CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2021-07-04472

Author: Garth L. Baldwin, Marsha R. Hanson, and Jeffrey K. Hillstrom

Title of Report: Cultural Resources Assessment for Coles Road Mixed Use Development Project (TPN: R32904-194-4850), Langley, Island County, Washington

Date of Report: July 15, 2021

County (ies): Island Section: 4 Township: 29 N Range: 3 E

Quad: Langley, WA (1968) Acres: ~29

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 #:

_____
_____
_____
_____

- 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 Assessment for Coles Road Mixed Use Development Project (TPN: R32904-194-4850), Langley, Island County, Washington

Prepared By:
Garth L. Baldwin, M.A., RPA 16248,
Marsha R. Hanson, B.A.,
and Jeffrey K. Hillstrom, B.A.

Prepared For:
Riley Marcus
AVT Consulting LLC
1708 F Street
Bellingham, Washington 98225

Drayton Archaeology Report: 0621P

July 15, 2021

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Date:	July 15, 2021
Location:	Langley, Island County, Washington
USGS Quad:	Langley, WA (1968)
Township, Range, Section:	T29N, R3E, S4

SUMMARY

Drayton Archaeology (Drayton) was retained by Ken Hertz of South Whidbey LLC, to conduct an archaeological assessment of the proposed Coles Valley Neighborhood residential development in (TPN: R32904-194-4850) in Langley, Washington. The project is an approximately 29-acre proposed mixed-use residential development within a larger 40-acre parcel. Housing units will include single family housing, cottage clusters, tiny houses, multifamily housing, affordable housing, and maker's workshops. The remaining acreage located west of Coles Road will be donated to the city or a land trust to be preserved as open space.

Drayton's cultural resource assessment included background review of environmental and cultural contexts, previously recorded cultural resource studies and sites, field investigation to identify the presence/absence of archaeological deposits, and preparation of this report. Background review determined that the project area is located in an area of low probability for archaeology, as the area has undergone previous logging and clearing activities, most recently around 2006. No precontact or historic cultural materials were observed. Based on the present review and our experience in the vicinity we do not recommend further archaeological oversight for site development.

REGULATORY CONTEXT

The subject project is being reviewed and permitted through Island County, and is subject to State Environmental Policy Act (SEPA). SEPA requires 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 a site's significance and the impact of proposed projects upon such sites.

It should also be further recognized that Washington State law provides for the protection of all archaeological resources under RCW Chapter 27.53, Archaeological Sites and Resources, which 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. A recent addition to 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 any human remains regardless of perceived patrimony.

PROJECT LOCATION AND DESCRIPTION

The project area is located on a 40-acre parcel located within Section 4, Township 29 North, Range 3 East, Willamette Meridian (Figure 1). The property is located along Coles Rd (TPN: R32904-194-4850), Langley, Island County, Washington (Figure 2). The project proposes to subdivide the eastern 28.64 acres into eight sub-parcels, which will be developed as mixed housing forms targeting specific needs of the local community. The development will include approximately 120 housing units including single family, multifamily, tiny houses, cottage clusters, affordable housing, and maker's workshops (Figure 3). On and off-site public and private utility installation will also occur (Figure 4). The 11.17 acres located west of Coles Road will be donated to the city or land trust to be preserved as open space.

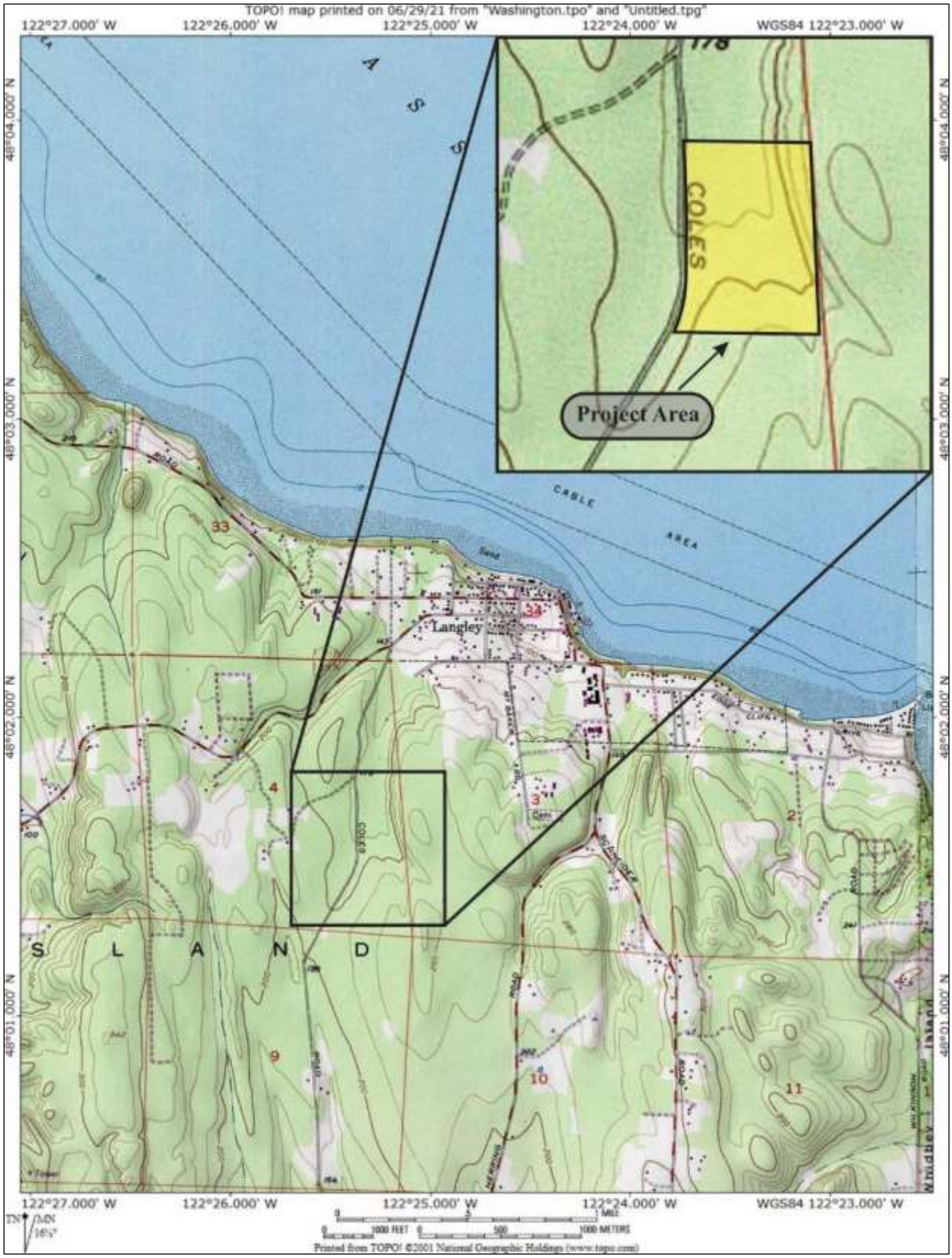

Figure 1. A portion of the Langley (1968), WA 7.5' USGS quad map identifying the property.

