CULTURAL RESOURCES REPORT COVER SHEET

Author: Kelly R. Bush and Julia M. Rowland

Title of Report: Archaeological 2013 Monitoring Report: Fir Island Farm Restoration, Skagit Wildlife Area, Skagit County, Washington

Date of Report: September 5, 2013

County (ies): Skagit Section: 22 Township: 33 N Range: 3E

Quad: Utsalady Acres: ~ 300

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 #:

_____
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- 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.

ERCI
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September 5, 2013

Dave Cline, Shannon and Wilson Inc.
400 N. 34th St. Suite 100
Seattle, WA 98103

Re: Archaeological Monitoring Report: Fir Island Farm Restoration, Skagit Wildlife Area, Skagit County, Washington.

Dear Mr. Cline:

Dave Cline of Shannon and Wilson Inc. contacted Kelly R. Bush of ERCI to conduct archaeological monitoring as part of the ongoing Fir Island Restoration project in Skagit County, Washington. The area of potential effect (APE) is on the Fir Island Farm Snow Goose Preserve in the southeast corner of the Skagit delta just west of the mouth of the south fork of the Skagit River, Skagit County, Washington (Figure 1-Figure 8)

In 2010 Equinox Research and Consulting International Inc. (ERCI) provided professional archaeological monitoring of the initial geo-probe testing as part of the feasibility study portion of this restoration project.

This report documents the 2013 professional archaeological monitoring provided by ERCI as part of the exploration portion of this project.

Subject Property: Washington Department of Fish and Wildlife Fir Island Farm Snow Goose Preserve, Fir Island, Skagit County, Washington

Property Owner	Parcel Numbers
Washington Department of Fish and Wildlife	P15992, P15997, P15998, P15999, P16000, P16002, P16004, P16007, P16009, P16008, P16011
The Robert Hayton Family	P16001, P16010

Acreage of Project Area: ~ 300
County: Skagit
Quad Map: Utsalady
Township: 33N, **Range**: 3E, **Sections**: 22
Elevation: <1 meter
Latitude and Longitude: 48˚20’10” N 122˚ 24’ 26” W
UTM: Zone 10 543954E 5353645N

Nearest major water body: Skagit Bay, Puget Sound
Landform: Fir Island, Skagit River Delta
Archaeological Site: None
Lead Agency: Marc Duboiski, State of Washington Recreation and Conservation Office

Figure 1: Regional map showing the approximate location of the Area of Potential Effect (APE).

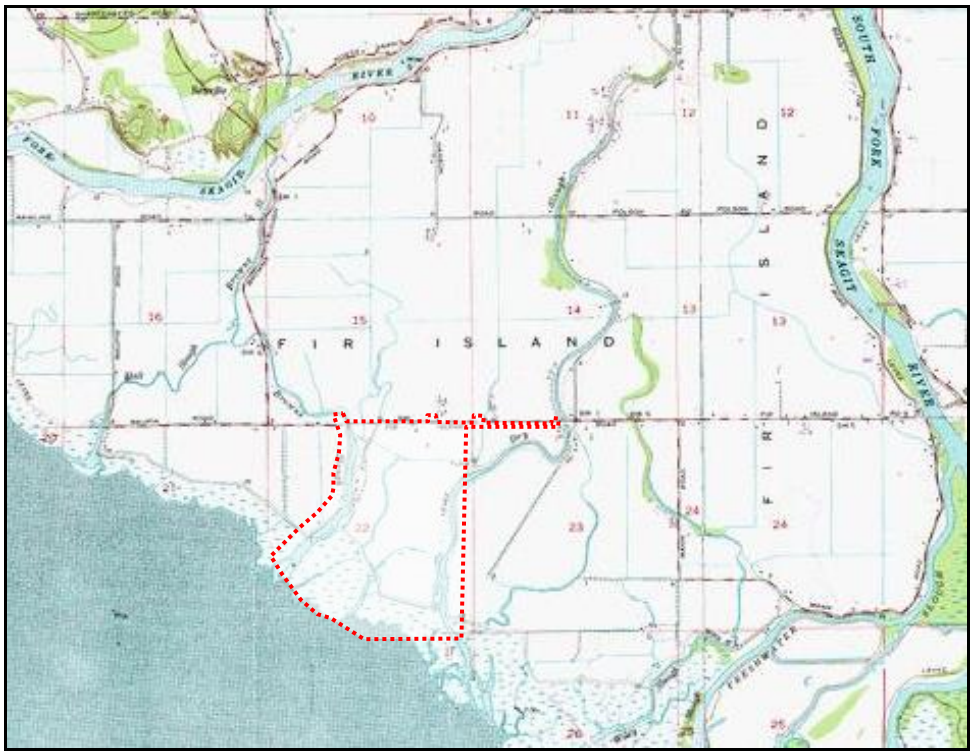

Figure 2: Utsalady USDA topographic map showing the approximate APE outlined in red.

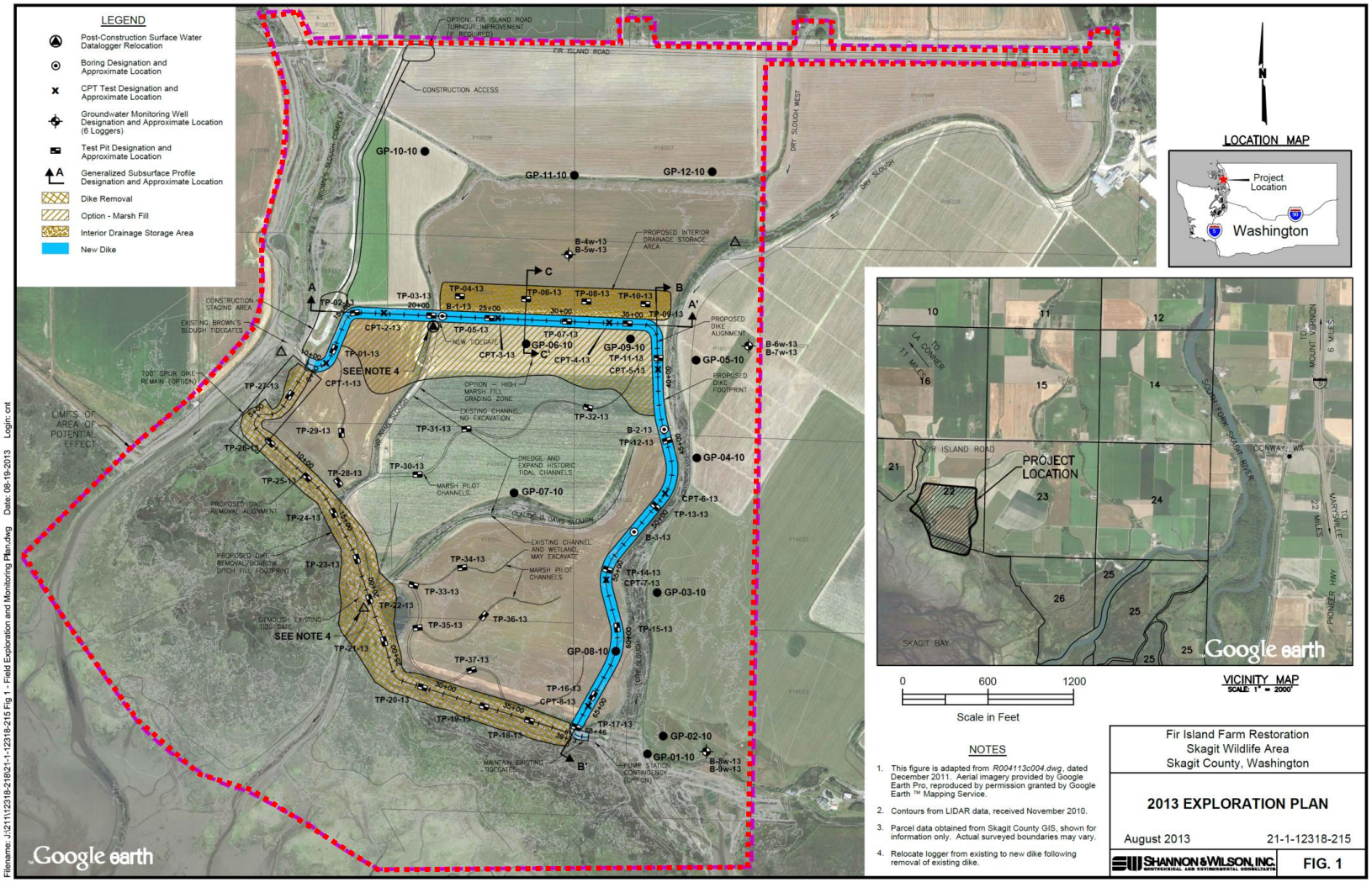

Figure 3: Project map provided by Shannon and Wilson with the APE outlined in red.

