



Final Report

Historical Resources Impact Assessment
Municipal District of Greenview
2022-3376 Greenview Industrial Gateway Intake

ASA Permit 23-142



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2022-3376 Greenview industrial gateway intake:
final report**

ASA Permit 23-142

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September 19, 2023

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EXECUTIVE SUMMARY

This report details the results of a Historical Resources Impact Assessment conducted for the proposed Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake. Methods of investigation, which included in-field survey, subsurface investigation, as well as the writing and submission of this final report, incorporate the archaeological permit obligations as set out by the *Guidelines for Archaeological Permit Holders in Alberta*, the *Archaeological and Palaeontological Research Permit Regulation* (Alberta Regulation 254/2002), and the *Historical Resources Act*, as well as the associated *Historical Resources Act* Requirements document (HRA Number: 4970-22-0064-001).

Project lands were subject to pedestrian reconnaissance and subsurface testing (n=36) across the entire development area. The investigations were conducted from August 9 to 10, 2023. During the course of the survey, no new historic resource sites were identified, and no previously recorded sites were revisited.

As a result of the HRIA, **it is recommended that the proposed Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake be granted *Historical Resources Act* approval as per the survey plans in Appendix A and in accordance with the *Historical Resources Act* Requirements (HRA Number: 4970-22-0064-001).** These recommendations are subject to the approval of Alberta Arts, Culture and Status of Women.

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1.0 INTRODUCTION

A Historical Resources Impact Assessment (HRIA) was conducted for the Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake (the Project), following the receipt of archaeological research permit 23-142 on August 2, 2023. *Historical Resources Act* (HRA) Requirements for an archaeological HRIA were issued under the *Historical Resources Act*, citing high potential to affect historic resources, with requirements for addressing all areas of high archaeological potential with subsurface testing and a deep testing program in areas of significant sedimentation (HRA Number: 4970-22-0064-001).

Archaeological survey and in-field site assessment were conducted from August 9 to 10, 2023, during which no new historic resource sites were identified, and no previously recorded sites were revisited.

This report details the physical and cultural history of the area, and the methodologies used during the current HRIA; these are in accordance with the *Guidelines for Archaeological Permit Holders in Alberta*, the *Archaeological and Palaeontological Research Permit Regulation* (Alberta Regulation 254/2002), and the *Historical Resources Act*. Ensuing sections detail the results of the pre-field research and the in-field archaeological survey, with development recommendations for the Project.

2.0 SCOPE

The Municipal District of Greenview is proposing to construct a water intake facility within LSD 3-4 Sec 29 T67 R4 W6M and LSD 1, 8-11 Sec 30 T67 R4 (Figure 1). The development impacts will include an access road on the existing access road, a pumping station immediately adjacent to the bank, an intake structure straddling the river bank edge, and a temporary coffer dam in the river. At present, the depth of impact is not known, but an understanding of the deep deposits is being undertaken to ensure all sediments are investigated. Archaeological survey, which included foot-traversing as well as subsurface testing consisting of shovel testing, occurred from August 9 to 10, 2023. The results of this assessment follow a discussion of the environmental and cultural background of the project area, as well as the methodologies used to ensure compliance with the *Historical Resources Act*.

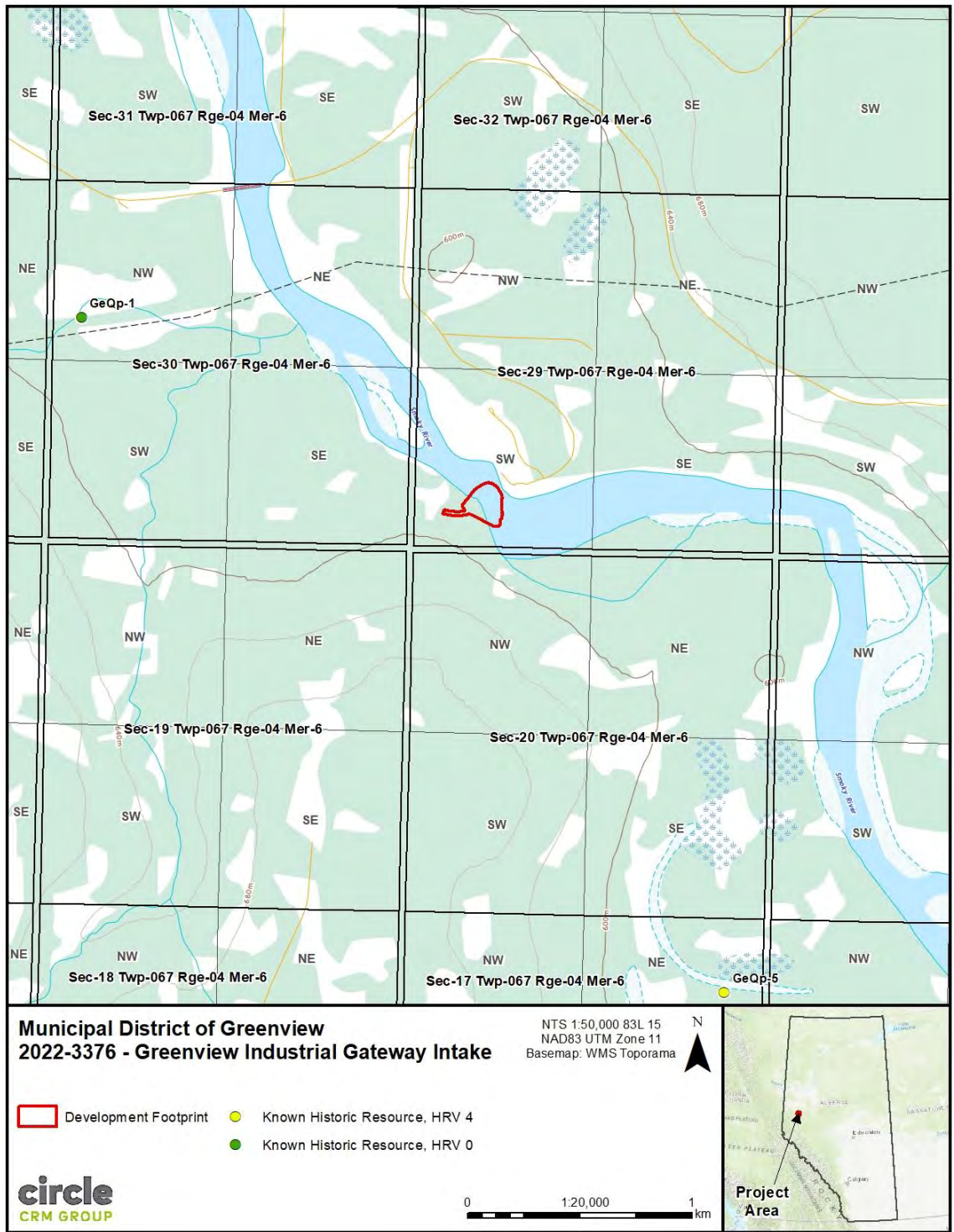


Figure 1. The location of the current proposed development.

3.0 BACKGROUND

Pre-field research was conducted to ensure a clear understanding of the development area in terms of the environmental surroundings, the archaeology, and the local history as it pertains to the potential for identifying further cultural deposits. This research includes, but is not limited to, the review of relevant references, existing site forms, and reports for previous investigations, as well as updated information with regard to known and previously unrecorded sites and local histories. Comparing the location, as well as the context and significance of known sites in relation to topographic and historic maps, will reveal the potential for identifying further archaeological sites, as well as further identifying the extent of necessary field investigations.

3.1 PROJECT ENVIRONMENT

The earliest evidence for human occupation in Alberta dates back almost 12,000 years, during the Pleistocene-Holocene transition, when the Cordilleran and Laurentide ice sheets began to retreat, creating a habitable corridor along the eastern slopes of the Rocky Mountains (Dyke 2004; Frison & Bonnicksen 1996; see also Catto & Mandryk 1990; Wedel 1953). The beginning of the Holocene period witnessed increases in temperature and decreases in precipitation, to which human populations were forced to continually adapt. Continued climatic variations have resulted in the development of a wide-ranging biotic landscape. These landscapes have been classified into a number of natural regions according to landscape patterns, vegetation, soil, and physiographic features, as well as other features, such as climate, topography, geology, and wildlife distribution patterns (Natural Regions Committee 2006; see also Fenton *et al.* 2013; Strong & Leggat 1992).

The current development is located in the Dry Mixedwood Subregion of the Boreal Forest Natural Region in northwestern Alberta, within the Peace River valley (Figure 2). The Dry Mixedwood Subregion encompasses approximately 13% of the province and consists of undulating plains with some hummocky uplands; wetlands

occupy about 15%, and lakes and streams occupy less than 3% (Natural Regions Committee 2006).

Vegetation in this Subregion is dominated by aspen forests and cultivated landscapes on upland terrain and black spruce fens and bogs within lowlands. Jack pine is also common on dry, sandy sites, whereas black spruce and tamarack are common on peatland. Characteristic wildlife populations in this region have historically included bison, grizzly bear, woodland caribou, wolverine, moose, black bear, and elk. Smaller species include the boreal chickadee, spruce grouse, red squirrel, varying hare, deer mouse, southern red-black vole, and a wide variety of avifauna (*ibid.*).

Late Pleistocene glacial activity is evident via surficial glaciolacustrine deposits and gently rolling moraines, as well as in numerous erratics speckled across the subregion. Soils are predominantly dark grey Luvisols, with Eutric Brunisols associated with coarse sands. Gleysols and organic soils occur in wet conditions along lower slopes and in valley bottoms. The underlying geology consists mainly of eolian and lacustrine deposits, with fine and medium-grained sand and silt and/or sand, silt and clay, with local ice-rafted stones up to 70 or 80 metres thick, respectively (Fenton *et al.* 2013).

Much of this region is cultivated, specifically in forage and barley crops. There is also significant oil and gas activity, as well as pit mining. Common recreational activities include the use of ATVs, snowmobiling, and hiking. While many of these activities have destroyed a number of archaeological sites, a great many remain unidentified. This land use is not restricted to modern times; in fact, historic land uses, i.e., hunting activities, mining communities, historic settlements, and construction, have also had a profound effect on the culture history of Alberta.

