MEMORANDUM OF AGREEMENT

BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION, NATIONAL PARK SERVICE, WASHINGTON STATE HISTORIC PRESERVATION OFFICER, LOWER ELWHA KLALLAM TRIBE,

AND THE

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

REGARDING THE ELWHA BRIDGE REPLACEMENT PROJECT

WHEREAS the U.S. Department of Transportation, Federal Highway Administration (FHWA), has provided federal funding to the Washington State Department of Transportation (WSDOT) to replace the Elwha River Bridge (Bridge #101/334) in Clallam County; and

WHEREAS the undertaking consists of construction of a new bridge crossing the Elwha River on a new alignment, construction of new bridge approaches, improvements to the Hot Springs Road intersection, and demolition and removal of the existing bridge; and

WHEREAS, FHWA has defined the undertaking's area of potential effect (APE) as described in Attachment A; and

WHEREAS, the project area is on federal land under the management of the National Park Service (NPS); and

WHEREAS, the NPS enters into this agreement under the legal authority 54 U.S. Code § 100101 - Promotion and regulation: The Secretary, acting through the Director of the National Park Service, shall promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

WHEREAS, FHWA has determined that the undertaking will have an adverse effect on archaeological sites 45CA727, 45CA774, and 45CA775, which are eligible for listing in the National Register of Historic Places, and has consulted with the Washington State Historic Preservation Officer (SHPO) pursuant to 36 C.F.R. part 800, of the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. 306108); and

WHEREAS, all parties acknowledge the excavations will generate a collection of artifacts, samples, and other documentation that need to be housed in an appropriate facility that

meets Department of the Interior Standards.

WHEREAS, FHWA has consulted with the Lower Elwha Klallam Tribe (LEKT), the Jamestown S'Klallam Tribe (JST), and the Port Gamble S'Klallam Tribe (PGST), for which sites 45CA727, 45CA774, and 45CA775 have religious and cultural significance, and has invited the LEKT to sign this Memorandum of Agreement (MOA) as an invited signatory, as the JST and PGST have deferred to the LEKT**;** and

WHEREAS, a Department of the Army permit, pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, is required from the United States Army Corps of Engineers, Seattle District Corps, to conduct activities related to the construction of the undertaking; and

WHEREAS, FHWA and the Corps have agreed that FHWA will act as Lead Federal agency for Section 106 compliance and will act on the Corps' behalf; and

WHEREAS, all parties acknowledge interest by a consulting party to recognize the historical use of the area (i.e., Old Elwha Resort), once disposition of the project lands are settled and if historical preservation programs become available in the future that could fund construction and maintenance of an interpretive kiosk; however, neither FHWA, NPS, nor WSDOT plan to construct or operate such a facility as part of the Elwha Bridge Replacement Project;

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, **FHWA, NPS, LEKT, WSDOT, and the SHPO** agree that the undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the undertaking on historic properties.

STIPULATIONS

FHWA, WSDOT, and NPS shall ensure that the following measures are carried out:

i. Archaeological data recovery of sites 45CA727, 45CA774, and 45CA775 per the attached Archaeological Data Recovery Plan (Attachment A), to be funded by FHWA and WSDOT for a cost not to exceed $524, 100.
ii. Excavated collections will be held by the NPS at Olympic National Park in Port Angeles until the LEKT develops a facility that can house them. At that time, per 36 C.F.R. part 79, a collections management agreement will be drafted between the NPS and the LEKT for the NPS to convey custodial responsibilities for artifacts recovered from sites 45CA727, 45CA774, 45CA775 and any

unanticipated archaeological finds made during construction, along with copies of associated documentation, to the LEKT.

iii. A Native American Graves Protection and Repatriation Act ("NAGPRA") inadvertent discovery plan, including reburial on site or at the Village of Tsewhitzen, in the sole discretion of the LEKT, will be produced by WSDOT prior to construction.

iv. Cultural Resource Monitors from the LEKT paid for by WSDOT and FHWA to observe all ground disturbing work, including any and all archeological data recovery.

v. The cooperation of NPS as landowner with the study and nomination of the valley from the Elwha River Bridge to the canyon downstream of the former dam site as a Traditional Cultural Property known as Indian Valley consisting of the Village of ***Ti?Ti?əɬ***, 45CA727, and the LEKT creation site/emergence place, with funding from WSDOT and FHWA, for a cost not to exceed $20, 250.

DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, FHWA may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with the Dispute Resolution section below.

POST-REVIEW DISCOVERIES

WSDOT will prepare an archaeological monitoring and unanticipated discovery plan, in consultation with the SHPO and LEKT, prior to commencement of project construction, and will report on the results of monitoring work when completed. The plan will outline procedures to be followed if significant, previously-undocumented site deposits, or other potential historic properties, are discovered during project construction.

MONITORING AND REPORTING

Each year following the execution of this MOA until it expires or is terminated, FHWA through WSDOT shall provide all parties to this MOA a summary report in the form of email detailing work undertaken pursuant to its terms. The report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in FHWA's efforts to carry out the terms of this MOA.

DISPUTE RESOLUTION

Should any signatory to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with such party to resolve the objection. If FHWA determines that such objection cannot be resolved, FHWA will:

A. Forward all documentation relevant to the dispute, including the FHWA’s proposed

resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day period, FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all the signatories is filed with the ACHP.

NON-FUNDING OBLIGATION FOR NPS OR UNITED STATES DEPARTMENT OF THE INTERIOR

Nothing in this agreement may be construed to obligate NPS or the United States Department of the Interior to any current or future expenditure of resources in advance of the availability of appropriations from Congress. Nor does this agreement obligate NPS or the Department to spend funds on any particular project or purpose, even if funds are available. To the extent NPS' participation in the MOA requires the transfer of funds, property, or services, the parties will enter into the appropriate agreement.

TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per the Amendment process outlined above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, FHWA must either (a) execute an MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. FHWA shall notify the signatories

as to the course of action it will pursue.

Execution of this MOA by the FHWA, NPS, LEKT, WSDOT, and SHPO and implementation of its terms evidence that FHWA and NPS have taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

Federal Highway Administration

DANIEL M MATHIS Digitally signed by DANIEL M MATHIS Date: 2021.04.21 10:41:03 -07'00' Date 4/21/21

Daniel Mathis, WA Division Administrator

National Park Service

_____ Date 4/5/21

Linda Walker, Acting Regional Director, Interior Regions 8, 9, 10, and 12

Washington State Historic Preservation Officer

_____ Date

Dr. Allyson Brooks, SHPO

INVITED SIGNATORIES:

Lower Elwha Klallam Tribe

_____ Date

Hon. Frances Charles, Chair

Washington State Department of Transportation

John Wynands Digitally signed by John Wynands Date: 2021.05.10 11:53:04 -07'00' Date

John Wynands, Olympic Region Administrator

as to the course of action it will pursue.