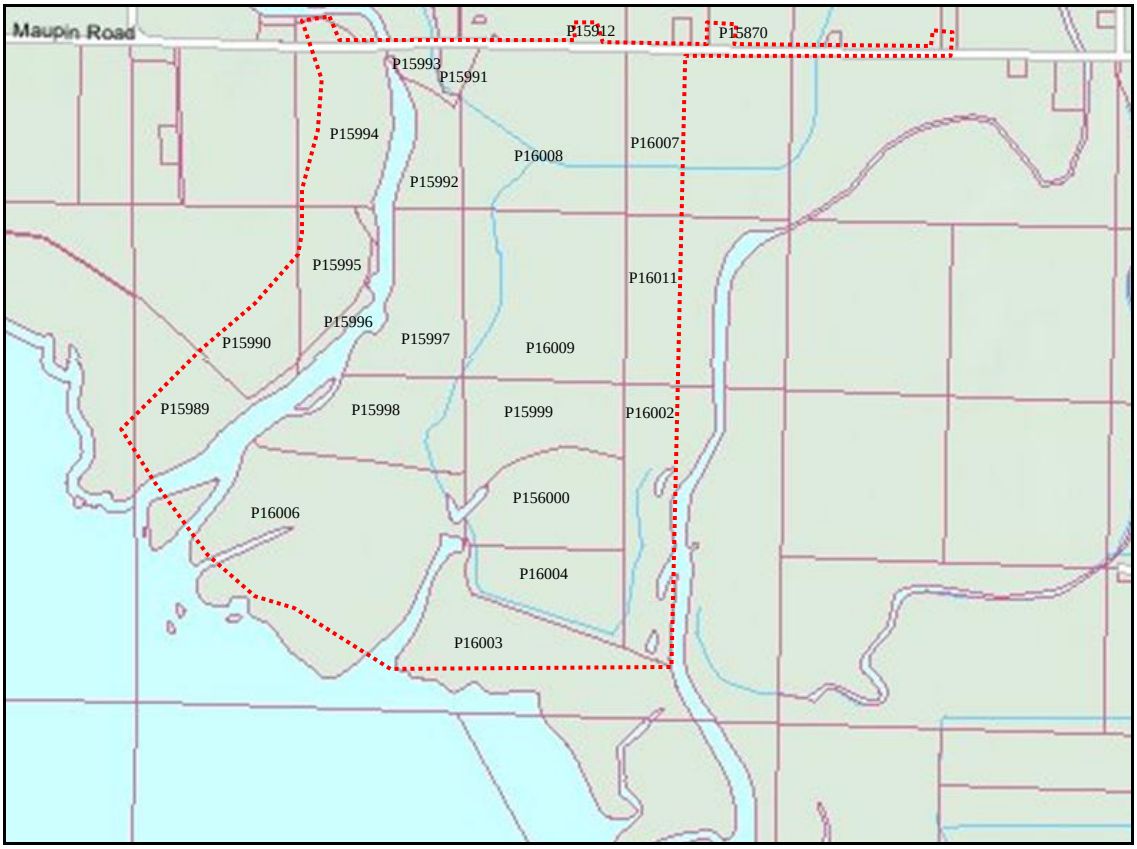

Figure 4: Skagit County Assessor map showing the approximate project area in red.

Figure 5: Google Earth aerial showing the approximate APE in red.

Figure 6: View SE, the project area from the existing levee on the east side of the APE.

Figure 7: View E, the project area from the existing levee on the east side of the APE.

Figure 8: View NE, the project area from the existing levee on the east side of the APE.

Archival Research

- Review of archaeological site inventory forms and previous cultural resource reports on file at the Department of Archaeology and Historic Preservation (DAHP) in Olympia, Washington.
- Review of other archaeological reports and related documents on file at the ERCI offices in Concrete, Washington.
- Review of published information on the prehistory or traditional native and the historic use of the area including the Northern Puget Sound.

Field Methods

The archaeological monitoring for this project was conducted by Sarah J. Johnson-Humphreys and Julia M. Rowland on June 17 through 26, 2013. A total of nine boring tests and 37 trench test pits were monitored during the 2013 field explorations. The matrix descriptions for the trench test pits are provided in Appendix 1. A pedestrian survey was performed on a portion of the APE.

No artifacts or samples were collected during this investigation. All field notes and photographs are stored at the offices of ERCI in Concrete, Washington.

Results

No Protected Cultural Resources were identified during the archaeological monitoring for this project.

Historic Levee Construction

In the year 1853 the Washington Territory was officially created (Oakley 2004). Large scale settlement of Skagit County did not begin until the early 1860s when two settlers, Michael Sullivan and Samuel Calhoun began diking the marshy flat lands of the western end of the county. "At first ridiculed, they proved that with diking, agriculture was possible on what was thought to be useless wetland" (Oakley 2004b).

As Skagit County grew, rural centers such as Conway, Skagit City, Milltown and Fir began to develop. Sloughs were an important transportation route in the mid 1800s. The town of Fir developed more quickly than Conway to the east because of its steamboat access (Moen 2004; Willis 1975:45).

Diking in the project area started in the late 1800s as agriculture was being established. However, the dike configuration that we know today was not established until later (Figure 11).

> The 1889 T-sheet shows that diking and drainage had occurred along the margins of Browns and Dry Sloughs. Most diking and agricultural development on Fir Island was focused on the southwest portion of the island, in and around Rawlins... Browns and Dry Slough. The Browns Slough distributary is shown to bifurcate and split into Rawlins and Brown. Dry Slough is also shown to split into Dry, [Claude O. Davis], and MacDonald Sloughs with additional intertidal distributaries downstream from the dikes. The [original] dikes did not extend as far south into the Bay as today, but roughly ended near the current WDFW [Snow Goose Reserve] parking area (Shannon and Wilson, Inc. 2011:15).

The first dikes in Skagit County were built with shovels and wheel barrows as the ground was too wet to support live stock (O'Hern 1981:2; Gardner 197; Willis 1973:30). The dikes were constructed by piling locally available soil to create a small wall (O'Hern 1981:2; Willis 1975:170). Diking would

create a borrow ditch on the inside of the dike that would also function as a drainage ditch. Sluice boxes were often placed in these ditches. These sluice boxes were the first tide gates allowing water to drain out of the ditches when the tide was low but not allowing the tide to come into the ditches (O'Hern 1981:2). Early dikes were on average four feet tall and eight feet wide across the bottom tapering to two and a half feet wide at the top (Willis 1973:30). As diking continued in the valley and the land grew drier, farmers were able to use horses to assist them in dike building. The horses were harnessed with a slip scraper, a sort of bucket that drug behind the horse collecting dirt (O'Hern 1981:5). In 1915 people began using imported rocks for reinforcement in the dikes (O'Hern 1981). Rock was taken from quarries and carried on scows, a type of flat bottom boat or barge, to the areas where dike erosion was particularly bad (Willis 1975).

By 1937 the locations of the dikes in the project area were very similar to today (Figure 12). By this time Fir Island Road had been built to cross both Brown and Dry Slough and the remainder of the project area had been converted to farmland (Shannon and Wilson, Inc. 2011).

Fir Island dikes have been constructed and reconstructed over the years. Floods in 1932, 1951, and 1990 all breached the dikes in and around the project area (Skagit River History n.d.) (Figure 9 and Figure 10). In 1990, the North Fork Skagit River breached at the upstream (north) end of Fir Island, leaving scour hole ponds near the head of Dry Slough. Natural and manmade breaches were then initiated in the levee at Brown Slough, Claude O. Davis, and Dry Slough at the downstream/ bay (south) side of the island to relieve the flooding. No human lives were lost but the damage was considerable. Fir Island residents reported over ten feet of water in some locations. In an effort to drain the area a 150 foot long hole was punched through the saltwater levee at the mouth of Dry Slough and Claude O. Davis Sloughs (Skagit River History n.d.). The hole was eventually widened to 250 feet and although some water drained out it provided very little relief as the Skagit River and tides continued to flood Fir Island. According to some residents the dike that broke had been built in 1951 after the last great flood and was under – maintained (Lund 1990).

By 1975 Skagit County was home to 21 Dike and Drainage Districts. No longer was it necessary to build dikes with a wheel barrow and shovel, heavy equipment could be safely brought in (Gardner 1975).

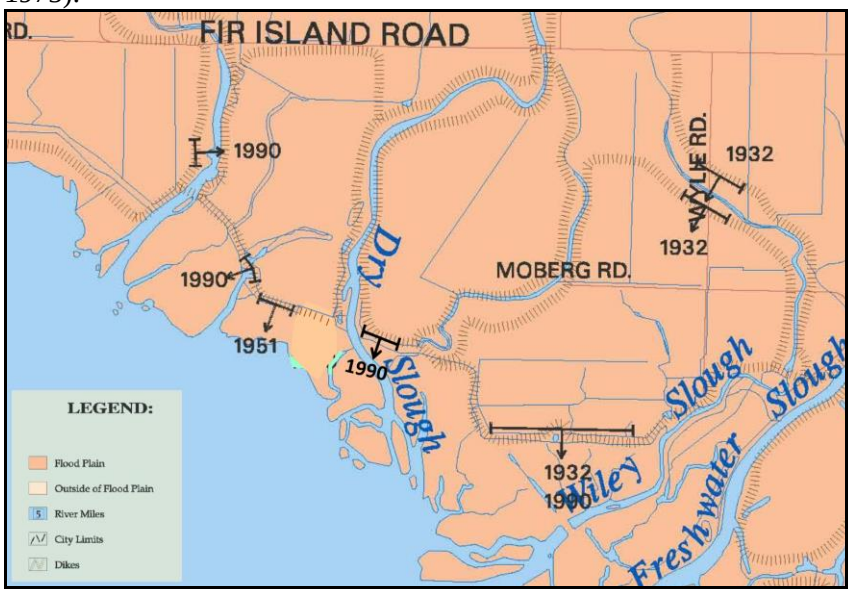

Figure 9: History of dike breaches in and adjacent to the project area (Skagit River History n.d. and Shannon and Wilson, Inc).

