly north-south and connects to an unimproved road in the north (USGS 1969). This road is still visible in modern aerial imagery (NETR 2020). There is one structure present in the north central portion of Roth East visible on the 1969 map (USGS 1969), this structure may also be displayed on a 1963 aerial, however, image quality makes it difficult to confirm (NETR 1963). Modern aerial imagery suggests the ruins of the structure may still be present. A deep well is mapped approximately 0.6 mi. to the southwest of the project and a transmission line is depicted approximately 0.07 mi. east of the project, running northwest/southeast (see Figure 4). The transmission line is still present today and the two structures labeled “Ranches” on the 1957 map are still present on the 1969 topographic (USGS 1957, 1969). The project area appears to have undergone little to no development by 1973 (and the surrounding looks much the same USGS 1973). In 1982, aerial imagery of the project area exhibits little change, except a decrease in agricultural activity (NETR 1982).

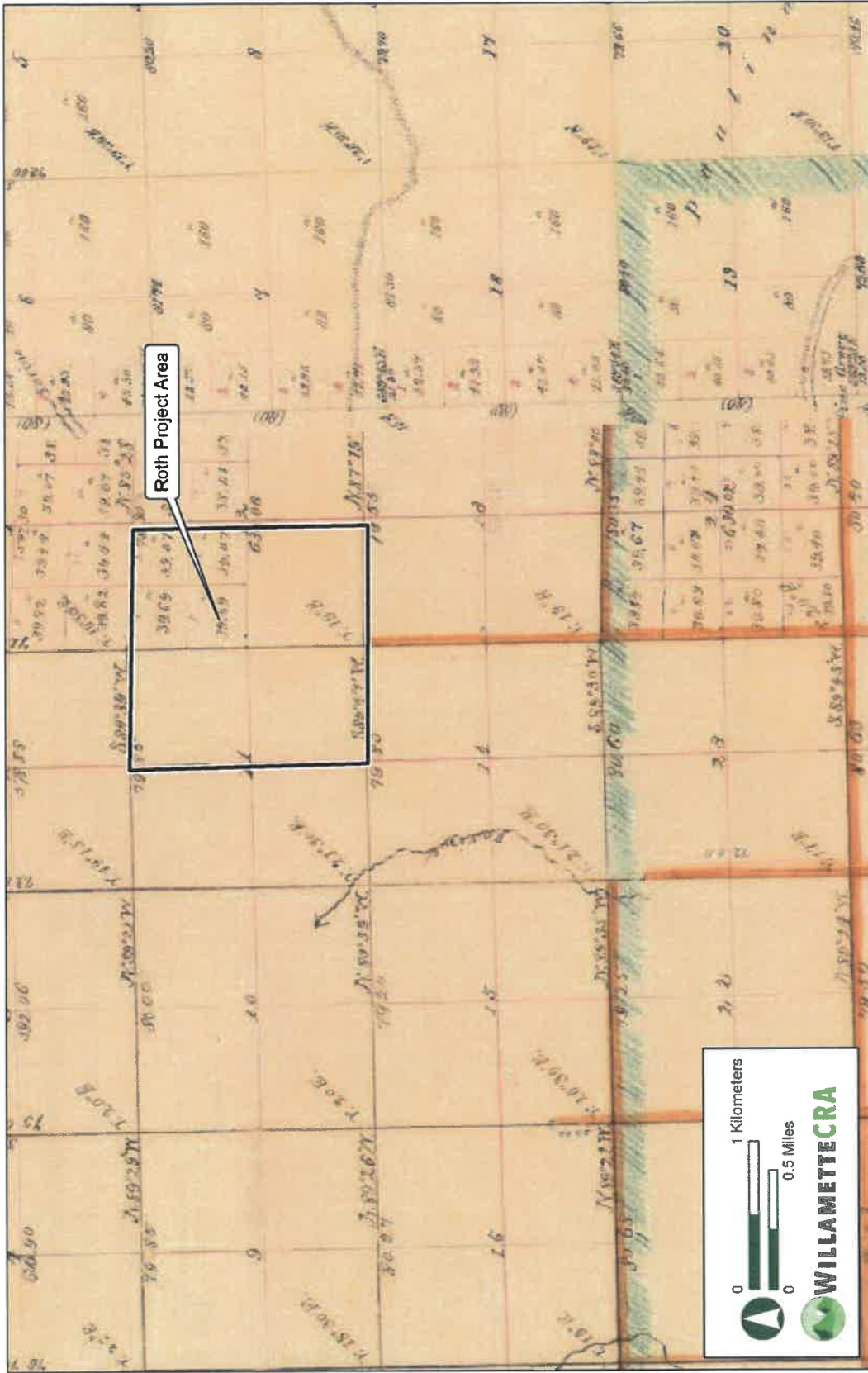


Figure 3. 1880 General Land Office map of Township 20 S, Range 15 E.