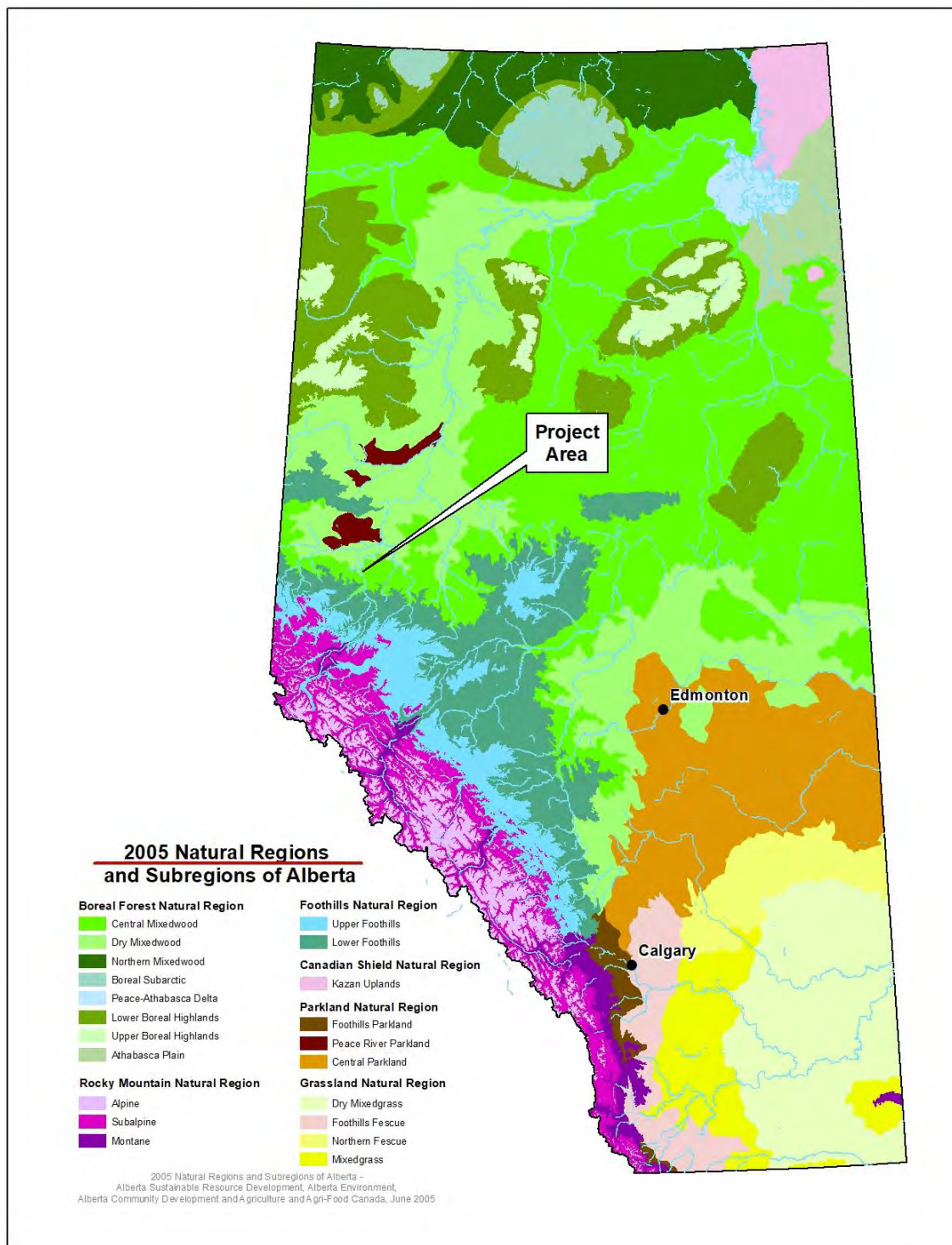


Figure 2. Natural regions and subregions of Alberta (from Natural Regions Committee 2006).

3.2 CULTURE HISTORY

The Project is located about 40 km south of Grande Prairie on the banks of the Smoky River, on the west side of the valley. The Smoky River is a major tributary to the Peace River, with its headwaters originating in the interior mountains of Jasper National Park. The area surrounding the Project is estimated to have been occupied by Indigenous peoples as early as 11,500 years BP, though the earliest evidence is from approximately 10,500 years BP (Driver *et al.* 1996; Fladmark 1996). Sites are common in the region, although a limited number of well-stratified sites are known; those sites that have been identified consist of small, short-term occupations with limited interpretative value (Anderson & Reeves 1975).

Much of what is known about the prehistory of the region can be broken down into three broad periods; these are defined as the Early Precontact (11,500 – 7,750 years BP), the Middle Precontact (7,750 – 2,600 years BP), and the Late Precontact (2,600 – 250 years BP). The last 250 years before present is the period of European influence, beginning with the Protohistoric Period, as trade goods spread throughout the continent, transitioning into the Historic Period when the influx of European migrants began to settle on the landscape (Reeves 1983).

3.3.1 Early Precontact Period (11,500-7,750 BP)

The Early Precontact Period is characterized by a warming climate within a landscape that saw rapid glacial melt receding northeast toward the Hudson's Bay area. During this time, early forests were established, which eventually choked out the grasslands across the northern portion of the interior Plains by the end of the period (Gillespie 2002; White & Mathewes 1982). The inhabitants who chose to hunt and gather in the region saw the collapse of megafauna (extinct bison, horse, camel, and mammoth), which gave rise to other exploitable game, such as modern bison, elk, moose, muskoxen, and caribou (Driver *et al.* 1996).

Early Precontact peoples' hunting implements were conceptualized around the manufacture of well-made lanceolate projectile points that were most likely hafted onto

handheld thrusting spears (Figure 3). The earliest evidence of this innovative point type in the region is classified as Clovis, manufactured with a fluted base as its recognizable characteristic attribute. Much of what is known about Clovis in the region stems from data collected in cultivated fields or other disturbed contexts, such as the Clovis point (GaQs-1) identified along the Smoky River near Grande Cache by Bonnicksen in the late 1960s (Gryba 1988). The extensive analysis carried out by Gryba indicates that there were large concentrations of Clovis material within the southern plains of Alberta, as well as the region around Grande Prairie, south of the Peace River. In the Grande Prairie area, a large proportion of Paleoindian fluted points have been recovered from plowed fields, and many were found along the elevated flanks of the Birch Hills; these are some of the best-preserved glacial shorelines in northern Alberta (Haynes 1980), and suggests that early people preferred elevated, well-drained landforms, with expansive views for spotting game.

Recently, northwestern Alberta has provided a large sample of Clovis points, such as Smuland Creek (Bereziuk 2016), Matlock, Ireland, Loughheed, Slevinski, Donaldson, Otto, and most recently, Flood Mountain (de Guzman & Belanger 2018; Gryba 1988; Jankuta & McKay 2017; Peace River Archaeological Society 1991) (Figure 3). More traditional forms have also been identified in the Peace Region, such as the Clovis point (GaQs-1) found along the Smoky River by Bonnicksen in 1969 (Gryba 1988).

Other variants of lanceolate points appear in the form of Folsom, Hell Gap, and Agate Basin styles, and are in evidence at the Burley site within the region (LeBlanc 2004). Gryba's (2001) analysis of all fluted material revealed that Folsom was most often manufactured from exotic material not found in the region, suggesting that Folsom peoples were transient hunter-gatherers following game into the region.

Toward the middle portion of the Early Period, archaeological data suggests that groups occupying the region belonged to the Northern Plano Tradition (9,700 – 9,500 BP) and utilized projectile points that resembled Agate Basin and Frederick/Lusk, as these varieties have been found throughout much of northern Alberta (Figure 4).

Fluted Points in the Peace Region



Gerret



Pink Mountain



Charlie Lake Cave



Donaldson



Slevinski



Matlock



Otto



Flood Mountain



Smuland Creek

Figure 3. Fluted Points from the Peace Region of Alberta and British Columbia.

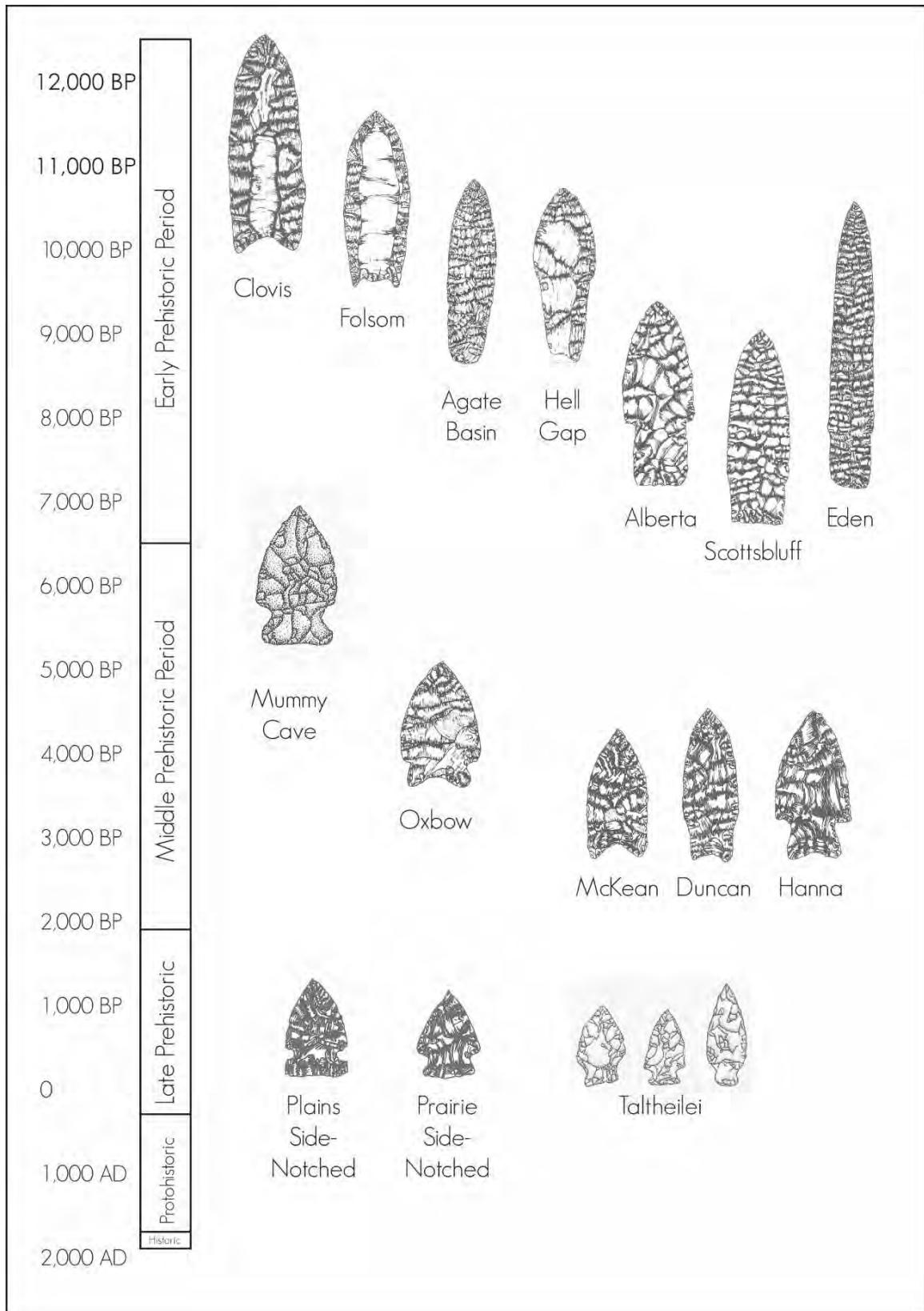


Figure 4. Culture-historical model of central Alberta (from Dyck 1983; Vickers 1986).

3.3.2 Middle Precontact Period (7,750 – 2,600 BP)

By roughly 7,000 BP, the mid-Holocene gave way to a very dry and warm climate, which swung the grasslands back into favourable conditions once more across the region. Many proglacial lakes, such as Lake Agassiz, Glacial Lake Peace, and Glacial Lake McConnell, were all but drained away, and the extant lakes and streams were becoming more permanent and predictable across the landscape. By the middle of the period (approximately 5,000 BP), the climate cooled and became the temperate climate we see today, bringing with it the modern forest community (Beaudoin & Oetelaar 2003; Gillespie 2002).

