CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2023-01-00622

Author: Ron L. Adams, Yonara Carrilho, and Stephenie Kramer

Title of Report: Burrows Island Light Station Remediation Project, Skagit County, Washington

Date of Report: December 11, 2023

County(ies): Skagit Section: 32 Township: 35N Range: 1E

Quad: Fidalgo Island Acres: 8.2

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 #:
Temp # 21-86-1

- 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.

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TECHNICAL MEMORANDUM

Burrows Island Light Station Remediation Project, Skagit County, Washington

Ron L. Adams, Ph.D., R.P.A., Yonara Carrilho, B.A., and Stephenie Kramer, M.S.

December 11, 2023

Introduction

Willamette Cultural Resources Associates, Ltd. (WillametteCRA) was contracted by Arcadis U.S., Inc. (Arcadis) on behalf of the U.S. Coast Guard (USCG) to conduct archaeological monitoring for ground-disturbing activities for a cleanup of contaminated soils at Burrows Island Light Station, Skagit County, Washington (Project). Historic operations of the facility had resulted in surface and near-surface soil contamination by buildings painted with lead-based paint, polychlorinated biphenyl (PCBs) from a transformer oil spill in 1980, and petroleum products from historic use for fuel and heat. WillametteCRA prepared a Monitoring and Discovery Plan (MDP) to establish specific protocols to facilitate compliance with State and Federal laws and help avoid adverse effects to historic or precontact archaeological resources that could potentially be affected during the cleanup excavation. This technical memorandum summarizes the methods and results of the archaeological monitoring during ground-disturbing activities at the Burrows Island Light Station.

Project Location and Description

The Burrows Island Light Station is in the San Juan archipelago and sits on the western tip of Burrows Island, overlooking Rosario Strait in Section 32, Township 35N, Range 1E, Skagit County, Washington (Figure 1). The Burrows Island Light Station is within approximately 8.2 acres of land surrounded by rocky cliffs and sharp drop-offs toward the water on the western margin and by mature conifer and deciduous trees toward the interior of the island on the eastern margin.

The Lighthouse began operations in 1906 and originally consisted of a Lighthouse with a Fog Signal building, a two-store Keepers Quarters (Duplex), Boathouse and Workshop above a boat landing with a derrick and staircase, and an Oil and Coal house (Oil-Paint Storage building). The USGS took over the Light Station in 1939, and in the 1950s a single-family Officer-in-Charge (OIC) house was added north of the Duplex (Neblett and Williamson 1977). Also added to the Light Station was a concrete cistern partially buried on the south side of the Lighthouse, a Firehouse Pump building was placed east of the Duplex, generators and fuel oil boilers tanks

that provided fuel to the buildings were installed nearby each building. Gravity-fed water tanks were installed at high elevation on the eastern boundary of the property that connected to the Firehouse Pump building and to above ground water tanks installed behind the Duplex. The Light Station District was automated in 1972, and on-site caretakers were no longer required. Today, the standing buildings present at the Light Station are the Lighthouse and Fog Signal Building, the Duplex, and the Boathouse and Workshop building. The other buildings and structures mentioned above have been razed (McKoon-Hennick 2010). Diesel fuel tanks were removed in 1999 (Norman 1999).

The Project entailed cleanup of contaminated soils and other activities at the Burrows Island Light Station, currently owned by the USCG, in preparation for future transfer of the property to the Northwest Schooner Society. Other work conducted included removal of asbestos roof tiles from the roof of the Duplex, and re-roofing with composite roofing material. That work was monitored and reported by Clark Barnes Architects (Pheasant-Reis 2023). Arcadis authored the remediation plan that established soil excavation target depths and locations. The Project includes 16 areas that were designated using alphabetic letters (A through P). A single area or a group of areas were then color coded to indicate excavation target depths that were expected to range between one-half to three feet (Figure 2). Arcadis conducted daily soil testing, and the Sustainable Group/Brice Engineering (Brice) conducted the excavation and disposal of contaminated soils.

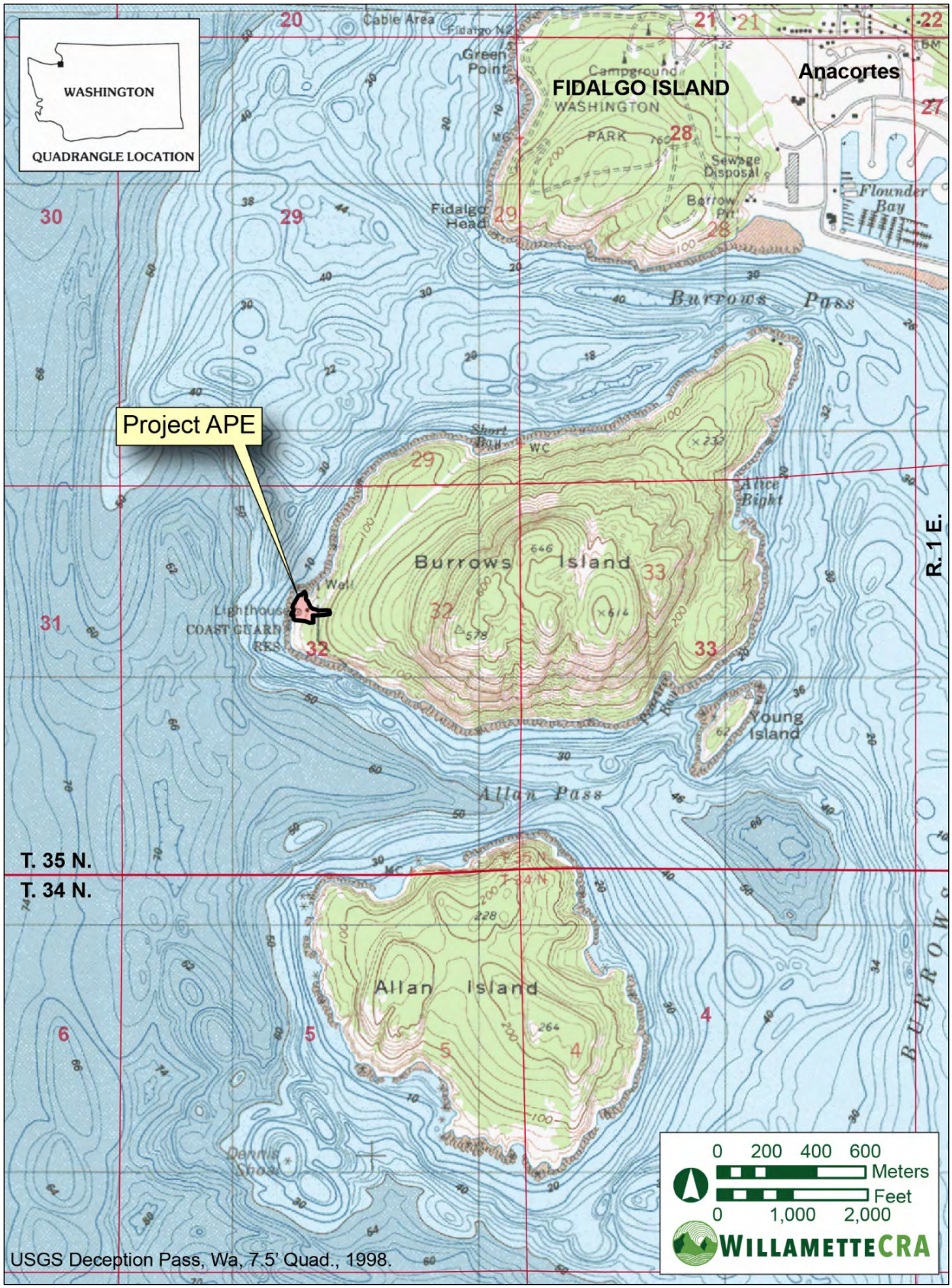

Figure 1. Project location.

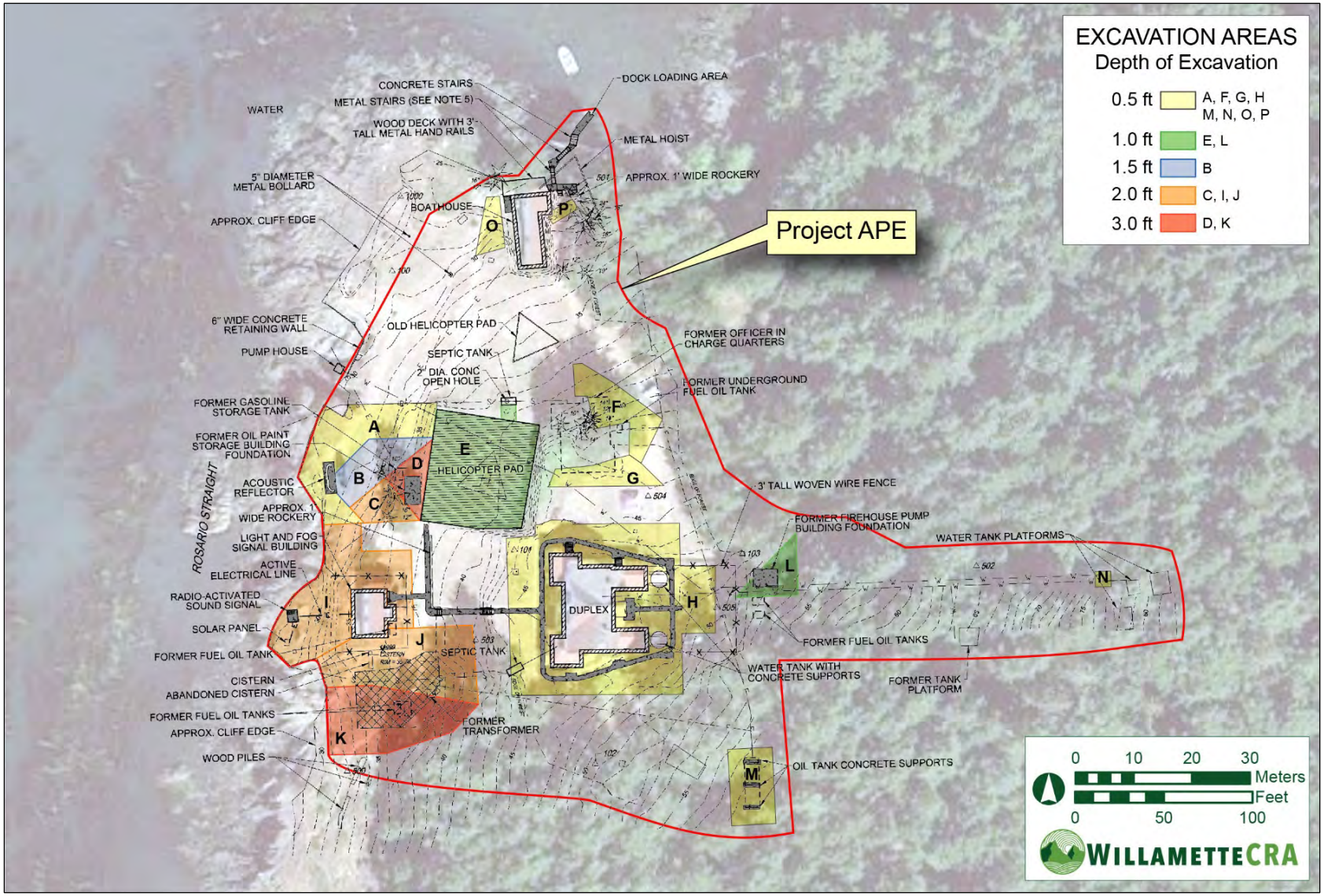

Figure 2. Project excavation locations and depths overlaid on aerial map.

Regulatory Setting

The structures at the Burrows Island Light Station have been recommended eligible for the National Register of Historic Places (NRHP) and are listed in the Washington Heritage Register (WHR). No archaeological resources have been recorded on the property. The Project was conducted as part of the USCG's environmental compliance and restoration program per 14 USC § 691, and is a necessary pre-requisite to the divestiture of the property under the National Historic Lighthouse Preservation Act.

The Project was conducted under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104 and Executive Order 12580, which requires the USCG to identify potential effects to historic properties. The Project was administered as a CERCLA, and was therefore not subject to review under Section 106 of the National Historic Preservation Act; however, the USCG identified an area of potential effects (APE) and determined that the Project will have No Adverse Effect on historic properties. In spite of this determination, the USCG committed to conduct archaeological monitoring during ground-disturbing activities. The USCG consulted with the Washington State Historic Preservation Officer at the Department of Archaeology and Historic Preservation (DAHP) and affected Tribes in January 2023, requesting comments on the Project. At the request of the USCG, WillametteCRA also contacted DAHP and the affected Tribes via email in June 2023, in order to re-introduce the Project and informally request comments on the MDP. Tribes contacted were the Lummi Nation, the Samish Indian Nation, the Swinomish Indian Tribal Community, the Sauk-Suiattle Tribe, the Snoqualmie Tribe, the Tulalip Tribes, the Upper Skagit Tribe, and the Confederated Tribes of the Colville Reservation in June 2023. No comments were received from the Tribes regarding the MDP or archaeological monitoring.

