CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2020-05-03338

Author: Garth L. Baldwin, Courtney J. Paton, and Marsha R. Hanson

Title of Report: Cultural Resources Review of 352 Viewcrest Road (TPNs: 370212030004, 370213075542, 370213083499, 370213113550), Bellingham, Whatcom County, Washington

Date of Report: July 20, 2020

County (ies): Whatcom Sections: 12, 13 Township: 37N Range: 2E
Quad: Eliza Island, WA Acres: 23

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 #:
45WH77
45WH54
_____
_____

- Submission of PDFs is required.
- 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.

DRAYTON ARCHAEOLOGY

Cultural Resources Review of 352 Viewcrest Road (TPNs: 370212030004, 370213075542, 370213083499, 370213113550), Bellingham, Whatcom County, Washington

By:
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Drayton Technical Report: 0620D
July 20, 2020

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Date:	July 20, 2020
Location:	Bellingham, Whatcom County, Washington
USGS Quad:	Eliza Island WA, 7.5' Series (1994)
STR	Sections 12, 13, Township 37 North Range 2 East, Willamette Meridian

SUMMARY

Drayton Archaeology (Drayton) was retained by AVT Consulting on behalf of the Ann Jones Family Limited Partnership to conduct the present archaeological investigation. The project proposes to develop four parcels at 352 Viewcrest Road (TPNs: 370212030004, 370213075542, 370213083499, 370213113550). Regulatory compliance is being administered through Whatcom County and all applicable laws of the State Environmental Policy Act (SEPA). In the case of cultural resource management, the state Department of Archaeology and Historic Preservation (DAHP) and all interested area tribal agencies are consulting and commenting parties.

The present cultural resources assessment consisted of background review, field investigation, and production of this report. Background review of previous cultural resource management work and the location of previously recorded cultural resources determined the project area is in the vicinity of previously recorded historic and precontact archaeological sites. The probability for cultural resources being encountered at the present project location was considered moderate further from the shoreline due to the geologic and topographic context of the work location. Approaching the shoreline, probability was considered high, as 45WH54 has been recorded along much of the beach below, and 45WH77 is also located along the shoreline of the project area. Field investigation included pedestrian survey, subsurface excavation, and a shoreline survey. During the present work new archaeological materials were not observed. Sites 45WH54 and 45WH77 were relocated during the shoreline survey. Precontact site 45WH54 is not located within the project area and was only observed eroding from the beach access stairway at 316 Sea Pines Rd, where it was previously recorded by Campbell et al. (2006). The historic site, 45WH77, is located along the northwestern side of a large outcropping along the project area and is currently in good condition. Any impacts to 45WH77 would likely be the result of recreational beach use in the area, and not because of the proposed development. While 45WH78 was recorded near the project area, the resource has been relocated to a site across the bay (Campbell and Meidinger 2008) and will not be impacted by development. Based upon the results of the present investigation Drayton recommends that the proposed project proceed as planned.

REGULATORY ENVIRONMENT

This project is subject to the State Environmental Policy Act (SEPA), requiring that impacts to cultural resources be considered during the public environmental review process. Under SEPA,

the Washington State Department of Archaeology and Historic Preservation (DAHP) is the sole agency with technical expertise in regard to cultural resources and provides formal opinions to local governments and other state agencies on archaeological and historic significance and the impact of proposed projects upon such cultural resources.

The project address is also subject to Whatcom County Land Use Regulations, Title 23.20.08 Archaeological, Historical and Cultural Resources. Other cultural resource management laws and regulations which may be applicable to the project is enforced by DAHP and defined under the Revised Code of Washington (RCW) 27.53 Archaeological Sites and Resources; RCW 27.44 Indian Graves and Records; and RCW 68.50.645 Skeletal Human Remains—Duty to Notify. The latter regulation provides a strict process for notification of law enforcement and other interested parties in the event of the discovery of any human remains, regardless of inferred cultural affiliation.

PROJECT LOCATION AND DESCRIPTION

The project is located at 352 Viewcrest Road in Bellingham in Sections 12 and 13, Township 37 N, and Range 2 E of the Willamette Meridian (Figures 1 – 2). The project consists of four wooded parcels (TPNs: 370212030004, 370213075542, 370213083499, 370213113550) and proposes to develop the property into 38 lots for single-family residences (Figure 3).

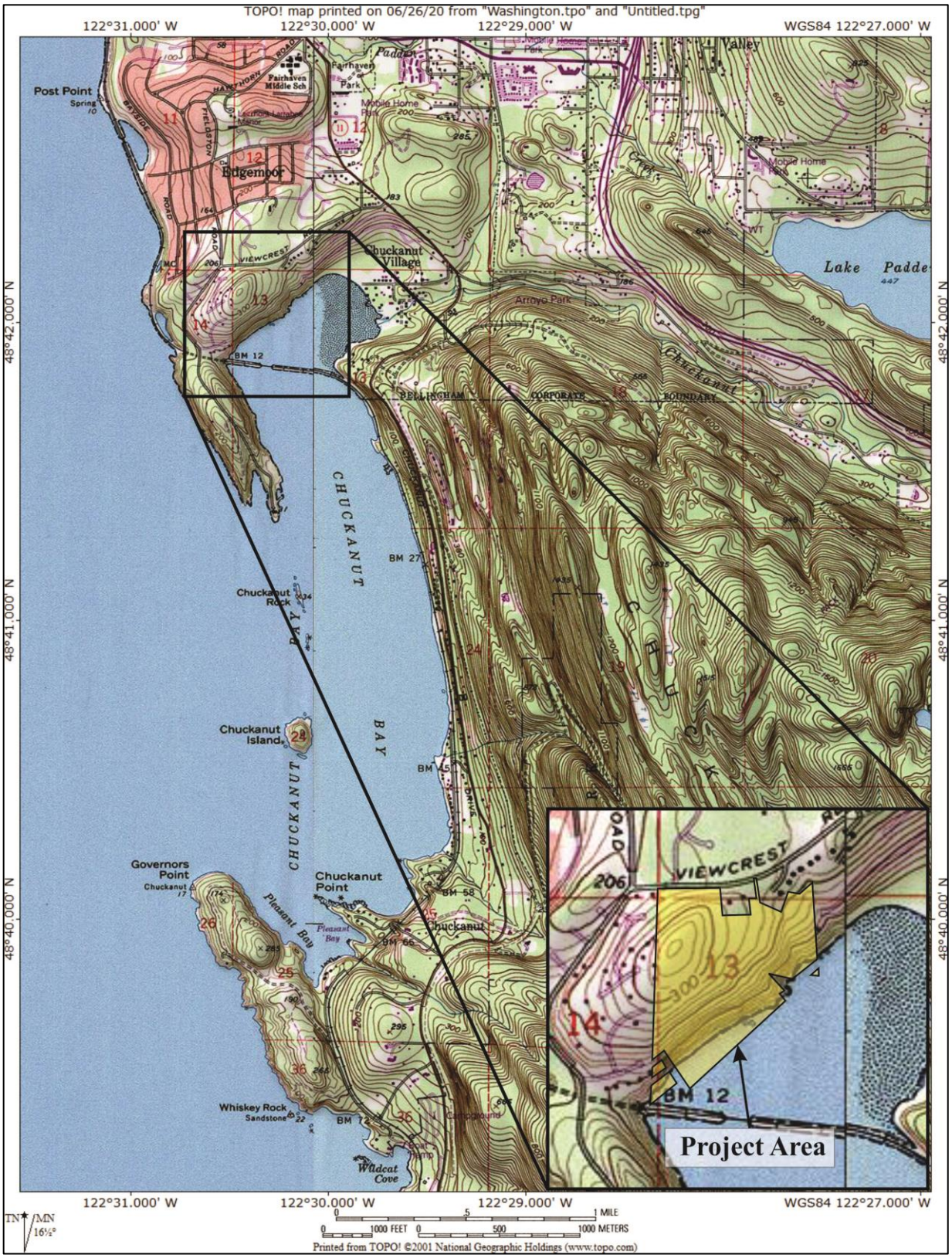

Figure 1. A portion of the Eliza Island 1994 topographic map illustrating the location of the project area.