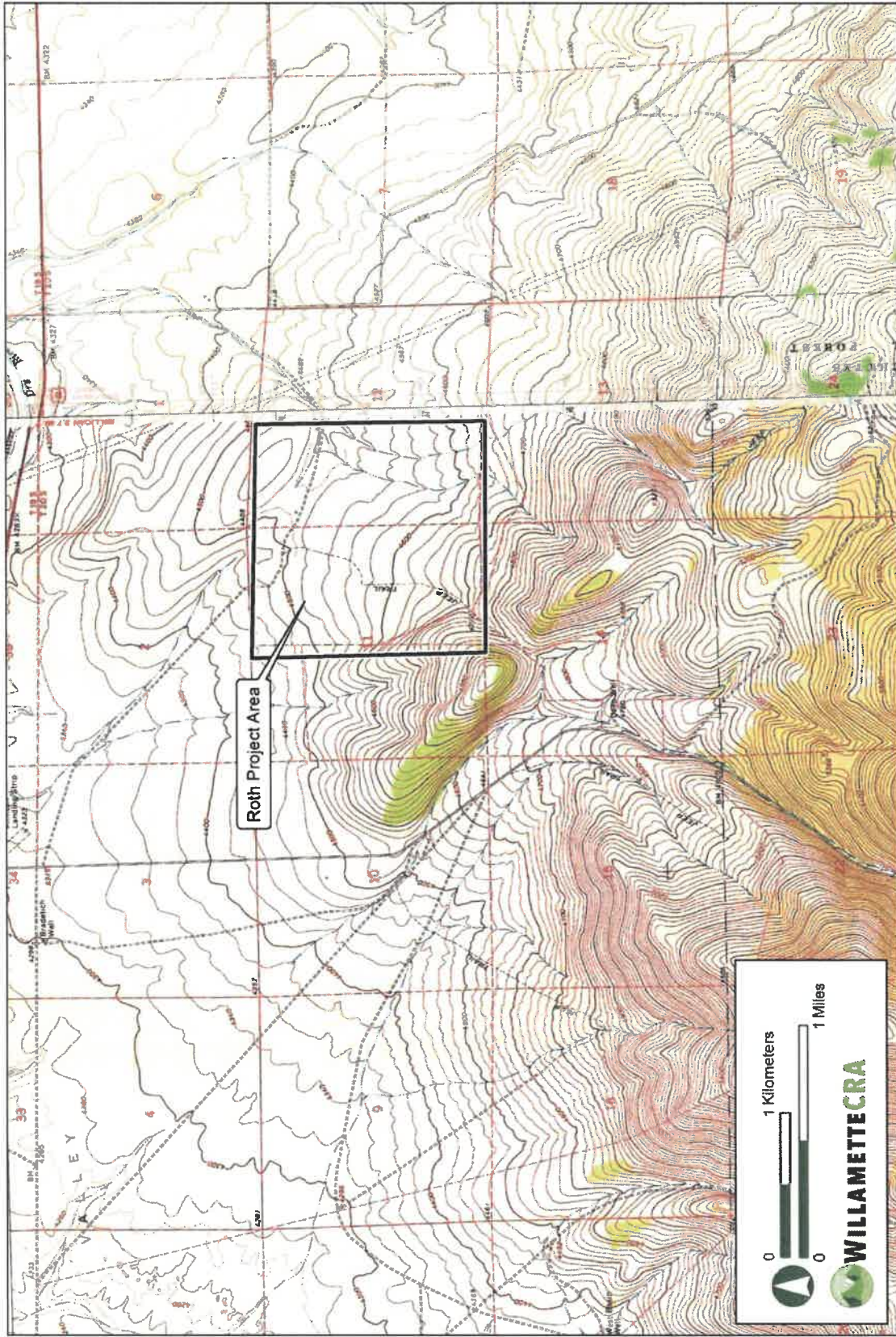


Figure 4. USGS 1969 topographic maps Millican, OR and Pine Mountain, OR.