Cultural Expectations

Prior to ground-disturbing activities associated with the project, WillametteCRA reviewed archaeological and site inventory records using the Washington Information System for Architectural and Archaeological Records (WISAARD) maintained by the DAHP. Soils and geological data were also reviewed.

According to the WISAARD, no archaeological sites have been previously recorded in the Project Area. One cultural resources study has been previously completed; it consisted of archaeological monitoring of exploration near the demolished Oil-Paint Storage building where depths of excavation reached 12 inches (Norman 1999). Excavations conducted at the southeast corner of the Lighthouse in order to locate an underground oil storage tank reached depths of 2 ½ feet. Encountered sediment deposits in these excavations were interpreted as having been intact. During the same project, excavations to remove a diesel fuel tank adjacent to the former OIC indicated that the tank was not buried in sediments, but instead had been placed on bedrock.

Burrows Island is not addressed in the DAHP Archaeological Predictive Model. Geological data indicate that Burrows Island is a bedrock of ultramafic (low silica content) rock (Pessl et al. 1989; Schuster 2005). The shallow soils in this setting are described as Guemes very gravelly loam, sandy substratum, and Guemes very stony loam. The former is a deep, well-drained soil that typically occurs on mountainsides (USDA 2021). There are no beaches on the rocky island. Due to the geological setting of shallow soils, steep slopes, and challenging shoreline access we expected the likelihood of encountering precontact archaeological deposits to be low. Due to the long history of the lighthouse facility, we expected isolated historic-period artifacts related to lighthouse operation or living to be moderate to high.

Monitoring Methods

Archaeological monitoring was conducted between September 8, 2023, and September 24, 2023, by WillametteCRA archaeologists John Montine, Yonara Carrilho, Althea Fitzpow, and Mai McMurdie supervised by Project Manager (PM) Stephenie Kramer. Kramer also handled all communications with project personnel from Arcadis prior to and during the monitoring. Arcadis field manager Tom Nannini and assistant Branden Joy were the primary field contacts for the Project. Brice site superintendent and machine operator Eric Unruh provided monitors with information on daily excavation schedule and safety protocols.

Excavation work was conducted seven days per week, with each workday lasting approximately 12 hours. WillametteCRA archaeologically monitored each day of excavation. In order to minimize fatigue and maximize the quality of work, the archaeological monitors each worked sessions spanning no more than five contiguous days on average.

Each WillametteCRA monitor transported one small ¼”-mesh screen, one shovel, personal protection equipment (PPE), paperwork, one camera, and one handheld GPS unit to the island on the first day of each monitoring session. Access to and from the island was provided by Island Express Charter from Anacortes. The access staircase at the docking area was temporarily dismantled for reconstruction and a ladder and a rope were the improvised means to access the complex. Project excavations were completed with a Komatsu PC 170LC and a Deere 50G track hoes using buckets ranging from 2 to 5 feet in width, a Komatsu WA 270 front loader, and a JCB forklift.

The excavation procedures consisted of methodically excavating the contaminated soils and placing them directly into PacTec LiftPac zipper-top hazardous waste bags (Figure 4). The primary bag size used had a capacity to hold 3.5 cubic yards of material. A smaller 1 cubic yard bag was used in hard-to-reach places or to collect contaminated debris. A bag was placed into a metal-framed box to hold the spoils in place. When full of spoils, the bags were closed and lifted to a stockpile area and later barged out from the island for proper disposal. Each bag received a tracking number. With this procedure, monitors only inspected the surface of excavated areas for the presence of cultural materials and features. As the excavations were completed for each area, Arcadis personnel collected multiple soil samples to verify if contaminants in the soil were removed to accepted levels and that no more excavation was needed at that location (Figure 5). A small crew from Walker Specialty Construction (WSC) was also present on the island working on the removal of Asbestos Containing Material (ACM) roof tiles from the duplex building, although this work did not involve ground-disturbance and was not archaeologically monitored.

WillametteCRA monitors followed protocols described in the MDP (Appendix A). As the first monitor on site, Montine briefed Project personnel on the contents of the MDP, including the legal context of cultural resources protection, the kinds of cultural materials that may be encountered during construction, the archaeological observation and investigation techniques

typically employed by monitors, and measures to avoid or minimize damage to existing cultural features. Because of site contamination, all monitors were 40-hour HAZWOPER certified.

Notes were taken on standard forms, including the environmental setting, field conditions, sediments and stratigraphic deposition encountered, and contacts. Digital photographs were taken of the various stages of the excavation and recorded on photograph logs. Stratigraphic profiles, plan-view drawings and sketches were done when opportunities arose. The excavated areas were recorded using an R1 GPS handheld unit. All forms and photographs are on file at the WillametteCRA Seattle office.

Results

WillametteCRA archaeologists Yonara Carrilho, John Montine, Althea Fitzpow, and Mai McMurdie monitored the excavation work during four different sessions. Montine monitored during Session 1 (September 8–12, 2023), Carrilho monitored during Session 2 (September 13–17, 2023), Fitzpow monitored during Session 3 (September 18 through 20, 2023), and Mai McMurdie monitored during Session 4 (September 23 and 24, 2023). The areas monitored (Areas A through P) are shown on Figures 2 and 3. Excavation work conducted in each area was monitored during different sessions and sometimes was conducted during multiple sessions (Table 1). In the case of Area H, excavation continued over multiple sessions due to the large size of the area. In the cases of Areas F, J, and K, monitoring during additional sessions was conducted due to the presence of contaminants identified while testing soil during earlier sessions.

No significant cultural material was identified during the monitoring. However, the remains of the foundation of the former Officer-in-Charge residence, a chiminea, and a concrete cistern were all identified and documented as an archaeological site representing the archaeological component of the Burrows Island Light Station historic property (see archaeological resource section below and Appendix B).

Table 1. Breakdown of Sessions and Areas Monitored for the Burrows Island Light Station Remediation Project.

Area	Sessions Monitored	Archaeological Monitor(s)
A	Session 2	Carrilho
B	Session 2	Carrilho
C	Session 2	Carrilho
D	Session 2	Carrilho
E	Session 1	Montine
F	Sessions 3 and 4	Fitzpow (Session 3) and McMurdie (Session 4)
G	Session 2	Carrilho
H	Sessions 2, 3, and 4	Carrilho (Session 2), Fitzpow (Session 3) and McMurdie (Session 4)
I	Session 1	Montine
J	Session 1	Montine
K	Sessions 1 and 3	Montine (Session 1) and Fitzpow (Session 3)
L	Session 2	Carrilho
M	Session 1	Montine
N	Session 1	Montine
O	Session 2	Carrilho
P	Session 3	Fitzpow

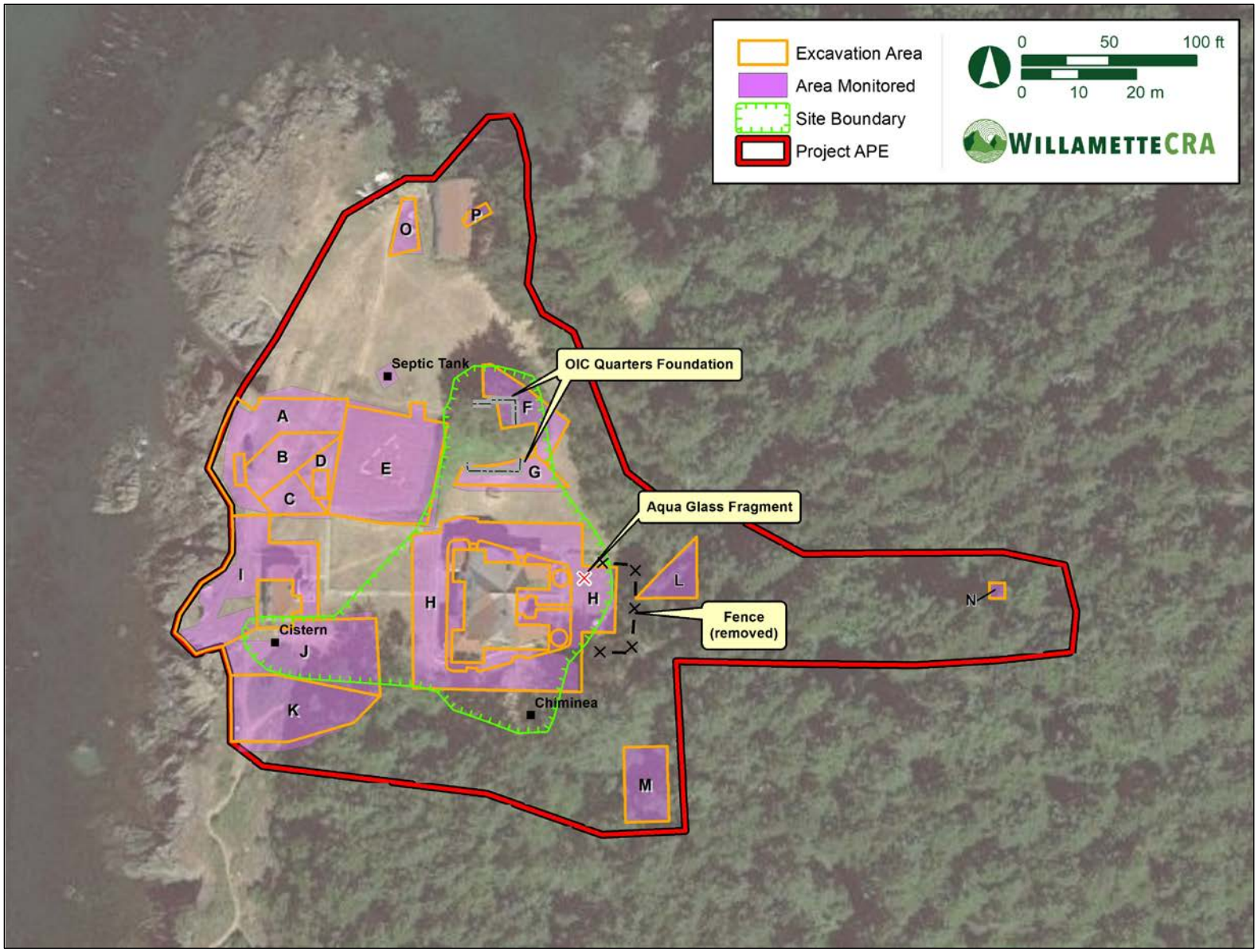

Figure 3. Map of areas monitored and cultural material identified.

Figure 4. Bags (3.5 cubic yards) used to collect contaminated soils.

Figure 5. Arcadis personnel collecting soil samples for testing. View northwest.

Areas A, B, C, and D

Areas A, B, C, and D were small adjacent areas with irregular shapes. Work in these areas was all conducted during Session 2. The existing Acoustic Reflector was within Area A and the concrete foundation for the former Oil-Paint Storage building was within Area D (Figure 6). Sediment observed in those four areas generally consisted of brown to yellowish-brown silt fill mixed with glacial gravelly sand and serpentinite residuum bedrock material. Tree stumps and large roots were present in these Areas.

Figure 6. Overview of excavated Areas A, B, C, and D. The Acoustic Reflector is on the right and the former Oil Paint Storage Building foundation on the left. View to the southwest.

Area E

Excavation in Area E was conducted during Session 1 and started at the helicopter landing pad. The corrugated steel helicopter pad was removed and sediments excavated to a depth of 1 foot below ground surface (ft. bgs). Sediment observed consisted of gray and dark reddish-brown gravelly coarse sandy silt that was poorly sorted and contained few small to medium roots. The deposit consisted of reworked, redeposited glacial till used as fill (Figure 6).

Figure 6. Overview Area E (helicopter pad) showing excavated sediment. View to the east.

Island Access/Staircase

To repair and rebuild the light station access staircase, the Brice crew hand-excavated about ½-cubic yard of glacial material from the hillside, hosed off the bedrock, and drilled holes into the rocks within the staircase footprint (Figure 7). Grayish-brown fine sandy silt colluvial glacial till debris was observed under a thick English-ivy mat.

Figure 7. Hosing off the bedrock and exposing for drilling at the staircase. View to the north.

Area F

Area F was located on the northeast edge of the former OIC Quarters, no longer extant. The ground surface was covered by ivy and a few deciduous trees and vines which made excavation difficult. The target depth of excavation was ½-foot but ended up slightly deeper in few spots because of tree roots. Remnants of the former OIC concrete wall foundation were exposed but not removed during excavations conducted during Session 3 (Figure 8). The sediment consisted of redeposited glacial till, a gray-brown and reddish-brown silty gravelly sand with common to many subrounded pebbles and boulders.

