

REPORT

Municipality of Crowsnest Pass

Nuisance Grounds Environmental Overview 2022-8246



FEBRUARY 2023

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EXECUTIVE SUMMARY

The Municipality of Crowsnest Pass (MCNP) retained Associated Environmental Consultants Inc. (Associated) to conduct an Environmental Overview of multiple nuisance grounds within the municipality, collectively referred to as the Project Area.

Background

This project was initiated to determine whether setback variances are needed for previous and future developments within 300 metres (m) of these sites per the *Guideline for Setback Reviews [Waste Facility]* document. The document outlines the requirements for developers, subdivision authorities, and development authorities to evaluate a new development permit or subdivision application where the setback distances are planned or being considered to be reduced to less than the default 300 m setback for new residences, schools, and hospitals. Typically, the default setback is 300 m from a non-operating landfill. To reduce the setback, the subdivision authority or development authority needs to have sufficient data to confirm the absence of nuisance (odours, vectors, and smoke) and contaminant migration (emissions, leachate, and landfill gas), or data to confirm the absence of pathways (i.e., mitigative measures). Developers typically provide environmental reports that meet the applicable guidelines to the authority for review as part of their subdivision/development application.

The May 2022 *Guideline for Setback Reviews [Waste Facility]* is an update to the May 2013 *Requesting Consent To Vary the Setback Distance For A Development To A Non Operating Landfill*. The 2013 version required subdivision authorities and development authorities to submit a request to then Alberta Environment and Sustainable Resources (ESRD) to grant consent to the setback variance. The 2022 version removed the requirements of the subdivision authorities and development authorities to receive consent from Alberta Environment and Protected Areas (AEPA, formerly ESRD and Alberta Environment and Parks [AEP]). Similarly, the October 24, 2022, updated Alberta Regulation 84/2022, *Matters Related to Subdivision and Development Regulation, Part 3, Section 17, "Distance from wastewater treatment, landfill, waste sites"* removed the requirement that a subdivision authority or development authority requires written consent of the Deputy Minister of AEPA. Based on these regulation updates, MCNP is not required to submit a request for a setback variance to AEPA.

Scope of Work

A desktop review was conducted to search for historical documents and reports related to known former nuisance/dumping grounds within the Project Area. In addition to the historical documents and reports, historical aerial photographs were reviewed to identify any other potential dumping sites. Eight (8) potential dumping locations (Frank Townsite, Frank Farm, Frank 153 St, Frank Big Rock Swim Hole, Hillcrest South of Lagoons 1 and 2, Bellevue Fireman's Park, and West Coleman) were identified through air photograph review in addition to the four known nuisance grounds (Bushtown, Old Sartoris Staging Area, Hillcrest Ball Diamond Road, and Bellevue Old Highway 3).

Following the desktop review, a geophysical survey was conducted by AKS Geoscience on September 1 and 2, 2022 to estimate the presence and extent of buried waste at seven locations: Bushtown, Old Sartoris Staging Area, Hillcrest Ball Diamond Road, Bellevue Old Highway 3, Hillcrest South of Lagoons 1 (suspected), Hillcrest South of Lagoons 2 (suspected), Frank Townsite (suspected), Frank Big Rock Swim Hole (suspected), and Frank (153 St) (suspected). The West Coleman site was not surveyed because it was identified as a potential former dumping site after the geophysical surveys had been completed at the other sites and is also located on private property. The Bellevue Fireman's Park was not surveyed because it was greater than 300 m away from current and potential future residential

developments. The landowners for Frank Farm and Hillcrest South of Lagoons 1 did not give permission to access their properties for geophysical surveys.

From September 19 to 23, 2022, Associated completed site inspections and test pitting to confirm waste boundaries closest to nearby residences at Bushtown, Old Sartoris Staging Area, Hillcrest Ball Diamond Road, and Bellevue Old Highway 3.

Findings

Four locations (**Bushtown, Old Sartoris Staging Area, Hillcrest Ball Diamond Road, and Bellevue Old Highway 3**) are confirmed to be within 300 m of existing residences and may impact future neighbourhood expansions. Of the eight suspected former dumping locations, five are no longer suspected of containing buried waste (Hillcrest South of Lagoons 1 and 2, Bellevue Fireman's Park, Frank Big Rock Swim Hole, and Frank (153 St)). The Frank Townsite, Frank Farm, and West Coleman site could have potential buried waste. It would be the responsibility of the private landowners to conduct their own environmental assessments for these locations.

These identified sites in this report are considered to be former nuisance grounds due to: 1) their age (dumping activities between the early 1940s to late 1970s); 2) that they were never formally operated or controlled; 3) had no record-keeping; and 4) that the dumping locations were never intended to be designed or constructed for waste management. Therefore, **the identified former nuisance grounds should be treated as areas of potential environmental concern (APECs) with potential soil and/or groundwater contamination that should have quantitative assessments (i.e. Phase II Environmental Site Assessments [ESAs]) completed to confirm if there are impacts to human and ecological health receptors.**

Regulations and Government Correspondence

Based on correspondence with AEPA and Alberta Municipal Affairs (**Appendix N**), the MCNP, acting as the Subdivision/Development Authority, should amend and apply administrative controls (bylaws) that outline what type of permits/applications for both existing and new developments trigger additional environmental reviews if located within 300 m of a nuisance ground. The following items should be considered by MCNP when amending/ updating or creating new bylaws:

Existing Properties and Development

Existing properties do not fall under the *Guideline for Setback Reviews [Waste Facility]*. Therefore, MCNP is not restricted to limit permits/applications for existing developments and construction of items that are not considered residential dwellings. However, MCNP must make an informed decision when reviewing applications.

- The MCNP is not restricted to limit permits/applications for non-residential structures such as: outdoor spaces, uncovered decks, sheds, or garages. The MCNP could also allow additions to existing residential homes that do not have a basement.
- Based on the proximity to a nuisance ground, applications for home expansions or full home replacements that have basements should be more thoroughly scrutinized by MCNP. An environmental assessment must be available that verifies the absence of contaminants, offsite gas migration, or that preventative measures were put in place at the nuisance ground. The MCNP could also require an applicant to include additional mitigative measures (i.e. soil vapour barriers) as part of the new construction.
- Parks and recreational use should be restricted, until a human health and ecological risk assessment is completed, to ensure there are no adverse affects from potential contamination in soil or water.

New Developments and Subdivisions

- Schools and hospitals should not be constructed within 300 m of a nuisance ground without detailed environmental assessments and mitigative measures. Confirmation that no environmental concerns originating from the nuisance ground exist is required prior to construction.
- Parks and recreational use should be restricted, until a human health and ecological risk assessment is completed, to ensure there are no adverse affects from potential contamination in soil or water.
- Applicants for new developments or subdivisions should be required to conduct a detailed intrusive environmental assessment(s) to ensure that the nearby nuisance ground would not impact their development. Mitigative measures (i.e. soil vapour barriers) should be integrated into the design of their construction; unless MCNP previously completed the environmental assessments and provides the information to the applicant to make an informed decision.
- Environmental assessments, including on-going environmental monitoring of the nuisance grounds, should be kept recent (within five years), as there is potential for contaminants to change and migrate over time. Updated environmental assessments and/or monitoring may not be required if it can be proven that there are no human or ecological health concerns related to a nuisance ground and/or remediation was completed.

Other considerations for the MCNP are provided in Municipal Affairs' correspondence provided in **Appendix N**. The MCNP may also wish to seek out legal advice when drafting the bylaws.

Contamination Liability

The identified nuisance grounds are considered APECs. Under Alberta's *Environmental Protection and Enhancement Act* (EPEA), as the owner of the lands the nuisance grounds are located on, the MCNP, and the Alberta Government at some locations, are required to notify stakeholders (i.e. adjacent landowners and development applicants) if there is contamination that may be impacting their property or proposed development. If there is confirmed offsite migration of contamination to an adjacent property from a nuisance ground, the MCNP and/or Alberta Government would be liable for the remediation and contamination management costs.

Under the requirements listed in EPEA and Alberta's *Contaminated Sites Policy Framework*, the MCNP must report to AEPA the presence of the identified nuisance grounds due to the proximity of residences and the potential for contamination to impact existing residences. As the landowner of the nuisance grounds, the MCNP/Alberta Government have a requirement to complete Phase II ESAs at each nuisance ground to confirm the presence/absence of contamination and determine the risk of contamination from the nuisance grounds to adjacent lands and water bodies. It is recommended that the Phase II ESAs collect the information listed within the *Guideline for Setback Reviews [Waste Facility]* checklist to ensure a full assessment of each nuisance grounds is completed.

Recommendations

It is recommended that the APECs are assessed in the following order, from highest to lowest priority, based on existing residences and potential future neighbourhood expansions:

1. **Bushtown** – There is one existing residence approximately 50 m from buried waste, and dozens of existing houses within 60-300 m of the site, which are estimated to be hydraulically downgradient from the site. This site may also impact plans for future neighbourhood expansion.
2. **Old Sartoris Staging Area** – There are dozens of residences within 120 to 300 m from buried waste, which are estimated to be hydraulically downgradient from the site. Currently, this site does not impact potential future neighbourhood locations.
3. **Hillcrest Ball Diamond Road** – There are approximately five residences within 300 m of the site, one of which is estimated to be hydraulically downgradient. This site may also impact plans for future neighbourhood expansion.
4. **Bellevue Old Highway 3** - There are approximately five residences within 170-300 m of the site, which are estimated to be hydraulically cross-gradient. Currently, this site does not impact potential future neighbourhood locations.

Potential contaminants of concern (PCOCs) in soil, groundwater, and soil vapour that should be assessed for include, but not limited to: metals, salts (salinity), petroleum hydrocarbons (PHCs), BTEXS (benzene, toluene, ethylbenzene, xylenes, styrene), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), pesticides, herbicides, dioxins and furans, and gases (methane).

The findings for the four (4) confirmed APECs are provided in **Table 1**, below, and a summary of suspected nuisance grounds locations is provided in **Table 2**, below. The checklist showing outstanding items that should be obtained through Phase II ESAs is provided in **Table 3**, below.

This report is limited by the information available through the desktop search, existing records and local residents' memories of the former nuisance ground locations. The earliest aerial photographs are from 1949 and have too poor of a resolution to discern the waste boundaries. Some of the historical records may have incorrect information or are too vague. The possibility remains that there are additional unidentified nuisance grounds that could be encountered. If other nuisance grounds are encountered, a similar approach should be implemented as recommended for the sites lists in this report. If additional information becomes available and is deemed pertinent to this Environmental Overview, Associated requests notification of such for amendment of this report.

Table 1

Confirmed Nuisance Grounds Summary

Area of Potential Environmental Concern	MacLaren ID* & Location	Geophysical Survey Results	Estimated Waste Disposal Dates		Soil Characteristics	Waste Characteristics	Estimated Groundwater Depth and Flow Direction	Nearest Existing Residences and Planned Development	Recommendations
			Start	End					
Bushtown	Site No. ID5/040* Coleman SW-09-008-04 W5M UTM 680978 m E 5500188 m N	Relatively high electromagnetic (EM31) values are from buried waste pits with metal objects. Moderate values indicate disturbed ground with occasional debris.	Before 1949	1978 - 1987	Fine sand, gravel, cobbles, and occasional boulders Bedrock outcrop on east part of site	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Occasional wood and plastic debris Evidence of burning Maximum waste depth not reached – at least 3.2 metres below ground surface (mbgs) 	> 3.0 mbgs (not encountered) North	<ul style="list-style-type: none"> Residence within clearing is estimated to be 50 m from significant buried waste and likely downgradient. There are dozens of existing houses between 60-300 m north of waste and likely downgradient. There is a potential new neighbourhood expansion 80 m east of waste. 	Phase II ESA
Old Sartoris Staging Area	Site No. ID5/030* Blairmore SE-35-007-04 W5M UTM 685365 m E 5497460 m N	Relatively high EM31 values are from buried waste pits with metal objects. Moderate values indicate disturbed ground with occasional debris.	Before 1949	1978 - 1987	Fine sand, gravel, and some boulders	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Occasional wood and plastic debris Evidence of burning Maximum waste depth not reached – at least 3.3 mbgs 	> 3.0 mbgs (not encountered) North	<ul style="list-style-type: none"> There is one residence along the access road estimated to be 170 m from buried waste pits and likely downgradient from waste. There are dozens of existing houses between 120-300 m north of waste and likely downgradient. There are no planned developments within 300 m of the site. 	Phase II ESA
Hillcrest Ball Diamond Road	Site No. ID5/060* Hillcrest SE-20-007-03 W5M UTM 689329 m E 5494594 m N	Relatively high EM31 values are from buried waste pits with metal objects. Moderate values indicate buried waste with higher proportion of soil.	Before 1949	1969 - 1978	Fine sand, gravel, and cobbles	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Occasional wood and plastic debris Low-grade coal Evidence of burning Maximum waste depth not reached – at least 3.6 mbgs 	2.9-3.5 mbgs (groundwater encountered – former waterbody onsite) Northeast	<ul style="list-style-type: none"> One residence to the north of the waste is 300 m from site and likely downgradient. Residences to the south are at least 240 m from waste and likely upgradient from waste. A potential new neighbourhood overlaps with the south part of site. There is another potential neighbourhood expansion 160 m east of the waste. 	Phase II ESA
Bellevue Old Highway 3	Site No. ID5/020* Bellevue NE-29-007-03 W5M UTM 689677 m E 5496332 m N	Relatively high EM31 values are from buried waste pits with metal objects. Moderate values indicate buried waste with higher proportion of soil.	Before 1949	1969 - 1978	Fine sand, gravel, and many cobbles and boulders	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Appliances Evidence of burning Maximum waste depth not reached – at least 3.2 mbgs 	> 3.0 mbgs (not encountered) Southwest	<ul style="list-style-type: none"> One residence is 150 m southeast of waste and likely cross-gradient. Additional Bellevue houses are at least 120 m southeast from waste and likely cross-gradient. There are no planned developments within 300 m of the site. 	Phase II ESA

*MacLaren Plansearch Lavalin, 1982. Identification and Verification of Active and Inactive Land Disposal sites in Alberta.

Table 2
Suspected Nuisance Grounds Summary

Nuisance Ground (Suspected)	MaLaren ID* & Location	Geophysical Survey Results	Estimated Groundwater Flow Direction	Nearest Existing Residences and Planned Development	Comments	Recommendations
Frank Townsite	SE-36-007-04-W5M UTM 687355 m E 5497184 m N	Relatively high EM31 values likely represent a parked vehicle. The mid-lower values may represent disturbed soil, imported fill, or the presence of low-grade coal from previous storage. The lowest EM31 values are likely undisturbed soil.	West	<ul style="list-style-type: none"> Most houses in Frank are at least 70 m from the industrial park, and likely upgradient from a potential waste site. No planned developments in Frank. 	The aerial photographs indicated potential buried waste near the centre of the industrial park, and this was confirmed through an interview. The geophysical survey results did not indicate the presence of buried waste. Since the Frank Townsite area has been developed and it has multiple lot owners, it would be the responsibility of the lot owners and/or any new purchasers to conduct their own environmental site assessments; either for their own due diligence or requirements by the bank.	No further recommendations
Frank Farm	SE-36-007-04-W5M UTM 687156 m E 5497557 m N	Not applicable.	West	<ul style="list-style-type: none"> There is at least one house onsite, and another house to the south of the farm. No planned developments in Frank. 	Permission was not granted to access property. The owner confirmed presence of minor surface waste (cans, bottles, concrete) but insisted that there is no buried waste. There is potential for buried waste pits on farmland, which the owners may not be aware of. It is the responsibility of the private landowner to conduct environmental site assessments on their property.	No further recommendations
Frank (153 St)	Site No. ID57050* Frank SW-31-007-03 W5M UTM 687794 m E 5497366 m N	The results of both surveys are interpreted to represent differences in soil composition and/or varying depth to bedrock, and do not indicate the presence of buried waste.	Southeast	<ul style="list-style-type: none"> Houses are at least 50 m from the site, and some are interpreted to be downgradient or cross-gradient from the site. No planned developments in Frank. 	Aerial photographs indicated potential dumping area east of 153 Street. Geophysical survey and site inspection did not identify buried waste.	No further recommendations
Frank Big Rock Swimhole	NW-30-007-03 W5M UTM 687285 m E 5496651 m N	Not applicable	South	<ul style="list-style-type: none"> Houses are >500 m to the northwest 	Aerial photographs indicated potential dumping area south of 152 Street near the river. Site inspection did not identify buried waste.	No further recommendations.
Hilcrest South of Lagoons 1	SE-20-007-03-W5M UTM 690207 m E 5494153 m N	Not applicable.	Southeast	<ul style="list-style-type: none"> There is a potential for residential neighbourhood expansion adjacent/west, which is estimated to be upgradient of the site. 	Permission was not granted to access property. The owners insist that there is no buried waste onsite. However, there remains potential for buried waste pits that the owners are not aware of. It is the responsibility of the private landowner to conduct environmental site assessments on their property.	No further recommendations
Hilcrest South of Lagoons 2	SE-20-007-03-W5M UTM 690334 m E 5493754 m N	Relatively high EM31 values likely represent surface metals. The mid-lower values may represent disturbed soil from previous site activities or a waterline installation.	Southeast	<ul style="list-style-type: none"> There is a potential for a residential neighbourhood expansion 180 m southwest of the site, which is estimated to be upgradient of the site. 	Geophysical survey results did not indicate the presence of buried waste.	No further recommendations

Nuisance Ground (Suspected)	MaLaren ID* & Location	Geophysical Survey Results	Estimated Groundwater Flow Direction	Nearest Existing Residences and Planned Development	Comments	Recommendations
Bellevue Fireman's Park	Site No. ID57/010* Bellevue (Twp 7, Rge 3, W5M) UTM 690153 m E 5496732 m N	Not applicable.	Southwest	<ul style="list-style-type: none"> The nearest potential neighbourhood expansion is at least 1 kilometre (km) southeast of Bellevue Fireman's Park. 	The aerial photographs did not indicate the presence of buried waste. There are no residences or planned development within 300 m of the suspected location.	No further recommendations
West Coleman	SW-08-008-04-W5M UTM 679314 m E 5500637 m N	Not applicable.	North	<ul style="list-style-type: none"> There is a house 120 m northwest, on the other side of the Crowsnest River from the site. There is a potential for neighbourhood expansion 400 m north of the site. 	<p>The review of aerial photographs and an interview conducted during the test pitting program indicated a potential dumping area in the Green Mountain RV Park of West Coleman. The site is gated and could not be accessed for a site inspection.</p> <p>This location is adjacent to the Crowsnest River. The presence of the river would likely be a barrier for migration of soil vapour or leachate, if present, towards the house.</p> <p>It is the responsibility of the private landowner to conduct environmental site assessments on their property.</p>	No further recommendations

*MaLaren Plansearch Lavallin, 1982. Identification and Verification of Active and Inactive Land Disposal sites in Alberta.



Table 3
Phase II Environmental Site Assessment Recommended Data Checklist

How to Vary Setback Distance – Checklist Items	Checklist Item Completion					Comments
	Bustown	Old Sartoris Staging Area	Hilcrest Ball Diamond Road	Belleve Old Highway 3		
The types of waste stored, treated, or disposed	✓	✓	✓	✓	✓	-
Details about the facility operation including an aerial photograph or plan showing the facility as well as the setback measurements	✓	✓	✓	✓	✓	-
A visual inspection report for the facility, including additional details of any visual notable issues (i.e., slope subsidence, vegetation stress, lack of vegetation, exposed refuse, or leachate breakout)	✓	✓	✓	✓	✓	-
A list of complaints related to the operation of the facility from the last two years	✓	✓	✓	✓	✓	No complaints reported.
• An engineering report (specific to the waste facility) that includes a statement on if the reduced setback distance is feasible, and if any mitigative measures are required:	-	-	-	-	-	-
• Waste pit delineation including approximate waste depths (using test plots, historical aerial photographs)	-	-	-	-	-	-
• Duration of operation (actual or estimated if not available)	✓	✓	✓	✓	✓	Estimated from aerial photographs.
• Amount, types of waste, and degree of waste stabilization	-	-	-	-	-	-
• Topography survey for site drainage	-	-	-	-	-	-
• Final cover details such as thickness and composition	-	-	-	-	-	-
• A visual inspection report that details vegetation stress and degree of cover, waste settlement, exposed refuse, leachate breakout, and any other visually notable issues	✓	✓	✓	✓	✓	-
• A review of the available reports/issues associated with the operation of the facility (such as annual reports), and if applicable, the waste cell liner and final cover details (thickness and composition)	-	-	-	-	-	No operation reports available.
• Regional and site-specific geology and hydrogeology	✓	✓	✓	✓	✓	-
• A map showing all water wells and residences within a 1 km radius of the site and other topographical features, such as water bodies, within 5 km of the site	✓	✓	✓	✓	✓	-
• The applicable sections of the area structure plan documenting the zoning and expected use of the site and surrounding area	✓	✓	✓	✓	✓	-
• Well logs and groundwater monitoring results, and an interpretation of the results including a map showing the extent of groundwater contamination	-	-	-	-	-	-
• Subsurface gas monitoring results	-	-	-	-	-	-
• An opinion on whether encroachment is feasible (under what mitigative measures, to what distance)	-	-	-	-	-	-
• If mitigative measures are proposed, the design details, monitoring, and maintenance program for the mitigative measures	-	-	-	-	-	-
• If any mitigative measures are required, the design details, monitoring, and maintenance requirements for the mitigative measures	-	-	-	-	-	-



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LIST OF ABBREVIATIONS

Acronym	Definition
AEP	Alberta Environment and Parks
AEPA	Alberta Environment and Protected Areas
AHS	Alberta Health Services
ATS	Alberta Township System Reference
CNP	Crowsnest Pass
EM	electromagnetic
EPA	Alberta Environment and Protected Areas
ERIS	Environmental Risk Information Services
ESA	Environmental Site Assessment
ESAR	Environmental Site Assessment Repository
LSD	legal subdivision
masl	metres above sea level
MCNP	Municipality of Crowsnest Pass
mbgs	metres below ground surface
ROW	Right-of-way
SDR	Subdivision and Development Regulation

Units	Definition
°C	degrees Celsius
>, <	greater than, less than
%	percent
cm	centimetre
ha	hectare (10,000 m ²)
km	kilometre
m	metre
m ²	square metre
masl	metres above sea level

1 INTRODUCTION

The Municipality of Crowsnest Pass (MCNP) retained Associated Environmental Consultants Inc. (Associated) to conduct an Environmental Overview of nuisance grounds within the MCNP, collectively referred to as the Project Area. The MCNP was aware of four (4) known nuisance locations and four (4) suspected nuisance locations and Associated identified an additional three (3) suspected nuisance areas. The confirmed and suspected nuisance grounds are illustrated on **Figure 1-1**.

This project was initiated to determine whether setback variances are needed for previous and future developments within 300 metres (m) of these sites per the *Guideline for Setback Reviews [Waste Facility]* document. The document outlines the requirements for developers, subdivision authorities, and development authorities to evaluate a new development permit or subdivision application where the setback distances are planned or being considered to be reduced to less than the default 300 m setback for new residences, schools, and hospitals. Typically, the default setback is 300 m from a non-operating landfill. To reduce the setback, the subdivision authority or development authority needs to have sufficient data to confirm the absence of nuisance (odours, vectors, and smoke) and contaminant migration (emissions, leachate, and landfill gas), or data to confirm the absence of pathways (i.e., mitigative measures). Developers typically provide environmental reports that meet the applicable guidelines to the authority for review as part of their subdivision/development application.

These identified sites in this report are considered to be former nuisance grounds due to: their age (dumping activities between the early 1940s to late 1970s); that they were never formally operated or controlled; had no record-keeping; and that the dumping locations were never intended to be designed or constructed for waste management.

1.1 Objective

The objectives of the project were:

- Assess the history of the four (4) known nuisance grounds and determine if Alberta Environment and Protected Areas (AEPA) had previously granted consent for a setback variance.
- Confirm whether the four (4) suspected locations identified by the MCNP had historical dumping activities and assess their history.
- Desktop record review to locate additional suspected former dumping areas within the Municipality.
- Assess and prioritize the nuisance grounds based on their relative impact on existing or future subdivision and development areas.

1.2 Scope

The following scope of work was conducted to meet the objectives:

- Review records including:
 - Natural settings, including vegetation, topography, surficial geology, bedrock geology, hydrogeological settings, and waterbodies;
 - Municipal directories including current and future land use and zoning;
 - Aerial photographs approximately every 5-10 years up to the most recent aerial photograph available;
 - Registered water wells within a 1 km radius;
 - Environmental Risk Information Services (ERIS) report with landfill-related searches;
 - Environmental Site Assessment Repository (ESAR); and
 - Alberta Health Services.
- Conduct interviews with people familiar with each site;
- Conduct geophysical surveys on selected sites;
- Complete site inspections and drone photography; and
- Advance test pits at select sites to identify waste boundaries nearest to existing residences.

2 PROJECT AREA

This section includes general information pertaining to the Project Area. Site-specific information for the assessed sites is discussed in Sections 3 through 10.

2.1 Site Names and Locations

The four (4) known nuisance ground locations and seven (8) suspected nuisance grounds will be referred to by their identifiers provided in **Table 2-1**. Locations are shown in **Figure 1-1**, above.

Table 2-1
Known and Suspected Nuisance Grounds

Identifier (Report Section)	Location (ATS and UTM Zone 11 Coordinates)	Lot(s)	Owner
Bushtown (Section 3)	SW-09-008-04-W5M 680978 m E 5500188 m N	Lot N/A Block B, Plan 3387AE Lot 3, Block B, Plan 1311440	Crownland
Old Sartoris Staging Area (Section 4)	08-35-007-04-W5M 685365 m E 5497460 m N	08-35-007-04-W5M	MCNP
Hillcrest Ball Diamond Road (Section 5)	SW-20-007-03-W5M 689329 m E 5494594 m N	Block B, Plan 7046JK NW and SW-20-007-03- W5M	MCNP Byron Hills Resources Ltd., and

Identifier (Report Section)	Location (ATS and UTM Zone 11 Coordinates)	Lot(s)	Owner
Bellevue Old Highway 3 (Section 6)	NW-29-007-03-W5M 689677 m E 5496332 m N	03 and 06-29-007-03- W5M	Crownland
Frank Townsite (suspected)	SE-36-007-04-W5M 687355 m E 5497184 m N	Not applicable	Several landowners
Frank Farm (suspected)	SE-36-007-04-W5M 687156 m E 5497557 m N	Descriptive Plan 1311107; Block 7; Lot 1	Darwin and Judy Ruzicka
Frank Big Rock Swim Hole (suspected) (Section 7)	NW and SW-30-007-03- W5M 687794 m E 5497366 m N	NW-30-007-03-W5M	MCNP
Hillcrest South of Lagoons 1 (suspected)	SE-20-007-03-W5M 690207 m E 5494153 m N	SE-20-007-03-W5M	William J Nelson and Denise J Nelson Kent Alan Strandquist
Hillcrest South of Lagoons 2 (suspected) (Section 8)	SE-20-007-03-W5M 690334 m E 5493754 m N	SE-20-007-03-W5M	
Bellevue Fireman's Park (suspected) (Section 9)	NE-29-007-03-W5M 690153 m E 5496732 m N	NE and SE-32-007-03- W5M	Benga Mining Ltd.
West Coleman (suspected) (Section 10)	SW-08-008-04-W5M 679314 m E 5500637 m N	SW-08-008-04-W5M	Dominion Campcorp Inc.

2.2 Regional Setting

The Project Area is located within the Montane Natural Subregion within the Rocky Mountain Region of Alberta. This subregion is found on lower slopes and valley bottoms of the Front Ranges and is characterized by cool summers and warmer winters due to chinooks. Vegetation is variable within the region due to the slope aspect and varying exposure to sun and wind. Upper slopes and rocky ridges commonly have open limber pine and Douglas fir, with understories of ground juniper, bearberry, and mountain rough fescue. In drier and lower elevation areas, there may be open forests or grasslands. Open forests typically consist of lodgepole pine, Douglas fir, aspen, and white spruce with understories of bearberry, Canada buffaloberry, hairy wild rye, pine reed grass and forbs. Dry south or west facing slopes may include grasslands with mountain rough fescue, bluebunch fescue and Parry oatgrass (Downing and Pettapiece 2006).

2.3 Soils and Surficial Geology

A query of Abacus Datagraphics (AbaData) revealed that the dominant soil type (greater than 60%) throughout the Project Area consists of rapidly draining coarse-textured chernozemic rego black soil consisting of gravels or gravely (cobbly/stony). Less than 30% of the soils in the Project Area consist of well-drained fine-textured chernozemic orthic dark grey soils with clays and silts (AbaData 2022).

Surficial Geology is variable throughout the Project Area and consists of four main types of deposits. The legend colour is given for each deposit type (AbaData 2022):

- **Fluvial deposits** (beige) consist of sediments deposited by streams. Channel and overbank deposits consist of well-sorted, massive to stratified sand, gravel, silt, clay, and organic sediments.
- **Stagnant ice moraine deposits** (yellow) consist mainly of till deposited by glaciers and may locally include stratified glaciolacustrine or glaciofluvial sediments. Stagnant ice moraine sediments result from the collapse and slumping of glacial debris due to the melting of buried stagnant ice near glacial margins. These deposits generally produce low to high relief hummocky topography.
- **Moraine deposits** (green) consist of till deposited by glaciers and are characterized by a lack of distinctive topography. Sediments mainly consist of clay, silt, and sand, with minor gravel and boulders. There may be blocks of bedrock, stratified sediment, or lenses of glaciolacustrine or glaciofluvial sediments.
- **Colluvial deposits** (brown) consist of sediments resulting from gravity-induced movement. These deposits commonly occur within valley sides and floors and consist of bedrock and other surficial materials.

Surficial geology within the 11 assessed sites is as follows:

- Bushtown: moraine deposits
- Old Sartoris Staging Area: combination of fluvial and moraine deposits
- Hillcrest Ball Diamond Road: stagnant ice moraine deposits
- Bellevue Old Highway 3: colluvial deposits
- Frank Townsite (suspected): fluvial deposits
- Frank Farm (suspected): fluvial deposits
- Frank Big Rock Swim Hole (suspected): colluvial deposits
- Hillcrest South of Lagoons 1 (suspected): colluvial and/or fluvial deposits
- Hillcrest South of Lagoons 2 (suspected): colluvial and/or fluvial deposits
- Bellevue Fireman's Park (suspected): moraine deposits
- West Coleman (suspected): fluvial deposits

Soil information and topography maps with surficial geology distribution are provided in **Appendix A**.

2.4 Bedrock Geology

The bedrock geology within the Project Area consists of multiple formations varying in age from Lower Carboniferous (i.e., the earlier period within 359.5 to 299 million years ago) to Upper Cretaceous (the latter period within 145.5 to 65.5 million years ago). Formation boundaries, fold and faults are generally north-south oriented, which is perpendicular to the Crowsnest River and Highway 3. The bedrock formations within the Project Area are summarized from youngest to oldest (Prior et al., 2013):

Upper Cretaceous bedrock

- **Belly River Group, Pakowki formation and Milk River Formation** (not differentiated on map scale):
 - **Belly River Group** (includes Drywood Creek, Lundbreck and Connelly Creek Formations) – nonmarine (deltaic, fluvial) to marine sediments, sandstone, greenish-grey and red shale, minor coal, coquina (limestone made of shells and corals), limestone, carbonate concretions, channel-fill sandstone – some containing wood, plant debris and coaly fragments.
 - **Pakowki Formation** – marine sediments, dark grey to greenish-grey mudstone and shale; minor silty bedded sandstone, chert pebble bed at base.
 - **Milk River Formation** – sandstone, mudstone, and siltstone; local carbonaceous mudstone and minor coal layers in upper part of formation, marine offshore, shoreface and fluvial.
- **Alberta Group** (includes Wapiabi, Cardium and Blackstone Formations, not differentiated on map scale) – marine to locally nonmarine sediments, dark grey shale, fissile to platy shale, silty shale, siltstone, sandstone beds, quartz sandstone, silty sandstone, siltstone, pebble conglomerate, and siltstone with bentonite, sideritic (iron carbonate) nodules and beds, sandstone and pebble layers common at base.

Lower Cretaceous bedrock

- **Blairmore Group** (includes Crowsnest, Mill Creek, Beaver Mines, Gladstone and Cadomin Formations, not differentiated at map scale) – volcanic deposits, shallow marine, marginal marine, nonmarine, alluvial and fluvial deposits; volcanic breccia, crystal and lithic tuff (volcanic ash), volcanic sandstones and mudstones, mudstone, siltstone, quartz sandstone with conglomerates; greenish-grey, olive grey, purple and red tuff and bentonite beds, greenish-grey sandstone interbedded with greenish-grey mudstone and siltstone, fossiliferous grey-green sandstone, shale and coquina, chert and quartzite-pebble conglomerates.

Jurassic and Lower Cretaceous bedrock

- **Kootenay Group and Fernie Formation** (not differentiated at map scale):
 - **Kootenay Group** (includes Elk, Mist Mountain, and Morrissey Formations) – nonmarine, marginal marine and marine sediments; interbedded sandstones, siltstone, mudstone, shale, and chert pebble conglomerate, thin to thick coal layers, quartz, and chert sandstones, dark grey to black mudstones.
 - **Fernie Formation** – marine sediments, medium grey to black fissile shale, limestone (phosphatic, cherty and oolitic varieties), siltstone, sandstone, chert conglomerate at base.

Lower Carboniferous bedrock

- **Rundle Group, Banff Formation and Exshaw Formation** (not differentiated at map scale):
 - **Rundle Group** (includes Etherington, Mount Head and Livingstone formations) – open marine, marginal marine and restricted marine sediments, dolomite, limestone, quartz sandstone, green to maroon shale, thin conglomerates, yellow-grey dolostone, breccia, irregular masses of chert, light grey limestone interbedded with thinner layers of darker sandstone.
 - **Banff Formation** – marine sediments, dark grey and black shale, argillaceous limestone, dolostone, chert, siltstones, and sandstone.
 - **Exshaw Formation** – marine sediments, upper part contains medium to thick beds of calcareous to dolomitic siltstone and limestone, lower part contains brownish-black to black organic-rich shale underlain by thin sandstone to pebble conglomerate bed.

The Bushtown site is inferred to be located on the boundary of the Alberta Group of formations and Belly River Group of formations. A green sandstone outcrop was observed on the east part of Bushtown (**Section 3.6**). The Old Sartoris Staging Area is inferred to be located on the Fernie formation. The bedrock beneath the confirmed nuisance grounds (Bellevue Old Highway 3 and Hillcrest Ball Diamond Road) and the suspected locations (Frank, Hillcrest South of Lagoons, Bellevue Old Highway 3, and West Coleman) is inferred to be the Blairmore Group.

2.5 Hydrogeology

There is limited water level data for the Project Area. Generally, groundwater wells completed between 0-25 metres below ground surface (mbgs) are in unconsolidated materials, whereas the groundwater wells completed between 25-50 mbgs are within shallow bedrock. Locally, groundwater flows towards the Crowsnest River, and regional groundwater flow is parallel to the Crowsnest River from west to east. Where present, bedrock formation boundaries, faults, and fractures control groundwater flow, which is roughly perpendicular to the Crowsnest River (Waterline Resources Inc. 2013).

Within the Project Area, there are near-surface aquifers within surficial deposits, which have an average thickness of 7 m or less than 50 m. Near-surface aquifers generally consist of alluvial sand and gravel deposits found in floodplains and terraces of the Crowsnest River and its tributaries. Downward hydraulic gradients or recharge conditions dominate along slopes on either side of the Crowsnest River Valley, whereas upward hydraulic gradients or discharge areas dominate within the carbonate bedrock in the Crowsnest River Valley (Waterline Resources Inc. 2013).

The depth to groundwater at the nuisance grounds cannot be adequately estimated based on the available hydrogeology documents. Groundwater flow at all assessed locations is suspected to be downward (local groundwater recharge). Bushtown and suspected locations within Frank are estimated to be located above the Crowsnest Pass aquifer; a prolific freshwater aquifer used for water supply in the region.

A map showing estimated aquifer and recharge areas is provided in **Appendix B** (EBA et al. 2005).

2.6 Climate

There are two climate stations near the Project Area. The Coleman climate station is 6.3 km west of Bushtown and 11.2 km northwest of Old Sartoris Staging Area. The suspected Frank Townsite location is 13.5 km southeast of the Coleman climate station and 13.5 km southwest of the Connelly Creek climate station. The Connelly Creek climate station is located between 11.2 and 13.5 km northeast of the five remaining nuisance grounds.

The Coleman climate station is located at an elevation of 1,341 metres above sea level (masl). This station is currently active and climate normals data are available from 1981 to 2010. Monthly average temperatures range from a minimum of -6.4 degrees Celsius (°C) in January to a maximum of 14.3 °C in both July and August. The mean annual precipitation in this region is 582.1 millimetres (mm), with 404.8 mm falling as rain and the remainder falling as snow (ECCC 2022).

The Connelly Creek climate station is located at an elevation of 1,249 masl. This station is currently active and climate normals data are available from 1981 to 2010. Monthly average temperatures range from a minimum of -5.3 °C in January to a maximum of 15.7 °C in July. The mean annual precipitation in this region is 567.8 mm, with 325.2 mm falling as rain and the remainder falling as snow (ECCC 2022).

2.7 Pipelines

A search of AbaData revealed a natural gas pipeline crossing the Project Area belonging to TC (formerly Nova Gas Transmission Ltd. (TransCanada Energy)), herein referred to as the TC pipeline. The TC pipeline passes through the Old Sartoris Staging Area clearing, to the north of the former dumping area, and 210 m south of Bushtown. An ATCO gas pipeline connects to the TC pipeline, passes through the Bushtown clearing and connects to a distribution station for the town of Coleman, located in the northwest corner of the clearing. The pipeline map and report are provided in **Appendix C**.

2.8 Coal Mines

The MCNP has supported coal mining activities since at least the late 1800s. In 1885, the arrival of the Canadian Pacific Rail made the MCNP the biggest coal centre in Alberta at the time. The most profitable years for the coal mines were before the First World War, after which sales generally diminished and the last coal mine in Coleman was closed in 1983 (Allan Chambers 2012). A search of AbaData revealed many abandoned coal mines within the MCNP. Identified coal mines in the area do not appear to affect the assessed sites. The map showing the locations of abandoned coal mines is provided in **Appendix C**.

2.9 ERIS Database Report and Databases

ERIS provides data for multiple searches related to landfills, including private, provincial, and federal databases. A Custom Report was received from ERIS on July 19, 2022. The search was conducted for the Project Area and surrounding properties within 300 m of each site. The search returned a total of 75 records within 300 m of the Project Area. The following databases were searched for the Project Area:

- Federal databases:
 - Environmental Effects Monitoring
 - Environmental Issues Inventory System
 - Contaminated Sites on Federal Land
 - National Defence & Canadian Forces Waste Disposal Sites
- Provincial databases:
 - Authorizations
 - Waste Management Certificates of Approval
 - Compost Facilities
 - Compliance and Convictions
 - Environmental Compliance Prosecutions
 - Waste Generators Summary
 - Alberta Environment's Help End Landfill Pollution (H.E.L.P.) Program Database
 - Identification and Verification of Active and Inactive Land Disposal Sites in Alberta
 - Land Disposal Sites on Indian Reserves
 - Landfill Registrations
 - Enforcement Orders
 - Conglomerate and Waste Management Facilities
 - Hazardous Waste receivers Summary
 - Special Operation Classifications – Certificates of Approval
- Private databases:
 - Inventory of Waste Disposal Sites

The following databases were also searched for information relevant to the nuisance grounds.

- Alberta Environment's H.E.L.P. Program (Alberta Environment 1988)
- MacLaren Identification and Verification of Active and Inactive Land Disposal Sites in Alberta
- Alberta Health Services (AHS) – Online AHS applications were submitted to the Government of Alberta to determine the presence of any public health records within the quarter sections of confirmed or suspected landfills.
- Environmental Site Assessment Repository (ESAR) - a database of facilities with recorded scientific and/or technical information or facilities for which an application for a reclamation certificate has been submitted to the province. It should be noted that data obtained from an ESAR search does not imply that a facility is or ever was contaminated (AEP 2022c).
- Historical Environmental Enforcement database provides a list of enforcement actions under the Environmental Protection and Enhancement Act and its predecessor legislation against a company or an individual.

Specific information, if found, is provided in Sections 3 through 10.

2.10 Geophysical Surveys and Test Pits

On September 1 and 2, 2022, AKS Geoscience conducted EM31 (electromagnetic) and EM31ip (in-phase) geophysical surveys at seven (7) locations. The EM31 instruments operate on the principle of induced electromagnetics and the apparent electrical conductivity (EC) is recorded as the operator traverses the site. The EM31 survey can record apparent EC values to depths of approximately 4.0 mbgs. The EM31 surveys respond strongly to near-surface metals and leachate, whereas the EM31ip surveys respond strongly to metals.

The EM31 and EM31ip survey results were assessed and used to select locations for test pitting. Generally, test pit areas were chosen in the centre or on the edges of anomalously high values (red and yellow). Geophysical survey results combined with field observations are discussed on a site-by-site basis in later sections.

Geophysical surveys were conducted at the following sites:

- Bushtown;
- Old Sartoris Staging Area;
- Hillcrest Ball Diamond Road;
- Bellevue Old Highway 3;
- Frank Townsite (suspected);
- Frank (153 St) (suspected); and
- Hillcrest South of Lagoons 2 (suspected).

The landowners of Frank Farm and Hillcrest South of Lagoons 1 did not give permission to access their properties for geophysical surveys. The Bellevue Fireman's Park was not surveyed because it was located further than 300 m from existing residences and there is no future development planned within that area. The West Coleman site was not surveyed because it was identified as a potential former dumping area from an interview that occurred during the test pitting program, which was after the geophysical surveys had already been completed at the other sites.

3 BUSHTOWN

3.1 Background

The Bushtown site is confirmed to be located south of Coleman, at the south end of 83 Street in SW-09-008-04 W5M. Site details are provided in **Figure 2A**.

3.2 Physical Setting

3.2.1 Topography

Locally, the site slopes moderately to the northeast, ranging in elevation from approximately 1340 masl to 1320 masl.

3.2.2 Hydrology, Hydrogeology and Receiving Environments

Surface water drainage is controlled by topography. Locally, surface water flows northeast toward the Crowsnest River, which flows east/southeast. The Crowsnest River is 320 m north/northeast of the site.

Localized groundwater beneath the site is inferred to flow to the north/northeast towards the Crowsnest River. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

3.3 Records Review

3.3.1 Municipal Land Plans

The site is zoned as Non-Urban Area (NUA-1) and is adjacent to Residential (R-1) land use (MCNP 2022). Currently, future growth is planned for approximately 80 m east of the site, and in additional areas to the north of Highway 3 (MCNP 2020).

The MCNP Land Use maps (2022) and Municipal Development Plans (MDP) (2020) are provided in **Appendix D**.

3.3.2 Land Titles

The current land titles for Bushtown are summarized in **Table 3-1** (GoA 2022).

Table 3-1
Land Title Summary – Bushtown

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
His Majesty the King in Right of Alberta	Descriptive Plan 1311440; Block B; Lot 3 2.561 Ha	08/10/2016	161 239 803	Notification Public Works Act

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
His Majesty the King in Right of Alberta	Plan 3387AE; that Portion of Block B Excepting thereout: <ul style="list-style-type: none"> Nuisance Grounds – Number 1944 EZ (0.121 Ha) Regulator Site – Number 9310902 (0.015 Ha) 	18/03/2017	171 061 919	Notification Public Works Act

The land titles are provided in **Appendix E**.

3.3.3 Aerial Photographs

Aerial photographs/imagery were used to analyze the land use history of the site and neighbouring properties. The analysis of aerial photographs for the site is summarized in chronological order in **Table 3-2**. Aerial photographs provided by AEPA and Google Earth are provided in **Appendix F** (AEP 2022a).

Table 3-2
Aerial Photograph Analysis – Bushtown

Date (Source)	Site	Surrounding Area
1949 (AEPA)	There is a clearing surrounded by trees with disturbed ground and piles of soil or potentially waste. There is a low-lying area containing water in the northwest part of site. There is a road connecting the northwest corner of the clearing to Coleman.	North: Residential neighbourhood is visible adjacent to site and river 320 m from site. East: There is a forested area with clearings. South: There is a natural forested area with southeast-northwest trending cutline. Road connects site to adjacent clearing. West: There is a forested area with clearings.
1957 (AEPA)	No significant changes since 1949.	North: No significant changes since 1949. East: No significant changes since 1949. South: There is a rectangular fenced-in area and a new structure 50 m from site. West: No significant changes since 1949.
1969 (AEPA)	The clearing has been extended to the south and southeast and additional pits have been dug into the hillside as shown by curved light-coloured line in southeast corner. There is visible debris in pits. The road going through the centre of the site is more prominent.	North: No significant changes since 1957. East: There is a new oval structure or disturbance 300 m from site. South: There is a new northwest-southeast trending road from residence connecting to new cutline or right-of-way (ROW). West: No significant changes since 1957.

Date (Source)	Site	Surrounding Area
1978 (AEPA)	The southeast portion of the site appears to be covered and ground appears smooth. A pit is visible in the west portion of the site. There is a new structure in north part of clearing at location of present-day ATCO gas infrastructure area.	North: No significant changes since 1969. East: No significant changes since 1969. South: New rectangular cut blocks are visible. West: A new road with switchbacks through trees is visible.
1987 (AEPA)	The ground surface in the dumping area has been flattened and pit on west side of clearing filled in. The clearing appears vegetated with grass, except for the road and an area in the northwest of the clearing which has piles of soil and/or waste. New tree growth in southeast part of the site. The road in the northwest portion seems more visible/developed.	North: New house built in north part of clearing. Multiple new structures along northwest-southeast trending access road to site. East: No significant changes since 1978. South: There is a new structure in clearing, connected to the site by a gravel or dirt road. West: New large clearing in trees.
1997 (AEPA)	There is a new structure in the west part of the clearing, with piles of soil and/or waste immediately west. There are no longer large piles of soil and/or waste in the northwest part of the clearing.	North: No significant changes since 1987. East: No significant changes since 1987. South: No significant changes since 1987. West: No significant changes since 1987.
2005 (Google Earth)	The structure in the west part of the clearing has been removed, and disturbed ground and soil piles have been extended south.	North: No significant changes since 1997. East: No significant changes since 1997. South: There are new structures 200 m southeast. West: No significant changes since 1997.
2012 (Google Earth)	The area with piles of soil has been extended south.	North: No significant changes since 2005. East: No significant changes since 2005. South: No significant changes since 2005. West: No significant changes since 2005.
2020 (Google Earth)	The area with piles of soil has been extended south. The road appears to have been widened through the site.	North: No significant changes since 2012. East: No significant changes since 2012. South: No significant changes since 2012. West: No significant changes since 2012.

3.3.4 Water Well Records

A search of the Alberta Water Well Information Database (AEPA 2022b) was conducted for the site and surrounding 1 km. A total of 28 water wells were reported to be present within 1 km of the Bushtown site. Water well uses were Domestic Use (18 wells), Domestic & Stock (1 well), Dewatering (1 well), Observation (2 wells), Municipal (2 wells), and Unknown Use (4 wells). The two observation wells were test holes, and the remaining wells were either listed as new wells or for chemistry. Four decommissioned or abandoned wells were not included in the totals. Reported water well depths range from 0 mbgs to 60.96 mbgs. A summary of the possible existing wells including exclusive identification numbers, LSD of each well, use, and total depth is provided in **Appendix G**.

3.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed four (4) records within SW-09-008-04 W5M, and three records within 300 m of the quarter section (**Appendix H**). The ERIS records were not related to landfills. The AHS search results are provided in **Appendix I**. The MCNP did not have records pertaining to Bushtown. Records are summarized **Table 3-3**.

Table 3-3
Records Summary - Bushtown

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	Y	Y	Crowsnest Coseka Resources Ltd. (Section 8, Township 4, W5M) with the status listed as "required licensing".
MacLaren <i>Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	Site No. ID5/040 Coleman (SW-09-08-04 W5M) - Inactive from 1982 or earlier. Priority Ranking 2.
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	N	N	Not applicable
Historical Environmental Enforcement	Y	Y	Keywords searched (1920-2022): Crowsnest, Coleman Emission Control Order - 10/02/1975 Town of Coleman – SW-09-08-04 W5M Summary: "Company operates solid waste disposal grounds which is the source of air contaminants having an offensive odour; directed to cease all burning and extinguish any fires currently burning at the site."

3.4 Interviews

Larry Syryca, Public Works

While test pitting on September 22 and 23, 2022, Larry Syryca of MCNP's Public Works explained that the town of Coleman was mostly built on mine waste or low-grade coal. He remembers the Bushtown site from when he was a child in the 1970s and explained that people used to dump their garbage near the access gate in the northwest part of the site, which was then consolidated to the south portion of the site. He did not recall the east part of the clearing being used for dumping but indicated that it was likely used earlier.

3.5 Geophysical Survey Results

Results of the EM31 survey at Bushtown indicated that anomalously high values (yellow and red) are from buried waste pits with metal objects or inorganic impacts from dumping activities. The moderate values (green) with disturbed ground likely contain occasional buried debris, but not buried waste pits, whereas the lowest values (blue) are most likely soil without any waste.

Results of the EM31ip survey indicate that anomalously high values (yellow and red) are from buried waste pits with metal objects, or surface metal debris in the east portion of the site. Anomalously low values (blue) likely indicate a large proportion of cobbles with scarce mixed debris in the west portion of the site, whereas it lines up with buried waste pits in the east part of the site. The moderate values (green) are interpreted to be disturbed ground covering most of the site. The geophysical survey results are provided in **Appendix J. Figures 2B and 2C** show the EM31 results compared to historical aerial photographs from 1957 and 1969.

3.6 Site Inspection Results

3.6.1 Site Observations

A site inspection was conducted on September 19, 2022, during which drone photography was captured. site observations are summarized in **Table 3-4**. Site photographs 1 through 21 are provided in **Appendix K**.

Table 3-4
Site Observations – Bushtown

Item	Description
General Description of site and surrounding area (Photographs 1 through 6, Appendix K)	The site consists of a clearing bordered by forest and upward slopes on the east, south and west sides, and by the Coleman neighbourhood on the north side. 83 Street enters the site from the northwest corner, crosses through the middle of the clearing and connects to two homes to the south of the site. There is a house, yard, and shop in the northeast corner of the clearing. To the west of the road, there are piles of soil and gravel that were brought in from excavations from construction in Coleman. There is a steep drop of approximately 2 m next to a soil pile where hydrovac truck dumping occurs. On the east side of the road, the ground slopes to the east near the treeline. A green sandstone outcrop was observed near the east site boundary at the treeline.
Vegetation	Vegetation surrounding the site primarily consists of deciduous trees. To the east of the road, the site is covered in long grasses.
Watercourses, ditches, standing water, pits, and lagoons	There was no surface water observed onsite or in surrounding areas.
Water wells	There were no water wells observed onsite.
Imported fill	Soil piles are stored in the west part of the site. Fill may have been used to cover buried waste.
Debris	Metal debris was observed in the east part of the site and in the northwest part of the site near the soil piles. Metals observed included thick cables, car parts and sheet metal.
Staining	No staining was observed onsite.
Utilities and Rights-of-way	Overhead powerlines trending north-south pass through the east part of the site, providing power to houses to the south. A buried gas line runs along the east side of the road and up to the houses.

3.6.2 Test Pitting

On September 21 and 23, 2022, 10 test pits (22BT01 through 22BT10) were advanced at Bushtown using a backhoe. Soil generally consisted of grey sand with silt, and rocks ranging from gravel to boulders. In some test pits, undisturbed brown sand with gravel and cobbles was encountered beneath waste. The maximum reach of the backhoe was approximately 3.0 m, but some test pits contained boulders up to 70 cm in diameter that prevented further advancement. Waste generally consisted of domestic waste, glass, appliances, tires, and car parts.

Test pit depths ranged from 1.5 mbgs (22BT05) to 3.2 mbgs (22BT08). Soil primarily consisted of grey fine sand, gravel, cobbles, and occasional boulders. Waste consisted of sheet metal, bricks, wood, scarce plastic, glass bottles, car parts, tires, and cloth. There was evidence of burning in several test pits. Groundwater was not encountered. Test pit logs are provided in **Appendix L**, and test pit photographs 7 through 21 are provided in **Appendix K**.

There are multiple defined waste pits within the nuisance grounds which contain high amounts of metals and coincide with anomalously high EM values from the geophysical survey results. In **Figures 2D and 2E**, the red boundaries represent estimated buried waste pits, while the orange boundaries represent estimated area with soil mixed with minor waste. The estimated mixed waste boundaries (orange) boundaries were used to create a 300 m buffer to show the setback distance.

3.7 Summary

The following has been concluded about Bushtown:

- The site was used for waste disposal from at least 1949 to between 1978-1987; a Pepsi bottle from 1941 was found in a test pit indicating dumping has occurred as early as the 1940s or earlier.
- Houses were present to the north of the site from at least 1949 and are still present.
- Soil consisted primarily of fine sand, gravel, cobbles, and occasional boulders.
- A bedrock outcrop was noted in the east portion of the site; depth to bedrock is estimated to be shallow across the site (0 to <10 mbgs).
- Groundwater was not encountered during test pitting. Based on the local topography and site observations, groundwater is inferred to flow north.
- Geophysical survey results indicate that anomalously high values are from buried waste pits with metal objects, and moderate values indicate disturbed ground with occasional debris.
- Buried waste is present to at least 3.2 mbgs and the maximum depth has not been delineated.
- Waste consisted primarily of metals (i.e., car parts, sheet metal, box springs), glass, and occasional wood and plastic debris. Evidence of burning was noted in multiple test pits.
- Minor debris is likely to be present throughout disturbed soil in the site.
- The house to the south of the site is estimated to be at least 80 m from buried waste pits and is inferred to be hydraulically upgradient from the nuisance ground.
- The house in the north part of the clearing is estimated to be 50 m from significant buried waste, but minor waste mixed with soil may be within 20 m of the home. The house is estimated to be hydraulically downgradient from the nuisance ground.
- Houses to the north of the site on 12 Avenue are estimated to be 60 m or greater from buried waste. Some houses are estimated to be hydraulically downgradient.

- A potential future neighbourhood is estimated to be 80 m east of buried waste pits and is likely cross-gradient from the site.

4 OLD SARTORIS STAGING AREA

4.1 Background

The Old Sartoris Staging Area is confirmed to be located south of Blairmore, approximately 100 m south of 15 Avenue and approximately 200 m east of 131 Street. The site details are provided in **Figure 3A**.

4.2 Physical Setting

4.2.1 Topography

Locally, the site slopes to the north with elevation ranging from approximately 1340 to 1320 masl. The central and south part of the clearing slopes gently to the north as it has been leveled, and then slopes steeply to the north at the TC pipeline ROW (**Figure 3A**).

4.2.2 Hydrology, Hydrogeology and Receiving Environments

Locally, surface water flows north towards the town of Blairmore and the Crowsnest River. Two nearby waterbodies flow north into the Crowsnest River. Lyons Creek is approximately 200 m west of the site, and a minor unnamed creek (waterbody ID 87822) is located within 100 m east of the site.

Localized groundwater beneath the site is inferred to flow to the north towards the Crowsnest River. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

4.3 Records Review

4.3.1 Municipal Land Plans

The site is zoned as Non-Urban Area (NUA-1) and is adjacent to Residential (R-1) land use and Recreation & Open Space (RO-1) (MCNP 2022). Currently, future residential growth is planned for approximately 1.2 km west of the site (MCNP 2020). The MCNP Land Use maps (2022) and MDP (2020) are provided in **Appendix D**.

4.3.2 Land Titles

The current land title for the Old Sartoris Staging Area is summarized in **Table 4-1** (GoA 2022).

Table 4-1
Land Title Summary – Old Sartoris Staging Area

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
MCNP	35-07-04 W5M – the south half of subdivision 8 in the southeast quarter, containing 8.09 Ha	03/09/1927	36O81	NA

The land titles are provided in **Appendix E**.

4.3.3 Aerial Photographs

The analysis of aerial photographs for the site is summarized in chronological order in **Table 4-2**. Aerial photographs provided by AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

Table 4-2
Aerial Photograph Analysis – Old Sartoris Staging Area

Date (Source)	Site	Surrounding Area
1949 (AEPA)	The site is a cleared area with disturbed ground surrounded by trees. There is an access road connecting the northwest corner of the clearing to Blairmore.	<p>North: There is a forested area and a residential neighbourhood located 100 m from site. The access road to site trends northwest and connects to the neighbourhood. There is an east-west trending cutline.</p> <p>East: There is forested area with multiple small clearings along a cutline.</p> <p>South: There is natural forested area with two small clearings 150 m southeast of the site.</p> <p>West: There is natural forested area, north-south trending road, and a creek.</p>
1957 (AEPA)	No significant changes since 1949.	<p>North: There is a new cutline in trees near site.</p> <p>East: No significant changes since 1949.</p> <p>South: No significant changes since 1949.</p> <p>West: No significant changes since 1949.</p>
1969 (AEPA)	Waste pits are visible on east end of clearing. The roads through the site appear more developed. The present-day pipeline ROW is visible through the clearing, adjacent (north) to the site.	<p>North: The cutline is wider along location of present-day natural gas pipeline ROW.</p> <p>East: The cutline is wider along TC pipeline corridor.</p> <p>South: No significant changes since 1957</p> <p>West: The cutline is wider along TC pipeline corridor.</p>
1978 (AEPA)	Waste pits on east side have been filled. Disturbed ground along the south of the clearing.	<p>North: New houses 250 m northwest of site and 150 northeast of site.</p> <p>East: No significant changes since 1969.</p> <p>South: No significant changes since 1969.</p> <p>West: No significant changes since 1969.</p>
1987 (AEPA)	The site has been covered and appears level up to the TC pipeline ROW, where there is a slope to the north. The site contains grass and multiple paths.	<p>North: No significant changes since 1978.</p> <p>East: There are new houses built in the southeast portion of the neighbourhood.</p> <p>South: No significant changes since 1978.</p> <p>West: There is a new round structure 450 m west of site.</p>
1997 (AEPA)	The roads make a loop on the flat part of the site, south of pipeline ROW.	<p>North: No significant changes since 1987.</p> <p>East: No significant changes since 1987.</p> <p>South: There are new clearings with paths 200 m south and 300 m southeast of site.</p> <p>West: No significant changes since 1987.</p>

Date (Source)	Site	Surrounding Area
2005 (Google Earth)	No significant changes since 1997.	North: No significant changes since 1997. East: No significant changes since 1997. South: There are new clearings in the trees. West: No significant changes since 1997.
2012 (Google Earth)	No significant changes since 2005.	North: No significant changes since 2005. East: No significant changes since 2005. South: No significant changes since 2005. West: No significant changes since 2005.
2020 (Google Earth)	No significant changes since 2012.	North: No significant changes since 2012. East: No significant changes since 2012. South: No significant changes since 2012. West: No significant changes since 2012.

4.3.4 Water Well Records

A total of four (4) water wells were reported to be present within 1 km of the Old Sartoris Staging Area. Water well uses were Domestic Use (1 well) and Unknown Use (3 wells). Two of the unknown wells were in springs, and the remaining two wells were for chemistry. The well depths ranged from 0 mbgs to 60.96 mbgs (**Appendix G**).

4.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed 51 Authorizations records within SE-35-007-04 W5M (**Appendix H**). The ERIS records do not pertain to landfills. The AHS search results are provided in **Appendix I**. The MCNP did not have records pertaining to the Old Sartoris Staging Area. Records are summarized in **Table 4-3**.

Table 4-3
Records Summary - Old Sartoris Staging Area

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
MacLaren <i>Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	Site No. ID5/030 Blairmore (SE-35-007-04 W5M)
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	N	N	Not applicable
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Blairmore – no applicable records

4.4 Interviews

Scott Lonsbury, Public Works

While test pitting the site on September 21, 2022, Scott Lonsbury of Public Works explained that the gated entry to the site is closed during the summer season but remains open during the winter season for snowmobile access. The eastern part of the site is used to store excess soil from excavations for newly constructed buildings. The loop road on site is used for skijoring in the winter.

Jarrett Pawluk, resident of Blairmore

On September 21, 2022, Danielle Loiselle, G.I.T., of Associated spoke to Jarrett Pawluk, who lives adjacent to the site. His grandfather grew up on the neighbouring property. He claimed that dumping stopped as late as the 1970s. There were previous issues with bears and skunks accessing the area. The nuisance ground was present before the TC pipeline was built in the 1960s. The area south of the pipeline ROW was leveled in the late 1980s or early 1990s to build a ball diamond complex; construction began but was never completed. The existing road that leads to the site was built in 2003 while fireguards were being cut further to the south.

4.5 Geophysical Survey Results

Results of the EM31 survey at the Old Sartoris Staging Area indicate that anomalously high values (yellow and red) are from buried waste pits with metal objects or inorganic impacts from dumping activities. The mid-lower values (green) are generally interpreted to be disturbed ground covering most of the site and the TC pipeline ROW to the north of the nuisance area. Within the site, mid-lower values (green) contain occasional debris, whereas the low values (blue) likely represent soil that has not been disturbed extensively.

For the EM31ip survey, anomalously high values (yellow and red) and moderate values (green) generally line up with buried waste pits and the TC pipeline ROW. The lowest values (blue) most likely represent areas with minor mixed waste.

The geophysical survey results are provided in **Appendix J**.

Figures 3B and 3C show the EM31 results compared to historical aerial photographs from 1957 and 1969.

4.6 Site Inspection Results

4.6.1 Site Observations

A site inspection was conducted on September 19, 2022, and drone photography was captured on September 21, 2022. site observations are summarized in **Table 4-4**.

Site photographs 22 through 34 are provided in **Appendix K**.

**Table 4-4
Site Observations – Old Sartoris Staging Area**

Item	Description
General Description of site and surrounding area (Photographs 22 through 25, Appendix K)	The Old Sartoris Staging Area is a clearing surrounded by trees. An access road connects to 16 Avenue in Bellevue and enters the clearing through the northwest corner. There is a house and shop in the trees along the access road, north of the site. The TC pipeline ROW trends west to east and has a lower elevation compared to the rest of the site. The site is south of the pipeline ROW, and the ground has been leveled. There is a gravel road loop on the flat area that is used for skijoring in the winter. To the east of the site, there is a pile of sand, gravel and cobbles that was hauled in from excavation activities in Blairmore.
Vegetation	The clearing is covered in grass, except for the access road and skijoring loop. The clearing is surrounded by deciduous trees.
Watercourses, ditches, standing water, pits, and lagoons	There was no surface water observed onsite or in surrounding areas.
Water wells	There were no water wells observed onsite.
Imported fill	Soil piles from excavations are stored in the west part of the site. Fill may have been used to bury waste.
Debris	There was minor metal debris in the trees near the southeast corner of the site.
Staining	No staining was observed onsite.
Utilities and Rights-of-way	The TC pipeline ROW is adjacent to the site to the north.

4.6.2 Test Pitting

On September 21, 2022, six (6) test pits (22OS01 through 22OS06) were advanced at the Old Sartoris Staging Area using a backhoe. Soil generally consisted of brown sand with gravel. The maximum reach of the backhoe was approximately 3.0 m, but some test pits contained boulders up to 70 cm in diameter that prevented further advancement. Waste generally consisted of domestic waste, appliances, and car parts.

Test pit depths ranged from 2.0 mbgs (22OS03) to 3.3 mbgs (22OS04). Soil primarily consisted of dark grey sand, gravel, and abundant cobbles and boulders. Waste generally consisted of sheet metal, bricks, wood, scarce plastic, glass bottles, and car parts. There was evidence of burning in several test pits, and groundwater was not encountered.

Test pit logs are provided in **Appendix L**, and test pit photographs 26 through 34 are provided in **Appendix K**.

There are multiple areas with waste pits within the site with high amounts of metals. These areas generally coincide with anomalously high EM values from the geophysical survey results. Soil mixed with minor waste is estimated to extend over most of the area to the south of the pipeline ROW. In **Figures 3D and 3E**, the red boundaries represent

estimated buried waste pits, while the estimated area containing minor waste is shown in orange. The estimated minor waste area (orange) was used to create a 300 m buffer to show the setback distance.

4.7 Summary

The following has been concluded about the Old Sartoris Staging Area:

- The site was used for waste disposal from at least 1949 to sometime between 1978-1987.
- Houses were present to the north of the site from at least 1949 to present.
- The site was present before construction of the TC pipeline.
- Soil consisted primarily of fine sand, gravel, and some boulders.
- Bedrock was not encountered during test pitting.
- Groundwater was not encountered during test pitting. Based on the topography and site observations, groundwater is inferred to flow north.
- Geophysical survey results indicate that anomalously high values are from buried waste pits with metal objects, and moderate values indicate disturbed ground with occasional debris.
- Buried waste is present to at least 3.0 mbgs, but additional investigation is needed to confirm the maximum waste depth.
- Waste consisted primarily of metals (i.e., car parts, sheet metal), glass, and occasional wood and plastic debris. Evidence of burning was noted in multiple test pits.
- Minor debris such as glass is estimated to be present throughout the clearing, particularly south of the ROW where ground has been leveled.
- The house along the access road to the northwest of the site is estimated to be 170 m from buried waste pits, minor debris may be within 50 m of the house. The house is estimated to be hydraulically downgradient from the buried waste pits.
- Houses to the north of the site on 15 Avenue are estimated to be 120 m or greater from waste. The houses are estimated to be hydraulically downgradient from the buried waste pits.
- There are no planned future residential neighbourhoods within 300 m of the site.

5 HILLCREST BALL DIAMOND ROAD

5.1 Background

The Hillcrest Ball Diamond Road site is located in Hillcrest, 120 m northwest of the intersection of 8 Avenue and 4 Avenue. The Hillcrest Mine Disaster Cemetery is adjacent (east) to the site. This site was assessed in 2003 (Section 5.3.7). Site details are provided in Figure 4A.

5.2 Physical Setting

5.2.1 Topography

The topography of the site is relatively flat with elevation ranging from 1282 to 1290 masl.

5.2.2 Hydrology, Hydrogeology and Receiving Environments

Locally, surface water flows east/northeast towards the Crowsnest River. There was formerly a waterbody onsite that extended to the north and was filled in between 1978-1987. The nearest receiving area is an unnamed creek 240 m northeast of the site (Figure 4A).