Figure 2. Aerial image illustrating the location of the project area. Image from Google Earth, adapted by Drayton.

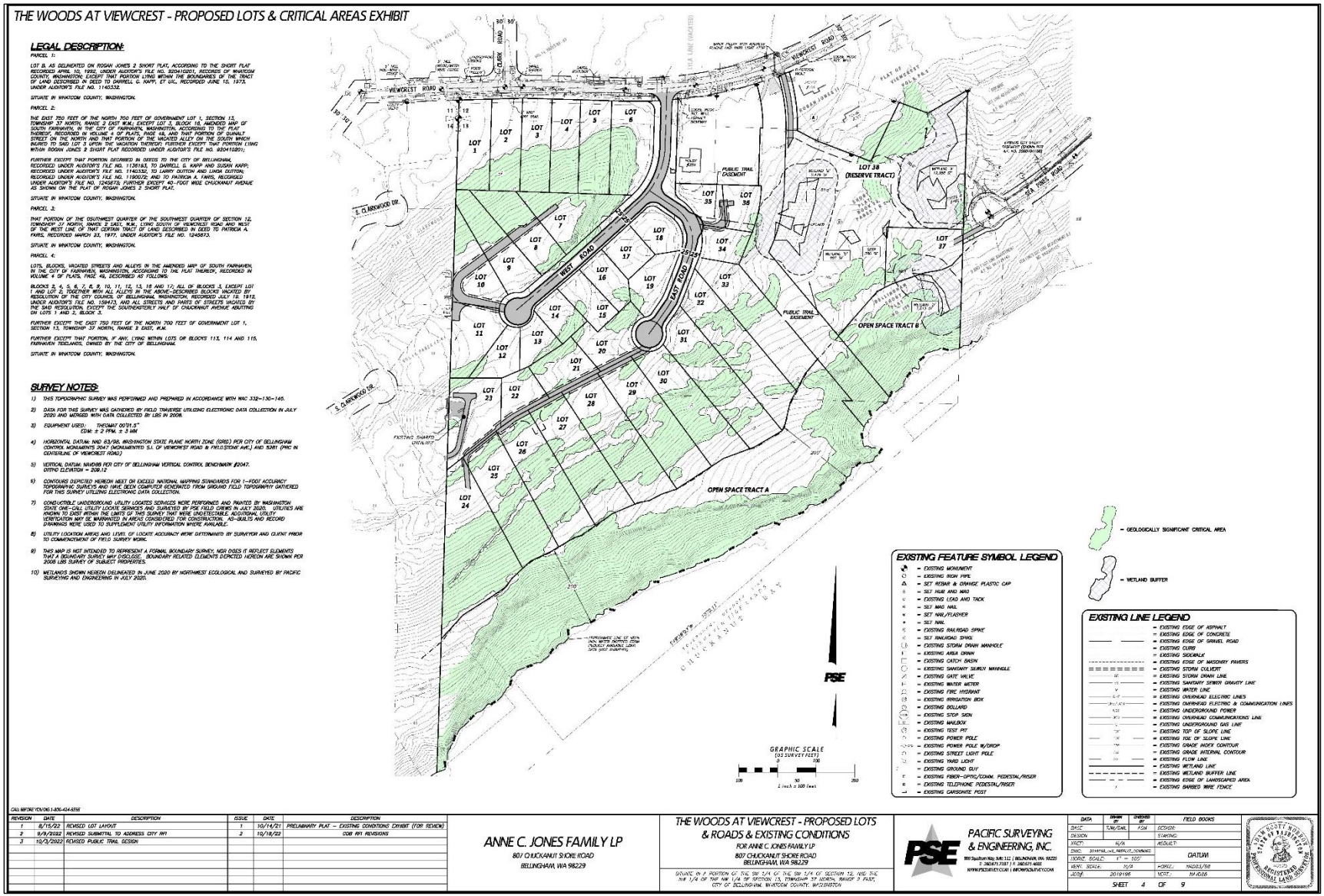

Figure 3. Proposed site plan.

BACKGROUND REVIEW

Determining the probability for Historic Properties within the project corridor was based upon a review and analysis of the environmental and cultural context of the area and those previous cultural resource studies and sites recorded within proximity. Consulted sources included reviewing local geologic data to better understand the depositional environment; archaeological, historic and ethnographic records on file on the Washington Information System for Architectural and Archaeological Records Data (WISAARD) database; and selected published local historic records.

Environmental Context

Geology

The APE is located in western Whatcom County at the northern end of a geological and physiographic province designated as the Puget Lowland (PL). Starting in the early Pleistocene, the PL was subject to at least four periods of extensive glaciation, which scoured out the land as each glacier advanced and retreated (Easterbrook 2003; Lasmanis 1991). Sediments were deposited and often reworked as the glaciers advanced and retreated. A thick mantle of glacial drift and outwash deposits were left across much of Whatcom County at the end of the last of these glacial periods: the Fraser Glaciation (Easterbrook 2003). Some areas within Whatcom County also contain older bedrock outcrops dating to the Tertiary.

The Vashon Stade of the Fraser Glaciation began around 18,000 B.P. with an advance of the Cordilleran ice sheet into the lowlands (Porter and Swanson 1998). The Puget Lobe of the ice sheet flowed down into the Puget Lowland and reached its terminus just south of Olympia between 14,500 and 14,000 BP (Clague and James 2002; Easterbrook 2003; Waitt and Thorson 1983). The Puget Lobe was thicker towards the north and thinned towards its terminus. The depth of the ice near Bellingham is estimated to have been about 1800 meters (Easterbrook 2003).

The Puget Lobe began to retreat shortly after reaching its terminus. Marine waters entered the lowlands that had been carved out by the glacier and filled Puget Sound. The remaining ice was floated and wasted away rapidly. Everson glaciomarine drift deposits dating between 12,500 and 11,500 BP were released from the melting glacial ice and deposited on the sea floor across the northern and central Puget Lowland (Easterbrook 2003). The enormous weight of the ice had depressed the land but as the crust rebounded relative sea levels fell and exposed some of the drift deposits (Clague and James 2002; Easterbrook 2003). The Cordilleran ice sheet advanced once again during the Sumas Stade of the Fraser Glaciation from ca. 11,600 to 10,000 BP, leaving glacial till and outwash deposits in northwestern Washington (Kovanen and Easterbrook 2002).

Approximately 10,000 years ago, the Cordilleran ice sheet disappeared, bringing an end to the Ice Age in this region. As a result of the melted ice, all of the rocks, sand, dirt and debris that were being scoured out and carried by the glacier were deposited as “great lowland fill” (Booth and Goldstein 1994). Throughout the next 10,000 years rivers and streams altered the landscape by

downcutting through this glacial till and outwash. The thousands of Puget Lowland rivers and streams have carved out valleys, created deltas, filled in bays, buried low-lying shorelines thereby creating the modern landscape that we see today.

The surficial geology within the project area consists of Tertiary sedimentary rocks (Lapen 2000). The bedrock is the Padden member of the Chuckanut Formation. The Padden Member consists of sandstone and conglomerate alternating with mudstone and minor amounts of coal that dates to the late Eocene (Lapen 2000). These sedimentary rocks formed in a broad river floodplain prior to the formation of the Cascade Mountains (Mustoe et al. 2007).