Execution of this MOA by the FHWA, NPS, LEKT, WSDOT, and SHPO and implementation of its terms evidence that FHWA and NPS have taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

Federal Highway Administration

_____ Date
Daniel Mathis, WA Division Administrator

National Park Service

LINDA WALKER Digitally signed by LINDA WALKER Date: 2021.04.05 17:54:44 -04'00' Date 4/5/21
Linda Walker, Acting Regional Director, Interior Regions 8, 9, 10, and 12

Washington State Historic Preservation Officer

DocuSigned by:
Allyson Brooks
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Date
Dr. Allyson Brooks, SHPO

INVITED SIGNATORIES:

Lower Elwha Klallam Tribe

_____ Date
Hon. Frances Charles, Chair

Washington State Department of Transportation

_____ Date
John Wynands, Olympic Region Administrator

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SIGNATORIES:

Federal Highway Administration

_____ Date
Daniel Mathis, WA Division Administrator

National Park Service

_____ Date 4/5/21
Linda Walker, Acting Regional Director, Interior Regions 8, 9, 10, and 12

Washington State Historic Preservation Officer

_____ Date
Dr. Allyson Brooks, SHPO

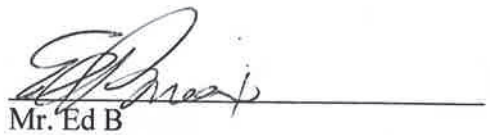
INVITED SIGNATORIES:

Lower Elwha Klallam Tribe

Frances J. Charles _____ Date 04/12/2021
Hon. Frances Charles, Chair

Washington State Department of Transportation

_____ Date
John Wynands, Olympic Region Administrator



Mr. Ed B

Attachment A: Archaeological data recovery of sites 45CA727, 45CA774, and 45CA775

Data Recovery Plan for Sites 45CA727, 45CA774, and 45CA775

WSDOT US 101 Elwha Bridge Replacement Project

by Archaeological and Historical Services

Public Version

January 2020

Data Recovery Plan

WSDOT
US 101 Elwha Bridge Replacement
Data Recovery at Sites 45CA727, 45CA774, and 45CA775

Introduction

The Washington Department of Transportation (WSDOT) plans to replace the existing Elwha River Bridge (101/334) spanning the Elwha River near Indian Creek, in Clallam County, Washington. The undertaking requires WSDOT compliance with Section 106 of the National Historic Preservation Act. As part of the Section 106 process, three precontact archaeological sites (45CA727, 45CA774, and 45CA775) have been identified inside the project APE and all three are considered eligible for listing in the National Register of Historic Places (NRHP). Archaeological and Historical Services (AHS), Eastern Washington University, with assistance from tribal members and personnel from the Lower Elwha Klallam Tribe (LEKT) and Jamestown S'Klallam Tribe, have conducted the survey and the NRHP-evaluative testing at all three sites. AHS has prepared this data recovery plan based on available site information, regional literature, and as part of a collaborative process with the WSDOT, the LEKT, National Park Service (NPS), Department of Archaeology and Historic Preservation (DAHP), and Federal Highway Administration (FHWA).

While all three sites are disturbed to some extent, they all retain areas with intact cultural deposits. All three sites are eligible for listing in the NRHP under Criterion A for their association with the adjacent Indian Creek location and Criterion D for their research potential to further a better understanding of early to middle Holocene prehistory in the Elwha River valley and western Washington. Site 45CA727 is also eligible under Criterion B for its association with Hunter John, a Klallam chief/headman that oversaw Indian Creek as a Klallam fishery in the early 1900s.

The purpose of investigations outlined in this data recovery plan is to partially mitigate the adverse effects of bridge construction through the retrieval of significant site data from all three sites. Mitigation efforts may not be needed at site 45CA727 if WSDOT takes necessary steps to avoid any subsurface impact to the site during the bridge replacement project. The research questions posed below assume that all three assemblages (45CA727, 45CA774, and 45CA775) from all phases of investigations (i.e., survey, NRHP-evaluative testing, and data recovery excavations) will be used for analysis and interpretations. If site 45CA727 is omitted from the data recovery excavations, the artifact assemblage from the survey and NRHP-evaluative investigations will still be incorporated into the analysis and final data recovery report. Fieldwork will consist of 1) data recovery using archaeological excavation techniques and assistance from Klallam members; 2) archival and analysis of curated artifact assemblages; 3) geomorphological analysis of the site landforms; and, 4) analysis and reporting. A data recovery work plan to conduct work is outlined below. The plan presented below will guide the proposed fieldwork and analysis of recovered materials.

Background

All three sites are situated on Pleistocene terraces in the north-central Elwha River watershed, with some sediment integrity, despite significant disturbances. Site 45CA727 is a precontact camp location modified by modern land use. Previous work indicated the presence of intact sediments at many locations within the site. Site 45CA774 is a precontact camp location modified by road construction. This site contains intact sediments with soil horizonation in nearly all sampled locations outside the US 101 road prism. Site 45CA775 is a precontact camp in a location modified by modern land use. Previous investigations indicate intact sediments underlying resort-era fill deposits.

Site assemblages share characteristics with assemblages described as Olcott by other researchers, specifically the lanceolate projectile points and crystalline volcanic rock (cvr) debitage recovered from the B horizon of Pleistocene river terraces.

Recent investigations at sites 45CA727, 45CA774, and 45CA775 resulted in recovery of 2,163 total artifacts, including 93 lithic tools from approximately 21.16 m^3 of hand excavated sediment (Stcherbinine et al. 2018). The artifacts are almost all made from cvr, with small numbers of chert, chalcedony, fine-grained sedimentary stone, and obsidian tools and debitage. The tools include eight lanceolate projectile points, one specimen with a serrated blade. The cores at the three sites represent prepared bifacial and unidirectional forms as well as relatively informal multidirectional cores. The tool assemblage indicates that bifaces are a significant part of the Olcott toolkit but the assemblage suggests that biface production and maintenance was focused on tools and cores brought to the site from elsewhere, while the reduction of local stone was focused on the production of flake blanks and flake tools.

Inferred artifact functions from the assemblage recovered during these investigations are carving, projectile impact, flaking, pounding, and soft scraping. Indicated activities suggest short-duration hunting and processing camping areas of multiple or single occupations similar to other Olcott assemblages in western Washington dating between 6,000 and 10,000 years ago. The breadth of food processing in the Elwha Bridge replacement project APE is unknown due to the lack of hearths, ovens, fire-modified rock features, and faunal materials in the site assemblages, which is typical of most Olcott occupations (Blukis Onat et al. 2001; Ferris et al. 2010; Kidd 1964; Morgan 1999a; Samuels 1993).

