Appendix 16-A

Archaeological Impact Assessment Reports for the Crown Mountain Coking Coal Project

Archaeological Impact Assessment of the Crown Mountain Coking Coal Project - Final Report –

V2

Volume 1

Heritage Conservation Act
Heritage Inspection Permit

2015-0098

Prepared for:

NWP Coal Canada Ltd.

Prepared by:

Pathways Archaeological Consulting Ltd.

&

Tipi Mountain Eco-Cultural Services Ltd.

V2 SUBMISSION:

October 20th, 2021

BC Heritage Inspection Permit 2015-0098

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Pathways Archaeological Consulting Ltd.

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MANAGEMENT SUMMARY

Tipi Mountain Eco-Cultural Services Ltd. and subsequently Pathways Archaeological Consulting Ltd., were contracted by NWP Coal Canada Ltd. (the Proponent) to complete components of an archaeological impact assessment (AIA) on an evolving mine plan (*i.e.* the development footprint) and define a baseline archaeological inventory within the archaeological local study area (LSA) of the Crown Mountain Coking Coal Project (the Project). The Project proposes to develop an open-pit coal mining operation and install ancillary infrastructure components within portions of ten coal licenses that encompass the localities of Crown Mountain within the Alexander Creek valley and the Grave Creek drainage and Grave Prairie within the Elk River valley in southeastern British Columbia.

The relatively large size of the Project required a phased, multi-year approach (*ca*. 2017-2019) in order to feasibly conduct the archaeological assessment. The phases of the archaeological component and their relative geographic locations of the Project include:

- **Phase I**: Rail Loadout Facility and Railway Siding - Grave Prairie (Elk River valley).
- **Phase II**: Transportation Corridor - Grave Prairie to Crown Mountain (Grave Creek drainage)
- **Phase III**: Mine Site - Crown Mountain (Alexander Creek drainage)
- **Phase IV**: Secondary Transportation Corridor (Alexander Creek valley)

As a result of the multi-year, phased approached to the archaeological assessment (*ca*. 2017 – 2019), conducted under Heritage Inspection Permit (HIP) 2015-0098, 28 precontact archaeological sites were discovered and nine previously recorded precontact archaeological sites were updated (see Table). Note that a supplementary AIA was completed on a revised location for the Rail Loadout (RLO) Facility of Phase I under Multi-Assessment Permit (MAP 2018-0014). Although detailed results of this supplemental AIA are not provided within this report, the three newly discovered archaeological sites (DlPr-83, DlPr-84, and DlPr-85) and the two sites updated (DlPr-8 and DlPr-80) under MAP 2018-0014, are mentioned as/where applicable to provide direction while the Proponent applies for an Environmental Assessment (EA) Certificate.

Archaeological Sites listed under HIP 2015-0098

Newly Discovered & Recorded Precontact Sites	**DkPq-15** [III] **DkPq-16** [III] **DkPq-17** [III] **DkPq-18** [III] **DkPq-19** [II] **DkPq-20** [II] **DkPr-34** [I]	**DkPr-35** [I] **DkPr-36** [I] **DkPr-37** [I] **DkPr-38** [I] **DkPr-39** [I] **DlPq-10** [II] **DlPq-11** [II]	**DlPq-12** [II] **DlPq-13** [II] **DlPr-65** [II] **DlPr-66** [II] **DlPr-67** [II] **DlPr-68** [II] **DlPr-69** [II]	**DlPr-75** [II] **DlPr-76** [II] **DlPr-77** [II] **DlPr-78** [II] **DlPr-80** [I] **DlPr-81** [I] **DlPr-82** [I]
Revisited & Updated Precontact Sites	**DkPq-11** [III] **DkPr-12** [I] **DkPr-13** [I]	**DkPr-18** [I] **DlPr-8** [I] **DlPq-8** [II]	**DlPr-42** [II] **DlPr-43** [II] **DlPr-46** [II]	

Table Notes:

[I] *Crown Mountain - Phase I (Grave Prairie)*
[II] *Crown Mountain - Phase II (Grave Creek)*
[III] *Crown Mountain - Phase III (Crown Mountain)*

Interim reports were produced to detail the results for each of the assessed Phases of the Project, and are appended to this report (*Appendix A* [Phase I], *Appendix B* [Phase II], and *Appendix C* [Phase III]). All the reporting produced under the Permit has previously been reviewed and is on file with the Proponent; all reporting has also been provided to applicable First Nations and uploaded to the Permit's file at Archaeology Branch *via* the Archaeological Permit Tracking System (APTS) application.

While avoidance strategies are the preferred recommendation to preserve precontact archaeological resources, the Project's mine plan has evolved since originally proposed (*ca.* 2015) and proposed development footprints have been re-engineered and consciously placed to minimize direct impact(s) to as many archaeological sites as possible in the locality of Grave Prairie.

Although the results of the baseline archaeological inventory and AIA conducted on Phases I, II, and III under HIP 2015-0098, and components of Phase I that were subsequently assessed under MAP 2018-0014, have wrapped up, subsequent inspections (*i.e.* shovel testing) will be required on areas within the Project's mine plan that have yet to be subjected to any form of archaeological assessment (*e.g.* Phase IV, utility corridor west of the Elk River, and recently defined clearing limits of the mine plan). Additionally, implementation of the Project's mine plan, as it is currently proposed, will require a substantial amount of archaeological investigation (*i.e.* systematic data recovery), mitigation, and monitoring under applicable heritage permitting to abide by Provincial Legislation and meet guidelines put forth by applicable First Nations to address precontact artifact concentrations and/or features that have been identified within as containing increased significance.

Interpretations of the archaeological record generated under the Permit are made without prejudice to Indigenous interests and are not intended to refute, alter, or recognize any treaty, title, or right(s). The assessments conducted under the Permit address the potential for and identified physical evidence of past human activity; this does not encompass traditional use studies or other heritage concerns of Indigenous communities claiming traditional territory in the Project's archaeological LSA.

PROJECT CREDITS

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[2] Pathways Archaeological Consulting Ltd
[3] Ktunaxa Nation Council
[4] Shuswap Indian Band

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1.0 INTRODUCTION

On behalf of NWP Coal Canada Ltd. (the Proponent), Tipi Mountain Eco-Cultural Services Ltd. (TMECS) and, subsequently, Pathways Archaeological Consulting Ltd. (PAC), completed a baseline archaeological inventory and archaeological impact assessment (AIA) on an evolving mine plan for the proposed Crown Mountain Coking Coal Project (the Project) under Heritage Inspection Permit (HIP) 2015-0098 (the Permit). The Project proposes to develop an open-pit coal mining operation and install ancillary infrastructure components within portions of ten coal licenses that encompass the localities of Crown Mountain within the Alexander Creek valley, the Grave Creek drainage and Grave Prairie within the Elk River valley in southeastern British Columbia (Figure 1).

The relatively large size of the Project required a phased, multi-year approach (*ca*. 2017-2019) in order to feasibly conduct the AIA and establish a provisional archaeological inventory. The phases of the archaeological component and their relative geographic locations of the Project include:

- **Phase I**: Rail Loadout Facility and Railway Siding - Grave Prairie (Elk River valley).
- **Phase II**: Transportation Corridor - Grave Prairie to Crown Mountain (Grave Creek drainage)
- **Phase III**: Mine Site - Crown Mountain (Alexander Creek drainage)
- **Phase IV**: Secondary Transportation Corridor (Alexander Creek valley)

The AIA of the Project (*i.e.* Phase I-III) was conducted in accordance with the objectives outlined by BC Archaeology Branch within the *British Columbia Archaeological Impact Assessment Guidelines* (1998), which involves:

i. identification and evaluation of archaeological potential and resources that may be situated within the development area;
ii. assess possible impacts to archaeological resources that may be present;
iii. provide recommendations regarding the need and appropriate scope for further archaeological studies; and
iv. recommend viable alternatives for managing any identified impacts.

Two years after the issuance of the Permit, the archaeological assessment commenced on September 9th, 2017 and annually involved multiple weeks of fieldwork, which terminated on October 25th, 2019. The duration of the Permit was facilitated by administrative amendments that allowed for the inclusion of the 2019 field season and a north-northwestern extension to the study area. Field crews consisted of Project archaeologists (*i.e.* Field Directors [Archaeology Branch 2015]) and an appropriate number of field assistant positions, which were largely filled by both assigned and in-house representatives of applicable First Nations (*i.e.* the Ktunaxa Nation Council [KNC] and the Shuswap Indian Band [SIB]).

As a result of the archaeological assessments completed under the Permit, 28 archaeological sites were discovered and nine previously recorded archaeological sites were updated. Although project- and site-specific recommendations are provided within the appended interim reports, the archaeological assessment should be considered a baseline study and inventory within a remnant portion of a once expansive precontact cultural landscape. The development footprint of the Project evolved annually based, in part, by the results of the phased archaeological assessment in the locality of the aptly named Grave Prairie. Although components of the development footprint were consciously shifted by the Proponent to minimize direct impacts to as many archaeological sites as possible, 11 of the precontact archaeological sites (DkPq-16, DkPq-17, DkPq-18, DlPq-10, DlPq-13, DlPr-42, DlPr-43, DlPr-46, DlPr-68, DlPr-75, and DlPr-78) listed under HIP 2015-0098 will be directly impacted through implementation of the Project, and will require further inspection and/or investigations under a Section 12.2 HIP. Note that development within an archaeological site can only occur under a concurrent Section 12.4 Alteration Permit(s). Several archaeological sites are in proximity to the currently proposed development

footprint, but, as currently defined, the Project will only result in indirect impact(s) through the alteration of the surrounding landscape and loss of geographical context(s).

It is important to note that a subsequent archaeological assessment was conducted on the Rail Loadout (RLO) component of the Project's Phase I under Multi-Assessment [Heritage Inspection] Permit (MAP) 2018-0014. Although the results of this supplemental AIA are not overly detailed within this report, the field assessment (*ca*. September-October 2020) rendered positive results with the recording of three archaeological sites (DlPr-83, DlPr-84, and DlPr-85) and updated two sites (DlPr-8 and DlPr-80) that are listed under HIP 2015-0098; these sites are listed within applicable sections (including tables) of this report. As a result of the AIA conducted under MAP 2018-0014, the Proponent further revised the Phase I development footprint, and therefore, portions of the Project's mine plan do remain un-assessed for presence of precontact archaeological resources. Therefore, further archaeological work conducted through applicable permitting under the *Heritage Conservation Act* (*HCA* [1996]) will be required prior to the implementation of the Project, should it be approved by the British Columbia Environmental Assessment Office (EAO) through the issuance of an Environmental Assessment (EA) Certificate.

2.0 PROJECT DESCRIPTION

The Project involves a mine plan focused on the mechanical extraction of coking coal in the vicinity of Crown Mountain, which has been subjected to exploration activity (*i.e.* drilling) in 1969 and 1979, and further exploration, trenching, and bulk sampling occurred from 1979 to 1981. After the issuance of coal tenures to a subsidiary of the Proponent (*i.e.* Jameson Resources), an extensive mineral exploration program was implemented in 2012, which indicated that the coal at the Crown Mountain site is typical of the coking coals extracted from existing mines in the Elk Valley. If approved, the proposed Project would create a new coal mine with an expected 15-year operating life.

To facilitate the proposed Project, the Proponent has been issued the following Coal Licenses:

- 418150
- 418151
- 418152
- 418153
- 418154
- 418966
- 419176
- 419177
- 419178
- 419179

As previously indicated, the relative size of the Project and the evolution of the mine plan required a phased approach in order to feasibly complete the archaeological component, which is to be a part of the Proponent's EA; general localities and proposed development components associated with each phase of the Project are summarized below.

2.1 Phase I

Phase I of the Project focuses on a rail loadout (RLO) facility in the locality of Grave Prairie. Associated with Phase I, development would include the construction of a railway siding and loadout loop, of which there were three versions proposed (*ca*. 2015-2020). Note that the currently proposed development footprint for the rail loadout (RLO) facility was assessed in 2020 under MAP 2018-0014 (Tamasi and Sherwin 2021). Associated with the RLO would be the establishment of a utility corridor (*e.g.* hydro-electrical and natural gas service lines), truck dump, clean coal stockpile, and loadout conveyance system. Additionally, road construction activity would be required along a segment of the north-south trending Valley Road and an existing, east-west trending road that bisects Grave Prairie to access the Harmer Siding along the Canadian Pacific Railway's (CPR) Fording River Branch Line.

Under the Permit, the Phase I study area extended northward to Grave Creek and southward to a drainage that is locally referred to as Black Creek. The western limit of this portion of the study area was defined by the north-south trending Valley Road, and the eastern limit was arbitrarily defined by a 100-meter buffer zone from the evolving development footprint.

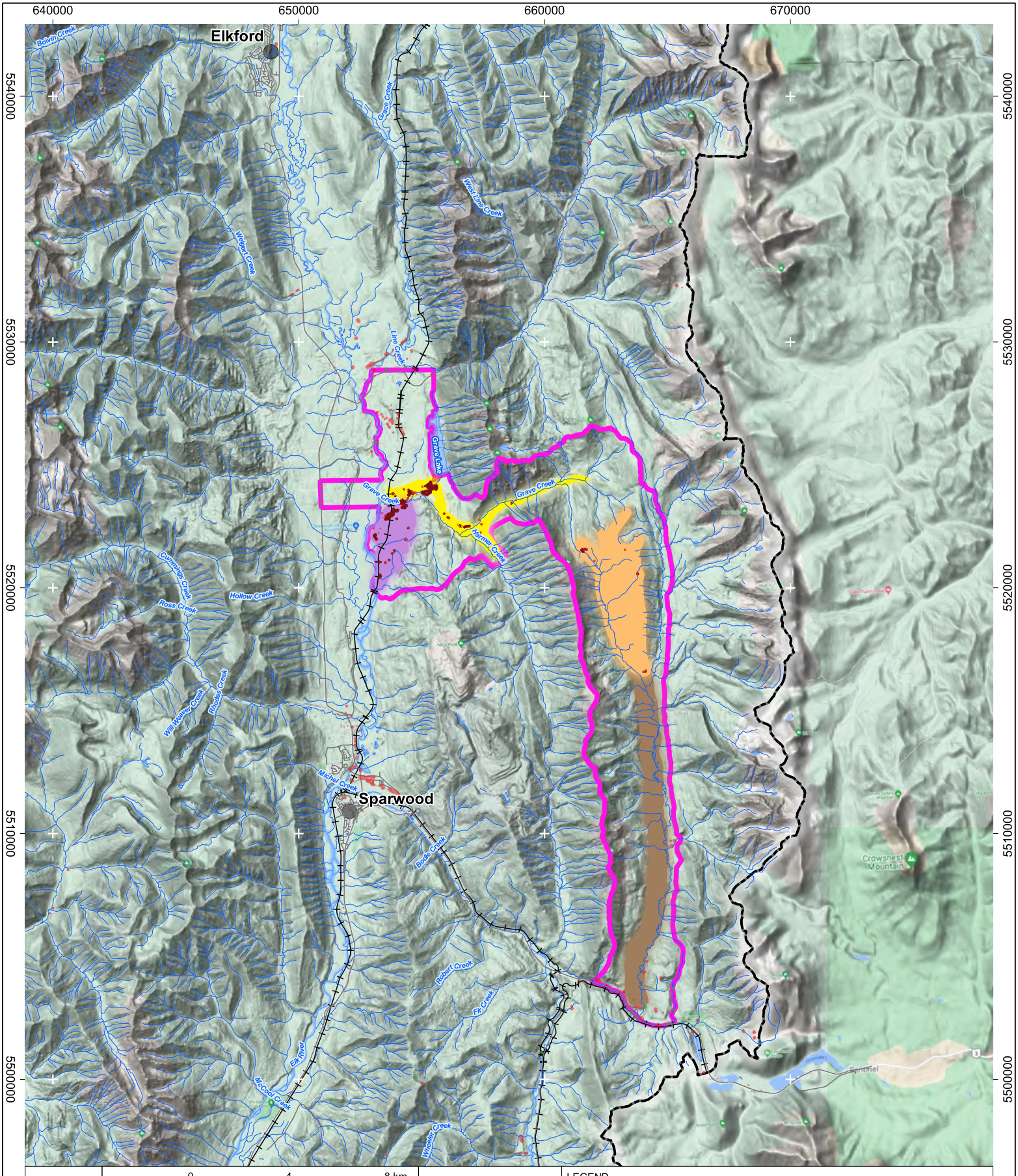


Figure: 1	1:200,000 0 4 8 km		Mapped by: Pathways Archaeological Consulting Ltd
Permit: 2015-0098	Map Sheet: UTM11 - NAD83 - NTS 82G10-15		
Client: NWP Coal Canada	N		
Title: 2017-2018-2019 AIA Results Overview	BC AB 0 200 400 km		Survey Date: 2017-2018-2019
Project: Crown Mountain AIA Phases I, II, II, and IV			Mapping Date: 11/05/2021

LEGEND

CRM Arch Sites
- New or Revised Arch Site Bdry

Registered Arch Sites

RAAD Arch Sites (2021)
- Precontact Arch Site Bdry
- Historical Arch Site Bdry
- Legacy Arch Site Bdry

Land Features

BC Road Atlas
- Paved Road
- Railroad
- Lake
- River
- Watercourse

Client Data
- Permit 2015-0098 Crown Mtn Phase I
- Permit 2015-0098 Crown Mtn Phase II
- Permit 2015-0098 Crown Mtn Phase III
- Permit 2015-0098 Crown Mtn Phase IV (not assessed)
- Local Study Area (LSA)

Administrative
- Municipality
- Continental Divide

Basemap

Google Terrain

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

2.2 Phase II

Phase II of the Project consists of a transportation corridor (*i.e.* haul and access road) and a parallel trending utility corridor (*e.g*. hydro-electrical service and natural gas service) to connect the mine site (Phase III) and the loadout facility (Phase I). The transportation corridor, to be comprised of both dual-lane and single-lane road sections, generally follows the route of Grave Creek from the locality of Grave Prairie, travelling through Grave Canyon and terminates along the [northern] base of Crown Mountain; a distance of approximately 13 km. At the base of Crown Mountain, haul trucks would be loaded *via* a conveyance system carrying processed coal down from the mine site.

Under the Permit, the Phase II study area was arbitrarily defined by a 100-meter buffer zone from existing road grades (*i.e.* Harmer Road and the Grave Creek Forest Service Road [FSR]) which would be upgraded to facilitate road-legal haul trucks, service equipment, and commercial vehicles.

2.3 Phase III

Phase III of the Project consists of the open-pit mining operation in locality of Crown Mountain. Three pits are currently proposed to be developed sequentially through a truck/shovel mining method, which includes drill and blast operations. Spoil and waste rock would be deposited within the West Alexander Creek valley, situated westward of the extraction pits. Processing of raw coal would occur in facilities situated along the northwestern slope of Crown Mountain prior to transport *via* an overland conveyance system (approximately 3 km) down to the Transportation Corridor (Phase II) where coal will be discharged into haul trucks for transport to the RLO (Phase I).

Under the Permit, the Phase III study area was arbitrarily defined by a 100-meter buffer zone from the currently proposed development footprint. An exception to the arbitrary buffer zone, was the inclusion of two archaeological overview assessment (AOA) polygons (*i.e.* C20-72 and C20-89) located approximately 0.3-0.5 km south-southeast of the proposed limits of the south pit, and in proximity to the confluence of the West Alexander and Alexander Creeks.

2.4 Phase IV

Phase IV of the Project consists of a secondary transportation corridor (*i.e.* emergency access and egress). This supplemental transportation corridor, to be comprised of both dual-lane and single-lane road sections, generally follows the route of Alexander Creek southward from Crown Mountain to Highway #3 in proximity to the western side of Crowsnest Pass; a distance of approximately 14 km.

Under the Permit, the Phase IV study area was to be arbitrarily defined by a 100-meter buffer zone from the existing Alexander Creek FSR, generally situated to the west of Alexander Creek. This component of the Project was not subjected to any form of archaeological assessment under the Permit.

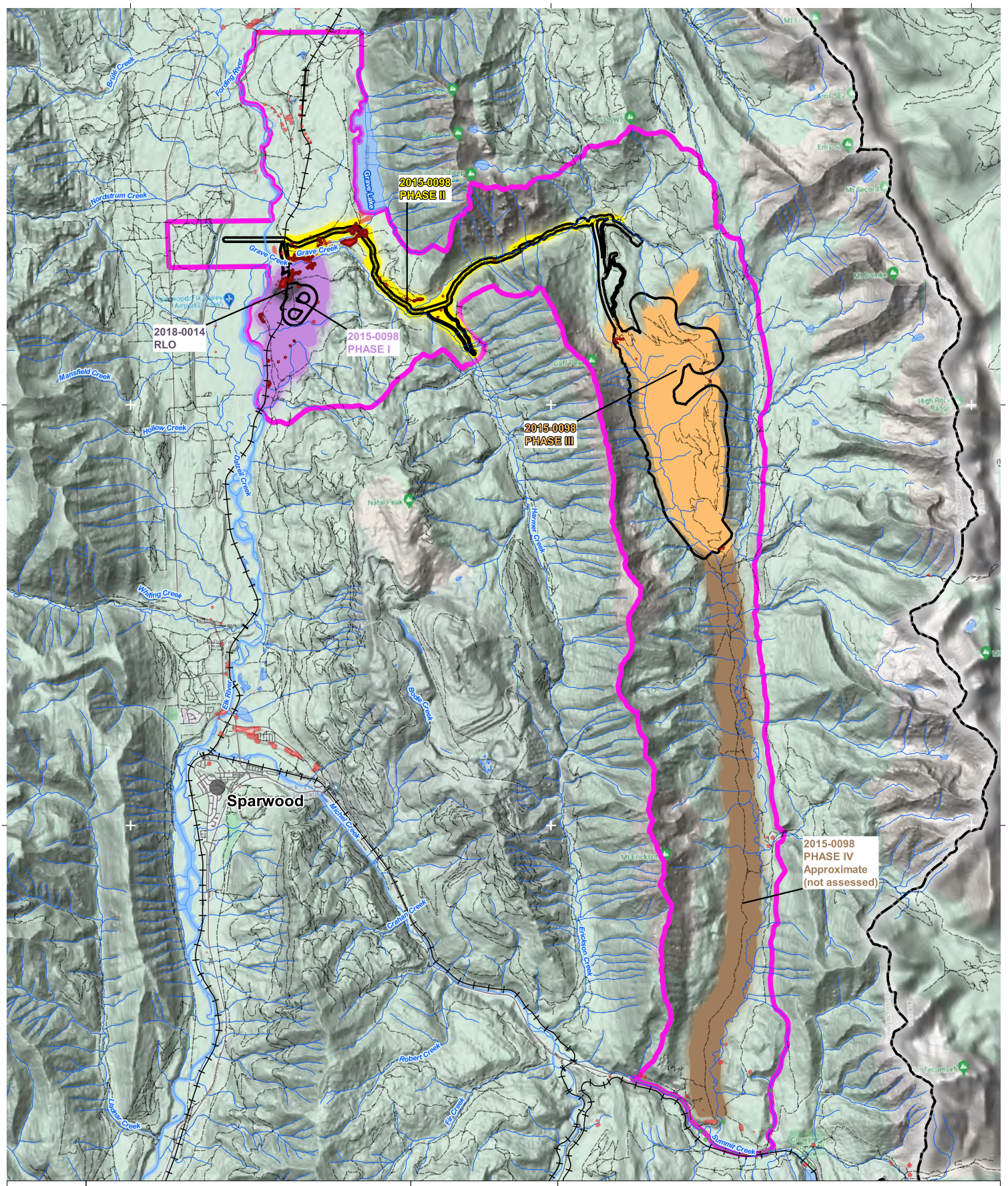


Figure: 2	1:120,000 0 2 4 km		Mapped by: Pathways Archaeological Consulting Ltd
Permit: 2015-0098	Map Sheet: UTM11 - NAD83 - NTS 82G10-15		
Client: NWP Coal Canada	N		
Title: 2017-2018-2019 AIA Results General Location	BC AB 0 200 400 km		Survey Date: 2017-2018-2019
Project: Crown Mountain AIA Phases I, II, II, and IV			Mapping Date: 11/05/2021

LEGEND

CRM Arch Sites
- New or Revised Arch Site Bdry

Registered Arch Sites

RAAD Arch Sites (2021)
- Precontact Arch Site Bdry
- Historical Arch Site Bdry
- Legacy Arch Site Bdry

Land Features

BC Road Atlas
- Paved Road
- Gravel Road
- Railroad
- Watercourse

Client Data
- Project Footprint (as of 26/10/2020)
- Permit 2018-0014 Crown Mtn RLO
- Permit 2015-0098 Crown Mtn Phase I
- Permit 2015-0098 Crown Mtn Phase II
- Permit 2015-0098 Crown Mtn Phase III
- Permit 2015-0098 Crown Mtn Phase IV (not assessed)
- Local Study Area (LSA)

Administrative
- Municipality

Basemap

Google Terrain

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

3.0 PROJECT AREA

A Local Study Area (LSA) was developed for the archaeological component of the Project, which mirrored the study area defining the Permit (see Figure 2 [above]). The LSA for the archaeological component of the Project was delineated through a combination of natural geographical and arbitrary boundaries in proximity to [evolving] conceptual engineering plans and the Project's currently proposed development footprint. The LSA and the study area of the Permit, which included an administrative amendment, are defined to the:

- **North**: naturally by the height-of-land that defines the upper portion of the Grave Creek drainage (Phase II), and arbitrarily to the north-northwest to include the terrain that is the west of Grave Lake and along the lower segment of the Line Creek drainage in proximity to its confluence with the Fording River (Phase I).
- **West**: naturally by segments of the Elk River that are in the locality of Grave Prairie (Phase I) and the height-of-land that defines the north-south trending Erickson Ridge within the Alexander Creek valley (Phases III and IV). Note that a westward trending utility corridor (*i.e.* feeder lines) is also present to the west, and connects the Project (Phases I and II) with existing hydro-electrical and natural gas infrastructure components that are in proximity to Highway #43.
- **South**: arbitrarily by a variable buffer zone from the development footprint (Phase I) within the locality of Grave Prairie, naturally by the height-of-land that defines the middle section of the Grave Creek drainage (Phase II), and arbitrarily by Highway #3 within the Summit Creek drainage that is west of Crowsnest Pass (Phase IV).
- **East**: naturally by lesser-sloped terrain along the base the Alexander Creek valley before it exponentially ascends eastward to the Continental Divide (Phase IV).

The Project is proposed within the Regional District of East Kootenay and within the boundaries of the Kootenay Boundary Land Use Plan, the Elk Valley Official Community Plan, and the Alexander Creek Access Management Area. Additionally, components of the Project are within Managed Forest 27, LU C20 of the [former] Rocky Mountain Forest District, and LU C38 of the [former] Cranbrook Forest District, all of which are now a part of the Rocky Mountain Natural Resource District.

The locality of the Project can be found on the following map sheets:

- NTS: 082G/10 and 15
- BC TRIM: 82G.077, 086, and 087

3.1 Study Area Environment

The Project is situated in the Border Ranges Eco-Section of the Southern Rocky Mountains Ecoregion (Quesnel and Thiessen 1993 *in* Choquette 2012), which is a region that was topographically influenced by valley glaciation within the north-south trending troughs defining the Elk River and Alexander Creek valleys, and cirque glaciation within hanging tributary drainages. As described within the Project-specific archaeological overview assessment (AOA):

> "*Geologically, the major valleys in the vicinity are north-south trending troughs flanked by folded and faulted Palaeozoic rock of the Mississippian Rundle Group, the Pennsylvanian / Permian Rocky Mountain Supergroup, the Jurassic Fernie Formation, and the Jurassic and Cretaceous Kootenay Group (Grieve and Price* n.d.*). The resistant limestone and quartzite are expressed by steep topography characterized by castellate and serrate summits whereas the softer shales have been much more heavily eroded and form gentle saddles, rounded ridges and knolls, and lower valley walls. Besides their influence on topography, these formations contain economically valuable minerals in addition to coal. Concentrations of hard silica provided the foundation for the pre-contact lithic (stone) industry and, as fossils, crystals and concretions, may also have had aesthetic or spiritual significance. The regional*

archaeological record includes evidence of pre-contact prospecting and mining in the Rocky Mountain, Banff, Etherington and Fernie formations going back many thousands of years." (Choquette 2014; p.5)

Influenced by the extent of the archaeological LSA and the study area of the Permit, the four phases of the Project's mine plan overlap with three generalized localities, summarized below from west to east:

1) **Elk River valley**: within this western portion of the study area, including the lower portion of the Grave Creek drainage, the contemporary landscape formed on a drift plain comprised of gently undulating ground moraine that was subsequently dissected by glacio-lacustrine, fluvial and alluvial floodplain terracing. This locality is occupied by natural grasslands, stands of aspen parkland and a mosaic of coniferous forest stands. Within this locality is a relatively large depression that contains Grave Lake, which was likely the product of a melted, stagnating ice block (Choquette 2014).
2) **Crown Mountain**: within the central portion of the study area is the north-south trending ridgeline and summit of Crown Mountain, which separates the West Alexander Creek from Alexander Creek valley that is immediately west of the Continental Divide. This locality is relatively steep and is contemporarily occupied by dense coniferous forest stands that are broken by south-facing sub-alpine meadows, avalanche paths, and geological faulting that has resulted in several east-west trending bedrock outcrops and associated talus slopes.
3) **Alexander Creek valley**: within the south-central and southeastern portion of the study area, the contemporary landscape developed on ground moraine that was dissected by Alexander Creek, minor tributaries, and flanking alluvial floodplains. The lower portion of the valley walls are also included within the LSA and are relatively low-sloped, basal portions of colluvial aprons and remnants of lateral moraine. To the south, in the confluence area of the Alexander Creek and Summit Creek valleys, stratified sand and gravel deltaic sediments are present (*ibid*.), which have been dissected through the evolving hydro-logical baselines.

For more detail on the geology and geography as it pertains the Project area, the reader is referred to the previous Project-specific AOAs (Choquette 2014 and 2012) and regional LU AOAs (Choquette 2008, 2004, and 1997).

3.2 Paleo-Environment

Throughout the Pleistocene Epoch, northern portions of the North American continent were repeatedly covered over with immense volumes of ice during a series of glaciations. The most recent glacial period of the Cordilleran Ice Sheet is generally referred to as the Pinedale or Fraser (*i.e.* late Wisconsin for the Laurentide), occurring between 30,000- and 10,000-years BP, with the maximum extent of ice occurring between 23,500- and 21,000-years BP and covering the majority, if not all, of what is now known as British Columbia and terminating in the northwestern United States (US National Park Service 2007). As the climate warmed between 15,000- to 12,000-years BP, retreating trunk glaciers released massive volumes of melt water forming a series of proglacial lakes within the trench depressions; this process is evidenced by remnant portions of large deltas, high terraces and abandoned strand lines. Choquette (1993 and 1996) proposes that portions of the upper Columbia River basin and associated larger tributaries may not have been as extensively glaciated as the majority of southern British Columbia and experienced ice-free conditions at a relatively early date and therefore allowing for earlier colonization by vegetation, animals and human inhabitants. The landscape of the immediate post-glacial environment would have been very harsh, consisting of a pioneer community of grasses, sage, spruce and fir adapted to the cold and dry conditions (Choquette 1996: p.46).

As the climate gradually warmed, coniferous forests became established in the valley bottoms and along the lower slopes of the mountains. The early part of the Holocene Epoch was dominated by a continental climate pattern (*i.e.* easterly wind directions) and the region was generally arid and prone to droughts with an increased rate of fire events (Choquette 1993). As a result, an open canopy forest developed in tandem with extensive grasslands at higher elevations; these environmental conditions allowed for a high carrying capacity for ungulate species.

Following the general reduction in precipitation levels, the region's river systems were likely impacted by decreased flow rates, irregular flood intervals and lower lake levels, which consequently would have disrupted the spawning patterns of anadromous fish and the Indigenous populations that relied on that resource.

Starting sometime around 5000-years BP, a cooling climate pattern commenced which is commonly referred to as the Neoglacial, with the coolest period occurring between 4000- and 2500-years BP (Baker 1983). Increased precipitation levels resulted in the enlargement of lakes, rivers, ponds and associated wetland areas. Increased fluvial discharge would have had a significant effect on the topography with the continued downward erosion of valley fill creating a series of prominent terraces. Simultaneously, a diversification of the ecology was occurring with the gradual expansion of forested areas and a reduction in grasslands due to a general decline in fire frequency (Choquette 1993).

Within the last 2000 years, climatic conditions started to warm again, peaking with a drought interval between about 1200- and 700-years BP (Choquette 1987), this resulted in the expansion of open forests and rangeland areas. Subsequently, one of the final episodes in the region's palaeo-environmental record consisted of a brief cooling period, referred to as the "Little Ice Age" (A.D. 1550–1850). This period was dominated by increased precipitation and resulted in significant advances of glacial ice; this process is suspected to have disrupted human populations on the level of the seasonal round by rendering higher elevation mountain passes inaccessible and potentially altering Indigenous travel corridors.

3.3 Models of Culture History

The Project's archaeological LSA is currently encompassed by two precontact human land and resource use models proposed by Wayne T. Choquette (1973 and 1979) and Jonathan Drive (1978). Although a summary of each model is provided below, the reader is referred to the aforementioned references for additional model-specific information.

Within the middle Elk River drainage area, Choquette (1973 and 1979 *in* 2014) identifies two general types of precontact archaeological sites:

- Intra- (or trans-) mountain travel represented by transient campsites that pertain to movement within a mountainous setting and the exploitation of local natural resources. This type of archaeological site likely has a time depth extending well into early post-glacial era (≥10,000-years ago). Archaeological sites are spatially restricted and offer constellations to relay travel corridors along routes of least resistance. In proximity to the Project's archaeological LSA, this site type largely pertains to those found within the Fording River Valley (to the north), and the locality of Crowsnest Pass, including the northern, parallel trending Phillips Pass, over the Continental Divide. As alluded to by Choquette (2014), additional intra-mountain corridors are likely present, and based on the results of the AIA conducted on the Project's LSA under the Permit, intra-mountain travel that connects with the foothills and plains region (to the west) is becoming evident within the Grave Creek drainage through the recovery of several shards of a precontact ceramic vessel (*i.e.* DlPq-12).
- Resource exploitation sites can be differentiated into two groupings on the basis of function:
    - Camps, kills, butchering areas, workshops and lookouts associated with existing natural grassland openings on geologically recent landforms, including middle and low elevation terraces in the Elk Valley between present-day Sparwood and Elkford. Within the Project's archaeological LSA the Grave Prairie locality contains a significant representation of these sites that are likely representative of Indigenous occupation within the last 2500 years.
    - Small hunting camps and workshops in valleys and passes in proximity to the Continental Divide that extending from late Period to ≥6000-years BP and includes sites in the Alexander Creek valley portion of the LSA.

As synthesized by Wayne Choquette, a precontact human land and resource model for the middle Elk River drainage, postulates that:

> "*due to environmental and demographic factors, human presence in the Elk Valley prior to 2500 years ago was related to travel between areas of higher population in the Rocky Mountain Trench and the foothills of the Rockies, where climate and subsistence resources were more favourable. The models also postulates that the site distribution pattern in the valleys near the Continental Divide may reflect stronger influence of the Maritime westerlies at a time when increased Chinook winds made the East Slope of the Rockies much more favourable for wintering bison and human habitation than the correlatively much cooler and snowier conditions in the Elk Valley itself. However, within the last 2500 years a semi-resident human population became established in the Elk Valley itself and began systematically exploiting its biological and geological resources. Hunting of resident bison on the enlarged grasslands west of the Continental Divide was apparently a significant component of this post-2500 BP land/resource use pattern, which the model hypothesizes to have been made possible by climate-induced increases in ungulate capability. Changes in human population dynamics along the western fringe of the Northern Plains are also postulated components of this shift in human land and resource use patterns.*" (Choquette 2014: p.9)

As proposed by Jonathan Driver (1978) and supported by previous excavations conducted by Reeves (1972) and Kennedy *et al.* (1982), the Crowsnest Pass and corresponding valleys descending from the Continental Divide have yielded evidence of some 10,000-years of continuous human inhabitation that appears to be adapted to the seasonal movement and range of ungulates, particularly bison, within the montane grasslands; this relatively stable resource supported a settlement pattern that Driver named the "*Herd Hunter*" model, an adaptation that:

> "*concentrated primarily on exploitation of bison, particularly at those times of year (late fall, winter, spring) when bison were the most accessible ungulate in Crowsnest. At other times of year, other ungulates, notably elk and sheep, were hunted. The reliance upon other ungulates during the summer can be explained by changes in the seasonal distribution and behaviour of all ungulates in the Pass*." (Driver 1978: p.172)

3.4 Previous Archaeological Inspection

Previous archaeological assessment within the Project's archaeological LSA has increased over the past two decades, but produced variable results; this is largely based on study area constraints placed on archaeological assessments by development footprints.

The earliest regional inventory of the middle Elk River was conducted by Wayne Choquette (1973), and resulted in the recording of 16 historical sites (*i.e.* post A.D. 1846) and 76 precontact sites. Although archaeological assessment on coal-related development occurred in the vicinity the Project (*e.g.* Choquette 1979), the Project's archaeological LSA was not previously encompassed by a mine plan and therefore, remained largely undeveloped with the exception of forestry-related activity, which requires an archaeological assessment under Provincial Legislation, (*i.e.* the *Forestry Practices Code of BC* 1996A and the updated *Forest and Range Practices Act* [2004]). Although a considerable amount of the terrain situated within the Project's archaeological LSA has been subjected to timber harvest(s), forestry-based proponents (*e.g.* Jemi Fiber Corp., Canwel, Canadian Forest Products [Canfor], and Tembec Enterprises Ltd.) are frequently able to incorporate avoidance strategies and implement winter-harvesting techniques that can negate the need for laborious inspection methods that are required to discover subsurface precontact artifact deposits and delineate site boundaries. Forestry-related AIAs and associated Heritage permitting that are pertinent to the Project are provided below in Table 1.

Table 1. Previous Forestry-Related Archaeological Assessments completed within or adjacent to the Project

HCA Permit	Results within Project's LSA	Regionally Applicable Archaeological Site(s)	Archaeological Consulting Company	Reference
2004-0066	Negative	-	Arrow Archaeology Ltd. c/o Eagle Vision Geomatics and Archaeology	Boras *et al.,* 2006
2005-0154	Positive	DlPr-42 DlPr-43 DlPr-44	Arrow Archaeology Ltd. c/o Eagle Vision Geomatics and Archaeology	Tamasi *et al.,* 2006
2006-0154	Positive	DlPq-7 DlPq-8 DlPr-45 DlPr-46 DlPr-47	Arrow Archaeology Ltd. c/o Eagle Vision Geomatics and Archaeology	Tamasi *et al*., 2008
2007-0099	Negative	-	Tipi Mountain Eco-Cultural Services Ltd.	Tamasi *et al*., 2009
2014-0067	Positive	DlPr-6 DlPr-9	Tipi Mountain Eco-Cultural Services Ltd.	Tamasi and Neill, 2016

In regard to Project-specific archaeological assessments, two AOAs have been completed for this Project (Choquette 2012 and 2014). During the field component of the 2012 AOA, W.T. Choquette discovered an unifacially re-touched flake of siliceous mudstone within AOA Polygon C20-101; this artifact was not collected at that time due to the absence of a pertinent *HCA* permit, but was subsequently recorded in 2013 as DkPq-11 during an AIA of proposed exploration activity on Crown Mountain under MAP 2013-0077 (Tamasi 2014).

Additionally, under MAP 2013-0077, an AIA was conducted for the Proponent on a proposed weather station within the northern portion of what is now referred to as Phase III of the Project. The inspection of the small-scale development footprint within AOA Polygon C20-99 and immediately north of Branch C of the Grave Creek FSR rendered negative results with no archaeological material or sites recorded (Liddy and Tamasi 2015).

4.0 METHODOLOGY

While generalized methods are presented below, phase- and site-specific methodology can be found within the interim reports that pertain to Phases I, II, and III of the Project, all of which are appended to this report (Appendices A - C). Regular consultation of relevant documents produced by the British Columbia Archaeology Branch occurred, including: *Archaeological Impact Assessment Guidelines* (1998), *Archaeological Inventory Guidelines* (2000) and *Archaeological Site Inventory Form Guide* (2017).

4.1 Archaeological Potential Assessment

Archaeological potential within the Project's archaeological LSA was addressed within two Project-specific AOAs. An initial AOA for the preliminary exploration component of the Project (Choquette 2012) resulted in the identification of 36 archaeological potential polygons, nine of which were newly defined and twenty-five mirrored those that were previously delineated under forestry-related AOAs for: Managed Forest 27 (Choquette 2004), LU C20 of the Rocky Mountain Forest District (Choquette 2008), and LU C38 of the [former] Cranbrook Forest District (Choquette 1997). A supplementary AOA for the Project (Choquette 2014) built on the information generated during the 2012 overview assessment, but includes the analysis of Light Detection and Ranging (LiDAR) data within a larger study area. In total, 110 archaeological potential polygons are situated within or partially overlap with the Project's archaeology LSA boundaries.

The potential polygons within Choquette's Project-specific AOAs (2012 and 2014) identified as Crown Mountain (CM) polygons CM-01 to CM-12 delineate landforms or landscapes where archaeological remains are predicted to be present based on models of precontact human land and resource use developed for this portion of the Rocky Mountains. Primary attributes defining archaeological potential within the two AOAs include:

- **Corridor**: "*The physiography of a region exerts a major influence on the movements of both animals and humans. The north-south troughs represented by the valleys of Alexander Creek and the Elk Valley naturally made these travel corridors, the two of them connected by Grave Creek. In addition, the Continental Divide, which bounds much of the LSA on the east, is breached by Racehorse, Deadman, Phillips, and Crowsnest passes connecting to the foothills and plains further east*." (Choquette 2014: p.11)
- **Bedrock Geology**: "*The bedrock geology of the Crown Mountain LSA consists of a series north-south striking, upturned and steeply dipping Paleozoic sedimentary strata that include the Rocky Mountain, Banff, Etherington and Fernie formations, all of which have been quarried in pre-contact time. While there is nothing in the sparse recorded data from the vicinity that suggests the presence of an intensively exploited outcrop, the LSA has not been systematically surveyed but is known to contain extensive exposures of bedrock and talus of these formations on the mountainsides, tributary valley walls, prominences and saddle.*" (*ibid*. p.12)
- **Ungulate Range**: "*A variety of natural habitats are present in the Crown Mountain LSA. Some of the grasslands, such as those at high elevations, are apparently relics of more extensive earlier Holocene communities while others, in particular those which occupy Neoglacial floodplain terraces, are more recent by definition of the age of the landforms upon which they are situated. The emergence of these expanses of previously non-existent grazing range is hypothesized to have been instrumental in the expansion of bison into the middle Elk River drainage area during the late Holocene arid interval.*" (*ibid*. p.12)

The following recommendations were the outcome of these AOAs:

- "*avoidance is the preferred strategy with regard to areas identified as archaeological potential polygons;*
- *within any archaeological potential polygons that overlap proposed developments, existing disturbed areas should be utilized to the greatest extent possible before considering alteration of previously undisturbed terrain; and*
- *where it is apparent that proposed development poses an unavoidable risk to the intact mineral soil/postglacial fine sediment cap in which archaeological deposits are expected to occur, more intensive archaeological investigation including subsurface testing will be required to ascertain the presence and significance of any pre-contact archaeological remains." (ibid. p.2)*

4.2 Survey Design

In addition to the Permit holder, who was present for vast majority the annual field assessments completed under the Permit, the field crew was consistently composed of at least one Field Director (Archaeology Branch 2015]), a regionally-knowledgeable Field Supervisor(s), and a variable number of field technician positions. Qualified Field Directors who were subsequently added onto the Permit and were annually involved with the field component of the Project included: Daniel Heinrichs, Nyomi Sherwin, and Lara McFadden-Baltutis. Field Technician positions were commonly filled by both assigned and in-house representatives of the Ktunaxa Nation Council [KNC] and the Shuswap Indian Band [SIB]). For complete field crew rosters, the reader is referred to the interim reporting (Appendices A – C) that detail the AIA conducted on three phases of the Project.

Prior to the commencement of archaeological field inspections, applicable documents (*e.g.* Choquette 2014, 2012, and 1973) were reviewed to familiarize the project archaeologist(s) of pertinent background information and aspects

of previously proposed models of culture history (Section 3.4 [above]). Additionally, the Remote Access to Archaeological Database (RAAD) web application was regularly consulted to determine if newly discovered archaeological sites had been recorded by other heritage consultants conducting work within or immediately adjacent to the Project's archaeological LSA. This information was then continually relayed to the field crew to assist in the identification of archaeologically-salient terrain and update individuals on the status of the local site inventory.

Field inspections commenced with a combination of vehicle-assessed and pedestrian-based reconnaissance through the majority of the AOA polygons that overlapped the evolving development footprints defined by Phase I, II and III of the Project's mine plan. This inspection revealed physical and geomorphological attributes within the landscape (*i.e.* macro- and micro-topographic features) and included the confirmation of [contemporary and relict] drainage patterns and routes of least resistance (*i.e.* travel corridors) that would have influenced precontact lifeways, and therefore, the distribution of archaeological sites. Preliminary inspections involved the visual assessment of natural exposures (*e.g.* tree throws, incised run-off channels, game trails, bedrock outcrops, and sparsely vegetated ground surfaces) and anthropogenic disturbance (*e.g.* road grades, off-road vehicle trails, sediment borrow pits, berms, slope/ditch cuts) for the presence of soil development (*i.e.* an indication of landform stability), sediment composition (*i.e.* determination of potential depth[s] of a cultural horizon[s]), and for the presence of exposed precontact artifacts. The result of this level of inspection was the identification of high archaeological potential (HAP) zones that would influence the location and distribution of subsurface test locations (STL).

4.2.1 Subsurface Inspection

Upon the identification of archaeologically-salient microtopography (*e.g.* terraces, benches, knolls/prominences, and ridges), shovel testing (35 cm x 35 cm) was implemented to confirm or refute the presence of precontact archaeological material in a subsurface context. Shovel tests were systematically excavated with flat-bladed shovels, and in some locations assisted by trowels, in 5-10 cm arbitrary levels down to culturally-sterile sediment (*e.g.* bedrock or expansive mantles of glacial till, glacio-fluvial gravels, and glacio-lacustrine sediment). All manually excavated sediment associated with subsurface inspection was sorted with 6 mm (1/4") mesh.

Intervals and patterns of shovel tests within each shovel test location (STL) were variable based on physical or geomorphological attributes. While linear-shaped landforms were subjected to a transect(s) of shovel tests, grid-like test patterns were applied to horizontally-expansive terrain. Systematic inspection coverage was the goal, but judgemental refinement in shovel test placement, intervals, and patterns were often required due to natural (*e.g.* dead/wind fall, danger trees, aeolian deflation, dense vegetation, bedrock exposures, density of rocks clasts, and steep slope) and/or anthropomorphic constraints (*e.g.* existing or decommissioned roads, exploration drill sites, and staging areas). When fortuitous exposures (*e.g.* tree throws and rodent mounds) were present, manual sorting of the sediment with 6 mm mesh was conducted and may have either replaced a shovel test or supplemented the inspection pattern. Note that many fortuitous exposures, that rendered negative results, were inspected by members of the field crew without being formally documented by the Project Archaeologist or Field Director(s).

For all work conducted under the Permit, spatial data was recorded with a hand-held global positioning system (GPS) unit (*i.e.* Garmin Rino 755T), which typically had 2-5 m accuracy. Raw field data was processed with Environmental Systems Research Institute's (ESRI) ArcGIS and subsequently QGIS (*i.e.* an open-source, cross-platform desktop application) mapping software to generate map figures for the corresponding interim report, which indicated the location of the project, archaeological sites (as applicable), subsurface test locations (STLs), pertinent attributes of the adjacent landscape, and any other project- or site-specific information required.

As previously alluded to, the Project's mine plan and the development footprints of each phase evolved over the duration of the Permit; this was based, in part, on annual results of the archaeological assessment within Phase I and Phase II. Due to the evolving mine plan, subsurface inspection programs that were initiated during one field season may not have resumed in the subsequent field season based on the Proponent revising the disturbance footprint to negate detrimental impacts to provisionally-significant archaeological sites. Therefore, the reader should

note that the archaeological inspection, largely within the locality of Grave Prairie (*i.e.* Phase I and the western portion of Phase II) completed under the Permit should be considered provisional and is to be utilized as a baseline study to assist future archaeological inspections within a residual portion of a once expansive precontact cultural landscape. Many of the currently defined site boundaries would likely be revised if supplemental investigations were implemented and/or the adjacent landscape is subjected to future inspection.

Although a tally of subsurface inspections is provided below in Table 2, phase-specific methodology and results are available within interim reporting (Appendices A – C).

Table 2. Project-Specific Archaeological Inspections and Quantity conducted under HIP 2015-0098

Project Phase	Shovel Tests	Evaluative Units	Tree Throws	Rodent Mounds
I	693	0	19	1
II	1861	1	30	3
III	741	2	26	0
Totals:	**3295**	**3**	**75**	**4**

4.2.2 Evaluative Testing

Preliminary investigative efforts under the Permit were completed through the excavation of three evaluative units (EU) within the following archaeological sites:

- **DlPq-12** (Phase II): A single EU (1.0 x 0.5 m) was excavated in 5 cm levels by trowel in an attempt to discover and identify the subsurface distribution of shards of a precontact ceramic vessel (*Old Woman's Complex* [MacDonald 2008]), which were originally discovered within a single shovel test (ST 2) that was previously excavated immediately to the east-southeast; no precontact cultural material was recovered within this EU. The relatively small/narrow size of the EU was to prevent un-necessary disturbance to a relatively unique site within the LSA (and Kootenay region) that was unlikely to be impacted by development (*i.e.* Transportation Corridor).
- **DkPq-16** (Phase III): A single EU (1.0 x 1.0 m), encompassing a previously excavated shovel test (ST 1), was excavated down in 5 cm levels *via* shovel shaving; this was based on the recovery of an isolated lithic artifact within a mechanically disturbed area that was situated beyond an AOA polygon. The EU resulted in the recovery of an additional lithic artifact and contributed to the scientific interpretation.
- **DkPq-17** (Phase III): A single EU (1.0 x 0.5 m), encompassing a previously excavated shovel test (ST 3), was excavated based on the exposure of a hearth-like feature (*i.e.* charcoal-stained sediment amongst an accumulation of fire-altered rock [FAR]). Although unsuccessful, the excavation of the EU was to obtain a suitable organic sample(s) for AMS dating and contribute to the scientific interpretation.

In line with shovel testing methodology (Section 4.2.1 [above]), all of the sediment extracted from the aforementioned EUs were manually sorted with 6 mm mesh and excavation only terminated when culturally-sterile sediment was identified. A representative stratigraphic profile was noted, and all of the EU walls were photo-documented.

4.2.3 Culturally Modified Trees

Although the grassland environmental setting combined with the extent of previous and contemporary forestry-related developments within the locality of Grave Prairie (*i.e.* Phase I and Phase II) largely negated the need to inspect for culturally modified trees (CMT), several trees within the vicinity of Crown Mountain (Phase III) contained scarring that resembled precontact cultural modification. Upon the discovery of a suspected CMT during a reconnaissance traverse, the tree(s) was identified (*i.e.* flagged and way-pointed) and a return visit to the locality occurred with a larger crew and input provided by First Nation representatives to confirm or refute the context of the scarring. With the exception of one tree, the provisionally-identified CMTs contained scarring that was identified as being relatively recent in age (< 50 years) and attributed to damage incurred by avalanches, debris flows, or previous mechanical activity. A single white bark pine with two blazed scars (*i.e.* one to the north and south) was subject to inspection that adhered to the *Culturally Modified Trees of British Columbia Handbook* (Archaeology Branch 2001). A core sample obtained *via* an increment bore and later analysed through dendrochronology revealed that scarring dated to *ca*. 1920-1927 and has been attributed to early mineral exploration or outfitting activity (see *Appendix C*).

No precontact CMTs were observed or are suspected to be present within the Project's archaeological LSA.

4.2.4 Ancestral Remains

The evolving development footprint pertaining to Phase I and Phase II of the Project within the aptly-named Grave Prairie resulted in the need to inspect for and identify any suspected burial features. In the autumn of 2017, Wayne Choquette met with the field crew within the vicinity of site DlPr-8 and discussed attributes of suspected burial mounds that he first identified in 1973. Attributes of suspected burial mounds included, but were not necessarily limited to:

- Approximate size: 2 m (length) x 1 m (width) x 0.1 - 0.4 m (height);
- Typical profiles (gently rounded);
- Differing vegetation regime (*e.g.* kinnikinnick) than indicated a disturbed subsurface matrix; and
- Absence of a standard orientation.

Subsequent to this discussion, a judgmental survey was conducted throughout the eastern portion of the grassland area that overlapped or infringed upon the conceptual mine plan (*ca*. 2017) to identify potential burial mounds with pin flags. Upon the completion of the surface inspection, attributes of each identified mound were reviewed; this assessment involved a group discussion to determine if each mound was suspected to be a burial or if the mounding could be attributed to natural (*e.g.* an ancient tree throw) or contemporary disturbance factors (*e.g.* push piles). When in doubt, mounds were recorded as burials to err on the site of caution. A total of 97 mounds were identified as "*suspected ancestral burials*" under the Permit however, this number, nor the level of inspection completed should be considered exhaustive. Due to the presence and distribution of the suspected burial mounds, the Proponent revised the mine plan and shifted the Project's Phase I development footprint beyond (southeast of) the grassland portion of Grave Prairie.

Although avoidance strategies were implemented by the Proponent, multiple revisits to the locality of site DlPr-8 and the grassland portion of Grave Prairie occurred to reiterate the attributes of suspected burial mounds with the field crew for consideration when working within other portions of the Project's archaeological LSA.

As discussed with and agreed upon by both assigned and in-house First Nations representatives and with administrative positions within the KNC and the SIB, no form of archaeological inspection was conducted under the Permit within the vicinity of suspected burial mounds.

4.3 High Archaeological Potential

While the results of the first regional archaeological inventory (*i.e.* Choquette 1973) and previous, regionally-applicable forestry-related AIAs (*i.e.* Tamasi *et al.* 2006 and Tamasi *et al.* 2009) are informative, the results of the AIA conducted under the Permit revealed that terrain typically dismissed as having low archaeological potential (*e.g.* increased slope or having a northern solar aspect) should be considered to have some potential for a sparse and discontinuous distribution of precontact artifacts associated with ancillary activity or "trail litter". Therefore, zones of High Archaeological Potential (HAP[1]) have been delineated under the Permit to guide future inspections and/or mitigative strategies should the Project's mine plan be approved.

While some of the HAP zones delineated under the Permit are relatively discrete and naturally bound by landform margins, the expansive precontact landscape associated with Grave Prairie (*i.e.* Phase I and western portion of Phase II) is relatively limitless, and therefore, typical archaeological inspection methods were constrained to a buffered area from the evolving development footprints. The Phase III study area encompasses high elevation mountainous terrain that largely contains a rocky subsurface matrix, which impeded subsurface inspection. Although a thorough visual inspection of the ground surfaces and micro-topographic features (*e.g.* crevasses, alcoves, and minor fault lines) occurred within rocky terrain, subsurface inspection was limited to shifting rocks and/or overturning vegetation mats on bedrock surfaces. Despite the multi-season effort put forth to inspect the landscape encompassed by the Project's archaeological LSA and within the evolving Phase I and Phase II development footprints, subsequent inspection, investigation, and/or monitoring within the delineated HAP zones will be required prior to and during the onset of any ground disturbance activity.

4.4 Archaeological Site Recording

The delineation of newly discovered and previously recorded precontact archaeological site areas occurred using observed (*e.g.* 2.5 m radial buffer from isolated artifacts and 5 m radial buffer from positive test units), natural (*i.e.* landform margins), and/or arbitrary (*e.g.* previous ground disturbance or infrastructure components) boundaries. The boundaries of spatially expansive archaeological sites were identified in the field with flagging tape (yellow with black "A.I.A ZONE") affixed to relatively large, wind-firm trees. Conversely, isolated or relatively-small size archaeological sites were identified with flagging tape hung in a single, central location. Where archaeological deposits were suspected to extend well-beyond the STL, and/or beyond a revised development footprint(s), or amongst provisionally inspected terrain, an HAP zone was delineated (see Section 4.3 [above]) on report mapping to provide guidance for future archaeological inspection(s).

Except for fire-altered rock (FAR), all precontact artifacts were collected for analysis and subsequent curation. Quantification (*i.e.* size, material type and fracture pattern[s]) of FAR was largely conducted in the field, and when completed, the specimens were left on-site and re-buried within the shovel test or the evaluative unit from which they originated.

Following the completion of the field component, artifacts were subject to analysis by the Permit holder. Note that several informal discussions with Wayne Choquette occurred for quality assurance in regards to the accurate identification of raw lithic material types and artifact types. Lithic artifacts were catalogued and classified to a minimum of reduction stage (debitage), raw material type, frequency, and stage of manufacture (tools). Faunal remains, when present and of sufficient size or condition, were catalogued by taxa or species, skeletal element, side, and cultural modification (*e.g.* tool marks, charred/calcined). Precontact ceramic shards recovered from site DlPq-12 were analyzed and assigned to the *Old Woman's Complex* (MacDonald 2008) by Ronan Mehault.

[1] HAP is an acronym that has been subsequently revised to Area of [Archaeological] Potential (AOP)

All site-specific data was submitted to the Site Inventory Section of the BC Archaeology Branch *via* the submission of Archaeological Site Inventory Forms to either obtain an official Borden designation or update the condition, contents, and/or boundaries of previously recorded sites.

As a condition of the Permit, all of the precontact artifacts collected under the Permit have been surrendered to the Ktunaxa Nation Regional Repository (KNRR), located at 220 Cranbrook Street North, Cranbrook, BC for long-term curation. Digital copies of artifact catalogues for site assemblages collected under the Permit were sent to the Royal British Columbia Museum for their records.

4.5 Archaeological Site Significance

The evaluation of the archaeological sites listed under the Permit was undertaken using a combination of results generated from in-field inspections, post-field artifact analysis, comparison with other archaeological sites and artifact assemblages from the region, and consultation with regionally-experienced archaeologist Wayne Choquette. Using the suggestions within the Checklist of Criteria for Precontact Site Evaluation in the *British Columbia Archaeological Impact Assessment Guidelines* (Archaeology Branch 1998), all of the archaeological sites listed under the Permit were rated (or had the existing rating revised) for the following:

- **Scientific**: ability for an archaeological site to contribute or further the understanding of the past;
- **Public**: potential for an archaeological site to provide or enhance the public understanding of the past;
- **Ethnic**: value assigned to an archaeological site by an ethnically-distinct community or group of people;
- **Economic**: potential for monetary benefit(s) derived from the public's willingness to pay for the use and experience provided by an archaeological site as an educational or recreational facility;
- **Historical**: potential of an archaeological site (post-dating A.D. 1846) to be associated with an individual(s) or event(s) that made an important, lasting contribution to the development of a particular locality or the province.

Significance ratings should not be considered permanent, as future inspections of previously identified archaeological sites, or the discovery of un-documented archaeological sites, have the potential to generate new information which may directly affect the significance levels as determined under the current assessment.

4.6 Impact Identification and Assessment

The proposed impact(s) to be incurred through the implementation of the Project on archaeological sites listed under the Permit was assessed during the field and reporting components. The determination of impacts took into consideration the quantity, condition, stratigraphic context, and nature of all precontact artifacts and, where applicable, features in site areas. Within the Phase I, II, and III interim reporting, the impacts to specific sites were stated within the Management Summaries (Section 2) and within the Archaeological Site Summaries (Section 7); see *Appendices* A - C.

5.0 RESOURCE INVENTORY

5.1 Archaeological Sites

The AIA conducted under the Permit resulted in the discovery of 28 precontact archaeological sites and updating of nine previously recorded precontact archaeological sites. Summarized attributes for each archaeological site listed under the Permit are provided below in Table 3 (updated) and Table 4 (newly recorded sites). Archaeological sites, defined by Project phase are projected on Figure 3 (Phase I), Figure 4 (Phase II) and Figure 5 (Phase III). For more detail on each archaeological site, the reader is referred to the applicable interim report (*Appendix A* [Phase I], *Appendix B* [Phase II]), and *Appendix C* [Phase III]).

Table 3. Resource Inventory – Revisited and Updated Archaeological Sites (HIP 2015-0098)

Archaeological Site	Project Phase	Site Classification --- Artifact or Feature Type(s) Recovered / Documented under 2015-0098		2015-0098 Site Boundary Update? (Y/N)	General Site Condition	Anticipated Development Impacts? (Y/N)
DkPq-11	III	**Precontact, Cultural Material, Surface**		N	Poor	N
		• Lithics	N/A - *no artifact collection*			
DkPr-12	I	**Precontact, Cultural Material, Surface**		Y	Good	N
		• Lithics	27			
		• Faunal	1			
		• FAR	numerous - *not quantified*			
		Precontact, Feature:				
		• Petroform	1 *(dismantled cairn)*			
DkPr-13	I	**Precontact, Cultural Material, Surface**		Y	Moderate - Good	N
		• Lithics	5			
		• FAR	N/A - *not observed*			
DkPr-18	I	**Precontact, Feature:**		± 97 *(suspected)*	*Undetermined Site area is unconfirmed*	N
		• Ancestral Burial	1 (*suspected)*			
DlPq-8	II	**Precontact, Cultural Material Surface/Subsurface**		Y	Moderate	N
		• Lithics	37			
		• FAR	2 (0.04 kg)			
DlPr-8*	I	**Precontact, Cultural Material, Surface/Subsurface**		Y	Poor to Moderate	**N***
		• Lithics	13			
		Precontact, Features				
		• Ancestral Burial	± 97 *(suspected)*			
DlPr-42	II	**Precontact, Cultural Material, Surface/Subsurface**		Y	Poor – Good *variable*	**Y**
		• Lithics	279			
		• Faunal	23			
		• FAR	24 (0.97 kg)			
		Precontact, Features:				
		• Ancestral Burials	3~4 (*suspected ca. 2005*)			
DlPr-43	II	**Precontact, Cultural Material, Subsurface**		Y	Poor – Good *variable*	**Y**
		• Lithics	62			
DlPr-46	II	**Precontact, Cultural Material, Subsurface**		Y *combined with DlPr-45*	Poor – Good *variable*	**Y**
		• Lithics	63			
		• Faunal	N/A - *not recovered*			
		• FAR	N/A - *not observed*			

Table Notes:

Asterisks (*): indicates that the site, as updated under HIP 2015-0098 was not to be impacted by development, but within a revised Phase I development footprint assessed under MAP 2018-0014, impacts are now anticipated on newly delineated site area.

FAR: Fire-Altered Rock

N: No

Y: Yes

Table 4. Resource Inventory - Newly Recorded Archaeological Sites (HIP 2015-0098)

Archaeological Site	Project Phase	Site Classification --- Artifact or Feature Type(s) Recovered / Documented under 2015-0098		General Condition	Direct Development Impacts?
DkPq-15	III	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	13		
DkPq-16	III	**Precontact Cultural Material, Subsurface**		Poor	**Y**
		• Lithics	2		
DkPq-17	III	**Precontact Cultural Material, Surface/Subsurface**		Moderate – Good *variable*	**Y**
		• Lithics	63		
		• FAR	112 (2.6 kg)		
DkPq-18	III	**Precontact Cultural Material, Subsurface**		Good	**Y**
		• Lithics	1		
DkPq-19	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	4		
DkPq-20	II	**Precontact Cultural Material, Subsurface**		Moderate	N
		• Lithics	4		
		• Faunal	1		
DkPr-34	I	**Precontact Cultural Material, Subsurface**		Moderate – Good *variable*	N
		• Lithics	19		
		• FAR	10 (0.7 kg)		
DkPr-35	I	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	3		
		• FAR	4 (1.8 kg)		
DkPr-36	I	**Precontact Cultural Material, Surface**		Good	N
		• Lithics	7		
DkPr-37	I	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	4		
DkPr-38	I	**Precontact Cultural Material, Surface/Subsurface**		Good	N
		• Lithics	**3**		
DkPr-39	I	**Precontact Cultural Material, Subsurface**		Poor – Moderate *variable*	N
		• Lithics	21		
DlPq-10	II	**Precontact Cultural Material, Subsurface**		Good	**Y**
		• Faunal	7		
		• FAR	10 (0.4 kg)		
DlPq-11	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	9		
DlPq-12	II	**Precontact Cultural Material, Subsurface**		Poor – Good *variable*	N
		• Lithics	3		
		• Ceramics	12		
DlPq-13	II	**Precontact Cultural Material, Subsurface**		Good	**Y**
		• Lithics	5		

Table continues on the following page.

Archaeological Site	Project Phase	Site Classification --- Artifact or Feature Type(s) Recovered / Documented under 2015-0098		General Condition	Direct Development Impacts?
DlPr-65	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	1		
		• FAR	3 (0.07 kg)		
DlPr-66	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	1		
DlPr-67	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	1		
DlPr-68	II	**Precontact Cultural Material, Subsurface**		Moderate - Good	**Y**
		• Lithics	6		
DlPr-69	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	2		
DlPr-75	II	**Precontact Cultural Material, Surface/Subsurface**		Moderate – Good *variable*	**Y**
		• Lithics	301		
		• Faunal	36		
		• FAR	42 (0.39 kg)		
		Precontact, Feature			
		• Quarry	n/a raw lithic material procurement source		
DlPr-76	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	2		
DlPr-77	II	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	3		
DlPr-78	II	**Precontact Cultural Material, Subsurface**		Good	**Y**
		• Lithics	1		
DlPr-80	I	**Precontact Cultural Material, Subsurface**		Good	**Y**
		• Lithics	2		
		• Faunal	15		
DlPr-81	I	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	9		
DlPr-82	I	**Precontact Cultural Material, Subsurface**		Good	N
		• Lithics	46		
		• FAR	15 (1.2 kg)		

Table Notes:

FAR: Fire-Altered Rock
N: No
Y: Yes

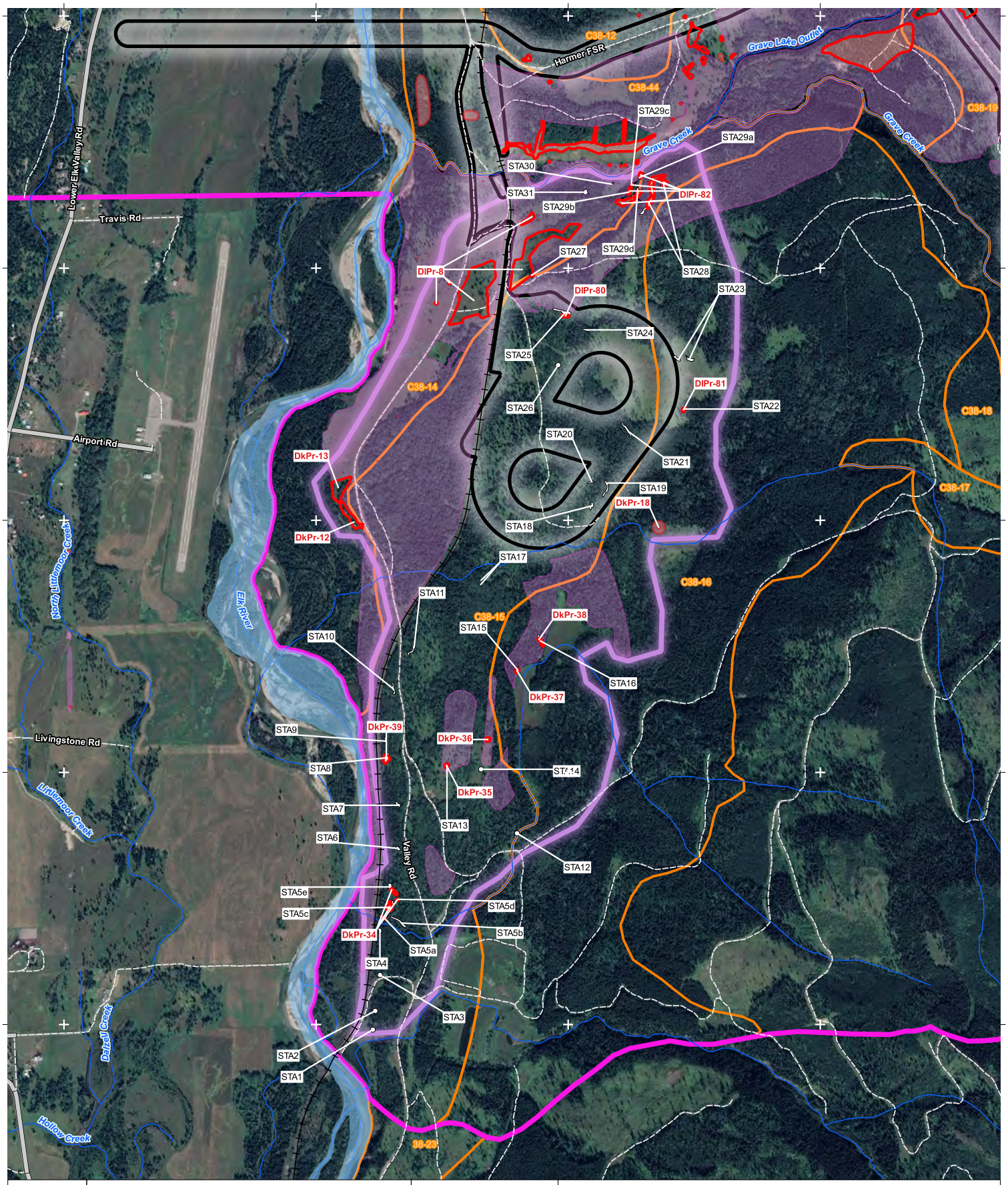


Figure: 3	1:20,000 0 400 800 m		
Permit: 2015-0098	Map Sheet: UTM11 - NAD83 - NTS 82G15	Mapped by: Pathways Archaeological Consulting Ltd	
Client: NWP Coal Canada	N		
Title: 2017-2019 AIA Results Phase I	BC AB 0 200 400 km	Survey Date: 2017-2019	
Project: Crown Mountain AIA Phases I, II, II, and IV		Mapping Date: 11/05/2021	

LEGEND

CRM Arch Sites
- New or Revised Arch Site Bdry

Registered Arch Sites

RAAD Arch Sites (2021)
- Precontact Arch Site Bdry

Field Data
- Subsurface Test Area (STA) Phase I
- Area of [Archaeological] Potential (AOP)

Land Features

BC Road Atlas
- Paved Road
- Gravel Road
- Railroad
- River
- Watercourse

Client Data
- Project Footprint (as of 26/10/2020)
- Permit 2015-0098 Crown Mtn Phase I
- Local Study Area (LSA)

AOA
- NWP Coal Canada Crown Mountain AOA Polygon

Basemap

Google Satellite

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

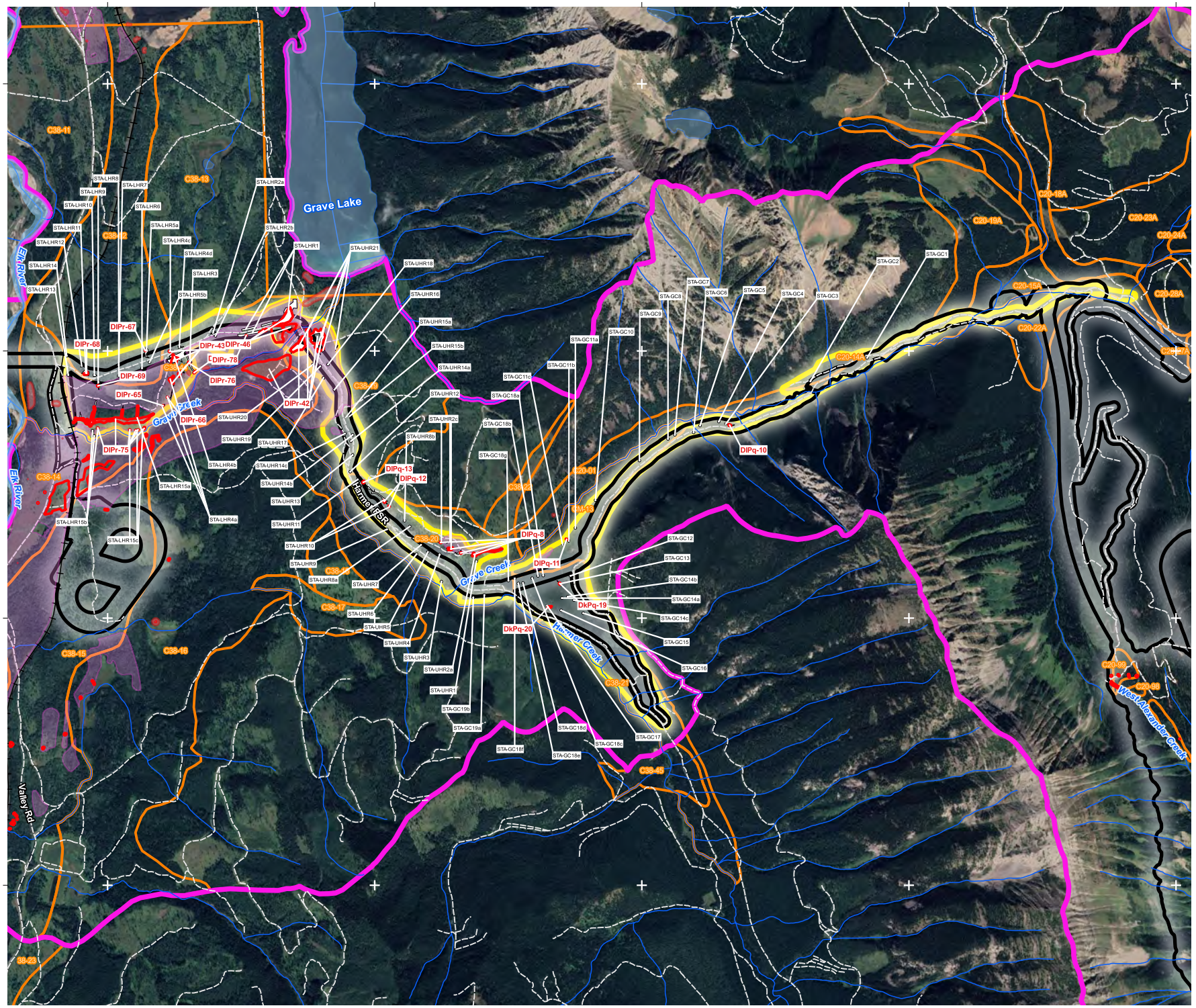


Figure: 4	Permit: 2015-0098

Client: NWP Coal Canada

Title:
2017-2018
AIA Results
Phase II

Project:
Crown Mountain AIA
Phases I, II, III, and IV

Survey Date: 2017-2018

Mapping Date: 11/05/2021

Map Sheet: UTM11 - NAD83 - NTS 82G15

Mapped by:
Pathways
Archaeological
Consulting Ltd

LEGEND

CRM Arch Sites
- New or Revised Arch Site Bdry

Registered Arch Sites

RAAD Arch Sites (2021)
- Precontact Arch Site Bdry

Field Data
- Subsurface Test Area (STA) Phase II
- Area of [Archaeological] Potential (AOP)

Land Features

BC Road Atlas
- Gravel Road
- Railroad
- Lake
- River
- Watercourse

Client Data
- Project Footprint (as of 26/10/2020)
- Permit 2015-0098 Crown Mtn Phase II
- Local Study Area (LSA)

AOA
- NWP Coal Canada Crown Mountain AOA Polygon

Basemap
- Google Satellite

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

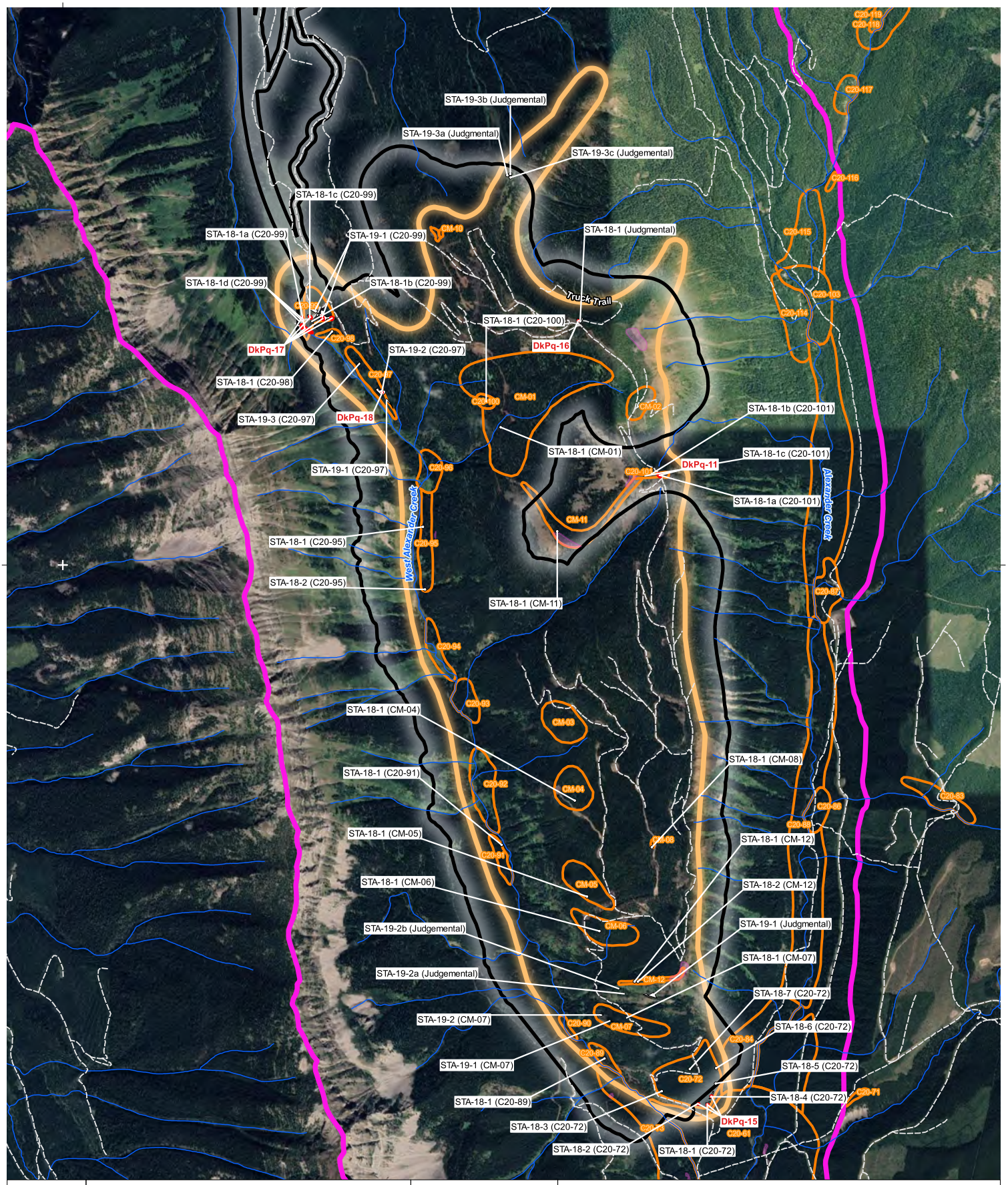


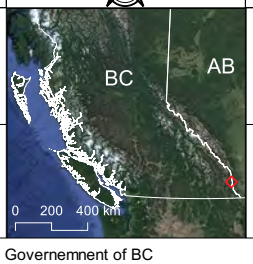
Figure: 5 | 1:32,000 | 0 500 1,000 m

Permit: 2015-0098 | Map Sheet: UTM11 - NAD83 - NTS 82G15

Client: NWP Coal Canada

Title:
2018-2019
AIA Results
Phase III

Project:
Crown Mountain AIA
Phases I, II, II, and IV



Mapped by:
Pathways Archaeological Consulting Ltd

Survey Date:
2018-2019

Mapping Date:
11/05/2021

LEGEND

CRM Arch Sites
- New or Revised Arch Site Bdry

Registered Arch Sites
RAAD Arch Sites (2021)
- Precontact Arch Site Bdry
- Historical Arch Site Bdry

Field Data
- Subsurface Test Area (STA) Phase III
- Area of [Archaeological] Potential (AOP)

Land Features
BC Road Atlas
- Gravel Road
- Lake
- Watercourse

Client Data
- Project Footprint (as of 26/10/2020)
- Permit 2015-0098 Crown Mtn Phase III
- Local Study Area (LSA)

AOA
- NWP Coal Canada Crown Mountain AOA Polygon

Basemap
Google Satellite

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

5.2 High Archaeological Potential (HAP[2]) Zones

Due to the relative size and evolution of the mine plan over the duration of the Permit portions of the relatively extensive cultural landscape were not assessed (see Figure 6) or had aspects of the AIA constrained by either feasibility (Phase I and Phase II) or physical deterrents (*e.g.* bedrock [Phase III]). Terrain that was considered to have increased archaeological potential but could not be confidently inspected under the Permit were identified as HAP zones. These HAP zones should be considered to have potential for the presence of precontact archaeological material or features until proven negative through future archaeological work. While smaller-sized HAP zones delineate micro-topographic features with defined margins, larger size HAP zones within valley bottom settings appear as nearly endless, and reiterate the relatively broad scale of archaeological potential defined by AOAs (*i.e.* Choquette 1997, 2004, 2012 and 2014).

For further information on HAP zones as they pertain to Phases I – III of the Project, the reader is referred to the applicable interim report (*Appendix A* [Phase I], *Appendix B* [Phase II]), and *Appendix C* [Phase III]).

6.0 RESOURCE EVALUATION

The methodology employed under the Permit and implemented within the Phase I, II, and III study areas of the Project was considered effective for confirming or refuting the presence of precontact artifacts at selected STLs, but should be considered a baseline study and inventory of a remnant portion of a once extensive precontact landscape. The potential for undiscovered archaeological sites within the Project's archaeological LSA is relatively high, and portions of the mine plan remain unassessed for the presence of precontact archaeological deposits. The result of this multi-year, phased archaeological inspection was the recording of 28 precontact archaeological sites and updating of nine previously recorded precontact archaeological sites.

The evaluation of archaeological sites listed under the Permit was undertaken using a combination of results from in-field inspections, post-field artifact analysis, and comparison with other regionally-specific archaeological sites. Using the Checklist of Criteria for Precontact Site Evaluation in the *British Columbia Archaeological Impact Assessment Guidelines* (1998), each archaeological site was rated for overall significance according to the criteria for site evaluation described in Section 3.5 (above), and is provided in Table 5. For additional details and rationale for significance levels, please refer to the associated interim reporting attached in Appendix A (Phase I), Appendix B (Phase II) and Appendix C (Phase III).

With regard to determining the significance of a given archaeological site, the ratings, rankings, and/or levels provided should not be considered static. Future inspection(s) of an archaeological site and/or the discovery of an adjacently-located archaeological site(s), have the potential to generate previously unconsidered or undocumented information which may directly affect any of the currently proposed significance levels.

[2] HAP (acronym) has subsequently been revised to Areas of [Archaeological] Potential (AOP)

Table 5. Archaeological Site Significant Ratings (HIP 2015-0098)

Borden Number	Project Phase	Appendix *(A – C)* *Interim Report*	New / Update	Significance Levels				
				Scientific	Public	Ethnic	Economic	Historical
DkPq-11	III	C	Update	M	L	H	L	N/A
DkPq-15	III	C	New	L-M	L	H	L	N/A
DkPq-16	III	C	New	L-M	L	H	L	N/A
DkPq-17	III	C	New	M-H	L	H	L	N/A
DkPq-18	III	C	New	L-M	L	H	L	N/A
DkPq-19	II	B	New	L-M	L	H	L	N/A
DkPq-20	II	B	New	L-M	L	H	L	N/A
DkPr-12	I	A	Update	M-H	M	H	L	N/A
DkPr-13	I	A	Update	L-M	L-M	H	L	N/A
DkPr-18	I	A	Update	L	L	H	L	L
DkPr-34	I	A	New	L-M	L	H	L	N/A
DkPr-35	I	A	New	L-M	L	H	L	N/A
DkPr-36	I	A	New	L-M	L	H	L	N/A
DkPr-37	I	A	New	L-M	L	H	L	N/A
DkPr-38	I	A	New	L-M	L	H	L	N/A
DkPr-39	I	A	New	L-M	L	H	L	N/A
DlPq-8	II	B	Update	M	L-M	H	L	N/A
DlPq-10	II	B	New	L	L	H	L	N/A
DlPq-11	II	B	New	L	L	H	L	N/A
DlPq-12	II	B	New	H	L	H	L	N/A
DlPq-13	II	B	New	L-M	L	H	L	N/A
DlPr-8	I	A	Update	M-H	M-H	H	L	H
DlPr-42	II	B	Update	H	M	H	L	N/A
DlPr-43	II	B	Update	M	M	H	L	N/A
DlPr-46	II	B	Update	H	L-M	H	L	N/A
DlPr-65	II	B	New	L	L	H	L	N/A
DlPr-66	II	B	New	L	L	H	L	N/A
DlPr-67	II	B	New	L	L	H	L	N/A
DlPr-68	II	B	New	M-H	L	H	L	N/A
DlPr-69	II	B	New	L-M	L	H	L	N/A
DlPr-75	II	B	New	H	H	H	L	N/A
DlPr-76	II	B	New	L-M	L	H	L	N/A
DlPr-77	II	B	New	L-M	L	H	L	N/A
DlPr-78	II	B	New	L	L	H	L	N/A
DlPr-80	I	A	New	L	L	H	L	L
DlPr-81	I	A	New	L	L	H	L	N/A
DlPr-82	I	A	New	H	L	H	L	L

Significance Table Notes:
N/A – Not Applicable (to the site)
H – High
M – Moderate
L – Low

7.0 EVALUATION OF RESEARCH

The methodology employed for the archaeological assessments completed under the Permit was deemed appropriate for a baseline study of the Project to contribute to the Proponent's EA. Within portions of the currently proposed mine plan additional field inspections and investigations will be required prior to the implementation of the Project.

8.0 IMPACT ASSESSMENT

Based on the results of the AIA conducted under the Permit, and subsequently on the RLO component of the Project's Phase I under MAP 2018-0014, 15 precontact archaeological sites will be directly impacted (portions or in their entirety) through implementation of the Project (Table 6).

Table 6. Archaeological Sites that will be Impacted by Project Implementation

Archaeological Site	Project Phase	Heritage Permit	Impacts Portion / Entirety	Development Type	Appendix Reference
DkPq-16	III	2015-0098	**Entirety** (to be assigned *Legacy Status*)	Extraction Pit	C
DkPq-17	III	2015-0098	**Entirety** (to be assigned *Legacy Status*)	Processing Facilities	C
DkPq-18	III	2015-0098	**Entirety** (to be assigned *Legacy Status*)	Spoil	C
DlPq-10	II	2015-0098	**Entirety** (to be assigned *Legacy Status*)	Access and Haul Road	B
DlPq-13	II	2015-0098	**Partial Impact** (peripheral portion in proximity to Harmer Rd)	Access and Haul Road	B
DlPr-8[1 & 2]	I & I (*revised RLO*)	2015-0098 & 2018-0014	**Partial Impact** (loss of site Polygons F – J)	Access, Haul Road, and RLO (access)	A
DlPr-42[1]	II	2015-0098	**Partial Impact** (peripheral portions in proximity to Harmer Rd)	Access and Haul Road	B
DlPr-43	II	2015-0098	**Partial Impact** (peripheral portions in proximity to Harmer Rd)	Access and Haul Road	B
DlPr-46	II	2015-0098	**Partial Impact** (peripheral portions in proximity to Harmer Rd)	Access and Haul Road	B
DlPr-68	II	2015-0098	**Entirety** (to be assigned *Legacy Status*)	Access and Haul Road	B
DlPr-75	I & II	2015-0098	**Partial Impact** (western portions of Polygon A near CPR)	RLO Sight Lines (railway crossing)	B
DlPr-78	II	2015-0098	**Entirety** (to be assigned *Legacy Status*)	Access & Haul Road	B
DlPr-80[3]	I & I (*revised RLO*)	2015-0098 (& *2018-0014)*	**Entirety** (to be assigned *Legacy Status*)	RLO: Railway Siding and Loadout Loop	A
DlPr-83[2]	I (*revised RLO*)	*2018-0014*	**Entirety** (to be assigned *Legacy Status*)	*RLO (revised): Railway Siding and Loadout Loop*	N/A
DlPr-84[2]	I (*revised RLO*)	*2018-0014*	**Entirety** (to be assigned *Legacy Status*)	*RLO (revised): Railway Siding and Loadout Loop*	N/A

Table Notes:

1) *Sites DlPr-8 and DlPr-42 contain suspected burial mounds within currently defined site boundaries, but as currently proposed, the Project's development footprint does not overlap or encroach on those areas that contain physical evidence for ancestral burials.*
2) *Sites are associated with the Project, but were recorded under MAP 2018-0014.*
3) *Site is associated with the Project and was updated under MAP 2018-0014.*

9.0 RECOMMENDATIONS

While avoidance strategies are the preferred recommendation to preserve precontact archaeological resources, the Project's mine plan and currently proposed development footprints have been consciously placed to minimize direct impacts to as many archaeological sites as possible. While appreciation of the Proponent's efforts to reduce the Project's impacts on archaeological resources is acknowledged, the implementation of the Mine Plan will require a substantial amount of archaeological mitigation to abide by Provincial Legislation and protocols put forth by First Nations.

Although Project Phase and site-specific recommendations are provided in the appended interim reports (*Appendix A* [Phase I], *Appendix B* [Phase II]), and *Appendix C* [Phase III]), the following steps are recommended for the continuation of the Project:

1. Due to the evolution of the mine plan and associated infrastructure, portions of the development footprint within the Project's mine plan have not been subjected to an in-field archaeological assessment. Therefore, a subsequent archaeological impact assessment under a Section 12.2 Heritage Inspection Permit will be required to determine if and where archaeological resources are present; this is pending Project approval by the EAO and proceeds to the development phase. Currently, unassessed areas within the Project's mine plan include, but may not be limited to:
    a. Phase IV (Alexander Creek valley - Secondary Transportation Corridor);
    b. Utility Corridor (west of Elk River); and
    c. Phase I and II clearance limits (recently defined)
    d. Widening of, or upgrades to Valley Road (Phase I and Phase II [from Harmer Road to the Harmer Siding Access Road])

2. Systematic data recovery (*i.e.* excavation of evaluative units to retrieve artifacts and contextual information) under a Section 12.2 Heritage Inspection Permit could be required where significant archaeological deposits were discovered under HIP 2015-0098 and MAP 2018-0014.

3. Application for a Section 12.4 Alteration Permit, to facilitate the Proponent's development where it overlaps with precontact archaeological sites; this is to be held concurrently with a Section 12.2 Heritage Inspection Permit.

    This step will minimally require:

    a. Monitoring by a qualified archaeologist will be required throughout the duration of mechanical activity within defined site boundaries; and
    b. Salvage inspection (sample screening [10~20%]) of mechanically-excavated sediment extracted from and immediately adjacent to recorded archaeological sites. Note that all topsoil/sediment from an archaeological site that potentially contains archaeological artifacts must remain within or immediately adjacent to its previously defined or updated boundary.

    Additionally, this step will potentially require:

    a. Short-term or long-term halt(s) of mechanical activity should significant archaeological resources be exposed while archaeological monitoring is occurring to conduct systematic data collection if/as needed; and
    b. Thorough salvage inspection (100% screening) should any of topsoil / sediment that originates from the precontact cultural horizon(s) be required to be removed and be re-deposited away the recorded locality of the site area; this is to prevent the export of archaeological artifacts.

It is further recommended that the Proponent inform all staff and contractor(s) that archaeological remains, located on either public or private lands, predating AD 1846, or sites containing rock art or human burials, are automatically protected within the Province of British Columbia from disturbance, intentional and inadvertent by the *Heritage Conservation Act*.

Acceptance of this final report by the B.C. Archaeology Branch, Permitting and Assessment Section acknowledges the fulfilment of the terms and conditions of the Permit. Such acceptance does not bring with it an obligation by the Archaeology Branch to accept report recommendations as they relate to future impact assessments or impact management requirements.

Note that the archaeological assessments completed under the Permit, were intended to identify physical evidence of past human activity that is offered protection under the *HCA*. None of the studies implemented were designed to address traditional land use of Indigenous people that have asserted traditional territory within the Project's archaeological LSA and the study area of the Permit.

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2009 *Rocky Mountain Forest District 2007 Harvesting Areas, Final Report, HCA* Permit 2007-0099, prepared for British Columbia Timber Sales (Kootenay Business Area), Canadian Forest Products, Carl Larson Enterprises Ltd., Galloway Lumber Co., Ktunaxa Kinbasket Development Corp., Ministry of Forests and Range (Operations Division), Summit Valley Contracting, and Tembec Industries Inc.

Tamasi, Ian, Barry P. Wood, Don Boras, Mikael Larsson, and Megan Moreau
2006 *Rocky Mountain Forest District 2005 Harvesting Areas, Final Report, HCA* Permit 2005-0154, prepared for British Columbia Timber Sales (Kootenay Business Area), Canadian Forest Products, Galloway Lumber Co., Ktunaxa Kinbasket Development Corp., and Tembec Forest Resource Management.

Tamasi, Ian, Barry P. Wood, Megan Moreau and Mikael Larsson
2008 *Rocky Mountain Forest District 2006 Harvesting Areas, Final Report, HCA* Permit 2006-0154, prepared for British Columbia Timber Sales (Kootenay Business Area), Canadian Forest Products, Galloway Lumber Co., Ktunaxa Kinbasket Development Corp., Rocky Mountain Trench Society, and Tembec Industries Inc.,

Tamasi, Ian and Lindsey Neill
2016 *Rocky Mountain Resource District 2014 Forestry Development and Harvesting Areas, Final Report, HCA* Permit 2014-0067, prepared for British Columbia Timber Sales (Rocky Mountain Field Team), Canadian Forest Products, Galloway Lumber Co., and Horning Forest Products

Tamasi, Ian and Nyomi Sherwin
2021 Archaeological Impact Assessment of the Crown Mountain Coking Coal Project: Phase I - Rail Loadout Facility (Revised Location), interim report (reference #2018-0014-NWP4) in Mining-Related Developments in the *Kootenay Boundary Resource Management Zone, Southeastern British Columbia, Final Report* (tentative title), Multi-Assessment Permit 2018-0014

US National Park Service
2007 *Geology Field Notes – Rocky Mountain National Park*, U.S. Department of the Interior Internet Source: http://www.nature.nps.gov/geology/parks/romo/index.cfm.

Heritage Inspection Permit

2015-0098

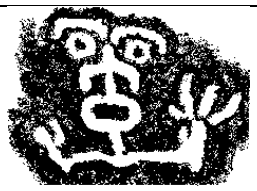
Final Report

Appendix A: Phase I (Interim Report)

Crown Mountain Coal Project

NWP Coal Canada Ltd.

BRITISH COLUMBIA ARCHAEOLOGICAL IMPACT ASSESSMENT CROWN MOUNTAIN PHASE I – RAILWAY SIDING/LOOP AND LOADOUT FACILITY REPORT FORM



1. REPORT TITLE

2015-0098-NWP1	Archaeological Impact Assessment of the Crown Mountain Coking Coal Project: Phase I – Railway Siding/Loop and Loadout Facility

2. MANAGEMENT SUMMARY

2.1	***Protected HCA Sites:***	*Previously Recorded:* DkPr-12, DkPr-13, DkPr-18, and DlPr-8 *Newly Recorded:* DkPr-34, DkPr-35, DkPr-36, DkPr-37, DkPr-38, DkPr-39; DlPr-80, DlPr-81, and DlPr-82

2.2 Brief Overview of Study:

NWP Coal Canada Ltd. (the Proponent) requested an archaeological impact assessment (AIA) for a proposed open-pit coal mining operation that will involve development within portions of ten coal licenses that encompass the general locality of Crown Mountain (the Project). Crown Mountain is a north-south trending bedrock-controlled ridge that separates the West Alexander Creek drainage from that of the relatively broad Alexander Creek valley that forms a segment of the western slope of the Continental Divide in southeastern British Columbia. The Project is located approximately 12 km northeast of the District of Sparwood and 26 km southeast of the District of Elkford, (*Appendix A*: Figure 1).

The mine plan centers on Crown Mountain, with the distribution of ancillary infrastructure components located along the Grave Creek drainage and within the locality of Grave Prairie. A phased approach was required for a feasible archaeological assessment; these phases include:

- **Phase I**: Railway Siding/Loop and Loadout Facility - Grave Prairie (Elk River valley).
- **Phase II**: Transportation Corridor - Grave Prairie to Crown Mountain (Grave Creek/Canyon)
- **Phase III**: Mine Site - Crown Mountain (Alexander Creek and West Alexander Creek valleys)
- **Phase IV**: Secondary Transportation Corridor (Alexander Creek valley)

This interim report summarizes the results from the AIA conducted in 2017 and 2019 on the Phase I development footprint, which consists of loadout facility, railway siding and loadout loop, and ancillary infrastructure components to facilitate the transfer of coal to market. The conceptual development footprints associated with Phase I were revised based, in part, on the results of the archaeological assessment and the distribution of suspected burial mounds within the locality of site DlPr-8. As a result of final revision to the Phase I development footprint after the expiry of Heritage Inspection Permit (HIP) 2015-0098, a supplemental AIA was required on un-surveyed terrain; this was subsequently conducted in 2020 under HIP 2018-0014. Although the clearance limit of the most recently proposed mine plan is projected on map figures within this report (*Appendix A*), the results of this subsequent AIA, conducted under a different HIP, are not detailed within this report.

2.3 Results:

The AIA of Phase I of the Project produced positive results with the discovery of precontact archaeological deposits and the recording of nine sites **DkPr-34, DkPr-35, DkPr-36, DkPr-37, DkPr-38, DkPr-39, DlPr-80, DlPr-81,** and **DlPr-82**, and a revisit/update to four previously recorded sites **DkPr-12, DkPr-13, DkPr-18,** and **DlPr-8**.

The delineation of boundaries for several of the newly discovered and updated archaeological sites should be considered provisional. The evolution of the conceptual development footprints associated with Phase I of the mine plan, resulted in avoidance strategies being implemented by the Proponent and detrimental impacts to most of the aforementioned archaeological sites are not anticipated. This is favourable for preserving the precontact archaeological record, but revisions frequently negated the need to return to several sites during the subsequent field season(s) to fulfill archaeological inspection protocol. As a result, the terrain surrounding some

archaeological sites is suspected to contain subsurface archaeological deposits, and therefore have been identified with high archaeological potential (HAP); see *Appendix A*: Figure 2.

2.4 Impact Assessment:

Archaeological Site	Development Area	AOA Polygon *Map Figure Reference*	Impact *Direct / Indirect*	Type of Impact(s)
DkPr-12	N/A	C38-14 & C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 4*	N/A	Sites are not within the conceptual development footprint. No impacts (direct or indirect) are anticipated as the sites are 0.5 km southwest of the Project.
DkPr-13	N/A	C38-14 *Appendix A: Figures 2 & 3 Appendix C: Figure 5*		
DkPr-18	N/A	C38-16 *Appendix A: Figures 2 & 3 Appendix C: Figure 6*	N/A	Site is peripheral (*i.e.* ±220 m southeast) to the development footprint (railway siding/loop); potential for indirect impact(s) through loss of regional/ contextual information.
DkPr-34	N/A	C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 7*	N/A	The multi-polygon site is no longer within or adjacent to the development footprint. No impacts (direct or indirect) are anticipated as the site is now ±1.5 km southwest of the Project.
DkPr-35	N/A	C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 8*	N/A	Site is no longer within or adjacent to the development footprint. No impacts (direct or indirect) are anticipated as the site is now 0.9 km southwest of the Project.
DkPr-36	N/A	C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 9*	N/A	Site is no longer within or adjacent to the development footprint. No impacts (direct or indirect) are anticipated as the site is now >0.8 km south of the Project.
DkPr-37	N/A	C38-16 *Appendix A: Figures 2 & 3 Appendix C: Figure 10*	N/A	Site is no longer within or adjacent to the development footprint. No impacts (direct or indirect) are anticipated as the site is now ±0.5 km south of the Project.
DkPr-38	N/A	C38-16 *Appendix A: Figures 2 & 3 Appendix C: Figure 11*	N/A	Site is no longer within or adjacent to the development footprint. No impacts (direct or indirect) are anticipated as the site is now ±0.4 km south of the Project.
DkPr-39	N/A	C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 12*	N/A	Site is no longer within or adjacent to the development footprint. No impacts (direct or indirect) are anticipated as the site is now ±1.0 km southwest of the Project.
DlPr-8	Loadout Facility Access Road	C38-14 *Appendix A: Figures 2 & 3 Appendix C: Figures 13-15*	Indirect	The overall area of the site area, now delineated as polygons, was previously bisected by construction of the railway and several access roads. Upgrades to an existing access road that will connect Valley Road and the loadout facility encroaches on a **peripheral (southwestern) portion of site Polygon B**; direct impacts are not anticipated, but indirect impacts could arise as the development is implemented.
DlPr-80	Railway Siding & Loadout Loop	C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 16*	**Direct**	**Loss of site area** (*Legacy Status*) via the removal of top soil and mechanical alteration to the facilitate rail loadout.

DlPr-81	Railway Siding & Loadout Loop	C38-16 *Appendix A: Figures 2 & 3 Appendix C: Figure 17*	Indirect	Site is peripheral to (±50 m east of) the development footprint. Direct impacts are not anticipated, but indirect impacts may arise if the mine plan is implemented due to the proximity (*i.e.* ±50 m east) of the Project.
DlPr-82	N/A	C38-14 & C38-15 *Appendix A: Figures 2 & 3 Appendix C: Figure 18*	N/A	Site is no longer within or adjacent to the development footprint. No impacts are anticipated as the site is now 0.35 km northeast of the Project.

Table Note: N/A - not applicable

2.5 Management Recommendations:

As currently defined, implementation of the Project (Phase I) will result in detrimental impacts to the entirety of archaeological site **DlPr-80**. Additionally, indirect impacts may occur to portions of sites **DlPr-8 (**Polygon B) and **DlPr-81** based on the proximity of delineated site boundaries and the clearance limits of Phase I of the mine plan. While avoidance strategies are the preferred recommendation to preserve all precontact cultural heritage resources, the current footprint of the railway loop and loadout facilities has been consciously placed to avoid direct impacts to as many archaeological sites as possible, and especially that of the multi-polygon site DlPr-8, which contains ±97 [suspected] precontact burial mounds. This avoidance strategy has been achieved through multiple field seasons to determine localities where the density of precontact archaeological resources is relatively minimal. While circumventing site **DlPr-80** is unlikely to be considered feasible, efforts will be put forth by the Proponent to negate or minimize indirect impacts to sites **DlPr-8** and **DlPr-81**. Development within any archaeological site will require the application for and issuance of concurrent *Heritage Conservation Act* (*HCA* [1996]) Section 12.2 (heritage inspection) and 12.4 (alteration) permits.

Note that subsequent archaeological inspections (*i.e.* shovel testing) will be required on areas that have not been subjected to an AIA but are now encompassed by the clearing limits of the currently proposed mine plan. Note that some of this unassessed terrain was inspected under HIP 2018-0014, but is not detailed within this report. Additionally, subsurface inspections (*i.e.* shovel testing) and systematic data recovery (*i.e.* excavation of evaluative units to retrieve contextual information) could be required in proximity to provisionally delineated site areas and where significant archaeological deposits are exposed through the implementation of the Project. Additionally, monitoring by a qualified archaeologist will be required throughout the duration of mechanical activity when impacts to the fine sediment cap that contain the cultural horizon within defined site boundaries are anticipated.

Archaeological sites **DkPr-12, DkPr-13, DkPr-18, DkPr-34, DkPr-35, DkPr-36, DkPr-37, DkPr-38, DkPr-39, DlPr-81,** and **DlPr-82** are not situated within the currently proposed Phase I development footprint. In the event that the mine plan is revised and ground disturbance is anticipated in un-assessed terrain and within, or in proximity to, the defined site boundaries, concurrent Section 12.2 and 12.4 permits will be required.

3. ADMINISTRATIVE INFORMATION

3.1	*Permit Holder:*	Ian Tamasi	*3.2*	*Permit Holder Affiliation:*	**Pathways Archaeological Consulting Ltd.** *(formerly of Tipi Mountain Eco-Cultural Services Ltd.)* 1810 Meadowbrook Settlement Road Kimberley, BC, V1A 3L1 Phone: 250.427.8743 Email: ian@pathwaysarch.ca
3.3	*Proponent Contact:*	Mike Allen (*Project Manager*)	*3.4*	*Proponent Affiliation:*	**NWP Coal Canada** 800-1199 West Hastings St. Vancouver, BC, V6E 3T5 Phone: 604.557.3765 Email: mike.allen@nwpcoal.com
3.5	*Interim Report Author(s):*	Ian Tamasi *, Nyomi Sherwin *, and Daniel Heinrichs * **Note: Effective November 3rd and December 7th, 2020, the authors of this report were no longer employed by Tipi Mountain Eco-Cultural Services, a Division of Nupqu Resources LP.*			

3.6	*Interim Report Date & Version:*	23th March 2021 V2 Client; V1 Archaeology Branch
3.7	*Notification of Work Date:*	*Phase I:* 20th July 2017 19th July 2019
3.8	*OGC Ref No.:*	*Not Applicable*

4. PROPOSED DEVELOPMENT

4.1 Description:

The locality encompassing Crown Mountain has been subject to previous exploration activity (*i.e.* drilling) in 1969 and 1979, and further exploration, trenching, and bulk sampling was implemented from 1979 to 1981. After the issuance of the Crown Mountain coal tenures to a subsidiary of the Proponent, an extensive mineral exploration program was implemented in 2012, which indicated that the coal at the Crown Mountain site is typical of the coking coals extracted from existing mines in the Elk Valley. If approved, the proposed Project would create a new coal mine with an expected 15-year operating life.

The mine plan includes open pits, spoil and mine rock disposition, processing activity, and ancillary infrastructure components on Crown Mountain, which was subjected to an AIA in 2018 and 2019 (Tamasi *et al.* 2020). An overland conveyance system (±3 km) will move processed coal from the mine site (Phase III) to the transportation corridor (Phase II) where coal will be discharged into highway legal haul trucks. The haul road, subjected to an AIA in 2017 and 2018 (Tamasi *et al.* 2021), is to be comprised of both dual-lane and single-lane road sections, would be approximately ±9 km in length and largely follow existing road grades (*i.e.* Grave Creek FSR and Harmer Road) that lead to the load-out facility to be situated alongside a railway siding/loop (Phase I) situated in the locality of Grave Prairie. Once loaded, coal would travel by rail to a port terminal in Vancouver for shipment overseas.

Components of the mine plan specific to the development footprint of Phase I include:

- Construction of the railway siding/loop,
- Establishment of the rail loadout facilities; including the train loadout conveyor and clean coal stockpile and truck dump,
- Upgrades (*e.g.* grading of established FSRs and widening of branch road allowances) to Valley FSR and branch roads (*i.e.* clean coal stockpile access road and rail loadout road)
- Installation of a utility corridor (*e.g.* hydro-electrical service, natural gas pipeline)

4.2 Location:

The Project occurs within the Regional District of East Kootenay and within the boundaries of the Kootenay Boundary Land Use Plan, the Elk Valley Official Community Plan, and the Alexander Creek Access Management Area. A local study area (LSA) was defined for the archaeological component of the Project, which mirrors the study area of Permit 2015-0098. The Project LSA was defined by a combination of natural geographical and arbitrary boundaries that surround the proposed footprint of anticipated ground disturbance associated with mining activity and the placement of required infrastructure components (*Appendix A*: Figure 2). Note that a single amendment was granted for Permit 2015-0098 (Eric Forgeng, *pers. comm*. August 6, 2019), which extended the LSA to the north-northwest to facilitate options for placement of the railway siding/loop, loadout facility, and lower (western) segment of the transportation corridor in proximity to Grave Lake and existing infrastructure associated with another coal mining facility.

Phase I of the Project occupies Grave Prairie and the surrounding terrain extending from the south of Grave Creek where it enters the Elk River to the north of Black Creek within the Elk River valley. This locality (*i.e.* study area) consists of a much larger area than the currently proposed Phase I development footprint and encompasses past iterations of the evolving mine plan. Phase I of the Project is located approximately 9-13 km north of Sparwood and 20-24 km south of Elkford, BC (*Appendix A*: Figure 1)

Coal Licenses: 418150, 418151, 418152, 418153, 418154, 418966, 419176, 419177, 419178, 419179

Map Sheets – Phase I:
- 82G/15 (NTS)
- 82G.086 (BC TRIM)

Geographical Locations – Phase I (Zone 11U - NAD 83):
- Northern Extent – Grave Creek: 653137 E, 5519956 N
- Southern Extent – Railway Bridge Crossing of Elk River: 653137 E, 5519956 N

District Lot – Phase I
- 4588

5. FIELD CREW

Date (dd/mm/yy)	***Field Director (on site? Y/N)***	***Field Supervisor***	***Field Personnel & First Nation Representatives***
25/09/2017 *to* 29/09/2017	Ian Tamasi (Y)	Dan Heinrichs Joshua Martin (SIB)	Jesse Thomas (KNC) Jason Feltham (KNC) John Nicholas (KNC) Wayne Choquette (TMECS)*
23/09/2019 *to* 24/09/2019	Ian Tamasi (Y)	Dan Heinrichs Nyomi Sherwin	Frankie Alexander (KNC) Nick Johnson (KNC) Denise Walker (KNC) Marshall Ezelle Mathias Ladd
25/09/2019	Dan Heinrichs (Y) Nyomi Sherwin (Y)	-	Frankie Alexander (KNC) Nick Johnson (KNC) Denise Walker (KNC) Marshall Ezelle Mathias Ladd
26/09/2019	Dan Heinrichs (Y) Nyomi Sherwin (Y)	Justin Hanna	Frankie Alexander (KNC) Corey Stevens (SIB)
07/10/2019	Ian Tamasi (Y)	Dan Heinrichs Nyomi Sherwin	Nick Johnson (KNC) Sunshine Joseph (KNC) Jason Feltham (KNC) Corey Stevens (SIB) Mathias Ladd
21/10/2019 *to* 25/10/2019	Dan Heinrichs (Y) Nyomi Sherwin (Y)	Justin Hanna	Jason Feltham (KNC) Sunshine Joseph (KNC) Nick Johnson (KNC) Denise Walker (KNC) Corey Stevens (SIB) Marshall Ezelle

Table Notes:
Asterisks (*) indicates that Wayne Choquette was only present on September 28, 2017
KNC: Ktunaxa Nation Council
SIB: Shuswap Indian Band

6. ARCHAEOLOGICAL METHODS & RESULTS

6.1. Pre-field Methodology

☒ Archaeological potential and sites are indicated on the Study Area Map

☒ An Archaeological Overview Assessment (AOA) and/or archaeological predictive model exists for the study area

Archaeological potential within the Project's archaeology LSA has been addressed within two Project-specific AOAs. An initial AOA for the preliminary exploration component of the Project (Choquette 2012) resulted in the identification of 36 archaeological potential polygons; of the 36 polygons, nine were newly defined and twenty-five mirrored those that were previously delineated under forestry-related AOAs for: Managed Forest 27 (Choquette 2004), Landscape Unit (LU) C20 of the Rocky Mountain Forest District (Choquette 2008), and LU C38 of the [former] Cranbrook Forest District (Choquette 1997). A supplementary AOA for the Project (Choquette 2014) builds on the information generated during the 2012 overview assessment, but includes the analysis of LiDAR (Light Detection and Ranging) data within a larger study area. In total, 110 archaeological potential polygons are situated within or partially overlap with the Project's archaeology LSA boundaries.

The potential polygons within Choquette's Project-specific AOAs (2012 and 2014) identified as Crown Mountain (CM) polygons CM-01 to CM-12 delineate landforms or landscapes where archaeological remains are predicted to be present based on models of precontact human land and resource use developed for this portion of the Rocky Mountains. Primary attributes defining archaeological potential within the two AOAs include:

- Corridor: "*The physiography of a region exerts a major influence on the movements of both animals and humans. The north-south troughs represented by the valleys of Alexander Creek and the Elk Valley naturally made these travel corridors, the two of them connected by Grave Creek. In addition, the Continental Divide, which bounds much of the LSA on the east, is breached by Racehorse, Deadman, Phillips, and Crowsnest passes connecting to the foothills and plains further east*." (Choquette 2014: p.11)
- Bedrock Geology: "*The bedrock geology of the Crown Mountain LSA consists of a series north-south striking, upturned and steeply dipping Palaeozoic sedimentary strata that include the Rocky Mountain, Banff, Etherington and Fernie formations, all of which have been quarried in precontact time. While there is nothing in the sparse recorded data from the vicinity that suggests the presence of an intensively exploited outcrop, the LSA has not been systematically surveyed but is known to contain extensive exposures of bedrock and talus of these formations on the mountainsides, tributary valley walls, prominences and saddle*." (*ibid*. p.12)
- Ungulate Range: "*A variety of natural habitats are present in the Crown Mountain LSA. Some of the grasslands, such as those at high elevations, are apparently relics of more extensive earlier Holocene communities while others, in particular those which occupy Neoglacial floodplain terraces, are more recent by definition of the age of the landforms upon which they are situated. The emergence of these expanses of previously non-existent grazing range is hypothesized to have been instrumental in the expansion of bison into the middle Elk River drainage area during the late Holocene arid interval.*" (*ibid*. p.12)

The following recommendations were the outcome of these AOAs:

- "*avoidance is the preferred strategy with regard to areas identified as archaeological potential polygons;*
- *within any archaeological potential polygons that overlap proposed developments, existing disturbed areas should be utilized to the greatest extent possible before considering alteration of previously undisturbed terrain;*
- *where it is apparent that proposed development poses an unavoidable risk to the intact mineral soil/postglacial fine sediment cap in which archaeological deposits are expected to occur, more intensive archaeological investigation including subsurface testing will be required to ascertain the presence and significance of any pre-contact archaeological remains." (ibid. p.2)*

☒ Previous field studies influenced this assessment

Previous archaeological assessments within the Project LSA are numerous, and have primarily been associated with forestry-related development situated within Managed Forest 27 and the adjacently located Provincial forest lands within LUs C20 and C38. Under Provincial Legislation, (*i.e.* the *Forestry Practices Code of BC* [1996A] and the updated *Forest and Range Practices Act* [2004]) all forestry-related developments that overlaps with previously delimited AOA Polygons (*e.g.* Choquette 2004 and 2008) require a form of archaeological assessment. Although a considerable amount of the terrain situated within the Project's archaeology LSA has been previously harvested, forestry-based proponents (*e.g.* Canwel Fibre, Jemi Fiber Corp., Tembec, and Canadian Forest Products) are frequently able to incorporate avoidance strategies and implement winter-harvesting techniques that can negate disturbance to archaeological sites.

An overwhelming number of the previously recorded archaeological sites were discovered by Wayne T. Choquette during a regional survey in the middle Elk River drainage (1973), which resulted in the recording of 16 historical sites (*i.e.* post A.D. 1846) and 76 precontact sites; applicable archaeological sites that pertain to the Phase I study area are provided below in Table 2.

Associated with the Project's Phase I study area, several forestry-related archaeological impact assessments have been completed; these assessments were completed under the *HCA* (blanket) inspection permits that are provided below in Table 1. Note that non-permit archaeological assessments are not routinely provided to the Archaeology Branch, and therefore, additional archaeological studies may have been completed within the currently defined study area, but are not publicly accessible or available to registered archaeologists on the Provincial Archaeological Report Library.

Table 1. Previous Forestry-Related Archaeological Assessments completed within or adjacent to the Phase I Study Area

***HCA* Permit**	**Results**	**Regionally Applicable Archaeological Site(s)**	**Archaeological Consulting Company**	**Reference**
2014-0067	Positive	DkPr-12 DlPr-6 DlPr-9	Tipi Mountain Eco-Cultural Services Ltd.	Tamasi and Neill, 2016
2015-0059	Negative	-	Tipi Mountain Eco-Cultural Services Ltd.	Liddy and Tamasi 2016

☒ Review of Provincial Heritage Register

Date Accessed: 6th February, 2015 (Project LSA - initial review for application)
20th July, 2017 & 19th July 2019 (Phase I - annual review associated with FN notification)

Table 2. Previously Recorded Archaeological Sites in the Vicinity of the Phase I Study Area

Borden No.	***Distance & Direction from the Proposed Development***	***Site Type***	***Previous Visits (HCA Permit)***	***Site in Conflict (Y/N)***
DlPr-4	535 m WNW of Railway/Siding Loop	Precontact Surface Lithics	1973-0004	N
DlPr-5	190 m WSW of Valley FSR	Precontact Surface Lithics	1973-0004	N
DlPr-6	7 m E of Valley FSR	Precontact Surface Lithics	1973-0004	N
DlPr-7	34 m SW of Clearing Area	Precontact Surface Lithics	1973-0004	N

DlPr-8	*Bisected by the Phase I study area with a peripheral area of site Polygon B overlapping with development footprint*	Precontact Surface Lithics, Fauna, FAR	1973-0004	**Y**
DlPr-9	114 m W of Valley FSR	Precontact Surface Lithics & Subsistence Feature (Hearth)	1973-0004	N
DlPr-31	270 m ESE of Railway Siding/Loop	Precontact Human Remains, Burial	1973-0004	N
DkPr-12	*Within Phase I study area but beyond development footprint*	Precontact Surface Lithics	1973-0004	N
DkPr-13	*Within Phase I study area but beyond development footprint*	Precontact Surface Lithics	1973-0004	N
DkPr-14	322 m WSW of Railway Siding/Loop	Precontact Surface Lithics	1973-0004	N
DkPr-18	*Within Phase I study area, but beyond development footprint*	Precontact Human Remains, Burial	1973-0004	N

Comments:

- Above listed archaeological sites are located within or immediately adjacent to (≤0.5km) of the Phase I (Ph. I) Local Study Area (LSA) and largely situated to the north of the Grave Creek

Table Notes:

6.2. In-field Methodology

☒ Subsurface test measurements are a minimum of 35 x 35 cm

6.2.1	***Number of Crew Members:***	5-9	***6.2.2***	***Crew Spacing:***	0.5 – 5 m *variable intervals based on landscape and safety considerations (e.g. steep or unstable slope)*

6.2.3 Survey Design:

The archaeological assessment of Phase I commenced with a review of applicable AOAs and previous archaeological inspections to be knowledgeable of the locations where archaeological sites had been previously recorded in proximity to an evolving development footprint. The Phase I study area was arbitrarily defined by a 50-100 m buffer zone from the anticipated disturbance footprints, which evolved from 2015-2019, but was consistently within previously delineated AOA polygons C38-14, C38-15 and C38-16 (Choquette 2008).

The field component for Phase I involved pedestrian-based reconnaissance through the entirety of the study area, and included a revisit of sites DkPr-12, DkPr-13, DkPr-18 and DlPr-8, all of which were utilized to educate existing and newer members of the field crew on regional site and artifact types, typical raw lithic materials, and site settings. The pedestrian-based reconnaissance included the visual and manual sorting (*i.e.* shovel and 6 mm [1/4"] mesh) to inspect natural exposures (*e.g.* tree throws, incised run-off channels, game trails, bedrock outcrops, and sparsely vegetated ground surfaces) and anthropogenic disturbance (*e.g.* road grades, off-road vehicle trails, berms, slope/ditch cuts) for exposed precontact cultural material, and to identify areas of high archaeological potential (HAP) that required subsurface inspection.

6.2.4 Subsurface Inspection

Upon the identification of archaeologically-salient microtopography (*e.g.* terraces, benches, knolls/ prominences, and ridges), shovel testing (35 cm x 35 cm) was implemented to confirm or refute the presence of precontact archaeological material. No form of evaluative testing was completed within Phase I of the Project. Shovel tests were systematically excavated with flat-bladed shovels in 5-10 cm arbitrary levels. All manually-excavated sediment associated with subsurface inspection was sorted with 6 mm (1/4") mesh. Intervals and patterns of shovel tests within each shovel test location (STL) were variable, but generally were judgementally excavated based on natural constraints (*e.g.* dead/wind fall, danger trees, aeolian deflation, dense vegetation,

and steep slope) and/or anthropomorphic constraints (*e.g.* built roads/staging areas and significant areas of previous disturbance); details pertaining to each Shovel Test Location (STL) are provided below within Section 6.4 (Results). While linear-shaped landforms were subject to transects of shovel tests, grid-like test patterns were applied to both horizontally-expansive and microtopographic features. A tally of subsurface inspections is provided below in Table 3.

Note that the development footprint evolved based, in part, on annual results of the archaeological assessment within both of the Phase I and Phase II study areas. Therefore, subsurface inspection programs that were initiated in one field season may not have resumed in the subsequent field season based on the Proponent negating impacts to archaeological sites by shifting various components of the development footprint. It is also important to note that within the locality encompassing Grave Prairie, the AIA should be considered provisional and was frequently implemented to sample for the presence and absence of residual precontact cultural material within a relatively large cultural landscape. Therefore, currently defined site boundaries would likely be revised if the adjacent landscape is subjected to future archaeological inspection. Seasonal constraints (*i.e.* onset of winter-like conditions) and the arbitrary limits of the study area frequently constrained the implementation of a systematic subsurface inspection program.

Table 3. Archaeological Inspections and Quantity for the Phase I Study Area

Shovel Tests	Tree Throws	Rodent Mounds
693	19	1

6.2.5 Ancestral Burials & Suspected Human Remains

In the autumn of 2017, W.T. Choquette met with the field crew and discussed attributes of suspected burial mounds within what is now delineated as Polygons A and B of DlPr-8. Attributes of suspected burial mounds included:

- approximate size: 2 m (length) x 1 m (width) x 0.1 - 0.4 m (height);
- gently rounded profiles;
- mounding has influenced a slightly different vegetation regime (*e.g.* kinnikinnick) than the surrounding grassy-dominated ground surface (influenced by turbated sediment and drainage); and
- no specific orientation has been identified.

Subsequent to this discussion, a judgmental survey was conducted throughout the eastern portion of the grassland area that overlapped or infringed upon the conceptual mine plan (*ca*. 2017) in small groups (2-3 individuals) who identified any potential burial mounds with pin flags. Once the development footprint was traversed, peripheral terrain was then visually inspected for the presence of mounds. Upon the completion of the surface inspection, attributes of each identified mound were then reviewed one-by-one as a crew and involved a discussion to determine if each mound was suspected to be a burial or mounding could be attributed to natural or contemporary disturbance. When in doubt, mounds were recorded to err on the site of caution.

Approximately 64 mounds were identified to the west of the railway tracks (Polygon A), and 31 mounds were identified along the eastern side of the railway tracks (Polygon B). Two isolated mounds (Polygons D & E) were identified along the southern margin of a relict drainage route that is west of Valley Road. These totals should be considered provisional and is not an exhaustive tally for burial mounds in this locality.

Multiple revisits to the locality of site DlPr-8 occurred to familiarize the newer members of the field crew with what has been interpreted as ancestral burial mounds prior to and for consideration for when working within other portions of the 2015-0098 study area.

As discussed, and agreed upon by assigned and in-house First Nations representatives and with administrative positions within the KNC and the SIB, no form of archaeological inspection was conducted within the vicinity of suspected burial mounds. Due to the presence and suspected distribution of the burial mounds, the Proponent revised the mine plan and shifted the loadout facility and railway spur/loadout area to the south-southeast.

6.2.6 High Archaeological Potential (HAP)

The evolving footprint of Phase I was consistently within a relatively extensive cultural landscape that encompasses the locality of Grave Prairie that is situated to the south of Grave Creek. Based on the archaeological inventory and results of previous inspections (*i.e.* Choquette 1973, Tamasi and Neill, 2016, and Liddy and Tamasi 2016) and the contemporary inspection conducted under permit 2015-0098, terrain that is not typically considered to be archaeologically-salient (*e.g.* increased slope, microtopography with a northern solar aspect) should be considered to have some potential for a sparse and discontinuous distribution of precontact artifacts. Therefore, the entirety of Grave Prairie should be considered to have increased archaeological potential (*i.e.* a HAP zone) until proven negative by a thorough subsurface inspection program. An all-encompassing HAP zone and a few site-specific HAP zones has been delineated and are illustrated on Figures 2 and 3 (see *Appendix A*) and applicable site maps (see *Appendix C*); the areas of archaeological potential are the result of provisional inspections and should be considered to extend beyond the currently proposed Phase I development footprint (see *Appendix A*: Figure 2). The HAP zones identified and applicable to Phase I largely correspond to previously defined AOA Polygons (*e.g.* Choquette 1997, 2004, 2012 and 2014).

6.3. In-field Observations

The currently defined Phase I development footprint encompasses a portion of an extensive cultural landscape that contains distinct geomorphology, which influenced precontact occupational habits and land use patterns. The landscape within the Phase I study area is relatively consistent, and encompasses a portion of the north-south trending Elk River valley (A*ppendix A*: Photo 1) where a mantle of stratified sand, silt, and clay (fine sediment deposition within Glacial Lake Elk) is present over the gravelly-till plain (Choquette 1997). Upon the retreat of the trunk glacier and eventual drainage of Glacial Lake Elk, local drainage patterns emerged through various downcutting regimes that were influenced by evolving climatic conditions within the Holocene Epoch; this resulted a series of terraces being carved within the valley fill.

The level treads of the terraces, benches and microtopographic features offer localities for campsites and ancillary activity. Although those landforms with southward solar aspect would have been favourable for seasonal occupation for multiple millennia, precontact occupation most likely peaked during the Middle Period when hydrological baselines were higher than present (*i.e.* kettle depressions and wetlands contained standing water). As a result of repeated use of this locality for both seasonal resource procurement and intra-mountain travel, an extensive artifact scatter formed throughout this landscape.

6.4. Results

Table 3. Assessment Results – *Shovel Test Locations (STL)*

Shovel Test Location (STL) (inspection year)	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
STL 1 (2019)	C38-15	±50 m (E-W) x 5~8 m (N-S)	ST: 18	ST: 0	ST: 18
Results: Negative					
Description: A narrow “ridge” that is a remnant micro-topographic feature on an expansive, but irregular terrace level situated approximately 30-40 m above the floodplain of the Elk River. The crest of the ridge is variable in width, but descends gently (5°) westward and has been defined by downcutting of parallel trending [relict or seasonal] drainages that are immediately to the north and south. The southward drainage has been subject to mechanical alteration during construction of a [decommissioned] FSR and a relatively large settling pond facility for Elkview Operations (Teck Coal). The western terminus of the ridge has been truncated by the Canadian Pacific Railway’s (CPR) Fording River Branch Line; therefore, an unknown amount of landscape in proximity to the STL has been mechanically removed. Shovel tests were excavated at 4-6 m intervals in two parallel transects, covering the most level portion(s) of the landform. *Appendix A:* Figure 2*, Appendix B:* Photo 2*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 2 (2019)	C38-15	±80 m (N-S) x 20 m (E-W)	ST: 31	ST: 0	ST: 31

Results: Negative

Description: Remnant portion of a gently sloped (5-8°) tread of the aforementioned terrace level (STL 1). The landscape slopes westward and has been subjected to ground disturbance during previous logging activity (*e.g.* windrows and push piles) and the terrace margin has been impacted (*i.e.* truncated) by the construction of the CPR Fording River Branch Line. Shovel tests were implemented in two parallel transects on the tread of the terrace and nearest to where the margin would have once been.

Appendix A: Figure 2*, Appendix B:* Photo 3*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 3 (2019)	C38-15	±10 m (N-S) x 10 m (E-W)	ST: 6	ST: 0	ST: 6

Results: Negative

Description: The south-southwestern terminus of a remnant portion of level tread that is associated with the aforementioned terrace level (STLs 1 & 2). The ground surface within and adjacent to the STL has been heavily disturbed by logging activity, which appears to have removed the top soil component of the stratigraphic profile. To the west, the landform has been mechanically-truncated by the CPR Fording River Branch Line, and to the south during construction of an old FSR. Subsurface inspection commenced judgementally with shovel testing excavated at 2-5 m intervals, but was subsequently abandoned due to the considerable disturbance (*i.e.* decapitated fine sediment cap).

Appendix A: Figure 2*, Appendix B:* Photo 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 4 (2017)	C38-15	±20 m (N-S) x 12 m (E-W)	ST: 12	ST: 0	ST: 12

Results: Negative

Description: Northern terminus of a remnant portion of level tread that is associated with the aforementioned terrace level (STL 3), and situated approximately 5-6 m above the westward flowing Black Creek, which is located immediately to the north. The condition of the ground surface is poor within this STL, and is consistent with observations documented to the south within the vicinity of STL 3. To the west, the terrace has been truncated/bisected by the CPR, and only a small remnant of the margin and scarp remain along the western side of the railway tracks. Aside from a previous timber harvest(s), the ground surface in this locality has been heavily turbated by silviculture activity (*e.g.* overgrown, parallel-trending scarification trenches). Shovel tests were excavated at 3-4 m intervals in a grid like pattern, avoiding densely ingrown pockets of the tree stand.

Appendix A: Figure 2*, Appendix D:* Stratigraphy Log

STL 5	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
STL 5A (2017) DkPr-34 Polygon A	C38-15	±35 m (E-W) x 20 m (N-S)	ST: 18	ST: 3	ST: 15
STL 5B (2017) Negative Results		±140 m (WNE-ESE) x 16 m (N-S)	ST: 23	ST: 0	ST: 23
STL 5C (2019) DkPr-34 Polygon		±40 m (N-S) x 40 m (E-W)	ST: 26	ST: 6	ST: 20
STL 5D (2019) DkPr-34 Polygon C		±25 m (NW-SE) x 12 m (NE-SW)	ST: 14	ST: 1	ST: 13
STL 5E (2019) DkPr-34 Polygon D		±60 m (NW-SE) x 25 m (NE-SW)	ST: 42	ST: 3	ST: 39
		STL Totals:	ST: 123	ST: 13	ST: 110

Results: DkPr-34 Site Polygons A – E (new)

Description: STL 5 encompasses microtopography (n=5 [identified as STL 5A-E) that is present on the undulating tread of prominent north-south trending terrace level that is approximately 6-7 m above the constructed grade of the CPR Fording Branch Line, and 25 m above the elevation of the Elk River, both situated to the west. The margin of the terrace has been severely impacted during construction of the CPR Fording River Branch Line, which has truncated and bisected portions of the landform; remnant portions of the terrace that remain to the west of the railway were not subjected to archaeological inspection (beyond development footprints). The generally locality also has evidence of a previous timber harvest(s), ***e.g.,*** overgrown push piles and skid trails (***ca***. 1990s). In total, 13 shovel tests produced positive results for precontact lithic artifacts (n=19) and resulted in the delineation of four site polygons (A-D) and the recording of site DkPr-34.

STL 5A: Southern terminus of a terrace tread situated 5-6 m above Black Creek (to the south) and matches the elevation of STL 4 (summarized above). In this locality, the landform has been bisected by the CPR, and a level, remnant portion of the terrace tread, which overlooks the Elk River, remains to the west of the railway; this area was not subjected to archaeological inspection and should be considered to have a high potential for undiscovered, subsurface archaeological material. Shovel tests were excavated judgmentally at 4-5 m intervals in a grid like pattern and resulted in three positive shovel tests that contained FAR (n=5); i.e., DkPr-34 Site Polygon A.

STL 5B: East-west trending terraced margin formed by downcutting along the Black Creek drainage. The ground surface within the inspection area gently ascends (3-6°) eastward and extends from the locality of STL 5A to include two parallel trending transects of shovel tests excavated at 4-7 m intervals. Shovel test placement was influenced by the density of a secondary timber stand and previous logging disturbance. Archaeological material was not recovered from this locality of the STL.

STL 5C: Cluster of relatively small slope breaks with near-level treads, and situated amongst gently undulating slope that descends westward towards the railway. Shovel tests were excavated judgementally at 5-10 m intervals, influenced by the orientation of relatively minor margins, vegetation density, and previous logging disturbance. Six shovel tests within this area (DkPr-34 Polygon B) produced positive results for subsurface lithic artifacts (n=16) and FAR (n=1).

STL 5D: Northwest-southeast trending margin of a slope break. Shovel testing at 5 m intervals commenced as two transects that paralleled the margin, but one shovel test contained subsurface FAR (n=1) and resulted in the excavation of additional tests that formed a grid like pattern to delineate Polygon C of site DkPr-34.

STL 5E: A northwest-southeast trending margin of a slope break and northern terminus of a truncated, mechanically-sculpted margin of the terrace level overlooking the railway to the west and a relict/seasonal drainage to the north. Shovel tests were excavated judgementally that formed a grid like pattern to cover

archaeologically-salient terrain. Three shovel tests produced positive results for subsurface lithic artifacts (n=3) and resulted in the delineation of Polygon D of site DkPr-34.

Appendix A: Figures 2 and 3*, Appendix C:* Site Information (Figure 7); *Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
STL 6 (2019)	C38-15	±40 m (N-S) x 25 m (E-W)	ST: 15	ST: 0	ST: 15

Results: Negative

Description: Relatively small, north-south trending margin that defines a slope break within gently undulating terrain that descends westward towards the railway tracks and the Elk River. An overgrown road grade is present in this locality and minor ground disturbance (***e.g.*** push piles and track scars) resulting from previous timber harvest(s), was also observed. Shovel tests were judgmentally excavated at 4-6 m intervals to form at grid like pattern that covered the landform and peripheral terrain.

Appendix A: Figure 2*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
STL 7 (2019)	C38-15	±35 m (N-S) x 15 m (E-W)	ST:14	ST: 0	ST:14

Results: Negative

Description: A small north-south trending slope break (5-7°) within an area of consistently undulating slope (10-20°) that descends westward towards the railway tracks and Elk River. Shovel tests were excavated judgementally at 5-7 m intervals and formed a grid like pattern on terrain with low slope.

Appendix A: Figure 2*, Appendix B:* Photo 5*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
STL 8 (2019)	C38-15	±36 m (N-S) x 20 m (E-W)	ST: 20	ST: 9	ST: 11

Results: DkPr-39 (new)

Description: A remnant portion of a knoll with a near level crest, but has been truncated to the west by the CPR Fording River Branch Line, and was been further impacted during the construction of a road grade that parallels (*i.e.* north-south) the railway; this previous ground disturbance resulted in the removal of ±0.4 m of the fine sediment cap. The eastern periphery of the STL was defined naturally by a well-defined margin and increased slope that generally descends southward. Due to the amount of ground disturbance, shovel tests were excavated judgementally at 5-9 m intervals, which formed a grid like pattern and employed back testing as required to adequately inspect the landform. Nine shovel tests contained lithic artifacts (n=21) and resulted in the recording of Site DkPr-39.

Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figure 12)*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
STL 9 (2019)	C38-15	±20 m (E-W) x 12 m (N-S)	ST: 10	ST: 0	ST: 10

Results: Negative

Description: Remnant portion of an east-west trending bench that has been truncated to the west by CPR Fording River Branch Line. Shovel testing was implemented judgementally at 4-5 m intervals, focusing on relatively level areas amongst gently undulating slope that descends westward.

Appendix A: Figure 2*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 10 (2019)	C38-15	±50 m (N-S) x 15 m (E-W)	ST: 20	ST: 0	ST: 20

Results: Negative

Description: A relatively narrow, north-south trending bench within a gently undulating landscape that generally descends westward towards the railway and Elk River. Shovel tests were excavated in two transects, but were judgmentally placed at 4-7 m intervals, avoiding previous ground disturbance (*i.e.* borrow pit, incised old road, and push piles). Back testing formed some grid like test areas.

Appendix A: Figure 2*, Appendix B:* Photo 6*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 11 (2019)	C38-15	±40 m (N-S) x 15 m (E-W)	ST: 17	ST: 0	ST: 17

Results: Negative

Description: Two minor, north-south trending slope breaks situated within consistently undulating terrain that descends westward toward the railway, and is situated downslope (east) of Valley Road. The treads of the two slope breaks are relatively level to gently sloping (2-3°) and offer a west-southwest solar aspect. Shovel tests were excavated judgmentally at 5-7 m intervals to form a grid like pattern and coving the extent of the landform.

Appendix A: Figure 2*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 12 (2017)	C38-15	±20 m (N-S) x 5 m (E-W)	ST: 4	ST: 0	ST: 4

Results: Negative

Description: A minor southward trending spur along a poorly defined terrace level along the western side of Black Creek. The locality has been severely impacted by a previous timber harvest and former road construction (now densely overgrown) and resulted in levelling the tread and the removal of topsoil. Some historical refuse is strewn about this locality, and may indicate a former work camp setting. Shovel tests were excavated at 3-4 m intervals in a single transect through the center of the landform.

Appendix A: Figure 2*, Appendix B:* Photo 7*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 13 (2017)	C38-15	±35 m (E-W) x 20 m (N-S)	ST: 8	ST: 3	ST: 5

Results: DkPr-35 (new)

Description: Relatively small, benched slope-break with a southern solar aspect, situated mid-way up the southern terminus of a prominent north-south trending ridge that is along the eastern side of the Elk River. Shovel tests were judgmentally excavated at 5-7 m intervals and formed a small grid that focused on the central portion of the landform. The inspection of this locality and site DkPr-35 should be considered provisional; subsurface inspection was terminated due to the distance from the conceptual disturbance footprint (*ca*. 2017) and did not overlap with any subsequently proposed development footprints. Site discovery assisted in understanding the type of landforms that required inspection for the Project and the distribution of archaeological sites within the locality of Grave Prairie.

Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figure 8)*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 14 (2017)	C38-15	±10 m (N-S) x 10 m (E-W)	ST: 4	ST: 0	ST: 4
Results: Negative					
Description: Small bench with a southerly solar aspect situated amongst consistent southward slope; this is a paired landform to that summarized above (STL 12) and is physically separated by a basin-like draw. Shovel tests were excavated judgementally at 5 m intervals to cover the relatively small-sized landform. *Appendix A:* Figure 2*, Appendix B:* Photo 8*, Appendix D:* Stratigraphy Log					
STL	**AOA Polygon**	**Dimensions (L x W)**	**Subsurface Tests**		
			Total	**Positive**	**Negative**
STL 15 2017	C38-16	±30 m (N-S) x 30 m (E-W)	ST: 20 TT: 1	ST: 3 TT: 0	ST: 17 TT: 1
Results: DkPr-37 (new)					
Description: A small, gently sloping (3-4°) to relatively level terrace situated immediately west of a wetland (Black Creek drainage) and along the north-northeastern base of a very prominent north-south trending ridge along the eastern side of the Elk River valley. Shovel tests were excavated judgmentally at 3-6 m intervals and avoided natural constraints (*i.e.* protruding root systems, dense portions of the tree stand, and dead fall); this did form a grid like inspection pattern, but was not implemented over the entirety of the landform. Three shovel tests contained lithic artifacts (n=4) and resulted in the recording of site DkPr-37. A number of game trails converge in the locality of the STL and site, and therefore precontact activity may be associated with ambush-style hunting practices. The inspection of this locality and site DkPr-37 should be considered provisional; subsurface inspection was terminated due to the proximity to the initially proposed disturbance footprint (railway spur [*ca*. 2017]) and the Proponent's subsequent shift to the mine plan precluded a return to the locality to continue inspection of this STL and site DkPr-37. *Appendix A:* Figures 2 & 3*, Appendix C:* Site Information (Figure 10)*, Appendix D:* Stratigraphy Log					
STL	**AOA Polygon**	**Dimensions (L x W)**	**Subsurface Tests**		
			Total	**Positive**	**Negative**
STL 16 (2017)	C38-16	±60 m (NW-SE) x 20 m (NE-SW)	ST: 22 TT: 5	ST: 2 TT: 1	ST: 20 TT: 4
Results: DkPr-38 (new)					
Description: A small, low elevation rounded-profile ridge, located immediately west of and ±2 m above a wetland (Black Creek drainage). This STL is northeast of a relict drainage/draw that descends to the west-northwest and physically separates it from STL 14 (above). Shovel tests were excavated judgementally at ±5 intervals to avoid ground constraints (*i.e.* mechanically-excavated berm, previously bladed ground [*i.e.* no fine sediment cap remained], and dead fall). Two shovel tests and one tree throw contained lithic artifacts (n=3) which resulted in the recording of site DkPr-38. Similar to STL 14 (and site DkPr-37), a number of game trails converge in this locality, and therefore precontact activity may be associated with ambush-style hunting practices. The inspection of this locality and site DkPr-38 should be considered provisional; subsurface inspection was terminated due to the proximity to the initially proposed disturbance footprint (railway spur [*ca*. 2017]) and the Proponent's subsequent shift to the mine plan precluded a return to the locality to continue inspection of this STL and site DkPr-38. *Appendix A:* Figures 2 & 3*, Appendix C:* Site Information (Figure 11)*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 17 (2019)	C38-15	±25 m (N-S) x 15 m (E-W)	ST: 12	ST: 0	ST: 12
Results: Negative					
Description: Two adjacently located benches with level to gently sloping (3-5°) treads that are east of a low-lying wetland area along relict/seasonal drainage that slopes westward. The timber stand within and adjacent to this STL has been previously harvested (*ca*. 2010s), and partially overgrown ground disturbance was identified throughout (*e.g*. stumps, furrows, and push piles). Shovel tests were judgmentally excavated at 5-7 m intervals to avoiding ground constraints, and formed a grid like pattern over the level portions of the STL.					
Appendix A: Figure 2*, Appendix B:* Photo 9*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 18 (2019)	C38-15	±30 m (N-S) x 20 m (E-W)	ST: 17	ST: 0	ST: 17
Results: Negative					
Description: Small, north-south trending bench with a level tread and situated at the base of a steep scarp that ascends northward. The bench is approximately 1 m above relatively wet (*i.e.* poorly drained) terrain that is present to the east, south, and west. Shovel tests were excavated judgementally at 4-7 m intervals and formed a grid like pattern.					
Appendix A: Figure 2*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 19 (2019)	C38-16	±60 m (N-S) x 30 m (E-W)	ST: 30	ST: 0	ST: 30
Results: Negative					
Description: North-south trending terrace that blends into an elongated northeast-southwest trending bedrock knoll that are both situated to the west of and ±4 m above a seasonal / relict drainage. Shovel tests were excavated at 5-7 m intervals and placed judgementally to avoid deadfall and exposed bedrock, which generally formed two north-south trending transects.					
Appendix A: Figure 2*, Appendix B:* Photo 10*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 20 (2019)	C38-15	±20 m (E-W) x 12 m (N-S)	ST: 8	ST: 0	ST: 8
Results: Negative					
Description: A small, east-west trending, semi-level (2-5°) slope-break bench that is situated to the east of a minor draw that slopes southward. The locality of the STL has been previously harvested (*ca*. 2010s), and minor surficial disturbance was observed throughout. Shovel tests were excavated judgementally at 5-7 m intervals, covering the most level portion of the landform and avoiding deadfall.					
Appendix A: Figure 2*, Appendix B:* Photo 11*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 21 (2019)	C38-15	±100 m (N-S) x 10 m (E-W)	ST: 20	ST: 0	ST: 20
Results: Negative					
Description: A north-south trending bench located west of a relict drainage that descends southward. The STL was focused on two level areas that were physically separated by a moderately sloped (10-15°) portion of the tread. Shovel tests were excavated at 5-7 m intervals in two transects that paralleled and were within 10 m of the margin; some shovel tests were abandoned due to the presence of standing dead danger trees that posed a hazard to the field crew.					
Appendix A: Figure 2*, Appendix B:* Photo 12*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 22 (2019)	C38-16	±20 m (N-S) x 20 m (E-W)	ST: 15 TT: 2	ST: 3 TT: 1	ST: 12 TT: 1

Results: DlPr-81 (new)

Description: A small, rounded-profile knoll defined by steeply sloping scarp in all directions and situated within moderately undulating terrain that descends westward. The crest of the knoll is ±4 m above the surrounding terrain and provides a good viewshed of the surrounding landscape. Shovel tests were judgementally excavated at 2-5 m intervals to form a grid like pattern while avoiding deadfall. Three shovel tests and one tree throw contained lithic artifacts (n=9) and resulted in the recording of site DlPr-81.

Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figure 17), *Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 23 (2019)	C38-16	±45 m (NE-SW) x 20 m (NW-SE)	ST: 25	ST: 0	ST: 25

Results: Negative

Description: An elongated, rounded-profile knoll and an adjacently located bench within moderately undulating landscape that generally descends westward. The timber stand within and adjacent to this STL has been previously harvested (*ca*. 2010s), and partially overgrown ground disturbance was identified throughout (*e.g*. stumps, furrows, and push piles). Shovel tests were judgmentally excavated at 5-7 m intervals, avoiding ground constraints, and formed a grid like pattern over the level portions of the STL.

Appendix A: Figures 2*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 24 (2019)	C38-15	30 m (NW-SE) x 10 m (NE-SW)	ST: 12	ST: 0	ST: 12

Results: Negative

Description: A level portion of a relatively low terrace along the southern side and ±2 m above a seasonal drainage that descends to the northwest. Shovel tests were excavated systematically at 5 m intervals (avoiding deadfall) in two transects that paralleled and were ≤10 m of the margin.

Appendix A: Figure 2*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 25 (2019)	C38-15	75 m (NW-SE) x 25 m (N-S)	ST: 46	ST: 2	ST: 44

Results: DlPr-80 (new)

Description: The eastern terminus of a west-northwest to east-southeast trending terrace level that is north of Littlemoor Creek, and west of its confluence area with a tributary. The tread of the terrace is level in the east, but becomes gently sloping (2-5°) as shovel testing continued westward. The landform has been subject to previous timber harvest (*ca*. 2000s), and some surficial disturbance was observed throughout. The dilapidated remains of a log cabin are present in the eastern portion of the STL, and this area connected with an incised guiding trail that paralleled the terrace margin. Shovel tests were excavated at 3-5 m intervals and formed a grid like pattern in the east, narrowing to two transects that paralleled and were within 15 m of the terrace margin to the west. One shovel test contained lithic artifacts (n=2) and one shovel test contained fragmentary faunal remains (n=15), which resulted in the recording of site DlPr-80.

Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figure 16), *Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 26 (2019)	C38-15	20 m x 10 m	ST: 7	ST: 0	ST: 7
Results: Negative					
Description: A low rocky knoll/ridge overlooking a level to gently undulating plain that has been subject to previous logging and replanting (*ca*. 1990-2000s). Shovel tests were excavated judgementally at 5-7 m intervals in two offset transects.					
Appendix A: Figure 2*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 27 (2017)	C38-14 & C38-15	±30 m (NE-SW) x 20 m (N-S)	ST: 14	ST: 3	ST: 11
Results: DlPr-8 (update)					
Description: Western terminus of a southwest-northeastern trending terraced margin approximately 3-4 m above and overlooking the grassland area of Grave Prairie to the north-northwest. Provisional shovel testing was implemented, with tests judgementally excavated at 4-5 m intervals in a grid like pattern to cover the level tread; three shovel tests contained lithic artifacts (n=4) and contributed to a substantial update to site DlPr-8.					
To the north of this STL, the update to DlPr-8 involved an in-field discussion with W.T. Choquette (original recorder) to review attributes of suspected burials (Section 6.2 [above]) within what is now delineated as Polygons A and B of site DlPr-8. Subsequently, a judgmental survey was then conducted throughout the eastern portion of the grassland area that overlapped or infringed upon the conceptual mine plan (*ca*. 2017), which was followed by a visual inspection of peripheral terrain. Approximately 64 mounds were identified to the west of the railway tracks (site Polygon A), and 31 mounds were identified along the eastern side of the railway tracks (site Polygon B). Two isolated mounds (site Polygons D & E) were identified along the southern margin of a relict drainage route that is west of Valley Road. These totals should be considered provisional and is not an exhaustive tally for burial mounds in this locality.					
As discussed, and agreed upon by assigned and in-house First Nations representatives and with administrative positions within the KNC and the SIB, no form of archaeological inspection was conducted in the vicinity of suspected burial mounds within site DlPr-8. Due to the presence and suspected distribution of the burial mounds, the Proponent revised the mine plan and shifted the loadout facility and railway spur/loadout area to the south-southeast (see Figure 2); this precluded revisitation of the site locality to continue the archaeological inspection.					
Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figures 13 - 15), *Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 28 (2017)	C38-15	±230 m (NE-SW) x 20 m (WNW-ESE)	ST: 61 TT: 2	ST: 18 TT: 0	ST: 43 TT: 2
Results: DlPr-82 Site Polygons E & F (new)					
Description: Prominent, northeast-southeastern trending terraced margin approximately 10 m above and overlooking the grassland area of Grave Prairie to the west-northwest. Provisional shovel testing (n=48) was implemented, with tests judgementally excavated at 5 m intervals in two transects that paralleled the margin within 10 m. Additionally, a small rise was subjected to subsurface inspection with shovel tests (n=13) excavated at 3-5 m intervals in a gird like pattern. In total 18 shovel tests contained lithic artifacts (n=31) and contributed to the recording of site DlPr-82.					
The inspection of this locality and site DlPr-82 should be considered provisional; subsurface inspection was terminated due to the proximity to the initially proposed disturbance footprint (railway spur [*ca*. 2017]) and the Proponent's subsequent shift to the mine plan precluded a return to the locality to continue inspection of this STL and site DlPr-82.					
Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figure 18), *Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 29A (2017) DlPr-82 Polygons A	C38-14 & C38-15	±60 m (NE-SW) x 20 m (NW-SE)	ST: 11 TT: 2 RM: 1	ST: 4 TT: 0 RM: 0	ST: 7 TT: 2 RM: 1
STL 29B (2017) DlPr-82 Polygon C	C38-14	±m (NE-SW) m (WNW-ESE)	ST: 13 TT: 2	ST: 1 TT: 1	ST: 12 TT: 1
STL 29C (2017) DlPr-82 Polygon B	C38-14	±15 m (NE-SW) x 5 m (NW-SE)	ST: 7	ST: 1	ST: 6
STL 29D (2017) DlPr-82 Polygon D	C38-14 & C38-15	±80 m (NE-SW) x 20 m (NW-SE)	ST: 32 TT: 2	ST: 5 TT: 2	ST: 27 TT: 0
		STL Totals:	ST: 63 TT: 6 RM: 1	ST: 11 TT: 3 RM: 0	ST: 52 TT: 3 RM: 1

Results: DlPr-82 Site Polygons A-D (new)

Description: STL 29 encompasses level to gently undulating treads and well-defined margins of relatively low elevation benches and terracing along the southern side of Gravel Creek. Contemporary disturbance was identified throughout the STL, and is largely associated with previous logging (*ca*. 1990s – 2000s), and historical settlement (*e.g.* homesteading) is suspected to have occurred in the general locality. Although test areas are relatively close, they were separated during the delineation of site area polygons to define DlPr-82.

STL 29A: A relatively small, discrete bench just below and at the eastern terminus of a northeast-southwest treading terrace margin. Shovel tests were excavated judgementally at 4-6 m intervals that formed a grid like pattern, covering the level tread of the landform. Four shovel tests in the centre of the landform contained lithic artifacts (n=10), and defined Polygon A of site DlPr-82.

STL 29B: Slightly lower-elevation terrace level with a well-defined northeast-southwest trending margin, situated to the southwest of STL 29A. Shovel tests were excavated judgmentally at 4-5 m intervals in a single transect that paralleled and were within 5 m of the margin. One shovel test and one tree throw contained lithic artifacts (n=1) and FAR (n=6), which defined Polygon C of site DlPr-82.

STL 29C: A narrow bench situated to the north-northeast and downslope of the terraced margin described in STL 29B. Shovel tests were excavated judgementally at 3-4 m intervals, which formed a grid like pattern to cover the gently sloped (5°) tread. A single shovel test in the central area of the bench contained lithic artifacts (n=1) and FAR (n=5), which defined Polygon B of site DlPr-82.

STL 29D: Low sloped (2-4°) and gently undulating tread of an extensive terrace level that is occupied by the grassland area of Grave Prairie. Shovel testing commenced as a single transect (4-6 m intervals) that paralleled and was within 5 m of the northeast-southwest trending margin, supplemented with perpendicular transects in proximity to positive shovel tests. Five shovel tests and two tree-throws contained lithic artifacts (n=4) and FAR (n=6), which defined Polygon D of site DlPr-82.

The inspection of this locality and site DlPr-82 should be considered provisional; subsurface inspection was terminated due to the proximity to the initially proposed disturbance footprint (railway spur [*ca*. 2017]) and the Proponent's subsequent shift to the mine plan precluded a return to the locality to continue inspection of this STL and site DlPr-82.