Soils

The University of California Davis Agriculture and Natural Resources (UCDavis), in conjunction with the United States Department of Agriculture Natural Resource Conservation District (USDA-NRCS) developed an interactive soil survey application. The soils mapped for the project area are Everett-Urban land complex, 5 to 20 percent slopes and Nati loam, 30 to 60 percent slopes.

Everett-Urban land complex soils are typical of moraine or terraced landforms and are derived of loess and volcanic ash atop glacial outwash. A typical profile would consist of 0 to 13 inches of gravelly sandy loam, 13 to 25 inches of very gravelly sandy loam, 25 to 41 inches of very gravelly loamy sand and 41 to 60 inches of very gravelly sand (UCDavis SoilWeb n.d.).

The Nati series consists of moderately deep, well drained soils formed in colluvium and slope alluvium from sandstone and siltstone with an admixture of volcanic ash and glacial till. Nati soils are commonly found on foothill backslopes and toeslopes with slopes of 5 to 60 percent. A typical profile consists of Oi horizon 3 1/2 to 3 inches; undecomposed needles, leaves, and twigs, an Oa horizon 3 inches to 0; decomposed forest litter; many very fine and fine roots, an A horizon 0 to 8 inches; dark brown loam, a Bs horizon 8 to 16 inches; dark yellowish brown loam, a BC horizon 16 to 31 inches; brownish yellow fine sandy loam, and a 2Cr horizon 31 inches; sandstone (UCDavis SoilWeb n.d.).

Vegetation

According to Franklin and Dyrness (1973:44-5), the project is located within the *Tsuga Heterophylla* Vegetation Zone. Prior to clearing, native vegetation would have included Douglas fir (*Pseudotsuga menziesii*), western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), salal (*Gaultheria shallon*) and vine maple (*Acer circinatum*) (Franklin and Dyrness 1973:88). Other locally available species would have included bracken fern (*Pteridium aquilinum*), blackcap *(Rubus occidentalis*), currants (*Ribes spp.*), deer fern (*Blechnum spicant*), devil's club (*Oplopanax horridus*), gooseberries (*Ribes spp.*), huckleberries (Vaccinium spp.), Indian plum (*Oemleria cerasiformis*), oceanspray (*Holodiscus discolor*), red elderberry (*Sambucus racemosa*), snowberry *(Symphoricarpos albus*), sword fern (*Polystichum munitum*) and trailing blackberry (*Rubus ursinus*) (Pojar and MacKinnon 1994). Large areas would have differed from the broader

regional pattern, however, with areas of prairie, oak woodland, and pine forest being distributed throughout the Puget Sound basin (Franklin and Dyrness 1973:88).

Cultural Context

In any investigation of the history of an area a discussion of the past inhabitants is necessary to appreciate the full spectrum of possible occupational remnants. It is also important to broadly discuss land use in relation to the setting specifically and the general occupation of the area along the northwest coast, Bellingham Bay and Padden Creek (including its tributaries).

Ethnographic

The project is within the traditional use area shared by the Lummi and Nooksack who have used the lands surrounding Padden Creek, Padden Lake and Bellingham Bay for millennia (Suttles 1990:454-456; Suttles and Lane 1990:486, Indian Claims Commission 1974:149, 269, 297).

The Lummi are a Straits Salish speaking group with close affinal ties to the Nooksack tribe whose lands lay primarily to the east and north of Bellingham Bay (Stern 1934; Suttles 1951). Previous studies provide a more comprehensive background applicable to the project area (Boxberger 1986; Ruby and Brown 1986; Stern 1934; Suttles 1951, 1990; Tremaine 1975). According to Ruby and Brown (1992:111) the Lummi language is the same Straits, or *Lkungen*, dialect as the Vancouver Island Songish. According to Matthew Warbus (personal communication 2003), *Smack e ah*, a teacher of the Lummi language, their dialect is correctly referred to as, "*Xwlemi Chosen*". The Lummi traditionally resided in the southern Gulf Islands and the San Juan Islands in the late eighteenth century (Suttles 1990). The present-day Lummi Reservation covers the areas of some former mainland villages (Stern 1934). Prehistorically there were numerous Lummi settlements throughout the inland waterways of the sound as well.

Precontact Lummi had established nucleated settlements at the northwestern extremities of San Juan and Lopez Islands, the east and west sounds of Orcas Island and on the mainland near the southwestern portion of the Nooksack River lowlands (Tremaine 1975:10). Lummi territory included the shores of Whatcom County from Point Whitehorn or Cherry Point to Chuckanut Bay and inland as far as Lake Terrell in the northeast, to the outlet of Lake Whatcom in the southeast and up the Nooksack River to near the present town of Ferndale (Suttles 1951).

The Lummi relied heavily upon the abundant coastal resources. Subsistence was oriented toward the rich marine, littoral and estuarine environments, extensively exploiting the abundant fish and shellfish available throughout the area (Tremaine 1975). The frequently hunted inland and it was likely that they and the Nooksack had area of overlap and mutual use.

The Nooksack Tribe whose members may have traversed or utilized resources within the project area, are a well-documented group of amalgamated individual groups who occupied the interior of northern Whatcom County and southern British Columbia (Ruby and Brown 1986; Reid 1987;

Spear 1977; Suttles 1990; Tremaine 1975). The name Nooksack most likely originated from the indigenous word for the bracken fern root that was important to the diet of the people (Ruby and Brown 1986:153). The name was probably originally applied by European settlers to all those Native people living in the Nooksack River Valley (Ruby and Brown 1986:152). However, the origin of the name 'Nooksack', as presently spelled and applied, has been presented in many forms and as having a multitude of origins (Amos 1972:13; Hawley 1945:35; Jeffcott 1949:25, 54; Smith 1950; Suttles 1990:474).

The Nooksack once lived as semi-sedentary people throughout the larger interior Fraser River Valley of which the Nooksack River watershed is a part. The late pre-contact Nooksack were associated with at least three and as many as nine reported village locations where they relied on lacustrine resources related to root gathering, hunting, and fishing (Jeffcott 1949:11-15; Smith 1950; Suttles 1990:454-455; Tremaine 1975:43-71). In the early European settlement period (1860's-1870's) as many as 50 different pit house locations were known with 10-15 houses at each of the sites (Tremaine 1975:54-55). This form of house was very dissimilar to the tradition of large wooden structures like their coastal neighbors as well as to the later house forms adopted after contact with Euro-Americans. The house forms and language of the Nooksack clearly demonstrate that they are a distinct cultural group than that of the Coast Salish (Indian Claims Commission 1974:151).

Like all Native groups in the Pacific Northwest salmon was important to the Nooksack. Additionally, their ancestral homelands were populated with abundant terrestrial mammals like wapiti (C*ervus elaphus)*, deer (*Odocoileus hemionus*), and black bear (*Ursus americanus*). Another significant contributor to subsistence was gathering and cultivating vegetable foods. The Nooksack utilized root crops, such as camas (*Camassia quamash*), various 'wild onions', and Sagittaria as well as the white potato or *wapato* at later times (Amos 1972: 12-13; Hawley 1945:35; Suttles 1987:142; Tremaine 1975:51-52). They also made use of the great number of different berries found in the area. The variety of berries locally available includes blackberries (*Rubus vitifolia*), blackcaps (*Rubus leucodermis*), elderberry (*Sambucus racemosa ssp. pubens*), huckleberries (*Vaccinium spp*.), salal (*Gautheria shallon*), salmon berries (*Rubus spectabilis*), and *Rubus parviflorus*) (Amos 1972: 12-13; Pojar and Mackinnon 1994; Suttles 1951:63).

