

Appendix 20-A

Archaeological Impact Assessment

HARPER CREEK PROJECT

**Application for an Environmental Assessment Certificate /
Environmental Impact Statement**

ARCHAEOLOGICAL IMPACT ASSESSMENT

Yellowhead Mining Inc.
Proposed Harper Creek Mine
near Vavenby, British Columbia

British Columbia Heritage Conservation Act
Archaeological Inspection Permit 2011-0209

Submitted to:

Simpcw Resources Limited Liability Partnership
Box 1287, Barriere, British Columbia

Mining Proponent:

Yellowhead Mining Inc.
Suite 730 - 800 West Pender Street
Vancouver, British Columbia

November 2012

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Credits

Project Management	Shana Morin, BA Kevin Twohig, BA, RPCA
Permit Holder	Kevin Twohig, BA, RPCA
Field Directors	Gordon Moore, BA, RPCA Shana Morin, BA Kim Statham, BA
Simpw Resources LLP Lead	Murray Jules
Terra Field Supervisors	Meghan McGill, BA Shannon Enns, BA
Terra Staff Archaeologists	Jessica Carson, BA Jordan Kirillo, BA Lara McFadden, BA Laura Pick, BA Achinie Wijesinghe, BA
First Nation Field Personnel	
Adams Lake Indian Band Natural Resource Dept.	Elton Arnouse Mary Arnouse James Charles Leonard Chrisjohn Tyler Jaenson Fern Jules Ryan Kenoras Joe Meldrum
	Logan Michele Mark Michele Reginald Narcisse Alex Saul Martin Saul Sharon Thomas Howie Wood
Simpw First Nation	Lucas Eustache Pam Eustache Jules Phillip
Report Authors	Shannon Enns, BA Meghan McGill, BA Kevin Twohig, BA, RPCA Dan Weinberger, BA, RPCA
Contributing Author	
Local History Background	Judy Banks, MA Anthropology
Mapping	Matthew Fowler, BA Ann O'Sullivan, BA
Report Editing & Production	Jenny Chomack, BA

Management Summary

Terra Archaeology Limited was retained by Simpcw Resources Limited Liability Partnership to conduct an archaeological impact assessment (AIA) for Yellowhead Mining Inc.'s proposed Harper Creek Project. The proposed project is an open pit copper-gold-silver mine located approximately 150 km northeast of the city of Kamloops by road and approximately 10 km south of the town of Vavenby.

A total of 2,575 hectares were subject to archaeological impact assessment (AIA) in accordance with the methodology outlined in Heritage Inspection Permit 2011-0209. The proposed mine developments fall within this study area.

Field crews consisted of Terra Archaeology staff archaeologists and First Nations archaeological field technicians from various local First Nations communities. These field technicians were provided by Simpcw First Nation and the Adams Lake Indian Band Natural Resources Department.

The AIA was comprehensive in nature involving pedestrian survey transects over all accessible portions of the proposed footprint. Based on map review and field observation, 180 hectares of very steep terrain was assessed as low potential and therefore not subject to intensive pedestrian coverage. Subsurface testing in areas of increased archaeological potential was undertaken. Thorough examination of all available surface exposures and exploratory subsurface testing in areas of increased archaeological potential was undertaken in order to identify possible buried archaeological deposits. In total, 1221 subsurface tests were shovel excavated; no archaeological material was recovered subsurface.

The AIA resulted in the identification of two archaeological sites, both rock cairns. These cairns were recorded as archaeological sites EjQw-2 and EiQw-2.

An historic trail, two culturally modified trees (CMTs), and an historic corral were also recorded within the study area. These are not automatically protected sites under the *Heritage Conservation Act* and therefore are not within the scope of this AIA; however they are important indicators of land use and are generally of importance to the First Nations and should be managed accordingly.

This archaeological impact assessment was intended to identify physical archaeological evidence of past human activity protected under the *Heritage Conservation Act*. It does not address traditional land use or other possible heritage concerns of the First Nations people whose asserted traditional territory encompasses the study area.

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1 Introduction

Terra Archaeology Limited was retained by Simpcw Resources Limited Liability Partnership to conduct an archaeological impact assessment (AIA) for Yellowhead Mining Inc.'s (YMI) Harper Creek Project. The proposed project is an open pit copper-gold-silver mine located approximately 150 km northeast of the City of Kamloops by road and approximately 10 km south of the community of Vavenby. It is south of the Yellowhead Highway and the North Thompson River (Figure 1).

The AIA was conducted under Heritage Inspection Permit 2011-0209 issued to Kevin Twohig under Section 14 of the *Heritage Conservation Act* (HCA). A total of 2,575 hectares was selected for assessment based on anticipated impact footprints of the proposed mine. These were provided by YMI and changed throughout the course of the AIA as the design was refined. Field studies were conducted throughout the summer and fall of 2011 and 2012 by multiple crews comprising one to three archaeologists and archaeological field assistants from Simpcw First Nation the Adams Lake Indian Band Natural Resource Department. The field director was normally participating in the field program and at all times was in the area and available for consultation with on-location crews.

The AIA was carried out in accordance with the objectives outlined in the British Columbia Archaeological Impact Assessment Guidelines (Apland and Kenny 1998), the objectives of which are to:

- identify and evaluate archaeological resources within the project area;
- identify and assess all impacts on archaeological resources which might result from the project; and,
- recommend viable alternatives for managing adverse impacts.

This report provides relevant background information on the project, documents the methods and results of the field inspection, and provides management recommendations.

This figure has been removed from this Application for an Environmental Assessment Certificate/Environmental Impact Statement, as it contains archaeological site locational information protected under the *Heritage Conservation Act* (1996).

2 Proposed Project

Yellowhead Mining Inc.'s Harper Creek Project is a proposed open pit copper-gold-silver mine located approximately 150 km northeast of the City of Kamloops by road and approximately 10 km south of the community of Vavenby. Facilities associated with the proposed Harper Creek Mine include, but may not be limited to:

- Conveyor;
- Dam;
- Stockpiles;
- Mine Haul Road;
- Open Pit;
- Plant Site; and,
- Tailings Management Facility.

It is anticipated that the exploration, construction, and operation phases of the mine will be solely responsible for the effects to archaeological resources identified during this study. Such land-altering activities include, but are not limited to, land clearing, grubbing, grading, excavating, pre-production pit development, and construction of mine facilities, structures, roads, and ancillary developments.

3 Project Area

A total of 2,575 hectares was subject to an archaeological impact assessment (AIA). This study area was selected based on the anticipated layout of the proposed mine. This was provided by YMI and changed throughout the course of the AIA as the design was refined. The September 2012 layout is encompassed within the study area (Figure 2).

The project area is located in South Central British Columbia, approximately 10 km south of the community of Vavenby, in the Shuswap Highlands. It straddles the boundary of the Headwaters and Kamloops Forest Districts. The terrain within the project area varies; however, generally the landscape is moderately to steeply sloping down towards two tributaries of Harper Creek, with small streams and wet meadows located throughout. There are no named hydrological features located within the study area; however, the two unnamed tributaries of Harper Creek flow northeast-southwest through the northern and southern halves of the area. The North Thompson River is approximately 5 km north of the project area and Harper Creek at its closest point is 1.3 km to the west. Elevation within the project area ranges from 1,480 m to 1,900 m above sea level.

Although the proposed development is situated on the boundary of both the Headwaters and Kamloops Forest Districts, the majority of the survey area falls within the Kamloops Forest District. Portions of the Kamloops Forest District have been subject to an archaeological overview assessment (AOA). Additional information relating to the project area can be found in two reports entitled *Archaeological Overview Assessment of Northern Secwepemc Traditional Territory* (I.R. Wilson 2000) and *Archaeological Overview of the Kamloops Forest District, Land and Resource Management Planning Region* (Arcas 1994). Both reports are on file at the Archaeology Branch, Ministry of Forests, Lands and Natural Resource Operations, Victoria. Included in these documents are detailed summaries of the archaeological, physiographical, environmental and cultural history of the region.

The northernmost portions of the proposed mine development area fall within the boundaries of the Headwaters Forest District. Very little archaeological work has been undertaken in this region and there have been no formal overviews or inventory studies completed (Norcan 2008). Additional information can be found in two reports for archaeological impact assessments (AIAs) completed in the area by Norcan Consulting Ltd (2008) and Arcas Consulting Archaeologists Ltd (1999). Both reports outline the small amount of work that has been done in the area in addition to summarizing the physiographical, environmental, and cultural history of the region.

3.1 Biogeoclimatic Zone

The project area is in the Engelmann Spruce–Subalpine Fir (ESSF) zone, and within the biogeoclimatic subzones and variants ESSFwc2 and ESSFwcw; both subzones are, characteristically, quite wet and cold (Plate 1). This zone is located within the uppermost forested elevations in British Columbia below the alpine tundra of the Rocky Mountains, Columbia Mountains, the eastern side of the Coast Mountains, and the southern portions of the Skeena and Omineca mountains (Coupe *et al.* 1991). Although predominantly found in steep, mountainous terrain, it also occurs on some high plateaus, such as the Quesnel and Shuswap Highlands. The climate within the ESSF zone is characterized by cool short summers and long, cold, and snowy winters with the majority of precipitation falling as snow. Engelmann spruce and subalpine fir are the dominant tree species, with spruce generally dominating the canopy of mature stands. Exceptions to this are within higher elevations of this zone or wetter areas, where subalpine fir frequently dominates the forest canopy. Whitebark pine, limber pine and alpine larch are common within the drier parts of this zone, along with black huckleberry, grouseberry and false azalea in the south, and white-flowered rhododendron found throughout (Ministry of Forests 1998).

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Plate 1: General project area.

Food resources which may be found within the ESSF Zone include game such as moose, mountain goat, caribou and mule deer which find ideal summer habitat in the high-elevation parkland forests of Southern B.C. In the spring, avalanche chutes present a variety of shrubs and herbs with traditional uses including cow-parsnip, lady fern and stinging nettle. Blueberries and huckleberries may be prevalent in the zone during the fall (Ministry of Forests 1998).

Archaeological sites commonly found within the ESSF zone reflect a nomadic, hunter-gatherer existence. Such sites are typically found in association with aquatic features such as lakes, rivers, streams, or wetlands. Larger, more complex archaeological sites, such as villages, are usually found in association with larger aquatic features such as major lakes and rivers at lower elevations than the proposed mine, for example the nearby North Thompson River, North Barriere and Adams Lakes.

3.2 Previously Recorded Archaeological Sites

Prior to this study no archaeological sites were recorded within the project area. The closest known archaeological site is EiQw-1, located 14 km south of the project area on the northern shore of North Barriere Lake. Other known sites are more than 20 km away, the majority located east of the mine development area along the North Thompson River. EiQw-1 is a subsurface lithic scatter and the more distant sites include surface and subsurface lithic scatters, pit house habitations, pit roasting features, cache pits, burials, and rock art.

3.3 First Nations

For information on past and present First Nations' land use in the study area the First Nation communities should be contacted directly.

3.4 Non-Indigenous Historic Background

The geographic area under discussion is limited to North Vavenby/Allingham Flats situated along the stretch of North Thompson River valley, north and east of the Harper Creek Mine Project Area. Primary sources for this historic summary range from fur trade and explorer/mapper journals, to family bible and journal entries, land titles and pre-emption notes, clergy and other institutional sources. Where material has been sourced from local community and commemorative publications, a considerable volume of information is derived from interviews conducted by those authors, and may reflect biases.

The earliest non-indigenous presence in the northern reaches of the valley were likely eastern traders of both French and mixed Scottish-Aboriginal descent who ventured west in advance of the main trade from fur posts at Jasper House, possibly as far south as what is now known as Finn Creek, in the late 1790s (HBC Archives). They later guided Nor'Wester Joseph Laroque, in 1812, from Tête Jaune Cache down the North Thompson to what is now Kamloops. In 1817, Alexander Ross of the Northwest Company was guided by locals up the North Thompson River from Thompson's River post to East Barriere Lake and Gollen Creek and from there up the Adams River Valley to Canoe (Valemount)(Ross 1956). In the late 1850s, the Hudson's Bay Company established a small trading post at Yehalliston, called "La Traverse" (or the crossing between east and west banks) on the east bank of the North Thompson (now Little Fort)(Dunford 2000:30). This site provided resting and grazing for pack strings going to and from Fort Alexandria, and it facilitated a brief trade in furs from Simpcw trappers until the region was depleted in the 1860s. Little if anything remains of this early post-contact site.

Charles Fortier (a woodsman of mixed French and Aboriginal descent) built and maintained a cabin near the present townsite of Clearwater sometime before 1862. He rafted cedar to, and traded at, Thompson's River Post, and later guided Canadian National Railway (CNR) survey crews. Early logging and tie and pole camps situated along the heavily wooded North Thompson River were followed to a certain extent by CNR rail survey camps and supply stations between Barriere and Tête Jaune Cache during the late 1870s, and then by railbed and line construction shanty camps into the 1890s (Dunford 2000:96). More permanent non-native settlement of the upper North Thompson area generally followed a south-north trend, beginning with Little Fort, then Blackpool, Clearwater, Raft River Junction, Birch Island and Peavine Flats (later Vavenby). Much of this settlement consisted of small farm holdings, although the Peavine Flats provided good a good expanse of hayland near the river and good pasture higher on both sides of the river (Clearwater 1996). Vavenby and Lost Creek are situated at the foot of, and to the immediate north of, the Harper Creek Mine area; the village straddles the North Thompson River.

One of the earliest settlers of the Peavine Flats/Vavenby area was Frank Allingham, who established mining claims on the Mad River north of its confluence with the North Thompson, and in 1886 homesteaded pre-emption just east and north of what became Vavenby townsite. While the extent of the dividends earned through his mining exploits are unknown, Allingham did operate a large and profitable "truck garden" (i.e., vegetables grown for market); he marketed his produce in Kamloops. The Peavine Flats and later Lost Creek, south of the river, slowly increased in population. And similar to other North Thompson settlements, many families arrived from Scandinavia, Britain and eastern Canada (Clearwater 1996:29).

In 1910 Peavine had its own post-office, originally registered "Navenby" after a town in England. However the name was misspelled along the registry process, and became "Vavenby" thereafter. By the close of 1911 there were nine homestead families between Birch Island and the village collecting their mail at Daubney Pridgeon's Vavenby post office. The most notable, the Moilliet family of Aveley Ranch who lived beside the beaver meadows at Lost Creek, raised sheep there since shortly after patriarch T.A. Moilliet ("TAM") homesteaded the place in 1905 (Clearwater 1996; Dunford 2000:132; Moilliet *et al.* 1985). The Aveley sheep were originally grazed across the river on the slopes above neighbouring McCorvie and

MacLennan homesteads, until the meadows high above Aveley on Whistler and Granite Mountains were discovered and found to be suitable summer range for the burgeoning sheep herds. As other settlers came and went, Aveley obtained other small holdings which helped house the breeding operation, and they have kept the original Jones (Jones Creek) homestead in livable condition for generations. TAM Moilliet's brother-in-law Hyde Finley opened the first store at Aveley Ranch (1911), and then another across the river in the village to service rail-building crews (1912) and paddlewheelers that were then making their way as far north as Wire Cache. Aveley Ranch is still owned and operated by fourth generation Moilliets, who continue to operate their traplines and take their sheep to summer range along Lost Creek Road and Vavenby Mountain (Clearwater 1996:372).

Between the 1890s and 1930, pick and shovel mining operations up on Whistler (since renamed "Fog Horn" after the small mining claim of that name) and Granite Mountains, and farther south on the larger Queen Bess galena, silver-lead, and Windpass Mines kept some men seasonally employed. But many more men continued to drift in and out of the area (not establishing homesteads) working for the CNR. The village population did grow after the first and second world wars, and in response small lumber mills, often privately owned, sprang up to meet the demand of local markets and of those farther afield. The CNR constructed tent camps along the rail line, a school was established, and more stores and warehouses, barns, bridges and rooming houses appeared. The small lumber mills eventually disappeared as the easily accessible timber was depleted. Employment based on the production of hydro line poles became the central industry in Vavenby around 1930 (Clearwater 1996:29). Firefighting also provided seasonal work for men of the valley, as did logging for the new more corporate lumber interests that entered the valley after the close of WW2.

Vavenby, Lost Creek and Birch Island, as well as the McCorvie slope across the North Thompson River contain a mixture of considerably wetter micro-ecosystems along the valley than in the Barriere area. Drier regions are found higher up in the surrounding slopes. In the 1860s Whistler (later Fog Horn) and Granite Mountains burned so extensively that their shared southern aspect was rendered open meadow in the aftermath, providing ample sheep pasture for ranchers for many decades (Moilliet 2012). In 1926 a freak windstorm flattened the timber along the valley floor between Peavine and Allingham Flats. The Lost Creek fire of 1927 levelled forests on and below Fog Horn Mountain, followed in 1929 by the Mad River valley fires which decimated heavily timbered areas out to the north shore of the North Thompson River (Clearwater 1996:29).

4 Methodology

The AIA was conducted under the authority of *Heritage Conservation Act* Inspection Permit 2011-0209 and adheres to current Archaeology Branch standards and practices as per the methodology outlined below. Prior to the field assessment, Terra Archaeology conducted a review of all relevant readily available archaeological studies and performed a search for all previously recorded archaeological sites within the proposed project development area using the Remote Access to Archaeology Data (RAAD) utility. In accordance with the Heritage Inspection Permit, the assessment of the proposed mine development area consisted of systematic ground reconnaissance through pedestrian traverse and a combination of judgmental and systematic shovel testing for the identification of surface and subsurface cultural materials and features.

Typically, two to three field survey crews comprising archaeologists from Terra Archaeology and First Nations field assistants conducted the work. Generally, crew members were spaced at approximately 20 m intervals along the survey transects. Survey was intensified in areas of perceived higher archaeological potential (Plate 2).



Plate 2: Raised landform visible in the distance.

Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge provided by First Nations crew members. Given the narrow span of certain proposed facility footprints, including proposed roads, seismic

lines, and drill pads, crew members were spaced at approximately 2 - 10 m intervals in these areas. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification.

Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were hand excavated by shovel until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas varied between 1 and 5 m. Areas tested are referred to as shovel test areas (STAs).

All survey transects, STAs, and archaeological sites were located by GPS.

For ease of management and reporting, an area which encompasses the entire mine development footprint was divided into archaeological survey units (ASUs). These units were placed along the Universal Transverse Mercator (UTM) coordinate grid (Figure 3). Each ASU is 25 ha in area (500 m by 500 m). Only the ASUs which overlap or are encompassed by the development footprints outlined by the proponent were subject to survey.

At the request of the First Nations, the entire footprint of proposed mine development was subject to comprehensive pedestrian survey coverage; an archaeological overview assessment (AOA) was not employed to guide survey coverage or focus survey intensity.

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5 Resource Inventory

The study area for the proposed mine development overlapped or encompassed 145 ASUs and totaled 2,575 ha in area. Based on observed archaeological potential, 43 shovel test areas (STAs) were selected and subject to subsurface testing. A total of 1221 shovel tests were excavated with no archaeological materials identified. Detailed summaries providing specific survey methodology, terrain descriptions, archaeological potential assessments, subsurface soil descriptions and survey results specific to each of the ASUs are contained within the appendix.

Two archaeological sites were recorded within the assessment area. They are both rock cairns (petroforms) and were assigned the Borden designations EjQw-2 and EiQw-2. Cairns, intentionally stacked rocks, may be markers, caches, shelters, hunting blinds, spiritual sites, or burials.

Several historic features were noted including historic debris in proximity to EiQw-2, an historic corral, an historic trail, and two historic CMTs.

5.1 Archaeological Site EjQw-2

The site consists of a single rock cairn located on an ill-defined break in otherwise moderately sloping terrain within ASU P11 (Figures 4 and 5). Based on the visible rocks, it is constructed of flat slabs of shale that vary in size from approximately 0.2 to 0.35 m across. The feature measures approximately 2.5 m in length by 1.5 m in width, and is approximately 0.5 m in height. The rocks are informally arranged and the cairn has an overall mound shape, wider at its base and tapering to a rounded top. The cairn is covered in a thick mat of moss and there are a number of small saplings growing on the feature.

At the request of community, the cairn was left undisturbed. No invasive investigation, such as dismantling or any removal of individual rocks, was undertaken. Subsurface testing (hand excavated shovel tests) was conducted in the vicinity of the cairn; however, no archaeological material was recovered. The subsurface matrix contained very little rock, and none similar to that which the cairn is constructed of. More intensive pedestrian survey was undertaken in the vicinity of the cairn; no additional features were identified.

There is some evidence of a rudimentary historic access road cresting the break-in-slope, possibly the result of previous logging activity; however, the rock feature does not appear to be associated.

The site boundary encompasses the small break-in-slope the cairn occupies.

5.2 Archaeological Site EiQw-2

This cairn is oblong in shape and oriented north-south on gently sloping terrain within ASU M17 (Figures 6 and 7). The cairn measures approximately 2.8 m in length, 1.2 m in width, and is approximately 0.3 m in height. Three cut logs, arranged north to south, were observed within the southern portion of the feature. The cairn is located within a small cluster of trees in an open area 1.5 m above and 5 m to the southwest of a defined creek. Historic debris was noted in an adjacent open, low-lying, and poorly-drained area.

Again, at the request of community, the cairn was left undisturbed and no invasive investigation, such as dismantling or any removal of individual rocks, was undertaken. Subsurface testing (hand excavated shovel tests) was conducted in the vicinity of the cairn; however, no archaeological material was recovered. Additional pedestrian survey was undertaken in the vicinity of the cairn with no additional features identified.

The site boundary encompasses the small landform on which the cairn is situated.

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5.3 Historic Debris in the proximity of EiQw-2

Historic debris including what appears to be the remnants of a wooden pallet-like structure which was constructed with large iron bolts, spikes, and steel cable was observed in the vicinity of EiQw-2. Given its proximity to the creek this may have been used as a makeshift or temporary bridge. Cut logs and other small historic debris were noted in the area.

5.4 Historic Corral

An historic corral was recorded in ASU M18 (Figure 8). In addition to the wooden corral structure, wooden boxes, roundhead nails, assorted metal cans, and glass bottles were observed on the surface. The feature is located within gently rolling terrain in proximity to an historic trail (see below).

5.5 Historic Trail

A segment of an historic trail was observed and recorded with GPS (Figure 8). The trail is well-defined in sections as it appears to have ongoing use by wildlife. Numerous axe cut blazes and cut tree limbs, likely for trap boxes, were observed along the trail, indicating trapping as one possible use of this trail. The trail passes in close proximity to both EiQw-2 and an historic corral.

5.6 Post 1846 Culturally Modified Trees

Two culturally modified trees (CMTs) were identified during the AIA (Figure 8). CMT #1 is a bark-stripped Spruce located in ASU N15. CMT #2 is a bark-stripped Lodgepole Pine located in ASU O13. Based on post-field dendrochronological analysis of the increment cores, CMT#1 has a modification date of 1970 and CMT#2 has a modification date of 1951.

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6 Resource Evaluation

In order to make appropriate management recommendations, site significance must be assessed for each archaeological site discovered during an AIA. Assessment of significance is determined according to the criteria for site evaluation in the *British Columbia Archaeological Impact Assessment Guidelines* (Apland and Kenny 1998). The criteria for site evaluation include scientific, public, economic and ethnic significance. Archeological scientific significance refers to the ability for a site to contribute to the understanding of the prehistory of the region or British Columbia. Public significance refers to the qualities a site might have that would be considered to be of interest to, and easily visible to, the general public. Economic significance refers to the potential of a site to be somehow developed into a revenue-generating resource. Ethnic significance refers to the traditional, social or religious importance that a particular group or community has for a site. Significance ratings are summarized in Table 1.

Table 1: Summary of Significance Ratings

Borden Number	Scientific Significance	Public Significance	Economic Significance	Ethnic Significance
EjQw-2	Moderate – High	Low	Low	High
EiQw-2	Moderate – High	Low	Low	High

6.1 Public and Economic Significance

The public and economic significance is rated as low for both sites identified during this study. The low public and economic significance ranking for these sites is based on the restricted accessibility and the lack of qualities and features likely to be considered of interest to the general public.

6.2 Ethnic Significance

It is important to note that the First Nations with an interest in the area generally consider all archaeological sites to be high in cultural value (Ethnic Significance) and in particular consider the features identified at both EjQw-2 and EiQw-2 to be of high significance.

6.3 Scientific Significance

Scientific significance has been determined based on criteria for site evaluation in the *British Columbia Archaeological Impact Assessment Guidelines* (Apland and Kenny 1998).

At the request of the Simpcw First Nation, the cairn features were not subject to any invasive investigation, such as shovel testing or any level of dismantling. Further investigation may provide insight into function, antiquity, and ethnic origin. In the absence of information beyond general observations, scientific significance is assessed as a range of moderate to high based on the following:

- 1) Cairns, although not an uncommon site type in British Columbia, are not prevalent in the area and where they do occur regionally they have been found at lower elevations.
- 2) Regardless of function, age, or ethnic origin, cairns are important indicators of past human activity and are a feature on the cultural landscape which required significant effort and intention to construct.
- 3) Site integrity is good at both sites.
- 4) Understanding of regional settlement patterns and land use may be enhanced by these sites.

Specifics regarding function, age, and ethnic origin may refine the significance assessment and influence management of these cairns; regardless, these features are minimally of moderate scientific significance. Significance would definitively increase if the cairns were found to be burials (native or non-native), caches of significant artifacts, or of great antiquity.

7 Impact Identification and Assessment

Impacts to archaeological sites are defined as the “net change between the integrity of an archaeological site with and without the proposed development” (Apland and Kenny 1998). Two archaeological sites, Ejqw-2 and Eiqw-2, were identified during this assessment and are protected under the *Heritage Conservation Act*. Land-altering activities that impact the cairn features of archaeological sites Ejqw-2 and Eiqw-2 will result in permanent alteration to the site. These activities will result in the loss of or disruption to the site and are likely to occur during the construction and operating phases of the proposed mine development. If site avoidance is not feasible, a mitigation strategy to manage or offset the loss of the two cairns identified should be developed.

Historic features including the trail, CMTs, corral, and debris recorded within the study area are not automatically protected sites under the *Heritage Conservation Act*; however, they are important indicators of land use and may be of importance to the First Nations and other local communities.

8 Evaluation of Research

The primary purpose of this study is to identify, inventory and assess archaeological resources that may be affected by the proposed mining development. The survey strategy, site discovery techniques, impact assessment methods, site evaluation methods and reporting format were comprehensive and have resulted in the identification of two previously unidentified archaeological sites. In ASUs where negative archaeological results were encountered, these results may be attributed to steep slope, very poorly drained or heavily disturbed terrain, and/or lack of micro-topography commonly associated with archaeological sites. As the survey coverage and the testing program are considered comprehensive, confidence in the identification of archaeological sites within the area surveyed is high.

9 Impact Management Recommendations

Archaeological sites EjQw-2 and EiQw-2 were identified during this AIA and are protected under the *Heritage Conservation Act* of British Columbia and any ground altering activities within the recorded site boundaries must be under the authority of a *Heritage Conservation Act* Section 12 Site Alteration Permit. Despite the lack of archaeological materials identified during subsurface testing in proximity to the cairns, EjQw-2 and EiQw-2 have been designated archaeological sites based on the presence of rock features which are likely associated with archaeological or historic activities within the area.

Given the location of archaeological sites EjQw-2 and EiQw-2 in relation to present development plans, avoidance may not be feasible. Other options include adequately offsetting the loss of the sites with data recovery. This could take the form of complete excavation/dismantling and detailed recording of the cairns. The features could also be either preserved in place or disassembled and subsequently re-assembled at an appropriate location. However, Simpcw First Nation has expressed concern over either of these options due to the possible culturally sensitive nature of these features, either as burials or other culturally significant site types.

In the absence of details regarding function or antiquity, these sites have at least moderate scientific value; additional investigation of the cairns may result in the significance assessment being refined and may influence appropriate management strategies for these sites.

The following options for further investigation are recommended in order to attempt to ascertain function, antiquity, and ethnic origins of the cairns with the least level of direct impact to the features themselves.

- 1) First Nations use of the area has been researched through a Traditional Use Study undertaken for this proposed development. That document may provide some insight into these sites. Additional local community-based knowledge, both native and non-native, should be solicited. A focus on these particular locations may result in information more specific to these features and may provide valuable context.
- 2) Non-invasive investigation could utilize ground penetrating radar (GPR) and metal detector survey. These techniques may aid in defining function and possibly general temporal affiliation (i.e., positive for metal = historic period). It should be noted that both these techniques may prove to be inconclusive.
- 3) Slightly more invasive but still non-destructive would be use of a micro inspection camera inserted into the feature, if possible, in an attempt to gather information about content and structure.
- 4) Lichenometry, a geomorphic method of geochronologic aging, should be explored as possible method of determining the age of these cairns. The technique uses lichen growth to determine the age of exposed rock; this could establish when the rocks that have been used to construct the cairns where placed in their present positions. This method of dating requires that lichen does exist on the cairn and may require that there is suitable reference lichen, one that has a known date, in the vicinity. It may also require the temporary removal of one or more rocks from the cairns to facilitate examination.
- 5) It may be possible to use radiocarbon dating to determine the age of these features if suitable samples can be obtained. These would likely consist of samples from immediately below or between the rocks that form each cairn. As with lichenometry, this approach would likely require the temporary removal of one or more rocks from the cairns to facilitate inspection and possible sample collection.

If these approaches do not provide conclusive results, then a program for exploratory testing of the cairns should be considered; this should be developed with the First Nations and in consultation with the Archaeology Branch. Any such program should strive for minimum impact to accomplish its goals and should be terminated as soon as those goals are achieved.

It is recommended that decisions regarding any level of future investigations of these features involve Yellowhead Mining Inc., the appropriate First Nations, as well as the Archaeology Branch of the Ministry of Forests, Lands and Natural Resource Operations.

General information was recorded for historic features and artifacts as part of this study. These historic resources may be of interest to First Nations and non-First Nations communities, however management recommendations are only provided for sites that are automatically protected under the *Heritage Conservation Act*.

If additional archaeological materials are encountered during any phase of development, all operations in the locality should be immediately suspended until Archaeological Planning and Assessment and the relevant First Nations have been contacted for direction. Any cultural materials that pre-date A.D. 1846 are automatically protected by the *Heritage Conservation Act* of British Columbia.

This archaeological impact assessment was intended to identify physical archaeological evidence of past human activity protected under the Heritage Conservation Act. It does not address traditional land use or other possible heritage concerns of the First Nations people whose asserted traditional territory encompasses the study area.

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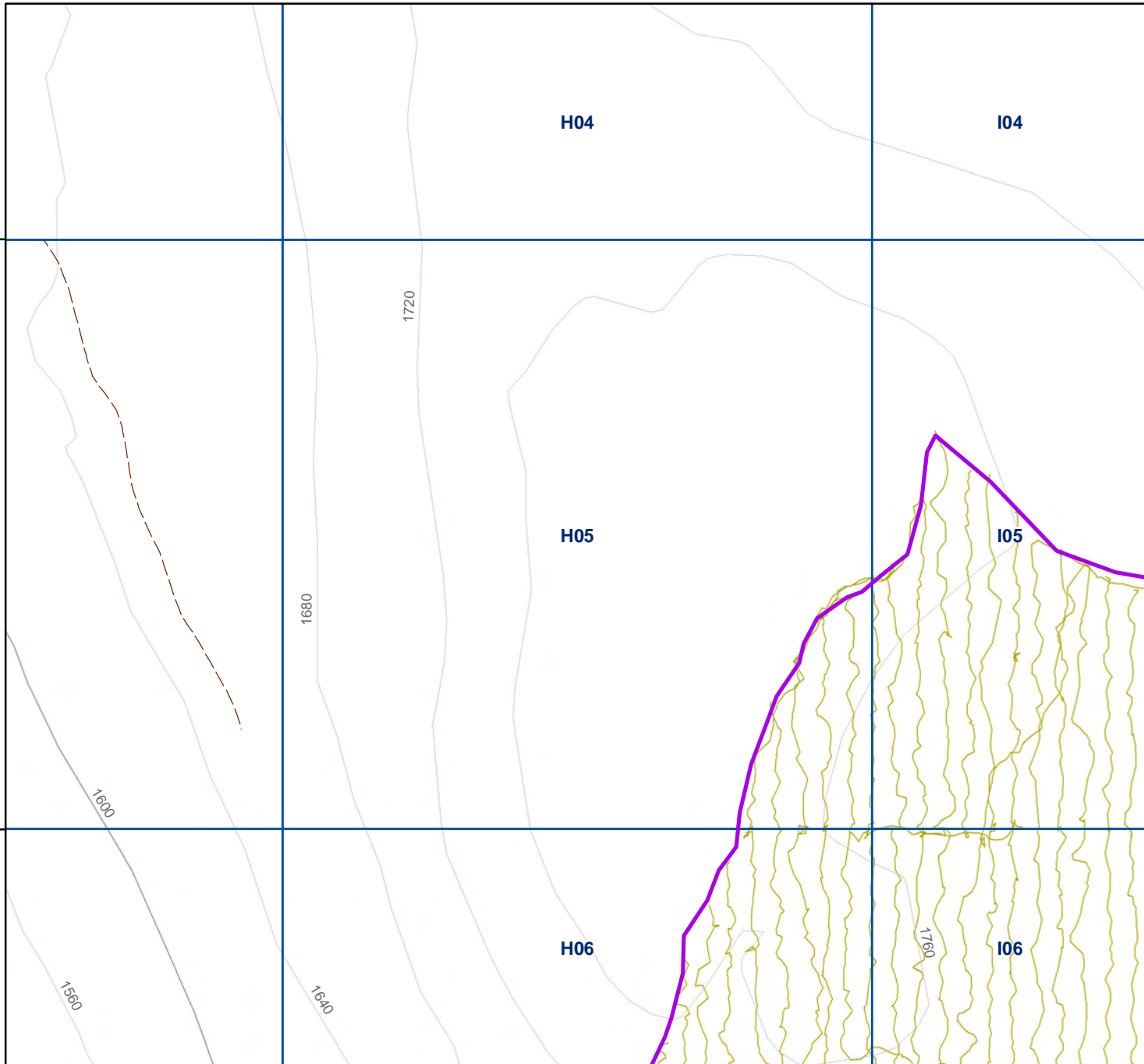
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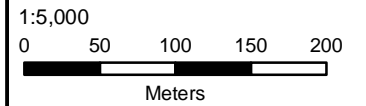
Appendix: ASU Reports



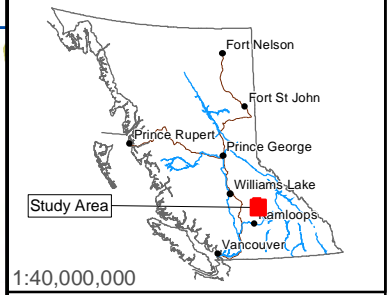
Survey Coverage of H05

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 10, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1750-1780

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU H05, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU H05 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout H05 is gently undulating with southeast and east aspects. No hydrological features or well defined landforms were observed in the assessed area. Archaeological potential is assessed as low due to the lack of hydrological features and undulating nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

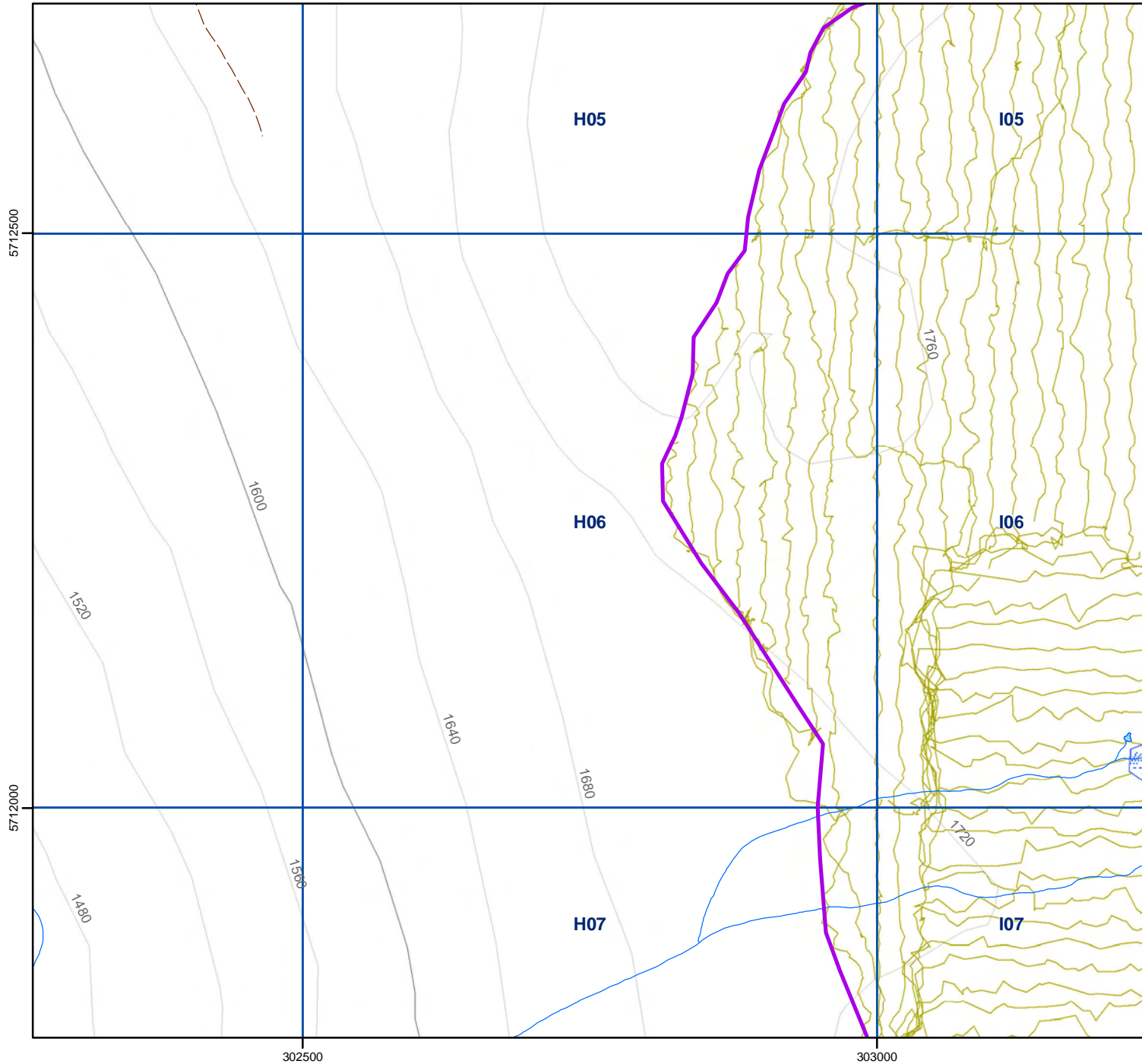
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

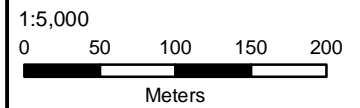
Historic Features Identified? No



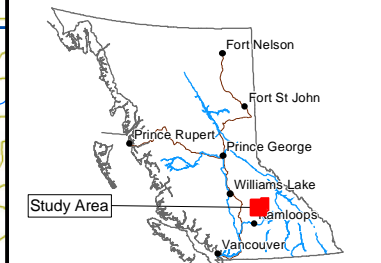
Survey Coverage of H06

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 10-11, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1715-1770

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU H06, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU H06 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain assessed within the western portion of ASU H06 is moderately to steeply sloping with overall south-southwest aspects. As terrain extends to the east the aspect changes to north-northwest and the slope becomes moderate to gentle. No significant hydrological features were observed within H06.

The assessed archaeological potential for H06 is low due to the undulating and sloping nature of the terrain as well as the lack of any significant hydrological features.

Subsurface Description

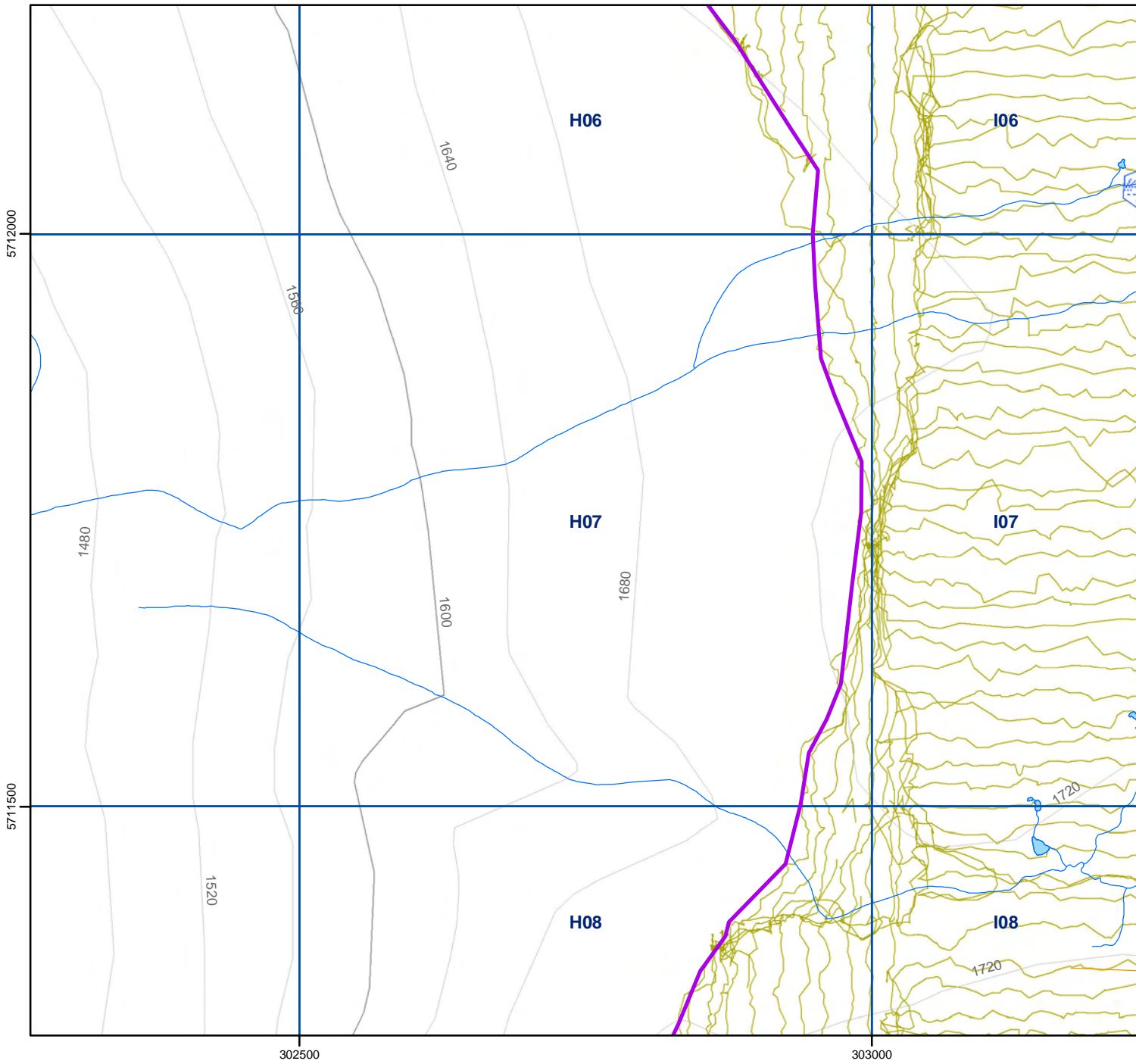
Total Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

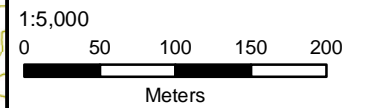
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

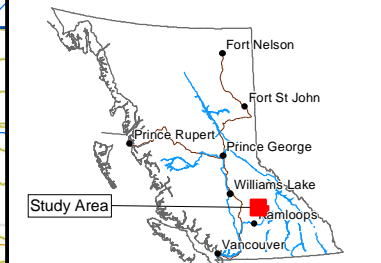


Survey Coverage of H07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.
 NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Joe Meldrum (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 12, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1710-1730

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU H07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU H07 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain throughout assessed areas in H07 ranges from moderately to steeply sloping with a southwest aspect in the south portion of area to moderately undulating with a northwest aspect in the northern portion. There are several areas where the slope becomes gently sloping with a slight west-southwest aspect. No significant hydrological features were observed.

Archaeological potential in H07 is assessed as low due to the undulating and sloping nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

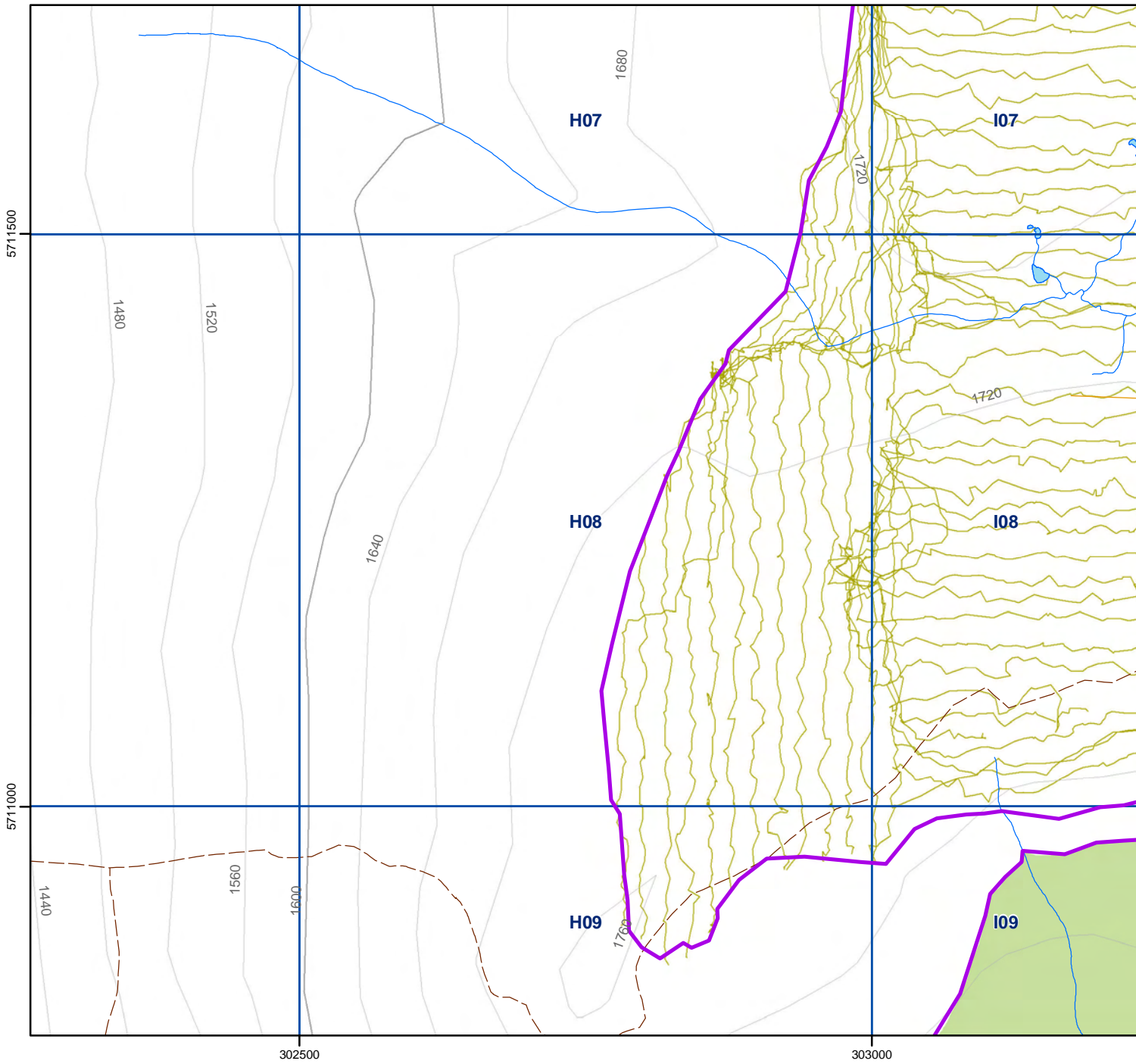
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

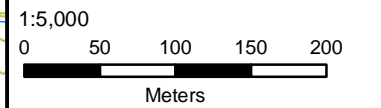
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

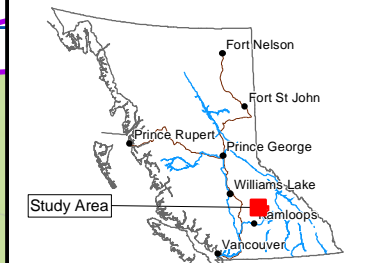


Survey Coverage of H08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.
 NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 4, 2011 and September 12, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1660-1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU H08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU H08 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain throughout the assessed area in ASU H08 is gently to moderately undulating and sloping with an overall north-northeast aspect. An east to west trending drainage was observed in the northern portion of ASU H08; however there were no well-defined or well-drained landforms near the drainage. The aspect changes to southeast in the southern portion of the assessed area. Archaeological potential is assessed as low based on the undulating nature of the terrain as well as the lack of any well-defined, well-drained landforms in the area.

Subsurface Description

Total Number of Subsurface Tests

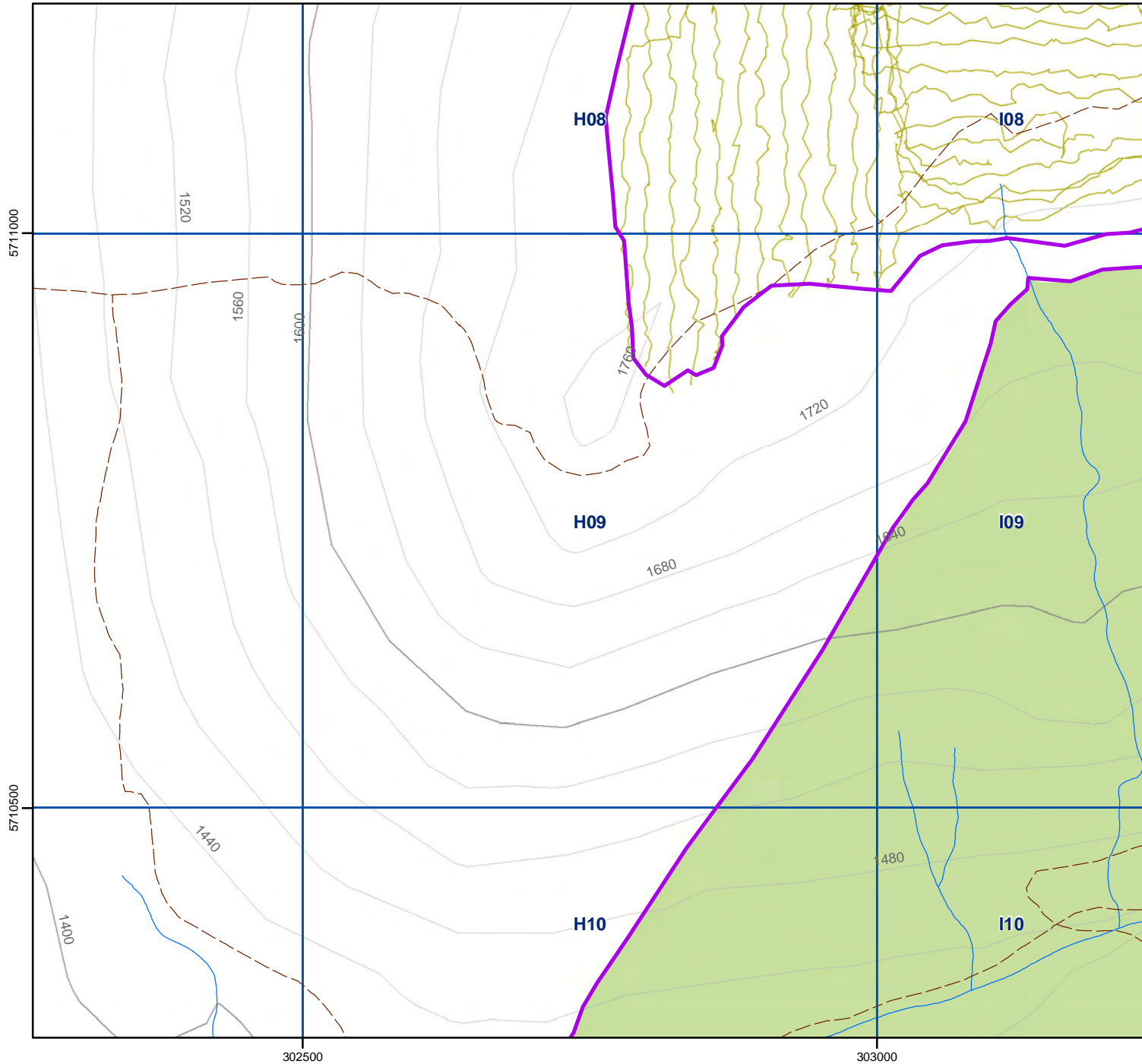
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

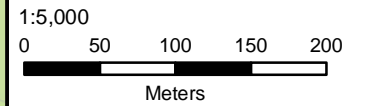
Historic Features Identified? No



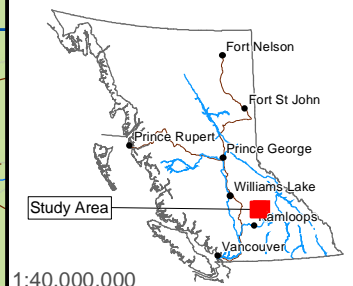
Survey Coverage of H09

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Joe Meldrum (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 12-13, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1510-1750

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU H09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU H09 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain throughout assessed area in ASU H09 is undulating with a moderate slope and a southeast aspect. There are some areas where the slope decreases to gentle and is almost flat. The eastern extent of the area is steeply to moderately sloping with an eastern aspect. There are no significant hydrological features present in the surveyed area.

The area in the southeast corner of the ASU is part of a separate stockpile area. The terrain in this area is extremely steep with a southeast aspect and was deemed to be unsafe to survey.

Archaeological potential is considered low based on the undulating and sloping nature of the terrain, as well as the lack of hydrological features in the assessed area.

Subsurface Description

Total Number of Subsurface Tests

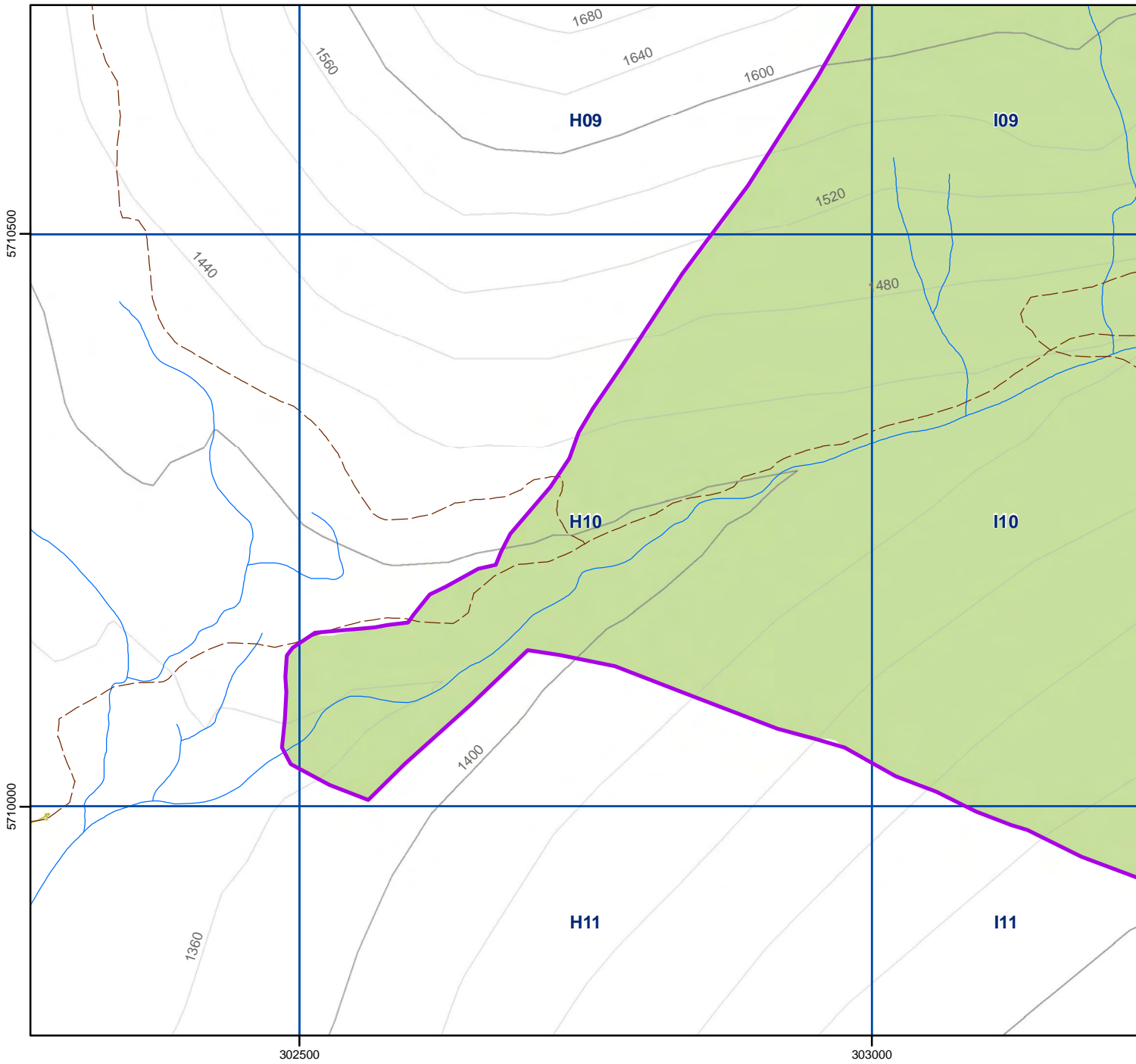
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

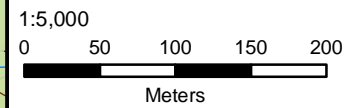
Historic Features Identified? No



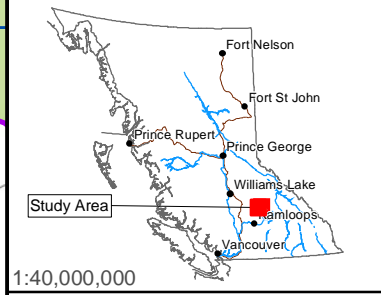
Survey Coverage of H10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



HCA Permit 2011-0209: AIA Harper Creek Mine

302500

303000

Harper Creek Mine Project**HCA Permit** 2011-0209**Permit Holder** Kevin Twohig**Field Director(s)** Shana Morin**Crew Chief(s)** Shannon Enns**Field Crew** Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick**Survey Date(s)** September 20, 2012**PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No****NTS Map** 82M/12**Biogeo Zone** ICHwk1,ISSFwc2**Elevation (m)** 1350-1560**Area (ha)** 25**Survey Methodology**

Pedestrian survey was not undertaken within this ASU.

ASU Description and Potential Assessment

Topographic mapping indicated very steep terrain; this was confirmed visually by the field crew from vantage points outside the ASU. ASU H10 was observed from an access road located at the base of the steep slope to the west. ASU H10 is located within a steep gully that trends east to west into a low lying area. Given the low archaeological potential based on slope and the inherent safety concerns with extremely steep terrain, pedestrian survey was not undertaken in this ASU.

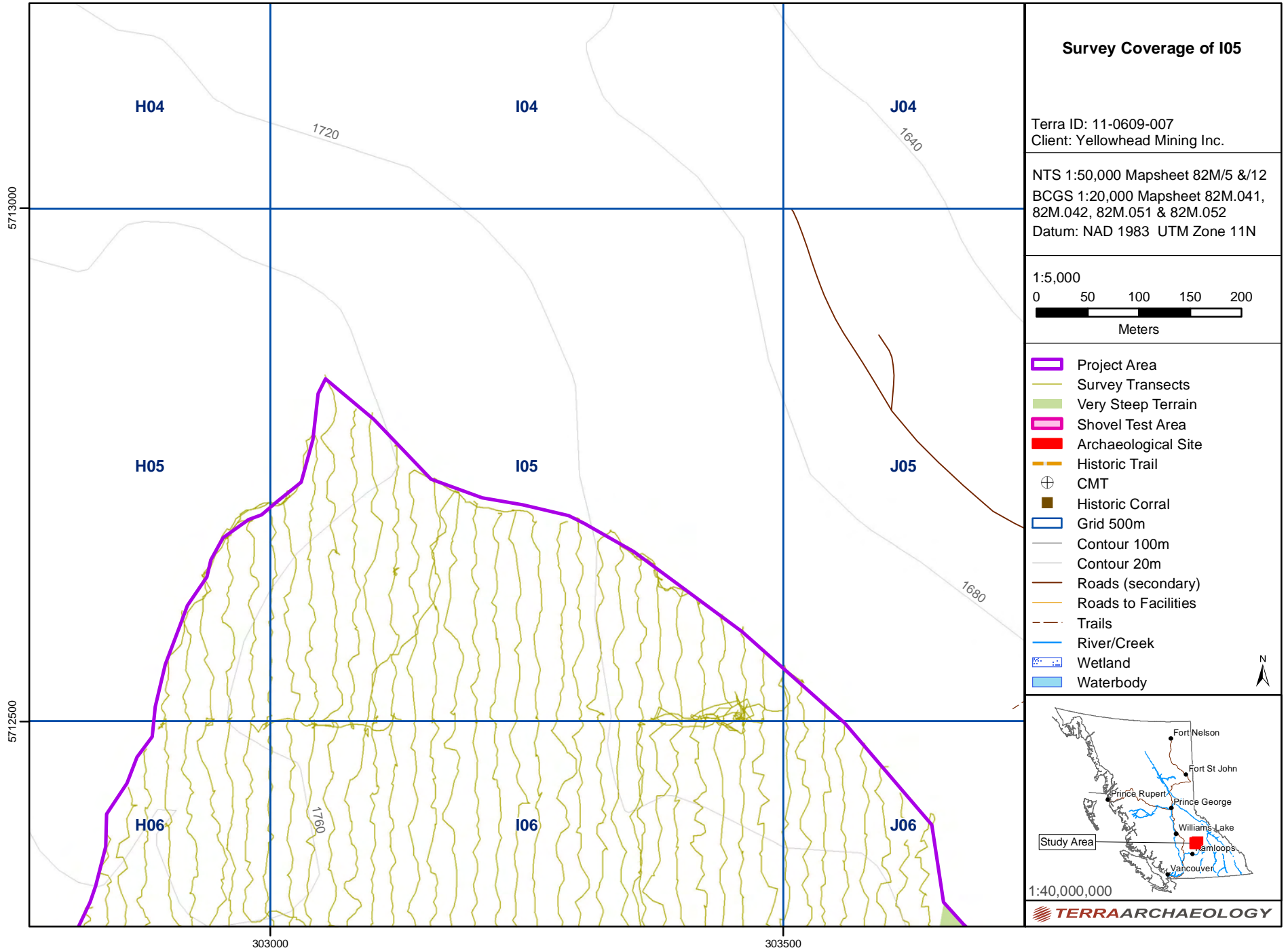
Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within this ASU.

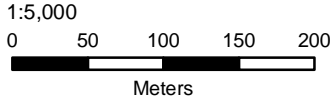
Historic Features Identified? No



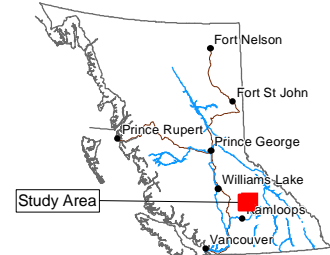
Survey Coverage of I05

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 10-11, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1710-1770

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU I05, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU I05 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain in the western portion of assessed area in ASU I05 ranges from moderately to steeply sloping with a southeast aspect. As the terrain extends east the slope remains the same, however the aspect changes to the northeast and east. There are some small breaks-in-slope throughout ASU, however none of these are well-defined. No hydrological features were observed.

Archaeological potential is considered low based on the sloping nature of the terrain and the lack of any well defined landforms or significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

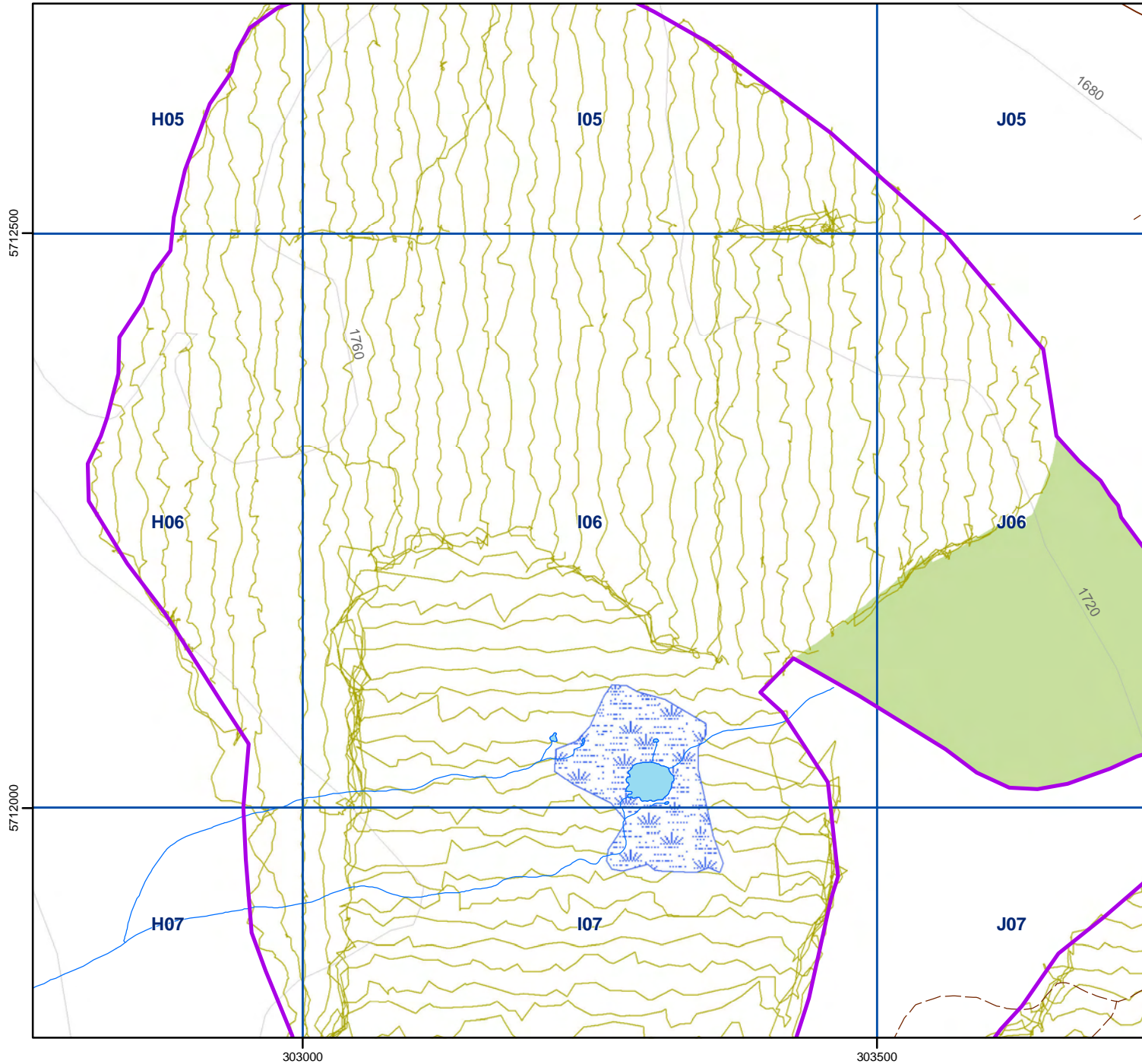
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

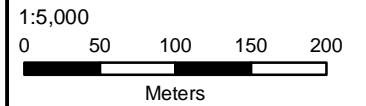
Historic Features Identified? No



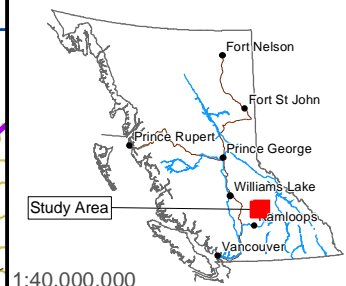
Survey Coverage of I06

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew E.Arrouse (Adams Lake), M.Arrouse (A.L.), S.Enns, T.Jaenson (A.L.), F.Jules (A.L.), M.Jules (Simpco), R.Kenoras (A.L.), J.Meldrum (A.L.), R.Narcisse (A.L.), L.Pick, M.Saul (A.L.), A. Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October, 5, 2011 (Rock Disp.) & September 7 & 11, 2012 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1720-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU 106, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU 106 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

2011: Terrain throughout ASU 106 is gently sloping with a western and southwestern aspect from the poorly defined flat top of a large hill. The ground is generally hummocky and poorly drained with small ponds and saturated meadows observed throughout.

2012: Terrain along the northern boundary of ASU 106 ranges from moderately-to-steeply sloping with southeastern and eastern aspects. Terrain along the southern boundary of the development area is gently-to-moderately sloping with an eastern aspect. There are some small breaks-in-slope throughout 106; however they are poorly-drained and none are well-defined.

Archaeological potential is assessed as low due to the sloping and hummocky nature of the terrain, and lack of well-defined landforms or significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

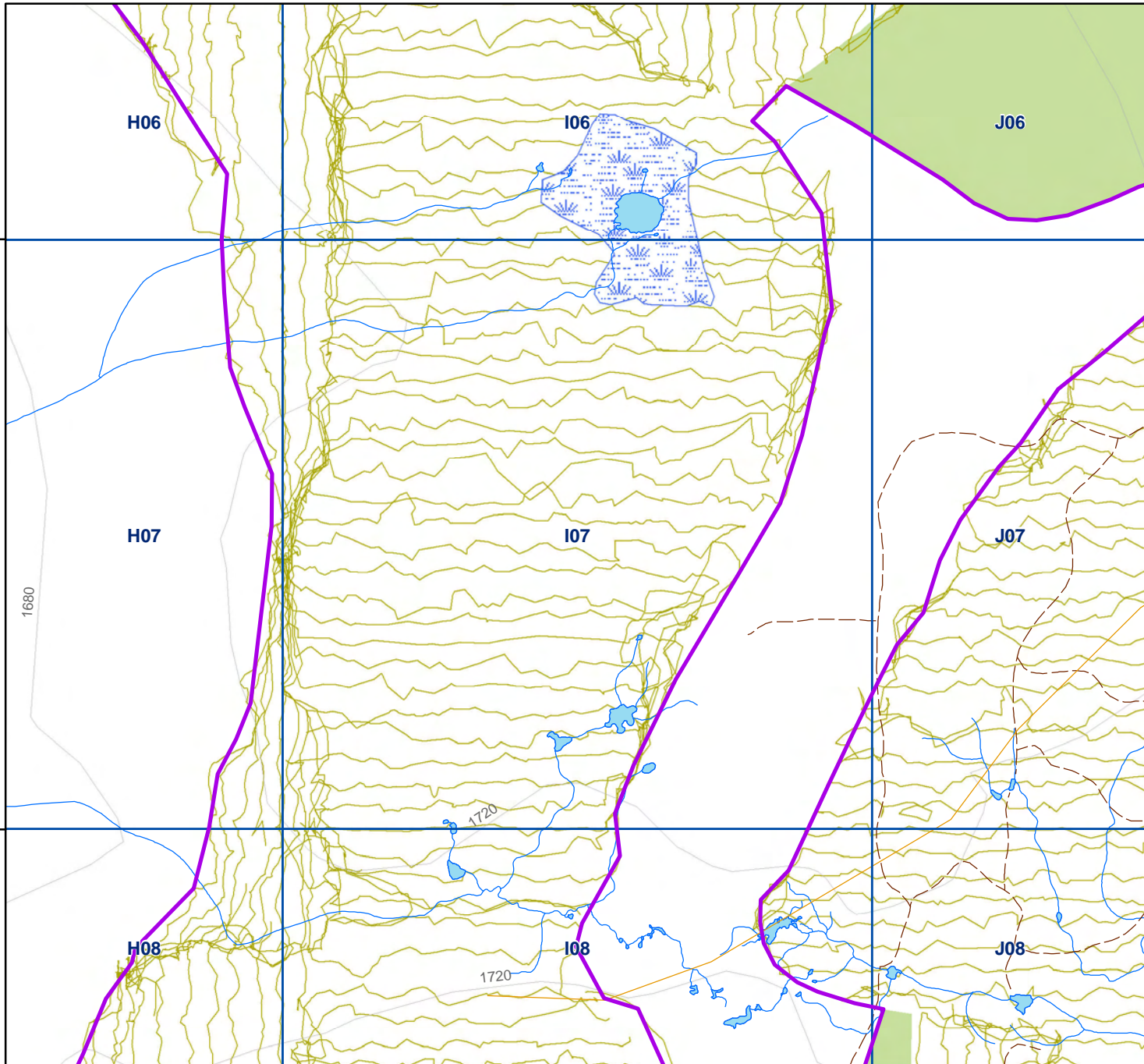
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

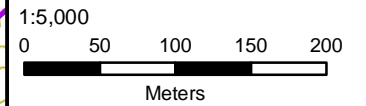
Historic Features Identified? No



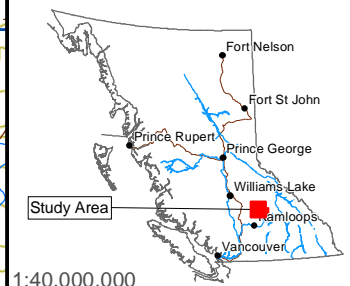
Survey Coverage of I07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns (2011), Murray Jules (Simpw, 2012), Ryan Kenoras (Adams Lake, 2011 & 2012), Joe Meldrum (Adams Lake, 2012), Reginald Narcisse (AIB, 2012), Martin Saus (Adams Lake, 2011)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept. 26/11 (Open Pit); Oct. 5/11 (Rock Disp.); Sept. 12/12 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1720-1740

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU 107, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU 107 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Open Pit and Rock Disposal Area (RDA) West mine footprints fell within ASU 107. Both areas subject to survey exhibited similar terrain features, consisting of a series of flat to gently sloping and hummocky meadows with southern and southeastern aspects. There were no significant hydrological features observed, however, the ground is poorly-drained to fully-saturated in some areas.

A small section along the northwestern edge of ASU 107 (Stockpile) was surveyed in 2012. Terrain is moderately to steeply sloping with both north-northwestern and southwestern aspects.

Archaeological potential is assessed as low due to the sloping, hummocky, and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

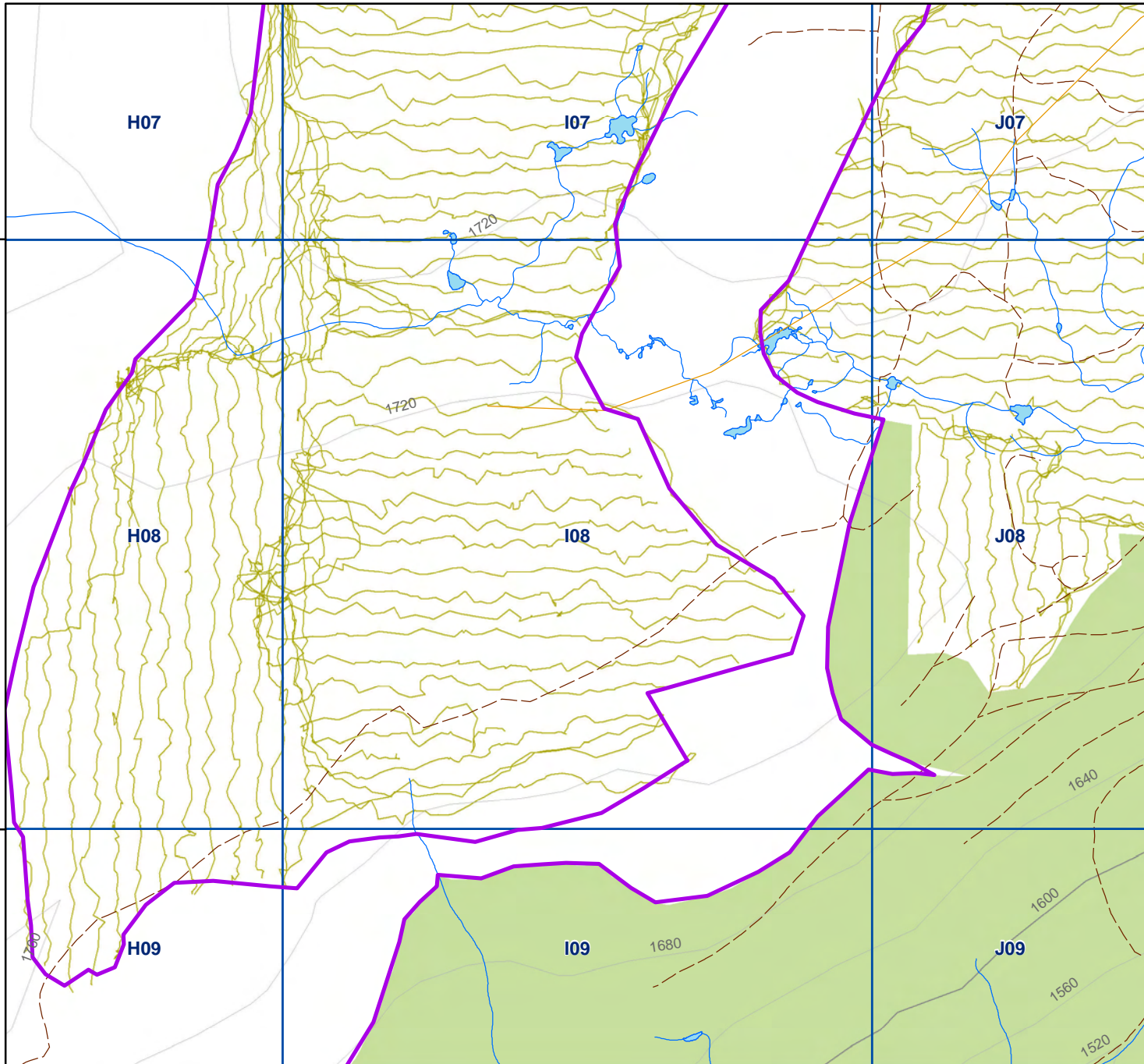
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

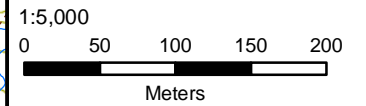
Historic Features Identified? No



Survey Coverage of I08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Ryan Kenoras (Adams Lake), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept. 27/11 (Open Pit); Oct. 4-5/11 (Rock Disp.); Sept. 12/12 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU 108, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU 108 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Open Pit and Rock Disposal Area (RDA) West and Stockpile mine footprints are within ASU 108 and are described separately below.

Open Pit Footprint: Terrain throughout this portion of 108 consists of a flat, saturated meadow. No well-defined landforms were associated with this meadow and no significant hydrological features were observed. Archaeological potential is assessed as low due to the low-lying, saturated nature of terrain.

RDA West Footprint: Terrain in the southern quarter of this portion of 108 is gently sloping with southern to southeastern aspects while the remaining northern portion is gently sloping with northern to northwestern aspects. The ground is generally hummocky with no significant hydrological features noted. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails and stumps were noted as well as mine access roads and drill pads. Archaeological potential is assessed as low due to the sloping, hummocky nature of terrain.

Stockpile: Terrain assessed in 2012 is directly south of the RDA described above. Terrain is moderately-to-steeply sloping with northeastern and southeastern aspects. The slope becomes extremely steep along the southern border and was deemed unsafe to survey. A small dry north-south drainage was observed, however there are no well defined landforms nearby and terrain is continuously sloping in this area. Archaeological potential is assessed as low due to the steep nature of the terrain, and lack of any well-defined landforms or significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

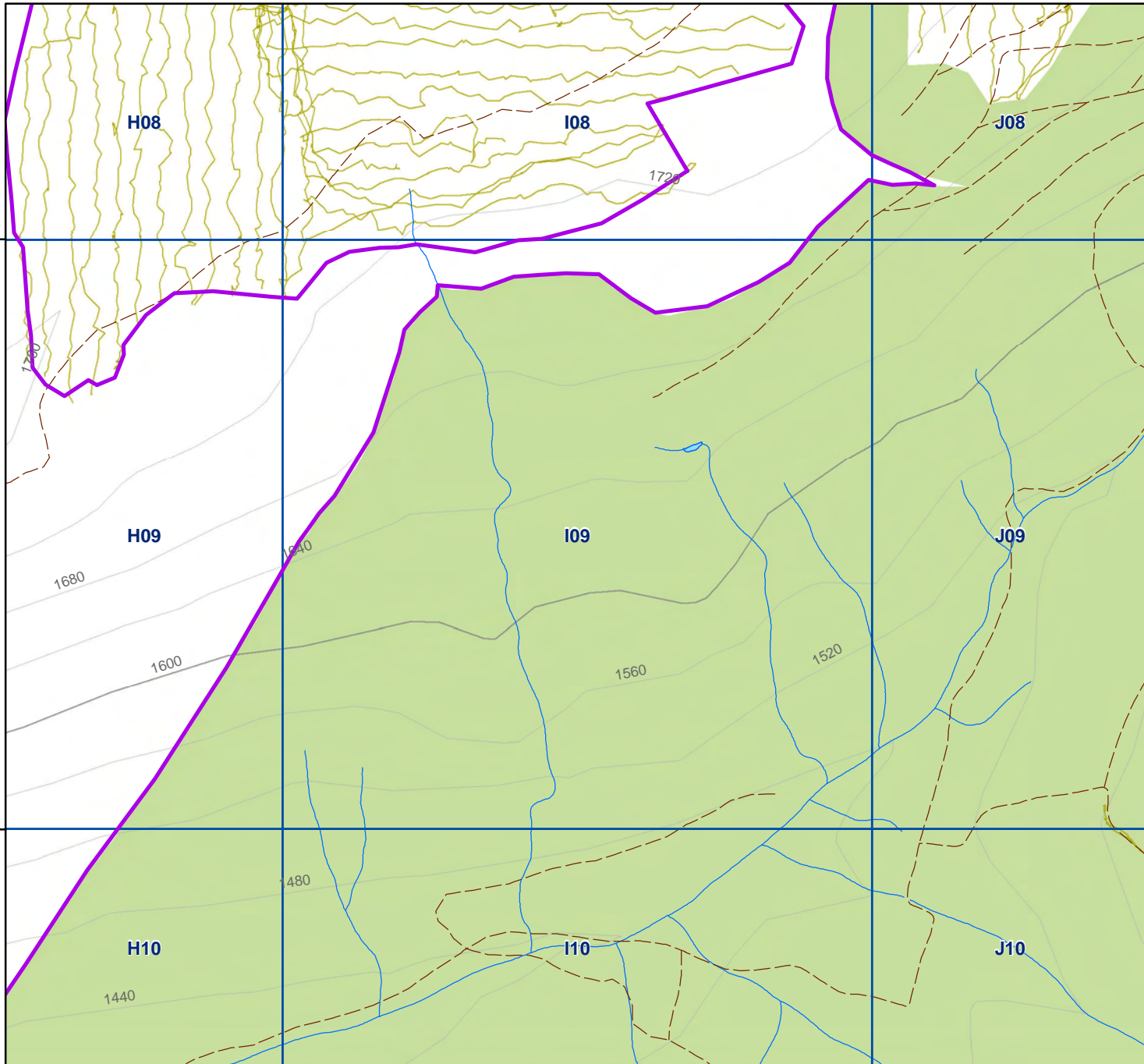
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

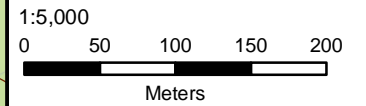
Historic Features Identified? No



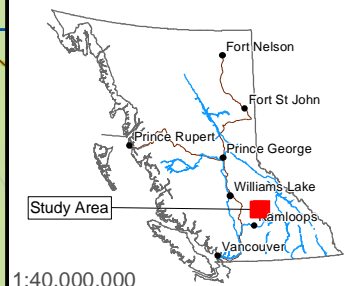
Survey Coverage of I09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 13, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1470-1730

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU 109, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU 109 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northwest corner of assessed area in ASU 109 is moderately to steeply sloping with a southeast aspect. No hydrological features were observed. As the terrain extends south the slope becomes extremely steep; it was deemed unsafe to continue survey of the area.

A separate section of the stockpile covers the majority of 109. The terrain throughout this section is very steeply sloping with an overall south-southeast aspect. This area was deemed to be unsafe for survey due to slope.

Archaeological potential is assessed as low based on the undulating and steeply sloping nature of the terrain, as well as the lack of hydrological features.

Subsurface Description

Total Number of Subsurface Tests

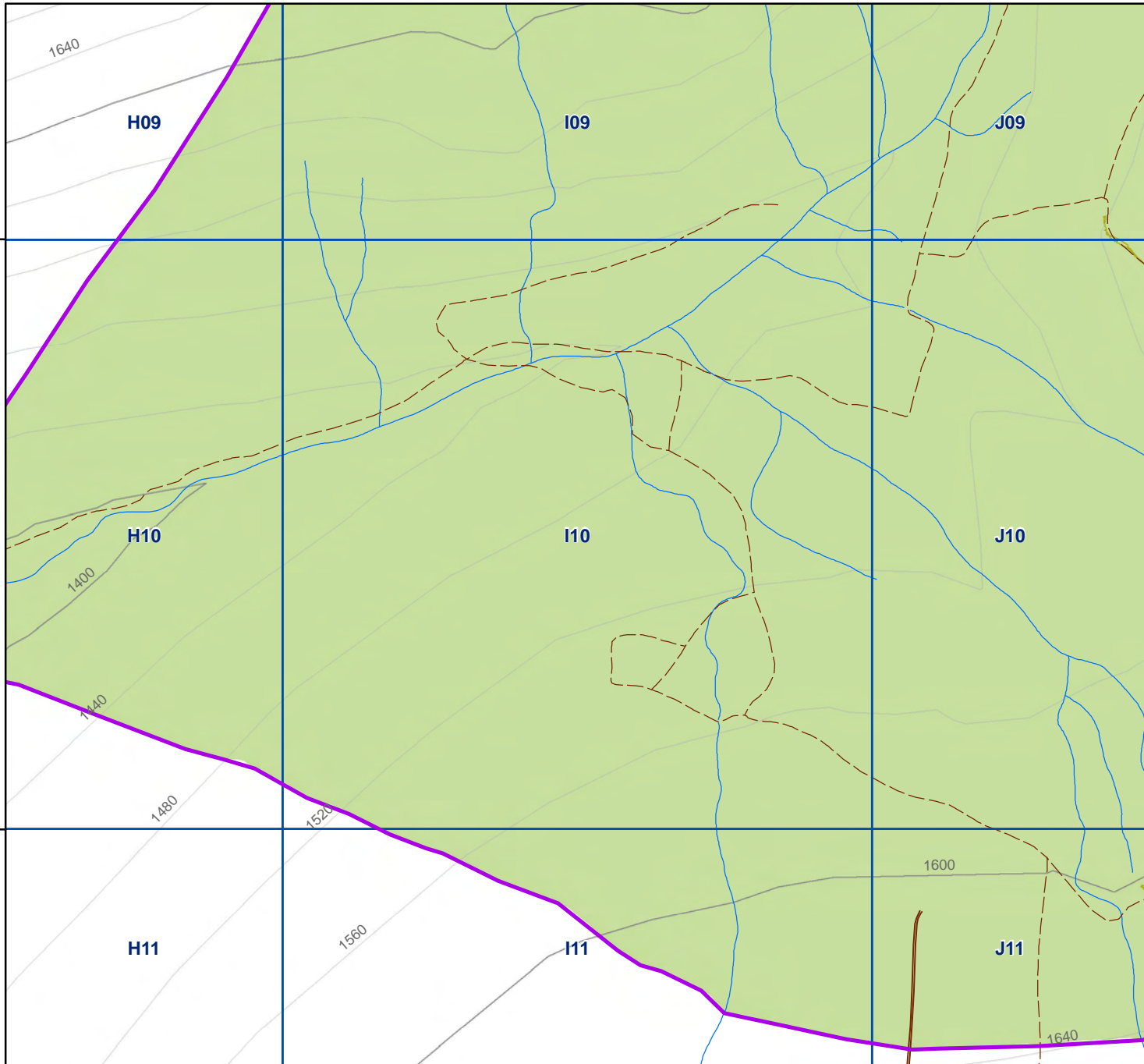
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed

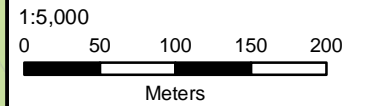
Historic Features Identified? No



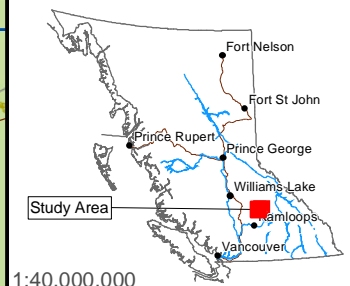
Survey Coverage of I10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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303500

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Crew Chief(s) Shannon Enns

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Survey Date(s) September 12, 2012

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1400-1580

Area (ha) 25

Survey Methodology

Pedestrian survey was not undertaken within this ASU.

ASU Description and Potential Assessment

Topographic mapping indicated very steep terrain; this was confirmed visually by the field crew from vantage points outside the ASU. ASU I10 was observed from a narrow skid trail/overgrown access road to the northeast of ASU and from an access road located at the base of the steep slope to the west. ASU I10 is located along the southern edge of a steeply sloping gully and has an overall northwest aspect. Given the low archaeological potential based on slope, and the inherent safety concerns with extremely steep terrain, pedestrian survey was not undertaken in this ASU.

Subsurface Description

Total Number of Subsurface Tests

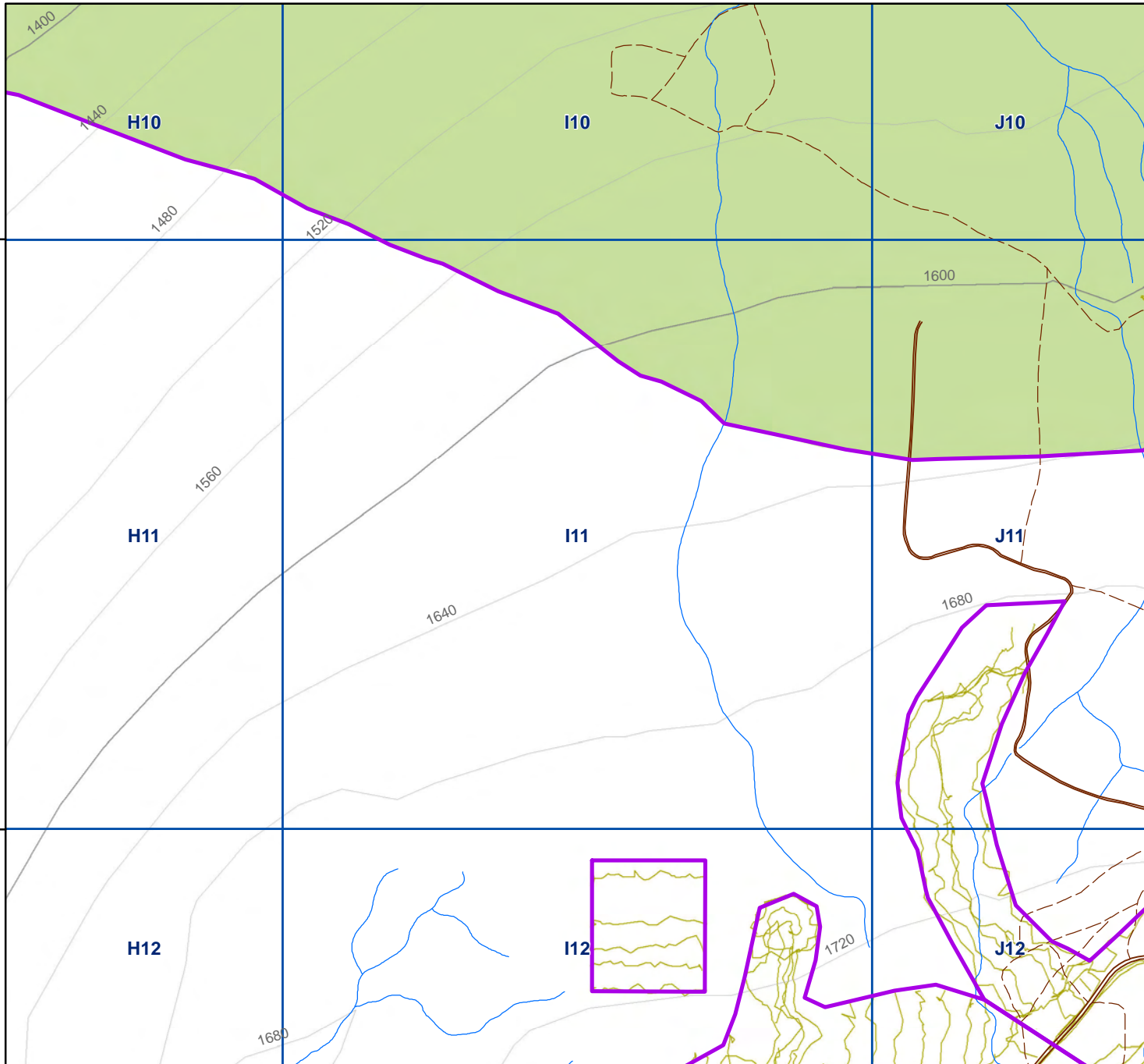
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within this ASU.

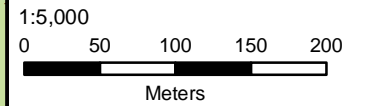
Historic Features Identified? No



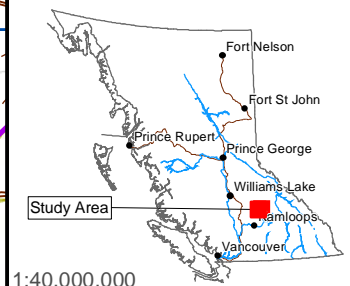
Survey Coverage of I11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 20, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1500-1710

Area (ha) 25

Survey Methodology

Pedestrian survey was not undertaken within this ASU.

ASU Description and Potential Assessment

Topographic mapping indicated very steep terrain; this was confirmed visually by the field crew from vantage points outside the ASU. ASU I11 was observed from a narrow skid trail/overgrown access road to the northeast of ASU. ASU I11 is located along the southern edge of a steeply sloping gully and has an overall northwest aspect. Given the low archaeological potential based on slope, and the inherent safety concerns with extremely steep terrain, pedestrian survey was not undertaken in this ASU.