The warm period saw changes in wildlife diversity and abundance, and the early peoples transitioned to a more generalized economy than that of their ancestors. Rather than focusing on large game, small bands and family groups likely moved throughout the surrounding landscape on a seasonal round, utilizing a wide variety of resources in different regions; this is a strategy still favoured today by contemporary groups in the boreal forests (Gillies 2015). The continuance of large game hunting of bison and other ungulates was still a major occupation of the Middle Period; however, hunters would have increased their diet breadth to include smaller game such as hare, muskrat, beaver, waterfowl, and fish. With the established knowledge of their surroundings, finding predictable plants for food and medicines, as well as lithic sources, allowed for their continued success.

From approximately 5,950 to 2,950 BP, there is a shift to smaller, side- and corner-notched projectile points, reflecting the introduction of the atlatl. Climatic and environmental fluctuations during this time would have resulted in prairie grasslands extending further north into the present-day boreal forest. This would have increased the northern extent of the bison range, resulting in the overlapping of plains and boreal forest-adapted cultures (Meyer & Epp 1990). In the Lesser Slave Lake region, this period is represented by two examples of Oxbow and Pelican Lake types from local collections (LeBlanc 2004) and by examples of Oxbow, McKean, and Pelican Lake that have been identified from Calling Lake (Gruhn 1981), Lac La Biche (McCullough 1982), and as far

north as Lake Athabasca (Ives 1977, 1981, 1985; Meyer 1983; Stevenson 1986; Wright 1975).

3.3.3 Late Precontact Period (2,600 – 300 BP)

The Late Precontact Period is characterized as representing two themes: a continued presence of Plains influences as evidenced by a variety of small, notched projectile points and a connection to groups in the north through the presence of Taltheilei projectile points (LeBlanc 2004). Stemmed projectile points from two sites in the Lesser Slave Lake region suggest a continued connection with Taltheilei, who moved into northern Alberta around 2,600 BP. Projectile points of this time period are smaller, more finely worked and are side-notched. Increased sedentism and the introduction of the bow and arrow are also characteristic of this time period.

3.3.4 Protohistoric Period (300 – 250 BP)

The Protohistoric Period in northern Alberta is defined by the introduction of European goods. Items of European manufacture, such as metal projectile points, metal pots, and glass beads, have been found in the archaeological record, indicating European goods first arrived in the mid-18th century (Byrne 1973; Gillespie 1976; Smith 1976).

3.3.5 Historic Period (250 BP – 1950)

While trade goods of the Protohistoric Period are indicative of European contact, there is no documentation of this exchange until the arrival of Anthony Henday, an explorer for the Hudson's Bay Company, in 1754. The competitive fur trade between the Hudson's Bay Company and the Northwest Company led to the increased establishment of trading posts throughout Alberta, particularly along important river networks and lakes (Chalmers 1971). Trading posts were often strategically placed at river confluences and along lakeshores where aboriginal groups traditionally gathered (Meyer & Thistle 1995). These posts encouraged explorers and mappers, such as Peter Pond (1783), Alexander Mackenzie (1787), Peter Fidler (1797), and David Thompson (1799), to

explore the northern interior to expand the fur trade, encourage settlement and increase scientific knowledge.

The first of three treaties affecting Alberta's First Nations groups was signed in 1874 (Treaty 4), followed by Treaties 6, 7, and 8, which were signed in 1876 (central Alberta), 1877 (southern Alberta), and 1899 (northern Alberta), respectively. The Canadian Pacific Railway began service in southern Alberta in 1883, and by the 1890s, immigration into the West was well underway. In 1895, Clifford Sifton, Minister of the Interior, began a campaign that promoted settlement in western Canada. In the following years, more than one million people from all over the world established farms and homesteads throughout the area (see Heritage Community Foundation 2005a, 2005b).

3.4 PREVIOUS RESEARCH

The majority of newly identified historic resource sites continue to be discovered in the course of HRIAs in association with future developments. Known historic resource sites are recorded on Archaeological and Historic Site Inventory Data forms, which are kept on file with the Historic Resources Management Branch of Alberta Arts, Culture and Status of Women. Newly identified archaeological sites are designated a Borden number (Borden 1952) and assigned a historic resource value (HRV) ranging from 1 to 4 in decreasing significance; sites with an HRV 1 are generally World Heritage Sites or Provincial Historic Resources, while sites with an HRV 4 indicate potential significance. Sites with no further significance are assigned an HRV of 0.

3.4.1 Previous Investigations

Two archaeological surveys have previously been carried out within the general area of the current proposed development. Neither of these contain lands that intersect with the Project. One HRIA was carried out in advance of a forestry development, while the other was conducted prior to a natural gas development; forestry and energy are the dominant resource developments in the regions. What follows is a brief summary of

previous work conducted nearby, in order to better formulate an understanding of the proposed project.

Under ASA Permit 14-057, Taiga Heritage Consulting Ltd. conducted an HRIA for the 2014 Ainsworth Engineered Canada LP, Proposed Forestry Development (Kwiecien & Dixon 2015). During these investigations, a total of 14 shovel tests were conducted on the south side of the Smoky River, approximately 730 m northwest of the proposed project, ranging in depth from 15 to 80 cmbs. No archaeological sites were recorded or revisited in the vicinity of the current project during this investigation.

ASA Permit 18-089 was an HRIA conducted by Wood Environment & Infrastructure Solutions for the Nova Gas Transmission Ltd. Proposed 2021 NGTL System Expansion Project (Lobb *et al.* 2019). During this investigation, a total of 14 shovel tests were conducted on the south side of the Smoky River, approximately 1 km northwest of the proposed project. Sedimentation was observed to be 5 cmbs of LFH, light brown silt to 15 cmbs, a burn layer to 18 cmbs, followed by grey-brown sandy silt to a maximum depth of 50 cmbs. No archaeological sites were recorded or revisited in the vicinity of the current project during this investigation.

3.4.2 Archaeological Sites

There are no known sites within 1 km of the proposed development footprint. The nearest known site is GeQp-1, located approximately 2 km northwest of the current project area and designated HRV 0. The site's distance from the current project ensures it is not under threat of impact. In addition, it has an HRV 0 designation. Thus, it will not be subject to revisit.

Given the lack of knowledge about sites in the areas, the potential to encounter sites is difficult to assess for the current HRIA beyond the environmental cues (i.e., riverine setting), which suggests, at least, a moderate potential.

3.4.3 Historic Sites

Historic sites are designated unique HS numbers; these sites often co-occur at locations with archaeological sites, but exhibit the historic or 'built heritage' portion of the site; i.e., standing structures and above-ground features, as opposed to the archaeological portion; i.e., buried, or once-buried, cultural material. Much of the recorded information is limited to general location and site name, as many site forms have not been updated for over ten to 20 years. Regardless, their presence is indicative of historic occupation in the area. There are no known Historic sites within 1 km of the proposed Project area.

4.0 RESEARCH DESIGN

As per the HRA Requirements letter (HRA Number: 4970-22-0064-001), the target area was the entire development footprint, as illustrated and discussed in the permit; thus, the project includes the well-defined Smoky River bank that exhibits both a lower and upper terrace. The landforms situated along the major drainage channel suggest that there is potential for intact, deeply buried cultural material. Review of known historic resource sites also revealed that few sites have been found in the area; however, this is likely due to a lack of investigation rather than a lack of past habitation. The majority of the development footprint was subject to subsurface testing, with a focus on testing along the lower terrace and upper terrace with diminishing testing farther from the bank. Still, all the development footprint was subject to pedestrian reconnaissance.

5.0 METHODOLOGY

Field investigations are conducted in accordance with the *Historical Resources Act*, the Guidelines for Archaeological Permit Holders in Alberta, the Archaeological and Palaeontological Research Permit Regulation (Alberta Regulation 254/2002), and all applicable Historic Resources Management Branch (HRMB) “Survey Notes” and “Information Bulletins,” with the objective of identifying previously unknown archaeological and historic sites within the project area, as well as assessing the impact of the current development to any known heritage resources.

5.1 PRE-FIELD REVIEW

The goal of the pre-field review is to attain a clear understanding of the area in terms of the history, archaeology, and environmental surroundings. Preliminary research included the examination of an updated map and a list of known historic resource sites in the area. Topographic and historic maps were also reviewed and compared to the location of known sites, to further identify the extent of necessary field investigations. Previous HRIA reports and site forms of previously recorded sites were also assessed to assist in the assessment of the potential for buried, intact cultural material within the project area.

5.2 FIELD ASSESSMENT

The field portion of the HRIA focused on the identification of any new archaeological and historic sites, as well as revisiting known historic resource sites in order to assess the potential impact by the proposed development.

Fieldwork was conducted under summer conditions, i.e., frost-free and snow-free, prior to the initiation of any land surface disturbance activities. Traditional techniques of archaeological survey were employed, including pedestrian reconnaissance of the Project, along with subsurface testing where landforms and vegetation reveal a moderate to high potential for deep deposition and/or the

identification of intact buried cultural material. When encountered, eroded profiles, cut banks, blowouts, and any upturned soils were also examined for evidence of historic resources. Subsurface testing occurred judgmentally, at the discretion of the permit-holding archaeologist, within the development area.

Subsurface testing was confined to project boundaries, and tests were conducted to a maximum depth of approximately 80 cm below surface (cmbs). Shovel tests measured 40 x 40 cm, with sediments screened using ¼" mesh or carefully hand-screened, where appropriate. A backhoe or deeper tests were not considered necessary as sediment profiles of the upper terrace were very visible, showing nothing but silty sand from the LFH/Ah to basal light grey clayey sand overlying gravels and, ultimately, bedrock. The shovel tests on top of the upper terrace could be correlated to the exposed bank profiles, reassuring the interpretation of the sediment sequence. The lower terrace had little deposition overlying sandstone bedrock that extended into the Smoky River, so deep testing was not necessary on this terrace either.

Representative stratigraphy was noted for all tests, and photographs and detailed notes were taken, before all tests were returned as best as possible to their original state. GIS data was collected and will be submitted as per *Spatial Data Standards for Archaeological Survey and Excavation* (Alberta Arts, Culture and Status of Women, March 2014).

5.3 ANALYSIS

Upon completion of the field assessment, the client is updated as to the results, including the number and location of any find spots and/or positive shovel tests, with preliminary descriptions of all historic resource sites, as well as any preliminary management recommendations.

All artifacts are sorted and washed, as required, broadly sorted by type (historic, lithic, ceramic, faunal, fire-broken rock), then assigned unique catalogue numbers to be labelled for archival purposes. Standard information about each artifact is recorded according to information pertinent to analysis; all information is entered into an Excel

spreadsheet. Recorded metrics include, but are not limited to, size, raw material, flake/tool type, portion, description, taphonomic condition, and standard metrics. Cataloguing of lithics follows methods common to many archaeological projects and utilized over the last several decades, including Andrefsky (1998), Kooyman (2000), Reeves (1970), and Whittaker (1994). Cataloguing of faunal material also follows common and standardized methods, utilizing Brown and Gustafson (1979), Chaplin (1971), Gilbert (1990), Hesse and Wapnish (1999), Hillson (1992), O'Connor (2000), and Reitz and Wing (2008). Bone was analyzed and assigned to species, element, side, and portion, where possible, and carefully examined for evidence of butchering (for example, cut marks and spiral fractures) and other cultural processes (cooking and burning).