Historic

Euroamerican exploration of the waters of the Salish Sea began in the late 1700s. While traversing the inland waters of Washington in 1791, the Spanish explorer Captain Francisco Elisa named what is now Bellingham Bay, Seno de Gaston (Roth 1926). The following year, English explorer Captain George Vancouver sent Joseph Whidbey to survey the region and renamed the bay in honor of Sir William Bellingham (Roth 1926). Little is documented as to the relationship between these early explores and native population; however, an account of a battle on Padden Creek between Spanish soldiers and Puget Sound tribes was told to the early Euroamerican settlers of Bellingham Bay (Edson 1968). According to the narrative, several years before Vancouver passed

through, Spanish marauders had made themselves unwelcome by mistreating the native residents. A confederation of Puget Sound tribes ambushed 400 Spaniards as they explored up Padden Creek from the bay (approximately 1300 feet northeast of the current APE). The locals routed the Spaniards, killing most of them; the two galleons that carried away the survivors were sunk by a squall in the straights (Bellingham Herald 1936). Early encounters, violent and amicable, revealed to the rest of the world the abundance of monetarily valuable resources in the Puget Sound. It did not take long for Euroamerican entrepreneurs to arrive and stay for good, first to extract furs, then to harvest lumber, coal, and marine resources.

Between the late 1790's and early 1850's the only Euroamerican presence in the Bellingham Bay area were fur trappers and traders predominately commissioned by the Hudson Bay Company (Edson 1968). Industrialization of the area began in the mid-1800s when high demand for lumber and coal in Seattle and San Francisco prompted several early entrepreneurs to migrate to western Whatcom County. One of the first pioneers to reach the shores of Bellingham Bay, in 1852 William R. Pattle discovered coal outcroppings between the towns of Fairhaven and Sehome, in the area that would become Bellingham. Pattle operated the mill without profit until its sale in 1855 (Edson 1968). The year following Pattle's discovery, Russell Peabody and Henry Roeder built a lumber mill on the waterfall at the mouth of Whatcom Creek. While the mill never proved to be a very profitable enterprise, two of Roeder's employees discovered coal under the roots of a fallen tree along the shores of Bellingham Bay (Edson 1968). Several investors from California bought the coal vein and established the Bellingham Bay Coal Company, which for a time became the area's largest employer. The location of associated mining camps, company stores, and saloons eventually known as the town of Sehome are roughly a mile and a half from the project area. Numerous fires and floods led to the closure of the mine in 1878 (Edson 1968).

The discovery of gold on the Fraser River in 1858 brought settlers to the Bellingham Bay area and the towns of Whatcom and Fairhaven boomed. It is estimated that 10,000 prospectors and camp followers crowded the Bay by the end of the year (Edson 1968). By 1860, the stampede had subsided, and populations declined in the following decades when several local mines failed and the Whatcom Creek Mill burned down. By 1878 fewer than 20 families lived in the area. In 1881 a large group from Kansas called the "Washington Colony" re-established the Whatcom Creek mill renaming it the Colony Mill (Roth 1926). Throughout the Bellingham Bay, Whatcom Creek, and Lake Whatcom areas other lumber mills and coal mines, such as the Foster and Blue Canyon mines, were established between 1878 and 1898.

Maps of Fairhaven from the late 1800s reveal a steadily developing community, with roads, retail areas, residential neighborhoods and industrial structures expanding across the landscape. Fairhaven would remain an independent town until its consolidation, along with Sehome and Whatcom, with Bellingham in 1903. A guide map from 1889 is the first to show the Fairhaven & Southern Railroad Company line (Great Northern Railroad) originating in the northern portion of

Fairhaven (Campbell 1889). Though several lines had been built to serve the residents of Bellingham Bay, this line ran to the east of the project area; its grade incorporated into what is now Old Fairhaven Parkway. The Inner Harbor Line, which created the Post Point Lagoon and borders the project area to west, was not constructed until the early 1920's.

The leading industry in Fairhaven, The Pacific American Fisheries (PAF) was constructed in 1899, 1200 ft. (365 m) north of the project area, which for a time was the largest canning company in the world (Koert and Biery 1980). Fishing had always an important part of the native economy in Whatcom County and PAF operators utilized these techniques to catch high quantities of salmon (Scott and Turbeville 1980).

Mechanical innovations and improvements in canning efficiency caused the PAF to flourish in the early 20th century, and in turn promoted the development of additional industries on Fairhaven's waterfront. Pacific Sheet Metal Works operated on Bennett Avenue (4th Street) manufacturing salmon tin cans (Koert and Biery 1980). The Pacific American Fisheries established their own shipyard in 1916 and constructed seven boats to troll the Bay (Koert and Biery 1980). The decline of Fairhaven's salmon industry occurred in 1934 as U.S. Courts outlawed the fish traps that had proved so profitable for the PAF. The industry was forced to resort to vessel-based fishing, shifting the base of operations to Alaska (Scott and Turbeville 1980). Pacific American Fisheries remained in business until 1965; however, at a fraction of the scale seen in the early 20th century.

During World War II, factories that once served the canning industry produced rudders and valves for the Navy (Koert and Biery 1980). By the mid-1950s the canneries, shipyards, lumberyards, and sawmills that had once dominated the economy of Fairhaven had closed taking with them their employees and families (Lieb 2006). The structures that housed these facilities lay abandoned and in disrepair until the late 1970s when community activists began to preserve and reuse the historic buildings (Lieb 2006). Today, the neighborhood of Fairhaven is a thriving community of 600 residents centered around shops and restaurants located in structures built during the peak of Fairhaven's commercial boom of the late 1800s (City of Bellingham 2011).

PREVIOUS CULTURAL RESOURCES STUDIES AND SITES

Archaeological interest in the Northwest Coast region began as early as the late 1800s. Initial studies of this area were conducted by Charles Hill-Tout in the 1890s and were followed by Harlan I. Smith and Charles Fowkes in the early 20th century (Smith 1901, 1903, 1907; Smith and Fowkes 1901). Regionally, Borden (1950, 1968, and 1970) demonstrates that Native groups occupied the Fraser Valley for at least the last 10,000 years. There has been little corroborating evidence to support this work as most investigations have focused on the coast and islands of the Pacific Northwest rather than the interior.

Archaeological investigations on Bellingham Bay began in the early 1900s when Albert Reagan identified several prehistoric shell midden sites on the Lummi Peninsula and a village at the mouth

of the Nooksack River (Reagan 1917). Since Reagan's investigations, archaeological research in the area has been limited to sites along the shores of Bellingham Bay, where over 20 precontact archaeological sites have been recorded, including one at the mouth of Padden Creek. Dugas and Larson (1999) completed an investigation of over 16 miles of shoreline along Bellingham Bay to determine high, moderate, and low probability areas for encountering cultural resources. Stilson et al. (2002) completed a similar cultural resource evaluation of the Lake Whatcom watershed that focused on the identification of all known cultural resource within the watershed. No fieldwork was conducted for either project, unsurprisingly no new cultural resources were identified.

According to DAHP's WISAARD at least ten cultural resource surveys (Table 1) were conducted within an approximate one-mile radius of the project area. Eleven sites, two cemeteries and two register properties, were also located within the search confines. All sites are discussed following the table. Over 130 historic structures are located within 1.6 km (1 mi) of the project area. Most of these buildings are related to the National Register listed Fairhaven and South Hill Historic Districts.

Table 1. Previous cultural resource studies conducted within an approximate one-mile radius of the project area.