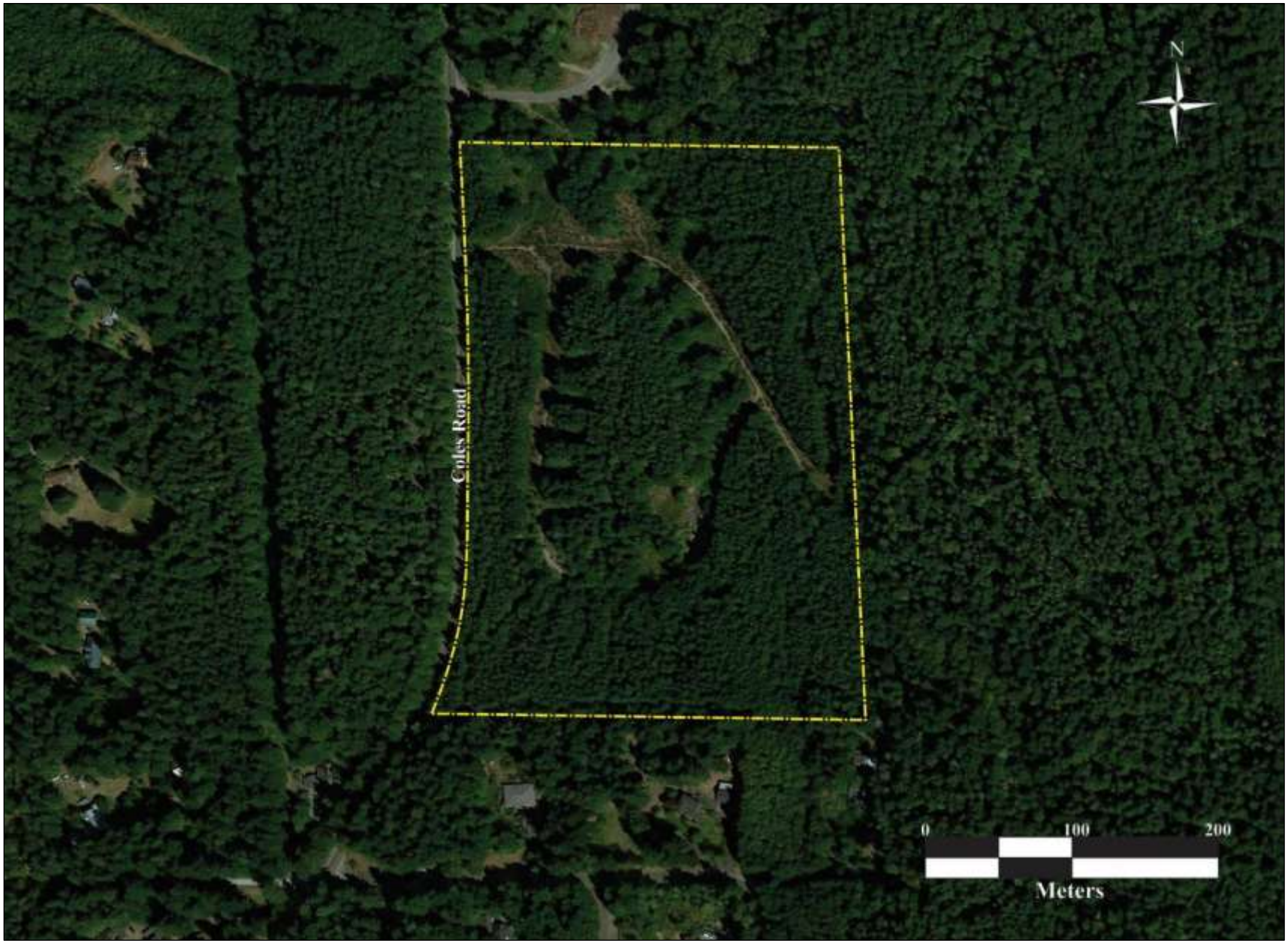

Figure 2. An aerial image illustrating the project location (Image from Google Earth, adapted by Drayton).

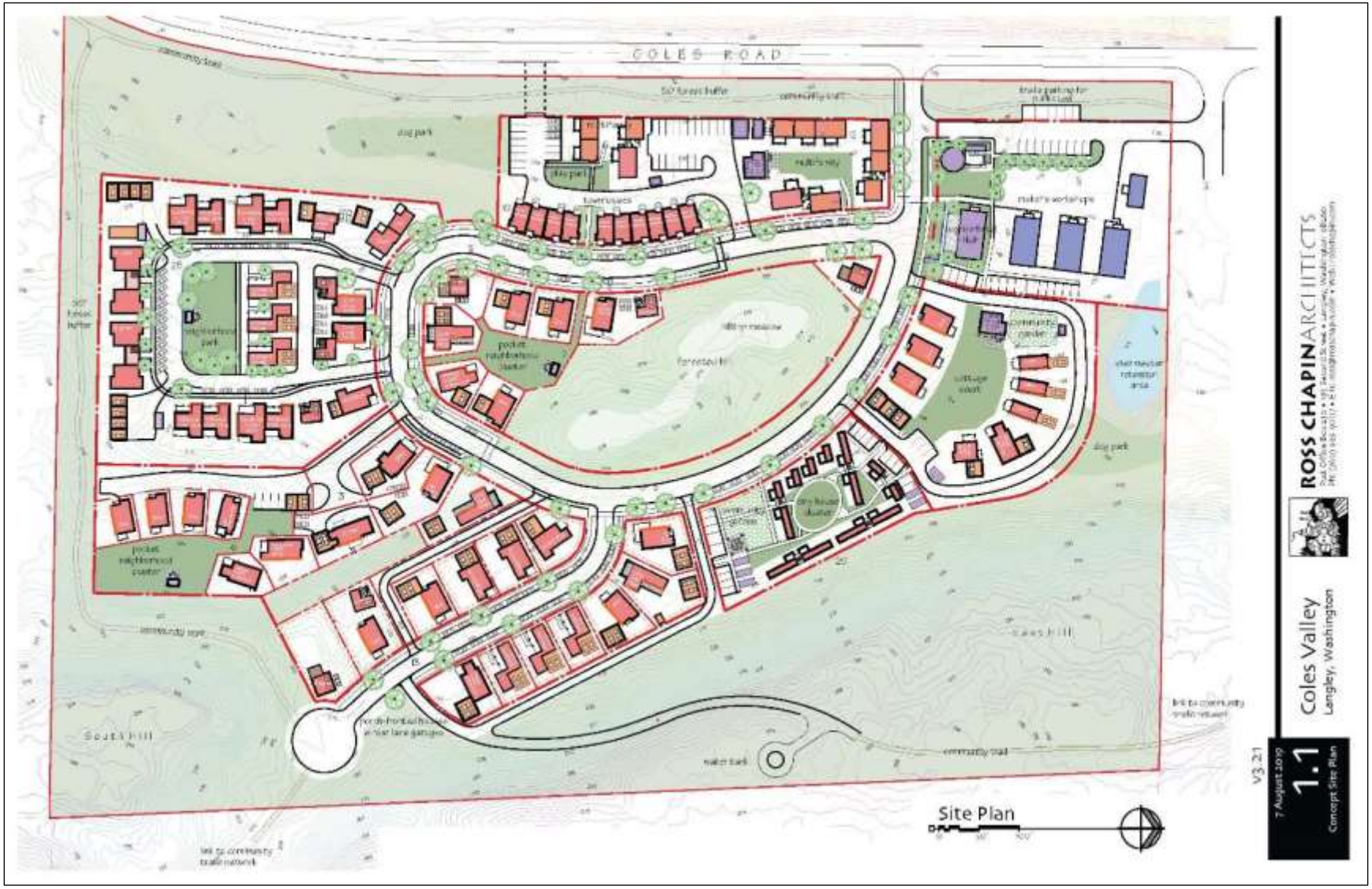

Figure 3. Plan sheet of the Coles Valley Neighborhood proposed mixed-use development, courtesy of the client.

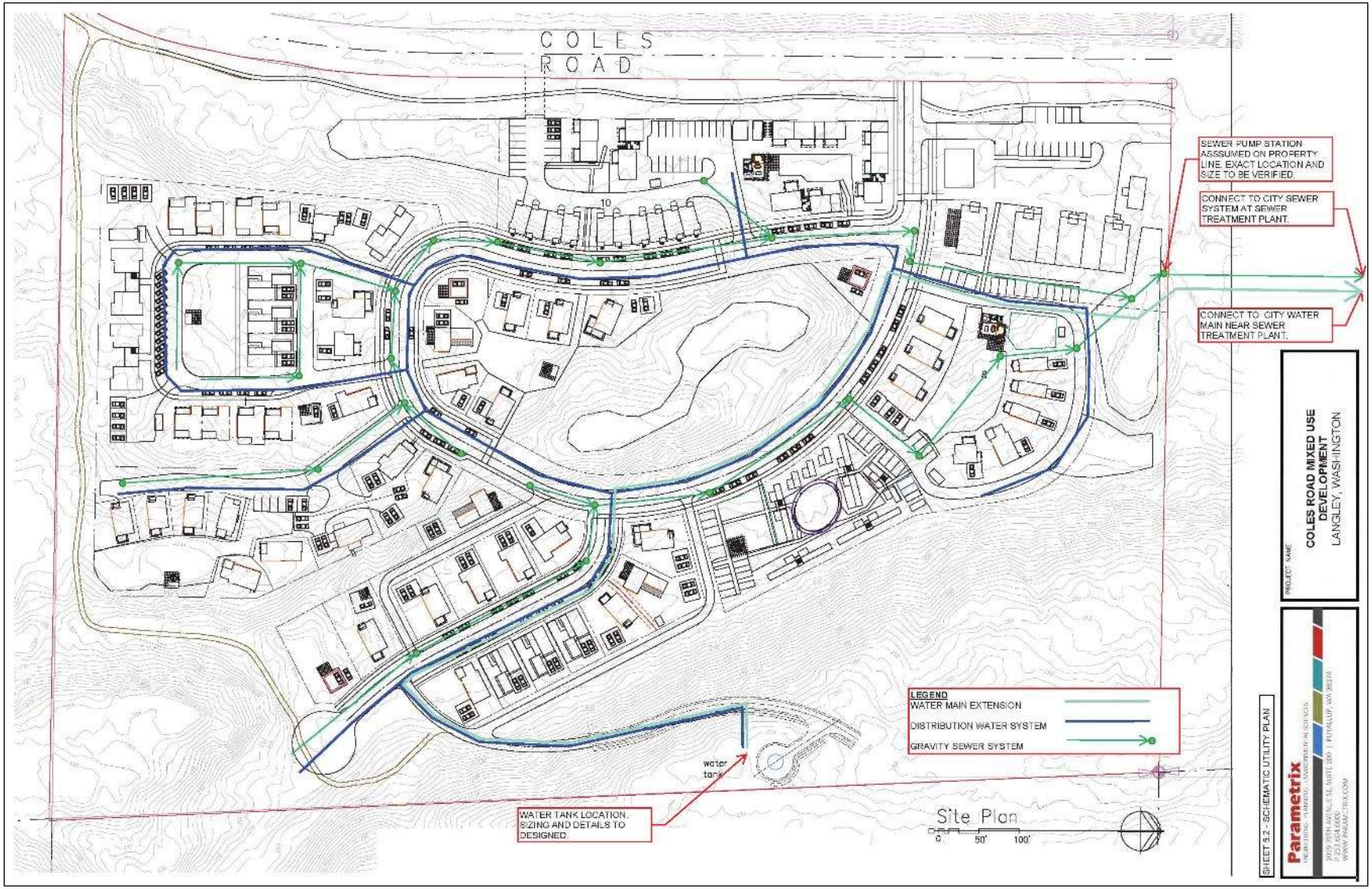

Figure 4. Plan sheet illustrating proposed sewer and water line placement for the proposed development. Plans courtesy of the client.

