

Client & Project

Client & Project				<i>FORESTRY ONLY</i>
PROPOSER Ministry of Transportation and Infrastructure		DEVELOPMENT TYPE Road upgrades		FOREST LICENCE
CONTACT Jenn Gibson, RPF, PMP Senior Advisor, Indigenous Relations		LOCATION Barrière	NTS MAP 92P/1	CUTTING PERMIT
ADDRESS 342-447 Columbia Street Kamloops BC V2C 2T3		SCHEDULE Unknown	REGION Dist. 6 Thomp-Nicola	CUTBLOCKS
PHONE 250-828-4229		OTHER I.D. Hwy 5 South Passing Lane; Badger CVSE Pullout		
FAX OR EMAIL Jenn.Gibson@gov.bc.ca		AREA/LENGTH 17.32 ha	ELEVATION (a.s.l.) 400-440 m	BIOGEO ZONE(S) IDFxb2

Assessment Summary

SURVEY DATE(S) November 20, 2018		SURVEY CREW (AND AFFILIATION) Cole Fletcher-Jules (Simpco)		
FIELD DIRECTOR(S) Michael Elvidge		FIELD DIRECTOR LOCATION On site		CREW SUPERVISOR Michael Elvidge
REASON FOR ASSESSMENT Client request		PREVIOUSLY RECORDED SITES IN VICINITY (AND TYPES) EgRa-2, -3, -4, -7, -8, -9, -13, -15; EgRb-4; EhRa-39, -41 (Table 1)		
TRAVERSE TYPE Judgmental	AVERAGE CREW TRAVERSE WIDTH 20 m	# OF AREAS OF ARCH POTENTIAL 9	TOTAL # OF SUBSURFACE TESTS None	
PROTECTED SITES (AND TYPES) IN CONFLICT WITH DEVELOPMENT None		NON PROTECTED SITES (AND TYPES) None		
REPORT AUTHOR Michael Elvidge		HCA PERMIT 2015-0133	PROJECT OFFICER Nathan Friesen	PERMIT HOLDER Ewan Anderson

Additional Archaeological Work Recommended? Yes, AIA

Project Area Description

The Ministry of Transportation and Infrastructure (MoTI) is proposing the development of a Commercial Vehicle Safety and Enforcement (CVSE) pullout and a variable width passing lane with a linear distance of 3.1 km, totalling 17.32 ha. Proposed developments are situated adjacent to Highway 5 south of the District Municipality of Barrière. At the request of MoTI, a preliminary field reconnaissance (PFR) of the study area was conducted to guide future planning activities. The CVSE pullout is located 0.18 km east of the North Thompson River (NTR), 0.40 km north of Badger Creek, and 1.70 km southwest of Oliver Creek. The Highway 5 passing lane is located 0.02 km north of Louis Creek, 0.06 km east of the NTR, and 1.8 km south-southeast of the Barrière River (Figure 1). Proposed development operations include the clearing and grubbing of vegetation, soil stripping, blasting, deep excavation, and heavy vehicle traffic, all of which have the potential to alter undocumented archaeological sites.

Prior to the field assessment, a desktop review of the study area indicated locations having high potential for undocumented archaeological resources due to their likelihood to contain well-drained and prominent landforms in proximity to the NTR and its tributaries. This map review necessitated a field-based PFR to confirm the size and location of areas of archaeological potential (AAPs). No regional archaeological overview assessment is available for the study area.

There are no previously recorded archaeological sites within the study area; however, there are 11 previously recorded sites located within 1 km of the study area (Table 1). Of these, six sites comprise cultural depressions interpreted as either house pits or cache pits; four sites comprise combinations of cultural depressions, archaeological materials, and/or human remains; and one site consists of a subsurface lithic scatter.

Numerous archaeological studies have occurred near the study area. Specifically, three studies were conducted which overlap or are relevant to the proposed development. An archaeological impact assessment (AIA) conducted in 2006 on proposed upgrades to Agate Bay Road partially overlaps the southern portion of the Highway 5 passing lane (Terra 2010 Appendix B:45). The study assessed the area as having low archaeological potential due to the extensive and deeply cut ground disturbances observed, which were a result of industrial development. Seven subsurface tests were excavated with negative results.

North of the CVSE pullout, an AIA conducted on the Badger Creek Passing Lane resulted in the identification of site EgRa-15 (I.R. Wilson 1999). EgRa-15 consists of a low-density surface and subsurface lithic scatter identified on an elongated bench overlooking the NTR to the west. Twenty-seven subsurface tests and one 1 x 1 m evaluative unit were excavated with terminal depths ranging from 0.30 m to 0.45 m below surface. Seven tests proved positive for archaeological material, which includes 59 pieces of debitage and a single retouched flake. No diagnostic materials were recovered.

The 1982 mid-NTR valley assessment conducted by Robert Wilson included a survey of areas of archaeological potential throughout the mid-NTR valley, generally north of the current study area (Wilson 1983). During this assessment, five of the sites within 1 km of the proposed development were identified or revisited (Table 1). This assessment concluded that the majority of sites identified within the valley are situated on the NTR floodplain (approximately 47 of the 53 then recorded sites). Additionally, the majority of lithic sites were identified between Chu Chua and Newhykulston creeks, and the majority of archaeological features were identified at the mouth of the Barrière River (Wilson 1983:28).