Figure 10: 1990 Fir Island Dike breach (Skagit River History n.d.).

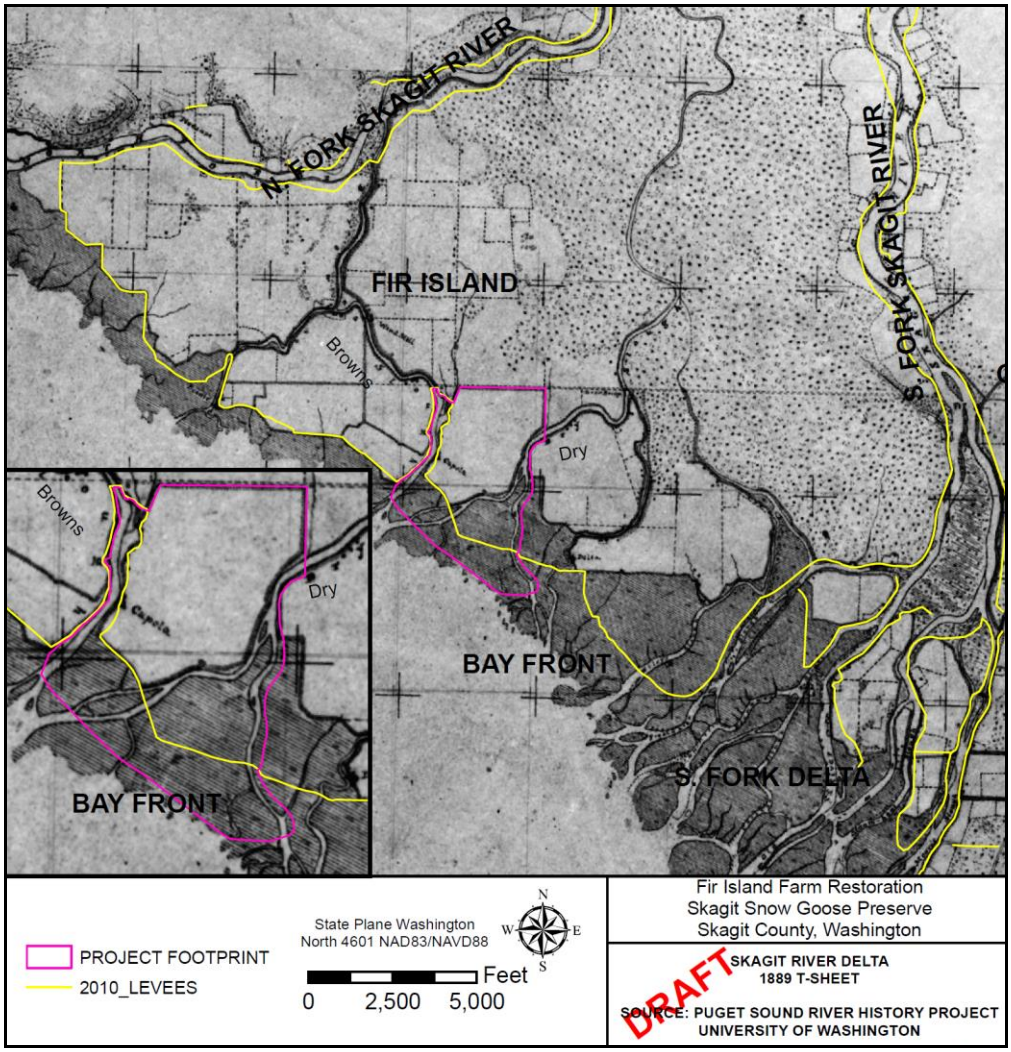

Figure 11: 1889 T-sheet showing the project area (Shannon and Wilson, Inc. 2011).

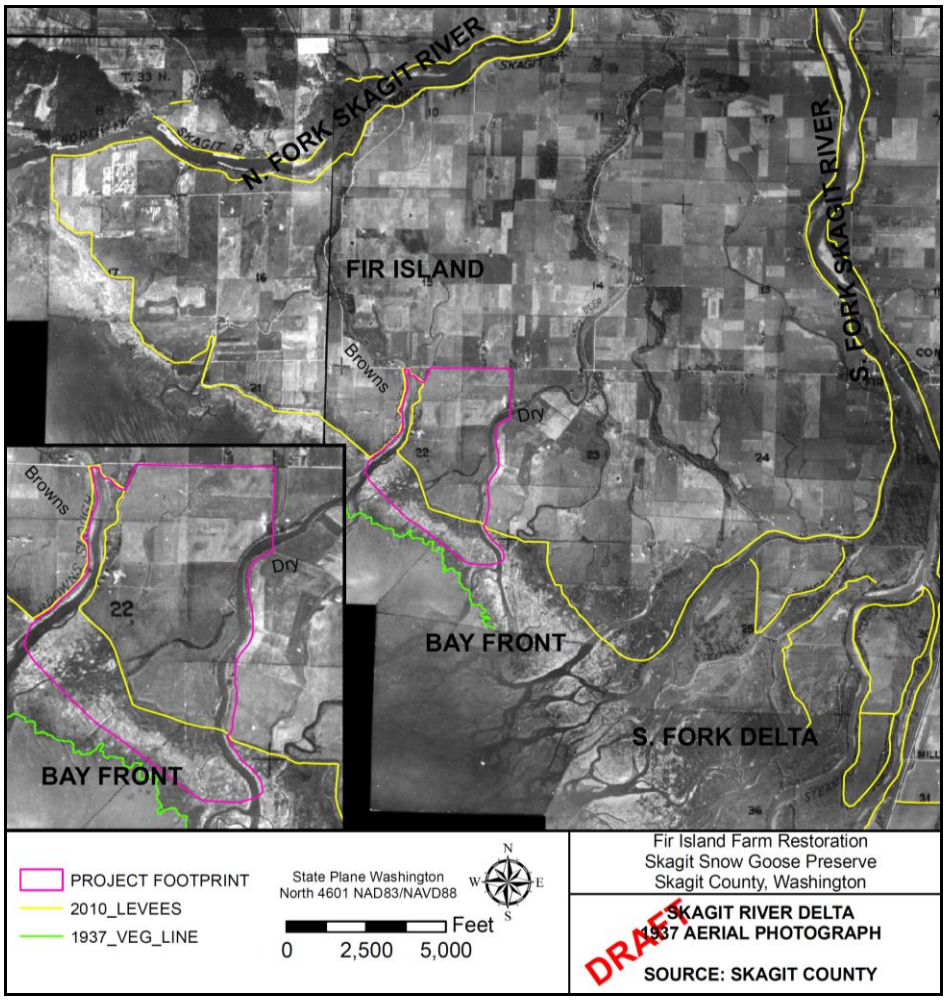

Figure 12: 1937 aerial photograph showing the project area (Shannon and Wilson, Inc. 2011).

A search of the Washington State Department of Archaeology (DAHP) historic properties database, WISAARD, revealed 22 Historic Property Inventory Forms (HPIF) on file for historic levees in all of Washington. Seven of these have had eligibility determinations for the National Register of Historic Places and these are provided in Table 1. The other 15 have not yet had eligibility determinations.

Based on comparisons to other eligibility statements for levees in the state of Washington we do not believe the levee/s in our project area is eligible for the National Register of Historic Places. Although, the levee/s within the project area are associated with land reclamation and the development of agriculture in Skagit County and large portions of the levee are older than 50 years, we believe that:

- significant portions of the levees lack integrity both from numerous overbanking and levee failures and from the intentional levee removal by the USACE during the 1990 winter floods.
- none are associated with either a specific event or person/s
- none of the levees are associated with a specific engineer of note, nor do they show any unusual or unique engineering features.

Table 1: Historic Levees with HPIFS on file with DAHP that have had eligibility determinations made by SHPO.