Subsurface Description

Total Number of Subsurface Tests

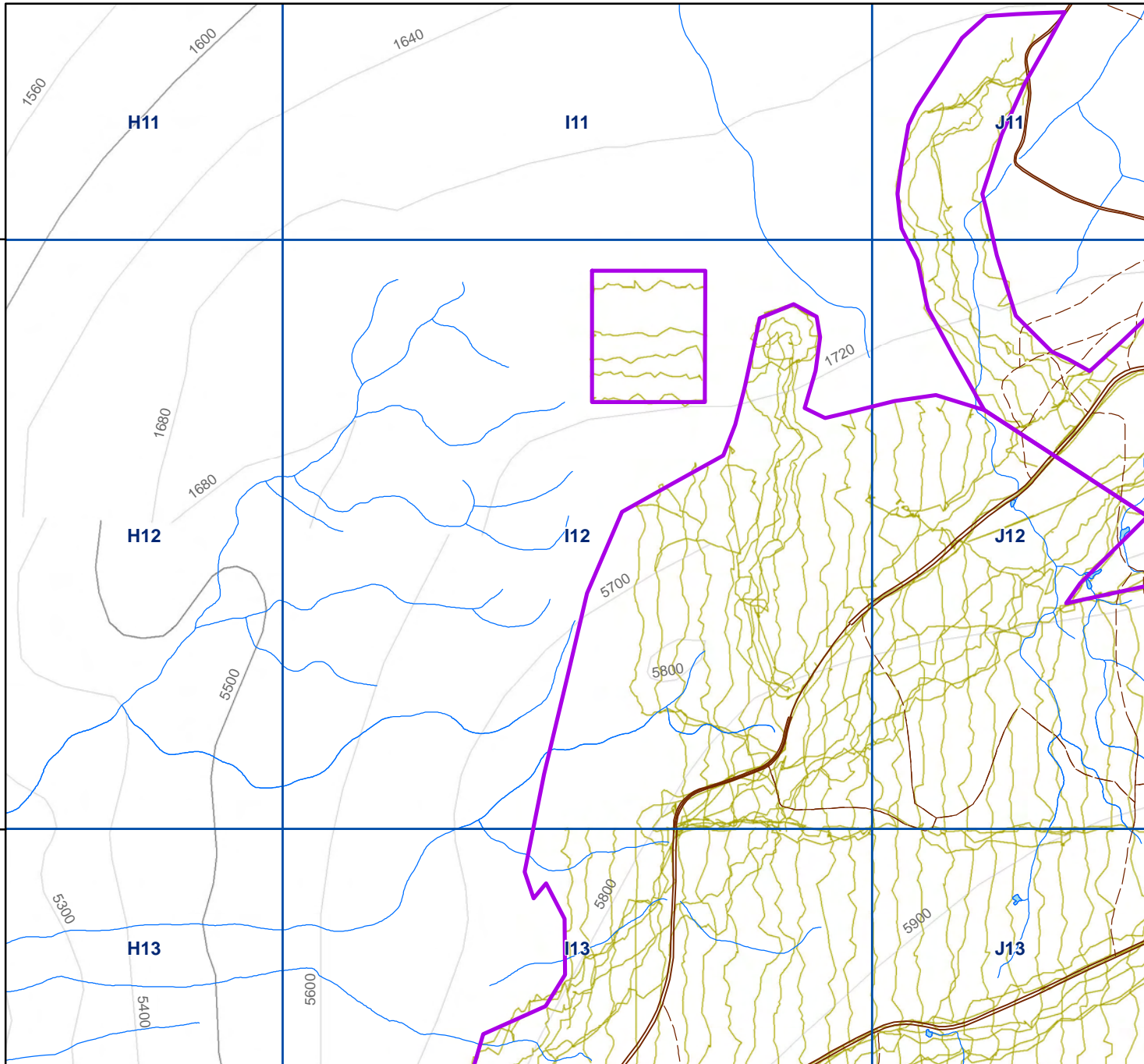
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within this ASU.

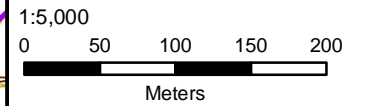
Historic Features Identified? No



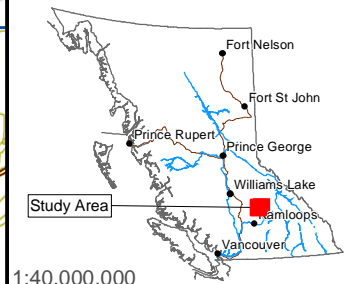
Survey Coverage of I12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041, 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

303000

303500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew E.Arnoise (Adams Lake), M.Arnoise (A.L.), S.Enns, L.Eustache (Simpco), T.Jaenson (A.L.), F.Jules (A.L.), M.Jules (Simpco), R.Kenoras (A.L.), J.Kirillo, L.Pick, M.Saul (A.L.), A.Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham **Survey Date(s)** October 12, 2011 (Road); July 25 and September 14, 2012 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1680-1780

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU I12 and given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU I12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Mine Haul Road: Terrain in I12 is flat to gently sloping with northern to northwestern aspects with no significant hydrological features observed. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails and stumps were noted as well as a main mine access road. Archaeological potential is assessed as low due to the sloping and highly disturbed nature of the terrain as well as its lack of significant hydrological features.

Stockpile: The eastern portion of I12 is moderately undulating with a northwest aspect. As terrain extends to the west the slope increases to steeply sloping. There is a significant amount of disturbance observed throughout I12 from past logging and road building activities. There is a road (Road 8) transecting I12 through the southeast portion. Several ephemeral drainages trend southeast to northwest, however most follow skid trails and are not naturally occurring. The terrain in the westernmost portion of I12 was deemed too steep to survey. Archaeological potential is assessed as low due to the significant disturbance throughout I12, sloping nature of the terrain and lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

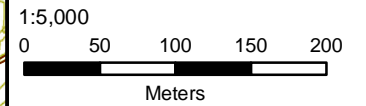
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of I13

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

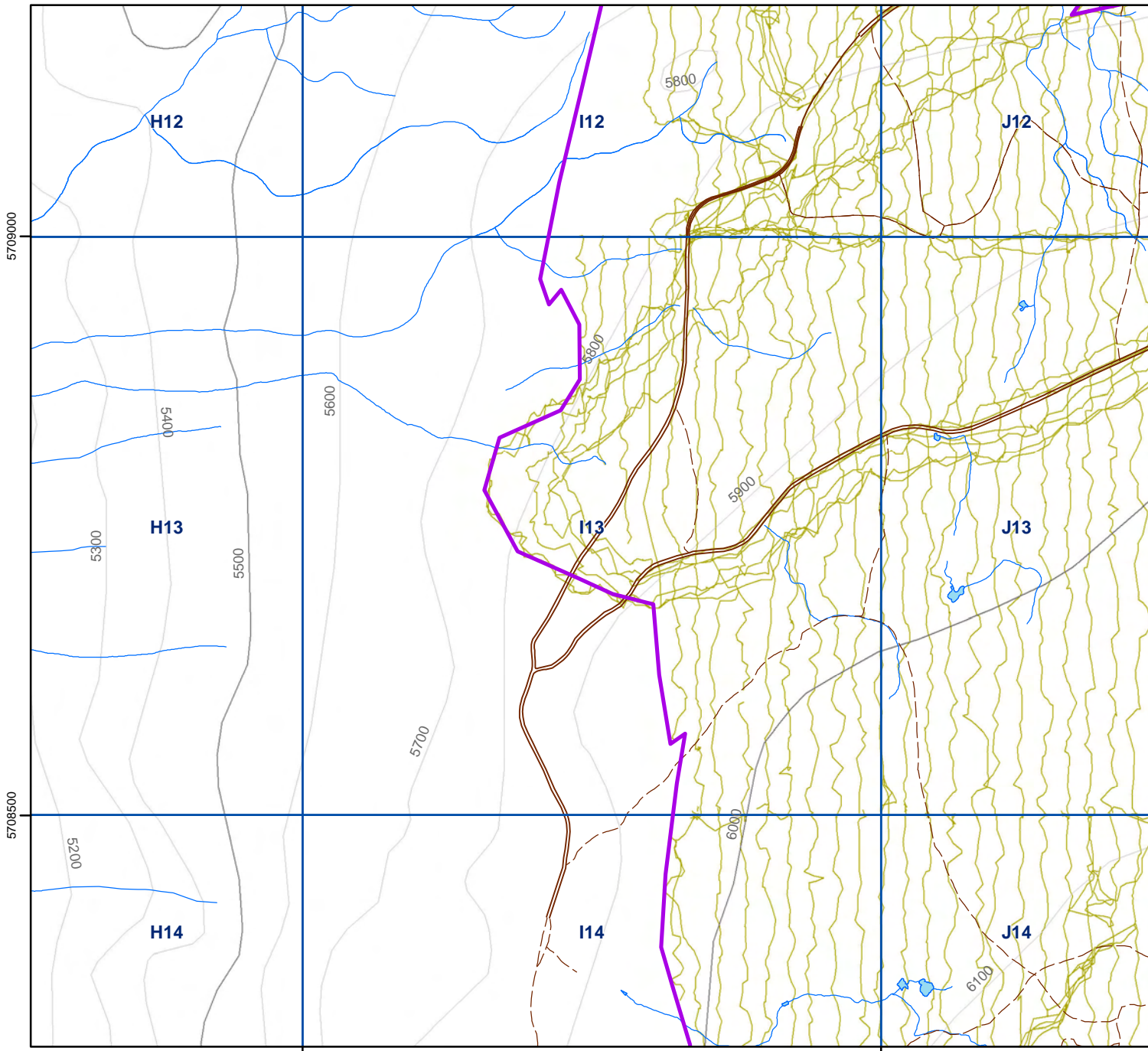
NTS 1:50,000 Mapsheet 82M/5 & 12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Shannon Enns, Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 11, 2011 (Mine Haul Rd); July 30-31, 2012 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1700-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU I13 and given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m (2011) and 20 m (2012) intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU I13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout most of I13 is gently to moderately sloping with a north-western aspect. The ground is generally hummocky with no significant hydrological features observed. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails, stumps and burn piles were noted as well as a main mine access road that runs through the centre of the mine footprint shape. Several small ephemeral drainages were noted; however these are found along existing skid trails and are not naturally occurring. Archaeological potential is assessed as low due to the sloping and hummocky nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

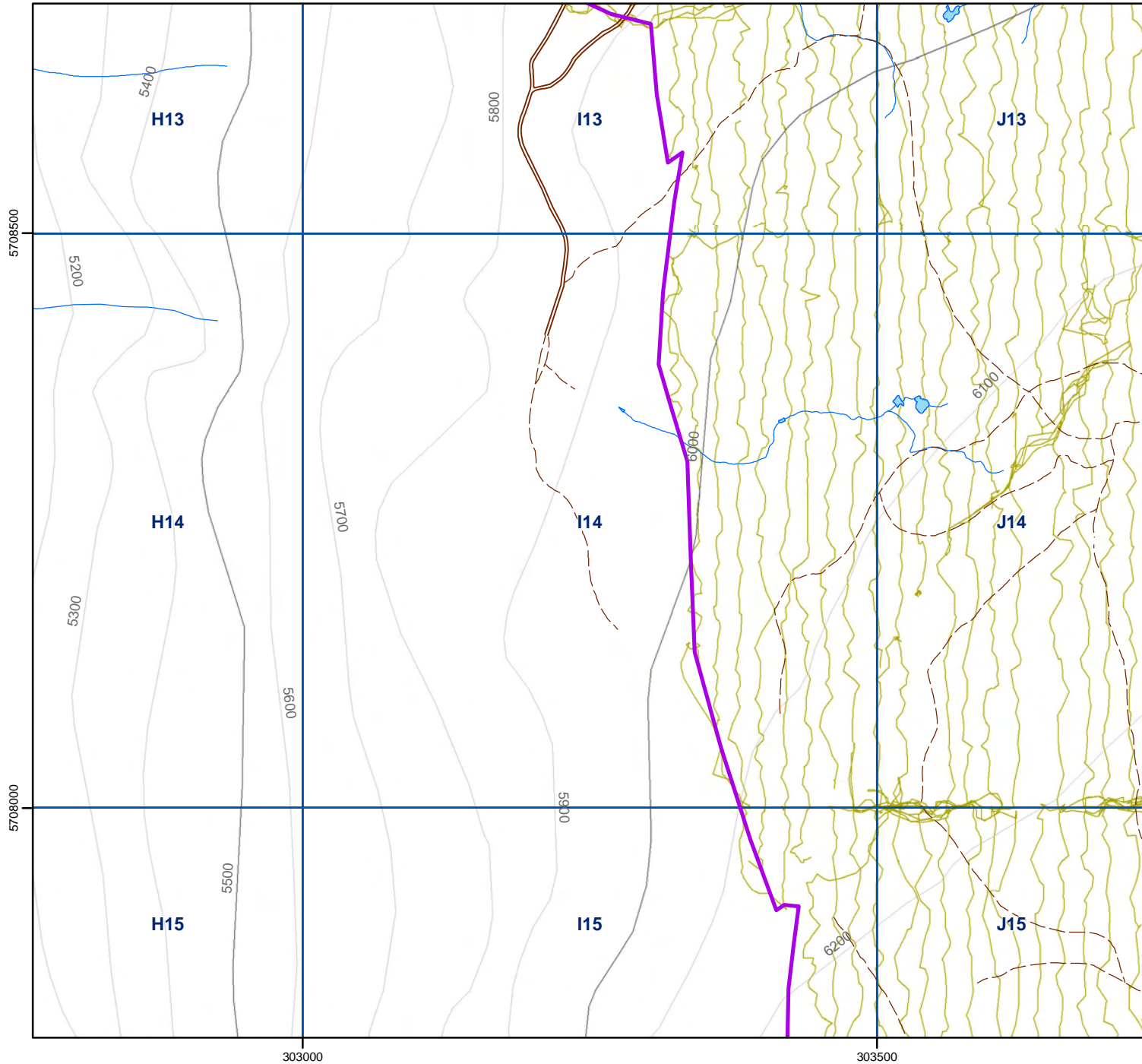
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No



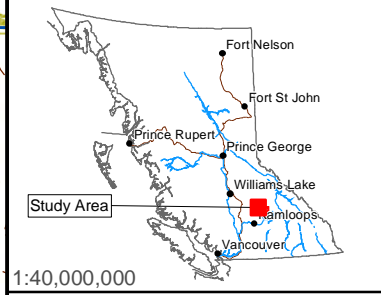
Survey Coverage of I14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Ryan Kenoras (Adams Lake), Jordan Kirillo, Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 13, 2011 and July 30 and September 18, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU I14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU I14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within I14 is moderately sloping with a northwestern aspect. No hydrological features were noted. Significant ground disturbances as a result of previous logging and mining activities were observed, including skid trails and stumps. Archaeological potential is assessed as low due to the sloping and heavily disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

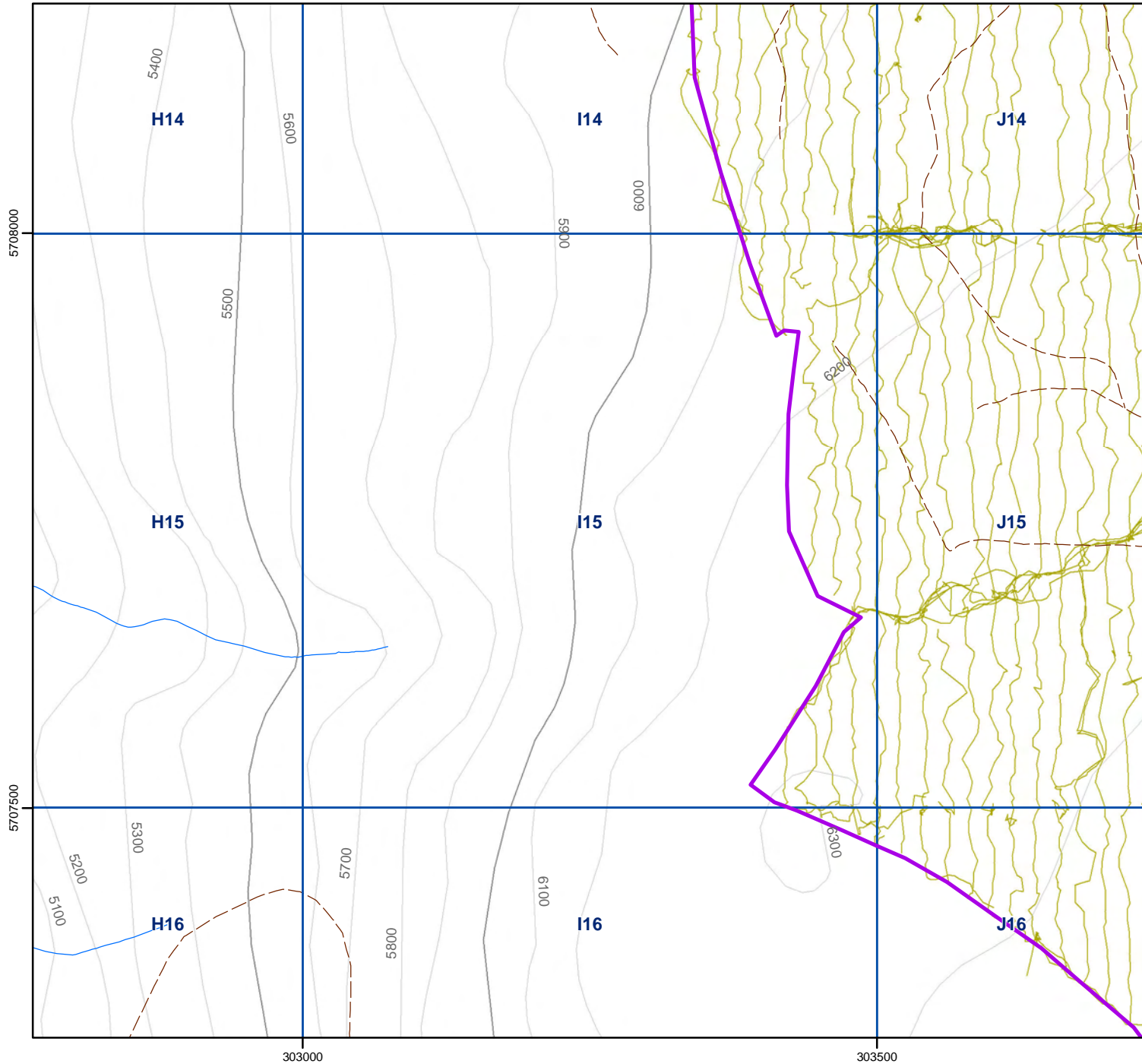
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

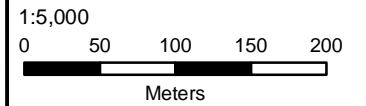
Historic Features Identified? No



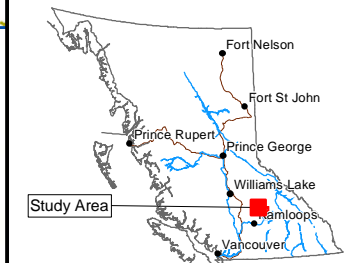
Survey Coverage of I15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpw), Pam Eustache (Simpw), Murray Jules (Simpw), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept. 14/11 & July 30/12 (Stock.); Aug 23/12 (Catch.); Sept. 18/12 (Stock.)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1700-1910

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU I15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU I15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southwestern corner of I15 begins a short distance below the height of land which creates gentle slope with a northeastern aspect in the south-east corner, gentle to moderate slope with a northwestern aspect in the northeast corner, and moderate to steep slope with a western aspect in the northwest corner. There were no significant hydrological features observed. Ground disturbances as a result of previous logging and mining activities were observed as evidenced by numerous intersecting skid trails. Archaeological potential is assessed as low due to the sloping, heavily disturbed nature of the terrain as well as its lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

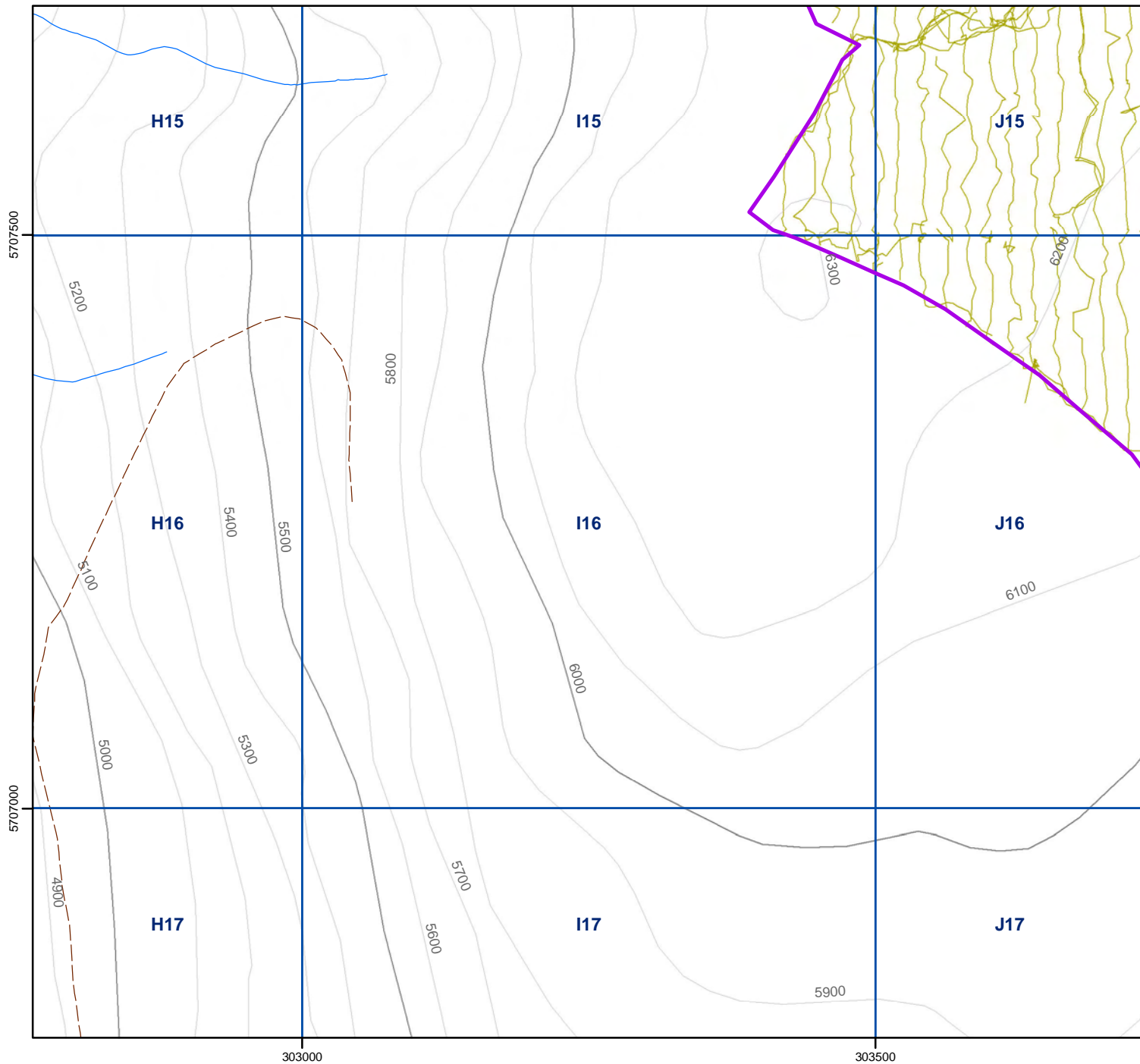
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

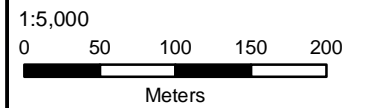
Historic Features Identified? No



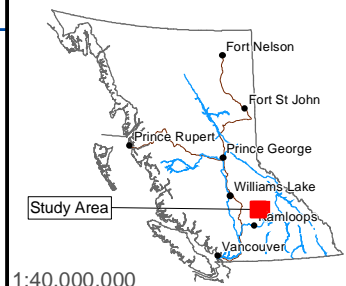
Survey Coverage of I16

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 23, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No
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NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1904-1907

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU I16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU I16 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Only a small area of the Natural Catchment is situated in I16. The assessed terrain is moderately undulating with northeast and east aspects. There are some small naturally occurring rock outcrops in the western extent of assessed area. There are no significant hydrological features present.

Archaeological potential is low due to the sloping nature of the terrain and the lack of significant hydrological features in the area.

Subsurface Description

 Total Number of Subsurface Tests

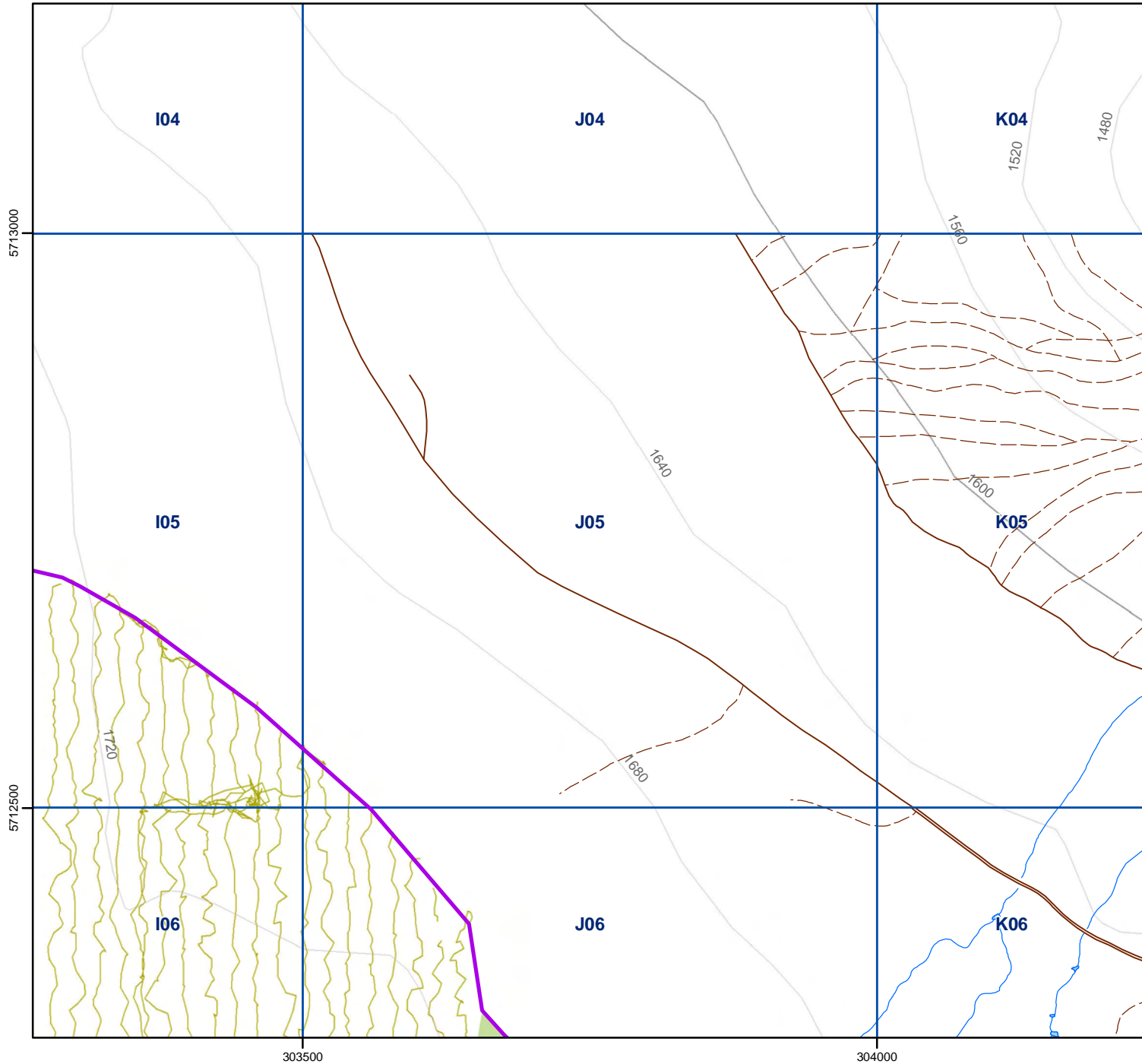
 Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

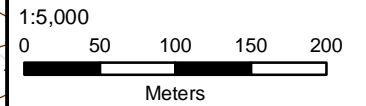
Historic Features Identified? No



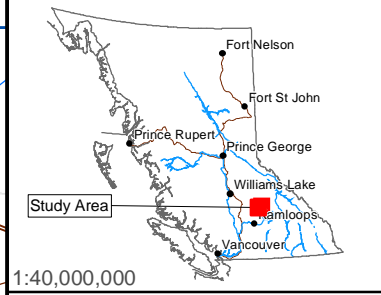
Survey Coverage of J05

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 7, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone EESFwc2

Elevation (m) 1707-1712

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J05, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J06 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Only a small portion of the Stockpile was located within J05. The assessed terrain is moderately sloping with a northeast aspect. No significant hydrological features were observed. The area has been disturbed by past logging activities, evidenced by multiple intersecting skid trails, stumps, and areas of regeneration.

Archaeological potential is considered low based on the sloping nature of the terrain, the high level of disturbance and the lack of any significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

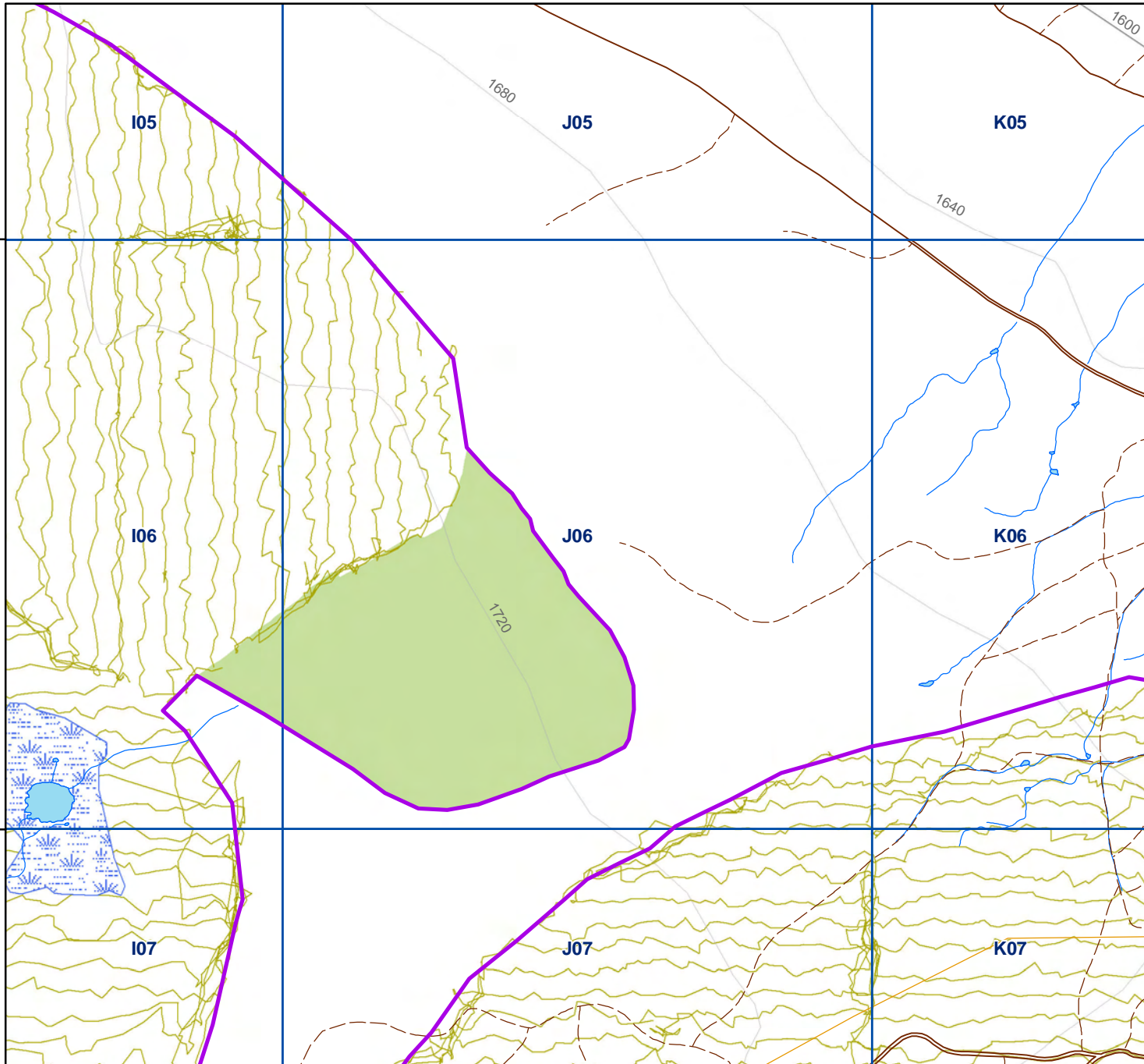
Number of Positive Subsurface Tests

No subsurface tests were excavated

Results

No protected archaeological resources were identified within the areas surveyed.

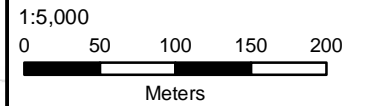
Historic Features Identified? No



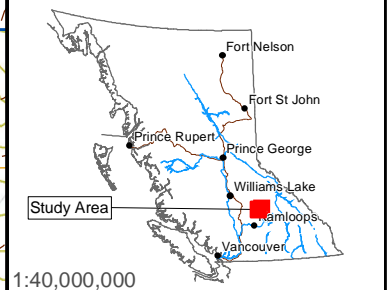
Survey Coverage of J06

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

5712500

5712000

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Shannon Enns, Fern Jules (Adams Lake), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick, Martin Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 26, 2011 (Open Pit); September 7, 2012 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1680-1730

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J06, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J06 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Open Pit: Terrain throughout the southeastern corner of J06 is gently sloping with a northeastern aspect. There were no significant hydrological features observed. Ground disturbances as a result of previous logging activities were observed, including skid trails and stumps.

Stockpile: Terrain throughout the assessed area of J06 is moderately-to-steeply sloping with a northeast aspect. Disturbance due to past logging activities was observed throughout. There were no hydrological features of significance observed. A large portion of the Stockpile located in the southwestern quadrant of J06 was deemed to be too steep to survey.

Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain and lack of hydrological features.

Subsurface Description

Total Number of Subsurface Tests

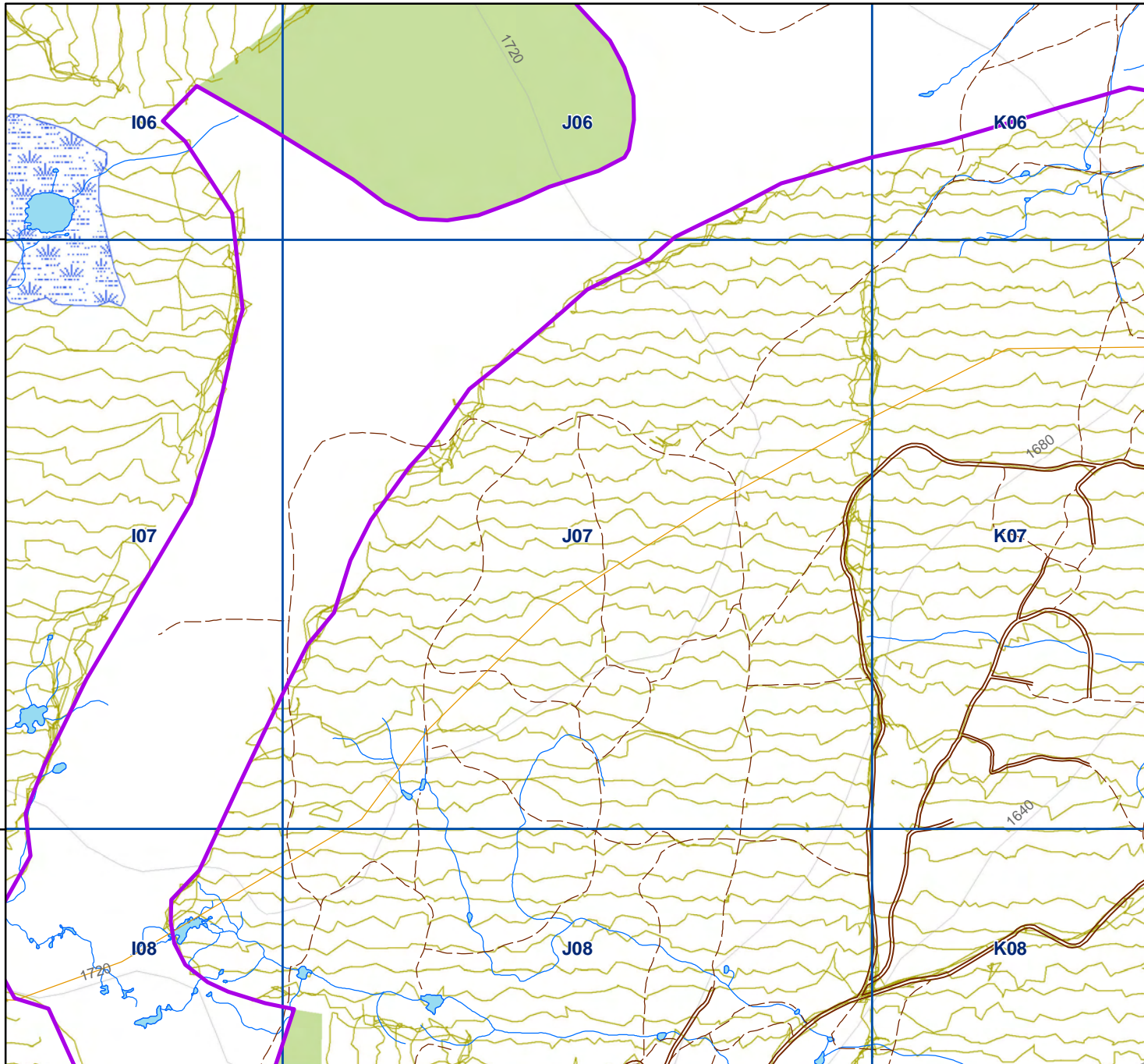
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

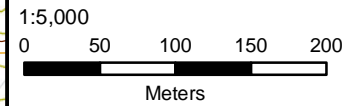
Historic Features Identified? No



Survey Coverage of J07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 26, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1680-1740

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J07 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain in J07 consists of a large flat and undulating hilltop located in the northwestern quarter creating the slopes observed in the remaining three quarters of the area. The northeastern quarter is gently to moderately sloping with northeastern and eastern aspects. The southeastern corner is moderately to steeply sloping with eastern and southeastern aspects changing gradually into a very gentle slope in the southernmost portion. The southwestern quarter is gently to moderately sloping with south and southwestern aspects. There were no significant hydrological features observed. A mapped drainage is located in the southwestern quarter, but it was not discernible to the field crew. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails, stumps, and mine access roads were noted throughout. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

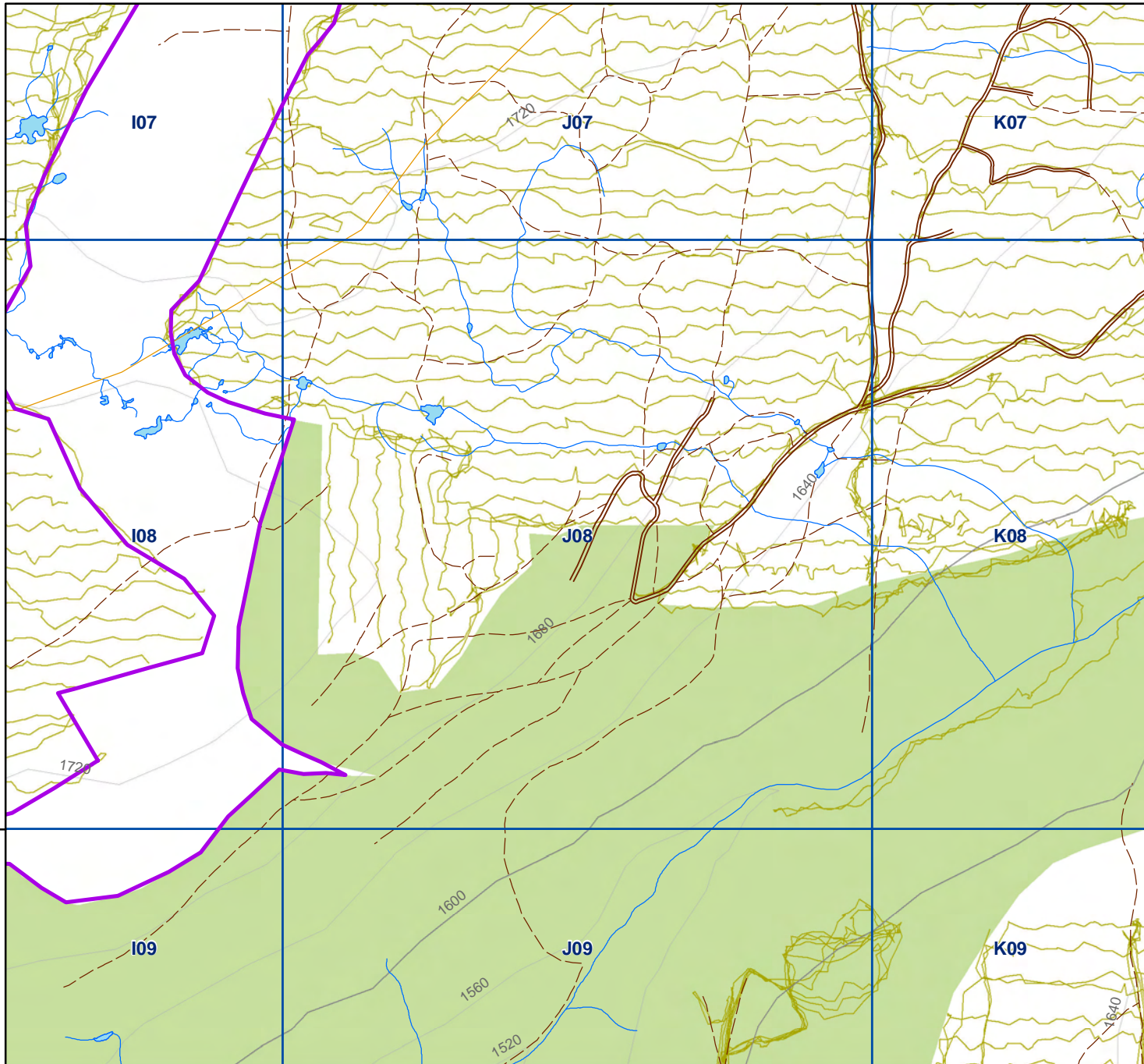
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

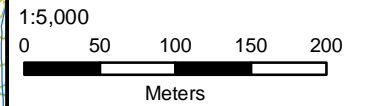
Historic Features Identified? No



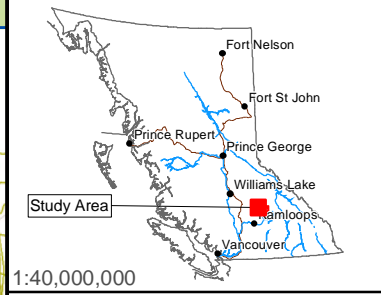
Survey Coverage of J08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

303500

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571000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns (2011), Tyler Jaenson (Adams Lake, 2011), Murray Jules (Simpco, 2011), Ryan Kenoras (Adams Lake, 2011 & 2012), Achinie Wijesinghe(2011), Reginald Narcisse (Adams Lake, 2012)

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 27, 2011; September 13, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1580-1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J08 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northwestern quadrant of J08 is flat to gently sloping with southern and southeastern aspects. Although several streams and small water bodies are shown on the attached map, the field crew observed a saturated meadow. The remainder of the terrain in this quadrant is very steeply sloping with a southeastern aspect. In the southwestern quadrant of the ASU this slope is extremely steep and was assessed as too steep to safely survey. One small north-south trending stream was noted near the centre of the ASU. Two mapped northwest-southeast drainages are located in the northeastern quadrant, but they were not discernible to the field crew. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails and stumps were noted as well as mine access roads. The southern portion of J08 is steeply sloping and was deemed unsafe for survey.

Archaeological potential is assessed as low due to the steeply sloping nature of the terrain and the lack of prominent landforms associated with the saturated meadow in the northwestern quadrant.

Subsurface Description

Total Number of Subsurface Tests

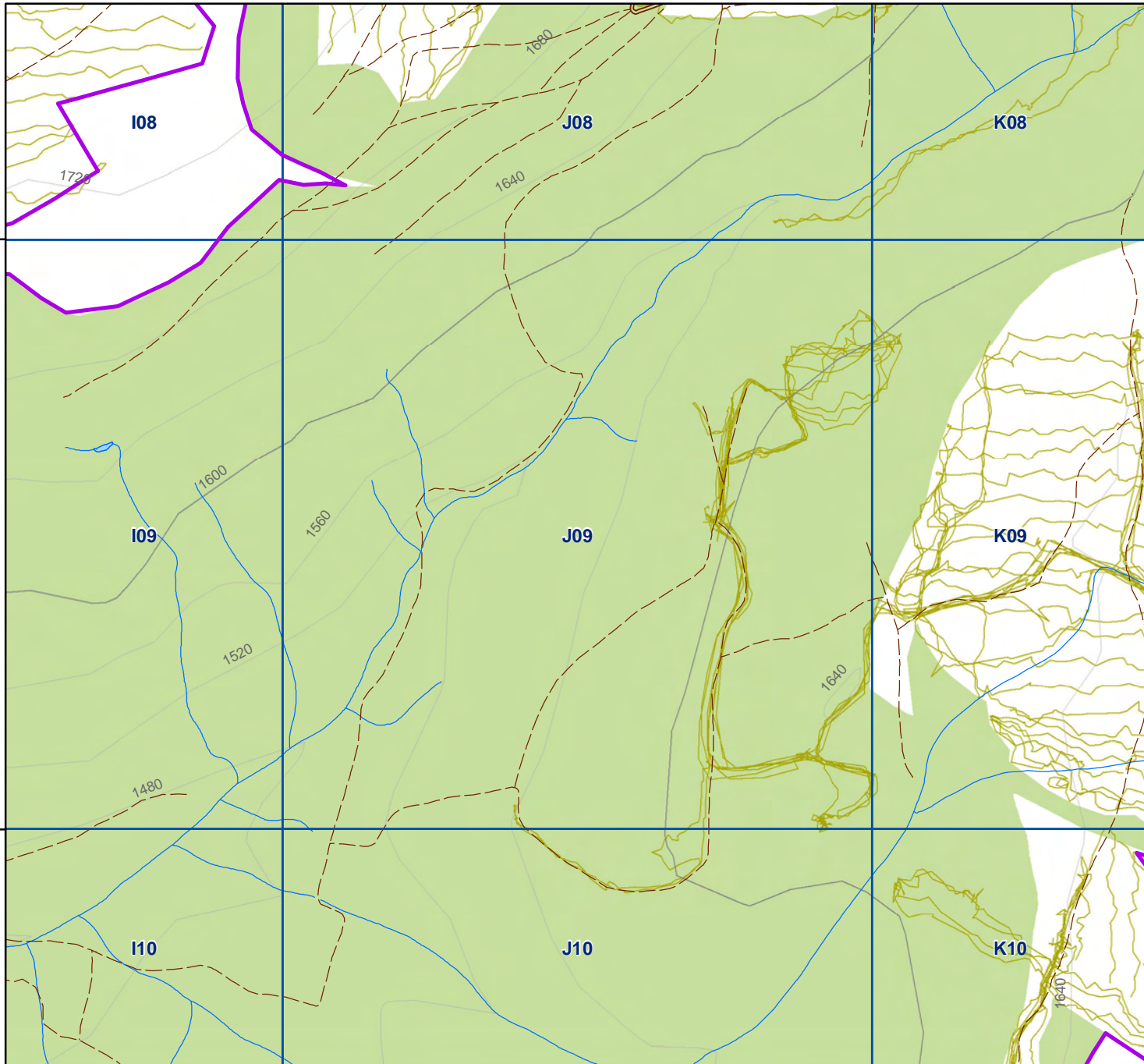
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

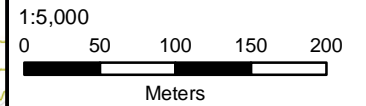
Historic Features Identified? No



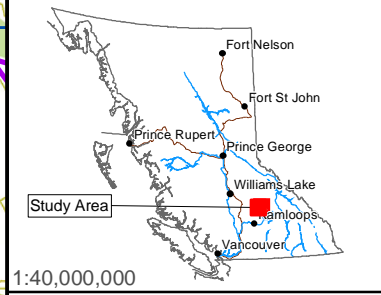
Survey Coverage of J09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project**HCA Permit** 2011-0209**Permit Holder** Kevin Twohig**Field Director(s)** Shana Morin**Crew Chief(s)** Shannon Enns**Field Crew** Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick**Survey Date(s)** September 12, 2012**PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No****NTS Map** 82M/12**Biogeo Zone** ESSFwc2**Elevation (m)** 1480-1580**Area (ha)** 25**Survey Methodology**

Pedestrian survey was not undertaken within this ASU.

ASU Description and Potential Assessment

Topographic mapping indicated very steep terrain; this was confirmed visually by the field crew from vantage points outside the ASU. ASU J09 was observed from a narrow skid trail/overgrown access road to the east of ASU. ASU J09 has a large steeply sloped gully transecting through its centre, extending from the northeast to the southwest. Given the low archaeological potential based on slope, and the inherent safety concerns with extremely steep terrain, pedestrian survey was not undertaken in this ASU.

Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

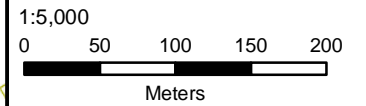
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

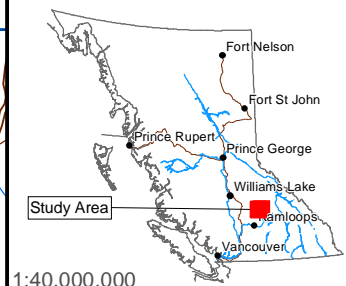
Survey Coverage of J10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



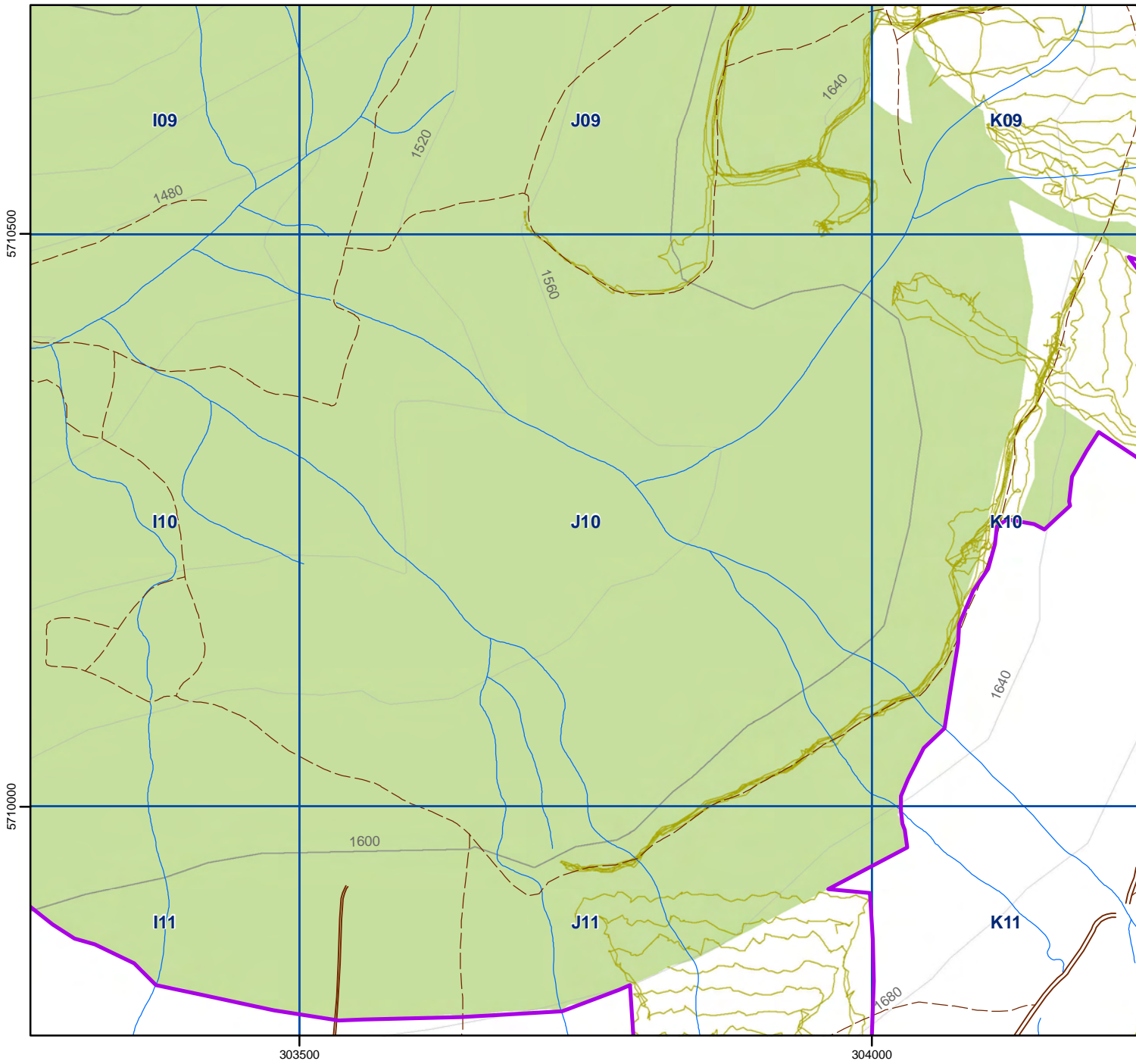
- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine



Harper Creek Mine Project**HCA Permit** 2011-0209**Permit Holder** Kevin Twohig**Field Director(s)** Shana Morin**Crew Chief(s)** Shannon Enns**Field Crew** Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick**Survey Date(s)** September 12, 2012**PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No****NTS Map** 82M/12**Biogeo Zone** ESSFwc2**Elevation (m)** 1480-1580**Area (ha)** 25**Survey Methodology**

Pedestrian survey was not undertaken within this ASU.

ASU Description and Potential Assessment

Topographic mapping indicated very steep terrain; this was confirmed visually by the field crew from vantage points outside the ASU. ASU J10 was observed from a narrow skid trail/overgrown access road to the north of ASU. The ASU is located on the southeastern edge of a large steeply sloping gully that extends from the northeast the southwest. Given the low archaeological potential based on slope, and the inherent safety concerns with extremely steep terrain, pedestrian survey was not undertaken in this ASU.

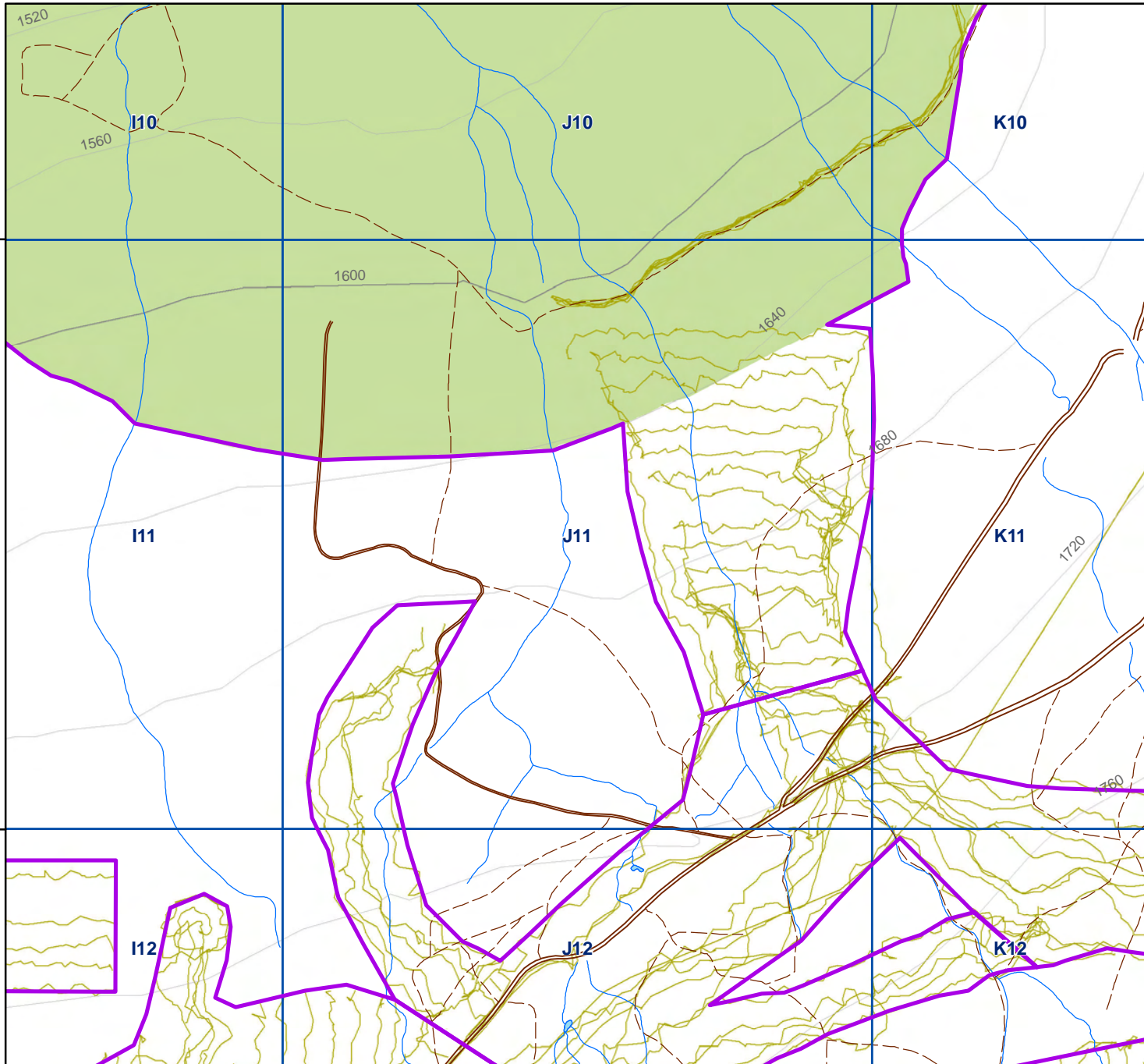
Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

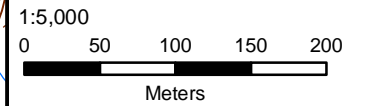
Historic Features Identified? No



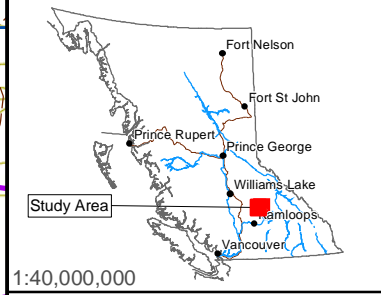
Survey Coverage of J11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- ▭ Project Area
- ▭ Survey Transects
- ▭ Very Steep Terrain
- ▭ Shovel Test Area
- ▭ Archaeological Site
- ▭ Historic Trail
- ⊕ CMT
- ▭ Historic Corral
- ▭ Grid 500m
- ▭ Contour 100m
- ▭ Contour 20m
- ▭ Roads (secondary)
- ▭ Roads to Facilities
- ▭ Trails
- ▭ River/Creek
- ▭ Wetland
- ▭ Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (A.L.), Shannon Enns, Tyler Jaenson (A.L.), Fern Jules (A.L.), Murray Jules (Simpco), Ryan Kenoras (A.L.), Laura Pick, Martin Saul (A.L.), Achinie Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Oct. 12, 2011 (Mine Haul Road); Sept. 13, 2012 (Mine Haul Rd/ Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1600-1740

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J11, crew members were spaced at approximately 2 – 10 m and 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J11 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the southern quarter of J11 is gently sloping with a northern aspect. The rest of the ASU is steeply sloping with a north-northwestern aspect. In the northernmost section of the ASU slope is extremely steep and was assessed as too steep to safely survey as well as low in archaeological potential. One small stream situated in a deeply incised east-west trending drainage was noted on the western edge of the survey area. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails and stumps were noted as well as a main east-west mine access road located on the southern border of the area. Archaeological potential is assessed as low due to the steeply sloping nature of the terrain and lack of prominent landforms associated with the stream on the western edge of the area.

Subsurface Description

Total Number of Subsurface Tests

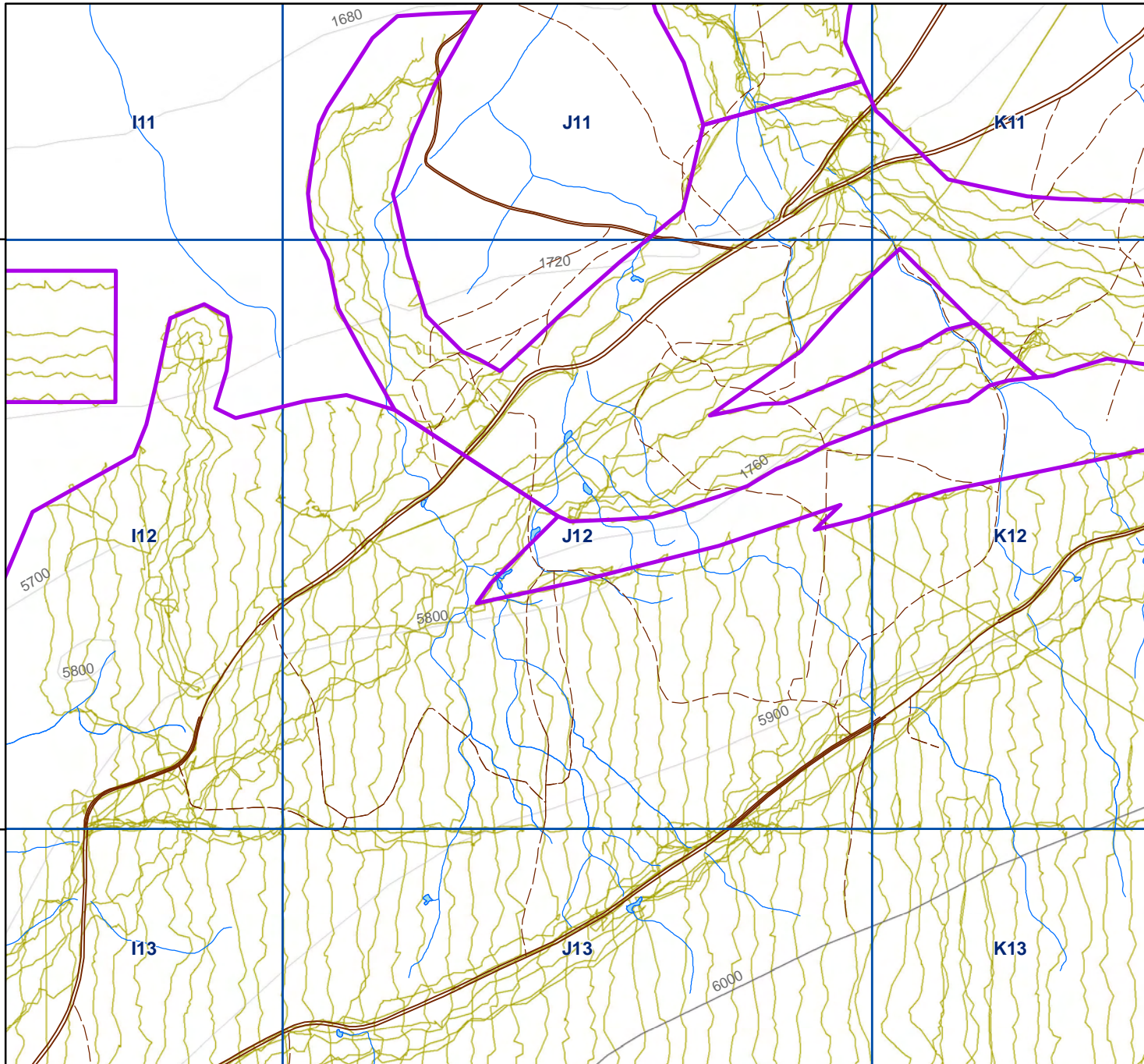
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

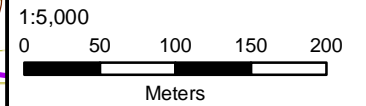
Historic Features Identified? No



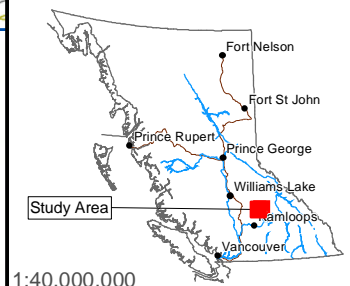
Survey Coverage of J12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041, 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew E.Arnoise (Adams Lake), S.Enns, M.Arnoise (A.L.), L.Chrisjohn (A.L.), L.Eustache (Simpchw), T.Jaenson (A.L.), F.Jules (A.L.), M.Jules (Simpchw), J.Kirillo, R.Kenoras (A.L.), L.Pick, M.Saul (A.L.), A.Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Oct 11-12,2011 (Rd); June 29, (Rd) July 25 (Stock.), Sept. 13-14 (Rd),2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1810

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J12 and given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m (2011-2012) and 20 m (2012) intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout J12 is gently to moderately sloping with a northern to northwestern aspect in the southern half grading into a western aspect in the northern half. The northern end is saturated with small braided streams and a deeply incised north-south trending drainage was noted in the southern third. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails were noted as well as mine access roads. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain, as well as the lack of any well-defined, well-drained landforms in association with hydrological features.

Subsurface Description

Total Number of Subsurface Tests

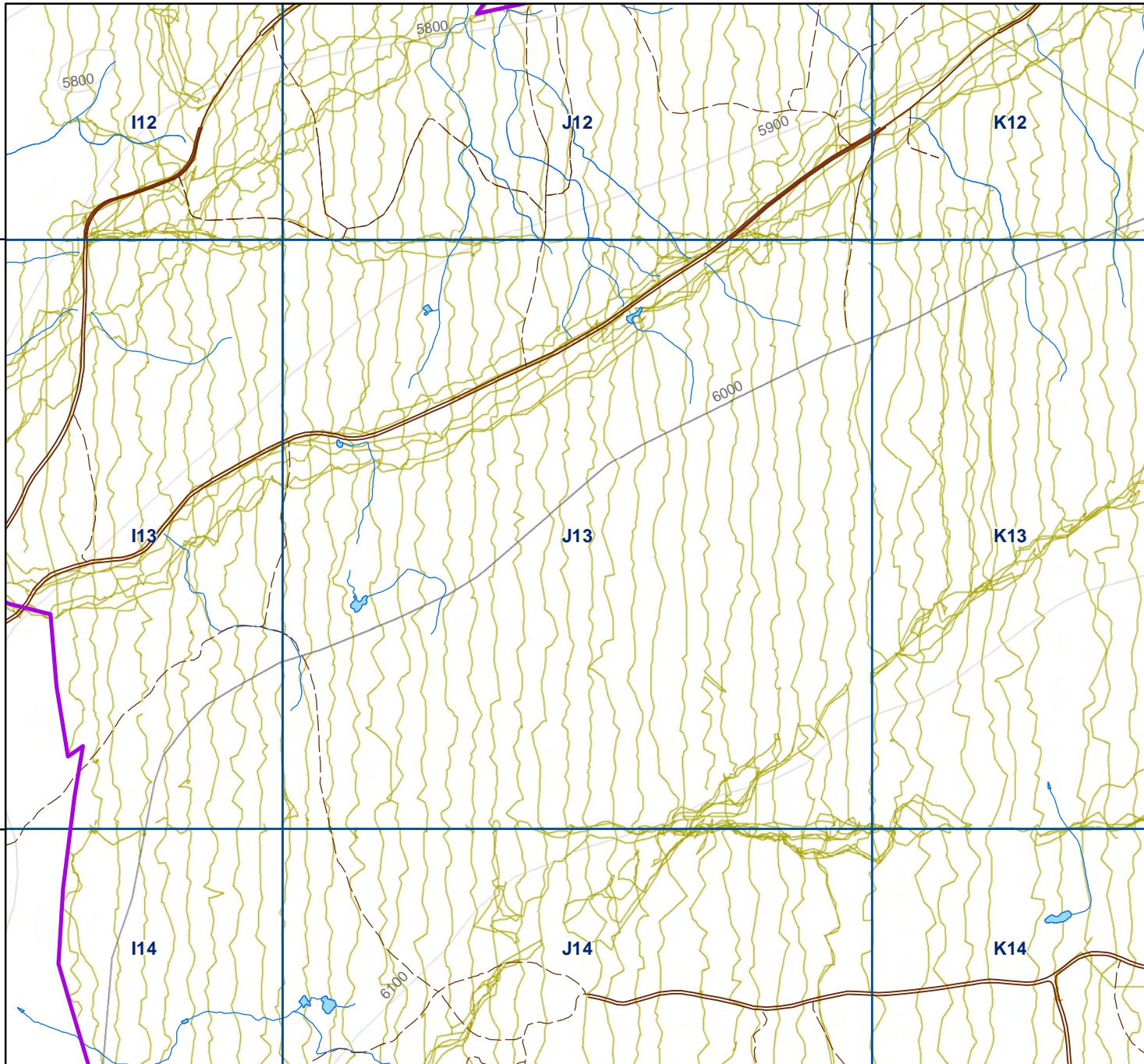
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

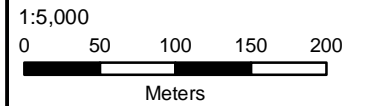
Historic Features Identified? No



Survey Coverage of J13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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J12

K12

I13

J13

K13

I14

J14

K14

5800

5800

5900

6000

6100

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake,), Lucas Eustache (Simpco), Tyler Jaenson (A.L.), Murray Jules (Simpco), Ryan Kenoras (A.L.), J.Kirillo, L.McFadden, Joe Meldrum (A.L.), Reginald Narcisse (A.L.), L.Pick, A.Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept. 14 (Stockpile), Oct. 11, 2011 (Rd); July 27 & 30, 2012 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1780-1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J13 and given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m (2011) and 20 m (2012) intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Low Grade Stockpile and Mine Haul Road mine footprints are within ASU J13. Both areas subject to survey consist of gently to moderately sloping terrain with a northern aspect. No significant hydrological features were observed. Ground disturbances as a result of previous logging and mining activities were noted, evidenced by mine access roads and numerous skid trails.

Additional survey in 2012 assessed the remainder of the ASU. Terrain is moderately sloping and undulating with a northwest aspect along the eastern portion; the western portion is moderately to steeply sloping with a northern aspect. Multiple ephemeral drainages are present throughout J13 as well as many intersecting skid trails. A major mining road (Road 8) transects the northwest corner of J13.

Archaeological potential is assessed as low due to the sloping and heavily disturbed nature of the terrain as well as the lack of significant hydrological features and well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

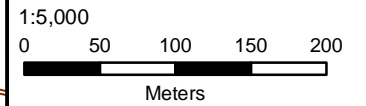
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

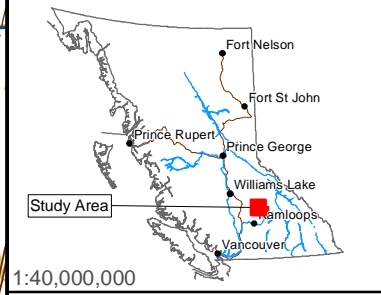
Survey Coverage of J14

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

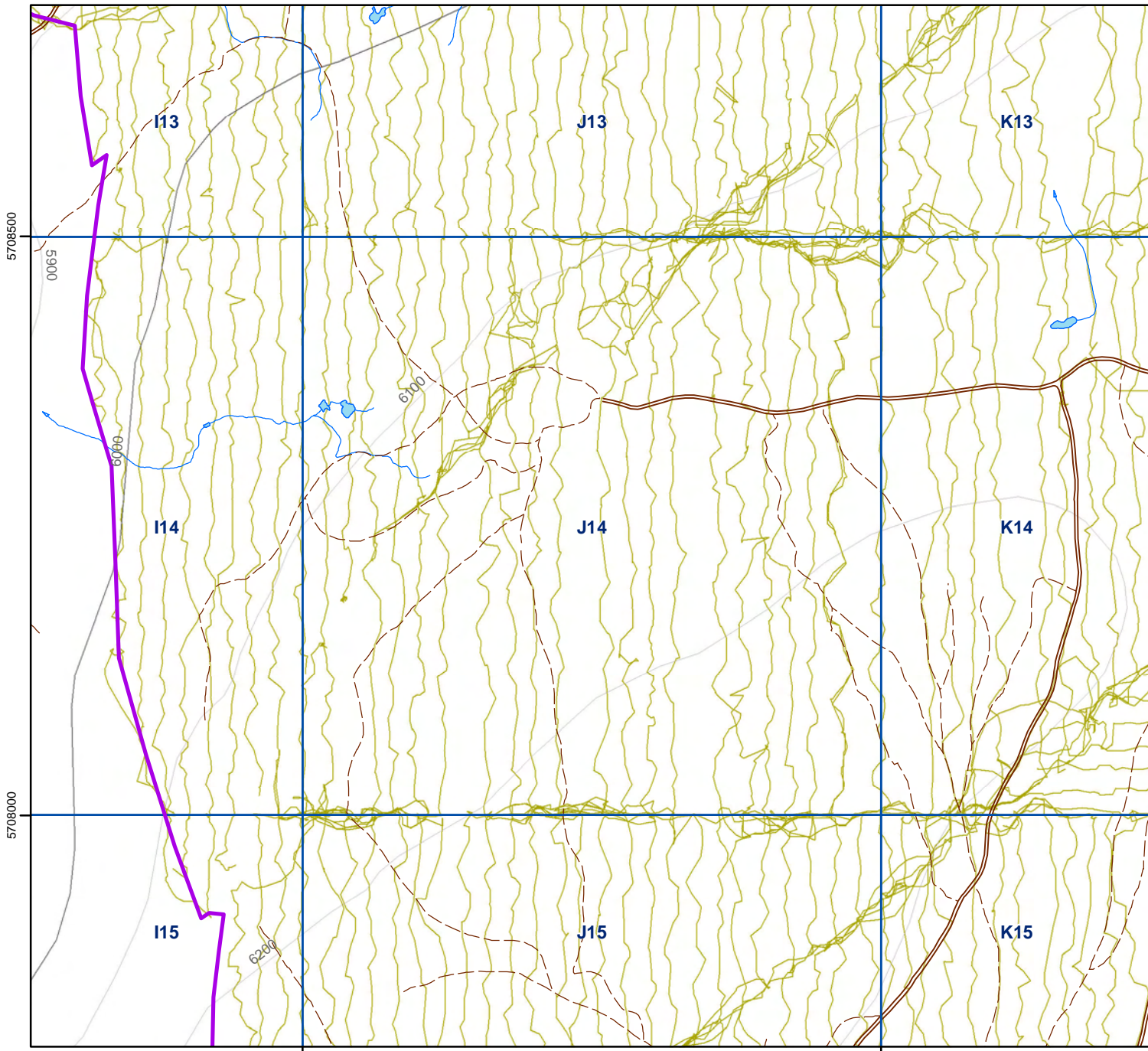
NTS 1:50,000 Mapsheet 82M/5 & /12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Pam Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Jordan Kirillo, Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 13, 2011 and July 30, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1860-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southeastern quarter of J14 contains the height of land for this polygon and is generally flat to gently sloping with a northwestern aspect. The remaining terrain in the northeast, southwest, and central portions of J14 are gently to moderately sloping with a northwestern aspect. The northwestern portion of J14 is gently to moderately sloping and undulating with several low-lying and poorly-drained meadows or marshes. Numerous elongated knolls separate open meadows, and numerous dry ephemeral drainages were observed. Numerous ground disturbances as a result of previous logging and mining activities, including skid trails, landings, and mine access roads were noted. Archaeological potential is assessed as low due to the sloping and heavily disturbed nature of the terrain as well as the lack of significant hydrological features or well defined/well drained landforms present.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

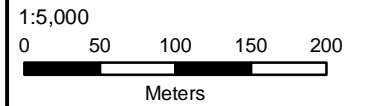
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of J15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

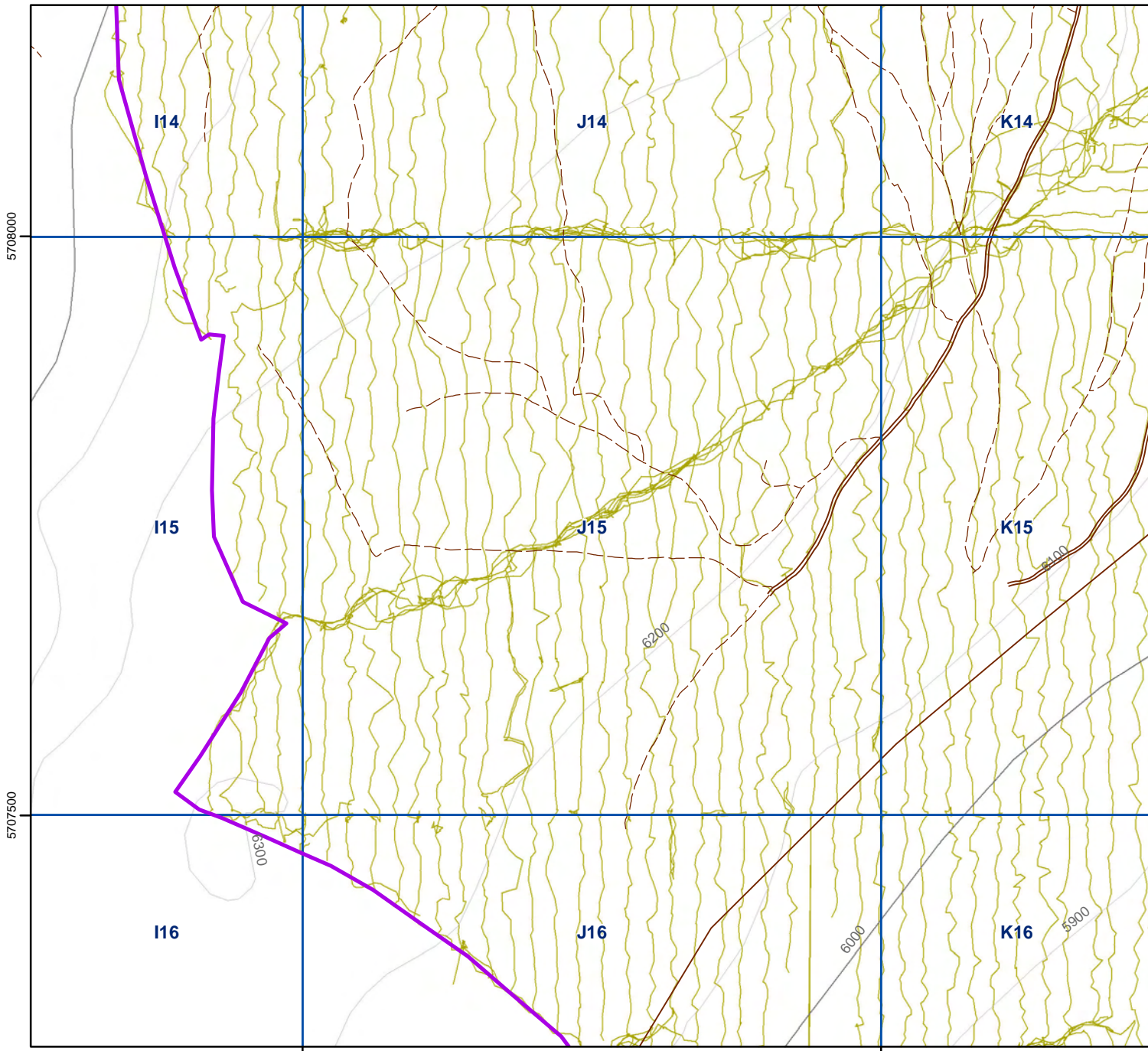


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adam Lake), Mary Arnouse (A.L.), Shannon Enns, Pam Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (A.L.), Jordan Kirillo, Mark Michelle (A.L.), Laura Pick, Reginald Narcisse (A.L.)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 14, 2011 (Stockpile); August 23-24, 2012 (Natural Catchment)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1880-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northern portion of J15 consists of a large flat hilltop in the centre of the polygon which creates gently sloping terrain in the northern third with a northwestern aspect and gently sloping terrain. The southern portion of J15 is a continuous moderate to steep slope with fluctuating east and northeast aspects. To the east the slope is moderated and the aspect begins to change to south-southeast. No hydrological features were observed. Ground disturbances as a result of previous logging and mining activities were noted such as skid trails and mine access roads. Archaeological potential is assessed as low due to the continuously sloping and disturbed nature of the terrain as well as the lack of hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

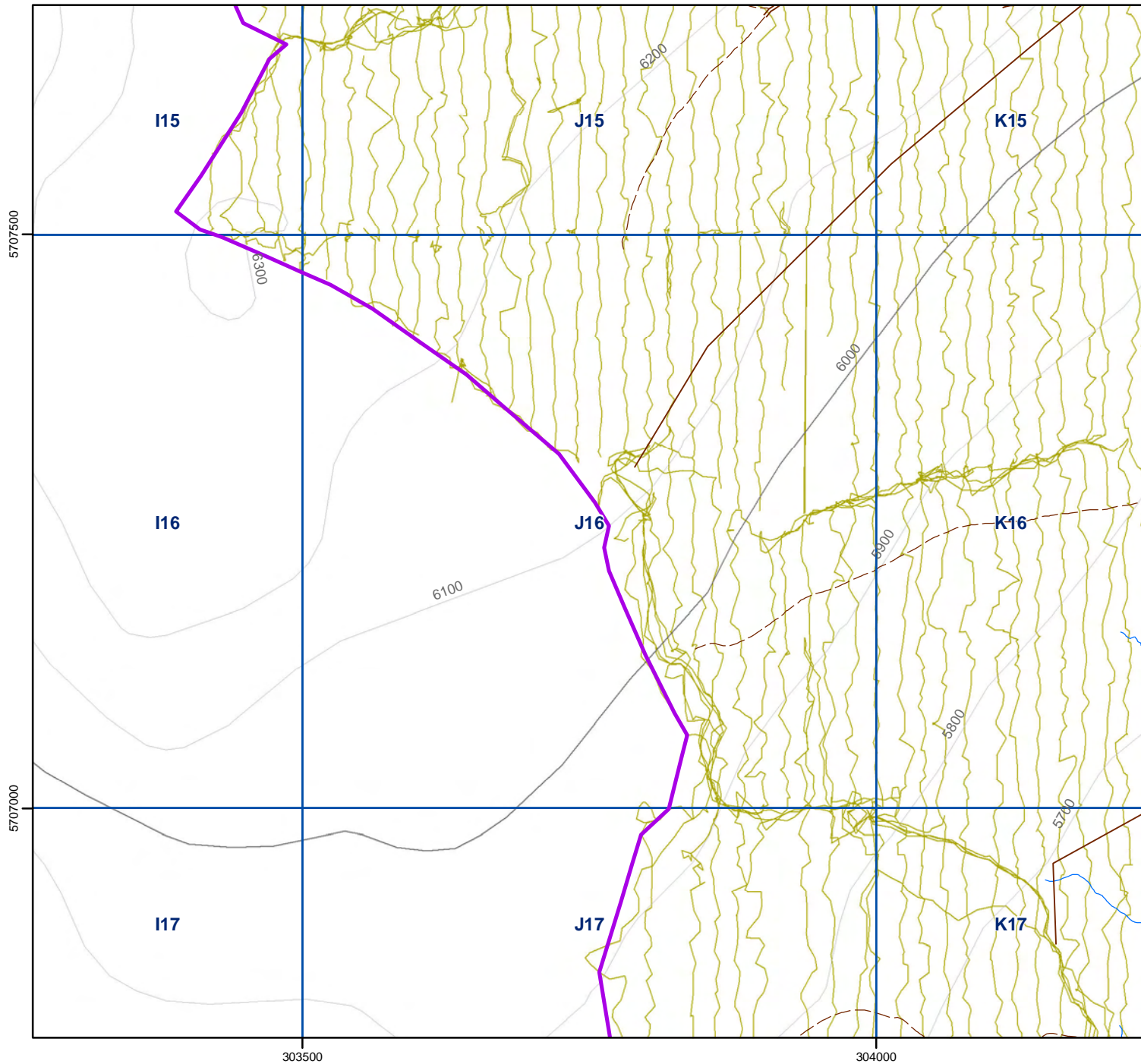
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

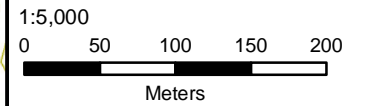
Historic Features Identified? No



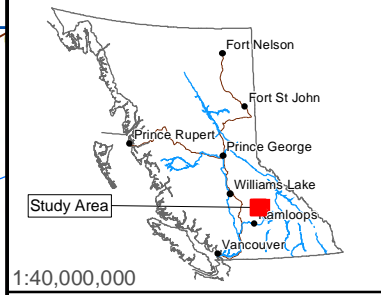
Survey Coverage of J16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Elton Arnouse (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Mark Michelle (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick, Alex Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Gordon Moore, Shana Morin

Survey Date(s) August 29, 2011; and, August 23-24, 2012 (Natural Catchment)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1760-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J16 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southern two-thirds of the J16 survey area were surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of J16 is described below. The remainder of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was delayed until 2012.

Overlapping sections of the Dam, Embankment, and Tailings Management mine footprints are within ASU J16. The terrain throughout all areas subject to survey in J16 are moderately sloping with a southeastern aspect becoming slightly more steeply sloping in the northern half of the polygon. A few small streams were observed in the southeastern corner of the ASU.

The northern half of the polygon and the southeastern corner lie within old logging clear cuts and are disturbed due to logging activity. The terrain in the westernmost section is a continuous steep slope with an eastern aspect; as the area extends to the east the terrain becomes moderately sloping and has a southeastern aspect. Archaeological potential is assessed as low due to the sloping and disturbed nature of the terrain as well as the lack of significant hydrology.

Subsurface Description

Total Number of Subsurface Tests

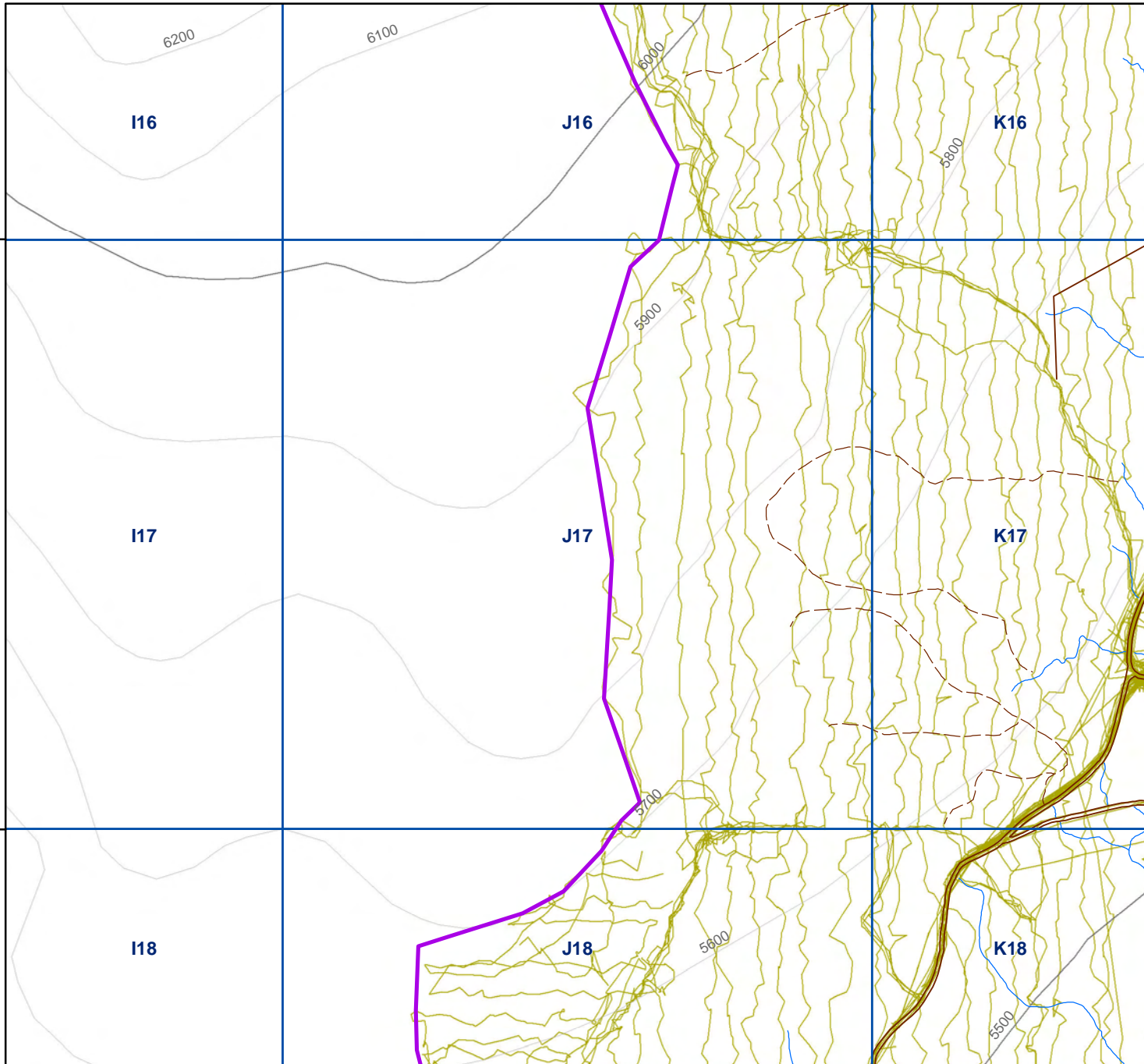
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

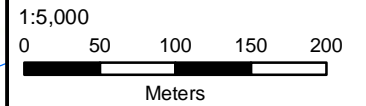
Historic Features Identified? No



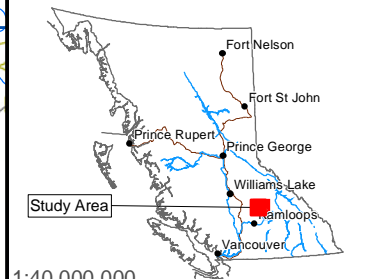
Survey Coverage of J17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000



303500

304000

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpco), Alex Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Gordon Moore **Survey Date(s)** August 29, 2011 (Embank., Tailings Mgmt); June 28, 2012 (Rock Quarry)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J17 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Overlapping sections of both the Embankment and Tailings Management mine footprints are within ASU J17. The terrain throughout both areas subject to survey is moderately sloping with a southeastern aspect. A small section of the Rock Quarry is also in J17; terrain is as described above. No significant hydrological features are in the area; however, some very small seasonal streams and seepages were noted in all but the southeastern corner of the assessed area which is hummocky and poorly drained. Ground disturbances as a result of previous logging clear cuts were observed. Archaeological potential is assessed as low due to the sloping nature of the terrain and lack of prominent landforms associated with the few small streams.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

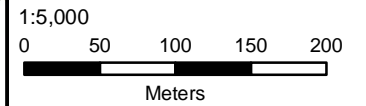
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

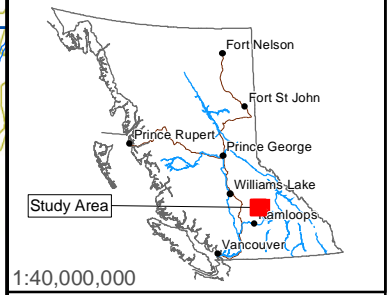
Survey Coverage of J18

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

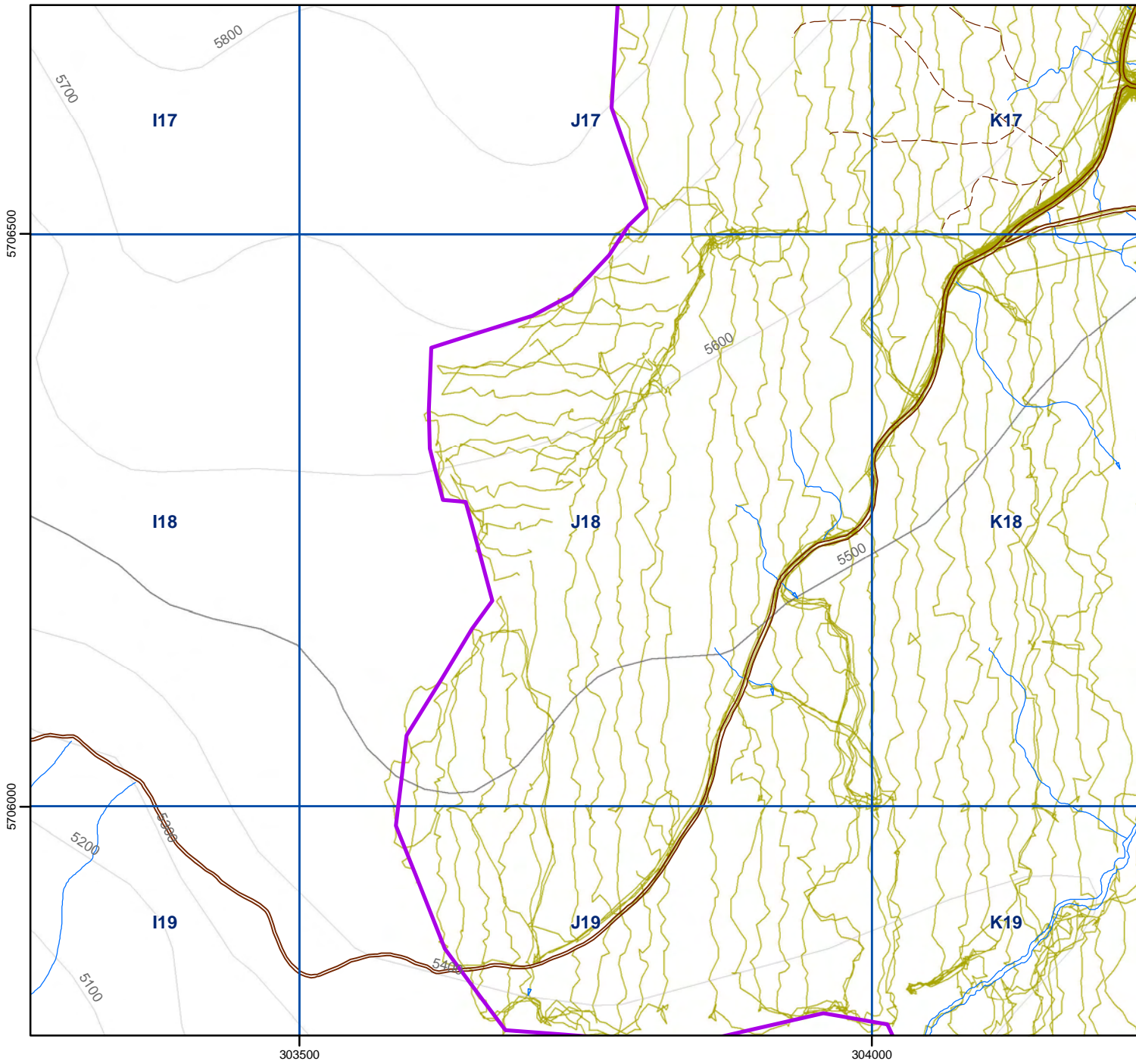
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine



Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Leonard Chrisjohn (Adams Lake), Lucas Eustache, Murray Jules (Simpco), Jordan Kirillo, Lara McFadden, Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 31, 2011 and June 28, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1660-1740

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J18 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout J18 ranges from moderately to steeply sloping in the northernmost portion, to gently to moderately sloping with a southeastern aspect; a raised ridge breaks the slope on the western border. The ground is generally hummocky with poorly drained breaks-in-slope stepping down slope to the south. No significant hydrological features were observed; however, a few very small streams and seepages were noted with no prominent landforms associated. Archaeological potential is assessed as low due to the sloping, hummocky, and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

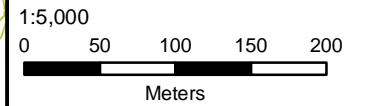
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

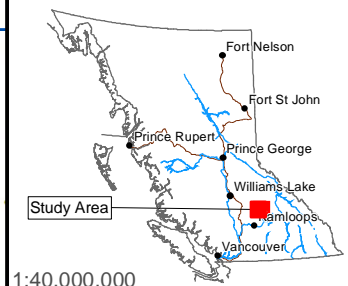
Survey Coverage of J19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

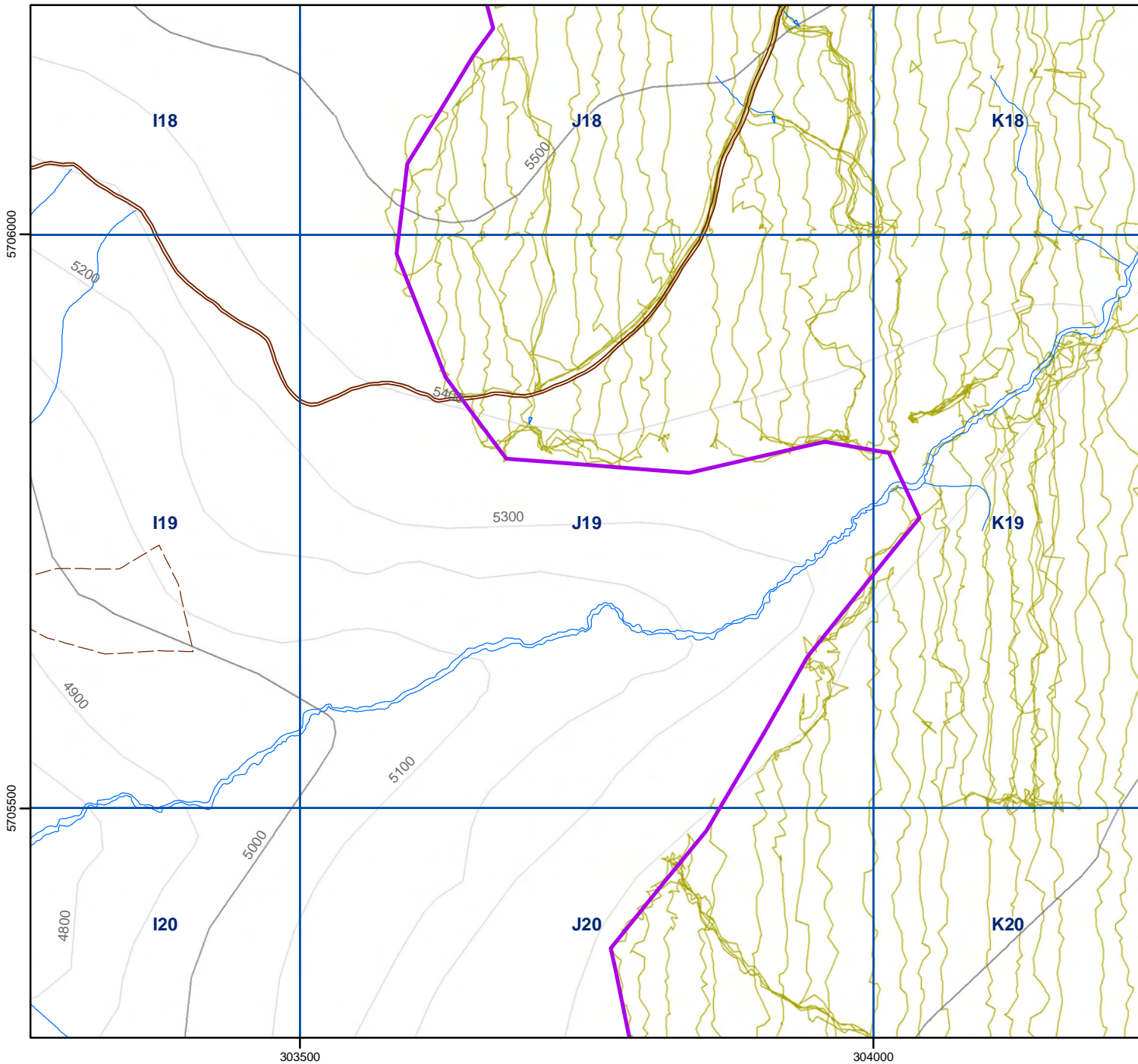


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine



Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lara McFadden, Murray Jules (Simpw), Alex Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 24 and 31, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1640-1490

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J19 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of the terrain surveyed in ASU J19 fell on the northern and southern sides of a deep valley with a major creek located at the bottom and are described separately below.