BACKGROUND REVIEW

Determining the probability for cultural deposits and/or isolated artifacts at any project location is based upon a review and analysis of the environmental and cultural context and previous cultural resource studies and sites recorded within close 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 Setting

The project area is located on the southern half of Whidbey Island, near Langley, Washington. The island measures some 40-miles north to south and ranges from as little as one and up to as many as ten miles east to west. Whidbey Island is situated in the Puget Trough physiographic province (Franklin and Dyrness 1973) and is bordered on the north by Deception Pass, the west by the Strait of Juan de Fuca and Admiralty Inlet, on the east by Saratoga Passage and on the south by Puget Sound.

The climate is temperate with cool and dry summers and mild and wet winters. Typical vegetation consists of dense forests, primarily Douglas fir but also Western Hemlock and western red cedar, although large areas of prairies were found and were the primary areas settled and farmed by Euroamericans (Ness and Richens 1958). Vegetation in these areas would have included the commonly used camas bulbs and other grasses, roots, and shrubs. Early explorers and settlers commented on the luxuriousness of prairie habitats on Whidbey Island and many researchers believe that the prolific growth was due to anthropogenic fire management (Boyd 1999). These fires would promote native vegetation while keeping larger tree species at bay around the peripheries of the prairies. Management of these open spaces facilitated precontact terrestrial hunting and attracted multiple native tribes to different portions of the island as will be discussed below.

Geology

The Puget Trough was formed by the dynamic glacial actions of progressing and receding ice between the area of the Olympic Mountains to the west and the Cascade Mountains to the east. At least four periods of extensive glaciation can be attributed to the formation of the Puget Trough, which occurred during the Pleistocene epoch, 2.5 million to 12,000 years ago (Waitt and Thorson 1983). The land was scoured and sediments were deposited as the glaciers advanced and retreated. Deposits representing three separate periods of glacial advance and retreat can be found on Whidbey Island (Easterbrook 1968). The surface features on Whidbey Island are a result of the most recent of these, the Fraser Glaciation.

The Vashon Stade (advance) of the Fraser Glaciation began at about 18,000 BP (before present) with an advance of the Cordilleran ice sheet into the lowlands (Porter and Swanson 1998). As the

ice built up, one lobe flowed down into the Puget Lowland and another lobe filled the Strait of Juan de Fuca. The ice in the Puget lobe reached Seattle sometime between 15,000 and 14,500 BP 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). Glacial till was deposited over most of the upland areas on Whidbey Island as the glacier advanced (Easterbrook 1968). The Puget lobe was thicker northward and thinned towards its terminus. The depth of the ice over present-day Whidbey Island is estimated to have been about 3,500 to 4,500 feet (Easterbrook 1968, Porter and Swanson 1998).

The Vashon Stade ended relatively rapidly, and the Puget lobe of the ice sheet had retreated back to Seattle by about 14,000 BP (Easterbrook 2003). The Juan de Fuca lobe retreated more quickly than the Puget lobe, as its breakup was expedited by the calving of large chunks of ice into the ocean water, filling the strait. Marine waters entered the lowlands that had been carved out by the glaciers and filled Puget Sound. The remaining ice was floated and wasted away rapidly. Everson glaciomarine drift deposits were released from the melting glacial ice and deposited on the sea floor across the northern and central Puget Lowland (Easterbrook 2003), including the project area. These deposits have been radiocarbon dated between 12,500 and 11,500 BP (Easterbrook 2003). During the late phase of the Fraser Glaciation relative sea level was higher than at present. The weight of the ice had depressed the land and it took time for isostatic rebound to catch up to the rising sea levels caused by melting ice (Clague and James 2002). Kovanen and Easterbrook (2002) suggest a rapid rise in sea-level between about 12,000 and 11,000 BP and a subsequent fall until about 9,000 BP when sea-level became somewhat stabilized below the present-day level. Former shorelines and marine deltas are found up to 33 meters above sea level on southern Whidbey Island and up to 88 meters on northern Whidbey Island (Easterbrook 2003).

Soils

The University of California Davis Agriculture and Natural Resources, in conjunction with the United States Department of Agriculture Natural Resource Conservation District (USDA-NRCS) developed an interactive soil survey application. According to the UC Davis SoilWeb database (n.d.), soils mapped within the project areas are largely Indianola-Uselessbay complex, 5 to 30 percent slopes, Sholander, cool-Limepoint complex, 0 to 8 percent slopes, and Utsalady-Uselessbay complex, 2 to 12 percent slopes.

Indianola series soils are located on hills, terraces, terrace escarpments, eskers, and kames of drift or outwash plains at elevations ranging from 0 to 305 meters (0 to 1,000 feet). These soils are formed in sandy glacial drift and minor amounts of volcanic ash, are very deep, and somewhat excessively drained. UC Davis SoilWeb (n.d.) lists a typical Indianola series as consisting of an Oi horizon from 0 – 2.5 centimeters (cm) (0 – 1 inch (in)) of slightly decomposed plant material, an A horizon from 2.5 – 15 cm (1 – 6 in) of very dark grayish brown loamy sand, a Bw1 horizon from 15 – 43 cm (6 – 17 in) of yellowish-brown loamy sand, and a Bw2 horizon from 43 – 69 cm

(17 – 27 in) of yellowish-brown sand. A BC stratum underlies the above strata and consists of pale brown sand from 69 – 94 cm (27 – 37 in), and a C horizon from 94 – 152 cm (37 – 60 in) of pale brown sand.

Uselessbay series soils are comprised of moderately deep, moderately well drained soils located on summits and side slopes of narrow ridges. These soils are formed from sandy glacial outwash over dense glacial drift. A typical profile consists of slightly decomposed organics from 0 – 4 cm (0 – 1.5 in), followed by an A horizon from 4 – 8 cm (1.5 – 3 in) of black gravelly sandy loam. Dark yellowish brown gravelly sandy loam is defined as the Bw1 horizon from 8 – 23 cm (3 – 9 in), followed by the Bw2 horizon of dark yellowish brown gravelly loamy sand from 23 – 38 cm (9 – 15 in). A C stratum consisting of olive brown gravelly sand is located from 38 – 85 cm (15 – 33 in), followed by a Cg stratum from 85 – 93 cm (33 – 37 in) of olive brown gravelly sand, and a Cd layer of grayish brown gravelly sandy loam from 93 – 152 cm (37 – 60 in) (UCDavis SoilWeb n.d.).

UC Davis Soilweb (n.d.) classifies the Sholander series as deep, somewhat poorly drained soils formed in glacial outwash over dense glaciomarine deposits, slopes are 0 to 20 percent. A typical soil profile consists of an A horizon of very dark brown gravelly loam from 0 – 20 cm (0 – 8 in), an E horizon from 20 – 40 cm (8 – 16 in) of dark grayish brown gravelly loam. A Bg1 horizon of brown gravelly sandy loam from 40 – 71 cm (16 – 28 in) is then followed by a Bg2 horizon from 71 – 130 cm (28 – 51 in) of brown gravelly sand, and a 2Cd horizon of gray loam from 130 to 152 cm (51 – 60 in).

The Limepoint series consists of deep, poorly drained soils formed in alluvium underlain by dense glaciomarine deposits. Limepoint soils are found in drainageways outwash plains with slopes of 0 to 5 percent. A typical sediment profile consists of an A1 horizon from 0 – 15 cm (0 – 6 in) of black mucky silt loam, followed by an A2 horizon from 15 – 36 cm (6 – 14 in) of very dark grayish brown loam. This is underlain by a Bg horizon from 36 – 79 cm (14 – 31 in) of grayish brown loamy coarse sand, a Cg1 horizon from 79 – 124 cm (31 – 49 in) of grayish brown loam, a Cg2 horizon from 124 – 147 cm (49 – 58 in) of gray sandy loam loam, over a 2Cd horizon from 127 – 152 cm (58 – 60 in) of gray silty clay loam (UC Davis SoilWeb n.d.).