Research Design and Questions

Sites 45CA727, 45CA774, and 45CA775 have the ability to contribute an important data set to the regional archaeological and paleoecology databases to better understand Olcott sites. All three sites are known to primarily contain lithic assemblages comprised of chipped stone artifacts. A number of limitations may adversely influence the excavation results including: (1) poor faunal and floral material preservation; (2) potentially destructive bioturbation characteristics of forested environments; (3) low density cultural material deposits; and, (4) limited information from site testing regarding feature presence.

The following research objectives at sites 45CA727, 45CA774, and 45CA775 are dependent upon the sampled site content, resulting data sets, and observations and analyses of these data sets. Data recovery excavations and planned analyses (see below) will contribute valuable information about the US 101 Elwha River sites as well as contribute to the regional literature regarding site formation, site age, paleoecology of the Olympic Peninsula, settlement and subsistence, trade, technology, and regional synthesis. To ensure maximum information gain from the planned data recovery at the US 101 Elwha River sites, a few research questions have been posed that incorporates off-site regional data (regional paleoecology) and analyses (lithic studies of select regional Olcott sites) that will supplement the recovered (Stcherbinine et al. 2017; Stcherbinine and Noll 2018) and anticipated artifact assemblages at each site.

Site Formation

1) The sites are situated on paired Elwha River terraces. What is the depositional history of the terraces and when did they stabilize?

The sites are situated on terrace treads at about 230 feet above sea level, located 25 feet above the current Elwha River gravelly floodplain. The terraces are mapped as older alluvium that formed during the late Pleistocene (Qoa), which contains "gravel, sand, silt, clay, and peat; variably sorted; loose; generally bedded; deposited in stream beds and estuaries and on flood plains; may include some lacustrine and beach deposits; mostly Olympic sediments; locally grades down into and may interfinger with recessional outwash and glaciomarine drift" (Polenz et al. 2004). Polenz et al. (2004) provides a conceptual model of landform development in the Elwha River area and is partially summarized below.

The Juan de Fuca Lobe's (JFL) furthest glacial advance through the Elwha River Valley occurred about 17,000 years before present (BP), terminating 2.3 miles south of the sites at 3,800 feet above sea level. Ice recession occurred between 14,500 and 14,000 BP, with deposition of glacial outwash in ice-free areas between about 14,500 and 12,000 BP. Some JFL ice at distance from the Elwha River may not have melted until as late as 8000 BP. Recessional outwash in the Elwha River area is rarely exposed because it was quickly obscured by subsequent deposition of Qoa (late Pleistocene alluvium) and Qa (Holocene alluvium).

The JFL lobe significantly depressed the earth's crust in the region. Rapid glacial melting at the time of JFL retreat caused relative sea levels to rise as melting outpaced crustal rebound, peaking around 13,000 BP at about 130 feet higher than modern sea level (MSL). This high drainage base level is thought to have controlled deposition of Qoa along the Elwha River, which would have been deposited in a floodplain setting between 14,500 and 10,700 BP. After 13,000 BP, crustal rebound in response to glacial unloading caused relative sea level to rapidly drop to about 200 ft below MSL. This triggered the cutting of steep-walled valleys and creation of terraces in the Elwha River Valley. High river terraces at about 220 foot elevations are thought to record the period of incision, which ended after 10,700 BP. Left high and dry, removed from major deposition, these Elwha River terraces would have been stable landforms suitable for human occupation. Such terraces would have weathered and formed prominent B horizons typical of soil formation on western Washington landforms stable for thousands of years.

Site stratigraphy consist of an almost ubiquitous A-B-C horizon soil sequence, with most of the archaeology located in the B horizon, which collectively overlay coarse gravels interpreted as late Pleistocene Elwha River channel deposits (Stcherbinine et al. 2017; Stcherbinine and Noll 2018). However, this stratigraphy was not always consistent between sites. Site 45CA727 contained a buried soil sequence and prominent A horizon, representing some hiatus in deposition and degree of landform stability during landform development. Additionally, some units contained basal deposits that were sandy with smaller gravels, possibly consisting of recessional outwash known to be masked by Qoa deposits.

The creation of a depositional history model for the site and Indian Creek area would test and refine the regional Elwha River model proposed by Polenz et al. (2004). It would also explain the timing of landform stability and earliest potential occupations of the terrace landforms, critical because it is uncertain if data recovery excavations will recover organic remains suitable for carbon dating. Providing an earliest limiting date for site occupation would aid in any interpretations of technology, subsistence, etc. The depositional history model will be created from data generated by collecting column samples from intact excavation areas of each terrace. Column samples will consist of bulk sediment samples from every 20 centimeters, with at least one sample from each stratum. Individual column samples will be measured for grain size, grain roundness, organic matter content, acidity, and calcium carbonate content. It is estimated that no more than 15 samples will be collected from each column. Grain-size distribution curves and statistics of distributions will be generated. These five variables will assist in discussing parent material, depositional environment, mode of transport, and soil formation of all strata.

An elemental analysis (geochemistry) of all lithostrata is proposed to explain sediment provenance and parent material in order to differentiate between recessional outwash and Elwha River alluvium. The X-ray fluorescence technique will be used to measure 29 major and trace elements. It is estimated no more than three samples will be collected from each terrace, for a total of six samples. Optically-stimulated luminescence dating will be used to date various depositional events and create a site depositional history model. It is estimated two luminescence samples will be collected from each column sample and terrace, for a total of four luminescence samples. Luminescence samples can only be collected from intact stratigraphy, and likely from the C horizon and 2C horizons below the zone of major bioturbation.

2) Is the whole depositional record of the Elwha River-Indian Creek area represented at the sites? Or are the sites missing deposits, or been subjected to erosional events unobserved during the survey and testing?

This question will be addressed by comparing the results from the above question to regional literature, which includes Polenz et al. (2004) and studies referenced therein.

3) What natural and cultural site formation process would have been active during and after occupation? Are these processes similar to those of other Olcott sites?

Reconstructing the vicinity forest community during and after occupation (see proposed paleoecological study) will aid in generating a list of potential agents of disturbances and bioturbation that can modify the archaeological record. Post-depositional alterations to the

archaeological record are known to result from root action, tree throws, burrowing animals, mass wasting, and frost heave (cryoturbation), to name a few. Detailed stratigraphic profiles will be drawn in order to map and measure observable disturbances and estimate the total volume of disturbance. Bioturbation, most notably tree throw disturbances will be mapped, volume calculated, and impacts discussed. Results will be compared to early Holocene archaeological sites with similar site formation processes, which are discussed at length in Chatters et al. (2001) and Blukis Onat (2001).

4) Are vertical artifact locations a function of post-depositional processes like bioturbation, or repeated site visits over time?