Southern section: The terrain in the southeastern corner is gently sloping with a northwestern aspect. The ground is gently undulating and poorly drained with small streams, seepages, and saturated meadows throughout. The terrain on northwestern edge of the ASU is steeply sloping down to the major creek located outside the survey area.

Northern section: The terrain throughout this section is gently sloping with a southern aspect. The ground is gently undulating and poorly drained with a small streams, seepages, and saturated meadows in the low-lying areas of the undulation. At the southernmost edge of the ASU the terrain is extremely steeply sloping with a southern aspect down to the major creek located outside the survey area.

Subsurface Description

Total Number of Subsurface Tests

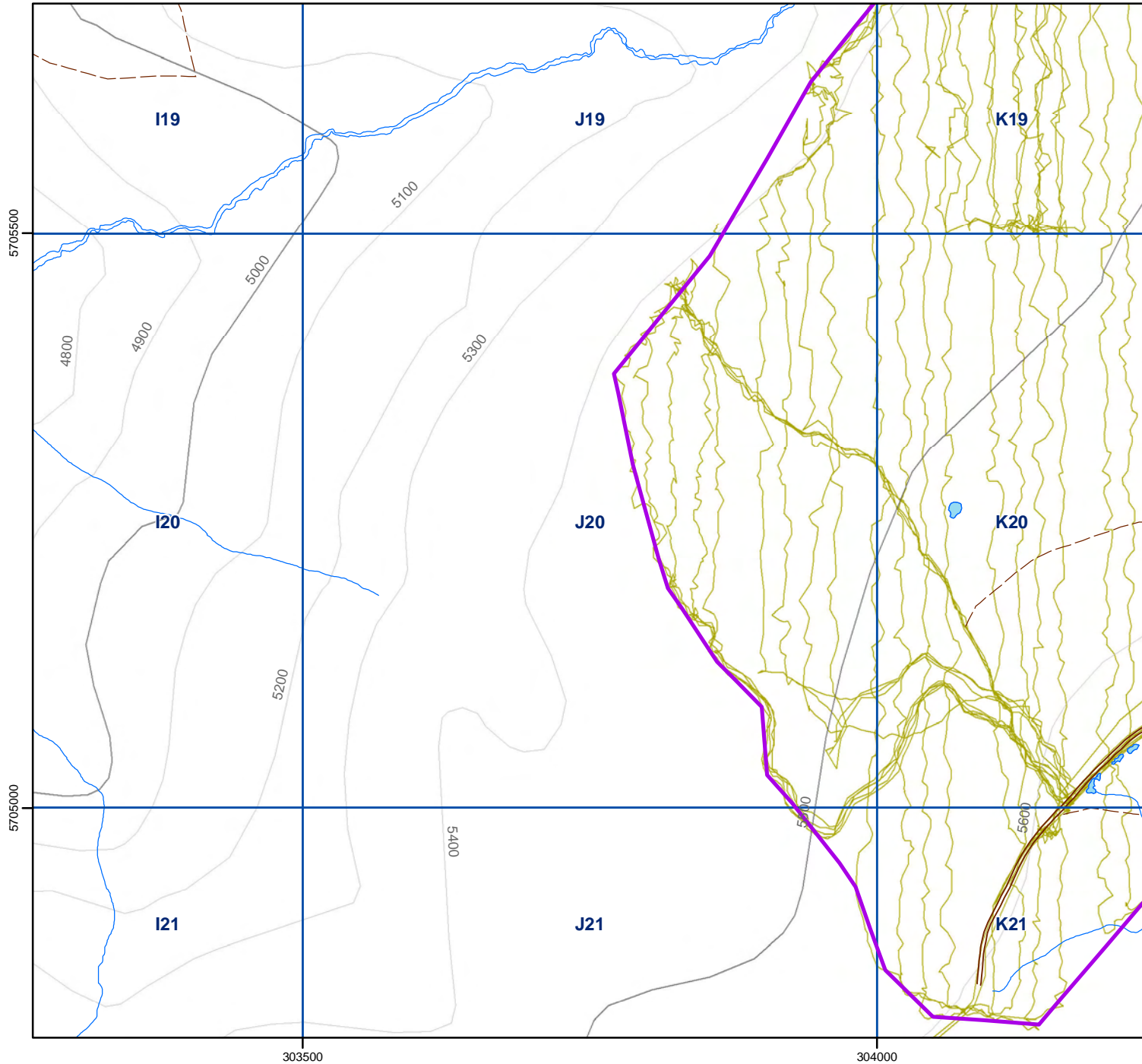
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

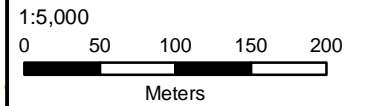
Historic Features Identified? No



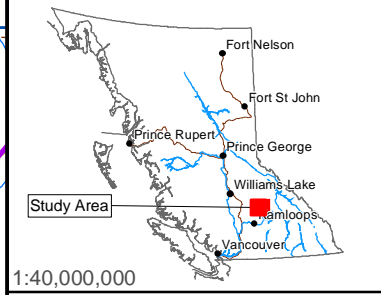
Survey Coverage of J20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpw First Nation), Mary Arnouse (Adams Lake Indian Band), Alex Saul (Adams Lake Indian Band)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 24, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1620-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J20, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J20 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout most of J20 is gently sloping with a northwestern aspect. The ground is gently undulating and generally poorly drained with small streams, seepages, and saturated meadows throughout. The southernmost section, however, is dominated by a large, flat, saturated meadow and the northwestern edge of the ASU is very steeply sloping down to the major creek that is located outside of the survey area.

Subsurface Description

Total Number of Subsurface Tests

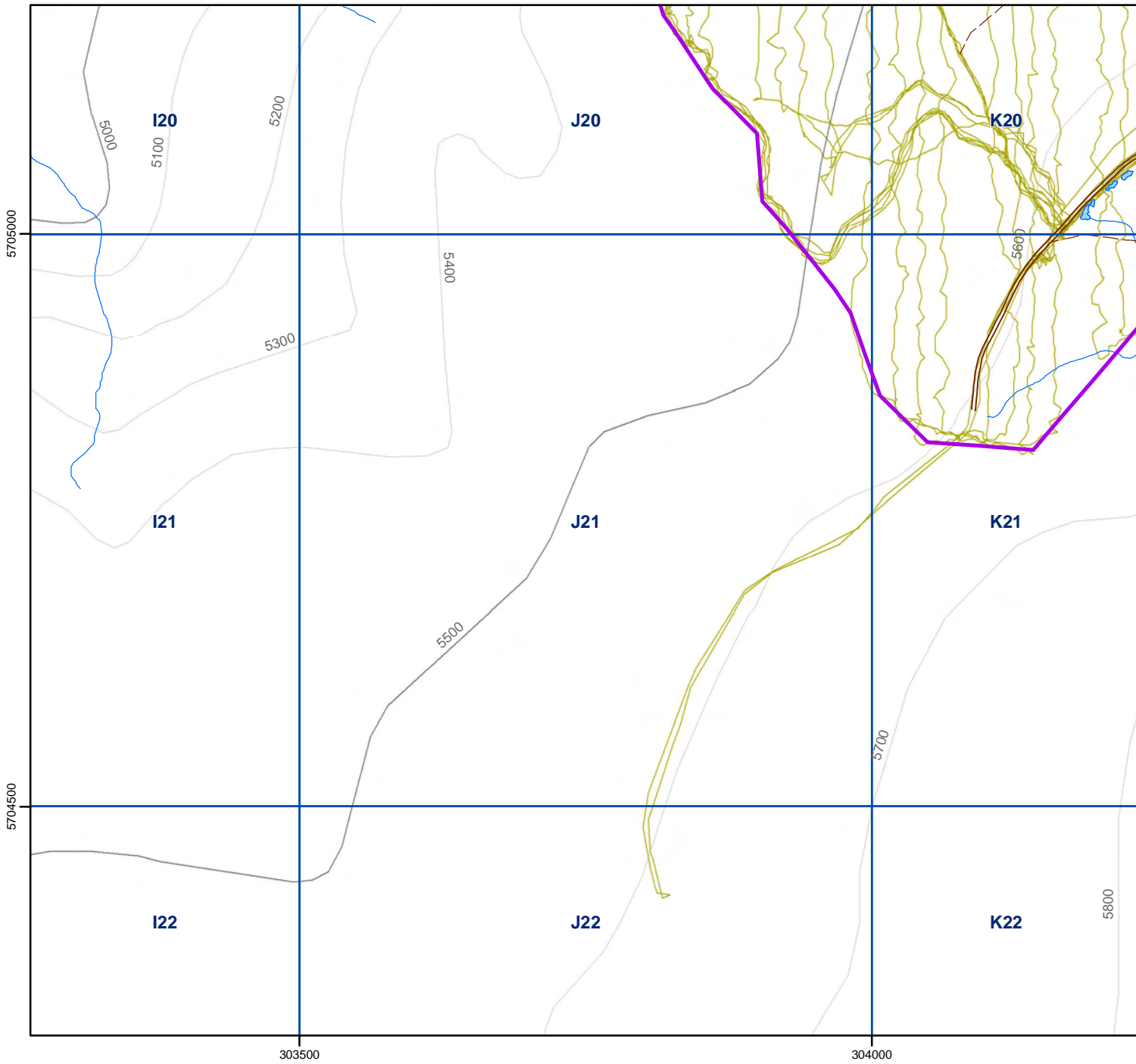
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

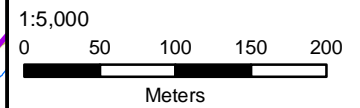
Historic Features Identified? No



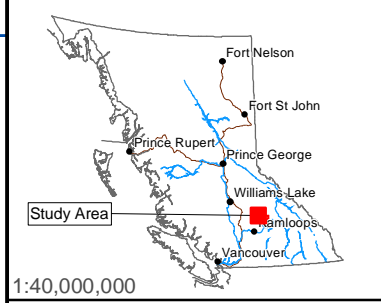
Survey Coverage of J21

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpco), Alex Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 24, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1620-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU J21, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU J21 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

A very small section of the project area falls within the northeastern corner of ASU J21. The terrain is gently sloping to undulating with a slight western to southwestern aspect; it is also poorly-drained in areas.

Archaeological potential is assessed as low due to the sloping and poorly-drained nature of terrain, as well as the lack of significant hydrological features and well-defined landforms.

Subsurface Description

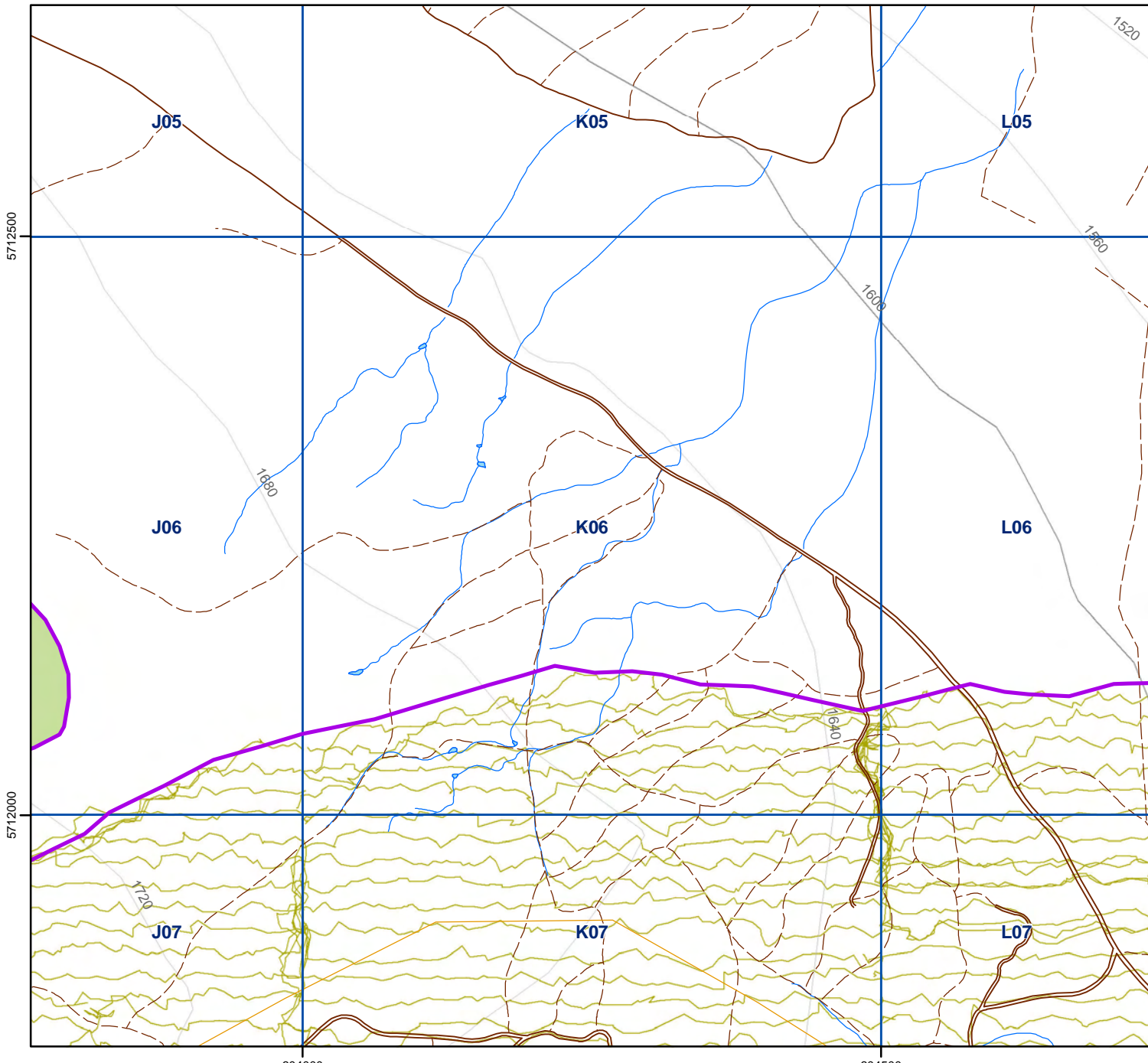
Total Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

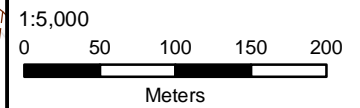
Historic Features Identified? No



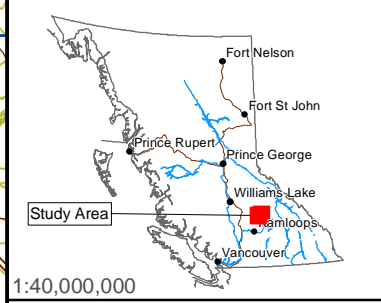
Survey Coverage of K06

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Tyler Jaenson (Adams Lake), Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Kim Statham

Survey Date(s) September 22, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1600-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K06, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K06 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain in K06 is moderately sloping in the southern half to steeply sloping in the northern half with an eastern to northeastern aspect throughout. The ground in the western half is gently undulating and there were no significant hydrological features were observed in any section of the ASU. Two mapped drainages area located in the western half, but were not discernible to the field crew, Ground disturbances as a result of previous logging, including skid trails and stumps were, noted throughout. In addition, newly constructed drill pads and mine access roads were observed in the eastern half. Archaeological potential is assessed as low due to the sloping nature of the terrain as well as the lack of significant hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

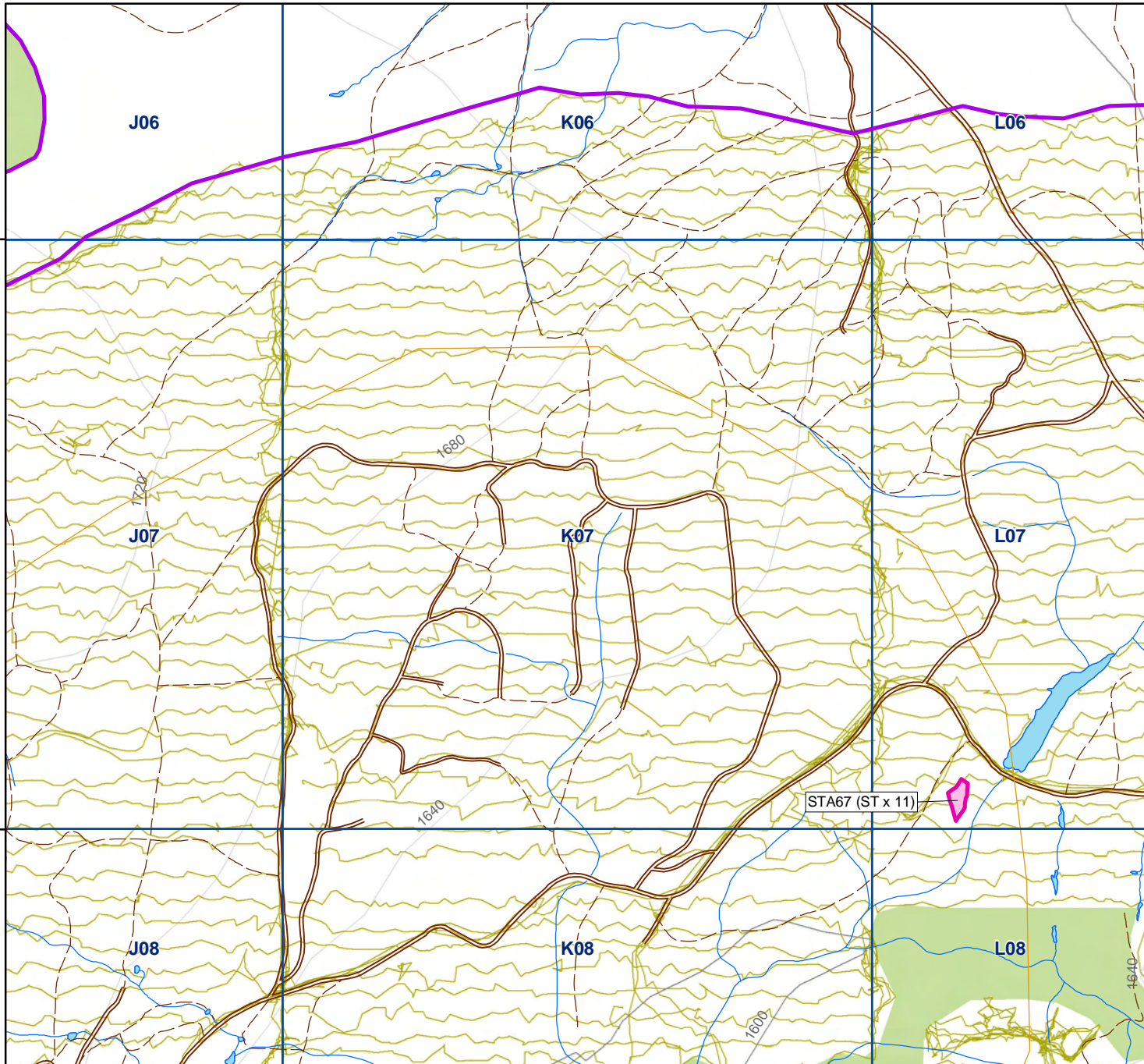
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

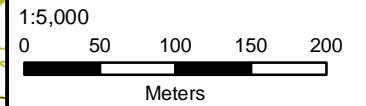
Historic Features Identified? No



Survey Coverage of K07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

5712000

5711500

J06

K06

L06

J07

K07

L07

J08

K08

L08

STA67 (ST x 11)

304000

304500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 23 and 26, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1640-1700

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K07 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in K07 is steeply sloping in the southern half and moderately to steeply sloping in the northern half with a southeastern aspect throughout. The ground in the southeastern corner is hummocky and poorly drained. Hydrological features in K07 are limited to a single, artificial, northwest-southeast trending drainage located in the centre and southeast corner of the ASU. This drainage is in a newly constructed channel and is associated with ground disturbances due to modern mining activity. A mapped drainage is located in the southwestern quarter trending north-south and branching to trend east-west, but it was not discernible to the field crew. Ground disturbances due to previous mining and logging activity, such as access roads and skid trails, were noted throughout K07. Archaeological potential is assessed as low due to the steeply sloping and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

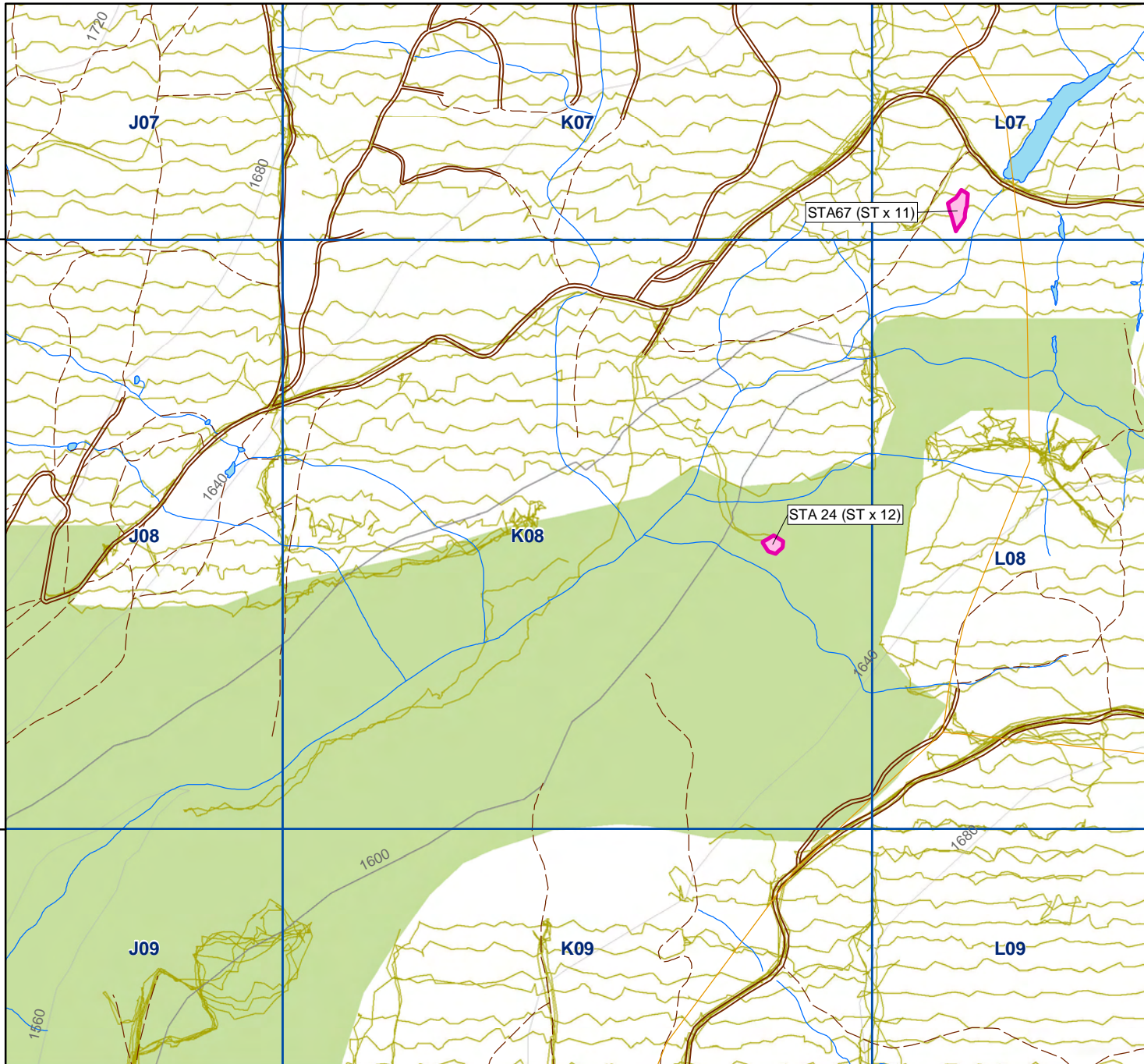
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

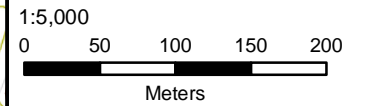
Historic Features Identified? No



Survey Coverage of K08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Tyler Jaenson (AL), Fern Jules (AL), Murray Jules (Simpco), Ryan Kenoras (AL), Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 26-27, 2011 and September 13, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1580-1640

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU K08 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of the Mine Haul Road and Open Pit mine footprints fell within ASU K08 and are described separately below.

Open Pit: The terrain throughout the Open Pit section of K08 is steeply to extremely steeply sloping with a southeastern aspect down to a southwestern flowing creek located in the southeastern corner which is surrounded by saturated terrain. The southeastern corner, on the southern side of the creek is steeply sloping with a northeastern aspect down to the creek. Several gullies were noted on the slope north of the creek, all trending northwest-southeast and containing small streams, seepages, or poorly-drained soil. The ground is generally hummocky and heavily disturbed throughout due to newly constructed mine access roads and drill pads.

Mine Haul Road: The Mine Haul Road portion of K08 was subject to assessment but due to access problems and winter conditions the survey was delayed until 2012. The southern portion of K08 was deemed to be unsafe for survey due to the extremely steep nature of the terrain.

One area of archaeological potential was identified and subject to subsurface testing; this shovel test area (STA) is described below.

STA 24 was identified during a preliminary field reconnaissance (PFR) of the CME-33 drill pad footprint conducted on August 23, 2011. The location was subject to subsurface testing on August 23, 2011 prior to the commencement of the mine facilities footprint survey. STA 24 consists of a single flat terrace overlooking a deeply incised gully that contains a small stream. The stream is situated directly to the west of the test area and is approximately 100 m lower in elevation at the base of a steep slope with a western aspect. The test area measures approximately 30 x 10 m. Twelve subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

With the exception of STA 24, archaeological potential is considered to be low throughout areas assessed due to the steeply sloping, saturated, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

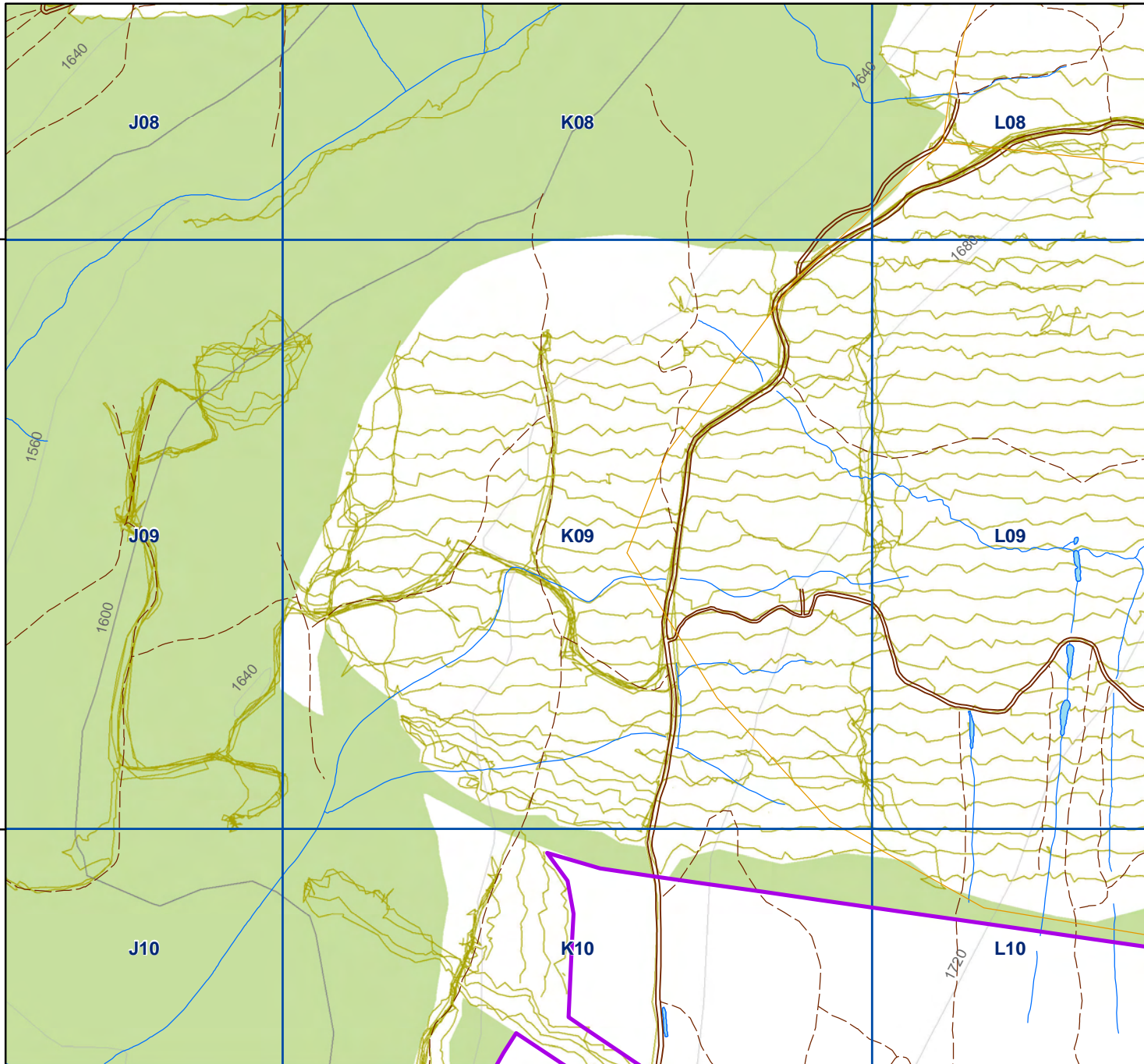
Number of Positive Subsurface Tests

0 - 5 cm depth below surface (dbs) = Littermat; 5 - 28 cm dbs = Reddish brown silty sand with approximately 5% sub-angular pebbles; 28 - 35 cm dbs = Greyish brown silty loam with approximately 5% pea gravels, cobbles, and small boulders.

Results

No protected archaeological resources were identified within the areas surveyed.

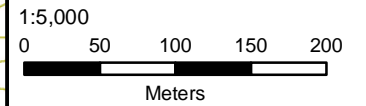
Historic Features Identified? No



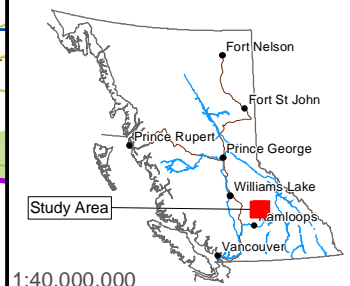
Survey Coverage of K09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Leonard Chrisjohn (A.L.), Shannon Enns, Tyler Jaenson (A.L.), Murray Jules (Simpco), Ryan Kenoras (A.L.), Jordan Kirillo, Lara McFadden, Martin Saul (A.L.), Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 16, 2011 and Jun 29, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12
Biogeo Zone ESSFwc2
Elevation (m) 1600-1700
Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K09 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of the Open Pit mine and Mine Haul Road footprints are within ASU K09 and are described separately below.

Open Pit: The terrain throughout most of K09 is moderately sloping with a northwestern aspect. In the centre of the ASU is a flat, saturated meadow. Located north of the meadow are three north-south to northwest-southeast trending ravines with steeply sloping sides and containing small seasonal streams. Along the northern boundary terrain becomes extremely steeply sloping with a northern aspect and was assessed as too steep to safely survey as well as low in archaeological potential. Ground disturbances as a result of previous logging and mining activities were observed throughout K09. These include skid trails, drill pads, and mine access roads. Archaeological potential is assessed as low due to the steeply sloping and poorly drained nature of the terrain.

Mine Haul Road: This portion of K09 was subject to assessment but due to access problems and winter conditions the survey was not completed in 2011. Crews returned in 2012 and determined the area along the western boundary was unsafe for survey due to the steeply sloping terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

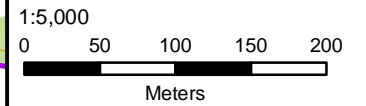
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of K10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



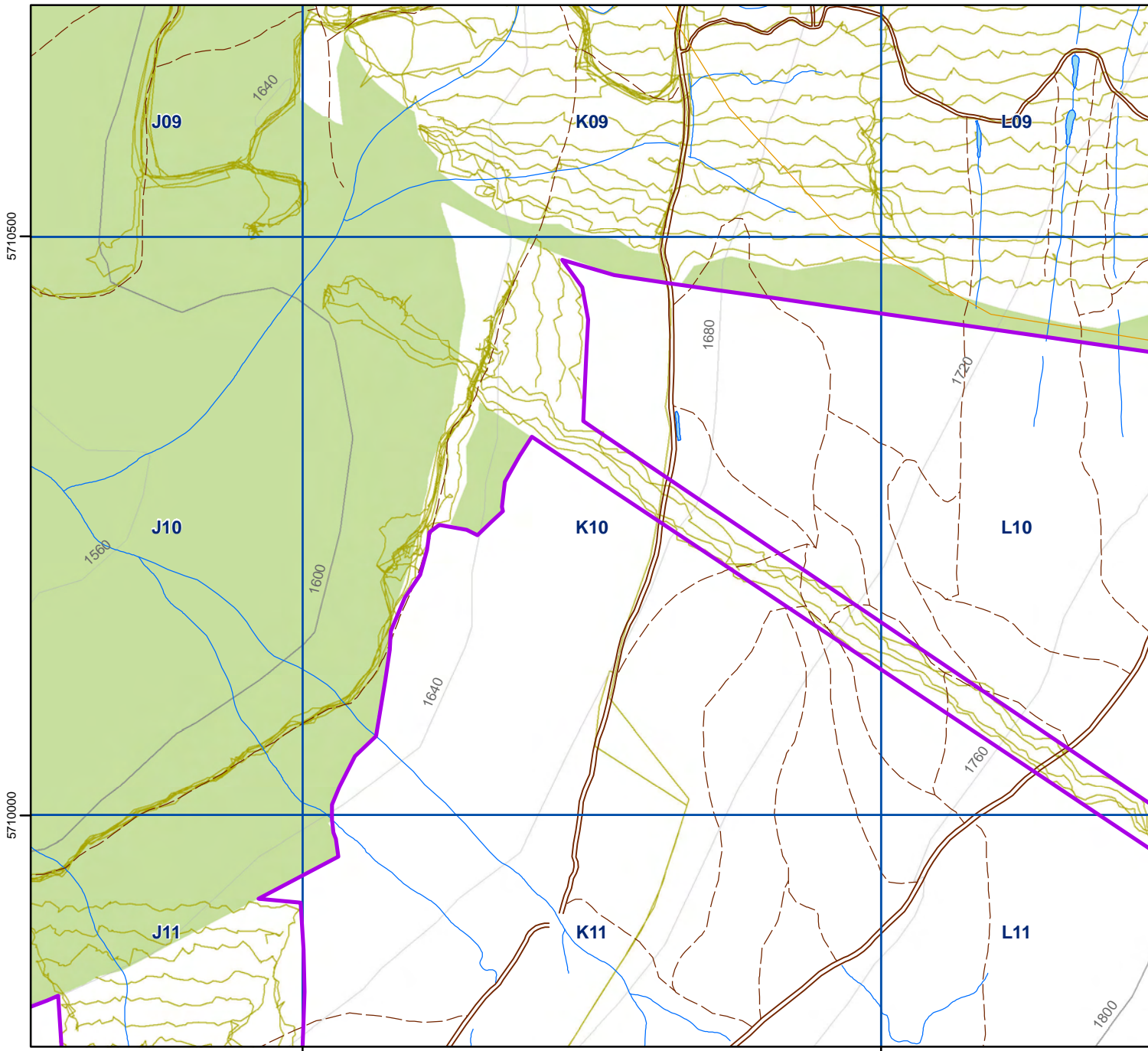
- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine



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J09

K09

L09

J10

K10

L10

J11

K11

L11

1640

1680

1720

1560

1600

1640

1760

1800

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Tyler Jaenson (Adams Lake), Fern Jules (Adams Lake), Jordan Kirillo, Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 6, 2011; June 29 and September 12, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1600-1740

Area (ha) 25

Survey Methodology

Given the narrow span of the proposed Conveyor and Mine Haul Road footprints, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K10 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of the Conveyor and Mine Haul Road mine footprints are within ASU K10 and are described separately below.

Conveyor: The terrain in K10 is very steeply sloping with a northwestern aspect. The most northwestern portion of the footprint was assessed as being too steeply sloping to survey safely and therefore low in archaeological potential. The ground is generally hummocky and poorly drained with small northwest and west-flowing drainages.

Mine Haul Road: The Mine Haul Road portion of K10 was subject to assessment but due to access problems and winter conditions the survey was not completed in 2011. Upon return in 2012 the crew determined the area unsafe for survey due to the extremely steep terrain. An old logging road, cut into the slope along the western boundary of K10, was noted. Archaeological potential is assessed as low due to the steeply sloping, hummocky, and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

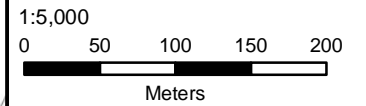
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of K11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

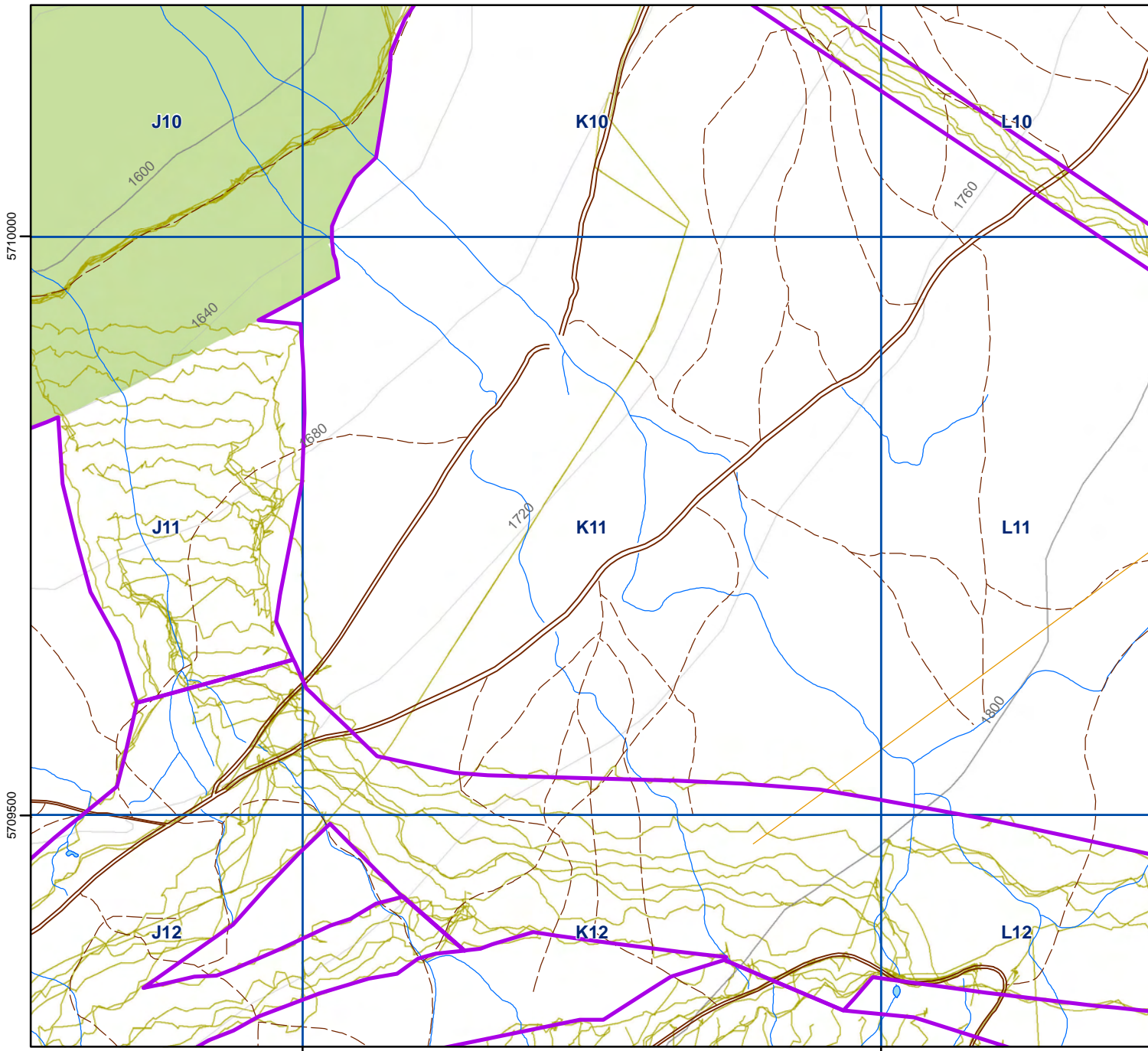


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Tyler Jaenson (AL), Fern Jules, Murray Jules (Simpco), Ryan Kenoras (AL), Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick, Martin Saul (AL), Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 12, 2011 and September 14, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1640-1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K11 and given the narrow span of the proposed road footprint located along the southern portion of K11, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. The project area that falls in the northwestern portion of the ASU was deemed to be unsafe for pedestrian survey due to the extreme slope, and was assessed from a skid trail located northwest of ASU K11. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K11 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout K11 is moderately to steeply sloping with a northwestern aspect. There were no significant hydrological features observed. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails and stumps were noted as well as mine access roads. Terrain in the northwest corner of the ASU slopes steeply with a west to northwestern aspect, and was deemed to be unsafe for pedestrian survey. Archaeological potential is assessed as low due to the sloping and disturbed nature of the terrain as well as the lack of hydrological features.

Subsurface Description

Total Number of Subsurface Tests

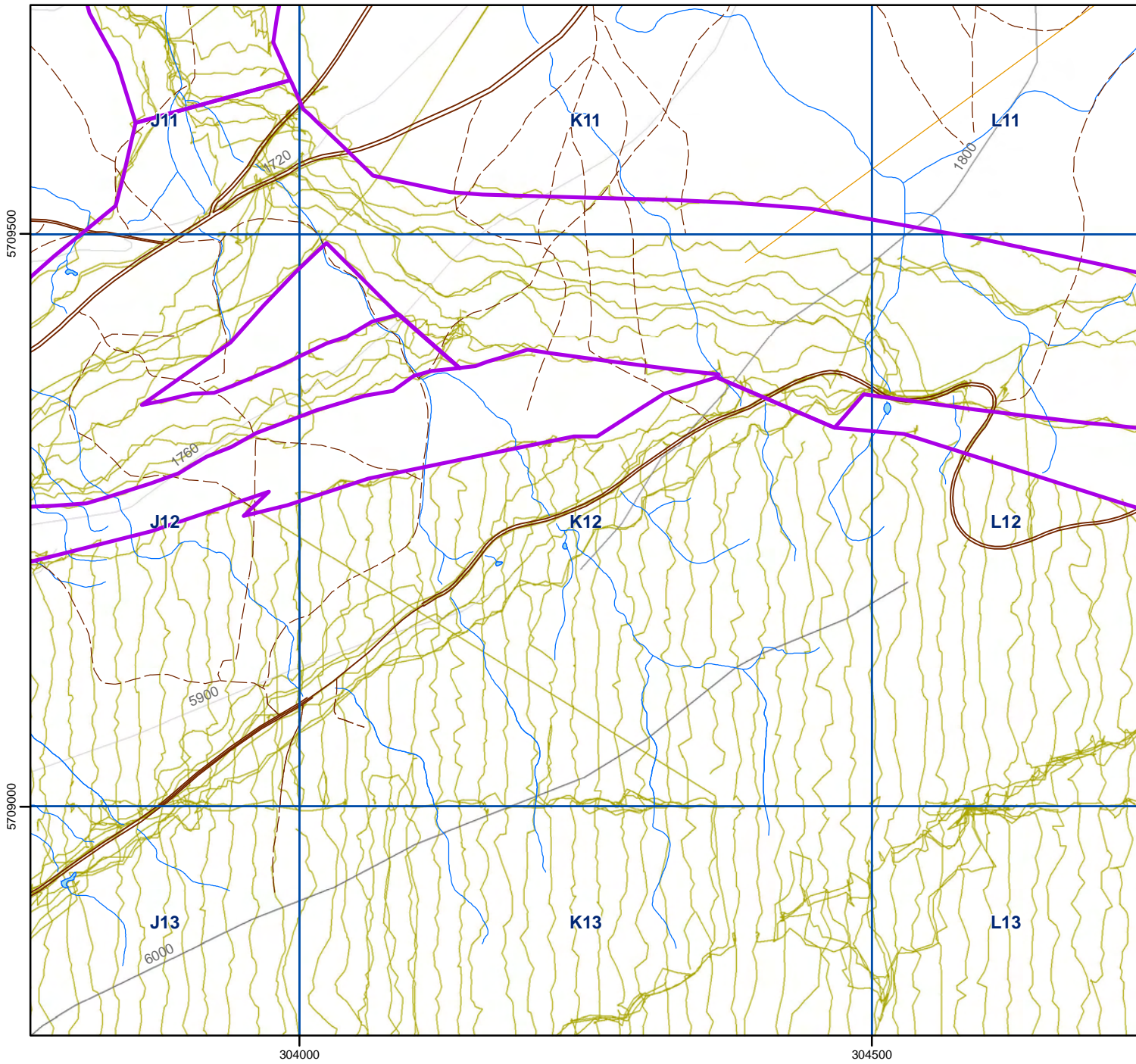
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

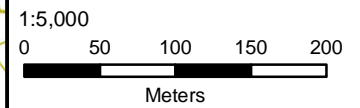
Historic Features Identified? No



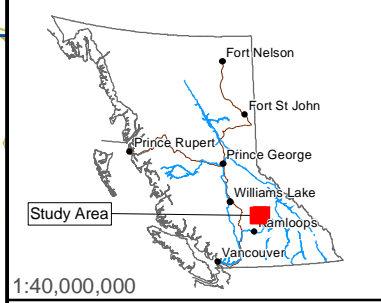
Survey Coverage of K12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041, 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Leonard Chrisjohn (A.L.), Shannon Enns, Tyler Jaenson (A.L.), Murray Jules (Simpco), Ryan Kenoras (A.L.), Jordan Kirillo, Reginald Narcisse (A.L.), Martin Saul (A.L.), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 11-12, 2011; July 29 and July 24, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1740-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K12 and given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. In 2012 crew members were spaced at 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in K12 is gently to moderately sloping with a western to northwestern aspect. The ground is generally hummocky with a few very small seasonal streams noted throughout. The northwest portion of K12 is moderately to steeply sloping and undulating with a northwest aspect. There is a drainage flowing north to northwest along a small gully. Ground disturbances as a result of previous logging and mining activities were observed. These include skid trails, stumps, and mine access roads. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of any well defined landforms in the vicinity of the hydrological features.

Subsurface Description

Total Number of Subsurface Tests

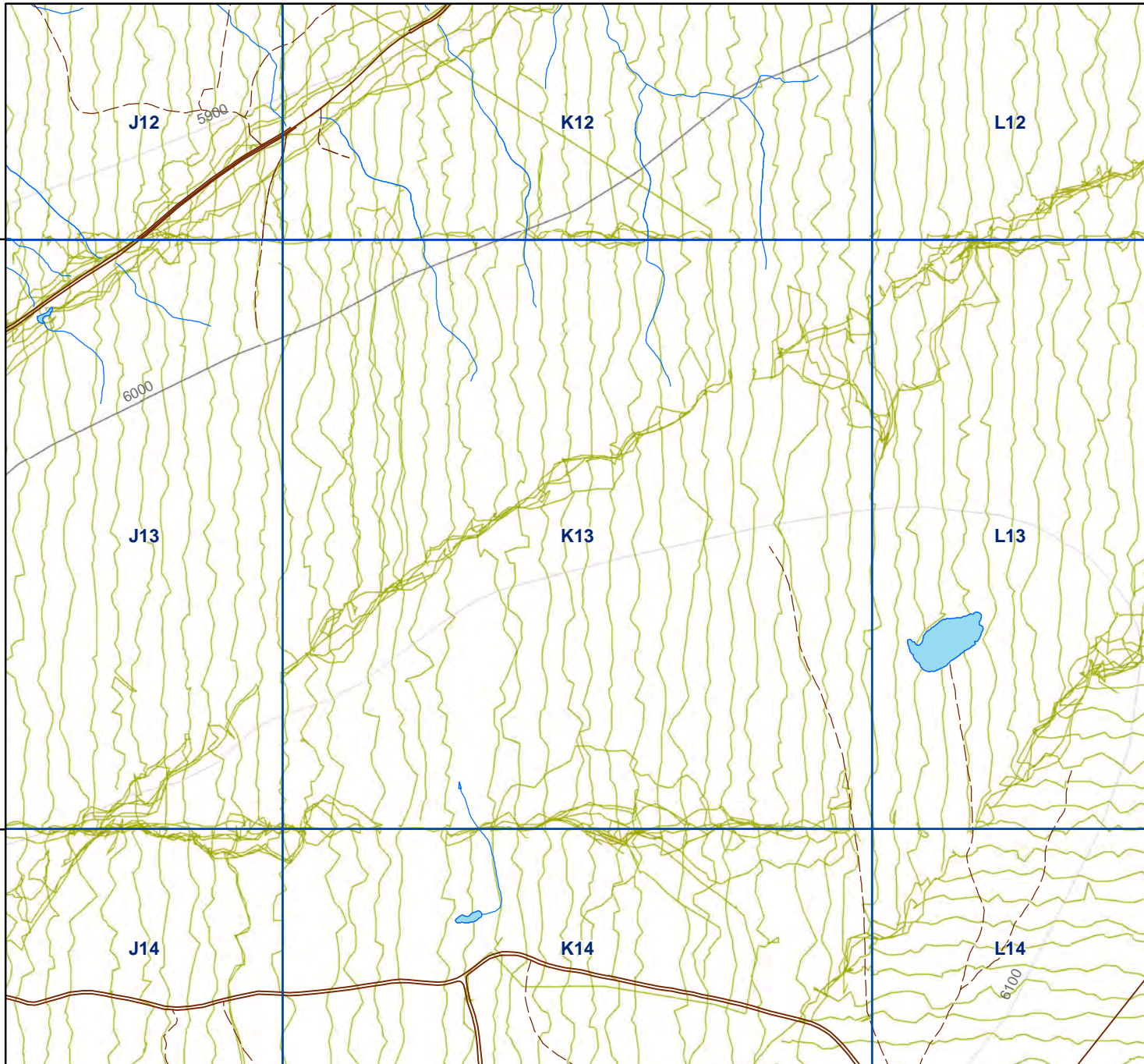
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

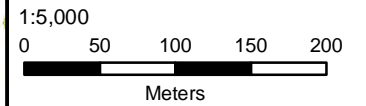
Historic Features Identified? No



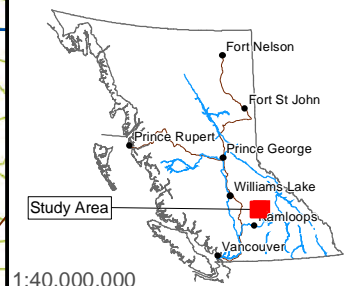
Survey Coverage of K13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Adams Lake), Ryan Kenoras (Adams Lake), Jordan Kirillo, Lara McFadden, Laura Pick, Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 13-14, 2011; July 24-25, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1820-1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the southern half of K13 is flat becoming gently to moderately sloping with a northern aspect in the northern half. There were no significant hydrological features observed. A small mapped drainage in the south portion of the survey area was not present in the field. Ground disturbances as a result of previous logging and mining activities were also observed. Skid trails, stumps, and mine access roads were found throughout K13 with a higher concentration of disturbance in the eastern half. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

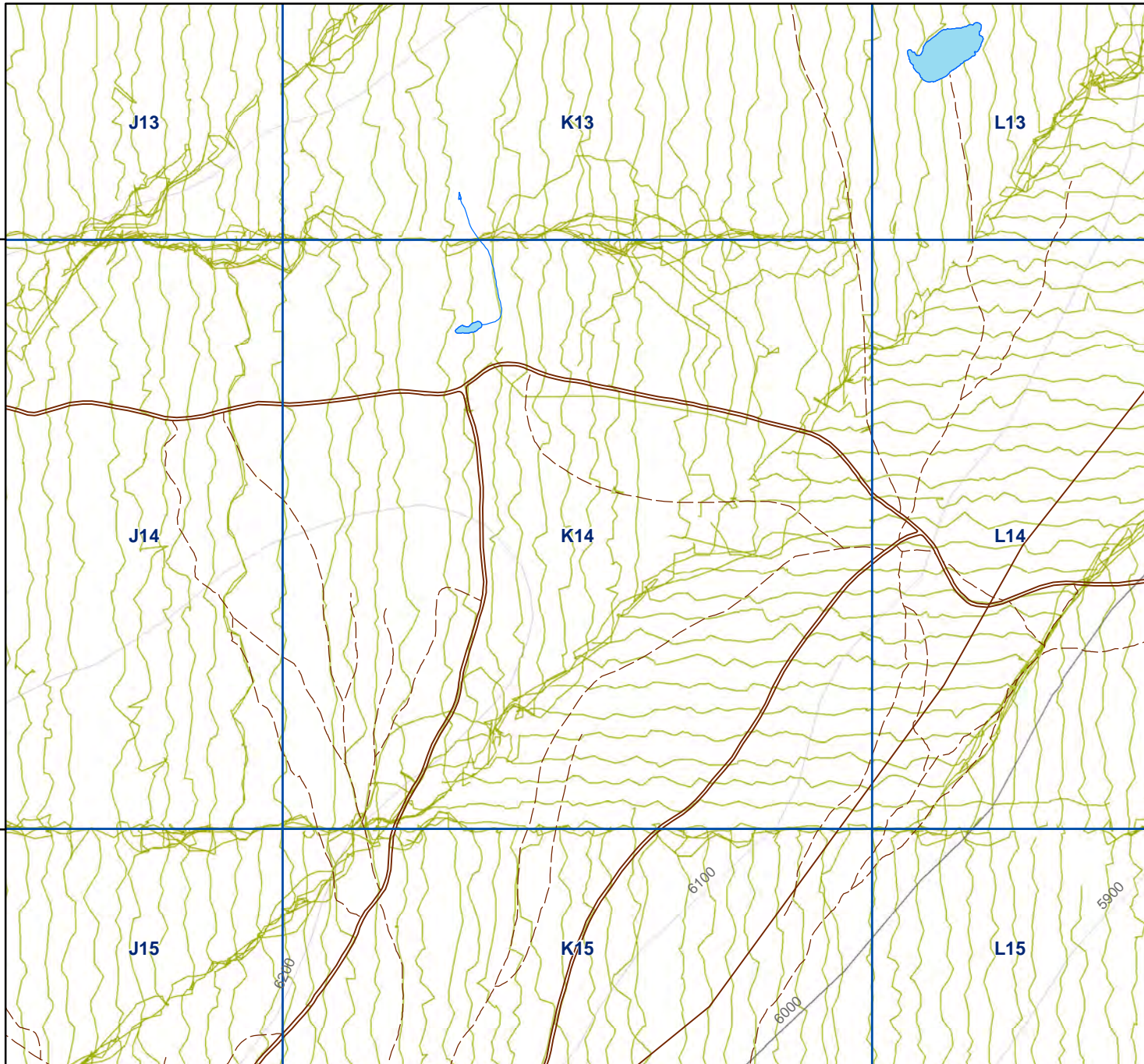
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

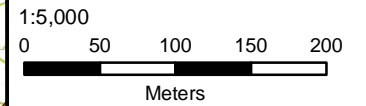
Historic Features Identified? No



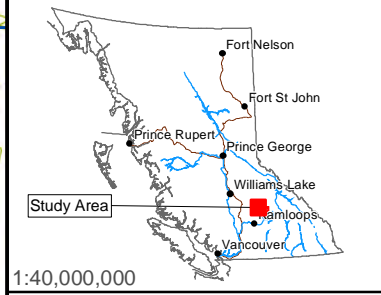
Survey Coverage of K14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew S.Enns, Pam Eustache (Simpcw), Tyler Jaenson (Adams Lake), Murray Jules (Simpcw), Ryan Kenoras (A.L.), J.Kirillo, Lara McFadden, Joe Meldrum (A.L.), Reginald Narcisse (A.L.), Martin Saul (A.L.), A.Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 14, 2011 (Stockpile); August 28, 2012 (Catchment)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1840-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K14 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Low Grade Stockpile: The terrain in the northeastern quadrant of K14 is, generally, gently to moderately sloping with a northeastern aspect except for the southernmost part which is sloping with a southeastern aspect. The northwestern quadrant is gently to moderately sloping with a northern aspect. The southwestern quadrant contains the height of land and is gently sloping with northern, eastern, and southern aspects and is gently undulating and hummocky.

Natural Catchment: The terrain in the southeastern quadrant of K14 is undulating and moderately to steeply sloping. The western extent of the assessed area has an eastern aspect, to the east the aspect becomes southeastern.

No significant hydrology was identified. Numerous ground disturbances as a result of previous logging and mining activities were observed including skid trails and mine access roads. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

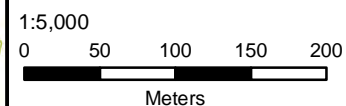
No protected archaeological resources were identified within the areas surveyed.


















Historic Features Identified? No

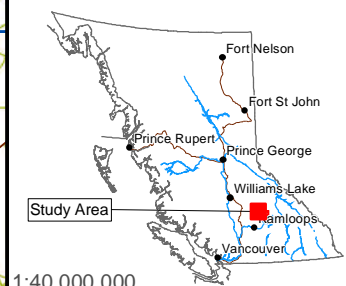
Survey Coverage of K15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

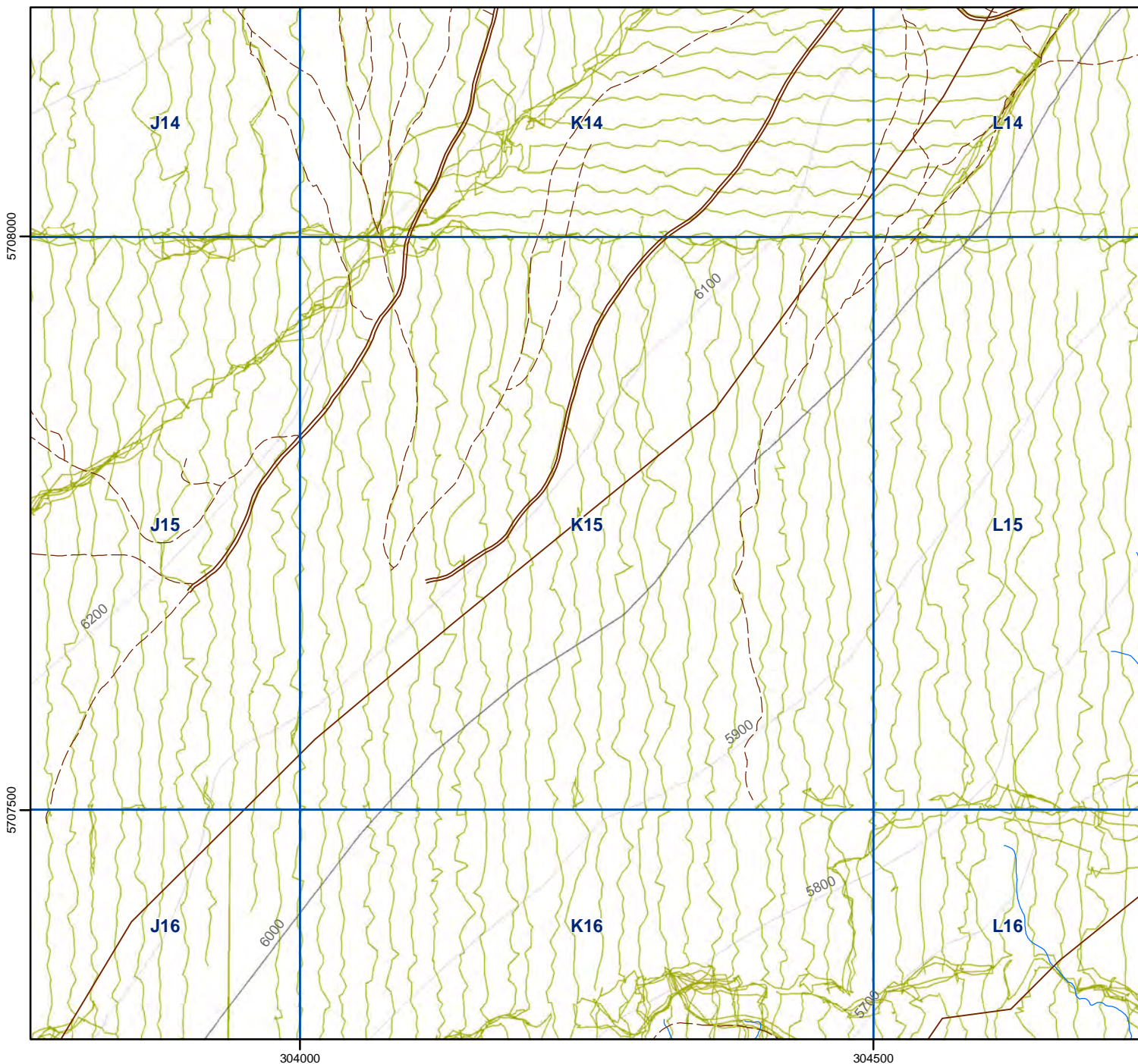
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



-  Project Area
-  Survey Transects
-  Very Steep Terrain
-  Shovel Test Area
-  Archaeological Site
-  Historic Trail
-  CMT
-  Historic Corral
-  Grid 500m
-  Contour 100m
-  Contour 20m
-  Roads (secondary)
-  Roads to Facilities
-  Trails
-  River/Creek
-  Wetland
-  Waterbody



TERRAARCHAEOLOGY



Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (A.L.), Shannon Enns, Ryan Kenoras (A.L.), Jordan Kirillo, Lara McFadden, Joe Meldrum (A.L.), Mark Michelle (A.L.), Reginald Narcisse (A.L.), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 14, 2011 (Stockpile, Tailings Mgmt); August 24, 2012 (Catchment)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1780-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of the Low Grade Stockpile, Tailings Management and Natural Catchment mine footprints are within ASU K15 and are described separately below.

Low Grade Stockpile: The terrain throughout K15 is gently sloping with a southern aspect. The ground is well drained with no hydrological features observed. Ground disturbances as a result of previous logging and mining activities were noted including skid trails and mine access roads.

Tailings Management: The Tailings Management portion of K15 was subject to assessment but due to winter conditions the survey was delayed until 2012. Crews returned in 2012 and assessed terrain in the northwest extent of K15 as gently sloping with a southeast aspect. Towards the south and east the terrain becomes moderately sloping with a south to southeast aspect; no break-in-slope was apparent. The southernmost portion of K15 consists of mostly moderately sloping to steep rocky slopes.

Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

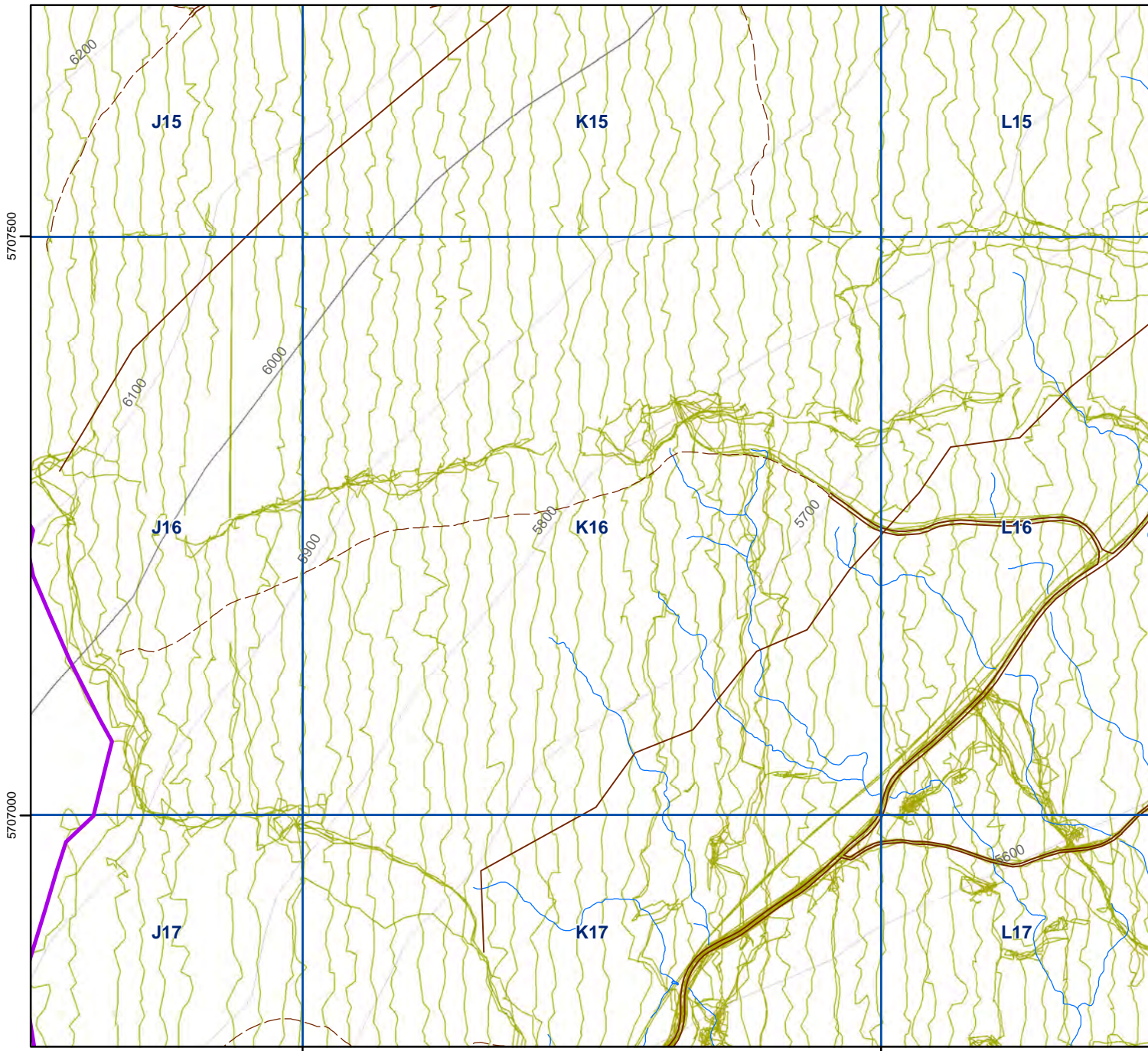
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

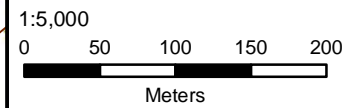
Historic Features Identified? No



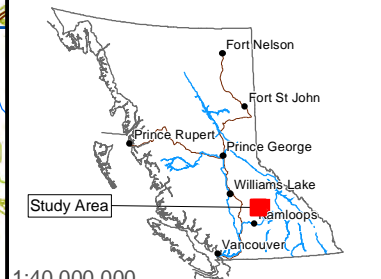
Survey Coverage of K16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000



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304500

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (A.L.), Murray Jules (Simpco), Ryan Kenoras (A.L.), Lara McFadden, Joe Meldrum (A.L.), Mark Michelle (A.L.), Reginald Narcisse (A.L.), Laura Pick, Alex Saul (A.L.)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 24-25, 2011 (Tailings Mgmt); August 24, 2012 (Catchment)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K16 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southern half of K16 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of K16 is described below. The remaining northern half of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was not completed in 2011. Crews completed the assessment in 2012.

The surveyed terrain in K16 is, generally, gently sloping in the south to moderately sloping in the north with a southeastern aspect throughout. The ground in the eastern third is undulating with a few small, intermittent streams noted. The ground in the remaining western portion of K16 consists of sloping saturated meadows separated by sections of poorly drained slope with small, intermittent streams observed throughout. The northern section of K16 is rocky and moderately to steeply sloping with a southeast to east aspect in the western portion; as the area in the north extends to the east the slope decreases to moderate and the aspect becomes south to southeast. Ground disturbances as a result of previous logging and mining activities were observed including skid trails and stumps. In addition, the main mine access road (Road 5) cuts through the southeastern-most corner of the ASU trending northeast/southwest.

Archaeological potential is assessed as low due to sloping, poorly drained, and disturbed nature of the terrain, as well as the lack of any well defined landforms.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

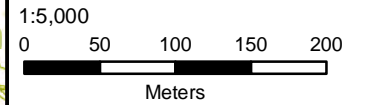
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of K17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

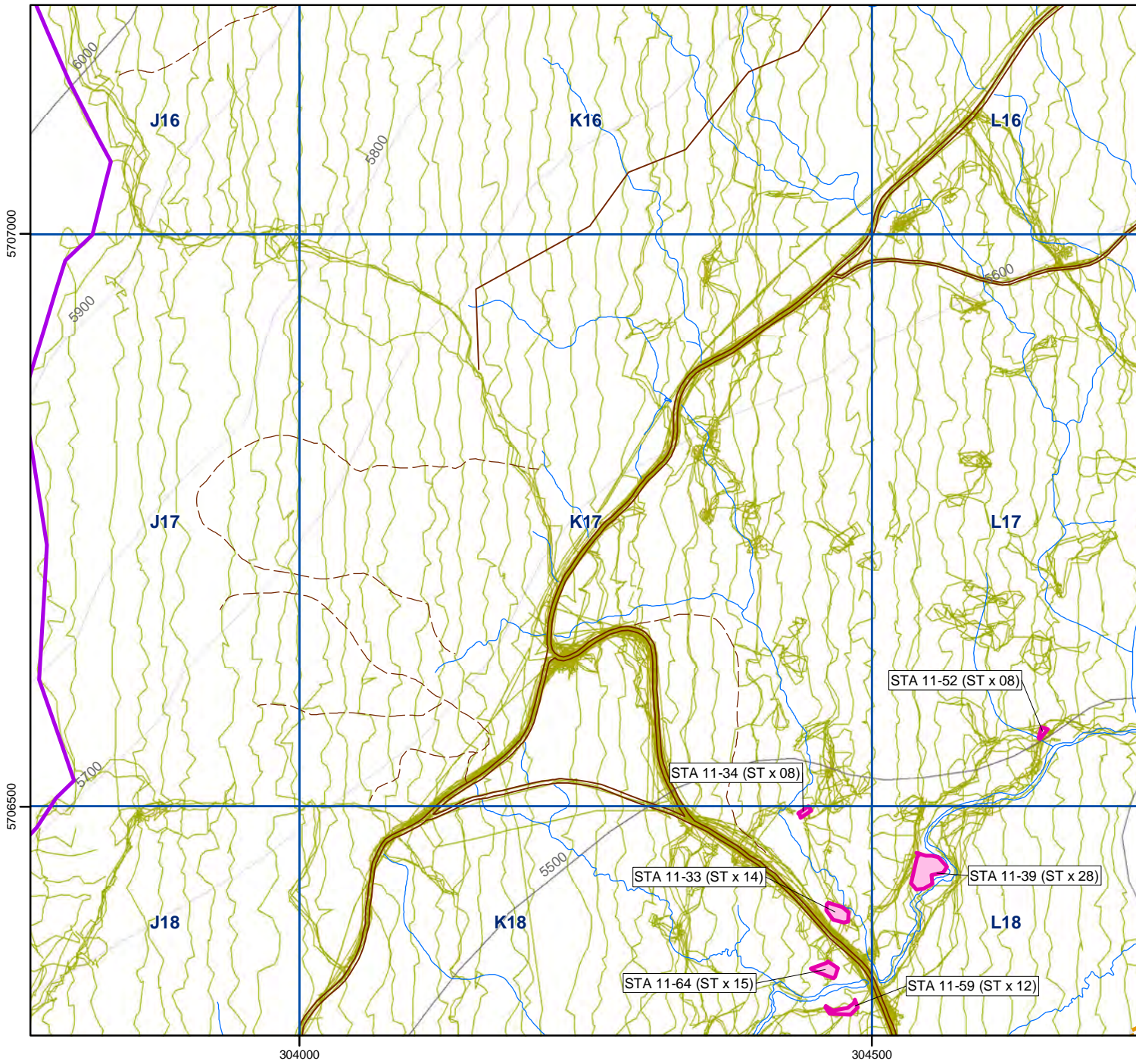


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Logan Michele (Adams Lake), Alex Saul (Adams Lake)

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 15 and 25, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1680-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K17 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The three mine footprint areas subject to survey overlapped and exhibited similar features within K17. The terrain is gently sloping with a southeastern aspect and gently undulating creating small poorly defined knolls throughout. The ground is generally poorly drained with small streams and seepages running through and between a series of wet meadows that are flat to gently sloping also with a southeastern aspect. A series of mapped drainages are located in the eastern half of the ASU trending generally north/south; however, they were only discernible to the field crew as areas of saturated ground. The entire area lies within an old logging cut-block and is therefore disturbed due to that previous logging activity. In addition, the main mine access road (Road 5) runs through the centre of K17 trending northeast/southwest and branching to also trend northwest/southeast through the central southern portion of the ASU. Archaeological potential is assessed as low due to the sloping and poorly drained nature of the terrain as well as the extensive disturbance noted due to previous logging and mining activities.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

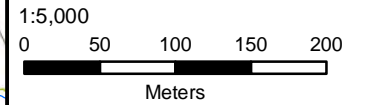
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of K18

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

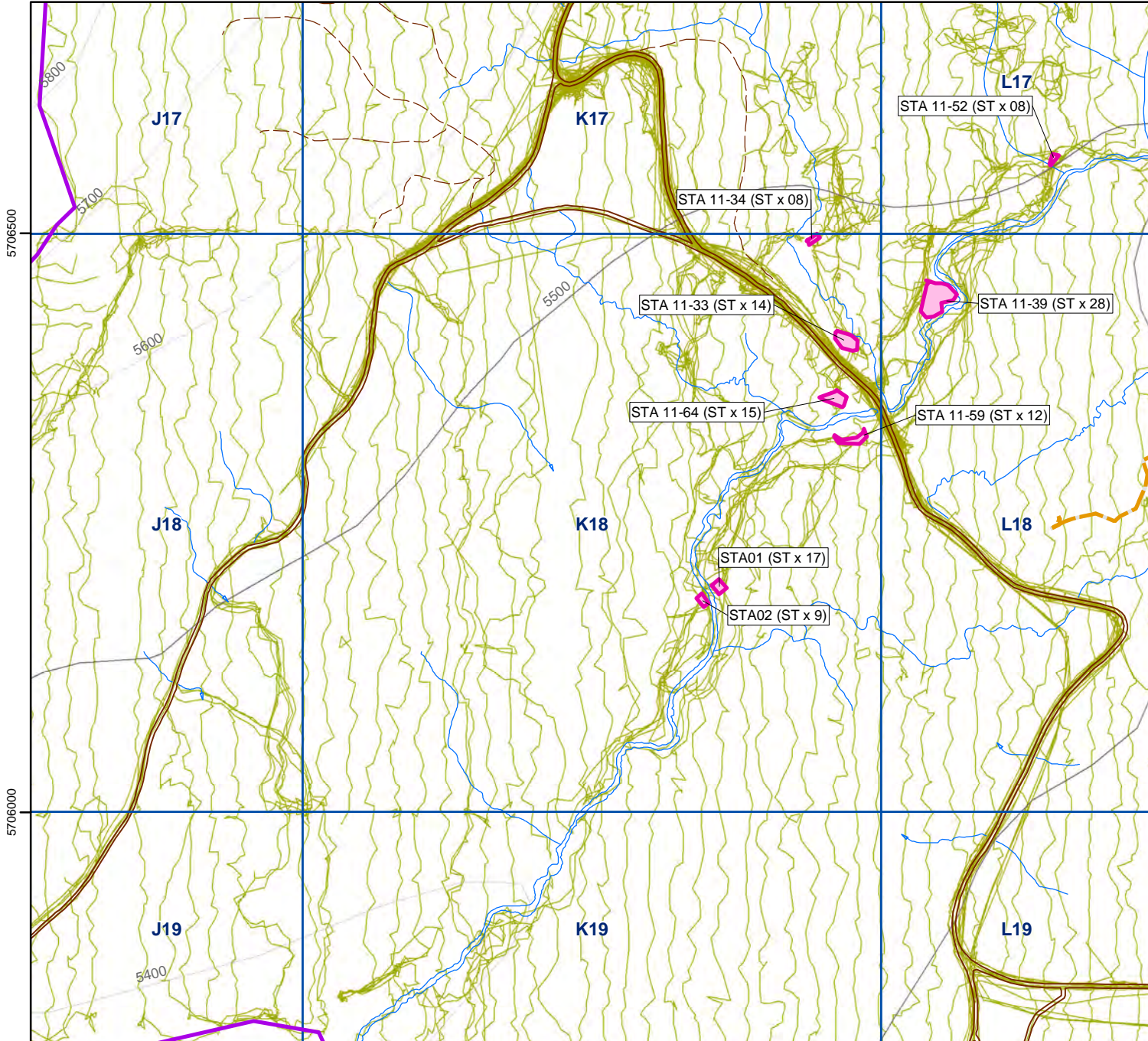


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpco), Lara McFadden, Alex Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) August 3-4, 25, and 30-31, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1640-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU K18 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

A northeast-southwest trending creek runs through the eastern half of K18; however, no well-defined or well-drained landforms were observed in association with the creek with the exception of the shovel test areas (STAs) described below. STAs 01 and 02 were identified during a preliminary field reconnaissance (PFR) of the Tailings 03 Seismic Line footprint conducted August 3 - 4, 2011. The STAs were subject to subsurface testing on August 23, 2011 prior to the commencement of the mine facilities footprint survey. Once the survey of the Tailings Management facility was confirmed to begin, it was determined that additional testing was required at both locations in order to adequately test the landforms. This additional subsurface testing took place on September 12, 2011, also prior to the commencement of the Tailings Management footprint survey.

STA01 consists of a flat, north-south trending, terrace that overlooks the abovementioned creek. The creek is situated directly west of the test area and approximately 10 m lower in elevation at the base of the creek's natural cut-bank which is steeply sloping with a western aspect. The test area measures approximately 25 x 5 - 15 m. Five subsurface tests were excavated in the first testing of STA01 along the 2 m wide seismic line footprint. An additional twelve tests were added during the continued testing. In total, seventeen subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA02 consists of a flat, north-south trending, terrace that overlooks the abovementioned creek. The creek is situated directly east of the test area and approximately 1 m lower in elevation at the base of the creek's natural cut-bank. The test area measures approximately 10 x 10 m. Three subsurface tests were excavated in the first testing of STA02 along the 2 m wide seismic line footprint. An additional five tests were added during the continued testing. In total, nine subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 11-33 consists of flat top knoll located on the southern edge of a wetland area with a small stream that flows east into the abovementioned creek located approximately 40 - 50 m east of the test area. The southeastern corner of the test area has been removed from the survey area due to the construction of previously used mine drill pad. The test area measures approximately 30 x 10 m. Fourteen subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 11-34 consists of a flat top knoll located at the base of a moderate slope with a southeastern aspect and overlooking a wetland area. The wetland area is situated directly to the south of the test area and approximately 10 - 15 m lower in elevation at the base of a gentle slope with a southeastern aspect. The test area measures approximately 15 x 10 m. Eight subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 11-59 consists of an east-west trending, flat bench which overlooks the abovementioned creek. The creek is situated directly north of the test area and approximately 25 m lower in elevation at the base of a moderate slope with a northern aspect. The test area measures approximately 20 x 5 - 10 m. Twelve subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 11-64 consists of a low-lying, flat bench alongside the abovementioned creek which bounds the test area on the southern side. The area is situated at the base of a gentle slope with a southeastern aspect and has been heavily disturbed by machinery as evidenced by the shallow trench that runs through the centre of the test area. Despite the disturbed and low-lying nature of STA 11-64, it was identified as having archaeological

potential due to the presence of fire-pit of an undetermined age. The test area measures approximately 10 – 20 x 5 – 10 m. Twelve subsurface tests were excavated on an approximate 5 m grid with three additional tests placed around the fire-pit for a total of fifteen tests excavated. Two of the additional tests were placed approximately 1 m to the north and south of the fire-pit and the third was placed directly on the rim of the feature on the western side. No archaeological materials were identified in any of the subsurface tests. It was determined that due to the lack of archaeological materials recovered in the subsurface testing, and taking into account the high level of disturbance within STA 11-64, that the observed fire-pit feature is either modern or recent-historic.

The northeastern corner of the ASU, south of the creek, is a gently sloping wetland area with a southwestern aspect that runs along the creek and slowly becomes more steeply sloping to the south. The remaining portions of K18 are gently sloping with a southeastern aspect, and poorly defined breaks-in-slope form gently sloping to flat sections of terrain down to the creek. In addition, a small wetland was observed in the northeastern corner of this portion of the assessed area. Mapped drainages are north and south of the major creek and running into it; however, these features were only discernible to the field crew as areas of saturated terrain. Ground disturbances due to previous logging activities were noted throughout including skid trails and old access roads as well as the main mine access road (Road 5) which trends northeast-southwest through the northwestern corner of the ASU and northwest-southeast through the northeastern corner.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

75

Number of Positive Subsurface Tests

0

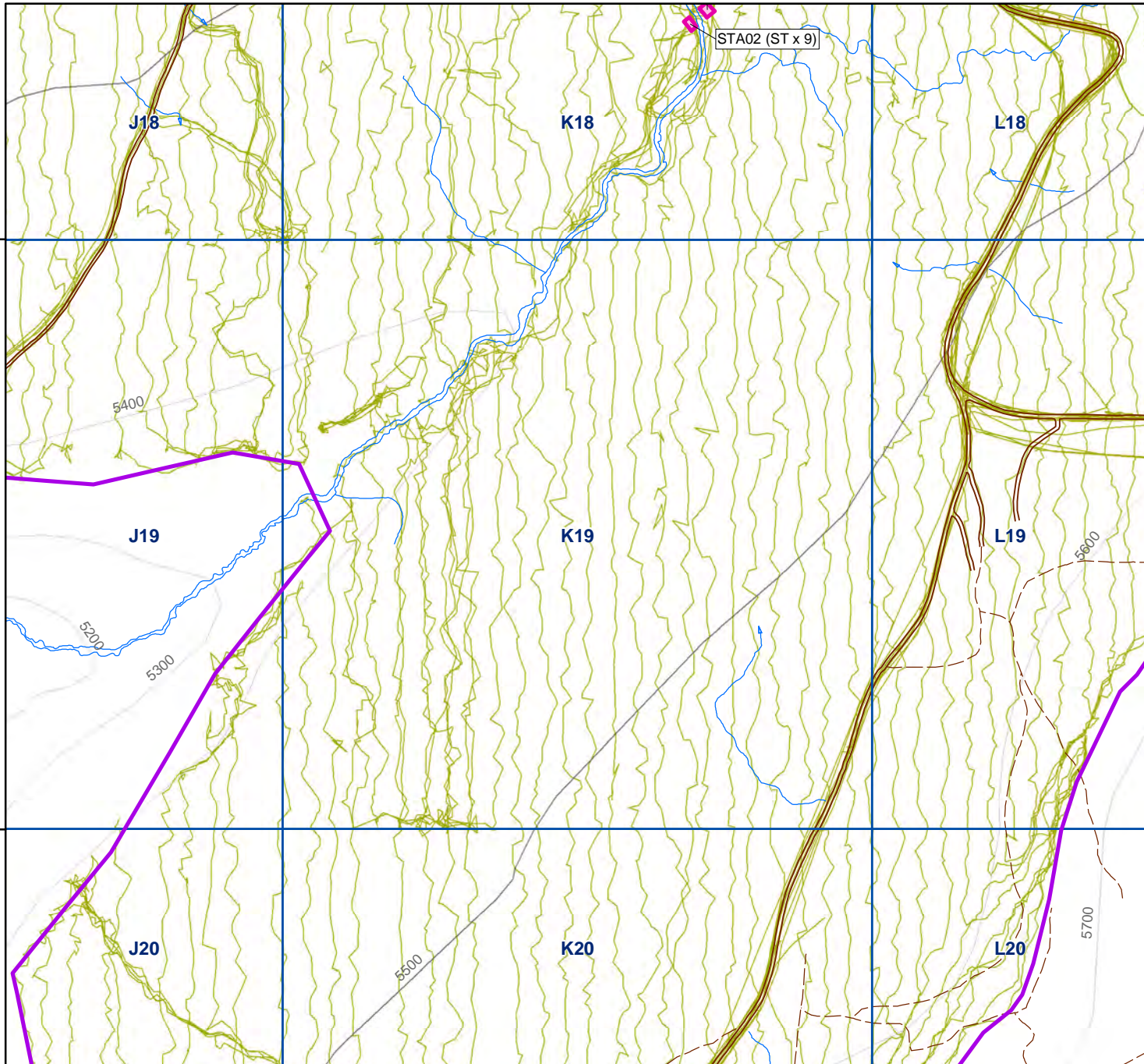
STA01: 0 – 3 cm depth below surface (dbs) = Littermat; 3 – 10 cm dbs = Moist, dark brown silt with approximately 10% sub-angular pebbles; 10 – 28 cm dbs = Moist, reddish brown sandy silt with approximately 20% sub-angular pebbles and cobbles; 28 cm+ dbs = Large cobbles and boulders.

STA02: 0 – 4 cm dbs = Littermat; 4 – 30 cm dbs = Medium brown silty sand; 30 cm+ dbs = Boulders and gravels.

Results

No protected archaeological resources were identified within the areas surveyed.

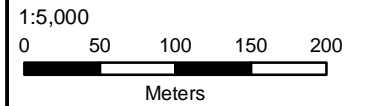
Historic Features Identified? No



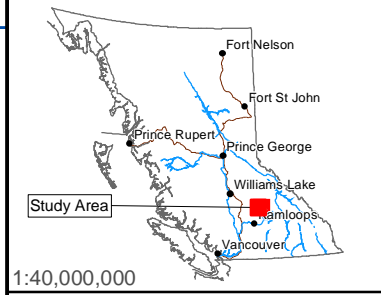
Survey Coverage of K19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- ▬ Project Area
- ▬ Survey Transects
- ▬ Very Steep Terrain
- ▭ Shovel Test Area
- ▭ Archaeological Site
- ▬ Historic Trail
- ⊕ CMT
- ▭ Historic Corral
- ▭ Grid 500m
- ▬ Contour 100m
- ▬ Contour 20m
- ▬ Roads (secondary)
- ▬ Roads to Facilities
- ▬ Trails
- ▬ River/Creek
- ▭ Wetland
- ▭ Waterbody



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TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Lara McFadden, Logan Michele (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 18-19 and 30-31, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1640-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K19 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout K19 is gently sloping with a northwestern aspect. The ground is generally gently undulating and poorly drained with small streams observed throughout. A major creek is located in the northwest corner, trending northeast/southwest. The terrain on either side of the creek is steeply sloping with northwestern and southeastern aspects. No prominent landforms were observed in association with this creek. Archaeological potential is assessed as low due to the sloping, poorly drained nature of the terrain as well as the lack of prominent landforms associated with the major creek observed in the northwest corner.

Subsurface Description

Total Number of Subsurface Tests

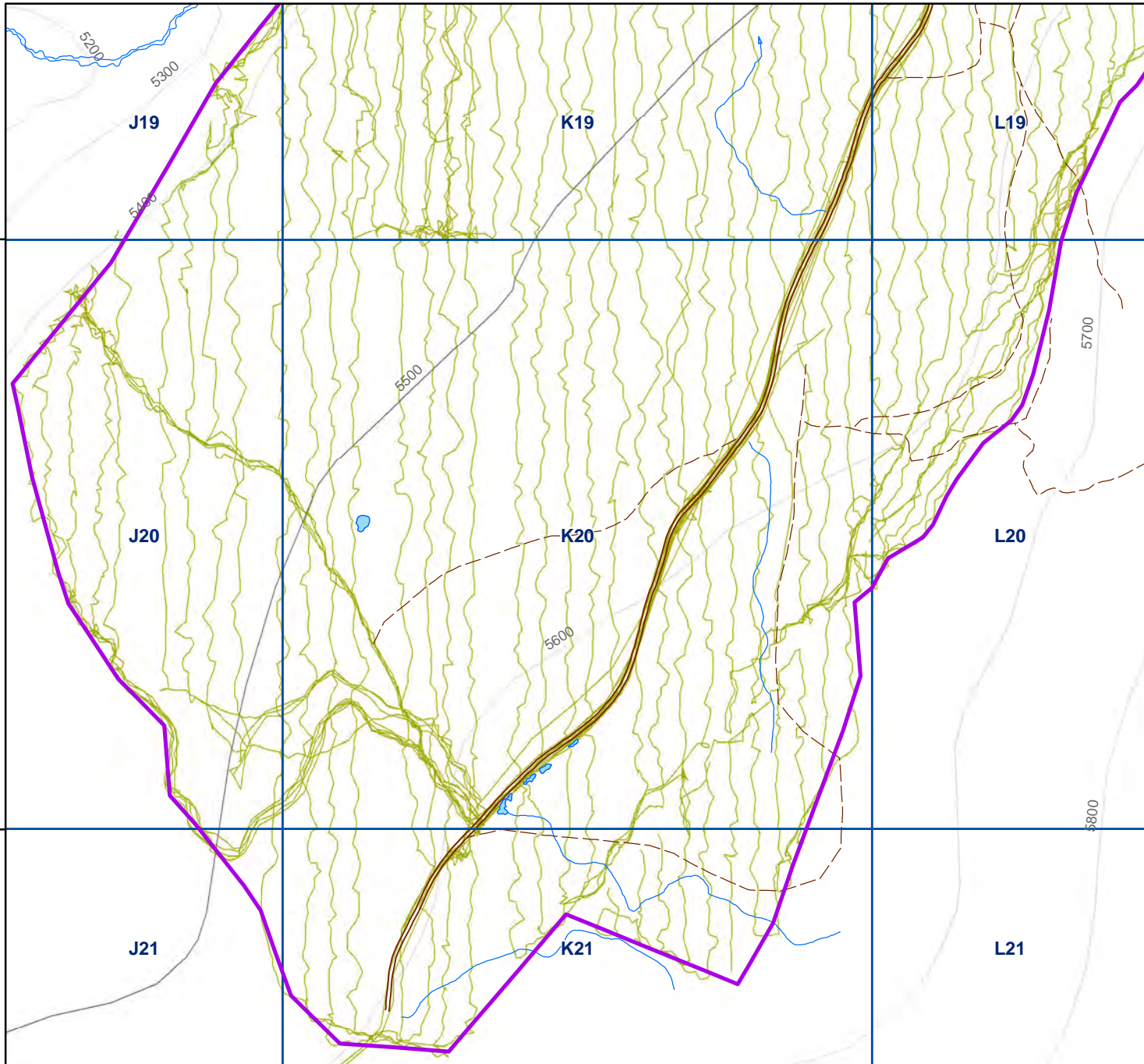
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

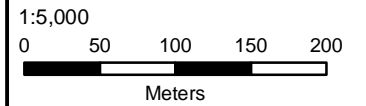
Historic Features Identified? No



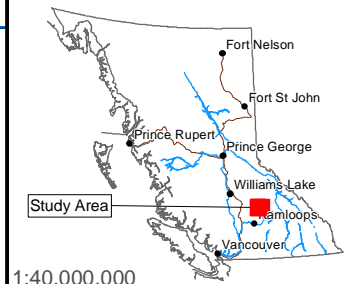
Survey Coverage of K20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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J19

K19

L19

J20

K20

L20

J21

K21

L21

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Logan Michele (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 18-19, 2011 (Tailings Mgmt); September 18, 2012 (Stockpile)

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1660-1710

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K20, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K20 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in K20 is gently sloping increasing to moderately sloping along the southern edge with a northwestern aspect throughout. The ground is generally gently undulating and poorly drained with small streams and saturated meadows throughout. The southern edge of the ASU is within an old forestry cut-block and has been disturbed by logging activity. The other major ground disturbance noted is the main northeast-southwest mine access road which runs through the southeastern half of the ASU. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of terrain.

