



**Archaeological Impact Assessment of a Proposed
Water Bottling Facility at 7072 Walch Road, Clinton, BC**

Heritage Inspection Permit #2015-0316



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Management Summary

This report presents findings of the Archaeological Impact Assessment (AIA) of the proposed construction of a water bottling facility at 7072 Walch Road, Clinton, B.C. The subject property which measures roughly 4.80 hectares is located in a light industrial park approximately 1.1 km south of downtown Clinton, on a raised terrace above the eastern shore of Duck Lake (Figure 1). The AIA was conducted at the request of Crystal Clinton Bottling Ltd., who contracted Ian Chadwick of EHD Consulting Ltd. to assist with planning and development of the proposed bottling plant. The proposed light industrial development will include the construction of a bottling facility and truck turn-about, a parking lot, and the installation of water/septic facilities. The development will also include the construction of a 12 m-wide access road and landscaping. Construction activities associated with the proposed development will include excavating, grading, heavy machine traffic and service installations.

Provincial records indicate there is a known archaeological site within the lot boundary (**EgRj-2**). As such Ursus Heritage Consulting Ltd. was retained to conduct a Preliminary Field Reconnaissance (PFR) and subsequent AIA of the proposed development. Following the PFR in 2015, final plans were determined for the bottling facility footprint, paved access road and turn-about, and ancillary developments with a footprint occupying roughly 1.5 hectares in the northern aspect of the subject property (Figure 2). This development footprint was the focus of this AIA. The study area is located within the asserted traditional territory of the High Bar First Nation and Whispering Pines Indian Band.

The field component of the PFR was conducted on October 26th, 2015, in which a surface scatter of 12 lithic artifacts (basalt debitage) was identified (Ursus 2015). The surface finds were recorded and left *in situ*. The field component of the AIA was conducted between April 18th and 21st 2016. The field crew consisted of Mykol Knighton and Jacqueline Bessette of Ursus Heritage Consulting (Ursus), Randy Lebourdais of Whispering Pines First Nation and Vi Antoine of High Bar First Nation. The project was coordinated on behalf of both Nations by Vi Antoine. The entire study area was subject to a ground surface inspection by the entire crew with multiple passes at close spacing. A total of 63 subsurface tests and 2 evaluative units were excavated within the subject property. 89 cultural lithics were recorded and collected during the ground surface inspection, and testing yielded a further 18 subsurface lithic artifacts. The findings of this study and the previous PFR resulted in the expansion of the boundaries of **EgRj-2** and confirmed the presence of archaeological site material throughout.

At present it is apparent that archaeological site EgRj-2 cannot be avoided through project redesign. Therefore the following is recommended:

- (a) Given that avoidance through project redesign is not possible, a Section 12 Site Alteration Permit must be obtained prior to any land altering activities within the site boundaries; this Permit should include requirements for archaeological monitoring of the removal of soil/sediments through the boundaries of all sites identified within the project impact area to recover additional artifacts and to identify possible subsurface features that may require systematic data recovery;**
- (b) The Section 12 Site Alteration Permit may also require data recovery through controlled excavation of evaluative units as a mitigation measure for any sites that may be disturbed by proposed construction.**

The opinions expressed in this document are those of the author. The author is solely responsible for its contents and any omissions and errors that it may contain. The author accepts no responsibility for uses other than those intended and stated in this report.

Acknowledgements

Ursus Heritage Consulting (Ursus) would like to thank Jane Wang of Crystal Clinton Bottling Ltd. for the opportunity to conduct this study, and Ian Chadwick of EHD Consulting Ltd. for his assistance. Ursus would also like to thank the Secwepemc for the opportunity to work within their asserted traditional territories and claim areas. In particular Ursus would like to acknowledge Vi Antoine for her help in the coordinating the project and arranging field technicians. Ursus would also like to thank Vi Antoine and Randy Lebourdais for their hard work during the field component of the project. Ursus graciously acknowledges Eric Forgeng of the Archaeology Branch for his guidance and assistance with the project.

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1.0 Introduction

This report presents the findings of the AIA of the proposed construction of a water bottling facility at 7072 Walch Rd, Clinton, B.C. (**Lot 2, Plan KAP6836, District Lot 1060**). The subject property which measures roughly 4.80 hectares is located approximately in a light industrial park 1.1 km downtown Clinton, on a raised terrace above the eastern shore of Duck Lake (Figure 1). The AIA was conducted at the request of Crystal Clinton Bottling Ltd., who contracted Ian Chadwick of EHD Consulting Ltd. to assist with planning and development of the proposed bottling plant. The proposed light industrial development will include the construction of a bottling facility and truck turnabout, a parking lot, and the installation of water/septic facilities. The development will also include the construction of an access road and landscaping. Construction activities associated with the proposed development will include excavating, grading, heavy machine traffic and service installations.

Provincial records indicate there is a known archaeological site within the lot boundary (**EgRj-2**). As such Ursus Heritage Consulting Ltd. Consulting (Ursus) was retained to conduct a Preliminary Field Reconnaissance (PFR) and subsequent AIA of the proposed development. Following the PFR in 2015, final plans were determined for the bottling facility footprint, paved access road and turn-about, and ancillary developments with a footprint occupying roughly 1.5 hectares in the northern aspect of the subject property (Figure 2). This development footprint was the focus of this AIA. The study area is located within the asserted traditional territory of the High Bar First Nation and Whispering Pines Indian Band.

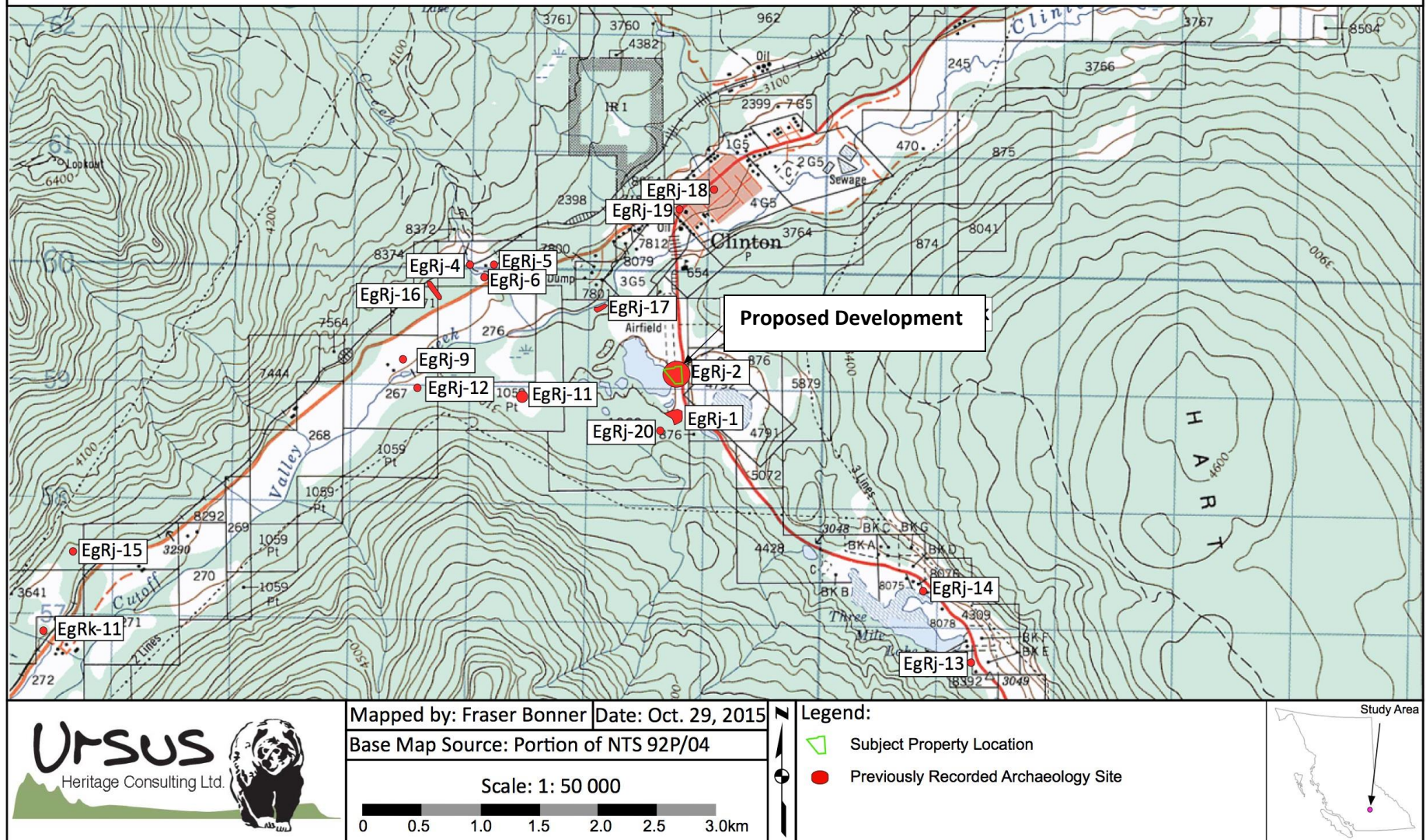
The field component of the PFR was conducted on October 26th, 2015, in which a surface scatter of 12 lithic artifacts (basalt debitage) was identified (Ursus 2015). The surface finds were recorded and left *in situ*. The field component of the AIA was conducted between April 18th and 21st 2016. The field crew consisted of Mykol Knighton and Jacqueline Bessette of Ursus, Randy Lebourdais of Whispering Pines First Nation and Vi Antoine of High Bar First Nation. The project was coordinated on behalf of both Nations by Vi Antoine. The entire study area was subject to a ground surface inspection by the entire crew with multiple passes at close spacing. A total of 63 subsurface tests and 2 evaluative units were excavated within the subject property. Eighty-nine (n=89) cultural lithics were recorded and collected during the ground surface inspection, and testing yielded a further 18 subsurface lithic artifacts. The findings of this AIA study and those of the previous PFR resulted in the expansion of the boundaries of **EgRj-2** and confirmed the presence of subsurface and surficial archaeological site material throughout (see Figures 3 a-c for detailed results of the Ursus 2015 PFR and 2016 AIA studies).

This report provides background data regarding the context of the research in terms of its biophysical and cultural setting, describes the objectives of the research, details the methodology, presents the results of the fieldwork, and provides recommendations regarding the need and appropriate scope of future archaeological research within the area examined.