Historic Name	County	Date of Construction	Notes from the Statement of Significance
Steamboat Slough Levee, Columbia River Mile 35	Wahkiakum	1926 built date	• Not Eligible • Meets the age requirement for eligibility. • It lacks integrity. • The levee has been continually damaged by erosion from the Columbia River at this location and repaired. • Lack of association with any important people or events in history. • Its design is common. • Lacks significance on the local, state, or national level
Leque Island Levee	Snohomish	1878 built date	• Not Eligible • Associated with early agriculture in Snohomish County and with the influx of Scandinavian immigrants including Oliver B. Iverson and Nels Leque, prominent Scandinavian immigrants who arrived in the late 1870s. • Portions of the dike have eroded or been reclaimed by vegetation. • There are still remnants of the borrow ditch on the interior side of the dike, but along the seaward side where erosion is most pronounced, no evidence of the borrow ditch remains.
Hovander Dean Foods Levee	Whatcom	1935 built date	• Not Eligible • Possibly constructed as a WPA project in the 1930s. • This levee section was repaired at least once by the Corps in the 1970s, and additional repairs have likely been undertaken over the years by the County, private land owners, or other interested individuals. • Extensive damage in 2009 floods destroyed almost half of the riverward side of the levee. • Subsequent repair work in 2010 was monitored and revealed that the original levee profile materials and construction method are consistent with current and past repairs. However,

Historic Name	County	Date of Construction	Notes from the Statement of Significance
			because of these recent repairs, this segment of the Hovander Park levee has less integrity than more intact sections found throughout the larger system. • The levee does not possess sufficient integrity to contribute to the larger resource, and is therefore not eligible for the National Register.
Reddington Levee	King	1962 built date	• Not Eligible • The Reddington Levee was constructed in 1962 as part of the Green River Flood Control projects. • is a simple earthen structure that contains no engineered features that make the Levee unique in regard to materials or design. • The Levee was slightly modified from its original design in 1987. • As a 50 year old structure, the Levee is historic in age but has not been connected with any important or historic event or significant people since its construction and therefore is not considered eligible under Criterion A or B. • Though only the initials of the builder are known, design and construction of the simple earthen Levee is not considered the work of a master therefore the Levee is not eligible under Criterion C.
Chehalis-Centralia Airport Levee and Pumphouse	Lewis	1942 built date	• Eligible • Built in 1942 as a necessary bulwark to protect the new airport from periodic flooding of the Chehalis River. • When completed in 1943, both the airport layout and levee system were developed in a single design effort by the U.S. Army Corps of Engineers. • Along the north side of the system, the alignment met an existing residence in its path, the Emrich farm. Instead of avoidance, the levee bulwark was built around the house. The accommodation resulted in the building (now concrete foundation remnants) being located directly within the south

Historic Name	County	Date of Construction	Notes from the Statement of Significance
			half of the levee slope. Basement foundations reveal concrete buttresses, no doubt added to reinforce against the lateral pressure of the levee walls. It is not known why such an unusual accommodation was made for the Emrich residence, when removal or relocation through "eminent domain" was the common practice. • The farm included an outbuilding or garage, large barn, and additional outbuildings, located inward toward the airport, as well as surviving apple, pear, and plum trees. • Historically the levee was an essential component of the airport facility that fostered commercial growth and delivered critical aviation service to a region of the state that is the North-South mid-point between Seattle and Portland. • It continues to serve this vital role today. • However, during recent historic flood events the levee system has been overtopped and failed, most recently in 2007.
Levee 4-A	Benton	1952 built date	• Eligible • A component of McNary Dam and its associated reservoir, Lake Wallula. • The only tangible local manifestations of the downstream hydroelectric project that helped the Tri Cities' realize their port and freighting potential after the dam's completion in 1957. • Without the levee infrastructure, rising Columbia River waters would have inundated many existing dock and port facilities, and would have impaired the stability of the shoreline to the detriment of community establishment and to river freight traffic. • The levees were also essential to emerging regulatory goals along the upper Columbia River that demanded large impoundments to ensure steady hydro-production for thermonuclear needs, public power, and irrigation. • As originally designed, the fortified earthen levee

Historic Name	County	Date of Construction	Notes from the Statement of Significance
			embankments had trapezoidal profiles, and were mostly devoid of vegetation, and thereby projected artificiality. • retains its original structural qualities and visual characteristics of height, profile, and appearance. It continues to evoke a functional relationship to the river and to the adjacent community it protects. • The naturalistic backdrop of Bateman Island further evokes the period of significance, when most of the immediate landscape was undeveloped and Richland was a young community emerging from World War II. • Presently, the discontinuous intervening space between the Tri Cities and McNary Dam is too great to justify the levees as contributing elements of the dam district. • Still, as the only local physical manifestations of the dam's impact, and one of the consequential factors in the economic health of the Tri Cities, individual levees are considered potentially contributing properties in the proposed historic district. • Richland Levee 4-A is therefore recommended eligible for listing in the National Register of Historic Places (NRHP) under Criterion A, for its critical relationship to Community Planning and to the Economic Development of the Tri Cities area. • The levee is also recommended eligible under criterion C for internal structural properties as well as evocative external characteristics that define its role in containing water and enhancing port activities.
Levee 2-c	Benton	1948 built date	• Eligible • Richland Levee 2-C is recommended eligible for listing in the National Register of Historic Places (NRHP) as a contributing element to the historical significance of McNary Dam. • Levee 2-C is also recommended significant for its association with the government-planned community created to serve

Historic Name	County	Date of Construction	Notes from the Statement of Significance
			personnel of the Hanford Engineer Work plant (1943-1944), used for plutonium production for the Manhattan Project and later the Cold War. • The pending McNary Dam nomination form recommends the dam as significant under Criterion A for its impacts on the local and regional economy, river freighting, the fledgling thermo-nuclear industry, and post-World War II federal electrical power management. • McNary Dam and its reservoir are also considered eligible under Criterion C for embodying unique and distinctive engineering characteristics.

Pedestrian Survey

A pedestrian survey was performed on a portion of the APE. Visibility was excellent to moderate. The APE is primarily used for agriculture. Portions were recently plowed with small vegetable starts and had excellent visibility, other portions had more established crops but between the rows the grounds surface visibility was still good (Figure 13 - Figure 17). Visibility was far superior to naturally vegetated areas which often completely obscure the ground surface. The far west of the APE was grass fields with moderate visibility. The far east of the project area had recent dredge spoils from Dry slough and visibility was good.

Figure 13: View W, from TP-10-13, showing surface visibility in a recently plowed field.

Figure 14: View S, toward TP-28-13, showing surface visibility in a grassy field.

Figure 15: View E, toward TP-14-13, showing surface visibility in a field with more mature crops.

Figure 16: View S/SE, Overview of the top of the existing levee toward TP-18-13.

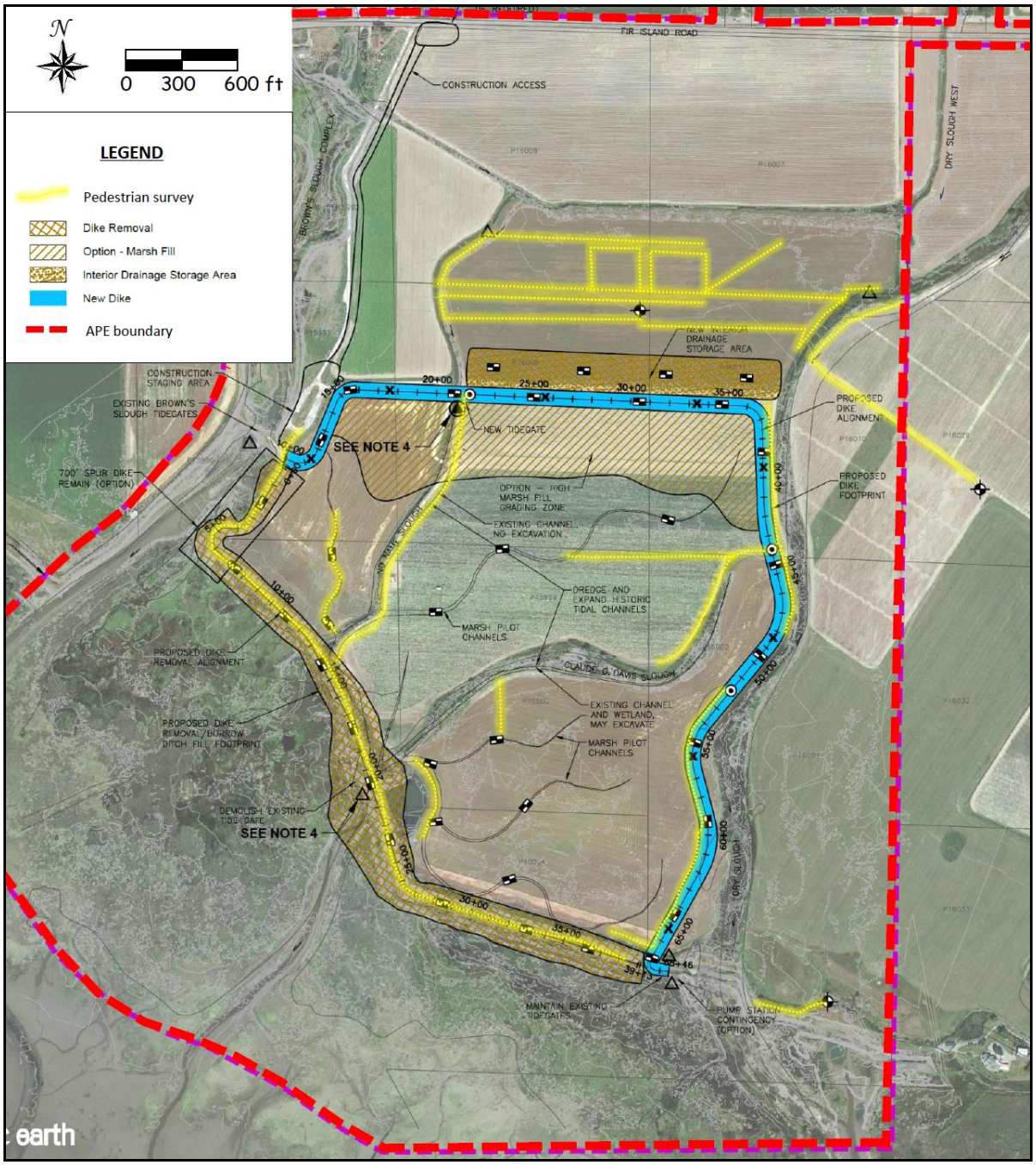

Figure 17: Showing the pedestrian survey, adapted from Shannon and Wilson 2013 development map.

