

# 7 Assessment of Potential Effects

## 7.5 Archaeological and Heritage Resources

### 7.5.1 Summary

Key highlights from the review of the Archaeological and Heritage Resources Review Element are presented below.

- Two potential indicators of effects were selected to understand potential changes in the Review Element from the Surrey Newton-Guildford Light Rail Transit (the Project). These are alterations to:
  - archaeological site contents or context (known and unknown sites) and areas with archaeological potential
  - heritage buildings, landscapes, or other sites of heritage value (known and unknown sites).
- The Environmental and Socio-economic Review (ESR) is based on information gathered during an archaeological overview assessment (AOA) with a preliminary field reconnaissance (PFR) that was completed for the Project. Key findings of the AOA are:
  - There are no recorded archaeological sites in the Review Area, but the AOA did identify five locations with high archaeological potential. In addition, two properties listed on the City of Surrey's Community Heritage Register are within the Review Area.
  - Targeted archaeological field studies (e.g., an archaeological impact assessment [AIA]) recommended within the areas of evaluated high archaeological potential. An AIA would include assessing or monitoring ground-altering developments so that archaeological sites, if present, are appropriately managed.
- Mitigation measures to reduce potential Project effects on the Review Element include:
  - avoiding impacts to archaeological and heritage sites (if any) identified during the archaeological assessments for the Project
  - mitigating impacts to archaeological and heritage sites (if any) identified during the archaeological assessments for the Project in accordance with the *Heritage Conservation Act* (HCA) and Provincial standards and guidance
  - implementing an Archaeological and Heritage Resources Chance Find Procedure, in case potential archaeological and heritage materials are encountered during construction.
- Potential Project effects (i.e., effects that remain following implementation of mitigation measures) are anticipated to be limited considering the effectiveness of the proposed mitigation measures (which would follow Provincial permitting and mitigation standards) and because the Project footprint is primarily within the limits of previously-developed urban roadways.

## 7.5.2 Introduction

The review of potential effects for archaeological and heritage resources was conducted based on the information requirements identified in the Terms of Reference (TOR) and is summarized in Table 7.5-1.

**Table 7.5-1: Potential Effects and Review Indicator for Archaeological and Heritage Resources**

Topics Included in Review	Potential Effects	Review Indicators
Archaeological sites	Alterations to archaeological site contents or context (known and unknown sites) and areas with archaeological potential	<ul style="list-style-type: none"> <li>• Number and description of archaeological sites with potential to be altered as a result of Project activities</li> <li>• Areas with high archaeological potential that could be affected by the Project</li> </ul>
Heritage sites	Alterations to heritage buildings, landscapes, or other sites of heritage value (known and unknown sites)	<ul style="list-style-type: none"> <li>• Number and description of heritage sites with potential to be altered as a result of Project activities</li> </ul>

It supports information provided in Section 9.0 Environmental Management Plans.

## 7.5.3 Potential Effects and Review Indicators

### 7.5.3.1 Selection as a Review Element

Archaeological and Heritage Resources were selected as a Review Element for the following reasons:

- Archaeological and heritage sites can be of high cultural significance to local First Nations.
- Archaeological sites are automatically protected from alterations by the HCA and heritage sites can be protected from alterations by the HCA (e.g., if they pre-date AD 1846; see Section 7.5.3).
- The City of Surrey has bylaws protecting some heritage sites from being altered without the implementation of appropriate permitting and implementation of mitigation measures.
- If present, archaeological sites and heritage sites could be susceptible to alteration from certain Project activities.
- Identification and proper management of archaeological and heritage resources was identified as being important during the public engagement phase (Section 5).

### 7.5.3.2 Selection of Effects and Indicators

Table 7.5-2 summarizes the Project effect mechanisms and indicators used to assess the potential effects on archaeological and heritage resources. Effects mechanisms, identified in this table, are described in more detail in Section 7.5.7 (Project Interactions). Indicators facilitate the qualitative or quantitative measurement of potential effects.