Localized groundwater beneath the site is inferred to flow to the east/northeast towards the Crowsnest River. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

5.3 Records Review

5.3.1 Municipal Land Plans

The site is zoned as Non-Urban Area (NUA-1), Recreation & Open Space (RO-1) and Non-Urban Commercial Recreation (NUCR-1). The site is adjacent to Non-Urban Area (NUA-1) land use, Recreation & Open Space (RO-1) and Public (P-1) (MCNP 2022). Currently, future residential growth is planned adjacent (south) to the site, and the north of the site is being considered for a potential Business Park (MCNP 2020). The MCNP Land Use maps (2022) and MDP (2020) are provided in Appendix D.

5.3.2 Land Titles

The current land titles for the Hillcrest Ball Diamond Road are summarized in Table 5-1 (GoA 2022).

Table 5-1
Land Title Summary – Hillcrest Ball Diamond Road

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
MCNP	Plan 7046JK; Block B containing 1.5 Ha	08/06/2018	181 118 204 +2	Subdivision Plan
Byron Hills Resources Ltd.	NW-20-07-03 W5M and SW-20-07-03 W5M Containing 64.9 Ha	04/08/2016	161 180 688 +1	Subdivision Plan

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
844239 Alberta Ltd. (57%) Box Seven Enterprises Ltd. (43%)	Descriptive Plan 0610447; Block 2; Lot 2 Containing 5.41 Ha	08/02/2006	061 058 189	Descriptive Plan

The land titles are provided in **Appendix E**.

5.3.3 Aerial Photographs

The analysis of aerial photographs for the site is summarized in chronological order in **Table 5-2**. Aerial photographs obtained from AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

Table 5-2
Aerial Photograph Analysis – Hillcrest Ball Diamond Road

Date (Source)	Site	Surrounding Area
1949 (AEPA)	The site consists of the south portion of a waterbody, disturbed ground with possible debris, and a road.	North: There are patches of forested area, grasses/shrubs, and a stream 500 m northeast and residences. East: The Hillcrest Mine Disaster Cemetery is visible northeast of the waterbody. There is forested area, a north-south trending road 100 m from site with multiple clearings and structures, patches of forested area and grasses/shrubs, and large piles of coal along stream 500 m from site. South: There are patches of forested area and grasses/shrubs. There are residences 200 m from site. West: There is forested area and a road connecting the site to a rectangular clearing in trees 150 m northwest that contains a structure. There is an oval waterbody 400 m from site.
1957 (AEPA)	No significant changes since 1949.	North: No significant changes since 1949. East: No significant changes since 1949. South: No significant changes since 1949. West: No significant changes since 1949.
1969 (AEPA)	Waste piles are visible along the south portion of the waterbody.	North: No significant changes since 1957. East: No significant changes since 1957. South: No significant changes since 1957. West: There are fewer structures in the rectangular clearing.
1978 (AEPA)	The waste is no longer visible and appears to have been covered with soil and leveled. A new fence has been installed through the site and structures.	North: No significant changes since 1969 East: New wastewater lagoons 700 m east of site. South: There is a fence and new structures immediately south of the site. West: There is a new clearing extending west from the site.

Date (Source)	Site	Surrounding Area
1987 (AEPA)	The waterbody has been filled in, and the site has been leveled. New buildings and structures are built on west part of site.	<p>North: No significant changes since 1978.</p> <p>East: There is a new structure 150 east of cemetery and new buildings at the location present-day maintenance shop.</p> <p>South: There is a new fence and multiple structures south of clearing.</p> <p>West: There are new structures adjacent to the site. The structures have been removed from the rectangular clearing. There are new structures and paths to the east of the small waterbody, 300 m southwest of site.</p>
1997 (AEPA)	The site appears to be vegetated with grass.	<p>North: No significant changes since 1987.</p> <p>East: No significant changes since 1987.</p> <p>South: No significant changes since 1987.</p> <p>West: No significant changes since 1987.</p>
2003 (Google Earth)	No significant changes since 1997.	<p>North: New clearing 350 m northwest of site.</p> <p>East: No significant changes since 1997.</p> <p>South: No significant changes since 1997.</p> <p>West: No significant changes since 1997.</p>
2012 (Google Earth)	The fence and buildings have been removed from west part of site. The shop and fence have been built in their present-day location. One of the three large trees was removed from the northeast part of site.	<p>North: New ball diamond in clearing to the northwest – partially cut off by photo.</p> <p>East: No significant changes since 2003.</p> <p>South: No significant changes since 2003.</p> <p>West: Buildings and fence have been removed from adjacent to the site. A structure is visible in the northwest part of clearing.</p>
2019 (Google Earth)	There is a new fence built south of access road.	<p>North: No significant changes since 2012.</p> <p>East: No significant changes since 2012.</p> <p>South: No significant changes since 2012.</p> <p>West: No significant changes since 2012.</p>

5.3.4 Water Well Records

A total of 11 water wells were reported to be present within 1 km of the Hillcrest Ball Diamond Road. Water well uses were domestic use (6 wells), domestic & stock (4 wells), and commercial (1 well). One of the domestic & stock wells was a dry hole, one domestic well was used for chemistry, and one domestic well was a spring. The remaining wells are listed as new wells. Two decommissioned or abandoned wells were not included in the totals. The depths ranged from 0 mbgs to 50.29 mbgs (**Appendix G**).

5.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed four (4) records within SW-20-007-03 W5M (**Appendix H**). The ERIS records did not pertain to landfills. The AHS search results are provided in **Appendix I**. Records results are summarized in **Table 5-3**.

**Table 5-3
Records Summary - Hillcrest Ball Diamond Road**

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
MacLaren <i>Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	Site No. ID5/060 Hillcrest (SE-20-07-03 W5M) - Inactive from 1982 or earlier. Priority Ranking 3.
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	N	N	Not applicable
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Hillcrest – no applicable records

The MCNP provided multiple documents pertaining to Hillcrest Ball Diamond Road. The documents are summarized in **Table 5-4**.

**Table 5-4
Municipality Records Summary - Hillcrest Ball Diamond Road**

Document Type	Document Date	Comments
Technical Report – Phase I ESA (Biantco Environmental Services)	January 20, 2022	Biantco Environmental Services completed a Phase I ESA for the property adjacent (west) to the site. The property consisted of a recreational facility that was formerly used as rodeo grounds, and a residence abandoned three years prior. The report does not specifically mention the presence of a landfill and states that there were no environmental concerns.
Letter	February 12, 2003	Alberta Environment sent the MCNP a review of the request for consent to reduce the 300 m setback from the old 'Hillcrest Landfill' for construction of a residence with a request for additional information.
Technical Report (Glaimhin Technical Services)	May 30, 2003	Glaimhin Technical Services completed an evaluation of the 'Hillcrest Dumpsite'. The site was used from the 1930s to 1979 and was located on the southeast side of a 2.37-hectare (ha) lake, which has since been filled in with pit run material and coal slag from the local mine at River Bottom. Five test pits were advanced, and waste was encountered in four test pits. The depth of cover ranged from 0.9 to 1.5 mbgs, and waste included domestic garbage, ashes, bottles, and car parts. Four groundwater monitoring wells installed in 1974 existed around the lake and cemetery, but they could not be located. The report recommended multiple construction methods to contain possible gas infiltration into buildings, should they be built less than 300 m from the site, and recommended gas monitoring.

Document Type	Document Date	Comments
Letter	June 3, 2003	Glaimhin Technical Services sent the MCNP documentation pertaining to the investigation conducted at the old 'Hillcrest Dumpsite'.
Letter	August 5, 2003	Alberta Environment sent MCNP a letter granting the reduction of the 300 m setback from the old 'Hillcrest Landfill' for construction of an office/residence and six rental cabins with RV camping pads which were to be located immediately northwest of the site, primarily within the footprint of the former lake. The letter listed conditions.

The letter from AEPA to MCNP is provided in **Appendix M**.

5.4 Interviews

Ric Rae, Landowner

Danielle Loiselle, G.I.T. of Associated spoke to landowner Ric Rae on September 19, 2022. He owns a lot which partially goes over the nuisance ground footprint. He rents the adjacent lot from the MCNP, where most of the nuisance ground is located. He did not permit Associated to advance test pits on his land but explained that an 88 m setback variance was granted from the dumping area footprint for him to build a residence. Instead of a residence, he built a shop and is trying to sell the land.

Terry Barlow, resident of Hillcrest

Danielle Loiselle, G.I.T. of Associated spoke to Terry Barlow on September 22, 2022, who was walking by the site during test pitting. He has lived in Hillcrest for a long time and said that Hillcrest residents and garbage trucks dumped waste at the site until the 1970s. Terry stated that the former waterbody near the site was filled in the early 1980s with low-grade coal from the Bellevue mine and that the program was government funded. He mentioned the creek to the north of the former waterbody and that it flowed into a pond. Terry said that each community in the municipality had their own uncontrolled and unregulated garbage dumps and that local residents and garbage trucks would dump waste.

5.5 Geophysical Survey Results

Results of the EM31 survey at the Hillcrest Ball Diamond Road indicate that anomalously high values (yellow and red) are from buried waste pits with metal objects or inorganic impacts from dumping activities. The mid-lower values (green) are interpreted to contain lesser quantities of buried waste, whereas the low values (blue) represent soil without waste.

For the EM31ip survey, anomalously high values (yellow and red), moderate values (green) and anomalously low (blue) values generally line up with buried waste pits. The remainder of the site has low to moderate (green-light blue) values, which likely represent soils without significant buried waste.

The geophysical survey results are provided in **Appendix J**.

Figures 4B and 4C show the EM31 results compared to historical aerial photographs from 1969 and 1978.

5.6 Site Inspection Results

5.6.1 Site Observations

A site inspection was conducted on September 19, 2022, and drone photography was captured on September 20, 2022. site observations are summarized in **Table 5-5**.

Site photographs 35 through 53 are provided in **Appendix K**.

**Table 5-5
Site Observations – Hillcrest Ball Diamond Road**

Item	Description
General Description of site and surrounding area (Photographs 35 through 39, Appendix K)	The Hillcrest Ball Diamond Road site is located south of 4 Avenue and is generally a flat and open area. The access road trends northeast to southwest, leading to a gravel pad with a shop. There is a fence separating the site from 4 Avenue, which also follows the north side of the access road. There is a fenced-in area to the south of the access road, which makes up the southeast portion of the site.
Vegetation	North of the access road, the site was covered in trimmed grass. South of the access road and fence, the site was sparsely covered in unkept grass. There are two large spruce trees between the access road and 4 Avenue, which are near the east site boundary. The cleared area to the south of the access road has trees on the east and south boundaries.
Watercourses, ditches, standing water, pits, and lagoons	There were puddles in the gravel due to rain, but no permanent surface water was observed at the site.
Water wells	There were no water wells observed onsite.
Imported fill	Gravel was likely imported for the access road and the gravel pad around the shop. Fill may have been used to bury waste.
Debris	There was minor debris observed to the south of the access road and fence, including broken/melted glass and charred wood.
Staining	No staining was observed onsite.
Utilities and Rights-of-way	Private locators indicated the presence of a buried communications line, powerline, and gas line.

5.6.2 Test Pitting

On September 22, 2022, eight (8) test pits (22HC01 through 22HC08) were advanced at the Hillcrest Ball Diamond Road using a backhoe. Soil generally consisted of brown sand with gravel. The maximum reach of the backhoe was approximately 3.6 m.

Test pit depths ranged from 2.0 mbgs (22HC04) to 3.6 mbgs (22HC07). Soil primarily consisted of dark grey silty sand, with trace gravel and cobbles. Waste generally consisted of sheet metal, bricks, wood, glass bottles, and car parts.

There was evidence of burning in several test pits, and groundwater was encountered at 2.9 mbgs in 22HC05 and at 3.5 mbgs in 22HC07.

Test pit logs are provided in **Appendix L** and test pit photographs 40 through 53 are provided in **Appendix K**.

Buried waste was concentrated near the south part of the former waterbody. These areas coincide with the anomalously high to moderate EM values from the geophysical survey results. The northwest extent of the buried waste was not identified, as the landowner did not permit Associated to advance test pits on his property. The estimated buried waste boundaries shown in red were used to create a 300 m buffer from the buried waste (**Figures 4D and 4E**). However, minor waste may be mixed with soil beyond the estimated boundaries.

5.7 Summary

Based on the results of the Environmental Overview, the following has been concluded about the Hillcrest Ball Diamond Road site:

- The site was used for waste disposal from at least 1949 to between 1969-1978.
- Houses to the south of the site were present from at least 1949.
- Soil consisted primarily of fine silty sand with trace gravel and cobbles.
- A former waterbody partially covered the site and extended north of the site. Dumping occurred within and adjacent to the south part of the waterbody. Between 1978 and 1987, the waterbody was reportedly filled in waterbody with low-grade coal and may also contain other waste.
- Bedrock was not encountered during test pitting.
- Groundwater was encountered in 22HC05 at 2.9 mbgs, and in 22HC07 at 3.5 mbgs. Based on the topography and site observations, groundwater is inferred to flow northeast.
- Geophysical survey results indicate that anomalously high values are from buried waste pits with metal objects, and moderate values indicate disturbed ground with occasional debris.
- Buried waste is present to at least 3.6 mbgs, and maximum depth has not been delineated.
- Buried waste and/or reject coal may be present to the north of 4 Avenue.
- Waste consisted primarily of metals (i.e., car parts, sheet metal), glass, and occasional wood and plastic debris. Evidence of burning was noted in most test pits.
- Houses to the south of the site on 226 Street are estimated to be 240 m away from waste. The houses are estimated to be hydraulically upgradient or cross-gradient from the site.
- A house along 8 Avenue is approximately 300 m from the site.
- There is one potential future neighbourhood that would overlap with the south part of the site, if developed. This neighbourhood would likely be hydraulically upgradient from the waste. Another potential future neighbourhood would be located 160 m east of the site and would likely be hydraulically cross-gradient from the site.
- Alberta Environment and Protected Areas provided a reduction in the setback variance to 88 m from the waste boundaries for a residence and RV park. It does not appear that the setback variance is permitted for other or new developments.

6 BELLEVUE OLD HIGHWAY 3

6.1 Background

The Bellevue Old Highway 3 nuisance grounds is confirmed to be on the northwest end of Bellevue, adjacent to 21 Avenue and the Frank Slide that occurred in 1903. The site is bordered by colluvium (i.e., boulders and cobbles) from Frank Slide on the west, north and northeast sides. The site details are provided in **Figure 5A**.

6.2 Physical Setting

6.2.1 Topography

The site is sloped gently to the southwest with elevation ranging from 1305 to 1313 masl.

6.2.2 Hydrology, Hydrogeology and Receiving Environments

Locally, surface water is controlled by topography and flows southeast toward 21 Ave. The nearest waterbody is an unnamed waterbody (waterbody ID 318319) located 200 m northeast, which is upgradient of the site. The nearest receiving waterbody is the Crowsnest River, 750 m southwest of the site.

Localized groundwater beneath the site is inferred to flow to the southeast towards the Crowsnest River. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

6.3 Records Review

6.3.1 Municipal Land Plans

The site is zoned as Restricted Development Area (RA) and is adjacent to Residential (R-1) and Non-Urban Reserve (NUA-1) (MCNP 2022). Currently, future residential growth is planned for 1.2 km southwest of the site (MCNP 2020).

The MCNP Land Use maps (2022) and MDP (2020) are provided in **Appendix D**.

6.3.2 Land Titles

The current land title for the Bellevue Old Highway 3 is summarized in **Table 6-1** (GoA 2022).

Table 6-1
Land Title Summary – Bellevue Old Highway 3

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
MCNP	03,06-29-07-03 W5M Containing 32.5 Ha	08/06/2022	221 120 589	Road Plan

The land title is provided in **Appendix E**.

6.3.3 Aerial Photographs

The analysis of aerial photographs for the site is summarized in chronological order in **Table 6-2**. Aerial photographs obtained from AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

Table 6-2
Aerial Photograph Analysis – Bellevue Old Highway 3

Date (Source)	Site	Surrounding Area
1949 (AEPA)	The site consists of a clearing immediately east of Frank Slide with an access road trending southeast. The northern part of the clearing appears disturbed.	<p>North: There are boulders from Frank Slide with sparse trees.</p> <p>East: There are boulders from Frank Slide and forested area. There is an oval waterbody 200 northeast of site.</p> <p>South: The road adjacent to the site curves south. There is an open area with grasses, shrubs, and small trees to the south, with roads/paths. There are residences 250 m southeast. There is a clearing in trees 200 m southwest in the location of a present-day cemetery with access road.</p> <p>West: There are boulders from Frank Slide with sparse trees. There is a highway trending east-west.</p>
1957 (AEPA)	No significant changes since 1949.	<p>North: No significant changes since 1949.</p> <p>East: No significant changes since 1949.</p> <p>South: There are distinguishable graves in the cemetery.</p> <p>West: No significant changes since 1949.</p>
1969 (AEPA)	There is disturbed ground with unidentifiable objects visible along east treeline.	<p>North: No significant changes since 1957.</p> <p>East: No significant changes since 1957.</p> <p>South: Additional objects in laydown yard 200 m southwest of site.</p> <p>West: No significant changes since 1957.</p>
1978 (AEPA)	The ground no longer appears disturbed, and the site has likely been covered. There are two adjacent berms parallel to present-day 21 Ave. The former access road appears to be overgrown or no longer maintained.	<p>North: No significant changes since 1969.</p> <p>East: No significant changes since 1969.</p> <p>South: No significant changes since 1969.</p> <p>West: No significant changes since 1969.</p>
1987 (AEPA)	The access road to the clearing has been removed.	<p>North: No significant changes since 1978.</p> <p>East: A new house has been constructed 150 m from site.</p> <p>South: The former small road has been expanded to present-day size of present Crowsnest Highway, 350 m southwest of site. There is a new railway 400 m southeast of site, parallel to the new highway.</p> <p>West: No significant changes since 1978.</p>

Date (Source)	Site	Surrounding Area
1997 (AEPA)	No significant changes since 1987.	North: No significant changes since 1987. East: No significant changes since 1987. South: No significant changes since 1987. West: No significant changes since 1987.
2003 (Google Earth)	There is only partial coverage of the site. No visible changes since 1997.	North: Poor photo resolution, likely no changes since 1997. East: New north-south trending road 70 m from site. South: No significant changes since 1997. West: No significant changes since 1997.
2012 (Google Earth)	No significant changes since 2003.	North: No significant changes since 2003. East: No significant changes since 2003. South: No significant changes since 2003. West: No significant changes since 2003.
2019 (Google Earth)	No significant changes since 2012.	North: No significant changes since 2012. East: No significant changes since 2012. South: No significant changes since 2012. West: No significant changes since 2012.

6.3.4 Water Well Records

A total of 23 water wells were reported to be present within 1 km of Bellevue Old Highway 3. Water well uses were domestic use (13 wells), domestic & stock (2 wells), municipal (5 wells), and unknown use (3 wells). One (1) municipal well and one domestic well were in a spring. Four (4) domestic wells and one (1) well with unidentified use were test holes. Two (2) domestic wells and two domestic & stock wells were for well inventory. The remaining wells were for chemistry or listed as new wells. The depths ranged from 0 mbgs to 30.48 mbgs.

A summary of the wells including exclusive identification numbers, LSD of each well, intended use, and total depth is provided in **Appendix G**.

6.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed no records within NW-29-07-03 W5M and surrounding 300 m (**Appendix H**). The AHS search results are provided in **Appendix I**. The MCNP did not have records pertaining to the Bellevue Old Highway 3. Records are summarized in **Table 6-3**.

**Table 6-3
Records Summary - Bellevue Old Highway 3**

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
<i>MacLaren Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	<p>Site No. ID5/010 Bellevue (Township 7, Range 3, W5M) – Inactive from 1982 or earlier. Priority Ranking 2. Precise location not reported. This is likely the Bellevue Fireman's Park suspected location.</p> <p>Site No. ID5/020 Bellevue (NE-29-007-03 W5M) – Inactive Priority 1 site. Current use: open space. Inactive from 1982 or earlier. Close to water supply, permeable soil, close to wells, open dump, adjacent to surface water. This is likely the Bellevue Old Highway 3.</p>
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	N	N	Not applicable
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Bellevue – no applicable records

6.4 Interviews

Terry Barlow

Danielle Loiselle, G.I.T. of Associated spoke with Terry Barlow on September 22, 2022, who was walking by while test pitting was occurring at Hillcrest Ball Diamond Road. He said that each community had its own waste dump and that he was only aware of the locations of Bellevue Old Highway 3 and Hillcrest Ball Diamond Road. Terry confirmed that local residents and garbage trucks used the dumps in both Hillcrest and Bellevue. He did not know when the dumping had started.

6.5 Geophysical Survey Results

Results of the EM31 survey at Bellevue Old Highway 3 indicate that anomalously high values (yellow and red) are from buried waste pits with metal objects or inorganic impacts from dumping activities. The mid-lower values (green) are interpreted to contain lesser quantities of buried waste, whereas the low values (light blue) likely represent disturbed soil with little to no waste. The lowest values (dark blue) in the southwest half of the site likely represent undisturbed soil.

The EM31ip survey results were very similar to the EM31 results, as anomalously high values (yellow and red) and moderate values (green) generally line up with the identified buried waste pits, and surface metal debris along the north and east site boundaries (red and yellow only). The mid-low values (green-light blue) likely represent soils without significant buried waste, whereas the lowest values (dark blue) are likely undisturbed soils.

The geophysical survey results are provided in **Appendix J**.

Figures 5B and 5C show the EM31 results compared to historical aerial photographs from 1957 and 1969.

6.6 Site Inspection Results

6.6.1 Site Observations

A site inspection was conducted on September 19, 2022, and drone photography was captured on September 20, 2022. Site observations are summarized in **Table 6-4**.

Site photographs 54 through 72 are provided in **Appendix K**.

Table 6-4
Site Observations – Bellevue Old Highway 3

Item	Description
General Description of site and surrounding area (Photographs 54 through 61, Appendix K).	The site consists of a clearing adjacent (east) to Frank Slide boulders that is covered in vegetation and slopes moderately to the south. The north and northeast boundaries are bordered by boulders, whereas the east and west boundaries are bordered by boulders and trees. The south site boundary is along 21 Ave.
Vegetation	Vegetation within the clearing consisted of long grasses, shrubs, and scarce trees. Trees surrounding the site are primarily aspens.
Watercourses, ditches, standing water, pits, and lagoons	There was no surface water observed onsite or in surrounding areas.
Water wells	There were no water wells observed onsite.
Imported fill	There was no evidence of imported fill, but soil may have been imported to cover the waste.
Debris	Rusty metal debris was encountered frequently along the north and northeast site boundaries, including old vehicles, car parts, appliances, and cables.
Staining	No staining was observed.
Utilities and Rights-of-way	There were powerlines north of the site. No other utilities were located onsite.

6.6.2 Test Pitting

On September 20, 2022, seven (7) test pits (22BV01 through 22BV07) were advanced at Bellevue Old Highway 3 using a backhoe. Soil generally consisted of silty sand with rocks ranging from gravel to boulders. Except for 22BV05, there was generally a higher proportion of soil and rocks to waste. The maximum reach of the backhoe was approximately 3.2 m, but some test pits contained boulders up to 70 cm in diameter or cars that prevented further

advancement. Waste generally consisted of domestic waste, appliances, and car parts. The maximum reach of the backhoe was approximately 3.6 m.

Test pit depths ranged from 1.5 mbgs (22BV02) to 3.2 mbgs (22BV06). Soil primarily consisted of grey sand with abundant cobbles, boulders, and gravel. Waste generally consisted of sheet metal, bricks, wood, glass bottles, and car parts. There was evidence of burning in several test pits, and groundwater was not encountered.

Test pit logs are provided in **Appendix L** and test pit photographs 62 through 72 are provided in **Appendix K**.

There are multiple areas with waste pits along the north and east boundaries containing high amounts of metals. These areas generally coincide with anomalously high to moderate EM values from the geophysical survey results. Soil mixed with minor waste may extend slightly beyond the estimated boundaries. These estimated boundaries were used to create a 300 m buffer from the buried waste (**Figures 5D and 5E**).

6.7 Summary

Based on the results of the Environmental Overview, the following has been concluded about Bellevue Old Highway 3:

- The site was used for waste disposal from at least 1949 to sometime between 1969-1978.
- Soil consisted primarily of fine sand, gravel, and many cobbles and boulders.
- Bedrock was not encountered during test pitting.
- Groundwater was not encountered during test pitting. Based on the topography and site observations, groundwater is estimated to flow southwest.
- Geophysical survey results indicate that anomalously high values are from buried waste pits with metal objects, and moderate values indicate buried waste with higher proportion of soil.
- Buried waste is present to at least 3.2 mbgs, and maximum depth has not been delineated.
- Surface metal waste (i.e., cars, car parts, appliances) was noted along the north and east boundaries along the larger boulders.
- Waste consisted primarily of metals (i.e., car parts, sheet metal), glass, and occasional wood and plastic debris. Evidence of burning was noted in some test pits.
- The nearest house to the site is 150 m southeast of the waste boundary and is estimated to be hydraulically cross-gradient from the site.
- Additional Bellevue houses along 23 Avenue are at least 210 m southeast of the waste boundary and are estimated to be hydraulically cross-gradient from the site.
- There are no planned future residential neighbourhoods within 300 m of the site.

7 FRANK SUSPECTED NUISANCE SITES

7.1 Background

Based on the MacLaren *Identification and Verification of Active and Inactive Land Disposal Sites in Alberta*, there were two suspected nuisance locations within or near the town of Frank:

- The Frank Townsite (suspected) in SE-36-007-04 W5M
- The Frank Big Rock Swim Hole (suspected) in SW-30-007-03 W5M

The Frank Townsite location is listed as being in SE-36-007-04 W5M. Upon further investigation of aerial photographs, this suspected former dumping area is likely within the Frank industrial park, between 152 Street and the Crowsnest River which includes a portion of sections (SE-36, SW-31)-007-04-W5M and/or (NE-25, NW-30)-007-04-W5M. Based on the geophysical results, only a reconnaissance-level site inspection was required for the suspected dumping areas in the Frank Townsite area.

The Frank Big Rock Swim Hole suspected nuisance area is listed as being in SW-30-007-03 W5M. Based on a review of historical aerial photographs, it is highly unlikely that there is a landfill or dumping area in SW-30-007-03 W5M, as this quarter section is almost fully within Frank Slide colluvium on the other side of the Crowsnest River from the road and therefore inaccessible for dumping. A review of historical aerial photographs indicates that this listed site is likely east of the Frank Townsite suspected nuisance area, along 153 Street and adjacent (northwest) to Frank Slide in SW-31-007-03-W5M (identified in this report at Frank (153 St)). Based on the geophysical results, there is no suspected buried waste.

Based on a review of historical aerial photographs and an interview with a Frank resident, there is an additional suspected former dumping area on a farm property to the north of the Frank Townsite, herein referred to as Frank Farm. This site was not accessed as permission was not granted by the landowner.

The suspected Frank sites are shown in **Figure 6**.

7.2 Physical Setting

7.2.1 Topography

There is a steep mountainside to the west of the river. The Frank Farm and Frank industrial park, including the Frank Townsite area, is generally flat with a gentle slope to the southwest. The Frank (153 St) site slopes moderately to the southwest (**Figure 3**).

7.2.2 Hydrology, Hydrogeology and Receiving Environments

Surface water drainage is controlled by topography and drains into the adjacent Crowsnest River to the southwest. Gold Creek flows southwest, adjacent north of 153 Street and along the southeast Frank industrial park boundary, and into the Crowsnest River, which flows southeast. Localized groundwater beneath suspected sites is inferred to flow to the west (Frank Farm) or southwest (Frank Townsite and along 153 Street) towards the Crowsnest River. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

7.3 Records Review

7.3.1 Municipal Land Plans

The Frank Townsite is zoned as Industrial (I-1) and is adjacent to Non-Urban Area (NUA-1), Public (P-1) land use and Recreation & Open Space (RO-1). The Frank Farm site is zoned as Non-Urban Area (NUA-1) (MCNP 2022). There are no known plans for future residential growth in surrounding areas (MCNP 2020).

The Frank (153 St) site is zoned as Restricted Development Area and is adjacent to RO-1, I-1, Drive-In Commercial (C-2), Residential (R-1) and Non-Urban Area (NUA-1) (MCNP 2022). There are no known plans for future residential growth in surrounding areas (MCNP 2020).

The MCNP Land Use maps (2022) and MDP (2020) are provided in **Appendix D**.

7.3.2 Land Titles

The current land titles for suspected former nuisance grounds within Frank are summarized in **Table 7-1** (GoA 2022).

Table 7-1
Land Title Summary – Frank Suspected Nuisance Grounds

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
Darwin Alfred Ruzicka and Judy Lynn Ruzicka	Descriptive Plan 1311107; Block 7; Lot 1 11.227 Ha Frank Farm (North end of Frank Townsite on 15 Avenue)	10/06/2019	191 109 574	Transfer of land
Not Applicable – land titles not obtained	(SE-36, SW-31)-07-04-W5M and/or (NE-25, NW-30)-07-04-W5M. Frank Townsite	Not Applicable	Not Applicable	Not Applicable
Benga Mining Limited	SW-31-07-03 W5M Containing 64.7 Ha Frank (153 St)	26/09/2013	131 243 634 +2	Transfer of Land
MCNP	NW-30-07-03 W5M Containing 64.7 Ha Frank Big Rock Swim Hole (South of Frank Slide)	26/02/2013	131 047 900	Notification of Municipal Acquisition

The land titles are provided in **Appendix E**.

7.3.3 Aerial Photographs

The analysis of aerial photographs is summarized in chronological order in **Table 7-2**. Aerial photographs obtained from AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

Table 7-2
Aerial Photograph Analysis – Frank Townsite (Suspected)

Date (Source)	Frank Industrial Park (Frank Townsite)	Surrounding Area (Frank Farm, Frank (153 St) and Big Rock Swimhole)
1949 (AEPA)	The site of the Frank industrial park is cleared of trees and contains multiple roads, structures, and unidentifiable objects along the northeast boundary. There is a large pile of dark material in the southwest portion of the site with disturbed ground immediately to the east.	<p>North: The Frank Farm with a field and multiple structures adjacent to the industrial park, and an abandoned river channel immediately north of the farm. There is a road in the location of present-day Highway 3 and railway tracks in the present-day location bordering the northeast part of the industrial park. There is a neighbourhood with multiple houses and structures across the highway.</p> <p>East: A road extends to the northeast in location of present-day 153 Street. There is a clearing adjacent/east of 153 Street with an access road. A road in the location of present-day 152 Street connects to the industrial park. Colluvium from Frank Slide extends to the southeast boundary of the town site.</p> <p>South: The Crowsnest River flows away from the industrial park and through Frank Slide colluvium.</p> <p>West: The industrial park is bordered by the Crowsnest River and a mountainside with trees.</p>
1957 (AEPA)	No significant changes since 1949.	<p>North: No significant changes since 1949.</p> <p>East: No significant changes since 1949.</p> <p>South: No significant changes since 1949.</p> <p>West: No significant changes since 1949.</p>
1969 (AEPA)	There is infrastructure built along the Crowsnest River. There are additional structures and objects in the north part of the industrial park.	<p>North: New structures are visible in north part of Frank Farm; disturbed ground or unidentifiable objects to the east of the new structures.</p> <p>East: The ground immediately north of clearing on 153 Street appears disturbed.</p> <p>South: Trails connecting to 152 Street are visible in Frank Slide colluvium.</p> <p>West: No significant changes since 1957.</p>
1978 (AEPA)	Multiple new buildings and roads in industrial park. The large pile of dark material is shaped differently than in previous photographs.	<p>North: There is a new house and yard to the south of the farm, adjacent to the industrial park.</p> <p>East: The ground north of the clearing along 153 Street no longer appears disturbed and the access road has been removed.</p> <p>South: No significant changes since 1969.</p> <p>West: No significant changes since 1969.</p>

Date (Source)	Frank Industrial Park (Frank Townsite)	Surrounding Area (Frank Farm, Frank (153 St) and Big Rock Swimhole)
1987 (AEPA)	Multiple new buildings and objects are visible in industrial park. There are many objects surrounding a large building in southeast part of town site. There are new roads in present-day configuration throughout the industrial park, oriented roughly east-west and north-south. There is a new water treatment plant in present-day location. There is disturbed ground on south end of road, southeast of new water treatment plant in location of present-day composting/burn pit.	North: The abandoned river channel in farm has been filled with soil. There are many new unidentifiable objects or piles of material in the farm. East: The ground immediately north of clearing on 153 Street appears to be flattened. South: No significant changes since 1978. West: No significant changes since 1978.
1997 (AEPA)	Multiple new structures and many new objects (possibly old cars or construction materials) are present in central-east part of the industrial park. The old water treatment area has been removed.	North: No significant changes since 1987. East: No significant changes since 1987. South: No significant changes since 1987. West: No significant changes since 1987.
2005 (Google Earth)	There are four new buildings in location of present-day T&S Storage (Frank Townsite) and a large new building to the west. There are fewer objects around large building in southeast part of town site. There is a large pile of compost in the burn pit area.	North: Potentially disturbed ground north of farm. East: No significant changes since 1997. South: No significant changes since 1997. West: No significant changes since 1997.
2012 (Google Earth)	Multiple new buildings are present in the north and central-west parts of the industrial park. The large building in the southeast part of industrial park has been removed with only a cement pad remaining.	North: Potentially disturbed ground north of structures on Frank Farm. East: No significant changes since 2005. South: No significant changes since 2005. West: No significant changes since 2005.
2019 (Google Earth)	No significant changes since 2012.	North: No significant changes since 2012. East: No significant changes since 2012. South: No significant changes since 2012. West: No significant changes since 2012.

7.3.4 Water Well Records

A total of 27 water wells were reported to be present within 1 km of the Frank suspected nuisance grounds. Water well uses were domestic use (18 wells), municipal (2 wells), industrial (1 well), monitoring (1 well) and unknown use (5 wells). One unknown well was in a spring, and most wells were either listed as new wells, with four being used for chemistry. One decommissioned domestic well was not included in the totals. The water well depths ranged from 0 mbgs to 152.40 mbgs (**Appendix G**).

7.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed eight records within SE-36-007-04-W5M or SW-30-007-03-W5M, with one record pertaining to a land disposal site (**Appendix H**) and is summarized in **Table 7-3**.

Table 7-3
Summary of ERIS Results near Frank Suspected Nuisance Grounds

Site/Location	Record(s)	Comments	Distance and direction from site	Land Disposal Record (Y/N)
SW-30-007-03 W5M	Identification and Verification of Active and Inactive Land Disposal Sites in Alberta sites (LDS)	Name: Frank An inactive/unused land disposal site owned by Improvement District 5 Municipal Affairs. Problems: Institutional waste, permeable soil, close to wells.	Within quarter section	Y

Additional records findings are summarized in **Table 7-4**. The MCNP did not have records pertaining to any of the suspected Frank Nuisance Grounds.

Table 7-4
Records Summary - Frank Suspected Nuisance Grounds

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
MacLaren <i>Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	Site No. ID5/050 Frank (SW-30-007-03 W5M) – Inactive Priority 1 site. Current use: unused. Inactive from 1982 or earlier. Institutional waste, permeable soil, close to wells. This is likely the Frank (153St) site
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	Y	N	Four records pertaining to storage tanks, monitoring well installations, and site monitoring with no mention of waste.
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Frank – no applicable records

7.4 Interviews

Darwin Ruzicka, resident of Frank

Danielle Loiselle, G.I.T. of Associated conducted an interview by phone with Darwin Ruzicka on August 17, 2022. Darwin has resided on the property referred to as Frank Farm for 59 years and farms his land. He is aware of two (2) dumps in the Frank area and stated that one of the dumps was located near the centre of the industrial park but could not confirm the precise location. He believed the dump was uncontrolled and estimated it to be approximately 40 years old. He also indicated that there is a disposal area for vegetation in the south portion of the industrial park where burning occurs.

Darwin was aware of a second dump in Frank, east of 153 Street, on the road leading to the Frank Slide Interpretive Centre. He stated that the dump was uncontrolled and estimated to be 50 years old. He was also aware of the known Bushtown, Old Sartoris Staging Area, Hillcrest and Bellevue Highway 3 locations and was not aware of any additional dumps within the municipality.

Darwin stated there is no buried waste on his property and did not permit AKS Geoscience to complete a geophysical survey. He said that there is a location between two rock ridges on his property with old cans and bottles at surface that have been there his whole life and are nearly broken down. He also mentioned the presence of a concrete block from an old mining building which he avoids when cultivating. He stated that there are two sewer lines on the property and that blasting was required for installation of the second sewer line approximately 50 years ago.

7.5 Geophysical Survey Results

A geophysical survey was conducted near the centre of Frank Townsite, around T&S Self Storage. Results of the EM31 survey indicate an area with anomalously high value (yellow and red) near the north part of the site. It was interpreted to likely be from a nearby parked vehicle. The mid-lower values (green) may represent disturbed soil, imported fill, or may indicate the presence of low-grade coal from previous storage. The lowest values (dark blue) may represent undisturbed soil. The EM31ip survey results for the Frank Townsite were very similar to the EM31 results, where high values (yellow and red) may represent disturbed soil, imported fill, or may indicate the presence of low-grade coal from previous storage, and lower values (green) could represent undisturbed soil. Test pitting was not conducted at the Frank Townsite, and therefore interpretations could not be verified.

A second geophysical survey was completed for Frank (153 St). Results of the EM31 survey indicate a gradient of higher values (orange) in the northeast corner to lower values (blue) in the south portion. Results of the EM31ip survey indicate a gradient of higher values (orange) along the east and south site boundaries, to lower values (pale green) along the northwest site boundary. Based on the results of geophysical surveys conducted at other sites in the Project Area, both EM31 and EM31ip respond strongly to buried waste and metals, and therefore the area likely does not contain buried waste containing significant amounts of metal. The results of both surveys are interpreted to represent differences in soil composition and/or varying depth to bedrock.

The geophysical survey results are provided in **Appendix J**.

7.6 Site Inspection Results

7.6.1 Site Observations

Danielle Loiselle of Associated conducted a site inspection on September 19, 2022. Site observations are summarized in Table 7-5.

Site photographs 73 through 79 are provided in Appendix K.

Table 7-5
Site Observations – Frank Suspected Nuisance Grounds

Item	Description
General Description of site and surrounding area (Photographs 73 through 79, Appendix K)	152 Street is a gravel road that connects Hillcrest Mines to Frank, running roughly parallel (south) of Highway 3. The road is generally flat to gently sloped and provides an up-close view of Frank Slide colluvium with boulders up to the size of small buildings with some walking trails. No turn-offs or indication of dumping areas were observed. Within Frank Townsite, there were multiple businesses including mechanic shops, T&S Self Storage (near centre of the townsite), the water treatment plant, a towing company, autobody shops, and Community Yard Waste Disposal site, where yard cuttings are dumped and burned. There was a large soil pile to the east of T&S Self Storage. The farm immediately north of Frank Townsite (Frank Farm) was not accessed.
Vegetation	There was forested area between the sparsely vegetated Frank Slide and Frank Townsite. The farm consisted of fields with rows of trees that generally blocked the view of buildings and operations within the farm.
Watercourses, ditches, standing water, pits, and lagoons	The Crowsnest River borders the Frank Townsite and can be seen from 152 Street. There were sparse puddles due to rain during the site inspection, but no other surface water was observed.
Water wells	There were no water wells observed during the site inspection.
Imported fill	There was no evidence of imported fill, but soil may have been imported for road construction and building foundations.
Debris	Yard waste was observed within the Community Yard Waste Disposal site. There are used car parts or vehicles within the Frank Townsite.
Staining	No staining was observed at the Frank Townsite.
Utilities and Rights-of-way	There were overhead powerlines along most of 152 Street within Frank Slide and throughout the industrial park. The water treatment plant is located on the west side of the industrial park and is likely connected to buildings via underground pipeline.

7.6.2 Test Pitting

Based on the geophysical results and site observations, test pitting was not conducted at the Frank Townsite, Frank (153 St), or Frank Big Rock Swimhole locations. The landowner did not grant permission to access Frank Farm.

7.7 Summary

The following has been concluded about the Frank Townsite suspected nuisance area:

- Based on historical aerial photographs and an interview with Darwin Ruzicka, there may have been uncontrolled dumping near the centre of the Frank Industrial Park with unknown dates of operation.
- Geophysical survey results did not indicate the presence of buried waste in the centre of the industrial park around the current location of T&S Self Storage.
- Soil type, depth to bedrock and depth to groundwater are unknown as test pits were not advanced at this location.
- Based on topography, groundwater flow direction is inferred to be southwest toward the Crowsnest River.
- Most houses in Frank are at least 70 m from the industrial park, and likely hydraulically upgradient.
- There are no plans for future development in Frank at this time.

The following has been concluded about the Frank Farm:

- Based on historical aerial photographs and the interview with Darwin Ruzicka, there has been disturbed ground in multiple locations on the farm that are likely from farming activities or sewer line installation. He indicated that there is minor surface waste on his property (i.e., old cans, bottles, and concrete).
- No geophysical surveys or site inspection was completed for this location due to landowner permissions not being received.
- Soil type, depth to bedrock and depth to groundwater are unknown as no test pits were advanced at this location.
- Based on topography, groundwater flow direction is inferred to be west toward the Crowsnest River.
- There is at least one house on site, and another house to the south of the farm.

The following has been concluded about the Frank (153 St) location:

- The suspected location was SW-30-007-03 W5M, which is inaccessible for dumping. A review of historical aerial photographs and an interview indicates that this site is likely east of the industrial park along 153 Street in SW-31-007-03 W5M.
- Based on historical aerial photographs and an interview with Darwin Ruzicka, there may have been uncontrolled dumping along 153 Street that operated between 1957 and 1987.
- Geophysical survey results did not indicate the presence of waste.
- If the site was previously used for dumping, waste has likely been removed (date unknown).
- Soil type, depth to bedrock and depth to groundwater are unknown as no test pits were advanced at this location.
- Based on topography, groundwater flow direction is inferred to be southwest toward the Crowsnest River.
- Houses are at least 50 m from the site, and some are interpreted to be hydraulically downgradient or cross-gradient from the site.
- The industrial park is likely hydraulically downgradient from the site.
- There are no plans for future neighbourhood expansions in Frank.

Since the Frank Townsite area has been developed and it has multiple lot owners, it would be the responsibility of the lot owners and/or any new purchasers to conduct their own environmental site assessments; either for their own due diligence or requirements by the bank.

8 HILLCREST SOUTH OF LAGOONS SUSPECTED AREAS

8.1 Background

Based on the MacLaren *Identification and Verification of Active and Inactive Land Disposal Sites in Alberta*, there was one (1) suspected location in Hillcrest Mines, south of the lagoons in SE-20-007-03 W5M.

A review of historical aerial photographs indicated two (2) potential locations for dumping to occur:

- Hillcrest South of Lagoons 1 in SE-20-007-03 W5M
- Hillcrest South of Lagoons 2 in NE-17-007-03 W5M

The suspected Hillcrest South of Lagoons sites are shown in **Figure 7**.

8.2 Physical Setting

8.2.1 Topography

The area slopes moderately to the southwest .

8.2.2 Hydrology and Receiving Environments

Surface water drainage is controlled by topography. The nearest waterbody is Drum Creek, which flows adjacent/south of Hillcrest South of Lagoons 1. Drum creek flows east from the mountain to the west, and veers south from the farm and flows parallel to a slight ridge, oriented north to south, before merging into the Crowsnest River. The Hillcrest South of Lagoons 2 clearing is 80 m from Drum Creek.

Localized groundwater beneath both sites is inferred to flow to the southeast, roughly parallel to Drum Creek. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

8.3 Records Review

8.3.1 Municipal Land Plans

Both sites are zoned as Non-Urban Area (NUA-1) and are adjacent to Grouped Country Residential (GCR-1) (MCNP 2022). Currently, future residential growth is planned east of 11 Avenue and southwest of 232 Street/East Hillcrest Drive and existing houses. The growth node east of 11 Avenue is adjacent to Hillcrest South of Lagoons 1, and the growth node southwest of 232 Street/East Hillcrest Drive is 180 m southwest of Hillcrest South of Lagoons 2 (MCNP 2020).

The MCNP Land Use maps (2022) and MDP (2020) are provided in **Appendix D**.

8.3.2 Land Titles

The current land titles for suspected nuisance grounds south of the lagoons in Hillcrest are summarized in **Table 8-1** (GoA 2022).

Table 8-1
Land Title Summary – Hillcrest South of Lagoons

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
William J Nelson and Denise J Nelson	SE-20-007-03 W5M Hillcrest South of Lagoons 1	18/07/2018	181 152 950 +1	Descriptive Plan
William J Nelson and Denise J Nelson	Descriptive Plan 1811416, Block 3, Lot 1 Hillcrest South of Lagoons 2 (SE-20-007-03 W5M)	18/07/2018	181 152 950	Descriptive Plan
Kent Alan Strandquist	NE-17-007-03 W5M Hillcrest South of Lagoons 2	20/08/2019	191 167 104	Transfer of Land

The land titles are provided in **Appendix E**.

8.3.3 Aerial Photographs

The analysis of aerial photographs for the site is summarized in chronological order in **Table 8-2**. Aerial photographs obtained from AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

**Table 8-2
Aerial Photograph Analysis – Hillcrest South of Lagoons (Suspected)**

Date (Source)	Inspected Area	Surrounding Area
1949 (AEPA)	<p>Hillcrest South of Lagoons 1 – The site is a cleared with disturbed ground bordered by trees on the north and east sides. Buildings and Drum Creek immediately south of clearing.</p> <p>Hillcrest South of Lagoons 2 – The site is a clearing in trees, bordered by road on the west side.</p>	<p>North: A road extends north to a bridge crossing the Crowsnest River. There are large piles of dark material around Crowsnest River. There is undeveloped area with grasses/shrubs and patches of forested area.</p> <p>East: There is undeveloped area with grasses/shrubs and patches of forested area. The Crowsnest River, railway tracks and Highway 3 are in present-day locations. There are large piles of dark material adjacent to railway tracks. The town of Bellevue is present to the northeast.</p> <p>South: A road extends south, and there is generally undeveloped forested area. Drum Creek turns south from Hillcrest South of Lagoons 1 and flows parallel to ridge.</p> <p>West: Hillcrest Mines Town, multiple fields and a ball diamond are present. The Hillcrest Ball Diamond Road site is visible to the northwest of sites.</p>
1957 (AEPA)	<p>Hillcrest South of Lagoons 1 – No significant changes since 1949.</p> <p>Hillcrest South of Lagoons 2 – No significant changes since 1949.</p>	<p>North: No significant changes since 1949.</p> <p>East: No significant changes since 1949.</p> <p>South: No significant changes since 1949.</p> <p>West: No significant changes since 1949.</p>
1969 (AEPA)	<p>Hillcrest South of Lagoons 1 – There are new structures next to existing structures. There is a new driveway leading to a farm adjacent (south) to site.</p> <p>Hillcrest South of Lagoons 2 – No significant changes since 1957.</p>	<p>North: No significant changes since 1957.</p> <p>East: No significant changes since 1957.</p> <p>South: No significant changes since 1957.</p> <p>West: No significant changes since 1957.</p>
1978 (AEPA)	<p>Hillcrest South of Lagoons 1 – Additional trees have been cleared within the field. There are new structures on the adjacent farm.</p> <p>Hillcrest South of Lagoons 2 – No significant changes since 1969.</p>	<p>North: New wastewater lagoons have been built 430 m north of Hillcrest South of Lagoons 1. The large piles of dark material around Crowsnest River have been removed.</p> <p>East: No significant changes since 1969.</p> <p>South: No significant changes since 1969.</p> <p>West: There are new houses in location of former ball diamond.</p>

Date (Source)	Inspected Area	Surrounding Area
1987 (AEPA)	Hillcrest South of Lagoons 1 – No significant changes since 1978. Hillcrest South of Lagoons 2 – No significant changes since 1978.	North: No significant changes since 1978. East: Large piles of dark material have been removed from beside railway tracks. South: No significant changes since 1978. West: Additional new houses in neighbourhood.
1997 (AEPA)	Hillcrest South of Lagoons 1 – No significant changes since 1987. Hillcrest South of Lagoons 2 – No significant changes since 1987.	North: No significant changes since 1987. East: No significant changes since 1987. South: New clearing 100 m south of Hillcrest South of Lagoons 2. West: There is a new house 120 m from Hillcrest South of Lagoons 2.
2003 (Google Earth)	Hillcrest South of Lagoons 1 – Several buildings have been removed from adjacent (south) farm. Hillcrest South of Lagoons 2 – No significant changes since 1987.	North: There is a new house in clearing 200 m northwest of Hillcrest South of Lagoons 1. East: No significant changes since 1997. South: No significant changes since 1997. West: There is a new house in clearing 100 m northwest from Hillcrest South of Lagoons 2.
2012 (Google Earth)	Hillcrest South of Lagoons 1 – The clearing looks brown compared to surrounding green areas. Hillcrest South of Lagoons 2 – There are multiple new objects within clearing.	North: No significant changes since 2003. East: No significant changes since 2003. South: There are new structures 200-300 m from Hillcrest South of Lagoons 2. West: No significant changes since 2003.
2019 (Google Earth)	Hillcrest South of Lagoons 1 – There is a new animal enclosure in the south part of the clearing. Hillcrest South of Lagoons 2 – Objects removed from clearing.	North: No significant changes since 2012. East: No significant changes since 2012. South: No significant changes since 2012. West: No significant changes since 2012.

8.3.4 Water Well Records

A total of 17 water wells were reported to be present within 1 km of the suspected sites. Water well uses were domestic (8 wells), domestic and stock (2 wells), municipal (2 wells), municipal & observation (1 well), observation (4 wells), and industrial (1 well). One domestic well was in a spring, and three domestic wells were for chemistry. The industrial well was for well inventory. Most wells were either listed as new wells or test holes. The depths ranged from 0 mbgs to 217.93 mbgs (**Appendix G**).

8.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed three records within SE-20-007-03 W5M. One record pertains to disposal (**Appendix H**). ERIS records are summarized in **Table 8-3**.

**Table 8-3
Summary of ERIS Results near Hillcrest South of Lagoons (Suspected)**

Site/Location	Record(s)	Comments	Distance and Direction from Site	Land Disposal Record (Y/N)
Hillcrest South of Lagoons 1 SE-20-007-03 W5M	Authorization (Auth)	Expired approval for drainage for the MCNP under provisions of the Water Act	Within quarter section	N
Hillcrest South of Lagoons 1 SE-20-007-03 W5M	Authorization (Auth)	Registration for storm drainage system for the MCNP under provisions of the Environmental Protection & Enhancement Act (2004)	Within quarter section	N
Hillcrest South of Lagoons 1 SE-20-007-03 W5M	Identification and Verification of Active and Inactive Land Disposal Sites in Alberta sites (LDS)*	Name: Hillcrest An inactive land disposal site owned by Improvement District 5 Municipal Affairs. Problems/current use: none listed	Within quarter section	Y

* This is likely referring to the Hillcrest South of Ball Diamond Road location.

Additional records results are summarized in **Table 8-4**. The MCNP did not have records pertaining to the suspected Hillcrest South of Lagoons nuisance grounds.

**Table 8-4
Records Search Results Summary - Hillcrest South of Lagoons (Suspected)**

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
MacLaren <i>Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	Site No. ID5/060 Hillcrest (SE-20-007-03 W5M) - Inactive from 1982 or earlier. Priority ranking 3 This location is likely referring to the Hillcrest South of Ball Diamond Road location.

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	Y	N	One record pertaining to underground storage tanks with no mention of waste.
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Hillcrest – no applicable records

8.4 Interviews

Denise J. Nelson, landowner of Hillcrest South of Lagoons 1

Danielle Loiselle, G.I.T., of Associated spoke with Denise J. Nelson on August 16, 2022, by telephone. Denise and her husband own 150 acres in the Hillcrest area and that they knew the three previous owners for their properties. She stated that the land has always been farmed or had cattle, and that there has never been a dump or buried waste on any of the properties. She did not grant permission for geophysical surveys or site inspections to be conducted.

Kent Alan Strandquist, landowner of Hillcrest South of Lagoons 2

Danielle Loiselle, G.I.T., of Associated spoke with Kent Alan Strandquist on September 19, 2022, by telephone. He has owned the property for four years and was unaware of previous dumping activities. He mentioned that his waterline runs through the clearing and gave permission for geophysical surveys to be conducted on his property. Kent primarily uses the property for storing machinery and related objects.

8.5 Geophysical Survey Results

There were no geophysical surveys conducted at Hillcrest South of Lagoons 1 as permission was not granted by the landowners.

Geophysical surveys were conducted for Hillcrest South of Lagoons 2. Results of the EM31 survey and a site inspection indicate that areas with anomalously high values (yellow and red) near the north part of the site are likely surface metals observed nearby. The mid-lower values (green) may represent disturbed soil from previous site activities or a waterline installation. The lowest values (dark blue) may represent undisturbed soil. The EM31ip survey results were very similar to the EM31 results, where high values (yellow and red) represent surface metal and lower values (green or blue) could represent undisturbed soil. The geophysical survey results are provided in **Appendix J**.

8.6 Site Inspection Results

8.6.1 Site Observations

There was no detailed site inspection for Nelsons' properties at Hillcrest South of Lagoons 1. Danielle Loiselle, G.I.T., of Associated conducted a site visit at Hillcrest South of Lagoons 2 on September 19, 2022. Site observations and summarized in **Table 8-5**.

Site photographs 80 through 83 are provided in **Appendix K**.

**Table 8-5
Site Observations – Hillcrest South of Lagoons Suspected Area**

Item	Description
General Description of site and surrounding area	<p>Hillcrest South of Lagoons 1: The site was viewed from the driveway, which connects to 227 Street in Hillcrest Mines. The driveway extends to the northeast with a gentle downhill slope, with some clearings surrounded by trees on either side. There is a turn-off to the north leading to a gated driveway to a house. From the gate, the driveway makes a hairpin turn to the south, leading to another residence and multiple buildings in a gated area immediately south of the site. The site, as viewed from the driveway, consisted of predominantly flat ground with an animal enclosure.</p> <p>Hillcrest South of Lagoons 2: The site was entered from a driveway on the west side. Compared to the most recent satellite imagery, the clearing has been extended to the north and nearly doubled in size. The north part of the clearing has a Quonset with mechanical equipment stored adjacent to it. The middle and south parts of the site contain lumber, scrap wood, tree trucks, yard waste, multiple vehicles, a tent trailer, car parts, tires, semi trucks, metal culverts, metal pipes and an aboveground storage tank on a trailer.</p>
Vegetation	<p>Hillcrest South of Lagoons 1: vegetation consisted of grasses in the cleared areas and a mix of deciduous and coniferous trees surrounding the clearing.</p> <p>Hillcrest South of Lagoons 2: vegetation has generally been cleared from the site; and clearing was extended further north compared to satellite imagery. The cleared area consists of gravel roads, and patchy grasses and shrubs, and the clearing is primarily surrounded by deciduous trees with occasional coniferous trees.</p>
Watercourses, ditches, standing water, pits, and lagoons	No water was observed at either site during the reconnaissance.
Water wells	No water wells were observed at either location.
Imported fill	No evidence of fill was observed at either site, but may have been brought in to build driveways and support structures.
Debris	<p>Hillcrest South of Lagoons 1: no debris was observed from the driveway.</p> <p>Hillcrest South of Lagoons 2: minor debris from stored machinery and objects were present within the clearing (i.e., scrap metal, car parts, wood).</p>
Staining	No stains were observed during the reconnaissance.
Utilities and Rights-of-way	No utilities were observed during the reconnaissance.

8.6.2 Test Pitting

Permission was not granted to access the Hillcrest South of Lagoons 1 site.

Based on the geophysical results, a test pitting program was not conducted at the Hillcrest South of Lagoons 2 site, as the high values from the surveys coincided with metal objects observed on the ground surface.

8.7 Summary

The following has been concluded about the Hillcrest South of Lagoons 1 location:

- The aerial photographs review indicated potential disturbed ground in 1949, and brown vegetation in 2012 compared to other areas in Hillcrest.
- Based on the interviews, there is no known buried waste onsite.
- Groundwater is inferred to flow southeast.
- The nearest house to the clearing is adjacent/south.
- There is a potential for residential neighbourhood expansion adjacent/west, which is estimated to be upgradient of the site.

The following has been concluded about the Hillcrest South of Lagoons 2 location:

- Based on the aerial photographs review, the clearing was present since at least 1949.
- Results of the geophysical surveys did not indicate buried waste, and high EM31 values coincided with metal objects at the surface. It is unlikely that buried waste is present onsite.
- There planned development for a residential neighbourhood 180 m southwest of the site.

The Hillcrest south of Lagoon suspected locations were based on the *MacLaren Identification and Verification of Active and Inactive Land Disposal Sites in Alberta*, which indicated a disposal site in Hillcrest (SE-20-007-03 W5M). Hillcrest South of Ball Diamond Road located within SW-20-007-03 W5M (Section 5) is likely the referred disposal location listed in the MacLaren document.

No further assessment for the Hillcrest South of Lagoon locations is recommended. It is the responsibility of the landowners to conduct any further environmental assessments of their property.

9 BELLEVUE FIREMAN'S PARK SUSPECTED NUISANCE GROUND

9.1 Background

Based on the MacLaren document, there are two suspected disposal locations within Bellevue:

- Bellevue (NE-29-007-03 W5M) - This is likely the Bellevue Old Highway 3 site.
- Bellevue (Township 7, Range 3, W5M) – inactive disposal site as of 1982. This is potentially a second disposal site near the Bellevue Fireman’s Park.

9.2 Physical Setting

9.2.1 Topography

The area has a gentle to moderate slope towards the town of Bellevue.

9.2.2 Hydrology, Hydrogeology and Receiving Environments

Within the investigated area, surface water drains to the southwest. There is an unnamed stream (waterbody ID 87424) that flows southwest into the Crowsnest River. Localized groundwater beneath the site is inferred to flow to the southwest. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

9.3 Records Review

9.3.1 Municipal Land Plans

The Bellevue Fireman’s Park is zoned as Non-Urban Area (NUA-1) and is adjacent to Residential (R-1) zoning (MCNP 2022). Currently, the nearest potential development area is at least 1 km southeast of the suspected area (MCNP 2020). The MCNP Land Use maps (2022) and MDP (2020) are provided in **Appendix D**.

9.3.2 Land Titles

The current land titles for the suspected nuisance grounds near Bellevue Fireman’s Park are summarized in **Table 9-1** (GoA 2022). The land titles are provided in **Appendix E**.

Table 9-1
Land Title Summary – Bellevue Fireman’s Park

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
Benga Mining Limited	NE-29-07-03-W5M Containing 64.7 Ha	29/07/2015	151 191 525 +1	Subdivision Plan
The MCNP	Plan 1512167; Block 1; Lot 1 Containing 7.14 Ha	03/09/2015	151 228 206	Transfer of Land

9.3.3 Aerial Photographs

The analysis of aerial photographs for the site is summarized in chronological order in **Table 9-2**. Aerial photographs obtained from AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

Table 9-2
Aerial Photograph Analysis – Bellevue Fireman’s Park (Suspected)

Date (Source)	Inspected Area	Surrounding Area
1949 (AEPA)	There are multiple gravel roads oriented roughly north-south. A small circular waterbody is visible with a road leading to it. There is a clearing with unidentifiable objects (potential logging activity) to the north of small waterbody, and unidentifiable objects to the south of the clearing.	<p>North: Roads continue up the mountain, which consists of forested area and bare rocks.</p> <p>East: Primarily treed areas with some minor roads are present.</p> <p>South: The Bellevue residential neighbourhood is present.</p> <p>West: There is a round waterbody, Frank Slide, and Bellevue Old Highway 3 site.</p>
1957 (AEPA)	The clearing with has rows of unidentifiable objects or materials, possibly from logging activity. The objects south of clearing appear to have been removed.	<p>North: No significant changes since 1949.</p> <p>East: No significant changes since 1949.</p> <p>South: No significant changes since 1949.</p> <p>West: No significant changes since 1949.</p>
1969 (AEPA)	Rows of objects or materials have been removed from clearing, and there is one new object or structure in north part of clearing.	<p>North: No significant changes since 1957.</p> <p>East: No significant changes since 1957.</p> <p>South: No significant changes since 1957.</p> <p>West: No significant changes since 1957.</p>
1978 (AEPA)	The object in north part of clearing has been removed.	<p>North: No significant changes since 1969.</p> <p>East: No significant changes since 1969.</p> <p>South: No significant changes since 1969.</p> <p>West: No significant changes since 1969.</p>
1987 (AEPA)	There is a new circular structure and new rectangular structure between the two waterbodies at Fireman’s Park. There is new lawn north of the circular structure.	<p>North: No significant changes since 1978.</p> <p>East: No significant changes since 1978.</p> <p>South: Additional new objects are visible in northernmost house’s yard.</p> <p>West: No significant changes since 1978.</p>
1997 (AEPA)	There is a new mini golf course north of the circular structure and lawn.	<p>North: No significant changes since 1987.</p> <p>East: No significant changes since 1987.</p> <p>South: No significant changes since 1987.</p> <p>West: No significant changes since 1987.</p>
2003 (Google Earth)	Poor quality photo due to clouds. No visible changes since 1997.	<p>Poor quality photo due to clouds.</p> <p>North: No significant changes since 1997.</p> <p>East: No significant changes since 1997.</p> <p>South: No significant changes since 1997.</p> <p>West: No significant changes since 1997.</p>

Date (Source)	Inspected Area	Surrounding Area
2012 (Google Earth)	No significant changes since 2003.	North: No significant changes since 2003. East: No significant changes since 2003. South: No significant changes since 2003. West: No significant changes since 2003.
2019 (Google Earth)	No significant changes since 2012.	North: No significant changes since 2012. East: No significant changes since 2012. South: No significant changes since 2012. West: No significant changes since 2012.

Based on the review of aerial photographs, it is unlikely that there is buried waste near Bellevue Fireman’s Park.

9.3.4 Water Well Records

There was one (1) domestic water well within SE-29-007-03-W5M, which was domestic and used for chemistry. The well was 12.19 m deep (Appendix G).

9.3.5 ERIS and Records Search Results

The searches conducted by ERIS revealed three (3) records within NE-29-007-03 W5M. One record pertains to land disposal (Appendix H). ERIS records are summarized in Table 9-3.

Table 9-3
Summary of ERIS Results - Bellevue Fireman’s Park (Suspected)

Site/Location	Record(s)	Comments	Distance and Direction from Site	Land Disposal Record (Y/N)
NE-29-07-03 W5M	Authorizations (Auth) Two records	A cancelled license for the MCNP under provisions of the Water Resources Act	Within quarter section	N
NE-29-07-03 W5M	Identification and Verification of Active and Inactive Land Disposal Sites in Alberta sites (LDS)	Name: Bellevue An inactive land disposal site currently used as open space owned by Improvement District 5 Municipal Affairs. Problems: Close to water supply, permeable soil, close to well, open dump, adjacent to surface water	NE-29-07-03 W5M	Y

The MCNP did not have records pertaining to the suspected Bellevue Fireman’s Park location. Additional records are summarized in Table 9-4.

Table 9-4
Records Summary - Bellevue Fireman's Park (Suspected)

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
<i>MacLaren Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	Y	Y	<p>Site No. ID5/010 Bellevue (Township 7, Range 3, W5M) – Inactive from 1982 or earlier. Precise location not reported. Priority Ranking 2. This is likely the Bellevue Fireman's Park suspected location.</p> <p>Site No. ID5/020 Bellevue (NE-29-007-03 W5M) – Inactive Priority 1 site. Current use: open space. Inactive from 1982 or earlier. Close to water supply, permeable soil, close to wells, open dump, adjacent to surface water. This is likely the Bellevue Old Highway 3.</p>
Alberta Health Services	N	N	Not applicable
Environmental Site Assessment Repository	Y	N	Four records for Shell Canada Resources Ltd. restoration work for a mud pit in NW-32-07-03 W5M and reclamation for old wellsite in SW-33-07-03 W5M
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Bellevue – no applicable records

9.4 Interviews

No interviews were conducted for the Bellevue Fireman's Park Suspected nuisance ground. Terry Barlow and Darwin Ruzicka were aware of the known Bellevue Old Highway 3 location, but neither were aware of other dump locations within the community when asked.

9.5 Geophysical Survey Results

There were no geophysical surveys conducted at the Bellevue Fireman's Park area.

9.6 Site Inspection Results

9.6.1 Site Observations

Based on the aerial photograph review and interviews, no detailed site inspection was conducted.

9.6.2 Test Pitting

Test pitting was not conducted at the Bellevue Fireman's Park area.

9.7 Summary

The following has been concluded about the Bellevue Fireman's Park location:

- The aerial photographs and interviews did not suggest the presence of a former dumping area.
- The nearest house to the Bellevue Fireman's Park is approximately 200 m south.
- The nearest potential new development area is at least 1 km southeast of Bellevue Fireman's Park.

The Bellevue Fireman's Park suspected location was based on the MacLaren document, which indicated a land disposal site in Bellevue (Township 7, Range 3, W5M), with precise location not indicated. There was an additional record for the confirmed disposal location, Bellevue (NE-29-007-03 W5M) (MacLaren 1982). It is possible that the records are duplicates.

No further assessment is recommended at this time for this area.

10 WEST COLEMAN SUSPECTED NUISANCE GROUND

10.1 Background

Based on a review of aerial photographs for the MCNP area and an interview with Larry Syryca from Public Works, a suspected nuisance ground was identified in the west part of Coleman, at Green Mountain RV Park. The potential former dumping area is within SW-08-008-04-W5M (Figure 8) and is referred to herein as West Coleman.

10.2 Physical Setting

10.2.1 Topography

Locally, the area slopes moderately to the northwest toward the adjacent Crowsnest River Valley.

10.2.2 Hydrology, Hydrogeology and Receiving Environments

Within the investigated area, surface water likely drains to the northwest. Localized groundwater beneath the site is inferred to flow north. The groundwater flow direction is an estimation only and field verification would be required for confirmation.

10.3 Records Review

10.3.1 Municipal Land Plans

The West Coleman site is zoned as Non-Urban Commercial Recreation (NUCR-1). Surrounding land use includes Residential (R-1) and Multi-Family Residential (R2-A) to the north and east, minor Retail Commercial (C-1) to the north, and Non-Urban Area (NUA-1) to the south and west. Currently, the nearest potential development area is 400 m north of the suspected site (MCNP 2020).

The MCNP Land Use maps (2022) and MDP (2020) are provided in **Appendix D**.

10.3.2 Land Titles

The current land title for The West Coleman suspected nuisance ground is summarized in **Table 10-1** (GoA 2022).