Previous Archaeological Studies

A review of the SHPO GIS database has identified 10 previous cultural resource studies within approximately 1 mi. of the project area (Table 1). Only one of these previous archaeological studies has overlapped with the project area (Toepel and Beckham 1978). This study was an overview of existing cultural resources in the Brothers EIS area within the Prineville BLM District and did not involve field survey. [REDACTED]

[REDACTED] Additionally, very few of the previous studies in the vicinity have used subsurface investigations. Previous investigations in the broader area are limited and has been primarily associated with roadwork along Highway 20 (e.g., Connolly 2001), transmission and fiberoptic projects (e.g., Sharp et al. 1998; Toepel 1981), and vegetation management (e.g., Griffin 2008; Hamilton 1999).

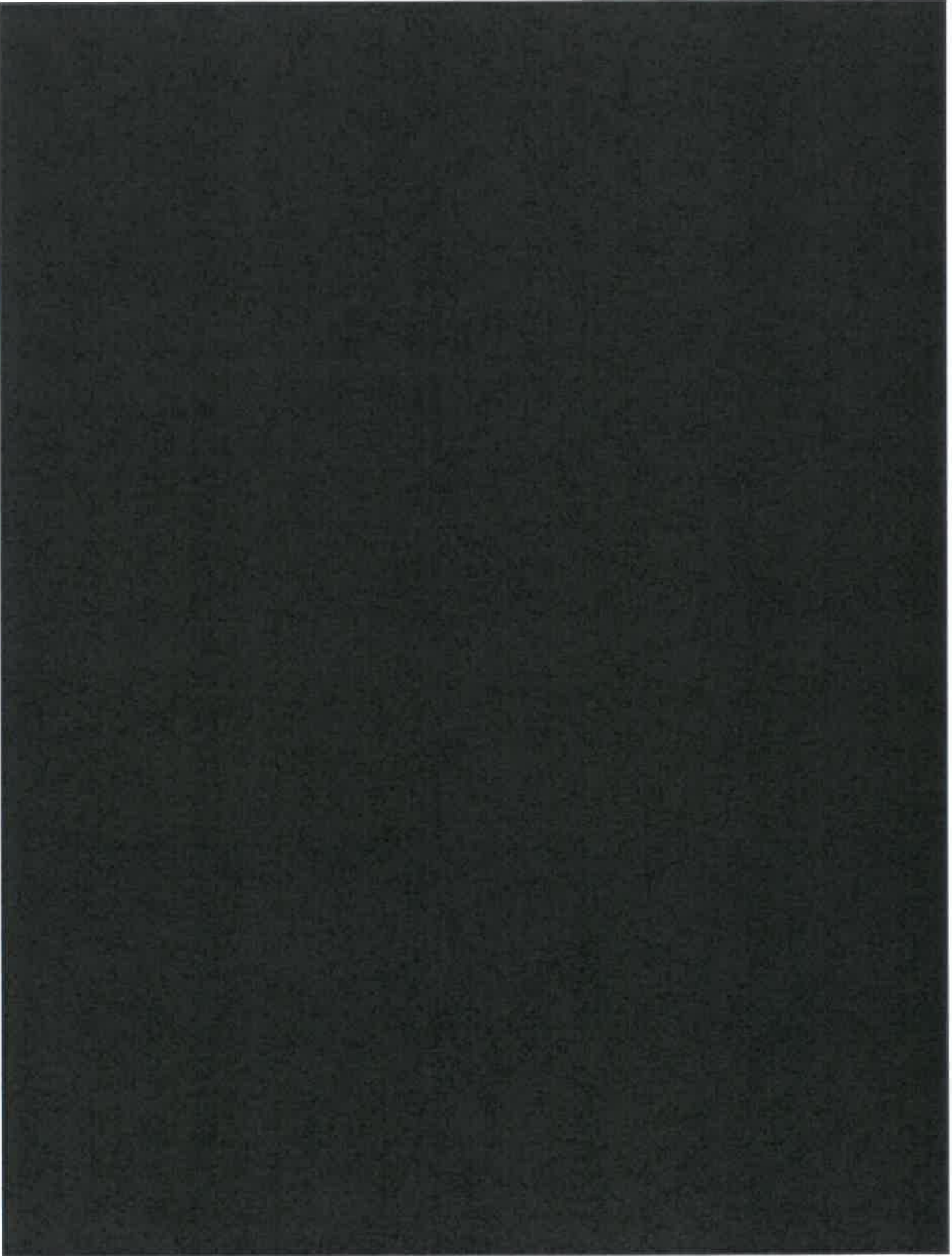
[REDACTED]