**Table 7.5-2: Potential Effects and Indicators for Archaeological and Heritage Resources**

Potential Effects	Project Effects Mechanisms	Indicators	Rationale for Selection of Indicators
Alterations to archaeological site contents or context (known and unknown sites) and areas with archaeological potential	<ul style="list-style-type: none"> <li>Any Project activities involving ground disturbance have the potential to impact archaeological sites, if/where present</li> </ul>	<ul style="list-style-type: none"> <li>Number and description of archaeological sites with potential to be altered as a result of Project activities</li> <li>Areas with high archaeological potential that could be affected by the Project</li> </ul>	<ul style="list-style-type: none"> <li>Regulatory requirements (automatic protection of archaeological sites under the HCA)</li> </ul>
Alterations to heritage buildings, landscapes, or other sites of heritage value (known and unknown sites)	<ul style="list-style-type: none"> <li>Site specific depending on identified heritage values and nature of proposed development on heritage properties</li> </ul>	<ul style="list-style-type: none"> <li>Number and description of heritage sites with potential to be altered as a result of Project activities</li> </ul>	<ul style="list-style-type: none"> <li>Potential regulatory requirements under City Bylaws and/or HCA</li> </ul>

**7.5.3.3 Regulatory and Policy Framework**

To provide context for the identification of review indicators, the following section provides background on legislation and Policy relevant to archaeology and heritage resources, and feedback from public, First Nation and stakeholder engagement.

The following legislation and bylaws provide the regulatory framework that is relevant to the Project regarding management of archaeological and heritage resources. The Province is responsible for managing archaeological and heritage resources on Provincial Crown and private lands in British Columbia. There is no applicable federal heritage legislation.

As a best practice Stantec and TransLink applied for heritage investigation permits from Kwantlen First Nation (SQ 2018-83), Musqueam Indian Band (MIB-2018-146-AOA) and Stó:lō Nation (SHIP 2018-063) for the AOA. Of the First Nations whose traditional territory overlaps the Review Area, only these three have heritage permitting systems.

***British Columbia Heritage Conservation Act (HCA)***

In British Columbia, heritage resources are managed in accordance with the legal requirements and conditions set forth in the British Columbia HCA. The HCA defines “heritage site” to mean “whether designated or not, land, including land covered by water, that has heritage value to British Columbia, a community, or an aboriginal people”. This broad definition encompasses a variety of resource types including archaeological sites and historical heritage sites, as well as other places, such as spiritual sites, which may not contain evidence of human activity.

The HCA extends automatic legal protection to archaeological sites if they pre-date AD 1846, or are of unknown age but may pre-date AD 1846. Burial sites and Aboriginal rock art sites are automatically protected, regardless of age. Shipwrecks and airplane wrecks are protected by the HCA two years after abandonment. Though not automatically protected under the HCA, post-AD 1846 Aboriginal heritage sites may be protected under the HCA under agreement with Aboriginal groups. Historical sites that postdate AD 1846 are generally not protected by the HCA, except where designated as a ‘Provincial heritage site’ under section 9 of the Act. Designated heritage

sites are defined as sites with historical, palaeontological, and/or architectural significance which have been designated as heritage sites; either provincially through the HCA, or by communities through the provisions of the *Local Government Act* (1996).

The Archaeology Branch of the British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development has authority over the archaeological assessment and review process in British Columbia. Under the HCA, the Archaeology Branch is responsible for deciding whether permits can be issued to allow development to take place within protected sites and has established standards, policies, and guidelines to regulate the archaeological assessment process. The provincial Heritage Branch is responsible for sites of historical age.

#### ***British Columbia Local Government Act***

Heritage sites from the historic period (e.g., postdating 1846) can be protected by municipal bylaws even if the HCA does not protect them. Municipalities and regional districts have the power to designate “heritage property” under the *Local Government Act* and the Act allows municipalities to withhold the issuance of building permits should they result in an alteration to protected heritage property.