1.1 Definitions

An Archaeological Impact Assessment (AIA) is concerned with the identification and management of archaeological sites. An archaeological site can be defined as any location that contains identifiable physical traces of past human activities and/or behaviours. Many different types of archaeological sites may be found in the study area and more than one line of archaeological evidence may be present at these sites. The types of sites that may be found in the study area include village sites, temporary camps, lithic scatters, isolated finds, rock art sites (pictographs and petroglyphs), remains of temporary shelters, lithic raw material quarry sites, burials, trails, and Culturally Modified Trees (CMTs).

FIGURE 1: LOCATION OF CLINTON LIGHT INDUSTRIAL PARK (7072 WALCH ROAD) and NEARBY ARCHAEOLOGICAL SITES



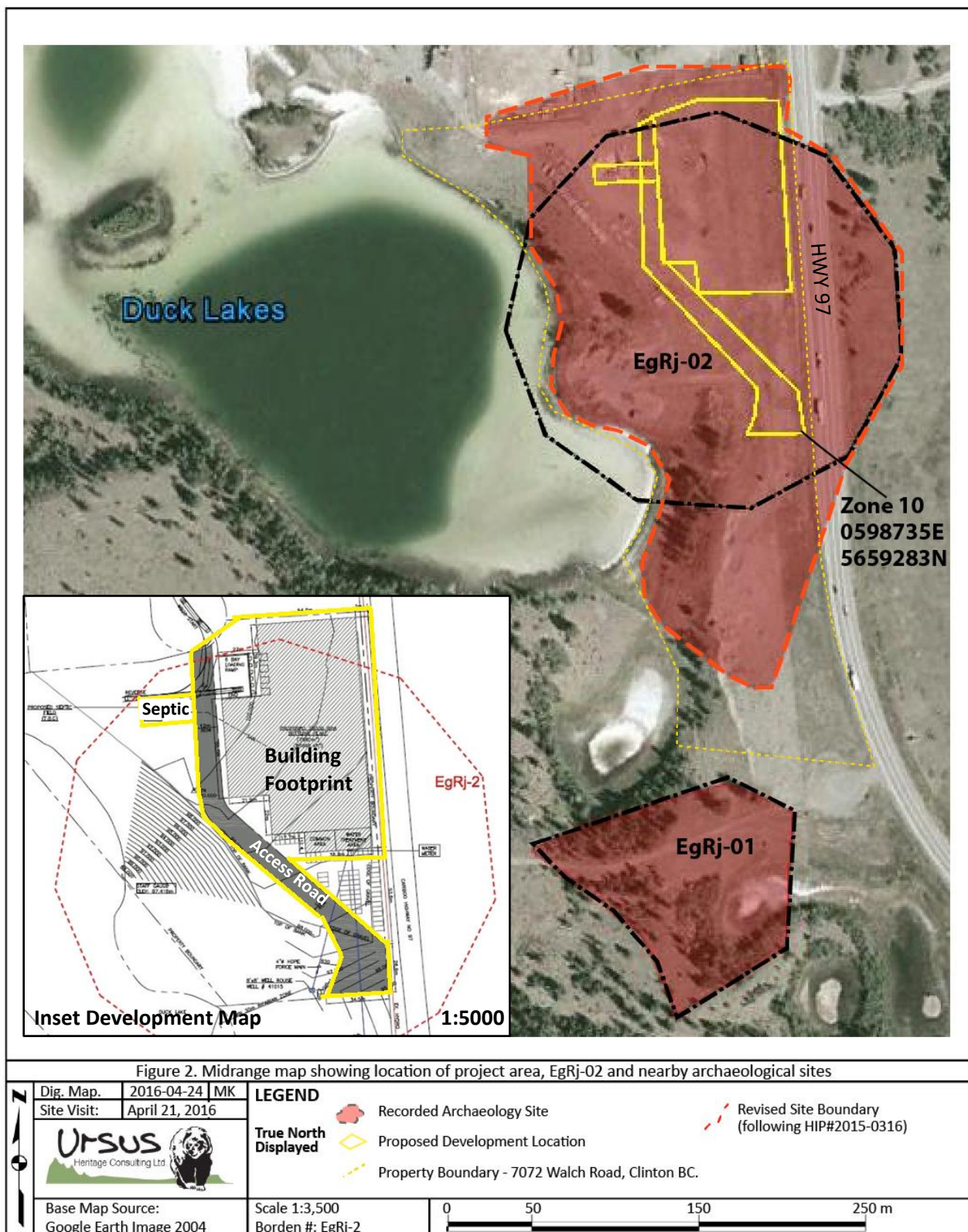
Archaeological sites that pre-date 1846 are automatically protected under the *Heritage Conservation Act (HCA)* whether on public or private land. Sites that are of an unknown age and that have a likelihood of dating prior to 1846 (i.e., lithic scatters) as well as aboriginal pictographs, petroglyphs, and burials which are considered to have historical or archaeological value are also automatically protected. Sites that are protected under the *HCA* may not be altered, damaged, moved, excavated in, or desecrated in any way without a permit issued under Section 12 or 14 of the *HCA*.

1.2 Study Objectives

The objectives of the AIA described in this report are: (1) to identify and evaluate the significance of any archaeological sites located within the project area, (2) to identify and assess possible impacts by any proposed developments and past development related ground disturbance within the project area on any protected archaeological sites, (3) to provide recommendations regarding the need and appropriate scope of further archaeological studies prior to the initiation of any proposed developments, and (4) to recommend appropriate impact management actions for protected archaeological sites (where necessary). These objectives were in accordance with the objectives of an AIA as they are described in the *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998).

1.3 Proposed Development Type and Facilities

The proponent (Jane Wang) plans to build a water bottling facility with associated access roads, septic, and ancillary services. The subject property is situated approximately 1.1 km south of downtown Clinton, on a raised terrace above the eastern shore of Duck Lake. The total subject property area is 3.8 ha, and this AIA was specifically concerned with a 1.5 hectare footprint that will contain all impacts related to the construction of a bottling plant (54 m x 127 m), 6-bay loading ramp (22 m x 38 m), truck turnabout, parking lot, and the installation of water/septic facilities, the construction of a 12 m-wide access road and landscaping. Future activities will include: excavation of the building foundation, excavating, grading, heavy machine traffic, service installations, and fill material import for construction of the raised access road. The proponent was able to provide specific locations for the above listed development activities and these specific areas were the primary focus of the earlier PFR and this AIA (Figures 2 and 3a to 3c)



2.0 Background Information

2.1 Definition of the Study Area and its Physiographic and Environmental Setting

The study area is located south of Clinton on a raised terrace above the eastern shore of Duck Lake. The study area is within a former drainage system, now occupied by a chain of remnant lakes (e.g. Duck Lake, Salt Lake and Three Mile Lake). This valley formation runs roughly southeast-northwest and is relatively flat bottomed and mildly sloped with the current terrace likely representing a former riverbed. The elevation of the project area is approximately 900-920 metres above sea level.

The subject property is situated on this terrace feature. Subsurface deposits recorded on site consist primarily of compact, poorly sorted silts, sands and fine gravel underlain by river deposited sediments. This is consistent with riverine deposition and stratigraphy in this valleyed area has likely remained relatively similar following the time that the extinct drainage transitioned into the chain of lakes that make up the study area (Figures 2 and 4).

The study area was significantly modified by Pleistocene glaciations (Fulton and Smith 1978). Between 19,000-17,000 BP, valley glaciers began to cover the entire Fraser Plateau (*Ibid.*). The initial stages of glacial growth occurred in the mountains followed by the coalescence of valley glaciers (Fulton 1976; Fulton and Smith 1978). By 15,000 BP, the Cordilleran Ice sheet was approximately 500-1,000 m thick over the Thompson-Okanagan Plateau. Approximately 14,000 BP, the glaciers began to recede with low elevation areas of the Interior Plateau being entirely ice free by 11,500 BP and higher elevation areas being ice-free by 10,200 BP (Fulton and Smith 1978; Clague 1991). Hebda (1982; 1995) outlines the late Pleistocene and Holocene climate, vegetation, and lake level history for the Thompson-Okanagan Plateau. Based on such evidence the late-Quaternary paleoenvironmental record of the study area can be divided into five discrete periods: Fraser glaciation, glacial retreat, the Xerothermic Warm Interval, Holocene Neoglaciations, and the onset of modern climatic conditions (Hebda 1982, 1995).

The study area is located within the Thompson-Okanagan Plateau Ecoregion (Demarchi 1996). The study area is encompassed within a single biogeoclimatic subzone as defined by the biogeoclimatic classificatory system utilized by the Ministry of Forests (see Meidinger and Pojar 1991). The study area is located within the Very Dry Hot Interior Douglas-fir zone (IDxh). Very dry subzones have an understory consisting of pinegrass, Birch-leaved spirea, bluebunch wheatgrass, and *Peltigera* lichens (Lloyd *et al.* 1990).

2.2 Ethnographic Background

Understanding the traditional lifeways and land use systems of First Nations peoples is of crucial importance towards gaining an understanding of the archaeological record of this culturally and physiologically unique region. Sources of information on these peoples are generally derived from contemporary First Nation accounts of the past and the ethnographic record. Several caveats must be attached to the use of the ethnographic record to understand past lifeways. First, the historical context of the period and second, the amount of exposure to these cultures that ethnographers experienced during the tenure of their research. In general, ethnographers spent relatively little time with First Nations, spoke with relatively few informants, and constructed their understandings of aboriginal lifeways within academic and political frameworks that were affected by a number of ethnocentric and colonial assumptions (see Klassen 2002 and Wickwire 2005 for a more detailed review of bias within regional ethnographies). The following brief discussion of traditional First Nation lifeways draws on both types of source material focusing primarily on subsistence practices, mobility strategies, and settlement patterns in an effort to provide the reader with a basic context in which to understand the archaeological record of the region. It is by no means intended to serve as a comprehensive review of these cultures or lifeways, past or present.

2.2.1 The Secwepemc (Shuswap)

The study area is situated within the asserted traditional territories of the Secwepemc (Shuswap) peoples, specifically the Whispering Pines First Nation and High Bar First Nation. The Secwepemc are members of the Interior Salish ethno-linguistic family of the Salish peoples. The Interior Salish language family includes four major sub-divisions: the St'at'imc (aka Lillooet), Secwepemc (aka Shuswap), Nlaka'pamux (aka Thompson), and Okanagan languages (Duff 1964, 1969). The Secwepemc occupy a large geographical area that straddles the between the Fraser River and the Rocky Mountains in the southern central interior of British Columbia.