Site testing excavations revealed near unimodal artifact distributions that peak in shallow B horizons (Stcherbinine and Noll 2018). It was not possible to discuss the potential of multiple occupations, components, or analytical units due to a lack of test units in artifact-dense areas. The common interpretation is that large unimodal vertical artifact distributions are a result of bioturbation that mix or enlarge what may have been multiple, or one discrete cultural deposit. Low artifact sample sizes across larger site areas that also included disturbances like krotovinas and tree throw casts (or wells) made it unfeasible to measure whether different-sized artifacts were differentially located across a vertical profile, a product of post-depositional bioturbation. It remains unclear if cultural deposits represent single occupations with simple tasks, or repeat visits with diverse task areas altered into an archaeological palimpsest from thousands of years of post-depositional processes.

Several studies have measured microartifact and macroartifact frequencies to analyze the potential of vertical translocation of particles in a sediment column (Evans 2010; Stein and Teltzer 1989). Grain-size distributions of microartifact and macroartifact mirror the sedimentological principal that grain-size distributions are the result of grain-size availability in the source area, mode of transport, and post-depositional disturbance (Stein and Teltzer 1989:4). Creating grain-size distribution curves for artifacts and non-artifacts allows the size distribution of artifacts to be interpreted. Typically, in areas with more bioturbation, artifact distributions would be unimodal with some degree of artifact size sorting as differently weighted/sized artifacts "settle" after being churned with the soil. Chatters et al. (2001) discusses this phenomena by noting the size sorting of larger particles and the creation of "stone zones" on stable landforms that formed during the late Pleistocene.

A micro artifact-macroartifact vertical frequency analysis will answer this question. Artifact-size distribution curves will be created and compared to grain-size distribution curves (from column sampling above) to discuss the degree of artifact movement in extensively disturbed areas compared to areas with relatively few natural disturbances. This will allow further discussion of the nature of the archaeological deposit and weather it is possible to tease out multiple occupations or tasks areas within an archaeological palimpsest.

Site Age

5) What is the age of occupation at the US 101 Elwha River Bridge sites? Were they occupied at the same time?

Recovered projectile points from all three sites suggest an Olcott occupation dating between 10,000 to 6000 BP. It is unknown whether all three sites were inhabited at the same time or were occupied individually. In addition to relative date ranges from projectile points, a suite of absolute dating methods will be considered to provide a more narrow age range of occupation at each site. Dating methods that may be used are: radiometric dating of organic remains, hydration dating of obsidian artifacts, optically-stimulated luminescence of soils, luminescence dating of fire-modified rock, etc. The actual methods used will be determined by the types of sediments as well as the cultural and geologic materials recovered during the data recovery excavations at each site.

Paleoecology

A paleoecological study in the Elwha River-Indian Creek vicinity will answer the research questions listed below. The study will acquire necessary data by extracting at least one sediment core from a lake/pond/wetland in proximity to the sites in the Elwha River Valley. A regional paleoecologist has identified several study sites with great potential within a few miles of the US 101 Elwha River Bridge sites (Dr. Megan Walsh [Central Washington University], personal communication, 2019). Approximately 30 charcoal samples will be extracted from the core, which will allow additional data to be age bracketed. Pollen will be identified and counted to reconstruct changing forest communities and forest density from the late Pleistocene through the Holocene. Elwha River Valley fire history will be reconstructed by counting macro charcoal between age brackets. More detailed methods can be provided if necessary, but will generally align with those used in Walsh et al. (2008; 2017; 2018). Results will be discussed and compared to regional studies (e.g., Gavin et al. 2013; Gavin et al. 2015). Additionally results will be compared to plant remains recovered from regional archaeological sites. Plant communities identified to be in the site vicinity during occupation will be compared to plants known to be used by native peoples ethnographically (e.g., Gunther 1927) and currently near the Elwha River Valley and northern Olympic Peninsula.

6) What plants communities were in the site vicinity during occupation? Which plants in the site vicinity during occupation are known to have been exploited by precontact peoples, exploited during ethnographic times, or currently?

7) During the time of site occupation, were Elwha River Valley forests of the open canopy/parkland variety dominated by Douglas-fir, or closed canopy dominated by hemlock and cedar, which characterizes them today. When did this compositional change take place and how would it have affected plant and animal communities? Is the timing of this change consistent with paleoecological studies of the lowlands in the western and eastern Olympic Peninsula?

8) Were there major fires in the Elwha River Valley during the time of site occupation? How would this have affected plant/animal communities and forest composition?

Paleoecological research indicates postglacial forest composition has changed considerably since the last glacial maximum on the Olympic Peninsula (Gavin et al. 2013; Schalk 1988). The paleoecology of the Olympic Peninsula was recently overviewed by Gavin et al. (2013), which presents a record of changing forest composition and fire over the last 14,000 years. Gavin et al. (2013) overviews five lake study sites in locations ranging from Sitka spruce and hemlock closed canopy lowlands to the open canopy and parkland uplands, with both lowland sites situated in areas quite distinct and removed from the Elwha River Valley and the northern Olympic Peninsula. During the early to middle Holocene (10,000 to 6000 BP), lowland regions of the Olympic Peninsula contained more open canopy forests of Douglas-fir, red alder, and bracken fern, which now contain closed canopy forests containing Western Hemlock Zone species (Gavin et al. 2013). This time range corresponded with a warm-dry climate resulting in longer growing seasons and open forest plants that are more conducive to higher densities of large herbivores (Schalk 1988). Additionally, open forests of Douglas-fir and bracken fern are more prone to drought and fire in warmer months. Recovery from fires is remarkably productive forage habitat for game and people. Open forests possibly recovering from fire would have additionally increased the carrying capacity of ungulate species that included deer and elk, making these forests premier early Holocene habitat for highly mobile precontact occupants subsisting on terrestrial game and plants.

As early as 6000 BP and definitely by 3000 BP, many open forests on the Olympic Peninsula transitioned into closed forests, decreasing the ungulate carrying capacity and plant diversity available for human exploitation (Schalk 1988). As plant resource complexity in the lowlands decreased over time, more effort was required to attain certain resources. There currently is a lack of late Pleistocene and Holocene paleoecological data and fire history for the Elwha River Valley and northern Olympic Peninsula that could explain what plants would have been near the sites during the time of occupation. Additionally, it remains unclear when the open-to-closed forest transition occurred near the sites, which would have caused changes in subsistence strategies of precontact people of the northern Olympic Peninsula.

Settlement and Subsistence Activities

9) What plants or animals were being processed or hunted at the US 101 Elwha River Bridge sites?

To determine what plants and animals were hunted or processed at the sites, the following analyses will be conducted, as appropriate: faunal, macrobotanical, blood residue and FTIR (Fourier Transform Infrared Spectroscopy). Very little faunal remains were observed during the previous investigations and were recovered near the surface suggesting a more recent age. Any faunal remains recovered during the data recovery may be used to determine animals being processed at the sites as well as a source for dateable material. Macrobotanical samples will be collected for analysis within any observed occupation surface and/or cultural feature. A control sample will also be collected to determine whether or not the archaeological sample represents human activity or the natural forest environment. Blood residue analysis will be conducted on a sample of chipped stone tools to determine what animals were being hunted/processed. The results of this analysis will be contingent on the residue preservation within a typical harsh chemical environment of forest soils. FTIR analysis may be conducted if lipids or organic substances have soaked into an organic sediment and/or the surface of a fire-modified rock.