Soils in the Utsalady series can be found on broad flat summits and toeslopes of narrow ridges from elevations of 10 to 100 meters (33 – 328 feet). These soils are formed in sandy glacial outwash, are very deep, and well drained. A typical profile consists of an organic layer of decomposed needles, twigs, and leaves from 0 – 3 cm (0 – 1 in), followed by an E horizon from 3 to 5 cm (1 – 2 in) of gray loamy sand. The following strata consist of a Bw1 layer from 5 – 38 cm (2 – 15 in) of dark yellowish brown loamy sand, a Bw2 layer of olive brown gravelly loamy sand from 38 to 79 cm (15 – 31 in), and a Bw3 stratum of dark grayish brown loamy sand from 79 – 107 cm (31 – 42 in). The lower portion of the profile consists of a C horizon from 107 – 127 cm

(42 – 50 in) of dark grayish brown sand, a Cg1 layer from 127 – 140 cm (50 – 55 in) of dark grayish brown loamy sand, and variegated sand as a Cg2 layer from 140 – 152 cm (55 – 60 in) (UC Davis SoilWeb n.d.).

Flora and Fauna

The general environmental zone is classified by Franklin and Dyrness (1973:44-45) as the *Tsuga hetrophylla* vegetation zone, which is characteristic of the Puget Sound basin. Before historic development much of the island was covered by coniferous and deciduous trees, with an under story of shrubs and ferns. Native vegetation would have included, but not have been limited to Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), salal (*Gaultheria shallon*), and vine maple (*Acer circinatum*). Other locally important and 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*) (Franklin and Dyrness 1973:44-5; 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 southern Puget Sound basin (Franklin and Dyrness 1973:88).

The project area is located in an area where both high energy and low energy marine resources were readily available. Seals were likely hunted but fish, especially salmon, were a staple food source (Suttles and Lane 1990). Herring (*Clupea pallasii)*, smelt or eulachon (*Thaleichthys pacificus*), halibut (*Hippoglossus stenolepis*), flatfish and rockfish would have also been abundant in the area. Shellfish including littleneck clams (*Protothaca staminea)*, butter clams (*Saxidomus giganteus)*, horse clams (*Tresus capax*), bay mussels (*Mytilus edulis)*, cockles (*Clinocardium nuttallii)*, and native oysters (*Ostrea lurida*) would have been harvested as well as crab (*Crustacea*). Terrestrial animals in the area would have included black tailed deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), black bear (*Ursus americanus*), beavers (*Castor canadensis*), as well as other small game and many species of waterfowl.

Cultural Background

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. A broad discussion of the history of land use in the area of Whidbey Island and the immediate area surrounding the project area can also provide information regarding people that lived in the area and the activities in which they engaged. It is important to note that many of the names applied to past inhabitants, especially during contact and early historic periods, are those given by European explorers, Euro-American settlers, and others compiling information for treaty purposes. Exogamy as the preferred marriage

practice had been well established by the contact period, leading some ethnographers to note that a list of tribes is nothing more than a list of villages, or collections of families, and is not a true reflection of tribal territorial boundaries (Boxberger and Miller 1989:30; Hilbert et al. 2001; Suttles and Lane 1990).

Precontact

Human occupation of the Puget Lowland has been well documented in a number of archaeological, ethnographic, and oral historic records (e.g., Ames and Maschner 1999; Greengo and Houston 1970; Larson and Lewarch 1995; Moss 2011; Nelson 1990; Suttles 1974).

Puget Lowland archaeology can be subdivided into three phases that include early (end of the last ice age to 5,000 years BP), middle (5,000 to 1,000 BP) and late stages of development (1,000 to 250 BP). The early period is characterized by an emphasis on the use of flaked stone tools including fluted projectile points, leaf-shaped points and cobble-derived tools. In the regional area, these artifacts are often attributed to the "Olcott" phase, named after the site type near Arlington and Granite Falls (Baldwin 2008; Kidd 1964; Mattson 1985). Olcott sites are generally found some distance from modern shorelines and on terraces of major river valleys. Besides the lithic assemblage, little faunal or organic evidence remains that date to this period. While the paucity of evidence beyond a lithic assemblage suggests a specialization of generalized terrestrial hunting, it is likely that littoral evidence from this time period is not as extensive and does not preclude some exploitation of marine resources. During this phase, camps were frequently established along river terraces or outwash channels.

The middle period coincides with a stabilization of the environment to something similar to today. The broad cultural patterns include a larger suite of specialized tools including smaller notched points and groundstone, and bone or antler implements used for working with wood. Although lithic manufacture of stemmed bifaces and cobble tools is maintained in this period, ground stone tools are less common. Shell midden sites first appear during this period indicating a transition to a more maritime-based subsistence pattern. Although structural elements such as post molds have been identified, habitation structures have not yet been excavated. The middle period is noted for its increased artifact and trait diversity including a full woodworking toolkit, art and ornamental objects, status differentiation in burials, and extremely specialized fishing and sea-mammal hunting technologies.

The late period is dominated by a settlement pattern along the coastline and along streams and rivers. Trade goods also appear indicating extensive trade networks up and down the coast as well as with inland Plateau peoples. Salmon became a primary food source at this time as sea levels had risen and riparian environments supported large runs of salmon and provided plentiful food for native populations. The late period is recognized by an apparent decrease in artifact diversity. Stone carving and chipped stone technologies nearly disappear, while increased habitation fortifications are common.

Ethnographic

The project area is located within the traditional territory of several Southern Coast Salish groups. The groups who inhabited Whidbey Island were delineated largely based on their languages (Suttles and Lane 1990) and no single group exclusively resided on or used the entirety of the island. Similar to other parts of the Puget Sound area, groups traveled between the islands and mainland as part of their seasonal migration. Suttles and Lane (1990) indicate that Northern Lushootseed was the primary language utilized by the groups in this region.

The ethnographic inhabitants of the area practiced a semi-sedentary land use system based on hunting, fishing, and gathering resources in the summer months in order to stockpile them for winter use. As with most of Puget Sound peoples, this settlement economy was centered on dispersed temporary camping sites in the spring and summer and larger, multi-family villages in the winter. Transportation was mostly on water in large dugout canoes, which allowed for much faster movement than did overland routes. During spring, summer, and fall people focused primarily on resource acquisition moving to different temporary camps to hunt, fish, and gather food. Temporary shelters were often constructed of poles covered with cattail mats. Much of the food gathered during the summer was stored for winter when people congregated in permanent villages. Large winter houses were constructed from cedar posts, poles, and planks. According to Suttles and Lane (1990), vegetable foods were more common among the Southern Coast Salish compared to other groups along the Pacific coast, with bracken, camas and wapato being the most imported. Vegetable foods, along with salmon, waterfowl, shellfish, and cedar bark were processed using a wide variety of stone, bone, antler and wooden tools. Cedar was heavily used by the Southern Coast Salish by removing large strips of the bark and processing the material down to fibers that could be woven into clothing, mats, blankets and rope (Suttles and Lane 1990).

Communities spanning the precontact into the early contact period were most likely organized along lineal descent groups of extended families, and not the tribal entities recognized today, which were post-contact developments (Wessen 1988a:15). Nevertheless, the communities identified in the area in ethnohistoric accounts are presented here using tribal designations. The highly mobile nature of these societies, combined with the lack of defined boundaries, kinship ties through exogamy, and raiding and trading of slaves, allows for a fluid association of communities to particular locations on Whidbey Island. On a general, broad scale, the Lower Skagit occupied the majority of the central and northern parts of the island with Penn Cove serving as a densely populated Skagit center, the Swinomish lived on the northern part of the island, and the Snohomish occupied much of the southern portion of the island (Deur 2009; Sampson 1972; Suttles and Lane 1990; Tweddell 1974; Wessen 1988a). Deur also summarizes a number of documents suggesting that the Klallam utilized the western bluffs of Whidbey Island, while expanding their territory during the European contact period (2009:63-65) but is unknown whether any of the sites were more than fishing sites or temporary camps.

While the Snohomish primarily concentrated their occupations along the Snohomish River between present-day Marysville and Monroe, they were known to maintain seasonal or perhaps longer-term occupations and villages that included, but were certainly not limited to, *C tLc 'tLtcL* (Bush Point), *DEqwadzk* (Cultus Bay), *Tc 'tc Leks / čəčłqs* (Sandy Point), all on Whidbey Island; *Xo'ic1d* (Camano Head) on Camano Island, and at Gedney (Hat) Island, (Tweddell 1974:102-103; Hilbert et al. 2001:330-371). Ethnographic work conducted by Thomas Talbot Waterman, later transcribed and published by Vi (*taq^{w}səblu*) Hilbert, Jay Miller, and Zalmai (*ʔəswəli*) Zahir (2001) lists over 50 place names along the southern shores of Whidbey Island. In addition to *Tc 'tc Leks / čəčłqs,* place names nearest the project area include a location at a dull projection along the coastline south of Sandy Point, *B teb tco' / bəčbəču?* (having lumps), *Tc tchwa'lo*, broken out in a rash, for a place on the west side of the bluff on Brown's Point, and *SEq!abats / c̓əq̓abac*, for gooseberry bushes at the site of present-day Langley (Hilbert et al. 2001:356, 364).