Accounts of Secwepemc ethnography, mythology, language, subsistence practices, ceremonial life, history, and material culture can be found in a number of primary and secondary sources including: Boas (1891, 1905, 1908), Bouchard and Kennedy (1979), Curtis (1911), Dawson (1892), Erickson (1990), Hunn et al. (1998), Ignace (1998), Lowen (1998), Morice (1893), Palmer (1975a, 1975b, 1978), Ray (1939, 1942), Teit (1900, 1909, 1930), and Turner (1978, 1997).

The Secwepemc are members of the Interior Salish ethno-linguistic family. Secwepemc socio-political organization at the time of early colonial contact can be characterized as a clan and village-based system with both ascribed and achieved status positions falling to a minority of individuals. Kinship amongst the Secwepemc was bilateral, with a loosely knit network of extended families making up a band. Extended households organized and shared their procured fish and animal kills, gathered plants, and shared their knowledge of their territory (Ignace 1998; Teit 1909). Prior to the 1860's, Teit (1909) estimated that the Secwepemc Nation was comprised of 25 bands. After the smallpox epidemic that struck First Nations of the Interior Plateau in 1862, this number was reduced to 17.

The Secwepemc traditionally practised a semi-sedentary hunting-gathering-fishing economy. The seasonal round for the Secwepemc included: winter village residence from early to late winter; spring and early summer fishing for trout and salmon and gathering of food plants; fishing for salmon from mid to late summer; alpine hunting of deer, marmot trapping, and the gathering of berries during the mid-summer, and; alpine and montane deer and mountain goat hunting in the early to mid-fall. Sockeye, chinook, and coho were the major salmon fisheries in Secwepemc territory. In the spring, rainbow and cutthroat trout were also fished. The use of weirs and traps was common until the Department of Fisheries curtailed their use during the 20th century (Ignace 1998; Teit 1909). Hunting in Secwepemc territory was as important as fishing, contributing substantially to the diet, providing raw materials for clothing, shelter, and tools, and holding prestige and ritual importance (Hunn et al 1998; Teit 1909). Mule deer, elk, caribou and moose were the major game animals; mountain sheep, mountain goat and black bear were also hunted (Ignace 1998; Teit 1909). The Secwepemc recognized over 200 plant species, of which approximately 50 were regarded as food sources (Hunn et al. 1998; Ignace 1998; Turner 1997). Through the growing season, Secwepemc peoples followed the gradual upslope ripening of plants (Lowen 1998). Valued root plant resources include yellow avalanche lilies, spring beauties, and balsamroot. Major berry resources included soopolallie, blueberries, huckleberries, wild strawberries, and saskatoons. Numerous plant species had specific medicinal qualities, including uses as preventative tonics and purgatives (Ignace 1998; Teit 1909; Turner 1997).

At the time of early colonial contact, Secwepemc employed a wide variety of tools. Beyond a sophisticated range of pecked and ground stone, bone, horn and wood were used to make tools, ornaments, utensils and containers of a variety of forms. Plant resources were manufactured into baskets and mats, including the bark of birch, bird-cherry, cedar, spruce, pine and cottonwood. Winter villages, located on flat river or lake terraces, consisted of variable numbers of pithouses with storage facilities for processed food resources. Summer dwellings, such as those used at fish camps, were constructed of logs with steeply pitched roofs. Temporary shelters utilized by the Secwepemc included the lean-to, hide-covered teepees,

and mat lodges. Sweat lodges and menstrual huts were built in secluded areas near village sites (Ignace 1998; Teit 1909).

2.3 Regional Prehistory

The project area is situated within the Canadian Plateau as defined by Richards and Rousseau (1987). Excavations of numerous pre-contact sites throughout the Plateau have provided a fairly reliable understanding of regional prehistory. Scholarly syntheses on the prehistory of the Interior Plateau of British Columbia include Richards and Rousseau (1987), Chatters and Pokotylo (1998), Pokotylo and Mitchell (1998), Prentiss and Kuijt (2004), and Rousseau (2004).

2.4 Previous Archaeological Work Conducted Near the Study Area

Archaeological site EgRj-2 was originally recorded on the subject property during a non-permit 1965 private visit by Charles Borden. EgRj-2 was revisited during a 1975 inventory conducted under permit 1975-5 (Pokotylo 1975). The site boundaries were revised during this field visit based on visual observations (no subsurface testing conducted). The property was subject to a non-permit reconnaissance level survey (site inspection) by Ursus staff (Ursus 2015). During the PFR component of this study twelve (n=12) surface finds were identified, recorded and left *in situ* within the project area. The surface finds were comprised of basalt debitage (Figure 3c). The PFR identified a large area of archaeological potential determined to be in conflict with the proposed industrial development.

Seven additional previously recorded archaeological sites are located within 2 km of the project area in the drainage valley (Figure 1). These additional sites consist mostly of small lithic scatters (EgRj-11, EgRj-17, and EgRj-20) (Pokotylo 1975; Strydom and Brolly 1991; Bailey 2001). There is also a possible cairn site with surface lithics recorded immediately south of the project area (EgRj-1), though no skeletal remains have been recorded in association with the petroforms (Pokotylo 1975; Bailey 2001).

2.5 Expected Types of Sites

Based upon an examination of the regional archaeological record and the previously recorded sites in the study area the types of sites expected within the project area include lithic/artifact scatters, land mammal hunting camps, special use campsites (menstrual huts, vision quest sites, plant resource processing sites, etc.), burial sites, trap sites, trails, and historic remains.

The current AIA was not intended to identify areas in which no physical remains of past human activities can be found, such as berry-picking sites and fishing locations, as the identification of these types of sites are more appropriately addressed in Traditional Use and Traditional Knowledge Studies (TUS/TKS).

3.0 Methodology and Procedures

3.1 Background Research

Prior to conducting fieldwork, the study team engaged in an extensive background research program designed to assess existing documentary information pertaining to past uses of the study area. Several sources of information were consulted during this phase of the study including; the Archaeology Branch Site Inventory Forms, consultant reports, aerial photographs, and other relevant published and unpublished reports, theses and dissertations.

3.2 Communications with First Nations

During the preliminary planning stages and throughout the fieldwork for this project, Vi Antoine of High Bar First Nation and Randy Lebourdais of Whispering Pines Indian Band participated in the coordination of the AIA and provided field technicians to aid in the fieldwork. Both First Nations were regularly consulted regarding the status and results of the field studies and for on-going coordination of field technicians. Copies of this report will be sent to all appropriate First Nations.

3.3 Archaeological Potential Assessment

Ursus conducted an initial site visit of the project area in October 2015. This PFR of the project area (Ursus 2015) identified and recorded twelve surface (n=12) finds within the project area. In addition to recording the twelve artifacts, the PFR also identified a large area of archaeological potential in conflict with the proposed industrial development. The PFR recommended AIA level fieldwork involving a more thorough ground surface survey and a subsurface testing program be conducted for the proposed development footprint.

Variables considered in the archaeological potential assessment included: proximity to known archaeological sites, terrain attributes (distance to water, relict drainages, prominent landforms, slope, aspect, elevation, soil characteristics), past land disturbances, historic land uses, biogeoclimatic information, forest stand characteristics and proximity to traditional resource areas and transportation corridors.

3.4 Archaeological Impact Assessment Methodology

Ground Surface Inspection

The entire study area was subject to a ground surface inspection by the entire crew with multiple passes at close spacing. All surface finds were sequentially numbered and recorded with the location of each being plotted on a site map.

Shovel Testing

Following discussions with Eric Forgeng at the Archaeology Branch regarding the extent of the surface lithic scatter recorded during the initial ground surface survey, the study methodology was amended to involve broader, inventory level subsurface testing for the proposed water bottling facility. Shovel tests were excavated in a grid pattern at 15 m intervals, and all sediments removed from shovel tests were screened with 6 mm mesh. Shovel tests were conducted within the proposed development footprint in order to determine the presence/absence of intact subsurface portions of archaeological site areas and to evaluate the extent of impacts and level of disturbance to those sites present. All subsurface tests penetrated both "A" and "B" soil horizons depending on the nature of the sediment accumulation and continued (if possible) until bedrock or unweathered "C" horizon sediments are encountered. Both positive and negative shovel tests were sequentially numbered and recorded with the location of each shovel test being plotted on

a site map (Figures 3a to 3c). Descriptions of the matrices in positive and negative shovel tests were recorded in field notes and are presented in the *Results* section of this final report.

Evaluative Test Unit

In addition to the subsurface testing, two 1 m by 1 m evaluative test units (EU) were excavated in order to obtain additional information regarding site content, artifact density, site integrity, and stratigraphy. The EUs were excavated in 10 cm arbitrary levels to underlying non-cultural deposits. The EU locations were judgmentally selected next to the location of positive subsurface shovel tests. Sediments from the evaluative unit test were screened through 6 mm mesh. Detailed profile photographs of sediment stratigraphy representative evaluative unit walls were taken (Photos 3 to 7). No features were encountered within the EUs. The results of the AIA field investigations are included in Section 4.0 of this report.

4.0 Study Results

As outlined in *Section 3.4* of this report, the AIA of the proposed water bottling facility at 7072 Walch Road conducted under HIP 2015-0316 utilized a subsurface testing methodological approach and concurrent surface collection for the field study. A total of 63 shovel tests and two evaluative units were excavated within the proposed development location. Of the 63 shovel tests, 10 were positive for archaeological resources, as was one evaluative test unit. Additionally, 80 surface finds were identified. Last, a small amount of highly fragmented faunal remains were collected and fire-altered rock counted per unit. Figures 3a to 3c provide maps of the testing results of the AIA fieldwork at the project area. The details of these results are provided in the Appendices. Appendix I presents the soil matrix descriptions recorded as shovel test logs. Appendix II and III provide tables of lithic attributes from all artifacts and debitage recovered, and Appendix IV presents photos of a selection of shovel tests. The following subsections detail the results of the AIA testing at EgRj-2.

4.1 AIA Results from EgRj-2

4.1.1 Ground Surface Inspection

A total of 80 surface finds were recorded and collected from archaeological site EgRj-2 during the ground surface survey portion of this AIA, in addition to 12 earlier surface finds (basalt debitage) recorded during the earlier PFR (Figure 3a to 3c). Despite multiple passes at close spacing this earlier recorded surface lithic scatter could not be relocated. In general the ground surface within the proposed development footprint was sparsely vegetated and disturbed by vehicle and machine access in multiple locations. Overall the ground surface visibility within the project area was excellent (Photo 2).