10) Is there evidence for horizontally discrete activity areas and/or functional differences between the US 101 Elwha River Bridge sites?

All three sites have yielded cores, projectile points, other bifaces, flake tools, and unmodified debitage that indicate multiple reduction trajectories were employed in tool-making activities. A robust classification system for both the lithic tools and debitage will enable the identification of patterns of tool production and use that may help distinguish unique activity areas. Attributes such as wear location and type, and breakage patterns will be noted whenever possible. Also, the modification of specimens at various stages in the lithic reduction continuum may be functionally sensitive and thus have a bearing on the development of lithic reduction or use models. Comparison also will be made to samples from the surrounding region.

11) Discovering intrasite variability within each US 101 Elwha River Bridge sites—were different activities and occupations represented and could spatial patterning be identified? If multiple occupations are apparent, what is the approximate time interval between them?

Inferred artifact functions from the artifact assemblage recovered during these investigations are carving, projectile impact, flaking, pounding, and soft scraping. Indicated activities suggest short-duration hunting and processing camping areas of multiple or single occupations similar to other Olcott assemblages in western Washington dating between 6,000 and 10,000 years ago (Blukis Onat et al. 2001; Ferris et al. 2010; Kidd 1964; Morgan 1999a; Samuels 1993). Intrasite patterning will be examined to infer the types of activities being conducted as well as the duration of occupations. This data will be correlated to the site formation and age data to determine an occupation duration at each site.

Trade

12) What was the role of exotic obsidian materials in the Olcott toolkit at the US 101 Elwha River Bridge sites? Is there enough obsidian source data from Olcott sites to model a mobile forager paradigm that could include features of a trade network, opportunistic trade, and/or direct procurement?

Obsidian is noted at several Olcott sites, including 45CA727. Obsidian Cliffs, Oregon, was the source of the obsidian recovered from site 45CA727 (Stcherbinine et al. 2017), the majority of analyzed obsidian from the Tolt site (Blukis Onat et al. 2001), and site 45CA426 at Sequim (Morgan 1999), site 45KI25 at Chester Morse Lake (Samuels 1993), and site 45KI834 near Redmond (Ferris et al. 2010). Obsidian Cliffs is not the only documented source of obsidian in Olcott assemblages; most are located in the northern Great Basin (Blukis Onat et al. 2001; Chatters et al. 2010). Interestingly, an obsidian artifact from the Ilgachuz source in British Columbia was found at site 45CA625, along the Elwha River (Dubeau and Kwarsick 2013), indicating that obsidian procurement is not focused on a single source region. If additional pieces of obsidian are recovered and meet the minimum size requirements, they will be submitted for sourcing analysis.

13) In addition to Watts Point CVR toolstone material, what other sources are represented in the artifact assemblages of the US 101 Elwha River Bridge sites? Were CVR toolstone materials being imported or procured locally?

A small-scale CVR sourcing study following testing at the three Elwha sites found: 1) evidence of CVR procurement from sources other than Watts Point at two of the three sites (45CA727 and 45CA774); 2) a preference of site inhabitants for Watts Point toolstone; 3) a varied selection of rock type for stone tool manufacture; and, 4) no difference between toolstone selected for biface vs. flake tool manufacture (Furlong 2019). Without characterization of the locally available toolstone and other potential sources we cannot determine the geographic origin of sources identified in the study sample other than Watts Point. To fully understand toolstone procurement strategies of site inhabitants, the following work is proposed.

Toolstone sourcing of Olcott-age CVR artifacts through geochemical analysis has a decades long history in Olympic Peninsula archaeological research and is an important aspect of site interpretation. Compilation of data from past sourcing studies allows these sites to be placed into a broader, regional pattern of toolstone procurement strategies from contemporary Olcott-age sites. Using non-destructive portable X-Ray Fluorescence Spectrometry (pXRF) will allow measurement of chemical composition and analysis of important artifacts that would otherwise be exempt from destructive methods.

Building on the previous study, site-specific toolstone procurement strategies will be evaluated on a larger scale. Additional work needs to be done to determine geographic origins of other sources represented in the study sample. A database of CVR sourcing data from previously published work will be compiled, allowing for a more robust evaluation of potential primary and secondary source locations. Additionally, the pXRF calibration created for the initial study will be strengthened by the addition of more controls. Once the CVR database and calibration are complete, geochemical characterization of a larger sample from the three Elwha sites will be completed. Based on time allotted for specific tasks, detailed below, up to 200 samples will be run on the pXRF. These samples can include 50 or more artifacts from each site as well as up to 50 primary or secondary geologic source samples.

Technology

14) Can multiple flake tool types be defined statistically and do those types present a pattern that will help archaeologists refine our interpretation of Olcott site activities, mobility, and tool provisioning?

The three sites in the Elwha River Bridge replacement project APE yielded a total of 39 flake tools during the testing project, comprising 41.5 percent of the tools overall. Flake tools are abundant in many Olcott sites, for example at Tolt (site 45KI464) where 1,116 flake tools were recovered (Blukis Onat et al. 2001). The morphology of flake tools are typically described in terms of metric dimensions, raw materials, and utilization but patterns are often limited to descriptive statistics. The flake tools should reflect activities that were important to daily life and potentially fall into morphological types based on repeated culturally-derived behavior. The recovered assemblage of flake tools will be examined to try and define types that are morphologically similar (divided into

unimarginal and bimarginal tool types) to infer potential activities occurring at each site. Quantitative analysis will focus on the relationships between flake modification attributes and overall tool attributes to distinguish forms that represent deliberate tool forms and/or indicate specific functional needs.

15) How do the US 101 Elwha River Bridge sites fit within the regional Olcott lithic technological landscape?

Research focused on Olcott toolkits has focused on defining the technological organization at each site with an emphasis on description of the artifacts recovered from their respective site (e.g. Butler 1961, 1965; Chatters et al. 2011; Gallison 1994; Kidd 1964; Wessen 1990). The work to define site toolkits has provided insights regarding these individual sites but variation in the approaches to analysis makes intersite comparison challenging if not impossible. As such, a robust comparison of the assemblage from the US 101 Elwha River Bridge sites to other Olcott assemblages throughout the region is limited to very simple observations. The analysis of the lithic materials recovered during the testing phase of the project suggested that unrecognized variability exists within Olcott toolkits (Noll 2019; Stcherbinine and Noll 2018). The problem can be addressed through a reanalysis of the Olcott sites that are at the core of past analytical efforts in conjunction with a robust analysis of the Elwha artifacts to produce a characterization of the variability of Olcott lithic technology that can provide a regional understanding of the technology of that time period. The lithic diversity will become increasingly clear as the sample size increases with excavation at the Elwha Bridge sites and more of the existing curated assemblages are incorporated into the analysis.