Artifacts are then rebagged and labelled for archival purposes, and then prepared for submission to the Royal Alberta Museum (RAM). All cataloguing and submissions are completed as per the *Archaeology Information Bulletin: Artifact Submission Guidelines* (2019).

5.4 REPORTING

This final report was produced in compliance with Alberta's *Archaeological Survey Information Bulletin: Archaeological Report Guidelines* (March 2020). It includes a general description of the developments that were assessed, including figures and tables that illustrate project boundaries, ground survey, and the locations of any subsurface tests and exposures, as well as any new or previously recorded historic resource sites. Each historic resource site is discussed in detail, with a description, analysis, and interpretation provided for each reported site, its contents, artifacts, and significance, as well as management recommendations.

Digital data, including a PDF copy of the final report, PDF copies of the site forms, digital site photos, the photo catalogue, and the artifact catalogue, will be submitted in compliance with the *Archaeological Survey Information Bulletin – Digital Data Submissions* (December 2019).

The ensuing section details the field investigations conducted with regard to the Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake Project; reporting is in accordance with the *Historical Resources Act*, the *Guidelines for Archaeological Permit Holders in Alberta*, and the *Archaeological and Palaeontological Research Permit Regulation* (Alberta Regulation 254/2002), as well as the associated *Historical Resources Act Requirements* (HRA Number: 4970-22-0064-001).

6.0 RESULTS

The purpose of the HRIA was to assess for unknown historic resources that may be impacted by, or in conflict with, the proposed development, as well as revisit previously recorded sites, in order to evaluate the relationship between proposed development activities and specific archaeological sites as per the Schedule of Requirements. Field investigations were conducted from August 9 to 10, 2023, and included pedestrian reconnaissance and subsurface testing in areas identified as having archaeological potential for the recovery of intact, buried cultural materials. During the investigations, a total of 36 shovel tests (STs) were excavated across the entire development area (

Figure 5). As a result, no new sites were identified, and no previously recorded sites were revisited. For the purposes of this discussion, detailed results are discussed by terrace level (upper and lower terrace); these are further grouped into general categories based on the distance of the tests to the edge of the terrace. In addition to these general test areas, a constructed road roughly bisects the development footprint into north and south sections. The road appears to have been constructed, in part, by excavating a trench on each side of the roadway to gather road material. This material formed the road base, with additional road fill and gravel placed on the top of the road surface (Figure 6). As such, the roadway was not tested.

Prior to beginning the subsurface assessment, the east-facing banks of the Smoky River, along the eastern edge of the development area, were inspected to assess sedimentation in the area. Similarly, the upper terrace had well-exposed east-facing banks; these were also inspected.

The assessed Smoky River bank profile consists of solid sandstone bedrock (Figure 7 to **Error! Reference source not found.**). In fact, the Smoky River is running west at this point, and the flow turns to the north at the development area; this change in flow direction of the Smoky River is likely due to the sandstone bedrock redirecting the flow of water. The sandstone bedrock is highest in the north portion of the Project and tapers to the south.

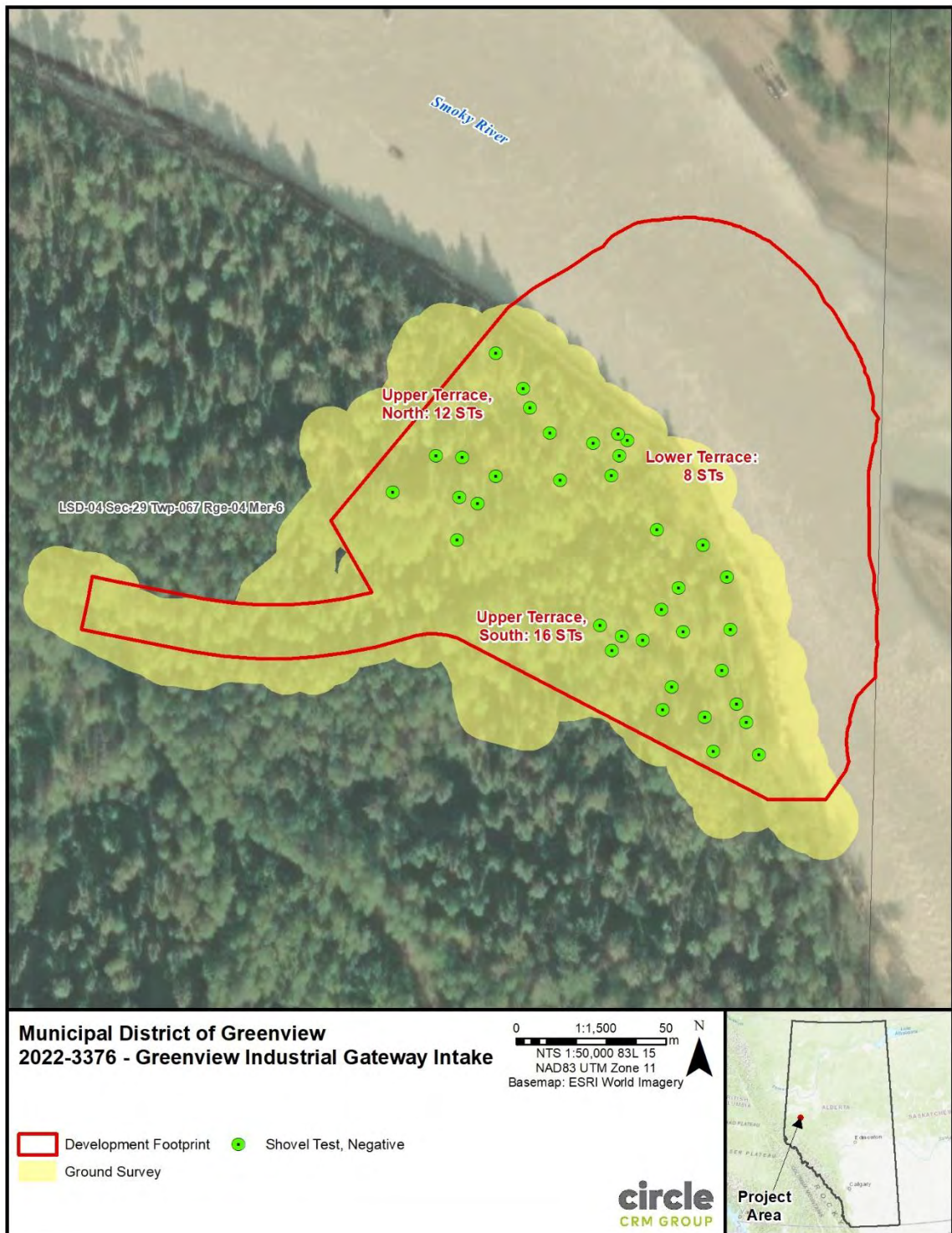


Figure 5. Map showing development footprint, ground survey, and shovel tests in the project area.



Figure 6. View south of constructed road showing edge raised above adjacent forest.

The upper and lower terraces vary in their relationships to each other. In the northwest end, the 'upper' and 'lower' terraces are a single vertical wall of about 6-8 m high (Figure 7Figure 8). Progressing south, the 'lower' terrace emerges and, at its widest, is 25-30 m with a height of 3-5 m over a length of about 80 m, then blends back into a single vertical wall of 6-8 m (**Error! Reference source not found.**). An assessment of the combined profile face consists of the following stratigraphy: a thin LFH and Ah (0-10 cmbs), underlain by silty sand (ca. 10-50 cmbs), light grey clayey sand (50-100 cmbs), massive silts (100-250 cmbs), no inclusions or paleosols, followed by a gravel bed (250-400 cmbs), overlying sandstone bedrock (400-800+ cmbs) (**Error! Reference source not found.**). The assessed upper terrace profile consists of only the upper portion of the entire profile described above: a thin LFH and Ah (0-10 cmbs), underlain by silty sand (ca. 10-50 cmbs), light grey clayey sand (50-100 cmbs), massive silts (100-250 cmbs), no inclusions or paleosols, followed by a gravel bed (250+ cmbs) (Figure 10 and Figure 11).

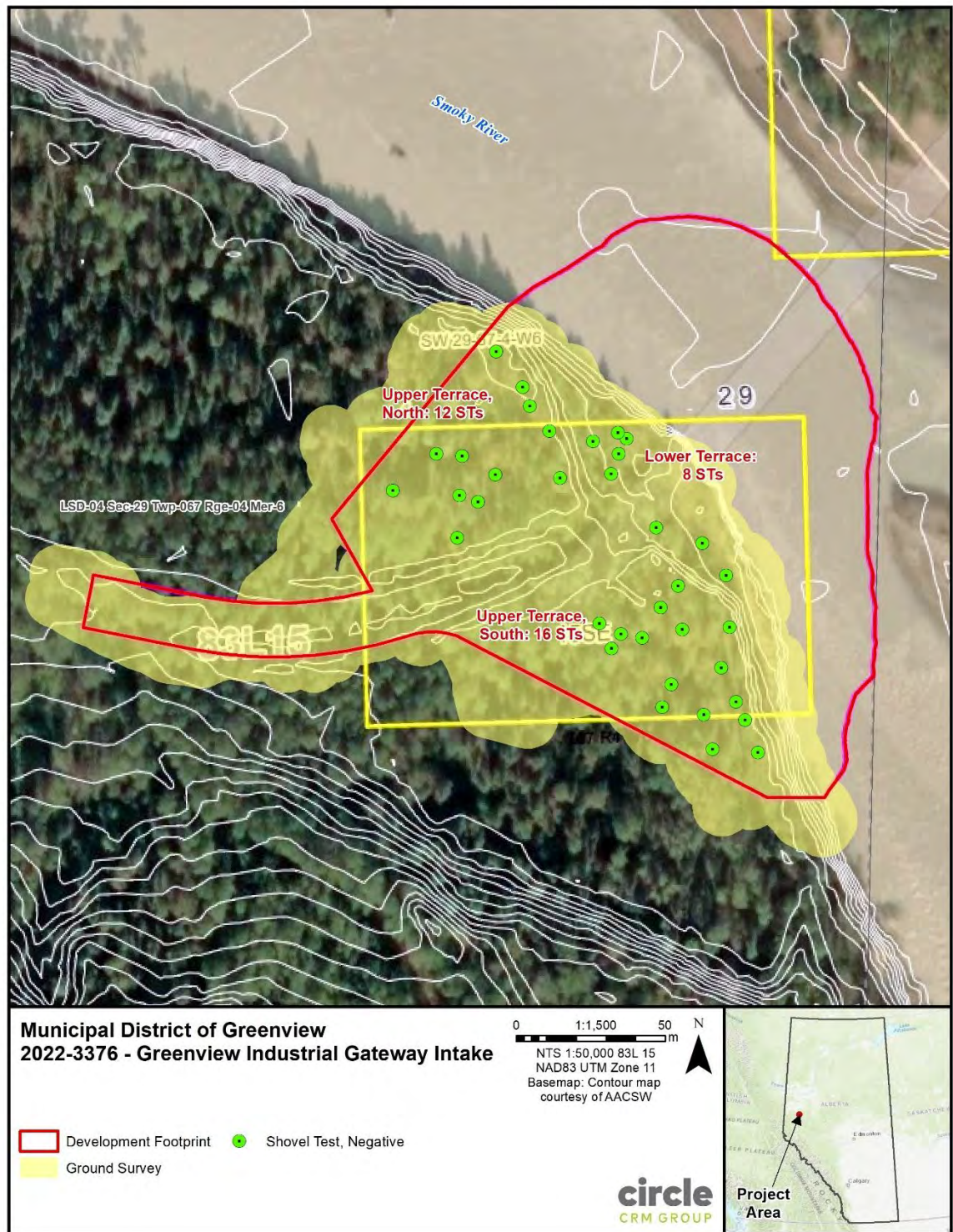


Figure 7. Development footprint showing the lower terrace and upper terrace. A constructed road bisects the development footprint into north and south sections.