An additional three small areas were also excavated around Area F to remove approximately 200 sq feet. of sediments during Session 4 (Figure 9). Bioturbated gray silty gravelly sand was observed at the base of the excavation. No significant cultural materials were found during Session 4.

Figure 8. Remnants of the former OIC concrete wall foundation exposed during excavation of Area F. View to the southwest.

Figure 9. Overview of excavation along the northeast side of Area F. View to the northwest.

Area G

Area G is located on the south side of the former OIC Quarters. The target depth of excavation was ½-foot. The excavation, conducted during Session 2, exposed remnants of the concrete foundation. The wall remnants were 6 inches wide and built by poured-in-place concrete method. The monitor noticed two types of fills. The outside edge of the former building contained slightly compacted gray silty pebbly gravelly fine sand on the exterior and yellowish-gray fine sandy silty, less gravelly and rich in fine root debris in the interior of the foundation (Figure 10). Fragments of modern PVC pipes were observed within the fill. The foundation was left in place.

Figure 10. Area G excavation exposing concrete wall foundation from the former Officer-in-Charge Quarters. View to the southeast.

Area H

Area H surrounds the Duplex and was excavated to ½-foot. Excavations around the sidewalks were conducted by hand to minimize damage to the sidewalks, water tank foundations present near the Duplex, and the Duplex foundation during Sessions 2 and 3. The sediment observed consisted of yellowish-brown and gray pebbly gravelly very fine to fine sandy silt reworked glacial till with occasional presence of small-medium erratic boulders, mostly granitic material. Shallow 4-inch-diameter terracotta and 1 ½-inch-diameter metal pipelines (including a fuel line) were observed, as were a modern cable line (Figure 11). A backyard chiminea was observed on the south side of Area H at about 40 feet from the building. It was built with rocks, brick

fragments, and had concrete used as mortar. The chiminea was partially dismantled and covered by trailing blackberry and grasses. The feature does not appear in any maps or photographs of the Light Station; therefore, its built date is unclear.

Excavation on the north side of Area H, conducted during Session 3, exposed more fuel and 4-inch-diameter terracotta pipelines, brick, concrete chunks, and ceramic and window glass fragments in the spoils (Figure 12). Sediments consisted of gray-brown and reddish-brown silty gravelly sand with many subrounded pebbles to small boulders interpreted to be reworked and redeposited glacial till over bedrock. A fragment of an aqua glass vessel was observed within the spoils of Area H during Session 3 (Figure 13).

During Session 4, ultimately, 1 foot of sediments were removed from the south and east sides of Area H from an area 540 sq ft. (Figure 14), exposing gray silty gravelly sand glacial till. Concrete chunks and metal pipes were observed throughout the area. A wire fence was removed. Excavations in Area H reached glacial till (Figure 15). Sediments closest to the Duplex were hand excavated to preserve the existing sidewalks, as were those in between the water tank supports on the east side of the Duplex (Figures 16 and 17).

Figure 11. Northwest corner excavation of the Duplex showing exposed utility lines. View to the north.

Figure 12. Excavation of the northeast end of Area H showing exposed old fuel line. View to the northwest.

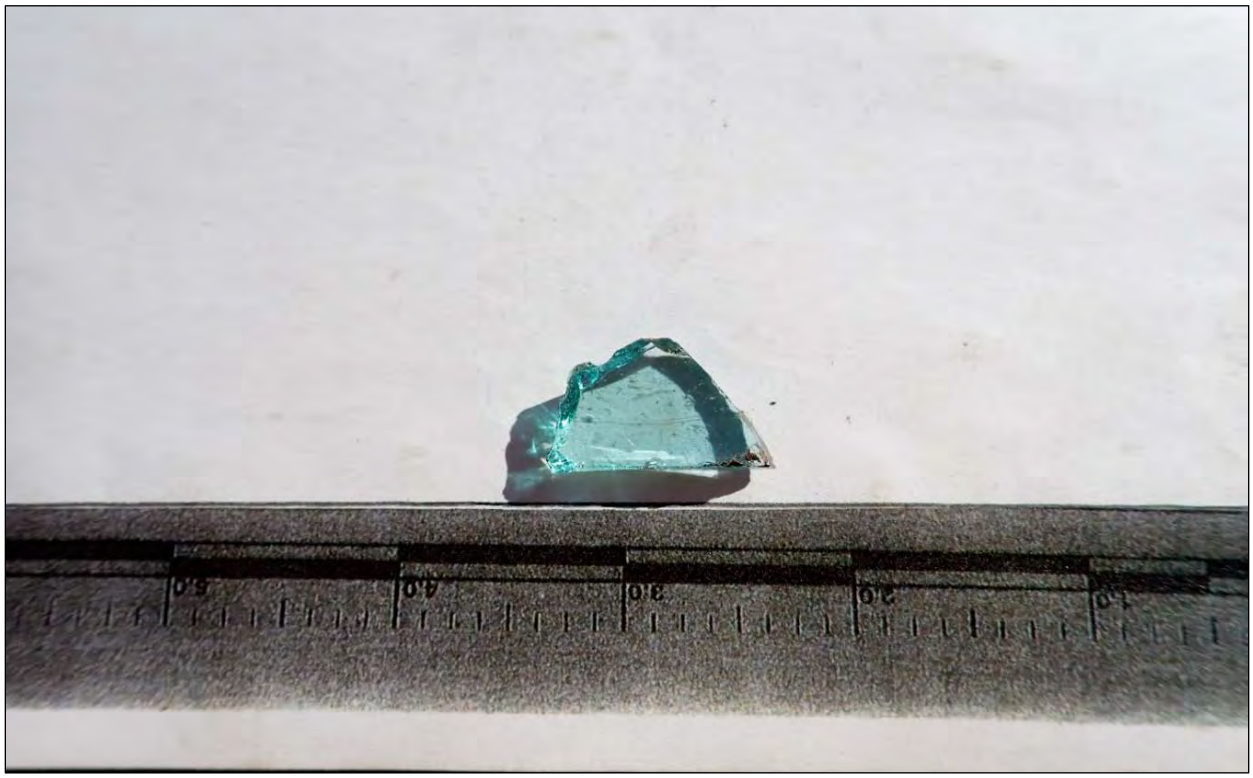

Figure 13. One aqua glass fragment was observed in spoils from Area H excavation.

Figure 14. South side of Area H with final excavation. View to the west.

Figure 15. Excavated segment between the Duplex (right) (Area H) and Area L (concrete foundation on the left is the former firehouse pump building foundation). View to the south.

Figure 16. Overview of hand excavation on the east side of the Duplex by the cellar. View to the west.

Figure 17. Hand-excavation in between water tank concrete support on the northeast corner of Duplex. View to the west.

Areas I, J, and K

Areas I, J and K were located at the southwest end of the light station complex; Areas I and J, monitored during Session 1, surrounded the lighthouse building, and Area K, monitored during Sessions 1 and 3, was where former fuel tanks had been buried and where an oil spill had occurred in the 1980s.

Area I was on the west side of the Lighthouse toward the cliff edge. The target depth of excavation was 2 ft. bgs for Area I, but only 1 foot was required. Sediments here consisted of approximately 1 foot of grayish-brown fine sandy silt in detrital serpentinite bedrock. Utilities were exposed along the edge of the Lighthouse.

In Area J, 2 feet of sediments were removed. An abandoned concrete cistern tank partially buried into the bedrock on the south side of the Lighthouse was left in place (Figure 18). Removed sediments consisted of grayish-brown silty gravelly sand reworked glacial till mixed with modern debris over remnants of gray gravelly sand. In the eastern half of Area J, two layers of concrete and concrete poured over chain-link fencing was observed directly on bedrock; it was connected to the concrete and fencing identified in Area K.

In Areas I and J, excavations around the perimeter of the Lighthouse and excavations along the walls of the building were completed primarily by hand to avoid compromising the building's integrity. Buried terracotta and metal utility lines and wire cables were exposed and removed. The sediment consisted of brown fine sandy silt with common pebbly fill gravels deposited on top of the bedrock (Figure 19). A loose single layer of red mud bricks was observed under the sod in some portions of the east and north side of the Lighthouse. The bricks were laid flat along the edge of the building foundation. A copper metal plate attached to a lead wire was excavated on the northwest corner of the building and may have been a grounding mechanism.

Work began in Area K where the top three feet of sediments were removed during Session 1. The eastern half of Area K was disturbed and contained modern debris including concrete chunks, metal and PVC pipes, iron support beams, and chain-link fence panels covered with poured concrete. Sediments were generally brown and gray silty gravelly sand glacial mixed with the debris and redeposited as fill (Figure 20). A strong smell of petroleum was noticed as the operator started removing the poured concrete/fence slab; the slab was suspected to be the cleanup/burial effort from the spill in the 1980s (Tom Nannini, personal communication 2023). The western half of Area K runs along the cliff edge where the glacial mantle was about 2 feet thick and some sediments initially appeared undisturbed. Underneath the grass mat, a 4-inch-thick layer of dark grayish-brown silty medium sand with few rounded pebbles and roots was observed over 19 inches of reddish-brown poorly sorted gravelly fine sand. Below 23 inches, a yellowish-gray gravelly glacial deposit was present.

During Session 3, contaminated sediments in Area K were removed from three hotspots: one large hotspot along the southern border of Area K was excavated to 2 ft. bgs; a smaller hotspot on the west edge of Area K by the cliff that was dug to about 3 ft. bgs to the top of the serpentinite bedrock; and a third hotspot consisting of concrete covering a high concentration of PCBs at the former transformer location in the southeastern portion of Area K (Figure 21). The sediment from the hotspots was removed to bedrock and contained metal scraps, metal pipe, chain-link fence fragments, and concrete chunks. Our initial interpretation of Area K containing intact sediments during Session 1 monitoring, was revised following this work to remove sediments from hotspots during Session 3.

Figure 18. Overview of Area J showing shallow sediments and bedrock. Cistern is visible in middle left of photo. View to the northeast.

Figure 19. Overview east side of Lighthouse, Area I, that shows excavated 2 feet of fill over bedrock. View to the north.

Figure 20. Overview of Area K east-half. Operator removing concrete/fence slab. View to the southwest.

Figure 21. Excavated hotspot on the west side of Area K by the cliff. View to the north.

Area L

Area L, monitored during Session 2, was located on the east side of the Light Station complex at the edge of the wooded area where the former Firehouse Pump building once stood. The concrete foundation slab was still extant (Figure 22). One foot of fill material was removed from the perimeter of the foundation. Numerous metal pipelines around the foundation were exposed and removed. Sediments were a loose light gray gravelly fine to medium sandy silt, ashy texture mixed with natural forest-burned soil under the forest duff and appeared to be a colluvium and reworked glacial till deposit.

Figure 22. Overview of excavation in Area L. View to the northwest.

Area M

Area M was monitored during Session 1 and surrounded a concrete oil tank foundation located at the edge of the wooded area on the southeast side of the light station complex (Figure 23). One-half foot of sediments surrounding the concrete support foundation were removed. Sediments observed were yellowish coarse sand mixed with brown silty medium sand and many rounded and angular gravels that were bioturbated by roots. Deposits seemed to be a mixture of reworked glacial till in serpentinite residuum.

Figure 23. Overview of Area M excavation in progress. View to the northwest.

Area N

Area N was monitored during Session 1 and was located on the far east end of the Light Station near three former water tank platforms in a densely forested area. The target depth excavation for Area N was ½-ft. bgs. Sediment observed was heavily bioturbated by many roots and consisted of gray silty gravelly medium sand with an ashy texture and a few subrounded small boulders (Figure 24).