Regional Synthesis

16) How do the artifact assemblages from sites 45CA727, 45CA774, and 45CA775 compare to other regional Olcott sites? To other Elwha River sites?

For decades research concerning Olcott tools has focused on describing Olcott tools in detail (cf. Kidd 1964, Wessen 1990). The Olcott projectile point remains the major artifact indicator for these sites, coupled with comments about what these sites do not have (i.e., faunal remains, intact features, other characteristic tools). A cross-comparative study of the assemblages from Olcott sites focused on seemingly non-culturally diagnostic tools may reveal significant Olcott cultural indicators. The artifact assemblages from US 101 Elwha River sites will also be compared to other sites documented along the Elwha River including ones studied during the Elwha and Glines Canyon dam removal projects (Smith and Kopperl 2009).

Field Investigations

Excavation strategy is based on existing site information and changes may be implemented to accommodate information gathered as fieldwork progresses. The following strategy is designed to meet stated project goals and research objectives. All proposed excavation blocks (see attached maps) will be excavated as 1-x-1-m units for horizontal control. Excavation will be in arbitrary 10 cm levels unless cultural or natural stratigraphy allows for stratigraphic excavation within arbitrary levels. Features will be treated as separate stratigraphic units and feature fill excavated

separately. Excavated sediments will be screened through 1/4-in-mesh hardware cloth, with the exception of sediments collected for special analyses or fine-mesh screening. A control unit will selected at each site where stratigraphic column samples will be collected. At the conclusion of the data recovery excavations, AHS archaeologists will work with WSDOT personnel to backfill all excavation blocks with mechanical assistance.

Table 1. Excavation Effort for Each Site within the Elwha US 101 Bridge Replacement APE.

Site Number	Total Area	Area that Will Be Disturbed During Bridge Replacement (% Site Disturbance)	1% Sample (sq m) of Proposed Disturbance	Excavation Block Size(s)
45CA727	7,514 sq m	1,422 sq m (19%)	14 sq m	3-m-x-5-m[1]
45CA774	4,269 sq m	4,269 sq m (70%)	24 sq m	4-m-x-4-m (north of US 101); 2-m-x-3-m E (south of US 101); 1-x-2-m W (south of US 101; near culvert)
45CA775	7,928 sq m	2,370 sq m (30%)	30 sq m	5-m-x-6-m
Deep Testing North of Site 45CA775			4 sq m[2]	2-x-2-m

[1] If all of the units are excavated, the total area will represent 1.05 percent of the proposed disturbance for a total of 15 sq meters for planning purposes; [2]Deep testing will be conducted outside of the boundary of known sites and does not represent a 1 percent sample of planned disturbance in this portion of the APE.

Data Recovery at 45CA727

If WSDOT can avoid/protect these areas during the bridge replacement project and there is no adverse effect to this NRHP-eligible resource, then no further work is warranted at this site. Recovered cultural materials from previous investigations will be used to help answer research questions but no new materials will be collected. If the area cannot be fully protected during the bridge replacement, AHS proposes to excavate approximately 15 square meters of site sediments. Based on the results of previous investigations, the depth of excavation will extend to at least 80 centimeters and will continue until two culturally sterile levels are excavated within each unit. The proposed excavation sample represents 1.05 percent of the total site area that may be impacted during the bridge project. One 3-x-5- m excavation block is planned in an area of high artifact density within the proposed construction access. The actual size and location of the block and units may change based on field conditions including feature excavation.

Data Recovery at 45CA774

A total of 2,370 square meters (30 percent of the total site area) of site 45CA774 will be impacted by cut/fill activities during the bridge replacement project. AHS proposes to excavate approximately 24 square meters (or 1 percent) of sediments where intact high-density cultural deposits will be destroyed by ground-disturbing activities including cut/fill, grubbing, culvert replacement, and construction of access roads. Three blocks are planned for site 45CA774: one 4-x-4-m block north of US 101; one 2-x-3-m block south of US 101 and in the eastern portion of the site; and one 1-x-2-m block south of US 101 and in the western portion of the site (near the culvert). The actual size and location of the block and units may change based on field conditions including feature excavation.

Data Recovery at 45CA775

A total of 4,269 square meters (70 percent of the total site area) of site 45CA775 will be impacted by cut/fill activities during the Elwha US 101 bridge replacement project. AHS proposes to excavate approximately 30 square meters (or 1 percent) of sediments within the site area, which lies entirely within the cut/fill zone planned at site 45CA775. A historic fill stratum ranging in thickness from 28 to 80 centimeters was observed across some portions of the site area. Prior to excavation, the fill stratum will be mechanically removed by a WSDOT-operated excavator. An AHS archaeologist will direct mechanical removal of the fill stratum to ensure the underlying intact sediments are not disturbed. None of the mechanically removed fill will be screened. One 5-x-6- m excavation block is planned in an area of high artifact density within the proposed construction access. Based on the results of previous investigations, the depth of excavation will extend to at least 70 centimeters and will continue until two culturally sterile levels are excavated within each unit. The actual size and location of the block and units may change based on field conditions including feature excavation.

Deep Testing North of Site 45CA775

Previous trenching (Trenches 1-3) from the 2017 investigations resulted in the exposure of buried intact sediments at Trench 1 (which expanded the site boundary of 45CA727) and deep historic fill deposits (230 cmbs in Trench 2 and 150 cmbs in Trench 3). One 2-x-2-m block will be excavated north of site 45CA775 (closest to Trench 3) in an attempt to reach the bottom of the historic fill and to determine if intact sediments with cultural deposits exist below it. Deep testing in this area will provide information regarding the historic use of the site terrace (e.g., leveling an undulating landform for the resort/access road) as well as determine the presence/absence of deeply buried intact cultural deposits. Prior to hand excavation, the historic fill stratum will be mechanically removed by a WSDOT-operated excavator and will be directed by an AHS archaeologist. None of the mechanically removed fill will be screened. To ensure deep sediments can be safely sampled, the excavator may remove more of the surrounding sediments than the planned 2-x-2-m block so that it can be ‘stepped down’. The exposed stratigraphy will be documented in scaled stratigraphic drawings, detailed sediment descriptions, and photographs. All intact sediments will be screened for cultural materials and the removal of all mechanically excavated sediments will be monitored.