Diseases had swept through the Puget Sound region decimating most of the native population even before settlers arrived (Suttles and Lane 1990). The Native occupants who signed the Treaty of Point Elliot of 1855, were relegated to several temporary reservations of land. The Swinomish Reservation in Skagit County and the Tulalip Reservation in Snohomish County were two of these that were made permanent in 1873. Other native groups in these areas were expected to move to the reservations and share them; while some of these groups relocated to the reservations, many did not. The Lummi and Port Madison reservations were later established, and all four reservations were operated under the Tulalip Indian Agency (Buchanan 1913).

Historic

Trade and designs on expansion and colonization brought Europeans into contact with the Native population of the islands in the eighteenth century. The navigable trade waters surrounding the San Juan Islands were first visited by Spanish explorers Francisco de Eliza and Juan Pantoja y Arriga (Wagner 1971), and later by British explorers sailing under George Vancouver (Whitebrook 1959). The island bears the name of Joseph Whidbey who explored the island in 1972 under the Vancouver expedition (Kellogg 1968). The British became interested in the San Juan archipelago when they were seeking the fabled Northwest Passage. This route was believed to have enabled easy trade from the Atlantic Ocean to China. The Hudson's Bay Company established outposts along the west coast and for a long period monopolized the local trade for sea otter pelts to China and Britain (White 1980).

Between 1859 and 1872, British and American forces occupied the San Juan Islands, and contested for economic dominance of the region. This period is probably the most well known in the history of San Juan Island and is often referred to as the "Pig War." Following the high tensions surrounding the American shooting of a stray British pig, Kaiser Wilhelm III ruled for the Americans and established the US boundary through Haro Strait, effectively removing British influence from the area (White 1980).

The first Euroamerican settlers of Whidbey Island are said to have been Mr. Thomas Glagow, and Thomas Ebey and his family, who settled near the vicinity of modern day Coupeville in the late 1840s, and early 1850s (Kellogg 1968). As more settlers came to the region, and began farming the rich prairie soils of the island, new communities like Oak Harbor, Langley and Greenbank were established. The town of Freeland, was initially settled in the early 1900s by a group of socialists who established a commune. The Brotherhood of the Cooperative Commonwealth planned to secure socialism in Washington by establishing a series of colonies (LeWarne 1975:114). The first of these was Equality, located in Skagit County. However, Equality members always harbored a level of dissatisfaction and several of them left in 1900-1901 to found a less formally organized colony on land purchased from James P. Gleason (LeWarne 1975:114-115). In the 1890s, Irish born Seattle entrepreneur James P. Gleason (an officer of the Fidelity Land Co.) began acquiring real estate along Holmes Harbor. He was looking to dispose of large tracts of land when the dissatisfied Equality socialists were seeking to relocate their commune. In late 1899, George W. Daniels, Henry L. Stevens and Henry A. White organized the Free Land Association (LeWarne 1975:115). The early settlers of Freeland were hindered by the lack of overland and water transport to and from their isolated island location until John H. Prather and his brother developed an extensive freight and passenger service between south Whidbey Island and Everett in 1905 (LeWarne 1975:118). Freeland failed to coalesce as a socialist community and the Freeland Association went bankrupt in 1920 (LeWarne 1975:127).

The city of Langley was founded by Jacob Anthes, a young German who arrived in the Puget Sound at the age of 14. Too young to purchase his own land, Anthes was hired to homestead a tract of land on Whidbey Island by a Seattle businessman who wanted to ratify homestead rights on the island. In 1881 Anthes purchased 120 acres of land in the Langley area from John G. Phinney, and began building his homestead while supplying cordwood to the steam ships in Saratoga Passage, and also grew and sold vegetables to logging camps. Finally old enough to file for a homestead, Anthes filed for 160 acres in 1886 and in 1890 bought the tract of land that would become present day Langley (City of Langley 2014). Early Langley was an important trade center on the island for agriculture, logging, and fishing and when these industries declined it became a recreation and vacation retreat.

Recent Land Use

Historic maps and aerial images were viewed in order to determine past land uses and ownership within the project area. The earliest aerial image from 1940 (WICD) indicates that the project area was well wooded at this time (Figure 5) and remained wooded through the early 1960s (WICD 1963) (Figure 6). In 1949 the property was under ownership of Georgia Pacific (Metsker 1949). In 1960 the property was owned by C.T. Thorsen, and it transitioned back into the hands of Georgia Pacific by 1971 (Metsker 1960, 1971).

The project area was cleared prior to 1990 (Figure 7) (Google Earth 1990; WICD 1990), and it appears that some logging roads were in place. According to aerial imagery available in Google

Earth, the main loop road in the project area was cleared and graded between 2005 and 2006, and additional areas were cleared, likely for individual lots (Figure 8). The project area does not appear to have undergone any additional ground disturbance since 2006.

Figure 5. A 1940s aerial image illustrating the project location (dashed yellow line) and current land use. Image from WICD, adapted by Drayton.

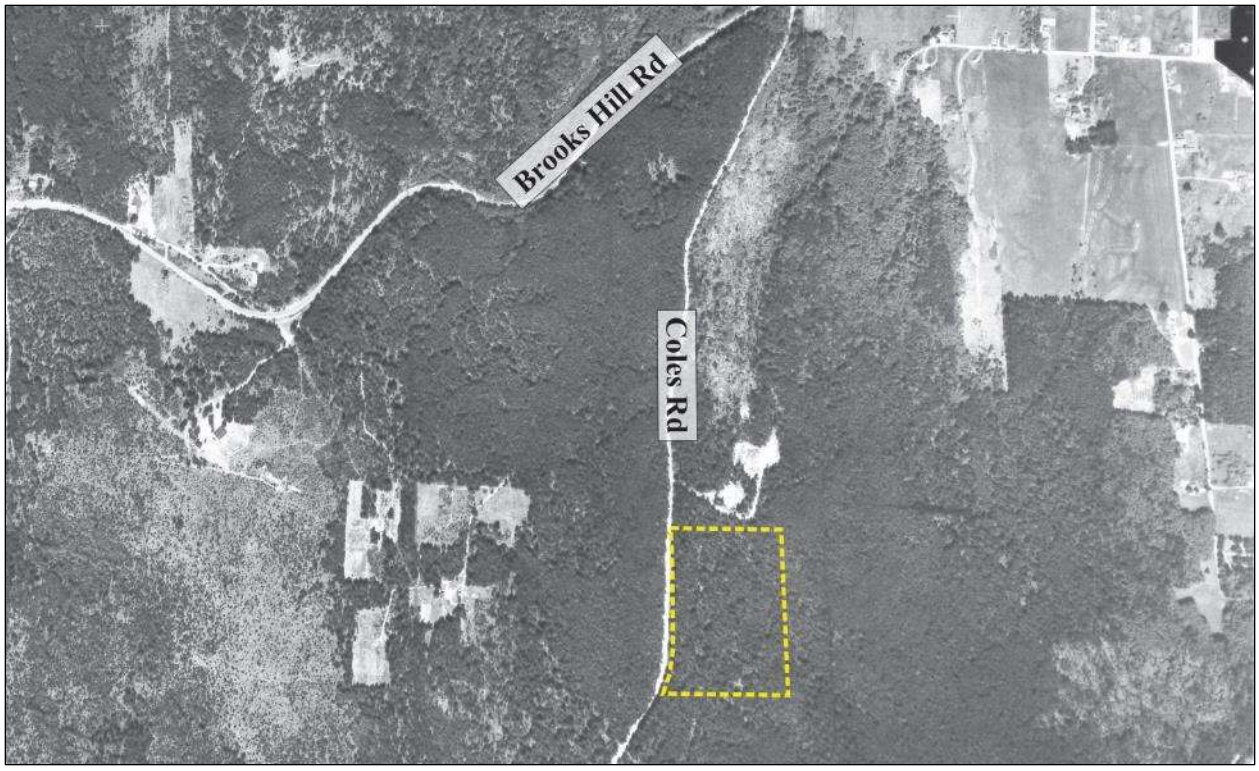

Figure 6. A 1963 aerial image showing the project location (dashed yellow line) and conditions. Image from WICD, adapted by Drayton.

Figure 7. An aerial image illustrating the clearing that occurred prior to 1990. Image from Google Earth, adapted by Drayton.