Author	Title	Results?
Baldwin, Garth 2016	Archaeological Review at Breakwater and Boat Basin Removal, South East Clark's Point, Bellingham, Washington	Negative
Baldwin, Garth 2015	Re: A Cultural Resources Review of the BNSF South Bellingham Siding Extension (MP91.80-92.37).	Negative
Bush, Kelly and Ian Lewis 2014	Interim Archaeological Monitoring Letter Report: Bellingham Parks Woodstock Farm, Whatcom County, Washington	Positive
Bush, Kelly and Ian Lewis 2014	Archaeological Post Impact Assessment Bellingham Parks Woodstock Farm, Whatcom County, Washington	Positive
Bush, Kelly and Ian Lewis 2014	Archaeological Investigation Letter Report: Bellingham Parks Woodstock Farm, Whatcom County, Washington	Positive
Chambers, Jennifer and Garth Baldwin 2010	Cultural Resources Assessment for the Chuckanut Village Marsh Restoration Project, Bellingham, Whatcom County, Washington	Negative
Campbell, Sarah, Diana Barg, Brett Meidinger, and Todd Koetje 2010	Report of 2005 Field Investigations at Woodstock Farm, Chuckanut Bay, Washington	Positive
Chambers, Jennifer 2010	Historic Property Inventory Form for Woodstock Farm, Bellingham, Whatcom County, Washington	Positive
Wessen, Gary 2006	An Archaeological Survey and Evaluation of the Woodstock Farm Trail Project Area, Bellingham, Washington	Negative
Wessen, Gary 2005	An Archaeological Survey and Evaluation of the Coast Millennium Trail – Interurban Segment A, Bellingham, Washington	Positive

Archaeological sites 45WH54, 45WH77, and 45WH78 have been recorded within or near the boundaries of the project. Located on the northwestern shoreline of Chuckanut Bay is Site 45WH54. The site is situated on a terrace hillside slope and is visible above the beach in a cut

bank. Based on an incomplete site form 45WH54 was first recorded by someone from Western Washington State College. Later, in 1984, Allan Richardson of Whatcom Community College, rerecorded the site indicating it had been noted in 1974. Richardson defined four separate areas of shell midden along the hill slope, and conducted test excavation in Area 1, the easternmost area, located in lots 33 and 34. Excavation recovered a number of artifacts, FCR, shell taxa and two features and showed that the midden in this area extended to centimeters below surface. A small part of what Richardson calls "Area 3" and all of "Area 4" are located on lots 27, (now known as lot B), and 28 which were those surveyed in the summer of 2005 by Western Washington University (Campbell et al. 2006).

Site 45WH77 is located on the northernmost shore of Chuckanut Bay. The site is on the north face of an outcropping of Chuckanut Sandstone (locally known as Pigeon Rock) that rises above a pebble beach within a small cove. The site consists of a single petroglyph that is carved into a Chuckanut Sandstone outcrop (Campbell and Meidinger 2006a).

Initial recording of Site 45WH78 was done by Jacques and Pflanzer of Western Washington State College in 1977. 45WH78 is located on the northeastern shoreline of Chuckanut Bay. The boulder with petroglyph that constitutes the site was originally on a pebble beach below a large outcropping of Chuckanut Sandstone at the high-tide line, but due to vandalism has been moved across the bay to Bellingham City Parks' property (Woodstock Farm) (Campbell and Meidinger 2008).

Site 45WH50, a remnant shell midden that was recorded as being located "on the north side of Chuckanut Creek on terrace [approximately] 4 - 5 meters above [Mean High Tide] in Teddy Bear Cove of Chuckanut Bay" (Grabert 1974). Chuckanut Creek, however, is located nearly 0.5 mile north of Teddy Bear Cove, so it is unclear whether the site, as recorded, was located at Teddy Bear Cove or at Chuckanut Creek. The DAHP database maps 45WH50 as being located near the intersection of 19th and Rainer Avenue. Although, where or how this provenience was assigned remains unknown as the only linked reference for the site is Grabert (1974). An informal reconnaissance of the site periphery was recently conducted by WWU in association with archaeological field school activities at Woodstock Farm. Shell midden associated with site 45WH50 was observed sporadically scattered on the ground surface south of Fairhaven Avenue, north of Rainer Avenue and west of 18th Street. Overall, the site landform did not appear to have been significantly altered or modified since the 1970s (Sarah Campbell, personal communication 2010). Regardless of the site's locational discrepancies, 45WH50 was recorded as a "thin deposit mostly overgrown with briars" consisting of fine broken and decayed shell and fire-modified rock (Grabert 1974). A broken greenstone adze and a Caucasoid burial were also reported as collected. However, it is unknown where these materials were actually collected from (Grabert 1974). The site informant, Ted Allen (previously associated with WWU), stated to Grabert in 1974 that the Caucasoid burial was one of five from a shipwreck that occurred in the late 1890s to early 1900s (no citation given). Square nails were also observed in the coffin. The one recovered individual

was a robust male in his 50s with a gold-amalgam molar filling and evidence of pathology in his left hip and right shoulder that would have been very painful (WWU collections). The location or validity of the reported four additional Caucasoid burials is unknown. The site was recommended for further study, but to date, no official work has been completed.

Other cultural resources sites previously recorded within a one mile radius of the project include three shell midden sites (i.e. 45WH758, 45WH763, 45WH55, and 45WH56) (Barg and Owens 2007; Campbell and Meidinger 2006b; Gaston and Swanson 1974a, 1974b) located along Chuckanut and Woodstock Creeks, respectively; three-hundred feet of railway grade and three concrete piers of a steel railway trestle associated with the former Pacific Northwest Traction Company's Interurban Railway (45WH725) located in Arroyo Park over 0.5 mile east of the project; a lithic site consisting of several cobble choppers and a core (45WH76) recorded from the uplands approximately 80 – 100 feet above the western shoreline of Chuckanut Bay. Site 45WH1001 is a historic bottle dump located on Woodstock Farm (Lewis 2014).

CULTURAL RESOURCE EXPECTATIONS

Past archaeological work from the local area and the region suggest the survey location could possibly contain historic deposits related to the development of Bellingham and Fairhaven and archaeological resources associated with occupation and use of the uplands surrounding Bellingham Bay. The project area has the potential to contain long-term to single use archaeological sites. Locating lithic acquisition and tool manufacture locations, isolated kill sites, vegetable resource processing sites are all likely in areas such as that surveyed.

FIELD INVESTIGATION

The physical archaeological assessment of an area is conducted through visual reconnaissance of a project area, examination of existing ground disturbances and subsurface excavation as needed. Surface survey of an area proposed for ground alteration or other impact is employed in an attempt to locate any cultural materials or structures on the surface with any historic or archaeological importance or cultural concern. When utilized, shovel probes or mechanical excavation can assist in providing a wider sample of subsurface soil conditions for determining the potential for, or presence/absence of, buried archaeological deposits. The employment of probes or trenches is most often dependent upon considerations of the landform, topography, project proposal and subsurface geologic conditions.

Fieldwork was conducted on June 17, 2020 by Drayton staff Oliver Patsch, Jeff Hillstrom, Marsha Hanson, Simon Schutheis, Emily Hill, Scott Jonas, Kyle Roughton, and intern Brinn Smith. Fieldwork on this day consisted of pedestrian survey and shovel testing of the upland areas. Jeff Hillstrom, Marsha Hanson, Simon Schutheis, and Emily Hill returned the following day, June 18 to conduct a shoreline survey and finish upland shovel testing. The weather was warm and sunny during the course of fieldwork.

Overall, the project area consists of a variety of sloped areas (shallow to very steep) with outcroppings of sandstone and other bedrock, broken up by flatter areas commonly overlooking steep slopes or drop-offs (Photos 1 – 4). A small portion of the project area had experienced a burning event, leading to charred trees and a small landslide (Photos 5 – 6). Deer and recreational trails are located throughout the area, and what may be an old road was observed running through a portion of the project area (Photos 7 – 8). Recreation from nearby residents is evident from the presence of campfires, hammocks, trails, and spray paint on outcroppings (Photos 9 – 10). Modern trash, mostly beer bottles and cans, were observed throughout the project area. Large tree stumps were present within the project area, but it does not appear that large scale clearing occurred.