Figure 8. View north of bedrock 'lower terrace' along the Smoky River from the north end of the development area.



Figure 9. View north of bedrock 'lower terrace' along the Smoky River from the south end of the development area, with the 'upper terrace' profile exposed immediately above. In the south, the 'lower terrace' bedrock is lower, with the 'upper terrace' pinched out.



Figure 10. View west of upper terrace profile above the Smoky River.



Figure 11. View north along sediment profile below upper terrace.

The two terraces are part of the same series of depositional events described above: a thin LFH and Ah (0-10 cmbs), underlain by silty sand (ca. 10-50 cmbs), light grey clayey sand (50-100 cmbs), massive silts (100-250 cmbs), no inclusions or paleosols, followed by a gravel bed (250-400 cmbs). The 'lower' terrace appears to be an erosional event that cut down to the bedrock over the 80 m long and 30 m wide area along this portion of the Smoky River bank (the consistent bedrock level across the bank profile rules out the possibility of the lower terrace being a slump block or other related features). Then, a few very weak flood events or slope-wash events covered portions of the bedrock with sediment and a very thin LHF-Ah layer formed. Otherwise, across the exposed river bank profile, only the upper terrace, with its 6-8 m face, is present in the area.

6.1 LOWER TERRACE

The lower terrace is a lenticular piece of land running roughly northwest to southeast for 80 m and, at its widest, 30 m wide. The Smoky River is immediately to the east-northeast. The very edge of the terrace is solid sandstone and is largely unvegetated (see Figure 8). Moving back from the river's edge/sandstone bedrock edge, the vegetation is largely young alder, fir, birch, and aspen, with some grass and rose (Figure 12). *Importantly, all the sandstone surfaces were examined for rock art; no obvious etching, painting, or pecking were observed.*

Subsurface testing of this area consisted of eight shovel tests with five on the north side of the constructed road and three on the south side of the constructed road (see Figure 7). Shovel testing was limited on this terrace due to the low deposition rate and its rather elevated position making river accesses nearly impossible and habitation unlikely. These qualities suggested a lower potential. Added to this was the presence of a very habitable spot directly across the river (Figure 13). The locale across the river is currently a campground with easy access to the Smoky River. The banks suggest stratified sediments are present in the 1-2 m high terrace.

Shovel tests in the area were shallow, either hitting bedrock or gravels at about 20-35 cmbs. For example, a test on the south side of the constructed road exhibited an LHF-Ah from 0-2 cmbs, light brown sand from 2-15 cmbs, medium brown silty sand with roots and charcoal from 15-36 cmbs, and bedrock at 36 cmbs (Figure 14; see Appendix C for Schematic Profile). A test on the north side of the road exhibited an LHF-Ah from 0-2 cmbs, medium brown sand from 2-23 cmbs, and medium brown sand and gravel from 23-32 cmbs (Figure 15; see Appendix C for Schematic Profile). The other six tests produced similar results. All tests were negative.



Figure 12. Sandstone bedrock and vegetation at Smoky River edge.



Figure 13. Development area (left) on 4-5 m bedrock terrace across from a current 'attractive' campground on a 1-2 m terrace (centre-right).



Figure 14. Shovel test illustrating shallow sediments overlying bedrock on the south side of the constructed road.



Figure 15. Shovel test illustrating shallow sediments overlying gravels on the north side of the constructed road.

6.2 UPPER TERRACE

The upper terrace is a roughly triangular piece of land, with the long side paralleling the river (200 m) and the apex pointing inland (90 m). The constructed road roughly cuts this area in half, running more-or-less west-east, creating north and south areas. As discussed above, the upper terrace runs the north-south length of the development footprint but varies in height depending on whether the lower terrace is present. When the lower terrace is absent – in the northern and southern extent of the development areas – the terrace is 6-8 m high. In areas where the lower terrace is present – the middle of the development footprint – the upper terrace profile is 3-5 m. The profile, as described above, exhibited a thin LFH and Ah (0-10 cmbs), underlain by silty sand (ca. 10-50 cmbs), light grey clayey sand (50-100 cmbs), massive silts (100-250 cmbs), no inclusions or paleosols, followed by a gravel bed (250+ cmbs).

The vegetation across the upper terrace is relatively consistent. The overstory consists of a mature forest of fir, birch, and balsam poplar with a dense understory of alder, rose, highbush cranberry, gooseberry, and ground cover of substantial deadfall, bunchberry, and some ferns.

Subsurface testing of this area consisted of 28 shovel tests, with 12 on the north side of the constructed road and 16 on the south side of the constructed road (see Figure 7). Shovel testing on both the north and the south sides of the constructed road started by excavating a deep shovel test to encounter the light grey clayey sand observed in the terrace profile. Having made this correlation, only a single faint burn layer was observed in the sediment above the basal grey clayey sand. Thus, all remaining tests on both the north and south sides of the constructed road were excavated, focussing on the LHF-Ah down to the faint burned layer. All other sediments were massive silty sand deposits and considered low potential. To further corroborate this, deep tests were conducted towards the western side of the development footprint – farthest away from the river's edge – to assess changes in the sediments. The observations suggested the sediments became increasingly shallow and were pinching out, supporting the prescribed methodology.

6.2.1 Upper Terrace – North of Constructed Road

A total of 12 shovel tests were conducted on the north side of the constructed road. Initially, a deep shovel test was conducted to correlate the terrace sediment to the observed profile in the exposed bank. This test exhibited an LHF from 0-10 cmbs, an Ah from 10-12 cmbs, medium brown sand from 12-20 cmbs, mottled reddish-brown sand with charcoal from 20-25 cmbs, yellowish-brown sand from 25-68 cmbs, and 68-75 cmbs of light grey clayey sand considered basal based on the observed exposed terrace bank (Figure 16; see Appendix C for Schematic Profile). Given the lack of palaeosols in the terrace bank and the massive sand deposits, the landform was considered to have a low to medium potential. The best potential to recover cultural material was considered to be in the LHF-Ah and the faint burn layer at about 25 cmbs. All subsequent tests were excavated within these parameters. As noted in Section 5.0, these shovel tests were judgementally placed.

An additional ten tests were excavated to about 25-35 cmbs to the faint burn layer to confirm that the sediments across the development area are consistent and assess these for cultural materials. A second deep shovel test was conducted at a locale farthest from the river's edge. This test produced a sediment profile consisting of an LHF at 0-20 cmbs, Ah at 20-25 cmbs, reddening and charcoal at 20-28 cmbs, medium brown silty sand at 28-40 cmbs, and mottled grey and medium brown clayey sand at 40-45+ cmbs (Figure 17; see Appendix C for Schematic Profiles). This profile is similar to the profile closer to the river but exhibits less sedimentation in the upper portion of the profile, above the faint burn layer, and more in the lower portion profile.



Figure 16. Deep test on north side of the constructed road above terrace face.



Figure 17. Deep test on the north side of the constructed road in northwest part of development area, farthest from the river's edge.

The distribution of shovel tests on the north side of the constructed road is concentrated towards the terrace edge and the Smoky River. The inference was that any use of the area would be focused on the bedrock exposure, and occupation of the undifferentiated lands increasingly inland from the river's edges would become increasingly less desirable. Figure 18 illustrates the generally flat, undifferentiated forest found about 80 m from the Smoky River. All tests on the north side of the constructed road on the upper terrace were negative for cultural material.



Figure 18. View north from constructed road of flat, undifferentiated forest on the north portion of the upper terrace (farthest from the Smoky River) of the development area.

6.2.2 Upper Terrace – South of Constructed Road

A total of 16 shovel tests were conducted on the south side of the constructed road. Initially, a deep shovel test was conducted to correlate the terrace sediment to the observed profile in the exposed bank. This test exhibited an LHF from 0-20 cmbs, an Ah from 20-21 cmbs, medium brown sand from 21-45 cmbs, a faint burn layer with charcoal and underlying reddish layer from 45-48 cmbs, medium brown sand at 48-76 cmbs, and light grey clayey sand at 76-80 cmbs, considered basal based on the observed exposed terrace bank (Figure 19; see Appendix C for Schematic Profile). As with the northern portion of the upper terrace, the lack of palaeosols in the terrace bank and the massive sand deposits on the landform supported an interpretation that the landform exhibited a low to medium potential. The best potential to recover cultural material was considered to be in the LHF-Ah and the faint burn layer at about 45 cmbs. Subsequent tests were excavated within these parameters. As noted in Section 5.0, these were judgementally placed.

The 16 tests were excavated to about 45 cmbs, to the faint burn layer to confirm the sediments across the development area are consistent and assess the sediments for cultural materials. These tests confirmed the sediment profile remained relatively consistent across the southern portion of the upper terrace.

Lastly, another deep shovel test was conducted at a locale farthest from the river's edge. This test produced a sediment profile consisting of an LHF at 0-5 cmbs, Ah at 5-11 cmbs, medium brown sand at 11-34 cmbs, dark grey sand with charcoal and underlying reddening at 34-37 cmbs, and light grey clayey sand at 37-45+ cmbs (Figure 20; see Appendix C for Schematic Profile). This profile is similar to the profile closer to the river but exhibits a thicker Ah and the burn layer appears to be immediately above the basal grey clayey sands suggesting some of the upper sedimentation did not occur in this portion of the landform.



Figure 19. Deep test on south side of the constructed road above terrace face.



Figure 20. Deep test on the south side of the constructed road in southwest part of development area, farthest from the river's edge.

As with the upper terrace north of the constructed road, the distribution of shovel tests on the south side was concentrated towards the terrace edge and the Smoky River on the inference that human use of the area would be focused on access to the river. Again, like the north portion, the lands become increasingly flat and undifferentiated inland from the river's edge. Figure 21 illustrates the generally flat, undifferentiated forest found about 70 m from the Smoky River. All the tests on the south side of the constructed road on the upper terrace were negative for cultural material.



Figure 21. View south from constructed road of flat, undifferentiated forest of the south portion of the upper terrace (farthest from the Smoky River) of the development area.

7.0 SUMMARY AND RECOMMENDATIONS

On August 9 to 10, 2023, an HRIA was conducted for the Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake Project. As per the *Historical Resources Act* Requirements, the HRIA covered all lands with high potential to contain historic resources. The Project is located approximately 40 km south of the Grande Prairie, on the west side of the Smoky River. The sediments throughout the Project were comprised of mainly massive sands overlying gravels and bedrock as seen in the banks of the Smoky River. In the past, the area did not have a stable land surface, evident from the complete lack of palaeosols. As well, the bedrock at this point in the river bank redirects the river to the north and makes river access difficult owing to a 6-8 m river bank face. Immediately across from the development area is a modern local campsite with excellent water access, providing a better choice for habitation. As a result, the development area would not have been a prime choice to locate a camp.