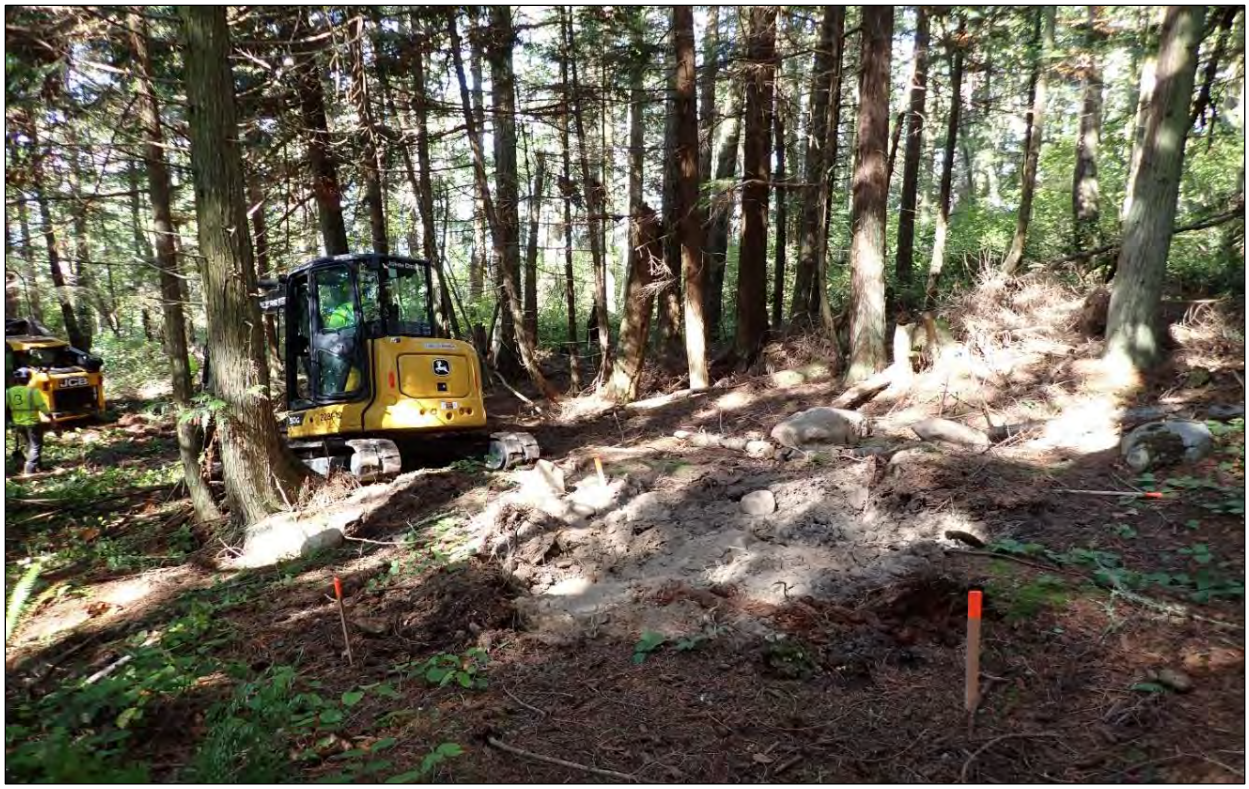

Figure 24. Overview of Area N completed excavation. View to the northwest.

Area O

Area O was monitored during Session 2 and was located on the west side of the Boathouse and the northwestern part of the complex, where ½-foot of sediment was excavated. Soil accumulation over the bedrock was minimal and consisted of mostly sandy gravel fill from the Boathouse construction mixed with glacial till and residuum serpentinite under a thin sod mat. The presence of large boulders and large roots made it difficult for Brice to scrape the excavated surface (Figure 25).

Figure 25. Overview of excavated Area O adjacent to Boathouse. View to the south.

Area P

Area P was monitored during Session 3 and located on the northeast side of the Boathouse. The Area P footprint was 80 square feet (sq ft.) with a target depth of ½-ft. bgs and contained gray and grayish-brown silty gravelly sand redeposited glacial till on top of bedrock (Figure 26).

Figure 26. Overview of excavated Area P. View to the north.

Archaeological Site 21-86-1

Archaeological site 21-86-1 is comprised of archaeological components associated with the Burrows Island Light Station complex. The site is comprised of one remnant concrete cistern, one remnant foundation associated with the former OIC quarters, and one remnant chiminea. A fragment of aqua glass identified during the monitoring of Area H is also included as part of the site (see Figure 13). The cistern and the foundation were both within the area where monitored excavations were conducted for the remediation project. The chiminea was identified near, but outside of, the southern edge of Area H. Although outside of the monitoring area, the chiminea was within the APE and had not been documented previously.

The remnant concrete cistern was exposed during the excavated monitoring conducted within Area J on the south side of the lighthouse. It is located approximately 2 feet south of the lighthouse's south wall and was completely buried prior to the excavation. The cistern was installed as part of improvements made to the lighthouse sometime between 1906 and 1972 (McKoon-Hennick 2010). The cistern is semi-cylindrical shaped and 12 feet long with a radius measuring 4 feet and a flat base measuring 8 feet in width. A round opening is present at the north end of the cistern that was covered with a metal cap measuring approximately 1 feet in diameter at the time of investigation. The cap was removed to inspect the contents of the cistern, which was partially filled with a dark viscous liquid (interpreted to be stagnant water) that obscured the view of the base of the cistern's interior.

Figure 27. Overview of concrete cistern at site 21-86-1. View to the north.

The OIC single-family house's remnant concrete foundation is located in Areas F and G, approximately 15-meter (50 feet) north of the Duplex. The foundation's north and south walls were exposed, but not removed, during the removal of contaminated soils in Areas F and G (Figure 28).

The OIC house was constructed north of the Duplex in the 1950s after the USCG began administering the Light Station in 1939 (Neblett and Williamson 1977). After the house was demolished in the 1971, the foundation walls were left in place, with the slab removed and some debris from the building left within the original footprint. Photographs of the island from 1978 and 1981 show the remaining foundation largely untouched (Figure 29). By the time of the archaeological monitoring in 2023, the foundation was covered by ivy and a shallow layer of sediment, with bushes and trees growing within and around it. The northern portion of the foundation was exposed during the remediation excavation work in Area F, and the southern end was exposed during the remediation work in Area G. The exposed portions of the concrete foundation wall measured 6 inches thick. Based on the dimensions of the exposed northern and southern ends of the foundation, it measured approximately 30 feet from east to west by 40 feet from north to south. A small concrete pad, possibly a doorstep, was attached to the exterior of the northwest corner of the foundation. Monitored excavations at the building footprint extended to a depth of approximately 6 inches below the ground surface. No historic artifacts were found associated with the foundation.

Figure 28. Overview of south edge of OIC foundation at site 21-86-1. View to the west.

Figure 29. 1981 air photo depicting the Burrows Island Light Station with the OIC foundation at center-left of photo, north of the Duplex (photo from U.S. Coast Guard Museum, Seattle, Washington). View to the south.

The chiminea is located approximately 18 meters (60 feet) south of the Duplex in a small clearing near the northern edge of the forest. The chiminea structure is built with bricks and large mismatched stones (both angular and rounded) that are held together with a concrete mortar (Figure 30). The age of the structure is unknown, although it likely was built at some point during the period when the Duplex was used as the Keeper's Quarters between 1906 and 1972, after which time it was no longer used as a residence (McKoon-Hennick 2010). The chiminea structure consists of a tall, narrow conical-shaped chimney with a shallow open pit at the base. The entire structure covers a surface area measuring 35 inches from east to west and 41 inches from north to south. The pit occupies the western portion of the overall structure. It measures 41 inches (north to south) by 18 inches (east to west) and is approximately 13 inches tall. The sides and opening of the pit are in disrepair, with collapsed stones and bricks within and around it. It appears as though the pit was previously nearly completely enclosed with an opening facing west, away from the chimney. The chimney measures 41 inches (north to south) by 17 inches (east to west) at its base and is 55 inches high. The top of the chimney is roughly circular-shaped and approximately 15 inches in diameter. The interior of the chimney is 6 inches in diameter and consists of smoothed mortar.

Figure 30. Chiminea at 21-86-1. View to the east.

Significance Evaluation

WillametteCRA recommends that site 21-86-1 is not eligible for listing in the NRHP and/or WHR. While the Burrows Island Light Station historic property has been recommended eligible for listing in the NRHP and WHR, this site does not contain any elements that contribute to the site's eligibility. The Burrow's Island Light Station was previously recommended eligible for listing in the NRHP under Criterion A, for its association with early to mid-twentieth century maritime and transportation history, and Criterion C, for its distinctive architectural characteristics.

The archaeological deposits identified at site 21-86-1, consisting of a cistern, the remnant OIC house foundation, a chiminea, and aqua glass fragment, by themselves do not convey the Light Station's significance under Criterion A. They also do not exhibit characteristics that would contribute to the Light Station's significance under Criterion C. The archaeological site also has no demonstrable connection to an important individual in local, regional, or national history that would contribute to the eligibility of the Light Station under Criterion B, and does not contain archaeological deposits that have the potential to contribute significant information to the study of the area's history.

Overall, the site lacks sufficient integrity to be considered eligible for listing in the NRHP and/or WHR. The site may retain integrity of place due to the fact that the site's elements have

remained in their current location since their apparent period of use. Likewise, the site retains some integrity of setting, feeling, and association with its historic context, given that the many buildings associated with the Light Station are still standing and the location has only been moderately altered since its recommended period of significance (1906–1960). However, the OIC foundation is in a fragmented state, lacking integrity of design, materials, or workmanship. The cistern and chiminea have retained more integrity, although they, along with the foundation, do not represent potentially contributing elements to the Light Station's significance under NRHP eligibility Criteria A, B, C, or D.

Conclusions and Recommendations

WillametteCRA conducted archaeological monitoring of remediation excavations at the Burrows Island Light Station complex. Excavation depths throughout the Project Area were defined by depths of contamination and varied between 0.5 to 3 ft. bgs. The sediments were removed from the site. Excavations often reached bedrock or glacial till sediments. No precontact archaeological resources were observed, and due to the rocky nature and generally shallow sediments of the Project setting, the likelihood of buried precontact archaeological deposits being present on the un-excavated portions of the property is low.

The Lighthouse and related structures on the complex are well mapped and foundations and other features of previously removed buildings were observed and located where expected. However, detailed measurements of buried foundation elements were generally not taken in an effort to avoid touching PCBs or other contaminants.

Three cultural features, the former OIC house foundation, a cistern, and a chiminea, and one historically diagnostic artifact, an isolated fragment of aquamarine glass, were observed during monitoring and documented as an archaeological site (21-86-1). Sediments were removed but the foundations, cistern, and chiminea were preserved in place. The exact age of the chiminea is unclear, and it is not depicted on the original Light Station plans, although it is presumed to be likely related to the occupation of the light station Duplex, which was occupied from 1906 and 1972. WillametteCRA recommends that this archaeological site is not eligible for listing in the NRHP or WHR.

The privy that is depicted on Light Station plans was never relocated during monitoring, and it is possible that it and/or other features associated with the Light Station could still be present in areas not excavated during the remediation. While the probability for precontact archaeological deposits is not considered high at the location, such deposits may still be present in areas not excavated for this project. As such, should ground-disturbing activities occur at the Light Station complex in the future, we recommend a professional archaeologist review the project plans prior to work occurring; if excavations will occur in areas that were not excavated during this remediation process, archaeological monitoring may be necessary.

References

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2010 *Draft: National Register of Historic Places Inventory—Nomination Form: Burrows Island Light Station*. On file, Department of Archaeology and Historic Preservation, Olympia, WA.

Neblett, N.P., and R.J. Williamson
1977 *National Register of Historic Places Inventory—Nomination Form: Burrows Island Light Station*. On file, Department of Archaeology and Historic Preservation, Olympia, WA.

Norman, Leslie K.
1999 *Letter Report: Archaeological Monitoring of Excavations at the Burrows Island Coast Guard Light Station*. Submitted to AGI Technologies, Bellevue, WA. Prepared by Northwest Archaeological Associates, Inc., Seattle, WA. On file, Willamette Cultural Resources Associates, Seattle, WA.

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1989 *Surficial geologic map of the Port Townsend 30- by 60-minute quadrangle, Puget Sound region, Washington*. Miscellaneous Investigations Series Map I-1198-F. U.S. Geological Survey.

Pheasant-Reis, Becca
2023 *Architect's Field Report*. Technical Memo Submitted to Arcadis, Inc. Prepared by Clark Barnes Architects, Seattle, WA.

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Appendix A: Project MDP

MONITORING AND DISCOVERY PLAN (MDP) FOR CULTURAL RESOURCES DURING THE BURROWS ISLAND LIGHT STATION REMEDIATION PROJECT, BURROWS ISLAND, WASHINGTON

DAHP Project Number 2023-01-00622

Willamette Cultural Resources Associates (WillametteCRA) was contracted by Arcadis U.S., Inc. (Arcadis) to conduct archaeological monitoring for the Burrows Island Action Memo and Confirmation Sampling at Burrows Island Light Station, Skagit County, WA project being undertaken by Arcadis for the U.S. Coast Guard (USCG) under Task Order No. 70Z08821FPXA00300 (Project). The Project will take place at the USCG Light Station at Burrows Island (near Anacortes, WA) in Section 32, Township 35N, Range 1E (Figure 1, Figure 2).

