CULTURAL RESOURCES REPORT COVER SHEET

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Title of Report: Cultural Resources Inventory For The Dungeness Streamflow Restoration Off-Channel Reservoir Project, Clallam County, Washington

Date of Report: February 11, 2021

County(ies): Clallam Section: 36 Township: 30N Range: 4W

Quad: Carlsbord 7.5 Minute Series Acres: 396

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☒ Yes ☐ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☒ Yes ☐ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:
45CA00524
45CA00725
45CA00817
45CA00818
_____
_____
_____
_____
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- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

CULTURAL RESOURCES INVENTORY FOR THE DUNGENESS STREAMFLOW RESTORATION OFF-CHANNEL RESERVOIR PROJECT, CLALLAM COUNTY, WASHINGTON

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FEBRUARY 11, 2021

This report was prepared by Dudek principal investigator Zach Windler, MLitt, RPA, archaeologist Chris Knutson, MPhil, RPA, and architectural historian Adrienne Donovan-Boyd, MS, who meet the Secretary of the Interior's professional qualifications standards for archaeology and architectural history, respectively, and archaeologist Jennifer Olander, BA. This report is intended for the exclusive use of the Client and its representatives. It contains professional conclusions and recommendations concerning the potential for project-related impacts to cultural resources based on the results of Dudek's investigation. It should not be considered to constitute project clearance with regard to the treatment of cultural resources or permission to proceed with the project described in lieu of review by the appropriate reviewing or permitting agency. This report should be submitted to the appropriate state and local review agencies for their comments prior to the commencement of the project.

Management Summary

Dudek was contracted by Clallam County to conduct a cultural resources inventory for the proposed Dungeness Streamflow Restoration Off-Channel Reservoir, which is proposed to be located southwest of Sequim, Clallam County, Washington. The proposed project seeks to restore streamflow along the Dungeness River on two Department of Natural Resources (DNR)-owned parcels, parcel numbers 043036210000 (319 acres) and 043036130000 (77 acres). The County plans to acquire the parcels from DNR as part of the project. The streamflow restoration design includes excavation of an off-channel reservoir, which will encompass an 88-acre area west of River Road in parcel 043036210000. Other proposed project activities are currently unknown, as the project design is in the early stages of development.

The project is funded by a Department of Ecology (ECY)-managed Streamflow Restoration Grant and subject to the requirements of Washington State Governor's Executive Order 05-05 (EO 05-05). ECY is acting as the lead state agency. In addition, the project may need a U.S. Army Corps of Engineers (USACE) permit if there is removal and deposition of material into waters of the United States. This will be evaluated in the design/implementation process. If a USACE permit is required, the project will be subject to Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulations, 36 Code of Federal Regulations 800. The lead federal agency would be USACE, Seattle District. As currently planned, the project's potential ground disturbances are confined to the 88-acre proposed reservoir area within the 396-acre project area.

Dudek conducted archival research that indicated that two archaeological resources and no historic buildings or structures had previously been recorded within the project area, and only one archaeological resource—Site 45CA218, the Manis Mastodon Site—and four historic buildings had been recorded within 1 mile of the project area. Based on the landforms that are present within the project area, Dudek determined that much of the project area, within the alluvial terrace and low, river-adjacent floodplain, had a high probability for containing archaeological resources.

Dudek conducted a pedestrian survey of the project area. Shovel test probes were also excavated within the proposed reservoir area within the areas of highest probability for the presence of buried cultural deposits; no cultural materials were identified below the surface. During the pedestrian survey, Dudek identified four archaeological resources on the ground surface along with two historical built-environment resources. The identified archaeological resources include the two previously recorded archaeological sites—historic debris scatters 45CA00524 and 45CA00725—and two additional small historic debris scatter sites—45CA00817 and 45CA00818. Most of the historical debris observed at the four sites was from the mid-20th century and appeared to represent expedient residential dumping events. Identified Aspects of the historical built environment within the project area include two historical groupings of canals and laterals associated with the Highland and Independent Canals, respectively. Dudek recommends the two built-environment resources and four archaeological sites are not eligible for listing in the National Register of Historic Places (NRHP). Dudek therefore recommends a finding of *no effect to historic properties* for the project, as planned. Should future design plans for the project include areas of potential impacts outside of the proposed reservoir area, additional archaeological investigations to test for buried archaeological deposits in those areas may be required.

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1 Introduction

Clallam County's project, known as the Dungeness Streamflow Restoration Off-Channel Reservoir Project, is located southwest of Sequim, Clallam County, Washington, in Section 36 of Township 30 North, Range 4 West, Willamette Meridian (Figure 1-1). The County of Clallam (County) proposes to restore streamflow along the Dungeness River on two Department of Natural Resources (DNR)-owned parcels, parcel numbers 043036210000 (319 acres) and 043036130000 (77 acres). The County plans to acquire the parcels from DNR as part of the project. The streamflow restoration design includes excavation of an off-channel reservoir, which will encompass an 88-acre area west of River Road in parcel 043036210000. Other project activities have not yet been finalized, as the project design is in the early stages of development; however, it is anticipated that additional project activities might include the installation of new water pipelines, the installation of new tie-ins to the existing stormwater infrastructure, as well as the installation and use of temporary staging areas and temporary access roads.

The County retained Dudek to conduct a cultural resources assessment in support of the project. As part of the cultural resource assessment, Dudek conducted background research and a literature review and completed a field survey for archaeological and aboveground historic resources. This report summarizes the results of the background research and cultural resources survey and makes recommendations regarding the project's potential to affect cultural resources.

1.1 Regulatory Context

The project is funded by a Department of Ecology (ECY)-managed Streamflow restoration grant with monies appropriated by the Washington State Legislature in 2018. As such, the project is also subject to the requirements of Washington State Governor's Executive Order 05-05 (EO 05-05). ECY is acting as the lead state agency. EO 05-05 was signed into action in November 2005 by then Governor Chris Gregoire. The executive order is part of the state agency biennial capital budget planning process and requires all state agencies implementing or assisting capital projects using funds appropriated in the biennial Capital Budget to consider how future proposed projects may impact significant cultural and historic places. As part of this process, agencies are required to notify the DAHP, the Governor's Office of Indian Affairs, and concerned tribes and afford them an opportunity to review and provide comments about potential project impacts.

In addition, the project may need a U.S. Army Corps of Engineers (USACE) permit if there is removal and deposition of material into waters of the United States. This will be evaluated in the design/implementation process. If a USACE permit is required, the project will be subject to Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulations, 36 Code of Federal Regulations 800. The lead federal agency would be USACE, Seattle District. As currently planned, the project's potential ground disturbances are confined to the 88-acre proposed reservoir area within the 396-acre project area.

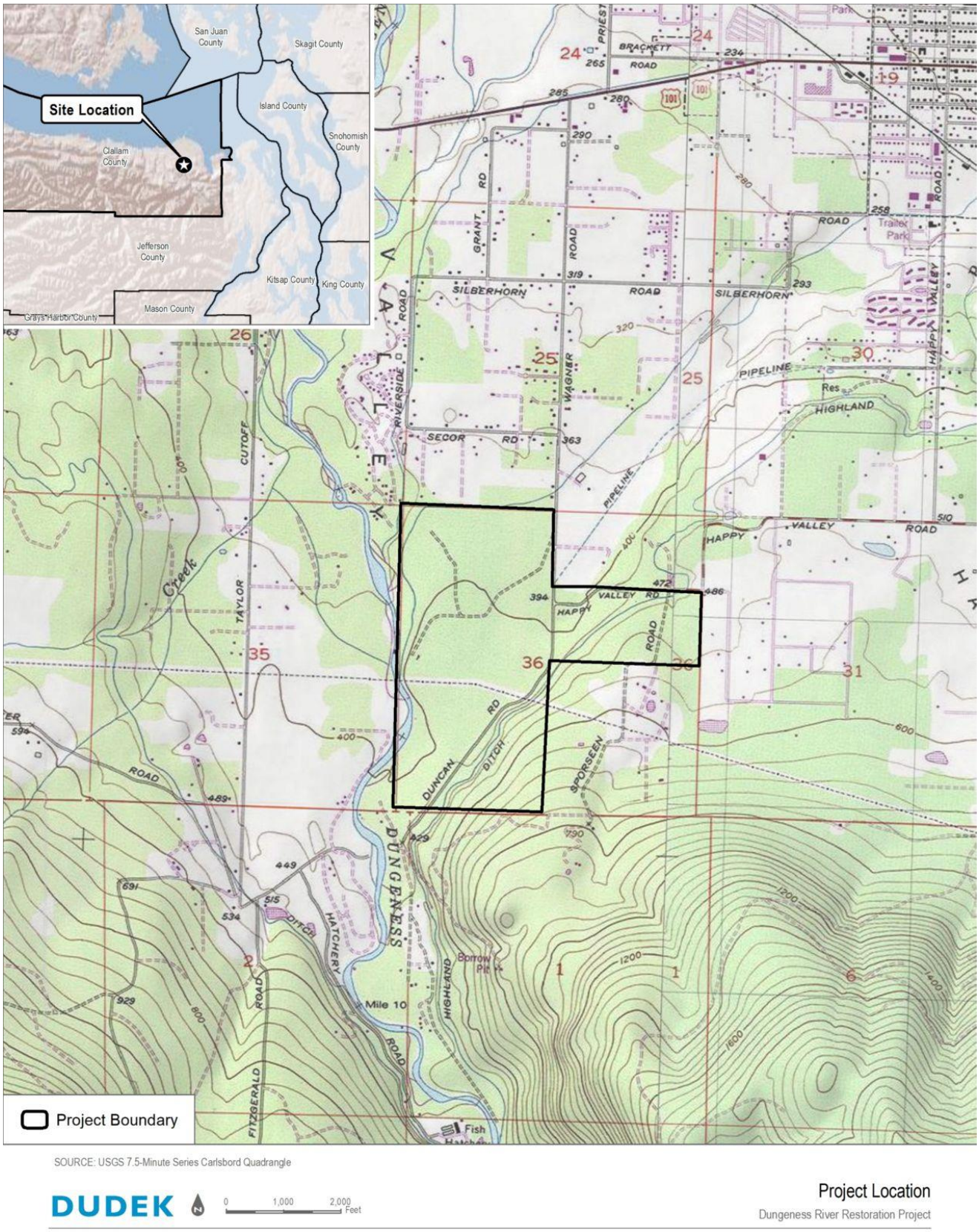

Figure 1-1. Dungeness Streamflow Restoration Off-Channel Reservoir Project Location

1.2 Project Area

The project area encompasses approximately 396 acres across DNR-owned tax parcels 043036210000 (319 acres) and 043036130000 (77 acres) roughly 3.5 miles south-southeast of Sequim, Clallam County, Washington, in Section 36 of Township 30 North, Range 4 West, Willamette Meridian. The project area lies between the Dungeness River on the west and McFarland Drive on the east. The two parcels are conjoined and bisected north–south by River Road. The western, larger parcel (043036210000) measures 1 mile north–south and 0.5 miles east–west. The BPA Port Angeles to Olympia No. 1 Transmission Line bisects the southern half of this parcel east–west. The construction of the new reservoir is slated for a 90-acre area in the northern half of the larger parcel, west of River Road and north of the BPA right-of-way (ROW).

The eastern, smaller parcel (043036130000) extends 0.5 miles east from River Road and measures 0.25 miles wide between roughly Happy Valley Road on the north and a dogleg of Sporseen Road (which also bisects this parcel north–south) on the south.

1.3 Acknowledgments

The cultural resources inventory was performed by Dudek staff who meet the Professional Qualifications Standards of the Secretary of the Interior (36 CFR 61). Zach Windler managed the project, acted as principal investigator, and managed and prepared the report. Adrienne Donovan-Boyd conducted the historic built environment assessment, including the historic research relevant to water reclamation and irrigation districts in Washington. Chris Knutson conducted the background research and historic literature review and prepared those portions of the report. Jennifer Olander conducted artifact research, drafted the resource descriptions, and completed the DAHP resource forms. Rachel Strobridge produced the graphics and managed the geographic information system (GIS) data. Dudek would like to thank Carol Creasey from Clallam County and David Brownell from the Jamestown S'Klallam Tribe for their help with the project.

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2 Environmental Setting

The project is located along the northwestern margin of western Washington's Puget Trough physiographic province (Franklin and Dryness 1988:6). The northern portion of this province is dominated by the Puget Sound (Franklin and Dryness 1988:16). The Puget Trough is bordered by the Olympic Mountains on the west, the Portland Basin and Willamette Valley on the south, and the Western Cascades on the east. The Project is situated along the Dungeness River floodplain on the west and the lower foothills of the Olympic Mountains on the east; the Dungeness River drains into Dungeness Bay, just north of Sequim, Washington, at the northwestern edge of the Puget Sound and southeastern edge of the Strait of Juan de Fuca and the Salish Sea. Elevation ranges from 365 ft above mean sea level (amsl) along the river floodplain in the northwest to 760 ft amsl in the southeast, generally sloping down to the river from southeast to northwest.

Surficial geology in the majority of the project area is within older Holocene–Pleistocene alluvium deposits of the ancestral Dungeness River (terrace through central portion of project area) and Pleistocene-aged Quaternary glacial till deposits and outwash from the Vashon glaciation (eastern third of project area) (Schasse and Logan 1998; Schasse and Wegmann 2000). The river-adjacent, low floodplain has more recently deposited Holocene alluvium (Schasse and Wegmann 2000). The geomorphology of the northern Puget Trough was largely formed by till from the Pleistocene-age Puget Lobe of the Cordilleran Ice Sheet, which extended from British Columbia to near Olympia, Washington, south of the project area (Booth et al. 2003). The continental ice sheet retreated from the project's vicinity between roughly 16,000 and 10,000 years ago, forming the Dungeness River Valley in the process (USBR 2002:4).

Soils in the northern portion of the Puget Sound basin are generally formed in glacial materials affected by coniferous forest vegetation and commonly have a gravelly sandy loam texture (Franklin and Dryness 1988:17), and the soils in the project area are no exception. Soils in the project area consist of Carlsborg gravelly sandy loam, Catla gravelly sandy loam, Clallam gravelly sandy loam, Dungeness silt loam, and McKenna gravelly silt loam (Halloin 1987; USDA-NRCS 2020). Carlsborg soils are found on most of the project area, including the proposed reservoir area and surrounding terrace. Carlsborg soils consist of very deep, somewhat excessively drained soils formed in coarse textured alluvium and found on river terraces and old alluvial fans (USDA-NRCS 2000). Catla, Clallam, and McKenna soils are mapped along the slope in the southeastern/eastern third of the project area. Catla soils are shallow, moderately well drained soils formed in very compact glacial till and found on hills and till plains (USDA-NRCS 2004a). Clallam soils are moderately deep, moderately well drained soils formed in glacial till over very compact glacial till and found on glaciated hills (USDA-NRCS 2004b). Dungeness soils are deep, well-drained soils formed in alluvium and found on bottomlands and low river terraces (USDA-NRCS 2002). McKenna soils are moderately deep, poorly drained soils formed in alluvium over glacial drift and found in depressions and drainageways on glacial drift plains (USDA-NRCS 2018).

The project is within the *Tsuga heterophylla* vegetation zone, which extends from British Columbia through the Olympic Peninsula, Coast Ranges, Puget Trough, and both Cascade physiographic provinces in western Washington (Franklin and Dyrness 1988:45, 70). This zone is characterized by Douglas fir, western hemlock, western red cedar, and grand fir, although, in the rain shadow of the Olympic Mountains, lodgepole pine and western white pine are also common. Vine maple, rhododendron, oceanspray, Oregon grape, and salal are common shrubs. Riparian flora such as grasses, cottonwood, and willow are common along waterbodies.

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3 Cultural Setting

The Project extends through the Central Coast Salish region of the Northwest Coast culture area. Several cultural chronologies have been formulated for this region, each based on a different set of archaeological sites depending on the scale of the analysis and the availability of data at the time. The following overview for the Precontact Period uses the terminology set forth in the general Northwest Coast chronology developed by Ames and Maschner (1999).

3.1 Precontact Period

Archaeological evidence indicates that Native peoples have lived in western Washington for more than 13,000 years. The earliest time period is defined by Ames and Maschner as the Paleoindian Period, which lasted from the arrival of the first humans in the region up through around 12,500 calibrated years before present (B.P.) (Ames and Maschner 1999:64-66). The Manis Mastodon Site (45CA00218), one of the most significant Paleoindian-Period sites in all of North America, was found just 0.82 miles east-northeast of the project area. The site contained the bones and tusks of multiple mastodons and bison that bore distinctive butchering marks; one mastodon rib was embedded with a bone projectile point that yielded a radiocarbon date of 13,800 B.P. This site demonstrated that the vicinity of the project area was already used by humans during that time, and provided the first definitive evidence that Paleoindian people overlapped with - and indeed hunted - mastodons in North America (Daugherty 1977; Gustafson and Gilbow 1978; Gustafson and Manis 2003; Swaminathan 2014).

Across much of the rest of North America, the Paleoindian Period has frequently been associated with distinctive fluted projectile points belonging to the Clovis tradition. The Clovis point is a large, bifacially flaked stone tool containing a prominent “flute” or flake scar at its base, with lateral and basal edge grinding. Clovis points have been found at sites across North America and into Central America, and it is thought that the people who made the points were highly mobile and would cover large areas in search of big game mammals (Aikens et al. 2011:28; Kirk and Daugherty 2007:13). Individual Clovis points have been recovered as isolated finds in the Puget Sound area, including at locations on Whidbey Island (located approximately 22 miles northeast of the project area) and the Kitsap Peninsula (located approximately 45 miles southeast of the project area) (Ames and Maschner 1999:65; Carlson 1990:60; Croes et al. 2008:108, Figure 1). While these finds are not associated with radiocarbon dates, evidence of Clovis cultures across North America has been tightly dated to between 12,800 and 13,250 B.P. (Waters and Stafford 2007).

The Archaic Period lasted between 12,500 and 6400 B.P. (Ames and Maschner 1999:67). This period is characterized by evidence that people were using an increasing variety and quantity of food resources, including both terrestrial mammals and fish (Ames and Maschner 1999:72, 83; Carlson 1990:65-66; Kirk and Daugherty 2007:84). This period is expressed through multiple technological/cultural traditions that were present in the greater region during this time; the tradition that was present on the Olympic Peninsula and in other parts of western Washington during this time was the Olcott complex (Carlson 1990:60, 62-63). The most distinctive artifact that appears in Olcott assemblages are leaf-shaped projectile points (also known as Cascade points); other lithic tools associated with this tradition include choppers and scrapers that were made through percussion flaking and are indicative of various processing activities (Bergland 1983; Carlson 1990:62-63; Croes et al. 2008:108; Kirk and Daugherty 2007:84-85). This period is also represented in close proximity to the project area, as the Manis Mastodon Site contained an Olcott component overlying the Paleoindian material that included an Olcott-type projectile point as well as spall tools that all dated from the period (Bergland 1983; Carlson 1990:63; Kirk and Daugherty 2007:86). Additional Olcott sites have been found elsewhere on the Olympic Peninsula, including the

Van Os site (45CA00253) in Port Angeles (located approximately 11 miles west-northwest of the project area), Quilcene (located about 19 miles southeast of the project area), and Lake Cushman (located approximately 40 miles south of the project area) (Bergland 1983; Kirk and Daugherty 2007:85).

The Early Pacific Period lasted between 6400 and 3700 B.P. (Ames and Maschner 1999:88). During this period the warmer and drier conditions of the early Holocene gave way to a cool and wet climate, and oceans rose to approximately modern levels. These changes produced environments similar to those we know today in the Pacific Northwest, and the people adapted to utilization of the resources associated with temperate rain forests and productive fisheries (Ames and Maschner 1999:88-91, 93). Early Pacific Period technological adaptations reflect a broadening of overall subsistence strategies. While subsistence during the previous periods appeared to have focused mainly terrestrial mammals and to a lesser degree fish, during this period marine resources, including marine mammals, fish, and shellfish, became increasingly important in the diets of Native peoples of the region. Evidence of marine resource subsistence includes not only the bones and shells that survive at shell midden sites – the most common site type along the coast of the Olympic Peninsula – but also a diversity of bone and antler tools including barbed points for harpoons that have also been preserved at such sites (Ames and Mashner 1999:88-92; Bergland 1983; Wessen 1990:414). Ground slate projectile points also appear during this period and may have been used to dispatch harpooned sea mammals (Ames and Mashner 1999:92). There is also evidence of woodworking during this period in the form of tools such as groundstone celts and mauls, which continued to be used for woodworking up through the time of contact with Europeans (Ames and Mashner 1999:92-93). Few sites that can be dated to the Early Pacific Period have been identified on the Olympic Peninsula thus far; this may be due in part to the sea level being lower for much of this period than it is today, as sites that were along the coastline at the time would now be submerged (Ames and Mashner 1999:107). However, the Van Os site in Port Angeles and the Deer Park site (45CA257) in Olympic National Park (located approximately 8.5 miles southwest of the project area) may include components of this period (Bergland 1983).

The Middle Pacific Period lasted between 3800 and 1800 B.P. (Ames and Maschner 1999:93). This period is marked by the introduction of large plankhouses and villages consisting of one or more plankhouse - these and the use of storage pits show that people now had relatively permanent habitation sites where they spent most of the year (Ames and Maschner 1999:93-94). There is also increasing evidence during this period for social inequality, long-distance trade, and warfare (Ames and Maschner 1999:93; Kirk and Daugherty 2007:98). There was an increased emphasis on marine and riverine resources during this period, particularly salmon; these resources became easier to harvest through technological developments that included toggling harpoons, nets with girdled and perforated sinkers, and fish weirs (Ames and Maschner 1999:93-94). All of these cultural features were present up through the historic period, and the Northwest Coast region's distinctive art style also appears to have its origins in this period (Ames and Maschner 1999:93-94; Kirk and Daugherty 2007:98). Olympic Peninsula sites with components from this period include the Ozette site (45CA00024, located approximately 73 miles west of the project area), the Hoko River wet site (45CA00213, located about 58 miles west-northwest of the project area), the Tongue Point site (45CA00016, located about 27 miles west-northwest of the project area), and the Čixʷícən site (45CA00523, located approximately 15.5 miles west-northwest of the project area) (Ames and Maschner 1999:108; Campbell et al. 2019:1112-1113; Kirk and Daugherty 2007:96-98; Wessen 1990:412-416).