Native vegetation was observed within the project area with an overstory of Douglas maple, Douglas fir, cedar, yew, and Madrona, with an understory of Indian plum, sword fern, bracken fern, deer fern, nettles, oceanspray, salal, tall and short Oregon grape, bear grass, salmonberry, trailing blackberry, and wild strawberries. Ground surface visibility was moderate to good throughout the project area.

Photo 1. Overview, east, of a portion of the project area near shovel probe EH4.

Photo 2. Overview south-southeast of a steep section of the project area from near shovel probe JH8.

Photo 3. Overview north from shovel probe EH3of bedrock outcroppings commonly observed in the project area.

Photo 4. Overview south-southeast of a portion of the project area where bedrock outcropping steeply slopes to Mud Bay below.

Photo 5. Overview of burnt tree bases near shovel probe SS5.

Photo 6. Overview of erosion near burnt trees and SS5.

Photo 7. Overview northeast from near shovel probe JH5of what may be an old road located within the project area.

Photo 8. Example of a recreational/deer trail commonly observed within the project area, view northeast.

Photo 9. Overview of campfire located within the project area.

Photo 10. Modern graffiti on bedrock outcroppings near the southeastern portion of the project area just above the shoreline.

Following pedestrian survey, a total of 37 subsurface probes were excavated across the project area (Figure 5). Probes were placed along 30 meter transects, when possible, but were shifted based on steepness of slope, downed trees, boulder outcrops, etc. Shovel probes are excavated as cylindrical pits, measuring approximately 40 to 50 cm in diameter. Depths of shovel probes are ultimately determined by the geological conditions and other factors, such as degree of disturbance, presence of ground water, glacial sediments, etc., present at each location. All sediment excavated from probes was screened through ¼" mesh hardware screen. Details regarding the location, depth, sediments encountered, and material content were recorded for each probe. A detailed description of the sediments observed in the shovel probes can be viewed in Appendix A.

Figure 4. An adapted Google Earth image with the shovel probe locations.

Soils were mostly consistent across the project area and were typically represented by two strata, gravelly dark brown to brown silt loams overlying gravelly yellowish-brown loamy sands (Photos 11 – 13). Variation could be seen in amount of loam or silt within strata, which seemed to occur based on location of probes and their topographical positioning. Additional strata observed within probes was typically due to bioturbation of root systems (Photo 14). More compacted sand and clayey soils were observed on trails. Overall, these soils represent the Everett Urban complex and Nati soils mapped for the area (UCDavis SoilWeb n.d.), with variation in sand and loam content. No cultural resources were identified during subsurface testing beyond modern trash.

Photo 11. SP JH2 illustrating soils observed across the project area.

Photo 12. Overview of SP JH4 illustrating variation of strata observed across the project area.

Photo 13. SP JH7 illustrating the variation in more clayed sediments observed in the southern portion of the project area.

Photo 14. SP EH11 illustrating variation in shovel probes due to bioturbation.

The shoreline survey was conducted the following morning, as tides were low, approaching low a -0.5' low tide at 10 am. Shoreline survey was conducted to relocate previously recorded sites 45WH54, 45WH77, and to identify any new sites or cultural materials (petroglyphs) that may be located in the project area. The easiest access to the project area's shoreline was from the end of 16th Street, a public beach access point, and walking the shoreline. While portions of the shoreline along the project area can be accessed from above, it does require some bouldering efforts.

The project area's shoreline is represented by a numerous boulders and sandstone outcroppings, which are separated by few small trails down to the boulders and lookout areas (Photos 15 – 19). When soil profiles are visible, they reveal little surface duff overlying sandy colluvial deposits and glacial till (Photos 20 – 22). The overall shoreline is very steep, and a few natural seeps were observed along the shoreline within the project area.

No shell midden associated with 45WH54 was observed within the project area but was observed within a staircase on a property to the northeast. 45WH77 was relocated, and additional, modern carvings were identified around the site, and on sandstone boulders. Details of these findings are described in the results section below.

Photo 15. Overview west-southwest of the shoreline along the project area near the most southeastern edge.

Photo 16. Looking up toward the project area from the shoreline, note trail to boulders, view is north-northwest.

Photo 17. Overview northwest of project area from shoreline at mid-span.

Photo 18. Overview of southwestern end of the project area from the shoreline.

Photo 19. Overview looking northeast along the project area from the shoreline from the southwestern corner.

Photo 20. Overview of soil profiles observed along the shoreline.

Photo 21. Soils observed from the shoreline.

Photo 22. Overview of exposed soils in the project area as viewed from the shoreline.

RESULTS

No new cultural resources were discovered during the current field investigation. Shoreline investigation relocated site 45WH77, which is located within the project area boundaries, as well as three additional modern carvings in sandstone boulders and the faces near the site. Shell midden site 45WH54, was also relocated, but is not located within the boundaries of the current project area. (Figure 5).

Figure 5. An aerial Google Earth image illustrating the location of 45WH77 and 45WH54 in relation to the project area, adapted by Drayton.

45WH77

Site 45WH77 is located on the northwestern side of a large sandstone outcrop, referred locally as Pigeon Rock (Photo 23). The site consists of a historic-era petroglyph of a lizard and a peace sign measuring 95 cm (37 inches) long x 43 cm (17 inches) at its widest, carved into the sandstone face (Photo 24). The lowest portion of the peace sign has been impacted by high water and is not visible. The petroglyph is in good condition, though two new etchings are located nearby, one to the left and one to the right of the petroglyph when facing it (Figure 6; Photos 25 – 26).

Photo 23. Overview of outcrop and crew members at 45WH77 viewing southeast.

Photo 24. Overview of 45WH77, petroglyph of lizard and peace sign.

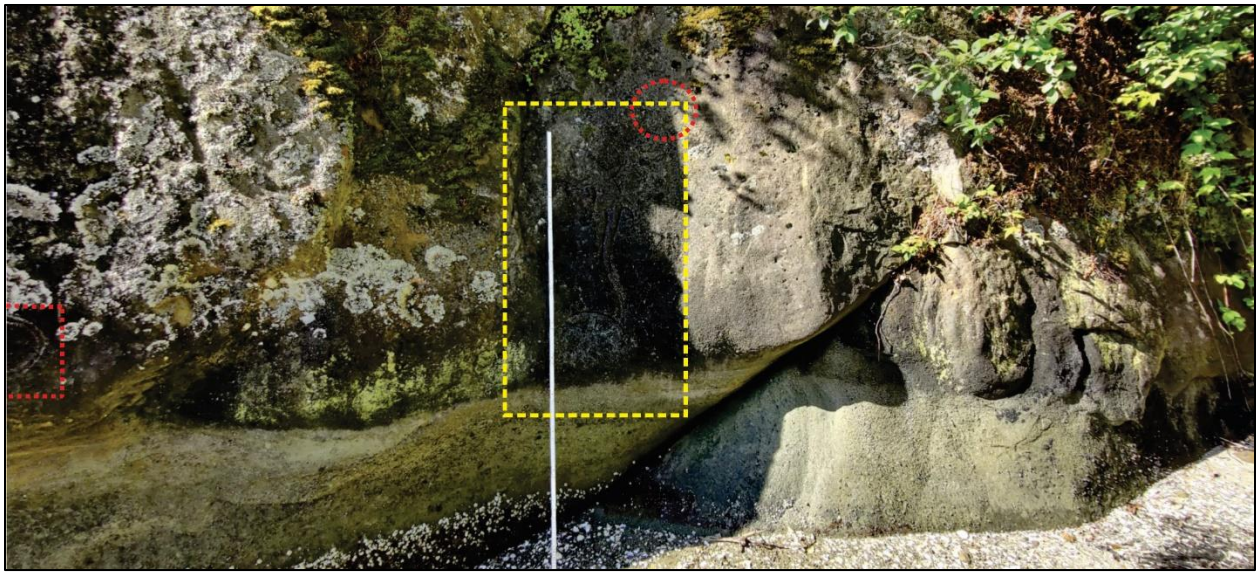

Figure 6. An adapted photo of 45WH77 (in yellow) and location of modern carvings (in red), view is south.