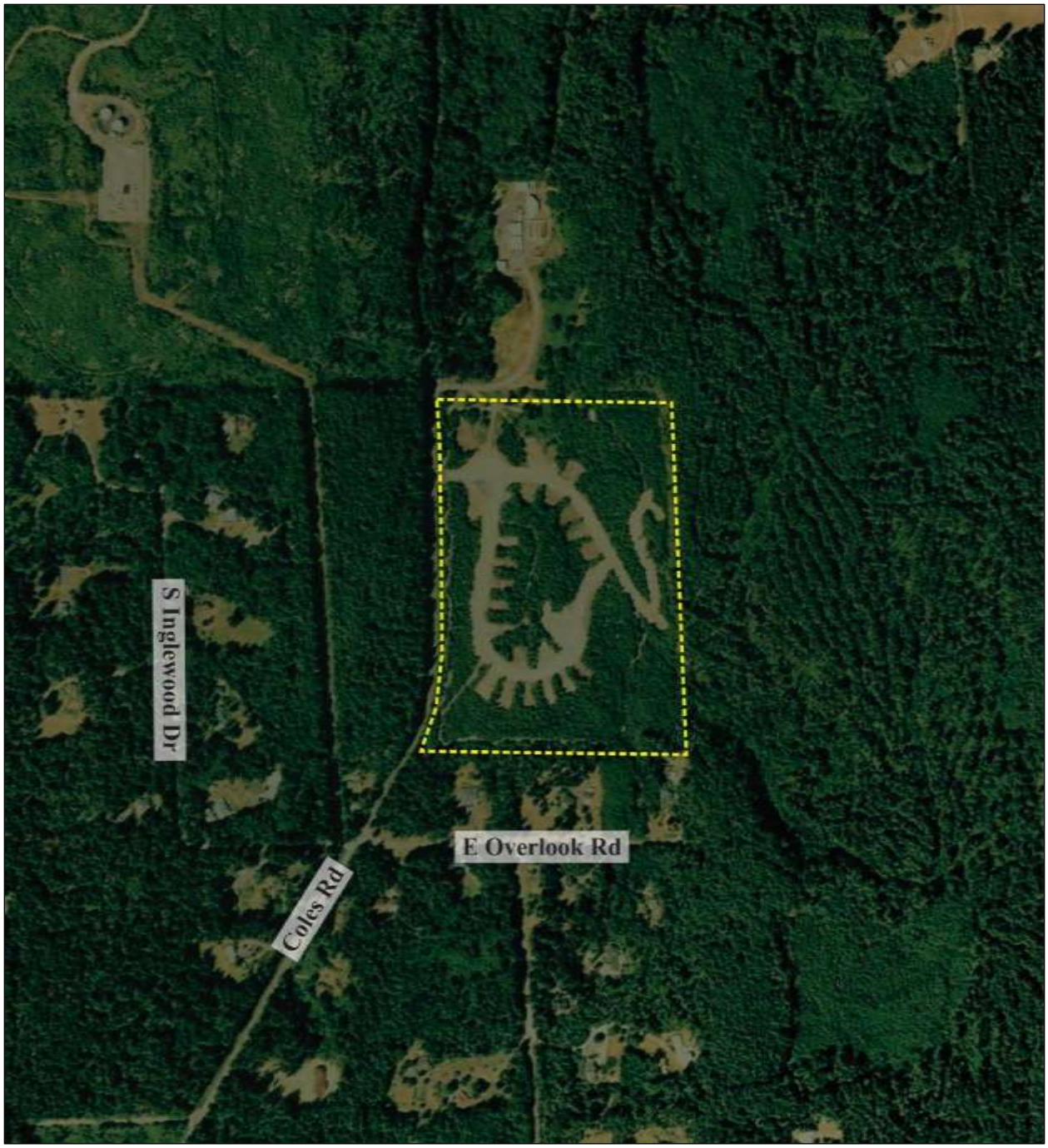

Figure 8. An aerial image from 2006 illustrating land disturbing activities (representative of the proposed development). Image from Google Earth, adapted by Drayton.

Previous Cultural Resources and Sites

Limited archaeological studies have been conducted on Whidbey Island. One of the earliest studies, the Jesup North Pacific Expedition, began in the early 1900s before experiencing a hiatus that lasted until the early 1950s (Wessen 1988a). At this time Harlan Smith (1907) visited sites throughout the area and recorded artifacts in private collections and at the same time Smith and

Fowkes (1901) recorded rock cairns in the area. Students from the University of Washington conducted a majority of site survey work in Island County during the 1950s, and include projects such as Bryan (1955, 1963), and Osmundson (1961, 1964), Holmes and Kidd (1961), Solland and Stenholm (1963), and Hedlund (1968) conducted site surveys in the 1960s, though few new sites were discovered. Contemporary research in Island County has been conducted by Blukis Onat (1987), Wessen (1988a, 2005), and various cultural resource firms, relating to recent development activities.

According to the Washington State Department of Archaeology and Historic Preservation's (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) database (accessed July 2, 2021), the project area had been included in one previously conducted cultural resource study. This study reviewed approximately sixty historic-era buildings located in and around the Langley area, and to evaluate the potential for a historic district in downtown Langley (Sheridan 2010). While it was determined that most of the buildings lacked the integrity necessary for an historic district designation, four buildings were determined to be eligible for listing on their own (Sheridan 2010). None of these buildings are located within the current project area, and no on the ground reconnaissance was conducted at the property.

In addition to the historic structures survey, six other cultural resources surveys have been conducted within approximately one-mile of the project area (Table 1). Only one historic aged building, the Whidbey Telephone Building, was identified during these assessments (Taylor 2006). The only previously recorded resource located within the same search parameters is 45IS311, the Island County Fairgrounds Pole Building (Goodall 2012).

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

Citation	Report Title	Results
Landreau and Geffen 2003	A Section 106 Archaeological Review and Inventory at the Proposed Langley-Anderson Telecommunications Facility, Island County, Washington	Negative
Robinson 2004	An Archaeological Survey of Island County's Maxwelton Trail Project, Whidbey Island, WA	Negative
Taylor 2006	RE: City of Langley Camano Avenue Walkway Project, Cultural Resources Determination, Fed Aid #STPR-H151(003)	Whidbey Telephone Building – not eligible for NRHP
Arrington and Sikes 2009	Cultural Resources Survey Technical Memorandum for the South Whidbey Small Boat Harbor Expansion Project, Langley, Island County, Washington	Negative
Arthur 2020	Cultural Resources Assessment for the City of Langley Infrastructure Projects, Langley, Island County, Washington	Negative

Citation	Report Title	Results
Taylor and Carrilho 2020	Cultural Resources Assessment for Parcels R32910-215-0720 and R32910-280-760, South Whidbey Parks and Recreation District, Island County, Washington	Negative

A total of two previously recorded archaeological sites are also located within two miles of the project area. Site 45IS20 was recorded by Bryan in 1953, as reported to him by local informants. A potlach house was located at the west end of a sand spit located at the base of a steep slope at Sandy Point. An unnamed informant told Bryan (1953) that in the early 1910s house posts were still visible and indigenous people were still camping and cooking mussels in the area during the summer. This location may be associated with the Snohomish village *Tc 'tc* Leks (Hilbert et al. 2001). Wessen revisited the area in 1988(b) and did not find any evidence of house posts, features, or other cultural material.

Site 45IS126 was first described by Wessen (1988c) as a shell midden located along a beach terrace near a major stream confluence. The midden was noted to have hearths and other features that were exposed on disturbed surfaces, ad it was thought that substantial intact deposits were still located here. Additional faunal remains included fish bone, and mammal bone. Wessen also noted that the property owner at the time had been looting the site and held in his possession a large collection of stone and bone artifacts (1988c).

EXPECTATIONS

Review of environmental and cultural contexts, and previously conducted cultural resources studies indicates that the project area is in an area of moderate probability for cultural resources. Most work in the area is focused on shoreline sites, leaving little known about the uplands surrounding shoreline resource areas. A variety of sites including campsites, resource acquisition and processing areas, lithic tool manufacturing areas, and culturally modified trees can exist in upland locations. However, the nature of clearing within the project area makes it less likely that intact precontact to ethnographic archaeological deposits will exist. Historic-era logging remnants, and historic trash scatters may be present throughout the project area.

FIELD INVESTIGATION

The physical archaeological assessment of an area is conducted through visual reconnaissance, examination of exposed soil and sediment 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 surficial cultural materials or structures 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 present archaeological assessment was conducted on July 1 and July 6, 2021 by Drayton archaeologists Oliver Patsch, Jeffrey Hillstrom, and Simon Schultheis. Weather conditions were warm and overcast the on first day and warm and sunny on the second. Fieldwork began with a pedestrian survey of the project area. The property is mostly forested with a large circuitous dirt path or former road in the center, and paths branching off the main loop in various locations, reflecting the roadways of the proposed development (Photos 1 - 3). The understory consists of, but is not limited to, dense salal and trailing blackberry, with some Himalayan blackberry, snowberry, California huckleberry, sword and bracken ferns (Photos 4 - 5). The more recently cleared areas on the margins of the dirt roads are predominantly lined with scotch broom, foxglove, blackberries, and salal (Photos 6 - 7).

Photo 1. Overview to the east along main dirt loop.

Photo 2. Overview to the south in the southern wooded portion of the project area.

Photo 3. Overview to the south of a trail offshoot in the northern portion of the project area.

Photo 4. Overview to the east of vegetation in the wooded southern portion of the project area.

Photo 5. Overview to the east of a wooded area in the northern portion of the project area.

Photo 6. Overview to the south showing vegetation along the main loop.