Appendix A: Figures 2 & 3*, Appendix C:* Site Information (Figure 18)*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
STL 30 (2017)	C38-14	±15 m (NE-SW) x 5 m (NW-SE)	ST: 5	ST: 0	ST: 5
Results: Negative					
Description: A remnant of a low elevation terrace level that is northward and downslope of STL 28 and situated immediately south of Grave Creek. The vast majority of the terrace tread appears to have been subject to cultivating or a form of mechanical leveling (*i.e.* windrows, push piles and an old road) to facilitate an old (now overgrown) road grade down to a suitable fording location through Grave Creek. While a surface inspection was conducted on fortuitous exposures through this locality, shovel testing focussed on a remnant portion of the terrace tread (closest to the creek) where the ground surface did not appear to be detrimentally impacted. Shovel tests were excavated judgmentally in a single transect at 3-4 m intervals. Four of the five shovel tests excavated revealed that the topsoil had been previously removed. *Appendix A:* Figure 2*, Appendix B:* Photo 13*, Appendix D:* Stratigraphy Log					
STL	**AOA Polygon**	**Dimensions (L x W)**	**Subsurface Tests**		
			Total	**Positive**	**Negative**
STL 31 (2017)	C38-14	±30 m x 30 m	ST: 14 TT: 3	ST: 0 TT: 0	ST: 14 TT: 3
Results: Negative					
Description: A low terrace/bench situated within the secondary floodplain of the Grave Creek drainage. Although the locality of the STL was identified as being recently deposited, inspection was implemented to confirm and inform future inspections conducted for the Project. Fourteen shovel tests were excavated judgmentally at 3-6 m intervals, avoiding deadfall and dense stands of timber, to cover the moderately undulating tread; this was supplemented by the inspection of three tree throws. The majority of the shovel tests revealed that no fine sediment was present, with the stratigraphic profiles comprised of a litter mat and organic materials overlaying river cobbles. Where a fine sediment cap was observed, it was comprised of sandy-gravel, with no indication of soil development. *Appendix A:* Figure 2*, Appendix B:* Photo 14*, Appendix D:* Stratigraphy Log					

7. ARCHAEOLOGICAL SITE SUMMARIES

7.A	*Borden No.*	**DkPr-12**	*7.A1*	*New/Revisited:*	Revisited - Updated
7.A2	*Site Type:*		Precontact, Cultural Material, Surface Lithics, Faunal and Fire-Altered Rock and Petroform (Cairn)		
7.A3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.5 km southwest of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.A4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.A5	*Significance Evaluation:*		**Scientific:** *Moderate - High* The site, originally recorded in 1973, was not encompassed by the mine plan (*ca*. 2015 – 2019) but was updated under the Permit to ensure that its location was accurate on the provincial archaeological database and detrimental impacts could be predicted should the Project's development footprint be revised in the future. The site occupies a relatively prominent, erosional margin of a low to mid-elevation terrace level (±1180 m asl) that defines the southern portion of a relatively expansive grassland. The locality of the site is suggestive of seasonal precontact occupation and based on		

		the artifact assemblage is suspect to be associated with ungulate hunting and seasonal resource procurement. Although subsurface inspection was not implemented within the site under the Permit, a total of 27 lithic artifacts and one faunal specimen were recovered. The collected artifact assemblage is comprised of siliceous mudstone (n=21) and siltstone (n=4), quartzite (n=1), and Top of the World chert (n=1), all of which can be procured within a 50 km radius of the site and represents a local procurement pattern. While an abundance of FAR was observed within fortuitous exposures, quantification of this artifact type was not completed, and all documented specimens were left *in situ* to prevent any contribution to the erosion via ungulates utilizing the scarp as a mineral lick. The relatively robust bone fragment that was recovered is suggestive of a long bone fragment from large ungulate, which could easily have belonged to a bison or elk. Should future analysis of the bone fragment or inspection of the site indicate procurement of bison, it would support the presence of a resident herd in the Elk Valley prior to the Little Ice Age. The petroform observed in 1973 was relocated within the northern portion of the site, but no longer had the appearance of a cairn. Future inspection of this site, including shovel and/or evaluative testing, would establish a vertical context for precontact artifacts and address the condition and function of the petroform. The presence of organic material also increases the potential for recovery artifacts that may be suitable for radiometric analysis. The collected artifact assemblage suggests the locality of the site contains a rich precontact cultural deposit, and further inspection/investigation of this site would undoubtedly contribute to the understanding of Grave Prairie and within the regional archaeological inventory. **Public*:*** *Moderate* While the site is situated on privately-owned property, access into the locality of the site is open to the public, even if/when the Project was to be implemented. Natural attributes of the site would potentially allow visitors to encounter and handle exposed artifacts that would facilitate a discussion on the procurement of preferred raw lithic materials, typical artifact types, and a relative age of occupation. Natural attributes within the surrounding landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.

7.B	*Borden No.*	**DkPr-13**	*7.B1*	*New/Revisited:*	Revisited - Updated
7.B2	*Site Type:*		Precontact, Cultural Material, Surface Lithics and Fire-Altered Rock		
7.B3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.5 km southwest of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		

7.B4	*Management Recommendations:*	Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).
7.B5	*Significance Evaluation:*	**Scientific:** *Low - Moderate* The site, originally recorded in 1973, was not encompassed by the mine plan (*ca*. 2015 – 2019) but was updated under the Permit to ensure that its location was accurate on the provincial archaeological database and detrimental impacts could be predicted should the Project's development footprint be revised in the future. The site occupies a small portion of a relatively expansive terrace level (±1180 m asl) that defines the southern portion of the grassland area of Grave Prairie. The locality of the site is suggestive of seasonal precontact occupation and based on the artifact assemblage is suspect to be associated with ungulate hunting and seasonal resource procurement. Although subsurface inspection was not implemented within the site under the Permit, a total of 5 lithic artifacts were salvaged from surficial exposures that were threatened by damage or unlawful collection by recreational users. The collected artifact assemblage is comprised of utilized or retouched spalls of sandstone (n=4) and a single flake fragment of black tourmalinite. Although the sandstone is ambiguous for an exact source and can be locally procured, the presence of tourmalinite indicates a north-easterly travel (or trade) direction up the Elk River valley from the Rocky Mountain Trench and the eastern slopes of the Purcell Mountains where the material is known to outcrop from the Aldridge Formation. Future inspection of this site, including shovel and/or evaluative testing, would establish a vertical context for precontact artifact assemblage and would undoubtedly contribute to the understanding of Grave Prairie and within the regional archaeological inventory. **Public***: Low- Moderate* While the site is situated on privately-owned property, access into the locality of the site is open to public visitation, even if/when the Project was to be implemented. Natural attributes of the site would potentially allow visitors to encounter and handle exposed artifacts that would facilitate a discussion on the procurement of preferred raw lithic materials, typical artifact types, and a relative age of occupation. Natural attributes within the surrounding landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.

7.C	*Borden No.*	**DkPr-18**	*7.C1*	*New/Revisited:*	Revisited - Updated
7.C2	*Site Type:*		Precontact / Historical, Human Remains (Burial)		
7.C3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.2 km east-southeast of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.C4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.C5	*Significance Evaluation:*		**Scientific:** *Low* Original recording of the site as a "probable burial" occurred in 1973 based on a description of an earthen mound surrounded by upright wooden pegs from an informant (Mr. E. De Paoli of Kimberley); an archaeological inspection to confirm or refute this site type, along with determining an era for the burial (*e.g.* precontact or historical) has yet to be completed. Although a definite location for the site has never been truly established, the previously projected site area on the provincial data base was evidently incorrect and did not correspond to the locality described on the site form or illustrated on the 1973 site map. Therefore, DkPr-18 was precautionarily updated under the Permit to ensure that its relative location was accurate and detrimental impacts could be predicted should the Project's development footprint be revised in the future. While the site is of increased cultural significance, there is no artifact assemblage or contextual information to contribute to scientific evaluation and interpretation. **Public***: Low* While the relative location of the site is situated on privately-owned property, pedestrian access into the general locality of the site is possible for the public; this could be constrained if/when the Project is implemented. Natural attributes of the general locality of the site would potentially allow visitors to view a relatively undeveloped area of the Elk river valley and envision a precontact landscape, but unsupervised visitation may increase the potential for unethical activity. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites, especially those that contain ancestral remains, have *high* cultural significance. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the general locality of the provisionally updated site area. **Historical:** *Low* A historical component associated with this site has not been identified; if the reported burial is confirmed to be from the historical era (post-dating A.D. 1846) this evaluation will require a revision.		

7.D	*Borden No.*	**DkPr-34**	*7.D1*	*New/Revisited:*	New
7.D2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics and Fire-Altered Rock		
7.D3	*Impact Assessment:*		Although the multi-polygon site is within the study area of the Permit, it is located approximately 1.5 km southwest of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.D4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.D5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* Due to the evolution of the Project's development footprint, the currently defined site areas should be considered provisional. The locality has been previously impacted during the construction of the Canadian Pacific Railway (CPR) Fording River Branch Line, which both truncated and bisected portions of an extensive terrace level, and future inspection is required to the west of the north-south trending railway to ensure that scientific information is obtained to fully interpret the site. The inspection of the site under the Permit resulted in the collection of 19 lithics artifacts that are comprised of five different raw lithic material types, all of which indicate local procurement strategies. The presence of utilized flakes, along with fire-altered rock (n=10 [0.7kg]) is suggestive of campsite affiliated with seasonal occupation within the locality of Grave Prairie. **Public***: Low* While the site is situated on privately-owned property, access into the general locality is open to the public, even if/when the Project was to be implemented. Natural attributes within the landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways and a relative occupation sequence for the region but would not further understanding of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.		

7.E	*Borden No.*	**DkPr-35**	*7.E1*	*New/Revisited:*	New
7.E2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics and Fire-Altered Rock		
7.E3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.9 km southwest of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.E4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently		

		issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).
7.E5	*Significance Evaluation:*	**Scientific:** *Low - Moderate* Due to the evolution of the Project's development footprint, the currently defined site area should be considered provisional, and a HAP zone extends northward from the currently delineated site area (based on presence of relatively low-sloped ground). The site occupies a small, benched slope break along the southern side of a prominent north-south trending ridge to the east of the Elk River and provides a southward viewshed. The locality of the site is suggestive of seasonal precontact occupation and based on the artifact assemblage is suspect to be associated with ungulate hunting and seasonal resource procurement. Subsurface inspection resulted in the collection of three lithic artifacts comprised of locally procured raw lithic materials. The small size of the landform, along with the recovery of one utilized flake and fire-altered rock (n=4 [1.8 kg]) is suggestive that the site is associated with ancillary activity during seasonal occupation within the locality of Grave Prairie. Further inspection of this site and the surrounding landscape is required. **Public***: Low* While the site is situated on privately-owned property, access into the general locality is open to the public, even if/when the Project was to be implemented. Natural attributes within the landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways and a relative occupation sequence for the region but would not further understanding of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.

7.F	*Borden No.*	**DkPr-36**	*7.F1*	*New/Revisited:*	New
7.F2	*Site Type:*		Precontact, Cultural Material, Surface Lithics		
7.F3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.8 km south of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.F4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.F5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* Due to the evolution of the Project's development footprint, the currently defined site area should be considered provisional, and a linear HAP zone (defined by the crest of a prominent north-south trending ridge) encompasses the provisional site area. The location of the site offers a		

		vantage point and viewshed of the Elk River valley to the south. Subsurface inspection was not conducted, and the artifact assemblage entirely consists of sandstone spalls that contain use wear that suggests a specific activity occurred in this locality, of which is currently unknown. Future inspection of this site and the surrounding terrain is required, which may revise the current scientific evaluation. **Public*:*** *Low* While the site is situated on privately-owned property, pedestrian access into the general locality is open to the public, even if/when the Project was to be implemented. Natural attributes within the landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways but would not further understanding of this site as it is currently interpreted. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.

7.G	*Borden No.*	**DkPr-37**	*7.G1*	*New/Revisited:*	New
7.G2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.G3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.5 km south of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.G4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.G5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* Due to the evolution of the Project's development footprint, the currently defined site area should be considered provisional, and a HAP zone encompassed the locality of the site. The convergence of multiple game trails (*i.e.* routes of least resistance) influenced by attributes of the landscape in the vicinity of this site, along with DkPr-38 (below), suggest that precontact activity was associated with hunting activity, potentially involving ambush tactics. Preliminary level subsurface inspection within this area resulted in the collection of four lithic artifacts comprised of siliceous mudstone, which is procured locally. Further inspection of this site and the surrounding landscape is required to confirm the function of the site, which may revise the current scientific evaluation. **Public*:*** *Low* While the site is situated on privately-owned property, access into the general locality is open to the public, even if/when the Project was to be implemented. Natural attributes within the landscape would facilitate a		

		discussion regarding geomorphological processes that influenced precontact lifeways but would not further understanding of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.

7.H	*Borden No.*	**DkPr-38**	*7.H1*	*New/Revisited:*	New
7.H2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.H3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 0.4 km south of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.H4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.H5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* Due to the evolution of the Project's development footprint, the currently defined site area should be considered provisional, and a HAP zone encompasses the locality of the site. The convergence of multiple game trails (*i.e.* routes of least resistance) influenced by attributes of the landscape in the vicinity of this site, along with DkPr-37 (above), suggest that precontact activity was associated with hunting activity, potentially involving ambush tactics. Preliminary level subsurface inspection within this area resulted in the collection of three lithic artifacts comprised of siliceous mudstone, which is procured locally. Further inspection of this site and the surrounding landscape is required to confirm the function of the site, which may revise the current scientific evaluation. **Public***: Low* While the site is situated on privately-owned property, access into the general locality is open to the public, even if/when the Project was to be implemented. Natural attributes within the landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways but would not further understanding of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.		

7.I	*Borden No.*	**DkPr-39**	*7.I1*	*New/Revisited:*	New
7.I2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.I3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 1.0 km southwest of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.I4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.I5	*Significance Evaluation:*		**Scientific:** *Low – Moderate* The locality of the site has been previously impacted during the construction of the CPR Fording River Branch Line, which truncated the western portion of the site; therefore, interpretation of what the site once was is constrained, but its proximity to the Elk River is suggestive of repetitive use and occupation of the relatively small knoll in an undulating portion of the landscape. The inspection of the site under the Permit resulted in the collection of 21 lithics artifacts, all of which are comprised of siliceous mudstone that can be procured locally. The presence of utilized flakes (n=6) is suggestive of a transient campsite affiliated with the seasonal occupation within the locality of Grave Prairie. **Public***: Low* While the site is situated on privately-owned property, access into the general locality is open to the public, even if/when the Project was to be implemented. Natural attributes within the landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways but would not further understanding of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.		

7.J	*Borden No.*	**DlPr-8**	*7.J1*	*New/Revisited:*	Revisited - Updated
7.J2	*Site Type:*		Precontact, Cultural Material, Surface/Subsurface Lithics Precontact, Human Remains (burial mounds)		
7.J3	*Impact Assessment:*		The site is within the study area of the Permit and a linear segment of the Phase I mine plan (*i.e.* access road from Valley Road to the Loadout Facility) bisects the central portion of the overall site area, but is currently constrained to a previous disturbance footprint (*i.e.* CPR – Fording Branch Line and the Harmer Siding). As currently defined, direct impacts are not anticipated, but should any refinement (*i.e.* widening of an existing access road) be required, negative impacts may occur to an area that is considered to be void of identified burial mounds.		

7.J4	*Management Recommendations:*	1) Avoidance of the currently delineated site areas; 2) Engage in consultation with the applicable First Nation(s) to develop and implement best practices and protection measures to ensure that the localities that contain burial mounds are secure from direct and indirect impacts; and 3) Should aspects of the mine plan be revised in the future and avoidance of this multi-polygon site be unfeasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (HCA Section 12.2) and Alteration Permit (HCA Section 12.4).
7.A5	*Significance Evaluation:*	**Scientific:** *Moderate - High* The inspection of this site must be considered provisional, with the implementation of subsurface inspection methods prohibited due to the presence of multiple (±96) mounds that are suspected to be and have been tentatively identified as precontact burials. The knowledge and identified presence of burial mounds in this locality resulted in the place name "Grave Prairie". Additionally, interpretation of the site area is constrained by the disturbance footprint incurred by previous industrial development (*i.e*. railway and siding construction and logging); therefore the scientific understanding of the site is currently limited, but could potentially be increased if future inspection and anthropological research is conducted. While currently considered unethical, forensic analysis on remains contained with burial mounds could relay aspects of Indigenous lifeways that may not have been known prior and refine the relative era of this unfortunate event for others to learn from. The current artifact assemblage for the site is solely comprised of lithic artifacts (n=13) that include five different, locally procured raw material types, collected from surficial exposures and a relatively small STL located upslope to the south of the grassland area that contains the burial mounds. It is suspected that a sparse subsurface artifact scatter is present throughout this locality and represents extensive occupation in the Middle Period. Conversely, the burial mounds likely represent an era of occupation during the transition from the Late Period into the proto-historical era. **Public***: Moderate - High* Currently, the locality of Grave Prairie and portions of the site are frequently utilized by recreational enthusiasts due to easy vehicle access and proximity to both the Districts of Sparwood and Elkford. Should Phase I of the mine plan be implemented, public access to the site areas could be constrained due to safety regulations. While installing information signage (*e.g.* kiosks) explaining the history of the locality may further public interest in this site, increased attention may result in detrimental impacts via recreational activity and unethical activity (*e.g.* desecration of burial mounds). Further study and consultation with the applicable First Nation(s) would be required to determine the benefits and drawbacks of informing the public on the contents of the site. **Ethnic:** *High* The presence of multiple burial mounds that are associated with the Michel Prairie Band of the Ktunaxa Nation succumbing to smallpox is evident of an extremely high cultural significance level. **Economic:** *Low*

		Economic opportunities are unlikely to present themselves based on the high cultural sensitivity within the locality of the site. **Historical:** *High* Although the burial mounds within the currently defined site areas would pre-date A.D.1846, the place name and oral history of Grave Prairie represents an unfortunate era in the region's past.

7.K	*Borden No.*	**DlPr-80**	*7.K1*	*New/Revisited:*	New
7.K2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics and Faunal		
7.K3	*Impact Assessment:*		As currently defined, Phase I of the mine plan overlaps with the delineated area of the site. Implementation of the mine plan will result in the destruction of the site under applicable Heritage Permitting, and the assignment of *Legacy Status.*		
7.K4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan; and 2) Should implementation of Phase I of the mine plan occur, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently issued Site Alteration Permit (*HCA* Section 12.4).		
7.K5	*Significance Evaluation:*		**Scientific:** *Low* While the locality of the site appears to be relatively intact, the dilapidated remains of a log cabin, suspected to have been constructed in the mid-20th century, suggest that some surficial disturbance may have occurred, but is now obscured by ground cover vegetation. The context of the site located along a terraced margin near the confluence of minor drainages, and attributes of the artifact assemblage (utilized clast and mandible fragments of a large ungulate) is suggestive of ancillary activity to support larger size campsites in proximity to Grave Creek. While the significance of this site is low, it does contribute to the general understanding of the precontact occupation of the Grave Prairie locality. **Public*:*** *Low* The locality of the site is currently accessible to the general public, but implementation of Phase I of the mine plan will result in restricted access and eventual destruction of the site under applicable Heritage permitting. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on the high cultural sensitivity within the locality of the site. **Historical:** *Low* The dilapidated remains of a log cabin, suspected to have an association with mid-century hunting, guiding and/or recreation activity, are present to the north of the currently delineated site area. Research into the construction and potential ownership of this structure may revise the historical evaluation for this site.		

7L.	*Borden No.*	**DlPr-81**	*7.L1*	*New/Revisited:*	New
7.L2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.L3	*Impact Assessment:*		The site is within the study area of the Permit, and approximately 50 m east of the currently defined development footprint. Although direct impacts to the site are not currently anticipated within the delineated site area, the proximity of the site to the Phase I of the mine plan may result in indirect impacts occurring.		
7.L4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.L5	*Significance Evaluation:*		**Scientific:** *Low* The inspection of the site under the Permit resulted in the collection of nine lithics artifacts, all of which are comprised of locally procured material types (siliceous mudstone and siltstone). The presence of utilized flakes (n=3) is suggestive of an ancillary activity associated with larger camps in proximity to Grave Creek. The condition of the site is relatively good and further inspection may reveal further information regarding the site type and is association with the extensive precontact occupation in the locality of Grave Prairie. **Public*:*** *Low* The locality of the site is currently accessible to the general public, but implementation of Phase I of the mine plan has potential to constrain visitation. Natural attributes within the landscape would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways but would not further understanding of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *N/A* A historical component associated with this site has not been identified.		

7.M	*Borden No.*	**DlPr-82**	*7.M1*	*New/Revisited:*	New
7.M2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics and Fire-Altered Rock		
7.M3	*Impact Assessment:*		Although the site is within the study area of the Permit, it is located approximately 350 m northeast of the currently defined development footprint, and therefore, impacts to the site are not anticipated.		
7.M4	*Management Recommendations:*		Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under concurrently issued Heritage Inspection Permit (*HCA* Section 12.2) and Alteration Permit (*HCA* Section 12.4).		
7.M5	*Significance Evaluation:*		**Scientific:** *High*		

		The general locality of the site is in good condition and the provisional inspection resulted in the recovery of 46 lithic artifacts and 15 (1.2 kg) specimens of fire-altered rock, which is suggestive of a campsite that had extensive use. Within the lithic artifact assemblage is a biface fragment (suspected [Middle Period] projectile point) of obsidian. Analysis conducted by R. Reimer (*ca*. 2019) revealed that the raw obsidian was procured from Yellowstone, Wyoming; this indicates the potential for an extensive trade network (and travel direction) that was most likely influenced by the route of the Columbia River. The site is interpreted as being a seasonal camp within an extensive cultural landscape that spans from Grave Lake (to the east-northeast) and the Elk River (to the west). This site likely has a spatial and temporal connection with sites DlPr-42, DlPr-43, DlPr-46 and DlPr-75 (located to the north and northeast across Grave Creek). This locality, if subjected to systematic archaeological investigation, has great potential for furthering the understanding of precontact occupation throughout the Middle Period within the Kootenay Region **Public*:*** *Low* The locality of the site is currently accessible to the general public, but implementation of Phase I of the mine plan has potential to constrain visitation. Although, the absence of exposed artifacts and features would hinder public interpretation, the relative ease of access and the microtopography present within and adjacent to the site would facilitate a discussion on precontact land use and settlement patterns in the Middle Period. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves in the locality of the site. **Historical:** *Low* A historical component associated with this site has not been identified, but previous agricultural activity, possibly associated with historical occupation (*i.e.* homesteading) is present downslope to the north. Further research is required and may revise the historical evaluation for this site.

8. DISCLOSURE STATEMENT & SIGNATURE

As a result of the archaeological inspections conducted on the evolving Phase I (Railway Loadout facility) development footprint under permit 2015-0098, four archaeological sites were updated (DkPr-12, DkPr-13, DkPr-18, and DlPr-8) and nine precontact archaeological sites were discovered and recorded (DkPr-34, DkPr-35, DkPr-36, DkPr-37, DkPr-38, DkPr-39, DlPr-80, DlPr-81 and DlPr-82).

Subsequent to the conclusion of field work conducted under 2015-0098, the Proponent shifted the Phase I component of the mine plan, and therefore portions of the development footprint have not been subjected to an archaelogical assessment under 2015-0098. Unsurveyed terrain will require a subsuquent archaeologcal inspection under a Section 12.2 Heritage Inspection Permit; some of which was conducted under HIP 2018-0014, but the results of which are not provided within this report.

As currently defined, negative impacts are anticipated to the entiry of site **DlPr-80** (*i.e.* assignment of *Legacy Status*) and indirect impacts may occur to sites **DlPr-8** (Polygon B) and **DlPr-81** based on the proximity of delinated site boundaries to the mine plan. In regards to site **DlPr-80**, further archaeological inspection (*i.e.* shovel testing) and investigation in the form of systematic data recovery (*e.g.* evaluative excavation) could be required under an *HCA* Section 12.2 Permit (Heritage Inspection) prior to the onset of any ground disturbing activity that will require archaeological monitoring and salvage screening under a concurrent *HCA* Section 12.4 Permit (Site Alteration).

Archaeological sites DkPr-12, DkPr-13, DkPr-34, DkPr-35, DkPr-63, DkPr-37, DkPr-38, DkPr-39, and DlPr-82 are not within the currently proposed Phase I development footprint, and therefore, direct impacts to the localities that contain the archaeological sites, or the potential for, are not currently anticipated. Although impacts to pertinent precontact archaeological sites have been provided in Section 7 (above), any revision(s) to the currently proposed mine plan could shift development footprints and result in direct or indirect impacts to the archaeological resources identified within this report. Therefore, the Proponent is to be aware of the location of archaeological sites and the encompassing HAP zones should ground disturbance be required in these areas in the future.

The archaeological assessment, involving a combination of systematic and judgmentally-implemented surface and subsurface inspection techniques, completed on the Phase I development footprint should be considered provisional, and increased potential for isolated precontact cultural material (*e.g.* artifacts) or remnants of features (*e.g.* a hearth or petroform) remains within the locality encompassing Grave Lake, Grave Prairie, and the lower portion of the Grave Creek drainage. Precontact archaeological material associated with sporadic deposition (*e.g.* hunting activity, trail litter or *ad hoc* activity) may not be associated with microtopographic features that are typically identified as archaeologically-salient and therefore remain un-inspected under permit 2015-0098. Additionally, precontact cultural resources, or the potential for, can be obscured by contemporary vegetation stands and/or consealed by overburden deposits that were derived by both anthropogenic activity and natural processes. It is therefore recommended, that the Proponent inform all staff and contractors that archaeological remains in the Province of British Columbia are protected from disturbance, both intentional and inadvertent, by the *Heritage Conservation Act* (RSBC 1996, Chapter 187). In the event that archaeological materials are encountered or suspected the Proponent, employees and contractores are to be aware that:

- All ground disturbance in the immediate vicinity of the suspected find(s) must be suspended at once;
- The Archaeology Branch (Ministry of Forest, Lands, Natural Resource Operations, and Rural Development) be informed, as soon as possible, of the location of the archaeological remains and the nature of the disturbance; and
- Any relevant First Nation communities be promptly informed about particulars of the unanticipated discoveries.

Acceptance of this interim report by the Archaeological Branch, Permitting and Assessment Section acknowledges the partial fulfillment of the terms and conditions of BC Heritage Inspection Permit 2015-0098. Such acceptance does not bring with it an obligation by the BC Archaeology Branch to accept report recommendations as they relate to impact assessments or impact management requirements.

<Original signed by>

Ian Tamasi, *RPCA*
Senior Archaeologist
Pathways Archaeological Consulting

<Original signed by>

Nyomi Sherwin, BA
Archaeologist
Pathways Archaeological Consulting

<Original signed by>

Daniel Heinrichs, BA
Archaeologist
Pathways Archaeological Consulting

9. REFERENCES CITED

BC Law

1996A *Forestry Practices Code of British Columbia*, [RSBC 1996] CHAPTER 159, Queen's Printer, Victoria, Internet access: http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96159_01

1996B *Revised Statues of British Columbia*, Heritage Conservation Act, Chapter 187 Website: http://www.bclaws.ca/Recon/document/ID/freeside/00_96187_01

2004 Forest and Range Practices Act [SBC 2002] CHAPTER 69, Queen's Printer, Victoria, (Effective: Jan. 31, 2004). Internet access: http://www.for.gov.bc.ca/code/legislation.htm

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2012 *Archaeological Overview Assessment of the Crown Mountain Coal Project*, prepared for Jameson Resources, non-published report to inform land management strategies for the development and on file with TMECS.

2004 *Archaeological Overview Assessment of Managed Forest 27*, non-permit report prepared for Tembec Industries British Columbia Division, Kootenay East Region.

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1973 Archaeological Survey in the Middle Elk River Drainage, Southeastern British *Columbia*, Interim Report produced under the subsequently assigned *HCA* permit 1973-0004

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Tamasi, Ian and Lindsey Neill

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Tamasi, Ian, Nyomi Sherwin and Daniel Heinrichs
2020 *Archaeological Impact Assessment of the Crown Mountain Coking Coal Project: Phase III – Mine Site*, interim report produced for NWP Coal Canada Ltd. under *HCA* permit 2015-0098

2021 *Archaeological Impact Assessment of the Crown Mountain Coking Coal Project: Phase II – Transportation Corridor*, interim report produced for NWP Coal Canada Ltd. under *HCA* permit 2015-0098

10. REPORT DISTRIBUTION

Contact	*Affiliation*
Mike Allen	NWP Coal Canada
Eric Forgeng	Archaeology Branch
Nicole Kapell	Ktunaxa Nation Council
Jesse Thomas	Ktunaxa Nation Council
Andrew Malucelli	Shuswap Indian Band
Dwayne Spence	Shuswap Indian Band

11. SHAPE FILES

☒ Study area shape files will be sent to archsiteform@gov.bc.ca

12. APPENDICES

Required:

☒ General Area Map – *Appendix A*
☒ Study Area Map – *Appendix A*
☒ Photo Plate(s) – *Appendix B*

If Applicable:

☒ Detailed Development Map – *Appendix A*
☒ Subsurface Test Log – *Appendix D*
☒ Site Forms, Site Maps and Related Documents - *Appendix C*

Appendix A:
Archaeological Inspection
&
Development Mapping

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coals Project
Phase I – Railway Loadout Facility

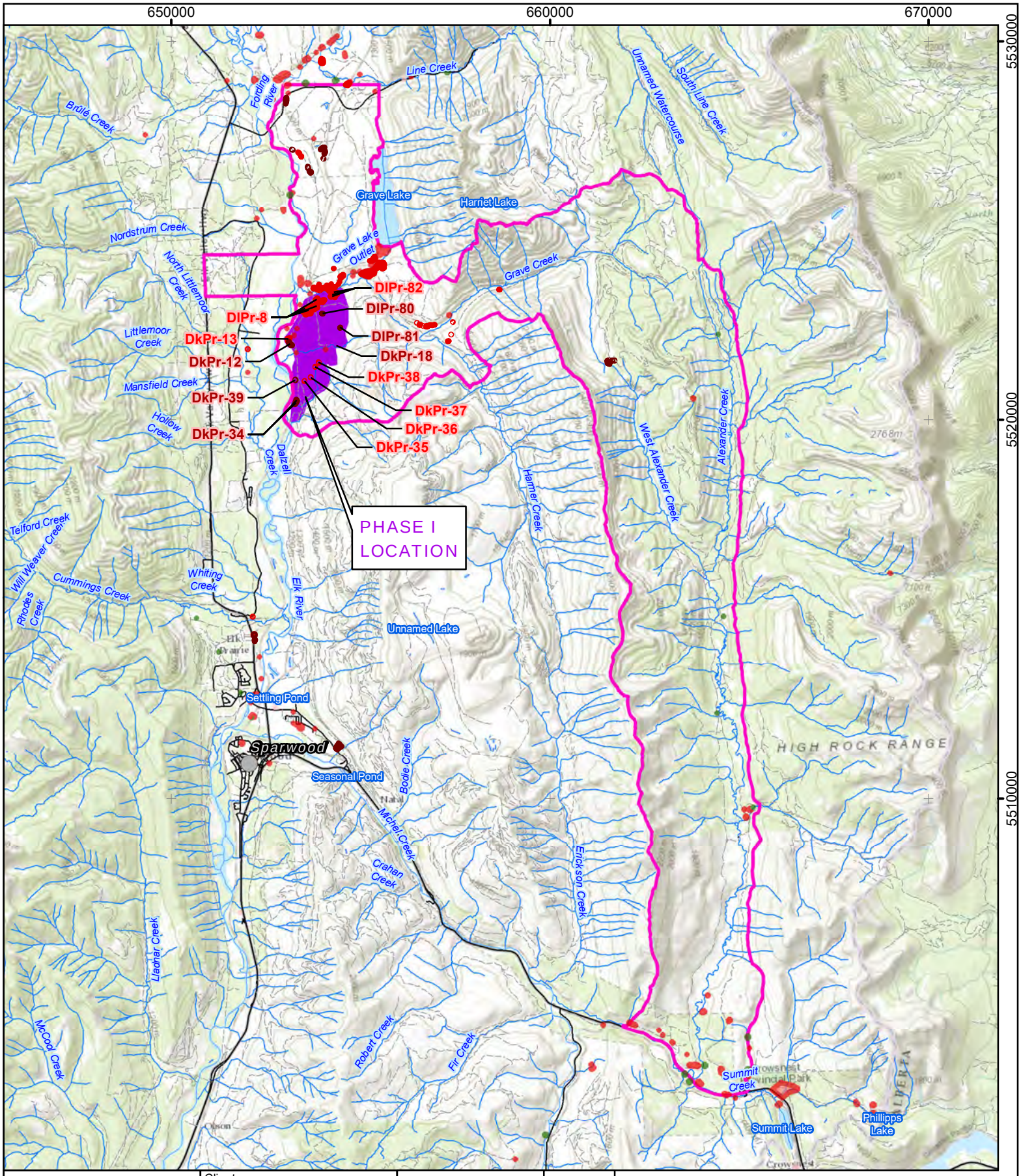


Figure: 1	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098			
Title: 2017-19 AIA Results Overview	Survey Date: 2017-2019		
	Mapping Date: 12/02/2021		
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:130,000 0 1 2 4 Km	INSET 1:40,000,000	

Legend:

- Local Study Area (LSA)
- New Precontact Arch Site Bdry (TMECS 2019)
- New Precontact Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Historical Arch Site Bdry (RAAD 2019)
- Legacy Arch Site Bdry (RAAD 2019)
- Municipality
- Primary Road
- Gravel Road
- River
- Lake
- Water Feature
- Phase I Study Area (TMECS 2017-19)

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

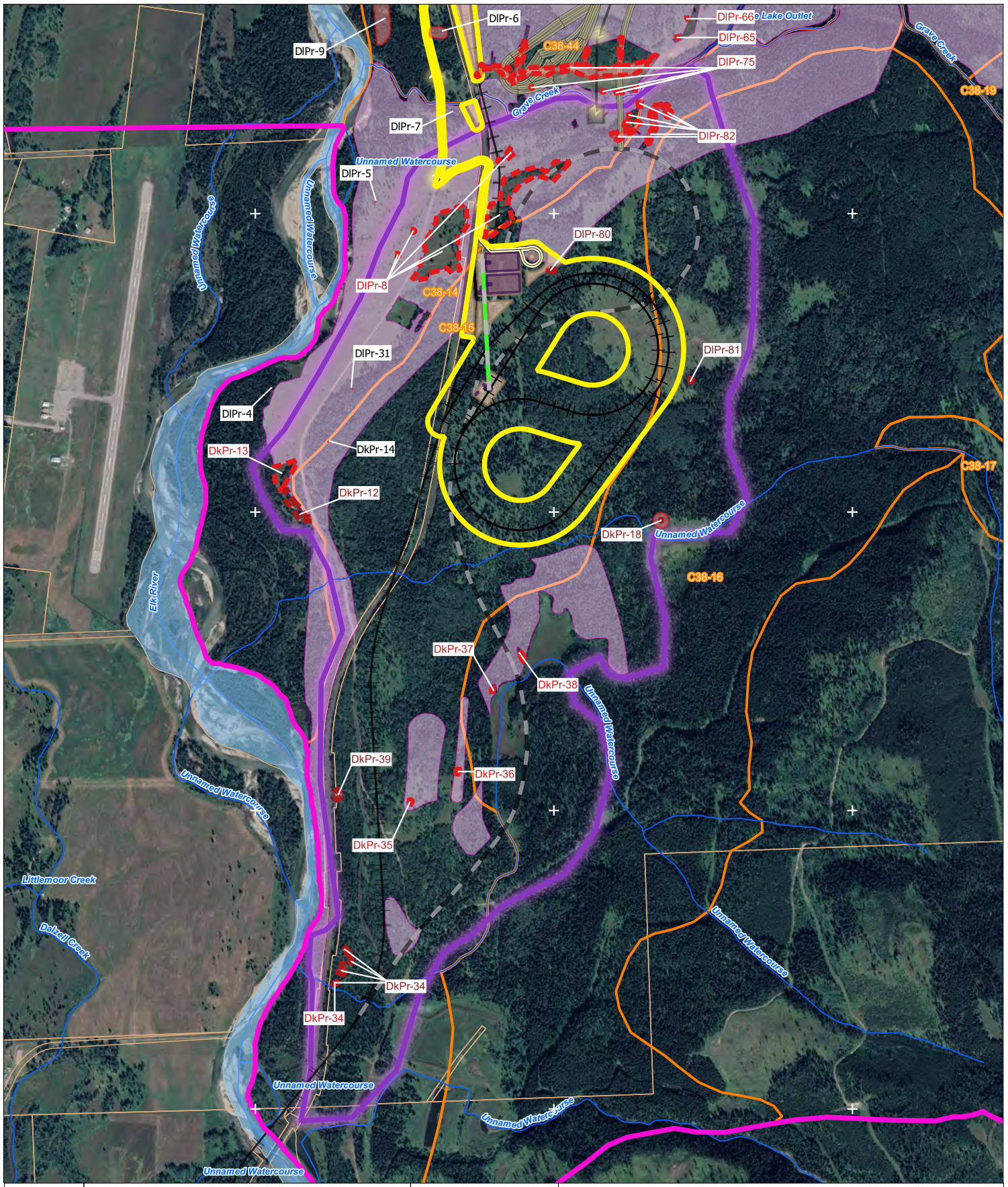


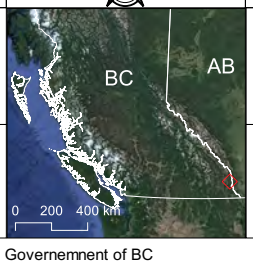
Figure: 2 | 1:17,000 | 0 100 200 300 400 m

Permit: 2015-0098 | Map Sheet: UTM11 - NAD83 - NTS 82G15

Client: NWP Coal Canada

Title:
AIA Results
Phase I
General Location

Project:
Crown Mountain
Phase I
Railway Footprint 2017-19



Mapped by:
Pathways Archaeological Consulting Ltd

Survey Date:
2017-2019

Mapping Date:
17/03/2021

LEGEND

CRM Arch Sites
- Precontact Arch Site Bdry (2019)
- Precontact Arch Site Bdry (2017)

Registered Arch Sites
RAAD Arch Sites (2021)
- Precontact Arch Site Bdry

Revised Client Data
- Local Study Area (LSA)
- Project Footprint (as of 26/10/2020)
- Conveyor
- Rail
- Road Loadout
- Transmission Line
- Structures (2021)
- Other Project Footprints (2021)

Obsolete Client Data
- Haul Road
- Powerline
- Rail Spur
- Railway
- Detailed Building Facilities (2018)

Surveyed Area
- Phase I Study Area (TMECS 2017-19)

Land Features
- River
- Watercourse

AOA
- High Archaeological Potential

Administrative
- Forestry AOA Polygon (Choquette)
- Cadastre (Kootenay)

Basemap
Google Satellite

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

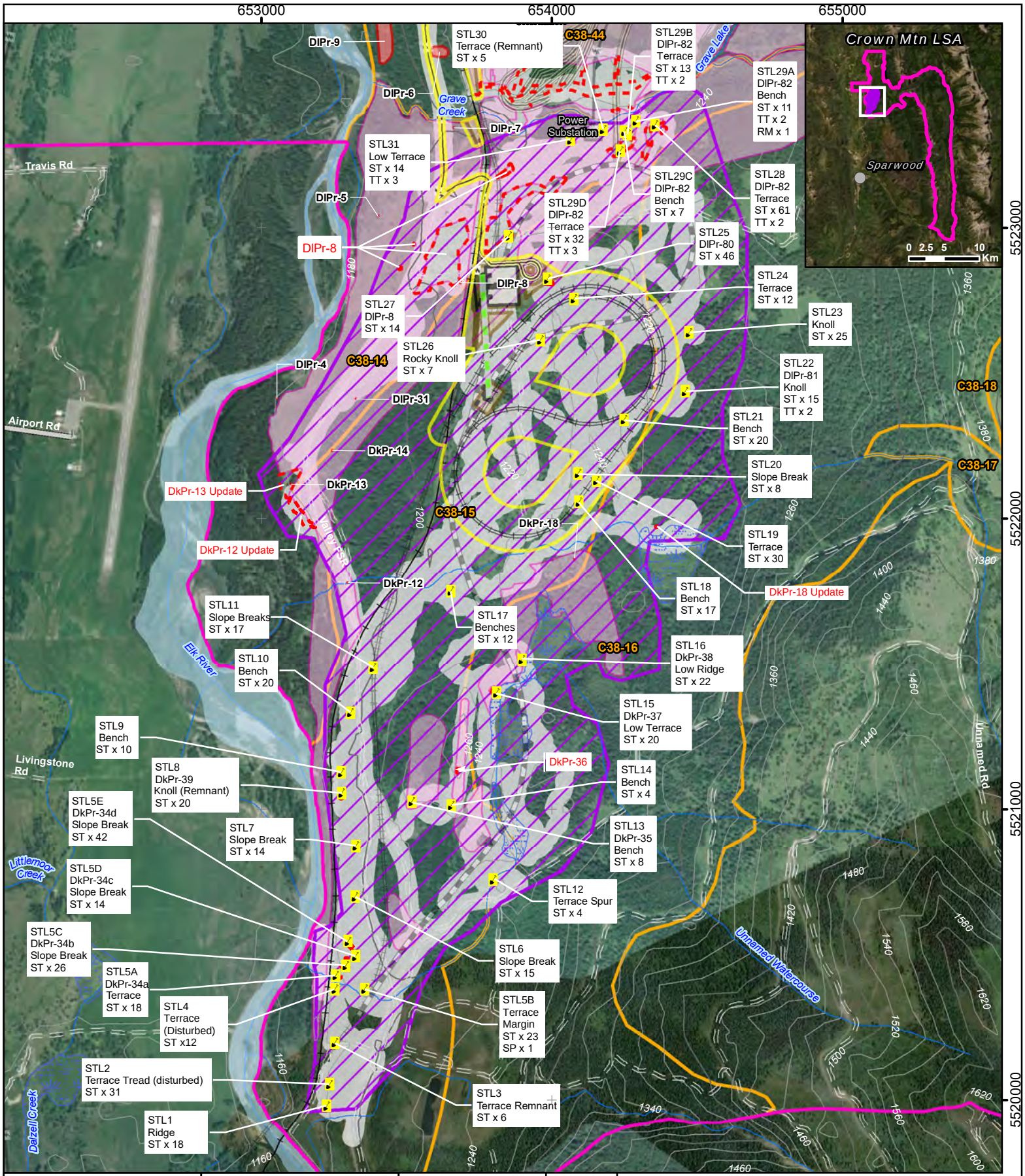


Figure: 3	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098			
Title: AIA Results Phase I Midrange View	2017-2019		
Project: Crown Mountain Phase I Railway Footprint 2017-19	Mapping Date: 12/02/2021		
	0 100 200 400 m 1:17,000	INSET 1:40,000,000	

Legend: Shovel Test Location; Traverse; New Precontact Arch Site Bdry (TMECS 2017-19); Precontact Arch Site Bdry (RAAD 2020); Project Footprint (as of 22/01/2021); Loadout Road; Conveyor; Transmission Line; Rail; Project Structures; Project Polygons; Detailed Building Facilities (2018); Haul Road (obsolete); Powerline (obsolete); Rail Spur (obsolete); Railway (obsolete); Plant and Infrastructure (obsolete); High Arch Potential; Local Study Area (LSA); Primary Road; Gravel Road; Rail Line; Wetland; River; Water Feature; Phase I Study Area (TMECS 2017-19); Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA)

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Appendix B:
Project Photographs

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coals Project
Phase I – Railway Loadout Facility

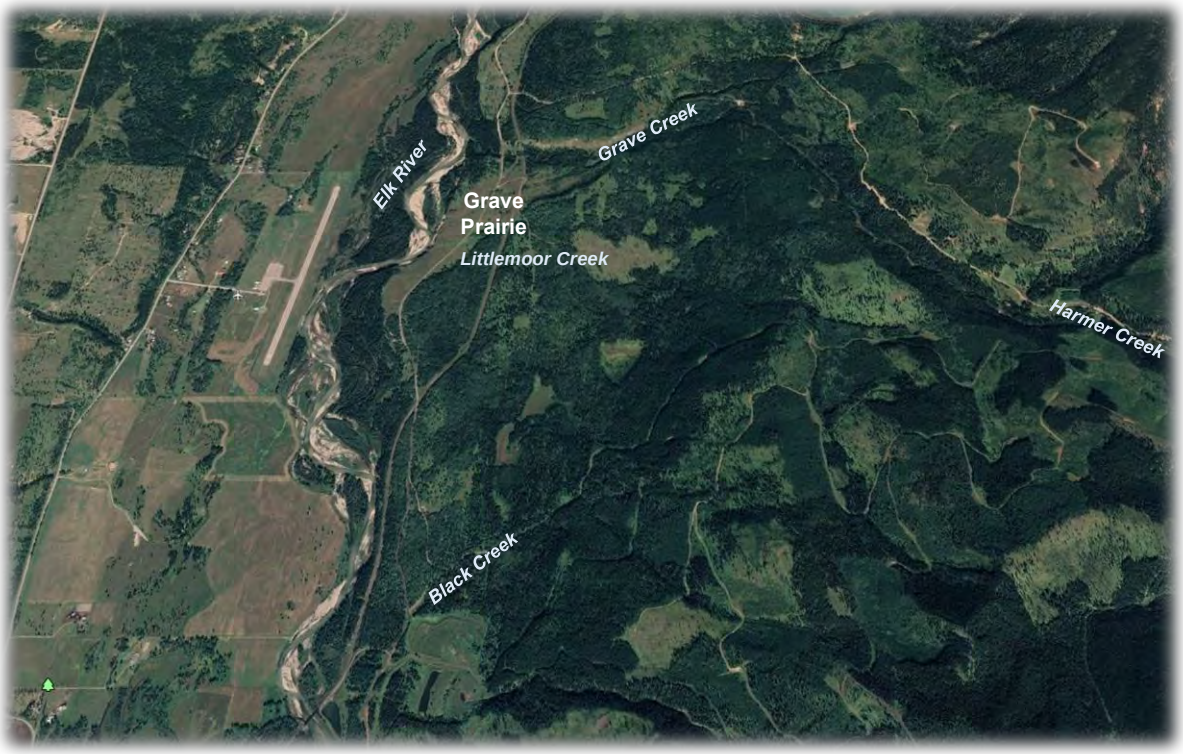


Photo 1. Overview of the regional landscape with attributes that are referenced within the report. (imagery obtained from Google Earth)

Photo 2. STL 1 (AOA polygon C38-15), overview of shovel testing on a narrow, partially truncated ridge situated upslope and north of a settling pond faciality (Teck Coal) and east of the Elk River. (view: west)

Photo 3. STL 2 (AOA polygon C38-15), overview of shovel testing along a truncated terrace level with a mechanically-sculpted margin that is situated upslope and west of the CPR Fording River Branch Line. (view: north-northwest)

Photo 4. STL 3 (AOA polygon C38-15), overview of shovel testing in proximity to a truncated terrace level with a mechanically-sculpted margin that is situated upslope and west of the CPR Fording River Branch Line. (view: north-northwest)

Photo 5. STL 7 (AOA polygon C38-15), overview of shovel testing along a north-south trending slope break (view: west-southwest)

Photo 6. STL 10 (AOA polygon C38-15), overview of shovel testing along a north-south trending bench. (view: north-northwest)

Photo 7. STL 12 (AOA polygon C38-15), overview a southward trending spur of a poorly defined terrace along the western side of Black Creek. (view: north)

Photo 8. STL 14 (AOA polygon C38-15), overview of a shovel testing being conducted on the tread of a small bench that is within consistent slope that ascends northward to the crest of a prominent north-south trending ridge. (view: north)

Photo 9. STL 17 (AOA polygon C38-15), overview of one of the benches inspected and situated within previously harvested terrain. (view: north)

Photo 10. STL 19 (AOA polygon C38-15), overview of the level tread of a north-south trending terrace that blends into a rocky ridge. (view: northeast)

Photo 11. STL 20 (AOA polygon C38-15), overview shovel testing along an east-west trending, semi-level slope break bench that is to the east of a draw that slopes southward. (view: north-northwest)

Photo 12. STL 21 (AOA polygon C38-15), overview of the faint margin of a north-south trending bench. (view: northwest)

Photo 13. STL 30 (AOA polygon C38-14), overview of shovel testing a remnant, previously suspected intact portion of low elevation terrace to the south of Grave Creek. (view: northeast)

Photo 14. STL 31 (AOA polygon C38-14), overview of shovel testing a low elevation terrace within the secondary floodplain of and to the south of Grave Creek. (view: east)

Appendix C:
Archaeological Site Information

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coals Project
Phase I – Railway Loadout Facility

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DkPr-12**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653136** Northing: **5522015**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/09/24**
Site Visit Type: **Surface Collection**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (October 04, 2017 and September 24, 2019)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Dan Heinrichs [TMECS], Nyomi Sherwin [TMECS]**	**Y☒ N☐**
Field Supervisor(s)	**Lara McFadden (TMECS), Joshua Martin (Shuswap Indian Band and TMECS)**	**Y**
Other	**Jesse Thomas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS & KNC)** **Jeff Williams (TMECS & KNC)** **Marshall Ezelle (TMECS)** **Mathias Ladd (TMECS)** **Denise Walker (TMECS & KNC)** **Frankie Alexander (KNC)** **Nick Johnson (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**Faunal**
Precontact	**Cultural Material**	**Surface**	**Fire-Altered Rock**
Precontact	**Other Feature**	**Petroform**	**Cairn**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**27 lithics artifacts of three (n=3) lithic materials (Top of the World chert, siliceous mudstone, and quartzite) were collected, see artifact catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**
Floral/Faunal Remai	**Collected**	**Medial fragment of a long bone belonging to a large ungulate (Bison or Elk); see artifact catalogue for details.**	**KNRR**
FAR	**Observed**	**Multiple specimens of FAR were observed along scarp in 2017 and 2019; some of which may have been recorded twice. FAR was not quantified, and left in place (in situ) to prevent contributing to erosion.**	**N/A**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **135 m** Direction **NW-SE**
Width: **36 m** Direction **NE-SW**

Site Boundary Type: **Natural, Observed, Arbitrary**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):
Site boundaries supplement those previously submitted as an updated under permit 2014-0067, which delineated utilizing attributes that were illustrated on 1973 site map; original boundary appears natural (terrace margin), observed (terrace tread buffered from margin), and arbitrary (disturbance from sediment excavation along Valley Rd) to the SSE. Updated boundary (2015-0098) includes an observed boundary (5 m radial buffer) from annually-exposed artifacts.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **0 m** Maximum **unknown m**

Stratigraphy Description: **Subsurface inspection was not conducted under 2015-0098. In general, a light to medium greyish-brown coloured fine sediment cap (variable silt and sand content) is present and exposed along the terrace margin and scarp; estimated at 0.5 m in depth and overlies gravel and/or till.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Collection and/or documentation of exposed artifacts occurred; no subsurface inspection occurred within the site under permit 2015-0098.**
Ongoing	**Erosion**	**Significant erosion (slumping and slope wash) along the margin and scape, exposing the fine sediment cap and the unconsolidated mantle of gravel and/or till.**
Ongoing	**Grazing**	**Trampling and gradual undercutting of fine sediment cap, and contribution to slope wash by ungulates utilizing margin and scarp exposures as a mineral lick.**

14. ENVIRONMENT

Lower Elevation **1176 m** (asl) Upper Elevation **1180 m** (asl)
Elevation Comments: **Elevations for the site were determined through a combination of a handheld GPS and Google Earth Pro. The site is approximately 10 m above the elevation of a lower terrace level and is approximately 12-15 m above the elevation of the Elk River (to the west).**

Nearest Hydrological Feature(s): **The Elk River is located approximately 270 m to the west; Grave Creek approx. 1.4 km north-northeast; Black Creek approx. 1.6 km south; Grave Lake approx. 3.5 km northeast.**
Terrain/Landform: **Low to mid-elevation terrace level along the eastern side of Elk River.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1) Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2) Future archaeological inspection, including shovel testing in the vegetated terrain (on terrace tread) to obtain stratigraphic context(s) for exposed precontact artifacts.

17. GENERAL REMARKS

1) Correspondence with the Royal British Columbia Museum (RBCM) indicated that the artifact assemblage for this site previously utilized (ca. 1973) a single catalogue number, and the assemblage collected under 2015-0098 was to commence with DkPr-12: #2. Under permit 2015-0098, catalogue #2-28 were utilized.

2) The locality that contains site DkPr-12, was within the study area of Permit 2015-0098, but was not within the conceptual mine plan (ca. 2015-2019) for the Crown Mtn Project. Site visitation was to familiarize newer members of the field crew with raw lithic materials, artifact types, and regional site settings to assist in subsequent site discovery within the evolving disturbance footprint associated with the Crown Mtn Project.

3) Based on the number of precontact artifacts that are annually exposed, this site is suspected to contain a dense artifact scatter that is largely concealed within the subsurface matrix. Re-visitation is suggested under a HCA Permit to salvage artifacts prior to loss (erosion) or damage (ungulate trampling).

4) The recovery of a relatively large fragment of a long bone (femur or humerus) is suggestive of butchering of a large ungulate, most likely that of bison or elk.

5) A cairn was previously documented near the terminus of a minor, westward trending spur within the northern portion of the site (ca. 1973). Re-visitation to this location, observed several un-modified rocks (sub-round cobbles and small boulders) strewn and partially protruding from the vegetated ground surface; see 2015-0098 Photo Log. The pattern of the exposed rock it did not resemble a cairn, but the petroform mentioned in 1973, may have been subsequently disturbed by bioturbation, animals (e.g. bear grubbing) and/or recreational campers. Recreational use within this locality is evidenced by a crude, frequently utilized campsite located within the area of DkPr-13, situated on the same terrace level, immediately to the north of DkPr-12 and an incised relict drainage that contains an old truck road.

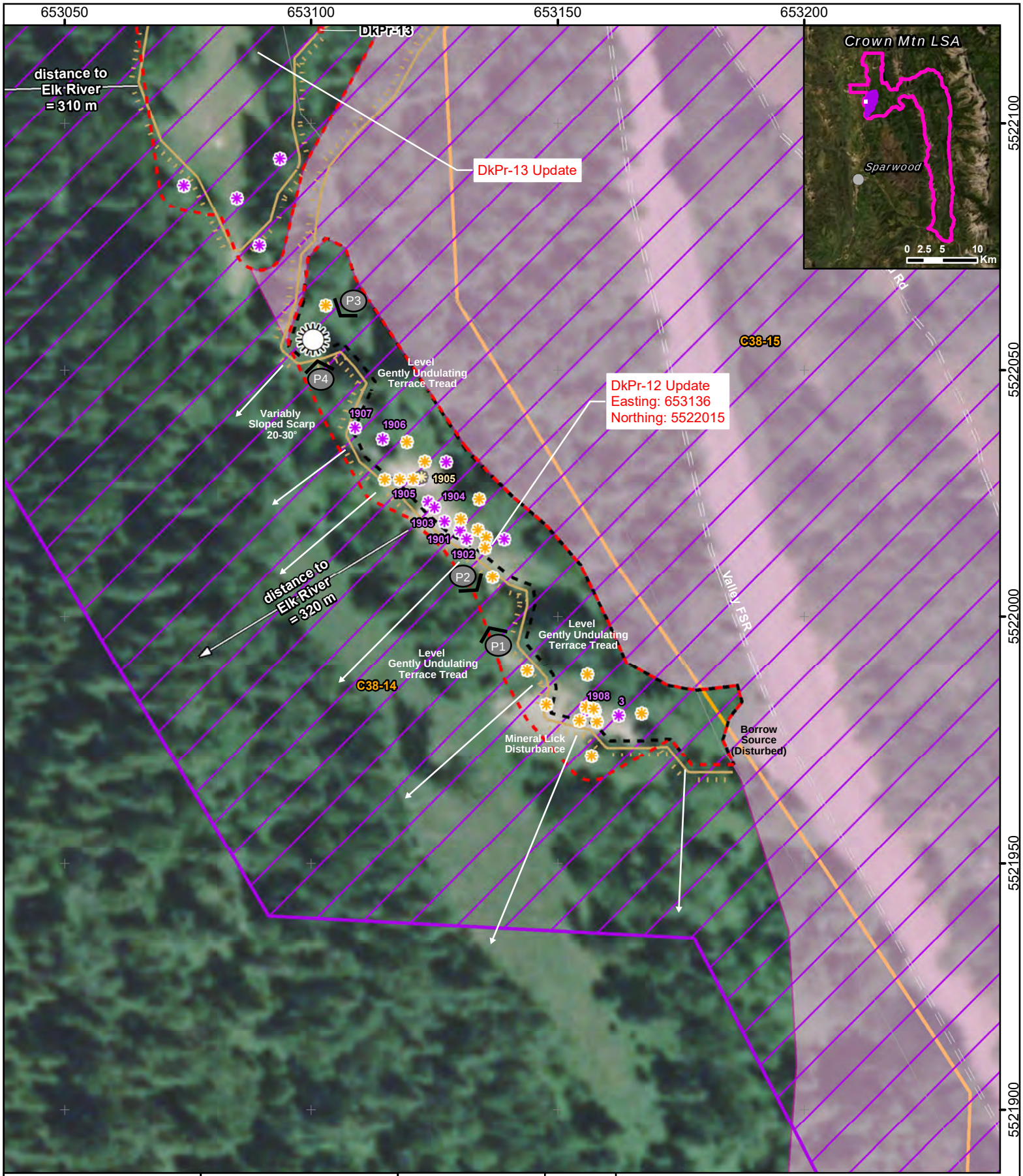


Figure: 4	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by:	**Legend:**
Permit: 2015-0098		BC AB INSET 1:40,000,000		Precontact Arch Site Bdry (TMECS 2017 and 2019); Precontact Arch Site Bdry (TMECS 2014); Precontact Arch Site Bdry (RAAD 2020); High Arch Potential; Study Area (TMECS 2017-19); Nearest Watercourse; Gravel Road; Terrace Margin; Contour Line (20 m); Arch Potential Area (AOA); Surface Find - Artifact; Surface Find - FAR; Surface Find - Faunal; Cairn; Photo Reference & Direction
Title: DkPr-12 Update Site Map	Survey Date: 04/10/17 & 24/10/19			
	Mapping Date: 20/01/2021			
Project: Crown Mountain Phase I 2017 & 2019	0 5 10 20 m 1:1,000			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Borden Number: DkPr-12 (update)
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date(s) of Field Visit: October 4, 2017 and September 24, 2019
Photograph Log

Photo 1. DkPr-12, overview of the level tread and relatively prominent [erosional] margin of a low to mid-elevation terrace level (1180 m asl) along the eastern side of the Elk River and contains exposed precontact artifacts, fire-altered rock and faunal remains. Erosion along the margin and scarp is largely attributed to ungulates (deer and elk) using the locality as a mineral lick. (view: northwest)

Photo 2. DkPr-12, supplemental overview of the site that is largely defined by exposed artifacts along the margin and [erosional] scarp of a low to mid-elevation terrace level (1180 m asl) situated along the eastern side of the Elk River. (view: southeast)

Photograph Log

Photo 3. DkPr-12, overview of the terminal portion of a westward trending spur located near the northern site boundary, and focused on the location where rocks were protruding from and strewn about the ground surface (in proximity to the yellow note book), which is suspected to be the remnants of the petroform (cairn) that was documented in 1973. (view: southwest)

Photo 4. DkPr-12, close up image of rocks protruding from and strewn about the ground on the terminal end of a westward trending spur. These un-modified clasts area suspected to remnants of the petroform (cairn) that was documented in 1973. (view: north)

Photograph Log

Photo 5. Representative example of the artifact assemblage collected under permit 2015-0098; biface (preform) fragment of Top of the World chert recovered in 2017. (Catalogue #6)

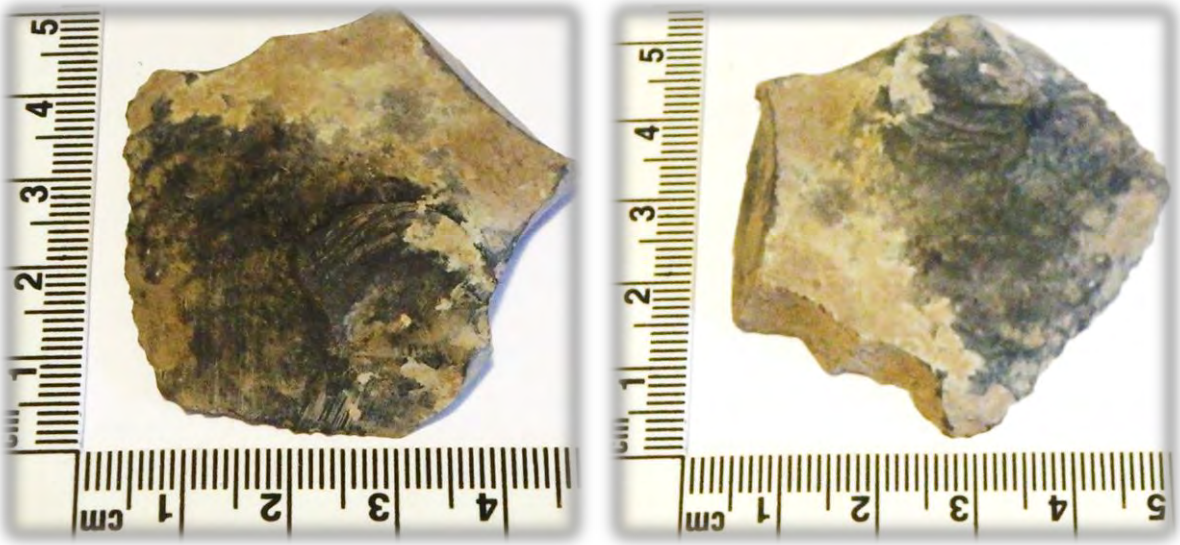


Photo 6. Representative example of the artifact assemblage collected under permit 2015-0098; utilized flake of siliceous mudstone recovered in 2019. (SF 1901; Catalogue #14)

Photograph Log

Photo 7. Representative example of the artifact assemblage collected under permit 2015-0098; utilized core fragment of siliceous mudstone. (SF 1907; Catalogue #26).

Photo 8. Representative example of the artifact assemblage collected under permit 2015-0098; Robust long bone fragment recovered in 2019 and is suggestive of bison or elk. (SF 1906; Catalogue #28)

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) or size grade [sg:]	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
2	1	SF1	Surface	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish-grey cortex with dark grey interior	sg: 11	-	-	-	Secondary decortication flake with semi-water smoothed, nodular cortex present; high angle planar to slightly concave striking platform with detachment proposed by large hammerstone due to the presence of three points of impact, each with their own bulb of percussion that appear as a castellated fracture pattern on platform; possible use wear along one lateral edge (or from ungulate trampling)	04-Oct-17	17-Apr-20	Crew	N
3	1	SF 1	Surface	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish-grey cortex with dark grey interior	sg: 7	-	-	-	Secondary decortication flake (blade-like) with remnant patch of water-smoothed cortex; high angle planar to slightly convex striking platform with preparation scarring; breakage along one lateral edge is suspected to be from ungulate trampling, which has removed the thinnest/sharpest edge that would have been suitable for use	04-Oct-17	17-Apr-20	Crew	N
4	1	SF 1	Surface	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey cortex with dark grey interior	sg: (3)	-	-	-	Medial portion of flake; no platform	04-Oct-17	17-Apr-20	Crew	N
5	1	SF 1	Surface	Flake: Secondary	Siliceous Siltstone	Opaque, dull brownish-grey cortex with dark grey interior	sg: 2	-	-	-	Shaping flake with medium angle dihedral striking platform; moderate dorsal scarring; suspected origin from Banff Formation	04-Oct-17	17-Apr-20	Crew	N
6	1	SF 2	Surface	Tool: Biface	Chert: Top of the World	Vitreous, opaque to slightly translucent (along edges) bluish-grey	40.3	(26.7)	7.8	(8.9)	Bifacially-worked preform fragment, missing a lateral portion (snapped with weathered fracture); use wear along intact lateral edge; steep angle edge with use wear; soil clinging to surfaces	04-Oct-17	17-Apr-20	Crew	Y
7	1	SF 2	Surface	Tool: Utilized Flake	Siliceous Mudstone	Opaque, sub-vitreous to dull dark grey with light brownish-grey cortex	29.9	27.9	8.6	4.2	Secondary decortication flake with a high angle striking platform entirely comprised of water-smoothed cortex; use wear along one lateral edge	04-Oct-17	17-Apr-20	Crew	Y
8	1	SF 2	Surface	Flake: Fragment	Quartzite	Vitreous, opaque to slightly translucent (along edges) light-medium grey	sg: (2)	-	-	-	Medial portion of flake; no platform	04-Oct-17	17-Apr-20	Crew	N
9	1	SF 3	Surface	Tool: Utilized Flake	Siliceous Mudstone	Opaque, sub-vitreous to dull dark grey	37.4	30.2	8.6	7.1	Secondary/tertiary flake with crushed platform; moderate dorsal scarring; remnant use wear along one lateral edge; opposing edge appears to have been damaged by heat/fire	04-Oct-17	17-Apr-20	Crew	Y
10	1	SF 3	Surface	Tool: Utilized Flake	Siliceous Siltstone	Opaque, sub-vitreous to dull dark grey with light brownish-grey banding	42.2	25.6	15.7	15.6	Primary stage flake with high to medium angle planar striking platform with grinding (preparation) scarring; complex dorsal scarring	04-Oct-17	17-Apr-20	Crew	Y
11	1	SF 3	Surface	Flake: Tertiary	Siliceous Mudstone	Opaque, sub-vitreous dark grey-black	sg: 2	-	-	-	Small finishing/re-sharpening flake; low to medium angle multi-facetted striking platform with what appears to be a former (dulled) working edge; moderate to complex dorsal scarring	04-Oct-17	17-Apr-20	Crew	N
12	1	SF 4	Surface	Flake: Tertiary	Siliceous Siltstone	Opaque, sub-vitreous to dull dark grey with light brownish-grey cortex	sg: 2	-	-	-	Appears to have two ventral surfaces; multi-facetted platform	04-Oct-17	17-Apr-20	Crew	N
13	1	SF 4	Surface	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Terminal portion of small flake; feather termination	04-Oct-17	17-Apr-20	Crew	N
14	1	SF1901	Surface	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	50.3	48.7	8.1	19.4	Relatively large primary-stage flake with high angle, dihedral striking platform; extensive use wear along one lateral edge that contains a broad point as it converges to the terminal edge; opposing edge is steep and may have been unifacially re-touched	24-Sep-19	17-Apr-20	NS	Y

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) or size grade [sg:]	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
15	1	SF 1902	Surface	Tool: Retouched Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	44.5	24.9	15.4	14.2	Early-stage, prismatic-shaped flake with medium angle planar striking platform; step lateral edges with small unifacial retouching along distal/terminal edge; relatively complex dorsal scarring; weathered surfaces on platform	24-Sep-19	17-Apr-20	DW	Y
16	1	SF1903	Surface	Flake: Secondary	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: (4)	-	-	-	Secondary flake fragment with crushed platform and broken lateral-terminal edges; moderate dorsal scarring	24-Sep-19	17-Apr-20	NJ	N
17	1	SF1904	Surface	Flake: Secondary	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: (3)	-	-	-	Secondary flake fragment with small, medium angled planar striking platform; broken lateral-terminal edges suspected from ungulate trampling; minimal dorsal scarring	24-Sep-19	17-Apr-20	FA	N
18	1	SF1904	Surface	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake; no platform	24-Sep-19	17-Apr-20	FA	N
19	1	SF1904	Surface	Flake: Secondary	Siliceous Siltstone	Opaque, dull dark grey/black	sg: (3)	-	-	-	Appears to be proximal portion of thinning flake with high-angle planar striking platform; minimal dorsal scarring	24-Sep-19	17-Apr-20	FA	N
20	1	SF1905	Surface	Flake: Primary	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: 4	-	-	-	Secondary decortication flake with medium to high angle planar striking platform; water-smoothed nodular cortex present; soil clinging to artifact	24-Sep-19	17-Apr-20	Crew	N
21	1	SF1905	Surface	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark grey/black	sg: (4)	-	-	-	Proximal portion of flake; terminal portion absent; high angle dihedral striking platform; moderate dorsal scarring	24-Sep-19	17-Apr-20	Crew	N
22	1	SF1905	Surface	Flake: Secondary	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: 5	-	-	-	Shaping flake; no use wear observed; medium to high angle dihedral striking platform; heavily weathered; coil clinging to artifact	24-Sep-19	17-Apr-20	Crew	N
23	2	SF1905	Surface	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: (3) & (4)	-	-	-	Medial portions of flake; no platforms	24-Sep-19	17-Apr-20	Crew	N
24	1	SF1906	Surface	Tool: Utilized Flake	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	(15.8)	(13.1)	(2.0)	(0.5)	Proximal portion of tertiary flake; terminal portion absent; low angle dihedral striking platform; moderate dorsal scarring; use wear along one lateral edge	24-Sep-19	17-Apr-20	Crew	Y
25	1	SF1906	Surface	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-grey (weathered)	sg: (3)				Medial portion of flake; no platform; no use wear evident; dulled colour/patina is suggestive of subjection to heat/fire	24-Sep-19	17-Apr-20	Crew	N
26	1	SF1907	Surface	Tool: Utilized Core Fragment	Siliceous Mudstone	Opaque, sub-vitreous to dull dark grey (weathered cortex)	97.4	34.9	20.5	78.4	Mudstone nodular with single (large) flake detached; semi-water smoothed cortex present, and small fractures at on end are suggestive of trampling and revealed a small fossil indentation; use wear along terminal edge of detached flake	24-Sep-19	17-Apr-20	Crew	Y
27	1	SF1908	Surface	Tool: Utilized Flake (Fragment)	Siliceous Mudstone	Opaque, sub-vitreous to dull brownish-dark grey (weathered cortex)	(30.1)	(19.0)	(7.4)	(3.2)	Decortication flake fragment with reddish-brown nodular cortex; no platform; unifacial use wear along one edge	24-Sep-19	17-Apr-20	DW	N
28	*1*	*SF1906*	*Surface*	*Faunal*	*Bone*	*Weathered*	-	-	-	-	*See faunal catalogue*	*24-Sep-19*	*17-Apr-20*	*IT*	*Y*

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Tree Throw screened in place of a shovel test= TT
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)
Through communication with the Royal British Columbia Museum (April 14, 2020), this artifact catalogue was to commence with catalogue number 2

Catalogue #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Bone Unit	Side (R/L)	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
28	1	SF106	Surface	Bone Fragment	unidentified	unknown	sg: (10)	-	-	(48.3)	Medial fragment of long bone (femur or humerus) with spiral fracture; partially calcified and heavily weathered and pitted surfaces which is indicative of antiquity; suggestive of large ungulate (elk or bison)	24-Sep-19	17-Apr-20	IT	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)
Through communication with the Royal British Columbia Museum (April 14, 2020), this artifact catalogue was to commence with catalogue number 2

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DkPr-13**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653094** Northing: **5522128**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/29**
Site Visit Type: **Surface Collection**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS), Joshua Martin (Shuswap Indian Band)**	**Y**
Other	**Jesse Thomas (Ktunaxa Nation Council [KNC])** **Jason Feltham (KNC)** **Jeff Williams (KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**FAR**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks: **The identification of a single exposed specimen of FAR suggests that a feature(s) was once present within the site area, or remains concealed in the subsurface matrix. Contemporary recreational activity (camping) has resulted in the creation and deposition of modern FAR (spall-like fractures); many of the contemporary FAR are likely reused clasts, that once had a precontact context.**

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=5): flake fragment of black tourmalinite and utilized and/or retouched spalls of local sandstone (n=4) were previously exposed and collected; see Artifact Catalogue.**	**Ktunaxa Nation Regional Repository**
FAR	**Observed**	**One piece of partially-exposed FAR with a deep castellated fracture pattern was observed and suspected to be precontact; numerous specimens of FAR attributed to contemporary activity; all FAR was left in place.**	**N/A**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **111 m** Direction **NE-SW**
Width: **85 m** Direction **NW-SE**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):
Site boundaries supplement those previously illustrated on the 1973 site map; the original boundary appears natural (terrace margin) and observed (terrace tread buffered from margin). Updated boundary (2015-0098) includes an observed boundary (5 m radial buffer) from exposed artifacts. Future archaeological inspection within this locality is anticipated to revise (i.e. enlarge) the currently defined site area, primarily to the north along the prominent terrace margin.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **0 m** Maximum **unknown m**

Stratigraphy Description: **Subsurface inspection was not conducted under 2015-0098. In general, a light to medium greyish-brown coloured fine sediment cap (variable silt and sand content) is present and exposed along the terrace margin and scarp; estimated at 0.5 m in depth and overlies gravel and/or till.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Collection and/or documentation of exposed artifacts occurred; no subsurface inspection occurred within the site under permit 2015-0098.**
Ongoing	**Erosion**	**Site area is largely intact, and not as eroded as DkPr-12 (to the south); some natural erosion present along the western and southern margins of the site attributed to slope wash and ungulate grazing.**
Ongoing	**Recreational Use**	**Informal campsite; increased use in the fall by hunters. Gradual incising of truck trail to access site, trampling of vegetation and compaction of fine sediment cap. Periodic artifact exposure.**

14. ENVIRONMENT

Lower Elevation **1178 m** (asl) Upper Elevation **1185 m** (asl)

Elevation Comments: **Elevations for the site were determined through a combination of a handheld GPS and Google Earth Pro. The site is approximately 10 m above the elevation of a lower terrace level (west) and is approximately 12-15 m above the elevation of the Elk River (to the west).**

Nearest Hydrological Feature(s): **The Elk River is located approximately 310 m to the west; Grave Creek approx. 1.3 km north-northeast; Black Creek approx. 1.7 km south; Grave Lake approx. 3.5 km northeast.**

Terrain/Landform: **Low to mid-elevation terrace level along the eastern side of Elk River.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	

16. RECORDER'S RECOMMENDATIONS

1) Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2) Future archaeological inspection, including shovel testing on the terrace tread to obtain stratigraphic context(s) for exposed precontact artifacts.

17. GENERAL REMARKS

1) Correspondence with the Royal British Columbia Museum (RBCM) indicated that the artifact assemblage for this site previously utilized (ca. 1973) a single catalogue number, and the assemblage collected under 2015-0098 was to commence with DkPr-13: #2. Under permit 2015-0098, catalogue #2-6 were utilized.

2) The locality that contains site DkPr-13, was within the study area of Permit 2015-0098, but was not within the conceptual mine plan (ca. 2015-2019) for the Crown Mtn Project. Site visitation was to familiarize newer members of the field crew with raw lithic materials, artifact types, and regional site settings to assist in subsequent site discovery within the evolving disturbance footprint associated with the Crown Mtn Project.

3) This site is suspected to contain a dense artifact scatter that is largely concealed within the subsurface matix. Re-visitation is suggested under a HCA Permit to salvage artifacts prior to loss (recreational activity) or damage (ungulate grazing & trampling).

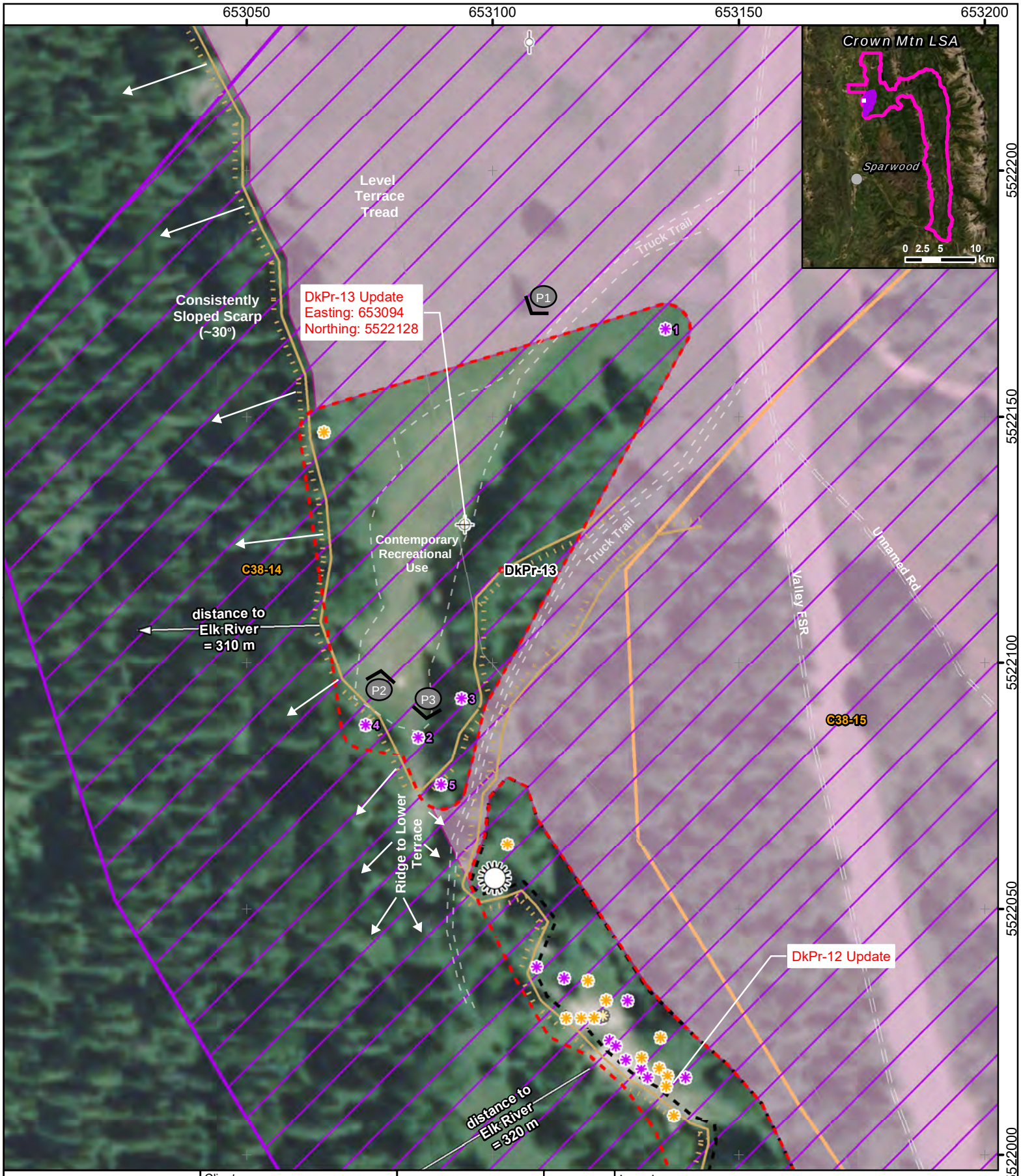


Figure: 5	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098	Survey Date: 04/10/17 & 24/10/19	BC AB INSET 1:40,000,000	Precontact Arch Site Bdry (TMECS 2017 and 2019); Centroid; Precontact Arch Site Bdry (TMECS 2014); Precontact Arch Site Bdry (RAAD 2020); High Arch Potential; Study Area (TMECS 2017-19); Nearest Watercourse; Gravel Road; Terrace Margin; Contour Line (20 m); Arch Potential Area (AOA); Surface Find - Artifact; Surface Find - FAR; Surface Find - Faunal; Cairn; Photo Reference & Direction
Title: DkPr-13 Update Site Map	Mapping Date: 20/01/2021	Mapping by: Tipi Mountain	
Project: Crown Mountain Phase I 2017 & 2019	0 5 10 20 m 1:1,000		

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. DkPr-13, overview of the locality that contains the previously defined site area (*ca*. 1973) and updated in 2017 under permit 2015-0098. (view: southwest)

Photo 2. DkPw-13, supplemental overview of the terrace level (1180 m asl) that contains the previously recorded and updated areas. (view: north)

Photo 3. Southern terminal spur of the terrace (1180 m asl) that contains site DkPw-13, and extends southward beyond SF 5 (utilized clast). This spur transitions to a ridge and provides a route of least resistance to the tread of the lower terrace level (±1170 m asl). (view: south)

Photo 4. DkPr-13, representative example of the artifact assemblage collected under permit 2015-0098; utilized spall of local sandstone. (Catalogue #3)

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
2	1	SF 1 (ditch cut)	Surface	Flake: Fragment	Tourmalinite	Opaque, sub-vitreous black	sg: (3)	-	-	-	Medial-terminal portion of flake; no platform, moderate dorsal scarring; suspected secondary flake	29-Sep-17	20-Apr-20	Crew	N
3	1	SF 2 (terrace margin)	Surface	Tool: Retouched Spall	Sandstone	Opaque, dull brownish-grey (weathered patina)	92.8	61.3	14.2	92.7	Heat spall from cobble/boulder with sub-round cortex; coarse-grained with weathered patina; unifacial retouch and use wear along lateral edges; one end appears broken/snapped, likely associated with ungulate trampling.	29-Sep-17	20-Apr-20	Crew	Y
4	1	SF 3 (terrace margin)	Surface	Tool: Utilized Clast	Sandstone	Opaque, dull brownish-grey (weathered patina)	54.2	26.6	11.3	14.5	Heat spall fragment with use wear along two edges	29-Sep-17	20-Apr-20	Crew	Y
5	1	SF 3 (terrace margin)	Surface	Tool: Utilized Clast	Sandstone	Opaque, dull brownish-grey (weathered with blackened patina from fire)	32.7	23.1	6.7	5.4	Heat spall fragment with use wear along opposing lateral edges	29-Sep-17	20-Apr-20	Crew	Y
6	1	SF 4 (terrace margin)	Surface	Tool: Retouched Spall	Sandstone	Opaque, dull brownish-grey (weathered patina)	65.3	51.7	22.1	48.2	Heat spall that has been blackened by fire' sub-round to sub-angular cortex present, unifacial retouch along one edge; poor quality material.	29-Sep-17	20-Apr-20	Crew	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)
Through communication with the Royal British Columbia Museum (April 14, 2020), this artifact catalogue was to commence with catalogue number 2

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DkPr-18**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654359** Northing: **5521972**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and suspected to be situated within the slightly elevated area that is naturally delineated by a minor southward trending spur along the north-northwest periphery of a wetland in the locality of Grave Prairie, Elk River valley. The site is approximately 1.3 km south of Grave Creek, 1.5 km east of the Elk River, 2.9 km southwest of Grave Lake, and 11 km north-northwest of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 5.6 km (bridge crossing Grave Creek at ~5.1 km) before turning eastward on an un-named road that spans approximately 150 m and terminates at an informal campsite in proximity to the CPR tracks (within site DlPr-8). Proceed on foot to the east, crossing the railway tracks and continue eastward for approximately 100 m to find an old north-south trending road grade and continue southward for approximately 800 m to the terminal landing area, situated within a cut block (harvested ca. 2005). From this landing proceed to the east-southeast for approximately 0.5 km to a wetland area. The suspected site area is on a relatively prominent southward trending spur along the north-northwestern periphery of the northernmost wetland.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase I - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/09/24**
Site Visit Type: **Other**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (October 26, 2018 & September 24, 2019)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)** **Joshua Martin (Shuswap Indian Band [SIB] and TMECS)** **Nyomi Sherwin (TMECS)**	**Y**
Other	**Jesse Thomas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS & KNC)** **Mike Shottanana (TMECS & KNC)** **Jeff Williams (TMECS & KNC)** **Frankie Alexander (KNC)** **Nick Johnson (TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Human Remains**		**Ancestral Burial**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks: **An earthen mound (approximately 1.4 m [width] x 2.1 m [length] x 0.3-0.4 m [height]) was observed in the central area of the southward-trending [minor] spur along the NNW periphery of the wetland and at the centroid UTM position identified on this update and identified on the 2015-0098 Site Map. A photo of this vegetated mound is also provided. This mound could be the result of natural turbation (e.g. old tree throw) or possibly the remnants of a burial that was recorded in 1973.**

8. CULTURAL MATERIAL

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **25 m** Direction **N-S**
Width: **25 m** Direction **E-W**

Site Boundary Type: **Arbitrary**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

As discussed with Site Inventory (15-January-2021 & 01-February-2021), a 5 m by 5 m shapefile was provided, but the the suspected site area was arbitrarily delineated with a 12.5 m radial buffer from a provided centroid (earthen mound) on RAAD (ca. January-February 2021); this location will remain until more information or site details can be provided. The currently defined area encompasses the majority of a southward trending spur along the NNW periphery of a wetland.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **unknown m** Maximum **unknown m**

Stratigraphy Description: **Unknown; subsurface inspection was not implemented within the suspected site area.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**No subsurface inspection occurred within the site under permit 2015-0098; no exposed artifacts were observed.**
Ongoing	**Erosion**	**Erosion along the margin to the south of suspected site area; unknown if fluvial impacts continue due to alteration of drainage; periodic wind events toppling trees in suspected site area.**
Ongoing	**Grazing**	**Heavily utilized ungulate range; annual meandering and gradual incising of game trails**
Past	**Other**	**Mechanical alteration of drainage pattern within the wetland to south of suspected site area. Apparent diversion of drainage (previously Black Cr) to the west opposed to the previous southward flow.**

14. ENVIRONMENT

Lower Elevation **1230 m** (asl) Upper Elevation **m** (asl)

Elevation Comments: **Elevation for the site was determined through a combination of a handheld GPS and Google Earth Pro. The site is approximately 1 m above the elevation of the adjacent wetland (to the south)**

Nearest Hydrological Feature(s): **Un-named wetland that was once within a segment of a northern tributary of the Black Creek drainage (prior to mechanical [westward] diversion of the drainage route within wetland); Grave Creek 1.3 km north; Elk River is approx. 1.5 km west; Grave Lake is 2.9 km northeast.**

Terrain/Landform: **Suspected locality for the grave is on a slightly elevated terrain immediately north of a wetland; as illustrated on 1973 site map.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

Avoidance of the locality that contains the reported grave, until a future archaeological inspection(s), including shovel testing in the vegetated terrain (on terrace tread) can be conducted (under Section 12.2 HIP) on the northern side of the wetland (beyond currently defined area) to confirm or refute the presence of precontact archaeological material and the potential for an earthen mound burial(s).

17. GENERAL REMARKS

1) Site Record (permit 1973-0004) states: "Several weeks after the termination of the [Archaeological Survey in the Middle Elk River drainage] survey, the writer made the acquaintance of Mr. E. De Paoli of Kimberley, who provided information pertaining to the locations of three probable burials, [subsequently] designated as DkPr-17, DkPr-18 and DlPr-30. The latter burial [DlPr-30] may have been destroyed by construction of the Harmer Creek logging road; the former two may still be undisturbed. Time did not permit a detailed terrain investigation of the area peripheral to Grave Prairie where DkPr-17 and DkPr-18 are located; it is hoped that these locations can be examined in 1974. The probable burials consist of earth mounds, in one instance surrounded by upright wooden pegs." (Choquette 1973: pp.6 and 8)
- Note that on RAAD (ca. 2021), site DkPr-17 does not have any documentation that associates it with a burial and refers to the historical "Elk Bridge School", which is/was located along the northern side of Matevic Road within the District of Sparwood.

2) It is unknown if the previously reported burial is associated with precontact occupation or the historical era. Visible evidence of this suspected burial(s) may never be discovered. The northern portion of this locality is occupied by a relatively dense timber stand and has a good deal of wind-toppled trees that both obscured and constrained safe access into portions of the landscape in 2018 & 2019. Additionally, the "upright wooden pegs" reported in 1973 are likely decomposed. Were the "upright wooden pegs" simply sticks (original placement or supplementally installed to define in the 1970s) or manufactured (suggestive of historical era)?

3) The revisit of site DkPr-18 involved a pedestrian reconnaissance through the general locality, including:
- the previously project site area on RAAD (pre-2020), located approximately 200~250 m to the west-northwest of the suspected/updated location, and within a previously harvested cut block (ca. 2005). This locality has an undulating ground surface (generally descending west-southwest) with visible ground disturbance (e.g. silviculture scarification trenching) that would have eradicated any evidence of a burial (wooden pegs and mound). This area lacked desirable attributes for a burial (unless expedient or clandestine?).
- Lat/Long location identified on the 1973 site form; this location is approximately 360 m to the southwest of the suspected/updated location and situated within a dense spruce and aspen timber stand on continuously undulating terrain that generally descends westward; this area lacks desirable attributes for a burial.
- General location identified on the 1973 site overview map (associated with sites DkPr-12 & DkPr-13), which illustrates the site as generally being northward of a wetland; it is within this area that level terrain and a favourable southward viewscape is present; the field crew felt this area had desirable attributes that could be adequate for a burial. Although one 'mound' was identified (see Section 7 [above] and 2015-0098 Site Map and Photo Log), this locality, primarily to the north, was obstructed by deadfall, which constrained the survey for any evidence of anthropomorphic mounding in 2018 and 2019.

4) Based on the currently proposed mine plan, the locality of this site will not be adversely impacted by the implementation of the Crown Mtn Project. Subsurface inspection was not conducted in this area due to the distance from the conceptual disturbance footprint(s). The presence of precontact artifacts (subsurface context) is suspected within the currently projected locality for the site.

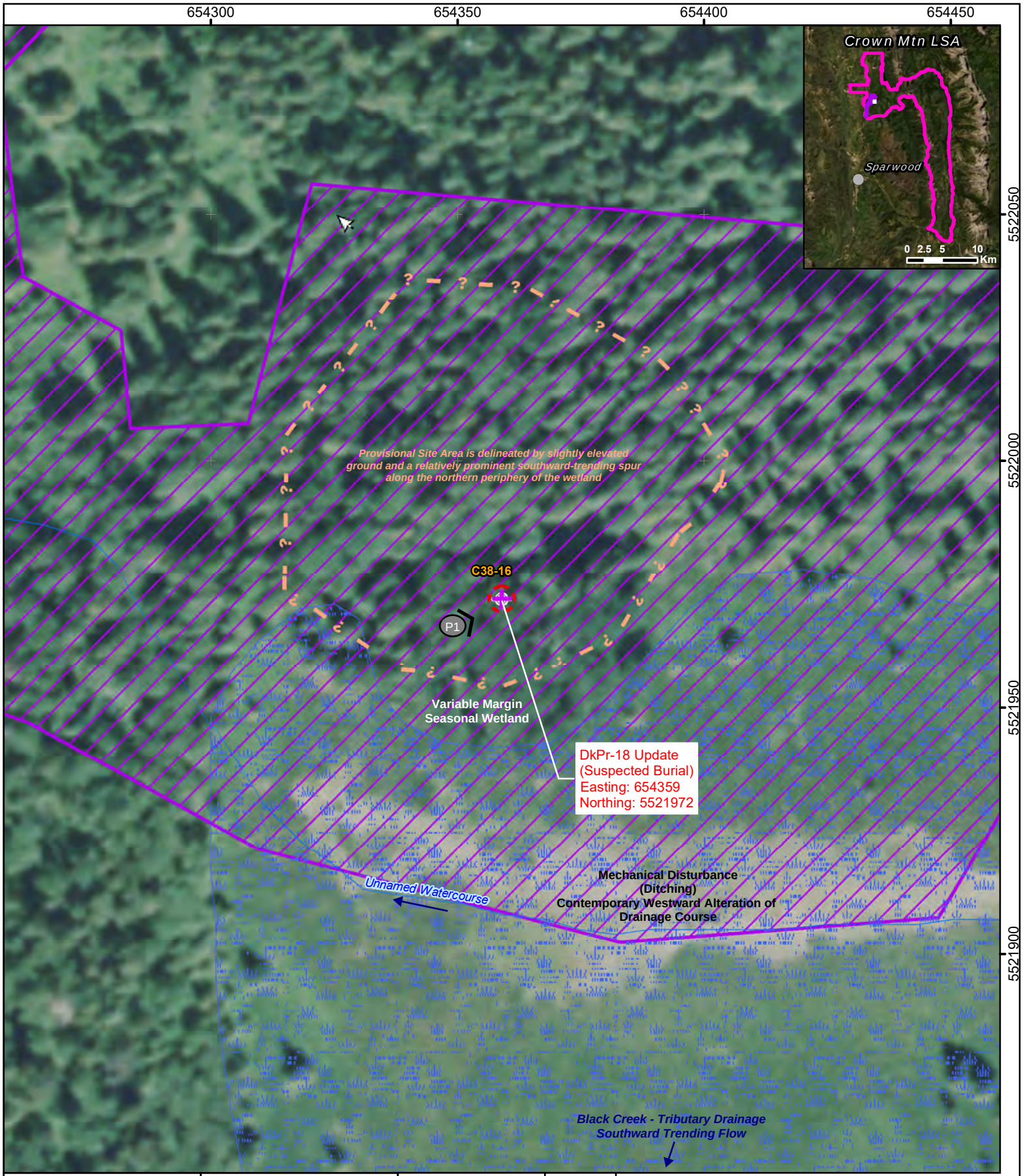


Figure: 6	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	New Precontact Arch Site Bdry (TMECS 2019); Centroid; General Location of Suspected Burial; Study Area (2019); Wetland; Water Feature; Arch Potential Area (AOA); Negative Tree Throw; Mound (Grave?); Photo Reference & Direction
Title: DkPr-18 Update Site Map	Survey Date: 16/10/18 & 24/09/19			
	Mapping Date: 12/01/2021			
Project: Crown Mountain Phase 1 Railway Footprint 2019	1:1,000 0 5 10 20 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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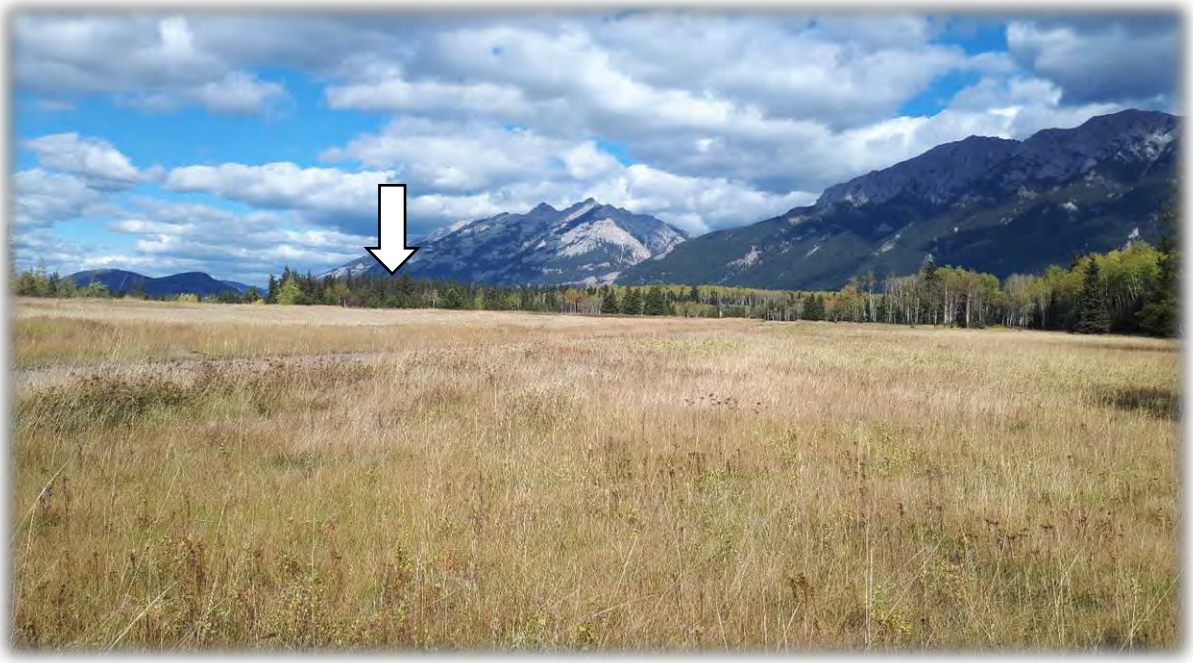

Photo 1. DkPr-18, overview of the northern shoreline of a wetland that contains the suspected location (*ca*. 1973) of a burial. (view: north)

Photo 2. DkPr-18, overview of an earthen mound (approximately 1.4 m [wide] x 2.1 m [length] x 0.3 m [height]) that is at the centroid location provided under 2015-0098; this mound could be the result of natural turbation (*e.g.* old tree throw) or possibly the remnants of a burial that was recorded in 1973. No subsurface inspection was conducted in this locality to confirm or refute. (view: northeast)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPr-17-T05**
Borden Number: **DkPr-34**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653295** Northing: **5520481**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on a terrace level to the north of a minor drainage that is locally referred to as Black Creek, to the east of (130 m from) the Elk River, approximately 5 km south-southwest of Grave Lake, and approximately 9.5 km north-northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approximately 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 7 km before crossing the north-south trending CPR tracks and continue for approximately 1 km before parking in a safe location in proximity to a relatively large settling pond facility (located to the east of Valley Road). Walk in a westward (downslope) direction for approximately 150 m following a well-defined margin along the north side of Black Creek to access the southern end of the site (Polygon A); continue northward to access three additional site polygons.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada Ltd.**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/10/07**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project (Phase I: Loadout Facilities); September 25, 2017; September 26 & 27 and October 7, 2019)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Daniel Heinrichs (TMECS)** **Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Justin Hanna (TMECS)**	**Y**
Other	**Jesse Thomas (Ktunaxa Nation Council [KNC] & TMECS)** **Jason Feltham (KNC & TMECS)** **Joshua Martin (Shuswap Indian Band [SIB] & TMECS)** **John Nicholas (KNC)** **Corey Stevens (SIB & TMECS)** **Frankie Alexander (KNC)** **Sunshine Joseph (KNC & TMECS)** **Nick Johnson (KNC & TMECS)** **Mathais Ladd (TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Fire-Altered Rock**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks: **The presence of FAR (n=10 [0.7 kg]) is suggestive that features were once present, but have been naturally turbated, or largely remain concealed in a subsurface context within or immediately adjacent to the currently defined site areas.**

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=19): flake/flake fragments (n=9), shatter fragments (n=7), and utilized flakes (n=2) were collected from thirteen shovel tests; five different raw lithic material types; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**
FAR	**Observed**	**FAR (n=10 [0.7 kg]) was recovered and reburied within associated shovel tests in the site boundaries; see Artifact Catalogue for details.**	**n/a**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **132 m** Direction **NE-SW**
Width: **83 m** Direction **NW-SE**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Provisional site dimensions provided above encompass all four of the delineated site polygons (A-D), which are largely defined by observed (5 m radial buffered) boundaries surrounding positive shovel tests, but also by some natural attributes (i.e. terraced margins); spatially and functionally related microtopography. See General Remarks for individual polygon descriptions and dimensions.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.3 m**

Stratigraphy Description: **I (0-7 cm) Litter mat; II (7-16 cm) Light tan-grey silt w/ <3% pea gravel and SR pebbles; III (16-27 cm) Compact light brown clayey-silt w/ 3-5% pea gravels and SR-SA pebbles; IV (27-34 cm) Compact mottled light-medium brown clayey-silt (increasing clay) and <3% SR-SA pebbles; see stratigraphy log**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**45 shovel tests (0.35 m x 0.35 m) were completed within site boundaries**
Past	**Logging**	**There is evidence of historical logging within the boundaries of the site (cut stumps, skid roads, push piles).**
Past	**Railway**	**Railway construction has truncated the terrace to the west of the site (Polygon A) and eradicated microtopography that may have had additional site deposits. Terrace remnant on west side of railway.**

14. ENVIRONMENT

Lower Elevation **1179 m** (asl) Upper Elevation **1192 m** (asl)

Elevation Comments: **Approximate elevations were obtained from a combination of a handheld GPS and Google Earth Pro. The site varies from 20-30 m above the elevation of the Elk River.**

Nearest Hydrological Feature(s): **Black Creek (westward flowing) is located approximately 15 m south of site Polygon A; Elk River (southward flowing) is approximately 130 m to the west**

Terrain/Landform: **The site occupies several benches and slope breaks that are on an extensive north-south trending terrace level east of Elk River; well-defined terraced margin that defines the northern side of Black Creek. The railway truncated the landform to the west; remnant portion of terrace to the west of CPR.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2. Further subsurface inspection to the east of site areas to refine site boundaries, additional testing to the west of the CPR tracks to determine if site extends west and if railway construction has impacted the site . Additional subsurface testing between the site polygons would likely result in connecting individual site polygons.

17. GENERAL REMARKS

1) Site Dimensions and Boundaries: Site Polygon A was discovered in 2017; Site Polygons B-D were discovered in 2019. Site areas should be considered provisional, as annual inspections were influenced by an evolving development footprint, which in this locality included options for a railway spur and loadout facility.

Polygon A: 16 m E-W x 13 m N-S
Centroid: 11U 653265 E, 5520423 N
Boundaries are largely observed and defined by a 5 m radial buffer from positive shovel tests to the north, east, and west, and a snapped naturally to a terraced margin (Black Creek) to the south.

Polygon B: 39 m N-S x 34 m E-W
Centroid: 11U 653290 E, 5520465 N
Boundaries are all observed and defined by a 5 m radial buffer from positive shovel tests in all cardinal directions.

Polygon C: 10 m N-S x 10 m E-W
Centroid: 11U 653320 E, 5520495 N
Boundary is observed and defined by a 5 m radial buffer from one positive shovel test.

Polygon D: 38 m NW-SE x 13 m NE-SW
Centroid: 11U 653307 E, 5520527 N
Boundaries are observed and defined by a 5 m radial buffer from positive shovel tests in all cardinal directions. The buffered boundary to the west-southwest roughly follows a faint margin.

2) The identified site areas likely represent the southern and eastern extent of a more extensive site complex that is associated with a secondary terrace level that is along the eastern side of the Elk River. The landform has been bisected by the construction of the CPR (ca. 1971) and it is suspected to have impacted precontact archaeological resources associated with this site. Further archaeological inspection is required of the remnant portion of the terrace (containing a prominent margin overlooking the Elk River) that is present west of the railway, but situated beyond the defined study area for Phase 1 of the Project.

3) Negative impacts are no longer anticipated within this site if the Crown Mtn Coking Coal Project is implemented.

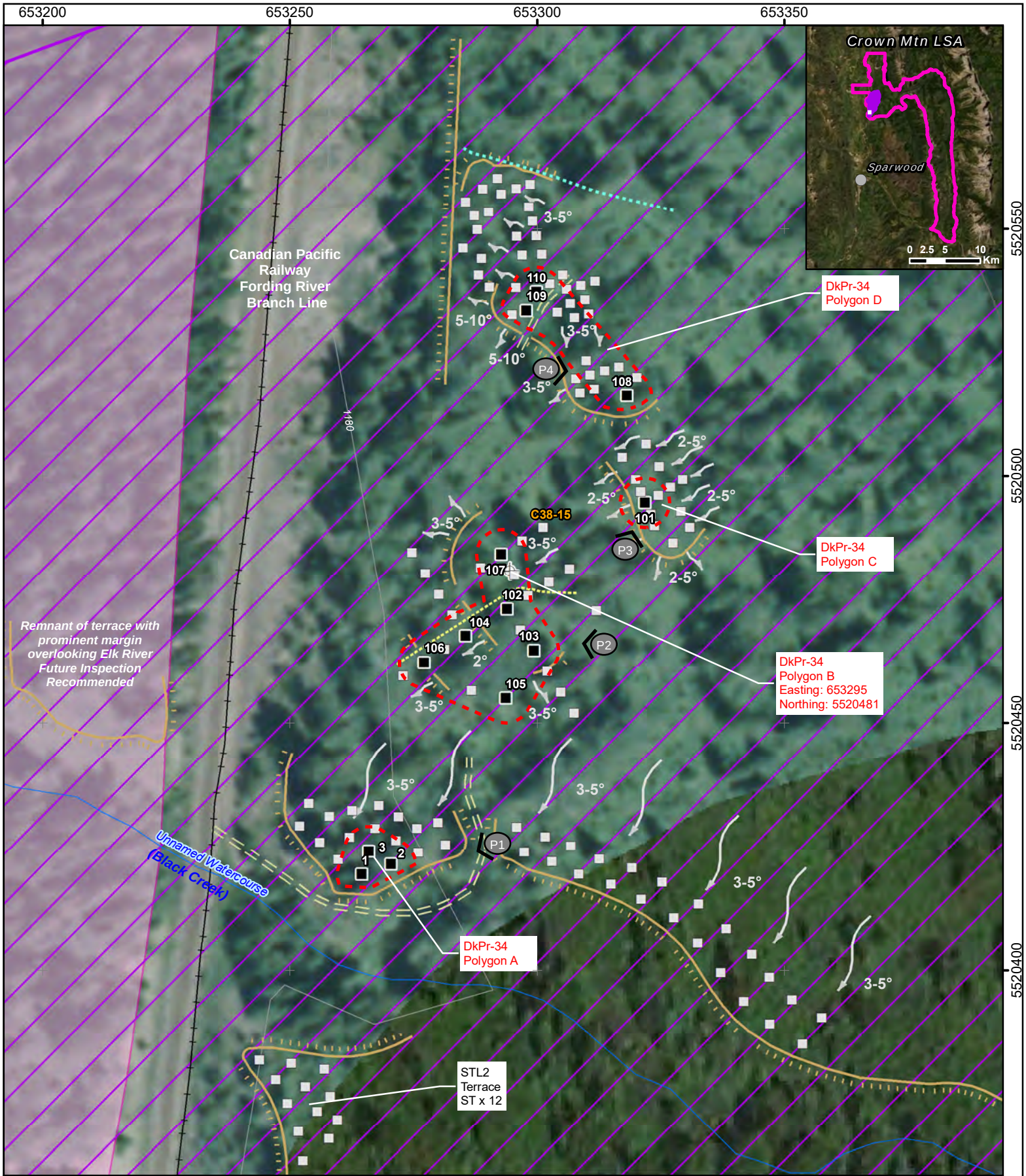

Figure: 7	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098	Survey Date: 07/10/2019	BC AB INSET 1:40,000,000	New Precontact Arch Site Bdry; Centroid; High Arch Potential; Study Area (TMECS 2017-19); Gravel Road; Old Road; Game Trail; Rail Line; Water Feature; Relict Drainage; Terrace Margin; Slope; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA); Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Photo Reference & Direction
Title: DkPr-34 Site Map	Mapping Date: 20/01/2021	Mapping by: Tipi Mountain	
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,000 0 5 10 20 m		

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Borden Number: DkPr-34
Temp. Borden Number: DkPr-17-T05
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Dates of Assessment: September 25, 2017 and September 26 & 27 and October 7, 2019

Photo 1. Overview of site Polygon A, this portion of the site was originally discovered in 2017 and is situated to the north of a minor drainage that is locally referred to as Black Creek. (view: west-southwest)

Photo 2. Overview of site Polygon B, ST 103 is located in the mid-ground of the photo. (view: west)

Photo 3. Overview of site Polygon C, during the excavation of ST 101. (view: north-northwest)

Photo 4. Overview of site Polygon D in the locality of ST 108. (view: east)

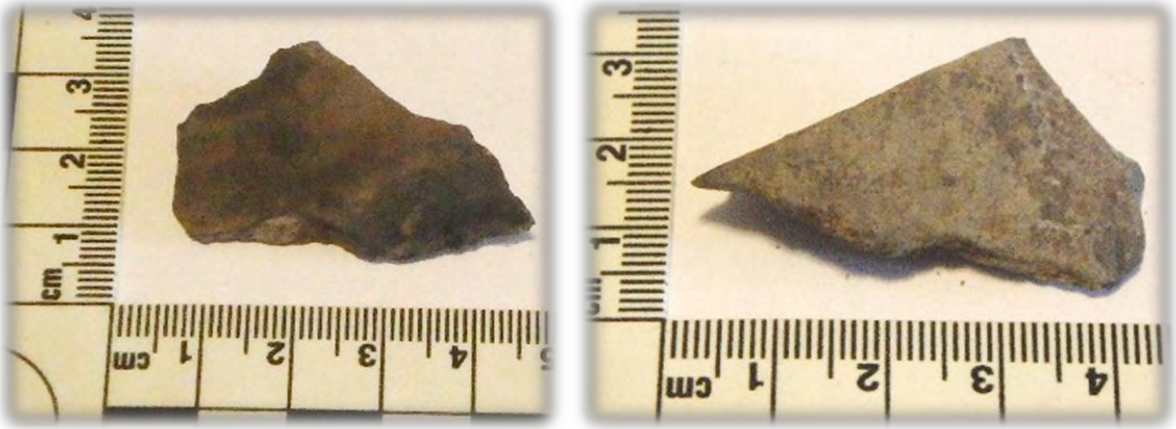

Photo 5. Example of lithic artifact assemblage; utilized shatter fragment of siliceous mudstone recovered at 20-25 cm dbs from ST 107 – Site Polygon B. (catalogue #11)

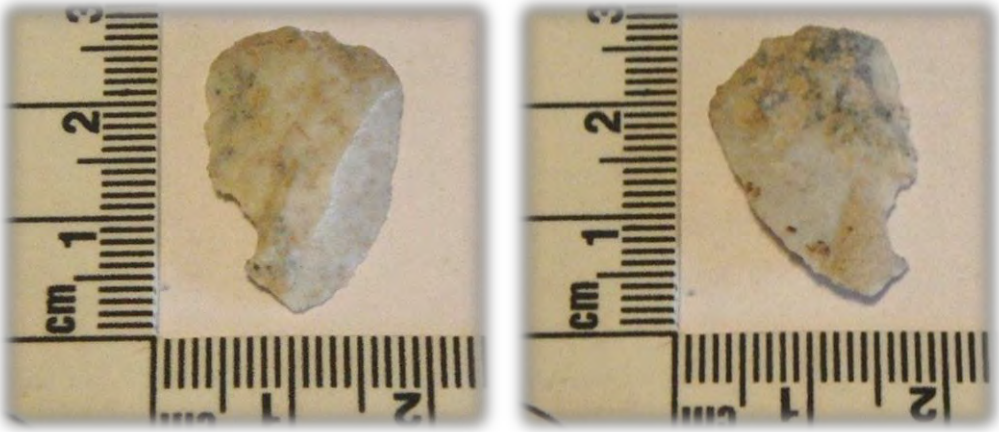

Photo 6. Example of lithic artifact assemblage; utilized flake fragment of Etherington chert recovered at 5-10 cm dbs from ST 108 – Site Polygon D. (catalogue #12)

Photo 7. Representative stratigraphy for the site; northern wall of ST 108 (Site Polygon D).

Borden Number: DkPr-34
Temp. Borden Number: DkPr-17-T05
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd
Date of Assessment: September 25, 2017, September 26 & 27 and October 7, 2019

Shovel Test	Stratum	Depth (below surface)	Description
1 *Polygon A*	I	0-5 cm	Litter mat/Organic matter (LM/OM)
	II	6-17 cm	Brown-grey silt
	III	>15 cm	Compact grey-brown clayey-silt with 20% sub-angular pebbles
	Comments: Fire-Altered Rock (FAR) recorded at 10 cm depth below surface (DBS)		
2 & 3 *Polygon A*	I	0-5 cm	LM/OM
	II	5-11 cm	Brown silt
	III	11-17 cm	Brown-grey clayey-silt with 20% sub-angular pebbles
	IV	>17 cm	Compact greyish-brown clayey-silt
	Comments: Fire-Altered Rock (FAR) recorded at 5-10 cm DBS		
101 *Polygon C*	I	0-5 cm	LM/OM
	II	5-16 cm	Light brown sandy silt with ~5% sub-round to sub-angular pebbles and gravels, overburden
	III	16-17 cm	Buried organic layer, original ground surface
	IV	17-30cm	Moderately compact light brown sandy silt with ~5% sub-round to sub-angular small to medium pebbles and <1% cobbles
	V	30-33 cm	Compact light brown clayey silt with ~15% sub-round to sub-angular pebbles and cobbles
	Comments: FAR collected at 5-15 cm DBS		
102 *Polygon B*	I	0-7 cm	LM/OM
	II	7-16 cm	Light tan-grey silt with <3% sub-round pebbles and gravels
	III	16-27 cm	Compact light brown clayey silt with 3-5% sub-round to sub-angular pea gravels and pebbles
	IV	27-34cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flakes collected from 15-20 cm and 20-25 cm DBS		
103 *Polygon B*	I	0-8 cm	LM/OM
	II	8-15 cm	Light tan-grey silt with <3% sub-round pebbles and gravels
	III	15-24 cm	Compact light brown clayey silt with 3-5% sub-round to sub-angular pea gravels and pebbles
	IV	24-28cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flake and FAR collected at 15-20 cm DBS		
104 *Polygon B*	I	0-13 cm	LM/OM
	II	13-15 cm	Light tan-grey silt with <3% sub-round pebbles and gravels
	III	15-22 cm	Compact light brown clayey silt with 3-5% sub-round to sub-angular pea gravels and pebbles
	IV	22-32cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flakes collected from 15-20 cm DBS		

Shovel Test	Stratum	Depth (below surface)	Description
105 *Polygon B*	I	0-8 cm	LM/OM
	II	8-12cm	Light tan-grey silt with <3% sub-round pebbles and gravels
	III	12-30 cm	Compact light brown clayey silt with 3-5% sub-round to sub-angular pea gravels and pebbles
	IV	30-33cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flakes collected from 10-15 cm, 15-20 cm and 20-25 cm DBS		
106 *Polygon B*	I	0-5 cm	LM/OM
	II	5-11 cm	Light tan-grey silt with <3% sub-round pebbles and gravels
	III	11-25 cm	Compact light brown clayey silt with 3-5% sub-round to sub-angular pea gravels and pebbles
	IV	25-38cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flake collected from 25-30 cm DBS		
107 *Polygon B*	I	0-5 cm	LM/OM
	II	5-13 cm	Light grey-brown sandy silt with 20-30% sub-round to sub-angular pebbles and cobbles
	III	13-22 cm	Compact light grey-white silty sand with 60% sub-round to sub-angular pebbles and cobbles
	IV	22-31cm	Compact medium brown silty sand amongst 75-80% sub-round to sub-angular pebbles & cobbles
	Comments: Flakes collected from 20-25 cm DBS		
108 *Polygon D*	I	0-8 cm	LM/OM
	II	8-12cm	Light grey silt with <3% sub-round pebbles and gravels
	III	12-30 cm	Compact light-brown clayey silt with 3-5% sub-round to sub-angular pebbles and gravels
	IV	30-33cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flake collected from 5-10 cm DBS		
109 *Polygon D*	I	0-10 cm	LM/OM
	II	10-14cm	Light grey silt with <3% sub-round pebbles and gravels
	III	14-25 cm	Compact light-brown clayey silt with 3-5% sub-round to sub-angular pebbles and gravels
	IV	>25 cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flake collected from 5-10 cm DBS		
110 *Polygon D*	I	0-5 cm	LM/OM
	II	5-12cm	Light grey silt with <3% sub-round pebbles and gravels
	III	12-23 cm	Compact light-brown clayey silt with 3-5% sub-round to sub-angular pebbles and gravels
	IV	23-30 cm	Compact mottled light-medium brown clayey-silt with <3% sub-round to sub-angular pea gravels
	Comments: Flake collected from 20-25 cm DBS		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 102 (Site Polygon B)	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (partially-weathered)	sg: (4)	-	-	-	Medial portion of secondary decortication flake with remnant portion of water-smoothed nodular cortex; no platform, complex dorsal scarring	26-Sep-19	23-Apr-20	JH	N
2	1	ST 102 (Site Polygon B)	20-25	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark-grey	sg: 1	-	-	-	Small resharpening flake with planar, medium-angle striking platform with faint lip; resharpening flake; moderate dorsal scarring	26-Sep-19	23-Apr-20	JH	N
3	1	ST 103 (Site Polygon B)	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	No platform; minimal scarring	26-Sep-19	23-Apr-20	DH	N
4	1	ST 104 (Site Polygon B)	15-20	Flake: Tertiary	Chert: Top of the World	Opaque to slightly translucent along edges, sub-vitreous grey with black dendritic inclusions	sg: 2	-	-	-	Linear, low angle, multi-facetted striking platform with lip and contains a 'dulled' working edge; resharpening flake; complex dorsal scarring	26-Sep-19	23-Apr-20	JH	Y
5	1	ST 104 (Site Polygon B)	15-20	Flake: Tertiary	Chert: Tourmaline	Opaque, sub-vitreous khaki greenish-brown	sg: 1	-	-	-	Small, low to medium angle planar striking platform with faint lip and dulled working edge; complex dorsal scarring; soil clinging to dorsal surface	26-Sep-19	23-Apr-20	JH	Y
6	1	ST 105 (Site Polygon B)	10-15	Flake: Fragment	Siliceous Siltstone	Opaque, dull to sub-vitreous grey with slightly darker parallel banding	sg: (3)	-	-	-	No platform; complex dorsal scarring	26-Sep-19	23-Apr-20	DH	N
7	1	ST 105 (Site Polygon B)	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark grey grading to greyish-brown	sg: (2)	-	-	-	Narrow, linear, medium angle multi-facetted striking platform with faint lip; moderate dorsal scarring; terminal portion is absent; soil clinging to ventral surface	26-Sep-19	23-Apr-20	DH	N
8	1	ST 105 (Site Polygon B)	20-25	Shatter	Siliceous Siltstone	Opaque, dull to sub-vitreous grey	sg: 2	-	-	-	No platform; possible natural clast	26-Sep-19	23-Apr-20	DH	N
9	1	ST 106 (Site Polygon B)	25-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull grey and reddish brown	sg: (3)	-	-	-	Proximal portion of resharpening flake with low to medium angle, multi-facetted striking platform with faint lip; complex dorsal scarring; one side is oxidized and suspected to have been subjected to fire	26-Sep-19	23-Apr-20	DH	N
10	6	ST 107 (Site Polygon B)	20-25	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2 [1], 3 [4], 5 [1]	-	-	-	No platforms; angular fragments with ventral scars	26-Sep-19	23-Apr-20	FA	N
11	1	ST 107 (Site Polygon B)	20-25	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 5	-	-	-	No platform; contains nodular cortex; possible use wear	26-Sep-19	23-Apr-20	FA	Y
12	1	ST 108 (Site Polygon D)	5-10	Tool: Utilized Flake	Chert: Etherington	Opaque, sub-vitreous creamy white with bluish-grey inclusion	23.9	15.1	3.5	1.2	Tertiary flake (biface reduction) with medium angle multi-facetted striking with faint lip and possibly a dulled working edge; complex dorsal scarring; use wear along one lateral edge that blends into terminal edge	07-Oct-19	23-Apr-20	IT	Y
13	1	ST 109 (Site Polygon D)	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(18.25)	(2.4)	(10.8)	(0.5)	Blade-like flake with use wear along two parallel lateral edges; no platform; minimal to moderate dorsal scarring	07-Oct-19	23-Apr-20	DH	Y
14	1	ST 110 (Site Polygon D)	20-25	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	High angle, dihedral striking platform; moderate dorsal scarring.	07-Oct-19	23-Apr-20	SJ	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

Provenience	Depth (below surface)	Material	Size Grade	# of Pieces	Weight (g)	Comments
ST 1 (Site Polygon A)	10 cm	*undetermined*	1	1	100	Sub-round cortex, castellated fractures
			2	2	150	Sub-round cortex, castellated fractures
ST 2 (Site Polygon A)	5-10 cm	undetermined	1	1	40	Sub-round cortex, castellated fractures
			2	2	80	Sub-round cortex, castellated fractures
ST 3 (Site Polygon A)	5-10 cm	undetermined	1	1	50	Sub-round cortex, castellated fractures
ST 101 (Site Polygon C)	5-15 cm	Quartzite	sg: 1	1	15	Round to sub-round cortex; castellated fracture
ST 101 (Site Polygon C)	5-15 cm	Quartzite	sg: 2	1	250	Round to sub-round cortex; castellated fracture
ST 103 (Site Polygon B)	15-20 cm	Sandstone	sg: 1	1	20	Round cortex; parallel castellated fractures
			Total:	***10***	***705***	

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
FAR Size Grade= sg, defined by 1= 0-5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
This artifact type was not collected, but quantified in the field and left in the location in which they were observed.

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPr-17-T06**
Borden Number: **DkPr-35**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653517** Northing: **5521027**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on a small benched slope-break positioned (half way up) the southern portion/terminus of a prominent north-south trending ridge approximately 320 m east of the Elk River, 4.1 km southwest of Grave Lake, and 10 km north of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 7 km before crossing the north-south trending CPR tracks and continue for approximately 0.4 km before turning to the southeast onto the northern access/egress route for Black Creek Forest Service Road (FSR). Continue in a south-southeastern direction for approximately 250 m and park on an old landing/clearing. Proceed on foot upslope to the north-northeast for approximately 120 m to access the small bench located mid-way up to a prominent north-south trending ridge.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada Ltd.**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/29**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (September 29, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuwap Indian Band [SIB] & TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS & KNC)** **Jesse Thomas (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Fire-Altered Rock**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks: **The presence of FAR (n=4 [0.18 kg]) is suggestive that a feature was once present, but has been naturally turbated, or largely remains consealed in a subsurface context within or immediately adjacent to the currently defined site area.**

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=3): one secondary flake and one piece of shatter of siliceous mudstone; one utilized flake of Banff Formation siliceous siltstone; all at 20-30 cm dbs within ST1 & ST2; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**
FAR	**Observed**	**FAR (n=4 [1.8 kg]) recovered during the excavation of ST 3; artifact type was not collected and returned to ST upon the completion of field analysis; see FAR table for details.**	**n/a**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **20 m** Direction **NE-SW**
Width: **14 m** Direction **NW-SE**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Provisional site dimensions are provided, which are currently defined by an observed (5 m radial buffer) boundary in all directions from positive shovel tests; a portion of the southwestern boundary parallels a segment of the bench's margin. Site is within High Archaeological Potential (HAP) zone (see 2015-0098 Site Map), and future inspection may result in an enlargement to the currently delineated site area.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.1 m** Maximum **0.3 m**

Stratigraphy Description: **I (0-5 cm) Litter mat, organic matter; II (5-6 cm) Very dark brown silt w/ high organic content; III (6-20 cm) Light yellow-brown silt w/5-10% sub-angular (SA) to sub-round (SR) gravels; IV (20-30 cm) Hard-packed, very dark brown silt w/granular crumble and 5-10% SR-SA gravels and ~5% SR cobbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Five shovel tests (0.35 m x 0.35 m) were completed within site boundaries; another three (negative) tests excavated in proximity to site area.**
Past	**Logging**	**Evidence of previous logging (eco-system restoration projects) throughout the landscape (e.g. cut stumps and skid trails); no visible impacts within the currently defined site area.**

14. ENVIRONMENT

Lower Elevation **1240 m** (asl) Upper Elevation **1243 m** (asl)

Elevation Comments: **Approximate elevations were obtained from a combination of a handheld GPS and Google Earth Pro. The site is approximately 80 m above the elevation of the Elk River (to the west) and 30 m below the apex/crest of the north-south trending ridge (to the northeast).**

Nearest Hydrological Feature(s): **The Elk River is approximately 320 m west of the site; an un-named wetland (portion of the Black Creek drainage) is located 350-360 m east.**

Terrain/Landform: **The site is on a small, benched slope-break with a southern solar aspect, situated mid-way up the southern terminus of a prominent north-south trending ridge that is along the eastern side of the Elk River.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2. Further subsurface inspection in proximity to the currently defined site area to refine boundaries.

17. GENERAL REMARKS

1) The currently delineated site area should be considered provisional, as annual inspections under 2015-0098 were influenced by an evolving development footprint (i.e. Mine Plan), which in this locality included options for a railway spur (to the east [ca. 2017] and west [ca. 2019]) and a loadout facility to the north. Negative impacts are no longer anticipated within this site if the Crown Mtn Coking Coal Project is implemented.

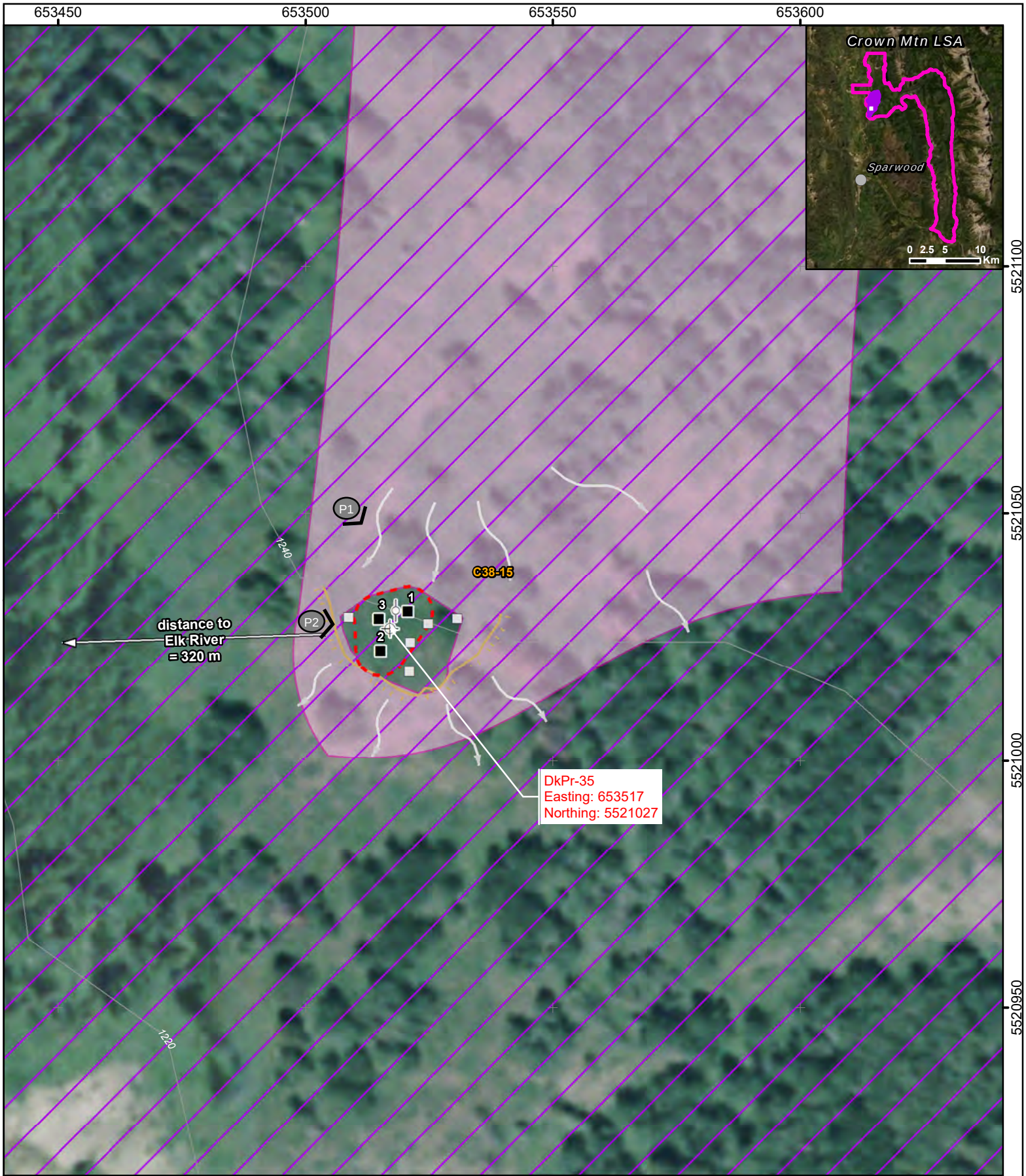

Figure: 8	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		**Legend:**
Permit: 2015-0098		BC AB	Mapping by:	Precontact Arch Site Bdry (TMECS 2017) · Centroid · High Arch Potential · Study Area (TMECS 2017-19) · Nearest Watercourse · Terrace Margin · Slope · Contour Line (20 m) · Arch Potential Area (AOA) · Negative Shovel Test (35 x 35 cm) · Positive Shovel Test (35 x 35 cm) · Soil Probe · Photo Reference & Direction
Title: DkPr-35 Site Map	Survey Date: 29/07/2017	INSET 1:40,000,000	Tipi Mountain	
Project: Crown Mountain Phase I Railway Footprint 2017-19	Mapping Date: 20/01/2021			
	1:1,000 0 5 10 20 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Borden Number: DkPr-35
Temp. Borden Number: DkPr-17-T06
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 29, 2017

Photo 1. Overview of site, located on a small, benched slope-break that contains with a southern solar aspect and a viewshed of the Elk River valley to the south that extends to the contemporary location of Sparwood. (view: southeast)

Photo 2: Supplemental overview of the site during the excavation of shovel tests (ST) 1, 2 and 3. (view: east).

Photo 3. Representative stratigraphic profile for the site. (view: Northern Wall of ST 1).

Photo 4. Fire-Altered Rock recovered at 10-20 cm dbs within ST 3.

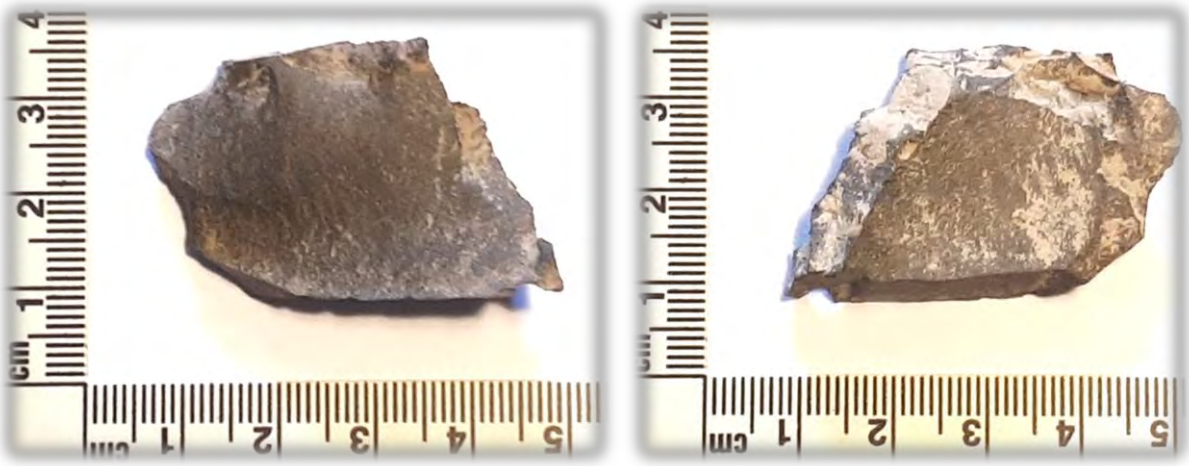

Photo 5. Representative example of the lithic artifact assemblage; utilized flake of Banff Formation siliceous siltstone recovered at 20-25 cm dbs from ST 1. (Catalogue #1).

Borden Number: DkPr-35
Temp. Borden Number: DkPr-17-T06
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 29, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-5 cm	Litter mat/Organic matter (LM/OM)
	II	5-6 cm	Very dark brown silt w/ high organic content
	III	6-20 cm	Light yellow-brown silt w/ 5-10% sub-angular (SA) to sub-round (SR) gravels
	IV	20-30 cm	Hard-packed very dark brown granular crumble silt w/ 5-10% SR-SA gravels and ~5% SR cobbles
	Comments: Utilized flake collected from 20-25 cm depth below surface (DBS)		
2	I	0-8 cm	LM/OM
	II	8-10 cm	Very dark brown silt w/ high organic content
	III	10-28 cm	Light yellow-brown silt w/5-10% SA-SR gravels
	IV	28-30cm	Hard-packed very dark brown granular crumble silt w/5-10% SR-SA gravels and ~5% SR cobbles
	Comments: One flake and one shatter fragment collected from 25-30 cm DBS		
3	I	0-7 cm	LM/OM
	II	7-16 cm	Very dark brown silt w/ high organic content
	III	16-27 cm	Light yellow-brown silt w/5-10% SA-SR gravels
	IV	27-34cm	Hard-packed very dark brown granular crumble silt w/5-10% SR-SA gravels and ~5% SR cobbles
	Comments: FAR recorded at 10-20 cm DBS		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	20-25	Tool: Utilized Flake	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with brown banding	46.4	27.5	8.3	8.1	Planar, high-angle striking platform with preparation scars, moderate dorsal scarring with soil clinging; block core reduction flake with use wear along terminal edge, and possibly one later edge	29-Sep-17	31-Mar-20	JF	Y
2	1	ST 2	25-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull greyish-brown	sg: (3)	-	-	-	Planar, high-angle striking platform with preparation scars, minimal dorsal scarring that is heavily obscured by clinging soil, missing portion of (snapped) terminal edge	29-Sep-17	31-Mar-20	JM	N
3	1	ST 2	25-30	Shatter	Siliceous Mudstone	Opaque, dull greyish-brown	sg: 3	-	-	-	Nodular cortex present, no platform but contains ventral surfaces	29-Sep-17	31-Mar-20	JM	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Shovel Test Location= STL
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

Provenience	Depth (below surface)	Material	Size Grade	# of Pieces	Weight (g)	Comments
ST 3	10-20 cm	*not specified*	sg=1	2	80	Round to sub-round cortex with castellated fractures
		not specified	sg=2	2	100	Round to sub-round cortex with castellated fractures
			totals:	***4***	***180***	

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
FAR Size Grade= sg, defined by 1= 0 -5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
This artifact type was disposed of after analysis

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPr-17-T07**
Borden Number: **DkPr-36**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653681** Northing: **5521131**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, near the southern terminus of a prominent north-south trending ridge and situated approximately 550 m east of the Elk River, 4.0 km southwest of Grave Lake, and 10 km north of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 7 km before crossing the north-south trending CPR tracks and continue for approximately 0.4 km before turning to the southeast onto the northern access/egress route for Black Creek Forest Service Road (FSR). Continue in a south-southeastern direction for approximately 250 m and park on an old landing/clearing. Proceed on foot upslope to the northeast for approximately 320 m to access the southern terminus of the crest/apex of the prominent north-south trending ridge.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/29**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (September 29, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuwap Indian Band [SIB] & TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS & KNC)** **Jesse Thomas (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Surface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: Utilized sandstone clasts/spalls (n=7) that contain unifacial and/or bifacial retouch; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **21 m** Direction **NE-SW**
Width: **18 m** Direction **NW-SE**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Provisional site dimensions are provided, which are currently defined by an observed (5 m radial buffer) boundary in all directions from exposed lithic artifacts. Site is within High Archaeological Potential (HAP) zone (see 2015-0098 Site Map), and future inspection may result in an enlargement to the currently delineated site area.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.0 m** Maximum **unknown m**

Stratigraphy Description: **Subsurface inspection was not conducted within or adjacent to the site area; litter mat and ground-cover vegetation (i.e. grasses) overlying gravels and clasts; little to no fine sediment cap observed.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**No subsurface inspections were implemented within the site boundaries (due to distance from proposed development footprint); provisional recording of site and collection of exposed artifacts.**
Ongoing	**Grazing**	**Grazing and travel patterns by ungulates; gradual erosion via trampling is occurring and contributes to slope wash; shallow-incised game trail follows the length of the north-south trending ridge.**

14. ENVIRONMENT

Lower Elevation **1263 m** (asl) Upper Elevation **1265 m** (asl)

Elevation Comments: **Elevations were determined from a combination of a handheld GPS and Google Earth Pro. The site is approximately 30 m above the elevation of a wetland (Black Cr drainage [to the east]) and 100 m above the elevation of the Elk River (to the west).**

Nearest Hydrological Feature(s): **A wetland area along a northern tributary of the Black Creek drainages is located approximately 120 m east of the site; the Elk River is 0.5 km to the west.**

Terrain/Landform: **The site is located at the southern terminus of a north-south trending ridge that is along the eastern side of the Elk River.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. Subsurface inspections recommended within the locality of the site to determine if additional artifacts are present and refine boundaries.

17. GENERAL REMARKS

1) The currently delineated site area should be considered provisional, as annual inspections under 2015-0098 were influenced by an evolving development footprint, which in this locality, included options for a railway spur (to the east [ca. 2017] and west [ca. 2019]) and a loadout facility to the north.
2) Site was discovered during a reconnaissance of the Phase 1 Study Area; collection of artifacts to prevent loss (erosion) and damage (ungulate trampling). Subsurface inspection was not conducted due to the distance from the 2017 development footprint, which was subsequently revised (shifted to the west) and therefore the site did not require a revisit under 2015-0098.
3) The north-south trending ridge offers a logical travel corridor, and along the ridge's apex a 360 degree viewshed of the Elk Valley is present.

4) Subsurface testing (if conducted in the future) will be constrained by the rocky matrix, but additional precontact artifacts are suspected to be present in the vicinity of the site and along the crest of the ridge, which has been identified as a High Archaeological Potential (HAP) zone; see 2015-0098 site map.
5) Although a thorough inspection of this site has not been completed, the presence of seven exposed utilized/retouched spalls is suggestive of an undetermined, but specific activity that occurred in this locality.

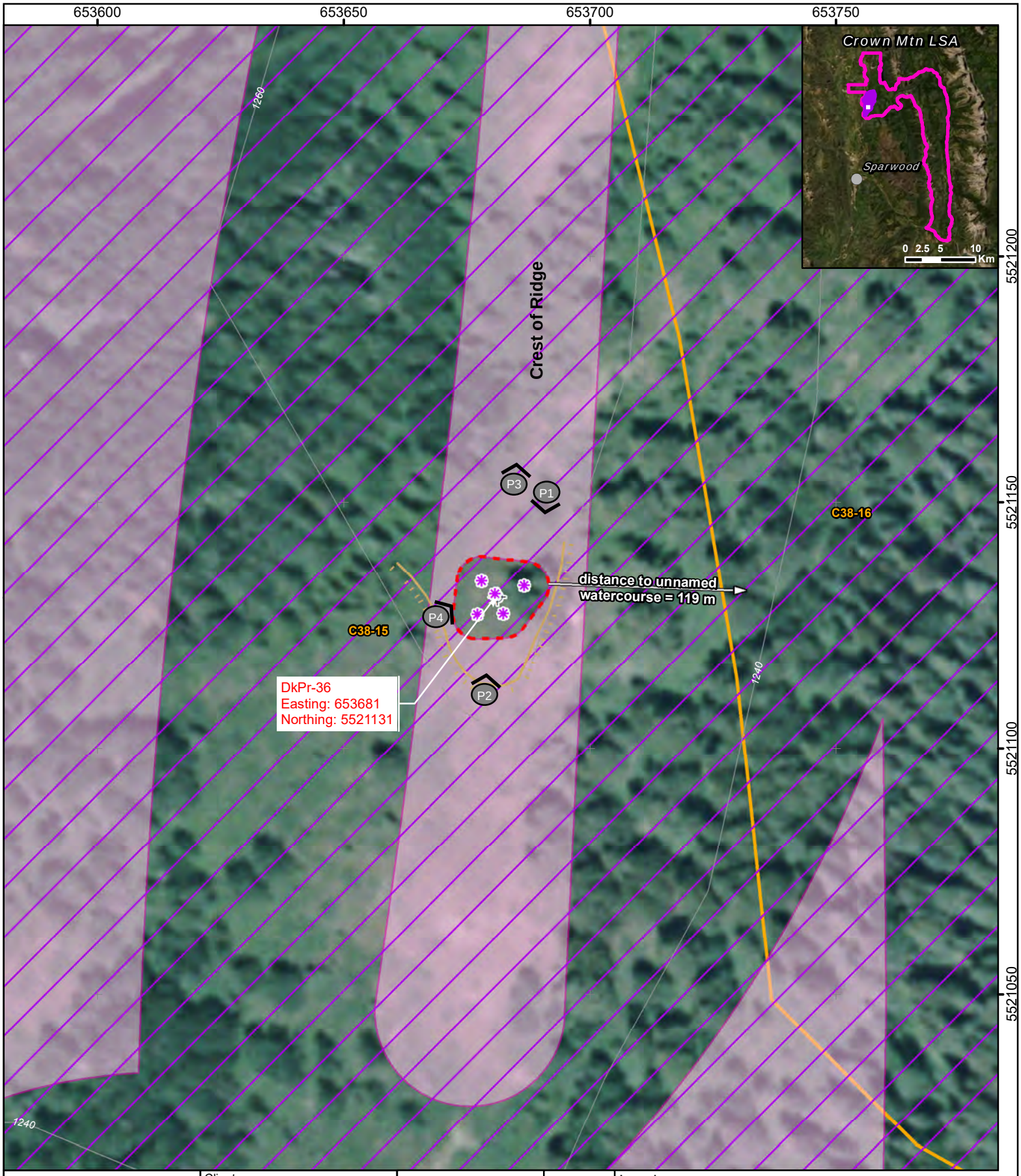

Figure: 9	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098			Precontact Arch Site Bdry (TMECS 2017)
Title: DkPr-36 Site Map	Survey Date: 29/09/2017		Centroid
	Mapping Date: 20/01/2021		High Arch Potential
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,000		Study Area (TMECS 2017-19)
	0 5 10 20 m	INSET 1:40,000,000	Nearest Watercourse
		Mapping by: Tipi Mountain	Terrace Margin
			Contour Line (20 m)
			Arch Potential Area (AOA)
			Surface Artifact - Lithics
			Photo Reference & Direction

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Overview of the currently recorded site area, situated at the southern terminus of a prominent, north-south trending ridge that is along the eastern side of the Elk River valley.
(view: south)

Photo 2. Supplementary overview of the currently recorded site area, situated at the southern terminus of a prominent, north-south trending ridge. (view: north)

Photo 3. Representative image of ridge crest that trends northward from the currently defined site area. The crest of this ridge has been identified on the site map as a High Archaeological Potential (HAP) zone. (view: north-northeast)

Photo 4. Representative image of ground surface within the currently defined site area. Note the large boulder (or bedrock) protruding through the ground cover vegetation. Little to no fine sediment cap is present (view: northeast)

Photo 5. Representative example of the lithic artifact assemblage; utilized sandstone spall with unifacially retouch edges (Photo Right). (Catalogue #1)

Photo 6. Representative example of the lithic artifact assemblage; utilized sandstone spall with bifacially retouch edges (Photo Right). (Catalogue #6)

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	SF 1	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	17.7	12.1	55.1	1080	Large spall (secondary decortication) with weathered patina and lichen present on sub-round cortex; scalloped unifacial re-touch (or use wear pattern) along majority of periphery (~70% of perimeter) with one steep/blunt edge that appears suitable for gripping; indurate coarse-grained material; raw material with round/sub-round cortex did not fit with surrounding matrix; weathered breakage indicates some antiquity	29-Sep-17	22-Apr-20	Crew	Y
2	1	SF 2	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	12.1	8.1	17.7	152.3	Spall (secondary decortication) with remnant patch of weathered sub-round cortex with lichen and one recent (unweathered) heat spall scar; two converging, unifacially retouched edges (or use wear pattern) that cover 40-50% of perimeter of the artifact; indurate coarse-grained; recovered within small area in proximity to SF 1 and SF 3-7.	29-Sep-17	22-Apr-20	Crew	Y
3	1	SF 3	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	96.8	91.1	30.3	232	Spall (primary decortication) with weathered sub-round cortex on dorsal side that is fire-reddened; weathered ventral surface with lichen growth; rounded edge with unifacial retouch (or use wear pattern) that is largely directed to the dorsal side of artifact and covers 80-90% of perimeter; indurate coarse-grained material; recovered within small area in proximity to SF 1-2 and 4-7	29-Sep-17	22-Apr-20	Crew	Y
4	1	SF 4	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	108	102	31	268	Triangular-shaped spall (primary decortication) with sub-rounded cortex; indurate, coarse-grained material; weathered surfaces with some blackened lichen growth; two lateral edges (60-70% of perimeter) are dominated by unifacial retouch/use wear that is directed to the dorsal side of artifact; contemporary (unweathered) impact to a small portion of dorsal surface	29-Sep-17	22-Apr-20	Crew	Y
5	1	SF 5	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	89.7	65.1	25.7	112.2	Ovoid-shaped spall (secondary decortication) with remnant sliver of weathered cortex; scalloped working edge spans ~60% of artifact perimeter with unifacial retouched/use wear directed to the dorsal side of artifact	29-Sep-17	22-Apr-20	Crew	Y
6	1	SF 6	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	85	69.7	15.5	81.5	Ovoid-shaped spall (primary decortication) with round to sub-round, weathered cortex; bifacially retouched/use wear spans 100% of artifact perimeter; lichen present on dorsal side	29-Sep-17	22-Apr-20	Crew	Y
7	1	SF 7	Surface	Tool: Utilized / Retouched Spall	Sandstone	Opaque, dull greyish-brown with some oxidation/rubification	83	72	12.6	66.4	Spall (secondary) with weathered patina and minimal lichen growth; presence of cortex is indistinguishable; ovoid-shaped working edge that is largely unifacially retouched/use wear pattern that covers 60-70% of the perimeter of the artifact; coarse-grained	29-Sep-17	22-Apr-20	Crew	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPr-17-T08**
Borden Number: **DkPr-37**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653797** Northing: **5521403**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on a portion of terraced bench that is immediately west of a wetland (segment of the Black Creek drainage) and along the northeastern base of a prominent north-south trending ridge, approximately 650 m east of the Elk River, 3.7 km southwest of Grave Lake, and 10.5 km north of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approximately 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 7 km and cross over the north-south trending CPR tracks. Park where safe and continue on foot in an eastward direction for approximately 0.4 km to northern terminus of a prominent north-south trending ridge. Continue for another 100 m along game trail that rounds the base of the ridge and continues to southeast into the locality of the site, which is situated on a low, terraced bench that is immediately west of a wetland (northern tributary of the Black Creek drainage).**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase I - Loadout Facilities**
☐ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/29**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (September 29, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuwap Indian Band [SIB] and TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS & KNC)** **Jesse Thomas (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: flakes (n=4) of siliceous mudstone collected from ST 1-3; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **18 m** Direction **N-S**
Width: **13 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Provisional site dimensions are provided, which are currently defined by an observed (5 m radial buffer) boundary in all directions from three positive shovel tests. Boundaries are flagged in the field with yellow and black "A.I.A. ZONE" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.25 m**

Stratigraphy Description: **I (0-10 cm) Litter mat, organic matter; II (10-11 cm) Light grey silt, Ae horizon; III (11-20 cm) Compact yellow-brown silt w/~5% sub-round (SR) to sub-angular (SA) gravels; IV (20-27 cm) Compact very dark brown clayey-silt w/3-5% SR-SA gravel and pebbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Eight shovel tests (0.35 cm x 0.35 cm) were completed within site boundaries, another 12 [negative] shovel tests excavated adjacent to site boundary.**
Ongoing	**Erosion**	**Natural turbation of subsurface matrix by wind-toppled trees; gradual incising of game trails by ungulates; some shoreline erosion to the east of site from high-water stands within wetland area.**

14. ENVIRONMENT

Lower Elevation **1225 m** (asl) Upper Elevation **m** (asl)

Elevation Comments: **Approximate elevation of the site was determined from a combination of a handheld GPS and Google Earth Pro. The site varys from 1-2 m above the elevation of the adjacent wetland area and is approximately 60 m above the elevation of the Elk River.**

Nearest Hydrological Feature(s): **The site is immediately west of an wetland area along a tributary within the Black Creek drainage; Elk River is approximately 0.7 km west.**

Terrain/Landform: **Situated on a gently sloped tread (2-5°) of a terraced bench along the northeastern side of a prominent north-south-trending ridge and immediately adjacent to a wetland area.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. Further subsurface inspection in proximity to the currently defined site area to refine boundaries.

17. GENERAL REMARKS

1) The currently delineated site area should be considered provisional, as annual inspections under 2015-0098 were influenced by an evolving development footprint (i.e. Mine Plan), which in this locality included a proposed railway spur immediately to the east (ca. 2017) and a loadout facility further to the north. The proposed railway spur that was proposed in proximity to (east of) the site was dropped from the Mine Plan after a review of the archaeological inventory and results of the AIA upon the conclusion of the 2017 field season. Negative impacts are no longer anticipated within this site if the Crown Mtn Coking Coal Project is implemented.

2) The landscape surrounding the currently delineated site area has been identified with High Archaeological Potential (HAP) and future inspections within this locality would like revise (i.e. enlarge) the area of this site, which may even connect with site DkPr-38 (located approximately 130 m to the north-northeast).

3) The setting of this site appears favourable for an ambush-like hunting site, with several game trails converging in the locality of the site.

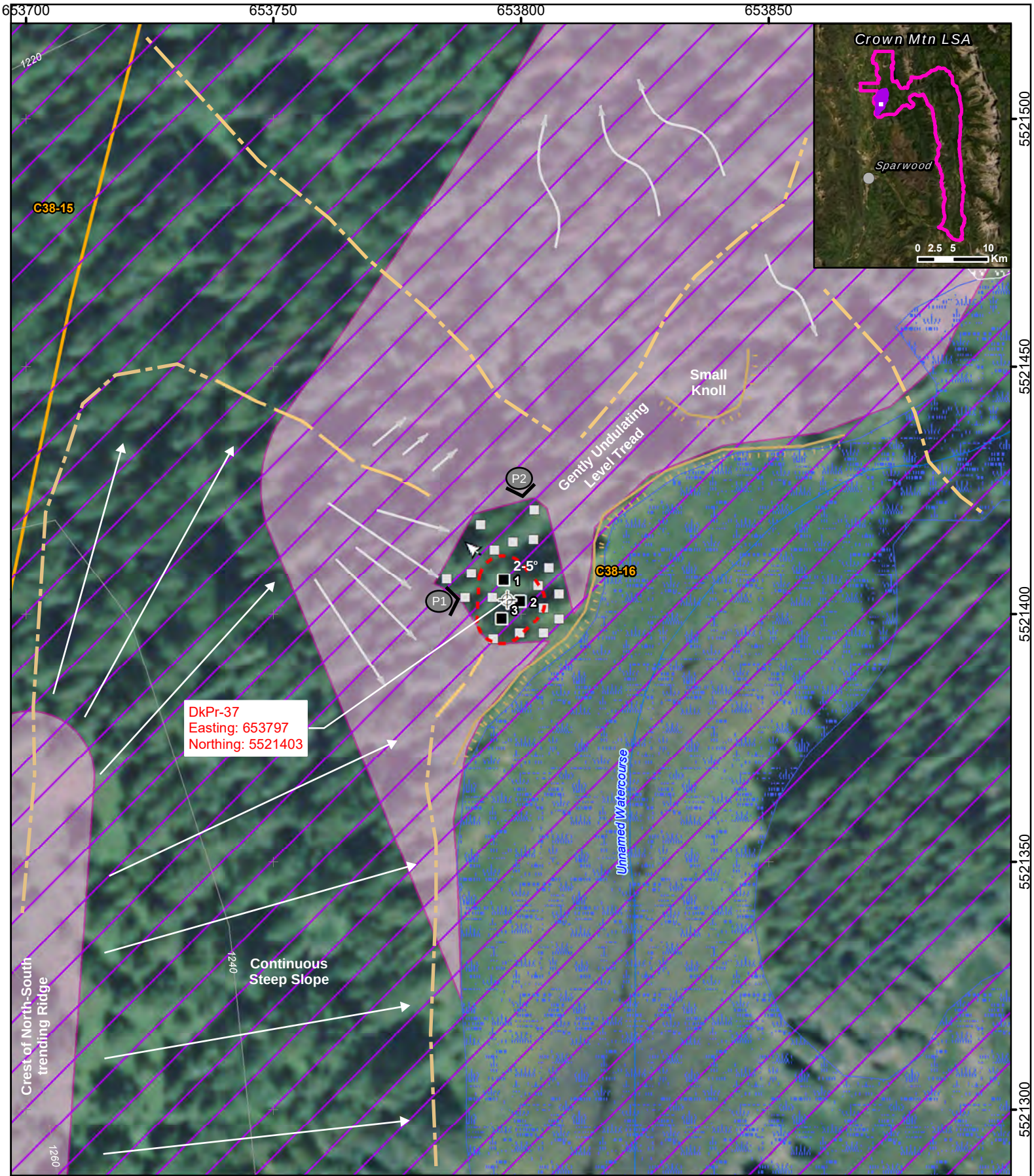

Figure: 10	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000	Precontact Arch Site Bdry (TMECS 2017); Centroid; High Arch Potential; Study Area (TMECS 2017-19); Disturbance; Trail; Wetland; Water Feature; Terrace Margin; Slope; Contour Line (20 m); Arch Potential Area (AOA); Photo Reference & Direction; Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Negative Tree Throw
Title: DkPr-37 Site Map	Survey Date: 29/09/2017	Mapping by: Tipi Mountain	
Project: Crown Mountain Phase I Railway Footprint 2017-19	Mapping Date: 21/01/2021	1:1,000 0 5 10 20 m	

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Borden Number: DkPr-37
Temp. Borden Number: DkPr-17-T08
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 29, 2017

Photo 1. Overview of locality that contains the currently defined site area, situated on the gently sloped to near level tread of a terraced bench along the western side of a wetland and along the northeastern base of a prominent north-south trending ridge along the eastern side of the Elk River valley. (view: east-northeast)

Photo 2. Supplemental overview of the site area, situated on the gently sloped tread of a bench that is to the west of wetland (in left of photo) and along the northeastern base of steep slope ascending to the southwest to the crest of prominent north-south trending ridge (in right of photo). (view: south)

Photo 3. Representative stratigraphic profile for the site. (view: Northern Wall of ST 1)

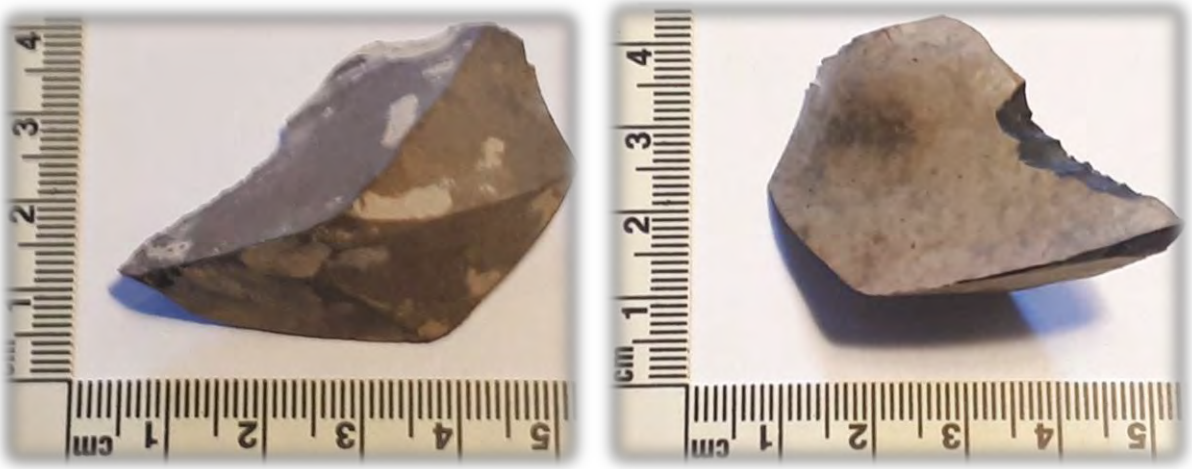

Photo 4. Representative example of the current lithic artifact assemblage; primary/secondary flake of siliceous mudstone recovered at 15-20 cm dbs within ST 3. Note that the darker grey area along one lateral edge (visible in photo right) is contemporary damage from shovel testing. (Catalogue #4)

Borden Number: DkPr-37
Temp. Borden Number: DkPr-17-T08
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 29, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1 & 2	I	0-10 cm	Litter mat (LM) / Organic matter (OM)
	II	10-11 cm	Light grey silt, Ae horizon
	III	11-20 cm	Compact yellow-brown clayey-silt w/ ~5% sub-round (SR) to sub-angular (SA) gravels, Bf horizon
	IV	20-27 cm	Very compact dark brown granular crumble silt w/ ~5% SR-SA gravels, C horizon
	Comments: Two siliceous mudstone flake fragments collected at 5-10 cm depth below surface (DBS) from ST1, and one siliceous mudstone flake fragment collected at 20-25 cm DBS from ST2.		
3	I	0-8 cm	LM / OM
	II	8-9 cm	Light grey silt, Ae horizon
	III	9-28 cm	Light yellow-brown silt w/ 5-10% SA-SR gravels
	Comments: One siliceous mudstone flake collected at 15-20 cm dbs.		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull light brownish-grey (weathered)	sg: (2)	-	-	-	No platform, weathered with faded light grey-brown patina with soil clinging	29-Sep-17	31-Mar-20	JM	N
2	1	ST 1	5-10	Flake: Fragment (Decortication)	Siliceous Mudstone	Opaque, dull grey	sg: (3)	-	-	-	No platform, contains nodular cortex	29-Sep-17	31-Mar-20	JM	N
3	1	ST 2	20-25	Flake: Tertiary (Fragment)	Siliceous Mudstone	Opaque, dull grey to greyish-brown	sg: (3)	-	-	-	Dihedral, low-angle striking platform with faint lip; minimal dorsal scarring, soil clinging to artifact	29-Sep-17	31-Mar-20	IT	N
4	1	ST 3	15-20	Flake: Primary/Secondary	Siliceous Mudstone	Opaque, dull grey to greyish-brown	sg: 5	-	-	-	Blocky/prismatic flake with a high-angle striking platform that contains weathered [nodular] cortex; portion of dorsal surface appears to be weathered (slightly reddened/rubified) from breakage prior to anthropomorphic modification; contemporary damage from shovel testing (un-weathered, dark grey breakage); soil clinging to dorsal surface.	29-Sep-17	31-Mar-20	JF	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPr-17-T09**
Borden Number (site revisit): **DkPr-38**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653892** Northing: **5521517**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on the southern portion of a ridge/bench that is immediately west of a wetland (segment of the Black Creek drainage), approximately 1.0 m east of the Elk River, 3.5 km southwest of Grave Lake, and 10.7 km north of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approximately 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 7 km and cross over the north-south trending CPR tracks. Park where safe and continue on foot in an eastward direction for approximately 0.5 km, heading towards the northern end of a prominent north-south trending ridge. At a wetland area (segment of the Black Creek drainage) head northward to a second (northern) wetland area. The site is on a low-sloped ridge/bench along the southwestern side of the northern wetland.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase I - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/29**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (September 29, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuwap Indian Band [SIB] and TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS & KNC)** **Jesse Thomas (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurf**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=3): one flake, one piece of shatter, and one piece of retouched shatter, all of siliceous mudstone; collected from ST1, ST2 and one screened tree throw (TT 1); see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **37 m** Direction **NW-SE**
Width: **10 m** Direction **NE-SW**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are observed and delineated with a 5 m radial buffer from two positive subsurface tests and one tree throw that contained an artifact. The site is flagged in the field with yellow and black "A.I.A. ZONE" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.01 m** Maximum **.15 m**

Stratigraphy Description: **I (0-9 cm) Litter mat, organic matter; II (9-10 cm) Light grey silt, Ae horizon; III (10-23 cm) Light yellow-brown granular crumble silt w/~10% sub-angular (SA) to sub-round (SR) gravels, pebbles and cobbles; IV (>23 cm) Compact dark brown clayey-silt w/3-5% SR-SA gravels and pebbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Eight shovel tests (0.35 cm x 0.35 cm) were completed within site boundaries; another 13 shovel tests were excavated and three tree throws inspected adjacent to currently defined site area.**
Ongoing	**Erosion**	**Natural turbation of subsurface matrix, primarily in the form of wind-toppled trees, present within and adjacent to the site area.**
Past	**Road Construction**	**Previously cleared and leveled area to the south of the site; possible impacts to site. Ground alteration likely assoc. w/ damming of N wetland or excavation of a drainage way to influence flow.**

14. ENVIRONMENT

Lower Elevation **1225 m** (asl) Upper Elevation **m** (asl)
Elevation Comments: **Approximate elevation of the site was determined from a combination of a handheld GPS and Google Earth Pro. The site is approximately 2 m above the elevation of the adjacent wetland area and is approximately 60 m above the elevation of the Elk River.**

Nearest Hydrological Feature(s): **The site is located immediately adjacent (west of) a wetland.**
Terrain/Landform: **Located on a NW-SE trending, generally rounded profile ridge/bench.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. Further subsurface inspection in proximity to the currently defined site area to refine boundaries.