The Late Pacific Period lasted between 1800 and 200 B.P. (Ames and Maschner 1999:94). The region's climate had stabilized shortly before the onset of this period, resulting in environmental conditions that have largely continued up to the present (Ames and Maschner 1999:94). Most of the key cultural characteristics that had appeared during the Middle Pacific Period - plankhouse villages, marine and riverine fishing and hunting implements and infrastructure, art, and clear distinctions in social status - continued to develop and flourish during

the Late Pacific Period. On the whole, there appears to be a high degree of cultural continuity among the peoples of the region for most of this period and up through the time of initial contact with Europeans in the 18th century (Ames and Maschner 1999:95; Wessen 1990:418, 420-421). Some of the changes that are evident in the archaeological record during this period include a marked shift away from the manufacture and use of chipped stone tools, the adoption of larger and sturdier woodworking tools, and a corresponding increase in the size of plankhouses that were constructed during this time (Ames and Maschner 1999:95-96; Wessen 1990:421). The remains of large plankhouses from this period have been excavated at several archaeological sites on the northern Olympic Peninsula, including Ozette, Čixʷícən, and the Sxʷčkʷíyəŋ village site (45CA0227, located approximately 4 miles east-northeast of the project area) (Ames and Maschner 1999:110-111; Brownell 2018:12-13; Butler et al. 2019:1095, Campbell et al. 2019:1104, 1123; Kirk and Daugherty 2007:109; Wessen 1990:416).

3.2 Ethnographic Period

The project area is within the traditional territory of the S'Klallam or Klallam people, whose name in their own language - Nəxʷsƛ̓áy̓əm'- translates as 'strong people' (Brownell 2018:1; Jamestown S'Klallam Tribe 2019:2; Mapes 2009:23). The Jamestown and Port Gamble bands favor the spelling 'S'Klallam' in English, while the Lower Elwha band prefer the spelling 'Klallam'; since the project area is in closest to traditional village sites that are associated with the Jamestown S'Klallam Tribe, the spelling 'S'Klallam' is used in this report (Brownell 2018:2; Jamestown S'Klallam Tribe 2019:2).

The S'Klallam people traditionally lived along the northern coast of the Olympic Peninsula from Discovery Bay in the east to the Hoko River in the west; some S'Klallam also lived across the Strait of Juan de Fuca at the southern tip of Vancouver Island. In the 19th century some S'Klallam moved eastward to settle around Port Townsend, along the northern part of Hood Canal, and at Port Gamble at the northern end of the Kitsap Peninsula (Brownell 2018:1; Suttles 1990:454, 456). The S'Klallam people all spoke a common language belonging to the Central Salish branch of the Salishan language family (Suttles 1990:453; Thompson and Kinkade 1990:Table 4-1, 36–37). The S'Klallam people never formed a single unified political entity or 'tribe' prior to contact with Europeans - instead, they were divided into a number of permanent winter villages that were politically independent from one another. However, each village had links to other S'Klallam villages and to non-S'Klallam communities through family connections, as marriage between different members of different villages was common, a practice that was bolstered by strict rules against close relatives marrying (Brownell 2018:1; Suttles 1990:463–464).

S'Klallam winter villages were built along the water, either directly on the coast or along the Dungeness and Elwha Rivers, and included one or more plankhouses. The plankhouses were large post-and-beam structures constructed of cedar that had shed roofs and plank siding and could reach lengths of several hundred feet; each house typically accommodated several related families (Brownell 2018:1; Suttles 1990:456, 462, 464). The S'Klallam spent the coldest months of the year in their winter villages (Brownell 2018:2). There were six S'Klallam winter villages within 10 miles of the project area that were occupied during the late 18th and early 19th centuries; these include Sxʷčkʷíyəŋ (located approximately 4 miles east-northeast of the project area on Sequim Bay), Nəxʷŋəyaʔáwx̓ʷɬč (located 5.25 miles northeast of the project area at present-day Jamestown), Stətíɬəm (located approximately 6 miles north-northeast of the project area), Céʔsqaʔt (located approximately 6.1 miles north of the project area), Čšáʔič (located 6.3 miles north of the project area on Cline Spit), and Sŋiyáwɬč (located approximately 6.45 miles north of the project area at the mouth of the Dungeness River) (Brownell 2018:2).

During the warmer months of the year, many of the members of each village would temporarily relocate to their traditional seasonal camps, where they fished, hunted, and gathered the resources that would sustain them during the winter (Brownell 2018:2-3; Mapes 2009:32-33). Several seasonal camps have been documented in the general vicinity of the project area, including a hunting camp on Sequim Prairie (located approximately 1.65 miles northeast of the project area) and a fishing camp at the southern end of Sequim Bay (located approximately 5.7 miles east-southeast of the project area) (Brownell 2018:2).

Fish were the most important food resource for the S'Klallam people, and were caught in a variety of ways. Of the different varieties of fish, salmon was the most important and was caught in great numbers in the area's rivers and creeks during the various seasonal run; salmon were typically caught using spears, harpoons, gaff hooks, dip nets, traps, or weirs. Saltwater fish species were caught with reef nets (large nets strung between two canoes), herring rakes, or baited hooks (Brownell 2018:2-3; Suttles 1990:457). The S'Klallam were also noted whale hunters - they would watch for whales from shore and paddle out in their canoes to hunt the whales with harpoons (Suttles 1990:458).

In inland areas like the project area the S'Klallam would hunt larger mammals, including deer, elk, mountain goat, and black bear, as well as beaver. Most of these species were hunted with bows and arrows, though snares, deadfalls, and other methods of entrapment were also used (Suttles 1990:458). In Sequim Prairies and other grassland areas the S'Klallam would use controlled burning to keep the landscape open and free of brush, making it an ideal setting for hunting large game (Brownell 2018:11; Jamestown S'Klallam Tribe 2019:22). The S'Klallam also gathered numerous plant foods in inland areas, including the camas root (*Camassia quamash*) and different berry species that would ripen at various times between the late spring and early fall (Jamestown S'Klallam Tribe 2019:22; Mapes 2009:32-34; Suttles 1990:459). Controlled burning of grasslands also enhanced the growth of camas and Pacific blackberry (*Rubus ursinus*) in those locations (Brownell 2018:11; Jamestown S'Klallam Tribe 2019:22). Hunting and plant food gathering are the traditional subsistence activities that are most likely to have taken place within the project area, though the western edge of the project area may well have been used for fishing along the Dungeness River.

Beginning in the late 18th century, the S'Klallam people were tragically impacted by several waves of smallpox and other infectious diseases that were introduced to the area by European explorers and traders. The first widespread smallpox epidemic arrived on the northern Olympic Peninsula in the 1770s, and is thought to have spread from Native peoples who had been in contact with members of an early Spanish expedition that visited the Washington Coast in 1775 (Boyd 1990:137; Cole and Darling 1990:127; Mapes 2009:43). This epidemic was followed by a second wave of smallpox in 1801 that had a devastating impact on the S'Klallam people and other groups of the Olympic Peninsula and adjacent regions (Boyd 1990:138). These first two epidemics are thought to have been fatal for at least 30% of the Native peoples who contracted the disease at the time (Boyd 1990:138). The S'Klallam and other Native peoples of the region were severely impacted by additional epidemics over the next five decades, including influenza, measles, and further waves of smallpox; in all, it is thought that the S'Klallam and neighboring groups lost over half of their populations as a result of epidemics in the first 50 years of interaction with Europeans (Boyd 1990:141-142, 145; Mapes 2009:44, 47). A smallpox epidemic that arrived in 1853 caused further devastation among the S'Klallam people and their neighbors on the Olympic Peninsula (Boyd 1990:141, 145; Mapes 2009:44).

As a consequence of the Treaty of Point No Point, drawn up in 1855 and ratified in 1859, the S'Klallam were compelled to relinquish almost 440,000 acres of their traditional lands to make it available for Euroamerican settlement (see Section 3.3.2, Euroamerican Settlement in the Project Vicinity). Most S'Klallam individuals, however, chose to remain in vicinity of their traditional villages. The S'Klallam were not considered U.S. citizens at the time, and were therefore excluded by law from claiming and gaining title to the land (Mapes 2009:51). In 1874,

however, a group of S'Klallam families who had continued living along Sequim Bay and near the mouth of the Dungeness River purchased a 210-acre parcel of land at what became the community of Jamestown, located 5.25 miles northeast of the project area (Brownell 2018:4; Jamestown S'Klallam Tribe 2019:2; Suttles 1990:472; Vollenweider 2015:12). Since they had formed a community outside the federal reservation system, the members of the Jamestown S'Klallam community were not federally recognized as a sovereign Native people during the late 19th century and for much of the 20th century. However, in 1974 their treaty fishing rights were recognized as a result of a U.S. Supreme Court decision (*United States v. Washington*), and in 1981 the Jamestown S'Klallam Tribe finally received federal recognition (Jamestown S'Klallam Tribe 2019:2; Mapes 2009:94; Marino 1990:176, 179; Vollenweider 2015:13). The other two S'Klallam groups, the Lower Elwha Klallam Tribe and the Port Gamble S'Klallam Tribe, had previously received federal recognition and their own reservations in the late 1930s (Mapes 2009:93; Marino 1990:178).

3.3 Historic Period

3.3.1 Non-Native Exploration and Trading Activities

The historic period along the Northwest Coast (the region that includes the project area) began with the arrival of European explorers and traders in the late 18th century. In the 1770s Spanish and English expeditions had reached the west coast of Vancouver Island just north of the Olympic Peninsula, and by the late 1780s European ships were stopping regularly at Nootka Sound (toward the northern end of the island) to trade for sea otter furs with the local Nuu-chah-nulth people (Arima and Dewhirst 1990:407; Bunting 1997:22). Sea otter furs were in high demand in China, and the Europeans traded copper and iron, firearms and ammunition, and other European goods to the Nuu-chah-nulth and other Native peoples in exchange for them (Arima and Dewhirst 1990:407; Bunting 1997:22; Cole and Darling 1990:119-120). Increasing competition between European powers and the recently established United States over trade and territorial claims led the Spanish to establish a fort at Nootka Sound in 1789 to safeguard their interests in the region (Archer 1978:40-41; Arima and Dewhirst 1990:407; Hult 1954:13).

In 1790 a Spanish expedition under Manuel Quimper entered the Strait of Juan de Fuca and explored its southern, Olympic Peninsula shoreline (Suttles 1990:470). Along the way Quimper's expedition landed near several S'Klallam villages and traded with the residents; one of these villages was at the mouth of the Dungeness River, located approximately 6.5 miles north of the project area (Hult 1954:14; Mapes 2009:36). Quimper had a cross erected somewhere near the mouth of the Dungeness River and claimed the land for Spain (Brownell 2018:3; Hult 1954:14).

The Spanish were followed two years later by an English expedition that was led by George Vancouver. This expedition also landed near the mouth of the Dungeness River, and Vancouver named the location New Dungeness because of its resemblance to the headland of Dungeness along the English Channel. The name Dungeness was subsequently applied to the sand spit in that location, the river, two communities that were built at the mouth of the river in the second half of the 19th century (New Dungeness and Dungeness), and the species of crab that is found in local waters (Hult 1954:18-20, 91; Vollenweider 2015:8, 19-20). Vancouver had been tasked with determining if the Strait of Juan de Fuca was the western end of a northwest passage that connected the Pacific and Atlantic Oceans; his expedition demonstrated that this was not the case, and in the process mapped the coastline of virtually the entire Salish Sea (the body of water that includes Puget Sound, the Strait of Georgia, and the Strait of Juan de Fuca) (Bunting 1997:23; Hult 1954:20–23).

The Spanish also continued to explore the region, and briefly established a settlement at Neah Bay at the Olympic Peninsula's northwest corner (located approximately 71 miles west-northwest of the project area). However, the Spanish settlement at Neah Bay lasted little more than a month, and by the mid-1790s the Spanish had given up their interests in Pacific Northwest (Archer 1978:50, 52; Hult 1954:16–17).

In the first few decades of the 19th century the British and the Unites States competed for economic and political control of the Pacific Northwest. While the Olympic Peninsula was technically within the two countries' competing claims, both countries mostly avoided the peninsula during this time (Bunting 1997:23; Hult 1954:31, 37–38). The fur trade continued to be the main economic focus of the British and Euroamericans who were operating in the Pacific Northwest during those decades. However, sea otter were becoming increasingly scarce due to overhunting, and the traders were instead turning their attention to beaver, which were more plentiful throughout the region, and whose pelts were in high demand in Europe and elsewhere as material for making fashionable hats (Bunting 1997; Cole and Darling 1990:130–131). The Olympic Peninsula remained peripheral to the beaver fur trade until the 1820s, when the British-owned Hudson's Bay Company (HBC) increased its activities in the Salish Sea region.

While the HBC never established any fur trading posts on the peninsula itself, it did establish several posts along the Salish Sea, beginning with Fort Langley (near present-day Vancouver, British Columbia) in 1827. S'Klallam people from the northern Olympic Peninsula became participants in the fur trade, traveling to the HBC posts to exchange furs for European trade goods such as guns, blankets, and textiles (Bunting 1997:36; Cole and Darling 1990:125; Hult 1954:32; Suttles 1990:470–471). The HBC subsequently established two HBC trading posts closer to the Olympic Peninsula: Fort Nisqually, established in 1833 near the southern end of Puget Sound (located approximately 68 miles south-southeast of the project area near present-day Olympia), and Fort Victoria, established in 1843 just across the Strait of Juan de Fuca from the northern Olympic Peninsula (located approximately 27 miles north-northwest of the project area in what is now Victoria, British Columbia). Both posts, particularly Fort Victoria, provided S'Klallam people with additional opportunities to engage in the fur trade (Bunting 1997:36–37; Cole and Darling 1990:125; Hult 1954:34; Jamestown S'Klallam Tribe 2019:2).

Relations between the HBC and the Native peoples with whom they traded were generally peaceful; however, one of the HBC's most extreme acts of violence against Native peoples occurred at the S'Klallam village of Stətíɬəm, located approximately 6 miles north-northeast of the project area near the mouth of the Dungeness River. In 1828 an HBC expedition was sent to avenge the murder of four HBC employees and the capture of an enslaved Native woman, an act that the HBC claimed had been committed by individuals from Stətíɬəm. The HBC expedition culminated in the massacre of approximately two dozen people from the village and the destruction of the village itself - an act of disproportionate violence that, according to S'Klallam traditions, was probably committed against a village that had not been involved in the initial crime (Brownell 2018:3; Cole and Darling 1990:127; Hult 1954:32–33; Pasco 1994).

3.3.2 Euroamerican Settlement in the Project Vicinity

Between 1818 and 1846 the Pacific Northwest was jointly claimed by both Great Britain and the United States (Vaughan 2014:5). Although portions of the region were occupied by each country during that time - the British, as described were predominant throughout the Salish Sea area through the activities of the HBC - neither country established a permanent presence on the Olympic Peninsula during the decades of joint occupation (Hult 1954:37). Then in 1846 the Americans and the British agreed to divide their Pacific Coast territorial claims along the 49th

Parallel and through the Strait of Juan de Fuca, and the Oregon Territory was established within the American territory (Hult 1954:41; Vaughan 2014:9).

In 1850 the U.S. Congress passed the Donation Land Claim Act, which promised male U.S. citizens up to 320 acres of land in Oregon Territory (or 640 acres for married couples) if they lived upon a parcel for four years and made improvements to it (Bunting 1997:97; Vaughan 2014:29–30). This law drew thousands of Euroamericans to cross the continent in the early 1850s with the hope of claiming prime farmland. Three years later, in 1853, the U.S. Congress created the Washington Territory out of the portion of the Oregon Territory lying north of the Columbia River - including the Olympic Peninsula - an act that reflected the growing Euroamerican population in the Puget Sound area (Marino 1990:169). The Donation Land Claim Act also applied in Washington Territory up through the Act's expiration in 1855 (Bunting 1997:97; Marino 1990:169).

Because the land that was to be awarded to settlers on the northern Olympic Peninsula was the traditional territory of the S'Klallam people, Washington's territorial governor drew up the Treaty of Point No Point (1855), by which the S'Klallam and neighboring peoples were to sign over their traditional lands and move to a reservation in the southeastern corner of the peninsula in exchange for promises of future goods and cash support. However, the federal government's compensation was not disbursed as promised, and most S'Klallam people at the time opted to remain in their traditional lands on the northern Olympic Peninsula rather than relocate to the reservation (see Section 3.2, Ethnographic Period) (Mapes 2009:47, 50–53; Marino 1990:171; Vollenweider 2015:11).

The first Euroamerican land claims to be made in the general vicinity of the project area were along the shoreline by the mouth of the Dungeness River (located approximately 6.3 miles north of the project area) and along Sequim Bay (located approximately 3.9 miles east-northeast of the project area) (Hult 1954:47). The claims at the mouth of the Dungeness River were soon developed into the community of New Dungeness, which became Clallam County's seat in 1854; the community lost its county seat status to Port Angeles in 1890 (Hult 1954:91). These claims along the shoreline were followed by Euroamerican claims that were made inland within Sequim Prairie during the 1850s; the closest of these claims, that of John Bell, was made approximately 1.25 miles northeast of the project area (GLO 1859b, 1870) (see Section 4.4, Historic Map Research). The Euroamericans who settled in Sequim Prairie were attracted to the open landscape, which was well suited for livestock grazing and farming without having to clear the dense forests that were otherwise predominant across most of the northern Olympic Peninsula (Hult 1954:90, 92). In fact, the S'Klallam people had long managed Sequim Prairie and smaller grasslands in the area through controlled burning prior to Euroamerican settlement, a practice that enhanced the growth of camas and other plants and created more favorable conditions for hunting (Brownell 2018:9; Jamestown S'Klallam Tribe 2019:22). Euroamerican farmers were also impressed by the prairie's rich soils, though their crops were periodically affected by drought conditions due to the Sequim area's location in the Olympic Mountains' rain shadow. However, agriculture in the area became more reliably productive after the introduction of irrigation from the Dungeness River in the 1890s (see Section 3.3.5, Water Reclamation in Sequim Valley) (Hult 1954:90–94).

The project area, in contrast, was not as inviting for early Euroamerican settlement, as it was further inland and also heavily forested (GLO 1859a; 1859b). This is probably why the project area was still unclaimed by Euroamerican settlers at the time that Washington became a state in 1889. This is significant for the project area's development, as the federal legislation that created the state of Washington gave the state ownership of the 36th section of every township if that land had not already been claimed; the state then had the option to retain that land or to sell it in order to fund public schools (Bunting 1997:97; Chasan 2000:3–4). Since the project area was located in the 36th section of its township and had not already been claimed, it became state land through that provision; its special status was reflected in Metsker atlases during the 20th century, which identified it respectively

as "School Land" and "State School Land" (Metsker 1942; Metsker Maps 1970). Washington's Department of Natural Resources (DNR) took over the management of state school land when that agency was created in 1957, including the project area, and the DNR has continued to manage the property up to the present (Chasan 2000:21).

3.3.3 Logging and Civic Development in the Project Vicinity

While the project area was never developed for agriculture, it and the surrounding properties have at times been used for logging, an economic activity that was allowed on state school land for the explicit purpose of funding schools under Washington's state constitution (Chasan 2000:4). Logging began along portions of the Dungeness River in the 1850s, though it was initially conducted where large trees were most easily accessible without needing to develop elaborate infrastructure; such trees were often cut relatively close to the river, rolled down the banks, and simply floated downstream (Vollenweider 2015:57, 60–61). Consequently, there was still considerable old growth forest in the area that encompassed the project area into the early 20th century (Vollenweider 2016:61). Logging in locations such as most of the project area would not have been viable until the development of steam donkeys in the 1880s, followed by the construction of pole roads (essentially, wooden railroads on which draft animals often pulled the rail cars) and logging railroads in the area in the 1890s and early 1900s (Bunting 1997:147; Vollenweider 2015:58–60). River Road, which crosses through the project area, was built by 1894 and may have been originally constructed as an access road for logging operations that were conducted in an area along the Dungeness River that was known as the Riverside District, which was located south of the project area (GLO 1894; Vollenweider 2015:64) (see Section 4.4).

The project area is located just southwest of the city limits of Sequim. Sequim was founded as a commercial center for the Sequim Prairie area at the beginning of the 20th century. Its early growth was spurred by local agriculture (particularly dairy farming) and logging along with the decision by the Chicago, Milwaukee, St. Paul & Pacific Railroad to build a railroad line through Sequim (Hult 1954:94, 236; Vollenweider 2015:52, 83, 105). This railroad line connected Port Townsend, Sequim, and Port Angeles with the more than 100,000 acres of timberland that the railroad company owned across the northern Olympic Peninsula; the line was completed in 1915 and operated until 1983, though it dropped its passenger service in the 1930s and mainly carried lumber and freight during its final five decades in operation (Chew 2011; Hult 1954:183, 188-190, 192; Vollenweider 2015:105, 118). Sequim was officially incorporated in 1913, when its population was about 350 (Vollenweider 2015:101). Its population slowly grew during the first half of the 20th century, reaching just over a thousand residents by the early 1950s (Hult 1954:236). However, Sequim's growth was more rapid during the second half of the 20th century, as the area's relatively mild and dry microclimate made the city increasingly attractive as a retirement destination (Vollenweider 2015:118).

3.3.4 Water Reclamation in Washington State

Water is arguably one of the most precious natural resources in the State of Washington. The management of water has played an instrumental role in the growth and development of the State since its founding. The State, with all of its varying elevations and climates, has a myriad of water related issues; too much water in storm-fed rivers, not enough water in dry arid desert regions, near constant rain during winter months, and long, dry spells in summer. The management of Washington waters began with early settlement as a way to control food supply, keep land safe, and provide a constant, sustainable water source. The cultivation of water, especially for irrigation, has played a pivotal role in the economic development of the State.