Photo 7. Overview to the south of dense salal and blackberry bushes bordering the tree line in cleared areas.

Ground surface visibility varied significantly across the project area; exposures of grayish brown sand were visible along most of the paths, along their margins where scotch broom and foxglove are present, in road cuts throughout the property, and in several offshoots of the main path where mechanical excavation (test trenches) had apparently previously occurred (Photos 8 - 9). Additional ground disturbance observed in the project area consisted of push piles, berms, and cuts in several areas bordering the dirt and gravel paths (Photos 10 - 11).

Photo 8. A soil exposure in a road cut in the southern portion of the project area.

Photo 9. A backfilled test trench in the central southern portion of the project area. An older backfill push pile is visible on the left.

Photo 10. An exposed soil profile in the central project area, within the loop road.

Photo 11. A recent clearing in the central southern portion of the project area comprised of leveled backfill material sloping down towards apparent natural landform.

In the forested areas the ground surface was obscured either by thick vegetation, as observed in the northern, eastern, and western portions of the project area, but also by forest duff consisting of needles, twigs, and larger deadfall as seen in the center of the main loop and in the southern portion of the property (Photo 12). A few recent campfires were observed along the main path (Photo 13), and a Wild Cherry Pepsi soda can (with packaging design used 1988-1991) was observed in the southern area, south of the main loop (Photo 14). No precontact and/ or historic cultural materials were observed.

Photo 12. Overview to the east in the southern portion of the project area, south of the loop.

Photo 13. A campfire pit observed in a clearing in the center of the loop.

Photo 14. Soda can (1988-1991 packaging) observed in the southern portion of the project area.

Following visual inspection, shovel probes (SPs) were manually excavated where possible in and around the proposed development areas. Shovel probes consist of cylindrical pits measuring about 40 cm in diameter. No predetermined target depth was set for probing since depths are based upon geologic conditions, water table, degree of disturbance, and professional judgment. Ideally shovel probes would be excavated to a sterile stratum - usually meaning deposits of glacial drift. Sediment excavated from probes was sifted through a shaker screen with quarter-inch hardware cloth. Soil descriptions from each probe were documented along with their constituents, if present. Shovel probes were completely backfilled upon completion and their locations marked with a handheld global positioning system (GPS) device in order to compose a site sketch map (Figure 9).

Sediments encountered in shovel varied somewhat the project area. Generally, soil profiles in probes lacked an organic topsoil and often contained an upper stratum of grayish brown loamy sand or sandy loam, a second stratum of pale to yellowish brown sand or sandy loam, and a lower stratum of predominantly gray coarse sand (Photo 15). In some probes the boundaries between strata were distinct, but many showed a more gradual change in color and composition of sediments. The lack of organic topsoil is indicative of the extensive grading and overall ground disturbance in the area. The soil sequence and composition of each SP is described fully in Appendix A. No precontact or historic cultural materials were observed during the present investigation.

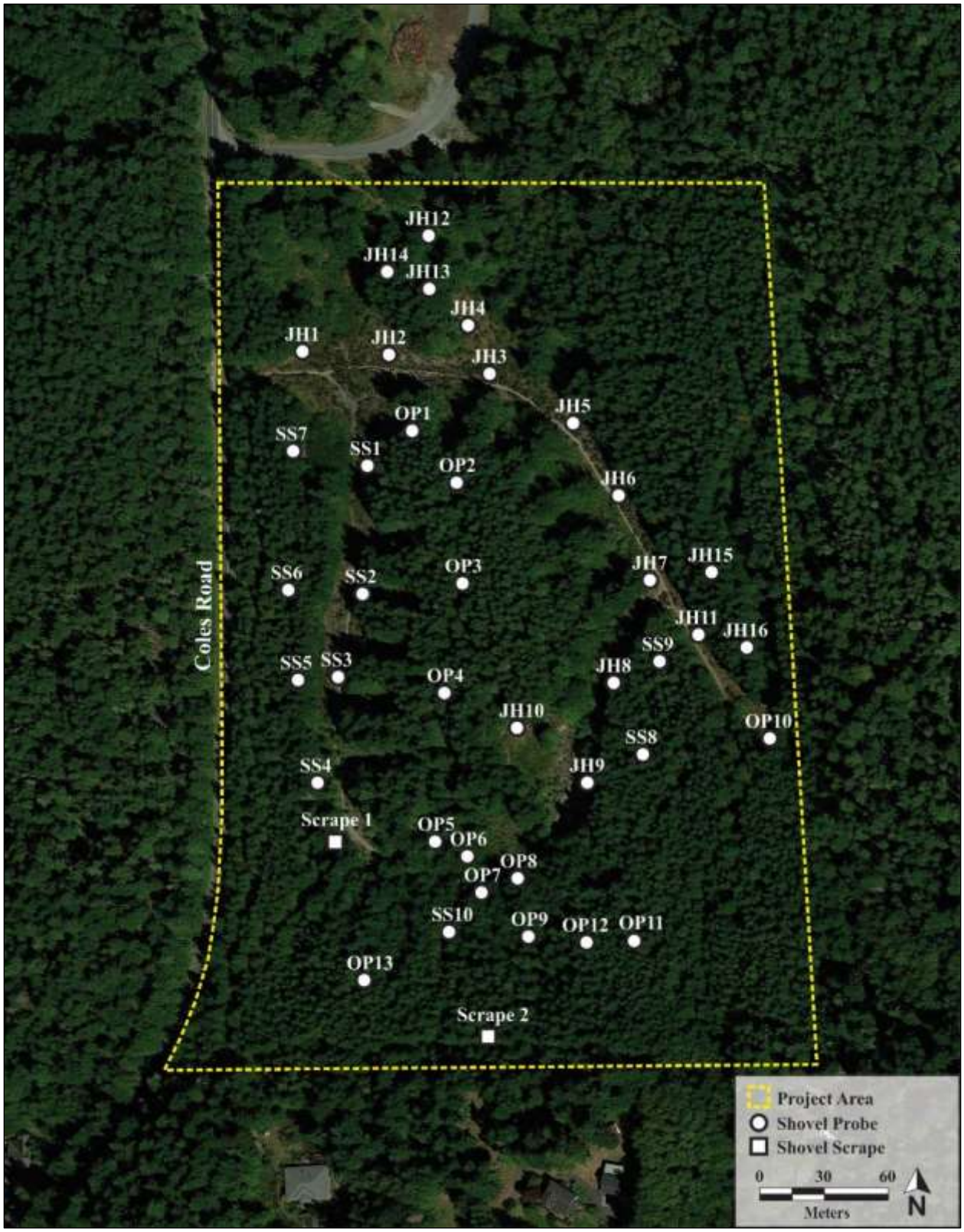

Figure 9. A Google aerial image illustrating shovel probe locations, adapted by Drayton.

Photo 15. A representative sediment profile observed in shovel probes.

CONCLUSIONS AND RECOMMENDATIONS

Drayton Archaeology conducted the present cultural resources assessment for the proposed mixed-use development at Coles Valley. The investigation included a background review into the environmental and historic context of the site, field review of surface and subsurface soils, and the production of this report. Background review determined the project was located in an area of low probability for archaeological resources based the project's upland location, and clearing that occurred prior to 1990 and again in 2006. Fieldwork consisted of a surface review of the project area and subsurface shovel probing. No precontact or historic cultural materials were observed during the investigation. Further archaeological oversight for the project appears unwarranted based upon the current review and project design.

Washington State law provides for the protection of all archaeological resources under RCW Chapter 27.53, Archaeological Sites and Resources, which 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. That law states that the willful removal, mutilation, defacing, and/or destruction of Indian burials constitute a Class C felony. Further, 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 any 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 if archaeological materials are encountered during the project.

INADVERTENT 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 Island County Sheriff's office 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 DATA

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
JH1		
0-25	10YR 5/2 Grayish brown ashy, fine sandy loam, fine roots, moderate gravel content with rounded to angular pebbles, charcoal chunks and partially burnt wood	Negative
25-92	10YR5/6 Yellowish brown medium to coarse sand, moderate gravel content with rounded to angular pebbles and few cobbles	Negative
Notes: ashy sand and charcoal on ground surface in at least ~5-meter radius; no topsoil		
JH2		
0-14	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
14-46	10YR 6/3 Pale brown coarse sand, moderate gravel content with rounded to angular pebbles and few cobbles	Negative
Notes: rock impasse		
JH3		
0-19	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
19-28	10YR 6/1 Gray coarse sand	Negative
28-47	10YR 6/3 Pale brown coarse sand, moderate gravel content with rounded to angular pebbles and few cobbles	Negative
Notes: rock impasse		
JH4		
0-19	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
19-26	10YR 6/3 Pale brown coarse sand, moderate gravel content with rounded to angular pebbles and few cobbles	Negative
26-29	10YR 6/1 Gray coarse sand	Negative
29-102	10YR 6/5 Dark yellowish brown coarse sand, moderate gravel content with rounded to angular pebbles and cobbles	Negative
JH5		
0-5	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
5-20	10YR 5/6 Yellowish brown medium to coarse sand, moderate to high gravel content with rounded to angular pebbles	Negative
20-72	2.5Y 4/3 Olive brown coarse sand, moderate to high gravel content with mostly smaller rounded to angular pebbles	Negative
Notes: rock impasse		
JH6		
0-12	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
12-70	10YR 5/6 Yellowish brown, gradually turning to 2.5Y 4/3 Olive brown coarse sand, moderate to high gravel content with mostly smaller rounded to angular pebbles	Negative
JH7		
0-10	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
10-28	10YR 4/3 Brown medium to coarse sand, moderate gravel content with rounded to angular pebbles	Negative
28-37	10YR 5/6 Yellowish brown medium to coarse sand, moderate to high gravel content with rounded to angular pebbles	Negative
37-95	2.5Y 4/3 Olive brown coarse sand, moderate to high gravel content with mostly smaller rounded to angular pebbles	Negative