[REDACTED]

Expectations

The proposed project is located on a parcel that encompasses both a relatively level lowland, and gentle slopes leading up to Pine Mountain in the south and a level upland area in the northeast part of the project that overlooks the valley. Relic drainages bisect the property. Given the lack of previous survey, presence of drainages, and the distribution pattern of previously identified sites in the broader vicinity, the area has a high probability of containing precontact archaeological resources. [REDACTED]
[REDACTED]

There are no historic built environment resources in the Roth East project area. Additionally, our historic map research shows little historic-period development within or near the project area and we suspect there is a low probability of historic-period archaeological resources in Roth East. [REDACTED]
[REDACTED]
[REDACTED]



The project area is currently undeveloped aside from informal dirt roads. The property is a near-level lowland that slopes upward in the south towards Pine Mountain, and in the northeast corner, where it becomes a level upland butte that overlooks the surrounding valley (Figure 6–
[REDACTED]). In the lowland areas, evidence of ephemeral seasonal drainages such as shallowly incised channels and rounded gravels was observed. Vegetation at the time of survey consisted primarily of rabbitbrush and sagebrush with sparse, small juniper. Where the project area begins to slope upward in the south and northeast, juniper trees are larger and more common (see Figure 6). Occasionally, wildflowers were noted on the southern slope.

The lack of established juniper on the more level portions of the project area, in combination with push-piles of rock (see [REDACTED]), and historic imagery, suggests that these areas have been previously cleared for farming purposes. Past disturbance in the project area appears to be limited to land clearing, informal road construction, and agricultural activity.



Figure 6. Overview of SW quadrant of the project area, note increase in juniper on hillslope. View south.