Prior to European settlement many of Washington's Native peoples moved with the seasons, changing locations based on scarcity or overabundance of resources. The overall impacts on the land were minimal (Boening 1918: 260). It does not appear that the First peoples in the Pacific Northwest employed widespread irrigation measures, but some evidence of simple irrigation has been noted by Euroamerican historians. Marcus Whitman, a congressional missionary, established a settlement in 1835, near Walla Walla. His intention was to teach the Native peoples how to build homes, irrigate crops, and even mill corn and wheat. There were some other isolated reports of the Native peoples using basic irrigation systems in Washington, but these were not widespread (Boening 1918: 260).

In 1850, the U.S. Congress passed the Arkansas Act, the first piece of legislation in America to offer funds to property owners to "reclaim" lands through the construction of levees and drainage systems. It was generally known that the expansion of irrigation systems in the west was critical to the success of pioneer settlement. A series of patchwork irrigation, management, and reclamation projects provide the foundation for the system that is in place today. Starting as early as the 1850s Early Euroamerican settler's completed water management projects as individuals, at their own initiative, primarily as irrigation and drainage improvements to operate small farms and ranches (Vollenweider 2015:67). Congress passed several laws in the 1860s and 1870s that granted priority right to use water for mining, agriculture, and manufacturing on all homestead land (Boening 1918:273). These small-scale operations continued into the 19th century but grew to include entire communities as pioneers moved into areas and needed reliable irrigation for crops to feed growing communities. Euroamerican settlement to the west coast increased considerably in the 1870s. It was generally understood that "no other thing requires unity on the part of the community so quickly as irrigation" (Boening 1918:264). Through the latter part of the nineteenth century, organized community projects were completed all over the state, with notable projects in Yakama, Ellensburg, and Okanogan, among others. The Dungeness River, including the project area, was brought under irrigation at this time through the collective work of the area's farming community and became the first successful large-scale irrigation project in the western part of the State.

While the federal government had long encouraged the reclamation of water, the June 17, 1902 National Reclamation Act passed by Congress created the Bureau of Reclamation, and began a nationwide, federal interest in the management of water in the United States. The Reclamation Act authorized the federal government to aid the development of irrigation for agriculture through the formation of the Bureau of Reclamation. This federal coordination of water resources would help to construct needed large scale infrastructure, that state and local governments were unable, or unwilling, to fund (Hetzel 2016: E-6). This Act created a reclamation fund from the sale of public lands for the construction and maintenance of irrigation related works and the reclamation of arid land. At this time, Washington ranked "ninth in the number of irrigated farms; last in number of irrigated acres; ninth in constructive cost of system; [and] last in length of main canals and ditches" (Boening 1919:25). The years following the passage of the National Reclamation act were a period of great growth in Washington's water management systems. Two of the first large scale projects in central Washington were the Okanogan and Sunnyside projects.

3.3.5 Water Reclamation in Sequim Valley

The Sequim Valley, although close to Olympic Mountains and its remarkable heavy annual rainfall, averages less than 17 inches of rain a year. Most of this rain falls in the winter months (October to June), leaving summers arid and dry, and unsuitable for most common crops. Several years of drought in the 1870s created unfavorable growing conditions for most crops. It was difficult for residents to fathom, that in the shadow of the Olympic Mountains, which see an average of 100–140 inches of rain a year, that the prairie wasn't suitable for agriculture (Holt 1954:94). Several dry seasons led some to believe that large scale agricultural endeavors would need a

controllable, consistent water source. D. R. Callen, a local farmer and landowner, began discussing the implementation of irrigation in the early 1880s. Callen's idea to divert water from the Dungeness was initially met with skepticism. Callen's neighbors reportedly called him "Crazy Callen" and for a short time he was set to an asylum for "mental aberration" (Holt 1954:94).

Callen continued his push for irrigation, and after several more dry summers, he, along with three other area farmers, set out to convince a larger group that water from the Dungeness could run "uphill" and provide water to the dry prairie (Oldham 2005:np). With Callen, three other pioneer settlers, James R. Grant, H. Hucksford, and Captain Thomas Jones, set out to convince the locals that "water was wealth" (Irrigation Festival 2016:np). Many doubted waters could run up-hill, but in 1895 a small group of 20 local farmers organized the Sequim Prairie Ditch Company. While there was some skepticism about irrigation of the area, the towns of Sequim and Dungeness had thriving communities and irrigation successes in other states were commonly reported in local news (Vollenweider 2015:74). The newly formed company quickly needed a land surveyor to file a water rights claim. The company hired a new graduate, Will Ware, who had finished school so recently that they had to wait for his credentials to arrive before commencing work. One of the benefits of hiring Ware was that he was willing to be partially paid in the form of potatoes. The newly formed organization, now a group of 20 landowners, worked through the winter to construct the ditch and flume (Oldham 2005:np). The first headgate on the Dungeness River was lifted on May 1, 1895, and the following year on May 1, 1896, the first celebration took place at the Callen farm. This celebration turned into the longest, continuous running festival in Washington State (Irrigation Festival 2016:np).

The Eureka Irrigation Company quickly organized after the success of the Sequim Prairie Ditch Company. They received water rights in 1897, and likely constructed the Eureka Canal shortly after. The Seattle Post Intelligencer reported in May of 1902, that two ditches had been completed irrigating from the Dungeness River, making 3,000 acres of land tillable. The economic benefit to the land from these irrigation canals was swift. The paper reported that R. Jones, a local farmer, paid $10 an acre for land prior to irrigation and then had refused $100 per acre in 1902 (Seattle Post Intelligencer 1902:9).

Over the next twenty-five years eight more irrigation companies formed and filed water right permits for irrigation rights on the Dungeness River. The Clallam Ditch Company formed in 1902, and the Independent Irrigation Company formed in 1906 (HDR 2006:2-3). By 1910, the Washington State Bureau of Statistics estimated 5,000 acres of farmland were being irrigated, and 20,000 acres had the potential to be brought under irrigation in the district (Vollenweider 2015:67). Farming in the area became plentiful, and some of the most productive of the potato growers became locally known as "potato kings" (Hult 1954:90). By 1911, the Seattle Daily Times reported that the "success of irrigation at Sequim makes garden spot" which was, until recently, regarded as useless (Seattle Daily Times 1911:9).

During the beginning of the 20th century the network of canals and ditches continued to expand as populations increased and irrigation infrastructure became commonplace. The early work of the Sequim Prairie Ditch Company and the efforts of these farmers did not go unnoticed. A delegation from the Olympic Peninsula Development League visited Sequim in July of 1912 to see the "practical demonstration of the benefit of irrigation" (Seattle Post Intelligencer 1912: 13). It was noted in the visits announcement that the Sequim Valley was "practically a barren waste, but by irrigation it has been converted into one of the most fertile and productive sections of the state" (Seattle Post Intelligencer 1912: 13). Between 1911 and 1919, four more irrigation groups were organized: the Dungeness Irrigation Company, the Highland Irrigation District, the Agnew Irrigation District, and the Cline Irrigation District (HDR 2006:2-3). The Sequim Prairie Company, the Eureka Irrigation Company and the Independent Irrigation Company eventually merged to become the Sequim Prairie Tri Irrigation Company.

In 1919, historian Rose M. Boening described the irrigation in the "little valley" as one of the oldest and nicest irrigation systems in western Washington. The system was described as a "gem" since the surrounding area was "practically worthless for farming" prior to this effort (Boening 1919:33). In 1921 the Dungeness Irrigation District was formed and was the last to receive water rights to the Dungeness River. The Sequim Prairie system of main canals appears to have been mostly complete by this time. Today, water rights from Dungeness River diversions irrigate 25,905 acres and are collectively known as the Sequim Valley Irrigation System. Presently, there are six irrigation diversions and seven irrigation districts with over 97 miles of ditches originating from the Dungeness River (Clallam County 2016: 31.03.190). The system is the subject of the longest running festival in the state of Washington, the Sequim Irrigation Festival, which recently celebrated its 125th anniversary (Irrigation Festival 2016:np).

3.3.6 Sequim-Prairie Tri-Irrigation Company.

The Sequim-Prairie Tri Irrigation Company's Independent Intake Canal is located along the west edge of the project area and serves as the dividing line between the Highland Irrigation District and the Sequim-Prairie Tri Irrigation Company. Historically the Independent Intake Canal was developed by the Independent Irrigation Ditch Company, which incorporated in August of 1906. The company was quickly given the water rights to construct the Independent Irrigation Canal. The company was formed by J.C. Potter, George Hamilton, and George Brackett (Seattle Daily Times 1906: 10). The Independent Irrigation Ditch Company merged with the Sequim-Prairie Ditch Company and the Eureka Irrigation Company to form the Sequim-Prairie Tri-Irrigation Company (HDR 2006:2-30). It is unknown when this merger took place. The Independent Intake Canal diversion is located at River Mile 8.8 on the east bank of the Dungeness River. The canal uses a "push up gravel berm" to divert flow into a ditch when flow levels are low or when the main channel is not flowing against the east bank (HDR 2006:2-30). The Independent Canal runs north, before turning to the northeast and connecting with the Sequim Prairie Canal and flowing east to Sequim Bay.

3.3.7 Highland Irrigation District

The Highland Irrigation District, where the project area is located, received water rights in 1915. The system is in the southeast most section of the Sequim Valley Irrigation System. The Highland Canal diversion is located at River Mile 10.9, and supplies water to 995 acres of land. The open canal runs to the northwest, before turning to the northeast and terminating into groundwater and Johnson Creek near Palo Alto Road. The Highland Canal was construed by c. 1917. The canal was graded, and iron was used for the connections with the intake and the laterals. The completion of the canal brought into cultivation an area south of the town of Sequim. It was believed to be "waterproof" because the canal itself was constructed under a material that was reportedly superior at keeping washouts from developing and impenetrable in a way that prevents seepage. The ditch was referred to in the Spokesman Review as the "King Pin of such enterprises on the Olympic Peninsula" likely for its "waterproof" construction (The Spokesman Review 1917: 6). While the ditch was then lauded as "waterproof", it appears this phenomenon occurred because the soil in the area was comprised of "heavy clay" making seepage and erosion less concerning. The canal was finished by 1917 and appears to have maintained approximately the same alignment since its construction.

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4 Previous Research and Expectations

Records from the Washington State Department of Archaeology and Historic Preservation (DAHP), Washington Information System for Architectural and Archaeological Records Data (WISAARD) online database were reviewed to determine if cultural resources have been previously recorded in or near the project area, and if any cultural resources surveys have been conducted in the vicinity of the project area. Historic maps (e.g., GLOs, historic USGS topographic maps) were also examined to determine the likelihood of encountering cultural resources in the project area.

4.1 Previous Cultural Resource Investigations

The project area is located in Township 30 North, Range 4 West, Section 36. One previous cultural resources survey has been conducted within a portion of the project area and seven additional surveys have been conducted within 1 mile of the project area (Table 4-1, Previous Cultural Resource Investigations within 1 Mile of the Project Area).

The previous survey conducted within the project area was for the Bonneville Power Administration (BPA), which planned to install a fiber optic cable on an existing transmission line extending between the BPA's Olympia Substation in Thurston County, Washington, and its Port Angeles Substation in Clallam County. Applied Archaeological Research (AAR) conducted a pedestrian survey for BPA in the winter of 2000–2001 (Wilt and Roulette 2001). The survey took place along 99.5 miles of the BPA's 107-mile ROW for the project and included an approximately 0.5-mile segment where the transmission line ROW passes through the southern part of the current project's project area. AAR did not identify any archaeological resources within the boundaries of the current project area, and only found a single precontact artifact (an isolated find) and a possible historical site along the entire length of the ROW. However, AAR did designate the 0.4-mile segment of the ROW that extends between River Road and the east bank of the Dungeness River (i.e., located within the current project area) as part of a High Probability Area (HPA) with the potential for containing archaeological deposits, and recommended future archaeological investigations there and in the project's other HPAs. No such follow-up investigations appear to have been conducted, however.

A second previous survey was conducted immediately adjacent to the project area's southwestern corner. While the report's map shows the survey crossing into Section 36 and thus apparently into the project area, this is likely a projection error, as the survey was conducted on land managed by the Jamestown S'Klallam Tribe. The survey was conducted prior to a restoration project that was to restore habitat function along a stretch of the Dungeness River (Amell and Treichel 2015). The survey included pedestrian survey as well as subsurface testing; the latter consisted of the excavation of 100 shovel probes, five of which appear to have been placed within 10 meters of the project area's southwestern corner (with one appearing slightly within the project area according to the report's shovel probe map). No archaeological resources were identified during the pedestrian survey, and 100 of the shovel probes were negative for cultural material.

Table 4-1. Previous Cultural Resource Investigations within 1 Mile of the Project Area

DAHP NABD Report No.	Year	Author(s)	Report Title	Work Conducted	Distance, Direction from Project Area
1350006	2001	Wilt, Julia J., and Bill R. Roulette (Applied	Results of a Cultural Resources	Literature Review and	Within the project area (crosses the

Table 4-1. Previous Cultural Resource Investigations within 1 Mile of the Project Area

DAHP NABD Report No.	Year	Author(s)	Report Title	Work Conducted	Distance, Direction from Project Area
		Archaeological Research)	Survey of the Bonneville Power Administration's Olympia to Port Angeles Fiber Optic Project Area, Thurston, Mason, Jefferson, and Clallam Counties, Washington	Pedestrian Survey	southern half of the project area)
1687688	2015	Amell, Sarah J., and David Treichel (Aqua Terra Cultural Resources Consultants)	Cultural Resources Assessment for the Jamestown S'Klallam Tribe Robinson Phase Project	Literature Review, Pedestrian Survey, and Shovel Probes	Adjacent to the project area to the west and south
1691434	2018	Cauffman, Gideon (Jamestown S'Klallam Tribe)	Cultural Resources Assessment for the Proposed River Road Irrigation Improvement Project, Clallam County, Washington	Literature Review and Pedestrian Survey	450 feet north of the project area
1343725	2004	Kent, Ronald J. (U.S. Army Corps of Engineers)	Cultural Resources Reconnaissance Survey for the Dungeness Meadows Levee Repair Project on the Dungeness River Near Sequim, Clallam County, Washington	Literature Review and Pedestrian Survey	550 feet west of the project area
1689390	2017	Gargett, Robert H., and Sarah Johnson Humphries (Equinox Research and	Archaeological Investigation Report: Jamestown S'Klallam Tribe Caldero	Literature Review, Pedestrian Survey, and Shovel Probes	0.55 miles south-southwest of the project area

Table 4-1. Previous Cultural Resource Investigations within 1 Mile of the Project Area

DAHP NABD Report No.	Year	Author(s)	Report Title	Work Conducted	Distance, Direction from Project Area
		Consulting International, Inc.)	Acquisition, 525 Fish Hatchery Road, Clallam County, Washington		
1687976	2016	Amell, Sarah J., and David Treichel (Aqua Terra Cultural Resources Consultants)	Cultural Resources Assessment for the Jamestown S'Klallam Tribe: Madison and Strassburger/Mc Gee Parcels part of RCO Project 14-1384c	Literature Review, Pedestrian Survey, and Shovel Probes	0.84 miles north of the project area
1680029	2011	Schumacher, James, and Glenn Hartmann	Cultural Resources Survey for Agnew Irrigation District Improvements, Sequim, Washington	Literature Review and Pedestrian Survey	0.95 miles northwest of the project area
1686679	2013	Montgomery, Marcia (Cultural Resource Consultants, Inc.)	Historic Property Inventory for the Dungeness Hatchery, Clallam County, Washington	Literature Review, Historic Property Inventory	0.96 miles south of the project area

Note: Reports are on file at Washington DAHP, Olympia, Washington

Six additional cultural resource investigations have been conducted within 1 mile of the project area. These include two archaeological surveys that were conducted for irrigation improvement projects (Cauffman 2018; Schumacher and Hartmann 2011), two archaeological surveys conducted for habitat restoration projects (Amell and Treichel 2016; Gargett and Humphries 2017), an archaeological survey that was conducted for a levee repair project (Kent 2004), and an above-ground historic property inventory (Montgomery 2013). None of the archaeological surveys resulted in the identification of archaeological resources. The historic property inventory was conducted on the Dungeness Hatchery complex, built in 1946; the main hatchery building, which was recommended as eligible for the NRHP and the Washington Historic Register, is located more than 1 mile outside the project area and is therefore not included in Section 4.2, Previously Identified Aboveground Historic Resources (Montgomery 2013).

4.2 Previously Identified Archaeological Resources

Two archaeological sites have been previously recorded within the project area. Both sites are historic trash scatters/dump sites that date from the early to middle 20th century. Neither site has been evaluated for the NRHP.

Site 45CA00524 was recorded in 2003 by archaeologist Lee Stilson of the Department of Natural Resources, the agency that manages the project area (Stilson 2004). The site is an extensive historic trash scatter. Stilson (2004) suggested the site was City of Sequim's municipal dump during the first half of the 20th century. The site measures a maximum of 250 meters in length (northeast to southwest) and 30 meters in width (northwest to southeast); its depth was not determined during site recording. Cultural materials were too numerous to be inventoried in their entirety, but included ceramics, glass bottles of various types, metals cans, enamelware, bed springs, household appliances, bricks, dozens of wrecked cars, and other discarded items that would typically end up in municipal dumps. Most of the items appeared to date from the 1920s through the 1950s, though the glass bottles included some that could be stylistically dated to 1870 or earlier. Evidence of more recent dumping was also observed. The site is located along the sides and base of what the recorder described as a railroad grade to the west of River Road, located in the southwest corner of the project area. The apparent railroad grade feature is represented as an unpaved road rather than as an active railroad line on 1938 and 1939 topographic maps (USGS 1938, 1939), and does not appear on later topographic maps. Site 45CA00524 has not been evaluated for the NRHP.

Site 45CA00725 was also recorded by Stilson (Stilson 2014). This site, known as the Happy Cat Debris Scatter, is also a historic trash scatter, though it is smaller in scale and was interpreted as the result of several separate dumping episodes. This site measures 80 meters in length (northwest to southeast) and 60 meters in width (northeast to southwest); its depth was not determined during site recording. Cultural materials that were inventoried at the site included 17 distinct glass bottles, five types of ceramics, various car parts, enamelware, galvanized buckets, barrel bands, the remains of rubber and leather boots, a Washington State license plate, and numerous sanitary seal cans. Most of the cultural materials could be dated to the 1930s and 1940s, though one pile of debris included material dating up through the mid-1960s. The site was initially recorded on both sides of an unpaved road that runs southwestward from River Road in the northern part of the project area. However, the map on the final page of the site form shows the "Old Site Boundaries," which span the unpaved road, as well as "Proposed New Boundaries" that are shown entirely southeast of the unpaved road; this indicates that the site has been revisited since the initial recording, and also suggests that any material originally recorded on the north side of the road is no longer present. Site 45CA00725 has not been evaluated for the NRHP.

In addition to the two sites recorded within the project area, one archaeological site has been recorded within 1 mile of the project area boundaries. Site 45CA00218, the Manis Mastodon Site, is located 0.82 miles east-northeast of the project area. The site is one of the most important Paleoindian sites in all of North America, having yielded the first concrete evidence that Paleoindian people overlapped with mastodons chronologically and indeed hunted them (Daugherty 1977). A bone projectile point that was found embedded in a mastodon rib bone at the site has been dated to 13,800 B.P.; other associated finds included worked mastodon bones and tusks and mastodon and bison bones bearing butchering marks, all of which indicate that it was a site where Paleoindian peoples hunted and butchered megafauna (Gustafson and Gilbow 1978; Gustafson and Manis 2003; Swaminathan 2014). Excavations at the site have identified at least 12 occupation levels over a period of about 7,000 years, lasting up until 7,000 B.P. The Manis Mastodon Site was placed on the NRHP in 1978 (Gustafson and Mannis 2003).

4.3 Previously Identified Historic Built-Environment Resources

Records from the Washington DAHP's WISAARD Database were also reviewed to identify built-environment historic resources that have been previously recorded in or near the project area. No built-environment resources have

been previously recorded within the project area itself, and a total of four built-environment resources have been recorded within 1 mile of the project area (Table 4-2, Previously Recorded Built-Environment Historic Resources within 1 Mile of the Project Area). One of these resources, the Farland Dairy Farm, has been previously determined to be eligible for the NRHP, and its barn was listed on the Washington Heritage Barn Register in 2013. Another resource, the house at 203 Kinkade Road, has been determined to be not eligible for the NRHP. The other two resources have not been evaluated for the NRHP, though the barn on the C.C. Bowman Farm was listed on the Washington Heritage Barn Register in 2018. All the built-environment historic resources are located at least 200 feet from the project area and would not be impacted by the project visually or otherwise.

Table 4-2. Previously Recorded Built-Environment Historic Resources within 1 Mile of the Project Area

Resource ID No.	Date of Construction	Address	Name	NRHP Eligibility Determination
717375	1935	4811 Happy Valley Road, Sequim, WA	C.C. Bowman Farm	Unevaluated
700698	1920	71 McFarland Road, Sequim, WA	McFarland Dairy Farm	Eligible
680620	1968	203 Kinkade Road, Sequim, WA	203 Kinkade Road	Not Eligible
3090	1927	Route 6, Box 950, Sequim, WA	Bear Creek School	Unevaluated

4.4 Historic Map Research

Historic maps, including GLO survey maps, historic USGS topographic maps, and historic county atlases, were examined to determine the likelihood of encountering cultural resources in the project area.