A study of the surficial geology between Louis Creek and Chu Chua Creek (Paulen et al. 1998) provides an understanding of the anticipated depositional sequence that is present within the study area. This study reveals that sediments situated between 425 m and 540 m above sea level (a.s.l) are likely to consist of massive to stratified deposits of sands, gravels, and silts in successive glaciolacustrine terraces (Paulen et al. 1998:16–18). The current study area is situated within 400 m to 440 m a.s.l; elevated terrace features situated above 425 m a.s.l may belong to a relict glacial lakeshore. Fluvial deposits occur at the edge of the NTR valley and the entire community of Barrière is situated upon a post-glacial alluvial fan. Well-sorted, stratified deposits of sands and gravels are anticipated on this fan. In areas of high relief, deposits of crudely sorted to massive colluvium are expected as either thin veneers to several metre-thick deposits that overlay glacial till.

Methodology

Prior to fieldwork, a desk-based review was conducted for the study area. The Archaeology Branch's Remote Access to Archaeological Data (RAAD) application was used to identify previously recorded archaeological sites within or near the study area and the Provincial Archaeological Report Library (PARL) was used to identify relevant assessments. Additionally, topographic data and aerial imagery were reviewed to identify hydrological and/or terrain features, as well as lands previously disturbed by commercial, industrial, or agricultural development.

Per Permit 2015-0133: crew members were spaced at approximately 10 m intervals along survey transects, all ground exposures encountered were inspected for archaeological materials, and all trees (all species standing or fallen, including stumps) along survey transects were examined for indications of cultural modification. Survey was intensified in areas considered to have higher archaeological potential based on topographic and hydrological terrain features observed in the field.

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

A qualified field director was a member of the survey crew during this assessment.

Survey Results

The entirety of the proposed Highway 5 passing lane and the CVSE pullout were subject to pedestrian survey (Figures 2–5). The northern portion of the study area is characterized by flat and level terraced terrain. A lower terrace is situated within the western and northernmost portions, elevated 30 m +/- 10 m above the NTR (Figures 2 and 4; Photo 1; AAPs 5–7), and an upper terrace, which is elevated an additional 20 m, is aligned parallel to the highway (Figures 2 and 3; AAPs 1–4). The central portion of the study area is situated on gently sloping and undulating terraced terrain with intermittent rocky bluffs and has a general western aspect. The southern portion of the passing lane is situated on flat, rocky, and heavily disturbed terrain (Figure 4; Photo 2; AAP 8). The CVSE pullout area is situated on a remnant glacial landform that has been heavily impacted from road construction activities (Figure 5; Photo 3; AAP 9).

Significant ground disturbance was observed throughout the study area. Highway construction, observed through ditching, grading, cutting, blasting, and capping is ubiquitous, resulting in variable levels of impact from deep excavation and sediment removal near Agate Bay Road to minor impacts in the northern portions of the study area. Deep excavation and sediment removal were observed where ancillary roads (Russel Street, Hanson and Agate Bay roads, and Enterprise Way) overlap the study area. Terrain near Agate Bay Road has been heavily impacted by industrial development with the landscaped terrain associated with the former mill and modern debris present in this area. A large, active aggregate pit has excavated, levelled, or capped terrain between Agate Bay and Hanson Road. North of Hanson Road, urban development has resulted in localized impacts observed through landscaping, access roads, and modern refuse dumps. An approximate 1 m to 2 m wide fireguard excavated to organically sterile sediments (0.1 m to 0.25 m) is intermittent within the northern portion of the proposed passing lane. Construction activities at the CVSE pullout including sediment excavation (to a depth of approximately 1 m) to glacial till deposits was observed in the northwestern portions. Highway 5 traverses through the CVSE pullout with cutting observed in the southeastern portions.

Generally, forest cover was present in the northern portions of the study area (Figure 2) and was largely absent in the southern areas (Figures 3–5). Where forest cover persists, Douglas fir and ponderosa pine with an understory of snowberry, grasses, alder, willow, tall Oregon grape, trembling aspen, and strawberry are present.

Nine AAPs were identified within the study area (Figures 2–5; Table 2). These locations consist of well drained, flat, or otherwise elevated and prominent terrain features overlooking the NTR to the west or unnamed ephemeral hydrological features. No archaeological material or features were identified at the nine AAPs.

With exception to the nine identified AAPs, the remainder of the study area is situated on steeply sloping, rocky, or otherwise featureless terrain that is heavily disturbed and is considered to have low archaeological potential.

Evaluation of Testing Program(s)

Not applicable

Impact Assessment and Recommendations

The construction of a highway passing lane and a CVSE pullout has the potential to alter undiscovered archaeological sites within AAPs 1–9 unless these lands are avoided. It is recommended that MoTI avoid AAPs 1–9 through project redesign. Avoidance can be achieved through the exclusion of these areas from development activities. To determine the feasibility of avoidance during project design discussions, MoTI has been provided with the geospatial data for delineating the features. If avoidance of these locations is not feasible, an AIA incorporating deep, auger testing and shovel testing is recommended prior to development to determine the presence of any undocumented archaeological sites within the study area.