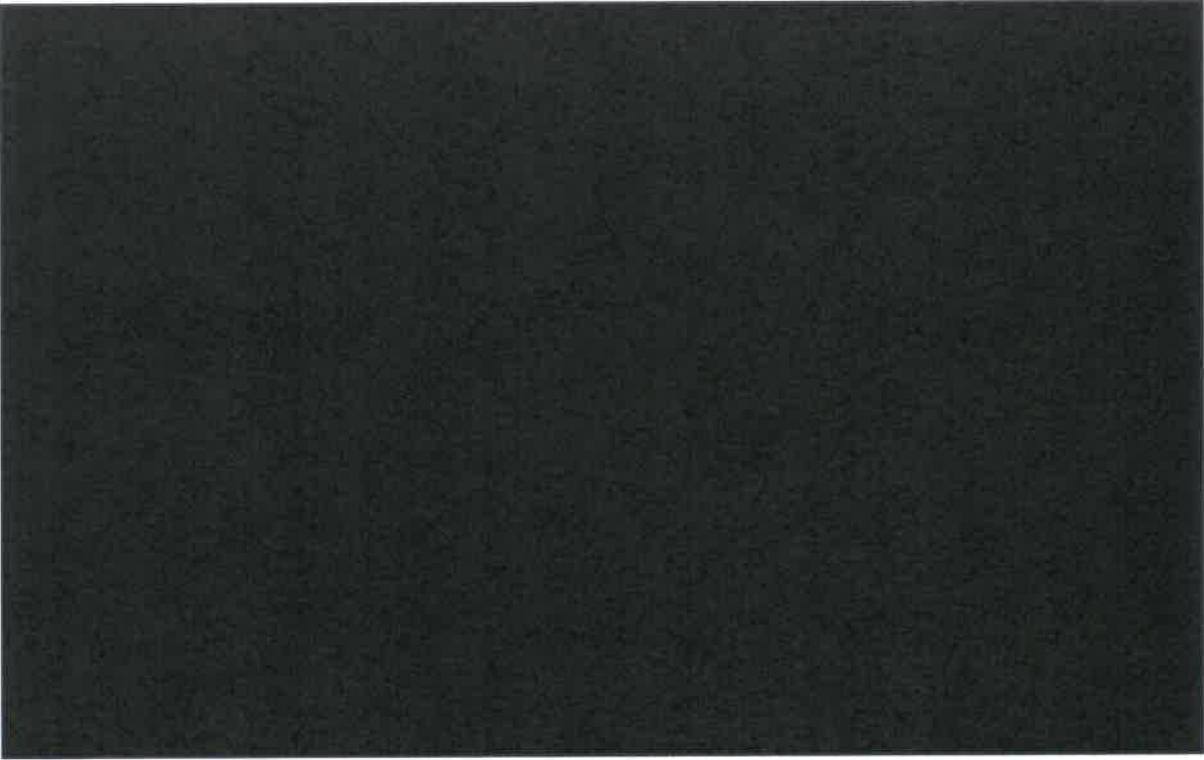
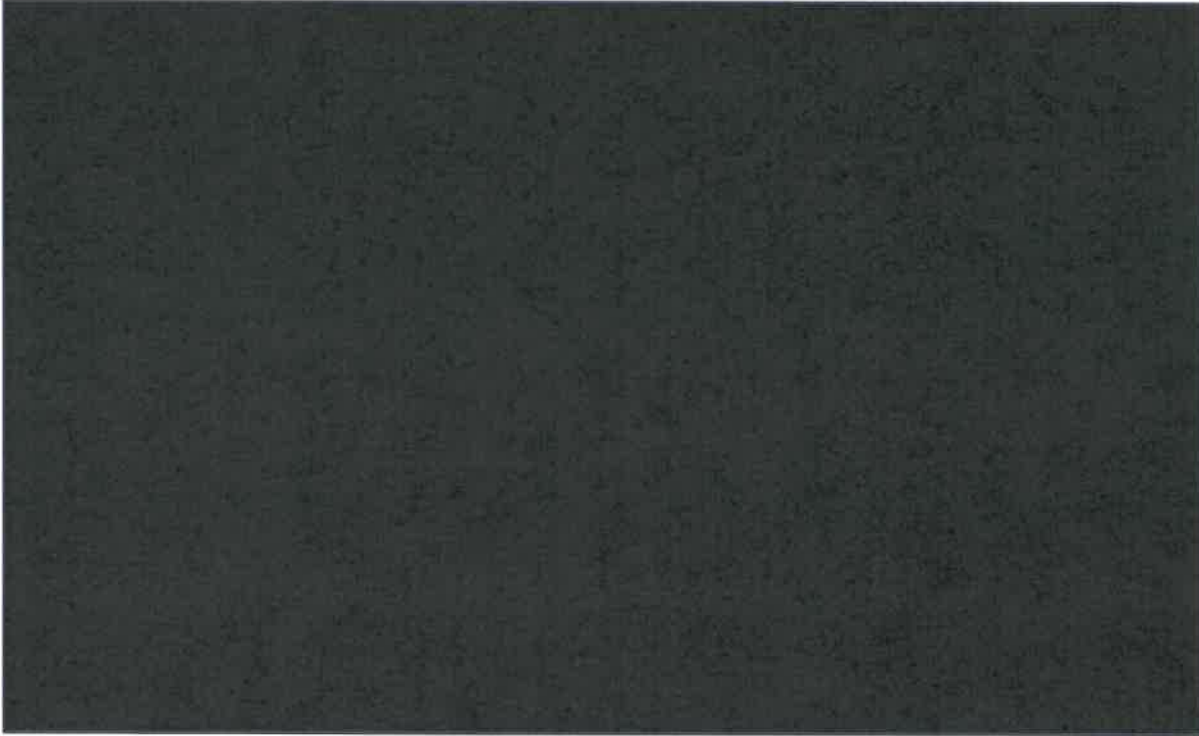


Figure 8. Overview of NE quadrant. View northeast.



Figure 9. Overview of SE quadrant of the project area. View south.