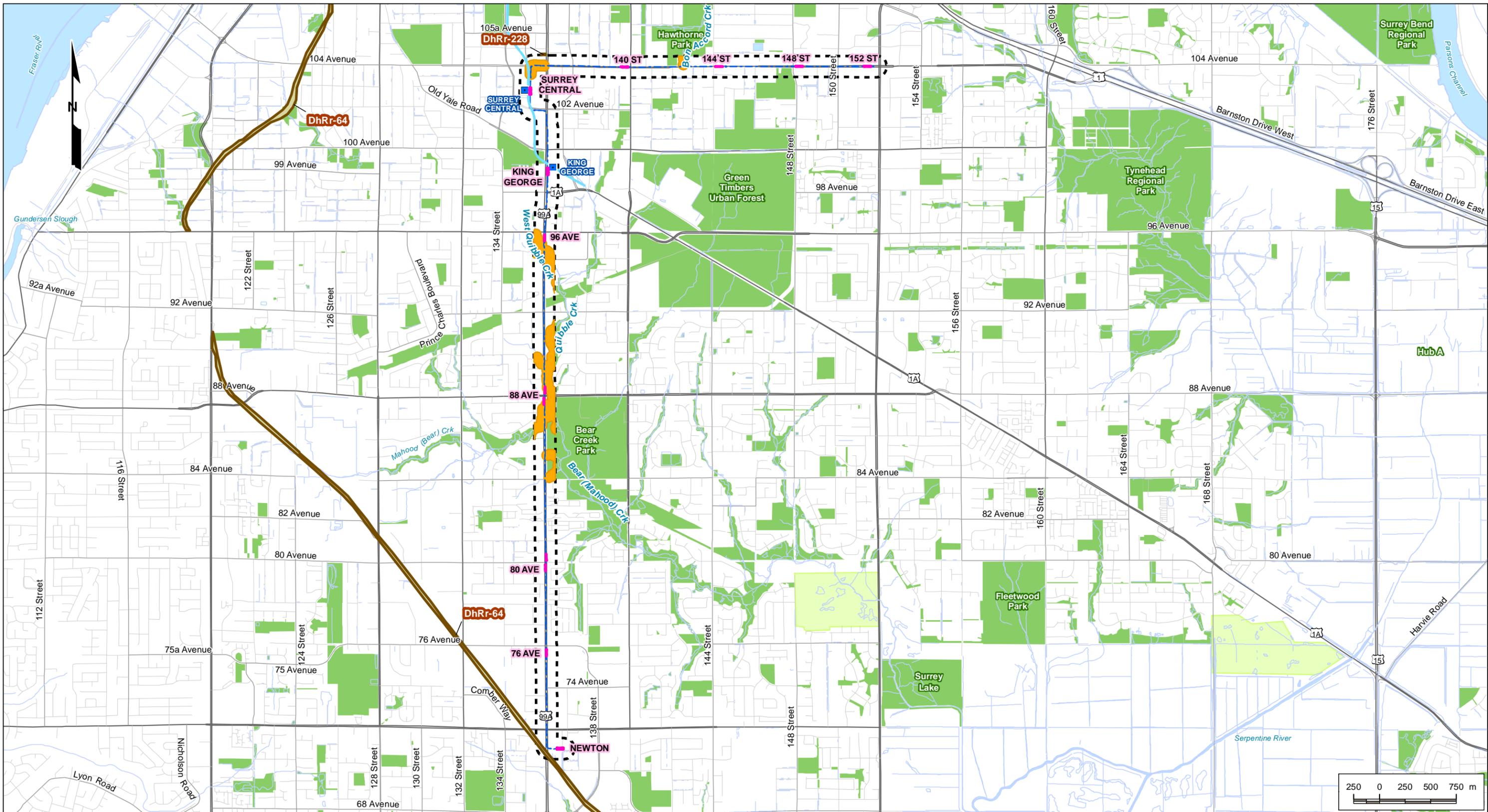
The City of Surrey has designated zoning bylaws and a chapter in the official community plan for the management of heritage sites. The City of Surrey also maintains a Community Heritage Register which is an inventory of significant heritage sites (“Registered Heritage Properties”) in the city.