Table 10-1
Land Title Summary – West Coleman (Suspected)

Owner(s)	Legal Description	Registration Date	Title Number	Document Type
Dominion Campcorp Inc.	SW-08-08-04-W5m Containing 64.7 Ha	06/12/2017	171 275 447	Transfer of Land

The land title is provided in **Appendix E**.

10.3.3 Aerial Photographs

The analysis of aerial photographs for the site is summarized in chronological order in **Table 10-2**. Aerial photographs obtained from AEPA and Google Earth are provided in **Appendix F** (AEPA 2022a).

Table 10-2
Aerial Photograph Analysis – West Coleman (Suspected)

Date (Source)	Site	Surrounding Area
1949 (AEPA)	The site is undisturbed area with trees to the north and west.	<p>North: The Crowsnest River is adjacent to the site. There are structures across the river (northwest) from site. Railway tracks and residential neighbourhood of Coleman are present. A large industrial structure is present to the west of neighbourhood. The is disturbed ground along the current Highway 3 location.</p> <p>East: There is an apparent trail and disturbed ground south of the Crowsnest River. Large piles of dark material, industrial equipment and rows of unidentifiable objects are present to the north of Crowsnest River. Bridge across river.</p> <p>South: There is forested mountainside with some clearings and trails.</p> <p>West: There is forested mountainside with some clearings and trails.</p>
1957 (AEPA)	No significant changes since 1949.	<p>North: No significant changes since 1949.</p> <p>East: There is a new road to the north of the river/northeast of site.</p> <p>South: No significant changes since 1949.</p> <p>West: No significant changes since 1949.</p>
1971 (AEPA)	There is disturbed ground onsite.	<p>North: The large industrial structures have been removed from west of the neighbourhood.</p> <p>East: The pile of dark material is larger and closer to site than previously.</p> <p>South: No significant change since 1949.</p> <p>West: There is a new road south of the river.</p>

Date (Source)	Site	Surrounding Area
1978 (AEPA)	There are pits onsite and a road extending to the southwest.	<p>North: No significant change since 1971.</p> <p>East: Trees have been cleared, and ground is disturbed with large amounts of dark material.</p> <p>South: Trees have been cleared, and ground is disturbed with large amounts of dark material.</p> <p>West: The road from the site extends to a clearing to the southwest, which has rows of unidentifiable objects.</p>
1987 (AEPA)	The ground appears smoother than previously, and pits are no longer visible.	<p>North: No significant changes since 1978.</p> <p>East: The clearing appears smooth and vegetated. Piles of dark material are no longer present.</p> <p>South: The clearing appears smooth and vegetated. Piles of dark material are no longer present.</p> <p>West: There are fewer objects present in the clearing southwest of site.</p>
1997 (AEPA)	There are piles of material on site.	<p>North: No significant changes since 1987.</p> <p>East: No significant changes since 1987.</p> <p>South: No significant changes since 1987.</p> <p>West: The objects in the clearing to the southwest have been removed.</p>
2005 (Google Earth)	No significant changes since 1997.	<p>North: No significant changes since 1997.</p> <p>East: No significant changes since 1997.</p> <p>South: No significant changes since 1997.</p> <p>West: No significant changes since 1997.</p>
2012 (Google Earth)	No significant changes since 2005.	<p>North: No significant changes since 2005.</p> <p>East: No significant changes since 2005.</p> <p>South: No significant changes since 2005.</p> <p>West: No significant changes since 2005.</p>
2020 (Google Earth)	The site consists of green space and the pile of material has been removed. Green Mountain RV Park is established in adjacent surrounding area and contains RVs.	<p>North: Green Mountain RV Park.</p> <p>East: Green Mountain RV Park.</p> <p>South: Green Mountain RV Park.</p> <p>West: No significant changes since 2012.</p>

Based on the review of aerial photographs, there is potential for buried waste at West Coleman.

10.3.4 Water Well Records

There were 96 search results; not including one abandoned or decommissioned well. Reported uses for the wells were domestic (34 wells), domestic & stock (1 well). Industrial (3 wells), investigation (2 wells), observation (54 wells), and unknown use (2 wells). Most wells were test holes (42 wells) or listed as new wells (41 wells). There were nine (9) wells used for chemistry, and the remaining four (4) wells were dry holes (**Appendix G**).

10.3.5 ERIS and Record Search Results

The ERIS report search radius did not encompass the site. The MCNP did not have records pertaining to the West Coleman site. Other record searches did not find relevant results for West Coleman as summarized in **Table 10-3**.

Table 10-3
Records Summary - West Coleman (Suspected)

Database	Record(s) (Y/N)	Land Disposal Record (Y/N)	Comments
Alberta Environment's H.E.L.P. Program	N	N	Not applicable
MacLaren <i>Identification and Verification of Active and Inactive Land Disposal Sites in Alberta</i>	N	N	Not applicable
Alberta Health Services	N	N	The areas searched by AHS did not encompass the site.
Environmental Site Assessment Repository	N	N	No records were obtained for SW-008-04-04-W5M
Historical Environmental Enforcement	N	N	Keywords searched (1920-2022): Crowsnest, Coleman Emission Control Order - 10/02/1975 Town of Coleman – SW-09-08-04 W5M Summary: "Company operates solid waste disposal grounds which is the source of air contaminants having an offensive odour; directed to cease all burning and extinguish any fires currently burning at the site." This record is likely for the Bushtown site.

10.4 Interviews

Larry Syryca, Public Works

While test pitting on September 22 and 23, 2022, Larry Syryca explained that Coleman was mostly built on mine waste or low-grade coal. He mentioned he had heard of a former dump in West Coleman that was developed into a trailer park within the last 10 years and indicated the location on a map. He reported hearing from others that mine waste and potentially hazardous materials were dumped in the area, but he was not confident about the information.

10.5 Geophysical Survey Results

There were no geophysical surveys conducted at West Coleman as it is on private property and the location identified are the surveys were completed.

10.6 Site Inspection Results

10.6.1 Site Observations

The suspected site is located within the Green Mountain RV Park which is gated and could not be accessed for a site inspection. Based on a review of the park map and satellite imagery, there are no campsites or structures on the suspected disposal area footprint. However, there are campsites within 30 m of the site.

10.6.2 Test Pitting

Test pitting was not conducted at West Coleman.

10.7 Summary

Based on the results of the Environmental Overview, the following has been concluded about West Coleman:

- The aerial photographs and interview suggest the presence of a historical nuisance ground.
- The nearest house to the suspected site is approximately 120 m northwest, on the other side of the Crowsnest River.
- There is a potential future neighbourhood 400 m north of the site.

The presence of the river would likely be a barrier for migration of soil vapour or leachate, if present, towards the residences to the north of the suspected location. However, the proximity of a potential buried waste to a waterbody is a concern, and therefore additional investigation is recommended to be conducted by the private landowner.

11 REGULATIONS AND GOVERNMENT CORRESPONDENCE

The May 2022 *Guideline for Setback Reviews [Waste Facility]* is an update to the May 2013 *Requesting Consent To Vary the Setback Distance For A Development To A Non Operating Landfill*. The 2013 version required subdivision authorities and development authorities to submit a request to then Alberta Environment and Sustainable Resources (ESRD) to grant consent to the setback variance. The 2022 version removed the requirements of the subdivision authorities and development authorities to receive consent from AEPA (formerly ESRD and Alberta Environment and Parks [AEP]). Similarly, the October 24, 2022, updated Alberta Regulation 84/2022, *Matters Related to Subdivision and Development Regulation*, Part 3, Section 17, "Distance from wastewater treatment, landfill, waste sites" removed the requirement that a subdivision authority or development authority requires written consent of the Deputy Minister of AEPA. Based on these regulation updates, MCNP is not required to submit a request for a setback variance to AEPA.

Associated corresponded with Carol Nelson, a Waste Management Specialist from AEPA and Clara Bartha, a Municipal Planning Advisor with the Government of Alberta, to clarify some of the requirements listed in the *Guideline for Setback Reviews [Waste Facility]* document (**Appendix N**). The following definitions apply:

- "Residence" means house, apartment, or other dwelling in which somebody lives.
- "Building" includes a manufactured home, mobile home, modular home or travel trailer but does not include a tent.
- "School" means a structured learning environment through which an education program is offered to a student by a board, an operator of a private school, an early childhood services program private operator, a parent giving a home education program, or the Minister.

- “Hospital” means an institution operated for the care of diseased, injured, sick or mentally disordered people.

Setback distances are not retroactive but are applied reciprocally to new developments just as they would apply to new waste facilities. The setback distance is applied at the time of the development application whether the application is for a waste facility or a development, which has a minimum setback distance for residences, hospitals, and schools. Two important points under Section 17 of the *Matters of the Subdivision and Development Regulation* (Alberta King’s Printer 2022) are as follows:

- 1) For new waste facilities, the setback applies to the property line of a school, hospital or residential use or building site proposed for a school, hospital or residence; and
- 2) The setback applies to the property line for new subdivision applications.

Based on correspondence with AEPA and Alberta Municipal Affairs (**Appendix N**), the MCNP, acting as the Subdivision/Development Authority, should amend and apply administrative controls (bylaws) that outline what type of permits/applications for both existing and new developments trigger additional environmental reviews if located within 300 m of a nuisance ground. The following items should be considered by MCNP when amending/ updating or creating new bylaws:

Existing Properties and Development

Existing properties do not fall under the *Guideline for Setback Reviews [Waste Facility]*. Therefore, MCNP is not restricted to limit permits/applications for existing developments and construction of items that are not considered residential dwellings. However, MCNP must make an informed decision when reviewing applications.

- The MCNP is not restricted to limit permits/applications for non-residential structures such as: outdoor spaces, uncovered decks, sheds, or garages. The MCNP could also allow additions to existing residential homes that do not have a basement.
- Based on the proximity to a nuisance ground, applications for home expansions or full home replacements that have basements should be more thoroughly scrutinized by MCNP. An environmental assessment must be available that verifies the absence of contaminants, offsite gas migration, or that preventative measures were put in place at the nuisance ground. The MCNP could also require an applicant to include additional mitigative measures (i.e. soil vapour barriers) as part of the new construction.
- Parks and recreational use should be restricted, until a human health and ecological risk assessment is completed, to ensure there are no adverse affects from potential contamination in soil or water.

New Developments and Subdivisions

- Schools and hospitals should not be constructed within 300 m of a nuisance ground without detailed environmental assessments and mitigative measures. Confirmation that no environmental concerns originating from the nuisance ground exist is required prior to construction.
- Parks and recreational use should be restricted, until a human health and ecological risk assessment is completed, to ensure there are no adverse affects from potential contamination in soil or water.
- Applicants for new developments or subdivisions should be required to conduct a detailed intrusive environmental assessment(s) to ensure that the nearby nuisance ground would not impact their development. Mitigative measures (i.e. soil vapour barriers) should be integrated into the design of their construction; unless MCNP previously completed the environmental assessments and provides the information to the applicant to make an informed decision.

- Environmental assessments, including on-going environmental monitoring of the nuisance grounds, should be kept recent (within five years), as there is potential for contaminants to change and migrate over time. Updated environmental assessments and/or monitoring may not be required if it can be proven that there are no human or ecological health concerns related to a nuisance ground and/or remediation was completed.

Other considerations for the MCNP are provided in Municipal Affairs' correspondence provided in **Appendix N**. The MCNP may also wish to seek out legal advice when drafting the bylaws.

12 CONTAMINATION LIABILITY

The identified nuisance grounds are considered areas of potential environmental concern (APECs). Under Alberta's *Environmental Protection and Enhancement Act* (EPEA), as the owner of the lands the nuisance grounds are located on, the MCNP, and the Alberta Government at some locations, are required to notify stakeholders (i.e. adjacent landowners and development applicants) if there is contamination that may be impacting their property or proposed development. If there is confirmed offsite migration of contamination to an adjacent property from a nuisance ground, the MCNP and/or Alberta Government would be liable for the remediation and contamination management costs.

Under the requirements listed in EPEA and Alberta's *Contaminated Sites Policy Framework*, the MCNP must report to AEPA the presence of the identified nuisance grounds due to the proximity of residences and the potential for contamination to impact existing residences. As the landowner of the nuisance grounds, the MCNP/Alberta Government have a requirement to complete Phase II ESAs at each nuisance ground to confirm the presence/absence of contamination and determine the risk of contamination from the nuisance grounds to adjacent lands and water bodies. It is recommended that the Phase II ESAs collect the information listed within the *Guideline for Setback Reviews [Waste Facility]* checklist to ensure a full assessment of each nuisance grounds is completed.

13 CONCLUSIONS AND RECOMMENDATIONS

Based on a review of available information and interviews with MCNP residents, there are four (4) confirmed former nuisance grounds within the municipality that are within 300 m of existing residences and may impact future neighbourhood expansions. These confirmed former nuisance grounds should be treated as (APECs with potential soil and/or groundwater contamination that should have quantitative assessments (i.e. Phase II ESAs) to confirm if there are impacts to human and ecological health receptors. The findings for the four (4) APECs are provided in **Table 13-1**.

Of the eight (8) suspected locations, five (5) are no longer suspected of containing buried waste (Hillcrest South of Lagoons 1 and 2, Bellevue Fireman's Park, Frank (153 St), and Frank Big Rock Swim Hole). The Frank Townsite, Frank Farm, and West Coleman sites could have buried waste. It would be the responsibility of the private landowners to conduct their own environmental assessments. A summary of the eight (8) suspected nuisance grounds is provided in **Table 13-2**.

It is recommended that the APECs are assessed in the following order, from highest to lowest priority, based on existing residences and potential future neighbourhood expansions:

1. **Bushtown** – There is one existing residence approximately 50 m from buried waste, and dozens of existing houses within 60-300 m of the site, which are estimated to be hydraulically downgradient from the site. This site may also impact plans for future neighbourhood expansion.
2. **Old Sartoris Staging Area** – There are dozens of residences within 120 to 300 m from buried waste, which are estimated to be hydraulically downgradient from the site. Currently, this site does not impact potential future neighbourhood locations.
3. **Hillcrest Ball Diamond Road** – There are approximately five residences within 300 m of the site, one of which is estimated to be hydraulically downgradient. This site may also impact plans for future neighbourhood expansion.
4. **Bellevue Old Highway 3** - There are approximately five residences within 170-300 m of the site, which are estimated to be hydraulically cross-gradient. Currently, this site does not impact potential future neighbourhood locations.

Potential contaminants of concern (PCOCs) in soil, groundwater, and soil vapour that should be assessed for include, but not limited to: metals, salts (salinity), petroleum hydrocarbons (PHCs), BTEXS (benzene, toluene, ethylbenzene, xylenes, styrene), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), pesticides, herbicides, dioxins and furans, and gases (methane).

Table 13-1
Confirmed Nuisance Grounds Results Summary

Area of Potential Environmental Concern	MacLaren ID* & Location	Geophysical Survey Results	Estimated Waste Disposal Dates		Soil Characteristics	Waste Characteristics	Estimated Groundwater Depth and Flow Direction	Nearest Existing Residences and Planned Development	Recommendations
			Start	End					
Bushtown	Site No. ID5/040* Coleman SW-09-008-04 W5M UTM 680978 m E 5500188 m N	Relatively high electromagnetic (EM31) values are from buried waste pits with metal objects. Moderate values indicate disturbed ground with occasional debris.	Before 1949	1978 - 1987	Fine sand, gravel, cobbles, and occasional boulders Bedrock outcrop on east part of site	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Occasional wood and plastic debris Evidence of burning Maximum waste depth not reached – at least 3.2 mbgs 	> 3.0 mbgs (not encountered) North	<ul style="list-style-type: none"> Residence within clearing is estimated to be 50 m from significant buried waste and likely downgradient. There are dozens of existing houses between 60-300 m north of waste and likely hydraulically downgradient. There is a potential new neighbourhood expansion 80 m east of waste. 	Phase II ESA
Old Sartoris Staging Area	Site No. ID5/030* Blairmore SE-35-007-04 W5M UTM 685365 m E 5497460 m N	Relatively high EM31 values are from buried waste pits with metal objects. Moderate values indicate disturbed ground with occasional debris.	Before 1949	1978 - 1987	Fine sand, gravel, and some boulders	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Occasional wood and plastic debris Evidence of burning Maximum waste depth not reached – at least 3.3 mbgs 	> 3.0 mbgs (not encountered) North	<ul style="list-style-type: none"> There is one residence along the access road estimated to be 170 m from buried waste pits and likely downgradient from waste. There are dozens of existing houses between 120-300 m north of waste and likely downgradient. There are no planned developments within 300 m of the site. 	Phase II ESA
Hillicrest Ball Diamond Road	Site No. ID5/060* Hillicrest SE-20-007-03 W5M UTM 689329 m E 5494594 m N	Relatively high EM31 values are from buried waste pits with metal objects. Moderate values indicate buried waste with higher proportion of soil.	Before 1949	1969 - 1978	Fine sand, gravel, and cobbles	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Occasional wood and plastic debris Low-grade coal Evidence of burning Maximum waste depth not reached – at least 3.6 mbgs 	2.9-3.5 mbgs (groundwater encountered – former waterbody onsite) Northeast	<ul style="list-style-type: none"> One residence to the north of the waste is 300 m from site and likely downgradient. Residences to the south are at least 240 m from waste and likely upgradient from waste. A potential new neighbourhood overlaps with south part of site. There is another potential neighbourhood expansion 160 m east of waste. 	Phase II ESA
Bellevue Old Highway 3	Site No. ID5/020* Bellevue NE-29-007-03 W5M UTM 689677 m E 5496332 m N	Relatively high EM31 values are from buried waste pits with metal objects. Moderate values indicate buried waste with higher proportion of soil.	Before 1949	1969 - 1978	Fine sand, gravel, and many cobbles and boulders	<ul style="list-style-type: none"> Metals (i.e., car parts, sheet metal, box springs) Glass Appliances Evidence of burning Maximum waste depth not reached – at least 3.2 mbgs 	> 3.0 mbgs (not encountered) Southwest	<ul style="list-style-type: none"> One residence is 150 m southeast of waste and likely cross-gradient. Additional Bellevue houses are at least 210 m southeast from waste and likely cross-gradient. There are no planned developments within 300 m of the site. 	Phase II ESA

Table 13-2
Suspected Nuisance Grounds Results Summary

Nuisance Ground (Suspected)	MaLaren ID* & Location	Geophysical Survey Results	Estimated Groundwater Flow Direction	Nearest Existing Residences and Planned Development	Comments	Recommendations
Frank Townsite	SE-36-007-04-W5M <u>UTM</u> 687355 m E 5497184 m N	Relatively high EM31 values likely represent a parked vehicle. The mid-lower values may represent disturbed soil, imported fill, or the presence of low-grade coal from previous storage. The lowest EM31 values are likely undisturbed soil.	West	<ul style="list-style-type: none"> Most houses in Frank are at least 70 m from the industrial park, and likely upgradient from a potential waste site. No planned developments in Frank. 	The aerial photographs indicated potential buried waste near the centre of the industrial park, and this was confirmed through an interview. The geophysical survey results did not indicate the presence of buried waste. Since the Frank Townsite area has been developed and it has multiple lot owners, it would be the responsibility of the lot owners and/or any new purchasers to conduct their own environmental site assessments; either for their own due diligence or requirements by the bank.	No further recommendations
Frank Farm	SE-36-007-04-W5M <u>UTM</u> 687156 m E 5497557 m N	Not applicable.	West	<ul style="list-style-type: none"> There is at least one house onsite, and another house to the south of the farm. No planned developments in Frank. 	Permission was not granted to access property. The owner confirmed presence of minor surface waste (cans, bottles, concrete) but insisted that there is no buried waste. There is potential for buried waste pits on farmland, which the owners may not be aware of. It is the responsibility of the private landowner to conduct environmental site assessments on their property.	No further recommendations
Frank (153 St)	Site No. ID5/050* Frank SW-31-007-03 W5M <u>UTM</u> 687794 m E 5497366 m N	The results of both surveys are interpreted to represent differences in soil composition and/or varying depth to bedrock, and do not indicate the presence of buried waste.	Southeast	<ul style="list-style-type: none"> Houses are at least 50 m from the site, and some are interpreted to be downgradient or cross-gradient from the site. No planned developments in Frank. 	Aerial photographs indicated potential dumping area east of 153 Street. Geophysical survey and site inspection did not identify buried waste.	No further recommendations
Frank Big Rock Swimhole	NW-30-007-03 W5M <u>UTM</u> 687285 m E 5496651 m N	Not applicable	South	<ul style="list-style-type: none"> Houses are >500 m to the northwest 	Aerial photographs indicated potential dumping area south of 152 Street near the river. Site inspection did not identify buried waste.	No further recommendations.
Hillcrest South of Lagoons 1	SE-20-007-03-W5M <u>UTM</u> 690207 m E 5494153 m N	Not applicable.	Southeast	<ul style="list-style-type: none"> There is a potential for residential neighbourhood expansion adjacent/west, which is estimated to be upgradient of the site. 	Permission was not granted to access property. The owners insist that there is no buried waste onsite. However, there remains potential for buried waste pits that the owners are not aware of.	No further recommendations
Hillcrest South of Lagoons 2	SE-20-007-03-W5M <u>UTM</u> 690334 m E 5493754 m N	Relatively high EM31 values likely represent surface metals. The mid-lower values may represent disturbed soil from previous site activities or a waterline installation.	Southeast	<ul style="list-style-type: none"> There is a potential for a residential neighbourhood expansion 180 m southwest of the site, which is estimated to be upgradient of the site. 	Geophysical survey results did not indicate the presence of buried waste.	No further recommendations

Nuisance Ground (Suspected)	MaLaren ID* & Location	Geophysical Survey Results	Estimated Groundwater Flow Direction	Nearest Existing Residences and Planned Development	Comments	Recommendations
Bellevue Fireman's Park	Site No. ID57/010* Bellevue (Twp 7, Rge 3, W5M) UTM 690153 m E 5496732 m N	Not applicable.	Southwest	<ul style="list-style-type: none"> The nearest potential neighbourhood expansion is at least 1 kilometre (km) southeast of Bellevue Fireman's Park. 	The aerial photographs did not indicate the presence of buried waste. There are no residences or planned development within 300 m of the suspected nuisance ground.	No further recommendations
West Coleman	SW-08-008-04-W5M UTM 679314 m E 5500637 m N	Not applicable.	North	<ul style="list-style-type: none"> There is a house 120 m northwest, on the other side of the Crowsnest River from the site. There is a potential for neighbourhood expansion 400 m north of the site. 	The review of aerial photographs and an interview conducted during the test pitting program indicated a potential dumping area in the Green Mountain RV Park of West Coleman. The site is gated and could not be accessed for a site inspection. This location is adjacent to the Crowsnest River. The presence of the river would likely be a barrier for migration of soil vapour or leachate, if present, towards the house. It is the responsibility of the private landowner to conduct environmental site assessments on their property.	No further recommendations

Table 13-3
Phase II Environmental Site Assessment Recommended Data Checklist

How to Vary Setback Distance – Checklist Items	Checklist Item Completion					Comments
	Bustown	Old Sartoris Staging Area	Hillcrest Ball Diamond Road	BelleVue Old Highway 3		
The types of waste stored, treated, or disposed	✓	✓	✓	✓	✓	-
Details about the facility operation including an aerial photograph or plan showing the facility as well as the setback measurements	✓	✓	✓	✓	✓	-
A visual inspection report for the facility, including additional details of any visual notable issues (i.e., slope subsidence, vegetation stress, lack of vegetation, exposed refuse, or leachate breakout)	✓	✓	✓	✓	✓	-
A list of complaints related to the operation of the facility from the last two years	✓	✓	✓	✓	✓	No complaints reported.
• An engineering report (specific to the waste facility) that includes a statement on if the reduced setback distance is feasible, and if any mitigative measures are required:	-	-	-	-	-	-
• Waste pit delineation including approximate waste depths (using test plots, historical aerial photographs)	-	-	-	-	-	-
• Duration of operation (actual or estimated if not available)	✓	✓	✓	✓	✓	Estimated from aerial photographs.
• Amount, types of waste, and degree of waste stabilization	-	-	-	-	-	-
• Site topography for site drainage	-	-	-	-	-	-
• Final cover details such as thickness and composition	-	-	-	-	-	-
• A visual inspection report that details vegetation stress and degree of cover, landfill settlement, exposed refuse, leachate breakout, and any other visually notable landfill issues	✓	✓	✓	✓	✓	-
• A review of the available reports/issues associated with the operation of the facility (such as annual reports), and if applicable, the liner and final cover details (thickness and composition)	-	-	-	-	-	No operation reports available.
• Regional and site-specific geology and hydrogeology	✓	✓	✓	✓	✓	-
• A map showing all water wells and residences within a 1 km radius of the site and other topographical features, such as water bodies, within 5 km of the site	✓	✓	✓	✓	✓	-
• The applicable sections of the area structure plan documenting the zoning and expected use of the site and surrounding area	✓	✓	✓	✓	✓	-
• Well logs and groundwater monitoring results, and an interpretation of the results including a map showing the extent of groundwater contamination	-	-	-	-	-	-
• Subsurface gas monitoring results	-	-	-	-	-	-
• An opinion on whether encroachment is feasible (under what mitigative measures, to what distance)	-	-	-	-	-	-
• If mitigative measures are proposed, the design details, monitoring, and maintenance program for the mitigative measures	-	-	-	-	-	-
• If any mitigative measures are required, the design details, monitoring, and maintenance requirements for the mitigative measures	-	-	-	-	-	-

STANDARD DISCLAIMER

ASSOCIATED ENVIRONMENTAL CONSULTANTS INC.

STANDARD DISCLAIMER FOR CONTAMINATED PROJECT AREA INVESTIGATIONS, MONITORING AND CONFIRMATION OF REMEDIATION SERVICES

Subject to the following conditions and limitations, the investigation described in this report has been conducted by Associated Environmental Consultants Inc. (Associated) for The Municipality of Crowsnest Pass (the Client) in a manner consistent with a reasonable level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area.

1. The scope of the investigation described in this report has been limited by the budget set for the investigation in the work program. The scope of the investigation has been reasonable having regard to that budget constraint.
2. The investigation described in this report has been limited to the scope of work described in the work program.
3. The investigation described in this report has relied upon information provided by third parties concerning the history of the Project Area. Except as stated in this report, we have not made an independent verification of such historical information.
4. The investigation described in this report has been made in the context of existing government regulations generally promulgated at the date of this report. Except as specifically noted, the investigation did not take account of any government regulations not in effect and generally promulgated at the date of this report.
5. All documents and drawings prepared by Associated, or by others on behalf of Associated, in connection with this Project are instruments of professional service for the execution of the Project. Associated retains the property and copyright in these documents and drawings, whether the Project is executed or not.
6. The findings and conclusions are valid only for the specific Project Area identified in the report.
7. Since Project Area conditions may change over time, the report is intended for immediate use.
8. This report is intended for the exclusive use of the Client, including all successors and assigns. The material in it reflects Associated's best judgement, in light of the information available to it, at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Associated accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report and makes no representation of fact or opinion of any nature whatsoever to any person or entity other than the Client.

In accepting delivery of this report, the Client hereby agrees that:

- A. Associated's liability for all claims of the Client, arising out of the agreement between Associated and the Client, pursuant to which this report has been prepared (the Agreement) shall absolutely cease to exist after a period of six (6) years from the date of:
 - i. substantial completion of the investigation described in this report,
 - ii. termination of Associated's Services under the Agreement,
 - iii. commencement of the limitation period for claims prescribed by any statute of the Province or Territory for the Project Area of the investigation described in this report,
 - iv. any significant alteration of the Project Area of the investigation described in this report, and/or neighbouring properties after the date of the final report that would change the conclusions and recommendations of the final report, whichever shall first occur, and following the expiration of such period, the Client shall have no claim whatsoever against Associated.
- B. Any and all claims which it may have against Associated or any of its servants, agents, or employees arising out of or in any way connected with the investigation described in this report or the preparation of this report, whether such claims are in contract or in tort, and whether such claims are based on negligence or otherwise, shall be limited to a total amount equal to the fees payable to Associated under the contract with the Client. Associated shall bear no liability whatsoever for any consequential loss, injury or damage incurred by the Client including but not limited to claims for loss of profits and loss of markets.



CLOSURE

This report was prepared for the Municipality of Crowsnest Pass to assess known and suspected nuisance grounds within the Municipality of Crowsnest Pass.

The services provided by Associated Environmental Consultants Inc. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,
Associated Environmental Consultants Inc.

Prepared by:



Danielle Loiselle, Geoscientist-In-Training (G.I.T.)
Environmental Scientist

Reviewed by:



Brent Schmidt, P.Geo.
Geoscientist

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QUALIFICATIONS OF ASSESSORS

The qualifications of the environmental professional(s) and personnel conducting the inspections, interviews, report preparation and reviews are presented below in short biographies. Resumes are available upon request.

Danielle Loiseau, MSc., Geoscientist-In-Training (G.I.T.)

Role: Environmental Scientist

Experience: Danielle is an environmental scientist with an academic background in geology and hydrological modelling. She is a member of the contaminated sites team and has been involved in environmental site assessments related to landfills, construction, or infrastructure projects, and First Nations Reserves. She has experience in soil sampling, groundwater monitoring, turbidity monitoring, laboratory data analysis, and technical report writing.

Brent Schmidt, P.Ge.

Role: Senior Reviewer

Experience: Brent is a geoscientist specializing in geology and hydrogeology (including contaminant and regional hydrogeology) with over 12 years of experience in environmental consulting. He has managed various environmental site assessments in multiple sectors including for oil and gas, industrial, commercial, mining, municipalities, developers, and private businesses.

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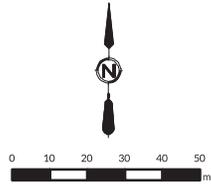
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FIGURES

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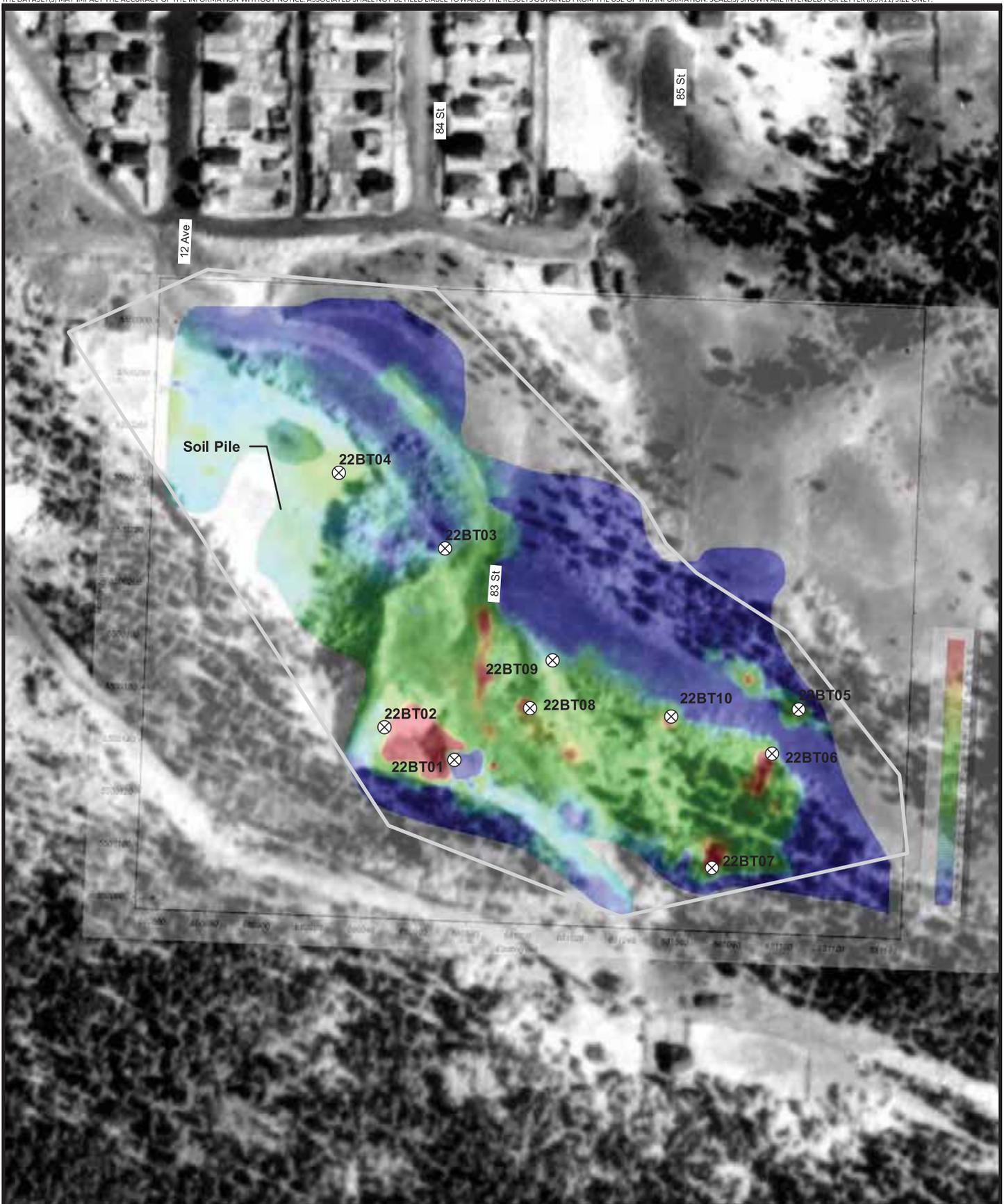
LEGEND
 ⊗ Test Pit
 □ Site Boundary



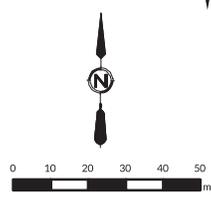
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 COORD. SYSTEM NAD 1983 3TM 114
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FIGURE 2A
BUSHTOWN SITEDETAILS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSTOOPERATINGLANDS\FIG2B_BUSHTOWNLAND\1957.MXD
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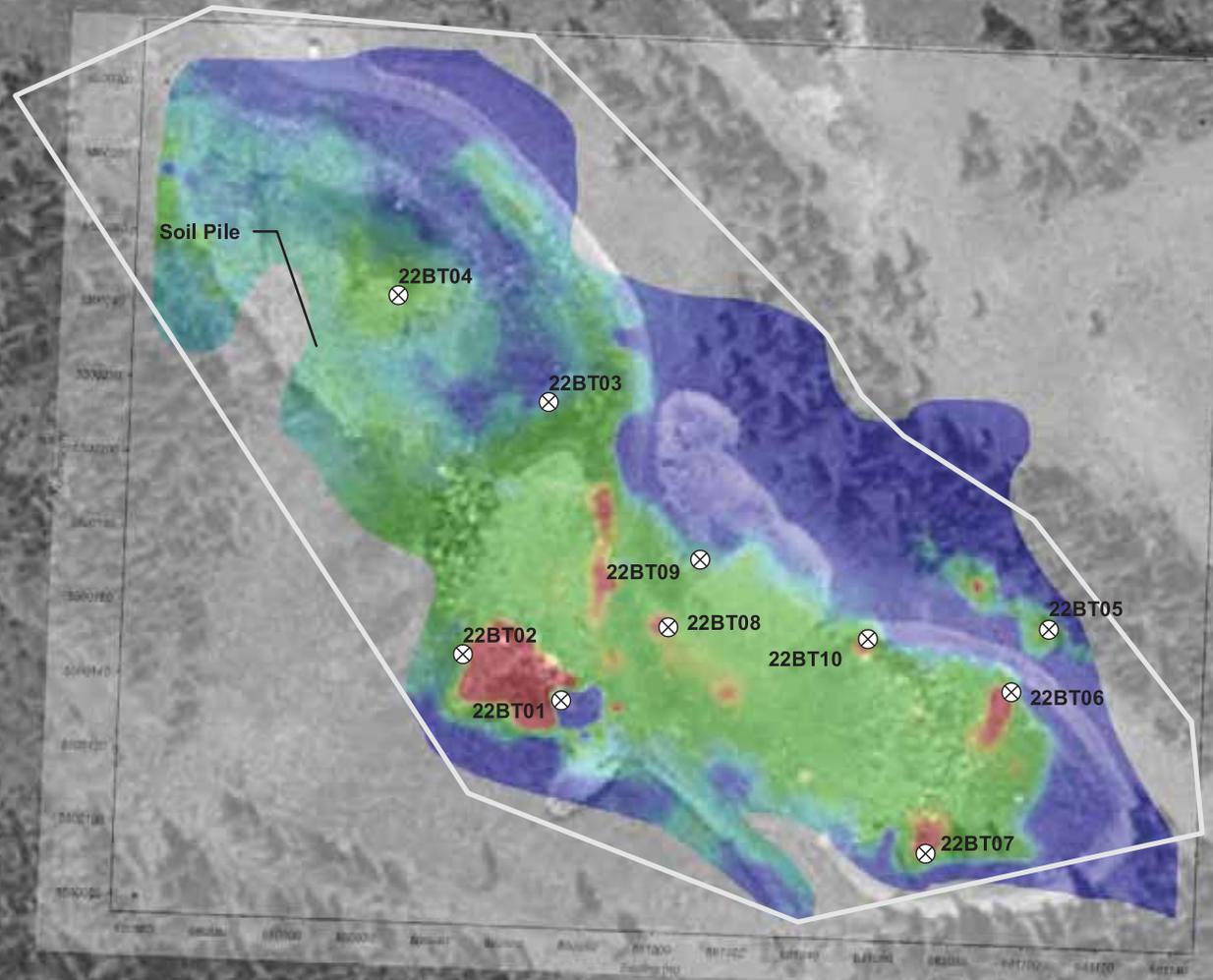
LEGEND
 ⊗ Test Pit
 □ Site Boundary



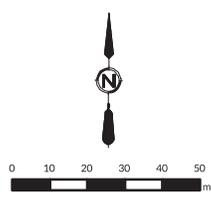
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FIGURE 2B
BUSHTOWN - 1957 AERIAL
PHOTOGRAPHY AND EM31 SURVEY
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSTOPPERATINGLANDILLS\FIG2C_BUSHTOWNLANDILL1969.AXD
 IMAGERY: ESRI, DIGITAL GLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, ROAD, STATISTICS CANADA, 2019; HYDROGRAPHY: ALTALIS LTD., 1996; ATS GRID: ALTALIS LTD., 2005.



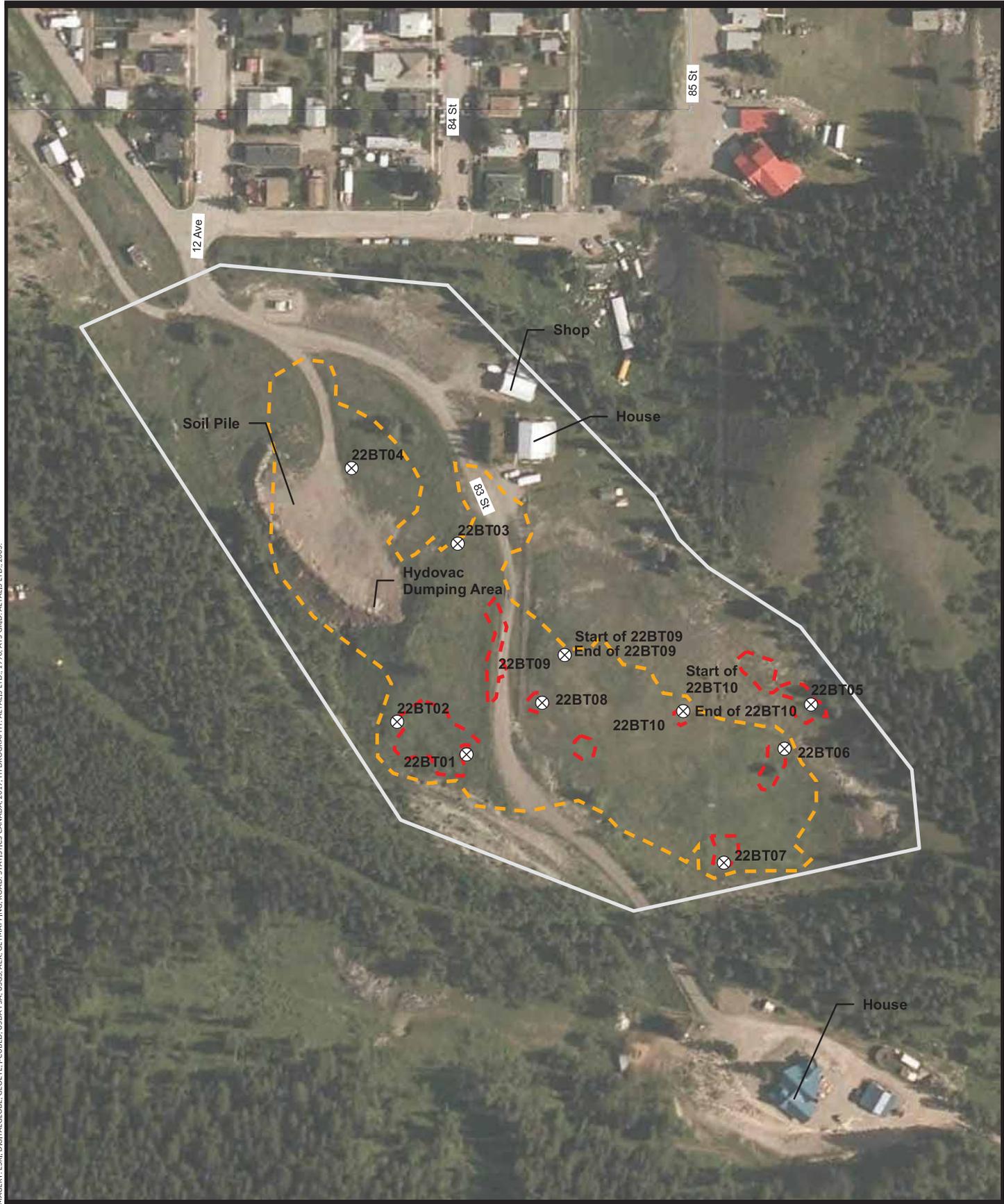
LEGEND
 ⊗ Test Pit
 □ Site Boundary



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FIGURE 2C
BUSHTOWN - 1969 AERIAL
PHOTOGRAPHY AND EM31 SURVEY
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWSNEST\OPERATING\LANDFILLS\FIG2D_BUSHTOWN\LANDFILL\ESTIMATEDBOUNDARIES.MXD
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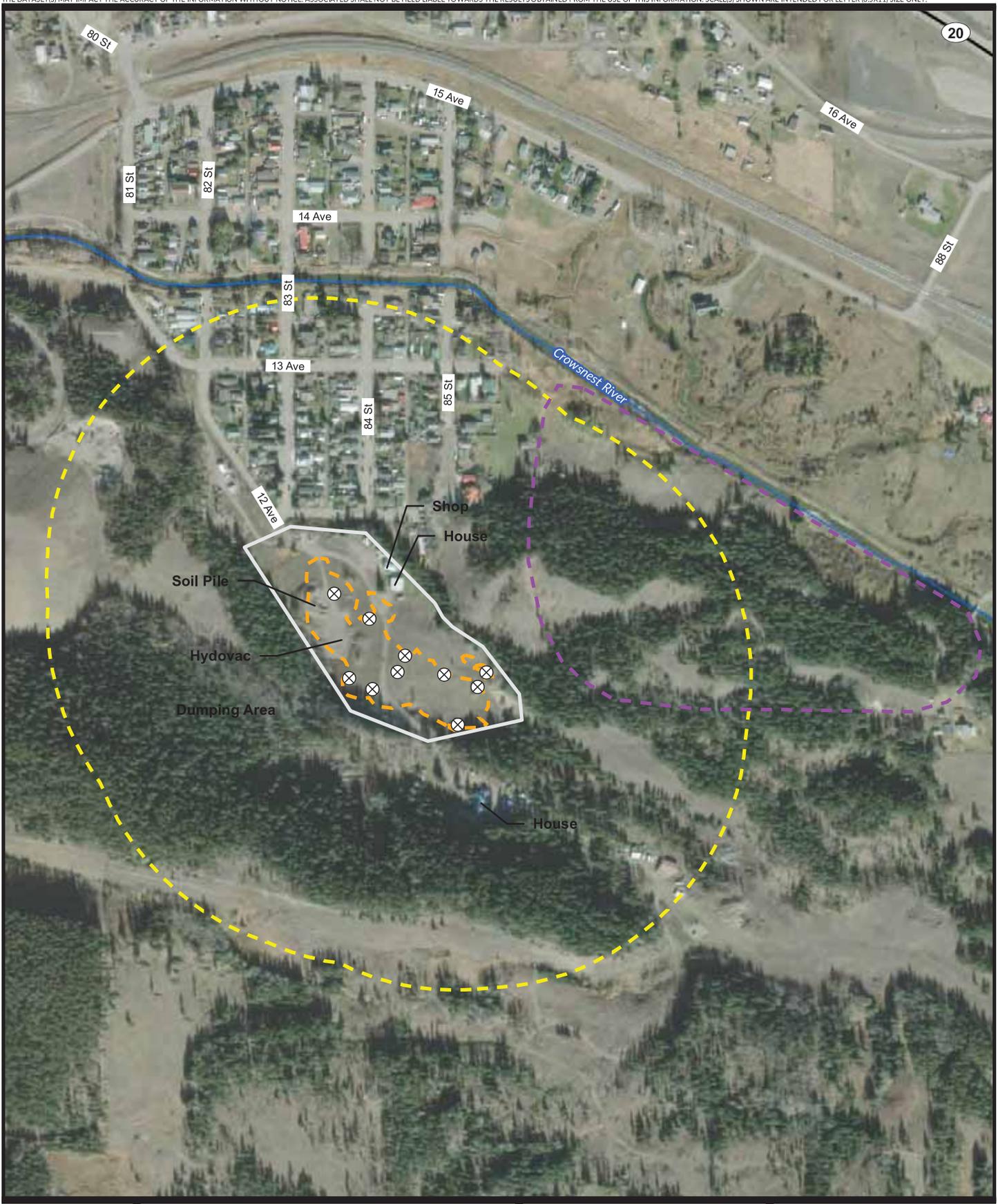
- LEGEND**
- ⊗ Test Pit
 - Estimated mixed waste boundary
 - Estimated waste pit boundary/high metals
 - Site Boundary



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**FIGURE 2D
 BUSHTOWN - ESTIMATED WASTE
 BOUNDARIES**
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

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LEGEND

- ⊗ Test Pit
- Estimated mixed waste boundary
- Bushtown Potential Future Neighbourhood
- 300m buffer
- Site Boundary
- Base Data
- Highway



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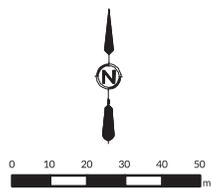
FIGURE 2E
BUSHTOWN - POTENTIAL
DEVELOPMENT CONSTRAINTS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS



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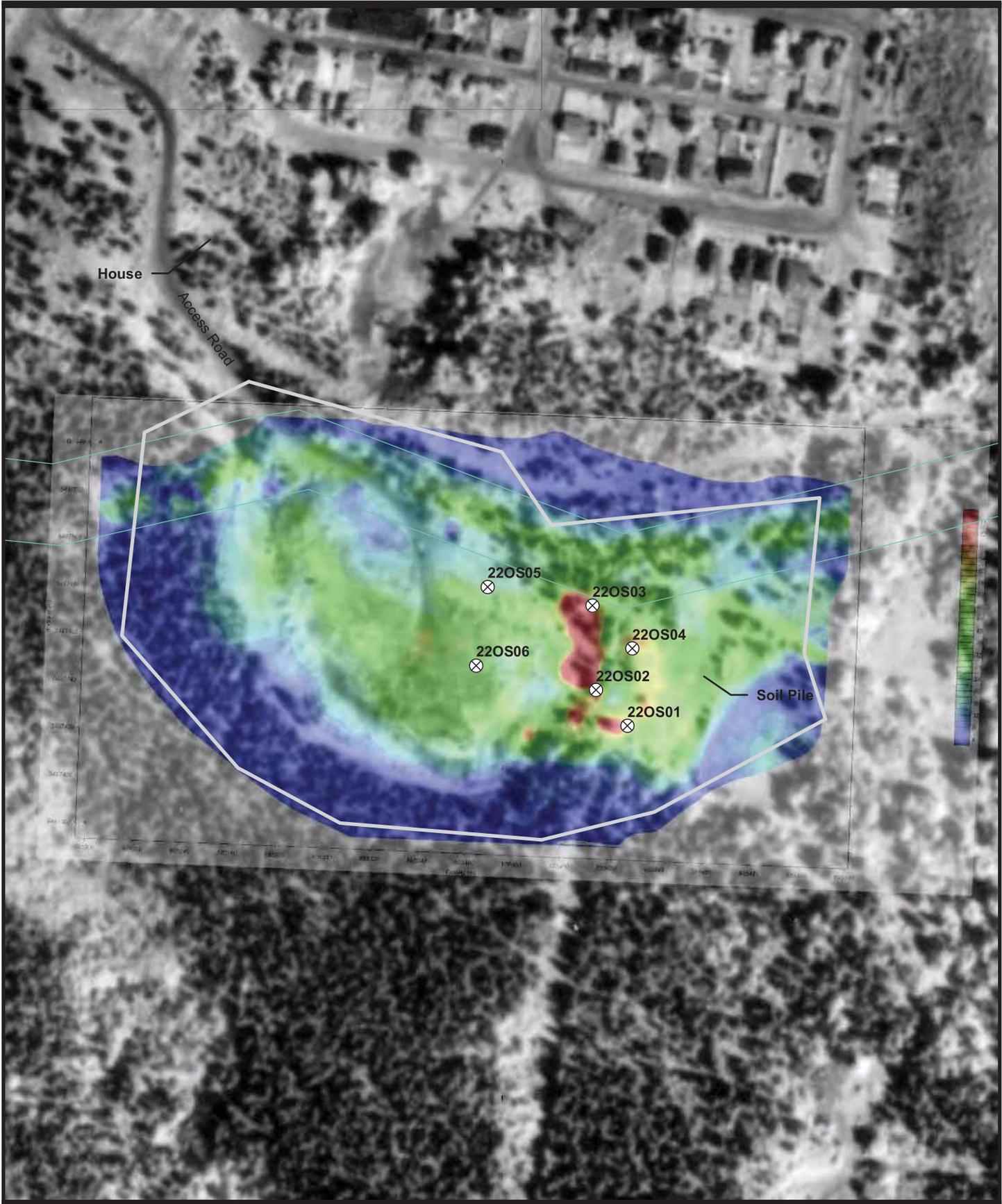


- LEGEND**
-  Test Pit
 -  Natural Gas Pipeline ROW
 -  Site Boundary



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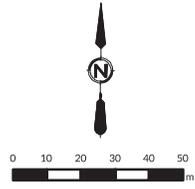
FIGURE 3A
OLD SARTORIS STAGING AREA
- SITE DETAILS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS



C:\2022-8246_CROWNSNEST\OPERATING\LANDFILLS\FIG3B_OLDSARTORIS\957\ANDEM\31.MXD
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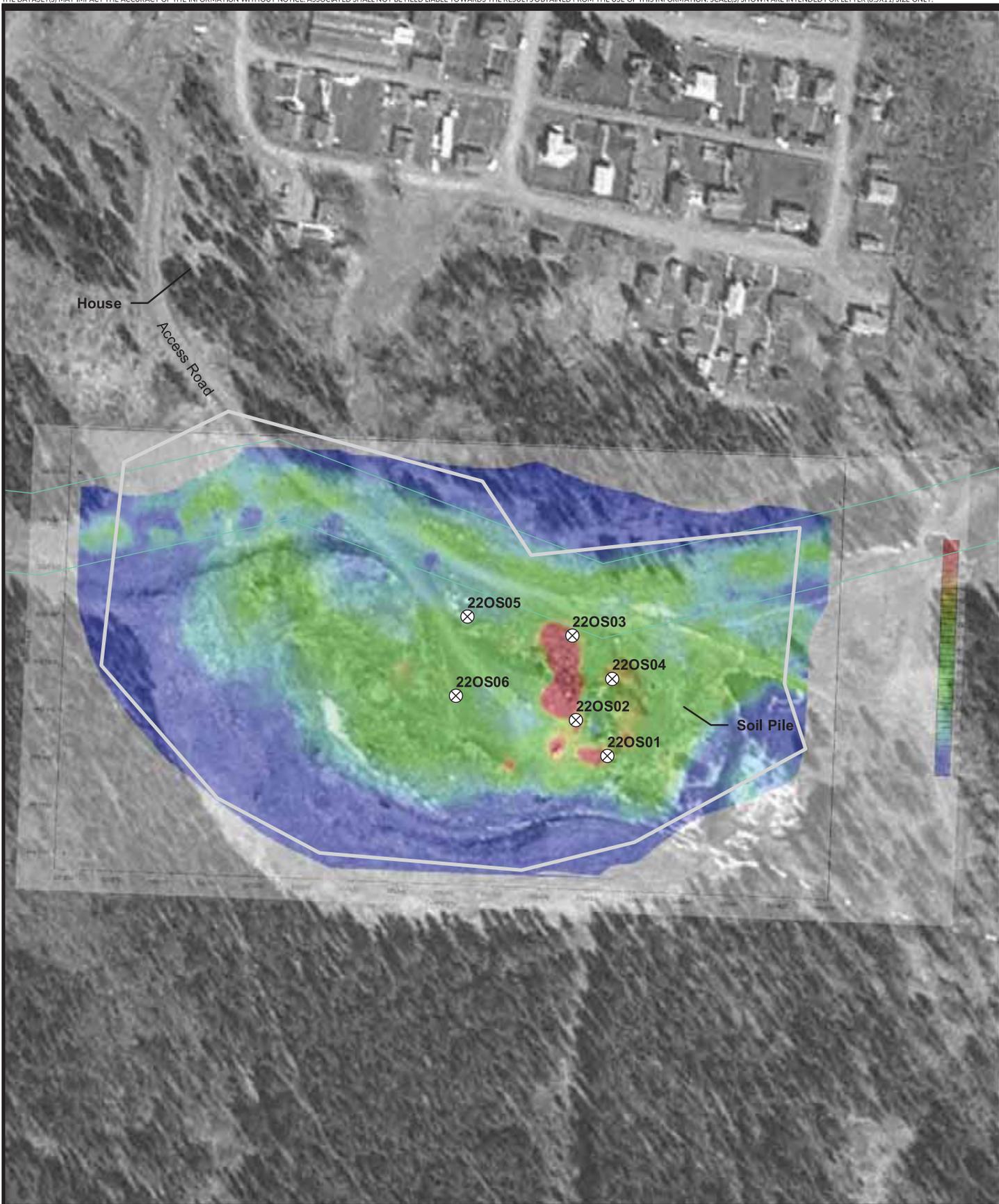
- LEGEND**
- ⊗ Test Pit
 - Natural Gas Pipeline ROW
 - ▭ Site Boundary



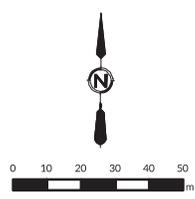
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FIGURE 3B
OLD SARTORIS STAGING AREA -
1957 AERIAL PHOTOGRAPHY AND
EM31/SURVEY
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSNEST\OPERATING\LANDFILLS\FIG3C_OLD SARTORIS\1969\AENDE\M31.MXD
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- LEGEND**
- Test Pit
 - Natural Gas Pipeline ROW
 - Site Boundary



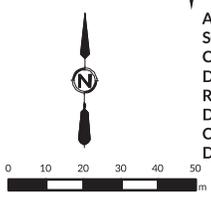
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 COORD. SYSTEM NAD 1983 3TM 114
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FIGURE 3C
OLD SARTORIS STAGING AREA -
1969 AERIAL PHOTOGRAPHY AND
EM31 SURVEY
ENVIRONMENTAL OVERVIEW -
NUISANCE GROUNDS

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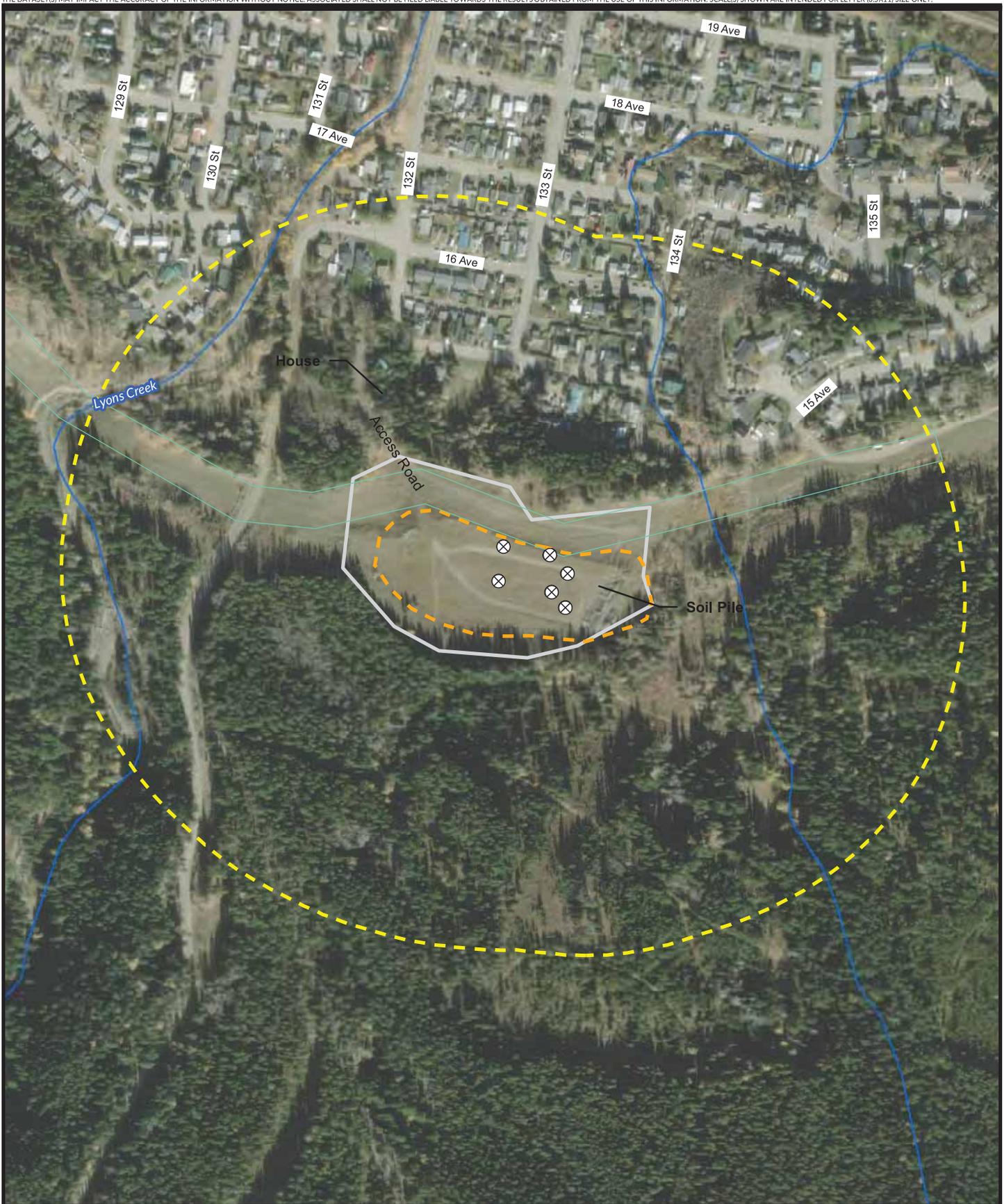
- LEGEND**
- ⊗ Test Pit
 - Estimated buried waste boundary
 - Estimated mixed waste boundary
 - Natural Gas Pipeline ROW
 - Site Boundary



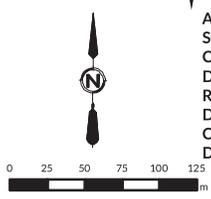
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FIGURE 3D
OLD SARTORIS STAGING AREA -
ESTIMATED WASTE BOUNDARIES
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

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 IMAGERY: ESRI, DIGITAL GLOBE, GEOEYE, I-CUBED, USDA, FSA, USGS, AEX, GETMAPPING, ROAD, STATISTICS CANADA, 2019; HYDROGRAPHY: ALTALIS LTD., 1996; ATS GRID: ALTALIS LTD., 2005.