17. GENERAL REMARKS

1) The currently delineated site area should be considered provisional, as annual inspections under 2015-0098 were influenced by an evolving development footprint (i.e. Mine Plan), which in this locality included a proposed railway spur immediately to the west-southwest (ca. 2017) and a loadout facility further to the north. The proposed railway spur that was proposed in proximity to (west of) the site was dropped from the Mine Plan after a review of the archaeological inventory and results of the AIA upon the conclusion of the 2017 field season. Negative impacts are no longer anticipated within this site if the Crown Mtn Coking Coal Project is implemented.
2) The landscape surrounding the currently delineated site area has been identified with High Archaeological Potential (HAP) and future inspections within this locality would like revise (i.e. enlarge) the area of this site, which may even connect with site DkPr-37 (located approximately 130 m to the south-southwest).

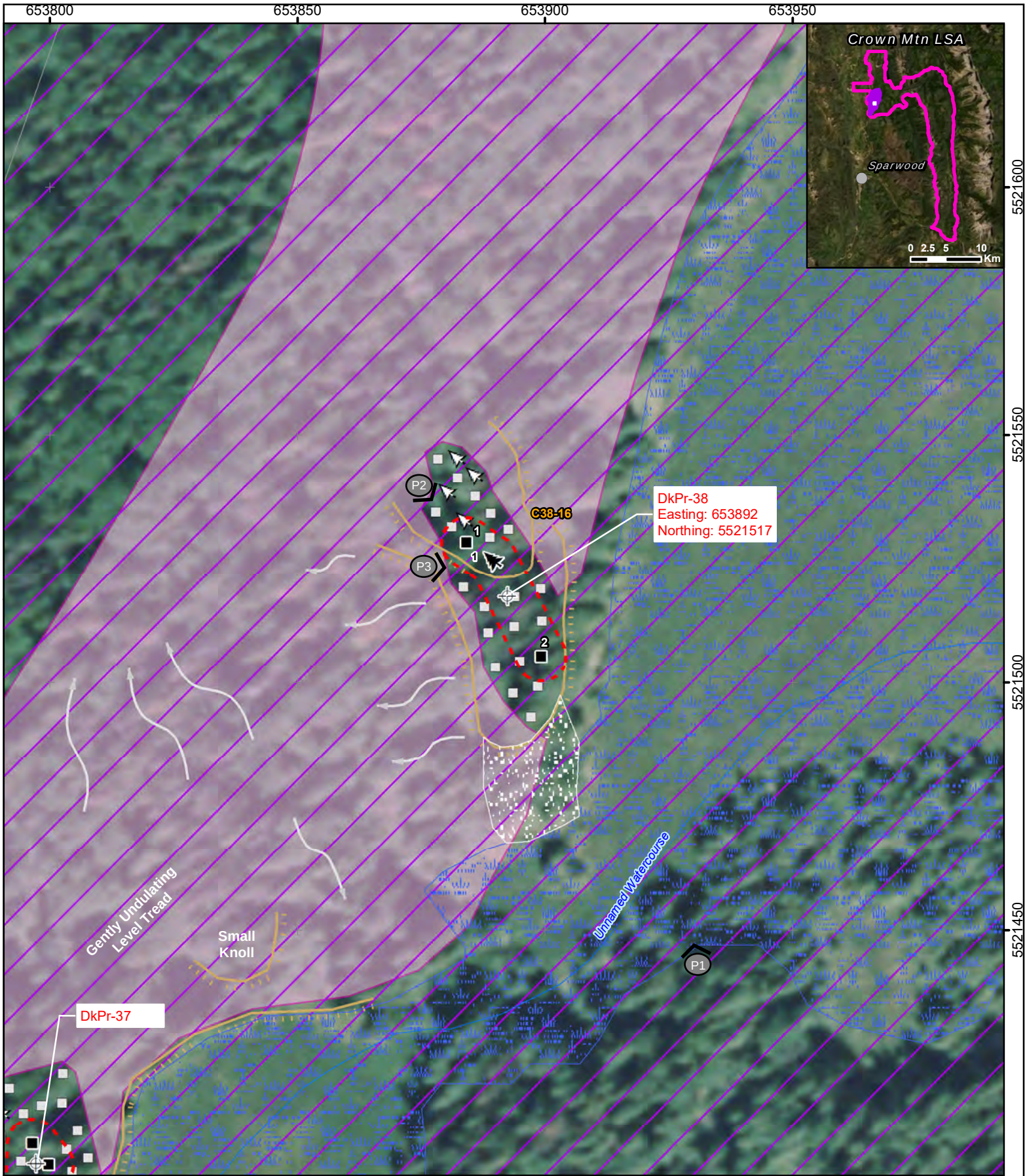

Figure: 11	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098			
Title: DkPr-38 Site Map	Survey Date: 29/09/2017		
	Mapping Date: 21/01/2021		
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,000	INSET 1:40,000,000	Mapping by: Tipi Mountain

Legend:
- Precontact Arch Site Bdry (TMECS 2017)
- Centroid
- High Arch Potential
- Study Area (TMECS 2017-19)
- Disturbance
- Wetland
- Water Feature
- Terrace Margin
- Slope
- Contour Line (20 m)
- Arch Potential Area (AOA)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Tree Throw
- Positive Tree Throw
- Photo Reference & Direction

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Borden Number: DkPr-38
Temp. Borden Number: DkPr-17-T09
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 29, 2017

Photo 1. Overview image that references the relative location of the site (red arrow) that is situated along the west-southwestern side of a wetland, just prior to the southerly flowing drainage (segment of Black Creek drainage) narrowing before it enters another southerly wetland. (view: north)

Photo 2. Representative overview of the site in the area of Shovel Test 1. (view: southeast).

Photo 3. Supplemental image of the site area that contains the tree throw that exposed a lithic artifact. The wetland (segment of Black Creek drainage) is visible in the background. (view: east)

Photo 4. Representative example of the current lithic artifact assemblage; a retouched shatter fragment of siliceous mudstone recovered at 10-15 cm dbs within Shovel Test 1. (catalogue #1)

Photo 5. Representative example of the current lithic artifact assemblage; a decoration shatter fragment of siliceous mudstone recovered at approximately 1-5 cm dbs within Tree Throw 1. (catalogue #3)

Photo 6. Representative stratigraphic profile for the site. (view: northern wall of ST 1)

Borden Number: DkPr-38
Temp. Borden Number: DkPr-17-T09
HCA Permit Number: 2015-0098
Date of Assessment: September 29, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1 & 2	I	0-9 cm	Litter mat, organic matter
	II	9-10 cm	Light grey silt, Ae horizon
	III	10-23 cm	Light yellow-brown granular crumble silt w/~10% sub-angular (SA) to sub-round (SR) gravels, pebbles and cobbles
	IV	>23 cm	Compact dark brown clayey-silt w/3-5% SR-SA gravels and pebbles
	Comments: Shatter and flake fragments collected at 10-15 cm depth below surface (DBS)		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	10-15	Tool: Retouched Shatter	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	48.4	16.9	9.8	6.1	Shatter fragment (no platform) with remnant of nodular cortex present; unifacially retouched edge that forms concavity along the sharpest edge of the specimen	29-Sep-17	31-Mar-20	JM	Y
2	1	ST 2	10-15	Flake: Fragment	Siliceous Siltstone	Opaque, dull greenish-grey	sg: (2)	-	-	-	No platform, curvature present on ventral surface	29-Sep-17	31-Mar-20	JM	N
3	1	TT 1	1-5	Shatter (decortication)	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 6	-	-	-	Extensive portion of nodular cortex present, no platform, produced through decortication of mudstone nodule	29-Sep-17	31-Mar-20	Crew	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPr-19-T01**
Borden Number: **DkPw-39**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653278** Northing: **5521054**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, on a small, slightly elevated knoll that has been truncated by the railway (Canadian Pacific Railway - Fording River Branch Line) and situated on the secondary terrace level along the eastern side of (80 m from) the Elk River, 4.2 km southwest of Grave Lake, and 10 km north of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 7 km before crossing the north-south trending CPR tracks and continue for approximately 0.4 km and park in where safe in proximity to the junction with the northern access/egress route for Black Creek Forest Service Road (FSR). Continue on foot downslope to the west for approximately 80 m to arrive in the locality of the site.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/10/21**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (October 21, 2019)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Dan Heinrichs (TMECS)** **Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Justin Hanna (TMECS)**	**Y**
Other	**Marshall Ezelle (TMECS)** **Jason Feltham (Ktunaxa Nation Council [KNC] & TMECS)** **Corey Stevens (TMECS & Shuswap Indian Band [SIB])** **Sunshine Joseph (TMECS & KNC)** **Nick Johnson (TMECS & KNC)** **Denise Walker (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=21): flake/flake fragments (n=15) and utilized flakes (n=6), all of siliceous mudstone; collected from nine shovel tests; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **34 m** Direction **N-S**
Width: **28 m** Direction **E-W**

Site Boundary Type: **Natural and Arbitrary**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are observed to the north, east and south, based on a 5 m buffer zone from positive shovel tests, although the southeastern site boundary roughly parallels a margin (increased slope) of the knoll. The western boundary is delineated arbitrarily based on disturbance associated with an overgrown access road and previous railway construction (ca. 1971). The site is flagged in the field with yellow and black "A.I.A. ZONE" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.3 m**

Stratigraphy Description: **I (0-4 cm) Litter mat, Organic matter; II (4-23 cm) Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles; III (23-35 cm) medium-dark brown silt with clay and 20% pebbles; IV (35-36 cm) compact dark to medium grey clay with silt; see Site Stratigraphic Log.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approximately 15 shovel tests (0.35 m x 0.35 m) were completed within the site boundaries. Another four shovel tests excavated on the knoll to the north of site boundary.**
Past	**Road Construction**	**Construction of an old access road has likely removed some of the majority of the fine sediment cap within the western portion of the site (associated with railway?)**
Past	**Railway**	**Construction (ca. 1971) of the CPR Fording Branch Line, which truncated the landform to the west of the site. Suspected that the CPR removed sediment that may have once held precontact artifacts.**
Ongoing	**Erosion**	**Natural turbation of fine sediment cap (e.g. tree throws) and increased erosion (slope wash) due to exposure of unconsolidated sediment in old road grade and the steep cut that defines the CPR tracks.**

14. ENVIRONMENT

Lower Elevation **1195 m** (asl) Upper Elevation **m** (asl)

Elevation Comments: **Elevation was obtained from a combination of a handheld GPS and Google Earth Pro. The site is approximately 32 m above the elevation of the Elk River (to the west) and 8 m below the elevation of Valley Road (to the east).**

Nearest Hydrological Feature(s): **The Elk River is located approximately 80 m west of the site.**

Terrain/Landform: **The site is located on a small, slightly elevated knoll, truncated by an old road grade and slope cut defining the CPR tracks along the western side of the landform.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**TBD**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2. Further subsurface inspection within the adjacent landscape.

17. GENERAL REMARKS

1) The currently delineated site area should be considered relatively provisional, as annual inspections under 2015-0098 were influenced by an evolving development footprint (i.e. Mine Plan), which in this locality included an option for a railway spur (ca. 2019) that connected to a loadout facility further to the north. Negative impacts are no longer anticipated within this site if the Crown Mtn Coking Coal Project is implemented.

Figure: 12	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain
Title: DkPr-39 Site Map	Survey Date: 21/10/2019		
	Mapping Date: 20/01/2021		
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,000 0 5 10 20 m		

Legend: New Precontact Arch Site Bdry; Centroid; High Arch Potential; Study Area (TMECS 2017-19); Nearest Watercourse; Gravel Road; Old Road; Rail Line; River; Water Feature; Terrace Margin; Railway Cut; Slope; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA); Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Photo Reference & Direction

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Overview of the locality that contains the eastern remnant of a slightly elevated knoll site and the currently defined site area. (view: north-northwest)

Photo 2. Supplemental overview of the currently defined site area, located to the east of an old access road (photo right) and the deeply incised the north-south trending right-of-way of the Canadian Pacific Railway – Fording River Branch Line. (view: southwest)

Photo 3. Representative stratigraphic profile for the site. (view: northern wall of ST 1)

Photo 4. Representative example of the lithic artifact assemblage; utilized flake of siliceous mudstone recovered at 5-10 cm dbs from ST 6. (Catalogue #10)

Photo 5. Representative example of the lithic artifact assemblage; utilized [tertiary] flake of siliceous mudstone recovered at 20-28 cm dbs from ST 9. (Catalogue #13)

Photo 6. Representative example of the lithic artifact assemblage; utilized flake of siliceous mudstone recovered at 10-20 cm dbs from ST 9. (Catalogue #21)

Borden Number: DkPr-39
Temp. Borden Number: DkPr-19-T01
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: October 21, 2019

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-4 cm	Litter mat/Organic matter (LM/OM)
	II	4-23 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	III	23-35 cm	Medium-dark brown silt with clay and 20% pebbles
	IV	35-36 cm	Compact dark to medium grey clay with silt
	Comments: two siliceous mudstone flakes recovered from 20-30 cm dbs.		
2	I	0-8 cm	LM/OM
	II	8-21 cm	Grey-brown sandy silt with 10-20% round to sub-angular pebbles
	III	21-24 cm	Grey-brown silty clay with 20% pebbles
	Comments: two siliceous mudstone flakes recovered from 10-20 cm dbs.		
3	I	0-6 cm	LM/OM
	II	6-20 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	20-24 cm	Compact dark to medium grey clay with silt
	Comments: one siliceous mudstone flake recovered from 15-20 cm dbs.		
4	I	0-4 cm	LM/OM
	II	4-18 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	18-24 cm	Compact dark to medium grey clay with silt
	Comments: one siliceous mudstone flake recovered from 10-15 cm, one siliceous mudstone flake and one utilized siliceous mudstone flake recovered from 15-20 cm dbs.		
5	I	0-6 cm	LM/OM
	II	6-20 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	20-25 cm	Compact dark to medium grey clay with silt
	Comments: one utilized siliceous mudstone flake recovered from 15-20 cm dbs.		
6	I	0-9 cm	LM/OM
	II	9-21 cm	Light tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	21-24 cm	Compact dark to medium grey clay with silt
	Comments: one utilized siliceous mudstone flake recovered from 0-10 cm dbs.		
7	I	0-10 cm	LM/OM
	II	10-24 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	24-28 cm	Compact dark to medium grey clay with silt
	Comments: two siliceous mudstone flakes recovered from 10-20 cm and one utilized siliceous mudstone flake recovered from 20-28 cm dbs.		
8	I	0-4 cm	LM/OM
	II	4-18 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	18-27 cm	Compact dark to medium grey clay with silt
	Comments: two siliceous mudstone flakes recovered from 0-10 cm and two siliceous mudstone flakes recovered from 20-27 cm dbs.		
9	I	0-8 cm	LM/OM
	II	8-24 cm	Medium tan-brown silt with some sand and 10-15% round to sub-angular pebbles
	IV	24-31 cm	Compact dark to medium grey clay with silt
	Comments: two siliceous mudstone flakes recovered from 0-10 cm and two utilized siliceous mudstone flakes recovered from 10-20 cm dbs.		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	20-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Medium to high angle, multi-facetted striking platform; complex dorsal scarring; thinning flake; suspected use wear along later edges; soil clinging to artifact	21-Oct-19	21-Apr-20	JF	N
2	1	ST 1	20-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Medium angle, multi-facetted striking platform with faint lip and may contain former working edge; complex dorsal scarring; resharpening flake; soil clinging to artifact	21-Oct-19	21-Apr-20	JF	N
3	1	ST 2	10-20	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 7	-	-	-	Secondary decortication flake with nodular cortex present on platform; medium to high angle striking platform; moderate dorsal scarring; no evidence of use wear	21-Oct-19	21-Apr-20	JH	N
4	1	ST 2	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Terminal portion of flake, no platform; minimal dorsal scarring; prominent ripple marks on ventral surface	21-Oct-19	21-Apr-20	JH	N
5	1	ST 3	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Crushed platform; moderate dorsal scarring; soil clinging to artifact	21-Oct-19	21-Apr-20	NS	N
6	1	ST 4	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Secondary decortication flake with water-smoothed nodule cortex on dorsal side; medium to high angle dihedral striking platform; minimal dorsal scarring; soil clinging to artifact	21-Oct-19	21-Apr-20	ME	N
7	1	ST 4	15-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(19.6)	(16.1)	(7.8)	(2.9)	Secondary decortication flake with water-smoothed nodule cortex along platform and portion of dorsal side; high angle striking platform; minimal dorsal scarring; soil clinging to artifact; use wear along one lateral edge with opposing edge containing unifacial retouch	21-Oct-19	21-Apr-20	ME	Y
8	1	ST 4	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Medium to high angle, planar striking platform; complex dorsal scarring; shaping flake; hinge termination; soil clinging to artifact	21-Oct-19	21-Apr-20	ME	N
9	1	ST 5	15-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered) with dark grey exposed (interior)	(34.1)	(15.1)	(5.1)	(2.2)	Terminal portion of decortication flake; no platform; minimal dorsal scarring; use wear along lateral edge; relatively recent (unweathered) fracture	21-Oct-19	21-Apr-20	NJ	Y
10	1	ST 6	5-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	48.1	21.1	8.1	7.0	Primary decortication flake with medium to high angle striking platform with water-smoothed nodular cortex; use wear along proximal-lateral edges;	21-Oct-19	21-Apr-20	DW	Y
11	1	ST 7	10-20	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered) with some oxidation	sg: 4	-	-	-	Secondary decortication flake with high angle, dihedral striking platform; chunky shape; minimal dorsal scarring with nodular cortex; some of cortex appears blackened (subject to fire)	21-Oct-19	21-Apr-20	JH	N
12	1	ST 7	10-20	Flake: Fragment (decortication)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (4)	-	-	-	Medial - terminal portion of flake; no platform; ventral side appears to suggest a pot-lid fracture; water-smoothed cortex present on dorsal side	21-Oct-19	21-Apr-20	JH	N
13	1	ST 7	20-28	Tool: Utilized Flake (tertiary)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Biface reduction / re-sharpening flake from relatively large biface/preform; medium angle multi-facetted striking platform with prominent overhanging lip and contains a 'dulled' working edge; moderate dorsal scarring; soil clinging to artifact and the size/style of the flake is suggestive of greater antiquity	21-Oct-19	21-Apr-20	NJ	Y
14	1	ST 8	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Very small, high-angle, planar striking platform; moderate dorsal scarring; soil clinging to artifact	21-Oct-19	21-Apr-20	JF	N
15	1	ST 8	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered), coarse-grained	sg: (2)	-	-	-	Medial - terminal portion of flake; no platform	21-Oct-19	21-Apr-20	JF	N
16	1	ST 8	20-27	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Crushed platform; minimal dorsal scarring; soil clinging to artifact	21-Oct-19	21-Apr-20	JF	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
17	1	ST 8	20-27	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	No platform; soil clinging to artifact	21-Oct-19	21-Apr-20	JF	N
18	1	ST 9	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Medium to low angle, planar striking platform with slight lip; moderate to complex dorsal scarring; contemporary breakage (unweathered) along terminal edge; shaping-like flake; soil clinging to dorsal side	21-Oct-19	21-Apr-20	SJ	N
19	1	ST 9	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Medium angle, dihedral striking platform with overhanging lip; moderate dorsal scarring; thinning-like flake; no evidence of use wear	21-Oct-19	21-Apr-20	SJ	N
20	1	ST 9	10-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(24.7)	(21.1)	(6.6)	(1.8)	Fragment of decortication flake with water-smoothed cortex present on dorsal side; no platform; use wear along one lateral edge	21-Oct-19	21-Apr-20	SJ	Y
21	1	ST 9	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(25.2)	(20.4)	(6.7)	(2.6)	Fragment of decortication flake with water-smoothed cortex present on dorsal side; no platform; use wear along one lateral edge	21-Oct-19	21-Apr-20	SJ	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DlPr-8**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653623** Northing: **5522864**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, this multi-polygon site (A-E) occupies portions of the most expansive grassland area within 'Grave Prairie' and some peripheral terrain. The northernmost polygon (C) is approximately 100 m south of Grave Creek, and the central area of the site located approximately 920 m the east of the Elk River, 1.7 km southwest of Grave Lake, and 12 km north-northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approx. 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 5.6 km (bridge crossing Grave Creek at ~5.1 km) before turning eastward on an un-named road that spans approximately 150 m and terminates at an informal campsite in proximity to the CPR tracks; this is the location of site Polygon A. Polygons B & C are located to the east-northeast of railway tracks; Polygons D & E are isolated mounds along the western side of Valley Road.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/28**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (September & October, 2017-2019)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS)** **Daniel Heinrichs (TMECS)**	**Y☐ N☐**
Field Supervisor(s)	**Joshua Martin (Shuswap Indian Band [SIB] & TMECS)** **Lara McFadden-Baltutis (TMECS)** **Jacob Liddy (TMECS)**	**Y**
Other	**John Nicholas (Ktunaxa Nation Council [KNC])** **Nicole Kapell (KNC)** **Nathalie Allard (KNC)** **Megan Heathfield (KNC)** **Jessie Thomas (TMECS & KNC)** **Jason Feltham (TMECS & KNC)** **Wayne Choquette (TMECS)** **Marshall Ezelle (TMECS)** **Mathias Ladd (TMECS)** **Justin Hanna (TMECS)** **Jeff Williams (TMECS & KNC)** **Mike Shottanana (TMECS & KNC)** **Mike Allen (NWP Coal Canada Ltd.)** **Nick Johnson (TMECS & KNC)** **Sunshine Joseph (TMECS & KNC)** **Denise Walker (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Human Remains**		**Burial Mounds**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks: Approximately 97 mounds, suspected to be ancestral burials were observed within portions of the site, including 64 in Polygon A, 31 in Polygon B, 1 in Polygon D, and 1 in Polygon E. Locations were recorded via GPS and are projected on the site map. See Remarks for further information.

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=13) recovered from site Polygons B and C; including 10 flakes or fragments of, two utilized flakes, and one shatter fragment; assemblage consists of five different raw lithic material types; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**
Human Remains	**Observed**	**Mounds (n=97) that are suggested/suspected burials within site Polygons A, B, D, and E located in 'Grave Prairie'; see Remarks for further information.**	**N/A**

9. ARCHAEOLOGICAL CULTURE

Archaeological Culture Remarks: **Ancestral remains (i.e. suspected burial mounds) are likely associated with the Michel Prairie Band of the Ktunaxa Nation, who reportedly succumbed to Small Pox in this locality; this supports the given place name of "Grave Prairie".**

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **656 m** Direction **NE-SW**
Width: **250 m** Direction **N-S**

Site Boundary Type: **Natural and Arbitrary**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Provisional site dimensions provided above encompass all five of the site polygons (A-E) delineated under permit 2015-0098 by observed boundaries in all directions and includes a 5 m radial buffer from positive shovel tests, previously exposed lithic artifacts, and from the central point of suspected burial mounds; see General Remarks.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **Surface m** Maximum **0.25 m**

Stratigraphy Description: **A minimal amount of subsurface inspection conducted due to presence of suspected burial mounds. Slight variations in stratigraphy suspected based on fortuitous exposures, and in general, a silt or silty-sand fine sediment cap (0-30 cm DBS) overlying moderately-sorted gravel; see Stratigraphy Log.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approx. 10 shovel tests (0.35 m x 0.35 m) were completed within a southern portion of site Polygon B; approx. 4 additional shovel tests excavated in proximity to site areas.**
Past	**Logging**	**Evidence of a previous timber harvest (>20 years ago) in Polygon B: machine-cut stumps, secondary in-grown stand of pine to the east of railway tracks; remnants of flagging tape (harvest boundaries?).**
Past	**Railway**	**N-S trending Harmer Siding along the Fording R. Branch Line (CPR) has bisected the site. Suspected burial mounds are in proximity to the right-of-way; detrimental impacts likely occurred ca. 1971.**
Ongoing	**Industrial Development**	**Previously cleared/leveled terrain within and proximal to Polygon C; this may have been a staging area during CPR construction and/or associated with previous timber harvest east of railway.**
Ongoing	**Recreational Use**	**Informal campsites (n=2) within Polygon A. Gradual incising of truck road(s) to the sites, minor excavation to level areas for RVs, increased off-road vehicle use through areas with suspected burials.**
Ongoing	**Erosion**	**Natural turbation of subsurface matrix, primarily in the form of wind-toppled trees, which has produced several tree throws. Gradual incising/meandering of game trails; some rodent mounding.**

14. ENVIRONMENT

Lower Elevation **1196 m** (asl) Upper Elevation **1211 m** (asl)
Elevation Comments: **Approximate elevations for the provisional site areas were obtained from a combination of a handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Littlemoor Creek adjacent to (south of) Polygon A; a segment of Grave Creek is located approximately 100 m north of site Polygon C. The Elk River is approximately 180 m west of Polygon E, and Grave Lake is 2.0 km northeast of Polygon B**
Terrain/Landform: **The provisional site areas occupy portions of and microtopographic features (e.g. knolls and benches) on the level to gently-undulating tread of the +/-1200 - 1210 m (asl) terrace level.**
Other:

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Avoidance of delineated site areas and the general locality is recommended until further archaeological research can be conducted to confirm/refute suspected burial mounds the extent of the provisionally delineated site area(s).
2. If avoidance is not possible, cautious and culturally-appropriate inspections need to be implemented under a 12.2 Heritage Inspection Permit and any ground alterations (beyond suspected burials) must be conducted under a 12.4 Site Alteration Permit.

17. GENERAL REMARKS

1) The original documents that pertain to the recording of site DlPr-8 do not mention human remains or ancestral burials. Within the 1973-0004 report, DlPr-8 is identified as one of 17 "*Hunting Campsites… These are small to medium sized campsites from which tools suggestive of hunting (projectile points) and butchering (choppers, large bifaces) were collected. In many cases, these sites form the principal parts of site complexes, especially in the major grassland areas*." (Choquette 1973: p.4). Additionally, site DlPr-8 is mentioned as containing faunal remains, and in particular those of bison (*ibid*.: p.13).

2) Attributes of suspected burial mounds were not individually documented, and more research/documentation is required. In general, suspected burial mounds had the following characteristics:
- approximate size: 2 m (length) x 1 m (width) x 0.1 - 0.4 m (height);
- gently rounded profile mounds with fortuitous exposures (rodent burrows) revealing a thin fine sediment cap overlying a mantle of sandy-gravel;
- mounds have slightly different vegetation than the surrounding grassy-dominated ground surface (influenced by turbated sediment and drainage); mounds were frequently vegetated with kinnikinnick;
- a consistent orientation of mound directions was not observed (further research needed);
- largely isolated (individual burials), but a relatively dense cluster is within Polygon A and one small cluster is within the northern portion of Polygon B.

3) In 2017, W.T. Choquette (original recorder) met with the field crew and discussed the aforementioned attributes (General Remarks #2) of suspected burials within what is now delineated as site Polygon A. Subsequently, a judgmental survey was then conducted throughout the eastern portion of the grassland area that overlapped or infringed upon the conceptual mine plan (ca. 2017) in small groups (2-3 individuals) who identified any potential burial mounds. Once the development footprint was traversed, peripheral terrain was then visually inspected. Attributes of each identified mound was then reviewed and involved a group discussion to determine if each mound was suspected to be a burial or mounding could be attributed to natural or contemporary disturbance. When in doubt, mounds were recorded to err on the site of caution. Approximately 64 mounds were identified to the west of the railway tracks (Polygon A), and 31 mounds were identified along the eastern side of the railway tracks (Polygon B). Two isolated mounds (Polygons D & E) were identified along the southern margin of a relict drainage route that is west of Valley Road. These totals should be considered provisional and is not an exhaustive tally for burial mounds in this locality.

4) Multiple site revisits occurred to familiarize the newer members of the field crew with what has been interpreted as ancestral burial mounds prior to and for consideration for when working within other portions of the 2015-0098 study area. Note that the most significant field inspection date is indicated on this site form update, but an exhaustive list of dates for supplemental and minor field visits (ca. 2017-2019) is not available.

5) Although some trees have been cut within Polygon A (west of railway, and possibly associated with recreational activity), the ground surface and suspected burial mounds appear to be the most intact and consistent in this portion of the site. Mounds to the east of the railway (i.e. Polygon B) are slightly more variable in appearance and therefore some mounds have the potential to be overgrown disturbance associated with forestry activity (e.g. vegetated push piles or root wad mounds of decayed, mechanically-pushed or wind-toppled trees) or construction activity associated with the Harmer Siding along the Fording River Branch Line (ca 1971). Along the western side of Valley Road (locality of Polygons D & E), much of the ground surface appears to have previously been subjected to cultivation or leveling based on the presence of multiple, parallel-trending windrows (now overgrown with grasses). Previous ground alteration likely eradicated evidence for precontact burial mounds, with the exception of two mounds that were recorded along the southward margin of a relict drainage (Polygons D & E). Note that some members of the field crew did venture northward into the currently projected location of DlPr-5 (RAAD ca. 2017-2020) and visually-inspected the northern side of the aforementioned relict drainage, and suggested some mounding was present; unfortunately, this area was not inspected thoroughly due to the increased distance from the disturbance footprint associated with the conceptual mine plan.

6) As discussed and agreed upon by assigned and in-house First Nations representatives and with administrative positions within the Ktunaxa Nation Council and the Shuswap Indian Band, no form of archaeological inspection was conducted within the vicinity of suspected burial mounds. Due to the presence and suspected distribution of the burial mounds, the NWP Coal Canada revised the mine plan and shifted the loadout facility and railway spur/loadout area to the south-southeast (see Site Maps).

7) In general, the archaeological inspection of this site and the adjacent terrain should be considered provisional. A great deal of archaeological inspection is still required to determine adequate site areas/ boundaries within this locality. Due to an evolving mine plan (ca. 2015-2019), which in this area originally included a loadout facility and railway siding/loop, archaeological inspection of the updated site areas was shifted after the conceptual disturbance footprint was altered by the proponent. Future inspections occurring within the locality of this site will undoubtedly revise the currently delineated site area polygons.

8) The currently projected site area update (HIP 2015-0098), largely encompasses the provisional site area update that was submitted under MAP 2014-0067.

9) Site Polygon Attributes & Boundary Dimensions

Polygon A

Centroid: 11U 653623 E, 5522864 N
Approx. Elevation: 1200 - 1203 m asl
Size: 306 m (NE-SW) x 200 m (NW-SE)
Boundaries are largely observed in all directions, delineated with a 5 m radial buffer from all suspected burial mounds; short segment of eastern boundary is arbitrary (railway siding disturbance).

Polygon B

Centroid: 11U 653850 E, 5523085 N
Approx. Elevation: 1203 - 1211 m asl
Size: 377 m (NE-SW) x 93 m (NW-SE)
Boundaries are largely observed in all directions, delineated with a 5 m radial buffer from all suspected burial mounds on the tread of the terrace, but also includes a 5 m radial buffer from an exposed lithic artifact (SF 101) and three positive shovel tests that were excavated along the terraced margin of upland (increasingly undulating) terrain; a short segment of the west-southwestern boundary is arbitrary (railway siding disturbance).

Polygon C
Centroid: 11U 653838 E, 5523190 N
Approx. Elevation: 1200 - 1203 m asl
Size: 66 m (NE-SW) x 22 m (NW-SE)
Boundaries are observed in all directions, delineated with a 5 m radial buffer from a previously exposed lithic artifact (SF 1 - 7).

Polygon D
Centroid: 11U 654247 E, 5523271 N
Approx. Elevation: 1199 m asl
Size: 10 m (N-S) x 10 m (E-W)
Boundary is observed in all directions and delineated with a 5 m radial buffer from a single suspect burial mound that is in proximity to (south of) the south-southeastern margin of a relict drainage route to the west of Valley Road.

Polygon E
Centroid: 11U 653475 E, 5522863
Approx. Elevation: 1196 m asl
Size: 10 m (N-S) x 10 m (E-W)
Boundary is observed in all directions and delineated with a 5 m radial buffer from a single suspect burial mound situated along the south-southeastern margin of a relict drainage route that is to the west of Valley Road.

10) Correspondence with the Royal British Columbia Museum (RBCM) indicated that the artifact assemblage for this site previously utilized a single catalogue number (ca. 1973), and the assemblage collected under 2015-0098 was to commence with DlPr-8: #2. Under permit 2015-0098, DlPr-8 utilized catalogue #2-13.

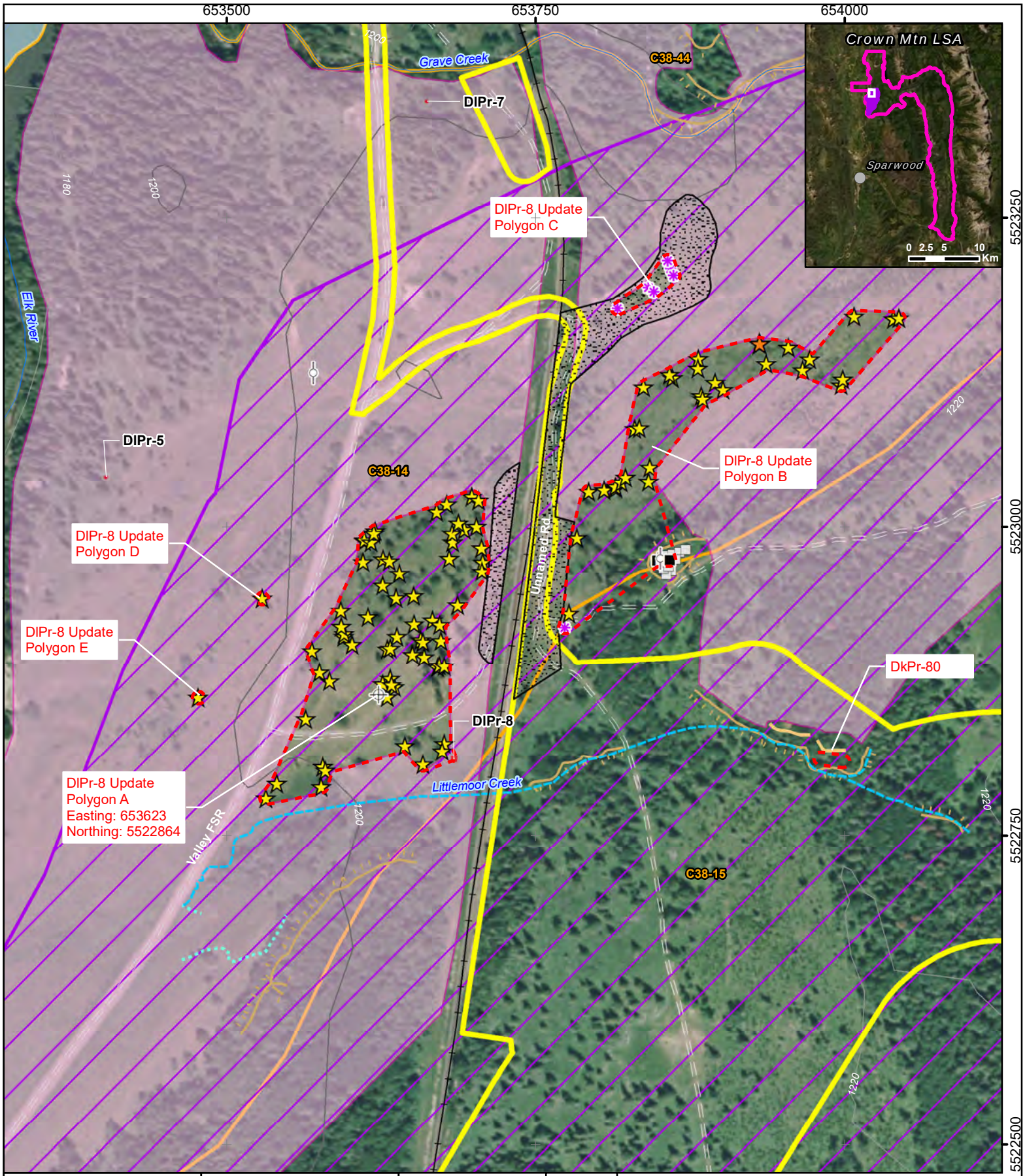

Figure: 13	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	
Title: DIPr-8 Update Site Map	Survey Date: 28/09/2017			
Project: Crown Mountain Phase I Railway Footprint 2017-19	Mapping Date: 12/02/2021			
	0 20 40 80 m 1:4,000			

Precontact Arch Site Bdry (TMECS 2017-19); Centroid; Precontact Arch Site Bdry (RAAD 2020); High Arch Potential; Study Area (TMECS 2017-19); Project Footprint (as of 26/10/2020); Gravel Road; Trail; Rail Line; River; Water Feature; Ephemeral Drainage; Relict Drainage; Terrace Margin; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA); Previous Ground Disturbance; Surface Artifact - Lithics; Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Negative Tree Throw; Suspected Burial Mound; Suspected Burial Mounds; Soil Probe

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

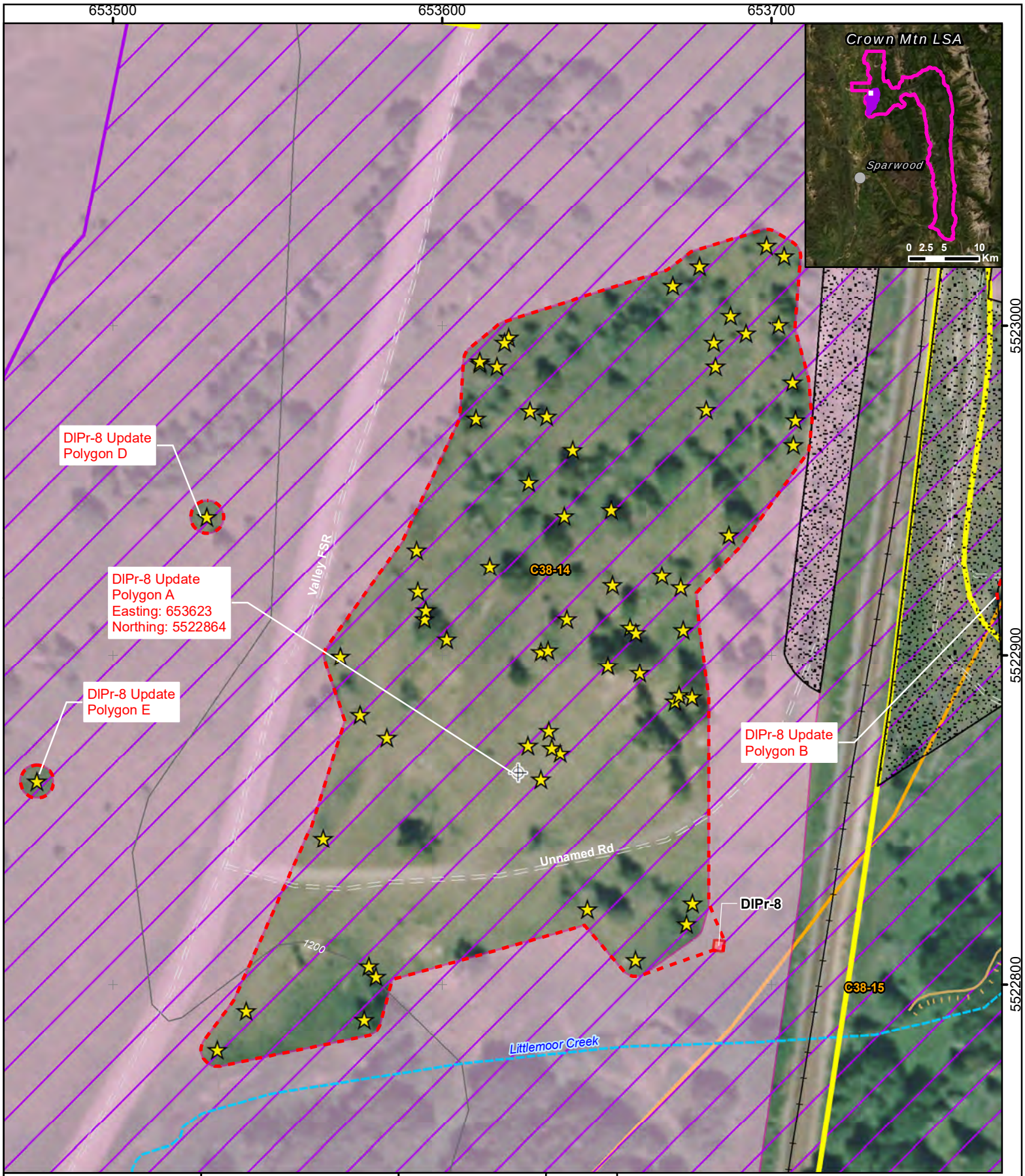

Figure: 14	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		**Legend:**
Permit: 2015-0098		BC AB	Mapping by:	Precontact Arch Site Bdry (TMECS 2017-19) · Centroid · Precontact Arch Site Bdry (RAAD 2020) · High Arch Potential · Study Area (TMECS 2017-19) · Project Footprint (as of 26/10/2020) · Gravel Road · Rail Line · Ephemeral Drainage · Terrace Margin · Contour Line (100 m) · Arch Potential Area (AOA) · Previous Ground Disturbance · Suspected Burial Mound
Title: DlPr-8 Update Polygon A - Detailed View	Survey Date: 28/09/2017			
	Mapping Date: 12/02/2021			
Project: Crown Mountain Phase I Railway Footprint 2017-19	0 10 20 40 m 1:1,500	INSET 1:40,000,000		

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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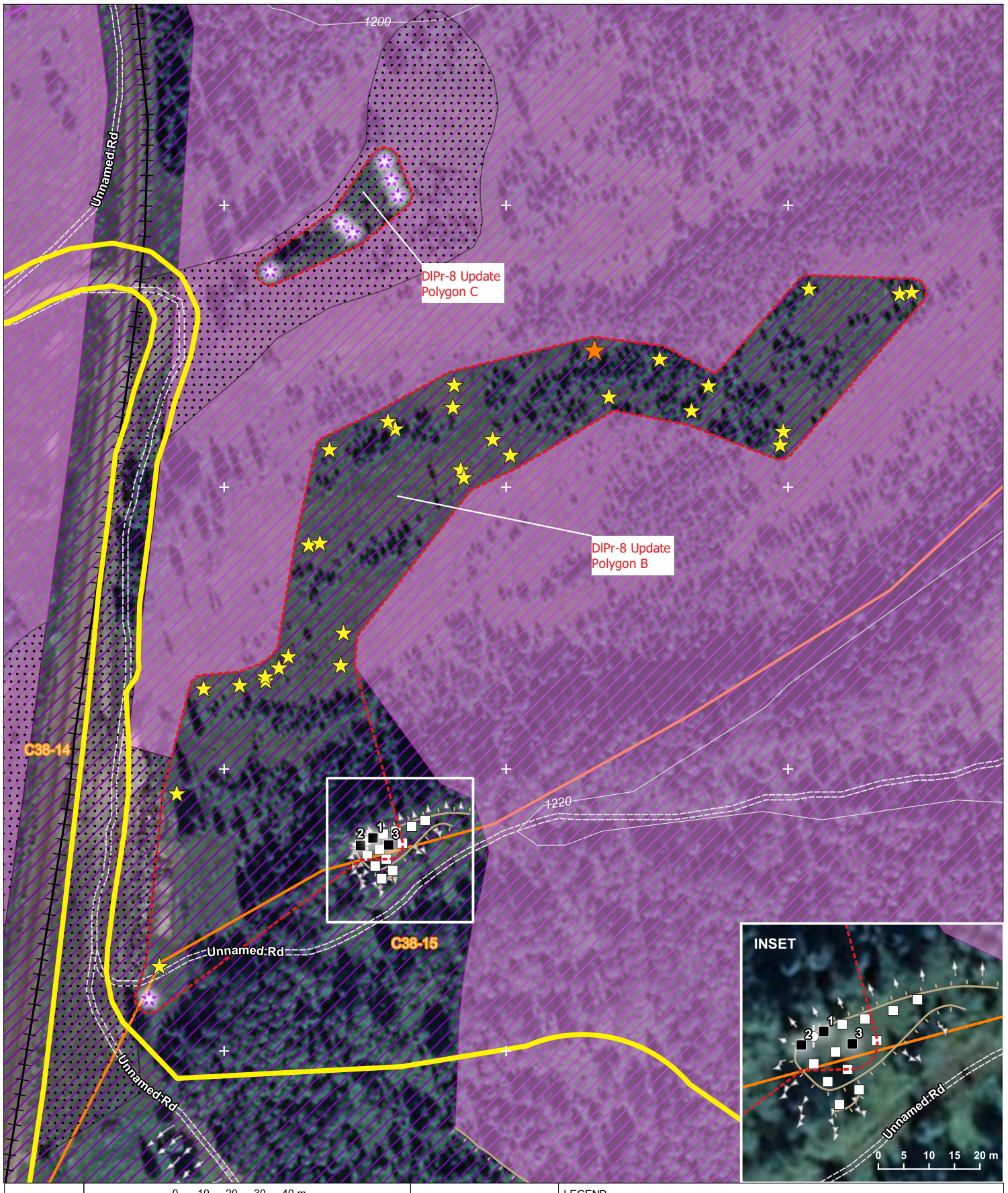

Figure: 15	1:1,800 0 10 20 30 40 m		
Permit: 2015-0098	Map Sheet: UTM11 - NAD83 - NTS 82G15	Mapped by: Pathways Archaeological Consulting Ltd	
Client: NWP Coal Canada	N		
Title: DlPr-8 Update Polygon B Detailed View	BC AB 0 200 400 km	Survey Date: 28/09/2017	
Project: Crown Mountain Phase I Railway Footprint 2017-19		Mapping Date: 11/03/2021	

LEGEND

Client Data
- Project Footprint (as of 26/10/2020)

CRM Arch Sites
- New Precontact Arch Site Bdry (2020)

Field Data
- Suspected Burial Mound
- Suspected Burial Mounds
- Surface Artifact - Lithic
- Positive Shovel test (35x35 cm)
- Negative Shovel Test (35x35 cm)
- Soil Probe

Previous Ground Disturbance

Land Features

BC Road Atlas
- Gravel Road
- Railroad

Topography
- Contour Line (20 m)
- Contour Line (100 m)
- Terrace Margin
- Slope

AOA
- High Archaeological Potential
- Forestry AOA Polygon (Choquette)

Surveyed Area
- Study Area (TMECS 2017-19)

Basemap
- *Google Satellite*

Credit: QGIS; Basemap: Google and OSM; Layers: Governemnent of BC

Borden Number: DlPr-8 (update)
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date(s) of Assessment: September 26-29, 2017

Photo Log

Photo 1. DlPr-8, representative overview of site Polygon A, located to the west of the north-south trending railway tracks. Note the shallow incised, east-west trending truck trail that accesses two informal camping areas within this portion of the site. The location of a *suspected* burial mound is identified with a white arrow. (view: northwest)

Photo 2. DlPr-8, representative overview of site Polygon B located in an area that was previous subjected to a timber harvest to the east of the north-south trending railway tracks. The location of a *suspected* burial mound is identified with a white arrow. (view: northeast)

Photo Log

Photo 3. DlPr-8, overview of the southern portion of site Polygon C, focusing on the locality where a single [suspected] burial mound was identified and an isolated lithic artifact was recovered along an existing road grade. Note the level of ground disturbance along the railway, associated with the Harmer Siding along the Canadian Pacific Railway's Fording River Branch Line. (view: south-southwest)

Photo 4. DlPr-8, representative overview of site Polygon C, where eight exposed lithic artifacts were recovered within an area that has previously been subjected ground disturbance. (view: southwest)

Photo Log

Photo 5. Representative example of a suspected burial mound (white dashed line). Note that another mound is in the left portion of this photograph. While it is hard to differentiate within this image, kinnikinnick generally dominates the ground cover vegetation on these mounds. (view: west-southwest within Polygon A)

Photo Log

Photo 6. Supplemental example of a suspected burial mound within Polygon A, and has been partially subjected to impacts through rodent activity.

Photo 7. Representative example of the current lithic artifact assemblage; utilized flake of Etherington chert. (SF 2; Catalogue #7)

Photo Log

Photo 8. Representative example of the current lithic artifact assemblage; secondary flake of siliceous siltstone that was recovered from a surface exposure within site Polygon C. (SF 4; Catalogue #9)

Photo 9. Representative example of the current lithic artifact assemblage; utilized secondary decortication flake of [weathered] siliceous mudstone that was recovered from a surface exposure within site Polygon C. (SF 5; Catalogue #10)

Borden Number: DlPr-8 (update)
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd
Date of Assessment: September 26-29, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1 *Polygon B*	I	0-6 cm	Litter mat/Organic matter (LM/OM)
	II	6-19 cm	Dark brown silt with ±30% sub-angular (SA) to sub-round (SR) pebble-sized gravel
	III	19-30 cm (+)	Dark brown silt with 50% SA-SR pebble and small cobble-sized gravel; gravels contain a thick coating of calcium carbonate
	Comments: *Lithic artifact (secondary flake fragment of High Rock Range chert) collected at 20-25 cm depth below surface (DBS)*		
2 *Polygon B*	I	0-12 cm	Litter mat/Organic matter (LM/OM)
	II	12-25 cm	Dark brown silt with ±30% SA - SR pebble-sized gravel
	III	25-36 cm (+)	Dark brown silt with 50% SA-SR pebble and small cobble-sized gravel; gravels contain a thick coating of calcium carbonate
	Comments: *Lithic artifact (secondary flake of siliceous mudstone) collected at 20-25 cm DBS*		
3 *Polygon B*	I	0-6 cm	Litter mat/Organic matter (LM/OM)
	II	6-9 cm	Dark brown silt with ±30% SA - SR pebble-sized gravel
	III	9-27 cm (+)	Dark brown silt with 50% SA-SR pebble and small cobble-sized gravel; gravels contain a thick coating of calcium carbonate
	Comments: *Lithic artifacts (n=2 [flake fragments of siliceous mudstone]) collected at 10-15 cm DBS*		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
DlPr-8: 2	1	SF 101 Polygon B	Surface	Flake: Fragment	Chert: High Rock Range	Opaque, vitreous bluish-grey	sg: (2)	-	-	-	No platform; recovered from along railway access road	28-Sep-17	20-Apr-20	IT	N
DlPr-8: 3	1	ST 1 Polygon B (STL 7)	15-20	Flake: Secondary	Chert: High Rock Range	Opaque, vitreous bluish-grey	sg: 2	-	-	-	High angle, dihedral striking platform; moderate dorsal scarring, possible planar-like cortex present; hinge termination	27-Sep-17	20-Apr-20	JF	N
DlPr-8: 4	1	ST 2 Polygon B (STL 7)	20-25	Flake: Secondary (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Crushed platform; minimal dorsal scarring	27-Sep-17	20-Apr-20	JM	N
DlPr-8: 5	2	ST 3 Polygon B (STL 7)	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	No platforms; medial-terminal portions of flake	27-Sep-17	20-Apr-20	IT	N
DlPr-8: 6	1	SF 1 Polygon C	Surface (disturbed)	Flake: Secondary	Siliceous Mudstone	Opaque, dull creamy-brown to grey (weathered)	sg: 3	-	-	-	Medium angle, multi-facetted striking platform; moderate dorsal scarring	27-Sep-17	20-Apr-20	JF	N
DlPr-8: 7	1	SF 2 Polygon C	Surface (disturbed)	Tool: Utilized Flake	Chert: Etherington	Translucent, sub-vitreous light grey	32.3	23.4	3.9	2.9	Low angle, multi-facetted striking platform; minimal to moderate dorsal scarring; use wear along lateral and terminal edges (possible from trampling or vehicle traffic)	27-Sep-17	20-Apr-20	Crew	Y
DlPr-8: 8	1	SF 3 Polygon C	Surface (disturbed)	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (3)	-	-	-	No platform; possible shatter fragment; likely damage to flake by trampling or vehicle traffic	27-Sep-17	20-Apr-20	JN	N
DlPr-8: 9	1	SF 4 Polygon C	Surface (disturbed)	Flake: Secondary	Siliceous Siltstone	Opaque, dull to sub-vitreous grey with faint greyish-brown parallel banding	sg: 4	-	-	-	Medium angle, multi-facetted striking platform; moderate dorsal scarring; some breakage along edges likely from trampling or vehicle traffic	27-Sep-17	20-Apr-20	JN	Y
DlPr-8: 10	1	SF 5 Polygon C	Surface (disturbed)	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull creamy-brown to grey (weathered)	36.1	30.8	5.2	4.1	Secondary decortication flake with nodular cortex present; medium angle, multi-facetted striking platform; weathered use-wear scarring along one straight and opposing concave lateral edges.	27-Sep-17	20-Apr-20	IT	Y
DlPr-8: 11	1	SF 6 Polygon C	Surface (disturbed)	Shatter	Chert: Etherington	Opaque to slightly translucent along edges, dull to sub-vitreous light grey/white	sg: 3	-	-	-	No platform	27-Sep-17	20-Apr-20	JT	N
DlPr-8: 12	1	SF 7 Polygon C	Surface (disturbed)	Flake: Secondary	Chert: Top of the World	Translucent, sub-vitreous light grey	sg: 2	-	-	-	Low to medium angle, multi-facetted striking platform with faint lip; moderate dorsal scarring; possible use wear, but suspected to be from trampling	27-Sep-17	20-Apr-20	JT	N
DlPr-8: 13	1	SF 7 Polygon C	Surface (disturbed)	Flake: Fragment	Chert: High Rock Range	Opaque, bluish-grey	sg: (1)	-	-	-	Small fragment; no platform; erailure scar (?)	27-Sep-17	20-Apr-20	JT	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Shovel Test Location= STL
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under HCA Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)
Through communication with the Royal British Columbia Museum (April 14, 2020), this artifact catalogue was to commence with catalogue number 2

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-19-T02**
Borden Number: **DlPr-80**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653990** Northing: **5522811**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on level to gently undulating terrain to the north of a terraced margin that defines a minor drainage that is locally known as Littlemoor Creek. The site is approximately 515 m south of Grave Creek, 700 m east of the Elk River, 2.4 km southwest of Grave Lake, and 12 km north of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 5.6 km (bridge crossing Grave Creek at ~5.1 km) before turning eastward on an un-named road that spans approximately 150 m and terminates at an informal campsite in proximity to the CPR tracks (within site DlPr-8). Proceed on foot to the east, crossing the north-south trending railway tracks and follow an increasingly well-defined terraced margin that is immediately north of Littlemoor Creek for approximately 250 m. Look for the remains of a log cabin to confirm the locality of the currently defined site area.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☐ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/10/23**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (October 23, 2019)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☐ N☒**
Field Director(s)	**Daniel Heinrichs (TMECS)** **Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Justin Hanna (TMECS)**	**Y**
Other	**Jason Feltham (Ktunaxa Nation Council [KNC] & TMECS)** **Corey Stevens (Shuswap Indian Band [SIB] & TMECS)** **Sunshine Joseph (TMECS & KNC)** **Nick Johnson (TMECS & KNC)** **Marshall Ezelle (TMECS)** **Denise Walker (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Faunal**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=2): one flake fragment and one utilized clast of siliceous mudstone collected from ST 1; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**
Floral/Faunal Remai	**Collected**	**Faunal (n=15): fragments including tooth and mandible fragments from a large ungulate (e.g. elk or bison); see Artifact Catalogue for details.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **29 m** Direction **E-W**
Width: **10 m** Direction **N-S**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site area, which could be considered provisional, was delineated with observed boundaries in all directions and includes a 5 m buffered radius from the two positive shovel tests. The site area is identified in the field with "A.I.A. ZONE" flagging tape. To the north-northwest, the landscape has been identified as High Archaeological Potential (HAP); see 2015-0098 site map. Future inspection in this locality has potential to revise the currently defined boundaries or discover another site area.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.15 m** Maximum **0.3 m**

Stratigraphy Description: **I (0-7 cm) Litter mat/organic matter; II (7-10 cm) Reddish-brown sandy silt with 5% sub-round (SR) to sub-angular (SA) pebbles; III (10-23 cm) Dark grey to light grey-brown mottled silty sand with clay nodules and 5-10% SR-SA pebbles; IV (23-26 cm) Compact light grey clay with some sand.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approximately 11 shovel tests (0.35 m x 0.35 m) were excavated within the current site boundaries; another 35 shovel tests excavated north and west of the site.**
Past	**Logging**	**There is evidence of historical logging within the boundaries of the site (cut stumps, skid roads, push piles); unconfirmed impacts (overgrown).**
Past	**Recreational Use**	**A dilapidated cabin is located to the north of the site. Impacts were not confirmed (overgrown), but rusted debris is strewn about in this locality**
Ongoing	**Grazing**	**Use of landscape by ungulate herds, gradual incising and annual meandering of a game trail(s) that parallels the northern terrace margin of Littlemoor Cr and encroaches upon the defined site area.**

14. ENVIRONMENT

Lower Elevation **1210 m** (asl) Upper Elevation **m** (asl)

Elevation Comments: **Elevation was obtained from a combination of a handheld GPS and Google Earth Pro. The site is approximately 3-4 m above Littlemoor Creek and 47 m above the elevation of the Elk River.**

Nearest Hydrological Feature(s): **The westward flowing Littlemoor Creek is directly south of the site; Grave Creek approximately 515 m north; Elk River approximately 700 m west.**

Terrain/Landform: **The site is situated on a level to gently undulating ground surface to the north of a well defined, terraced margin that contains a south-southwestern solar aspect and directly overlooks Littlemoor Creek.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2. Further subsurface inspection within this general locality to determine if additional precontact deposits are present and potentially refine the currently defined boundaries.

17. GENERAL REMARKS

1) The currently delineated site area should be considered relatively provisional, as annual inspections under 2015-0098 were influenced by an evolving development footprint (i.e. Mine Plan), which in this locality included several options for a railway spur and a loadout facility (ca. 2017 - 2019).
2) Future inspection of the terraced margin that defines the northern limit of Littlemoor Creek. The level tread offered along this margin is preferable for ancillary occupation and/or a travel corridor. Archaeological inspection (ca. 2019) was based on a proposed footprint for the railway loadout facility, which was subsequently revised upon the expiry date of 2015-0098. The terrain to the north-northwest of this shovel test location has been identified as a High Archaeological Potential (HAP) zone to guide supplemental inspections within this locality; see 2015-0098 site map.

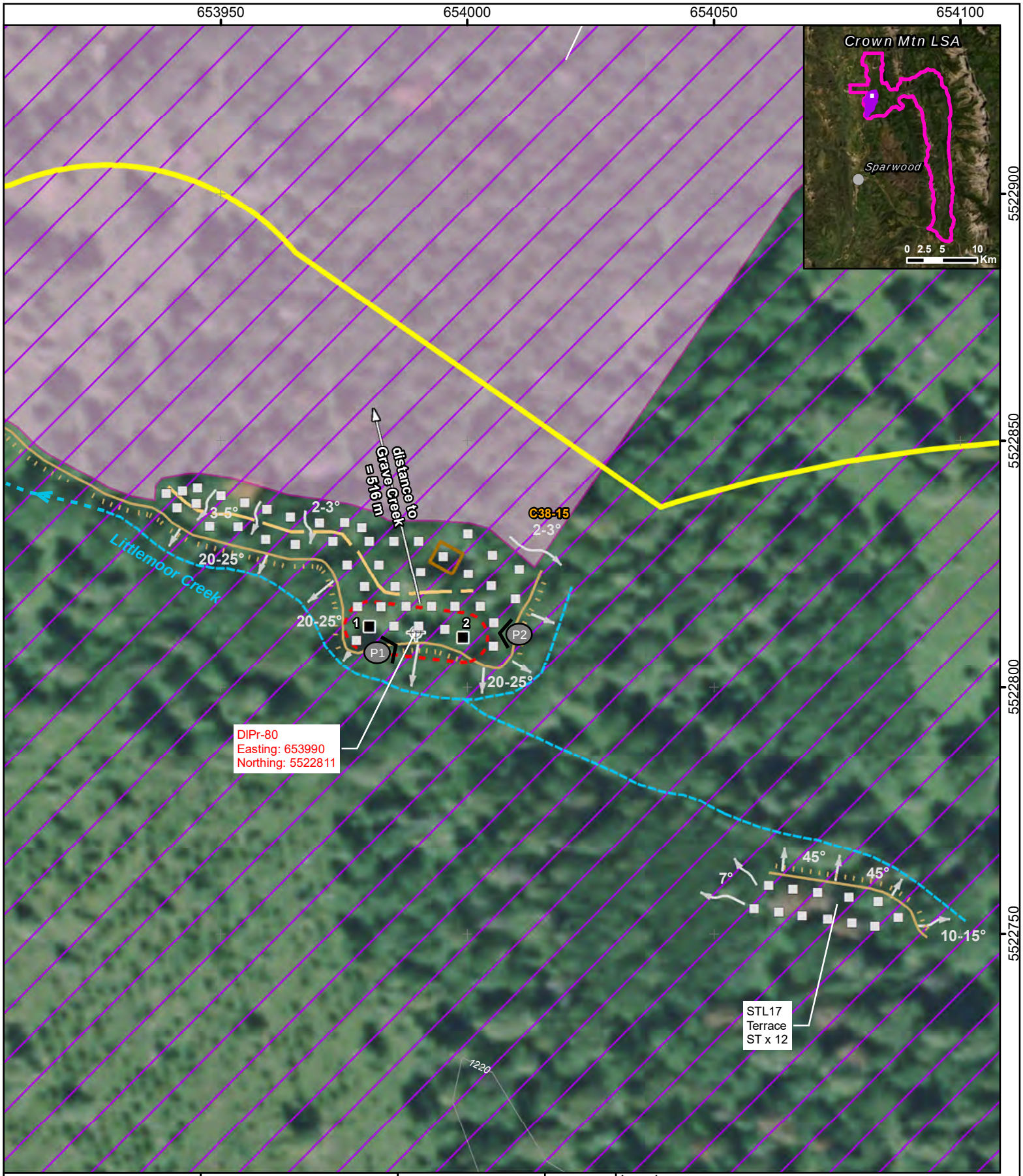

Figure: 16	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain	**Legend:**
Permit: 2015-0098				
Title: DlPr-80 Site Map	Survey Date: 23/10/2019			
	Mapping Date: 20/01/2021			
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,000 0 5 10 20 m	INSET 1:40,000,000		

Legend:

- New Precontact Arch Site Bdry
- Centroid
- High Arch Potential
- Study Area (TMECS 2017-19)
- Project Footprint (as of 26/10/2020)
- Nearest Watercourse
- Old Cabin
- Trail
- Ephemeral Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Arch Potential Area (AOA)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Photo Reference & Direction

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Overview of the locality that contains the currently defined site area. Note the dilapidated log cabin (white arrow) that will assist in confirming the site's location. (view: northeast for the locality of ST 1)

Photo 2. Supplemental overview of the site. (view: west from the locality of ST 2)

Photo 3. Representative stratigraphic profile for the site. (view: western wall of ST 2).

Photo 4. Representative example of the lithic artifact assemblage; utilized clast of siliceous mudstone recovered at 25 cm dbs from ST 1. (Catalogue #1)

Photo 5. Representative example of the faunal assemblage; tooth [mandibular molar] fragments from a large ungulate (e.g. elk or bison) that were recovered at 15-30 cm dbs from ST 2. (Catalogues #3 and #5)

Borden Number: DlPr-80
Temp. Borden Number: DlPr-19-T02
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: October 23, 2019

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-7 cm	Litter mat/Organic matter (LM/OM)
	II	7-10 cm	Reddish-brown sandy silt with 5% sub-round (SR) to sub-angular (SA) pebbles
	III	10-23 cm	Dark grey to light grey-brown mottled silty sand with some clay nodules and 5-10% SR-SA pebbles
	IV	23-26 cm	Compact light grey clay with some sand
	Comments: flake fragment and utilized clast of siliceous mudstone at 25 cm depth below surface (DBS)		
2	I	0-4 cm	LM/OM
	II	4-9 cm	Reddish-brown sandy silt with 5% SR-SA pebbles
	III	9-21 cm	Dark grey to light grey-brown mottled silty sand with some clay nodules and 5-10% SR-SA pebbles
	IV	21-33 cm	Compact light grey clay with some sand
	Comments: fauna encountered at 15-20 and 25-30 cm dbs		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	25	Tool: Utilized Clast	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	63.3	35.5	18.9	58.2	Prismatic-shaped clast (natural) with use wear along two lateral edges	23-Oct-19	21-Apr-20	ME	Y
2	1	ST 1	25	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey (partially weathered)	sg: (3)	-	-	-	No platform; possible use wear along lateral edge, but pattern is suspected to be associated with breakage	23-Oct-19	21-Apr-20	ME	N
3	*2*	*ST 2*	*15-20*	*Faunal Remains*	-	-	-	-	-	-	*See Fauna Catalogue*	*23-Oct-19*	*21-Apr-20*	*ME*	*Y*
4	*5*	*ST 2*	*15-20*	*Faunal Remains*	-	-	-	-	-	-	*See Fauna Catalogue*	*23-Oct-19*	*21-Apr-20*	*ME*	*Y*
5	*2*	*ST 2*	*25-30*	*Faunal Remains*	-	-	-	-	-	-	*See Fauna Catalogue*	*23-Oct-19*	*21-Apr-20*	*ME*	*N*
6	*1*	*ST 2*	*25-30*	*Faunal Remains*	-	-	-	-	-	-	*See Fauna Catalogue*	*23-Oct-19*	*21-Apr-20*	*ME*	*N*
7	*5*	*ST 2*	*25-30*	*Faunal Remains*	-	-	-	-	-	-	*See Fauna Catalogue*	*23-Oct-19*	*21-Apr-20*	*ME*	*N*

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

Borden Number: DlPr-80
Permit Number: 2015-0098

Temporary Borden Number: DkPr-19-T02

Date of Assessment / Field Visit: October 23, 2019
Pathways Archaeological Consulting Ltd.

Catalogue #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Bone Unit	Side (R/L)	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
3	2	ST 2	15-20	Faunal Remains	Tooth - Mandibular Molars (x2)	unidentified	sg: (7) & (8)	-	-	(60.8)	Molars (x2) from large ungulate (bison or elk); fragmented condition	23-Oct-19	21-Apr-20	ME	Y
4	5	ST 2	15-20	Faunal Remains	Mandible	unidentified	sg: (2 [3]), (3 [1]), (5 [1])	-	-	(6.7)	Mandible fragments associated with molars (cat #3)	23-Oct-19	21-Apr-20	ME	Y
5	2	ST 2	25-30	Faunal Remains	Tooth (fragments)	unidentified	sg: (1) & (3)	-	-	(1.6)	Tooth fragments, enamel present; likely associated with cat #3	23-Oct-19	21-Apr-20	ME	N
6	1	ST 2	25-30	Faunal Remains	Unidentified	unidentified	sg: (3)	-	-	(0.9)	Mandible fragment	23-Oct-19	21-Apr-20	ME	N
7	5	ST 2	25-30	Faunal Remains	Unidentified	unidentified	sg: (2 [4]) & (3 [1])	-	-	(3.9)	Unidentified bone fragments	23-Oct-19	21-Apr-20	ME	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-19-T03**
Borden Number: **DlPr-81**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654458** Northing: **5522439**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on knoll within moderately undulating landscape that generally slopes westward. The site is approximately 960 m south of Grave Creek, 1.7 km east of the Elk River, 2.4 km southwest of Grave Lake, and 11 km north-northwest of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approximately 5.6 km (bridge crossing Grave Creek at ~5.1 km) before turning eastward on an un-named road that spans approximately 150 m and terminates at an informal campsite in proximity to the CPR tracks (within site DlPr-8). Proceed on foot to the east, crossing the railway tracks and continue eastward for approximately 100 m to find an old north-south trending road and continue southward for another 100 m before turning east on an decommissioned branch road. Follow this road for approximately 600 m into the central area of a cut block (harvested ca. 2010s). From the central area of the cut block turn to the southeast and continue for 150 m to the block boundary, site is just beyond harvested terrain and on a relatively prominent knoll.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/10/24**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project (Phase I - Loadout Facilities): October 24, 2019**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☐ N☒**
Field Director(s)	**Daniel Heinrichs (TMECS)** **Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Justin Hanna (TMECS)**	**Y**
Other	**Jason Feltham (Ktunaxa Nation Council [KNC] & TMECS)** **Nick Johnson (KNC & TMECS)** **Corey Stevens (Shuswap Indian Band [SIB] & TMECS)** **Marshall Ezelle (TMECS)** **Denise Walker (TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=9): flake and fragments (n=6) and utilized flakes (n=3), all of siliceous mudstone and siliceous siltstone; collected from three shovel tests (ST) and one tree throw (TT); see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **19 m** Direction **NE-SW**
Width: **12 m** Direction **NW-SE**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

The site is delineated by an observed boundary in all directions, including a 5 m radial buffer from three positive shovel tests and a single tree throw that had exposed lithic artifacts. The site is flagged in the field with yellow and black "A.I.A. ZONE" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.1 m** Maximum **0.3 m**

Stratigraphy Description: **I (0-4 cm) Litter mat, Organic matter; II (4-9 cm) Medium grey-brown silty sand w/ ~15% SR-SA pebbles (P); III (9-23 cm) Reddish-brown silty sand w/ pockets of medium grey silty sand and ~15-20% SR-SA P & cobbles (C); IV (23-34 cm) Medium-dark brown and grey sandy silt w/ ~40-50% R-SA P & C**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approximately 8 shovel tests (0.35 m x 0.35 m) were completed within site boundaries; another 8 shovel tests excavated within the limits of the landform but beyond current boundary.**
Ongoing	**Erosion**	**Natural turbation of subsurface matrix, primarily by toppling of trees by wind events; this may have increased in frequency due to a recent timber harvest (ca. 2010s) to the N & NW**

14. ENVIRONMENT

Lower Elevation **1236 m** (asl) Upper Elevation **m** (asl)

Elevation Comments: **Elevation was obtained from a combination of a handheld GPS and Google Earth Pro. The site is approximately 2-3 m above the surrounding landscape and 70-75 m above the elevation of the Elk River.**

Nearest Hydrological Feature(s): **An unnamed watercourse (northern tributary of the Black Creek drainage) is located approximately 432 m southeast of the site; tributary of Littlemoor Creek approximately 450 m north; Grave Creek approximately 960 m north; Elk River approximately 1.7 km west.**

Terrain/Landform: **A small rounded knoll within a moderately undulating landscape that generally descends westward.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.

17. GENERAL REMARKS

1. Overview photographs of the site's position within landscape are not available due to a corruption of digital data; the photo log submitted under 2015-0098 includes a representative stratigraphic profile and examples of the artifact assemblage.
2) Future inspection of this site may result in a minor revisions (i.e. expansion) to the currently defined site boundaries, but the site area is suspected to be constrained to the top of the knoll.
3) The function of the site likely associated with seasonal resource procurement and/or hunting activity (minor vantage point in prime ungulate habitat).
4) Based on the currently proposed mine plan, it is unlikely that this site would be adversely impacted by the implementation of the Crown Mtn Project.

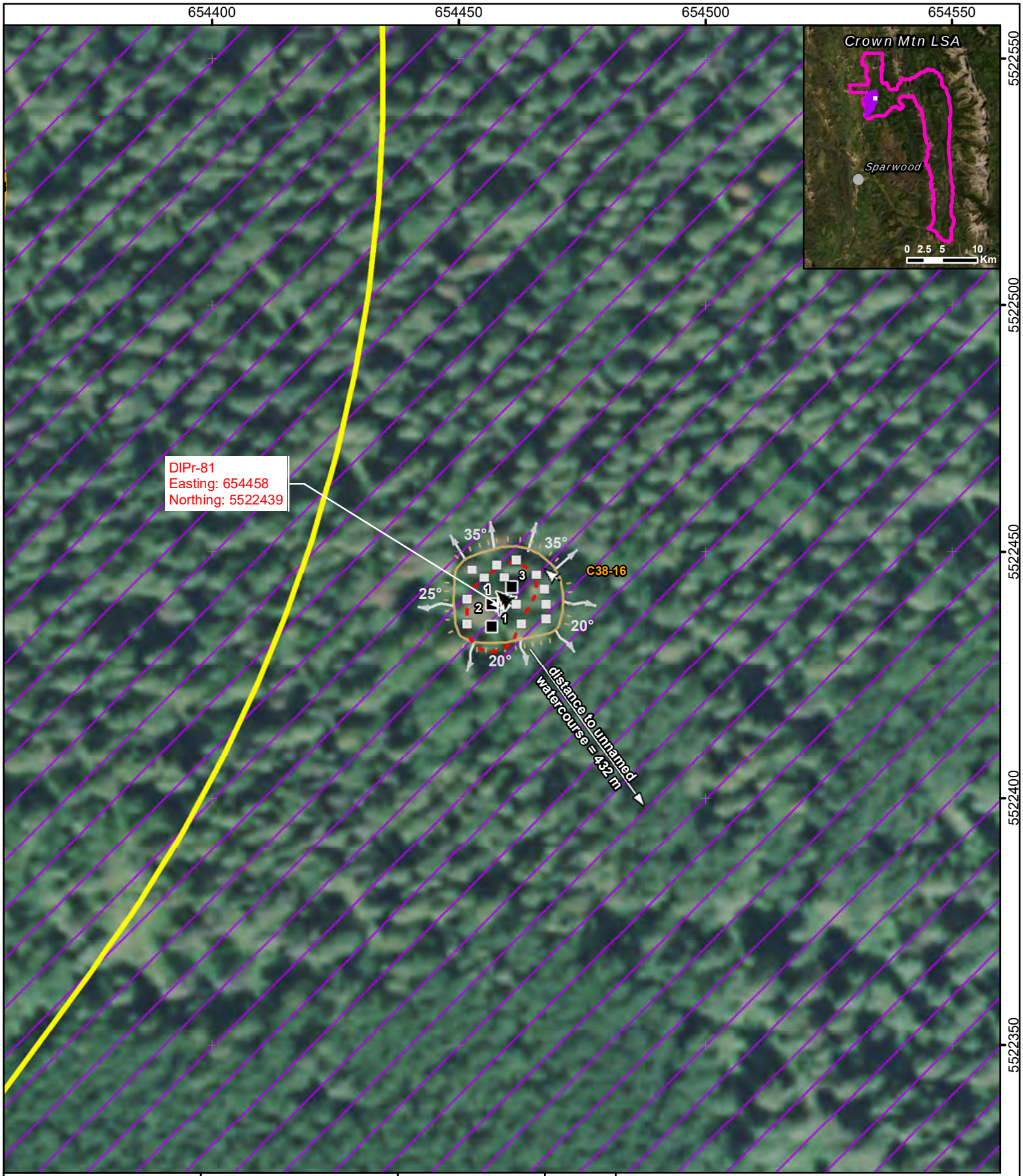

Figure: 17	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		**Legend:**
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	New Precontact Arch Site Bdry; Centroid; Study Area (TMECS 2017-19); Project Footprint (as of 26/10/2020); Nearest Watercourse; Terrace Margin; Slope; Arch Potential Area (AOA); Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Negative Tree Throw; Positive Tree Throw
Title: DlPr-81 Site Map	Survey Date: 24/10/2019			
	Mapping Date: 20/01/2021			
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,000 0 5 10 20 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Borden Number: DlPr-81
Temporary Borden No.: DlPr-19-T03
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: October 24, 2019
Site Photographs

Photo 1. Representative stratigraphic profile for the site. (view eastern wall of ST 3)

Site Photographs

Photo 2. Representative example of the lithic artifact assemblage; utilized flake of siliceous mudstone recovered within a tree throw. (catalogue #5)

Photo 3. Representative example of the lithic artifact assemblage; utilized flake of siliceous mudstone recovered within a tree throw. (catalogue #6)

Photo 4. Representative example of the lithic artifact assemblage; utilized flake fragment of siliceous siltstone recovered within a tree throw. (catalogue #7)

Borden Number: DlPr-81
Temporary Borden No.: DlPr-19-T03
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: October 24, 2019
Stratigraphy Log

Shovel Test	Stratum	Depth *(below surface)*	Description
ST1	I	0-6 cm	Litter mat (LM), organic matter (OM)
	II	6-12 cm	Medium grey-brown silty sand with approximately 15% sub-round (SR) to sub-angular (SA) pebbles.
	III	12-18 cm	Reddish-brown silty sand mottled with pockets of medium grey silty sad with approximately 15-20% SR-SA pebbles and cobbles
	IV	18-28 cm	Medium dark brown and grey sandy silt with approximately 40-50% round to sub-angular pebbles and cobbles
	Comments: one siliceous mudstone flake fragment recovered from 10-15 cm		
ST2	I	0-4 cm	Litter mat (LM), organic matter (OM)
	II	4-5 cm	Medium grey-brown silty sand with approximately 15% sub-round (SR) to sub-angular (SA) pebbles.
	III	5-13 cm	Reddish-brown silty sand mottled with pockets of medium grey silty sad with approximately 15-20% SR-SA pebbles and cobbles
	IV	13-17 cm	Medium dark brown and grey sandy silt with approximately 40-50% round to sub-angular pebbles and cobbles
	Comments: one flake fragment of siliceous mudstone recovered from 10-20 cm and one secondary flake of siliceous mudstone recovered from 20-30 cm		
ST3	I	0-4 cm	Litter mat (LM), organic matter (OM)
	II	4-9 cm	Medium grey-brown silty sand with approximately 15% sub-round (SR) to sub-angular (SA) pebbles.
	III	9-23 cm	Reddish-brown silty sand mottled with pockets of medium grey silty sad with approximately 15-20% SR-SA pebbles and cobbles
	IV	23-34 cm	Medium dark brown and grey sandy silt with approximately 40-50% round to sub-angular pebbles and cobbles
	Comments: one flake fragment of siliceous mudstone recovered from 10-15 cm.		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform; minimal-moderate dorsal scarring; possible use wear along one lateral edge	24-Oct-19	21-Apr-20	NJ	N
2	1	ST 2	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Terminal portion of flake; complex dorsal scarring	24-Oct-19	21-Apr-20	JF	N
3	1	ST 2	20-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	High angle striking platform; complex dorsal scarring; shaping-like flake	24-Oct-19	21-Apr-20	JF	N
4	1	ST 3	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Terminal portion of flake; moderate dorsal scarring	24-Oct-19	21-Apr-20	JH	N
5	1	TT 1	-	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	43.4	36.2	11.8	17.5	Primary stage flake with medium to high angle planar striking platform; water-smoothed cortex present; use wear along lateral edges	24-Oct-19	21-Apr-20	JF	Y
6	1	TT 1	-	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	23.9	17.7	4.4	2.0	Secondary flake with narrow, medium angle, dihedral striking platform; complex dorsal scarring; use wear along both lateral edges	24-Oct-19	21-Apr-20	JF	Y
7	1	TT 1	-	Tool: Utilized Flake (fragment)	Siliceous Siltstone	Opaque, dull dark grey	(34.1)	(21.1)	(6.6)	3.2	Proximal portion of flake has snapped; moderate to complex dorsal scarring; use wear along edges	24-Oct-19	21-Apr-20	JF	Y
8	1	TT 1	-	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Small, high angle, planar striking platform; moderate-complex dorsal scarring; possible use wear along edges, but suspected to be fracture pattern	24-Oct-19	21-Apr-20	JF	N
9	1	TT 1	-	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (1)	-	-	-	No platform	24-Oct-19	21-Apr-20	JF	N

Catalogue Legend:

Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:

All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-17-T12**
Borden Number: **DlPr-82**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654333** Northing: **5523321**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, this multi-polygon site (A-F) occupies portions of two prominent terrace levels and several adjacent benches that are situated along the southern side of Grave Creek as it enters the 'Grave Prairie'. The site areas vary from 20 m to 150 m south-southeast of Grave Creek, with central area of the site located approximately 920 m the east of the Elk River, 1.7 km southwest of Grave Lake, and 12 km north-northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approx. 17.5 km. Turn east onto Line Creek Mine Road, and continue for 1.5 km before turning south onto Valley Road (private, radio-controlled road) and proceed for approx. 5.3 km (bridge crossing Grave Creek at ~5.1 km) before turning eastward on an un-named road that accesses the 'Harmer Siding' situated along eastern side of the CPR - Fording River Branch Line. Continue in an eastward direction for 150 m to the railway crossing (note: this crossing is commonly blocked by the CPR with ties and debris to prevent vehicle passage). Park vehicle in safe location and continue on foot, crossing the railway tracks and maintaining an east-northeast direction for approx. 550 m to arrive in the central location of the site. Site Polygons are on the mid-level terrace level that was traversed, on slightly lower benches to the north and northwest and along the tread of the upper terrace to the east.**

Parcel Identifier (PID or PIN): **019-075-316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 1 - Loadout Facilities**
☒ Private Land	**Private**	**Teck Coal Ltd.**	**DL 4588**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/09/27**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada's Crown Mountain Coking Coal Project: Phase I - Loadout Facilities (September 26-27, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuswap Indian Band [SIB] & TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Jessie Thomas (TMECS & KNC)** **Jason Feltham (TMECS & KNC)** **Wayne Choquette (TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Fire-Altered Rock**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=46): In total, 33 pieces of debitage and 13 lithic tools/tool fragments comprised of nine different raw lithic material types; collected from 25 of 29 STs and three tree throws; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository**
Diagnostic Artifact	**Collected**	**Projectile point blade fragment of obsidian, and the raw material was sourced to Yellowstone, Wyoming (Reimer, December 2019); recovered from site Polygon D and within a tree throw situated along the lower portion of steep scarp of higher terrace.**	**Ktunaxa Nation Regional Repository**
FAR	**Reburied**	**FAR (n=15 [1.21 kg]) was exposed within 4 of the 29 positive shovel tests excavated and exposed within one tree throw; artifact type was quantified in the field and reburied within associated shovel test); see Artifact Catalogue for details.**	**n/a**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **220 m** Direction **NE-SW**
Width: **144 m** Direction **N-S**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Provisional site dimensions provided above encompass all six of the site polygons (A-F) delineated under 2015-0098; site polygons were largely defined by an observed boundaries that had a 5 m radial buffer from positive shovel tests/tree throws; some boundary segments follow natural margins of microtopographic features; see General Remarks.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.01 m** Maximum **.4 m**

Stratigraphy Description: **Stratigraphy and sediment composition varies between the site polygons. In general, a silt or silty-sand fine sediment cap overlying moderately-sorted gravel; see Stratigraphy Log.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approx. 71 shovel tests (0.35 m x 0.35 m) were completed within the boundaries of site polygons A - F; approx. 50 additional shovel tests excavated in proximity to site areas.**
Past	**Logging**	**Evidence of a previous timber harvest (>20 years ago): machine-cut stumps, secondary in-grown stand of pine; remnants of flagging tape (harvest boundaries?).**
Ongoing	**Erosion**	**Natural turbation of subsurface matrix, primarily in the form of wind-toppled trees, which produced several tree throws. Gradual incising of game trails by ungulates; some rodent mounding.**

14. ENVIRONMENT

Lower Elevation **1209 m** (asl) Upper Elevation **1238 m** (asl)

Elevation Comments: **Approximate elevations were obtained from a combination of a handheld GPS and Google Earth Pro. The site varies from 5~30 m above the elevation of the nearest segment of Grave Creek (to the north).**

Nearest Hydrological Feature(s): **Grave Creek is located approximately 20 m north of site Polygon A. The Elk River is approximately 920 m west and Grave Lake is 1.7 km northeast of central area of the site.**

Terrain/Landform: **The site occupies the prominent margin and microtopographic features (e.g. knolls) on the tread of an elevated terrace (approx. 1223 m asl) and a series of lower elevation terraces and benches in proximity to Grave Creek.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada Crown Mountain Coking Coal Project: Phase I - Loadout Facilities)	**2021**	**TBD**
2015-0098, Final Report	**2021**	**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance is not possible.
2. Further subsurface inspection requried within this locality to determine the extent of the provisionally delineated site area(s).

17. GENERAL REMARKS

1) Site Boundaries: In general, the archaeological inspection of this site area and the adjacent terrain should be considered provisional. A great deal of archaeological inspection is still required to determine adequate site areas/ boundaries within this locality. Due to an evolving mine plan (ca. 2015-2019), which in this area originally included a segment of a railway loadout loop, archaeological inspection of this site (and several others) was abandoned after the conceptual disturbance footprint was shifted by the proponent. Therefore, within many portions of this site, full inspection protocol (e.g. grid-like test patterns including the excavation of three negative shovel tests in cardinal directions from positive tests or tree throws) was not completed. Future inspections occurring within the locality of this site will undoubtedly revise the currently delineated site area polygons, possibly resulting in the lumping of some site areas (e.g. Polygons A - D) and enlarging more isolated site areas (e.g. Polygons E and F).

2) Site Polygon Attributes & Boundary Dimensions
Polygon A
Centroid: 11U 654288 E, 5523370 N
Approx. Elevation: 1217 m asl
Size: 19 m (NE-SW) x 16 m (NW-SE)
Boundaries are observed in all directions and delineated with a 5 m radial buffer from positive shovel tests (ST 1 - 4); influenced by a natural boundary to the north that is defined by a segment of the prominent margin of a discrete bench.

Polygon B
Centroid: 11U 654252 E, 5523331 N
Approx. Elevation: 1216 m asl
Size: 5 m (N-S) x 5 m (E-W)
Circular boundary is observed in all directions, and delineated with a 2.5 m radial buffer from an isolated positive shovel test (ST 5) on a discrete, narrow bench.

Polygon C
Centroid: 11U 654243 E, 5523305 N
Approx. Elevation: 1215 m asl
Size: 30 m (NE-SW) x 11 m (NW-SE)
Boundaries are observed in all directions and delineated with a 5 m radial buffer from a positive shovel test (ST 6) and a tree throw that contained FAR (n=6). A segment of the northwestern boundary was naturally influenced by the NE-SW trending margin of the mid-level terrace.

Polygon D
Centroid: 11U 654247 E, 5523271 N
Approx. Elevation: 1210 - 1224 m asl
Size: 110 m (NE-SW) x 30 m (NW-SE)
Boundaries are largely observed in all directions except for a segment of the west-northwest site boundary that was defined naturally by a segment of the NE-SW trending margin of the mid-level terrace. Observed boundaries were delineated with a 5 m radial buffer from positive shovel tests (ST 7 - 11) and a two tree throws (TT 2 and TT 3) that contained lithic artifacts and located along the base of a moderately undulating scarp.

Polygon E
Centroid: 11U 654333 E, 5523321
Approx. Elevation: 1223 - 1238 m asl
Size: 155 m (NE-SW) x 25 m (NW-SE)
Boundaries are largely observed, delineated in all directions with a 5 m radial buffer from positive shovel tests (ST 3*, 10*, 11*, 16, and 18); influenced by natural boundaries to the north, west, and a short segment to the northeast, all of which parallel the prominent margin of the elevated terrace level. Note that the asterisk (*) is to indicate duplicate shovel test numbers within the site and are to differentiate from lower-elevation shovel tests (see 2015-0098 Site Map).

Polygon F
Centroid: 11U 654382 E, 5523341 N
Approx. Elevation: 1223 - 1225 m asl
Size: 28 m (N-S) x 24 m (E-W)
Boundaries are observed in all directions and delineated with a 5 m radial buffer from positive shovel tests (ST 7*, 8*, and 9*). Note that the asterisk (*) is to indicate duplicate shovel test numbers within the site and are to differentiate from lower-elevation shovel tests (see 2015-0098 Site Map).

3) The Grave Creek drainage, in the locality of this site is moderately incised (it becomes much deeper incised to the east [upstream]). A relatively shallow segment of the drainage and the creek bed is present to north of Site Polygons A and B, where cascading falls/pools are located; this node along the drainage is a preferable location for fording the creek by pedestrian and equestrian-based travel. This theory is supported by the convergence of several historical road grades immediately north of the creek, all of which descend the steep scarp to the terrace that fronts site DlPr-75.

4) The number and distribution of sites in Grave Prairie indicates an extensive precontact occupation and attributes of the artifact assemblage suggest it largely occurred within the Middle Period. Occupation is likely associated with annual resource procurement during the seasonal round. This locality also provides a favourable location for [western] base camp to facilitate intra-mountain travel via Grave Creek Canyon (to the east) and Line Creek Canyon (to the north-northeast), both of which access the Alexander Creek valley, which offers several routes of least resistance over the Continental Divide and provides access to the 'Great Plains' region via several east-west trending mountain passes (e.g. Deadman, Race Horse, North Fork, and Tornado).

5) Although this site is in the locality of 'Grave Prairie' and is in proximity to site DlPr-8 (suspected precontact burials), no evidence of burials or human remains were observed within the site polygons under 2015-0098; this should not preclude the presence of burials within this site and the immediately adjacent, un-inspected terrain.

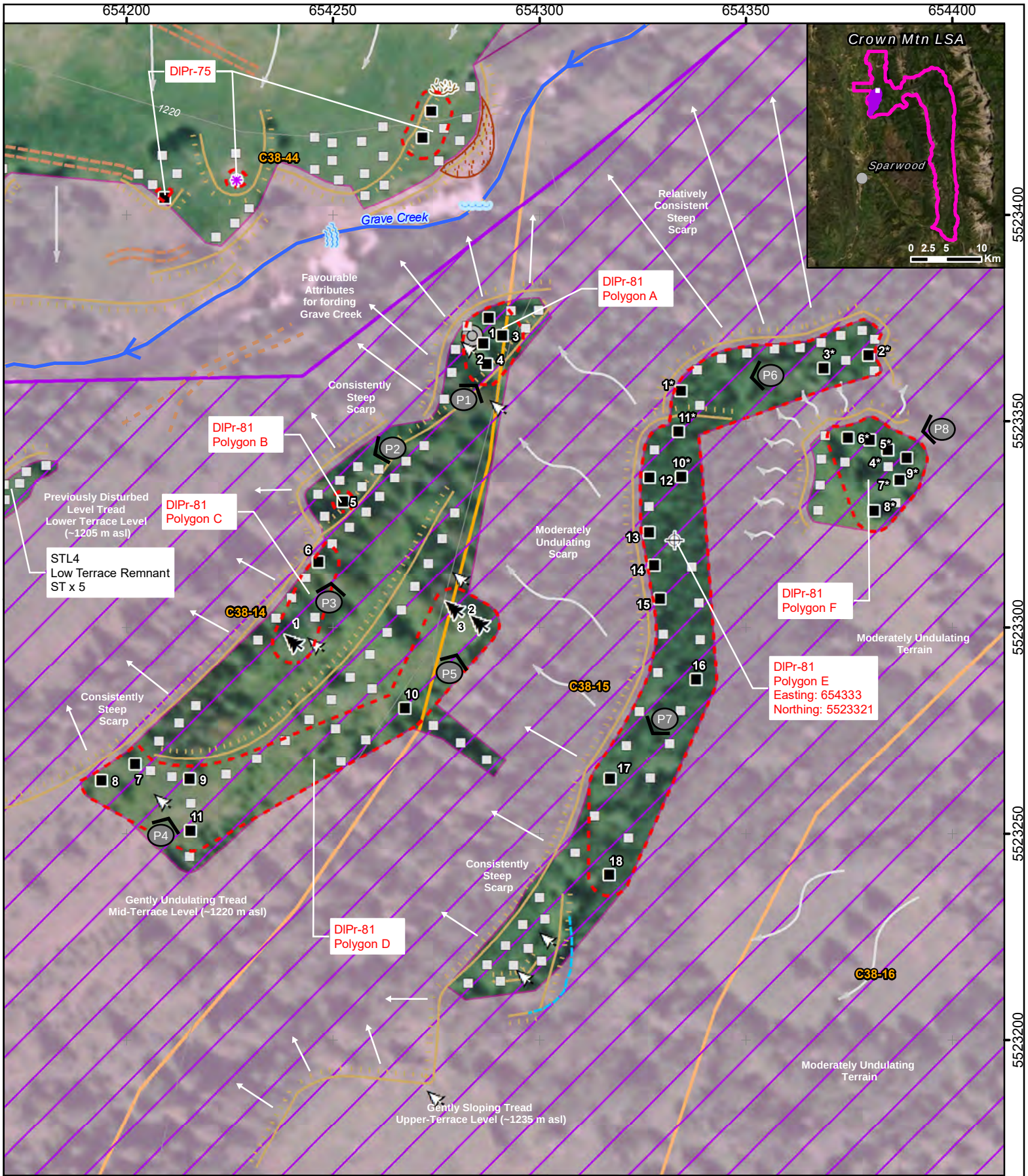

Figure: 18	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098	Survey Date: 27/09/2017	BC AB INSET 1:40,000,000	
Title: DlPr-81 Site Map	Mapping Date: 28/01/2021		
Project: Crown Mountain Phase I Railway Footprint 2017-19	1:1,200 0 5 10 20 m		

Legend:

- Precontact Arch Site Bdry (TMECS 2017)
- Centroid
- High Arch Potential
- Study Area (TMECS 2017-19)
- Sandstone
- Truck Road
- Water Feature
- Ephemeral Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Arch Potential Area (AOA)
- Surface Artifact - Lithics
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Tree Throw
- Positive Tree Throw
- Negative Rodent Mound
- Wood Pile
- Cascade Pool
- Waterfall
- Photo Reference & Direction

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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Borden Number: DlPr-81
Temp. Borden Number: DlPr-17-T12
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 26-27, 2017

Photo Log

Photo 1. Representative overview of site Polygon A (bench) during shovel testing. Note that Grave Creek is located to the north and is obscured by the tree stand in the background. (view: northeast)

Photo 2. Representative overview of site Polygon B (bench) during shovel testing, and focused on the locality of ST 5. Note that downslope of this bench is a heavily disturbed [lower] terrace level that is now void of a tree stand, and has been mechanically-levelled to facilitate a vehicle crossing in proximity to cascading falls and shallow pools along this segment of Grave Creek. (view: west-southwest)

Photo Log

Photo 3. Representative overview of site Polygon C (mid-terrace level) that is focused on the locality of ST 6, situated along the well-defined margin. (view: northeast)

Photo 4. Representative overview of the southern portion of site Polygon D (mid-terrace level), focused on the locality of ST 9 and 11. (view: north-northeast)

Photo Log

Photo 5. Representative overview of the northern portion of site Polygon D (mid-terrace level), focused on the locality of two inspected tree throws (TT 1 and TT 2) where a fragment of a projectile point of obsidian was recovered and subsequently sourced to Yellowstone, Wyoming (Catalogue #16). (view: northeast)

Photo 6. Representative overview of the northern portion of site Polygon E (upper-terrace level), while shovel testing was occurring along the prominent margin of the elevated terrace level. This image focuses on the locality of ST 1*. (view: west)

Photo Log

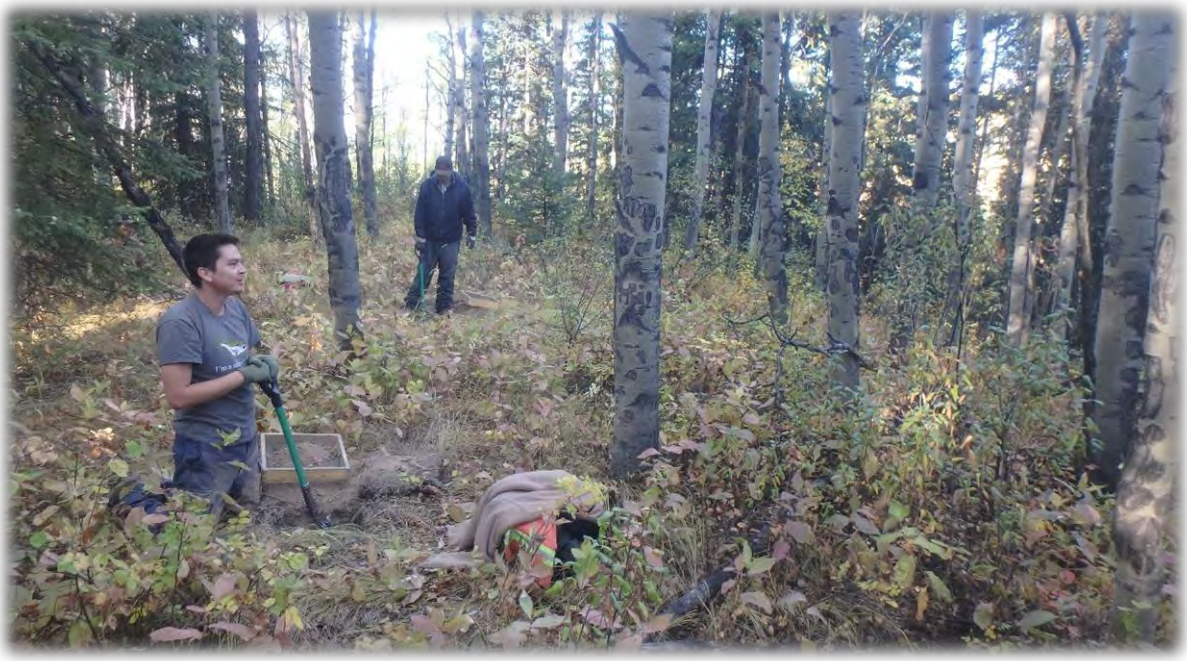

Photo 7. Representative overview of the southern portion of site Polygon E (upper-terrace level), while shovel testing continued southward along the prominent margin. This image focuses on the locality of ST 17. (view: south-southwest)

Photo 8. Representative overview of the southern portion of site Polygon F, which encompasses a portion of a relatively prominent rise that is to the east of Polygon E. (view: west)

Photo Log

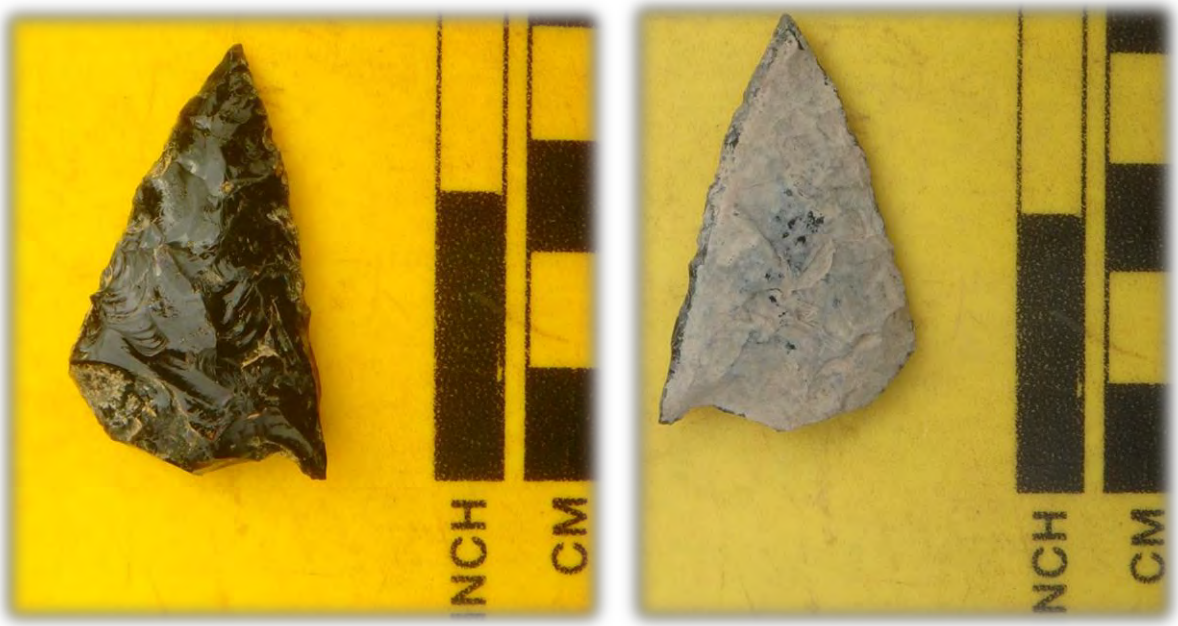

Photo 9. Representative example of the current lithic artifact assemblage; triangular-shaped blade portion of a projectile point of obsidian (catalogue #16). Although the base is absent, the barbed shoulder is suggestive of a corner-notch, which could support the theory of a Middle Period occupation. Note that this artifact was subsequently subjected to XRF analysis, and the raw material was sourced to Yellowstone, Wyoming (R. Reimer, December 2019).

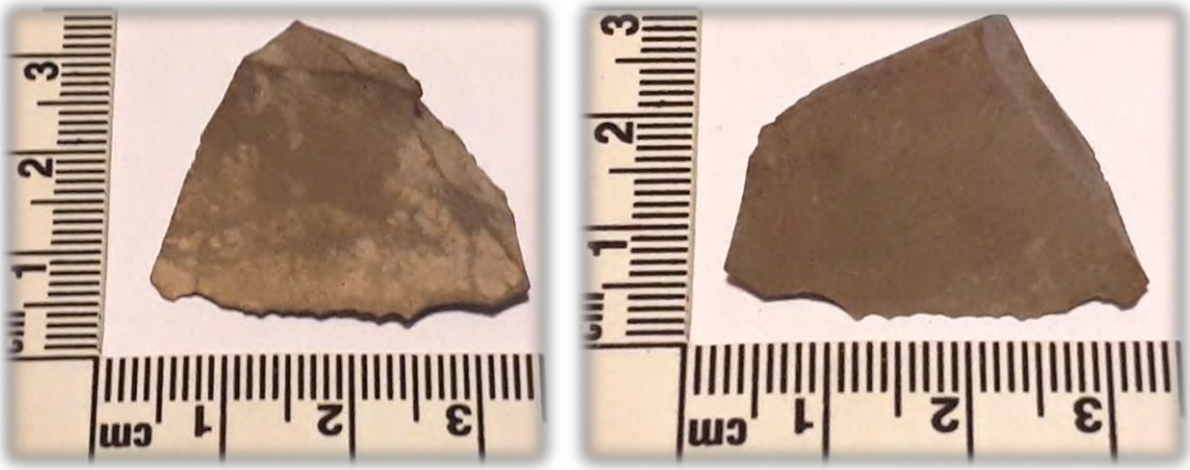

Photo 10 Representative example of the current lithic artifact assemblage; utilized shatter of siliceous mudstone. (catalogue #17)

Photo Log

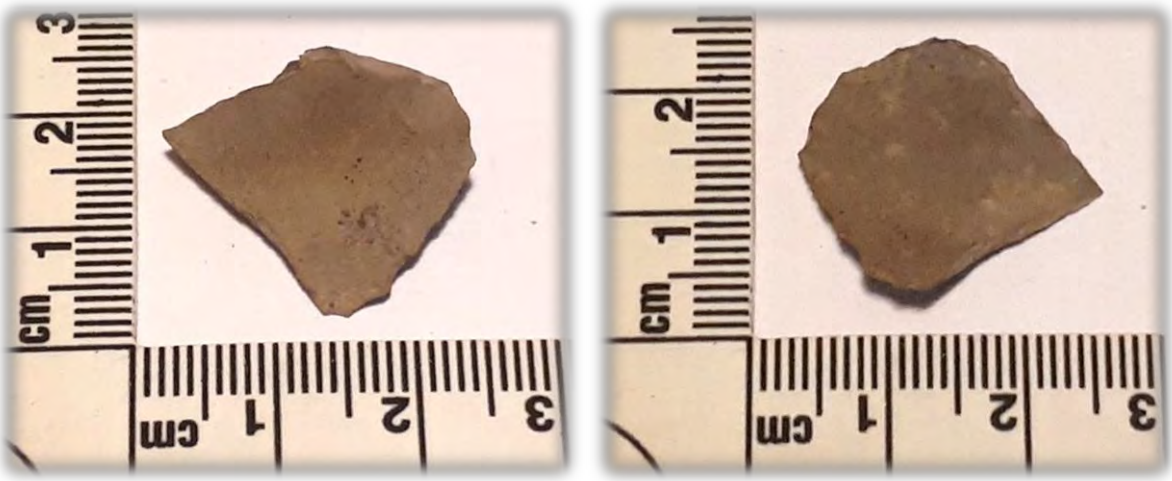

Photo 11. Representative example of the current lithic artifact assemblage; utilized flake of siliceous mudstone. (catalogue #22)

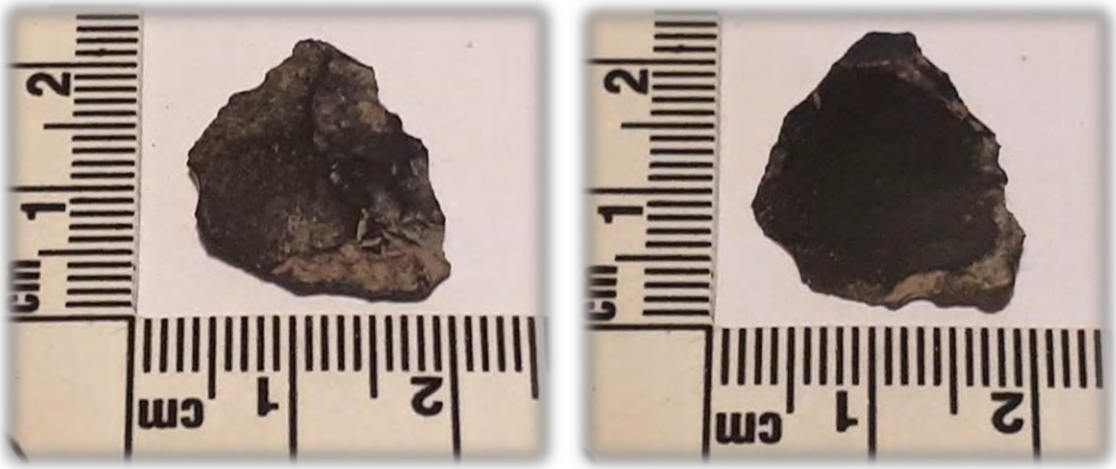

Photo 12. Representative example of the current lithic artifact assemblage; utilized flake fragment of tourmaline chert. (catalogue #27)

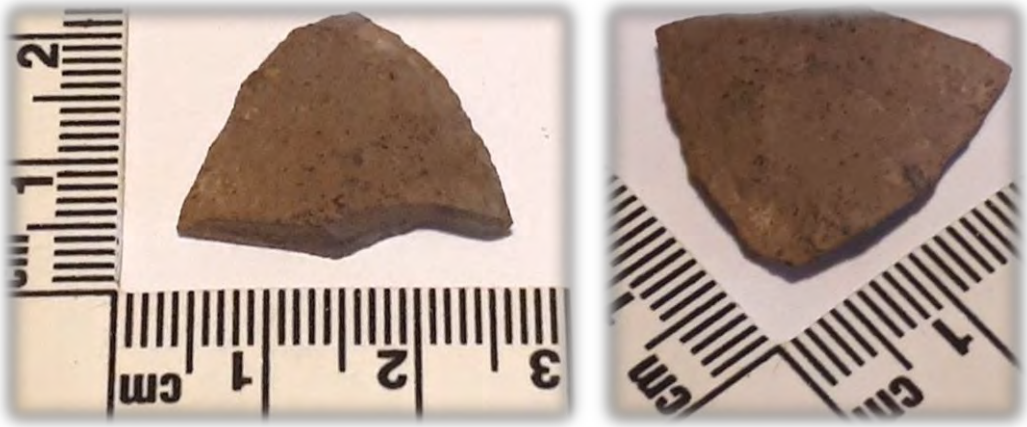

Photo 13. Representative example of the current lithic artifact assemblage; biface fragment (tip) of siliceous mudstone. (catalogue #31)

Photo Log

Photo 14. Representative example of the current lithic artifact assemblage; utilized decortication flake of sandstone. (catalogue #32)

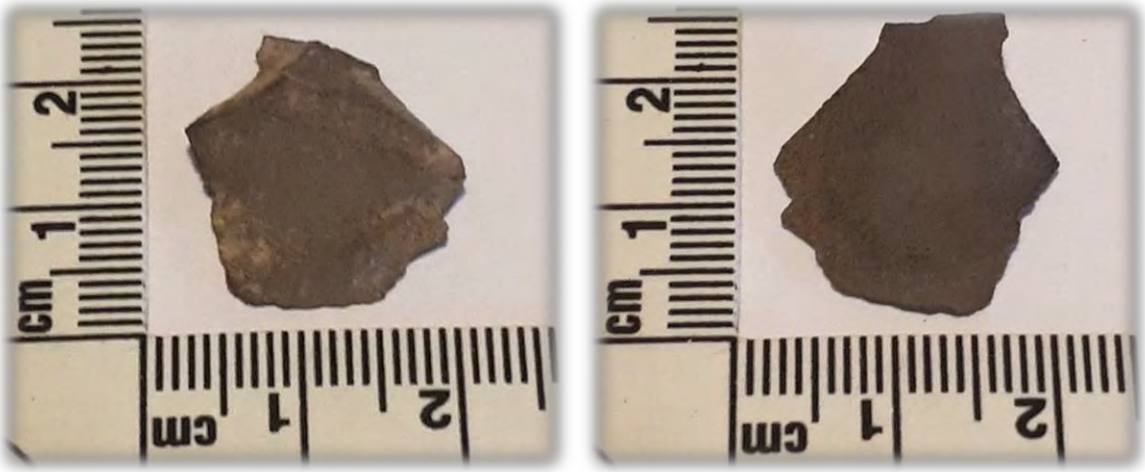

Photo 15. Representative example of the current lithic artifact assemblage; utilized flake fragment of siliceous mudstone. (catalogue #34)

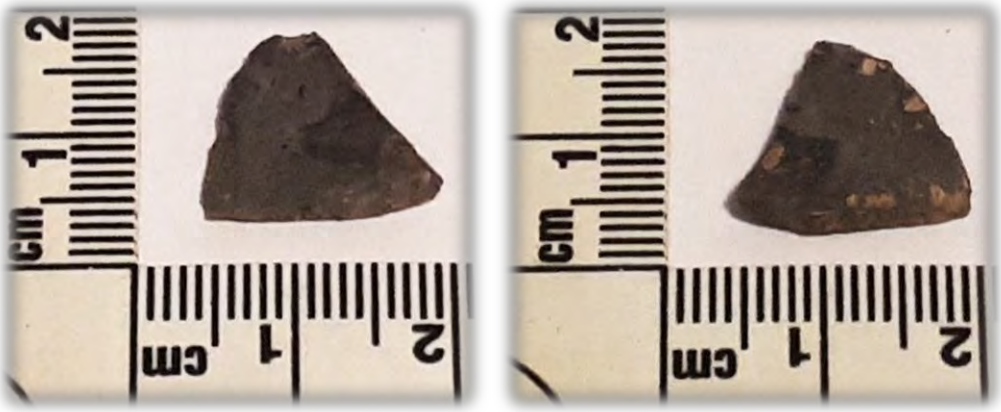

Photo 16. Representative example of the current lithic artifact assemblage; utilized flake of Top of the World chert. (catalogue #42)

Photo Log

Photo 17. Representative example of the fire-altered rock that was exposed during the inspection (*e.g.* shovel testing) of the site. In total, 15 specimens (1.21 kg) were documented within ST 5 (Polygon B), ST 7, ST 10, and ST 11 (Polygon D), and one tree throw (TT 1 – Polygon C [pictured above]).

Borden Number: DlPr-81
Temp. Borden Number: DlPr-17-T12
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 26-27, 2017
Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
1 *Polygon A*	I	0-14 cm	Litter matter (LM)-Organic matter (OM)
	II	14-20 cm	Brown silt with > 10% sub-round (SR) to sub-angular (SA) gravel
	III	20-26 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
	Comments: one siliceous mudstone flake recovered from 15–20 cm dbs.		
2 *Polygon A*	I	0-6 cm	LM/OM
	II	6-7 cm	AE horizon
	III	7-17cm	Dark yellowish – brown silt with 25% SR-SA gravels
	IV	17-26 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
	Comments: utilized siliceous mudstone flake recovered from 5-10 cm and a siliceous mudstone flake fragment from 20-25 cm dbs.		
3 *Polygon A*	I	0-14 cm	LM/OM
	II	14-20 cm	Brown silt with > 10% SR-SA gravel
	III	20-26 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
	Comments: utilized flake and flake fragment of siliceous mudstone recovered from 15-20 cm, utilized siliceous mudstone flake from 20-25 cm dbs.		
4 *Polygon A*	I	0-5 cm	LM/OM
	II	5-9 cm	AE horizon
	III	9-31 cm	Brown silt with > 10% SR-SA gravel
	Comments: utilized siliceous mudstone flake from 15-20 cm, flake fragment of siliceous mudstone 20-25, flake of siliceous mudstone and tourmalinite from 25-30 dbs.		

ST 4. Western wall profile; representative for ST1-3 within site Polygon A.

Borden Number: DlPr-81
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HCA Permit Number: 2015-0098
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Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 26-27, 2017
Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
5 *Polygon B*	I	0-6 cm	LM/OM
	II	6-10 cm	AE horizon
	III	10-20 cm	Brown silt with > 10% SR-SA gravel
	IV	20-24 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
	Comments: utilized flake of siliceous mudstone recovered from 10-15 cm dbs and FAR observed at 5-10 cm dbs.		
6 *Polygon C*	I	0-7 cm	LM/OM
	II	7-10 cm	AE horizon
	III	7-25 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
	Comments: utilized flake of tourmalinite recovered from 0-10 cm dbs.		
ST6. Northern wall profile; within site Polygon C.			
7 *Polygon D*	I	0-4 cm	LM/OM
	II	4-12 cm	Brown silt with > 10% SR – SA gravel
	III	12-18 cm	Brown sandy silt with ~80% SR-SA gravel, pebbles, cobbles and boulders
	Comments: FAR observed at 5-10 cm dbs.		
8 *Polygon D*	I	0-10 cm	LM/OM
	II	10-25 cm	Brown sandy silt with ~80% SR-SA gravel, pebbles, cobbles and boulders
	Comment: utilized sandstone spall recovered from 10-20 cm dbs.		

Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
9 *Polygon D*	I	0-5 cm	LM/OM
	II	5-7 cm	AE horizon
	III	7-28 cm	Brown sandy silt with ~80% SR-SA gravel, pebbles, cobbles and boulders
	Comments: Top of the World chert flake recovered from 20-25 cm dbs.		

ST 9. Northern wall profile; representative for ST 7-8 and ST10-11 within site Polygon D.

10 *Polygon D*	I	0-8 cm	LM/OM
	II	8-10 cm	AE horizon
	III	10-20 cm	Brown sandy silt with ~80% SR-SA gravel, pebbles, cobbles and boulders
	Comments: FAR observed from 10-15 cm dbs.		
11 *Polygon D*	I	0-6 cm	LM/OM
	II	6-26 cm	Brown sandy silt with ~80% SR-SA gravel, pebbles, cobbles and boulders
	Comments: FAR observed, no depth recorded.		
1* *Polygon E*	I	0-7 cm	LM/OM
	II	7-8 cm	Brown silt with > 10% SR -SA gravel
	III	8-13 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
	IV	13-32 cm	Brown sandy silt with ~80% SR-SA gravel, pebbles, cobbles and boulders
	Comments: utilized shatter of siliceous mudstone recovered from 15-20 cm dbs		
2* *Polygon E*	I	0-6 cm	LM, Om
	II	6-8 cm	AE horizon
	III	8-15 cm	Yellowish brown silt with >5% SR gravel
	IV	15-39cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	39-41cm +	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: siliceous mudstone flake recovered at 15-20 cm and 30-35 cm dbs.		

Borden Number: DlPr-81
Temp. Borden Number: DlPr-17-T12
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 26-27, 2017
Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
3* *Polygon E*	I	0-7 cm	LM/OM
	II	7-8 cm	AE horizon
	II	8-32 cm	Yellowish brown silt with >5% SR gravel
	V	32 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: two siliceous mudstone flakes and one utilized siliceous mudstone flake recovered at 30-32 cm dbs.		
10* *Polygon E*	I	0-9 cm	LM/OM
	II	9-10 cm	AE horizon
	III	10-29 cm	Yellowish brown silt with >5% SR gravel
	IV	29-39 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	39 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: siliceous mudstone biface fragment recovered from 30-35 cm dbs.		
11* *Polygon E*	I	0-8 cm	LM/OM
	II	8-9 cm	AE horizon
	II	9-34 cm	Yellowish brown silt with >5% SR gravel
	IV	34cm +	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: large number of roots throughout, utilized sandstone flake and siliceous siltstone flake fragment recovered at 20-30 cm dbs.		
12 *Polygon E*	I	0-9 cm	LM/OM
	II	9-10 cm	AE horizon
	III	10-25 cm	Yellowish brown silt with >5% SR gravel
	IV	25-52 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	52 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: four flakes of various materials recovered from 25-30 cm dbs.		
13 *Polygon E*	I	0-6 cm	LM/OM
	II	6-7 cm	AE horizon
	III	7-14 cm	Yellowish brown silt with >5% SR gravel
	IV	14-22 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	22 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: two flakes recovered from 5-10 cm and one siliceous mudstone flake at 10-15 cm dbs.		
14 *Polygon E*	I	0-7 cm	LM/OM
	II	7-8 cm	AE horizon
	III	8-14 cm	Yellowish brown silt with >5% SR gravel
	IV	14-21 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	21 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: Top of the World chert utilized flake recovered from 0-10cm dbs.		
15 *Polygon E*	I	0-6 cm	LM/OM
	II	6-18 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	III	18 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: Top of the World chert flake recovered from 0-10 cm dbs.		

Borden Number: DlPr-81
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Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 26-27, 2017
Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
16 *Polygon E*	I	0-7 cm	LM/OM
	II	7-8 cm	AE horizon
	III	8-17 cm	Yellowish brown silt with >5% SR gravel
	IV	17-29 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	29 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: two siliceous mudstone flakes recovered from 0-10 cm dbs.		

ST 16. Profile (direction unknown). Photo represents stratigraphy observed at ST1-3, ST10-15, ST17-18 Polygon E.

17 *Polygon E*	I	0-8 cm	LM/OM
	II	8-17 cm	Yellowish brown silt with >5% SR gravel
	III	17-26 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	IV	26 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: siliceous mudstone shatter fragment recovered from 5-10cm dbs.		
18 *Polygon E*	I	0-5 cm	LM/OM
	II	5-6 cm	AE horizon
	III	6-17 cm	Yellowish brown silt with >5% SR gravel
	IV	17-21 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	21 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: siliceous mudstone flake fragment recovered from 10-15 cm dbs.		

Borden Number: DlPr-81
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Date of Assessment: September 26-27, 2017
Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
4* *Polygon F*	I	0-6 cm	LM/OM
	II	6-7 cm	AE horizon
	II	7-13cm	Yellowish brown silt with >5% SR gravel
	IV	13-20 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	20 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: flake fragment of siliceous mudstone recovered from 5-10cm dbs.		
5* *Polygon F*	I	0-5 cm	LM/OM
	III	5-14 cm	Yellowish – brown silt with >5% SR gravel
	IV	14-20 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	20 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: utilized siliceous mudstone flake and one siliceous mudstone flake recovered from 10-15 cm and one siliceous mudstone flake recovered from 15-20 cm dbs.		
6* *Polygon F*	*Comments:* stratigraphy was obscured by bioturbation from root action. One siliceous mudstone flake was recovered from 0-10 cm dbs.		
7* *Polygon F*	I	0-5 cm	LM/OM
	II	5-7 cm	AE horizon
	III	7-31 cm	Yellowish brown silt with >5% SR gravel
	V	31-33 cm	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: one siliceous siltstone fragment recovered from 10-15 cm dbs.		

ST 7*. South wall profile. Photo represents stratigraphy at ST4-6 and ST8-9 Polygon F.

Borden Number: DlPr-81
Temp. Borden Number: DlPr-17-T12
HCA Permit Number: 2015-0098
Field Component Affiliation: Tipi Mountain Eco-Cultural Services Ltd.
Reporting Component Affiliation: Pathways Archaeological Consulting Ltd.
Date of Assessment: September 26-27, 2017
Stratigraphy Log

Shovel Test	Stratum	Depth (below surface)	Description
8* *Polygon F*	I	0-8 cm	LM/OM
	II	8-21 cm	Yellowish brown silt with >5% SR gravel
	V	21 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: one utilized tourmaline chert flake recovered from 10-15 cm dbs.		
9* *Polygon F*	I	0-4 cm	LM/OM
	II	4-6 cm	AE horizon
	III	6-16 cm	Yellowish brown silt with >5% SR gravel
	IV	16-28 cm	Brown silt, hard-packed with >5% SR gravel and >5% SR pebbles and cobbles
	V	28 cm+	Dark brown granular clay-silt, very hard-packed with 5-10% SR-SA gravel, pebbles, and small cobbles
	Comments: two siliceous mudstone flakes recovered from 15-20 cm and one Top of the World chert flake recovered from 20-25 cm dbs.		

***Stratigraphy Log Note**: Asterisks (*) on shovel tests 1-18 associated with site Polygons E and F, are to indicate duplicate shovel test numbers within the site and are to differentiate from lower-elevation shovel tests.*

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1 - Polygon A	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Platform largely crushed; moderate dorsal scarring; step termination; suspected use wear along one lateral edge; soil adhering to ventral surface.	26-Sep-17	25-Apr-20	JT	N
2	1	ST 2 - Polygon A	5-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	21.4	13.9	2.6	0.7	Medium to high angle, dihedral striking platform; expanding lateral edges with use wear along terminal edge; dorsal scarring obscured by soil adhering	26-Sep-17	25-Apr-20	IT	Y
3	1	ST 2 - Polygon A	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	No platform; minimal dorsal scarring; soil adhering to dorsal surface	26-Sep-17	25-Apr-20	IT	N
4	1	ST 3 - Polygon A	15-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(21.5)	(18.8)	(6.4)	(1.6)	Secondary/tertiary fragment with crushed platform; complex dorsal scarring; use wear along one lateral edge and possibly remnant of opposing edge; terminal portion of flake is absent; soil clinging to artifact	26-Sep-17	25-Apr-20	JM	Y
5	1	ST 3 - Polygon A	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform; minimal dorsal scarring; soil adhering to ventral surface	26-Sep-17	25-Apr-20	JM	N
6	1	ST 3 - Polygon A	20-25	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(31.6)	(17.2)	(5.0)	(2.0)	Secondary/tertiary fragment with crushed platform; complex dorsal scarring; use wear along one lateral edge that blends into the terminal edge; soil clinging to artifact	26-Sep-17	25-Apr-20	JM	Y
7	1	ST 4 - Polygon A	15-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull dark grey with developing weathered brown patina	47.2	30.2	(6.7)	(8.4)	Secondary flake with small, relatively high angle striking platform; overshot/outrepasse termination with small patch of water-smoothed nodular cortex; highly complex dorsal scarring; lithic reduction flake from nodular core/preform; one relatively long concave lateral edge with use wear that formed a point (now absent/snapped) with the terminal edge that also has [micro] use wear.	26-Sep-17	25-Apr-20	JT	Y
8	1	ST 4 - Polygon A	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	No platform; minimal to moderate dorsal scarring; possible use wear along one lateral edge	26-Sep-17	25-Apr-20	JT	N
9	1	ST 4 - Polygon A	25-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 1	-	-	-	Platform largely crushed, remnant suggest medium angle strike; moderate dorsal scarring; soil adhering to ventral surface; finishing/resharpening flake.	26-Sep-17	25-Apr-20	JT	N
10	1	ST 4 - Polygon A	25-30	Flake: Secondary	Tourmalinite	Opaque, vitreous black	sg: 2	-	-	-	Small, medium angle planar striking platform; moderate to complex dorsal scarring; possible use wear; soil adhering to artifact	26-Sep-17	25-Apr-20	JT	N
11	1	ST 5 - Polygon B	10-15	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(43.3)	(30.7)	(6.7)	(6.3)	Fragmented from shovel testing (x2 re-fit) with missing portions (including platform) that contain unweathered surfaces; use wear along remaining lateral edge that forms a point with terminal edge	26-Sep-17	25-Apr-20	DH	Y
12	1	ST 6 - Polygon C	0-10	Tool: Utilized Flake	Tourmalinite	Opaque. Vitreous khaki dark brown	(2.9)	(1.6)	(5.9)	(2.0)	Relatively broad planar, medium to high angle striking platform; weathered breakage and soil clinging to all surfaces; use wear along terminal edge	26-Sep-17	25-Apr-20	JT	Y
13	1	ST 8 - Polygon D	10-20	Tool: Utilized Spall	Sandstone	Opaque, dull greyish-brown	81.3	63.8	11.2	56.5	Spall fragment (primary decortication) with sub-angular to sub-round cortex; one blunt edge at right angle (90) with ovate working edge that has a scalloped-outline through use wear and unifacial retouch (directed to ventral surface); similar artifact type to DlPr-17-T07	26-Sep-17	25-Apr-20	JN	Y
14	1	ST 9 - Polygon D	20-25	Flake: Tertiary	chert: Top of the World	Translucent, vitreous light grey	sg: 2	-	-	-	Small, medium angle dihedral striking platform with faint lip; complex dorsal scarring with flake scars along once lateral edge on the ventral surface suggesting detachment from biface preform for resharpening or re-purposing; soil adhering to periphery of artifact.	26-Sep-17	25-Apr-20	JF	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
15	1	TT 2 - Polygon D	~10-20	Flake: Fragment (decortication)	chert: Etherington	Opaque to slightly translucent along edges, vitreous mottled brownish-dark grey	sg: (2)	-	-	-	No platform; terminal portion of decortication flake with water-smoothed cortex; soil clinging to artifact; possible naturally-split pebble	26-Sep-17	25-Apr-20	IT	N
16	1	TT 3 - Polygon D	unknown	Tool: Projectile Point (Fragment)	Obsidian	Opaque to slightly translucent along edges, one side is highly vitreous black, opposing side is de-vitrified due to hydration or calcium carbonate	(37.1)	(22.9)	(6.1)	(3.6)	Blade portion of projectile point, with triangular blade shape and elliptical cross section; one sharp, possibly barbed shoulder remains (notch width not obtainable); although the base is absent, the artifact is suspected to be a Middle Period artifact and was *likely* corner-notched; one side is very hydrated; XRF analysis indicates source of material is Yellowstone, Wyoming (R. Reimer, December 2019)	26-Sep-17	25-Apr-20	IT	Y
17	1	ST 1* - Polygon E	15-20	Tool: Utilized Shatter	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	30.7	24.2	12.1	6.0	Blocky shatter or primary flake fragment with water-smoothed nodular cortex present; soil clinging to one side; heavy use wear along one (sharpest) edge	27-Sep-17	02-May-20	JM	Y
18	1	ST 2* - Polygon E	15-20	Flake: Tertiary	Siliceous Siltstone	Opaque, dull greyish-brown	sg: 2	-	-	-	Low angle, single facet (slightly concave) striking platform with overhanging lip; moderate dorsal scarring; soil clinging to dorsal surface	27-Sep-17	02-May-20	JM	N
19	1	ST 2* - Polygon E	30-35	Flake: Fragment	Siliceous Siltstone	Opaque, dull greyish-brown	sg: (2)	-	-	-	Medial portion of flake; no platform; moderate dorsal scarring	27-Sep-17	02-May-20	JM	N
20	2	ST 3* - Polygon E	30-40	Flake: Tertiary	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	sg: 1 & 2	-	-	-	Small resharpening flakes; small dihedral and multi-facetted platforms with overhanging lips, moderate to complex dorsal scarring; soil clinging to ventral sides	27-Sep-17	02-May-20	JN	N
21	1	ST 4* - Polygon F	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	sg: (2)	-	-	-	Medial portion of flake; no platform; moderate dorsal scarring	27-Sep-17	02-May-20	JM	N
22	1	ST 5* - Polygon F	10-15	Tool: Utilized Flake (Fragment)	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	(28.1)	(27.5)	(4.5)	(1.8)	Proximal portion of late stage flake with multi-facetted, medium to high striking angle platform with overhanging lip; moderate to complex dorsal scarring; use wear along intact later edge	27-Sep-17	02-May-20	JT	Y
23	1	ST 5* - Polygon F	10-15	Flake: Tertiary	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	sg: 3	-	-	-	Narrow, medium angle, multi-facetted striking platform with overhanging lip; complex dorsal scarring; hinge termination; shaping-like flake; soil clinging to ventral side	27-Sep-17	02-May-20	JT	N
24	1	ST 5* - Polygon F	15-20	Flake: Tertiary	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	sg: 2	-	-	-	Narrow, slightly concave medium angle striking platform with overhanging lip, moderate to complex dorsal scarring; soil clinging to dorsal side; resharpening flake	27-Sep-17	02-May-20	JT	N
25	1	ST 6* - Polygon F	0-10	Flake: Primary/Secondary	Siliceous Mudstone	Opaque, sub-vitreous brownish-grey	sg: 2	-	-	-	Secondary decortication flake with remnant strip of water-smoothed nodular cortex; platform is largely crushed, but appears to be medium angle strike; soil clinging to ventral side	27-Sep-17	02-May-20	JN	N
26	1	ST 7* - Polygon F	10-15	Flake: Fragments	Siliceous Siltstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake; no platform	27-Sep-17	02-May-20	IT	N
27	1	ST 8* - Polygon F	10-15	Tool: Utilized Flake (fragment)	Chert: Tourmaline	Opaque, vitreous dark khaki greenish-grey	(21.3)	(16.4)	(3.7)	(1.1)	Late-stage flake with platform crushed/broken; complex dorsal scarring; use wear along lateral and terminal edges; soil clinging to dorsal side	27-Sep-17	02-May-20	crew	Y
28	1	ST 9* - Polygon F	15-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey (weathered)	sg: 3	-	-	-	Medium angle, multi-facetted striking platform with overhanging lip; moderate to complex dorsal scarring; possible use wear along one lateral edge	27-Sep-17	02-May-20	JT	N
29	1	ST 9* - Polygon F	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey (weathered)	sg: 2	-	-	-	Platform absent/broken; possible use wear along edges; soil clinging to dorsal side	27-Sep-17	02-May-20	JT	N
30	1	ST 9* - Polygon F	20-25	Flake: Tertiary	chert: Top of the World	Translucent, vitreous light grey	sg: 2	-	-	-	Low angle, dihedral striking platform; moderate to complex dorsal scarring; soil clinging to dorsal surface	27-Sep-17	02-May-20	JT	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
31	1	ST 10* - Polygon E	30-35	Tool: Biface (fragment)	Siliceous Mudstone	Opaque, sub-vitreous greyish-brown	(61.5)	(57)	(5.1)	(1.8)	Artifact is suggestive of tip of projectile point or large tool; bifacially-worked edges that form ovate blades; lenticular cross section; weathered breakage	27-Sep-17	02-May-20	JT	Y
32	1	ST 11* - Polygon E	20-30	Tool: Utilized Flake (decortication)	Sandstone	Opaque, dull brownish-grey (weathered)	63.3	54.5	16.4	36.9	Primary decortication flake with high angle striking platform; water-smoothed sub-round cortex; use wear along edges; some blackened areas on cortex (previously subject to fire prior to lithic reduction?)	27-Sep-17	02-May-20	JN	Y
33	1	ST 11* - Polygon E	20-30	Flake: Fragment	Siliceous Siltstone	Opaque, sub-vitreous grey	sg: (2)	-	-	-	Crushed platform; moderate dorsal scarring	27-Sep-17	02-May-20	JN	N
34	1	ST 3* - Polygon E	30-40	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, sub-vitreous brownish-grey	(21.5)	(18.6)	(3.2)	(0.7)	No platform; complex dorsal scarring; use wear along edges	27-Sep-17	02-May-20	JN	Y
35	1	ST 12 - Polygon E	25-30	Flake: Fragment	chert: Banff Formation	Opaque, vitreous black with faint greyish banding	sg: (2)	-	-	-	Late stage flake; crushed platform; complex dorsal scarring	27-Sep-17	02-May-20	IT	N
36	1	ST 12 - Polygon E	25-30	Flake: Tertiary	Chert: Tourmaline	Opaque, vitreous khaki-grey	sg: 2	-	-	-	Narrow, medium angle, multi-facetted striking platform with overhanging lip; complex dorsal scarring; soil clinging to dorsal side	27-Sep-17	02-May-20	IT	N
37	1	ST 12 - Polygon E	25-30	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous dark grey	sg: (2)	-	-	-	No platform; prismatic shape; soil clinging	27-Sep-17	02-May-20	IT	N
38	1	ST 12 - Polygon E	25-30	Flake: Fragment	Siliceous siltstone	Opaque, dull grey	sg: (3)	-	-	-	No platform; irregular shape, complex dorsal scarring; suspected removal of poor-quality material	27-Sep-17	02-May-20	IT	N
39	1	ST 13 - Polygon E	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous grey	sg: (3)	-	-	-	No platform; hinge termination; possible use wear present	27-Sep-17	02-May-20	JM	N
40	1	ST 13 - Polygon E	5-10	Flake: Fragment	chert: Top of the World	Opaque to slight translucent along edges, vitreous grey with a few dendritic inclusions	sg: (3)	-	-	-	No platform; moderate to complex dorsal scarring	27-Sep-17	02-May-20	JM	N
41	1	ST 13 - Polygon E	10-15	Flake: Tertiary	Siliceous Mudstone	Opaque, sub-vitreous brownish-grey	sg: 2	-	-	-	Low angle, multi-facetted platform; complex dorsal scarring; re-sharpening flake	27-Sep-17	02-May-20	JM	N
42	1	ST 14 - Polygon E	0-10	Tool: Utilized Flake	chert: Top of the World	Opaque, vitreous dark grey with a few black dendritic inclusions	(15.7)	(15.5)	(2.9)	(0.6)	Proximal portion of flake with low to medium angle, dihedral striking platform; moderate dorsal scarring with possible planar cortex (or weathered); use wear along one lateral edge	27-Sep-17	02-May-20	JN	Y
43	1	ST 15 - Polygon E	0-10	Flake: Tertiary	chert: Top of the World	Translucent vitreous dark grey with a few black dendritic inclusions	sg: (1)	-	-	-	Platform absent/broken; complex dorsal scarring; soil clinging to dorsal side	27-Sep-17	02-May-20	JT	N
44	1	ST 16 - Polygon E	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull to sub-vitreous grey	sg: 2	-	-	-	Small medium angle, dihedral striking platform; minimal dorsal scarring; step termination or previous breakage	27-Sep-17	02-May-20	MS & DH	N
45	1	ST 16 - Polygon E	0-10	Flake: Primary	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey (weathered cortex)	sg: 3	-	-	-	Primary decortication flake with medium to high angle, multi-facetted striking platform; nodular cortex	27-Sep-17	02-May-20	MS & DH	N
46	1	ST 18 - Polygon E	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey	sg: (4)	-	-	-	Terminal portion of large flake; hinge termination; soil clinging to artifact	27-Sep-17	02-May-20	IT	N
47	1	ST 17 - Polygon E	*unknown*	Shatter	Siliceous Mudstone	Opaque, dull dark grey	sg: (2)	-	-	-	Provenience lost beyond the recognition that the artifact belongs to this site	26/27-Sep-17	07-Jan-21	DH	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository (KNRR)
Asterisks (*) on shovel tests 1-18 associated with site Polygons E and F, are to indicate duplicate shovel test numbers within the site and are to differentiate from lower-elevation shovel tests.

Provenience	Depth (below surface)	Material	Size Grade	# of Pieces	Weight (g)	Comments
ST 5 - Polygon B	5-10 cm	*not specified*	sg=1 [n=3]	3	70	Round to sub-round cortex, castellated factures
			sg=2 [n=2]	2	110	Round to sub-round cortex, castellated factures
TT 1 - Polygon C	5-15 cm	*not specified*	sg=2	6	680	Round, sub-round, to sub-angular cortex
ST 7 - Polygon D	5-10 cm	*not specified*	sg=2	1	180	Round to sub-round cortex with weathered castellated factures
ST 10 - Polygon D	10-15 cm	*not specified*	sg=2	1	50	Sub-angular to sub-round cortex with castellated fractures
ST 11 - Polygon D	±10 cm	*not specified*	sg=2	2	120	Sub-round to round cortex
			Totals:	***15***	***1210***	

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test = ST
Tree Throw = TT
FAR Size Grade= sg, defined by 1= 0-5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
This artifact type was not collected, but quantified in the field and left in the location in which they were observed.

Appendix D:
Stratigraphic Information

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coals Project
Phase I – Railway Loadout Facility

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C38-15	**STL 1**	I	0-5 cm	Litter Mat (LM) / Organic Matter (Om)
		II	5-10 cm	Decomposing Om
		III	10-25 cm	Light grey loosely-packed glacial lacustrine silts with >5% angular (A) to sub-round (SR) pebbles
		IV	25-40 cm	Grey-brown compact silt with ~5% A-SR pebbles
		Comments: Representative stratigraphy of STL		
	STL 2	I	0-5 cm	LM/Om
		II	5-10 cm	Decomposing Om
		III	10-25 cm	Light grey loose glacio-lacustrine silt with >5% gravel
		IV	25-40 cm	Grey-brown compact silt with ~5% A-SR pebbles
		Comments: Representative stratigraphy of STL		
	STL 3	I	0-5 cm	LM/Om
		II	5-10 cm	Decomposing Om
		III	10-25 cm	Light grey loosely-packed glacio-lacustrine silts with >5% gravel
		IV	25-40 cm	Grey-brown compact silt with ~5% A-sub-round (SR) pebbles
		Comments: Representative stratigraphy of STL		
	STL 4	I	0-5 cm	LM / Om
		II	5-10 cm	Light brown sandy silt with 15-20% SA-SR pebbles
		III	10-25 cm	Brown-grey, hard-packed silt with ~20% SR-SA pebbles
		IV	>25 cm	Very hardpacked silty sand with 15-20% SR-SA pebbles
		Comments: Representative stratigraphy for STL, all STs excavated to 30-40 cm.		
	STL5A DkPr-34 (Polygon A)	I	0-5 cm	Litter mat, Om horizon
		II	5-11 cm	Brown silt
		III	11-17 cm	Brown—grey clayey-silt
		IV	17-40 cm	Hardpacked greyish-brown clayey silt
		Comment: Representative stratigraphy for Site Polygons A-D		
	STL 5B	I	0-7 cm	Litter mat, Om horizon
		II	7-9 cm	Loose brown-grey silt
		III	9-15 cm	Grey silt with 30-40% SA pebbles
		IV	>15 cm	Light grey, hard packed silt with some sand and 30-40% SA pebbles.
		Comments: Representative stratigraphy for negative area of STL		

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C38-15	**STL 6**	I	0-2 cm	LM/Om
		II	2-10 cm	Light greyish-brown silt with some sand and ~3% SR-SA pebbles
		III	1-18 cm	Tan-brown, compact silt with some clay and <3% SR-SA pebbles
		IV	18-20 cm	Medium brown, compact clay with some silt and <3% pebbles and cobbles
		Comments: Representative stratigraphy of STL		
	STL 7	I	0-8 cm	LM/Om
		II	8-13 cm	Greyish-brown sandy-silt with organics and 10-15 SR-SA pebbles
		III	13-24 cm	Tan-brown to reddish-brown silt with some sand and clay ~10-15% SR-SA pebbles
		IV	24-26 cm	Grey, compact silty clay
		Comments: Representative stratigraphy of STL		
	STL 8 DkPv-39	I	0-4 cm	LM/Om
		II	4-23 cm	Medium tan-brown silt with some sand and 10-15% round (R) to SA pebbles
		III	23-35 cm	Medium to dark brown silt with clay and 20% pebbles
		IV	35-36 cm	Dark to medium grey, compact clay with silt
		Comments: Representative stratigraphy of STL, artifacts collected from 0-30 cm (ST1-ST9)		
	STL 9	I	0-7 cm	LM/Om
		II	7-27 cm	Brown sandy-silt with 10% SA-SR pebble-sized gravel
		III	27-30 cm	Dark brown clayey-silt with 30-40% pebble-sized gravel
		Comments: Representative stratigraphy of STL		
	STL 10	I	0-7 cm	LM/Om
		II	7-27 cm	Brown sandy slit with ~10% SA-SR pebbles
		III	27-30 cm	Dark brown clayey silt with ~30-40% SA-SR pebbles and cobbles
		Comments: Representative stratigraphy of STL		
	STL 11	I	0-8 cm	LM/Om
		II	8-11 cm	Light grey silt (Ae horizon)
		III	11-17 cm	Light brown, compact clayey silt with <2% SA-A pebbles
		IV	17-23 cm	Comact medium brown clayey silt with <5% SA-SR pebbles and cobbles
		Comments: Representative stratigraphy of STL		
	STL 12	I	0-9 cm	LM/Om
		II	9-20 cm	Light yellowish brown, granular-crumble silt with ~25% SA-SR pebbles and cobbles
		III	20-22 cm	Dark brown, hard packed, silty-clay with 3-5% SR-SA pebble-sized gravel
		Comments: Representative stratigraphy of STL		

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C38-15	**STL 13** DkPr-35	I	0-5 cm	LM/Om
		II	5-6 cm	Very dark brown silt with high organic content.
		III	6-20 cm	Light yellow-brown silt with 5-10% SA-SR pebbles
		IV	20-30 cm	Hard packed very dark brown granular crumble silt with ~10% SA-SR pebbles and ~5% SR cobbles.
		Comments: Lithic artifacts collected from 20-30 cm (ST1 & 2) and FAR collected from 10-20 cm (ST3)		
	STL 14	I	0-5 cm	LM/Om
		II	5-6 cm	Very dark brown silt with high organic content.
		III	6-20 cm	Light yellow-brown silt with 5-10% SA-SR pebbles
		IV	20-30 cm	Very dark brown, hard packed clayey-silt with a granular crumble and ~10% SA-SR pebbles and ~5% SR cobbles.
		Comment: Representative stratigraphy of STL		
	STL 15 DkPr-37	I	0-10 cm	LM/Om
		II	10-11 cm	Light grey ashy-silt (Ae horizon)
		III	11-20 cm	Yellow-brown, hardpacked silt with 5% SA-SR pebbles.
		IV	20-27 cm	Very dark brown, hardpacked clayey-silt with a granular crumble and ~5% SR-SA pebbles
		Comments: Artifacts collected from 5-10 cm (ST1) and 10-25 cm (ST 2)		
	STL 16 DkPr-38	I	0-9 cm	LM/Om
		II	9-10 cm	Light grey ashy-silt (Ae horizon)
		III	10-23 cm	Light yellow brown silt with a granular crumble and ~10% SA-SR pebbles and cobbles
		IV	>23 cm	Dark brown, hard packed silt and clay with 3-5% SR-SA pebble-sized gravel
		Comment: Artifacts collected from 10-15 cm (ST 1 & 2)		
	STL 17	I	0-6 cm	LM/Om
		II	6-14 cm	Mottled grey and brown sandy-silt with ~3% SA-SR pebbles
		III	14-23 cm	Medium-tan brown, compact silt with some sandy and clay with 3% SR-SA pebbles
		IV	23-26 cm	Grey, compact clay with pockets of silt and 3% SR-SA pebbles
		Comments: Representative stratigraphy of STL		
	STL 18	I	0-9 cm	LM/Om
		II	9-15 cm	Light grey-tan sandy-silt with 15-20% R-SA pebbles
		III	15-24 cm	Tan-brown to reddish-brown sandy-silt with ~20% SR-SA pebbles
		IV	24-28 cm	Dark grey-brown clay with pockets of sandy-silt and ~35% pebbles and cobbles.
		Comments: Representative stratigraphy of STL		

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C38-15	**STL 19**	I	0-10 cm	LM/Om
		II	10-17 cm	Light grey sandy silt with ~10% SR-A pebbles
		III	17-28 cm	Light brown sandy silt with ~10% SR-A pebbles, becomes compact at 25 cm
		IV	28-31 cm	Compact grey clay
		Comments: Representative stratigraphy of STL		
	STL 20	I	0-6 cm	LM/Om
		II	6-27 cm	Light brown sandy-silt with 15-20% SR-SA pebbles
		III	27-36 cm	Light grey compact clay with pockets of silt and sand
		Comments: Representative stratigraphy of STL		
	STL 21	I	0-7 cm	LM/Om
		II	7-22 cm	Red-brown sandy-silt with 35% SR-SA pebbles and cobbles
		III	22-29 cm	Medium-dark grey silty-clay with 40-50% SR-SA pebbles and cobbles
		Comments: Representative stratigraphy of STL		
	STL 22 DkPr-81	I	0-4 cm	LM / Om
		II	4-9 cm	Medium grey-brown silty-sand with approximately 15% SR to SA pebbles.
		III	9-23 cm	Reddish-brown silty-sand mottled with pockets of medium grey silty-sand with approximately 15-20% SR-SA pebbles and cobbles
		IV	23-34 cm	Medium dark brown and grey sandy-silt with approximately 40-50% R to SA pebbles and cobbles
		Comments: Lithic artifacts collected from 10-15 cm (ST 1 & 3) and 20-30 cm (ST 2)		
	STL 23	I	0-5 cm	LM/Om
		II	5-15 cm	Dark grey sandy silt with 5-8% SR-SA pebbles
		III	15-27 cm	Light grey-brown sandy-silt with 10% SR-SA pebbles
		IV	27-33 cm	Compact dark-grey clay with pockets of sand and silt
		Comments: Representative stratigraphy of STL		
	STL 24	I	0-8 cm	LM/Om
		II	8-14 cm	Light grey-brown sandy-silt with 5% SR-SA pebbles
		III	14-27 cm	Reddish-brown sandy-silt with 5% SR-SA pebbles
		IV	27-29 cm	Dark grey-brown, compact clay
		Comments: Representative stratigraphy of STL		

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C38-15	**STL 25** DlPr-80	I	0-4 cm	LM/OM
		II	4-9 cm	Reddish-brown sandy-silt with 5% SR-SA pebbles
		III	9-21 cm	Dark grey to light grey-brown (mottled) silty-sand with some clay nodules and 5-10% SR-SA pebbles
		IV	21-33 cm	Light grey, compact clay with some sand
		Comments: Lithic artifacts collected from 25 cm (ST1) and fauna collected from 15-30 cm (ST2)		
	STL 26	I	0-4 cm	Grass matt
		II	4-13 cm	Brown sandy slit amongst ~75% A-SR pebbles to boulders
		III	31-33 cm	Dark grey-brown sandy silt amongst ~75% A-SR pebbles to boulders
		Comments: Representative stratigraphy of STL		
C38-14 & C38-15	**STL 27** DlPr-8	I	0-6 cm	LM/Om
		II	6-19 cm	Dark brown silt with a granular crumble and ~30% SA-SR pebbles.
		III	19-30 cm	Dark brown silt with a high calcium carbonate ($CaCo_3$) content and ~50% SR-SA pebbles and small cobbles.
		Comment: Lithic artifacts collected from 10-20 cm (ST 1-3).		
	STL 28 DlPr-82 Polygons E & F	I	0-14 cm	Litter matter (LM)-Organic matter (OM)
		II	14-20 cm	Brown silt with > 10% sub-round (SR) to sub-angular (SA) gravel
		III	20-26 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles, and cobbles
		Comment: See Appendix C for comprehensive site stratigraphy.		
	STL 29 DlPr-82 Polygons A-D	I	0-6 cm	LM/OM
		II	6-10 cm	AE horizon
		III	10-20 cm	Brown silt with > 10% SR-SA gravel
		IV	20-24 cm	Dark brown clay and silt, compact, with > 10% SR-SA gravel, pebbles and cobbles
		Comment: See Appendix C for comprehensive site stratigraphy		
C38-14	**STL 30**	I	0-2 cm	LM
		II	2-9 cm	Dark organic-rich silt
		III	9-17 cm	Dark grey fine sand
		IV	17-21 cm	Dark grey medium sand
		V	21-25 cm	Silty coarse-grained sand with ~35% SR pebbles and ~5% cobbles
		Comment: Representative stratigraphy of STL		

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
	STL 31	I	0-7 cm	LM/OM
		II	7-8 cm	Grey ashy-silt (Ae horizon)
		III	8-16 cm	Brown silt with 20% SA platy pebbles
		IV	16-40 cm	Loose dark brown sandy pebbles and gravels
		V	>40 cm	Densely packed SA cobbles.
		Comment: Representative stratigraphy of STL		

Archaeological Impact Assessment of the Crown Mountain Coking Coal Project - Final Report –

V2

Volume 2

Heritage Conservation Act
Heritage Inspection Permit

2015-0098

Prepared for:

NWP Coal Canada Ltd.

Prepared by:

Pathways Archaeological Consulting Ltd.

&

Tipi Mountain Eco-Cultural Services Ltd.

V2 SUBMISSION:

October 20th, 2021

Heritage Inspection Permit

2015-0098

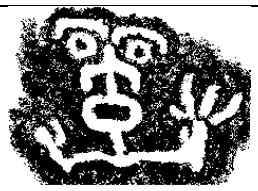
Final Report

Appendix B: Phase II (Interim Report)

Crown Mountain Coal Project

NWP Coal Canada Ltd.