Registered Heritage Properties have two classifications:

- Properties subject to legal protection from a Heritage Designation Bylaw, Heritage Revitalization Agreement Bylaw, or heritage conservation covenant
- Properties simply listed for recognition but are not legally protected.

#### **7.5.4 Spatial Boundaries**

The Review Area for the Archaeological and Heritage Resources Review Element encompasses a 100-m wide buffer on either side of the Project centerline (approximately 200-m corridor). This spatial boundary was selected for the Review Area because it represents the maximum area where the Project could potentially affect archaeological and heritage resources, as impacts to archaeological and heritage sites are generally limited to areas of a Project footprint that involve ground disturbance. A review of historical heritage sites was also included in the AOA. The AOA covered the entire Review Area, with the PFR focusing on the green spaces in a semi-natural or natural state that exist within the Review Area. The latter areas are less disturbed and consequently have higher potential for intact archaeological sites.



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REF.	DRAWING NUMBER	DRAWING TITLE
6	XP-TR-A0-GEN-PLN-PLTF (SXR)	LRT STATIONS (17-09-06)
5	XP-RD-A0-GEN-PLN-104-MSTR (SXR)	104TH AVE ROAD BASE PLAN (17-09-06)
4	C3D-TR-A0-GEN-104-ALG-MSTR (SXR)	KGB ROAD BASE PLAN (17-09-06)
3	XP-RD-A0-GEN-PLN-KGB-MSTR (SXR)	KGB ROAD BASE PLAN (17-09-06)
2	C3D-TR-A0-GEN-KGB-ALG-MSTR (SXR)	KGB TRACK ALIGNMENT (17-09-06)
1	XR-ES-P0-GEN-KGB-ALG-MSTR (SXR)	CITY OF SURREY CADASTRAL

LEGEND:	
	EXISTING SKT TRAIN STATION
	EXISTING SKY TRAIN LINE
	LIGHT RAIL TRANSIT TRACK CENTRELINES
	LRT STOP
	WATERCOURSE
	REVIEW AREA
	HERITAGE SITE BOUNDARY
	ARCHAEOLOGICAL POTENTIAL

ENGINEER STAMP:	

PI	NO.	FIRST ISSUE	DESCRIPTION	DWN	CHK	APP	YY/MM/DD

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DRAWN BY:		NP	18/01/15	APPROVED BY:		SM	18/01/15
STATUS:							

**SURREY NEWTON-GUILDFORD LRT PROJECT: HERITAGE OVERVIEW MAP**

CLIENT REFERENCE DRAWING NO. - <b>FIGURE 7.5-1</b>	PROJECT/DWG No: <b>350135-EV-100-A0-AR-0101</b>	REV No: <b>P1</b>
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## **7.5.5 Influence of Consultation on the Assessment Process**

### *7.5.5.1 Public Engagement*

Archaeological and Heritage Resources interests and issues identified by the public during the ESR Process are listed in Table 5-10 as stated in the Public and Stakeholder Engagement and Information Distribution Section 5.

Comments received during public engagement to date are provided in Section 5.8 and include a concern that archaeological and heritage sites could be encountered during Project construction and that they should be managed and/or preserved. These concerns are addressed in this assessment, through the completion of an AOA with a PFR and TransLink's commitment to the implementation of appropriate mitigation measures.

### *7.5.5.2 First Nation Engagement*

Based on feedback from First Nations groups on the draft TOR, the review of the Archaeological and Heritage Resources as a Review Element, helped to refine the scope of review, and identified additional discussion topics for inclusion in the review scope.