- LEGEND**
- ⊗ Test Pit
 - Natural Gas Pipeline ROW
 - - - 300m Buffer
 - - - Estimated mixed waste boundary
 - ▭ Site Boundary



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FIGURE 3E
OLD SARTORIS STAGING AREA -
POTENTIAL DEVELOPMENT
CONSTRAINTS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSNEST\OPERATING\LAND\HILLS\VEG4A_HILLCREST\BALLSITEDETAILS.MXD
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LEGEND

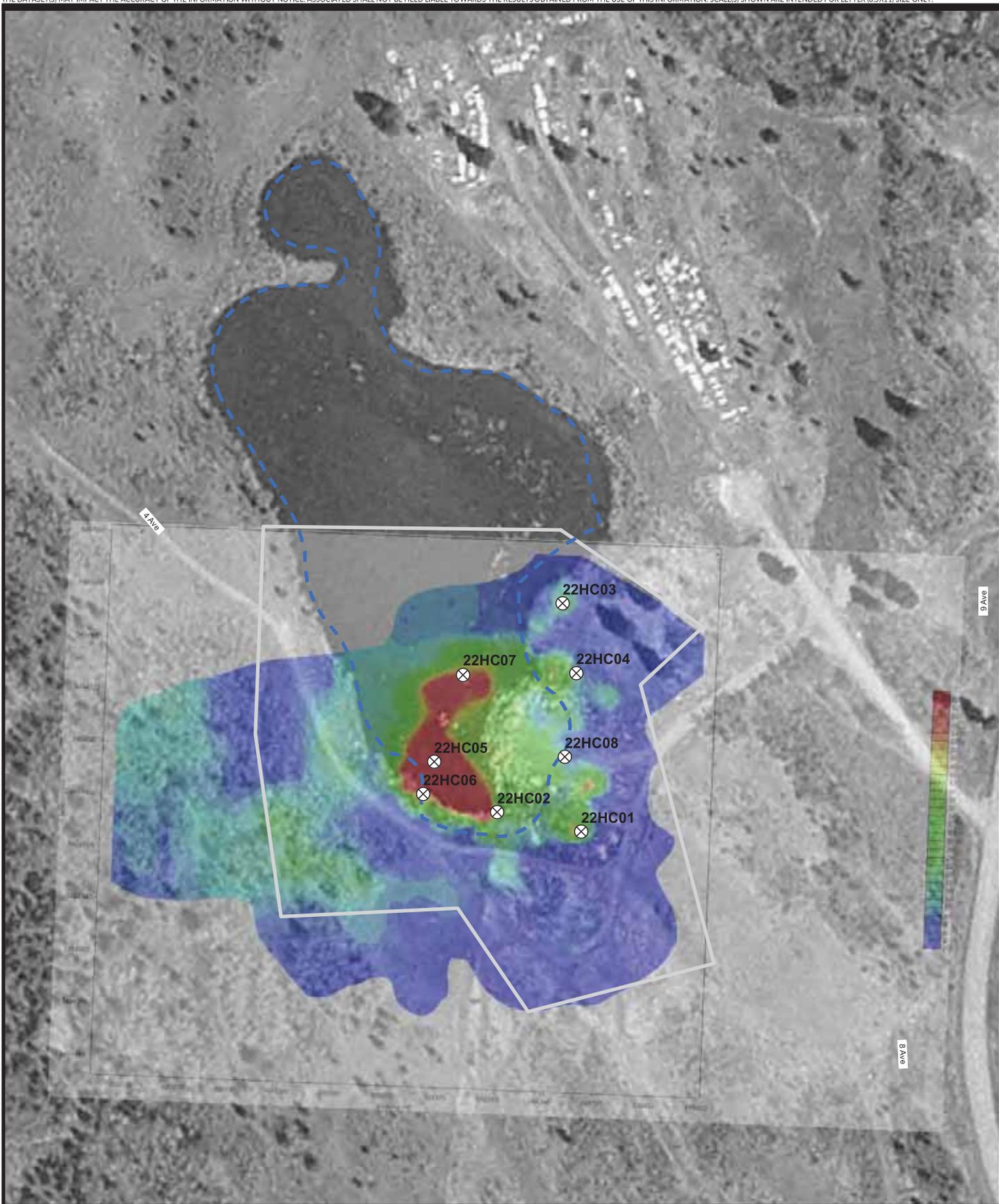
-  Test Pit
-  Former waterbody
-  Site Boundary



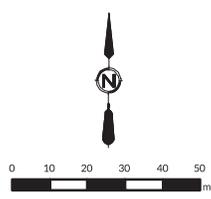
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 SCALE 1:1500
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**FIGURE 4A
 HILLCREST BALL DIAMOND
 ROAD - SITE DETAILS**
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

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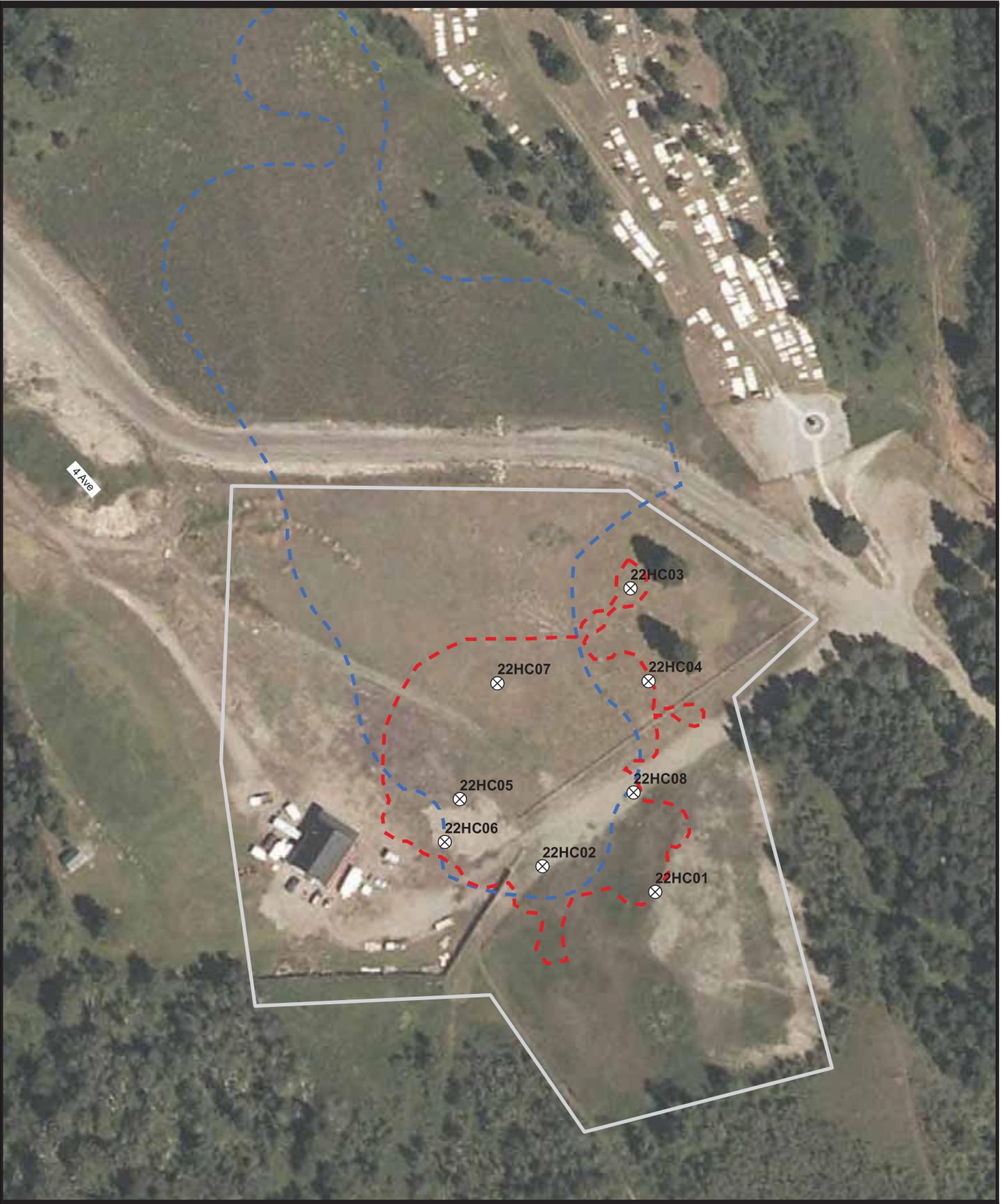
- LEGEND**
- Test Pit
 - Former Waterbody
 - Site Boundary



AE PROJECT NO. 2022-8246
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 COORD. SYSTEM NAD 1983 3TM 114
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FIGURE 4B
HILLCREST BALL DIAMOND
ROAD - 1969 AERIAL
PHOTOGRAPHY AND EM31 SURVEY
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWSNEST\OPERATING\LAND\HILLS\FIG4D_HILLCRESTBALLDIAMOND\ESTIMATEDWASTEBOUNDARY.MXD
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LEGEND

-  Test Pit
-  Former Waterpond
-  Estimated buried waste boundary
-  Site Boundary

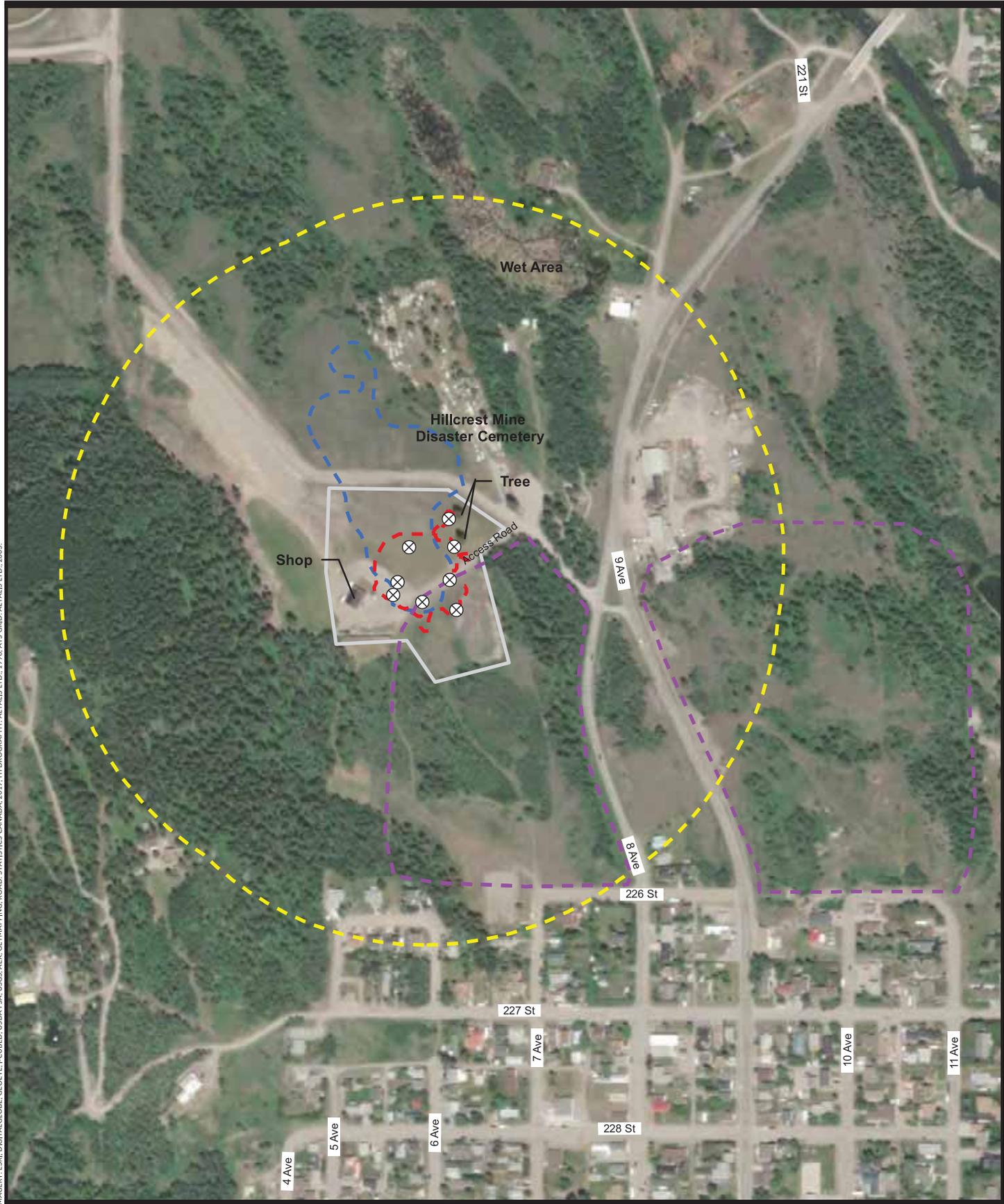


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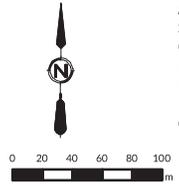
**FIGURE 4C
 HILLCREST BALL DIAMOND
 ROAD - ESTIMATED WASTE
 BOUNDARIES**

ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

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- LEGEND**
- ⊗ Test Pit
 - 300m Buffer
 - Former Waterpond
 - Estimated buried waste boundary
 - Potential future neighbourhood
 - Site Boundary



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 SCALE 1:5000
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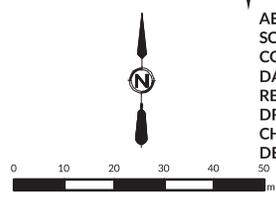
**FIGURE 4D
 HILLCREST BALL DIAMOND
 ROAD - POTENTIAL
 DEVELOPMENT CONSTRAINTS**

ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSNEST\OPERATING\LANDFILLS\HUESA_BELLEVUE\SITEDETAILS.MXD
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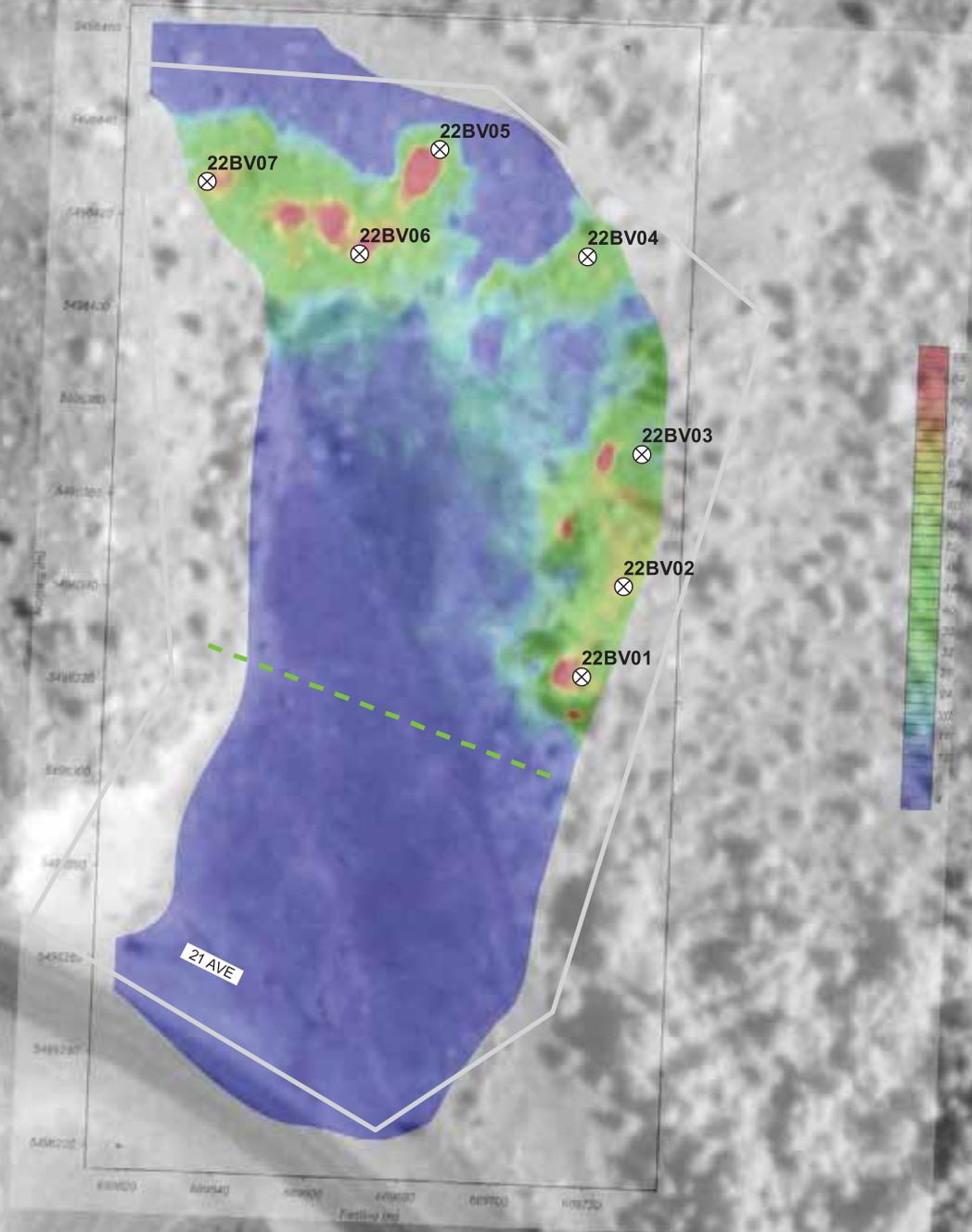
- LEGEND**
- ⊗ Test Pit
 - - - Fence
 - Site Boundary



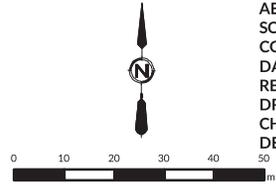
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FIGURE 5A
BELLEVUE OLD HIGHWAY 3 -
SITE DETAILS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSNEST\OPERATING\LANDFILL\FIG5B_BELLEVUE1957\INDEX431.MXD
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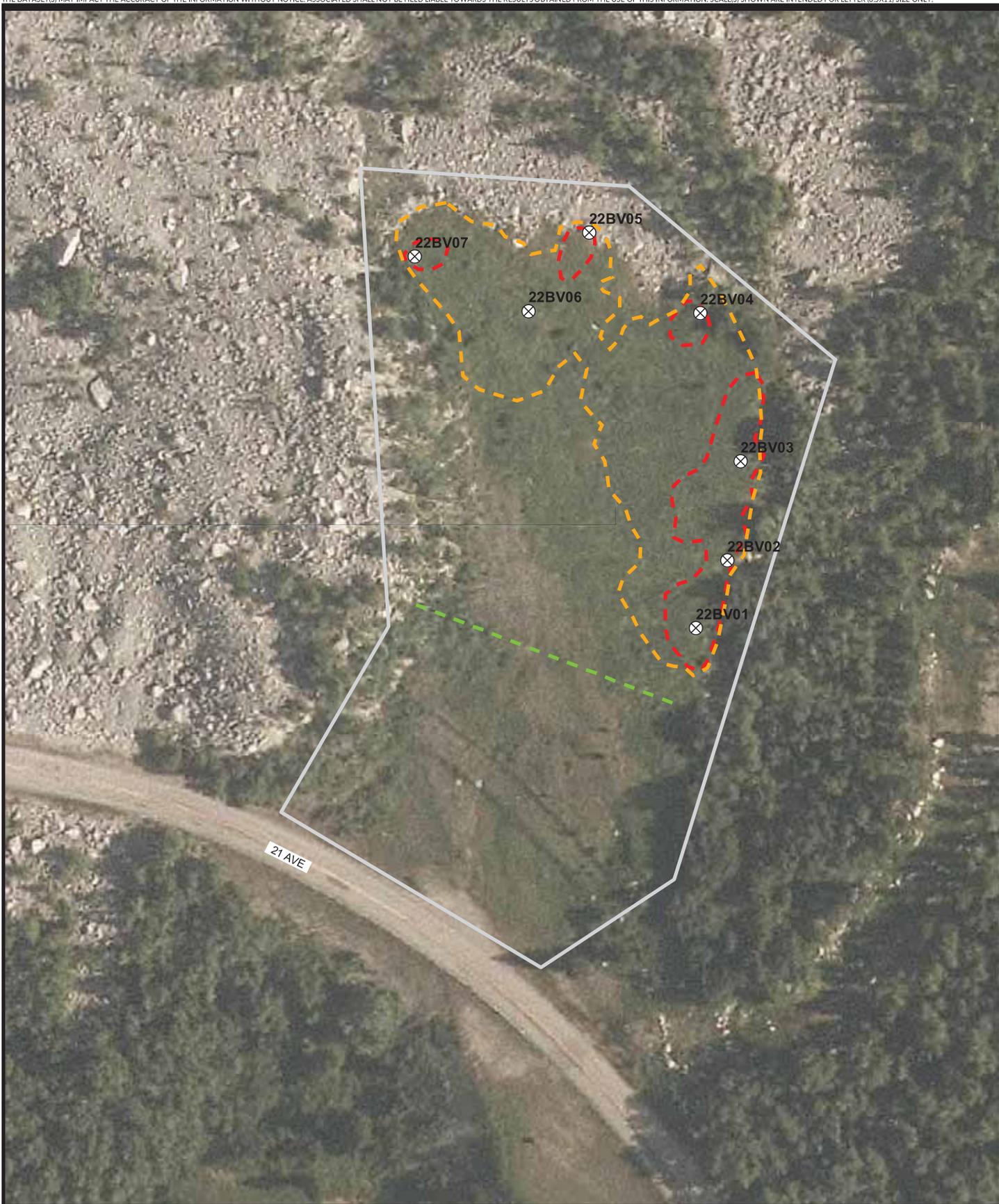
- LEGEND**
- ⊗ Test Pit
 - Fence
 - ▭ Site Boundary



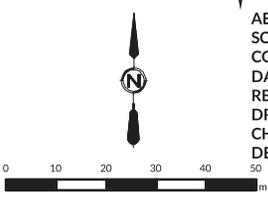
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FIGURE 5B
BELLEVUE OLD HIGHWAY 3 -
1957 AERIAL PHOTOGRAPH AND
EM31 SURVEY
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWNSNEST\OPERATING\LANDFILLS\FIG5D_BELLEVUE\ESTIMATEDWASTEBOUNDARIES.MXD
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- LEGEND**
-  Test Pit
 -  Fence
 -  Estimated buried waste boundary
 -  Estimated mixed waste boundary
 -  Site Boundary



AE PROJECT NO. 2022-8246
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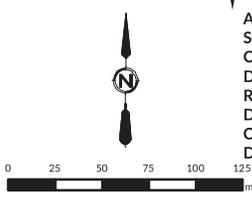
**FIGURE 5C
 BELLEVUE OLD HIGHWAY 3 -
 ESTIMATED WASTE
 BOUNDARIES**

ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWSNEST\OPERATING\LANDFILL\BELLEVUE\POTENTIAL DEVELOPMENT CONSTRAINTS.MXD
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- LEGEND**
- ⊗ Test Pit
 - Fence
 - 300m Buffer
 - - - Estimated mixed waste boundary
 - ▭ Site Boundary



AE PROJECT NO. 2022-8246
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 CHECKED BY DK
 DESCRIPTION ISSUED FOR REPORT

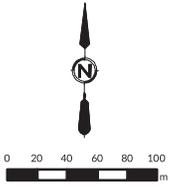
FIGURE 5D
BELLEVUE OLD HIGHWAY 3 -
POTENTIAL DEVELOPMENT
CONSTRAINTS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS



C:\2022-8246_CROWNSNEST\OPERATING\LANDFILLS\FIG.6_FRANK_SUSPECTEDLANDFILLLOCATIONS.MXD
 IMAGERY: ESRI, DIGITAL GLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, ROAD, STATISTICS CANADA, 2019; HYDROGRAPHY: ALTALIS LTD., 1996; ATS GRID: ALTALIS LTD., 2005.



LEGEND
 [White Outline] Site Boundary
 [Grey Area] Base Data
 [Thick Black Line] Highway



AE PROJECT NO. 2022-8246
 SCALE 1:5000
 COORD. SYSTEM NAD 1983 3TM 114
 DATE 2022-10-21
 REV 00
 DRAWN BY DK
 CHECKED BY
 DESCRIPTION ISSUED FOR REPORT

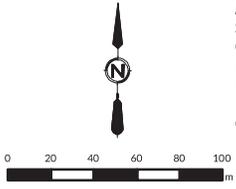
FIGURE 6
FRANK - SUSPECTED
NUISANCE AREAS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS



C:\2022-8246_CROWNSTPASS\OPERATING\LAND\HILLS\BIE7_HILLCRESTSOUTHLAGOON_SUSPECTEDLANDFILL.MXD
 IMAGERY: ESRI, DIGITAL GLOBE, GEOEYE, ICUBED, USDA, USGS, AES, GEMAPING, ROAD, STATISTICS CANADA, 2019, HYDROGRAPHY: ALTALIS LTD., 1996, ATS, GRID: ALTALIS LTD., 2005.



LEGEND
 □ Site Boundary



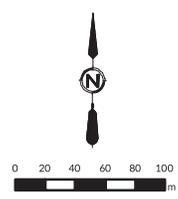
AE PROJECT NO. 2022-8246
 SCALE 1:3500
 COORD. SYSTEM NAD 1983 3TM 114
 DATE 2022-10-21
 REV 00
 DRAWN BY DK
 CHECKED BY
 DESCRIPTION ISSUED FOR REPORT

FIGURE 7
HILLCREST SOUTH OF LAGOONS
SUSPECTED NUISANCE
LOCATIONS
 ENVIRONMENTAL OVERVIEW -
 NUISANCE GROUNDS

C:\2022-8246_CROWSNEST\OPERATING\LANDILLS\FIG8_WESTCOLEMAN_SUSPECTED\ANDRILL.MXD
 IMAGERY: ESRI, DIGITAL GLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, ROAD, STATISTICS CANADA, 2019; HYDROGRAPHY: ALTALIS LTD., 1996; ATS GRID: ALTALIS LTD., 2005.



- LEGEND**
- 300m Buffer
 - Site Boundary
 - Green Mountain RV Park



AE PROJECT NO. 2022-8246
 SCALE 1:5000
 COORD. SYSTEM NAD 1983 3TM 114
 DATE 2022-10-21
 REV 00
 DRAWN BY DK
 CHECKED BY
 DESCRIPTION ISSUED FOR REPORT

FIGURE 8
WEST COLEMAN -
SUSPECTED NUISANCE
LOCATION
ENVIRONMENTAL OVERVIEW -
NUISANCE GROUNDS

APPENDIX A – TOPOGRAPHY, SOILS AND SURFICIAL GEOLOGY



Soil Polygons



30 Aug 2021

Wednesday, September 28, 2022

1:85,936





AGRASID Information

AGRICULTURAL REGION OF ALBERTA SOIL INVENTORY DATABASE

SOIL CORRELATION AREA #16

Surface Form Modifier:	Shallow to Bedrock (within 5 metres)	Generated Soil Symbol:	BURaa5/SC2r
Soil Landscape of Canada #:	482317	Eco Region:	Boarder Ranges
Eco District:		Climate Rating:	5H
Land System Name:	Crowsnest River	Soil Zone:	Gray
Morphological Descriptor:	Valley	Soil Order 2:	
Soil Order 1:	Chernozemic		
Landscape Model 1:	wide valley with one or more terraces (coulees included)		
Slope Class 1:			
Landscape Model 2:	any disturbed land (urban, gravel pits, areas not suitable for arable crops)		
Slope Class 2:			



AGRASID Information

DOMINANT SOIL (greater than 60%)

SERIES: BURMIS-AA Variant: Not Modal SCA

Land Use: Native (Ah horizon)

Calcareousness Class: E Salinity Class: N

Texture: VGVC First Parent Material Genetic Origin: GLFL

Texture: - Second Parent Material Genetic Origin: -

AGRASID Texture: Gravels or gravely (cobbly/stony) coarse textured material

Soil Drainage: Rapidly Drained Taxonomic Char:

Report: Rego Black Soil Order: Chernozemic

Soil SubGroup: Home SCA is 8 Pincher Creek report;

Comments: 1st SIGNIFICANT SOIL (less than 30%)

SERIES: MISC.FINE-ZDG Variant:

Land Use: Native (Ah horizon)

Calcareousness Class: - Salinity Class: -

Texture: - First Parent Material Genetic Origin: UNDM

Texture: - Second Parent Material Genetic Origin: -

AGRASID Texture: Fine textured (C, SiC, HC) materials (undifferentiated)

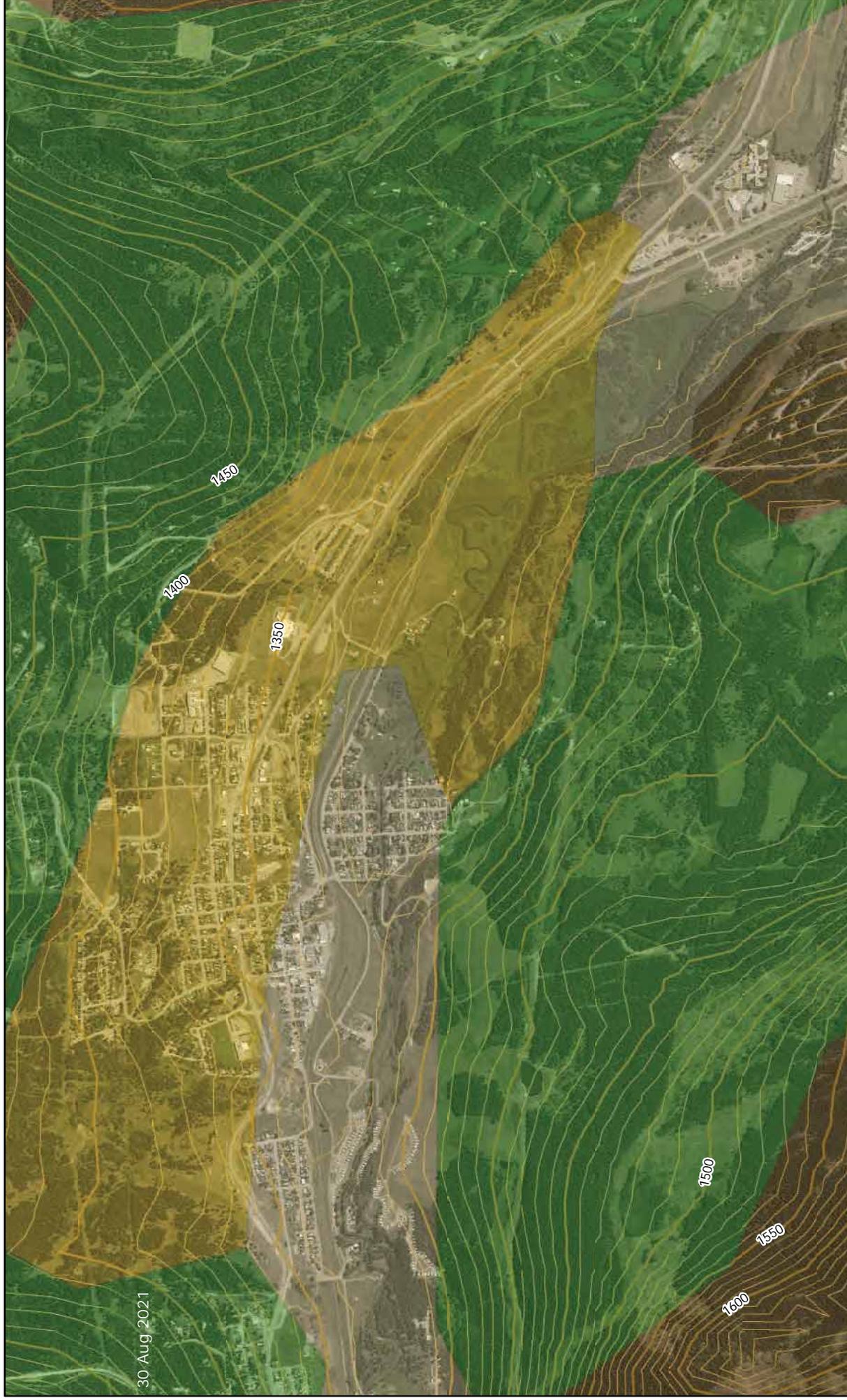
Soil Drainage: Well Drained Taxonomic Char:

Report: Orthic Dark Gray Soil Order: Chernozemic

Soil SubGroup:

Comments:

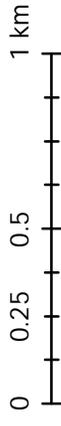
Elevation and Surficial Geology



30 Aug 2021

Wednesday, September 28, 2022

1:21,465



Elevation and Surficial Geology



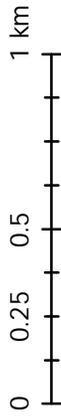
Wednesday, September 28, 2022

Elevation and Surficial Geology

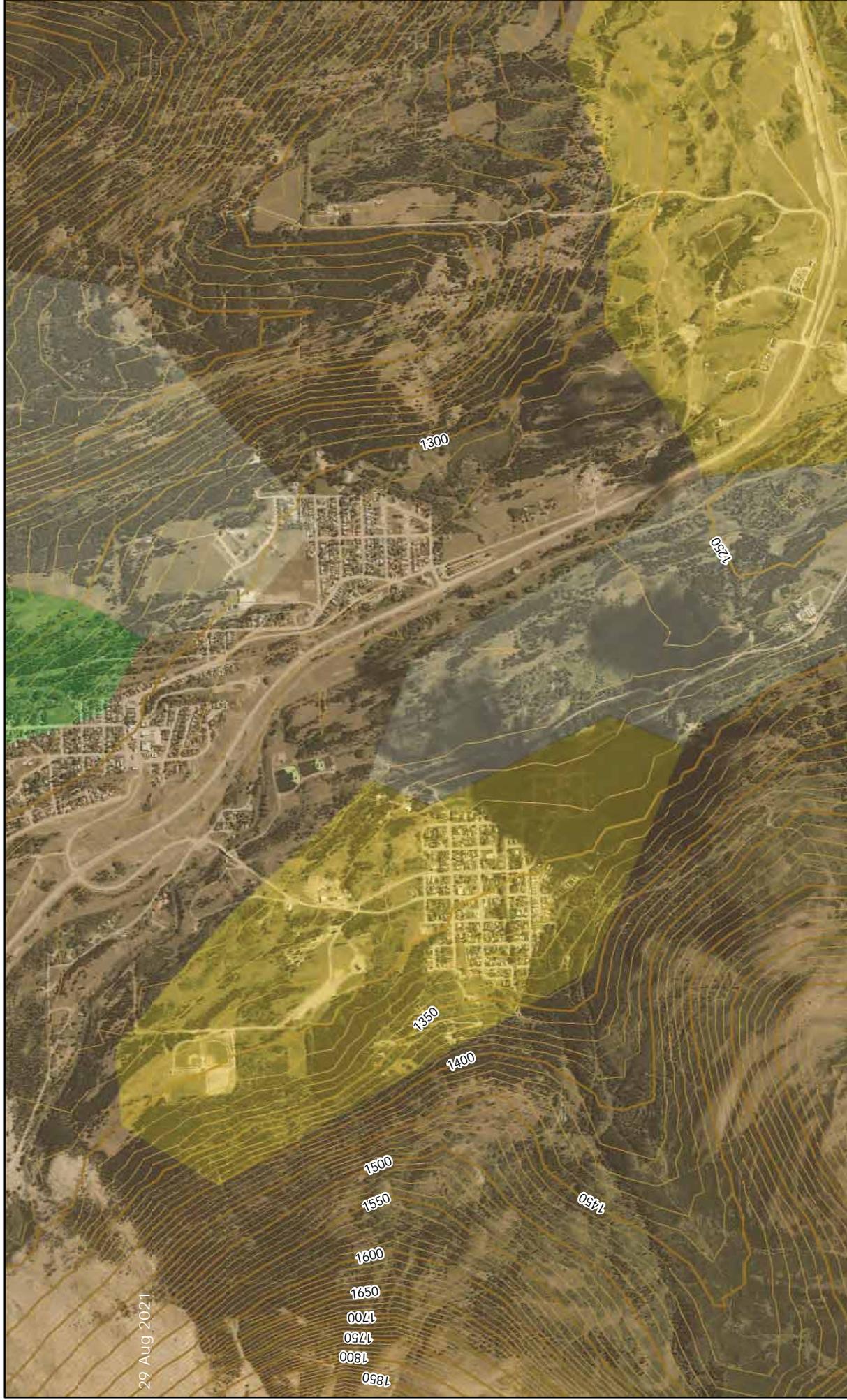


Wednesday, September 28, 2022

1:21,498



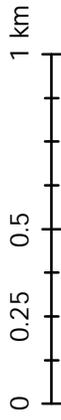
Elevation and Surficial Geology



29 Aug 2021

Wednesday, September 28, 2022

1:21,505



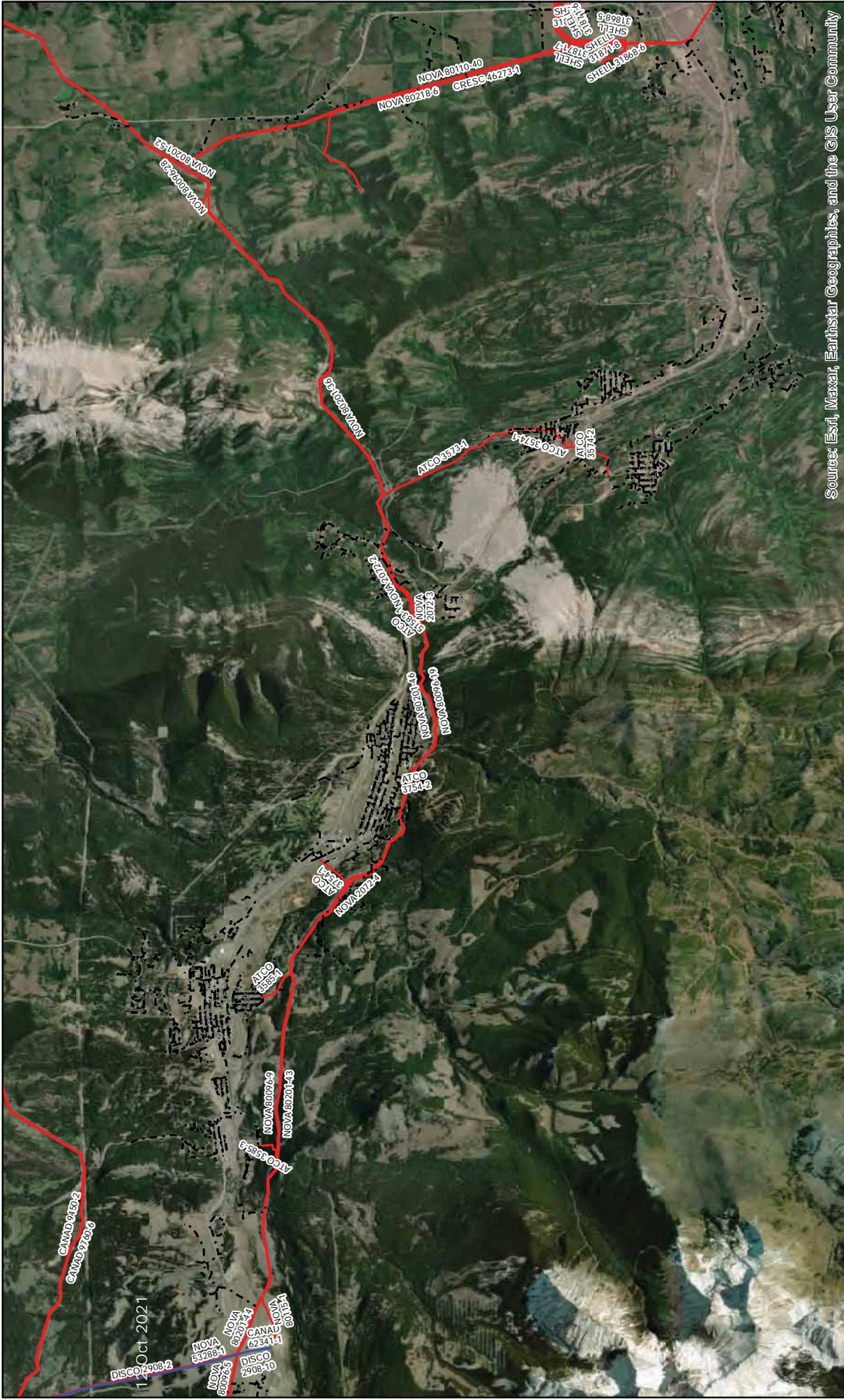
APPENDIX B - HYDROGEOLOGY



APPENDIX C - PIPELINES AND COAL MINES



Pipelines



Wednesday, October 19, 2022

1:85,989

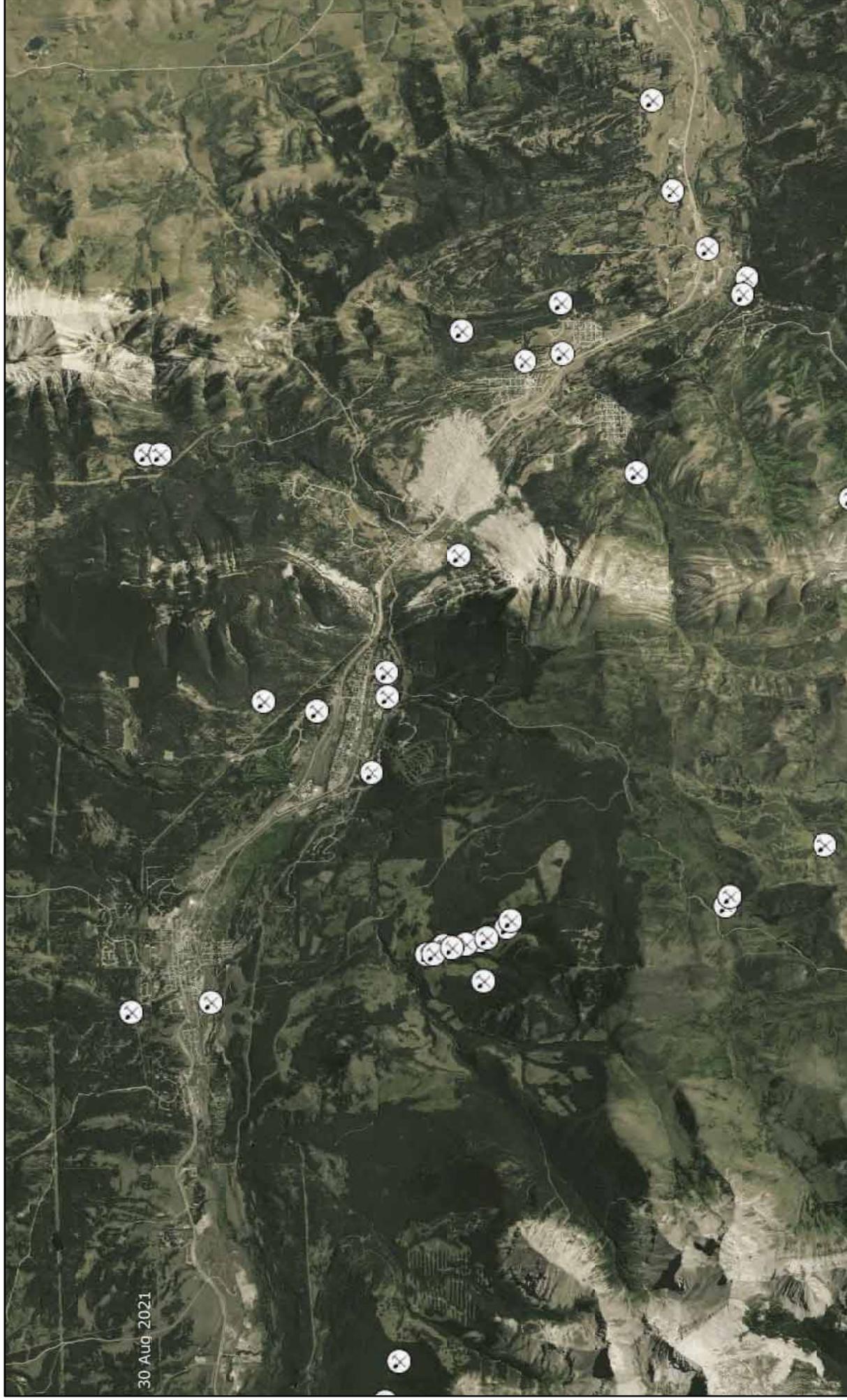




Pipeline Report

LICENSE / LINE #	PROV	COMPANY NAME	LICENSE DATE	FROM LOCATION	TO LOCATION	LGTH (kms)	STS	SUB	H2S (mol/kmol)	OD (mm)	WT (mm)	MAT	TYPE	GRD	MOP (kpa)	JNT	INTL COAT	STRES S LEVEL (%)	ENV
2072 - 3	AB	NOVA GAS TRANSMISSION LTD.	Jun 2, 2009	12-31-7-3W5 BE	14-34-7-4W5 BE	4.8	A	NG	0	914	12.7	S	5LX	X52	0	W	U	0	RC
2072 - 4	AB	NOVA GAS TRANSMISSION LTD.	Jun 2, 2009	14-34-7-4W5 BE	9-4-8-4W5 BE	1.49	A	NG	0	914	10.31	S	5LX	X52	0	W	U	0	
3574 - 1	AB	ATCO GAS AND PIPELINES LTD.	Jul 31, 1996	7-29-7-3W5 RS	6-20-7-3W5 RS	2.3	O	NG	0	60.3	3.91	S	5L	UUUU	1240	W	U	0	
3574 - 2	AB	ATCO GAS AND PIPELINES LTD.	Apr 7, 1989	15-20-7-3W5 PL	15-20-7-3W5 RS	0.02	O	NG	0	26.7	3.91	S	Z245.1	2901	1240	W	U	1	
3585 - 1	AB	ATCO GAS AND PIPELINES LTD.	Jul 31, 1996	14-4-8-4W5 MS	4-9-8-4W5 PL	0.77	O	NG	0	60.3	3.91	S	5L	B	5830	W	U	19	
3585 - 3	AB	ATCO GAS AND PIPELINES LTD.	Jun 15, 2009	2-7-8-4W5 PL	2-7-8-4W5 MS	0.45	O	NG	0	42.2	3.56	S	5L	A25	5830	W	U	20	
3754 - 1	AB	ATCO GAS AND PIPELINES LTD.	Oct 4, 2002	6-3-8-4W5 PL	10-3-8-4W5 RS	0.57	O	NG	0.01	42.2	3.56	S	Z245.3	2901	5830	W	U	12	RC
3754 - 2	AB	ATCO GAS AND PIPELINES LTD.	Oct 4, 2002	11-35-7-4W5 PL	11-35-7-4W5 RS	0.08	O	NG	0.01	60.3	3.91	S	5L	A	5830	W	U	22	
51583 - 1	AB	ATCO GAS AND PIPELINES LTD.		9-36-7-4W5 PL	8-36-7-4W5 MS	0.08	O	NG	0	42.2	3.56	S	5L	A25	5830	W	U	20	
80096 - 9	AB	NOVA GAS TRANSMISSION LTD.	Jun 1, 2009	9-4-8-4W5 PL	4-12-8-5W5 MS	6.44	O	NG	0	914	10.31	S	5LX	X52	5560	W	U	69	
80096 - 19	AB	NOVA GAS TRANSMISSION LTD.	Jun 1, 2009	15-31-7-3W5 PL	9-4-8-4W5 PL	7.3	O	NG	0	914	9.8	S	Z245.1	4832	5830	W	U	56	RC
80201 - 43	AB	NOVA GAS TRANSMISSION LTD.	Jan 21, 2010	9-4-8-4W5 PL	4-12-8-5W5 PL	6.44	O	NG	0	1067	9.65	S	5LX	X65	5440	W	U	67	RC
80201 - 46	AB	NOVA GAS TRANSMISSION LTD.	Jun 3, 2009	15-31-7-3W5 PL	9-4-8-4W5 PL	7.34	O	NG	0	1067	14	S	Z245.1	4832	5560	W	Y	44	RC

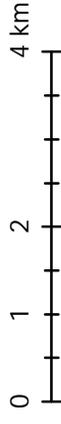
Coal Mines



30 Aug 2021

Wednesday, September 28, 2022

1:85,936



APPENDIX D - MUNICIPAL LAND PLANS



MUNICIPALITY OF CROWSNEST PASS - PASSBURG AREA

LAND USE DISTRICTS
BYLAW NO. 868, 2013; JUNE 18, 2013
Amended to and Including Bylaw No. 1034, 2019

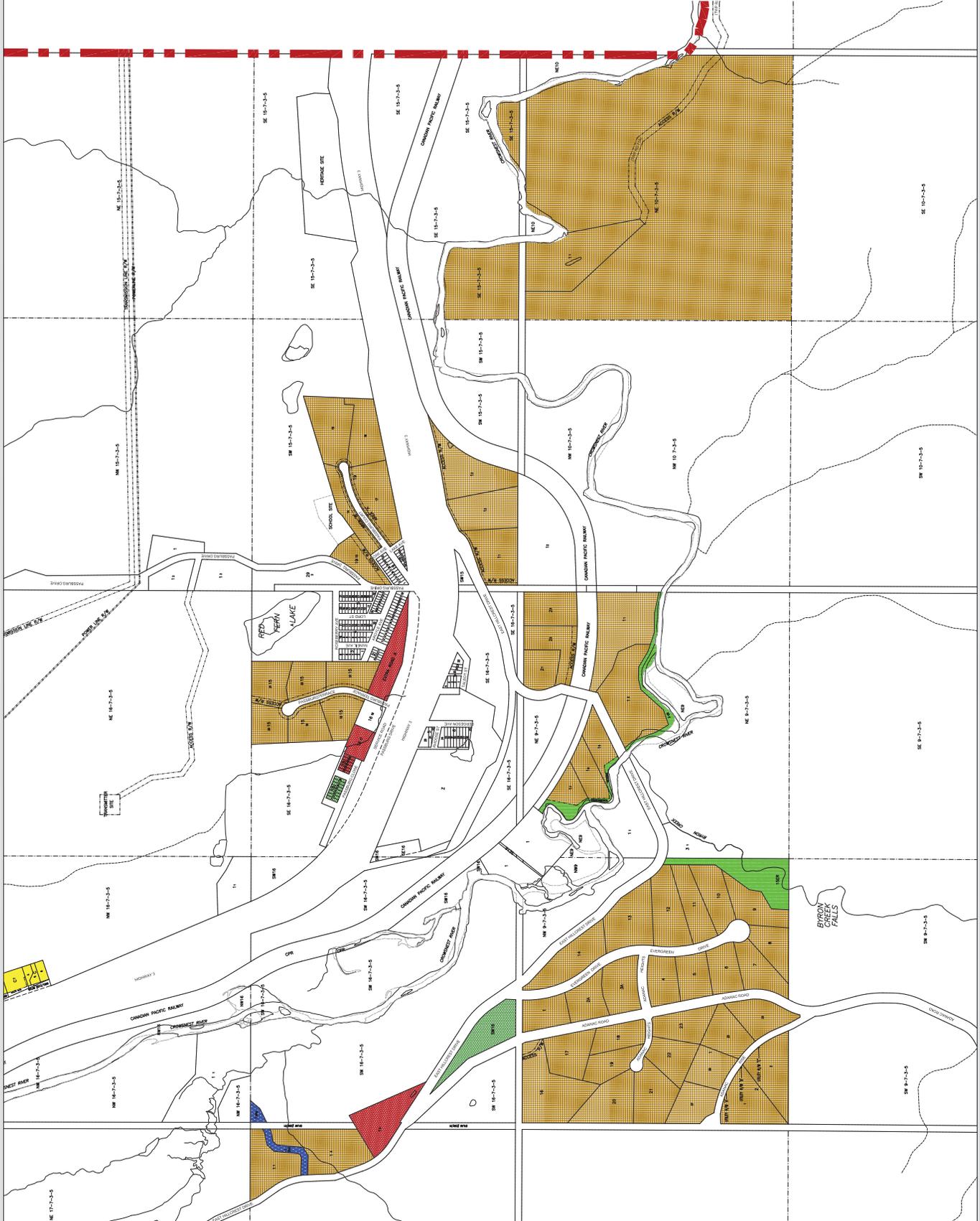
- Residential
- Grouped Country Residential
- Retail Commercial
- Drive-In Commercial
- Recreation & Open Space
- Public
- Non-Urban Commercial Recreation
- Non-Urban Area

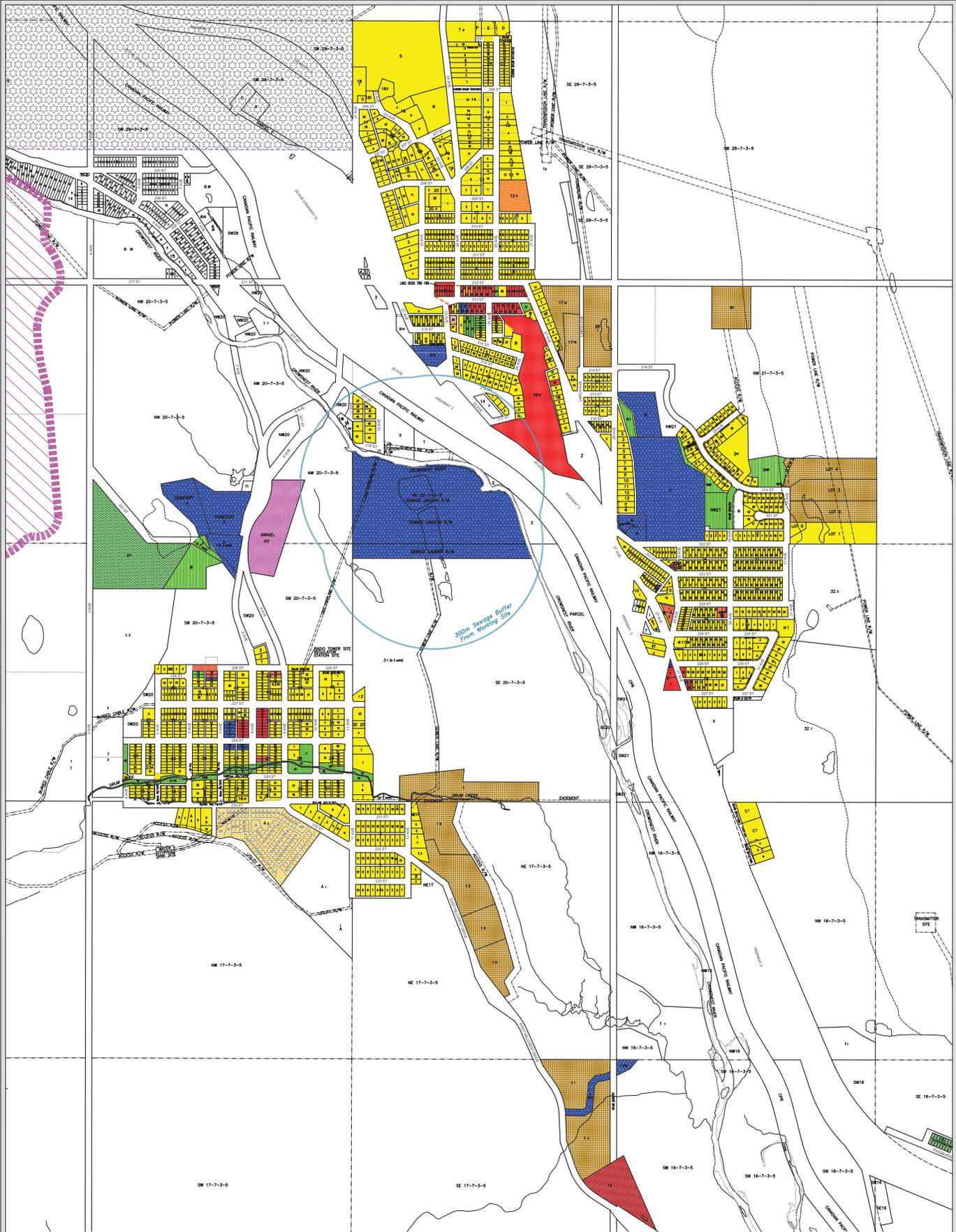
MAP 2



PLAT SCALE 1:5000

MUNICIPALITY OF CROWSNEST PASS
PASSBURG LAND USE DISTRICT MAP 2





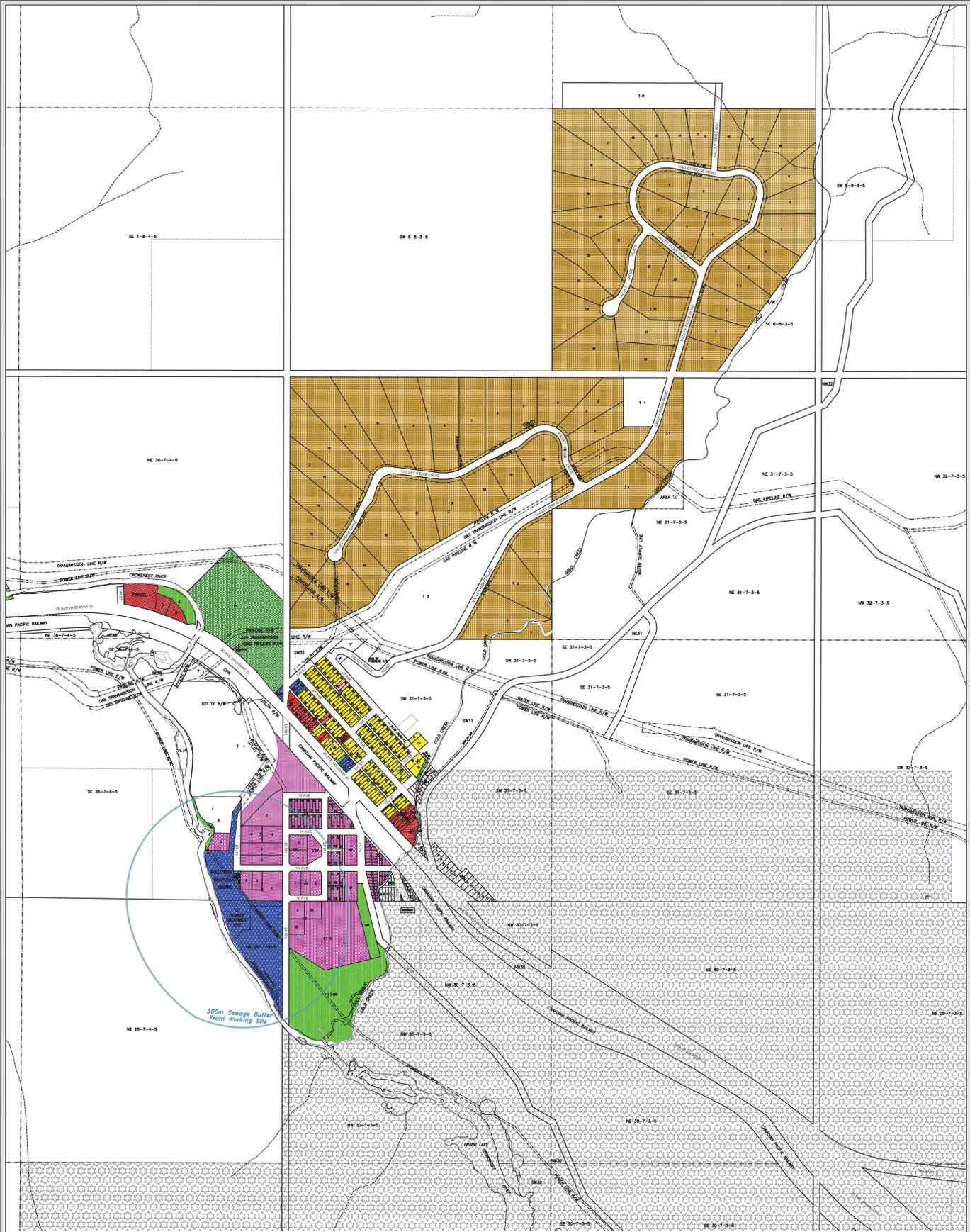
- LAND USE DISTRICTS**
 BYLAW NO. 868, 2013; JUNE 18, 2013
 Amended to and Including Bylaw No. 1097, 2021
- | | | |
|--|---|--------|
| | Residential | R-1 |
| | Duplex Or Semi-Detached Residential | R-2 |
| | Multi-Family Residential | R-2A |
| | Multi-Family Residential | R-3 |
| | Manufactured / Modular Home Communities | R-4 |
| | Grouped Country Residential | GCR-1 |
| | Retail Commercial | C-1 |
| | Drive-In Commercial | C-2 |
| | Industrial | I-1 |
| | Recreation & Open Space | RO-1 |
| | Public | P-1 |
| | Non-Urban Commercial Recreation | NUCR-1 |
| | Non-Urban Area | NUA-1 |
| | Turtle Mountain Restricted Development Area | DC-2 |
| | Restricted Development Area | RDA |
| | Historic Commercial Areas Overlay | |



MAP 3

MUNICIPALITY OF CROWNSNEST PASS
- BELLEVUE / HILLCREST AREA

MUNICIPALITY OF CROWNSNEST PASS
 BELLEVUE / HILLCREST LAND USE DISTRICT MAP 3



LAND USE DISTRICTS
 BYLAW NO. 868, 2013; JUNE 18, 2013
 Amended to and including Bylaw No. 956, 2016.

- | | | |
|---|-------------------------------------|--------|
|  | Residential | R-1 |
|  | Duplex Or Semi-Detached Residential | R-2 |
|  | Multi-Family Residential | R-2A |
|  | Grouped Country Residential | GCR-1 |
|  | Retail Commercial | C-1 |
|  | Drive-In Commercial | C-2 |
|  | Industrial | I-1 |
|  | Recreation & Open Space | RO-1 |
|  | Public | P-1 |
|  | Non-Urban Commercial Recreation | NUCR-1 |
|  | Non-Urban Area | NUA-1 |
|  | Restricted Development Area | RDA |



MAP 4

MUNICIPALITY OF
 CROWNSNEST PASS
 - FRANK AREA

MUNICIPALITY OF CROWNSNEST PASS
 FRANK LAND USE DISTRICT MAP 4

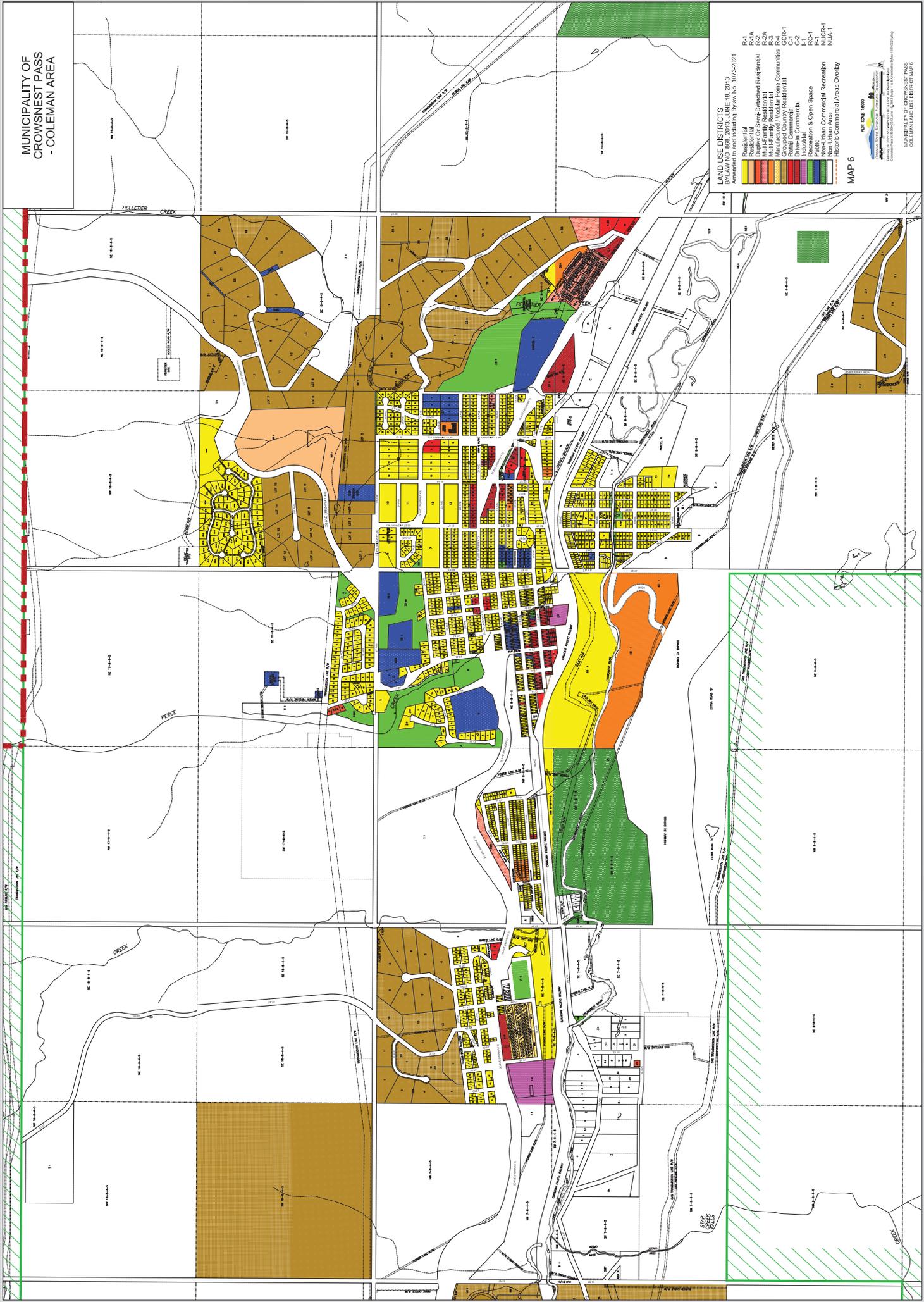
MUNICIPALITY OF CROWNSNEST PASS - COLEMAN AREA

- LAND USE DISTRICTS**
 Approved by and pursuant to Bylaw No. 1973-2021
- R-1 Residential
 - R-1A Single-Family Residential
 - R-2 Single-Family Residential
 - R-3 Multi-Family Residential
 - R-4 Multi-Family Residential
 - C-1 Retail Commercial
 - C-2 Direct Commercial
 - OS Recreation & Open Space
 - PS Public Space
 - NC Non-Urban Commercial Recreation
 - NU Non-Urban Area
 - NMA-1 Historic Commercial Areas Overlay

MAP 6



MUNICIPALITY OF CROWNSNEST PASS
 COLEMAN LAND USE DISTRICT MAP 6

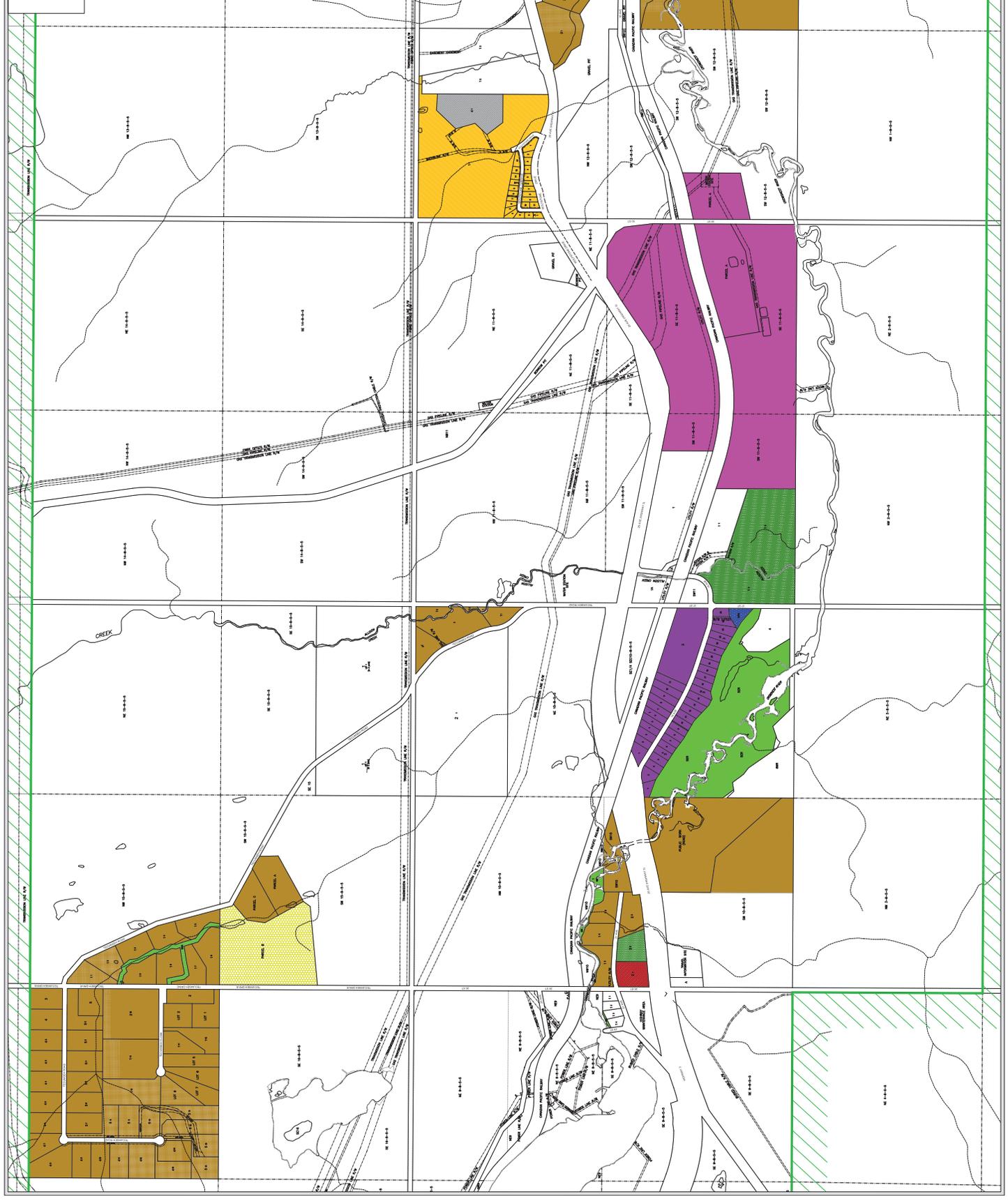


MUNICIPALITY OF CROWNSNEST PASS - SENTINEL AREA

LAND USE DISTRICTS
 BY LAW NO. 888, 2013; JUNE 18, 2013
 Amended to and including Order No. 1038, 2019

	Open Space
	Country Residential
	CC-1
	L-1
	RD-1
	PA
	Public Recreation & Open Space
	Non-Juban Commercial Recreation
	NUCR-2
	NUA-1
	Resort Village
	DC-1
	DC-3
	Direct Control

MAP 7



MUNICIPALITY OF
CROWSNEST PASS
- CROWSNEST AREA

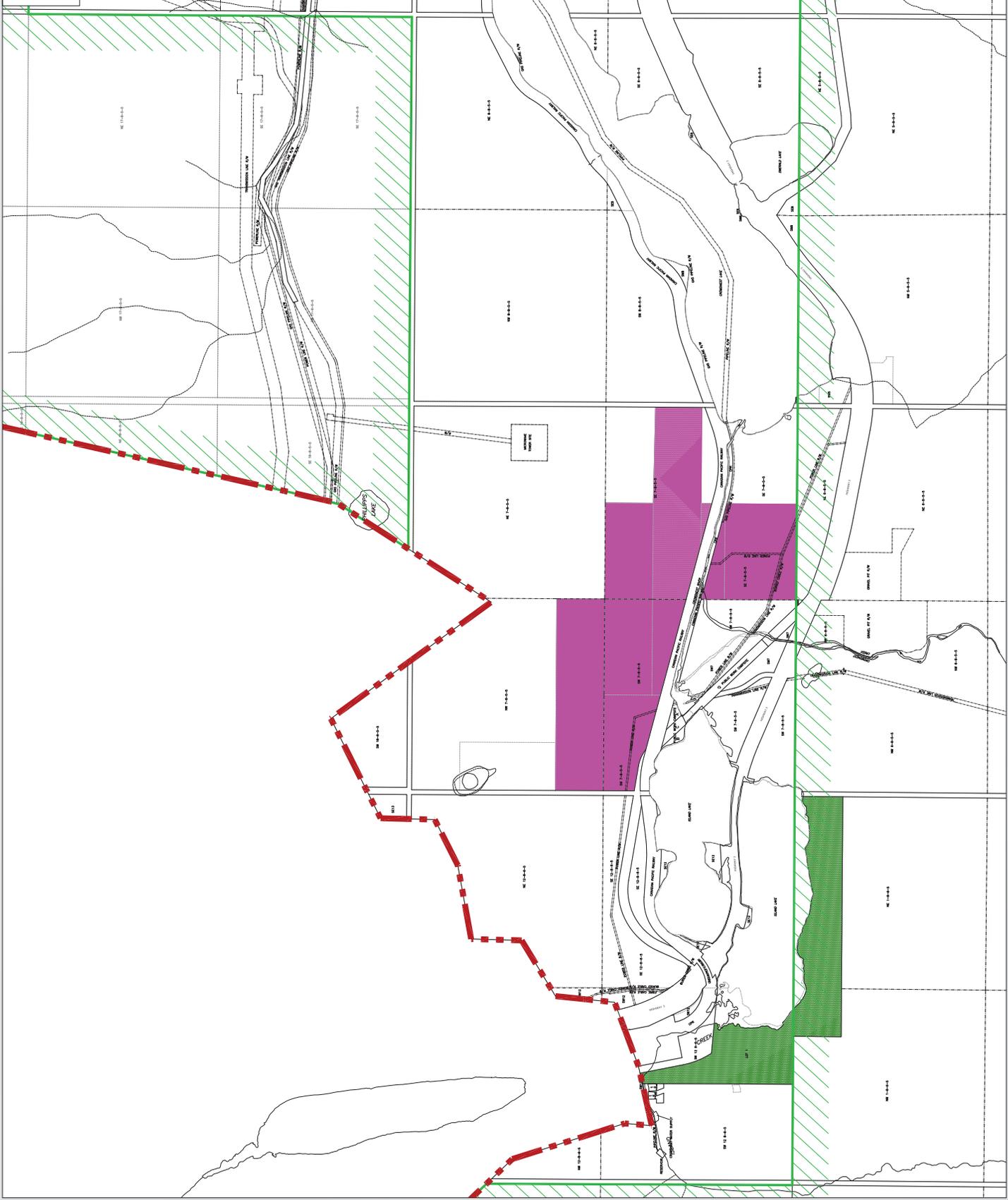
LAND USE DISTRICTS
BY LAW NO. 888, 2013; JUNE 18, 2013