4.1.2 Subsurface Testing

Shovel Testing

To aid in the determination of the specific depth, dimensions and level of disturbance at EgRj-2 an inventory level shovel testing program was conducted within the development footprint and consisted of a total of 63 shovel tests placed throughout the extent of the proposed impact zone (Figures 3a to 3c; Photo 1). The area appears to have been moderately impacted over time by construction related to an informal historic airstrip in the western extent of the property and Highway 97 which runs along the property's eastern boundary. Additional impacts related to industrial use, machine traffic and possible leveling activities were also evident throughout the property.

The shovel testing program resulted in the recovery of nine (n=26) artifacts, recovered from between 0 and 25 cm below surface at Shovel Tests 5, 6, 26, 31, 34, 38, 45, 49, 50, and 53. The shovel testing recovered an artifacts consistently between 10 and 20 cm depth below surface (DBS) in most cases, indicating the initial potential depths of archaeological deposits at site EgRj-2 do not likely exceed 25 cm DBS. The repeated and long term exposure to surface impacts within the subject property has resulted in the current site conditions; a low density surface lithic scatter and shallow subsurface deposits within a mixed depositional layer existing from 0 to roughly 25 cm in depth below surface. A detailed matrix description for site EgRj-2 is presented in Appendix 1.

4.1.3 Evaluative Testing Unit

Within the central aspect of the proposed development footprint two evaluative units (1 m by 1 m) were excavated in association with positive shovel tests 26 and 34, and surface finds 28 and 78. The excavation of EU 1 (associated with shovel test 34) resulted in the recovery of several pieces of highly fragmented mammal bones (n=24) and a single lithic artifact, a piece of basalt debitage. EU 2 was negative for cultural material.

Evaluative Unit 1

EU 1 is located on the relatively flat central portion of the proposed development footprint, in an area of slight relief. It was placed to expand shovel test 34 to northwest in order to explore a presumed cultural lens noted during shovel testing (3 artifacts and 4 pieces of fragmented mammal bone were recovered from shovel test 34, while adjacent shovel test 26 yielded 1 artifact). A combination of trowel and shovel shaving were incorporated to excavate the unit in 10 cm levels. EU 1 was excavated to a depth of 50 cm below the ground surface (Photos 3 to 5). The lithic and faunal material were recovered from EU 1 between level 1 and level 2 (0-20 cm depth below datum) with a notable concentration in level 2 at the south-westernmost corner. A slightly darkened lens with sparse charcoal flecks was encountered at 18 cm DBS in the southwest corner, though this could not be confirmed to be directly related to the lithic or faunal material which came from depths throughout level 2. In total 24 small fragments of mammal bone were recovered.

The stratigraphy in EU 1 is consistent with the shovel tests conducted nearby. An approximately 20 cm thick surface layer of semi-compact medium-brown mixed silty sand with 5% pea gravel (Zone 1) overlays an approximate 10 cm thick layer of semi-compact with increasing % of sub-angular to round pebble content (Zone II). Zone II overlays an approximate 10 cm thick layer of increasingly compact light grayish-brown coarse silty sand with increased sub-round to round cobbles (75%) (Zone III). Beneath Zone III is an approximate 10 cm layer of highly compact light greyish-brown sandy silt with 70% rounded cobbles and angular gravels (Zone IV) (Photo 3, 4 and 8).

Evaluative Unit 2

EU 2 is also located on the relatively flat central portion of the proposed development footprint just north of EU 2. It was placed to expand shovel test 26 to southeast towards EU 1. A combination of trowel and shovel shaving were incorporated to excavate the unit in 10 cm levels. EU 2 was excavated to a depth of 40 cm below the ground surface (Photos 6 and 7). The stratigraphy in EU 2 is consistent with that of EU 1 except the transition between Zones II and III was much less distinct. Zone II appeared to transition directly into Zone IV and lacked any darkened lens or charcoal (Photo 6).



Photo 1. View north of proposed development footprint for water bottling facility and septic field at 7072 Walch Road (outlined yellow). This development footprint is fully contained within the previously known archaeological site EgRj-2 and was the primary focus of the subsurface testing in this AIA study.

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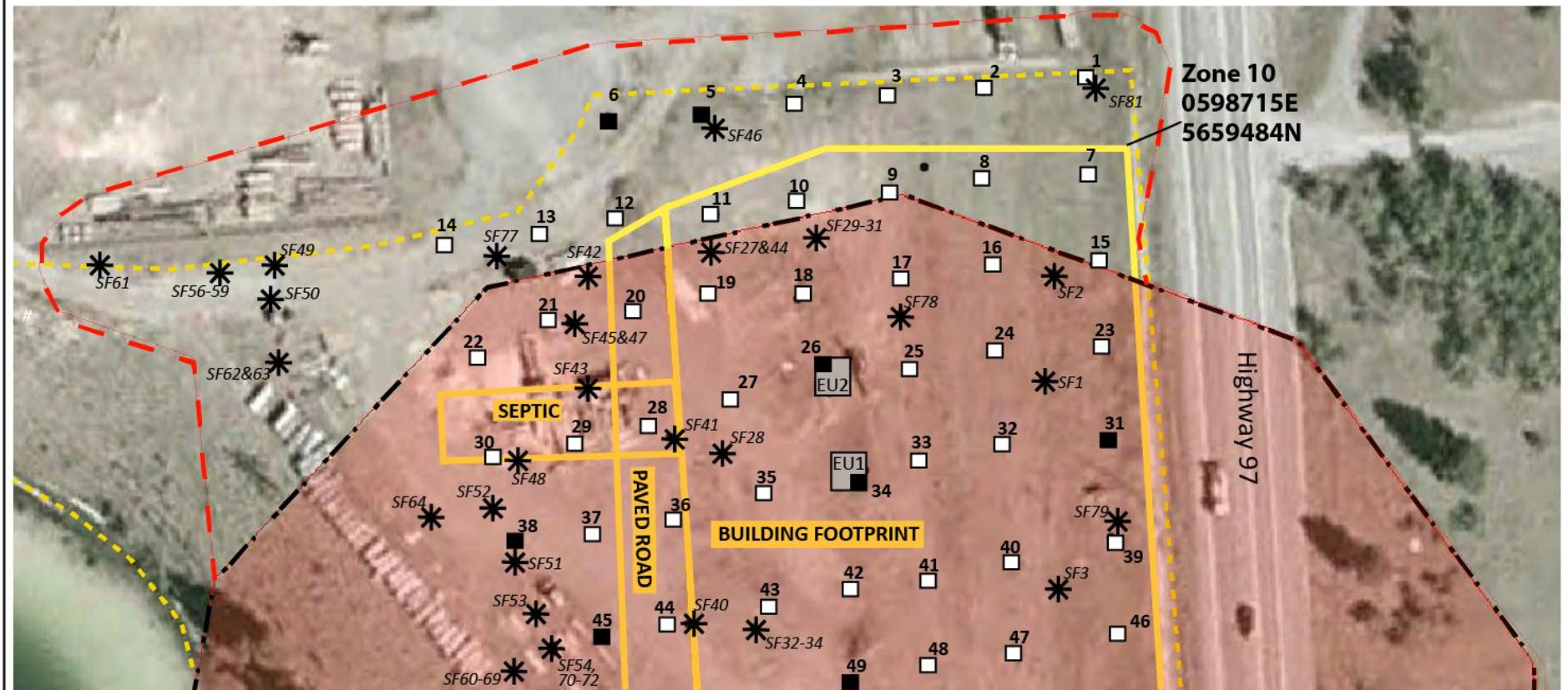
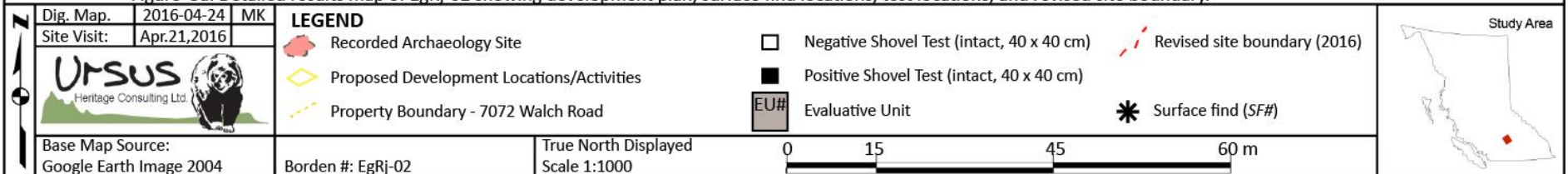
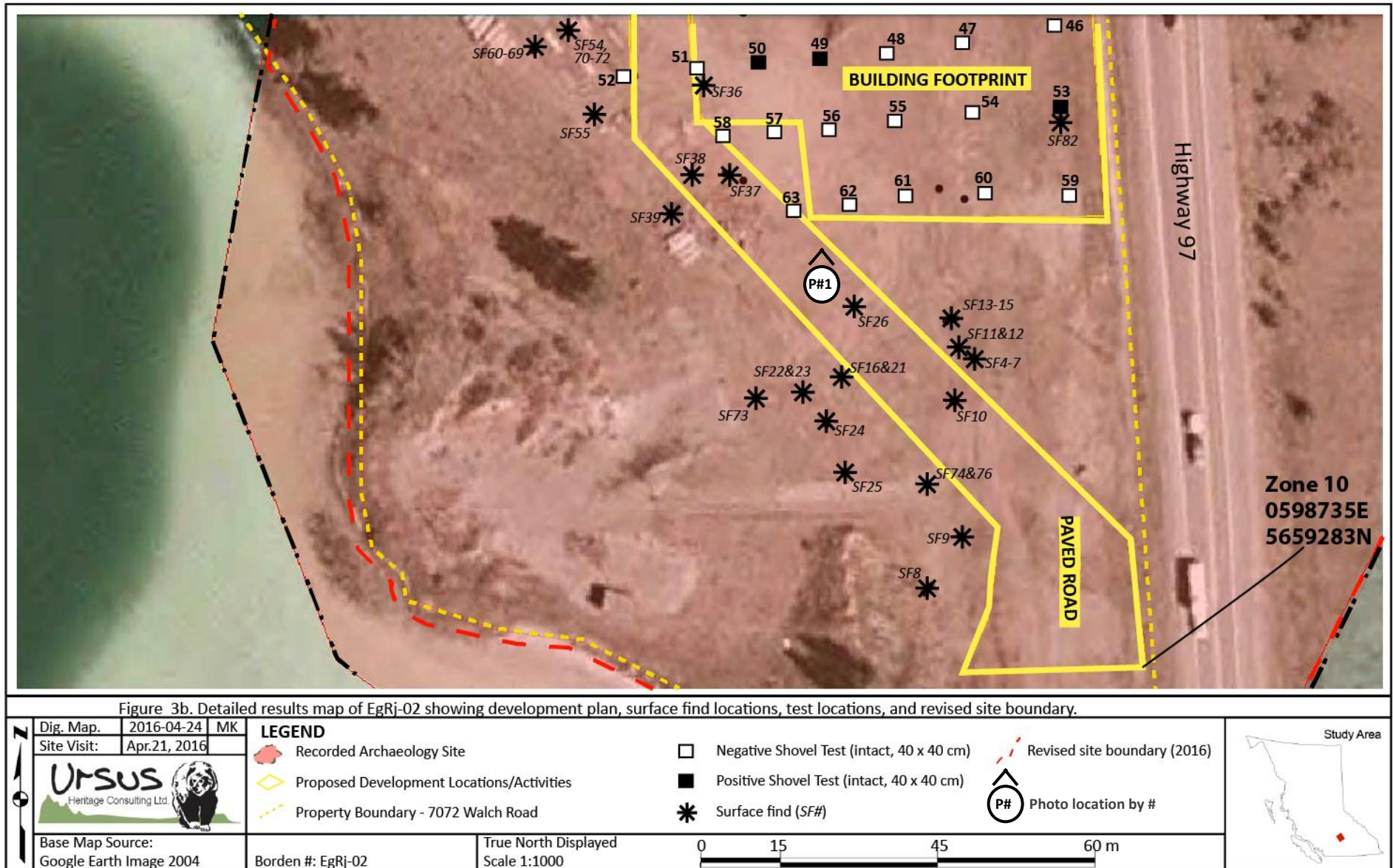