Photo 25. New carving located to the east of 45WH77.

Photo 26. Overview of modern carving located west of 45WH77.

45WH54

Early recording of 45WH54 place the site within the boundaries of the present project area. However, during the current review no shell midden associated with 45WH54 was identified within those boundaries. A small portion of shell midden (10 – 15 cm in length) consisting of crushed shell in gray ashy soil was observed eroding from the beach access staircase at a property located east-northeast of the project area (Photos 27 – 29). This location appears to be the staircase located at 316 Sea Pines Rd and coincides with the location tested by Campbell et al. (2006). The cutbanks on both sides of the staircase were also inspected, however, dense brush obscured the area, and no midden was observed in areas where soils were exposed.

Photo 27. Overview of beach access staircase where shell midden was identified. View is west-northwest.

Photo 28. Overview of shell midden eroding from beneath the lowest stair.

Photo 29. Close-up of midden (circled) eroding from staircase.

RECOMMENDATIONS

The present cultural resources assessment consisted of background review, field investigation, and production of this report. Background review determined the majority of the project area to be located in an area of moderate probability for cultural resources, and the area nearer the shoreline to be in a high probability area based on the property's proximity to known archaeological sites. Field research did not identify any new cultural resources, however, two previously documented archaeological sites, 45WH54, and 45WH77 were relocated. While early recording of 45WH54 indicates the site is located along the project area's shoreline, the only observable portion of the site was located to the northeast, well outside of the project area. In addition, while 45WH77 is located within the project area, it is located on a large outcropping jutting into Mud Bay. Based on the topography of the project area, especially in this area, it is highly unlikely that development of this area will affect 45WH77, impacts are more likely to occur from vandalism from recreational users. Based on the results of our cultural resources assessment, Drayton asserts that further cultural resources oversight is unnecessary, and the project be permitted as designed.

It should be recognized that Washington State law provides for the protection of archaeological resources in the state. In some cases where guidance is not provided or where there is no clear directive for the treatment of a resource Washington State Revised Codes of Washington (RCW) should be consulted for direction. Under Washington RCW Chapter 27.53, Archaeological Sites

and Resources, prohibits the unauthorized removal, theft, and/or destruction of archaeological resources and sites. This statute also provides for prosecution and financial penalties covering consultation and the recovery of archaeological resources. Additional legal oversight is provided for Indian burials and grave offerings under RCW Chapter 27.44, Indian Graves and Records. RCW 27.44 states that the willful removal, mutilation, defacing, and/or destruction of Indian burials constitute a Class C felony. Further, Washington legal code, RCW 68.50.645, Notification, provides a strict process for the notification of law enforcement and other interested parties in the event of the discovery of <u>any</u> human remains regardless of perceived patrimony. The assessment of the property has been conducted by a professional archaeologist and meets or exceeds the criteria set forth in RCW: 27.53 for professional archaeological reporting and assessment.

The following section, Inadvertent Discovery Protocols, has been included in this document to assist property owners, project managers, construction crews, and others responsible for work, in the necessary and appropriate steps to follow in the event that archaeological materials are encountered during the project.

INADVERTANT DISCOVERY PROTOCOLS

Archaeological Resources:

In the event that archaeological materials (e.g. shell midden, faunal remains (bones), stone tools, historic glass, metal, or other concentrations) are encountered during the development of the property, an archaeologist should immediately be notified and work halted in the vicinity of the find until the materials can be inspected and assessed. The project archaeologist should be contacted immediately to review the find and contact the relevant parties. An assessment of the discovery and consultation with government and tribal cultural resources staff is a requirement of law. Once the situation has been assessed steps to proceed can be determined.

Human Burials, Remains, or Unidentified Bone(s)

In the event of inadvertently discovered human remains or indeterminate bones, pursuant to RCW 68.50.645, all work must stop immediately and law enforcement should be contacted. Any remains should be covered and secured against further disturbance, and communication should be immediately established with the Bellingham Police Department and the State Physical Anthropologist at DAHP for coordination with interested Native Tribe(s).

The area surrounding the discovery should be secured and of adequate size to protect the discovery from further disturbance until the State provides a notice to proceed. The discovery of any human skeletal remains must be reported to law enforcement immediately. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains to decide whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then the State Physical Anthropologist at DAHP assumes the jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the

find. The State Physical Anthropologist will determine whether the remains are Native or Non-Native origin and report that finding to any appropriate cemeteries and the affected tribes. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains. DAHP will also authorize when work may proceed.

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APPENDIX A: SHOVEL PROBE TABLE

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
JH1		
0 – 20	10YR 2/2 very dark brown silt loam, decomposing organics, fine roots	Negative
20 – 76	10YR 5/6 yellowish brown loamy sand, moderate to high gravel content with rounded to subangular pebbles and many cobbles, fine to coarse roots	Negative
Notes: rock impasse		
JH2		
0 – 24	10YR 2/2 very dark brown silt loam, decomposing organics, fine roots	Negative
24 – 98	10YR 3/6 dark yellowish brown sandy loam, moderate gravel content with rounded to subangular pebbles and many cobbles, fine roots	Negative
JH3		
0 – 26	10YR 2/2 very dark brown silt loam, decomposing organics, fine roots	Negative
26 – 59	10YR 4/3 brown silt loam, low gravel content, fine to coarse roots	Negative
59 – 74	10YR 4/2 dark grayish brown silt loam, low gravel content, fine roots	Negative
JH4		
0 – 22	10YR 2/2 very dark brown loam, high gravel content with rounded to subangular pebbles and cobbles, decomposing organics, coarse roots	Negative
22 – 62	10YR 5/4 yellowish brown coarse sand, extremely high gravel content with rounded to subangular pebbles and cobbles	Negative
JH5		
0 – 18	10YR 2/2 very dark brown loam, moderate gravel content with rounded to subangular pebbles, decomposing organics, coarse roots	Negative
18 – 32	10YR 3/6 dark yellowish brown loamy sand, high gravel content with rounded to subangular pebbles	Negative
Notes: encountered sandstone bedrock or large boulder		
JH6		
0 – 21	10YR 4/2 dark grayish brown clayey silt loam	Negative
21 – 45	10YR 5/1 gray very fine silt loam with orangish brown oxidation mottling	Negative
JH7		
0 – 12	10YR 2/2 very dark brown clayey silt loam, wet, decomposing organics, fine roots	Negative
12 – 34	10YR 5/4 yellowish brown clayey loam	Negative
JH8		
0 – 44	10YR 4/4 Dark yellowish brown highly compacted clayey silt loam, fine to coarse roots	Negative
44 – 58	10YR 6/4 light yellowish brown highly compacted clayey silt loam, fine to coarse roots	Negative
Notes: root impasse		
JH9		
0 – 9	10YR 2/2 very dark brown sandy loam, high gravel content with mostly subrounded pebbles, fine roots	Negative
9 – 57	10YR 5/6 yellowish brown sandy loam, high gravel content with rounded to subangular pebbles and cobbles	Negative
57 – 90	10YR 3/6 dark yellowish brown loamy coarse sand, extremely high gravel content with rounded to subangular pebbles and cobbles	Negative
JH10		
0 – 20	10YR 2/2 very dark brown sandy loam, high gravel content with mostly subrounded pebbles, fine to coarse roots	Negative
20 – 59	10YR 3/6 dark yellowish brown silt loam, extremely high gravel content with rounded to subangular pebbles and cobbles	Negative