BRITISH COLUMBIA ARCHAEOLOGICAL IMPACT ASSESSMENT CROWN MOUNTAIN PHASE II – TRANSPORTATION CORRIDOR REPORT FORM



1. REPORT TITLE

2015-0098-NWP2	Archaeological Impact Assessment of the Crown Mountain Coal Project: Phase II – Transportation Corridor

2. MANAGEMENT SUMMARY

2.1	***Protected HCA Sites:***	*Previously Recorded:* DlPq-8, DlPr-42, DlPr-43, and DlPr-46 (now encompasses DlPr-45) *Newly Recorded:* DkPq-19, DkPq-20; DlPq-10, DlPq-11, DlPq-12, DlPq-13; DlPr-65, DlPr-66, DlPr-67, DlPr-68, DlPr-69, DlPr-75, DlPr-76, DlPr-77, and DlPr-78

2.2 Brief Overview of Study:

NWP Coal Canada Ltd. (the Proponent) requested an archaeological impact assessment (AIA) for a proposed open-pit coal mining operation that will involve development within portions of ten coal licenses that encompass the general locality of Crown Mountain (the Project). Crown Mountain is a north-south trending bedrock-controlled ridge that separates the West Alexander Creek drainage from that of the relatively broad Alexander Creek valley that forms a segment of the western slope of the Continental Divide in southeastern British Columbia. The Project is located approximately 12 km northeast of the District of Sparwood and 26 km southeast of the District of Elkford, (*Appendix A*: Figure 1).

The mine plan centers on Crown Mountain, with the distribution of ancillary infrastructure components located along the Grave Creek drainage and within the locality of Grave Prairie. A phased approach was required for a feasible archaeological assessment; these phases include:

- **Phase I**: Railway Siding/Loop and Loadout Facility - Grave Prairie (Elk River valley).
- **Phase II**: Transportation Corridor - Grave Prairie to Crown Mountain (Grave Creek/Canyon)
- **Phase III**: Mine Site - Crown Mountain (Alexander Creek and West Alexander Creek valleys)
- **Phase IV**: Secondary Transportation Corridor (Alexander Creek valley)

This interim report summarizes the results from the AIA on the Phase II development footprint, which had field inspections implemented in 2017 and 2018. The proposed footprint of the transportation corridor was revised upon the conclusion of the 2017 field season based, in part, on the results of the archaeological assessment. As initially proposed, Phase II connected the mine site (Phase III) and the railway loadout facility (Phase I) via the construction of a haul road and utility corridor (*i.e.* hydro-electrical and natural gas service) that followed segments of both the Grave Creek Forestry Service Road (FSR) and Harmer Road (*Appendix A*: Figures 2-6). Revisions to the mine plan largely pertain to the anticipated development footprint of Phase I, which affected the design and archaeological assessment of the transportation corridor. Phase II currently involves upgrades (*i.e.* widening) to Grave Creek FSR and Harmer Road to facilitate the movement of light duty and industrial vehicles (*e.g.* highway legal trucks) and establishing an adjacently located utility corridor.

2.3 Results:

The AIA of Phase II of the Project produced positive results with the discovery of precontact archaeological deposits and the recording of 15 sites **DkPq-19, DkPq-20, DlPq-10, DlPq-11, DlPq-12, DlPq-13, DlPr-65, DlPr-66, DlPr-67, DlPr-68, DlPr-69, DlPr-75, DlPr-76, DlPr-77** and **DlPr-78**, and a revisit/update to four previously recorded sites **DlPq-8, DlPr-42, DlPr-43,** and **DlPr-46** (which now includes site **DlPr-45** as a subordinate site polygon).

Additionally, five areas of high archaeological potential (HAP) were identified during the AIA and are in proximity to the development footprint, but as currently proposed the development plan will not adversely impact these areas where subsurface archaeological deposits are suspected.

Based, in part, on the results of the multi-season archaeological assessment, the Proponent revised the proposed development footprint of the railway loadout facility and the railway siding/loadout; therefore, detrimental impacts to the vast majority of the aforementioned archaeological sites are no longer anticipated.

2.4 Impact Assessment:

Archaeological Site	Development Area	AOA Polygon *Map Figure Reference*	Impact *Direct / Indirect*	Type of Impact(s)
DkPq-19	Transportation Corridor *(Grave Creek & Harmer Road)*	C38-21 *Appendix A: Figures 1-3 Appendix C: Figures: 7 & 8*	Indirect	Sites are peripheral to (*i.e.* between) the development footprint (Grave Creek FSR and Harmer Road); potential for indirect impact(s) through loss of regional/contextual information.
DkPq-20				
DlPq-8	Transportation Corridor *(Harmer Road)*	C38-20 *Appendix A: Figures: 1, 2 & 4 Appendix C: Figure: 9*	Indirect	Site is peripheral (*i.e.* upslope) to the development footprint (Harmer Road); potential for indirect impact(s) through loss of regional/ contextual information, and potential for erosion (*e.g.* undercutting, slope wash, and slumping).
DlPq-10	**Transportation Corridor** *(Grave Creek FSR)*	N/A *Appendix A: Figures 1-3 Appendix C: Figure: 10*	**Direct**	**Loss of site area** (*Legacy Status*) via the removal of top soil and mechanical alteration to facilitate road upgrades.
DlPq-11	Transportation Corridor *(Grave Creek FSR)*	CM-13 *Appendix A: Figures 1-3 Appendix C: Figure:11*	Indirect	Site is peripheral (*i.e.* downslope) to the development footprint (Grave Creek FSR and Harmer Road); potential for indirect impact(s) through loss of regional/contextual information.
DlPq-12	Transportation Corridor *(Harmer Road)*	C38-20 *Appendix A: Figures: 1, 2 & 4 Appendix C: Figure: 12*	Indirect	Site is peripheral (*i.e.* upslope) to the footprint of road upgrades (Harmer Road); indirect impact(s) through loss of regional/contextual information, and increased potential for erosion (*e.g.* undercutting, slope wash, and slumping).
DlPq-13	Transportation Corridor *(Harmer Road)*	C38-20 *Appendix A: Figures: 1, 2 & 4 Appendix C: Figure: 13*	**Direct**	**Partial loss of currently defined site areas** (*i.e.* polygons) via the removal of top soil and mechanical alteration to facilitate road upgrades.
DlPr-42	**Transportation Corridor** *(Harmer Road)*	C38-19 *Appendix A: Figures: 1, 2 & 5 Appendix C: Figures: 14 - 16*	**Direct**	**Partial loss of currently defined site areas** (*i.e.* polygons) via the removal of top soil and mechanical alteration to facilitate road upgrades.
DlPr-43				
DlPr-46				
DlPr-65	Transportation Corridor & Loadout *(Harmer Road)*	C38-44 *Appendix A: Figures: 1, 2 & 6 Appendix C: Figures: 17 - 19*	Indirect	Sites are no longer within the development footprint; indirect impact(s) through loss of regional/contextual information.
DlPr-66				
DlPr-67				
DlPr-68	**Transportation Corridor** *(Harmer Road)*	C38-44 *Appendix A: Figures: 1, 2 & 6 Appendix C: Figure: 20*	**Direct**	**Loss of site area** (*Legacy Status*) via the removal of top soil and mechanical alteration to facilitate road upgrades.
DlPr-69	Transportation Corridor *(Harmer Road)*	C38-44 *Appendix A: Figures: 1, 2 & 6 Appendix C: Figure: 21*	Indirect	Site is no longer within the development footprint; indirect impact(s) through loss of regional/contextual information.
DlPr-75	**Transportation Corridor & Loadout** *(Harmer Road)*	C38-44 *Appendix A: Figures: 1, 2 & 6 Appendix C: Figures: 22*	**Direct**	**Partial loss of currently defined site area** (*i.e.* western portion of polygon A) via the removal of top soil and mechanical alteration to facilitate sight lines for railway crossing.
DlPr-76	Transportation Corridor & Loadout *(Harmer Road)*	*Figures: 1, 2 & 6 Appendix C: Figures: 23-24*	Indirect	Sites are no longer within the development footprint; indirect impact(s) through loss of regional/contextual information.
DlPr-77				

DlPr-78	**Transportation Corridor** *(Harmer Road)*	C38-44 *Appendix A: Figures: 1, 2 & 5 Appendix C: Figure: 25*	**Direct**	**Loss of site area** (*Legacy Status*) via the removal of top soil and mechanical alteration to facilitate road upgrades.

Table Note:
N/A: not applicable

High Archaeological Potential (HAP) Area	**Development Area**	**AOA Polygon** *Map Figure Reference*	**Impact** *Direct / Indirect*	**Type of Impact(s)**
HAP 1	Transportation Corridor *(Grave Creek FSR & Harmer Road)*	CM13 *Appendix A: Figure 3*	Indirect	Terrain that contains *potential* for undiscovered site(s) is peripheral to the development footprint; potential loss of regional/ contextual information.
HAP 2	Transportation Corridor *(Harmer Road)*	C38-20 *Appendix A: Figure 3*		
HAP 3	Transportation Corridor *(Harmer Road)*	C38-19 *Appendix A: Figure 4*		
HAP 4	Transportation Corridor *(Harmer Road)*	C38-19 *Appendix A: Figure 5*		
HAP 5	Transportation Corridor *(Harmer Road)*	C38-44 *Appendix A: Figures 5 & 6*		

2.5 Management Recommendations:

As currently defined, implementation of the Project (Phase II) will result in detrimental impacts to the entirety or portions of sites **DlPq-10, DlPq-13, DlPr-42, DlPr-43, DlPr-46, DlPr-68, DlPr-75,** and **DlPr-78**. While avoidance strategies are the preferred recommendation to preserve precontact cultural heritage resources, geotechnical and engineering constraints to facilitate avoidance strategies are anticipated, and therefore, circumventing the aforementioned archaeological sites is unlikely to be considered feasible. Development within any archaeological site will require the application for and issuance of concurrent *Heritage Conservation Act* (*HCA* [1996]) Section 12.2 (heritage inspection) and 12.4 (alteration) permits. Note that subsequent archaeological inspections (*i.e.* shovel testing) may be required within the Phase II development footprint in proximity to recorded archaeological sites that are confirmed to be adversely impacted and systematic data recovery (*i.e.* excavation of evaluative units to retrieve contextual information) could be required where significant archaeological deposits are exposed through the implementation of the Project. Additionally, monitoring by a qualified archaeologist will be required throughout the duration of mechanical activity when impacts to the fine sediment cap that contain the cultural horizon within defined site boundaries are anticipated.

Archaeological sites **DkPq-19, DkPq-20, DlPq-8, DlPq-11, DlPq-12, DlPr-65, DlPr-66, DlPr-67, DlPr-69, DlPr-76,** and **DlPr-77** are not situated within the currently proposed Phase II development footprint. In the event that the development footprint is revised or evolves after implementation of the currently proposed mine plan with associated infrastructure and ground disturbance is anticipated within or in proximity to the currently defined site boundaries, concurrent Section 12.2 and 12.4 permits will be required.

3. ADMINISTRATIVE INFORMATION

3.1	*Permit Holder:*	Ian Tamasi	*3.2*	*Permit Holder Affiliation:*	**Pathways Archaeological Consulting Ltd.** *(formerly of Tipi Mountain Eco-Cultural Services Ltd.)* 1810 Meadowbrook Settlement Road Kimberley, BC, V1A 3L1 Phone: 250.427.8743 Email: ian@pathwaysarch.ca
3.3	*Proponent Contact:*	Mike Allen (*Project Manager*)	*3.4*	*Proponent Affiliation:*	**NWP Coal Canada** 800-1199 West Hastings St. Vancouver, BC, V6E 3T5 Phone: 604.557.3765 Email: mike.allen@nwpcoal.com
3.5	*Interim Report Author(s):*	Ian Tamasi *, Nyomi Sherwin **, and Daniel Heinrichs ** *Note: Effective November 3rd (*) and December 7th, 2020 (**), the authors of this report were no longer employed by Tipi Mountain Eco-Cultural Services, a Division of Nupqu Resources LP.*			
3.6	*Interim Report Date & Version:*	18th March 2021 V2 Client; V1 Archaeology Branch			
3.7	*Notification of Work Date:*	*Phase II:* 20th July 2017; 20th July 2018			

4. PROPOSED DEVELOPMENT

4.1 Description:

The locality encompassing Crown Mountain has been subject to previous exploration activity (*i.e.* drilling) in 1969 and 1979, and further exploration, trenching, and bulk sampling was implemented from 1979 to 1981. After the issuance of the Crown Mountain coal tenures to the Proponent, an extensive mineral exploration program was implemented in 2012, which indicated that the coal at the Crown Mountain site is typical of the coking coal extracted from existing mines in the Elk Valley. If approved, the proposed Project would create a new coal mine with an expected 15-year operating life.

The mine plan includes open pits, mine rock deposition, processing activity, and ancillary infrastructure components for the Crown Mountain Coking Coal Project, which was subjected to an AIA in 2018 and 2019 (Tamasi *et al.* 2020). An overland conveyance system (±3 km) will move processed coal from the mine site (Phase III) to the transportation corridor (Phase II) where coal will be discharged into highway legal coal haul trucks. The haul road, to be comprised of both dual-lane and single-lane road sections, would be approximately ±9 km in length and largely follow existing road grades (*i.e.* Grave Creek FSR and Harmer Road) that lead to the rail load-out facility to be situated alongside a railway siding/loop (Phase I) located along the eastern periphery of Valley Road which has been shifted well south of Grave Prairie. Once loaded, coal would travel by rail to a port terminal in Vancouver for shipment overseas.

Components of the mine plan specific to the development footprint of Phase II include:

- Upgrades (*i.e.* widening of road allowance) to Grave Creek FSR and Harmer Road; and
- Establishment of a utility corridor (*e.g.* hydro-electrical service and natural gas service)

Due to the span of the Phase II development footprint that bisects three distinct portions of the regional landscape, the study area was subdivided into the following subsections:

- **Grave Creek (GC):** a six-kilometer segment of Grave Creek FSR commencing from the junction with Harmer Road and terminating at the junction with Branch C (current access to the proposed mine site [Phase III]).
- **Upper Harmer Road (UHR):** a four-kilometer segment of Harmer Road commencing from the bridge crossing over the outlet drainage of Grave Lake to the junction of Grave Creek FSR.
- **Lower Harmer Road (LHR):** a two-kilometer segment of Harmer Road commencing from the junction of Valley Road and terminating at the bridge crossing over the outlet drainage of Grave Lake.

4.2 Location:

The Project occurs within the Regional District of East Kootenay and within the boundaries of the Kootenay Boundary Land Use Plan, the Elk Valley Official Community Plan, and the Alexander Creek Access Management Area. A local study area (LSA) was defined for the archaeological component of the Project, which mirrors the study area of Permit 2015-0098. The Project LSA was defined by a combination of natural geographical and arbitrary boundaries that surround the proposed footprint of anticipated ground disturbance associated with mining activity and the placement of required infrastructure components (*Appendix A*: Figures 2-6). Note that a single amendment was granted for Permit 2015-0098 (Eric Forgeng, *pers. comm*. August 6, 2019), which extended the LSA to the north-northwest to facilitate options for placement of the railway siding/loop, loadout facility, and lower (western) segment of the transportation corridor in proximity to Grave Lake and existing infrastructure associated with another coal mining facility.

Phase II of the Project takes the form of a linear development footprint that parallels the Grave Creek drainage as it enters the locality of Grave Prairie within the Elk River valley. Phase II of the Project is located approximately 12-16 km north-northeast of Sparwood and 17-20 km south-southeast of Elkford.

Coal Licenses: 418150, 418151, 418152, 418153, 418154, 418966, 419176, 419177, 419178, 419179

Map Sheets – Phase II:

- 82G/15 (NTS)
- 82G.086 and 087 (BC TRIM)

Geographical Locations – Phase II (Zone 11U - NAD 83):

- LHR (start) Junction of Valley Road & Harmer Road: 653615 E, 5523895 N
- LHR (end) / UHR (start): Bridge over outlet drainage of Grave Lake: 655450 E, 5524170 N
- UHR (end) / GC (start): Junction of Harmer Road and Grave Creek FSR: 658155 E, 5521200 N
- GC (end): Junction of Grave Creek FSR and Branch C: 661350 E, 5524465 N

District Lots – Phase II – *Surveyed Crown Land:*

- 6779 & 4588

5. FIELD CREW

Date (dd/mm/yy)	*Field Director (on site? Y/N)*	*Field Supervisor*	*Field Personnel & First Nation Representatives*
03/10/2017 *to* 06/10/2017	Ian Tamasi (Y)	Lara McFadden Joshua Martin (SIB)	Jesse Thomas (KNC) Jason Feltham (KNC) Jeff Williams (KNC)
16/10/2017 *to* 20/10/2017	Ian Tamasi (Y)	Dan Heinrichs Joshua Martin (SIB)	Jesse Thomas (KNC) Jason Feltham (KNC) John Nicholas (KNC)
23/10/2017 *to* 27/10/2017	Ian Tamasi (Y)	Dan Heinrichs Joshua Martin (SIB)	Lara McFadden Jesse Thomas (KNC) Jason Feltham (KNC) Mike Shottanana (KNC) Jeff Williams (KNC)
10/10/2018 *to* 12/10/2018	Ian Tamasi (Y)	Dan Heinrichs Joshua Martin (SIB)	Mathias Ladd Jason Feltham (KNC) John Nicholas (KNC)
15/10/2018 *to* 19/10/2018	Ian Tamasi (Y)	Dan Heinrichs Nyomi Sherwin	Marty Williams Jason Feltham (KNC) John Nicholas (KNC) Joshua Martin (SIB)
22/10/2018 *to* 26/10/2018	Ian Tamasi (Y)	Dan Heinrichs Lara McFadden	John Nicholas (KNC) Joshua Martin (SIB) Marty Williams (KNC) Mike Shottanana (KNC)

Table Notes:
KNC: Ktunaxa Nation Council; SIB: Shuswap Indian Band

6. ARCHAEOLOGICAL METHODS & RESULTS

6.1. Pre-field Methodology

☒ Archaeological potential and sites are indicated on the Study Area Map

☒ An Archaeological Overview Assessment (AOA) and/or archaeological predictive model exists for the study area

Archaeological potential within the Project's archaeology LSA has been addressed within two Project-specific AOAs. An initial AOA for the preliminary exploration component of the Project (Choquette 2012) resulted in the identification of 36 archaeological potential polygons; of the 36 polygons, nine were newly defined and twenty-five mirrored those that were previously delineated under forestry-related AOAs for: Managed Forest 27 (Choquette 2004), Landscape Unit (LU) C20 of the Rocky Mountain Forest District (Choquette 2008), and LU C38 of the [former] Cranbrook Forest District (Choquette 1997). A supplementary AOA for the Project (Choquette 2014) builds on the information generated during the 2012 overview assessment, but includes the analysis of LiDAR (Light Detection and Ranging) data within a larger study area. In total, 110 archaeological potential polygons are situated within or partially overlap with the Project's archaeology LSA boundaries.

The potential polygons within Choquette's Project-specific AOAs (2012 and 2014) identified as Crown Mountain (CM) polygons CM-01 to CM-12 delineate landforms or landscapes where archaeological remains are predicted to be present based on models of precontact human land and resource use developed for this portion of the Rocky Mountains. Primary attributes defining archaeological potential within the two AOAs include:

- Corridor: "*The physiography of a region exerts a major influence on the movements of both animals and humans. The north-south troughs represented by the valleys of Alexander Creek and the Elk Valley naturally made these travel corridors, the two of them connected by Grave Creek. In addition, the Continental Divide, which bounds much of the LSA on the east, is breached by Racehorse, Deadman, Phillips, and Crowsnest passes connecting to the foothills and plains further east*." (Choquette 2014: p.11)
- Bedrock Geology: "*The bedrock geology of the Crown Mountain LSA consists of a series north-south striking, upturned and steeply dipping Palaeozoic sedimentary strata that include the Rocky Mountain, Banff, Etherington and Fernie formations, all of which have been quarried in precontact time. While there is nothing in the sparse recorded data from the vicinity that suggests the presence of an intensively exploited outcrop, the LSA has not been systematically surveyed but is known to contain extensive exposures of bedrock and talus of these formations on the mountainsides, tributary valley walls, prominences and saddle*." (*ibid*. p.12)
- Ungulate Range: "*A variety of natural habitats are present in the Crown Mountain LSA. Some of the grasslands, such as those at high elevations, are apparently relics of more extensive earlier Holocene communities while others, in particular those which occupy Neoglacial floodplain terraces, are more recent by definition of the age of the landforms upon which they are situated. The emergence of these expanses of previously non-existent grazing range is hypothesized to have been instrumental in the expansion of bison into the middle Elk River drainage area during the late Holocene arid interval*." (*ibid*. p.12)

The following recommendations were the outcome of these AOAs:

- "*avoidance is the preferred strategy with regard to areas identified as archaeological potential polygons;*
- *within any archaeological potential polygons that overlap proposed developments, existing disturbed areas should be utilized to the greatest extent possible before considering alteration of previously undisturbed terrain;*
- *where it is apparent that proposed development poses an unavoidable risk to the intact mineral soil/postglacial fine sediment cap in which archaeological deposits are expected to occur, more intensive archaeological investigation including subsurface testing will be required to ascertain the presence and significance of any pre-contact archaeological remains." (ibid. p.2)*

☒ Previous field studies influenced this assessment

Previous archaeological assessments within the Project LSA are numerous, and have primarily been associated with forestry-related development situated within Managed Forest 27 and the adjacently located Provincial forest lands within LUs C20 and C38. Under Provincial Legislation, (*i.e.* the *Forestry Practices Code of BC* [1996A] and the updated *Forest and Range Practices Act* [2004]) all forestry-related developments that overlaps with previously delimited AOA Polygons (*e.g.* Choquette 2004 and 2008) require a form of archaeological assessment. Although a considerable amount of the terrain situated within the Project's archaeology LSA has been previously harvested, forestry-based proponents (*e.g.* Canwel Fibre, Jemi Fiber Corp., Tembec, and Canadian Forest Products) are frequently able to incorporate avoidance strategies and implement winter-harvesting techniques that can negate disturbance to archaeological sites.

An overwhelming number of the previously recorded archaeological sites were discovered by Wayne T. Choquette during a regional survey in the middle Elk River drainage (1973), which resulted in the recording of 16 historical sites (*i.e.* post A.D. 1846) and 76 precontact sites; applicable archaeological sites that pertain to the Phase II study area are provided below in Table 2.

Associated with the Project's Phase II study area, several forestry-related archaeological impact assessments have been completed; these assessments were completed under the following *HCA* (blanket) inspection permits and are provided below in Table 1. Note that non-permit archaeological assessments are not routinely provided to the Archaeology Branch, and therefore, additional archaeological studies may have been completed within the currently defined study area, but are not publicly accessible or available to registered archaeologists on the Provincial Archaeological Report Library.

Table 1. Previous Forestry-Related Archaeological Assessments completed within or adjacent to the Phase II Study Area

***HCA* Permit**	**Results**	**Regionally Applicable Archaeological Site(s)**	**Archaeological Consulting Company**	**Reference**
2004-0066	Negative	-	Arrow Archaeology Ltd. C/O Eagle Vision Geomatics & Archaeology	Boras *et al.,* 2006
2005-0154	Positive	DlPr-42 DlPr-43 DlPr-44	Arrow Archaeology Ltd. C/O Eagle Vision Geomatics & Archaeology	Tamasi *et al.,* 2006
2006-0154	Positive	DlPq-7 DlPq-8 DlPr-45 DlPr-46 DlPr-47	Arrow Archaeology Ltd C/O Eagle Vision Geomatics & Archaeology	Tamasi *et al*., 2008
2007-0099	Negative	-	Tipi Mountain Eco-Cultural Services Ltd.	Tamasi *et al*., 2009
2014-0067	Positive	DlPr-6 DlPr-9	Tipi Mountain Eco-Cultural Services Ltd.	Tamasi and Neill, 2016

☒ Review of Provincial Heritage Register

Date Accessed: 6th February, 2015 (Project LSA - initial review for application)
20th July, 2017 & 2018 (Phase II - annual review associated with FN notification)

Table 2. Previously Recorded Archaeological Sites in the Vicinity of the Phase II Study Area

Borden No.	***Distance & Direction from the Proposed Development***	***Site Type***	***Previous Visits (HCA Permit)***	***Site in Conflict (Y/N)***
DlPr-42	*Within Phase II study area and partial overlap with development footprint*	Precontact Surface/Subsurface Lithics	2005-0154	**Y**
DlPr-43	*Within Phase II study area and partial overlap with development footprint*	Precontact Subsurface Lithics	2005-0154	**Y**
DlPr-45*	*Within Phase II study area (subordinate site area of DlPr-46)*	Precontact Subsurface Lithics	2006-0154	**Y**
DlPr-46	*Within Phase II study area and partial overlap with development footprint*	Precontact Subsurface Lithics & FAR	2006-0154	**Y**
DlPq-8	*Within Phase II study area, but beyond development footprint*	Precontact Surface/Subsurface Lithics	2006-0154	N
DlPr-2	140 m NW of LHR	Precontact Subsurface Lithics	1973-0004	N
DlPr-44	220 m S of LHR	Precontact Subsurface Lithics	2005-0154	N
DlPr-47	220 m S of LHR	Precontact Subsurface Lithics	2006-0154	N
DlPr-9	260 m SW of LHR	Precontact Subsurface Lithics & Subsistence Feature (Hearth)	1973-0004	N
DlPr-30	260 m NW of LHR	Human Remains (Ancestral Burial)	1973-0004	N
DlPr-6	270 m SSW of LHR	Precontact Subsurface Lithics	1973-0004	N
DlPq-7	300 m N of GC	Precontact Subsurface Lithics	2006-0154	N
DlPr-3	310 m S of LHR; 750 m W of UHR	Precontact Subsurface Lithics	1973-0004	N
DlPr-1	340 m NW of LHR	Precontact Subsurface Lithics	1973-0004	N

Comments:

- Above listed archaeological sites are located within or immediately adjacent to (≤0.5km) of the Phase II (Ph. II) Local Study Area (LSA) and largely situated to the north of the Grave Creek

Table Notes:

GC: Grave Creek
UHR; Upper Harmer Road
LHR: Lower Harmer Road
** (asterisks) indicates that site DlPr-45 has been updated (under 2015-0098), and is now a subordinate site area (Polygon B) of site DlPr-46 as per the discussion and agreement with the Site Inventory Section of the Archaeology Branch (Erin MacLennan, pers. comm., 09-March-2020)*

6.2. In-field Methodology

☒ Subsurface test measurements are a minimum of 35 x 35 cm

6.2.1	***Number of Crew Members:***	6-11	***6.2.2***	***Crew Spacing:***	0.5 – 5 m *variable intervals based on landscape and safety considerations (e.g. steep or unstable slope)*

6.2.3 Survey Design:

The archaeological assessment of Phase II commenced with a review of applicable AOAs and previous archaeological inspections to be knowledgeable of the locations where archaeological sites had been previously recorded in proximity to an evolving development footprint. The Phase II study area was arbitrarily defined by a 50-100 m buffer zone from the anticipated disturbance footprint, the vast majority of which, was located within previously delimited C38 AOA polygons (Choquette 2008) and project-specific CM AOA potential polygons (Choquette 2012 and 2014). In the absence of an AOA polygon, judgmental survey traverses were conducted to verify the presence or absence of archaeologically-salient microtopography within the landscape; subsurface inspection programs were implemented where warranted (***e.g.*** Grave Creek Shovel Test Locations [STL] 3, 4, 5, and 6, which rendered positive results for precontact cultural material [***i.e.*** DlPq-10]; see *Appendix A*: Figure 3).

To facilitate the inspection of the relatively large footprint for Phase II, the study area was arbitrarily divided into the following subsections, which are illustrated on Figure 2 (*Appendix A*):

- **Grave Creek** (GC): Relatively narrow (<0.5 km) east-west trending corridor that is naturally offered by Grave Creek drainage. The GC study area was arbitrarily defined by a variable 50-100 m buffer zone (based on natural constraints [***e.g.*** steep or unconsolidated slope]) and spans approximately 5 km, commencing from the north-south Alexander Creek valley in the east to the confluence area with similar trending Harmer Creek in the west.
- **Upper Harmer Road** (UHR): Relatively narrow (200 m) northwest-southeast trending segment of the development footprint spanning approximately 2.5 km, commencing from the confluence area of Grave and Harmer Creeks in the south and the bridge crossing over the outlet drainage of Grave Lake in the north.
- **Lower Harmer Road** (LHR): Variable and evolving (±200 – 500 m width) east-west trending segment of the development footprint spanning approximately 2.0 km, commencing at the bridge crossing over the outlet drainage of Grave Lake in the east and the junction area of Harmer and Valley Roads in the west.

The field component for Phase II involved both a pedestrian and vehicle-assisted reconnaissance through the entirety of the study area, and included a revisit of sites DkPr-8, DlPr-42, DlPr-43, DlPr-45, and DlPr-46. The pedestrian-based reconnaissances included the visual and manual sorting (***i.e.*** shovel and 6 mm [$^1/_4$"] mesh) to inspect natural exposures (***e.g.*** tree throws, incised run-off channels, game trails, bedrock outcrops, and sparsely vegetated ground surfaces) and anthropogenic disturbance (***e.g.*** road grades, off-road vehicle trails, berms, slope/ditch cuts) for exposed precontact cultural material, and to identify areas of high archaeological potential (HAP) that required subsurface inspection.

6.2.4 Subsurface Inspection

Shovel Tests: Upon the identification of archaeologically-salient microtopography (***e.g.*** terraces, benches, knolls/prominences, and ridges), shovel testing (35 cm x 35 cm) was implemented to confirm or refute the presence of precontact archaeological material. Shovel tests were systematically excavated with flat-bladed shovels in 5-10 cm arbitrary levels. All manually-excavated sediment associated with subsurface inspection was sorted with 6 mm (1/4") mesh. Intervals and patterns of shovel tests within each shovel test location (STL) were variable based on natural and anthropogenic constraints, and are summarized below within Section 6.4 (Results). Note that natural restrictions (***e.g.*** dead/wind fall, aeolian deflation, dense vegetation, and steep slope) and/or anthropomorphic constraints (***e.g.*** built roads/staging areas and significant areas of previous disturbance) were present within the Phase II study area, as a result, test intervals were frequently subject to judgmental refinement (***see*** Section 6.4: Results); totals of subsurface inspections for each of the subsections of Phase II are provided below in Table 3. While linear-shaped landforms were subject to transects of shovel tests, grid-like test patterns were applied to both horizontally-expansive and microtopographic features.

Note that the development footprint evolved based, in part, on annual results of the archaeological assessment within both of the Phase I and Phase II study areas. Therefore, subsurface inspection programs that were initiated in one field season may not have resumed in the subsequent field season based on the Proponent negating impacts to archaeological sites by shifting various components of the development footprint. It is also important to note that within the locality encompassing Grave Lake, Grave Creek, and Grave Prairie, the AIA should be considered provisional and was frequently implemented to sample for the presence and absence of residual precontact cultural material within a relatively large cultural landscape. Therefore, currently defined site boundaries would likely be revised if the adjacent landscape is subjected to future archaeological inspection. Seasonal constraints (*i.e.* onset of winter-like conditions) and the arbitrary limits of the study area frequently constrained the implementation of a systematic subsurface inspection program.

Evaluative Units: The systematic excavation of evaluative units (EU) within the Phase II study area was constrained to a single site (DlPq-12), to inspect and attempt to collected additional shards of a precontact ceramic vessel (Old Woman's Complex [MacDonald 2008]), and contribute to the interpretation of a cultural context. The ceramic shards within site DlPq-12 were discovered in a single shovel test (ST 2) on October 23, 2018, and the site was revisited on October 25th, 2018, which included the excavation of a 1.0 m (north-south) by 0.5 m (east-west) evaluative unit to the west-northwest of ST 2. The evaluative unit was excavated by trowel in 5 cm arbitrary levels; no precontact cultural material was recovered within this evaluative unit.

Table 3. Archaeological Inspections and Quantity for the three Subsections of the Phase II Study Area

Study Area Subsection	Shovel Tests	Evaluative Unit	Tree Throws	Rodent Mounds
GC	354	0	9	0
UHR	588	1	8	0
LHR	919	0	13	3
Totals:	*1861*	*1*	*30*	*3*

6.2.5 High Archaeological Potential (HAP) Areas

The linear footprint of Phase II bisects a relatively extensive cultural landscape that encompasses the locality of Grave Lake, Grave Prairie, and the majority of the Grave Creek drainage. Based on the archaeological inventory and results of previous inspections (*i.e.* Choquette 1973, Tamasi *et al.* 2006, and Tamasi *et al.* 2009) and the contemporary inspection conducted under permit 2015-0098, terrain that is not typically considered to be archaeologically-salient (*e.g.* increased slope, microtopography with a northern solar aspect) should be considered to have some potential for a sparse and discontinuous distribution of precontact artifacts. Therefore, the entirety of the Grave Lake locality should be considered to have increased archaeological potential (*i.e.* HAP zones) until proven negative by a thorough subsurface inspection program. Several HAP zones have been delineated and are illustrated on Figures 2-6 (see *Appendix A*); these areas of archaeological potential are the result of provisional inspection levels and/or extend beyond the currently proposed Phase II development footprint (see *Appendix A*: Figures 3-6). While some HAP zones within the Grave Creek and Upper Harmer Road study areas are relatively discrete and bound by landform margins, the expansive landscape in proximity to Grave Lake and to the north of Grave Creek is relatively endless. HAP zones largely correspond to previously defined AOA Polygons (Choquette 1997, 2004, 2008, 2012 and 2014); those that are pertinent to Phase II include:

- **HAP 1:** Elevated terrace along the southern side of Grave Creek, situated upstream (east-northeast) of the confluence area with Harmer Creek. The area has been previously subjected to logging, and is currently occupied by a secondary timber stand. Although the HAP was briefly traversed during the inspection of STL GC 18a-g (see Section 6.4: Results), intrusive inspection did not occur due to the distance (>100 m) from the currently proposed Phase II development footprint. The level tread of the terrace, along with the proximity of water and a significant confluence area, offers a favourable location for a base while accessing/egressing the Grave Creek corridor that connects with Alexander Creek and the Continental Divide to the east. See *Appendix A*: Figure 3.
- **HAP 2:** Gently sloped and undulating tread of an elevated terrace level (±1365 m above seas level [a.s.l.]) with a prominent east-west trending margin that overlooks the confluence area of Grave and Harmer Creeks to the south-southeast. Near the eastern terminus of this terrace, site DlPq-8 was previously recorded under permit 2006-0154 (Tamasi *et al.* 2008) and was updated under permit

2015-0098 while inspecting STL UHR 2 (see Section 6.4: Results); DlPq-8 is now delineated as four site polygons (*Appendix C*: Archaeological Site Information). Due to the distance from the Phase II development footprint, shovel testing was constrained to the margin of the terrace, but based on the distribution of precontact cultural material, artifacts are suspected to be present on microtopography and associated with the transient campsites along the travel corridor offered by Grave Creek. See *Appendix A*: Figure 4.

- **HAP 3:** Elevated terrace along the northeastern side of Grave Creek, situated upstream (south) of the confluence with the outlet drainage of Grave Lake. The terrace has a level tread and well-defined margins and is positioned at the base of a west-northwest descending ridge, which was partially inspected (*i.e.* STL UHR 14 [see Section 6.4: Results]) and is relatively prominent within a continuously sloped and undulating portion of the regional landscape. Intrusive inspection of this landform did not occur due to the distance (>100 m) from the currently proposed Phase II development footprint. A small camp is suspected to be present associated with resource procurement and precontact travel along the corridor offered by the Grave Creek drainage. See *Appendix A*: Figure 4.
- **HAP 4:** Extensive portion of the regional landscape that is to the south of Grave Lake and the outlet drainage. The HAP encompasses level and low-sloped terrain, but also an array of microtopographic features that are considered suitable for ancillary activity for larger-sized base camps in proximity to Grave Prairie. This HAP zone is partially defined by prominent margins (terracing along Grave Creek) to the north, west and southwest, but is somewhat vague in the east due to undulating, mountainous slope. Within this HAP are STL UHR 16-21 (see Section 6.4: Results), and archaeological site DlPr-42 (*Appendix C*: Archaeological Site Information). See *Appendix A*: Figure 5.
- **HAP 5:** Extensive portion of the regional landscape that is to the west-southwest of Grave Lake and to the north of the outlet drainage and the lower segment of Grave Creek. Similar to HAP 4, this HAP encompasses level and low-sloped terrain that are conducive for larger-sized base camps, but also an array of microtopographic features that are present and considered suitable for ancillary activity. This HAP zone is partially defined by prominent margins (terracing along the outlet drainage of Grave Lake and Grave Creek) to the south, but becomes somewhat vague to the north due to undulating, mountainous slope. Within this HAP are all of the STLs associated with LHR study area (see Section 6.4: Results), and contains previously recorded archaeological sites DlPr-43 and DlPr-46 (*Appendix C*: Archaeological Site Information), and eight newly discovered sites. See *Appendix A*: Figures 5 and 6.

6.3. In-field Observations

The currently defined Phase II development footprint is a linear transportation corridor that bisects a portion of an extensive cultural landscape that contains distinct geomorphology, which influenced precontact occupational habits and land use patterns. The landscape within the Phase II study area is variable, and can be classified into three geomorphological categories including:

- **Grave Creek Canyon**: The upper portion of the Phase II development footprint is a relatively prominent east-west trending, deeply-incised canyon that contains an upper segment of the Grave Creek drainage. The canyon was formed by geological faulting and resulted in the physical separation of Sheep Mountain (to the north) from Erickson Ridge, which extends southward for approximately 24 km. A nearly identical geological feature is the Line Creek Canyon located ±6 km to the north. Both sides of the Grave Creek Canyon are steep with an abundance of bedrock outcrops that are interspersed by talus, colluvial fans, and avalanche/debris flow chutes. Although this portion of the landscape is relatively rugged, some kame, lacustrine, and alluvial terracing is present along mid- to lower-elevations of the canyon, which are influenced by the highly dynamic floodplain of Grave Creek. The terracing of unconsolidated material and the deposition of a mantle of fine sediment within the lower portions of the canyon are associated with an un-named proglacial lake that likely formed by the damming of meltwater by the trunk glacier that occupied the Elk Valley during the terminal portion of the Pleistocene Epoch (±2.6 million to 11,700 years ago). Lower elevation terracing at the outlet of the canyon would have been influenced by the highest recorded stand (1371 m a.s.l.) of Glacial Lake Elk (Millar 1991) and blends into the delta portion of the Phase II study area; this is summarized below.

The terraces within the canyon would have facilitated precontact travel, a factor that continues into the contemporary era, which is evidenced by the routes of resource roads and locations of landings, push-outs, and cut blocks. Throughout the Holocene Epoch (11,700 years ago to present), fluvial action (*i.e.* undercutting) would have contributed to the gradual dissection of the relatively level landforms through slumping of the unconsolidated matrix that overlies bedrock. Additionally, portions of the terrace levels have become obscured through colluvial deposition, which was documented during the AIA (see GC STL 3 – 6 [Section 6.4: Results]). Therefore, portions of this precontact landscape are no longer present or reasonably accessible (*i.e.* deeply buried), which constrains the contemporary interpretation of Indigenous use of the canyon. Currently recorded archaeological sites within the canyon and in proximity to the outlet consist of small artifact scatters that are interpreted as transient, short-term campsites associated with the travel corridor. Within this locality, further archaeological investigation is required to inspect for additional terrace levels that may have facilitated travel and microtopographic features (*e.g.* caves that could act as rock shelters) that were not identified or encompassed by the buffered development footprint defined by permit 2015-0098.

It is suspected that the northern side of the canyon would have been the most suitable route for precontact travel; this is primarily based on the southerly solar aspect, which would have influenced the presence of a relatively open forest and the extent of grasslands (influencing rangeland and migration routes for ungulate herds); the southern side of the canyon would have consistently had a dense forest stand that could constrain pedestrian travel and the northern aspect would have maintained the annual snowpack for a longer portion of the year.

- **Delta**: The middle portion of the Phase II study area is a relatively irregular and consistently sloped landscape that has origins from a delta(s), which likely first formed within proglacial pondage and subsequently with Glacial Lake Elk. Although the hydrological baseline of Glacial Lake Elk would have fluctuated over time, influenced by minor ice advances and retreats, three hydro-logical baselines for the glacial lake have been proposed and include: 1371 m, 1191 m, 1014 m a.s.l. (*ibid.*). Within the UHR study area, the terrain is most likely associated with pondage and the 1371 m a.s.l. glacial lake stand. Subsequent erosion throughout the Holocene Epoch would have dissected the surficial topography of the delta and resulted in the formation of ridges and small benches, which are focal points for both precontact resource procurement and would have influenced travel routes. Alluvial terracing is also present at lower elevations and is associated with downcutting and the contemporary route of Grave Creek, which is summarized below. Ridgelines and benches that were inspected under 2015-0098 (see UHR STLs [Section 6.4: Results]) connect the locality of Grave Lake and the mouth of the canyon and provide routes of least resistance for pedestrian-based travel. Currently recorded archaeological sites within the delta portion of the study area are likely associated with resource procurement, but also have an association with the aforementioned travel corridor; this is evidenced by the recovery of multiple shards of a precontact ceramic vessel from site DlPq-12 (see *Appendix C*: Site Information) that has attributes that can be associated with the *Old Woman's Complex* (Millar 1991) that has been previously defined within the plains region and eastern slopes of the Rocky Mountains, which may indicate a travel direction and implications for precontact trade, possibly between two differing cultures.
- **Till Plain and Fluvial Terracing**: The lower portion of the Phase II study area encompasses the bottom of the north-south trending Elk River valley where a mantle of stratified sand, silt, and clay (fine sediment deposition within Glacial Lake Elk) is present over the gravelly-till plain (Choquette 1997). Upon the retreat of the trunk glacier and eventual drainage of Glacial Lake Elk, local drainage patterns emerged through various downcutting regimes that were influenced by evolving climatic conditions within the Holocene Epoch; this resulted a series of terraces being carved within the valley fill.

  The level treads of the terraces offer localities for campsites and, in particular those with southern solar aspects, would have been favourable for seasonal occupation for multiple millennia, most likely within the Middle Period when hydrological baselines were higher than present. As a result of repeated use of this locality for both seasonal resource procurement and intra-mountain travel, an extensive artifact scatter formed throughout this landscape with microtopographic features offering locations for ancillary activity.

6.4. Results

Table 3. Assessment Results – *Shovel Test Locations (STL) by Study Areas & AOA Polygons*

Grave Creek (GC) STLs					
STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 1	C20-14a	±25 m x 4 m	ST: 8	ST: 0	ST: 8
Results: Negative					
Description: A narrow remnant of a terrace level with a northeast-southwest trending margin that is approximately 10-15 m above Grave Creek. The locality has been impacted by previous road and landing construction to the north of the STL. Shovel tests were judgmentally excavated at 3 – 5 m intervals covering the landform which included the highly dilapidated remains of log cabin and array of rusted debris (***e.g.*** wood stove). Shovel testing avoided previous ground disturbance (***i.e.*** push piles, road grade) and dense, ingrown tree stands. *Appendix A:* Figure 3*, Appendix B:* Photo 3*, Appendix D:* Stratigraphy Log					
STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 2	n/a	±30 m x 2 m	ST: 8	ST: 0	ST: 8
Results: Negative					
Description: A narrow terrace along the northern side of Grave Creek. Within this locality, previous logging activity has occurred and resulted in a substantial amount of ground disturbance, and residual slash and debris push piles constrained visibility and physical access to the ground surface. Shovel tests were implemented judgmentally at 4 – 6 m intervals, which largely covered the most-level portions the landform while avoiding ground constraints. *Appendix A:* Figure 3*, Appendix D:* Stratigraphy Log					
STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 3	n/a	±75 m x 17 m	ST: 29	ST: 3	ST: 26
Results: DlPq-10					
Description: A narrow, east-west trending terrace level situated to the south of and approximately 50 m above Grave Creek. Sediment consists of a thick litter mat and organic horizon above a podzolic soil which overlays a mantle of glacial lacustrine clayey-silt. Shovel tests were excavated systematically at 5 m intervals along the margin and continued southward on the tread to the visible disturbance footprint of Grave Creek FSR. Shovel testing produced positive results with the recovery of FAR (n=10 [0.4 kg]) and faunal remains (n=7 [127 g]) from three shovel tests. *Appendix A:* Figures 2 and 3, *Appendix C:* Site Information (Figure 10)*, Appendix D:* Stratigraphy Log					
STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 4	n/a	±30 m x 15 m	ST: 13	ST: 0	ST: 13
Results: Negative					
Description: A small east-west trending bench situated to the south of and approximately 50 m above Grave Creek. Shovel testing was systematically excavated at 4-6 m intervals along the margin and into the tread where southward ascending slope was encountered. The inspection was impeded to the west by protruding boulders and the rocky matrix of a colluvial fan that has covered the terminal portion of the terrace level. *Appendix A:* Figure 3*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 5	n/a	±10 m x 10 m	ST: 6	ST: 0	ST: 6
Results: Negative					
Description: A small southward-sloping bench situated on a low-slope portion of an alluvial fan that was decapitated from the upper [steeper] portion of landform during the construction of Grave Creek FSR. Shovel tests were implemented systematically at 5 m intervals, in a grid like pattern covering the entirety of the bench. *Appendix A:* Figure 3*, Appendix B:* Photo 4*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 6	n/a	±35 m x 5 m	ST: 7	ST: 0	ST: 7
Results: Negative					
Description: A gently sloping (3-5˚) slope break amongst steeply sloping mountainous terrain that descends northward. Shovel tests were excavated judgmentally at 5 – 8 m intervals avoiding ground constraints (*e.g.* deadfall). *Appendix A:* Figure 3*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 7	CM-13	±80 m x 20 m	ST: 36	ST: 0	ST: 36
Results: Negative					
Description: An elevated bench with an east-west trending margin and a gently undulating tread amongst steep mountainous slope that descends northward towards Grave Creek. Shovel tests were excavated in a grid like pattern at 4-6 m intervals, judgmentally implemented to avoid the hazards of deadfall. *Appendix A:* Figure 3*, Appendix B:* Photo 5*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 8	CM-13	±15 m x 10 m	ST: 7	ST: 0	ST: 7
Results: Negative					
Description: Relatively small bench located downslope and north of Grave Creek FSR and overlooking Grave Creek. Shovel tests were excavated at 5 m intervals in a grid like pattern. *Appendix A:* Figure 3*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 9	CM-13	±50 m x 5 m	ST: 11	ST: 0	ST: 11
Results: Negative					
Description: Western terminus of a northeast-southwest trending, relatively narrow terrace margin with a gently undulating to near-level tread. Several large slump blocks are present downslope to the north of the margin, which, as revealed by erosional scarps indicates that the subsurface matrix is unconsolidated and is prone to erosion. Therefore, any cultural material that may have been deposited in the precontact era may have been lost due to erosion. Shovel tests were implemented judgmentally at 5 – 10 m intervals. *Appendix A:* Figure 3*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 10	CM-13	±20 m x 10 m	ST: 6 TT: 4	ST: 0 TT: 0	ST: 6 TT: 4
Results: Negative					
Description: Relatively prominent, northward trending spur along a northeast-southwest trending terrace level to the south of Grave Creek. This locality has been previously subjected to a timber harvest (***ca***. 2005-2010), and skid trails are present to the south of the STL. Shovel tests were excavated judgmentally at 4-5 m intervals, avoiding mounds of decomposing organic material, slash piles, and push piles; these tests were supplemented by the inspection of four large (>1.5 m radius) tree throws (TTs). *Appendix A:* Figure 3*, Appendix B:* Photo 6*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 11a	CM-13	±20 m x 10 m	ST: 7	ST: 0	ST: 7
GC 11b		±35 m x 20 m	ST: 14	ST: 2	ST: 12
GC 11c		±20 m x 10 m	ST: 6	ST: 0	ST: 6
		Total:	ST: 27	ST: 2	ST: 25
Results: DlPq-11					
Description: Elevated terrace level to the south of Grave Creek, with a northeast-southwest trending margin that is naturally subjected to erosion (***i.e.*** slumping), which has resulted in the formation of three relatively prominent spurs, which area identified below as A – C. Similar to GC 10 (summarized above) the locality of GC 11 has been disturbed during previous logging activity (***ca***. 2005-2010). Shovel tests were excavated judgmentally at 4-5 m intervals, avoiding mounds of decomposing organic material, slash piles, and push piles. The recovery of lithic artifacts (n=9) from two shovel tests south of Grave Creek STL GC 11b, resulted in the recording of site DlPq-11. **GC 11a:** Northwest trending spur with a relatively-level tread. Seven shovel tests excavated in a judgmental, grid like pattern. No archaeological material was recovered from this spur. **GC 11b:** A relatively prominent, northwestern trending spur that is remaining between two massive slumps. Shovel tests were implemented systematically in 3-4 m intervals in two parallel, northwest-southeast trending transects; this was supplemented by a few judgmentally-placed shovel tests within the interior of the landform. Two shovel tests located at the northern terminus of the spur contained lithic artifacts (n=7). **GC 11c:** Northwest trending spur with a level tread. Shovel tests were excavated at 4-5 m intervals in a grid like pattern and produced negative results for archaeological material. *Appendix A:* Figures 2 and 3*, Appendix C:* Site Information (Figure 11)*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 12	C38-21	±25 m x 10 m	ST: 11	ST: 0	ST: 11
Results: Negative					
Description: Two small slope-breaks amongst gentle slope descending southward towards Harmer Creek and located directly adjacent to (southwest of) Grave Creek FSR. Shovel tests were excavated in a grid like pattern at 5 m intervals. *Appendix A:* Figure 3*, Appendix B:* Photo 7*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 13	C38-21	±60 m x 15 m	ST: 21	ST: 2	ST: 19

Results: DkPq-19

Description: Faintly-defined terrace/bench with a northwest-southeast trending margin and an undulating tread situated amongst variable (15-30˚) slope that descends southward towards Harmer Creek. This locality has been previously subjected to a timber harvest (***ca***. late-1990s), with a number of overgrown push piles present. The subsurface matrix appears to be inconsistent and rocky outcrops are present, with lower-lying draws influencing surficial run-off and sediment traps (containing relatively deeper fine sediment deposits). Shovel tests were excavated systematically in two parallel, northwest-southeast trending transects, supplemented by a few judgmentally-placed shovel tests to ensure adequate coverage within an irregular landscape. Lithic artifacts (n=4) were recovered within two shovel tests and resulted in the recording of site DkPq-19.

Appendix A: Figures 2 and 3*, Appendix C:* Site Information (Figure 7)*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 14a	C38-21	±35 m x 10 m	ST: 14	ST: 0	ST: 14
GC 14b		±20 m x 10 m	ST: 8	ST: 0	ST: 8
GC 14c		±15 m x 15 m	ST: 7	ST: 0	ST: 7
		Total:	ST: 29	ST: 0	ST: 29

Results: Negative

Description: Faintly-defined terrace/bench with a northwest-southeast trending margin with an undulating tread situated amongst variable (10-20˚) slope that descends southward towards Harmer Creek. This locality has been previously subjected to a timber harvest (***ca***. late-1990s), with a number of overgrown push piles present. Three locations, summarized below as A-C, on this terrace were considered archaeologically-salient, and subjected to subsurface inspection.

GC 14a: Narrow northwest-southeast trending terrace bound by a relict drainage in the west and increased slope to the east. Shovel tests were implemented systematically in two transects at 4 – 5 m intervals covering the margin and tread.

GC 14b: Northward, slightly wider continuation of the aforementioned terrace (GC 14a) that was decapitated by down-cutting of a relict drainage route. Shovel tests were systematically excavated in two transects at 4 – 5 m intervals along the margin and on the tread.

GC 14c: Remnant of the aforementioned terrace, and located to the south-southeast of GC 14a. This area is visibly disturbed, having been previously subjected to mechanical activity (***i.e.*** leveling), which has resulted in the removal of the top 0.3 - 0.5 m of the fine sediment cap. Same shovel testing methodology as above.

Appendix A: Figure 3*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 15	C38-21	±15 m x 10 m	ST: 6	ST: 0	ST: 6

Results: Negative

Description: Small near-level bench with a southern aspect amongst consistently undulating terrain that descends southward. Previous logging activity is evident through cut stumps and many overgrown push-piles. Shovel tests were implemented judgmentally at 4 – 5 m intervals in a grid like pattern to adequately cover the landform.

Appendix A: Figure 3*, Appendix B:* Photo 8*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 16	C38-21	±25 m x 8 m	ST: 10	ST: 0	ST: 10

Results: Negative

Description: Narrow terrace/bench with level to low sloped (<5˚) tread and a prominent, northwest-southeast trending margin that overlooks Harmer Creek. A portion of this terrace has been previously impacted by mechanical activity (***e.g.*** blading), which has resulted in the removal of some sediment to level the ground surface. In some locations, the previously removed sediment, along with organic debris, can be seen along the scarp of the terrace. Shovel tests were implemented systematically in two parallel transects at 4 – 5 m intervals.

Appendix A: Figure 3*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 17	C38-21	±40 m x 10 m	ST: 17	ST: 4	ST: 13

Results: DkPq-20

Description: Prominent southeast-northwest trending terraced margin that overlooks the Harmer Creek drainage to the southwest. The terrace is bound by a gentle increase in slope to the north-northwest and steep slope (20º) to the southeast. Shovel tests were implemented systematically at 4-5 m intervals in two transects that paralleled the terrace margin. Lithic artifacts (*i.e.* debitage and a hammerstone) were recovered within four shovel tests and resulted in the recording of site DkPq-20.

Appendix A: Figures 2 and 3*, Appendix C:* Site Information (Figure 8)*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 18a	C38-21	±15 m x 15 m	ST: 12	ST: 0	ST: 6
GC 18b		±15 m x 10 m	ST: 8	ST: 0	ST: 5
GC 18c		±15 m x 8 m	ST: 7	ST: 0	ST: 7
GC 18d		±25 m x 20 m	ST: 26	ST: 0	ST: 18
GC 18e		±10 m x 5 m	ST: 7	ST: 0	ST: 3
GC 18f		±10 m x 10 m	ST: 9	ST: 0	ST: 4
GC 18g	C38-20	±30 m x 8 m	ST: 17 TT: 5	ST: 0 TT: 0	ST: 9 TT: 5
		Total:	ST: 86 TT: 5	ST: 0 TT: 0	ST: 86 TT: 5

Results: Negative

Description: Prominent ridge that descends (15-20°) westward to the confluence area of Harmer and Grave Creeks and contains a number of small benches (GC 18d-g) and minor slope breaks (GC 18a-c) that are immediately upslope (north-northeast of) Harmer Road. Note that HAP 1 is located to the north of this STL and identifies a well-defined terrace along the southern side of Grave Creek (summarized in Section 6.2.5 [above]; see Figure 3). HAP 1, was not inspected due to it being situated beyond the arbitrary 100 buffer zone from the development footprint.

GC 18a: Triangular-shaped slope break, with an irregular tread (***i.e.*** eroded), which forms a point above and east of the confluence area of Grave Creek and Harmer Creek. Shovel tests were implemented systematically at 3-4 m intervals, to adequately cover the landform.

GC 18b: A narrow slope-break bench upslope of STL GC18a. Shovel tests were excavated in a grid like pattern at 3-4 m intervals.

GC 18c: Small slope break bench upslope of STL GC 18b. Shovel tests were excavated in a grid like pattern at 4 m intervals.

GC 18d: Relatively moderate-sized bench with a prominent margin with a southern solar aspect, and situated along a middle segment of the ridge that defines this STL. Shovel tests were excavated in a grid like pattern at 3-5 m intervals influenced by natural constraints (***e.g.*** deadfall).

GC 18e: Small bench with a level tread and situated above GC 18d. Shovel tests were excavated in a single transect at 3-4 m intervals.

GC 18f: A small bench with a level tread and situated above GC 18e. Shovel tests were excavated in a grid like pattern at 3-4 m intervals, influenced by ingrown tree stands.

GC 18g: Small bench with a level tread and a prominent margin with a western solar aspect. Shovel tests were excavated judgmentally at 2-4 m intervals in a grid like pattern to adequately cover the deadfall-laden landform. The inspection of five tree throws (>1.5 m diameter) supplemented this inspection.

Appendix A: Figure 3*, Appendix B:* Photo 9*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
GC 19a	C38-20	±20 m x 10 m	ST: 9	ST: 0	ST: 9
GC 19b		±15 m x 10 m	ST: 7	ST: 0	ST: 7
		Total:	ST: 16	ST: 0	ST: 16

Results: Negative

Description: Low-elevation terrace level with two areas that were considered to be archaeologically-salient and subjected to subsurface inspection. The ground surface is quite irregular and has been dissected by ancestral flow patterns of both Grave Creek and Harmer Creek. This locality has been subjected to previous logging activity (*ca*. mid-2000s) and is evidently frequented by recreational enthusiasts with ATV trails and the establishment of informal camping areas.

GC 19a: Slightly elevated remnant of a low-elevation bench with a southwest aspect. Shovel tests were excavated in a grid like pattern at 3 - 5 m intervals.

GC 19b: Remnant of an intermediate bench overlooking the secondary floodplain of Harmer Creek to the south-southwest and is bound by relict drainage channels to the northwest and southeast. The matrix of the landform appears to be the result of relatively recent deposition, suspected to be associated with the Little Ice Age (17th to 19th century). Impacts from previous logging include a network of shallow to moderately-incised skid trails and a number of slash piles. Shovel tests were excavated in a grid-like pattern at 4-8 m intervals to adequately cover the landform and avoid visibly disturbed ground and ingrown secondary tree stands.

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

Upper Harmer Road (UHR) STLs

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
UHR 1	C38-20	±25 m x 15 m	ST: 8	ST: 0	ST: 8

Results: Negative

Description: A mid-level area within a steep scarp that contains three distinct benches, each with round profiles, irregular ground surfaces, and southward solar aspects. Shovel tests were implemented judgmentally at 5-7 m intervals, which effectively covered all three benches.

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
UHR 2a	C38-20	±80 m x 10 m	ST: 19	ST: 5	ST: 14
UHR 2b		±90 m x 15 m	ST: 20	ST: 1	ST: 19
UHR 2c		±50 m x 40 m	ST: 34	ST: 7	ST: 27
			TT: 1	TT: 0	TT: 1
		Total:	ST: 73 TT: 1	ST: 13 TT: 0	ST: 60 TT: 1

Results: DlPq-8 (revisit and update) Polygons A - D

Description: Elevated terrace level (±1365 m a.s.l.) with a prominent east-west trending margin that overlooks the confluence area of Grave and Harmer Creeks to the south-southeast. The general locality has been subjected to previous forestry development (*ca*. 2005-2010), which has negatively impacted the tread of the terrace (*e.g.* burn piles, skid trails, windrows, push piles, and landings/pushout areas) and an incised branch road (2-3 m width) has been constructed, which bisects the scarp and the central to southern portion of the

terrace margin. In general, the tread of the terrace is gently descending (varying from 3-8º) in a southward direction and is relatively irregular due to the combination of mechanical activity, previous timber harvest(s) and down-cutting of relict drainages that now only influence surficial run-off patterns.

At the southern terminus of the landform is previously recorded site DlPq-8, which was initially recorded under permit 2006-0154 and involved the collection of 11 lithic artifacts from two shovel tests (Tamasi *et al.* 2008). A surface inspection was conducted within and in proximity to the recorded site area, which resulted in the collection of four lithic artifacts and identification of microtopography that was subsequently inspected. Terrain that had visible ground disturbance and no longer contained a fine sediment cap were avoided and resulted in four discrete inspection areas, identified as STL A-C (summarized below).

Note that the margin of this terrace is at or just beyond the buffer zone from the development footprint, and therefore the archaeological inspection of the terrace tread was constrained to the margin. The vast majority of the tread remains un-inspected and has been identified as HAP 2 (see Section 6.2.5 [above]).

UHR 2a: Middle to southern portion of the terrace margin spanning from site DlPq-8 to the location where the branch road bisects the margin. As summarized below, a surface inspection of fortuitous exposures (***e.g.*** road grade and windrows) was conducted and resulted in the collection of four lithic artifacts. Subsurface inspection along the margin, conducted in transects at 4-5 m intervals in locations that had not be previously impacted by road construction, rendered positive results with five positive shovel tests (STs 1-5) containing 26 lithic artifacts and one specimen of FAR; this expanded the previously defined site boundary of DlPq-8, which is now referred to as site Polygon A.

UHR 2b: Semi-intact, southward trending spur along the terrace margin, which is physically separated from STL UHR 2a by an incised road grade. Shovel testing focussed on undisturbed terrain and was conducted in a grid like pattern at 3-6 m intervals and resulted in the recording of one positive shovel test (ST 6) with the collection one black tourmalinite flake; this established site Polygon B.

UHR 2c: A series of remnant terrace spurs and ridges that are situated to the north of UHR 2b and extend to the northern terminus of the landform. The area has been severely impacted by mechanical activity, and many of the spurs have been levelled or contain a number of overgrown push piles. Shovel testing was conducted in grid like patterns at 3-7 m intervals, influenced by previous disturbance; this was supplemented by the inspection of one large (>2 m diameter) tree throw. Within this area, six shovel tests (STs 7-12) rendered positive results with the collection of seven lithic artifacts, establishing site Polygons C and D.

Appendix A: Figures 2 and 4*, Appendix C:* Site Information (Figure 9)*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
UHR 3	C38-20	±45 m x 15 m	ST: 25	ST: 0	ST: 25

Results: Negative

Description: A low to mid-elevation terrace with a northwest-southeast trending margin and an adjacently located an alluvial bar. Previous timber harvests, most recently in the form of a fire salvage operation was observed, and recreational activity (***e.g.*** off-road vehicle trails and informal campsites) has negatively impacted some of the terrace. Shovel tests were judgmentally excavated at 4-6 m intervals, avoiding visible ground disturbance where the fine sediment cap no longer remains, and formed two transects that paralleled the margin; a single transect of shovel tests were excavated along the crest of the alluvial bar.

Appendix A: Figure 4*, Appendix B:* Photo 10*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
UHR 4	C38-20	±30 m x 15 m	ST: 15	ST: 0	ST: 15

Results: Negative

Description: Mid-elevation bench with a northeast-southwest trending margin that is to the north (upslope) of Harmer Road and south (downslope) of the prominent terrace level that contains STL URH2 and site DlPq-8 (summarized above). Shovel tests were excavated at 4-5 m intervals in a grid like pattern.

Appendix A: Figure 4*, Appendix B:* Photo 11*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 5	C38-20	±20 m x 8 m	ST: 8	ST: 0	ST: 8

Results: Negative

Description: Mid-elevation bench with a gently sloped (5-8˚) tread and rounded margin that overlooks the Grave Creek drainage to the southwest. Shovel tests were excavated at 5-6 m intervals in a grid like pattern influenced by deadfall.

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 6	C38-20	±12 m x 2 m	ST: 6	ST: 0	ST: 6

Results: Negative

Description: Small bench situated south (downslope) of Harmer Road and north (upslope) of Grave Creek. Shovel tests were excavated judgmentally at 2-3 m intervals focussing on areas that had a lower slope (<10˚).

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 7	C38-20	±20 m x 5-7 m	ST: 6	ST: 0	ST: 6

Results: Negative

Description: Mid-elevation rounded bench (similar to STL UHR 4 and 5) with a southeastern solar aspect amongst consistent slope descending and overlooking Grave Creek. Shovel tests were excavated in a grid like pattern at 4-5 m intervals.

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 8a	C38-20	±4 m x 3 m	ST: 1	ST: 0	ST: 1
UHR 8b		±10 m x 3-4 m	ST: 5	ST: 0	ST: 5
		Total:	ST: 6	ST: 0	ST: 6

Results: Negative

Description: Two small breaks amongst consistent, but undulating slope that descends southward into a deeply incised segment of the Grave Creek drainage. Substantial ground disturbance is present within this locality, the result of mechanical activity and road construction that is attributed to historical-era logging. Shovel tests were excavated judgmentally at 2-3 m intervals.

UHR 8a: Very small slope break with a southern solar aspect, a single shovel test was excavated in the central portion of the break in slope.

UHR 8b: Small slope break to the northwest of UHR 8a, that has a southwest solar aspect. The northeastern portion of the tread has been destroyed by an access road. Shovel tests judgmentally excavated at 3-4 m intervals in a grid like pattern.

Appendix A: Figure 4*, Appendix B:* Photo 12*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 9	C38-20	±25 m x 2 m	ST: 4	ST: 0	ST: 4

Results: Negative

Description: A narrow bench with an irregular, moderately undulating tread that is situated southwest (downslope) of Harmer Road and overlooks Grave Creek to the south. Colluvial debris (cobbles and boulders) are strewn over the tread, as a result of contemporary deposition and the constructing/maintaining Harmer Road. Shovel tests were excavated judgmentally at 5-8 m intervals, focussing on areas that had relatively lower slope (<10˚).

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 10	C38-20	±290 m x 30-35 m	ST: 121 TT: 5 EU: 1	ST: 7 TT: 0 EU: 0	ST: 114 TT: 5 EU: 1

Results: DlPq-12 and DlPq-13

Description: An elevated, relatively prominent terraced margin that defines the southward terminus of variably-undulating and irregular-sloping mountainous terrain. The margin is trending from the northwest to southeast, which offers a south-southwestern solar aspect and is a logical travel corridor that circumnavigates a deeply incised segment of the Grave Creek drainage. The tread contains several minor spurs where the ground surface levels out, but several near-level areas are also present scattered along the tread amongst gentle slope (~5°) that generally descends southward. The southern terminus of this STL has been severely impacted by road construction and previous sediment extraction. In general, shovel tests were excavated at 3-6 m intervals in two to three transects (influenced by the width of level ground) that paralleled the margin; supplemental shovel testing was also implemented judgmentally to ensure comprehensive inspection.

The subsurface inspection rendered positive results with the recording of sites DlPq-12 and DlPq-13, respectively located at the southern and northern ends of the landform. Within site DlPr-12, 12 shards of a precontact ceramic vessel were recovered from ST 2 and flake fragments (n=3) of quartzite, Etherington chert, and High Rock Range chert were recovered from ST 1 and ST 3. Subsequently to the recovery of the ceramic shards, a 1.0 m by 0.5 m EU was excavated to the northwest of ST 2 in an attempt to recover additional shards, but no further precontact cultural material was recovered. Within the area defined as DlPq-13, lithic artifacts (n=4) of High Rock Range chert and siliceous mudstone were recovered from ST 1, ST 2, and ST 4 along with the recovery of a utilized quartzite spall from ST 3.

Appendix A: Figures 2 and 4*, Appendix C:* Site Information (Figures 12 - 13)*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 11	C38-20	±12 m x 7-8 m	ST: 9	ST: 0	ST: 9

Results: Negative

Description: A narrow break in slope (5-8˚) amongst a consistent 15-20˚ slope that descends to the northwest and offers a prominent northward viewshed that includes Grave Lake. This STL is downslope of the prominent terraced margin that is UHR 10. Shovel tests were excavated at 4-5 m intervals in a grid-like pattern.

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 12	C38-19	±20 m x 10 m	ST: 11	ST: 0	ST: 11

Results: Negative

Description: A break in slope (8-10˚) amongst consistent (15-20˚), moderately undulating slope that descends to the northwest and situated downslope of UHR 11 and the prominent terraced margin that is UHR 10, both of which are summarized above. Shovel tests were excavated at 4-5 m intervals in a grid like pattern, which revealed Podzolic soil formation within the interior and a poorly defined Regosol along the margin.

Appendix A: Figure 4*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 13	C38-19	±15 m x 15 m	ST: 10	ST: 0	ST: 10

Results: Negative

Description: A break in slope (3-8˚) located adjacent to (east of) and physically truncated during the construction of Harmer Road. The general locality that contains this STL was previously subjected to a timber harvest (*ca.* 2005-2010). Shovel tests were excavated at 4-5 m intervals in a grid like pattern to adequately cover the landform.

Appendix A: Figure 4*, Appendix B:* Photo 13*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 14a	C38-19	±20 m x 10 m	ST: 10	ST: 0	ST: 10
UHR 14b		±10 m x 3-4 m	ST: 5	ST: 0	ST: 5
UHR 14c		±70 m x 10 m	ST: 21	ST: 0	ST: 21
		Total:	ST: 36	ST: 0	ST: 36

Results: Negative

Description: Relatively prominent ridge within undulating mountainous slope that descends to the west-northwest. Three distinct STLs were identified, each separated by relict drainage routes and two of which were previously bisected by Harmer Road. Aside from a narrow buffer zone along both sides of Harmer Road, the locality has been subjected to an extensive timber harvest (***ca***. 2005-2010) and scattered disturbance (***e.g.*** slash/debris piles) are present.

UHR 14a: Narrow ridge with a level crest that is defined by two, parallel-trending relict drainage routes. The landform is currently occupied by a stand of aspen and is surrounded by slash piles, the result of previous logging. The northeastern portion of this STL ridge was removed during the construction of Harmer Road. Shovel tests were excavated at 3-4 m intervals in a grid like pattern.

UHR 14b and 14c: A northeast-southwest trending, gently sloped (3-5º) ridge that has been bisected by Harmer Road. As a result, URH14b is to the northeast (upslope) of Harmer Road and UHR 14c is west-southwest (downslope) of the FSR and continues beyond the buffered study area, terminating on a level terrace that would likely have been the focal point in this locality for precontact human occupation; this is identified as HAP 3 (see Section 6.2.5 [above]). Shovel tests along both sides of Harmer Road were excavated at 3-5 m intervals in grid like patterns.

Appendix A: Figure 4*, Appendix B:* Photo 14*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 15a	C38-19	±12 m x 3 m	ST: 5	ST: 0	ST: 5
UHR 15b		±20 m x 2-3 m	ST: 14	ST: 0	ST: 14
		Total:	ST: 19	ST: 0	ST: 19

Results: Negative

Description: Two parallel northwest-southeast trending ridges that are separated by relict drainage routes and have level to low-sloped crests. The STLs are constrained by Harmer Road to the west, and a sediment extraction pit that truncated the northwestern portion of UHR15b. Shovel tests were excavated at 3-4 m intervals in a grid like pattern to adequately inspect the two microtopographic features.

Appendix A: Figure 4, *Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 16	C38-19	±60 m x 50 m	ST: 25	ST: 0	ST: 25

Results: Negative

Description: North-south trending ridge with a gently rounded (4-7˚) crest that is defined by two parallel-trending seasonal/relict drainages that descent northward. Similar to previously summarized STLs, this area was subjected to previous logging activity (***ca***. 2005-2010), and associated disturbances are present. Shovel tests were judgmentally excavated at 5-10 m intervals in a grid like pattern avoiding visible disturbance that precluded the presence of a fine-sediment cap and spatial constraints from decomposing slash piles.

Appendix A: Figure 5*, Appendix B:* Photo 15*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 17	C38-19	±35 m x 15 m	ST: 18	ST: 0	ST: 18
Results: Negative					
Description: A well-defined knoll along a ridge that descends to the north-northwest and bound by two relict/seasonal drainages and irregular terrain. Additionally, the construction of Harmer Road truncated the lower portion of the ridge. The general locality was subjected to previous logging activity (*ca*. 2005-2010), and associated disturbances are present. Shovel tests were excavated judgmentally at 4-10 m intervals avoiding visible disturbance that precluded the presence of a fine-sediment cap and spatial constraints from decomposing slash piles. *Appendix A:* Figure 5*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 18	C38-19	±75 m x 15 m	ST: 60	ST: 0	ST: 60
Results: Negative					
Description: A northeast-southwest trending ridge that is northeast (upslope) of Harmer Road and overlooks site DlPr-42 (Polygons C and D) and Grave Lake to the north. The STL has been impacted by the construction of Harmer Road with overgrown push outs and borrow pits present to the east of the road, and previous logging has resulted in a small network of skid trails and the formation of variably-sized debris and push piles. Shovel tests were excavated at 3-10 m intervals avoiding visible disturbance that precluded the presence of a fine-sediment cap and spatial constraints from decomposing slash piles. *Appendix A:* Figure 5*, Appendix B:* Photo 16*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 19	C38-19	±20 m x 15 m	ST: 10	ST: 0	ST: 10
Results: Negative					
Description: A poorly-defined break in slope (5-10º) amongst continuous undulating slope that descends westward. Shovel tests were excavated as a precaution, due to the proximity of site DlPr-42, at 4-5 m intervals in a grid like pattern comprised of three linear transects. *Appendix A:* Figure 5*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 20	C38-19	±35 m x 10 m	ST: 8	ST: 0	ST: 8
Results: Negative					
Description: A poorly-defined break in slope (5-10º) amongst continuous undulating slope that descends westward and situated to the west of Harmer Road. Shovel tests were excavated as a precaution, due to the proximity of site DlPr-42, at 5-8 m intervals in a grid like pattern avoiding dense stands of understory vegetation. *Appendix A:* Figure 5*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
UHR 21	C38-19	±320 m x 220 m	ST: 110 TT: 2	ST: 50 TT: 2	ST: 60 TT: 0
Results: DlPr-42 (revisit and update) Polygons A - F					
Description: An extremely large STL encompassing a triangular-shaped terrace level (±1270 m a.s.l.), associated microtopographic features (*e.g.* nested terracing), and adjacently located low-sloped ground that are situated to the south of the outlet drainage of Grave Lake and north-northeast of Grave Creek. To the west-northwest of the STL is previously recorded site DlPr-42, which was recorded under permit 2005-0154 (Tamasi *et al*. 2006) and is now identified as site Polygon A. Shovel testing under 2015-0098 involved the inspection of five areas all of which rendered positive results for precontact artifacts: Polygons B and C: level to undulating tread of the terrace; Polygon D: low sloped terrain at the base of increased slope; Polygon E: a low-lying, nested					

terrace along the outlet drainage; Polygon F: spur of the terrace. The landscape surrounding site DlPr-42 has been identified as HAP 4 (see Section 6.2.5 [above]).

Shovel tests were excavated at 5-10 m in a hybrid of systematic and judgmental patterns, resembling a grid that avoided visibly-disturbed ground constraints (***e.g.*** Harmer Road, un-named branch road, ditch/slope cuts) where the fine sediment cap had been previously removed. Although portions of the STL have been subjected to a timber harvest (***ca.*** 2005-2010), relatively dense stands of vegetation did influence the placement of some shovel tests in site Polygons C and D.

The archaeological inspection resulted in the collection of many lithic artifacts (n=208) including one projectile point of siliceous mudstone (Pelican Lake-like complex), 23 specimens of unidentifiable bone fragments, and 24 specimens of FAR (0.97 kg).

Appendix A: Figures 2 and 5*, Appendix C:* Site Information (Figure 14)*, Appendix D:* Stratigraphy Log

Lower Harmer Road (LHR) STLs					
STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 1	C38-44	±520 m x 130 m	ST: 188	ST: 21	ST: 167
Results: DlPr-46 (revisit and updated, including the agglomeration of DlPr-45) Polygons A – D DlPr-78					

Description: Relatively expansive area that has been bisected by an east-west trending section of Harmer Road and generally located to the north-northwest of the outlet drainage of Grave Lake and west of the Grave Lake access road. The landscape is undulating with a variable slope (5-8°) descending to the south-southeast, interspersed by faint glacio-fluvial terracing and down-cutting by a few relict drainages, which has formed discrete benches and low, gently rounded knolls. Within this locality are several previously recorded archaeological sites, including DlPr-45 and DlPr-46 within the bounds of the STL, both of which were recorded under 2006-0154 (Tamasi ***et al.*** 2008), and sites DlPr-1, DlPr-2 and DlPr-30 located to the northeast, in proximity to Grave Lake. To the north of Harmer Road, the timber stand has been previously harvested, but to the south a very dense, ingrown forest remains.

The inspection of this STL was completed over two field seasons. In 2017, shovel testing was considered provisional and was initiated to the north of Harmer Road and west of the Grave Lake access road. In total, 76 shovel tests were excavated at 4-7 m intervals in a grid like pattern, of which 14 shovel tests (STs 1-14) rendered positive results for lithic artifacts. The inspection was constrained to the north by the arbitrary buffer zone from the proposed development footprint, which roughly corresponded with an increase in slope and terminated to the west by consecutive negative test results and disturbance associated with an overgrown spur road and a decommissioned landing. To the south of Harmer Road, remnant flagging was present from the 2005 site identification, and this assisted in the determination that the projected locations of sites DlPr-45 and DlPr-46 were incorrect on RAAD; this was further confirmed through a comparison with the 2006-0154 site maps.

In 2018, shovel testing continued to the west of the aforementioned spur road (northern side of Harmer Road) and site DlPr-46 (southern side of Harmer Road), with a particular focus on microtopography with level to near level ground surfaces that were in proximity to (≤25-30 m) a revised development footprint (***i.e.*** widening of Harmer Road opposed to the placement of an array of processing and load out infrastructure components). Shovel testing was implemented in linear transects, paralleling Harmer Road. Test intervals were variable based on the extent of microtopography and generally ranged from 4-6 m. Increased test intervals were influenced by previous anthropogenic disturbance (***e.g.*** road ditch/slope cuts, culverts and mechanically-excavated drainages, and slash piles).

In total, the update of site DlPr-46 (site Polygon A), which now includes DlPr-45 (site Polygon B) as a subordinate site (Erin MacLennan ***pers. comm.*** March 9, 2020), included the delineation of two additional site polygons (C and D) with the recovery of lithic artifacts within 20 shovel tests. Further to the west, but still considered to be within the STL, was a single positive shovel test that resulted in the recording of site DlPr-78.

Appendix A: Figures 2 and 5*, Appendix C:* Site Information (Figures 14 and 25)*,*
Appendix D: Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 2a	C38-44	±40 m x 7-13 m	ST: 19	ST: 0	ST: 19
LHR 2b		±30 m x 5-10 m	ST: 13	ST: 0	ST: 13
		Total:	ST: 32	ST: 0	ST: 32

Results: Negative

Description: Slope-break bench amongst continuously undulating slope that descends southward and was previously bisected during the construction of Harmer Road. STL 2a identifies a 5-8º sloped portion of the bench tread that remains to the north of Harmer Road where 19 shovel tests were excavated at 3-6 m intervals in a grid like pattern. STL 2b identifies a lower-sloped remnant of the tread (3-5º) with an east-west trending margin; shovel tests were excavated in a grid like pattered with judgmental tests focussing on a couple of minor southward trending spurs.

Appendix A: Figure 6*, Appendix B:* Photo 17*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 3	C38-44	±40 m x 30 m	ST: 57 TT: 1	ST: 4 TT: 0	ST: 55 TT: 1

Results: DlPr-76 and DlPr-77

Description: North-south trending ridge with gently rounded profile descending southward (3-8º) and situated amongst consistently sloped terrain that terminates at a terraced margin that defines the northern side of the outlet drainage of Gravel Lake and overlooks the confluence area with Grave Creek. Shovel testing judgmentally commenced on two near level areas, including the crest of the ridge (site DlPr-76) and a bench-like area (site DlPr-77) along the aforementioned terraced margin. To the north, this STL blends into the area inspected and identified within this report as STL LHR 4 (summarized below). Based on the presence of subsurface lithic artifacts in two discrete locations, parallel transects of shovel tests formed a grid like inspection pattern to cover the majority of the landform, excluding areas of increased slope (>10º). Previous disturbance (*e.g.* overgrown push piles) from logging activity and several residual slash piles influenced inspection intervals, but in general, shovel tests were excavated at 3-8 m, and judgmental tests were conducted to inspect microtopographic anomalies. The inspection of this area should be considered provisional, and additional shovel testing could result in the expansion or agglomeration of the two site areas, and potentially with DlPr-43, located upslope to the west.

Appendix A: Figures 2 and 6*, Appendix C:* Site Information (Figures 23 - 24)*, Appendix D:* Stratigraphy Log

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 4a	C38-44	±265 m x 65 m	ST: 71 RM: 3	ST: 13 RM: 2	ST: 58 RM: 1
LHR 4b		±165 m x 150 m	ST: 98 TT: 1	ST:15 TT: 0	ST: 83 TT: 1
LHR 4c		±40 m x 15 m	ST: 17	ST: 1	ST: 16
LHR 4d		±40 m x 15 m	ST: 19	ST: 0	ST: 19
		Total:	ST: 205 TT: 1 RM: 3	ST: 29 TT: 0 RM: 2	ST: 176 TT: 1 RM: 1

Results: DlPr-43 (revisit and update) Polygons A – D
DlPr-65 and DlPr-66

Description: Relatively large area that is focussed on a prominent knoll, the location of previously recorded site DlPr-43 that was recorded under permit 2005-0154 (Tamasi *et al.* 2006). The crest of the knoll offers a southern view shed of Grave Prairie, and connects with a prominent east-west trending terrace margin, the location of site DlPr-75. To the east of the STL is a relict, southward descending drainage that contains low-sloped microtopographic features and nested terracing and a north-south trending ridge (STL LHR 3 [above]).

The inspection of this STL was completed over two field seasons, with shovel testing (*i.e.* LHR 4a) in 2017 focussing on the low sloped terrain to the west-southwest of site DlPr-43 where an array of processing and load out infrastructure components were proposed. At this time, it was determined that the projected location of site

DlPr-43, was incorrect on RAAD based on the 2005-0154 site map and residual site boundary flagging. In 2018, the development footprint was revised, and the inspection (*i.e.* LHR 4b, c, and d) shifted northward to Harmer Road where widening was solely proposed.

LHR 4a: Relatively low sloped (5-8°) terrain to the south-southeast of site DlPr-43 (site Polygon A). Shovel tests were excavated provisionally, in both systematic (*i.e.* transects and grid like patterns) and judgmental patterns focussing on lower-sloped areas that were considered archaeologically-salient. As a result, subsurface lithic artifacts were recovered from three distinct localities, which included an update to DlPr-43 (Polygon B) and the discovery of sites DlPr-65 and DlPr-66, which are located >100 m downslope. Note that an abundance of shovel testing is still required within this locality, which may amalgamate the currently defined site areas.

LHR 4b: Slightly elevated paired terrace that was formed by down-cutting of a southward sloping relict drainage (previously mentioned above in STL LHR 3). Shovel testing completed in 2018 involved a grid like inspection pattern with tests excavated at 5-7 m while avoiding visible logging disturbance (*e.g.* slash piles, un-named branch road, skid trails). Positive results within 15 shovel tests (ST 1-9 and ST 14-19) for the presence of subsurface lithic artifacts prompted the recording of site DlPr-43 Polygon C.

LHR 4c: Level bench to the north of Harmer Road just prior to a transition to increased northward ascending slope. Shovel tests were excavated at 4-6 m intervals in a grid like pattern which resulted in the recovery of subsurface lithic artifacts from a single test (ST 17), which yielded the recording of DlPr-43 site Polygon D.

LHR 4d: Small slope break located upslope (north of) Harmer Road and east-northeast of LHR 4c. Shovel tests were excavated at 4-5 m intervals in a grid like pattern, which rendered negative results for archaeological material.

Appendix A: Figures 2 and 6, *Appendix C:* Site Information (Figures 15, 17 and 18), *Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 5a	C38-12	±70 m x 15 m	ST: 24	ST: 1	ST: 23
LHR 5b		±25 m x 15 m	ST: 10	ST: 0	ST: 10
		Total:	ST: 34	ST: 1	ST: 33

Results: DlPr-67

Description: North-south trending margin of a glacio-lacustrine terrace within an undulating landscape between Grave Lake (to the east) and the Elk River (to the west). The landform has been previously bisected during the construction of Harmer Road. STL 5a identifies level to low-sloped tread of the terrace that remains to the north of Harmer Road where 24 shovel tests were excavated at 4-7 m intervals in a grid like pattern in proximity to the margin. Shovel testing yielded positive results with the recovery of a single lithic artifact recovered from a shovel test (ST 1) located at the northern terminus of the terrace margin. STL 5b identifies the remnant of the southern terminus of the terrace margin as it blends into continuously undulating terrain. Within this area, a considerable disturbance from road construction is present and severely constrained systematic test intervals. Shovel tests were excavated judgmentally at 2-8 m intervals avoiding mechanically-excavated drainage routes and overgrown push piles.

Appendix A: Figures 2 and 6*, Appendix C:* Site Information (Figure 19)*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 6	C38-12	±50 m x 20 m	ST: 36 TT: 5	ST: 0 TT: 0	ST: 36 TT: 5

Results: Negative

Description: North-south trending margin of a glacio-lacustrine terrace with a western solar aspect. The margin is poorly to moderately defined in proximity to (±10 m of) Harmer Road, but becomes well-defined and relatively prominent to the south. Shovel tests were excavated at 4-7 m intervals in a grid like pattern that was influenced by three north-south trending transects to inspect the terrain within the revised development footprint (*i.e.* widening of Harmer Road). To the south, beyond the STL, the landform has been encompassed by HAP 5, and will require an abundance of shovel tests to inspect this portion of the landscape.

Appendix A: Figure 6*, Appendix B:* Photo 18*, Appendix D:* Stratigraphy Log

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 7	C38-12	±60 m x 20 m	ST: 21	ST: 0	ST: 21
Results: Negative					
Description: North-south trending ridge/knoll with a near level crest amongst undulating slope to the north of Harmer Road. A minor wetland is present to the east, and the southern terminus has been truncated by the construction of Harmer Road. Shovel tests were systematically excavated at 4-6 m intervals in a grid like pattern, influenced by three primary transects. *Appendix A:* Figure 6*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 8	C38-12	±40 m x 15 m	ST: 29	ST: 0	ST: 29
Results: Negative					
Description: Relatively low-sloped (3-5˚) terrain amongst undulating slope (>10-15˚) located along the southern side of Harmer Road. Shovel tests were systematically excavated at 4-7 m intervals in a grid like pattern avoiding visible disturbance from previous logging and road construction. *Appendix A:* Figure 6*, Appendix B:* Photo 19*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 9	C38-44	±70 m x 15~20 m	ST: 36 TT: 1	ST: 2 TT: 0	ST: 34 TT: 1
Results: DlPr-69					
Description: North-south trending rounded-profile ridge with moderately-defined western margin amongst an undulating landscape that generally slopes (10-15˚) southward. Harmer Road and an overgrown road grade truncate the landform to the north. Shovel tests were excavated at 4-7 m intervals in a grid like pattern to inspect the level and low-sloped portions of the landform. To the south of the STL is HAP 5 (see Section 6.2.5 [above]). Subsurface inspection rendered positive results with the recovery of lithic artifacts from two shovel tests (ST 1 and ST 2), which resulted in the recording of site DlPr-69. *Appendix A:* Figures 2 and 6*, Appendix C:* Site Information (Figure 21)*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 10	C38-12	±25 m x 25 m	ST: 27	ST: 0	ST: 27
Results: Negative					
Description: Moderate to well-defined, north-south trending, rounded-profile ridge/knoll situated amongst undulating terrain that generally slopes westward. The southern portion of the landform has been truncated by Harmer Road, and is bound to the north by a relict drainage. The locality contains a mature secondary timber stand, but has been subjected to a previous timber harvest. Shovel tests were excavated at 3-6 m intervals in a grid like pattern. *Appendix A:* Figure 6*, Appendix D:* Stratigraphy Log					

STL	***AOA Polygon***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
LHR 11	C38-12	±70 m x 60 m	ST: 43	ST: 4	ST: 39
Results: DlPr-68					
Description: A slight rise/rounded knoll amongst undulating slope that descends westward and is bound to the north by a relict drainage (mentioned above in STL LHR 10). Harmer Road is to the south, and construction may have impacted the landform as several overgrown mounds (*e.g.* push piles) are present on the southern portion of knoll. Shovel tests were excavated at 3-6 m intervals in a grid like pattern. Subsurface inspection rendered positive results with the recovery of lithic artifacts (including a projectile point and biface fragment) from four shovel tests (ST 1-4) and prompted the recording of archaeological site DlPr-68. *Appendix A:* Figures 2 and 6*, Appendix C:* Site Information (Figure 20)*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 12	C38-12	±15 m x 10-12 m	ST: 12	ST: 0	ST: 12
Results: Negative					
Description: North-south trending bench with a faintly rounded, low slope (3-5°) tread with a western solar aspect. The bench is bound to the north and south by relict drainages that slope westward. Shovel tests were excavated at 4-5 m intervals in a grid like pattern.					
Appendix A: Figure 6*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 13	C38-44	±40 m x 40 m	ST: 24 TT: 3	ST: 0 TT: 0	ST: 24 TT: 3
Results: Negative					
Description: A series of near-level (3-5˚) slope breaks amongst undulating slope descending to the west. The locality is bound to the north by Harmer Road and an overgrown road grade that may be associated with the railway tracks further to the west. Shovel tests were judgmentally excavated at 4-7 m intervals, and were focussed on lower slope within the irregular landscape.					
Appendix A: Figure 6*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 14	C38-44/C38-12	±20 m x 15 m	ST: 16	ST: 0	ST: 16
Results: Negative					
Description: Break in slope that forms a bench-like area amongst undulating and consistently sloped landscape that trends westward. Construction of the CPR tracks (Fording River Branch Line) to the west of the STL likely truncated the landform, and may have influenced the appearance of a bench. Shovel tests were judgmentally excavated at 4-6 m intervals in a grid like pattern.					
Appendix A: Figure 6*, Appendix B:* Photo 20*, Appendix D:* Stratigraphy Log					

STL	AOA Polygon	Dimensions (L x W)	Subsurface Tests		
			Total	Positive	Negative
LHR 15a	C38-44	±600 m x 183 m	ST: 159 TT: 2	ST: 72 TT: 1	ST: 87 TT: 1
LHR 15b		±69 m x 57 m	ST: 18	ST: 1	ST: 17
LHR 15c		±124 m x 26 m	ST: 33	ST: 4	ST: 29
		Total:	ST: 210 TT: 2	ST: 77 TT: 1	ST: 133 TT: 1
Results: DlPr-75					
Description: Terrace level (1235 m a.s.l.) with prominent east-west trending margin that defines the northern side of a lower segment of Grave Creek. The southerly solar aspect offered from this locality is unparallel with an unobstructed viewshed of Grave Prairie and the middle Elk River valley. The tread is largely level, but some undulating areas and some minor glacio-fluvial terracing create microtopographic features. Westward trending slope becomes apparent in the western portion of the STL as the terrace level extends towards the confluence of Grave Creek with the Elk River, the localities of previously recorded sites DlPr-6 and DlPr-9 (located east of the railway tracks). The scarp of the terrace is variable, with some segments being annually subjected to erosion (*e.g.* slumping and slope wash), which exposes the mantle of glacio-lacustrine silt overlying unconsolidated till containing raw lithic material that is desirable for the production of stone tools (*e.g.* siliceous mudstone, High Rock Range chert, and quartzite). Within stable segments of the scarp are a series of lower-elevation benches that are in proximity to Grave Creek. Contemporary disturbance was observed throughout this STL, primarily evidenced by several active and overgrown road grades that are likely associated with previous logging activity, railway construction, and although no evidence was found, historical settlement (*e.g.* homesteading) is suspected to have occurred within this locality. Several of the older road grades bisect the scarp and lead to cascading pools and a relatively					

shallow segment of Grave Creek; this area appears to be one of the most favourable locations that would facilitate a pedestrian crossing.

Shovel testing commenced in 2017 based on an array of infrastructure components associated with processing and loadout facilities that were proposed within this locality, but the inspection was terminated in 2018 due to a revised development footprint (*i.e.* widening Harmer Road). The 2017 inspection resulted in the discovery of an extensive subsurface artifact scatter and the recording of site DlPr-75, which, based on the preliminary shovel testing program and microtopography took the form of multiple site polygons (A-E). The inspection of this site and the surrounding locality must be considered provisional, and the terrain that was not subjected to inspection has been encompassed by HAP 5.

LHR 15a: Level to gently undulating terrace tread and the prominent east-west trending margin. The surface inspection resulted in the discovery of primary-stage debitage along the upper scarp, which suggested both the procurement of raw lithic material (*i.e.* placer quarry) and a workshop component within site DlPr-75. Shovel testing was conducted both judgmentally and systematically based on the microtopography present. In general, two transects that paralleled the margin were implemented with shovel tests excavated at 4-7 m intervals. Additionally, to sample the tread of the terrace, five north-south trending transects were implemented with shovel tests excavated at 5 m intervals. An array of lithic artifacts, faunal remains, and FAR was recovered from 72 shovel tests and prompted the recording of site Polygon A.

LHR 15b: Narrow alluvial fan that is the result of periodic down-cutting and deposition by an ephemeral drainage that bisects the west-central portion of the terrace tread. Portions of the fan offer minor slope breaks that are favourable for ancillary activity, and the lower portion of the fan is within the secondary floodplain of Grave Creek and has been terraced. Previous disturbance (*e.g.* overgrown road grades and push piles) is present adjacent to the creek, and stratigraphy indicates frequent overbank sedimentation. Subsurface testing took the form of grid like patterns (3-5 m intervals). Two lithic artifacts were recovered from ST 77, which resulted in the recording of site Polygon E.

LHR 15c: Series of small benches with level, gently undulating, and low-sloped (3-8^{o}) treads, the result of terracing and subsequent dissection by Grave Creek. Shovel tests were excavated at 3-5 m intervals in grid like patterns; this rendered positive results for subsurface artifacts and the recording of site Polygons B – D.

Appendix A: Figures 2 and 6*, Appendix C:* Site Information (Figure 22)*, Appendix D:* Stratigraphy Log

7. ARCHAEOLOGICAL SITE SUMMARIES

7.A	*Borden No.*	**DkPq-19**	*7.A1*	*New/Revisited:*	New
7.A2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.A3	*Impact Assessment:*		The site is within a buffer zone and approximately 100 m west-southwest from the nearest proposed development footprint (*i.e.* Grave Creek FSR). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.A4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.A5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* The site is located on a slope break above a prominent southeast-northwest trending terraced margin that defines the northeastern side of the Harmer Creek drainage, upstream (southeast) of the confluence with Grave Creek. The locality of the site suggests seasonal resource procurement and provides evidence for precontact, intra-mountain travel utilizing the Grave		

		Creek drainage to connect the Alexander Creek valley (and the Continental Divide) and the Elk River valley. The site is currently defined by low a density, subsurface lithic scatter, with the collected artifact assemblage comprised of High Rock Range chert (n=2) and tourmaline chert (n=2). The artifacts were recovered within two shovel tests at 5 to 30 cm below surface and were in association with a Bf horizon of a Podzol. High Rock Range chert is locally procured from a [currently] undocumented source(s) that is suspected to be in proximity to the Continental Divide, but is available within placer deposits within the middle to lower Elk River drainage. Conversely, the presence of tourmaline within the artifact assemblage is indicative of northeastward-trending travel (or trade) from the Rocky Mountain Trench. Tourmaline, as raw material type, is associated with the Aldridge Formation and a number of precontact procurement locations have been identified along the eastern slopes of the Purcell Mountain Range (Choquette 1981). Although the site area is relatively small and the artifact assemblage is minimal, the location of the site along a logical travel corridor and the presence of a lithic material that is procured from a different mountain range contributes to the understanding of the precontact history in the Kootenay region. **Public*:*** *Low* Currently, access into the locality of the site is open to public visitation, but should the Transportation Corridor be implemented, public access could be constrained and possibly prohibited for safety considerations. Further, the density of the secondary timber stand obscures the landscape that would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways, and absence of exposed artifacts and features would not further public interest in this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have ***high*** cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site area, and the limited artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.B	*Borden No.*	**DkPq-20**	*7.B1*	*New/Revisited:*	New
7.B2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics and Faunal Remains		
7.B3	*Impact Assessment:*		The site is within a buffer zone and approximately 70 m north-northeast from the nearest proposed development footprint (*i.e.* Harmer Road). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.B4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be		

		required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).
7.B5	*Significance Evaluation:*	**Scientific:** *Low - Moderate* The site is located on a relatively prominent spur along a southeast-northwest trending terraced margin that overlooks the Harmer Creek drainage and the confluence area with Grave Creek downstream to the west. Similar to DkPq-19 (above), this site and its location supports the concept of seasonal resource procurement and provides evidence for precontact, intra-mountain travel utilizing the Grave Creek drainage to connect the Alexander Creek valley (and the Continental Divide) and the Elk River valley. The site is currently defined as a low density, subsurface artifact scatter that is comprised of both lithic and faunal remains. The collected artifact assemblage is comprised of a utilized flake and flake fragment of siliceous mudstone, a hammerstone of brown-coloured quartzite, and a fragmentary piece (x2 refit) of unidentifiable fauna. Artifacts were recovered within four shovel tests and ranged from 5-20 cm below surface and were associated with the B horizon of a Podzol. Both of the lithic material types can be procured in their raw forms from either hard-rock or placer procurement sources within the Elk River drainage. Although the site area is relatively small and the artifact assemblage is minimal, the location of DkPq-20 along a logical travel corridor indicates extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public*:*** *Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained and possibly prohibited for safety considerations. Further, pedestrian access to the site requires a traverse through a sloping and irregular landscape that could be difficult to navigate for some members of the public. Additionally, the absence of exposed artifacts and features would hinder public interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site area, and the limited artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.C	*Borden No.*	**DlPq-8**	*7.C1*	*New/Revisited:*	Revisit & Updated
7.C2	*Site Type:*		Precontact, Cultural Material, Surface/Subsurface Lithics and FAR		
7.C3	*Impact Assessment:*		The site is within a buffer zone and approximately 130 m north-northeast from the nearest proposed development footprint (*i.e.* Harmer Road). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		

7.C4	*Management Recommendations:*	1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).
7.C5	*Significance Evaluation:*	**Scientific:** *Moderate* The site occupies portions of a prominent terrace level (1360 m a.s.l.) that is located to the north of and overlooks the confluence area of Harmer and Grave Creeks. The tread of the terrace is undulating has been subjected to episodic down-cutting by several southward trending run-off drainages. Additionally, portions of the tread and margin have been severely impacted by previous logging activity (***e.g.*** road construction, burn piles, skid trails, landings and push-outs, and push piles), and therefore, the dissected tread of the terrace influenced the delineation of four site polygons (***i.e.*** A – D), that could be connected should further subsurface inspection be conducted in the future. The locality of the site suggests a base camp to facilitate seasonal resource procurement and provides evidence for precontact, intra-mountain travel utilizing the Grave Creek drainage to connect the Alexander Creek valley (and the Continental Divide) and the Elk River valley. The site is currently defined as a relatively sparse artifact scatter. Although the collected artifact assemblage is solely comprised of lithic artifacts, two specimens of FAR (40 g) were recovered at 0-5 cm below surface within a single shovel test (ST 2). The current artifact assemblage is comprised of thirty-seven lithic artifacts, four of which were recovered from a disturbed context (***i.e.*** branch road surface/shoulder); the remainder were recovered within twelves shovel tests down to a depth of 20 cm below surface and associated with a well-developed Podzolic soil (Ae and Bf horizons). These artifacts contribute to the assemblage that was collected under 2006-0154 (n= 9 catalogue numbers). The majority of lithic materials within the 2015-00098 assemblage (***i.e.*** Etherington chert, High Rock Range chert, quartzite, siliceous siltstone, and siliceous mudstone) indicates local procurement within the Elk River drainage, but regional procurement/trade is represented through the presence of Top of the World chert (Beaverfoot Formation – Rocky Mountains) and tourmalinite (Aldridge Formation - Purcell Mountain Range). The site, as it is currently defined as four polygons, spans approximately 500 m of a prominent terrace level that is strategic and would facilitate precontact travel through the Grave Creek corridor and, therefore contributes to the understanding of the precontact history in the Kootenay region. **Public:** *Low - Moderate* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained and possibly prohibited for safety considerations. Although, pedestrian access through the majority of the site could prove difficult for some members of the public, the direct access to DlPq-8 via Branch C off Harmer Road would facilitate a stop along a regional site tour to discuss precontact travel and seasonal resource procurement. Additionally, the unobstructed viewshed offered along the margin of this elevated terrace level would provide an opportunity to explain the influence of geomorphology on precontact lifeways.

		Ethnic: *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site polygons, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.D	*Borden No.*	**DlPq-10**	*7.D1*	*New/Revisited:*	New
7.D2	*Site Type:*		Precontact, Cultural Material, Subsurface FAR and Faunal Remains		
7.D3	*Impact Assessment:*		As currently defined, the site is within 15 m of the existing Grave Creek FSR, and will likely be negatively impacted, in part or in its entirety, should the mine plan be implemented. If the entirety of the site is impacted by development, DlPq-10 would be assigned *Legacy Status*.		
7.D4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan. 2) Should implementation of the proposed transportation corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).		
7.D5	*Significance Evaluation:*		**Scientific:** *Low* The site is located on a narrow terrace level along the southern side of a canyon-like segment of the Grave Creek drainage. Similar to several sites summarized within this report, this site and its location provides evidence for precontact, intra-mountain travel utilizing the Grave Creek drainage to connect the Alexander Creek valley (and the Continental Divide) and the Elk River valley. The site is currently defined as a low density, subsurface artifact scatter that is comprised of FAR (n=12) and fragmented faunal remains (n=12). All of the artifacts were recovered from 5-20 cm below surface within three shovel tests and associated with the B horizon of a developed Brunisol. The archaeological materials present within the currently defined site boundary are indicative of a transient campsite. Several more of this site type are suspected to be present within this locality, but the landscape is quite dynamic and is frequently subjected to debris flows (*i.e.* rock slides and avalanches) as evidenced by several large boulders protruding from the ground surface and a couple of prominent chutes that are located upslope to the south. Therefore, the discovery of this site is rather fortuitous and similar sites in this locality may be inaccessible by traditional archaeological survey methodology. Although the site area is relatively small and the artifact assemblage is minimal, the location of the DlPq-10 along a logical travel corridor indicates extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region.		

		Public*: Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, the site may be irreversibly impacted (*i.e.* assigned *Legacy Status*) or public access could be prohibited to address safety considerations. Further, parking vehicles along the narrow grade of the Grave Creek FSR in this area can be problematic (especially in the presence of haul trucks) and the pedestrian traverse to the site from the FSR includes sloping and irregular terrain that could prove to be difficult for some members of the public. Although the location of the site would be beneficial to a discussion pertaining to precontact travel corridors, the absence of exposed artifacts and features within a dense forest stand would not further public interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.E	*Borden No.*	**DlPq-11**	*7.D1*	*New/Revisited:*	New
7.E2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.E3	*Impact Assessment:*		The site is within a buffer zone and approximately 150 m northwest from the nearest proposed development footprint (*i.e.* Grave Creek FSR). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.E4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.E5	*Significance Evaluation:*		**Scientific:** *Low* The site is located on a northward trending spur along a prominent southeast-northwest trending terraced margin that defines the southern side of the Grave Creek drainage, as it flows out of a deeply incised canyon. The locality of the site suggests seasonal resource procurement and provides evidence for precontact, intra-mountain travel utilizing the Grave Creek drainage to connect the Alexander Creek valley (and the Continental Divide) and the Elk River valley. The site is currently defined by low a density, subsurface lithic scatter, with the collected artifact assemblage comprised of siliceous mudstone (n=8) and a chert that is suspected to be High Rock Range chert (n=1). The artifacts were recovered within two shovel tests at 10 to 15 cm below surface and were in association with a B horizon of a Brunisol. Provided that the "unknown" chert is that of High Rock Range chert, both of the lithic material types are locally procured within the middle to lower Elk River drainage.		

		Although the site area is relatively small and the artifact assemblage is minimal, the location of the site along a logical travel corridor and the presence of a lithic material that is procured from a different mountain range contributes to the understanding of the precontact history in the Kootenay region. **Public*:*** *Low* Currently, access into the locality of the site is open to public visitation, but should the Transportation Corridor be implemented, public access could be constrained and possibly prohibited for safety considerations. The locality of the site was recently harvested, and currently the viewshed offered from the site area would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways; this will change as the secondary timber stand ages and becomes ingrown. Unfortunately, the absence of exposed artifacts and features would not further public interest in this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site area, and the limited artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.F	*Borden No.*	**DlPq-12**	*7.F1*	*New/Revisited:*	New
7.F2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics and Ceramic Shards		
7.F3	*Impact Assessment:*		The site is within a buffer zone and approximately 100 m north-northeast from the nearest proposed development footprint (*i.e.* Harmer Road). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.F4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.F5	*Significance Evaluation:*		**Scientific:** *High* The site is defined by two polygons that delineate two spurs along the margin of an elevated terraced margin that overlooks the Grave Creek drainage, including the confluence and lower segment of Harmer Creek. The level to gently-sloping ground surfaces that are present provide favourable attributes for a transitory camp along a logical precontact travel corridor associated with ingress/egress into the Elk River valley via the upper Grave Creek drainage. The site is currently defined by a low density, subsurface artifact scatter, with the collected artifact assemblage comprised of three pieces of debitage of differing lithic materials (*i.e.* quartzite, High Rock Range chert and		

		Etherington chert) that can be procured locally and 12 shards of a precontact ceramic vessel. Artifacts were recovered within three shovel tests and ranged from 0-20 cm below surface. This site represents the first recorded discovery of precontact ceramics in the East Kootenay region of southeastern British Columbia. The ceramic shards are tentatively identified as being from the Middle Period (700 to 400 BP) of the Old Woman's Phase (1200-200 BP), which is predominantly identified in western Alberta (MacDonald 2008); the presence of this artifact type indicates precontact travel/trade between the Elk River valley and the eastern slopes of the Rocky Mountains via the Grave Creek drainage. Based on the landform, this site is suspected to have an association with site DlPq-13 (summarized below). Although the site areas are relatively small and the artifact assemblage is minimal, it does contain a very unique artifact type for the region, which provides strong evidence for intra-mountain travel between the great plains to the east and the Elk Valley. Therefore, this site can contribute to the further regional studies and assists in the understanding of the precontact history in the Kootenay region. **Public:** *Low* Currently, access into the site locality is open to public visitation, but involves a steep hike up from Harmer Road that would prove to be difficult for the general public. Although the absence of exposed artifacts and features would not further public interpretation of this site, the unobstructed viewshed offered from this locality would provide an opportunity to explain the influence of geomorphology on precontact lifeways. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains and is suggestive of trade, possibly between two different cultures. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on difficult access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.G	*Borden No.*	**DlPq-13**	*7.G1*	*New/Revisited:*	New
7.G2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.G3	*Impact Assessment:*		As currently defined, the site is approximately 50 m northeast from Harmer Road, and the western portion of the site area will be negatively impacted should the mine plan be implemented.		
7.G4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should implementation of the proposed transportation corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).		

7.G5	*Significance Evaluation:*	**Scientific:** *Low - Moderate* The site is on the northern terminus of a terraced margin that overlooks the Grave Creek drainage, including the confluence and lower segment of Harmer Creek. The level to gently-sloping ground surface that is present provide favourable attributes for a transitory camp along a logical precontact travel corridor associated with ingress/egress into the Elk River valley via the upper Grave Creek drainage. The site is currently defined by a low-density, subsurface artifact scatter, with the collected artifact assemblage comprised of debitage of High Rock Range chert (n=2) and Etherington chert (n=2) and a utilized spall of quartzite, all of which can be locally procured. Artifacts were recovered within four shovel tests and ranged from 0-25 cm below surface. Based on the landform, this site is suspected to have an association with site DlPq-12 (summarized above). Although the site area is relatively small and the artifact assemblage is minimal, it does provide evidence for intra-mountain travel utilizing the Grave Creek drainage. Therefore, and if there is a future association with site DlPq-12, this site can contribute to understanding of the precontact history in the Kootenay region. **Public:** *Low* Currently, access into the site locality is open to public visitation, but involves a steep hike up from Harmer Road that would prove to be difficult for the general public. Although the absence of exposed artifacts and features would not further public interpretation of this site, the unobstructed viewshed offered from this locality would provide an opportunity to explain the influence of geomorphology on precontact lifeways. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site assists in defining precontact travel routes within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on difficult access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.H	*Borden No.*	**DlPr-42**	*7.H1*	*New/Revisited:*	Revisit & Updated
7.H2	*Site Type:*		Precontact, Cultural Material, Surface/Subsurface Lithics, FAR, Faunal Remains, and Human Remains (*Suspected* Ancestral Burials)		
7.H3	*Impact Assessment:*		As currently defined, the central portion of the site has been bisected during the original construction of Harmer Road and an un-named branch road. Therefore, if the currently proposed mine plan is implemented, negative impacts to the central portion of site DlPr-42 (*e.g.* Polygons B-E) are anticipated. Note that the general locality that contains the *suspected* Ancestral Burials (observed *ca*. 2005 within western portion of Polygon A) is situated approximately 450 m beyond the currently proposed development footprint and therefore, would not be adversely impacted through implementation of the mine plan.		

7.H4	*Management Recommendations:*	1) Prior to the onset of any construction activity associated with Phase II of the Project, a surficial survey for any evidence pertaining to the suspected burials should be implemented to confirm their distance from the proposed development footprint and physically identify (*e.g.* with non-descript flagging tape) to ensure avoidance occurs. 2) Site avoidance until acceptance/implementation of the currently proposed mine plan. 3) Should implementation of the proposed transportation corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).
7.H5	*Significance Evaluation:*	**Scientific:** *High* The site occupies the tread of a prominent, triangular-shaped terrace level, along with some nested terraces/benches and low-sloped terrain, that is north of Grave Creek and south of the outlet drainage of Grave Lake; this resulted in the updating of the site and the delineation of six site area polygons. The site is interpreted as a camp to facilitate seasonal resource procurement and offers a staging area for the access/egress for intra-mountain travel utilizing the Grave Creek drainage. Previous inspection of the site under permit 2005-0154 resulted in the collection of numerous lithic artifacts (*i.e.* 170 catalogue numbers), and the updating of the site under permit 2015-0098 resulted in the collection of 279 lithic artifacts and 23 unidentifiable faunal fragments, along with the documentation of 24 (0.97 kg) specimens of FAR. The lithic assemblage is comprised of *approximately* 14 different raw material types (some of which are derivatives of one another [*e.g.* tourmalinite and tourmaline chert]), of which the majority can be procured locally (*e.g.* siliceous mudstone, Etherington chert, High Rock Range chert, quartzite and sandstone), and to a lesser extent can be procured within the Kootenay region. Of interest, is the recovery of a retouched flake of obsidian from ST 103 in Polygon B Analysis conducted by R. Reimer (ca. 2019) revealed that the raw obsidian was procured from "Indian Rock" in Washington State; this indicates the potential for an extensive trade network (and travel direction) that was most likely influenced by the route of the Columbia River. Within site DlPr-42, a Middle Period projectile point (±8000 – 1500/2000 years ago) was recovered in situ (22 cm below surface) while excavating ST 116 in Polygon B; the low side to corner-removed side notching, along with the metrics of this artifact (*e.g.* neck width) resembles the projectile point style that has been assigned to the Pelican Lake Complex, which is defined at 3600 to 2800 years before present (Peck 2011) and 3600-2100 years before present (Bubel *et al.* 2012) as applicable to the northern plains region. The complete projectile point was recovered in vertical context with the point down and is suggestive of deliberate deposition, possibly as an offering or as remnant of a stake-like implement (*e.g.* dart shaft) that was utilized to secure some form of precontact infrastructure. The site is interpreted as being a seasonal camp within an extensive cultural landscape that spans from Grave Lake (to the east-northeast) and the Elk River (to the west). This site likely has a spatial and temporal connection with site DlPr-46 (located to the north of the outlet drainage), which is summarized below. This locality, if subjected to systematic archaeological investigation, has great potential for furthering the understanding of

		precontact occupation throughout the Middle Period within the Kootenay Region. **Public:** *Moderate* Currently, this site remains highly accessible to public visitation, but implementation of the mine plan could constrain future accessibility and negatively impact the central portion of the currently defined site area. Although, the absence of exposed artifacts and features would hinder public interpretation, the relative ease of access (via Harmer Road) and the microtopography present within and adjacent to the site would facilitate a discussion on precontact land use and settlement patterns in the Middle Period. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. Ancestral burials are suspected to be present within the western portion of site Polygon A; these were originally observed in 2005, but could not be relocated in 2017 due to an abundance of deadfall and dense ground cover/understory vegetation. **Economic:** *Low* Economic opportunities are unlikely to present themselves within the currently defined site areas. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.I	*Borden No.*	**DlPr-43**	*7.I1*	*New/Revisited:*	Revisit & Updated
7.I2	*Site Type:*		Precontact, Cultural Material, Surface/Subsurface Lithics		
7.I3	*Impact Assessment:*		As currently defined, the central portion of the site has been bisected during the original construction of Harmer Road and the junction with an un-named, southward trending branch road. Therefore, if the currently proposed mine plan is implemented, negative impacts to the central portion of site DlPr-43 (*e.g.* Polygons C and D) are anticipated.		
7.I4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan. 2) Should implementation of the proposed transportation corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).		
7.I5	*Significance Evaluation:*		**Scientific:** *Moderate* The site occupies the crest of a relatively prominent knoll, nested terracing along a relict drainage route, and immediately adjacent low-sloped ground that is all to the north of Grave Creek and the confluence with the outlet drainage of Grave Lake. Subsurface inspection of this landscape resulted in the updating of the site DlPr-43 and the delineation of four site area polygons. The site is suspected to be a portion of a larger camp, possibly for higher status individuals (based on the prominence) or a location for ancillary activities to facilitate seasonal resource procurement. Previous inspection of the site under permit 2005-0154 resulted in the collection of numerous lithic artifacts (*i.e.* 68 catalogue numbers), and the subsequent updating of the site under permit 2015-0098 resulted in the		

		collection of 62 lithic artifacts; no faunal remains or FAR was recovered. The lithic assemblage collected under 2015-0098 is comprised of nine different raw material types, of which the majority can be procured locally (***e.g.*** Banff Formation siliceous siltstone/chert, siliceous mudstone, Etherington chert, High Rock Range chert, quartzite and sandstone), and to a lesser extent can be procured within the Kootenay region (***e.g.*** Appekunny argillite, Top of the World chert, tourmalinite/tourmaline chert). Of interest, is the presence of a tertiary flake of Madison (Montana) Formation chert, which was recovered at 0-5 cm below surface from ST 1 (Polygon B); this artifact indicates the re-sharpening of a stone tool. The raw material derives from the contemporary state of Montana (United States), which indicates northward travel (or trade) that possibly involved following the eastern slopes of the Rocky Mountains and utilizing one of several passes to access the Elk River valley or the Flathead River valley and the low-elevation pass that connects with the Michel Creek valley (tributary within the Elk River drainage). The artifact assemblage is largely comprised of debitage, but expedient tools (*i.e.* utilized and re-touched flakes) are present to support the concept of DlPr-43 being a campsite. A workshop component is proposed due to the amount of debitage and the proximity to the fortuitous exposure of siliceous mudstone and High Rock Range chert nodules along the scarp of a prominent terrace level to the west were site DlPr-75 was recorded (summarized below). These raw materials could have been procured from hard-rock quarrying, but the majority were likely obtained from the placer deposit that underlies a mantle of glacio-lacustrine silt. The updating and enlargement of the site area adds to the growing complexity and the extensive precontact occupation within the cultural landscape that encompasses Grave Prairie. While this site does have potential to contribute to the understanding of the precontact history of the Kootenay region, adjacently located sites (***e.g.*** DlPr-42, DlPr-46, and DlPr-75) have less microtopographical constraints and therefore may have been slightly more conducive for precontact occupation. **Public:** *Moderate* Currently, this site remains highly accessible to public visitation, but implementation of the mine plan could constrain future accessibility and negatively impact the central portion of the currently defined site area. Although, the absence of exposed artifacts and features would hinder public interpretation, the relative ease of access (via Harmer Road) and the microtopography present within and adjacent to the site would facilitate a discussion on precontact land use and settlement patterns in the Middle Period. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have ***high*** cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves within the currently defined site areas. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.J	*Borden No.*	**DlPr-46**	*7.J1*	*New/Revisited:*	Revisit & Updated
7.J2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics, Faunal Remains and FAR		
7.J3	*Impact Assessment:*		As currently defined, the central portion of the site has been bisected during the original construction of Harmer Road and the relatively large staging area that is associated with the junction of the northward trending access road to Grave Lake. Therefore, if the currently proposed mine plan is implemented, negative impacts to the central portion of site DlPr-46 (***e.g.*** Polygons A, B, C, and D) are anticipated.		
7.J4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan. 2) Should implementation of the proposed transportation corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).		
7.J5	*Significance Evaluation:*		**Scientific:** *High* The site occupies the low-sloped terrain and some minor terracing that is the result of previous down-cutting by relict drainages to the north-northwest of the outlet drainage Grave Lake. The site (polygon A) was originally recorded under 2006-0154, and the update involved the lumping of site DlPr-45 (adjacently located to the east) and contemporary inspections resulted in the delineation of two additional site area polygons (*i.e.* C and D) that area adjacent to Harmer Road. The site is interpreted as a camp or a location that was the focus of ancillary activities to facilitate seasonal resource procurement. Previous inspection of site DlPr-46 (and its subordinate site DlPr-45) under permit 2006-0154 resulted in the collection of numerous lithic artifacts (*i.e.* DlPr-46:161 catalogue numbers; DlPr-45: 36 catalogue numbers); the updating of the site resulted in the collection of 63 lithic artifacts. Although faunal remains and FAR were documented under 2006-0154, none of these artifact types were recovered under 2015-0098. The lithic assemblage collected under 2015-0098 is comprised of seven different raw material types, of which the majority can be procured locally (*e.g.* Banff Formation siliceous siltstone/chert, siliceous mudstone, Etherington chert, High Rock Range chert, and quartzite), and to a lesser extent can be procured within the Kootenay region (*e.g.* Top of the World chert). The site is interpreted as being a seasonal camp within an extensive cultural landscape that spans from Grave Lake (to the east-northeast) and the Elk River (to the west). This site likely has a spatial and temporal connection with site DlPr-42 (located to the south of the outlet drainage), which is summarized above. This locality, if subjected to systematic archaeological investigation, has great potential for furthering the understanding of the precontact history in the Kootenay Region. **Public:** *Low - Moderate* Currently, this site remains highly accessible to public visitation, but implementation of the mine plan could constrain future accessibility and negatively impact the central portion of the currently defined site area. Although, the absence of exposed artifacts and features would hinder public interpretation, the relative ease of access (via Harmer Road) and the microtopography present within and adjacent to the site would facilitate a		

		discussion on precontact land use and settlement patterns in the Middle Period. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves within the currently defined site areas. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.K	*Borden No.*	**DlPr-65**	*7.K1*	*New/Revisited:*	New
7.K2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithic and FAR		
7.K3	*Impact Assessment:*		The site is within a buffer zone and approximately 350 m south of the nearest proposed development footprint (*i.e.* Harmer Road); note the *originally proposed* mine plan involved the placement of ancillary infrastructure components in the locality of this site. As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.K4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.K5	*Significance Evaluation:*		**Scientific:** *Low* The site is on gently sloped terrain that descends southward from a relatively prominent knoll (site DlPr-43) located to the north of Grave Creek. The small-sized site is comprised of a buffer zone surrounding a single positive shovel test that contained a lithic artifact (*i.e.* utilized spall of quartzite) and one specimen (70 g) of FAR recovered at 5-10 cm below surface; the raw lithic materials can be procured locally. Although the limited artifact assemblage constrains interpretation of the site, attributes are suggestive of ancillary activity that was associated with larger-sized campsites (*e.g.* DlPr-43 and DlPr-75) that are within portions of the cultural landscape that have few microtopographic constraints. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public:** *Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained. Although the absence of exposed artifacts and features would hinder public interpretation of this site, the southward viewshed present in the locality of the site would facilitate a discussion pertaining to geomorphological considerations within the relatively expansive cultural landscape that encompasses Grave Prairie.		

		Ethnic: *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves within the currently defined site areas. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.L	*Borden No.*	**DlPr-66**	*7.L1*	*New/Revisited:*	New
7.L2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithic		
7.L3	*Impact Assessment:*		The site is within a buffer zone and approximately 310 m south of the nearest proposed development footprint (*i.e.* Harmer Road); note the *originally proposed* mine plan involved the placement of ancillary infrastructure components in the locality of this site. As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.L4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.L5	*Significance Evaluation:*		**Scientific:** *Low* The site is on small bench amongst gentle slope that descends southward (towards DlPr-65) from a relatively prominent knoll (site DlPr-43) located to the north of Grave Creek. The small-sized site is comprised of a buffer zone surrounding a single positive shovel test that contained a lithic artifact (*i.e.* utilized flake of siliceous mudstone) recovered at 5-10 cm below surface; the raw lithic material can be procured locally. Although the limited artifact assemblage constrains interpretation of the site, attributes are suggestive of ancillary activity that was associated with larger-sized campsites (*e.g.* DlPr-43 and DlPr-75) that are within portions of the cultural landscape that have few microtopographic constraints. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public:** *Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained. Although the absence of exposed artifacts and features would hinder public interpretation of this site, the southward viewshed present in the locality of the site would facilitate a discussion pertaining to geomorphological considerations within the relatively expansive cultural landscape that encompasses Grave Prairie. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways.		

		Economic: *Low* Economic opportunities are unlikely to present themselves within the currently defined site areas. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.M	*Borden No.*	**DlPr-67**	*7.M1*	*New/Revisited:*	New
7.M2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithic		
7.M3	*Impact Assessment:*		The site is within a buffer zone and approximately 75 m north of the nearest proposed development footprint (*i.e.* Harmer Road). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.M4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.M5	*Significance Evaluation:*		**Scientific:** *Low* The site is along a poorly defined margin within the kettled and hummocky landscape that is to the north of Grave Creek, west of Grave Lake, and east of the Elk River. The small-sized site is comprised of a buffer zone surrounding a single positive shovel test that contained a lithic artifact (*i.e.* flake of Top of the World chert) recovered at 15-20 cm below surface; the raw lithic material can be procured regionally. Although the limited artifact assemblage constrains interpretation of the site, attributes are suggestive of ancillary activity that was associated with larger-sized campsites (*e.g.* DlPr-43 and DlPr-75) that are within portions of the cultural landscape that have few microtopographic constraints. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public:** *Low* Currently, access into the locality of the site is open to public visitation, but should the Transportation Corridor be implemented, public access could be constrained. The absence of exposed artifacts and features would hinder public interpretation of this site, and the viewshed present in the locality of the site would not contribute substantially to discussing the cultural landscape that encompasses Grave Prairie. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves within the currently defined site areas. **Historical** – *N/A* A historical component associated with this site has not been identified		

7.N	*Borden No.*	**DlPr-68**	*7.N1*	*New/Revisited:*	New
7.N2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.N3	*Impact Assessment:*		As currently defined, the site is within 50 m of Harmer Road FSR, and will likely be negatively impacted, in part or in its entirety, should the mine plan be implemented. If the entirety of the site is impacted by development, DlPr-68 would be assigned *Legacy Status*.		
7.N4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan; 2) Should implementation of the proposed Transportation Corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).		
7.N5	*Significance Evaluation:*		**Scientific:** *Moderate - High* The site occupies a small bench-like area to the south of a westward descending ephemeral drainage and within the kettled and hummocky landscape that is to the north of Grave Creek, west of Grave Lake, and east of the Elk River. The site encompasses the locality where shovel testing (n=4) rendered positive results for subsurface lithic artifacts, all recovered between 5 cm and 25 cm below surface and associated with the B-horizon of a Brunisol. Attributes of the site are suggestive of a small campsite that likely involved ancillary activity for larger-sized sites to the south (*i.e.* DlPr-75) and east (*e.g.* DlPr-42 and DlPr-46) The site assemblage is currently comprised of six lithic artifacts, three of which are classified as tools. The raw lithic materials predominately include siliceous mudstone (locally procured) and one specimen of Top of the World chert (regionally procured). Within the tool classification, a Middle Period projectile point (±8000 – 1500/2000 years ago) was recovered in at 10-20 cm below surface while excavating ST 3; the notching along with the metrics of this artifact (*e.g.* neck width) resembles the projectile point style that has been assigned to the Bracken Phase (2800-2100 years before present [Peck 2011]) of Pelican Lake Complex, which is defined at 3600 to 2800 years before present (*ibid.*) and 3600-2100 years before present (Bubel *et al.* 2012). Another artifact recovered from the site (ST 4) is a bifacially worked piece of Top of the World Chert that is suggestive of a tip of a projectile point. The remaining tool is a piece of utilized shatter (siliceous mudstone). Although the site area is relatively small, the artifact assemblage contains a diagnostic projectile point, and therefore, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality in the Middle Period, and contributes to the understanding of the precontact history in the Kootenay region. **Public***: Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, the site may be irreversibly impacted (*i.e.* assigned *Legacy Status*) or public access could be prohibited to address safety considerations. Although the location of the site would contribute to a discussion pertaining to the cultural landscape that encompasses Grave Prairie, the absence of exposed artifacts and features within a relatively dense forest stand would not further public interpretation of this site.		

		Ethnic: *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.O	*Borden No.*	**DlPr-69**	*7.O1*	*New/Revisited:*	New
7.O2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.O3	*Impact Assessment:*		The site is within a buffer zone and approximately 60 m south from the nearest proposed development footprint (*i.e.* Harmer Road). As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.O4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.O5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* The site is along a poorly defined north-south trending margin within the kettled and hummocky landscape that is to the north of Grave Creek, west of Grave Lake, and east of the Elk River. The small-sized site is comprised of a buffer zone surrounding two positive shovel tests that contained lithic artifacts (*i.e.* flake fragment of High Rock Range chert and a utilized flake of siliceous mudstone) recovered at 5-20 cm below surface and associated with the B-horizon of a Brunisol; both raw material types can be procured locally. Although the limited artifact assemblage constrains interpretation of the site, attributes are suggestive of ancillary activity that was associated with a larger-sized campsite (*e.g.* DlPr-75) that is to the southeast and within a portion of the cultural landscape that has few microtopographic constraints. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public*:*** *Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, the site may be irreversibly impacted (*i.e.* assigned *Legacy Status*) or public access could be prohibited to address safety considerations. Although the location of the site would contribute to a discussion pertaining to the cultural landscape that encompasses Grave Prairie, the absence of exposed artifacts and features within a relatively dense forest stand would not further public interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways.		

		Economic: *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.P	*Borden No.*	**DlPr-75**	*7.P1*	*New/Revisited:*	New
7.P2	*Site Type:*		Precontact, Cultural Material, Surface/Subsurface Lithics, Faunal Remains and FAR		
7.P3	*Impact Assessment:*		Although the relatively large-sized site well over 250 m south Harmer Road, sight lines will be required to facilitate requirements for the railway crossing of the RLO component of Phase I; this will require the removal of the tree stand and potentially involve ground alterations (*i.e.* sediment removal) within the western portion of site Polygon A.		
7.P4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should implementation of the proposed transportation corridor and RLO (Phase I) occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section		
7.P5	*Significance Evaluation:*		**Scientific:** *High* The large-sized site, as it is currently defined, predominately occupies the tread, margin, and segments of the scarp along a prominent east-west trending terrace level along the northern side of Grave Creek as it approaches its confluence with the Elk River. Additionally, four bench-like areas downslope of the terrace margin are included within the site area and are suggestive of ancillary activity. The site is interpreted as a campsite that was utilized extensively during the Middle Period, and resulted in the sporadic deposition of lithic artifacts, faunal remains, and some FAR. Additionally, a workshop component is present and is associated with placer quarrying that is suspected to have occurred to procure nodules of siliceous mudstone and High Rock Range chert from the till that underlies a mantle of glacio-lacustrine silt. The artifact assemblage predominately contains locally-procured raw lithic material types (*i.e.* High Rock Range chert, Etherington chert, quartzite, and siliceous mudstone). Regionally-procured tool stock (*i.e.* Top of the World chert, and tourmalinite and tourmaline chert) indicates a northeastern travel direction (or trade) from the Rocky Mountain Trench and the Purcell mountains. Diagnostic artifacts (*e.g.* projectile points) were not recovered under permit 2015-0098, but the metrics of a preform (catalogue #225) is suggestive of a Middle Period occupation. A rather unique artifact was a utilized slab of sandstone (catalogue #90), which is interpreted as a base for a hopper mortar. The site is interpreted as being a substantial campsite within an extensive cultural landscape that spans from Grave Lake (to the east-northeast) and the Elk River (to the west). This site likely has a spatial and temporal connection with sites DlPr-42 and DlPr-46 (summarized above). This locality, if subjected to systematic archaeological investigation, has great potential for furthering the understanding of precontact occupation throughout the Middle Period within the Kootenay Region. **Public:** *High*		

		Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained. The combination of the potential for exposed artifacts (eroding along scarp of terrace), the well-defined microtopographic features, the southward viewshed of Grave Prairie, and with interpretative value of lithic material procurement within this locality make it an ideal site to bring interested members of the public to discuss the cultural landscape. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.Q	*Borden No.*	**DlPr-76**	*7.Q1*	*New/Revisited:*	New
7.Q2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.Q3	*Impact Assessment:*		The site is within a buffer zone and approximately 110 m south of the nearest proposed development footprint (*i.e.* Harmer Road); note the *originally proposed* mine plan involved the placement of ancillary infrastructure components in the locality of this site. As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.Q4	*Management Recommendations:*		3) Site avoidance during implementation of the mine plan; 4) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.Q5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* The site is located on the crest of a gently rounded, north-south trending ridge that descends southward (towards DlPr-77) and a prominent northeast-southwest trending terrace margin that defines the northern side of the outlet drainage of Grave Lake just upstream of the confluence with Grave Creek. The site's proximity to DlPr-43 is suggestive of ancillary activity for larger-sized sites (*e.g.* DlPr-75 [to the west] and DlPr-46 [to the east]). The small-sized site area is defined by a sparse subsurface artifact scatter that is comprised of two lithic artifacts, both of siliceous mudstone (locally procured) that were recovered at 5-20 cm below surface, within the B-horizon of a Podzol. While one artifact is a tertiary flake, the other is a utilized decortication flake that supports the concept of local procurement and expedient tool production and use. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public***: Low*		

		Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained. Although the location of the site would contribute to a discussion pertaining to the cultural landscape that encompasses Grave Prairie, the absence of exposed artifacts and features within a relatively dense forest stand would not further public interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.R	*Borden No.*	**DlPr-77**	*7.R1*	*New/Revisited:*	New
7.R2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.R3	*Impact Assessment:*		The site is within a buffer zone and approximately 185 m south of the nearest proposed development footprint (*i.e.* Harmer Road); note the *originally proposed* mine plan involved the placement of ancillary infrastructure components in the locality of this site. As currently defined, impacts to the newly discovered/recorded site are not anticipated.		
7.R4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance of this site is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.R5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* The site is on a well-defined bench-like area at the base of a north-south trending ridge, and along a prominent northeast-southwest trending terrace margins that defines the northern side of the outlet drainage of Grave Lake, just upstream of the confluence with Grave Creek. The site's proximity to DlPr-43 is suggestive of ancillary activity for larger-sized sites (*e.g.* DlPr-75 [to the west] and DlPr-46 [to the east]). The small-sized site area is defined by a sparse subsurface artifact scatter that is comprised of three lithic artifacts, all of siliceous mudstone (locally procured) that were recovered at 5-20 cm below surface, within the B-horizon of a Podzol. While one artifact is a secondary decortication flake, the other two are retouched flakes, which supports the concept of expedient tool production and use. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public***: Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, public access could be constrained. Although the location of the site would contribute to a		

		discussion pertaining to the cultural landscape that encompasses Grave Prairie, the absence of exposed artifacts and features within a relatively dense forest stand would not further public interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.S	*Borden No.*	**DlPr-78**	*7.S1*	*New/Revisited:*	New
7.S2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.S3	*Impact Assessment:*		As currently defined, the site is within 20 m of Harmer Road FSR, and will likely be negatively impacted, in part or in its entirety, should the mine plan be implemented. If the entirety of the site is impacted by development, DlPr-78 would be assigned *Legacy Status*.		
7.S4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan; 2) Should implementation of the proposed Transportation Corridor occur, and the extent of negative impacts are defined, further archaeological investigation in the form of systematic data recovery would be required under a Heritage Inspection Permit (*HCA* Section 12.2), along with monitoring under a concurrently-issued Site Alteration Permit (*HCA* Section 12.4).		
7.S5	*Significance Evaluation:*		**Scientific:** *Low* The site is on near-level to gently sloped ground within the kettled and hummocky landscape that is to the north of Grave Creek, west of Grave Lake, and east of the Elk River. The small-sized site is comprised of a buffer zone surrounding a single positive shovel test that contained a utilized flake of siliceous mudstone at 5-10 cm below surface; the raw lithic material can be procured regionally. Although the limited artifact assemblage constrains interpretation of the site, attributes are suggestive of ancillary activity that was associated with larger-sized campsites (***e.g.*** DlPr-46) that is within a portion of the cultural landscape that has fewer microtopographic constraints. Although the site area is relatively small and the artifact assemblage is minimal, the site contributes to the understanding of the extensive utilization of the Grave Creek/Prairie locality and contributes to the understanding of the precontact history in the Kootenay region. **Public*:*** *Low* Currently, access into the locality of the site is open to public visitation but should the Transportation Corridor be implemented, the site may be irreversibly impacted (*i.e.* assigned *Legacy Status*) or public access could be prohibited to address safety considerations. Although the location of the site would contribute to a discussion pertaining to the cultural landscape that encompasses Grave Prairie, the absence of exposed artifacts and features		

		within a relatively dense forest stand would not further public interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nations have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on anticipated disturbance through the implementation of the Project. **Historical** – *N/A* 3) A historical component associated with this site has not been identified.

8. DISCLOSURE STATEMENT & SIGNATURE

As a result of the archaeological inspection on the evolving Phase II (Transportation Corridor) development footprint under permit 2015-0098, four archaeological sites were updated (DlPq-8, DlPr-42, DlPr-43, and DlPr-46 [now including site DlPr-45 as a subordinate site polygon]) and 15 precontact archaeological sites were discovered and recorded (DkPr-19, DkPr-20, DlPq-10, DlPq-11, DlPq-12, DlPq-13, DlPr-65, DlPr-66, DlPr-67, DlPr-68, DlPr-69, DlPr-75, DlPr-76, DlPr-77, and DlPr-78).

As currently defined, negative impacts are anticipated to the entiry of sites **DlPq-10, DlPr-68,** and **DlPr-78**, and portions of sites **DlPq-13, DlPr-42, DlPr-43**, **DlPr-46,** and **DlPr-75** could be adversely impacted during implementation of the mine. Therefore prior to the onset of any ground disturbing activity, further archaeological investigation in the form of systematic data recovery (e.g. evaluative excavation) could be required under an HCA Section 12.2 Permit (Heritage Inspection) in addition to archaeological monitoring and salvage screening under a concurrent HCA Section 12.4 Permit (Site Alteration). Additionally, the locality that contains suspected human remains within site DlPr-42 should be subjected to a supplemental surficial survey to confirm the location to confirm the distance from the proposed development footprint and ensure avoidance strategies are implemented.

Archaeological sites DkPr-19, DkPr-20, DlPq-8, DlPq-11, DlPq-12, DlPr-65, DlPr-66, DlPr-67, DlPr-69, DlPr-76, and DlPr-77, are not within the currently proposed Phase II development footprint, and therefore, direct impacts to the localities that contain the archaeological sites, or the potential for, are not currently anticipated. Although impacts to pertinent precontact archaeological sites have been provided in Section 7 (above), any revision(s) to the currently proposed mine plan could shift development footprints and result in direct or indirect impacts to the archaeological resources identified within this report. Therefore, the Proponent is to be aware of the location of archaeological sites and zones of HAP should ground disturbance be required in these areas in the future.

The archaeological assessment, involving a combination of systematic and judgmentally-implemented surface and subsurface inspection techniques, completed on the Phase II development footprint should be considered provisional, and a increased potential for isolated precontact cultural material (e.g. artifacts) or remnants of features (e.g. a hearth or petroform) remains within the locality encompassing Grave Lake, Grave Prairie, and the lower portion of the Grave Creek drainage. Precontact archaeological material associated with sporadic deposition (e.g. hunting activity, trail litter or ad hoc activity) may not be associated with microtopographic features that are typically identified as archaeologically-salient and therefore remain un-inspected under permit 2015-0098. Additionally, precontact cultural resources, or the potential for, can be obscured by contemporary vegetation stands and/or consealed by overburden deposits that were derived by both anthropogenic activity and natural processes. It is therefore recommended, that the Proponent inform all staff and contractors that archaeological remains in the Province of British Columbia are protected from disturbance, both intentional and inadvertent, by the Heritage Conservation Act (RSBC 1996, Chapter 187). In the event that archaeological materials are encountered or suspected the Proponent, employees and contractores are to be aware that:

- All ground disturbance in the immediate vicinity of the suspected find(s) must be suspended at once;
- The Archaeology Branch (Ministry of Forest, Lands, Natural Resource Operations, and Rural Development) be informed, as soon as possible, of the location of the archaeological remains and the nature of the disturbance; and

- Any relevant First Nation communities be promptly informed about particulars of the unanticipated discoveries.

Acceptance of this interim report by the Archaeological Branch, Permitting and Assessment Section acknowledges the partial fulfillment of the terms and conditions of BC Heritage Inspection Permit 2015-0098. Such acceptance does not bring with it an obligation by the BC Archaeology Branch to accept report recommendations as they relate to impact assessments or impact management requirements.

<Original signed by>	<Original signed by>	<Original signed by>
Ian Tamasi, *RPCA* Senior Archaeologist Pathways Archaeological Consulting	Nyomi Sherwin, BA Archaeologist Pathways Archaeological Consulting	Daniel Heinrichs, BA Archaeologist Pathways Archaeological Consulting

9. REFERENCES CITED

BC Law

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10. REPORT DISTRIBUTION

Contact	*Affiliation*
Dave Baines	NWP Coal Canada
Eric Forgeng	Archaeology Branch
Jesse Thomas	Ktunaxa Nation Council (*via* the Proponent)
Dwayne Spence	Shuswap Indian Band (*via* the Proponent)

11. SHAPE FILES

☒ Study area shape files will be sent to archpermitspatial@gov.bc.ca

12. APPENDICES

Required:

☒ General Area Map – *Appendix A*
☒ Study Area Map – *Appendix A*
☒ Photo Plate(s) – *Appendix B*

If Applicable:

☒ Detailed Development Map – *Appendix A*
☒ Subsurface Test Log – *Appendix D*
☒ Site Forms, Site Maps and Related Documents - *Appendix C*

Appendix A:
Archaeological Inspection
&
Development Mapping

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coal Project
Phase II – Transportation Corridor

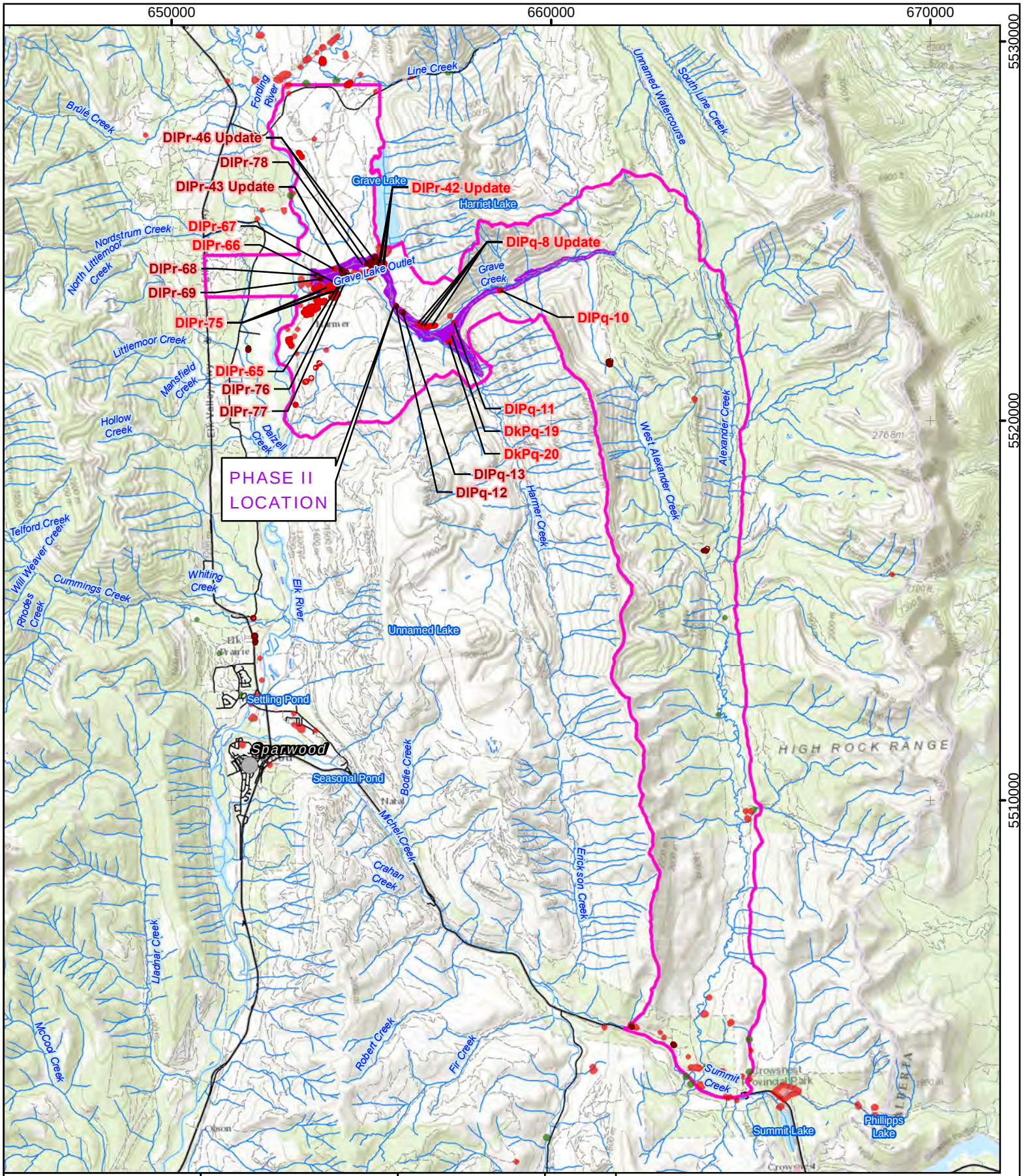


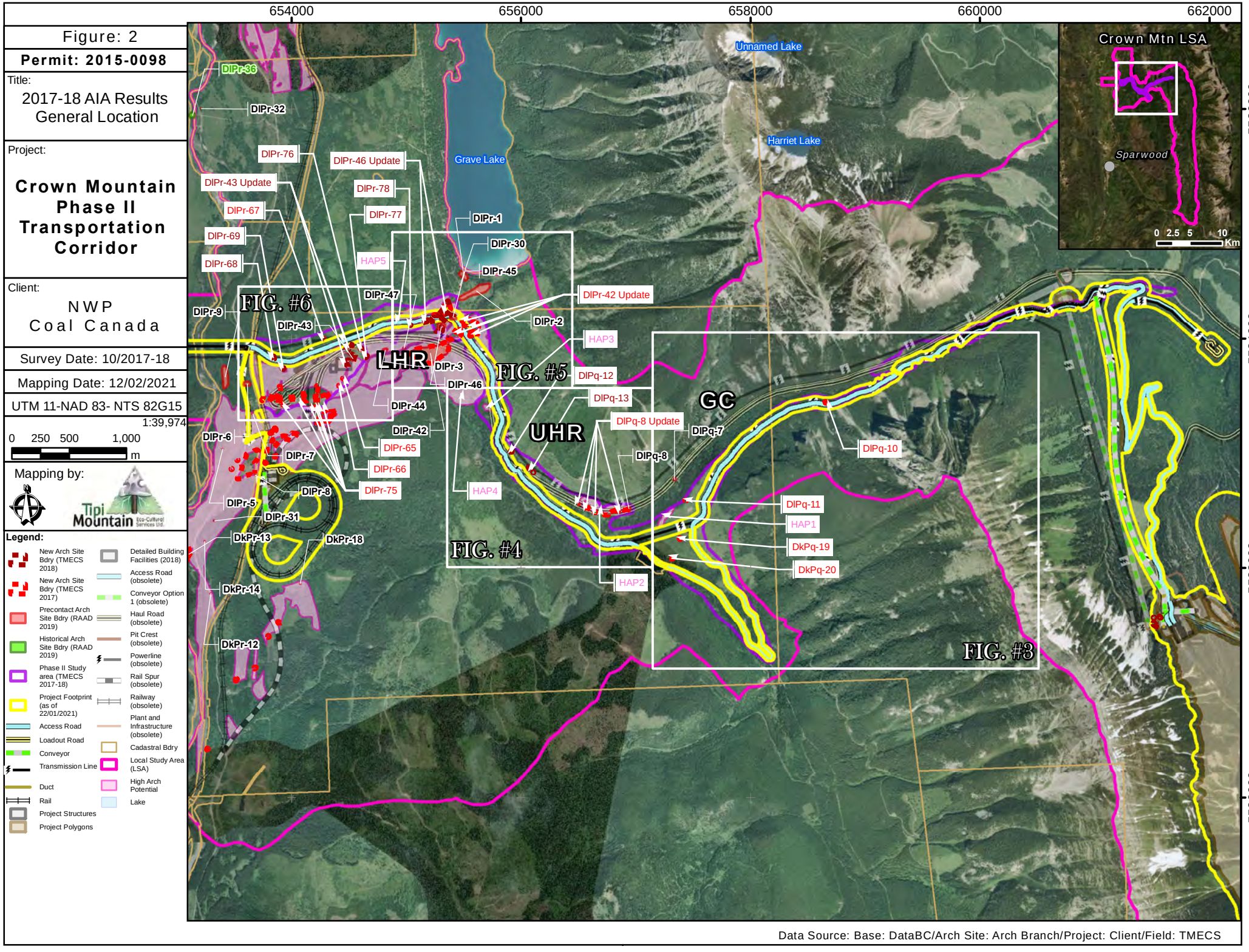
Figure: 1	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098			
Title: 2017-18 AIA Results Overview	Survey Date: Summer 2017-18		
	Mapping Date: 07/01/2021		
Project: Crown Mountain Phase II Transportation Corridor	1:130,000 0 1 2 4 Km	INSET 1:40,000,000	

Legend:

- Local Study Area (LSA)
- Study area (TMECS 2017-18)
- New Precontact Arch Site Bdry (TMECS 2018)
- New Precontact Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Historical Arch Site Bdry (RAAD 2019)
- Legacy Arch Site Bdry (RAAD 2019)
- Municipality
- Primary Road
- Gravel Road
- River
- Lake
- Water Feature

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Figure: 3

Permit: 2015-0098

Title:

2017-18 AIA Results
Phase II - Midrange 1

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 10/2017-18

Mapping Date: 12/02/2021

UTM 11-NAD 83- NTS 82G15

1:15,000

0 100 200 400 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- Shovel Test Location
- Traverse
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Phase II Study area (TMECS 2017-18)
- Project Footprint (as of 22/01/2021)
- Access Road
- Transmission Line
- Haul Road (obsolete)
- Powerline (obsolete)
- Cadastral Bdry
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Water Feature
- Contour Line (20 m)
- Contour Line (100 m)

657000 658000 659000 660000

5524000 5523000 5522000

STL-GC2 Terrace ST x 8

STL GC4 Terrace/Bench ST x 13

STL GC5 Bench ST x 6

STL GC7 Bench ST x 36

STL GC8 Bench ST x 7

C20-14A

Grave Creek FSR

DlPq-10

STL1 GC3 DlPq-10 Terrace ST x 29

STL GC6 Slope Break ST x 7

STL-GC1 Terrace ST x 8

STL GC10 Spur ST x 6 TT x 4

C20-01

STL GC9 Terrace ST x 11

C38-22

DlPq-7

CM-13

STL GC11a-c DlPq-11 Spur ST x 27

DlPq-8

Grave Creek

DlPq-11

UHR

C38-20

GC

HAP1

STL GC12 Slope Break ST x 11

STL GC13 DkPq-19 Terrace ST x 21

DkPq-19

DkPq-20

STL GC14a-c Terrace ST x 29

STL GC15 Bench ST x 6

STL GC18a-g Bench ST x 86 TT x 5

C38-21

Harmer Creek

Harmer FSR

Unnamed Rd

STL GC16 Terrace ST x 10

STL GC17 DkPq-20 Terrace Margin ST x 17

Unnamed Watercourse

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Figure: 4

Permit: 2015-0098

Title:

2017-18 AIA Results
Phase II - Midrange 2

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 10/2017-18

Mapping Date: 12/02/2021

UTM 11-NAD 83- NTS 82G15

1:8,000

0 50 100 200 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- Shovel Test Location
- Traverse
- New Arch Site Bdry (TMECS 2018)
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Phase II Study area (TMECS 2017-18)
- Project Footprint (as of 22/01/2021)
- Access Road
- Transmission Line
- Haul Road (obsolete)
- Powerline (obsolete)
- Cadastral Bdry
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Water Feature
- Contour Line (20 m)
- Contour Line (100 m)

655500 656000 656500 657000

5523500 5523000 5522500

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

C38-44 C38-19 C38-22 C38-16 C38-20 C38-18 C38-17 C20-01 CM-13 C38-21

HAP4 HAP3 HAP2

Unnamed Rd

STL UHR15a-b Ridge ST x 19

STL UHR14a-c Ridge ST x 36

STL UHR13 Slope Break ST x 10

STL UHR12 Slope Break ST x 11

STL UHR11 Slope Break ST x 9

STL UHR10 DlPq-12 & 13 Terrace ST x 121 EU x 1 TT x 5

DlPq-12 DlPq-13

STL UHR8a-b Slope Break ST x 6

STL UHR2a-c DlPq-8 Update Terrace ST x 73 TT x 1

STL UHR7 Bench ST x 6

STL UHR9 Bench ST x 4

DlPq-8D DlPq-8C DlPq-8B DlPq-8A DlPq-8

UHR

STL UHR6 Bench ST x 6

STL UHR5 Bench ST x 8

STL UHR4 Bench ST x 15

STL UHR3 Terrace ST x 25

STL UHR1 Bench ST x 8

GC

Grave Creek

Unnamed Watercourse

Harmer Creek

Harmer FSR

STL GC19b Bench ST x 7

STL GC19a Bench ST x 9

STL GC18a-g Bench ST x 86 TT x 5

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Figure: 5

Permit: 2015-0098

Title:

2017-18 AIA Results
Phase II - Midrange 3

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 10/2017-18

Mapping Date: 12/02/2021

UTM 11-NAD 83- NTS 82G15

1:7,000

0 50 100 200 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- Shovel Test Location
- Traverse
- New Arch Site Bdry (TMECS 2018)
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Phase II Study area (TMECS 2017-18)
- Project Footprint (as of 22/01/2021)
- Access Road
- Transmission Line
- Haul Road (obsolete)
- Powerline (obsolete)
- Cadastral Bdry
- Local Study Area (LSA)
- Cadastral Bdry
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Lake
- Water Feature
- Contour Line (20 m)
- Contour Line (100 m)

655000 655500 656000

5524500 5524000

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

Grave Lake

Unnamed Rd

Unnamed Watercourse

Grave Lake Outlet

Grave Creek

Hamer FSR

C38-13 C38-44 C38-19 C38-15

DlPr-1 DlPr-2 DlPr-30 DlPr-45 DlPr-46 DlPr-78 DlPr-42 DlPr-47

HAP5 HAP4

LHR UHR

STL LHR1
DlPr-46 Update & DlPr-78
Low Sloped to
Near Level Terrain
ST x 188

STL UHR21
DlPr-42 Update
Terrace
ST x 110
TT x 2

STL-UHR19
Slope Break
ST x 10

STL-UHR18
Ridge
ST x 60

STL UHR20
Slope Break
ST x 8

STL UHR17
Ridge/Knoll
ST x 18

STL UHR16
Ridge
ST x 25

1300 1260 1280 1400 1360 1320

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Figure: 6

Permit: 2015-0098

Title:

2017-18 AIA Results
Phase II - Midrange 4

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 10/2017-18

Mapping Date: 12/02/2021

UTM 11-NAD 83- NTS 82G15

1:6,000

0 50 100 200 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- Shovel Test Location
- Traverse
- New Arch Site Bdry (TMECS 2018)
- Inferred New Arch Site Bdry (TMECS 2017)
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Historical Arch Site Bdry (RAAD 2019)
- Legacy Arch Site Bdry (RAAD 2019)
- Project Footprint (as of 22/01/2021)
- Access Road
- Loadout Road
- Conveyor
- Transmission Line
- Channel
- Duct
- Rail
- Project Structures
- Project Polygons
- Access Road (obsolete)
- Conveyor Option 1 (obsolete)
- Haul Road (obsolete)
- Pit Crest (obsolete)
- Powerline (obsolete)
- Rail Spur (obsolete)
- Railway (obsolete)
- Plant and Infrastructure (obsolete)
- Detailed Building Facilities (2018)
- Cadastral Bdry
- Phase II Study area (TMECS 2017-18)
- Municipality
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Contour Line (20 m)
- Contour Line (100 m)

654000 654500

5524000 5523500

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

STL LHR4a-d
Terrace
DlPr-43 Update,
DlPr-65 & 66
ST x 193
TT x 1
Rodent Mound x 3

STL LHR9
DlPr-69
Ridge
ST x 36
TT x 1

STL LHR11
DlPr-68
Knoll/Rise
ST x 43

STL LHR10
Knoll/Ridge
ST x 27

STL LHR6
Terrace
ST x 36
TT x 5

STL LHR5a-b
Terrace
DlPr-67
ST x 34

STL LHR7
Ridge/Knoll
ST x 21

STL LHR8
Low Slope
ST x 29

STL LHR12
Bench
ST x 12

STL LHR2a-b
Bench
ST x 32

STL LHR14
Slope Break Bench
ST x 16

STL LHR13
Slope Break
ST x 24
TT x 3

STL LHR3
DlPr-76 & 77
Bench
ST x 57
TT x 1

STL15a
DlPr-75
Terrace
ST x 159

STL15b
DlPr-75
Terrace
ST x 18

STL15c
DlPr-75
Terrace
ST x 33

C38-12 C38-13 C38-14 C38-15 C38-16 C38-44

DlPr-67 DlPr-68 DlPr-69 DlPr-6 DlPr-7 DlPr-75 DlPr-76 DlPr-77 DlPr-43 DlPr-3 DlPr-44 DlPr-65 DlPr-66 DlPr-82

HAP5 HAP4

Power Transformer Station Fence is 3m

Harmer FSR

Unnamed Rd

Grave Lake Outlet

Grave Creek

Clearing Clearing

1200 1220 1240 1260 1280

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Appendix B:
Project Photographs

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coal Project
Phase II – Transportation Corridor

Photo 1. Overview of the regional landscape with attributes that are referenced within the report. (imagery obtained from Google Earth)

Photo 2. Supplemental overview of the regional landscape with attributes that are referenced within the report. (imagery obtained from Google Earth)

Photo 3. STL GC1 (AOA polygon C20-14a), overview of shovel testing on the tread of a narrow, historically-disturbed terrace to the north of Grave Creek. (view: southwest)

Photo 4. STL GC5 (judgemental STL), overview of shovel testing on a small bench that is on a lower-sloped area of an alluvial fan that was previously impacted by the construction of Grave Creek FSR. (view: north--northwest)

Photo 5. STL GC7 (AOA polygon CM-13), overview of an elevated bench with an east-west trending margin and northern aspect above Grave Creek. (view: northeast)

Photo 6. STL GC10 (AOA polygon CM-13), overview of shovel testing a prominent spur, protruding northward from a northeast-southwest trending terrace. (view: northeast)

Photo 7. STL GC12 (AOA polygon C38-21), representative overview of shovel testing on two relatively-small slope-breaks situated amongst gentle slope descending southward towards Harmer Creek. (view: south-southeast)

Photo 8. STL GC15 (AOA polygon C38-21), overview of a small level bench within a previously logged cut block that now contains a secondary tree stand. Shovel testing was judgementally implemented to adequately cover the landform. (view: west-northwest)

Photo 9. STL GC18a (AOA polygon C38-20), overview of a triangular-shaped slope break upslope to the east of the confluence area of Grave Creek and Harmer Creek. (view: northwest)

Photo 10. STL UHR3 (AOA polygon C38-20), representative overview of a low to mid-level terrace with a northwest-southeast trending margin. (view: southeast)

Photo 11. STL UHR4 (AOA polygon C38-20), overview of a mid-level bench with a northeast-southwest trending margin. (view: east-southeast)

Photo 12. STL UHR8b (AOA polygon C38-20), overview of shovel testing being completed on a slope-break that contains a southwestern solar aspect. (view: west-southwest)

Photo 13. STL UHR13 (AOA polygon C38-19), overview of a break in slope (3-8º) that has been truncated by Harmer Road. (view: east)

Photo 14. STL UHR14 (AOA polygon C38-19), representative overview of the landscape and a gently slope ridge that has been bisected by Harmer Road. Note that STL UHR14b is along the right (eastern) side of the road and UHR14c is along the left (western) side of the road. (view: north-northwest)

Photo 15. STL UHR16 (AOA polygon C38-19), overview of a north-south trending ridge with a gently rounded crest. (view: west)

Photo 16. STL UHR18 (AOA polygon C38-19), representative overview of a northeast-southwest trending ridge that is located to the south (upslope) of site DlPr-42 (Polygons C & D) and offers a view of Grave Lake to the north. (view: northeast)

Photo 17. STL LHR2a (AOA polygon C38-44), overview of a slope-break bench amongst undulating slope descending southward. Note that STL LHR2b is along the southern side of Harmer Road. (view: northeast)

Photo 18. STL LHR6 (AOA polygon C38-12), overview of a north-south trending margin of a glacio-lacustrine terrace with western solar aspect. Note that the southern portion of this landform was not subject to subsurface inspection, and is encompassed by a large zone of HAP. (view: east)

Photo 19. STL LHR8 (AOA polygon C38-12), relatively low-sloped terrain amongst undulating slope located along the southern side of Harmer FSR. (view: southwest)

Photo 20. STL LHR14 (AOA polygon C38-12), representative overview of a break in slope that appears as a bench due to previous ground disturbance associated with the construction of the adjacently located CPR tracks (Fording River Branch Line). (view: east)

Appendix C:
Archaeological Site Information

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coal Project
Phase II – Transportation Corridor

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPq-17-T01**
Borden Number: **DkPq-19**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **657386** Northing: **5522257**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Located in southeast British Columbia, approximaltey 12.5 km northeast of the District of Sparwood, 2.8 km southeast of Grave Lake and 850 m northeast of the confluence of Grave Creek and Harmer Creek.**

Access Description: **From the District of Sparwood head northwest on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km, turn south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn east-northeast onto Grave Creek FSR and travel for 1.8 km then park where safe and continue west of the road on foot for 100 m to the site.**

Parcel Identifier (PID or PIN): **019075316**

Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase II - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/17**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 17, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)** **Joshua Martin (TMECS & Shusawp Indian Band)**	**Y**
Other	**Jesse Thomas (TMECS)** **Jason Feltham (TMECS)** **John Nicholas (Ktunaxa Nation Council)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithcs: three chert flakes and one piece of retouched chert shatter were collected from STs 1 & 2. See attached artifact catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **15 m** Direction **NW-SE**
Width: **10 m** Direction **NE-SW**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are deliniated by a 5 m radius from positve shovel tests to the northwest, northeast, and southeast. The southwest site boundary is defined by the terrace margin.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.3 m**

Stratigraphy Description: **Podzolic soil development over hard-packed grey-brown silt with angular and sub-angular cobbles (see attached stratigraphy log).**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Eight shovel tests measuring 35 cm x 35 cm were excavated to a maximum depth of 40 cm below surface within the site boundary.**
Past	**Logging**	**The site is located within and adjacent to an old cut-block; the southeastern portion of the landform is within a Wildlife Tree Patch (WTP) and the northwestern portion is within the old cut-block.**

14. ENVIRONMENT

Lower Elevation **1420 m** (asl) Upper Elevation **1422 m** (asl)
Elevation Comments: **Elevation data gathered using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Harmer Creek located approximately 335 m southwest**
Terrain/Landform: **Southeast - northwest trending terrace with a gently undulating tread.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. 13 additional shovel tests were excavated on the landform to determine site boundaries.