The first Euroamerican development in the project vicinity appears on GLO survey maps dating from 1859 (GLO 1859a, 1859b) (Figure 4-1) (see also Section 3.3.2, Euroamerican Settlement in the Project Vicinity). While no development is depicted in the project area itself or in the entire section (36) in which it is located, several land claims are shown; these are represented by dots accompanied by names, and most of these are depicted near schematic agricultural fields. The schematic fields that appear in Township 30 North, Range 4 West are mostly shown within circles that appear to be clearings in the forest, while several of the fields in Township 30 North, Range 3 West are depicted within Sequim Prairie (GLO 1859a, 1859b). The schematic field that appears closest to the project area is shown approximately 1.25 miles northeast of the project area in Township 30 North, Range 3 West, Section 19. This field is likely associated with the claim of John Bell, which is shown to its immediate right in Section 20; Bell's land claim was patented in 1870 (GLO 1870, 1859b). Several roads are also represented on the 1859 survey maps. The road that is depicted closest to the project area is approximately 1 mile to its northeast and spans portions of Sections 19 and 30 in Township 30 North, Range 3 West; this road connects the schematic field next associated with the John Bell claim to a forest clearing that extends into the northeast quadrant of Township 30 North, Range 4 West, Section 36. While the clearing itself appears to come within several 100 feet of the project area, no development is shown within the clearing apart from the previously mentioned road at its far northeastern end (GLO 1859a, 1859b). Interestingly, the map of Township 30 North, Range 3 East shows what is labeled as an "Indian Village" on Sequim Bay in Section 22, approximately 4 miles east-northeast of the project area – this was

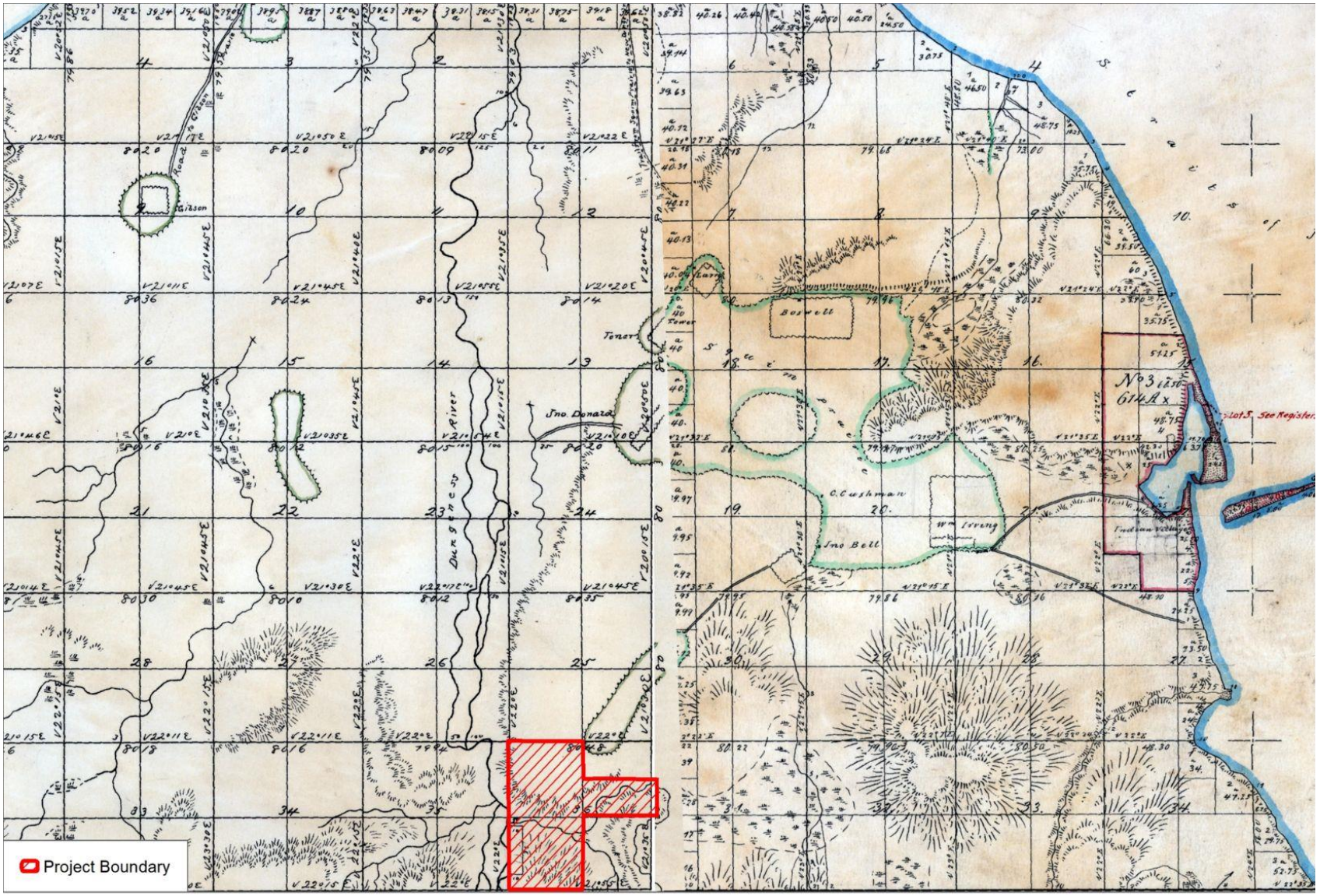

Figure 4-1. 1859 GLO map composite showing the project area.

the historical location of *Sx^{w}čk^{w}íyəŋ* or Sequim Village, whose name Euroamericans gave to the bay, the prairie to the west, and the future city of Sequim (Brownell 2018:1, 11; GLO 1859b).

There is a more than 30-year gap between the original GLO survey maps for Township 30 North, Ranges 3 and 4 West, and the first survey map to show the area immediately south of the project area (GLO 1894) (Figure 4-2). The 1894 map of Township 29 North, Range 4 West shows a road extending northeastward from the Dungeness River in Section 2 and crossing into Section 1 before continuing toward the project area in Township 30 North, Range 4 West, Section 36. The location and the alignment of the road appear to correspond to modern River Road (shown on some maps as Duncan Road), suggesting that River Road has existed in its present location since at least 1894 (see Section 3.3.3, Logging and Civic Development in the Project Vicinity). This map also shows additional development in the form of land claims and cultivated fields; the closest of these to the project area is that of Horner, located just south of the project area's southern boundary (GLO 1894). William P. Horner's claim was patented in 1896 (GLO 1896).

Historic USGS maps were reviewed to identify past topographic features and to better understand the development of the project area during the 20th century (USGS 1938, 1939, 1955, 1956, 1978, 1979, 1985a, 1985b). Historic Metsker atlases were also consulted to identify the historic property ownership of the project area (Metsker 1942; Metsker Maps 1970).

The 1938 and 1939 USGS maps show River Road in its present alignment, and also show that the other two named roads that cross through portions of the project area (Happy Valley Road and Sporseen Road) were also established and in their present locations by that time. These maps also show that the main stem of Highland Canal, which connects to the Dungeness River south of the project area and runs alongside River Road through the southern portion of the project area, was also largely in its present location by this time (USGS 1938, 1939). Construction of the Highland Canal began around 1915 (Joe E. Holtrop, Clallam Conservation District – personal communication, September 3, 2020). In addition to the named roads and the main stem of Highland Canal, these maps include an unpaved road that extends southwest from River Road in the northern portion of the project area for approximately 0.4 miles before it branches into two roughly parallel roads that continue south through the project area before converging separately with River Road. The northernmost 0.4-mile segment of this unpaved road is still mapped in the same location today and appears in aerial images, while the two southern branches are not shown on maps after the 1930s; the more easterly branch road, however, appears to be in the location of the railroad grade that Stilson described but which is not otherwise attested in the maps that were consulted (Stilson 2004; USGS 1938, 1939).

The 1942 Metsker's Atlas for Clallam County identifies the property that comprises the project area as "School Land," showing that the project area was publicly owned at the time (see Section 3.3.2). Curiously, the atlas also shows a graveled road crossing the project area horizontally east to west at the half-section line; such a road is not attested on other maps and appears to be an error (Metsker 1942:9).

Beginning in the 1950s the project area was split between two different USGS quadrangle maps: the majority of the project area was included in the Carlsborg Quadrangle, while the eastern edge was part of the Sequim Quadrangle (USGS 1955, 1956). The 1956 USGS map shows all of the roads within the project area and the main stem of Highland Canal in their present locations, and also shows that the transmission line that crosses the southern portion of the project area was built by this time (USGS 1956). Subsequent USGS maps show no major changes within the project area (USGS 1978, 1979, 1985a, 1985b). The 1970 Metsker's Atlas shows the entire project area as "State School Land," indicating no change in ownership in the interim (Metsker Maps 1970) (see Section 3.3.2).

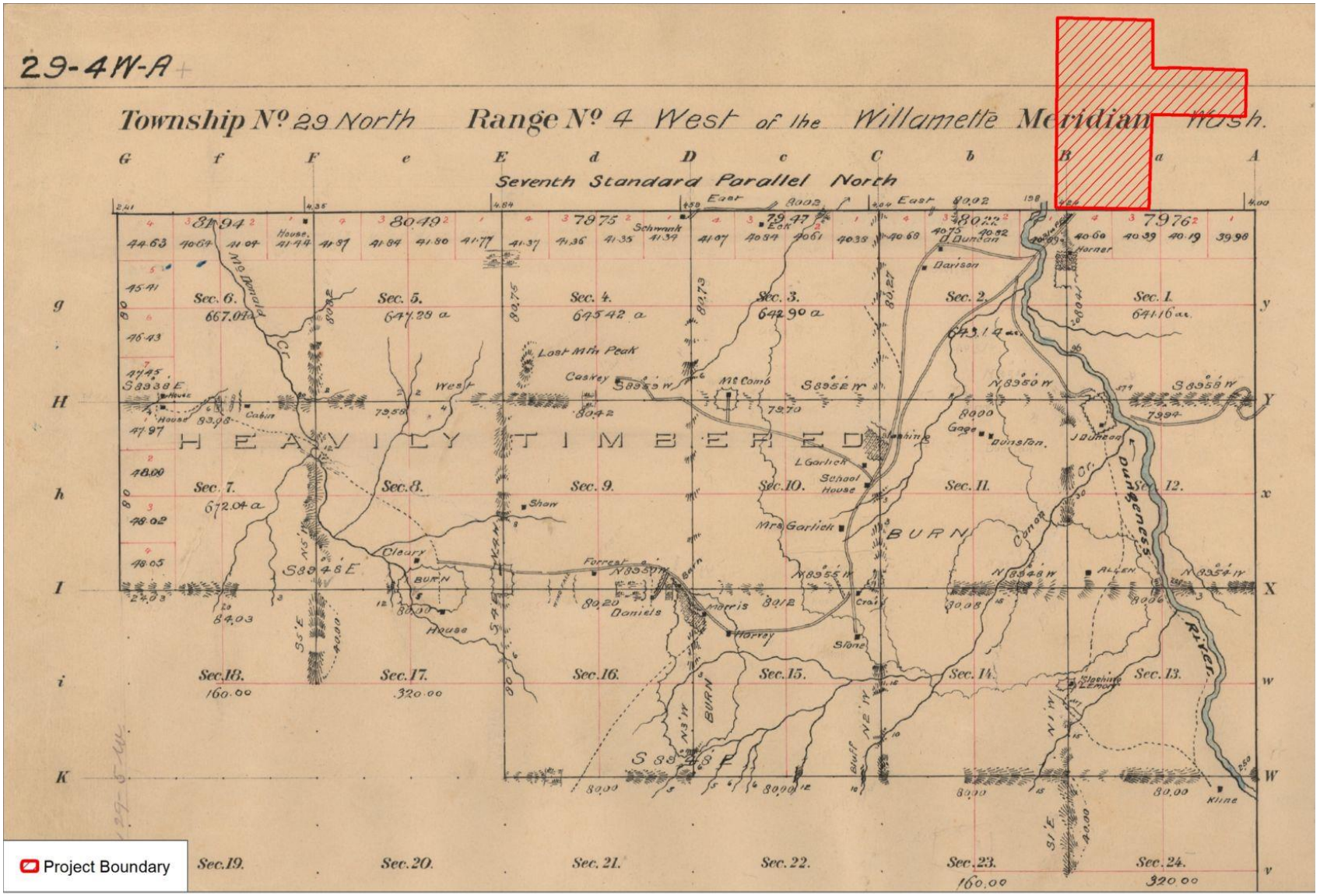

Figure 4-2. 1894 GLO map showing the area just south of the project area.

4.5 Archaeological Expectations

Prior to fieldwork, Dudek formulated expectations for the archaeological sensitivity of the project area. Dudek based these expectations on a review of the background information presented above, including the geomorphology and hydrology of the project area; the precontact and historic-period context of the vicinity, with information on the types, ages, and contents of previously recorded sites; and consideration of more recent disturbances that may have impacted cultural resources (e.g., landform alteration, logging activities, channel migration).

Most of the project area consists of a flat landform that is mapped by the Washington DAHP's Predictive Model as having a high likelihood for archaeological resources. This portion of the project area is already known to contain two previously recorded archaeological sites. Both of them are twentieth-century trash scatters, and it is reasonable to expect that similar resources might be identified elsewhere within the project area. The DAHP Predictive Model shows the western edge and the eastern edge of the project area as having a very high likelihood for archaeological resources. The western edge of the project area has a very high likelihood due to its proximity to the eastern bank of the Dungeness River – indeed, AAR considered this area to be part of an HPA during their 2001 survey (Wilt and Roulette 2001) – while the eastern edge is probably mapped as having a very high likelihood because it is a relatively flat landform located within 1 mile of the Manis Mastodon Site. Smaller portions of the project area are mapped as having a moderate or moderately low likelihood, probably because they are located on slopes.

The background research conducted by Dudek supports the DAHP Predictive Model. While the landforms of the project area have presumably been altered significantly from their precontact character, precontact resource types could be encountered and may include, but are not limited to: indigenous hunting, fishing, procurement, and gathering locations; short-term camp locations; and ancestral burial locations. Historic resources are most likely to include historic trash scatters similar to those that have been previously recorded within the project area.

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5 Methods

5.1 Archaeological Investigations

The archaeological field investigations followed DAHP guidelines and were designed to determine if previously unrecorded archaeological resources were present within the project area and revisit and assess the horizontal boundaries of previously recorded resources within the project area. A pedestrian survey was conducted across most of the project area; the areas not surveyed included the active river channel, steep slopes, and areas of extremely thick vegetation where access was impeded. Meandering pedestrian transects were walked within the heavily vegetated areas along paths of least resistance, such as game/hiking trails. Pedestrian transects were spaced up to 20 meters (m) apart. All soil exposures are inspected for the presence of cultural materials. Observations about topography, vegetation (including culturally significant vegetation), ground surface visibility, and disturbances are recorded in the project field notebook. Overview and close-up photographs were taken, and each photograph was recorded on a standardized photograph log.

When archaeological resources were encountered during the pedestrian survey, the field crew systematically searched the area to delineate resource boundaries within the project area and to identify artifact concentrations, tools, and features. Pin flags were placed at the locations of boundary and diagnostic artifacts. The area surveyed, site boundary, diagnostic artifact locations, artifact concentrations, and features were recorded using a GPS unit (an iPad tablet with ArcGIS Mobile Collector application and connected to a Trimble R2 Global Navigation Satellite System Receiver with submeter positioning capability) and marked on project maps. Photographs were taken of the general resource location and diagnostic artifacts. No archaeological materials were collected. Artifacts were recorded in the field and identified as to type, material, function, and cultural and chronological association, where possible, and then placed back where they were found.

Shovel probes were excavated within the proposed reservoir area in HPAs for buried archaeological deposits, which were selected during the pedestrian survey and were placed so as to avoid highly disturbed areas (e.g., within the footprints of structures and existing gravel access roads). HPAs within the proposed reservoir area—which is situated on a terrace composed of older Holocene–Pleistocene-aged alluvium, likely from the paleochannel of the Dungeness River (see Chapter 2, Environmental Setting)—were considered to be along the landform's western and eastern edges. The western edge because it is located nearest the view of, and slope down to, the Dungeness River floodplain. The eastern edge because it is closest to the likely location of the river's paleochannel (Personal communication with David Brownell, Jamestown S'Klallam Tribe Historic Preservation Officer, October 28). In total, 81 shovel probes were excavated to sample the proposed reservoir area (Appendix A, Shovel Probe Results).

Shovel probes were also excavated outside of the identified archaeological sites to help delineate the boundaries within the project area, where appropriate. Negative shovel probes were excavated in cardinal directions outside of archaeological sites within the project area.

Excavated shovel probes measured approximately 30 centimeters in diameter and were excavated to a minimum depth of 50 centimeters below the surface and two culturally sterile 10-centimeter levels, where possible. Deeper excavation with a hand-auger was not possible due to the cobbly nature of soils within the proposed reservoir area. Excavated soils were screened through 0.25-inch mesh hardware cloth. Texture, color, and structure of soil horizons observed in each probe were recorded, and the probes were backfilled. The locations of shovel probes were marked on project field maps and recorded using a GPS unit.

5.2 Built Environment Investigations

Dudek Architectural Historian Adrienne Donovan-Boyd conducted a desktop review of the survey data. During the survey, photographs and notes were taken of water conveyance systems that were determined to be 50 years of age at the time of survey. The Highland Canal and the Independent Canal were both recorded in the field and then evaluated for their potential inclusion on the NRHP. The survey followed the Washington State Standards for Cultural Resource Reporting (DAHP 2020). The field survey took place between September 8 and November 20, 2020. Field conditions were mild, a mix of sunny and cloudy days and high temperatures ranged between 50- and 75-degrees Fahrenheit. Historic research was conducted in November and December of 2020.

5.3 Resource Evaluation

The NPS has established guidelines for considering NRHP eligibility for a district, site, building, structure, or object (NPS 1997). To be individually eligible for the NRHP, a property must be significant within a historic context and retain integrity of those features that convey significance. The significance of a resource within its historic context must relate to one or more of the following criteria (Criteria A–D):

A. Associated with events that have made a significant contribution to the broad patterns of our history.
B. Associated with the lives of persons significant in our past (i.e., persons whose activities are demonstrably important within a local, state, or national context).
C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the works of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction (i.e., are part of a district). Discrete features, a building for example, may best be documented under this criterion, though collections of resources may also have significance under Criterion C for architecture or engineering association.
D. Yielded, or has the potential to yield, information important in history. To be eligible under Criterion D, the property must have, or have had, information to contribute to our understanding of human history and that information must be considered "important." Most often applied to archaeological sites, buildings, structures, and objects may be eligible under Criterion D if they are the principal source of information (NPS 1997:21).

In addition to these basic evaluation criteria, the NRHP outlines further criteria considerations for significance. Moved properties; birthplaces; cemeteries; reconstructed buildings, structures, or objects; commemorative properties; and properties that have achieved significance within the past 50 years are generally not eligible for the NRHP. The criteria considerations are exceptions to these rules, and they allow for the following types of resources to be NRHP eligible:

A. a religious property deriving primary significance from architectural or artistic distinction or historical importance.
B. a building or structure removed from its original location, but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event.
C. a birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his or her productive life.
D. a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, from association with historic events.

E. a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived.

F. a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

G. a property achieving significance within the past 50 years if it is of exceptional importance.

Once the significance of a resource has been determined, the resource then must be judged on its retention of integrity. Integrity is (1) the ability of a property to illustrate history and (2) possession of the physical features necessary to convey the aspect of history with which it is associated (NPS 1997:44). The evaluation of integrity is grounded in an understanding of a property's physical features and how they relate to the property's significance. Historic properties either retain integrity (that is, convey their significance) or they do not. To retain integrity, a property will always possess several, and usually most, of the seven aspects of integrity (NPS 1997:44–45, 2000:35–36):

1. *Location* is the place where the historic property was constructed or the place where the historic event occurred.
2. *Design* is the combination of elements that create the form, plan, space, structure, and style of a property.
3. *Setting* is the physical environment of a historic property.
4. *Materials* are the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property.
5. *Workmanship* is the physical evidence of crafts of a particular culture or people during any given period in history or prehistory.
6. *Feeling* is the property's expression of the aesthetic or historic sense of a particular period.
7. *Association* is the direct link between an important historic event or person and a historic property.

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6 Results

6.1 Archaeological Investigations

6.1.1 Pedestrian Survey

Dudek archaeologists Zach Windler, Terry Workman, Dan Martin, Julia Cleary, Megan Kidd, Will Linder, Sydney Sundell, Thomas Dols, and Jeff Maceyko conducted the archaeological field survey of the 396-acre project area between September and November 2020 (Figures 6.1-1 and 6.1-2). The archaeologists generally walked north–south transects and 20-m intervals through a majority of the project area; however, meandering transects were walked in thickly vegetated areas, and steeply sloped areas were avoided. Mineral soil visibility across the project area was generally between 0% and 10% with grasses or duff covering the surface. Where present, rodent burrows, cut-banks, and other soil exposures were examined.

The project area consists of the Dungeness River channel, which flows roughly south–north along the western edge of the project (Figure 6.1-3); the low, forested floodplain adjacent to the east bank of the river (Figure 6.1-4); a wide, mostly open and grassy (due to recent logging activities) terrace atop a steep, narrow ridgeline east of the floodplain (Figure 6.1-5); and the forested, rather steep slope to the east of River Road that begins a gradual incline toward the Olympic Mountains (Figure 6.1-6). The proposed restoration activities are confined, at this early planning stage, to the roughly 90-acre off-channel reservoir construction area within the wide, mostly open higher terrace located between the low river floodplain and River Road.

At the time of the survey, the river channel and low floodplain were generally vegetated with a canopy of riparian trees and plants including cottonwood, alder, bigleaf maple, Douglas fir, western red cedar, sword fern, salal, Oregon grape, and various short and tall grassy and weedy species. The water flow within the channel appeared relatively high during the November survey. Multiple remnant cutbanks were observed during the survey along the floodplain, evidence that the main river channel and adjacent floodplain has migrated west. Mineral soil visibility was poor, between 0% and 20%, with duff and leaves covering ground surface within the forested floodplain. The southern third of the floodplain within the project area included several observed springboard-notched cedar stumps, evidence of historical logging activities (Figure 6.1-7).