Boring Tests

All of the boring tests were done by Boart Longyear E and I Drilling Services Northwest Division (Figure 18). Table 3 shows the details of each test. The tests that were dug with an auger drill included two bore holes dug within five feet of each other and had groundwater observation wells for the study installed. These are indicated by a single symbol on Figure 20.

Figure 18: The drill rig used by Bort Longyear for all of the bore tests.

Table 2: Boring drill tests.

Test #	Drilling Type	Depth dbs (depth below surface)
B-1-13	rotary	41.5 feet
B-2-13	rotary	41.5 feet
B-3-13	rotary	41.5 feet
B-4W-13	auger	21.5 feet
B-5W-13	auger	3.5 feet
B-6W-13	auger	21.5 feet
B-7W-13	auger	4.5 feet
B-8W-13	auger	21.5 feet
B-9W-13	auger	3 feet

The core cylinder used for sampling the sediments was ~ 60 cms long and 4 cms in diameter but the actual sample size varied depending on how much soil was collected in the cylinder (Figure 19). All of the nine boring tests monitored were negative for cultural resources (Figure 20). Several of the bore tests did contain shell fragments. These naturally occurring shell fragments were found within the alluvial deposits throughout the project area. The species were primarily *Macoma* sp., typical of the mudflats found in the habitat. Further, B-2-13 included two whole juvenile *Macoma* sp. shell halves. Juvenile shellfish are less common components of cultural deposits. Cultural rich shell midden deposits are normally comprised of predominantly mature shells and often, though not always, we find a mix of species and those shellfish that were favored by people

.

The soil profiles observed in the boring tests were consistent. B-3-13 was typical of the project area and its soil profile consisted of:

> 0-1.5 feet: Medium brownish gray with some orange mottling; ~95% fine grained sandy silt, <5% gravels and pebbles, ~ 5% organic materials including rootlets; loose to moderate compaction; A horizon. (M1)
> 2.5-4 feet: Medium brownish gray with some orange mottling; ~90-95% fine grained sandy silt, <5% gravels and pebbles, ~5-10 % organic materials including rootlets; loose to moderate compaction; A horizon. (M1)
> 5-6.5 feet: Gray; ~95% fine to medium grained gray silt getting coarser with depth, <5% gravels and pebbles, ~5% organic materials; moderate compaction; alluvial deposits. (M3)
> 7.5-9 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material; loose compaction, lahar deposits. (M2)
> 10-11.5 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, 5-10% organic material- mostly woody debris; loose compaction; lahar deposits. (M2)
> 12.5-14 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, 5-10% organic material- mostly woody debris; loose compaction; lahar deposits. (M2)
> 15-16.5 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material; loose compaction; lahar deposits. (M2) Strong anaerobic smell.
> 17.5-19 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material; loose compaction; lahar deposits. (M2) Strong anaerobic smell.
> 20-21.5 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material; loose compaction; lahar deposits. (M2) Strong anaerobic smell.
> 30-31.5 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material; loose compaction; lahar deposits. (M2) Strong anaerobic smell.
> 35-36.5 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material, 1 total natural *macoma* sp. shell fragment; loose compaction; lahar deposits. (M2) Strong anaerobic smell.
> 40-41.5 feet: Primarily gray with white and red grains; medium grained sand, <5% gravels and pebbles, <5% organic material; loose compaction; lahar deposits. (M2) Strong anaerobic smell.

Figure 19: A core cylinder from Bore Test 1, showing alluvial deposits (M3).

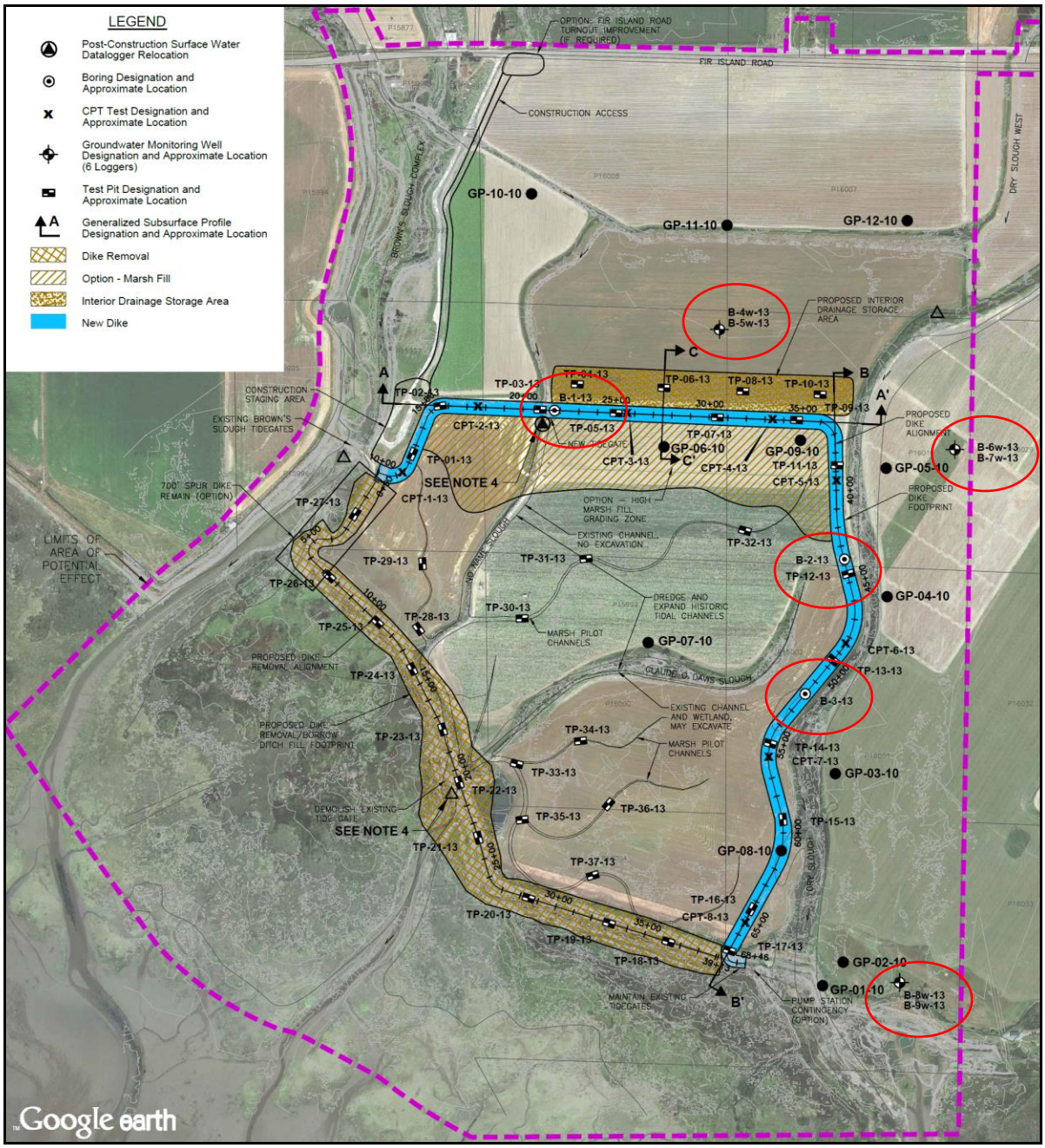

Figure 20: Shannon and Wilson map showing the boring test locations circled in red.

Machine Trench Test Pits

All of the trench test pits were dug using a Deere 120 tracked hoe with a toothed bucket. The matrix descriptions for these tests are provided in Appendix 1. With the exception of some of the trench tests dug on top of the existing levee, all of the trench test pits were dug to the water table (Figure 22 and Figure 23). The soil profiles observed in the trench tests were consistent with each other and with the profiles observed in the boring tests.

There were two typical soil profiles, one for the test pits on the existing levee and one for the test pits not on the existing levee. A typical soil profile on the levee consisted of quarry rocks (M4) over levee fill taken from local borrow materials (M5 and M6) over alluvial deposits (M3) consistent with the

alluvial deposits seen elsewhere in the project area. Buried vegetation often existed between the levee fill and the alluvial deposits. Historically levees were built by hand and local borrow was used and placed on the existing surface in an area, sometimes without removing the vegetation. The profile observed was consistent with this pattern. In a couple of places on the levee there was more recent dredge fill that had been added to the levee as part of flood repairs (M6) (Figure 24). Outside of the existing levee a typical soil profile consisted of a medium gray brown fine grained sandy silt surface layer, the A horizon, (M1) over alluvial deposits (M3) over lahar deposits (M2) (Figure 25).

In all of the machine trench test pits either M2 or M3 was reached. In many of these tests these sediments were interpreted as the intact native soil. Given the variable nature of the historic marsh habitat and the history of using native material as fill, in some tests it was difficult to determine if the M3 was in fact intact or whether it was native soil that had been used as fill in that location. In particular, TP-21-13, TP-22-13 and TP-23-13 are within or adjacent to the 1990 flood levee repair zone. In 1990 the existing levee in the southern portion of the project area along the Skagit Bay was damaged by flood. There was significant erosion and scouring of the levee and areas around and below the levee in this area. So while M3 was seen in the bottom of each of these test trenches it is difficult to say if the M3 was intact or disturbed.