1. PROJECT BACKGROUND

The Burrows Island Light Station began operation in 1906 and has continued to serve local mariners since that time. Before the USCG presence, ancestors of the present-day Samish Indian Nation, the Swinomish Indian Tribal Community, the Lummi Nation, the Suquamish Tribe, the Upper Skagit Indian Tribe and the Tulalip Tribes lived on or visited the island for thousands of years. Historic operations of the facility have resulted in surface and near surface soil contamination by lead from lead-based paint, polychlorinated biphenyl (PCBs) from a transformer oil spill in 1980, and petroleum products from historic use for fuel and heat.

The Project entails cleanup of contaminated soils and other activities at the Burrows Island Light Station, currently owned by the USCG. The Project will involve excavation of contaminated soils to depth between one-half and three feet (15-91 cm) (see Figure 2).

Since the Project is taking place on federal land, it is subject to Section 106 of the National Historic Preservation Act (NHPA), and its implementing regulations (36 CFR 800, as amended). Section 106 requires federal agencies to consider the effects of their undertaking upon Historic Properties within the project's "Area of Potential Effects" (APE), and to engage in consultation to resolve adverse effects that may occur. Historic Properties are those properties listed in, or eligible for listing in the National Register of Historic Places (NRHP).

Additional laws that apply to archaeological projects conducted within the State of Washington include: Archaeological Sites and Resources (RCW 27.53), Indian Graves and Records (RCW 27.44), Human Remains (RCW 68.50), and Abandoned and Historic Cemeteries and Historic Graves (RCW 68.60).

The structures at the Burrows Island Light Station have been determined eligible for listing in the NRHP and are listed in the Washington Heritage Register. No archaeological resources have been recorded on the property. The light station includes the Light & Fog Signal Building, Boat House and Work Shop, and Keepers Quarters (Neblett and Williamson 1977). The other buildings and structures—two privies, the Oil and Coal House, the original helicopter pad, and an Officer in Charge cottage—have been razed (McKoon-Hennick 2010).

WillametteCRA reviewed available data on the Department of Archaeology and Historic Preservations (DAHP) WISAARD database for information on previous cultural resource surveyed conducted in or near the Project. Soils and geological data were also reviewed.

One cultural resources study has been previously completed on the project; it consisted of archaeological monitoring of exploration near the demolished paint storage building (depths reaching 6.5 to 12-inches) and near the southeast corner of the lighthouse in search of an underground oil storage tank (reaching 2.6 feet). Soils were interpreted as having been intact (Norman 1999).

Geological data indicates that Burrows Island a bedrock of ultramafic (low silica content) rock (Pessl et al. 1989; Schuster 2005). Soils data reports the APE as Guemes very gravelly loam, sandy substratum and Guemes very stony loam. The former is a deep, well-drained soil on mountainsides consisting of:

- 0 to 7 inches: very gravelly loam,
- 7 to 20 inches: extremely gravelly clay loam,
- 20 to 30 inches: extremely gravelly sandy loam, and
- 30 to 60 inches: very gravelly sand.

The Guemes very stony loam is:

- 0 to 8 inches: very stony loam,
- 8 to 14 inches: extremely gravelly loam,
- 14 to 44 inches: extremely gravelly clay loam,
- 44 to 58 inches: very gravelly loam, and

- 58 to 62 inches: very gravelly sandy loam (USDA 2021).

2. AREAS REQUIRING MONITORING

The USCG is requiring an archaeologist monitor all ground-disturbing excavations for the Project. Excavations will range between one-half and three feet (15-91 cm), in specific areas across the site (see Figure 2).

3. MONITORING PROCEDURES

A minimum of 3-weeks advance notice will be required to schedule a monitor. The archaeological monitor will ensure that every reasonable effort is made to fully document archaeological resources discovered during the removal action. The monitor will be allowed to document the discovery of any precontact and significant historical archaeological materials exposed during the removal actions. Monitoring may include examination of spoils, if it can be done safely, to identify and record cultural material that may be exposed during excavation.

- *Health and Safety.* The Monitor will be informed of and adhere to specialized safety procedures that need to be followed while on site and will provide necessary personal protective equipment. The Archaeological Monitor will work in close proximity to the excavation, and subject to safety constraints, will be allowed to be at the edge of excavated areas.
- *Pre-Construction Briefing.* Prior to construction excavations, or on the first day of excavations, the Monitor will brief construction personnel on cultural resource issues. The briefing will include information on the legal context of cultural resources protection and on the kinds of cultural resources that may be encountered during construction. The primary goal of the briefing is to familiarize construction personnel with the monitoring procedures and contact protocol to be followed if archaeological resources are discovered during construction.
- *Personnel Qualifications and Chain of Communication*. All monitoring activities will be supervised by staff (Monitoring Supervisor) who meet the Secretary of the Interior's Professional Qualifications Standards for Archeology (48 FR 44738). One archaeological Monitor is required to be on site during the project-related ground disturbance as described above in Section 2.
- *Notification of Discoveries*. The Monitor will be responsible for notifying the Monitoring Supervisor of any archaeological discoveries. The Monitoring Supervisor is responsible for notifying DAHP of any significant archaeological find. All contact numbers are listed at the end of this MDP.

- *General Monitoring Procedures*. The Monitor will visually inspect ground disturbances and physically examine excavated sediments wherever possible. Other duties of the Monitor will include photo-documentation of excavations and exposures, describing both horizontal and vertical exposures, and maintaining a detailed monitoring log.
- The Monitor will check in daily with the Construction Supervisor via phone or in person daily for scheduling information. The archaeological monitor must receive up-to-date construction plans and schedules.
- Construction activities and discovery locations will be documented on scale plans and site maps and plotted using GPS.
- The Monitor may communicate with the Construction Supervisor about equipment movement, placement of spoils for examination, or access to areas in a manner that follows established safety protocols. The Monitor may also communicate directly with equipment operators to determine the appropriate timing and procedures for accessing open excavations. The Monitor may request that operators temporarily pause or modify excavations to avoid suspected intact archaeological deposits and modify excavation procedures to remove sediments in thin lifts to assess potential archaeological discoveries. More information is provided in Section 5.
    - If the Monitor suspects or observes that archaeological materials or features are present, the Monitor will halt excavation in the immediate vicinity and document the find. All precontact and historic cultural material discovered during project construction shall be professionally recorded on a State of Washington Archaeological Site Inventory or Isolate Form using standard techniques. Site overviews, features, and artifacts shall be photographed; stratigraphic profiles and soil/sediment descriptions shall be prepared for any subsurface exposures. Discovery locations shall be documented on scaled site plans and site location maps. If assessment activity exposes human remains (burials, isolated teeth, or bones) all defined procedures outlined in Section 4, below, shall be followed. Sites, features, and artifacts will be digitally photographed as applicable.
- *Moving or Proceeding with Construction:* Construction outside of the discovery location may continue while documentation and assessment of the cultural resources proceed, if logistically possible, and the horizontal extent of the resource has been established.
    - To protect the integrity of a discovery, on-site construction staff shall take appropriate steps to protect the discovery site by ceasing all work within a 30-foot radius of the find spot to provide for the security, protection, and integrity of the resource. The protected area around the find will be marked with flagging or other visible materials. Vehicles, equipment and unauthorized personnel shall not

be permitted to traverse the discovery site. Work outside of the 30-foot radius may continue once the resource is secure.

- *After Hours Discovery*. If a potential cultural resource is encountered after normal business hours (Monday-Friday, 9am to 5pm), the Monitor will follow the protocols above and contact the Monitoring Supervisor as soon as possible. Work in the area of discovery may remain paused until the USCG and DAHP can be consulted.
- The Monitor will not collect or remove any precontact archaeological material from the site.

4. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL REMAINS

Upon discovery of human remains - Immediately Call:

- Skagit County Sheriff..... (360) 428-3211
- Skagit County Coroner's Office ..... (360) 416-1996
- Dr. Guy Tasa, State Physical Anthropologist, DAHP ..... (360) 790-1633
- Erin Hale, U.S. Coast Guard ..... (510) 637-5567
- Jackie Ferry, THPO, Samish Indian Nation .....(360) 293-6404, ext.126
- Josephine Peters, Swinomish Indian Tribal Community ..... (360) 466-7352
- Dennis Lewarch, THPO, Suquamish Tribe..... (360) 394-8529
- Lena Tso, THPO, Lummi Nation..... (360) 312-2257

Do Not Speak to the Media. Any human skeletal remains, regardless of ethnic origin, which may be discovered during this Project, shall be treated with dignity and respect at all times.

Pursuant to the Native American Graves and Repatriation Act (NAGPRA) (43 CFR 10), if funerary objects or human remains are found on federally-managed land, then "any person who knows or has reason to know that he or she has [made such discovery] must provide immediate telephone notification of the inadvertent discovery, with written confirmation, to the responsible Federal agency official" (43 CFR 10.4(b)). The person "must stop all activity in the area of the inadvertent discovery and make a reasonable effort to protect the human remains [or] funerary objects" (43 CFR 10.4(c)). Pursuant to 43 CFR 10.4(d), the responsible Federal agency official must respond within three working days to secure the discovery, notify lineal descendants, initiate consultation, and determine the appropriate next steps.

During all project operations, if any construction staff or subcontractors believes that they have made an unanticipated discovery of human skeletal remains, all work adjacent to the discovery shall cease immediately and the above contacts be notified. A 98-foot (30 meter) work stoppage area shall be maintained around the discovery to provide for the total security, protection, and integrity of the human skeletal remains, in accordance with federal requirements and Washington State Law. The remains shall not be touched, moved, or further disturbed. No persons other than the proper law enforcement personnel shall be authorized direct access to the discovery location after the area is secured. The strict control of a burial location is mandated to ensure the safety and integrity of the burial feature and remains.

- Construction staff are responsible for taking appropriate steps to protect the discovery. A 98-foot (30 meter) diameter area shall be secured to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel shall not be permitted to traverse or enter the discovery site.

Following the specific guidance set forth here, the Monitoring Supervisor shall immediately contact the USCG. The USCG will notify local law enforcement officials (Skagit County Sheriff and the Skagit County Coroner) and shall insure an individual competent and qualified to identify human skeletal remains is present. The county coroner will assume jurisdiction over the human skeletal remains and determine whether those remains are forensic or non-forensic. If the county coroner determines the remains are non-forensic, then they will report that finding to the DAHP who will then take jurisdiction over the remains. DAHP personnel will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will determine whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected tribes. The State Physical Anthropologist will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains. If the human skeletal remains are determined to be Native American, the participating parties shall consult to determine what treatment is appropriate for the human remains.

5. INADVERTENT DISCOVERY PROCEDURES

If construction activities cause disturbance to underground cultural/archaeological resources, *when the archaeological monitor is not present*, the following section establishes provisions for the professional archaeological treatment of cultural materials discovered during usual construction activities.

Construction work may uncover previously unidentified Native American or Euro-American artifacts. This may occur for a variety of reasons, but may be associated with deeply buried cultural material, access restrictions during project development, or if the area contains

impervious surfaces throughout most of the project area which would have prevented standard archaeological site discovery methods. Work must stop when the following types of artifacts and/or features are encountered:

- Native American artifacts, which may include (but are not limited to):
    - Flaked stone tools (arrowheads, knives scrapers etc.);
    - Waste flakes that resulted from the construction of flaked stone tools;
    - Ground stone tools like mortars and pestles;
    - Layers (strata) of discolored earth resulting from fire hearths. May be black, red or mottled brown and often contain discolored cracked rocks or dark soil with broken shell;
    - Human remains;
    - Structural remains- wooden beams, post holes, fish weirs.
- Euro-American artifacts, which may include (but are not limited to):
    - Glass (from bottles, vessels, windows etc.);
    - Ceramic (from dinnerware, vessels etc.);
    - Metal (nails, drink/food cans, tobacco tins, industrial parts etc.);
    - Building materials (bricks, shingles etc.);
    - Building remains (foundations, architectural components etc.);
    - Old Wooden Posts, pilings, or planks (these may be encountered above or below water);
    - Remains of ships or sea-going vessels, marine hardware etc.;
    - Old farm equipment may indicate historic resources in the area.
    - Even what looks to be old garbage could very well be an important archaeological resource;

When in doubt, call it in!

If construction contractors or subcontractors believe that they have uncovered any cultural or archaeological resources *when the archaeological monitor is not present*, all work adjacent to the discovery shall cease immediately. A 50-foot (15 meter) buffer should be placed around the discovery with work being able to proceed outside of this buffered area unless additional cultural materials are encountered. The area will be secured and protected. The Coast Guard Project

Manager and Construction Manager will be notified. The USCG Project/land manager will notify DAHP, also known as the State Historic Preservation Office (SHPO).

- The contractor's construction personnel will report any items of potential archaeological interest encountered during the project to the Monitoring Supervisor, if the Monitor is not present at that time. Collection of any archaeological materials by employees, construction personnel, or others with access to the APE is strictly prohibited by state and federal heritage laws.