The higher terrace east of the floodplain appears to be typically forested, though recent logging west of River Road has created an open, grassy/weedy flat terrace dotted by stands of primarily firs and western red cedar. Exposed rounded cobbles and gravels, including many granite cobbles, were observed on the surface across this landform. Mineral soil visibility was fair, between 30% and 50%, within the recently logged areas that were open and grassy. This includes most of the proposed reservoir area. Elsewhere, within forested portions of the terrace, the ground was covered with duff and leaves and ground visibility was poor, ranging from 0% to 10%.

The west-facing slope east of River Road is thickly forested with young Douglas firs, vine maple, bigleaf maple, and older, larger western red cedars. Systematic transects along these slopes were impossible due to the thick vegetation and degree of slope; however, meandering transects were conducted along paths of least resistance within relatively level portions of this portion of the project area. Mineral soil visibility was poor, between 0% and 10%, with a thick layer of duff and leaves covering the ground within the forest and on the trails. As with the Dungeness River floodplain, springboard-notched cedar stumps were observed along this landform within the project area.

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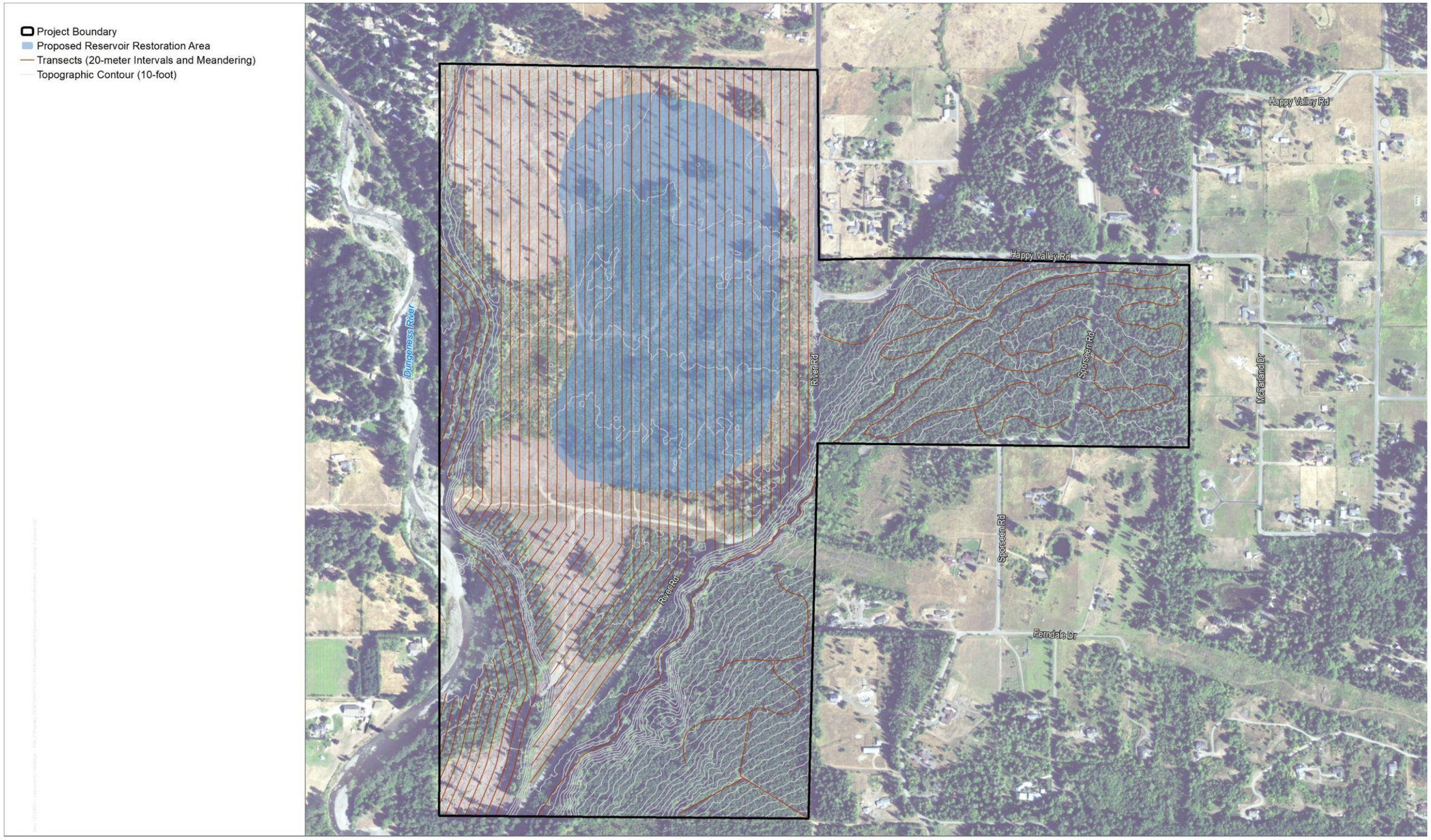

Figure 6.1-1. Aerial map showing the project area and archaeological pedestrian survey transects.

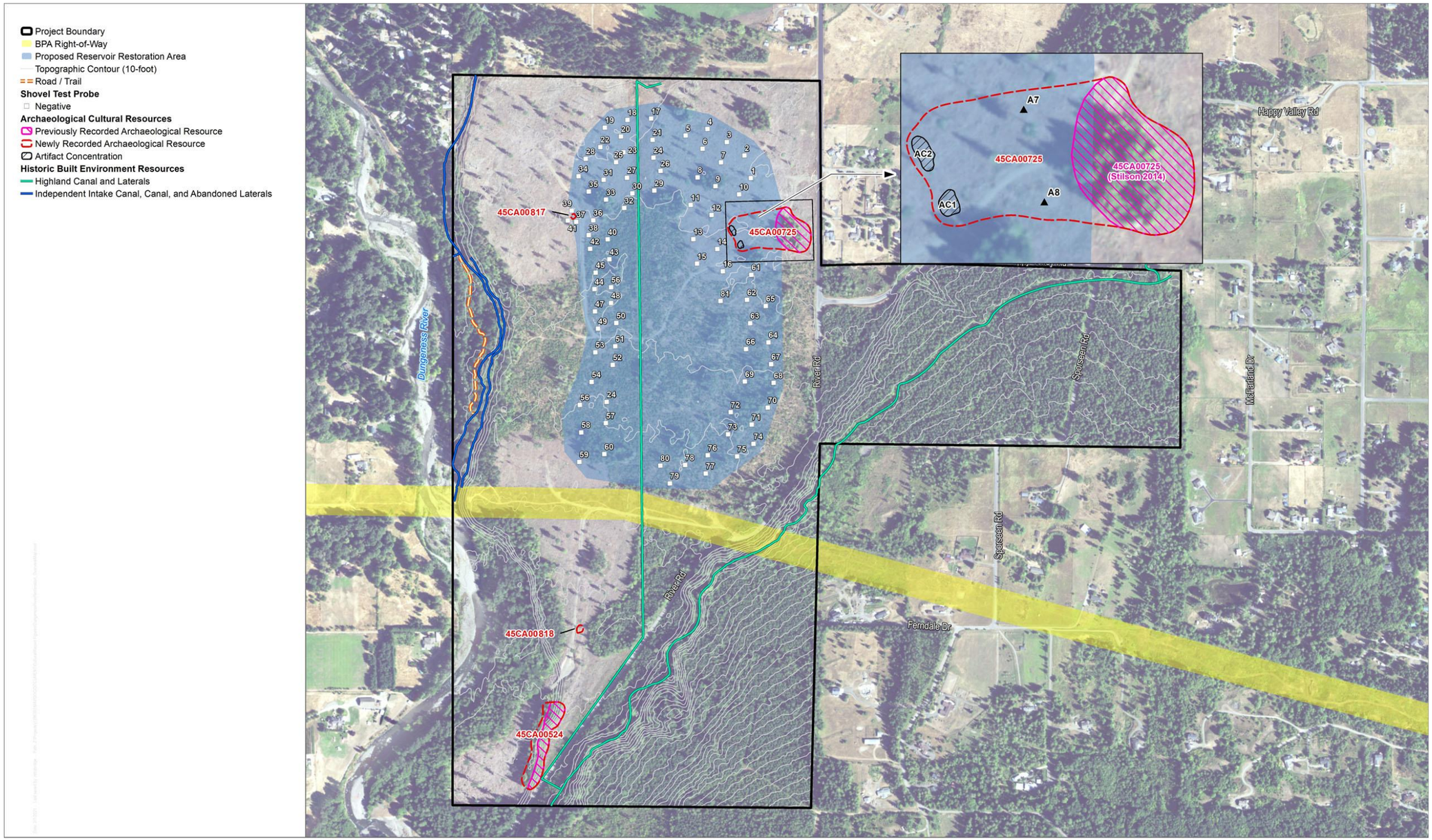

Figure 6.1-2. Aerial map showing the project area and the results of the cultural resources survey, including shovel probe locations and documented resources.

Figure 6.1-3. View of Dungeness River taken from the high terrace that forms the eastern margin of the river floodplain and from the southern edge of BPA ROW, looking northwest.

Figure 6.1-4. Survey of Dungeness River floodplain along southwest edge of project area, looking south.

Figure 6.1-5. Northern third of the project area showing the open, flat terrace east of river floodplain and west of River Road (within the proposed reservoir area); looking southwest.

Figure 6.1-6. View of the project area from the Highland Canal and part way up the west-facing slope east of River Road (taken from within the BPA ROW); looking west.

Figure 6.1-7. A springboard-notched stump is shown, located within the Dungeness River floodplain in the southern third of the project area, looking west.

The Independence Intake Canal, Canal, and an abandoned lateral of the intake canal were documented as a built-environment resource during the pedestrian survey within the Dungeness River floodplain at the western edge of the project area (see Figure 6.1-2). Segments of the Highland Canal and two laterals were documented as built-environment resources during the pedestrian survey of the project area within the terrace west of River Road and along the ridgeline east of River Road (see Figure 6.1-2). Additional information about the two documented historic built-environment resources is presented in Section 6.2, Built-Environment Investigations.

Two newly identified archaeological sites (45CA00817 and 45CA00818) were recorded on the surface during the pedestrian survey. The two previously recorded archaeological sites (45CA00524 and 45CA00725) within the project area were also revisited and relocated on the surface during the pedestrian survey. The boundaries of both previously recorded sites were expanded west from the originally recorded boundaries as a result of the survey. Additional information about Sites 45CA00817, 45CA00818, 45CA00524, and 45CA00725 is presented in Section 6.1.3, Archaeological Resources Documented in the Project Area.

6.1.2 Subsurface Testing

Following completion of the pedestrian survey, 81 shovel probes (SPs)—SPs 1 to 81—were excavated in HPAs within the current 88-acre area slated for construction of the off-channel reservoir (Appendix A) (see Figure 6.1-2). Methods for subsurface testing and selection of HPAs are described in more detail in Section 5.1, Archaeological Investigations. Cobbly sediments throughout the proposed reservoir area prevented the use of hand-augers to reach deeper deposits than the maximum shovel probe depth of 55 cmbs (Figure 6.1-8). No cultural materials were identified below the surface in the shovel probes.

Of the 81 excavated shovel probes, 3 probes (SP 37, SP 39, and SP 41) were dug as radials to delineate resource boundaries (at Site 45CA00817), while another 12 probes (SP 1, SPs 9–16, SP 61, SP 62, and SP 81) that were dug to sample the proposed reservoir area also serve to delineate the western boundaries of expanded Site 45CA00725. Subsurface testing of areas outside of the reservoir area was outside the scope of the current survey; however, subsurface testing is recommended in these areas within HPAs for buried cultural material, especially in the river floodplain, on the terrace south of the proposed reservoir area, and along the relatively flat portions of the project area above the Highland Canal.

Soils excavated within the proposed reservoir area were consistent with the Carlsborg series gravelly sandy loam mapped for the area (see Chapter 2, Environmental Setting).

Figure 6.1-8. View of screened matrix from SP 15 showing the gravelly sandy loam.

6.1.3 Archaeological Resources Documented in the Project Area

Two previously recorded resources—45CA00524 and 45CA00725—are located within the project area and revisited by Dudek. In addition, Dudek documented 4 archaeological resources (Table 6-1, Archaeological Resources Documented in the Project Area) within the project area during the pedestrian survey and subsurface testing, the

results of which are presented below. All identified resources are situated on public lands owned by DNR. Resource forms for archaeological resources will be submitted electronically via WISAARD.

Table 6-1. Archaeological Resources Documented in the Project Area

Report Section	Field Resource Number/ Trinomial	Resource Type	Township, Range, 1/4 Section	Brief Description/Comments
6.1.3.1	45CA00817	Historic Debris Scatter	30N, 4W, NW of 36	Four amber stubby-style beer bottles, a colorless glass condiment bottle, and six cans identified on the ground surface
6.1.3.2	45CA00818	Historic Debris Scatter	30N, 4W, NW of 36	Domestic refuse including jars, ceramics, metal, and glass fragments found on the ground surface
6.1.3.3	45CA00524	Historic Debris Scatter	30N, 4W, NW of 36	Hundreds of pieces of early- to mid-20th century refuse, included several discarded automobiles and a large amount of household debris scatter on surface of a steep roadside slope
6.1.3.4	45CA00725	Historic Debris Scatter	30N, 4W, NW of 36	Mid-20th century domestic refuse scattered on the surface of relatively flat roadside terrace.

6.1.3.1 Site 45CA00817

Archaeological Site 45CA00817 is a historic debris scatter located on a flat terrace above and to the east of the Dungeness River floodplain (Figure 6.1-9). The site is located in an open, grassy area that has been previously been logged (Figure 6.1-10) The site was identified on the ground surface on along the western edge of the Reservoir area, just west of an improved, gravel access road and encompasses a 5-x-5-meter area. The site is situated at 400 feet above mean sea level (amsl).

The site consists of four amber stubby-style beer bottles, a colorless glass condiment bottle, and six cans identified on the ground. The beer bottles are marked with “NO DEPOSIT NO RETURN” and “NOT TO BE REFILLED” on the body and have stippled heels. “No Deposit/No Return” bottles came into the beer bottle market in the 1940s and are found on stubby-style bottles into the 1970s (Schulz et al. 2019). Two of the bottles have an Owens Illinois makers mark used between 1954 and the present. Two are marked with the Northwestern Glass Company maker’s mark and have what are likely date codes of 1962 (Figure 6.1-11) (Bottle Research Group 2019).

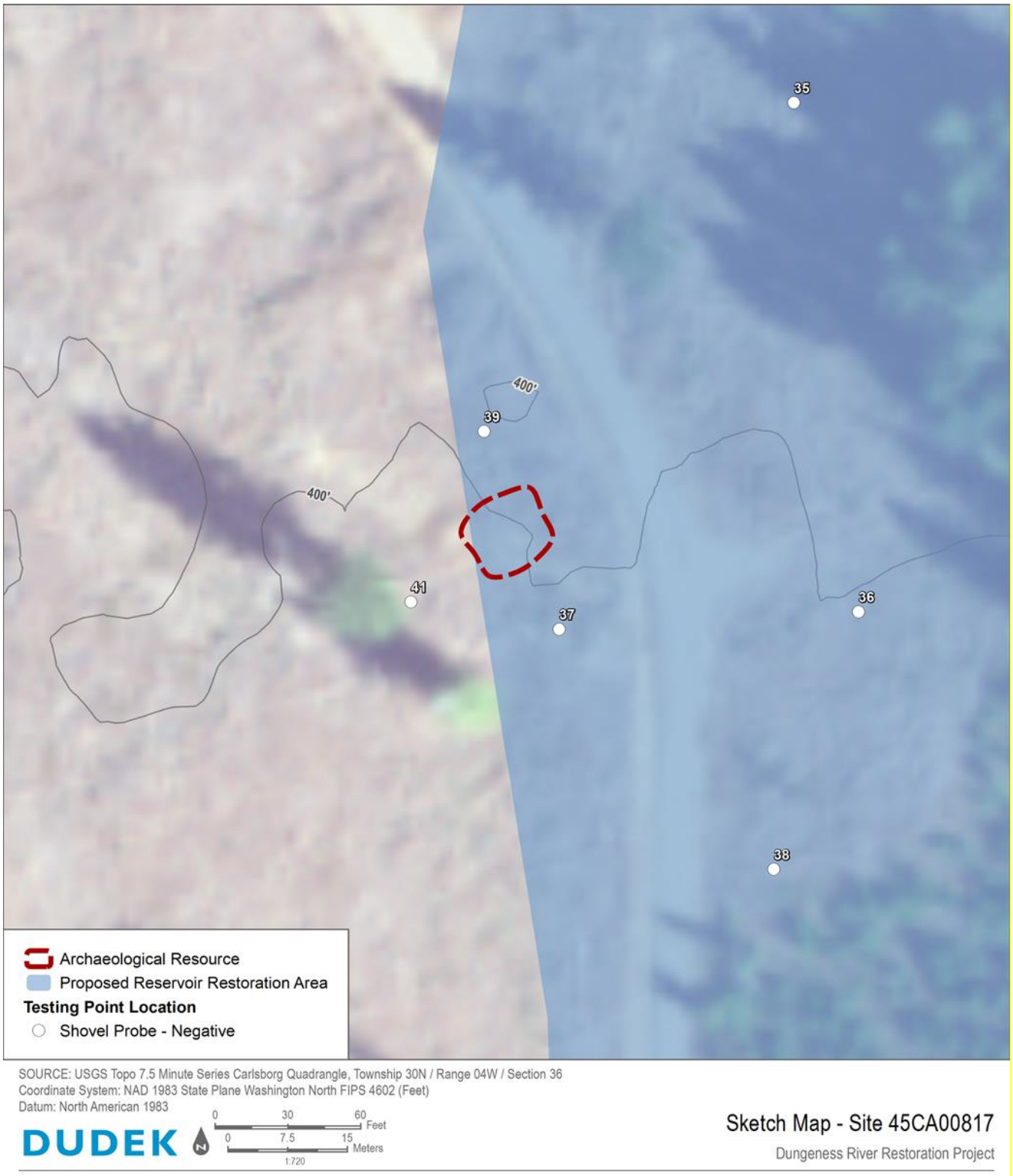

Figure 6.1-9. Sketch map of Site 45CA00817.

Figure 6.1-10. Overview of 45CA00817 showing SP 39 in progress (*left*), looking east.

Figure 6.1-11. Detail view of a 1962 stubby-style beer bottle at 45CA00817. The bottle is typical of the beer bottle assemblage.

Figure 6.1-12. Detail view of the cans identified at 45CA00817.

The colorless condiment bottle has an external thread metal cap and is marked with an H. Given the that the bottle is likely a ketchup bottle, it is probably the marked used by H.J. Heinz used between the 1930s and 1960s (Bottle Research Group 2019).

The cans include five wheel-cut open, straight-sided sanitary cans and one beaded key-wound Hills Brothers coffee can. There is not enough of the logo left on the coffee can to assign a date, but the style of can is consistent with the 1960s date range of the rest of the assemblage (Figure 6.1-12).

NRHP Evaluation

Historic-period archaeological Site 45CA00817 consists of 11 pieces of historic-era debris located on a terrace east of the Dungeness River, along an improved gravel road. The site, with its convenient location adjacent to the access road and in proximity of the river, likely represents a single-use hunting/fishing camp or possibly a single-episode residential dumping event that occurred in the 1960s. The datable maker's marks are diagnostic for the 1960s and the styles of bottles and cans are consistent with household refuse of that era. The project area has limited development outside of logging and irrigation infrastructure, and no homes or farms were established in the immediate vicinity of the site. If the site represents a residential dumping event, it may be associated with the neighborhood located just east of the project area. That neighborhood appears to have been developed between 1955 and 1979 (USGS 1955, 1979).

Site 45CA00817 does not appear to be associated with significant regional historical events (NRHP Criterion A) or a significant historical figure (NRHP Criterion B). The site does not represent the work of a master or embody distinctive characteristics of a type, period, or method of construction (NRHP Criterion C). The site is a sparse surface-level dumping event or a temporary hunting/fishing campsite from the 1960s; it is unlikely to yield

additional information important for the history or prehistory of the region (NRHP Criterion D). Furthermore, Site 45CA00817 lacks key components of integrity, including materials, design, feeling, workmanship, and association.

Site 45CA00817 is recommended not eligible for listing in the NRHP, due to a failure to convey significance under any of the NRHP criteria and a lack of integrity.

6.1.3.2 Site 45CA00818

Archaeological Site 45CA00818 is a historic debris scatter located on a relatively flat terrace above and to the east of the Dungeness River floodplain in an open, grassy area that has been previously been logged (Figure 6.1-13). The site was identified on the ground surface roughly 215 meters south of the BPA ROW that bisects the project area east–west, 235 meters south of the proposed reservoir area, and 1 meter east of an improved, gravel access road. The site encompasses an area 16 meters by 14 meters in a heavily disturbed area of logged stumps and other felled tree debris (Figure 6.1-14). The site is situated at 446 feet amsl. The glass jars and bottle were found lined up next to one another and were likely placed there by a local recreator (the immediate vicinity of the site along the access road is heavily trafficked by hikers and cyclists).

The site includes eight colorless glass screw-top jars, a stubby-style amber glass beer bottle, a milk-glass canning jar lid liner, a fragment of pressed decorative glass, a decorative drinking glass body fragment, a porcelain tableware fragment with gold paint, a piece of white and brown earthenware crockery, a steel quart-sized paint can, and a metal barrel strap. Also identified at the site were 10 fragments of window glass, 10 fragments of amber glass, and 15 fragments of colorless glass.