Figure 3a. Detailed results map of EgRj-02 showing development plan, surface find locations, test locations, and revised site boundary.



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Prepared by Ursus Heritage Consulting Ltd.

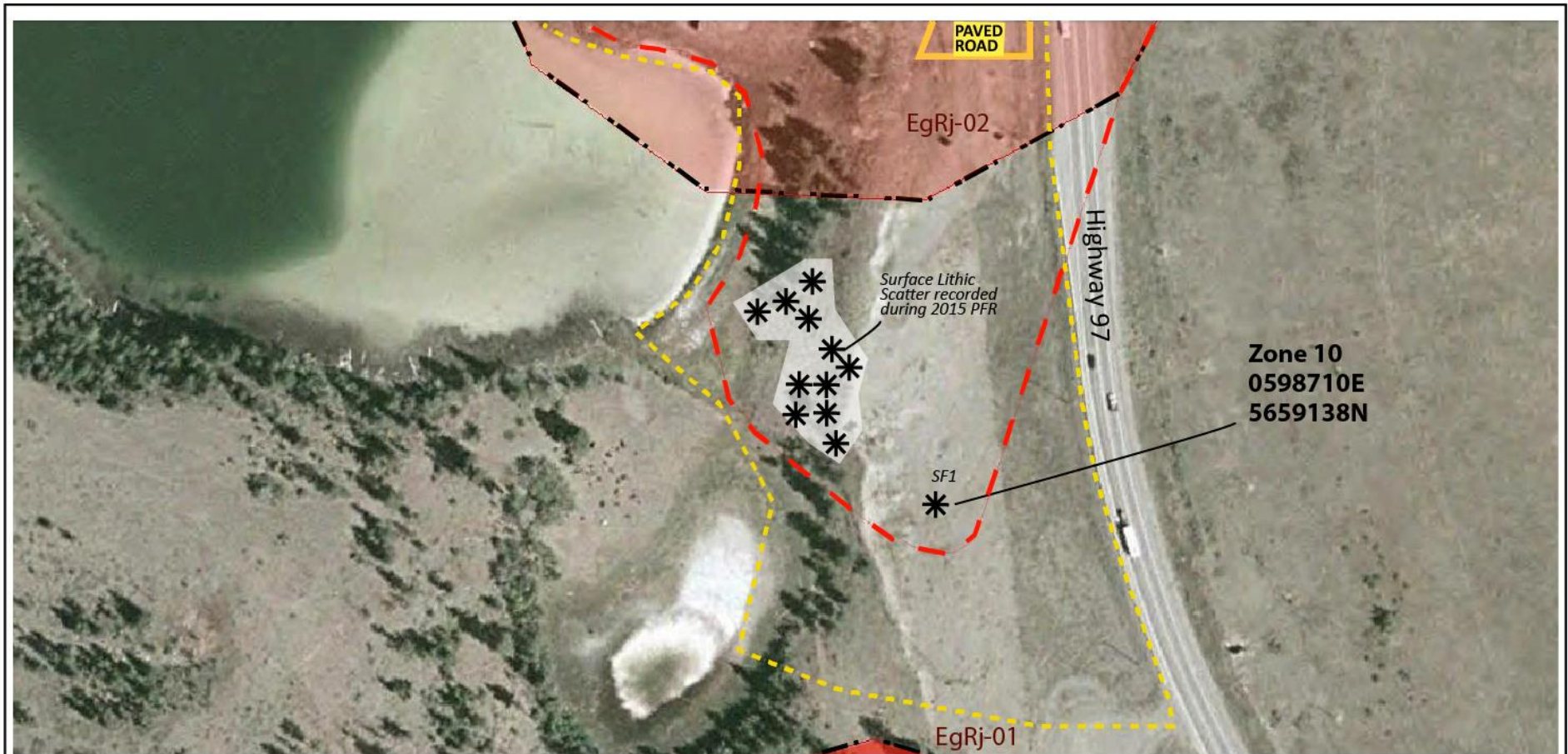


Figure 3c. Detailed results map of EgRj-02 showing development plan, surface find locations, nearby archaeological site, and revised site boundary.

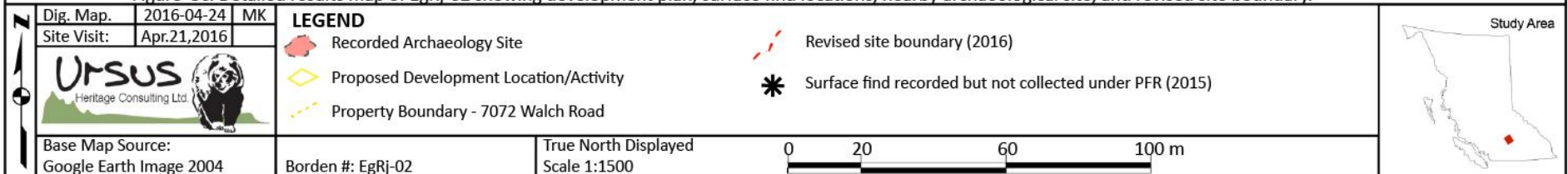




Photo 2. View north of typical ground surface exposure within proposed industrial development footprint at 7072 Walch Road, Clinton, B.C.



Photo 3. View of the south wall profile of EU #1 at 50 cm DBS.



Photo 4. View of the north wall profile of EU #1 at 50 cm DBS.



Photo 5. Plan View of EU #1, Level 5 at 50 cm dbd showing cobble and gravel between 20 and 30 cm depth below surface (Zone IV).



Photo 6. View of the east wall profile of EU #2 at 40 cm DBS.



Photo 7. Plan View of EU #2, Level 4 at 40 cm dbd showing cobbles and gravel (Zone IV).



Photo 8. View south of Vi Antoine completing sediment screening at EU #1.
Note abundance of excavated cobbles associated with Zones III and IV.



Photo 9. Sample of lithic tools recovered from AIA in April 2016 at site EgRj-02.
(All expedient flake tools - Left: EgRj-02:50; Center: EgRj-02:49; Right:EgRj-02:08)

4.1.4 EgRj-2 Artifact Analysis

A total of 107 artifacts were recovered from EgRj-2. Of these lithics artifacts, 80 were surface finds, 26 were recovered from a total 10 positive shovel tests. In addition, a single basalt flake was recovered from intact deposits during hand excavations of a single evaluative unit (EU 1). All excavated lithic material was recovered from depths between 0 cm to 25 cm below surface. The vast majority of all recovered artifacts were made of fine grained basalt (n=103; 93.6%), which is not surprising given the close proximity of the project area to sources of high quality fine grained basalt in the Arrowstone Hills locale. Appendices II and III provide details of the artifact analysis and the following provides a summary of these results.

Recovered Artifacts (n=107)

Surface Finds (n=80)

The majority of lithic artifacts recovered during ground surface inspection can largely be separated into 6 classes of debitage (n=72; 67.3%). Debitage recovered during surface inspections consists predominantly of non-diagnostic flakes or flake shatter (n=33; 45.8%), thinning flakes (n=25), biface thinning flakes (n=4), primary flakes (n=4), edge preparation flakes (n=4), and bipolar flakes (n=4). Lithic tools recovered during ground surface inspection can be separated into 4 classes. The majority of recovered tools present on the surface at EgRj-2 are expedient flake tools (n=13; 72.2%). The next most common tools are cores (n=3; 16.6%). The formed tools; a single spokeshave and a non-diagnostic biface fragment make up the remaining tools recovered. This generally conforms to the vertical deposition of materials recovered from the surrounding shovel testing.

Shovel testing (n=26)

Lithic debitage recovered following the shovel testing program at site EgRj-2 was separated into 2 classes including; thinning flakes (n=12), and non-diagnostic flakes (n=11). The majority of tools recovered during shovel testing at EgRj-2 are expedient flake tools (n=2; 66.6%). The remaining tool is a single multidirectional quartzite core.

Lithic Technology at EgRj-2

Archaeological Impact Assessment work at EgRj-2 recovered 10 lithic artifact classes. Debitage classes compose the majority of classes (n=6) and Tools compose the remainder of classes present (n=4). Tools are mostly flakes tools (utilised flakes; n=13) but two formed flake tools exist at this site as do cores (n=3).

Debitage (n= 90)

Debitage represents the majority of lithic artifacts recovered from EgRj-2 during this AIA. The classes present indicate a local focus on general general tool production and core reduction. Most debitage classes are made from fine grained basalt. As mentioned briefly in the preceding paragraphs, this is not surprising given the proximity to known pre-contact lithic material sources in Arrowstone Hills.