Figure: 7	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		**Legend:**
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	New Precontact Arch Site Bdry (TMECS 2017); Centroid; Study area (TMECS 2017-18); Nearest Watercourse; Gravel Road; Terrace Margin; Slope; Contour Line (20 m); Local Study Area (LSA); Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Photo Indicator
Title: DkPq-19 Site Map	Survey Date: 07/10/2019			
	Mapping Date: 14/04/2020			
Project: Crown Mountain Phase II Transportation Corridor	1:1,000 0 5 10 20 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Temp. Borden Number: DkPq-17-T01
Borden Number: DkPq-19
HCA Permit Number: 2015-0098
Date of Assessment: October 17, 2017

Photo 1. Shovel testing along the terrace margin of a northwest-southeast trending terrace. (view: southeast)

Photo 2. The site is located just inside a previously delineated Wildlife Tree Patch (WTP), a portion of the northwestern boundary extends into a previously logged cut-block. (view: northwest)

Photo 3. ST2, stratigraphic profile (representative of ST1).

Photo 4. Artifact #4, retouched piece of High Rock Range chert shatter recovered from ST2 at 20-30 cm dbs.

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-8 cm	Litter mat (LM)/Organic matter (OM)
	II	8-9 cm	Light grey silt (Ae Horizon)
	III	9-32 cm	Yellow-brown silt with 3-5% sub-round to sub-angular gravels and pebbles & sub-round to sub-angular cobbles and small boulders
	IV	32+ cm	Compact grey-brown silt with 20% sub-round to sub-angular gravels and cobbles
	Comments: two chert flake fragments recovered from 5-15 cm depth below surface (dbs)		
2	I	0-10 cm	Litter mat (LM)/Organic matter (OM)
	II	10-11 cm	Light grey silt (Ae Horizon)
	III	11-35 cm	Yellow-brown silt with 3-5% sub-round to sub-angular gravels and pebbles & sub-round to sub-angular cobbles and small boulders
	IV	35-38 cm	Compact grey-brown silt with 20% sub-round to sub-angular gravels and cobbles
	Comments: one tourmaline chert tertiary flake and one retouched piece of chert shatter recovered from 20-30 cm dbs		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST1	5-15	Flake: Tertiary (fragment)	chert: Tourmaline	Opaque, vitreous black with some very faint brown banding	sg: (2)	-	-	-	Lateral portion of small flake that contains remnant portion of a medium to high angle planar striking platform, minimal dorsal scarring, possible use wear along upper later edge, but very thin/brittle edge and likely natural breakage	17-Oct-17	15-May-19	DH	N
2	1	ST1	5-15	Flake: Fragment	chert: High Rock Range	Opaque to slight translucent along edges, sub-vitreous brownish-grey with fairly regular darker grey banding	sg: (2)	-	-	-	No platform, possible use wear along a lateral edge, but very thin/brittle and likely natural breakage, calcium carbonate adhering to dorsal side (minimal flake scars)	17-Oct-17	15-May-19	DH	N
3	1	ST2	20-30	Flake: Tertiary	chert: tourmaline	Opaque, sub-vitreous khaki greenish-brown	sg: 2	-	-	-	Finishing flake, with a small, dihedral medium to low angle striking platform with lip, moderate to complex dorsal scarring, soil clinging to portions of dorsal side	17-Oct-17	15-May-19	IT	N
4	1	ST2	20-30	Tool: Retouched Shatter	chert: High Rock Range	Opaque, sub-vitreous to dull dark and bluish-grey	24	14	4.5		Tabular shatter fragment with one unifacially re-touched edge where the highest-quality (dark grey) chert is present at one point of the tabular, triangular-shaped fragment	17-Oct-17	15-May-19	IT	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPq-17-T02**
Borden Number: **DkPq-20**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **657309** Northing: **5522083**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Located in southeast British Columbia, approximaltey 12.2 km northeast of the District of Sparwood, 2.9 km southeast of Grave Lake and 750 m east of the confluence of Grave Creek and Harmer Creek.**

Access Description: **From the District of Sparwood head northwest on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km, turn south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn east-northeast onto Grave Creek FSR and travel for 1.8 km then park where safe and continue southwest of the road on foot for 270 m to the site.**

Parcel Identifier (PID or PIN): **8482400**

Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8422400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/17**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 17, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)** **Joshua Martin (TMECS & Shuswap Indian Band)**	**Y**
Other	**Jesse Thomas (TMECS)** **Jason Feltham (TMECS)** **John Nicholas (Ktunaxa Nation Council)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Faunal**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: two tools (quartzite hammerstone and a siliceous mudstone utilized flake) and a siliceous mudstone flake fragment recovered from ST1, ST2, & ST4.**	**Ktunaxa Nation Regional Repository**
Floral/Faunal Remai	**Collected**	**Two pieces of broken fauna (pieces refit) recovered from ST3.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **34 m** Direction **NE-SW**
Width: **10 m** Direction **NW-SE**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are deliniated by a 5 m radius from positve shovel tests to the north and west. The south site boundary is defined by the terrace margin and the eastern site boundary is defined by 10-15 degree sloping terrain.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.2 m**

Stratigraphy Description: **Podzolic soil development over hard-packed grey-brown silt with angular and sub-angular cobbles (see attached stratigraphy log).**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Nine shovel tests measuring 35 cm x 35 cm were excavated to a maximum depth of 40 cm below surface with the site boundary.**
Past	**Logging**	**Evidence of previous logging was observed (>30 years ago); slash and cut rotten stumps.**
Ongoing	**Erosion**	**Erosional action along the east side of the terrace margin.**

14. ENVIRONMENT

Lower Elevation **1392 m** (asl) Upper Elevation **1393 m** (asl)
Elevation Comments: **Elevation data gathered using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Harmer Creek located approximately 143 m southwest**
Terrain/Landform: **Prominent southeast-northwest trending terrace overlooking Harmer Creek. The well-defined margin continues a short distance to the north-northwest before turing into a slope break. To the southeast the terrace is bounded by 20 degree descending slope.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. 8 additional shovel tests were excavated on the landform to determine site boundaries.

Figure: 8

Permit: 2015-0098

Title:

DkPq-20
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 17/10/2017

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2017)
- Centroid
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- Gravel Road
- Terrace Margin
- Slope Break
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Nearest Watercourse
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Photo Indicator

657200 657300 657400

5522100 5522000

1400 1360 1380

DkPq-20
Easting: 657309
Northing: 5522083

20° 10°

C38-21

1 2 3 4 5

distance to Harmer Creek = 143 m

Harmer FSR

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DkPq-17-T02
Borden Number: DkPr-20
HCA Permit Number: 2015-0098
Date of Assessment: October 17, 2017

Photo 1. Northwestern corner of site, terrace margin continues. Eight more shovel tests were placed to the northwest but did not produce additional artifacts. (view: northwest)

Photo 2. ST2, stratigraphic profile (representative of ST1 and ST4).

Temp. Borden Number: DkPq-17-T02
Borden Number: DkPr-20
HCA Permit Number: 2015-0098
Date of Assessment: October 17, 2017

Photo 3. ST3, stratigraphic profile. ST3 differs from ST1-2 and 4 in the bottom 12 cm.

Photo 4. Artifact #1, quartzite hammerstone.

Photo 5. Artifact #2, siliceous mudstone utilized flake

Temp. Borden Number: DkPq-17-T02
Borden Number: DkPr-20
HCA Permit Number: 2015-0098
Date of Assessment: October 17, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-7 cm	Litter mat (LM)/Organic matter (OM)
	II	7-10 cm	Light grey silt (Ae Horizon)
	III	10-20 cm	Yellow-brown silt with 3-5% sub-round to sub-angular gravels and pebbles & sub-round to sub-angular cobbles and small boulders
	IV	20-31 cm	Compact grey-brown silt with 20% sub-round to sub-angular gravels and cobbles
	Comments: quartzite hammerstone recovered from 10-20 cm depth below surface (dbs)		
2	I	0-4 cm	Litter mat (LM)/Organic matter (OM)
	II	4-7 cm	Light grey silt (Ae Horizon)
	III	7-30 cm	Yellow-brown silt with 3-5% sub-round to sub-angular gravels and pebbles & sub-round to sub-angular cobbles and small boulders
	IV	30-31 cm	Compact grey-brown silt with 20% sub-round to sub-angular gravels and cobbles
	Comments: utilized siliceous mudstone flake recovered from 5-10 cm dbs		
3	I	0-4 cm	Litter mat (LM)/Organic matter (OM)
	II	4-5 cm	Light grey silt (Ae Horizon)
	III	5-14 cm	Yellow-brown silt with 3-5% sub-round to sub-angular gravels and pebbles & sub-round to sub-angular cobbles and small boulders
	IIIb	14-26 cm	Red silt with some clay
	V	26+ cm	Dark brown granular clay and silt
	Comments: two bone fragments (refit) recovered from 15-20 cm dbs		
4	I	0-4 cm	Litter mat (LM)/Organic matter (OM)
	II	4-5 cm	Light grey silt (Ae Horizon)
	III	5-19 cm	Yellow-brown silt with 3-5% sub-round to sub-angular gravels and pebbles & sub-round to sub-angular cobbles and small boulders
	IV	19-28 cm	Compact grey-brown silt with 20% sub-round to sub-angular gravels and cobbles
	Comments: siliceous mudstone flake fragment recovered from 10-20 cm dbs		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	10-20	Tool: Hammerstone	Quartzite	Opaque brownish-grey	32.9	31.6	23.6	30.5	Round pebble with pecking scars, water-smoothed cortex, did not fit with matrix, artifact has good heft for size, shovel trauma present (one new impact line/mark)	17-Oct-17	15-May-19	DH	Y
2	1	ST 2	5-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque brownish-grey	37.3	11.3	5.3	1.7	Secondary flake with high-angle planar striking platform, blade-like due to prismatic shape, minimal to moderate dorsal scarring, one utilized lateral edge, soil clinging to dorsal side	17-Oct-17	15-May-19	DH	Y
3	1	ST 3	15-20	Faunal: Fragment	-	-	-	-	-	-	see Faunal Catalogue	17-Oct-17	15-May-19	IT	N
4	1	ST 4	10-20	Flake: Fragment	Siliceous Mudstone	Opaque brownish-grey with weathered patina	sg: (3)	-	-	-	Crushed platform, with broken lateral and terminal edges, soil clinging to dorsal surface, weathered patina	17-Oct-17	15-May-19	JT	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Catalogue #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Material	Bone Unit	Side (R/L)	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
3	1	ST 3	15-20	Faunal: Fragment	Bone	Unidentifiable	-	-	-	-	(0.4)	Unidentifiable light brown bone fragment, broken (x2) and refit	17-Oct-17	15-May-19	IT	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DlPq-8**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **656781** Northing: **5522484**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Limited**	**Crown Mountain Phase II - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/26**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 19, 24, 25, & 26 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services ltd.**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (TMECS & Shuswap Indian Band [SIB]), Jesse Thomas (TMECS), Jason Feltham (TEMCS), John Nicholas (Ktunaxa Nation Council (KNC) Jeff Willaims (KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**FAR**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: 37 pieces of debitage made of 10 lithic material types were collected from the site, see artifact catalogue for details.**	**Ktunaxa Nation Regional Repository**
FAR	**Observed**	**FAR: two pieces were identified and weighed in the field, see artifact catalogue for details.**	

9. ARCHAEOLOGICAL CULTURE

11. SITE DIMENSIONS AND BOUNDARIES

Length: **470 m** Direction **NW-SE**
Width: **40 m** Direction **NE-SW**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are drawn into four discrete polygons (A-D) that are delineated through negative shovel testing and previous disturbance that has resulted in the dissection of the terrace. See general remarks for discrete polygon dimensions.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **0.2 m**

Stratigraphy Description: **0-8 cm Litter mat; 8-9 cm grey ashy silt (Ae horizon); 9-16 cm dark brown silty loam (B horizon); 16-25 cm brown sandy-silt with 10-20% SA-SR pebbles; >25 cm grey-brown sandy-gravel amongst SA pebbles. Podezolic development.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**26 shovel tests (35 x 35 cm) were completed within site boundaries.**
Past	**Logging**	**Burn piles, skidder trails to the FSR bellow, landing areas and push piles were observed in or within close proximity to the site area. See general comments for details.**
Past	**Road Construction**	**Construction of Harmer Road Branch C resulted in an exposure of 2-3 m width and 20-30 cm depth. Artifacts were collected from the exposures.**

14. ENVIRONMENT

Lower Elevation **1357 m** (asl) Upper Elevation **1372 m** (asl)
Elevation Comments: **Elevation gathered using handheld GPS device and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek is located approximately 120 m southeast of Polygon A.**
Terrain/Landform: **Site is located on the remnant a terrace that has been dissected by previous disturbance.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance or concurrent section 12.2 and 12.4 permits if site avoidance is not possible.

17. GENERAL REMARKS

1) Polygon A - delineated to the south by the terrace margin and by an observed 5 m radius boundary to the north, east, and west, dimensions measure 232 m NE-SW x 30 m NW-SE; Polygon B - delineated by a 5 m radius circle around the positive shovel test, 10 m N-S x 10 m E-W; Polygon C - observed at a 5 m radius from positive shovel tests to the north, east, west, and southwest, and is delineated naturally to the south by the terrace margin, dimensions measure 41 m NE-SW x 30 m NW-SE; Polygon D - delineated by a 5 m radius circle around the positive shovel test, 10 m N-S x 10 m E-W.
2) The site is situated on a terrace level north and above Grave Creek and overlooking Grave Canyon that has been dissected and disturbed as a result of road construction (i.e. road cut of 2-3 m width and 20-30 cm depth) and timber harvest activities (i.e. burn piles, skidder trails to the FSR below, landing areas and push piles). The disturbances listed above have certainly impacted the archaeological record of the site, causing a spatial discontinuation of the site and has resulted in the identification of the site as discrete polygons.

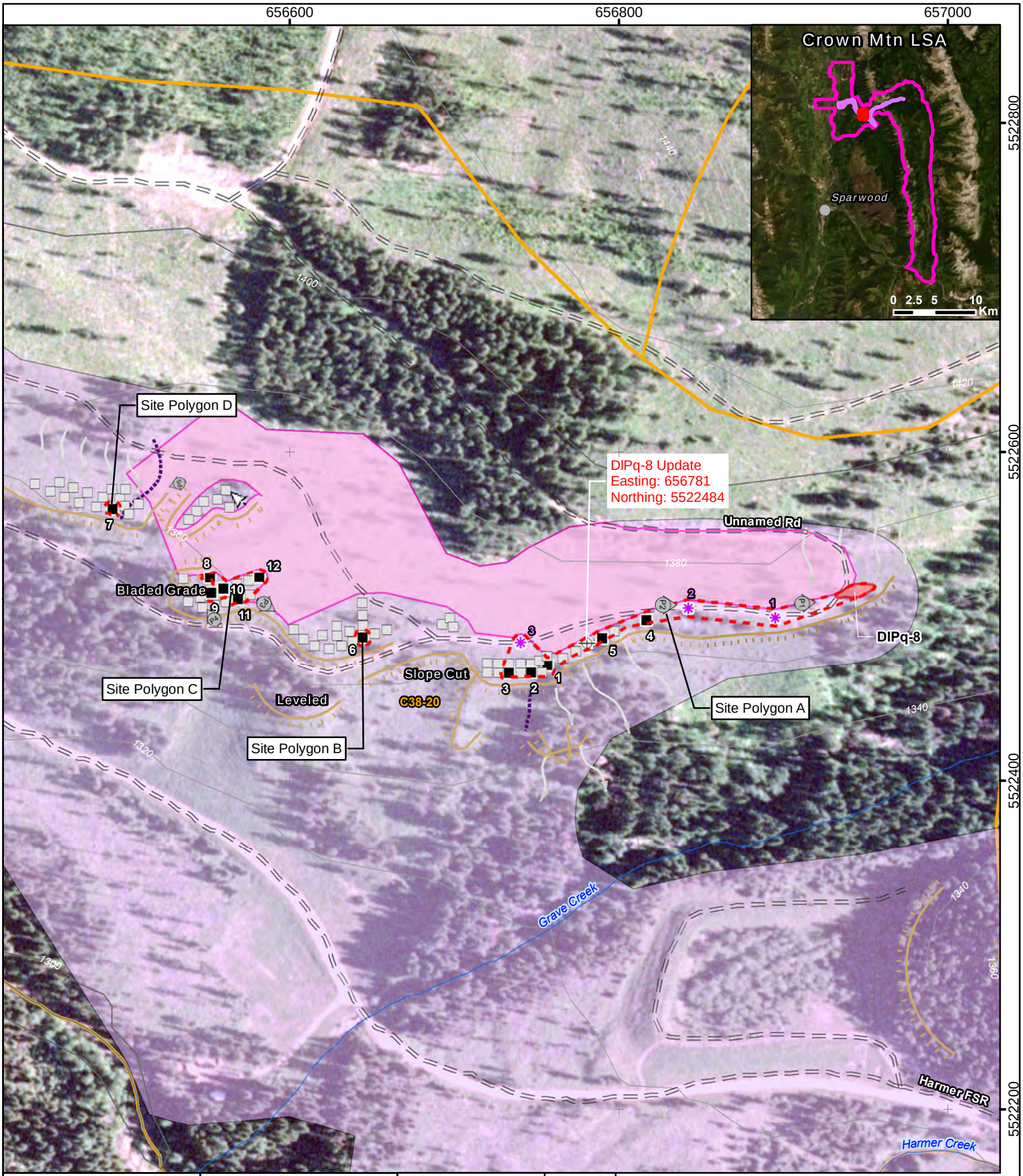


Figure: 9	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain	Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000		New Precontact Arch Site Bdry (TMECS 2017); Centroid; Precontact Arch Site Bdry (RAAD 2020); High Arch Potential; Gravel Road; Skid Trail; Study area (TMECS 2017-18); Water Feature; Terrace Margin; Slope; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA - Choquette); Local Study Area (LSA); Surface Artifact - Lithics; Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Negative Tree Throw; Photo Indicator
Title: DlPq-8 Update Site Map	Survey Date: 17/10/2019			
Project: Crown Mountain Phase II Transportation Corridor	Mapping Date: 14/04/2020			
	1:3,000 0 10 20 40 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Overview of eastern terminus of terrace containing previously recorded portion of site DlPq-8, now defined as site Polygon A. (view: east)

Photo 2. Surface Find 2, overview of artifact location prior to collection within site Polygon A. (view: east)

Photo 3. Overview of site Polygon B from the locality of Polygon C.
(view: southeast)

Photo 4. Overview of shovel testing within site Polygon C.
(view: northwest)

Photo 5. Overview of site Polygon D.
(view: southwest)

Photo 6. Representative stratigraphy from ST6.

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-5 cm	Litter mat, Om horizon
	II	5-23 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	23-28 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: 24 lithic artifacts collected from 0-20 cm		
2	I	0-8 cm	Litter mat, Om horizon
	II	8-24 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	24-30 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: Two pieces of FAR recoded from 0-10 cm		
3	I	0-8 cm	Litter mat, Om horizon
	II	8-22 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	22-26 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		
4	I	0-9 cm	Litter mat, Om horizon
	II	9-26 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	26-33 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake fragment collected from 10-20 cm		
5	I	0-13 cm	Litter mat, Om horizon
	II	13-18 cm	Mottled yellow-brown and grey-brown silt with 25% SR-SA pebbles with <5% cobbles, appears to be overburden resulting from previous timber harvest
	III	18-25 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	IV	25-27 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		
6	I	0-11 cm	Litter mat, Om horizon
	II	11-19 cm	Grey-brown silt with 15%SR-SA pebbles with some cobbles
	III	19-32 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	IV	32-34 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		
7	I	0-7 cm	Litter mat, Om horizon
	II	7-35 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	35-38 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 5-10 cm		

Borden Number: DlPq-8
HCA Permit Number: 2015-0098
Date of Assessment: October 19, 25 & 26, 2017

Shovel Test	Stratum	Depth (below surface)	Description
8	I	0-6 cm	Litter mat, Om horizon
	II	6-17 cm	Grey-brown silt with 15%SR-SA pebbles with some cobbles
	III	17-22 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	IV	22-27 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		
9	I	0-8 cm	Litter mat with high carbon content (charcoal)
	II	8-30 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		
10	I	0-8 cm	Litter mat, Om horizon
	II	8-24 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	24-32 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		
11	I	0-6 cm	Litter mat, Om horizon
	II	6-29 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	III	29-34 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 5-15 cm		
12	I	0-9 cm	Litter mat, Om horizon
	II	9-11 cm	Ashy-grey silt
	III	11-27 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
	Comments: One flake collected from 0-10 cm		

Borden Number: DlPq-8
Permit Number 2015-0098

Date of Assessment: October 19, 25 26, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
10	1	SF 1 Polygon A	Surface (road)	Flake: Fragment (decortication)	Chert: unknown	Slightly translucent white, highly vitreous	sg: 3	-	-	-	Terminal portion of primary decortication flake, sub-angular cortex, suspected Etherington Chert	19-Oct-17	15-May-19	JT	N
11	1	SF 2 Polygon A	Surface (road)	Flake: Fragment	Siliceous Mudstone	Opaque, weathered patina of brownish-grey, with breakage revealing dark grey-black interior	sg: (4)	-	-	-	Medial-terminal portion of secondary flake, platform absent, moderate to complex dorsal scarring, contemporary breakage from vehicle traffic on FSR (appears as re-touch)	19-Oct-17	15-May-19	JM	N
12	1	SF 3 Polygon A	Surface (road)	Flake: Fragment	Siliceous Mudstone	Opaque, weathered patina of brownish-grey, with breakage revealing dark grey-black interior	sg: (2)	-	-	-	Medial portion of flake, weathered breakage, no platform	19-Oct-17	15-May-19	JN	N
13	1	SF 3 Polygon A	Surface (road)	Flake: Tertiary	Siliceous siltstone	Opaque, dull grey	sg: 2	-	-	-	Planar, high-angle striking platform, moderate dorsal scarring, weathered patina on dorsal side	19-Oct-17	15-May-19	JN	N
14	18	ST 1 Polygon A	0-10	Flake: Tertiary	chert: Top of the World	Translucent, vitreous dark grey (n=9) and grey-white (n=9)	sg: 1 [16] & 2 [3]	-	-	-	Small tertiary flakes including pressure and re-sharpening flakes. Re-sharpening flakes (w/ lipped platforms) are largely the dark grey material, and late stage/pressure flakes are largely grey-white, suggestive of a single flint-knapping event involving two preforms/tools	19-Oct-17	15-May-19	JM	N
15	3	ST 1 Polygon A	10-20	Flake: Tertiary	chert: Top of the World	Translucent light grey-white	sg: 1 [1] & 2 [2]				Small tertiary flakes with platforms, moderate dorsal scarring	19-Oct-17	15-May-19	JM	N
16	1	ST 1 Polygon A	10-20	Flake: Fragment	chert: Top of the World	Translucent light grey-white	sg: (2)				Medial portion of flake, secondary stage flake, no platform	19-Oct-17	15-May-19	JM	N
17	1	ST 1 Polygon A	10-20	Flake: Fragment	chert: High Rock Range	Opaque, bluish-grey	sg: (2)				Medial portion of flake, no platform	19-Oct-17	15-May-19	JM	N
18	1	ST 3 Polygon A	0-10	Flake: Secondary Decortication	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 3				Planar, high-angle striking platform, terminates on planar cortex, weathered/patina on portion of dorsal side	19-Oct-17	15-May-19	JN	N

Borden Number: DlPq-8
Permit Number 2015-0098

Date of Assessment: October 19, 25 26, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
19	1	ST 4 Polygon A	10-20	Flake: Fragment	chert: Etherington	Slightly translucent white, highly vitreous	sg: (3)				Medial portion of flake, no platform	19-Oct-17	15-May-19	JT	N
20	1	ST 5 Polygon A	0-10	Flake: Secondary	chert: Etherington	Opaque to slightly translucent white, highly vitreous	sg: 2					19-Oct-17	15-May-19		
21	1	ST 6 Polygon B	0-10	Flake: Tertiary	Black Tourmalinite	Opaque, sub-vitreous black	sg: 2	-	-	-	Re-sharpening flake, low to moderate angle striking platform that contains lip and a 'dulled' working edge, soil clinging to portions of flake, weathered appearance.	25-Oct-17	15-May-19	JT	N
22	1	ST 8 Polygon C	0-10	Flake: Secondary	Siliceous Dolomite	Opaque, dull brownish-grey	sg: 2	-	-	-	Medium angle, multi-facetted striking platform, moderate dorsal scarring, recovered within overburden deposit (windrow)	26-Oct-17	15-May-19	DH	N
23	1	ST 9 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Medial-terminal portion of flake, feather termination, no platform, moderate dorsal scarring, recovered from just under litter mat	26-Oct-17	15-May-19	MS	N
24	1	ST 10 Polygon C	0-10	Flake: Primary (decortication)	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 3	-	-	-	Planar, high angle striking platform, dorsal side is entirely comprised of cortex	26-Oct-17	15-May-19	JT	N
25	1	ST 11 Polygon C	15-20	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: (2)	-	-	-	Medial portion of flake, no platform, minimal to moderate dorsal scarring	26-Oct-17	15-May-19	LMB	N
26	1	ST 12 Polygon C	0-10	Flake: Secondary	Quartzite	Opaque, coarse-grained grey	sg: 3	-	-	-	Dihedral, medium angle striking platform, minimal dorsal scarring	26-Oct-17	15-May-19	MS	N
27	1	ST 7 Polygon D	10-May	Flake: Tertiary	Siliceous Mudstone	Opaque, dull lustre, dark-grey	sg: 3	-	-	-	low to medium angled, multi-facetted striking platform that contains lip and 'dulled' working edge, biface reduction/re-sharpening flake, moderate dorsal scarring, weathered ventral side, soil clinging to platform area	26-Oct-17	15-May-19	JF	N

Borden Number: DlPq-8
Permit Number 2015-0098

Date of Assessment: October 19, 25 26, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository
Catalogue # DlPq-8: 1-9 were collected under 2006-0154 (Forestry Blanket Permit: Grave Canyon CP 260 Blk 013 (temp designation on permit report: DlPq-06-T01)

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Fire-Altered Rock Table						
Provenience	**Depth**	**# Artifacts**	**Material**	**Size Grade**	**Weight (g)**	**Total weight in unit**
ST 2	0-10 cm	2	-	0-5 cm	40	40

Catalogue Notes:

All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository
Catalogue # DlPq-8: 1-9 were collected under 2006-0154 (Grave Canyon CP 260 Blk 013 (temp designation on permit report: DlPq-06-T01)

Catalogue Legend:

Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -5 cm, 2= 5-10 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg)

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPq-17-T01**
Borden Number (site revisit): **DlPq-10**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **658658** Northing: **5523444**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Located in southeast British Columbia on the south side of Grave Creek canyon, approximaltey 14 km northeast of the district of Sparwood and 2.8 km southeast of Grave lake.**
Access Description: **From the district of Sparwood head northwest on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km, then turn south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn east-northeast onto Grave Creek FSR and travel for 4.3 km then park where safe and continue on foot for 18 m north to the site.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **16/10/2017**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 16, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)** **Joshua Martin (TMECS & Shuswap Indian Band)**	**Y**
Other	**Jesse Thomas (TMECS)** **Jason Feltham (TMECS)** **John Nicholas (Ktunaxa Nation Council)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Faunal**
Precontact	**Cultural Material**	**Subsurface**	**FAR**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
FAR	**Observed**	**FAR: ten pieces, weighing 400 g total, were identified in two shovel tests (ST1 & ST2) and were weighed on site and reburried.**	**n/a**
Floral/Faunal Remai	**Collected**	**7 pieces of bone were colleted from two shovel tests (ST1 & ST3). See artifact catalogue for metrics.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **20 m** Direction **NW-SE**
Width: **13 m** Direction **NE-SW**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are drawn with a 5 m radius buffer from positive shovel tests to the northwest, southwest, and southeast per archaeology branch specifications. The north/northeast site boundary is defined by the terrace margin.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.2 m**

Stratigraphy Description: **I (0-12 cm) Litter mat, OM horizon; II (12-20 cm) dark yellow-brown silt; III (20-29 cm) light yellow-brown silt with <3% sub-round (SR) - sub-angular (SA) granules and pebbles; IV (29-35 cm) yellow-borwn silt; V (35-43 cm) compact grey-brown silt, granular crumble texture.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Nine shovel tests measuring 35 cm x 35 cm were excavated to a maximum depth of 50 cm below surface with the site boundary.**
Past	**Road Construction**	**The southern portion of the terrace tread has been disturbed by the construction of Grave Creek FSR (push piles and windrow).**
Ongoing	**Erosion**	**The site is situated just above an unstable, continually eroding margin.**

14. ENVIRONMENT

Lower Elevation **1478 m** (asl) Upper Elevation **1483 m** (asl)
Elevation Comments: **Elevation data gathered using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek is located approximatley 65 m to the north.**
Terrain/Landform: **Situated on an east-west trending terrace level to the south of and above Grave Creek.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. 20 additional shovel tests were excavated on the landform to determine site boundaries.

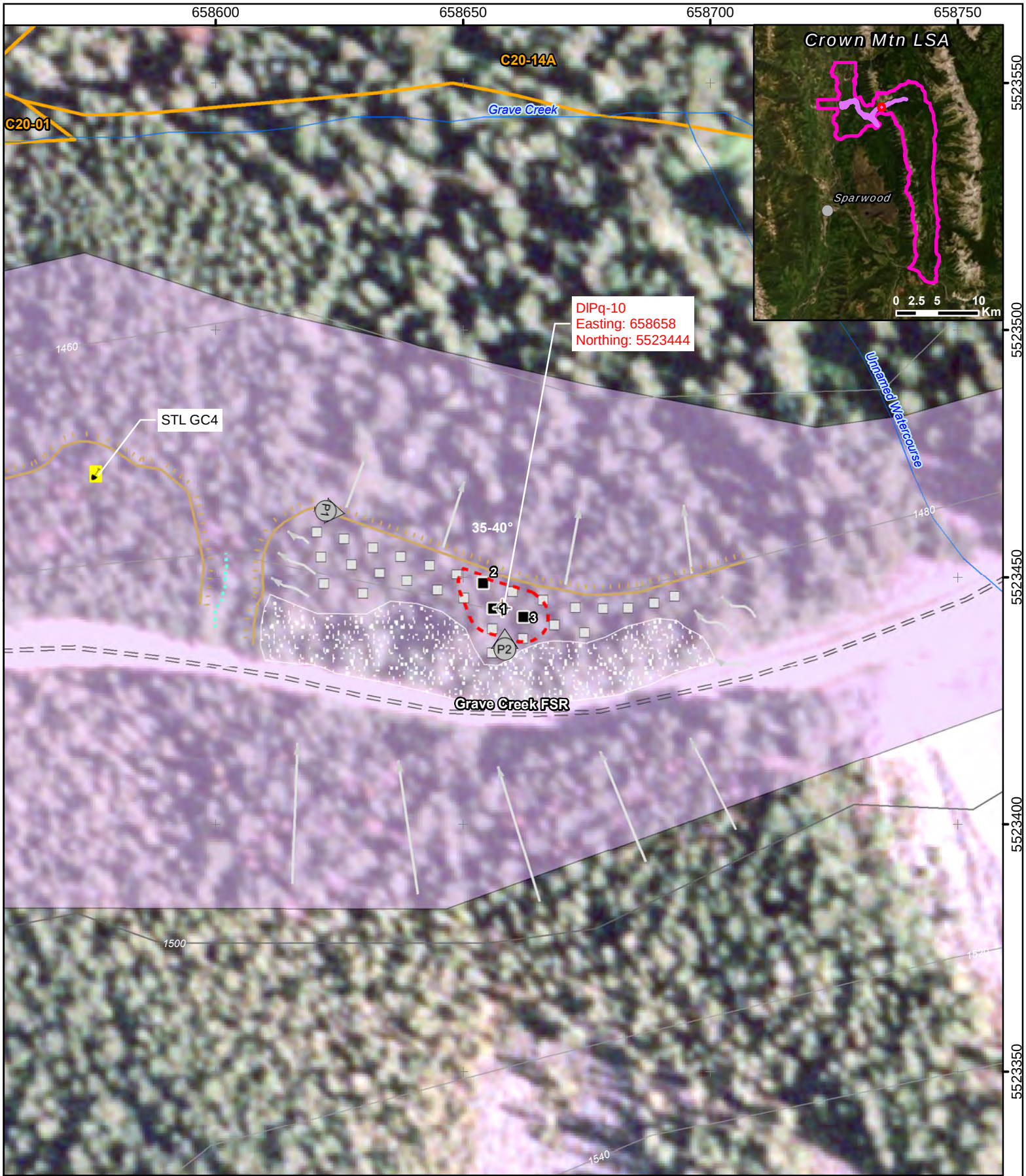


Figure: 10	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	New Precontact Arch Site Bdry (TMECS 2017); Centroid; Shovel Test Location; Study area (TMECS 2017-18); Disturbance; Gravel Road; Water Feature; Relict Drainage; Terrace Margin; Slope; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA - Choquette); Local Study Area (LSA); Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Photo Indicator
Title: DlPq-10 Site Map	Survey Date: 07/10/2019			
	Mapping Date: 14/04/2020			
Project: Crown Mountain Phase II Transportation Corridor	1:1,000 0 5 10 20 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Temp. Borden Number: DlPq-17-T01
Borden Number: DlPq-10
HCA Permit Number: 2015-0098
Date of Assessment: October 16, 2017

Photo 1. Overview of east-west trending terrace level along the southern side of the Grave Creek Canyon. Note the prominent terrace margin (photo left). (view: east)

Photo 2. Overview of archaeological site location and level terrace tread. (view: north)

Photo 3. ST1, stratigraphic profile (representative of ST2 & ST3).

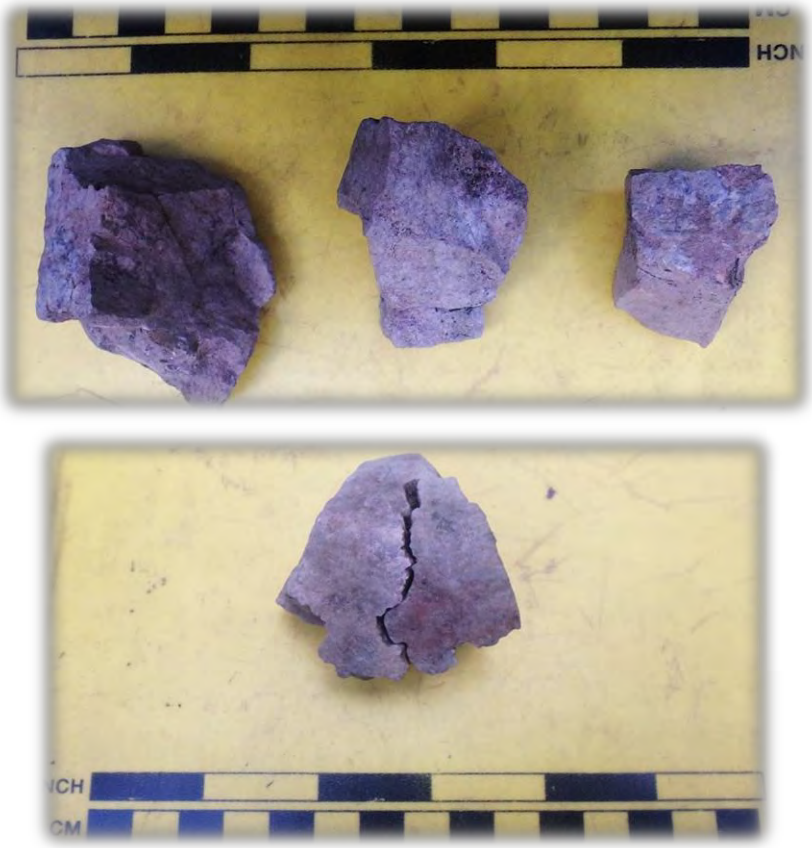


Photo 4. Fire-altered rock recovered from ST1 (photo top) and ST2 (photo bottom).

Temp. Borden Number: DlPq-17-T01
Borden Number: DlPq-10
HCA Permit Number: 2015-0098
Date of Assessment: October 16, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-2 cm	Litter mat (LM)/Organic matter (OM)
	II	2-20 cm	Dark yellow-orange brown silt
	III	20-29 cm	Light yellow-brown silt with <3% sub-angular to round/sub-round gravels and pebbles
	IV	29-35 cm	Yellowish orange-brown silt, no inclusions
	V	35-43 cm	Compact grey-brown silts with a granular matrix texture
	Comments: charred fauna and fire-altered rock encountered at 15-20 cm depth below surface (dbs)		
2	I	0-10 cm	LM/OM
	II	10-17 cm	Dark yellow-orange brown silt
	III	17-37 cm	Light yellow-brown silt with <3% sub-angular to round/sub-round gravels and pebbles
	IV	37-41 cm	Yellowish orange-brown silt, no inclusions
	V	41-47 cm	Compact grey-brown silts with a granular matrix texture
	Comments: FAR encountered at 5-10 cm dbs		
3	I	0-9 cm	LM/OM
	II	9-13 cm	Dark yellow-orange brown silt
	III	13-23 cm	Light yellow-brown silt with <3% sub-angular to round/sub-round gravels and pebbles
	IV	23-27 cm	Yellowish orange-brown silt, no inclusions
	V	27-32 cm	Compact grey-brown silts with a granular matrix texture
	Comments: fauna encountered at 15 cm dbs		

Catalogue #	# Artifacts	Provenience	Depth (below surface)	Artifact Type	Material	Bone Unit	Side (R/L)	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	6	ST 1	15-20 cm	Faunal: Fragments	Bone (charred)	Unidentifiable	-	sg: (1 [1]), (2 [5])	-	-	1.1	Unidentifiable bone fragments, charred.	16-Oct-17	15-May-19	IT	N
2	1	ST 3	15 cm	Faunal: Fragments	Bone	Tibia	L	sg: (27)	-	-	(126)	Medial portion of tibia from a large ungulate (i.e. elk), broken in 4 pieces that all re-fit, possibly contemporary deposition but recovered at 15 cm within podzolic soil, weathered and contains both carnivore and rodent gnawing, some shovel trauma (shovel test) that appear to be cut marks.	16-Oct-17	15-May-19	DH	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (eg. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Borden Number: DlPq-10
Permit Number: 2015-0098

Temporary Borden Number: DlPq-17-T01

Date of Assessment / Field Visit: October 16, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Provenience	Depth (below surface)	Material	Size Grade	# of Pieces	Weight (g)	Comments
ST 1	15-20 cm	-	-	8	300	Castellated fracture patterns.
ST 2	5-10 cm	-	-	2	100	Castellated fracture patterns.

Catalogue Legend:

Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage

Shovel Test= ST

FAR Size Grade= sg, defined by 1= 0 -5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.

Presence of "-" indicates that no value is applicable

Presence of [square brackets] indicated the number of artifacts with differing characteristics (eg. colour and/or sg) in the same catalogue number= [n=X]

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPq-17-T02**
Borden Number (site revisit): **DlPq-11**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **657437** Northing: **5522589**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Located in southeast British Columbia on the south side of Grave Creek canyon, approximaltey 12.5 km northeast of the district of Sparwood and 2.5 km southeast of Grave lake.**
Access Description: **From the district of Sparwood head northwest on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km, then turn south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn east-northeast onto Grave Creek FSR and travel for 3 km then park where safe and continue on foot for 150 m northwest of the road to the site.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**
Street Address:

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **23/10/2017**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 23, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Lara McFadden-Baltutis (TMECS)** **Jesse Thomas (TMECS)** **Jason Feltham (TMECS)** **Mike Shottanana (Ktunaxa Nation Council [KNC])** **Jeff Williams (KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: 10 artifacts (siliceous mudstone and chert) were collected from two shovel test (ST1 & ST2), see artifact catalogue for metrics.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **13 m** Direction **NW-SE**
Width: **9 m** Direction **NE-SW**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are drawn with a 5 m radius buffer from positive shovel tests to the northwest and southeast, per archaeology branch specifications. The southwest and northeast site boundary is defined by the terrace margin.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.1 m** Maximum **0.2 m**

Stratigraphy Description: **I (0-7) Litter mat, Om horizon; II (7-27 cm) yellow-brown silt with 3% sub-round (SR) - sub-angular (SA) granules and pebbles; III (27-37 cm) grey-brown silt with 3% SR-SA granules and pebbles and ~5% SA cobbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Three shovel tests measuring 35 cm x 35 cm were excavated to a maximum depth of 40 cm below surface with the site boundary.**
Ongoing	**Erosion**	**Ongoing erosion to the northeast and southwest of site within "erosional slump" areas along the terrace margin. It is suspected that most of the site has eroded/slumped down into Grave Creek.**
Past	**Logging**	**Heavy disturbance from logging (slope ascending to the southeast), decomposing slash piles, skid trails, and push piles were observed.**

14. ENVIRONMENT

Lower Elevation **1406 m** (asl) Upper Elevation **1410 m** (asl)
Elevation Comments: **Elevation data gathered using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Site is located 95 m southeast of Grave Creek**
Terrain/Landform: **Situated on a northwest to southeast trending spur projecting from a terrace level southeast of and above Grave Creek.**
Other:

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. 12 additional shovel tests were excavated on the landform to determine site boundaries.

Figure: 11	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		**Legend:**
Permit: 2015-0098		BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	New Precontact Arch Site Bdry (TMECS 2017); Centroid; Study area (TMECS 2017-18); Water Feature; Terrace Margin; Slope; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA - Choquette); Local Study Area (LSA); Negative Shovel Test (35 x 35 cm); Positive Shovel Test (35 x 35 cm); Photo Indicator (P1)
Title: DlPq-11 Site Map	Survey Date: 07/10/2019			
Project: Crown Mountain Phase II Transportation Corridor	Mapping Date: 14/04/2020			
	1:1,000 0 5 10 20 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Overview of terrace spur (site location) with erosional slump in the foreground. (view: southwest)

Photo 2. ST1, stratigraphic profile (representative of ST2).

Temp. Borden Number: DlPq-17-T02
Borden Number: DlPq-11
HCA Permit Number: 2015-0098
Date of Assessment: October 23, 2017

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-7 cm	Litter mat (LM)/Organic matter (OM)
	II	7-27 cm	Yellow-orange-brown silt with 3% sub-round to sub-angular gravels and pebbles
	III	27-37 cm	Grey-brown silt with approximately 3% sub-round to sub-angular gravels and 5% sub-angular cobbles
	Comments: siliceous mudstone flakes recovered from 10-15 cm depth below surface (dbs)		
2	I	0-9 cm	LM/OM
	II	9-23 cm	Grey-yellow brown silt (wet)
	III	23-25 cm	Compact brown clayey silt with approximately 3% sub-round to sub-angular pebbles and gravels
	Comments: chert flake fragments recovered from 10-15 cm dbs		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	10-15	Flake: Secondary (Fragment)	Siliceous Mudstone	Opaque (weathered) brownish-grey	sg: (3)	-	-	-	Crushed platform with moderate dorsal scarring, possible use-wear along one lateral edge, soil clinging to terminal portion of flake	23-Oct-17	15-May-19	IT	N
2	2	ST 1	10-15	Flake: Secondary	Siliceous Mudstone	Opaque (weathered) brownish-grey	sg: 2 & 3	-	-	-	Moderate angle striking platforms that are likely re-sharpening flakes with 'dulled' working edge on platform, weathered and encased in silt (soil development.), moderate to complex dorsal scarring	23-Oct-17	15-May-19	DH	N
3	5	ST 1	10-15	Flake: Fragment	Siliceous Mudstone	Opaque (weathered) brownish-grey	sg: (1 [2]) & (2 [3])	-	-	-	No platforms, medial and terminal portions of flakes, likely tertiary stage debitage, encased in silt (soil development)	23-Oct-17	15-May-19	DH	N
4	1	ST 2	10-15	Flake: Fragment	chert: unknown	Opaque, sub-vitreous luster, light grey with bluish hue and banding	sg: (2)				No platform, terminal and/or lateral portion of flake, visible banding present, suspected High Rock Range chert	23-Oct-17	15-May-19	IT	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPq-18-T01**
Borden Number: **DlPq-12**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **656071** Northing: **5522873**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site (comprised of two site-area polygons) is located within the East Kootenay region of southeast British Columbia, within the middle section of Grave Creek drainage, approximately 1.8 km south of Grave Lake.**

Access Description: **From the District of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 3 km. Park where safe and continue on foot, up a ridge and terrace landform for 370 m, the site is located on a the level tread of a terrace .**

Parcel Identifier (PID or PIN): **019075316**

Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase II - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/25**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 23 & 25, 2018)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamas (Tipi Mountain Eco-Cultural Services ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuswap Indian Band & TMECS), John Nicholas (Ktunaxa Nation Council [KNC]) Marty Williams (KNC & TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Ceramic**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: three artifacts, one each of quartzite, Etherington Chert, and High Rock Range Chert collected from two shovel tests, see artifact catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**
Artifact	**Collected**	**Ceramics: 12 shards of opaque, dark grey-black course (sandy) temper, includes one rim fragment, see artifact catalogue for details.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **66 m** Direction **NW-SE**
Width: **10 m** Direction **NE-SW**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

The site is defined by two discrete polygons (A & B) based on observed archaeological material within three subsurface tests. The site boundary for polygon A consists of a 5 m buffer around STs 1 and 2. Site polygon B consists of a 5 m buffer around ST3 to the northwest, northeast, and southeast; the southwestern site boundary is defined by the terrace margin.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **0.2 m**

Stratigraphy Description: **0-5 cm litter mat/Om horizon; 5-11 cm grey-brown silt w/ 5-10% SR-SA small - medium pebbles; 11-19 cm compact brown silt with 10% SR-SA small-medium pebbles & 5-10% SR-SA small cobbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Seven shovel tests (0.35 m x 0.35 m) and one evaluative unit (1 m x 0.5 m [excavated in 0.05 m levels]) were implemented within the site area.**
Past	**Road Construction**	**Previous construction of a road has truncated the southern extent of the site area. A bladed area, related to the road construction and extending from the southeast, seperates site polygons A and B.**
Past	**Logging**	**Forestry related development is present within the site area (i.e. cut stumps).**

14. ENVIRONMENT

Lower Elevation **1393 m** (asl) Upper Elevation **1375 m** (asl)
Elevation Comments: **Elevation data gatherd using handheld GPS unit and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek is located approximately 233 m southwest of the site.**
Terrain/Landform: **Situated on a northwest-southeast trending terrace northeast of and above Grave Creek.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)		**TBD**
2015-0098, Final Report		

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1) This site represents the first known instance of ceramic being identified in the East Kootenay region of southeast British Columbia. The recovery of this artifact type suggests that archaeologists must be aware of the possibility of ceramics in British Columbia.
2) The ceramic shards exhibit vertical cord-wrapped paddle marks on the exterior wall with a smoothed interior. No evidence of soot/encrustation. Cord-wrapped impressions are also visible on the lip of the rim shard. Surface treatment and the presence of hollow punctate may be indicative of the Middle period (700 to 400 BP) within the Old Women's Phase (1200 - 200 BP).

Figure: 12

Permit: 2015-0098

Title:

DlPq-12
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 23&25/10/2018

Mapping Date: 12/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

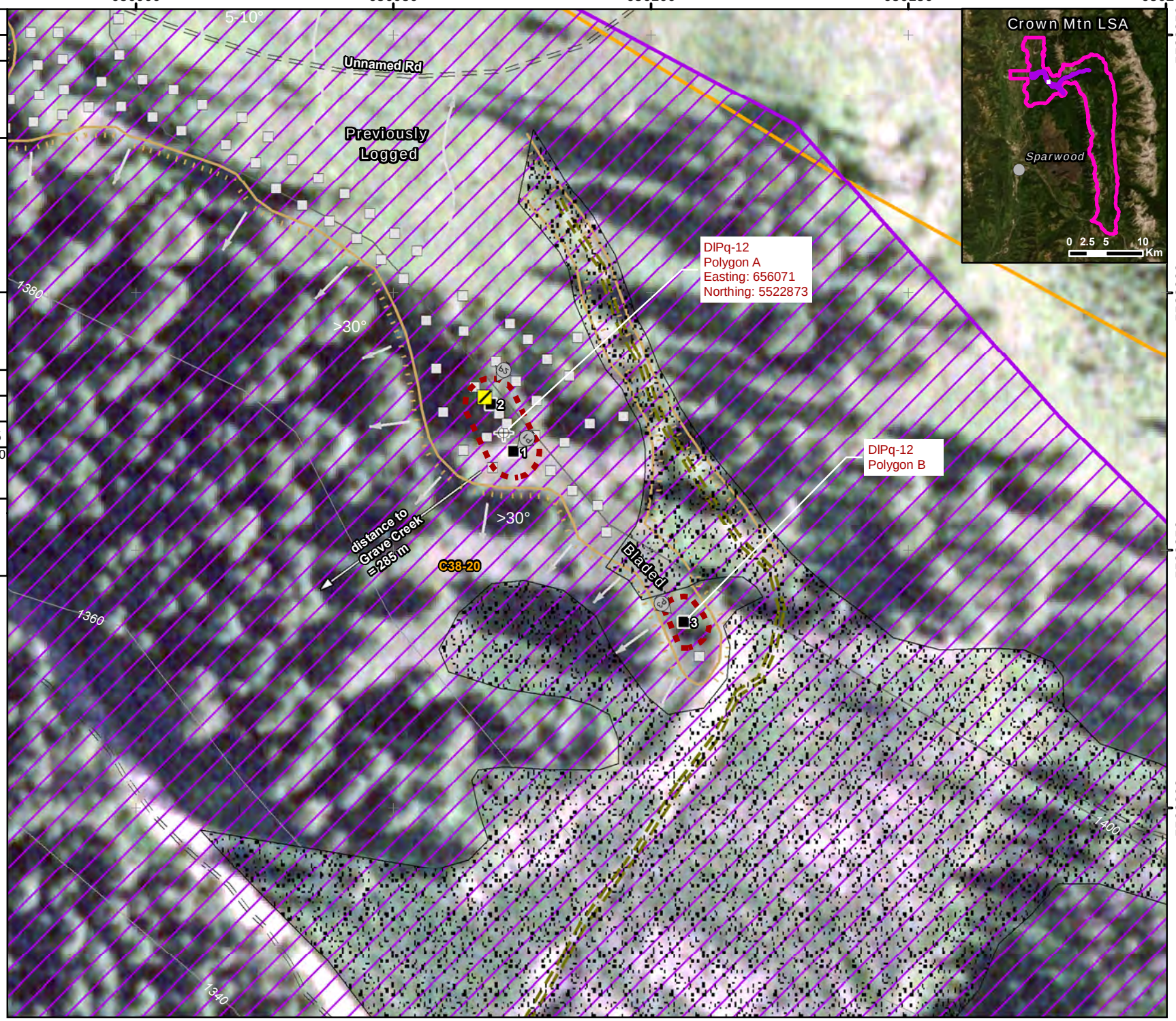
0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- Gravel Road
- Old Road
- Terrace Margin
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Nearest Watercourse
- Mechanically Recontoured
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Evaluative Unit (50 x 100 cm)
- Photo Indicator



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. Overview of site polygon A area from ST 1.
(view: southwest)

Photo 2. Site Polygon A, excavation of an Evaluative Unit (EU [1.0 m x 0.5 m]) in proximity to ST 2.
(view: southwest)

Photo 3. Shovel testing within site Polygon B.
(view: southeast)

Photo 4. ST3 – representative stratigraphic profile for the site.

Photo 5. Stratigraphic profile of the western wall of the EU.

Photo 6. Rim Sherd with hollow punctuate and cord-wrapped paddled outer wall.

Photo 7. Large body shards of a fragmented ceramic vessel.

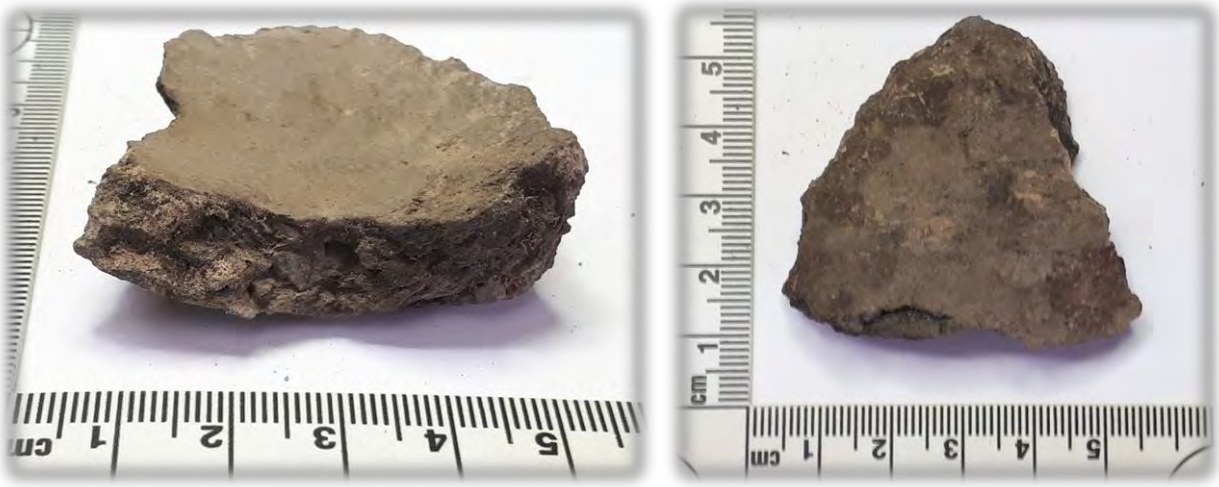


Photo 8. Body shard with a smoothed interior and cord-wrapped paddled exterior.

Temp. Borden Number: DlPq-18-T01
Borden Number: DlPq-12
HCA Permit Number: 2015-0098
Date of Assessment: October 23 & 25, 2018

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-3 cm	Litter mat, Om horizon
	II	3-5 cm	Light grey silt, Ae horizon
	III	5-21 cm	Yellow-brown silt with ~2% SR-SA small-medium pebbles
	IV	21-27 cm	Light yellow-brown silt, compact granular crumble
	Comments: one flake of dark quartzite		
2	I	0-6 cm	Litter mat, Om horizon
	II	6-8 cm	Light grey silt, Ae horizon
	III	8-21 cm	Yellow-brown silt with ~2% SR-SA small-medium pebbles
	IV	21-25 cm	Light yellow-brown silt, compact granular crumble
	Comments: Ceramic shards (x12) collected from 5-15 cm.		
3	I	0-2 cm	Litter mat, Om horizon
	II	2-16 cm	Compact dark yellow-brown silt with ~5% SR-SA small to medium pebbles.
	III	16-28 cm	Brown silt with ~10% SR-SA small-large pebbles & 20% SR-SA cobbles
	IV	28-31 cm	Loose grey-brown silt ~20-30% SR-SA cobbles.
	Comments: Chert flake recovered from 0-10 cm.		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	15-20	Flake: Fragment	Quartzite	Slightly translucent, vitreous grey-blue	sg: (1)	-	-	-	Medial portion of tertiary flake, platform broken, but portion of bulb remains, minimal to moderate dorsal scarring, broken terminal end (or hinge/step termination)	23-Oct-18	17-May-19	IT	N
2	1	ST 3	0-10	Flake: Tertiary	chert: Etherington	Slightly translucent, sub-vitreous to dull luster, bluish-grey	sg: 2	-	-	-	Dihedral, low to medium angle striking platform, moderate dorsal scarring, finishing flake, soil clinging to both sides	24-Oct-18	17-May-19	JM	N
3	1	ST 3	0-10	Flake: Fragment	chert: High Rock Range	Opaque to slightly translucent along edges, sub-vitreous luster	sg: (1)	-	-	-	Medial portion of secondary-tertiary flake (thinning/blade-like), moderate dorsal scarring, soil clinging to portion of dorsal side	25-Oct-18	17-May-19	JM	N
4	1	ST 2	5-15	Ceramic: Rim Shard	Ceramic	Opaque dark grey-black, coarse (sandy) temper	(24.4)	(23.7)	(11.4)	(5.4)	Rim shard of ceramic vessel, hollow punctate; vertical cord-wrapped paddle on exterior wall; smoothed interior. No evidence of soot/encrustation. Cord-wrapped impressions are also visible on the lip. Regionally-rare artifact type. Surface treatment and the presence of hollow punctate may be indicative of the Middle period (700 to 400 BP) within the Old Women's Phase (1200 - 200 BP).	26-Oct-18	17-May-19	DH	Y
5	6	ST 2	5-15	Ceramic: Body Shards	Ceramic	Opaque dark grey-black, coarse (sandy) temper	sg: (3 [1]), (4 [1]), (5 [2]) & (6 [1])	-	-	(80)	Undecorated shards, but treated with cord-wrapped paddle on exterior wall; smoothed interior.	27-Oct-18	17-May-19	DH	Y
6	5	ST 2	5-15	Ceramic: Shards	Ceramic	Opaque dark grey-black, coarse (sandy) temper	sg: (2 [4]) & (3 [1])	-	-	(4.9)		28-Oct-18	17-May-19	DH	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository.

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPq-18-T02**
Borden Number (site revisit): **DlPq-13**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **655915** Northing: **5523018**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the middle drainage of Grave Creek, approximately 1.6 km south of Grave Lake.**
Access Description: **From the District of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 3 km. Park where safe and continue on foot, up a ridge and terrace landform for 175 m, the site is located on a small slopebreak on a ridge landform.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase II - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/25**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 24 & 25, 2018)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamas (Tipi Mountain Eco-Cultural Services ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuswap Indian Band & TMECS), John NIcholas (Ktunaxa Nation Council [KNC]) Marty Williams (KNC & TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: five artifacts of three lithic materials, see artifact catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **16 m** Direction **E-W**
Width: **15 m** Direction **N-S**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boudaries are drawn at a 5 m radius from positive shovel tests to the north, east, west, and south, and naturally defined by the lanfrom margin to the southwest.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **0.25 m**

Stratigraphy Description: **0-6 cm Litter mat/ Organic matter; 6-17 cm brown semi-compact silt with ~5% SR-SA small-medium pebbles; 17-20 cm medium light brown compact silt with ~5% SA-SR pebbles and ~5% SR-SA cobbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**15 shovel tests (0.35 m x 0.35 m) were completed within site boundaries.**
Past	**Logging**	**Evidence of previous logging (i.e. cut stumps) within site boundaies.**

14. ENVIRONMENT

Lower Elevation **1391 m** (asl) Upper Elevation **1394 m** (asl)
Elevation Comments: **Elevation data gatherd using handheld GPS unit and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek is located approximatley 200 m to the southwest.**
Terrain/Landform: **Situated on a terrace with a southwest facing solar aspect.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance recommended, joint Section 12.2 inspection and 12.4 Site Alteration Permit are required is avoidance is not possible.

17. GENERAL REMARKS

Figure: 13

Permit: 2015-0098

Title:

DlPq-13
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 25/10/2018

Mapping Date: 12/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

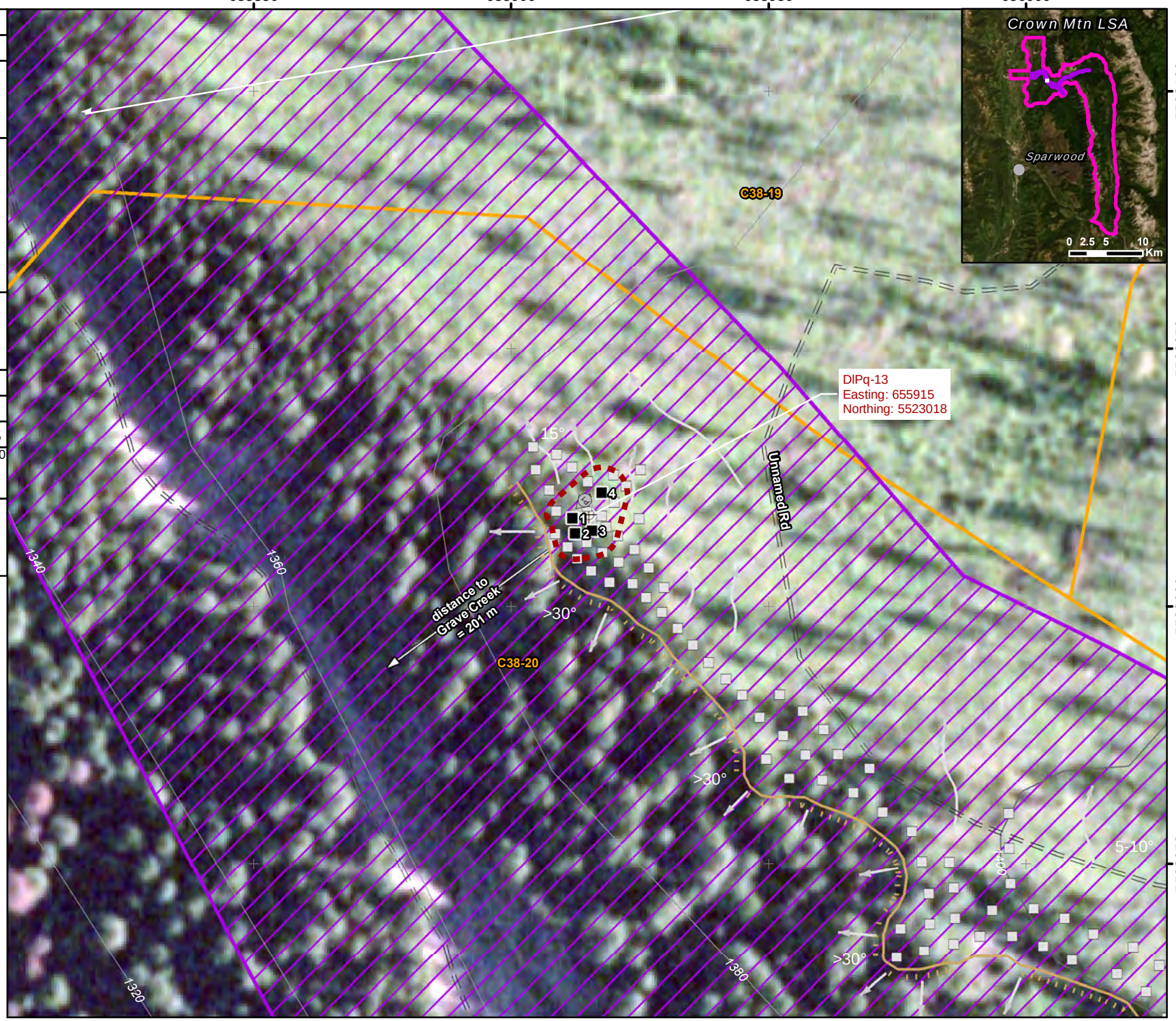
0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- Gravel Road
- Terrace Margin
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Nearest Watercourse
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Photo Indicator



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPq-18-T02
Borden Number: DlPq-13
HCA Permit Number: 2015-0098
Date of Assessment: October 24 & 25

Photo 1. Overview of site area, the location of ST 1 is marked with double yellow flagging tape. (view: southwest)

Photo 2. Representative stratigraphy.

Temp. Borden Number: DlPq-18-T02
Borden Number: DlPq-13
HCA Permit Number: 2015-0098
Date of Assessment: October 24 & 25

Photo 3. Utilized spall of quartzite, catalogue number 4.

Temp. Borden Number: DlPq-18-T02
Borden Number: DlPq-13
HCA Permit Number: 2015-0098
Date of Assessment: October 24 & 25, 2018

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-6 cm	Litter mat, Om horizon, high carbon content (charcoal) at bottom of level
	II	6-17 cm	Grey-brown with ~5%SR-SA small to medium sized pebbles
	III	17-20 cm	Light brown compact silt with ~5% SR-SA small to large pebbles and ~5% SR-SA cobbles
	Comments: High rock range chert flake collected from 0-10 cm dbs		
2	I	0-5 cm	Litter mat, Om horizon, high carbon content (charcoal) at bottom of level
	II	5-11 cm	Semi-compact brown silt with ~5%SR-SA small to medium sized pebbles
	III	11-19 cm	Compact brown silt with ~10% SR-SA small to large pebbles and ~5-10% SR-SA cobbles
	Comments: High rock range chert flake collected from 0-10 cm dbs		
3	I	0-6 cm	Litter mat, Om horizon, high carbon content (charcoal) at bottom of level
	II	6-8 cm	Brown, rubified silt, evidence of burning.
	III	8-15 cm	Semi-compact yellow-brown silt with ~5% SR-SA small to medium pebbles
	IV	15-22cm	Compact light brown silt with ~5% SR-SA small to medium pebbles and ~5% SR-SA cobbles
	Comments: Utilized spall collected from 0-5 cm dbs		
4	I	0-6 cm	Litter mat, Om horizon
	II	6-15 cm	Grey yellow brown silt
	III	15-25 cm	Brown silt
	IV	25-30cm	Compact light yellow-brown silt
	Comments: One lithic artifact collected from 20-25 cm dbs		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	0-10	Flake: Secondary	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: 2	-	-	-	Planar, medium angled striking platform with preparation, hinge-like termination, moderate to complex dorsal scarring	25-Oct-18	17-May-19	JN	N
2	1	ST 2	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish grey (weathered patina)	sg: 2	-	-	-	Concave, moderate-angle striking platform, moderate-complex dorsal scarring	25-Oct-18	17-May-19	JN	N
3	1	ST 2	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish grey (weathered patina)	sg: (2)	-	-	-	Medial portion of flake, no platform, moderate dorsal scarring, soil clinging to ventral side	25-Oct-18	17-May-19	JN	N
4	1	ST 3	0-5	Tool: Utilized Spall	Quartzite	Opaque dull (weathered), coarse-grained brown-grey	76.2	42.4	20.2	52	Spall with use wear along edges, portions of spall appear fire-reddened	25-Oct-18	17-May-19	IT	Y
5	1	ST 4	20-25	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous to dull bluish-grey	sg: (1)	-	-	-	Terminal portion of decortication flake, feather termination; recovered above compact sediment layer	25-Oct-18	17-May-19	DH	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Shovel Test Location= STL
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DlPr-42**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **655317** Northing: **5523941**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within East Kootenay region of southeast British Columbia, with the site (x6 polygons [A-F]) currently encompassing several microtopographic features that are largely on a terrace level to the south of the outlet drainage of Grave Lake. The relatively large size of the site spans from 1.6 to 2.3 km east of the confluence with the Elk River and is approximately 0.4 - 1.0 km southwest of Grave Lake.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approximately 17 km. Turn east onto the Line Creek Mine Road and continue for 1.4 km before turning south onto Valley Road (FSR) and travel for 4.5 km and turn east onto Harmer Road (FSR), which involves an immediate crossing over the CPR Tracks (Fording Branch Line). Continue in an eastward direction for approximately 2.1, but note that this road bends to the south near the junction with an un-named road leading north to Grave Lake (private cabins and a recreational site), which is just north of a bridge over the outlet drainage of Grave Lake. After crossing the outlet drainage, park on an overgrown landing to the west, or a junction with an un-named branch road to the east. Proceed on foot to the site area polygons: Polygon A (2005 site area) and Polygon B are west of Harmer Road, and Polygons C-F are east of the road. Note that all of site DlPr-42 is south of the outlet drainage of Grave Lake.**

Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/27**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II - Transportation Corridor): October 20, 26 & 27, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Daniel Heinrichs (TMECS)** **Joshua Martin (TMECS & Shuswap Indian Band [SIB])**	**Y**
Other	**Jesse Thomas (TMECS)** **Jason Feltham (Ktunaxa Nation Council [KNC] & TMECS)** **John Nicholas (KNC)** **Jeff Williams (KNC & TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**Fire-Altered Rock**
Precontact	**Cultural Material**	**Subsurface**	**Fire-Altered Rock**
Precontact	**Cultural Material**	**Subsurface**	**Faunal**
Precontact	**Human Remains**	**Subsurface**	**Burials (suspected)**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks: **A defined feature was not encountered during the 2017 inspection, but the recovery of a charred faunal fragment and some clusters of fire-altered rock suggests that roasting/cooking features may be present within or immediately adjacent to the currently defined boundaries.**

8. CULTURAL MATERIAL

Type	Status	Details	Repository
FAR	**Reburied**	**FAR: 24 specimens were recovered during shovel testing; quantified (970 g) in the field and left on site (reburied in shovel test/tree throw they originated); see FAR Table**	**N/A**
Artifact	**Collected**	**Lithics: debitage (n-232), expedient tools or fragments (n=17) and formed tools or fragments (n=5) were collected from the site; 12 different raw material types; see Lithic Catalogue**	**Ktunaxa Nation Rregional Repository**
Diagnostic Artifact	**Collected**	**Lithics: one projectile point of siliceous mudstone (ST 116 [Polygon B] @ 22 cm dbs). The notching and metrics resemble those previously documented as Pelican Lake Complex; see Section 9 and Lithic Catalogue.**	**Ktunaxa Nation Regional Repository**
Floral/Faunal Remai	**Collected**	**Unidentified bone fragments (n=23); including one charred specimen recovered from Shovel Test 13 (0-10 cm dbs [Polgyon D] and 22 un-charred specimens from Shovel Test 27 (20-30 cm dbs [Polygon F])**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

Archaeological Culture Name: **Pelican Lake**

Diagnostic Materials: **One projectile point with low-side to corner-removed notches that form an expanding stem with a straight (vergin on a slightly convex) base, symmetrical triangular-shaped blades that are bifacially worked.**

Archaeological Culture Remarks: **The artifact exhibits Pelican Lake-like features, but without more information (i.e. further diagnostic artifacts) an identification beyond late Middle Period is not currently feasable.**

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **700 m** Direction **NE-SW**
Width: **200 m** Direction **NW-SE**

Site Boundary Type: **Natural, Observed, Arbitrary**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

The above-mentioned dimensions address the locality of the site and encompasses all six of the currently defined site areas (Polygons A - F); boundaries were largely delineated with an observed boundary that includes a 5 m buffer from both artifacts exposed in tree throws and positive shovel tests. Segments of the site polygons did utilize natural boundaries (terrace margins) and arbitrary boundaries (branch road) where applicable; see remarks.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **0.35 m**

Stratigraphy Description: **Variable stratigraphy based on micro-topography; profiles wihtin shovel tests predominately reveal Podzolic soil development within a mantle of silt and silty-loam that overlies re-worked till and gravel at an unknown depth (as seen in scarp exposures); see attached stratigraphy log.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**82 shovel tests (35x35 cm) were excavated within or immediately adjacent to the currently defined site boundaries. Manual sorting of tree throws (n=3).**
Past	**Road Construction**	**Harmer Road and a number of active/decomm branch/spur roads have been constructed within this locality, and have contributed to the dissection of the site, which is now defined by six polygons.**
Past	**Logging**	**Previous timber harvests (historical and mid-2000s) within and adajcent to to the site polygons; removal of timber stand, scattered pushpiles, branch roads, landing construction, and skid trails.**
Ongoing	**Recreational Use**	**Abundance of hunters use this locality in the fall; seasonal camps within this area (overgrown fire rings) and use of FSR and ancillary roads by on and off-road vehicles; rutting.**

14. ENVIRONMENT

Lower Elevation **1266 m** (asl) Upper Elevation **1290 m** (asl)

Elevation Comments: **Elevation obtained using a handheld GPS and Google Earth Pro. Site varies from approximately 1 to 10 m above the elevation of the outlet drainage of Grave Lake.**

Nearest Hydrological Feature(s): **Grave Lake Outlet (westward flowing) is immediatley to the north of the site (Polygon E); Grave Creek is approximately 70 m south-southwest of Site Polygon A (recorded ca. 2005); Grave Lake is approximately 0.4 km north-northeast of Site Polygons D, E and F.**

Terrain/Landform: **Site encompasses micro-topographic features; Polygon A: Level tread of terrace (original site area), Polygons B & C: level to undulating tread of terrace; Polygon D: Low sloped terrain at base of increased slope; Polygon E: low-lying, nested terrace along outlet drainage; Polygon F: Spur of terrace.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**Ian Tamasi and Nyomi Sherwon**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. See additional recommendations in General Remarks.

17. GENERAL REMARKS

1) Site Dimensions and Boundaries
-Polygon A: originally recorded in 2005 (2015-0154); approximate dimensions and the shape of the site remain as originally recorded and currently projected in RAAD; see 2015-0098 site map.

-Polygon B:
Centroid: 11U 655433 E, 5524041 N
Size: 140 m (NE-SW) x 62 m (NW-SE), defined naturally by a terrace margin to the north-northwest; an observed boundary that includes a 5 m buffer from artifacts that were exposed in a tree throw and positive shovel tests in all other directions.

-Polygon C:
Centroid: 11U 655588E, 5524027 N
Size: 75 m (NE-SW) x 74 m (NW-SE), the northern boundary is defined arbitrarily by the footprint of an east-west trending branch road (see Polygon D); an observed boundary that includes a 5 m buffer from positive shovel tests defines this site polygon in all other directions.

-Polygon D:
Centroid: 11U 655571 E, 5524105 N
Size: 131 m (NW-SE) x 124 m (NE-SW), northern boundary defined naturally by a terrace margin; southern boundary is defined arbitrarily by the footprint of an east-west trending ancillary road (see Polygon C), and to the east and west by an observed boundary that includes a 5 m radial buffer from positive shovel tests. It appears evident that the construction of a branch road has bisected site Polygons C & D; surface inspection of road exposures rendered negative results for artifacts; construction of road may have removed the cultural horizon, but further subsurface inspection is required to confirm/refute this.

Polygon E:
Centroid: 11U 655498 E, 5524154 N
Size: 27 m (NW-SE) x 15 m (NE-SW), defined by an observed boundary in all directions, which includes a 5 m radial buffer from the three positive shovel tests.

Polygon F:
Centroid: 11U 655623 E, 5524180 N
Size: 5 m (N-S) x 5 m (E-W), defined by an observed boundary from the location of a lithic artifact exposed within a tree throw; 2.5 m radial buffer, as per isolated finds recording protocol.

Boundary Comments:
- The general locality of the site was identified in the field with yellow and black "A.I.A. Zone" flagging tape.
- Subsurface inspection of DlPr-42 (under 2015-0098) should be considered provisional and was conducted to annually contribute to the AIA of an evolving development footprint and to commence an understanding for the presence/absense of archaeological sites within the locality of Grave Prairie.

2) Recorder's Recommendations -
An abundance of subsurface inspection is still required to delineate an appropriate site area(s) for DlPr-42 (including all adjacent sloped ground); the excavation of three negative tests (in cardinal directions) was not always possible due to a constrained budget, relatively large size of the cultural landscape, and the evolving scope of the project. Testing along Harmer Road was constrained by the arbitrary buffer zone (+/-100 m) from an evolving development footprint associated with the transporation corridor.

3) The number of sites and the current distribution of archaeological sites indicates an extensive precontact occupation of the Grave Prairie locality within the Middle Period, likely associated with annual resource procurement during the seasonal round. This locality also provides a favourable location for [western] base camp to facilitate intra-mountain travel via Grave Creek and Line Creek, both of which access the Alexander Creek valley offer routes of least resistence over the Continental Divide to access the plains region via several mountain passes (e.g. Deadman, Race Horse, North Fork, and Tornado).

4) Ancestral Burials / Human Remains: In 2005, during the original discovery/recording of DlPr-42, I. Tamasi remembers three (or four) linear rock features, which at the time were suspected to be ancestral burials being present within the west-southwestern portion of Site Polygon A; these features, located within tree stand near the southern terrace margin (overlooking Grave Creek) and in proximity to a historical structure/refuse pile (see 2015-0098 site map for general location) were evidently not documented under 2005-0154 (i.e. final report, interim report and site form). A surface survey to relocate these features was conducted in 2017, but was unsuccessful in relocating the suspected burials due to the densely overgrown state of the ground cover and understory vegetation, and an abundance of deadfall that is now present within the timber stand; this should not preclude the presence of burials within this site and the immediately adjacent terrain.

5) Obsidian analysis conducted by Rudy Reimer (2019) indicates that the raw material used to create the retouched flake (Catalogue DlPr-42: 184) was procured from "Indian Rock" in Washington State.

6) Catalogue Numbers:
DlPr-42: 1-170 were assigned to artifacts collected under permit 2005-0154 (confirmed with RBCM: 16-Mar-2020)
DlPr-42: 171-330 were assigned to artifacts collected under permit 2015-0098

Figure: 14

Permit: 2015-0098

Title:

DlPr-42 Update Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP Coal Canada

Survey Date: 26/10/2017

Mapping Date: 09/06/2020

UTM 11-NAD 83- NTS 82G15

1:3,052

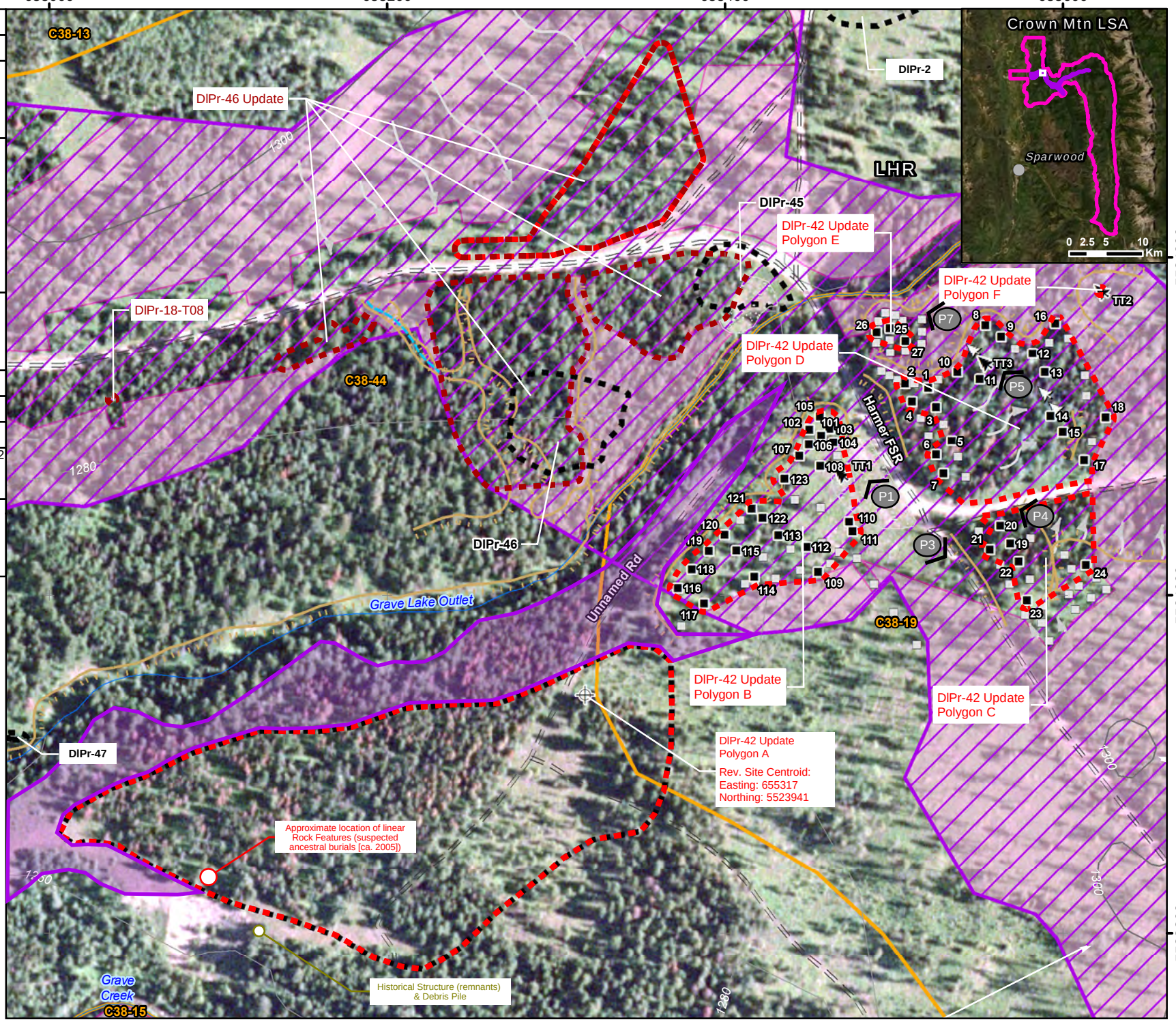
0 10 20 40 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- New Arch Site Bdry (TMECS 2017)
- Centroid
- Precontact Arch Site Bdry (RAAD 2019)
- Disturbance
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Water Feature
- Ephemeral Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Positive Tree Throw
- Negative Tree Throw
- Photo Reference & Direction



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. Overview of DlPr-42, Site Polygon B, as seen from an existing (overgrown) landing along the western side of Harmer Road. The terrace margin that naturally delineates the northern site boundary of this polygon is generally defined by the taller tree stand. (view: northwest)

Photo 2. Representative stratigraphic profile for DlPr-42, Site Polygon B, which contained Podzolic soil development in a mantle of silt. Note the projectile point (within the white dashed circle) that was recovered in situ (point down) at 22 cm below surface. See Photo 12 for close up of artifact. (ST 116 - Western Wall)

Photo 3. Overview of DlPr-42, Site Polygon C situated on southward ascending slope along the eastern side of Harmer Road. Note that this site polygon was contemporarily separated from Polygon D by the construction of an east-west trending branch road (see Photo 4).
(view: southeast)

Photo 4. Overview of DlPr-42, Site Polygon D, which is arbitrarily defined to the south by an east-west trending, un-named branch road that is frequently utilized by recreational vehicles.
(view: northwest)

Photo 5. Example of the multiple specimens of fire-altered rock (n=20) discovered by manually-sorting a tree throw (TT#3) within DlPr-42 Site Polygon D. (view: northwest)

Photo 6. Representative stratigrapic profile for DlPr-42, Site Polygons C and D, which contains Podzolic soil development. (ST 8 – north wall)

Photo 7. Overview of DlPr-42, Site Polygon E, which encompasses three positive shovel tests on a nested terrace level along the southern side of the outlet drainage of Grave Lake.
(view: west-northwest)

Photo 8. Representative stratigrapic profile for DlPr-42, Site Polygon E, which contains Podzolic soil development.
(ST 19 – Northern Wall)

Photo 9. Retouched flake of obsidian that was recovered at 0-10 cm below surface from ST 103 in DlPr-42, Site Polygon B. Analysis conducted by R. Reimer (2019) indicated that the raw material was procured from "Indian Rock" within Washiongton State. (Catalogue # 184)

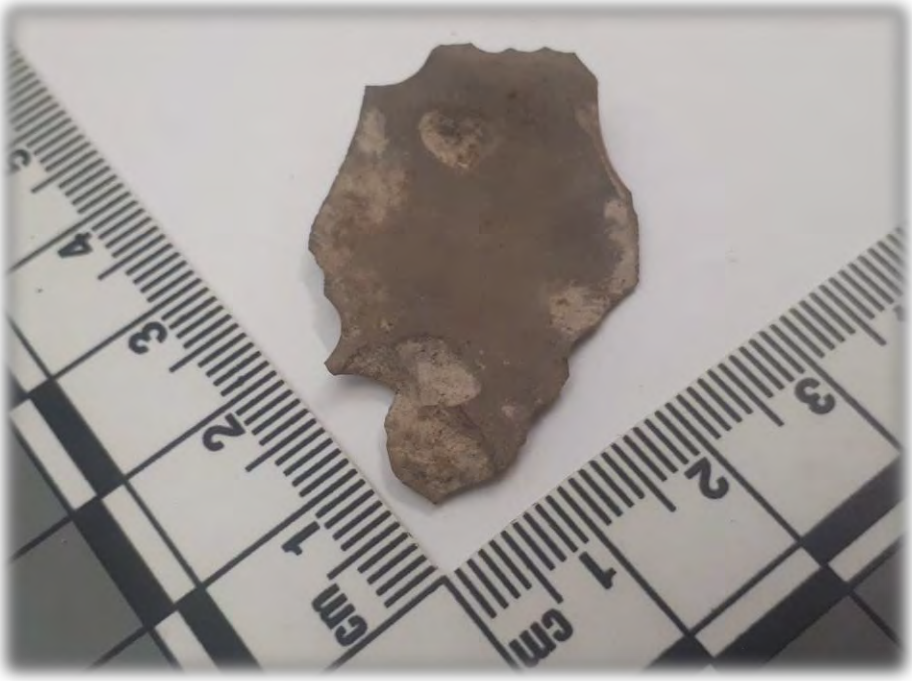


Photo 10. Utiized flake of siliceous mudstone that was recovered at 0-5 cm below surface from ST 109 in DlPr-42, Site Polygon B. (Catalogue # 200)

Photo 11. Biface (preform) fragment of Etherington chert that was recovered at 0-10 cm below surface from ST 115 in DlPr-42, Site Polygon B. (Catalogue # 231)

Photo 12. Low side-notched (corner-removed) Pelican Lake-like projectile point of siliceous mudstone that was recovered at 22 cm below surface from ST 116 in DlPr-42, Site Polygon B.
(Catalogue # 272)

Photo 13. Hammerstone of quartzite/sandstone that was recovered at 5-10 cm below surface from ST 23 in DlPr-42, Site Polygon C. Note that pecking scars are present on the more-prominent ends of the artifact. (Catalogue # 300)

Photo 14. Utilized flake of siliceous mudstone (x3 re-fit) that was recovered at 5-10 cm below surface from ST 2 in DlPr-42, Site Polygon D. (Catalogue # 303)

Shovel Test	Stratum	Depth (below surface)	Description
1 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: lithic collected at 0-5 cm		
2 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 5-20 cm		
3 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 10-15 cm		
4 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 15-20 cm		
5 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 5-15 cm		
6 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 10-15 cm		
7 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-29 cm	Brown silt with 3% inclusions
	III	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 15-20 cm		
8 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown Silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 0-5 cm		
9 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 0-5 cm		
10 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 5-15 cm		

Shovel Test	Stratum	Depth (below surface)	Description
11 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 10-20 cm		
12 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 0-5 cm		
13 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 0-10 cm		
14 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 5-10 cm		
15 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 5-10 cm; FAR collected from 0-5 cm		
16 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 10-20 cm		
17 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Ashy-grey silt
	III	5-29 cm	Brown silt with 3% inclusions
	IV	29-36 cm	Compact dark brown silt with ~3% inclusions
	Comments: Lithics collected from 0-10 cm		
18 *Polygon D*	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Ashy-grey silt
	III	7-19 cm	Dark yellow-brown silt
	IV	19-25 cm	Light yellow-brown silt
	Comments: Lithics collected from 10-20 cm		

Shovel Test	Stratum	Depth (below surface)	Description
19 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Ashy-grey silt
	III	7-19 cm	Dark yellow-brown silt
	IV	19-25 cm	Light yellow-brown silt
	Comments: Lithics collected from 10-20 cm		
20 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Ashy-grey silt
	III	7-19 cm	Dark yellow-brown silt
	IV	19-25 cm	Light yellow-brown silt
	Comments: Lithics collected from 10-20 cm		
21 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Ashy-grey silt
	III	7-19 cm	Dark yellow-brown silt
	IV	19-25 cm	Light yellow-brown silt
	Comments: Lithics collected from 20 cm		
22 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Ashy-grey silt
	III	7-19 cm	Dark yellow-brown silt
	IV	19-25 cm	Light yellow-brown silt
	Comments: Lithics collected from 10-20 cm		
23 *Polygon C*	I	0-5 cm	Litter mat, Om horizon
	II	5-6 cm	Black organic rich loam
	III	6-15 cm	Grey-brown silt with some clay
	IV	15-21 cm	Grey-brown silt with >2% SR inclusions.
	Comments: Lithics collected from 5-10 cm; FAR recorded from 0-5 cm		
24 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Ashy-grey silt
	III	7-19 cm	Dark yellow-brown silt
	IV	19-25 cm	Light yellow-brown silt
	Comments: Lithics collected from 0-10 cm		
25 *Polygon E*	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Light grey sandy silt
	III	10-18 cm	Light brown silt with some fine sand
	IV	18-25 cm	Dark grey-brown sandy silt
	V	>25 cm	Light grey fine sand
	Comments: Lithics collected from 10-20 cm		
26 *Polygon E*	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Light grey sandy silt
	III	10-18 cm	Light brown silt with some fine sand
	IV	18-25 cm	Dark grey-brown sandy silt
	V	>25 cm	Light grey fine sand
	Comments: FAR recorded at 5-10 cm		

Shovel Test	Stratum	Depth (below surface)	Description
27 *Polygon E*	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Light grey sandy silt
	III	10-18 cm	Light brown silt with some fine sand
	IV	18-25 cm	Dark grey-brown sandy silt
	V	>25 cm	Light grey fine sand
	Comments: Faunal fragment collected from 20-30 cm		
101 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-20 cm		
102 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-15 cm		
103 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-10 cm		
104 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-10 cm		
105 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 20-25 cm		
106 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 10-20 cm		
107 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 10-20 cm		

Shovel Test	Stratum	Depth (below surface)	Description
108 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-15 cm		
109 *Polygon B*	I	0-3 cm	Litter mat, om horizon
	II	3-10 cm	Loose, light-brown silt
	III	10-22 cm	Compact yellow-brown silt
	IV	22-25 cm	Compact yellow-brown silt
	V	>25 cm	Very compact dark brown clayey silt
	Comments: 0-5 cm		
110 *Polygon B*	I	0-6 cm	Litter mat, Om horizon with a dark/black charcoal element
	II	6-9 cm	Light grey sandy silt
	III	9-22 cm	Light brown silt with some fine sand
	IV	22-28 cm	Dark grey-brown sandy silt
	V	>28 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 15-20 cm		
111 *Polygon B*	I	0-7 cm	Litter mat, Om horizon
	II	7-17 cm	Light grey sandy silt
	III	17-22 cm	Light brown silt with some fine sand
	IV	22-24 cm	Dark grey-brown sandy silt
	V	>24 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 10-20 cm		
112 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Light grey sandy silt
	III	9-15 cm	Light brown silt with some fine sand
	IV	15-19 cm	Dark grey-brown sandy silt
	V	19-21 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 10-15 cm		
113 *Polygon B*	I	0-5 cm	Litter mat, Om horizon
	II	5-9 cm	Light grey sandy silt
	III	9-14 cm	Light brown silt with some fine sand
	IV	14-24 cm	Dark grey-brown sandy silt
	V	24-28 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 0-20 cm		
114 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-10 cm	Light grey sandy silt
	III	10-19 cm	Light brown silt with some fine sand
	IV	19-26 cm	Dark grey-brown sandy silt
	V	26-28 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 0-30 cm		

Shovel Test	Stratum	Depth (below surface)	Description
115 *Polygon B*	I	0-8 cm	Litter mat, Om horizon
	II	8-17 cm	Light grey sandy silt
	III	17-31 cm	Light brown silt with some fine sand
	IV	31-35 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-35 cm		
116 *Polygon B*	I	0-5 cm	Litter mat, Om horizon
	II	5-6 cm	Light grey sandy silt
	III	6-16 cm	Light brown silt with some fine sand
	IV	16-31 cm	Dark grey-brown sandy silt
	V	>31 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 0-30 cm		
117 *Polygon B*	I	0-5 cm	Litter mat, Om horizon
	II	5-17 cm	Light grey sandy silt
	III	17-29 cm	Light brown silt with some fine sand
	IV	29-31 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 15-20 cm		
118 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-11 cm	Light grey sandy silt
	III	11-30 cm	Light brown silt with some fine sand
	IV	>30 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 10-20 cm		
119 *Polygon B*	I	0-8 cm	Litter mat, Om horizon
	II	8-12 cm	Light grey sandy silt
	III	12-25 cm	Light brown silt with some fine sand
	IV	25-33 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 10-15 cm		
120 *Polygon B*	I	0-8 cm	Litter mat, Om horizon
	II	8-21 cm	Light grey sandy silt
	III	21-25 cm	Light brown silt with some fine sand
	IV	>25 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 0-10 cm		
121 *Polygon B*	I	0-7 cm	Litter mat, Om horizon
	II	7-8 cm	Light grey sandy silt
	III	8-25 cm	Light brown silt with some fine sand
	IV	25-30 cm	Brown silt
	V	>30 cm	Very compact dark brown clayey silt
	Comments: Lithics collected from 15-20 cm		
122 *Polygon B*	I	0-6 cm	Litter mat, Om horizon
	II	6-7 cm	Light grey sandy silt
	III	7-20 cm	Light brown silt with some fine sand
	IV	20-29 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 10-30 cm		

Shovel Test	Stratum	Depth (below surface)	Description
123 *Polygon B*	I	0-4 cm	Litter mat, Om horizon
	II	4-5 cm	Light grey sandy silt
	III	5-22 cm	Light brown silt with some fine sand
	IV	22-30 cm	Dark grey-brown sandy silt
	Comments: Lithics collected from 10-15 cm		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
171	1	TT 1 Polygon B	-	Flake: Fragment	Quartz	Transparent, highly vitreous	sg: (2)	-	-	-	Medial to terminal portion of flake, soil clinging to surfaces, recovered from tree throw that had been deposited subsequent to construction of landing area.	26-Oct-17	22-May-19	JT	N
172	1	TT 1 Polygon B	-	Flake: Tertiary	chert: Top of the World	Translucent, vitreous light grey	sg: 2	-	-	-	Concave, medium angle striking platform, recovered from tree throw that had been deposited subsequent to construction of landing area.	26-Oct-17	22-May-19	JT	N
173	1	ST 101 Polygon B	0-5	Flake: Secondary	chert: High Rock Range	Opaque, vitreous bluish-grey	sg: 2	-	-	-	Dihedral, medium angled striking platform, moderate dorsal scarring, shaping-like flake	26-Oct-17	22-May-19	LMB	N
174	1	ST 101 Polygon B	0-5	Flake: Fragment	chert: High Rock Range	Opaque, vitreous bluish-grey with portion of dull to sub-vitreous brownish-grey	sg (2)	-	-	-	Terminal portion of flake, prismatic shape (blade-like)	26-Oct-17	22-May-19	LMB	N
175	1	ST 101 Polygon B	5-10	Shatter	chert: High Rock Range	Opaque, vitreous bluish-grey	sg: 3	-	-	-	Block fragment, soil clinging to all sides	26-Oct-17	22-May-19	LMB	N
176	1	ST 101 Polygon B	5-10	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with lighter banding	sg: 2	-	-	-	Re-sharpening flake, multi-facetted, medium angle striking platform with 'dulled' working edge and faint lip, moderate dorsal scarring, soil clinging to ventral side	26-Oct-17	22-May-19	LMB	N
177	1	ST 101 Polygon B	10-15	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with lighter banding	sg: 2	-	-	-	Planar, relatively high striking platform, moderate dorsal scarring, soil clinging to both sides	26-Oct-17	22-May-19	LMB	N
178	1	ST 101 Polygon B	10-15	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with lighter banding	sg: (1)	-	-	-	Medial portion of flake, no platform	26-Oct-17	22-May-19	LMB	N
179	1	ST 101 Polygon B	15-20	Flake: Fragment	chert: High Rock Range	Opaque, vitreous bluish-grey	sg: (3)	-	-	-	Terminal portion of flake, no platform	26-Oct-17	22-May-19	LMB	N
180	1	ST 101 Polygon B	15-20	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with lighter banding	sg: 2	-	-	-	Convex, medium angled striking platform, minimal to moderate dorsal scarring, shaping-like flake	26-Oct-17	22-May-19	LMB	N
181	1	ST 101 Polygon B	15-20	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with lighter banding	sg: (2)	-	-	-	Terminal portion of flake, no platform, soil clinging to all sides	26-Oct-17	22-May-19	LMB	N
182	1	ST 102 Polygon B	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (3)	-	-	-	Pot-lid fractures on both sides (suggestive of being subject to heat/fire), and have obscured platform area	26-Oct-17	22-May-19	JT	N
183	1	ST 102 Polygon B	10-15	Tool: Utilized Flake (decortication)	Siliceous Mudstone	Opaque, dull brownish-grey	31.6	27.8	6.8	5.3	Medial portion of primary decortication flake, no platform, use-wear along lateral edges	26-Oct-17	22-May-19	JT	Y
184	1	ST 103 Polygon B	0-10	Tool: Retouched Flake	Obsidian	Opaque, highly vitreous, black with hydration/weathering	34.1	28.5	7.5	6.6	Terminal portion of large flake with excurvate lateral edges, one lateral side is unifacially re-touched; opposing side is bifacially worked, large porous inclusion that resulted in breakage of flake; artifact subjected to obsidian sourcing (R. Reimer 2019) which indicated the raw source of material is "Indian Rock" in Washington State.	26-Oct-17	22-May-19	JF	Y
185	2	ST 104 Polygon B	0-10	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (2)	-	-	-	Medial and terminal portion of flakes, no platform, moderate dorsal scarring, feather termination, soil clinging	26-Oct-17	22-May-19	MS	N
186	1	ST 104 Polygon B	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2	-	-	-	Re-sharpening flake, dihedral, medium angled striking platform with faint lip, moderate dorsal scarring	26-Oct-17	22-May-19	MS	N
187	1	ST 104 Polygon B	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (4)	-	-	-	Medial portion of flake, no platform, moderate dorsal scarring	26-Oct-17	22-May-19	MS	N
188	1	ST 105 Polygon B	10-15	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (2)	-	-	-	Medial portion of flake, no platform, minimal dorsal scarring	26-Oct-17	22-May-19	DH	N
189	1	ST 105 Polygon B	15-20	Flake: Secondary	chert: Tourmaline	Opaque, sub-vitreous khaki green-brown with faint banding	sg: 2	-	-	-	Small, multi-facetted medium angle striking platform, minimal dorsal scarring, soil clinging to ventral surface	26-Oct-17	22-May-19	DH	N
190	1	ST 105 Polygon B	20-25	Flake: Tertiary	Quartzite	Opaque to slightly translucent grey with purple hue, coarse-grained	sg: 3	-	-	-	Re-sharpening flake, dihedral, medium angled striking platform with faint lip, moderate dorsal scarring	26-Oct-17	22-May-19	DH	N
191	1	ST 106 Polygon B	10-20	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 2	-	-	-	Re-sharpening flake with multi-facetted medium to low-angle striking platform with lip and contains 'dulled' working edge, soil clinging to dorsal side	26-Oct-17	22-May-19	IT	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
192	1	ST 106 Polygon B	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform, soil clinging	26-Oct-17	22-May-19	IT	N
193	1	ST 107 Polygon B	10-20	Flake: Fragment	chert: Etherington	Opaque to slightly translucent, sub-vitreous grey	sg: (2)	-	-	-	Crushed platform, moderate dorsal scarring, soil clinging to dorsal side	26-Oct-17	22-May-19	JF	N
194	1	ST 107 Polygon B	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	21.7	17.2	2	0.6	Small dihedral, medium angle striking platform with faint lip, moderate dorsal scarring, use wear along later edges.	26-Oct-17	22-May-19	JF	N
195	3	ST 107 Polygon B	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2 [2]) & (3 [1])	-	-	-	Medial and terminal portions of flakage, no platform, generally moderate dorsal scarring	26-Oct-17	22-May-19	JF	N
196	1	ST 108 Polygon B	0-5	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Planar, relatively high striking platform, minimal to moderate dorsal scarring, soil clinging to both sides, broken flake or step termination	27-Oct-17	22-May-19	LMB	N
197	1	ST 108 Polygon B	0-5	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	Medial portion of flake, no platform	27-Oct-17	22-May-19	LMB	N
198	1	ST 108 Polygon B	0-5	Flake: Secondary	chert: High Rock Range	Opaque, sub-vitreous grey with blue hue	sg: 2	-	-	-	Dihedral, high to medium angled striking platform, minimal to moderate dorsal scarring, step termination	27-Oct-17	22-May-19	LMB	N
199	1	ST 108 Polygon B	10-15	Tool: Retouched Flake	chert: Tourmaline	Opaque, vitreous khaki green-brown	29.1	23.2	12.2	6.1	Shatter like fragment that contains one unifacial re-touched edge, soil clinging to all sides	27-Oct-17	22-May-19	LMB	Y
200	1	ST 109 Polygon B	0-5	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	35.8	25.2	3.8	3.1	Relatively large secondary or biface reduction flake with use wear along lateral edges, platform absent either through crushing (flake production) of subsequent heat damage (pot lid fractures present on ventral surface)	27-Oct-17	22-May-19	DH	Y
201	1	ST 110 Polygon B	15-20	Flake: Tertiary	chert: Tourmaline	Opaque, sub-vitreous khaki green-brown with faint banding	sg: 2	-	-	-	Concave, medium angle striking platform, minimal to moderate dorsal scarring, soil clinging to dorsal side	27-Oct-17	22-May-19	JT	N
202	1	ST 110 Polygon B	15-20	Flake: Tertiary	chert: Top of the World	Slightly translucent, vitreous grey-white	sg: 1	-	-	-	Small finishing flake, dihedral striking platform	27-Oct-17	22-May-19	JT	N
203	1	ST 111 Polygon B	10-20	Flake: Tertiary	chert: Etherington	Opaque, course-grained sub-vitreous to dull bluish-grey with portion of grey-white patina	sg: 2	-	-	-	Narrow, multi-facetted moderate angle striking platform with lip and contains 'dulled' working edge, moderate to complex dorsal scarring	27-Oct-17	22-May-19	MS	N
204	1	ST 112 Polygon B	10-15	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with banding	sg: 2	-	-	-	Re-sharpening flake with narrow, dihedral moderate angle striking platform with faint lip and 'dulled' working edge	27-Oct-17	22-May-19	LMB	N
205	1	ST 112 Polygon B	10-15	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with banding	sg: (2)	-	-	-	Medial portion of flake, prominent banding, no platform	27-Oct-17	22-May-19	LMB	N
206	1	ST 113 Polygon B	0-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	31.4	23.6	6	3.5	Relatively large dihedral high angle striking platform, complex dorsal scarring, use-wear along one later edge, soil clinging to dorsal side	27-Oct-17	22-May-19	JT	Y
207	1	ST 113 Polygon B	0-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	26.7	23.9	3.2	1.9	Medial portion of flake, moderate dorsal scarring, no platform, use wear along one lateral edge	27-Oct-17	22-May-19	JT	Y
208	1	ST 113 Polygon B	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark grey	sg: 4	-	-	-	Expanding flake with crushed platform (suspected to be medium angle), complex dorsal scarring that appears to be largely from being subject to heat (forest fire?), possible use wear along edges	27-Oct-17	22-May-19	JT	N
209	1	ST 113 Polygon B	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Dihedral, medium to high angle striking platform with lip and contains 'dulled' working edge, moderate dorsal scarring	27-Oct-17	22-May-19	JT	N
210	3	ST 113 Polygon B	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 1	-	-	-	Small finishing flakes	27-Oct-17	22-May-19	JT	N
211	3	ST 113 Polygon B	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: (1 [1]) & 2 [2]	-	-	-	Micro-blade like flakes, one is broken (terminal portion absent), medium angle striking platforms	27-Oct-17	22-May-19	JT	Y
212	6	ST 113 Polygon B	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 2 [3] & 3 [3]	-	-	-	Dihedral to concave medium angle striking platforms, some with lip, moderate dorsal scarring	27-Oct-17	22-May-19	JT	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
213	3	ST 113 Polygon B	0-10	Shatter	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 2	-	-	-	Blocky fragments, no platforms, soil clinging	27-Oct-17	22-May-19	JT	N
214	38	ST 113 Polygon B	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: (1 [5]), 2 [24]), (3 [7]), (4 [1]) & (5 [1])	-	-	-	Various flake fragments, no platforms observed, soil clinging to many artifacts, result of small workshop activity area	27-Oct-17	22-May-19	JT	N
215	1	ST 113 Polygon B	0-10	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 1	-	-	-	Small finishing flake, with dihedral medium angle striking platform, dorsal side obscured by soil clinging	27-Oct-17	22-May-19	JT	N
216	1	ST 113 Polygon B	10-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	26.6	19.3	4.4	1.8	Terminal portion of flake, no platform, weathered use wear along sides, minimal dorsal scarring and possible [nodular] cortex present	27-Oct-17	22-May-19	JT	Y
217	1	ST 113 Polygon B	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	46.4	33	6.9	9	Fresh fracture, broken (x2) and refit, likely from shovel during excavation, linear/narrow, multi-facetted relatively high angle striking platform with use wear along lateral edges, soil clinging	27-Oct-17	22-May-19	JT	Y
218	2	ST 113 Polygon B	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 2	-	-	-	Small finishing flakes, appear to have dihedral striking platforms, moderate dorsal scarring, soil clinging	27-Oct-17	22-May-19	JT	N
219	1	ST 113 Polygon B	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 2	-	-	-	Small dihedral, medium angle striking platform with faint lip, dorsal scarring obscured by soil clinging	27-Oct-17	22-May-19	JT	N
220	1	ST 113 Polygon B	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 2	-	-	-	Narrow, concave, moderate to high striking platform, minimal dorsal scarring	27-Oct-17	22-May-19	JT	N
221	1	ST 113 Polygon B	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: 3	-	-	-	Multi-facetted high angle striking platform, complex dorsal scarring from platform preparation, minimal dorsal scarring along terminal portion of flake, soil clinging, blocky	27-Oct-17	22-May-19	JT	N
222	6	ST 113 Polygon B	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey (weathered)	sg: (1 [4]) & (2 [2])	-	-	-	No platforms, variable dorsal scarring	27-Oct-17	22-May-19	JT	N
223	1	ST 113 Polygon B	10-20	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 2	-	-	-	Dihedral, medium angled striking platform, minimal dorsal scarring, with soil clinging	27-Oct-17	22-May-19	JT	N
224	1	ST 114 Polygon B	0-10	Tool: Utilized / Retouched Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	45.2	24.7	10.1	9.7	Large flake with dihedra, medium angled striking platform with unifacial retouch along dorsal side of platform creating a steep angle concave working edge, use wear along later edges of flake (both containing concave edges), moderate to complex dorsal scarring	27-Oct-17	23-May-19	JF	Y
225	1	ST 114 Polygon B	0-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	26.2	23.5	4.3	2.1	Secondary flake with dihedral high angle striking platform, minimal to moderate dorsal scarring, use wear along lateral and distal edges.	27-Oct-17	23-May-19	JF	Y
226	1	ST 114 Polygon B	0-10	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (2)	-	-	-	Medial portion of flake, no platform, soil clinging	27-Oct-17	23-May-19	JF	N
227	1	ST 114 Polygon B	25-30	Tool: Utilized Flake (fragment)	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	(33.1)	(25.1)	(3.7)	(2.1)	Medial-terminal portion of secondary decortication flake, planar cortex on dorsal surface, no platform, use wear along lateral and distal edges	27-Oct-17	23-May-19	JF	Y
228	1	ST 114 Polygon B	25-30	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with very faint banding	sg: (2)	-	-	-	Medial portion of flake, no platform, course-grained material	27-Oct-17	23-May-19	JF	N
229	1	ST 114 Polygon B	25-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Narrow, concave multi-facetted moderate angle striking platform with very faint lip minimal dorsal scarring, step termination or fracture, soil clinging	27-Oct-17	23-May-19	JF	N
230	1	ST 114 Polygon B	25-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake with portion of lateral edge, possible use wear	27-Oct-17	23-May-19	JF	N
231	1	ST 115 Polygon B	0-10	Tool: Biface (Preform)	chert: Etherington	Opaque to slightly translucent	(36.5)	(29.3)	(8.3)	(9.3)	Preform fragment with excurvate blades, top portion (terminal end of flake) absent, created from secondary decortication flake, largely bifacially reduced, but unifacial flaking has occurred where a portion of planar cortex on dorsal side is present, soil clinging	27-Oct-17	23-May-19	DH	Y
232	1	ST 115 Polygon B	0-10	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 2	-	-	-	Multi-facetted high angle striking platform, minimal to moderate dorsal scarring, soil clinging	27-Oct-17	23-May-19	DH	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
233	1	ST 115 Polygon B	0-10	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (1)	-	-	-	Medial portion of flake, no platform	27-Oct-17	23-May-19	DH	N
234	1	ST 115 Polygon B	0-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	24.5	17.2	2.6	0.7	Single facet low to medium angle striking platform with overhanging lip, minimal dorsal scarring, use wear along lateral edge	27-Oct-17	23-May-19	DH	N
235	1	ST 115 Polygon B	0-10	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 1	-	-	-	Blocky, no platform	27-Oct-17	23-May-19	DH	N
236	5	ST 115 Polygon B	0-10	Flake: Fragment	chert: Etherington	Opaque to slightly translucent, sub-vitreous white to bluish-grey	sg: (2)	-	-	-	No platforms	27-Oct-17	23-May-19	DH	N
237	1	ST 115 Polygon B	0-10	Flake: Secondary	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: (2)	-	-	-	Proximal portion of flake that contains planar cortex and platform preparation, minimal dorsal scarring, step termination or breakage	27-Oct-17	23-May-19	DH	N
238	3	ST 115 Polygon B	0-10	Flake: Tertiary	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: (1)	-	-	-	Fragments of finishing flakes, soil clinging	27-Oct-17	23-May-19	DH	N
239	3	ST 115 Polygon B	0-10	Flake: Fragment	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: (2)	-	-	-	Medial portions of flakes, no platforms	27-Oct-17	23-May-19	DH	N
240	1	ST 115 Polygon B	0-10	Flake: Tertiary	chert: High Rock Range	Opaque to slightly translucent, vitreous bluish-grey	sg: 1	-	-	-	Re-sharpening flake, multi-facetted low to moderate angle striking platform with faint lip, moderate dorsal scaring	27-Oct-17	23-May-19	DH	N
241	1	ST 115 Polygon B	0-10	Flake: Secondary	chalcedony	Transparent with slightly transparent milky-white veins, highly vitreous	sg: 2	-	-	-	Planar, moderate to high angle striking platform, minimal to moderate dorsal scarring, possible gradation/variant of Etherington chert	27-Oct-17	23-May-19	DH	N
242	1	ST 115 Polygon B	0-10	Flake: Secondary	chalcedony	Transparent with slightly transparent milky-white veins, highly vitreous	sg: 2	-	-	-	Dihedral, moderate angle striking platform, hinge termination, minimal dorsal scarring	27-Oct-17	23-May-19	DH	N
243	1	ST 115 Polygon B	10-15	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull grey (weathered)	(32.66)	(20.8)	(6.4)	(2.3)	Medial-terminal portion of secondary decortication flake, nodular cortex on dorsal surface, no platform, use wear along lateral and distal edges	27-Oct-17	23-May-19	DH	N
244	1	ST 115 Polygon B	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform	27-Oct-17	23-May-19	DH	N
245	3	ST 115 Polygon B	10-15	Flake: Tertiary	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: 2	-	-	-	Late stage flakage with moderate dorsal scarring, low to moderate angle striking platforms	27-Oct-17	23-May-19	DH	N
246	1	ST 115 Polygon B	10-15	Flake: Fragment	chert: Etherington	Opaque and slightly translucent	sg: (2)	-	-	-	No platform, material grades from chalcedony-like to coarse-grained	27-Oct-17	23-May-19	DH	N
247	1	ST 115 Polygon B	15-20	Tool: Utilized Flake (fragment)	chert: Etherington	Opaque, dull reddish-pink, coarse grained	(20.6)	(12.5)	(2.1)	(0.5)	Medial-terminal portion of flake with hinge-like termination, use wear along longest lateral edge	27-Oct-17	23-May-19	DH	Y
248	1	ST 115 Polygon B	15-20	Flake: Fragment	chert: High Rock Range	Opaque to slightly translucent bluish-grey	sg: (2)	-	-	-	Medial-terminal portion of flake, no platform, minimal dorsal scaring	27-Oct-17	23-May-19	DH	N
249	1	ST 115 Polygon B	15-20	Flake: Tertiary	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: 2	-	-	-	Small, moderate angle striking platform that is heavily coated with soil, moderate dorsal scarring	27-Oct-17	23-May-19	DH	N
250	1	ST 115 Polygon B	15-20	Flake: Secondary	chert: Etherington	Slightly translucent, sub-vitreous white	sg: 2	-	-	-	Small dihedral moderate angle striking platform, moderate dorsal scarring, soil clinging to portion of ventral side	27-Oct-17	23-May-19	DH	N
251	5	ST 115 Polygon B	20-25	Flake: Secondary	chert: Etherington	Variable - Opaque red-pink to white, or translucent grey	sg: 2 [4] & 3 [1]	-	-	-	Variable colour of same material (verified with comparative sample), medium angle striking platforms, moderate dorsal scarring	27-Oct-17	23-May-19	DH	N
252	12	ST 115 Polygon B	20-25	Flake: Fragment	chert: Etherington	Variable - Opaque red-pink to white, or translucent grey	sg: (1 [3]), (2 [8]) & (3 [1])	-	-	-	No platforms, late stage reduction	27-Oct-17	23-May-19	DH	N
253	2	ST 115 Polygon B	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, brownish-grey (weathered)	sg: (1 [1]) & (2 [1])	-	-	-	No platforms, late stage reduction	27-Oct-17	23-May-19	DH	N
254	1	ST 115 Polygon B	20-25	Flake: Secondary	chert: High Rock Range	Opaque, dull to sub-vitreous grey with blue hue	sg: 1	-	-	-	Dihedral, moderate angle striking platform, minimal dorsal scarring, suspected platform preparation flake	27-Oct-17	23-May-19	DH	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
255	1	ST 115 Polygon B	20-25	Flake: Fragment	chert: High Rock Range	Opaque to slightly translucent, sub-vitreous grey with blue hue	sg: (2)	-	-	-	Terminal portion of flake, no platform	27-Oct-17	23-May-19	DH	N
256	3	ST 115 Polygon B	25-30	Flake: Secondary	chert: Etherington	Opaque dull red-pink [2] and slightly translucent light grey [1]	sg: 2 [2] & 3 [1]	-	-	-	Small dihedral medium angle striking platforms with faint lip, moderate dorsal scarring	27-Oct-17	23-May-19	DH	N
257	1	ST 115 Polygon B	25-30	Flake: Primary	chert: Etherington	Opaque dull reddish-pink	sg: 2	-	-	-	Secondary decortication flake with planar cortex, narrow dihedral, medium angle striking platform	27-Oct-17	23-May-19	DH	N
258	4	ST 115 Polygon B	25-30	Flake: Fragment	chert: Etherington	Opaque dull red-pink [1], slightly translucent light grey/white [2] & dark grey with vein [1]	sg: (1 [2]) & (2 [2])	-	-	-	No platforms	27-Oct-17	23-May-19	DH	N
259	1	ST 115 Polygon B	25-30	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous to dull bluish-grey	sg: (2)	-	-	-	Medial portion of flake, no platform, moderate dorsal scarring	27-Oct-17	23-May-19	DH	N
260	1	ST 115 Polygon B	25-30	Flake: Secondary	chalcedony	Transparent to translucent, highly vitreous	sg: 2	-	-	-	Planar, high-angle striking platform, minimal to moderate dorsal scarring, possible variant/gradation of Etherington chert	27-Oct-17	23-May-19	DH	N
261	1	ST 115 Polygon B	30-35	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Platform crushed, secondary flake frag, moderate dorsal scarring	27-Oct-17	23-May-19	DH	N
262	1	ST 115 Polygon B	30-35	Flake: Tertiary	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: 2	-	-	-	Re-sharpening flake with multi-facetted, medium angled striking platform with overhanging lip and 'dulled' working edge, moderate dorsal scarring, soil clinging to dorsal surface	27-Oct-17	23-May-19	DH	N
263	2	ST 115 Polygon B	30-35	Flake: Fragment	chert: Etherington	Opaque, dull white with red-pinkish hue, coarse grained	sg: 2	-	-	-	No platforms, late stage reduction	27-Oct-17	23-May-19	DH	N
264	1	ST 116 Polygon B	5-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 3	-	-	-	Multi-facetted, medium-angle striking platform with overhanging lip, appears to be planar cortex on dorsal surface	27-Oct-17	23-May-19	IT	N
265	1	ST 116 Polygon B	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (3)	-	-	-	Medial portion of flake, moderate dorsal scarring, no platform	27-Oct-17	23-May-19	IT	N
266	1	ST 116 Polygon B	5-10	Flake: Fragment	chert: Etherington	Opaque, sub-vitreous greyish-white	sg: (2)	-	-	-	Medial portion of secondary flake, moderate to complex dorsal scarring	27-Oct-17	23-May-19	IT	N
267	1	ST 116 Polygon B	5-10	Flake: Fragment	chert: High Rock Range	Opaque to slightly translucent, sub-vitreous dark grey	sg: (2)	-	-	-	No platform	27-Oct-17	23-May-19	IT	N
268	1	ST 116 Polygon B	5-10	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 2	-	-	-	Dihedral, moderate to high angle striking platform, erailure scar present, moderate dorsal scarring, soil clinging to ventral side	27-Oct-17	23-May-19	IT	N
269	1	ST 116 Polygon B	5-10	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (2)	-	-	-	No platform	27-Oct-17	23-May-19	IT	N
270	1	ST 116 Polygon B	20-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform, medial portion of flake	27-Oct-17	23-May-19	IT	N
271	1	ST 116 Polygon B	20-30	Flake: Tertiary	Tourmalinite	Opaque, sub-vitreous black	sg: 1	-	-	-	Small dihedral medium angle striking platform, finishing/re-sharpening flake, soil clinging to some of ventral side	27-Oct-17	23-May-19	IT	N
272	1	ST 116 Polygon B	22	Tool: Projectile Point	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	32.9	14.7	4.1	(2.8)	Neck width: 9.7 mm; low-side to corner-removed notches that form an expanding stem with straight to slightly convex base, symmetrical triangular-shaped blades that are bifacially worked, portion of ventral surface of original flake-blank remains on one side, missing one ear (fresh fracture - from shovel during excavation), soil clinging, recovered with point down into what was interpreted as culturally-sterile sediment. Style and metrics are suggestive of Pelican Lake Complex (ca. 3200 - 2800 BP)	27-Oct-17	23-May-19	IT	Y
273	1	ST 117 Polygon B	15-20	Flake: Tertiary	chert: unknown	Translucent, sub-vitreous greyish-brown	sg: 1	-	-	-	Small finishing/re-sharpening flake, platform largely crushed, moderate dorsal scarring	27-Oct-17	23-May-19	LMB	N
274	1	ST 117 Polygon B	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform	27-Oct-17	23-May-19	LMB	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
275	1	ST 118 Polygon B	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	15.3	12.6	3.5	1.5	Early stage flake with concave dihedral medium to high striking platform, minimal dorsal scarring, use wear along terminal edge	27-Oct-17	23-May-19	JF	Y
276	2	ST 118 Polygon B	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Narrow, dihedral medium angle striking platform with overhanging lip and contains 'dulled working edge, moderate dorsal scarring, one specimen missing terminal portion	27-Oct-17	23-May-19	JF	N
277	1	ST 118 Polygon B	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	Terminal portion of secondary stage flake, minimal dorsal scarring	27-Oct-17	23-May-19	JF	N
278	1	ST 118 Polygon B	10-20	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Blocky shatter that could contain nodular cortex	27-Oct-17	23-May-19	JF	N
279	1	ST 118 Polygon B	10-20	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 2	-	-	-	Small dihedral moderate to low striking platform, moderate dorsal scarring, re-sharpening/finishing flake, soil clinging to dorsal side	27-Oct-17	23-May-19	JF	N
280	1	ST 119 Polygon B	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Terminal portion of flake, possible use wear along terminal edge, but suspected breakage from turbation	27-Oct-17	23-May-19	LMB	N
281	1	ST 120 Polygon B	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	Medial portion of flake, no platform, minimal dorsal scarring	27-Oct-17	23-May-19	LMB	N
282	1	ST 120 Polygon B	0-10	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (2)	-	-	-	Terminal portion of flake, blocky, possible naturally-split pebble, compression waves on ventral side	27-Oct-17	23-May-19	LMB	N
283	1	ST 121 Polygon B	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 4	-	-	-	Single facet high angle striking platform, blocky flake with soil clinging to all sides	27-Oct-17	23-May-19	JT	N
284	1	ST 122 Polygon B	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Multi-facetted, medium angle striking platform with overhanging lip and 'dulled' working edge, step termination or breakage, moderate to complex dorsal surface	27-Oct-17	23-May-19	JF	N
285	1	ST 122 Polygon B	10-20	Flake: Fragment	chert: Etherington	Opaque to slightly-translucent, sub-vitreous to dull grey	sg: (2)	-	-	-	Blocky fragment, no platform	27-Oct-17	23-May-19	JF	N
286	1	ST 122 Polygon B	10-20	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull medium grey with faint banding	sg: 1	-	-	-	Small dihedral striking platform with faint lip, moderate dorsal scaring, finishing/re-sharpening flake	27-Oct-17	23-May-19	JF	N
287	1	ST 122 Polygon B	20-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Narrow, dihedral medium angle striking platform with overhanging lip and contains 'dulled' working edge, moderate to complex dorsal scarring	27-Oct-17	23-May-19	JF	N
288	1	ST 123 Polygon B	10-15	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, dull medium grey with faint banding	sg: 3				Small remnant of a medium angle striking platform, complex dorsal scaring, soil clinging to dorsal side	27-Oct-17	23-May-19	MS	N
289	1	ST 19 Polygon C	10-20	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous dark grey with faint banding	sg: 2	-	-	-	Re-sharpening flake, multi-faceted low to medium angle striking platform with lip and 'dulled' working edge, complex dorsal scarring, soil clinging to ventral side and platform	20-Oct-17	22-May-19	JM	N
290	1	ST 19 Polygon C	10-20	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous dark grey with faint banding	sg: (2)	-	-	-	Medial portion of flake, no platform, soil clinging to one side	20-Oct-17	22-May-19	JM	N
291	1	ST 19 Polygon C	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Re-sharpening flake, multi-faceted low to medium angle striking platform with lip and 'dulled' working edge, dorsal scarring is obscured by soil clinging	20-Oct-17	22-May-19	JM	N
292	5	ST 19 Polygon C	10-20	Flake: Fragment	chert: Top of the World	Translucent, vitreous light grey	sg: (1 [1]) & (2 [4])	-	-	-	Medial portions of flake, no platforms, soil clinging to portions of flakes	20-Oct-17	22-May-19	JM	N
293	1	ST 20 Polygon C	10-20	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous to dull dark grey with lighter brownish-grey banding	sg: 2	-	-	-	Planar, high-angle striking platform, minimal to moderate dorsal scarring with soil clinging	20-Oct-17	22-May-19	JW	N
294	3	ST 20 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey where weathered	sg: (2)	-	-	-	Medial portions of flakes, no platforms, one specimen appears fire-reddened, soil clinging to portions of artifacts	20-Oct-17	22-May-19	JW	N
295	1	ST 21 Polygon C	20	Flake: Decortication	Siliceous Mudstone	Opaque, dull dark grey	sg: 2	-	-	-	Dihedral, high angle striking platform, soil clinging to ventral surface	20-Oct-17	22-May-19	DH	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
296	2	ST 21 Polygon C	20	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey to brownish-grey where weathered	sg: (1 [1]) & (2 [1])	-	-	-	Medial portions of flake, no platforms (one likely crushed)	20-Oct-17	22-May-19	DH	N
297	1	ST 21 Polygon C	20	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous to dull grey with lighter brownish-grey banding	sg: (2)	-	-	-	Medial portion of flake, no platform	20-Oct-17	22-May-19	DH	N
298	1	ST 22 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform	20-Oct-17	22-May-19	JT	N
299	1	ST 22 Polygon C	10-20	Flake: Secondary (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Largely crushed platform, moderate to complex dorsal scarring, soil clinging to dorsal side	20-Oct-17	22-May-19	JT	N
300	1	ST 23 Polygon C	5-10	Tool: Hammerstone	Quartzite / Sandstone	Opaque, medium grained	98.6	77.8	53.5	556	Sub-round cobble, with pecking scars along relatively prominent 'ends', one linear scar from shovel (contemporary), soil clinging to artifact (obscures colour), did not fit with subsurface matrix.	20-Oct-17	22-May-19	IT	Y
301	1	ST 24 Polygon C	0-10	Shatter	chert: Etherington	Opaque, sub-vitreous dark grey with blue hue and faint banding	sg: 3	-	-	-	Blocky shatter fragment, soil clinging	20-Oct-17	22-May-19	JW	N
302	1	ST 1 Polygon D	0-5	Flake: Secondary (fragment)	chert: Top of the World	Translucent, highly vitreous light whitish-grey	sg: (2)	-	-	-	Proximal portion of thinning (blade-like) flake, with planar, medium to high angle striking platform that has soil clinging and obscures view, moderate dorsal scarring, broken (snapped) terminal end.	20-Oct-17	17-May-19	JF	N
303	1	ST 2 Polygon D	5-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	52.3	35.7	5.7	7.6	Broken (x3) and refit, planar [nodular] cortex on the high-angle striking platform with expanding lateral edges, moderate dorsal scarring, with use wear along lateral edges, soil clinging to all sides of artifact (including breakage)	20-Oct-17	17-May-19	JT	Y
304	1	ST 2 Polygon D	15-20	Shatter	Siliceous Mudstone	Opaque, dull whitish-grey (very weathered)	sg: 3	-	-	-	Blade like outline, with suspected use wear along one later edge, no true platform or ventral side, soil clinging to all sides	20-Oct-17	17-May-19	JT	N
305	1	ST 3 Polygon D	10-15	Flake: Tertiary	chert: tourmaline	Opaque, vitreous khaki grey-brown	sg: 2				Small, single facet, low to medium angle striking platform, relatively complex dorsal scarring (largely obscured by clinging soil)	20-Oct-17	17-May-19	JM	N
306	1	ST 4 Polygon D	15-20	Tool: Retouched Flake	Tourmalinite (khaki)	Opaque, vitreous khaki greenish-brown	(20.1)	(15.7)	(2.8)	(0.9)	Terminal portion of flake with unifacial retouch along both lateral edges, moderate dorsal scarring	20-Oct-17	17-May-19	DH	Y
307	2	ST 5 Polygon D	5-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portions of flakes, no platforms	20-Oct-17	17-May-19	JN	N
308	1	ST 5 Polygon D	5-15	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous to dull dark grey/black with lighter brownish-grey banding	sg: (2)	-	-	-	Terminal portion of flake, no platform, minimal to moderate dorsal scarring, possible planar cortex on a portion of dorsal surface	20-Oct-17	17-May-19	JN	N
309	1	ST 5 Polygon D	5-15	Flake: Fragment	Siliceous Mudstone	Opaque, sub-vitreous to dull dark grey	sg: (2)	-	-	-	Portion of decortication flake, water-smoothed or nodular cortex	20-Oct-17	17-May-19	JN	N
310	1	ST 6 Polygon D	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 5	-	-	-	Broken (x2) and refit, multi-facetted medium angle striking platform with slight lip, weathered and soil clinging to all sides, suspected use wear	20-Oct-17	17-May-19	JF	N
311	1	ST 6 Polygon D	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark grey	sg: 3	-	-	-	Terminal portion of flake, no platform, minimal to moderate dorsal scarring, possible planar cortex on a portion of dorsal surface	20-Oct-17	17-May-19	JF	N
312	1	ST 7 Polygon D	15-20	Flake: Tertiary (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Proximal portion of flake, medium-angled multifaceted platform with lip, moderate dorsal scarring	20-Oct-17	17-May-19	JF	N
313	1	ST 8 Polygon D	0-5	Flake: Fragment	chert: Top of the World	Translucent, highly vitreous bluish-grey	sg: (2)	-	-	-	Terminal portion of flake, no platform, complex dorsal scarring, soil clinging to dorsal side	20-Oct-17	17-May-19	JF	N
314	1	ST 9 Polygon D	0-5	Flake: Tertiary	Siliceous Mudstone	Opaque, dull grey-brown	sg: 3	-	-	-	Re-sharpening flake, multi-faceted low to medium angled striking platform with lip, complex dorsal scarring, possible use wear	20-Oct-17	17-May-19	JT	N
315	1	ST 10 Polygon D	5-15	Tool: Utilized Flake	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous to dull dark grey with lighter brownish-grey banding	43.7	25.2	7.5	7.7	Relatively large secondary/tertiary flake with no platform due to re-working/use-wear, complex dorsal scarring, slight re-touch along proximal end (platform area) with use wear extending down lateral edges	20-Oct-17	17-May-19	JN	Y

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
316	1	ST 11 Polygon D	10-20	Flake: Secondary (fragment)	Siliceous Mudstone	Opaque, dull grey	sg: (2)	-	-	-	Proximal portion of flake, medium-angled multifaceted platform with faint lip, moderate dorsal scarring, step termination or breakage	20-Oct-17	17-May-19	JW	N
317	1	ST 11 Polygon D	10-20	Flake: Tertiary	chert: Etherington	Translucent, sub-vitreous reddish-grey	sg: 2	-	-	-	Re-sharpening flake, multi-faceted low to medium angled striking platform with lip and 'dulled' working edge, moderate dorsal scarring,	20-Oct-17	17-May-19	JW	N
318	1	ST 12 Polygon D	0-5	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, sub-vitreous to dull brownish-grey/dark grey with distinct banding	sg: 3	-	-	-	Medial portions of flake, no platform, blocky appearance with relatively complex dorsal scarring	20-Oct-17	17-May-19	JW	N
319	1	ST 13 Polygon D	0-10	Flake: Tertiary	chert: High Rock Range	Opaque, sub-vitreous to dull bluish-grey	sg: (2)	-	-	-	Proximal portion of late stage flake, dihedral moderate angle striking platform, moderate dorsal scarring with step termination or breakage, soil clinging to dorsal side	20-Oct-17	22-May-19	JN	N
320	1	ST 13 Polygon D	0-10	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous to dull bluish-grey	sg: (2)	-	-	-	Terminal portion of secondary/tertiary flake, surfaces contain pot-lid fractures (subjected to heat), soil clinging to portion of dorsal surface	20-Oct-17	22-May-19	JN	N
321	1	ST 13 Polygon D	0-10	Faunal: Fragment	-	-	-	-	-	(0.4)	Unidentifiable bone fragment, calcined/charred; see Faunal Catalogue	20-Oct-17	22-May-19	JN	N
322	1	ST 14 Polygon D	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, minimal-moderate dorsal scarring, dense soil adhering to ventral side	20-Oct-17	22-May-19	JT	N
323	1	ST 15 Polygon D	5-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Narrow, multifaceted , medium angle striking platform with what appears to be 'dulled 'working edge, complex dorsal scarring, some soil clinging to arris lines	20-Oct-17	22-May-19	JN	N
324	1	ST 15 Polygon D	5-10	Tool: Utilized Flake (fragment)	chert: Top of the World	Opaque to slightly translucent along edges, vitreous light grey with bluish hue	(29.0)	(9.6)	(4.1)	(0.9)	Terminal portion of prismatic-shaped (blade-like) flake, with use wear along one lateral edge, no platform, soil clinging to ventral side	20-Oct-17	22-May-19	JN	N
325	1	ST 16 Polygon D	10-20	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: (2)	-	-	-	Terminal portion of flake, no platform, moderate dorsal scarring, some soil clinging to arris lines and fracture	20-Oct-17	22-May-19	JF	N
326	1	ST 17 Polygon D	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Planar (to slightly concave), medium-angle striking platform, with preparation scarring, moderate dorsal scarring	20-Oct-17	22-May-19	JT	N
327	1	ST 18 Polygon D	10-15	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Dihedral, medium angled striking platform with what appears to be 'dulled' working edge and lip, moderate to complex dorsal scarring	20-Oct-17	22-May-19	JN	N
328	1	ST 18 Polygon D	10-15	Flake: Secondary	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: 2	-	-	-	Dihedral, medium angle striking platform, minimal dorsal scarring	20-Oct-17	22-May-19	JN	N
329	1	ST 25 Polygon E	0-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(18.8)	(11.6)	(2.7)	(0.4)	Terminal portion of flake with moderate dorsal scarring, use wear along lateral edges	20-Oct-17	22-May-19	JN	N
330	22	ST 27 Polygon F	20-30	Faunal: Fragments	-	-	-	-	-	(7.7)	Unidentifiable bone fragments, un altered and not burnt/charred; see Faunal Catalogue	20-Oct-17	17-May-19	JN	N

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository
Catalogue Numbers DlPr-42: 1 - 170 were utilized under *HCA* Permit 2005-0154

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Material	Bone Unit	Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
321	1	ST 13 Polygon D	0-10	Faunal: Fragment	Bone	*indeterminate*	Calcined (charred)	sg: (2)	-	-	(0.4)	Unidentifiable bone fragment, calcined/charred	20-Oct-17	22-May-19	JN	N
330	22	ST 27 Polygon E	20-30	Faunal: Fragments	Bone	*indeterminate*	Unaltered (Green)	sg: (1 [2]), (2 [17]), 3 [2]) & (4 [1])	-	-	(7.7)	Unidentifiable bone fragments, unaltered specimens with no evident charring (*i.e.* burnt/charred)	20-Oct-17	17-May-19	JN	N

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Borden Number: DlPr-42
Permit Number: 2015-0098

Date of Assessment / Field Visit: October 20, 26 and 27, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Provenience	Depth (below surface)	Material	Size Grade	# of Pieces	Weight (g)	Weight (g) per Context	Comments
ST 23 Polygon C	0-5 cm	-	10-15 cm	1	100	100	Castellated fracture
ST 15 Polygon D	0-5 cm	-	0-5 cm	2	50	130	Castellated fractures
		-	5-10 cm	1	80		Castellated fracture
TT 3 Polygon D	-	-	0-5 cm	14	340	570	Castellated and Spalled fractures
		-	5-10 cm	6	230		Castellated and Bedding fractures
ST 26 Polygon E	10 cm	Quartzite	5-10 cm	1	170	170	Castellated fracture
			Totals:	***24***	***970***	***970***	

Catalogue Notes:
Artifacts were quantified in the field and returned to the tree throw or buried within the shovel test they originated

Catalogue Legend:
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
FAR Size Grade= sg, defined by 1= 0 -5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DlPr-43**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654500** Northing: **5523882**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approximately 17 km. Turn east onto the Line Creek Mine Road and continue for 1.4 km before turning south onto Valley Road (FSR) and travel for 4.5 km. Turn east onto Harmer Road (FSR) and continue for approximately 0.9 km and park at the junction with an old branch road that heads southward (note that vehicles are not permitted on this old road - access management area). The site is located to the south (Polygons A-C) between 15 m and 175 m to the south-southeast, and Polygon D is located immediately north of the Harmer Road.**

Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/16**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II - Transportation Corridor): October 3, 2017 and October 10, 11 and 16, 2018**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Lara McFadden-Baltutis (TMECS),** **Daniel Heinrichs (TMECS),** **Joshua Martin (TMECS & Shuswap Indian Band)**	**Y**
Other	**Jess Thomas (TMECS & Ktunaxa Nation Council [KNC])** **John Nicholas (KNC)** **Jeff Williams (TMECS & KNC)** **Mathias Ladd (TMECS)** **Jason Feltham (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: In total, 62 artifacts, including 23 flakes and 9 tools (or fragments of) from Polygon B, 25 flakes and 3 tools from Polygon C, and 2 flakes from Polygon D; 9 different raw lithic material types; see artifact catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **248 m** Direction **N-S**
Width: **145 m** Direction **E-W**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

The above-mentioned dimensions encompass the locality of the site and all four of the currently defined site areas (Polygons A - D); boundaries were largely delineated with an observed boundary that includes a 5 m buffer from both artifacts exposed in rodent mounds and positive shovel tests. Segments of the site polygons did utilize natural boundaries (landform margins) where applicable; see remarks.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **.3 m**

Stratigraphy Description: **Variable stratigraphy based on micro-topography. In general, chernozemic and podzolic soil development within a mantle of silt and silty-loam that overlies re-worked till and gravel at an unknown depth (as seen in scarp exposures); see attached stratigraphy log.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approximately 57 shovel tests (35 cm x 35 cm) were excavated to a maximum depth of 35 cm below surface within or immediately adjacent to the currently defined site boundaries (Polygons B-D).**
Past	**Logging**	**Evidence of previous eco-restoration proj; branch road, skid trails, slash piles, and stumps were observed within site locality; disturbances areas are largely overgrown.**
Past	**Road Construction**	**Prev. construction of Harmer Rd may have bisected the north portion of site (Polygons C & D); width of road allowance is approximately 15 m; dist. includes peripheral push piles and ditch/slope cuts**

14. ENVIRONMENT

Lower Elevation **1250 m** (asl) Upper Elevation **1270 m** (asl)

Elevation Comments: **Elevation obtained using a handheld GPS and Google Earth Pro. Site varies from 30 to 50 m above the elevation of Grave Creek (confluence with outlet drainage of Grave Lake is to the south)**

Nearest Hydrological Feature(s): **Confluence of outlet drainage of Grave Lake and Grave Creek is located approximately 180 m south-southeast of site (Polygon B); Elk River is 1.1 km east; Grave Lake is 1.2 km northeast**

Terrain/Landform: **Site encompasses several micro-topographic features; Polygon A: elevated knoll (original site area), Polygon B: low sloped scarp of knoll and small bench; Polygon C: nested terracing and low-sloped terrain associated with ephemeral drainage; Polygon D: low sloped ground north of Harmer Road.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**Ian Tamasi and Nyomi Sherwin**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. See additional recommendations in General Remarks.

17. GENERAL REMARKS

1) Site Dimensions and Boundaries

-Polygon A: originally recorded in 2005 (2015-0154); approximate dimensions and the shape of the site remain as originally recorded, the projected centroid location (on RAAD ca 2020) was revised (i.e. shifted westward) to reflect natural limits of knoll that previously documented/described; this is verify by I. Tamasi, who was present during the original recording and this update; see 2015-0098 site map.

-Polygon B:
Centroid: 11U 654470 E, 5523784 N
Size: 63 m (NNE-SSW) x 20 m (E-W), defined by an observed boundary that includes a 5 m buffer from artifacts that were exposed in rodent mounds and positive shovel tests.

-Polygon C:
Centroid: 11U 654504 E, 5523908 N
Size: 140 m (NW-SE) x 83 m (NE-SW), segments of this boundary are defined naturally by minor/faint terrace margins, but are largely delineated by an observed boundary that includes a 5 m buffer from positive shovel tests.

-Polygon D:
Centroid: 11U 654462 E, 5523997 N
Size: 10 m (N-S) x 10 m (E-W), defined by a 5 m radial buffer from the single positive shovel test on the northern side of Harmer Road. Note that this site area may have been bisected from the southern portion of the site (i.e. Polygon C) by road construction.

Boundary Comments:
- The general locality of the site was identified in the field with yellow and black "A.I.A. Zone" flagging tape.
- Subsurface inspection of DlPr-43 (under 2015-0098) should be considered provisional and was conducted to annually contribute to the AIA of an evolving development footprint and to commence an understanding for the presence/absense of archaeological sites within the locality of Grave Prairie. An abundance of subsurface inspection is still required to delineate an appropriate site area(s) for DlPr-43 (including sloped ground); the excavation of three negative tests (in cardinal directions) was not always possible due to a constrained budget, relatively large size of the cultural landscape, and the evolving scope of the project.

2) Recorder's Recommendations -
Further subsurface testing is recommended within the locality of DlPr-43, which may result in the lumping of several smaller-sized sites that were discovered within 200 m radius.

3) The number of sites and the current distribution of archaeological sites indicates an extensive precontact occupation of the Grave Prairie locality within the Middle Period, likely associated with annual resource procurement during the seasonal round. This locality also provides a favourable location for [western] base camp to facilitate intra-mountain travel via Grave Creek and Line Creek, both of which access the Alexander Creek valley offer routes of least resistence over the Continental Divide to access the plains region via several mountain passes (e.g. Deadman, Race Horse, North Fork, and Tornado).

4) Although this site is in the locality of Grave Prairie, no evidence of ancestral burials or human remains were observed under 2015-0098; this should not preclude the presence of burials within this site and the immediately adjacent terrain.

5) As a result of the archaeology present to the north of Grave Creek, the proponent revised the development plan. With the exception of widening Hamer Road to facilitate haul trucks, infrastructure components are no longer proposed between the FSR and Grave Creek.