Archaeological potential in the remainder of the areas subject to survey is considered to be low. Therefore, no further archaeological investigations are recommended for these areas provided current development boundaries are not altered to include any unassessed areas.

Although the potential presence of archaeological sites is considered to be low in the assessed development, no assessment can guarantee to identify all undocumented sites located in a particular area. Therefore, if archaeological materials are observed during any phase of development operations, all ground-altering activities in the vicinity of the materials must be halted immediately and a qualified archaeologist and the relevant First Nations contacted. If a qualified archaeologist considers the materials to be protected under the *Heritage Conservation Act*, ground-altering activities may only resume with approval of the Archaeology Branch. Supervisors and operators should be aware that sites and objects located on public or private land and associated with human habitation or use that might pre-date AD 1846 are automatically protected under Section 13 (2) of the Act and cannot be altered without a permit issued pursuant to Sections 12 or 14 of the Act.

Interpretations of the archaeological record are made without prejudice to Aboriginal Interests and are not intended to refute, alter, or recognize any Aboriginal treaty, title, or any other right. This assessment addresses the potential for the existence of physical evidence of past human activity and does not encompass traditional use or other heritage concerns of the First Nations communities. This information should be solicited directly from the First Nations.

References Cited

I.R. Wilson Consultants.

1999 Archaeological Impact Assessment, Salmon Arm Gravel Pits. HCA Permit 1998-323 Final Report. Report on file with the Archaeology Branch, Victoria, BC.

Paulen, R. C., P. T. Bobrowsky, E. C. Little, A. C. Prebble, and A. Ledwon.

1998 Surficial Deposits in the Louis Creek and Chu Chua Creek Area. *Geological Fieldwork 1997*. Volume 1998-1:1-12.

Terra Archaeology Limited.

2010 Proposed Ministry of Transportation Projects, Southern Interior Region, British Columbia, Archaeological Impact Assessments. HCA Permit 2005-0267 Final Report. Report on file with the Archaeology Branch, Victoria, BC.

Wilson, R. L.

1983 North Thompson River Archaeological Project Report No. 2: Heritage Resource Investigations of the Mid-North Thompson River Region, British Columbia. HCA Permit 1982-024 Final Report. Report on file with the Archaeology Branch, Victoria, BC.

Table 1: Previously Recorded Sites within 1 km of the Project Area

Borden Number	Distance from Study Area (km)	Site Type and Description	Permit; Recorder
EgRa-2	0.56 W	Cultural depression	1982-024; R. Wilson
EgRa-3	0.62 NNW	Cultural depression–house pit	1974-Non-Permit; D. Huntley
EgRa-4	0.10 SW	Cultural depression, surface lithics	1986-Non-Permit; Arcas
EgRa-7	0.20 WSW	Human remains, cultural depression, surface lithics	1989-001; SFU
EgRa-8	0.70 SW	Cultural depression	1982-024; R. Wilson
EgRa-9	0.79 SW	Cultural depression–cache pit	1982-024; R. Wilson
EgRa-13	0.01 WSW	Cultural depression–house pit	1986-Non-Permit; Arcas
EgRa-15	0.58 NE	Subsurface lithics	1998-0323; I.R. Wilson
EgRb-4	0.54 NW	Cultural depression–house pit	1969-Non-Permit; ASAB
EhRa-39	0.63 NW	Human remains, cultural depression, subsurface fauna	1998-002; Aegis Associates
EhRa-41	0.91 NW	Surface and subsurface lithics and fauna, cultural depression	2014-0088; Terra

Table 2: Archaeological Potential Description

Location	Size (ha)	Location Description	Figure Reference
AAP 1	0.12	This area consists of a flat bench with a western aspect. An ephemeral drainage is present to the south of the feature (Photo 1). Two utility poles, modern refuse deposits, and a small sediment piles are present on the feature.	3
AAP 2	0.13	This area consists of a gently sloping bench with a western aspect overlooking the NTR (Photo 4). Residential development has impacted the site through vegetation management and landscaping activities.	3
AAP 3	0.10	This area consists of gently sloping to flat terrain adjacent to a flat-topped and well-defined rock bluff overlooking the NTR to the west. This feature has been impacted by residential and ecclesiastical development including landscaping, deforestation and vegetation management, and low-grade access trails.	3
AAP 4	0.30	This consists of a level and well-defined terrace with a western aspect (Photo 5). This feature is situated at approximately 420 m a.s.l. and consists of a well-defined terrace edge with flat, level associated terrain. A fireguard is present on the feature; however, sediments have only been impacted to a depth of 0.20 m to 0.25 m and buried intact deposits are possible. Removed sediment was placed adjacent to the guard and has capped the surrounding surface.	2
AAP 5	0.33	This area consists of level and flat terraced terrain overlooking an ephemeral drainage to the south-southeast. This feature is situated on the Barrière alluvial fan and has the potential for deeply buried sediments. The feature has been impacted by highway and residential development.	2
AAP 6	0.21	This area consists of flat, undifferentiated terrain that is adjacent to an ephemeral drainage to the south. This feature is situated on the Barrière alluvial fan and has the potential for deeply buried sediments. The feature has been impacted by highway and commercial development.	2
AAP 7	0.21	This area consists of a flat, undifferentiated area with terraces present in the north and south, which overlook unnamed wetlands. The feature is well-drained and is elevated approximately 2 m to 4 m above the surrounding low-lying terrain.	2
AAP 8	0.05	This area consists of an elongated knoll elevated approximately 1 m above the surrounding terrain (Photo 6). The feature is very rocky and has been impacted by various road, utilities, and light industrial construction activities.	4
AAP 9	0.10	This area consists of a narrow, flat, and well-drained portion of a remnant glacial kame (Photo 7). The western and eastern margins of the feature are heavily impacted from construction of Highway 5 and the construction of a fence line paralleling the highway right-of-way.	5