Tools (n= 17)

Given the high proportion of utilised flake and cores and relatively few formed tools, the component at EgRj-2 seems to suggest a focus on short term use rather than the higher abundances of formed tools more common to more permanent habitations.

The debitage collection, small amounts of fire-altered rock and relative abundance of expedient tools suggest that this site was the result of a focus on short term resource use such as hunting and fishing camp activity by mobile groups, and the high proportion of a possible single material type could indicate a continued use of this valley feature as a travel corridor with Arrowstone Hills basalt representing a convenient local resource. A future study that compares data from this site to other nearby sites would also greatly contribute to a more accurate interpretation of this site and the intra-site activities common to this travel corridor.

4.3 Site Significance Evaluation

Site significance assessments are a major component of the impact assessment process. Assessments of this nature are conducted in order to ensure that appropriate management recommendations are proposed. The *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998) defines several types of significance in relation to archaeological sites. The sites identified in the development areas were assessed using the checklist of criteria for site evaluation presented in the *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998). The scientific, public, ethnic, economic, and historic significance of the sites identified were assessed and rated as high, moderate, or low. Definitions of the types of significance assessments conducted are as follows:

Scientific Significance is based on the potential of a site to contain evidence that could substantively increase understanding of culture history and cultural processes, its ability to contribute to various scientific disciplines, and its ability to contribute to an understanding of local and regional prehistory.

Public Significance is based on the potential of a site to be used by the public in an educational, interpretative, or recreational capacity.

Ethnic Significance is determined by the local First Nation(s) and refers to the traditional, social, or spiritual importance of a site. Site EgRj-2 located in the asserted traditional territory High Bar First Nation and Whispering Pines Indian Band, who all consider archaeological sites to be of high ethnic significance.

Economic Significance refers to the potential financial benefits that could be derived from the public's use of a site as an educational or recreational facility.

Historic Significance refers to the possible association of a site with an important historic person or event.

The significance ratings for site EgRj-2 is provided in Table 1 below.

Table 1: Site Significance Evaluation for Site EgRj-2 (HIP 2015-0243).

Site(s)	Scientific Significance	Public Significance	Ethnic Significance	Economic Significance	Historic Significance
EgRj-2	Low	Low	High	Low	Low

The low scientific rating for EgRj-2 reflects the high level of previous disturbance, depth of archaeological deposits, and paucity of diagnostic artifacts and features. The public and economic significance is low as these sites provide little in the way of educational or economic opportunities. The low historic rating for site reflects the absence of known historical associations with these sites. A full evaluation of the cultural and ethnic significance of the sites is beyond the scope of the current study and could be determined in consultation with the local First Nations.

5.0 Impact Assessment and Management Recommendations

Archaeological site EgRj-2 was revisited and redefined, with a low density subsurface component recorded within the proposed industrial development area at 7072 Walch Road in Clinton, B.C. (Figures 2 & 3a to 3c).

Heritage resources are non-renewable, and mitigative measures such as project design changes and site protection are preferred where conflicts between heritage sites and proposed developments have been identified. There are three commonly used strategies available to manage conflicts between archaeological sites and development projects in British Columbia, as described in the Guidelines (Archaeology Branch 1998). These strategies are:

- (1) Site conservation by avoidance is the most effective strategy for significant sites or portions of sites threatened with destruction.
- (2) Mitigation in the form of systematic data recovery (i.e., archaeological excavation) is usually recommended for vulnerable, significant sites, or portions of sites that cannot be protected by other strategies.
- (3) Archaeological monitoring, as one condition of a Site Alteration Permit, is another type of mitigation, often recommended for construction within sites or portions of sites to ensure that appropriate emergency impact management actions are carried out if unanticipated and/or significant archaeological remains are encountered.

Currently the proposed industrial development at 7072 Walch Road is in conflict with a recorded archaeological site, EgRj-2. This archaeological site pre-dates 1846 and is protected under the *Heritage Conservation Act (HCA)*. The results of the field study suggest that this site is likely to contain additional artifacts and associated lithic debitage. The proposed industrial development as planned will directly impact site EgRj-2. Therefore it is recommended that the proponent:

- (a) Avoid any sections of the sites where possible through alteration of project design, and/or if site avoidance is not possible;
- (b) Obtain a Section 12 Site Alteration Permit prior to any land altering activities within the site boundaries; this Permit should include requirements for archaeological monitoring of the removal of soil/sediments through the boundaries of all sites identified within the project impact area to recover additional artifacts and to identify possible subsurface features that may require systematic data recovery.
- (c) The Section 12 Site Alteration Permit may also require data recovery through controlled excavation of evaluative units as a mitigation measure for any sites that may be disturbed by proposed construction.

The archaeological impact assessment is concerned with identification of archaeological remains and impacts to archaeological sites within the proposed residential development area at 7072 Walch Road. It does not address potential for traditional use sites within the subject property. It is not the intent of this report to document First Nations' interest in the land. The study was conducted without prejudice to First Nations' treaty negotiations, Aboriginal rights, or Aboriginal title. For more information on this AIA, please contact the report author.

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7.0 Appendix I: EgRj-02 (7072 Walch Road) AIA Lithic Debitage Analysis

**Lithic Debitage Analysis
Clinton Water Bottling Depot Project Area
Site: EgRj-02**

Assn #	Unit Type	Unit #	Depth (cm)	Material	Colour	Common Name	Formal Description	Comments	Max. Width (mm)	Weight (g)	Platform facet count	Platform cortex p/a	Dorsal scar count	Dorsal cortex p/a	Distal Termination
1	Surface Find	1	-	chert	grey	flake	flake shatter.	non-diagnostic shatter. Patination	24.13	1.15	1	absent	1	absent	shatter
2	Surface Find	2	-	basalt	black	flake	flake	edge rejuvenation flake	29.29	2.36	2	absent	4	absent	hinged
4	Surface Find	4	-	basalt	black	flake	flake shatter	refit (1 of 2)	28.81	3.05	1	absent	2	absent	snapped
5	Surface Find	5	-	basalt	black	flake	flake shatter	refit (2 of 2)	-	-	-	-	-	-	-
7	Surface Find	7	-	basalt	black	flake	flake shatter	non-diagnostic. One crushed margin	22.14	1.01	n/a	absent	2	absent	snapped
10	Surface Find	10	-	basalt	black	flake	flake shatter	non-diagnostic	14.15	0.46	n/a	absent	1	absent	snapped
11	Surface Find	11	-	basalt	black	flake	flake		12.32	0.32	1	absent	2	absent	hinged
12	Surface Find	12	-	basalt	black	flake	flake		9.29	0.08	1	absent	1	absent	feathered
13	Surface Find	13	-	basalt	black	flake	flake		12.31	0.24	1	absent	1	absent	feathered
14	Surface Find	14	-	basalt	black	flake	flake shatter	distal	20	0.88	n/a	absent	2	absent	feathered
	Surface Find	17	-	basalt	grey	flake	flake		11.9	0.41	1	absent	2	absent	feathered
17	Surface Find	18	-	basalt	black	flake	flake		12.96	0.51	1	absent	2	absent	snapped
18	Surface Find	19	-	basalt	black	flake	flake		12.75	0.36	n/a	absent	2	absent	feathered
19	Surface Find	20	-	basalt	black	flake	flake shatter	non-diagnostic	10.11	0.23	n/a	absent	0	absent	feathered
20	Surface Find	21	-	basalt	black	flake	flake shatter	non-diagnostic	11.69	0.14	n/a	absent	0	absent	snapped
21	Surface Find	22	-	basalt	black	flake	flake shatter	refit (1 of 2)	31.73	2.08	1	absent	1	absent	hinged
22	Surface Find	23	-	basalt	black	flake	flake shatter	refit (2 of 2)	-	-	-	-	-	-	-

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Lithic Debitage Analysis
Clinton Water Bottling Depot Project Area
Site: EgRj-02

Assn #	Unit Type	Unit #	Depth (cm)	Material	Colour	Common Name	Formal Description	Comments	Max. Width (mm)	Weight (g)	Platform facet count	Platform cortex p/a	Dorsal scar count	Dorsal cortex p/a	Distal Termination
23	Surface Find	24	-	basalt	grey	flake	flake	patination	18.31	0.8	1	absent	1	absent	snapped
24	Surface Find	25	-	basalt	black	flake	flake shatter	cortical flake	18.3	1.22	1	absent	0	present	snapped
26	Surface Find	27	-	basalt	black	flake	flake shatter	non-diagnostic	17.98	0.79	n/a	absent	1	absent	feathered
27	Surface Find	28	-	chert	amber	flake	flake		15.71	0.57	1	absent	1	absent	feathered
28	Surface Find	29	-	basalt	black	flake	flake shatter	non-diagnostic	13.64	0.33	n/a	absent	1	absent	snapped
30	Surface Find	31	-	basalt	black	flake	flake shatter	non-diagnostic	17.57	0.56	1	absent	1	absent	snapped
32	Surface Find	33	-	basalt	black	flake	flake		26.65	2.6	n/a	absent	2	absent	snapped
33	Surface Find	34	-	basalt	black	flake	flake		26.54	1.96	n/a	absent	1	absent	snapped
35	Surface Find	36	-	basalt	black	flake	flake	cortical	17.27	1.59	n/a	absent	2	absent	snapped
37	Surface Find	38	-	basalt	black	flake	flake		18.02	0.88	n/a	absent	2	absent	snapped
38	Surface Find	39	-	basalt	black	flake	flake		17.46	0.58	n/a	absent	2	absent	snapped
40	Surface Find	41	-	basalt	black	flake	flake		21.25	1.11	2	absent	2	absent	snapped
41	Surface Find	42	-	basalt	black	flake	flake		41.68	5.11	2	absent	2	absent	snapped
42	Surface Find	43	-	basalt	black	flake	flake		30.01	2.72	n/a	absent	3	absent	feathered
43	Surface Find	44	-	basalt	black	flake	flake shatter	non-diagnostic	13.89	0.37	n/a	absent	1	absent	snapped
44	Surface Find	45	-	basalt	black	flake	flake		19.94	1.44	n/a	absent	3	absent	feathered
45	Surface Find	46	-	basalt	black	flake	flake shatter	non-diagnostic	13.18	0.28	n/a	absent	0	absent	snapped
46	Surface Find	47	-	basalt	black	flake	flake shatter	non-diagnostic	24.28	1.48	n/a	absent	1	absent	snapped

AIA of Proposed Water Bottling Facility at 7072 Walch Road, Clinton, B.C.
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Lithic Debitage Analysis
Clinton Water Bottling Depot Project Area
Site: EgRj-02