As per the *HRA* Requirements, Project lands with high archaeological potential were subject to pedestrian reconnaissance and shovel testing to assess sedimentation (HRA Number: 4970-22-0064-001). A total of 36 shovel tests were excavated in the development footprint. The current HRIA resulted in the identification of no new historic resource sites, and no previous recorded sites were revisited.

Given the results of the HRIA, **it is recommended that the proposed Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake Project be granted *Historical Resources Act* Approval as per the plans in Appendix A and in fulfillment of the *Historical Resources Act* Requirements (4970-22-0064-001).** These recommendations are subject to the approval of Alberta Arts, Culture and Status of Women.

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APPENDIX A:

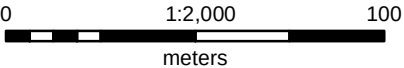
DEVELOPMENT PLAN

Municipal District of Greenview, 2022-3376 Greenview Industrial Gateway Intake

Municipal District of Greenview

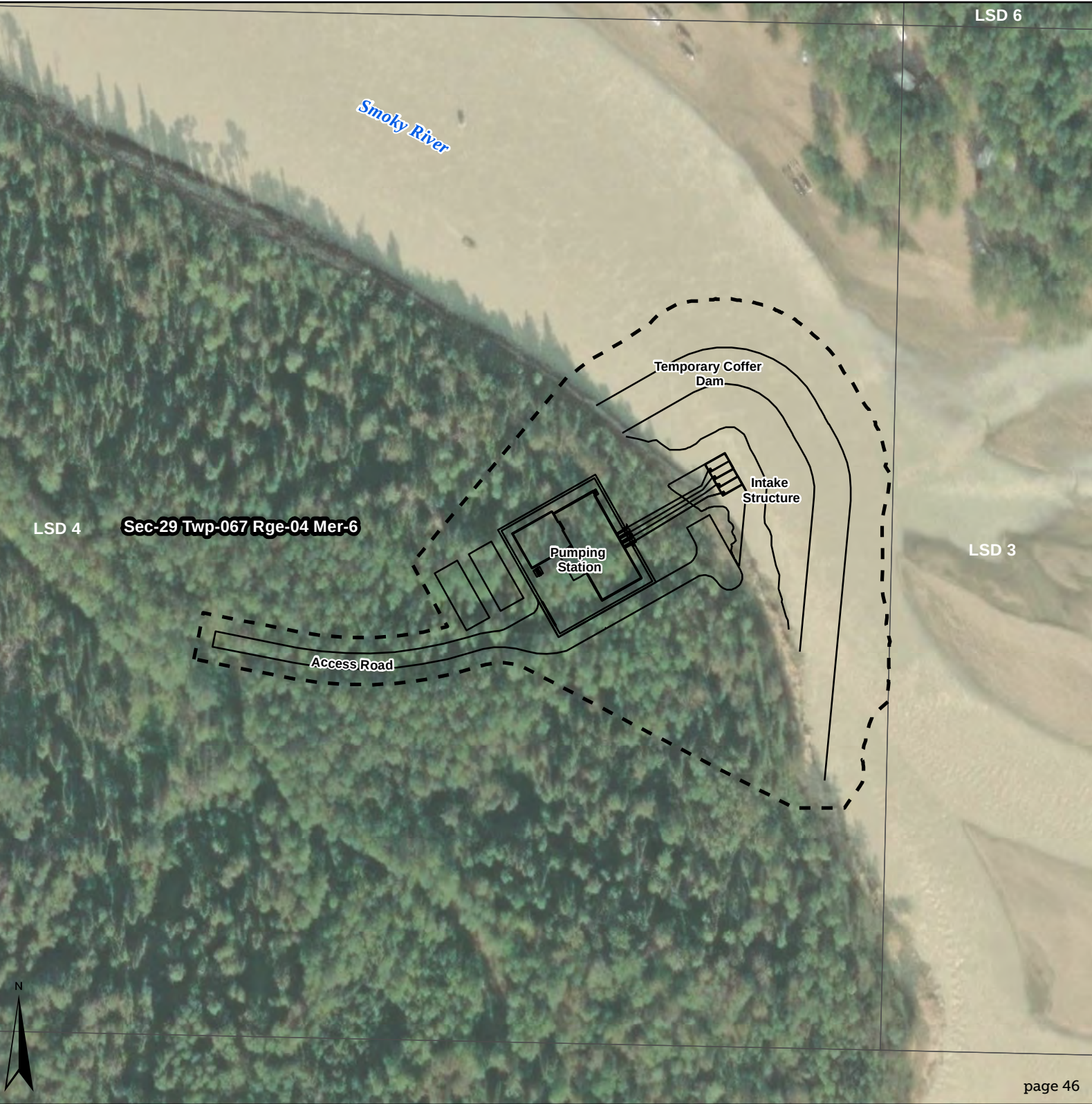
2022-3376 - Greenview
Industrial Gateway Intake

LEGEND
Development Footprint



Projection: NAD83 UTM Zone 11
Basemap: ESRI World Imagery

Map 1 of 1



APPENDIX B:
HISTORICAL RESOURCES ACT REQUIREMENTS

HRA Number: 4970-22-0064-001

Historical Resources Act Requirements

Proponent: Municipal District of Greenview
4806 - 36 Avenue, Valleyview, AB T0H 3N0

Contact: Mr. Kyle Reiling

Agent: Associated Environmental Consultants Inc.

Contact: Associated Environmental Consultants, Inc.

Project Name: 2022-3376 - Greenview Industrial Gateway Intake

Project Components: Water Supply Line
Water Intake
Other - Raw water storage pond

Application Purpose: Requesting HRA Approval / Requirements

Pursuant to Section 37(2) of the *Historical Resources Act*, a Historic Resources Impact Assessment is required for all or portions of those activities described in this application and its attached plan(s)/sketch(es). The Historic Resources Impact Assessment is to be conducted in accordance with the instructions outlined in the following schedule.



David Link
Assistant Deputy Minister
Heritage Division
Alberta Culture and Status of
Women

SCHEDULE OF REQUIREMENTS

ARCHAEOLOGICAL RESOURCES

Pursuant to Section 37(2) of the *Historical Resources Act*, a Historic Resources Impact Assessment for archaeological resources is to be conducted on behalf of the proponent by an archaeologist qualified to hold an archaeological research permit within the Province of Alberta. A permit must be issued by Alberta Culture prior to the initiation of any archaeological field investigations. Please allow ten working days for the permit application to be processed.

1. The Historic Resources Impact Assessment is to be carried out prior to the initiation of any land surface disturbance activities under snow-free, unfrozen ground conditions. Should the project require field studies under winter conditions, directions in the [Archaeological Survey Information Bulletin: Winter Conditions](#) must be followed.

SCHEDULE OF REQUIREMENTS (continued)

2. The Historic Resources Impact Assessment must address all areas of high archaeological potential within the project area including, but not limited to, the high potential areas shown on the attached map.
3. A deep testing program is required in areas of significant sedimentation.
4. Results of the Historic Resources Impact Assessment must be reported to Alberta Culture and subsequent *Historical Resources Act* approval must be granted before development proceeds.

PALAEONTOLOGICAL RESOURCES

Conditional *Historical Resources Act* approval is granted on the understanding that a Historic Resources Impact Assessment for palaeontological resources in the form of a monitoring program will be conducted, as outlined below.

1. The monitoring program is required for excavation activities greater than one (1) metre below surface in the following locations:

LSD 3-4 Sec29 T67 R4 W6M

LSD 1, 8-11 Sec30 T67 R4 W6M.
2. No excavation activities, as described above, are to take place on the project until a professional consulting palaeontologist is on site to monitor construction activities. Should significant palaeontological resources be encountered during the conduct of the monitoring program, the Royal Tyrrell Museum of Palaeontology must be contacted. It may then be necessary for Alberta Culture to issue further instructions regarding these resources.
3. The Historic Resources Impact Assessment for palaeontological resources is to be conducted on behalf of the proponent by a palaeontologist qualified to hold a palaeontological research permit within the Province of Alberta. A permit must be issued by Alberta Culture prior to the initiation of any palaeontological field investigations. Please allow ten working days for the permit application to be processed.

ABORIGINAL TRADITIONAL USE SITES

There are no *Historical Resources Act* requirements associated with Aboriginal traditional use sites of a historic resource nature; however, the proponent must comply with [Standard Requirements under the Historical Resources Act: Reporting the Discovery of Historic Resources](#), which are applicable to all land surface disturbance activities in the Province.

HISTORIC STRUCTURES

There are no *Historical Resources Act* requirements associated with historic structures; however, the proponent must comply with [Standard Requirements under the Historical Resources Act: Reporting the Discovery of Historic Resources](#), which are applicable to all land surface disturbance activities in the Province.

SCHEDULE OF REQUIREMENTS (continued)**PROVINCIALY DESIGNATED HISTORIC RESOURCES**

There are no *Historical Resources Act* requirements associated with Provincially Designated Historic Resources; however, the proponent must comply with [Standard Requirements under the Historical Resources Act: Reporting the Discovery of Historic Resources](#), which are applicable to all land surface disturbance activities in the Province.

ADDITIONAL COMMENTS

1. To obtain contact information for consultants qualified to undertake the assessment work specified above, please consult the list of [Alberta Historic Resource Consultants](#).
2. In addition to any specific conditions detailed above, the proponent must abide by all [Standard Conditions under the Historical Resources Act](#).