Photo 1: South-southeastern view showing the flat, level, and terraced terrain associated with AAP 5 and the northern portion of the study area.



Photo 2: Southwestern view showing the flat, leveled terrain adjacent to Enterprise Way in the southern portion of the Highway 5 passing lane.



Photo 3: Southwestern view showing the heavily disturbed terrain associated with the proposed CVSE pullout. Stockpiled sediments and debris can be seen center frame.



Photo 4: South-southeastern view showing the flat, relatively level terrain associated with AAP 2. Residential development has caused minor impacts to the feature.



Photo 5: North-northwestern view of AAP 4 showing the flat to gently sloping terrain associated terrace.



Photo 6: Southern view showing the elevated and elongated feature associated with AAP 8. Exposed gravels and heavily disturbed terrain were observed in this area.



Photo 7: Northeastern view of AAP 9 showing the remnant landform associated with a glacial feature. A fence line bounds the feature to the east and highway development has impacted the western margin of the feature.

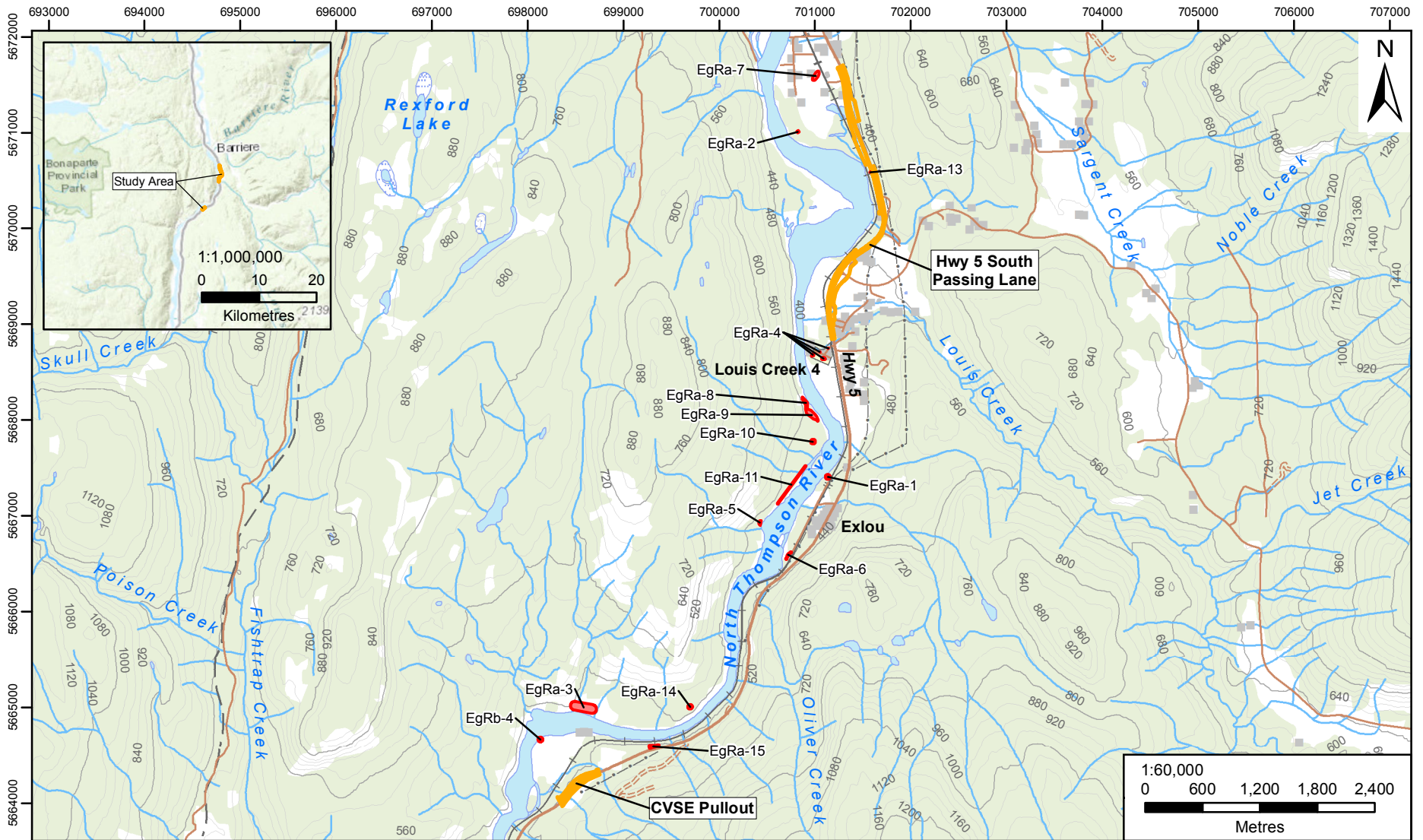
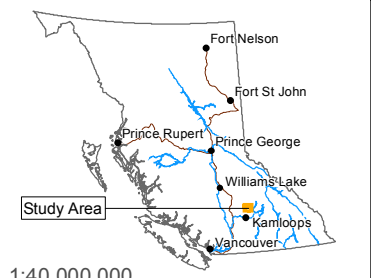