Key influences of TransLink's consultation with First Nations were the decisions to:

- apply for heritage permits for the AOA from the First Nations that have heritage permitting systems (Kwantlen First Nation, Musqueam Indian Band, and Stó:lō Nation)
- invite First Nation representatives to participate in the field study (i.e., the PFR). Representatives from Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, and Tsawwassen First Nation participated in the PFR
- provide First Nations with an opportunity to review and comment on a draft of the AOA report
- solicit additional heritage information from First Nations, including a Traditional Use Studies (TUS) Database Search by the Stó:lō Research and Resource Management Centre.

## **7.5.6 Baseline Conditions**

The Project is located within a developed urban context. The Review Area is primarily located within the King George Boulevard and 104th Avenue road rights-of-way with some additional corridor widening requirements in commercial areas, existing transportation infrastructure and transmission corridors, residential yards, and portions of Bear Creek Park, Hawthorne Park, Holland Park, and Quibble Creek.

Information used to characterize current conditions for archaeological and heritage resources consisted of an AOA including desktop research and a PFR which took place on March 27, 2018. Additional details about the methods employed to characterize existing conditions are described in the AOA report (Appendix B).

### *7.5.6.1 Methods*

Stantec completed an AOA to evaluate archaeological site distribution and archaeological potential and provide cultural context in the Review Area. The AOA was consistent with the Archaeology Branch's AOA guidelines (2009). Information used to characterize current conditions for archaeological and heritage resources was collected through a review of existing relevant

archaeological, ethnographic, historic, and environmental studies, and supported by a field-based PFR. The PFR took place on March 27, 2018 by a Stantec archaeologist and representatives from Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, and Tsawwassen First Nation.

#### *7.5.6.2 Review of Baseline Conditions*

The baseline conditions for archaeological and heritage resources are summarized below, including a description of known (i.e., recorded) archaeological sites near the Review Area, areas with potential for presence of archaeological materials within the Review Area, and properties listed on the City of Surrey's Community Heritage Register within the Review Area.

#### *7.5.6.3 Recorded Archaeological Sites*

There are no archaeological sites listed on the Archaeology Branch's Remote Access to Archaeological Data (RAAD) database within the Review Area. However, 12 archaeological sites have been recorded (are listed in RAAD) within 3 km of the Review Area, the closest site being 950 m away. The recorded archaeological sites that are closest to the Review Area tend to be small, sparse lithic scatters (stone tools and stone tool making debris) or isolated, single lithic artifact finds.

The distribution of recorded archaeological sites is potentially influenced by the relatively small number of previous archaeological studies near the Review Area, as compared to areas closer to the Fraser River and Boundary Bay which have been more intensively studied. As a result, it is possible that there are unrecorded archaeological sites present within or near the Review Area.

#### *7.5.6.4 Locations with High Archaeological Potential*

The AOA identified five locations with high archaeological potential within the Review Area. These include four areas associated with Bon Accord, West Quibble, and Quibble/Bear (Mahood) creeks; and one area near 104 Avenue and City Parkway where peat deposits associated with a former bog were encountered during geotechnical investigations for the Project. While there is generally a low likelihood of finding archaeological materials within peat, it can contain significant, well preserved archaeological materials (e.g., basketry). For this Project, the areas with intact peat below the current developments are assessed as having high archaeological potential given the likely use of this important bog ecosystem for past food and medicinal plant gathering and hunting, and because it is located along documented travel routes.

#### *7.5.6.5 Registered Heritage Properties*

There are two properties listed on the City of Surrey's Community Heritage Register within the Review Area: 1) the Goodmanson Building (DhRr-228) is located at 10449 King George Boulevard and is home to the Round-Up Café, and 2) the British Columbia Electric Railway (DhRr-64), which crosses through the southernmost portion of the Review Area. This was the interurban rail line between Vancouver and Chilliwack that operated between c. 1910 and 1950.

### 7.5.7 Project Interactions

Project activities during construction and operation that may interact with archaeological and heritage resources are indicated by check marks in **Table 7.5-3**.