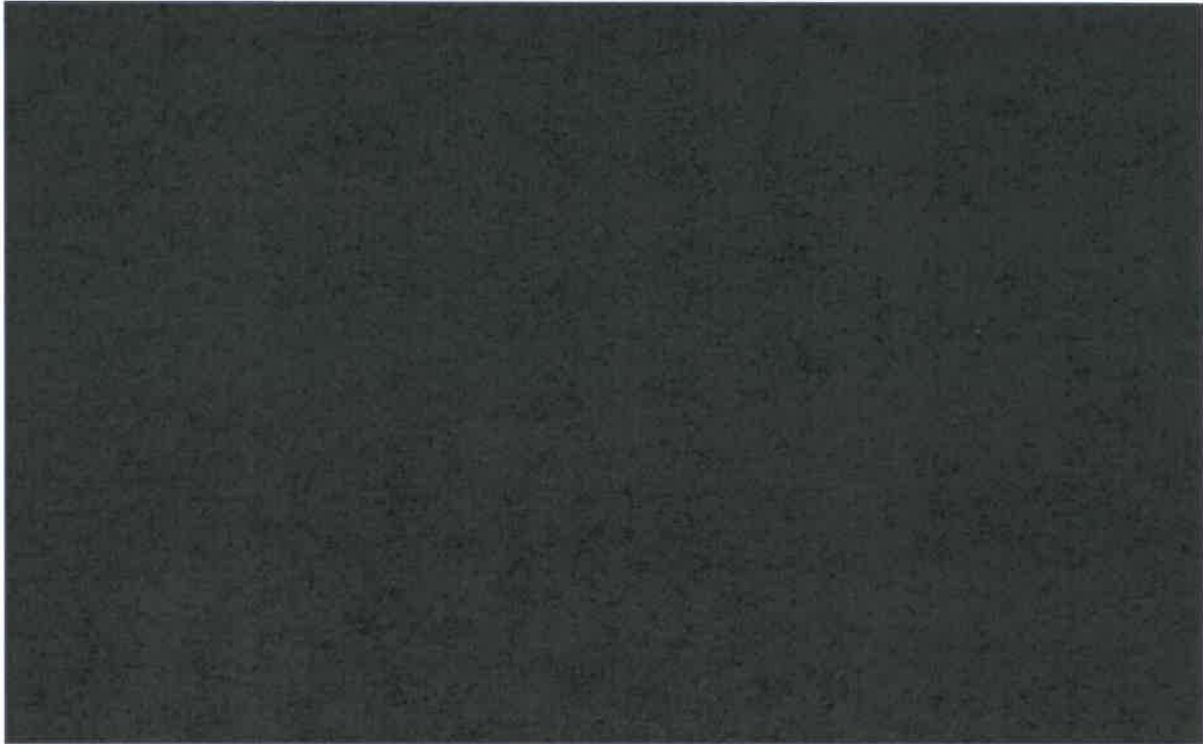
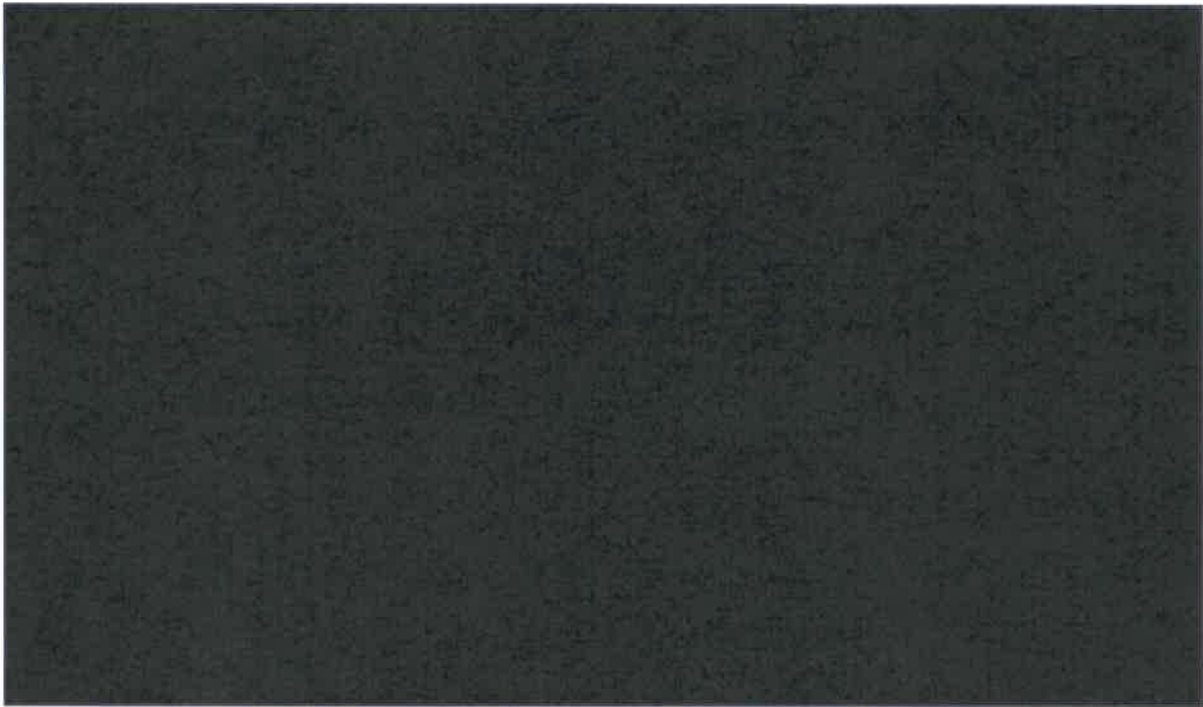
[Redacted]