Figure 1. Location of Hwy 5 South Passing Lane and CVSE Pullout

TCS ID: TCS18-0024-002
 Client: Ministry of Transportation and Infrastructure
 HCA Permit: 2015-0133
 Date Produced: 2018-11-01
 Coordinate System: NAD 1983 UTM Zone 10N
 Client Data Currency: 2018-10-02
 Topographic Data Source: CanVec courtesy DataBC – 2017-12-15

- Study Area
- Archaeological Site
- Building
- Highway
- Main Road
- Secondary Road
- Railroad
- Power Line
- Pipeline
- Contour
- River/Creek
- Waterbody
- Wetland
- Indian Reserve
- Wooded Area



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

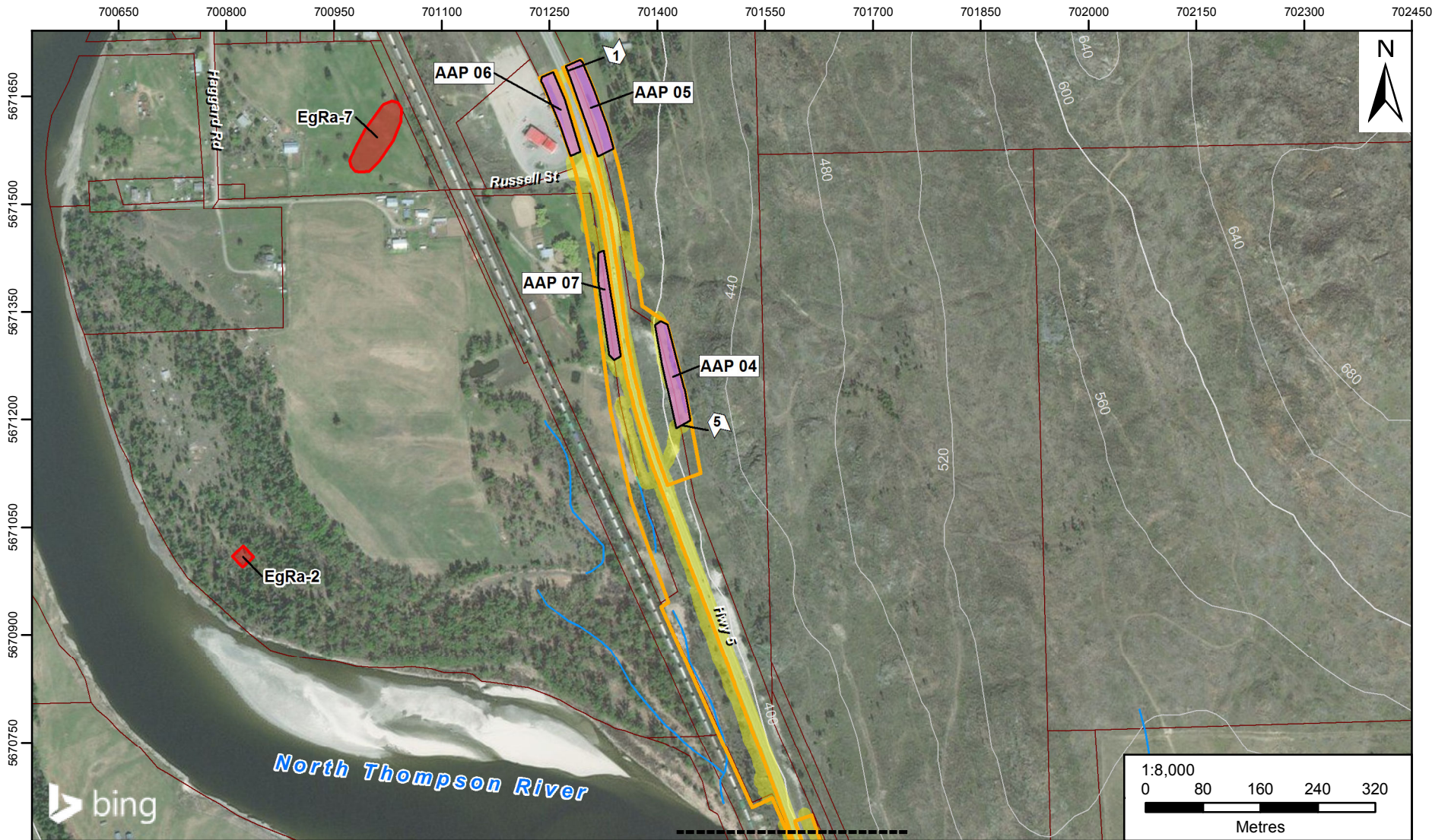
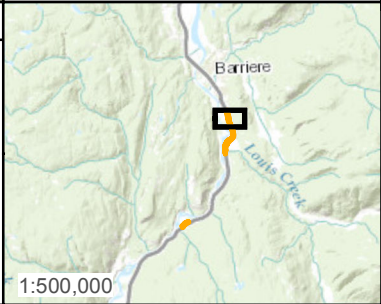