Inadvertent Human Remains Discovery

In the event that human remains are discovered, all work in the immediate area will stop. Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. The discovery will be covered from view and the area secured. Human remains will not be left exposed and unprotected. WSDOT and NPS personnel as well as the LEKT, Makah, Port Gamble S’Klallam, and Jamestown S’Klallam tribes will be notified immediately. The project APE is on land managed by NPS and the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 will be followed according to the attached protocol (LEKT 2017). AHS personnel have a long history of respectfully

addressing human remains discoveries and are sensitive to, and knowledgeable of, the cultural and legal concerns relating to the accidental discovery of human remains.

Laboratory Analyses

Following the completion of fieldwork, cultural materials and samples are processed in the AHS laboratory at Eastern Washington University. Artifacts are only minimally cleaned to facilitate the identification of lithic material type and cultural modification but preserve residues that might be present.

Identification slips with provenience and descriptive information are compiled for each formed tool or for groups of unmodified bone, shell, or debitage. Each formed tool is bagged separately with an individual identification slip and assigned a unique catalog number during data entry. Unmodified bone, shell, and debitage are grouped and bagged by general artifact categories for each excavation level and each group is assigned a unique catalog number. Unmodified lithic debitage is grouped by specific raw material type (e.g., all chert debitage for TU 1, Level 1). Diagnostic historic-era artifacts are bagged separately and given individual catalog numbers. Non-diagnostic fragments of historic-era artifacts (e.g., metal fragments) are bagged and cataloged as a group by unit level. Glass fragments are separated into the general categories of flat glass and container glass and by color.

Laboratory personnel identify lithic artifacts according to broad object name categories. Chipped stone artifacts will be grouped based on morphological attributes into either a tool or debitage category following Andrefsky (2005). All battered/pecked/ground stone artifacts will be classified using a technological approach following Adams (2014).

Field and Lab Provisions

General Measurements

Metric units of measure will be employed except for historic materials traditionally expressed in English units. If English units of measure are used, metric equivalents will be noted at least once in the text.

Sampling Strategies

AHS will conduct investigations designed to gather sufficient information to characterize the condition, content, age, structure and function of the archaeological deposits at US 101 Elwha River Bridge sites. Minimum excavation targets are proposed based on test excavation information, as well as a suite of analyses conducive to achieving research objectives. At a minimum, one excavation unit at each site will be sampled for fine mesh screening in order to characterize and quantify cultural materials routinely passing through the 1/4-in-mesh screens. Four liters of sediment will be collected for fine mesh screening from each 10 cm arbitrary level of the selected excavation units.

Referential Control Datum

AHS will establish a grid coordinate system referenced to a known horizontal and vertical control point. Temporary vertical control datums will be established within the excavation area.

Material/Information Recovery Process

AHS will collect all classes of cultural materials and relevant contextual information including portable artifacts, faunal materials, radiocarbon datable materials, pollen, phytolith, macrofloral, and flotation samples. Fire-modified rock will be size graded, lithologically identified, counted, and weighed. All fire-modified rock will be collected.

Occupation Zones

Excavated sediments will be dry screened through 1/4-inch-mesh hardware cloth. Feature sediments will be sampled for flotation and/or fine mesh screening as appropriate. Additional fine mesh screen samples will be collected if warranted. Three-point provenience (x, y, and z coordinate) will be obtained for features and for in situ artifacts in so far as possible or practical.

Features

Features are likely to yield important information and their excavation will be a priority. All excavated features will be sampled as separate stratigraphic and provenience units. Features will be thoroughly documented and sampled. Features will be documented through completion of the standard AHS Feature Form, plan and profile scale drawings, photographs, and content bulk sampling for special analyses including pollen, phytolith, macrofloral, and fine mesh screening.

Features will be exposed in their complete horizontal extent prior to sectioning and the contents documented in situ whenever possible. Feature function analyses will primarily rely on feature content and morphology.

Data Sample and Records Processing

Cultural materials will be handled and processed to maximize the recovery of potential residues. Materials will be cleaned sufficiently to permit cataloging and analysis. Artifact cataloging and labeling will be consistent with the guidelines of the selected artifact repository. All materials are bagged in 4 mil polyethylene resealable bags. Included in the bags are acid free paper printed

labels. After the analysis is complete, recovered materials and samples will be transferred to the National Park Service.

Records

AHS will maintain scientific records on all aspects of the work including but not limited to: field notes; feature records; up to date site map; stratigraphic records; artifacts; and, inventories of radiocarbon, luminescence, macrofloral, pollen, phytolith and other special samples. Photographs will be taken of ongoing work, stratigraphic profiles, features, etc., using a digital camera (24-megapixel resolution).

Materials and Records Studies

As noted above, a variety of materials and features will be analyzed in order to establish site chronology, artifact distribution and integrity, and site function. These objectives will be met through a variety of studies identified below.

Stratigraphy

As a means of assessing soil horizon development and therefore artifact depositional integrity, detailed profile descriptions will be made. The descriptions, along with cultural material distributions, are designed to aid in prehistoric occupation surface definition and natural and cultural stratigraphy.

Chronology

Site use chronology will be established through the use of absolute (e.g., radiocarbon, luminescence) and relative (e.g., historical types, tephrochronology, stratigraphic) dating techniques. Radiocarbon dating may be applied to conventional materials such as charcoal and bone, as well as lesser dated materials and samples such as organic sediment fractions. In addition, occupation chronological information may be obtained through luminescence dating of fire-modified rock. Obsidian hydration analyses will be conducted for potential relative dating of obsidian materials.

Lithic Analysis

Lithic implement and debitage analysis, at a minimum, is divided into three major problem areas: (1) raw material procurement and use through time; (2) reduction and technological system(s); and, (3) functional categories represented in lithic implement categories. Stylistic analysis focusing on the temporal placement of certain artifact forms (e.g., projectile points/knives) is undertaken as possible or appropriate. Both stylistic and technological attributes are examined as

potential indicators of stages of manufacture and/or use. It is anticipated that most analyses will be oriented toward chipped stone samples but may also include ground stone samples, if available for study.

Debitage Analysis

Flakes are defined as having sharp edges and at least one additional flake attribute (e.g., a bulb of force, compression rings, hackles, or a platform). Recognizably modified pieces of debitage are cataloged individually and not included in debitage analyses. After sorting by material type for cataloging, lithic debitage is analyzed by size and lithic reduction stage. Five arbitrary size categories are defined: less than 6 millimeters, 6 to 13 millimeters, 13 to 25 millimeters, 25 to 50 millimeters, and greater than 50 millimeters. Debitage will be sorted into four categories based on the presence of distinct flake attributes: proximal flakes with cortex, proximal flakes without cortex, flake shatter, and angular shatter following Andrefsky (2005). Proximal flakes include all debitage with a striking platform, and single dorsal and ventral surface. Proximal flakes are subdivided into flakes with cortex and those without cortex. Flake shatter includes flake fragments that lack the platform but have a single recognizable dorsal and ventral side. Angular shatter are pieces of lithic raw material that may exhibit a single flake attribute but do not fit any of the other flake categories. Shatter typically is associated with other debitage and is comprised of high quality raw material. The platforms of proximal flakes will be cataloged using five platform varieties: cortical, flat, simple (single arris), complex (2 or more arrises with the same orientation), bifacial (2 or more arises divided across the platform width). This classification system will allow for a single catalog of debitage that may represent more than one reduction trajectory.