In TP-22-13 from 120 cms to 200 cms dbs within the levee deposits there was dark gray to black mottling and natural shell fragments that were so crushed and decomposed that they were not identifiable. This dark gray mottling was observed elsewhere within the project in association with decomposing vegetation and this was the case here as well. Decomposing grasses and woody debris were within the layer and associated with the black and dark gray. TP-22-13 is within the 1990 levee repair zone. Given the history of this area and the characteristics of these sediments, this material could be dredge spoils used as fill for the 1990 levee repair. Below this layer was buried vegetation and M3, alluvial deposits. Neither the buried vegetation nor the M3 contained shell fragments (Figure 21).

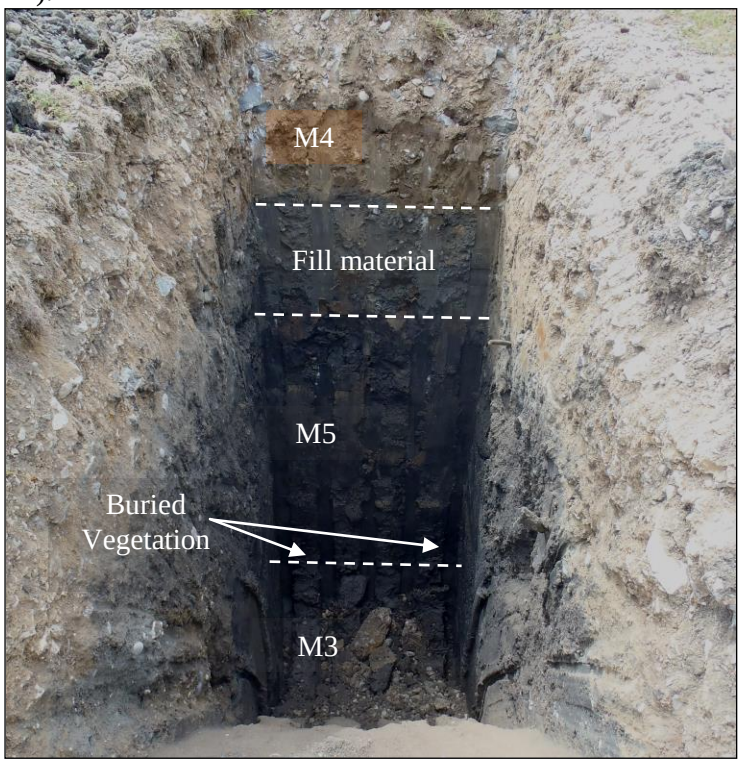

Figure 21: TP-22-13.

Figure 22: View N/NW, Showing tracked hoe on the existing levee at TP-20-13.

Based on our investigation, we do not believe that the Fir Island levee in the project area is eligible for the National Register of Historic Places (the Register). The Fir Island levees are part of a bigger story of land reclamation, water management and agriculture in the Skagit Valley. However, the levee has a design seen commonly in area dikes and does not have any unique engineering features. Archival research did not uncover any connection between the levees in the project area and specific historically important people or events. So although the Fir Island levees are part of a bigger story, on their own the structures do not convey enough information to be eligible for the National Register.

Diking began on Fir Island in the late 1800s and portions of the levee likely do meet the 50 year age threshold for inclusion to the Register. However, subsequent flood damage and repairs to the levee have compromised its integrity. After the significant floods of 1951 large portions of the bay side levee within the project area had to be replaced and again in the 1990 floods large portions of the levee were lost and replaced. Also alterations and improvements over time are typical to this property type (Smith 2011). The changes to the levee are significant enough to have resulted in a loss of integrity that precludes its eligibility. Therefore, the project area levees are not eligible under Criterion A, B or C.

Our subsurface investigation was negative for archaeological cultural resources so the levees are not eligible for inclusion under Criterion D.

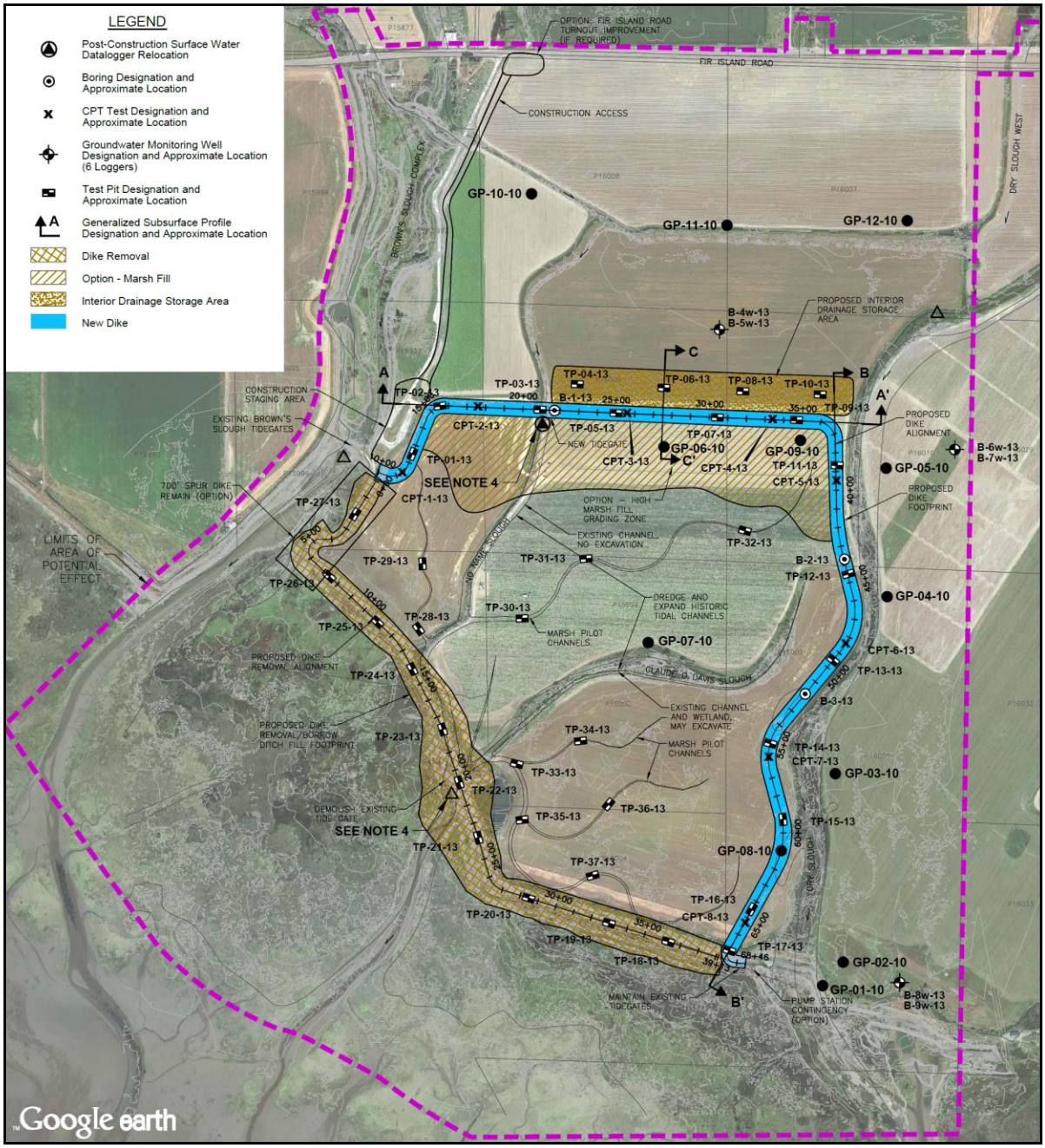

Figure 23: Shannon and Wilson map showing the machine trench test locations.