Figure 2. Hwy 5 South Passing Lane

TCS ID: TCS18-0024-002
 Client: Ministry of Transportation and Infrastructure
 HCA Permit: 2015-0133
 Date Produced: 2019-02-05
 Coordinate System: NAD 1983 UTM Zone 10N
 Client Data Currency: 2018-10-02
 Topographic Data Source: CanVec courtesy DataBC – 2017-12-15
 Imagery Currency: 2016-09-21

- Study Area
- Archaeological Site
- Area of Archaeological Potential
- Survey Coverage
- Contour
- River/Creek
- Cadastral Boundary
- Match Line
- Photo Location



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

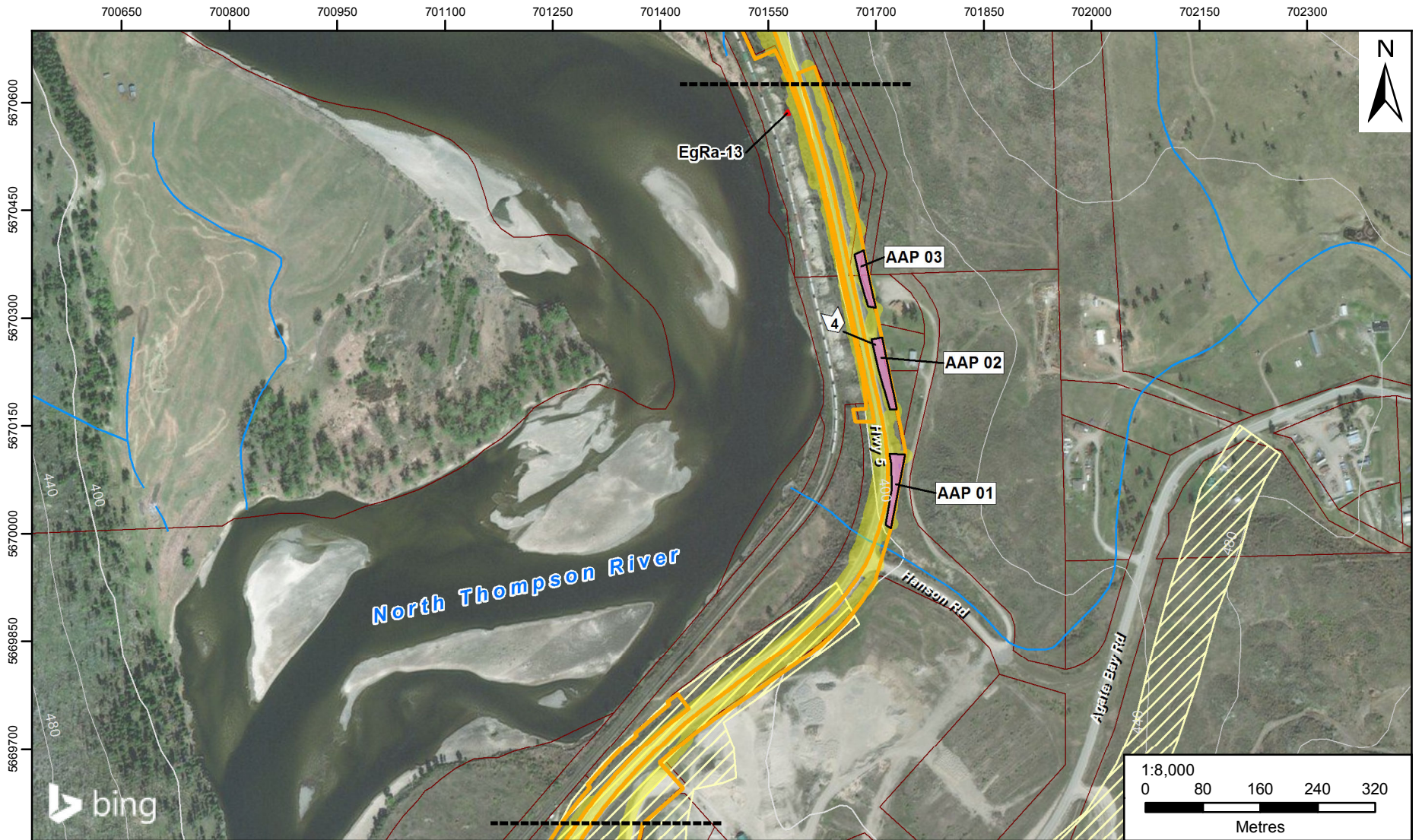
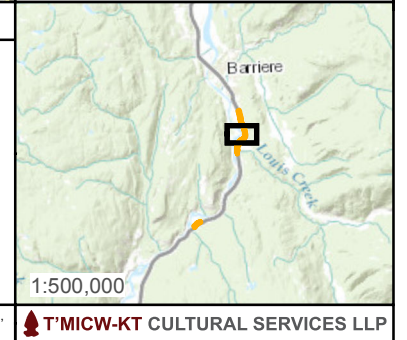