- Industrial
- Non-Juan Commercial Recreation
- GR-CR-1
- GR-R-1
- Non-Juan Residential
- NUJ-C-1

MAP 8

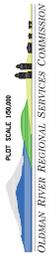


MUNICIPALITY OF CROWSNEST PASS
CROWSNEST LAND USE DISTRICT MAP 8

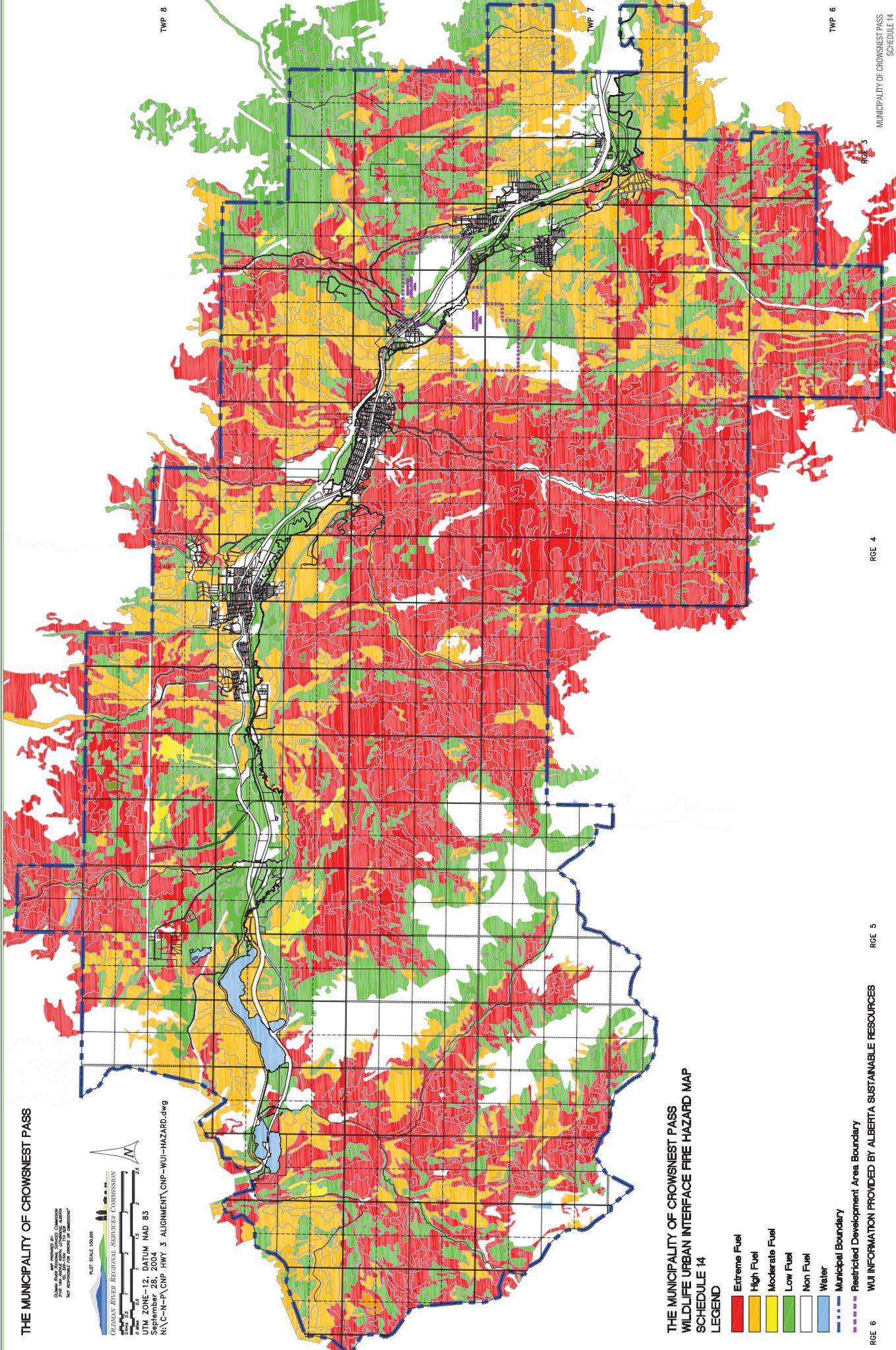


THE MUNICIPALITY OF CROWNSNEST PASS

NOT DRAWN TO SCALE
 THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY
 NOT A SUBSTITUTE FOR A PROFESSIONAL ENGINEER'S REPORT



OLDMAN RIVER REGIONAL SERVICES COMMISSION
 10000 10th Street, Calgary, Alberta T2C 1A8
 UTM ZONE-12, DATUM NAD 83
 September 28, 2004
 N:\C-N-P\CNP HWY 3 ALIGNMENT\CNP-WUI-HAZARD.dwg



THE MUNICIPALITY OF CROWNSNEST PASS
 WILDLIFE URBAN INTERFACE FIRE HAZARD MAP
 SCHEDULE 14

LEGEND

- Extreme Fuel
- High Fuel
- Moderate Fuel
- Low Fuel
- Non Fuel
- Water
- Municipal Boundary
- Restricted Development Area Boundary

RGE 6

WUI INFORMATION PROVIDED BY ALBERTA SUSTAINABLE RESOURCES

RGE 5

RGE 4

RGE 3

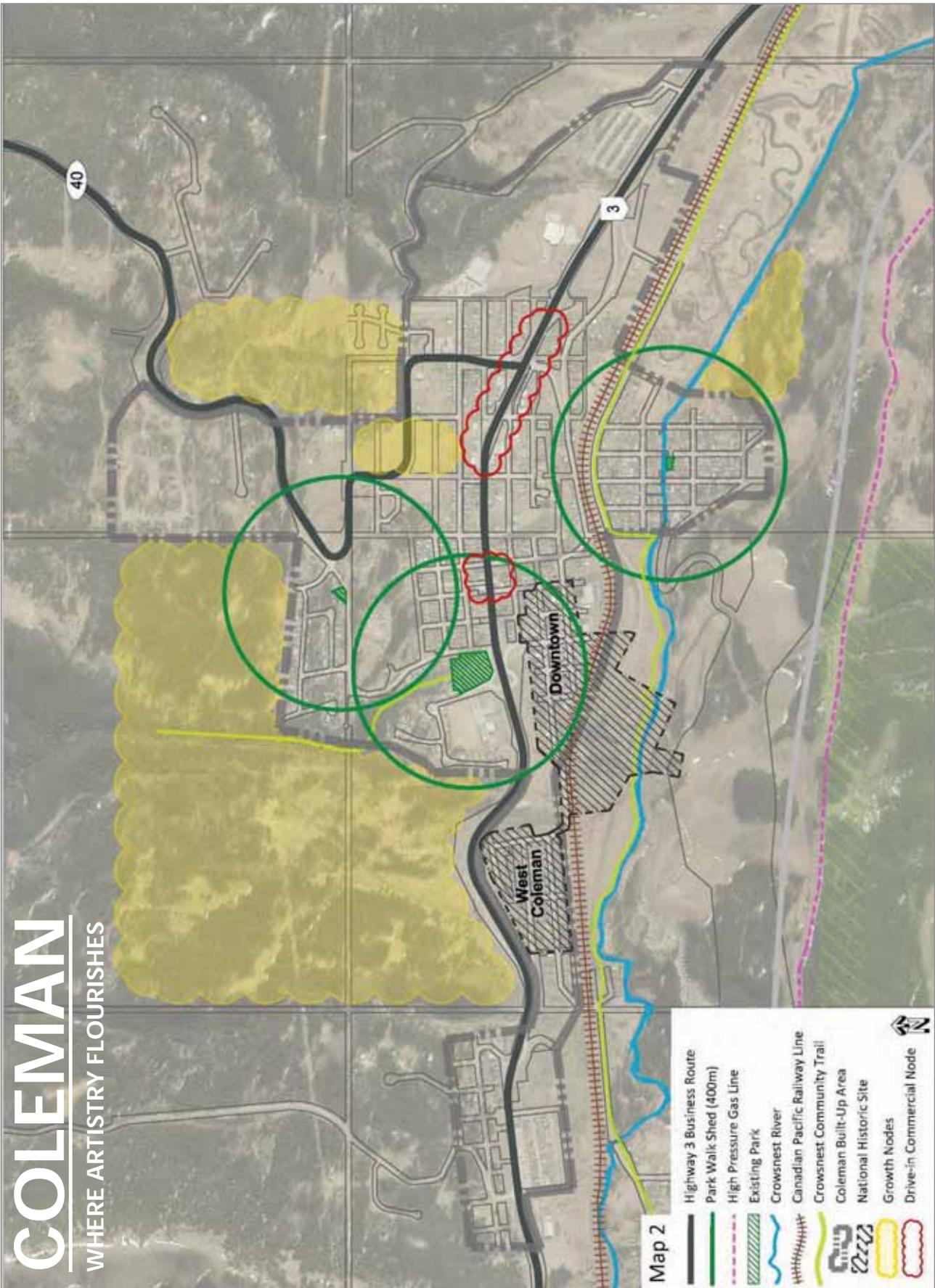
TWP 6

TWP 7

TWP 8

COLEMAN

WHERE ARTISTRY FLOURISHES

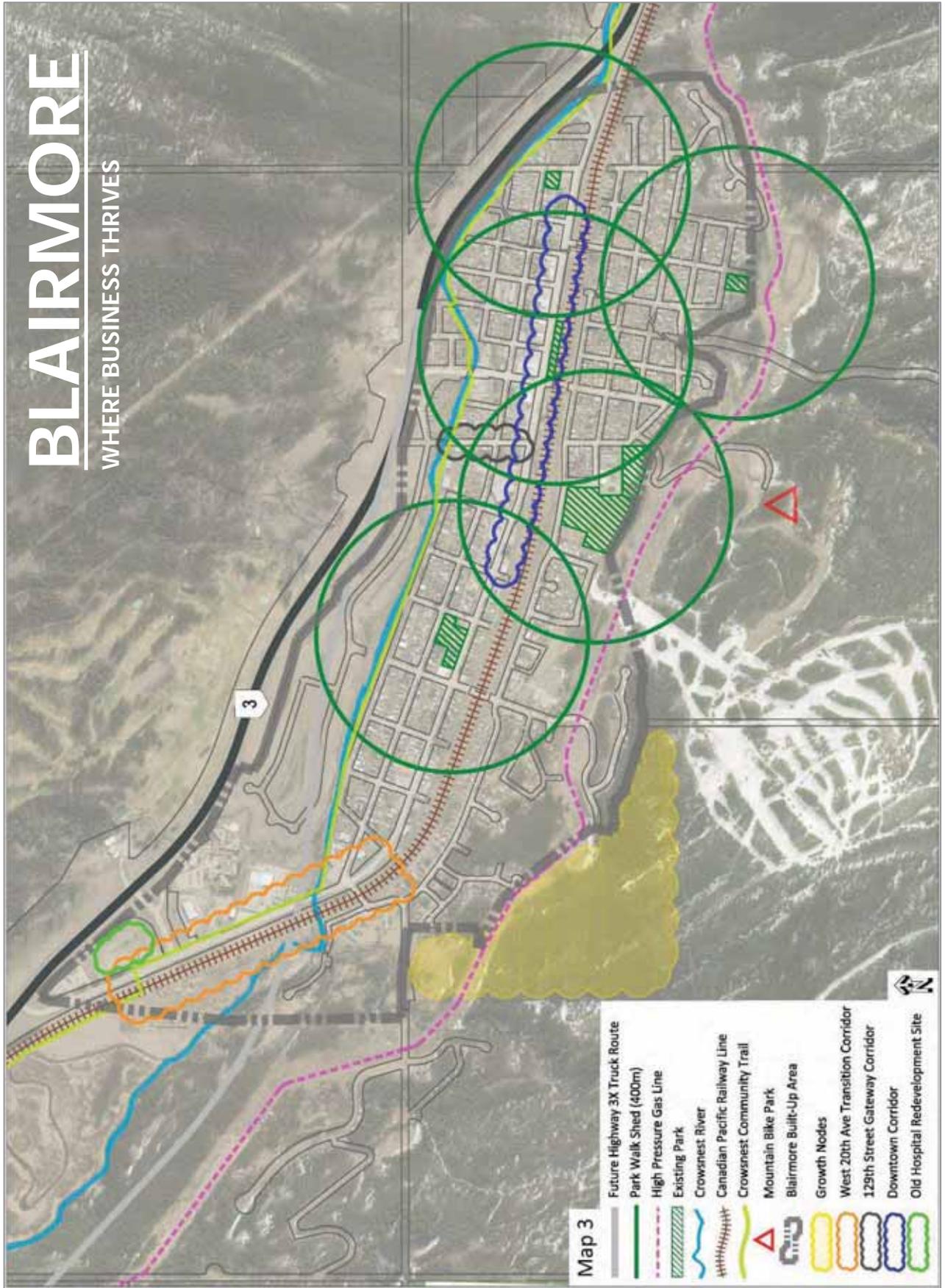


Map 2

- Highway 3 Business Route
- Park Walk Shed (400m)
- High Pressure Gas Line
- Existing Park
- Crowsnest River
- Canadian Pacific Railway Line
- Crowsnest Community Trail
- Coleman Built-Up Area
- National Historic Site
- Growth Nodes
- Drive-in Commercial Node

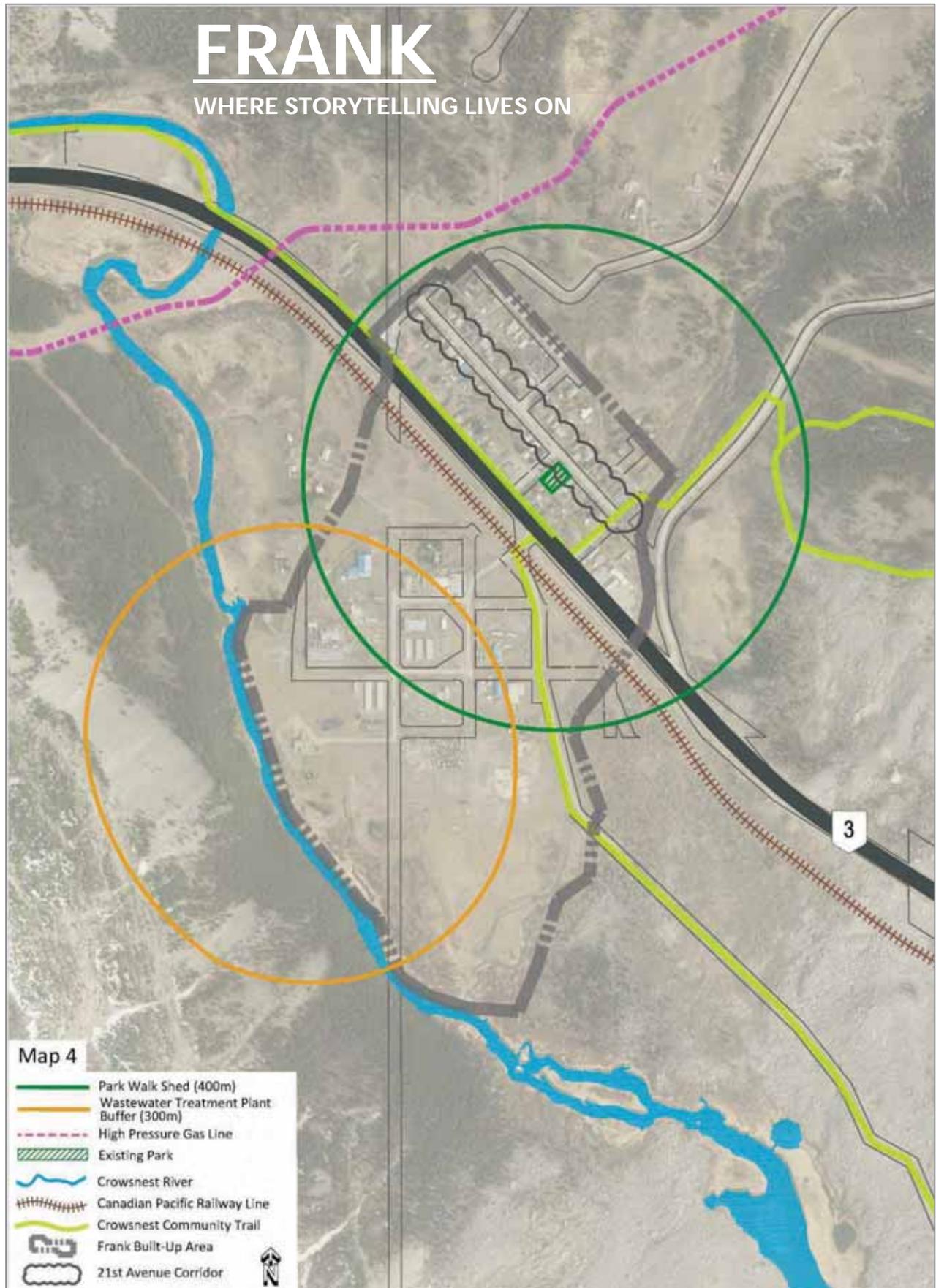
BLAIRMORE

WHERE BUSINESS THRIVES



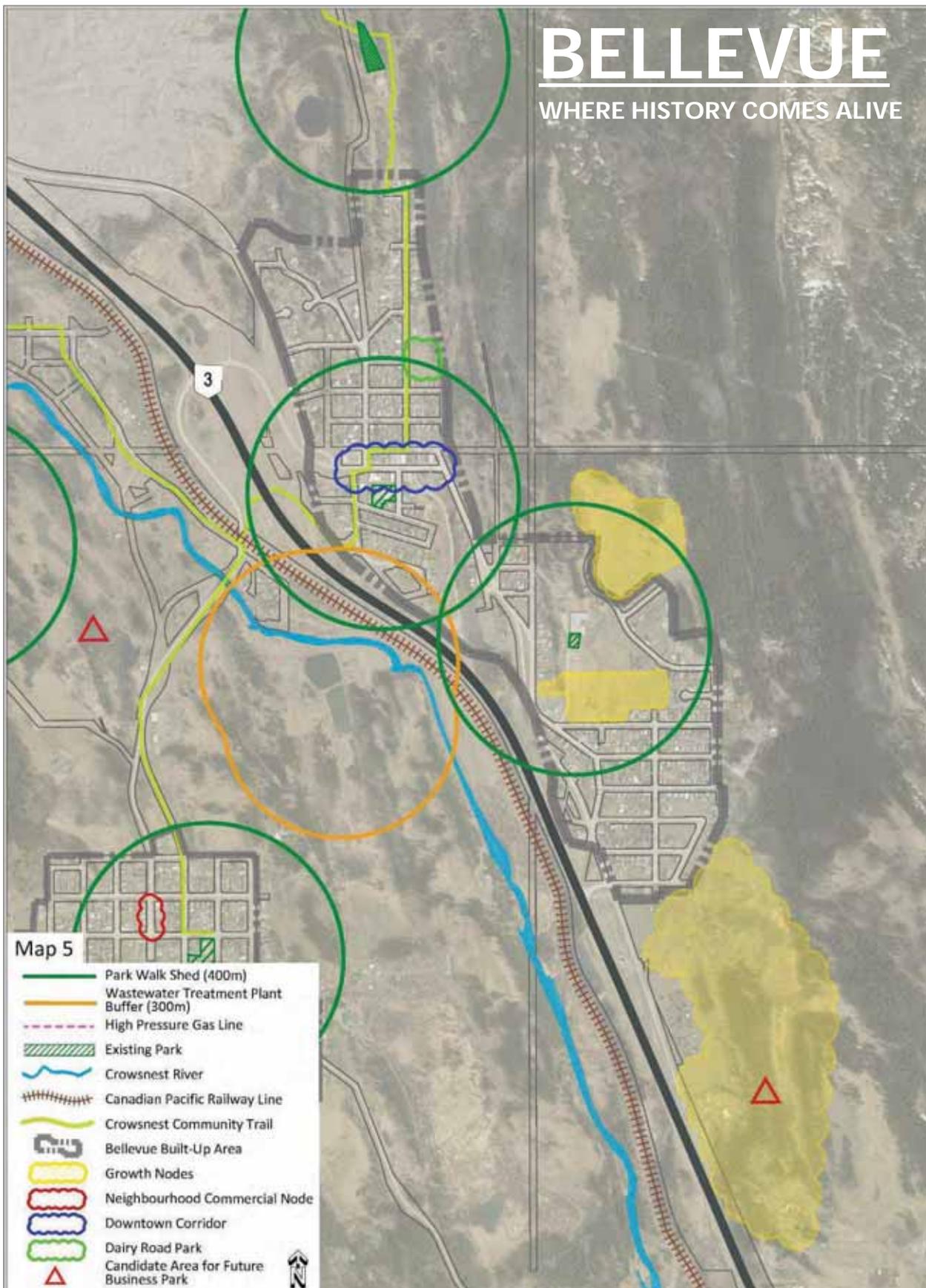
Map 3

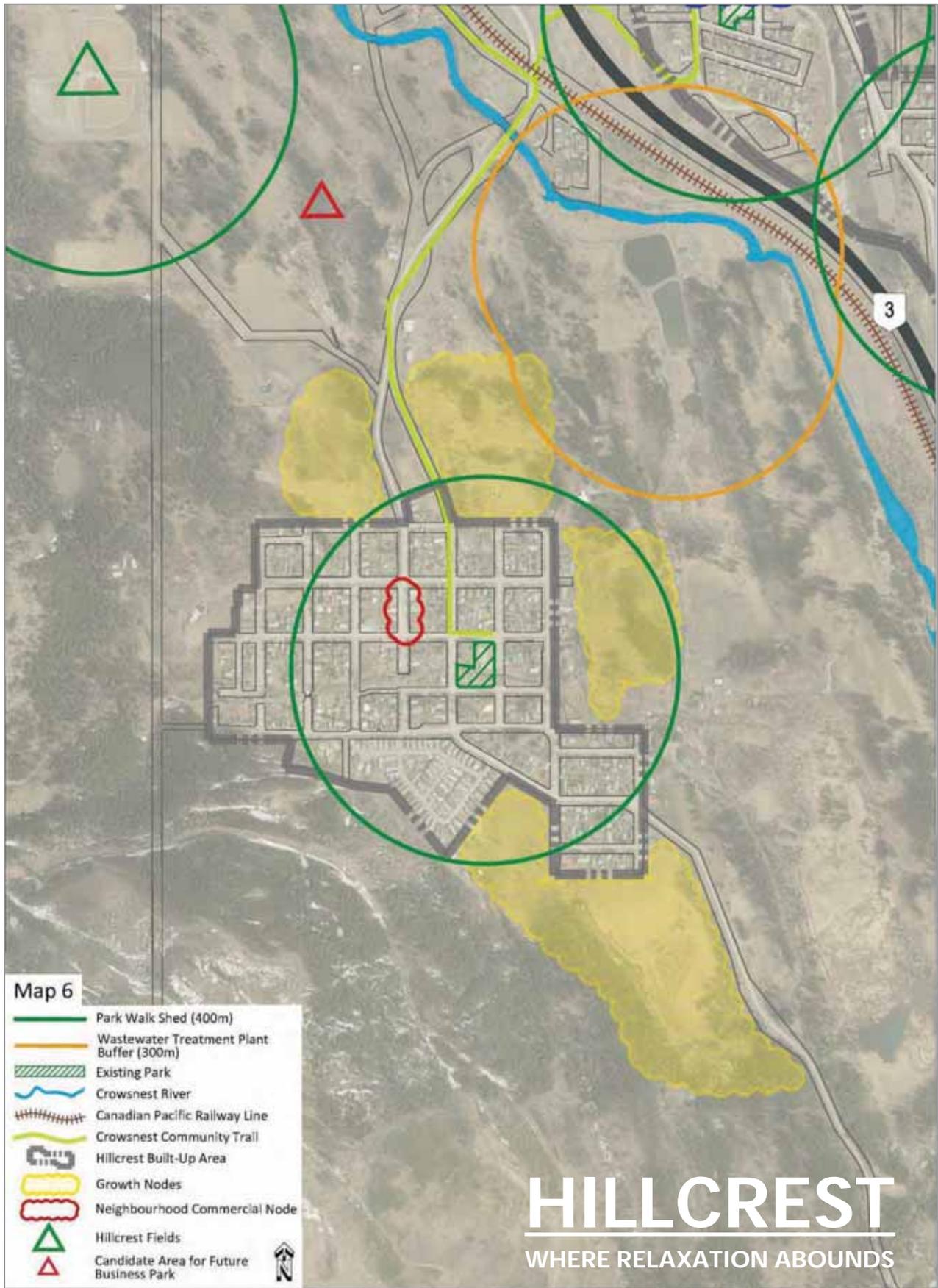
- Future Highway 3X Truck Route
- Park Walk Shed (400m)
- High Pressure Gas Line
- Existing Park
- Crownest River
- Canadian Pacific Railway Line
- Crownest Community Trail
- Mountain Bike Park
- Blairmore Built-Up Area
- Growth Nodes
- West 20th Ave Transition Corridor
- 129th Street Gateway Corridor
- Downtown Corridor
- Old Hospital Redevelopment Site



BELLEVUE

WHERE HISTORY COMES ALIVE





APPENDIX E - LAND TITLES



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0035 689 884 1311440;B;3 161 239 803

LEGAL DESCRIPTION

DESCRIPTIVE PLAN 1311440
BLOCK B
LOT 3
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 2.561 HECTARES (6.33 ACRES) MORE OR LESS

ATS REFERENCE: 5;4;8;9;SW
ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 131 121 651

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
161 239 803	08/10/2016	NOTIFICATION PUBLIC WORKS ACT		

OWNERS

HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA
AS REPRESENTED BY THE MINISTER OF TRANSPORTATION
OF C/O SOUTHERN REGION
BOX 314
909 - 3RD AVENUE NORTH
LETHBRIDGE
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
901 056 879	02/03/1990	AGREEMENT "RE: SECTION 7 OF THE LAND SURFACE CONSERVATION AND RECLAMATION ACT" " AFFECTS PART OF THIS TITLE "

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
161 239 803

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

931 113 510 19/05/1993 UTILITY RIGHT OF WAY
GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY
LIMITED.
" AFFECTS PART OF THIS TITLE "

011 340 490 15/11/2001 RESTRICTIVE COVENANT
" AFFECTS PART OF THIS TITLE "

091 093 757 08/04/2009 EASEMENT
AS TO PORTION OR PLAN:1608JK
OVER AND FOR BENEFIT OF -
SEE INSTRUMENT

161 179 619 03/08/2016 CAVEAT
RE : PUBLIC WORK
CAVEATOR - HER MAJESTY THE QUEEN IN RIGHT OF
ALBERTA
AS REPRESENTED BY MINISTER OF TRANSPORTATION
BOX 314
3RD FLR ADMIN BUILDING
909 3 AVE NORTH
LETHBRIDGE
ALBERTA T1H0H5
AGENT - SEAL.

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST,
2022 AT 10:20 A.M.

ORDER NUMBER: 45097436

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

(CONTINUED)

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER, SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION, APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S) .



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0029 090 751 3387AE;B 171 061 919

LEGAL DESCRIPTION

PLAN 3387AE

THAT PORTION OF BLOCK B

DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTH EAST CORNER OF THE SAID BLOCK B;
THENCE WESTERLY ALONG THE SOUTHERN BOUNDARY THEREOF 612 FEET
MORE OR LESS TO ITS INTERSECTION WITH THE PRODUCTION SOUTHERLY
OF THE EASTERLY LIMIT OF THIRD AVENUE SOUTH;
THENCE NORTHERLY ALONG SAID PRODUCTION AND SAID LIMIT OF THIRD
AVENUE SOUTH TO THE SOUTHERLY LIMIT OF FOURTH STREET SOUTH;
THENCE EASTERLY ALONG SAID LIMIT OF FOURTH STREET SOUTH 306
FEET;
THENCE SOUTHERLY AND PARALLEL WITH SAID EASTERLY LIMIT OF THIRD
AVENUE SOUTH 251 FEET;
THENCE EASTERLY AND PARALLEL WITH SAID SOUTHERLY LIMIT OF FOURTH
STREET SOUTH 306 FEET MORE OR LESS TO THE EASTERN BOUNDARY OF
SAID BLOCK B
THENCE SOUTHERLY ALONG SAID EASTERN BOUNDARY TO THE POINT OF
COMMENCEMENT,
CONTAINING 9.94 ACRES MORE OR LESS

EXCEPTING THEREOUT:

- | A) | PLAN | NUMBER | HECTARES | ACRES |
|----|------------------|---------|----------|-------|
| | NUISANCE GROUNDS | 1944 EZ | 0.121 | 0.30 |
| | REGULATOR SITE | 9310902 | 0.015 | 0.04 |
- B) THOSE PORTIONS OF REGULATOR SITE ON PLAN 8111685
WHICH LIE OUTSIDE THE LIMITS OF REGULATOR SITE
ON PLAN 9310902
CONTAINING 0.017 HECTARES (0.04 ACRES)
MORE OR LESS
- | | | | | |
|----|------------------|---------|-------|------|
| C) | PLAN SUBDIVISION | 0113138 | 1.239 | 3.06 |
|----|------------------|---------|-------|------|
- EXCEPTING THEREOUT ALL MINES AND MINERALS

ATS REFERENCE: 5;4;8;9;SW

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 011 340 489 +2

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST,
2022 AT 10:20 A.M.

ORDER NUMBER: 45097436

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,
APPRAISAL OR OTHER ADVICE PREPARED BY THE ORIGINAL PURCHASER AS
PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

"RE: SECTION 7 OF THE LAND SURFACE CONSERVATION AND
RECLAMATION ACT"

TOTAL INSTRUMENTS: 003

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
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ORDER NUMBER: 45097436

CUSTOMER FILE NUMBER:



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OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

061 058 189

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
5047LB .	14/10/1971	CAVEAT RE : SEE CAVEAT CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. 140 - 6 AVENUE S.W., CALGARY ALBERTA
771 080 791	21/06/1977	EASEMENT "SUBJECT TO. IN FAVOUR OF LS 9 IN NE 19"
771 082 097	22/06/1977	EASEMENT "(SUBJECT TO) IN FAVOUR OF PORTION NW1/4 20"
771 082 098	22/06/1977	EASEMENT "(SUBJECT TO) IN FAVOUR OF LSD 1 IN SE1/4 19"
771 082 099	22/06/1977	EASEMENT "(SUBJECT TO) IN FAVOUR OF LSD 2 SE1/4 19"
771 082 100	22/06/1977	EASEMENT "(SUBJECT TO) IN FAVOUR OF LSD 9 IN NE1/4 19"
771 108 894	11/08/1977	EASEMENT "(SUBJECT TO) IN FAVOUR OF LANDS DESCRIBED IN TRANSFER 7496 A.I."
061 193 184	17/05/2006	MORTGAGE MORTGAGEE - HSBC BANK CANADA. 602-3 STREET SE MEDICINE HAT ALBERTA T1A0H5 ORIGINAL PRINCIPAL AMOUNT: \$1,000,000
061 193 185	17/05/2006	CAVEAT RE : ASSIGNMENT OF RENTS CAVEATOR - HSBC BANK CANADA. 602-3 STREET SE MEDICINE HAT ALBERTA T1A0H5 AGENT - DONALD J. FISHER

TOTAL INSTRUMENTS: 009

(CONTINUED)

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 13 DAY OF
OCTOBER, 2022 AT 01:10 P.M.

ORDER NUMBER: 45620384

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S	LINC	SHORT LEGAL	TITLE NUMBER
	0037 261 484	5;3;7;20;NW	161 180 688 +1
	0019 072 719	5;3;7;20;SW	

LEGAL DESCRIPTION

FIRST

MERIDIAN 5 RANGE 3 TOWNSHIP 7

SECTION 20

QUARTER NORTH WEST

CONTAINING 64.9 HECTARES (160.4 ACRES) MORE OR LESS

EXCEPTING THEREOUT:

- (A) THAT PORTION WHICH LIES TO THE WEST OF
ROAD PLANS 1074EZ AND 1902HX AND 704JK
CONTAINING 37.2 HECTARES (91.99 ACRES) MORE OR LESS
- (B) THAT PORTION WHICH LIES
NORTHWEST OF ROAD PLAN 704JK, SOUTH OF ROAD PLAN 1417JK,
SOUTHEAST OF ROAD PLAN 2156EZ, AND NORTHEAST OF ROAD PLAN 1074EZ
CONTAINING 0.79 HECTARES (1.95 ACRES) MORE OR LESS
- | (C) PLAN | NUMBER | HECTARES | ACRES | MORE OR LESS |
|-------------|---------|----------|-------|-----------------------|
| RAILWAY | RY27 | 2.21 | 5.46 | |
| ROAD | 1074EZ | 1.30 | 3.22 | (UNCANCELLED PORTION) |
| ROAD | 2156EZ | 0.758 | 1.87 | (UNCANCELLED PORTION) |
| ROAD | 2157EZ | 0.308 | 0.76 | (UNCANCELLED PORTION) |
| ROAD | 1902HX | 0.616 | 1.52 | |
| ROAD | 704JK | 1.02 | 2.52 | |
| GRAVEL SITE | 1417JK | 2.04 | 5.06 | |
| ROAD | 1417JK | 0.081 | 0.20 | |
| ROAD | 3523JK | 0.723 | 1.79 | (UNCANCELLED PORTION) |
| SUBDIVISION | 3713JK | 0.263 | 0.65 | |
| ROAD | 8310309 | 2.896 | 7.16 | |
| SUBDIVISION | 8810712 | 0.190 | 0.47 | |
| SUBDIVISION | 0211767 | 0.081 | 0.20 | |
| ROAD | 0413345 | 0.288 | 0.71 | |
| SUBDIVISION | 1611858 | 0.116 | 0.29 | |

EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

SECOND

MERIDIAN 5 RANGE 3 TOWNSHIP 7

SECTION 20

QUARTER SOUTH WEST

CONTAINING 64.7 HECTARES (160 ACRES)

MORE OR LESS

(CONTINUED)

EXCEPTING THEREOUT:

- (A) OUT OF THE SOUTH WEST QUARTER
 THAT PORITON AS DESCRIBED IN
 TRANSFER 9229 CL AND CERTIFICATE
 OF TITLE 26 L 48
 CONTAINING 0.082 HECTARES (0.203 ACRES)
 MORE OR LESS
- (B) THAT PORTION OF THE SOUTH WEST QUARTER
 INSIDE THE STRIP OF LAND 200 FEET WIDE
 RESERVED FOR RAILWAY YARDS BETWEEN THE
 TWO SUBDIVISIONS ON PLAN 5150 S
 WHICH LIES TO THE NORTH OF THIRD AVENUE
 ON PLAN 351 GS
 CONTAINING 1.97 HECTARES (4.87 ACRES)
 MORE OR LESS

PLAN	NUMBER	HECTARES	ACRES
SUBDIVISION	5150 S	26.1	64.4
UNCANCELLED			
PORTION OF ROADWAY	1074 EZ	0.849	2.10
SUBDIVISION	7959 FF	0.182	0.45
CEMETERY SITE	6256 GX	0.129	0.32
SUBDIVISION	351 GS	0.648	1.60
ROADWAY	7105 HI	0.704	1.74
GRAVEL PIT SITE	1417 JK	0.934	2.31
CEMETERY SITE	7045 JK	0.445	1.10
NUISANCE GROUNDS	7046 JK	1.49	3.70
SUBDIVISION	7410766	14.3	35.31

EXCEPTING THEREOUT ALL MINES AND MINERALS
 AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 161 180 435 +1

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
161 180 688	04/08/2016	SUBDIVISION PLAN		

OWNERS

BYRON HILLS RESOURCES LTD.
 OF GPH 9
 2 OLD MILL DRIVE
 TORONTO
 ONTARIO M6S 0A2

(DATA UPDATED BY: CHANGE OF ADDRESS 171190395)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 3

161 180 688 +1

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
6923IO .	14/12/1962	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:1555JK
9021IX .	28/05/1965	UTILITY RIGHT OF WAY GRANTEE - TELUS COMMUNICATIONS INC. BOX 1552, TAXATION DEPARTMENT EDMONTON ALBERTA T5J2N7 AFFECTED LAND: 5;3;7;20;NW AS TO PORTION OR PLAN:2157EZ (DATA UPDATED BY: CHANGE OF NAME 971079250)
5047LB .	14/10/1971	CAVEAT RE : SEE CAVEAT CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. 140 - 6 AVENUE S.W., CALGARY ALBERTA AFFECTED LAND: 5;3;7;20;NW 5;3;7;20;SW
751 061 603	19/06/1975	CAVEAT CAVEATOR - FORTISALBERTA INC. 320-17 AVE SW CALGARY ALBERTA T2S2V1 (DATA UPDATED BY: TRANSFER OF CAVEAT 011167136) (DATA UPDATED BY: CHANGE OF NAME 041456387)
791 199 160	26/11/1979	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AFFECTED LAND: 5;3;7;20;SW
871 224 484	07/12/1987	UTILITY RIGHT OF WAY GRANTEE - ALBERTA GOVERNMENT TELEPHONES. AS TO PORTION OR PLAN:8710524
051 315 366	30/08/2005	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD. AFFECTED LAND: 5;3;7;20;SW
201 183 403	13/10/2020	CAVEAT RE : UTILITY RIGHT OF WAY CAVEATOR - ATCO GAS AND PIPELINES LTD. 909 ELEVENTH AVENUE SOUTHWEST (CONTINUED)

 ENCUMBRANCES, LIENS & INTERESTS

PAGE 4

161 180 688 +1

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		CALGARY ALBERTA T2R1L8 AFFECTED LAND: 5;3;7;20;NW
201 203 135	03/11/2020	DISCHARGE OF CAVEAT 5047LB. AFFECTED LAND: 5;3;7;20;NW

TOTAL INSTRUMENTS: 009

 PENDING REGISTRATION QUEUE

DRR NUMBER	RECEIVED DATE (D/M/Y)	CORPORATE LLP TRADENAME	LAND ID
D003VNW	02/05/2022	FORTISALBERTA INC. 403-514-4119 CUSTOMER FILE NUMBER: 50038-JEFF/610011428	
001		CAVEAT	#161 180 688 +1
D006TYA	28/06/2022	BROWN OKAMURA & ASSOCIATES LTD. 403-329-4688 CUSTOMER FILE NUMBER: 21-15285	
001		DISCHARGE	#161 180 688 +1
002		DISCHARGE	#161 180 688 +1
003		SUBDIVISION PLAN	#161 180 688 +1

TOTAL PENDING REGISTRATIONS: 002

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST, 2022 AT 10:48 A.M.

ORDER NUMBER: 45098045

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

(CONTINUED)

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IF MORE INFORMATION IS REQUIRED ON A PENDING REGISTRATION WHERE THE CONTACT INFORMATION DISPLAYS N/A PLEASE EMAIL LTO@GOV.AB.CA.

ALBERTA TOK OMO

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
011 306 355	17/10/2001	HABENDUM CLAUSE USE RESTICTED TO CEMETERY PURPOSES

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST, 2022 AT 10:20 A.M.

ORDER NUMBER: 45097436

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0035 652 700 1311107;7;1 191 109 574

LEGAL DESCRIPTION

DESCRIPTIVE PLAN 1311107
BLOCK 7
LOT 1
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 11.227 HECTARES (27.74 ACRES) MORE OR LESS

ATS REFERENCE: 5;4;7;36;SE
ATS REFERENCE: 5;3;7;31;SW
ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 131 089 666

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
191 109 574	10/06/2019	TRANSFER OF LAND	\$477,250	NOMINAL

OWNERS

DARWIN ALFRED RUZICKA

AND

JUDY LYNN RUZICKA

BOTH OF:

BOX 1224

BLAIRMORE

ALBERTA T0K 0E0

AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		
731 076 242	27/11/1973	MAINTENANCE & RECOVERY ACT AGREEMENT

(CONTINUED)

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
191 109 574

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		CREDITOR - HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA AS REPRESENTED BY DEPARTMENT OF PUBLIC WELFARE AMOUNT: \$700 " AFFECTS PART OF THIS TITLE "
821 011 428	21/01/1982	UTILITY RIGHT OF WAY GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS. "SEWER LINE RIGHT OF WAY 8110098" " AFFECTS PART OF THIS TITLE "
821 011 429	21/01/1982	CAVEAT RE : DEFERRED RESERVE CAVEATOR - THE OLDMAN RIVER REGIONAL PLANNING COMMISSION. " AFFECTS PART OF THIS TITLE "
851 040 669	15/03/1985	CAVEAT RE : LEASE CAVEATOR - YARMIL RUZICKA C/O STUART G. KING P.O. BOX 450 BLAIRMORE ALBERTA AGENT - S G KING " AFFECTS PART OF THIS TITLE "
921 182 018	27/07/1992	CAVEAT RE : DEFERRED RESERVE CAVEATOR - THE OLDMAN RIVER REGIONAL PLANNING COMMISSION. 905-4TH AVENUE, SOUTH, LETHBRIDGE ALBERTA " AFFECTS PART OF THIS TITLE "
011 248 303	28/08/2001	UTILITY RIGHT OF WAY GRANTEE - ATCO GAS AND PIPELINES LTD. " AFFECTS PART OF THIS TITLE "
131 089 667	22/04/2013	CAVEAT RE : ENVIRONMENTAL RESERVE EASEMENT CAVEATOR - THE MUNICIPALITY OF CROWSNEST PASS. C/O NORTH & COMPANY P.O. BOX 810,12537 21 AVENUE BLAIRMORE ALBERTA T0K0E0
131 089 670	22/04/2013	UTILITY RIGHT OF WAY GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS. (CONTINUED)

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

AS TO PORTION OR PLAN:1311109

131 089 787 22/04/2013 EASEMENT
AS TO PORTION OR PLAN:1311108
OVER AND FOR BENEFIT OF
SEE INSTRUMENT

TOTAL INSTRUMENTS: 009

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CUSTOMER FILE NUMBER:



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LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0034 713 685 5;3;7;31;SW 131 243 634 +2

LEGAL DESCRIPTION

MERIDIAN 5 RANGE 3 TOWNSHIP 7
SECTION 31
QUARTER SOUTH WEST

CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING THEREOUT:

- A) THAT PORTION AS SHOWN ON A SKETCH ANNEXED TO TRANSFER REGISTERED AS 6226AA CONTAINING 0.166 HECTARES (0.41 ACRES) MORE OR LESS
B) THAT PORTION SHOWN OUTLINED IN ORANGE ON A SKETCH ANNEXED TO TRANSFER REGISTERED AS 6584AA CONTAINING 0.202 HECTARES (0.5 ACRES) MORE OR LESS
C) THAT PORTION AS DESCRIBED IN TRANSFER REGISTERED AS 2183EA CONTAINING 0.109 HECTARES (0.27 ACRES) MORE OR LESS
D) PLAN NUMBER HECTARES (ACRES) MORE OR LESS
SUBDIVISION 3661I 22.9 56.59
SUBDIVISION 2563BS 1.74 4.3
RAILWAY RW120 4.12 10.19
ROAD 1825EZ 0.461 1.14
ROAD 8311842 1.36 3.36
SUBDIVISION 8810648 0.048 0.12
SUBDIVISION 9813428 0.020 0.05
ROAD 9813686 0.714 1.76
SUBDIVISION 9911120 1.29 3.19
SUBDIVISION 1110935 0.055 0.14

EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 111 057 437 +2

Table with 5 columns: REGISTRATION, DATE (DMY), REGISTERED OWNER(S) DOCUMENT TYPE, VALUE, CONSIDERATION. Row 1: 131 243 634, 26/09/2013, TRANSFER OF LAND, SEE INSTRUMENT

OWNERS

BENGA MINING LIMITED.
OF SUITE 2600, THREE BENTALL CENTRE
595 BURRARD STREET, PO BOX 49314
VANCOUVER
BRITISH COLUMBIA V7X 1L3

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
5820DI .	02/06/1926	CAVEAT CAVEATOR - JAMES HERBERT NAYLOR CAVEATOR - ALEXANDER GOYETTE CAVEATOR - JAMES JOHNSTON MURRAY "PORTION DESCRIBED IN INSTRUMENT (REINSTATED BY 051058874 FEB 16/05)"
4812GM .	29/10/1952	UTILITY RIGHT OF WAY GRANTEE - ALTALINK MANAGEMENT LTD. 2611 - 3 AVE SE CALGARY ALBERTA T2A7W7 AS TO PORTION OR PLAN:RW567 "SUBJECT TO, POLE LINE RIGHT OF WAY (INST. TYPE CORRECTED 21/6/07 BY 071311389)" (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 071311772) (DATA UPDATED BY: CHANGE OF ADDRESS 091108242)
7239HV .	15/03/1960	UTILITY RIGHT OF WAY GRANTEE - THE ALBERTA GAS TRUNK LINE CO LTD. AS TO PORTION OR PLAN:2951IC "BY INSTRUMENT 5232IB, SUBJECT TO, AS SET FORTH IN INSTRUMENT"
4267KU .	11/01/1971	UTILITY RIGHT OF WAY GRANTEE - THE ALBERTA GAS TRUNK LINE CO LTD. AS TO PORTION OR PLAN:7861JK "25 FT. STRIP"
961 033 784	14/02/1996	CAVEAT RE : ENCROACHMENT AGREEMENT CAVEATOR - JEANETTE J PATERA C/O DOUGLAS G YOUNG BOX 810 12537-21 AVE BLAIRMORE

(CONTINUED)

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

ALBERTA T0K0E0

001 320 615 07/11/2000 CAVEAT
RE : UTILITY RIGHT OF WAY
CAVEATOR - HER MAJESTY THE QUEEN IN RIGHT OF
ALBERTA
AS REPRESENTED BY MINISTER OF INFRASTRUCTURE
DIRECTOR LAND SERVICES, REALTY SERVICES BRANCH
3RD FLOOR, 6950 - 113 STREET
EDMONTON
ALBERTA T6H5V7

091 365 173 03/12/2009 UTILITY RIGHT OF WAY
GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS.
AS TO PORTION OR PLAN:0912752

091 365 174 03/12/2009 UTILITY RIGHT OF WAY
GRANTEE - FORTISALBERTA INC.
AS TO PORTION OR PLAN:0912752

TOTAL INSTRUMENTS: 008

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
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2022 AT 10:20 A.M.

ORDER NUMBER: 45097436

CUSTOMER FILE NUMBER:



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OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

NO REGISTRATIONS

TOTAL INSTRUMENTS: 000

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST,
2022 AT 10:20 A.M.

ORDER NUMBER: 45097436

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OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0037 992 591 5;3;7;20;SE 181 152 950 +1

LEGAL DESCRIPTION

MERIDIAN 5 RANGE 3 TOWNSHIP 7
SECTION 20
QUARTER SOUTH EAST
AS SHOWN ON TOWNSHIP PLAN DATED 26 JANUARY 1907
CONTAINING 64.86 HECTARES (160.40 ACRES) MORE OR LESS
EXCEPTING:

FIRSTLY:

PLAN	NUMBER	HECTARES	ACRES
RAILWAY	RY27	1.89	4.66
PTN SEWAGE LAGOON	7510028	2.45	6.06
SUBDIVISION	7810828	1.26	3.11
ROAD	8310309	0.900	2.22
PARCEL	4036EC	3.24	8.00
SUBDIVISION	9211733	0.405	1.00
SUBDIVISION	9511358	3.26	8.06
DESCRIPTIVE	1811416	16.46	40.67

SECONDLY:

AS TO THE NORTH 80 FEET OF THE SOUTH 820 FEET OF THE WESTERLY 125 FEET
CONTAINING 0.089 HECTARES (0.22 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 981 010 207

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
181 152 950	18/07/2018	DESCRIPTIVE	PLAN		

OWNERS

WILLIAM J NELSON

AND

DENISE J NELSON

BOTH OF:
BOX 10, SITE 12, RR 5
CALGARY
ALBERTA T2P 2G6
AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
741 075 761	07/08/1974	CAVEAT CAVEATOR - FORTISALBERTA INC. (DATA UPDATED BY: TRANSFER OF CAVEAT 021217709) (DATA UPDATED BY: CHANGE OF ADDRESS 081422807) (DATA UPDATED BY: TRANSFER OF CAVEAT 081447493)
881 094 101	07/06/1988	UTILITY RIGHT OF WAY GRANTEE - HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA C/O MINISTER OF MUNICIPAL AFFAIRS IMPROVEMENT DISTRICT ADMINISTRATION
951 177 044	08/08/1995	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.
961 048 303	06/03/1996	EASEMENT OVER SE1/4 SEC. 20 -7 - 3 - W5M FOR BENEFIT OF LOT 1 PLAN 9511358
981 010 206	09/01/1998	AMENDING AGREEMENT AFFECTS INSTRUMENT: 961048303
071 260 507	28/05/2007	MORTGAGE MORTGAGEE - THE TORONTO DOMINION BANK. 500,10004 JASPER AVE EDMONTON ALBERTA T5J1R3 ORIGINAL PRINCIPAL AMOUNT: \$307,500
181 152 952	18/07/2018	EASEMENT AS TO PORTION OR PLAN:1811417 OVER AND FOR BENEFIT OF: SEE INSTRUMENT AREAS "A" AND "B"

TOTAL INSTRUMENTS: 007

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST,
2022 AT 10:48 A.M.

ORDER NUMBER: 45098045

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
FOR THE SOLE USE OF THE ORIGINAL PURCHASER, AND NONE OTHER,
SUBJECT TO WHAT IS SET OUT IN THE PARAGRAPH BELOW.

THE ABOVE PROVISIONS DO NOT PROHIBIT THE ORIGINAL PURCHASER FROM
INCLUDING THIS UNMODIFIED PRODUCT IN ANY REPORT, OPINION,
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PART OF THE ORIGINAL PURCHASER APPLYING PROFESSIONAL, CONSULTING
OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

181 152 950

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		(DATA UPDATED BY: TRANSFER OF CAVEAT 021217709) (DATA UPDATED BY: CHANGE OF ADDRESS 081422807) (DATA UPDATED BY: TRANSFER OF CAVEAT 081447493)
881 094 101	07/06/1988	UTILITY RIGHT OF WAY GRANTEE - HER MAJESTY THE QUEEN IN RIGHT OF ALBERTA C/O MINISTER OF MUNICIPAL AFFAIRS IMPROVEMENT DISTRICT ADMINISTRATION
951 177 044	08/08/1995	UTILITY RIGHT OF WAY GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.
961 048 303	06/03/1996	EASEMENT OVER SE1/4 SEC. 20 -7 - 3 - W5M FOR BENEFIT OF LOT 1 PLAN 9511358
981 010 206	09/01/1998	AMENDING AGREEMENT AFFECTS INSTRUMENT: 961048303
071 260 507	28/05/2007	MORTGAGE MORTGAGEE - THE TORONTO DOMINION BANK. 500,10004 JASPER AVE EDMONTON ALBERTA T5J1R3 ORIGINAL PRINCIPAL AMOUNT: \$307,500
181 152 952	18/07/2018	EASEMENT AS TO PORTION OR PLAN:1811417 OVER AND FOR BENEFIT OF: SEE INSTRUMENT AREAS "A" AND "B"
181 152 953	18/07/2018	CAVEAT RE : DEFERRED RESERVE CAVEATOR - THE MUNICIPALITY OF CROWSNEST PASS. 3105-16TH AVENUE NORTH LETHBRIDGE ALBERTA T1H5E8
221 041 898	28/02/2022	UTILITY RIGHT OF WAY GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS. AS TO PORTION OR PLAN:2011738 AS TO AREA `A`

TOTAL INSTRUMENTS: 009

(CONTINUED)

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
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2022 AT 10:48 A.M.

ORDER NUMBER: 45098045

CUSTOMER FILE NUMBER:



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OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0029 176 419 5;3;7;17;NE 191 167 104

LEGAL DESCRIPTION

THE NORTH EAST QUARTER OF SECTION 17
TOWNSHIP 7
RANGE 3

WEST OF THE 5TH MERIDIAN
AS SHOWN ON THE TOWNSHIP PLAN APPROVED AT OTTAWA
19 DECEMBER, 1907
CONTAINING 65.2 HECTARES (161 ACRES) MORE OR LESS
EXCEPTING THEREOUT

- A) THE SUBDIVISION ON PLAN HILLCREST 4735 AQ
CONTAINING 5.46 HECTARES (13.50 ACRES) MORE OR LESS
- B) THAT PARCEL DESCRIBED IN TRANSFER REGISTERED
AS 8085 CT
CONTAINING 0.66 HECTARES (1.63 ACRES) MORE OR LESS
- C) THE ROADWAY ON PLAN 2005 HX
CONTAINING 1.87 HECTARES (4.61 ACRES) MORE OR LESS
- D) THAT PORTION OF THE SAID NORTH EAST QUARTER
OF SECTION 17 WHICH LIES TO THE SOUTH AND EAST
OF SUBDIVISION ON PLAN HILLCREST 4735 AQ AND
TO THE SOUTHWEST OF THE ROADWAY ON PLAN 2005 HX
CONTAINING 23.22 HECTARES (57.3 ACRES) MORE OR LESS
- E) PLAN NUMBER HECTARES ACRES MORE OR LESS
SUBDIVISION 8910565 4.88 12.10
SUBDIVISION 0210159 1.70 4.20

EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 031 420 427

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
191 167 104	20/08/2019	TRANSFER OF LAND	\$200,000	\$200,000

OWNERS

KENT ALAN STRANDQUIST

(CONTINUED)

OF BOX 97
HILLCREST
ALBERTA T0K 1C0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
1401KR .	26/03/1970	CAVEAT CAVEATOR - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED.
891 055 812	03/04/1989	CAVEAT RE : DEVELOPMENT AGREEMENT CAVEATOR - THE MUNICIPALITY OF CROWSNEST PASS. C/O JOHN KAPALKA, MUNICIPAL ADMINISTRATOR, P.O. BOX 370, COLEMAN ALBERTA T0K0M0
021 022 174	18/01/2002	EASEMENT OVER AND FOR BENEFIT OF: SEE INSTRUMENT AS TO PLAN 0210160
191 167 105	20/08/2019	MORTGAGE MORTGAGEE - SERVUS CREDIT UNION LTD. 151 KARL CLARK RD NW EDMONTON ALBERTA T6N1H5 ORIGINAL PRINCIPAL AMOUNT: \$200,000

TOTAL INSTRUMENTS: 004

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST,
2022 AT 10:48 A.M.

ORDER NUMBER: 45098045

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

(CONTINUED)

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LAND TITLE CERTIFICATE

S	LINC	SHORT LEGAL	TITLE NUMBER
	0021 271 250	5;3;7;32;NE	131 235 727 +5
	0021 271 267	5;3;7;32;SE	

LEGAL DESCRIPTION

FIRST
MERIDIAN 5 RANGE 3 TOWNSHIP 7
SECTION 32
THE WEST HALF OF THE NORTH EAST QUARTER
CONTAIN 32.4 HECTARES (80 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

SECOND
MERIDIAN 5 RANGE 3 TOWNSHIP 7
SECTION 32
THE WEST HALF OF THE SOUTH EAST QUARTER
CONTAINING 32.4 HECTARES (80 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 143C149 .

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
131 235 727	18/09/2013	TRANSFER OF LAND		SEE INSTRUMENT

OWNERS

BENGA MINING LIMITED.
OF SUITE 2600, THREE BENTALL CENTRE
595 BURRARD STREET, PO BOX 49314
VANCOUVER
BRITISH COLUMBIA V7X 1L3
AS TO AN UNDIVIDED 1/2 INTEREST



LAND TITLE CERTIFICATE

S	LINC	SHORT LEGAL	TITLE NUMBER
	0021 271 250	5;3;7;32;NE	131 235 728 +8
	0021 271 267	5;3;7;32;SE	

LEGAL DESCRIPTION

FIRST
MERIDIAN 5 RANGE 3 TOWNSHIP 7
SECTION 32
THE WEST HALF OF THE NORTH EAST QUARTER
CONTAIN 32.4 HECTARES (80 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

SECOND
MERIDIAN 5 RANGE 3 TOWNSHIP 7
SECTION 32
THE WEST HALF OF THE SOUTH EAST QUARTER
CONTAINING 32.4 HECTARES (80 ACRES) MORE OR LESS
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 751 070 193

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
131 235 728	18/09/2013	TRANSFER OF LAND		SEE INSTRUMENT

OWNERS

BENGA MINING LIMITED.
OF SUITE 2600, THREE BENTALL CENTRE
595 BURRARD STREET, PO BOX 49314
VANCOUVER
BRITISH COLUMBIA V7X 1L3
AS TO AN UNDIVIDED 1/2 INTEREST

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

131 235 728 +8

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

7239HV . 15/03/1960 UTILITY RIGHT OF WAY
GRANTEE - THE ALBERTA GAS TRUNK LINE CO LTD.
"DISCHARGED EXCEPT AS TO THE NE 1/4 OF PLAN 2951IC
BY 5232IB"

4267KU . 11/01/1971 UTILITY RIGHT OF WAY
GRANTEE - THE ALBERTA GAS TRUNK LINE CO LTD.
AFFECTED LAND: 5;3;7;32;NE
AS TO PORTION OR PLAN:7861JK

221 036 856 22/02/2022 UTILITY RIGHT OF WAY
GRANTEE - NOVA GAS TRANSMISSION LTD.

TOTAL INSTRUMENTS: 003

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 4 DAY OF AUGUST,
2022 AT 10:20 A.M.

ORDER NUMBER: 45097436

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

151 191 525 +1

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		CALGARY ALBERTA T2A7W7 GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:RW567 "(POLE LINE RIGHT OF WAY) DATA UPDATED BY: PARTIAL TRANSFER OF UTILITY RIGHT OF WAY 974IT" (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 021210365) (DATA UPDATED BY: CHANGE OF ADDRESS 091108152)
8752IM .	07/11/1962	UTILITY RIGHT OF WAY GRANTEE - ALTALINK MANAGEMENT LTD. 2611 - 3 AVE SE CALGARY ALBERTA T2A7W7 GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:1504JK "DATA UPDATED BY: PARTIAL TRANSFER OF UTILITY RIGHT OF WAY 974IT" (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 021217016) (DATA UPDATED BY: CHANGE OF ADDRESS 091134158)
1189KM .	26/05/1969	UTILITY RIGHT OF WAY GRANTEE - THE VILLAGE OF BELLEVUE.
091 253 570	27/08/2009	UTILITY RIGHT OF WAY GRANTEE - ALTALINK MANAGEMENT LTD.
111 054 571	07/03/2011	UTILITY RIGHT OF WAY GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS. AS TO PORTION OR PLAN:1012220
111 181 252	19/07/2011	CAVEAT RE : UTILITY RIGHT OF WAY CAVEATOR - FORTISALBERTA INC. 320-17 AVE SW CALGARY ALBERTA T2S2V1 AGENT - MSL LAND SERVICES LTD.
151 157 222	24/06/2015	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC.
191 070 062	10/04/2019	DISCHARGE OF UTILITY RIGHT OF WAY 091253570 PARTIAL EXCEPT PLAN/PORTION: 1812394

(CONTINUED)

TOTAL INSTRUMENTS: 008

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 13 DAY OF
OCTOBER, 2022 AT 01:10 P.M.

ORDER NUMBER: 45620384

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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OR TECHNICAL EXPERTISE FOR THE BENEFIT OF CLIENT(S).

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
151 228 206

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
		" (POLE LINE RIGHT OF WAY) DATA UPDATED BY: PARTIAL TRANSFER OF UTILITY RIGHT OF WAY 974IT" (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 021210365) (DATA UPDATED BY: CHANGE OF ADDRESS 091108152)
8752IM .	07/11/1962	UTILITY RIGHT OF WAY GRANTEE - ALTALINK MANAGEMENT LTD. 2611 - 3 AVE SE CALGARY ALBERTA T2A7W7 GRANTEE - CANADIAN WESTERN NATURAL GAS COMPANY LIMITED. AS TO PORTION OR PLAN:1504JK "DATA UPDATED BY: PARTIAL TRANSFER OF UTILITY RIGHT OF WAY 974IT" (DATA UPDATED BY: TRANSFER OF UTILITY RIGHT OF WAY 021217016) (DATA UPDATED BY: CHANGE OF ADDRESS 091134158)
1189KM .	26/05/1969	UTILITY RIGHT OF WAY GRANTEE - THE VILLAGE OF BELLEVUE.
091 253 570	27/08/2009	UTILITY RIGHT OF WAY GRANTEE - ALTALINK MANAGEMENT LTD.
111 054 571	07/03/2011	UTILITY RIGHT OF WAY GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS. AS TO PORTION OR PLAN:1012220
111 181 252	19/07/2011	CAVEAT RE : UTILITY RIGHT OF WAY CAVEATOR - FORTISALBERTA INC. 320-17 AVE SW CALGARY ALBERTA T2S2V1 AGENT - MSL LAND SERVICES LTD.
151 157 222	24/06/2015	UTILITY RIGHT OF WAY GRANTEE - FORTISALBERTA INC.
151 228 207	03/09/2015	CAVEAT RE : RIGHT OF FIRST REFUSAL CAVEATOR - BENGA MINING LIMITED. PO BOX 810, 12537-21 AVE BLAIRMORE ALBERTA T0K0E0 AGENT - VALERIE L SAJE

(CONTINUED)

TOTAL INSTRUMENTS: 008

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 13 DAY OF
OCTOBER, 2022 AT 01:10 P.M.

ORDER NUMBER: 45620384

CUSTOMER FILE NUMBER:



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LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0034 353 433 5;4;8;8;SW 171 275 447

LEGAL DESCRIPTION

MERIDIAN 5 RANGE 4 TOWNSHIP 8
SECTION 8
QUARTER SOUTH WEST
CONTAINING 64.7 HECTARES (160 ACRES) MORE OR LESS
EXCEPTING FIRSTLY
THAT PORTION CONTAINING 1.287 HECTARES (3.19 ACRES)
MORE OR LESS AS SHOWN ON PLAN 7095FR
SECONDLY - THE RAILWAY ON PLAN ATTACHED TO TRANSFER 1795L
CONTAINING .299 OF A HECTARE (0.74 OF AN ACRE) MORE OR LESS
THIRDLY
PLAN NUMBER HECTARES ACRES MORE OR LESS
ROAD 1012290 22.13 54.67 AREA A
ROAD 1012290 11.46 28.32 EXTRA ROAD B
EXCEPTING THEREOUT ALL MINES AND MINERALS
AND THE RIGHT TO WORK THE SAME

ESTATE: FEE SIMPLE

MUNICIPALITY: MUNICIPALITY OF CROWSNEST PASS

REFERENCE NUMBER: 101 166 792

REGISTERED OWNER(S)
REGISTRATION DATE (DMY) DOCUMENT TYPE VALUE CONSIDERATION

171 275 447 06/12/2017 TRANSFER OF LAND \$1,800,000 \$1,800,000

OWNERS

DOMINION CAMPCORP INC.
OF 100, 12420-104 AVE NW
EDMONTON
ALBERTA T5N 3Z9

 ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
 # 171 275 447

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
1266HY .	29/04/1960	UTILITY RIGHT OF WAY GRANTEE - THE ALBERTA GAS TRUNK LINE CO LTD. AS TO PORTION OR PLAN:4970IA "4.02 AC, BY 7667IA"
1336KY .	06/01/1971	UTILITY RIGHT OF WAY GRANTEE - THE ALBERTA GAS TRUNK LINE CO LTD. AS TO PORTION OR PLAN:7912JK "25 FT STRIP"
921 321 765	17/12/1992	UTILITY RIGHT OF WAY GRANTEE - THE MUNICIPALITY OF CROWSNEST PASS.
171 275 448	06/12/2017	MORTGAGE MORTGAGEE - THE BANK OF NOVA SCOTIA. 4715 TAHOE BLVD MISSISSAUGA ONTARIO L4W0B4 ORIGINAL PRINCIPAL AMOUNT: \$2,800,000
171 275 449	06/12/2017	CAVEAT RE : ASSIGNMENT OF RENTS AND LEASES CAVEATOR - THE BANK OF NOVA SCOTIA. 4715 TAHOE BLVD MISSISSAUGA ONTARIO L4W0B4 AGENT - DAN R CHUBB

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
 ACCURATE REPRODUCTION OF THE CERTIFICATE OF
 TITLE REPRESENTED HEREIN THIS 14 DAY OF
 OCTOBER, 2022 AT 02:40 P.M.