Lands Affected: All New Lands

Proposed Development Area:

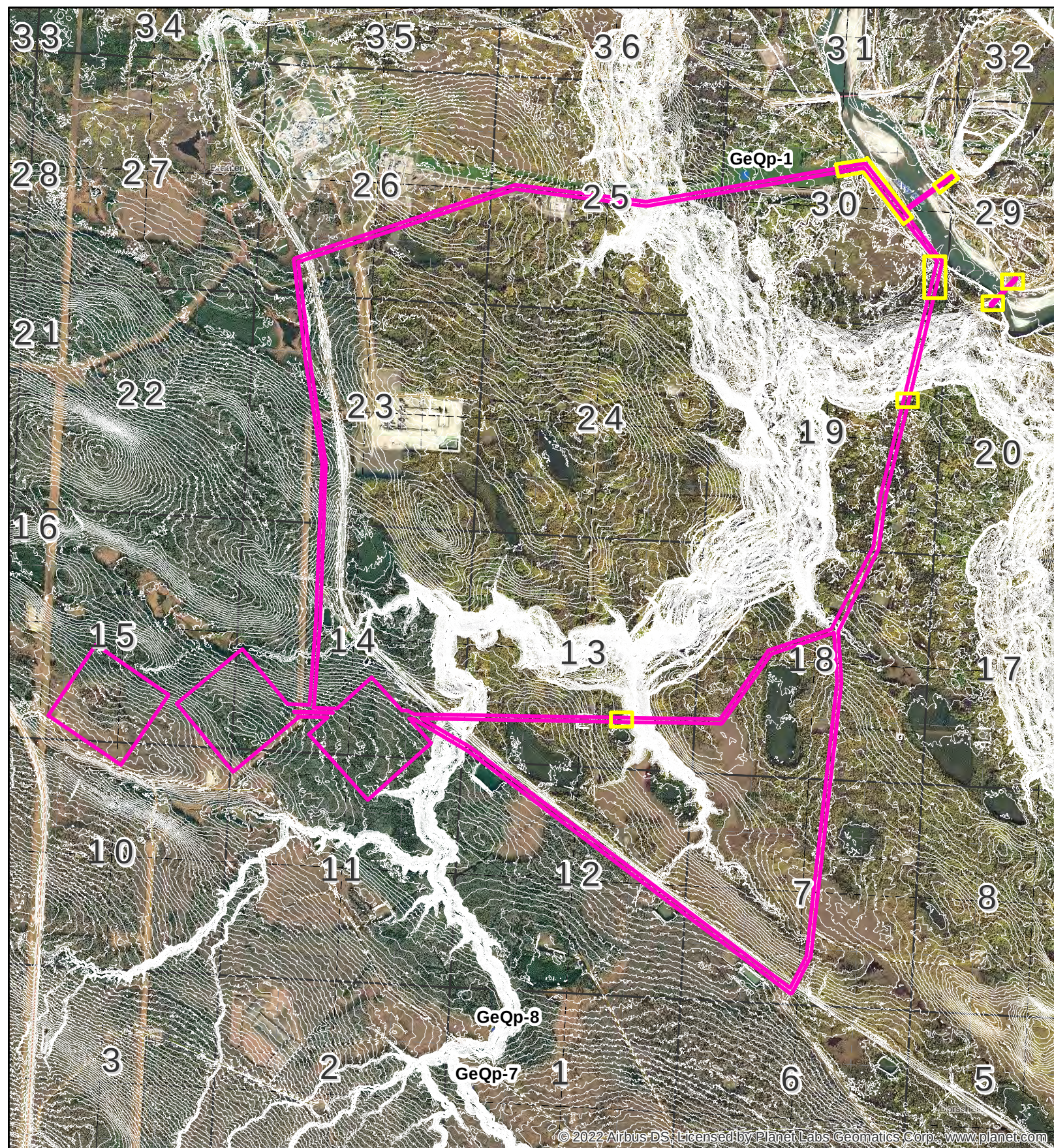
MER	RGE	TWP	SEC	LSD List
6	5	67	12	8-11,13-14
6	4	67	30	1,8-12
6	5	67	25	5-9,11-12
6	5	67	13	1-4
6	5	67	10	14-16
6	4	67	18	2,4-7,10-11,15
6	5	67	26	3-4,6-8
6	5	67	11	13-16
6	4	67	7	2-5,7,10,15
6	5	67	14	1-7,11,14
6	5	67	15	1-4,6-8
6	4	67	29	3-4
6	5	67	23	3,6,11-13
6	4	67	19	1-2,8-9,16

Documents Attached:

Document Name	Document Type
Intake Conceptual Design	Illustrative Material
Map with LiDAR contours and high potential areas 4970-22-0064-001	Review

SCHEDULE OF REQUIREMENTS (continued)

Pipe Option 1	Illustrative Material
Pipe Option 2	Illustrative Material
Pipe Option 3	Illustrative Material
Water Storage Conceptual Design	Illustrative Material



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NORTH

1:35,000

0 500 1,000



Meters

This document contains sensitive information about historic resources and is to be used in planning the proposed project only. It is not to be shared for any other purpose.

HRA 4970-22-0064-001

TWP-67 RGE-05 MER-6

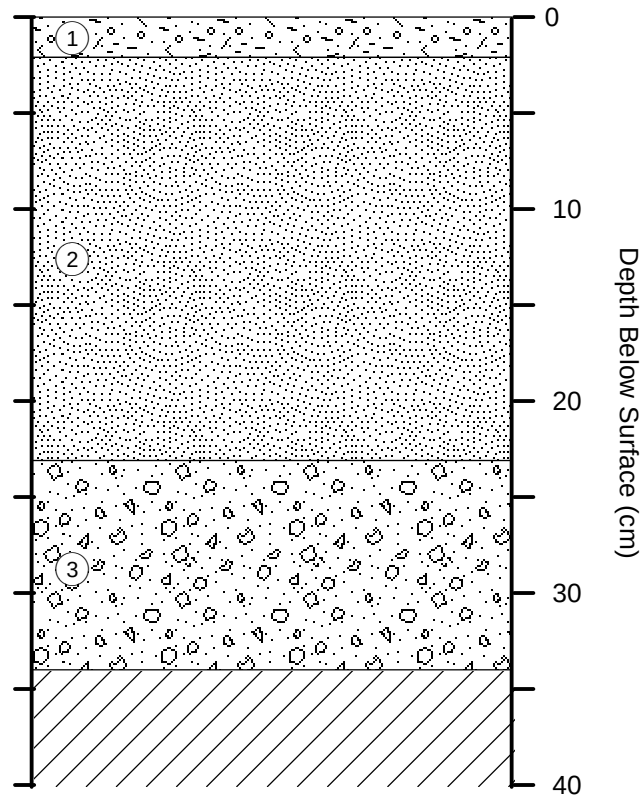
- Current footprint
- High potential area
- 1 m contour



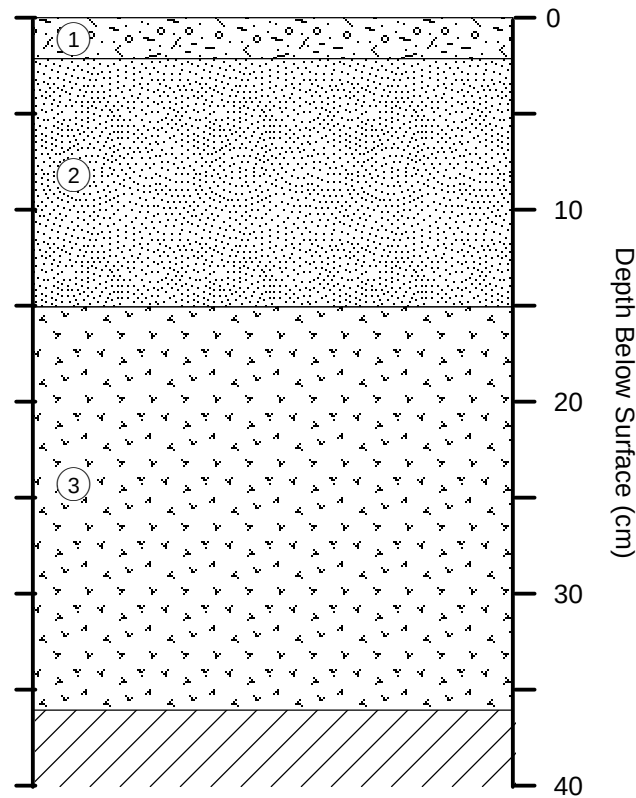
APPENDIX C:

SCHEMATIC PROFILES

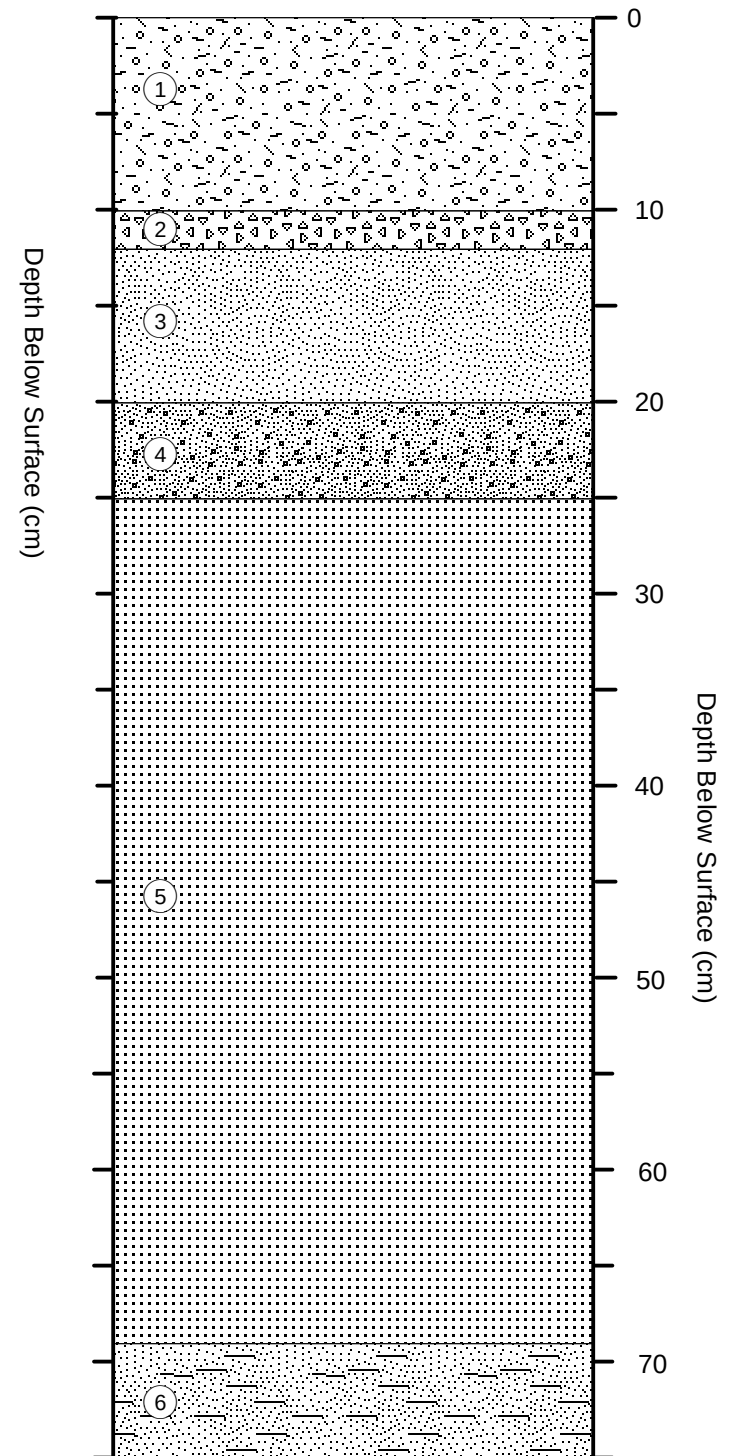
Municipal District of Greenview
2022-3376 - Greenview Industrial Gateway Intake
Schematic Profile



Lower Terrace (North)
(1) 0-2 cmbs: LFH- Ah
(2) 2-23 cmbs: Medium brown sand
(3) 23-32 cmbs: Medium brown sand and gravel