Figure 3. Hwy 5 South Passing Lane

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 Client Data Currency: 2018-10-02
 Topographic Data Source: CanVec courtesy DataBC – 2017-12-15
 Imagery Currency: 2016-09-21

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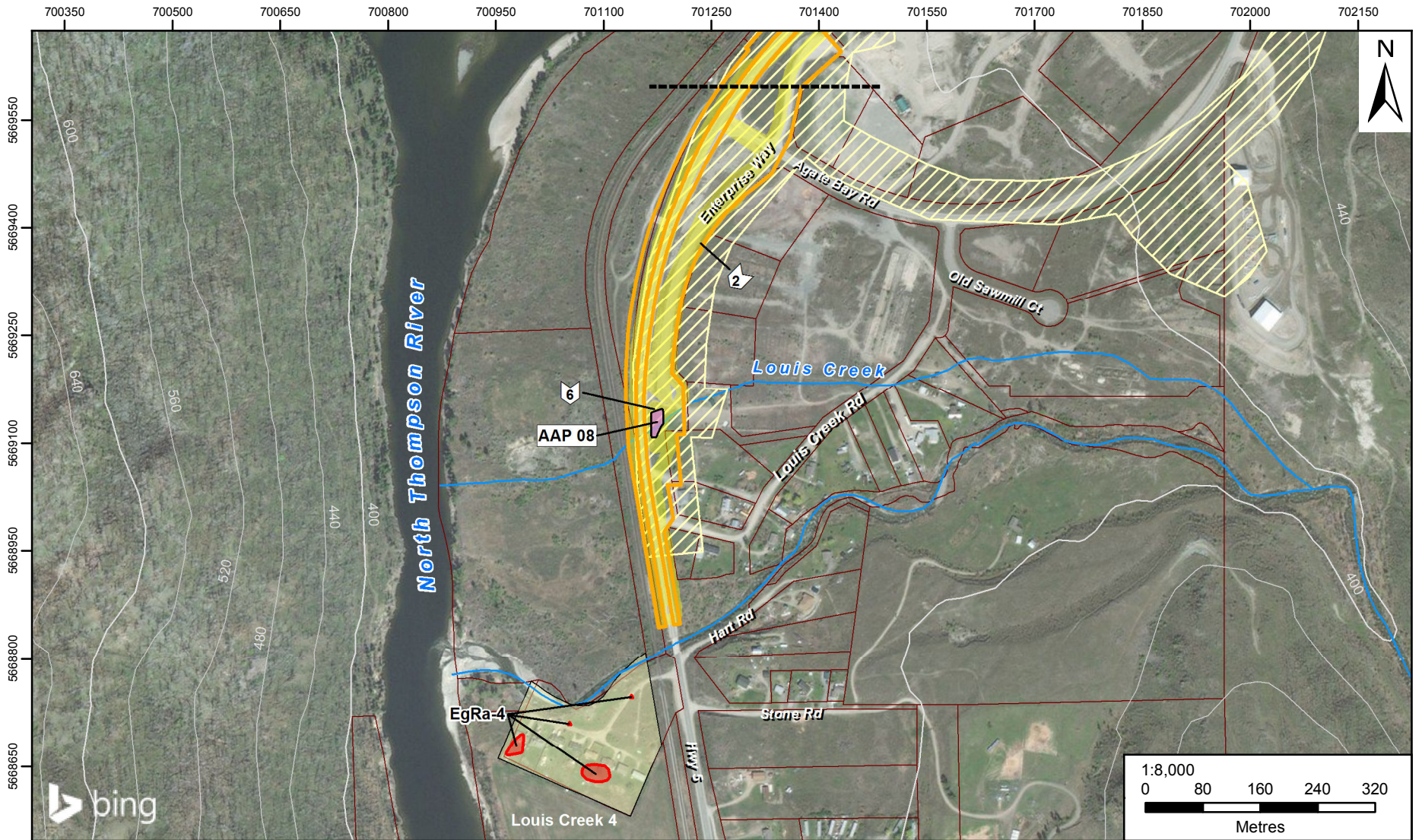
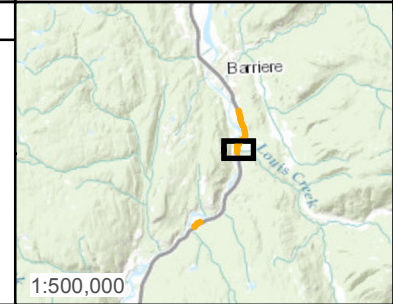
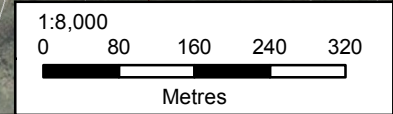