ORDER NUMBER: 45631983

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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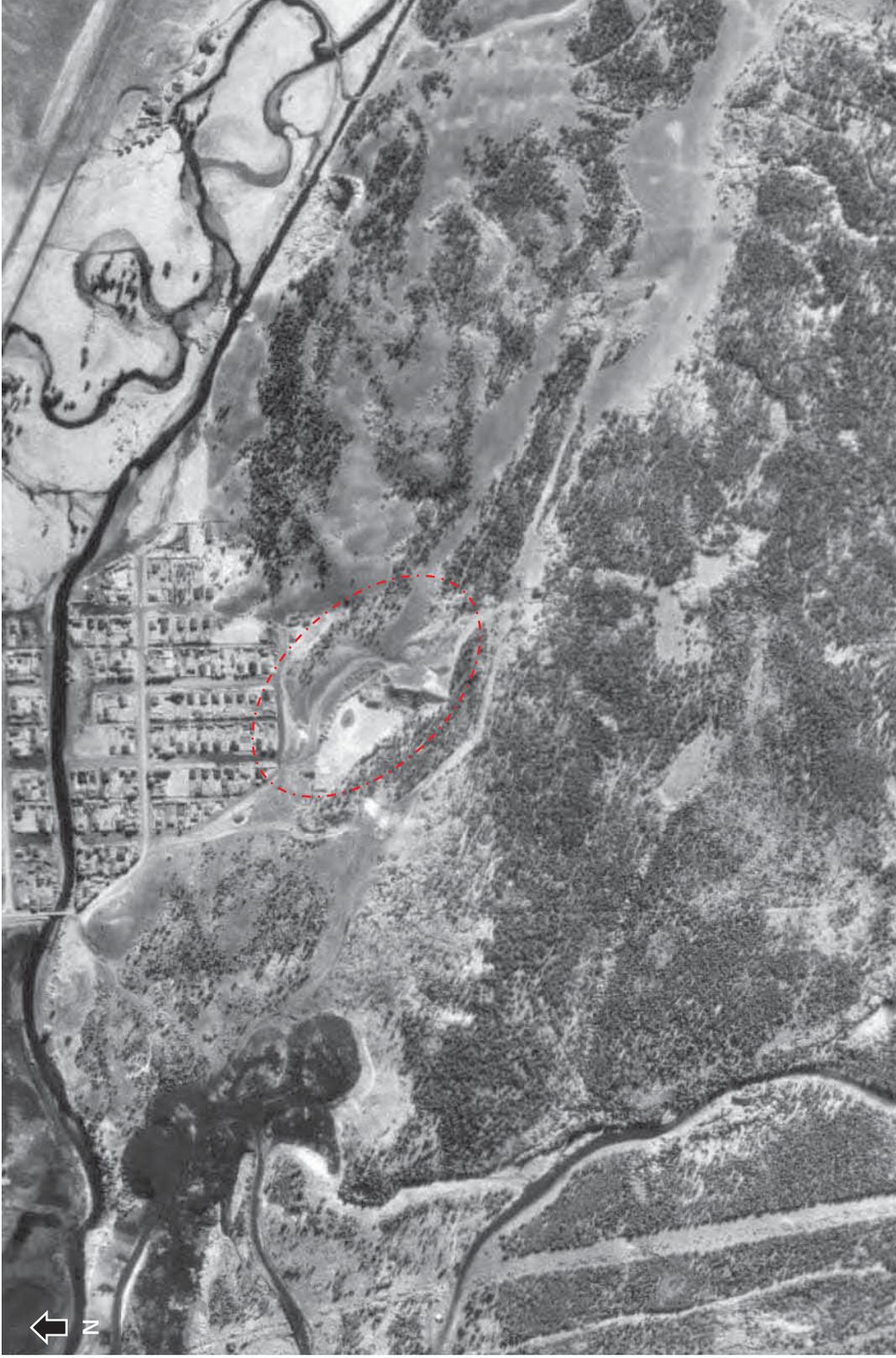
APPENDIX F - HISTORICAL AERIAL PHOTOGRAPHS



Associated
Environmental



Bushtown (red dotted line) – 1949 (AEP)



Bushtown (red dotted line) – 1957 (AEP)



Associated
Environmental



Bushtown (red dotted line) – 1969 (AEP)



Bushtown Landfill site (red dotted line) – 1978 (AEP)



Associated
Environmental



Bushtown (red dotted line) – 1987 (AEP)



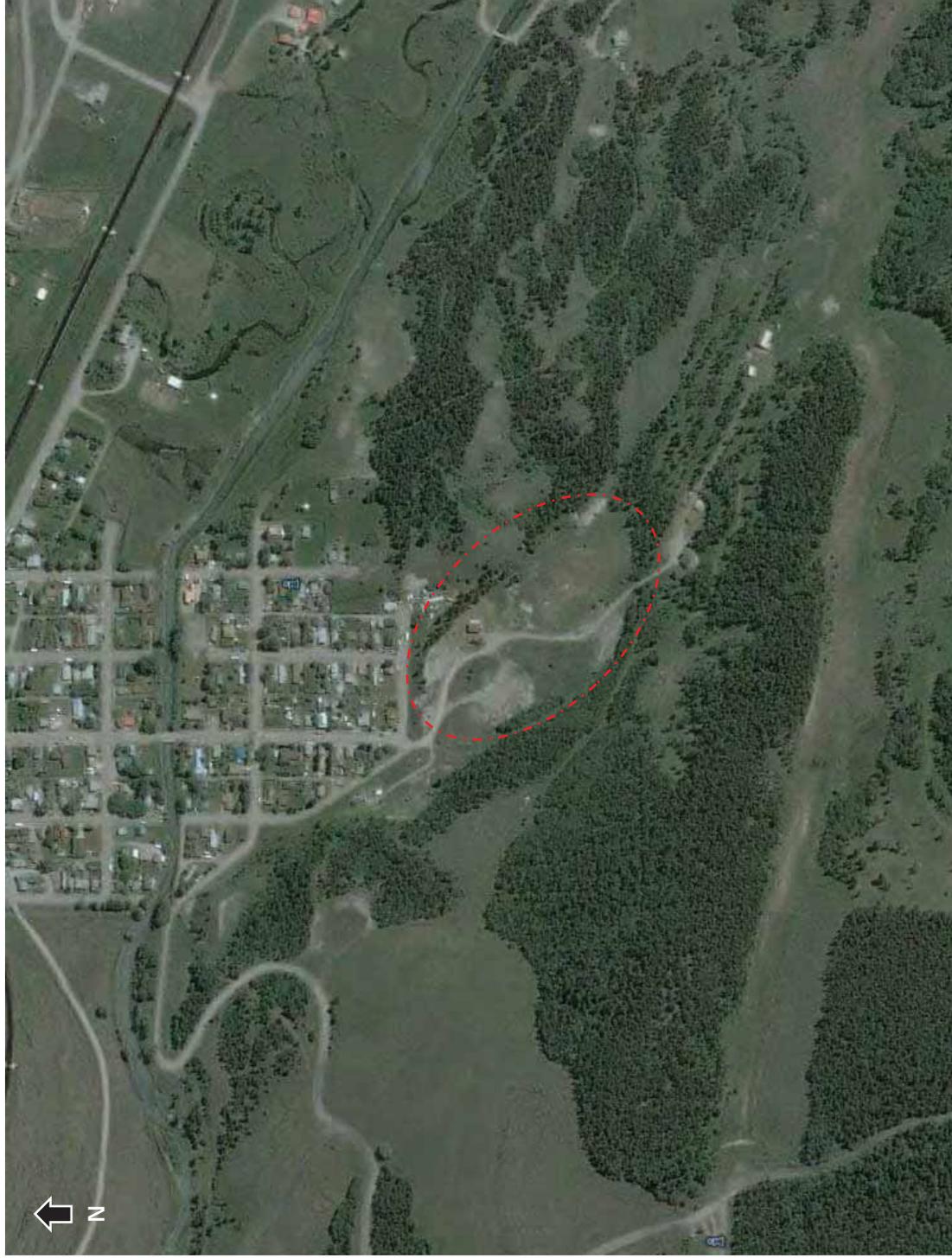
Associated
Environmental



Bushtown (red dotted line) – 1997 (AEP)



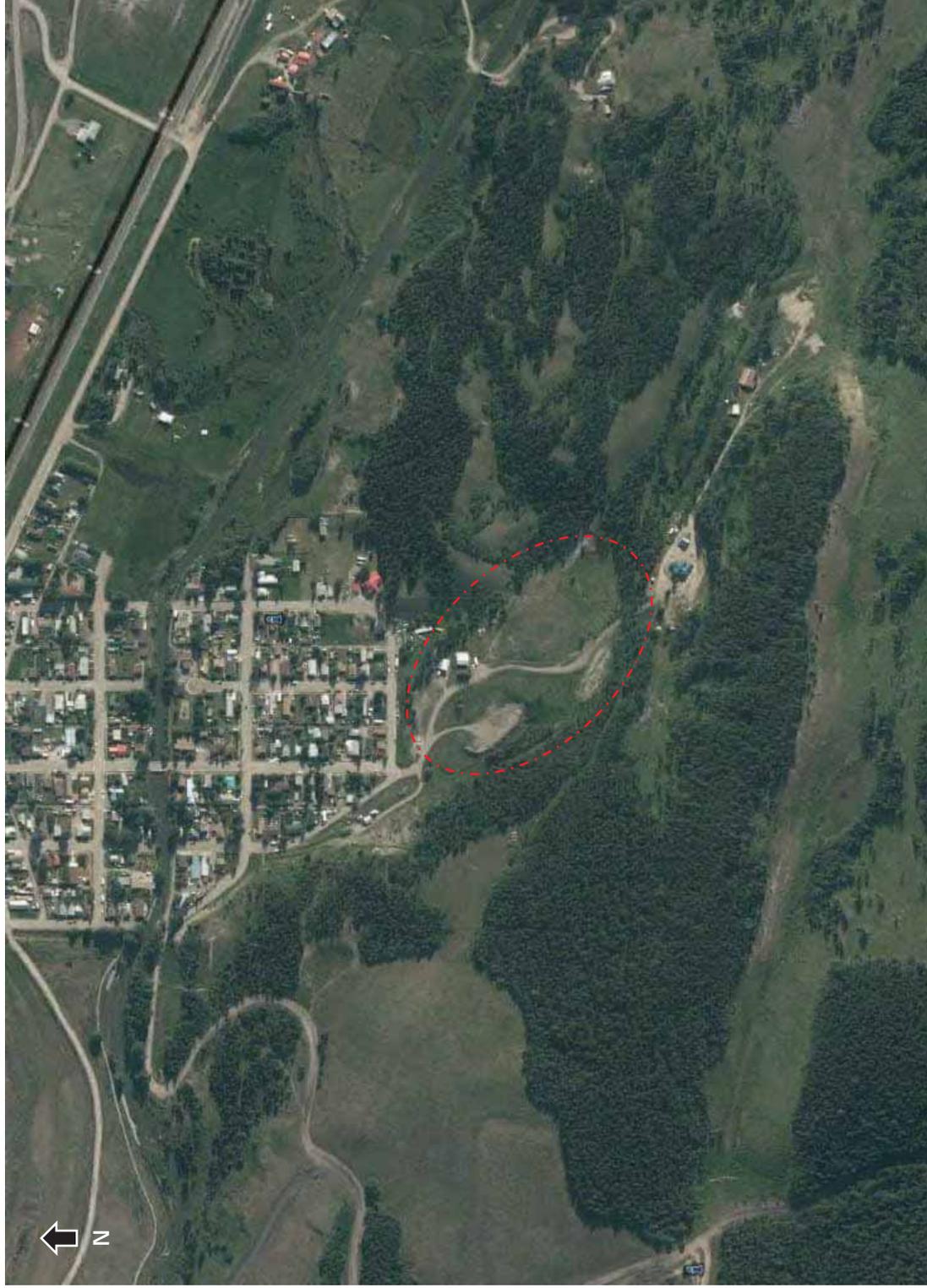
Associated
Environmental



Bushtown (red dotted line) – 2005 (Google Earth)



Associated
Environmental



Bushtown (red dotted line) – 2012 (Google Earth)



Associated
Environmental



Bushtown (red dotted line) – 2020 (Google Earth)



Associated
Environmental



Old Sartoris Staging Area (red dotted line) – 1949 (AEP)



Associated
Environmental



Old Sartoris Staging Area (red dotted line) – 1957 (AEP)



Old Sartoris Staging Area (red dotted line) – 1969 (AEP)



Associated
Environmental



Old Sartoris Staging Area (red dotted line) – 1978 (AEP)



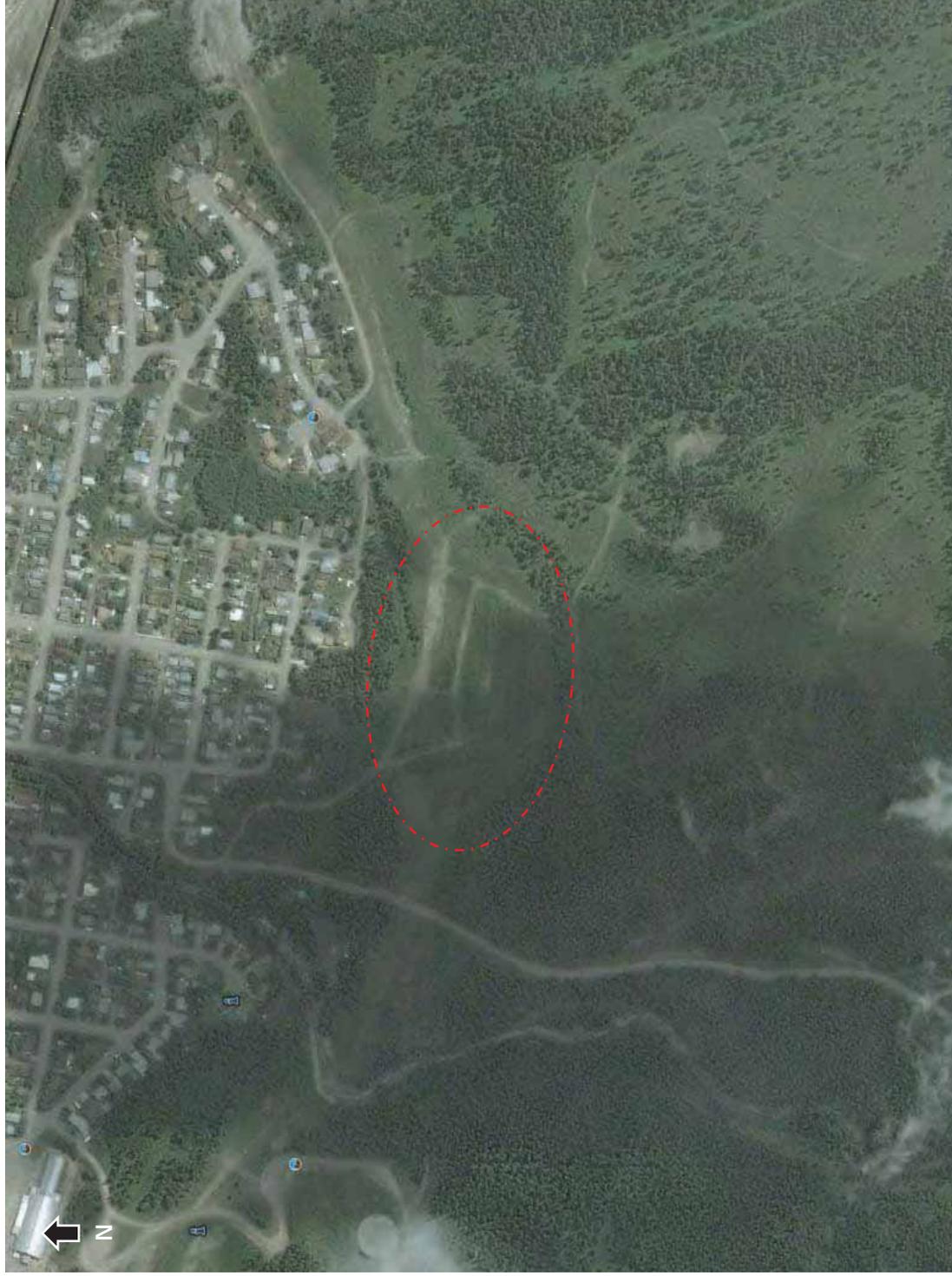
Old Sartoris Staging Area (red dotted line) – 1987 (AEP)



Old Sartoris Staging Area (red dotted line) – 1997 (AEP)



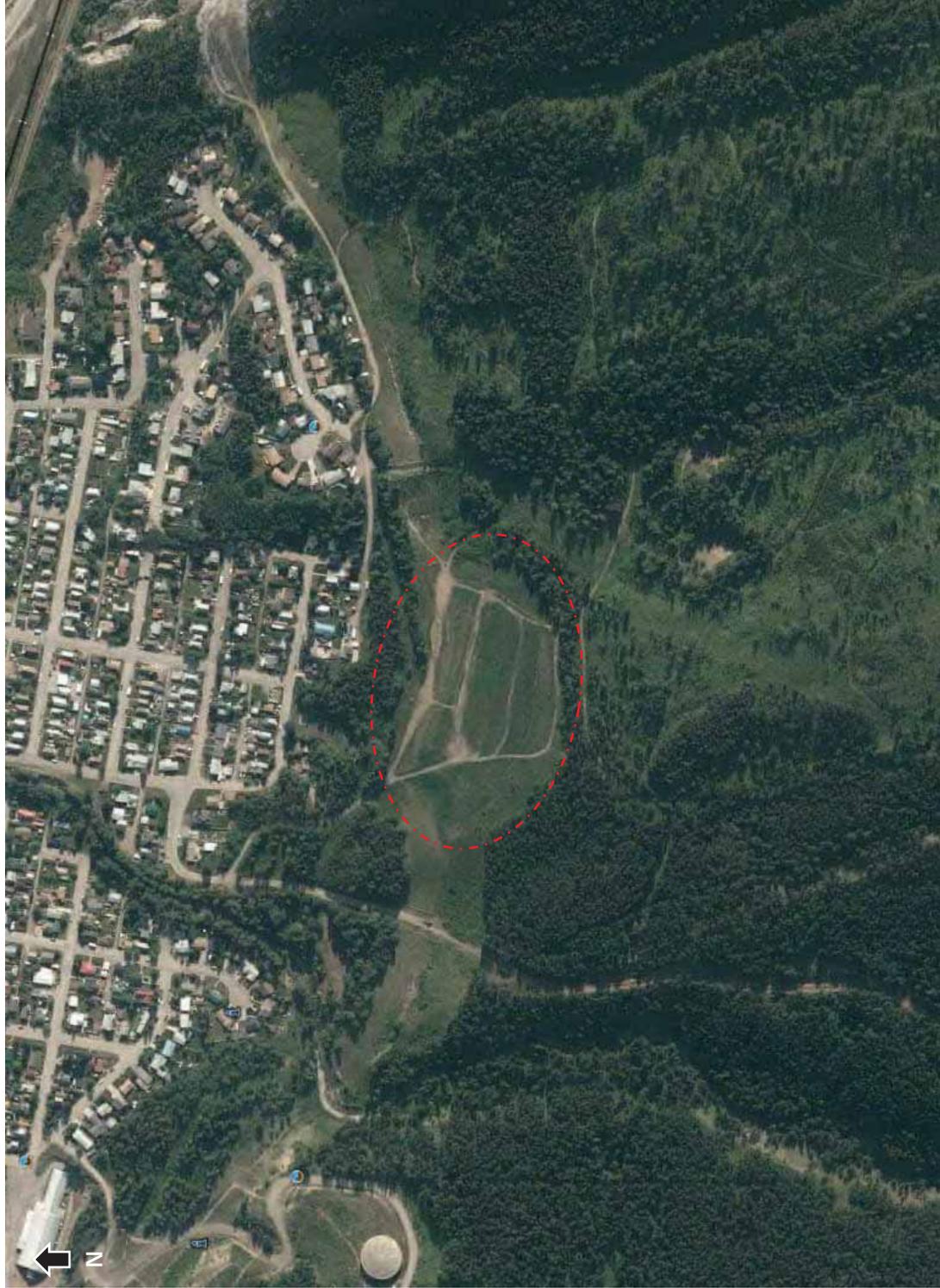
Associated
Environmental



Old Sartoris Staging Area (red dotted line) – 2005 (Google Earth)



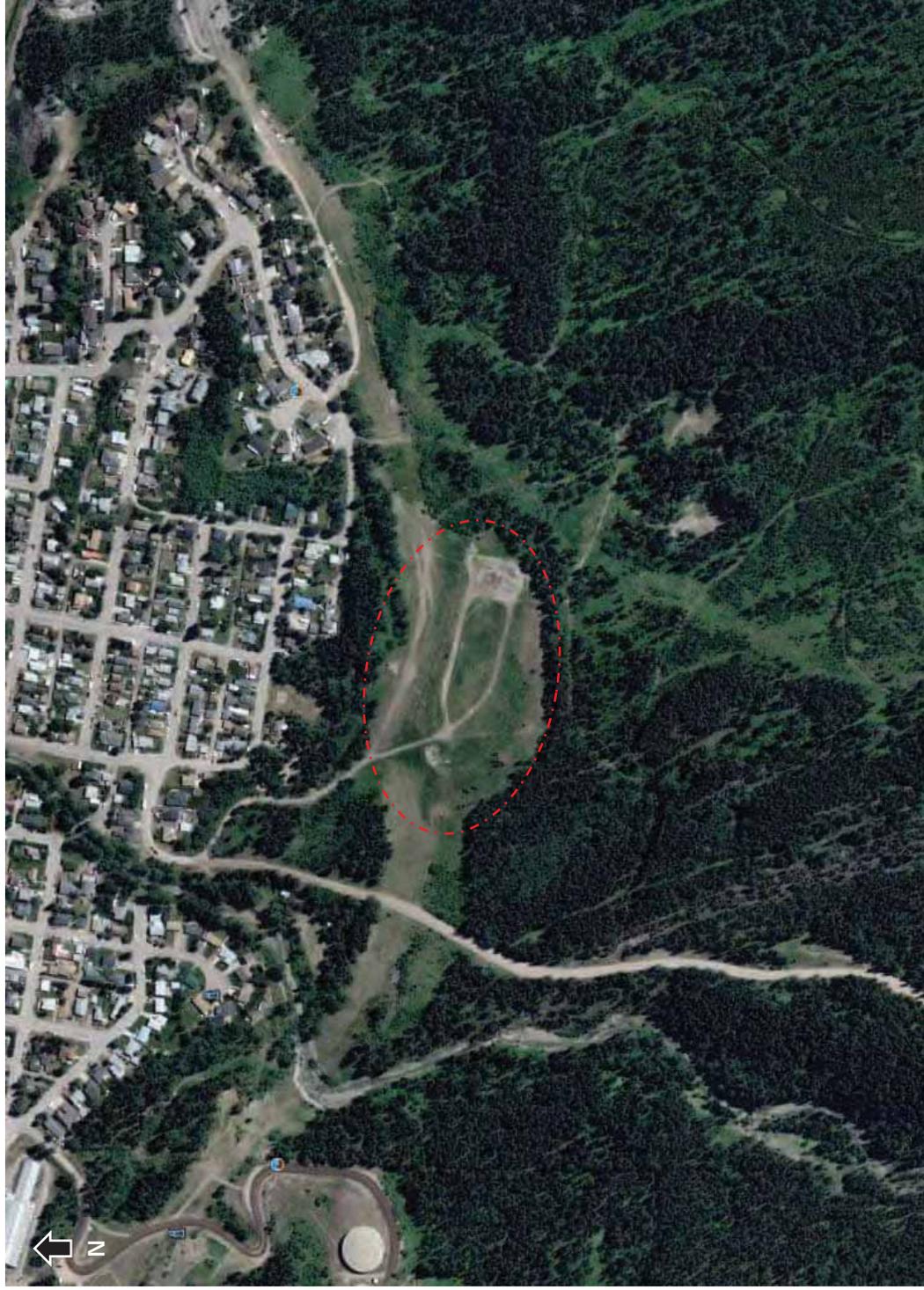
Associated
Environmental



Old Sartoris Staging Area (red dotted line) – 2012 (Google Earth)



Associated
Environmental



Old Sartoris Staging Area (red dotted line) – 2020 (Google Earth)



Hillcrest Ball Diamond Road (red dotted line) – 1949 (AEP)



Hillcrest Ball Diamond Road (red dotted line) – 1957 (AEP)



Hillcrest Ball Diamond Road (red dotted line) – 1969 (AEP)



Hillcrest Ball Diamond Road (red dotted line) – 1978 (AEP)



Hillcrest Ball Diamond Road (red dotted line) – 1987 (AEP)



Hillcrest Ball Diamond Road (red dotted line) – 1997 (AEP)



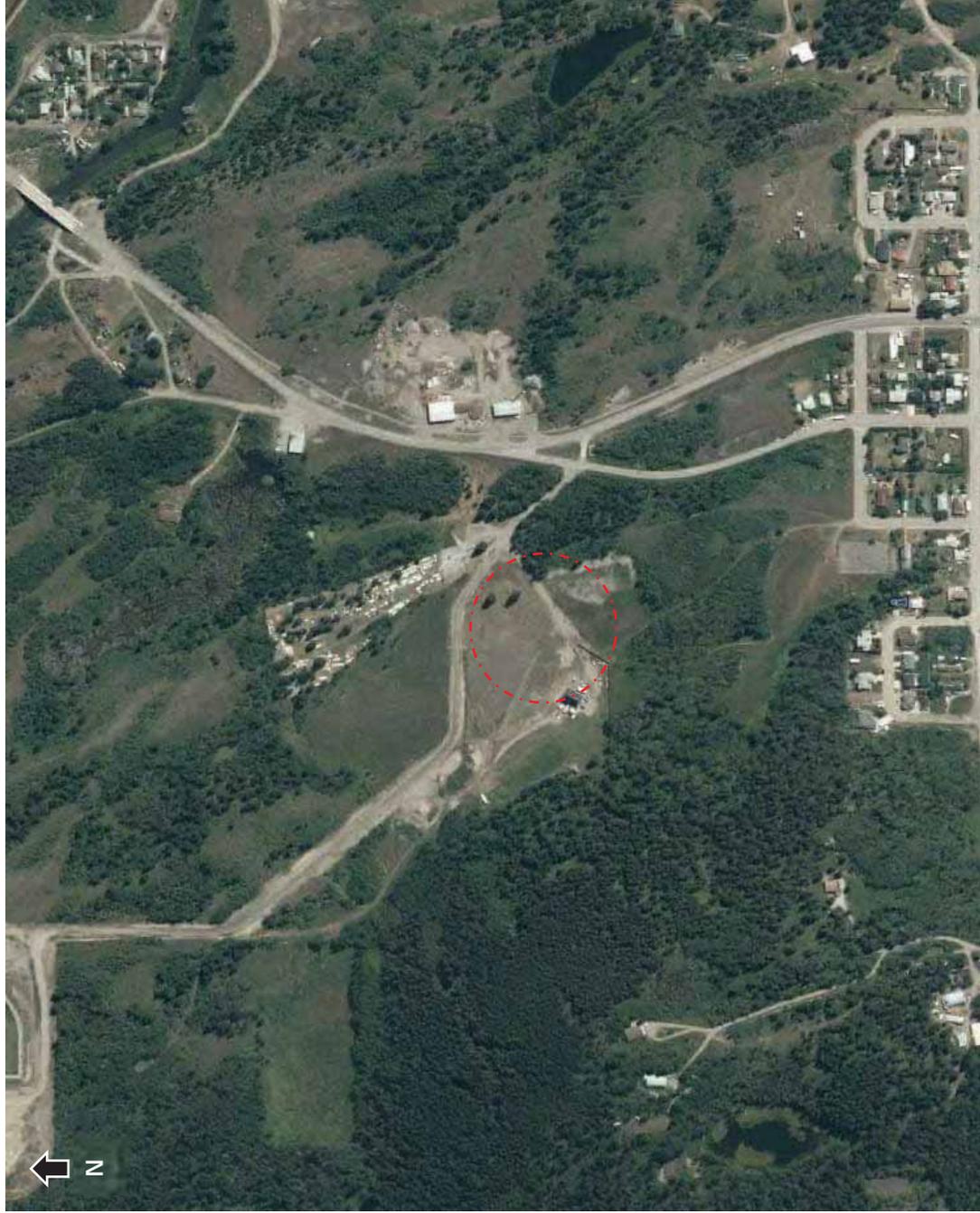
Associated
Environmental



Hillcrest Ball Diamond Road (red dotted line) – 2003 (Google Earth)



Associated
Environmental



Hillcrest Ball Diamond Road (red dotted line) – 2012 (Google Earth)



Hillcrest Ball Diamond Road (red dotted line) – 2019 (Google Earth)



Bellevue Old Highway 3 (red dotted line) – 1949 (AEP)



Bellevue Old Highway 3 (red dotted line) – 1957 (AEP)



Bellevue Old Highway 3 (red dotted line) – 1969 (AEP)



Belleve Old Highway 3 (red dotted line) – 1978 (AEP)



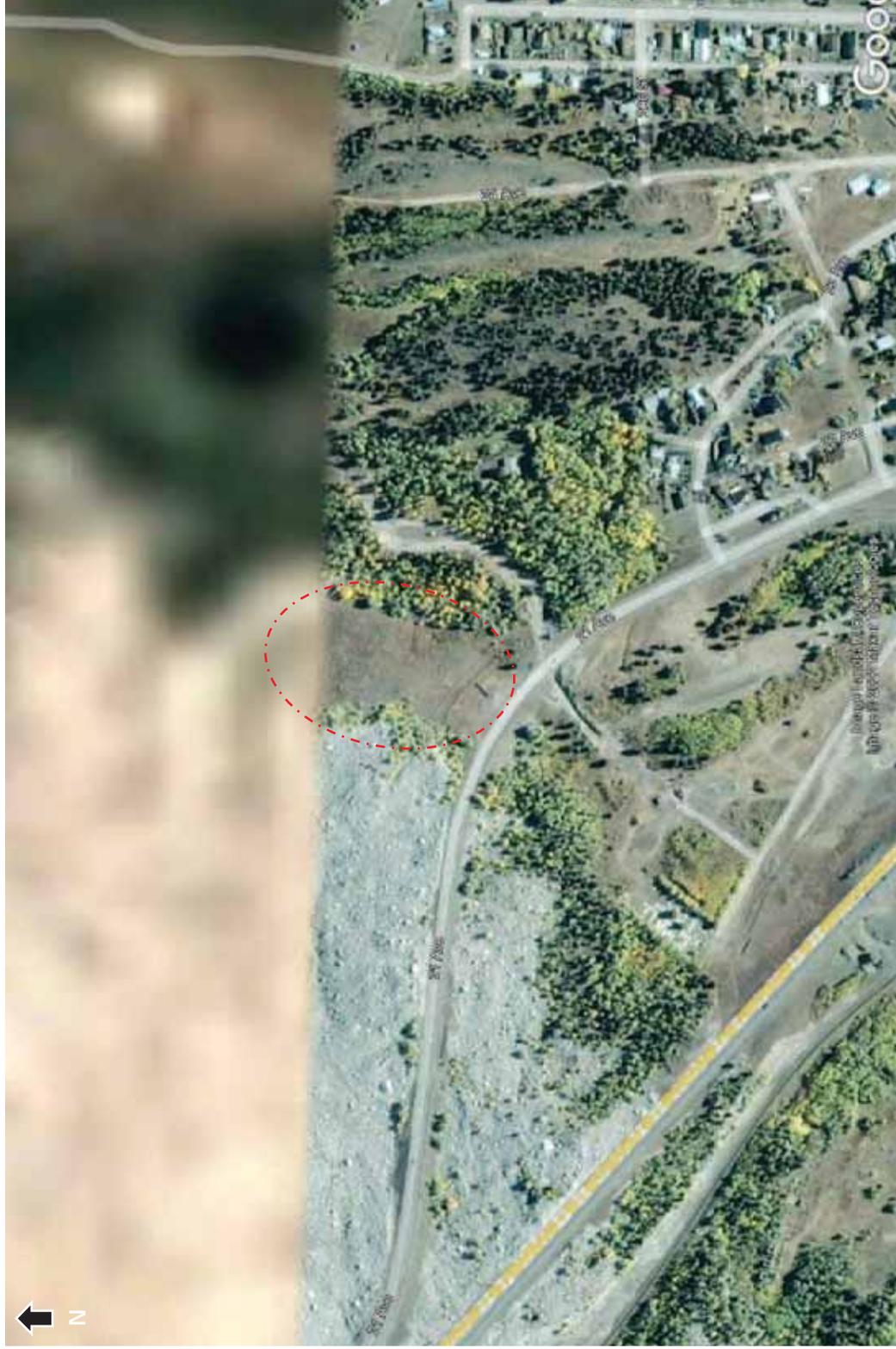
Belleve Old Highway 3 (red dotted line) – 1987 (AEP)



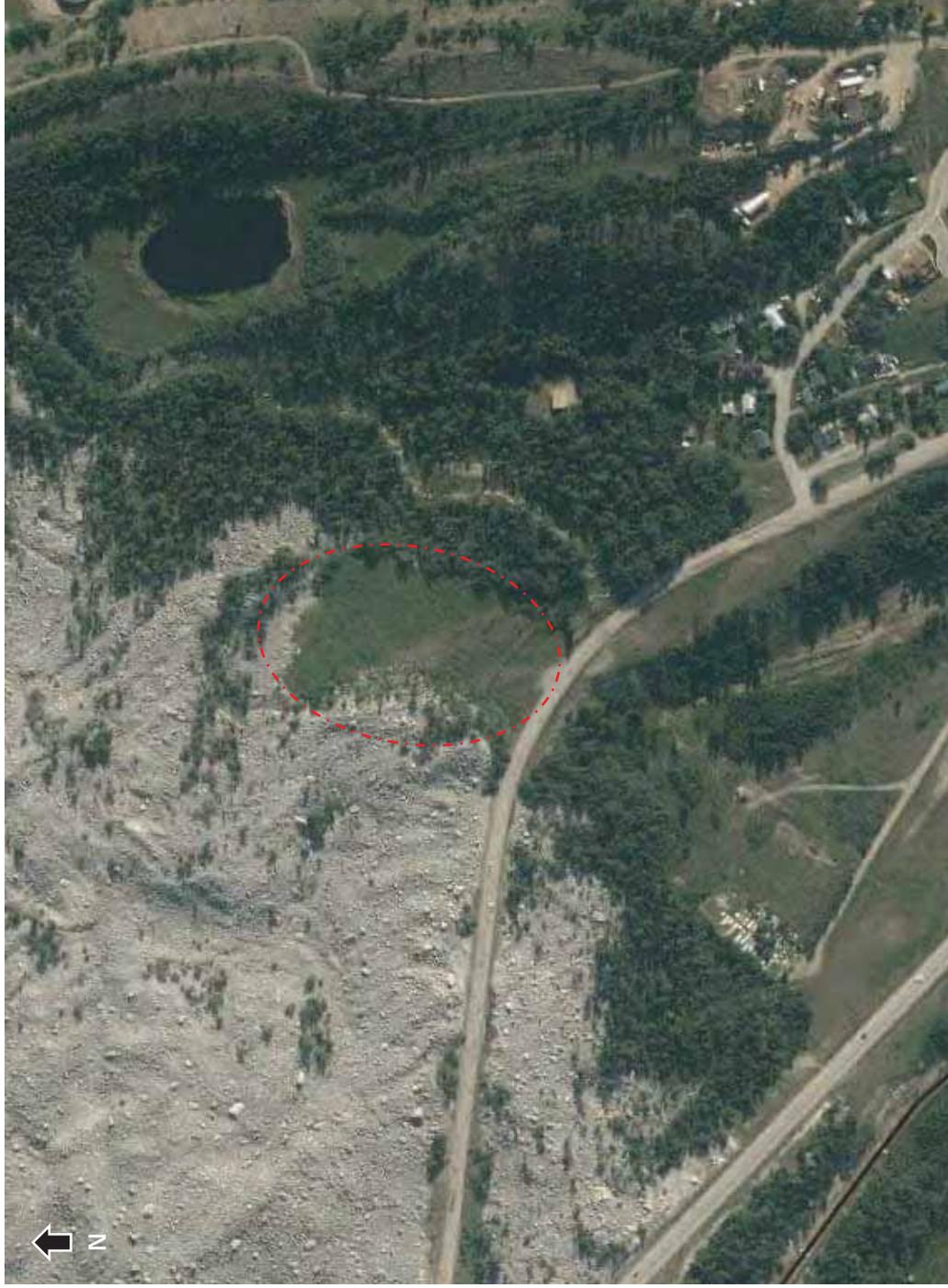
Belleve Old Highway 3 (red dotted line) – 1997 (AEP)



Associated
Environmental



Bellevue Old Highway 3 (red dotted line) – 2003 (Google Earth)



Bellevue Old Highway 3 (red dotted line) – 2012 (Google Earth)



Bellevue Old Highway 3 (red dotted line) – 2019 (Google Earth)



Frank Townsite (Suspected) (red dotted line) – 1949 (AEP)



Associated
Environmental



Frank Township (Suspected) (red dotted line) – 1957 (AEP)



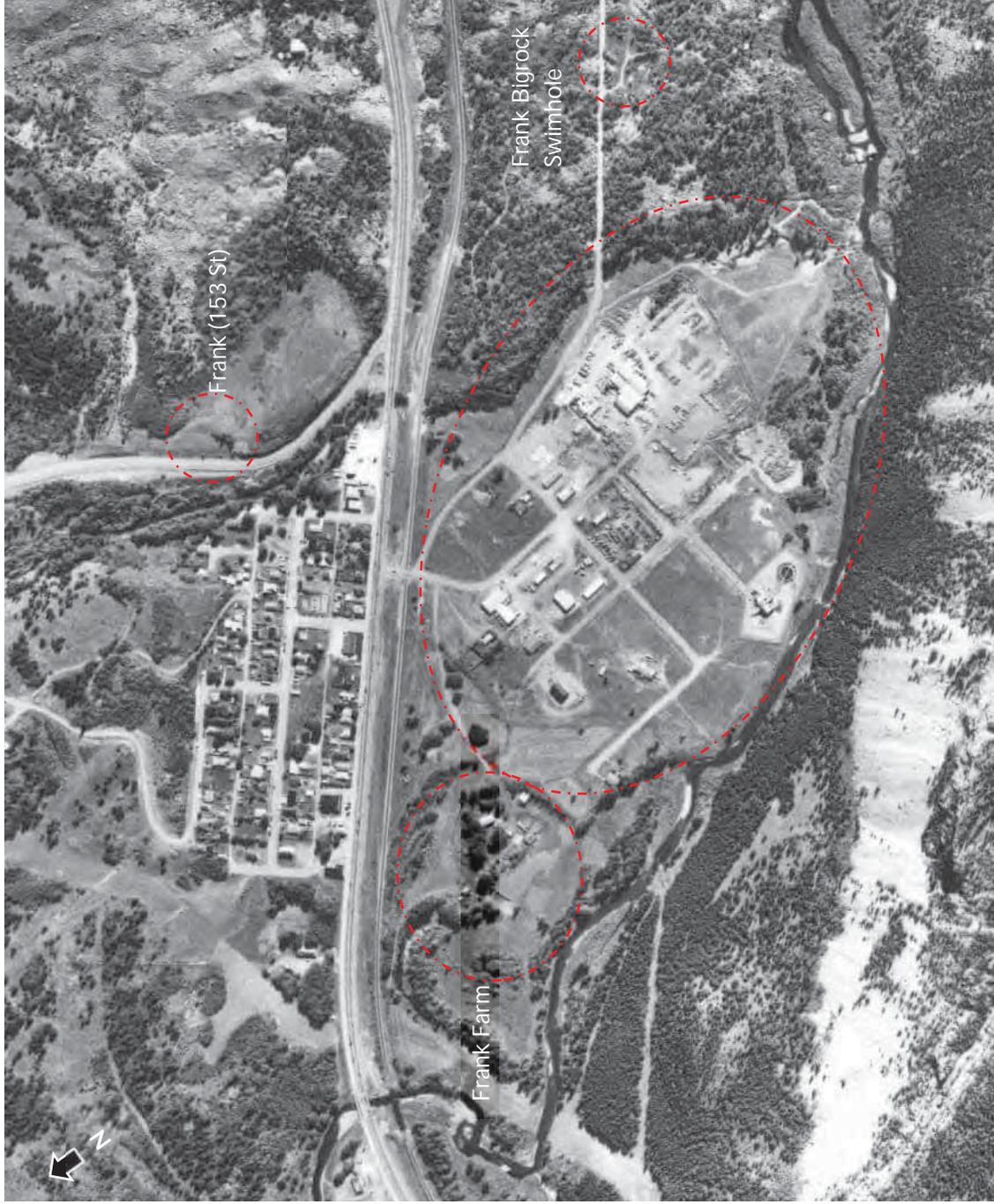
Frank Township (Suspected) (red dotted line) – 1969 (AEP)



Frank Townsite (Suspected) (red dotted line) – 1978 (AEP)



Frank Township (Suspected) (red dotted line) – 1987 (AEP)



Frank Township (Suspected) (red dotted line) – 1997 (AEP)



Frank Township (Suspected) (red dotted line) – 2005 (Google Earth)



Frank Township (Suspected) (red dotted line) – 2012 (Google Earth)



Frank Township (Suspected) (red dotted line) – 2019 (Google Earth)



Hillcrest South of Lagoons (Suspected) (red dotted line) – 1949 (AEP)



Associated
Environmental



Hillcrest South of Lagoons (Suspected) (red dotted line) – 1957 (AEP)



Hillcrest South of Lagoons (Suspected) (red dotted line) – 1969 (AEP)



Associated
Environmental



Hillcrest South of Lagoons (Suspected) (red dotted line) – 1978 (AEP)



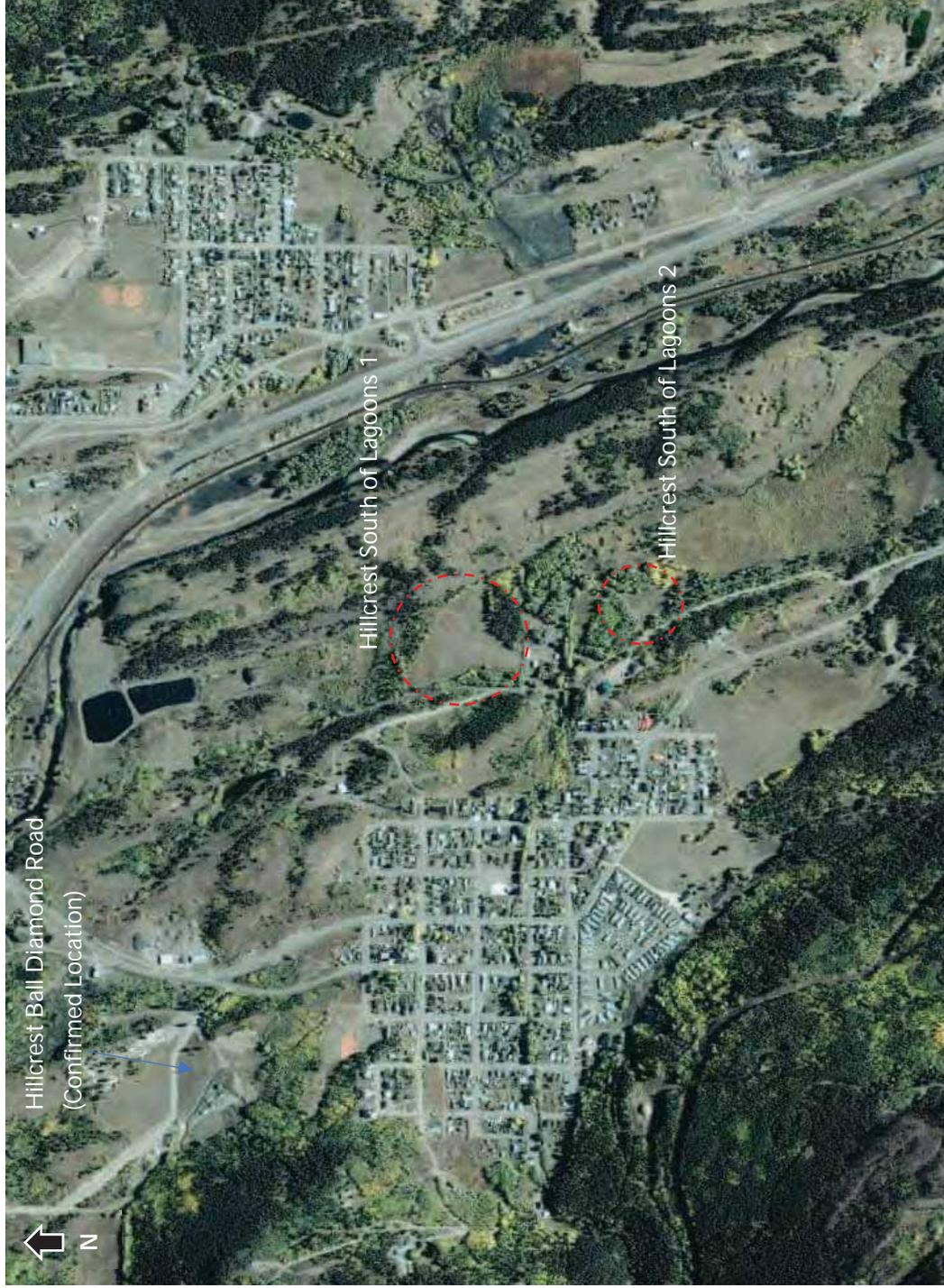
Hillcrest South of Lagoons (Suspected) (red dotted line) – 1987 (AEP)



Associated
Environmental



Hillcrest South of Lagoons (Suspected) (red dotted line) – 1997 (AEP)



Hillcrest South of Lagoons (Suspected) (red dotted line) – 2003 (Google Earth)



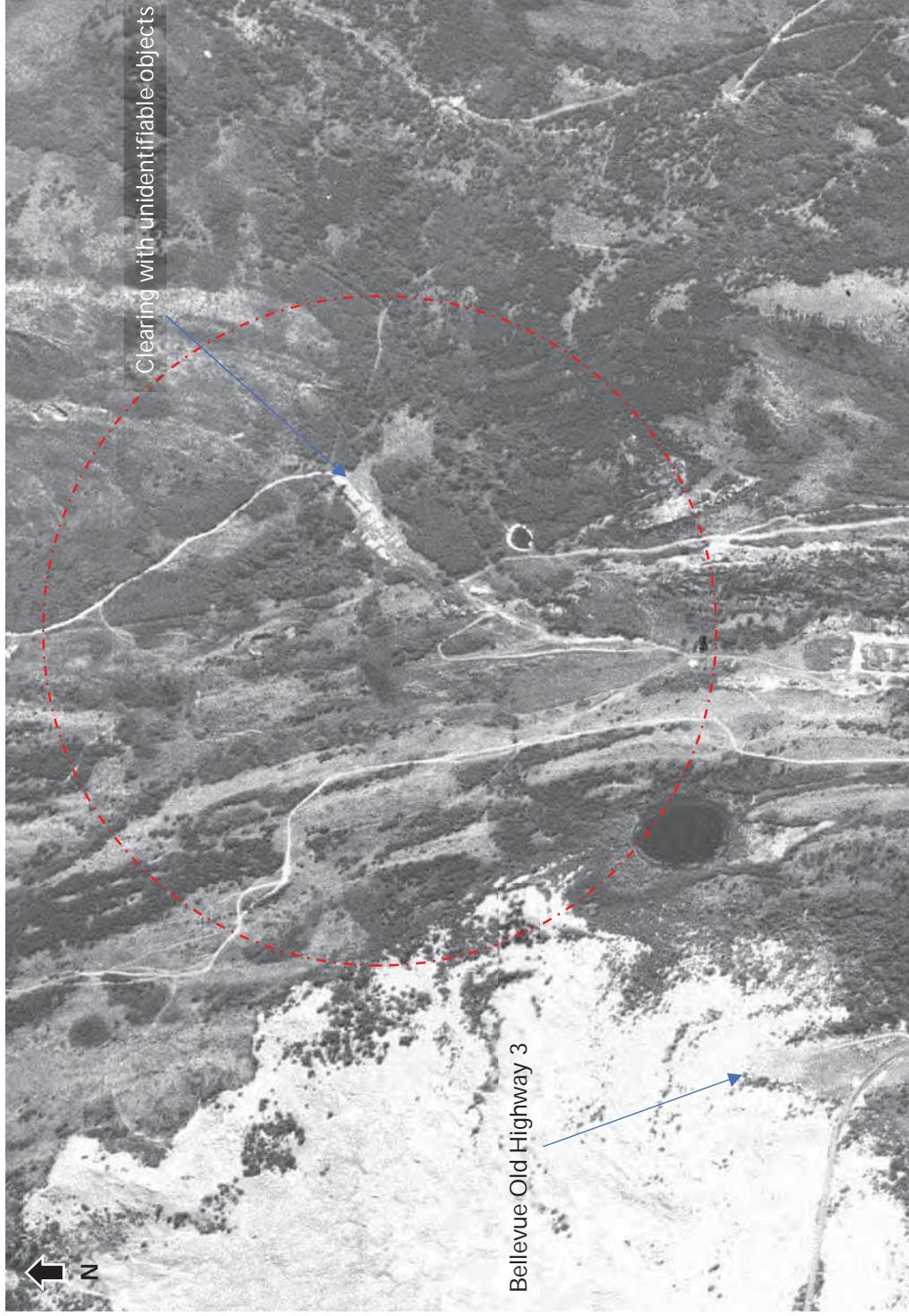
Hillcrest South of Lagoons (Suspected) (red dotted line) – 2012 (Google Earth)



Hillcrest South of Lagoons (Suspected) (red dotted line) – 2019 (Google Earth)



Associated
Environmental



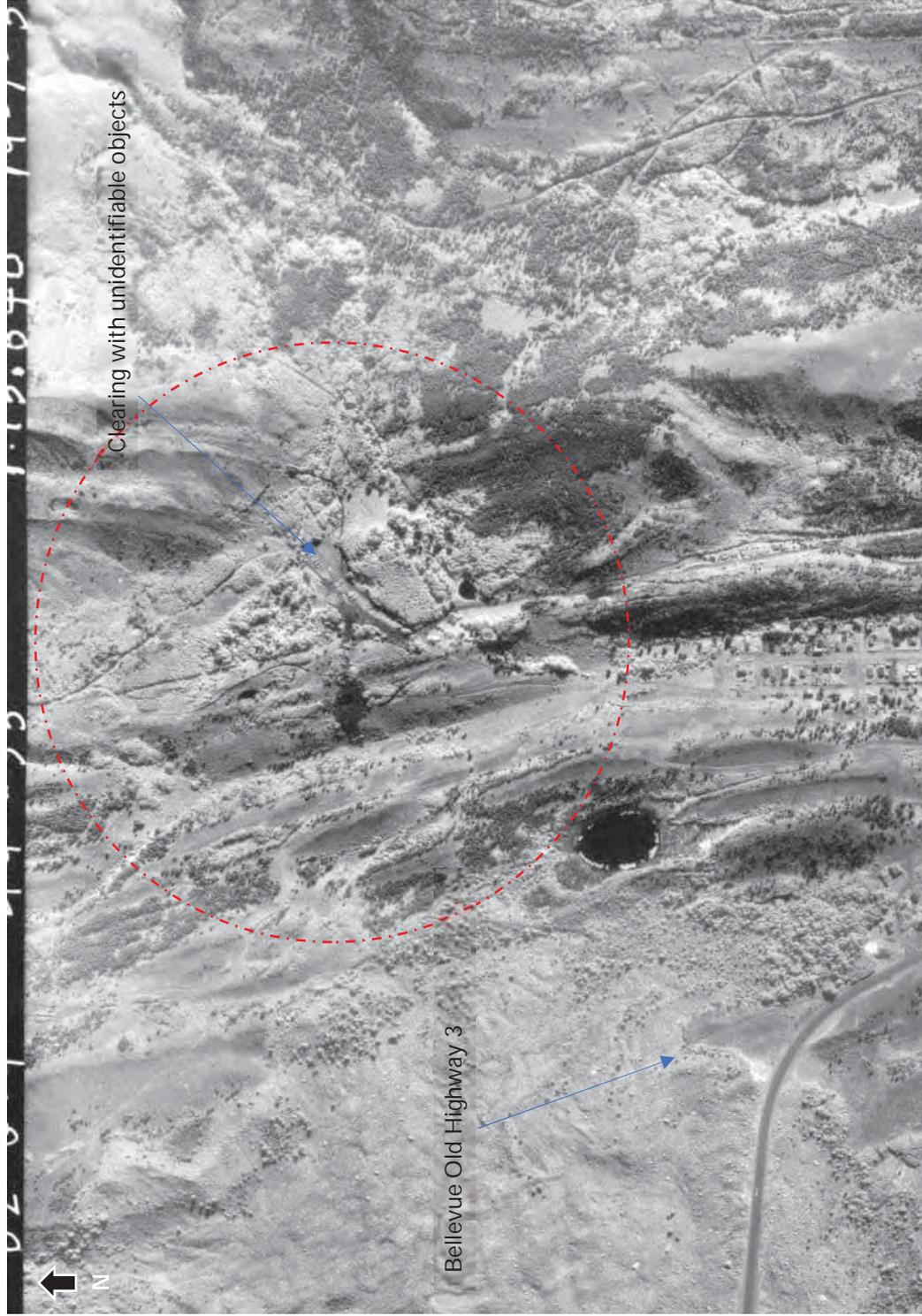
Clearing with unidentifiable objects

Bellevue Old Highway 3

Bellevue Firemen's Park (Suspected) (red dotted line) – 1949 (AEP)



Associated
Environmental



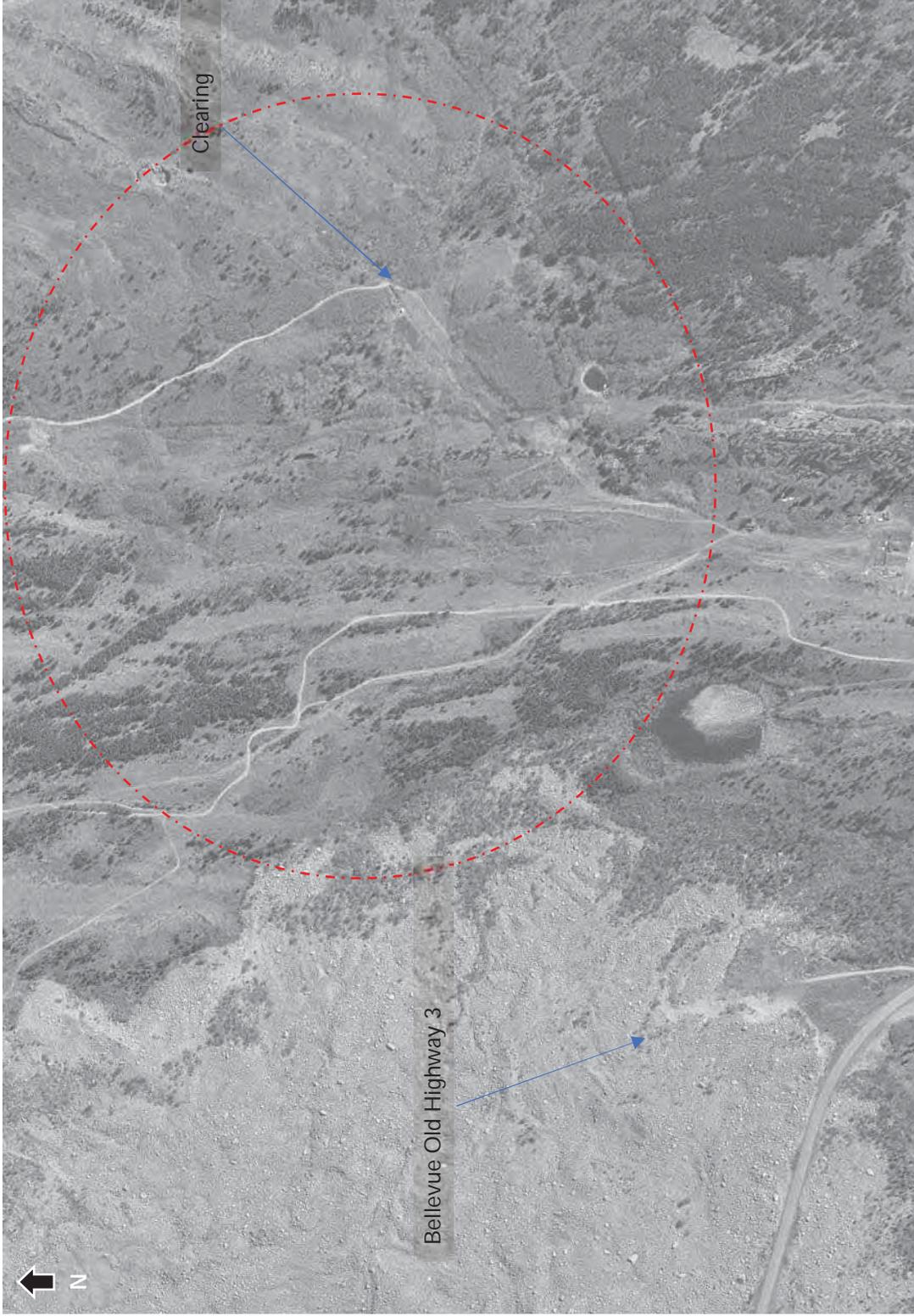
Clearing with unidentifiable objects

Bellevue Old Highway 3

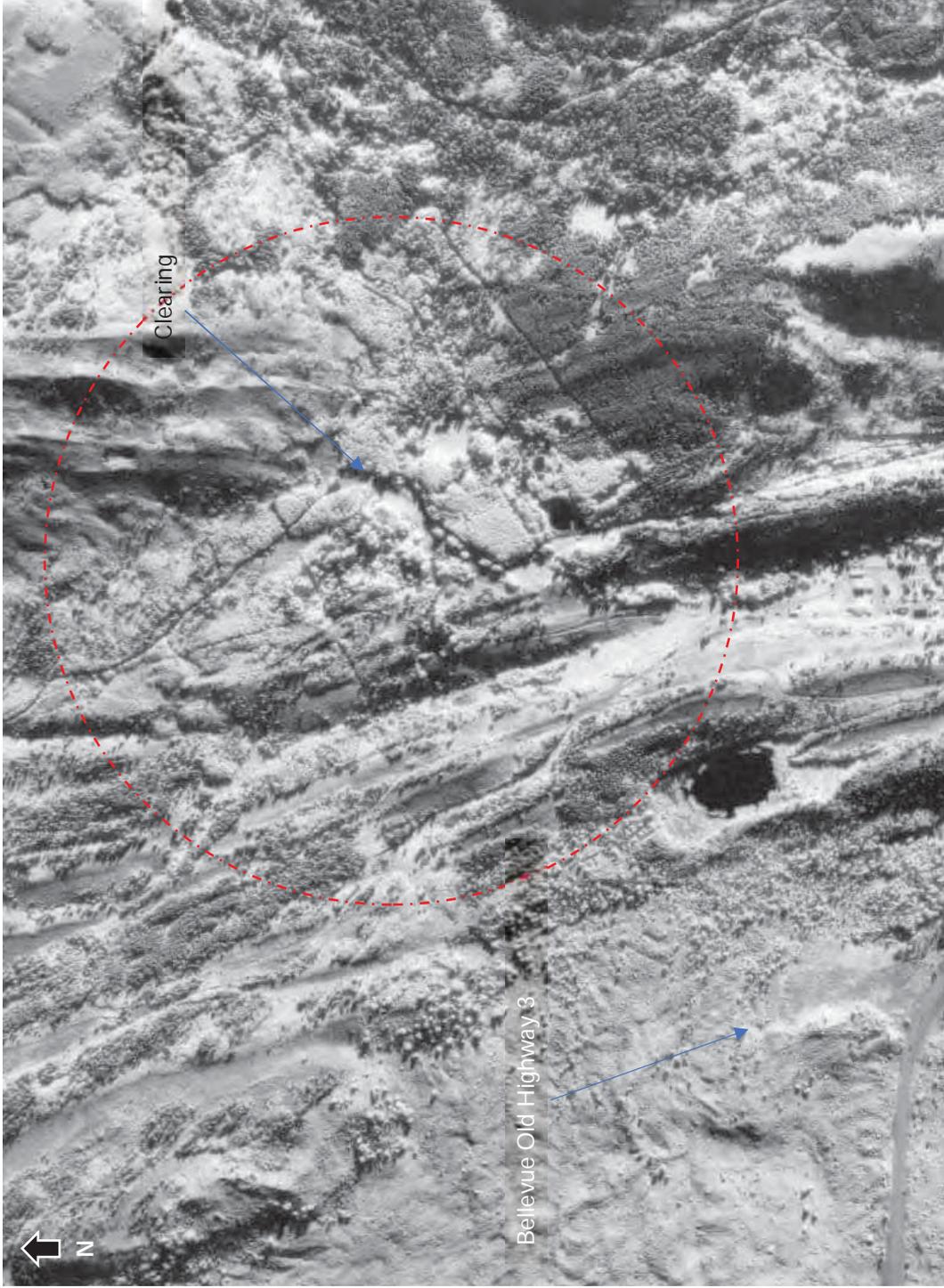
Bellevue Firemen's Park (Suspected) (red dotted line) – 1957 (AEP)



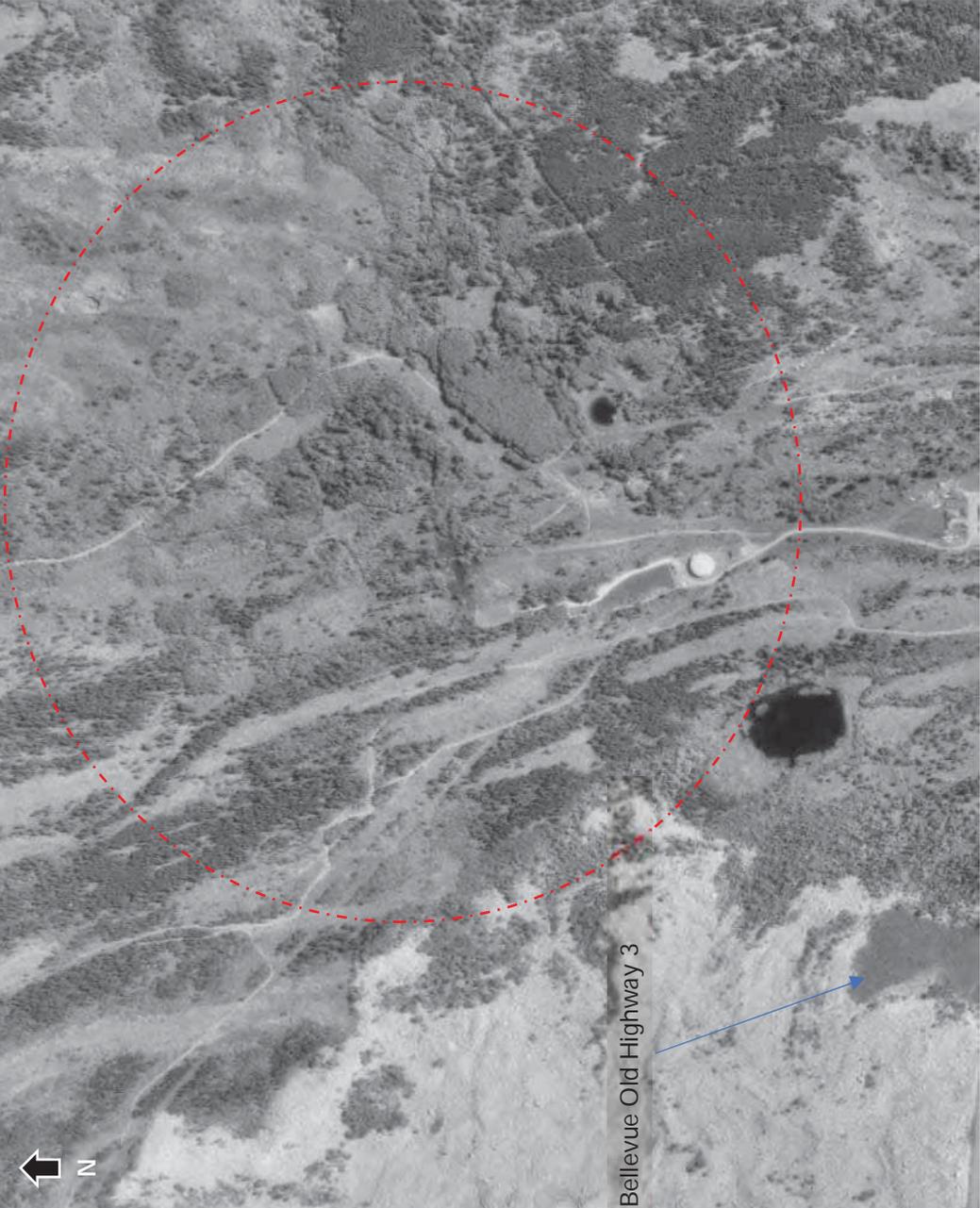
Associated
Environmental



Bellevue Firemen's Park (Suspected) (red dotted line) – 1969 (AEP)



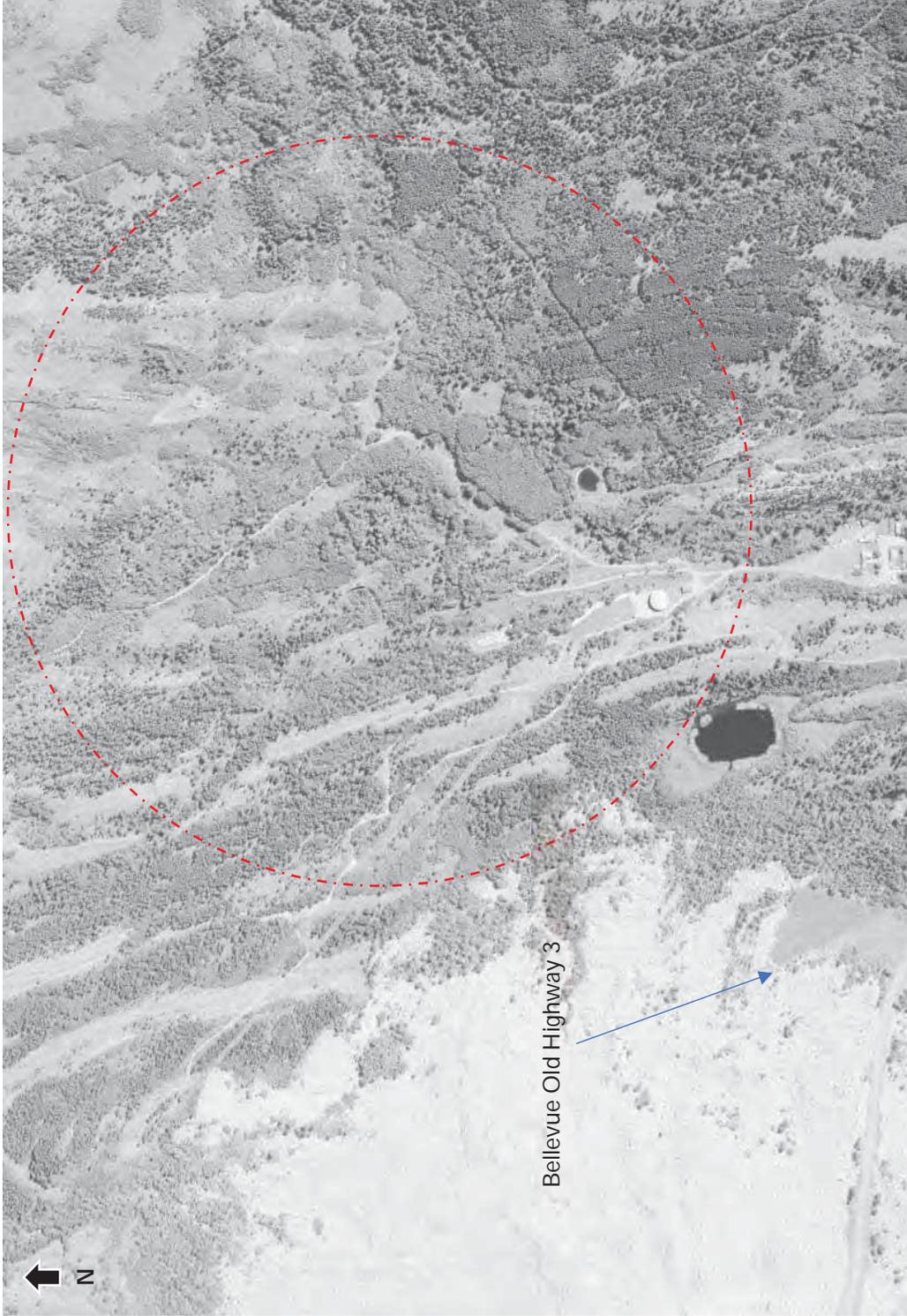
Bellevue Firemen's Park (Suspected) (red dotted line) – 1978 (AEP)