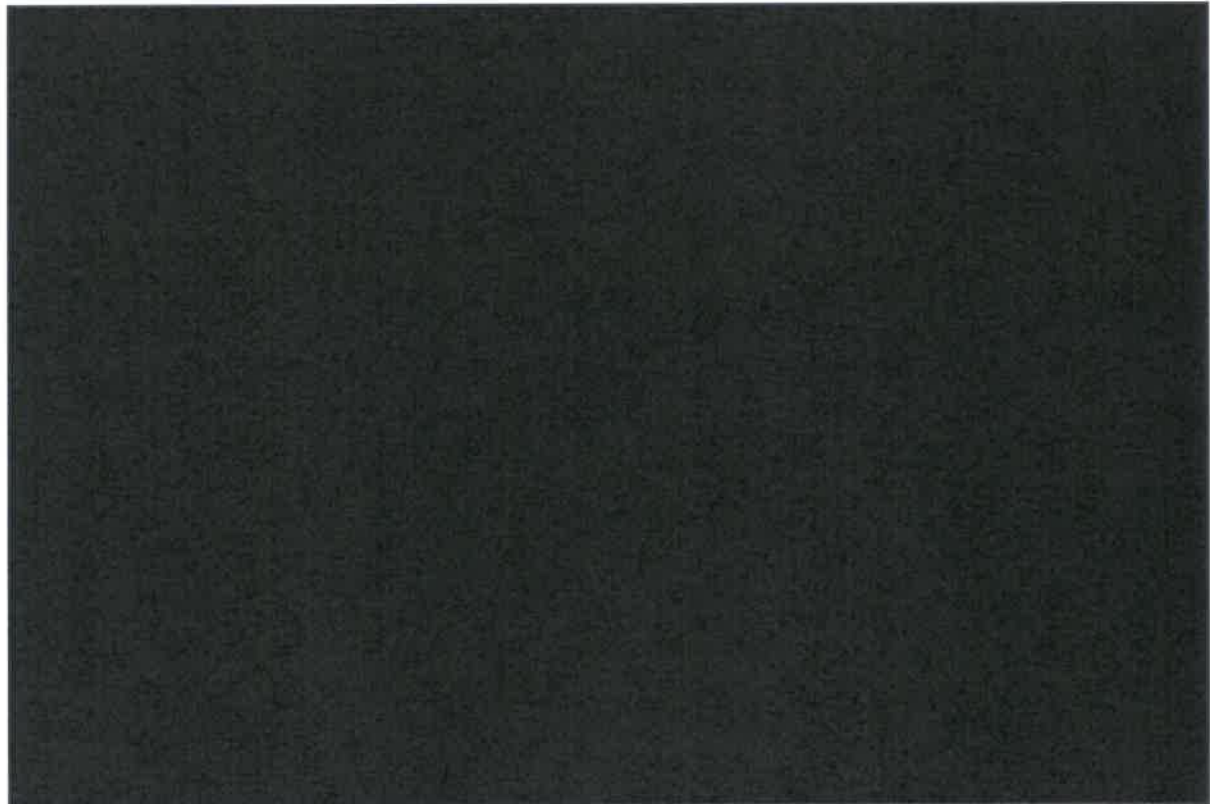
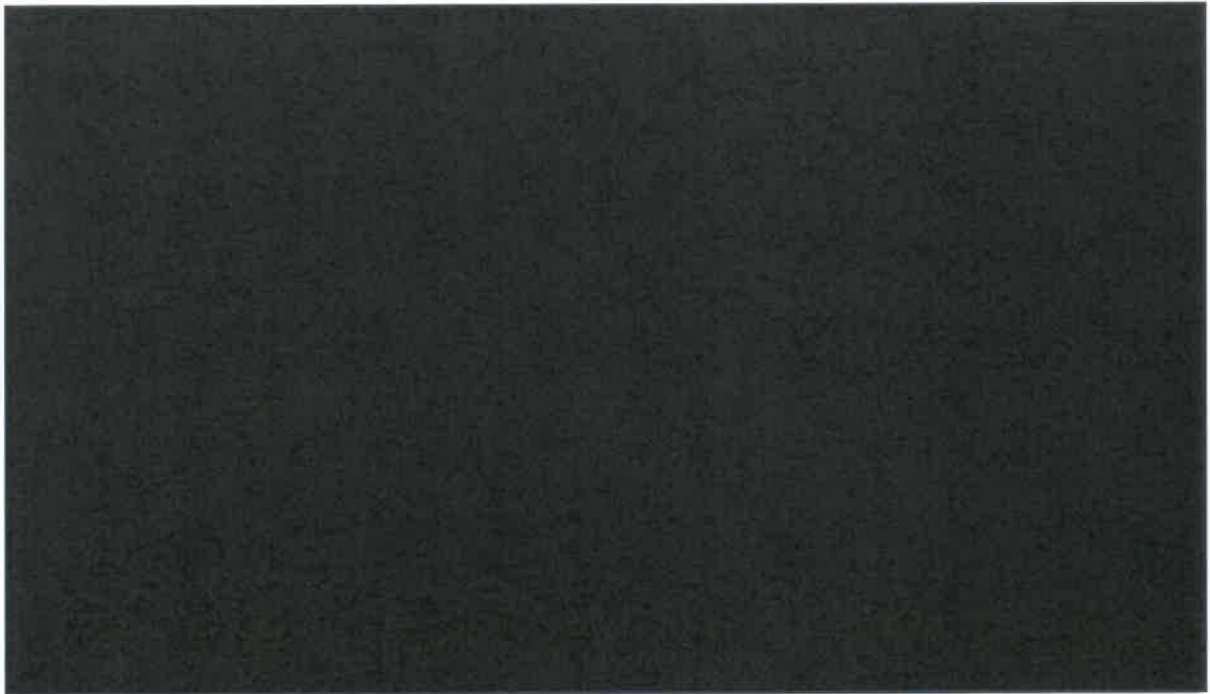
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Conclusions and Recommendations