Subsurface Description

Total Number of Subsurface Tests

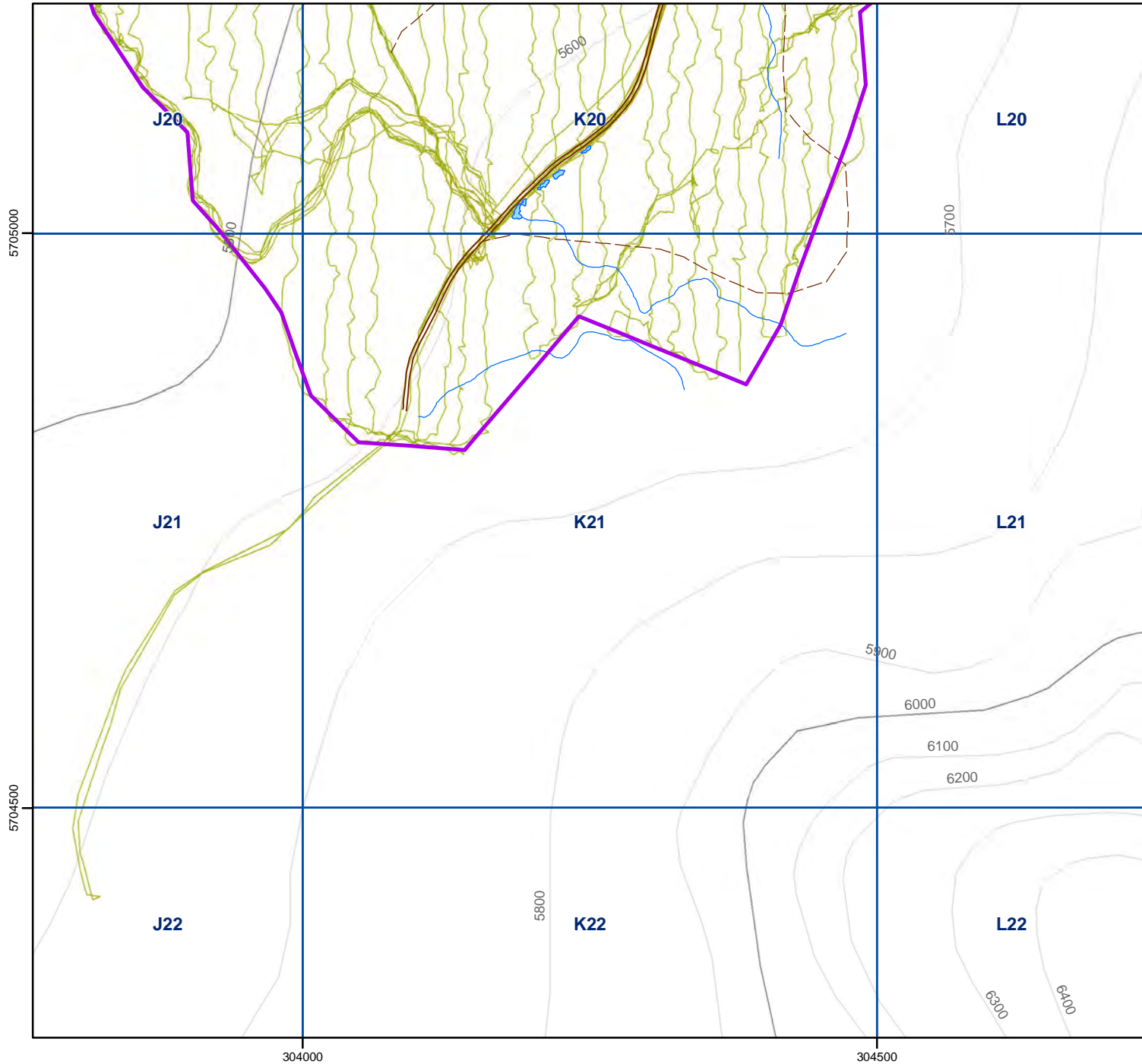
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

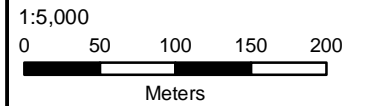
Historic Features Identified? No



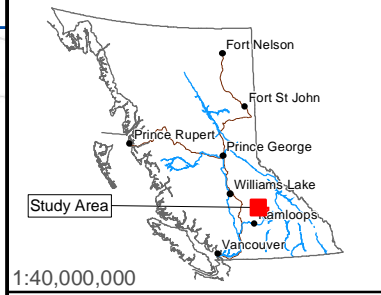
Survey Coverage of K21

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

304000

304500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Logan Michele (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 19, 2011 and September 18, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1690-1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU K21, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU K21 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the eastern half of K21 is moderately sloping with a western to northwestern aspect. The ground is hummocky and poorly drained in areas with small streams (trending east to west) and seepages noted throughout. Terrain in the western half is gently sloping with a western to southwestern aspect; it is also poorly drained in areas with small streams noted throughout. The eastern and western portions of K21 are separated by the main mine access road, which trends generally north-south. Ground disturbances, such as skid trails and stumps, due to previous logging activity were observed throughout the entire ASU. Archaeological potential is assessed as low due to the sloping, hummocky, and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

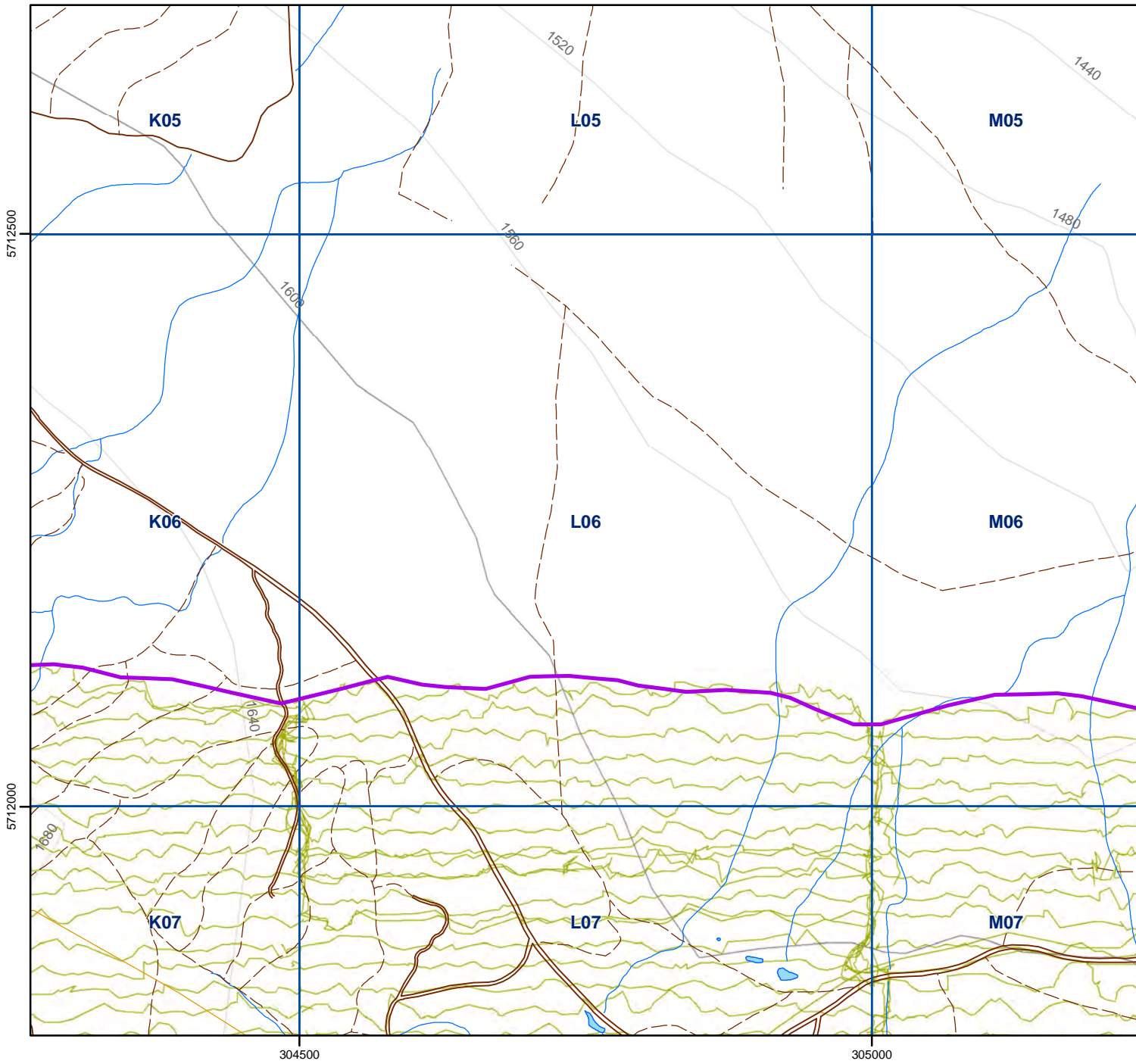
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

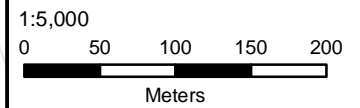
Historic Features Identified? No



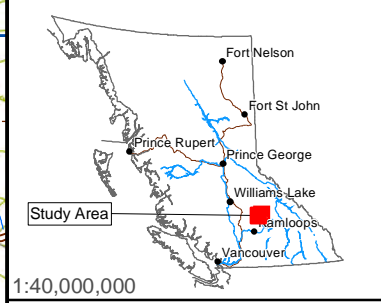
Survey Coverage of L06

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 21, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1500-1620

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L06, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L06 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in L06 is moderately sloping with a northwestern aspect in the eastern third, moderately sloping with an eastern aspect in the centre, and gently sloping with a northeastern aspect on the western edge. One very small stream was noted but no other significant hydrological features were observed. Two mapped drainages are located in the eastern corner of the ASU both trending north/south, but they were not discernible to the field crew. The western edge of the ASU falls within an old cut block and is therefore heavily disturbed due to previous logging activity. Other ground disturbances include skid trails throughout L06 and a mine access road located on the western edge of the ASU. Archaeological potential is assessed as low due to the sloping and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

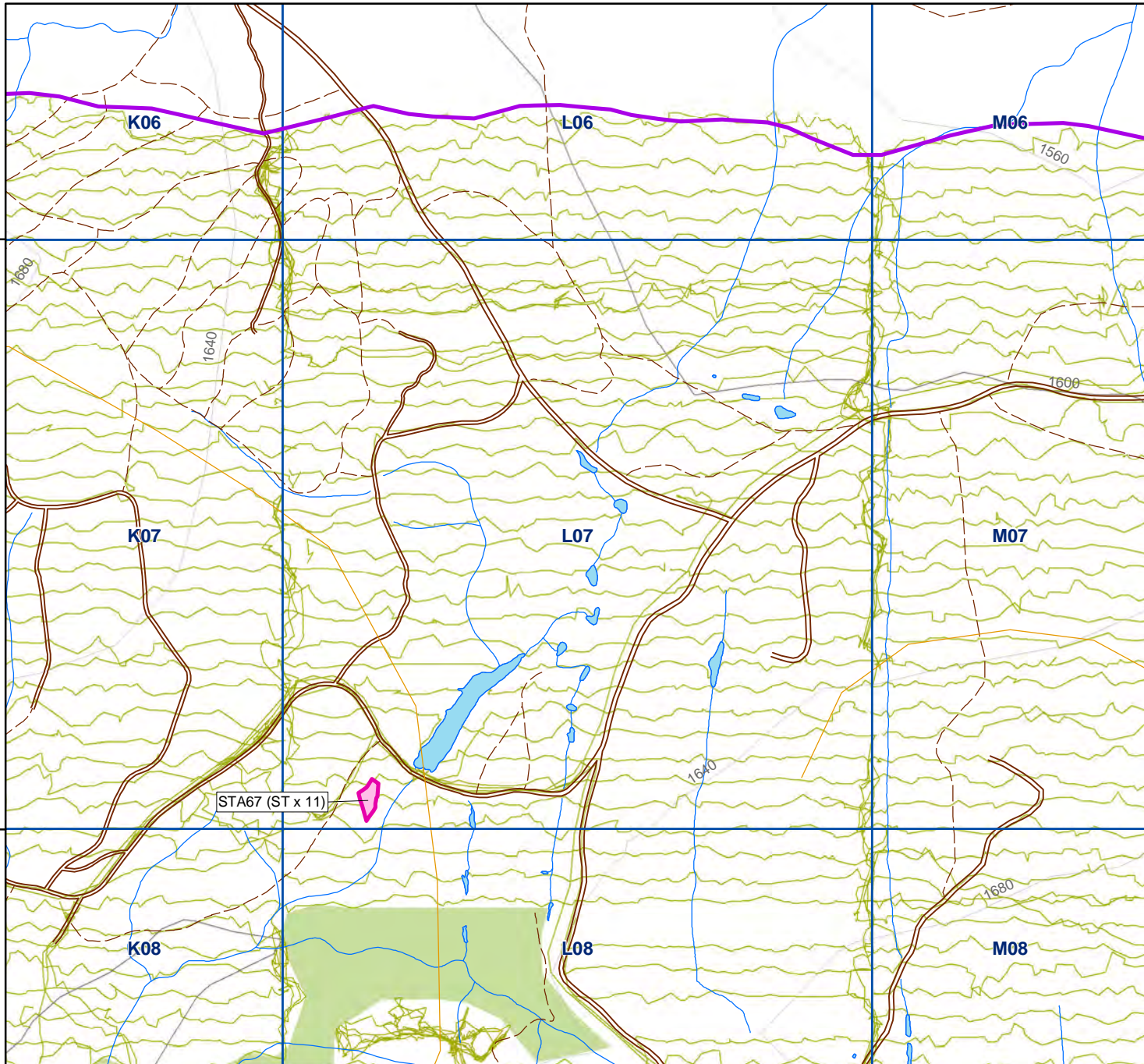
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

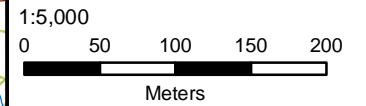
Historic Features Identified? No



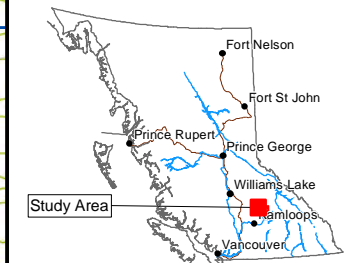
Survey Coverage of L07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Tyler Jaenson (Adams Lake) Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 22, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1580-1660

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU L07 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain in the eastern half of L07 is gently to moderately sloping with a northwestern aspect. Extensive ground disturbances were noted in this portion of the L07 due to previous logging activities and include numerous skid trails. The terrain in the northwestern quadrant is steeply sloping with eastern and northeastern aspects. The terrain in the southwestern quadrant is low-lying and poorly drained. Hydrological features include a southwest flowing stream in the southwest portion of L07. Mapped drainages and bodies of water are located in the north and southeastern quarters as well as the centre of the ASU, but were not discernible to the field crew. In addition, several newly constructed mine access roads were noted running throughout the ASU.

One area was assessed as having the potential for the presence of buried archaeological deposits and was subject to subsurface testing. Shovel Test Area (STA) 67 consists of a gently sloping ridge with a western aspect which trends east/west. The abovementioned stream is situated to the north-northeast of the test area and is approximately 25 m away at the base of a moderate slope with a northern aspect. The test area measures approximately 10 x 15 m. Eleven subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping and heavily disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

0 - 5 cm depth below surface (dbs) = Littermat; 5 - 20 cm dbs = Moderately compact, dark brown sandy silt with roots and large cobbles; 20 cm+ dbs = Moderately compact, reddish brown silty coarse grained sand with approximately 15% angular gravel.

Results

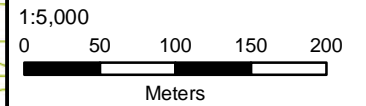
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of L08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

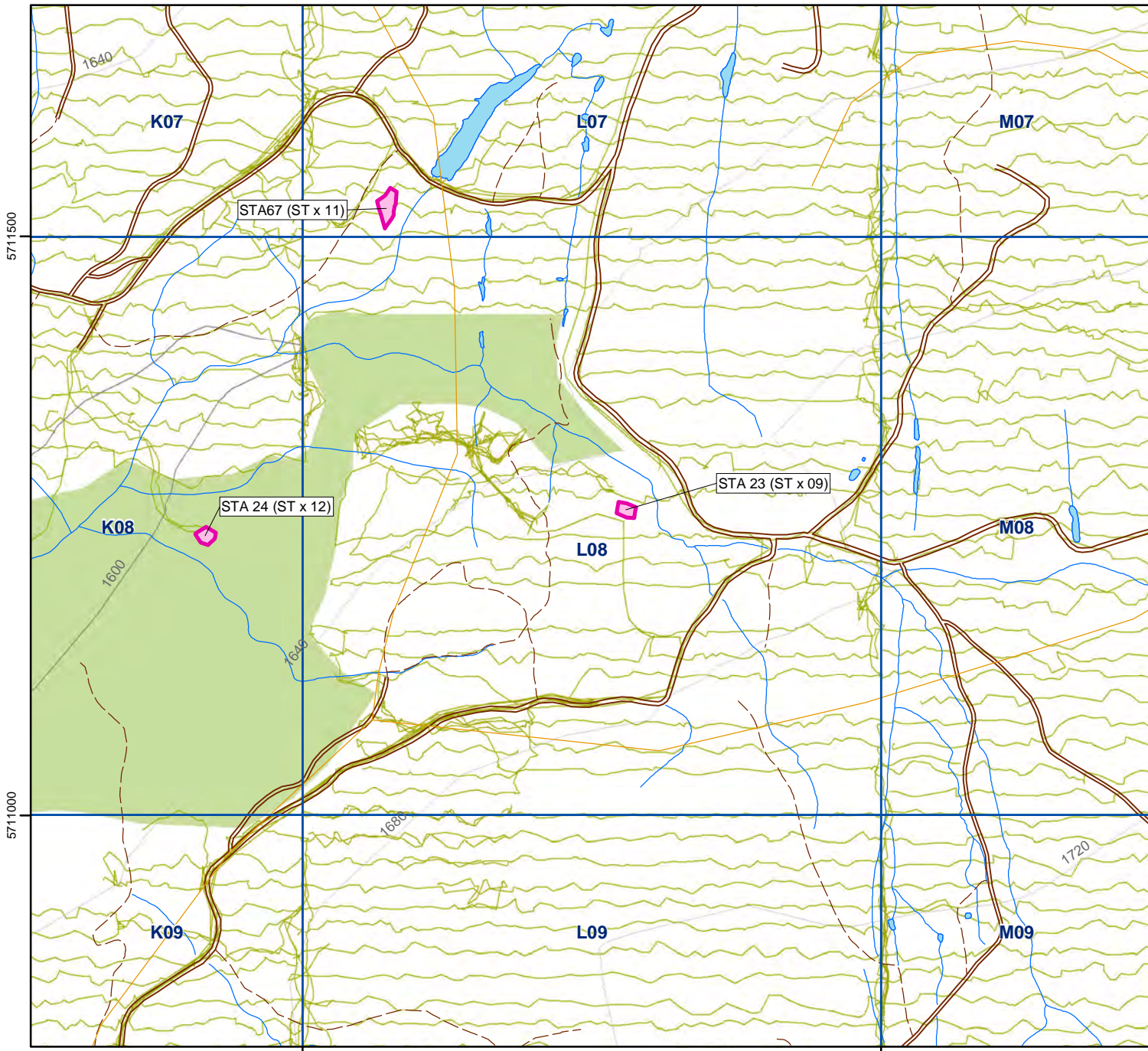


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 21, 2011; September 13, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1660-1700

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU L08 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain in the eastern half of L08 is moderately to steeply sloping with a northwestern aspect. Ground disturbances as a result of previous logging and mining activities were observed in this portion of the ASU. Skid trails and stumps and burn piles were noted as well as newly constructed mine access roads. The terrain in the western half is steeply sloping with a west-northwestern aspect. The central and north-central portion of the ASU contains several deep chasms as well as a tributary of Harper Creek which trends east-west to northwest-southeast. Terrain adjacent to this tributary is either poorly drained or steeply sloping. Mapped drainages are located along the northern boundary and in the southeastern quarter, but were not discernible to the field crew. A small section in northwestern portion of ASU was deemed unsafe for pedestrian survey due to steeply sloping terrain. One area of archaeological potential was identified in the central portion of L08 and was subject to subsurface testing. The shovel test area (STA) is described below.

STA 23 was identified during a preliminary field reconnaissance (PFR) of the CME-72 drill pad footprint conducted on August 23, 2011. The location was subject to subsurface testing at that time, prior to the commencement of the mine facilities footprint survey. STA 23 consists of a flat to gently sloping northwest-southeast trending terrace with a northwestern aspect. It is located directly east and parallel to a deeply incised dry ephemeral drainage. The test area measures approximately 30 x 15 m. Nine subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to steeply sloping, disturbed nature of the terrain as well as the lack of prominent landforms associated with the tributary of Harper Creek observed in the central and north portions of L08.

Subsurface Description

Total Number of Subsurface Tests

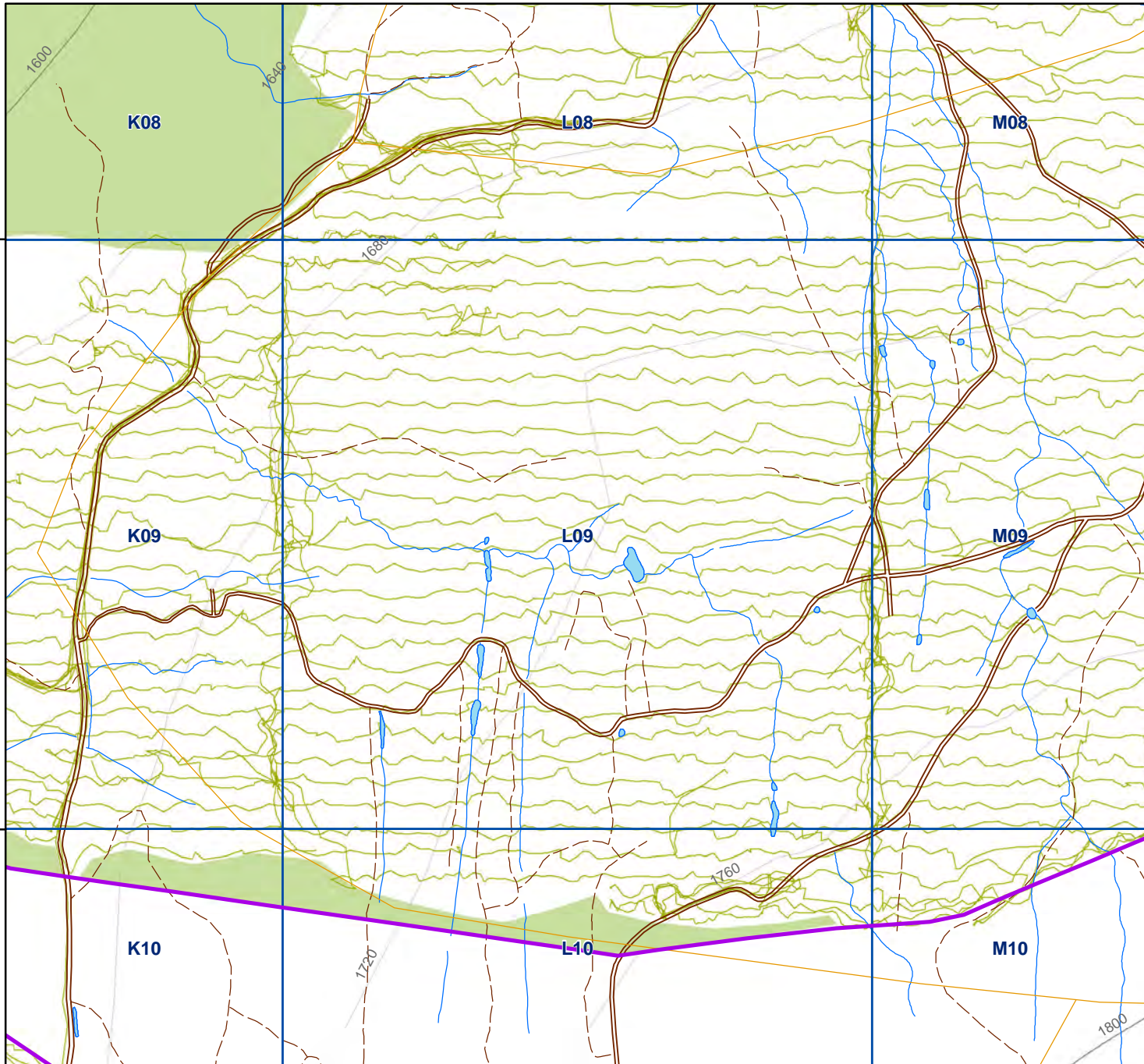
Number of Positive Subsurface Tests

0 – 4 cm depth below surface (dbs) = Littermat; 4 - 20 cm dbs = Grey sand; 20 - 40 cm dbs = Reddish brown silty sand with approximately 20% pea gravels and cobbles; 40 cm+ dbs = Angular shale cobbles and boulders.

Results

No protected archaeological resources were identified within the areas surveyed.

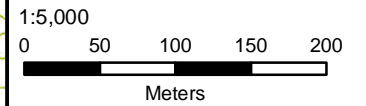
Historic Features Identified? No



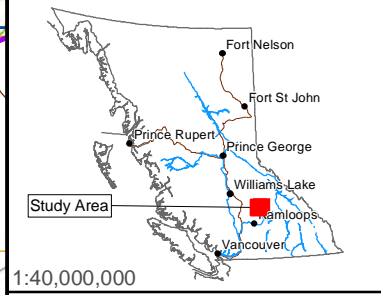
Survey Coverage of L09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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305000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (A.L.), Leonard Chrisjohn (A.L.), Shannon Enns, Tyler Jaenson (A.L.), Jordan Kirillo, Fern Jules (A.L.), Murray Jules (Simpco), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 21, 2011; June 29 and September 13, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1660-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L09 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout L09 is moderately to steeply sloping with western to northwestern aspects. The terrain in the southeast quadrant is slightly less steeply sloped but the ground is hummocky and undulating. Hydrological features were limited to a single very small drainage surrounded by disturbed terrain. Mapped drainages and water bodies are located throughout the southern half of the ASU, none of which were discernible to the field crew; however, many areas of stagnant water and saturated ground were identified throughout the survey area. Extensive ground disturbances as a result of previous logging and mining activities were observed. Skid trails and log piles were noted as well as multiple north-south trending exploratory mining trenches. Archaeological potential is assessed as low due to the steeply sloping, disturbed nature of the terrain and lack of significant hydrology.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

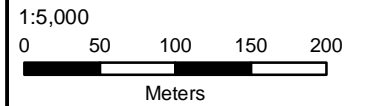
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of L10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

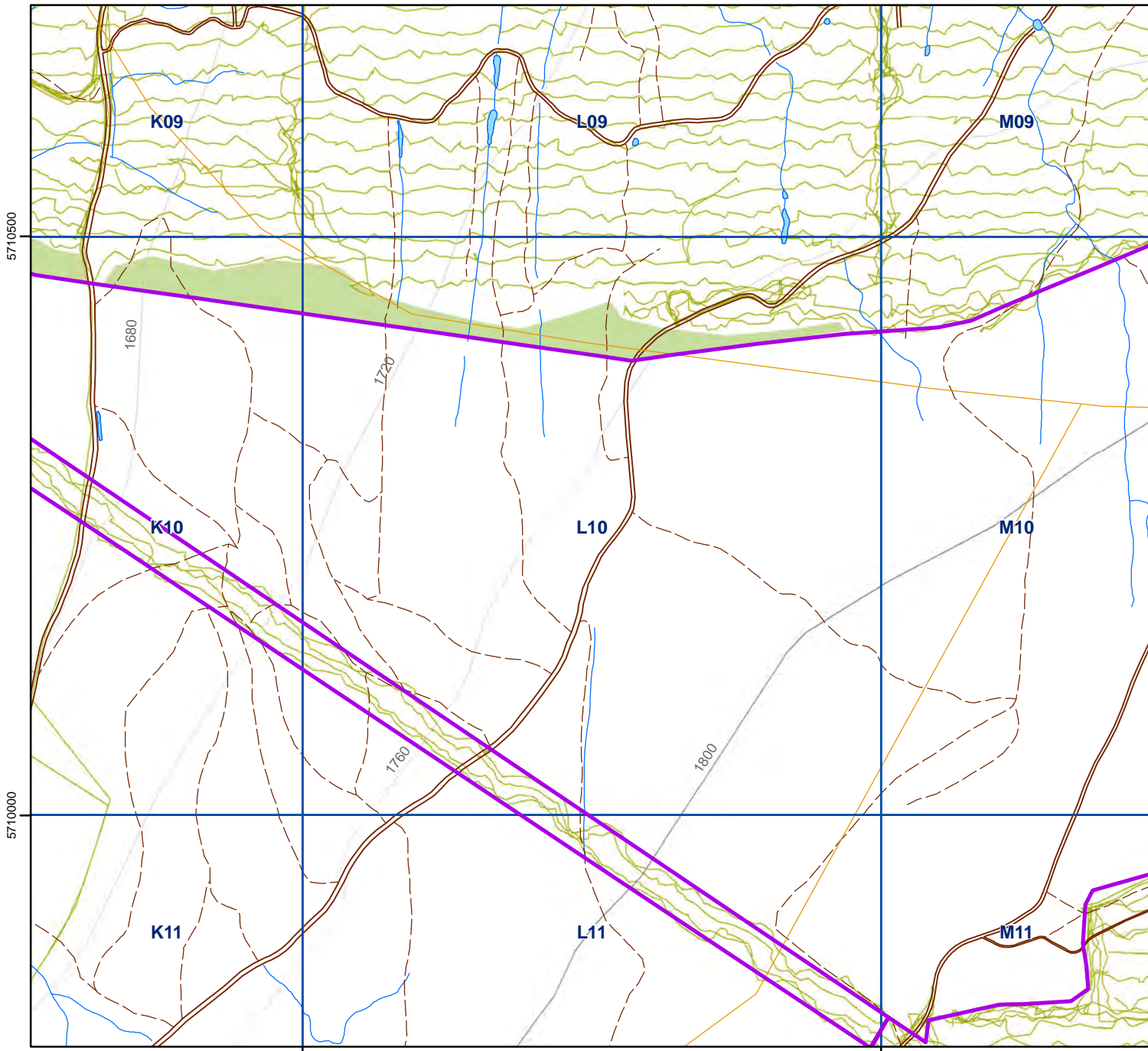


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Tyler Jaenson (Adams Lake), Jordan Kirillo, Fern Jules (Adams Lake), Murray Jules (Simpco), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept 19 (Pit), Oct. 6 (Conveyor), 2011; June 29 (Pit), Sept. 11 (Pit), 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1700-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of the Open Pit footprint portion of ASU L10, crew members were spaced at approximately 20 m intervals along survey transects. Given the narrow span of the proposed Conveyor footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L10 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of the Open Pit and Conveyor mine footprints are within ASU L10 and are described separately below.

Open Pit: Terrain throughout the Open Pit portion of L10 is moderately to steeply sloping with a northwestern aspect and is hummocky. A southwest flowing ephemeral drainage in the eastern half of the ASU was the only hydrological feature noted. Ground disturbances as a result of previous logging and mining activities were observed including skid trails and mine access roads. Archaeological potential is assessed as low due to the sloping, hummocky nature of the terrain, extensive ground disturbance, and lack of significant hydrology or well defined landforms.

Conveyor: Terrain in the Conveyor portion of L10 is steeply sloping with a northwestern aspect. The ground is generally hummocky and poorly drained with small northwest and west-flowing drainages. Archaeological potential is assessed as low due to the steeply sloping, hummocky, and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

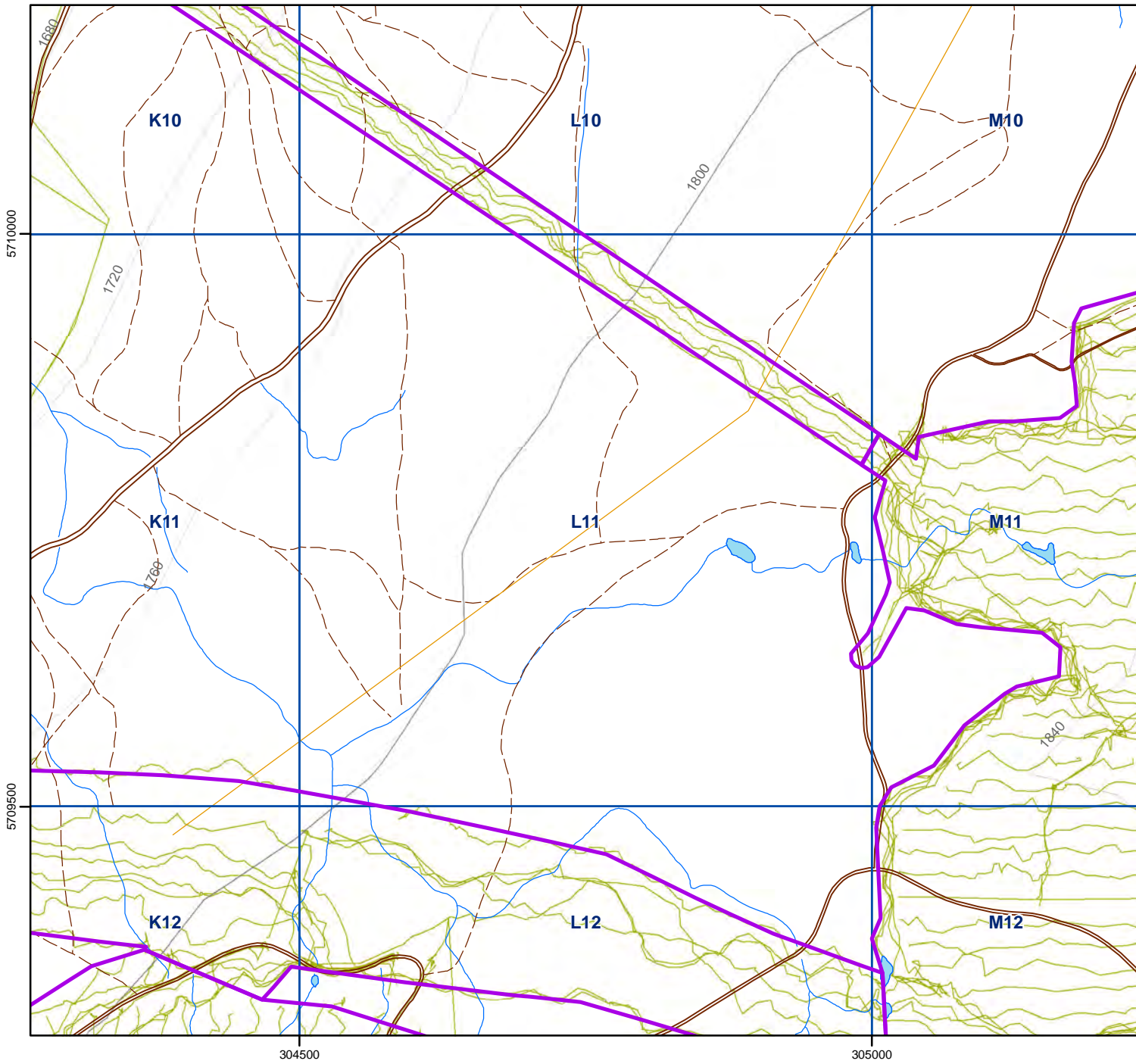
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

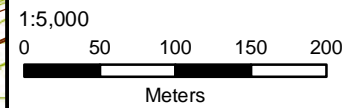
Historic Features Identified? No



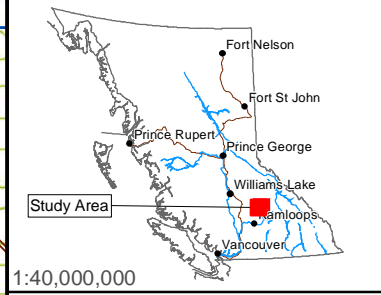
Survey Coverage of L11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) October 6, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1760-1820

Area (ha) 25

Survey Methodology

Given the narrow span of the proposed Conveyor footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L11 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in L11 is gently to moderately sloping with western to northwestern aspects. There were no significant hydrological features noted. Ground disturbances due to previous forestry and mining activities were observed including numerous skid trails and mine access roads. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of significant hydrological features noted.

Subsurface Description

Total Number of Subsurface Tests

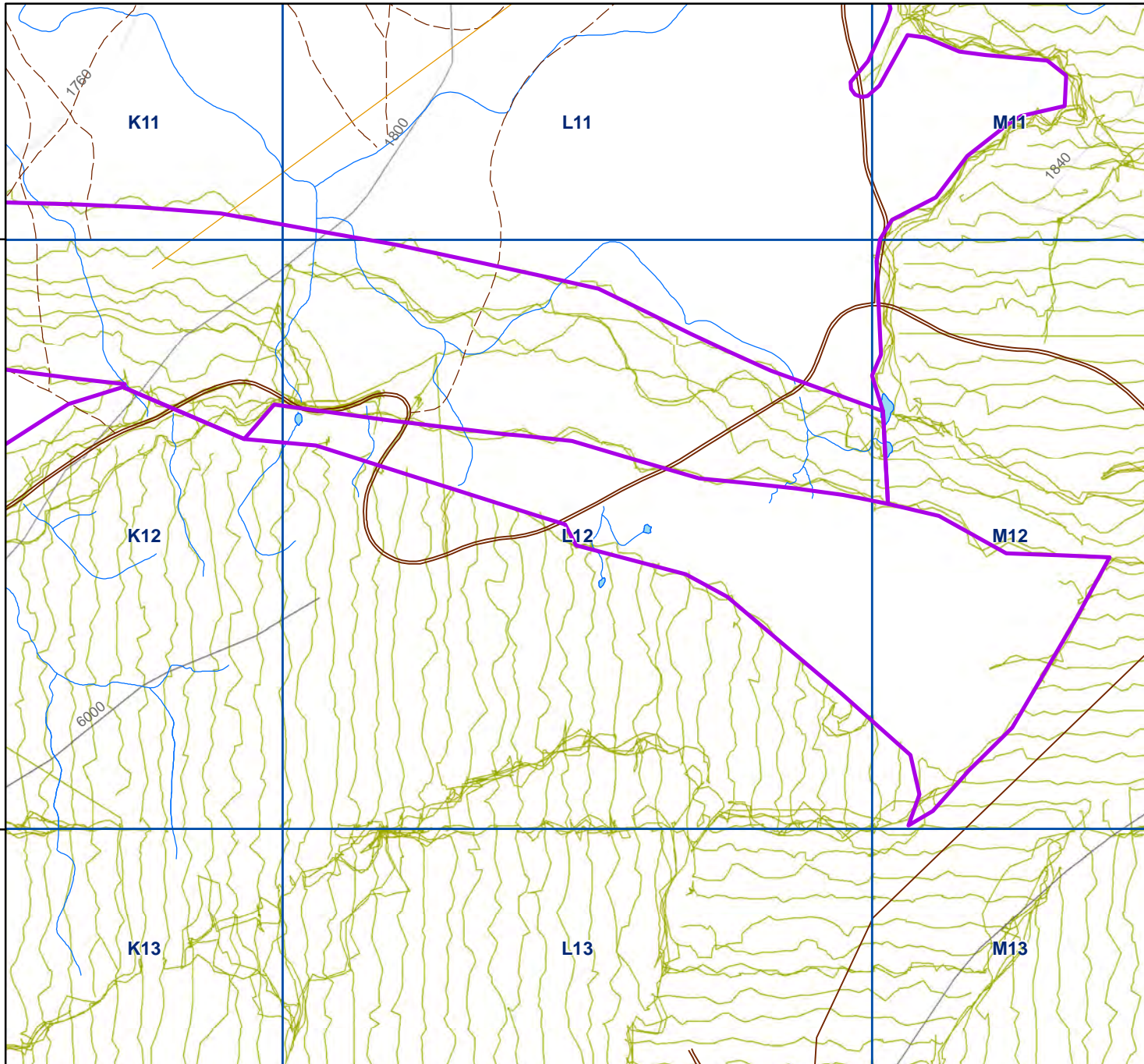
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

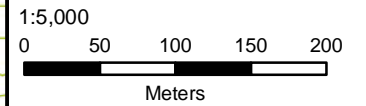
Historic Features Identified? No



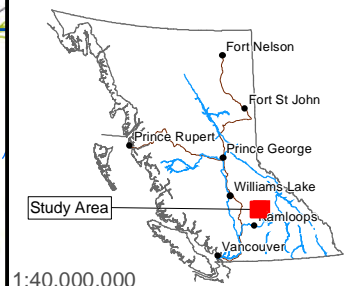
Survey Coverage of L12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

304500

305000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Lucas Eustache (Simpco), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Jordan Kirillo, Lara McFadden, Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept. 9, 2011 (Stockpile); Oct. 11, 2011 (Road); July 24, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1800-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L12, crew members were spaced at approximately 20 m intervals along survey transects within the Low Grade Stockpile footprint. In the Mine Haul Road footprint, given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU X0 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Low Grade Stockpile and Mine Haul Road mine footprints fell within ASU L12 and are described separately below.

Low Grade Stockpile: Terrain in the southern portion of L12 is generally flat throughout. As the area extends north the terrain becomes gently to moderately sloping and has a north – northeastern aspect. No significant hydrological features were observed. Ground disturbances as a result of previous logging were observed including several north/south trending skid trails. Archaeological potential is assessed as low due to the sloping and disturbed nature of the terrain as well as its lack of hydrological feature.

Mine Haul Road: Terrain in the eastern half is generally flat and undulating with a saturated meadow located on the easternmost end. The western half is gently sloping with a northwestern aspect. No significant hydrological features were observed. Ground disturbances as a result of previous logging and mining activities were noted including skid trails and mine access roads. Archaeological potential is assessed as low due to the sloping, hummocky, disturbed, and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

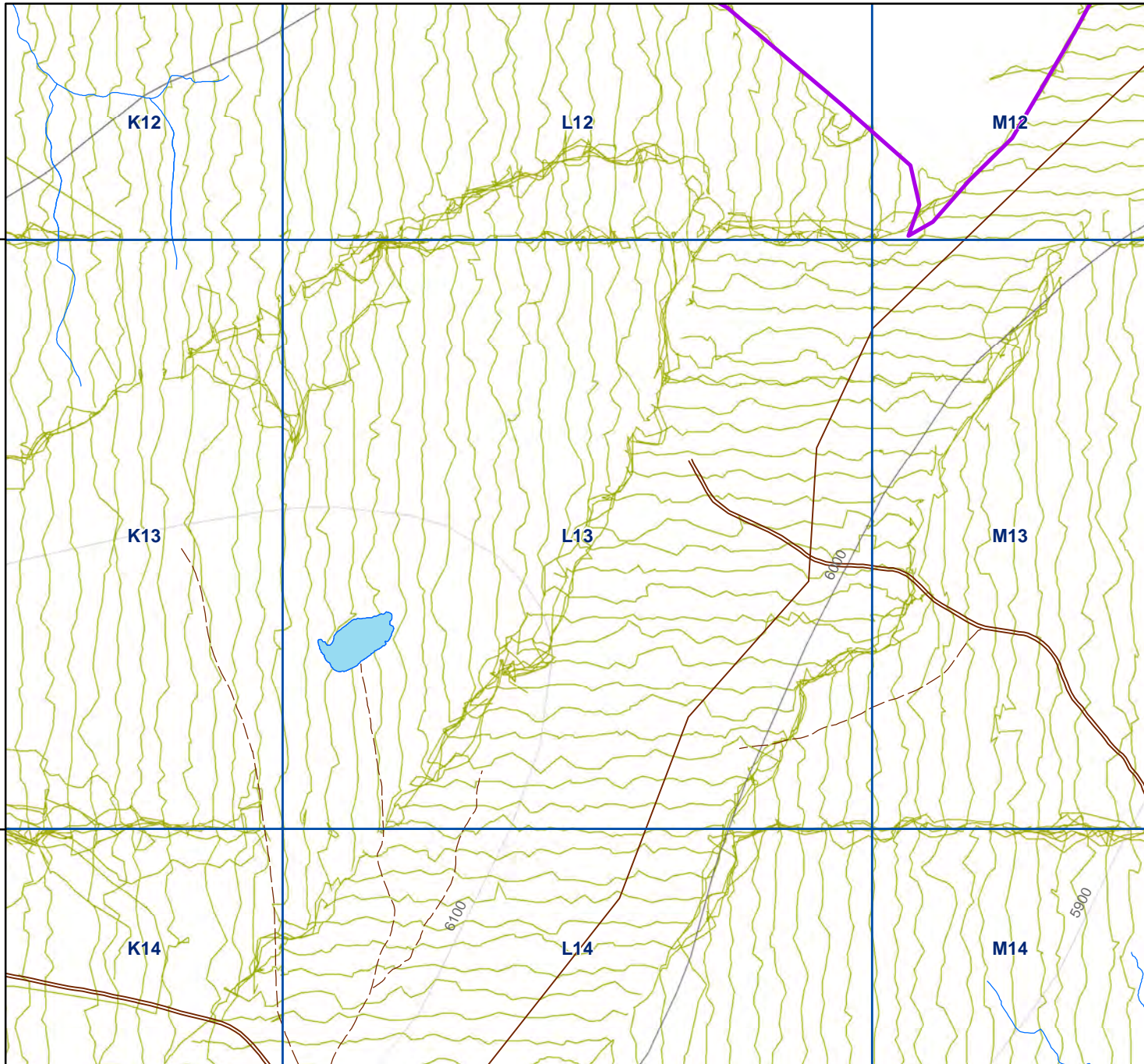
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

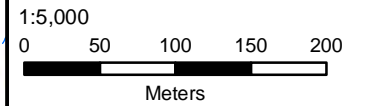
Historic Features Identified? No



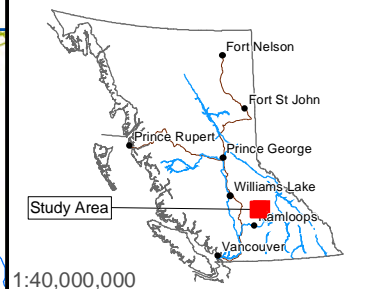
Survey Coverage of L13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

304500

305000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew S.Enns, L.Eustache (Simpco), T.Jaenson (Adams Lake), F.Jules (A.L.), M.Jules (Simpco), R.Kenoras (A.L.), J.Kirillo, L.McFadden, J.Meldrum (A.L.), R.Narcisse (A.L.), L.Pick, M.Saul (A.L.), A.Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sep.13 (Stock.), Oct.14/11 (T.Mgmt); Jul 24 (Stock.), Aug, 28 & Sep. 6, /12

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1820-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Low Grade Stockpile and Tailings Management mine footprints are within ASU L13 and are described separately below.

Low Grade Stockpile: Terrain throughout the northwest portion of L13 consists of a flat to gently sloping and undulating height of land with a slight northwestern aspect that has been heavily disturbed due to previous logging and mining activities. Ground disturbances noted include skid trails trending north-south, mine and forestry access roads, and large areas where the ground has been machine-scraped down to the bedrock. No significant hydrological features were observed; however, a small ephemeral marshy area was noted in the southwestern portion. Archaeological potential is assessed as low due to the heavily disturbed nature of the terrain and lack of significant hydrological features.

Tailings Management: Terrain throughout this portion of L13 is gently to moderately sloping with an east to southeastern aspect. No significant hydrological features were observed. The entire surveyed area falls within an old forestry cut-block and is therefore heavily disturbed due to previous logging activity. Archaeological potential is assessed as low due to the sloping, heavily disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

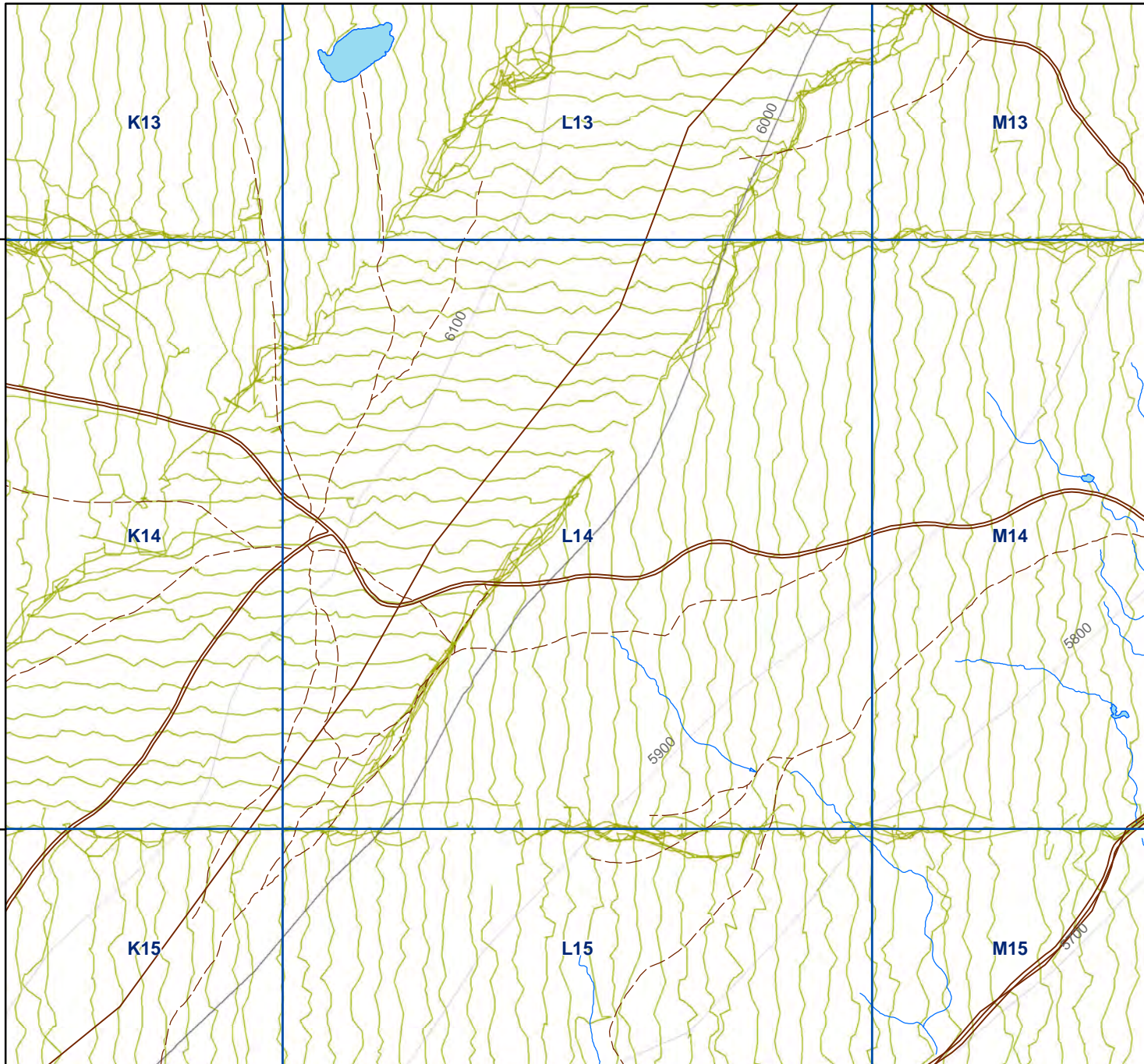
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

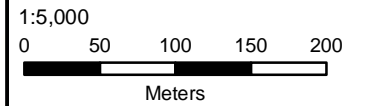
Historic Features Identified? No



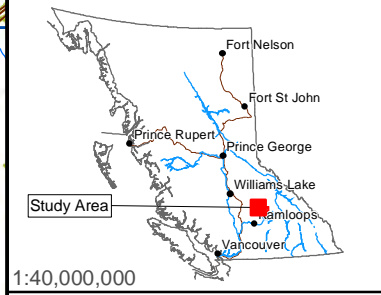
Survey Coverage of L14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Jessica Carson, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept. 13, 2011 (Stockpile); Oct. 18, 2011 (T. Mgmt); August 28, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1780-1850

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L14 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (i.e. two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Low Grade Stockpile and Tailings Management mine footprints are within ASU L14 and are described separately below.

Low Grade Stockpile: Terrain in this portion of L14 is flat throughout with no significant hydrological features identified. Ground disturbances as a result of previous logging activities were observed including numerous north-south trending skid trails. Archaeological potential is assessed as low due to the disturbed nature of the terrain and the lack of hydrological features.

Tailings Management: Terrain in the southeast portion of L14 is gently to moderately sloping with a south to south-southeastern aspect. Terrain throughout the southwest portion of L14 is moderately to steeply sloping with a southeastern aspect, this slope becomes moderate and undulating towards the northeast with the aspect alternating between southeastern and eastern. No significant hydrological features were identified. Ground disturbances, including skid trails and stumps, as a result of previous logging activities were observed. A main east-west mine access road cuts through the centre of the survey area. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

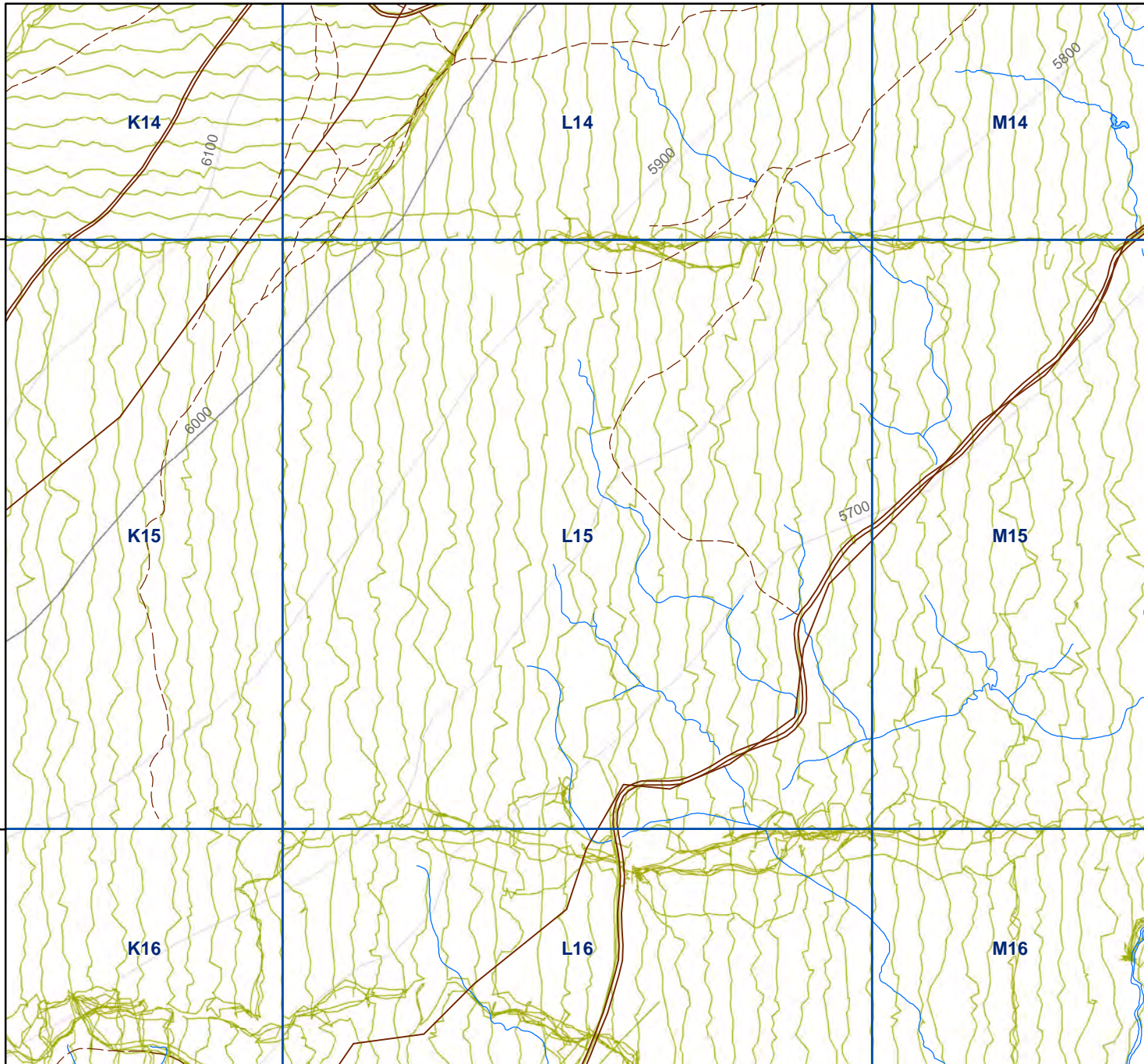
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

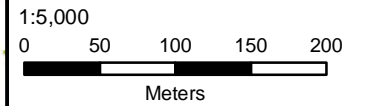
Historic Features Identified? No



Survey Coverage of L15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Jessica Carson, Shannon Enns, Tyler Jaenson (A.L.), Ryan Kenoras (A.L.), Lara McFadden, Joe Meldrum (A.L.), Reginald Narcisse (A.L.), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 21, 2011; August 24, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The western half of L15 was subject to assessment on October 21, 2011; however, due to winter conditions the survey was not completed until 2012. The terrain is undulating and moderately sloping with a southeastern aspect. The area is disturbed by previous logging activities as evidenced by the numerous skid trails present throughout L15.

Terrain in the eastern half of L15 is moderately to steeply sloping with a southeastern aspect. The ground is generally hummocky and poorly drained with small streams and seepages noted throughout. No well-defined landforms were identified in association with these hydrological features. Ground disturbances due to previous logging and mining activities were observed including skid trails, stumps, and old roads as well as the main mine access road (Road 5) which runs northeast-southwest through the southeastern quarter of the ASU.

Archaeological potential is assessed as low due to the sloping, poorly-drained and heavily disturbed nature of the terrain as well as the lack of significant hydrological featured.

Subsurface Description

Total Number of Subsurface Tests

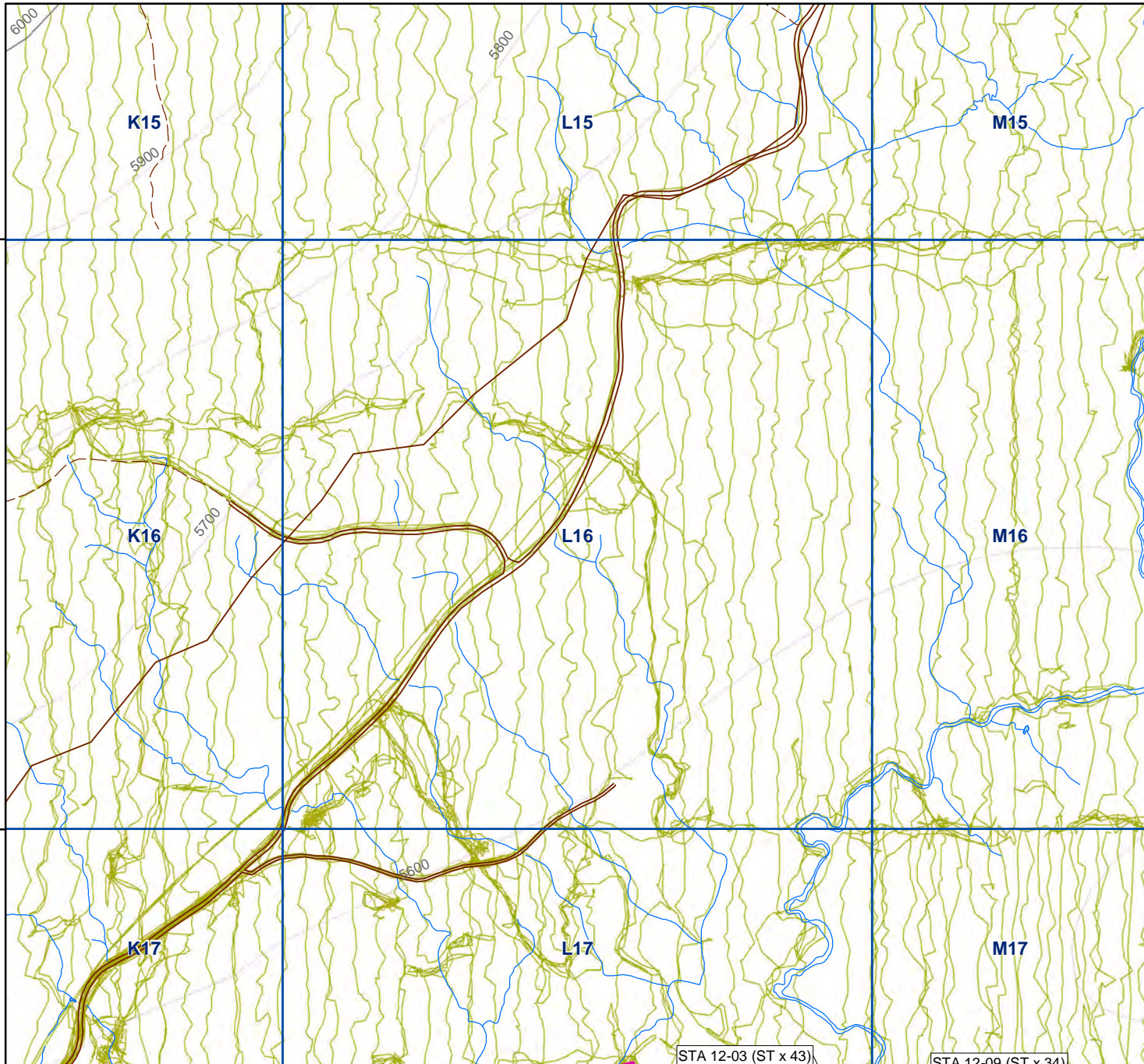
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

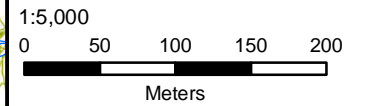
Historic Features Identified? No



Survey Coverage of L16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

STA 12-03 (ST x 43)

STA 12-09 (ST x 34)

304500

305000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Jordan Kirillo, Joe Meldrum (Adams Lake), Laura Pick, Alex Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 24, 2011; July 9-10, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1700-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L16 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southwestern quadrant of L16 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of L16 is described below. The remainder of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions the survey of this area was suspended in 2011 and completed in 2012.

Terrain in the southern two-thirds of the surveyed area is gently sloping with a southeastern aspect. The ground in this portion of L16 is gently undulating and poorly drained with small streams and seepage noted throughout. There are several low lying wetlands separated by small elongated knolls. The terrain in the northern third is moderately sloping with a southeastern aspect and fewer small streams noted. There were no well-defined landforms identified in association with any of the hydrological features observed within this ASU. The entire area falls within an old logging cut-block and is heavily disturbed due to previous logging activity. Also, the main mine access road (Road 5) cuts through the centre of the area, trending northeast-southwest, and an older access road runs east-west through the northwestern portion of the area. Archaeological potential is assessed as low due to the sloping, poorly drained, and heavily disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

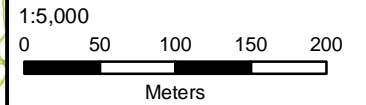
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of L17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

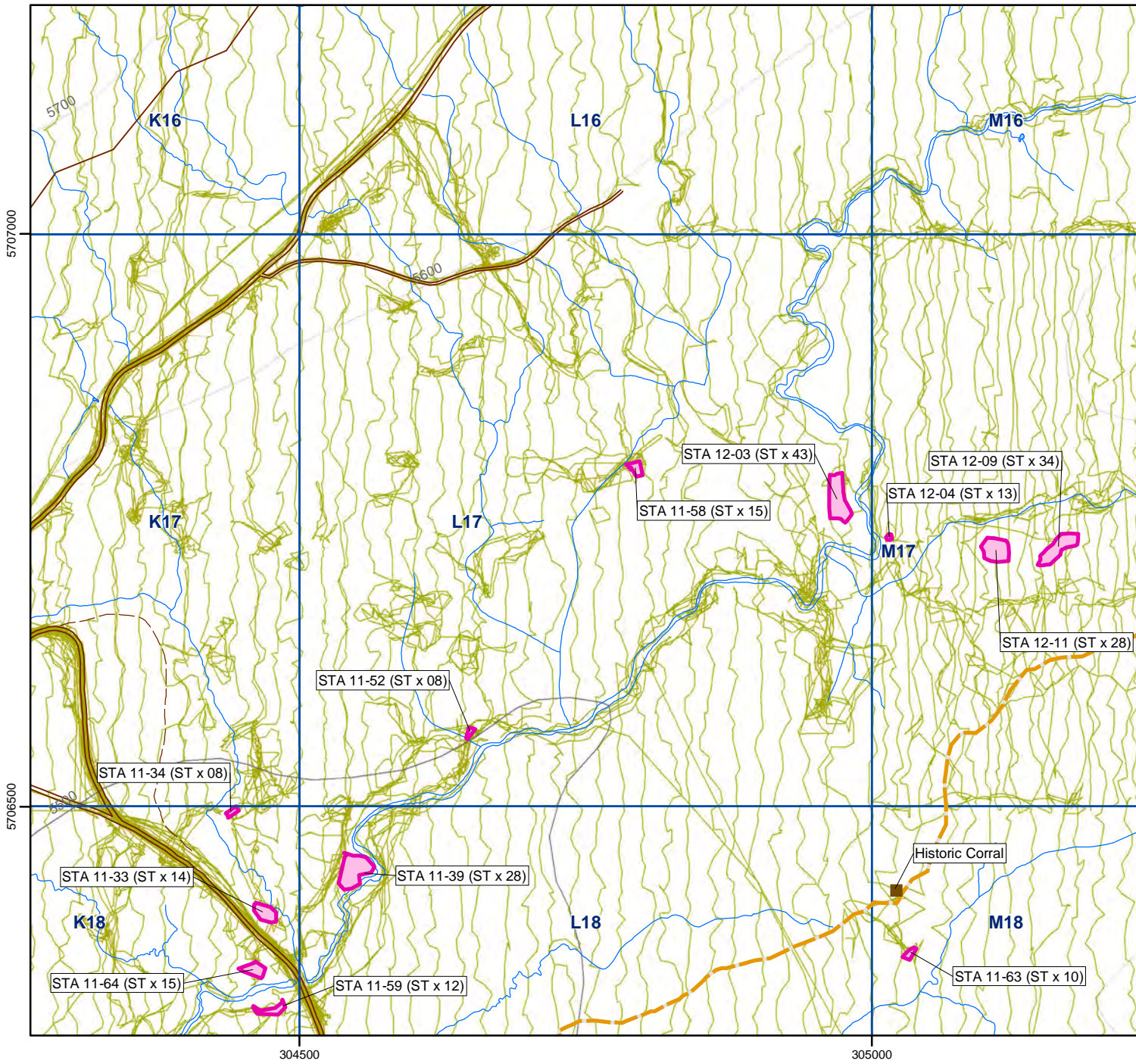


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Leonard Chrisjohn (AL), Lucas Eustache (Simpcw), Pam Eustache (S), Tyler Jaenson (AL), Murray Jules (S), Jordan Kirillo, Joe Meldrum (AL), Logan Michele (AL), Laura Pick , Alex Saul (AL)

Permit Holder Kevin Twhogig

Field Director(s) Shana Morin

Survey Date(s) August 16-17 and 24, 2011; June 27 and July 12, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5
Biogeo Zone ESSFwc2
Elevation (m) 1660-1700
Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU L17 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The majority of L17 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of L17 is described below. The remaining northeastern quarter of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was not completed in 2011. Crews returned to the area in June and July of 2012. A detailed terrain description is provided below.

A northeast-southwest trending creek flows through the southern half of L17. The majority of the surveyed terrain north of the creek is gently sloping with a southeastern aspect. This area is gently undulating and generally poorly-drained with well-defined knolls and ridges separated by gently sloping wet meadows as well as numerous ephemeral drainages flowing down slope to the creek. This entire portion of L17 has been heavily disturbed due to previous logging activities as evidenced by the areas of machine-pushed soils, cut stumps, and old skid trails. Two areas of archaeological potential were identified and subject to subsurface testing. These shovel test areas (STAs) are described below.

STA 11-58 consists of an east-west trending bench breaking otherwise gently sloping terrain with a southeastern aspect. It overlooks gently sloping wet meadows directly adjacent to and approximately 1 m below on the northern and southern sides of the area. The test area measures approximately 15 x 15 m. Fifteen subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 12-03 consists of a gently sloping to flat north-south orientated terrace with a southern aspect. The terrace is situated approximately 5 – 6 m above a roughly north-south trending well-defined creek approximately 10 – 20 m to the east. The test area measures approximately 15 x 40 m. Forty-three subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Terrain in the southwestern corner of L17 consists of a low-lying wetland area which extends north and south of the northeast-southwest trending creek. One area of archaeological potential was identified directly east of the wetland and north of the creek and was subject to subsurface testing. This STA is described below.

STA 11-52 consists of an east-west trending and gently sloping bench with a western aspect. The abovementioned creek is situated directly to the south of the test area and is approximately 2 m lower in elevation. The test area measures approximately 15 x 5 m. Eight subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Terrain in the southeastern corner of L17 directly adjacent to the creek is steeply sloping with northern and southern aspects. A poorly-defined, hummocky, high northeast-southwest trending ridge is situated south of the creek. This ridge separates the wetland in the southwestern corner of L17 from an area of poorly-drained, gently sloping and rolling terrain with a northwestern aspect in the southeastern-most corner of the ASU. The northern aspect of the ridge slopes moderately-to-steeply into the creek. Its western aspect slopes moderately into the southwestern wetland, and the ridge's southeastern aspect slopes gently into the southeastern-most corner of the ASU.

With the exception of the three STAs, archaeological potential is considered to be low within the areas assessed due to the sloping, poorly drained, and heavily disturbed nature of the terrain as well as the lack of well-defined landforms associated with the creek.

Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

STA 52: 0 - 2 cm depth below surface (dbs) = Littermat; 2 - 22 cm dbs = Dark brown loam; 22 - 26 cm dbs = Brown silty sand; 26 - 28 cm dbs = Boulders and bedrock at 28 cm.

STA 58: 0 - 2 cm dbs = Littermat; 2 - 27 cm dbs = Dark brown loam with approximately 10% pea gravel; 27 - 29 cm dbs = Light brown silty sand

Results

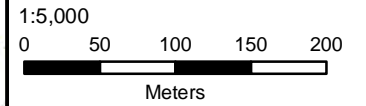
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of L18

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

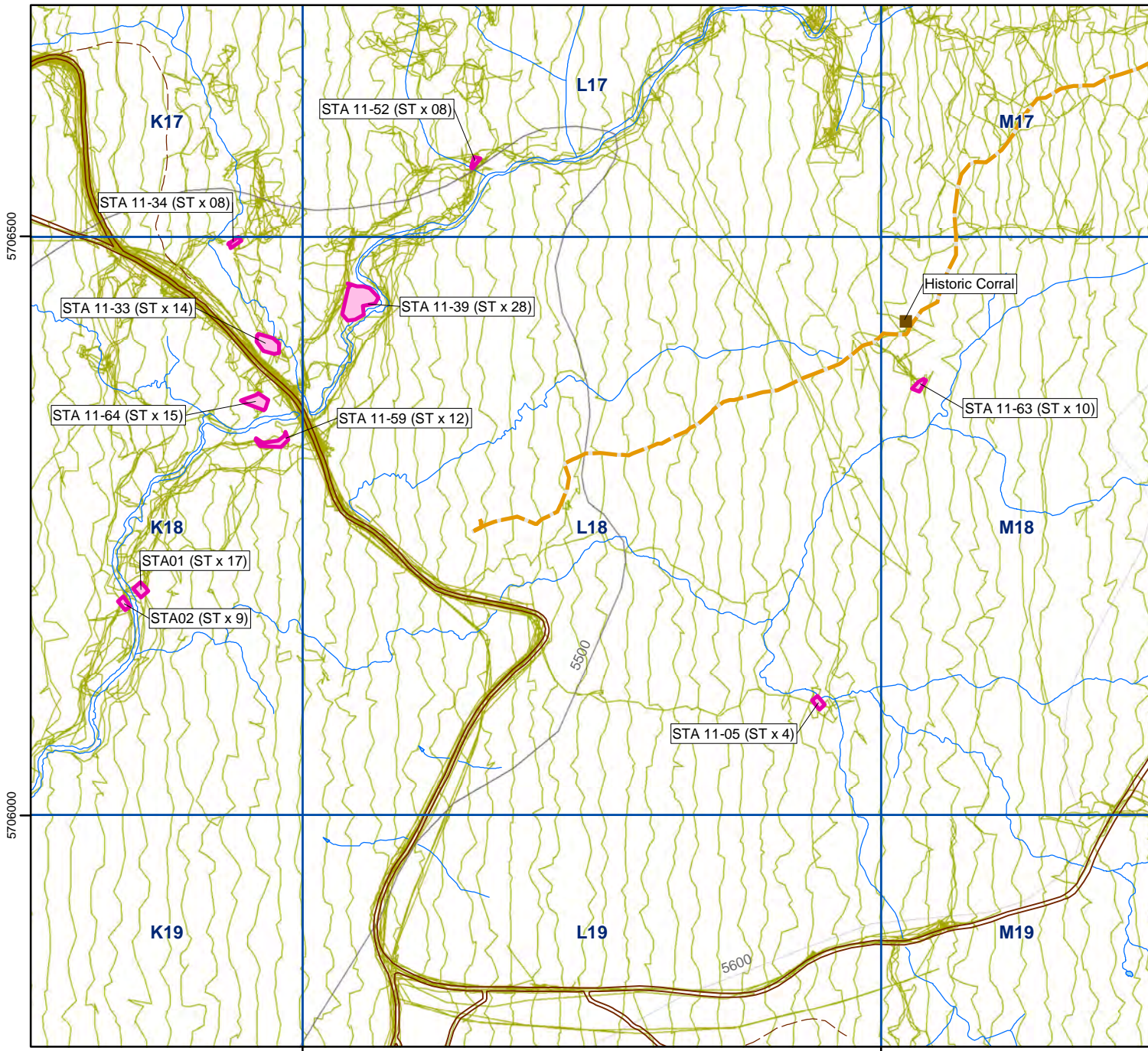
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Logan Michele (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 17-18, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1660-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field.

Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge.

Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU L18 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the southern two-thirds of L18 is gently to moderately sloping with southwestern to western aspects. The ground in this portion of L18 is poorly drained and gently undulating, creating poorly defined knolls and ridges separated by gently sloping wet meadows and a few intermittent streams. No well-defined or well-drained landforms were associated with these hydrological features except for Shovel Test Area (STA) 05. The northern third of L18 consists of very gently sloping terrain with a southwestern aspect. A creek runs through the northwestern corner of this portion of L18 trending northeast/southwest and is surrounded by low-lying poorly drained terrain with the exception of STA 39. In addition, a northeast-southwest trending, poorly defined and gently undulating ridge was noted near the centre of this area. The main mine access road (Road 5) runs through the western half of L18 trending northwest-southeast before turning to trend north/south near the centre of the ASU.

Two areas, STA 05 and STA 39, were assessed as having the potential for the presence of buried archaeological deposits and both were subject to subsurface testing. These areas are described in detail below.

STA 05 was identified during a Preliminary Field Reconnaissance (PFR) of the Tailings 04 Seismic Line footprint conducted on August 4, 2011. The location was subject to subsurface testing on August 23, 2011 prior to the commencement of the mine facilities footprint survey. Once the survey of the Tailings Management facility was confirmed to begin, it was determined that additional testing was required to adequately test the landform which took place on September 12, 2011. STA 05 consists of a small flat top knoll situated directly south of east-west trending stream. The test area measures approximately 15-20 x 12 m. Four subsurface tests were excavated in STA 05 along the 2 m wide seismic line footprint on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 39 consists of a flat, north-south trending bench located at the base of a gentle to moderate slope with a southwestern aspect. It is raised approximately 1 m above and overlooks the abovementioned creek directly to the east and a wetland area directly to the west. The test area measures approximately 30 x 25 m. Twenty-eight subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

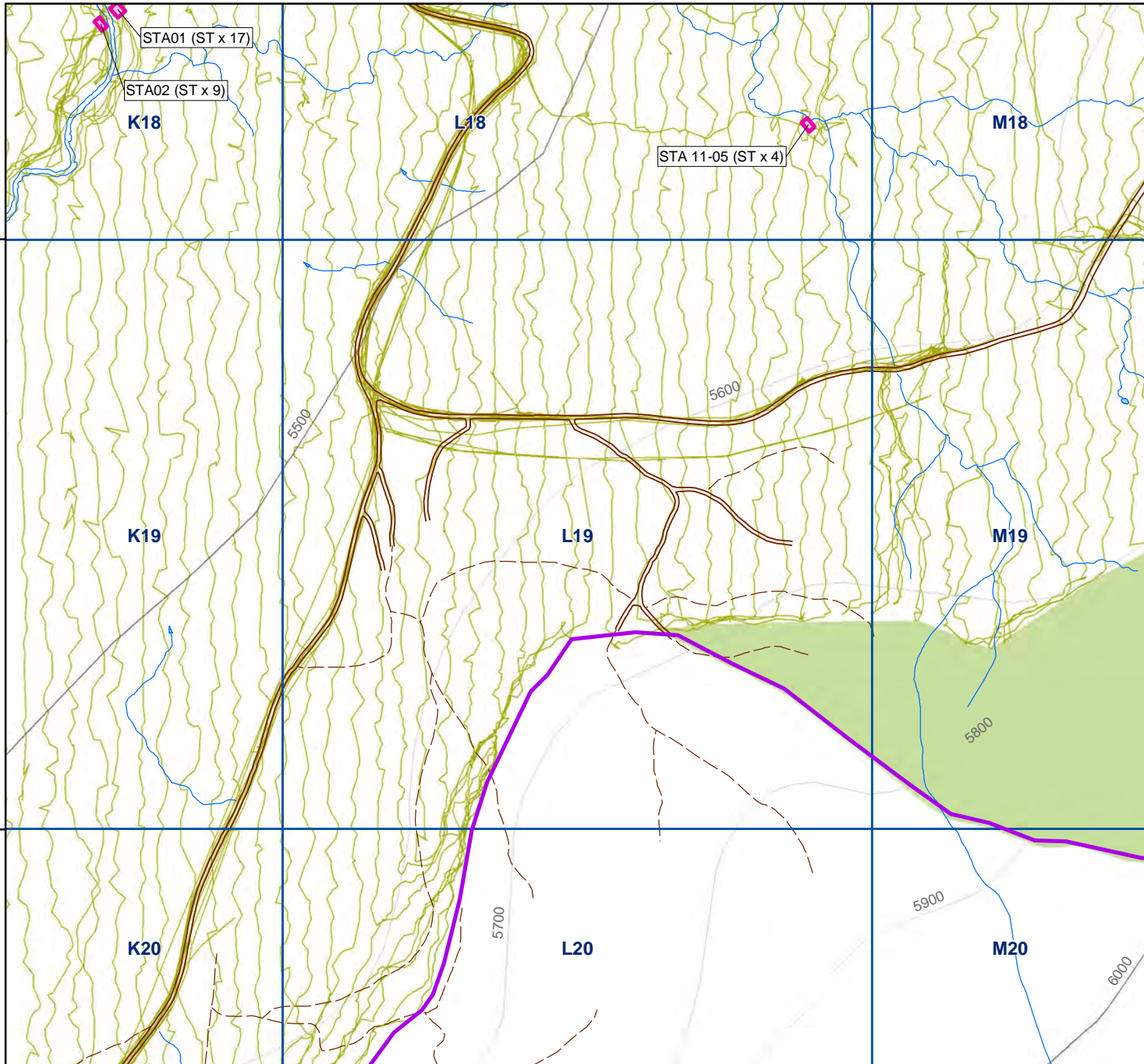
STA 05: 0 - 10 cm depth below surface (dbs) = Littermat and organic material; 10 - 23 cm dbs = Medium brown silty sand with approximately less than 3% pebbles; 25 cm+ dbs = Grey, saturated, sandy silt with no pebble content.

STA 39: 0 - 8 cm dbs = Littermat; 8 - 28 cm dbs = Moderately compact, reddish-brown silty fine-grained sand with approximately 45% sub-angular

Results

No protected archaeological resources were identified within the areas surveyed.

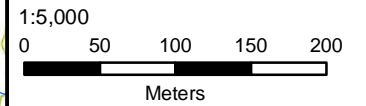
Historic Features Identified? Trail



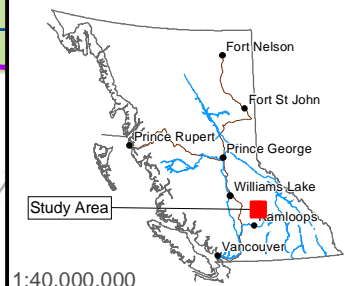
Survey Coverage of L19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Logan Michele (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) August 17-18, 2011; September 18, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1670-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L19 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The majority of L19 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of L19 is described below. The southeastern corner of the survey area, on the other hand, was subject to assessment as part of the Embankment facility footprint; however, due to the onset of winter conditions, the survey of this area was not completed in 2011. Crews returned to complete this portion of the assessment in 2012 at which time it was determined that the terrain is unsafe for pedestrian survey.

The two main access roads for the mine intersect in the northwestern quadrant of L19: Road 5 trends northeast-southwest and an unnamed road trends east-west. To the south of the main access roads, terrain is moderately sloping with a northwestern aspect. The ground in this area is gently undulating and poorly drained with small streams and saturated areas throughout. Terrain north of the main access road is moderately to gently sloping with a northwestern aspect. The ground in this area is undulating, creating poorly defined knolls and ridges with small streams and seepages in the low-lying areas of the undulations. The slope becomes the most gentle near the northern boundary where terrain is dominated by wetland areas. The entire southern portion of L19, as well as a small portion north of the access road on the eastern edge, has been heavily disturbed due to previous logging activities. These ground disturbances include skid trails, stumps, and old roads. Archaeological potential is assessed as low due to the sloping, undulating, and poorly drained nature of the terrain as well as the high level of disturbance observed in the southern half of the ASU.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

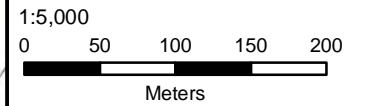
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

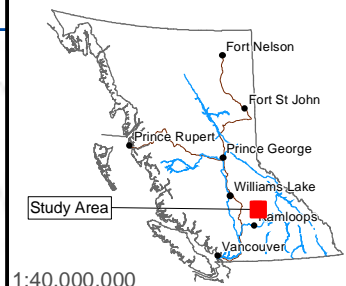
Survey Coverage of L20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

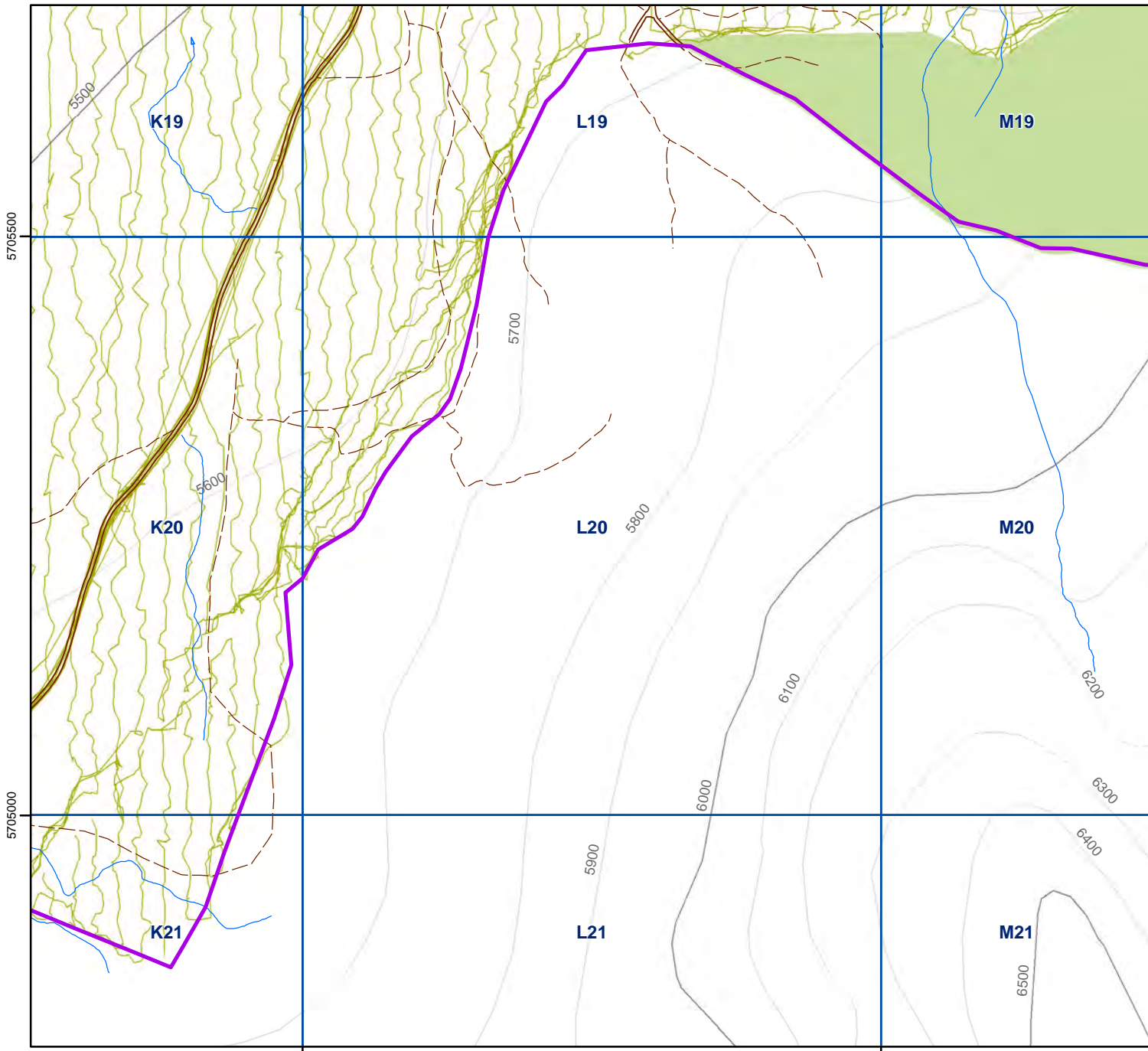


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Logan Michele (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 18, 2011; September 18, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1700-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU L20, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU L20 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in L20 is moderately to steeply sloping with a northwestern aspect. The ground is generally hummocky and poorly drained with very small streams and seepages throughout. However, no significant hydrological features were noted. The surveyed area of L20 falls within an old cut-block and has been impacted by previous logging activity. Skid trails, stumps, and the general hummocky nature of the ground were noted as evidence of this ground disturbance. Archaeological potential was assessed as low due to the sloping, hummocky, and poorly drained nature of the terrain as well as the extensive ground disturbance.

Subsurface Description

Total Number of Subsurface Tests

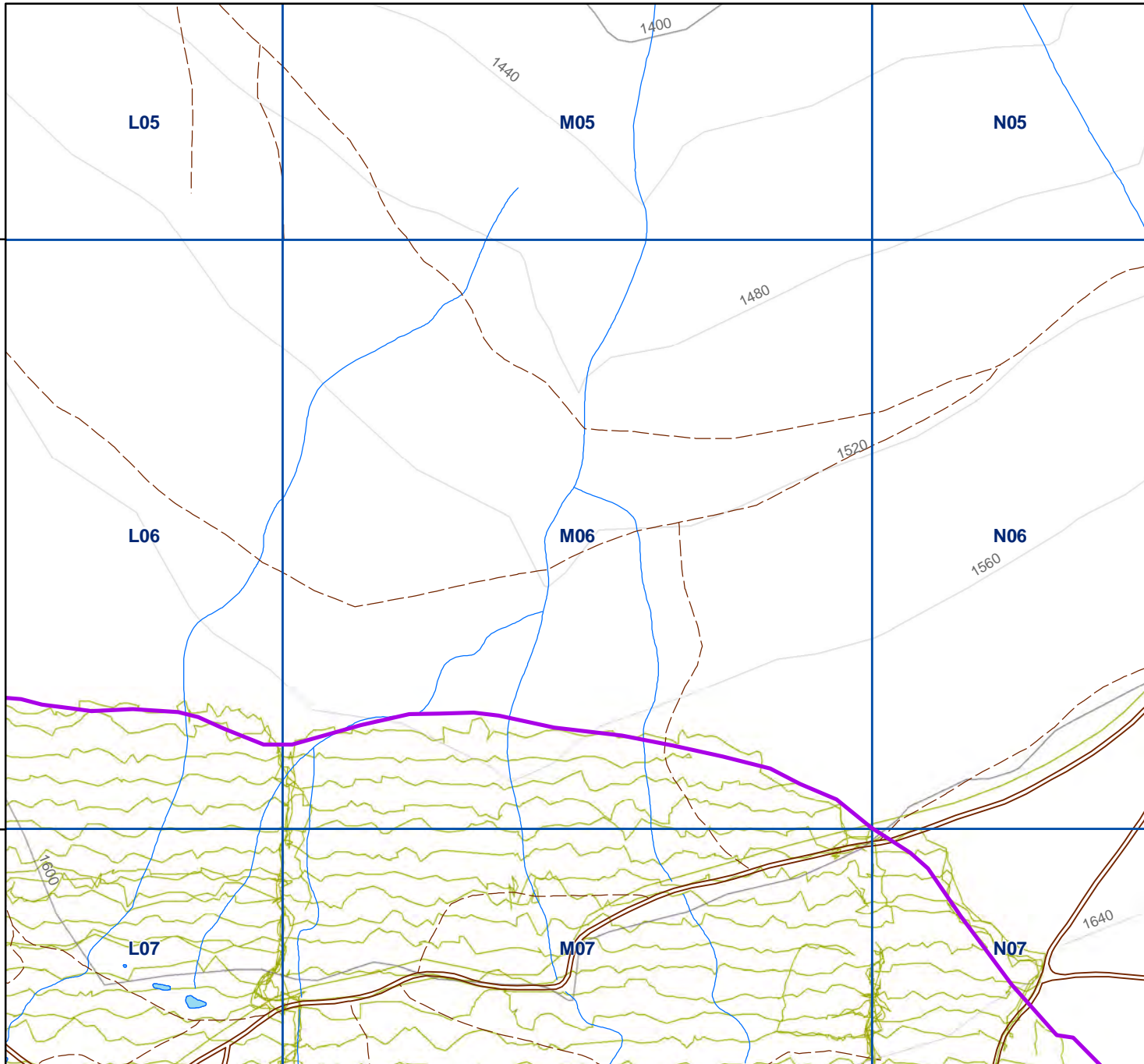
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

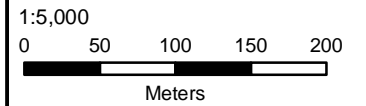
Historic Features Identified? No



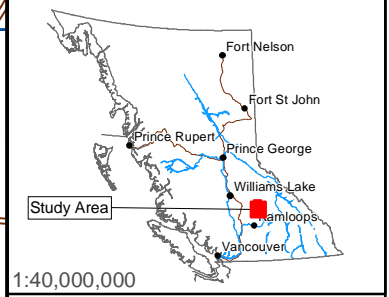
Survey Coverage of M06

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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Harper Creek Mine Project**HCA Permit** 2011-0209**Field Crew** Shannon Enns, Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake)**Permit Holder** Kevin Twohig**Field Director(s)** Kim Statham**Survey Date(s)** September 21, 2011**Crew Chief(s)** Meghan McGill**PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No****NTS Map** 82M/5**Biogeo Zone** ESSFwc2**Elevation (m)** 1460-1580**Area (ha)** 25**Survey Methodology**

Based on surface visibility and the archaeological site potential of ASU M06, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M06 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in M06 is moderately sloping with a northern aspect, and is poorly drained in areas. A deep northwest/southeast trending gully and stream running through the centre of the ASU was the only hydrological feature observed. Two additional mapped drainages are located on the western boundary and in the eastern half, but were not discernible to the field crew. There were no prominent landforms noted in association with this gully. Ground disturbances as a result of previous logging and mining activities were observed including skid trails and old access roads. Archaeological potential is assessed as low due to the sloping and poorly drained nature of the terrain as well as the lack of prominent landforms associated with the gully identified in the centre of the ASU.

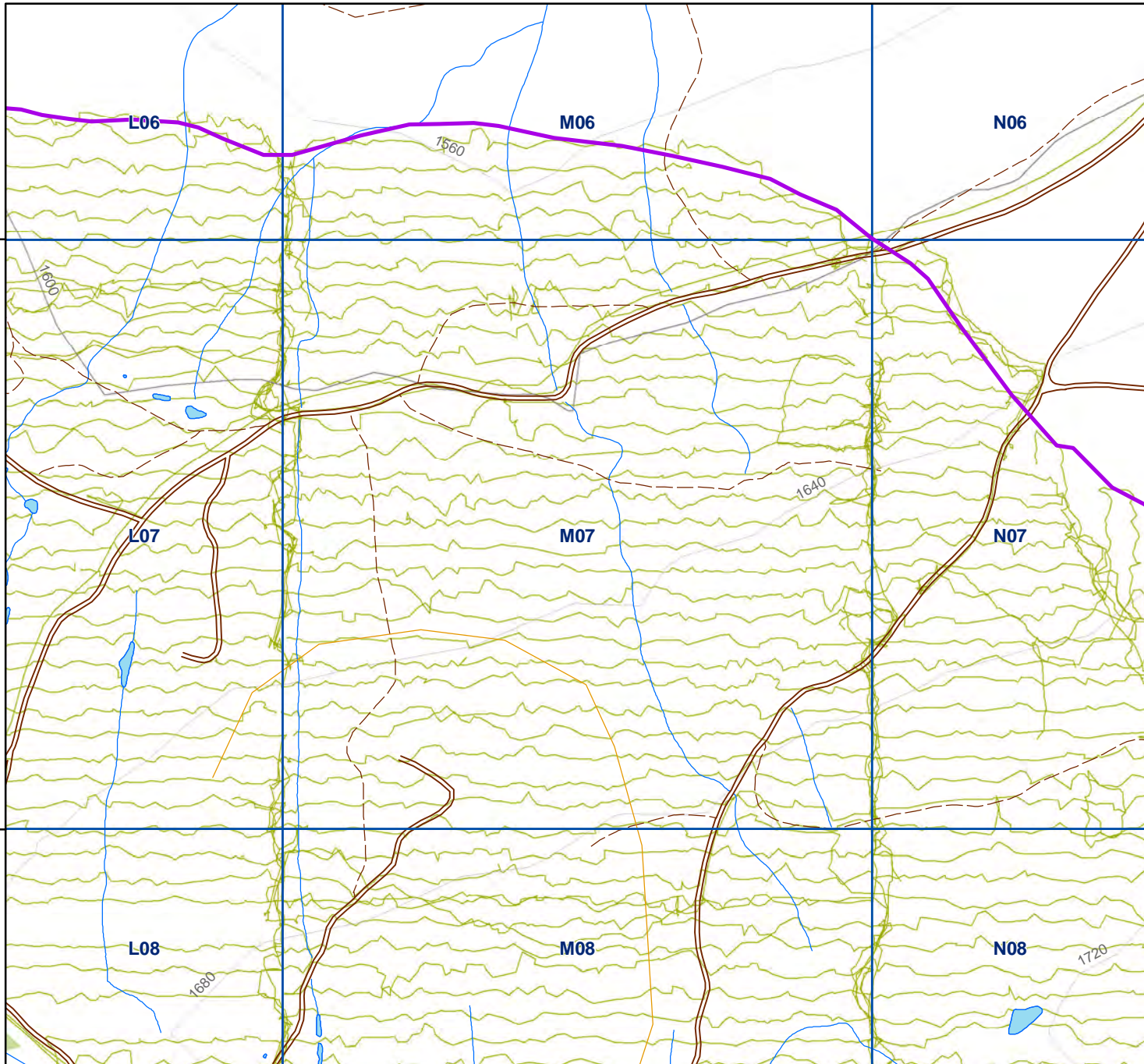
Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

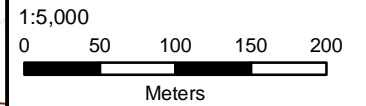
Historic Features Identified? No



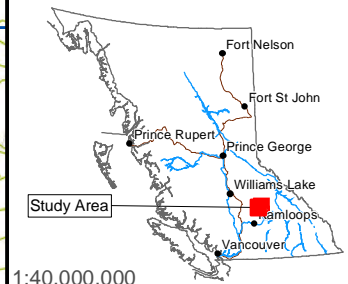
Survey Coverage of M07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Ryan Kenoras (Adams Lake), Lara McFadden, Martin Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 19-21, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1580-1680

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M07 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout M07 is moderately sloping with northern to northwestern aspects. There is one major gully and associated stream flowing down to the north which runs through the centre of the polygon but no other significant hydrology. Ground disturbances as a result of previous logging and mining activities were observed including skid trails and access roads. In addition, there are two deep man-made trenches trending north/south located on the western edge of the northwestern quadrant and in the eastern edge of the northeastern quadrant. Two mapped drainages are located in the north and southeastern quadrants, but were not discernible to the field crew. Archaeological potential is assessed as low due to the sloping and disturbed nature of the terrain as well as the lack of prominent landforms associated with the gully observed in the centre of the ASU.