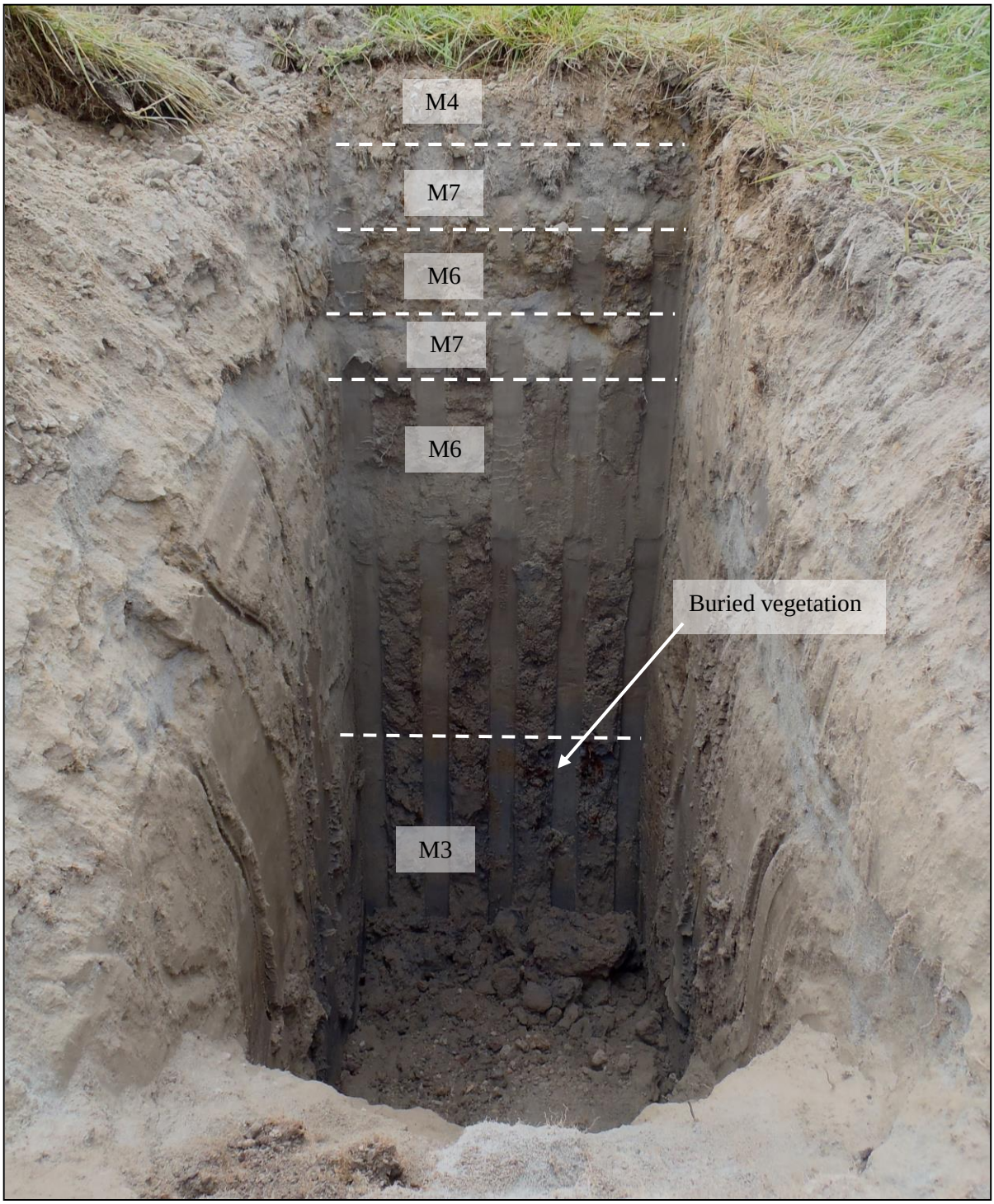

Figure 24: View SE, TP-19-13 on the existing levee.

Figure 25: TP-36-13 not on the existing levee. M2 is just below the water table.

No Historic Properties were encountered during this investigation. The management recommendations that we are now providing are based on this field investigation. We recommend that:

1. This project proceed as planned with a copy of the attached Unanticipated Discoveries Protocol (UDP) on site at all times and a brief onsite training provided by a professional archaeological to the Construction Crew prior to initiating this project

2. In the event that any ground-disturbing activities uncover protected cultural material (e.g., bones, shell, stone or antler tools), all work in the immediate vicinity should stop, the area should be secured, and any equipment moved to a safe distance away from the location. The protocol outlined in the Unanticipated Discoveries Protocol (UDP) (Appendix 2) should be followed.

3. In the case of an unanticipated discovery of human remains, the contractor and project manager will cease excavation; secure the area and call the Skagit County Sherriff's department who will contact the Coroner to determine if the remains are forensic in nature and if not then the Coroner will coordinate with the State Physical Anthropologist who will then be responsible for their management.

Thank you for the opportunity to provide cultural resource management services for this project.

Regards,

Kelly R. Bush
Equinox Research and Consulting International Inc. (ERCI)

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Appendix I Matrix Descriptions and Trench Test Descriptions

Matrix 1: Medium gray brown with some orange mottling; ~90-95% fine grained sandy silt, 5-10% rootlets, <5% gravels and pebbles; moderate compaction; A horizon.
Matrix 2: Primarily medium gray with red and white grains; ~95% medium grained sand, <5% organics, <5% gravels and pebbles; loose compaction; lahar deposits.
Matrix 3: Medium gray; ~95% fine grained sandy silt, <5% gravels and pebbles, <5% organics; moderate to dense compaction; alluvial deposits.
Matrix 4: Medium brown gray; ~25-40% sandy silt, 10-15% rootlets, 50-60% angular gravels, pebbles and cobbles; loose compaction; overburden quarry deposits.
Matrix 5: Medium to dark gray; ~60-75% fine grained silt, 20-35% organics (10-15% grasses, 10-20% woody debris), ~5% gravels and pebbles; moderate compaction; levee deposits from local materials.
Matrix 6: Medium gray brown; ~60-75% fine grained sandy silt, 20-35% organics (10-15% grasses, 10-20% woody debris), ~5% gravels and pebbles; moderate compaction; levee deposits from local materials.
Matrix 7: Light to medium gray; ~95% silty sand, <5% organics, <5% gravels and pebbles; loose compaction; dredge deposits from Skagit bay added to the levee as part of area flood management.

Trench #	Width (cm)	Length (cm)	Depth (cm dbs)	Matrix Descriptions	Comments
TP-1-13	106	200	110	0-90 cms: M1 90-110 cms: M3	Negative. Water table at ~110 cms dbs. M2 visible in the excavator's last scoop from the trench.
TP-2-13	110	200	127	0-60 cms: M1 60-107 cms: M3 107-127 cms: M2	Negative. Water table at ~ 127 cms dbs.
TP-3-13	105	200	190	0-105 cms: M1 105-120 cms: M3 120-190 cms: M3, courser grained.	Negative. Watertable at ~190 cms dbs. M2 visible in the excavator's last scoop from the trench.
TP-4-13	100	200	148	0-60 cms: M1 60-121 cms: M1, increased orange mottling. 121-148 cms: M3, courser grained with depth.	Negative. Water table at ~148 cms dbs.
TP-5-13	100	200	127	0-47 cms: M1 47-107 cms: M1, increased orange mottling. 107-127 cms: M3	Negative. Water table at ~127 cms dbs.
TP-6-13	105	200	149	0-59 cms: M1 59-123 cms: M1, increase in orange mottling. 123-149 cms: M3	Negative. Water table at ~149 cms dbs.

Trench #	Width (cm)	Length (cm)	Depth (cm dbs)	Matrix Descriptions	Comments
TP-7-13	100	200	147	0-55 cms: M1 55-94 cms: M1, increased orange mottling. 94-147 cms: M3	Negative. Water table at ~ 145 cms dbs. M2 visible in the excavator's last scoop from the trench.
TP-8-13	100	200	123	0-49 cms: M1 49-93 cms: M1, increased orange mottling. 93-123 cms: M3	Negative. Water table at ~123 cms dbs.
TP-9-13	100	200	125	0-60 cms: M1 60-93 cms: M3, with orange mottling and brown tint. 93-125 cms: M2	Negative. Water table at ~ 120 cms dbs.
TP-10-13	100	200	130	0-54 cms: M1 54-94 cms: M1, with orange mottling and pockets of gray. 94-130 cms: M2	Negative. Water table at ~120 cms dbs.
TP-11-13	105	190	122	0-51 cms: M1 51-95 cms: M1, with orange mottling and pockets of gray. 95-122 cms: M3	Negative.
TP-12-13	100	200	120	0-65 cms: M1, increase in gray color with pockets of gray silt. 65-95 cms: M2, with orange mottling. 95-120 cms: M3, increase in sand.	Negative. Water table at ~120 cms dbs.
TP-13-13	100	200	117	0-60 cms: M1, increase in orange mottling at interface. 60-117 cms: M3, increase in sand.	Negative. Water table at ~117 cms dbs.
TP-14-13	105	200	218	0-95 cms: M1, increase in orange mottling at interface. 95-218 cms: M3, darker gray, finer grained.	Negative. Water table at ~218 cms dbs.
TP-15-13	105	210	125	0-65 cms: M1, with increase organics, dark gray/almost black pockets, increase orange mottling. 65-115 cms: M3, increase in sand. 115-125 cms: M2, walls collapsing.	Negative. Water table at ~120 cms dbs.
TP-16-13	100	200	115	0-60 cms: M1, increased orange mottling at interface. 60-115 cms: M3, becoming sandier with depth.	Negative. Water table at ~110 cms dbs.
TP-17-13	105	200	110	0-64 cms: M1, with orange mottling at interface. 64-110 cms: M2	Negative. Water table at ~110 cms dbs.
TP-18-13	96	292	269	0-40 cms: M4, increase in sand and decrease in gravels and pebbles. 40-209 cms: M6 209-269 cms: M3, increase in organic materials – mostly grasses.	Negative.