Figure 4. Hwy 5 South Passing Lane

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 HCA Permit: 2015-0133
 Date Produced: 2019-02-05
 Coordinate System: NAD 1983 UTM Zone 10N
 Client Data Currency: 2018-10-02
 Topographic Data Source: CanVec courtesy DataBC – 2017-12-15
 Imagery Currency: 2016-09-21

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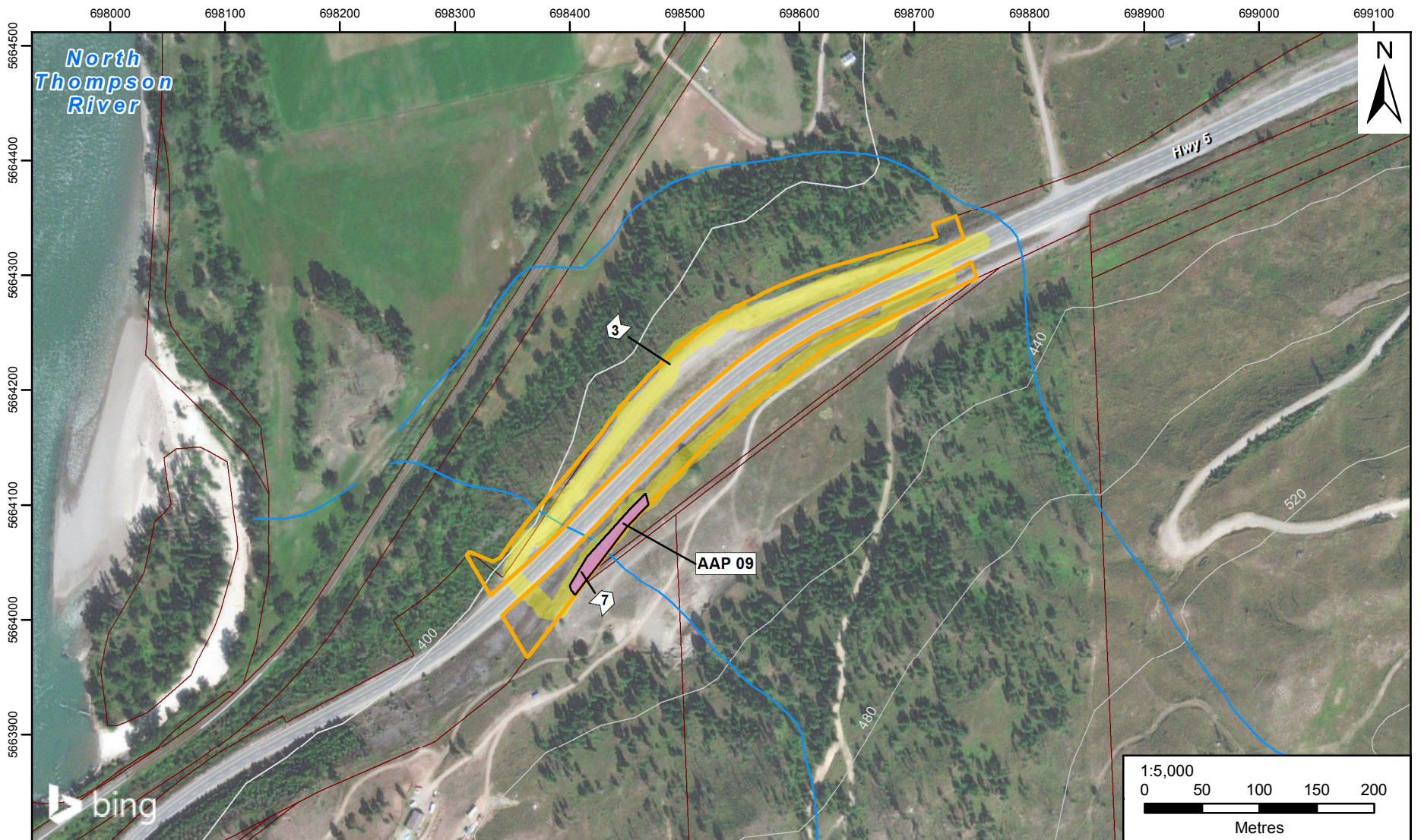


Figure 5. CVSE Pullout

TCS ID: TCS18-0024-002
 Client: Ministry of Transportation and Infrastructure
 HCA Permit: 2015-0133
 Date Produced: 2019-02-05
 Coordinate System: NAD 1983 UTM Zone 10N
 Client Data Currency: 2018-10-02
 Topographic Data Source: CanVec courtesy DataBC – 2017-12-15
 Imagery Currency: 2016-09-21

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