Subsurface Description

Total Number of Subsurface Tests

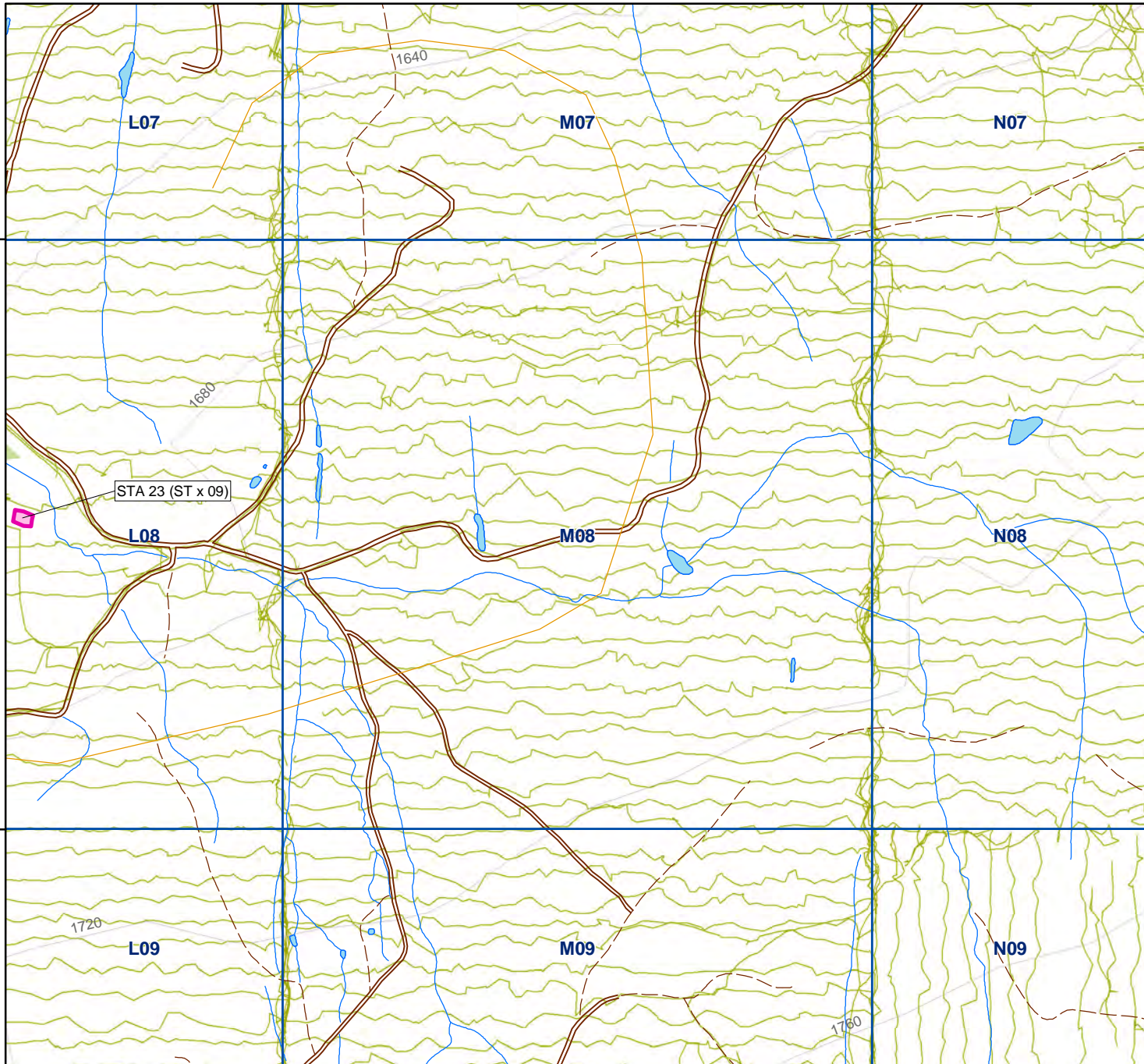
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

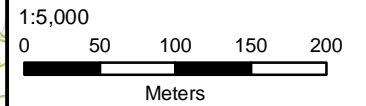
Historic Features Identified? No



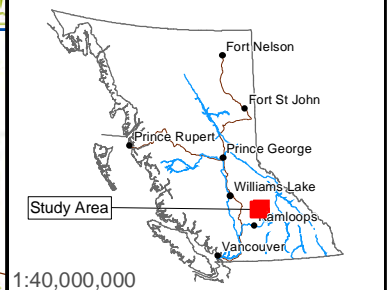
Survey Coverage of M08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Jordan Kirillo, Lara McFadden, Martin Saul (Adams Lake)

Permit Holder Kevin Twhig

Field Director(s) Kim Statham

Survey Date(s) September 15 and 19, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1680-1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M08 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain throughout M08 is gently to moderately sloping with a northwestern aspect except in the northeastern corner where the aspect is northern and in the southwestern corner where the aspect is western. Three small water bodies are shown in the attached map in the centre of the ASU; however, these were observed by the field crew as gently sloping to flat wet meadows which break the general northwestern slope of the polygon. No other significant hydrological features were identified. Ground disturbances as a result of previous logging and mining activities were observed including skid trails, drill pads, and access roads. In addition, two man-made trenches were noted, both trending north/south, and located along the eastern and western edges of the ASU. Archaeological potential is assessed as low due to the sloping and heavily disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

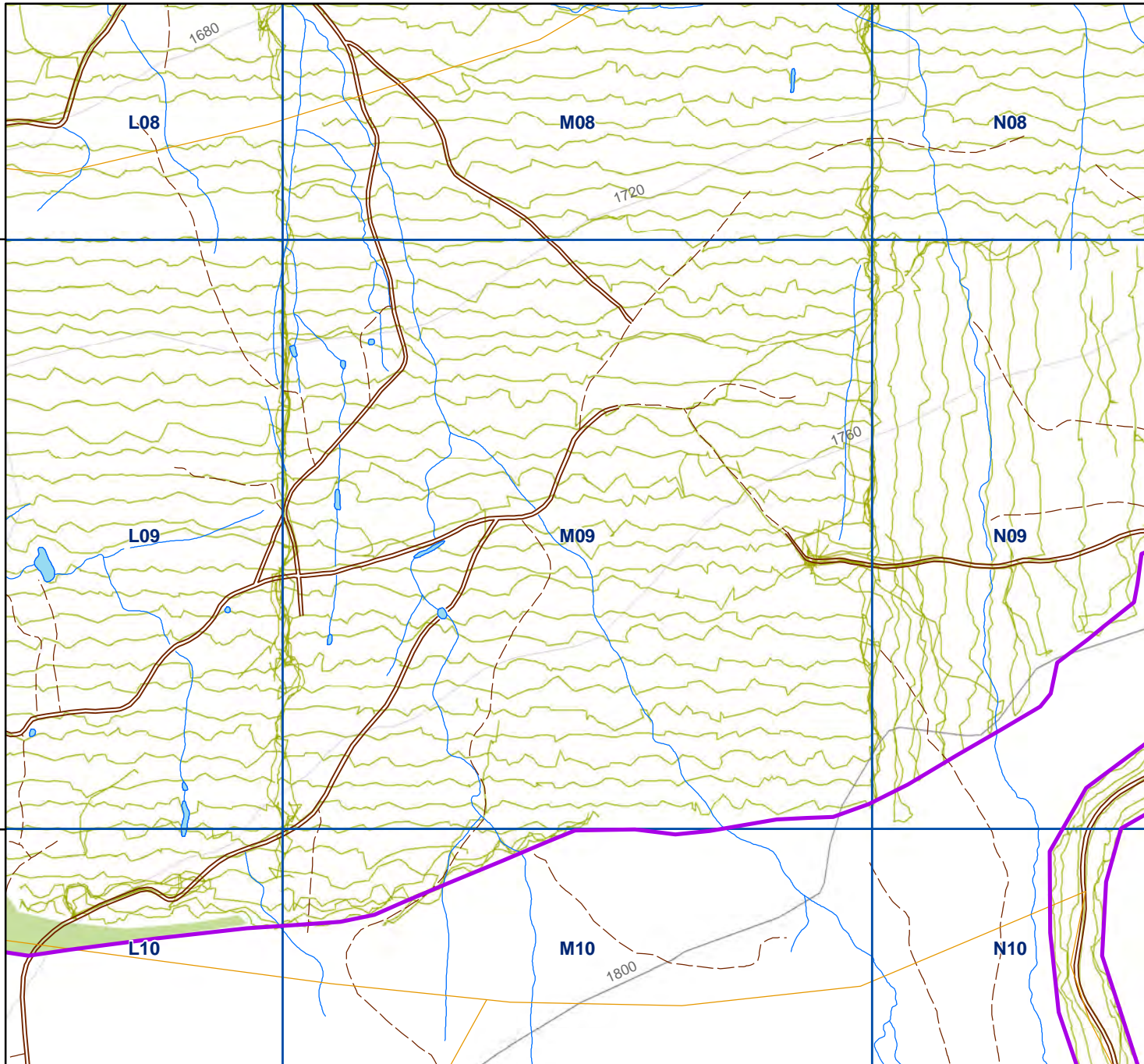
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

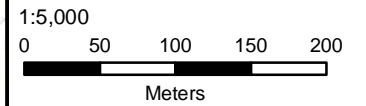
Historic Features Identified? No



Survey Coverage of M09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Jordan Kirillo

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 15, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1720-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M09 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in M09 is gently to moderately sloping with a northwestern aspect. The ground is generally hummocky and poorly drained to fully saturated in areas. One small creek was noted, trending north/south, in the central western portion of the ASU. Additional mapped drainages and small water bodies are located along the northwestern edge and in south central portion of the survey area; however, they were not discernible to the field crew and no other significant hydrological features were observed. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails, reclaimed roads, small man-made trenches, and drill pads were noted; as well as the main mine access road which runs through the centre of the ASU trending east/west before turning to trend northeast/southwest through the southwestern quadrant. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

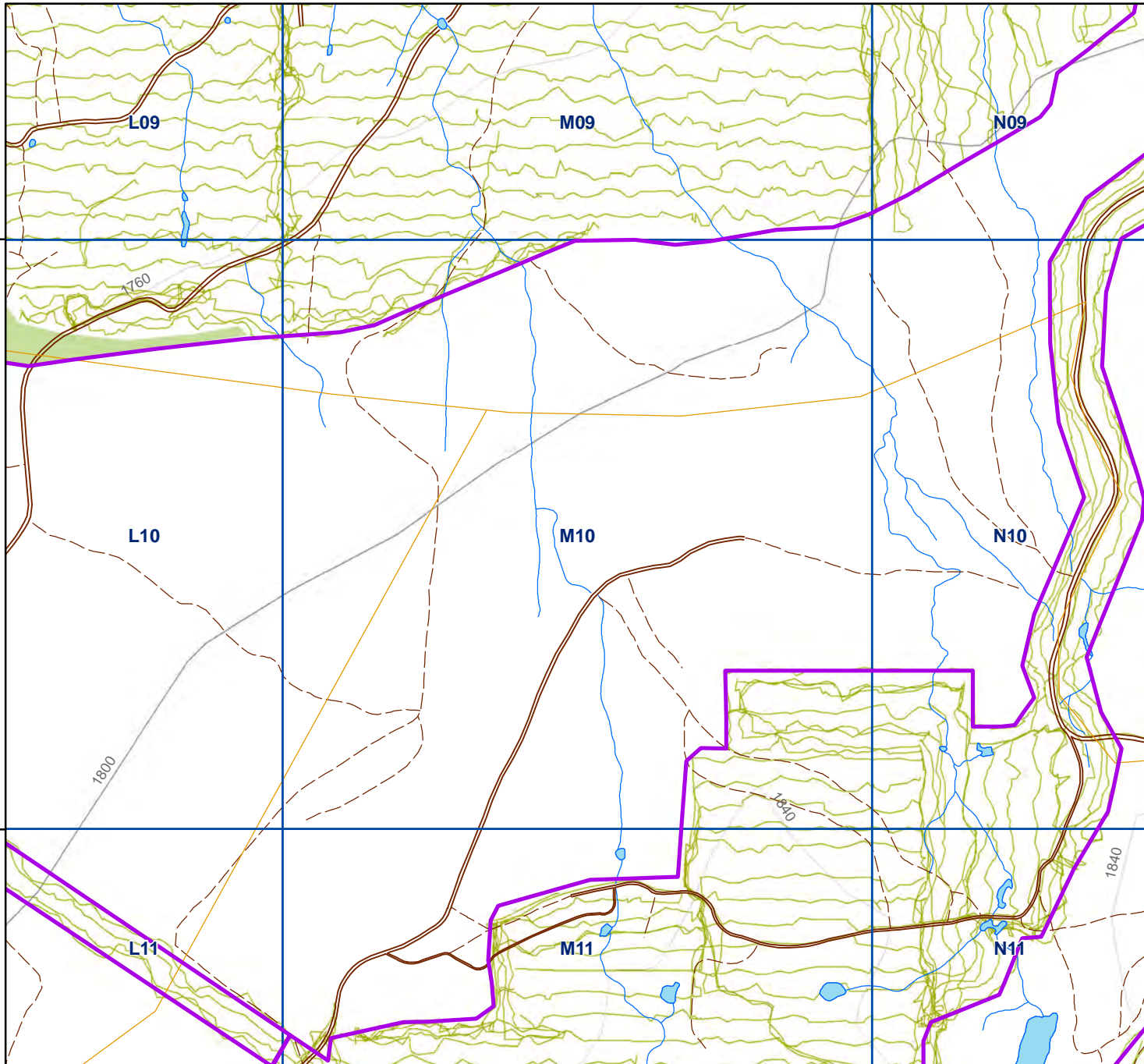
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

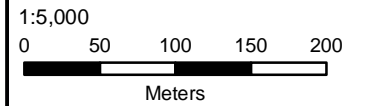
Historic Features Identified? No



Survey Coverage of M10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

5710500

5710000

305000

305500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Lucas Eustache (Simpco), Fern Jules (AL), Murray Jules (S), Ryan Kenoras (AL), Jordan Kirillo, Reginald Narcisse (AL), L.Pick, Martin Saul (AL), A.Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sept 15 (Pit), Oct 16 (Plnt), 2011; Aug 2 (Plnt), Sept 11 (Pit), 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1760-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M10, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M10 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Open Pit and Plant Site mine footprints are within ASU M10 and are described separately below.

Open Pit: The terrain in this section of M10 is gently to moderately sloping with a north to northwestern aspect. There were no significant hydrological features observed. Two mapped drainages are located in the eastern corner of the surveyed area, but were not discernible to the field crew. Ground disturbances due to previous logging and mining, such as skid trails and recently deactivated mining roads and drills pads, were also noted. Archaeological potential is assessed as low due to the sloping and heavily disturbed nature of the terrain as well as the lack of hydrological features.

Plant Site: The terrain in this section of M10 is gently sloping with north-northeastern and eastern aspects. There were no significant hydrological features observed. Ground disturbances due to previous logging were observed in the form of several north-south trending skid trails. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

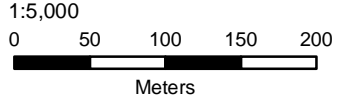
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

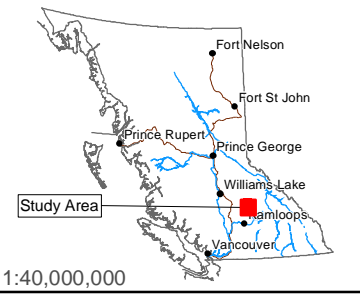
Survey Coverage of M11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

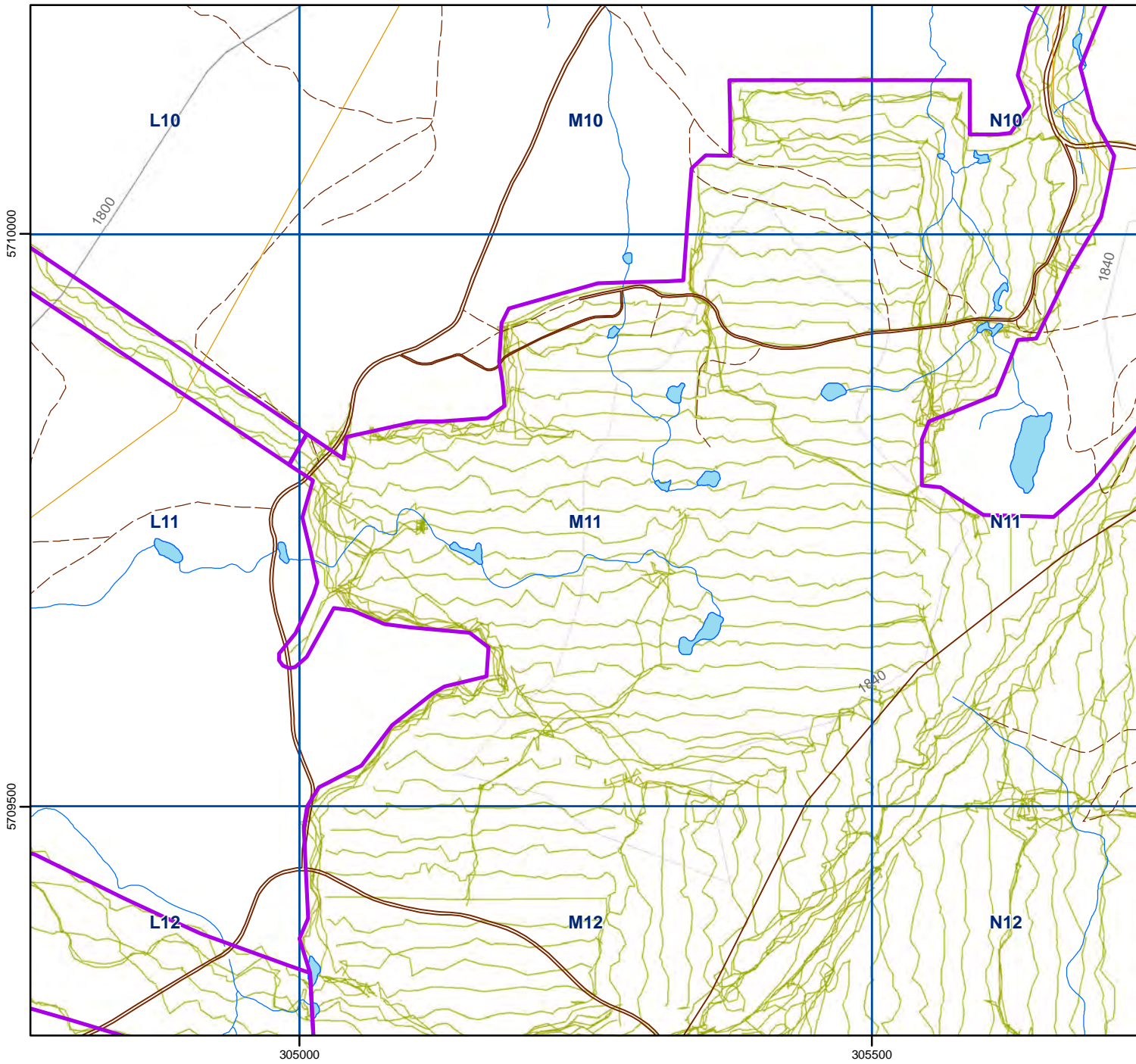
NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Tyler Jaenson (AL), Fern Jules (AL), Murray Jules (Simpco), Ryan Kenoras (AL), Laura Pick, Martin Saul (AL), Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 5-6, 2011; September 10, 2012; September 14, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1820-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M11, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M11 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Sections of both the Conveyor and Plant Site mine footprints fell within ASU M11. Both areas subject to survey exhibit similar terrain features, consisting of a large flat hilltop dominating the eastern half of the ASU and creating sloping terrain in the western half with eastern, northeastern, western, and southwestern aspects. Two flat, wet meadows were observed on the eastern and western edges of the area. However, no significant hydrological features were identified. Several mapped water bodies and associated drainages are located throughout the survey area; however, these were not discernible to the field crew except as areas of poorly drained terrain. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails, stumps, drill pads, and newly-constructed mine access roads were noted. In addition, the main east-west mine access road transects the northern half of the ASU, meeting a second northeast-southwest trending access road in the northwestern quarter.

Archaeological potential is assessed as low due to the sloping and disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

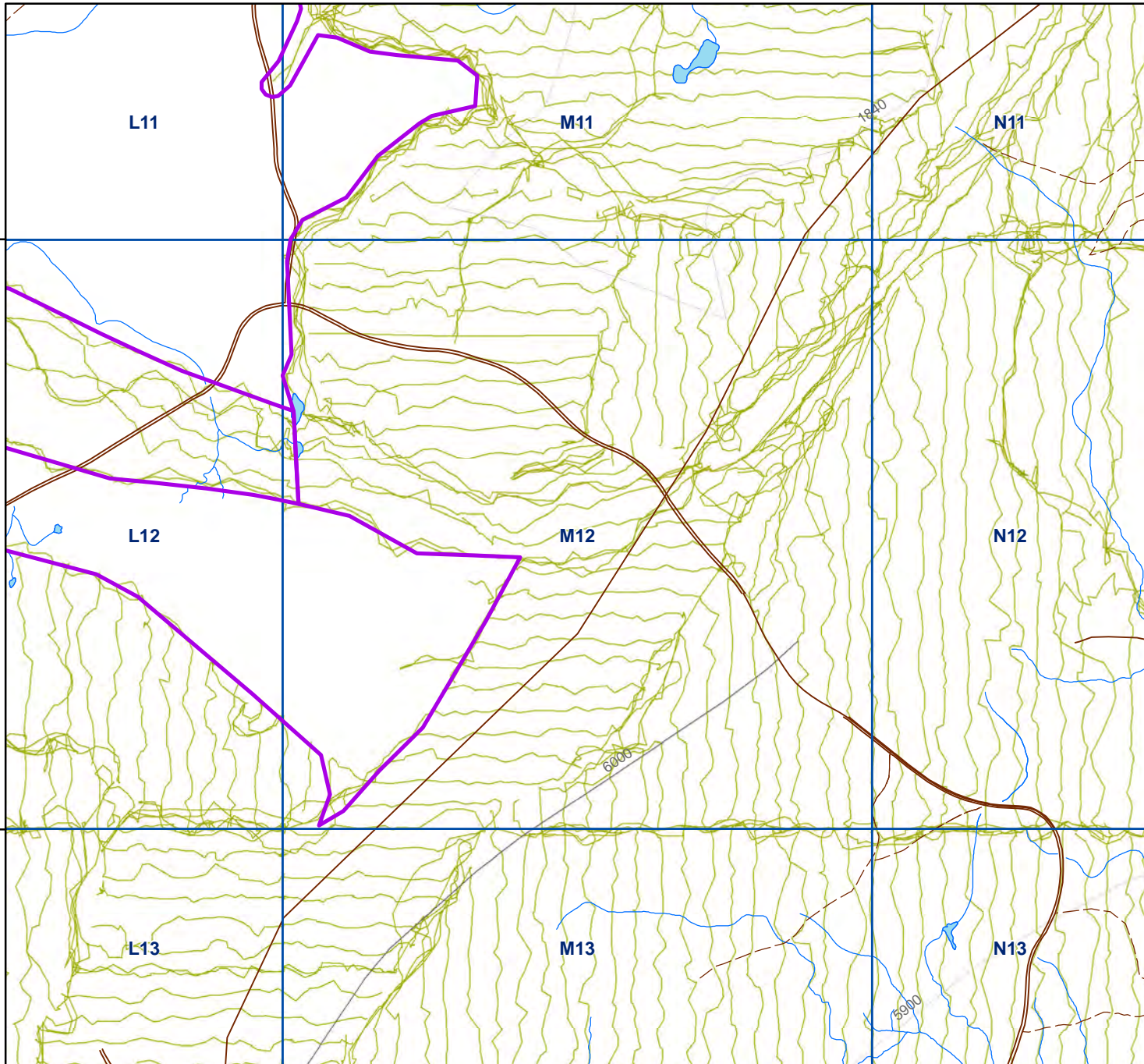
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

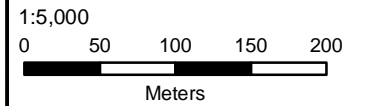
Historic Features Identified? No



Survey Coverage of M12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake) Mary Arnouse (AL), Lucas Eustache (Simpco), Fern Jules (AL), Murray Jules (Simpco), Ryan Kenoras (AL), Jordan Kirillo, Reginald Narcisse (AL), Laura Pick

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Oct 11 (Road) & 13 (T.Mgmt.), 2011; Jul 24, and Sept 6, 10, 14, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5,82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1820-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M12, crew members were spaced at approximately 20 m intervals along survey transects within the Tailings Management and Plant Site mine footprint. In the Mine Haul Road footprint, given the narrow span of the proposed footprint, crew members were spaced at approximately 2 – 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M12 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Mine Haul Road: The terrain in this section of M12 is gently sloping with a south-southwestern aspect. A few very small streams and seepages as well as a wet meadow at the western end of the area were noted. However, no significant hydrological features were observed. Ground disturbances as a result of previous logging and mining activities were also observed. Skid trails and large sections of machine-altered ground were identified. Archaeological potential is assessed as low due to the sloping and heavily disturbed nature of the terrain as well as the lack of significant hydrological features.

Tailings Management: The terrain in this section of M12 is gently to moderately sloping with a southeastern aspect in the eastern portions and a southern aspect in the southern portions. The ground is hummocky with a wet meadow, mapped as two connected water bodies, and located along the northwestern edge of the ASU. A few very small streams and seepages were noted but no significant hydrological features were identified. The surveyed area falls within an old forestry cut-block and is heavily disturbed throughout due to previous logging activity. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well the lack of significant hydrological features.

A main northwest-southeast trending mine access road transects the centre of the ASU, impacting both areas of survey.

Subsurface Description

Total Number of Subsurface Tests

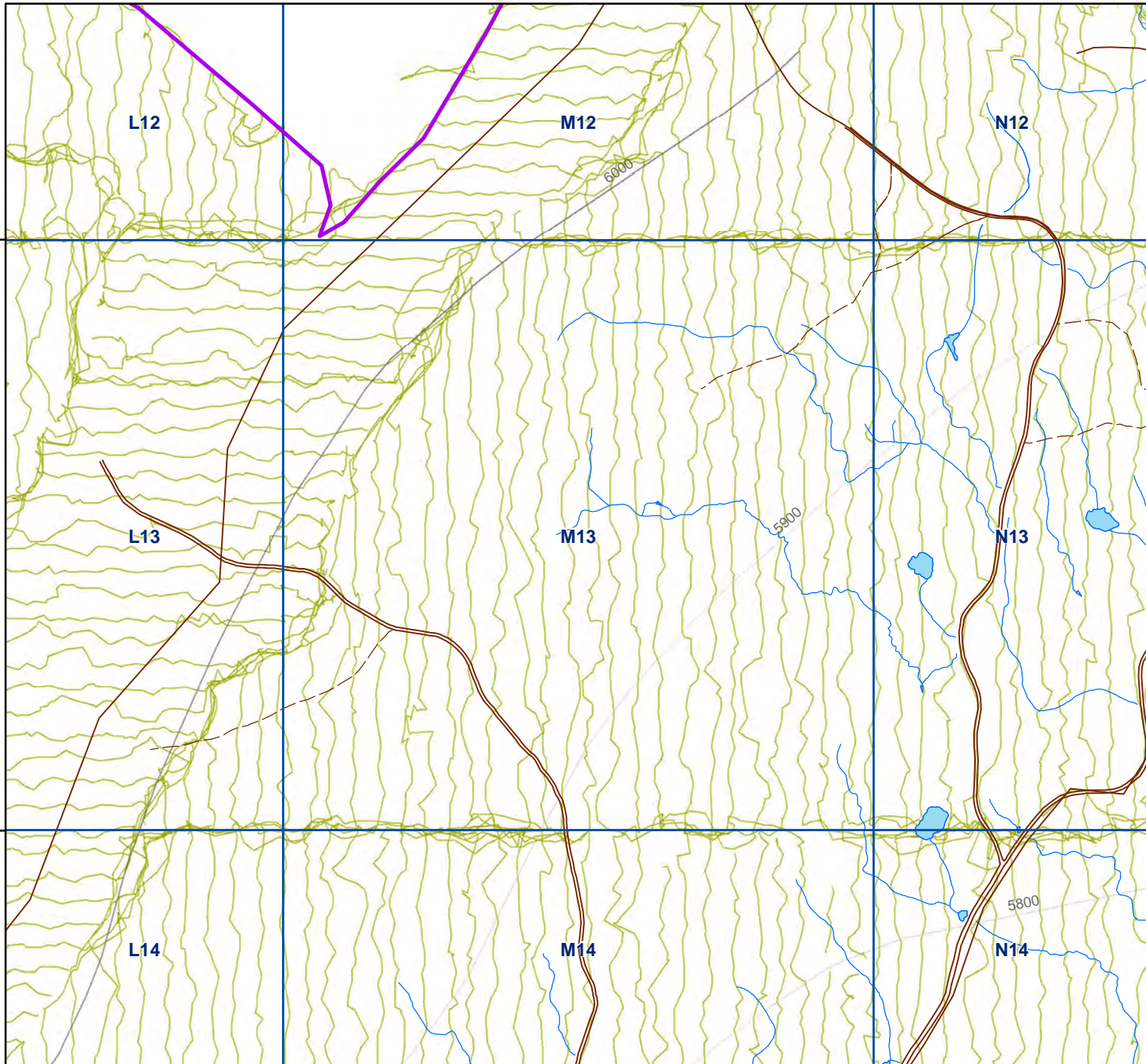
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

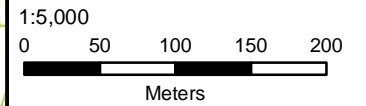
Historic Features Identified? No



Survey Coverage of M13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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5709000

5708500

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Fern Jules (AL), Murray Jules (Simpchw), Ryan Kenoras (AL), Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 13-14, 2011; August 28, 2012; September 6, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone 82M/5

Elevation (m) 1770-1830

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M13 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northwestern corner of M13 is undulating and moderately to steeply sloping with a southeastern aspect. Terrain becomes more gently sloping with an eastern aspect in the centre of the northwestern portion of M13. Terrain throughout the rest of M13 is gently sloping with a northern aspect. The ground is hummocky and generally poorly-drained with a few small streams and seepages noted throughout. However, no significant hydrological features were observed. Mapped drainages are located throughout the eastern half of the surveyed area, but were not discernible to the field crew except as sections of poorly drained terrain. Ground disturbances due to previous logging and mining were also observed including numerous skid trails. Archaeological potential is assessed as low due to the sloping, hummocky, and poorly drained nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

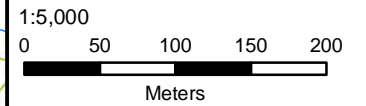
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of M14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

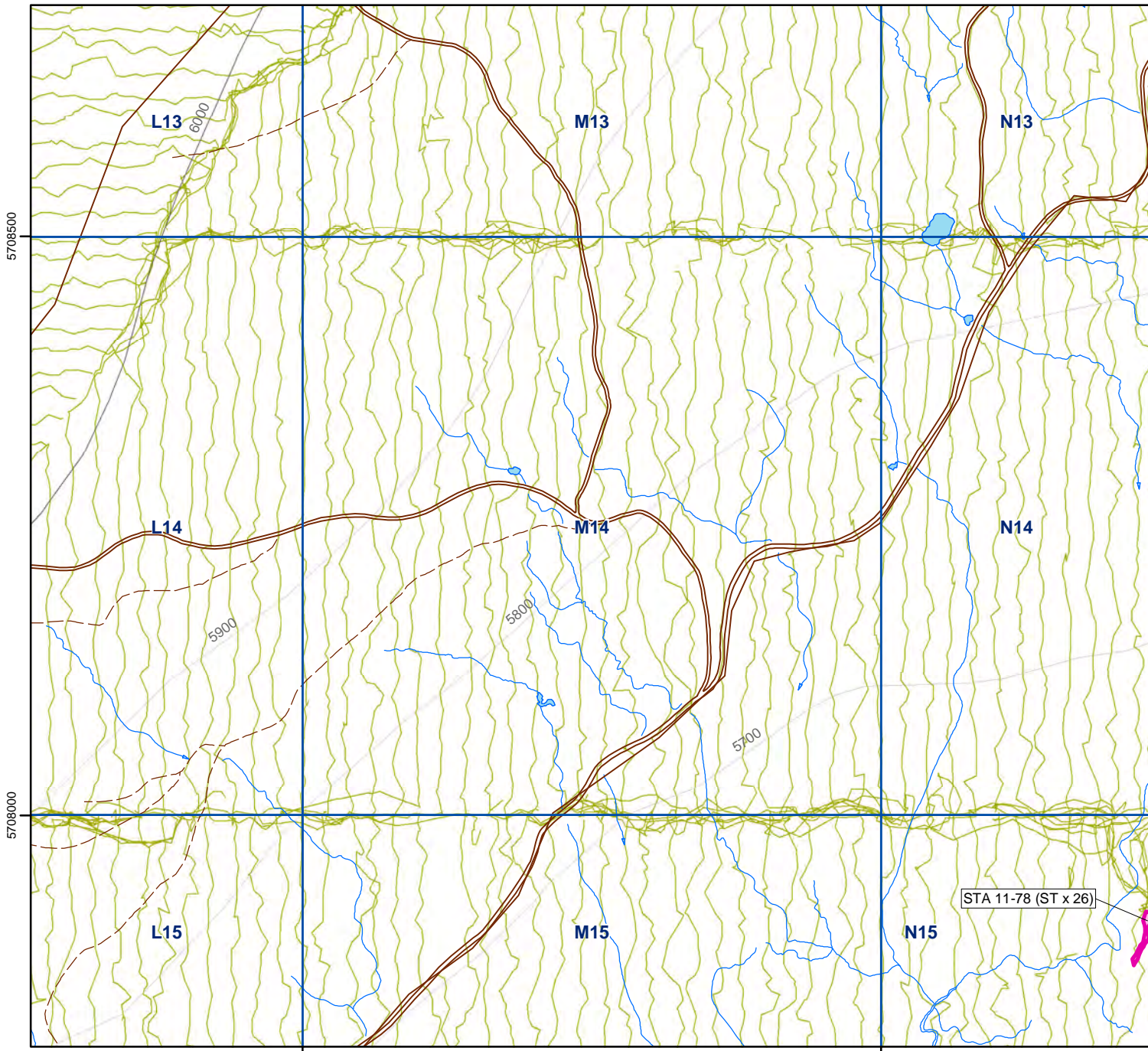
NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Jessica Carson, Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) October 18, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1740-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in M14 is gently to moderately sloping with a southeastern aspect. One main break in slope was noted near the centre of the ASU trending northeast/southeast. The ground is generally poorly drained with a few ephemeral drainages identified in the southern and southeastern portions of M14. There were no well-defined landforms observed in association with these drainages. Extensive ground disturbances due to previous logging activities were observed including numerous skid trails, stumps, and old access roads. In addition, the main mine access road (Road 5) runs through southeastern quadrant of the ASU trending northeast/southwest and branches near the centre of the area creating a second road which runs through the centre of the ASU trending east/west. Archaeological potential is assessed as low due to the sloping, poorly drained, and heavily disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

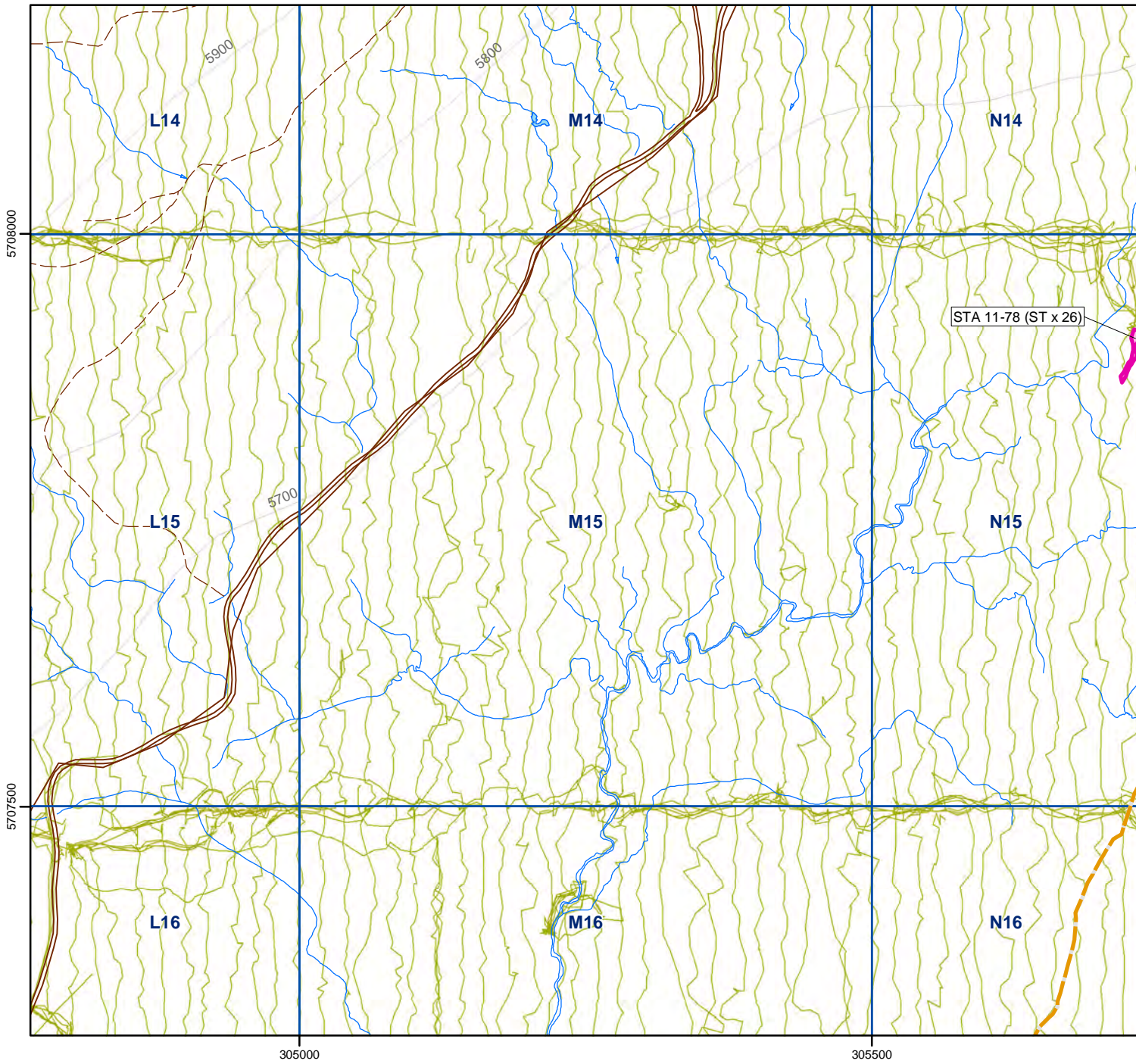
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

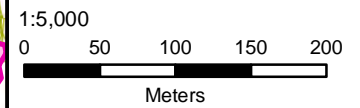
Historic Features Identified? No



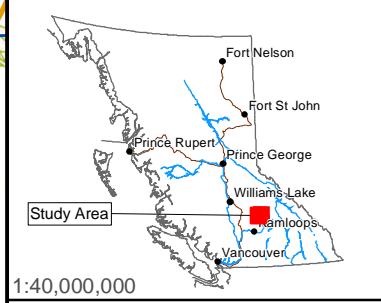
Survey Coverage of M15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

305000

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Jessica Carson, Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) October 20-21, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the majority M15 is gently to moderately sloping with a southeastern aspect, except for the southeastern corner which consists of a flat to very gently sloping wet meadow with a southern aspect. The ground throughout M15 is poorly drained with small streams and seepages noted but no significant hydrological features. Ground disturbances due to previous logging activities were observed throughout the ASU but were the most extensive in the northwestern corner, north of the main mine access road (Road 5), which runs through the northwestern quadrant trending northeast/southwest. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

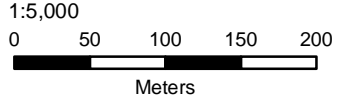
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

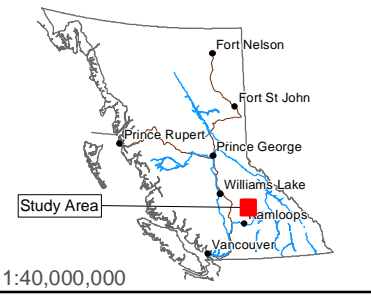
Survey Coverage of M16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

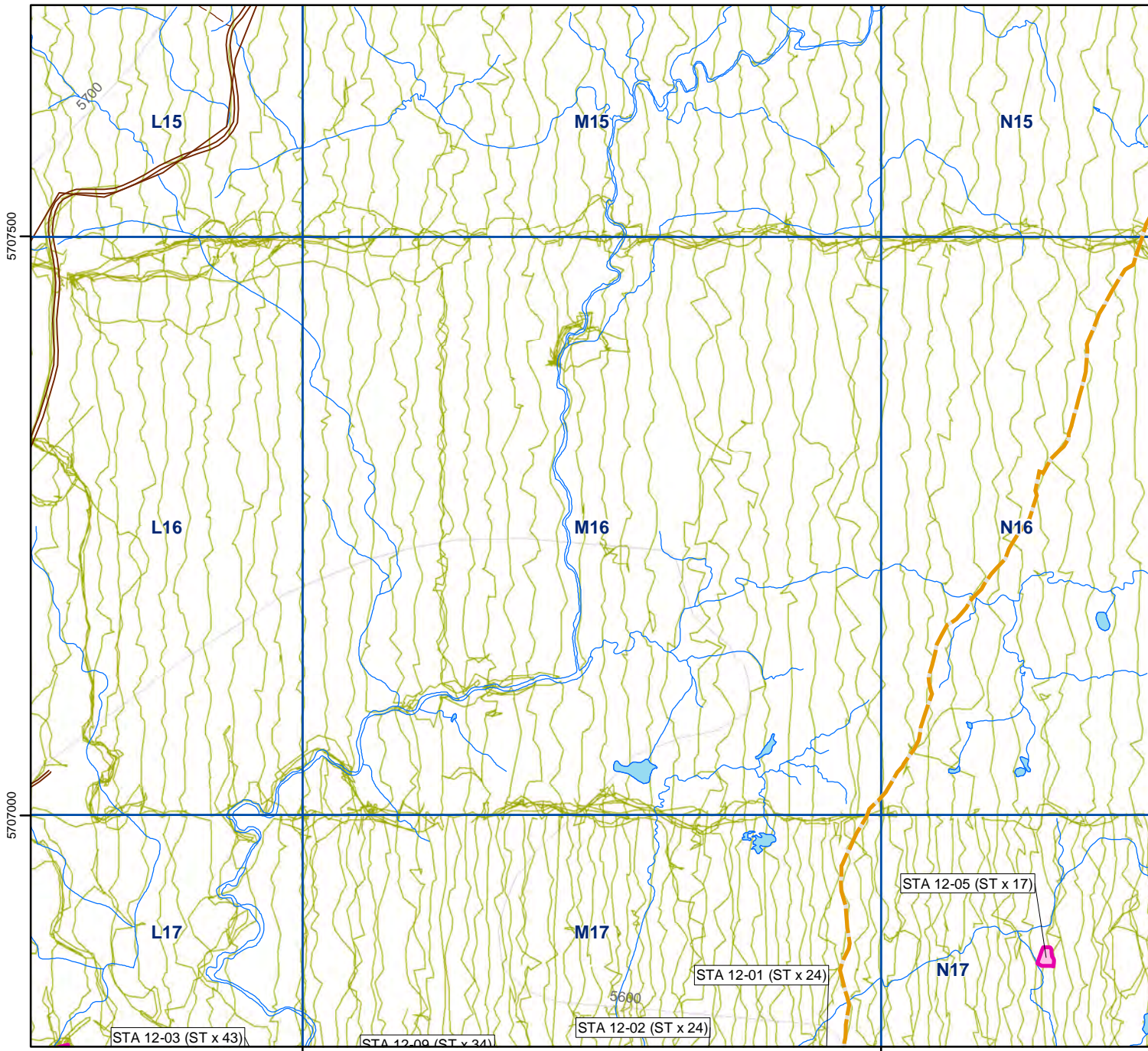
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Laura Pick

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) July 10-11, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1688-1714

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M16 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within ASU M16 consists primarily of a series of large, open subalpine meadows and wetlands. These areas are poorly drained and are separated by gently to moderately sloping elongated knolls. Other areas are gently to moderately undulating with a south to southeastern aspect. Several east-west and north-south trending creeks were observed throughout M16, although no well-defined or well-drained landforms were found in proximity to these hydrological features.

Archaeological potential is considered low based on the sloping, undulating, and poorly-drained nature of terrain, as well as the lack of any well drained/defined landforms near noted hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

This figure has been removed from this Application for an Environmental Assessment Certificate/Environmental Impact Statement, as it contains archaeological site locational information protected under the *Heritage Conservation Act* (1996).

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew M.Arrouse (Adams Lake), J.Charles (AL), S.Enns, L.Eustache (Simpcw), F.Jules (AL), M.Jules (Simpcw), R.Kenoras (AL), J.Kirillo, L.McFadden, J.Meldrum (AL), R.Narcisse (AL), L.Pick, A.Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) September 2 and 6, 2011; July 11-12, 2012; July 26-27, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? Yes

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1680-1700

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M17, crew members were spaced at approximately 10 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M17 are described below in ASU Description and Potential Assessment. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas varied between 2.5 and 5 m. Areas of increased potential within ASU M17 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southern half of M17 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of M17 is described below. The remaining northern half of the ASU, on the other hand, was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was not completed in 2011. Crews completed this portion of the assessment in 2012.

The southern portion in M17 (surveyed in 2011) consists largely of gently to moderately sloping terrain with a northwestern aspect with the exception of several braided streams and creeks that are situated in a low-lying open wetland in the northeastern portion of the area.

The eastern extent of M17 is gently sloping with a north to northwestern aspect. As the area extends to the west, terrain gradually changes from moderately to steeply sloping and undulating with a southern aspect. Some small low lying and poorly-drained u-shaped areas are present. A well-defined creek trends east to west and north to south through the centre of M17.

The northern portion of M17 (surveyed in 2012) consists of a series of poorly-drained open wetlands separated by moderately undulating knolls, seven of which were assessed as having archaeological potential. These shovel test areas (STAs 12-01, 12-02, 12-04, 12-09, 12-11, 12-17, and 12-18) are described below. A well-defined game trail transects M17 from southwest to northeast. This trails crosses through drainages and through STAs 12-01, 12-17, and 12-18.

STA 12-01 is located along an elongated east-west-oriented knoll. Poorly-drained and low-lying areas are located to the north and south. The knoll is raised approximately 3 to 4 m above a well defined east-west trending creek approximately 25 m to the north. The test area measures approximately 18 x 17 m. Twenty-four subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 12-02 is located on a circular bench raised approximately 4 to 5 m above an east to west flowing creek 20 to 30 m south of area. Another creek trending north to south is located approximately 10 m east of STA, which connects to the east-west flowing creek approximately 15 m southeast of the area. The test area measures approximately 21 x 24 m. Twenty-four subsurface tests were excavated within STA 12-02 on an approximate 5 m grid, all with negative results.

STA 12-04 is located on a 5 x 5 m, north to south-orientated, elongated knoll. The knoll is situated between two branches of a well-defined drainage trending north to south. The area is raised 3 to 4 m above the western branch of drainage and 2 m above the eastern branch of the drainage. The area surrounding the knoll is low-lying and poorly-drained. The test area measures approximately 5 x 5 m. Thirteen subsurface tests were excavated within STA 12-04 on an approximate 2.5 to 5 m grid, all with negative results.

STA 12-09 is located on northeast to southwest-orientated, slightly curved knoll. The landform is raised approximately 5 m above a low-lying, poorly-drained area to the northwest. A northeast to southwest trending drainage is present 40 - 45 m northwest of the knoll within a low-lying area. The test area measures approximately 41 x 10 m. Thirty-four subsurface tests were excavated within STA 12-09 on a 5 m grid, all with negative results.

STA 12-11 is located on a circular knoll raised 1 to 2 m above an east to west flowing drainage. The drainage is located in a small u-shaped gully approximately 15 m north of knoll. The test area measures approximately 24 x 20 m. Twenty-eight subsurface tests were excavated within STA 12-11 on a 5 m grid, all with negative results.

STA 12-17 comprises several landforms. The majority of the area is located along a gently sloping west to southwest facing terrace. This terrace is raised above a well-defined southeast to northwest trending drainage that skirts the southern and western boundaries of the STA. The northwest portion of the STA is located on a small circular knoll. The landform is raised 1 to 2 m above the confluence of two drainages, one already mentioned above and the other trending northeast to southwest. The westernmost portion of STA is located on a slightly raised elongated knoll, oriented southeast to northwest and parallel to the drainage. This knoll is surrounded by low-lying and poorly-drained terrain. The test area measures approximately 72 x 25 m. One hundred and thirty-two subsurface tests were excavated on a 2.5 to 5 m grid, all with negative results.

A rock cairn measuring approximately 2.8 m in length by 1.2 m in width, and 30 cm in height was identified and has been recorded as archaeological site EiQw-2. The cairn, located on a small, slightly raised knoll (within STA 12-17), is constructed of flat slabs of rock. Three cut logs are situated lengthwise across the southern portion of the cairn. Subsurface testing was conducted in the vicinity of the cairn as part of STA 12-17, with a 5 m buffer around the cairn itself. At the request of the First Nations, the feature itself was left undisturbed. The cairn may be associated with archaeological or historic cultural activities. Further investigation will be necessary in order to ascertain function and develop management recommendations.

STA 12-18 is located on a small circular knoll raised approximately 3 m above a well-defined drainage that bends around the eastern and northern boundaries of the STA. The landform is slightly sloping with an eastern aspect. The test area measures approximately 25 x 18 m. Twenty-two subsurface tests were excavated on a 2.5 to 5 m grid, all with negative results.

With the exception of the STAs, archaeological potential is assessed as low due to the generally sloping, undulating, and poorly drained nature of the terrain, as well as the lack of well-defined, well-drained landforms.

Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

STA 12-01: 0 – 5 cm depth below surface (dbs): Littermat; 5 – 10 cm dbs = Brownish grey silty sand with less than 5% pebble content; 10 – 18 cm dbs = Dark orange brown silty sand with approximately 5 – 10 sub-angular pebbles; 18 – 32 cm dbs = Orange brown silty coarse sand with approximately 30 – 40% gravels, pebbles, and cobbles.

Results

Further archaeological inspection and investigations are warranted for the rock cairn identified within the ASU.

Historic Features Identified? Trail

This figure has been removed from this Application for an Environmental Assessment Certificate/Environmental Impact Statement, as it contains archaeological site locational information protected under the *Heritage Conservation Act* (1996).

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpco), Lara McFadden, Alex Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) August 18 and 26, September 2, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1680-1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU M18 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in M18 is gently to moderately sloping with northern to northwestern aspects. The ground is generally saturated with numerous small streams and low-lying saturated areas observed throughout. There is a very saturated meadow located in the northwestern corner around which Shovel Test Area (STA) 63 and a Historic Corral are located. Ground disturbances due to previous logging activities were noted including hummocky machine-disturbed terrain and old skid trails. One area was assessed as having the potential for the presence of buried archaeological deposits and was subject to subsurface testing.

STA 63 consists of a northeast/southwest trending flat terrace which breaks otherwise gently sloping terrain with a southern aspect. The abovementioned saturated meadow and an associated small stream are situated directly south of and approximately 5 m away from STA 63. The test area measures approximately 15 x 5 - 10 m. Ten subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

A small corral was observed approximately 50 - 60 m north of STA 63. In addition to the wooden corral structure, wooden boxes, roundhead nails, assorted metal cans, and glass bottles were observed on the surface. The feature is located within gently rolling and sloping terrain with a northern aspect. The location of corral was taken as a waypoint, however no testing was carried out in this area.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

0 - 3 cm depth below surface (dbs) = Littermat; 3 - 15 cm dbs = Moderately compact, dark reddish-brown silty sand; 15 - 28 cm dbs = Moderately compact, reddish medium brown silty sand with approximately 45% sub-rounded to sub-angular pebbles and small cobbles; 28 cm+ dbs = Compact, yellowish-brown silty sand with approximately 45% pebbles to cobbles.

Results

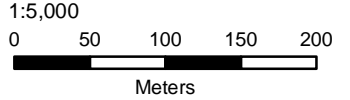
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? Camp site, trail

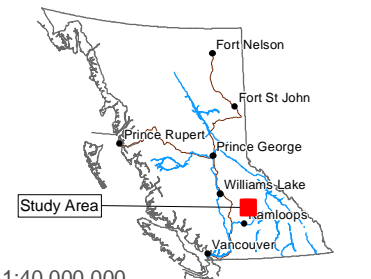
Survey Coverage of M19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

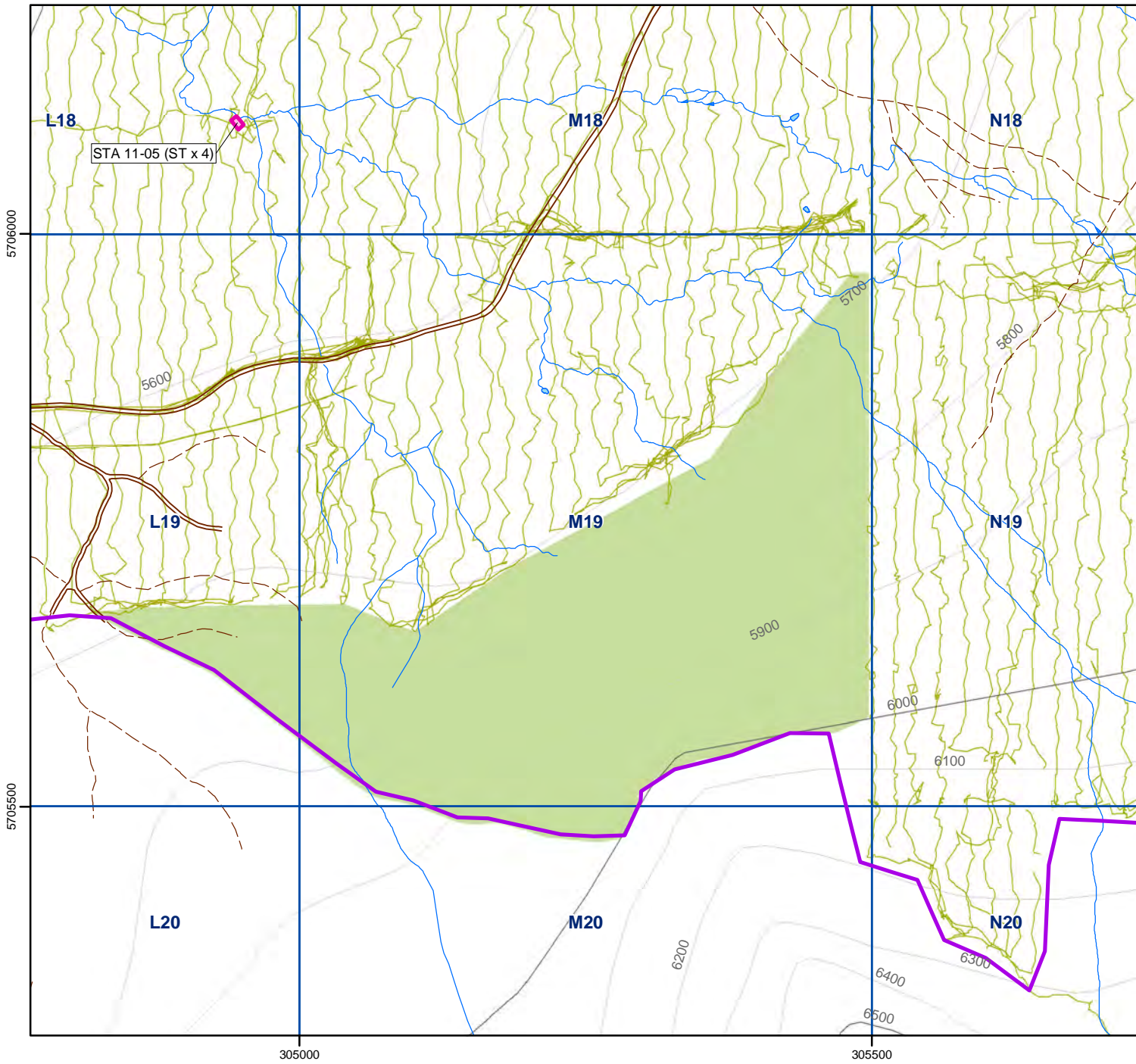
NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpw), Lara McFadden, Joe Meldrum (Adams Lake) Alex Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 18 and 26, 2011 and September 12, 2011; September 14, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1700-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU M19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU M19 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The northwestern half of M19 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The terrain description of this portion of M19 is described below. The remainder of the ASU was subject to assessment as part of the Dam, Embankment, and Tailings Management facilities footprints; however, due to the onset of winter conditions in 2011 crews completed this portion of the assessment in 2012.

Terrain in M19 is moderately sloping with northern and northwestern aspects in the northern portions of the area and becoming steeply sloped in the southern portions. The southernmost portion of the area was extremely steeply sloping and had been surveyed during the Tailings Baseline seismic line survey. This southern portion of M19 was revisited in 2012 and it was confirmed that the area is too steep to safely survey and was assessed by observation (by Murray Jules (Simpw First Nation) and Joe Meldrum (Adams Lake Indian Band)). This slope is broken by poorly-defined, saturated, flat terraces. The ground is hummocky throughout the area with a few small streams and seepages noted but no significant hydrological features. Ground disturbances due to previous logging activities, such as skid trails and stumps, were noted. Archaeological potential was assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

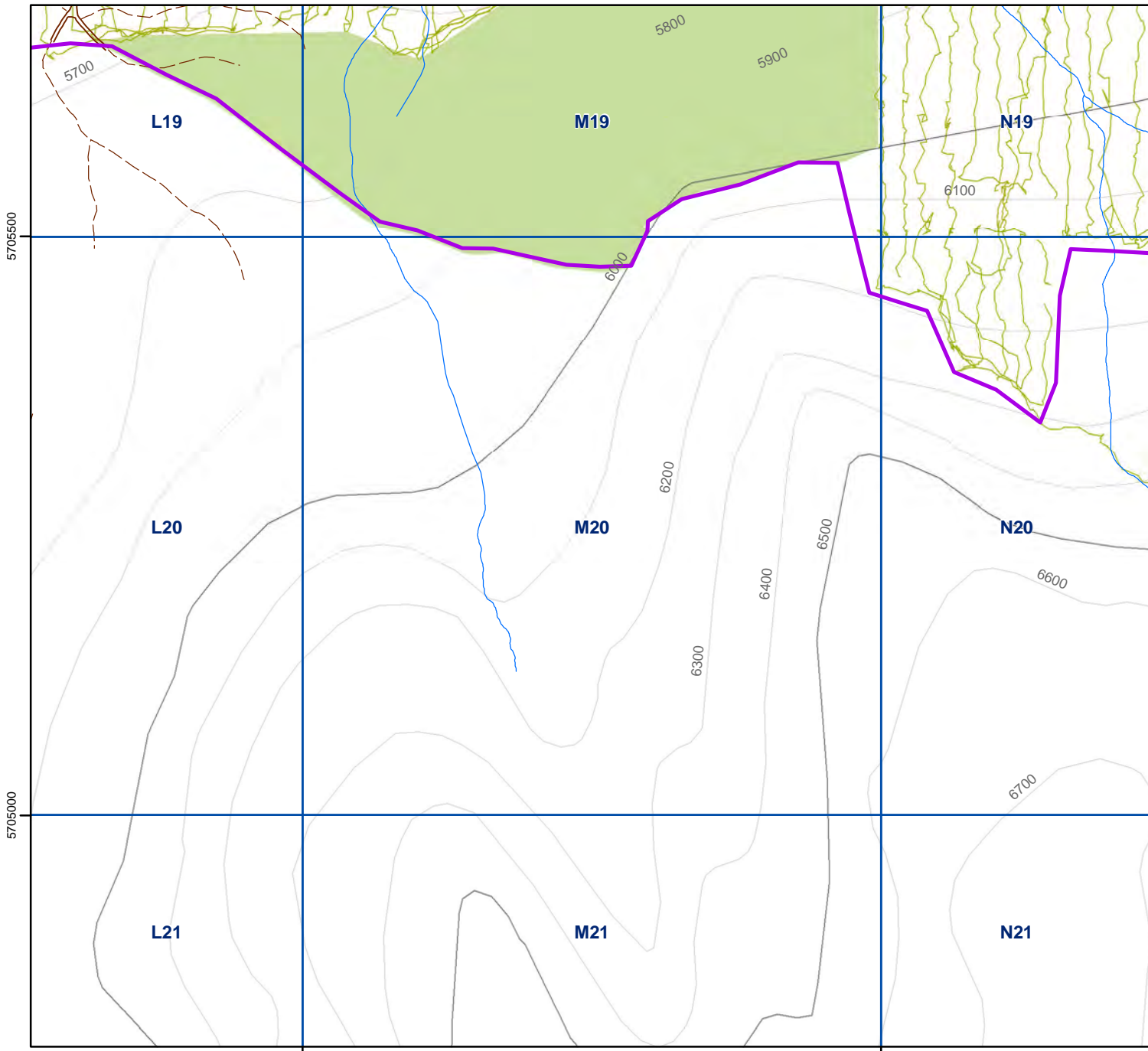
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

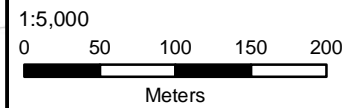
Historic Features Identified? No



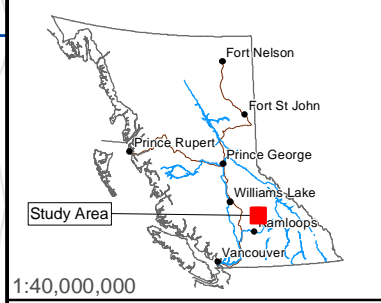
Survey Coverage of M20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209**Permit Holder** Kevin Twohig**Field Director(s)** Shana Morin**Crew Chief(s)** Shannon Enns**Field Crew** Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Fern Jules (Adams Lake), Murray Jules (Simpcw), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick**Survey Date(s)** September 12, 2012**PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No****NTS Map** 82M/5**Biogeo Zone** ESSFwc2,ESSFwcw**Elevation (m)** 1750-2020**Area (ha)** 25

Survey Methodology

Pedestrian survey was not undertaken within this ASU.

ASU Description and Potential Assessment

Topographic mapping indicated very steep terrain; this was confirmed visually by the field crew from vantage points outside the ASU. ASU M20 was observed from an area east and northeast of the ASU. Terrain is steeply sloping with a southwestern aspect. Given the low archaeological potential based on slope, and the inherent safety concerns with extremely steep terrain, pedestrian survey was not undertaken in this ASU.

Subsurface Description

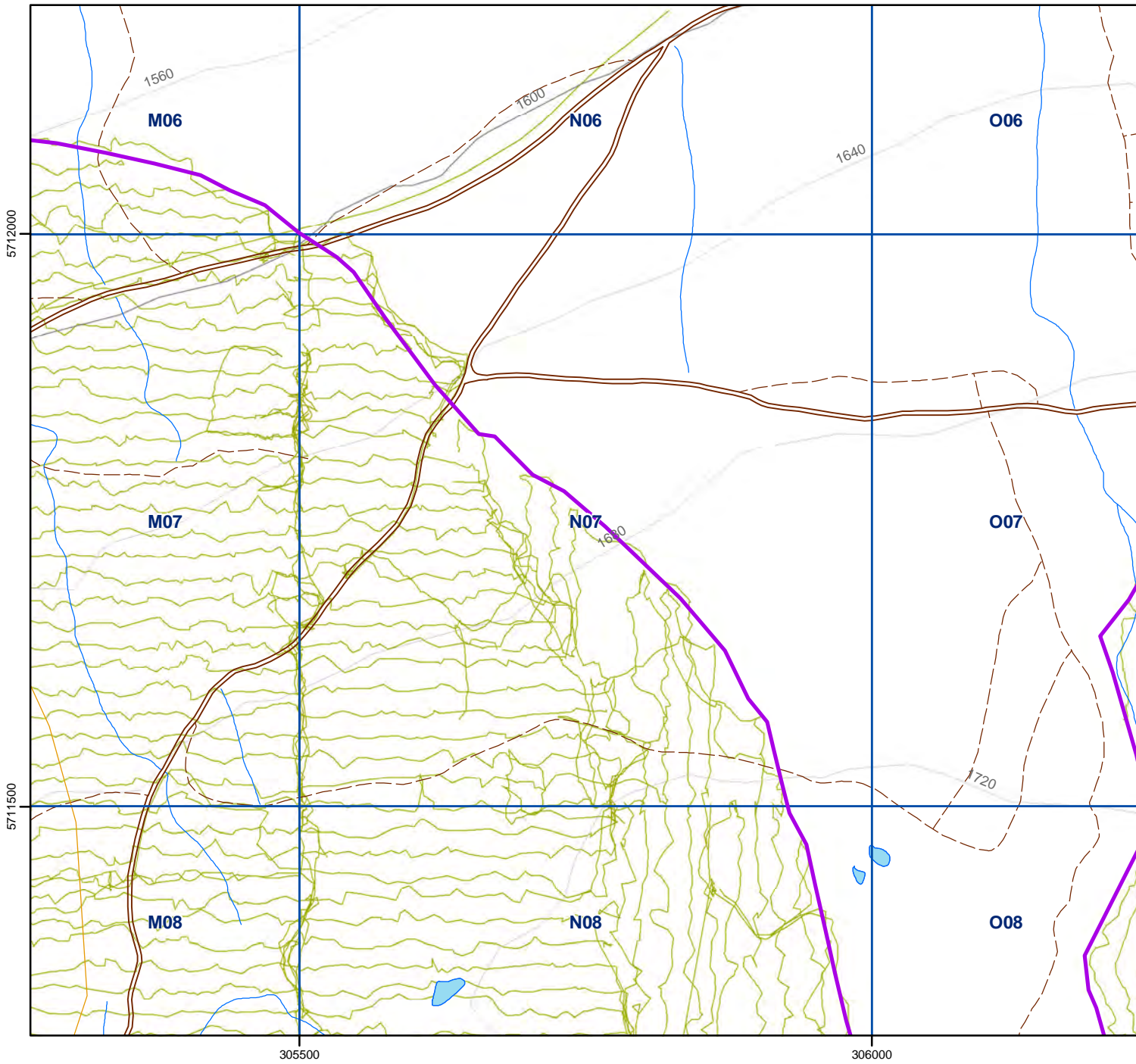
Total Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

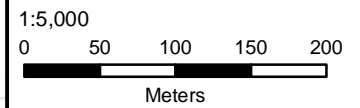
Historic Features Identified? No



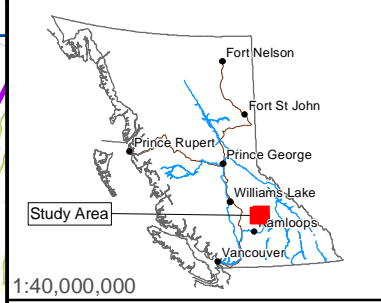
Survey Coverage of N07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (A.L.), Lucas Eustache (Simpco), Tyler Jaenson (A.L.), Murray Jules (Simpco), Lara McFadden, Joe Meldrum (A.L.), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 15, 2011; July 9, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1720-1600

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N07 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The terrain throughout most of N07 is moderately to steeply sloping with a north to northwestern aspect. There were no significant hydrological features observed; however, some small north to south and southeast to northwest trending seasonal drainages were noted. The ground is generally hummocky, and poorly drained in areas. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails, stumps and burn piles were noted as well as newly-constructed mine access roads. Archaeological potential is assessed as low due to the sloping and hummocky nature of the terrain, as well as the lack of any significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

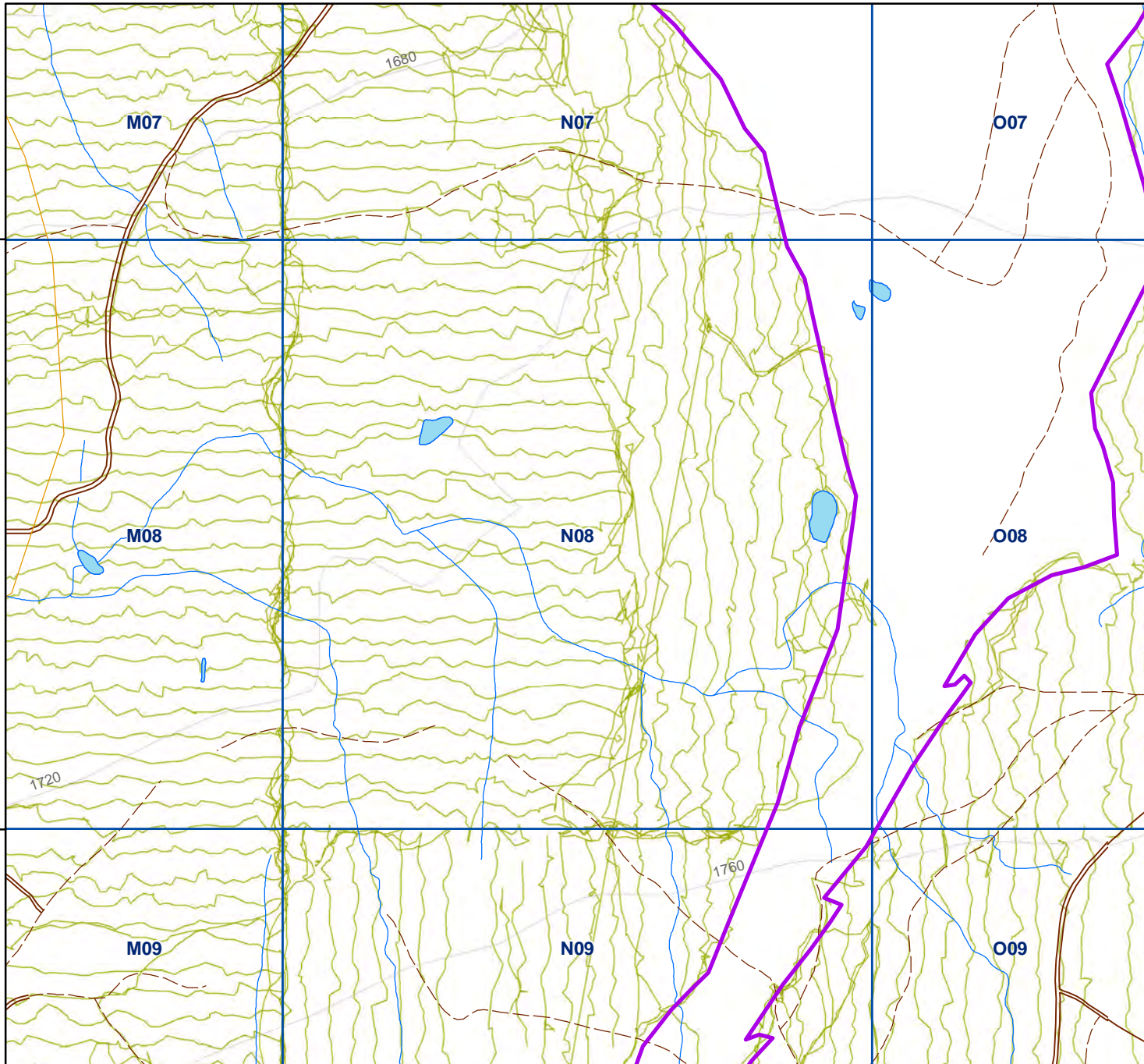
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

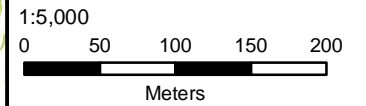
Historic Features Identified? No



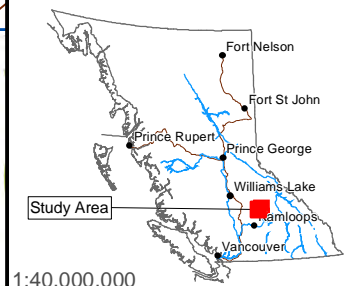
Survey Coverage of N08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

305500

306000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew M.Arrouse (Adams Lake), L.Eustache (Simpco), T.Jaenson (AL), M.Jules (S), R.Kenoras (AL), J.Kirillo, L.McFadden, J.Meldrum (AL), R.Narcisse (AL), L.Pick, A.Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 15, 2011 and July 23, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1690-1750

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N08 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in N08 is gently sloping with a north to northwestern aspect in the western half and is moderately sloping with a northern aspect in the eastern half. The ground in the east is hummocky, and is undulating in the west. Although the area has several north-south trending drainages, some are the result of logging-related skid trail disturbance. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

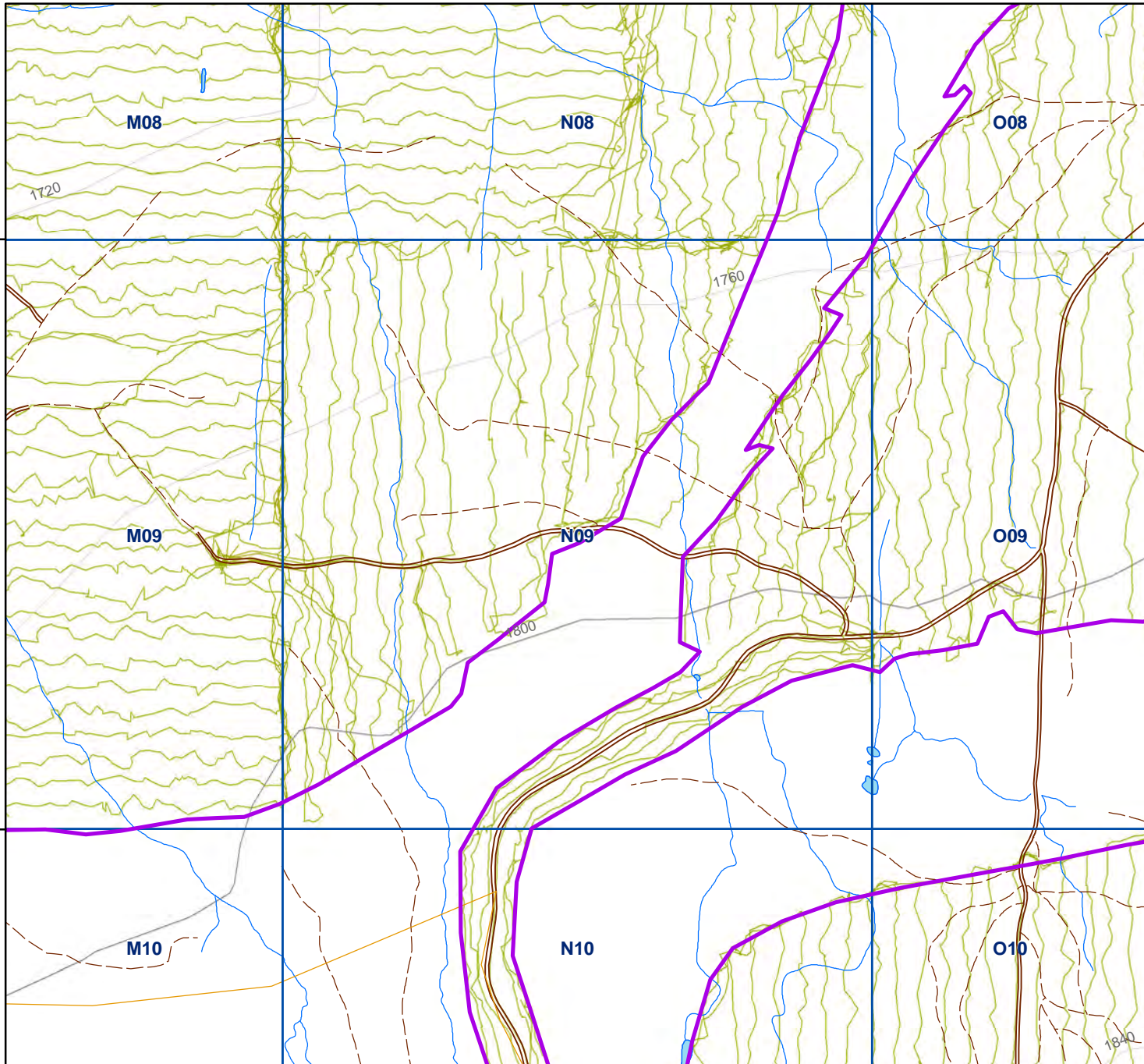
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

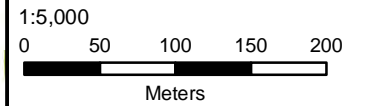
Historic Features Identified? No



Survey Coverage of N09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

305500

306000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew M.Arrouse (Adams Lake), J.Charles (AL), L.Eustache (Simpcw), P.Eustache (S), T.Jaenson (AL), M.Jules (S), R.Kenoras (AL), J.Kirillo, L.McFadden, J.Meldrum (AL), R.Narcisse (AL), L.Pick, M.Saul (AL), A.Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 14, 2011; July 13 & 23, 2012; August 2, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1740-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N09 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in N09 is gently to moderately sloping with northern and northwestern aspects throughout. The eastern portion of N09 consists of a series of poorly drained, sloping benches breaking the northern slope about every 50 m, towards the east the slope increases to moderately sloping to steep. The centre has a small stream running trending north-south with no prominent landforms identified as associated. The western portion of N09 is poorly-drained with a man-made gully trending north-south in the northern portion and a few small dry gullies in the southern portion. Ground disturbances as a result of previous logging and mining activities were observed. Skid trails and stumps were noted as well as the main mine access road located in the north central portion of the ASU. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain as well as the lack of prominent landforms observed in association with the stream.

Subsurface Description

Total Number of Subsurface Tests

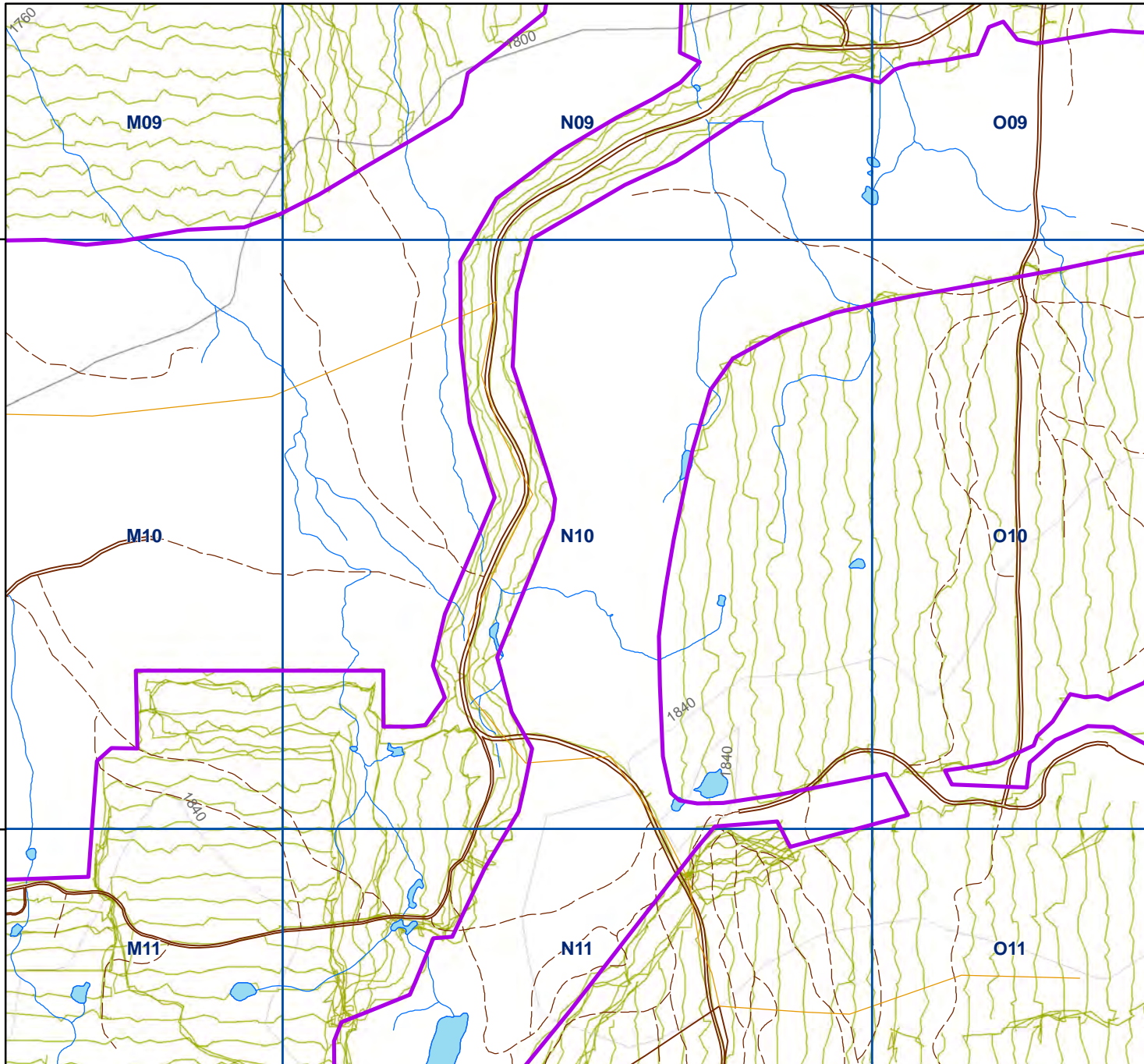
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

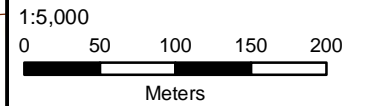
Historic Features Identified? No



Survey Coverage of N10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Shannon Enns, Lucas Eustache (Simpco), Fern Jules (AL), Murray Jules (S), Ryan Kenoras (AL), Reginald Narcisse (AL), Laura Pick, Martin Saul (AL), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Oct. 6, 2011 (Plant); Aug 2 (Plant), Sep 11 (Plant) & 14 (Dump), 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1820-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N10, crew members were spaced at approximately 20 m intervals along survey transects, given the narrow span of some sections within the Plant Site proposed footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage.. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N10 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the southwest portion N10 is gently sloping with an east-northeastern aspect throughout. Terrain within the eastern portion of N10 ranges from moderately sloping and undulating with a north to northwestern aspect to gently undulating, low-lying, poorly-drained meadows. No significant hydrological features were observed. Ground disturbances due to previous logging activities were noted such as skid trails, stumps, and old access roads. Archaeological potential is assessed as low due to the sloping disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

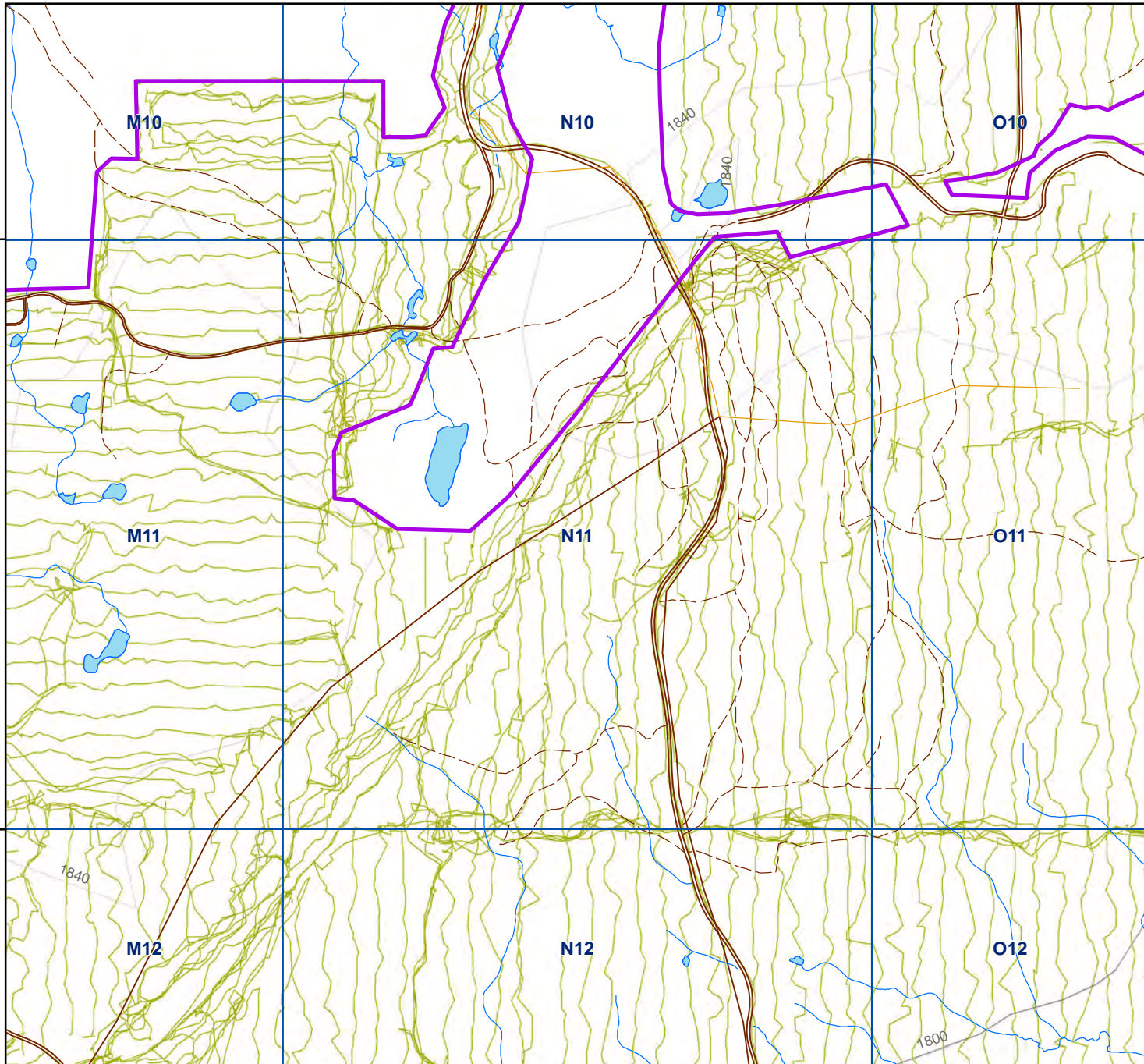
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

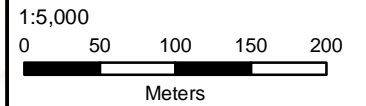
Historic Features Identified? No



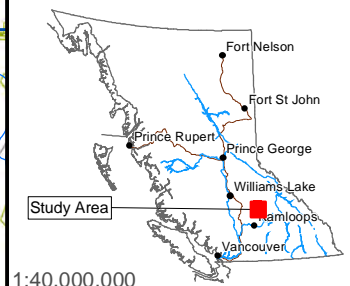
Survey Coverage of N11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Lucas Eustache (Simpco), Tyler Jaenson (AL), Fern Jules (AL), Murray Jules (S), Ryan Kenoras (AL), Reginald Narcisse (AL), L.Pick, Martin Saul (AL), A.Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) Sep30(Disp),Oct 6&11(Rd/Plnt),13(TM),2011; Aug2(TM),Sep10-11(Plnt)/12

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N11, crew members were spaced at approximately 20 m intervals along survey transects within the Plant Site, Rock Disposal Area East, and Tailings Management footprints. In the Mine Haul Road footprint, given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N11 are described below in ASU Description and Potential Assessment.

ASU Description and Potential Assessment

Sections of the Mine Haul Road, Plant Site, Rock Disposal Area East, and Tailings Management mine footprints are within ASU N11 and are described separately below.

Mine Haul Road and Plant Site: Both areas subject to survey exhibited similar features consisting of gently sloping terrain with a south-southwestern aspect in the eastern half, western aspect in the southwestern portion, and east-northeastern aspect in the northwest corner. There were no significant hydrological features observed. The ground has been heavily disturbed due to previous logging and mining activities with evidence of skid trails, stumps, and two main mine access roads. One of these roads trends north-south and cuts through the eastern portion of the ASU while the other trends northeast-southwest and cuts through the northwestern corner of the ASU. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of significant hydrological features.

Rock Disposal Area East and Tailings Management: Both areas subject to survey exhibited similar features consisting of gently to moderately sloping terrain with southern to southeastern aspects. The ground is gently undulating and poorly drained with small braided streams and seepages noted throughout. Ground disturbances due to previous logging and mining activities were noted including skid trails and the main mine access road trending north-south and running through the eastern portion of the ASU. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

0

Number of Positive Subsurface Tests

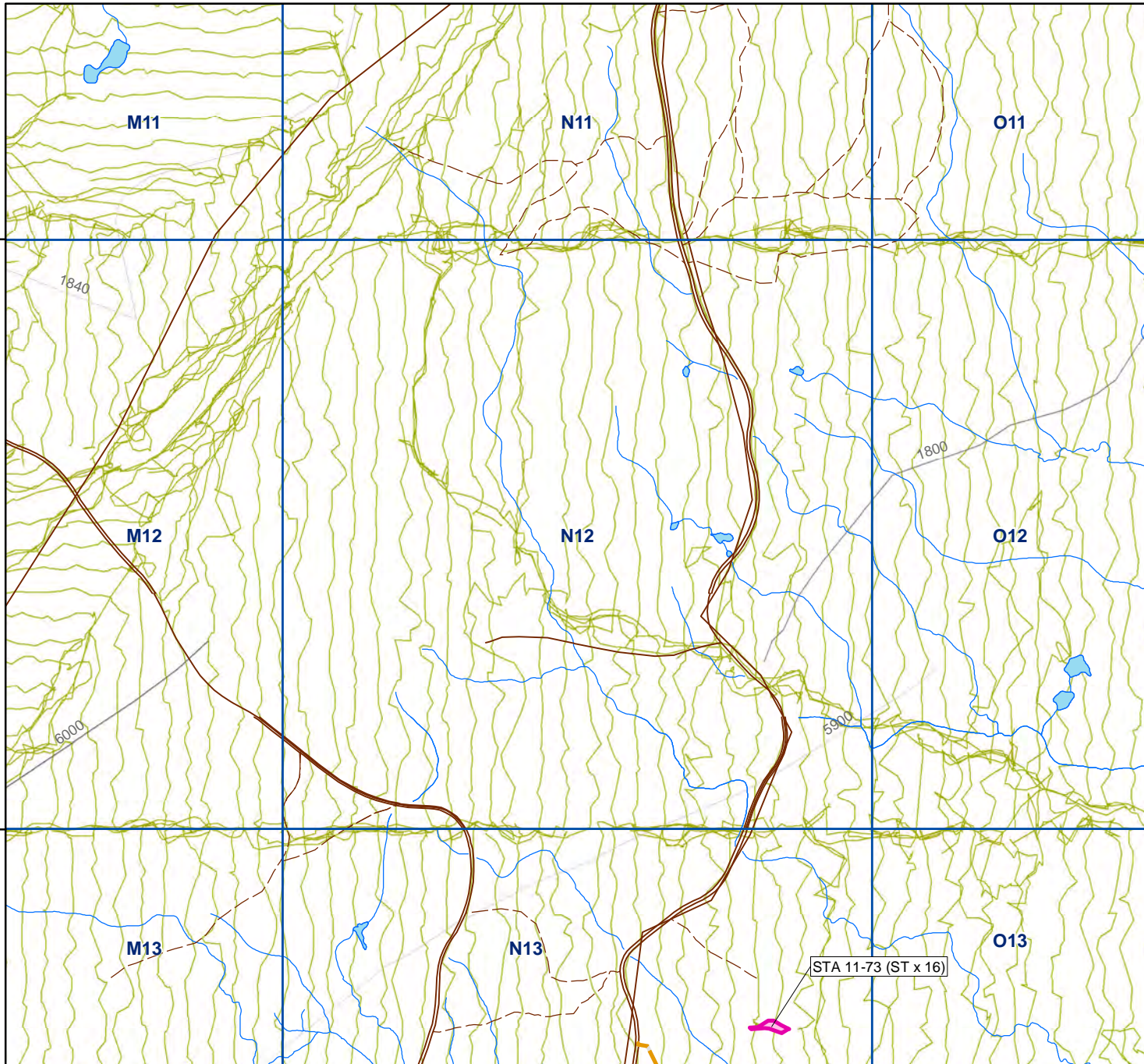
0

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

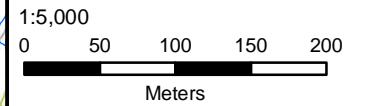
Historic Features Identified? No



Survey Coverage of N12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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5709000

305500

306000

STA 11-73 (ST x 16)

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 30, 2011 (Rock Disposal Area East); October 11, 2011 (Mine Haul Road); October 13, 2011 (Tailings Management)

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1820-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N12, crew members were spaced at approximately 20 m intervals along survey transects in the Rock Disposal Area East and Tailings Management footprints. In the Mine Haul Road footprint, given the narrow span of the proposed road footprint, crew members were spaced at approximately 2 - 10 m intervals along survey transects to ensure comprehensive survey coverage. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

All three areas subject to survey exhibited similar features consisting of gently to moderately sloping terrain with southern to southwestern aspects. The ground is generally hummocky with small streams and east/west trending wet meadows observed throughout. No well-defined or prominent landforms were observed in association with these hydrological features. Ground disturbances due to previous logging and mining activities were noted including skid trails, stumps, and the main mine access road which trends north/south and runs through the eastern portion of the ASU. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of well-defined landforms noted in association with the numerous wet meadows observed throughout the ASU.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

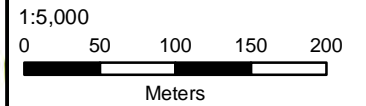
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

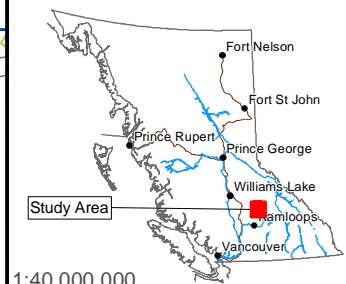
Survey Coverage of N13

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

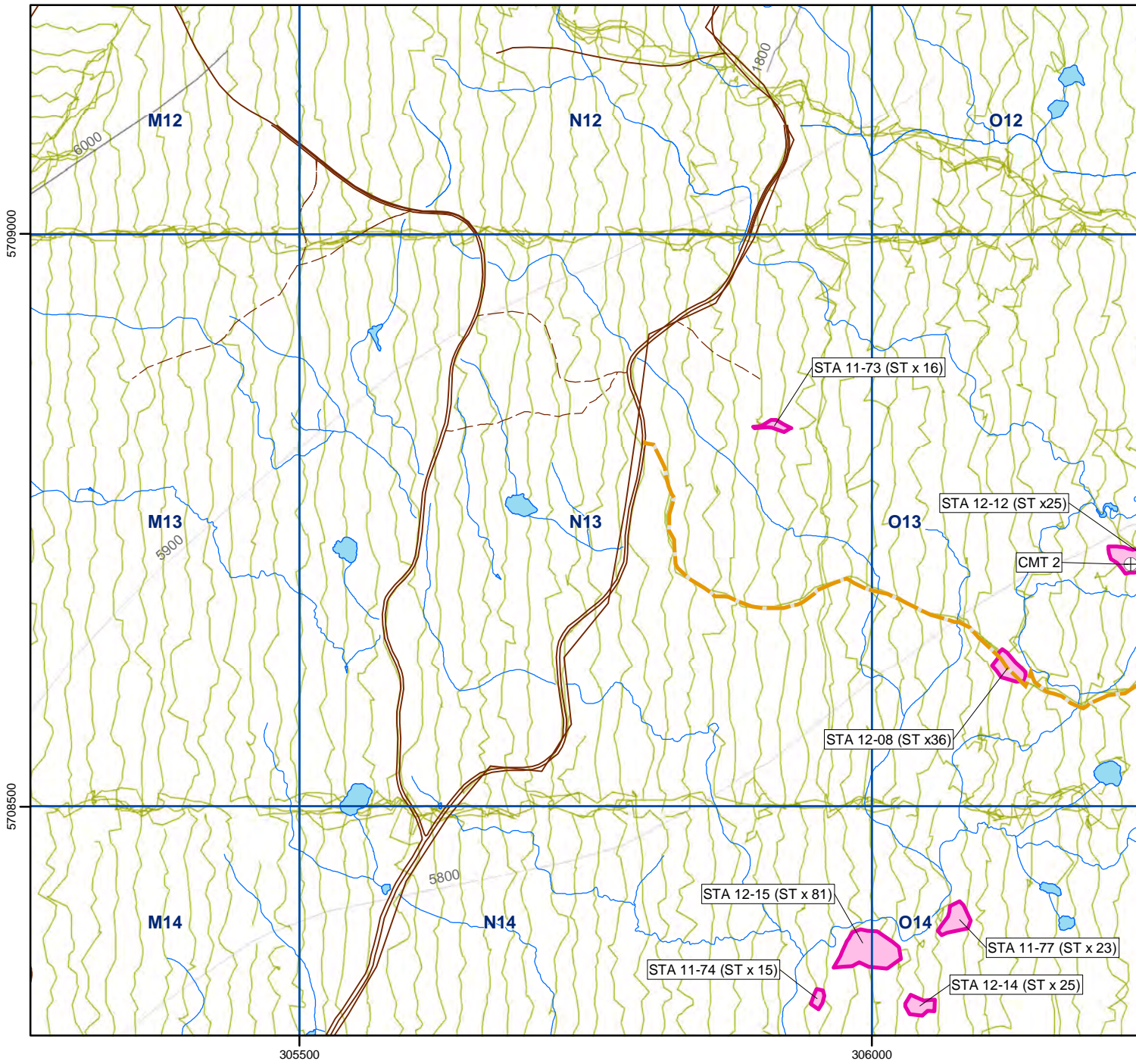
NTS 1:50,000 Mapsheet 82M/5 & /12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) October 14 and 17, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1760-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU N13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northwestern corner of N13 is gently sloping with a northeastern aspect while the remainder is gently to moderately sloping with a southeastern aspect. Hydrological features consist of numerous ephemeral drainages and wetlands in the southern and eastern portions of the ASU. Four mapped water bodies and their associated drainages are plotted in the western half of the ASU, but the field crew only identified saturated terrain in these areas. Ground disturbances due to previous logging and mining activities were noted in the northern and northwestern portions of the ASU as this area falls within an old forestry cut-block. Two main mine access roads were noted including Road 5, which runs through the centre of the area and another road which runs through the western half of the ASU.