The colorless glass jars all represent “pickle” jar style food containers. Two of the jars, as well as the canning jar lid liner, are embossed with the Hazel-Atlas Glass Company maker’s mark that was in use between the 1920s and 1980s. One of the jars is embossed with Hazel-Atlas’ maker’s mark and has a likely manufacturing date of 1963 (Figure 6.1-15). Another jar is embossed on the lower body with the Glass Container Corporation maker’s mark used by the company between 1934 and 1968 (Figure 6.1-16) The other four jars along with the amber glass stubby-style beer bottle are embossed with Northwestern Glass Company’s maker’s mark used between 1931-1987; however, none of these have discernable associated date codes (Bottle Research Group 2019).

The other artifacts of the assemblage, while not clearly temporally diagnostic, represent common 1960s household items discarded as refuse (Figure 6.1-17).

NRHP Evaluation

Historic-period archaeological Site 45CA00818 consists of approximately 50 pieces of historic-era debris located on a terrace east of the Dungeness River, along an improved gravel road. The site, with its convenient location adjacent to the access road and close to River Road, likely represents a single residential dumping event that occurred in the 1960s. The datable maker’s marks are diagnostic for the 1960s and the style of jars, bottles, and other debris is consistent with household refuse of that era. The project area has limited development outside of logging and irrigation infrastructure, and no homes or farms were established in the immediate vicinity of the site. Like 45CA00817, Site 45CA00818 may be associated with the 1960s–1970s development of the residential neighborhood located just east of the project area (USGS 1955, 1979).

Figure 6.1-13. Sketch map of Site 45CA00818.

Figure 6.1-14. Overview of Site 45CA00818, looking north.

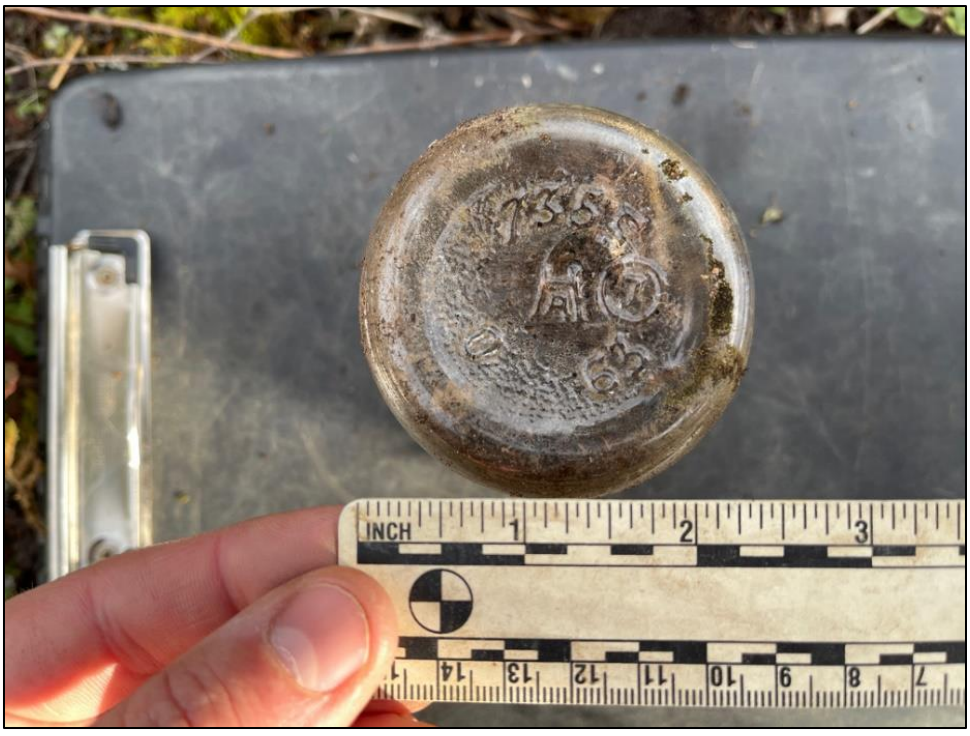

Figure 6.1-15. Detail view a 1963 Hazel-Atlas jar at Site 45CA00818.

Figure 6.1-16. Detail view of the Glass Container Corporation jar identified at Site 45CA00818, showing the maker's mark on the jar's lower body.

Figure 6.1-17. Detail view of the domestic artifacts identified at Site 45CA00818.

Site 45CA00818 does not appear to be associated with significant regional historical events (NRHP Criterion A) or a significant historical figure (NRHP Criterion B). The site does not represent the work of a master or embody distinctive characteristics of a type, period, or method of construction (NRHP Criterion C). The site represents a sparse, expedient dumping event and is unlikely to yield additional information important for the history or prehistory of the region (NRHP Criterion D). Furthermore, Site 45CA00818 lacks key components of integrity, including materials, design, feeling, workmanship, and association.

Site 45CA00818 is recommended to be not eligible for listing in the NRHP, due to a failure to convey significance under any of the NRHP criteria and a lack of integrity.

6.1.3.3 Previously Recorded Archeological Site 45CA00524

Historic-period debris scatter site 45CA00524 is located along a small ridgeline west of River Road and east of the Dungeness River floodplain (Figures 6.1-18—20). The site is situated between 415 and 460 feet amsl. When Stilson recorded the site in 2003, he described the location as the sides and base of a railroad grade to the west of River Road (Stilson 2004). The apparent railroad grade feature is represented as an unpaved road rather than as an active railroad line on 1938 and 1939 topographic maps (USGS 1938, 1939), and does not appear on later topographic maps.

Site 45CA00524 was recorded by Stilson as the former site of the City of Sequim's municipal dump during the first half of the 20th century, although it is not clear where that information was obtained (Stilson 2004). The site was recorded on the ground surface and measured a maximum of 250 meters in length (northeast to southwest) and 30 meters in width (northwest to southeast). Cultural materials were too numerous to be inventoried in entirety but included decalcomania ceramics, which were popular in the late 1800s to early 1900s, and Fiesta Ware, which was introduced in the 1930s. The glass vessels on-site vary in temporal and functional range, and include bleach bottles, condiments bottles, cosmetic jars, canning jars and lid liners, and other vessels of unknown function. Many of the vessels were marked with Duraglas, which dates from the 1940s to 1960s. Stilson (2004) attributed the selenium decolorized vessels and glass fragments on-site to the 1920s to 1930s, but machine-made bottles decolorized with selenium can date to as early as the late 1910s and as late as around 1950. Without additional information, it is not possible to further refine the date for those items (Lindsay 2020). Several of the vessels appear to have been manufactured earlier, including one early machine-made bottle, at least one turn-molded vessel, and a vessel with a bare iron-pontil scar on the base. Iron-pontil marks are common on soda bottles in 19th century (1840s-1860s) and on specialty glass into the early 1900s. It is unknown on what type of vessel the pontil marks were observed. The manufacture types and maker's marks on the glass vessels found at the site range from the late 1890s to 1960s (Lindsay 2020).

Other artifacts identified at the site include metals cans, enamelware, bed springs, household appliances, bricks, dozens of wrecked cars, and other commonly discarded items. Most of the items appeared to date from the 1920s through the 1950s, although some of the glass bottles can be stylistically dated to 1900 or earlier. Evidence of more recent dumping was also observed.

While Stilson (2004) suggested the site was the former site of the City of Sequim's municipal dump, no evidence was found to corroborate that claim. Review of historic maps for the project area (see Section 4.4) did not identify any notation of a dump in the area. The only reference identified for an early dump suggests the municipal dump was located north of Sequim, on Grennan Hill, on land donated by Clallam County to the City in the 1930s (All About Sequim 2020).

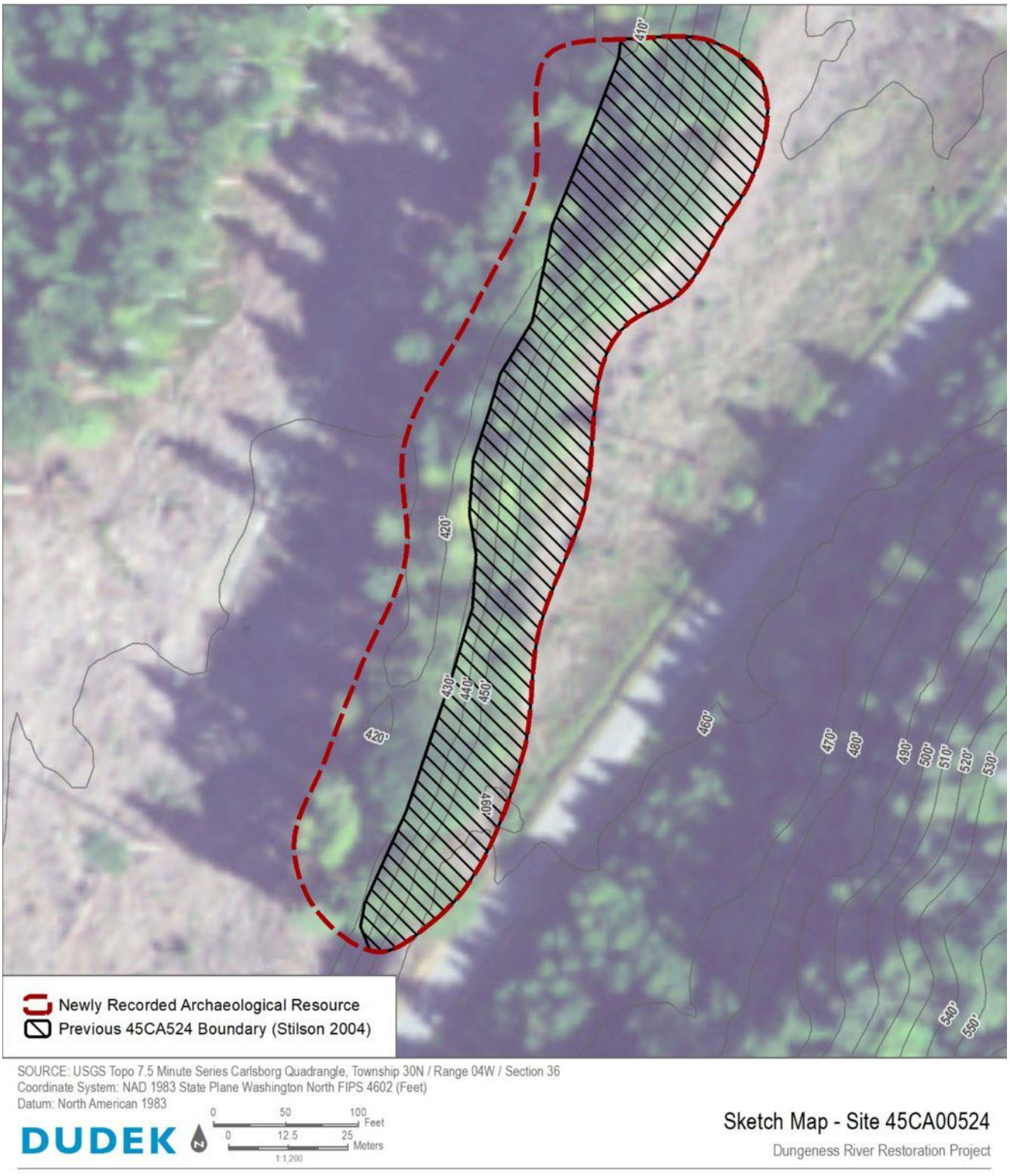

Figure 6.1-18. Sketch map of Site 45CA00524

Figure 6.1-19. Overview of 45CA00524 from north edge of site showing the ridgeline (*center*) as well as an improved, graveled access road (*right*), looking southwest.

Figure 6.1-20. Overview of 45CA00524 from southern edge of site showing the ridgeline (*right*), atop which sits River Road, looking north.

The site was revisited as part of the current survey and resulted in a slight expansion of the site boundaries west. No new or different artifacts were observed, and the site appeared in the same condition as the original recordation. The site does not appear to be an official dump; it appears more likely that the site represents an expedient, episodic dumping site with easy access from River Road, which is adjacent to the site's southeastern edge.

NRHP Evaluation

Historic-period debris scatter Site 45CA00524 consists of hundreds of pieces of historic-period refuse scattered on the surface of a ridgeline and steep slope with easy access from the adjacent River Road. The land surrounding the site was never developed, and the federal legislation that created the state of Washington gave the state ownership of the project area in 1889 to be used to fund public schools. When the DNR was created in 1957 it took over the management of the project area, and since then it has continued to manage the land around the site. River Road, which crosses through the project area, was built by 1894 and may have been originally constructed as an access road for logging operations that were conducted in an area along the Dungeness River that was known as the Riverside District, which was located south of the project area. The construction of River Road probably also helped to facilitate logging operations within the project area, since logging was an officially sanctioned economic activity on such parcels that had been aside to raise funds for public schools.

River Road's construction through the project area in around 1894 also made dumping possible at Site 45CA00524. The relatively flat elevated terrace that extends north from River Road into the site from the south would have been a handy access point for a cart or vehicle to dump household refuse and larger items, which, carried downslope, would have been hidden from the road. Like the other refuse scatters identified within the project area, many artifacts at Site 45CA00524 have datable maker's marks and/or are jars, bottles, or other debris that are stylistically consistent with household refuse of the 1940s through 1960s. Earlier 20th century artifacts found at the site likely reflect reoccurring dumping events following the construction of River Road, and might have been deposited there by locals who were involved in the logging industry and knew of the site's convenient location.

Site 45CA00524 does not appear to be associated with significant regional historical events (NRHP Criterion A) or a significant historical figure (NRHP Criterion B). The scatter of refuse at the site also does not represent the work of a master or embody distinctive characteristics of a type, period, or method of construction (NRHP Criterion C). The site is a surface scatter of refuse and does not include associated cultural features. As an expedient early- to mid-20th century residential dumping locale, Site 45CA00524 is similar to many other such dumping locales around Sequim and is unlikely to yield additional information important for the history or prehistory of the region (NRHP Criterion D). Furthermore, Site 45CA00524 lacks key components of integrity, including materials, design, feeling, workmanship, and association.

Site 45CA00524 is recommended to be not eligible for listing in the NRHP, due to a failure to convey significance under any of the NRHP criteria and a lack of integrity.

6.1.3.4 Previously Recorded Archaeological Site 45CA00725

Site 45CA00725, known as the Happy Cat Debris Scatter, is a historic-period debris scatter, interpreted as the result of several separate dumping episodes. The site is located approximately 10 meters west of River Road and situated on a relatively flat, open terrace roughly 720 meters east of the Dungeness River (Figure 6.1-21). A stand of trees covers much of the site, but the perimeter of the site and its immediate vicinity have been recently logged. Mineral

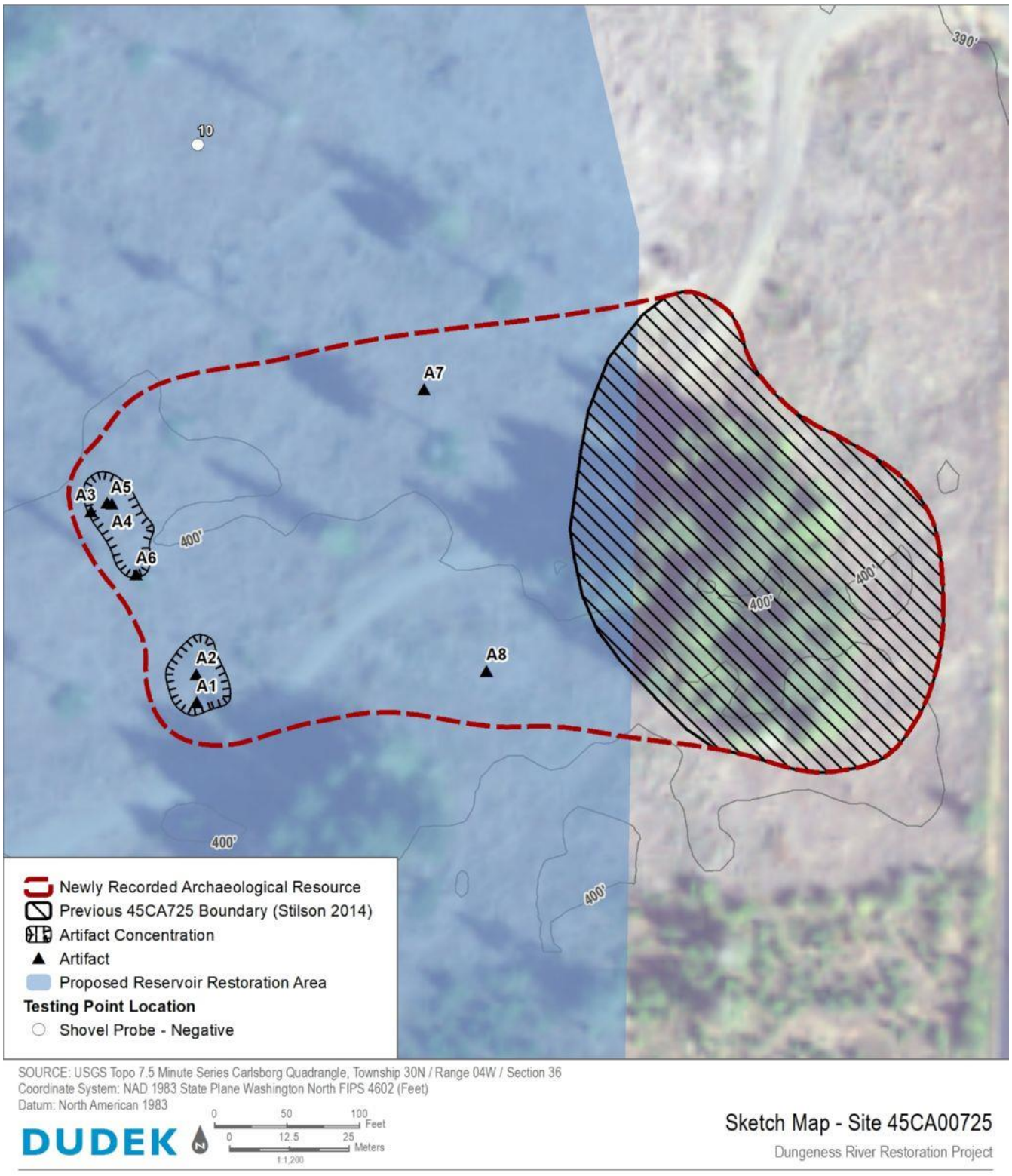

Figure 6.1-21. Sketch map of Site 45CA00725.

soil visibility within the open areas of the site was fair, between 30% and 50%, and poor, between 0% and 10%, within the forested areas. The site is situated between 399 and 403 feet amsl.

This site was originally recorded by Stilson (2014) on the ground surface encompassing an area 80 meters long (northwest to southeast) and 60 meters wide (northeast to southwest). Approximately 40 artifacts were identified and cultural materials that were inventoried at the site included 17 distinct glass bottles, decorative glass, five types of ceramics, various car parts, enamelware, galvanized buckets, barrel bands, the remains of rubber and leather boots, a Washington State license plate, and numerous sanitary seal cans. Most of the cultural materials could be dated to the late 1930s and 1940s, though one pile of debris included material dating to the mid-1960s. Stilson (2014) believed that the refuse has been dumped and then bulldozed into piles. The site was initially recorded on both sides of an unpaved road that runs southwestward from River Road in the northern part of the project area. However, the map on the final page of the site form shows the "Old Site Boundaries," which span the unpaved road, as well as "Proposed New Boundaries" that are shown entirely southeast of the unpaved road; this indicates that the site has been revisited since the initial recording.

The site was revisited as part of the current survey (Figure 6.1-22). Two artifact concentrations, AC1 and AC2, as well as two additional artifacts outside these concentrations, were identified approximately 80 meters west of the previously recorded site boundary, expanding the site approximately 100 meters to the west (see Figure 6.1-21).

The newly identified artifacts identified are similar in character and temporal range to those previously recorded, although more of the artifacts date to the 1960s than previously recorded.

Artifact Concentration AC 1 includes five Hills Brother Coffee cans, one hole-in-top can (Artifact 1 [A 1]), two colorless glass screw top condiment bottles, four sanitary cans with church key opening, two large straight sized cans with church-key opening, one steel beverage can with a church key opening, a portion of a leather shoe, a rectangular kerosene can, and two colorless glass canning jars (one Ball) (Figure 6.1-23).

Several bottles were also identified in AC 1 that can be dated to the 1960s (Figure 6.1-24). These include one Northwest Glass Company-manufactured stubby-style amber glass beer bottle (A 2) and two amber beer bottle body fragments marked with "NO DEPOSIT NO RETURN" and "NOT TO BE REFILLED" on the body (Figure 6.1-25). "No Deposit/No Return" bottles came into the beer bottle market in the 1940s and are found on stubby-style bottles into the 1970s (Schulz et al. 2019). A 2 is also embossed with "62" to the right of the maker's mark, which likely refers to 1962 as the year of manufacture. Another stubby-style amber beer bottle was identified in AC 1 with the post-1954 Owens-Illinois maker's mark and "60" to its right. The "60" is likely the date code for 1960, indicating the year of manufacture. Artifact 3, an amber glass bottle embossed on the base with Thatcher Manufacturing Company's maker's mark, was also identified in AC 1. An embossed "62" appears to the right of the maker's mark, suggesting it also was manufactured in 1962 (Bottle Research Group 2019).

One of the colorless condiment bottles has an external-thread metal cap and is marked with an "H." Given that the bottle is likely a ketchup bottle, it is probably the mark used by H.J. Heinz used between the 1930s and 1960s (Bottle Research Group 2019).

Artifact Concentration AC 2 contains four colorless glass Kerr canning jars with modern-style finishes, one steel beverage can with a church key opening, two fuel cans, an aluminum measuring cup, an Owens-Illinois-manufactured canning jar (A 4), an amber glass Purex bleach bottle body and base (A 5), and aqua glass fragments (A 6). Other artifacts identified within AC 2, located near A 6, include two stoneware crockery fragments, a wheel-

Figure 6.1-22. Overview of 45CA00725, expansion of the site boundary is in the foreground of frame, looking east.

Figure 6.1-23. Detail view of a sample of cans at 45CA00725.

Figure 6.1-24. Detail view of a sample of bottles at 45CA00725.