Assn #	Unit Type	Unit #	Depth (cm)	Material	Colour	Common Name	Formal Description	Comments	Max. Width (mm)	Weight (g)	Platform facet count	Platform cortex p/a	Dorsal scar count	Dorsal cortex p/a	Distal Termination
47	Surface Find	48	-	basalt	black	flake	flake shatter	non-diagnostic	14.98	0.37	n/a	absent	1	absent	snapped
50	Surface Find	51	-	basalt	black	flake	flake shatter	non-diagnostic	20.07	0.44	n/a	absent	0	absent	snapped
51	Surface Find	52	-	basalt	black	flake	flake		20.55	1.33	n/a	absent	2	absent	hinged
52	Surface Find	53	-	basalt	black	flake	flake		20.33	1.05	n/a	absent	2	absent	snapped
53	Surface Find	54	-	basalt	black	flake	core fragment	edge rejuvenation flake	26.68	2.12	1	absent	5	absent	feathered
54	Surface Find	55	-	basalt	black	flake	flake shatter	non-diagnostic	10.46	0.18	n/a	absent	0	absent	snapped
55	Surface Find	56	-	basalt	black	flake	flake	edge rejuvenation flake	19.98	2.08	n/a	absent	5	absent	feathered
56	Surface Find	57	-	basalt	black	flake	flake		22.38	1.77	1	present	2	absent	feathered
57	Surface Find	58	-	basalt	black	flake	flake		26.45	1.43	1	present	0	absent	feathered
58	Surface Find	59	-	basalt	black	flake	flake		16.62	0.46	n/a	absent	0	absent	hinged
59	Surface Find	60	-	basalt	black	flake	flake	biface thinning flake	21.44	0.75	2	absent	2	absent	feathered
60	Surface Find	61	-	basalt	black	flake	block shatter	non-diagnostic	12.42	0.93	n/a	absent	0	absent	shatter
61	Surface Find	62	-	basalt	black	flake	flake	non-diagnostic	20.04	1.38	1	absent	0	absent	hinged
62	Surface Find	63	-	basalt	black	flake	flake		23.37	1.76	n/a	absent	3	absent	shatter
63	Surface Find	64	-	basalt	black	flake	flake shatter	non-diagnostic	12.51	0.47	n/a	absent	0	absent	snapped
64	Surface Find	65	-	basalt	black	flake	flake	biface thinning flake	24.84	0.91	2	absent	2	absent	feathered
65	Surface Find	66	-	chert	grey	flake	flake shatter	non-diagnostic	25.78	1.62	n/a	absent	1	present	feathered
66	Surface Find	67	-	basalt	black	flake	flake	biface thinning flake	17.24	0.85	2	absent	2	absent	snapped

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Lithic Debitage Analysis
Clinton Water Bottling Depot Project Area
Site: EgRj-02

Assn #	Unit Type	Unit #	Depth (cm)	Material	Colour	Common Name	Formal Description	Comments	Max. Width (mm)	Weight (g)	Platform facet count	Platform cortex p/a	Dorsal scar count	Dorsal cortex p/a	Distal Termination
67	Surface Find	68	-	basalt	grey	flake	flake shatter	non-diagnostic	14.86	0.44	n/a	absent	0	absent	snapped
68	Surface Find	69	-	basalt	black	flake	flake shatter	non-diagnostic	18.49	1.05	n/a	absent	0	absent	snapped
70	Surface Find	71	-	basalt	black	flake	flake		18.09	0.69	n/a	absent	2	absent	feathered
71	Surface Find	73	-	basalt	black	flake	flake shatter	non-diagnostic	15.21	0.37	n/a	absent	0	absent	snapped
73	Surface Find	75	-	basalt	black	flake	flake shatter	non-diagnostic	16.1	0.9	n/a	absent	1	absent	feathered
74	Surface Find	76	-	basalt	black	flake	flake shatter	non-diagnostic	13.24	0.56	n/a	absent	0	absent	snapped
76	Surface Find	78	-	basalt	black	flake	flake	primary flake	30.46	2.98	1	absent	1	present	feathered
77	Surface Find	79	-	basalt	black	flake	flake	bipolar flake	38.51	4.97	1	present	0	absent	crushed
78	Surface Find	80	-	basalt	black	flake	flake	bipolar flake	26.52	2.8	1	present	0	absent	crushed
79	Surface Find	81	-	basalt	black	flake	flake	biface thinning flake	20.26	0.6	1	absent	2	absent	feathered
80	Surface Find	82	-	basalt	black	flake	core fragment	edge rejuvenation flake	34.45	7.55	1	absent	5	present	feathered
81	Shovel Test	5	5-30	basalt	black	flake	flake shatter	non-diagnostic	12.57	0.61	n/a	absent	0	absent	snapped
82	Shovel Test	5	5-30	basalt	black	flake	flake shatter	non-diagnostic	15.48	0.39	n/a	absent	0	absent	snapped
83	Shovel Test	5	5-30	basalt	black	flake	flake shatter	non-diagnostic	13.04	0.23	n/a	absent	0	absent	snapped
84	Shovel Test	5	5-30	basalt	black	flake	flake shatter	non-diagnostic	14.66	0.22	n/a	absent	1	absent	snapped
85	Shovel Test	6	0-30	basalt	black	flake	flake shatter	non-diagnostic	17.07	0.63	n/a	absent	0	absent	snapped
86	Shovel Test	26	0-20	basalt	black	flake	flake		13.15	0.46	1	absent	1	absent	hinged
87	Shovel Test	31	0-20	basalt	black	flake	flake	thinning flake	21.01	0.64	1	absent	2	absent	feathered
88	Shovel Test	31	0-20	basalt	black	flake	flake	thinning flake	12.97	0.24	1	absent	1	absent	snapped

Prepared by Ursus Heritage Consulting Ltd.

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Lithic Debitage Analysis
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Site: EgRj-02

Assn #	Unit Type	Unit #	Depth (cm)	Material	Colour	Common Name	Formal Description	Comments	Max. Width (mm)	Weight (g)	Platform facet count	Platform cortex p/a	Dorsal scar count	Dorsal cortex p/a	Distal Termination
89	Shovel Test	31	0-20	basalt	black	flake	flake		31.6	2.25	1	absent	0	absent	feathered
90	Shovel Test	34	10-20	chert	red	flake	flake shatter	non-diagnostic	10.28	0.15	n/a	absent	0	present	feathered
91	Shovel Test	34	10-20	chert	grey	flake	block shatter	non-diagnostic	25.21	9.47	n/a	absent	0	absent	shatter
92	Shovel Test	34	10-20	chert	black	flake	block shatter	non-diagnostic	20.52	3.26	n/a	absent	0	present	shatter
93	Shovel Test	38	10-20	basalt	black	flake	flake	thinning flake	19.86	0.6	1	absent	2	absent	feathered
94	Shovel Test	38	10-20	basalt	black	flake	flake	thinning flake	11.12	0.23	1	absent	1	absent	snapped
98	Shovel Test	53	0-30	basalt	black	flake	flake	thinning flake	13.78	0.25	1	absent	2	absent	feathered
99	Shovel Test	53	0-30	basalt	black	flake	flake	thinning flake	10.85	0.2	2	absent	3	absent	feathered
100	Shovel Test	53	0-30	basalt	black	flake	flake	thinning flake	21.71	0.8	1	absent	2	absent	snapped
101	Shovel Test	53	0-30	basalt	black	flake	flake	thinning flake	13.52	0.13	1	absent	2	absent	feathered
102	Shovel Test	53	0-30	basalt	black	flake	flake	thinning flake	11.25	0.5	1	absent	2	absent	feathered
103	Shovel Test	53	0-30	basalt	black	flake	block shatter	non-diagnostic	24.01	0.76	n/a	absent	0	absent	snapped
104	Shovel Test	53	0-30	basalt	black	flake	block shatter	non-diagnostic	15.29	0.35	n/a	absent	0	absent	feathered
105	Shovel Test	53	0-30	basalt	black	flake	block shatter	non-diagnostic	15.7	0.59	n/a	absent	0	absent	shatter
106	Shovel Test	53	0-30	basalt	black	flake	block shatter	non-diagnostic	16.75	0.22	n/a	absent	0	absent	feathered
107	EU	1	0-10	basalt	black	flake	flake	primary flake	23.22	1.51	2	absent	2	absent	feathered

8.0 Appendix II: EgRj-02 (7072 Walch Road) AIA Lithic Tool Analysis

Lithic Tool Analysis
Clinton Water Bottling Depot Project Area
Site: EgRj-02

Assn #	Unit Type	Unit #	Depth (cm)	Material	Colour	Common Name	Formal Description	Comments	Width (mm)	Length (mm)	Thickness (mm)	Weight (g)
3	Surface Find	3	-	dacite	black	biface	biface fragment	non-diagnostic fragment	16.72	13.03	4.03	0.96
6	Surface Find	6	-	basalt	black	uniface	spokeshave	one concave margin with use wear	24.54	21.3	5.06	1.78
8	Surface Find	8	-	basalt	black	flake tool	utilised flake	cortical flake. Use wear	25.78	34.49	9.07	8.51
9	Surface Find	9	-	chert	red	flake tool	utilised flake	use wear on one margin	30.16	14.05	5.23	2.16
25	Surface Find	26	-	basalt	black	flake tool	utilised flake		26.14	22.3	4.14	3.05
29	Surface Find	30	-	basalt	black	flake tool	utilised flake	medial fragment	12.84	25.79	2.86	1.17
31	Surface Find	32	-	chert	red	core	core	multidirectional	32.2	25.52	15.8	18.47
36	Surface Find	37	-	basalt	black	flake tool	utilised flake	one margin with use wear	25.6	17.24	3.78	1.79
39	Surface Find	40	-	basalt	black	flake tool	utilised flake	one margin with use wear	41.68	24.97	5.13	5.11
40	Surface Find	41	-	basalt	black	flake	flake		21.25			1.11
41	Surface Find	42	-	basalt	black	core	core	multidirectional	56.56	27.25	14.98	24.68
48	Surface Find	49	-	basalt	black	flake tool	utilised flake	retouching on concave margin	63.89	44.54	11.35	36.85
49	Surface Find	50	-	basalt	black	flake tool	utilised flake	retouching on concave margins	37.84	37.16	10.6	10.36
69	Surface Find	70	-	basalt	black	flake tool	utilised flake	use wear on one margin	28.61	25.44	5.89	3.41
72	Surface Find	74	-	basalt	black	flake tool	utilised flake	retouch on multiple margins	26.98	18.62	6.01	2.92
75	Surface Find	77	-	basalt	black	flake tool	utilised flake	fragment	19.01	10.68	3.06	0.64
95	Shovel Test	45	17	basalt	black	flake tool	utilised flake	use wear on multiple margins	41.92	31.62	8.36	11.7
96	Shovel Test	49	0-20	quartzite	brown	core	core	multidirectional	32.68	37	17.59	23.66
97	Shovel Test	50	15-20	chalcedony	brown	flake tool	utilised flake	use wear on one margin	27.49	19.91	2.9	1.76