One area was assessed as having the potential for the presence of buried archaeological deposits and was subject to subsurface testing. Shovel Test Area (STA) 73 consists of an east/west trending ridge overlooking a small stream to the north and a large wetland to the south. The stream is approximately 45 m lower in elevation at the base of a moderate slope with a northern aspect. The wetland is located approximately 100 m away at the base of a moderate slope with a southern aspect. The test area measures approximately 25 x 8 m. Sixteen subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping and disturbed nature of the terrain as well as the lack of well-defined landforms observed in association with the streams and wetlands found in the northern portion of the ASU.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

0 - 3 cm depth below surface (dbs) = Littermat; 3 - 10 cm dbs = Moderately compact, dark brown sandy silt with approximately 10-15% sub-angular pebbles; 10 cm+ dbs = Reddish-brown sandy silt with approximately 20% sub-angular pebbles and small cobbles.

Results

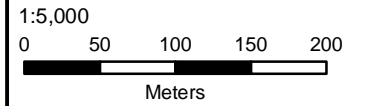
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? Trail

Survey Coverage of N14

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N

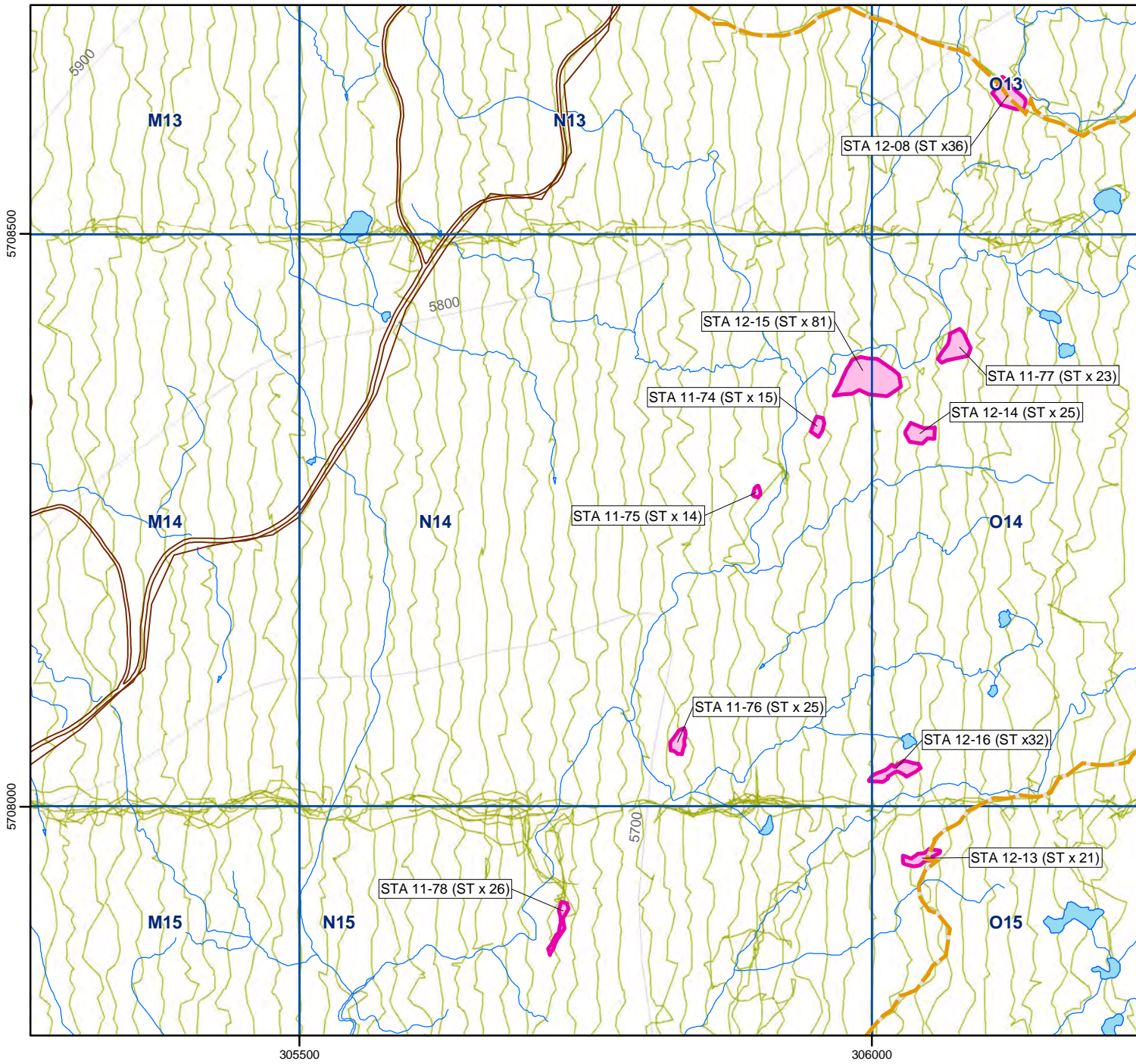


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), Tyler Jaenson (AL), Fern Jules (AL), Murray Jules (Simpco), Ryan Kenoras (AL), Joe Meldrum, (AL), Reginald Narcisse (AL), L.Pick, Jules Phillip (Simpco), A.Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 17, 2011 and September 5-6, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1740-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU N14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in N14 is gently to moderately sloping with a southeastern aspect. The ground is generally poorly drained with various stagnant pools, ephemeral drainages flowing south or southeast, and a major tributary of Harper Creek trending northeast/southwest and running through the southeastern quadrant. Extensive ground disturbances were observed particularly in the north and central portions of N14. These include numerous skid trails and areas of clear-cut as well as disturbance due to the main mine access road (Road 5) which runs through the northwestern corner of the ASU.

Three areas were assessed as having the potential for the presence of buried archaeological deposits and were subject to subsurface testing. Shovel Test Areas (STAs) 74, 75, and 76 were identified for testing as part of the Tailings Management facility footprint assessment; however, due to the onset of winter conditions testing was delayed until 2012.

STA 74 is located on a flat topped knoll overlooking a fast moving north to south flowing creek. The knoll is situated approximately 10 m above the creek located to the west. Terrain to the north and south of the knoll is low-lying and saturated. Terrain to the east becomes increasingly sloping with an eastern aspect. The test area measures 18 x 11 m. Fifteen subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 75 is located on a small knoll measuring approximately 10 x 10 m that overlooks a fast moving creek located to the immediate east. The knoll is raised approximately 8 m above the creek. Fourteen subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 76 is located on a small north to south orientated bench. The bench is surrounded by moderately to steeply sloping terrain with a western aspect. The bench overlooks a north to south, fast flowing creek, located approximately 65 m to the west. The bench is raised approximately 15 – 20 m above the creek. Twenty-five subsurface tests were excavated on an approximate 5 m grid, all with negative results.

With the exception of the STAs described above, archaeological potential is considered to be low throughout the areas assessed due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests **54**

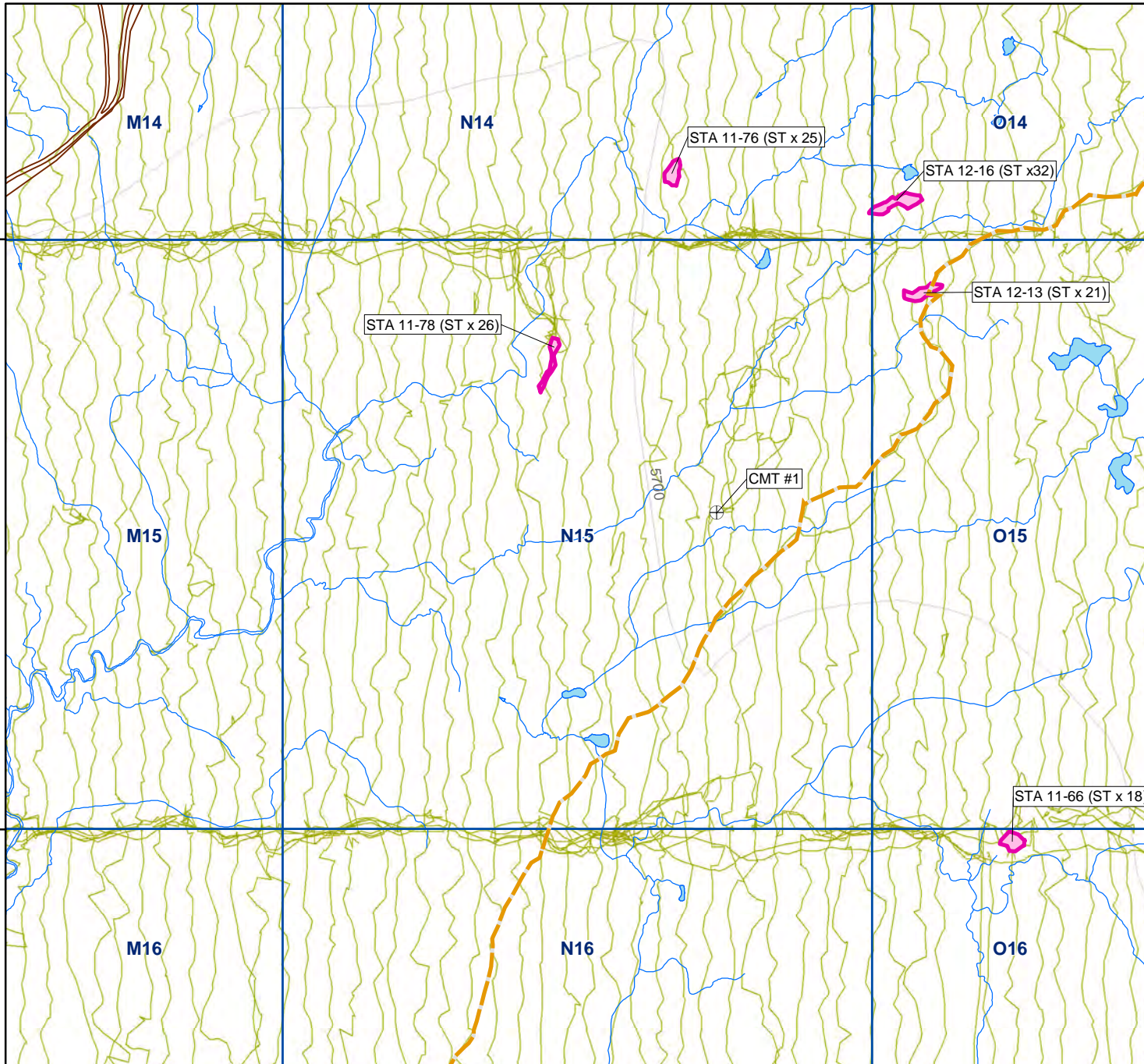
Number of Positive Subsurface Tests **0**

STA 74: 0 – 3 cm depth below surface (dbs) = Littermat; 3 – 8 cm dbs = Grey brown sand silt with 5 – 8 % sub-angular pebbles; 8 – 25 cm dbs = Medium brown silty sand with 15 – 20% sub-angular to angular pebbles and cobbles; 25 – 28 cm dbs = Medium orange brown silty sand with approximately 50+ % angular cobbles and small boulders and pebbles; 28+ cm dbs = Boulders.

Results

No protected archaeological resources were identified within the areas surveyed.

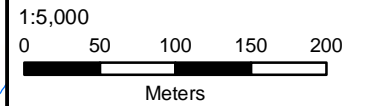
Historic Features Identified? No



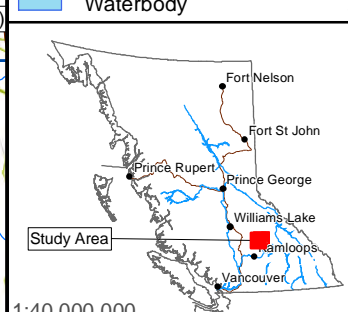
Survey Coverage of N15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

305500

306000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), J. Carson, Tyler Jaenson (AL), Fern Jules (AL), Murray Jules (Simpchw), Ryan Kenoras (AL), Jo Meldrum (AL), Reginald Narcisse (AL), L.Pick, Jules Phillip (Simpchw)

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 20, 2011 and September 5, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1740

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in N15 is gently to moderately sloping with southern and southwestern aspects. The ground is poorly drained and gently rolling throughout creating poorly defined, small hills and knolls with gently sloping sides. East-west trending wet meadows and small braided streams are located in the low-lying areas between the hills features. A major tributary of Harper Creek was observed, and trends northeast-southwest through the northwestern quadrant. One area of archaeological potential was identified and was subject to subsurface testing. One culturally modified tree (CMT-01) was also identified. The shovel test area (STA) and CMT are both described below.

STA 78 was identified for testing as part of the Tailings Management facility footprint assessment; however, due to the onset of winter conditions, the testing of this area was delayed until 2012. STA 78 is located on a well-defined bench overlooking a fast moving meandering creek to the west. The bench is situated approximately 15 m above the north to south flowing creek and is oriented roughly north to south. The test area measures approximately 46 x 5 m. Twenty-six subsurface tests were excavated on an approximate 5 m grid. All tests yielded negative results.

CMT-01 is located on a small rise surrounded by low lying and poorly drained wetlands. The tree is identified as Spruce, 32 cm in diameter with a 30 x 18 cm scar approximately 40 cm above the ground with tool marks present. A core sample was taken through the scar; the modification was determined to be approximately 42 years old.

With the exception of STA 78, archaeological potential is considered to be low throughout the areas assessed due to the sloping and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

STA 78: 0 – 5 cm depth below surface (dbs) = Littermat; 5 – 18 cm dbs = Medium grey brown fine grained sandy silt; 18 – 27 cm dbs = Red/orange fine grained sandy silt.

Results

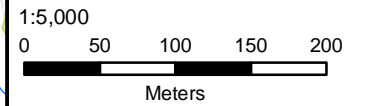
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? CMT, trail

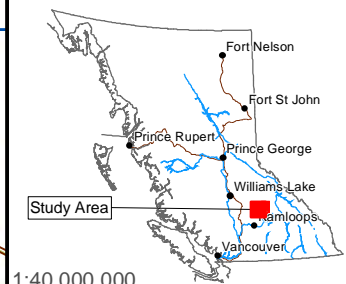
Survey Coverage of N16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

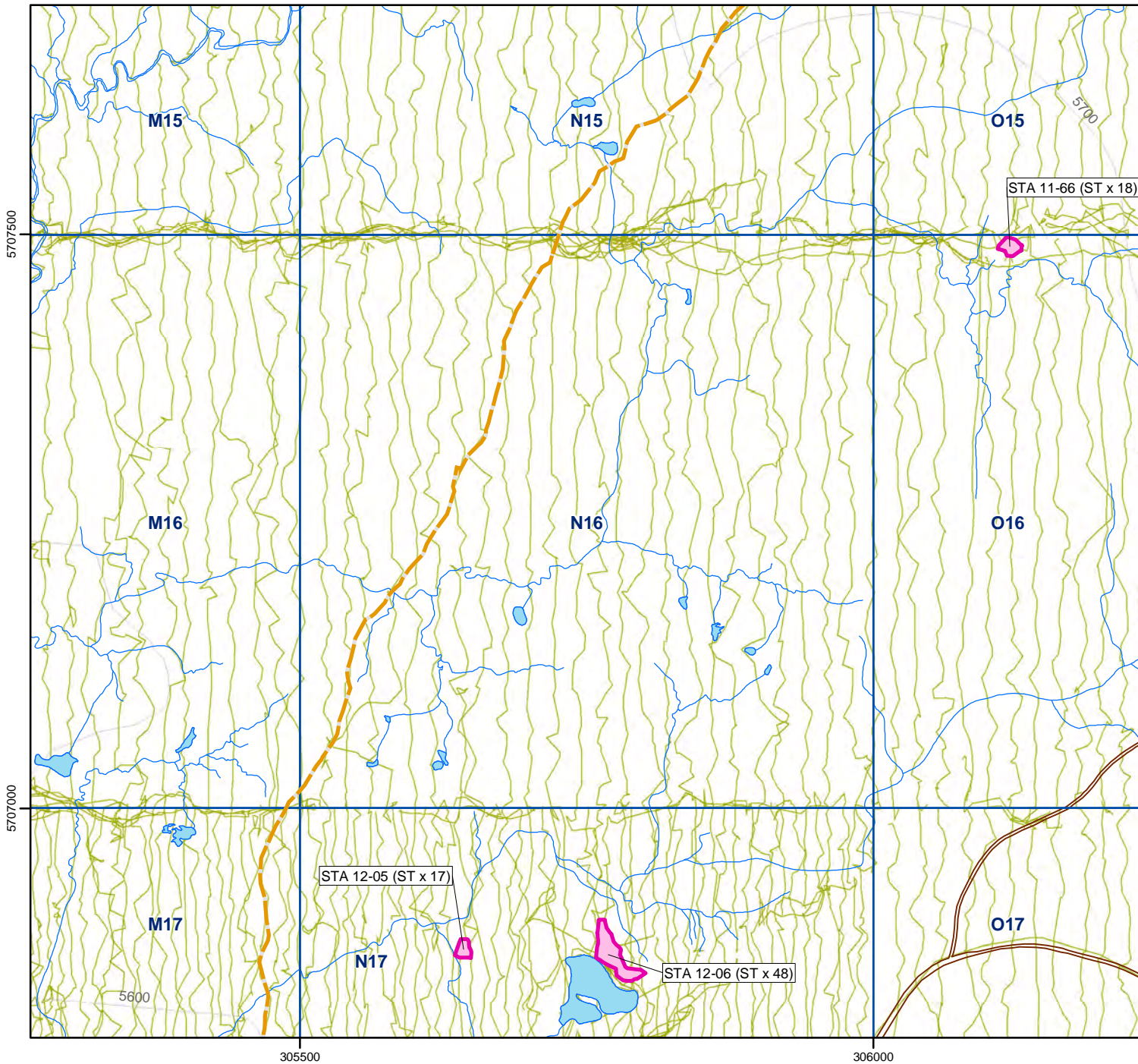


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 18-19, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1700-1730

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N16 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within N16 is gently sloping with a south to southwestern aspect. Terrain is undulating and consists of open, low lying, saturated and poorly-drained areas with many ephemeral pools. A blazed trail trends northeast to southwest, and the ground has been disturbed by past logging activities.

Archaeological potential is considered low based on the sloping, undulating, and poorly-drained nature of terrain, as well as the lack of any well drained/defined landforms near noted hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated

Results

No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? Trail

This figure has been removed from this Application for an Environmental Assessment Certificate/Environmental Impact Statement, as it contains archaeological site locational information protected under the *Heritage Conservation Act* (1996).

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (AL), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (AL), Jordan Kirillo, Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) Sept. 6, 2011; July 12-19 & 26, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1700-1720

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N17, crew members were spaced at approximately 10 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU N17 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southern half and most of the northeastern quarter of N17 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The remaining northern portion of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was delayed until 2012. The terrain description for N17 is described below

The southern half of N17 is low-lying and saturated before becoming gently to moderately sloping with north and northwestern aspects in the northern half.

The northern half of the ASU has been subject to logging and disturbed areas are located throughout. Terrain in the northern portion of N17 is undulating and ranges from gently to moderately sloping with an overall southern aspect. The majority of the northern portion consists of a series of low-lying, open, and saturated meadows or wetlands. These open poorly-drained areas are separated by raised, elongated knolls. Several ephemeral drainages meander through this area. Two mapped water bodies are located along the eastern and southern borders of the survey area, but they were not discernible to the field crew except as sections of poorly-drained terrain. An east-west trending creek bisects N17; however, no well-defined or well-drained landforms were observed in association with the creek with the exception of the shovel tests areas (STAs) described below.

STA 11-65 encompasses two knolls situated immediately adjacent to, and approximately 10 – 15 m above, the creek which borders these landforms on the east and north sides. The test area measures approximately 35 x 15 m. Thirty-five subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 12-05 is located along a small knoll situated above an east to west flowing creek and associated wetland approximately 5 to 8 m to the north and northwest. Terrain to the south, southeast, and southwest of STA 12-05 is low lying and poorly drained. The test area measures approximately 19 x 15 m. Seventeen subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 12-06 is located along a southeast to northwest oriented, raised, elongated (slightly u-shaped) knoll. Two low-lying wetlands are situated approximately 1 to 2 m below the knoll to the south and northeast of landform. The test area measures approximately 45 x 18 m. Forty-eight subsurface tests were excavated on an approximate 5 m grid, all with negative results

With the exception of the STAs, archaeological potential is considered to be low throughout the areas assessed due to the sloping, poorly drained and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the east-west trending creek.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

STA 12- 05: 0 – 5 cm depth below surface (dbs) = Littermat; 5 – 10 cm dbs = Brownish grey silty sand with less than 5% pebbles; 10 – 18 cm dbs = Dark orange brown silty sand with approximately 5 – 10% sub-angular to angular pebbles; 18 – 32 cm dbs = Orange brown silty coarse sand with approximately 30 – 40% gravels and cobbles.

Results

No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

This figure has been removed from this Application for an Environmental Assessment Certificate/Environmental Impact Statement, as it contains archaeological site locational information protected under the *Heritage Conservation Act* (1996).

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Lara McFadden, Achinie Wijesinghe, Howie Wood (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 7-8, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N18 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the southern half of N18 is moderately to steeply sloping with western and northwestern aspects. The ground is hummocky with a few small streams in the eastern portion of N18 and dry ephemeral drainages in the western portion. The terrain in the northern half of N18 is gently sloping with western and northwestern aspects to flat wet meadows. Ground disturbances due to previous logging activities and current mining activities were observed throughout. Skid trails, stumps, and old forestry access roads were noted as well as a newly constructed mine access road and drill pad located in the northwestern corner. In addition, the main mine access road cuts through the northwestern corner and through the centre of the ASU trending north/south. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of significant hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

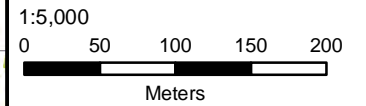
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of N19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

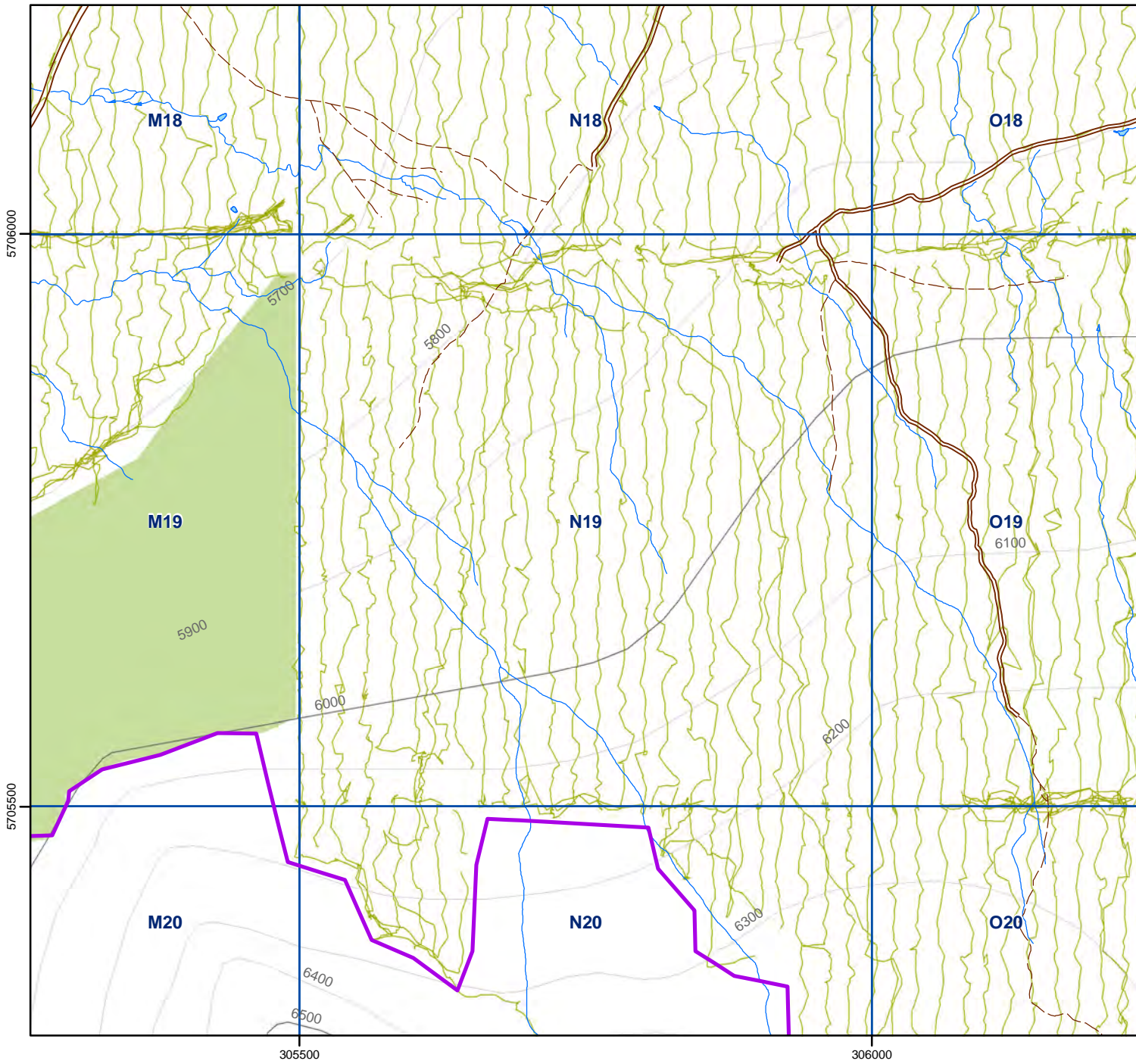


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 22-23, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1720-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N19 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within N19 consists of a continuous moderate-to-steep slope with both western and northwestern aspects. In the southernmost area of N19 there are several outcrops of rocks and the terrain becomes very steep. Some sections in this area were deemed unsafe for pedestrian survey. Some southeast-to-northwest trending ephemeral drainages were noted throughout area. Ground disturbance from previous logging activities was present as evidenced by numerous skid trails.

Archaeological potential is considered low based on the steeply sloping and disturbed nature of the terrain, as well as the lack of any significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

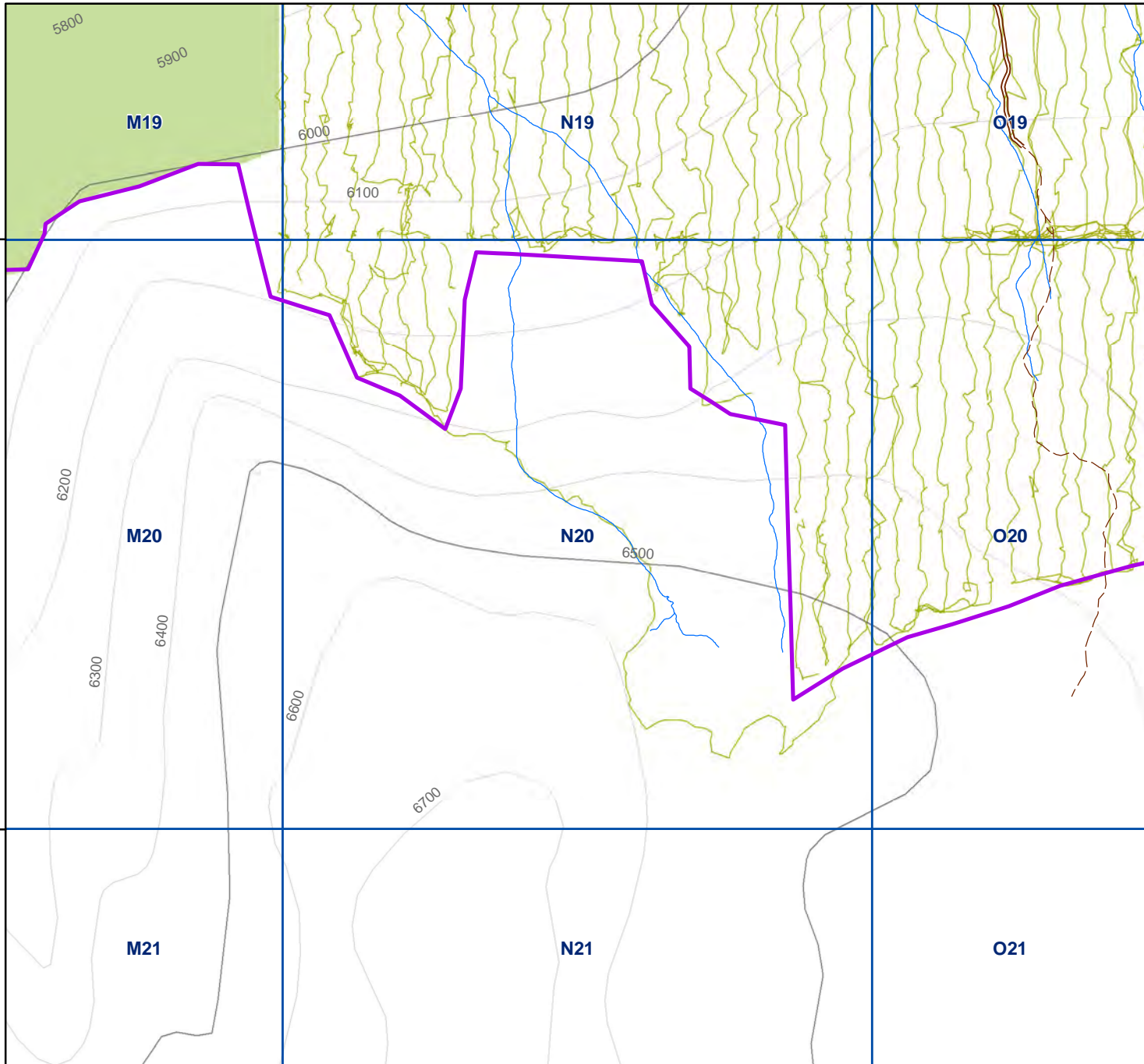
Number of Positive Subsurface Tests

No subsurface tests were excavated

Results

No protected archaeological resources were identified within the areas surveyed.

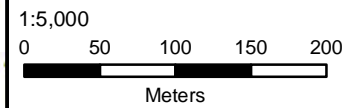
Historic Features Identified? No



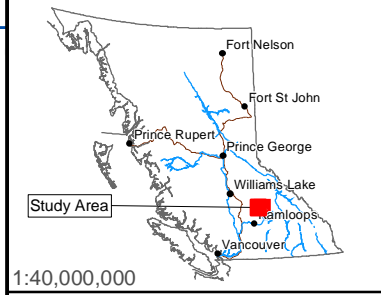
Survey Coverage of N20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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306000

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 22-23, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1840-2060

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU N20, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU N20 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within N20 consists of a continuous moderate-to-steep slope with both western and northwestern aspects. Rock outcrops, vertical rock faces and extremely steep terrain was observed throughout accessible areas of N20. The majority of N20 was deemed unsafe for pedestrian survey. Some southeast-to-northwest trending ephemeral drainages were noted throughout the area. Ground disturbance from previous logging activities was evidenced by numerous skid trails.

Archaeological potential is considered low based on the steeply sloping, rocky and disturbed nature of the terrain, as well as the lack of any significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

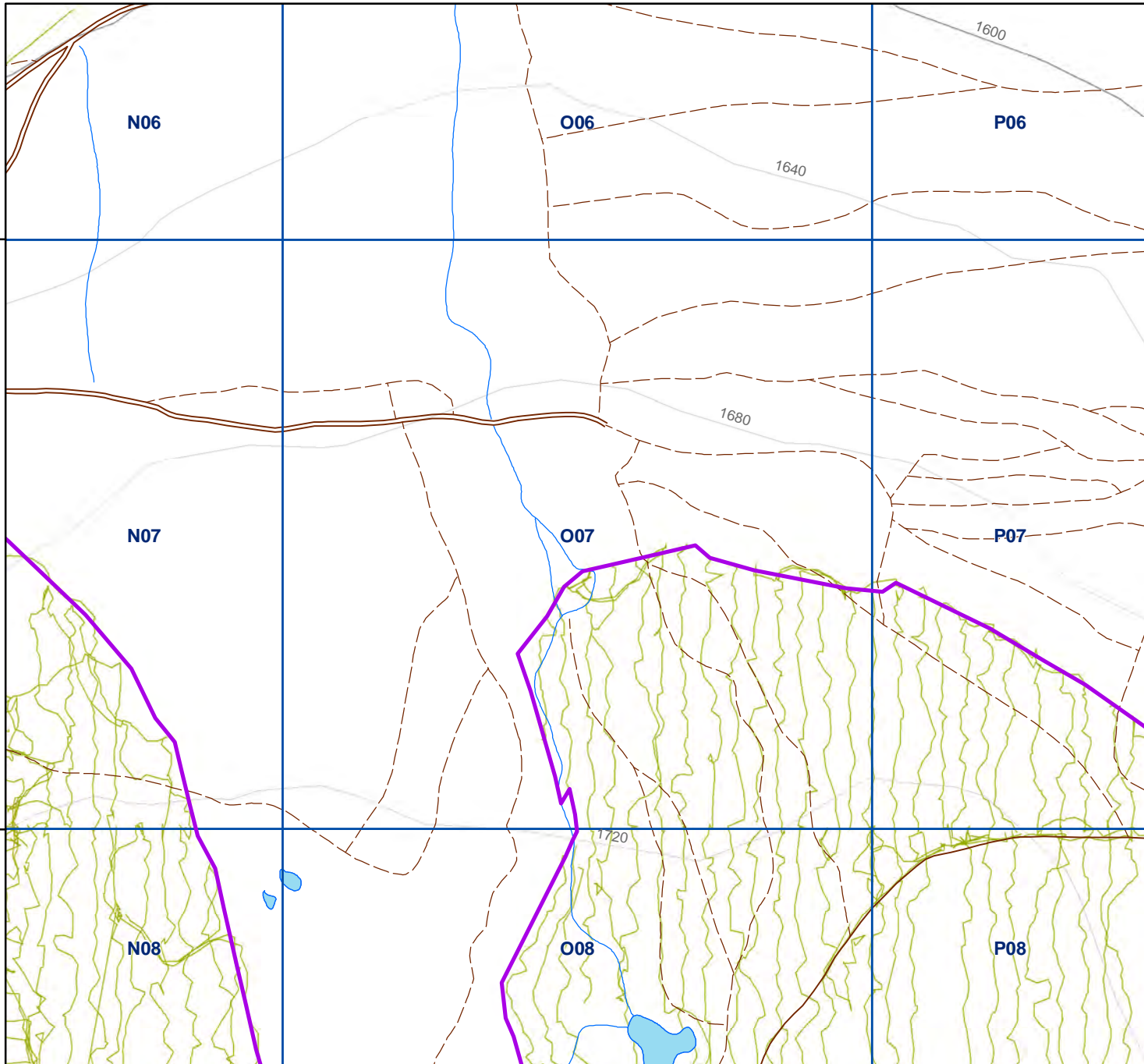
Number of Positive Subsurface Tests

No subsurface tests were excavated

Results

No protected archaeological resources were identified within the areas surveyed.

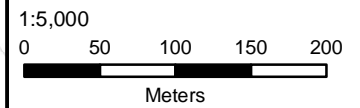
Historic Features Identified? No



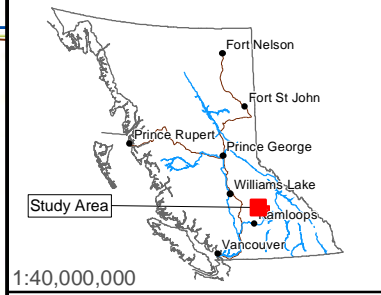
Survey Coverage of O07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

5712000

5711500

306000

306500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Lucas Eustache (Simpco), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 20, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1640-1725

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O07 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in assessed areas of ASU O07 is undulating and moderately sloping with a northern aspect. Multiple ephemeral drainages trend south to north and southeast to northwest. Disturbance in the area is evidenced by numerous skid trails and cut logs. Many of the drainages flow along the skid trails.

Archaeological potential is considered low due to the sloping, disturbed nature of the terrain, as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

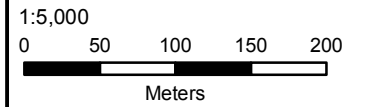
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of O08

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N

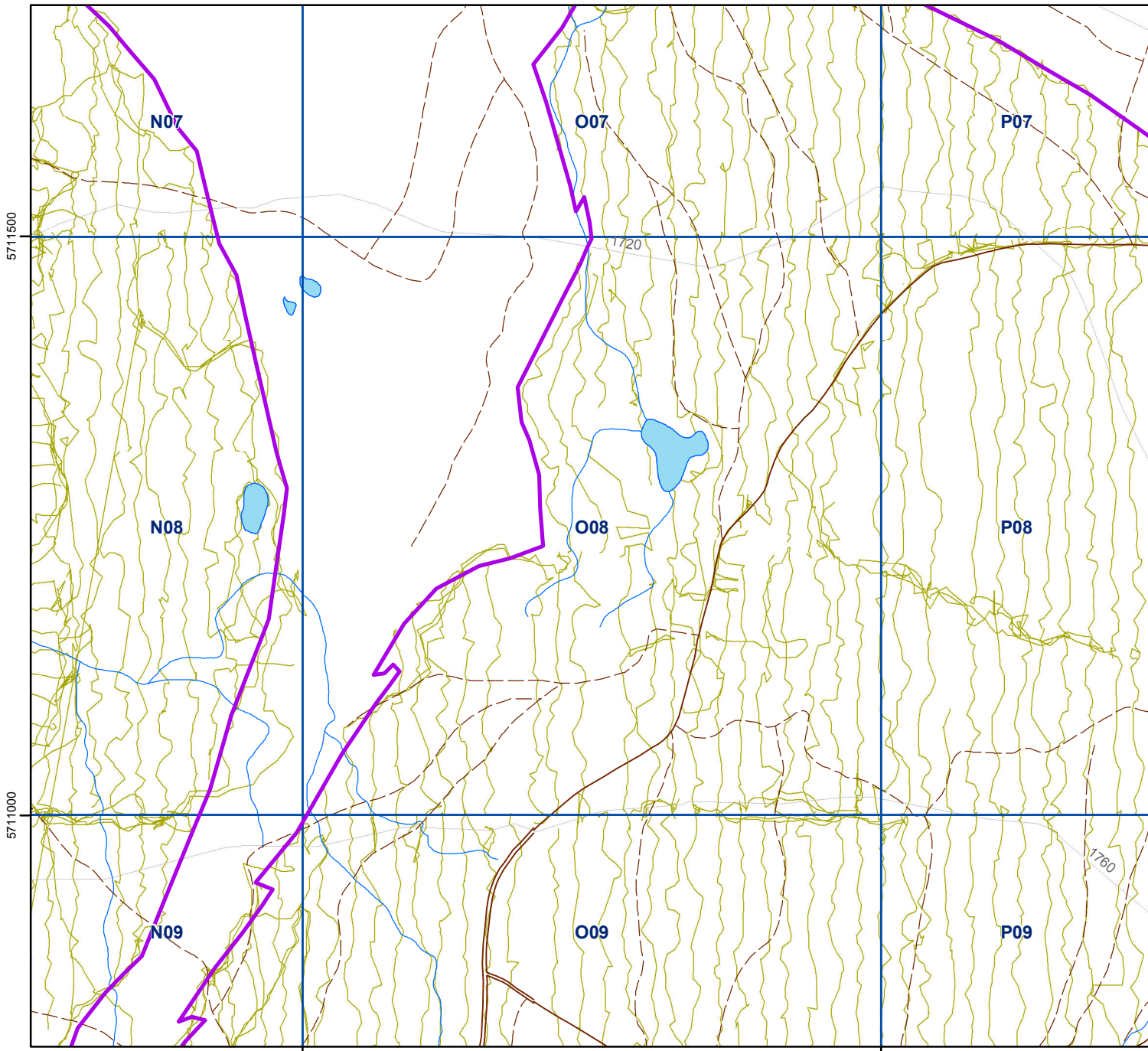


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 13, 16, 20 and September 14, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1715-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O08 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in assessed areas of ASU O08 is gently-to-moderately sloping with both northern and northwestern aspects. A series of low-lying and saturated marshy areas are located throughout most of the ASU area. Several ephemeral pools are located in the central portion of ASU; however, there are no well-defined or well-drained landforms in close proximity to these pools. The assessed area has been extensively disturbed by both logging and mining activities. A major southwest-to-northeast mine road transects the area, and multiple skid trails are located throughout the entire area.

Archaeological potential is considered low due to the sloping, saturated, and disturbed nature of the terrain, as well as the lack of significant hydrological features and well defined/well drained landforms

Subsurface Description

Total Number of Subsurface Tests

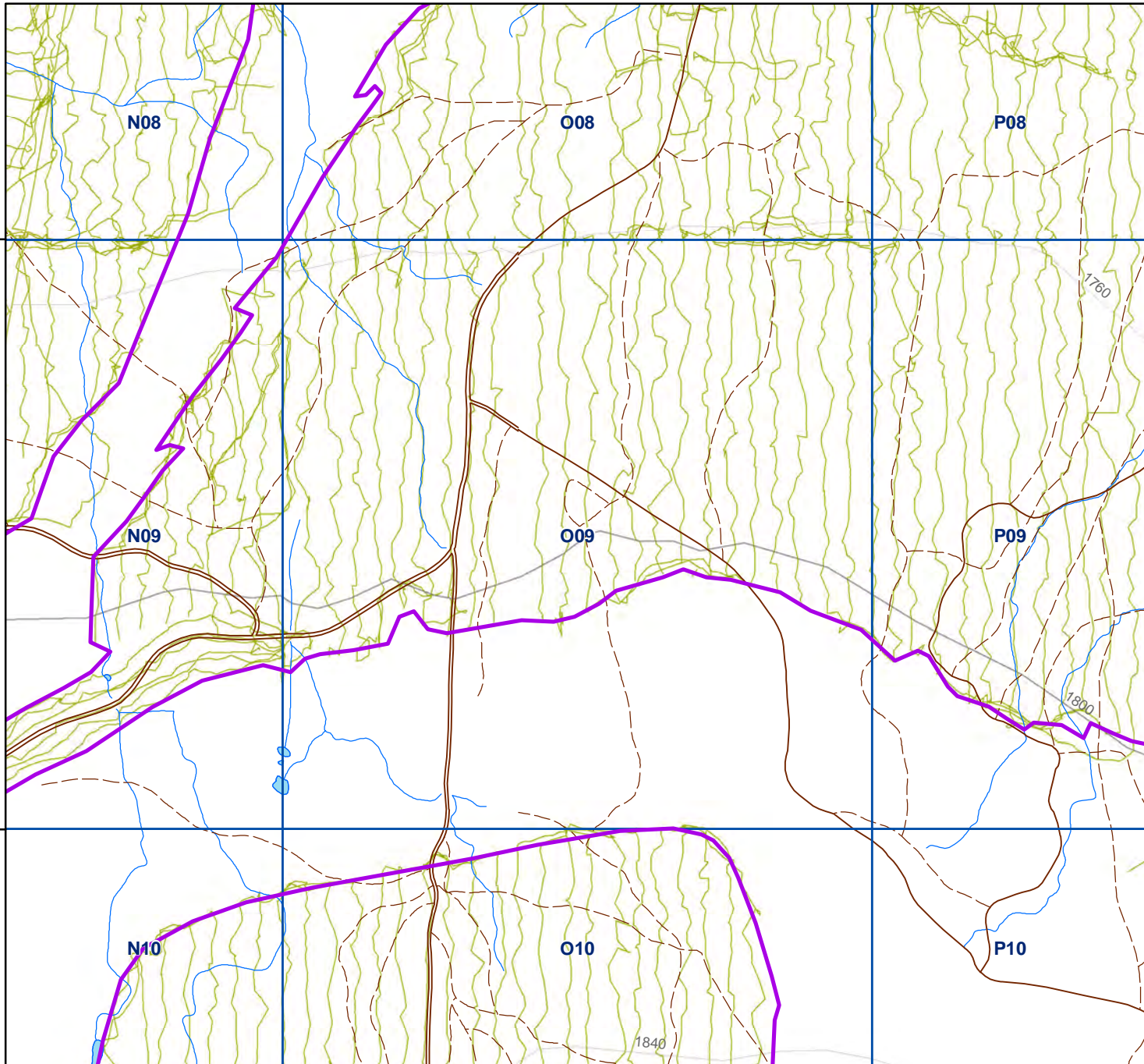
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

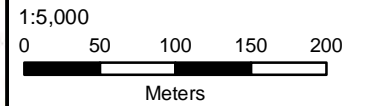
Historic Features Identified? No



Survey Coverage of O09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000



306000

306500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 13, 16-18, August 2, September 14, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1750-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O09 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in assessed areas of ASU O09 is gently-to-moderately sloping with both northern and northwestern aspects. Multiple ephemeral drainages and ponds are located throughout the area; however, there are no well-defined or well-drained landforms in close proximity to these features. The assessed area has been extensively disturbed by both logging and mining activities. A major southwest-to-northeast oriented mine road transects the northwestern portion of ASU and numerous skid trails are also located in the area. Archaeological potential is considered low due to the sloping, poorly drained, and disturbed nature of the terrain, as well as the lack of significant hydrological features and well-defined or well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

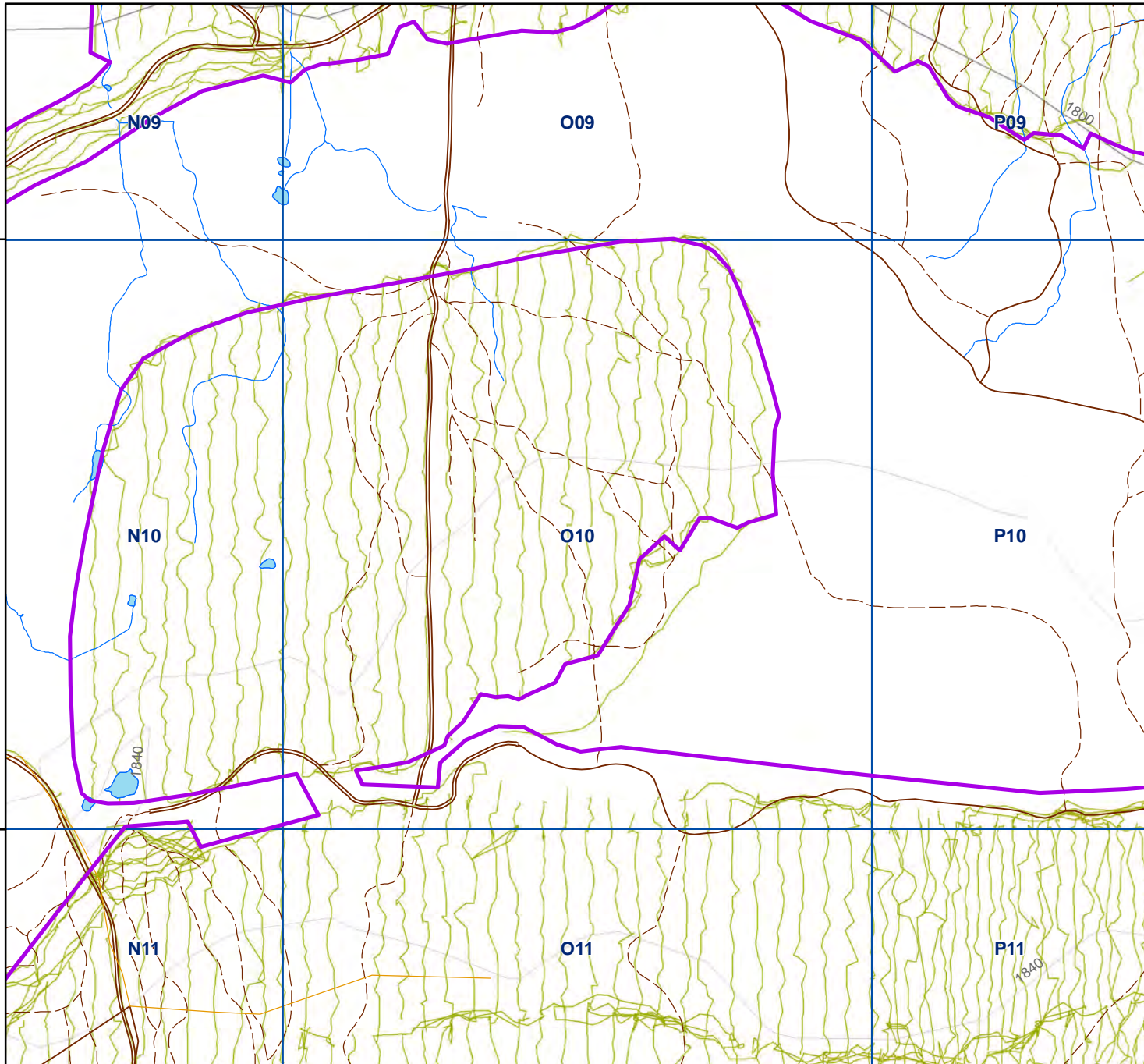
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

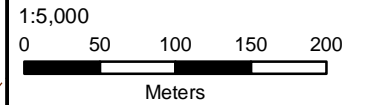
Historic Features Identified? No



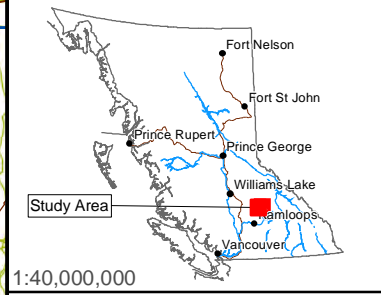
Survey Coverage of O10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 1-3, September 14, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1816-1856

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O10, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O10 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the southern portion of ASU O10 ranges from flat to gently undulating with a south to southeastern aspect. The rest of O10 is gently-to-moderately sloping and undulating with a north to northwestern aspect. There are several open and saturated meadows located throughout area, most of which are concentrated in the northern portion. Significant disturbance is noted throughout the ASU as a result of many intersecting skid trails and a main access road located along the southern ASU boundary. Archaeological potential is considered low due to the undulating, poorly drained, and disturbed nature of the terrain, as well as the lack of significant hydrological features and well-defined or well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

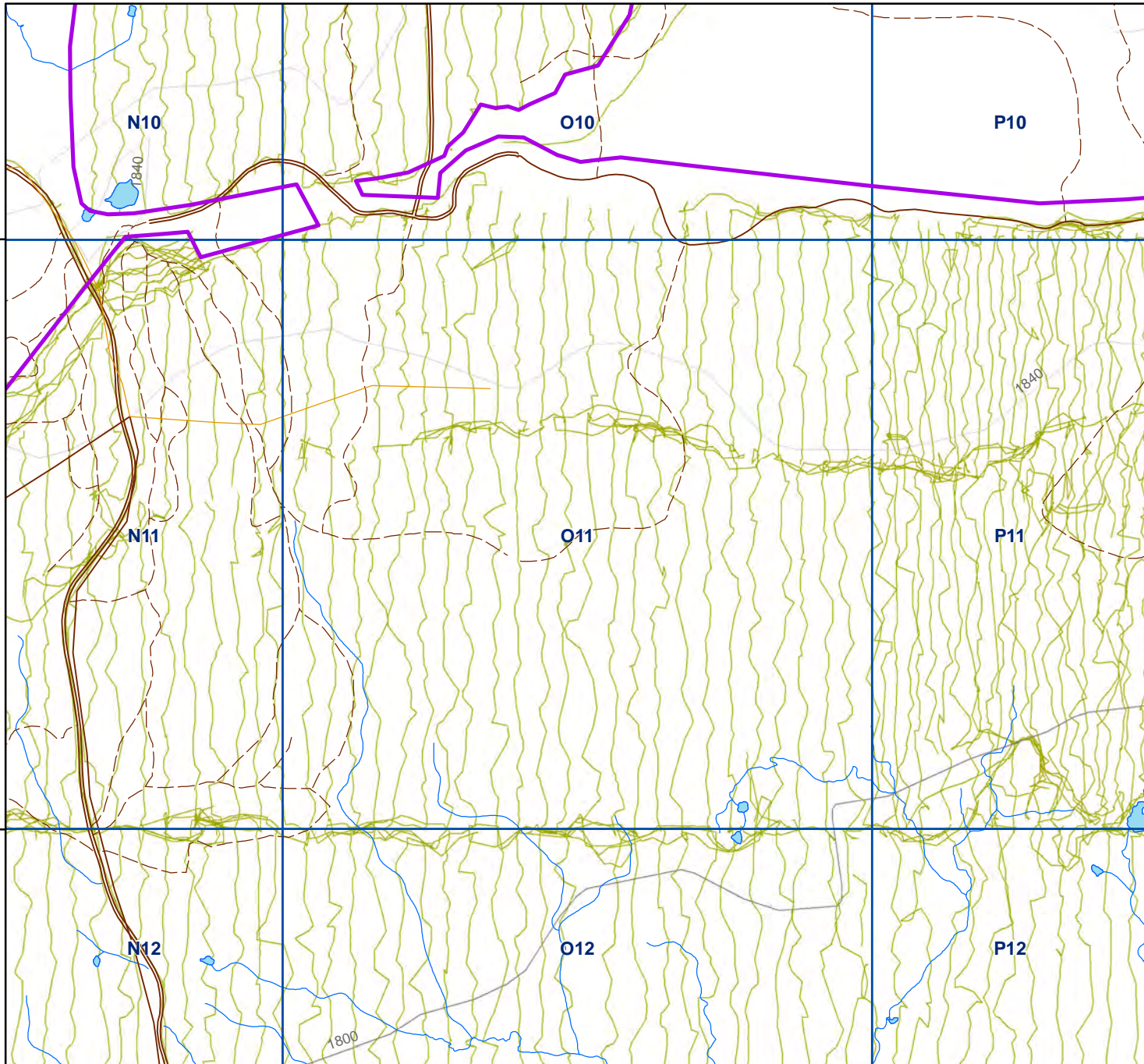
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

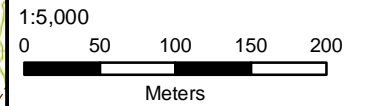
Historic Features Identified? No



Survey Coverage of O11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

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306500

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5709500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (AL), Murray Jules (Simpco), Ryan Kenoras (AL), Reginald Narcisse (AL), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 29, 2011; August 1-3, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1790-1850

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O11, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O11 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in O11 is flat to gently sloping with a southwestern aspect in the southern half and moderately sloping with a southwestern aspect in the northern half. The ground in the southern half is very poorly-drained and undulating, especially in the southeastern portion of O11 where this undulation creates hummocky, poorly drained hillocks throughout. Hydrology in the area consists of several small wet meadows and small, south-flowing streams located in the centre of the ASU. Ground disturbances due to previous logging and mining were observed in the northern half including skid trails, many cut logs, and a recently-constructed mine access road in the northwestern corner. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

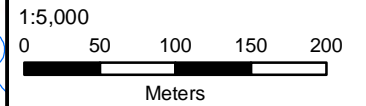
No protected archaeological resources were identified within the areas surveyed.


















Historic Features Identified? No

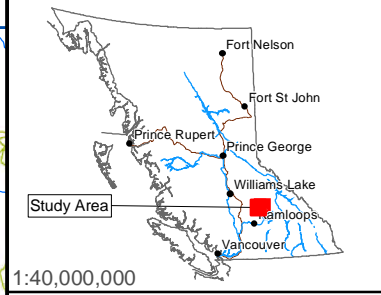
Survey Coverage of O12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

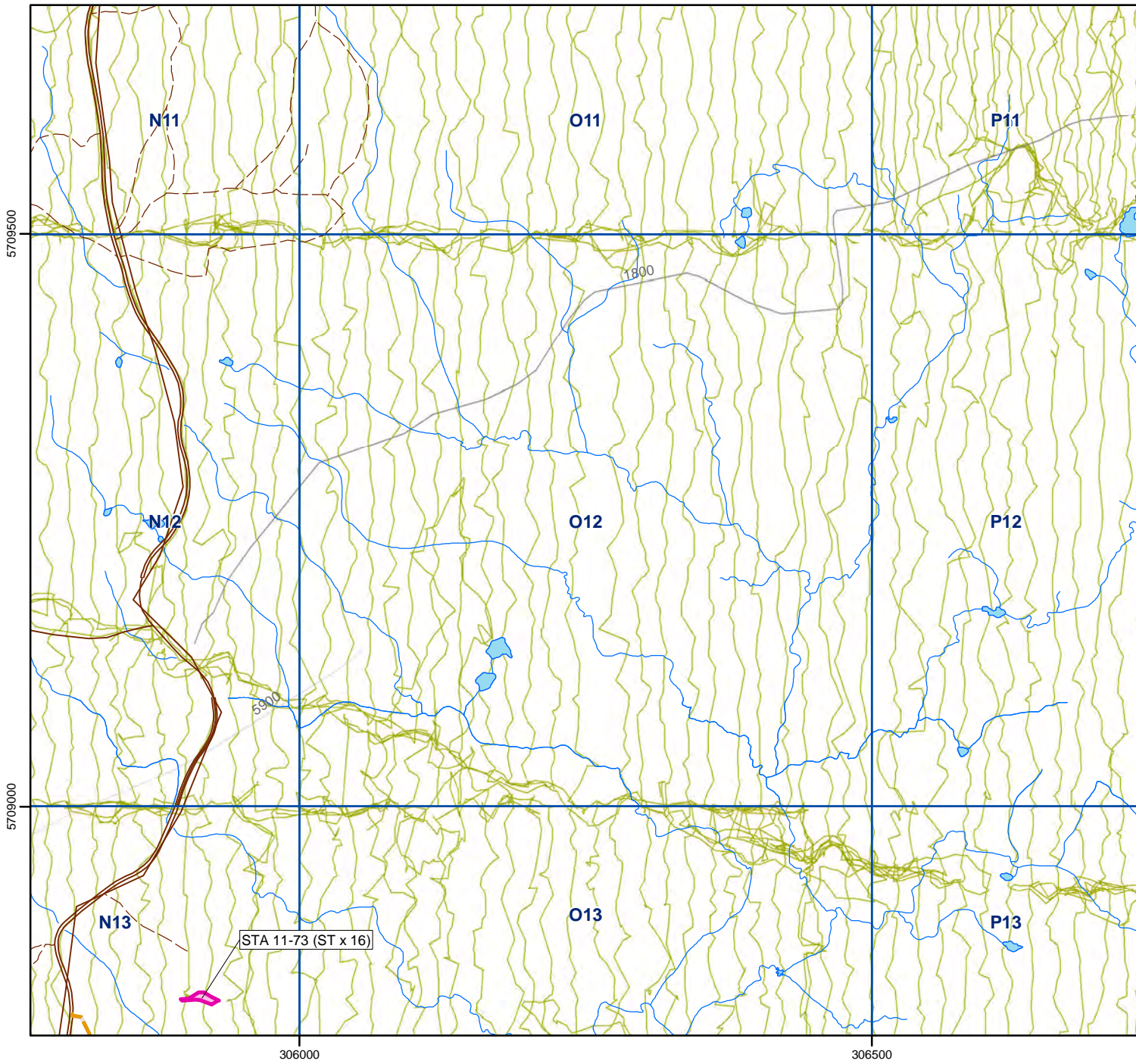
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



-  Project Area
-  Survey Transects
-  Very Steep Terrain
-  Shovel Test Area
-  Archaeological Site
-  Historic Trail
-  CMT
-  Historic Corral
-  Grid 500m
-  Contour 100m
-  Contour 20m
-  Roads (secondary)
-  Roads to Facilities
-  Trails
-  River/Creek
-  Wetland
-  Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 30 and October 3, 2011 (Rock Disposal Area East);
October 18, 2011 (Tailings Management)

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1780-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O12, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in O12 is very gently sloping with a southern aspect. The ground is rolling and hummocky creating small poorly defined hills throughout. Hydrology in the area includes a series of wet meadows and east/west oriented small, braided streams which run between the small rolling hills. Archaeological potential is assessed as low due to the poorly drained nature of the terrain as well as the poorly defined and hummocky nature of the rolling hills associated with the braided streams and wetlands noted.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

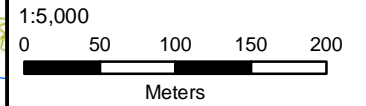
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

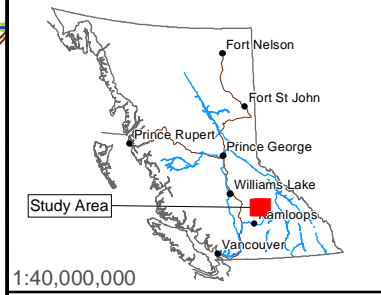
Survey Coverage of O13

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

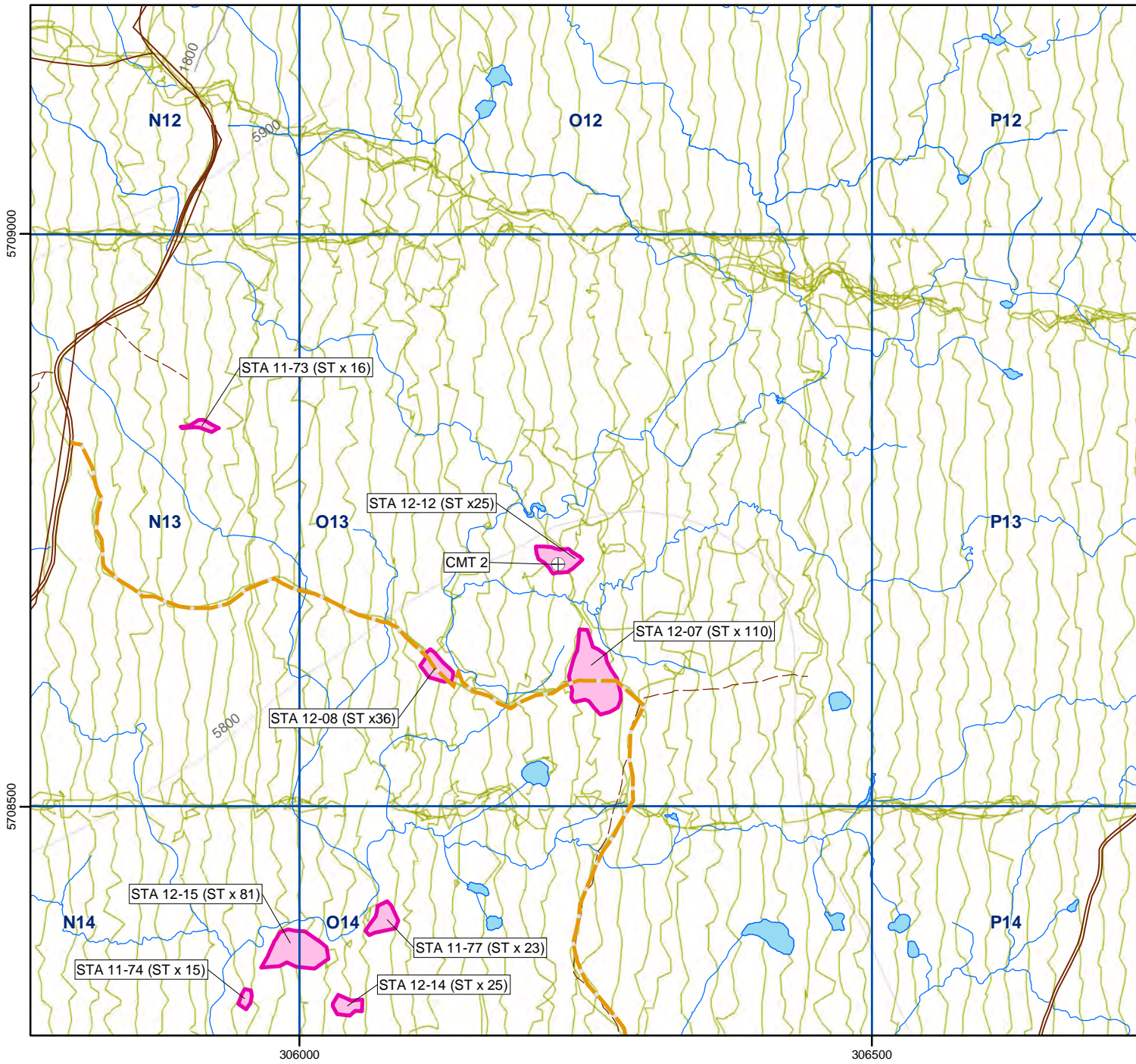
NTS 1:50,000 Mapsheet 82M/5 &/12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- + CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew E. Arnouse (Adams Lake), M. Arnouse (AL), S. Enns, T. Jaenson (AL), F. Jules (AL), M. Jules (Simpco), R. Kenoras (AL), J. Meldrum (AL), R. Narcisse (AL), J. Phillip (S), L. Pick, M. Saul (AL), A. Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) Oct. 3 (Disp.), 14 & 17-18 (T.M.), 2011; Aug 29-31 & Sep 5-6, 2012

Crew Chief(s) Meghan McGill

<p>PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No</p>

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1760-1780

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU O13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in O13 is gently sloping with a western aspect in the eastern quadrant, gently sloping with a south-southeastern aspect in the northwestern quadrant, and flat in the southwestern quadrant. The ground is gently rolling throughout, creating poorly-defined small hills and knolls with gently sloping sides separated by east-west trending wet meadows and small streams. Ground disturbances due to previous logging activities were observed including numerous skid trails. During the 2012 survey, three areas of archaeological potential were identified, as well as one culturally modified tree (CMT). The shovel test areas (STAs) and CMT-02 are all described below.

STA 12-07 consists of flat well-drained terrain surrounded by low-lying ephemeral ponds and associated wetlands. A well-defined north to south flowing creek is situated approximately 50 – 60 m to the west of the well-drained terrain. The test area measures approximately 60 x 46 m. One hundred and ten subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 12-08 is located on a southeast to northwest orientated bench approximately 1 to 2 m above a low-lying area and north to south trending drainage to the east. The northern extent of the landform is less defined and is poorly drained. The southern portion of landform is undulating with a moderate slope and a southwest aspect. A well-defined game trail transects the STA running southeast to northwest. The test area measures approximately 30 x 23 m. Thirty six subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 12-12 consists of knoll raised approximately 10 - 15 m above low-lying wetlands and east to west trending creeks to the north and south of the landform. This area was previously used as a camp. Several tin cans, jars, bottle plywood and cut logs arranged in a circle were observed throughout the area. A culturally modified tree (CMT-02) was also identified and is described separately below. The test area measures approximately 22 x 37 m. Twenty-five subsurface tests were excavated on an approximate 5 m grid, all with negative results.

CMT-02 is a Lodgepole Pine measuring approximately 36 cm in diameter with a 70 x 10 cm scar, with tool marks and cut marks present, approximately 56 cm above the ground on the southeastern side of the tree. A core sample was taken through the scar of the tree; the modification is estimated to be 61 years old.

With the exception of the STAs, archaeological potential is assessed as low due to the sloping, poorly drained nature of the terrain as well as the lack of well-defined landforms associated with the wet meadows and streams.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

STA 12-07: 0 - 5 cm depth below surface (dbs) = Littermat; 5 – 11 cm dbs = Dark brown fine grained silty sand with less than 3% inclusions; 11 - 22 cm dbs = Medium brown fine grained silty sand with less than 3% inclusions; 22 – 32 cm dbs = Yellow brown silty sand with approximately 15 – 20% sub-angular pebbles and cobbles; 32+ cm dbs = Sub-angular to sub-rounded cobbles and small boulders.

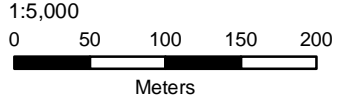
Results

No protected archaeological resources were identified within the areas surveyed.

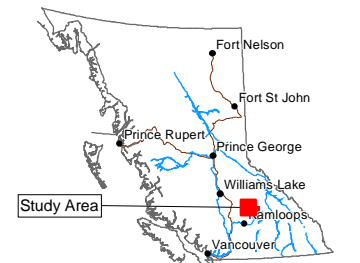
Historic Features Identified? CMT, trail

Survey Coverage of O14

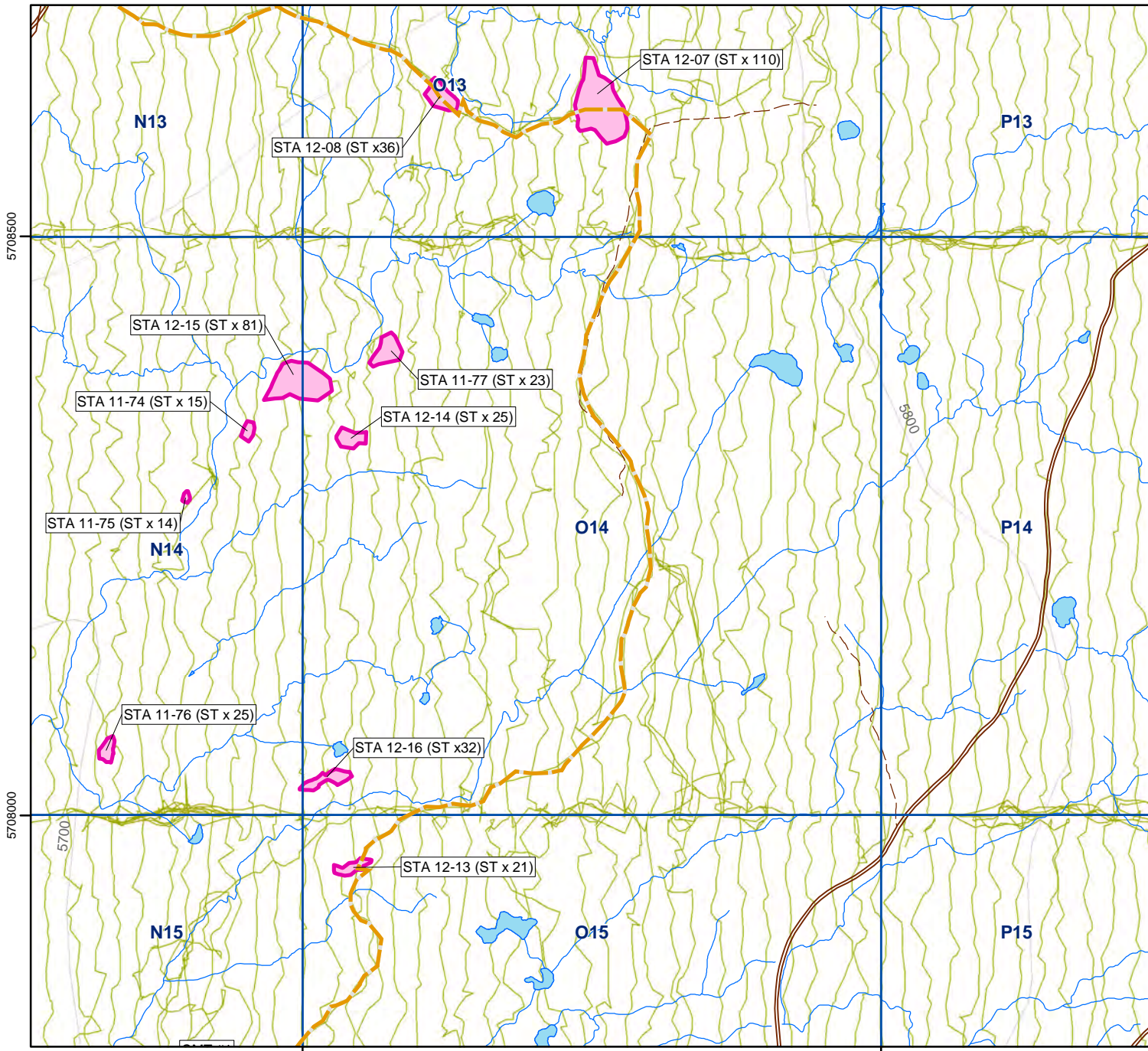
Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.
 NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041, 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew E. Arnouse (Adams Lake), M. Arnouse (AL), J. Carson, T. Jaenson (AL), F. Jules (AL), M. Jules (Simpco), R. Kenoras (AL), J. Meldrum (AL), R. Narcisse (AL), J. Phillip (S), L. Pick, A. Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 18-19, 2011; September 4-5, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

<p>PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No</p>

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1740-1770

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU O14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in O14 is gently sloping with western and west-northwestern aspects. The ground is poorly-drained and gently rolling throughout creating poorly-defined, small hills and knolls with gently sloping sides. East-west trending wet meadows and small braided streams are located in the low-lying areas between the hills features. Ground disturbances due to previous logging activities were observed including skid trails, stumps, and areas of machine-pushed soil. Four areas of archaeological potential were identified and subject to a subsurface testing program. The shovel test areas (STAs) are described below.

STA 11- 77 consists of a high, flat, well-defined bench which breaks otherwise gently sloping north-facing terrain. The test area trends east-west and overlooks a small creek. The creek is situated to the north of the test area, approximately 20 m lower in elevation and at the base of a moderate slope with a northern aspect. The test area measures approximately 25 x 5 – 20 m. Twenty-three subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 12-14 is located on a gently undulating terrace with a western aspect. The terrace is raised approximately 4 m above a low-lying area and east to west slow-moving drainage 20 m to the south. The test area measures approximately 15 x 24 m. Twenty-five subsurface tests were excavated on an approximate 5 m grid, all with negative results.

STA 12-15 is located on a gently sloping to flat terrace with a well-defined edge and northern aspect. A fast-moving creek skirts the northern and western edge of the terrace. The test area measures approximately 30 x 50 m. Eighty-one subsurface tests were excavated on an approximate 5 m grid, all with negative results. Note that STA 12-15 extends westward into ASU N14.

STA 12-16 is located along a southwest to northeast orientated terrace that is raised approximately 10 m above a southwest to northeast slow-moving creek. Terrain to the northwest becomes sloping with a northwest aspect and poorly drained. The test area measures approximately 14 x 44 m. Thirty-two subsurface tests were excavated on an approximate 5 m grid, all with negative results.

With the exception of the STAs, archaeological potential is considered to be low throughout areas assessed due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

STA 11-77: 0 – 3 cm depth below surface (dbs) = Littermat; 3 – 25 cm dbs = Moderately compact, dark brown sandy silt with approximately 10% sub-angular pebbles; 25 cm+ dbs = Moderately compact, yellowish brown sandy silt with small sub-angular cobbles.

STA 12-14: 0 – 3 cm dbs = Littermat; 3 – 10 cm dbs = Medium grayish brown sandy silt with less than 5% sub-angular pebbles; 10 – 28 cm dbs =

Results

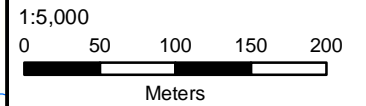
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? Trail

Survey Coverage of O15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

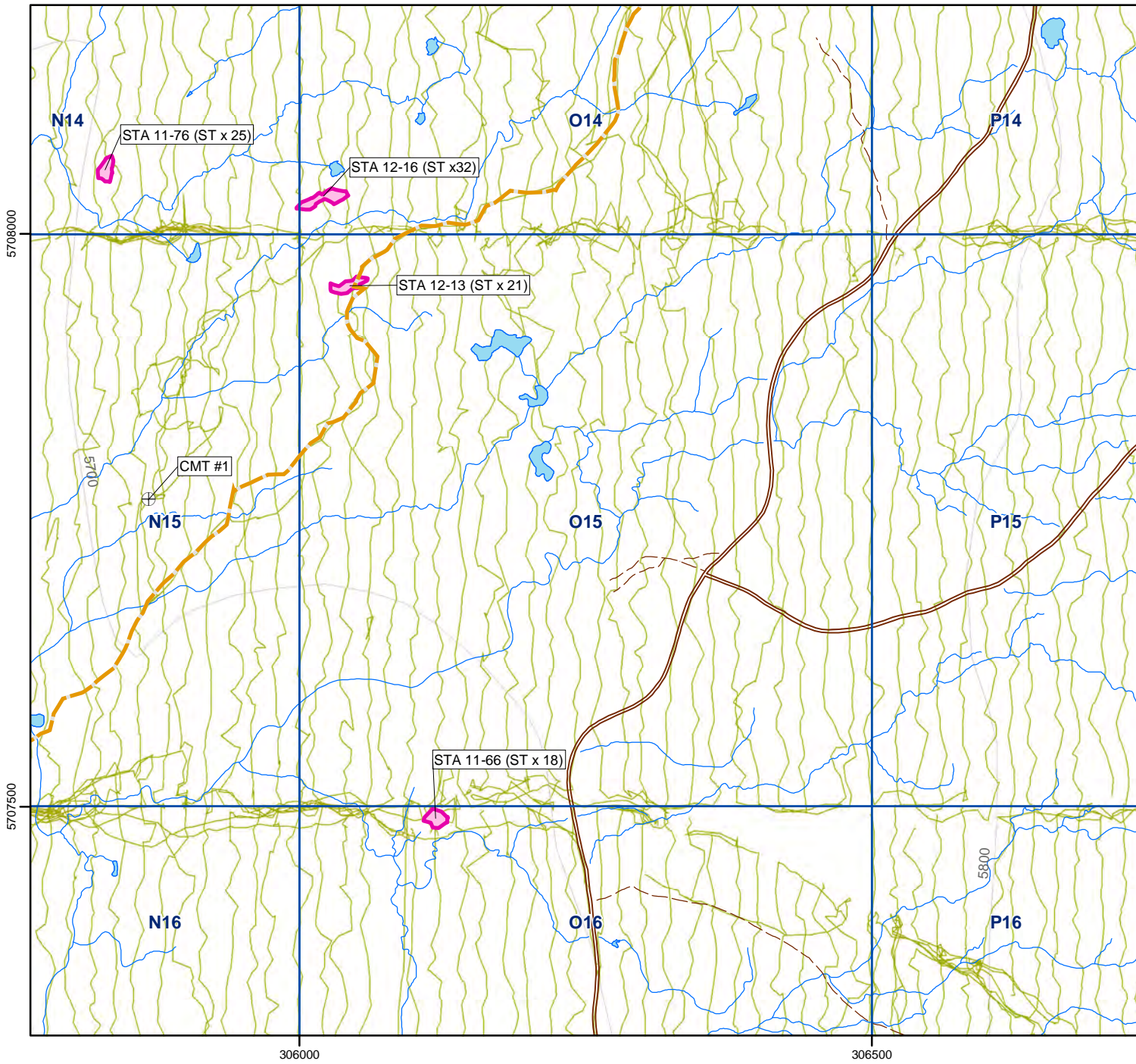


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (AL), J. Carson, S. Enns, Tyler Jaenson (AL), Fern Jules (AL), Murray Jules (Simpco), Ryan Kenoras (AL), J. Kirillo, Reginald Narcisse (AL), L. Pick, A. Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 7 and October 20, 2011; September 4, 2012

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1740-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU O15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in O15 is gently to moderately sloping with a southwestern aspect throughout. The ground in the eastern half is generally hummocky and poorly drained with small streams and seepages. The area is within an old forestry cut-block and is heavily disturbed due to previous logging activity. A northeast-southwest trending main mine access road transects the area. The ground in the western half is poorly drained with rolling hills and east-west trending wet meadows and small streams throughout. One area was determined to have archaeological potential. Shovel test area (STA) 12-13 is described below.

STA 12-13 is located on a southwest to northeast-oriented ridge. Terrain to the northwest of the ridge is gently sloping and low-lying with a northwestern aspect. To the southwest terrain becomes moderately to steeply sloping. A slow moving and well-defined northeast to southwest flowing creek is located approximately 10 m below the ridge. The test area measures 10 x 34 m. Twenty-one subsurface tests were excavated on an approximate 5 m grid. All the subsurface tests were negative for archaeological materials.

With the exception of STA 12-13, archaeological potential in O15 is assessed as low due to the sloping, poorly-drained, and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the wetlands and streams.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

STA 12-13: 0 – 5 cm depth below surface (dbs) = Littermat; 5 – 15 cm dbs = Medium to dark brown fine-grained sandy silt; 15 – 26 cm dbs = Medium to dark orange reddish brown fine grained sandy silt.

Results

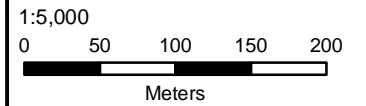
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? Trail

Survey Coverage of O16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

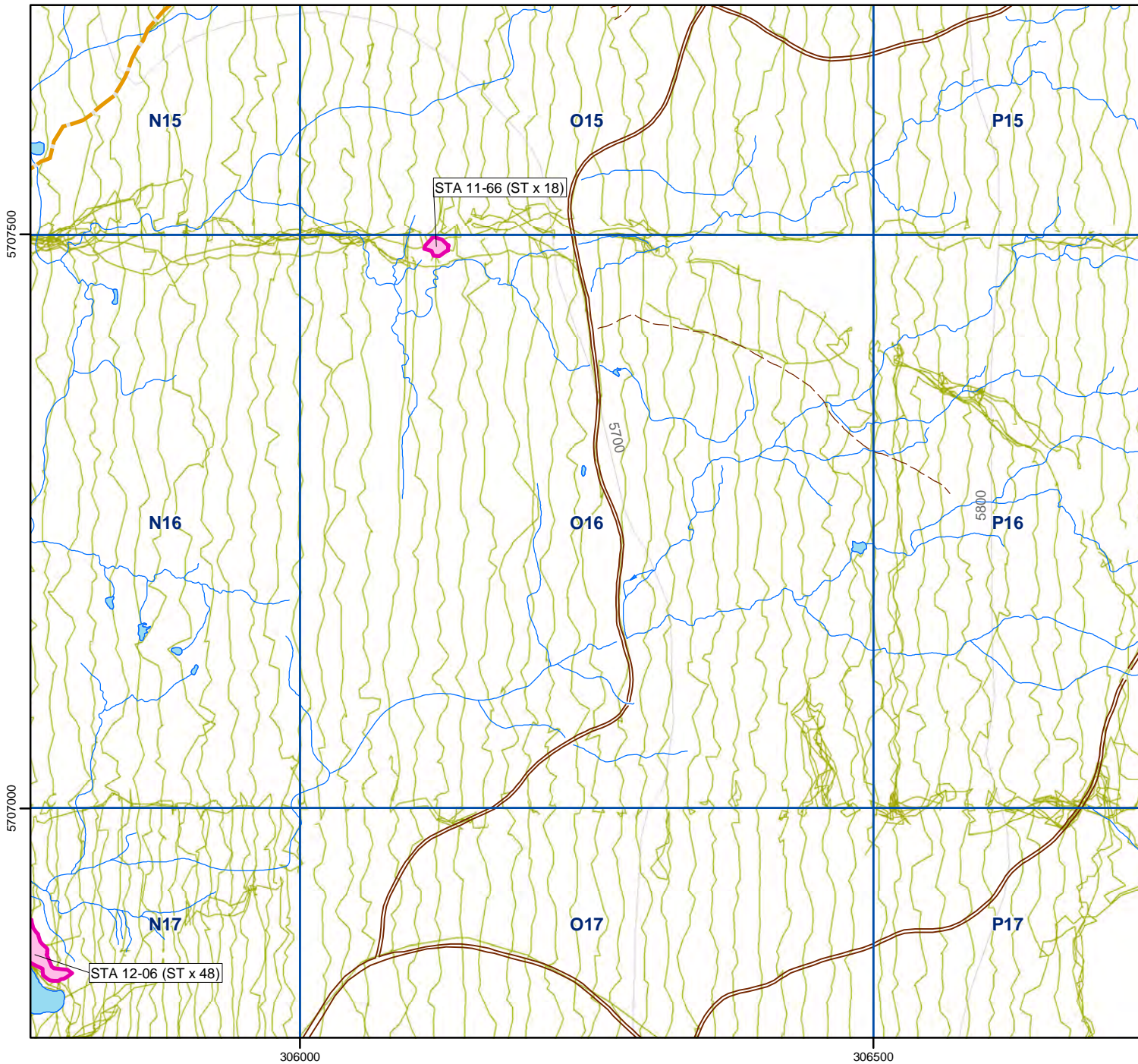


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (AL), Lucas Eustache (Simpw), Murray Jules (Simpw), Jordan Kirillo, Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 7, 2011; July 19, 2012

Crew Chief(s) Meghan McGill, Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU O16 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The majority of O16 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client.

The surveyed terrain in O16 is gently to moderately sloping with a southwestern aspect. The ground is gently undulating and poorly-drained throughout. Hydrology observed includes several small braided streams and a wet meadow located in the southern half of the ASU. Ground disturbances due to previous logging activities were noted including skid trails and landings as well as the main mine access road which runs through the centre of O16 trending north/south. One area of archaeological potential was identified and subject to subsurface testing. The shovel test area (STA) is described below.

STA 66 consists of a raised knoll situated approximately 2 - 3 m above an open wetland to the south and to the west. The knoll is slightly sloping and gently undulating with an overall southern aspect. The test area measures approximately 25 x 5 - 10 m. Eighteen subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

With the exception of STA 66, archaeological potential is considered to be low throughout the areas assessed due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

0 - 5 cm depth below surface (dbs) = Littermat with pine needles; 5 - 18 cm dbs = Dark brown silty sand with approximately less than 5% sub-angular pebbles; 18 - 38 cm dbs = Red-brown sand with approximately less than 5% pebble content; 38-43 cm dbs = Greyish red-brown sand with approximately 15% sub-angular cobbles and pebbles; 43 cm+ dbs = Cobbles and small boulders.

Results

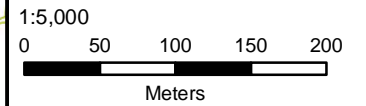
No protected archaeological resources were identified within the areas surveyed.


















Historic Features Identified? No

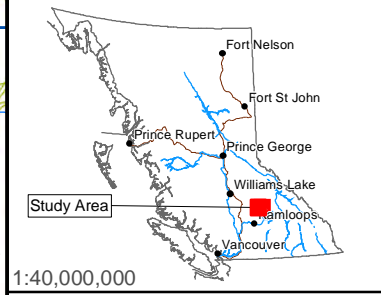
Survey Coverage of O17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

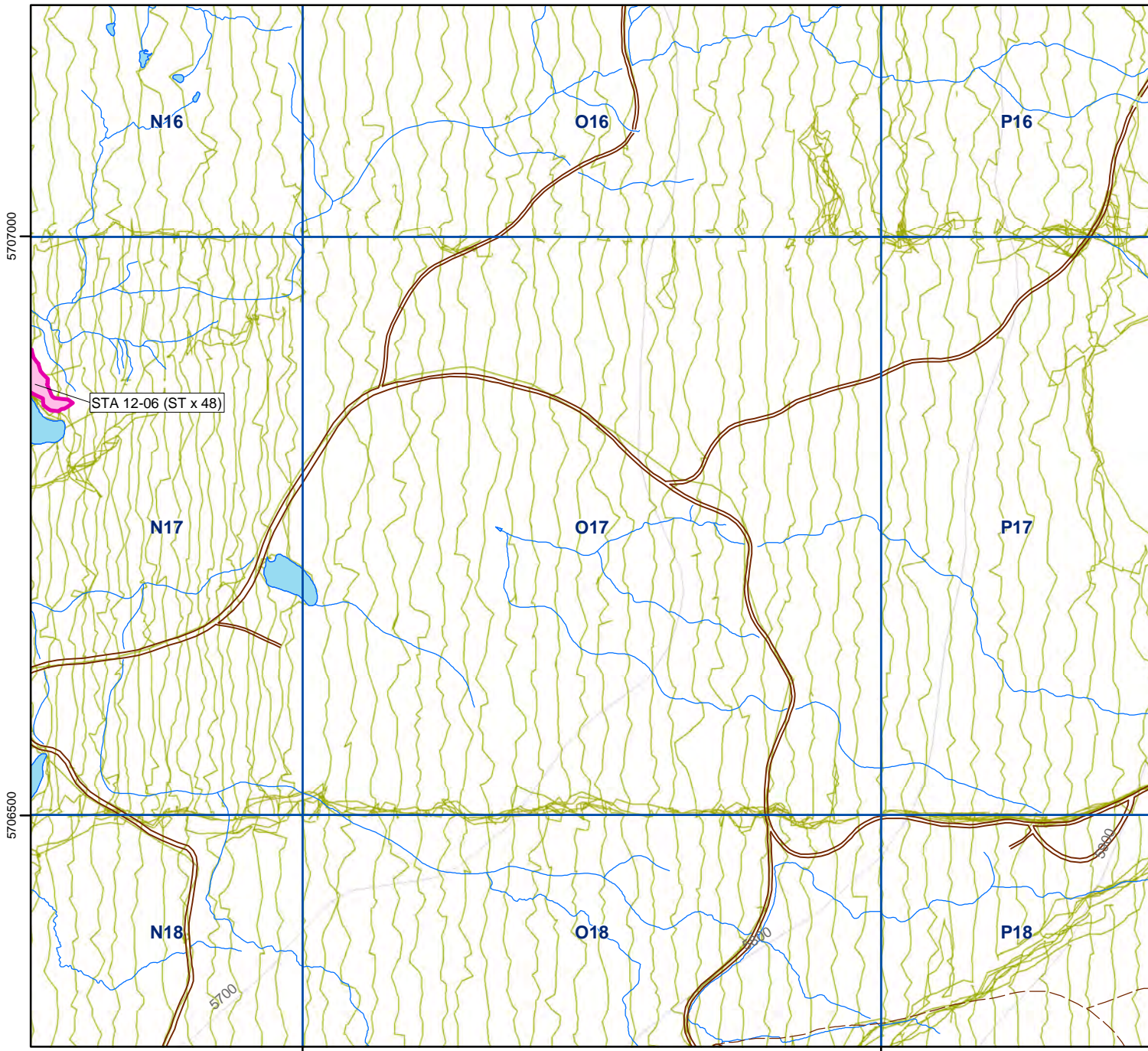
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



-  Project Area
-  Survey Transects
-  Very Steep Terrain
-  Shovel Test Area
-  Archaeological Site
-  Historic Trail
-  CMT
-  Historic Corral
-  Grid 500m
-  Contour 100m
-  Contour 20m
-  Roads (secondary)
-  Roads to Facilities
-  Trails
-  River/Creek
-  Wetland
-  Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpco), Jordan Kirillo, Lara McFadden, Martin Saul (Adams Lake), Achinie Wijesinghe, Howie Wood (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 7-8, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1720-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O17 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in O17 is gently to moderately sloping with a general western aspect. The ground is heavily rolling and these small rolling hills create gently to moderately sloping terrain with northwestern, western, and southwestern aspects that run down into saturated meadows in the northeastern and southeastern corners as well as into a northeast/southwest trending stream which runs through the centre of the ASU. Ground disturbances due to previous logging and mining activities were observed including skid trails and old landings as well as the main mine access road which runs through the centre of the area trending northwest/southeast. Archaeological potential is assessed as low due to the sloping, disturbed nature of the terrain as well as the lack of well-defined landforms associated with the wet meadows and streams noted.

Subsurface Description

Total Number of Subsurface Tests

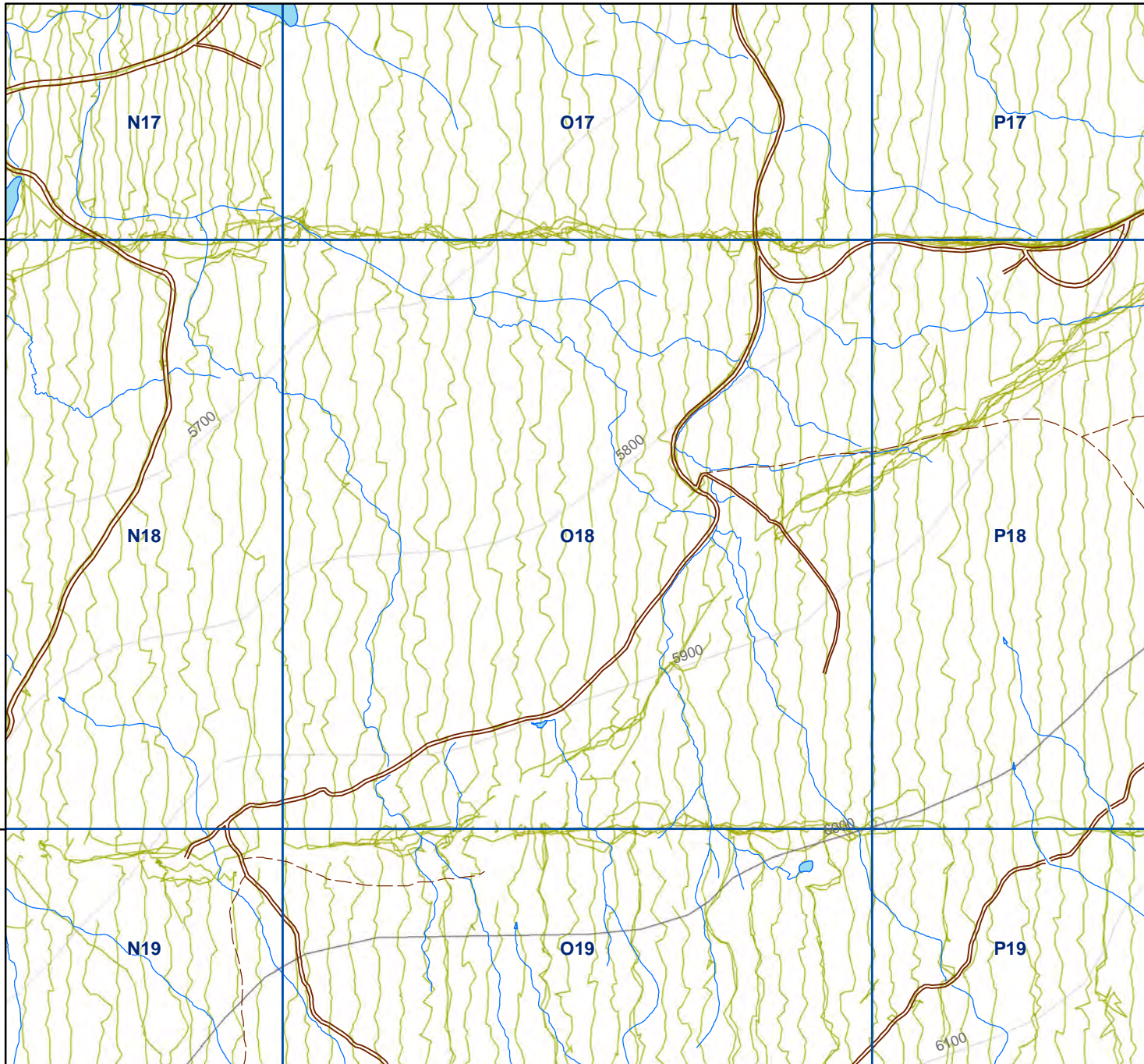
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

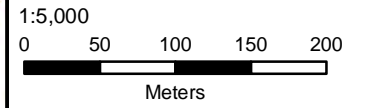
Historic Features Identified? No



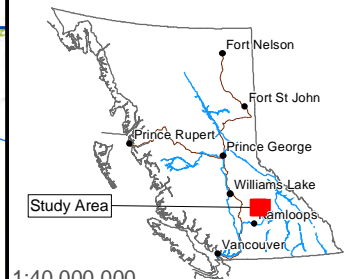
Survey Coverage of O18

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew M.Arrouse (Adams Lake), L.Eustache (Simpco), T.Jaenson (AL), M.Jules (S), R.Kenoras (AL), L.McFadden, M.McGill, J.Meldrum (AL), R.Narcisse (AL), M.Saul (AL), L.Pick, A.Wijesinghe, H.Wood (AL)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 7, 2011; August 16, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1740-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O18 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Most of ASU O18 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The southwestern corner of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was delayed until 2012. The terrain description of this portion of O18 is described below.