Proceeding with Construction: Construction can proceed only after the proper archaeological inspections have occurred and environmental clearances are obtained. This requires close coordination with DAHP and the Tribes.

- After an inadvertent discovery, some areas may be specified for close monitoring or 'no work zones.' Any such areas will be identified by the Monitoring Supervisor to the USCG Project Manager and appropriate Contractor personnel.
- In coordination with the DAHP, the USCG Project Manager will verify these identified areas and be sure that the areas are clearly demarcated in the field, as needed.

6. CONFIDENTIALITY

The Removal Contractor shall make their best efforts, in accordance with state law, to ensure that its appropriate personnel and contractors keep the discovery of any found or suspected human remains, cultural items, and potential historic properties confidential. Contractors may not contact the media or any third party or otherwise share information regarding the discovery with any member of the public. The USCG is to be immediately notified of any inquiry from the media or public.

7. REPORTING PROCEDURES

Within 90 days of concluding fieldwork, a management summary describing any and all monitoring and resultant archaeological observations shall be provided to the USCG and the DAHP.

8. REFERENCES CITED

McKoon-Hennick, Kathleen
2010 *Draft: National Register of Historic Places Inventory—Nomination Form: Burrows Island Light Station*. On file, Department of Archaeology and Historic Preservation, Olympia, WA.

Neblett, N.P. and R.J. Williamson
1977 *National Register of Historic Places Inventory—Nomination Form: Burrows Island Light Station*. On file, Department of Archaeology and Historic Preservation, Olympia, WA.

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Pessl Jr., Fred, D.P. Dethier, D.B. Booth, and J.P. Minard
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US Department of Agriculture (USDA)
2021 *Web Soil Survey*. Electronic document, https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx; last accessed July 7, 2021.

9. CONTACT LIST

Contact	Organization/Agency	Phone Number
Dr. Rob Whitlam	State Archaeologist, Department of Archaeology & Historic Preservation (DAHP)	(360) 890-2615
Dr. Guy Tasa	State Physical Anthropologist, Department of Archaeology & Historic Preservation (DAHP)	(360) 790-1633
-	Skagit County Sheriff's Office	(360) 416-1911
-	Skagit County Coroner's Office	(360) 416-1996
Erin Hale	U.S. Coast Guard	(510) 637-5567
Mark Ullery	Arcadis Field Team Leader	(360) 292-8990
Stephenie Kramer	WillametteCRA Monitoring Supervisor	(360) 508-8805
Jackie Ferry, THPO	Samish Indian Nation	(360) 726-3399
Josephine Peters, THPO	Swinomish Indian Tribal Community	(360) 466-7352
Dennis Lewarch, THPO	Suquamish Tribe	(360) 509-1321
Lena Tso, THPO	Lummi Nation	(360) 312-2257

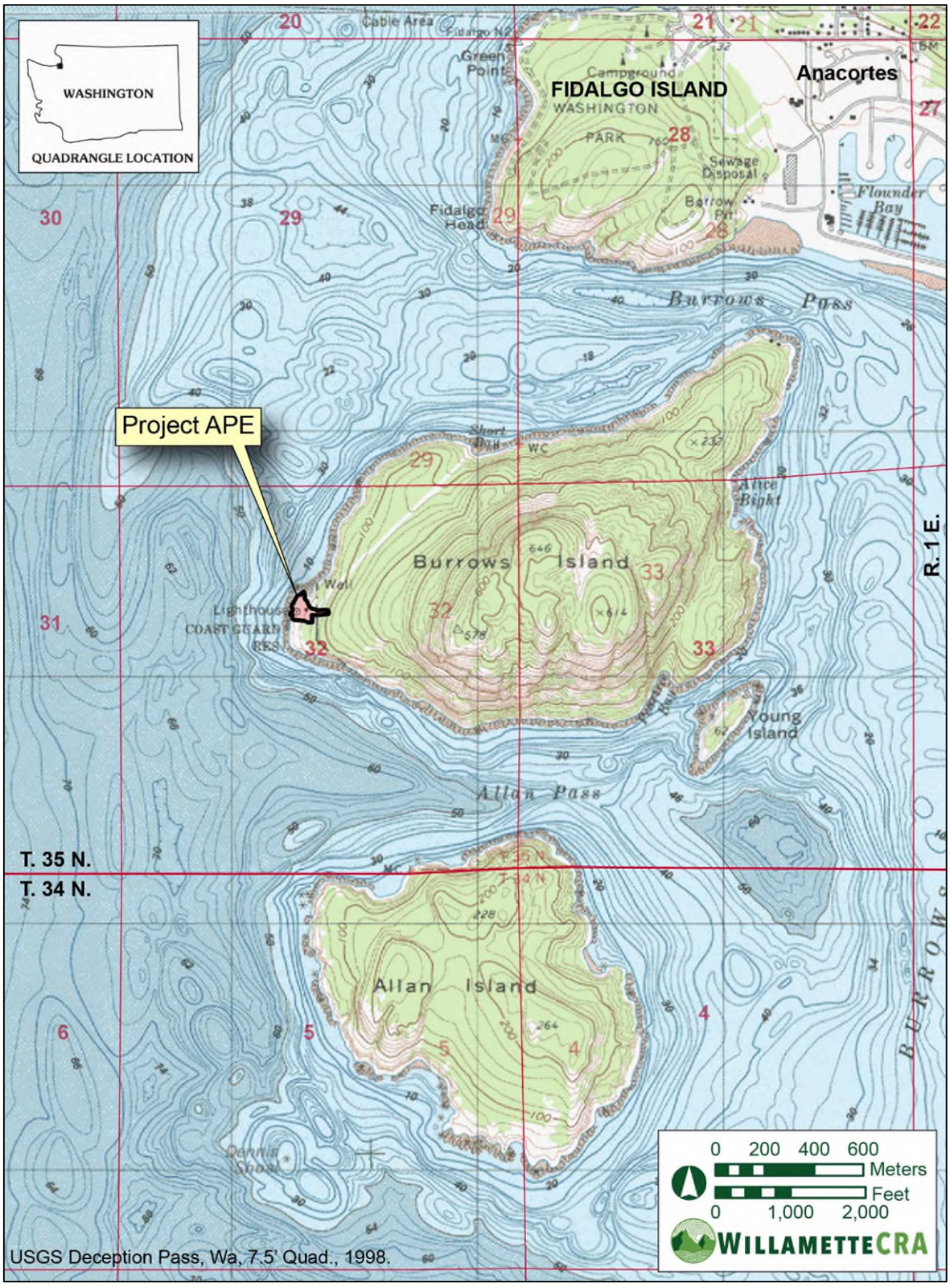


Figure 1. Area of Potential Effects on USGS topographic map.

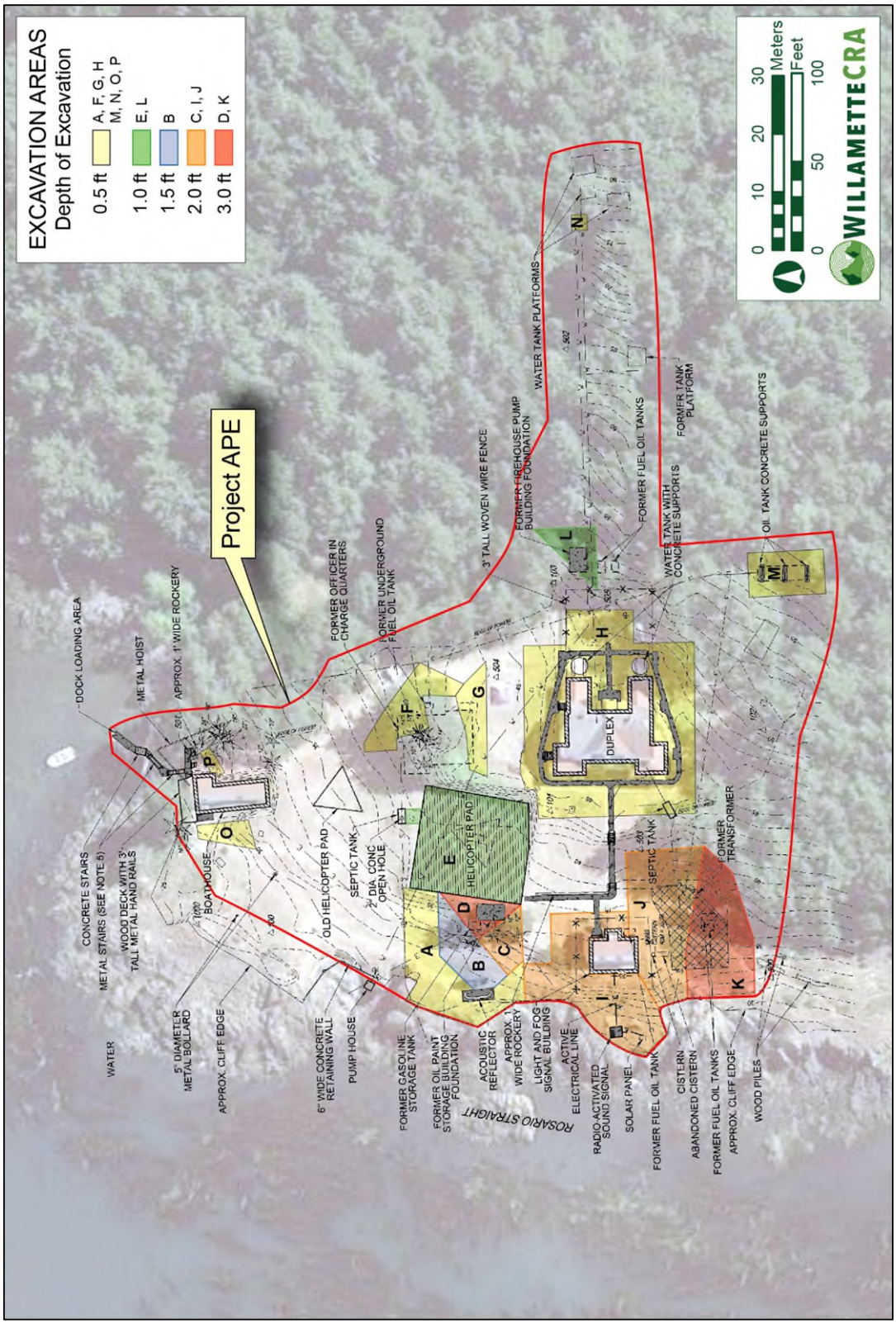


Figure 2. Area of Potential Effects and excavation depths overlaid on aerial map.

Appendix B: Archaeological Site Form

STATE OF WASHINGTON
ARCHAEOLOGICAL SITE INVENTORY FORM

Smithsonian Number: 45

County:

Date: 12/1/2023 **Human Remains?** ☐ **DAHP Case No.:**

Compiled By: Ron Adams Willamette Cultural Resources Associates, Ltd.

Archaeological Sites are exempt from public disclosure per RCW 42.56.300

SITE DESIGNATION

Site Name:

Field/Temporary ID: 21-86-1

Site Type: Historic Maritime Properties

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this request for determination of eligibility meet the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the site ☐ meets ☐ does not meet the National Register Criteria.

I recommend that this property be considered significant at the following level(s) of significance:

Criteria

Statement of Significance

WillametteCRA recommends that site 21-86-1 is not eligible for listing in the National Register of Historic Places (NRHP) and/or Washington Heritage Register (WHR). While the Burrows Island Light Station historic property has been recommended eligible for listing in the NRHP and/or WHR, this site does not contain any elements that contribute to the site's eligibility. The Burrow's Island Light Station was previously recommended eligible for listing in the NRHP under Criterion A, for its association with early to mid-twentieth century maritime and transportation history, and Criterion C, for its distinctive architectural characteristics.

The archaeological deposits identified at site 21-86-1, consisting of a cistern, the remnant OIC house foundation, a chimnea, and aqua glass fragment, by themselves do not convey the Light Station's significance under Criterion A. They also do not exhibit characteristics that would contribute to the Light Station's significance under Criterion C. The site also has no demonstrable connection to an important individual in local, regional, or national history that would contribute to the eligibility of the Light Station under Criterion B, and does not contain archaeological deposits that have the potential to contribute significant information to the study of the area's history.

Integrity

Overall, the site lacks sufficient integrity to be considered eligible for listing in the NRHP and/or WHR. The site may retain integrity of place due to the fact that the site's elements have remained in their current location since their apparent period of use. Likewise, the site retains some integrity of setting, feeling, and association with its historic context, given that the many buildings associated with the Light Station are still standing and the location has only been moderately altered since its recommended period of significance (1906-1960). However, the site's house foundation is in a fragmented state, lacking integrity of design, materials, or workmanship. The cistern and chimnea have retained more integrity, although they, along with the foundation, do not represent potentially contributing elements to the Light Station's significance under NRHP eligibility Criteria A, B, C, or D.