9.0 Appendix III: EgRj-02 (7072 Walch Road) Shovel Test Log

Shovel Test(s)#	Stratum Description	Results (+/-)	Comments	Final DBS (cm)
1	0-2 cm dbs: grass mat; 2-15 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 15-25 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 35-55 cm dbs: increasing compaction and subround to round cobbles (75%); 55-85 cm dbs very compact.	Negative	Basal deposit test pit. Deemed normally impassable at 55 cm dbs due to compaction	85
2	0-2 cm dbs: grass mat; 2-10 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 10-40 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 40-48 cm dbs: increasing compaction and subround to round cobbles (75%); 48-74 cm dbs very compact.	Negative	Basal deposit test pit Deemed normally impassable at 48 cm dbs due to compaction	74
3	0-2 cm dbs: grass mat; 2-15 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 15-25 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 35-55 cm dbs: increasing compaction and subround to round cobbles	Negative		55
4	0-2 cm dbs: grass mat; 2-15 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 15-25 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 35-55 cm dbs: increasing compaction and subround to round cobbles	Negative		55
5	0-2 cm dbs: grass mat; 2-15 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 15-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-26 cm dbs: grayish-brown coarse silty sand with subangular to round pebble content; 26-30 cm dbs: increasing compaction and subround to round cobbles (75%); 30-40 cm dbs very compact.	Positive	Charcoal flecks at 15 cm DBS	40
6	0-2 cm dbs: grass mat; 2-14 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 14-24 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 24-40 cm dbs: grayish-brown coarse silty sand with subangular to round pebble content; 40-46 cm dbs: increasing compaction and subround to round cobbles (75%); 46 cm dbs very compact.	Positive	Charcoal flecks at 14 cm DBS	46
7 - 11	0-2 cm dbs: grass mat; 2-15 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 15-25 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 35-55 cm dbs: increasing compaction and subround to round cobbles (50%); 55-60 cm dbs very compact.	Negative		60
12-14	0-2 cm dbs: grass mat; 2-16 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 16-24 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 24-40 cm dbs: increasing compaction and subround to round cobbles (75%); 40-45 cm dbs very compact.	Negative	Charcoal flecks at 16 cm DBS	45
15	0-2 cm dbs: grass mat; 2-12 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 12-24 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 24-40 cm dbs: increasing compaction and subround to round cobbles (75%); 40-45 cm dbs very compact.	Negative	Charcoal flecks at 12 cm DBS	45
16-18	0-2 cm dbs: grass mat; 2-17 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 17-23 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 23-33 cm dbs: increasing compaction and subround to round cobbles (75%); 33-40 cm dbs very compact.	Negative	impassable at 40 cm dbs due to compaction	40
19-20	0-0-2 cm dbs: grass mat; 2-12 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 12 - 16 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 16-25 cm dbs: increasing compaction and subround to round cobbles (75%) 25 cemented cobbles in coarse sand	Negative	impassable at 25 cm dbs due to compaction	25

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Shovel Test(s)#	Stratum Description	Results (+/-)	Comments	Final DBS (cm)
21-24	0-0-2 cm dbs: grass mat; 2-8 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 8 - 16 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 16-36 cm dbs: increasing compaction and subround to round cobbles (75%) 25 cemented cobbles in coarse sand	Negative	Very compact throughout. Old unpaved roadway and stock yard	25
25	0-0-2 cm dbs: grass mat; 2-12 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 12 - 16 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 16-30 cm dbs: increasing compaction and subround to round cobbles (75%) 30 cm cemented cobbles in coarse sand	Negative	Impassable at 30 cm dbs due to compaction	30
26	0-2 cm dbs: grass mat; 2-17 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 17-23 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 23-30 cm dbs: increasing compaction and subround to round cobbles with calcite accumulation; 30 cm dbs very compact..	Positive	Impassable at 30 cm dbs due to compaction	30
27-30	0-2 cm dbs: grass mat; 2-16 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 17-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-35 cm dbs: increasing compaction and subround to round cobbles (75%); 35-40 cm dbs very compact.	Negative	Impassable at 40 cm dbs due to compaction	40
31	0-2 cm dbs: grass mat; 2-23 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 23-33 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 33-47 cm dbs: increasing compaction and gravels; 47-55 cm dbs: increasing compaction and subround to round cobbles (75%); 55-60 cm dbs very compact.	Positive	Impassable at 60 cm dbs due to compaction	60
32-33	0-2 cm dbs: grass mat; 2-16 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 17-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-35 cm dbs: increasing compaction and subround to round cobbles (75%); 35-40 cm dbs very compact.	Negative	Impassable at 40 cm dbs due to compaction	40
34	0-2 cm dbs: grass mat; 2-19 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 19-31 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 31-40 cm dbs: increasing compaction and subround to round cobbles (75%); 40-42 cm dbs very compact.	Positive	Charcoal flecks at 17 cm DBS Impassable at 42 cm dbs due to compaction	42
35-37	0-2 cm dbs: grass mat; 2-16 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 17-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-35 cm dbs: increasing compaction and subround to round cobbles (75%); 35-40 cm dbs very compact.	Negative	Impassable at 40 cm dbs due to compaction	40
38	0-0-2 cm dbs: grass mat; 2-12 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 12 - 18 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 18-25 cm dbs: increasing compaction and subround to round cobbles (75%) 25 cemented cobbles in coarse sand	Positive	Cultural material located between 10 – 18 cm DBS	25
39-40	0-0-2 cm dbs: grass mat; 2-12 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 12-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-30 cm dbs: increasing compaction and subround to round cobbles (75%) 30 cemented cobbles in coarse sand	Negative	Very compact throughout. Old unpaved roadway and stock yard	25
41	0-2 cm dbs: grass mat; 2-20 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 20-30 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 30-35 cm dbs: increasing compaction and subround to round cobbles (75%); 35-40 cm dbs very compact.	Negative		22
42	0-2 cm dbs: grass mat; 2-40 cm dbs: loose medium-brown silty sand with 5% pea gravel; 40-42 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 42-65 cm dbs: loose subround to round cobbles	Negative		65

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Shovel Test(s)#	Stratum Description	Results (+/-)	Comments	Final DBS (cm)
43-44	0-2 cm dbs: grass mat; 2-12 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 12-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-35 cm dbs: increasing compaction and subround to round cobbles (75%) 35 cemented cobbles in coarse sand.	Negative	Very compact throughout. Old stock yard. Impassable at 35 cm dbs due to compaction	35
45	0-2 cm dbs: grass mat; 2-16 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 16-18 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 18-22 cm dbs: grayish-brown coarse silty sand with subangular to round pebble, increasing compaction and subround to round cobbles (75%); 22 cm dbs cemented, very compact.	Positive	Charcoal flecks and FAR (5 pcs) at 16 cm DBS	22
46-48	0-2 cm dbs: grass mat; 2-18 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 18-25 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 25-35 cm dbs: grayish-brown coarse silty sand with subangular to round pebble, increasing compaction and subround to round cobbles (75%); 35 cm dbs cemented, very compact.	Negative	Charcoal flecks at 18 cm DBS Impassable at 35 cm DBS due to compaction.	35
49-50 & 53	0-2 cm dbs: grass mat; 2-18 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 18-25 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 25-35 cm dbs: grayish-brown coarse silty sand with subangular to round pebble, increasing compaction and subround to round cobbles (75%); 35 cm dbs cemented, very compact.	Positive	Charcoal flecks and FAR at 18 cm DBS Impassable at 35 cm DBS due to compaction.	35
51-52	0-2 cm dbs: grass mat; 2-40 cm dbs: loose medium-brown silty sand with 5% pea gravel; 40-42 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 42-65 cm dbs: loose subround to round cobbles	Negative		65
54-56 & 59	0-2 cm dbs: grass mat; 2-16 cm dbs: semi-compact medium-brown silty sand with 5% pea gravel; 17-20 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 20-35 cm dbs: increasing compaction and subround to round cobbles (75%); 35-45 cm dbs very compact.	Negative	Impassable at 45 cm dbs due to compaction	45
57&58	0-2 cm dbs: grass mat; 2-25 cm dbs: semi-compact mixed medium-brown silty sand with 5% pea gravel; 25-35 cm dbs: increased compaction and subround to round cobbles (75%); 35 cm dbs very compact.	Negative	Impassable at 35 cm dbs due to compaction	35
60-63	0-2 cm dbs: grass mat; 2-40 cm dbs: loose medium-brown silty sand with 5% pea gravel; 40-42 cm dbs: light grayish-brown coarse silty sand with increasing % of subangular to round pebble content; 42-45 cm dbs: loose subround to round cobbles	Negative		45

10.0 Appendix IV: Shovel Testing Photos from EgRj-2



Photo 1. Northeast View of ST #5, at 35 cm dbs showing cobbles and gravel (Zone IV).



Photo 2. North View of ST #6, at 35 cm dbs.



Photo 3. North View of ST #26, at 30 cm dbb showing cobbles and gravel (Zone IV).



Photo 4. North View of ST #31, at 55 cm dbb showing cobbles and gravel (Zone IV).



Photo 5. North View of ST #34, at 36 cm dbs showing cobbles and gravel (Zone IV).



Photo 6. North View of ST #38, at 25 cm dbs showing cobbles and gravel (Zone IV).



Photo 7. North View of ST #45, at 22 cm dbs showing cobbles and gravel (Zone IV).



Photo 8. Southwest View of ST #49, at 23 cm dbs showing cobbles and gravel (Zone IV).



Photo 9. Northwest View of ST #50, at 23 cm dbs showing cobbles and gravel (Zone IV).



Photo 10. North View of ST #53, at 35 cm dbs showing cobbles and gravel (Zone IV).



Photo 11. North View of ST #1, at 7 cm dba showing depth of cobble and gravel deposit (Zone IV).