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
JH8		
0-39	10YR 5/2 Grayish brown fine to medium sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
39-46	10YR 6/1 Gray coarse sand	Negative
46-62	2.5Y 4/3 Olive brown coarse sand with orangish brown mottles, compact, moderate to high gravel content with mostly smaller rounded to angular pebbles	Negative
JH9		
0-70	10YR 6/1 Gray coarse sand	Negative
JH10		
0-29	10YR 5/2 Grayish brown loamy fine sand, moderate gravel content with rounded to angular pebbles, fine roots	Negative
29-53	10YR 6/3 Pale brown fine to medium sand, moderate gravel content with rounded to angular pebbles and few cobbles	Negative
53-78	2.5Y 4/3 Olive brown coarse sand, moderate to high gravel content with rounded to angular pebbles	Negative
JH11		
0-11	10YR 5/2 Grayish brown loamy fine sand, low to moderate gravel content with rounded to angular pebbles, fine roots, needles and twigs on surface	Negative
11-37	10YR 5/6 Yellowish brown medium to coarse loamy sand with some orangish brown mottles, compact	Negative
37-88	Multicolor but predominantly gray medium to coarse sand	Negative
JH12		
0-24	10YR 5/2 Grayish brown loamy fine sand, low to moderate gravel content with rounded to angular pebbles, fine roots	Negative
Notes: rock impasse		
JH13		
0-33	10YR 5/2 Grayish brown loamy fine sand, low to moderate gravel content with rounded to angular pebbles, fine roots	Negative
33-74	10YR 5/6 Yellowish brown medium to coarse sand, moderate to high gravel content with rounded to angular pebbles	Negative
Notes: root impasse		
JH14		
0-6	10YR 5/2 Grayish brown loamy fine sand, low gravel content with rounded to angular pebbles, fine roots	Negative
6-69	10YR 5/6 Yellowish brown medium to coarse sand, moderate to high gravel content with rounded to angular pebbles	Negative
JH15		
0-6	Duff composed of needles, leaves and twigs	Negative
6-15	10YR 2/2 Very dark brown silt loam, decomposing organics	Negative
15-36	10YR 5/6 Yellowish brown medium to coarse sand, moderate gravel content with rounded to angular pebbles and cobbles	Negative
Notes: root impasse		
JH16		
0-5	Duff composed of needles, leaves and twigs	Negative
5-13	10YR 2/2 Very dark brown silt loam, decomposing organics	Negative
13-31	10YR 5/6 Yellowish brown medium to coarse sand, moderate gravel content with rounded to angular pebbles and cobbles, ashy gray fine sand lens from 13-16 cm	Negative
Notes: root impasse		

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
SS1		
0-15	Variegated but mainly 10YR 5/2 grayish brown and 10YR 5/4 yellowish brown very gravelly sand, many cobbles, small roots	Negative
15-34	7.5YR 4/6 strong brown very gravelly sand, many larger cobbles	Negative
34-60	10YR 4/6 dark yellowish brown gravelly sand, many cobbles	Negative
Note: rock inclusions obstructing shovel from digging		
SS2		
0-18	Variegated but mainly 10YR 5/2 grayish brown and 10YR 5/4 yellowish brown very gravelly sand, many cobbles, small roots	Negative
18-38	7.5YR 4/6 strong brown very gravelly sand, many larger cobbles	Negative
38-62	10YR 4/2 dark grayish brown sand, some gravels	Negative
62-86	10YR 4/6 mixed with 10YR 4/2 sand, some gravels	Negative
SS3		
0-22	Variegated but mainly 10YR 5/2 grayish brown and 10YR 5/4 yellowish brown very gravelly sand, many cobbles, small roots	Negative
22-39	10YR 5/4 yellowish brown and 10YR 3/1 very dark gray gravelly sand	Negative
39-57	10YR 4/2 dark grayish brown sand, some gravels	Negative
57-90	10YR 4/4 brown mixed with 10YR 4/2 dark grayish brown very gravelly sand	Negative
SS4		
0-13	Decomposing organics, moss, bark	Negative
13-30	10YR 3/6 dark yellowish brown fine grain sand, extremely compact, poorly consolidated sand stone, cobbles	Negative
Note: rocky impasse		
SS5		
0-11	Decomposing organics, moss, bark, thin fluffy ash lens at lower horizon	Negative
11-41	10YR 3/6 dark yellowish brown fine grain very gravelly loamy sand, many cobbles	Negative
41-90	10YR 4/2 dark grayish brown sand, little to no gravels or cobbles	Negative
SS6		
0-10	Decomposing organics, moss, bark	Negative
10-14	Ash lens, fluffy, some sand mixed in	Negative
14-47	10YR 3/6 dark yellowish brown fine grain very gravelly loamy sand, many cobbles	Negative
Note: rocky impasse		
SS7		
0-8	Decomposing organics, moss, bark	Negative
8-19	Ash lens, fluffy, some sand mixed in towards lower horizon	Negative
19-35	10YR 3/6 dark yellowish brown fine grain very gravelly loamy sand, many cobbles	Negative
Note: rocky impasse		
SS8		
0-13	Decomposing organics, moss, bark	Negative
13-56	10YR 4/4 dark yellowish brown gravelly sandy loam, many cobbles	Negative
Note: rocky impasse		

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
SS9		
0-25	Decomposing organics, thick layer of decomposing bark, moss	Negative
25-52	10YR 4/4 dark yellowish brown gravelly sandy loam, many cobbles	Negative
Note: large root inclusions		
SS10		
0-15	Ashy silt loam mixed with decomposing organics	Negative
15-65	10YR 4/4 dark yellowish brown gravelly sand, many cobbles, compact	Negative
OP1		
0-10	10YR 5/2 Grayish brown sandy loam	Negative
10-67	10YR 5/6 Yellowish brown loamy sand with low density, rounded, pebbles and periodic large cobbles. Moderate density roots	Negative
Notes: rocky impasse		
OP2		
0-16	Topsoil, primarily duff	Negative
16-43	10YR 5/6 Yellowish brown gravelly sand with low density, rounded, pebbles and periodic large cobbles. Moderate density roots	Negative
Notes: rocky impasse		
OP3		
0-20	Topsoil, primarily duff	Negative
20-48	Yellow, orange and grayish brown mottled sandy loam with mod density roots and rocks	Negative
Notes: rocky impasse		
OP4		
0-16	Topsoil, primarily duff	Negative
16-46	Yellow, orange and grayish brown mottled sandy loam with mod density roots and rocks	Negative
OP5		
0-90	10YR 3/2 Brown uniform sand	Negative
OP6		
0-84	10YR 3/2 Brown uniform sand	Negative
OP7		
0-6	10YR 5/2 Grayish brown sandy loam	Negative
6-52	10YR 5/6 Yellowish brown sand	Negative
Notes: cobble layer impasse		
OP8		
0-5	10YR 5/2 Grayish brown sandy loam	Negative
5-34	10YR 5/6 Yellowish brown gravelly sand	Negative
Notes: very compacted pebble and cobble impasse		
OP9		
0-14	10YR 5/2 Grayish brown sandy loam	Negative
14-44	10YR 5/6 Yellowish brown gravelly sand with moderate density cobbles, roots	Negative
Notes: rock and root impasse		

DEPTH BELOW SURFACE (CM)	SEDIMENT DESCRIPTION	RESULTS
OP10		
0-5	10YR 5/2 Grayish brown sandy loam	Negative
5-50	10YR 5/6 Yellowish brown gravelly sand with moderate density cobbles, roots	Negative
Notes: flagging tape buried at 42cm, rocky impasse		
OP11		
0-12	Duff and sandy loam topsoil	Negative
12-42	10YR 5/6 Yellowish to grayish brown gravelly sandy loam	Negative
Notes: rock impasse		
OP12		
0-10	Duff and sandy loam topsoil	Negative
10-54	10YR 5/6 Yellowish to grayish brown gravelly sandy loam	Negative
Notes: rock impasse		
OP13		
0-10	Duff, white fungus and sandy loam topsoil	Negative
10-52	10YR 5/6 Yellowish brown gravelly sandy loam with abundant cobbles and roots	Negative
Notes: rock and root impasse		