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
JH11		
0 – 23	10YR 2/2 very dark brown sandy loam, wet, high gravel content with rounded to subangular pebbles, fine to coarse roots	Negative
23 – 56	10YR 5/2 grayish brown very fine silt loam with orangish brown oxidation mottling, wet, moderate gravel content with rounded to subangular pebbles, fine to coarse roots	Negative
Notes: Terminated at water table		
EH1		
0 – 32	10YR 2/2 very dark brown duff layer, loose, coarse grained, very gravelly silty loam.	Negative
32 – 64	10YR 3/6 dark yellowish brown, very compact, coarse grained, gravelly sandy loam. Larger pebbles and cobbles present throughout layer.	1 cigarette butt, 1 Christmas light base ,1 nail
EH2		
0 – 28	10YR 2/2 very dark brown, coarse grained, very gravelly silty sand. Sandstone rocks present throughout layer along with a high concentration of smaller cobbles. Lots of organic materials present.	Negative
Notes: Terminated at rocky impasse		
EH3		
0 – 18	10YR 2/2 very dark brown, some reddish mottling from decomposing organics, coarse grained, silty loam.	Negative
18 – 34	10YR 3/6 dark yellowish brown, poorly sorted, variegated, coarse grained, sandy silty soil.	Negative
EH4		
0 – 15	10YR 2/2 very dark brown, very gravelly, coarse grained, silty loam.	Negative
15 – 35	10YR 3/6 dark yellowish brown, coarse grained, silty loam Large cobble intrusion on East wall.	Negative
Notes: Terminated at root impasse		
EH5		
0 – 6	10YR 2/2 very dark brown, coarse grained, sandy loam, duff layer. Soil had a different smell compared to previous probes.	Negative
6 – 47	7.5 YR 5/4 brown, compact, fine-grained, bioturbated, sandy loam with some chunks of clay.	Negative
Notes: Terminated at rocky impasse		
EH6		
0 – 6	10YR 2/2 very dark brown coarse grained, compact duff soil layer. Had to expand probe due to large root traveling from the East to the West side of the probe.	Negative
6 – 42	10YR 3/6 dark yellowish brown, with some grey mottling, extremely compact, fine grained glacial outwash.	Negative
EH7		
0 – 12	10YR 2/2 very dark brown, fine grained, soft, silty loamy duff.	Negative
12 – 30	10YR 3/6 dark yellowish brown, fine grained, silty loam	Negative
Notes: Terminated at root impasse		
EH8		
0 – 26	10YR 2/2 very dark brown, fine grained, soft, silty loamy duff layer.	Negative
26 – 57	10YR 3/6 dark yellowish brown, very gravelly, coarse grained, sandy loam.	Negative

EH9		
0 – 14	10YR 2/2 very dark brown, fine grained, silty loam.	Negative
14 – 39	10YR 3/6 dark yellowish brown, coarse grained, gravelly silty loam with small to medium sized cobbles. Roots obstructing probe with a large cobble intrusion on the west wall.	Negative
EH10		
0 – 10	10YR 2/2 very dark brown, coarse grained, very gravelly, silty loamy duff sediment layer.	Negative
10 – 50	10YR 3/6 dark yellowish brown, fine grained, silty loam.	Negative
EH11		
0 – 7	10YR 2/2 very dark brown, fine grained, silty loam.	Negative
7 – 15	10YR 4/3 brown, some grey mottling, fine grained, compact, silty loam.	Negative
15 – 37	10YR 2/2 very dark brown, mixed with 10YR 2/1, fine grained, compact, silty loam.	Negative
37 – 45	7.5YR 4/3 brown, compact, fine grained, silty loam.	Negative
45 – 60	10YR 4/4 dark yellowish brown, very compact, fine grained, ashy silty sand. End of probe due to extremely compact soil.	Negative
SS1		
0 – 15	10YR 2/2 very dark brown very gravely silt loam with high quantity of roots and decomposing organics	Negative
15 – 68	10YR 5/6 yellowish brown very gravely silt loam. High percentage of rounded cobbles and gravel. Poorly sorted, sandier with depth.	Negative
Note: Modern trash surrounding the area, terminated at rock impasse.		
SS2		
0 – 24	10YR 4/3 brown loam with many larger roots near the surface.	Negative
24 – 40	10YR 3/4 dark yellowish brown dense sand sediment and poorly consolidated sandstone.	Negative
Note: Terminated at root impasse at 35 cm		
SS3		
0 – 21	10YR 3/4 dark yellowish brown loam. No gravel and small roots present	Negative
21 – 68	10YR 6/6 brownish yellow fine sandy loam. Bottom turns into dense poorly consolidated sandstone.	Negative
SS4		
0 – 4	10YR 4/3 brown decomposing organics	Negative
4 – 34	10YR 6/3 pale brown extremely compact blocky sand. Gets more dense towards bottom turning into poorly consolidated sand stone.	Negative
SS5		
0 – 15	10YR 2/2 very dark brown loam with charcoal.	Negative
15 – 36	10YR 6/3 pale brown extremely compact and blocky sand.	Negative
Note: area was burnt from a fire, cobbles and boulders eroding out of the ground.		
SS6		
0 – 36	10YR 2/2 very dark brown wet cobbly soil. A lot of rounded cobbles and gravel present throughout probe.	Negative
36 – 38	2.5Y 3/3 dark olive brown glacial sediment. Large cobble impasse and groundwater seeping in at bottom.	Negative
SJ1		
0-14	10YR 2/2 very dark brown topsoil (sandy loam)	Negative
14-73	10YR 5/4 yellowish brown subsoil (loose sandy loam with abundant rocks and roots)	Negative

SJ2		
0-10	10YR 2/2 very brown topsoil (sandy loam)	Negative
10-36	10YR 5/4 yellowish brown subsoil (loose sandy loam with abundant rocks and roots)	Negative
Notes: Terminated at rocky impasse		
SJ3		
0-31	10YR 2/2 very brown topsoil (sandy loam) with abundant roots	Negative
Notes: Terminated at rocky impasse		
SJ4		
0-6	10YR 2/2 very brown topsoil (sandy loam) with abundant roots	Negative
6-50	10YR 5/4 yellowish brown subsoil (loose sandy loam with abundant rocks and roots)	Negative
Notes: Terminated at root impasse		
SJ5		
0-30	10YR 3/3 Dark brown (damp) silt loam	Negative
30-54	10YR 5/4 yellowish brown, compacted glacial till (loamy sand)	Negative
SJ6		
0-10	10YR 2/2 very brown topsoil (sandy loam)	Negative
10-32	10YR 4/6 dark yellowish brown compacted sandy loam with blocky cleavage	Negative
SJ7		
0-10	10YR 2/2 very brown topsoil (sandy loam)	Negative
10-34	2.5YR 3/4 reddish brown sandy loam with abundant roots and rocks	Negative
Notes: Terminated at rock and root impasse		
SJ8		
0-15	10YR 2/2 very brown topsoil (sandy loam)	Negative
15-46	10YR 3/4 reddish brown sandy loam with abundant roots and rocks	Negative
Notes: Terminated at rock and root impasse		
SJ9		
0-48	10YR 2/2 very brown topsoil (loamy sand) with abundant roots and rocks	Negative
Notes: Terminated at rock and root impasse		