6) Artifact Catalogue:
DlPr-43: 1-68, were assigned to artifacts collected under permit 2005-0154 (confirmed with RBCM: 27-Mar-2020)
DlPr-43: 69-129, were assigned to artifacts collected under permit 2015-0098

Figure: 15

Permit: 2015-0098

Title:

DlPr-43 Update Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 10/2017-18

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,500

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- New Arch Site Bdry (TMECS 2017)
- Photo
- Precontact Arch Site Bdry (RAAD 2019)
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Skid Trail
- Water Feature
- Ephemeral Drainage
- Relict Drainage
- Terrace Margin
- Slope Break
- Slope
- Contour Line (20 m)
- Nearest Watercourse
- Surface Artifact - Lithics
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Tree Throw
- Negative Rodent Mound
- Positive Rodent Mound
- Slash Pile
- Pushpile
- Deadfall

654400 654500 654600

5524000 5523900 5523800

DlPr-43 Update Polygon D

Harmer FSR

C38-12

C38-44

DlPr-43 Update Polygon C
Easting: 654500
Northing: 5523882

Unnamed Rd

DlPr-76

DlPr-77

DlPr-43 Update Polygon A

DlPr-43 Update Polygon B

Grave Lake Outlet

1260

1240

5-7°

10-15°

5-10°

15°

20-30°

30°

10°

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. DlPr-43, overview of site Polygon B during shovel testing; this portion of the site was discovered in 2017. (view: southeast)

Photo 2. DlPr-43, overview of site Polygon C (southern terminus of minor terrace in proximity to ST 9). The originally recorded site area (Polygon A) is situated upslope in the right of the photo. (view: southeast)

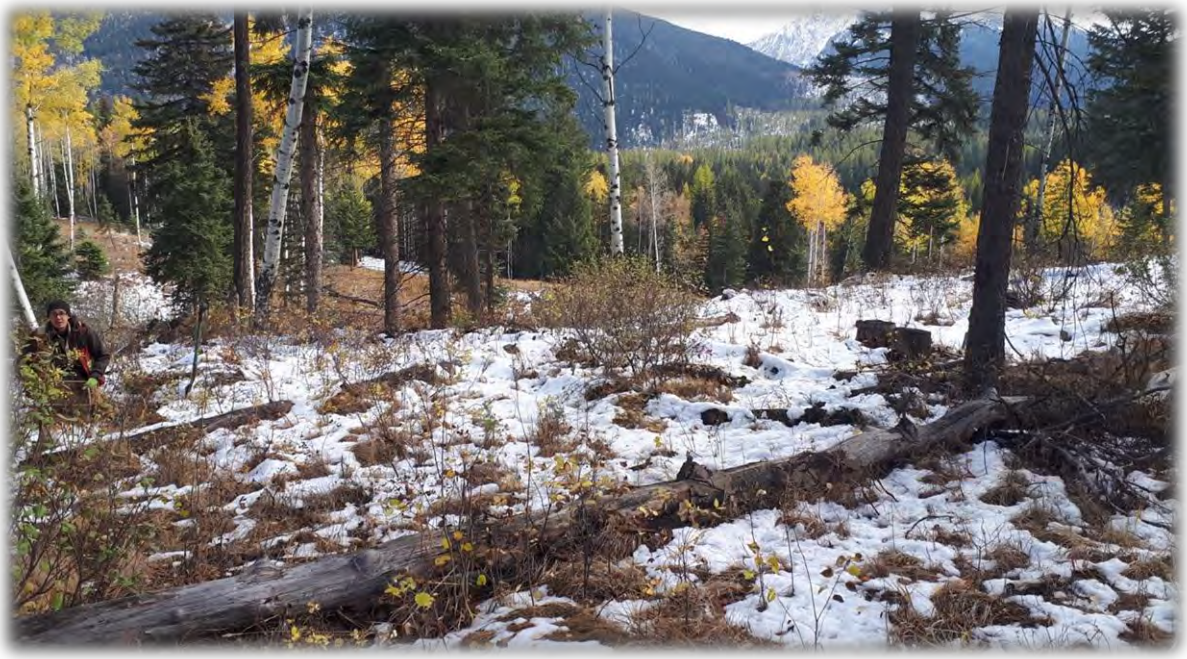


Photo 3. DlPr-43, supplemental overview of site Polygon C, view of site area with ephemeral tributary drainage leading downslope to Grave Lake Outlet Creek, which is in dense timber stand within the background. (view: southeast)

Photo 4. DlPr-43, supplemental overview of site Polygon C. (view: northeast)

Photo 5. DlPr-43, overview of site Polygon D, which contains ST 17.
(view: southeast)

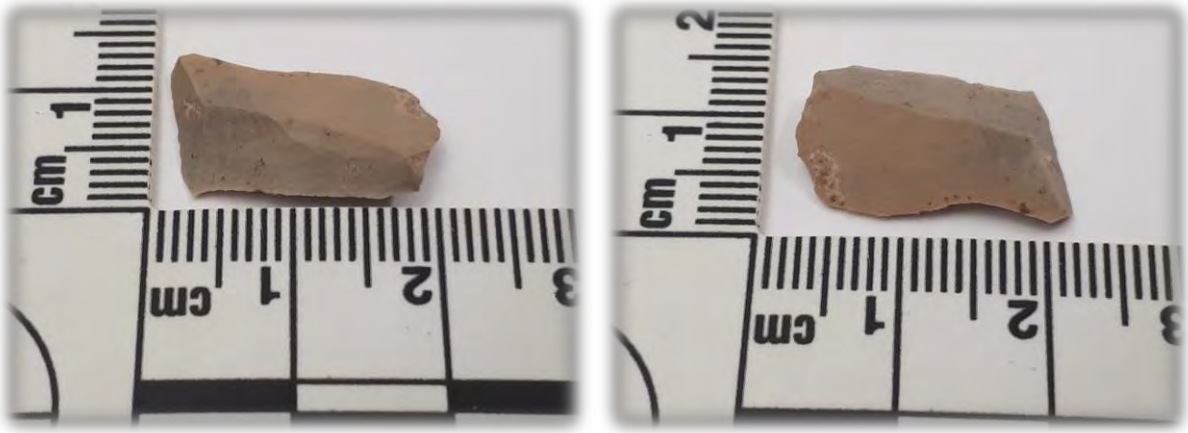


Photo 6. Example of DlPr-43 lithic artifact assemblage; utilized flake of High Rock Range chert.
(catalogue #87)

Photo 7. Example of DlPr-43 lithic artifact assemblage; utilized and re-touched flake of siliceous mudstone. (catalogue #96)

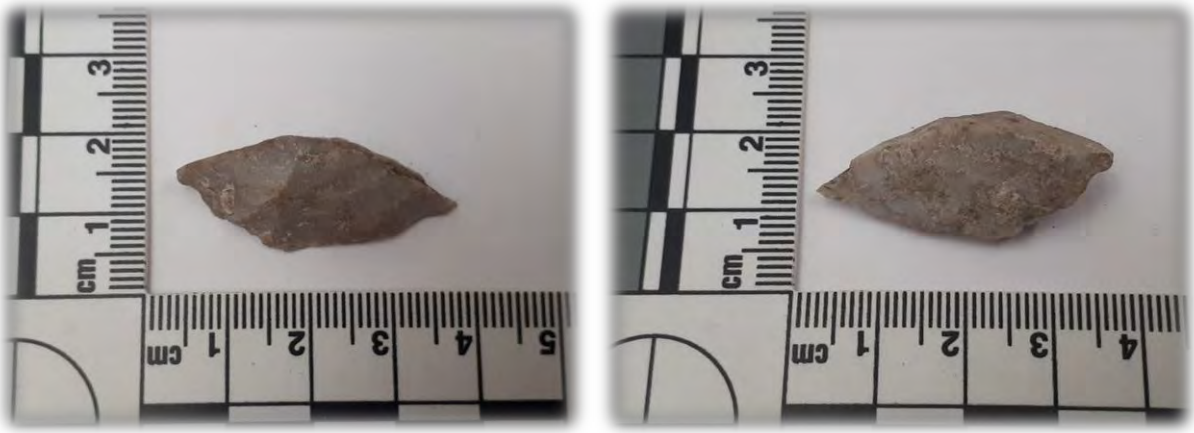


Photo 8. Example of DlPr-43 lithic artifact assemblage; utilized and re-touched clast of Etherington chert. (catalogue #98)

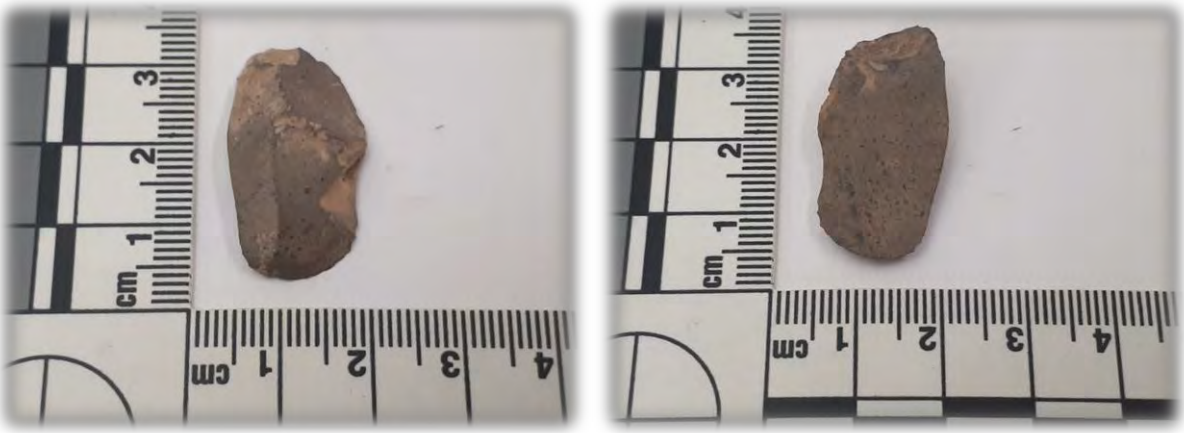


Photo 10. Example of DlPr-43 lithic artifact assemblage; unifacially re-touched flake (scraper) of siliceous mudstone. (catalogue #108)

Borden Number: DlPr-43 (update)
HCA Permit Number: 2015-0098
Date of Assessment: October 3, 2017 and October 10, 11 & 16, 2018
Stratigraphy Log

Shovel Test	Stratum	Depth *(below surface)*	Description
Polygon B ST 1 – 5 *representative*	I	0-1 cm	Litter Mat/Organic Matter (LM/OM)
	II	1-5 cm	Brown silty loam
	III	5-10 cm	Hard packed light brown silt with 20-30% sub-round to sub-angular pebbles and some cobbles
	IV	> 10 cm	Very hard packed brownish grey silt amongst sub-round to subangular clasts (till)
	Comments: *ST 1: two chert flakes recovered from 0-5 cm* *ST 2: one utilized flake recovered at 0-5 cm* *ST 3: one flake fragment recovered at 10-20 cm* *ST 4: one flake recovered at 10 cm* *ST 5: four flakes recovered from 10-20 cm*		

Polygon B - ST1 (representative of STs 1-5)

Polygon B ST 6 – 7 *representative*	I	0-1 cm	LM/OM
	II	1-6 cm	(Ah Horizon) Chernozemic-like dark brown silty loam
	III	6-18 cm	(B Horizon) Hard packed grey-brown silt with 20% sub-angular pebbles
	IV	> 18 cm	(C Horizon) Very hard packed brown silt with 20-30% sub-angular to sub-round pebbles and some cobbles
	Comments: *ST 6: four flakes recovered from 0-30 cm* *ST 7: three flakes recovered from 15-25 cm*		

Polygon B – ST 6 (representative of STs 6-7)

Shovel Test	Stratum	Depth *(below surface)*	Description
Polygon B ST 8 – 11 *representative*	I	0-7 cm	LM/OM
	II	7-9 cm	Grey-brown silt
	III	9-16 cm	Brownish grey silt with <5% pebbles
	IV	> 16 cm	Very hard packed brownish grey sandy silt
	Comments: *ST 8: one flake recovered at 0-10 cm* *ST 9: four flakes recovered at 10-20 cm* *ST 10: five flakes recovered from 10-20 cm* *ST 11: one flake recovered at 10-15 cm*		

Polygon B – ST 8 (representative of STs 8-11)

Polygon C ST 1	I	0-8 cm	LM/OM
	II	8-26 cm	Semi-hard packed light yellowish-brown silt
	III	26-30 cm	Hard packed silt very light yellowish-brown
	Comments: two flakes recovered from 15-20 cm		

Polygon C – ST 1

Shovel Test	Stratum	Depth *(below surface)*	Description
Polygon C ST 2 – 4 *representative*	I	0-8 cm	LM/OM
	II	8-17 cm	Light brown-grey silt
	III	17-34 cm	Hard packed brown-grey silt with 5-10% sub-round to sub-angular pebbles and cobbles
	Comments: one flake fragment recovered from 5-10 cm		
Polygon C – ST 2 (representative of STs 2-4)			
Polygon C ST 3	I	0-10 cm	LM/OM
	II	10-24 cm	Light brown-grey silt
	III	24-30 cm	Hard packed brown-grey silt with 5-10% sub-round to sub-angular pebbles and cobbles
	Comments: one flake fragment recovered from 10-20 cm		
Polygon C ST 4	I	0-8 cm	LM/OM
	II	8-15 cm	Light brown-grey silt
	III	15-23 cm	Hard packed brown-grey silt with 5-10% sub-round to sub-angular pebbles and cobbles
	Comments: two flakes recovered from 5-10 cm		
Polygon C ST5	I	0-8 cm	LM/OM
	II	8-33 cm	Mottled yellow-brown and dark brown silt
	III	> 33 cm	Very hard packed light grey silt
	Comments: one flake fragment recovered from 10-15 cm		

Shovel Test	Stratum	Depth *(below surface)*	Description
Polygon C ST6	I	0-8 cm	LM/OM
	II	8-9 cm	(Ae Horizon) Light grey silt
	III	9-20 cm	Yellow-brown silt
	IV	20-33 cm	Compact brown silt with 10% sub-round to sub-angular pebbles and cobbles
	Comments: four flakes recovered from 10-15 cm		

Polygon C - ST6

Polygon C ST 7	I	0-11 cm	LM/OM
	II	11-20 cm	Brown silt
	III	20-31 cm	Compact brown silt transitioning to grey-brown silt.
	Comments: one four flakes recovered from 5-20 cm		

Polygon C - ST 7 (representative of ST 8-9)

Shovel Test	Stratum	Depth *(below surface)*	Description
Polygon C ST 8	I	0-6 cm	LM/OM
	II	6-21 cm	Brown silt
	III	21-29 cm	Compact grey-brown silt
	Comments: one flake recovered from 10-20 cm		
Polygon C ST 9	I	0-9 cm	LM/OM
	II	9-22 cm	Light brown silt
	III	22-25 cm	Compact grey-brown silt
	Comments: one flake recovered from 5-10 cm		
Polygon C ST 14	I	0-5 cm	LM/OM
	II	5-22 cm	Brown silt
	III	22-31 cm	Brown silt and clay
	IV	31-33 cm	Compact grey-brown silt
	Comments: one flake fragment recovered from 5-10 cm		
Polygon C - ST14 (representative of STs 14-19)			
Polygon C ST 15	I	0-5 cm	LM/OM
	II	5-22 cm	Brown silt
	III	22-26 cm	Compact grey-brown silt
	Comments: two flake fragments from 5-20 cm		
Polygon C ST 16	I	0-7 cm	LM/OM
	II	7-30 cm	Brown silt
	III	30-31 cm	Compact grey-brown silt
	Comments: one flake fragment recovered from 10-20 cm		
Polygon C ST 17	I	0-7 cm	LM/OM
	II	7-29 cm	Light brown silt
	III	29-31 cm	Compact grey-brown silt
	Comments: two flakes recovered from 0-10 cm		
Polygon C ST 18	I	0-14 cm	LM/OM
	II	14-30 cm	Brown silt
	III	30-31 cm	Compact grey-brown silt
	Comments: one siliceous mudstone re-touched flake fragment and one siliceous mudstone flake fragment recovered from 5-10 and 25-30 cm (respectively)		

Shovel Test	Stratum	Depth *(below surface)*	Description
Polygon C ST 19	I	0-6 cm	LM/OM
	II	6-19 cm	Brown silt
	III	19-22 cm	Compact grey-brown silt
	Comments: two flakes recovered from 10-15 cm		
Polygon D ST 17	I	0-8 cm	LM/OM
	II	8-16 cm	Loose granular brown silt with some clay
	III	16-24 cm	Compact grey-brown silt
	Comments: two flakes recovered from 0-10 cm		

Polygon D - ST17

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
69	1	ST 1 Polygon B	0-5	Flake: Fragment	chert: High Rock Range	Opaque, dull brownish-grey with translucent (vitreous) blebs of chert	sg: (4)	-	-	-	Medial portion of flake, no platform, coarse-grained material (poor quality), moderate dorsal scarring	03-Oct-17	24-May-19	IT	N
70	1	ST 1 Polygon B	0-5	Flake: Tertiary	chert: Madison Formation (Montana)	Translucent, vitreous dark red	sg: 1	-	-	-	Small re-sharpening flake with crushed platform, moderate dorsal scarring	03-Oct-17	24-May-19	IT	N
71	1	ST 2 Polygon B	0-5	Tool: Utilized Flake	chert: Etherington	Opaque to slightly translucent (edges), vitreous to sub-vitreous dark grey with faint banding with a rusty-red hue	22.3	16.7	5	1.9	Planar to slightly concave medium to high angle striking platform, minimal to moderate dorsal scarring, use wear along one lateral edge	03-Oct-17	27-May-19	JF	Y
72	1	ST 3 Polygon B	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (2)	-	-	-	No platform, moderate dorsal scarring	03-Oct-17	27-May-19	LMB	N
73	1	ST 4 Polygon B	0-5	Flake: Tertiary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered); coarse-grained	sg: 2	-	-	-	Narrow, largely crushed low to medium angle striking platform, large erailure scar on ventral side, moderate to complex dorsal scarring	03-Oct-17	27-May-19	IT	N
74	1	ST 5 Polygon B	10	Flake: Secondary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 3	-	-	-	Dihedral medium to high angle striking platform, moderate dorsal scarring	03-Oct-17	27-May-19	JT	N
75	1	ST 5 Polygon B	10	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (2)	-	-	-	Medial and terminal portion of flake, no platform, minimal dorsal scarring	03-Oct-17	27-May-19	JT	N
76	1	ST 5 Polygon B	10	Flake: Tertiary	chert: Etherington	Translucent, sub-vitreous white-grey	sg: 2	-	-	-	Small medium angled striking platform, coarse material on platform obscures scarring, moderate dorsal scarring, suspected re-sharpening flake	03-Oct-17	27-May-19	JT	N
77	1	ST 5 Polygon B	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform, moderate dorsal scarring	03-Oct-17	27-May-19	JT	N
78	1	ST 6 Polygon B	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform, minimal dorsal scarring	03-Oct-17	27-May-19	JN	N
79	1	ST 6 Polygon B	0-10	Flake: Secondary	chert: High Rock Range	Opaque to slightly translucent (edges),sub-vitreous grey with bluish hue	sg: 2	-	-	-	Single facet, moderate angle striking platform with overhanging lip, moderate dorsal scarring that could contain weathered cortex	03-Oct-17	27-May-19	JN	N
80	1	ST 6 Polygon B	20-30	Flake: Secondary	chert: High Rock Range	Opaque to slightly translucent (edges), sub-vitreous grey with light grey/white patina	sg: 2	-	-	-	Small dihedral medium angle striking platform, minimal dorsal scarring, possible use wear along terminal edge	03-Oct-17	27-May-19	JF	N
81	1	ST 6 Polygon B	20-30	Flake: Fragment	chert: High Rock Range	Opaque to slightly translucent (edges), sub-vitreous grey with bluish hue	sg: (2)	-	-	-	No platform, minimal dorsal scarring, possible use wear along terminal edge	03-Oct-17	27-May-19	JF	N
82	1	ST 7 Polygon B	15-20	Flake: Secondary	chert: High Rock Range	Opaque to slightly translucent (edges), sub-vitreous grey with banding visible	sg: (2)	-	-	-	Multi-facetted, high angle striking platform, moderate dorsal scarring	03-Oct-17	27-May-19	JT	N
83	1	ST 7 Polygon B	15-20	Flake: Tertiary	Siliceous Argillite: Appekunny	Opaque, sub-vitreous to dull greyish-green	sg: 2	-	-	-	Multi-facetted, medium angle striking platform with 'dulled' working edge and lip, moderate dorsal scarring, soil clinging to portions of flake, re-sharpening flake	03-Oct-17	27-May-19	JT	N
84	1	ST 7 Polygon B	20-25	Flake: Tertiary	chert: High Rock Range	Opaque, sub-vitreous bluish-grey with darker banding	sg: 2	-	-	-	Multi-facetted, low to medium angle striking platform with 'dulled' working edge and lip, complex to moderate dorsal scarring, soil clinging to dorsal side of flake, re-sharpening flake	03-Oct-17	27-May-19	JT	N
85	1	ST 8 Polygon B	0-10	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: (2)	-	-	-	Medial to terminal portion of flake, feather termination, minimal dorsal scarring, possible use-wear along one lateral edge	03-Oct-17	27-May-19	JF	N
86	1	ST 9 Polygon B	10-15	Flake: Secondary	chert: Top of the World	Translucent, vitreous light grey	sg: 2	-	-	-	Dihedral medium to high angle striking platform, complex dorsal scarring	03-Oct-17	27-May-19	JT	N
87	1	ST 9 Polygon B	10-15	Tool: Utilized Flake	chert: High Rock Range	Opaque, sub-vitreous bluish-grey with darker banding	21	11.4	3.4	0.8	Dihedral medium to high angle striking platform with faint lip and minor platform grinding, blade-like flake with minimal dorsal scarring with cortex that contains rusty-brown hue, use wear along lateral edges	03-Oct-17	27-May-19	JT	Y
88	1	ST 9 Polygon B	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 3	-	-	-	Dihedral high angle striking platform, hinge termination	03-Oct-17	27-May-19	JT	N
89	1	ST 9 Polygon B	15-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2	-	-	-	Narrow, multi-facetted platform with faint lip, moderate to complex dorsal scarring	03-Oct-17	27-May-19	JT	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
90	1	ST 10 Polygon B	10-15	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	39.1	39	6.4	8.1	Biface reduction flake with single facet low to medium angle striking platform with prominent lip and 'dulled' working edge, moderate to complex dorsal scarring, use-wear along edges	03-Oct-17	27-May-19	JT / JF	Y
91	1	ST 10 Polygon B	10-15	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(20.1)	(14.6)	(4.2)	(0.9)	Medial - terminal portion of [secondary?] flake, moderate dorsal scarring, use wear along converging lateral edges, no platform	03-Oct-17	27-May-19	JT / JF	Y
92	1	ST 10 Polygon B	15-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark-grey	sg: 2	-	-	-	Biface reduction / Re-sharpening flake with multi-faceted medium angle striking platform with prominent lip and 'dulled' working edge, moderate dorsal scarring	03-Oct-17	27-May-19	JT / JF	N
93	1	ST 10 Polygon B	15-20	Flake: Fragment	chert: Etherington	Opaque to slightly translucent (along edges) sub-vitreous grey	sg: (2)	-	-	-	No platform, pot-lid	03-Oct-17	27-May-19	JT / JF	N
94	1	ST 10 Polygon B	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of secondary flake, minimal to moderate dorsal scarring	03-Oct-17	27-May-19	JT / JF	N
95	1	ST 11 Polygon B	10-15	Tool: Utilized / Re-Touched Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered) with reddish-brown (subject to fire)	(26.9)	(18.0)	(6.2)	(2.8)	Medial portion of secondary [thinning?] flake with use wear along one lateral edge and unifacial re-touch along opposing lateral edge, no platform or termination	03-Oct-17	27-May-19	LMB / JW	Y
96	1	RM 1 Polygon B	-	Tool: Utilized / Re-Touched Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	33.5	20.2	2.8	1.9	Secondary [biface reduction] flake with multi-facetted medium angle striking platform that contains lip and 'dulled' working edge, moderate to complex dorsal scarring, use wear along one lateral edge and unifacial re-touch along opposing lateral edge	03-Oct-17	27-May-19	JT	Y
97	1	RM 1 Polygon B	-	Tool: Utilized Flake	chert: Top of the World	Opaque to translucent along edges, vitreous bluish-grey	26	18.4	4.1	1.6	Multi-facetted, moderate angle striking platform, moderate dorsal scarring, use wear along lateral edges, soil clinging	03-Oct-17	27-May-19	JT	Y
98	1	RM 2 Polygon B	-	Tool: Utilized / Re-Touched Clast / Shatter	chert: Etherington	Opaque, sub-vitreous greyish-white	(34.8)	(16.8)	(11.1)	(4.4)	Prismatic-shaped shatter fragment or clast, planar cortex on one side, steep angle unifacial re-touch along one edge	03-Oct-17	27-May-19	IT	Y
99	1	RM 2 Polygon B	-	Flake: Tertiary	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: 2	-	-	-	Narrow, multi-facetted platform, moderate to complex dorsal scarring	03-Oct-17	27-May-19	IT	N
100	1	RM 2 Polygon B	-	Tool: Utilized Flake	Quartzite	Opaque, dull greyish-brown (weathered)	65.1	40.2	16.9	32.8	Dihedral high angle striking platform that contains sub-angular cortex, moderate dorsal scarring, coarse-grained material, use wear along terminal edge	03-Oct-17	27-May-19	IT	Y
101	1	ST 1 Polygon C	15-20	Flake: Primary (decortication)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 4	-	-	-	Broken (x3 and refit) during excavation (fresh fractures), primary decortication flake, crushed platform	10-Oct-18	24-May-19	JM	N
102	1	ST 1 Polygon C	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Narrow, single facet medium angled striking platform, moderate dorsal scarring	10-Oct-18	24-May-19	JM	N
103	1	ST 2 Polygon C	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, moderate to complex dorsal scarring	10-Oct-18	24-May-19	ML	N
104	1	ST 3 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	Terminal portion of decortication flake,	10-Oct-18	24-May-19	JF	N
105	1	ST 4 Polygon C	5-10	Flake: Primary (decortication)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Secondary decortication flake with single facet high angle striking platform, minimal dorsal scarring, possible use wear along lateral edge	10-Oct-18	24-May-19	ML	N
106	1	ST 4 Polygon C	5-10	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull grey with lighter brownish-grey banding	sg: (3)	-	-	-	Terminal portion of flake, no platform.	10-Oct-18	24-May-19	ML	N
107	1	ST 5 Polygon C	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Narrow, multi-facetted low to medium angle striking platform with slight lip, re-sharpening flake, minimal to moderate dorsal scarring	10-Oct-18	24-May-19	JN	N
108	1	ST 6 Polygon C	10-15	Tool: Scraper	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	29	16.2	6	2.6	Steep angled unifacially re-touch along distal/terminal edge of secondary decortication flake that has a crushed platform and moderate dorsal scarring	10-Oct-18	24-May-19	JF	Y
109	1	ST 6 Polygon C	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Secondary flakage, with dihedral, high angle striking platform, possible platform preparation flake	10-Oct-18	24-May-19	JF	N
110	1	ST 6 Polygon C	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Secondary flake with platform largely crushed during production, moderate to complex dorsal scarring, suspected re-sharpening flake, possible use wear along one lateral edge	10-Oct-18	24-May-19	JF	N
111	1	ST 6 Polygon C	10-15	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull grey with lighter brownish-grey banding	sg: (2)	-	-	-	No platform	10-Oct-18	24-May-19	JF	N
112	1	ST 7 Polygon C	5-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Dihedral high angle striking platform, minimal dorsal scarring	10-Oct-18	24-May-19	IT	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
113	1	ST 7 Polygon C	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Multi-facetted low to medium angle striking platform with overhanging lip and 'dulled' working edge, complex dorsal scarring	10-Oct-18	24-May-19	IT	N
114	2	ST 7 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platforms	10-Oct-18	24-May-19	IT	N
115	1	ST 7 Polygon C	10-20	Flake: Fragment	chert: Tourmaline	Opaque, sub-vitreous black	sg: (2)	-	-	-	Medial portions of flakes, no platforms	10-Oct-18	24-May-19	IT	N
116	1	ST 8 Polygon C	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2	-	-	-	Dihedral moderate angle striking platform, complex dorsal scarring	10-Oct-18	24-May-19	JN	N
117	1	ST 9 Polygon C	5-10	Flake: Primary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with brownish hue and very faint banding	sg: 4	-	-	-	Planar (possible cortex) high angle striking platform, minimal dorsal scarring	10-Oct-18	24-May-19	JF	N
118	1	ST 14 Polygon C	5-10	Flake: Fragment	chert: Top of the World	Slightly translucent, vitreous grey	sg: (2)	-	-	-	Medial portion of flake, no platform, minimal dorsal scarring	10-Oct-18	24-May-19	ML	N
119	1	ST 15 Polygon C	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform	10-Oct-18	24-May-19	IT	N
120	1	ST 15 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (4)	-	-	-	No platform, decortication flake, coarse-grained, possible use wear along edges (but attributed to course material)	10-Oct-18	24-May-19	IT	N
121	1	ST 16 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform	10-Oct-18	24-May-19	DH	N
122	1	ST 17 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	No platform	10-Oct-18	24-May-19	JM	N
123	1	ST 17 Polygon C	0-10	Flake: Secondary	Quartzite	Opaque, coarse-grained dark red	sg: 3				Small medium angle striking platform, minimal to moderate dorsal scarring	10-Oct-18	24-May-19	JM	N
124	1	ST 18 Polygon C	5-10	Tool: Re-touched Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(33.9)	(26.3)	(5.5)	(4.9)	Portion of secondary flake with crushed platform, steep and low angle unifacial re-touch, steep along terminal end of flake, steeper along lateral edges	10-Oct-18	24-May-19	ML	Y
125	1	ST 18 Polygon C	25-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of secondary flake, moderate dorsal scarring, steep angle unifacial retouch along one lateral edge that appears un-weathered and is attributed to contemporary breakage	10-Oct-18	24-May-19	ML	N
126	1	ST 19 Polygon C	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (3)	-	-	-	Broken (x2 and refit) during excavation (fresh fractures), medial portion, no platform	10-Oct-18	24-May-19	JM	N
127	1	ST 19 Polygon C	10-15	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull reddish-brown (burnt/weathered)	32.1	15.4	4.4	1.8	Planar (possible cortex) high angle striking platform, blade-like (thinning) flake with moderate dorsal scarring, use wear along lateral edges	10-Oct-18	24-May-19	JM	Y
128	1	ST 17 Polygon D	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: (2)	-	-	-	Small fragment with nodular cortex present on dorsal surface, no platform	16-Oct-18	24-May-19	JN	N
129	1	ST 17 Polygon D	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Narrow, multi-facetted low to medium angle striking platform, moderate dorsal scarring with portion of nodular cortex present	16-Oct-18	24-May-19	JN	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Rodent Mound= RM
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository
Catalogue numbers 1-68 were documented under *HCA* Permit 2005-0154
Archaeological inspection of DlPr-43 spanned two field seasons (2017-2018), and therefore multiple ST 1 - 9 are present within this catalogue
Based on site delineation protocol, ST 10-11 were assigned to site DlPr-18-T05, and ST 12-13 were assigned to site DlPr-18-T06, both located to the east of DlPr-43

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site):
Borden Number (site revisit): **DlPr-46**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **655271** Northing: **5524116**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within East Kootenay region of southeast British Columbia, with the site (x4 polygons [A-D]) currently encompassing several microtopographic features that are largely on a terrace level to the north of the outlet drainage of Grave Lake. The relatively large size of the site spans from to 1.8 - 2.1 km east of the confluence of Grave Creek with the Elk River and is approximately 0.3 - 0.6 km southwest of Grave Lake.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for approximately 17 km. Turn east onto the Line Creek Mine Road and continue for 1.4 km before turning south onto Valley Road (FSR) and travel for 4.5 km and turn east onto Harmer Road (FSR), which involves an immediate crossing over the CPR Tracks (Fording Branch Line). Continue in an eastward direction for approximately 2 km, and park on an old landing along the western side of the road as it bends southward in the vicinity of a road that accesses Gravel Lake. Proceed on foot to the site area polygons: Polygon A (2006 site area), Polygon B (2006 - DlPr-45 site area), and Polygon D (2018 inspection area) are to the south-southwest of Harmer Road, Polygon C (2017 inspection area) is north-northwest of Harmer Road and the junction with the Gravel Lake access road (un-named), and Polygon are east of the road. Note that all of site DlPr-46 is north of the outlet drainage of Grave Lake.**

Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/12**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II - Transportation Corridor): October 18, 2017 and October 12, 2018)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Daniel Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (TMECS/Shuswap Indian Band [SIB])** **Marshal Ezelle (TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Mathias Ladd (TMECS)** **Marty Williams (TMECS & KNC)** **Jason Feltham (TMECS & KNC)** **Jesse Thomas (TMECS & KNC)** **Jeff Williams (TMECS & KNC)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n=63) consisting of debitage (n=57), utilized flakes/fragments (n=5) and one formed tool (thumbnail scraper); collected assemblage comprised of seven raw lithic material types; see Artifact Catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **295 m** Direction **E-W**
Width: **143 m** Direction **N-S**

Site Boundary Type: **Natural, Observed, Arbitrary**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

The above listed dimensions encompass the general locality of the site, which is now comprised of four discrete polygons that are defined by a combination of natural, observed, and arbitrary boundaries; see General Remarks.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **.35 m**

Stratigraphy Description: **Relatively poor soil development within Site Polygons C and D; Regosol varying to weak Brunisolic soil formation within mantle of glacio-lacustrine silt that overlies gravel at an undetermined depth (as seen in fortuitous/anthropogenic exposures); see Stratigraphy Log for details.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Approximately 40 shovel tests (35 x 35 cm) were excavated to a depth of 35 cm below surface within and immediately adjacent to the site boundaries defined under permit 2015-0098.**
Past	**Road Construction**	**Previous constuction of Harmer Road has resulted in the bisecting of Site Polygons A & B from C; an approximate 12 m width, east-west trending road allowance is now present in this location.**
Past	**Logging**	**Previous logging (ca. mid 2000s) occurred within Site Polygon C; impacts largely overgrown, but presence of cut stumps and skid trails indicate impact to ground surface and fine sediment cap.**

14. ENVIRONMENT

Lower Elevation **1275 m** (asl) Upper Elevation **1292 m** (asl)

Elevation Comments: **Elevation obtained using a handheld GPS and Google Earth Pro. Site varies from approximately 4 to 10 m above the elevation of the outlet drainage of Grave Lake.**

Nearest Hydrological Feature(s): **Grave Lake Outlet (westward flowing) is approximately 40-50 m south of Site Polygon A (orig. 2006 site area) and Site Polygon B (orig. 2006 DlPr-45 site area); Grave Lake is approximately 0.3 km northeast of Site Polygon C.**

Terrain/Landform: **Level to gently sloped (5-8°) terrain that descends southward and contains a gently undulating ground surface. Sporadic/episodic downcutting by seasonal/relict drainages have eroded a few southward trending channels within the locality of the site.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Coals Project Phase II)	**2020**	**Ian Tamasi and Nyomi Sherwin**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. See additional recommendations in General Remarks.

17. GENERAL REMARKS

1) Site Dimensions and Boundaries

POLYGON A: originally recorded at DlPr-46 in 2006.
-This update involved a northward shift in the centroid and a slight expansion to site boundaries based micro-topography and landmarks (e.g. roads, junction, and landing) that were illustrated on the 2006-0154 site map; see 2015-0098 site map.
- Subsurface inspection within this site polygon was not implemented under 2015-0098.
Centroid: 655272 E, 5524126 N
Size: 125 m (N-S) x 93 m (E-W), previously defined under permit 2006-0154, which utilized arbitrary boundaries of the proposed cut block and an existing landing/cleared staging area, and an observed boundary (~10 m radial buffer) to the west from positive shovel tests. Note that the scale on the 2006-0154 site map is not reflective of the terrain as observed in 2017-2018.

POLYGON B: originally recorded as DlPr-45 in 2006
-This update involved a northward shift in centroid and an enlargement of the site area/boundaries based on micro-topography (relict drainage routes) and Harmer Road that were illustrated on 2006-0154 site map. The lumping of this site by DlPr-46 was discussed within and agreed upon by Site Inventory (Erin MacLennan, 09-Mar-2020). Site DlPr-46 took precedence by having 161 artifacts and DlPr-45 having 36 artifacts within previous artifact catalogues (both recorded under permit: 2006-0154).
- Subsurface inspection within this site polygon was not implemented under 2015-0098.
Centroid: 11U 655367 E, 5524178 N
Size: 100 m (E-W) x 62 m (N-S), defined arbitrarily to the north by the footprint of Harmer Road, to the east-southeast by the margins of a relict drainage, and provisionally to the west due to an incomplete inspection (i.e. saturated silty matrix in 2006). Western boundary is loosely based on a 5-10 m radial buffer from positive shovel tests. Note that the scale on the 2006-0154 site map is not reflective of the terrain as observed in 2017-2018.

POLYGON C:
Centroid: 11U 655335 E, 5524245 N

Size: 177 m (NE-SW) x 65 m (NW-SE), defined arbitrarily to the south by the disturbance footprint of Harmer Road, and in all other directions by an observed boundary that includes a 5 m radial buffer from positive shovel tests. Note that additional shovel tests are recommended in proximity to the junction of Harmer Road and the access route to Gravel Lake.

POLYGON D:
Centroid: 11U 655163 E, 5524150N
Size: 62 m (E-W) x 20 m (N-S), defined by an observed boundary to the north, south and west with a 5 m radial buffer from positive shovel tests. The short segment of the eastern boundary is naturally defined by the western margin of a southward trending seasonal/relict drainage. Note that additional shovel tests are recommended to the south of the currently defined site boundary; future inspection will likely connect Site Polygons A & D.

Boundary Comments:
- The general locality of the site was identified in the field with yellow and black "A.I.A. Zone" flagging tape.
- Subsurface inspection of DlPr-46 (under 2015-0098) should be considered provisional and was conducted to annually contribute to the AIA of an evolving development footprint and to commence an understanding for the presence/absense of archaeological sites within the locality of Grave Prairie. An abundance of subsurface inspection is still required to delineate an appropriate site area(s) for DlPr-46 (including sloped ground); the excavation of three negative tests (in cardinal directions) was not always possible due to a constrained budget, relatively large size of the cultural landscape, and the evolving scope of the project.

2) Recorder's Recommendations -
Further subsurface testing is recommended within the locality of DlPr-46.

3) The number of sites and the current distribution of archaeological sites indicates an extensive precontact occupation of the Grave Prairie locality within the Middle Period, likely associated with annual resource procurement during the seasonal round. This locality also provides a favourable location for [western] base camp to facilitate intra-mountain travel via Grave Creek and Line Creek, both of which access the Alexander Creek valley offer routes of least resistence over the Continental Divide to access the plains region via several mountain passes (e.g. Deadman, Race Horse, North Fork, and Tornado).

4) Although this site is in the locality of Grave Prairie, no evidence of ancestral burials or human remains were observed under 2015-0098; this should not preclude the presence of burials within this site and the immediately adjacent terrain.

5) Artifact Catalogue(s):
DlPr-46: 1-161, were assigned to artifacts collected under permit 2006-0154 (confirmed through review of 2006-0154 reporting)
DlPr-46: 162-211, were assigned to artifacts collected under permit 2015-0098
Note: The DlPr-45 artifact assemblage (catalogue: 1-36) is now a subset of site DlPr-46

Figure: 16

Permit: 2015-0098

Title:

DlPr-46 Update Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP Coal Canada

Survey Date: 12/10/2018

Mapping Date: 09/06/2020

UTM 11-NAD 83- NTS 82G15

1:2,500

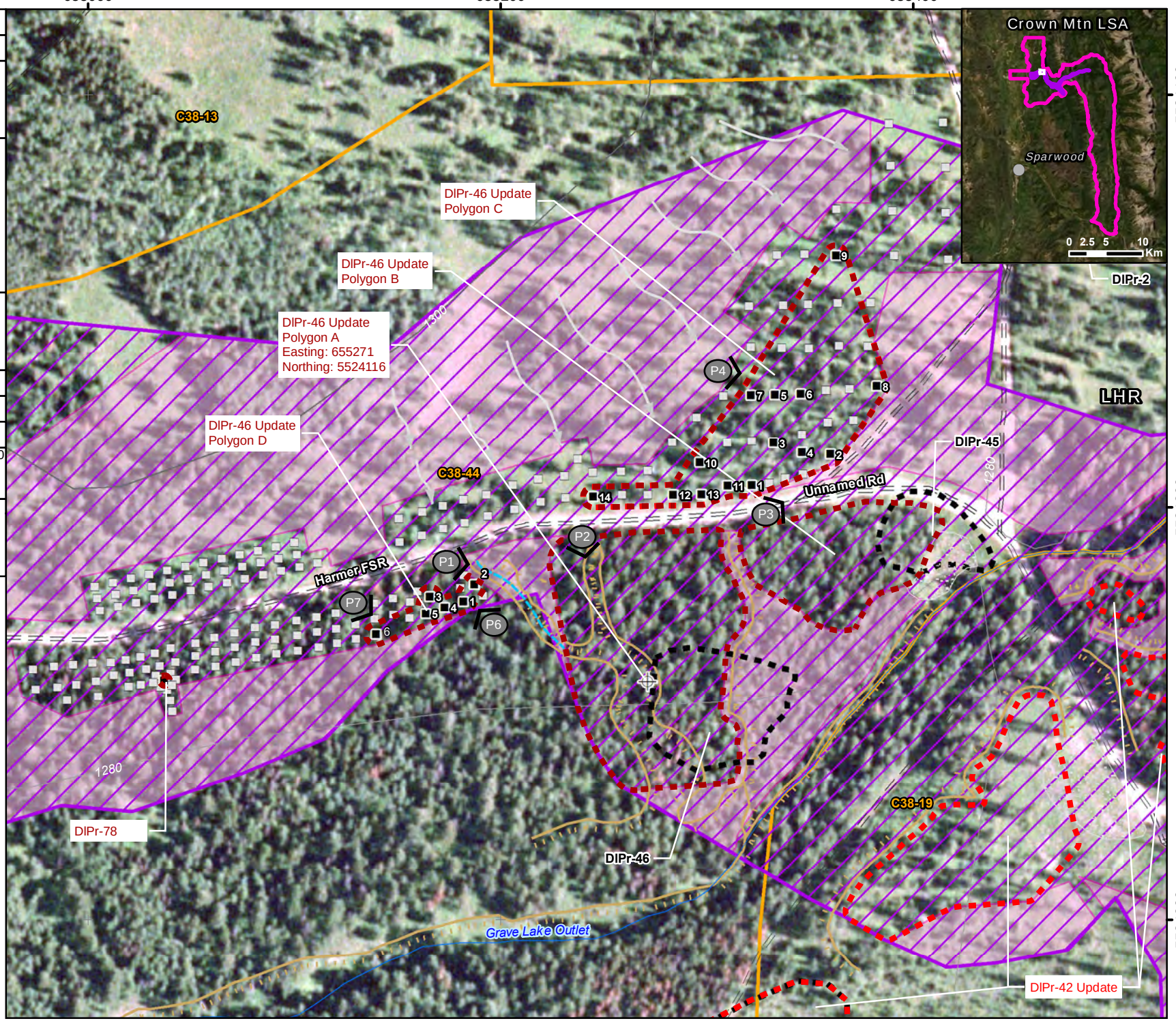
0 10 20 40 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Disturbance
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Water Feature
- Ephemeral Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Photo Reference & Direction



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. DlPr-46, Site Polygon A, overview of a relict drainage course that has been bisected by the east-west trending Harmer Road and descends southward toward the outlet drainage of Grave Creek; this micro-topographic feature greatly assisted in relocating and updating the original site area that was recorded under permit 2006-0154, and inaccurately projected on RAAD prior to this revisit.
(view: east, from Site Polygon D)

Photo 2. DlPr-46, Site Polygon A, supplementary overview of a margin that is the result of downcutting by relict drainage course that descends southward toward the outlet drainage of Grave Creek; this drainage was illustrated on the site map produced under permit 2006-0154. (view: south)

Photo 3. DlPr-46, Site Polygon C, supplemental overview of the south-southeastern boundary that is in proximity to Shovel Test #2 and a junction of Harmer Road and an access road to Grave Lake. Note that the truck trail departing Harmer Road is an informal 'short-cut' route to the main access road to Grave Lake. (view: northeast)

Photo 4. DlPr-46, Site Polygon C, representative overview of the level to gently undulating ground surface in proximity to Shovel Tests 5-7 and north of Harmer Road. (view: east)

Photo 5. DlPr-46, Site Polygon C, representative stratigraphic profile.
(view: north wall – ST #6)

Photo 6. DlPr-46, Site Polygon D, overview of gently-sloped terrain that descends southward to the south in proximity to (south of) Harmer Road. (view: northwest)

Photo 7. DlPr-46, Site Polygon D, supplemental overview of the level to gently-slope terrain that descends southward in proximity to Shovel Test #6. (view: northwest)

Photo 8. DlPr-46, Site Polygon D, representative stratigraphic profile.
(view: north wall – ST #5)

Photo 9. DlPr-46, representative artifact assemblage, utilized flake fragment of siliceous mudstone recovered at 15-20cm below surface within ST 6 of Site Polygon C. (Catalogue # 180 – dorsal side)

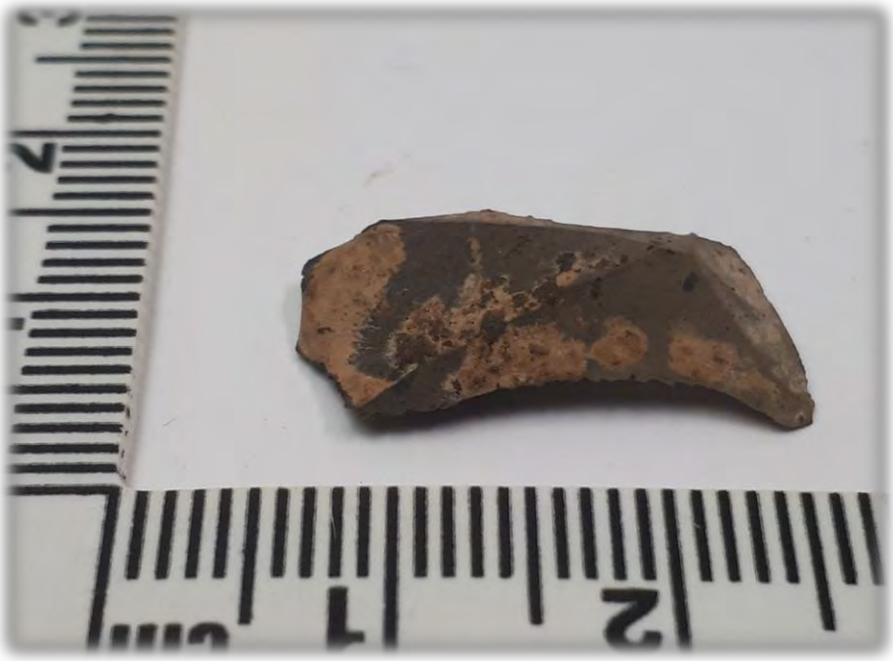


Photo 10. DlPr-46, representative artifact assemblage, utilized flake of siliceous mudstone recovered at 10-20cm below surface within ST 8 of Site Polygon C. (Catalogue # 189)

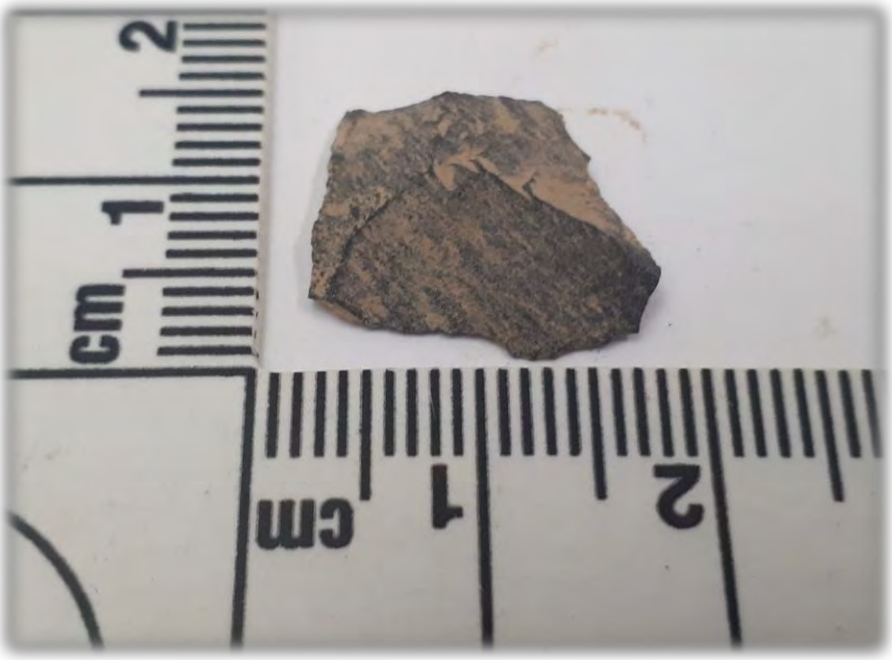


Photo 11. DlPr-46, representative artifact assemblage, utilized flake fragment of Banff Formation siliceous siltstone recovered at 10-20cm below surface within ST 13 of Site Polygon C. (Catalogue # 203)

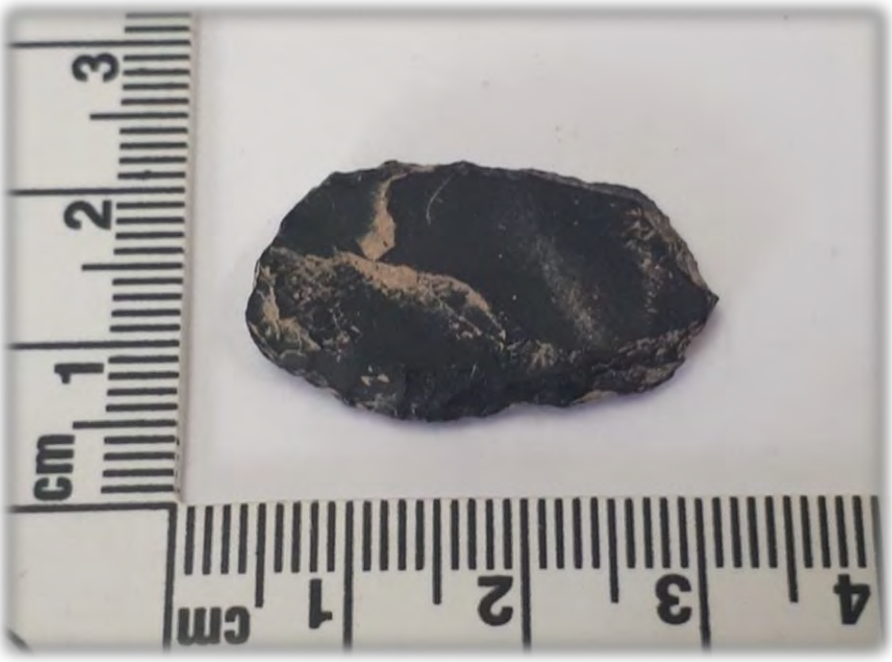


Photo 12. DlPr-46, representative artifact assemblage, thumbnail scraper of Banff Formation chert recovered at 10-20cm below surface within ST 4 of Site Polygon D. (Catalogue # 208)

DlPr-46: Site Polygon C			
Shovel Test	**Stratum**	**Depth (below surface)**	**Description**
1 *Polygon C*	I	0-3 cm	Litter mat, Om horizon
	II	3-3 cm	Grey ashy-silt very faint
	III	3-32 cm	Grey-brown silt with few inclusions
	IV	32-34 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 5-15 cm dbs		
2 *Polygon C*	I	0-2 cm	Litter mat, Om horizon
	IIb	2-10 cm	Mottled brown silty overburden
	I	10-11 cm	Om horizon (buried ground surface)
	II	11-14 cm	Grey ashy-silt
	III	14-17 cm	Grey-brown silt with few inclusions
	IV	17-18 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 10-20 cm dbs		
3 *Polygon C*	I	0-8 cm	Litter mat, Om horizon
	II	8-9 cm	Grey ashy-silt
	III	9-34 cm	Grey-brown silt with few inclusions
	IV	34-35 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 10-25 cm dbs		
4 *Polygon C*	I	0-10 cm	Litter mat, Om horizon
	II	10-11 cm	Grey ashy-silt
	III	11-35 cm	Grey-brown silt with few inclusions
	IV	35-40 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 30-35 cm dbs		
5 *Polygon C*	I	0-5cm	Litter mat, Om horizon
	II	5-6 cm	Grey ashy-silt
	III	6-30 cm	Grey-brown silt with few inclusions
	IV	30-34 cm	Compact, very dark-brown
	Comments: Lithics recovered at 10-30 cm dbs		
6 *Polygon C*	I	0-6 cm	Litter mat, Om horizon
	II	6-7 cm	Grey ashy-silt
	III	7-30 cm	Grey-brown silt with few inclusions
	IV	30-32 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 15-20 cm dbs		
7 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-9 cm	Grey ashy-silt
	III	9-32 cm	Grey-brown silt with few inclusions
	IV	32-35 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 0-10 cm dbs		
8 *Polygon C*	I	0-4 cm	Litter mat, Om horizon
	II	4-8 cm	Grey ashy-silt
	III	8-21 cm	Grey-brown silt with few inclusions
	IV	20-23 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 0-20 cm dbs		

Shovel Test	Stratum	Depth (below surface)	Description
9 *Polygon C*	I	0-7 cm	Litter mat, Om horizon
	II	7-8 cm	Grey ashy-silt
	III	8-20 cm	Grey-brown silt with few inclusions
	IV	20-22 cm	Compact, very dark-brown
	Comments: Lithic artifact recovered at 15-20 cm dbs		
10 *Polygon C*	I	0-6 cm	Litter mat, Om horizon
	II	6-6 cm	Grey ashy-silt
	III	6-24 cm	Grey-brown silt with few inclusions
	IV	24-25 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 0-30 cm dbs		
11 *Polygon C*	I	1-5 cm	Litter mat, Om horizon
	II	5-5 cm	Grey ashy-silt very faint
	III	5-21 cm	Grey-brown silt with few inclusions
	IV	21-29 cm	Compact, very dark-brown
	Comments: Lithic artifact recovered at 20-30 cm dbs		
12 *Polygon C*	I	0-11 cm	Litter mat, Om horizon
	II	11-11 cm	Grey ashy-silt very faint
	III	11-30 cm	Grey-brown silt with few inclusions
	IV	30-32 cm	Compact, very dark-brown
	Comments: Lithic artifacts recovered at 25-30 cm dbs		
13 *Polygon C*	I	0-6 cm	Litter mat, Om horizon
	II	6-7 cm	Grey ashy-silt
	III	7-35 cm	Grey-brown silt with few inclusions
	IV	>35 cm	Compact, very dark-brown
	Comments: Lithic artifact recovered at 15-20 cm dbs		
14 *Polygon C*	I	0-7 cm	Litter mat, Om horizon
	II	7-8 cm	Grey ashy-silt
	III	8-24 cm	Grey-brown silt with few inclusions
	IV	24-26 cm	Compact, very dark-brown
	Comments: Lithic artifact recovered at 10-20 cm dbs		

DlPr-46: Site Polygon D			
Shovel Test	**Stratum**	**Depth (below surface)**	**Description**
1 *Polygon D*	I	0-5 cm	Litter Mat/Organic Matter (LM/OM)
	II	5-20 cm	Dark brown silt
	III	20-30 cm	Brown silt
	IV	30-32 cm	Hard-packed brown silt
	Comments: Lithic artifact recovered at 0-5 cm dbs.		
2 *Polygon D*	I	0-7 cm	LM/OM
	II	7-8 cm	Ae Horizon; light grey silt
	III	8-17 cm	Yellow-brown silt
	IV	17-27 cm	Compact light grey-brown silt
	Comments: Lithic artifact recovered at 10-15 cm dbs.		
3 *Polygon D*	I	0-6 cm	LM/OM
	II	6-7 cm	Ae Horizon; light grey silt
	III	7-20 cm	Brown silt
	IV	20-27 cm	Hard-packed light grey-brown silt
	Comments: Lithic artifact recovered at 10-20 cm dbs.		
4 *Polygon D*	I	0-9 cm	LM/OM
	II	9-10 cm	Ae Horizon; light grey silt
	III	10-15 cm	Light yellow-brown silt
	IV	15-27 cm	Light grey-brown silt
	V	27-30 cm	Hard-packed light grey-brown silt
	Comments: Lithic artifacts recovered at 10-25 cm dbs.		
5 *Polygon D*	I	0-7 cm	LM/OM
	II	7-8 cm	Ae Horizon; light grey silt
	III	8-18 cm	Brown silt
	IV	18-22 cm	Hard-packed light grey-brown silt
	Comments: Lithic artifact recovered at 10-20 cm dbs.		
6 *Polygon D*	I	0-6 cm	LM/OM
	II	6-7 cm	Ae Horizon; light grey silt
	III	7-12 cm	Brown silt
	IV	12-22 cm	Compact light grey silt
	Comments: Lithic artifact recovered at 10-20 cm dbs.		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
162	1	ST 1 Polygon C	5-10	Flake: Secondary	chert: High Rock Range	Opaque, vitreous bluish-grey	sg: 2	-	-	-	Multi-facetted, medium angled striking platform, suspected platform preparation flake	18-Oct-17	23-May-19	IT	N
163	1	ST 1 Polygon C	5-10	Flake: Fragment	chert: High Rock Range	Opaque, vitreous bluish-grey	sg: (2)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	IT	N
164	1	ST 1 Polygon C	5-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 1	-	-	-	Single facet, concave medium to high angle striking platform, minimal dorsal scarring	18-Oct-17	23-May-19	IT	N
165	1	ST 1 Polygon C	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Small, medium-angled striking platform, moderate dorsal scarring, thinning-like flake, no use wear observed despite blade-like shape	18-Oct-17	23-May-19	IT	N
166	1	ST 2 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull light brownish-grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	JN	N
167	1	ST 2 Polygon C	10-20	Flake: Primary	chert: Etherington	Opaque dull reddish-pink white patina/cortex with grey sub-vitreous chert	sg: 3	-	-	-	Single facet high angle striking platform, blocky	18-Oct-17	23-May-19	JN	N
168	1	ST 2 Polygon C	10-20	Flake: Secondary	chert: Etherington	Opaque to slightly translucent, vitreous grey	sg: 2	-	-	-	Multi-facetted, medium to high angle striking platform, moderate dorsal scarring	18-Oct-17	23-May-19	JN	N
169	1	ST 3 Polygon C	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull reddish-brown	sg: 2	-	-	-	Dihedral, low to medium angled striking platform, minimal dorsal scarring, reddening suspected from being subject to [forest] fire	18-Oct-17	23-May-19	JT	N
170	1	ST 3 Polygon C	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2	-	-	-	Narrow, moderate angle striking platform, minimal dorsal scarring	18-Oct-17	23-May-19	JT	N
171	1	ST 3 Polygon C	10-15	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: 1	-	-	-	Dihedral, low to medium angled striking platform with overhanging lip, minimal to moderate dorsal scarring	18-Oct-17	23-May-19	JT	N
172	1	ST 3 Polygon C	10-15	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint banding	sg: (2)	-	-	-	Terminal portion of flake, minimal dorsal scarring	18-Oct-17	23-May-19	JT	N
173	1	ST 3 Polygon C	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Terminal portion of flake, minimal dorsal scarring, possible use wear along terminal edge	18-Oct-17	23-May-19	JT	N
174	1	ST 4 Polygon C	30-35	Flake: Secondary	chert: Etherington	Opaque to slightly translucent, sub-vitreous grey	sg: 2	-	-	-	Narrow, multi-facetted platform, moderate dorsal scarring, possible use wear, but suspected irregular edge created by relatively coarser grained material	18-Oct-17	23-May-19	JT	N
175	1	ST 5 Polygon C	10-20	Flake: Secondary	chert: Etherington	Opaque, sub-vitreous to dull light grey	sg: 2	-	-	-	Narrow, dihedral medium angle striking platform with lip, moderate dorsal scarring	18-Oct-17	23-May-19	JT	N
176	1	ST 5 Polygon C	10-20	Shatter	chert: Etherington	Opaque, sub-vitreous to dull light grey	sg: 2	-	-	-	Blocky, no platform	18-Oct-17	23-May-19	JT	N
177	1	ST 5 Polygon C	10-20	Flake: Fragment	chert: Etherington	Opaque to slightly translucent, sub-vitreous light grey	sg: (2)	-	-	-	Terminal portion of flake, minimal dorsal scarring	18-Oct-17	23-May-19	JT	N
178	3	ST 5 Polygon C	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2	-	-	-	Re-sharpening flakes, with low to medium-angle striking platforms, moderate dorsal scarring	18-Oct-17	23-May-19	JT	N
179	1	ST 5 Polygon C	20-30	Flake: Secondary	chert: Etherington	Opaque to slightly translucent dull grey	sg: 2	-	-	-	Crushed platform, moderate dorsal scarring	18-Oct-17	23-May-19	JT	N
180	1	ST 6 Polygon C	15-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (3)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	JT	Y
181	1	ST 6 Polygon C	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Medial portion of secondary flake, no platform, moderate dorsal scarring	18-Oct-17	23-May-19	JT	N
182	1	ST 6 Polygon C	15-20	Flake: Fragment	chert: Etherington	Opaque to slightly translucent light grey	sg: (2)	-	-	-	Medial portion of secondary flake, no platform, moderate dorsal scarring	18-Oct-17	23-May-19	JT	N
183	1	ST 6 Polygon C	15-20	Flake: Tertiary	chert: Etherington	Opaque to slightly translucent light grey	sg: 1	-	-	-	Re-sharpening flake, with multi-facetted low to medium-angle striking platforms, minimal dorsal scarring	18-Oct-17	23-May-19	JT	N
184	1	ST 7 Polygon C	0-10	Flake: Secondary	chert: Etherington	Opaque, sub-vitreous light bluish-grey	sg: 2	-	-	-	Multi-facetted, medium angled striking platform, moderate dorsal scarring	18-Oct-17	23-May-19	JF	N
185	1	ST 7 Polygon C	0-10	Flake: Secondary	chert: Etherington	Opaque to slightly translucent light bluish-grey; grades from coarse to medium grained	sg: 3	-	-	-	Concave, medium angle striking platform, moderate dorsal scarring	18-Oct-17	23-May-19	JF	N
186	1	ST 7 Polygon C	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2	-	-	-	Planar, high-angle striking platform	18-Oct-17	23-May-19	JF	N
187	1	ST 7 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (1)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	JF	N
188	1	ST 8 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Terminal portion of flake, possible use-wear, but suspected breakage of thin lateral edge by turbation	18-Oct-17	23-May-19	IT	N
189	1	ST 8 Polygon C	10-20	Tool: Utilized / Re-touched Flake	Siliceous Mudstone	Opaque, dull brownish-grey	21.3	11.5	2.7	0.5	Secondary flake with dihedral medium angle striking platform, use wear along one lateral edge and slight unifacial re-touch on opposing edge	18-Oct-17	23-May-19	IT	Y

Borden Number: DlPr-46 (update)
Permit Number:2015-0098

Dates of Assessment / Field Visit: October 18, 2017 and October 12, 2018
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
190	1	ST 8 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	No platform	18-Oct-17	23-May-19	IT	N
191	3	ST 9 Polygon C	15-20	Flake: Fragment	Quartz	Transparent, highly vitreous clear	sg: (2)	-	-	-	No platforms, soil clinging to surface (not contemporary glass)	18-Oct-17	23-May-19	JM	N
192	1	ST 9 Polygon C	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (3)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	JM	N
193	1	ST 10 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey, coarse-grained	sg: (3)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	JN	N
194	1	ST 10 Polygon C	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Medial portion of flake, no platform	18-Oct-17	23-May-19	JN	N
195	1	ST 10 Polygon C	0-10	Flake: Tertiary	chert: Banff Formation	Opaque, flat black	sg: 2	-	-	-	Small, medium-angled striking platform with slight lip, dorsal scarring obscured by soil clinging, finishing/re-sharpening flake	18-Oct-17	23-May-19	JN	N
196	1	ST 10 Polygon C	10-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish-grey	(32.3)	(30.2)	(6.3)	(3.5)	Terminal portion of secondary flake, moderate dorsal scarring, no platform, use-wear along lateral and terminal edges	18-Oct-17	24-May-19	JN	Y
197	7	ST 10 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2 [5]) & (3 [2])	-	-	-	No platforms	18-Oct-17	24-May-19	JN	N
198	1	ST 10 Polygon C	20-30	Flake: Tertiary	chert: Top of the World	Translucent, highly vitreous dark grey	sg: (1)	-	-	-	Very small, dihedral medium angled striking platform, terminal portion absent (of step fracture), minimal to moderate dorsal scarring, finishing / re-sharpening flake fragment	18-Oct-17	24-May-19	JN	N
199	3	ST 10 Polygon C	20-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (1 [1]) & (2 [2])	-	-	-	Medial portions of flakes, no platforms	18-Oct-17	24-May-19	JN	N
200	1	ST 11 Polygon C	20-30	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey	48.4	33.3	10.2	13.7	Secondary decortication flake with dihedral medium angle striking platform with slight lip, patch of nodular (or water-smoothed) cortex on dorsal side, moderate dorsal scarring, use wear along terminal edge	18-Oct-17	24-May-19	JF	Y
201	2	ST 12 Polygon C	25-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 2 & 3	-	-	-	Dihedral, medium angled striking platforms with slight overhanging lip, minimal to moderate dorsal scarring	18-Oct-17	24-May-19	JF	N
202	1	ST 12 Polygon C	25-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 1	-	-	-	Finishing/ re-sharpening flake with single (convex) medium angle striking platform, minimal dorsal scarring	18-Oct-17	24-May-19	JF	N
203	1	ST 13 Polygon C	15-20	Tool: Utilized Flake (fragment)	Banff Formation Siliceous Siltstone	Opaque, dull grey with light brown banding	(18.2)	(15.1)	(3.4)	(0.6)	Terminal portion of (secondary) flake with use-wear along terminal edge, minimal to moderate dorsal scarring	18-Oct-17	24-May-19	JW	Y
204	1	ST 14 Polygon C	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (1)	-	-	-	No platform, coarse-grained	18-Oct-17	24-May-19	JT	N
205	1	ST 1 Polygon D	0-5	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 4	-	-	-	Relatively large flake with a portion of cortex on platform, but striking area was crushed, remnant relatively high striking platform appears ground, moderate dorsal scarring, possible use-wear along lateral edge	12-Oct-18	24-May-19	ML	N
206	1	ST 2 Polygon D	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 3	-	-	-	Multi-facetted, concave medium angled striking platform with slight lip, ground platform, moderate dorsal scarring	12-Oct-18	24-May-19	IT	N
207	1	ST 3 Polygon D	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 3	-	-	-	Blocky flake with dihedral medium to high angle striking platform with overhanging lip, moderate dorsal scarring	12-Oct-18	24-May-19	JF	N
208	1	ST 4 Polygon D	10-20	Tool: Scraper (Thumbnail)	chert: Banff Formation	Opaque, sub-vitreous greyish-black	27.9	15.9	5	3	Thumbnail scrapper made from secondary decortication flake (remnant patch on dorsal side of flake), continuous steep angle unifacial re-touch along lateral and distal edges, multifaceted high angle striking platform,	12-Oct-18	24-May-19	NS	Y
209	1	ST 4 Polygon D	20-25	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 4	-	-	-	Water-smoothed or nodular cortex, no platform, blocky	12-Oct-18	24-May-19	NS	N
210	1	ST 5 Polygon D	10-20	Flake: Fragment	chert: Etherington	Translucent, sub-vitreous grey with hints of brownish-red	sg: (2)	-	-	-	Terminal portion of flake, no platform, possible use wear along one converging later edge	12-Oct-18	24-May-19	JF	N
211	1	ST 6 Polygon D	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Terminal portion of flake, no platform	12-Oct-18	24-May-19	JN	N

Catalogue Notes:

All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository
Catalogue Numbers DlPr-46: 1 - 161 were utilized under *HCA* Permit 2006-0154
Catalogue Numbers DlPr-45: 1 - 36 were utilized under *HCA* Permit 2006-0154

Catalogue Legend:

Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-17-T19**
Borden Number (site revisit): **DlPr -65**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654414** Northing: **5523590**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Located in southeast British Columbia on the north side of Grave Creek, approximaltey 12.7 km north-northeast of the district of Sparwood and 1.5 km southwest of Grave lake.**
Access Description: **From the district of Sparwood head northwest on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km, then turn south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for 773 m then park where safe and continue on foot for 364 m south-southeast of the road to the site.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/06**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 6, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Lara McFadden-Baltutis (TMECS)** **Josh Martin (TMECS/Shuswap Indian Band)**	**Y**
Other	**Jesse Thomas (TMECS)** **Jason Feltham (TMECS)** **Jeff Williams (Ktunaxa Nation Council [KNC])** **John Nicholson (KNC)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithic**
Precontact	**Cultural Material**	**Subsurface**	**Fire-Altered Rock**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithic: one utilized sandstone spall was recorded and collected from ST12. See attached artifact catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**
FAR	**Observed**	**FAR: three pieces were observed within the same provenience. See attached artifact catalogue for details.**	

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **5 m** Direction **N-S**
Width: **5 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are observed and consist of a 5 m diameter circle based on a single positive shovel test, as per Archaeology Branch standards for isolated finds.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **.05 m** Maximum **.1 m**

Stratigraphy Description: **Stratigraphy was not recorded for this shovel test, however a photo of a stratigraphic profile is provided in the attached photos.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**One shovel test (ST12) measuring 35 cm x 35 cm was excavated to a depth of 20 cm below surface within the site boundaries.**

14. ENVIRONMENT

Lower Elevation **1246 m** (asl) Upper Elevation **1246 m** (asl)
Elevation Comments: **Elevation obtained using a handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek; located approximately 98 m southeast and 24 m below the site.**
Terrain/Landform: **An east-west trending terrace above Grave Creek that has been disected by numerous relict/ephemeral drainages. The site is located along a portion of gently sloped (approx. 5 degree) tread near a small rounded spur that is defined to the west by a relict drainage.**
Other:

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. 8 additional shovel tests were excavated on the landform to determine site boundaries.

Figure: 17

Permit: 2015-0098

Title:

DlPr-65
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 06/10/2017

Mapping Date: 12/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

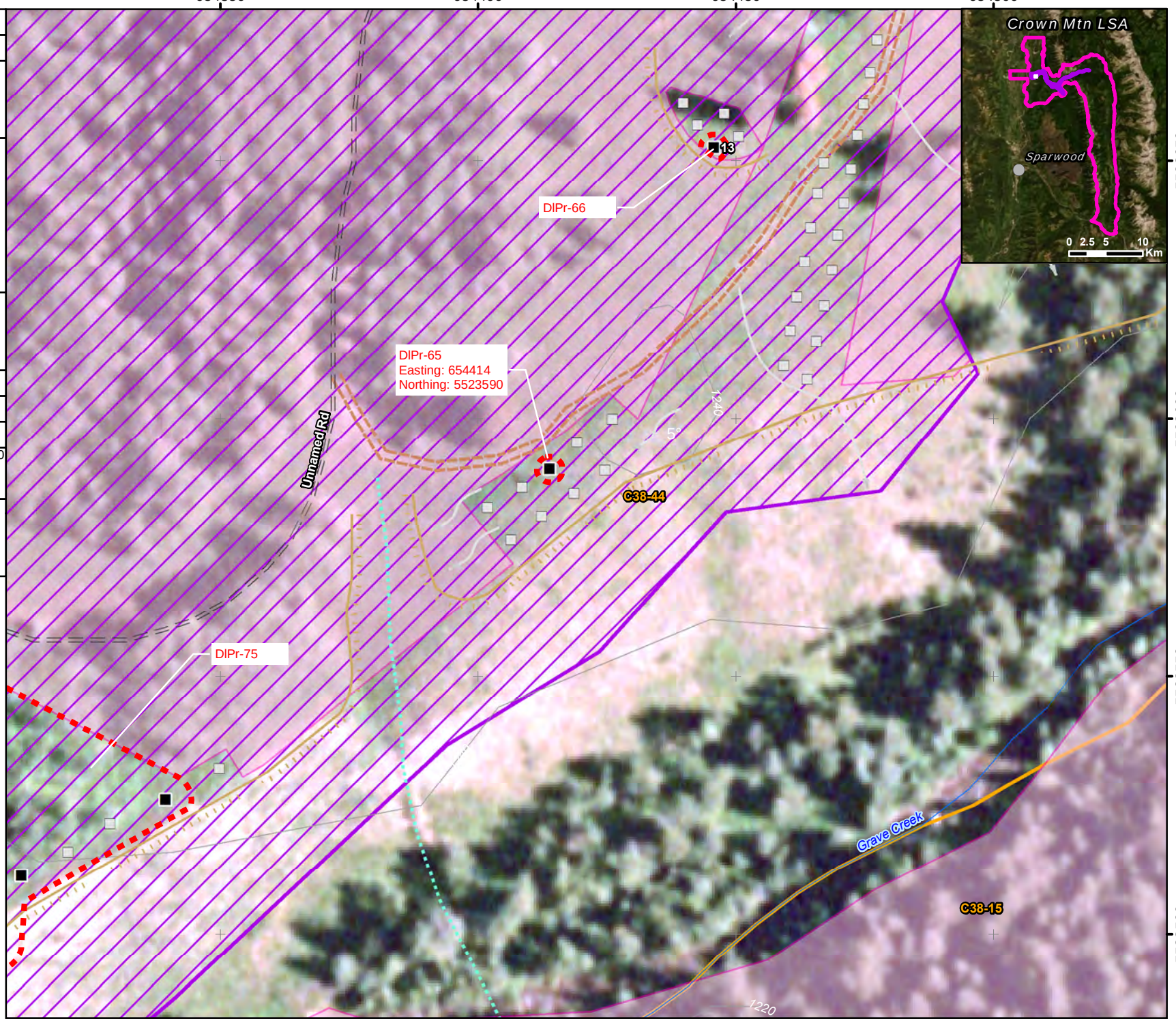
0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2017)
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Truck Road
- Water Feature
- Relict Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPr-17-T19
Borden Number: DlPr-65
HCA Permit Number: 2015-0098
Date of Assessment: October 6, 2017

Photo 1. Overview of the locality (downslope of DlPr-46) where the site is located. (view: east)

Photo 2. ST12, representative stratigraphic profile for the site.

Photo 3. Sandstone FAR recovered at 5-10 cm dbs.

Photo 4. Artifact #1, utilized quartzite spall.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 12	5-10	Tool: Utilized Spall	Quartzite	Opaque, dull reddish-brown	56.4	55.7	12.7	40.2	Heat spall (FAR) from sub-round cobble, utilized edges	06-Oct-17	24-May-19	IT	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (eg. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Provenience	Depth (below surface)	Material	Size Grade	# of Pieces	Weight (g)	Comments
ST12	5-10	Sandstone	sg: (1[2]), (2[1])	3	70	

Catalogue Legend:

Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
FAR Size Grade= sg, defined by 1= 0 -5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (eg. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:

All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-17-T20**
Borden Number: **DlPr-66**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654446** Northing: **5523653**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Located in southeast British Columbia on the north side of Grave Creek, approximaltey 12.9 km north-northeast of the district of Sparwood and 1.4 km southwest of Grave lake.**
Access Description: **From the district of Sparwood head northwest on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km, then turn south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for 773 m then park where safe and continue on foot for 310 m south-southeast of the road to the site.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/03**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 3, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Lara McFadden-Baltutis (TMECS)** **Josh Martin (TMECS/Shuswap Indian Band)**	**Y**
Other	**Jesse Thomas (TMECS)** **Jason Feltham (TMECS)** **Jeff Williams (Ktunaxa Nation Council [KNC])**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithic**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: one utilized siliceous mudstone flake was recorded and collected from ST13. See attached artifact catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **5 m** Direction **N-S**
Width: **5 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are observed and consist of a 5 m diameter circle based on a single positive shovel test, as per Archaeology Branch standards for isolated finds.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **.05 m** Maximum **.1 m**

Stratigraphy Description: **Stratigraphy was not recorded for this shovel test, however a photo of a stratigraphic profile is provided in the attached photos.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**One shovel test (ST13) measuring 35 cm x 35 cm was excavated to a depth of 26 cm below surface within the site boundaries.**

14. ENVIRONMENT

Lower Elevation **1246 m** (asl) Upper Elevation **1246 m** (asl)
Elevation Comments: **Elevation obtained using a handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek; located approximately 125 m southeast and 24 m below the site.**
Terrain/Landform: **A small rounded bench with a southwestern solar aspect.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. 4 additional shovel tests were excavated on the landform to determine site boundaries.

Figure: 18

Permit: 2015-0098

Title:

DlPr-66
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 03/10/2017

Mapping Date: 12/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2017)
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Truck Road
- Water Feature
- Relict Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPr-17-T20
Borden Number: DlPr-66
HCA Permit Number: 2015-0098
Date of Assessment: October 3, 2017

Photo 1. Overview of site location. (view: northeast)

Photo 2. ST13, stratigraphic profile.

Temp. Borden Number: DlPr-17-T20
Borden Number: DlPr-66
HCA Permit Number: 2015-0098
Date of Assessment: October 3, 2017

Photo 3. Artifact #1, utilized siliceous mudstone flake recovered from 5-10 cm dbs.

Borden Number: DlPr-66
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T20

Date of Assessment / Field Visit: October 3, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 13	5-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull dark grey	28.7	20.5	0.9	2.2	Dihedral moderate to high angle striking platform, minimal to moderate dorsal scarring, hinge termination with use wear along lateral edges	03-Oct-17	24-May-19	JW & JF	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-17-T28**
Borden Number: **DlPr-67**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654281** Northing: **5524002**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the middle drainage of Grave Creek, approximately 1.8 km southwest of Grave Lake.**
Access Description: **From the district of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for approximately 750 m. Park where safe, the site is located on a truncated terrace landform approximately 70 m to the north of the road.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase II Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2017/10/27**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 27, 2017)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamas (Tipi Mountain Eco-Cultural Services ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Jesse Thomas (TMECS) Lara McFadden-Baltutis (TMECS), Jason Feltham (TMECS) Mike Shottanana (Ktunaxa Nation Council)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: one secondary flake of Top of the World Chert was collected from the site, see artifact catalogue for details.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **5 m** Direction **N-S**
Width: **5 m** Direction **E-W**

Site Boundary Type: **Observed (5 m circle, isolated artifact)**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are drawn on a 5 m diameter circle as per archaeology branch specificaitons for isolated artifacts.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.15 m** Maximum **0.2 m**

Stratigraphy Description: **0-7 cm Litter mat, Om horizon; 7-20 cm Brown silty loam with 20-25%SA-SR pebbles; >20 cm light brown silty gravel amongst >50% SR cobbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**One shovel test (0.35 m x 0.35 m) completed within site boundaries.**

14. ENVIRONMENT

Lower Elevation **1265 m** (asl) Upper Elevation **1265 m** (asl)
Elevation Comments: **Elevation data gathered using handheld GPS unit and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave Creek is located approximately 430 m to the southeast of the site area.**
Terrain/Landform: **The site is located on a terrace landform that is bisected by the construction of Harmer FSR.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		

16. RECORDER'S RECOMMENDATIONS

Site avoidance or concurrent section 12.2 and 12.4 permits if site avoidance is not possible.

17. GENERAL REMARKS

1) 24 aditional shovel tests were excavated on the landform to determine site boundaries.

Figure: 19

Permit: 2015-0098

Title:

DlPr-67
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 27/10/2018

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2017)
- Centroid
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Terrace Margin
- Slope
- Contour Line (20 m)
- Nearest Watercourse
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPr-17-T28
Borden Number: DlPq-67
HCA Permit Number: 2015-0098
Date of Assessment: October 27, 2017

Photo 1. Site overview, positive shovel test is marked with an orange flag (white dashed circle). (view: north)

Photo 2. Overview of positive shovel test (ST 1) and margin of the landform in the background. (view: west)

Temp. Borden Number: DlPr-17-T28
Borden Number: DlPq-67
HCA Permit Number: 2015-0098
Date of Assessment: October 27, 2017

Photo 3. Stratigraphic profile (view: north wall)

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	15-20	Flake: Secondary	chert: Top of the World	Opaque to translucent, vitreous to sub-vitreous dark grey with bluish hue	sg: 3	-	-	-	Single facet low angle striking platform, complex dorsal scarring, possible use wear, but suspected breakage along lateral edges from trubation and gravelly-matrix	23-Oct-17	24-May-19	JT	N

Catalogue Legend:
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-18-T01**
Borden Number: **DlPr-68**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653838** Northing: **5523831**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the middle drainage of Grave Creek, approximately 1.8 km southwest of Grave Lake.**
Access Description: **From the district of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 225 m. Park where safe, the site is located on a knoll landform approximately 15 m to the north of the road.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase II - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/15**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor (October 15, 2018)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamas (Tipi Mountain Eco-Cultural Services ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuswap Indian Band & TMECS), John NIcholas (Ktunaxa Nation Council [KNC]) Marty Williams (KNC & TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: one projectile point of Siliceous mudstone, one piece of utilized shatter of Siliceous mudstone and three pieces of shatter of Siliceous mudstone and one biface fragment of Top of the World Chert, see artifact catalogue for details.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

Archaeological Culture Name: **Pelican Lake/Bracken Phase**
Diagnostic Materials: **projectile point of Siliceous mudstone**
Archaeological Culture Remarks: **Low side-notched projectile point with straight base, notch width: 16 mm; although tip is missing blade shape is triangular; style and metrics are suggestive of Pelican Lake, but is perhaps more refined to the Bracken Phase (ca. 2800 - 2100 BP).**

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **32 m** Direction **E-W**
Width: **24 m** Direction **N-S**
Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):
Site boundaries are deliniated at a five meter radius from all positive shovel tests as per archaeology branch specifications.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.25 m**

Stratigraphy Description: **0-9 cm Litter mat, Om horizon; 9-24 cm Brown silt with ~20% SR-SA pebbles and cobbles; 24-32 cm Compact light yellow-brown silt.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Six shovel test (0.35 cm x 0.35 cm) completed within site boundaries.**
Past	**Road Construction**	**Construction of Harmer FSR has truncated the bench on which the site is located.**

14. ENVIRONMENT

Lower Elevation **1228 m** (asl) Upper Elevation **1231 m** (asl)
Elevation Comments: **Elevation information gathered using handheld GPS device and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave creek is located approximately 430 m to the south of the site.**
Terrain/Landform: **The site is located on a small bench south of and above a relict drainage.**

15. REFERENCES

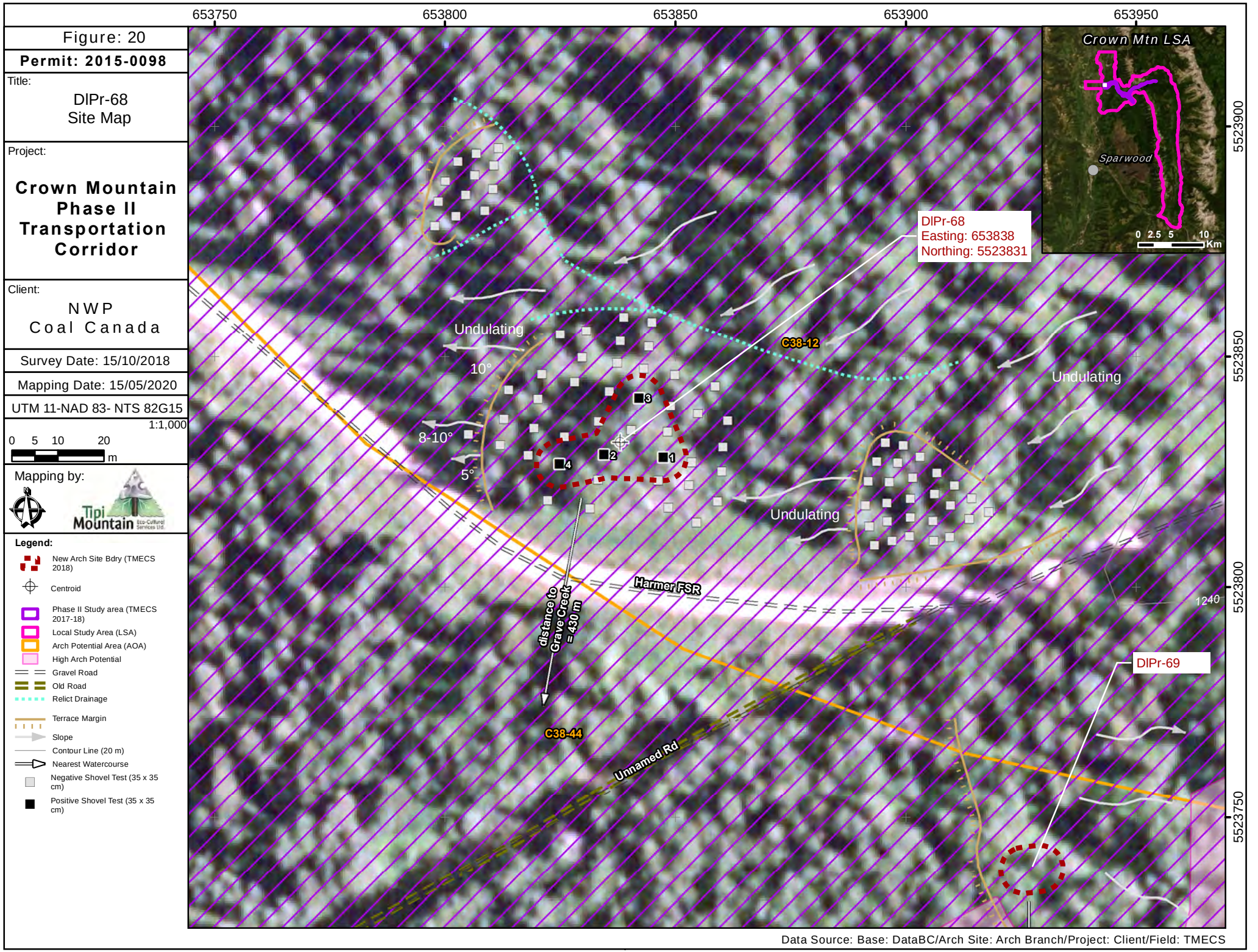
Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance or concurrent section 12.2 and 12.4 permits if site avoidance is not possible.

17. GENERAL REMARKS

1) Site may have once been extended further to the south, but the landform has been truncated by the construction of Harmer FSR. 2) 43 aditional shovel tests were excavatedon the landform to determine site boundaries.


653750
653800
653850
653900
653950
5523900
5523850
5523800
5523750
Figure: 20
Permit: 2015-0098
Title:
DlPr-68
Site Map
Project:
Crown Mountain Phase II Transportation Corridor
Client:
NWP
Coal Canada
Survey Date: 15/10/2018
Mapping Date: 15/05/2020
UTM 11-NAD 83- NTS 82G15
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m
Mapping by:
Tipi Mountain
Legend:
New Arch Site Bdry (TMECS 2018)
Centroid
Phase II Study area (TMECS 2017-18)
Local Study Area (LSA)
Arch Potential Area (AOA)
High Arch Potential
Gravel Road
Old Road
Relict Drainage
Terrace Margin
Slope
Contour Line (20 m)
Nearest Watercourse
Negative Shovel Test (35 x 35 cm)
Positive Shovel Test (35 x 35 cm)
Crown Mtn LSA
Sparwood
0 2.5 5 10
Km
DlPr-68
Easting: 653838
Northing: 5523831
Undulating
10°
8-10°
5°
C38-12
Undulating
Undulating
1
2
3
4
Harmer FSR
distance to Grave Creek = 430 m
1240
DlPr-69
C38-44
Unnamed Rd
Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPr-18-T01
Borden Number: DlPr-68
HCA Permit Number: 2015-0098
Date of Assessment: October 15, 2108

Photo 1. Overview of the relatively level tread of the knoll landform on which the site is located. (view: north)

Photo 2. Pelican Lake (Bracken Phase)-like style of projectile point of siliceous mudstone (catalogue number 3)

Temp. Borden Number: DlPr-18-T01
Borden Number: DlPr-68
HCA Permit Number: 2015-0098
Date of Assessment: October 15, 2108

Photo 3. Utilized fragment of siliceous mudstone.
(catalogue number 1)

Temp. Borden Number: DlPr-18-T01
Borden Number: DlPr-68
HCA Permit Number: 2015-0098
Date of Assessment: October 15, 2018

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-2 cm	Litter mat (LM)/Organic matter (OM)
	II	2-20 cm	Brown silt with 20% SR-SA pebbles and cobbles
	III	20-29 cm	Compact light yellow-brown silt
	Comments: one utilized shatter fragment collected at 15-20 cm.		
2	I	0-10 cm	Litter mat (LM)/Organic matter (OM)
	II	10-17 cm	Brown silt with 20% SR-SA pebbles and cobbles
	III	17-37 cm	Compact light yellow-brown silt
	Comments: Side notched Siliceous mudstone point collected at 10-20 cm.		
3	I	0-8 cm	Litter mat (LM)/Organic matter (OM)
	II	8-24 cm	Brown silt
	III	24-28 cm	Compact light yellow-brown silt
	Comments: mudstone shatter collected at 5-10 cm.		
4	I	0-7 cm	LM/OM
	II	7-20 cm	Dark yellow-orange brown silt
	III	20-32 cm	Light yellow-brown silt with >3% sub-angular to round/sub-round gravels and pebbles
	Comments: Biface fragment of Top of the World Chert collected at 20-25 cm.		

Borden Number: DlPr-68
Permit Number: 2015-0098

Temporary Borden Number: DlPr-18-T01

Date of Assessment / Field Visit: October 15, 2018
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	15-20	Tool: Utilized Shatter	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	62.1	30.8	25.5	28.9	Blocky shatter (of exhausted core) fragment with sharp, low angle edges that have use wear and one area with possible unifacial retouch (but un-weathered fractures and possible attributed to contemporary impacts during excavation of shovel test	15-Oct-18	24-May-19	IT	Y
2	2	ST 1	15-20	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 2 & 3	-	-	-	Blocky fragments	15-Oct-18	24-May-19	IT	N
3	1	ST 2	10-20	Tool: Projectile Point	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(23.7)	22	10.1	(1.5)	Low side-notched projectile point with straight base, notch width: 16 mm; although tip is missing blade shape is triangular; style and metrics are suggestive of Pelican Lake, but is perhaps more refined to the Bracken Phase (ca. 2800 - 2100 BP)	15-Oct-18	24-May-19	JF	Y
4	1	ST 3	5-10	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	sg: 3	-	-	-	Blocky fragment, no platform	15-Oct-18	24-May-19	IT	N
5	1	ST 4	20-25	Tool: Biface (fragment)	chert: Top of the World	Slightly translucent, vitreous grey	(11.7)	(8.5)	(2.9)	(0.3)	Bifacially-worked fragment, possible tip of projectile point	15-Oct-18	24-May-19	JM	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2017-0301 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-18-T02**
Borden Number: **DlPr-69**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **653927** Northing: **5523739**
Source: GPS ☒ Digital Map ☐ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the middle drainage of Grave Creek, approximately 1.9 km southwest of Grave Lake.**
Access Description: **From the district of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 225 m. Park where safe, the site is located on a terrace landform approximatley 50 m to the south of the road.**
Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase II - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/18**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coals Project Phase II - Transportation Corridor(October 18, 2018)**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamas (Tipi Mountain Eco-Cultural Services ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Dan Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (Shuswap Indian Band & TMECS), John NIcholas (Ktunaxa Nation Council [KNC]) Marty Williams (KNC & TMECS), Nyomi Sherwin (TMECS) Marshal Ezelle (TMECS), Jason Feltham (TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: one flake fragment of Siliceous mudstone and one utilized flake of High Rock Range chert. See artifact catalogue for details.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **13 m** Direction **E-W**
Width: **10 m** Direction **N-S**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are drawn at a 5 m radius buffer from positive shovel tests as per archaeology branch specifications.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0.05 m** Maximum **0.2 m**

Stratigraphy Description: **0-6 cm - Litter mat, Om horizon; 6-16 cm - Brown silt; 16-18 cm Compact light brown silt with ~30% SA-A flat cobbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Four shovel tests (0.35 m x 0.35 m) were completed within site boundaries.**

14. ENVIRONMENT

Lower Elevation **1230 m** (asl) Upper Elevation **1231 m** (asl)
Elevation Comments: **Elevation data gathered using handheld GPS device and Google Earth Pro.**

Nearest Hydrological Feature(s): **Grave creek is located approximately 365 m to the south of the site.**
Terrain/Landform: **Site is located on a terrace that has been decapitated by the construction of Harmer road to the north.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance or concurrent section 12.2 and 12.4 permits if site avoidance is not possible.

17. GENERAL REMARKS

1) 36 aditional shovel tests were excavated on the landform to determine site boundaries.

Figure: 21

Permit: 2015-0098

Title:

DlPr-69
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 18/10/2018

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Old Road
- Relict Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Nearest Watercourse
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Tree Throw
- Pushpile

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPr-18-T02
Borden Number: DlPr-69
HCA Permit Number: 2015-0098
Date of Assessment: October 18, 2018

Photo 1. Overview of the currently defined site area, with the location of ST 1 identified with a red arrow. (view: northwest)

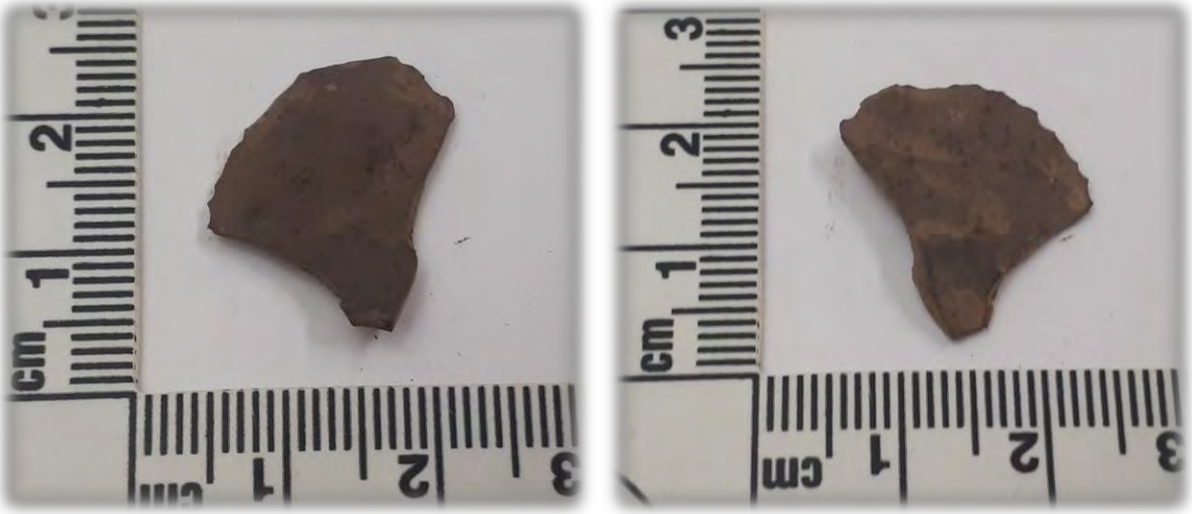


Photo 2. Utilized flake of siliceous mudstone.
(artifact catalogue number 2)

Temp. Borden Number: DlPr-18-T02
Borden Number: DlPr-69
HCA Permit Number: 2015-0098
Date of Assessment: October 18, 2018

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-5 cm	LM/Om
	II	5-21 cm	Brown silt
	III	>21 cm	Compact brown silt
	Comments: Flake fragment of High Rock Range chert collected from 15-20 cm.		
2	I	0-6 cm	Litter mat, Om horizon
	II	6-16 cm	Brown silt
	III	16 -18 cm	Compact light brown silt with ~30% SA-A flat cobbles
	Comments: Utilized flake of siliceous mudstone collected from 5-15 cm.		

Borden Number: DlPr-69
Permit Number: 2015-0098

Temporary Borden Number: DlPr-18-T02

Date of Assessment / Field Visit: October 18, 2018
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	15-20	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous greyish-blue	sg: (2)	-	-	-	Medial portion of flake, no platform	18-Oct-18	24-May-19	JN	N
2	1	ST 2	5-15	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey (weathered)	(20.1)	(14.9)	(3.6)	(0.8)	Proximal portion of secondary flake with single facet relativley high angled striking platform, moderate to complex dorsal scarring, use wear along lateral edge	18-Oct-18	24-May-19	DH	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-17-21**
Borden Number: **DlPr-75**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654061** Northing: **5523488**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within East Kootenay region of southeast British Columbia, and largely situated on a prominent terrace, but also encompasses several lower benches, along the northern side of Grave Creek. The relativley large size of the site spans from 350 m to 950 m east of the confluence with the Elk River and is approximately 1.6 - 2.1 km southwest of Grave Lake.**

Access Description: **From the District of Sparwood, proceed northward on Elk Valley Highway/BC-43 for approximately 17 km before turning east onto Line Creek Mine Road. Continue in an eastward direction (crossing the Elk River) for 1.4 km and turn south onto Valley Raod (FSR) and travel for approximately 5 km to the bridge crossing over Grave Creek. Park on the eastern side of Valley Road in the landing area that is the north of the bridge. Continue to the site by foot traverse, by proceeding for approximately 100 m in an eastward direction and cross over the Canadian Pacific Railway (north-south trending Fording Branch Line). The site area is dominated by the prominent east-west trending terrace margin that overlooks Grave Creek and Grave Prairie to the south.**

Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/06**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II - Transportation Corridor): October 4, 5 & 6, 2017**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Service Ltd [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Lara McFadden-Baltutis (TMECS)**	**Y**
Other	**Joshua Martin (TMECS & Shuswap Indian Band)** **Jesse Thomas (TMECS),** **Jason Feltham (TMECS),** **Jeff Williams (TMECS & Ktunaxa Nation Council [KNC],** **John Nicholas (KNC)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**FAR**
Precontact	**Cultural Material**	**Subsurface**	**Faunal**
Precontact	**Cultural Material**	**Surface**	**Quarry (placer)**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature Remarks:

1) A potential hearth (charcoal staining) was observed within a historical road cut (south of STs 43-45) which bisects the upper terrace margin (see 2015-0098 site map); inspection of this potential precontact feature did not occur due to the proponent changing the development plan and negative impacts to this site were no longer anticipated.

2) Several isolated specimens of FAR were observed along the terrace margin (see 2015-0098 site map), but were not quantified in the artifact catalogue.

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: In total, 300 lithic artifacts were collected from surface exposures and shovel testing during the preliminary inspection of this site; see artifact catalogue.**	**Ktunaxa Nation Regional Repository (KNRR)**
FAR	**Reburied**	**FAR: 42 pieces (390 g) were recovered during shovel testing (ST 51 & 58), quantified in the field and reburied in the test they originated; see FAR Table.**	**N/A**
Floral/Faunal Remai	**Collected**	**Faunal: In total, 36 (note: total is 32 if considering those that re-fit) unidentifiable specimens were collected from a subsurface context during shovel testing; see faunal catalogue.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **610 m** Direction **E-W**
Width: **190 m** Direction **N-S**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries were delineated based on a 5 m buffer from exposed artifacts and positive shovel tests, which resulted in six discrete site area polygons (Polygon A-F). Dimensions provided above encompass all site areas and roughly represent an inferred site boundary. See Remarks Section for details and dimensions of each site area polygon.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **0.45 m**

Stratigraphy Description: **Variable due to size of site, but in general a chernozemic soil developed into a mantle of silt, which overlies glacio-fluvial gravels; see Strat log for details. The precontact cultural horizon varies over the site area, but can be considered to be from the surface down to approximatley 45 cm bs.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**130 shovel tests (35 cm x 35 cm) were excavated within site boundaries to a maximum depth of 60 cm below surface.**
Ongoing	**Erosion**	**Natural erosion along scarp and margin of terrace; sporadic and catastrophic slope wash occurs and exposes artifacts.**
Past	**Road Construction**	**Several old vehicle trails and road grades within and adjacent to the site and have exposed some artifacts; see site map.**
Past	**Railway**	**Construction of the north-south trending CPR - Fording Branch Line (ca 1970s); this truncated the east-west trending terrace margin (and most likely the site) as it nears the Elk River**

14. ENVIRONMENT

Lower Elevation **1212 m** (asl) Upper Elevation **1250 m** (asl)

Elevation Comments: **Elevation data gathered using handheld GPS unit and Google Earth Pro. Tread of terrace ranges from 1235-1250 m asl, lower benches vary from 1212-2020 m asl.**

Nearest Hydrological Feature(s): **Grave Creek is located to the south, and is approxmialty 15 m south of site polygon B**

Terrain/Landform: **The site is largely situated on the tread of the 1235 m (asl) terrace level that is north of Gravel Creek, but procurement of raw lithic materials occurred on erosional scarp, and small benches within the secondary flood plain contain artifacts.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**Ian Tamasi and Nyomi Sherwin**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1) Site avoidance or concurrent section 12.2 and 12.4 permits if site avoidance is not possible.
2) Further inspection of tread beyond currently defined site boundary to determine the full extent of site area

17. GENERAL REMARKS

1) Site Areas/Dimensions:
- Site Polygon A
Centroid: previously provided in Section 2
Size: 607 m E-W x 155 m N-S, delineated naturally (terrace margin) and through observed boundaries from exposed artifacts (exposed along scarp) and positive shovel tests to the south. The site is defined in all other directions with a 5 m buffer from both exposed/collected surface artifacts and positive shovel tests.
- Site Polygon B:
Centroid: 11U 654272 E, 5523422 N
Size: 16 m NE-SW x 10 m NW-SE, defined by a 5 m buffer that encompasses the location of two positive shovel tests.
- Site Polygon C
Centroid: 11U 654225 E, 5523409 N
Size: 5 m N-S x 5 m E-W, defined by a 2.5 m radial buffer from an isolated surface artifact.
- Site Polygon D
Centroid: 11U 654208 E, 5523406 N
Size: 4 m E-W x 3.5 m N-S (triangular-shaped), defined naturally to south by the prominent (SE & SW facing) margins of an isolated bench and an osbserved boundary to the north based on a 2.5 radial buffer from a single positive subsurface test.
- Site Polygon E
Centroid: 11U 654164 E, 5523410 N
Size: 5 m N-S x 5 m E-W, defined by a 2.5 radial buffer from a single positive shovel test.
- Site Polygon F:
Centroid: 11U 653924 E, 5523423 N
Size: 5 m N-S x 5 m E-W, defined by a 2.5 radial buffer from a single positive shovel test.
Note: an inferred site boundary is illustrated on the 2015-0098 site map, which is slightly more representative of a true site area that the observed site boundaries. Most likely, this site would have extended westward (prior to the construction of the CPR tracks) along the terrace margin/tread to its terminus (approximately at Valley Road) and may have once 'connected' with site DlPr-6 (Choquette 1973).

2) Raw lithic materials, predominately siliceous mudstone and High Rock Range chert (but also quartzite) that have favourable attributes for the production of stone tools are present within the glacio-fluvial gravels that underlie the mantle of silt and are sporadically exposed along the scarp of the high terrace. Procurement of the raw lithic materials from the placer deposit is indicated by the presence of workshop debitage (SF 207-209 [catalogue numbers: 224-233) that was recovered in proximity to (downslope of) ST 4; see site map.

- Siliceous mudstone can sourced to the Fernie Formation, of which a very small portion of the north-south trending geological formation has been exposed naturally by Grave Creek (under the Valley Road bridge) and anthropogenically during the construction of Valley Road (eastern road/slope cut); these exposures are located 120~150 m west-southwest of the site; see 2015-0098 Site Map. Another procurement source for siliceous mudstone has been identified in proximity to site DlPr-16 (Choquette 1973) within the bounds of Teck Coal's Line Creek Operations, approximately 3.3 km north of the currently defined site area. The flow direction of the trunk glacier within the Elk Valley and the subsequent meltwater within the Elk Valley naturally extracted nodules of siliceous mudstone from its shaley matrix (from the north) and incorporated the clasts into the till and gravels.
- Procurement of raw lithic materials within this site is not considered to have been a primary activity, but would have occurred based on fortuitous discovery of pebbles, cobbles and small boulders that had a high silica content. No evidence of quarrying (e.g. digging) is present, but erosional factors (e.g. slope wash and slumping) and some historical road construction would likely have eradicated any evidence of human quarrying for these raw lithic materials.

3) In addition to lithic artifacts, a relatively large slab of sandstone (catalogue #90) was recovered at 10-20 cmbs within the silty matrix exposed within ST 28; through a discussion with Wayne Choquette (ca. 2018), this geofact was likely utilized as the base of a hopper-morter; see site Photographs.

4) Contribution to the archaeological inventory within the locality of Grave Creek/Prairie through inspections conducted under permit 2015-0098 should be considered provisional, and a great deal of archaeological inspection is still required to determine adequate site areas/boundaries. Due to an evolving development plan/disturbance footprint (ca. 2015-2019), the inspection of several sites was abandoned prior to fulfilling adequate archaeological inspection.
- The number of sites and the current distribution indicates an extensive precontact occupation within the Middle Period likely associated with annual resource procurement during the seasonal round. This locality also provides a favourable location for [western] base camp to faciliate intramountain travel via Grave Creek and Line Creek, both of which access the Alexander Creek valley offer routes of least resistence over the Continental Divide to access the plains region via several mountain passes (e.g. Deadman, Race Horse, North Fork, and Tornado)

5) Although this site is in the locality of Grave Prairie, no evidence of ancestral burials or human remains were observed under 2015-0098; this should not preclude the presence of burials within this site and the immediately adjacent terrain.

6) The few exposed specimens of FAR that are projected on the 2015-0098 site map were not quantified or included within the artifact assemblage/catalogue; this is due to the the presence of contemporary, recreational-related hearth-like features that were observed in proximity to the terrace margin.

7) Grave Creek is not considered a deep drainage and pedestrian crossing is terribly difficult, but a relatively shallow segment of the creek is present upstream of a cascading fall/pool that is located south of Site Polygon B, which could be considered a preferrible fording location. This is most likely why historical road grades converge in this locality.

Figure: 22

Permit: 2015-0098

Title:

DlPr-75
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 05/10/2018

Mapping Date: 23/06/2020

UTM 11-NAD 83- NTS 82G15

1:3,000

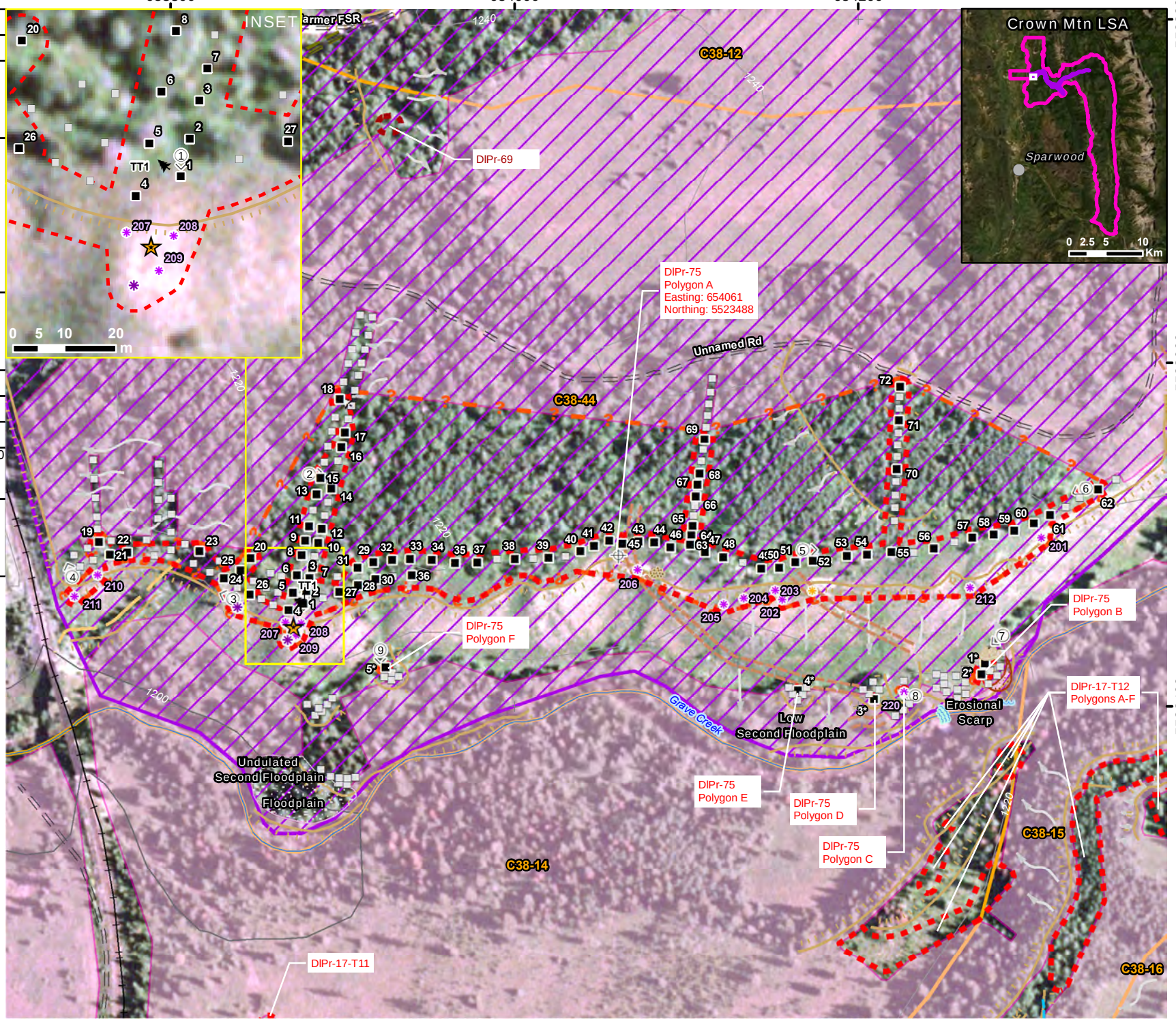
0 10 20 40 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- New Arch Site Bdry (TMECS 2017)
- Centroid
- Inferred New Arch Site Bdry (TMECS 2017)
- Photo
- Sandstone
- Disturbance
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Railway (CPR)
- Hist. Road Grade
- Old Road
- Trail
- Water Feature
- Ephemeral Drainage
- Terrace Margin
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Surface Artifact - Isolated Lithic
- Surface Artifact - Lithic Cluster
- Surface Artifact - Isolated FAR
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Tree Throw
- Positive Tree Throw
- Potential Subsurface Hearth
- Wood Pile
- Workshop Area
- Cascade Pool
- Waterfall



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. Overview of the site and the southward view scape that the elevated terrace level offers; as seen from the locality of ST 1. (view: south)

Photo 2. Representative overview of the terrace tread and the northern portion of the site, as seen from the locality of ST 15. (view: east)

Photo 3. Overview of the relatively steep scarp that fronts the terrace level and contains sporadic exposures of re-worked till and glacio-fluvial gravel that contain raw materials (***e.g.*** siliceous dolomite, High Rock Range chert, and quartzites) that have favourable attributes for the production of stone tools. (view: west)

Photo 4. Overview of the anthropogenically-truncated western extent of the site and terrace level. Prior to the construction of the Canadian Pacific Railway's Fording Branch Line, the site likely extended westward towards and may have encompassed the locality of site DlPr-6. (view: north-northwest)

Photo 5. View of the level tread and prominent terrace margin, as seen from the locality of ST 51. Note that the canyon segment of the Grave Creek drainage (accessing the Alexander Creek valley) is visible in the background (white arrow). (view: east)

Photo 6. Representative overview of the eastern-most extent of the site area, as seen from ST 62. (view: west)

Photo 7. Representative overview of site polygon B, while shovel testing was occurring. Note that Grave Creek is in the background. (view: southwest)

Photo 8. Representative overview of site polygon D while shovel testing was occurring. (view: west)

Photo 9. Representative overview of site polygon F, while shovel testing was occurring. Note that Grave Creek is in the background. (view: south)

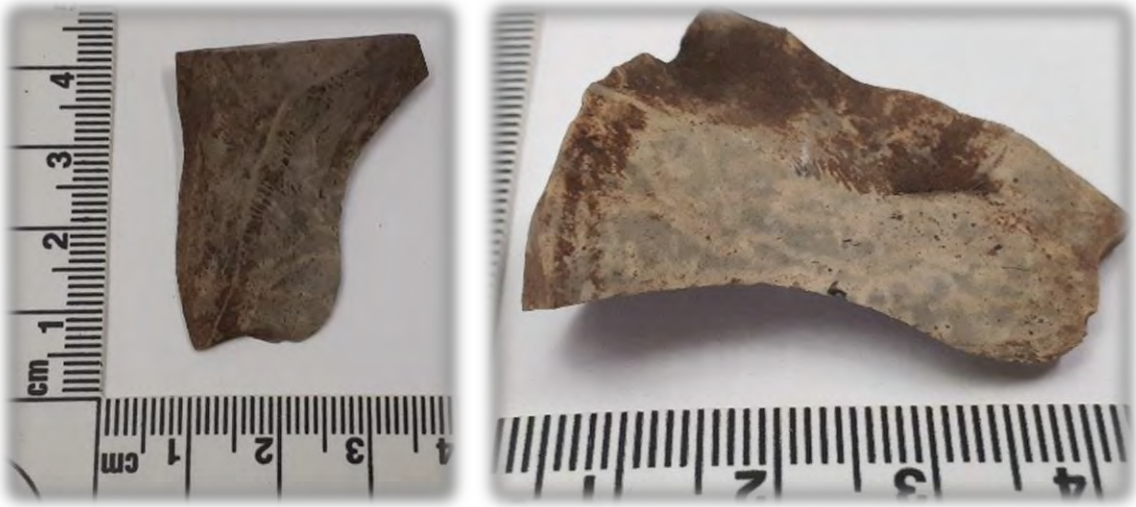


Photo 10. Example of lithic artifact assemblage; utilized [secondary] decortication flake of siliceous mudstone. (catalogue #2)

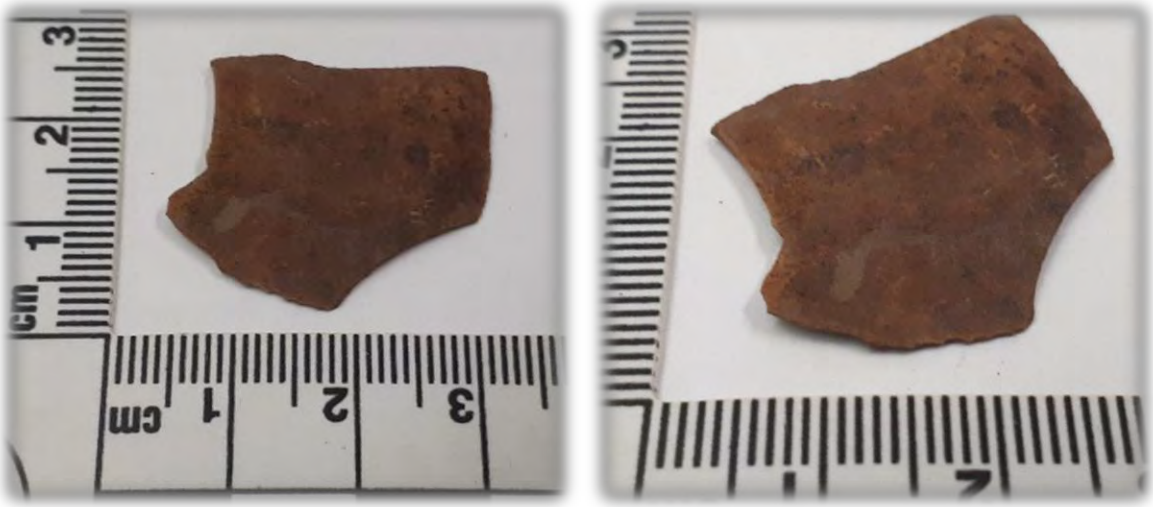


Photo 11. Example of lithic artifact assemblage; utilized flake fragment of siliceous mudstone, (catalogue #3)

Photo 12. Example of lithic artifact assemblage; utilized flake fragment of High Rock Range chert. (catalogue #4)

Photo 13. Example of lithic artifact assemblage; utilized flake of siliceous mudstone. (catalogue #9)

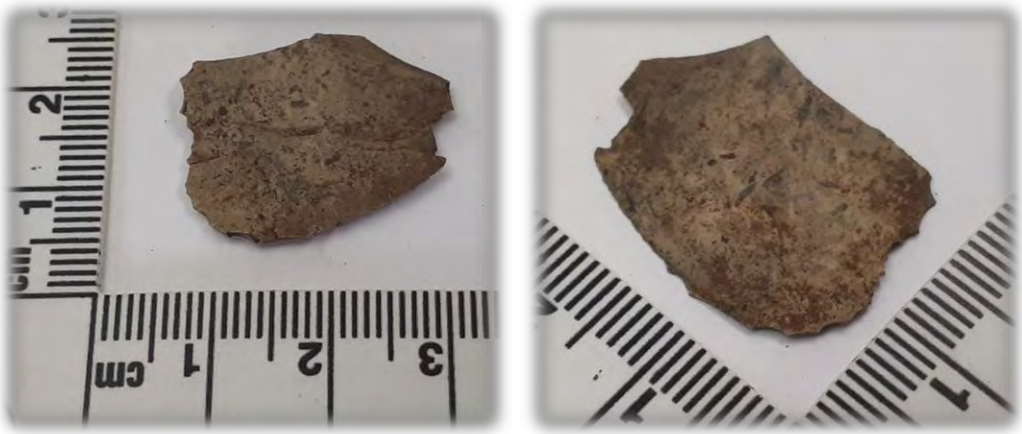


Photo 14. Example of lithic artifact assemblage; utilized flake of siliceous mudstone. (catalogue #10)

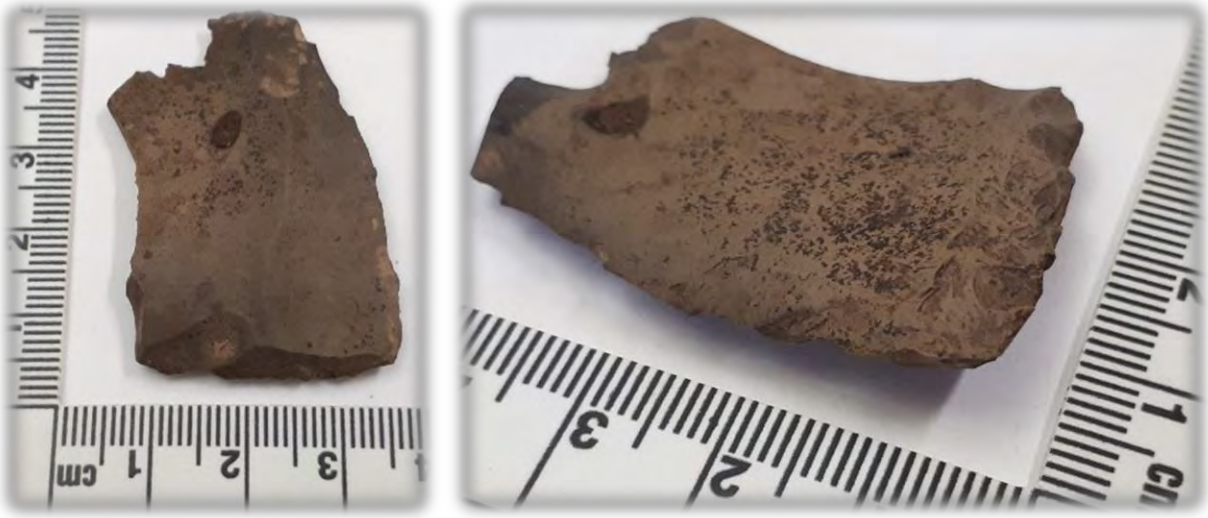


Photo 15. Example of lithic artifact assemblage; marginally retouched flake of siliceous mudstone. (catalogue #14)

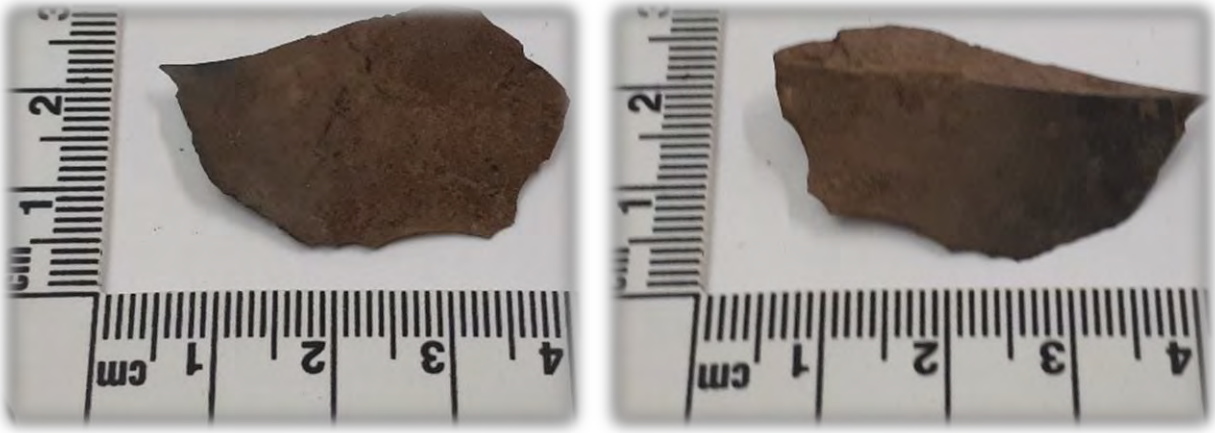


Photo 16. Example of lithic artifact assemblage; utilized flake of siliceous mudstone. (catalogue #17)

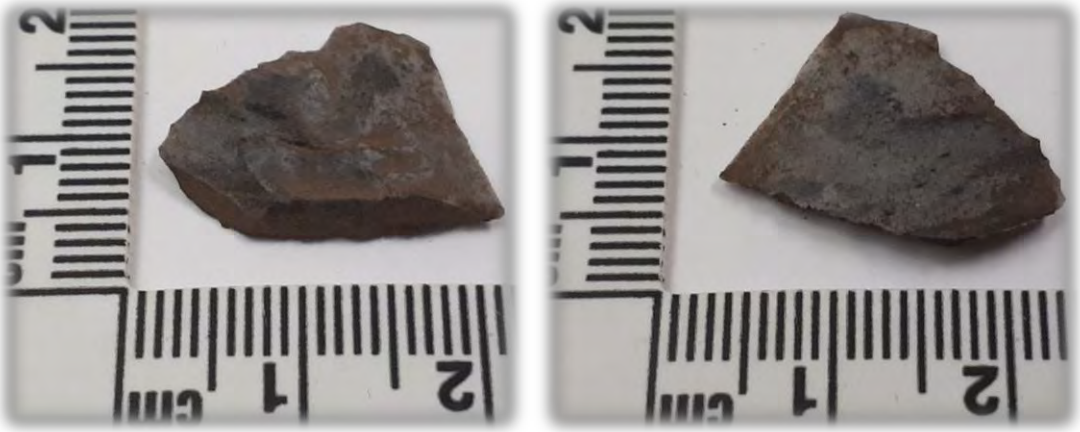


Photo 17. Example of lithic artifact assemblage; utilized flake of [weathered] siliceous mudstone. (catalogue #17)

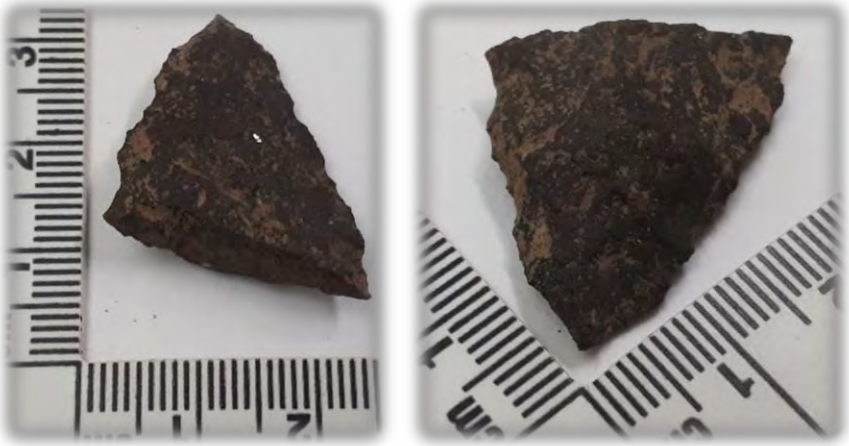


Photo 18. Example of lithic artifact assemblage; biface fragment (*i.e.* tip) of a dark-coloured quartzite tool. (catalogue #23)

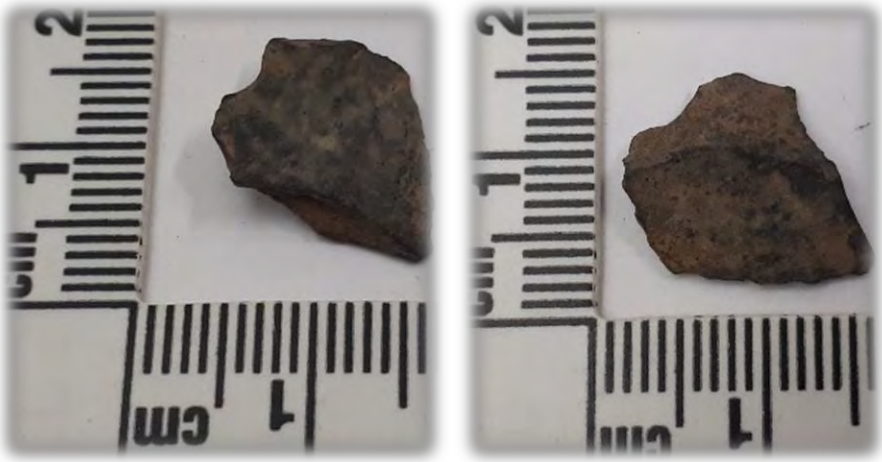


Photo 19. Example of lithic artifact assemblage; utilized flake of siliceous mudstone, (catalogue #32)

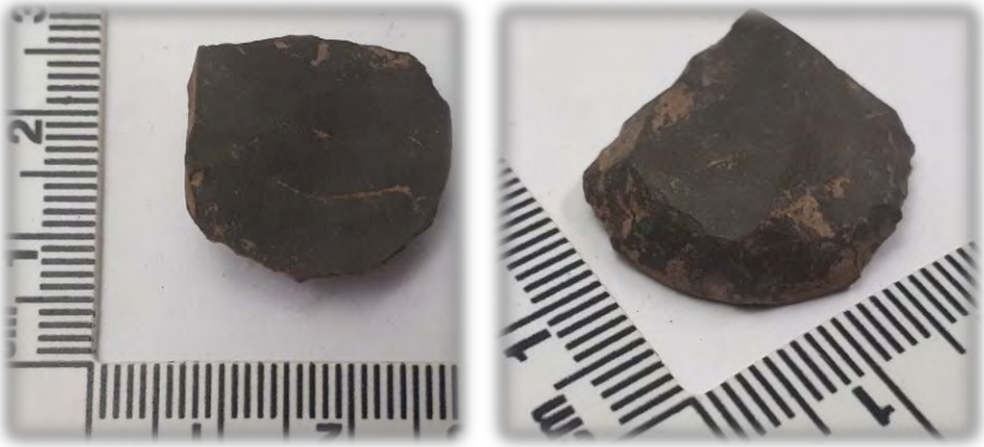


Photo 20. Example of lithic artifact assemblage; thumbnail scraper of tourmaline chert. (catalogue #58)

Photo 21. Example of lithic artifact assemblage; utilized spall of sandstone. (catalogue #71)

Photo 22. Example of lithic artifact assemblage; utilized slab (hopper mortar) of sandstone recovered within a silty matrix. Note damage from shovel testing on the upper surface (left photo) and calcium carbonate present on the under side (right photo). (catalogue #90)

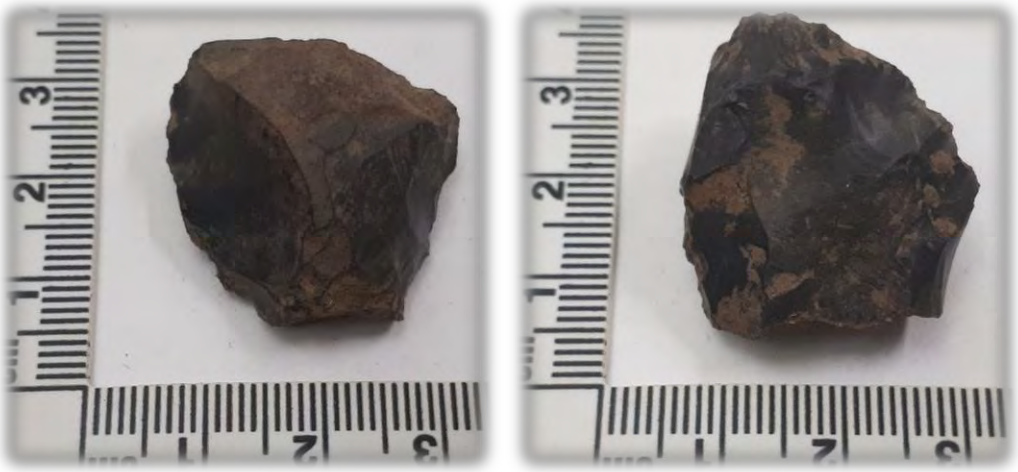


Photo 23. Example of lithic artifact assemblage; core/uniface of High Rock Range chert. (catalogue #125)

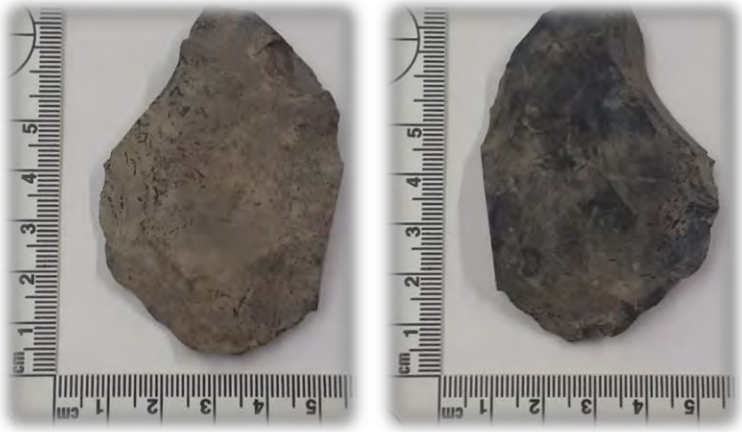


Photo 24. Example of lithic artifact assemblage; biface of siliceous mudstone. (catalogue #218)

Photo 25. Example of lithic artifact assemblage; preform of siliceous mudstone. (catalogue #225)

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	10-16 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	16-32 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 15-20 & 20-30 cm dbs.		
2	I	0-9 cm	Litter mat, Om horizon
	II	9-13 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	13-20 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	20-35 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 15-20, 20-25 & 25-30 cm dbs. and faunal from 15-20 cm dbs.		
3	I	0-9 cm	Litter mat, Om horizon
	II	9-12 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	12-16 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	16-21 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 0-10 & 10-20 cm dbs.		
4	I	0-12 cm	Litter mat, Om horizon
	II	12-15 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	15-26 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IVb	26-48 cm	Compact very dark grey-brown silt with 30% SR-SA pebbles and & 5% SA cobbles
	Comments: Lithic artifacts collected from 15-20, 25-30, 30-35, 35-40 & 40-45 cm dbs.		
5	I	0-5 cm	Litter mat, Om horizon
	II	5-9 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	9-17 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	17-25 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 0-10, 10-20, & 20-30 cm dbs.		
6	I	0-8 cm	Litter mat, Om horizon
	II	8-10 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	10-17 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IVb	17-30 cm	Compact very dark grey-brown silt with 30% SR-SA pebbles and & 5% SA cobbles
	Comments: Lithic artifacts collected from 15-20 & 20-30 cm dbs.		
7	I	0-8 cm	Litter mat, Om horizon
	II	8-10 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	10-15 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	15-33 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 0-10, 10-20, & 20-30 cm dbs.		
8	I	0-8 cm	Litter mat, Om horizon
	II	8-10 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	10-16 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	16-24 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 5-10 & 15-20 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
9	I	0-9 cm	Litter mat, Om horizon
	II	9-10 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	10-23 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IVb	23-25 cm	Compact very dark grey-brown silt with 30% SR-SA pebbles and & 5% SA cobbles
	Comments: Lithic artifacts collected from 0-10, 10-20, & 20-30 cm dbs.		
10	I	0-11 cm	Litter mat, Om horizon
	II	11-13 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	13-19 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	19-34 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 15-20 cm dbs.		
11	I	0-18 cm	Litter mat, Om horizon
	II	18-21 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	21-35cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IVb	35-37 cm	Compact very dark grey-brown silt with 30% SR-SA pebbles and & 5% SA cobbles
	Comments: Lithic artifacts collected from 10-20 & 20-30 cm dbs.		
12	I	0-9 cm	Litter mat, Om horizon
	II	9-15 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	15-24 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	24-35 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 20-30 cm dbs.		
13	I	0-9 cm	Litter mat, Om horizon
	II	9-12 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	12-28 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	28-30 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
14	I	0-10 cm	Litter mat, Om horizon
	II	10-12 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	12-26 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	26-30 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 10-20 & 20-25 cm dbs.		
15	I	0-10 cm	Litter mat, Om horizon
	II	10-13 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	13-25 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	25-30 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 0-10 & 25-30 cm dbs.		
16	I	0-6 cm	Litter mat, Om horizon
	II	6-8 cm	Very compact dark grey-brown silt with <10%SR-SA pebbles
	III	8-18 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IV	18-25 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 10-15 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
17	I	0-10 cm	Litter mat, Om horizon
	IIb	10-18 cm	Very compact mottled dark brown and reddish-brown clayey silt with <5% SA-SR pebbles
	IIIb	13-19 cm	Very compact ark grey-brown clayey silt with <5% SA-SR pebbles.
	IV	19-34 cm	Compact very dark grey-brown silt with 15-25% SR-SA pebbles and cobbles
	Comments: Lithic artifacts collected from 5-10 cm dbs.		
18	I	0-16 cm	Litter mat, Om horizon
	III	16-18 cm	Very compact very dark grey-brown silt with 10-15% SR-SA inclusions
	IIIb	18-32cm	Very compact ark grey-brown clayey silt with <5% SA-SR pebbles.
	Comments: Lithic artifacts collected from 5-10 & 10-20 cm dbs.		
19	I	0-4 cm	Litter mat, Om horizon
	II	4-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-24 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	24-26 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-15 cm dbs.		
20	I	0-8 cm	Litter mat, Om horizon
	II	8-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-28 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 & 20-25 cm dbs.		
21	I	0-8 cm	Litter mat, Om horizon
	II	8-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-28 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 & 20-25 cm dbs.		
22	I	0-4 cm	Litter mat, Om horizon
	II	4-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-20 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	20-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-10 cm dbs.		
23	I	0-11 cm	Litter mat, Om horizon
	II	11-12 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	12-20 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	20-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 15-20 cm dbs.		
24	I	0-5 cm	Litter mat, Om horizon
	II	5-90 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-16 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	16-28 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 & 15-20 cm dbs.		
25	I	0-5 cm	Litter mat, Om horizon
	II	5-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-20 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	20-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-15 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
26	I	0-4 cm	Litter mat, Om horizon
	II	4-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-12 cm	Compact brown silt with 10-15% SA-SR pebbles
	IVb	12-27 cm	Compact very dark grey-brown silt with 30% SR-SA pebbles and & 5% SA cobbles
	Comments: Lithic artifacts collected from 0-5 cm dbs.		
27	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-12 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	12-20 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
28	I	0-5 cm	Litter mat, Om horizon
	II	5-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-43 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-35 cm dbs.		
29	I	0-10 cm	Litter mat, Om horizon
	II	10-14 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	14-18 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	18-38 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-30 cm dbs.		
30	I	0-5 cm	Litter mat, Om horizon
	II	5-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-20 cm	Compact brown silt with 10-15% SA-SR pebbles
	IVb	20-30 cm	Compact very dark grey-brown silt with 30% SR-SA pebbles and & 5% SA cobbles
	Comments: Lithic artifacts collected from 0-30 cm dbs.		
31	I	0-7 cm	Litter mat, Om horizon
	II	7-14 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	14-26 cm	Compact brown silt with 10-15% SA-SR pebbles
	IVc	26-54 cm	Loose dark greyish-brown sandy-silt with high organic content
	V	54-60 cm	Very compact brown silt
	Comments: Lithic and bone artifacts collected from 0-10 & 25-30 cm dbs.		
32	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 20-30 cm dbs.		
33	I	0-6 cm	Litter mat, Om horizon
	II	6-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-16 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	16-35 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected		
34	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-20 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
35	I	0-5 cm	Litter mat, Om horizon
	II	5-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-14 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	14-34 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-20 cm dbs.		
36	I	0-9 cm	Litter mat, Om horizon
	II	9-12 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	12-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 cm dbs.		
37	I	0-4 cm	Litter mat, Om horizon
	II	4-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-19 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	19-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-20 cm dbs.		
38	I	0-5 cm	Litter mat, Om horizon
	II	5-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-16 cm	Compact brown silt with 20-25% SA-SR pebbles
	IV	16-32 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 cm dbs.		
39	I	0-5 cm	Litter mat, Om horizon
	II	5-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-15 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	15-21 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-15 cm dbs.		
40	I	0-10 cm	Litter mat, Om horizon
	II	10-13 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	13-17 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	17-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-25 cm dbs.		
41	I	0-5 cm	Litter mat, Om horizon
	II	5-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-10 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	10-19 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
42	I	0-5 cm	Litter mat, Om horizon
	II	5-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-13 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	13-28 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-20 cm dbs.		
43	I	0-4 cm	Litter mat, Om horizon
	II	4-6 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	6-19 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	19-28 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-15 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
44	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-13 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	13-20 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-20 cm dbs.		
45	I	0-11 cm	Litter mat, Om horizon
	IIc	11-14 cm	Brown silt with <1% inclusions
	III	14-18 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	18-33 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-30 cm dbs.		
46	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-13 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	13-25 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 & 10-20 cm dbs.		
47	I	0-6 cm	Litter mat, Om horizon
	II	6-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-15 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	15-27 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
48	I	0-4 cm	Litter mat, Om horizon
	II	4-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-14 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	14-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Charred bone collected from 10-20 cm dbs.		
49	I	0-10 cm	Litter mat, Om horizon
	II	10-14 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	14-25 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	25-37 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 25-30 cm dbs.		
50	I	0-5 cm	Litter mat, Om horizon
	II	5-8 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	8-19 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	19-24 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-10 cm dbs.		
51	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-18 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	18-30 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-15 cm dbs.		
52	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-16 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	16-21 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: FAR and Lithic artifacts collected from 0-10 & 10-20 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
53	I	0-7 cm	Litter mat, Om horizon
	II	7-11 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	11-18 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	18-27 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-10 & 10-20 cm dbs.		
54	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-15 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	15-24 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 10-15 cm dbs.		
55	I	0-4 cm	Litter mat, Om horizon
	II	4-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-14 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	14-24 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
56	I	0-5 cm	Litter mat, Om horizon
	II	5-7 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	7-14 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	14-28 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 & 5-10 cm dbs.		
57	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-13 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	13-25 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 & 5-10 cm dbs.		
58	I	0-8 cm	Litter mat, Om horizon
	IId	8-20 cm	Semi-compact silt
	IIId	20-25 cm	Compact brown silt with < 3% SA-SR pebbles
	IVd	25-26 cm	Very brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-20 cm dbs.		
59	I	0-10 cm	Litter mat, Om horizon
	IId	10-16 cm	Semi-compact silt
	IIId	16-29 cm	Compact brown silt with < 3% SA-SR pebbles
	IVd	29-31 cm	Very brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-20 cm dbs.		
60	I	0-8 cm	Litter mat, Om horizon
	IId	8-14 cm	Semi-compact silt
	IIId	14-30 cm	Compact brown silt with < 3% SA-SR pebbles
	IVd	30-32 cm	Very brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-20 cm dbs.		
61	I	0-8 cm	Litter mat, Om horizon
	IId	8-18 cm	Semi-compact silt
	IIId	18-35 cm	Compact brown silt with < 3% SA-SR pebbles
	IVd	35-38 cm	Very brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-35 cm dbs.		
62	I	0-10 cm	Litter mat, Om horizon
	IId	10-33 cm	Semi-compact silt
	IIIe	33-45 cm	Compact black silt with high percentage of charcoal throughout
	IVe	45-50 cm	Semi-compact fine silt with <5% inclusions
	Comments: Lithic artifacts collected from 0-30 cm dbs. and carbon sample taken from 30-35 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
63	I	0-7 cm	Litter mat, Om horizon
	II	7-17 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	17-23 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	23-27 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
64	I	0-6 cm	Litter mat, Om horizon
	II	6-9 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	9-13 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	13-25 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Faunal artifacts collected from 0-10 cm dbs.		
65	I	0-6 cm	Litter mat, Om horizon
	II	6-10 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	10-19 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	19-33 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 20-30 cm dbs.		
66	I	0-7 cm	Litter mat, Om horizon
	II	7-12 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
	III	12-15 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	15-32 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 5-10 cm dbs.		
67	I	0-7 cm	Litter mat, Om horizon
	IIe	7-11 cm	Organics (decomposing log) with a layer of charcoal
	IIIe	11-22 cm	Compact black silt with high percentage of charcoal throughout
	IVe	22-25 cm	Semi-compact fine silt with <5% inclusions
	Comments: Lithic artifacts collected from 5-10 cm dbs.		
68	I	0-5 cm	Litter mat, Om horizon
	IIf	5-14 cm	Brown loam with high organic content
	IIIf	14-17 cm	Semi-compact dark brown silt
	IV	17-24 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Vb	24-45	Compact dark brown silt with <5% SA-SR pebbles
	VI	45-50	Very compact dark grey silt with <5% SA-SR pebbles
	Comments: Lithic artifacts collected from 0-5 & 10-20 cm dbs.		
69	I	0-5 cm	Litter mat, Om horizon
	IIf	5-9 cm	Brown loam with high organic content
	III	9-22 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	22-27 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 & 10-20 cm dbs.		
70	I	0-4 cm	Litter mat, Om horizon
	IIf	4-10 cm	Brown loam with high organic content
	III	10-24 cm	Compact brown silt with 10-15% SA-SR pebbles
	IV	24-34 cm	Very compact dark greyish-brown silt with 10-15% pebbles
	Comments: Lithic artifacts collected from 0-5 & 10-20 cm dbs.		
71	I	0-8 cm	Litter mat, Om horizon
	II	8-13 cm	Dark greyish-brown silt
	III	13-23 cm	Brown clayey silt
	IV	23-33 cm	Very compact dark brown silt with <3% inclusions
	Comments: Lithic artifacts collected from 0-10 cm dbs.		
72	I	0-7 cm	Litter mat, Om horizon
	II	7-10 cm	Very compact brown silt
	III	10-18 cm	Very compact dark brown silt with <3% inclusions
	Comments: Lithic artifacts collected from 20 cm dbs.		

Shovel Test	Stratum	Depth (below surface)	Description
1* Polygon B	I	0-8 cm	Litter mat, Om horizon
	II	8-19 cm	Semi-compact very dark grey silt with some organic inclusions and <5% SA-SR pebbles
	III	19-28 cm	Compact very dark grey mottled with dark brown silt and <10% SA-SR pebbles
	IV	28-37 cm	Compact very dark greyish-brown silt with <10% SA-SR pebbles
	V	37-45 cm	Very compact very dark greyish-brown silt with <10% SA-SR gravels
	Comments: Lithic artifacts collected from 25-30 cm dbs.		
2* Polygon B	I	0-5 cm	Litter mat, Om horizon
	II	5-9 cm	Semi-compact very dark grey silt with some organic inclusions and <5% SA-SR pebbles
	III	9-24 cm	Compact very dark grey mottled with dark brown silt and <10% SA-SR pebbles
	IV	24-36 cm	Compact very dark greyish-brown silt with <10% SA-SR pebbles
	V	36-41 cm	Very compact very dark greyish-brown silt with <10% SA-SR gravels
	Comments: Lithic artifacts collected from 15-20 cm dbs.		
3* Polygon D	I	0-6 cm	Litter mat, Om horizon
	IIb	6-19 cm	Compact very dark grey-brown silt with 10-15% pebbles and <3% SA-SR cobbles
	IIIb	19-21 cm	Very compact very dark grey-brown silt with 10-15% pebbles and <3% SA-SR cobbles
	Comments: Faunal artifacts collected from 5-10 cm dbs.		
4* Polygon E	I	0-8 cm	Litter mat, Om horizon
	IIc	8-12 cm	Brown loam with organic materials
	IIIc	12-23 cm	Semi-compact very dark brown silt and organic materials with <3% SA-SR pebbles
	IVc	23-30 cm	Compact Brown silt with <5% SA-SR pebbles
	Vc	30-32 cm	Compact Brown silt with 15-20% SA-SR pebbles
	Comments: Lithic artifacts collected from 20-25 cm dbs.		
5* Polygon F	I	0-5 cm	Litter mat, Om horizon
	IIc	5-15 cm	Brown loam with organic materials
	IIIc	15-24 cm	Compact very dark brown and brown mottled silt with <1% pebbles
	IVc	24-36 cm	Very compact very dark grey-brown silt with <5% SA-SR pebbles
	Comments: Lithic artifacts collected from 10-20 cm dbs.		