WillametteCRA has completed background research and a reconnaissance survey of the Roth East project area for the Deschutes County Landfill Siting Project. The project area has not been subject to previous archaeological survey, and past disturbances appear to be limited to informal road construction and agricultural activities. [REDACTED]

Based on the information provided above, WillametteCRA recommends that the entire parcel has a high probability of containing archaeological resources. If the project includes the Roth East project area moving forward, we recommend that:

- A formal systematic archaeological survey is conducted of the entire project area.

- [REDACTED]
- That an Oregon SHPO archaeological excavation permit is obtained prior to formal survey to allow for delineation of previously recorded resources and new resources identified during the survey using subsurface methods (i.e., shovel probing).

When a resource is identified and the project has the potential to impact it, then the resource needs to be delineated and formally evaluated under Oregon state law (assuming there is no federal nexus to the project). With some exceptions, evaluating whether an archaeological resource is significant requires an Oregon SHPO archaeological permit. To obtain a SHPO permit, a Secretary of Interior-qualified archaeologist on the Oregon SHPO's approved list must apply. The application requires a research design, which takes time to prepare. Once submitted, the application goes through a 30-day review period (realistically closer to 35 days) with SHPO during which time interested Tribes may comment. SHPO or Tribal comments or questions about the application may delay the process. Once the permit is obtained, field investigations may commence. The duration of the field investigations depends on the complexity of the resource. Once field investigations and post-field analysis are completed, the permit holder presents the findings (report and resource forms) to SHPO for concurrence. SHPO has 30 days to review the findings.

If the resource is determined significant, then impacts to the resource will need to be avoided or mitigated (e.g., archaeological data recovery, public interpretation, etc.); mitigation is specific to the individual resource and impact. If the resource is determined not significant, then the resource is not protected by Oregon law and requires no avoidance or mitigation, and the project may proceed as planned. If SHPO disagrees with a finding or requests more information to support a finding, SHPO's review clock starts over at 30 days. Under State law, Oregon SHPO has the final say as to whether a resource is significant.

Should the project area or the scope of work change, these recommendations may not apply, and additional work may be necessary.

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