Projectile Point Classification and Analysis

All tools will be analyzed using presence/absence of morphological attributes and calculated measurement indices that characterize shape. The degree of type standardization will be evaluated using 3-dimensional (3D) laser scanning and analysis for tools that represent stylistically designed forms. Projectile points are the most likely candidates for this analysis but other suspected of being designed to a morphological standard will be included in the 3D analysis. The technological analysis will utilize the results of raw material analysis conducted as a separate line of research.

Fire-Modified Rock Analysis

Fire-modified rock will be analyzed noting a variety of criteria including: size; weight; lithology; fracture morphology (e.g. parallel or normal to gravel surface) indicative of expansion (compression) or contraction (tensile) forces; and, vertical and horizontal distribution. Contingent on the context, samples of fire-modified rock may be collected in the field for luminescence and/or FTIR analysis.

Faunal and Macrofloral Studies

Faunal and macrofloral studies focus on the identification of animal and plant resources (respectively) used by prehistoric site occupants. Taxonomic identification and the role of specific animals and plants in the subsistence pattern(s) of prehistoric people constitute the principal focus of this aspect of the proposed research. Faunal analyses are likely to be limited due to poor bone

preservation. In an attempt to extract faunal and macrofloral economic information from the site, AHS will sample feature fill or other cultural deposits for flotation and fine mesh screening. Charcoal-rich feature fill sediments hold the highest potential for meaningful flotation analysis as they are most likely to contain charred macrofloral and faunal remains.

Pollen and Phytolith Studies

In addition, samples for pollen and phytolith analysis will be collected to better characterize their preservation and research potential for understanding prehistoric site use, subsistence activities, and paleoenvironment. Paired pollen and phytolith samples will be collected from both stratigraphic column and from special sample areas, particularly cultural features. Unanalyzed samples will be retained for future study.

Residue Studies

Stone artifacts will be processed with the assumption that protein or other residues (e.g., lipids and phytoliths) are preserved on them. In consultation with the WSDOT, a sample of these implements may be submitted for residue identification.

Comparative Study

AHS will use relevant extant archaeological information for comparative analytical purposes in interpreting the records at sites 45CA727, 45CA774, and 45CA775. Published sources containing relevant environmental and cultural information will be consulted and used as appropriate.

Data Entry

Artifact provenience and descriptive information are entered into a database program (FileMaker Pro 15) using a template created for AHS field catalogs. Unique catalog numbers (1, 2, 3, etc.) are assigned to each artifact or group of artifacts (as defined above) as data records are created. Artifact information is entered by provenience then by object class and catalog numbers are assigned sequentially. This computer database is used to print reference catalogs and clean, acid-free paper identification slips to be curated with the artifacts.

Labeling and Packaging

Each cataloged artifact (or groups of artifacts) is placed in a resealable polyethylene bag with an identification/provenience slip printed on acid-free paper. Feature sediment and charcoal samples are prepared for analysis or curation. Samples are allowed to dry and are repackaged in clean foil pouches (charcoal) or plastic bags (sediment) labeled with pertinent provenience information.

Reports

AHS reports are prepared following the style guidelines of the Society for American Archaeology and the Chicago Manual of Style, 17th revised edition. Efforts are made to prepare clear concise reports using a synoptic approach. Active phrasing is used whenever possible and lengthy technical descriptive information will be presented in appendices in tabular formats.

The reports will be prepared in Times New Roman 12 point typeface. Three paper and digital copies of the draft report will be submitted for review and comment and 10 paper and digital copies of the final report will be provided.

The draft reports will be in as nearly complete form as possible (including maps, drawings and photos) and should only require minor editing. AHS will address comments on the draft when preparing the final report.

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Appendix

Inadvertent Discovery Procedures/Discovery of Human Remains Protocols
Lower Elwha Klallam Tribe

DISCOVERY OF HUMAN REMAINS

If any activity exposes anything that appears to be human remains, either burials or isolated teeth or bones, or other mortuary items, the find will halt immediately in an area sufficient to maintain integrity of the deposit and the following protocol shall be used:

1) All persons shall immediately halt ground-disturbing activities around the discovery and it shall be secured with a perimeter of not less than thirty (30) feet in the Area of Discovery).

2) The Supervising Professional Archaeologist meeting Secretary of Interior professional standards will immediately notify the Project Supervisor.

3) Upon receiving notice, the project supervisor shall immediately notify the Lower Elwha Klallam Tribal Police, the Port Angeles City Police and request that the state physical anthropologist of the Department of Archaeology and Historic Preservation (DAHP) be notified of the discovery. The Clallam County Coroner will then determine if the remains are forensic or non-forensic and if the site is a crime scene.

4) Contemporaneous with notifying law enforcement and the Coroner, the Project Supervisor shall also notify the DAHP and the Lower Elwha Klallam Tribe (LEKT) Tribal Chairperson of the discovery.

5) The project supervisor and the Supervising Professional Archaeologist will work with the responsible law enforcement designee, and the Coroner to request that they handle the remains and disturb the site only to the extent needed to determine if the remains are Native American and if the setting is a crime scene.

6) If the human remains are determined by the Coroner to be Native American, then the Project Supervisor shall consult with the Lower Elwha Klallam Tribe (LEKT) and the DAHP physical anthropologist to determine treatment and disposition. If the human remains are determined by the Coroner to be Native American, then the Project Supervisor shall consult with the Lower Elwha Klallam Tribe (LEKT) and the DAHP to determine treatment and disposition. The project supervisor shall secure and buffer the area of the find with fencing, barricades, or by other restrictive means to ensure protection of the find during the process of notification or for additional archaeological recording and/or recovery. The remains shall be covered with either tarps or geotextile material to prevent unauthorized photography of the remains.

7) If the human remains are determined by the Coroner not to be Native American, and the Lower Elwha Klallam Tribe (LEKT) does not reasonably object to that determination, then neither the Project Supervisor nor the LEKT shall have any further obligation to one another for the handling of such remains under this procedure.

8) If human remains, funerary objects, ceremonial objects, or artifacts are inadvertently collected during any archaeological investigation on behalf of the Project Proponent and identified as Native American in the field or in the laboratory, the Project Proponent in consultation with DAHP and LEKT, will notify and return the remains, objects or artifacts to the LEKT within twenty-four (24) hours of the identification, or if that is not practical, then at a time acceptable to the LEKT. All human remains, funerary objects or artifacts shall remain unwashed and without further analysis, and shall remain onsite with 24-hour security or at a secured off site repository.

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