Terrain in O18 is moderately to steeply sloping with both north and northwestern aspects. The ground is generally hummocky with small braided streams throughout. No well-defined landforms were identified in association with these hydrological features. Two poorly-defined small ridges with moderately sloping sides and associated east-west trending gullies are located in the northeastern corner of the ASU. Ground disturbances due to previous logging activities were observed including numerous skid trails, stumps, and landings. In addition, the main north-south mine access road runs through the eastern half of the ASU. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the observed hydrological features.

Subsurface Description

Total Number of Subsurface Tests

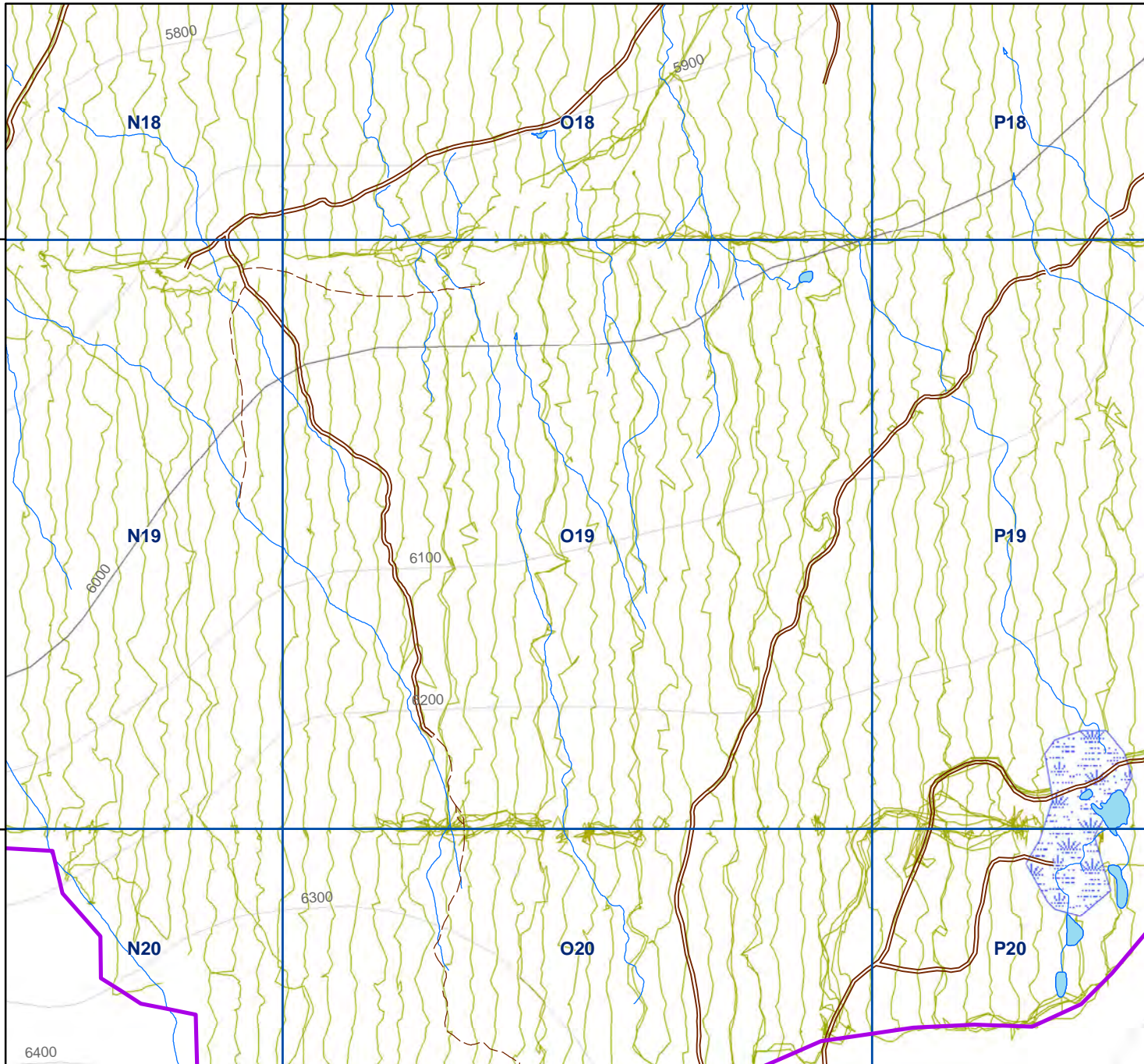
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

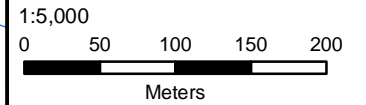
Historic Features Identified? No



Survey Coverage of O19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Mark Michele (Adams Lake), Reginald Narcisse (Adams Lake), Laura

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 21-22, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1800-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O19 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in assessed areas of ASU O19 is moderately-to-steeply sloping with northern, northeastern and northwestern aspects. Several north-south trending ephemeral drainages are within the ASU area. Disturbance due to past logging and mining activities is evidenced by numerous intersecting skid trails. Archaeological potential is considered low due to the sloping and disturbed nature of the terrain, as well as the lack of significant hydrological features and well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

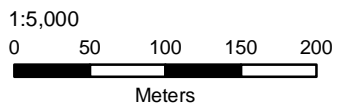
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

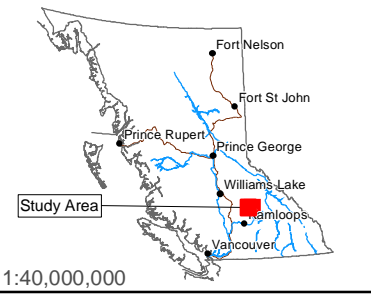
Survey Coverage of O20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

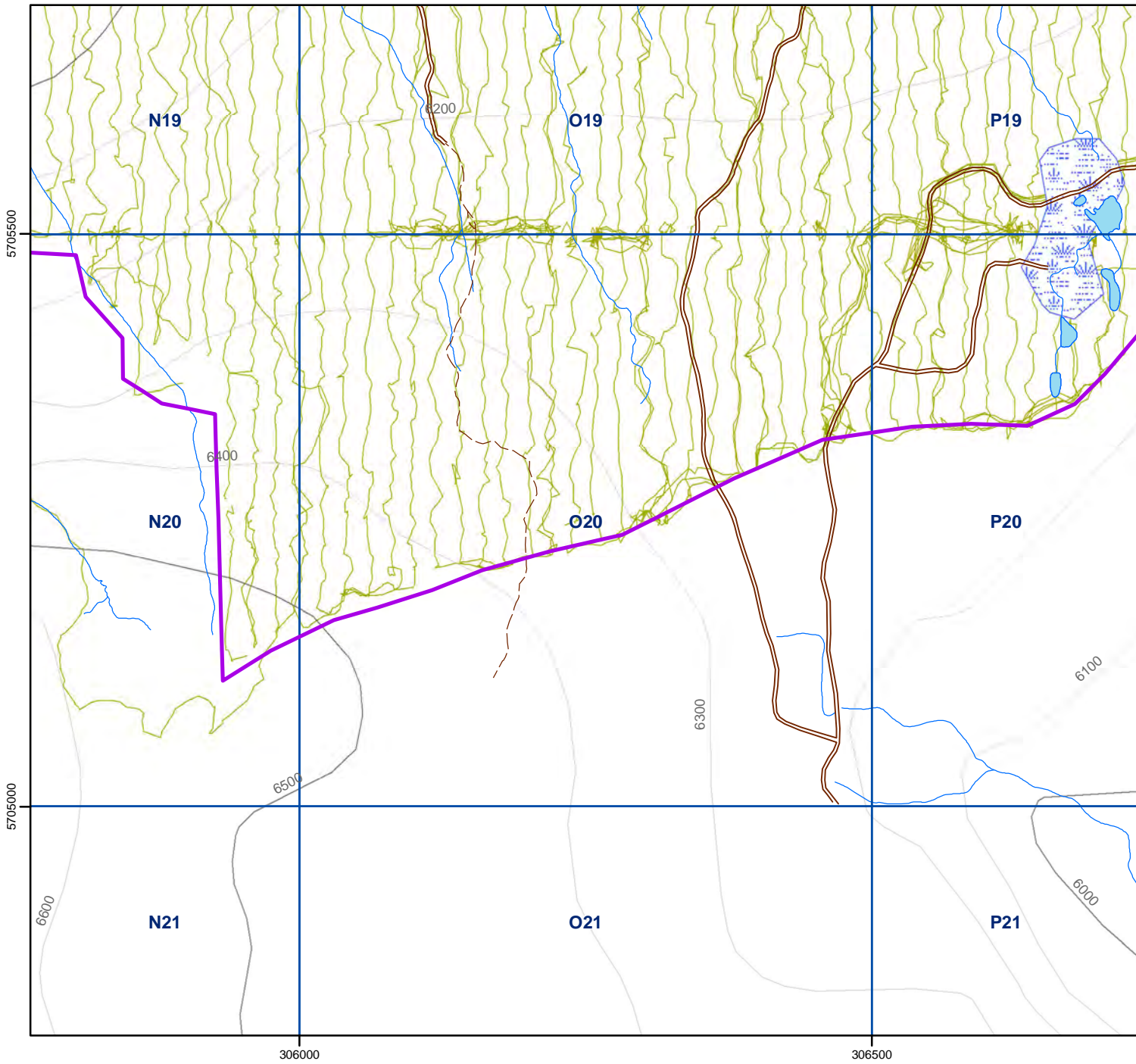
NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Mark Michele (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 21-22, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1880-2000

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU O20, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU O20 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the majority of the assessed areas of ASU O20 is moderately-to-steeply sloping with northern and northeastern aspects and there are several south-north trending ephemeral drainages. In the centre of the ASU terrain is gently-to-moderately sloping and undulating. Disturbance due to past logging and mining activities is evidenced by numerous intersecting skid trails and a mining road. Archaeological potential is considered low due to the sloping, undulating and disturbed nature of the terrain, as well as the lack of significant hydrological features and well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

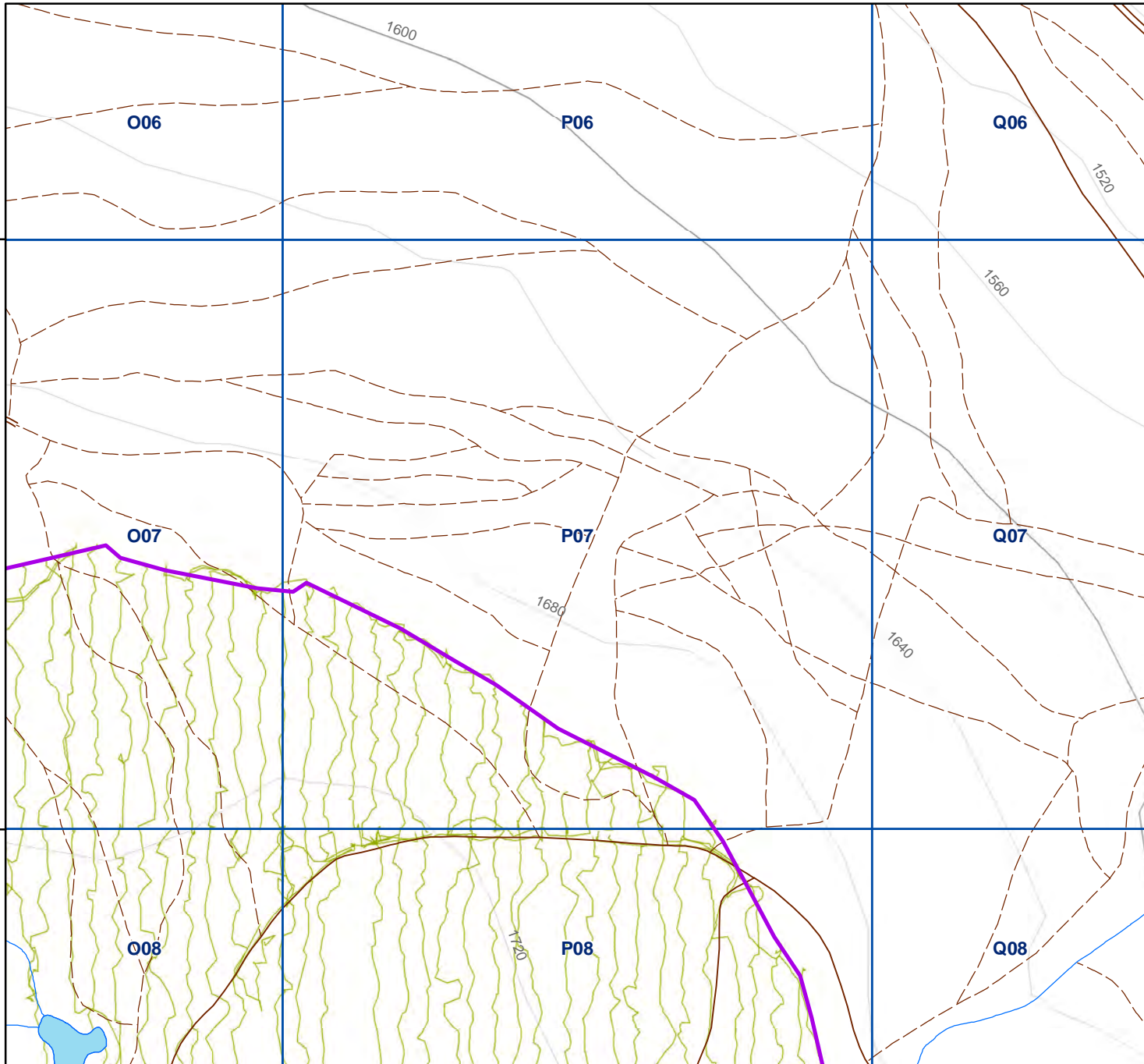
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

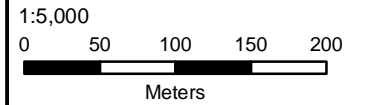
Historic Features Identified? No



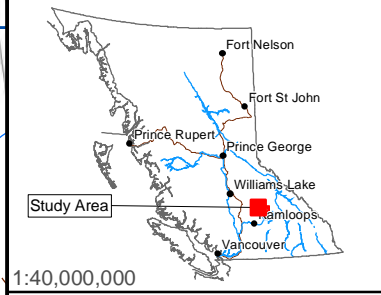
Survey Coverage of P07

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

5712000

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Ryan Kenoras (Adams Lake), Jordan Kirillo, Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 16, 17, 20, 23, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1660-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P07, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P07 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within P07 is undulating and gently-to-moderately sloping with a southern aspect. Several small ephemeral drainages are within ASU P07, many of which follow old logging-related skid trails. Archaeological potential is considered low due to the sloping and disturbed nature of the terrain, and lack of significant hydrological features associated with well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

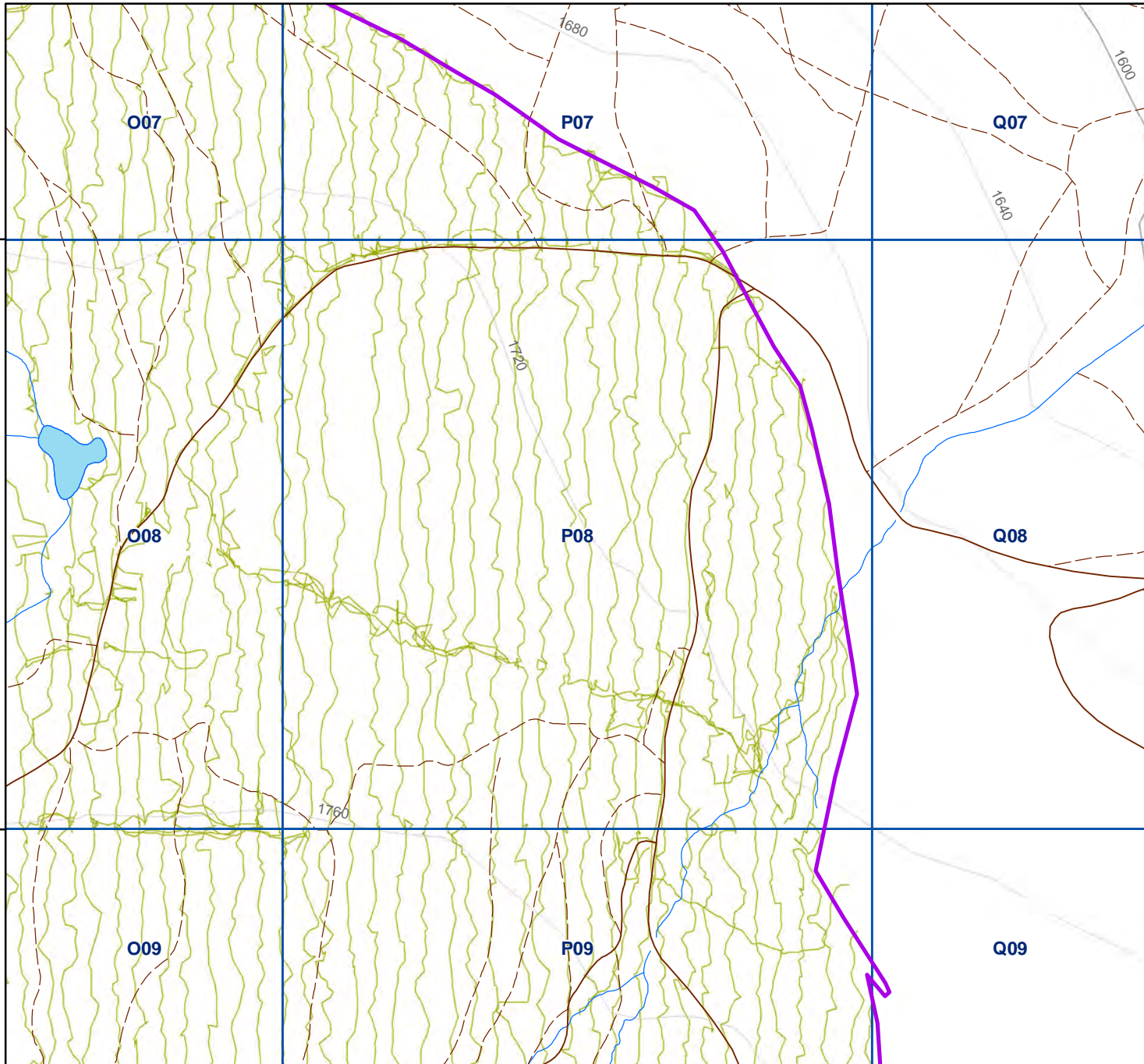
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

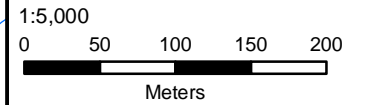
Historic Features Identified? No



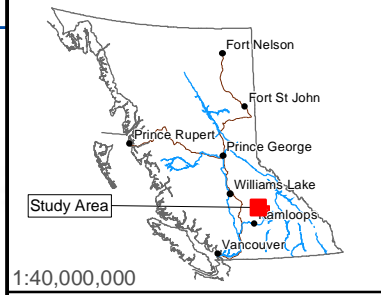
Survey Coverage of P08

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), James Charles (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Ryan Kenoras (Adams Lake), Jordan Kirillo, Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 16, 17, 20, 23, September 14, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1660-1760

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P08, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P08 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within ASU P08 is undulating and gently-to-moderately sloping with a north to northeastern aspect and becomes moderately-to-steeply sloping in the eastern portion of the ASU. Ground disturbance throughout the ASU has resulted from a series of intersecting skid trails. A small south to north flowing drainage is located in the southeastern corner of the ASU. Archaeological potential is considered low due to the sloping and disturbed nature of the terrain, and lack of significant hydrological features associated with well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

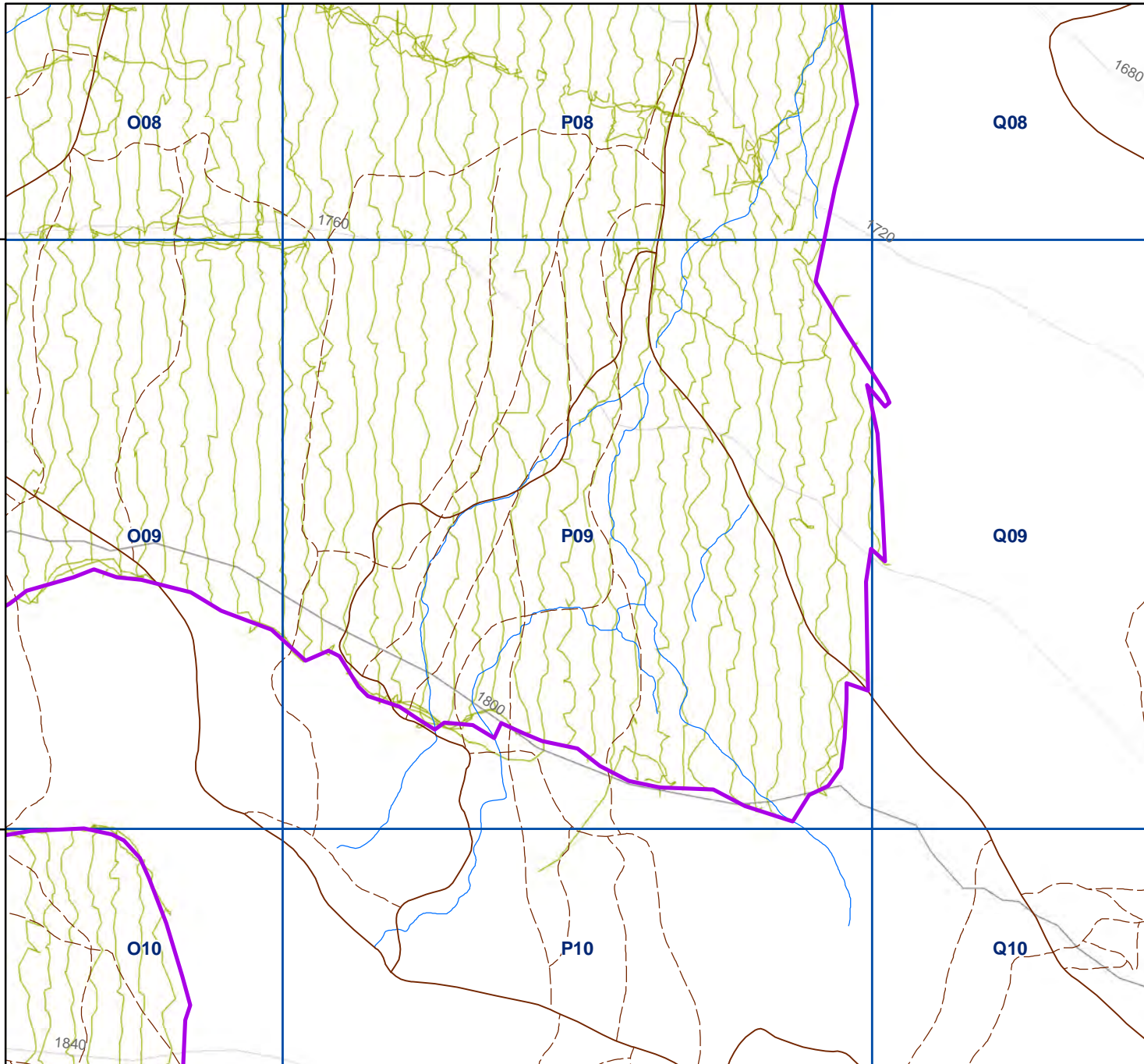
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

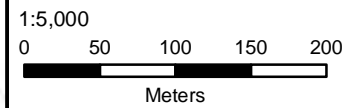
Historic Features Identified? No



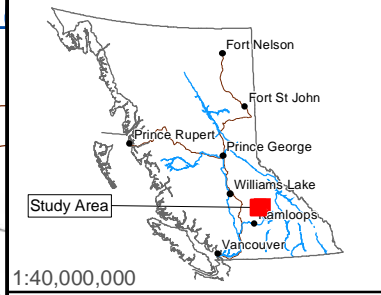
Survey Coverage of P09

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

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1840

1760

1720

1680

1780

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) July 15-17, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1720-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P09, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P09 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within ASU P09 is moderately sloping and undulating with a northern aspect; the aspect changes to northeastern in the northern portion of the ASU. The ground has been disturbed by numerous north-south and east-west trending skid trails. A main access road transects the northeastern portion of the ASU. Archaeological potential is considered low due to the sloping and disturbed nature of the terrain, and lack of significant hydrological features in association with well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

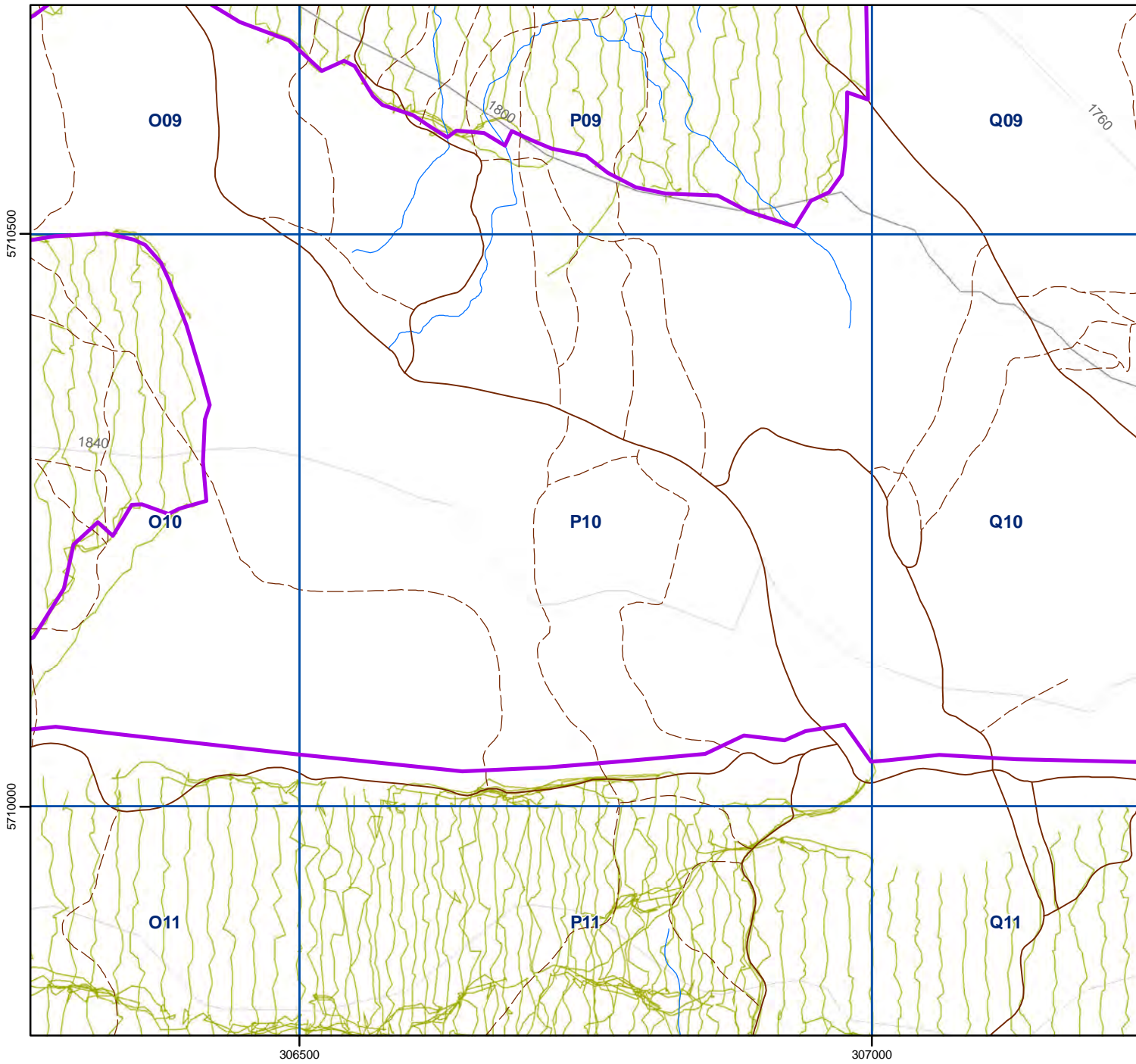
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

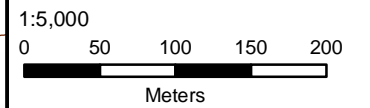
Historic Features Identified? No



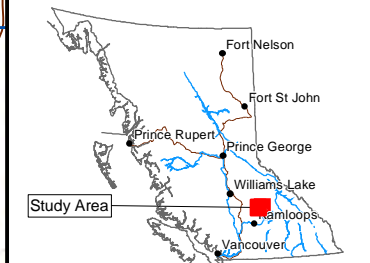
Survey Coverage of P10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041, 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 2, 3, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1790-1850

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P10, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P10 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

A small area in the southern portion of ASU P10 was assessed. Terrain is gently undulating to flat with a slight southern aspect. A main east-west access road crosses the entire assessed area; ground disturbance is significant. Archaeological potential is considered low due to the undulating and disturbed nature of the terrain, and lack of significant hydrological features in association with well-defined, well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

This figure has been removed from this Application for an Environmental Assessment Certificate/Environmental Impact Statement, as it contains archaeological site locational information protected under the *Heritage Conservation Act* (1996).

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew E. Arnouse (Adams Lake), M. Arnouse (AL), L. Eustache (SimpCW), T. Jaenson (AL), F. Jules (AL), M. Jules (SimpCW), R. Kenoras (AL), J. Meldrum (AL), R. Narcisse (AL), L. Pick, A. Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 28-29, 2011; September 19, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? Yes

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1800-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P11, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field.

Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge.

Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas varied between 1 and 5 m. Areas of increased potential within ASU P11 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northern half of P11 is gently to moderately sloping with southern to southwestern aspects. In the southern half, the terrain consists of flat to gently sloping wetlands and meadows which display an overall slight southern aspect. In addition, there are several small, poorly-drained hills and knolls in the south. The ground throughout the entire ASU is poorly drained with saturated soils. A well-established road runs east to west through the northern portion of P11. Extensive ground disturbances due to previous logging activities were observed in the northern half, including numerous skid trails and areas of timber harvest.

A rock cairn consisting of flat rock slabs was observed within this ASU. Refer to the attached maps for the location of this feature. The cairn is elongated and irregular in shape, with a dense cover of moss and lichen. The perimeter measures approximately 2 x 1 m, and it is no more than 0.5 m in height.

The rock cairn feature was identified on a poorly-defined, very gently sloping, hummocky break in otherwise moderately sloping terrain. This landform and the surrounding moderate slope display an overall southern aspect and are not associated with any significant water sources.

Subsurface testing was carried out on the break-in-slope to investigate the potential for the presence of buried archaeological materials. The shovel test area (STA 70), measures approximately 15 x 15 m. Ten subsurface tests were excavated on an approximate 5 m grid with an additional four tests placed in cardinal directions 1 m away from the rock cairn, for a total of fourteen tests. It is possible that the rock cairn feature is associated with archaeological or historic cultural activities within the area; however, no cultural materials were identified within the subsurface tests.

It is important to note that significant ground disturbance as a result of mechanical activities was noted in the vicinity, and that these disturbances appear to be ongoing and vary widely in age. The Simpcw First Nation and Adams Lake Indian Band representatives present for the field assessments have expressed concern for the appropriate assessment and management of the cairn feature. At the request of the First Nations, the feature itself was left unexcavated until further non-invasive options for its identification can be investigated. Further archaeological work is therefore required in this location prior to any impacts.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping, poorly-drained, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

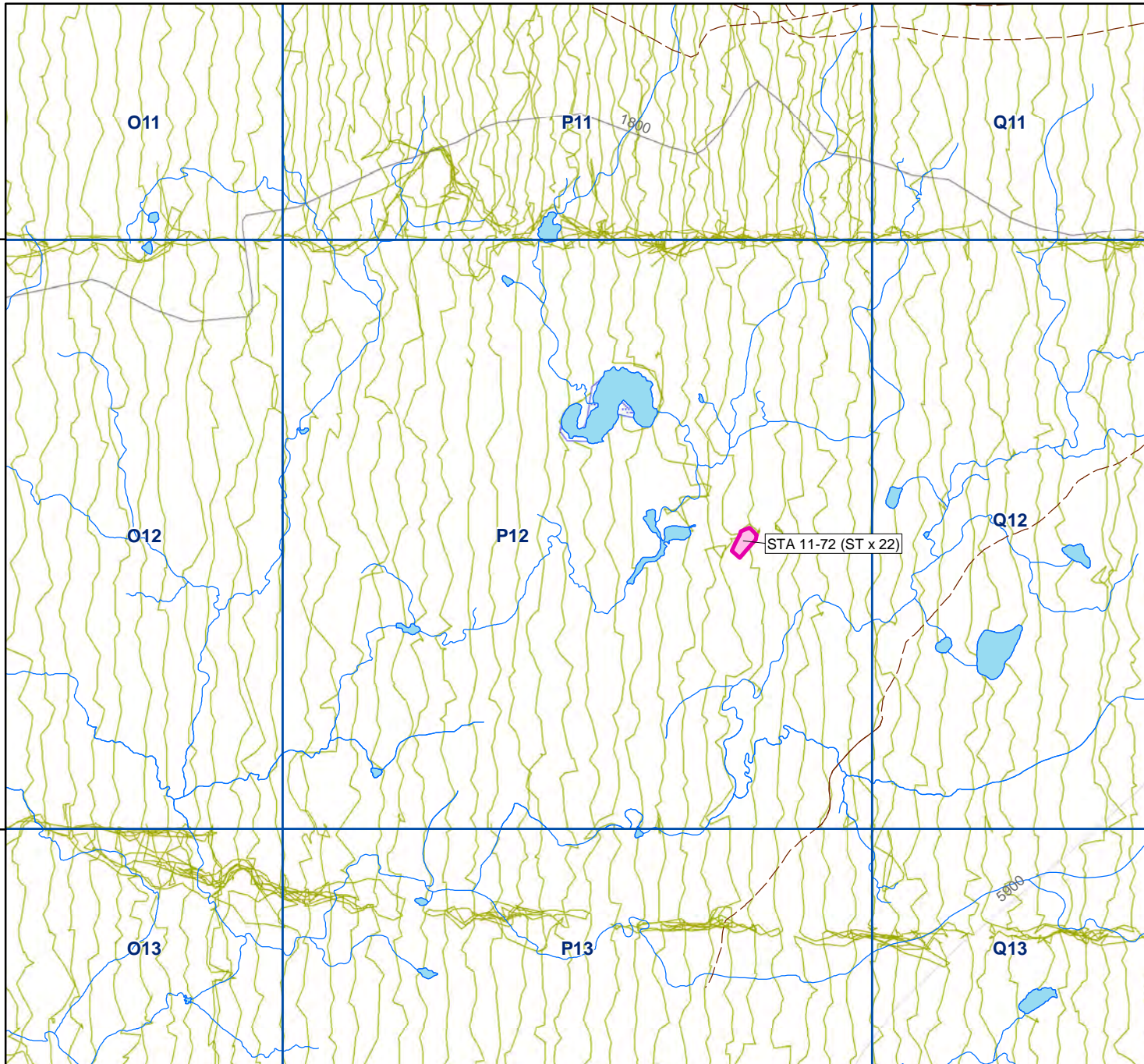
Number of Positive Subsurface Tests

0 - 3 cm depth below surface (dbs) = Littermat; 3 - 7 cm dbs = Dark brown loam with approximately 30% pea gravels and sub-angular gravels; 7 cm+ dbs = Medium brown silty sand with large flat cobbles

Results

No protected archaeological resources have been identified within the areas surveyed; however, further archaeological inspection is warranted for the rock cairn identified within these facilities.

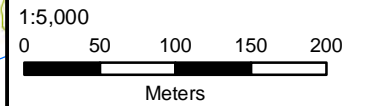
Historic Features Identified? No



Survey Coverage of P12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twhog

Field Director(s) Kim Statham

Survey Date(s) September 30 and October 3, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12,82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1780-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P12, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU P12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in P12 has a western aspect and is flat to gently sloping with moderately rolling small hills and poorly defined knolls. Flat, wet meadows with small braided streams trending east/west are located in the low-lying areas between the rolling hills. Two water bodies shown on maps near the centre of the ASU were only discernible to the field crew as sections of poorly drained terrain. Ground disturbances were observed throughout but were very slight, including only a few skid trails. One area was assessed as having the potential for the presence of buried archaeological deposits and was subject to subsurface testing.

Shovel Test Area (STA) 72 consists of a north/south raised flat terrace overlooking a wetland area. The wetland is situated directly to the west of the test area and is approximately 25 m away, at the base of a gentle slope with a western aspect. The test area measures approximately 30 x 20 m. Twenty-two subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

22

Number of Positive Subsurface Tests

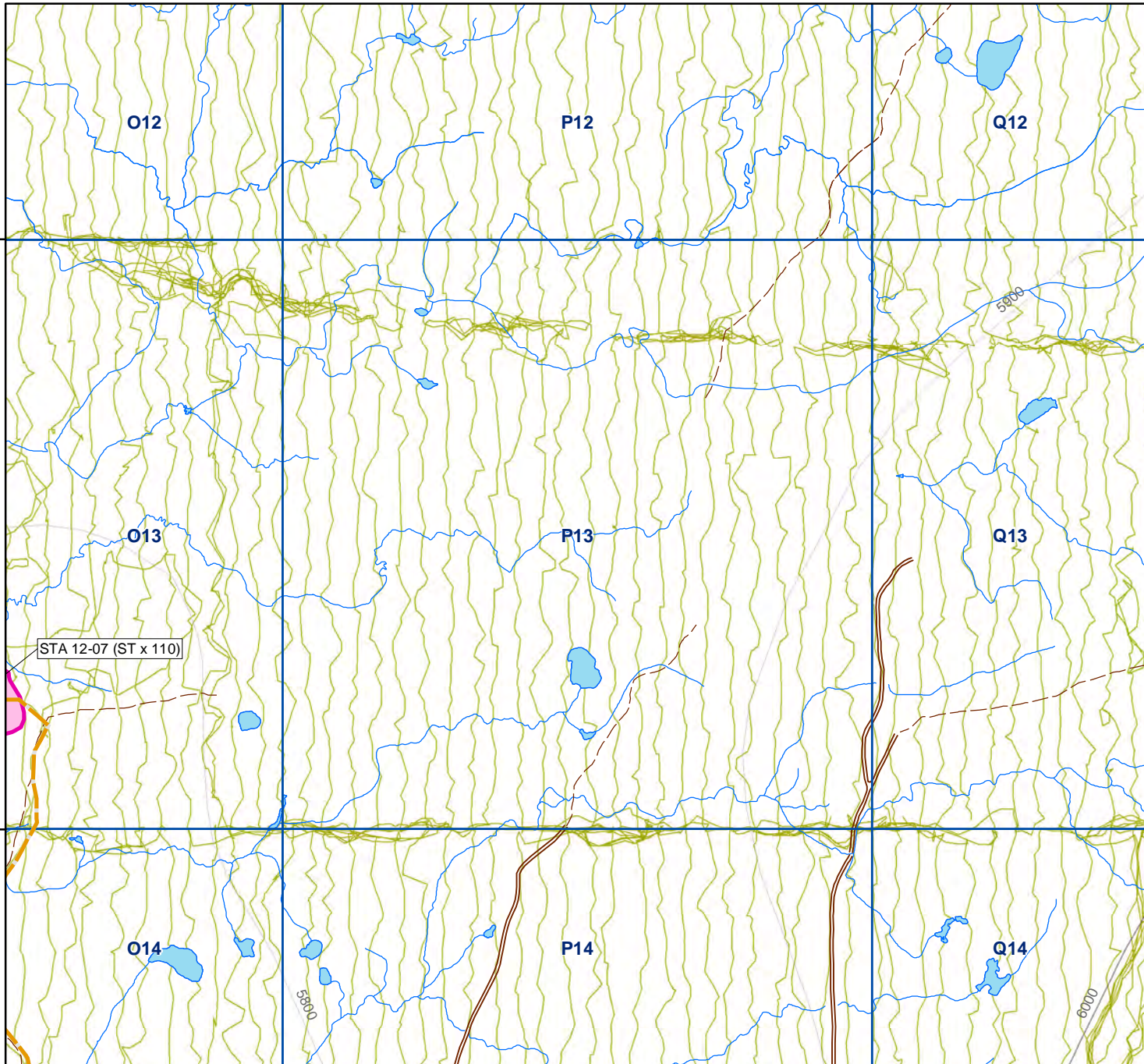
0

0 - 3 cm depth below surface (dbs) = Littermat; 3 - 23 cm dbs = Moderately compact, dark brown sandy silt with approximately 15% sub-angular gravel; 23 cm+ dbs = Moderately compact, medium brown coarse sand with approximately 30-40% angular gravels and cobbles.

Results

No protected archaeological resources were identified within the areas surveyed.

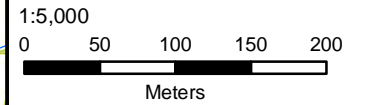
Historic Features Identified? No



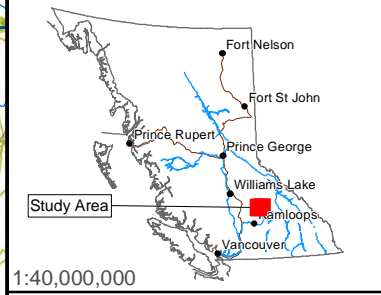
Survey Coverage of P13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twhig

Field Director(s) Kim Statham

Survey Date(s) October 3, 2011 (Rock Disposal Area East); October 14, 2011 (Tailings Management)

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1780-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The areas subject to survey consist of gently sloping terrain with a west-northwestern aspect in the northern half and a western and southwestern aspect in the southern half. Area assessed are gently rolling with poorly defined hills and knolls. Ground disturbances due to previous logging activities were noted including skid trails, hummocky ground, and areas of clear-cut. Water features indicated on mapping were observed in the field as poorly drained areas with very small seasonal drainages with no level, raised terrain associated. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the wet meadows and streams noted.

Subsurface Description

Total Number of Subsurface Tests

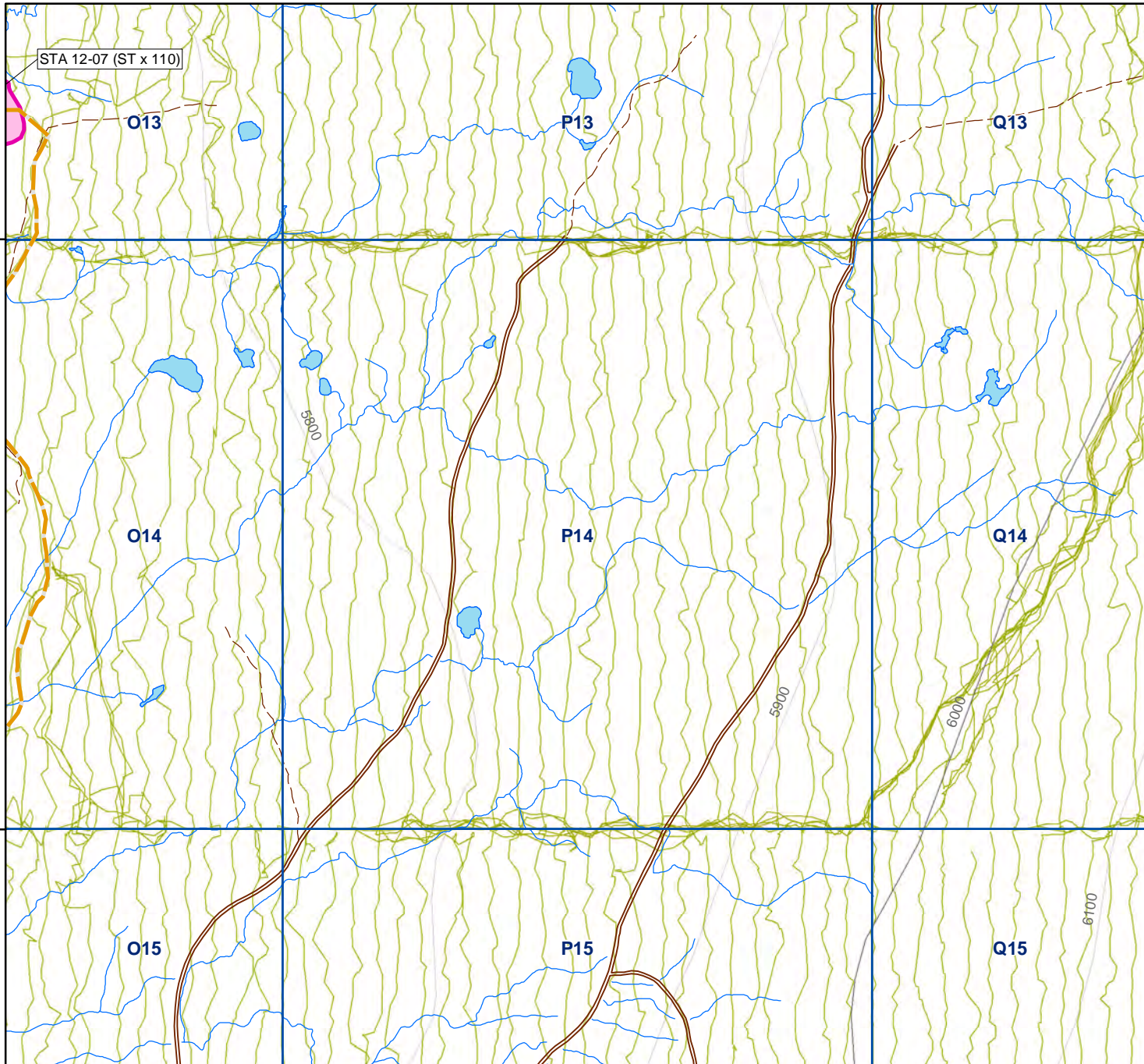
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

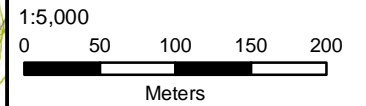
Historic Features Identified? No



Survey Coverage of P14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Jessica Carson, Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) October 19, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1760-1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in P14 is gently to moderately sloping with a southwestern aspect. The ground is gently to moderately undulating and poorly drained with two small streams flowing southwest and numerous ephemeral drainages noted throughout. The landforms located near these hydrological features are either poorly defined or heavily disturbed. Ground disturbances due to previous logging activities were identified including hummocky ground, cut stumps, and skid trails. Archaeological potential is assessed as low due to the sloping disturbed nature of the terrain and the lack of well-defined landforms associated with the hydrological features noted.

Subsurface Description

Total Number of Subsurface Tests

0

Number of Positive Subsurface Tests

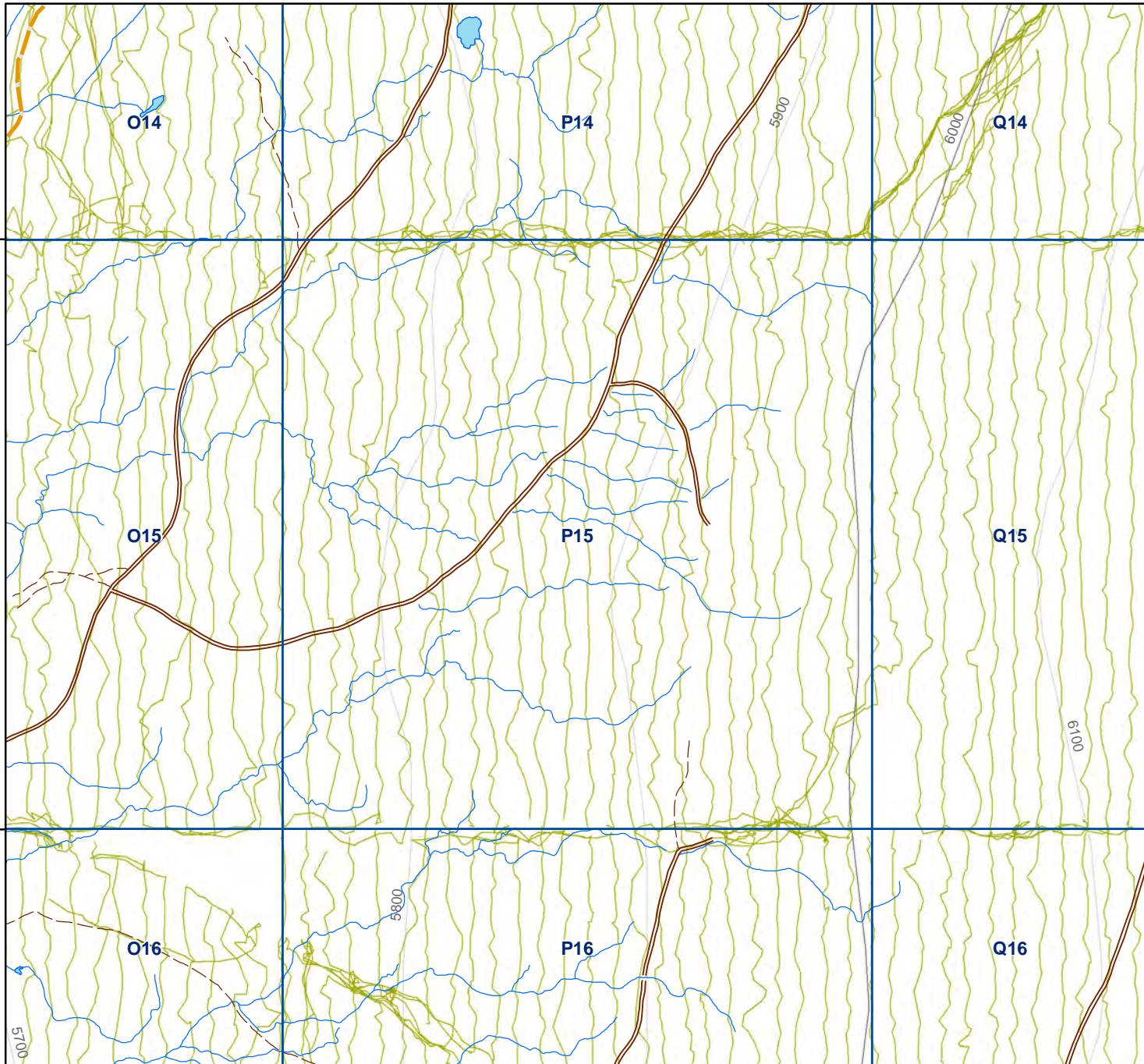
0

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

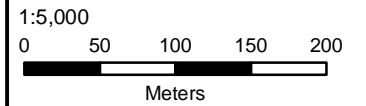
Historic Features Identified? No



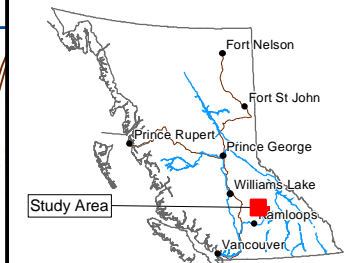
Survey Coverage of P15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Jessica Carson, Shannon Enns, Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) October 19, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1760-1820

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in P15 is gently to moderately sloping with west-southwestern to southwestern aspects. The ground is generally hummocky with a few small braided and artificially diverted streams throughout. The entire area lies within an old cut-block and is therefore heavily disturbed due to that past logging activity. Archaeological potential is assessed as low due sloping, hummocky, and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the few streams present.

Subsurface Description

Total Number of Subsurface Tests

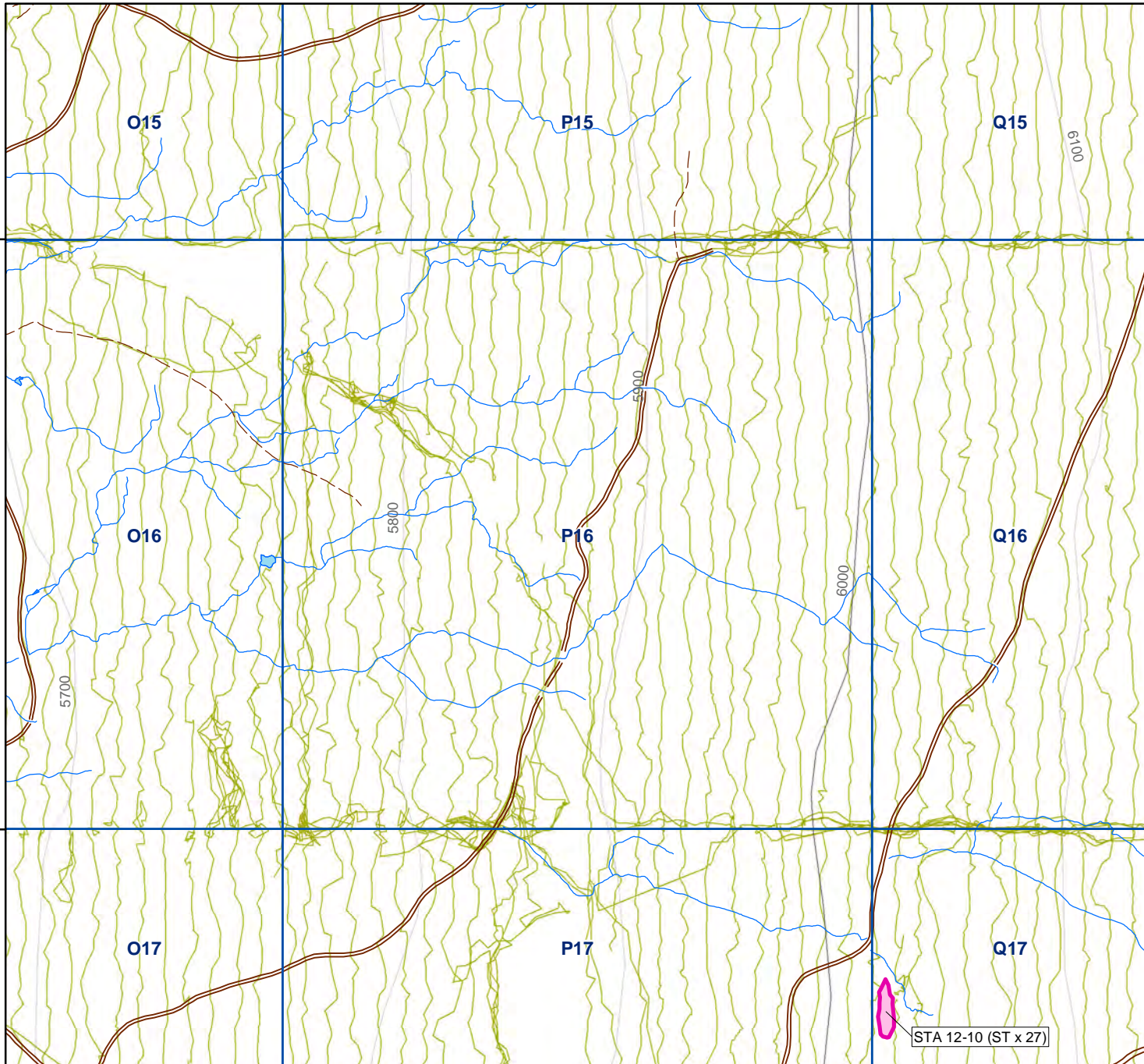
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

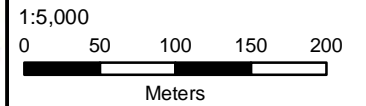
Historic Features Identified? No



Survey Coverage of P16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

306500

307000

STA 12-10 (ST x 27)

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (AL), Lara McFadden, Meghan McGill, Joe Meldrum (AL), Martin Saul (AL), Achinie Wijesinghe, Howie Wood (AL)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 6, 2011; August 14, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1740-1830

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P16 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The southwestern quadrant of P16 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The remainder of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was delayed until 2012. The terrain description of this portion of P16 is described below.

The terrain in the southwestern portion of P16 is gently to moderately sloping with western to northwestern aspects. The rest of the terrain throughout ASU P16 ranges from gently sloping in the northwest quadrant to moderately to steeply sloping with a southwestern to western aspect as the area extends to the southeast. The ground is generally hummocky with small braided streams and standing water throughout. The entire area lies within an old forestry cut-block and is therefore disturbed due to logging activity. Archaeological potential is assessed as low due to the sloped, hummocky, and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the small streams.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

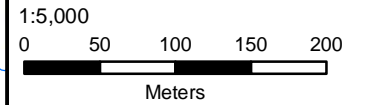
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of P17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

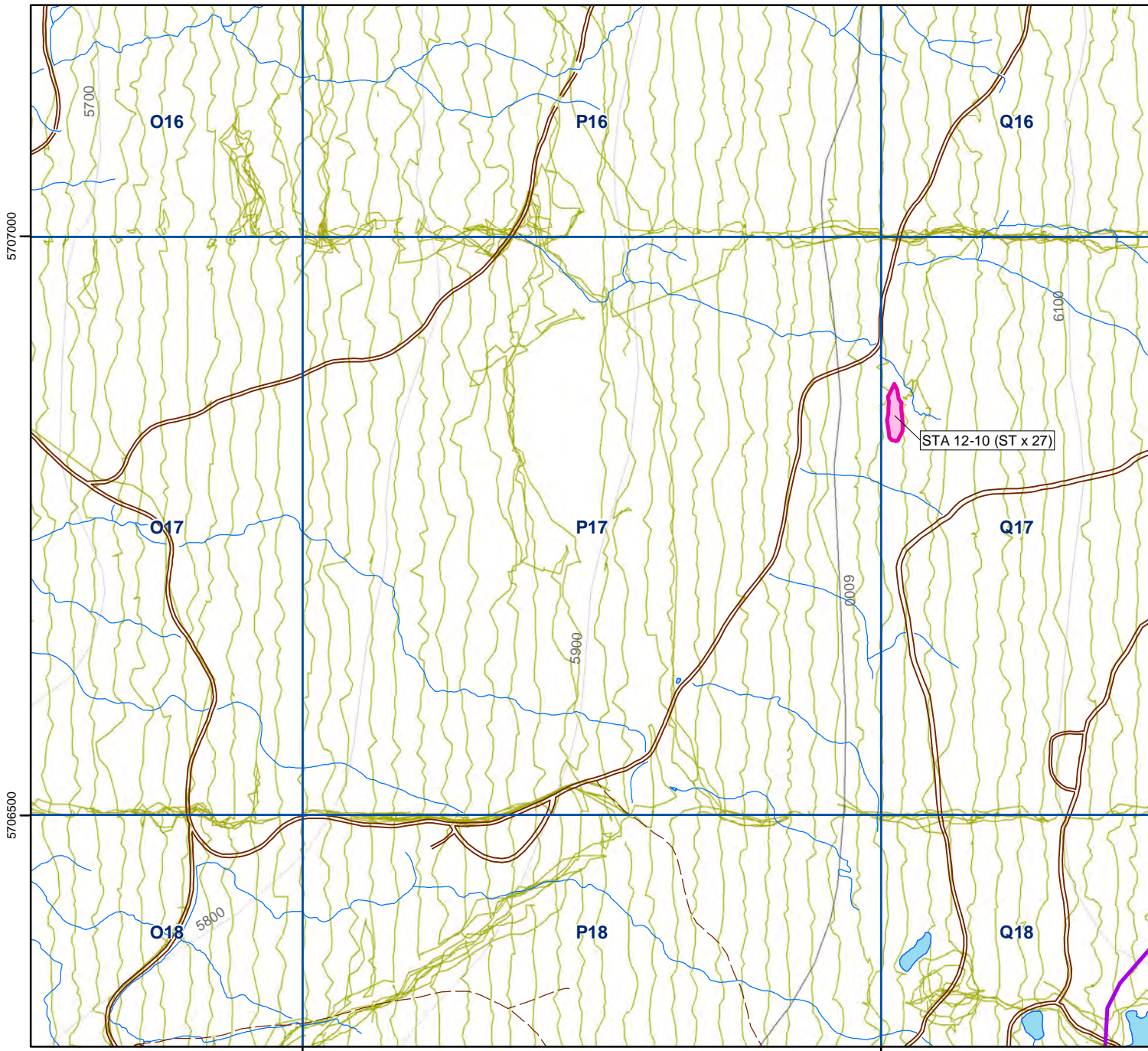


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Tyler Jaenson (Adams Lake), Ryan Kenoras (Adams Lake), Lara McFadden, Meghan McGill, Joe Meldrum (Adams Lake), Martin Saul (Adams Lake), Achinie Wijesinghe, Howie Wood (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 6, 2011; August 15, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1750-1830

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P17 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The western half of P17 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The remainder of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area delayed until 2012. The terrain description of this portion of P17 is described below.

Terrain in P17 is gently to moderately sloping with western and northwestern aspects. The ground is generally hummocky with small braided streams and standing water throughout. The entire area lies within an old forestry cut-block and is therefore disturbed due to that previous logging activity. In addition, the main mine access road runs along the southern boundary in the southwestern corner before turning and trending northeast-southwest through the eastern half of the ASU. Another branch of the road transects the northwestern corner of P17. Archaeological potential is assessed as low due to the sloped, hummocky, and disturbed nature of the terrain as well as the lack of well-defined landforms associated with the small streams.

Subsurface Description

Total Number of Subsurface Tests

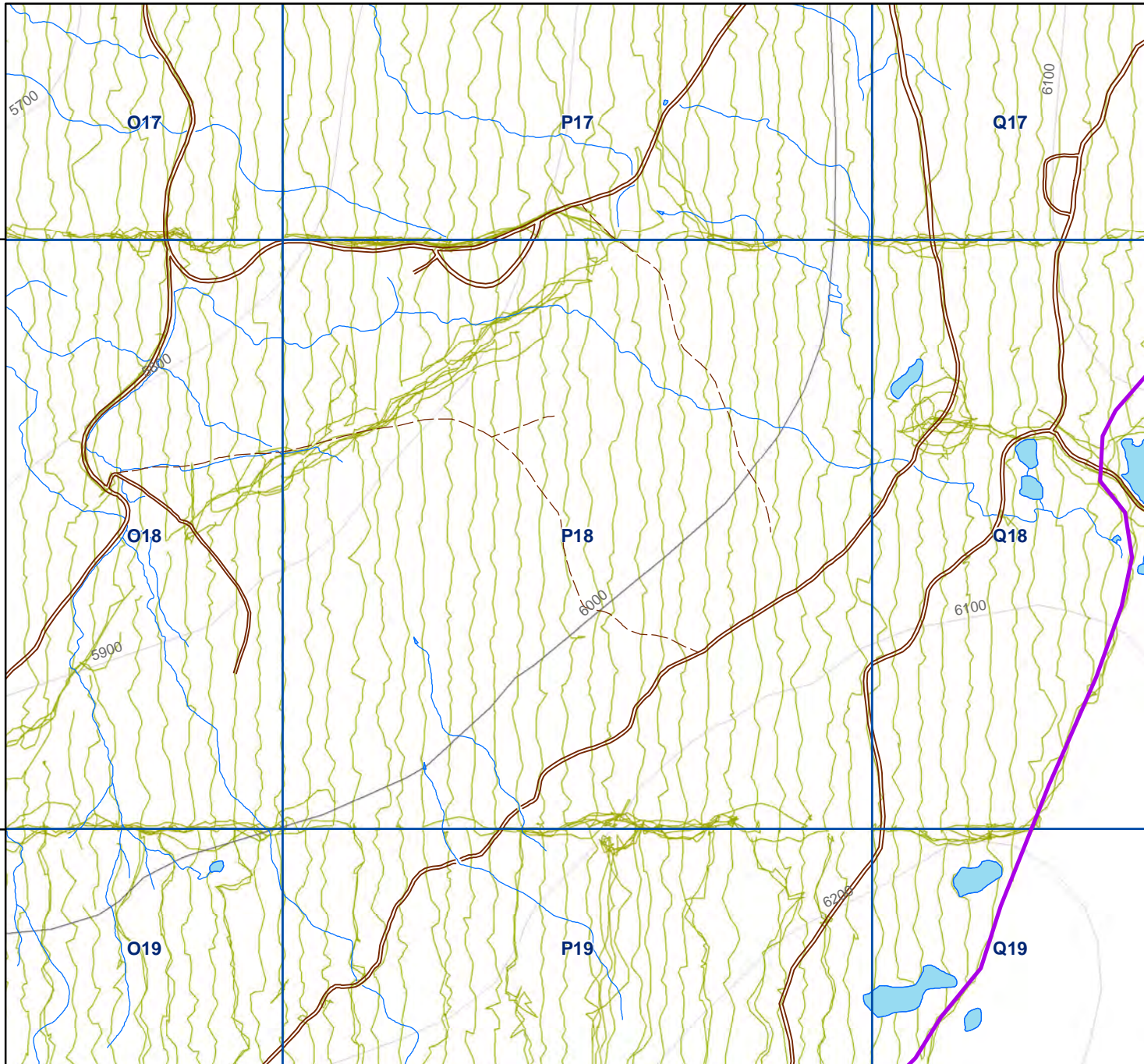
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

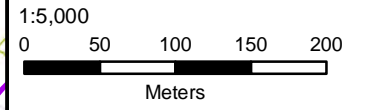
Historic Features Identified? No



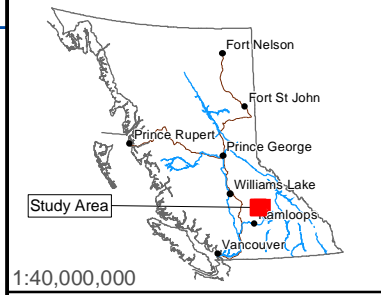
Survey Coverage of P18

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

5706500

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew M. Arnouse (Adams Lake), L. Eustache (Simpco), T. Jaenson (AL,), M. Jules (S), R. Kenoras (AL), L. McFadden, M. McGill, Joe Meldrum (AL), R. Narcisse (AL), L. Pick, M. Saul (AL), A. Wijesinghe, H. Wood (AL)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) September 7, 2011; August 16, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1760-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P18 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The northwestern quadrant of P18 was surveyed prior to the commencement of the facilities survey as part of a priority area outlined by the client. The remainder of the ASU was subject to assessment as part of the Tailings Management facility footprint; however, due to the onset of winter conditions, the survey of this area was delayed until 2012. A complete terrain description is provided below:

Terrain in the northwestern corner of P18 is gently to moderately sloping with a northwestern aspect, the rest of P18 is moderately to steeply sloping with a northwestern aspect. The ground is generally hummocky and poorly-drained with small braided streams throughout. Ground disturbances due to previous logging and mining activities were observed including skid trails, stumps, and two main mine access roads which run along the northern boundary and the southeastern portion of the ASU. Archaeological potential is assessed as low due to the sloping, disturbed, poorly drained, and hummocky nature of the terrain as well as the lack of well defined landforms near noted streams.

Subsurface Description

Total Number of Subsurface Tests

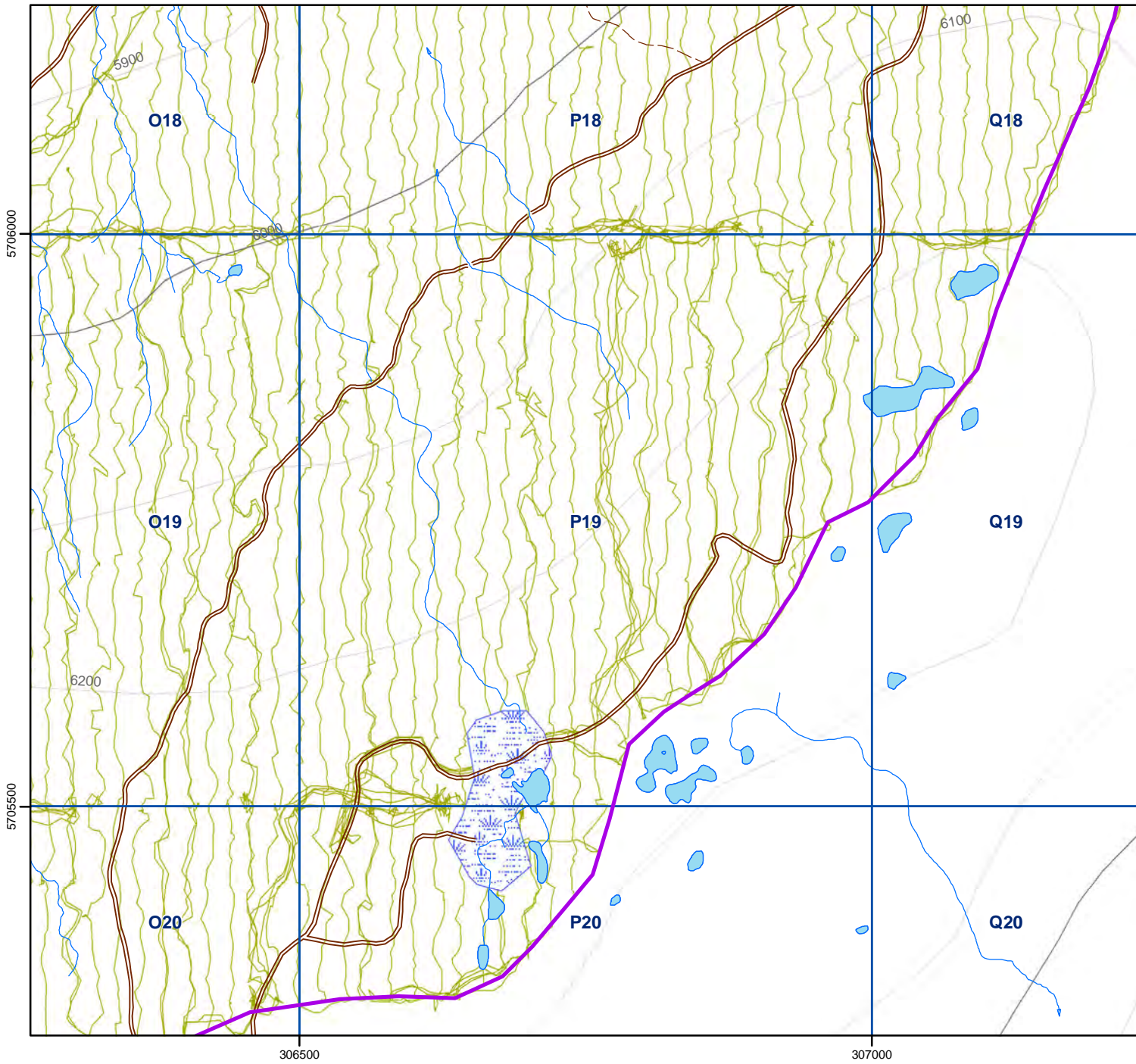
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

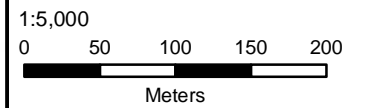
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

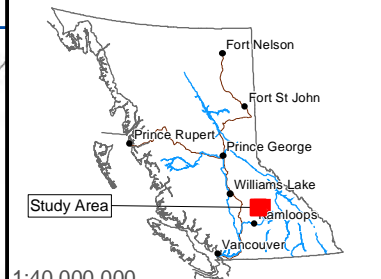


Survey Coverage of P19

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.
 NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000
TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Elton Arnouse (Adams Lake), Mary Arnouse (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Mark Michele (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 20-21, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1830-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P19 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within the assessed portion of ASU P19 is moderately-to-steeply sloping and undulating with northern and northwestern aspects. Small east-west and north-south flowing drainages are located throughout the ASU. Terrain in the southern portion of the ASU becomes low-lying, poorly-drained and marshy with a gentle northeastern aspect. The entire ASU has been disturbed by past logging activities as evidenced by numerous skid trails. In addition, two main mine access roads transect the northwestern and southeastern portions of the ASU. Archaeological potential is considered low due to the sloping, poorly-drained and disturbed nature of the terrain, and lack of well-defined, well-drained landforms in association with the hydrological features.

Subsurface Description

Total Number of Subsurface Tests

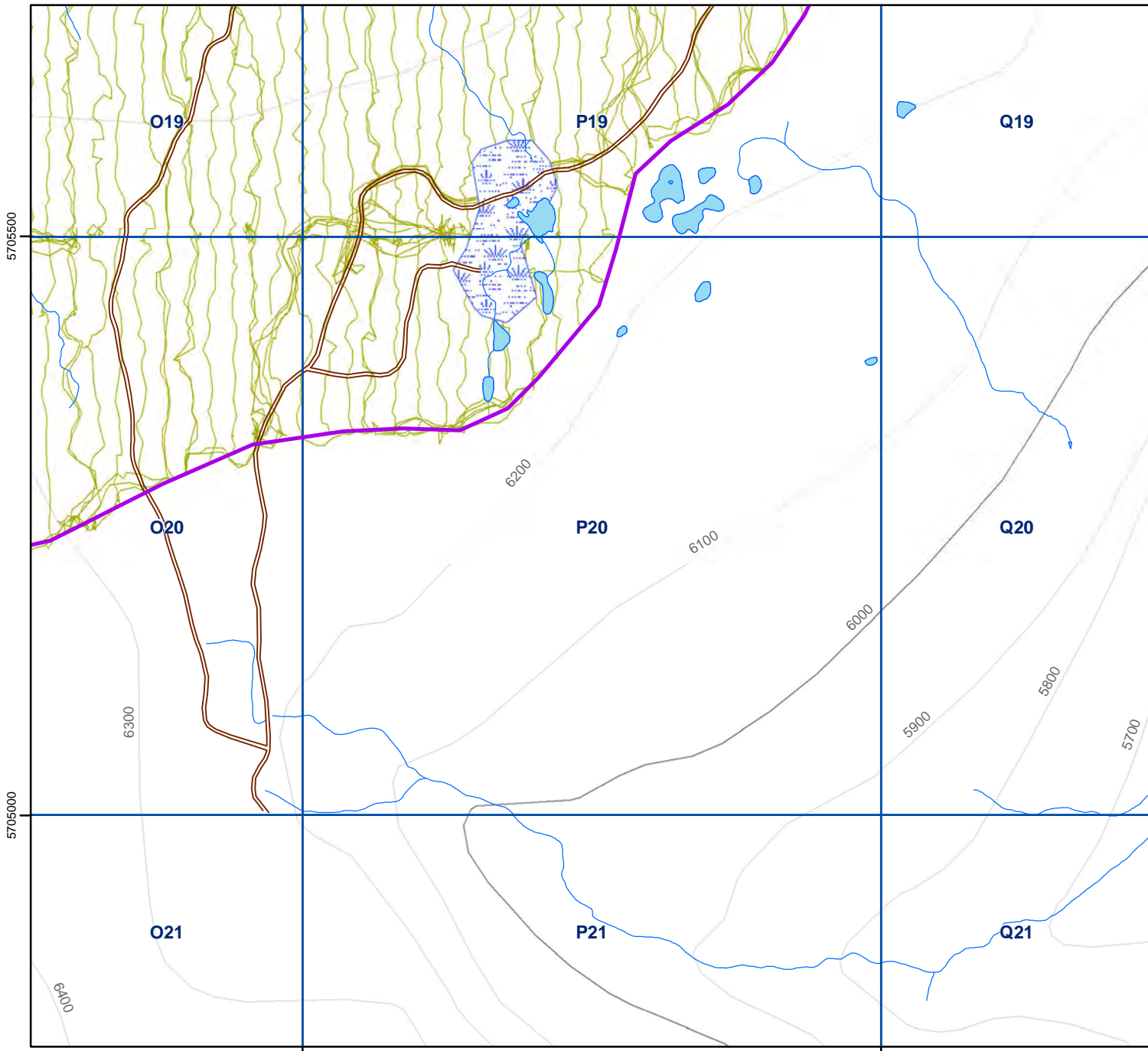
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

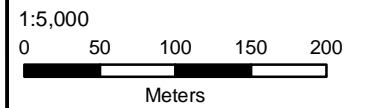
Historic Features Identified? No



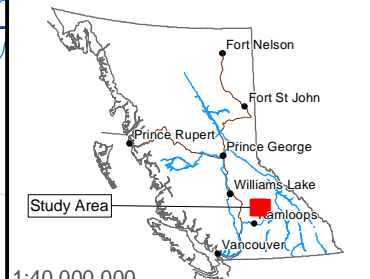
Survey Coverage of P20

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

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5705500

5705000

O19

P19

Q19

O20

P20

Q20

O21

P21

Q21

6300

6200

6100

6000

5900

5800

5700

6400



Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Ryan Kenoras (Adams Lake), Lara McFadden, Joe Meldrum (Adams Lake), Mark Michele (Adams Lake), Reginald Narcisse (Adams Lake)

Permit Holder Kevin Twhog

Field Director(s) Shana Morin

Survey Date(s) August 20, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No
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NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1780-1910

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU P20, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU P20 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The northwestern corner of ASU P20 was assessed. Terrain is undulating and gently-to-moderately sloping with a northeast to eastern aspect. The southeastern portion of the area has been extensively damaged by fire. Ground disturbance is noted throughout, due to both logging and road building activities. A main access road extends from the southwest corner of the ASU through the centre of the assessed area. A low-lying, poorly-drained, marshy area is located in the northern portion of the assessed area, as are several ephemeral drainages. Archaeological potential is considered low due to the sloping, poorly drained and disturbed nature of the terrain, and lack of well-defined, well-drained landforms in association with the noted hydrological features.

Subsurface Description

 Total Number of Subsurface Tests

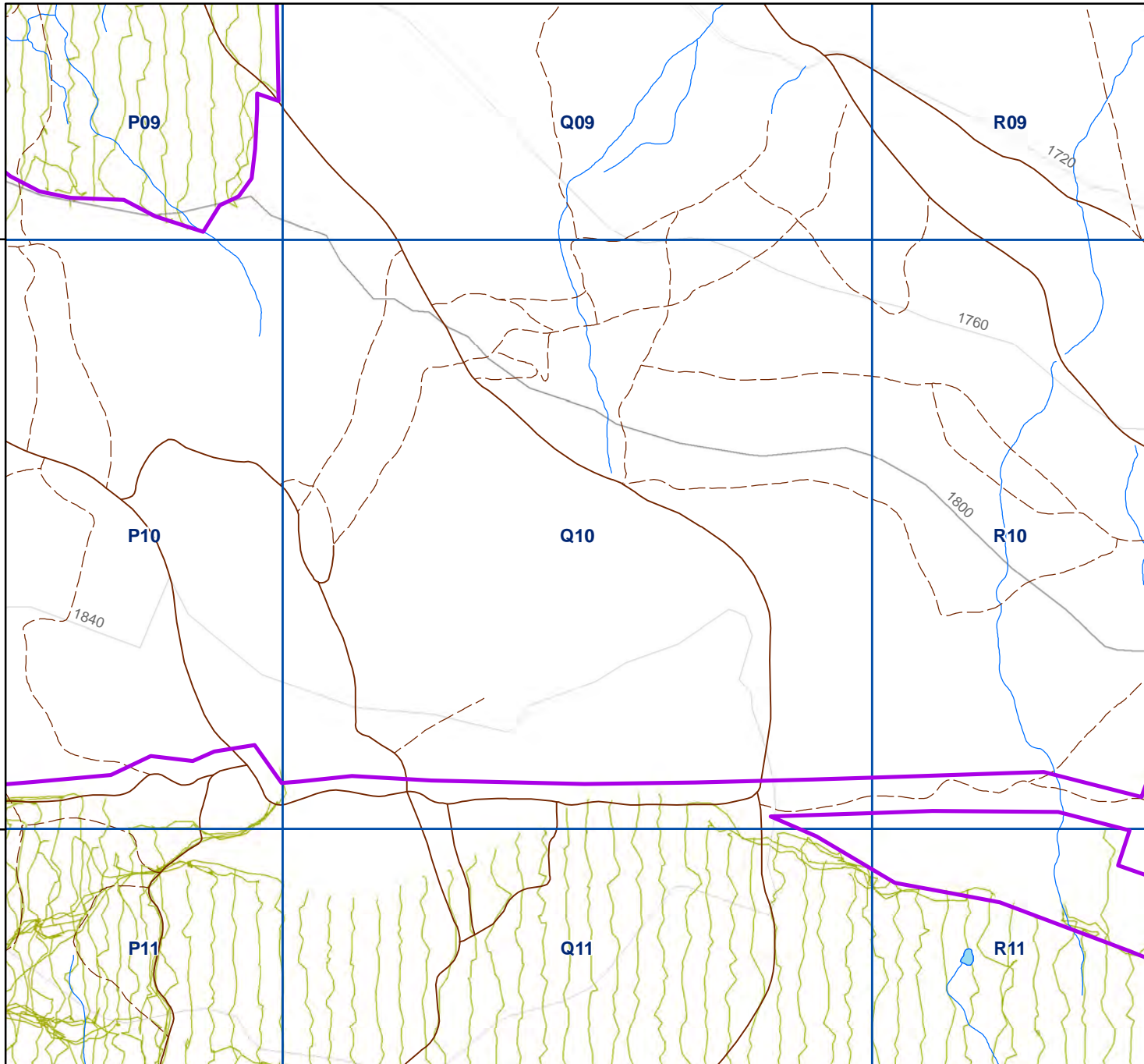
 Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

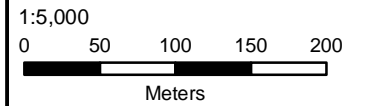
Historic Features Identified? No



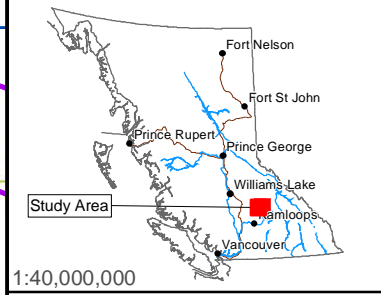
Survey Coverage of Q10

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

5710500

5710000

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307500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 7, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1830-1850

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q10, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q10 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

The area along the southern border of ASU Q10 was assessed. Terrain throughout the area is gently sloping and undulating with a southeastern aspect. The area has been disturbed by both logging activities, as evidenced by multiple skid trails, and by a main mine access road that parallels the southern border of ASU. Archaeological potential is considered low due to the sloping, poorly-drained and disturbed nature of the terrain, and the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

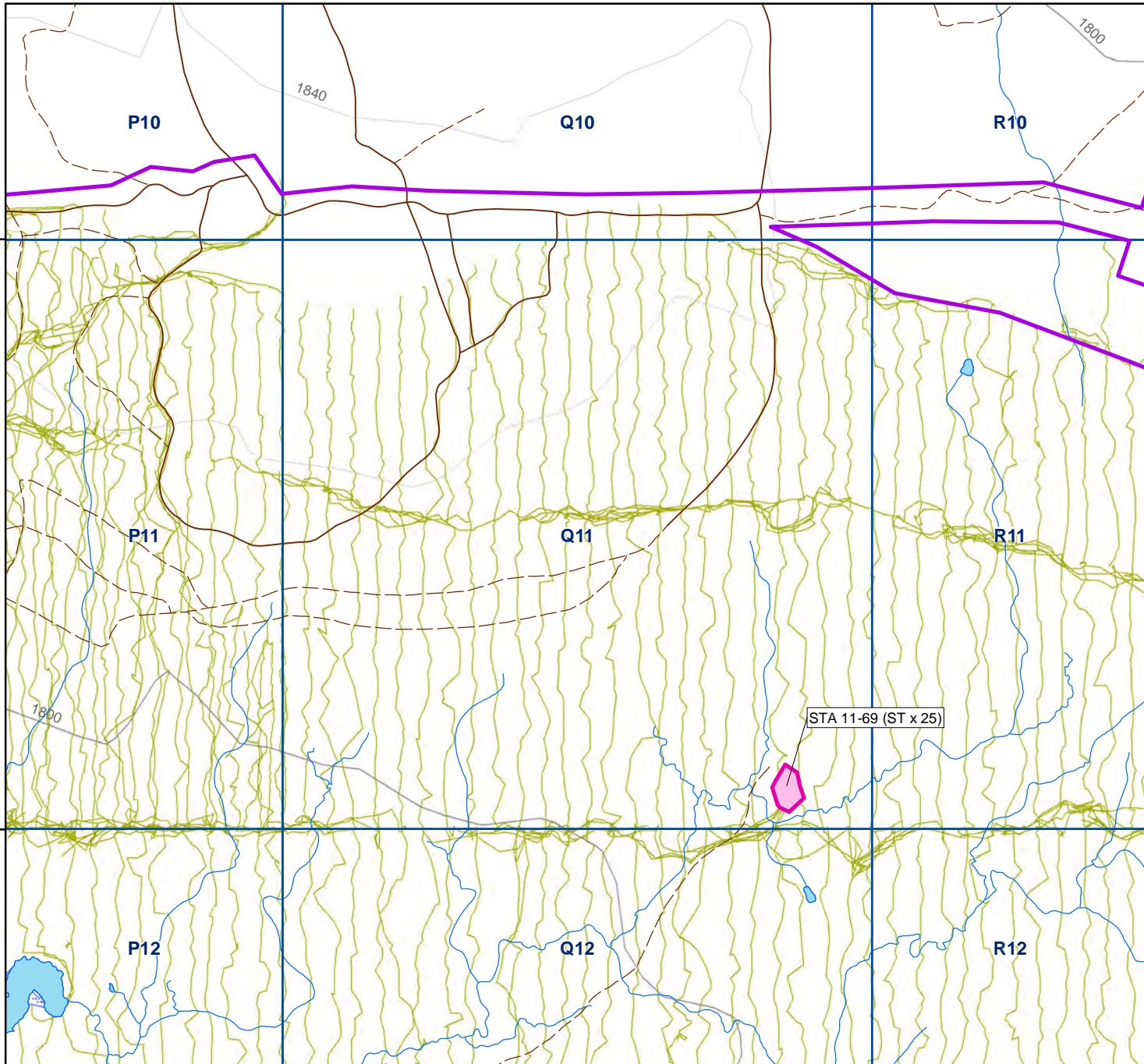
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

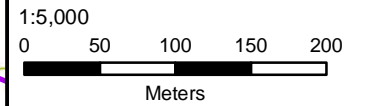
Historic Features Identified? No



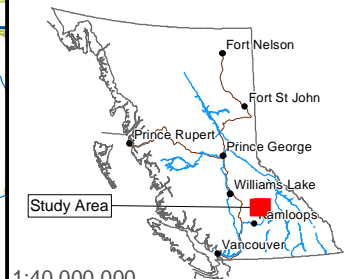
Survey Coverage of Q11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

307000

307500

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (AL), Murray Jules (Simpco), Ryan Kenoras (AL), Meghan McGill, Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 28, 2011; August 2-3, 2012; August 7, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1800-1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q11, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU Q11 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northern half of Q11 is gently to moderately sloping with southern to southwestern aspects. Ground disturbances due to previous logging activities were observed throughout Q11 including skid trails and cut stumps. However, the disturbance is more extensive in the northern half of the ASU. The terrain in the southern half consists of a series of wet meadows and sloughs. With the exception of one area of archaeological potential (shovel tests area (STA) 69), there were no well-defined landforms associated with these southern wetlands. The STA is described below.

STA 69 consists of a north-south trending, flat to gently sloping terrace. The test area overlooks two wet meadows which border it on the eastern and western sides. The western meadow also contains a small stream. The test area measures approximately 35 x 10 – 15 m. Twenty-five subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

With the exception of STA 69, archaeological potential is considered to be low due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests 25

Number of Positive Subsurface Tests 0

0 – 2 cm depth below surface (dbs) = Littermat; 2 – 13 cm dbs = Moderately compact, medium brown sandy silt with approximately 40% small sub-angular gravel; 13 cm+ dbs = Moderately compact, medium brown sandy silt with approximately 40% large cobbles and sub-angular gravel.

Results

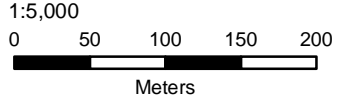
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

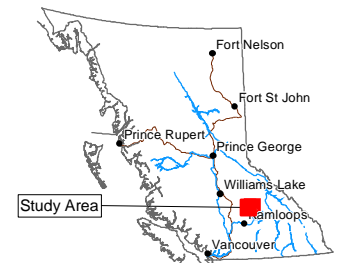
Survey Coverage of Q12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

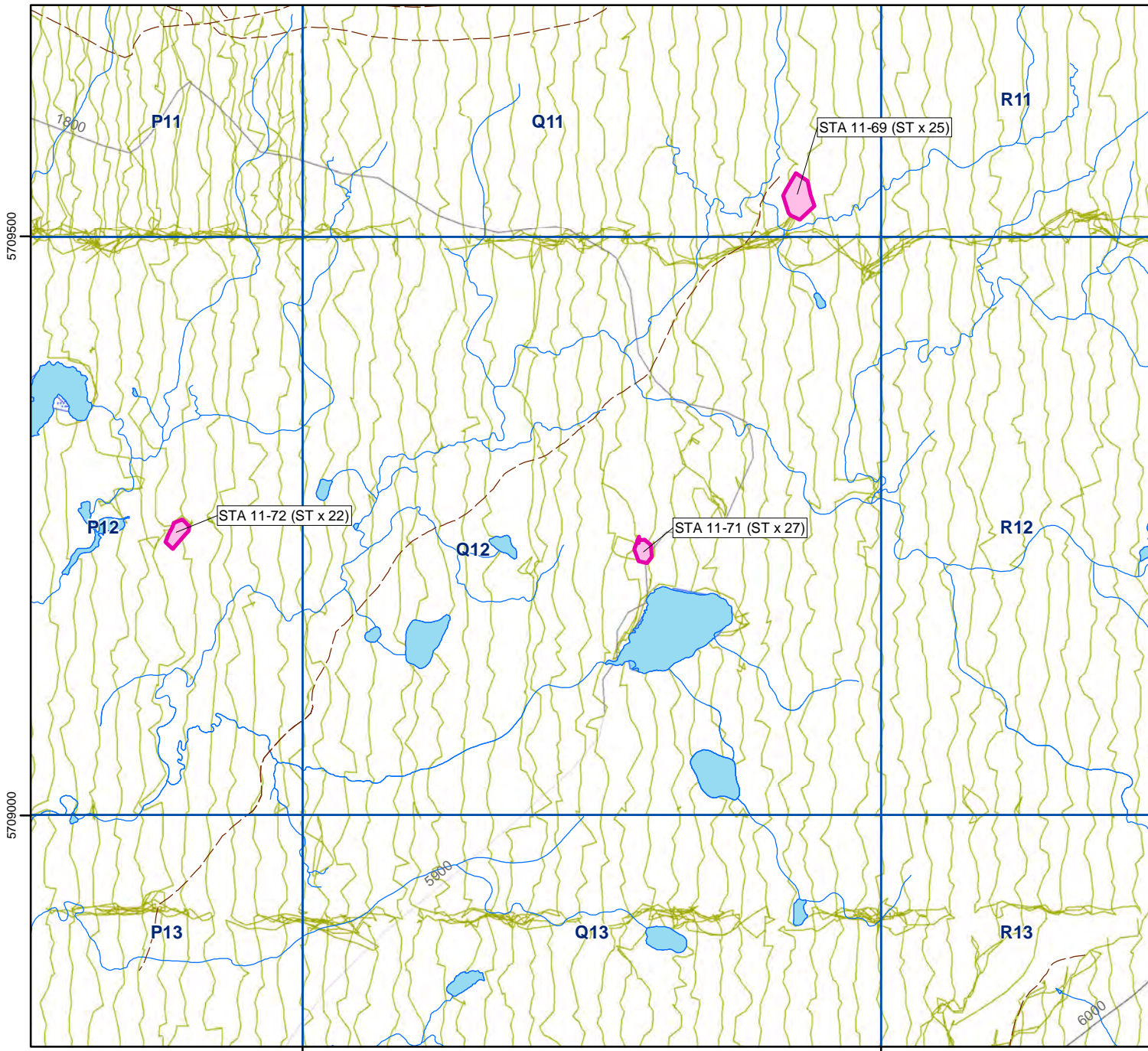
NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Murray Jules (Simpco), Ryan Kenoras (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 29-30, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5,82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1800

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q12, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU Q12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northeastern quarter of Q12 is gently sloping with a western aspect. It consists of a series of gently rolling wet meadows with many small braided streams noted throughout. The remainder of the terrain consists of a gently rolling, gentle slope with western and northwestern aspects. Small ponds and wetlands were observed throughout this portion of Q12 as well as a small lake near the centre of the ASU, however, very few streams were observed. Shovel Test Area (STA) 71 was identified in association with the lake, but there were no other well-defined landforms noted in association with any of the hydrological features. Ground disturbances due to previous logging activities were observed across the entire ASU including numerous skid trails and old access roads.

One area was assessed as having the potential for the presence of buried archaeological deposits and was subject to subsurface testing. STA 71 consists of an east-west trending ridge feature overlooking the abovementioned small lake. The lake is situated directly to the south of the test area and is approximately 25 m lower in elevation, at the base of a moderate slope with a southern aspect. The test area measures approximately 25 x 20 m. Twenty-seven subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to sloping and poorly drained nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

27

Number of Positive Subsurface Tests

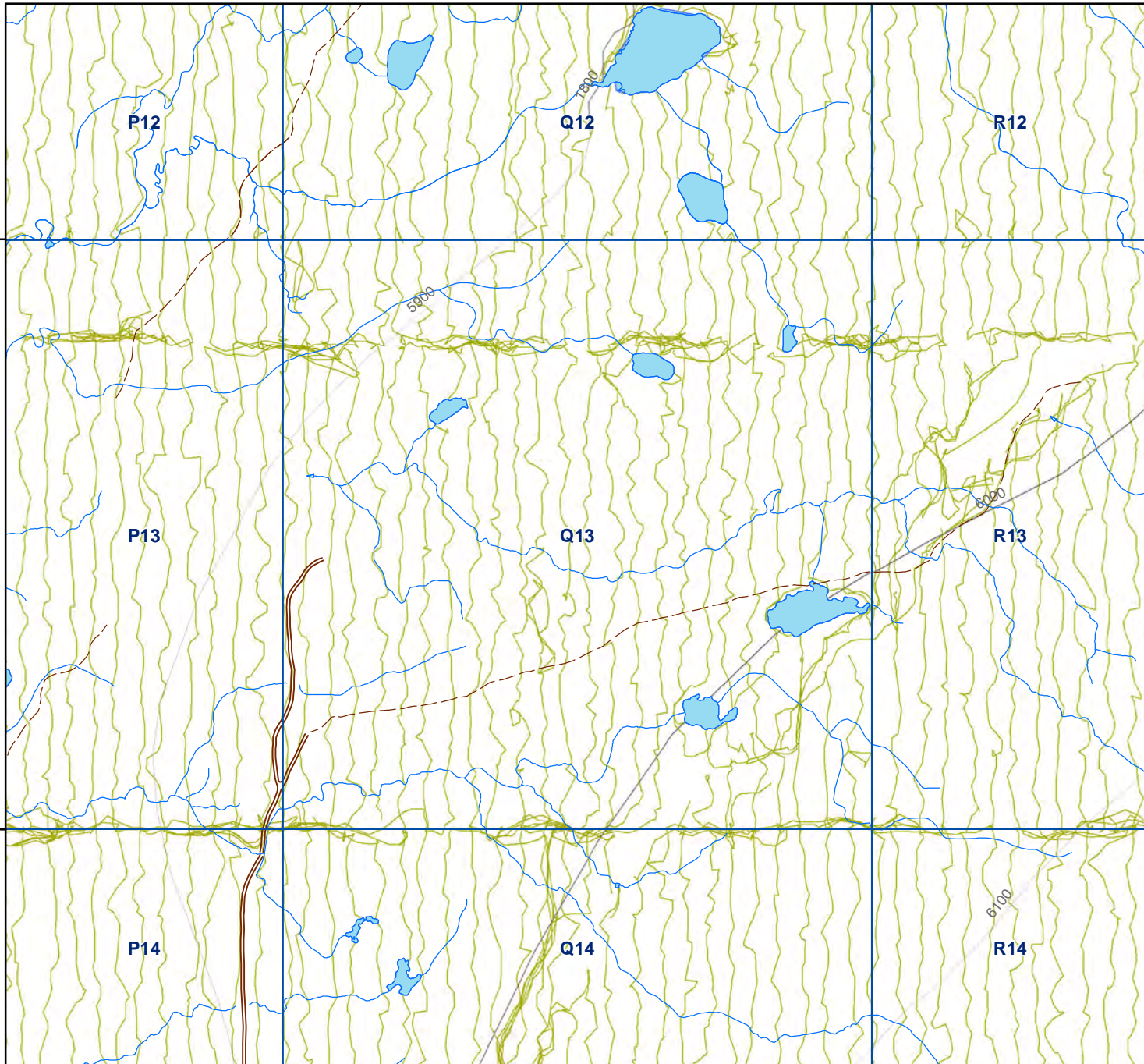
0

0 - 3 cm depth below surface (dbs) = Littermat; 3 - 7 cm dbs = Dark brown silty sand with approximately less than 10% sub-angular gravel; 7-23 cm dbs = Moderately compact, medium brown silty sand with large angular cobbles.