Bellevue Firemen's Park (Suspected) (red dotted line) – 1987 (AEP)



Associated
Environmental

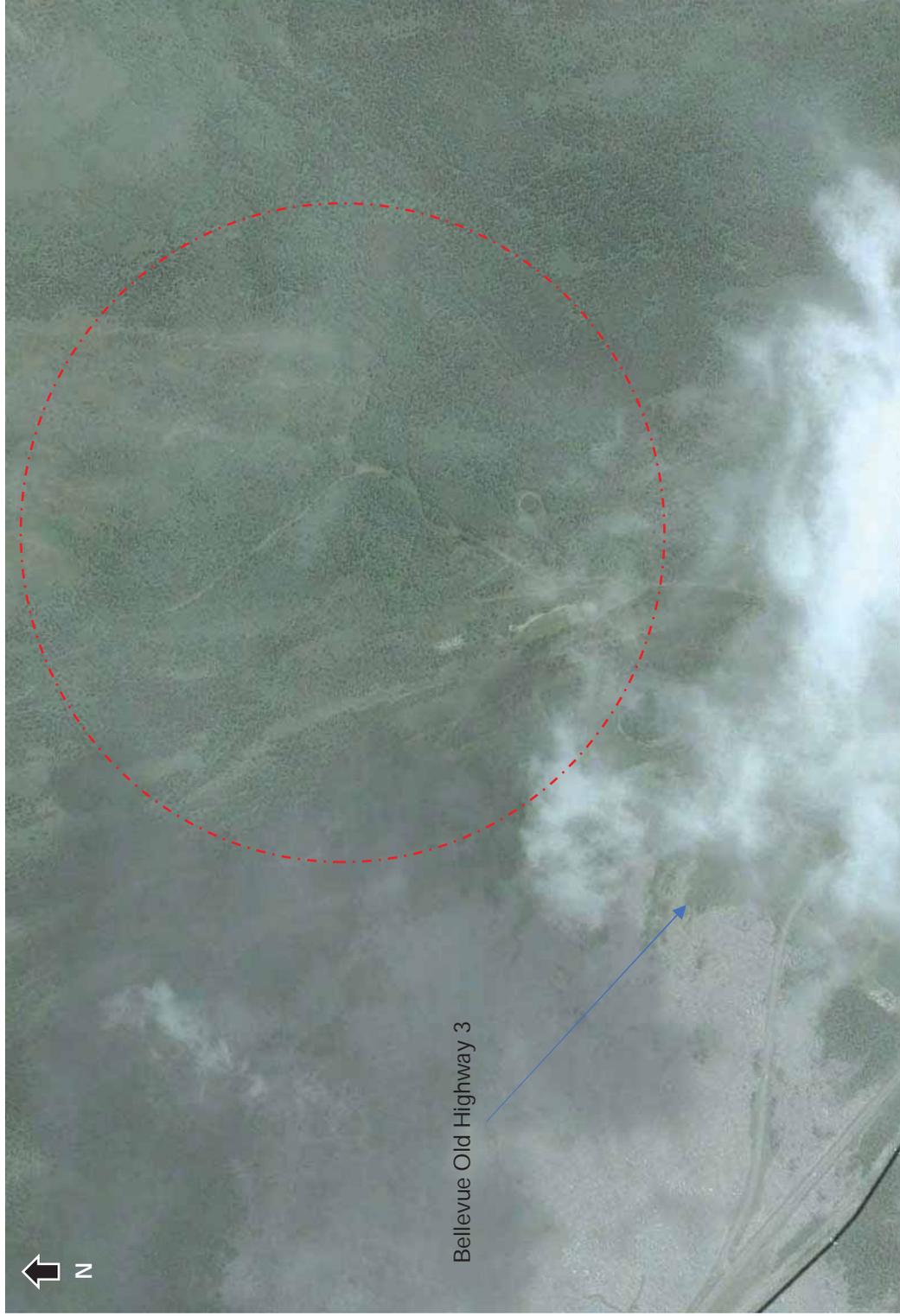


Bellevue Old Highway 3

Bellevue Firemen's Park (Suspected) (red dotted line) – 1998 (AEP)



Associated
Environmental



Bellevue Old Highway 3

Bellevue Firemen's Park (Suspected) (red dotted line) – 2005 (Google Earth)



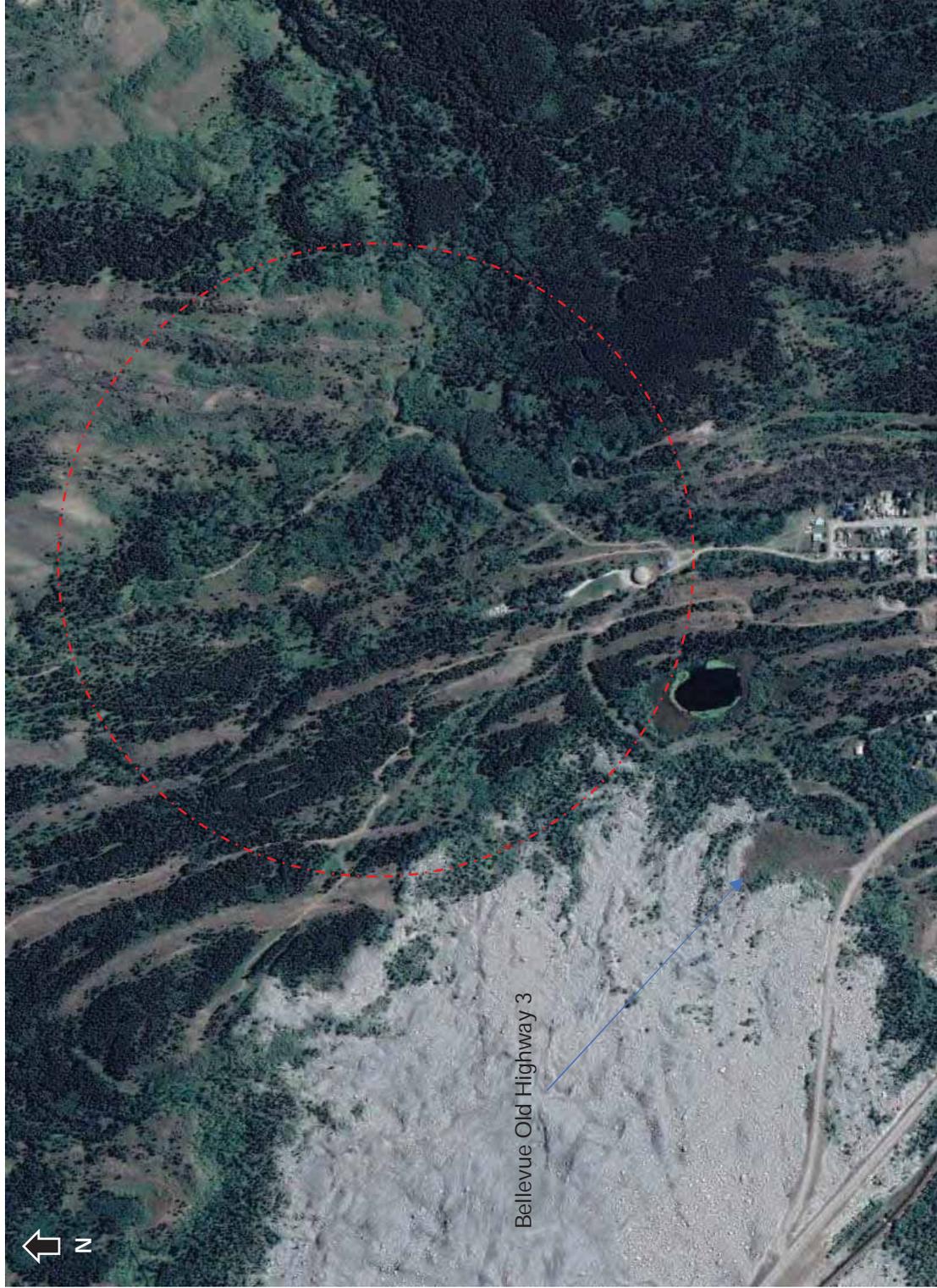
Associated
Environmental



Bellevue Firemen's Park (Suspected) (red dotted line) – 2012 (Google Earth)



Associated
Environmental



Bellevue Old Highway 3

Bellevue Firemen's Park (Suspected) (red dotted line) – 2019 (Google Earth)



Associated
Environmental



West Coleman (Suspected) (red dotted line) – 1949 (AEP)



West Coleman (Suspected) (red dotted line) – 1957 (AEP)



Associated
Environmental



West Coleman (Suspected) (red dotted line) – 1971 (AEP)



Associated
Environmental



West Coleman (Suspected) (red dotted line) – 1978 (AEP)



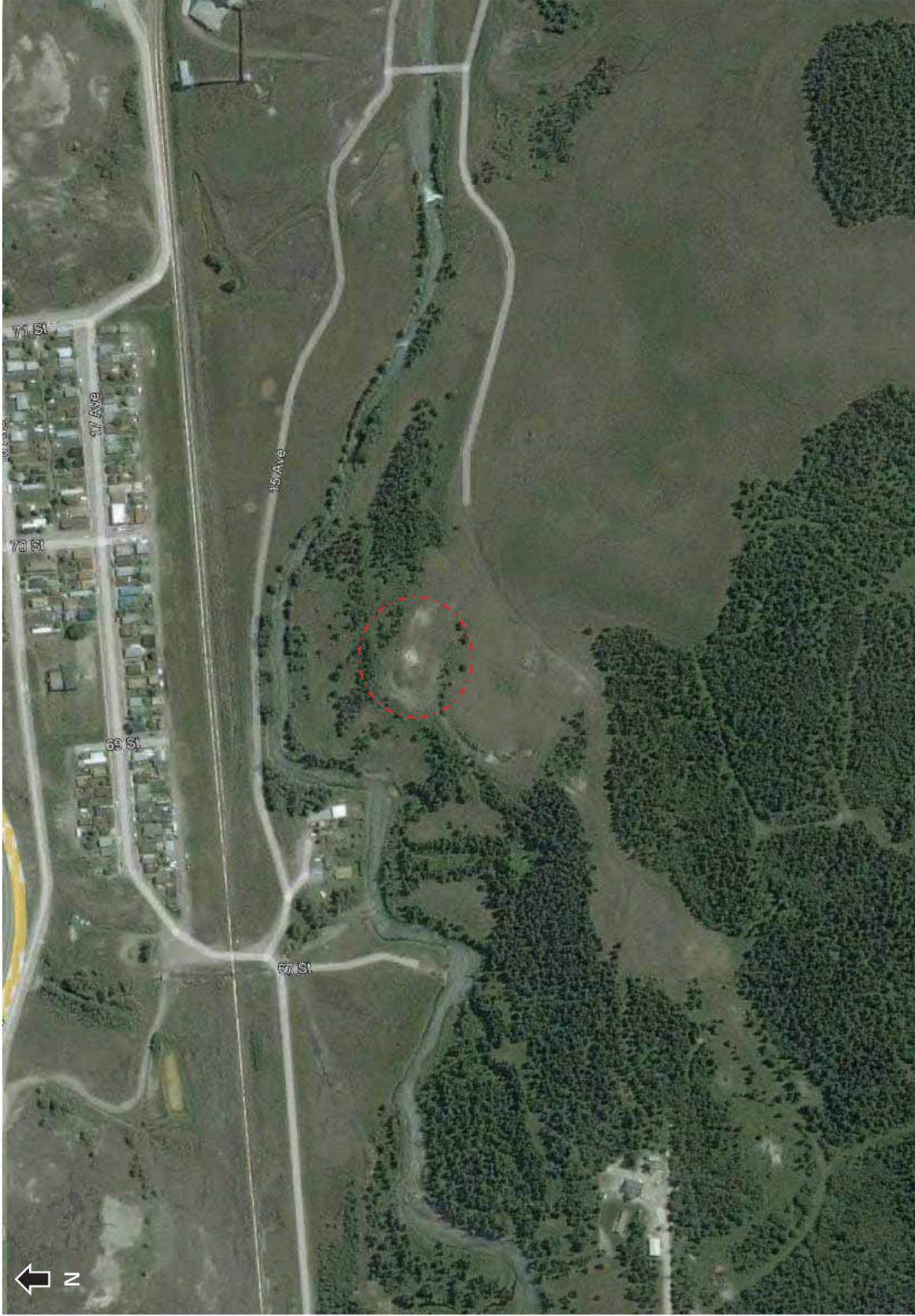
West Coleman (Suspected) (red dotted line) – 1987 (AEP)



West Coleman (Suspected) (red dotted line) – 1997 (AEP)



Associated
Environmental



West Coleman (Suspected) (red dotted line) – 2005 (Google Earth)



West Coleman (Suspected) (red dotted line) – 2012 (Google Earth)



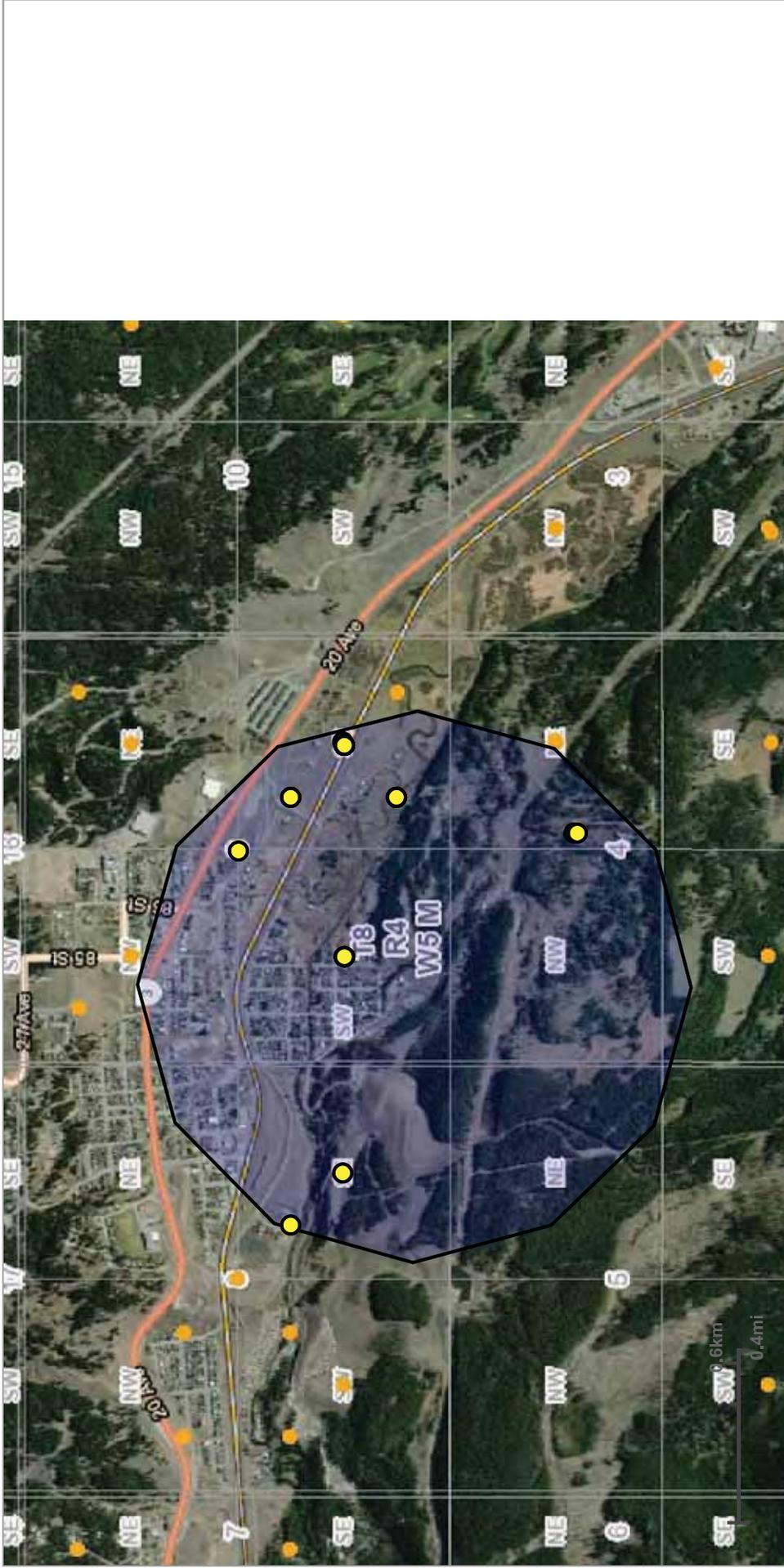
Associated
Environmental



West Coleman (Suspected) (red dotted line) – 2020 (Google Earth)

APPENDIX G - WATER WELL RECORDS





Alberta Water Well Information Database Map

Projection

Web Mercator (Auxillary Sphere)

Datum

WGS 84

Date

10/12/2022, 11:49:54 AM

Legend

 Groundwater Drilling Report

 Baseline Water Well Report

<http://groundwater.alberta.ca/WaterWells/d/>

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Groundwater Wells

Please click the water Well ID to generate the Water Well Drilling Report.

GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
402249	SE	8	8	4	5	HENNING DRILLING LTD.	1979-10-18	44.20	New Well	Domestic		10		GRAF, TERRY	10.67	22.73	0.00
402250	7	8	8	4	5	ALPINE DRLG	1963-11-28	6.10	New Well	Unknown		1		ALTA ENV/WATER RES#23	5.27		0.00
402308	SE	9	8	4	5	UNKNOWN DRILLER		28.96	Chemistry	Unknown	1			CROWSNEST PASS, MUN OF	1.83		0.00
402309	SE	9	8	4	5	UNKNOWN DRILLER		4.27	Chemistry	Domestic	2			MICHALSKY, TERRY	3.05		0.00
402310	SE	9	8	4	5	UNKNOWN DRILLER		6.10	Chemistry	Unknown	1			MICHALSKY, T.	3.05		0.00
402311	SE	9	8	4	5	VANDRIESTEN WM	1972-11-01	6.71	New Well	Domestic		2		PYTLARY, J.	1.52	31.82	13.97
402312	SE	9	8	4	5	UNKNOWN DRILLER		15.85	Chemistry	Domestic	2			NATAL FOREST PRODUCTS	10.67		0.00
402313	SE	9	8	4	5	VANDRIESTEN WM	1976-04-23	28.65	New Well	Domestic		3		SNYDER, P.	15.24	13.64	11.43
402316	2	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1982-06-14	23.16	New Well	Domestic		17		MICHALSKI, TED	2.59	68.19	14.12
402317	SE	9	8	4	5	UNKNOWN DRILLER		22.86	Chemistry	Domestic	1			NATAL FOREST PRODUCTS	2.29		0.00
402319	SE	9	8	4	5	UNKNOWN DRILLER		15.24	Chemistry	Domestic	1			KNIGHT, GEORGE			0.00
402320	SE	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1983-02-01	22.86	Test Hole	Observation	2	4		CROWSNEST PASS, MUN OF	2.07		16.84
402321	2	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1983-01-26	24.38	Test Hole	Observation		9		CROWSNEST PASS, MUN OF	2.01		16.84
402322	SE	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1982-03-12	35.05	New Well	Unknown		10		CROWSNEST PASS, MUN OF	1.74	2,273.05	27.00
402323	7	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1984-01-05	24.38	New Well	Municipal		6		CROWSNEST PASS, MUN OF	1.71		27.00
402324	SE	9	8	4	5	UNKNOWN DRILLER		21.03	Chemistry	Municipal	1			CROWSNEST PASS, MUN OF			0.00
402325	2	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1985-04-23	18.29	Test Hole- Decommissioned	Observation		3		MICHALSKI, TERRY#1			0.00
402327	SE	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1985-04-24	18.29	Test Hole- Decommissioned	Observation		4		MICHALSKI, TERRY#3			0.00
402328	2	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1985-04-24	10.97	Test Hole- Decommissioned	Observation		4		MICHALSKI, TERRY			0.00
402330	7	9	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1985-04-25	9.75	New Well	Domestic & Stock	1	3		MICHALSKI, TERRY	4.88	181.84	16.84



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
<u>402332</u>	SW	9	8	4	5	UNKNOWN DRILLER		7.62	Chemistry	Domestic	1			SKRZYZALA, L.	1.83		0.00
<u>402334</u>	SW	9	8	4	5	VANDRIESTEN WM	1972-11-01	6.71	New Well	Domestic		2		BELLAK, R.	1.83	36.37	13.97
<u>402338</u>	SW	9	8	4	5	VANDRIESTEN WM	1976-11-29	46.33	New Well	Domestic		3		SHARP, A.	0.00	9.09	11.43
<u>402341</u>	SW	9	8	4	5	UNKNOWN DRILLER		24.38	Chemistry	Domestic	1			CROWSNEST PASS, MUN OF	0.91		0.00
<u>402343</u>	SW	9	8	4	5	UNKNOWN DRILLER		23.77	Chemistry	Domestic	1			MICHALSKY	1.83		0.00
<u>402346</u>	SW	9	8	4	5	UNKNOWN DRILLER		4.57	Chemistry	Domestic	1			ZUR, WALTER			0.00
<u>402350</u>	SW	9	8	4	5	UNKNOWN DRILLER		0.00	Chemistry	Domestic	1			REMUS, BARRY			0.00
<u>402351</u>	SW	9	8	4	5	UNKNOWN DRILLER		7.01	Chemistry	Domestic	1			SANYSHYN, JOHN			0.00
<u>402378</u>		9	8	4	5	UNKNOWN DRILLER		3.96	Chemistry	Domestic	1			WATT, GEORGE			0.00
<u>498311</u>	10	4	8	4	5	DOLLIMAN'S WATER WELL DRILLING INC.	2001-06-26	60.96	New Well	Domestic		3	25	MCNAB, DON	9.42	9.09	16.81
<u>498312</u>	10	4	8	4	5	DOLLIMAN'S WATER WELL DRILLING INC.	2001-06-25	60.96	Test Hole- Decommissioned	Domestic		3		MCNAB, DON			0.00
<u>1250137</u>	SE	9	8	4	5	DOLLIMAN'S WATER WELL DRILLING INC.	2004-07-22	10.36	New Well	Dewatering		6	5	NATAL FOREST PRODUCTS	4.21	81.83	16.83



Reconnaissance Report

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Groundwater Wells

Please click the water Well ID to generate the Water Well Drilling Report.

GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
401936	SE	35	7	4	5	UNKNOWN DRILLER		0.00	Spring	Unknown	1			KROPINAK, ANNA	0.00		0.00
401937	SE	35	7	4	5	UNKNOWN DRILLER		60.96	Chemistry	Domestic	1			CROWSNEST PASS, MUN OF	6.10		0.00
401941	11	36	7	4	5	UNKNOWN DRILLER		0.00	Chemistry	Unknown	1			RESEARCH COUNCIL OF ALTA			0.00
401942	12	36	7	4	5	UNKNOWN DRILLER		0.00	Spring	Unknown	1						0.00



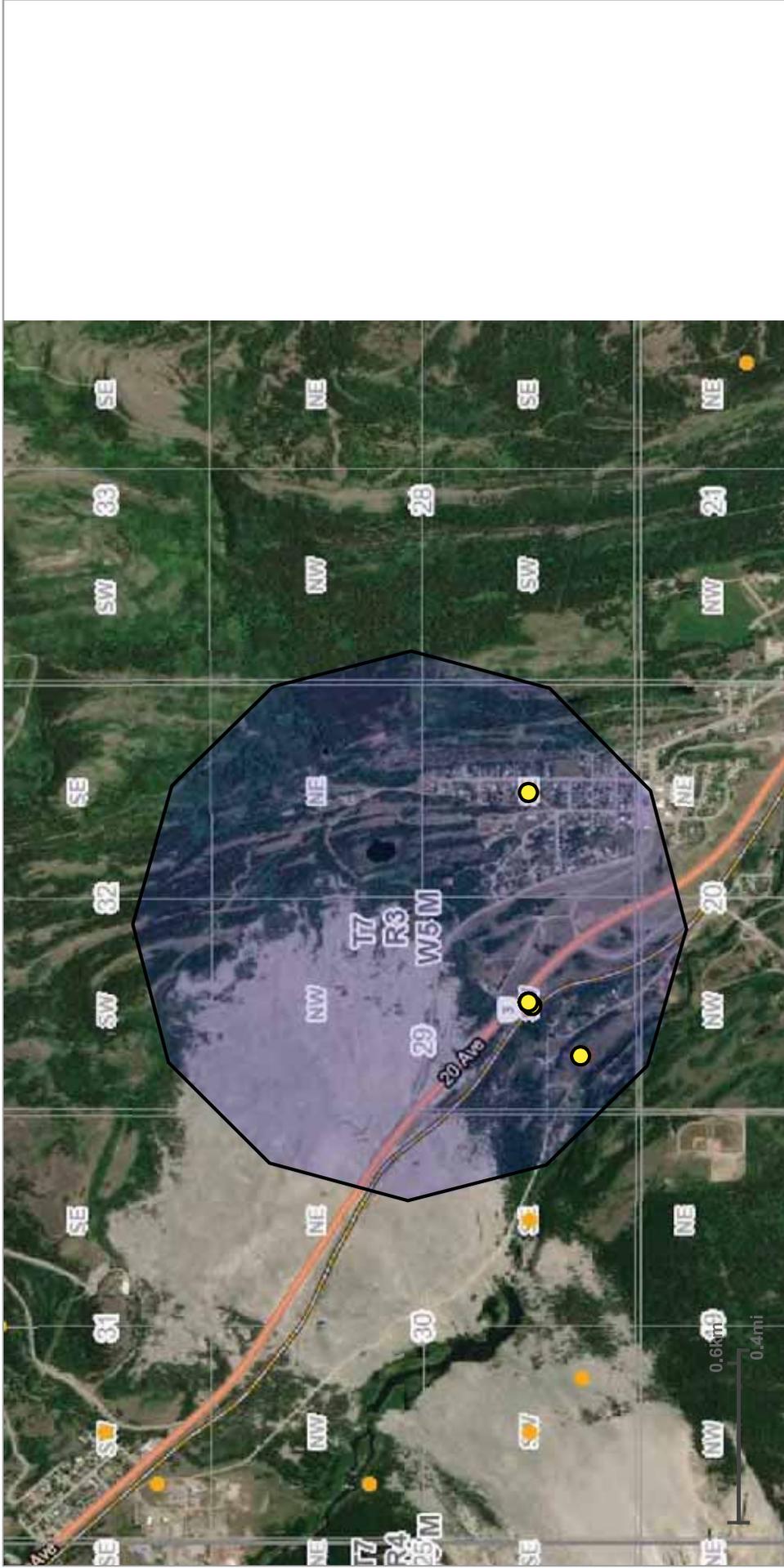
Reconnaissance Report

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Groundwater Wells

Please click the water Well ID to generate the Water Well Drilling Report.

GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
341483	SW	20	7	3	5	AARON DRILLING INC.	1998-09-12	48.77	New Well	Domestic		19	23	BUDGEON, CAROL #3657	32.98	13.64	16.81
357778	SE	19	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1982-09-04	39.01	New Well	Domestic	1	10		JENSEN, ARCHIE	27.28	22.73	17.78
366131	8	19	7	3	5	STAVELY WATER WELLS	1992-05-01	15.24	Dry Hole	Domestic & Stock		4		ERDOS, OLIVER			0.00
366132	8	19	7	3	5	STAVELY WATER WELLS	1992-05-01	50.29	New Well	Domestic & Stock		9		ERDOS, OLIVER	31.09	54.55	14.12
366133	1	19	7	3	5	STAVELY WATER WELLS	1992-04-25	22.86	New Well	Domestic & Stock		7		ERDOS, VINCENT	5.49		16.81
401818	SE	20	7	3	5	UNKNOWN DRILLER		0.00	Spring	Domestic	1			MALOFF, BILL			0.00
401819	SW	20	7	3	5	UNKNOWN DRILLER		20.42	Chemistry	Domestic	1			CROWSNEST PASS, MUN OF	6.10		0.00
401822	SE	20	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1989-07-21	36.58	New Well	Domestic & Stock		5		HUDDA, TOM JR	14.63	27.28	17.78
442421	5	20	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	1995-09-15	48.77	Dry Hole- Decommissioned	Domestic		4		BUDGEON, CAROL			0.00
466007	5	20	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	1996-07-19	12.19	Dry Hole- Decommissioned	Domestic		3		BUDGEN, CAROL			0.00
497360	SE	20	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	2000-10-13	42.67	New Well	Domestic		7	22	NELSON, BILL	4.15	13.64	16.81
1170312	NW	20	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2010-05-13	18.29	New Well	Commercial		7	6	ROCK-IT DRYWALL	3.05	136.38	16.84
1250251	SE	20	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	2006-12-12	32.00	New Well	Domestic		5	23	KELIM, ALLEN	6.08	50.01	16.83



Alberta Water Well Information Database Map

Projection

Web Mercator (Auxillary Sphere)

Datum

WGS 84

Date

10/12/2022, 11:55:01 AM

Legend

 Groundwater Drilling Report

 Baseline Water Well Report

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Groundwater Wells

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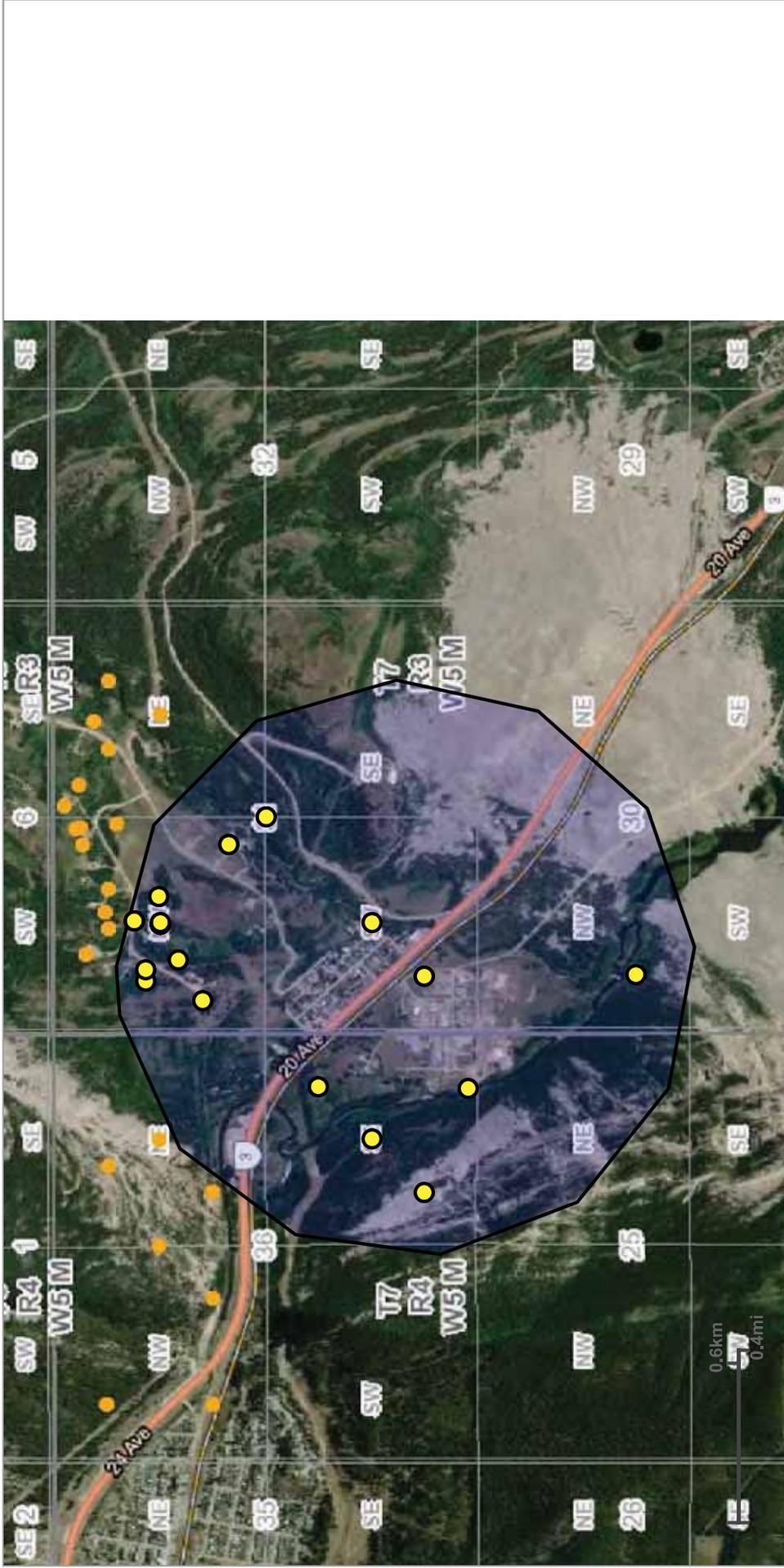
GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
374109	SW	29	7	3	5	UNKNOWN DRILLER	1984-09-10	20.12	Chemistry	Municipal	1			CROWSNEST PASS, MUN OF	1.83		0.00
401840	SE	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.		12.19	Chemistry	Domestic	1			MATSON ENGINEERING#1	9.14		0.00
401841	SW	29	7	3	5	UNKNOWN DRILLER		19.20	Chemistry	Municipal	1			CROWSNEST PASS, MUN OF#3	7.92		0.00
401842	4	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-04-15	19.20	New Well	Municipal	2	3		CROWSNEST PASS, MUN OF#4	8.78	1,704.78	0.00
401843	SW	29	7	3	5	UNKNOWN DRILLER		19.20	Chemistry	Unknown	1			CROWSNEST PASS, MUN OF#2	7.92		0.00
401844	SW	29	7	3	5	UNKNOWN DRILLER		19.20	Chemistry	Unknown	1			CROWSNEST PASS, MUN OF#1	7.92		0.00
401845	SW	29	7	3	5	UNKNOWN DRILLER		0.00	Spring	Municipal	1			CROWSNEST PASS, MUN OF			0.00
401847	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-04	15.85	New Well	Domestic	1	5		ROUSSE, FRANK	6.10	681.91	16.84
401848	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-08	15.24	New Well	Domestic	1	4		HURTAK, ELIAS	4.57	340.96	16.84
401849	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-10	30.48	Test Hole	Domestic		6		HARRISON, HARRY	2.44		0.00
401850	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-11	24.38	Test Hole	Domestic		6		WILSON, STAFFORD	7.62		16.84
401852	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-19	15.24	New Well	Municipal	1	5		CROWSNEST PASS, MUN OF	3.69	136.38	16.84
401878	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-16	9.75	Test Hole	Domestic		5		CROWSNEST PASS, MUN OF			16.84
401880	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-17	12.19	Test Hole	Unknown		4		CROWSNEST PASS, MUN OF	5.49		16.84
401883	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1985-10-16	9.14	Test Hole	Domestic		4		CROWSNEST PASS, MUN OF			16.84
401885	SW	29	7	3	5	CAMFIELD DRILLING SERVICES LTD.		9.14	Chemistry	Domestic	1			TONEY, BOB#3	5.79		0.00
401887	SW	29	7	3	5	UNKNOWN DRILLER		3.66	Chemistry	Domestic	1			HURTAK, ELIAS			0.00
491145	SW	29	7	3	5	DOLLMAN'S WATER WELL DRILLING INC.	1998-10-06	11.58	New Well	Domestic		1	6	BLACKLOCK, DAVE	7.16	72.74	16.81
2096207	SW	29	7	3	5	UNKNOWNDRILLINGCOMP11		6.71	Well Inventory	Domestic & Stock		1		ROUSE, FRANK/THOMAS, DORE			
2096208	SW	29	7	3	5	UNKNOWNDRILLINGCOMP11	1975-06-30	5.18	Well Inventory	Domestic & Stock		1		WILSON, STAFFORD			



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
2096209	SW	29	7	3	5	UNKNOWNDRILLINGCOMP11			Spring	Domestic				HARRISON, H.			
2096210	SW	29	7	3	5	UNKNOWNDRILLINGCOMP11	1935-08-08	6.10	Well Inventory	Domestic		1		HURTAK, ELIAS & ROSIE			
2096211	SW	29	7	3	5	UNKNOWNDRILLINGCOMP11	1935-08-08		Well Inventory	Domestic		1		LAZZAROTTO, EDA			



Alberta Water Well Information Database Map

Projection

Web Mercator (Auxillary Sphere)

Datum

WGS 84

Date

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Legend

● Groundwater Drilling Report

◆ Baseline Water Well Report

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Groundwater Wells

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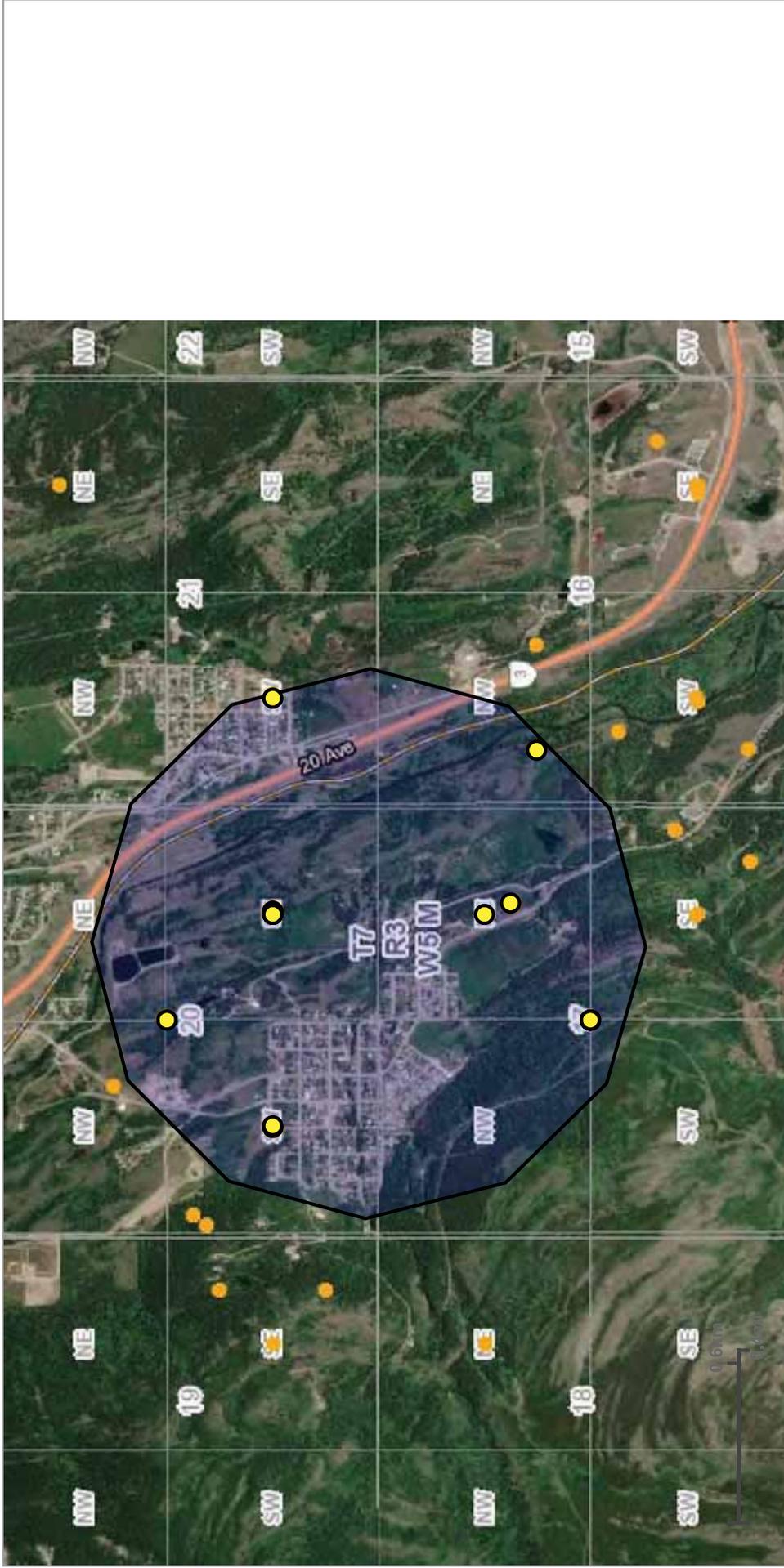
GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
374111	2	36	7	4	5	KINSELLA DRILLING LTD.	1985-05-22	36.58	New Well	Industrial		23		DEKALB PETRO	2.74	45.46	13.97
401891	12	30	7	3	5	UNKNOWN DRILLER		0.00	Chemistry	Unknown	1			TURTLE MTN#SPRING 1			0.00
401892	SW	31	7	3	5	UNKNOWN DRILLER		6.10	Chemistry	Domestic	1			FRIESEN, GREY	1.52		0.00
401893	4	31	7	3	5	BEAGRIE KARL J	1978-07-27	15.54	New Well	Municipal	1	8		FRANK, VILLAGE OF	8.29	1,091.06	21.92
401894	4	31	7	3	5	BEAGRIE KARL J	1978-07-14	13.72	New Well	Municipal		4		FRANK, VILLAGE OF	8.29	340.96	13.97
401895	NW	31	7	3	5	UNKNOWN DRILLER		0.00	Chemistry	Domestic				KOENTGES, R.			0.00
401896	SE	31	7	3	5	VANDRIESTEN WM	1973-01-01	13.72	Dry Hole	Unknown		2		FRANK, TOWN OF #CAMPGROUND			0.00
401938	SE	36	7	4	5	UNKNOWN DRILLER		3.05	Chemistry	Domestic	1			SCOTT, M.	1.52		0.00
401939	8	36	7	4	5	UNKNOWN DRILLER		0.00	Spring	Unknown	1			#TURTLE MOUNTAIN			0.00
1170152	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-03-03	67.06	New Well	Domestic		10	20	VALLEY RIDGE COUNTRY ESTATES	16.76	31.82	16.83
1170153	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-08-09	32.00	New Well	Domestic		8	13	VALLEY RIDGE COUNTRY ESTATES	7.62	31.82	16.83
1170153	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-08-09	32.00	New Well	Domestic		8	13	VALLEY RIDGE COUNTRY ESTATES	7.62	31.82	16.83
1170181	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-09-04	152.40	New Well	Domestic		3	7	VALLEY RIDGE COUNTRY ESTATES	9.14	13.64	16.83
1170182	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-09-14	109.73	New Well	Domestic		2	5	VALLEY RIDGE COUNTRY ESTATES	12.19	15.91	16.83
1170183	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-03-18	67.06	New Well	Domestic		10	2	VALLEY RIDGE COUNTRY ESTATES	4.57	31.82	16.83
1170189	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-10-02	115.82	New Well	Domestic		6	17	VALLEY RIDGE COUNTRY ESTATES	28.96	13.64	16.83
1170190	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-10-08	140.21	New Well	Domestic		8	20	VALLEY RIDGE COUNTRY ESTATES	35.05	13.64	16.83
1170192	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-10-22	121.92	New Well	Domestic		9	17	VALLEY RIDGE COUNTRY ESTATES	24.38	68.19	16.83
1170193	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-10-29	140.21	New Well	Domestic		9	21	VALLEY RIDGE COUNTRY ESTATES	6.10	22.73	16.83
1170194	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-11-01	152.40	Dry Hole- Decommissioned	Domestic		9	9	VALLEY RIDGE COUNTRY ESTATES			



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
<u>1170195</u>	NW	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2007-11-05	36.58	New Well	Domestic		4	10	VALLEY RIDGE COUNTRY ESTATES	9.45	90.92	16.83
<u>1170251</u>	14	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2008-08-29	91.44	New Well	Domestic		12	20	VALLEY RIDGE ESTATES	11.58	20.46	
<u>1170353</u>	11	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.	2011-08-19	66.14	New Well	Domestic		11		VALLEY RIDGE COUNTRY ESTATES	36.58	90.92	16.84
<u>1170353</u>	11	31	7	3	5	CAMFIELD DRILLING SERVICES LTD.			Old Well-Yield	Unknown			8		36.58	68.19	
<u>2096727</u>	1	36	7	4	5	UNKNOWNDRILLINGCOMP11			Other	Monitoring				CROWN			
<u>9706127</u>	12	31	7	3	5	GARFIELD BLAND CONSULTING	2016-06-14	11.28	New Well	Domestic		4	24	STENSRUD, WAYNE & DUBUIS	7.01	54.55	16.83
<u>9706180</u>	14	31	7	3	5	GARFIELD BLAND CONSULTING	2016-11-09	30.48	New Well	Domestic		6	7	WOLOSUK, DOUG	3.28	54.55	17.78
<u>9706180</u>	14	31	7	3	5	GARFIELD BLAND CONSULTING			New Well	Unknown							



Alberta Water Well Information Database Map

Projection

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Datum

WGS 84

Date

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 Groundwater Drilling Report

 Baseline Water Well Report

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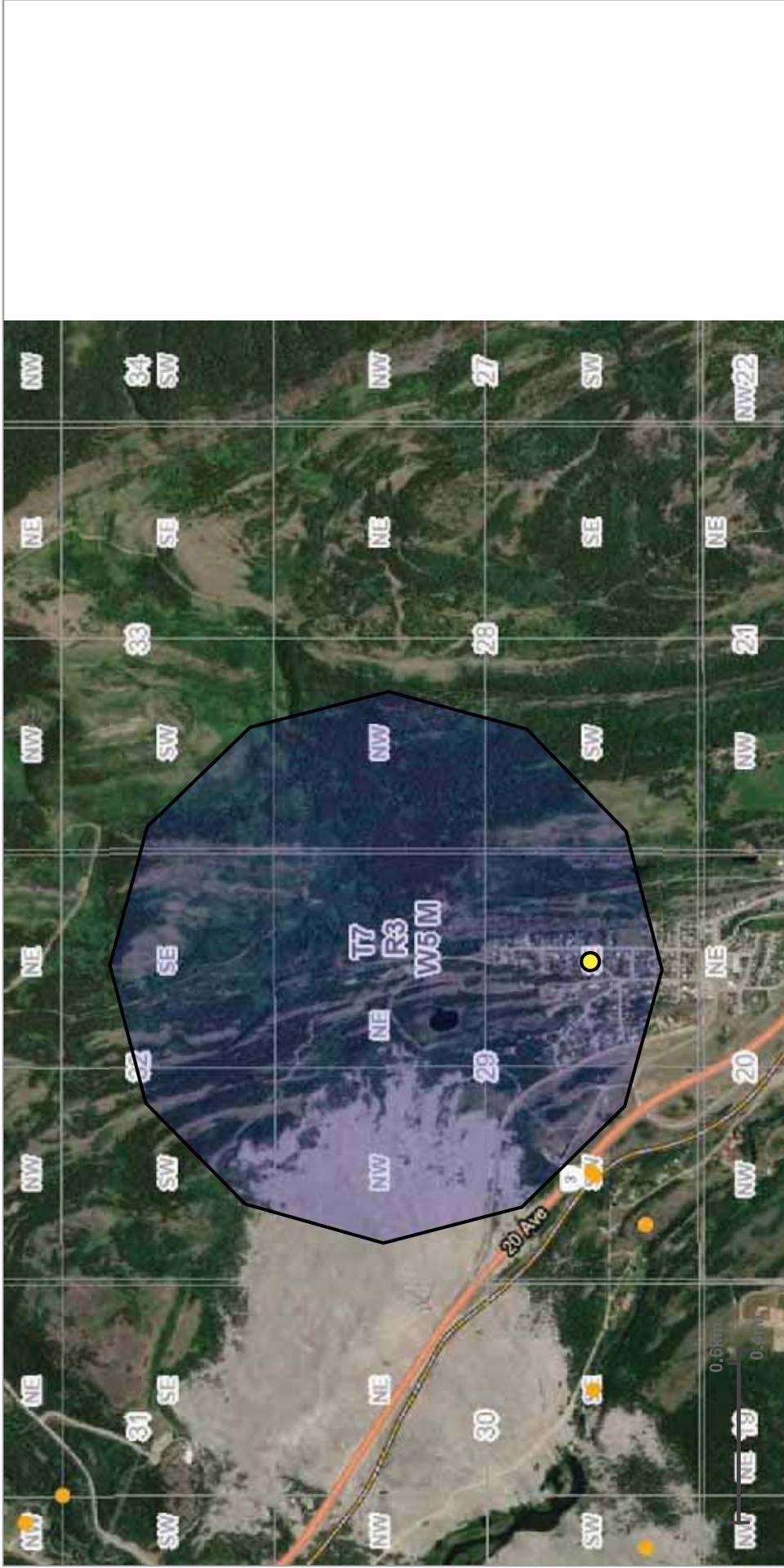
Reconnaissance Report

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Groundwater Wells

Please click the water Well ID to generate the Water Well Drilling Report.

GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
341483	SW	20	7	3	5	AARON DRILLING INC.	1998-09-12	48.77	New Well	Domestic		19	23	BUDGEON, CAROL #3657	32.98	13.64	16.81
401797	12	16	7	3	5	UNKNOWN DRILLER		217.93	Well Inventory	Industrial		39		HILLCREST#MOHAWK COLLIERIES 2			0.00
401804	NE	17	7	3	5	UNKNOWN DRILLER		29.87	Chemistry	Domestic	1			BRAZZONI, RICHARD	12.80		0.00
401805		17	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1986-07-26	24.69	Test Hole	Observation		9		CROWSNEST PASS, MUN OF	2.44	272.77	16.84
401806		17	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1986-07-30	9.75	Test Hole	Observation		5		CROWSNEST PASS, MUN OF			16.84
401807		17	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1986-07-01	24.38	Test Hole	Observation		4	18	CROWSNEST PASS, MUN OF	6.00	181.84	0.00
401808		17	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1986-08-15	24.69	New Well	Municipal		5		CROWSNEST PASS, MUN OF	2.38	1,363.83	26.24
401809	SE	17	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1986-07-22	21.64	Test Hole	Observation		6		CROWSNEST PASS, MUN OF	2.83	272.77	16.84
401810		17	7	3	5	CAMFIELD DRILLING SERVICES LTD.		25.91	Test Hole	Municipal & Observation		7	19	CROWSNEST PASS, MUN OF	2.35	1,682.05	6.05
401812		17	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1987-04-23	23.47	New Well	Municipal		5	22	CROWSNEST PASS, MUN OF	2.53	1,682.05	27.31
401818	SE	20	7	3	5	UNKNOWN DRILLER		0.00	Spring	Domestic	1			MALOFF, BILL			0.00
401819	SW	20	7	3	5	UNKNOWN DRILLER		20.42	Chemistry	Domestic	1			CROWSNEST PASS, MUN OF	6.10		0.00
401822	SE	20	7	3	5	CAMFIELD DRILLING SERVICES LTD.	1989-07-21	36.58	New Well	Domestic & Stock		5		HUDDA, TOM JR	14.63	27.28	17.78
401826	SW	21	7	3	5	UNKNOWN DRILLER		4.57	Chemistry	Domestic	1			BASSO, EMELIA	3.05		0.00
497360	SE	20	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	2000-10-13	42.67	New Well	Domestic		7	22	NELSON, BILL	4.15	13.64	16.81
1250251	SE	20	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	2006-12-12	32.00	New Well	Domestic		5	23	KELIM, ALLEN	6.08	50.01	16.83
1250898	9	17	7	3	5	DOLLIMAN'S WATER WELL DRILLING INC.	2020-01-24	44.20	New Well	Domestic		8	26	KOSTYNIUK, SUE	27.74	90.92	16.84



Alberta Water Well Information Database Map

Projection

Web Mercator (Auxillary Sphere)

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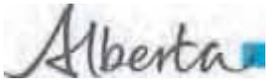
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 Groundwater Drilling Report

 Baseline Water Well Report

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Water Well Drilling Report

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GIC Well ID 401840
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1984/01/06

The driller supplies the data contained in this report. The Province disclaims responsibility for its accuracy. The information on this report will be retained in a public database.

GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name MATSON ENGINEERING#1		Address BELLEVUE			Town		Province		Country		Postal Code
Location	<i>1/4 or LSD</i> SE	<i>SEC</i> 29	<i>TWP</i> 7	<i>RGE</i> 3	<i>W of MER</i> 5	<i>Lot</i>	<i>Block</i>	<i>Plan</i>	<i>Additional Description</i>		
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>49.586182</u> Longitude <u>-114.368214</u> Elevation _____ m How Location Obtained _____ Not Verified					How Elevation Obtained _____ Not Obtained	

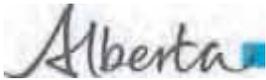
Drilling Information	
Method of Drilling Drilled	Type of Work Chemistry
Proposed Well Use Domestic	

Formation Log			Measurement in Metric
Depth from ground level (m)	Water Bearing	Lithology Description	

Yield Test Summary			Measurement in Metric
Recommended Pump Rate <u>0.00</u> L/min			
Test Date	Water Removal Rate (L/min)	Static Water Level (m)	
		9.14	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
12.19 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	12.19		
Surface Casing (if applicable)		Well Casing/Liner		
Size OD : <u>0.00</u> cm		Size OD : <u>0.00</u> cm		
Wall Thickness : <u>0.000</u> cm		Wall Thickness : <u>0.000</u> cm		
Bottom at : <u>0.00</u> m		Top at : <u>0.00</u> m		
		Bottom at : <u>0.00</u> m		
Perforations				
From (m)	To (m)	Diameter or Slot Width (cm)	Slot Length (cm)	Hole or Slot Interval(cm)
Perforated by _____				
Annular Seal				
Placed from <u>0.00</u> m to <u>0.00</u> m				
Amount _____				
Other Seals				
Type			At (m)	
Screen Type				
Size OD : <u>0.00</u> cm				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount _____				

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name CAMFIELD DRILLING SERVICES LTD.	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 401840
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1984/01/06

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GOWN ID

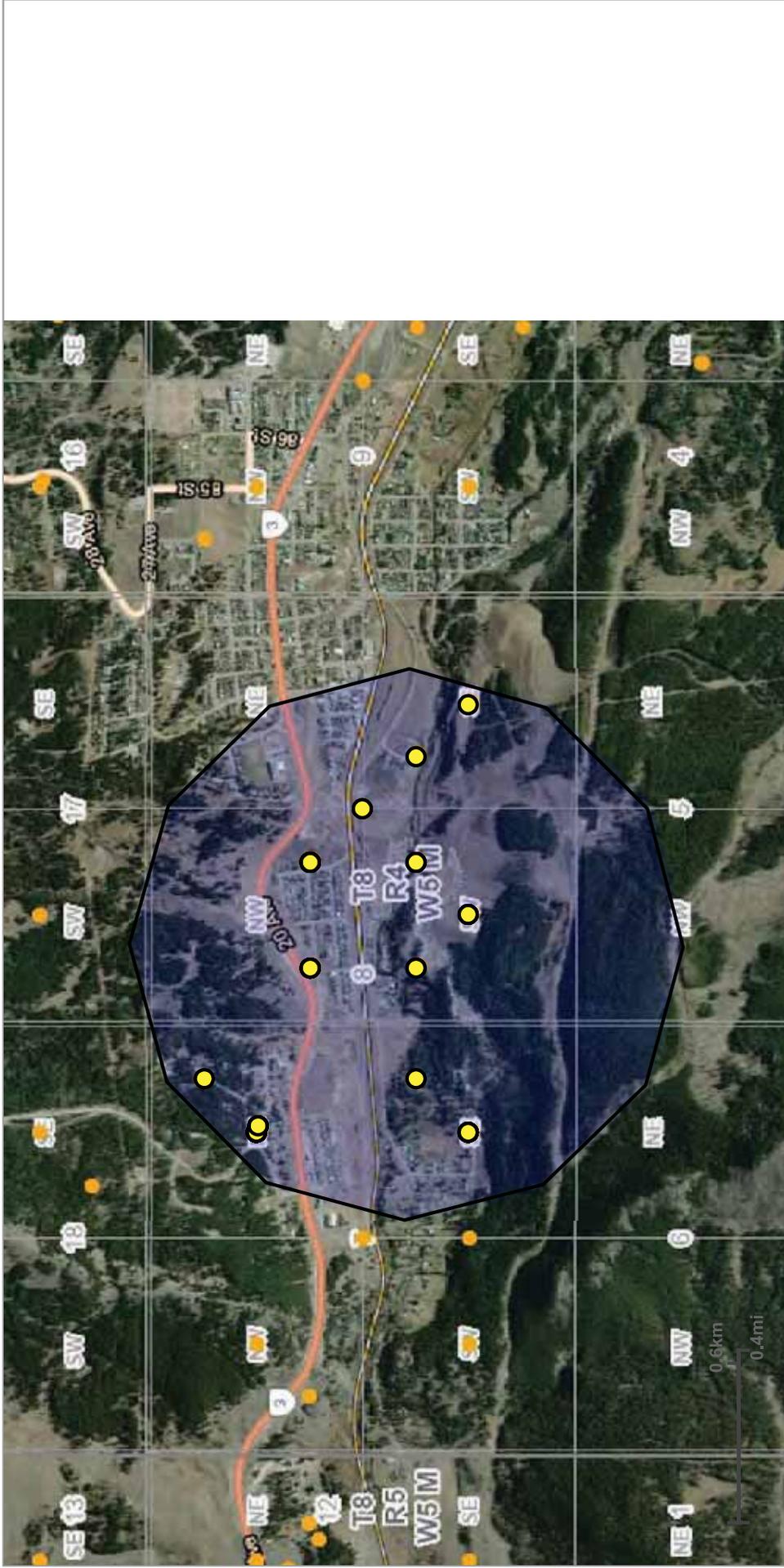
Well Identification and Location										Measurement in Metric	
Owner Name MATSON ENGINEERING#1		Address BELLEVUE			Town		Province		Country		Postal Code
Location	1/4 or LSD SE	SEC 29	TWP 7	RGE 3	W of MER 5	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____				GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>49.586182</u> Longitude <u>-114.368214</u> How Location Obtained Not Verified				Elevation _____ m How Elevation Obtained Not Obtained			

Additional Information										Measurement in Metric	
Distance From Top of Casing to Ground Level _____ cm					Is Artesian Flow _____						Is Flow Control Installed _____
Rate _____ L/min					Describe _____						
Recommended Pump Rate _____ 0.00 L/min					Pump Installed _____		Depth _____ m				
Recommended Pump Intake Depth (From TOC) _____ 0.00 m					Type _____		Make _____		H.P. _____		Model (Output Rating) _____
Did you Encounter Saline Water (>4000 ppm TDS) _____					Depth _____ m		Well Disinfected Upon Completion _____				
Remedial Action Taker _____					Gas _____		Depth _____ m		Geophysical Log Taken _____		
									Submitted to ESRD _____		
Additional Comments on Well CHEM MENTIONS WELL DRILLED TESTED BY CAMFIELD DRILLING.					Sample Collected for Potability _____		Submitted to ESRD <u>Yes</u>				

Yield Test			Taken From Ground Level	Measurement in Metric
			Depth to water level	
Test Date	Start Time	Static Water Level		
	12:00 AM	9.14 m		
Method of Water Removal				
Type _____				
Removal Rate _____ L/min				
Depth Withdrawn From _____ 0.00 m				
If water removal period was < 2 hours, explain why				

Water Diverted for Drilling		
Water Source	Amount Taken	Diversion Date & Time
	L	

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name CAMFIELD DRILLING SERVICES LTD.	Copy of Well report provided to owner Date approval holder signed



Alberta Water Well Information Database Map

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 Groundwater Drilling Report

 Baseline Water Well Report

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Groundwater Wells

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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
339052	NE	7	8	4	5	AARON DRILLING INC.	2002-07-08	27.43	New Well	Domestic		6	5	PRENTICE, JIM#4754	1.46	9.09	16.81
339053	NE	7	8	4	5	AARON DRILLING INC.	2002-06-10	16.76	New Well	Domestic		7	5	PRENTICE, JIM#4733	5.79	9.09	16.81
340223	NE	7	8	4	5	DRIFT EXPLORATION DRILLING	2002-04-30	77.72	New Well	Domestic		8	25	IANNI, SAM	14.23	13.64	16.81
340224	NE	7	8	4	5	DRIFT EXPLORATION DRILLING	2002-04-16	42.67	New Well	Domestic		4	23	FRENEITE, ALAIN/JODY	7.28	54.55	16.81
340225	NE	7	8	4	5	DRIFT EXPLORATION DRILLING	2002-04-19	80.77	New Well	Domestic		8	24	ADAMS, BARRY	9.72	18.18	16.81
341560	NE	7	8	4	5	DOLLMAN'S WATER WELL DRILLING INC.	2002-08-27	124.05	New Well	Domestic		17	25	NEHRING, DAVID	37.64	68.19	16.81
356219	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1991-03-11	24.38	New Well	Domestic		7		SCHULZ, RON	13.11	15.91	16.81
358798	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1991-05-15	18.29	New Well	Domestic		4		HEMPHILL, DAVID	6.10	11.37	16.81
360150	8	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1991-06-24	30.48	New Well	Domestic & Stock		7		PHILP, SHELDON	3.60	26.37	17.78
365891	SE	7	8	4	5	DOLLMAN'S WATER WELL DRILLING INC.	1992-08-13	15.24	New Well	Domestic		3		ROSNER, JOHN	6.10	36.37	13.97
402216	SE	7	8	4	5	UNKNOWN DRILLER		5.49	Chemistry	Domestic		2		PAYNE, R.O.	3.05		0.00
402219	SE	7	8	4	5	VANDRIESTEN WM	1981-11-28	10.97	New Well	Domestic		3		SUMMIT LIME WORKS#HOUSE WELL	7.62	45.46	0.00
402221	SE	7	8	4	5	VANDRIESTEN WM	1981-11-28	13.11	New Well	Industrial		1		SUMMIT LIME WORKS#PLANT WELL	7.01	90.92	13.97
402222	SE	7	8	4	5	VANDRIESTEN WM	1981-11-22	19.20	New Well	Industrial		3		SUMMIT LIME WORKS#SHOP WELL	8.53	113.65	13.97
402223	SE	7	8	4	5	VANDRIESTEN WM	1981-11-28	13.11	New Well	Domestic		5		SUMMIT LIME WORKS#HOUSE WELL	6.10	90.92	13.97
402224	SE	7	8	4	5	UNKNOWN DRILLER		2.74	Chemistry	Domestic				CLARK, BRIAN			0.00
402225	SE	7	8	4	5	UNKNOWN DRILLER		2.74	Chemistry	Domestic		1		PAYNE, MRS R.O.	1.37		0.00
402226	SE	7	8	4	5	STAVELY WATER WELLS	1989-09-07	9.45	New Well	Domestic		5		FRIEL, TOM	0.91	45.46	16.84
402231	NE	7	8	4	5	UNKNOWN DRILLER		3.05	Chemistry	Domestic				BEREKOFF, DEBBIE			0.00
402240	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1984-06-18	48.77	New Well	Domestic		1	6	COLEMAN COLLERIES	18.01	22.73	16.84



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
<u>402241</u>	NE	7	8	4	5	UNKNOWN DRILLER		4.88	Chemistry	Domestic	1			TOWNSEND, CARON	2.44		0.00
<u>402242</u>	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1984-06-13	42.67	Test Hole	Investigation		20		COLEMAN COLLIERIES	12.31		16.84
<u>402243</u>	NE	7	8	4	5	UNKNOWN DRILLER		0.00	Chemistry	Unknown	1			SCHLENDER, MRS P.			0.00
<u>402244</u>	NE	7	8	4	5	UNKNOWN DRILLER		9.75	Chemistry	Domestic	1			WOODS, DIANE			0.00
<u>402245</u>	16	7	8	4	5	UNKNOWN DRILLER		0.00	Chemistry	Industrial	1			COLEMAN COLLIERIES			0.00
<u>402249</u>	SE	8	8	4	5	HENNING DRILLING LTD.	1979-10-18	44.20	New Well	Domestic		10		GRAF, TERRY	10.67	22.73	0.00
<u>402250</u>	7	8	8	4	5	ALPINE DRLG	1963-11-28	6.10	New Well	Unknown		1		ALTA ENV/WATER RES#23	5.27		0.00
<u>402251</u>	SW	8	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1982-06-16	5.49	New Well	Domestic	1	5		TENNANT, BILL	1.22	90.92	13.97
<u>402252</u>	SW	8	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1985-07-03	10.67	New Well	Domestic		4		HOSCHAJEW, STEVE	1.22	227.30	16.84
<u>402253</u>	SW	8	8	4	5	UNKNOWN DRILLER		6.10	Chemistry	Domestic	1			CLARK, BEATE			0.00
<u>402254</u>	5	8	8	4	5	ALPINE DRLG	1963-11-28	6.10	Dry Hole	Observation		3		ALTA ENV/WATER RES#18	4.82		7.62
<u>402255</u>	5	8	8	4	5	ALPINE DRLG	1963-11-28	4.88	Dry Hole	Observation		2		ALTA ENV/WATER RES#17	3.90		7.62
<u>402256</u>	6	8	8	4	5	ALPINE DRLG	1963-11-28	5.79	Dry Hole	Observation		2		ALTA ENV/WATER RES#20			7.62
<u>402257</u>	6	8	8	4	5	ALPINE DRLG	1963-11-28	6.40	Dry Hole	Observation		2		ALTA ENV/WATER RES#22	5.79		7.62
<u>402258</u>	6	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		3		ALTA ENV/WATER RES#21	3.54	45.46	7.62
<u>402259</u>	11	8	8	4	5	FORRESTER DRILLING	1963-12-20	10.36	Test Hole	Observation		3		ALTA ENV/WATER RES#28 -P	2.74	372.78	15.24
<u>402259</u>	11	8	8	4	5	FORRESTER DRILLING	1963-12-20	10.36	Test Hole	Observation		3	3	ALTA ENV/WATER RES#28 -P	2.74	468.25	15.24
<u>402259</u>	11	8	8	4	5	FORRESTER DRILLING	1963-12-20	10.36	Test Hole	Observation		3	48	ALTA ENV/WATER RES#28 -P	0.91	372.78	15.24
<u>402265</u>	12	8	8	4	5	FORRESTER DRILLING	1963-12-15	16.76	New Well	Observation		7		ALTA ENV/WATER RES#26	3.81		7.62
<u>402266</u>	11	8	8	4	5	FORRESTER DRILLING	1963-12-18	12.19	Test Hole	Observation		3		ALTA ENV/WATER RES#27	3.96		7.62