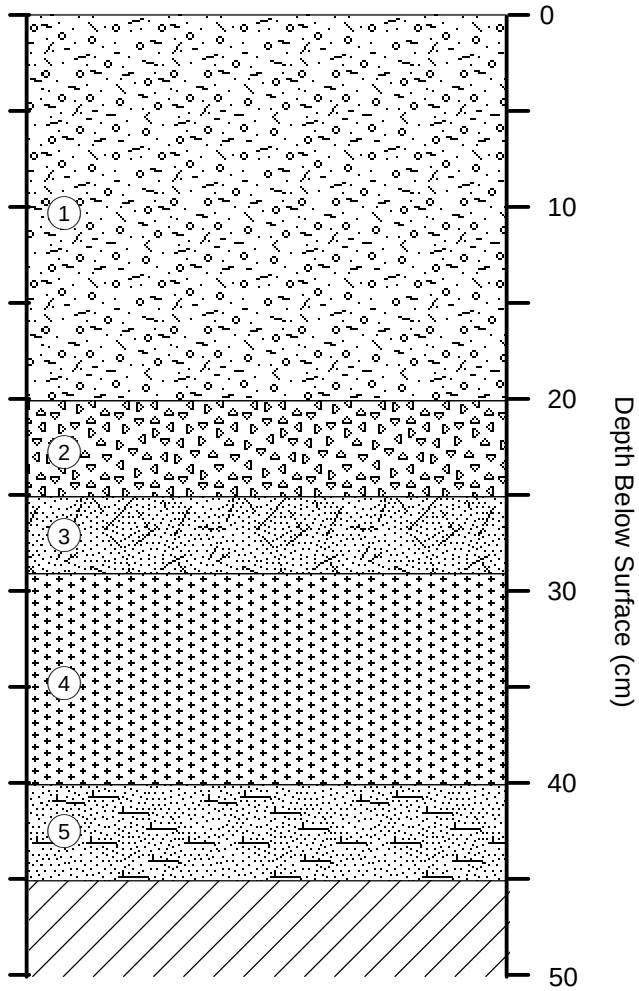


Lower Terrace (South)
(1) 0-2 cmbs: LFH- Ah
(2) 2-15 cmbs: Light brown sand
(3) 15-36 cmbs: Medium brown silty sand with roots and charcoal

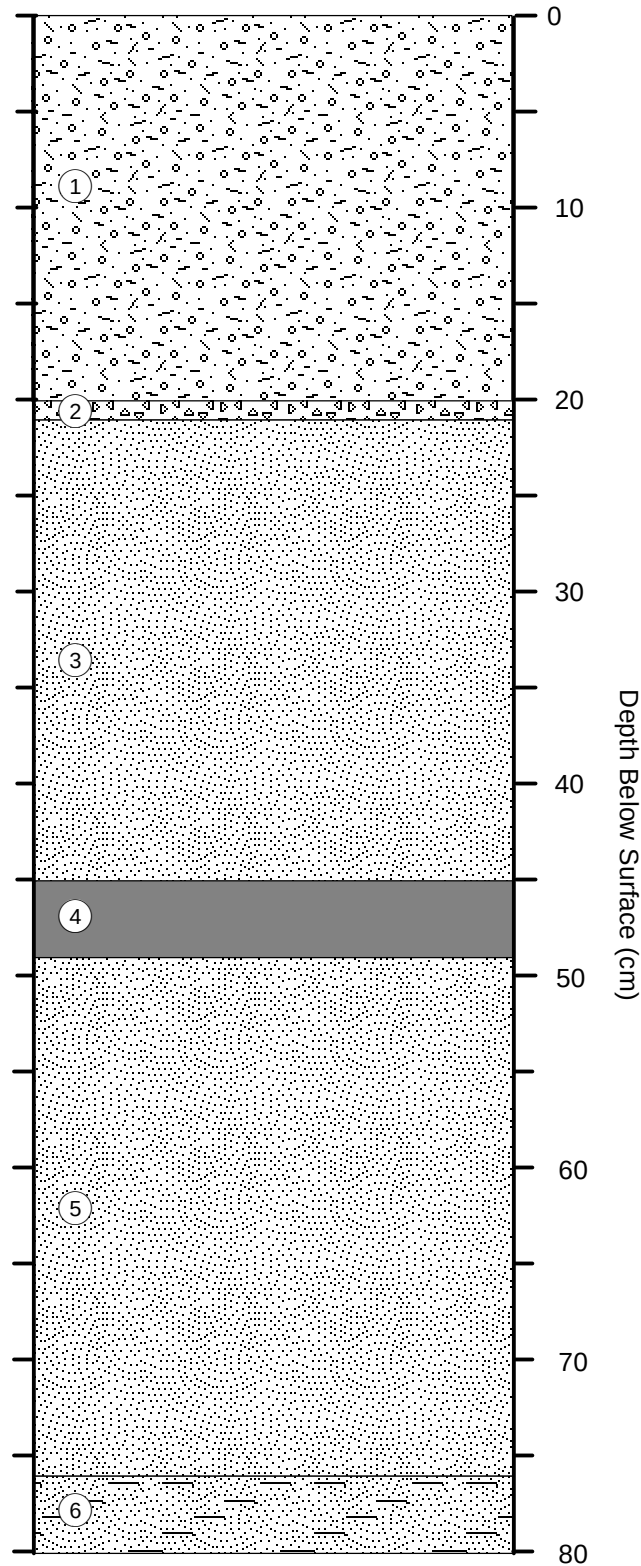


Upper Terrace (North, Front of Terrace)
(1) 0-10 cmbs: LFH
(2) 10-12 cmbs: Ah
(3) 12-20 cmbs: Medium brown sand
(4) 20-25 cmbs: Mottled red-brown sand with charcoal
(5) 25-68 cmbs: Yellow-brown sand
(6) 68-75 cmbs: Light grey clayey sand

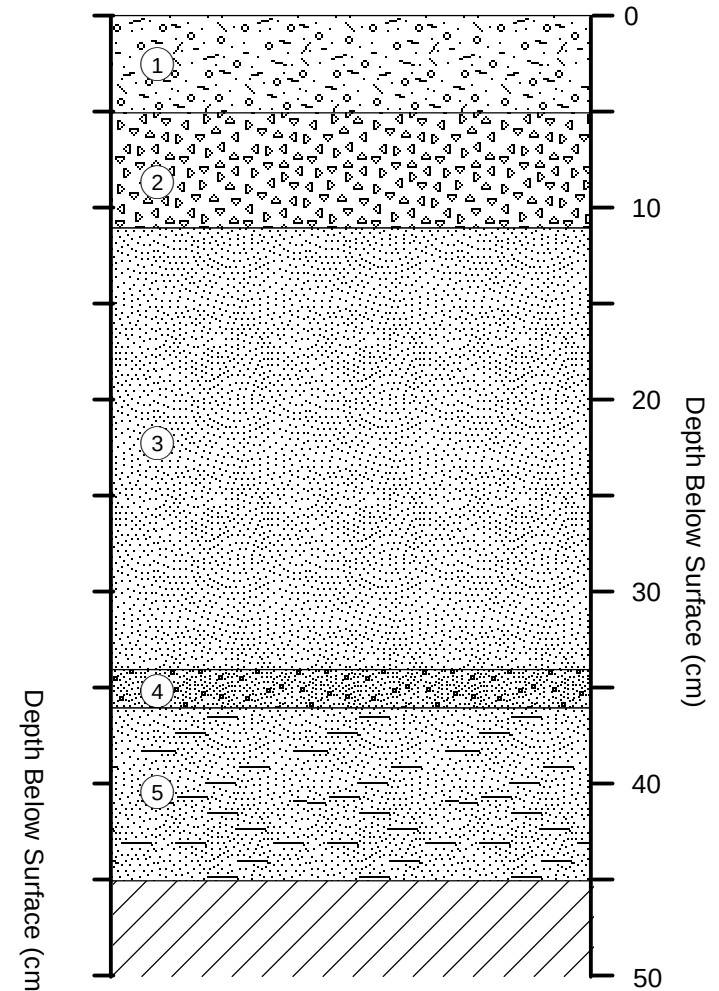
**Municipal District of Greenview
2022-3376 - Greenview Industrial Gateway Intake
Schematic Profile**



Upper Terrace (North, Back of Terrace)
 (1) 0-20 cmbs: LFH
 (2) 20-25 cmbs: Ah
 (3) 25-28 cmbs: Reddening and charcoal
 (4) 28-40 cmbs: Medium brown silty sand
 (5) 40-45 cmbs: Mottled grey and medium brown clayey sand



Upper Terrace (South, Front of Terrace)
 (1) 0-20 cmbs: LFH
 (2) 20-21 cmbs: Ah
 (3) 21-45 cmbs: Medium brown sand
 (4) 45-48 cmbs: Faint burn layer with charcoal and underlying red layer
 (5) 48-76 cmbs: Medium brown sand
 (6) 76-80 cmbs: Light grey clayey sand



Upper Terrace (South, Back of Terrace)
 (1) 0-5 cmbs: LFH
 (2) 5-11 cmbs: Ah
 (3) 11-34 cmbs: Medium brown sand
 (4) 34-37 cmbs: Dark grey sand with charcoal and underlying red layer
 (5) 37-45 cmbs: Light grey clayey sand

APPENDIX D:
SUBSURFACE INSPECTION LOG

Municipal District of Greenview
2022-3376 Greenview Industrial Gateway Intake
Subsurface Inspection Log

Permit	SI_Name	Type	Subtype	Result	Num_Arts	Borden No.	sq_m	Depth (m)	Screen	Screen (mm)	Northing (10TM)	Easting (10TM)
23-142	1405	Shovel Test	1	Negative	0		0	0.36	Screened	6.35	6078570	270140
23-142	1406	Shovel Test	1	Negative	0		0	0.36	Screened	6.35	6078568	270156
23-142	1407	Shovel Test	1	Negative	0		0	0.32	Screened	6.35	6078603	270132
23-142	1408	Shovel Test	1	Negative	0		0	0.32	Screened	6.35	6078606	270129
23-142	1409	Shovel Test	1	Negative	0		0	0.32	Screened	6.35	6078598	270129
23-142	1410	Shovel Test	1	Negative	0		0	0.32	Screened	6.35	6078592	270126
23-142	1411	Shovel Test	1	Negative	0		0	0.32	Screened	6.35	6078603	270121
23-142	1412	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078595	270117
23-142	1413	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078607	270106
23-142	1414	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078615	270100
23-142	1415	Shovel Test	1	Negative	0		0	0.75	Screened	6.35	6078622	270097
23-142	1416	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078634	270089
23-142	1417	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078600	270068
23-142	1418	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078586	270075
23-142	1419	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078584	270081
23-142	1420	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078569	270081
23-142	1421	Shovel Test	1	Negative	0		0	0.36	Screened	6.35	6078550	270164
23-142	1422	Shovel Test	1	Negative	0		0	0.8	Screened	6.35	6078554	270148
23-142	1423	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078538	270128
23-142	1424	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078536	270135
23-142	1425	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078542	270121
23-142	1426	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078514	270166
23-142	1427	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078526	270161
23-142	1428	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078539	270165
23-142	1429	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078539	270149
23-142	1430	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078546	270142
23-142	1431	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078508	270169
23-142	1432	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078497	270173
23-142	1433	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078510	270155
23-142	1434	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078498	270158
23-142	1435	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078513	270141
23-142	1436	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078521	270144
23-142	1437	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078533	270125
23-142	1438	Shovel Test	1	Negative	0		0	0.45	Screened	6.35	6078588	270053
23-142	1439	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078593	270087
23-142	1440	Shovel Test	1	Negative	0		0	0.35	Screened	6.35	6078599	270077