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 1	15-20	Flake: Fragment	chert: tourmaline	Opaque, khaki-green	sg: (3)	-	-	-	Medial portion of [secondary] flake with crushed platform, minimal to modern dorsal scarring	04-Oct-17	04-Jun-19	JF	N
2	1	ST 1	15-20	Tool: Utilized Flake (decortication)	Siliceous Mudstone	Opaque, brownish-grey (weathered)	43.3	30.2	14.1	9.8	Secondary decortication flake with blocky appearance, nodular/water-smoothed cortex, use wear along lateral edges	04-Oct-17	04-Jun-19	JF	Y
3	1	ST 1	15-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, greyish -brown (weathered)	(31.3)	(19.3)	(2.5)	(1.6)	Medial portion of flake, brown suspected to be from exposure to fire, moderate dorsal scarring	04-Oct-17	04-Jun-19	JF	Y
4	1	ST 1	20-30	Tool: Utilized Flake (fragment)	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	(18.4)	(14.7)	(4.6)	(1.1)	Terminal portion of flake, no platform, use wear along one lateral edge	04-Oct-17	04-Jun-19	JF	Y
5	1	ST 1	20-30	Flake: Fragment	Banff Formation Siliceous Siltstone	Opaque, dull brownish dark-grey	sg: (2)	-	-	-	Terminal portion of flake, no platform, possible use wear along portion of terminal edge	04-Oct-17	04-Jun-19	JF	N
6	1	ST 1	20-30	Shatter	chert: High Rock Range	Opaque, sub-vitreous bluish-grey with creamy-white banding	sg: 5	-	-	-	Blocky fragment, suspected cortex present	04-Oct-17	04-Jun-19	JF	N
7	1	ST 2	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark-grey (weathered)	sg: (4)	-	-	-	Terminal portion of [primary?]decortication flake, possible use wear along terminal edge, but very thin and likely breakage from turbation,	04-Oct-17	04-Jun-19	JM	N
8	2	ST 2	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark-grey (weathered)	sg: (2)	-	-	-	medial-terminal portions of flakes, no platforms, moderate dorsal scarring	04-Oct-17	04-Jun-19	JM	N
9	1	ST 2	20-25	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull dark-grey (weathered)	(33.8)	(13.5)	(3.6)	(2.1)	Medial portion of [primary?} decortication flake with use wear along one later edge, contains nodular cortex	04-Oct-17	04-Jun-19	JM	Y
10	1	ST 2	20-25	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull dark-grey (weathered)	(25.9)	(18.9)	(3.4)	(1.4)	Terminal portion of flake with use wear	04-Oct-17	04-Jun-19	JM	Y
11	2	ST 2	20-25	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish-grey and light grey (weathered)	sg: 3	-	-	-	Medium to high angle striking platforms, moderate to complex dorsal scarring, very weathered	04-Oct-17	04-Jun-19	JM	N
12	3	ST 2	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull dark-grey (weathered)	sg: 2 [2] & 3 [1]	-	-	-	Medial-terminal portions of flakes, no platforms, moderate dorsal scarring	04-Oct-17	04-Jun-19	JM	N
13	1	ST 2	25-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark-grey (weathered)	sg: 3	-	-	-	Single facet (slightly concave) low angle striking platform with faint lip, moderate dorsal scarring, no apparent use wear, re-sharpening flake	04-Oct-17	04-Jun-19	JM	N
14	1	ST 3	0-10	Tool: Re-Touched Flake	Siliceous Mudstone	Opaque, dull brownish dark-grey (weathered)	46.6	29.6	12.3	11.2	Single facet (slightly concave) medium to high angle striking platform with grinding (platform preparation), minimal dorsal scarring, unifacial re-touch along terminal edge, bifacial re-touch along one latera edge; opposing edge is broken	04-Oct-17	04-Jun-19	JF	Y
15	1	ST 3	0-10	Shatter	Siliceous Mudstone	Opaque, dull brownish dark-grey (weathered)	sg: 4	-	-	-	Blocky fragment, no platform	04-Oct-17	04-Jun-19	JF	N
16	1	ST 3	0-10	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish dark-grey (weathered)	sg: 1	-	-	-	Small platform preparation flake, single facet slightly concave medium to high angle striking platform	04-Oct-17	04-Jun-19	JF	N

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
17	1	ST 3	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark-grey (weathered)	42.3	26.5	13.3	3.6	Small, planar high angle striking platform, minimal dorsal scarring, primary flake with use wear along terminal edge; weathered	04-Oct-17	04-Jun-19	JF	Y
18	1	ST 5	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark-grey (weathered)	sg: (3)	-	-	-	No platform, cortex on dorsal surface; secondary decortication	04-Oct-17	04-Jun-19	JN	N
19	1	ST 5	0-10	Tool: Utilized Flake	chert: Top of the World	Opaque, vitreous to sub-vitreous bluish-grey with dendritic inclusions	20.8	9.3	3	0.8	Narrow medium to high angle striking platform with faint lip, moderate dorsal scarring, use wear along both lateral edges and terminal end	04-Oct-17	04-Jun-19	JN	Y
20	1	ST 5	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (6)	-	-	-	Portion of decortication flake (of shatter fragment) with nodular cortex present	04-Oct-17	04-Jun-19	JN	N
21	1	ST 5	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (2)	-	-	-	Crushed platform and terminal end is absent, minimal dorsal scarring	04-Oct-17	04-Jun-19	JN	N
22	1	ST 5	10-20	Shatter	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 2	-	-	-	Blocky fragment	04-Oct-17	04-Jun-19	JN	N
23	1	ST 5	10-20	Tool: Biface (fragment)	Quartzite	Opaque, coarse-grained, with visible inclusions, some of which are vitreous/reflective, generally dull luster	(30.5)	(23.5)	(8.5)	(3.8)	Tip of biface (projectile point?) with triangular to ovate blades, relatively thick (dart point?), one steep angle blade; opposing is sharp/low angle blade	04-Oct-17	04-Jun-19	JN	Y
24	2	ST 5	20-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (2) & (3)	-	-	-	No platforms	04-Oct-17	04-Jun-19	JN	N
25	1	ST 5	20-30	Shatter	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 3	-	-	-	Blocky fragment	04-Oct-17	04-Jun-19	JN	N
26	1	ST 5	20-30	Flake: Fragment	chert: Etherington	Opaque, dull whitish-grey patina (weathered)	sg: (2)	-	-	-	No platform, moderate dorsal scarring	04-Oct-17	04-Jun-19	JN	N
27	1	ST 6	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 2	-	-	-	Multi-facetted, moderate angle striking platform, complex dorsal scarring, possible use wear along terminal edge	04-Oct-17	04-Jun-19	JT	N
28	1	ST 6	25-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 2	-	-	-	Medium angle, slightly concave, single facet striking platform, moderate to complex dorsal scarring	04-Oct-17	04-Jun-19	JT	N
29	1	ST 7	0-10	Flake: Fragment	Quartzite	Opaque to slightly translucent along edges, sub-vitreous (weathered) greyish-brown	sg: (3)	-	-	-	No platform, medial-terminal portion of flake, moderate to complex dorsal scarring	04-Oct-17	06-Jun-19	JF	N
30	1	ST 7	10-20	Tool: Utilized Flake (decortication)	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	35.8	16.2	6.9	3.9	Secondary decortication flake with water-smoothed cortex, use wear along lateral edges, shovel trauma (metallic impact mark) in two locations, single facet (concave) medium to high striking platform	04-Oct-17	06-Jun-19	JF	Y
31	1	ST 7	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	22.1	15.6	3.9	1.3	Secondary flake with use wear along terminal edge, dihedral high angle striking platform	04-Oct-17	06-Jun-19	JF	Y

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
32	1	ST 7	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	16.1	13	3.3	0.6	Multi-facetted, medium to high angle striking platform, moderate dorsal scarring, use wear along one lateral edge	04-Oct-17	06-Jun-19	JF	Y
33	1	ST 7	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (3)	-	-	-	Medial portion of flake, no platform, moderate to complex dorsal scarring	04-Oct-17	06-Jun-19	JF	N
34	1	ST 7	20-30	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	(26.9)	(23.1)	(3.8)	(1.6)	Medial portion of flake, moderate dorsal scarring, platform absent or was crushed upon production, use wear along one lateral edge, pot lid fracture on dorsal side (subject to fire)	04-Oct-17	06-Jun-19	JF	Y
35	2	ST 7	20-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 2	-	-	-	Multi-facetted medium to low angle striking platform with prominent lips and 'dulled' working edge, moderate dorsal scarring, re-sharpening flake from biface	04-Oct-17	06-Jun-19	JF	N
36	1	ST 7	20-30	Flake: Fragment	chert: tourmaline	Opaque , khaki-green-brown	sg: (2)	-	-	-	Medial-terminal portion of flake, hinge termination, no platform, minimal dorsal scarring	04-Oct-17	06-Jun-19	JF	N
37	1	ST 8	5-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 1	-	-	-	Re-sharpening flake with small dihedral, low angle striking platform, moderate to complex dorsal scarring	04-Oct-17	06-Jun-19	JM	N
38	1	ST 7	20-30	Flake: Fragment	chert: tourmaline	Opaque , khaki-green-brown	sg: (1)	-	-	-	Medial portion of small flake, minimal dorsal scarring	04-Oct-17	06-Jun-19	JM	N
39	1	ST 8	10-20	Shatter	Siliceous Mudstone	Opaque, dull dark grey-black	sg: 2	-	-	-	Block fragment that did not fit with silty matrix	04-Oct-17	06-Jun-19	JM	N
40	1	ST 9	0-10	Shatter	Siliceous Mudstone	Opaque, dull dark grey-black	sg: 2	-	-	-	Block fragment that did not fit with silty matrix	04-Oct-17	06-Jun-19	JT	N
41	1	ST 9	0-10	Tool: Utilized Flake (decortication)	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	61.7	33.6	5.5	11.2	Secondary decortication flake with multi-facetted high angle striking platform, pot-lid/spall-like fracture on dorsal side, water smoothed cortex (opposed to nodular), use-wear along lateral and terminal edges, fresh fractures (appear as re-touch) have metallic impact marks and likely from shovel testing	04-Oct-17	06-Jun-19	JT	Y
42	1	ST 9	10-20	Tool: Utilized Flake	chert: Top of the World	Translucent, vitreous light grey	27.9	11.9	4.4	1.3	Blade-like flake with crushed platform, use wear along lateral edge, soil clinging to both sides	04-Oct-17	06-Jun-19	JT	Y
43	1	ST 9	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (3)	-	-	-	Medial portion of blade-like flake, possible use wear along one lateral edge, no platform	04-Oct-17	06-Jun-19	JT	N
44	1	ST 10	15-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 3	-	-	-	Narrow multi-facetted, low to moderate angle striking platform, moderate dorsal scarring	04-Oct-17	06-Jun-19	JW	N
45	1	ST 11	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dark grey (weathered)	sg: 3	-	-	-	Planar (cortex), high angle striking platform, minimal dorsal scarring, use wear suspected along one lateral edge (near platform), bedding fracture termination	04-Oct-17	06-Jun-19	JN	N
46	1	ST 11	20-30	Shatter	Siliceous Mudstone	Opaque, dull greyish-brown	sg: 3	-	-	-	Blocky fragment, ripple marks present on one side	04-Oct-17	06-Jun-19	JN	N

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
47	1	ST 12	20-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown	sg: (2)	-	-	-	Medial portion of flake, blocky	04-Oct-17	06-Jun-19	IT	N
48	1	ST 13	0-10	Tool: Re-Touched Flake (fragment)	Tourmalinite	Opaque, sub-vitreous to dull dark grey/black	(30.6)	(21.3)	(4.2)	(2.6)	Medial portion of flake, no platform, minimal to moderate dorsal scarring, unifacial re-touch along one edge	04-Oct-17	06-Jun-19	JT	Y
49	1	ST 13	0-10	Tool: Utilized Flake (fragment)	chert: tourmaline	Opaque, sub-vitreous khaki green	(26.1)	(13.3)	(2.4)	(0.9)	Medial-terminal portion of blade-like flake, use wear along lateral edges, no/crushed platform, hinge termination	04-Oct-17	06-Jun-19	JT	Y
50	1	ST 13	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: 2	-	-	-	Small single facet (concave) medium angle striking platform with platform preparation scarring, moderate dorsal scarring	04-Oct-17	06-Jun-19	JT	N
51	1	ST 14	10-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	(21.5)	(18.6)	(2.7)	(1.2)	Terminal portion of decortication flake, dorsal surface is entirely water smoothed cortex, use wear along ovate converging lateral edges	04-Oct-17	06-Jun-19	JM	Y
52	1	ST 14	20-25	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	(26.0)	(21.9)	(3.9)	(1.8)	Medial portion of flake, minimal dorsal scarring, use wear along lateral edges	04-Oct-17	06-Jun-19	JM	Y
53	1	ST 15	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	sg: (3)	-	-	-	Medial-terminal portion of flake, moderate dorsal scarring, possible use wear along edge	04-Oct-17	06-Jun-19	JF	N
54	1	ST 15	20-30	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull greyish-brown (weathered)	14.5	(9.6)	(3.8)	(0.3)	Small flake with planar high angle striking platform, moderate dorsal scarring, use wear along one lateral edge	04-Oct-17	06-Jun-19	JF	Y
55	2	ST 16	10-15	Flake: Fragment (decortication)	Siliceous Mudstone	Opaque, dull reddish-brown (weathered) and dark grey	sg: (3)	-	-	-	Fragments with water-smoothed cortex, no platforms	04-Oct-17	06-Jun-19	IT	N
56	1	ST 16	10-15	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey	sg: 3	-	-	-	Small multi-facetted medium angle striking platform with lip and possible 'dulled' working edge (or preparation scarring), moderate to complex dorsal scarring	04-Oct-17	06-Jun-19	IT	N
57	1	ST 17	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey	sg: (2)	-	-	-	Medial portion of flake, no platform, moderate dorsal scarring	04-Oct-17	06-Jun-19	-	N
58	1	ST 18	5-10	Tool: Scraper (Thumbnail)	chert: Tourmaline	Opaque, sub-vitreous khaki brownish-green	22.6	22.3	8.5	4.2	Thumbnail scraper with semi-circular perimeter with steep angle unifacial re-touch, no platform, no re-touch on ventral side of flake, soil clinging to re-touched edge	04-Oct-17	06-Jun-19	JF	Y
59	1	ST 18	10-20	Flake: Primary-Secondary	chert: High Rock Range	Opaque, highly vitreous (in portions) bluish-grey with greyish-white inclusions	sg: 3	-	-	-	Narrow, irregular planar high angle striking platform, minimal dorsal scarring, patches of soil clinging to dorsal side	04-Oct-17	06-Jun-19	JF	N
60	1	ST 19	20 cm	Tool: Utilized Flake (decortication)	Siliceous Mudstone	Opaque, dull to sub-vitreous dark grey	53.8	24.6	76.1	4.8	Secondary decortication flake with water smoothed cortex on dorsal side and platform, platform has preparation flakage, high angle striking platform, use wear along terminal edge	04-Oct-17	06-Jun-19	JM	Y

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
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Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
61	1	ST 20	0-10	Flake: Tertiary	Tourmalinite	Opaque, sub-vitreous black	sg: 2	-	-	-	Small/narrow multi-facetted low to medium angle striking platform with overhanging lip and contains 'dulled' working edge, re-sharpening flake	04-Oct-17	06-Jun-19	JT	N
62	1	ST 20	20-25	Flake: Secondary	chert: Top of the World	Translucent, vitreous light grey	sg: 2	-	-	-	Single facet relatively high angle striking platform, moderate to complex dorsal scarring, coarse grained material	04-Oct-17	06-Jun-19	JT	N
63	1	ST 21	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull to sub-vitreous dark grey	(83.4)	(21.3)	(9.4)	(1.1)	Medial portion of flake, minimal dorsal scarring, use wear along lateral edges	04-Oct-17	06-Jun-19	JM	Y
64	1	ST 22	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Planar high angle striking platform, moderate dorsal scarring (platform preparation flake?)	04-Oct-17	06-Jun-19	JF	N
65	1	ST 23	15-20	Flake: Pot Lid	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	No platform, appears to have nodular cortex on dorsal surface, prominent ripple/bulb on ventral side, contemporary breakage (un-weathered) from shovel testing	04-Oct-17	06-Jun-19	JM	N
66	2	ST 4	15-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered) and lighter grey/speckled	sg: 2	-	-	-	Medium angle, single facet platforms, minimal to moderate dorsal scarring	04-Oct-17	17-Jun-19	LMB	N
67	1	ST 4	15-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(21.2)	(9.8)	(3.1)	(0.6)	Medial portion of secondary, blade-like flake with use wear along lateral edges, moderate dorsal scarring	04-Oct-17	17-Jun-19	LMB	N
68	1	ST 4	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Terminal portion of flake, no platform, moderate dorsal scaring	04-Oct-17	17-Jun-19	LMB	N
69	1	ST 4	20-25	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Dihedral, medium angle striking platform, minimal to moderate dorsal scarring	04-Oct-17	17-Jun-19	LMB	N
70	1	ST 4	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform	04-Oct-17	17-Jun-19	LMB	N
71	1	ST 4	30-35	Tool: Utilized Spall	Sandstone	Opaque, dull greyish-brown	145.9	131	30.1	518	Natural spall with sub-angular to sub-round, water-smoothed cortex, bedding fractures visible on cortex, use-wear along edges, some impact from shove testing (impact marks and scratching)	04-Oct-17	17-Jun-19	LMB	Y
72	1	ST 4	35-40	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(25.2)	(16.3)	(3.7)	(1.2)	Medial portion of secondary flake, moderate dorsal scarring, use-wear along lateral edges	04-Oct-17	17-Jun-19	LMB	N
73	2	ST 4	35-40	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial portions of small flakes (tertiary?), minimal to moderate dorsal scarring	04-Oct-17	17-Jun-19	LMB	N
74	2	ST 4	35-40	Shatter	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 4	-	-	-	One specimen with patch of water-smoothed cortex, while the other has a more blocky appearance	04-Oct-17	17-Jun-19	LMB	N
75	1	ST 4	40-45	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Terminal portion of flake, no platform, possible use wear along converging lateral edge	04-Oct-17	17-Jun-19	LMB	N
76	1	ST 24	10-15	Flake: Primary (decortication)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 4	-	-	-	Dihedral, medium angle striking platform, moderate dorsal scarring, pot lid scar on ventral surface, contemporary [shovel] impact on ventral surface	05-Oct-17	17-Jun-19	JT	N

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77	1	ST 25	0-5	Tool: Utilized Spall	Sandstone	Opaque, dull greyish-brown	62	49.7	13.2	49.4	Natural spall with sub-round, water-smoothed cortex, bedding fracture, use-wear and unifacial retouch along one segment of the edge, recovered from just under the litter mat	05-Oct-17	17-Jun-19	JM	Y
78	1	ST 25	0-5	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Narrow, multi-facetted medium to high angle striking platform, complex dorsal scarring, suspected use-wear along one latera edge	05-Oct-17	17-Jun-19	IT	N
79	2	ST 25	0-5	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial portions of flakes, no platform	05-Oct-17	17-Jun-19	IT	N
80	1	ST 26	5-10	Shatter	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 5	-	-	-	Blocky shatter fragment,	05-Oct-17	17-Jun-19	IT	N
81	1	ST 26	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial-terminal portion of flake, no platform	05-Oct-17	17-Jun-19	IT	N
82	2	ST 27	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial portions of flakes, no platform	05-Oct-17	17-Jun-19	JM	N
83	1	ST 27	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Medial and terminal portion of flake, no platform, contemporary impacts (shovel testing) are present along one edge (un-weathered) and appear as use-wear/re-touch	05-Oct-17	17-Jun-19	JM	N
84	1	ST 27	25-30	Tool: Utilized Flake (fragment)	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with faint brown banding	(18.5)	(7.3)	(2.7)	(0.3)	Medial to terminal portion of blade-like (secondary) flake, use wear along one (concave) lateral edge	05-Oct-17	17-Jun-19	JM	Y
85	1	ST 27	25-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull dark grey with light creamy-grey patina (weathered)	sg: (2)	-	-	-	Small dihedral medium angle striking platform, moderate dorsal scarring, lateral and terminal edges have snapped off	05-Oct-17	17-Jun-19	JM	N
86	1	ST 27	30-35	Flake: Secondary	chert: Etherington	Opaque to slightly translucent along edges, sub-vitreous (weathered) light grey	sg: 2	-	-	-	Planar, high angle striking platform (preparation flake), minimal to moderate dorsal scarring	05-Oct-17	17-Jun-19	JM	N
87	1	ST 27	30-35	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(20.8)	(13.4)	(3.3)	(0.6)	Medial and terminal portion of flake, no platform, use-wear along terminal edge	05-Oct-17	17-Jun-19	JM	Y
88	1	ST 27	30-35	Flake: Secondary	chert: Top of the World	Opaque, vitreous to sub-vitreous bluish-grey with banding and some dendritic inclusions	sg: 3	-	-	-	Dihedral, relatively high striking platform, coarse-grained material, blocky appearance	05-Oct-17	17-Jun-19	JM	N
89	1	ST 28	0-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(19.3)	(13.7)	(3.5)	(0.7)	Medial portion of blade-like flake, use wear along one lateral edge, no platform, soil clinging to dorsal side	05-Oct-17	17-Jun-19	JN	Y

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90	1	ST 28	10-20	Tool: Utilized Slab	Sandstone	Opaque, coarse-grained, dull brown	355	235	77	> 5000	Relatively large, flat (parallel fractures) slab of coarse-grained sandstone recovered flat (lying parallel to ground surface), large inclusion that does not fit with the silty matrix, contemporary damage from shovel, one area on one side is relatively smooth and is suspected hopper-mortar base, calcium carbonate adhering to converse side.	05-Oct-17	17-Jun-19	JN	Y
91	1	ST 28	10-20	Flake: Primary (decortication)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Primary decortication, highly-polished water smoothed cortex, terminal edge missing/broken?, possible use wear, but contemporary damage (shovel testing) has resulted in un-weathered use-wear like scarring	05-Oct-17	17-Jun-19	JN	N
92	1	ST 28	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Small finishing/sharpening flake, moderate to complex dorsal scarring, platform is largely crushed	05-Oct-17	17-Jun-19	JN	N
93	1	ST 28	10-20	Flake: Fragment (decortication)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Medial-terminal portion of flake, water-smoothed cortex, no platform	05-Oct-17	17-Jun-19	JN	N
94	1	ST 28	20-30	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(17.1)	(11.2)	(3.3)	(0.4)	Dihedral, medium to high striking platform, use wear and subsequent breakage along lateral edge	05-Oct-17	17-Jun-19	JN	N
95	1	ST 28	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	26.2	17.7	5.4	1.8	Small dihedral medium to low angle striking platform with faint overhanging lip, use wear along one lateral edge, pot lid fracture on ventral surface,	05-Oct-17	17-Jun-19	LMB	N
96	1	ST 28	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	36.9	31.9	6.9	6.1	Crushed platform, moderate dorsal scarring, hinge termination, use-wear along lateral edges	05-Oct-17	17-Jun-19	LMB	Y
97	1	ST 28	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	18.8	10.1	4	0.6	Planar, high angle striking platform with slight overhanging lip, minimal dorsal scarring, use wear along later edge	05-Oct-17	17-Jun-19	LMB	N
98	1	ST 28	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Planar, high angle striking platform, minimal dorsal scarring, step termination or previous breakage	05-Oct-17	17-Jun-19	LMB	N
99	4	ST 28	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [3]) & (3 [1])	-	-	-	No platforms	05-Oct-17	17-Jun-19	LMB	N
100	1	ST 28	10-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Elongated, narrow multi-facetted high angle striking platform, moderate dorsal scarring	05-Oct-17	17-Jun-19	LMB	N
101	3	ST 28	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [2]) & (3 [1])	-	-	-	No platforms	05-Oct-17	17-Jun-19	LMB	N
102	1	ST 28	15-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Small, planar high angle striking platform, minimal dorsal scarring	05-Oct-17	17-Jun-19	LMB	N
103	1	ST 28	15-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial-terminal portion of flake, complex dorsal scarring	05-Oct-17	17-Jun-19	LMB	N
104	1	ST 28	25-30	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Small multi-facetted medium to low angle striking platform, moderate to complex dorsal scarring	05-Oct-17	17-Jun-19	LMB	N

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105	1	ST 30	5-10	Tool: Re-Touched Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(37.6)	(28.5)	(6.8)	(3.9)	Medial-terminal portion of flake, no platform, moderate dorsal scarring with pot-lid fractures dominating the ventral surface, use wear along one lateral and the terminal edges, unifacial re-touch along opposing latera edge	05-Oct-17	17-Jun-19	JT	Y
106	1	ST 30	25-30	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Narrow, planar high angle striking platform, minimal dorsal scarring, suspected use wear along latera edges	05-Oct-17	17-Jun-19	JT	N
107	1	ST 30	25-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Medial-terminal portion of flake, no platform, complex dorsal scarring	05-Oct-17	17-Jun-19	JT	N
108	1	ST 31	20-30	Shatter	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Blocky fragment	05-Oct-17	17-Jun-19	JF	N
109	1	ST 31	20-30	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(26.3)	(12.6)	(2.4)	(0.8)	Medial to terminal portion of flake, use wear along one lateral edge	05-Oct-17	17-Jun-19	JF	N
110	1	ST 31	20-30	Flake: Secondary	chert: Etherington	Opaque to slightly translucent grey and dark grey with some white	sg: (3)	-	-	-	Proximal portion of flake, dihedral medium angle striking platform, course-grained material, terminal portion is absent or hinge/step termination, moderate dorsal scarring	05-Oct-17	17-Jun-19	JF	N
111	1	ST 31	20-30	Flake: Fragment	chert: Etherington	Opaque to slightly translucent, subvitreous grey	sg: (2)	-	-	-	Blocky flake fragment	05-Oct-17	17-Jun-19	JF	N
112	1	ST 32	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(23.6)	(17.7)	(4)	(1.4)	Narrow, multi-facetted medium to high angle striking platform, moderate dorsal scarring, use-wear along one later edge	05-Oct-17	17-Jun-19	JM	N
113	1	ST 32	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 4	-	-	-	Concave, medium angle striking platform, moderate dorsal scarring, soil clinging to dorsal side	05-Oct-17	17-Jun-19	JM	N
114	4	ST 32	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [3]) & (3 [1])	-	-	-	No platforms	05-Oct-17	17-Jun-19	JM	N
115	1	ST 32	25-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Medial-lateral portion of flake, no platform	05-Oct-17	17-Jun-19	JM	N
116	1	ST 33	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Multi-facetted, medium to high angle striking platform, moderate dorsal scarring, use wear along one lateral edge	05-Oct-17	17-Jun-19	JF	N
117	1	ST 34	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(40.8)	(24.6)	(5.7)	(7.1)	Medial portion of large flake, no platform, moderate to complex dorsal scarring, use-wear along lateral edges	05-Oct-17	17-Jun-19	JT	Y
118	1	ST 34	10-20	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	19.1	14	3.5	0.7	Dihedral, medium angle striking platform, use wear along lateral edge, minimal to moderate dorsal scarring with possible patch of water-smoothed cortex	05-Oct-17	17-Jun-19	JT	N
119	1	ST 34	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, white patina with dark grey interior (breakage)	sg: 2	-	-	-	Planar, high angle striking platform, minimal dorsal scarring.	05-Oct-17	17-Jun-19	JT	N
120	1	ST 35	0-5	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Medial portion of flake, no platform, minimal dorsal scarring	05-Oct-17	17-Jun-19	LMB	N

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121	1	ST 36	10-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish and grey banding (weathered)	(23.5)	16.5)	(4.7)	(1.4)	Medial-latera portion of flake with use wear along lateral edge, moderate dorsal scarring	05-Oct-17	17-Jun-19	JN	N
122	1	ST 37	0-5	Tool: Utilized Spall	Sandstone	Opaque, dull greyish-brown	32.4	22.5	5.6	4.5	Water smoothed cortex present, ventral surface is obscured by thick calcium carbonate, use wear along edges	05-Oct-17	17-Jun-19	JM	Y
123	1	ST 37	0-5	Tool: Abrader	Sandstone	Opaque, dull greyish-brown	40.1	37.7	18.4	32.3	Round to sub-round pebble with course-grained cortex, inclusion did not fit with silty-matrix, small patch of thick calcium carbonate	05-Oct-17	17-Jun-19	JM	Y
124	2	ST 38	5-15	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2 & 4	-	-	-	Planar, high angle striking platform with faint lip, minimal to moderate dorsal scarring	05-Oct-17	17-Jun-19	JN	N
125	1	ST 38	5-15	Tool: Core/Uniface (fragment)	chert: High Rock Range	Opaque, vitreous bluish-grey	(29.5)	(26.2)	(14.9)	(11)	Sub-round nodule of chert (till procurement) with multiple flake scars that resemble pebble core, but unifacial re-touch is suggestive of steep angled (scraper) edge	05-Oct-17	17-Jun-19	JN	Y
126	2	ST 38	5-15	Flake: Fragment	chert: Etherington	Opaque, sub-vitreous creamy grey	sg: (2)	-	-	-	Medial portions of flakes, no platforms	05-Oct-17	17-Jun-19	JN	N
127	1	ST 39	5-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Dihedral medium angle striking platform that has lip and contains 'dulled' working edge, re-sharpening, moderate dorsal scarring	05-Oct-17	17-Jun-19	IT	N
128	1	ST 39	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(25.6)	(20.1)	(2.9)	(0.9)	Medial and terminal portion of flake, use wear along latera and terminal edges, moderate dorsal scarring, no platform	05-Oct-17	17-Jun-19	IT	N
129	1	ST 39	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(29.6)	(23.4)	(2.8)	(1.7)	Medial and terminal portion of flake, use wear along latera and terminal edges, moderate dorsal scarring, no platform	05-Oct-17	17-Jun-19	IT	N
130	1	ST 39	5-10	Flake: Fragment	chert: Etherington	Opaque, sub-vitreous creamy white-grey	sg: (2)	-	-	-	Crushed platform, minimal dorsal scarring, broken lateral and terminal edges	05-Oct-17	17-Jun-19	IT	N
131	1	ST 39	10-20	Flake: Tertiary	Banff Formation Siliceous Siltstone	Opaque, dull dark grey with brownish banding	sg: 2	-	-	-	Dihedral low to moderate striking platform with lip, moderate dorsal scarring	05-Oct-17	17-Jun-19	IT	N
132	1	ST 39	20-25	Flake: Primary	Sandstone	Opaque, dull greyish-brown	sg: 3	-	-	-	Secondary decortication flake, patch of water-smoothed cortex present	05-Oct-17	17-Jun-19	IT	N
133	1	ST 40	0-10	Flake: Primary	Sandstone	Opaque, dull greyish-brown	sg: 7	-	-	-	Secondary decortication flake with sub-round cortex, no platform (crushed and/or impacted by shovel testing), suspected use wear but not apparent	05-Oct-17	17-Jun-19	JT	N
134	1	ST 40	0-10	Flake: Fragment (decortication)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (4)	-	-	-	Water smoothed cortex present, no platform	05-Oct-17	17-Jun-19	JT	N
135	1	ST 40	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Small fragment, no platform	05-Oct-17	17-Jun-19	JT	N

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Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
136	1	ST 40	20-30	Tool: Utilized Flake (decortication)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	28.9	22.8	5.0	2.8	Secondary decortication flake, patch of water-smoothed cortex present, moderate to high angle striking platform with overhanging lip, use wear along lateral edges	05-Oct-17	17-Jun-19	JF	Y
137	1	ST 41	10-20	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey	(33.4)	(13.5)	(2.7)	(0.9)	Medial portion of blade-like flake, with use wear along lateral edges, minimal dorsal scarring	05-Oct-17	17-Jun-19	JF	N
138	1	ST 42	5-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [2])	-	-	-	Medial and terminal portion of flake, minimal to moderate scarring	05-Oct-17	17-Jun-19	JM	N
139	1	ST 42	10-15	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	46.9	33.9	8.8	11.3	Broken (during shovel testing) and re-fit (2 pieces), weathered, use wear along lateral edges, one of which contains sharp protuberance (graver-like) but does not contain extensive use wear	05-Oct-17	17-Jun-19	JM	Y
140	2	ST 42	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [2])	-	-	-	Medial portions of flakes, no platforms	05-Oct-17	17-Jun-19	JM	N
141	1	ST 43	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Narrow, dihedral medium to high striking angle platform, moderate dorsal scarring	05-Oct-17	17-Jun-19	JN	N
142	1	ST 43	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Planar, high angle striking platform, moderate dorsal scarring	05-Oct-17	17-Jun-19	JN	N
143	1	ST 43	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Terminal portion of flake	05-Oct-17	17-Jun-19	JN	N
144	1	ST 43	0-10	Shatter	Quartzite (vein)	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Blocky fragment	05-Oct-17	17-Jun-19	JN	N
145	1	ST 43	10-20	Flake: Primary (decortication)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Proximal portion of flake with multi-facetted high angle striking platform, broken end (or step termination)	05-Oct-17	17-Jun-19	JN	N
146	3	ST 43	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [2]) & (3 [1])	-	-	-	Medial portions of flakes, no platforms	05-Oct-17	17-Jun-19	JN	N
147	1	ST 44	0-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (3)	-	-	-	Crushed platform, moderate dorsal scarring, contemporary damage from shovel testing (un-weathered, appears as uniface 'V' shaped concavity on one lateral edge)	05-Oct-17	17-Jun-19	JT	N
148	1	ST 44	10-15	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(14.5)	(9.8)	(3.6)	(0.5)	Terminal portion of flake, no platform, use wear along one lateral edge	05-Oct-17	17-Jun-19	JT	N
149	1	ST 44	20-25	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Multiple pot-lid fractures on ventral surface and extend to one edge which appears as use-wear, no platform, moderate dorsal scarring	05-Oct-17	17-Jun-19	JT	N
150	1	ST 44	25-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Medial portion of flake, no platform, no dorsal scarring evident	05-Oct-17	17-Jun-19	JT	N
151	1	ST 45	0-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 3	-	-	-	Small planar, high angle striking platform, moderate to complex dorsal scarring	05-Oct-17	17-Jun-19	JW	N
152	1	ST 45	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Small dihedral, medium to high angle striking platform, minimal dorsal scarring	05-Oct-17	17-Jun-19	JW	N
153	1	ST 45	10-20	Tool: Biface/Core (fragment)	chert: High Rock Range	Opaque, sub-vitreous greyish-blue	(23.7)	(19.6)	(9.1)	(4.0)	Blocky core-like fragment with bifacial flaking scars	05-Oct-17	17-Jun-19	JW	Y

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Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
154	1	ST 46	0-10	Flake: Fragment	chert: Top of the World	Opaque to translucent vitreous white	sg: (2)	-	-	-	No platform, pot-lid fractures on ventral side	05-Oct-17	17-Jun-19	JF	N
155	1	ST 46	0-10	Flake: Fragment	chert: Etherington	Opaque sub-vitreous bluish-grey	sg: (2)	-	-	-	Medial-lateral portion of flake (or shatter), no platform	05-Oct-17	17-Jun-19	JF	N
156	1	ST 48	25-30	Flake: Fragment	chert: Top of the World	Translucent, vitreous light white-grey	sg: (2)	-	-	-	Medial-terminal portion of blade-like flake, no platform	05-Oct-17	17-Jun-19	JM	N
157	1	ST 49	5-10	Flake: Tertiary	chert: Top of the World	Translucent, vitreous light white-grey	sg: 2	-	-	-	Small low to medium angle striking platform, moderate to complex dorsal scarring, finishing/sharpening flake	05-Oct-17	17-Jun-19	JW	N
158	1	ST 49	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	(24.3)	(16.6)	(4.2)	(1.4)	Multi-facetted medium to low angle striking platform with overhanging lip, dorsal scarring obscured by large pot-lid fracture, use wear along one latera edge	05-Oct-17	17-Jun-19	JW	N
159	1	ST 49	5-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Narrow, multi-facetted medium to low angle striking platform with lip, moderate dorsal scarring	05-Oct-17	17-Jun-19	JW	N
160	1	ST 50	10-15	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Narrow dihedral medium angle striking platform, minimal to moderate dorsal scarring	05-Oct-17	17-Jun-19	JT	N
161	1	ST 50	10-15	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	No platform	05-Oct-17	17-Jun-19	JT	N
162	1	ST 51	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2)	-	-	-	Very small dihedral striking platform, minimal to moderate dorsal scarring	05-Oct-17	17-Jun-19	JN	N
163	1	ST 51	0-10	Flake: Tertiary	chert: Top of the World	Translucent, vitreous dark grey	sg: 2	-	-	-	Finishing flake, crushed platform, moderate to complex dorsal scarring	05-Oct-17	17-Jun-19	JN	N
164	1	ST 51	0-10	Flake: Fragment	chert: Top of the World	Translucent, vitreous dark grey	sg: (2)	-	-	-	Terminal portion of flake, no platform, moderate to complex dorsal scarring	05-Oct-17	17-Jun-19	JN	N
165	1	ST 51	0-10	Flake: Fragment	chert: Top of the World	Translucent, vitreous white	sg: (2)	-	-	-	Medial portion of flake, no platform, possible use-wear along one lateral edge	05-Oct-17	17-Jun-19	JN	N
166	1	ST 51	10-20	Tool: Core/Uniface (fragment)	Siliceous Mudstone	Opaque, dull grey and dark grey	34.6	21.2	9.6	7.1	Core fragment with a few edges that appear to have unifacial re-touch (or preparation scarring?) blocky with many ventral surfaces, contains contemporary damage (from shovel testing)	05-Oct-17	17-Jun-19	JN	Y
167	1	ST 51	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Very narrow multi-facetted medium to low angle striking platform, moderate to complex dorsal scarring	05-Oct-17	17-Jun-19	JN	N
168	1	ST 51	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull grey	sg: 3	-	-	-	Crushed platform, minimal to moderate dorsal scarring	05-Oct-17	17-Jun-19	JN	N
169	1	ST 51	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, coarse grained dull grey	sg: (2)	-	-	-	No platform	05-Oct-17	17-Jun-19	JN	N
170	1	ST 52	5-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Planar, relatively high angle striking platform, minimal dorsal scarring	05-Oct-17	17-Jun-19	JM	N
171	1	ST 52	5-10	Flake: Secondary	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: 2	-	-	-	Small, dihedral striking high angle platform, no dorsal scarring (appearing as potlid fracture	05-Oct-17	17-Jun-19	JM	N
172	3	ST 52	5-10	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (1 [1]) & (2 [2])	-	-	-	No platforms, medial portions of flakes	05-Oct-17	17-Jun-19	JM	N
173	1	ST 53	10-20	Tool: Utilized Flake (fragment)	chert: Top of the World	Opaque, vitreous blue-grey with banding	(20.7)	(15.2)	(6.3)	(2.2)	Block fragment with use wear along one edge	05-Oct-17	17-Jun-19	JM	Y

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Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
174	1	ST 53	10-20	Flake: Primary (decortication)	Quartzite	Opaque, coarse-grained, brownish-grey	sg: 3	-	-	-	Secondary decortication flake, with single facet, high angle striking platform, minimal to moderate dorsal scarring	05-Oct-17	17-Jun-19	JM	N
175	1	ST 53	10-20	Flake: Secondary	Siliceous Mudstone	Opaque, dull dark grey	sg: 3	-	-	-	Narrow, dihedral medium angle striking platform, blade-like flake with no apparent use wear	05-Oct-17	17-Jun-19	JM	N
176	3	ST 53	10-20	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish dark grey (weathered)	sg: (2 [1]) & (3 [2])	-	-	-	No platforms (or previously crushed), medial portions of flakes	05-Oct-17	17-Jun-19	JM	N
177	1	ST 53	10-20	Shatter	chert: Etherington	Opaque, sub-vitreous brown-grey	sg: 2	-	-	-	Blocky cherty-fragment	05-Oct-17	17-Jun-19	LMB	N
178	1	ST 53	10-20	Flake: Fragment	chert: Top of the World	Translucent, vitreous grey	sg: (2)	-	-	-	Terminal portion of tertiary flake, moderate dorsal scarring	05-Oct-17	17-Jun-19	JM	N
179	1	ST 53	10-20	Flake: Tertiary	Siliceous Mudstone	Opaque brown-grey	sg: 1	-	-	-	Small single facet, medium angle striking platform, moderate dorsal scarring, finishing flake	05-Oct-17	17-Jun-19	JM	N
180	1	ST 54	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque dark grey	sg: 1	-	-	-	Small/narrow multi-faceted, medium to low angle platform with lip, complex dorsal scaring, sharpening flake	05-Oct-17	19-Sep-19	JM	N
181	4	ST 54	0-10	Flake: Fragment	Siliceous Mudstone	Opaque grey to light brown	sg: (2 [4])	-	-	-	No platforms, varied weathering	05-Oct-17	18-Sep-19	JM	N
182	1	ST 55	0-5	Flake: Fragment	Tourmalinite	Slightly translucent, khaki brown	sg: (2)	-	-	-	No platform, soil clinging to dorsal side	05-Oct-17	18-Sep-19	LMB	N
183	2	ST 56	5-10	Shatter	Siliceous Mudstone	Opaque brown-grey	sg: 2 & 3	-	-	-	No platforms	05-Oct-17	18-Sep-19	JF	N
184	1	ST 57	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque light greyish-brown	(49.3)	(29.1)	(6.0)	(5.6)	Secondary flake medial portion) with platform absent, relatively complex dorsal scarring with use-wear along lateral edges	05-Oct-17	18-Sep-19	JM	N
185	1	ST 57	10-20	Flake: Fragment	Tourmalinite	Opaque khaki green-brown	sg: (2)	-	-	-	No platform, medial portion with some later edge	05-Oct-17	18-Sep-19	JM	N
186	1	ST 58	0-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque light greyish-brown	24.6	11.9	3.5	1.1	Small, largely crushed, moderate to high angle striking platform, secondary flake, moderate dorsal scarring, use-wear along lateral and terminal edges	05-Oct-17	18-Sep-19	JT	N
187	1	ST 58	0-10	Flake: Secondary	Siliceous Mudstone	Opaque light greyish-brown	sg: 2	-	-	-	Dihedral, relatively high striking platform, minimal dorsal scarring with soil clinging	05-Oct-17	18-Sep-19	JT	N
188	1	ST 58	10-20	Flake: Secondary	Siliceous Mudstone	Opaque dark grey	sg: 2	-	-	-	Dihedral, high angle striking platform, minimal dorsal scarring	05-Oct-17	18-Sep-19	JT	N
189	1	ST 58	10-20	Flake: Secondary	chert: Top of the World	Opaque to slightly translucent bluish-grey	sg: (3)	-	-	-	Medium to low-angle striking platform that contains 'dulled' working edge, re-sharpening	05-Oct-17	18-Sep-19	JT	N
190	1	ST 59	0-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque light greyish-brown	(36.1)	17.8	4.1	(2.2)	Thinning flake , with medium angle striking platform and use wear along lateral edges, ventral side is obscured with clinging soil	05-Oct-17	18-Sep-19	JM	N
191	1	ST 59	0-10	Tool: Re-touched Flake (fragment)	Siliceous Mudstone	Opaque light greyish-brown	(19.2)	(14.1)	(3.8)	(0.6)	Terminal portion of flake with minimal to moderate dorsal scarring, some steep angled re-touch along terminal edge that forms a convex working edge that resembles thumbnail scraper	05-Oct-17	18-Sep-19	JM	N
192	2	ST 59	10-20	Flake: Fragment	Siliceous Mudstone	Opaque light grey-brown	sg: (2 [2])	-	-	-	No platforms	05-Oct-17	18-Sep-19	JM	N

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193	1	ST 60	5-10	Flake: Fragment	chert: Tourmaline	Opaque, dark khaki brown-green	sg: (2)	-	-	-	No (crushed?) platform	05-Oct-17	18-Sep-19	IT	N
194	1	ST 60	10-20	Tool: Utilized Spall	Quartzite	Opaque, dull brownish-grey	93.6	65.9	28.2	106	Planar cortex present on dorsal surface, no platform, use-wear along two lateral edges	05-Oct-17	18-Sep-19	IT	N
195	1	ST 60	20-30	Flake: Fragment	chert: High Rock Range	Opaque, sub-vitreous bluish-grey	sg: (2)	-	-	-	Terminal portion of flake, minimal dorsal scarring, possible use-wear along terminal edge (suspected natural breakage due to thin feather termination)	05-Oct-17	18-Sep-19	IT	N
196	1	ST 60	20-30	Flake: Fragment	Siliceous Mudstone	Opaque brownish-grey	sg: (3)	-	-	-	Crushed/absent platform, converging lateral edges that forms sharp point, but no apparent use-wear observed.	05-Oct-17	18-Sep-19	IT	N
197	1	ST 60	20-30	Flake: Secondary	Tourmalinite	Opaque black	sg: 2 [2])	-	-	-	Planar , high angle striking platform (resembling reduction of block core), minimal dorsal scarring, platform preparation flake?	05-Oct-17	18-Sep-19	IT	N
198	2	ST 60	20-30	Flake: Tertiary	Tourmalinite	Opaque black	sg: 2	-	-	-	Small, low to medium angle striking platforms, with moderate to complex dorsal scarring	05-Oct-17	18-Sep-19	IT	N
199	1	ST 61	0-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull greyish-brown	26.3	9.9	3.2	1.1	Narrow, moderate to low angle striking platform, complex dorsal scarring with use-wear along one lateral edge, opposite edge likely snapped during use (weathered fracture)	05-Oct-17	18-Sep-19	JF	N
200	1	ST 61	30-35	Soil Sample (charcoal)	n/a	n/a	-	-	-	-	Sample from charcoal stain within matrix, collected and contains 1 specimen of fire-altered rock (FAR), un-opened upon completion of artifact analysis	05-Oct-17	18-Sep-19	JF	N
201	3	ST 62	20-30	Flake: Fragment	Siliceous Mudstone	Opaque, dull greyish-brown	sg: (2 [1]) & (3 [2])	-	-	-	No platforms, previous and contemporary breakage, no platforms	05-Oct-17	18-Sep-19	JM	N
202	1	ST 64	20-30	Flake: Primary	Siliceous Mudstone	Opaque, dull dark grey	sg: 2	-	-	-	Core-trimming flake, nodular cortex present on platform (relatively high striking angle), minimal to moderate dorsal scarring	05-Oct-17	18-Sep-19	JF	N
203	1	ST 65	5-10	Flake: Secondary	Banff Formation Siliceous Siltstone	Opaque, dull/flat banded brown and dark grey	sg: 3	-	-	-	Narrow, largely crushed moderate angle striking platform, minimal dorsal scaring, possible planar cortex along one edge of dorsal side	05-Oct-17	18-Sep-19	LMB	N
204	1	ST 66	0-10	Flake: Secondary	Quartzite	Opaque, dull reddish-brown (weathered)	sg: 4	-	-	-	Dihedral medium-angle striking platform, minimal to moderate dorsal scaring, coarse-grained material	05-Oct-17	18-Sep-19	JN	N
205	1	ST 67	0-5	Flake: Primary	chert: High Rock Range	Opaque greyish-white patina (rind) and opaque vitreous bluish grey interior (bleb)	sg: 2	2	-	-	Secondary decortication flake that contains thick rind (weather patina/cortex), dihedral relatively high angle striking platform	05-Oct-17	18-Sep-19	IT	N
206	2	ST 67	10-20	Flake: Fragment	Siliceous Mudstone	Opaque brownish-dark grey	sg: 2	-	-	-	No platforms	05-Oct-17	18-Sep-19	IT	N
207	1	ST 68	10-15	Flake: Tertiary	Tourmalinite	Opaque, sub-vitreous black	sg: 2	-	-	-	Small, largely crushed relatively low angle striking platform, moderate dorsal scarring	05-Oct-17	18-Sep-19	JT	N
208	1	ST 69	15-20	Flake: Fragment	Siliceous Mudstone	Opaque light brown with darker blebs	sg: (2)	-	-	-	No platform, medial portion of flake	05-Oct-17	18-Sep-19	JT	N

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Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
209	1	ST 69	15-20	Flake: Fragment	chert: Top of the World	Translucent, light grey	sg: (2)	-	-	-	No platform, terminal portion of flake	05-Oct-17	18-Sep-19	JT	N
210	1	ST 70	0-10	Tool: Utilized Spall	Quartzite	Opaque, dull greyish-brown (weathered)	68.7	56.2	19.9	44	No platform, flake-like ventral surface, moderate to complex dorsal scarring, use-wear along lateral edges	05-Oct-17	18-Sep-19	JF	Y
211	1	ST 71	0-10	Flake: Secondary	Siliceous Mudstone	Opaque dark grey/brown	sg: 2	-	-	-	Dihedral medium-angle striking platform, moderate dorsal scaring	05-Oct-17	18-Sep-19	JN	N
212	1	ST 71	0-10	Flake: Secondary	chert: High Rock Range	Opaque greyish-white (patina)	sg: 2	-	-	-	Narrow, dihedral, relatively high angle striking platform, entirely comprised of weathered patina (rind), no cherty-matrix present,	05-Oct-17	18-Sep-19	JN	N
213	1	ST 71	10-20	Flake: Fragment	Siliceous Mudstone	Opaque brown	sg: (2)	-	-	-	No platform	05-Oct-17	18-Sep-19	JN	N
214	1	ST 71	10-20	Flake: Fragment	chert: High Rock Range	Opaque greyish brown with bluish-grey bleb	sg: (2)	-	-	-	Crushed platform, secondary flake-like, material is largely weathered patina with silver of chert	05-Oct-17	18-Sep-19	JN	N
215	1	ST 72	5-10	Flake: Fragment	Siliceous Mudstone	Opaque dark brownish-grey	sg: (2)	-	-	-	Terminal portion of flake	05-Oct-17	18-Sep-19	IT	N
216	1	TT1	n/a	Flake: Secondary	Siliceous Mudstone	Opaque brownish-grey	sg: 4	-	-	-	Dihedral, medium angle striking platform, complex dorsal scaring	04-Oct-17	18-Sep-19	JT	N
217	1	SF 201	Surface	Flake: Secondary	Siliceous Mudstone	Opaque brownish-grey (weathered)	sg: 2	-	-	-	Single facet, relatively high angle striking platform with platform preparation, suspected use wear along one lateral edge, opposing edge is absent (weathered fracture)	27-Sep-17	19-Sep-19	JN	N
218	1	SF 201	Surface	Tool: Biface	Siliceous Mudstone	Opaque brownish-grey (weathered)	69.9	45.5	13.6	50.7	Biface/preform with portion of water-smoothed nodular cortex, weathered surface and possible breakage to one side during production,	27-Sep-17	19-Sep-19	JN	Y
219	1	SF 202	Surface	Tool: Retouched Spall	Sandstone	Opaque light grey with bedding plains, weathered patina	131	103.2	31.7	464	Tabular clast with one sharp edge that has been bifacially re-touched and contains use-wear, artifact was recovered from along the periphery of a contemporary fire.	27-Sep-17	19-Sep-19	JF	Y
220	1	SF 203	Surface	Tool: Utilized Spall	Quartzite	Opaque light grey	62.6	47.5	21.4	66	Spall with water-smoothed cortex, use wear along the two lateral edges and heavy use (battered) along terminal edge.	27-Sep-17	19-Sep-19	JT	Y
221	1	SF 204	Surface	Flake: Secondary	Sandstone	Opaque, light grey, coarse-grained	sg: 4	-	-	-	Weathered platform, dihedral relatively high striking angle, moderate dorsal scarring	27-Sep-17	20-Sep-19	JT	N
222	1	SF 205	Surface	Tool: Utilized Clast	Siliceous Mudstone	Opaque dull grey and brown (banded and internal bleb)	48.5	46.6	18.1	30.1	Wedge-shaped clast (portion of mudstone nodule) with use wear along one sharp edge that had resulted in a concavity with blunt working edge; shaped abrader	27-Sep-17	20-Sep-19	JN	Y
223	1	SF 206	Surface	Shatter	Siliceous Mudstone	Opaque brownish-grey (weathered)	sg: 5	-	-	-	Angular fragment produced during reduction of a nodular core	27-Sep-17	20-Sep-19	JM	N

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
224	1	SF 207	Surface	Tool: Retouched Decortication Flake	Siliceous Mudstone	Opaque, sub-vitreous brownish-grey (banded)	62.6	43.1	9.8	36.8	Water-smoothed cortex present, but retouch has obscured if primary/secondary, unifacial retouch along one edge, with use-wear along opposing edge, platform removed, similar luster to siliceous mudstone	27-Sep-17	20-Sep-19	JF	Y
225	1	SF 208	Surface (terrace Scarp)	Tool: Preform	Siliceous Mudstone	Opaque light brown /beige (weathered)	60.2	34.7	12.5	28.4	Secondary decortication flake with one bifacially retouched edge an done unifacially retouched edge forming ovate-like blades, portion nodular cortex still remains	27-Sep-17	12-Feb-20	JM	Y
226	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Shatter	Siliceous Siltstone	Opaque dull brown (weathered)	105.5	64.5	18.2	114	Angular shatter fragment with use wear long edges, no platform, weathered surfaces, small area of fresh fractures attributed to ungulate trampling	27-Sep-17	12-Feb-20	crew	Y
227	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Shatter	Siliceous Mudstone	Opaque dull reddish-brown (rusty/weathered)	132.5	62.9	33.1	200	Prismatic-shaped shatter fragment, sharp edges throughout, prominent use wear along longest edge with weathered scarring	27-Sep-17	12-Feb-20	crew	Y
228	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Clast	Siliceous Mudstone	Opaque dull reddish-brown (rusty/weathered)	171.5	91.3	36	516	Tabular-shaped clast (possible weathered shatter), use wear along longest edge, some new (unweathered) scars along edge attributed to ungulate trampling	27-Sep-17	12-Feb-20	crew	Y
229	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Spall	Sandstone	Opaque, dull light brown/beige	151.1	79.1	3.5	426	Natural spall with round/sub-round cortex and ovate-shaped edges forming tip that has been broken through use, chopper-like use wear along lateral edges	27-Sep-17	12-Feb-20	crew	Y
230	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Spall	Sandstone	Opaque, dull light brown/beige	72.4	45.2	13.2	42	Natural spall with round/sub-round cortex and ovate-shaped edges forming rounded tips, use wear along lateral edges	27-Sep-17	12-Feb-20	crew	Y
231	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Flake	chert: Etherington	Opaque to slightly translucent along edges, sub-vitreous grey	31.1	27.1	11.5	7.8	Concave, medium to high angle striking platform, moderate dorsal scarring with soil clinging, use wear along one lateral edge (opposing is steep angled and un-worked)	27-Sep-17	12-Feb-20	crew	Y
232	1	SF 208	Surface (terrace Scarp)	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque dull light greyish-brown (weathered) and dark grey	(57.7)	(46.1)	(11.1)	(29.2)	Medial to terminal portion of flake (no platform) with minimal dorsal scarring, use wear along edges	27-Sep-17	12-Feb-20	crew	Y
233	11	SF 208	Surface (terrace Scarp)	Shatter	Siliceous Mudstone	Opaque dull light greyish-brown (weathered), reddish-brown (rusty), and dark grey	sg: 3 [1], 4 [1], 5 [2], 6 [2], 7 [1], 8 [1], 10 [1], 11 [1], 13 [1]	-	-	-	Angular shatter fragments recovered along scarp of terrace (workshop)	27-Sep-17	12-Feb-20	crew	N
234	1	SF 210	Surface (mid-slope bench along the scarp)	Tool: Utilized Spall	Sandstone	Opaque greyish-brown	210	174	56.1	1946	Large spall with round/sub-round cortex that contains calcium carbonate, lichen present along portion of artifact, use wear along 2/3 of sharpest edge	27-Sep-17	12-Feb-20	JF	Y

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
235	1	SF 211	Surface (terrace Scarp)	Tool: Re-Touched/Utilized Shatter	Siliceous Mudstone	Opaque greyish-brown/beige (weathered)	86.6	32.5	16.7	40.4	Angular shatter (prismatic-like)fragment that has converging triangular-shape edges that forms tip with unifacial re-touch along one later edge, use wear present on opposing edge, recovered upon revisit to site	18-Oct-17	12-Feb-20	IT	Y
236	1	SF 211	Surface (terrace Scarp)	Tool: Utilized Clast	Sandstone	Opaque, coarse-grained light grey	135	90.3	35.1	272	sub-round cortex present, converging triangular edges form sharp point, use wear along both edges, one is more prominent	27-Sep-17	12-Feb-20	crew	Y
237	1	SF 211	Surface (terrace Scarp)	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	71.2	47.1	23.4	72	Secondary decortication flake with dihedral, high angle striking platform, contains one sharp lateral/terminal edge with use-wear	27-Sep-17	12-Feb-20	crew	Y
238	8	SF 211	Surface (terrace Scarp)	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: 3 [2], 4 [2], 5 [3], 6 [1]	-	-	-	Angular shatter fragments recovered along scarp of terrace (workshop)	27-Sep-17	12-Feb-20	crew	N
239	1	SF 212	Surface (terrace Scarp)	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: (4)	-	-	-	Planar high angle striking platform, minimal dorsal scarring, portions of lateral and terminal edges are absent (ungulate trampling?)	27-Sep-17	12-Feb-20	crew	N
240	2	SF 211	Surface (terrace Scarp)	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: 8 [1], 9 [1]	-	-	-	Angular shatter fragments recovered along scarp of terrace (workshop)	27-Sep-17	12-Feb-20	crew	N
241-252	-	Polygon A	-	*Faunal Remains*	-	-	-	-	-	-	*See Faunal Catalogue*	-	-	-	-
253-254	-	Polygon B	-	*Faunal Remains*	-	-	-	-	-	-	*See Faunal Catalogue*	-	-	-	-
255	1	ST 74 (ST 2*) Polygon B	15-20 cm	Flake: Primary	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: 4	-	-	-	Primary decortication flake, water-smoothed cortex, possible use wear along one edge	06-Oct-17	13-Feb-20	JT	N
256	1	SF 220 - Polygon C	Surface	Tool: Utilized Clast	Sandstone	Opaque, greyish-brown (weathered)	80.6	57.6	28.6	82	Angular clast with one sharp edge that has use wear, SF # was arbitrary number assigned in the field; this does not reflect absence of SF 212-219.	06-Oct-17	13-Feb-20	JN	Y
257	-	Polygon C	-	*Faunal Remains*	-	-	-	-	-	-	*See Faunal Catalogue*	-	-	-	-
258	1	ST 4* Polygon E	20-25 cm	Flake: Fragment	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: (3)	-	-	-	Terminal portion of decortication flake, possible use wear, contains water-smoothed cortex	06-Oct-17	13-Feb-20	JT	N
259	1	ST 77 (ST 5*) Polygon F	10-20 cm	Flake: Tertiary	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: (2)	-	-	-	Finishing flake, single facet (concave) medium angle striking platform with lip, moderate dorsal scarring	06-Oct-17	13-Feb-20	JF	N
260	1	ST 77 (ST 5*) Polygon F	10-20 cm	Shatter	Siliceous Mudstone	Opaque, dull brownish-grey/beige (weathered)	sg: 3	-	-	-	Blocky shatter fragment, contains some water-smoothed cortex	06-Oct-17	13-Feb-20	JF	N

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable

Borden Number: DlPr-75
Permit Number: 2015-0098

Temporary Borden Number: DlPr-17-T21

Date of Assessment: October 4, 5 and 6, 2017
Tipi Mountain Eco-Cultural Services Ltd.

Catalogue #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Material	Bone Unit	Side (R/L)	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
241	1	ST 2	15-20	Faunal: Fragment	Bone - Charred	unknown	unknown	(35.5)	-	-	2.8	Long bone fragment, darker (blackened) at one end, very weathered	4-Oct-17	12-Feb-20	JM	N
242	1	ST 26	0-5	Faunal: Fragment	Bone	unknown	unknown	(12.9)	-	-	0.4	unidentifiable bone fragment	4-Oct-17	12-Feb-20	IT	N
243	1 (x2 refit)	ST 27	0-5	Faunal: Fragment	Bone - Charred	unknown	unknown	(32.2)	-	-	5.8	Charred long bone fragment (thick cortex) with blackened interior (as seen by breakage), very weathered	4-Oct-17	12-Feb-20	JM	N
244	4	ST 28	44124	Faunal: Fragment	Bone	unknown	unknown	sg: (2 [3]), (3 [1])	-	-	1.4	Unidentifiable bone fragments	5-Oct-17	12-Feb-20	JN	N
245	7	ST 28	20-30	Faunal: Fragment	Bone	unknown	unknown	sg: (2 [6]), (3 [1])	-	-	1.7	Charred (blackened) unidentifiable bone fragments	5-Oct-17	12-Feb-20	JN	N
246	4	ST 28	20-30	Faunal: Fragment	Bone - Charred	unknown	unknown	sg: (2 [2]), (3 [1]), (4 [1])	-	-	2	Unidentifiable bone fragments	5-Oct-17	12-Feb-20	JN	N
247	1 (x2 refit)	ST 30	43961	Faunal: Fragment	Bone	unknown	unknown	(40.7)	-	-	2.8	Unidentifiable bone fragment, contemporary breakage (x2 - refit)	5-Oct-17	12-Feb-20	JN	N
248	1 (x5 refit)	ST 43	0-10 cm	Faunal: Fragment	Bone - Charred	unknown	unknown	sg: (1)	-	-	0.1	Post-excavation breakage has fragmented the specimen (x5), charred/calcined	5-Oct-17	12-Feb-20	JN	N
249	1 (x2 refit)	ST 47	10-20 cm	Faunal: Fragment	Bone - Charred	unknown	unknown	(20.4)	-	-	1	Charred long bone fragment (thick cortex) with blackened interior (as seen by breakage), very weathered	5-Oct-17	12-Feb-20	JN	N
250	6	ST 60	30-40	Faunal: Fragment	Bone	unknown	unknown	sg: (2 [1]), (3 [4])	-	-	4.7	Unidentifiable bone fragments	5-Oct-17	12-Feb-20	JM	N
251	3	ST 60	30-40 cm	Faunal: Fragment	Bone - Charred	unknown	unknown	sg: (2 [1]), (3 [2])	-	-	3.3	Charred (blackened) unidentifiable bone fragments, contemporary breakage to one specimen (x2 refit)	5-Oct-17	12-Feb-20	JM	N
252	3	ST 63	20-25 cm	Faunal: Fragment	Bone - Charred	unknown	unknown	sg: (1 [2]), (2 [1])	-	-	0.7	Charred (blackened) unidentifiable bone fragments, contemporary breakage to one specimen (x3 refit)	6-Oct-17	12-Feb-20	JF	N
253	1	ST 1* Polygon B	25-30 cm	Faunal: Fragment	Bone - Charred	unknown	unknown	(38.7)	-	-	6.3	Charred, unidentifiable fragment	6-Oct-17	12-Feb-20	crew	N
254	1	ST 1* Polygon B	25-30c m	Faunal: Fragment	Bone - Charred	unknown	unknown	(1.1)	-	-	0.2	Heavily charred, dense, unidentifiable fragment	6-Oct-17	12-Feb-20	crew	N
257	1 (x2 refit)	ST 3* Polygon E	5-10 cm	Faunal: Fragment	Bone - Charred	unknown	unknown	(25.6)	-	-	2.5	Suspected rib head from medium to large ungulate, highly weathered and charred fragment, contemporary breakage (x2 refit)	6-Oct-17	12-Feb-20	JM	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Fire-Altered Rock Table

Provenience	Depth	Material	Size Grade	# Artifacts	Artifacts/ Unit	Weight (g)	Total Weight / Context	Comments
ST 51	5-10 cm	Sandstone	sg: 1	1	2	47	90 g	Castellated fracture
	5-10 cm	Quartzite	sg: 1	1		43		Castellated fracture
ST 58	0-10 cm	*not specified*	sg: 1	20	40	260	300 g	Castellated and bedding fractures
	10-20 cm	*not specified*	sg: 1	20		140 g		Angular to castellated fractures
			totals:	***42***	***42***	***390 g***	***390 g***	

Catalogue Notes:

This artifact type was not collected under 2015-0098, but quantified in the field and returned to the void (e.g. shovel test) in which they originated.

Catalogue Legend:

Surface Find= SF

Shovel Test= ST

FAR Size Grade= sg, defined by 1= 0 -5 cm, 2= 5-10 cm, 3= 10-15 cm, etc.

Presence of "-" indicates that no value is applicable

Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-18-T05**
Borden Number (site revisit): **DlPr-76**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654609** Northing: **5523910**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within East Kootenay region of southeast British Columbia, and situated on a gently rounded, NNW-SSE trending ridge that descends southward towards the outlet drainage of Grave Creek, located approximately 1 km southwest of Grave Lake and 13 km northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Road, continuing for for 1.4 km before turning south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for approximately 1 km then park where safe. Walk for approximately 105 m along a southward descending ridge to the site.**

Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/16**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II - Transportation Corridor): October 10 & 16, 2018**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Daniel Heinrichs (TMECS)** **Joshua Martin (TMECS/Shuswap Indian Band [SIB])**	**Y**
Other	**John Nicholas (Ktunaxa Nation Council [KNC])** **Marty Williams (TMECS/KNC)** **Jason Feltham (TMECS)** **Mathias Ladd (TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: two flake of siliceous mudstone were recovered from ST10 (tertiary) and ST11 (utilized secondary decortication); see artifact catalogue for details and photo log.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **19 m** Direction **N-S**
Width: **10 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are observed as positive shovel tests are surrounded by negative tests (3 at minimum) in all cardinal directions. The site boundaries are based on a 5 m buffer around the two positive tests. Site is flagged in the field with yellow and black "AIA Zone" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **0 m** Maximum **.1 m**

Stratigraphy Description: **Podzolic soil formation over round to sub-round cobbles. See attached stratigraphy log for details.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Two shovel tests measuring 35 cm x 35 cm were excavated witin the currently defined site area, down to a maximum depth of 35 cm below surface.**
Past	**Logging**	**Site location has been previously logged (i.e. ecosystem restoration); slash piles largely comprised of deciduous trees and numerus cut stumps were observed adjacent to the site boundary**

14. ENVIRONMENT

Lower Elevation **1260 m** (asl) Upper Elevation **1257 m** (asl)
Elevation Comments: **Elevation obtained via hand held GPS device and Google Earth Pro; site is approximately 30 m above the elevation of Grave Creek.**

Nearest Hydrological Feature(s): **A relict drainage route (influences a southward surficial runoff direction) located 25-30 m to the west-southwest. The outlet drainage of Grave Lake is 100 m southeast of the site; the confluence of this outlet drainage and Grave Creek is approximately 310 m to the southwest**
Terrain/Landform: **Site is situated on a rounded-profile, southward descending ridge amongst consistent slope; the tread is gently sloped (5-7 degrees) to the south (towards outlet drainage of Grave Lake).**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**Ian Tamasi and Nyomi Sherwin**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.

17. GENERAL REMARKS

1. Approximately 44 shovel tests were excavated on the landform to determine site boundaries; this shovel test location blends into the terrain that was inspected to update site DlPr-43 (located to the west-northwest).
2. The number of archaeological sites that have been recorded along the northern side of Grave Creek is indicative of extensive precontact occupation with a well-established travel corridor from the Elk River (WSW) to Gravel Lake (to NE). Occupation is suspected to largely be within the Middle Period.

Figure: 23

Permit: 2015-0098

Title:

DlPr-76
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 10/10/2018

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Skid Trail
- Water Feature
- Photo Reference & Direction
- Ephemeral Drainage
- Relict Drainage
- Terrace Margin
- Slope Break
- Slope
- Contour Line (20 m)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Tree Throw
- Slash Pile

654500 654550 654600 654650 654700

5524000 5523950 5523900 5523850

Harmer FSR

5-7°

10-15°

5-7°

P2

1260

10-15°

C38-44

11

10

5-7°

DlPr-76
Easting: 654609
Northing: 5523910

10-15°

P1

DlPr-43 Update

5-10°

DlPr-77

15°

20-30°

Grave Lake Outlet

Crown Mtn LSA

Sparwood

0 2.5 5 10 Km

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Temp. Borden Number: DlPr-18-T05
Borden Number: DlPr-76
HCA Permit Number: 2015-0098
Last Date of Assessment: October 16, 2017

Photo 1. Overview of the site (red-dashed oval), located within the central portion of a rounded-profile ridge that descends southward towards the outlet drainage of Grave Lake. The site is defined by a 5-meter radial buffer from two positive shovel tests, and approximately 44 shovel tests were excavated along the ridge to assist in defining the boundaries. (view: east-northeast)

Photo 2. Overview of the currently defined site area situated on a rounded-profile ridge that descends southward southward-descending ridge (south-southeast).

Photo 3. Catalogue #2, utilized flake of siliceous mudstone recovered from ST 11 at 0-10 cm below surface. Left Photo – ventral side; Right Photo: dorsal side, with use wear visible along the left lateral edge.

Temp. Borden Number: DlPr-18-T05
Borden Number: DlPr-76
HCA Permit Number: 2015-0098
Date of Assessment: October 10 & 16, 2018

Shovel Test	Stratum	Depth (below surface)	Description
10	I	0-3 cm	Litter mat with dark brown-black silt. Thick grass and rootlets
	II	3-21 cm	Brown silt with 5% sub-round to sub-angular pebbles
	III	21-24 cm	Dark brown silt-clay with sub-round to sub-angular pebbles
	Comments: one siliceous mudstone flake from 0-10 cm dbs.		
11	I	0-7 cm	Litter mat with dark brown-black silt. Thick grass and rootlets
	II	7-20 cm	Brown silt
	III	20-30 cm	Light brown silt with 5% sub-round to sub-angular pebbles
	IV	30-32 cm	Grey silt with 5-10% sub-round to sub-angular pebbles and 5% sub-round to sub-angular cobbles
	Comments: one siliceous mudstone flake from 0-10 cm dbs		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 10	0-10	Flake: Tertiary	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey	sg: 2	-	-	-	Multi-facetted, medium angled striking platform, moderate dorsal scarring, re-sharpening flake	10-Oct-18	24-May-19	JN	N
2	1	ST 11	0-10	Tool: Utilized Flake (Second. Decortication)	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey	43.7	32.3	6.4	11.4	Relatively large flake with dihedral high angle striking platform (not ground), section of nodular cortex on along one lateral side of dorsal surface, moderate dorsal scarring, slight use wear along one later edge	10-Oct-18	24-May-19	JF	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-18-T06**
Borden Number (site revisit): **DlPr-77**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **654652** Northing: **5523842**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated along terrace margin that defines the outlet drainage of Grave Lake, approximately 1 km southwest of Grave lake and 13 km northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Rd, continuing for for 1.4 km before turning south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer FSR and continue for approximately 1 km then park where safe. Walk southward (downslope) for approximately 190 m, following the crest a rounded-profile ridge to the site area located along a well defined margin.**

Parcel Identifier (PID or PIN): **019075316**

Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/16**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II Transportation Corridor): October 10, 2018**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Supervisor(s)	**Daniel Heinrichs (TMECS)** **Joshua Martin (TMECS/Shuswap Indian Band [SIB])**	**Y**
Other	**John Nicholas (Ktunaxa Nation Council [KNC])** **Jason Feltham (TMECS)** **Mathias Ladd (TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics (n-=3): one un-worked flake and two re-touched flakes of siliceous mudstone recovered from ST12 (10-20 cm) and ST13 (5-10 cm); see artifact catalogue for details and photo log.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **23 m** Direction **NE-SW**
Width: **6 m** Direction **NW-SE**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are based on a 5 m buffer around positive subsurface tests to the SW, NW, and NE. The southeastern boundary is defined naturally by the terraced margin. The site is flagged in the field with yellow and black "AIA Zone" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **.05 m** Maximum **.20 m**

Stratigraphy Description: **Chernozamic soil over silt and sub-angular to sub-round cobbles. See attached stratigraphy log for details.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Three shovel tests measuring 35 cm x 35 cm were excavated to a maximum depth of 35 cm below surface within the site boundary.**
Past	**Logging**	**Site area has been previously subjected to logging (i.e. ecosystem restoration); slash piles largely comprised of deciduous trees were observed to the north of the site boundary; cut stumps present**
Ongoing	**Erosion**	**Steep scarp present to the south of the site; currently vegetated and relativley stable; previous erosion formed the terraced margin (outlet of Grave Lk); some episodic slope wash anticipated**

14. ENVIRONMENT

Lower Elevation **1256 m** (asl) Upper Elevation **1258 m** (asl)

Elevation Comments: **Elevation obtained via Google Earth Pro; site is approximately 6 m above the outlet drainage of Grave Lake, and 26 m above the elevation of Gravel Creek.**

Nearest Hydrological Feature(s): **A relict drainage route (influences a southward surficial runoff direction) located immediately adjacent (west). The outlet drainage of Grave Lake is approximately 40 m south-southeast; the confluence of this outlet drainage and Grave Creek is approximately 250 m to the southwest**

Terrain/Landform: **Site is situated on ENE-WSW treading terrace margin that defines the northern side of the outlet drainage of Grave Lake. Tread of terrace is reatively level, but transitions to moderate slope that ascends to the NNW.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**Ian Tamasi and Nyomi Sherwin**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. Further subsurface testing to the NE and SW to determine the extent of the site.

17. GENERAL REMARKS

1. Testing was conducted as a preliminary inspection and the shovel testing program was terminated due to distance (+/- 170 m) from (south of) the proposed development footprint (i.e. upgrades to Harmer FSR).
2. The number of archaeological sites that have been recorded along the northern side of Grave Creek is indicative of extensive precontact occupation with a well-established travel corridor from the Elk River (WSW) to Gravel Lake (to NE). Occupation is suspected to largely be within the Middle Period.

Figure: 24

Permit: 2015-0098

Title:

DlPr-77
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

N W P
Coal Canada

Survey Date: 10/10/2018

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- New Arch Site Bdry (TMECS 2017)
- Precontact Arch Site Bdry (RAAD 2019)
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Skid Trail
- Water Feature
- Ephemeral Drainage
- Relict Drainage
- Terrace Margin
- Slope Break
- Slope
- Contour Line (20 m)
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Slash Pile
- Photo Reference & Direction

Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. Overview of site (red dashed outline), situated along a terraced margin that was defined by the outlet drainage of Grave Lake. (view: southeast).

Photo 2. Profile overview of the site during shovel testing (ST 12). (view: northeast).

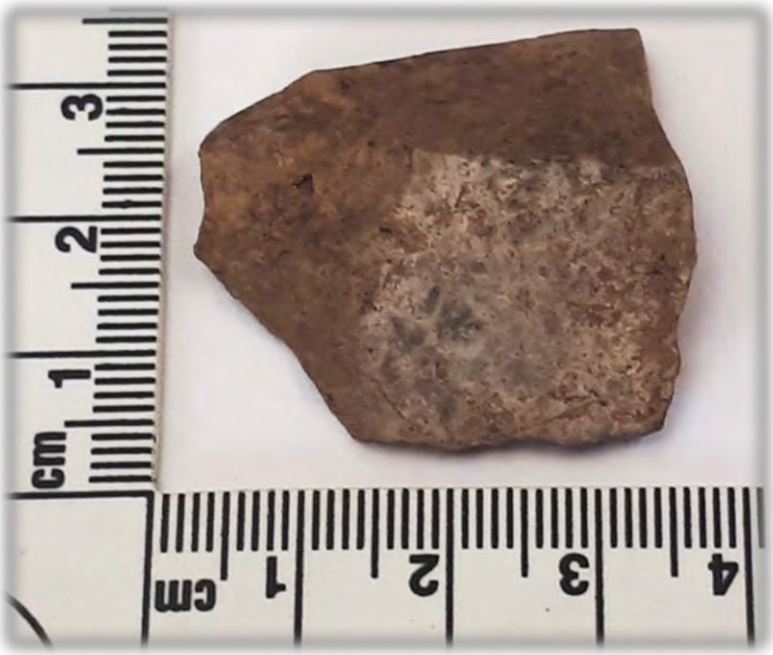


Photo 3. Catalogue #1, marginally retouched secondary decortication flake fragment of siliceous mudstone. Along one lateral edge (bottom edge within photo) is a combination of unifacial and bifacial retouch.

Photo 4. Catalogue #3, utilized, secondary decortication flake of siliceous mudstone.
Use wear is present along terminal edge (bottom edge within photos).
Left Photo: dorsal side of flake; Right Photo: ventral side of flake

Temp. Borden Number: DlPr-18-T06
Borden Number: DlPr-77
HCA Permit Number: 2015-0098
Last Date of Assessment: October 10, 2018

Shovel Test	Stratum	Depth (below surface)	Description
12	I	0-8 cm	Litter mat with black silt. Thick grass and rootlets
	II	8-21 cm	Compact grey-brown silt with 5% sub-round to sub-angular pebbles
	III	21-30 cm	Granulated dark brown silt with some clay and 25% sub-round to sub-angular pebbles
	Comments: one re-touched mudstone flake fragment from 10-15 cm and one mudstone flake from 15-20 cm dbs.		
13	I	0-10 cm	Litter mat with brown silt. Thick grass and rootlets
	II	10-21 cm	Light brown silt 15% sub-round to sub-angular pebbles
	III	21-32 cm	Dark brown silt with some clay and 25% sub-round to sub-angular pebbles
	Comments: one mudstone retouched flake from 5-10 cm dbs.		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 12	10-15	Tool: Re-Touched Flake (fragment)	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey (weathered)	(37.9)	(30.4)	(9.0)	(10.8)	Portion of secondary decortication flake with nodular cortex, unifacial and bifacial retouch along one edge	10-Oct-18	24-May-19	DH	Y
2	1	ST 12	15-20	Flake: Secondary Decortication	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey (weathered)	sg: 2	-	-	-	Small, possible dihedral relatively high angle striking platform, suspected platform preparation flake, portion of nodular cortex on dorsal surface	10-Oct-18	24-May-19	DH	N
3	1	ST 13	5-10	Tool: Utilized Flake	Siliceous Mudstone	Opaque, dull to sub-vitreous brownish-grey (weathered)	60.6	28.4	15.8	20.7	Secondary decortication flake with ground planar (cortex) high angle striking platform, cortex along present on dorsal side and along terminal edge where use wear is present, blocky	10-Oct-18	24-May-19	JM	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DlPr-18-T08**
Borden Number (site revisit): **DlPr-78**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **655037** Northing: **5524116**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **Within the East Kootenay region of southeast British Columbia, and situated on gently-undulating, low-sloped ground that descends southward towards the outlet drainage of Grave Lake, approximately 10 m south of Harmer Road, 0.7 km southwest of Grave lake, and 13.5 km northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood proceed northward on the Elk Valley Highway/BC-43 N for 17.4 km. Turn east on to Line Creek Mine Road, continuing for for 1.4 km before turning south onto Valley Forest Service Road (FSR) and travel for 4.5 km. Turn east onto Harmer Road (FSR) and continue for approximately 1.25 km then park where safe. Walk southward (downslope) for 10 m from the road to the currently defined site area.**

Parcel Identifier (PID or PIN): **019075316**
Legal Description: **District Lot 4588, Kootenay District (Survey PID: 8482400)**
Street Address:

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Coking Coal Project: Phase 2 - Transportation Corridor**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/10/12**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Crown Mountain Coking Coal Project (Phase II - Transportation Corridor): October 12, 2018**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Daniel Heinrichs (TMECS)**	**Y**
Other	**Joshua Martin (TMECS/Shuswap Indian Band [SIB])** **Marshal Ezelle (TMECS)** **John Nicholas (Ktunaxa Nation Council [KNC])** **Mathias Ladd (TMECS)** **Marty Williams (TMECS/KNC)** **Jason Feltham (TMECS/KNC)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithic**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: one utilized flake of siliceous mudstone recovered from 5-10 cm below surface; see artifact catalogue for details.**	**Ktunaxa Nation Regional Repository (KNRR)**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **5 m** Direction **N-S**
Width: **5 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries are observed, consisting of a 2.5 m radial buffer (circle) from a single positive shovel test; as per Archaeology Branch standards for isolated finds. Site is flagged in the field with yellow and black "AIA Zone" flagging tape.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **.05 m** Maximum **.10 m**

Stratigraphy Description: **Apparent podzolic soil formation; I. 0-5 cm litter mat/organic matter, II. 5-15 cm brown silt, III. compact light brown-grey silt**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**One shovel test (ST7) measuring 35 cm x 35 cm was excavated to a depth of 21 cm below surface; .**
Past	**Logging**	**Logging has not occurred recently, but several cut stumps are within the locality of the site and indicate historical era logging occurred; extent of negative impact(s) unknown**
Past	**Road Construction**	**Construction of Harmer Road (FSR); this does not overlap with site area, but may have impacted a sparse subsurface artifact scatter.**

14. ENVIRONMENT

Lower Elevation **1291 m** (asl) Upper Elevation **m** (asl)

Elevation Comments: **Elevation obtained using a handheld GPS and Google Earth Pro. Site is approximately 30 m above the elevation of the outlet drainage of Gravel Lake (as measured directly south of site)**

Nearest Hydrological Feature(s): **The outlet drainage of Grave Lake is approximately 160 m south; the confluence of this outlet drainage and Grave Creek is approximately 700 m to the southwest; Grave Lake is approximately 680 m northeast of site.**

Terrain/Landform: **Gently undulating, relativley low-sloped (3-5 degrees) ground that generally descends southward; no prominent micro-topographic features were observed within the immediate vicinity of the site.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase II - Transportation Corridor)	**2020**	**Ian Tamasi and Nyomi Sherwin**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1. Site avoidence recommended, concurrent Section 12.2 Inspection Permit and 12.4 Site Alteration Permit required if avoidance not possible.
2. Further subsurface inspection to the south of the site to determine the extent of the site

17. GENERAL REMARKS

1. Approximately 75 shovel tests were excavated along the southern side of Harmer Road to determine the presence of archaeological material and delineate site boundaries within the project footprint (50 m buffer along Harmer Road).
2. Shovel testing in proximity to the site should be considered provisional and additional subsurface inspection within this locality is required.

Figure: 25

Permit: 2015-0098

Title:

DlPr-78
Site Map

Project:

Crown Mountain Phase II Transportation Corridor

Client:

NWP
Coal Canada

Survey Date: 12/10/2018

Mapping Date: 15/05/2020

UTM 11-NAD 83- NTS 82G15

1:1,000

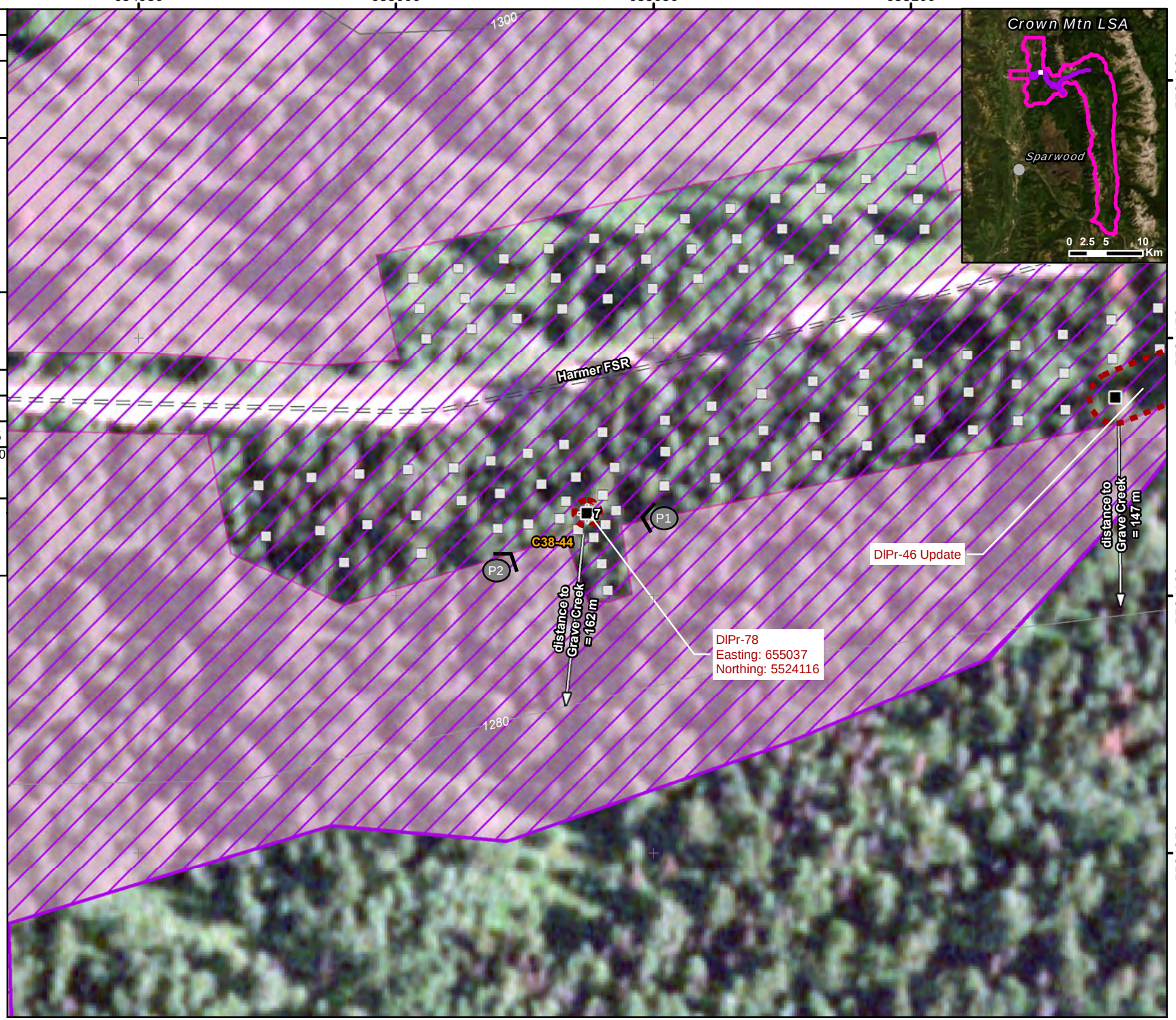
0 5 10 20 m

Mapping by:

Tipi Mountain Eco-Cultural Services Ltd.

Legend:

- New Arch Site Bdry (TMECS 2018)
- Centroid
- Phase II Study area (TMECS 2017-18)
- Local Study Area (LSA)
- Arch Potential Area (AOA)
- High Arch Potential
- Gravel Road
- Contour Line (20 m)
- Contour Line (100 m)
- Nearest Watercourse
- Negative Shovel Test (35 x 35 cm)
- Positive Shovel Test (35 x 35 cm)
- Photo Reference & Direction



Data Source: Base: DataBC/Arch Site: Arch Branch/Project: Client/Field: TMECS

Photo 1. Overview of currently defined site area and situated within gently undulating, low-sloped (3-5^{o}) terrain that generally descends southward towards the outlet drainage of Grave Lake. Note that the increased slope in the right of the photo is the elevated grade of Harmer Road. (view: west)

Photo 2. Supplementary overview of currently defined site area located to the south of Harmer FSR. Note that no micro-topographic features were observed within the immediate vicinity of the site area. (view: west)

Photo 3. Catalogue #1, a utilized flake fragment of siliceous mudstone that was recovered within ST 7 at 5-10 cm below surface.

Temp. Borden Number: DlPr-18-T08
Borden Number: DlPr-78
HCA Permit Number: 2015-0098
Last Date of Assessment: October 12, 2018

Shovel Test	Stratum	Depth (below surface)	Description
7	I	0-5 cm	Litter mat with black silt; thick grass and rootlets
	II	5-15 cm	Brown silt; compact
	III	15-21 cm +	Light brownish-grey silt; very compact.
	Comments: one utilized flake fragment of siliceous mudstone recovered from 5-10 cm		

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 7	5-10	Tool: Utilized Flake (fragment)	Siliceous Mudstone	Opaque, dull brownish grey	(30.6)	(15.5)	(8.1)	(3.0)	Terminal portion of secondary decortication flake, no platform, use wear along lateral and distal edges	12-Oct-18	24-May-19	NS	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Appendix D:
Stratigraphic Information

Heritage Conservation Act
Inspection Permit 2015-0098
NWP Coal Canada
Crown Mountain Coal Project
Phase II – Transportation Corridor

Representative Stratigraphy

Grave Creek (GC) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
C20-14A	**GC1**	I	0-20 cm	Litter mat, moss, Om horizon
		II	20-22 cm	Very faint ashy-grey silt
		III	22-30 cm	Reddish-brown silt with 20-40% sub-angular (SA) cobbles
		IV	30-40 cm	Brown silt amongst >50% SA cobbles
		V	>40 cm	Dense rock, shovel refuse
N/A	**GC2**	I	0-15 cm	Litter mat, overburden
		II	15-25 cm	Brown clayey-silt mixed with 20% angular (A)-SA cobbles
		III	>25 cm	Densely packed light brown clayey-silt
	GC3 (*DlPq-10)*	I	0-12 cm	Litter mat, Om horizon
		II	12-20 cm	Dark yellow-brown silt
		III	20-29 cm	Light yellow-brown silt with <3% sub-round (SR)-SA pebbles
		IV	29-35 cm	Yellow-brown silt
		V	35-43 cm	Compact grey-brown silt, granular crumble
		Comments: Faunal and FAR from 5-20 cm dbs (ST1-3)		
	GC4	I	0-10 cm	Litter matt, Om horizon
		II	10-15 cm	Pale brown silt, faint podzol
		III	15-35 cm	Grey-brown hardpacked silt
		IV	>35 cm	Hardpacked brown silt granular crumble, large SA boulder in base of ST
	GC5	I	0-5 cm	Litter mat
		II	5-15 cm	Om horizon – tree matter piled from road construction
		III	15-25 cm	Grey-brown silt mixed with A-SA clasts
		IV	>25 cm	A-SA clasts, shovel refusals
	GC6	I	0-10 cm	Litter mat
		II	10-12 cm	Ashy-grey silt
		III	12-20 cm	Reddish-brown silt amongst ~50% A-SA cobbles
		IV	>20 cm	Light brown clayey silt amongst ~50% A-SA cobbles
CM-13	**GC7**	I	0-5 cm	Litter mat
		II	5-10 cm	Om horizon
		III	10-20 cm	Brown clayey-silt
		V	>30 cm	Hard packed brown-grey silt mixed with ~20% A-SA pebbles.
	GC8	I	0-7 cm	Litter mat, Om horizon
		II	10-20 cm	Brown clayey-silt
		III	20-30 cm	Grey-brown clayey-silt
		IV	>30 cm	Hard packed brown-grey silt mixed with ~20% A-SA pebbles.
	GC9	I	0-2 cm	Litter mat
		II	2-4 cm	Om horizon
		III	4-5 cm	Ashy-grey silt

Grave Creek (GC) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
		IV	5-20 cm	Reddish-brown silt mixed with 20-30% SA cobbles
		V	>20 cm	Grey-brown sandy-silt
		Comments: Representative stratigraphy for STL		
	GC10	I	0-6 cm	Litter mat, Om horizon
		II	6-8 cm	Ashy-grey silt
		III	8-25 cm	Brown silt mixed with A-SA cobbles (20%) and pebbles (10%)
	GC11a	I	0-6 cm	Litter mat, Om horizon
		II	6-8 cm	Ashy-grey silt
		III	8-25 cm	Brown silt mixed with A-SA cobbles (20%) and pebbles (10%)
	GC11b (*DlPq-11)*	I	0-7 cm	Litter mat, Om horizon
		II	7-27 cm	Yellow-brown silt with 3%SR-SA pebbles
		III	27-37 cm	Grey-brown silt with 3%SR-SA pebbles and ~5% SA cobbles.
		Comments: Lithic artifacts collected from 10-15 cm dbs (ST1-2)		
	GC11c	I	0-6 cm	Litter mat, Om horizon
		II	6-29 cm	Grey-yellow-brown silt
		III	29-31 cm	Compact Brown clayey silt with ~3% SR-SA pebbles
C38-21	**GC12**	I	0-7 cm	Litter mat, Om horizon
		II	7-10 cm	Grey ashy-silt
		III	10-20 cm	Tan-brown silt with 30-40% A-SR cobbles and pebbles (poorly sorted)
		IV	> 20 cm	Grey-brown sandy-silt amongst >60% clasts, shovel refusal
	GC13 (*DkPq-19)*	I	0-8 cm	Litter mat, Om horizon
		II	8-9 cm	Grey ashy-silt
		III	9-32 cm	Yellow-brown silt with ~3-5% SR-SA pebbles with 3-5% SR-SA cobbles and small boulders.
		IV	>32	Compact grey-brown silt with 20% SR-SA granules to cobbles
		Comments: Lithics collected from 5-30 cm dbs (ST1-2)		
	GC14a	I	0-3 cm	Litter mat, Om horizon
		II	3-5 cm	Ashy-grey silt
		III	5-25 cm	Reddish-brown silt mixed with 10-20% SA-SR pebbles and 5-10% A-SA cobbles
		IV	>25 cm	Hard packed grey-brow glacio-lacustrine silt mixed with 10-20% SA-SR pebbles
	GC14b	I	0-3 cm	Litter mat, Om horizon
		II	3-5 cm	Ashy-grey silt
		III	5-25 cm	Reddish-brown silt mixed with 10-20% SA-SR pebbles and 30% A-SA cobbles
		IV	>25 cm	Hard packed grey-brow glacio-lacustrine silt mixed with 30% SA-SR pebbles
	GC14c	I	0-10 cm	Litter mat, Om horizon
		II	10-11 cm	Ashy-grey silt

Grave Creek (GC) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
		III	11-25 cm	Reddish-brown silt mixed with <5% pebble inclusions
		IV	25-40 cm	Compact grey-brown silt
	GC15	I	0-10 cm	Litter mat, Om horizon
		II	10-11 cm	Ashy-grey silt
		III	11-25 cm	Reddish-brown silt mixed with <5% pebble inclusions
		IV	25-40 cm	Compact grey-brown silt
	GC16	I	0-8 cm	Litter mat, Om horizon
		II	8-13 cm	Mottled/disturbed brown-grey silt, disturbance associated with previous logging activity
		III	13-25 cm	Reddish-brown silt
		IV	>25 cm	Hard packed grey-brown silt
	GC17 (*DkPq-2)*	I	0-7 cm	Litter mat, Om horizon
		II	7-10 cm	Grey ashy-silt
		III	10-20 cm	Yellow-brown silt with ~3-5% SR-SA granules and pebbles with 3-5% SR-SA cobbles and small boulders.
		IV	20-31 cm	Compact grey-brown silt with 20% SR-SA granules to cobbles
		Comments: Lithic artifacts collected from 5-20 cm dbs (ST1, 2, 4) and faunal collected from 15-20 cm dbs (ST3)		
	GC18a	I	0-3 cm	Litter mat, Om horizon
		II	3-6 cm	Grey ashy-silt
		III	6-26 cm	Brown silt with ~30% SA cobbles
		IV	> 26 cm	Hard packed, pale grey-brown silt amongst >50%SA cobbles.
	GC18b	I	0-3 cm	Litter mat, Om horizon
		II	3-6 cm	Grey ashy-silt
		III	6-26 cm	Brown silt with ~30% SA cobbles
		IV	> 26 cm	Hard packed, pale grey-brown silt amongst >50%SA cobbles.
	GC18c	I	0-3 cm	Litter mat, Om horizon
		II	3-6 cm	Grey ashy-silt
		III	6-26 cm	Brown silt with ~30% SA cobbles
		IV	> 26 cm	Hard packed, pale grey-brown silt amongst >50% SA cobbles.
	GC18d	I	0-3 cm	Litter mat, Om horizon
		II	3-6 cm	Grey ashy-silt
		III	6-26 cm	Brown silt with ~30% SA cobbles
		IV	> 26 cm	Hard packed, pale grey-brown silt amongst >50% SA cobbles.
	GC18e	I	0-3 cm	Litter mat, Om horizon
		II	3-6 cm	Grey ashy-silt
		III	6-26 cm	Brown silt with ~30% SA cobbles
		IV	> 26 cm	Hard packed, pale grey-brown silt amongst >50%SA cobbles.
	GC18f	I	0-3 cm	Litter mat, Om horizon

Grave Creek (GC) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
		II	3-6 cm	Grey ashy-silt
		III	6-26 cm	Brown silt with ~30% SA cobbles
		IV	> 26 cm	Hard packed, pale grey-brown silt amongst >50%SA cobbles.
C38-20	**GC18g**	I	0-5 cm	Litter mat
		II	5-15 cm	Reddish-brown silt mixed with ~30% SA-SR cobbles
		III	>15 cm	Light brown silt amongst >50% SA-SR cobbles
	GC19a	I	0-15 cm	Litter mat, woody debris resulting from past logging activities
		II	15-20 cm	Brown silt with <10% SA pebbles
		III	20-35 cm	Light brown silt with >10% SA pebbles
		IV	>35 cm	Hard packed silt amongst > 50% SA cobbles
	GC19b	I	0-10 cm	Litter mat, Om horizon
		II	10-15 cm	Brown silty sand mixed with 20-30% SA-SR gravels
		III	>15 cm	Dense gravels with <20% sediments, shovel refuse

Upper Harmer Road (UHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
C38-20	**UHR1**	I	0-1 cm	Litter mat
		II	1-5 cm	Brown silt mixed with 30-50% SA-SR pebbles
		III	>5 cm	Grey sandy-gravel, SA-SR gravel
	UHR2a (*DlPq-8 Site Polygon A)*	I	0-9 cm	Litter mat, Om horizon
		II	9-26 cm	Yellow-brown silt with 25% SR-SA pebbles and <5% cobbles
		III	26-33 cm	Grey-brown silt with 45% SR-SA pebbles and <5% cobbles
		Comments: Lithic artifacts recovered from 0-20 cm dbs (ST1-5)		
	UHR2b (*DlPq-8 Site Polygon B)*	I	0-11 cm	Litter mat, Om horizon
		II	11-19 cm	Grey-brown silt with 15%SR-SA pebbles with some cobbles
		III	19-32 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
		IV	32-34 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
		Comments: One lithic artifact from 0-10 cm dbs (ST6)		
	UHR2c (*DlPq-8 Site Polygons C and D)*	I	0-7 cm	Litter mat, Om horizon
		II	7-35 cm	Yellow-brown silt with 25% SR-SA pebbles with <5% cobbles
		III	35-38 cm	Grey-brown silt with 45% SR-SA pebbles with <5% cobbles
		Comments: Lithic artifacts from 0-20 cm dbs (ST7-12)		
	UHR3	I	0-9 cm	Litter mat, Om horizon
		II	9-11 cm	Brown, organic rich silt with rootlets

Upper Harmer Road (UHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
		III	11-37 cm	Yellow-brown silt this ~3-5% SR-SA pebbles
		IV	37-46 cm	Brown silt with ~3-5% SR-SA pebbles
		V	>46 cm	Compact dark brown silt with 3-5% SR-SA pebbles.
	UHR4	I	0-14 cm	Litter mat, Om horizon
		II	14-30 cm	Brown sandy-silt with 10% SR-SA gravels
		III	30-33 cm	Very compact brown sandy silt with 30-40% SR-SA gravels
	UHR5	I	0-9 cm	Litter mat, Om horizon
		II	9-36 cm	Light yellow-brown sandy-silt with ~5% SR-SA gravels
		III	36-37 cm	Hard packed dark brown clayey-silts with 5%SR-SA gravels
	UHR6	I	0-8 cm	Litter mat, Om horizon
		II	8-15 cm	Yellow-brown silt
		III	15-31 cm	Dark brown silt with ~5% SR-SA granules and <5% SR cobbles
		IV	>31 cm	Compact brown silt with ~5% SA granules
	UHR7	I	0-20 cm	Litter mat, Om horizon
		II	20-33 cm	Light brown silt with ~10% SR-SA gravels
		III	33-36 cm	Compact light-brown compact silt with 15% SR-SA granules and pebbles
	UHR8a	I	0-10 cm	Brown silt with ~25% SR-SA medium to large pebbles
		II	10-20 cm	Dark brown silt, granular crumble, with ~25% SR-SA medium to large pebbles
	UHR8b	I	0-10 cm	Brown silt with ~25% SR-SA medium to large pebbles
		II	10-20 cm	Dark brown silt, granular crumble, with ~25% SR-SA medium to large pebbles
	UHR9	I	0-10 cm	Litter mat
		II	10-12 cm	Brown silt
		III	>12 cm	Brown silt mixed with >60% A-SA cobbles and boulders
	UHR10 (*DlPq-12 & DlPq-13)*	I	0-2 cm	Litter mat, Om horizon
		II	2-16 cm	Ashy grey silt
		III	16-28 cm	Yellow-brown silt with ~2%SR-Sa small to medium pebbles
		IV	28-31cm	Compact light yellow-brown silt, granular crumble
		Comments: DlPq-12: Lithic artifacts recovered from 0-20 cm dbs and ceramic artifacts recovered from 5-15 cm dbs DlPq-13: Lithic artifacts recovered from 0-25 cm dbs		
	UHR11	I	0-4 cm	Litter mat, Om horizon
		II	4-10 cm	Brown silt
		III	10-25 cm	Semi-compact light yellow-brown silt with 5% SR-SA small to medium pebbles
C38-19	**UHR12**	I	0-8 cm	Litter mat, Om horizon

Upper Harmer Road (UHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
		II	8-9 cm	Ashy-grey silt
		III	9-18 cm	Light yellow-brown silt with ~5% SR cobbles
		IV	18-24 cm	Compact light yellow-grey-brown silt with ~5% SR cobbles and ~5% small to large pebbles
	UHR13	I	0-18 cm	Litter mat, Om horizon
		II	18-23 cm	Ashy grey silt
		III	23-38 cm	Yellow brown silt
		IV	38-42cm	Light yellow-brown clayey-silt
	UHR14a	I	0-6 cm	Litter mat, Om horizon with high carbon content
		II	6-25 cm	Yellow brown silt
		III	25-27 cm	Compact light yellow-brown silt
	UHR14b	I	0-5 cm	Litter mat
		II	5-7 cm	Light grey silt
		III	7-24 cm	Light yellow-brown silt
		IV	24-29 cm	Compact brown silt, granular crumble
	UHR14c	I	0-4 cm	Litter mat
		II	4-6 cm	Ashy grey silt
		III	14-20 cm	Yellow brown silt
		IV	20-23 cm	Compact light yellow-brown silt with ~5%SR-SA pebbles
	UHR15a	I	0-9 cm	Litter mat
		II	9-14 cm	Grey-brown silt with ~20% SR-SA small to medium pebbles
		III	14-20 cm	Brown clayey silt mixed with ~20% SR-SA small to medium pebbles
		IV	20-23 cm	Light yellow-brown silt with ~30% SR-SA small pebbles and >5% SR-SA cobbles
	UHR15b	I	0-4 cm	Litter mat
		II	4-14 cm	Grey-brown silt
		III	14-20 cm	Brown silt ~10% SR-SA small to large pebbles & ~5% SR-SA cobbles
	UHR16	I	0-10 cm	Litter mat, Om horizon
		II	10-12 cm	Light yellow-brown silt
		III	12-38 cm	Compact brown silt, granular crumble
	UHR17	I	0-10 cm	Litter mat, Om horizon
		II	10-12 cm	Ashy-grey silt
		III	12-38 cm	Yellow-brown silt
		IV	38-49 cm	Yellow-brown silt mottled with compact grey-brown silt
	UHR18	I	0-8 cm	Litter mat, Om horizon
		II	8-10 cm	Ashy grey silt
		III	10-25 cm	Yellow brown silt
		IV	25-27cm	Light yellow-brown silt
	UHR19	I	0-5 cm	Litter mat, Om horizon
		II	5-7 cm	Ashy-grey silt
		III	7-25 cm	Yellow-brown silt
		IV	25-31 cm	Compact yellow-brown silt mottled with light yellow brown silt with <5% charcoal, sediment

Upper Harmer Road (UHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
				trends to homogenous light yellow-brown silt with depth
	UHR20	I	0-6 cm	Litter mat, Om horizon
		II	6-9 cm	Ashy-grey silt
		III	9-30 cm	Loose yellow-brown silt
		IV	30-32 cm	Semi-compact light yellow-brown silt
	UHR21 (*DlPr-42)*	I	0-8 cm	Litter mat, Om horizon
		II	8-17 cm	Light grey sandy silt
		III	17-31 cm	Light brown silt with some fine sand
		IV	31-35 cm	Dark grey-brown sandy silt
		Comments: lithic artifacts recovered from 0-35 cm dbs and FAR recorded from 0-15 cm dbs (ST1-27 and ST101-123)		

Lower Harmer Road (LHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
C38-44	**LHR1** (*DlPr-46 & DlPr-78)*	I	0-10 cm	Litter mat, Om horizon
		II	10-11 cm	Grey ashy-silt
		III	11-35 cm	Grey-brown silt with few inclusions
		IV	35-40 cm	Compact, very dark-brown
		Comments: lithic artifacts collected from 0-35 cm dbs		
	LHR2a LHR2b	I	0-8 cm	Litter mat, Om horizon
		II	8-22 cm	Brown silt with 5%SR-SA pebbles
		III	22-27 cm	Compact grey-brown silt
	LHR3 (*DlPr-76 & DlPr-77)*	I	0-10 cm	Organic materials with rootles mixed with brown silt
		II	10-21 cm	Light brown silt with ~15%SR-SA pebbles
		III	21-32 cm	Dark brown clayey silt with 25% SR-SA pebbles
		Comments: lithic artifacts collected from 0-20 cm dbs		
	LHR4a (*DlPr-43 Site Polygon B)*	I	0-1 cm	Litter mat, Om horizon
		II	1-6 cm	Brown silty loam
		III	6-18 cm	Hard packed grey-brown silt with 20%SA pebbles and cobbles
		IV	>18 cm	Very hard packed brown silt amongst 20-30% SA-SR pebbles and some cobbles (till)
		Comments: lithic artifacts collected from 0-30 cm dbs		
	LHR4b (*DlPr-43 Site Polygon C)*	I	0-8 cm	Litter mat, Om horizon
		II	8-17 cm	Light grey-brown silt
		III	17-34 cm	Hard packed grey-brown silt with 10% SR-SA pebbles & 5% SA-SR cobbles
		Comments: lithic artifacts recovered from 0-20 cm dbs		
	LHR4c (*DlPr-43 Site Polygon D)*	I	0-7 cm	Litter mat, Om horizon
		II	7-29 cm	Brown silt
		III	29-31 cm	Compact grey-brown silt
		Comments: lithic artifacts recovered from 0-10 cm dbs (ST17)		
	LHR4d	I	0-8 cm	Litter mat, Om horizon

Lower Harmer Road (LHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
		II	8-24 cm	Granular brown silt with 5-10% SR-SA pebbles
		III	24-27 cm	Compact light yellow-brown silt with 10-15% SR-SA pebbles and 5% SR-SA cobbles
C38-12	**LHR5a** (*DlPr-67*) **LHR5b**	I	0-10 cm	Litter mat
		II	10-15 cm	Overburden mixed with rock and brown loam
		III	15-30 cm	Brown silty loam mixed with SR-SA cobbles, increasing with depth
		IV	>30 cm	Light-brown silty-sand mixed with >50% SA-SR cobbles
		Comments: One lithic artifact recovered from 15-20 cm dbs		
	LHR6	I	0-10 cm	Litter mat, Om horizon
		II	10-18 cm	Brown silt
		III	18-28 cm	Dark brown silt with 10% SR-SA cobbles and 5% SR-SA pebbles
	LHR7	I	0-6 cm	Litter mat, Om horizon
		II	6-30 cm	Grey-brown silt
		III	30-33 cm	Compact light grey-brown silt
	LHR8	I	0-5 cm	Litter mat, Om horizon
		II	5-18 cm	Brown silt
		III	18-21 cm	Compact light brown silt
C38-44	**LHR9** (*DlPr-69*)	I	0-5 cm	Litter mat, Om horizon
		II	5-21 cm	Brown silt
		III	>21 cm	Compact brown silt
		Comments: lithic artifacts collected from 5-20 cm dbs (ST1-2)		
C38-12	**LHR10**	I	0-6 cm	Litter mat, Om horizon
		II	6-7 cm	Ashy-grey silt
		III	7-12 cm	Yellow-brown silt
		IV	12-22 cm	Compact light yellow-brown silt
	LHR11 (*DlPr-68*)	I	0-9 cm	Litter mat, Om horizon
		II	9-24 cm	Brown silt with ~20% SR-SA pebbles and cobbles
		III	24-32 cm	Compact light yellow-brown silt
		Comments: lithic artifacts collected from 5-25 cm dbs (ST1-4)		
	LHR12	I	0-7 cm	Litter mat, Om horizon
		II	7-20 cm	Brown silt
		III	20-32 cm	Compact granular crumble brown clayey silt with 10-15% SR-SA cobbles
C38-44	**LHR13**	I	0-7 cm	Litter mat, Om horizon
		II	7-17 cm	Brown sandy silt with 5-10% SR-SA pebbles
		III	17-20 cm	Light grey-brown silt with 10% SR-SA pebbles
	LHR14	I	0-6 cm	Litter mat with high carbon content and organics
		II	6-24 cm	Brown silt with 5% SR-SA pebbles
		III	24-28 cm	Compact light brown silt with 10% SR-SA pebbles

Lower Harmer Road (LHR) STLs				
AOA Polygon	**Shovel Test Location**	**Stratum**	**Depth (below surface)**	**Description**
C38-44	**LHR15a** (*DlPr-75 Site Polygon A)*	I	0-7 cm	Litter mat, Om horizon
		II	7-14 cm	Semi-compact brown silt with some organics and < 5% SA-SR pebbles
		III	14-26 cm	Compact brown silt with 10-15% SA-SR pebbles
		IVc	26-54 cm	Loose dark greyish-brown sandy-silt with high organic content
		V	54-60 cm	Very compact brown silt
		Comments: lithic artifacts recovered from 0-45 cm dbs, faunal artifacts recovered from 0-40 cm dbs, FAR recorded from 0-20 cm dbs (ST1-72)		
	LHR15b (*DlPr-75 Site Polygon E)*	I	0-5 cm	Litter mat, Om horizon
		IIc	5-15 cm	Brown loam with organic materials
		IIIc	15-24 cm	Compact very dark brown and brown mottled silt with <1% pebbles
		IVc	24-36 cm	Very compact very dark grey-brown silt with <5% SA-SR pebbles
		Comments: lithic artifacts collected from 10-20 cm dbs (ST77)		
	LHR15c (*DlPr-75 Site Polygons B-D)*	I	0-8 cm	Litter mat, Om horizon
		II	8-19 cm	Semi-compact very dark grey silt with some organic inclusions and <5% SA-SR pebbles
		III	19-28 cm	Compact very dark grey mottled with dark brown silt and <10% SA-SR pebbles
		IV	28-37 cm	Compact very dark greyish-brown silt with <10% SA-SR pebbles
		V	37-45 cm	Very compact very dark greyish-brown silt with <10% SA-SR gravels
		Comments: lithic artifacts collected from 10-25 cm dbs and faunal from 5-30 cm dbs (ST73-76)		

Heritage Inspection Permit

2015-0098

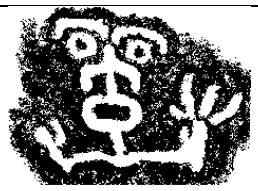
Final Report

Appendix C: Phase III (Interim Report)

Crown Mountain Coal Project

NWP Coal Canada Ltd.

BRITISH COLUMBIA ARCHAEOLOGICAL IMPACT ASSESSMENT CROWN MOUNTAIN COAL PROJECT PHASE III – MINE SITE REPORT FORM



1. REPORT TITLE

2015-0098-NWP3	Archaeological Impact Assessment of the Crown Mountain Coking Coal Project: Phase III – Mine Site

2. MANAGEMENT SUMMARY

2.1	***Protected HCA Sites:***	*Previously Recorded:* DkPq-11 *Newly Recorded:* DkPq-15, DkPq-16, DkPq-17, and DkPq-18

2.2 Brief Overview of Study:

NWP Coal Canada Ltd. (NWP [the Proponent]) requested an archaeological impact assessment (AIA) for a proposed open-pit coal mining operation that will involve development within portions of ten coal licenses that encompass the general locality of Crown Mountain (the Project). Crown Mountain is a north-south trending bedrock-controlled ridge that separates the West Alexander Creek drainage from that of the relatively broad Alexander Creek valley that forms a segment of the western slope of the Continental Divide in southeastern British Columbia. The Project is located approximately 12 km northeast of the District of Sparwood and 26 km southeast of the District of Elkford, (*Appendix A*: Figure 1).

The mine plan centers on Crown Mountain, with the distribution of ancillary infrastructure components located within Grave Canyon and within the locality of Grave Prairie. A phased approach was required for a feasible archaeological assessment; these phases include:

- **Phase I**: Railway Siding/Loop and Loadout Facility - Grave Prairie (Elk River valley).
- **Phase II**: Transportation Corridor - Grave Prairie to Crown Mountain (Grave Creek/Canyon)
- **Phase III**: Mine Site - Crown Mountain (Alexander Creek and West Alexander Creek valleys)
- **Phase IV**: Secondary Transportation Corridor (Alexander Creek valley)

This interim report summarizes the results from the AIA on the Phase III development footprint, which had field inspections implemented in 2018 and 2019. The anticipated footprint of the mine site includes: three surface extraction areas (north pit, east pit, and south pit), the processing plant area (site support building facilities, raw coal stockpile area, fuel and explosive storage, and utilities), waste rock management areas, and access roads (*Appendix A*: Figure 2).

2.3 Results:

The AIA of Phase III of the Project produced positive results with the discovery of precontact archaeological deposits and the recording of sites **DkPq-15, DkPq-16, DkPq-17**, and **DkPq-18**, and a revisit/update to previously recorded site **DkPq-11**.

Additionally, the subsurface matrix in four localities could not be inspected by traditional methods (*i.e.* shovel testing) due to an extremely rocky substrate, and were therefore identified with High Archaeological Potential (HAP); these four areas of HAP will require archaeological monitoring during the implementation of any ground disturbing activity associated with supplemental exploration programs and/or the development of the proposed coal mine.

2.4 Impact Assessment:

Archaeological Site	Development Area	AOA Polygon *Figure Reference*	Impact Direct / Indirect	Type of Impact(s)
DkPq-11	N/A	C20-101 *Appendix A: Figures 2 & 4*	Indirect	Sites are peripheral to the footprint of the coal mine and ancillary infrastructure components; loss of contextual information
DkPq-15	N/A	C20-72 *Appendix A: Figures 2 & 5*	Indirect	
DkPq-16	Coal Extraction (East Pit)	n/a *Appendix A: Figures 2 & 4*	**Direct**	Loss of site areas (*Legacy Status*) via the removal of top soil and mechanical alteration of the surrounding landscape.
DkPq-17	Processing Facilities/Buildings, Conveyor	C20-99 *Appendix A: Figures 2 & 3*	**Direct**	
DkPq-18	Spoil Area	C20-97 *Appendix A: Figures 2 & 3*	**Direct**	Loss of site area (*Legacy Status*) via top soil removal and burial of surrounding landscape by spoil

High Archaeological Potential Area	Development Area	AOA Polygon *Figure Reference*	Impact Direct / Indirect	Type of Impact(s)
HAP 1	Coal Extraction (East Pit)	n/a *Appendix A: Figures 2 & 4*	**Direct**	Loss of *potential* site area(s) via mechanical alteration.
HAP 2	N/A	CM-11 & C20-101 *Appendix A: Figures 2 & 4*	Indirect	*Potential* site area(s) is peripheral to the footprint of the coal mine and ancillary infrastructure components; potential loss of contextual information
HAP 3	Access / Haul Road	CM-11 *Appendix A: Figures 2 & 4*	**Direct**	Loss of *potential* site area(s) via mechanical alteration.
HAP 4	Coal Extraction (South Pit)	CM-12 *Appendix A: Figures 2 & 5*	**Direct**	

2.5 Management Recommendations:

As currently defined, implementation of the Project (Phase III) will result in detrimental impacts to sites **DkPq-16, DkPq-17**, and **DkPq-18**. While avoidance strategies are the preferred recommendation to preserve precontact cultural heritage resources, geotechnical and engineering constraints to facilitate avoidance strategies are anticipated, and therefore, circumventing archaeological sites is unlikely to be considered feasible. Development within any of the aforementioned archaeological sites will require the application for and issuance of concurrent *Heritage Conservation Act* (*HCA* [1996]) Section 12.2 (inspection) and 12.4 (site alteration) permits. Note that subsequent archaeological inspections (*i.e.* excavation of evaluative units to retrieve contextual information) could be required where significant archaeological deposits are exposed through the implementation of the Project. Additionally, monitoring by a qualified archaeologist will be required throughout the duration of mechanical activity when impacts to the fine sediment cap that contain the cultural horizon within defined site boundaries are anticipated.

In regard to the four **HAP** areas, archaeological monitoring under the aforementioned Section 12.2 (inspection) permit is recommended to inspect for and potentially salvage precontact archaeological material during the onset of mechanical activity.

Archaeological sites **DkPq-11** and **DkPq-15** are both in proximity to, but are not situated within the proposed Phase III development footprint. In the event that the development footprint is revised or evolves after implementation of the currently proposed mine plan and ground disturbance is anticipated within or in proximity to the currently defined boundaries of site DkPr-11 and/or DkPr-15, concurrent Section 12.2 and 12.4 permits will be required.

3. ADMINISTRATIVE INFORMATION

3.1	*Permit Holder:*	Ian Tamasi	*3.2*	*Permit Holder Affiliation:*	Tipi Mountain Eco-Cultural Services a Division of Nupqu Resource LP PO Box 957 Cranbrook BC, V1C 4J6 Phone: 250.420.2724 Email: ian@tipimountain.com
3.3	*Proponent Contact:*	Mike Allen (*Project Manager*)	*3.4*	*Proponent Affiliation:*	**NWP Coal Canada Ltd.** Suite 810 - 789 West Pender Street Vancouver, British Columbia V6C 1H2 Phone: 604.557.3765 Email: mike.allen@nwpcoal.com
3.5	*Interim Report Author(s):*	Ian Tamasi, Nyomi Sherwin, and Daniel Heinrichs			
3.6	*Interim Report Date & Version:*	11th March 2020 V1 Client; V1 Archaeology Branch			
3.7	*Notification of Work Date:*	*Phase III:* 20th July 2018 31st May 2019			
3.8	*OGC Ref No.:*	*Not Applicable*			

4. PROPOSED DEVELOPMENT

4.1	*Description:*

The general locality of Crown Mountain has been subject to exploration activity (*i.e.* drilling) in 1969 and 1979, and further exploration, trenching, and bulk sampling was implemented from 1979 to 1981. After the issuance of the Crown Mountain coal tenures to a subsidiary of the Proponent, an extensive mineral exploration program was implemented in 2012, which indicated that the coal at the Crown Mountain site is typical of the coking coals extracted from existing mines in the Elk Valley. If approved, the proposed Project would create a new coal mine with an expected 15-year operating life.

The mine plan includes three open pits on Crown Mountain (*Appendix A*: Figure 2), which are proposed to be developed sequentially through a truck/shovel mining method, which includes drill and blast operations. Spoil and waste rock would be deposited within the West Alexander Creek valley, situated westward of the extraction pits. Processing of raw coal would occur in facilities situated along the northwestern slope of Crown Mountain prior to transport to the load-out facility (Phase I - Grave Prairie), which would include an overland conveyance system (±3 km) down to the transportation corridor (Grave Creek/Canyon) where coal will be discharged into haul trucks. The haul road, to be comprised of both dual-lane and single-lane road sections, would be approximately ±13 km in length and largely follow existing road grades (Phase II - Grave Creek FSR and Harmer Road) that lead to the load-out facility that would be alongside a new railway siding/loop located to the east of Valley Road and south of Grave Creek. Once loaded, coal would travel by rail to a port terminal in Vancouver for shipment overseas.

Components of the mine plan specific to development footprint of Phase III include:

- Surface extraction areas (three pits: north pit, east pit and south pit);
- Spoil and waste rock management areas;
- Plant area (includes raw coal stockpile area, a processing plant and site support facilities); and
- Clean coal transportation route (overland conveyor to haul road);

4.2 Location:

The Project occurs within the Regional District of East Kootenay and within the boundaries of the Kootenay Boundary Land Use Plan, the Elk Valley Official Community Plan, and the Alexander Creek Access Management Area. A local study area (LSA) was defined for the archaeological component of the Project, which mirrors the study area of Permit 2015-0098. The Project LSA was defined by a combination of natural geographical and arbitrary boundaries that surround the proposed footprint of anticipated ground disturbance associated with mining activity and the placement of required infrastructure components (*Appendix A*: Figures 2-5). Note that a single amendment was granted for Permit 2015-0098 (Eric Forgeng, *pers. comm*. August 6, 2019), which extended the LSA to the north-northwest to facilitate options for placement of the railway siding/loop, loadout facility, and lower (western) segment of the transportation corridor in proximity to Grave Lake and existing infrastructure associated with another coal mining facility.

Phase III of the Project is primarily located along the western side of the Alexander Creek valley encompassing Crown Mountain and the West Alexander Creek drainage, while Phase I and Phase II span to the west-northwest encompassing the Grave Creek drainage and the Grave Prairie region of the Elk River valley. The Project is located approximately 15 km northeast of Sparwood and 26 km southeast of Elkford.

Coal Licenses: 418150, 418151, 418152, 418153, 418154, and 418966

Map Sheets – Phase III:

- 82G/15 (NTS)
- 82G.077 and 087 (BC TRIM)

Centroid Location – Phase III (Zone 11U - NAD 83):

- 663700 E, 5520570 N

District Lots – Phase III – *Surveyed Crown Land:*

- 6441, 6442, 6443, 6781, 8519, 8520, 8522, and 13857

5. FIELD CREW

Date (dd/mm/yy)	***Field Director (on site? Y/N)***	***Field Supervisor***	***Field Personnel & First Nation Representatives***
17/09/2018 *to* 21/09/2018	Ian Tamasi (Y) Nyomi Sherwin (Y)	Joshua Martin (SIB)	Mathias Ladd Shea Turner TJ Bone
24/09/2018 *to* 28/09/2018	Ian Tamasi (Y) Nyomi Sherwin (Y)	Joshua Martin (SIB)	Marty Williams (KNC) Mathias Ladd Shea Turner
08/07/2019 *to* 12/07/2019	Ian Tamasi (Y) Nyomi Sherwin (Y) Daniel Heinrichs (Y)	Joshua Martin (SIB)	John Nicholas (KNC) Jason Feltham (KNC) Sunshine Joseph (KNC) Nick Johnson (KNC) Justin Hanna Mathias Ladd Marshall Ezelle

Table Notes:
KNC: Ktunaxa Nation Council
SIB: Shuswap Indian Band

6. ARCHAEOLOGICAL METHODS & RESULTS

6.1. Pre-field Methodology

☒ Archaeological potential and sites are indicated on the Study Area Map

☒ An Archaeological Overview Assessment (AOA) and/or archaeological predictive model exists for the study area

Archaeological potential within the Project's archaeology LSA has been addressed within two Project-specific AOAs. An initial AOA for the preliminary exploration component of the Project (Choquette 2012) resulted in the identification of 36 archaeological potential polygons; of the 36 polygons, nine were newly defined and twenty-five were previously delineated under forestry-related AOAs for: Managed Forest 27 (Choquette 2004), Landscape Unit (LU) C20 of the Rocky Mountain Forest District (Choquette 2008), and LU C38 of the [former] Cranbrook Forest District (Choquette 1997). A supplementary AOA for the Project (Choquette 2014) builds on the information generated during the 2012 overview assessment, but includes the analysis of LiDAR (Light Detection and Ranging) data within a larger study area. In total, 110 archaeological potential polygons are situated within or partially overlap with the Project's archaeology LSA boundaries.

The potential polygons within Choquette's Project-specific AOAs (2012 and 2014) identified as Crown Mountain (CM) polygons CM-01 to CM-12 delineate landforms or landscapes where archaeological remains are predicted to be present based on models of pre-contact human land and resource use developed for this portion of the Rocky Mountains. Primary attributes defining archaeological potential within the two AOAs include:

- Corridor: "*The physiography of a region exerts a major influence on the movements of both animals and humans. The north-south troughs represented by the valleys of Alexander Creek and the Elk Valley naturally made these travel corridors, the two of them connected by Grave Creek. In addition, the Continental Divide, which bounds much of the LSA on the east, is breached by Racehorse, Deadman, Phillips, and Crowsnest passes connecting to the foothills and plains further east*." (Choquette 2014: p.11)
- Bedrock Geology: "*The bedrock geology of the Crown Mountain LSA consists of a series north-south striking, upturned and steeply dipping Palaeozoic sedimentary strata that include the Rocky Mountain, Banff, Etherington and Fernie formations, all of which have been quarried in precontact time. While there is nothing in the sparse recorded data from the vicinity that suggests the presence of an intensively exploited outcrop, the LSA has not been systematically surveyed but is known to contain extensive exposures of bedrock and talus of these formations on the mountainsides, tributary valley walls, prominences and saddle.*" (*ibid*. p.12)
- Ungulate Range: "*A variety of natural habitats are present in the Crown Mountain LSA. Some of the grasslands, such as those at high elevations, are apparently relics of more extensive earlier Holocene communities while others, in particular those which occupy Neoglacial floodplain terraces, are more recent by definition of the age of the landforms upon which they are situated. The emergence of these expanses of previously non-existent grazing range is hypothesized to have been instrumental in the expansion of bison into the middle Elk River drainage area during the late Holocene arid interval.*" (*ibid*. p.12)

The following recommendations were the outcome of these AOAs:

- "*avoidance is the preferred strategy with regard to areas identified as archaeological potential polygons;*
- *within any archaeological potential polygons that overlap proposed developments, existing disturbed areas should be utilized to the greatest extent possible before considering alteration of previously undisturbed terrain;*
- *where it is apparent that proposed development poses an unavoidable risk to the intact mineral soil/postglacial fine sediment cap in which archaeological deposits are expected to occur, more intensive archaeological investigation including subsurface testing will be required to ascertain the presence and significance of any pre-contact archaeological remains." (ibid. p.2)*

☒ Previous field studies influenced this assessment

Previous archaeological assessments within the Project LSA are numerous, and have primarily been associated with forestry-related development situated within Managed Forest 27 and the adjacently located Provincial forest lands within LU C20. Under Provincial Legislation, (*i.e.* the *Forestry Practices Code of BC*

[1996A] and the updated *Forest and Range Practices Act* [2004]) all forestry-related developments that overlaps with previously delimited AOA Polygons (*e.g.* Choquette 2004 and 2008) require a form of archaeological assessment. Although a considerable amount of the terrain situated within the Project's archaeology LSA has been previously harvested, forestry-based proponents (*e.g.* Jemi Fiber Corp., Canwel, Tembec and Canadian Forest Products) are frequently able to incorporate avoidance strategies and implement winter-harvesting techniques that can negate disturbance to archaeological sites.

As summarized above, two AOAs have been completed for this Project (Choquette 2012 and 2014). During the field component of the 2012 AOA, W.T. Choquette discovered an unifacially re-touched flake of siliceous mudstone within AOA Polygon C20-101; this artifact was not collected at that time due to the absence of a pertinent *HCA* permit.

Associated with the **Project's Phase III study area**, several small-scale archaeological impact assessments have been completed for the Proponent; these assessments, completed under *HCA* (blanket) inspection permit 2013-0077 include:

- **Crown Mountain 2013 Exploration Program**: Archaeological field inspections for the annual exploration program involved the assessment of five drill sites and one staging area along the Grave Creek FSR. Although this inspection produced negative results, the aforementioned artifact (*i.e.* unifacially re-touched flake of siliceous mudstone) that was previously discovered within C20-101 (Choquette 2012) was recovered under the *HCA* permit and resulted in the official recording of site DkPq-11 (Tamasi 2014).

- **Crown Mountain Weather Station**: Archaeological field inspections within and immediately adjacent to the proposed footprint of a Weather Station within AOA Polygon C20-99 and immediately north of Branch C of the Grave Creek FSR. Subsurface inspection produced negative results with no archaeological material or sites recorded (Liddy & Tamasi 2015); this study area is illustrated on the site map for DkPq-17 within *Appendix C*.

☒ Review of Provincial Heritage Register

Date Accessed: 6th February, 2015 (Project LSA - initial review for application)
20th July, 2018 (Phase III - annual review associated with FN notification)
31st May, 2019 (Phase III - annual review associated with FN notification)

Table 2. Previously Recorded Archaeological Sites in the Vicinity of the Phase III Study Area

Borden No.	***Distance & Direction from the Proposed Development***	***Site Type***	***Permit No. of Previous Visits***	***Site in Conflict (Y/N)***
DkPq-11	Located adjacent to the landing at the height of Branch C of Grave Cr FSR	Precontact, Surface Lithic	2013-0077	**Y** (*indirect*)
DkPq-10*	750 m SE	*Historical*, Industrial/Logging Camp	1973-0004	N
DkPq-7*	950 m NW	*Historical*, Industrial	1973-0004	N
DkPq-9*	3 km SSE	*Historical*, Cabin	1973-0004	N
DkPp-15	4.5 km E	Precontact, Surface Lithics	1981-*NP*	N
DlPq-7	3.6 km west	*Grave Canyon Site* Precontact Subsurface Lithics	2006-0154	N
DlPq-8	4 km west	*Grave Canyon Site 2* Precontact Subsurface Lithics	2006-0154	N

Comments:
- Above listed archaeological sites are located within a 5 km radius of the Phase III Study Area
- *NP* = Non-permit and includes the year associated with site recording
- * Indicates a historical post-1846 site, not protected under the *Heritage Conservation Act*

6.2. In-field Methodology

☒ Subsurface test measurements are a minimum of 35 x 35 cm

6.2.1	***Number of Crew Members:***	6-11	***6.2.2***	***Crew Spacing:***	0.5 – 5 m *variable intervals based on landscape and safety considerations (e.g. steep or unstable slope)*

6.2.3 Survey Design:

The archaeological assessment of Phase III commenced with a thorough inspection of the terrain within previously delimited C20 AOA polygons (Choquette 2008) and project-specific CM AOA potential polygons (Choquette 2012, and 2014). Additionally, several judgemental survey traverses were implemented to observe for archaeologically-salient micro-topography within the landscape that were within a 100 m buffer from proposed development footprints within the currently proposed Mine Plan. The single exception to the 100 m buffer, was the inclusion of AOA polygons C20-72 and C20-89, the southernmost AOA polygons within the study area located approximately 0.3 - 0.5 km south-southeast of the proposed limits of the south extraction pit, and in proximity to the confluence of the West Alexander and Alexander Creeks.

The field component for Phase III involved, at a minimum, a reconnaissance through all of the AOA polygons to understand the landscape and [contemporary and relict] drainage patterns, inspect natural exposures (*e.g.* tree throws, incised run-off channels, game trails, bedrock outcrops, and sparsely vegetated ground surfaces) and anthropogenic disturbance (*e.g.* road grades, off-road vehicle trails, berms, slope/ditch cuts) for exposed precontact cultural material, and to identify areas of high archaeological potential (HAP) that would require subsurface inspection.

6.2.4 Subsurface Inspection

Upon the identification of archaeologically-salient micro-topography (*e.g.* structural benches, terraces, knolls/apex/prominences, ridgelines, and saddles), shovel testing was implemented to confirm or refute the presence of precontact archaeological material. Shovel tests were systematically excavated down in 5-10 cm arbitrary levels; intervals for shovel tests within each shovel test location (STL) are provided within Section 6.4 (Results). Note that natural (*e.g.* dead/wind fall, aeolian deflation, dense vegetation, rocky substrate, bedrock, talus, and steep slope) and/or anthropomorphic constraints (*e.g.* built roads/staging areas and significant areas of previous disturbance) were often present within each STL and throughout the Phase III study area, as a result test intervals were frequently subject to judgmental refinement (*see* Section 6.4: Results). While linear-shaped landforms were subject to transects of shovel tests, grid-like test patterns were applied to horizontally-expansive features. All manually-excavated sediment associated with subsurface inspection was sorted with 6 mm (1/4") mesh.

Evaluative units (EU) were excavated in two localities:

- **C20-99 STL 18-1a** (**DkPq-17**): a 1.0 m by 0.5 m EU was excavated based on the exposure of a hearth-like feature (*i.e.* charcoal-stained sediment amongst an accumulation of fire-altered rock [FAR]) during the excavation of shovel test (ST) 3 within polygon A of the archaeological site. The ST was enlarged into an EU via trowel (5 cm levels) to inspect the context of the feature and attempt to obtain a suitable organic sample(s) for AMS dating.
- **Judgmental STL 18-1** (**DkPq-16**): a 1.0 m by 1.0 m EU was excavated based on the recovery of an isolated lithic artifact recovered from a single ST, which was surrounded by previously disturbed ground to the west and negative inspection results in all directions. The ST was enlarged into an EU via shovel shaving (5 cm levels), and resulted in the recovery of an additional lithic artifact within an area that was not previously delineated as containing archaeological potential (*i.e.* situated beyond an AOA polygon).

6.2.5 Archaeological Site Recording

Upon the discovery of precontact archaeological material, a landform-specific test pattern was derived to determine the spatial extent of the archaeological site, which included systematic shovel testing at ≤5 m intervals. Where terrain allowed, shovel tests were excavated in each cardinal direction until three negative tests were recorded from the positive test unit(s). Natural attributes and/or anthropogenic disturbance did constrain inspection patterns at sites DkPq-11, DkPq-16, and DkPq-17; *see Appendix C*: Site Information.

6.2.6 High Archaeological Potential (HAP) Areas

The Phase III study area encompasses high elevation mountainous terrain that generally contains a rocky matrix which occasionally impeded the assessment through the aforementioned subsurface inspection methodology. Therefore, areas of archaeological potential within AOA polygons or along judgmental survey routes, were subject to a thorough visual inspection of the ground surface and micro-topographic features (*e.g.* crevasse, alcove, and minor fault lines). Subsurface inspection of rocky terrain largely consisted of overturning rocks clasts or portions of the ground cover vegetation mats.

Four localities in the Phase III study area, were identified as containing HAP; this was based on the relative prominence of each location with level or near-level ground surfaces, and the presence of a vantage point(s) that offered unimpeded views of the adjacent landscape. Despite the effort put forth to inspect each of the four locations, subsequent inspection and monitoring during the onset of ground disturbance or mechanical activity is recommended. HAP areas were documented in the field via a handheld GPS unit, and subsequently delineated through GIS analysis, and encompassed a variable 20-40 m buffer zone from the centroid (*i.e.* micro-topographic feature) that initially defined the area of interest.

6.2.7 Culturally Modified Tree

During the field component, several trees were observed within the Phase III study area that had scars resembling cultural modification. Upon the discovery of a *suspected* culturally modified tree (CMT) during a traverse, the tree(s) was identified (*i.e.* flagged and way-pointed) and a return visit to the locality occurred to confirm or refute the context of scarring as a larger group with input provided by representatives of participating First Nations. The vast majority of *suspected* CMTs contained scarring that was considered to be relatively recent (<50 years) and attributed to damage incurred by avalanches, debris flows, or previous mechanical activity. A single white bark pine with two blazed scars (*i.e.* one to the north and south) was subject to inspection with increment borer, which revealed a date of scarring *ca*. 1920-1927 and attributed to early mineral exploration or outfitting activity (*Appendix B:* Photo 1); precontact CMTs were not observed or suspected.

6.3. In-field Observations

The terrain on Crown Mountain is generally characterized as being steep and rocky. Although the landscape is relatively rugged, precontact human activity on Crown Mountain was confirmed by the presence of archaeological material in five localities, subsequently recorded as DkPq-11, DkPq-15, DkPq-16, DkPq-17, and DkPq-18. Within the Phase III study area, the landscape has been arbitrarily categorized into three categories: ridgeline (with saddles, passes, and prominences), drainage bottom (with fluvial nodes, drainage confluences, and potential terrace development), and transition zone (variable slope with scattered structural benches and potential terrace development).

- **Ridgeline**: Although the north-south striking, western dipping bedrock-controlled crest of Crown Mountain is the most prominent topographic feature within the Phase III study area, a few radial ridgelines, formed through faulting, are also present and offer routes of least resistance for both human travel and animal movement to/from the West Alexander drainage basin. The eastern side of Crown Mountain is consistently steep (≥35^{o}) and comprised of sporadic bedrock outcrops and unconsolidated slopes (*i.e.* talus) that have been refined by avalanches and debris flows and contribute to the development of the extensive colluvial apron that is present along its base. Navigable access/egress routes to the crest of Crown Mountain are present to the south and north (*Appendix B*: Photo 2).

  Along the ridgelines are a series of prominent or relatively-elevated peaks or prominences that offer outstanding views of the landscape (*Appendix B*: Photos 3-6), including Erickson Ridge and the West Alexander drainage basin to the west, the vast majority of the Alexander Creek valley to the north and south, and the Continental Divide to the east, where four mountain passes (Deadman, Racehorse, North Fork, Tornado) are visible and offer access to the eastern slopes of the Rocky Mountains and foothills region in present-day Alberta. As previously stated, the ridgelines present routes of least resistance where transient occupation may have resulted in the deposition of trail littler. Prominences along the ridgelines offer vantage points that may have been utilized for hunting and navigational purposes, and potentially, the most prominent locations may have been suitable for ceremonial activity (*e.g.* vision quest). Unfortunately, in regard to the archaeological record, contemporary modes of transportation have capitalized on these routes of least resistance. Mechanical activity, to facilitate road construction, has resulted in the removal/alteration of the ground surface along many segments

of the ridgeline that form the crest of Crown Mountain. Additionally, off-road vehicle use has further incised many of the former exploration roads, which is suspect to have contributed to the eradication of evidence for precontact travel (*e.g.* cairns, petroforms, pathways, and trail litter).

Lower elevation segments along the crest of Crown Mountain (*e.g.* saddles and passes) offer relatively sheltered and more spatially-expansive landforms that are suitable for transient campsites or seasonal base camps associated with resource procurement. While AOA polygons encompass prominent locations along the crest of Crown Mountain, judgmental surveys were completed along the entirety of each ridge to ensure an inspection occurred on micro-topographic features that may have been overlooked during the AOA process.

- **Valley Bottom**: The Phase III development footprint encompasses the vast majority of the West Alexander Creek valley, but excludes any of the Alexander Creek valley to the east (*Appendix A*: Figure 2). A pedestrian survey conducted through the West Alexander Creek valley was required to assess a series of AOA polygons that delimit potential for terrace development and fluvial nodes and confluence areas, encompassing a highly dynamic environmental setting. The stratigraphic profiles exposed by variably-incised channels of West Alexander Creek and its tributaries revealed episodic deposition of alluvium (*i.e.* debris flows) and buried organic debris (*i.e.* avalanche). The subsequent erosion of sediment (frequently down to bedrock) and displacement of organic material by evolving drainage patterns is apparently frequent; this would have affected the stability of micro-topographic features and longevity of travel routes (*i.e.* paths). Based on the development footprint of Phase III, subsurface inspection was minimal within valley bottom settings due to the absence of stable ground surfaces; therefore, the West Alexander is considered a secondary travel corridor, and any precontact archaeological material that may remain along the valley bottom would be deeply buried (*i.e.* beyond the reach of shovel testing) or contained within placer deposits that lack any cultural context. Subsurface inspection was not completed within AOA polygons C20-90, 92, 93, 94 and 96, based on a dynamic environmental setting and the absence of archaeologically-favourable micro-topography.
- **Transition Zone**: The most abundant landscape classification within the Phase III development footprint, which largely consists of variable, mountainous slope with potential for structural benches, minor prominences, and some terrace development, which have been delimited as AOA Polygons. While variable slope was assessed through sampling while implementing judgmental surveys and access/egress to some AOA polygons, the vast majority of mountainous slope was not traversed and is considered 'space' between archaeologically-salient micro-topography. While the presence of archaeological sites along the crest of Crown Mountain indicates precontact use and occupation of the general locality, the sporadic deposition of cultural material (*i.e.* trail litter) based on *ad hoc* activity within a transition zone would be extremely difficult, if not impossible to inspect for, and the potential to discover these sparse and isolated sites through systematic inspection is extremely low.

High Archaeological Potential (HAP) Areas

As mentioned above (Section 6.2.6) four HAP areas, each summarized below, were identified within the Phase III study area. These HAP areas are relatively prominent, high-elevation features that offer vantage points and unimpeded views of the surrounding landscape; these locations are suspected to have been utilized for hunting and navigational purposes. Additionally, if deemed culturally-appropriate, these areas may have been attractive for ceremonial activity (*e.g.* vision quest). Unfortunately, elevated locations lack tree stands and are exposed to the elements, they are therefore extremely susceptible to erosion through aeolian deflation and colluvial processes; these factors limit the depth and continuity of a fine sediment cap that has the potential to encase and preserve context(s) for precontact archaeological material. Scattered pockets of fine sediment are present and support ground cover vegetation mats and Krumholtz timber stands. No archaeological materials were encountered during the surface surveys; however, future ground disturbance (*i.e.* grubbing) could reveal buried artifacts (refer to Section 2.4 for Management Recommendations).

HAP 1: elevated, prominent peak and the adjacent ridgelines that descend to the north and south.

- *Centroid*: 11U 663642 E, 5521437 N (NAD 83)
- *AOA Polygon*: n/a – judgmental survey
- *Area*: 1.0 ha (includes ±30 m buffer zone that extends to the east and west from crest of ridge)
- *Elevation*: 2200~2220 m above sea level (asl)

- *Archaeological Potential*: Prominent peak and elevated ridge that comprise a segment of the travel corridor offered by the crest of Crown Mountain. Precontact occupation within this locality was confirmed through the discovery of two lithic artifacts (DkPq-16) within a saddle approximately 350 m to the west-northwest.
- See *Appendix A*: Figures 2 and 4; *Appendix B:* Photo 3

HAP 2: elevated, prominent peak (summit of Crown Mountain) and ridgeline that descends to the southwest to West Alexander Creek

- *Centroid*: 11U 663605 E, 5520553 N (NAD 83)
- *AOA Polygon*: CM-11
- *Area*: 0.3 ha (includes ±20-30 m buffer zone that extends westward from crest of ridge/peak)
- *Elevation*: 2230~2265 m asl
- *Archaeological Potential*: Highest segment of the travel corridor offered by the crest of Crown Mountain. Precontact use of this landscape was confirmed through the discovery of a single lithic artifact (DkPq-11) approximately 150 m to the west-northwest.
- See *Appendix A*: Figures 2 and 4; *Appendix B:* Photo 4

HAP 3: elevated, prominent bend along a ridgeline (fault) defines a tributary basin of West Alexander Creek

- *Centroid*: 11U 663188 E, 5520153 N (NAD 83)
- *AOA Polygon*: CM-11
- *Area*: 0.7 ha (includes ±50 m buffer zone that extends northward from margin of ridge)
- *Elevation*: 2105~2130 m asl
- *Archaeological Potential*: Prominent bend that is a focal point along a ridge that offers a vantage point along a route accessing/egressing the summit of Crown Mountain. Precontact use of this landscape was confirmed through the discovery of a single lithic artifact (DkPq-11) approximately 700 m to the northwest.
- See *Appendix A*: Figures 2 and 4; *Appendix B:* Photo 5

HAP 4: elevated, prominent westward bend that marks the terminus of the crest of Crown Mountain

- *Centroid*: 11U 663918 E, 5517418 N (NAD 83)
- *AOA Polygon*: CM-12
- *Area*: 0.6 ha (includes ±50 m buffer zone that extends westward from margin of ridge)
- *Elevation*: 1867~1900 m asl
- *Archaeological Potential*: Prominent location that offers a vantage point and staging area (*i.e.* rest stop) during the ascent/decent of Crown Mountain. Significance of this location was noted by the presence of a contemporary (undated) memorial marker for 'Alice Prodrasky' that is affixed to a lodgepole pine.
- See *Appendix A*: Figures 2 and 5; *Appendix B:* Photo 6

6.4. Results

Table 3. Assessment Results – *Shovel Test Locations (STL) by AOA Polygon*

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-01	18-1	60 m x 10 m	ST: 29	ST: 0	ST: 29
Results: Negative					
Description: Terrace that defines the southern bank of a minor tributary that flows to the southwest into West Alexander Creek. The tread of the terrace is slightly irregular, comprised of level areas amongst a gentle (3-5^{o}) slope that descends to the north-northwest. Slope increases to the south, where a surface inspection of a newly constructed access/exploration road occurred. Shovel testing was implemented in proximity to the well-defined margin and were excavated in two offset transects spaced at 5-10 m intervals, influenced by exposed rock and the density of the tree stand. This STL is located within a proposed spoil area. *Appendix A:* Figure 3; *Appendix B:* Photo 7; *Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-04	18-1	20 m x 20 m	ST: 10	ST: 0	ST: 10
Results: Negative					
Description: Semi-prominent knoll with a north-south trending crest surrounded by consistently undulating terrain, located near the base of a steep rocky slope that ascends eastward to the crest of Crown Mountain. Although a rocky ground surface, comprised of protruding and strewn sub-angular cobbles and small boulders, was present, a fine sediment cap was observed in tree throws, which justified subsurface inspection. Shovel tests were excavated in a grid-like pattern at 4-5 m intervals, largely constrained from the crest of the knoll southward. This STL is located within the proposed southern extraction pit. Previously constructed Spur Road #4 (containing drill sites CM13-20 and CM18-22) bisects the western side of the landform. *Appendix A:* Figure 5, *Appendix B:* Photo 8; *Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-05	18-1	10 m x 10 m	ST: 4	ST: 0	ST: 4
Results: Negative					
Description: Minor north-south trending (5-8°) slope break amongst a consistently sloped (20-35°) landscape with a southwestern aspect. The ground surface is visibly rocky with an abundance of protruding boulders. Shovel tests were excavated in a gird-like pattern at 4-5 m intervals covering the slope break. This STL is located within the proposed southern extraction pit. *Appendix A:* Figure 5; *Appendix B:* Photo 9; *Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-06	18-1	20 m x 5~8 m	ST: 9	ST: 0	ST: 9
Results: Negative					
Description: East-west trending ridge that contains two semi-prominent knolls amongst steeply sloped terrain that descends southward. A rocky matrix is present and angular to sub-angular rocks protrude through the relatively thin litter mat. Shovel testing was completed in a grid-like pattern at 3-4 m intervals and focused on the eastern side of the landform where intact terrain was present; this is opposed to the surface inspection completed on western portion of the landform that has been severely impacted by previous mechanical activity (*i.e.* road/trail construction). The STL is situated within the proposed south extraction pit. *Appendix A:* Figure 5; *Appendix B:* Photo 10; *Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-07	18-1	15 m x 5 m	ST: 7	ST: 0	ST: 7
Results: Negative					
Description: Small elevated bench amongst gentle slope (5-7° to the east, west, and north, and 10-15° to the south). Shovel tests were excavated at 3-5 m intervals in two linear transects, that paralleled the southern margin. This STL is in proximity to, but not currently within the Phase III development footprint. *Appendix A:* Figure 5; *Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-07	19-1	40 m x 10 m	ST: 14	ST: 0	ST: 14
Results: Negative					
Description: East-west trending bedrock-controlled ridge that is defined by protruding outcrops and detached boulders amongst a ±40° slope that descends to the north, south, and east. The western terminus of the ridge					

blends in with an extensive talus field (*see* CM-07 STL-19-2 summary [below]). Alcoves and bedrock faces were inspected for indications of precontact petroforms and remnants of rock art. Due to the irregularity of the ground surface, shovel tests were excavated judgmentally and concentrated on micro-topographic locations where sediment had accumulated and soil development was suspected; this typically ranged from 2-5 m intervals.

This STL is in proximity to, but not currently within the Phase III development footprint.

Appendix A: Figure 5; Appendix D: Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-07	19-2	30 m x 3~8 m	ST: 13	ST: 0	ST: 13

Results: Negative

Description: East-west trending ridge that gently descends (5-10°) to the north and northwest and is constrained by steep slope (45-50°) to the south and southwest. This STL is similar and indirectly connects to the east with CM-07 STL 19-01 (summarized above); the ground surface is irregular, with sediment traps amongst protruding bedrock and boulders in proximity to a talus slope that is comprised of extremely large, angular boulders. Alcoves and bedrock faces were inspected for indications of precontact petroforms and remnants of rock art. Shovel tests were placed judgmentally, focusing on small islands of sediment that facilitates ground-cover vegetation; this typically ranged from 2-7 m intervals

This STL is in proximity to, but not currently within the Phase III development footprint.

Appendix A: Figure 5; *Appendix B:* Photo 11; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-08	18-1	15 m x 15 m	ST: 6 TT: 8	ST: 0 TT: 0	ST: 6 TT: 8

Results: Negative

Description: Small, near-level (3-5º) area along a north-south trending ridge that defines the northern bank of a relict/seasonal drainage channel. The surrounding landscape is undulating with a variable slope (10-15º) descend to the southwest. This area was previously subjected to a severe wind event and a notable number of tree throws (TT) were present, and revealed variable fine sediment cap overlying bedrock and/or clasts; these were manually sorted (*i.e.* screened) to supplement shovel testing, which were excavated at 3-7 m intervals in a grid-like pattern that was constrained by an abundance of deadfall.

This STL is situated within the proposed south extraction pit.

Appendix A: Figure 5; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-11	18-1	12 m x 7 m	ST: 7	ST: 0	ST: 7

Results: Negative

Description: Small bench/slope break situated along a consistently sloped (20-30°), north-south trending ridge that ascends southward towards HAP 3. A steep cliff, overlooking a talus field is present to the southwestern side and a crevasse-like fault is present immediately downslope to the north. The bench has a depressed (bowl-like) ground surface that collects surficial runoff and is likely saturated throughout the spring and/or fall seasons. Shovel tests were excavated at 3-4 m intervals in a grid-like pattern.

This STL is situated within the footprint of a proposed mine access road.

Appendix A: Figure 4; *Appendix B:* Photo 12; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-12	18-1	7 m x 7 m	ST: 8	ST: 0	ST: 8

Results: Negative

Description: Triangular-shaped bench with a southerly solar aspect situated along a consistent ridgeline that ascends eastward and defines the southern terminus of Crown Mountain. To the south, a deflated scarp is

present and was subjected to a visual inspection prior to the onset of shovel testing, which was implemented in 2-3 m intervals in a grid/pyramid-like pattern. Shovel testing revealed a deeply buried Podzolic soil.

This STL is along the southern boundary of the proposed south extraction pit.

Appendix A: Figure 5; *Appendix B:* Photo 13; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
CM-12	18-2	8 m x 10 m	ST: 8	ST: 0	ST: 8

Results: Negative

Description: Rectangular-shaped bench with a southerly solar aspect, situated just upslope (east of) CM12 STL-18-1 and along a consistent ridgeline that ascends eastward and defines the southern terminus of Crown Mountain. Shovel tests were excavated at 3-4 m intervals in two linear transects that paralleled western margin.

This STL is along the southern boundary of the proposed south extraction pit.

Appendix A: Figure 5; *Appendix B:* Photo 14; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-1	30 m x 20 m	ST: 16	ST: 1	ST: 15

Results: DkPq-15 – site polygon B

Description: Triangular-shaped spur situated along the prominent margin of an expansive terrace level that has a southerly solar aspect and overlooks the confluence of area of West Alexander and Alexander Creeks. The erosional scarp that fronts the landform was subjected to a visual inspection, and a navigable ridgeline descends southward from the apex of the terrace tread. A relict/seasonal drainage is present to the west, which physically separates this STL from C20-72 STL-18-02 (summarized below). Shovel tests were excavated in a grid-like pattern at 3-6 m intervals, and produced positive results with the recovery of precontact lithic artifacts from a single shovel test (ST2) located near the apex of spur and just north of the southerly descending ridgeline; the inspection of this STL contributed to the recording of archaeological site **DkPq-15**.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5; Appendix C: Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-2	25 m x 12 m	ST: 11	ST: 1	ST: 10

Results: DkPq-15 – site polygon A

Description: Triangular-shaped spur along the prominent margin of an expansive terrace level, situated east of a relict/seasonal drainage and immediately west of another drainage that physically separates this spur from C20-72 STL-18-1 (DkPq-15 – site polygon A [summarized above]). Relict/seasonal drainages are present to the east and west, with increased slope (15^{o}) ascending northward. The erosional scarp that fronts the terrace was visually inspected. Shovel tests were excavated at 3-6 m intervals in a grid-like pattern and produced positive results with the recovery of two lithic artifacts from a single shovel test (ST3) located near the apex of the spur; the inspection of this STL contributed to the recording of archaeological site **DkPq-15**.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5; *Appendix C:* Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-3	150 m x 15 m	ST: 41	ST: 0	ST: 41

Results: Negative

Description: Prominent south-southeast to north-northwest trending margin of the extensive terrace level that was previously described above (C20-72 STLs 18-1 and 18-2) and overlooks the confluence area of West Alexander and Alexander Creeks. The tread within this portion of the terrace is gently undulating and has a variable slope (3-8^{o}) that descends southward and blends into a deflated/erosional margin that is fronted by a steep (≥30^{o}) scarp. A relict/seasonal drainage physically separates this STL from STL 18-2. The timber stand that occupies the terrace level is dense and ingrown, and visibly lacks older-growth trees (≥100 years), which

is suggestive that a wildfire occurred within the last century. West of this STL, the terrace has been severely impacted by the construction of an old road grade. Shovel tests were excavated at 5-7 m intervals in two off-set linear transects that paralleled and were within 10-15 m of the terrace margin.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-4	60 m x 10 m	ST: 27	ST: 1	ST: 26

Results: DkPq-15 – site polygon C

Description: Southwest-northeast trending spur along the eastern periphery of an expansive terrace level that is situated above (upslope to the north) of the tread that contains C20-72 STL 18-1 (DkPq-15 Polygon B), 18-2 (DkPq-15 Polygon A), and 18-3 (negative results) that are summarized above. The east-southeastern margin is relatively prominent and situated above a steep scarp (60-70°) that descends to Alexander Creek approximately 50 m below. The south-southwestern margin of the spur is deflated and descends southward (8-15°) to the adjacent spur (STL 18-1). Shovel tests were excavated at 4-7 m intervals in two off-set transects that paralleled the margin and produced positive results with the recovery of two lithic artifacts from a single shovel test (ST1); the inspection of this STL contributed to the recording of archaeological site **DkPq-15**.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5; *Appendix C:* Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-5	30 m x 25 m	ST: 15	ST: 0	ST: 15

Results: Negative

Description: Southern terminus of a southeast-northwest trending margin of an elevated terrace level, situated above (north of) C20-72 STL-18-4 (summarized above). An incised relict/seasonal drainage separates this landform from an undulating knoll that is located to the northeast. Shovel tests were excavated at 3-5 m intervals in two offset linear transects that paralleled the terrace margin.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5*; Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-6	30 m x 20 m	ST: 13	ST: 0	ST: 13

Results: Negative

Description: Southern terminus of a southeast-northwest trending margin, located on a terrace level situated above (north of) C20-72 STL-18-5 (summarized above). An old, southwest-northeast trending road grade bisects the southwestern terrace margin and terminates near the southern end of the terrace margin. Shovel tests were excavated at 3-5 m intervals in two off-set linear transects that paralleled the margins of the landform.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5*; Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-72	18-7	30 m x 5 m	ST: 6	ST: 0	ST: 6

Results: Negative

Description: East-west trending margin of a narrow terrace that contains a level tread and southerly solar aspect, situated on the same terrace level as C20-72 STL 6 (summarized above). Branch C, Grave Creek FSR bisects the northeastern corner of the terrace. Shovel tests were excavated at 5-7 m intervals in a single transect within 5-6 m of and paralleling the margin.

This STL is not currently within the Phase III development footprint.

Appendix A: Figure 5*; Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-89	18-1	10 m x 8 m	ST: 5	ST: 0	ST: 5
Results: Negative					
Description: A narrow structural bench that forms a slope break (5-8°) with a southerly solar aspect amongst undulating steep (20-30°+) slope along the east-northeastern side of West Alexander Creek. An unnamed access road for drill site GW9a-BR & OB bisects the northeastern side of the slope break. Large sub-angular boulders were protruding from the margin, shovel tests were excavated at 2-3 m intervals in a grid-like pattern, comprised of two east-west transects avoiding constraints placed by the timber stand and rocky exposures. This STL is not currently within the Phase III development footprint. *Appendix A:* Figure 5*; Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-91	18-1	10 m x 5~8 m	ST: 4	ST: 0	ST: 4
Results: Negative					
Description: A north-south trending rocky ridge located along the west-southwest side of West Alexander Creek, and adjacent to (east of) a small wetland that has formed from surficial runoff of steep slope to the west of the STL. Shovel tests were excavated at 3-4 m intervals in a grid-like pattern, constrained by dense deadfall and rocky exposures. The inspection revealed a very rocky matrix underneath a thick moss litter mat. This STL is within a proposed spoil area. *Appendix A:* Figure 5*; Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-95	18-1	20 m x 10 m	ST: 10	ST: 0	ST: 10
Results: Negative					
Description: Elevated (±20-25 m), north-south trending terrace with a level tread amidst undulating terrain along the eastern side of the West Alexander Creek. A mature spruce stand and relatively thick understory, mostly comprised of twinberry, occupies this locality. Shovel test were excavated at 5-7 m intervals in two linear transects paralleling the terrace margin, constrained by vegetation. A rocky matrix was revealed. This STL is within a proposed spoil area. *Appendix A:* Figure 3*; Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-95	18-2	15 m x 10 m	ST: 6	ST: 0	ST: 6
Results: Negative					
Description: Small, triangular-shaped bench located at the southern terminus of an elevated terrace level along the eastern side of West Alexander Creek; this locality overlooks the confluence of a deeply incised tributary drainage. Shovel tests were excavated at 3-5 m intervals in a grid-like pattern. This STL is within a proposed spoil area. *Appendix A:* Figure 3*; Appendix B: Photo 14; Appendix D:* Stratigraphy Log					

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-97	19-1	40 m x 5~15 m	ST: 22	ST: 0	ST: 22
Results: Negative					
Description: Northwest-southeast trending bedrock-controlled ridge with a variable (5-10°) southward-sloping tread. This locality is bound by an incised tributary drainage to the east and a wetland to the west within West Alexander Creek. Shovel testing commenced with one north-south trending transect and expanding into three parallel transects as the landform widened northward, and terminated as the terrain became increasingly					

undulating. Based on the irregular tread, shovel tests were excavated at variable 5-10 m intervals avoiding exposed rock and dense tree stands.

This STL is within a proposed spoil area.

Appendix A: Figure 3*; Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-97	19-2	60 m x 40 m	ST: 53	ST: 1	ST: 52
			TT: 1	TT: 0	TT: 1

Results: DkPq-18

Description: Elevated bench bound by an abandoned channel to the east, that is seasonally occupied with standing water and is continually saturated, and to the west by West Alexander Creek; this locality is ±50 m north of AOA polygon C20-97 STL-19-1 (summarized above). Shovel tests were excavated at 4-7 m intervals in a grid-like pattern covering the level tread of the landform.

The inspection produced positive results, with the recovery of a utilized flake of siliceous mudstone from a single shovel test (ST1) positioned in the central area of the landform; this resulted in the recording of archaeological site **DkPq-18**.

This STL is within a proposed spoil area.

Appendix A: Figure 3; *Appendix C:* Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-97	19-3	15 m x 10 m	ST: 13	ST: 0	ST: 13

Results: Negative

Description: Slope break (4-7^{o}) amongst variably-undulating 10-20^{o} slope that descends to the southwest towards a small wetland/lake. Shovel tests were excavated at 5-6 m intervals in a grid-like pattern covering the level portion of the landform.

This STL is within a proposed spoil area.

Appendix A: Figure 3; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-98	18-1	35 m x 10 m	ST: 14	ST: 0	ST: 14

Results: Negative

Description: Level to low-sloped (3-5°) toe of a small alluvial fan in proximity to (northeast of) a [tarn-like] wetland area within a deeply-incised basin that forms the headwater of West Alexander Creek. This locality is positioned at the base of very steep slope (≥30^{o}) that is comprised of both talus debris (eastward) and dense forest stands (northward); to the west and south the terrain levels out, but is saturated year-round and occupied by wetland vegetation. A game/outfitter trail travels through this locality and continues northward to a pass (containing site DkPq-17 – Polygon A), which connects with a southward sloping tributary basin of Grave Creek.

Shovel tests were excavated at 5-7 m intervals in two southeast-northwest trending transects focusing on level to gently-sloping (3-5^{o}) ground in proximity to the toe of the fan. The inspection revealed a dynamic depositional setting, with an abundance of woody debris within recently deposited gravels (fanglomerate) that has recently piled up and has covered the base of the current tree stand. Recent recreational/outfitting activity (≤ 50 years) is evidenced by a rusted metal fire ring.

This STL is within a proposed spoil area.

Appendix A: Figure 3; *Appendix B:* Photo 15; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-99	18-1a	90 m x 20 m	ST: 30 EU: 1	ST: 18 EU: 1	ST: 12 EU: 0
	18-1b	60 m x 10m	ST: 10 TT: 6	ST: 0 TT: 0	ST: 10 TT: 6
	18-1c	40 m x 20 m	ST: 21	ST: 2	ST: 19
	18-1d	20 m x 20 m	ST: 17	ST: 2	ST: 15
	19-1	180 m x 25~50 m	ST: 162 TT: 6	ST: 8 TT: 0	ST: 154 TT: 6
	Totals:		ST: 240 TT: 12 EU: 1	ST: 30 TT: 0 EU: 1	ST: 210 TT: 12 EU: 0

Results: DkPq-17 Polygons A, B, C, D & E

Description: High elevation (1907~1920 m asl) level to variably-sloped terrain within a northwest-southeast trending pass that connects the West Alexander Creek drainage (to the south) and a tributary drainage basin to Grave Creek (to the north). This area contains a number of archaeologically-salient micro-topographic features that are defined by natural processes (*e.g.* slope wash and drainage patterns) which have been bisected by exploration activity (*i.e.* access road to drill site BH18-PP2); this area was thoroughly inspected as a general locality in 2018, with efforts continuing into 2019 (*i.e.* STL 19-1) based on the preliminary analysis of archaeological material and landform interpretation.

STL 18-1a: Narrow, northwest-southeast trending trough-like depression that contains a well-incised game/outfitting trail. The surface inspection resulted in the collection of one exposed lithic artifact (quartz) and one specimen of FAR. Shovel tests were excavated in parallel transects that were bound by steep slope to the east and west, and produced positive results for lithic artifacts (n=62) and fire-altered rock (n=112); this resulted in the delimitation of polygon A of site DkPq-17. Note that shovel test ST3 revealed a hearth-like feature comprised of a concentration of FAR and charcoal, and was expanded into an EU (1.0 x 0.5 m) to inspect the stratigraphic profile and attempt to obtain a suitable organic sample(s) for AMS dating; although two charcoal-rich sediment samples were collected from this EU in 2018, laboratory analysis in February 2020 determined that the samples and the contexts were not suitable for radiometric analysis.

STL 18-1b: Northwest-southeast trending, rounded-profile bench/spur, upslope (east-northeast of) and overlooking STL 18-1a. The northern portion of this landform has been severely impacted by previous road construction, and a wind event had toppled several trees, six of which had large tree throws (>1m dimeter), which were subjected to manual sorting (*i.e.* screening). Linear testing to the south and grid-like inspection pattern to the north. This STL produced negative results for precontact archaeological material.

STL 18-1c: Elevated bench with a northwest-southeast trending margin and an undulating tread and fronted by a gently (10°) sloped scarp that descends to the southwest to a lower bench (STL 18-1d). The locality containing this bench has been previously subjected to a timber harvest (10-15 years ago) and has been bisected from 18-1b by road construction (access to drill site BH18-PP2). Shovel tests were excavated in 2-5 m intervals in a grid-like pattern, which produced positive results with the recovery of four lithic artifacts (ST 21 and 22), which defined polygon C of site DkPq-17.

STL 18-1d: Remnant portions of three benches that have been bisected by road construction (access to drill site BH18-PP2), and previously subjected to a timber harvest. Shovel tests were excavated in 2-3 m intervals in grid-like patterns or small transects to cover terrain that remained intact. Shovel testing on one small bench to the north of the access road resulted in the recovery of 19 lithic artifacts (ST 19 and 20), which defined polygon B of site DkPq-17.

STL 19-1: Elevated northwest-southeast trending bench with a level to variably-sloped ground surfaces that blends into undulating slope to the north and terminates in a spur-like feature to the south, which overlooks a deeply-incised ephemeral creek to the east. This STL is situated upslope to the northeast of STL 18-b and 18-c and has been bisected by a exploration road and Grave Creek FSR Branch C, including associated disturbance (*e.g.* push-outs, windrows, and ditch/slope cuts), defines the northern boundary of the STL; to the

north of Branch C is a terrain previously assessed under 2013-0077 (Liddy and Tamasi 2015). The northern portion of this STL has been subjected to logging, as evidence by scattered overburden, bladed areas and machine-cut, relatively-wide stumps; the southern portion of the STL is occupied by an alpine forest with an extremely-dense understory (*e.g.* alder, twinberry, and rhododendron) that obscured the ground surface.

Shovel tests were excavated at 4-7 m intervals in a grid-like patterns, which effectively covered the level to low-sloped (3-10º) portions of the landform; this resulted in the recovery of 13 lithic artifacts from eight shovel tests, which defined polygons D and E of site DkPq-17.

This STL is within the general locality that is to be occupied by a processing plant, overland conveyor and site-supporting infrastructure components.

Appendix A: Figure 3; *Appendix C:* Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-100	18-1	40 m x 20 m	ST: 14 TT: 5	ST: 0 TT: 0	ST: 14 TT: 5

Results: *Negative*

Description: Small knoll with a north-south trending, gently rounded-profile apex and defined by relatively steep slope to the east and west. Shovel tests were excavated in 4-6 m intervals in a grid-like pattern covering the apex of the knoll, but the inspection was severely constrained by visibly rocky areas and the density of the tree stand with semi-protruding root systems; several tests were abandoned due to extremely dense, wide-diameter roots and angular rock clasts.

This STL is not within the Phase III development footprint, but is situated between a surface extraction area (to east-northeast) and a proposed spoil area (to the west).

Appendix A: Figure 3; *Appendix B:* Photo 16; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
C20-101	18-1a	12 m x 8 m	ST: 12	ST: 0	ST: 12
	18-1b	20 m x 5~10 m	ST: 15	ST: 0	ST: 15
	18-1c	8 m x 5 m	ST: 7	ST: 0	ST: 7
		Total:	ST: 23	ST: 0	ST: 23

Results: Site DkPq-11 (revisit)

Description: This STL encompasses the locality that contains previously recorded site area of DkPq-11, which is currently comprised of an isolated single unifacially re-touched flake of siliceous dolomite that was discovered on a deflated ground surface in 2012 (Choquette) and recorded in 2013 (Tamasi 2014). The boundary of site DkPq-11 was recorded with a combination of natural and observed boundaries (30 m x 15 m), which would have been recorded as a 5 m by 5 m site area under contemporary standards. The area has been severely impacted by road construction and exploration activity, which has produced an abundance of fortuitous exposures for visual inspection. Three micro-topographic features were inspected, but no additional precontact archaeological material was recovered from this locality.

STL 18-1a: The consistently sloped (5-15°) terrain along the southern side of an east-west trending saddle along a ridgeline that ascends westward towards the summit of Crown Mountain; an old access road is present to the north and Branch C, Grave Creek FSR is present to the east, both of which have effectively destroyed those respective portions of the landform. Based on the location of the previously discovered archaeological artifact (remnants of flagging tape present), a grid-like pattern of shovel tests was excavated at 2-3 m intervals, which revealed extremely shallow stratigraphy with a patchy ground cover vegetation, and some aeolian silt and degraded bedrock overlying the intact, friable Fernie Formation shales. Where slope (≥15º) increases within and adjacent to the site boundary, shovel testing was not implemented, but visual inspection occurred on the delated ground surface that bisected by numerus run-off channels.

STL 18-1b: Small northwest-southeast trending knoll/bench situated upslope (west) of the aforementioned STL 18-1a and surrounded by consistent 20-30° slope descending to the north, east and south. Shovel tests were

excavated at 2-4 m intervals in a grid-like pattern covering the tread of the knoll and revealed consistently shallow stratigraphy.

STL 18-1c: Small bench with an easterly aspect that is upslope (west) of the aforementioned STL 18-1b and situated at the base of a talus slope that ascends steeply westward to the summit of Crown Mountain. Shovel tests were excavated at 2 m intervals in a grid-like pattern.

This STL is in proximity to, but not currently within the Phase III development footprint.

Appendix A: Figure 5; *Appendix C:* Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
Judgemental-18-1	18-1	30 m x 30 m	ST: 27 EU: 1	ST: 0 EU: 1	ST: 27 EU: 0

Results: DkPq-16

Description: Relatively wide saddle positioned between two peaks along an east-west trending segment of a Crown Mountain ridgeline and overlooks Alexander Creek valley to the northeast. Surficial runoff patterns have incised a series of drainage gullies that direct flow southward into the West Alexander drainage; this is opposed to the steep cliff-like margin that defines the northern side of the saddle. To the east the ridgeline ascends up to a prominent peak (HAP1 [summarized above]), and to the west, an abundance of ground disturbance, associated with previous road construction and exploration activity, has severely scarred the ground surface.