SHPO Determination

Eligibility Survey/Inventory **Determined On**

Determined By

SHPO Comments

SITE LOCATION

USGS Quad Map Name(s):

T: 35 **R:** 01 **E/W:** E **Section:** 32

UTM: Zone: **Easting:** **Northing:**

Latitude: **Longitude:** **Elevation (ft/m):**

Drainage, Major: Strait of Georgia **Drainage, Minor:** Rosario Strait-Strait of Juan De Fuca **River Mile** N/A

Aspect West **Slope** <5%

Location Description (General to Specific):

The site is located on the east side of the Rosario Strait on the west side of Burrows Island at the U.S. Coast Guard Burrows Island Light Station.

Directions (For Relocation Purposes):

From the intersection of Commercial Ave and 12th St in Anacortes, proceed west on 12th St (State Route [SR] 20) and continue as it changes direction to the southwest and becomes Oakes Ave (still SR 20) for a total 3.1 miles (mi.) to the intersection of SR 20 and Sunset Ave. At this point, bear left (southwest) at Sunset Ave. Continue west on Sunset Ave for 0.5 mi. until reaching Skyline Way. Turn left (south) onto Skyline Way and proceed 0.4 mi. to Skyline Marine Center. Burrows Island is only reachable by boat. At Skyline Marine Center, it is advisable to have a boat chartered (preferably arranged in advance) to reach the Burrows Island Light Station.

SITE DESCRIPTION

Narrative Description (Overall Site Observations)**:**

Archaeological site 21-86-1 is comprised of archaeological components associated with the Burrows Island Light Station complex. The Light Station began operations in 1906 and originally consisted of a Lighthouse with a Fog Signal building, a two-store Keepers Quarters (Duplex), Boathouse and Workshop above a boat landing with a derrick and staircase, and an Oil and Coal house (Oil-Paint Storage building). The U.S. Coast Guard (USGS) took over operations of the Light Station in 1939, and in the 1950s a single-family Officer-in-Charge (OIC) house was added north of the Duplex (Neblett and Williamson 1977). Also added to the Light Station sometime between 1906 and 1972 was a concrete cistern partially buried on the south side of the Lighthouse, a Firehouse Pump building was placed east of the Duplex, generators and fuel oil boilers tanks that provided fuel to the buildings were installed nearby each building. Gravity-fed water tanks were installed at high elevation on the eastern boundary of the property that connected to the Firehouse Pump building and to above ground water tanks installed behind the Duplex. The Light Station District was automated in 1972, and on-site caretakers were no longer required. Today, the standing buildings present at the Light Station are the Lighthouse and Fog Signal Building, the Duplex, and the Boathouse and Workshop building. The other buildings and structures mentioned above have been razed (McKoon-Hennick 2010). Diesel fuel tanks were removed in 1999 (Norman 1999). The Light Station has been documented as a historic resource (45SK164) and recommended eligible for listing in the National Register of Historic Places and Washington Heritage Register.

The archaeological component of the Light Station documented here is comprised of one remnant concrete cistern, one remnant foundation associated with the former OIC house, and one remnant chimnea. These features were documented during the archaeological monitoring of environmental remediation work, in addition to a fragment of aqua glass that is also included as part of the site. The cistern, foundation, and aqua glass were all within the area where monitored excavations were conducted for the remediation project. The chiminea was identified near, but outside of, the remediation area but was within the project's area of potential effects.

The cistern was exposed during the excavated monitoring conducted within on the south side of the Lighthouse. The cistern is semi-cylindrical shaped and 12 feet long with a radius measuring 4 feet and a flat base measuring 8 feet in width. It is located approximately 2 feet south of the exterior south wall of the Lighthouse. A round opening is present at the north end of the cistern that was covered with a metal cap measuring approximately 1 feet in diameter at the time of investigation. The cap was removed to inspect the contents of the cistern, which was partially filled with a dark viscous liquid (interpreted to be stagnant water) that obscured the view of the base of the cistern's interior.

The northern and southern sections of the foundation walls were exposed, but not removed, during the monitored remediation excavations. As noted above, the OIC house was constructed north of the Duplex in the 1950s after the USCGS began administering the Light Station in 1939 (Neblett and Williamson 1977). After the house was demolished in 1971, the foundation walls were left in place, with the slab removed and some debris from the building left within the original footprint. Photographs of the island from 1978 and 1981, show the remaining foundation largely untouched. By the time of the archaeological monitoring in 2023, the foundation was covered by ivy and a shallow layer of sediment, with bushes and trees growing within and around it. The exposed concrete foundation wall measured 6 inches thick and was comprised of a single continuous concrete pour. Based on the dimensions of the exposed northern and southern ends of the foundation, it measured approximately 30 feet from east to west by 40 feet from north to south. The south wall of the foundation wall was determined to be approximately 15 meters (50 feet) north of the Duplex and a small concrete pad, possibly a doorstep, was identified attached to the exterior of the northwest corner of the foundation. Monitored excavations at the building footprint extended to a depth of approximately 6 inches below the ground surface. No historic artifacts were found associated with the foundation.

The chiminea is located approximately 18 meters (60 feet) south of the Duplex in a small clearing near the northern edge of the forest. The chiminea structure is built with bricks and large mismatched stones (both angular and rounded) that are held together with a concrete mortar. The age of the structure is unknown, although it likely was built at some point during the period when the Duplex was used as the Keeper's Quarters between 1906 and 1972, after which time it was no longer used as a residence (McKoon-Hennick 2010). The chiminea structure consists of a tall, narrow conical-shaped chimney with a shallow open pit at the base. The entire structure covers a surface area measuring 35 inches from east to west and 41 inches from north to south. The pit occupies the western portion of the overall structure. It measures 41 inches (north to south) by 18 inches (east to west) and is approximately 13 inches tall. The sides and opening of the pit are in disrepair, with collapsed stones and bricks within and around it. It appears as though the pit was previously nearly completely enclosed with an opening facing west, away from the chimney. The chimney measures 41 in. (north to south) by 17 in. (east to west) at its base and is 55 inches high. The top of the chimney is roughly circular-shaped and approximately 15 inches in diameter. The interior of the chimney is 6 inches in diameter and consists of smoothed mortar.

Site Dimensions (Overall Site Dimensions)**:**

Length: 68 m **Direction:** N/S **Width:** 65 **Direction:** E/W

Method of Horizontal Measurement: GIS Mapping

Depth: Approximately 1 m. **Method of Vertical Measurement:** Tape Measure

Vegetation (On Site)**:**

Local: Lanscape grasses, Himalayan blackberry, Douglas fir, salal **Regional:** Tsuga heterophylla vegetation zone

Landforms (On Site)**:**

Local: Burrows Island **Regional:** Puget Sound

Water Resources (Type)**:** Puget Sound; nearest freshwater on island is unknown **Distance:** 33 meters **Permanence:** Perennial

CULTURAL MATERIALS AND FEATURES

Narrative Description (Specific Inventory Details)**:**

The features at the site consist of the following:

Concrete Cistern-
The concrete cistern is semi-cylindrical shaped and 12 feet long with a radius measuring 4 feet and a flat base measuring 8 feet in width. It is located approximately 2 feet south of the exterior south wall of the Lighthouse. A round opening is present at the north end of the cistern that was covered with a metal cap measuring approximately 1 foot in diameter at the time of investigation. The cap was removed to inspect the contents of the cistern, which was partially filled with a dark viscous liquid (interpreted to be stagnant water) that obscured the view of the base of the cistern's interior.

OIC House Foundation-
The exposed portions of the concrete foundation wall measure 6 inches thick. Based on the dimensions of the exposed northern and southern ends of the foundation, it measured approximately 30 feet from east to west by 40 feet from north to south. The south wall of the foundation wall was determined to be approximately 15 meters (50 feet) north of the Duplex and a small concrete pad, possibly a doorstep, was identified attached to the exterior of the northwest corner of the foundation.

Chiminea-
The chiminea is located approximately 18 meters (60 feet) south of the Duplex in a small clearing near the northern edge of the forest. The chiminea structure is built with bricks and large mismatched stones (both angular and rounded) that are held together with a concrete mortar. The chiminea structure consists of a tall, narrow conical-shaped chimney with a shallow open pit at the base. The entire structure covers a surface area measuring 35 inches from east to west and 41 inches from north to south. The pit occupies the western portion of the overall structure. It measures 41 inches (north to south) by 18 inches (east to west) and is approximately 13 inches tall. The sides and opening of the pit are in disrepair, with collapsed stones and bricks within and around it. It appears as though the pit was previously nearly completely enclosed with an opening facing west, away from the chimney. The chimney measures 41 inches (north to south) by 17 inches (east to west) at its base and is 55 inches high. The top of the chimney is roughly circular-shaped and approximately 15 inches in diameter. The interior of the chimney is 6 inches in diameter and consists of smoothed mortar.

The single artifact from the site consists of a fragment of aqua glass measuring 1.1 inches long, by 0.6 inches wide, and 0.25 inches thick. The artifact was identified during remediation excavation on the east side of the Light Station Duplex. The artifact was uncovered from an unknown depth, as it was identified in the back-dirt of the excavation.

Method of Collection:

No cultural material was collected from the site.

Location of Artifacts (Temporary/Permanent)**:**

All cultural material remains at the site location.

SITE AGE

Component Type	Historic
Dates	1906-1950s
Dating Method	Documentary Research
Phase	N/A
Basis for Phase Designation	N/A

SITE RECORDERS

Observed By	**Address**
Yonara Carrilho	650 S. Orcas St. Ste. 201, Seattle, WA 98108

Date Recorded: 12/1/2023

Recorded by (Professional Archaeologist)**:** Ron Adams

Organization:	Willamette Cultural Resources Associates, Ltd.	**Phone Number:**	(206) 343-0226
Address:	650 S. Orcas St. Ste. 201, Seattle, WA 98108	**Email:**	Ron@willamettecra.com

Recorded by (Professional Archaeologist)**:** Yonara Carrilho

Organization:	Willamette Cultural Resources Associates, Ltd.	**Phone Number:**	(206) 992-1805
Address:	650 S. Orcas St. Ste. 201, Seattle, WA 98108	**Email:**	yonara@willamettecra.com

SITE HISTORY

Previous Archaeological Work:

No previous archaeological work has been done at this site.

LAND OWNERSHIP

Owner	**Address**	**Parcel**
Commander US Coast Guard Maintenance and Logistics Command Pacific	Coast Guard Island BLDG 52, Alameda, California, 94501	P32494

RESEARCH REFERENCES

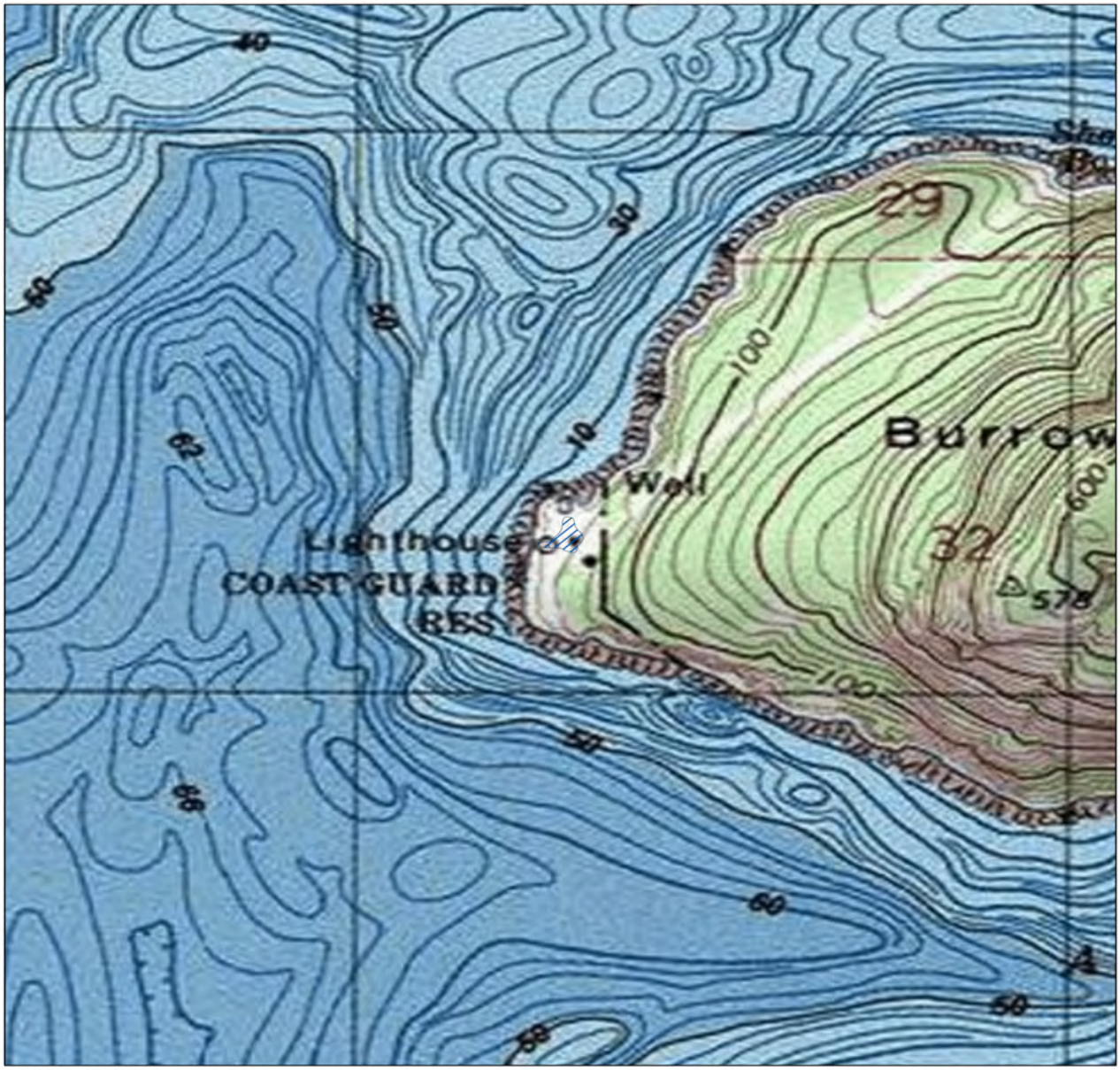
Items/Documents Used in Research:

McKoon-Hennick, Kathleen
2010 Draft: National Register of Historic Places Inventory—Nomination Form: Burrows Island Light Station. On file, Department of Archaeology and Historic Preservation, Olympia, WA.

Neblett, N.P., and R.J. Williamson
1977 National Register of Historic Places Inventory—Nomination Form: Burrows Island Light Station. On file, Department of Archaeology and Historic Preservation, Olympia, WA.

Norman, Leslie K.
1999 Letter Report: Archaeological Monitoring of Excavations at the Burrows Island Coast Guard Light Station. Submitted to AGI Technologies, Bellevue, WA. Prepared by Northwest Archaeological Associates, Inc., Seattle, WA. On file, Willamette Cultural Resources Associates, Seattle, WA.

USGS MAP



December 4, 2023

1:8,532

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

SKETCH MAPS

Source Information Map created by WillametteCRA, Ltd.

Photographs, Tables and Additional Information

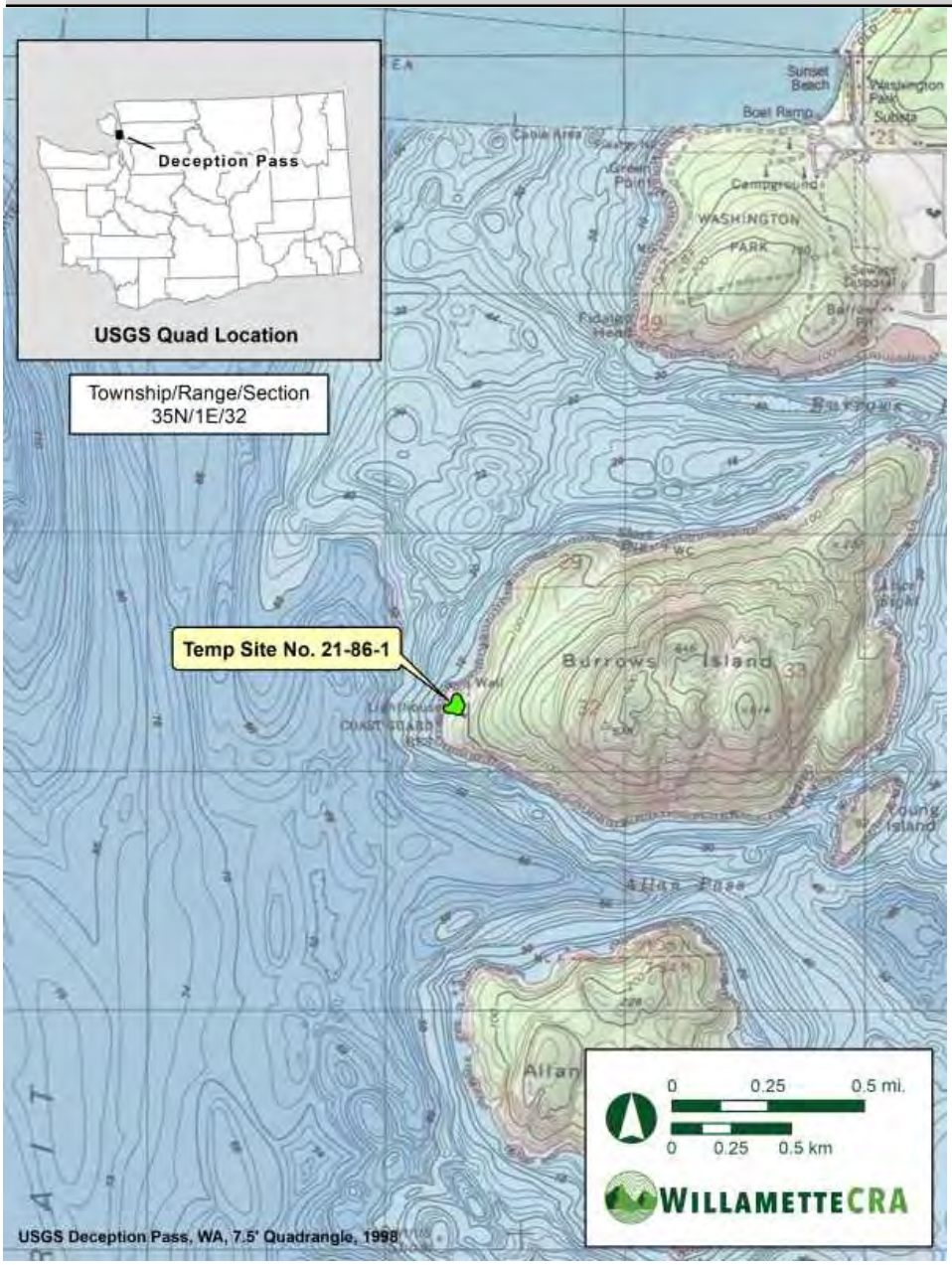


Photo ID	748541
Title	Site Map - USGS_24K.jpg
Year Taken	
Is Circa?	☐
Notes	Site location map.
Type	image/jpeg
Photo View	
Source	Map created by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748553
Title	March 19, 1981 Air Photo.jpg
Year Taken	1981
Is Circa?	☐
Notes	March 19, 1981 air photo showing site location.
Type	image/jpeg
Photo View	Plan
Source	U.S. Coast Guard Museum, Seattle, Washington
Copyright	☐

Photo ID	748552
Title	Overview 3.JPG
Year Taken	2023
Is Circa?	☐
Notes	Site overview photo.
Type	image/jpeg
Photo View	South
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748551
Title	Overview 2.JPG
Year Taken	2023
Is Circa?	☐
Notes	Site overview photo with cistern at center left near the lighthouse.
Type	image/jpeg
Photo View	Northeast
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748549
Title	Cistern View 2.JPG
Year Taken	2023
Is Circa?	☐
Notes	Cistern on the south side of the lighthouse.
Type	image/jpeg
Photo View	North
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748548
Title	OIC Foundation Overview.JPG
Year Taken	2023
Is Circa?	☐
Notes	Overview of OIC house foundation.
Type	image/jpeg
Photo View	West/Northwest
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748547
Title	OIC Foundation (south).JPG
Year Taken	2023
Is Circa?	☐
Notes	South wall of OIC house foundation.
Type	image/jpeg
Photo View	West
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748546
Title	OIC Foundation (north).JPG
Year Taken	2023
Is Circa?	☐
Notes	North wall of OIC house foundation.
Type	image/jpeg
Photo View	Southwest
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748545
Title	Chiminea.JPG
Year Taken	2023
Is Circa?	☐
Notes	View of west side of chiminea.
Type	image/jpeg
Photo View	East
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748544
Title	Chiminea Back Side.JPG
Year Taken	2023
Is Circa?	☐
Notes	View of back side of chiminea.
Type	image/jpeg
Photo View	Southwest
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

Photo ID	748543
Title	Chiminea Top.JPG
Year Taken	2023
Is Circa?	☐
Notes	View of top of chiminea.
Type	image/jpeg
Photo View	Plan
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐

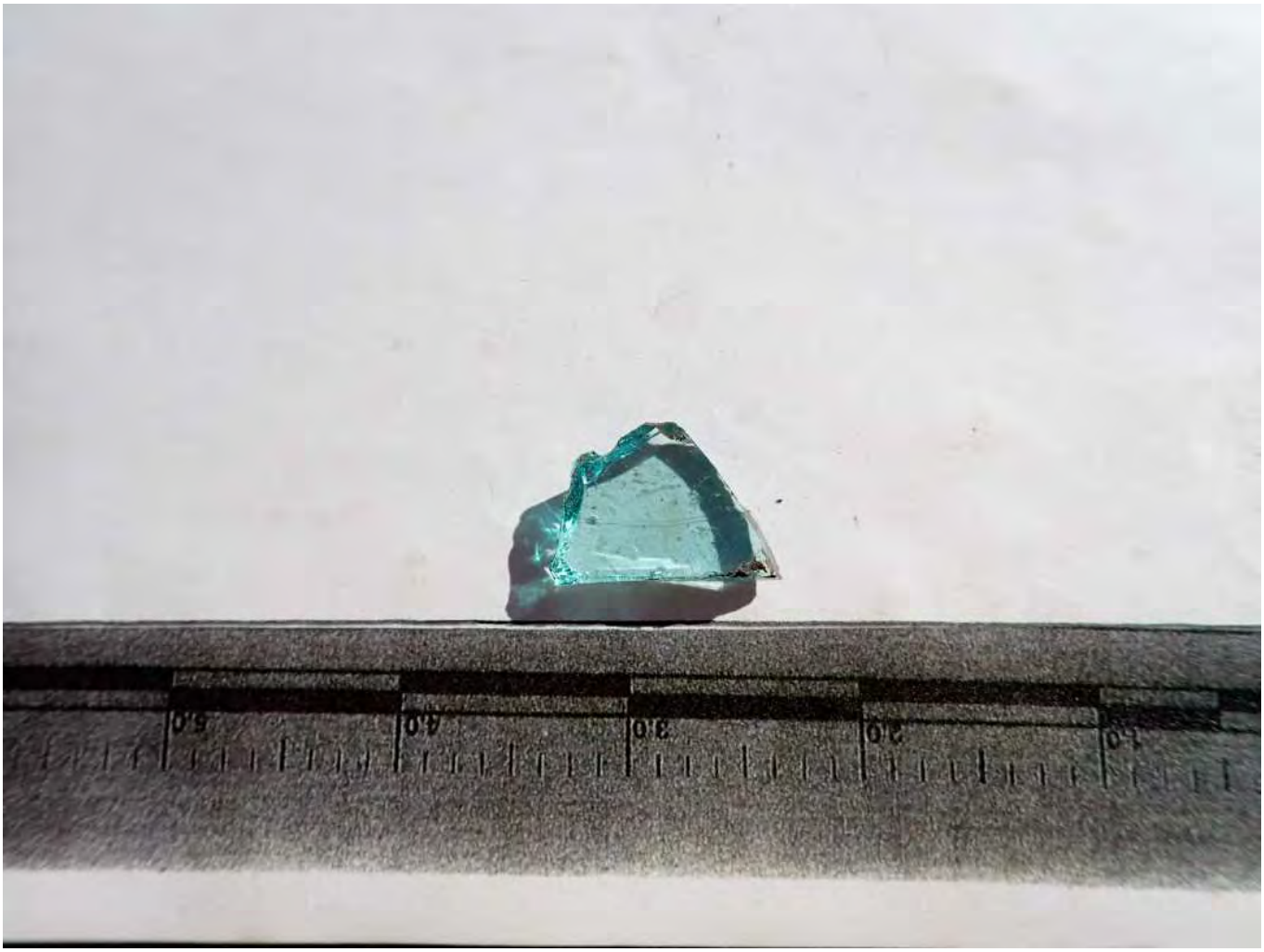


Photo ID	748542
Title	Aqua Glass.JPG
Year Taken	2023
Is Circa?	☐
Notes	Aqua glass fragment.
Type	image/jpeg
Photo View	Plan
Source	Photo taken by WillametteCRA, Ltd.
Copyright	☐