Figure 6.1-25. Detail view of a “No Deposit/No Return” bottle at 45CA00725.

cut opened steel can, metal auto parts, a Hillsboro coffee can, and an Owen-Illinois manufactured colorless glass jug base. The Owens-Illinois jug base carries the maker's mark used between 1929 and 1960 (Bottle Research Group 2019). The "4" embossed on the jug base and the stippling suggest the jug was manufactured in 1944.

Artifact 4, the Owens-Illinois canning jar, is made of colorless glass, includes stippling on the base, and is embossed on its base with the Owens-Illinois maker's mark used between 1929 and 1960 (Bottle Research Group 2019) and "Duraglas" (Figure 6.1-26). Duraglas and stippling came into production around 1940 (Lindsay 2020). The embossed "4" on the base indicates the jar was likely manufactured in 1944.

Artifact 5 is an amber glass bottle imprinted with "PUREX" on the shoulder and base, measuring roughly 10 inches tall and 3.5 inches in diameter. The base is also embossed with "DIS. PAT. APP. FOR." While it is not possible to date the vessel exactly, this type of bleach bottle was common between the 1940s and 1960s (Lindsey 2020).

The can assemblage at the site matches the types of cans and opening style (church key) that was common into the early 1960s (Rock 1989).

NRHP Evaluation

Historic-period archaeological Site 45CA00725 consists of approximately 90 pieces of historic-period debris scattered across the surface in several concentrations. The site, with its convenient location bisected by the access road and close to River Road, likely represents multiple residential dumping events that occurred between the 1940s and 1960s. The datable maker's marks and the style of jars, bottles, and other debris are consistent with household refuse of that era. The vicinity of the site has incurred a limited amount development outside of logging and irrigation infrastructure, and no homes or farms were established in the immediate vicinity. Because the site has never been privately developed and was owned by the state, it would have been a convenient dumping location for residential refuse. And like the other sites documented with the project area, dumping refuse at 45CA00725 may have become more convenient during the 1960s with the development of the residential neighborhood now located just east of the project area (USGS 1955, 1979).

Site 45CA00725 does not appear to be associated with significant regional historical events (NRHP Criterion A) or a significant historical figure (NRHP Criterion B). The site does not represent the work of a master or embody distinctive characteristics of a type, period, or method of construction (NRHP Criterion C). The site represents sparse, expedient dumping events and is unlikely to yield additional information important for the history or prehistory of the region (NRHP Criterion D). Furthermore, Site 45CA00725 lacks key components of integrity, including materials, design, feeling, workmanship, and association.

Site 45CA00725 is recommended to be not eligible for listing in the NRHP, due to a failure to convey significance under any of the NRHP criteria and a lack of integrity.

Figure 6.1-26. Detail view of an Owens-Illinois Duraglas jar base at 45CA00725.

6.2 Built-Environment Investigations

Dudek conducted a reconnaissance-level survey of the irrigation ditches within the project area between September and November of 2020. Figures 6.1-2–6.1-6 in Section 6.1.1, Pedestrian Survey, provide overviews of the project area. The survey identified two canals and their associated laterals and abandoned alignments that appeared to meet the age requirement for field recordation. When able, the canals and laterals were walked and mapped using a GPS unit and field maps. The two canal systems that were identified as having portions in the project area are the Independent Intake Canal (12963-06) and the Highland Canal (12963-01). Both are located within the Highland Irrigation District (see Figure 6.1-2) (Table 6-2, Historic Built-Environment Resources Identified).

Table 6-2. Historic Built-Environment Resources Identified

Report Section	Field Resource Number	Resource Type	Resource Name	Location (T, R, S)	Age/Built	NRHP Eligibility[1]
6.2.1	12963-01	Historic Irrigation Canal	Highland Canal and Laterals HC-1 and HC-2	30N, 4W, 36	c. 1917	Not Eligible
6.2.2	12963-06	Historic Irrigation Canal	Independent Canal and abandoned lateral	30N, 4W, 36	c. 1906	Not Eligible

[1] Dudek recommendation

6.2.1 Highland Canal (Field Number BE-12963-01), and the Highland Canal Laterals HC-1 and HC-2

Description- Highland Canal

The Highland Canal (HC) segment within the project area measures approximately 1.2 miles long from the south end of DNR's parcel 043036210000, just north of the intersection of River Road and Otter Way, to the northeastern edge of parcel 043036130000, just southwest of the Happy Valley Road/McFarland Drive intersection (Figure 6.2-1). The HC segment flows southwest to northeast, and the southwestern two-thirds of the segment follows the toe of a steeply sloping ridgeline before flowing away and to the east of River Road. A majority of the HC segment is an open, earthen ditch measuring approximately 20 feet wide and between 8 and 12 feet deep (Figure 6.2-2). A roughly 250-foot length of the HC segment, bisecting the BPA transmission line ROW, has been piped underground with a modern plastic culvert pipe and earthen berm.

The Highland Canal segment includes 3 water control features (Features 1, 2, and 3). **Feature 1** (F1) is a diversion structure for HC Lateral 1 (HC-1) and includes a metal water-control gate and concrete spillway (Figure 6.2-3). The spillway flows west-northwest from the Highland Canal through a 4-foot-wide opening and water control gate, diverting water into HC-1. The spillway channelizes the flow of water downslope from the Highland canal. The walls of the spillway are 6 inches thick. The water control gate is opened/closed by a hand-operated wheel accessible over a metal walkway that spans the opening of the spillway (Figure 6.2-4).

Feature 2 (F2), located downstream from F1, is the earthen berm and plastic (high density polyethylene [HDPE]) culvert pipe that buries a 250-foot-long stretch of the Highland Canal beneath the BPA transmission line ROW (Figure 6.2-5). The plastic pipe is corrugated, measures 48 inches in diameter, and is encased in concrete. Sediment was placed atop the pipe to the level of the adjacent ground surface. A concrete manhole access point to the piped canal, secured with a metal grate, is located approximately midway across the span of the BPA transmission line ROW (Figure 6.2-6).

Feature 3 (F3), located downstream from F2, is the culvert where the Highland Canal crosses west–east beneath Sporseen Road (Figure 6.2-7). The culvert includes two parallel 3-foot-diameter-by-56-foot-long corrugated metal pipes beneath Sporseen Road. Ballast rock and gravel was placed atop the pipes, and Sporseen Road is paved atop this aggregate.

Description-Highland Canal Lateral-1

A segment of the Highland Canal Lateral 1 (HC-1), a lateral irrigation ditch of the Highland Canal, is within the project area (Figure 6.2-8). The HC-1 segment measures approximately 1-mile-long and flows west from the Highland Canal beneath River Road through a culvert (Feature 6, see below for details), turns northeast paralleling River Road for 0.25 mile, and then turns north from the road bisecting the midline of parcel 043036210000. Within the project area, HC-1 flows along a relatively flat terrace above and east of the Dungeness River. Vegetation along HC-1 includes both open, recently logged grassy areas and forested areas. HC-1 includes three features (Features 4, 5, and 6) within the project area, described below.

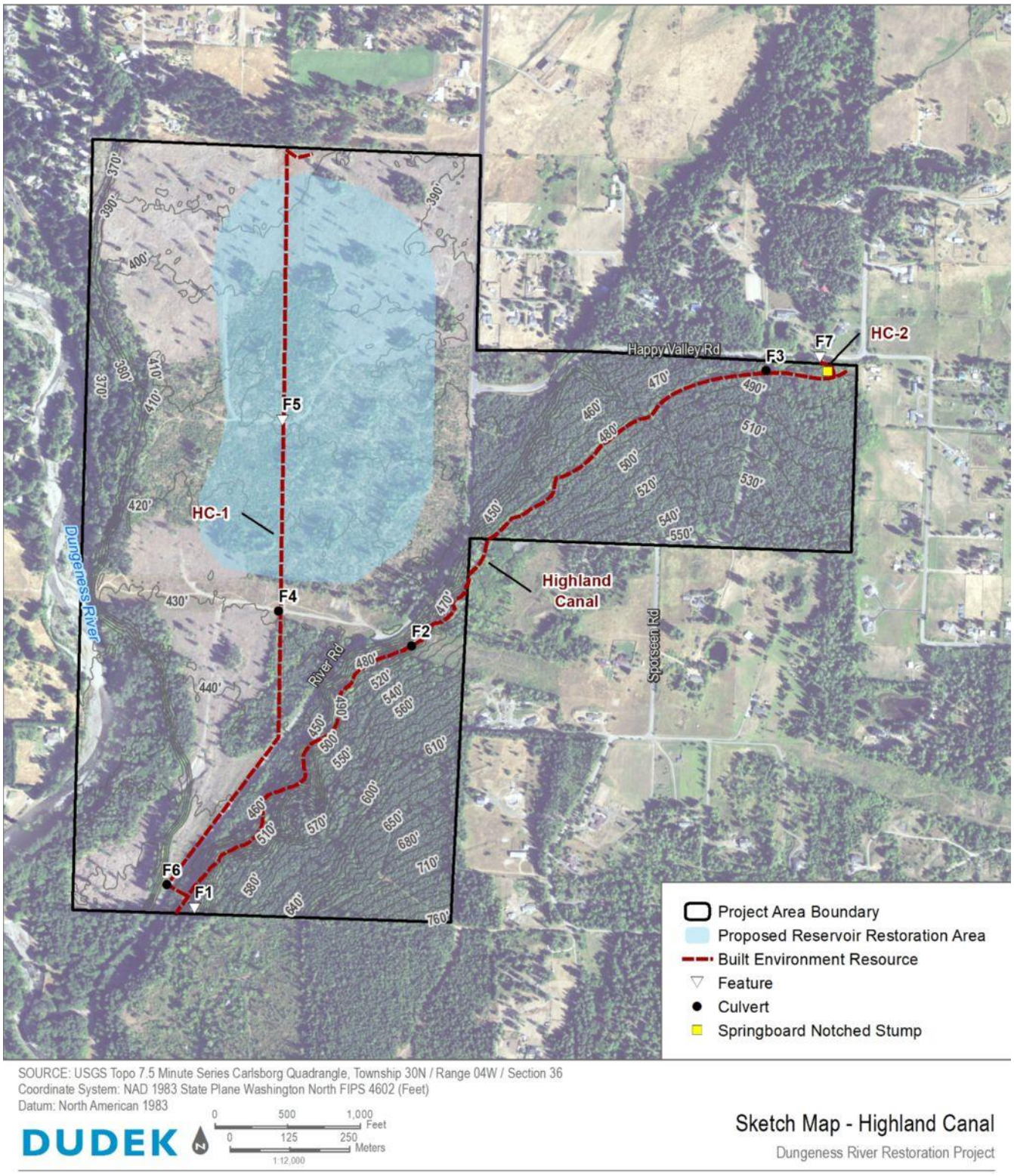

Figure 6.2-1. Aerial map showing the Highland Canal and two laterals within the project area.

Figure 6.2-2. Highland Canal showing the leaf-covered trail next to it; looking southwest.

Figure 6.2-3. Highland Canal, Feature 1, a concrete gate and spillway to lateral HC-1; looking southwest.

Figure 6.2-4. Highland Canal, Feature 1, showing the metal gate and spillway beyond, looking west. Leaves cover the surface of the water in the canal (*foreground*).

Figure 6.2-5. Highland Canal, Feature 2, showing the southwest end of the plastic culvert pipe channeling the Highland Canal under ground within the BPA transmission line ROW; looking northeast.

Figure 6.2-6. Highland Canal, Feature 2, showing the concrete enclosure with access to the piped portion of the canal under the BPA transmission line ROW.

Figure 6.2-7. Highland Canal, Feature 3, showing double culvert pipes beneath Sporseen Road.

Figure 6.2-8. HC-1 Lateral of the Highland Canal, taken near the south edge of the proposed reservoir area; looking south.

Feature 4 (F4) is a corrugated plastic culvert pipe and berm for a gravel access road crossing east–west over the lateral ditch within the BPA transmission line ROW (Figure 6.2-9). The culvert pipe measures 2 feet across in diameter and appears to have been recently replaced, either for the recent logging activities within the project area or for BPA's maintenance and access of the transmission line.

Figure 6.2-9. HC-1 Lateral of the Highland Canal, Feature 4, showing plastic culvert under access road within BPA transmission line corridor, looking south.

Feature 5 (F5) is a corrugated metal pipe and berm for a gravel access road crossing east–west over the lateral ditch, providing access closer to the river and the northwest corner of the project area (Figure 6.2-10). The culvert pipe measures 2 feet across in diameter. F5 is located approximately 350 meters north of F4 within the proposed reservoir area.

Feature 6 (F6) is a straight-sided concrete culvert pipe that flows diverted water under River Road from the Highland Canal (Figure 6.2-11). The pipe measures 30 inches in diameter (outer dimensions) by 35 feet long, spanning the width of the road. The floor of the culvert pipe was lined with rounded cobbles.

Figure 6.2-10. HC-1 Lateral of the Highland Canal, Feature 5, showing metal culvert under access road within the proposed reservoir area, looking south.

Description-Highland Canal Lateral-2

A small segment of the Highland Canal Lateral 2 (HC-2), a lateral irrigation ditch of the Highland Canal, is within the project area. The HC-2 segment measures approximately 120 feet long and flows north from the Highland Canal to the north edge of parcel 04303613000 and exits the project area through a culvert (Feature 7, see below for details) under Happy Valley Road. Within the project area, HC-2 flows along a relatively flat forested landform, vegetated with thickly growing Douglas fir, western hemlock, western red cedar, big leaf maple, vine maple, salal, Oregon grape, Pacific rose, and sword fern.

Figure 6.2-11. HC-1 Lateral of the Highland Canal, Feature 6, the culvert under River Road, looking southeast.

Feature 7 (F7) is a culvert under Happy Valley Road, which flows water in HC-2 under the road and north of the project area. The culvert is within the roadway corridor and right on the edge of the project area's northern boundary. The culvert consists of three parallel corrugated metal pipes, each measuring 2 feet in diameter by 55 feet long, spanning the width of Happy Valley Road (Figure 6.2-12).

Statement of Significance

The Sequim Valley Irrigation System (SVIS), briefly described below, has not been surveyed or evaluated for listing on the NRHP. A survey and evaluation of the entire system was not within the scope of the Dungeness Streamflow Restoration Off-Channel Reservoir Project.

The SVIS diverts water from the Dungeness River. The system was completed by various irrigation companies and districts starting in c. 1895. By 1921, nine irrigation companies had water rights on the Dungeness River, each with a system of canals and laterals. Today there are seven irrigation districts (after the consolidation of the Sequim Prairie Ditch Company, the Eureka Irrigation Company, and the Independent Irrigation Company) with over 97 miles of ditches (Clallam County 2016: 31.03.190).

Euroamerican settlement in the area began in the 1850s, but these early settlers did not establish organized, widespread irrigation methods. The first system that was developed, the Sequim Prairie Company Canal, set the stage for future development. The Sequim Prairie Company Canal (c. 1895) and the Eureka Irrigation Company (c. 1897) completed irrigation that helped to create land suitable for agriculture. The early initiative to construct these canals made widespread settlement possible and created an economically viable farming community on land that receives almost no rainfall during the growing season. The construction of these ditches enabled early settlers to prosper and the town of Sequim began to grow more rapidly. Ditches completed after this early establishment era

Figure 6.2-12. HC-2 Lateral of the Highland Canal, Feature 7, the culverts under Happy Valley Road, looking northeast.

(c. 1895-1897) are representative of the continued growth of this established irrigation system. Although the district still provides water to landowners, the era of cultural significance is defined as its early establishment period when settlers of the valley were, against popular belief, able to convince a small, but dedicated group to begin the process of irrigating the prairie. The area's initial irrigation took place in what is now known as the Sequim-Prairie Tri-Irrigation Company, which borders the north edge of the modern-day Highland Irrigation District, where the project is located.

Evaluation

The evaluation of these individual irrigation components that make up the SVIS is based in the historic context of rural, irrigation development, and the significance the development had on the economic and cultural establishment and growth of the geographic region. The Highland Irrigation District, developed in 1915, is part of the natural, ongoing development of systems that were put in place by Dr. Callen and the group of farmers that established the Sequim Prairie Ditch Company in c. 1895. These water reclamation systems are a remnant of twentieth-century irrigation that accompanied and encouraged increased Euroamerican settlement. The Highland Canal and the portions of the associated laterals HC-1 and HC-2 are not part of nationally significant reclamation projects (such as the Columbia Basin Project). The canals, ditches and other water conveyance systems in this area are the product of several independently operated, poorly documented, small-scale irrigation projects on the Sequim Prairie, and are of a type ubiquitous throughout Washington. After the turn of the century populations in the American west were growing quickly and irrigated land was an ongoing need to provide the necessary agricultural land for continuing population growth.

The National Parks Service guidelines for evaluating and Documenting Rural Historic Landscapes considers irrigation systems to be historic districts (NPS 1984: 32). The cultural significance of these rural working landscapes includes the following NRHP defined Areas of Significance: Agriculture, Community Planning and Development,

Engineering, and Exploration/Settlement (NPS 1997:8). Infrastructure such as irrigation systems are most commonly determined significant under Criterion A, for their association with events that have made a significant contribution to the broad patterns of our history and/or under Criterion C, for distinctive characteristics of a type, period, or method of construction. Irrigation systems that rise to the level of significance for NRHP listing are typically part of the initial irrigation development or they use innovative technology that fundamentally changed the way these systems were planned or developed. Canals that are more than 50-years old, but are simply an extension of typical system growth are often not recommended eligible under Criterion A.

The Highland Irrigation District, developed in 1915, was developed after the culturally significant period of initial irrigation development in the Sequim Valley (c. 1895-1897) and is therefore recommended not eligible for the NRHP for its association with these early irrigation efforts (Criterion A). The system is not associated with a significant historical figure (Criterion B) and the system does not represent the work of a master or embody distinctive characteristics of a type, period, or method of construction (Criterion C). The system is unlikely to yield additional information important for the precontact period or history of the region (Criterion D). The Highland Canal has maintained a fair level of historic integrity, such as location, setting, design, feeling, and association, but many of the features have been replaced over time, diminishing the integrity of workmanship and materials. The Highland Canal and laterals HC-1 and HC-2 lack the overall necessary significance to be considered eligible for the NRHP and have somewhat diminished integrity with the replacement of several water management components.

6.2.2 Independent Canal (Field Number BE-12963-06)

6.2.2.1 Description

Independent Intake Canal

The Independent Canal's diversion point for water flow from the Dungeness River is within the project area. A rather large, earthen-constructed and open intake canal flows north, meandering from this diversion point to a water-control/spillway feature (recorded during the survey as Feature 4 and described in more detail below) where it continues north as the Independent Canal (Figures 6.2-13–15). The portion of the canal from the Dungeness River to the Feature 4 is called the Independent Intake Canal. The intake canal measures between 15 and 25 feet wide by between 6 and 12 feet tall from the bed of the canal to the ground surface. The bed of the canal is lined with rounded cobbles and pebbles, and the water was roughly 6 feet deep at the time of the survey. The intake canal includes four features prior to flowing north and becoming the main canal.

Feature 1 (F1) is a culvert pipe and earthen berm for a pedestrian trail that crosses intake canal (Figure 6.2-16). The culvert pipe is a straight-sided steel pipe measuring 4 feet in diameter, or more (the flow of water made measuring difficult), and 6 feet long. The earthen berm is approximately 10 feet wide at the level of the pipe and narrowing to 6.5 feet wide at the surface of the berm by 25 feet long, spanning the width of the intake canal. The culvert pipe has remnant steel features on both ends that suggest a possible tidegate or other water control device, which has since been removed.

Feature 2 (F2) appears to be a rotating drum screen mechanism set within a concrete-lined portion of an abandoned ditch (see Feature 3 below) (Figures 6.2-17 and 6.2-18). The concrete-lined portion of the ditch measures 17.5 feet long by 8.5 feet wide by 3 feet high from the bed of the ditch to the ground surface. The concrete walls lining the ditch are 6 inches thick. Set within this structure is a rotating drum and a steel paddle wheel (downstream side of

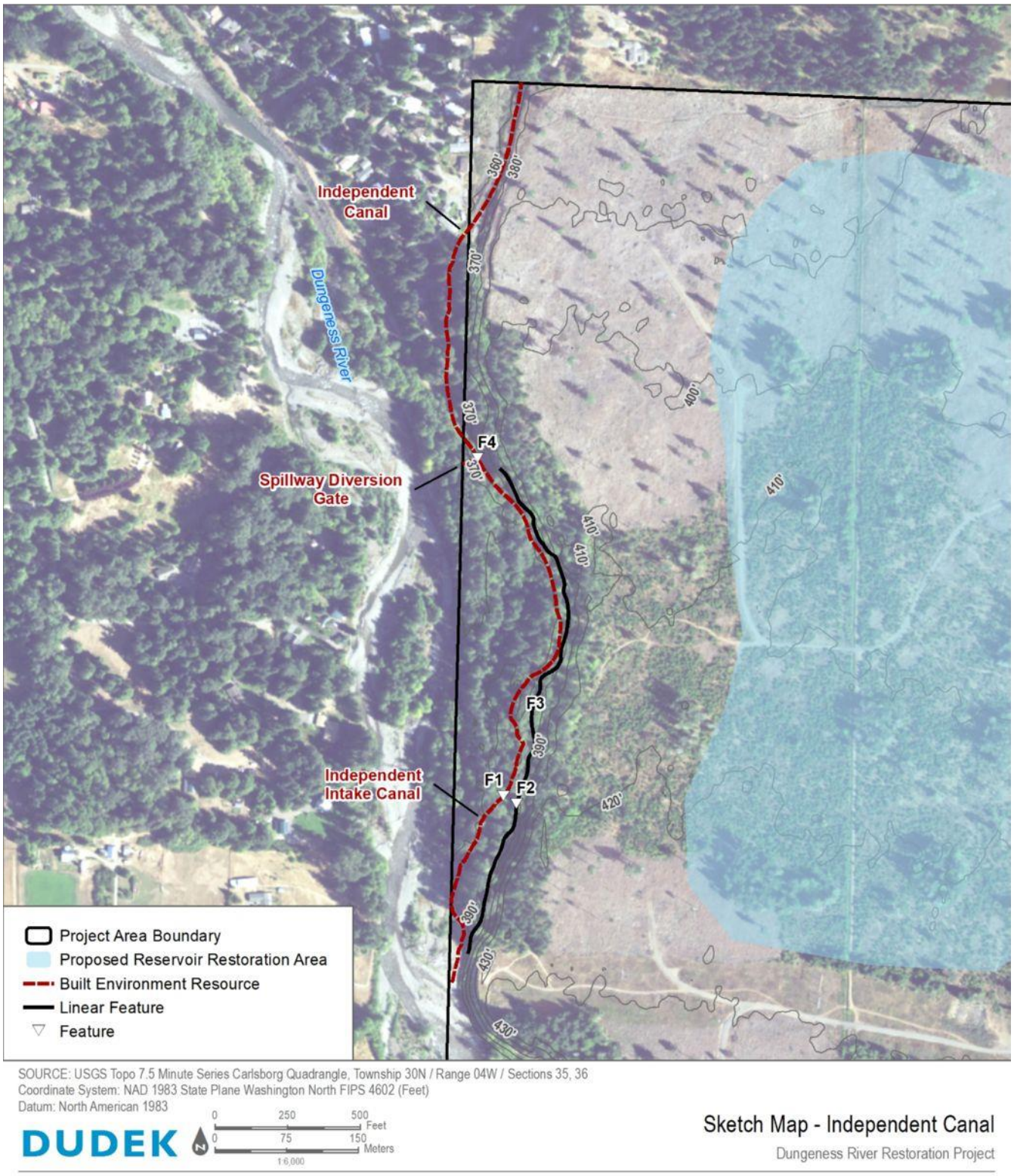

Figure 6.2-13. Aerial map showing the Independent Canal and abandoned lateral within the project area.