Results

No protected archaeological resources were identified within the areas surveyed.

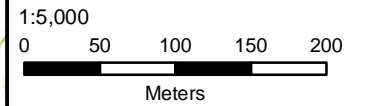
Historic Features Identified? No



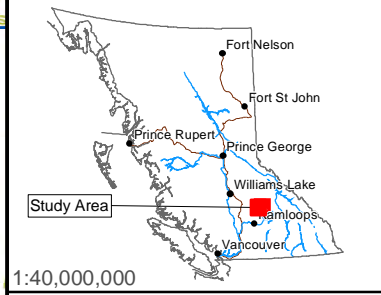
Survey Coverage of Q13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (AL), Meghan McGill, Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick, Martin, Saul (AL)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 29-30, 2011; August 9, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1800-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in Q13 is gently to moderately sloping with a northwestern aspect. The ground is rolling and poorly drained in the low-lying areas, however no significant hydrological features were observed. Ground disturbances due to previous logging activities were noted including skid trails, stumps, and old roads. Archaeological potential is assessed as low due to the sloping, poorly drained and disturbed nature of the terrain as well as the lack of significant hydrological features present.

Subsurface Description

Total Number of Subsurface Tests

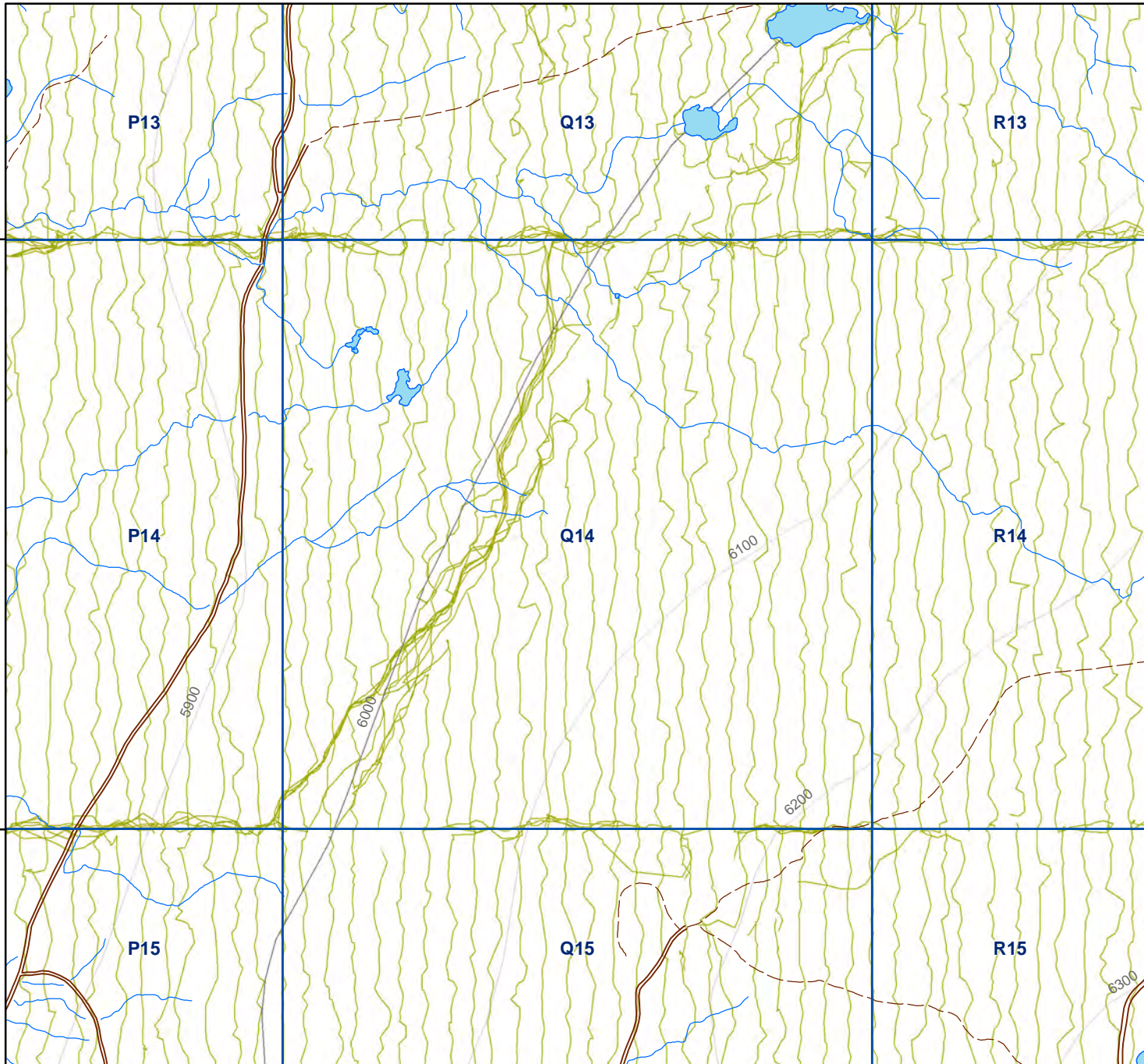
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

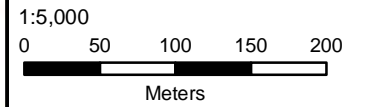
Historic Features Identified? No



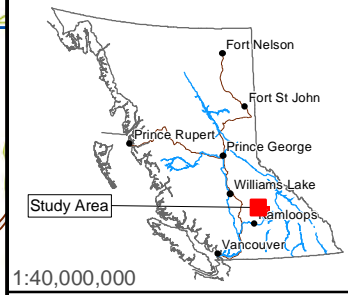
Survey Coverage of Q14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Jessica Carson, Shannon Enns, Lucas Eustache (Simpcw), Murray Jules (Simpcw), Ryan Kenoras (Adams Lake), Meghan McGill, Laura Pick

Permit Holder Kevin Twhig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 19, 2011; August 10-11, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1820-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q14 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the northwestern portion of Q14 is moderately to steeply sloping with western and southwestern aspects. Throughout the rest of Q14 terrain is gently to moderately sloping with an overall western to northwestern aspect. The ground throughout the entire ASU is undulating and poorly drained, however no significant hydrological features, aside from a few small east to west flowing ephemeral drainages were observed. Ground disturbances due to previous logging activities were noted including skid trails, stumps, and areas of clear-cut. Archaeological potential was assessed as low due to the sloping, undulating, and disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

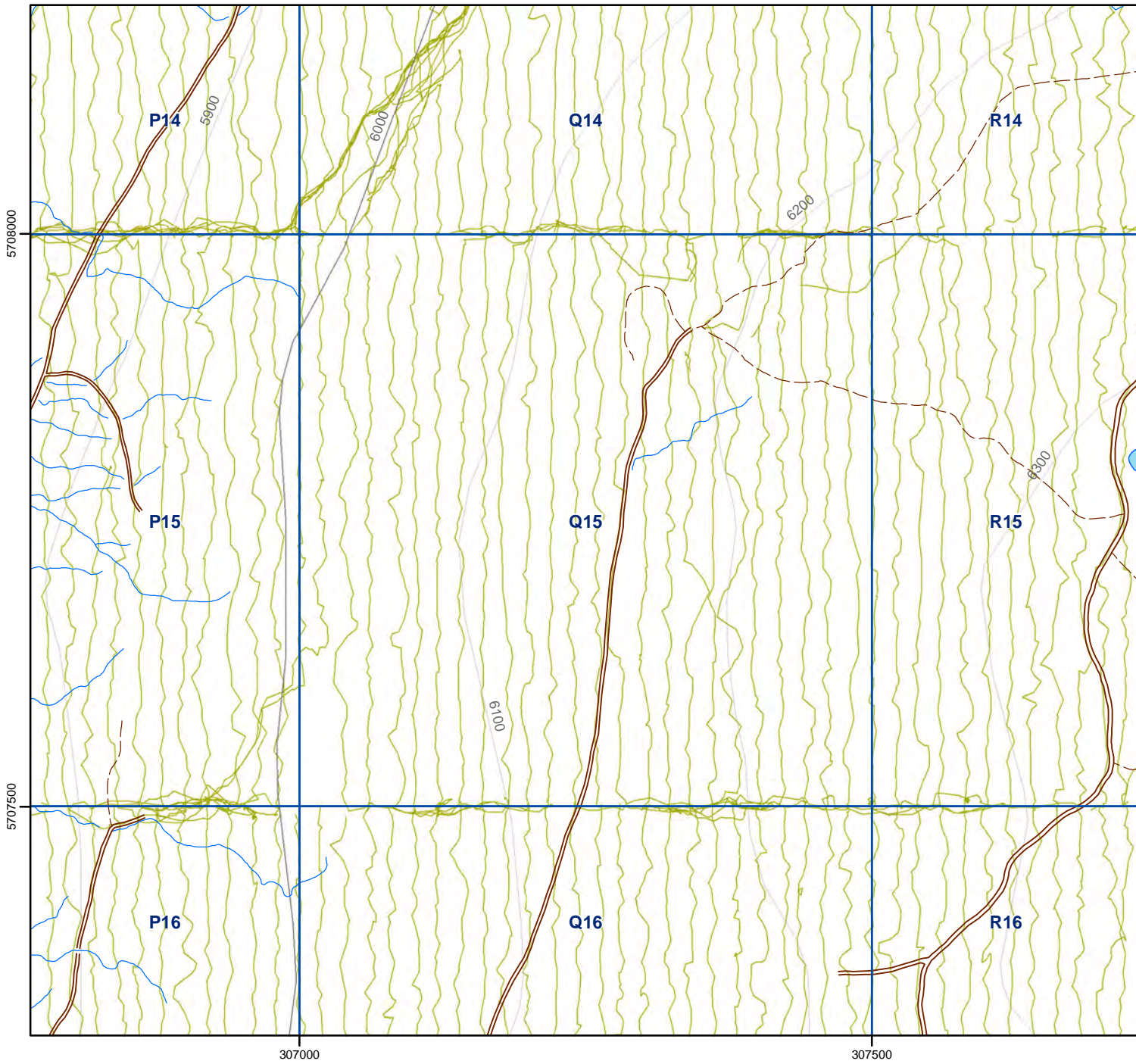
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

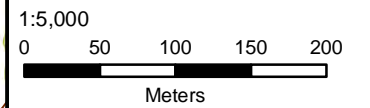
Historic Features Identified? No



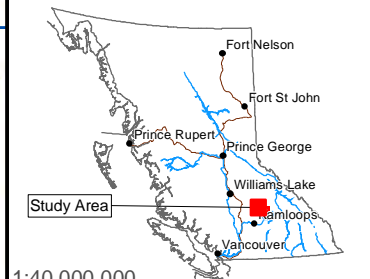
Survey Coverage of Q15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), J.Carson, Lucas Eustache (Simpco), Tyler Jaenson (AL), Murray Jules (S), Ryan Kenoras (AL), M.McGill, Joe Meldrum (AL), Reginald Narcisse (AL), L.Pick, Sharon Thomas (AL)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) October 19, 2011; August 13, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2

Elevation (m) 1820-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q15 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in the western portion of Q15 is moderately sloping with a southwestern aspect. Aspect becomes northwestern then western as terrain extends to the east. The ground is hummocky with small streams and seepages trending east-west throughout. Ground disturbances due to previous logging activities were noted including many skid trails and areas of clear-cut. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

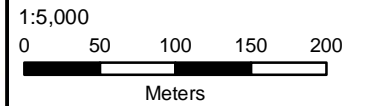
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

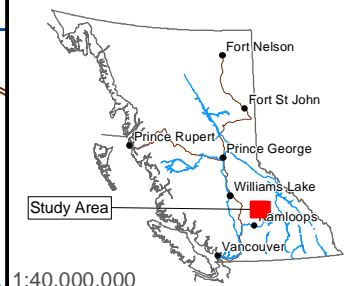
Survey Coverage of Q16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

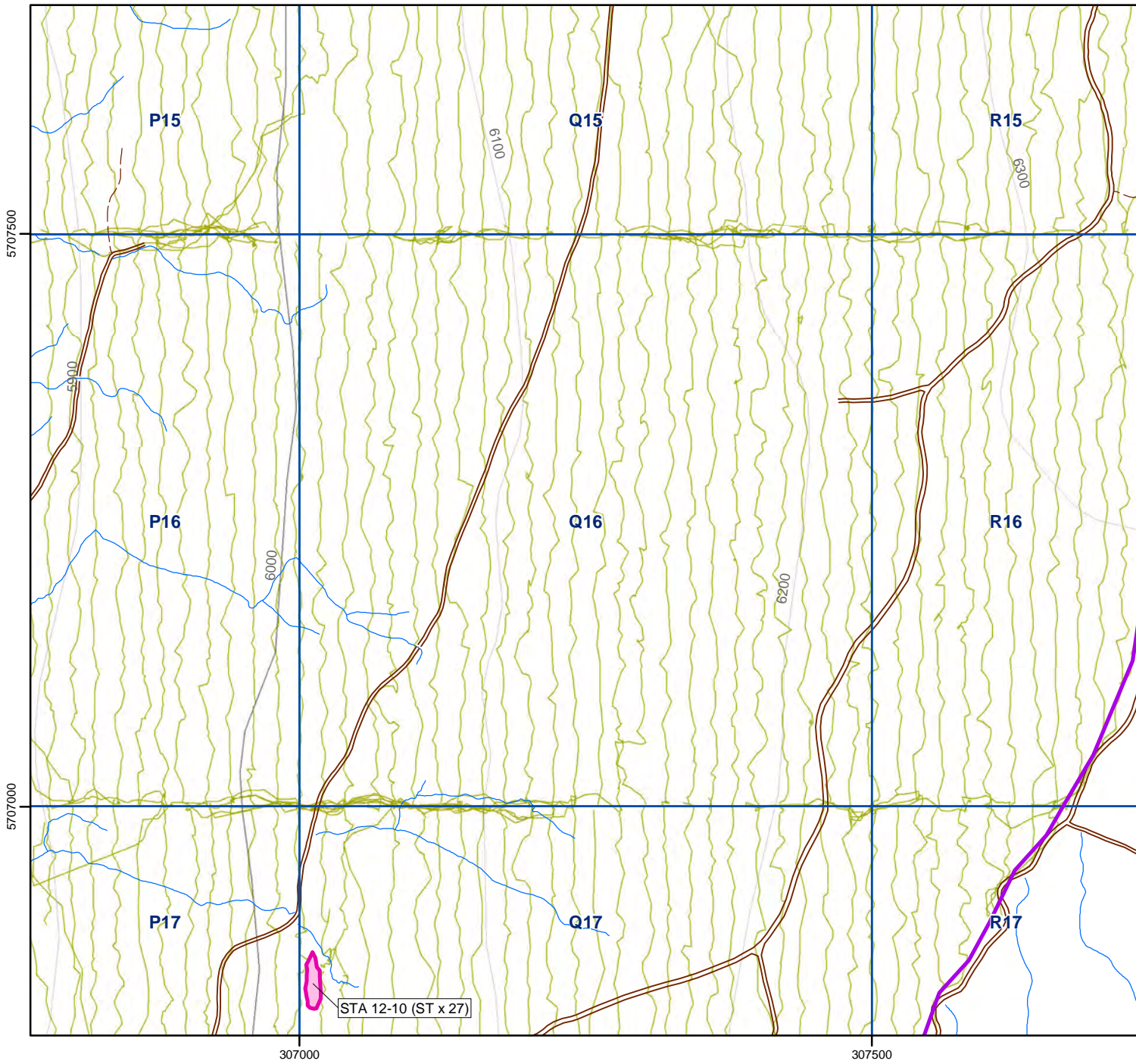
NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 14-15, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcw

Elevation (m) 1820-1900

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q16 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within ASU Q16 is moderately-to-steeply sloping and undulating with both southwestern and western aspects. Several small western-flowing ephemeral drainages and rocky outcrops are situated mainly in the western portion of the ASU. Ground disturbance is evidenced by a series of skid trails noted throughout ASU and the presence of two main southwest to northeast access roads that transect the western and southeastern portions of the ASU. Archaeological potential is considered low based on the sloping, rocky, poorly-drained and disturbed nature of the terrain and lack of significant hydrological features or well-drained, well-defined landforms.

Subsurface Description

Total Number of Subsurface Tests

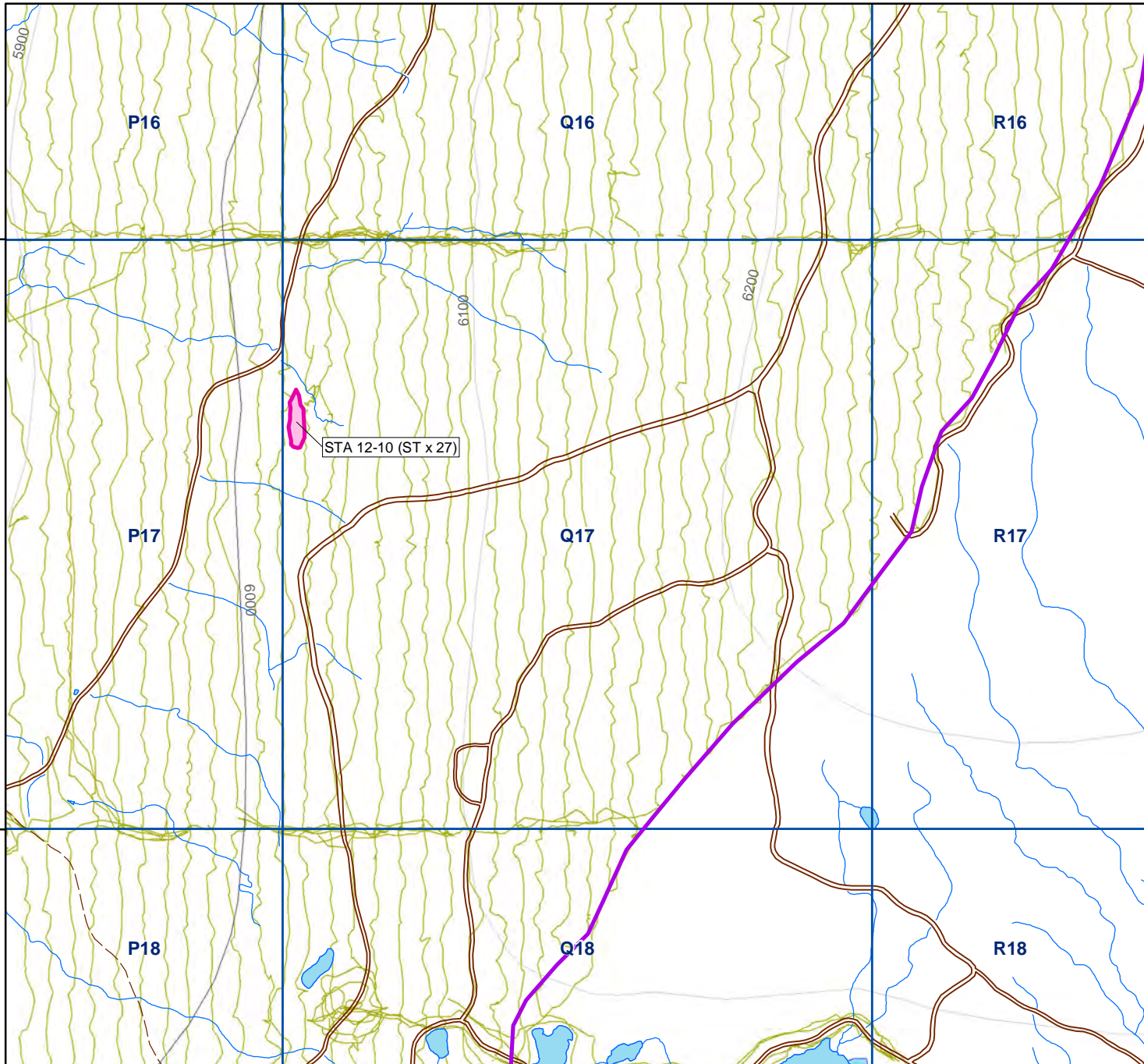
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

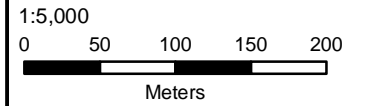
Historic Features Identified? No



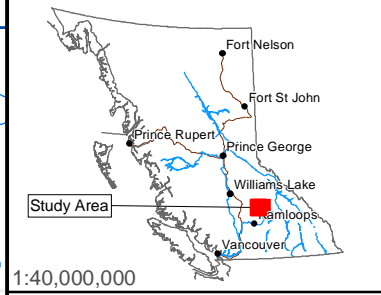
Survey Coverage of Q17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (Adams Lake), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick, Sharon Thomas

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 15, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5
Biogeo Zone ESSFwcv
Elevation (m) 1820-1900
Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU Q17 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain within ASU Q17 is gently-to-moderately sloping and undulating with southwestern, western, and northwestern aspects. Significant disturbance has resulted from multiple north-south and east-west trending skid trails and mine access roads that transect the ASU. Several east to west flowing ephemeral drainages and poorly-drained areas are located in the western portion of the ASU. One area of archaeological potential was identified and subject to shovel testing. The shovel test area (STA) is described below.

STA 12-10 measures approximately 48 x 14 m and is located on an elongated north-south-orientated knoll. The knoll is approximately 2 m above a low-lying and poorly-drained area to the east. A small drainage meanders along the eastern edge of knoll and flows northwest. The landform become less defined and increasingly undulating as it extends south. Twenty-seven subsurface tests were excavated on an approximate 5 m grid with negative results.

With the exception of STA 12-10, archaeological potential is assessed as low based on sloping, rocky, poorly-drained and disturbed nature of the terrain, and lack of any significant hydrological features or well-drained, well-defined landforms.

Subsurface Description

Total Number of Subsurface Tests

27

Number of Positive Subsurface Tests

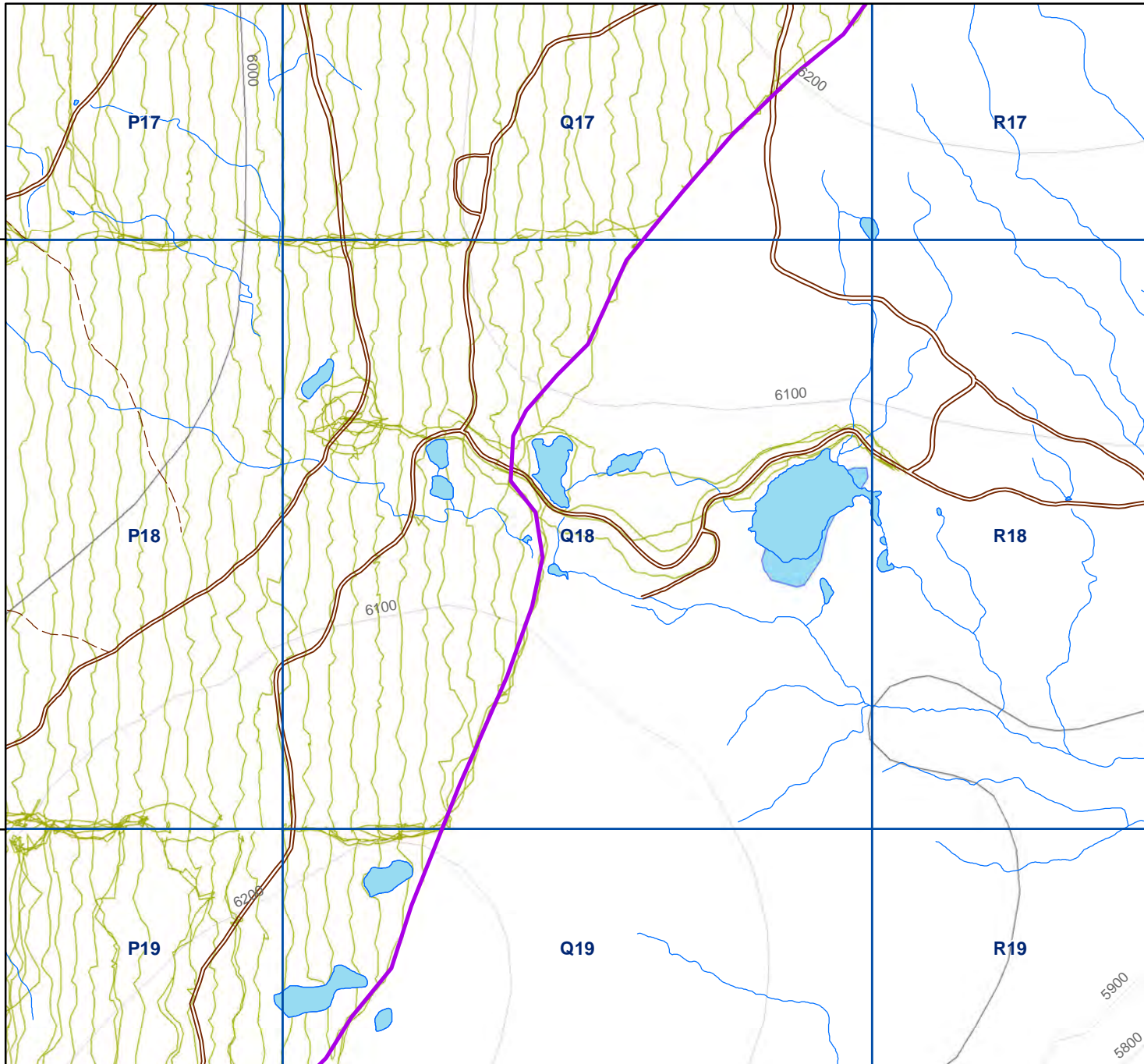
0

STA 12-10: 0 - 5 cm depth below surface (dbs) = Litter matt; 5 – 10 cm dbs = Grayish brown silty sand with less than 5% sub angular pebbles; 11 – 30 cm dbs = Orangey brown fine-grained sandy silt with approximately 30% sub angular pebbles and cobbles; 30 – 40 cm dbs = Orangey brown sandy silt with 40 – 50% pebbles and cobbles; 40+ cm dbs = Cobble layer.

Results

No protected archaeological resources were identified within the areas surveyed.

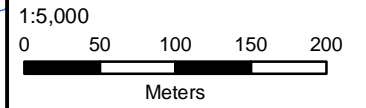
Historic Features Identified? No



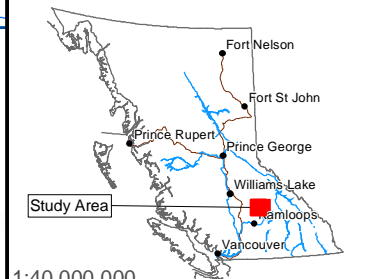
Survey Coverage of Q18

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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P17

Q17

R17

P18

Q18

R18

P19

Q19

R19

6000

6200

6100

6200

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 16-17, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1820-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q18, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q18 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in assessed portion of ASU Q18 is gently-to-moderately sloping and undulating with western and northwestern aspects. Multiple drainages, open poorly-drained wetlands and some small ponds are located in the central portion of the ASU. Numerous intersected skid trails and mine access road have resulted in ground disturbance throughout the ASU. Archaeological potential is considered low based on the sloping, poorly-drained, disturbed nature of the terrain, and lack of well-drained and well-defined landforms in association with the hydrological features.

Subsurface Description

Total Number of Subsurface Tests 0

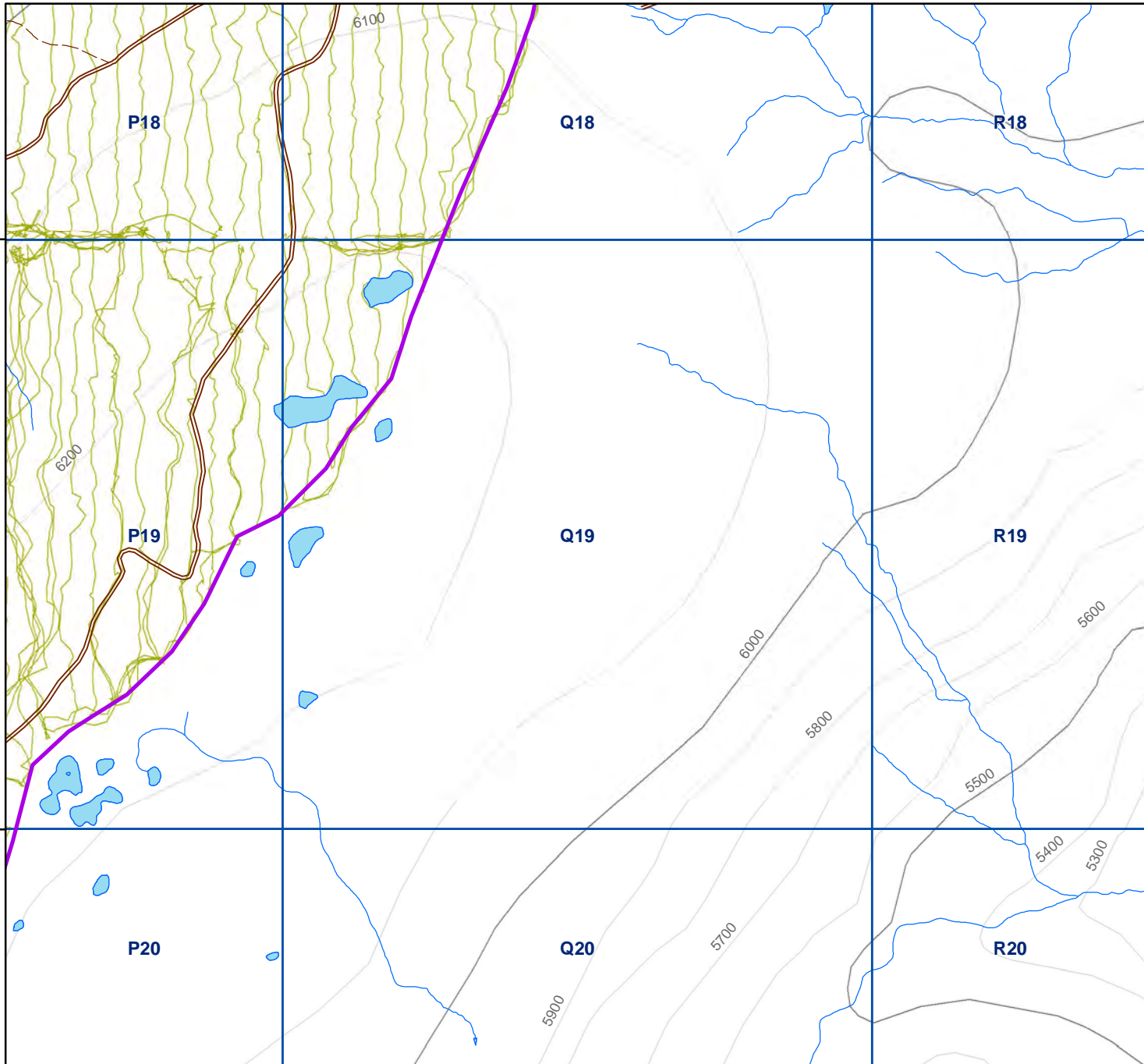
Number of Positive Subsurface Tests 0

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

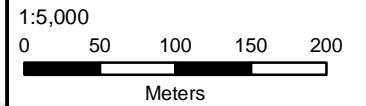
Historic Features Identified? No



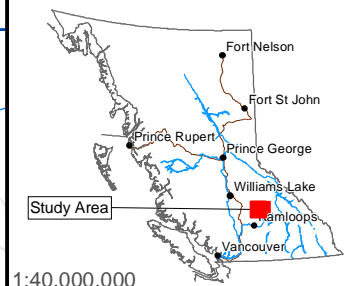
Survey Coverage of Q19

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Murray Jules (Simpcw), Ryan Kenoras (Adams Lake), Meghan McGill

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 16, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1690-1890

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU Q19, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU Q19 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in assessed portion of ASU Q19 is gently sloping with northern and northwestern aspects. Terrain is gently rolling throughout with a few standing ponds. The area has been affected by a forest fire, and ground disturbance has resulted from skid trails and an access road that transect the northwestern corner of the ASU. Archaeological potential is considered low due to the sloping, undulating, and disturbed nature of the terrain, and lack of significant hydrological features and well-defined or well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

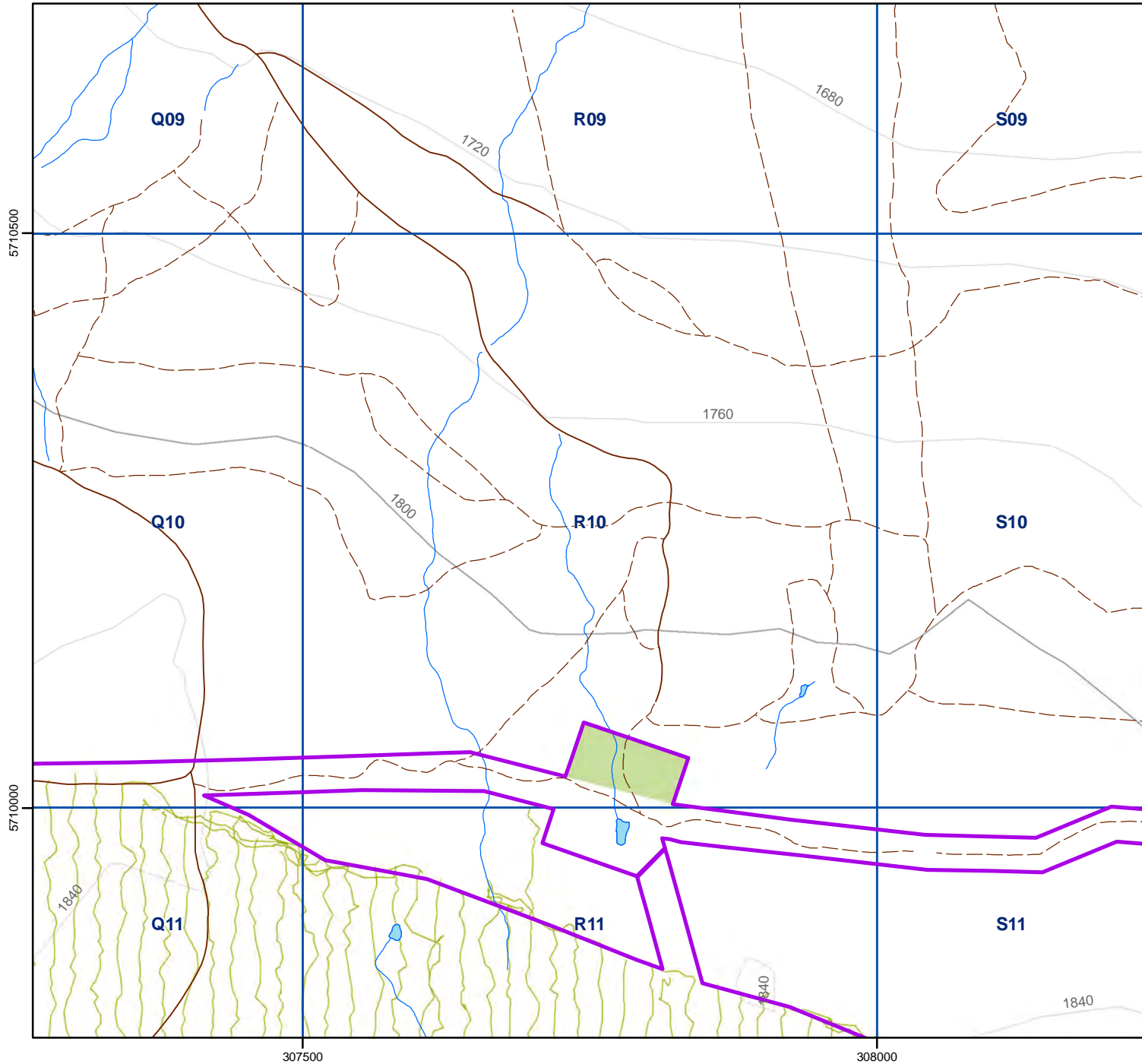
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

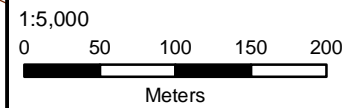
Historic Features Identified? No



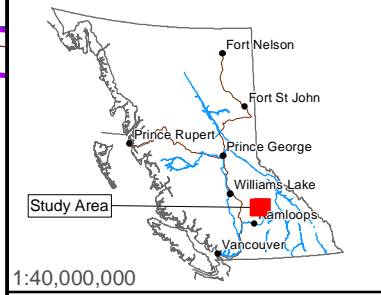
Survey Coverage of R10

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project**HCA Permit** 2011-0209**Permit Holder** Kevin Twohig**Field Director(s)** Shana Morin**Crew Chief(s)** Shannon Enns**Field Crew** Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick**Survey Date(s)** August 3 and 7, 2012**PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No****NTS Map** 82M12**Biogeo Zone** ESSFwc2**Elevation (m)** 1790-1810**Area (ha)** 25**Survey Methodology**

Pedestrian survey was not undertaken within this ASU.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

A well-defined access road runs through the majority of the project area within ASU R10. For this reason the area was assessed from the road. Terrain is gently undulating and sloping with an overall southeastern aspect. Archaeological potential is considered to be low due to the poorly defined and disturbed nature of the terrain.

Subsurface DescriptionTotal Number of Subsurface Tests Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

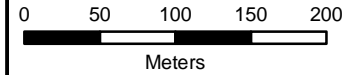
Historic Features Identified? No

Survey Coverage of R11

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N

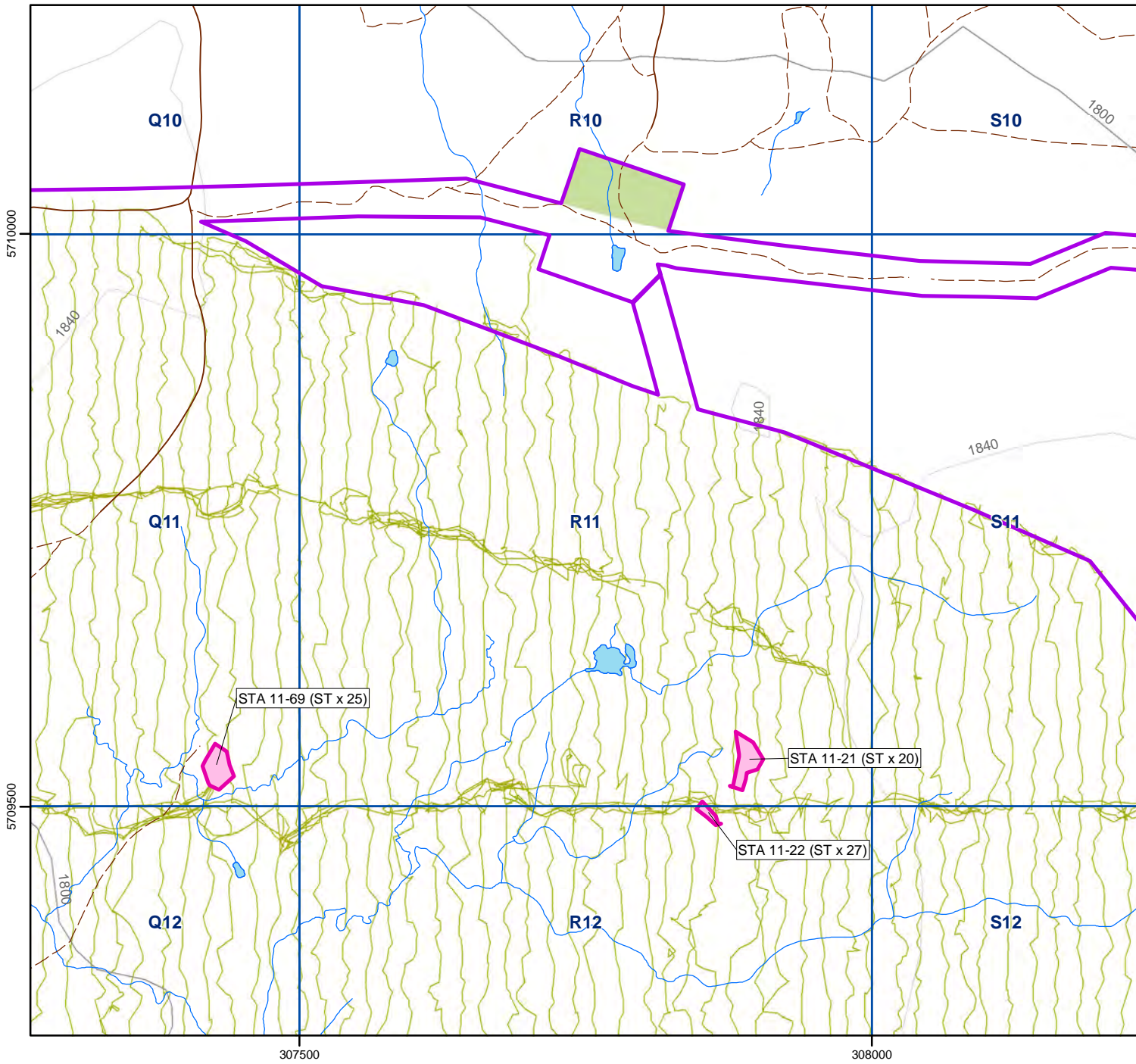
1:5,000



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (AL), Murray Jules (S), Ryan Kenoras (AL), Meghan McGill, Joe Meldrum, Reginald Narcisse (AL), Laura Pick, Achinie Wijesinghe

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 28, 2011; August 7, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1820-1840

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R11, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU R11 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in R11 is gently sloping with a south-southwestern aspect in the southern portion and a southeastern aspect in the northern portion. The majority of R11 consists of poorly drained meadows; no other significant hydrology was noted. Ground disturbances caused by forestry, mining, and road building were evident throughout the ASU.

Two areas were assessed as having the potential for the presence of buried archaeological deposits and were subject to subsurface testing. Shovel Test Areas (STAs) 11-21 and 11-22 were identified during a preliminary field reconnaissance (PFR) of the Road 3 footprint conducted on August 10, 2011. The locations were subject to subsurface testing on September 1, 2011 prior to the commencement of the mine facilities footprint survey. Once the survey of the Rock Disposal Area East was confirmed to begin, it was determined that additional testing was required at both locations to adequately test the landforms. This additional subsurface testing took place on September 9, 2011, also prior to the commencement of the Rock Disposal Area East footprint survey.

STA 11-21 consists of a north-south trending, flat top rise overlooking a small wetland. The wetland is situated directly to the west of the test area, bordering the test area on its western edge. The test area measures approximately 45 x 25 m. Six subsurface tests were excavated in the first testing of STA 21 with an additional nineteen tests added during the continued testing. In total, twenty-five subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

STA 11-22 consists of an east-west trending, flat top rise overlooking a small wetland. The wetland is situated directly to the north of the test area approximately 15 m away. STA 11-22 is located on the boundary between ASU R11 and R12 measuring approximately 30 x 15 m. The test area within R11 measures approximately 8 x 4 m. Twenty-one subsurface tests were excavated in the first testing of STA 11-22 with an additional six tests added during the continued testing. In total, twenty-seven subsurface tests were excavated on an approximate 5 m grid. No archaeological materials were identified within these tests.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

52

Number of Positive Subsurface Tests

0

The matrices in both STA 11-21 and STA 11-22 were observed to be similar and described by the following soil profile: 0 - 3 cm depth below surface (dbs) = Mossy littermat; 3 - 12 cm dbs = Grey brown silty sand with approximately 5% sub-angular pebbles; 12 - 30 cm dbs = Dark orange-brown silty sand with approximately 10% sub-angular to angular pebbles; 30 - 35 cm dbs = Light grey-orange sand with approximately 50-60% cobbles; 35 cm+ dbs = Cobbles and boulders.

Results

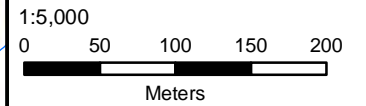
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

Survey Coverage of R12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

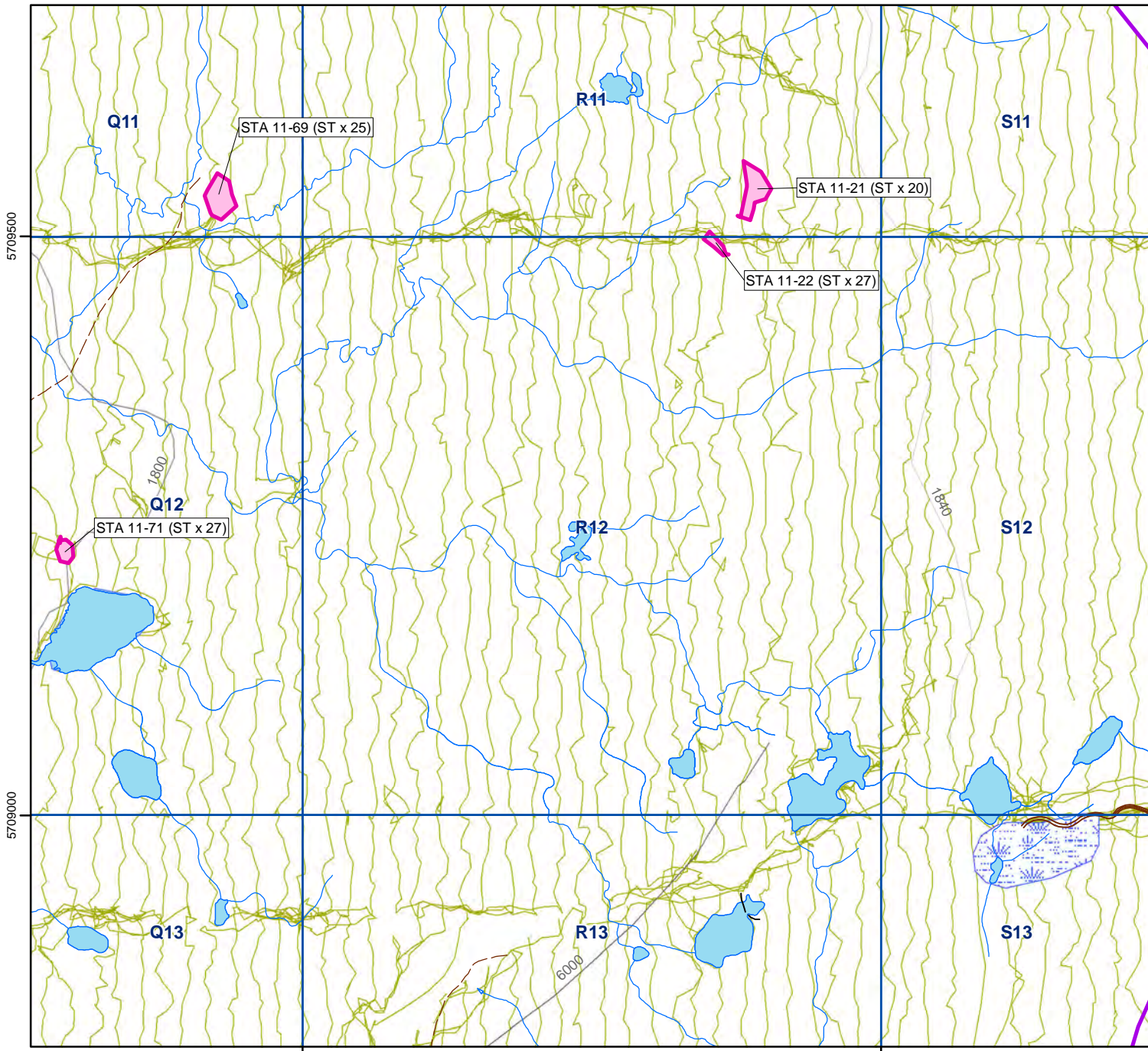
NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY



HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Shannon Enns, Ryan Kenoras (Adams Lake), Martin Saul (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Kim Statham

Survey Date(s) September 28-29, 2011

Crew Chief(s) Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5,82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1810-1830

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R12, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Surface examination was augmented by subsurface testing during the field survey. Tests were approximately 35 x 35 cm and were shovel excavated until sterile matrix was encountered. Excavated materials were screened through 6 mm mesh. These tests were excavated in areas of increased archaeological potential; the interval of testing in such areas was 5 m. Areas of increased potential within ASU R12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Both the surveyed areas of the Rock Disposal Area East and the Tailings Management footprints overlapped in this ASU and exhibited similar terrain features. The northwestern quadrant of R12 consists of a flat to gently sloping meadow with a western aspect. The remainder of the ASU is gently to moderately sloping with a western aspect in the eastern portion and a northern aspect in the southern portion. The area is gently rolling and is poorly drained in the low-lying areas. Ground disturbances due to previous logging were observed throughout R12 and included skid trails, stumps, and old access roads.

One area was assessed as having the potential for the presence of buried archaeological deposits and was subject to subsurface testing (STA 11-22). This area borders the southern boundary of ASU R11 and is described in that report.

Archaeological potential is considered to be low throughout the remainder of the areas assessed due to the sloping, poorly drained and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

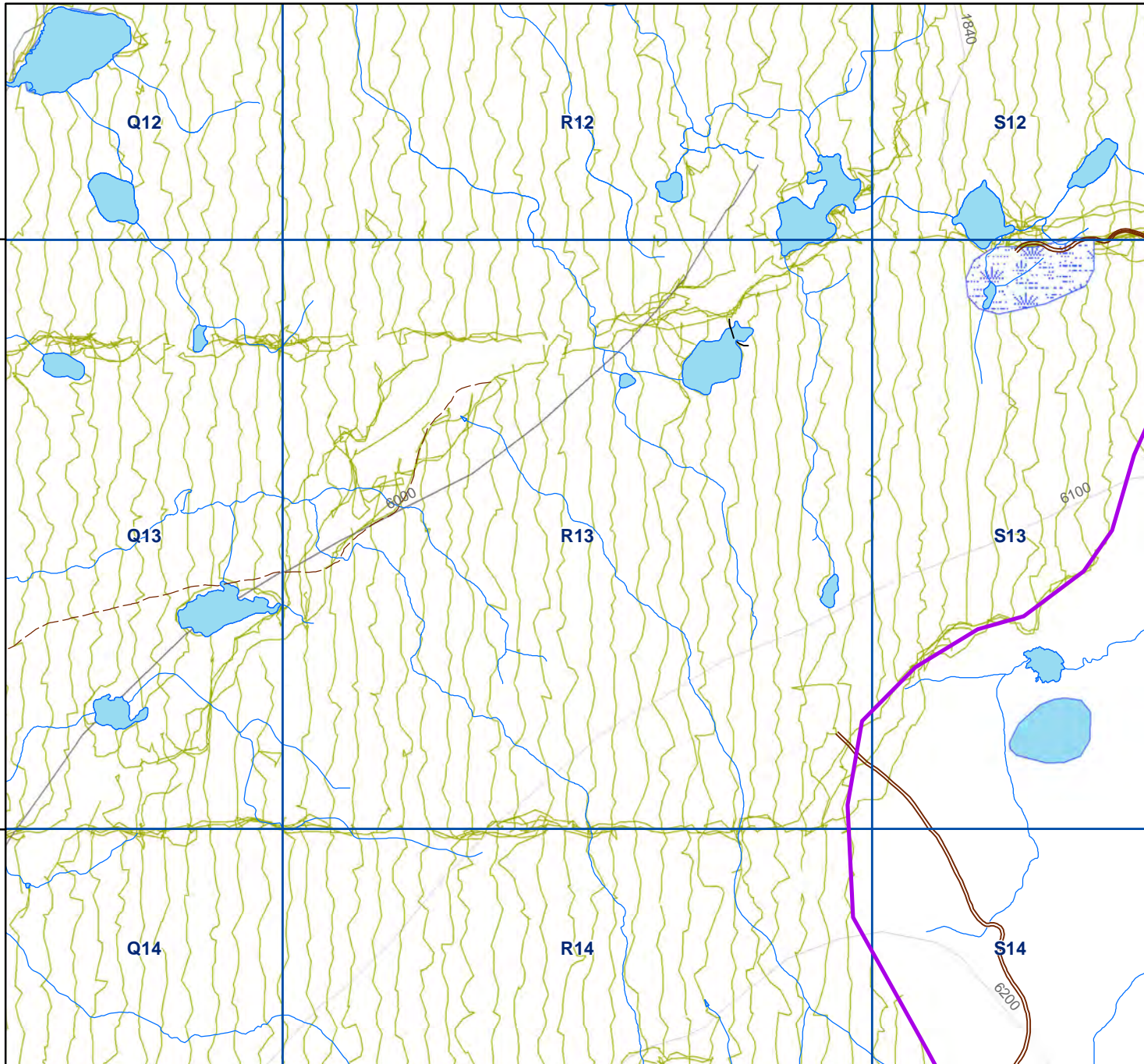
Number of Positive Subsurface Tests

Refer to ASU report R11 for subsurface description of STA 11-22.

Results

No protected archaeological resources were identified within the areas surveyed.

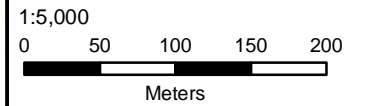
Historic Features Identified? No



Survey Coverage of R13

Terra ID: 11-0609-007
Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
BCGS 1:20,000 Mapsheet 82M.041,
82M.042, 82M.051 & 82M.052
Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake) Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (AL), Meghan McGill, Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick, Martin Saul (AL)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin, Kim Statham

Survey Date(s) September 28-29, 2011; August 9, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwc2,ESSFwcw

Elevation (m) 1810-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU R13 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Both the Rock Disposal Area East and Tailings Management areas subject to survey overlapped and exhibited similar features. The terrain in R13 is gently to moderately sloping with northern to northwestern aspects. The ground is gently rolling and poorly drained with standing water in the low-lying areas. Ground disturbances due to previous logging activity were observed such as skid trails and stumps. Archaeological potential is assessed as low due to the sloping, poorly drained, and disturbed nature of the terrain.

Subsurface Description

Total Number of Subsurface Tests

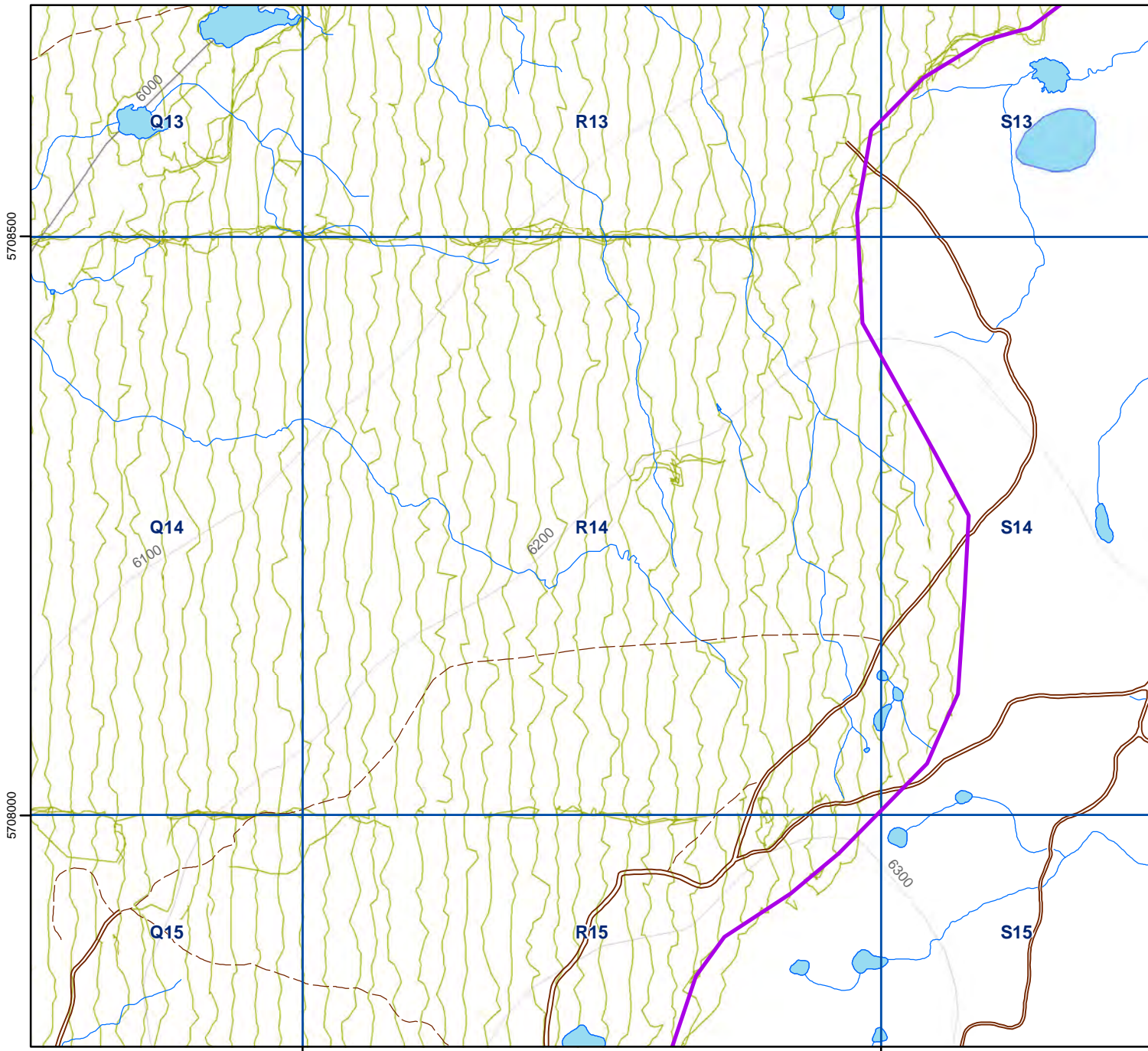
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

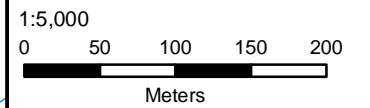
Historic Features Identified? No



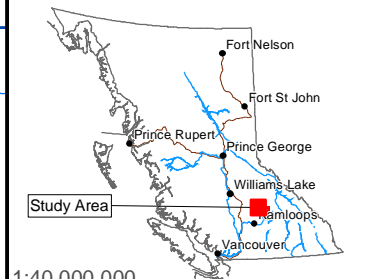
Survey Coverage of R14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Reginald Narcisse (Adams Lake), Laura Pick, Sharon Thomas (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 10 and 13, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcw

Elevation (m) 1840-1910

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU R14 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in ASU R14 is gently-to-moderately sloping and undulating with a northwestern aspect. Several ephemeral drainages are situated throughout the ASU. The area has been disturbed by past logging, mining and road building activities. A main mine access road transects the southeastern corner of ASU. Archaeological potential is assessed as low due to sloping, undulating, and disturbed terrain, and the lack of significant hydrological features and well-defined or well-drained landforms.

Subsurface Description

Total Number of Subsurface Tests

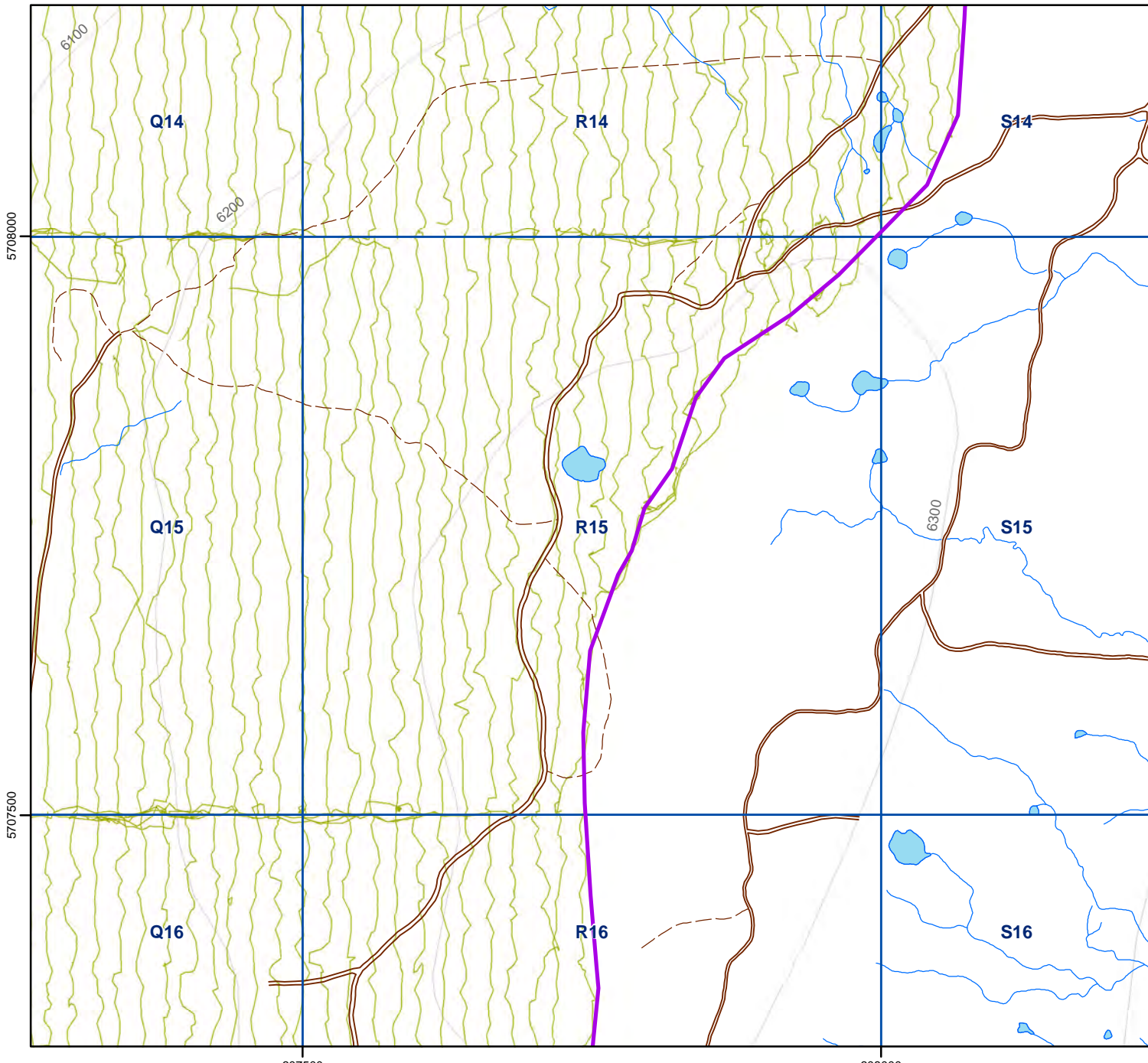
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

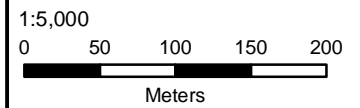
Historic Features Identified? No



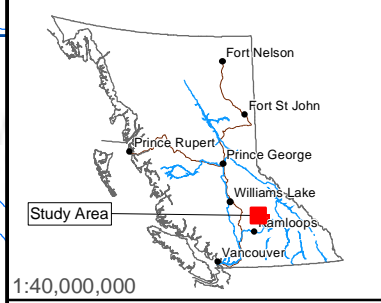
Survey Coverage of R15

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

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Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick, Sharon

Permit Holder Kevin Twhig

Field Director(s) Shana Morin

Survey Date(s) August 13-14, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcw

Elevation (m) 1890-1920

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R15, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU R15 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in ASU R15 is gently-to-moderately sloping and undulating with a north to northwestern aspect in the eastern portion of the assessed area and a north to northeastern aspect in the western portion. A low-lying open area in the centre of the ASU was dry at the time of survey but would likely be saturated in the winter and spring. The area has been disturbed by logging, mining and road building activities as evidenced by cut stumps, skid trails, and an active north-south access road that transects the centre of the ASU. Archaeological potential is considered low due to the sloping, low-lying and disturbed nature of the terrain, and lack of significant hydrological features or well-drained, well-defined landforms.

Subsurface Description

Total Number of Subsurface Tests

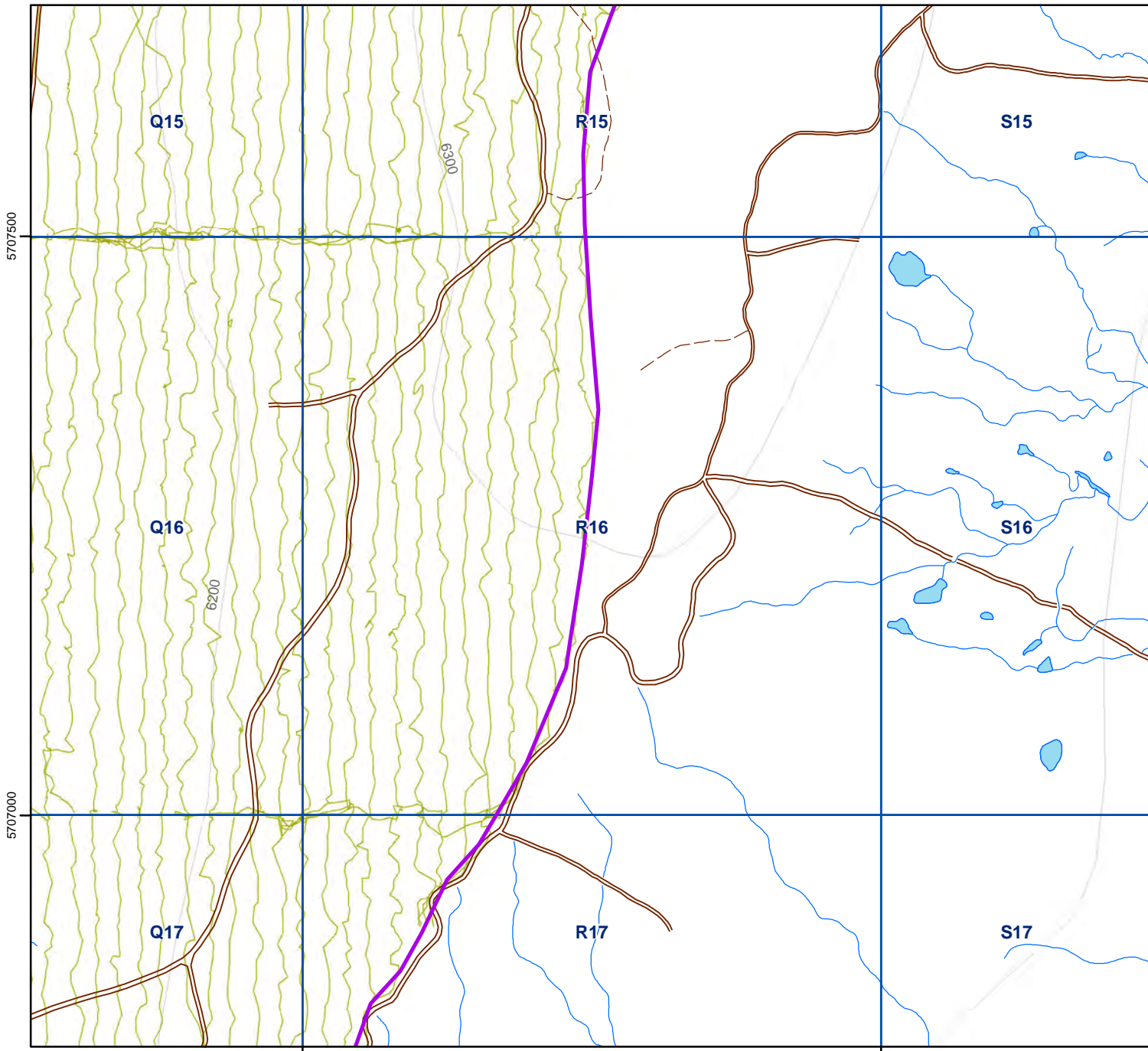
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

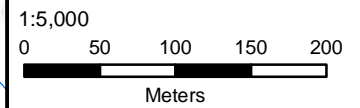
Historic Features Identified? No



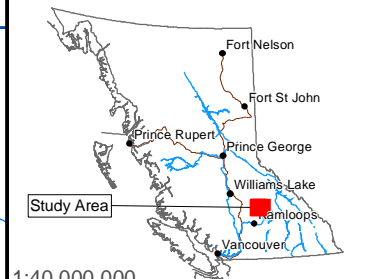
Survey Coverage of R16

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

307500

308000

5707500

5707000

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Reginald Narcisse (Adams Lake), Laura Pick, Sharon Thomas (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 15, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1900-1920

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R16, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU R16 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in ASU R16 is flat to gently sloping with a slight western aspect. Several small drainages and open low-lying meadows are located in the area but were dry at the time of survey. The area has been disturbed by logging and road building activities as evidenced by skid trails and a main access road that transects the northwestern portion of the ASU. Archaeological potential is assessed as low due to the sloping, low lying and disturbed nature of the terrain, and lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

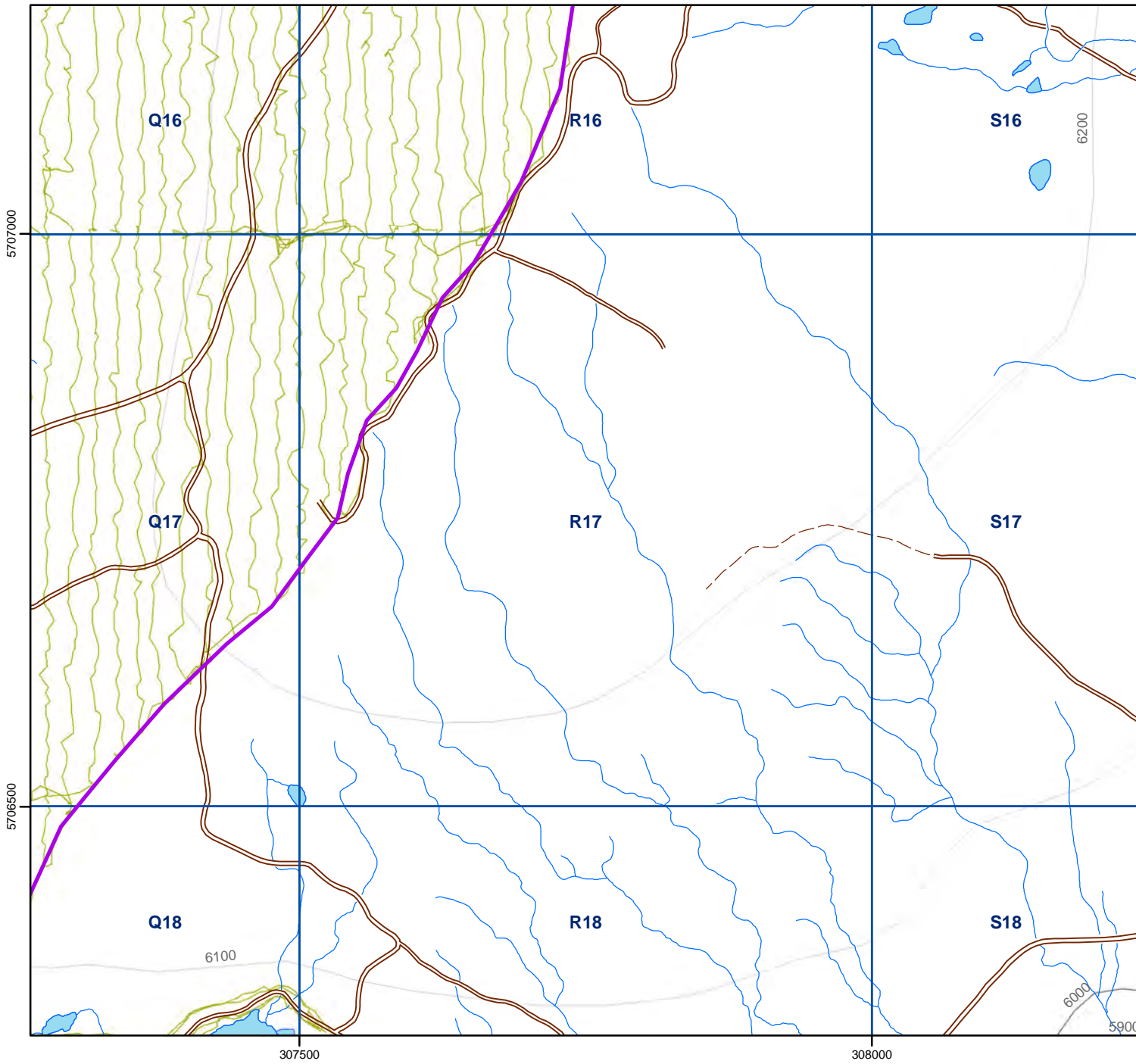
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

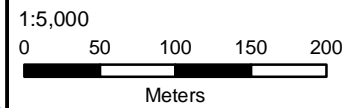
Historic Features Identified? No



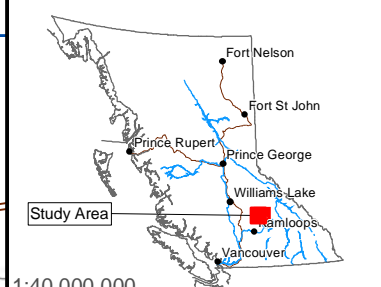
Survey Coverage of R17

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Reginald Narcisse (Adams Lake), Laura Pick, Sharon Thomas (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 15, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1860-1910

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU R17, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU R17 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in ASU R17 is flat to gently sloping with a slight western aspect. No significant hydrological features were observed. The area has been disturbed by logging and road building activities as evidenced by skid trails and a main access road that parallels the boundary of the assessed area. Archaeological potential is considered low due to the sloping, low lying and disturbed nature of the terrain, and lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

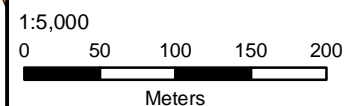
No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

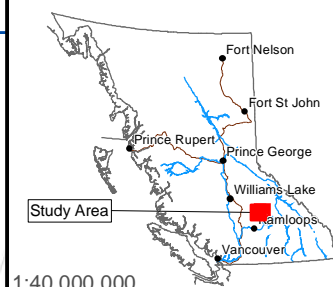
Survey Coverage of S11

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N

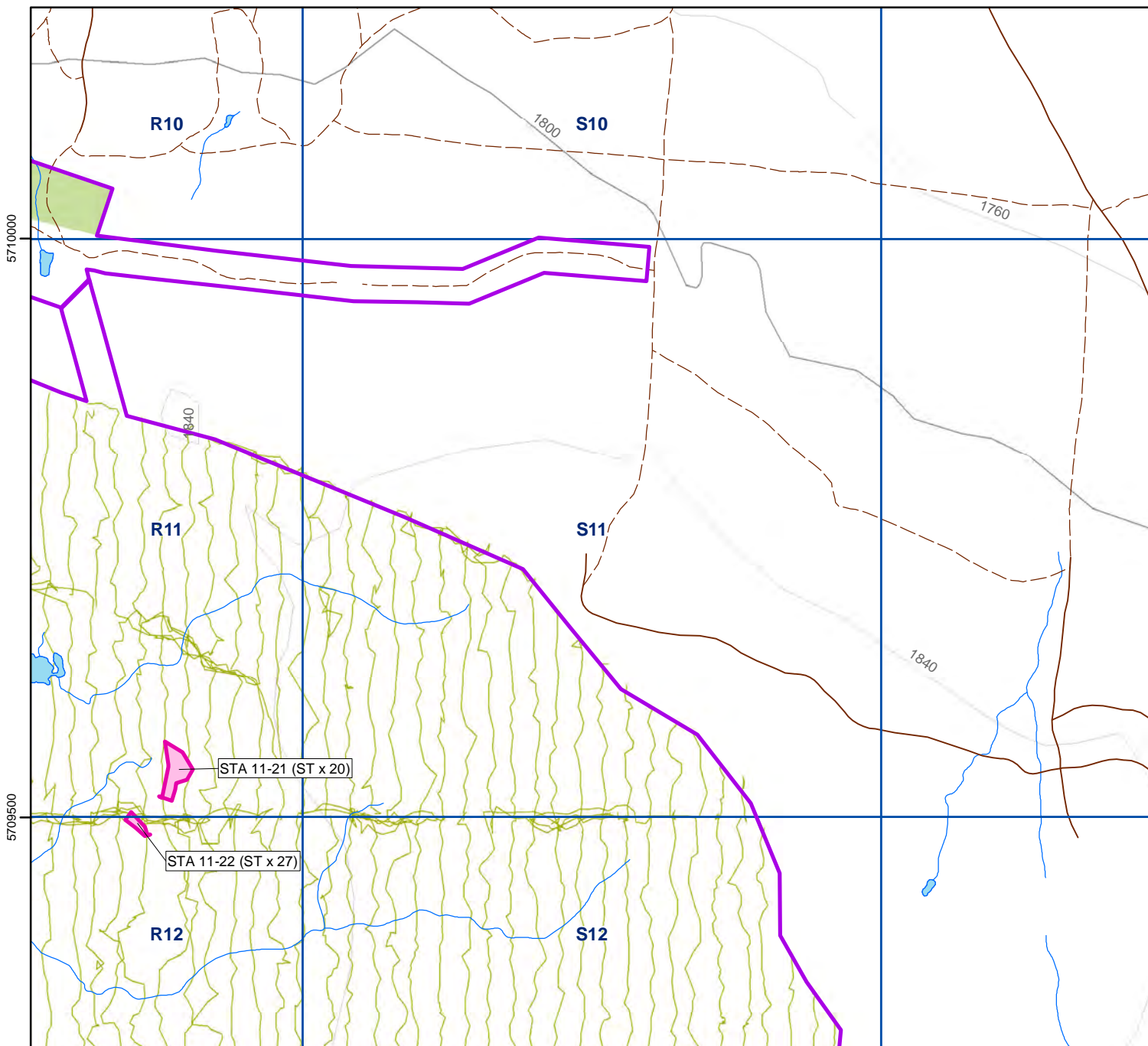


- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



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TERRAARCHAEOLOGY



Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick, Sharon Thomas (Adams Lake)

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 7-8, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1760-1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU S11, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU S11 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Assessed terrain in ASU S11 is gently to moderately sloping with a western to southwestern aspect. Terrain is undulating and poorly drained. The ASU has been disturbed by both logging and road building activities. Skid trails are located throughout assessed area. Archaeological potential is considered low due to the sloping, undulating, poorly-drained, and disturbed nature of terrain, and lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

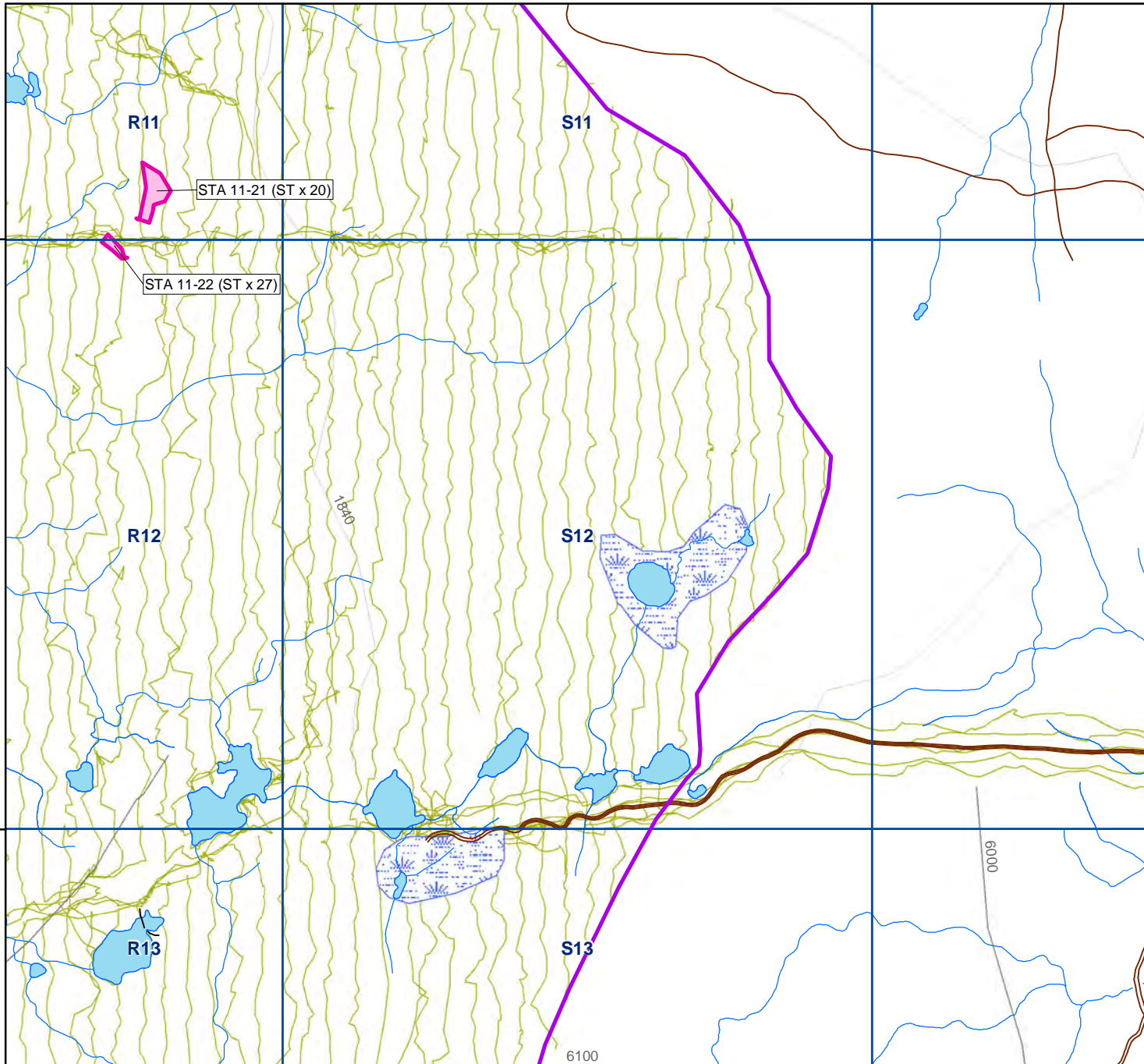
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

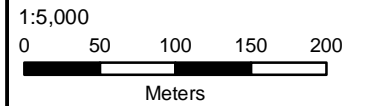
Historic Features Identified? No



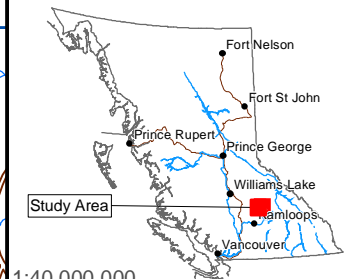
Survey Coverage of S12

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & /12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



1:40,000,000

TERRAARCHAEOLOGY

5709500

5709000

308000

308500

6100

6000

1840

R11

S11

STA 11-21 (ST x 20)

STA 11-22 (ST x 27)

R12

S12

R13

S13

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Shannon Enns, Lucas Eustache (Simpcw), Murray Jules (Simpcw), Ryan Kenoras (AL), Meghan McGill, Joe Meldrum (AL), Reginald Narcisse (AL), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shannon Enns, Kim Statham **Survey Date(s)** September 28, 2011; August 7-8, 2012

Crew Chief(s) Shannon Enns, Meghan McGill

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5,82M/12

Biogeo Zone ESSFwc2

Elevation (m) 1840-1860

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU S12, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU S12 are described below in ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Terrain in ASU S12 is gently to moderately sloping with a western aspect. The ground is gently rolling and hummocky with flat wetlands in the southwestern and eastern portions. Ground disturbances due to previous logging and mining activities were observed including skid trails and old access roads. Archaeological potential is assessed as low due to the sloping, hummocky, and disturbed nature of the terrain as well as the lack of well-defined landforms observed in association with the wetland areas noted.

Subsurface Description

Total Number of Subsurface Tests

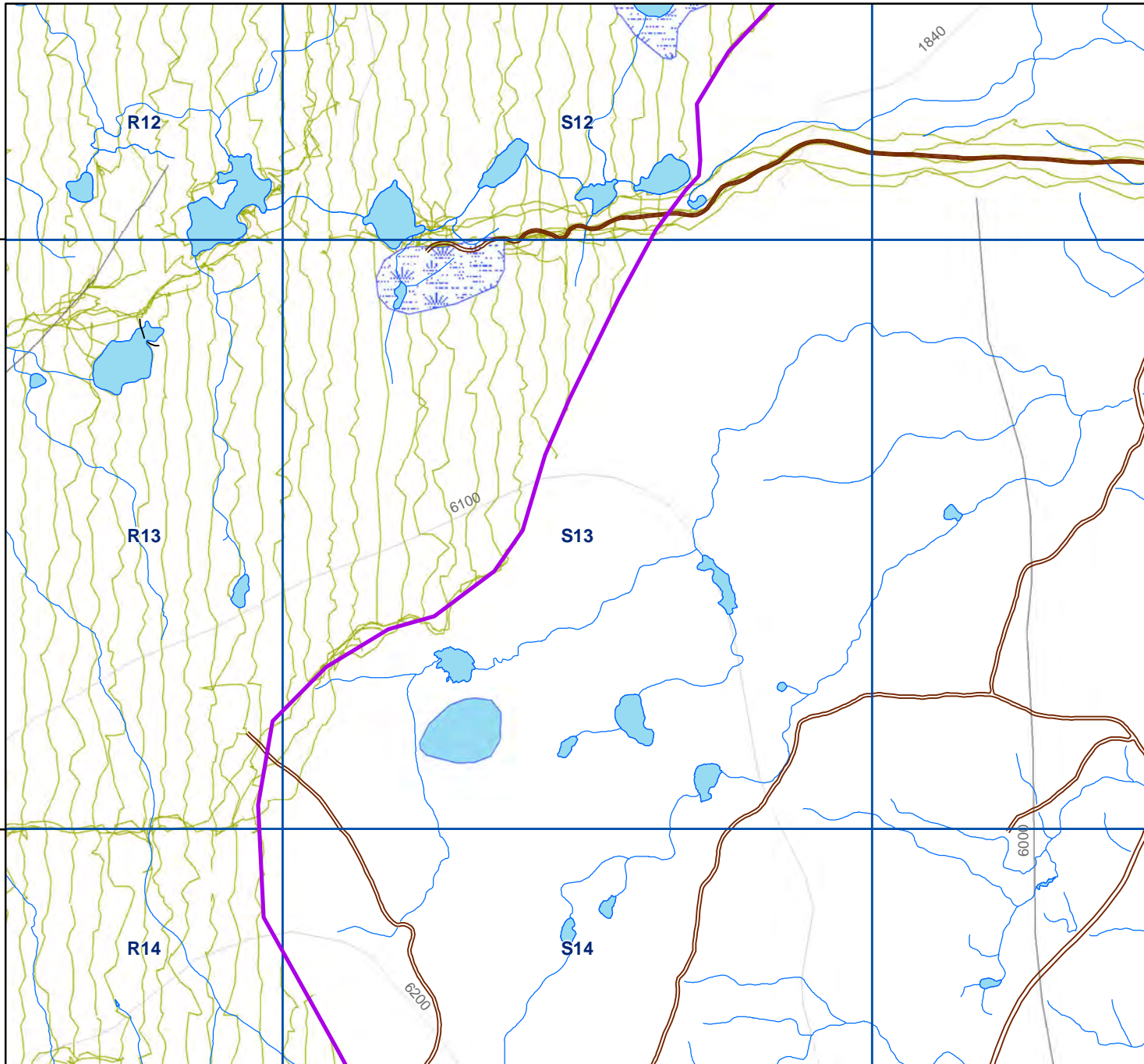
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

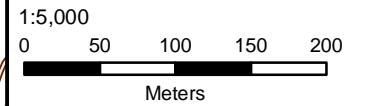
Historic Features Identified? No



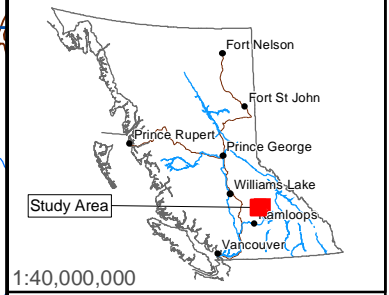
Survey Coverage of S13

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 & 12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- ⊕ CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

5709000

5708500

308000

308500

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura Pick

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 9, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcv

Elevation (m) 1830-1880

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU S13, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU S13 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Assessed terrain in ASU S13 is moderately sloping and undulating with a western to northwestern aspect. An ephemeral wetland/pond area that has been disturbed by a drill pad is located in the northwestern portion of the ASU. Terrain has been disturbed by logging, mining and road building activities, evidenced by several skid trails, the drill pad, and access roads. Archaeological potential is considered low due to the sloping, undulating, and disturbed nature of terrain, and lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests

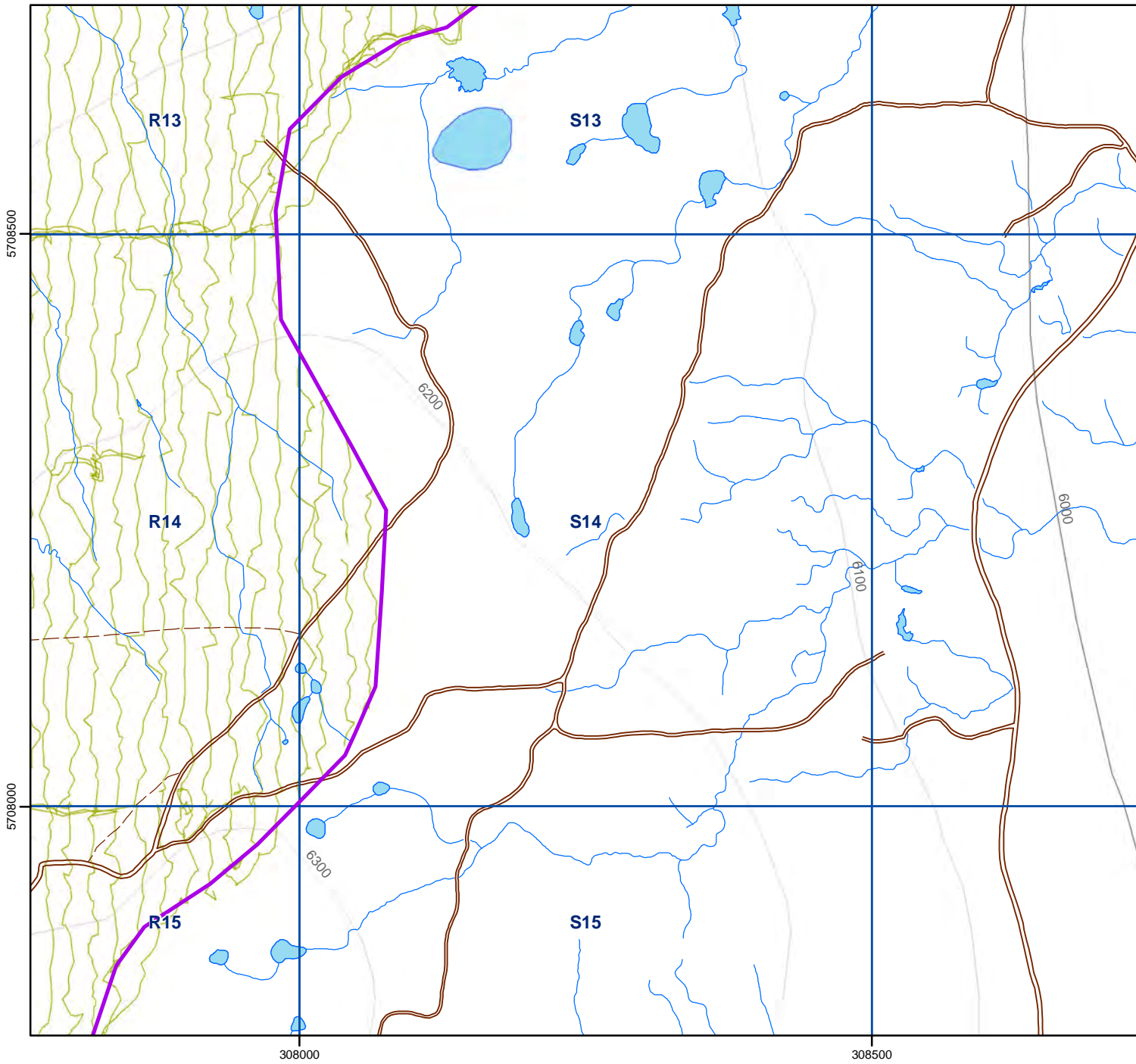
Number of Positive Subsurface Tests

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

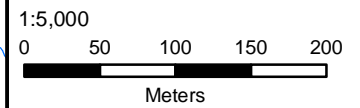
Historic Features Identified? No



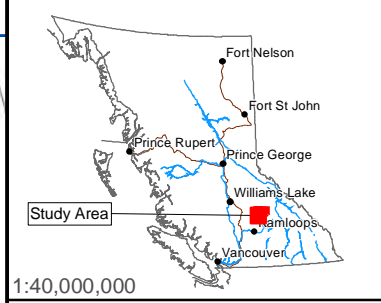
Survey Coverage of S14

Terra ID: 11-0609-007
 Client: Yellowhead Mining Inc.

NTS 1:50,000 Mapsheet 82M/5 &/12
 BCGS 1:20,000 Mapsheet 82M.041,
 82M.042, 82M.051 & 82M.052
 Datum: NAD 1983 UTM Zone 11N



- Project Area
- Survey Transects
- Very Steep Terrain
- Shovel Test Area
- Archaeological Site
- Historic Trail
- CMT
- Historic Corral
- Grid 500m
- Contour 100m
- Contour 20m
- Roads (secondary)
- Roads to Facilities
- Trails
- River/Creek
- Wetland
- Waterbody



TERRAARCHAEOLOGY

HCA Permit 2011-0209: AIA Harper Creek Mine

Harper Creek Mine Project

HCA Permit 2011-0209

Field Crew Mary Arnouse (Adams Lake), Lucas Eustache (Simpco), Tyler Jaenson (Adams Lake), Murray Jules (Simpco), Ryan Kenoras (Adams Lake), Meghan McGill, Joe Meldrum (Adams Lake), Reginald Narcisse (Adams Lake), Laura

Permit Holder Kevin Twohig

Field Director(s) Shana Morin

Survey Date(s) August 14, 2012

Crew Chief(s) Shannon Enns

PROTECTED ARCHAEOLOGICAL RESOURCES IDENTIFIED? No

NTS Map 82M/5

Biogeo Zone ESSFwcw

Elevation (m) 1850-1910

Area (ha) 25

Survey Methodology

Based on surface visibility and the archaeological site potential of ASU S14, crew members were spaced at approximately 20 m intervals along survey transects. All ground exposures encountered were inspected for cultural materials and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas of perceived higher archaeological potential based on topographic and hydrological terrain features observed in the field. Archaeological potential was assessed on: proximity to water, food resources, slope, drainage, forest cover, presence of topographic landforms commonly associated with known archaeological sites in the region (e.g., terraces, knolls, breaks-in-slope) and local knowledge. Areas of increased potential within ASU S14 are described below in the ASU Description and Potential Assessment.

The field director (if not working immediately alongside the crew) was available for consultation with on-location crews via the most practical means of communication (e.g., two-way radio, cellular/satellite telephone).

ASU Description and Potential Assessment

Assessed terrain in ASU S14 ranges from moderately-to-steeply sloping to gently sloping with an overall north to northeastern aspect. The area has been disturbed by logging, mining and road building activities, evidenced by multiple skid trails and a main access road that transects the center of the assessed area. Archaeological potential is considered low due to the sloping, undulating, and disturbed nature of the terrain, and lack of significant hydrological features.

Subsurface Description

Total Number of Subsurface Tests 0

Number of Positive Subsurface Tests 0

No subsurface tests were excavated.

Results

No protected archaeological resources were identified within the areas surveyed.

Historic Features Identified? No