Trench #	Width (cm)	Length (cm)	Depth (cm dbs)	Matrix Descriptions	Comments
TP-19-13	100	260	272	0-13 cms: M4, increase in sand, decrease in gravels and pebbles. 13-30 cms: M7 30-51 cms: M6 51-94 cms: M7 94-195 cms: M6 195-209 cms: M5, with buried organics layer at ~209 cms. 209-272 cms: M3	Negative. Water table at ~244 cms dbs.
TP-20-13	103	283	262	0-30 cms: M4, increase in sand, decrease in gravels and pebbles, more red color. 30-175 cms: M6 175-210 cms: M5, with buried organics layer at ~210 cms. 210-262 cms: M3	Negative. Water table at ~262 cms dbs.
TP-21-13	115	212	250	0-32 cms: M4 32-190 cms: M5, large piece of wood at ~125 cms dbs, strong anaerobic smell, buried vegetation at ~190 cms. 190-250 cms: M3	Negative. Red plastic Winchester shot gun shell found in the back dirt – most likely from M4 or M5.
TP-22-13	110	250	290	0-85 cms: M4 85-120 cms: Light to medium gray fine grained silt with <5% organics, 20-30% gravels and pebbles, dense compaction, fill material. 120-200 cms: M5, mottled with dark gray/black silt with decomposing unidentifiable shell fragments, strong anaerobic smell, buried vegetation at ~200 cms. 200-290 cms: M3	Negative.
TP-23-13	100	250	293	0-76 cms: M4 76-240 cms: M5 240-293 cms: M3, with some branches.	Negative.
TP-24-13	106	292	247	0-42 cms: M4 42-239 cms: M6, with some woody debris, strong anaerobic smell. 239-297 cms: M3	Negative. Water table at ~297 cms.
TP-25-13	100	250	272	0-30 cms: M4 30-186 cms: M5 186-272 cms: M3, strong anaerobic smell, several large logs.	Negative.
TP-26-13	106	292	247	0-41 cms: M4 41-66 cms: M7 66-212 cms: M6 212-247 cms: M3, some dark gray mottling directly related to organic material-grasses.	Negative. Water table at ~247 cms dbs.
TP-27-13	115	280	285	0-45 cms: M4 45-180 cms: M6 180-285 cms: M3	Negative. Water table at ~180 cms dbs.

Trench #	Width (cm)	Length (cm)	Depth (cm dbs)	Matrix Descriptions	Comments
TP-28-13	105	205	84	0-47 cms: M1 47-84 cms: M2, darker gray.	Negative. Water table at ~84 cms dbs.
TP-29-13	105	200	110	0-80 cms: M1, increased mottling at 40 cms. 80-100 cms: M3 100-110 cms: M2	Negative. Water table at ~100 cms dbs.
TP-30-13	105	195	150	0-85 cms: M1, increase orange mottling at interface. 85-150 cms: M3.	Negative. Water table at ~150 cms dbs. M2 coming in with the water table in the northwest corner.
TP-31-13	100	200	145	0-65 cms: M1, increased orange mottling at the interface. 65-145 cms: M3	Negative. Water table at ~125 cms dbs. M2 coming in with the water table.
TP-32-13	100	200	145	0-70 cms: M1, increased orange mottling at interface. 70-145 cms: M3	Negative. Water table at ~145 cms dbs.
TP-33-13	100	200	110	0-45 cms: M1, increased orange mottling at interface. 45-110 cms: M3, sandier with depth.	Negative. Water table at ~105 cms dbs.
TP-34-13	100	200	130	0-90 cms: M1, increased orange mottling at interface. 90-130 cms: M2, sandier with depth.	Negative. Water table at ~130 cms dbs in the northwest corner.
TP-35-13	100	200	110	0-70 cms: M1, increased orange mottling at interface. 70-110 cms: M3, sandier with depth.	Negative. Water table at ~110 cms dbs.
TP-36-13	100	200	150	0-80 cms: M1, increased orange mottling at interface. 80-150 cms: M3, sandier with depth.	Negative. Water table at ~150 cms.
TP-37-13	100	200	100	0-60 cms: M1, increased orange mottling at interface. 60-100 cms: M3, sandier with depth.	Negative. Water table at ~100 cms dbs.

Appendix 2: Unanticipated Discovery Protocol

In the event that any ground-disturbing activities or other project activities related to this development or in any future development uncover protected cultural material (e.g., bones, shell, antler, horn or stone tools), the following actions will be taken:

1. When an unanticipated discovery of protected cultural material occurs, the contractor or on site project manager will cease work and completely secure the location. Then to determine the appropriate and legal plan of action for the protected cultural resources, the on-site representative will contact:

    a. Dave Cline, PE of Shannon and Wilson Inc. (206)-6885
    b. The property owner/s: Washington Department of Fish and Wildlife (360)902-2267 or Robert Hayton (360-708-6647)
    c. The Department of Archaeology and Historic Preservation (DAHP): Robert Whitlam (360-586-3080)
    d. The Swinomish Indian Tribal Community Cultural Resources Larry Campbell (360-466-7352)
    e. A professional archaeologist

2. If the discovery may be human remains, the contractor or on-site project manager will stop work in and adjacent to the discovery, completely secure the work area moving the land-altering equipment to a reasonable distance to continue working and will immediately contact:

    a. Dave Cline, PE of Shannon and Wilson Inc. (206)-6885
    b. The property owners: Washington Department of Fish and Wildlife (360)902-2267 or Robert Hayton (360-708-6647)
    c. The Skagit County Sheriff, Richard Grimstead (360-336-9450) and the Skagit County Coroner, Daniel Dempsey (360-336-9431), to determine if the remains are forensic. If the remains are not forensic the Department of Archaeology and Historic Preservation State Physical Anthropologist, Guy Tasa (360-586-3534) will take the lead in management of the human remains.

Cultural material that may be protected by law could include but not be limited to:

- Logging, mining, or agriculture equipment older than 50 years
- Historic bottles and soldered dot cans
- Buried layers of black soil with layers of shell, charcoal, fish and mammal bones
- Buried cobbles that may indicate a hearth feature
- Non natural sediment or stone deposits that may be related to activity areas of people
- Stone tools or stone flakes
- Stone, bone, shell, horn, or antler tools that may include projectile points (arrowheads), scrapers, cutting tools, wood working wedges or axes, and grinding stones
- Perennially damp areas may have preservation conditions that allow for remnants of wood and other plant fibers; in these locations there may be remains including fragments of basketry, weaving, wood tools, or carved pieces
- Human remains

Figure 26: Example of Protected shell midden for UDP.

Figure 27: Example of Protected shell midden in Profile for UDP.

Figure 28: Example of Protected worked bone and spines for UDP.

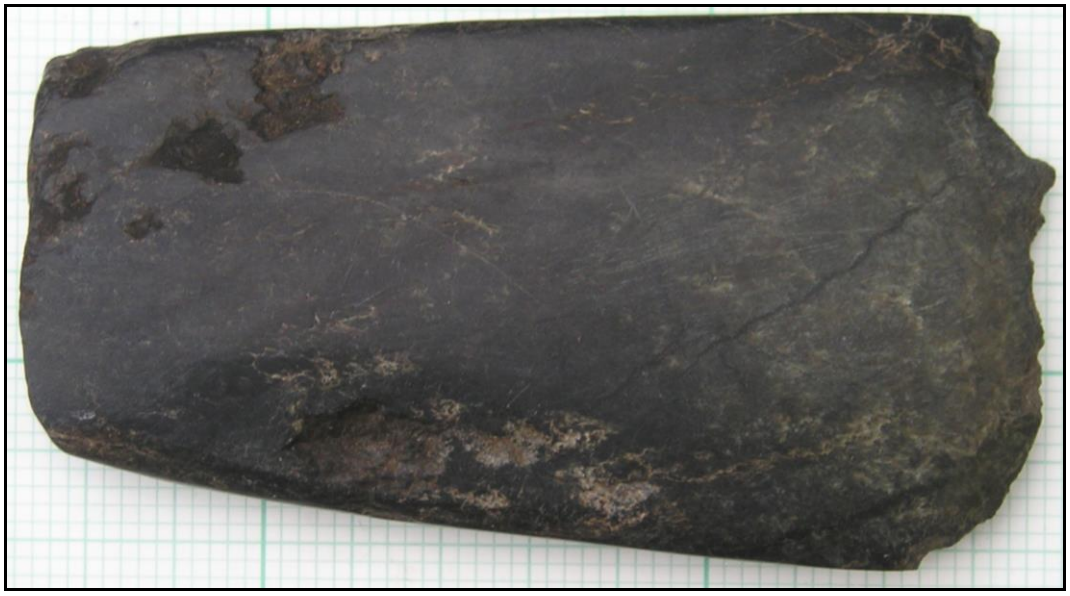

Figure 29: Example of Protected Adze Blade for UDP.

Figure 30: Example of Ground Stone tool for UDP.

Figure 31: Example of Bone digging stick for UDP

Figure 32: Example of stone tool for UDP

Appendix 4: Contact List

Name	Affiliation	Telephone	Email
David Cline, PE	Shannon and Wilson Inc.	(206) 695-6885	drc@shanwil.com
Brian Williams	WDFW	(360) 466-4345 x 250	Brian.Williams@dfw.wa.gov
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Larry Campbell	SITC	360-466-1236	lcampbell@swinomish.nsn.us.us
Robert Whitlam	DAHP	360-856-3080	Rob.Whitlam@dahp.wa.gov
Guy Tasa	DAHP	360-586-3534	*Guy.tasa@dahp*.wa.gov
Richard Grimstead	Skagit County Sheriff	360-336-9450	sheriff@co.skagit.wa.us
Daniel Dempsey	Skagit County Coroner	360-336-9431	danield@co.skagit.wa.us
Kelly Bush	ERCI	360-826-4930	kelrbush@earthlink.net