This locality is not within a previously defined AOA polygon, but the presence of archaeologically-salient terrain induced a thorough surface survey within the locality and subsurface inspection. The abundance of mechanically-created exposures, along with naturally-deflated areas tests indicated that pockets of a fine sediment cap remained, and shovel tests were excavated at 3-10 m intervals in a grid-like pattern, judgmentally avoiding dense timber stands and disturbance that had exposed bedrock; testing was implemented on surficially-disturbed areas to understand the depth of previous disturbance. The subsurface inspection produced positive results with the recovery of one retouched flake of siliceous argillite. Based on the negative results surrounding this ST, it was expanded into EU1 (1.0 m x 1.0 m), which resulted in the recovery of a flake fragment of Etherington chert.

This STL is situated within the proposed east extraction pit.

Appendix A: Figure 4; *Appendix C:* Site Information; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
Judgemental	19-1	100 m x 50 m	ST: 13	ST: 0	ST: 13

Results: Negative

Description: Two east-west trending bedrock-controlled ridges amongst a faulted, southward-descending talus slope along the southern side of Crown Mountain. Talus is comprised of all sizes of clasts, but immense boulders and large slabs of fractured bedrock rock are scattered throughout this locality, in some cases forming sheltered areas that resemble rock shelters. Several crevasses are present that offer natural petroforms that appear as cache-like alcoves; these were thoroughly inspected for the presence of rock art and evidence of occupation, but all rock surfaces appeared to be relatively recent (≤100 years) based on a comparison of lichen coverage and fracture patterns. The basal portion of these natural petroforms were visually inspected, and manual sorting (*i.e.* screening) occurred where fine sediment was present.

This rocky landscape is not within a previously defined AOA polygon, but was subjected to subsurface inspection based on the unique setting and fortuitous availability of petroforms. The placement of shovel tests was judgemental, and focused on small depressions that served as sediment traps, located along the crest of the ridges and within the low-lying terrain.

This STL is in proximity to the south extraction pit, but not currently within the Phase III development footprint.

Appendix A: Figure 5; *Appendix B:* Photos 17 & 18; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
Judgemental	19-2a	10 m x 12 m	ST: 10	ST: 0	ST: 10
	19-2b	9 m x 6 m	ST: 10	ST: 0	ST: 10
		Total:	ST: 20	ST: 0	ST: 20

Results: Negative

Description: Two small benches amongst a fairly continuous slope (≥30°) that descends southward along the southern side of Crown Mountain. This sloped landscape is not within a previously defined AOA polygon, but was inspected as it appears to be a navigable route that ascends the southern ridgeline of Crown Mountain, and leads to HAP 4 (summarized above). Shovel tests were excavated at 2-3 m intervals in a grid-like pattern, which effectively covered; a thorough visual inspection was completed on the deflated margin of the bench.

These STLs are in immediately adjacent to (south of) the south extraction pit.

Appendix A: Figure 5; *Appendix B:* Photo 19; *Appendix D:* Stratigraphy Log

AOA Polygon	***STL***	***Dimensions (L x W)***	***Subsurface Tests***		
			Total	***Positive***	***Negative***
Judgemental	19-3a	20 m x 12 m	ST: 22	ST: 0	ST: 22
	19-3b	5 m x 5 m	ST: 5	ST: 0	ST: 5
	19-3c	7 m x 5 m	ST: 6	ST: 0	ST: 6
		Total:	ST: 33	ST: 0	ST: 33

Results: Negative

Description: Relatively prominent peak along the northern segment of the crest of Crown Mountain as it descends to the northeast to the valley bottom of the upper Alexander Creek drainage. The STL offers a view shed with both North Fork Pass and Tornado Pass visible and is suggestive of a vantage point for navigation along a travel corridor (see Section 6.3). The STL is comprised of three micro-topographic features that are summarized below.

STL 19-3a: Slope break with an increasing westward slope (5-15°) situated immediately downslope (west of) a prominent bedrock knoll (STL-19-2b [below]). Extremely steep slope (>30°) defines this area the north, west, and south-southwest. Shovel tests were judgmentally-excavated at 2-5 m intervals in a grid-like pattern at 2-4 m intervals to avoid dense tree stands and to focus on surfaces with lower slope.

STL 19-3b: Prominent peak comprised of a sandstone outcropping situated upslope (east) of STL-19-3b (above), with ridgelines extending southward and to the northeast; steep slope (>30°) is present to the east. A timber stand is absent in this area, but low-cut stumps remain and has been attributed to previously hand-clearing of vegetation to facilitate a landing pad for helicopter work associated with wild fire suppression. Shovel tests were judgmentally-excavated at 1-2 m intervals, avoiding exposed bedrock and focusing on areas that were perceived to have sediment accumulation.

STL 19-3c: Narrow, rounded-profile saddle situated downslope (north) of STL 19-3b, and upslope (southeast) of STL 19-3a. A bedrock outcrop is to the south and contributes to a southward trending ridgeline. Shovel tests were judgmentally-excavated at 2-3 m intervals, and focused on low-slope terrain (3-8°) where sediment accumulation was suspected.

These STLs are in proximity to (northeast of) the east extraction pit, but not currently within the Phase III development footprint.

Appendix A: Figure 3; *Appendix B:* Photos 2 and 20; *Appendix D:* Stratigraphy Log

7. ARCHAEOLOGICAL SITE SUMMARIES

7.A	*Borden No.*	**DkPq-11**	*7.A1*	*New/Revisited:*	Revisited
7.A2	*Site Type:*		Precontact, Cultural Material, Surface Lithic		
7.A3	*Impact Assessment:*		As currently defined, the site is not within the development footprint, and located ±05 m south of the east extraction pit and ±05 m north of the south extraction pit; therefore, the site area will not be directly impacted by the proposed development.		
7.A4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.A5	*Significance Evaluation:*		**Scientific:** *Moderate* The site is comprised of a single, unifacially retouched flake of siliceous mudstone that was discovered on a deflated ground surface in 2012 (Choquette) and recorded/collected in 2013 (Tamasi 2014). Attributes on the lithic artifact indicate reduction from a biface core, a technology that is considered to be of a relatively old age, and previously estimated to date between 7000 – 11,000 years before present (*ibid.*). The site's location, situated in proximity (±150 m) to the highest summit along the crest of Crown Mountain, confirms precontact use and occupation within this high elevation setting. The viewshed offered by this location is favourable for aiding in navigation (*i.e.* view of Continental Divide to the east). The site function is likely associated with hunting activity and/or north-south trending travel within the Alexander Creek drainage. The significance of the site has been downgraded (*i.e.* high to moderate) based on the discovery/recording of additional archaeological sites on Crown Mountain. Subsurface inspection implemented in 2018 did not result in the recovery of any additional artifacts, and the deflated context of the site was confirmed with a variable litter mat overlying friable bedrock (Fernie Formation shale). It is suspected that no additional precontact cultural material is present in this location; the deflated matrix within the site area, combined with the extent of previous disturbance has severely impacted the context of the site. The presence of additional information to contribute to the local archaeological record is not anticipated. **Public*:*** *Low* Currently, access into the locality that contains this site is constrained to vehicles that have rugged/off-road capabilities, and should the mine plan be implemented, public access would likely be prohibited for safety considerations. Although the viewshed offered from the locality of the site would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways and may contribute to a generalized understanding of precontact history in the region, the level of previous disturbance, combined with an absence of exposed artifacts and features would not further an interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nation's have expressed that all archaeological sites have *high* cultural significance and		

		relay ancestral lifeways. This site confirms precontact use of high-elevation settings and inter-montane travel within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.B	*Borden No.*	**DkPq-15**	*7.B1*	*New/Revisited:*	New
7.B2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.B3	*Impact Assessment:*		As currently defined, the site, comprised of three separate polygons (A, B & C), is not within the development footprint, and located ±850 m southeast of a proposed spoil area (West Alexander Creek valley) and ±870 m south of the south extraction pit; therefore, the site areas will not be directly impacted by the proposed development.		
7.B4	*Management Recommendations:*		1) Site avoidance during implementation of the mine plan; 2) Should aspects of the mine plan be revised in the future and avoidance is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.B5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* The site is comprised of a sparse subsurface lithic scatter, indicating sporadic precontact occupation occurred within this locality over several millennia and resulted in the deposition (*i.e.* disposal) of lithic debitage on three spur-like features that are situated along the southern margin of an elevated terrace level (±1570 m asl); this locality overlooks the lower Alexander Creek valley and the confluence area with the West Alexander Creek drainage. The level ground surface present here offers a favourable setting for a base-camp for resource procurement and accessing/egressing the north-south trending crest of Crown Mountain for travel or high-elevation hunting activity. The artifact assemblage currently consists of 13 pieces of lithic debitage (tourmalinite [n=12] and siliceous mudstone [n=1]) recovered from three shovel tests; the depth of recovery ranged from 15-40 cm below surface and were situated within the B horizon of a Podzolic soil. While siliceous mudstone was procured locally from the Fernie Formation (*i.e.* Elk River valley), the prevalence of tourmalinite within the artifact assemblage is indicative of an east-northeastward trending direction of travel (or trade) from Rocky Mountain Trench, where this material type is known to outcrop within the Aldridge Formation, and precontact procurement has been previously documented in several localities along the eastern slopes of the Purcell Mountain Range (Choquette 1981). The recovered lithic artifacts are largely fragmented, but seven complete flakes are identified as tertiary [late-stage] lithic reduction; this corresponds to the re-sharpening or re-purposing of stone tools. **Public*:*** *Low* Currently, access into the locality that contains this site is constrained to vehicles that have rugged/off-road capabilities, and should the mine plan be		

		implemented, public access would likely be prohibited for safety considerations. Although the southern viewshed offered from the locality of the site would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways and may contributed to a generalized understanding of precontact history in the region, the dense timber stand that currently occupies the terrace level, combined with an absence of exposed artifacts and features would not further an interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nation's have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site confirms precontact use of high-elevation settings and inter-montane travel within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.C	*Borden No.*	**DkPq-16**	*7.C1*	*New/Revisited:*	New
7.C2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithics		
7.C3	*Impact Assessment:*		As currently defined, this site area, comprised of a buffer zone surrounding a single evaluative unit, would be located within the east surface extraction pit and will be impacted by the proposed development. Avoidance of the archaeological site has been determined to be unfeasible, and implementation of the mine plan will result in the site having a *Legacy Status*.		
7.C4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan. 2) Should implementation of the mine plan occur, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.C5	*Significance Evaluation:*		**Scientific:** *Low - Moderate* The site is comprised of a very sparse subsurface lithic scatter, which is indicative of sporadic precontact occupation and use of this locality (*i.e.* saddle situated along the crest of Crown Mountain). The site assemblage currently consists of two lithic artifacts; a retouched flake fragment of siliceous argillite and a flake fragment of Etherington chert, both of which were recovered from 5-10 cm below surface within a Podzol. The recovery of different lithic material types is suggestive of at least two occupations, but the context of the recovery locations (<1 m^2) indicates that further inspection would be required to confirm/refute this theory. Both siliceous argillite and Etherington chert are both locally procured, and precontact quarrying is known to have occurred within the Livingston Range (Continental Divide), which is located to the west of the site. The site is located on a high elevation saddle along the crest of Crown Mountain (north of highest summit) and provides a relatively sheltered vantage point that overlooks the upper Alexander Creek drainage to the north-northeast. The two fragmented lithic artifacts are suggestive of expedient tool production and likely represent the remnants of a small transient camp associated with inter-montane travel and/or high-elevation hunting activity. This site, along with DkPr-11 (located to the south) indicate		

		precontact use of the north-south trending crest of Crown Mountain as a travel corridor. The disturbed context of the terrain in proximity to the site reduces the potential for further artifact recovery and site interpretation, which lowers the significance level; conversely, the discovery of the site in a location that was not encompassed by an AOA polygon supports an increased significance level and this type of landform should be considered to have potential in adjacent landscapes. **Public*:*** *Low* While the site is in relatively proximity to the District of Sparwood, public access to the locality that contains this site is limited to vehicles that have rugged/off-road capabilities, and is further constrained seasonally by stipulations under the Alexander Creek Motor Access Management Area. Although the north-northeastern viewshed offered from the locality of the site would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways, the extent of previous disturbance, combined with an absence of exposed artifacts and features would not further an interpretation of this site. **Ethnic:** *High* Through discussions with in-field representatives, local First Nation's have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site confirms precontact use of high-elevation settings and inter-montane travel within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.D	*Borden No.*	**DkPq-17**	*7.D1*	*New/Revisited:*	New
7.D2	*Site Type:*		Precontact, Cultural Material, Surface/Subsurface Lithics & FAR		
7.D3	*Impact Assessment:*		As currently defined, this site would be in the general locality that is to be occupied by a processing plant, overland conveyor and site-supporting infrastructure components. Avoidance of the archaeological site has been determined to be unfeasible, and implementation of the mine plan will result in the site having a *Legacy Status*.		
7.D4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan. 2) Should implementation of the mine plan occur, further archaeological work in the form of systematic data recovery (i.e. evaluative units) to obtain additional information for this site and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4). Note that any topsoil identified as the cultural horizon will require 100% manual sorting to ensure sterility prior to removal from the site, or archaeologically-salient sediment will be required to remain within or immediately adjacent to the recorded site boundary.		

7.D5	*Significance Evaluation:*	**Scientific:** *Moderate – High* The site, as it is currently defined is comprised of five discrete polygons where subsurface artifact scatters, primarily lithic artifacts (along with some concentrations of FAR), were discovered within a mid-elevation pass that connects an un-named tributary drainage of Grave Creek (to the north) and the West Alexander Creek drainage (to the south). The pass is a sheltered locality in proximity to (west of) the crest of Crown Mountain and offers a route of least resistance between the two aforementioned drainages that continues to be utilized by animals; this is evidenced by a game trail. The context of the site, combined with the artifact assemblage (*i.e.* utilized lithic debitage, biface fragments, and an Oxbow-like projectile point) and the documentation of FAR (*i.e.* hearth-like feature) suggests that the site is associated with precontact hunting activity, and the northwest-southeast trending trough, which is the lowest portion of the pass, is well suited for implementing ambush tactics. While the sparse lithic scatters present within the higher-level site areas are suggestive of ancillary activities, the artifact density increased within the trough indicates that this linear feature is the focal point of precontact activity. The diversity of raw lithic material types (Top of the World chert, High Rock Range chert, Banff Formation chert, tourmaline, crystal quartz and siliceous mudstone) suggests extensive (opposed to intensive) use of and occupation within this locality over an extended time frame; this is evidenced by soil clinging to several of the recovered artifacts. Future inspection/investigation of this site will likely contribute to a greater understanding of the regional archaeological occupation sequence. **Public:** *Low* Currently, access into the locality that contains this site is constrained to vehicles that have rugged/off-road capabilities, and requires a traverse through irregular terrain, some of which is obscured by dense understory vegetation. Should the mine plan be implemented, the site area and its context would be impacted and public access would be prohibited. The northern portion of this locality has been subjected to a timber harvest, which currently offers a good overview of the landscape and archaeologically-favourable micro-topography can be identified; this would facilitate a discussion regarding geomorphological processes that influenced precontact lifeways. While there is some potential for sporadically-exposed artifacts to be present along game trails and within anthropogenic disturbances (*e.g.* road grades, windrows, and push piles) archaeological material and features are not easily visible. Site visitation would contribute to a general understanding of the local archaeological record and inter-montane travel routes that connect the Kootenay Region and the foothills/plains region to the east. **Ethnic:** *High* Through discussions with in-field representatives, local First Nation's have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site confirms precontact use of high-elevation settings and inter-montane travel within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.

7.E	*Borden No.*	**DkPq-18**	*7.E1*	*New/Revisited:*	New
7.E2	*Site Type:*		Precontact, Cultural Material, Subsurface Lithic		
7.E3	*Impact Assessment:*		As currently defined, this site area, comprised of a buffer zone surrounding a single positive shovel test, is located within a proposed spoil area and would be impacted by the proposed development. Avoidance of the archaeological site has been determined to be unfeasible, and implementation of the mine plan will result in the site having a *Legacy Status*.		
7.E4	*Management Recommendations:*		1) Site avoidance until acceptance/implementation of the currently proposed mine plan. 2) Should implementation of the mine plan occur, further archaeological work in the form of systematic data recovery (i.e. evaluative units) to obtain additional information for this site and monitoring will be required under a concurrently-issued Heritage Inspection Permit (*HCA* Section 12.2) and Site Alteration Permit (*HCA* Section 12.4).		
7.E5	*Significance Evaluation:*		**Scientific:** *Low - Medium* The site is comprised of an isolated lithic artifact (*i.e.* utilized flake fragment of siliceous mudstone) recovered from a single shovel test (ST1) at 15-20 cm below surface; an abundance of shovel tests (n=76 [*i.e.* C20-97 STLs 19-1 & 19-2]) excavated in proximity to the site did not result in the discovery of any other precontact cultural material. The recovery of an isolated artifact, created from locally-procured raw lithic material, in this location suggests low intensity use /occupation of the landform, and the use wear present on the flake fragment suggests a transient campsite, unspecified satellite activity associated with site DlkPr-17 (located 0.6 km to the northwest), and/or resource procurement. The site's location assists in identifying precontact travel (*i.e.* secondary order corridor) through the West Alexander Creek drainage. Future inspection in the locality of the site is not anticipated to result in the recovery of additional artifacts or obtain additional information regarding the function of the site. **Public:** *Low* Currently, access into the locality that contains this site is constrained to vehicles that have rugged/off-road capabilities, and requires a traverse through irregular and sloped terrain, some of which is obscured by dense understory vegetation. Should the mine plan be implemented, the site area and its context would be impacted and public access would be prohibited. Prior to development, visitation would not increase understanding of the archaeological site or the local archaeological recorded due to the low density of artifacts and absence of visible archaeological artifacts/features. **Ethnic:** *High* Through discussions with in-field representatives, local First Nation's have expressed that all archaeological sites have *high* cultural significance and relay ancestral lifeways. This site confirms precontact use of high-elevation settings and inter-montane travel within the Rocky Mountains. **Economic:** *Low* Economic opportunities are unlikely to present themselves based on constrained access to the site, the extent of the currently defined site areas, and the artifact assemblage. **Historical** – *N/A* A historical component associated with this site has not been identified.		

8. DISCLOSURE STATEMENT & SIGNATURE

Five precontact archaeological sites (DkPq-11, DkPq-15, DkPq-16, DkPq-17, and DkPq-18) are recorded within or in proximity to the Phase III (Mine Site) development footprint.

As currently defined, avoidance of DkPq-16, DkPq-17, and DkPq-18 during implementation of the mine plan is not considered feasible, and impacts to the localities that contain these three archaeological sites are anticipated; therefore, further archaeological investigation, including systematic data recovery (*e.g.* evaluative excavation) and archaeological monitoring will be required under concurrent *Heritage Conservation Act* Section 12.2 (Heritage Inspection) and Section 12.4 (Site Alteration) Permits. Additionally, the potential for undiscovered precontact cultural material or features was identified in four locations where a rocky subsurface matrix negated the implementation of subsurface archaeological inspection; three of the HAP areas (1, 3, and 4) are situated within the development footprint, and archaeological monitoring under the aforementioned Section 12.2. permit is recommended if/when ground disturbing activity is anticipated.

Sites DkPq-11 and DkPq-15, along with HAP 2, are not within the Phase III development footprint, and direct impacts to the localities that contain the archaeological sites, or potential for, are not anticipated.

Although impacts to pertinent precontact archaeological sites have been provided in Section 7 (above), any revision(s) to the currently proposed mine plan could shift development footprints and result in direct or indirect impacts to the archaeological resources identified within this report; therefore, the Proponent is to be aware of the location of archaeological sites and the HAP areas should ground disturbance be required in these areas in the future. To facilitate awareness of archaeological resources, a shapefile delimiting the site boundaries and HAP areas has been provided to the Proponent.

The archaeological assessment, involving a combination of systematic and judgmentally-implemented surface and subsurface inspection techniques, completed on the Phase III development footprint was thorough, but the potential for isolated precontact cultural material (*e.g.* artifacts) or remnants of features (*e.g.* a hearth or petroform) remains within the study area, and throughout the region. Precontact archaeological material associated with sporadic deposition (*e.g.* trail litter or *ad hoc* activity) may not be associated with micro-topographic features that are typically identified as archaeologically-salient and therefore remain un-inspected under permit 2015-0098. Additionally, precontact cultural resources, or the potential for, can be obscured by contemporary vegetation stands and/or concealed by overburden deposits that were derived by both anthropogenic activity and natural processes. It is therefore recommended, that the Proponent inform all staff and contractors that archaeological remains in the Province of British Columbia are protected from disturbance, both intentional and inadvertent, by the *Heritage Conservation Act* (RSBC 1996, Chapter 187). In the event that archaeological materials are encountered or suspected the Proponent, employees and contractors are to be aware that:

- All ground disturbance in the immediate vicinity of the suspected find(s) must be suspended at once;
- The Archaeology Branch (Ministry of Forest, Lands, Natural Resource Operations, and Rural Development) be informed, as soon as possible, of the location of the archaeological remains and the nature of the disturbance; and
- Any relevant First Nation communities be promptly informed about particulars of the unanticipated discoveries.

Acceptance of this interim report by Archaeological Branch, Permitting and Assessment Section acknowledges the partial fulfillment of the terms and conditions of BC Heritage Inspection Permit 2015-0098. Such acceptance does not bring with it an obligation by the BC Archaeology Branch to accept report recommendations as they relate to impact assessments or impact management requirements.

<Original signed by>

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9. REFERENCES CITED

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10. REPORT DISTRIBUTION

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11. SHAPE FILES

☒ Study area shape files will be sent to archsiteform@gov.bc.ca

12. APPENDICES

Required:

☒ General Area Map – *Appendix A*
☒ Study Area Map – *Appendix A*
☒ Photo Plate(s) – *Appendix B*

If Applicable:

☒ Development Plan / Map – *Appendix A*
☒ Subsurface Test Log – *Appendix D*
☒ Site Forms, Site Maps and Related Documents - *Appendix C*
☐ Other Details:

Appendix A:
Archaeological Inspection
&
Development Maps

Heritage Inspection Permit
2015-0098

NWP Coal Canada Ltd.
Crown Mountain Coking Coal Project
Phase III – Mine Site

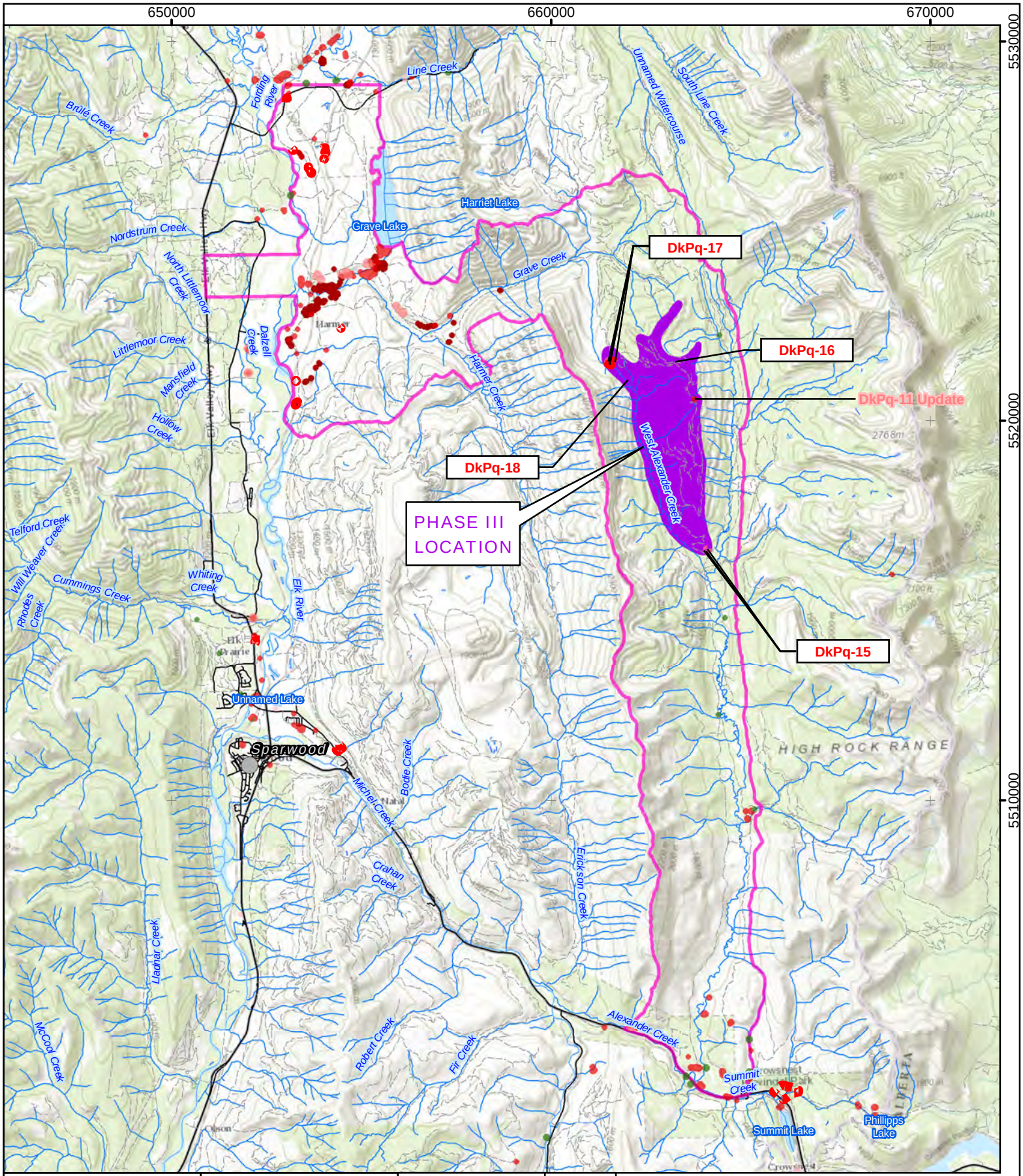

Figure: 1	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		**Legend:**
Permit: 2015-0098		BC / AB / INSET 1:40,000,000	Mapping by: Tipi Mountain	Archaeology LSA; Study Area (2018-19); New Precontact Arch Site Bdry (TMECS 2019); Precontact Arch Site Bdry (TMECS 2018); New Precontact Arch Site Bdry (TMECS 2017); Precontact Arch Site Bdry (RAAD 2019); Historical Arch Site Bdry (RAAD 2019); Legacy Arch Site Bdry (RAAD 2019); Municipality; Primary Road; Gravel Road; River; Lake; Water Feature
Title: Project Overview	Survey Date: Summer 2018-19			
Project: Crown Mountain Phase III	Mapping Date: 14/02/2020	1:130,000		
	0 1 2 4 Km			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

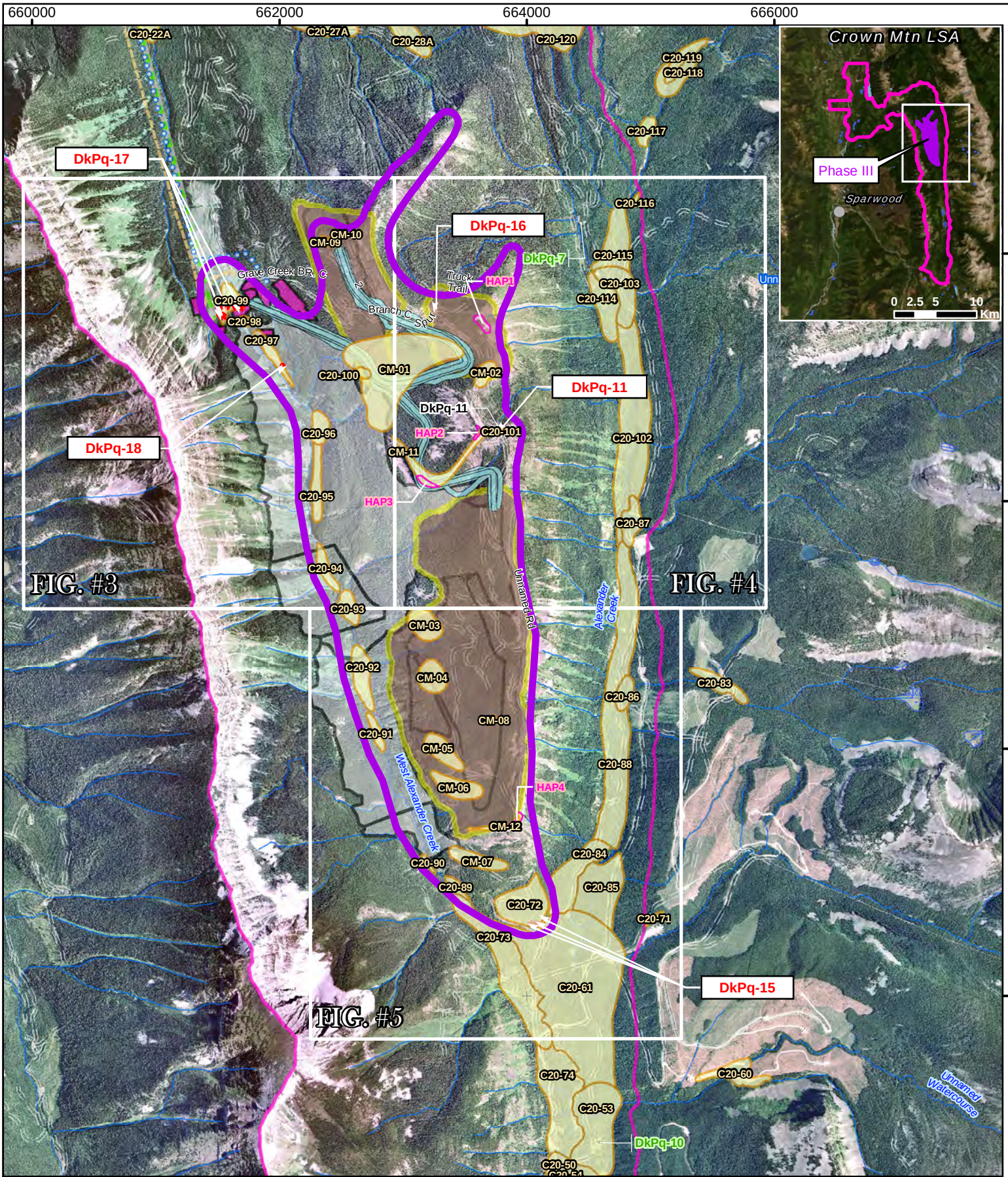

Figure: 2	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098	Survey Date: Summer 2018-19	BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain
Title: Phase III General Location	Mapping Date: 11/03/2020		
Project: Crown Mountain Phase III	0 250 500 1,000 m 1:40,000		

Legend: Archaeology LSA; Study Area (2018-19); New Precontact Arch Site Bdry (TMECS 2019); Precontact Arch Site Bdry (TMECS 2018); Precontact Arch Site Bdry (RAAD 2019); Historical Arch Site Bdry (RAAD 2019); High Arch Potential; Detailed Building Facilities (2018); Gravel Road; Wetland; Lake; Water Feature; Arch Potential Area (AOA - Crown Mountain); Access Road; Conveyor Option 1; Fresh Water Supply; Powerline; Surface Extraction Areas; Spoil Area

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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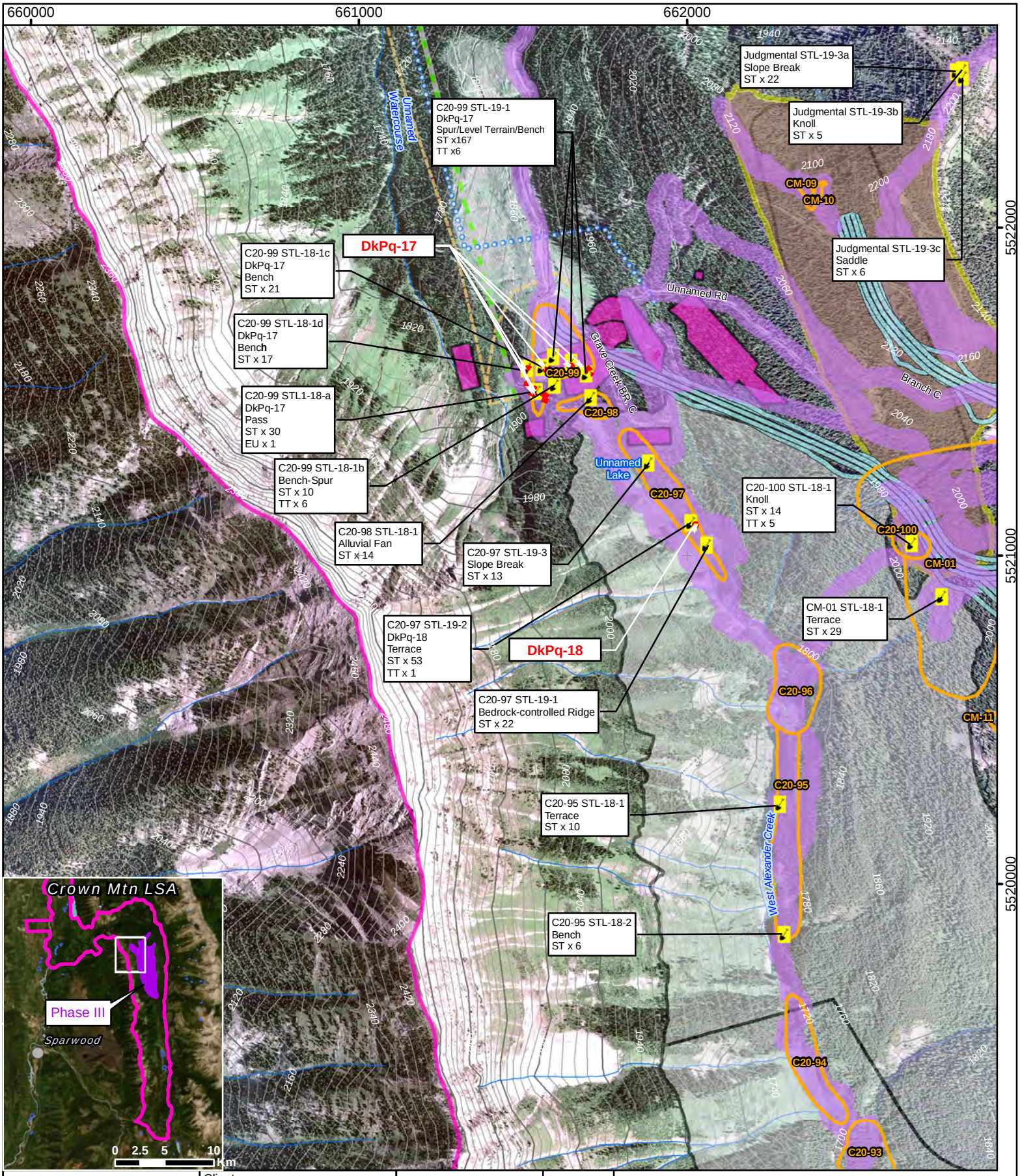

Figure: 3	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098			
Title: Phase III Midrange Area #1	Survey Date: Summer 2018-19		
	Mapping Date: 05/03/2020		
Project: Crown Mountain Phase III	1:15,000 0 100 200 400 m	INSET 1:40,000,000	

Legend:

- Shovel Test Location
- Traverse
- New Precontact Arch Site Bdry (TMECS 2019)
- Detailed Building Facilities (2018)
- Access Road
- Conveyor Option 1
- Fresh Water Supply
- Powerline
- Surface Extraction Areas
- Spoil Area
- Archaeology LSA
- Gravel Road
- Lake
- Water Feature
- Contour Line (20 m)
- Contour Line (100 m)
- Arch Potential Area (AOA - Crown Mountain)

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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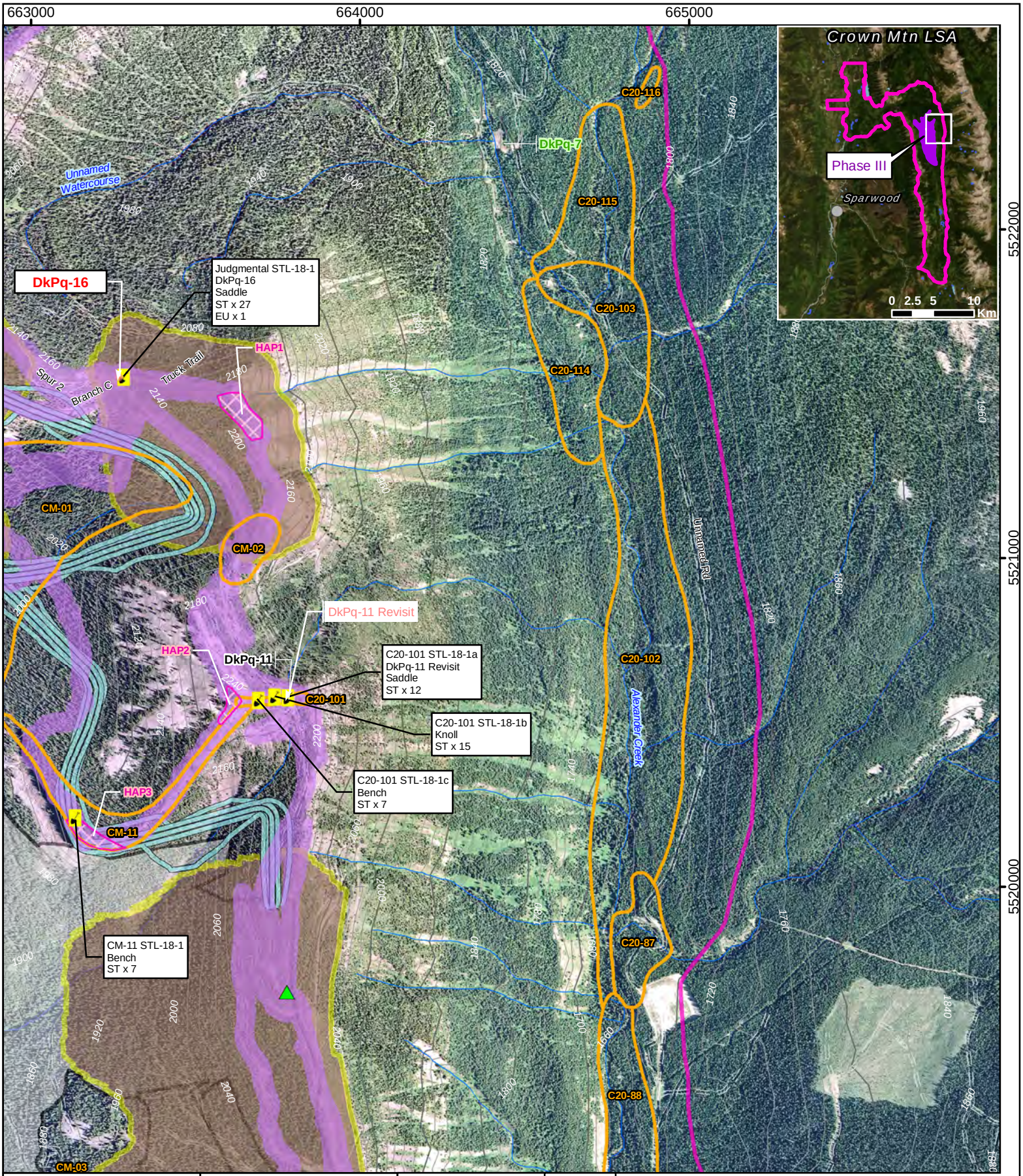

Figure: 4	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098	Survey Date: Summer 2018-19	BC AB INSET 1:40,000,000	
Title: Phase III Midrange Area #2	Mapping Date: 18/02/2020		
Project: Crown Mountain Phase III	0 100 200 400 m 1:15,000		

Legend:

- Shovel Test Location
- Traverse
- Precontact Arch Site Bdry (TMECS 2018)
- Precontact Arch Site Bdry (RAAD 2019)
- Historical Arch Site Bdry (RAAD 2019)
- Access Road
- Surface Extraction Areas
- Spoil Area
- Archaeology LSA
- High Arch Potential
- Gravel Road
- Water Feature
- Contour Line (20 m)
- Contour Line (100 m)
- Arch Potential Area (AOA - Crown Mountain)
- Historical (post-1846) CMT

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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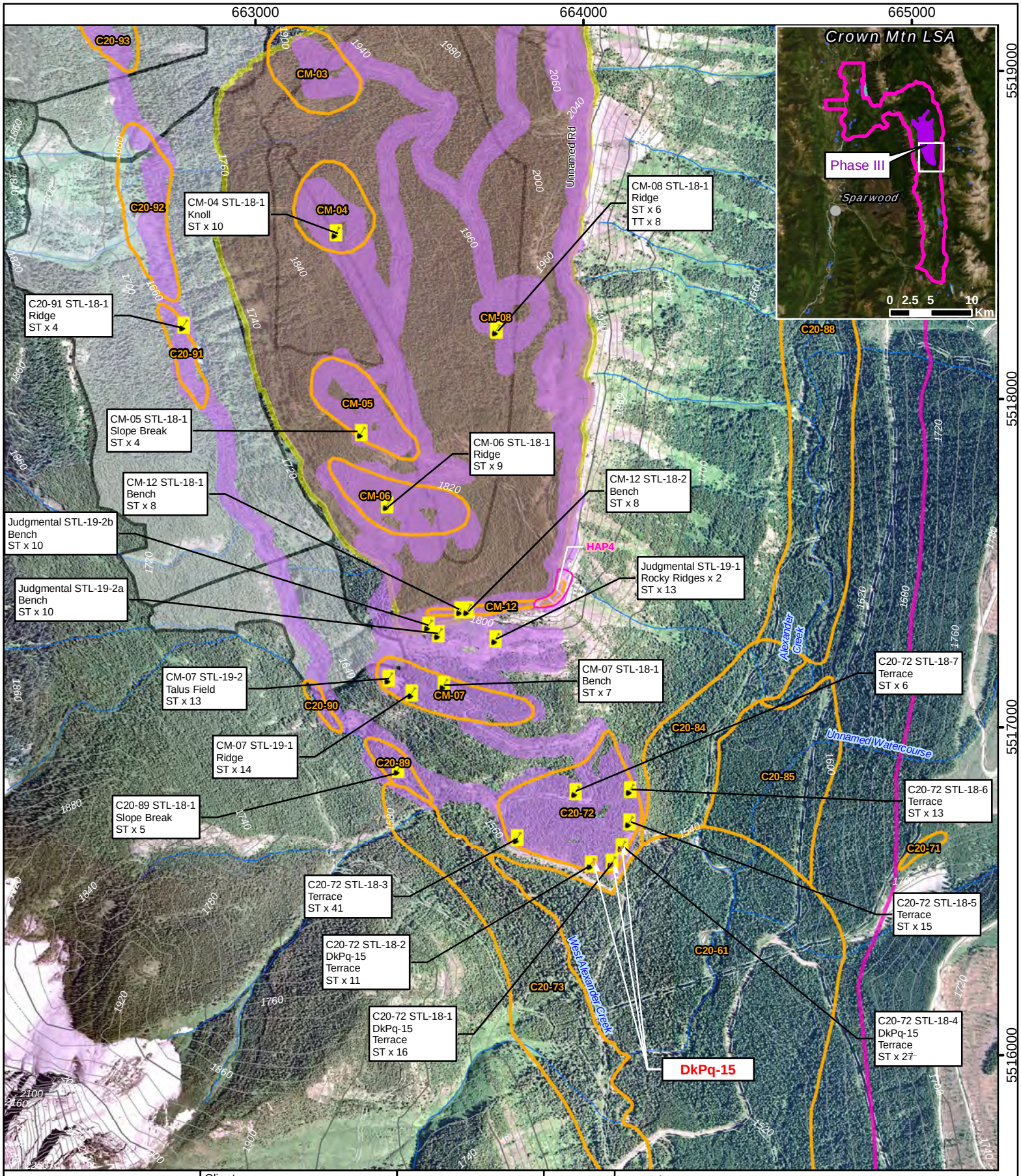

Figure: 5	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098		BC AB INSET 1:40,000,000	Traverse; Shovel Test Location; Precontact Arch Site Bdry (TMECS 2018); Surface Extraction Areas; Spoil Area; Archaeology LSA; High Arch Potential; Gravel Road; Water Feature; Contour Line (20 m); Contour Line (100 m); Arch Potential Area (AOA - Crown Mountain)
Title: Phase III Midrange Area #3	Survey Date: Summer 2018-19	Mapping by: Tipi Mountain	
Project: Crown Mountain Phase III	Mapping Date: 05/03/2020		
	0 100 200 400 m 1:15,000		

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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Appendix B:
Project Photograph Log

Heritage Inspection Permit
2015-0098

NWP Coal Canada Ltd.
Crown Mountain Coking Coal Project
Phase III – Mine Site

Photo 1. Culturally-modified tree that had the opposing blazed scars dated to *ca*. 1920-1927, which is attributed to early mineral exploration (*i.e.* prospecting) or outfitting activity; this white bark pine was situated along the crest of Crown Mountain. (view: north of the southern-facing blaze mark)

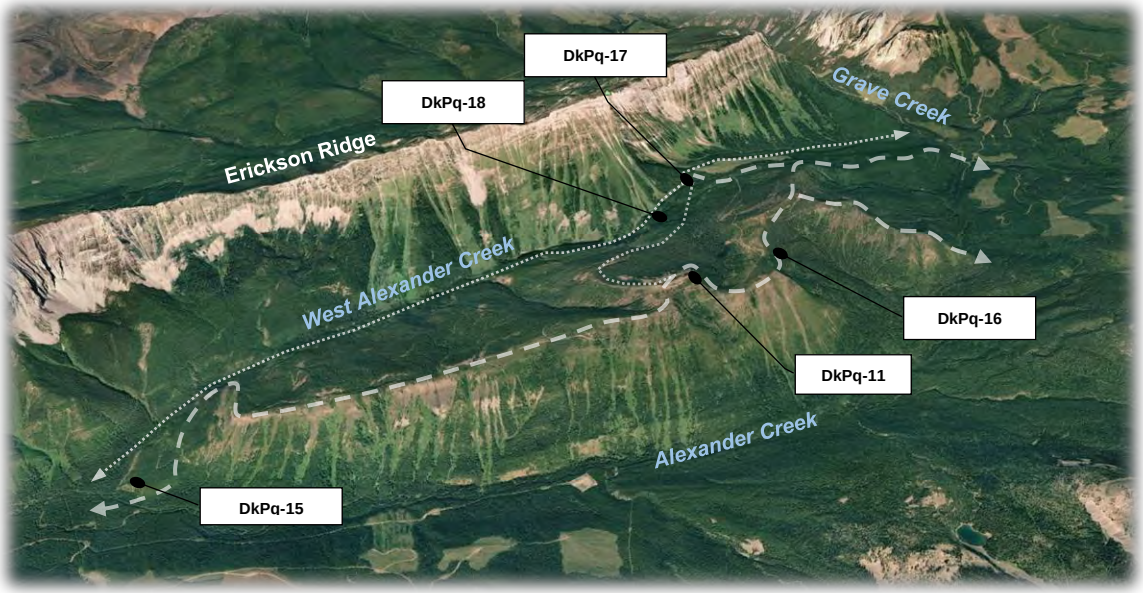

Photo 2. Crown Mountain, overview of the Phase III study area dominated by the north-south striking, westward dipping bedrock formation that creates an elevated, north-south travel corridor within the Alexander Creek valley. (view: west-northwest)
Suspected precontact travel patterns (primary=dashed line; secondary; dotted line) and locations of archeological sites are identified.

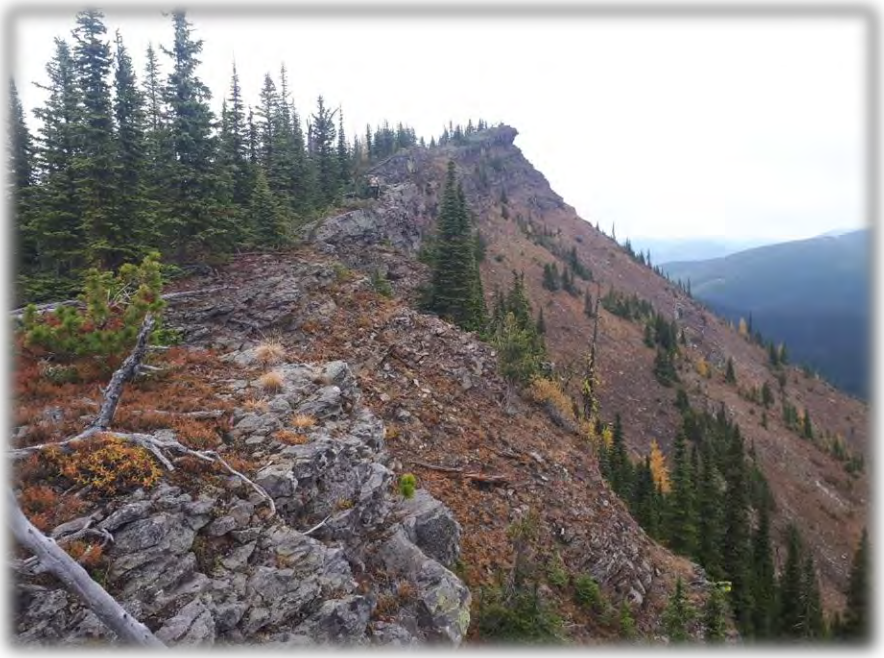

Photo 3. HAP 1, overview of prominent peak and adjacent northwest-southeast trending ridgeline. Note the consistently steep slope descending to the east (photo right) into the Alexander Creek valley. (view: north)

Photo 4. HAP 2, overview of the summit of Crown Mountain that overlaps with AOA polygons CM-11 and C20-101. Note the sparse ground cover and rocky matrix. (view: southeast)

Photo 5. HAP 3, representative overview of a rocky bench/prominence within AOA polygon CM-11 and situated to the north of a tributary drainage to West Alexander creek. (view: north-northwest)

Photo 6. HAP 4, overview of a prominent bend in the ridgeline (AOA polygon CM-12) that defines the southern terminus of the crest that defines Crown Mountain. (view: south)

Photo 7. AOA Polygon CM-01 STL-18-1, representative overview of shovel testing along the northeast-southwest trending terrace margin to the south of an incised, minor tributary drainage to West Alexander Creek. (view: north)

Photo 8. AOA Polygon CM-04 STL-18-1, representative overview of the north-south trending crest of a semi-prominent knoll. (view: southwest)

Photo 9. AOA Polygon CM-05 STL-18-1, overview of a minor north-south trending slope break. (view: south)

Photo 10. AOA Polygon CM-06 STL-18-1, overview of the eastern knoll along an east-west trending ridge situated amongst consistent slope. (view: west-southwest)

Photo 11. AOA Polygon CM-07 STL-19-2, overview of the rocky landscape and the implementation of shovel testing where sediment has accumulated amongst protruding boulders. (view: west)

Photo 12. AOA Polygon CM-11 STL-18-1, representative overview of the landform and the onset of shovel testing. (view: northwest)

Photo 13. AOA Polygon CM-12 STL-18-1, overview of shovel testing on a triangular-shaped bench situated along a ridge that ascends eastward and forms the southern terminus of Crown Mountain. (view: west)

Photo 14. AOA Polygon CM-12 STL-18-2; overview of a rectangular-shaped bench at the southern terminus of a terrace level along the eastern side of West Alexander Creek. (view: south-southwest)

Photo 15. AOA Polygon C20-98 STL-18-1, overview of a small alluvial fan at the base of steep slope in proximity to a [tarn-like] wetland that forms the headwater for the West Alexander Creek. (view: north)

Photo 16. AOA Polygon C20-100 STL-18-1, overview of the rounded apex of a north-south trending knoll. (view: southwest)

Photo 17. Judgemental STL-19-1, subsurface inspection along an east-west trending bedrock-controlled ridge situated within a southward descending talus slope to the south of Crown Mountain. (view: west)

Photo 18. Judgemental STL-19-1, supplemental overview of the rocky landscape that was subjected to subsurface inspection. (view: west-southwest)

Photo 19. Judgemental STL-19-2b, overview of a small bench with a southern aspect situated to the south of AOA CM-12 and north of AOA CM-07; this image is representative of STL 19-2a. (view: west-southwest)

Photo 20. Judgemental STL-19-3b, shovel testing on a prominent bedrock knoll, STL-19-2c is the small saddle visible in the background. (view: south)

Appendix C:
Archaeological Site Information

Heritage Inspection Permit
2015-0098

NWP Coal Canada Ltd.
Crown Mountain Coking Coal Project
Phase III – Mine Site

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **n/a**
Borden Number (site revisit): **DkPq-11**
Site Name(s):

2. LOCATION

3. TENURE/RESERVES

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/09/20**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Limited Crown Mountain Coking Coal Project: Phase III - Mine Site**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Joshua Martin (TMECS/Shuswap Indian Band [SIB])**	**Y**
Other	**TJ Bone (TMECS), Mathias Ladd (TMECS), Shea Turner (TMECS)**	**Y**

5. SITE TYPOLOGY

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

12. STRATIGRAPHY

Stratigraphy Description: **Representative stratigraphy from a negative shovel test: 0-1 cm litter mat, 1-17 cm medium-dark brown organic rich silt, 17-30 cm light yellow-brown sandy silt with 30% angular shale, > 30 cm rocky substrate, 80% broken shale with shale bed visible (see attached photo).**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**12 shovel tests (35 x 35 cm) were excavated within the site boundaries to a maximum depth of 40 cm below surface.**

14. ENVIRONMENT

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (Phase III)	**2020**	**Tamasi, Ian, Nyomi Sherwin, and Daniel Heinrichs**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance recommended or Site Alteration Permit with archaeological monitoring if future development cannot avoid impacting the site.

17. GENERAL REMARKS

1. 12 shovel tests were excavated in and around the site, no subsurface archaeological materials or features were encountered.
2. Two additional landforms were tested upslope (northwest) of the site on a knoll and a bench; testing yeilded negative results in these test locations as well (Figure *).
3. Monitoring is recommended for any additional road upgrades to Branch C, Grave Creek FSR as there may be remnent portions or disturbed portions of the site remaining on the saddle.

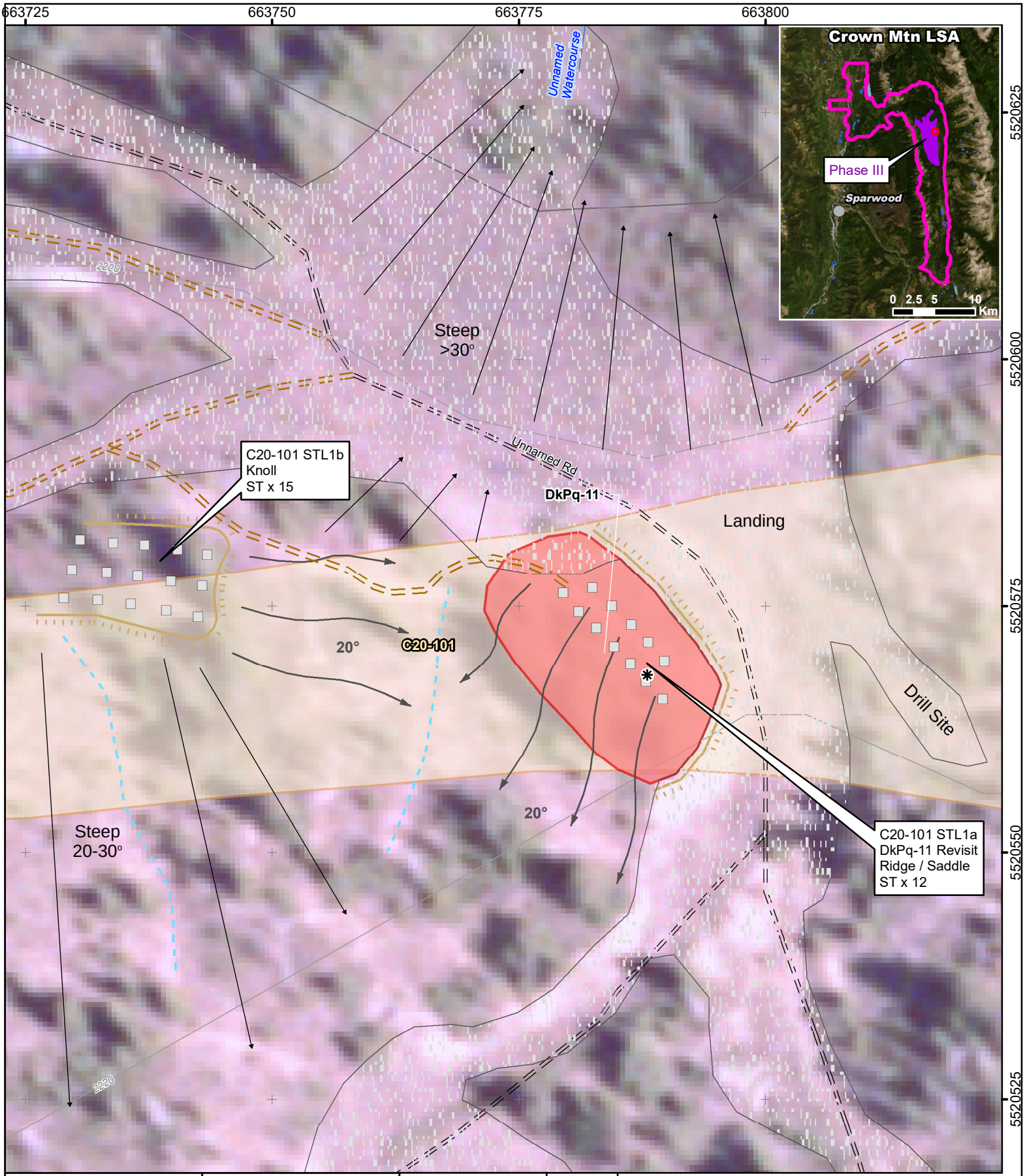

Figure: 6	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain
Permit: 2015-0098	Survey Date: 20/09/2018	BC AB INSET 1:40,000,000	
Title: DkPq-11 Revisit Site Map	Mapping Date: 09/03/2020		
Project: Crown Mountain Phase III	1:500 0 2.5 5 10 m		

Legend:

- Study Area (2018-19)
- Precontact Arch Site Bdry (RAAD 2019)
- Disturbance
- Gravel Road
- Water Feature
- Old Road
- Relict Drainage
- Margin (Road Cut)
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Arch Potential Area (AOA - Choquette)
- Negative Shovel Test (35 x 35 cm)
- Surface Artifact - Lithic (TMECS 2013)

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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Borden Number: DkPq-11
HCA Permit Number: 2015-0098
Date of Assessment: September 20, 2018

Photo 1. Overview of DkPq-11 location (red arrow), situated between the summit of Crown Mountain (photo right) and a landing associated with Branch C, Grave Creek FSR (ETV vehicle, photo left). (view: south)

Photo 2. Location of SF1 recovered in 2013 (red arrow). (view: west)

Photo 3. Shovel testing in 2018 within the vicinity of SF1 (marked by the yellow flagging tape and red arrow). (view: northwest)

Photo 4. Stratigraphy from a negative ST in the vicinity of SF1. (view: north wall).

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPq-18-T01**
Borden Number: **DkPq-15**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **664032** Northing: **5516585**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the headwaters of the Alexander Creek drainage, approximately 13 km northeast of the district of Sparwood.**

Access Description: **From the District of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn north onto Grave Creek FSR and travel for 6.8 km. Turn south onto Branch C FSR and continue for approximately 16.5 km. Park where safe and walk approximately 125 m northeast to the site.**

Parcel Identifier (PID or PIN): **016989007**

Legal Description: **Surveyed Crown Land: N1/2, District Lot 8519, Kootenay District (Survey PID: 9869951)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada Ltd.**	**Crown Mountain Phase III Mine Site**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/09/26**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada Ltd.: Crown Mountain Coking Coal Project (Phase III - Mine Site): September 18 & 26, 2018**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Joshua Martin (TMECS/Shuswap Indian Band [SIB])**	**Y**
Other	**Marty Williams (TMECS/Ktunaxa Nation Council [KNC]), Mathias Ladd (TMECS), Shea Turner (TMECS), TJ Bone (TMECS)**	**Y**

5. SITE TYPOLOGY

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: 12 tourmalinite flakes and one siliceous mudstone flake, see attached artifact catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **106 m** Direction **NE-SW**
Width: **60 m** Direction **NW-SE**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

The site is defined as three discreet polygons (A-C) that are situated on spur-like projections along the south-southeastern margin of an elevated terrace level. See remarks for details regarding individual polygons.

12. STRATIGRAPHY

Depth of Cultural Strata: Minimum **.15 m** Maximum **.40 m**

Stratigraphy Description: **Podzolic soil formation consisting of 0-3 cm litter mat, 3-8 cm light-medium grey fine silt (Ae Horizon), 8-25 cm medium tan-brown sandy silt with 3-5% subround to subangular pebbles (B Horizon), 25-32 cm compact pale grey-brown sandy silt with 3-5% subround to subangular pebbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**13 shovel test (35 x 35 cm) were excavated within the currently defined site areas (x3 polygons).**
Ongoing	**Erosion**	**Natural (i.e. fluvial) erosion has incised a series of southward trending run-off channels and formed spurs; aeolian deflation along portions of the margin and scarp.**

14. ENVIRONMENT

Lower Elevation **1569 m** (asl) Upper Elevation **1576 m** (asl)
Elevation Comments: **Elevation determined using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Alexander Creek approximately 196 m west of polygon A.**
Terrain/Landform: **Located on the eastern corner of an E-W trending terrace, overlooking the Alexander Creek drainage. Terrace eroded by ephemeral drainage patterns creating a series of small spurs (polygon A and B). Polygon C is located on a slightly higher terrace level to the north of Polygon B.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase III)	**2020**	**Tamasi, Ian, Nyomi Sherwin, and Daniel Heinrichs**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

1) Site avoidance during implementation of the mine plan;
2) Should aspects of the mine plan be revised in the future and avoidance is not feasible or ancillary infrastructure components are required within or immediately adjacent to the site areas, further archaeological work in the form of inspection and monitoring will be required under a concurrently-issued Heritage Inspection Permit (HCA Section 12.2) and Site Alteration Permit (HCA Section 12.4).

17. GENERAL REMARKS

1) The site boundaries are delineated into three discrete polygons (i.e A-C) based on spatially related microtopography and shovel testing:
Polygon A - Boundaries are observed at a 5 m radius from positive shovel test to the north east and west and are naturally delineated on the landform margin to the south, dimensions are 10 m E-W x 6.5 m N-S;
Polygon B - Boundaries are observed at a 5 m radius from positive shovel test to the north east and west and are naturally delineated on the landform margin to the south-southeast, dimensions are 10 m NE-SW x 7 m NW-SE;
Polygon C - Boundaries are observed at a 5 m radius from positive shovel test to the north, west and south-southwest and are naturally delineated on the landform margin to the east-southeast, dimensions are 10 m NE-SW x 7.5 m NW-SE.
2) 54 shovel tests were excavated to determine the presence/absence of archaeological material and to define site boundaries (see Figure 2).
3) The site is indicative of stone tool resharpening, finishing or re-purposing activity; likely represents satellite hunting activities and/or trans-mountain travel.

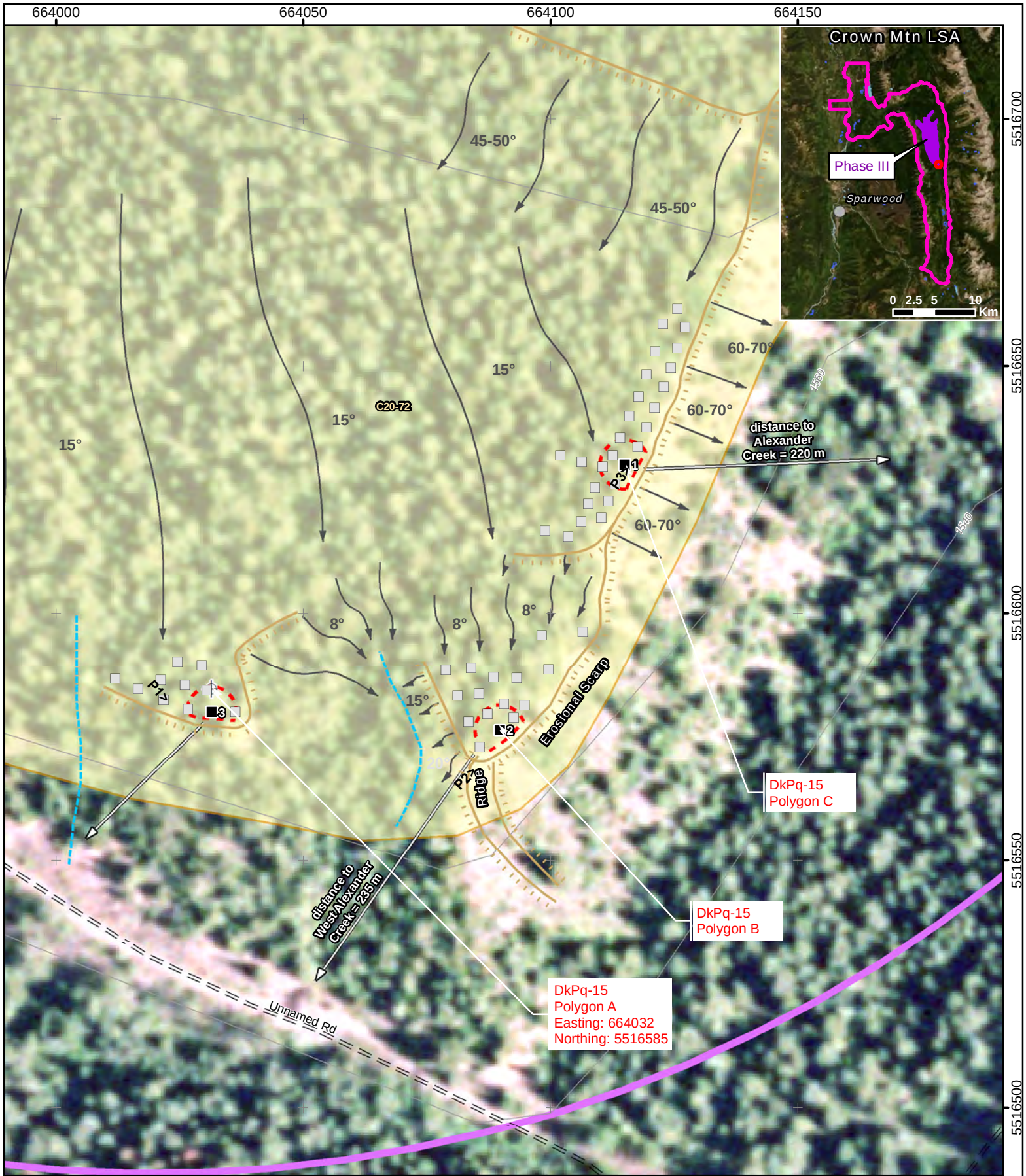

Figure: 7	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Legend:
Permit: 2015-0098	Survey Date: 26/09/2018	BC AB INSET 1:40,000,000	Study Area (2018-19); New Precontact Arch Site Bdry (TMECS 2018); Centroid; Gravel Road; Ephemeral Creek; Nearest Watercourse; Margin (Terrace or Ridge); Slope; Contour Line (20 m); Arch Potential Area (AOA - Crown Mountain); Positive Shovel Test (35 x 35 cm); Negative Shovel Test (35 x 35 cm)
Title: DkPq-15 Site Map	Mapping Date: 18/02/2020	Mapping by: Tipi Mountain	
Project: Crown Mountain Phase III	1:1,000 0 5 10 20 m		

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

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Photo 1. View of site polygon A located on a terraced spur terminus. ST1 is located to the left of the photo (red arrow). (view: southeast)

Photo 2. View of polygon B, ST2 from the southern trending ridgeline. The site is in the treeline along the southeastern margin above the erosional scarp (red arrow). (view: northeast)

Photo 3. View of site polygon C along an east facing terrace margin overlooking the Alexander drainage. (view: northeast)

Photo 4. Stratigraphic profile of ST1; two tourmalinite flakes were recovered from 20-25 cm dbs. (view: northeast wall)

Photo 5. Stratigraphy of ST2; eight tourmalinite flakes and one siliceous mudstone flake was recovered from 15-40 cm dbs. (view: southeast wall)

Photo 6. Stratigraphic profile of ST3; two tourmalinite flakes recovered from 20-30 cm dbs. (view: southeast wall)

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-6 cm	Litter mat (LM), Organic Matter (OM) horizon
	II	6-13 cm	Light-medium grey fine silt, Ae horizon
	III	13-26 cm	Medium brown sandy silt with 1% SA-SR pebbles, B horizon
	V	26-34 cm	Brownish grey sandy silt
2	I	0-9 cm	LM & OM
	II	9-14 cm	Light-medium grey fine silt, Ae horizon
	III	14-30 cm	Dark-medium reddish-brown sandy silt with 1-2% SA-R pebbles, Bf horizon
	V	30-40 cm	Brownish-grey (grey colour increasing with depth) compact sandy silt with 1-2% SA-R pebbles,
3	I	0-3 cm	LM & OM
	II	3-8 cm	Light-medium grey fine silt, Ae horizon
	III	8-25 cm	Medium tan-brown sandy silt with 3-5% subround to subangular pebbles, B horizon
	IV	25-38 cm	compact pale grey-brown sandy silt with 3-5% subround to subangular pebbles.

Table Notes:
A: angular
SA: sub-angular
SR: sub-round
R: round

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST 3 (polygon A)	20-25	flake: tertiary	tourmalinite	opaque, sub-vitreous, black	sg: 2	-	-	-	Crushed low angle platform, moderate dorsal scarring with soil clinging to dorsal side.	18-09-2018	08-04-2019	JM	N
2	1	ST 3 (polygon A)	20-25	flake: fragment	tourmalinite	opaque, sub-vitreous, black	sg: (2)	-	-	-	Terminal portion of flake, soil clinging to dorsal side.	18-09-2018	08-04-2019	JM	N
3	1	ST 2 (polygon B)	15-20	flake: fragment	siliceous mudstone	opaque, dull brownish grey	sg: (2)	-	-	-	Medial portion of flake, no platform. Soil clinging to portions of flake.	18-09-2018	08-04-2019	TJB	N
4	1	ST 2 (polygon B)	20-25	flake: tertiary	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Dihedral medium angled striking platform, moderate dorsal scarring, distal portion broken OR step fracture. Soil clinging to ventral side.	18-09-2018	08-04-2019	TJB	N
5	1	ST 2 (polygon B)	20-25	flake: tertiary	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Small dihedral low angle striking platform with slight overhang, moderate dorsal scarring. Suggestive of a finishing/resharpening flake.	18-09-2018	08-04-2019	TJB	N
6	1	ST 2 (polygon B)	25-30	flake: tertiary	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Narrow dihedral low angle striking platform with overhang, moderate dorsal scarring, soil clinging to dorsal side.	18-09-2018	08-04-2019	TJB	N
7	2	ST 2 (polygon B)	25-30	flake: fragment	tourmalinite	opaque, sub-vitreous black	sg: (1) & (2)	-	-	-	Medial to terminal portions of flakes, no platforms, soil clinging to dorsal sides.	18-09-2018	08-04-2019	TJB	N
8	1	ST 2 (polygon B)	30-35	flake: tertiary	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Multi-faceted medium to low angle striking platform with overhanging lip, moderate dorsal scarring, soil clinging to ventral surface.	18-09-2018	08-04-2019	TJB	N
9	1	ST 2 (polygon B)	30-35	flake: tertiary fragment	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Multi-faceted medium to low angle striking platform with overhanging lip, moderate to complex dorsal scarring, distal portion absent, soil clinging to dorsal surface.	18-09-2018	08-04-2019	TJB	N
10	1	ST 2 (polygon B)	35-40	flake: fragment	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Medial portion of flake, soil clinging to ventral surface, refits with artifact 7.	18-09-2018	08-04-2019	TJB	N
11	1	ST 1 (polygon C)	20-30	flake: fragment	tourmalinite	opaque, sub-vitreous black	sg: (2)	-	-	-	Medial portion of flake, soil clinging to portions of both sides.	26-09-2018	08-04-2019	NS	N
12	1	ST 1 (polygon C)	20-30	flake: tertiary	tourmalinite	opaque, sub-vitreous black	sg: 2	-	-	-	Multi-faceted low angle platform, suspected step fracture along intrusive vein, soil clinging to ventral surface.	26-09-2018	08-04-2019	NS	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPq-18-T04**
Borden Number: **DkPq-16**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **663270** Northing: **5521550**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the headwaters of the Alexander Creek drainage, approximately 15 km northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn north onto Grave Creek FSR and travel for 6.8 km. Turn south onto Branch C FSR and continue for approximately 7.5 km. Park in the bladed area the site is located immediately to the northeast.**

Parcel Identifier (PID or PIN): **017030927**

Legal Description: **Surveyed Crown Land: District Lot 6442, Kootenay District (survey PID: 8630070)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase III Mine Site**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2018/09/20**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada: Crown Mountain Coals Project (Phase III - Mine Site): September 20, 2018**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Joshua Martin (TMECS/Shuswap Indian Band [SIB])**	**Y**
Other	**TJ Bone (TMECS), Mathias Ladd (TMECS), Shea Turner (TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**Lithics: One siliceous argillite retouched flake fragment and one Etherington chert flake fragment recovered from ST1/EU1 (see attached artifact catalogue for details).**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **5 m** Direction **N-S**
Width: **5 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

5 m diameter site boundary as per archaeology branch specifications for single positive subsurface test sites.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **.05 m** Maximum **.10 m**

Stratigraphy Description: **Podzol soil formation consisting of 0-1 cm litter mat, 1-7 cm overburden, medium brown sandy silt with 2-5% subround to subangular pebbles, 7-13 cm medium-light grey silt (Ae) mottled with medium yellow, brown, red sandy silt mottled with dark brown-black silt, 13-30 cm light pink-brown sandy silt with 15-20% subangular to angular pebbles and cobbles with veins of medium yellow, brown, red sandy silt (see attached photo).**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**One shovel test (35 x 35 cm) was excavated and then expanded into an EU (1 x 1 m) within currently defined site boundary.**
Past	**Road Construction**	**This locality has been previously impacted by road construction as evidenced by blading, push piles, and a network of trails and old road grades.**
Ongoing	**Recreational Use**	**Evidence of ongoing recreational use, such as modern refuse, ATV and truck trails.**
Ongoing	**Mining**	**Established mining infrastructure; access roads and drill locations are located to the east and south of the site. Site is located within the proposed east surface extraction area.**

14. ENVIRONMENT

Lower Elevation **2121 m** (asl) Upper Elevation **m** (asl)
Elevation Comments: **Elevation determined using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **Seasonal runoff gulley to the south; un-named watercourse located 290 m to the northwest of the site; Alexander Creek ~1.5 km east.**
Terrain/Landform: **High elevation saddle along the crest of Crown Mountain (~1.0 km north of highest summit).**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase III)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance recommended or concurrent section 12.2 and 12.4 permits required if avoidance is not possible.

17. GENERAL REMARKS

1. 28 shovel tests were excavated to determine the presence/absence of archaeological material within the locality, which defined the site boundary (see Figure 3). The excavation of ST1 resulted in the recovery a single lithic artifact, and was expanded into a 1.0 x 1.0 m Evaluative Unit in an attempt to capture additional site information, i.e., document stratigraphy, which resulted in the recovery of an additional lithic artifact.
2. The site is not situated within a previously deliminated AOA polygon, judgmental inspection of archaeologically-favourable landform.
3. The site is indicative of stone tool resharpening or finishing and expediant tool creation and likely represents hunting activity and/or inter-montane travel.
4. Development of currently proposed coal mine will result in the site area being destroyed (east extraction pit) and assigned with Legacy Status.

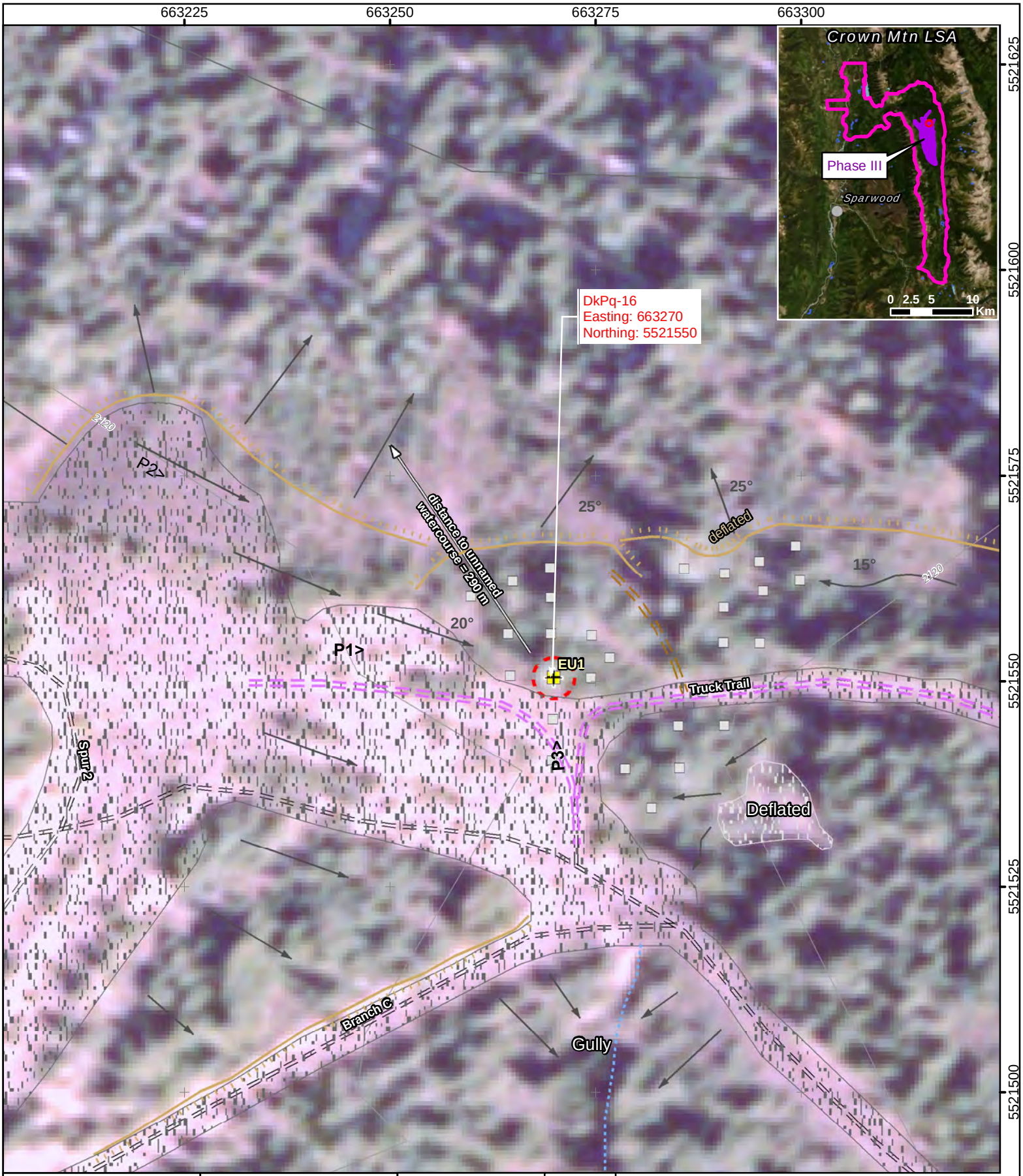

Figure: 8	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15		Legend:
Permit: 2015-0098	Survey Date: 20/09/2018	BC AB INSET 1:40,000,000	Mapping by: Tipi Mountain	Study Area (2018-19); New Precontact Arch Site Bdry (TMECS 2018); Centroid; Road Disturbance; Disturbance; Gravel Road; Truck Trail; Old Road; Nearest Watercourse; Gully; Margin (Terrace or Ridge); Slope; Contour Line (20 m); Contour Line (100 m); Positive Evaluative Unit (100 x 100 cm); Negative Shovel Test (35 x 35 cm)
Title: DkPq-16 Site Map	Mapping Date: 18/02/2020			
Project: Crown Mountain Phase III	1:600 0 2.5 5 10 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

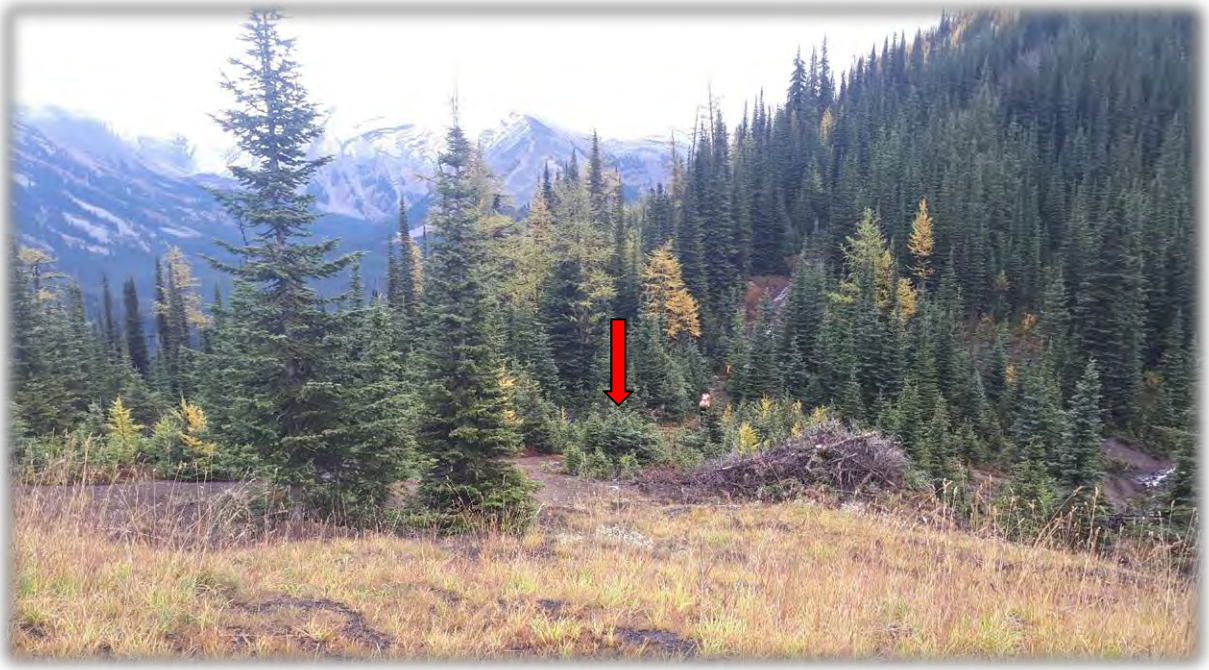

Photo 1. Overview of the saddle, site location (red arrow), and some of the eastward viewshed that is offered from this locality. (view: east)

Photo 2. Supplementatary overview of the saddle that contains the site (red arrow) with a prominent peak along the crest of Crown Mountain in the background; Grave Creek FSR Branch C is to the south (photo right). (view: southeast)

Photo 3. Overview of the site area, during the excavation of ST1 (red arrow).
(view: northwest)

Photo 4. Plan view of ST1/EU1 bottom of level 1; one retouched flake of siliceous argillite was recovered from ST1 (NE Quadrant of EU) and one flake fragment of Etherington chert was recovered from EU1 (NW quadrent), both recovered from 5-10 cm dbs.

Photo 5. EU1 (0~30 cm below surface), profile view of the north wall.

Photo 6. EU1 (0~30 cm below surface), profile view of the east wall.

Photo 7. EU1 (0~30 cm below surface), profile view of the south wall.

Photo 8. EU1 (0~30 cm below surface), profile view of the west wall.

Borden Number: DkPq-16
Permit Number: 2015-0098

Temporary Borden Number: DkPq-18-T04

Date of Assessment / Field Visit: September 20, 2018
Tipi Mountain Eco-Cultural Services Ltd.

Catalogue #	# of Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST1	5-10	Tool: retouched flake fragment	siliceous argillite	opaque, sub-vitreous, light grey	(20)	(10.7)	(2.4)	(.6)	Medial portion of flake, moderate dorsal scarring, no platform. Unifacial retouch along one lateral edge with subsequent breakage from use.	20-09-2018	08-04-2019	TJB	N
2	1	EU1 - NW quadrant	5-10	Flake: fragment	Etherington chert	opaque, sub-vitreous, creamy white	sg: (2)	-	-	-	Medial portion of flake, moderate dorsal scarring, suggestive of thinning flake.	20-09-2018	08-04-2019	NS	N

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPq-19-T01**
Borden Number: **DkPq-17**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **661546** Northing: **5521493**
Source: GPS ☒ Digital Map ☒ Printed Map ☐

Location Description: **The site is located within the East Kootenay region of southeast British Columbia, within the headwaters of the Alexander Creek drainage, approximately 13 km northeast of the District of Sparwood.**

Access Description: **From the District of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn north onto Grave Creek FSR and travel for 6.8 km. Turn south onto Grave Creek Branch C and continue for approximately 16.5 km. Park where safe and walk approximately 125 m northeast to the site.**

Parcel Identifier (PID or PIN): **016957105**

Legal Description: **Surveyed Crown Land: W1/2, District Lot 6781, Kootenay District (Survey PID: 32842181)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase III Mine Site**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/07/11**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada: Crown Mountain Coal Project (Phase III - Mine Site): September 21, 24 & 28, 2018 and July 8, 9 & 11, 2019**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Nyomi Sherwin (TMECS), Dan Heinrichs(TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Joshua Martin (TMECS/Shuswap Indian Band [SIB])**	**Y**
Other	**Marty Williams (TMECS/Ktunaxa Nation Council [KNC]), Mathias Ladd (TMECS), Shea Turner (TMECS), Jason Feltham (TMECS & KNC) Marshall Ezelle (TMECS) John Nicholas (KNC), Sunshine Joseph (TMECS & KNC) Nicholas Johnson (KNC & TMECS), Justin Hanna (TMECS)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**
Precontact	**Cultural Material**	**Surface**	**Lithics**
Precontact	**Cultural Material**	**Subsurface**	**FAR**
Precontact	**Cultural Material**	**Surface**	**FAR**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

Feature ID#	L (m)	W (m)	Diam (m)	Depth/ Height (m)	DBS from (m)	DBS to (m)	Shape	Orient-ation	Berm or Rim
Feature 1	**0.43**	**0.34**	**n/a**	**0.2**	**0.17**	**0.37**	**Irregular**		**no**

Feature Remarks: **Cluster of FAR and charcoal with no discernable structure. Excavation unit (1.0 m x 0.5 m) was completed through half of the identified FAR feature, the features extends into the west wall.**

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**61 lithic artifacts of various lithic materials (n=7), and one Oxbow-like projectile point. See attached artifact catalogue for details.**	**KNRR**
FAR	**Collected**	**112 specimens of FAR, see attached FAR Table for details.**	**KNRR**
Other Sample	**Collected**	**Two soil samples collected from hearth-like feature; inadequate for radiometric analysis.**	**KNRR**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **213 m** Direction **NE-SW**
Width: **121 m** Direction **NW-SE**

Site Boundary Type: **Natural and Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries comprised of five discrete polygons defined by both natural and observed boundaries. See remarks for details.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **0 m** Maximum **0.3 m**

Stratigraphy Description: **See attached stratigraphy log for details.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**75 shovel tests (0.35 m x 0.35 cm) and one evaluative unit (1 m x 0.5 m) were excavated within the currently defined site boundaries.**
Past	**Mining**	**Mine exploration roads present to the north and within the western portion of the site; this truncates the southeastern portions of polygons B and C.**
Ongoing	**Erosion**	**Deeply incised game trail travel the length of a NW-SE trending trough (lowest portion of pass) and within site polygon A; one lithic artifact collected and single FAR documented on trail.**
Past	**Logging**	**Previous timber harvest within the northern portion of the site (polygons B & C); sporadically bladed and scalped ground surfaces throughout and subsuquent silviculture (tree planting).**

14. ENVIRONMENT

Lower Elevation **1897 m** (asl) Upper Elevation **1919 m** (asl)
Elevation Comments: **Elevation determined using handheld GPS and Google Earth Pro.**

Nearest Hydrological Feature(s): **The site is immediately adjacent to (north of) the headwaters of the West Alexander Creek; un-named tributary to the Grave Creek drainage to the north.**

Terrain/Landform: **The site is located within pass the connects the West Alexander Creek valley (to south) and an un-named tributary to the Grave Creek drainge (to the north). Within the pass, micro-topography is present (i.e. spurs and benches) that focussed precontact activity.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase III)		**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance recommended or concurrent section 12.2 and 12.4 permits required if avoidance is not possible.

17. GENERAL REMARKS

1) The site boundaries are delineated into 5 discreet polygons (i.e. A-E) based on spatially related microtopography and shovel testing:
Polygon A - boundaries are observed at a 5 m radius from positive shovel tests and surface finds, dimensions are 88 m NW-SE x 19 m NE-SW;
Polygon B - site boundaries are observed at 5 m radius buffer to the north, east and south and is defined naturally by the landform margin to the west, dimensions are 12 m NE-SW x 9 m NW-SE;
Polygon C - boundaries are observed at a 5 m radius from positive shovel tests, dimensions are 19 m NW-SE x 10 m NE-SW;
Polygon D - boundaries are observed at a 5 m radius from positive shovel tests to the north, east and west, and is defined naturally by the landform margin to the south, dimensions are 29 m N-S x 10 m E-W;
Polygon E - boundaries are observed at a 5 m radus buffer to the north, east, southeast and northwest, and is naturally defined by the landform to the southwest, dimensions are 20 m E-W x 19 m N-S.
2) The context of the site, combined with the artifact assemblage (i.e. utilized lithic debitage, biface fragments, and an Oxbow-like projectile point) and the documentation of FAR (i.e. hearth-like feature) suggests that the site is associated with precontact hunting activity, and the northwest-southeast trending trough, which is the lowest portion of the pass, is well suited for implementing ambush tactics. While the sparse lithic scatters are present within the higher-level site areas are suggestive of ancillary activities, the artifact density increased within the trough and indicates that this linear feature is the focal point of precontact activity.
3) Development of the currently proposed mine with result in disturbance to the site (e.g. processing plant, conveyance infrastructure, and adminstrative buildings), and likely result in the assignement of Legacy Status.

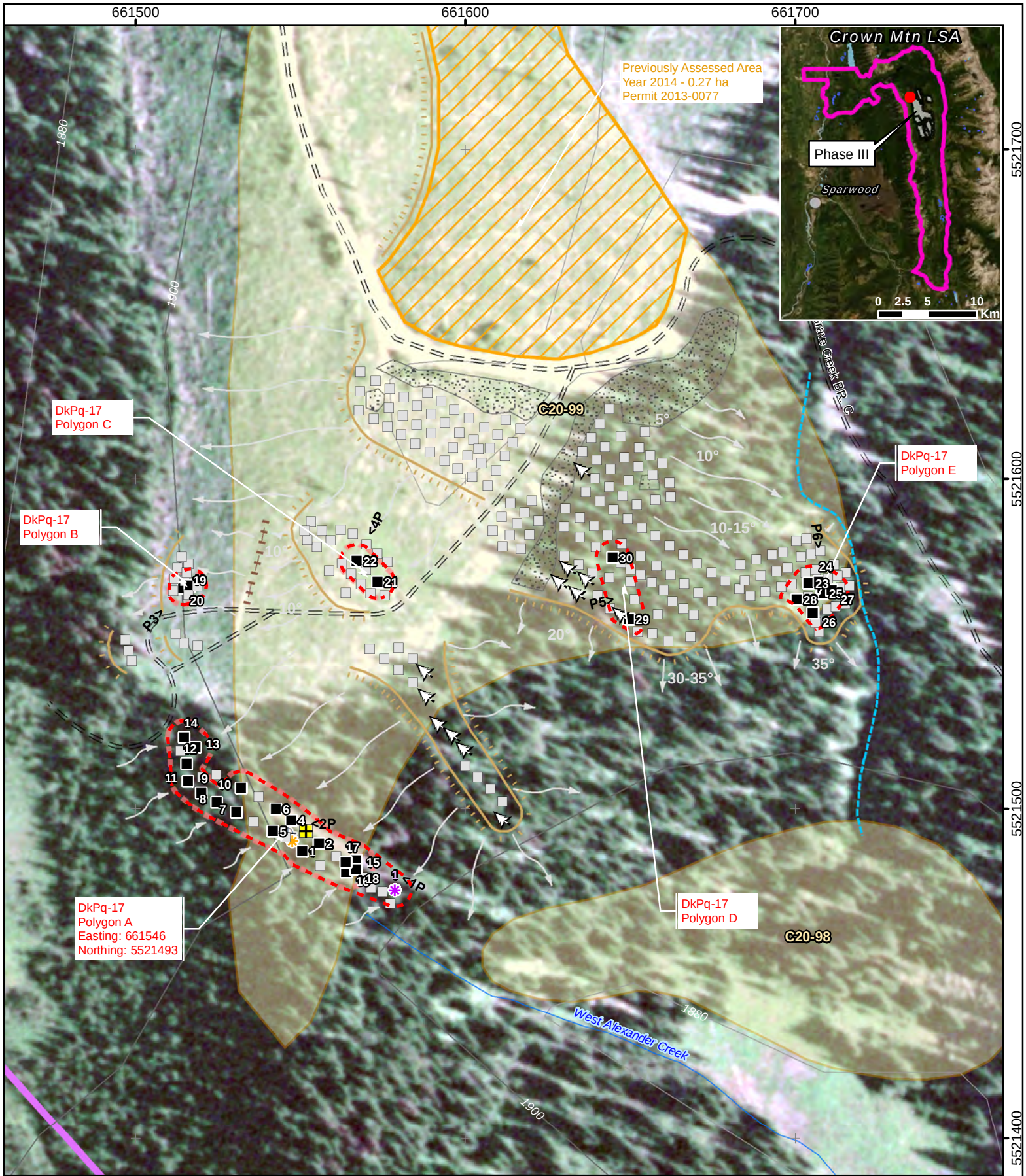

Figure: 9	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by: Tipi Mountain	Legend
Permit: 2015-0098	Survey Date: 11/07/2019	BC AB INSET 1:40,000,000		
Title: DkPq-17 Site Map	Mapping Date: 11/02/2020			
Project: Crown Mountain Phase III	1:1,500 0 5 10 20 m			

Legend:
- Study Area (2018-19)
- New Precontact Arch Site Bdry (TMECS 2019)
- Centroid
- Precontact Arch Site Bdry (TMECS 2018)
- Previously Assessed Area
- Gravel Road
- Water Feature
- Ephemeral Creek
- Terrace Margin
- Poorly Defined Margin
- Slope
- Contour Line (20 m)
- Contour Line (100 m)
- Disturbance
- Arch Potential Area (AOA - Crown Mountain)
- Surface Artifact - Lithic
- Surface Artifact - FAR
- Positive Evaluative Unit (50 x 100 cm)
- Positive Shovel Test (35 x 35 cm)
- Negative Shovel Test (35 x 35 cm)
- Negative Tree Throw
- P#> Photo

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Polygon A, overview of the northwest-southeast trending trough that is the lowest portion of the pass, which connects the West Alexander Creek valley (to the south) and an un-named tributary of the Grave Creek drainage (to the north). Based on subsurface inspection results, this locality was the focal point for precontact activity; suspected to be largely associated with hunting (*i.e.* ambush tactics). (view: northwest)

Photo 2. Polygon A, plan view (left photo) and profile view (west all [right photo]) of the Evaluative Unit (EU) 1. A concentration of FAR was exposed in the southwest corner of the EU and FAR remains *in situ* to the west of the EU, as exposed in the west wall (right photo).

Photo 3. Polygon B, overview of a small bench that contained subsurface archaeological artifacts (*i.e.* lithics) to the north of a previously constructed exploration road. (view: northeast)

Photo 4. Polygon C, overview of slightly elevated bench upslope to the east of polygon B. Subsurface artifacts (*i.e*. lithics) were recovered in two shovel tests in proximity to (north of) a previously constructed exploration road. (view: southwest)

Photo 5. Polygon D, overview of low-sloped terrain that contained subsurface archaeological material. Note the dense understory that constrained surface inspections within the eastern portion of the site. (view: east-northeast)

Photo 6. Polygon E, overview of a small southward trending spur that contained subsurface archaeological material, including an Oxbow-like projectile point. Note the dense (±1.65 m high) understory vegetation within this portion of the site, which obscured the ground surface. (view: south)

Photo 7. Utilized flake of siliceous mudstone recovered from ST 22 in site polygon C; catalogue number 3. (Photo left: ventral side; Photo right: dorsal side)

Photo 8. Biface fragment of Banff Formation siliceous siltstone recovered from ST 6 in site polygon A; catalogue number 15.

Photo 9. Oxbow-like projectile (dart) point made from Top of the World chert recovered from ST 25 within site polygon E; catalogue number 41.

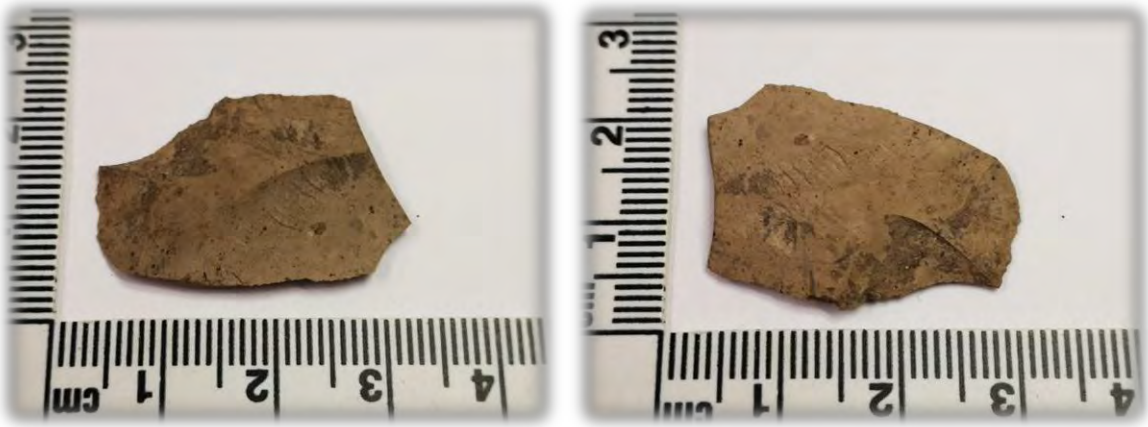

Photo 10. Utilized flake fragment of siliceous mudstone recovered from ST 28 in site polygon E; catalogue number 45**.**

Photo 11. Utilized flake fragment of siliceous mudstone recovered from ST 29 in site polygon D catalogue number 47.

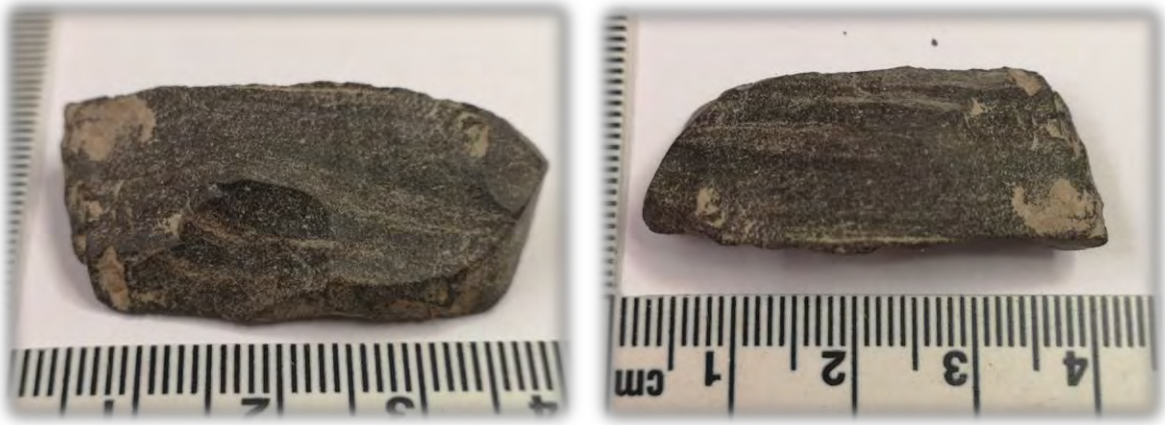

Photo 12. Utilized shatter fragment of Banff Formation siliceous siltstone recovered from ST 30 in site polygon D; catalogue number 48.

Shovel Test	Stratum	Depth (below surface)	Description
1	I	0-2 cm	Litter mat/Organic material
	II	2-14 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets.
	III	14-20 cm	Dark red-brown silt.
	IV	20-30 cm	Tan, red-brown silt with 1-5% sub-angular, sub-rounded pebbles.
	V	30-34 cm	Light pink, brown tan silt.
	Comments: 5-10 cm: Banff formation siliceous siltstone secondary or tertiary flake.		
2	I	1-2 cm	Litter mat/Organic material
	II	2-17 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets.
	III	17-28 cm	Dark red-brown silt.
	V	28-32 cm	Light pink, brown tan silt.
	Comments: 15-20cm: Top of the World chert [TOWC] primary decortication flake.		
3/EU	I	0-5 cm	Litter mat/Organic material
	II	5-17 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets. Mottled with layer III.
	III	17-37 cm	Dark red-brown silt. Pockets of charcoal staining on East wall.
	IV	37-45 cm	Wet tan-brown compact silt.
	Comments: 0-20cm: Dense concentrations of Fire Altered Rock [FAR]. Two sediment samples collected; charcoal submitted for C14 dating.		
4	I	0-2 cm	Litter mat/Organic material
	II	2-10 cm	Lighter brown/ gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets. Mottled dark staining present throughout.
	III	10-33 cm	Dark red-brown silt. Mottled with layer II.
	Comments: 0-5cm: FAR (x2) 5-10cm: FAR (x2)		
5	I	0-1 cm	Litter mat/Organic material
	II	1-11 cm	Dark grey wet silt <1% sub-angular, sub-rounded pebbles
	III	11-37 cm	Tan-red brown silt with 1-2% sub-rounded, sub-angular pebbles.
	Comments: 5-10cm: Siliceous mudstone secondary flake.		
6	I	0-0.5 cm	Litter mat/ Organic material
	II	0.5-26 cm	Medium brown and dark grey silt with 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets. Mottled.
	III	26-37 cm	Dark red-brown silt.
	Comments: 0-5cm: Banff formation siliceous siltstone biface fragment.		

Shovel Test	Stratum	Depth (below surface)	Description
7	I	0-1 cm	Litter mat/Organic material
	II	1-16 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets.
	V	16-30 cm	Medium brown wet silt.
	IV	30-33 cm	Tan, red-brown silt with 1-5% sub-angular, sub-rounded pebbles.
	Comments: 0-5cm: FAR.		
8	I	0-1 cm	Litter mat/Organic material
	V	1-16 cm	Medium brown wet silt.
	V-VI	16-29 cm	Layer V mottled with Layer VI.
	VI	29-33 cm	Light grey brown clayey silt <1% pebbles.
	Comments: 0-5cm: Banff formation siliceous siltstone secondary flake fragment. Banff formation siliceous siltstone tertiary flake fragment. 5-10cm: Siliceous mudstone flake fragment, Siliceous mudstone tertiary flake. 10-15cm: Tertiary tourmalinite flake, Siliceous mudstone flake fragment. 15-20cm: Siliceous mudstone flake fragment.		
9	I	0-1 cm	Litter mat/Organic material
	II	1-22 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets.
	III	22-34 cm	Dark red-brown silt.
	VII	34-36 cm	Dark brown/gray compact & plated clayey silt with black coal staining.
	Comments: 0-5cm: FAR.		
10	I	0-4 cm	Litter mat/Organic material
	II	4-6 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets.
	V	6-30 cm	Medium brown wet silt.
	VI	30-33 cm	Light grey brown clayey silt <1% pebbles.
	Comments: 0-10cm: FAR. 0-5cm: TOWC flake fragment, Siliceous mudstone flake fragment. 5-10cm: Siliceous mudstone tertiary flake fragment (x2).		
11	I	0-3 cm	Litter mat/ Organic material
	VIII	3-20 cm	Light brown sandy silt with <1% sub-rounded, sub-angular inclusions.
	III	20-33 cm	Dark red-brown silt.
	Comments: 10-15cm: FAR.		

Shovel Test	Stratum	Depth (below surface)	Description
12	I	0-2 cm	Litter Mat/Organic material
	IX	2-5 cm	AE
	X	5-10 cm	Light brown silt with 5% angular cobbles.
	Comments: 0-5cm: TOWC flake fragment.		
13	I	0-5 cm	Litter mat/Organic material
	VIII	5-8 cm	AE, light grey silt
	III	8-33 cm	Dark red-brown silt.
	VI	33-46 cm	Light grey brown clayey silt <1% pebbles.
	Comments: 15-20cm: TOWC flake fragment 25-30cm: TOWC tertiary flake.		
14	I	0-1 cm	Litter mat/ Organic material
	IX	1-8 cm	AE
	VIII	8-24 cm	AE, light grey silt
	XI	24-25 cm	Compact light grey and tan-brown mottled silt with 1-5% sub-rounded, sub-angular pebbles and cobbles.
	Comments: 10-15cm: TOWC flake fragment identified		
15	I	0-4 cm	Litter mat/Organic material
	V	4-8 cm	Medium brown wet silt.
	IV & V	8-28 cm	Tan, red-brown silt with 1-5% sub-angular, sub-rounded pebbles mottled with medium brown wet silt.
	VI	28-30 cm	Light grey brown clayey silt <1% pebbles.
	Comments: 5-10cm: utilized siliceous mudstone flake tool.		
16	I	0-3 cm	Litter mat/Organic material
	II	3-11 cm	Dark brown/gray silt. 1-5% sub-angular, sub-rounded pebbles. 5-10% roots and rootlets.
	III	11-17 cm	Dark red-brown silt.
	IV	17-24 cm	Tan, red-brown silt with 1-5% sub-angular, sub-rounded pebbles.
	VI	24-32 cm	Light grey brown clayey silt <1% pebbles.
	Comments: 10-15cm: Siliceous mudstone secondary or tertiary flake Stratigraphy representative of ST17 (siliceous mudstone tertiary flake 0-5cm below surface) & ST18 (siliceous mudstone flake fragment 0-5cm below surface		
19	I	0-5 cm	Litter Mat/Organic material
	II	5-8 cm	Overburden, grey-brown silt
	III	8-10 cm	AE; ashy, light grey silt
	IV	10-20 cm	BF; red-brown silt with 10% angular, sub-angular pebbles
	V	>20 cm	Compact, yellow-brown clayey silt with 20-30% sub-angular, angular pebbles.
	Comments: Siliceous mudstone tertiary flake identified 5-10cm below surface.		

Shovel Test	Stratum	Depth (below surface)	Description
20	I	0-5 cm	Litter mat/ Organic material
	III	5-6 cm	AE; ashy, light grey silt
	IV	6-25 cm	BF; red-brown silt with 5-10% angular, sub-angular pebbles
	VI	25-35 cm	Light brown silt with angular, sub-angular pebbles
	V	>35 cm	Compact, yellow-brown clayey silt with 20-30% sub-angular, angular pebbles.
	Comments: 0-10 cm: Siliceous mudstone (shatter x1; tertiary flake fragmentx1), Siliceous siltstone (flake fragment x1), High Rock range chert (flake fragments x10; secondary/tertiary flakes x4; tertiary 10-20 cm: High Rock range chert (tertiary flake x1)		
21	I	0-5 cm	Litter Mat/Organic material
	II	5-15 cm	Brown-grey silt with 5-10% angular, sub-angular pebbles. Mottled
	III	>15 cm	Compact grey, brown, and dark brown clayey-silt
	Comments: 5-10cm: Siliceous mudstone (tertiary flake x1) and Banff formation siliceous siltstone (tertiary flake x3)		
22	I	0-5 cm	Litter mat/ Organic material
	IV	5-10 cm	Grey-brown loam
	V	10-30 cm	Red-brown silt
	III	>30 cm	Compact, grey clayey-silt
	Comments: 20-25cm: Siliceous mudstone (utilized flake tool x1)		
23	I	0-3 cm	Litter mat/ Organic material
	II	3-7 cm	Light yellow brown clayey silt
	III	7-20 cm	Brown silty clay with ~5% SA-A pebbles
	IV	20-26 cm	Grey-brown clay with ~5% SA-A pebbles with ~10% SA-A cobbles
	Comments: 10-20 cm: Secondary flake of TOWC		
24	I	0-4 cm	Litter mat/ Organic material
	II	4-7 cm	Light yellow brown clayey silt
	III	7-22 cm	Brown silty clay with ~5% SA-A pebbles
	IV	22-33 cm	Grey-brown clay with ~5% SA-A pebbles with ~10% SA-A cobbles
	Comments: 15-20 cm: Flake fragment of High Rock Range Chert		
25	I	0-3 cm	Litter mat/ Organic material
	II	3-7 cm	Ashy grey silt, Ae horizon
	III	7-23 cm	Yellow-brown clayey silt
	IV	23-27 cm	Grey-brown silty clayey with ~5% SA-A pebbles & ~10% SA-A cobbles
	Comments: 0-10 cm: Banff formation siliceous siltstone tertiary flakes (x3) 10-15 cm: One Oxbow-like dart point of TOWC.		

Shovel Test	Stratum	Depth (below surface)	Description
26	I	0-3 cm	Litter mat/ Organic material
	II	3-6 cm	Ashy grey silt, Ae horizon
	III	6-20 cm	Yellow-brown clayey silt
	IV	20-25 cm	Grey-brown silty clayey with ~5% SA-A pebbles & ~10% SA-A cobbles
	Comments: 0-5 cm: Flake fragment of Etherington chert 15-20 cm: Flake fragment of Etherington chert		
27	I	0-3 cm	Litter mat/ Organic material
	II	3-5 cm	Ashy grey silt, Ae horizon
	III	5-20 cm	Yellow-brown clayey silt
	IV	20-31 cm	Grey-brown silty clayey with ~5% SA-A pebbles & ~10% SA-A cobbles
	Comments: 0-5 cm: Flake fragment of TOWC		
28	I	0-3 cm	Litter mat/ Organic material
	II	3-7 cm	Light yellow brown clayey silt
	III	7-25 cm	Brown silty clay with ~5% SA-A pebbles
	IV	25-30 cm	Grey-brown clay with ~5% SA-A pebbles with ~10% SA-A cobbles
	Comment: 0-5 cm: utilized flake fragment of siliceous mudstone (x1), tertiary flake of siliceous mudstone (x1)		
29	I	0-3 cm	Litter mat/ Organic material
	II	3-5 cm	Grey-black mottled silt
	III	5-26 cm	Yellow-brown clayey silt with 5-10% SA-A pebbles
	IV	26-29 cm	Light-brown clayey silt with ~5% SA-A pebbles
	Comment: 20-30 cm: Utilized flake fragment of siliceous mudstone		
30	I	0-6 cm	Litter mat/ Organic material
	II	6-8 cm	Grey-black mottled silt
	III	8-18 cm	Yellow-brown clayey silt with 5-10% SA-A pebbles
	IV	18-21 cm	Light-brown clayey silt with ~5% SA-A pebbles
	Comment: 5-10 cm: Utilized shatter of Banff Formation siliceous siltstone.		

Table Notes:
A: angular
SA: sub-angular
SR: sub-round
R: round

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST21	5-10	flake: tertiary	siliceous mudstone	opaque, weathered, grey-brown	sg: 2	-	-	-	Heavily weathered, medium to low angled striking platform, complex dorsal scarring.	28-09-2018	09-04-2019	ML	N
2	3	ST21	5-10	flake: tertiary	Banff formation siliceous siltstone	opaque, dull, brownish black, faint banding	sg: 2[2] & 3[1]	-	-	-	All contain multi-faceted medium to low angle striking platforms with overhanging lip, complex dorsal scarring, resharpening flakes.	28-09-2018	09-04-2019	ML	N
3	1	ST22	20-25	tool: utilized flake	siliceous mudstone	opaque, weathered, grey-brown	47.2	32.7	6.5	8.7	Large biface reduction flake with use wear along lateral edges, medium to low multi-faceted striking platform with dulled working edge and overhanging lip, step fracture termination or breakage during manufacture (weathered fracture). Soil clinging to all sides suggestive of greater antiquity.	28-09-2018	09-04-2019	JM	Y
4	1	ST20	0-10	flake: tertiary fragment	siliceous mudstone	opaque, sub-vitreous dull grey	sg: (1)	-	-	-	Single facet, medium angle striking platform, moderate dorsal scarring.	28-09-2018	08-04-2019	MW	N
5	4	ST20	0-10	flake: secondary/tertiary	High Rock range chert	largely opaque grading to translucent at edges, sub-vitreous lustre, light to dark grey	sg: 2[3] & 3[1]	-	-	-	Small medium angled striking platforms, minimal to moderate dorsal scarring.	28-09-2018	08-04-2019	MW	N
6	8	ST20	0-10	flake: fragments	High Rock range chert	largely opaque grading to translucent at edges, sub-vitreous lustre, light to dark grey	sg: (2 [8])	-	-	-	No platforms, one fragment contains abrupt transition from grey to creamy brownish white.	28-09-2018	08-04-2019	MW	N
7	1	ST20	0-10	flake: fragment	siliceous siltstone	opaque, dull grey with light bands	sg: (2)	-	-	-	No platform.	28-09-2018	08-04-2019	MW	N
8	1	ST20	10-20	flake: tertiary	High Rock range chert	largely opaque grading to translucent at edges, sub-vitreous lustre, light to dark grey	sg: 2	-	-	-	Small medium angle dihedral striking platform, moderate dorsal scarring.	28-09-2018	08-04-2019	MW	N
9	2	ST20	0-10	flake: fragments	High Rock range chert	largely opaque grading to translucent at edges, sub-vitreous lustre, light to dark grey	sg: (2 [2])	-	-	-	No platforms.	28-09-2018	08-04-2019	MW	N
10	1	ST20	0-10	shatter	siliceous mudstone	opaque, sub-vitreous dull grey	sg: 2	-	-	-	Blocky fragment.	28-09-2018	08-04-2019	MW	N
11	1	ST19	5-10	flake: tertiary	siliceous mudstone	opaque, sub-vitreous dull grey	sg: 2	-	-	-	Dihedral moderate angle striking platform, minimal to moderate dorsal scarring, step fracture or terminal portion absent.	28-09-2018	08-04-2019	JM	N
12	1	ST1	5-10	flake: secondary/tertiary	Banff formation siliceous siltstone	opaque, dull to sub vitreous, black with banding	sg: 2	-	-	-	Planar medium angle striking platform with faint lip, moderate dorsal scarring.	21-09-2018	08-04-2019	IT	N
13	1 (refit x2)	ST2	15-20	flake: primary decortication	Top of the World chert	translucent vitreous grey	sg: 2	-	-	-	Planar cortex on dorsal side, dihedral high angle striking platform.	21-09-2018	08-04-2019	JM	N
14	1	ST5	5-10	flake: secondary	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: 2	-	-	-	Dihedral medium angled striking platform, with faint lip, complex dorsal scarring, soil clinging to dorsal side.	24-09-2018	08-04-2019	ST	N
15	1	ST6	0-5	tool: biface fragment	Banff formation siliceous siltstone	opaque, dull to sub vitreous, black with banding	(40.6)	(27.5)	(5.9)	(5.9)	Bifacially worked flake fragment with lanceolate shaped outline of suspected preform or projectile point base (spear point).	24-09-2018	08-04-2019	MW	Y
16	1	ST8	0-5	flake: secondary fragment	Banff formation siliceous siltstone	opaque, dull to sub vitreous, black with banding	sg: (2)	-	-	-	Multi-faceted moderate to high angle striking platform, moderate dorsal scarring, distal portion absent.	24-09-2018	08-04-2019	JM	N
17	1	ST8	0-5	flake: tertiary fragment	Banff formation siliceous siltstone	opaque, dull to sub vitreous, black with banding	sg: (2)	-	-	-	Small dihedral medium angled striking platform with faint lip, moderate dorsal scarring, distal portion absent.	24-09-2018	08-04-2019	JM	N
18	1	ST8	5-10	flake: fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (2)	-	-	-	Medial portion of flake, no platform, moderate dorsal scarring.	24-09-2018	08-04-2019	JM	N
19	1	ST8	5-10	flake: tertiary	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: 2	-	-	-	Small dihedral medium angled striking platform with faint lip, moderate to complex dorsal scarring, soil clinging to dorsal side.	24-09-2018	08-04-2019	JM	N

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
20	1	ST8	10-15	flake: tertiary	tourmalinite	opaque, sub-vitreous black	sg: 1	-	-	-	Partially crushed medium angled striking platform, moderate dorsal scarring, soil clinging to dorsal side.	24-09-2018	08-04-2019	JM	N
21	1	ST8	10-15	flake: fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (1)	-	-	-	Medial portion of flake, moderate dorsal scarring.	24-09-2018	08-04-2019	JM	N
22	1	ST8	15-20	flake: fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (2)	-	-	-	Medial portion of flake, moderate dorsal scarring.	24-09-2018	08-04-2019	JM	N
23	1	ST10	5-10	flake: tertiary fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (1)	-	-	-	Single facet medium to low angle striking platform with faint lip, moderate dorsal scarring, distal portion absent. Soil clinging to portions of ventral surface.	24-09-2018	08-04-2019	JM	N
24	1	ST10	5-10	flake: tertiary fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (1)	-	-	-	Medial to terminal portion of flake, moderate dorsal scarring.	24-09-2018	08-04-2019	JM	N
25	1	ST10	0-5	flake: fragment	Top of the World chert	translucent vitreous grey	sg: (2)	-	-	-	No platform, possible shatter fragment.	24-09-2018	08-04-2019	JM	N
26	1	ST10	0-5	flake: fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (1)	-	-	-	Medial portion of flake.	24-09-2018	08-04-2019	JM	N
27	1	ST12	5-10	flake: fragment	Top of the World chert	translucent vitreous grey	sg: (1)	-	-	-	Medial portion of flake.	24-09-2018	08-04-2019	IT	N
28	1	ST13	15-20	flake: fragment	Top of the World chert	translucent vitreous grey	sg: (2)	-	-	-	Medial portion of flake.	24-09-2018	08-04-2019	MW	N
29	1	ST13	25-30	flake: tertiary	Top of the World chert	translucent vitreous grey	sg: 2	-	-	-	Small low angle multi-faceted platform, faint lip, moderate to complex dorsal scarring, with soil clinging to dorsal side.	24-09-2018	08-04-2019	MW	N
30	1	ST14	10-15	flake: fragment	Top of the World chert	translucent vitreous grey	sg: (2)	-	-	-	Medial portion of flake, moderate dorsal scarring.	24-09-2018	08-04-2019	ST	N
31	1	ST15	5-10	tool: utilized flake	siliceous mudstone	opaque, sub-vitreous to dull grey	24.6	14.3	3.8	.9	Dihedral medium to high angled striking platform, moderate dorsal scarring, use-wear along one lateral and distal edge.	24-09-2018	08-04-2019	JM	N
32	1	ST16	10-15	flake: secondary/tertiary	siliceous mudstone	opaque, sub-vitreous to dull grey	sg: 2	-	-	-	Concave medium angled striking platform, moderate dorsal scarring, possible use-wear along lateral edge.	24-09-2018	08-04-2019	ST	N
33	1	ST17	0-5	flake: tertiary	siliceous mudstone	opaque, sub-vitreous to dull grey	sg: 1	-	-	-	Small pressure flake, multi-faceted platform.	24-09-2018	08-04-2019	JM	N
34	1	ST18	0-5	flake: fragment	siliceous mudstone	opaque, sub-vitreous to dull brownish grey	sg: (2)	-	-	-	Medial portion of flake, minimal dorsal scarring, weathered patina.	24-09-2018	08-04-2019	JM	N
35	1	ST3 (EU)	0-10	soil sample	-	-	-	-	-	96	Dark soil associated with FAR concentration	24-09-2018	09-04-2019	NS	N
36	1	ST (EU)	15	soil sample	-	-	-	-	-	68	Dark soil associated with FAR concentration	24-09-2018	09-04-2019	NS	N
37	1	SF	-	shatter	quartz crystal	highly vitreous, transparent	sg: 2	-	-	-	No platform, one planar (crystal facet), soil clinging, possible use wear along one edge (recovered along game trail, possible trampling).	08-07-2019	03-02-2019	IT	N
38	1	ST23	10-20	flake: secondary	chert: Top of the World	vitreous, translucent to slightly opaque, grey with black dendritic inclusions	sg: 1	-	-	-	Partially crushed planar platform, soil clinging, minimal dorsal scarring.	08-07-2019	03-02-2020	JN	N
39	1	ST24	15-20	flake: fragment	chert: High Rock Range	sub-vitreous, opaque, bluish grey	sg: (2)	-	-	-	Multiple potlid fractures, suspected from forest fire. Possible platform but no impact mark or bulb present.	08-07-2019	03-02-2020	IT	N
40	3	ST25	0-10	flake: tertiary	chert: Banff formation siliceous siltstone	opaque, sub-vitreous, dark grey with lighter brownish grey banding	sg: 1[3]	-	-	-	Small resharpening flakes, low striking angle, multi-faceted platforms, relatively complex dorsal scarring.	08-07-2019	03-02-2020	JM	N
41	1	ST25	10-15	tool: projectile point	chert: Top of the World	vitreous, semi-translucent to opaque, dark and light grey (semi-banded)	29.1	17.3	4	1.7	Oxbow-like base (4,500 - 4,100 BP) with shallow side notched and deeply incised basal notch to create two distinct ears. Neck width 14.9 mm. Asymmetrical blade one side ovate and opposing is triangular shaped suggestive of resharpening while hafted and possible repurposed projectile point as knife. Blade is thinner (3.3 mm) than the base.	09-07-2019	03-02-2020	JM	Y

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
42	2	ST26	0-5	flake: fragment	chert: Etherington	sub-vitreous, opaque to semi-translucent along edges, light to medium grey	sg: (2[2])	-	-	-	Medial portion of flakes, soil clinging (very fine silt/tephra?).	09-07-2019	03-02-2020	ML	N
43	1	ST26	15-20	flake: fragment	chert: Etherington	sub-vitreous, opaque to semi-translucent along edges, light to medium grey	sg: (2)	-	-	-	Medial portion of flake, no platform.	09-07-2019	03-02-2020	ML	N
44	1	ST27	0-5	flake: fragment	chert: Top of the World	vitreous, translucent, light grey	sg: (2)	-	-	-	No platform, medial portion of flake, some soil clinging.	09-07-2019	03-02-2020	JH	N
45	1	ST728	0-5	tool: utilized flake (fragment)	siliceous mudstone	dull, opaque, brownish grey (weathered)	(30.1)	(19.4)	(4.1)	(2.2)	Terminal portion of secondary flake with use-wear along lateral and terminal edge, moderate to complex dorsal scarring, missing platform.	09-07-2019	03-02-2020	ME	Y
46	1	ST28	0-5	flake: tertiary	siliceous mudstone	dull, opaque, brownish grey (weathered)	sg: (2)	-	-	-	Low striking angle, multi-faceted platform that contains dull working edge and faint lip. Moderate dorsal scarring, terminal portion of flake absent. Soil clinging to dorsal surface.	09-07-2019	03-02-2020	ME	N
47	1	ST29	20-30	tool: utilized flake (fragment)	siliceous mudstone	dull, opaque, brownish grey (weathered)	(30.8)	(17.7)	(4.5)	(2.3)	No platform, use-wear along one edge, soil clinging to dorsal surface.	11-07-2019	03-02-2020	SJ	Y
48	1	ST30	5-10	tool: utilized shatter	Banff formation siliceous siltstone	Opaque, sub-vitreous, dark grey/blank banded with lighter brownish grey	38.1	18.5	9.2	6.5	Complex scarring on all sides, no distinct platform. Possible exhausted core fragment with use-wear along two edges. Soil clinging.	11-07-2019	03-02-2020	JN	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]
Excavation Unit = EU

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Provenience	Depth (below surface)	# of Specimens	Weight (kg)	Comments
Game Trail	surface	1	0.100	Planar to sub-angular cortex, castellated fracture patterns.
ST3/EU	0-20 cm	88	1.7	
ST4	0-5 cm	4	0.68	Bedding fractures with some castellations.
ST6	0-5 cm	2	0.52	Bedding fractures.
ST7	0-5 cm	2	0.04	
ST9	0-5 cm	5	0.15	
ST10	0-1 cm	8	0.2	
ST11	10-15 cm	1	0.06	
ST14	0-5 cm	1	0.13	
	Total:	112	3.58	

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Shovel Test= ST
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098.

BRITISH COLUMBIA
ARCHAEOLOGICAL SITE INVENTORY FORM

1. IDENTIFICATION

Branch Use Only

Form Received: **yyyy/mm/dd**

Temporary Number (new site): **DkPq-19-T02**
Borden Number: **DkPq-18**
Site Name(s):

2. LOCATION

NAD 83 UTM Zone: **11U** Easting: **662027** Northing: **5521095**
Source: GPS ☒ Digital Map ☐ Printed Map ☐

Location Description: **The site is located on a remnant terrace level situated on the east side of the West Alexander Creek drainage, within the headwaters of the West Alexander Creek drainage; 1.2 km east of Gaff Peak, 6.8 km west of Mount Domke, and 13.1 km south of Horseshoe Ridge.**

Access Description: **From the District of Sparwood head northwest on Elk Valley Highway/BC-43 for 17.4 km, turn east onto Line Creek Mine Rd and continue for 1.4 km. Turn south onto Valley FSR and travel for 4.5 km. Turn east onto Harmer FSR and continue for 6.3 km. Turn north onto Grave Creek FSR and travel for 6.8 km. Turn south onto Branch C FSR and continue for approximately 5 km and park on the ridge before the switchback and walk for approximately 330 m southeast downslope to the site.**

Parcel Identifier (PID or PIN): **016957105**

Legal Description: **Surveyed Crown Land: District Lot 13844, Kootenay District (survey PID: 8804680)**

3. TENURE/RESERVES

	Type	Land Management Agency	Details
☒ Provincial Jurisdiction	**Minerals**	**NWP Coal Canada**	**Crown Mountain Phase III Mine Site**

4. SITE VISIT INFORMATION

Permit Number: **2015-0098**
Issuing Agency: **Archaeology Branch**
Permit Type: **Inspection (S.14)**

Last Date of Visit: **2019/07/10**
Site Visit Type: **Recording (with testing)**
Archaeological Project Description: **Archaeological Impact Assessment of NWP Coal Canada: Crown Mountain Coal Project (Phase III - Mine Site): July 10, 2019**

Team Member Role	Full Name(s) and Affiliation(s)	On Site?
Permit Holder(s)	**Ian Tamasi (Tipi Mountain Eco-Cultural Services Ltd. [TMECS])**	**Y☒ N☐**
Field Director(s)	**Daniel Heinrichs (TMECS), Nyomi Sherwin (TMECS)**	**Y☒ N☐**
Field Supervisor(s)	**Justin Hanna (TMECS)**	**Y**
Other	**Joshua Martin (TMECS/Shuswap Indian Band [SIB]), Marshall Ezelle (TMECS), Sunshine Joseph (TMECS/Ktunaxa Nation Council [KNC]), Nick Johnson (TMECS/KNC), John Nicholas (KNC), Jason Feltham (TMECS/KNC)**	**Y**

5. SITE TYPOLOGY

Refer to Site Form Guide, Appendix A.

Site Class	Type	Subtype	Descriptor(s)
Precontact	**Cultural Material**	**Subsurface**	**Lithics**

6. CULTURALLY MODIFIED TREES

7. ARCHAEOLOGICAL FEATURES

8. CULTURAL MATERIAL

Summarize all cultural material. Additional details may be attached.

Type	Status	Details	Repository
Artifact	**Collected**	**One utilized flake (fragment) of siliceous mudstone from a single positive subsurface test (ST1). See attached artifact catalogue for details.**	**Ktunaxa Nation Regional Repository**

9. ARCHAEOLOGICAL CULTURE

10. CHRONOLOGY

11. SITE DIMENSIONS AND BOUNDARIES

Length: **5 m** Direction **N-S**
Width: **5 m** Direction **E-W**

Site Boundary Type: **Observed**

Site Boundary Comments (describe in detail the methods and buffers applied to define site boundaries in all directions):

Site boundaries were observed based on negative shovel tests surrounding a single positive subsurface test (ST1). The site boundary consists of a 5 m diameter circle centred on ST1, as per the Archaeology Branch standard for isolated finds. The site is flagged in the field in a 15 m buffer around ST1 with yellow and black "AIA Zone" flagging tape.

12. STRATIGRAPHY

Summarize stratigraphy for subsurface sites. Additional details may be attached.

Depth of Cultural Strata: Minimum **.15 m** Maximum **.20 m**

Stratigraphy Description: **Podzol soil formation; 0-3 cm litter mat/organic matter, 3-9 cm (Ae horizon) light grey-brown sandy silt with 5% pebbles, 9-31 cm (B horizon) medium red-brown silty sand with 5-10% pebbles, 31-36 cm (C horizon) light grey clayey silt with 20-30% pebbles.**

13. DISTURBANCE

When	Cause of Disturbance	Condition Remarks
Present	**Arch Impact**	**Four shovel tests measuring 35 x 35 cm and excavated to a maximum depth of 50 cm are situated one meter in each cardinal direction from ST1 within the archaeological site boundary.**

14. ENVIRONMENT

Lower Elevation **1886 m** (asl) Upper Elevation **1886 m** (asl)
Elevation Comments: **Elevation obtained using handheld GPS unit and Google Earth Pro.**

Nearest Hydrological Feature(s): **West Alexander Creek located 61 m west of and 19 m downslope of the site.**
Terrain/Landform: **The site is located on a nested terrace level along the eastern side of the West Alexander Creek, and situated to the west of a a relict drainage.**

15. REFERENCES

Title(s)	Year	Author(s)
2015-0098, Interim Report (NWP Coal Canada: Crown Mountain Phase III)	**2020**	**TBD**
2015-0098, Final Report		**TBD**

16. RECORDER'S RECOMMENDATIONS

Site avoidance recommended, Site Alteration Permit will be required if avoidence is not possible.

17. GENERAL REMARKS

1) 54 shovel tests were excavated to determine the presence or absence of archaeological resources on the landform.
2) Undisturbed terrain, subject to natural turbation.
3) Development of the of currently proposed coal mine will result in the site area being destroyed or buried (spoil area) and assigned with Legacy Status.

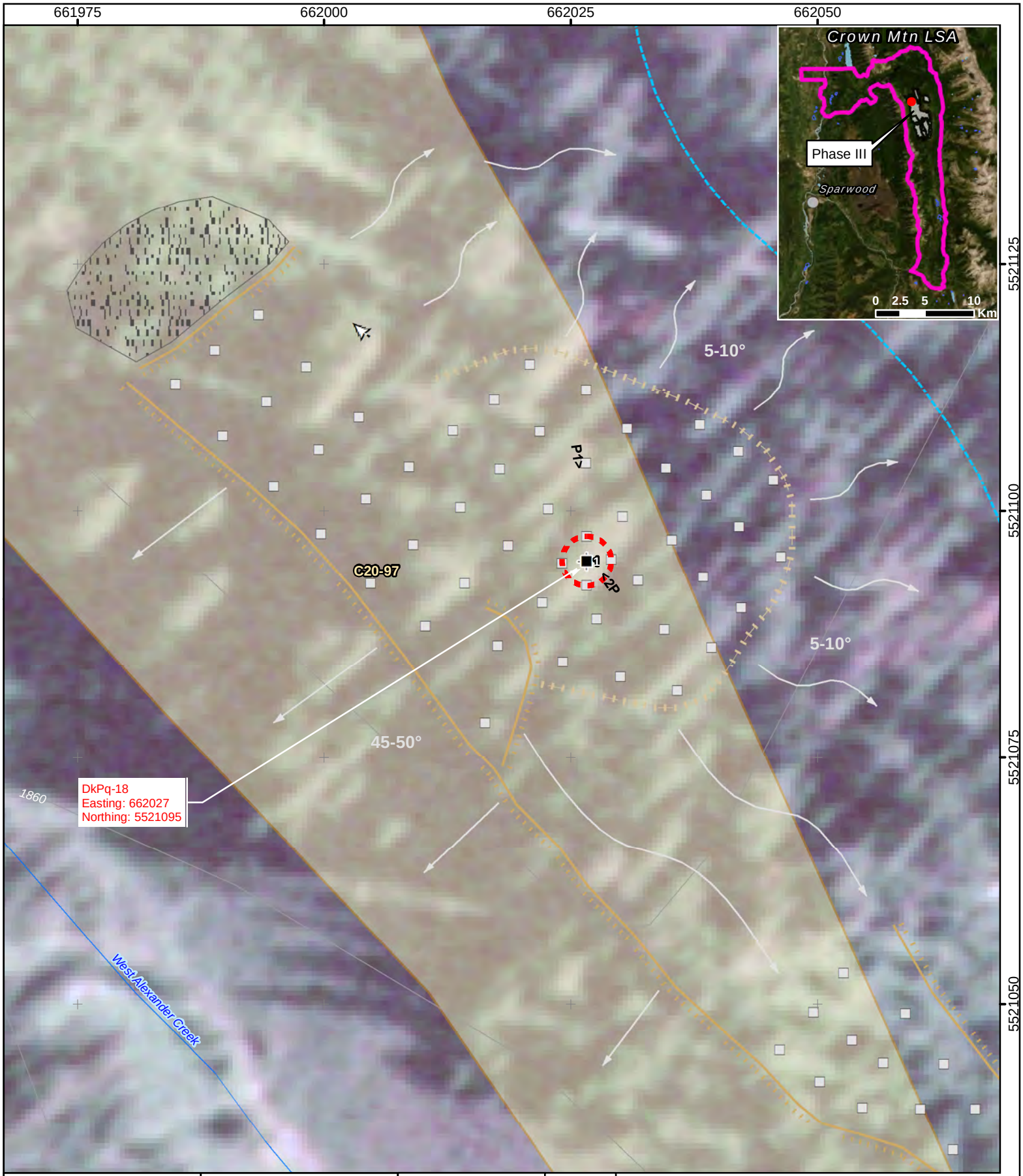

Figure: 10	Client: NWP Coal Canada	UTM11 - NAD83 - NTS 82G15	Mapping by:	**Legend:** Study Area (2018-19); New Precontact Arch Site Bdry (TMECS 2019); Centroid; Positive Shovel Test (35 x 35 cm); Negative Shovel Test (35 x 35 cm); Negative Tree Throw; Water Feature; Ephemeral Creek; Contour Line (20 m); Poorly Defined Margin; Terrace Margin; Disturbance; Slope; Arch Potential Area (AOA - Crown Mountain); P#> Photo
Permit: 2015-0098	Survey Date: 11/07/2019	BC AB INSET 1:40,000,000		
Title: DkPr-18 Site Map	Mapping Date: 11/02/2020			
Project: Crown Mountain Phase III	1:500 0 2.5 5 10 m			

Base Data: DataBC; Base Map: ESRI; Arch Site: Arch Branch; Project: Client; Field: TMECS

Disclaimer: Information relating to the location and nature of archaeological sites is considered sensitive cultural heritage information. Archaeological Overview Assessments, polygons, and other site-specific information provided to the Proponent's name is confidential and must not be shared with the public, individuals or other entities without written permission from TMECS Ltd.

Photo 1. Overview of site during the excavation of ST1 (red arrow), situated on a nested terrace along the eastern side of the West Alexander Creek drainage. (view: south)

Photo 2. Supplementary overview of site area, with shovel testing being conducted to the north of ST 1 (located in the foreground). (view: northwest)

Photo 3. Representative stratigraphy for the site (ST 1: west wall)

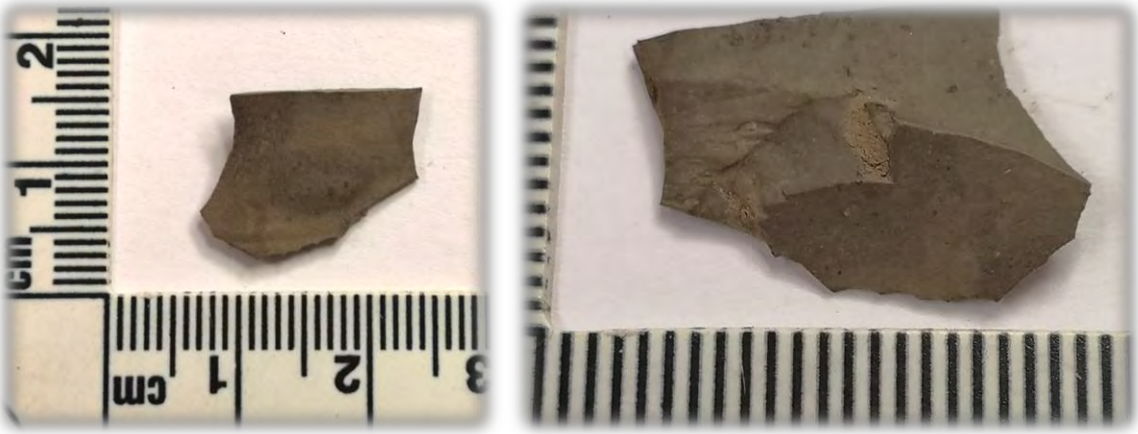

Photo 4. Utilized flake fragment of siliceous mudstone recovered from 15-20 cm below surface in ST 1 (catalogue number 1 [Photo left: ventral side; Photo right: close-up of dorsal side with utilized edge]).

Borden Number:
Permit Number: 2015-0098

Temporary Borden Number: DkPq-19-T02

Date of Assessment / Field Visit: July 10, 2019
Tipi Mountain Eco-Cultural Services Ltd.

Cat #	# Artifacts	Provenience	Depth (cm [bs])	Artifact Type	Lithic Material	Colour & Optical Properties	Length (mm) (or size grade [sg:])	Width (mm)	Thickness (mm)	Weight (g)	Comments	Date Collected (dd-mmm-yy)	Date Catalogued (dd-mmm-yy)	Collected By	Photo (Y/N)
1	1	ST1	15-20	tool: utilized flake (fragment)	siliceous mudstone	opaque, dull, brownish grey	(19.7)	(13.7)	(2.9)	(0.5)	Medial-terminal portion of flake. No platform. Use-wear along lateral edge.	10-07-2019	03-02-2020	JH	Y

Catalogue Legend:
Presence of (brackets) within a numerical value entry indicates an incomplete measurement due to breakage
Surface Find= SF
Shovel Test= ST
Tree Throw screened in place of a shovel test= TT
Shovel Test Location= STL
Evaluative Unit= EU
Size Grade= sg, defined by 1= 0 -1 cm, 2= 1-2 cm, 3= 2=3 cm, etc.
Presence of "-" indicates that no value is applicable
Presence of [square brackets] indicated the number of artifacts with differing characteristics (e.g. colour and/or sg) in the same catalogue number= [n=X]

Catalogue Notes:
All artifacts from this site that have been recovered under *HCA* Permit 2015-0098 will be curated at the Ktunaxa Nation Regional Repository

Appendix D:
Stratigraphic Information

Heritage Inspection Permit
2015-0098

NWP Coal Canada Ltd.
Crown Mountain Coking Coal Project
Phase III – Mine Site

Representative Stratigraphy

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
CM-01	**18-1**	I	0-5 cm	Litter Mat (LM)
		II	5-8 cm	Grey ashy silt (Ae Horizon)
		III	8-20 cm	Reddish brown silt with 5-10% angular to sub-angular pebbles and cobbles (Bf Horizon)
		IV	20-25 cm	Brown clayey silt with 10-20% angular to sub-angular pebbles and cobbles (C Horizon)
		V	> 25 cm	Hard packed grey-brown silt with 50-60% angular to sub-angular cobbles
CM-04	**18-1**	I	0-5 cm	LM
		II	5-7 cm	Ashy silt (Ae Horizon)
		III	7-15 cm	Reddish brown silt with 30-40% sub-angular pebbles and 5% sub-angular cobbles (Bf Horizon)
		IV	15-25 cm	Light tan-brown sandy silt with 40-50% sub-angular to angular pebbles (Bm/C Horizon)
		V	> 25 cm	Hardpacked gravel and cobbles
CM-05	**18-1**	I	0-2 cm	LM
		II	2-5 cm	Grey-black silt
		III	5-8 cm	Reddish brown silt with 40-60% sub-angular pebbles and angular clasts
		IV	8-15 cm	Light tan-brown silt with 50-60% sub-angular pebbles and angular clasts
		V	> 15 cm	Hardpacked light grey sandy silt with 60-80% sub-angular pebbles and angular clasts
CM-06	**18-1**	I	0-2 cm	LM
		II	2-5 cm	Grey-brown silt with 50% angular clasts
		III	> 5 cm	Whitish grey silty sand with 70-80% angular clasts
CM-07	**18-1**	I	0-13 cm	LM
		II	13-17 cm	Fine light grey silt (Ae Horizon)
		III	17-19 cm	Light brown silt
		IV	19-38 cm	Light yellow-brown silt with 1-2% sub-round to subangular pebbles
		V	38-40 cm	Medium grey-brown compact silt with 1-2% sub-round to subangular pebbles
	19-1	I	0-5 cm	LM
		II	5-23 cm	Mottled black and medium brown sandy silt with 2-5% sub-round pebbles
		III	23-41 cm	Mottled black and grey-brown silty sand with 5-15% pebbles
		IV	41-55 cm	Wet mottled black and grey-brown silty sand with 25-30% sub-round to sub-angular pebbles and cobbles

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
CM-07	**19-2**	I	0-5 cm	LM
		II	5-23 cm	Mottled black and medium brown sandy silt with 3-5% sub-round pebble inclusions
		III	23-41 cm	Mottled black and grey brown silty sand with 25-30% sub-round to sub-angular pebbles and cobbles
		IV	41-55 cm	Wet mottled black and grey brown silty sand with 25-30% sub-round to sub-angular pebbles and cobbles
CM-08	**18-1**	I	0-3 cm	LM
		II	3-13 cm	Reddish brown silt with 20-30% sub-angular to angular pebbles
		III	13-30 cm	Brown sandy silt with 30-40% angular to sub-angular to angular pebbles
		IV	> 30 cm	Hardpacked grey-brown sandy silt with 60-70% angular to sub-angular pebbles and clasts
CM-11	**18-1**	I	0-2 cm	LM
		II	2-4 cm	Dark brown-black organic rich silt
		III	4-19 cm	Medium-dark brown sandy silt with <1% sub-angular inclusions
		IV	19-24 cm	Yellow-brown clayey silt
		V	24-34 cm	Dark brown-black silty sand with 2% sub-angular pebbles and cobbles and three large angular boulders
CM-12	**18-1**	I	0-10 cm	LM
		II	10-20 cm	Dark brown sandy loam
		III	20-25 cm	Very dark brown silty sand with 10% angular pebbles
		IV	25-30 cm	Brown silty sand
		V	30-40 cm	Grey-brown fine sand with some silt
		VI	40-50 cm	Reddish brown sandy silt with angular to sub-angular pebbles
		VII	> 50 cm	Hardpacked light grey-brown sand with sub-angular cobbles
	18-2	I	0-5 cm	LM & OM
		II	5-10 cm	Greyish brown silt, variable 5-20% angular to sub-angular (platy) pebbles
		III	10-20 cm	Brownish-grey silt, variable 5-20% angular to sub-angular (platy) pebbles
		IV	20-25 cm	Reddish-brown silt, variable 5-20% angular to sub-angular (platy) pebbles
		V	25-30 cm+	Grey-brown and reddish-brown (mottled) silt with variable 5-20% angular to sub-angular (platy) pebbles

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C20-72	**18-1** (*DkPq-15 Site Polygon B)*	I	0-9 cm	LM
		II	9-14 cm	Light-medium grey fine silt (Ae Horizon)
		III	14-30 cm	Dark-medium reddish-brown sandy silt with 1-2% subangular to sub-round pebbles
		IV	30-40 cm	Brownish grey (increasing in grey colour with depth), compact sandy silt with 1-2% sub-round to subangular pebbles
		Comments: Lithic artifacts were recovered from 15-40 cm *depth below surface* (dbs). Small fragments of friable pieces of coal found throughout STs.		
	18-2 (*DkPq-15 Site Polygon A)*	I	0-6 cm	LM
		II	6-13 cm	Light-medium grey fine silt (Ae Horizon)
		III	13-26 cm	Medium brown sandy silt with 1% subangular to sub-round pebbles
		IV	26-34 cm	Brownish grey sandy silt
		Comments: Lithic artifacts were recovered from 20-25 dbs.		
	18-3	I	0-5 cm	LM
		II	5-10 cm	Light-medium grey fine silt (Ae Horizon)
		III	10-25 cm	Light-medium red-brown sandy silt with 1% subangular pebbles
		IV	25-30 cm	Compact light grey sandy silt
	18-4 (*DkPq-15 Site Polygon C)*	I	0-3 cm	LM
		II	3-8 cm	Light-medium grey fine silt (Ae Horizon)
		III	8-25 cm	Medium tan-brown sandy silt with 3-5% sub-round to subangular pebbles
		IV	25-32 cm	Compact pale grey-brown sandy silt with 3-5% sub-round to subangular pebbles
		Comments: Two lithic artifacts were recovered from 20-30 cm dbs.		
	18-5	I	0-8 cm	LM
		II	8-16 cm	Greyish brown organic rich silt
		III	16-20 cm	Compact medium grey silt
		IV	20-27 cm	Tan-brown sandy silt with 7-10% sub-round to subangular pebbles
		V	27-29 cm	Compact grey-brown sandy sit with 10-15% subangular to sub-round pebbles
	18-6	I	0-4 cm	LM
		II	4-7 cm	Light grey silt (Ae Horizon)
		III	7-22 cm	Red-tan brown sandy silt with 15-20% subangular to sub-round pebbles
		IV	22-26 cm	Compact dark grey sandy silt with 20-25% sub-round to subangular pebbles
	18-7	I	0-4 cm	LM
		II	4-7 cm	Dark brown-grey silt
		III	7-9 cm	Light grey silt (Ae Horizon)
		IV	9-20 cm	Red-brown sandy silt with 5-10% sub-round to subangular pebbles
		V	20-27 cm	Compact light-yellow brown sandy silt with 5-10% sub-round to subangular pebbles.

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C20-89	**18-1**	I	0-7 cm	LM/OM (moss)
		II	7-15 cm	Light grey ashy silt (Ae) with some angular to subangular sandstone pebbles
		III	15-30 cm	Reddish brown silt (Bf) with 5-10% subangular pebbles
		IV	30-40 cm	Light reddish brown to grey silty sand (Bm – transition to parent material)
		V	> 40 cm	Grey coarse sand with 5-10% subangular pebbles
C20-91	**18-1**	I	0-10 cm	LM (moss)
		II	> 10 cm	Organic-rich rocky matrix
		Comments: No fine sediment accumulation.		
C20-95	**18-1**	I	0-5 cm	LM/OM
		II	5-10 cm	Ashy silt (Ae) with 10-20% angular to subangular pebbles
		III	10-40 cm	Reddish brown silt (Bf) with 20-30% angular to subangular pebbles
		IV	> 40 cm	Brown-grey silt (C) with 30-50% angular cobbles
	18-2	I	0-5 cm	LM
		II	5-10 cm	Grey-brown silt with granular nodules of compacted silt and <10% subangular to angular pebbles
		III	10-30 cm	Brown-grey silty sand with 30-40% angular to subangular pebbles
		IV	> 30 cm	Dense sand with angular to subangular gravel
C20-97	**19-1**	I	0-11 cm	LM
		II	11-26 cm	Light brown silty sand with 15-20% sub-round to sub-angular pebbles and 1-2% cobbles
		III	26-40 cm	Wet coarse light brown sand with a minimal amount of silt and 30-40% sub-round, sub-angular, and angular pebbles and cobbles
	19-2 (*DkPq-18)*	I	0-3 cm	LM
		II	3-9 cm	Light grey-brown sandy silt (Ae Horizon) with 5% pebbles
		III	9-31 cm	Medium red-brown silty sand with 5-10% pebbles
		IV	31-36 cm	Light grey clayey silt with 20-30% pebbles
		Comments: One mudstone utilized flake recovered from 15-20 cm dbs.		
	19-3	I	0-3 cm	LM
		II	3-7 cm	Medium brown friable silty-clayey sand, no inclusions
		III	7-22 cm	Wet greyish brown sandy-clayey silt with 1% round pebbles
		IV	22-28 cm	Wet medium grey clayey silt with some sand and 3% sub-round to sub-angular pebbles and <1% cobbles

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
C20-98	**18-1**	I	0-4 cm	LM
		II	4-36 cm	Dark brown loam with 10-15% subangular to angular pebbles and gravels
		III	36-44 cm	Slightly lighter brown loam with 10-15% subangular to angular pebbles and gravels
C20-99	**18-1a** (*DkPq-17 Site Polygon A)*	I	0-2 cm	LM
		II	2-14 cm	Dark brown-gray silt with 1-5% sub-angular, sub-rounded pebbles and 5-10% roots and rootlets
		III	14-20 cm	Dark red-brown silt
		IV	20-30 cm	Tan, red-brown silt with 1-5% sub-angular, sub-rounded pebbles
		V	30-34 cm	Light pink, brown-tan silt
		Comments: One lithic artifact recovered from 5-10 cm dbs.		
	18-1b	Comments: No stratigraphy was recorded for this STL; similar composition to STL 18-1a.		
	18-1c (*DkPq-17 Site Polygon C)*	I	0-5 cm	LM
		II	5-15 cm	Mottled brown-grey silt with 5-10% angular to subangular pebbles
		III	> 15 cm	Densely packed mottled grey, brown, dark brown clayey silt
		Comments: Four lithic artifacts recovered from 5-10 cm dbs.		
	18-1d (*DkPq-17 Site Polygon B)*	I	0-5 cm	LM
		II	5-6 cm	Grey ashy silt (Ae)
		III	6-25 cm	Reddish brown silt with 5-10% angular to subangular pebbles
		IV	25-35 cm	Light brown silt (Bf) with angular to subangular pebbles
		V	> 35 cm	Hard packed yellow-brown clayey silt with 20-30% angular to subangular pebbles
		Comments: 18 lithic artifacts recovered from 0-20 cm dbs.		
	19-1 (*DkPq-17 Site Polygons D & E)*	I	0-9 cm	LM and OM
		II	9-11 cm	Black to dark grey silt (mottled)
		III	11-24cm	Yellowish-brown clayey-silt with 5-10% sub-angular to angular pebbles
		IV	> 24 cm	Hard packed light brown clayey silt with 20-30% angular to subangular pebbles
C20-100	**18-1**	I	0-9 cm	LM
		II	9-11 cm	Light-medium grey silt (Ae)
		III	11-26 cm	Mottled bright red-yellow-brown with medium brown-red fine silt (Bf), 5% subangular to sub-round pebbles and cobbles and decaying root
		IV	26-31 cm	Light yellow-grey silt
C20-101	**18-1a** *(DkPq-11)*	I	0-1 cm	LM and OM with some fine sediments
		II	1- 3 cm	Medium-dark brown, organic-rich silt
		III	> 3 cm	Rocky substrate, 80% broken shale with intact shale bed (Fernie Formation) sporadically visible
	18-1b	Comments: Same stratigraphy as STL 1a.		
	18-1c	Comments: Same stratigraphy as STL 1a.		

AOA Polygon	Shovel Test Location	Stratum	Depth (below surface)	Description
Judgmental	**18-1** *(DkPq-16)*	I	0-1 cm	LM
		II	1-7 cm	Overburden, medium brown sandy silt with 2-5% sub-round to subangular pebbles
		III	7-13 cm	Medium-light grey silt (Ae) mottled with medium yellow, brown, red sandy silt mottled with dark brown-black silt
		IV	13-30 cm	Light pinkish-brown sandy silt with 15-20% subangular to angular pebbles and cobbles with veins of medium yellow, brown, red sandy silt
		Comments: Two quartzite flakes recovered from 5-10 cm dbs.		
	19-1	I	0-6 cm	LM
		II	6-13 cm	Medium grey-brown silty sand with 1-3% round pebbles
		III	13-25 cm	Medium brown coarse-grained sand with silt pockets and 10-15% sub-round to sub-angular pebbles
		IV	25-27 cm	Shattered bedrock
	19-2a	I	0-5 cm	LM
		II	5-16 cm	Medium brown silty sand stained with black coal
		III	16-29 cm	Wet medium grey silty sand with clay pockets and 35-40% sub-angular to angular pebbles
	19-2b	I	0-7 cm	LM
		II	7-21 cm	Coarse mottled grey and black sand with 40-50% sub-angular to angular pebbles and 1% cobbles
	19-3a	I	0-3.5 cm	LM
		II	3.5-5 cm	Mottled grey, brown, black silty sand with 5% sub-angular to angular pebbles
		III	5-30 cm	Red-brown silty sandy with 20-25% sub-angular to angular pebbles and cobbles, pebbles increase to 30-35% with depth
	19-3b	I	0-2 cm	LM
		II	2-8 cm	Dark brown fine silty sand with 25% sub-angular to angular pebbles and cobbles, roots and rootlets
		III	8-30 cm	Medium brown silty sand with 35-40% compact angular cobbles
	19-3c	I	0-3 cm	LM
		II	3-6 cm	Mottled grey, brown, black silty sand with 20% sub-angular to angular pebbles
		III	6-20 cm	Red-brown silty sand with 30-35% sub-angular to angular pebbles and cobbles