Based on the results of the AOA, construction activities have the potential to affect archaeological resources through ground disturbance at five locations evaluated as having high archaeological potential. Relevant construction activities include site preparation, widening and alteration of roadways, removal and resurfacing of medians, and sidewalks, installation of the guideway, relocation of utilities, drainage upgrades, landscaping and revegetation, and construction of Light Rail Transit (LRT) stops.

Ground disturbing activities that take place within layers of unmodified mineral soil of glacial deposits (e.g., till) will not affect archaeological resources because these deposits predate the known arrival of humans to the area. In addition, ground disturbing activities within imported materials (e.g., fill, asphalt) are unlikely to affect archaeological resources; there is a very low likelihood that disturbed archaeological materials are present within imported, fill materials.

Property acquisition, commissioning and operational activities are expected to have no measurable interaction with archaeological resources due to lack of associated ground disturbance, unless maintenance activities extend beyond areas impacted during construction.

Based on available Project design information, Project activities are not expected to have a measurable interaction with any properties listed on the City of Surrey’s Community Heritage Register. However, once property requirements are finalized, TransLink will confirm that final Project design does not include any interactions with properties that are subject to legal protections from City of Surrey.

**Table 7.5-3: Potential Project Interactions and Effects on Archaeological and Heritage Resources**

Project Activities and Physical Works	Potential Effects	
	Alteration of Archaeological Sites	Alteration of Heritage Sites
<b>Construction</b>		
Property acquisition	-	-
Site preparation (e.g., clearing, grading, and set up of temporary facilities), and utility relocation	✓	✓
Roadworks; construction of transitway/guideway, system structures (e.g., substations, power and communication lines), exchanges and stops, excavation and operations and maintenance building	✓	✓
Vehicle traffic (e.g., road use and construction traffic)	-	-
Management and disposal of waste and excavated materials	-	-
Commissioning and start-up	-	-
<b>Operation</b>		
Train operation, including wayside and power	-	-
Train and track maintenance, administration, transit police	-	-
Traffic function (e.g., change in roadways and intersection functions)	-	-

### 7.5.8 Mitigation Measures

TransLink will implement recommended mitigation measures during Project construction to avoid or reduce potential adverse Project effects on the Archaeological and Heritage Resources Review Element. These recommended mitigation measures were developed based on best practices for archaeological and heritage resources, and applicable legislation and policy. Project interactions and applicable mitigation measures are discussed for each potential effect, below and summarized in detail in **Table 7.5-4**. Where appropriate, mitigation measures include performance objectives to support successful implementation.

#### 7.5.8.1 *Mitigation Measures for Alterations to archaeological site contents or context (known and unknown sites) and areas with archaeological potential*

Five areas with high archaeological potential were identified in the Review Area. As needed, TransLink will retain qualified professionals to undertake targeted archaeological field studies (e.g., an AIA). An AIA would include assessing and/or monitoring ground-altering developments within areas of evaluated high archaeological potential identified by the AOA so that archaeological sites, if present, are appropriately managed. An HCA permit, issued by the Archaeology Branch, will be required for any field work involving subsurface excavation or hand testing. Specific methods for the identification and management of any archaeological resources will be established by the Archaeology Branch and detailed in the HCA permit.

If any archaeological sites are identified during a Project AIA, TransLink will either avoid impacts to those sites or will implement mitigation measures. Mitigation measures would be in accordance with the HCA and Provincial guidance and determined in discussion with regulators and First Nations.

TransLink will require that an Archaeological and Heritage Resources Chance Find Procedure be implemented during construction as a contingency measure to address potential encounters with archaeological resources during ground-disturbing activities.

#### 7.5.8.2 *Mitigation Measures for Alterations to heritage buildings, landscapes, or other sites of heritage value (known and unknown sites)*

Two heritage properties on the City of Surrey's Community Heritage Register were identified in the Review Area: the Goodmanson Building (DhRr-228) and the British Columbia Electric Railway (DhRr-64). Based on current design, the Project is not anticipated to affect these sites. Should final Project design overlap with these sites, TransLink will implement measures to either avoid or mitigate effects on those sites. Mitigation measures would be in accordance with the City of Surrey Bylaws and the HCA, and determined in discussion with regulators and stakeholders.