Figure 6.2-14. Independent Intake Canal (*left,* flowing toward bottom left of photo) showing the diversion point at side channel of the Dungeness River (*right*) and concrete escarpment at bank (*background center* under brush*)* preventing bank erosion, looking southeast.

Figure 6.2-15. Independent Intake Canal showing trail on west edge of the canal, looking northeast.

Figure 6.2-16. Independent Intake Canal, Feature 1, showing culvert pipe and berm for pedestrian trail, looking northeast.

Figure 6.2-17. Independent Intake Canal, Feature 2, showing the trash screen mechanism and concrete-lined walls of the abandoned ditch, looking northeast.

Figure 6.2-18. Independent Intake Canal, Feature 2, detail view of trash screen and paddle wheel, looking northeast.

Figure 6.2-19. Independent Intake Canal, Feature 2, showing rotating drum trash screen and culvert outlet, looking northwest.

Figure 6.2-20. Independent Intake Canal, Feature 2, showing profile of paddle wheel (*center*, under tree branches).

the drum). The drum is made from welded steel mesh and measures roughly 32 inches in diameter spanning the width of the ditch (Figure 6.2-19). The steel paddle wheel is 6 feet in diameter by 4 feet wide (Figure 6.2-20). A small straight-sided metal culvert on the upstream side of the trash screen would have diverted water to the west.

Trash screen mechanisms like Feature 2 are common in irrigation systems and take many forms. They are often used at high capacity turnouts or where there is heavy debris. Water passes through the mesh; the debris is caught on the outside of the drum, and as the drum rotates the debris bypasses the inlet and is deposited on the down-flow side of the channel. The water-driven paddle wheel powers the drum to turn. Sometimes drum screens are used in conjunction with trash racks to minimize debris on the inlet side and brushes or paddles to clean the drums located on the down-flow side. These types of screens can also be used for fish diversion (Wahl 1992).

Feature 3 (F3) appears to be an abandoned lateral ditch of the Independent Intake Canal (Figure 6.2-21). The abandoned ditch is dry and generally parallels the intake canal—generally aligned south–north—located just to the east along the western toe of a steep ridgeline slope. The abandoned ditch measures 1,500 feet long from the intact canal north to its terminus just east of Feature 4; however, the pedestrian trail that crosses the intake canal at F1 was also constructed across the abandoned ditch, filling it in with sediment and creating a berm approximately 20 feet wide. North of this berm the abandoned ditch begins again at F2, described above, before continuing northward. The abandoned ditch is approximately 10 feet wide by 6 to 8 feet deep, measured from the bed of the ditch to the ground surface. It is constructed of earth and overgrown with vegetation (Figure 6.2-22).

Feature 4 (F4) is a water-control structure and spillway at the northern terminus of the intake canal (Figure 6.2-23). Water flows north from the intake canal through Feature 4, a concrete-walled structure and steel gate, into the narrower Independent Canal. Just south of the concrete and steel diversion gate, a wide concrete spillway channels the additional flow of water—the water that cannot enter the canal gate—west and back into the Dungeness River.

Figure 6.2-21. Independent Intake Canal, Feature 3, showing the southwest terminus of the abandoned ditch at the intake canal (*background*), below the level of the ditch, looking southwest.

Figure 6.2-22. Independent Intake Canal, Feature 3, abandoned lateral ditch showing overgrown vegetation and the berm (*right*), looking south.

Figure 6.2-23. Independent Intake Canal, Feature 4, showing spillway (*left*) and diversion gate to the Independent Canal (*background center*), looking north.

Figure 6.2-24. Independent Canal is shown (*background*) with the diversion gate from the intake canal (Feature 4, *foreground),* looking north.

Independent Canal

The Independent Canal segment within the project area meanders north from Feature 4, briefly exiting the project area's west edge before flowing back through northwest corner of the project area (Figure 6.2-24). North of the project area, the canal flows north from the Highland Irrigation District into the Sequim-Prairie Tri Irrigation Association, and the unused water eventually flows into Sequim Bay. The canal segment within the project area measures approximately 0.25 mile long by 10 feet wide. A 10-foot-wide trail parallels the west edge of the canal segment for its entire length. The canal is constructed of earth and, at the time of survey, was approximately 4 feet deep from the pebble and cobble-lined bed of the canal to the surface of the water

Statement of Significance Independent Intake Canal and abandoned lateral

The SVIS diverts water from the Dungeness River and was completed by various irrigation companies and districts starting in c. 1895. By 1921, it grew to include six irrigation diversions from the Dungeness River. Today there are seven irrigation districts with over 97 miles of ditches (Clallam County 2016: 31.03.190).

Euroamerican settlement in the area began in the 1850s, but these early settlers did not establish organized, widespread irrigation methods. The first system that developed, the Sequim Prairie Company Canal, set the stage for future development. The Sequim Prairie Company Canal (c. 1895) and the Eureka Irrigation Company (c. 1897) completed irrigation that drastically improved the land and set the stage for future development. These two irrigation systems were located closest to the city of Sequim and irrigated the area closest to town. The early initiative to construct canals made widespread settlement possible and created an economically viable farming community on land that received almost no rainfall during the growing season. The construction of these ditches enabled early settlers to prosper and the town of Sequim began to grow more rapidly. Ditches completed after this early establishment era (c. 1895-1897) are representative of the continued growth of this irrigation system. These water reclamation systems are a remnant of twentieth-century irrigation that accompanied and encouraged increased Euroamerican settlement. The Independent Intake Canal and its associated abandoned lateral are not part of nationally significant reclamation projects (such as the Columbia Basin Project). The canals, ditches and other water conveyance systems in this area are the product of several independently operated, poorly documented, small-scale irrigation projects ion the Sequim Prairie, and are of a type ubiquitous throughout Washington.

The Independent Irrigation Ditch Company received rights in 1906 and constructed a canal soon after and is visible on the 1939 USGS topographic map of the area. Subsequent maps show changes to the overall alignment of the canal, suggesting the abandoned ditch was once the original alignment (USGS 1939). Although the district still provides water to landowners, the era of cultural significance is defined as its early establishment period when settlers of the valley were, against popular belief, able to convince a small, but dedicated group to begin the process of irrigating the prairie.

Evaluation

The evaluation of the irrigation components that make up the SVIS is based in the historic context of rural, irrigation development, and the significance the development had on the economic and cultural establishment and growth of the geographic region. The Independent Intake Canal (which becomes the Independent Canal), travels north along the boundary between the Highland Irrigation District and Dungeness Irrigation District before turning east into the Sequim Prairie Tri-Irrigation District. This irrigation system was part of the natural, ongoing development of

water conveyance systems that were put in place by Dr. Callen and the group of farmers that established the Sequim Prairie Ditch Company in c. 1895 and the Eureka Canal in c. 1897. After the turn of the century populations in the American west were growing quickly and irrigated land was an ongoing need to provide the necessary agricultural land for ongoing population growth.

The National Parks Service guidelines for evaluating and Documenting Rural Historic Landscapes consider irrigation systems to be historic districts (NPS 1984: 32). The cultural significance of these rural working landscapes includes the following NRHP defined Areas of Significance: Agriculture, Community Planning and Development, Engineering, and Exploration/Settlement (NPS 1997:8). Infrastructure such as irrigation systems are most commonly determined significant at the local level under Criterion A, for their association with events that have made a significant contribution to the broad patterns of our history and/or under Criterion C, for distinctive characteristics of a type, period, or method of construction. Irrigation systems that rise to the level of significance for NRHP listing are typically part of the area's initial irrigation development or they use innovative technology that fundamentally changed the way these systems were planned and/or developed. Canals and their laterals that are more than 50-years old, but are simply an extension of typical system growth, are often not recommended eligible under Criterion A.

The Independent Intake and Canal, were initially developed in c. 1906, after the culturally significant period of initial irrigation development in the Sequim Valley (c. 1895-1897) and is therefore recommended not eligible for the NRHP for its association with these early irrigation efforts (Criterion A). The system is not associated with a significant historical figure (Criterion B) and the system does not represent the work of a master or embody distinctive characteristics of a type, period, or method of construction (Criterion C). The canals and laterals do not exhibit any distinctive characteristics as described under this criterion. The system is unlikely to yield additional information important for the precontact period or history of the region (Criterion D). The Independent Intake and Canal and abandoned alignment do not appear to have maintained a high level of historic integrity, because it appears to have undergone substantial changes since its construction. The canal appears to have been historically channeled through the abandoned lateral, and later the current alignment was constructed. This change at the canal's diversion point diminishes the overall integrity of the resource. The Independent Intake and Canal lack both integrity and the overall necessary significance to be considered eligible for the NRHP.

7 Conclusions and Recommendations

Dudek completed a cultural resources inventory in support of Clallam County's Dungeness Streamflow Restoration Off-Channel Reservoir Project near Sequim, Washington. The project plans to excavate the 88-acre reservoir and tie the reservoir into the vicinity's current stormwater and irrigation systems. The reservoir will be constructed within the northern half of parcel 043036210000, west of River Road and north of the BPA transmission line ROW that bisects the project area from east–west. The proposed reservoir will encompass a portion of Highland Irrigation Canal lateral HC-1 and one of the lateral's associated culverts (F5). The culvert appears to have been constructed or replaced within the last 50 years. The immediate area of the proposed reservoir was previously disturbed during logging activities, and likely from multiple logging episodes stretching back into the historic-period (as evidenced by the springboard-notched stumps within the project area). Project activities related to the reservoir seek to improve and maintain the current irrigation network, planning for future drier environmental conditions with less consistent streamflow from the Dungeness River.

Dudek's inventory consisted of archival and background research, an archaeological pedestrian survey and subsurface testing, and a historic built-environment resources survey. Although most of the forested areas surveyed within the project area had limited ground surface visibility due to thick duff and leaf cover, much of the proposed reservoir area was open and grassy with fair surface visibility, which made it likely that any features or cultural objects larger than 1 foot in size would have been identified in those areas. Subsurface testing was limited to HPAs within the proposed 88-acre reservoir area, and no cultural materials were identified below the surface. No shovel probes were excavated outside of the proposed reservoir area. No further archaeological work is recommended with regards to planned project activities within the proposed 88-acre reservoir boundary.

At this stage in the project planning process, no other areas of potential impacts aside from the reservoir area—such as temporary access roads and staging areas, permanent trail or road construction, parking areas, etc.—are known. Yet unidentified archaeological deposits could be situated at or near the ground surface (or deeper) on the terrace adjacent to the boundaries of the reservoir area, on the low Dungeness River-adjacent floodplain at the western edge of the project area, and on the relatively flat upland benches along the eastern margins of the project area. Archaeological deposits are not likely to be present on the very low, inundated, and active floodplain of the Dungeness River or along the steep slopes that make up much of the eastern half of the project area. Once designed, should the proposed project include potential ground disturbing activities outside of the tested reservoir boundary and within any of the HPAs defined above, further archaeological investigations are recommended to test for buried cultural deposits prior to construction.

Two previously recorded archaeological sites, 45CA00524 and 45CA00725, are located within the project area and were revisited by Dudek during the archaeological survey. Dudek identified two additional historic-period archaeological sites, 45CA00817 and 45CA00818, on the surface during the survey of the project area, as well as two historic built-environment resources (Highland Canal and laterals and Independent Canal and abandoned lateral) (Table 7-1, NRHP Recommendations for Resources Identified in the Project Area). Details regarding the results and recommendations for each of the resources are included below. Dudek recommends a finding of *no effect to historic properties* for the project.

Table 7-1. NRHP Recommendations for Resources Identified in the Project Area

Field ID	Resource Type	Description	NRHP Eligibility[1]	Finding[1]
45CA00817	Archaeological	Historic debris scatter site	Not eligible	*No further work*
45CA00818	Archaeological	Historic debris scatter site	Not eligible	*No further work*
45CA00524	Archaeological	Historic debris scatter site	Not eligible	*No further work*
45CA00725	Archaeological	Historic debris scatter site	Not eligible	*No further work*
BE-12963-01	Built Environment	Highland Canal and Laterals HC-1 and HC-2	Not eligible	*No further work*
BE-12963-06	Built Environment	Independent Canal and abandoned lateral	Not eligible	*No further work*

1 Dudek recommendations

7.1 Site 45CA00817 and Site 45CA00818

Newly identified archaeological sites 45CA00817 and 45CA00818 are both located on the older alluvial terrace within the western third of the project area. Site 45CA00817 is located within the western edge of the proposed reservoir area, and 45CA00818 was found south of the proposed reservoir area, south of the BPA ROW. Both sites are sparse historic debris scatters that date to the 1960s. Sites 45CA00817 and 45CA00818 are recommended by Dudek to be not eligible for the NRHP and, thus, should not be considered historic properties. Moreover, the proposed project, as planned, would not affect 45CA00818, as it is located outside of the proposed reservoir area. Dudek recommends no further cultural work for these resources.

7.2 Previously Recorded Site 45CA00524

Previously recorded archaeological site 45CA00524 is located on a steep slope of a ridgeline that leads down from the older alluvial terrace that covers much of the western half of the project area, west of River Road. The site lies outside of the proposed reservoir area. The site consists of hundreds of pieces of historic-period debris scattered across the surface, including car bodies, decorative ceramics, and glass vessels and fragments of vessels. Dudek expanded the site boundaries west to include the toe of the slope, but otherwise the site appeared as previously recorded (Stilson 2004). Like the other refuse scatters identified within the project area, many artifacts at Site 45CA00524 have datable maker's marks and/or are jars, bottles, or other debris that are stylistically consistent with household refuse of the 1940s through 1960s. Earlier 20th century artifacts found at the site likely reflect reoccurring dumping events following the construction of River Road, and might have been deposited there by locals who were involved in the logging industry and knew of the site's convenient location. The site is recommended by Dudek to be not eligible for the NRHP and, thus, should not be considered a historic property. Moreover, the proposed project, as planned, would not affect 45CA00524, as it is located outside of the proposed reservoir area. Dudek recommends no further cultural work for this resource.

7.3 Previously Recorded Site 45CA00725

Previously recorded archaeological site 45CA00725 is located on the older alluvial terrace in the central third of the project area within the eastern edge of the proposed reservoir area. The site consists of approximately 90 pieces of historic-period debris scattered across the surface in several concentrations. Dudek identified additional artifact concentrations on the surface during the survey, and the boundary was expanded west to encompass the finds. The site, with its convenient location bisected by the access road and close to River Road, likely represents multiple residential dumping events that occurred between the 1940s and 1960s. The site is recommended by Dudek to be not eligible for the NRHP and, thus, should not be considered a historic property. Dudek recommends no further cultural work for this resource.

7.4 Historic Built-Environment Resources

The inventory resulted in the recording of two historic aboveground resources, the Highland Canal and Laterals HC-1 and HC-2 (Field Number BE-12963-01) and the Independent Canal and abandoned lateral (Field Number BE-12963-06). The Dungeness Streamflow Restoration Off-Channel Reservoir Project will include the creation of a reservoir along the Highland Canal Lateral-1 (see Figure 6.1-2). These modifications are a continued development of the water conveyance system and will help to better manage the water of the Dungeness River. These irrigation ditches—built following the culturally significant period (initial/early development, c. 1895-1897) for the irrigation system—are indicative of typical patterns of growth and community expansion and therefore are not recommended eligible for the NRHP.

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Appendix A

Shovel Probe Results

SP #	Depth	Type	Description	Associated Resources	Result	UTM Easting	UTM Northing
01	50	Radial	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489788	5322519
02	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489774	5322569
03	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489735	5322598
04	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489692	5322627
05	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489644	5322613
06	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489681	5322583
07	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-35 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon 35-50 cmbs, Strat III, Carlsborg gravelly sandy loam B horizon		Negative	489722	5322553
08	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-40 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon 40-50 cmbs, Strat III, Carlsborg gravelly sandy loam B horizon		Negative	489670	5322520
09	50	Radial	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489710	5322501
10	50	Radial	0-15 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 15-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489762	5322483
11	50	Radial	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489655	5322459
12	50	Radial	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489701	5322437
13	46	Radial	0-46 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon Terminated at rock impasse	45CA00725	Negative	489661	5322384
14	50	Radial	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489714	5322362

SP #	Depth	Type	Description	Associated Resources	Result	UTM Easting	UTM Northing
15	50	Radial	0-35 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 35-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon	45CA00725	Negative	489669	5322329
16	50	Radial	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489726	5322313
17	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489567	5322650
18	50	Exploratory	0-15 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 15-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489515	5322647
19	55	Exploratory	0-18 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 18-55 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489465	5322630
20	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489501	5322610
21	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489570	5322603
22	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam B horizon		Negative	489455	5322587
23	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489506	5322575
24	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-35 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon 30-50 cmbs, Strat III, Carlsborg gravelly sandy loam B horizon		Negative	489572	5322563
25	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489490	5322553
26	50	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 20-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489588	5322534
27	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489514	5322519
28	50	Exploratory	0-32 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 32-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489423	5322561

SP #	Depth	Type	Description	Associated Resources	Result	UTM Easting	UTM Northing
29	50	Exploratory	0-40 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 40-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489574	5322491
30	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489526	5322484
31	52	Exploratory	0-19 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 19-52 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489462	5322514
32	50	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 20-40 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon 40-50 cmbs, Strat III, Carlsborg gravelly sandy loam B horizon		Negative	489508	5322452
33	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489468	5322471
34	50	Exploratory	0-17 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 17-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489407	5322522
35	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489430	5322488
36	50	Exploratory	0-5 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 5-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489439	5322425
37	50	Radial	0-23 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 23-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon	45CA00817	Negative	489402	5322421
38	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489430	5322392
39	50	Radial	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon	45CA00817	Negative	489392	5322446
40	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-40 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon 40-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489472	5322383
41	50	Radial	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon	45CA00817	Negative	489383	5322424
42	45	Exploratory	0-13 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 13-45 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489433	5322362

SP #	Depth	Type	Description	Associated Resources	Result	UTM Easting	UTM Northing
43	50	Exploratory	0-15 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 15-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489475	5322339
44	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489443	5322273
45	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-40 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon 40-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489445	5322309
46	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489479	5322278
47	53	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 20-53 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489444	5322223
48	50	Exploratory	0-30 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 30-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489479	5322242
49	53	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 20-53 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489451	5322185
50	50	Exploratory	0-15 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 15-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489491	5322198
51	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489489	5322146
52	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489483	5322105
53	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489445	5322133
54	50	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 20-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489437	5322067
55	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489469	5322024
56	53	Exploratory	0-17 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 17-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489411	5322017
57	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489468	5321976

SP #	Depth	Type	Description	Associated Resources	Result	UTM Easting	UTM Northing
58	50	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 20-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489414	5321956
59	50	Exploratory	0-15 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 15-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489410	5321890
60	50	Exploratory	0-20 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 20-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489465	5321908
61	50	Radial	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon, 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489789	5322305
62	50	Radial	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489780	5322250
63	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489787	5322198
64	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon, large woody debris/root at 20 cmbs.		Negative	489828	5322156
65	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489822	5322236
66	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489778	5322141
67	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489834	5322107
68	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489839	5322066
69	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489775	5322069
70	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489826	5322011
71	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489791	5321974

SP #	Depth	Type	Description	Associated Resources	Result	UTM Easting	UTM Northing
72	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489744	5322001
73	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489739	5321952
74	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489795	5321931
75	50	Exploratory	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon		Negative	489759	5321903
76	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489694	5321906
77	50	Exploratory	0-10 cmbs, Strat I, Carlsborg gravelly sandy loam O horizon 10-50 cmbs, Strat II, Carlsborg gravelly sandy loam A horizon		Negative	489689	5321866
78	50	Exploratory	0-40 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 40-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489644	5321884
79	50	Exploratory	0-16 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 16-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489610	5321844
80	50	Exploratory	0-18 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon 18-50 cmbs, Strat II, Carlsborg gravelly sandy loam B horizon		Negative	489589	5321883
81	50	Radial	0-50 cmbs, Strat I, Carlsborg gravelly sandy loam A horizon	45CA00725	Negative	489721	5322247

Note: SP = Shovel Probe; Exploratory SPs used for sampling; Radial SPs used for resource boundary delineation