TransLink will require that an Archaeological and Heritage Resources Chance Find Procedure be implemented during construction as a contingency measure to address potential encounters with heritage resources during ground-disturbing activities.

Recommended measures suggested below are based on typical best practices for construction and operation in Metro Vancouver/BC and the Construction Contractor and Operator will be responsible for meeting performance objectives as appropriate to their means and methods.

**Table 7.5-4: Recommended Mitigation Measures for Archaeological and Heritage Resources**

Review Element	No.	Objective	Proposed Mitigation	Project Phase	Environmental Management Plan
Archaeological and Heritage Resources	7.5-1	Meet requirements of the HCA	Undertake targeted archaeological field studies (e.g., an archaeological impact assessment [AIA]) as needed to assess or monitor ground-altering developments within areas of high archaeological potential identified by the AOA.	Preconstruction/ Construction	Archaeological Monitoring Plan
	7.5-2	Meet requirements of the HCA and municipal bylaws	Where feasible, avoid impacts to archaeological and heritage sites (if any) identified during the archaeological assessments overlay with Project ground-disturbing activities.	All phases	Archaeological Monitoring Plan
	7.5-3	Mitigate impacts to archaeological and heritage sites (if any) identified during the archaeological assessments for the Project in accordance with the HCA and provincial guidance. Specific measures will be determined in discussion with regulators, First Nations, and landowners.	Mitigate impacts to archaeological and heritage sites (if any) identified during the archaeological assessments for the Project in accordance with the <i>Heritage Conservation Act</i> and provincial guidance. Specific measures will be determined in discussion with regulators, First Nations, and landowners.	Preconstruction/ Construction	Archaeological Monitoring Plan
	7.5-4	Meet requirements of the HCA and municipal bylaws	Implement an Archaeological and Heritage Resources Chance Find Procedure will be developed in collaboration with First Nations, in case potential archaeological and heritage sites are discovered during construction.	Construction	Archaeological Monitoring Plan

### 7.5.9 Discussion of Review Results

While the AOA did not identify any recorded archaeological resources within the Review Area, there were five locations with high archaeological potential identified. Potential Project effects on archaeological resources, should they be present, are anticipated to be limited considering the effectiveness of the proposed mitigation measures and because the Project footprint is primarily within the limits of previously-developed urban roadways. Mitigation measures could include, as needed, targeted archaeological field studies, and avoidance or mitigation of any archaeological sites, and would follow Provincial permitting and mitigation standards.

The current Project Alignment does not overlap with any recorded heritage properties; therefore, the Project is not expected to result in effects on heritage sites.

### 7.5.10 Conclusion

With the implementation of mitigation measures outlined above there are no anticipated Project effects on archaeological and heritage resources. Mitigation measures will be developed prior to construction in discussion with the appropriate regulatory agencies, potentially affected First Nations, and stakeholders. While there are two heritage properties within the Review Area, based on current design they do not interact with the Project.

Recommended mitigation for the Project is as follows:

- As needed, additional archaeological field studies (e.g., AIAs) should be conducted at areas of archaeological potential identified in the AOA.
- Any archaeological sites identified during Project AIA studies should be managed in accordance with Provincial regulations.
- Implement an Archaeological and Heritage Resources Chance Find Procedure.

### 7.5.11 Reference

Archaeology Branch. 2009. Archaeological Overview Assessments as General Land Use Planning Tools – Provincial Standards and Guidelines. Available at:  
[https://www.for.gov.bc.ca/ftp/archaeology/external/!publish/web/FIA\\_AOA\\_Standards\\_2009.pdf](https://www.for.gov.bc.ca/ftp/archaeology/external/!publish/web/FIA_AOA_Standards_2009.pdf).

Stantec Consulting Ltd (Stantec). Appendix B. Archaeological Overview Assessment: Surrey Light Rail Transit Project. Report on file with TransLink.