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
<u>402282</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		4		ALTA ENV/WATER RES#25	1.74		7.62
<u>402283</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.27	Test Hole	Observation		4		ALTA ENV/WATER RES#3	2.71		7.62
<u>402283</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.27	Test Hole	Observation		4		ALTA ENV/WATER RES#3	3.20		7.62
<u>402283</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.27	Test Hole	Observation		4		ALTA ENV/WATER RES#3	3.05		7.62
<u>402284</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	5.18	Test Hole	Observation		3		ALTA ENV/WATER RES#4	1.89		0.00
<u>402285</u>	11	8	8	4	5	BERWYN DRLG LTD	1964-03-19	3.05	Test Hole	Observation		2		ALTA ENV/WATER RES#4B	2.93		0.00
<u>402286</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		3		ALTA ENV/WATER RES#5	3.90		0.00
<u>402286</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		3		ALTA ENV/WATER RES#5	4.30		0.00
<u>402287</u>	11	8	8	4	5	BERWYN DRLG LTD	1964-03-20	3.05	Test Hole	Observation		3		ALTA ENV/WATER RES#5B			7.62
<u>402288</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	2.74	Test Hole	Observation		1		ALTA ENV/WATER RES#7	1.80		0.00
<u>402289</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		3		ALTA ENV/WATER RES#12	2.29		0.00
<u>402289</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		3	30	ALTA ENV/WATER RES#12	2.65		0.00
<u>402290</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.88	Test Hole	Observation		4		ALTA ENV/WATER RES#13	3.81		7.62
<u>402290</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.88	Test Hole	Observation		4	25	ALTA ENV/WATER RES#13	4.02		7.62
<u>402291</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.27	Test Hole	Observation		4		ALTA ENV/WATER RES#9	1.62		0.00
<u>402291</u>	11	8	8	4	5	ALPINE DRLG	1963-11-28	4.27	Test Hole	Observation		4	19	ALTA ENV/WATER RES#9	1.89		0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRLG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	5.12	59.10	0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRLG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	4.54		0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRLG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	5.06		0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRLG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	2.99		0.00



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
<u>402292</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	5.09		0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	3.02		0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-13	14.02	New Well	Observation		1		ALTA ENV/WATER RES#7A	4.88		0.00
<u>402292</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-13	14.02	New Well	Observation		1	3	ALTA ENV/WATER RES#7A	5.00		0.00
<u>402293</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-19	15.24	Test Hole	Observation		7		ALTA ENV/WATER RES#29P			15.24
<u>402294</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-15	11.89	Test Hole	Observation		2		ALTA ENV/WATER RES#4A	5.24	77.28	10.16
<u>402295</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-14	5.49	Test Hole	Observation		6	2	ALTA ENV/WATER RES#3A	3.11	86.38	10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	4.39	22.73	10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	4.33		10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	4.39		10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	4.30		10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	4.88		10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	6.25		10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	5.97		10.16
<u>402298</u>	11	8	8	4	5	BERWYN DRILG LTD	1964-03-16	12.50	Test Hole	Observation		6		ALTA ENV/WATER RES#5A	5.88		10.16
<u>402299</u>	12	8	8	4	5	BERWYN DRILG LTD	1964-03-19	13.41	Test Hole	Observation		4	3	ALTA ENV/WATER RES#5A	6.49	86.38	10.16
<u>402299</u>	12	8	8	4	5	BERWYN DRILG LTD	1964-03-19	13.41	Test Hole	Observation		4		ALTA ENV/WATER RES#16A	6.49	86.38	10.16
<u>402299</u>	12	8	8	4	5	BERWYN DRILG LTD	1964-03-19	13.41	Test Hole	Observation		4		ALTA ENV/WATER RES#16A	6.16		10.16
<u>402299</u>	12	8	8	4	5	BERWYN DRILG LTD	1964-03-19	13.41	Test Hole	Observation		4	2	ALTA ENV/WATER RES#16A	6.04		10.16
<u>402300</u>	12	8	8	4	5	ALPINE DRILG	1963-11-28	5.79	Test Hole	Observation		4		ALTA ENV/WATER RES#1	2.87		0.00



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GIC Well ID	LSD	SEC	TWP	RGE	M	DRILLING COMPANY	DATE COMPLETED	DEPTH (m)	TYPE OF WORK	USE	CHM	LT	PT	WELL OWNER	STATIC LEVEL (m)	TEST RATE (L/min)	SC_DIA (cm)
<u>402301</u>	12	8	8	4	5	ALPINE DRLG	1963-11-28	4.57	Test Hole	Observation		3		ALTA ENV/WATER RES#2	1.89		0.00
<u>402302</u>	12	8	8	4	5	ALPINE DRLG	1963-11-28	4.88	Test Hole	Observation		3		ALTA ENV/WATER RES#14	3.99		0.00
<u>402304</u>	12	8	8	4	5	ALPINE DRLG	1963-11-28	5.49	Test Hole	Observation		2		ALTA ENV/WATER RES#15			0.00
<u>402305</u>	12	8	8	4	5	ALPINE DRLG	1963-11-28	4.88	Test Hole	Observation		4		ALTA ENV/WATER RES#16	3.75		7.62
<u>402306</u>	SE	8	8	4	5	HENNING DRILLING LTD.	1982-10-29	18.90	New Well	Domestic		13		CLARK, RAY	7.32	9.09	14.12
<u>402307</u>	SE	8	8	4	5	ALBERTA ENVIRONMENTAL PROTECTION/TECHNICAL SERVICES DIVISION	1988-09-06	16.15	New Well	Investigation		5		COLEMAN, TOWN OF#GAS PROBLEM			3.20
<u>469021</u>	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1995-08-11	12.19	New Well	Domestic		5	5	BISSON, GARNOLD	5.97	272.77	16.81
<u>491155</u>	NE	7	8	4	5	STAVELY WATER WELLS	1998-07-09	19.51	Test Hole- Decommissioned	Domestic		7		FYTEN, DORNE			16.81
<u>495500</u>	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1998-07-21	42.67	New Well	Domestic		14	15	FYTEN, DORNE G.	12.19	90.92	16.81
<u>496805</u>	NE	7	8	4	5	DOLLIMAN'S WATER WELL DRILLING INC.	2000-08-15	79.25	New Well	Domestic		15	25	CROFTS, CHRIS	20.12	45.46	16.81
<u>499178</u>	NE	7	8	4	5	CAMFIELD DRILLING SERVICES LTD.	1998-10-24	89.92	New Well	Domestic		12	18	SCHULZ, RON	22.52	27.28	16.81
<u>1020874</u>	NE	7	8	4	5	AARON DRILLING INC.	2002-11-27	33.53	New Well	Domestic		9	4	PRENTICE, JIM	9.39	9.09	16.81
<u>1020876</u>	NE	7	8	4	5	AARON DRILLING INC.	2002-11-22	27.43	New Well	Domestic		8	4	PRENTICE, JIM	0.30	18.18	16.81
<u>1020877</u>	NE	7	8	4	5	AARON DRILLING INC.	2002-11-27	45.72	New Well	Domestic		8	5	PRENTICE, JIM	27.10	9.09	16.81
<u>1020878</u>	NE	7	8	4	5	AARON DRILLING INC.	2002-11-26	39.62	New Well	Domestic		6	5	PRENTICE, JIM	30.14	9.09	16.81
<u>1020879</u>	NE	7	8	4	5	AARON DRILLING INC.	2002-11-25	77.72	New Well	Domestic		11	5	PRENTICE, JIM	28.16	9.09	16.81
<u>1260001</u>	NE	7	8	4	5	DRIFT EXPLORATION DRILLING	2003-09-11	65.53	New Well	Domestic		8	25	HEMPHILL, DAVID	13.35	15.91	16.83

APPENDIX H - ERIS REPORT





DATABASE REPORT

Project Property: *Crowsnest Pass Landfill Sites
Crowsnest Pass Landfill Sites
Coleman AB*

Project No: *2022-8246.000.001*

Report Type: *Quote - Custom-Build Your Own Report*

Order No: *22052400847*

Requested by: *Associated Engineering (AB) Ltd.*

Date Completed: *July 19, 2022*

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Executive Summary

Property Information:

Project Property: *Crowsnest Pass Landfill Sites
Crowsnest Pass Landfill Sites Coleman AB*

Project No: *2022-8246.000.001*

Order Information:

Order No: *22052400847*
Date Requested: *May 24, 2022*
Requested by: *Associated Engineering (AB) Ltd.*
Report Type: *Quote - Custom-Build Your Own Report*

Historical/Products:

ERIS Xplorer [*ERIS Xplorer*](#)

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.30km	Total
AERW	<i>Well Licenses</i>	N	-	-	-
AGR	<i>Agriculture and Fisheries - Certificates of Approval</i>	N	-	-	-
AOGW	<i>Alberta Oil and Gas Wells</i>	N	-	-	-
AUTH	<i>Authorizations</i>	Y	69	1	70
AUWR	<i>Automobile Wrecking & Supplies</i>	N	-	-	-
CAWD	<i>Waste Management Facilities - Certificates of Approval</i>	Y	0	0	0
CBL	<i>Commercial Activity Risk - City of Calgary Business Licenses</i>	N	-	-	-
CDRY	<i>Dry Cleaning Facilities</i>	N	-	-	-
CFO	<i>Confined Feeding Operations</i>	N	-	-	-
CHEM	<i>Chemical Processing Operations - Certificates of Approval</i>	N	-	-	-
CHM	<i>Chemical Register</i>	N	-	-	-
CMPS	<i>Compost Facilities</i>	Y	0	0	0
CNG	<i>Compressed Natural Gas Stations</i>	N	-	-	-
CONV	<i>Compliance and Convictions</i>	Y	0	0	0
CTNK	<i>Fuel Sales and Storage</i>	N	-	-	-
DRWD	<i>Approved Oilfield Waste Management Facilities</i>	N	-	-	-
EAS	<i>Enforcement Action Summary</i>	N	-	-	-
EBL	<i>Commercial Activity Risk - City of Edmonton Business Licenses</i>	N	-	-	-
ECMP	<i>Environmental Compliance Prosecutions</i>	Y	0	0	0
EEM	<i>Environmental Effects Monitoring</i>	Y	0	0	0
EHS	<i>ERIS Historical Searches</i>	N	-	-	-
EIIS	<i>Environmental Issues Inventory System</i>	Y	0	0	0
EPST	<i>Alberta Environment & Parks Storage Tanks</i>	N	-	-	-
EPWN	<i>Environment Protection & Enhancement Act and Water Act Public Notices</i>	N	-	-	-
ESAR	<i>Environmental Site Assessment Repository</i>	N	-	-	-
ETNK	<i>Edmonton Vehicle Fueling Stations</i>	N	-	-	-
FAC	<i>Facility List</i>	N	-	-	-
FCON	<i>Federal Convictions</i>	N	-	-	-
FCS	<i>Contaminated Sites on Federal Land</i>	Y	1	0	1
FIS	<i>AER Incidents & Spills</i>	N	-	-	-
FOOD	<i>Food Processing Operations - Certificates of Approval</i>	N	-	-	-
FRST	<i>Federal Identification Registry for Storage Tank Systems (FIRSTS)</i>	N	-	-	-
FST	<i>Fuel Storage Tanks</i>	N	-	-	-
GEN	<i>Waste Generators Summary</i>	Y	0	0	0
GHG	<i>Greenhouse Gas Emissions from Large Facilities</i>	N	-	-	-

Database	Name	Searched	Project Property	Boundary to 0.30km	Total
GPP	<i>Gas Processing Plants</i>	N	-	-	-
HELP	<i>Alberta Environment's H.E.L.P. (Help End Landfill Pollution) Program Database</i>	Y	0	0	0
HORW	<i>Horizontal Wells</i>	N	-	-	-
IAFT	<i>Indian & Northern Affairs Fuel Tanks</i>	N	-	-	-
LDS	<i>Identification and Verification of Active and Inactive Land Disposal Sites</i>	Y	3	0	3
LDSI	<i>Land Disposal Sites on Indian Reserves</i>	Y	0	0	0
LNDF	<i>Landfill Registrations</i>	Y	0	0	0
LUM	<i>Lumber Related Operations - Certificates of Approval</i>	N	-	-	-
MINE	<i>Canadian Mine Locations</i>	N	-	-	-
MMB	<i>Metals, Minerals and Building Materials Operations - Certificates of Approval</i>	N	-	-	-
MNR	<i>Mineral Occurrences</i>	N	-	-	-
NATE	<i>National Analysis of Trends in Emergencies System (NATES)</i>	N	-	-	-
NCST	<i>PTMAA Non-Compliant Storage Tanks</i>	N	-	-	-
NDFT	<i>National Defense & Canadian Forces Fuel Tanks</i>	N	-	-	-
NDSP	<i>National Defense & Canadian Forces Spills</i>	N	-	-	-
NDWD	<i>National Defence & Canadian Forces Waste Disposal Sites</i>	Y	0	0	0
NEBI	<i>National Energy Board Pipeline Incidents</i>	N	-	-	-
NEBP	<i>National Energy Board Wells</i>	N	-	-	-
NEES	<i>National Environmental Emergencies System (NEES)</i>	N	-	-	-
NPCB	<i>National PCB Inventory</i>	N	-	-	-
NPRI	<i>National Pollutant Release Inventory</i>	N	-	-	-
OAM	<i>Operating and Abandoned Mines</i>	N	-	-	-
OGF	<i>Oil and Gas Facilities - ST102 & ST50</i>	N	-	-	-
OGWW	<i>Oil and Gas Wells</i>	N	-	-	-
ORD	<i>Enforcement Orders</i>	Y	0	0	0
ORP	<i>Alberta Orphan Wells</i>	N	-	-	-
PAP	<i>Canadian Pulp and Paper</i>	N	-	-	-
PCFT	<i>Parks Canada Fuel Storage Tanks</i>	N	-	-	-
PCG	<i>Petrochemical, Coal and Gas Operations - Certificates of Approval</i>	N	-	-	-
PES	<i>Pesticide Register</i>	N	-	-	-
PITS	<i>Conglomerate and Waste Management Facilities</i>	Y	0	1	1
PSP	<i>Alberta Private Sewage Disposal Permits</i>	N	-	-	-
PTAP	<i>PTMAA Approved (Open) Permits</i>	N	-	-	-
REC	<i>Hazardous Waste Receivers Summary</i>	Y	0	0	0
RST	<i>Retail Fuel Storage Tanks</i>	N	-	-	-
SCT	<i>Scott's Manufacturing Directory</i>	N	-	-	-
SPEC	<i>Special Operation Classifications - Certificates of Approval</i>	Y	0	0	0
WDS	<i>Inventory of Waste Disposal Sites</i>	Y	0	0	0
WSTE	<i>Wastewater Operations</i>	N	-	-	-

<i>Database</i>	<i>Name</i>	<i>Searched</i>	<i>Project Property</i>	<i>Boundary to 0.30km</i>	<i>Total</i>
WWIS	Alberta Water Well Information Database	N	-	-	-
		<hr/>			
		Total:	73	2	75

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
<u>1</u>	FCS	CROWSNEST RIVER AT FRANK	Crowsnest Pass AB	NW/0.0	2.30	<u>27</u>
<u>2</u>	LDS		AB	SSE/0.0	117.15	<u>35</u>
<u>3</u>	AUTH	Crowsnest River	5;4;7;36;SE AB	NW/0.0	19.66	<u>35</u>
<u>3</u>	AUTH	William Cole	5;4;7;36;SE AB	NW/0.0	19.66	<u>35</u>
<u>3</u>	AUTH	Crowsnest River	5;4;7;36;SE AB	NW/0.0	19.66	<u>35</u>
<u>3</u>	AUTH	Crowsnest River	5;4;7;36;SE AB	NW/0.0	19.66	<u>36</u>
<u>3</u>	AUTH	James Fisher	5;4;7;36;SE AB	NW/0.0	19.66	<u>36</u>
<u>3</u>	AUTH	Can Coal Consolidated Ltd	5;4;7;36;SE AB	NW/0.0	19.66	<u>36</u>

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
<u>4</u>	AUTH	William Thibodeau	5;4;7;35;SE AB	WNW/0.0	57.39	<u>36</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>36</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>36</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>37</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>37</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>37</u>
<u>4</u>	AUTH	Lafarge Canada Inc.	5;4;7;35;SE AB	WNW/0.0	57.39	<u>37</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>37</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>38</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>38</u>

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
4	AUTH	East & West Ranching Co. Ltd.	5;4;7;35;SE AB	WNW/0.0	57.39	38
4	AUTH	Canadian Pacific Railway Company	5;4;7;35;SE AB	WNW/0.0	57.39	38
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	38
4	AUTH	Canadian Natural Resources	5;4;7;35;SE AB	WNW/0.0	57.39	38
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	39
4	AUTH	Rocky Mountain Cement Company, Limited	5;4;7;35;SE AB	WNW/0.0	57.39	39
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	39
4	AUTH	Grand Trunk Pacific Railway	5;4;7;35;SE AB	WNW/0.0	57.39	39
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	39

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
<u>4</u>	AUTH	Town of Whitecourt	5;4;7;35;SE AB	WNW/0.0	57.39	<u>40</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>40</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>40</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>40</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>40</u>
<u>4</u>	AUTH	City of Medicine Hat	5;4;7;35;SE AB	WNW/0.0	57.39	<u>40</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>41</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>41</u>
<u>4</u>	AUTH	Town of Claresholm	5;4;7;35;SE AB	WNW/0.0	57.39	<u>41</u>
<u>4</u>	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	<u>41</u>

<i>Map Key</i>	<i>DB</i>	<i>Company/Site Name</i>	<i>Address</i>	<i>Dir/Dist (m)</i>	<i>Elev diff (m)</i>	<i>Page Number</i>
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	41
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	42
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	42
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	42
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	42
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	42
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	42
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	43
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	43

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	43
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	43
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	43
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	43
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	44
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	44
4	AUTH	Blairmore Brewing and Malting Company Limited	5;4;7;35;SE AB	WNW/0.0	57.39	44
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	44
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	44
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	45

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	45
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	45
4	AUTH	Municipality of Crowsnest Pass	5;4;7;35;SE AB	WNW/0.0	57.39	45
5	AUTH	Municipality of Crowsnest Pass	5;3;7;29;NE AB	E/0.0	85.00	45
5	AUTH	Municipality of Crowsnest Pass	5;3;7;29;NE AB	E/0.0	85.00	45
6	LDS		AB	E/0.0	92.33	46
7	AUTH	Municipality of Crowsnest Pass	5;3;7;20;SW AB	SE/0.0	20.07	46
7	AUTH	Drum Creek	5;3;7;20;SW AB	SE/0.0	20.07	46
7	AUTH	Municipality of Crowsnest Pass	5;3;7;20;SW AB	SE/0.0	20.07	46

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
<u>7</u>	AUTH	Drum Creek	5;3;7;20;SW AB	SE/0.0	20.07	<u>46</u>
<u>8</u>	AUTH	Municipality of Crowsnest Pass	5;3;7;20;SE AB	ESE/0.0	-15.00	<u>47</u>
<u>8</u>	AUTH	Municipality of Crowsnest Pass	5;3;7;20;SE AB	ESE/0.0	-15.00	<u>47</u>
<u>9</u>	LDS		AB	ESE/0.0	-10.00	<u>47</u>
<u>10</u>	AUTH	Municipality of Crowsnest Pass	5;4;8;9;SW AB	WNW/0.0	35.64	<u>47</u>
<u>10</u>	AUTH	Ted Michalsky	5;4;8;9;SW AB	WNW/0.0	35.64	<u>47</u>
<u>10</u>	AUTH	Canadian Pacific Railway Company	5;4;8;9;SW AB	WNW/0.0	35.64	<u>47</u>
<u>10</u>	AUTH	Municipality of Crowsnest Pass	5;4;8;9;SW AB	WNW/0.0	35.64	<u>48</u>

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
11	AUTH	Livingstone River	5;4;8;4;NE AB	WNW/7.6	67.48	48
12	PITS		Municipal District of Crowsnest Pass AB	SE/212.4	3.00	48
13	GEN	NATAL FOREST PRODUCTS	8801 16 AVE COLEMAN AB	WNW/300.0	44.33	48
13	GEN	NATAL FOREST PRODUCTS	8801 16 AVE COLEMAN AB	WNW/300.0	44.33	48
13	GEN	NATAL FOREST PRODUCTS	8801 16 AVE AB	WNW/300.0	44.33	49

Executive Summary: Summary By Data Source

AUTH - Authorizations

A search of the AUTH database, dated Mar 2021 has found that there are 70 AUTH site(s) within approximately 0.30 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Crowsnest River	5;4;7;36;SE AB	0.0	<u>3</u>
William Cole	5;4;7;36;SE AB	0.0	<u>3</u>
Crowsnest River	5;4;7;36;SE AB	0.0	<u>3</u>
Crowsnest River	5;4;7;36;SE AB	0.0	<u>3</u>
James Fisher	5;4;7;36;SE AB	0.0	<u>3</u>
Can Coal Consolidated Ltd	5;4;7;36;SE AB	0.0	<u>3</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Lafarge Canada Inc.	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
East & West Ranching Co. Ltd.	5;4;7;35;SE AB	0.0	<u>4</u>
Canadian Pacific Railway Company	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Canadian Natural Resources	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Rocky Mountain Cement Company, Limited	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Grand Trunk Pacific Railway	5;4;7;35;SE AB	0.0	<u>4</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Town of Whitecourt	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
City of Medicine Hat	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Town of Claresholm	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
William Thibodeau	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Municipality of Crowsnest Pass	5;4;7;35;SE AB	0.0	<u>4</u>
Blairmore Brewing and Malting Company Limited	5;4;7;35;SE AB	0.0	<u>4</u>
Municipality of Crowsnest Pass	5;3;7;29;NE AB	0.0	<u>5</u>
Municipality of Crowsnest Pass	5;3;7;29;NE AB	0.0	<u>5</u>
Municipality of Crowsnest Pass	5;3;7;20;SW AB	0.0	<u>7</u>
Drum Creek	5;3;7;20;SW AB	0.0	<u>7</u>
Municipality of Crowsnest Pass	5;3;7;20;SW AB	0.0	<u>7</u>
Drum Creek	5;3;7;20;SW AB	0.0	<u>7</u>
Municipality of Crowsnest Pass	5;3;7;20;SE AB	0.0	<u>8</u>
Municipality of Crowsnest Pass	5;3;7;20;SE AB	0.0	<u>8</u>
Municipality of Crowsnest Pass	5;4;8;9;SW AB	0.0	<u>10</u>
Ted Michalsky	5;4;8;9;SW AB	0.0	<u>10</u>

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
Canadian Pacific Railway Company	5;4;8;9;SW AB	0.0	10
Municipality of Crowsnest Pass	5;4;8;9;SW AB	0.0	10
Livingstone River	5;4;8;4;NE AB	7.6	11

FCS - Contaminated Sites on Federal Land

A search of the FCS database, dated Jun 2000-Apr 2022 has found that there are 1 FCS site(s) within approximately 0.30 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
CROWSNEST RIVER AT FRANK	Crowsnest Pass AB	0.0	1

GEN - Waste Generators Summary

A search of the GEN database, dated 1993-Aug 2018 has found that there are 3 GEN site(s) within approximately 0.30 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
NATAL FOREST PRODUCTS	8801 16 AVE COLEMAN AB	300.0	13
NATAL FOREST PRODUCTS	8801 16 AVE COLEMAN AB	300.0	13
NATAL FOREST PRODUCTS	8801 16 AVE AB	300.0	13

LDS - Identification and Verification of Active and Inactive Land Disposal Sites

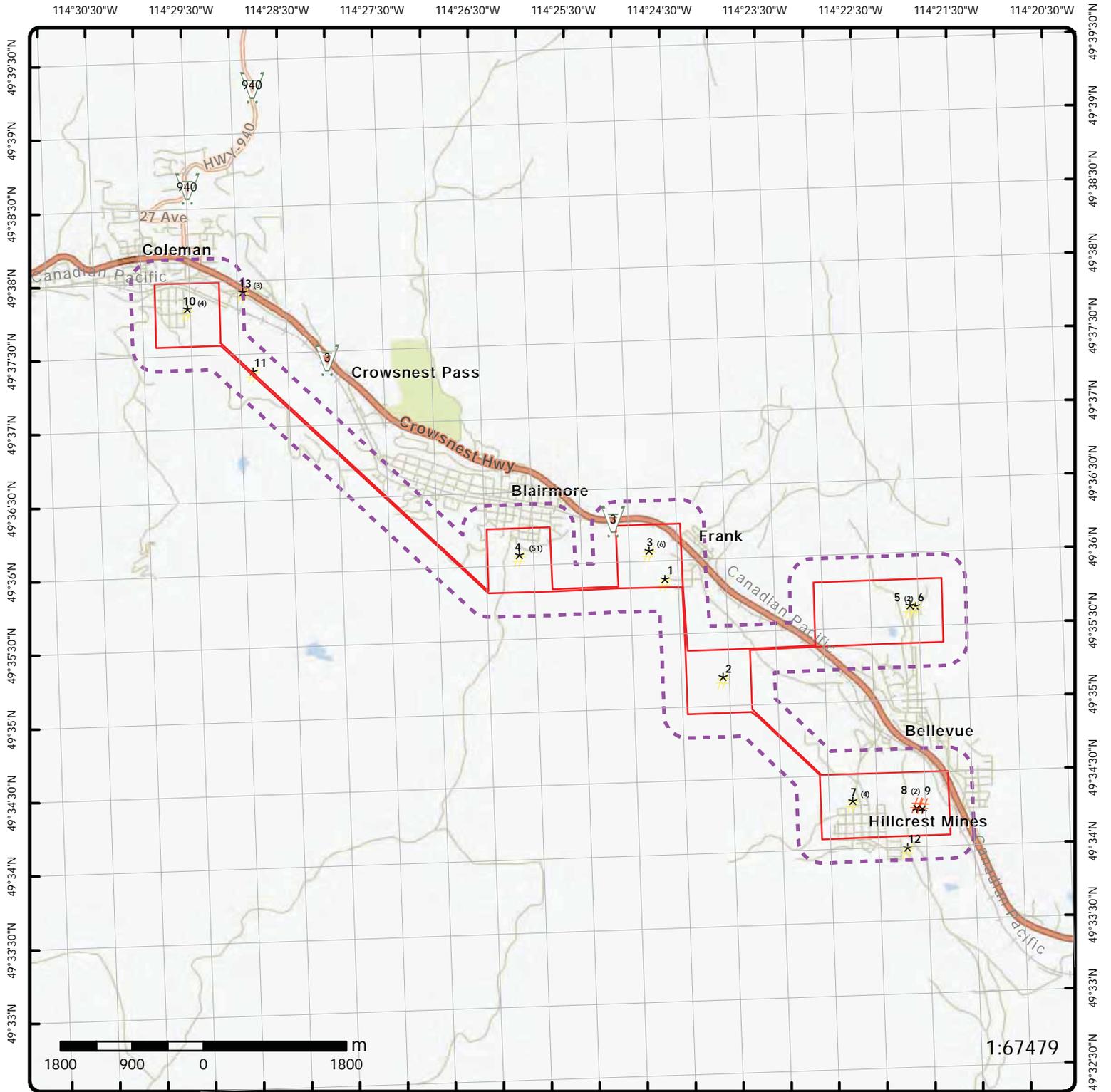
A search of the LDS database, dated Oct 1982* has found that there are 3 LDS site(s) within approximately 0.30 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
	AB	0.0	<u>2</u>
	AB	0.0	<u>6</u>
	AB	0.0	<u>9</u>

PITS - Conglomerate and Waste Management Facilities

A search of the PITS database, dated 1993-2012 has found that there are 1 PITS site(s) within approximately 0.30 kilometers of the project property.

<u>Site</u>	<u>Address</u>	<u>Distance (m)</u>	<u>Map Key</u>
	Municipal District of Crowsnest Pass AB	212.4	<u>12</u>



Map: 0.3 Kilometer Radius

Order Number: 22052400847

Address: Crowsnest Pass Landfill Sites, Coleman, AB



Project Property	Freeways; Highways	Beach	Shopping & Sports Area
Buffer Outline	Traffic Circle; Ramp	Airport	University/College
Eris Sites with Higher Elevation	Major Arterial; Minor Arterial	Industrial Area	Cemetery; Golf Course
Eris Sites with Same Elevation	Local Road	Military Base	Park (National)
Eris Sites with Lower Elevation	Service Road; Traffic Circle; Ramp	Aircraft Roads	Park (City/County)
Eris Sites with Unknown Elevation	Rail	Native Reservation	Hospital

114°31'30"W 114°30"W 114°28'30"W 114°27"W 114°25'30"W 114°24"W 114°22'30"W 114°21"W 114°19'30"W

49°40'30"N

49°39"N

49°37'30"N

49°36"N

49°34'30"N

49°33"N

49°31'30"N

49°40'30"N

49°39"N

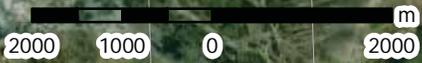
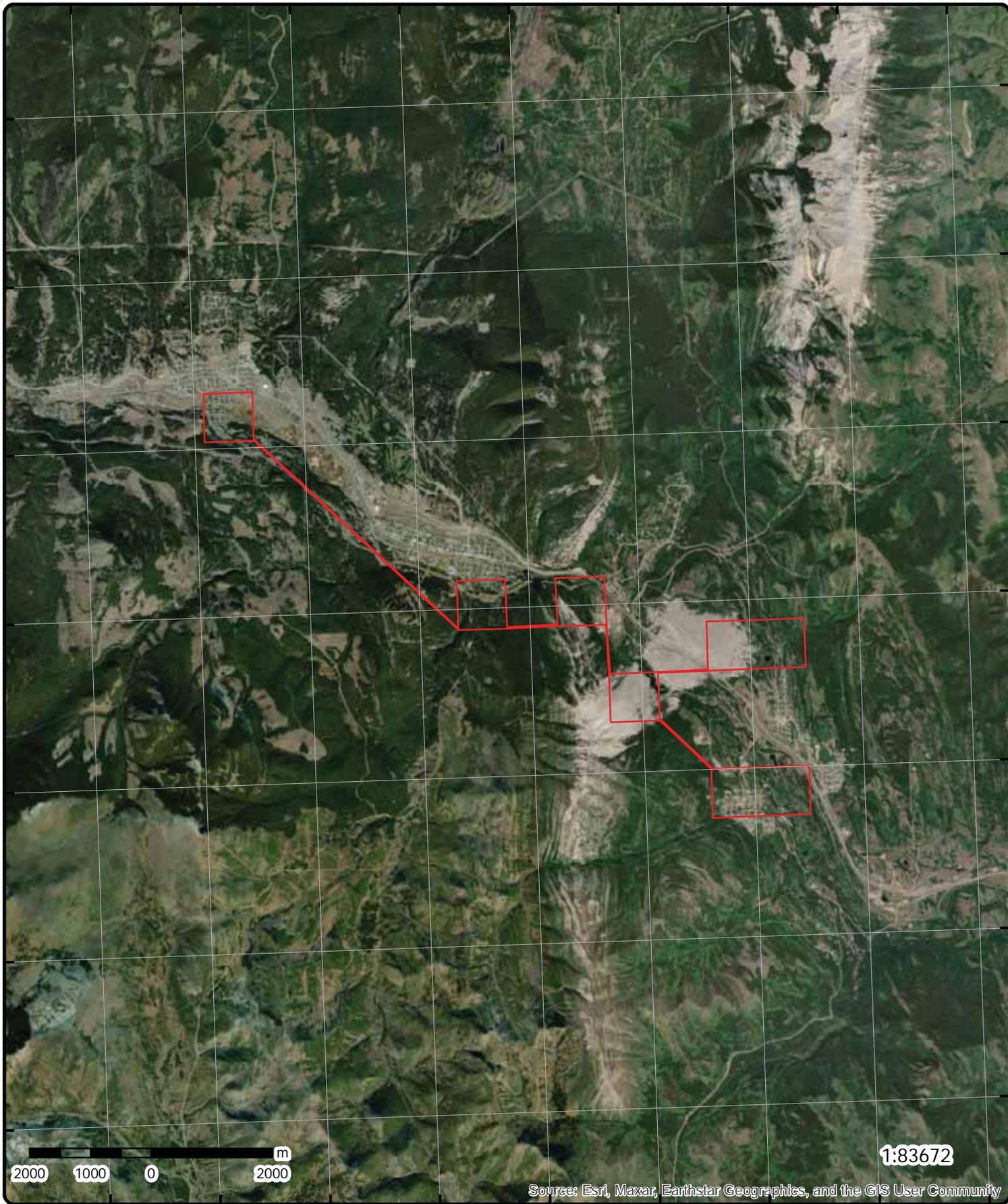
49°37'30"N

49°36"N

49°34'30"N

49°33"N

49°31'30"N



1:83672

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Aerial Year: 2021

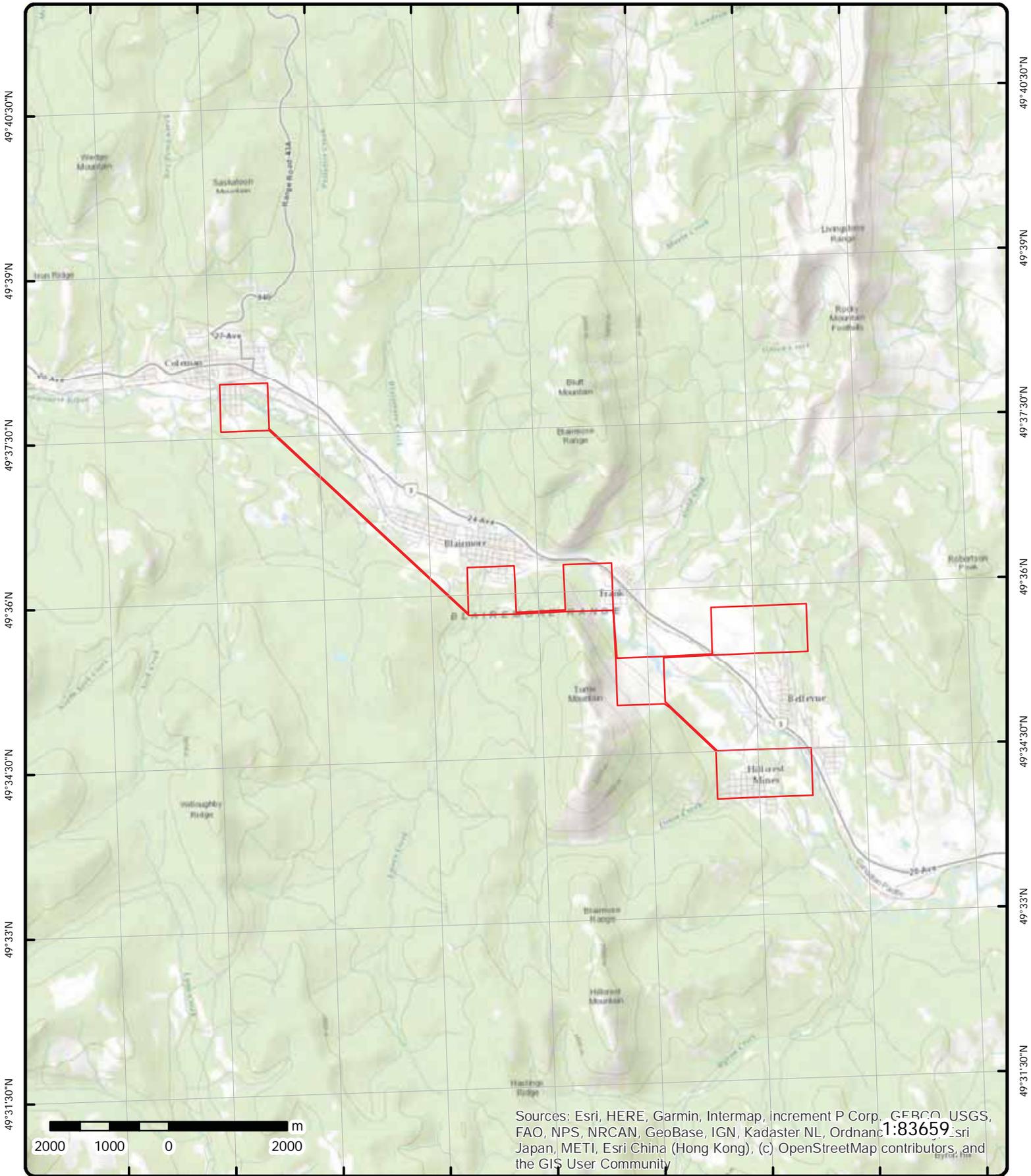
Order Number: 22052400847

Address: Crowsnest Pass Landfill Sites, Coleman, AB



Source: ESRI World Imagery

© ERIS Information Limited Partnership



Topographic Map

Order Number: 22052400847

Address: Crowsnest Pass Landfill Sites, AB



Source: ESRI World Topographic Map

© ERIS Information Limited Partnership

Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>1</u>	1 of 1	NW/0.0	1,282.6 / 2.30	CROWSNEST RIVER AT FRANK Crowsnest Pass AB	FCS

SGC: 4815007
Site ID: 00002805
Departmental ID: 00002805
Depart Code: DOE
Class Type: 3
Class: Low Priority for Action
Site Name: CROWSNEST RIVER AT FRANK
Site Name (FR): Rivière Crowsnest à Frank
Site Status: Active
Site Status Desc: Detailed testing completed. Remedial action plan under development.
Site Status (FR): Active
Description (FR): Analyse détaillée terminée. Élaboration du plan d'assainissement en cours.
Involv Code:
Census Division: Division No. 15
Municipality: Crowsnest Pass
Census Sub Class: 2
Latitude: 49.597329
Longitude: -114.410730
Location:
Protected Data: 0
FED: 022
Fed Electoral District: Foothills
Fed Electoral District (FR): Foothills
Metro:
Nearest Pop. Area:
Highest Step Cmpltd: 6
Site Deleted Flag:
Created: 2010-04-21T15:46:00
Modified: 2021-05-03T14:51:18.133
Property No.:
Est m³ Contmnted: 13.38
Est Ha Contmnted:
Est Tons Contamin:
Est Population at 1 Km: 37
Est Population at 5 Km: 2,705
Est Population at 10 Km: 4,855
Est Population at 25 Km: 6,881
Est Population at 50 Km: 22,791
Reporting Org: Environment and Climate Change Canada
Reporting Org (FR): Environnement et Changement climatique Canada
Reason for Involv: Federal activities
Reason for Involv (FR): Activités fédérales
Liabile Third Party:
Class (FR): Priorité d'intervention faible
Action Plan:
Action Plan (FR):
Site Mgmt Strategy: Additional assessment, Assessment, Periodic Monitoring
Minimap URL: <http://www.tbs-sct.gc.ca/fcsi-rscf/minimap.aspx?fsi=00002805>
Additional Info:
Additional Info (FR):

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>Management</u>					
Management Code:		A			
Management Type (EN):		Assessment			
Management Type (FR):		Évaluation			
Management Code:		5			
Management Type (EN):		Additional assessment			
Management Type (FR):		Évaluation complémentaire			
Management Code:		4			
Management Type (EN):		Periodic Monitoring			
Management Type (FR):		Surveillance périodique			
<u>Contamination</u>					
Contaminant:		Metal, metalloid, and organometallic			
Contamination (FR):		Métaux, métalloïdes, et organométalliques			
Medium Code:		1			
Medium:		Surface water			
Medium (FR):		Eau de surface			
Contaminant:		PAHs (polycyclic aromatic hydrocarbon)			
Contamination (FR):		HAP (hydrocarbures aromatiques polycycliques)			
Medium Code:		3			
Medium:		Sediment			
Medium (FR):		Sédiment			
Contaminant:		Metal, metalloid, and organometallic			
Contamination (FR):		Métaux, métalloïdes, et organométalliques			
Medium Code:		5			
Medium:		Soil			
Medium (FR):		Sol			
Contaminant:		Metal, metalloid, and organometallic			
Contamination (FR):		Métaux, métalloïdes, et organométalliques			
Medium Code:		3			
Medium:		Sediment			
Medium (FR):		Sédiment			
Contaminant:		PAHs (polycyclic aromatic hydrocarbon)			
Contamination (FR):		HAP (hydrocarbures aromatiques polycycliques)			
Medium Code:		1			
Medium:		Surface water			
Medium (FR):		Eau de surface			
Contaminant:		PAHs (polycyclic aromatic hydrocarbon)			
Contamination (FR):		HAP (hydrocarbures aromatiques polycycliques)			
Medium Code:		5			
Medium:		Soil			
Medium (FR):		Sol			
<u>Annual Data</u>					
Fiscal Year:		2020-2021			
Reporting Organization:		DOE			
Reporting Organization (EN):		Environment and Climate Change Canada			
Reporting Organization (FR):		Environnement et Changement climatique Canada			
Class Type:					
Class (EN):					
Class (FR):					
CCME Flag:					
CCME NCS Year:					
Step Name (EN):					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
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Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$0.00
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2019-2020
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$0.00
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2018-2019
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Class Type:					
Class (EN):					
Class (FR):					
CCME Flag:					
CCME NCS Year:					
Step Name (EN):					
Step Name (FR):					
Highest Step Completed: 06					
Highest Step Completed Desc:					
Planned Compl Date Step7:					
Planned Compl Date Step8:					
Planned Compl Date Step9:					
Created:					
Modified:					
NCSCS Year:					
Closed: No					
Actual Cubic Metres Rem: 0					
Actual Hectares Rem: 0					
Actual Tons Remediated: 0					
Total Asmt Expenditure: \$0.00					
Total Remediation Expenditure: \$0.00					
Total Care/Maint Expenditur: \$0.00					
Total Mntring Expenditure: \$0.00					
Ttl Expenditure Reduc Liabil:					
FCSAP Asmt Expenditure: \$0.00					
FCSAP Remed Expenditure: \$0.00					
FCSAP Care/Maint Expenditur: \$0.00					
FCSAP Mntring Expenditure: \$0.00					

Annual Data

Fiscal Year:	2009-2010
Reporting Organization:	DOE
Reporting Organization (EN):	Environment and Climate Change Canada
Reporting Organization (FR):	Environnement et Changement climatique Canada
Class Type:	
Class (EN):	
Class (FR):	
CCME Flag:	
CCME NCS Year:	
Step Name (EN):	
Step Name (FR):	
Highest Step Completed: 06	
Highest Step Completed Desc:	
Planned Compl Date Step7:	
Planned Compl Date Step8:	
Planned Compl Date Step9:	
Created:	
Modified:	
NCSCS Year:	
Closed: No	
Actual Cubic Metres Rem: 0	
Actual Hectares Rem: 0	
Actual Tons Remediated: 0	
Total Asmt Expenditure: \$0.00	
Total Remediation Expenditure: \$0.00	
Total Care/Maint Expenditur: \$0.00	
Total Mntring Expenditure: \$0.00	
Ttl Expenditure Reduc Liabil:	
FCSAP Asmt Expenditure: \$21,535.40	
FCSAP Remed Expenditure: \$0.00	
FCSAP Care/Maint Expenditur: \$0.00	
FCSAP Mntring Expenditure: \$0.00	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
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Annual Data

Fiscal Year: 2012-2013
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$0.00
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2010-2011
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
FCSAP Asmt Expenditure:		\$0.00			
FCSAP Remed Expenditure:		\$0.00			
FCSAP Care/Maint Expenditur:		\$0.00			
FCSAP Mntring Expenditure:		\$0.00			

Annual Data

Fiscal Year: 2011-2012
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$0.00
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2016-2017
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Actual Tons Remediated:	0				
Total Asmt Expenditure:	\$0.00				
Total Remediation Expenditure:	\$0.00				
Total Care/Maint Expenditur:	\$0.00				
Total Mntring Expenditure:	\$0.00				
Ttl Expenditure Reduc Liabil:					
FCSAP Asmt Expenditure:	\$0.00				
FCSAP Remed Expenditure:	\$0.00				
FCSAP Care/Maint Expenditur:	\$0.00				
FCSAP Mntring Expenditure:	\$0.00				

Annual Data

Fiscal Year: 2013-2014
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$0.00
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2015-2016
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
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Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$0.00
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2014-2015
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):
Step Name (FR):
Highest Step Completed: 06
Highest Step Completed Desc:
Planned Compl Date Step7:
Planned Compl Date Step8:
Planned Compl Date Step9:
Created:
Modified:
NCSCS Year:
Closed: No
Actual Cubic Metres Rem: 0
Actual Hectares Rem: 0
Actual Tons Remediated: 0
Total Asmt Expenditure: \$0.00
Total Remediation Expenditure: \$0.00
Total Care/Maint Expenditur: \$0.00
Total Mntring Expenditure: \$0.00
Ttl Expenditure Reduc Liabil:
FCSAP Asmt Expenditure: \$4,916.97
FCSAP Remed Expenditure: \$0.00
FCSAP Care/Maint Expenditur: \$0.00
FCSAP Mntring Expenditure: \$0.00

Annual Data

Fiscal Year: 2017-2018
Reporting Organization: DOE
Reporting Organization (EN): Environment and Climate Change Canada
Reporting Organization (FR): Environnement et Changement climatique Canada
Class Type:
Class (EN):
Class (FR):
CCME Flag:
CCME NCS Year:
Step Name (EN):

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Step Name (FR): Highest Step Completed: 06 Highest Step Completed Desc: Planned Compl Date Step7: Planned Compl Date Step8: Planned Compl Date Step9: Created: Modified: NCSCS Year: Closed: No Actual Cubic Metres Rem: 0 Actual Hectares Rem: 0 Actual Tons Remediated: 0 Total Asmt Expenditure: \$0.00 Total Remediation Expenditure: \$0.00 Total Care/Maint Expenditur: \$0.00 Total Mntring Expenditure: \$0.00 Ttl Expenditure Reduc Liabil: FCSAP Asmt Expenditure: \$0.00 FCSAP Remed Expenditure: \$0.00 FCSAP Care/Maint Expenditur: \$0.00 FCSAP Mntring Expenditure: \$0.00					

2	1 of 1	SSE/0.0	1,397.4 / 117.15	AB	LDS
Site NO:	ID5/050			Health Unit:	Chinook
Status:	Inactive			Size (Acre):	
Priority Rank:	1			County:	Improvement District 5
Point Score:	115			Owner:	ID5 Mun. Affairs
Current Use:	Unused			Name:	Frank
Problems:	institutional waste, permeable soil, close to wells			Location:	SW 30-07-03W5

3	1 of 6	NW/0.0	1,299.9 / 19.66	Crowsnest River 5;4;7;36;SE AB	AUTH
Legal Land Location:	SE 36-007-04-W5				
Document Title:	Notice 00195249-00-00 under the provisions of the Water Act, Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body at SE 36-7-4-W5 * affecting the Crowsnest River was received from MUNICIPALITY OF CROWSNEST PASS on Jul. 01, 2003. * Additional locations and water bodies, including the queried location, are associated with this notice.				
Document Url:					

3	2 of 6	NW/0.0	1,299.9 / 19.66	William Cole 5;4;7;36;SE AB	AUTH
Legal Land Location:	SE 36-007-04-W5				
Document Title:	Document 00043041-00-00 FISHER & COLE, WR, 05036 is held by William Cole, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.				
Document Url:					

3	3 of 6	NW/0.0	1,299.9 / 19.66	Crowsnest River 5;4;7;36;SE AB	AUTH
Legal Land Location:	SE 36-007-04-W5				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Document Title:		Notice 00201229-00-00 under the provisions of the Water Act, Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body at SE 36-7-4-W5 * affecting the Crowsnest River was received from MUNICIPALITY OF CROWSNEST PASS on Sep. 25, 2003. * Additional locations and water bodies, including the queried location, are associated with this notice.			
Document Url:					
<u>3</u>	4 of 6	NW/0.0	1,299.9 / 19.66	Crowsnest River 5;4;7;36;SE AB	AUTH
Legal Land Location:		SE 36-007-04-W5			
Document Title:		Notice 00396331-00-00 under the provisions of the Water Act, Code of Practice for Watercourse Crossings at SE 36-7-4-W5 affecting the Crowsnest River was received from ALBERTA TRANSPORTATION - SOUTHERN REGION on Jun. 23, 2017.			
Document Url:					
<u>3</u>	5 of 6	NW/0.0	1,299.9 / 19.66	James Fisher 5;4;7;36;SE AB	AUTH
Legal Land Location:		SE 36-007-04-W5			
Document Title:		Document 00043041-00-00 FISHER & COLE, WR, 05036 is held by James Fisher, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:					
<u>3</u>	6 of 6	NW/0.0	1,299.9 / 19.66	Can Coal Consolidated Ltd 5;4;7;36;SE AB	AUTH
Legal Land Location:		SE 36-007-04-W5			
Document Title:		Document 00045690-00-00 CAN COAL CONSOLIDATED LTD, WR, 00452 is held by Can Coal Consolidated Ltd, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:					
<u>4</u>	1 of 51	WNW/0.0	1,337.7 / 57.39	William Thibodeau 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00045943-00-00 THIBODEAU, WR, 00239 is held by William Thibodeau, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:					
<u>4</u>	2 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049307-00-01 CROWSNEST PASS/MUNICIPAL - WATERMAIN REPLACEMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Jun. 03, 1997 and does not expire.			
Document Url:					
<u>4</u>	3 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE	AUTH

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				AB	
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-01 BLAIRMORE CNP/MUNICIPAL - BLAIRMORE SOUTH OF HWY #3, COMMERCIAL DEVELOPMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Sep. 06, 2001 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00153924-00-01.pdf			
<u>4</u>	4 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-03 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - ELECTRONIC REPORTING is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-03.pdf			
<u>4</u>	5 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049307-00-00 CROWSNEST PASS/MUNICIPAL - KEN BOWIE SUBD is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Aug. 26, 1996 and does not expire.			
Document Url:					
<u>4</u>	6 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00077495-00-01 CROWSNEST PASS MUNICIPAL - CARBONDALE PUMP STATION,POTABLE WATER is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Sep. 24, 2001 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00077495-00-01.pdf			
<u>4</u>	7 of 51	WNW/0.0	1,337.7 / 57.39	Lafarge Canada Inc. 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00081013-00-00 BELLEVUE/MUNICIPAL - MOHAWK MEADOWS SUBDIV,PHASE 2 is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Mar. 02, 2000 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00081013-00-00.pdf			
<u>4</u>	8 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00077495-00-00 CROWSNEST PASS MUNICIPAL - BRENT DASE SUBDIV,COLEMAN is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Oct. 20, 1999 and does not expire.			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Document Url:		https://avw.alberta.ca/pdf/00077495-00-00.pdf			
4	9 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-02-01 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - ELECTRONIC REPORTING is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of May. 04, 2005 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00000432-02-01.pdf			
4	10 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-02-03 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - REVISED LEAD MAC NOTICE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of Oct. 30, 2019 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00000432-02-03.pdf			
4	11 of 51	WNW/0.0	1,337.7 / 57.39	East & West Ranching Co. Ltd. 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00045725-00-00 ROCKY MOUNTAIN CEMENT CO, WR, 00420 is held by Rocky Mountain Cement Company, Limited, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:					
4	12 of 51	WNW/0.0	1,337.7 / 57.39	Canadian Pacific Railway Company 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00045943-00-00 THIBODEAU, WR, 00239 is held by William Thibodeau, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:					
4	13 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-01 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Approval is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-01.pdf			
4	14 of 51	WNW/0.0	1,337.7 / 57.39	Canadian Natural Resources 5;4;7;35;SE AB	AUTH

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Legal Land Location: SE 35-007-04-W5					
Document Title: Document 00153924-00-00 BLAIRMORE CNP/MUNICIPAL - 89 STR WATERMAIN is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Aug. 19, 1996 and does not expire.					
Document Url:					
<u>4</u>	15 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location: SE 35-007-04-W5					
Document Title: Document 00049307-00-03 CROWSNEST PASS/MUNICIPAL - COLEMAN, 16 AVE CROSSING THE CROWSNEST RIVER is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Dec. 17, 2002 and does not expire.					
Document Url: https://aww.alberta.ca/pdf/00049307-00-03.pdf					
<u>4</u>	16 of 51	WNW/0.0	1,337.7 / 57.39	Rocky Mountain Cement Company, Limited 5;4;7;35;SE AB	AUTH
Legal Land Location: SE 35-007-04-W5					
Document Title: Document 00045725-00-00 ROCKY MOUNTAIN CEMENT CO, WR, 00420 is held by Rocky Mountain Cement Company, Limited, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.					
Document Url:					
<u>4</u>	17 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location: SE 35-007-04-W5					
Document Title: Document 00153924-00-02 BLAIRMORE CNP/MUNICIPAL - PHASE 1, 20 AVE BETWEEN 125 STR AND 135 STR is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Aug. 14, 2002 and does not expire.					
Document Url: https://aww.alberta.ca/pdf/00153924-00-02.pdf					
<u>4</u>	18 of 51	WNW/0.0	1,337.7 / 57.39	Grand Trunk Pacific Railway 5;4;7;35;SE AB	AUTH
Legal Land Location: SE 35-007-04-W5					
Document Title: Document 00045594-00-00 BLAIRMORE BREWING & MALTING CO, WR, 00551 is held by Blairmore Brewing and Malting Company Limited, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.					
Document Url:					
<u>4</u>	19 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location: SE 35-007-04-W5					
Document Title: Document 00153924-00-04 BLAIRMORE CNP/MUNICIPAL - BLAIRMORE TO BELLEVUE WATERMAIN, PHASE 2 is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Mar. 25, 2003 and does not expire.					
Document Url: https://aww.alberta.ca/pdf/00153924-00-04.pdf					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
4	20 of 51	WNW/0.0	1,337.7 / 57.39	Town of Whitecourt 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00067933-00-00 COLEMAN WATERWORKS - CHEMICAL USE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently expired and renewable.			
Document Url:		https://avw.alberta.ca/pdf/00067933-00-00.pdf			
4	21 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-02 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - LEGISLATIVE CHANGES is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-02.pdf			
4	22 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-00 BLAIRMORE, CROWSNEST PASS WATERWORKS SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Approval is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-00.pdf			
4	23 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-00-00 CROWSNEST PASS WATERWORKS SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Approval is currently renewed.			
Document Url:					
4	24 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-03 BLAIRMORE CNP/MUNICIPAL - WATER MAIN FROM BELLEVUE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Nov. 27, 2002 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00153924-00-03.pdf			
4	25 of 51	WNW/0.0	1,337.7 / 57.39	City of Medicine Hat 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00077495-00-00 CROWSNEST PASS MUNICIPAL - BRENT DASE SUBDIV,COLEMAN is held by			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<p>Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Oct. 20, 1999 and does not expire. https://avw.alberta.ca/pdf/00077495-00-00.pdf</p>					
4	26 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
<p>Legal Land Location: SE 35-007-04-W5 Document Title: Document 00000432-01-00 BLAIRMORE, CROWSNEST PASS WATERWORKS SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Approval is currently renewed. Document Url: https://avw.alberta.ca/pdf/00000432-01-00.pdf</p>					
4	27 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
<p>Legal Land Location: SE 35-007-04-W5 Document Title: Document 00000432-02-02 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - NOTICE IMPLEMENT VIRUS DISINFECTION is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of Dec. 01, 2009 and does not expire. Document Url: https://avw.alberta.ca/pdf/00000432-02-02.pdf</p>					
4	28 of 51	WNW/0.0	1,337.7 / 57.39	Town of Claresholm 5;4;7;35;SE AB	AUTH
<p>Legal Land Location: SE 35-007-04-W5 Document Title: Document 00049306-00-00 CROWSNEST PASS/MUNICIPAL - TOWNSEND DEVELOPMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Jul. 29, 1996 and does not expire. Document Url:</p>					
4	29 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
<p>Legal Land Location: SE 35-007-04-W5 Document Title: Document 00049307-00-02 COLEMAN CROWSNEST PASS/MUNICIPAL - 2002 WATERMAIN REPLACEMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Jul. 17, 2002 and does not expire. Document Url: https://avw.alberta.ca/pdf/00049307-00-02.pdf</p>					
4	30 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
<p>Legal Land Location: SE 35-007-04-W5 Document Title: Document 00077495-00-01 CROWSNEST PASS MUNICIPAL - CARBONDALE PUMP STATION,POTABLE WATER is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Sep. 24, 2001 and does not expire. Document Url: https://avw.alberta.ca/pdf/00077495-00-01.pdf</p>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>4</u>	31 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049307-00-00 CROWSNEST PASS/MUNICIPAL - KEN BOWIE SUBD is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Aug. 26, 1996 and does not expire.			
Document Url:					
<u>4</u>	32 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049306-00-00 CROWSNEST PASS/MUNICIPAL - TOWNSEND DEVELOPMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Jul. 29, 1996 and does not expire.			
Document Url:					
<u>4</u>	33 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-02 BLAIRMORE CNP/MUNICIPAL - PHASE 1, 20 AVE BETWEEN 125 STR AND 135 STR is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Aug. 14, 2002 and does not expire.			
Document Url:		https://aww.alberta.ca/pdf/00153924-00-02.pdf			
<u>4</u>	34 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049307-00-02 COLEMAN CROWSNEST PASS/MUNICIPAL - 2002 WATERMAIN REPLACEMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Jul. 17, 2002 and does not expire.			
Document Url:		https://aww.alberta.ca/pdf/00049307-00-02.pdf			
<u>4</u>	35 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-02-03 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - REVISED LEAD MAC NOTICE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of Oct. 30, 2019 and does not expire.			
Document Url:		https://aww.alberta.ca/pdf/00000432-02-03.pdf			
<u>4</u>	36 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00067933-00-00 COLEMAN WATERWORKS - CHEMICAL USE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Document Url:		expired and renewable. https://avw.alberta.ca/pdf/00067933-00-00.pdf			
4	37 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-00-00 CROWSNEST PASS WATERWORKS SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Approval is currently renewed.			
Document Url:					
4	38 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-02-02 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - NOTICE IMPLEMENT VIRUS DISINFECTION is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of Dec. 01, 2009 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00000432-02-02.pdf			
4	39 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049307-00-01 CROWSNEST PASS/MUNICIPAL - WATERMAIN REPLACEMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Jun. 03, 1997 and does not expire.			
Document Url:					
4	40 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00081013-00-00 BELLEVUE/MUNICIPAL - MOHAWK MEADOWS SUBDIV,PHASE 2 is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Mar. 02, 2000 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00081013-00-00.pdf			
4	41 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-03 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - ELECTRONIC REPORTING is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-03.pdf			
4	42 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE	AUTH

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				AB	
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-01 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Approval is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-01.pdf			
<u>4</u>	43 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-02-01 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - ELECTRONIC REPORTING is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of May. 04, 2005 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00000432-02-01.pdf			
<u>4</u>	44 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-01 BLAIRMORE CNP/MUNICIPAL - BLAIRMORE SOUTH OF HWY #3, COMMERCIAL DEVELOPMENT is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Sep. 06, 2001 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00153924-00-01.pdf			
<u>4</u>	45 of 51	WNW/0.0	1,337.7 / 57.39	Blairmore Brewing and Malting Company Limited 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00045594-00-00 BLAIRMORE BREWING & MALTING CO, WR, 00551 is held by Blairmore Brewing and Malting Company Limited, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:					
<u>4</u>	46 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-00 BLAIRMORE CNP/MUNICIPAL - 89 STR WATERMAIN is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Aug. 19, 1996 and does not expire.			
Document Url:					
<u>4</u>	47 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-02-00 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - CODE OF PRACTICE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Document Url:		Act. This Registration is currently issued as of Apr. 01, 2005 and does not expire. https://avw.alberta.ca/pdf/00000432-02-00.pdf			
<u>4</u>	48 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00049307-00-03 CROWSNEST PASS/MUNICIPAL - COLEMAN, 16 AVE CROSSING THE CROWSNEST RIVER is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Dec. 17, 2002 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00049307-00-03.pdf			
<u>4</u>	49 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-04 BLAIRMORE CNP/MUNICIPAL - BLAIRMORE TO BELLEVUE WATERMAIN, PHASE 2 is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Mar. 25, 2003 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00153924-00-04.pdf			
<u>4</u>	50 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00153924-00-03 BLAIRMORE CNP/MUNICIPAL - WATER MAIN FROM BELLEVUE is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Authorization is currently issued as of Nov. 27, 2002 and does not expire.			
Document Url:		https://avw.alberta.ca/pdf/00153924-00-03.pdf			
<u>4</u>	51 of 51	WNW/0.0	1,337.7 / 57.39	Municipality of Crowsnest Pass 5;4;7;35;SE AB	AUTH
Legal Land Location:		SE 35-007-04-W5			
Document Title:		Document 00000432-01-02 BLAIRMORE CROWSNEST PASS WATERWORKS SYSTEM - LEGISLATIVE CHANGES is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently renewed.			
Document Url:		https://avw.alberta.ca/pdf/00000432-01-02.pdf			
<u>5</u>	1 of 2	E/0.0	1,365.3 / 85.00	Municipality of Crowsnest Pass 5;3;7;29;NE AB	AUTH
Legal Land Location:		NE 29-007-03-W5			
Document Title:		Document 00045849-00-01 RANCLAND/VILLAGE/MUNICIPALITY OF CROWSNEST PASS - F00314 is held by Municipality of Crowsnest Pass, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.			
Document Url:		https://avw.alberta.ca/pdf/00045849-00-01.pdf			
<u>5</u>	2 of 2	E/0.0	1,365.3 / 85.00	Municipality of Crowsnest Pass 5;3;7;29;NE	AUTH

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
AB					
Legal Land Location:	NE 29-007-03-W5				
Document Title:	Document 00045849-00-00 MUNICIPALITY OF CROWSNEST PASS, WR, 00314 is held by Municipality of Crowsnest Pass, under the provisions of the Water Resources Act. This Licence is currently cancelled by department.				
Document Url:	https://avw.alberta.ca/pdf/00045849-00-00.pdf				
<u>6</u>	1 of 1	E/0.0	1,372.6 / 92.33	AB	LDS
Site NO:	ID5/020			Health Unit:	Chinook
Status:	Inactive			Size (Acre):	1
Priority Rank:	1			County:	Improvement District 5
Point Score:	117			Owner:	ID5 Mun. Affairs
Current Use:	Open Space			Name:	Bellevue
Problems:	close to water supply, permeable soil, close to well, open dump, adjacent to surface water			Location:	NE 29-07-03W5
<u>7</u>	1 of 4	SE/0.0	1,300.3 / 20.07	Municipality of Crowsnest Pass 5;3;7;20;SW AB	AUTH
Legal Land Location:	SW 20-007-03-W5				
Document Title:	Document 00300702-00-00 CROWSNEST PASS/CONSTRUCTION/MUNICIPALITY OF CROWSNEST PASS - F00300702 is held by Municipality of Crowsnest Pass, under the provisions of the Water Act. This Approval is currently expired.				
Document Url:	https://avw.alberta.ca/pdf/00300702-00-00.pdf				
<u>7</u>	2 of 4	SE/0.0	1,300.3 / 20.07	Drum Creek 5;3;7;20;SW AB	AUTH
Legal Land Location:	SW 20-007-03-W5				
Document Title:	Notice 00312932-00-00 under the provisions of the Water Act, Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body at SW 20-7-3-W5 affecting the Drum Creek was received from MUNICIPALITY OF CROWSNEST PASS on Jun. 29, 2012.				
Document Url:					
<u>7</u>	3 of 4	SE/0.0	1,300.3 / 20.07	Municipality of Crowsnest Pass 5;3;7;20;SW AB	AUTH
Legal Land Location:	SW 20-007-03-W5				
Document Title:	Document 00208481-00-00 CROWSNEST PASS STORM DRAINAGE SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of Oct. 29, 2004 and does not expire.				
Document Url:	https://avw.alberta.ca/pdf/00208481-00-00.pdf				
<u>7</u>	4 of 4	SE/0.0	1,300.3 / 20.07	Drum Creek 5;3;7;20;SW AB	AUTH
Legal Land Location:	SW 20-007-03-W5				
Document Title:	Notice 00357403-00-00 under the provisions of the Water Act, Code of Practice for Watercourse Crossings at SW 20-7-3-W5 affecting the Drum Creek was received from MUNICIPALITY OF CROWSNEST PASS on Sep. 16,				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
2014.					
Document Url:					
8	1 of 2	ESE/0.0	1,265.3 / -15.00	Municipality of Crowsnest Pass 5;3;7;20;SE AB	AUTH
Legal Land Location:		SE 20-007-03-W5			
Document Title:		Document 00330220-00-00 CROWSNEST PASS/DRAINAGE/MUNICIPALITY OF CROWSNEST PASS - F00330220 is held by Municipality of Crowsnest Pass, under the provisions of the Water Act. This Approval is currently expired.			
Document Url:		https://aww.alberta.ca/pdf/00330220-00-00.pdf			
8	2 of 2	ESE/0.0	1,265.3 / -15.00	Municipality of Crowsnest Pass 5;3;7;20;SE AB	AUTH
Legal Land Location:		SE 20-007-03-W5			
Document Title:		Document 00208481-00-00 CROWSNEST PASS STORM DRAINAGE SYSTEM is held by Municipality of Crowsnest Pass, under the provisions of the Environmental Protection & Enhancement Act. This Registration is currently issued as of Oct. 29, 2004 and does not expire.			
Document Url:		https://aww.alberta.ca/pdf/00208481-00-00.pdf			
9	1 of 1	ESE/0.0	1,270.3 / -10.00	AB	LDS
Site NO:	ID5-060			Health Unit:	Chinook
Status:	Inactive			Size (Acre):	
Priority Rank:	3			County:	Improvement District 5
Point Score:	n/a			Owner:	ID5 Mun. Affairs
Current Use:				Name:	Hillcrest
Problems:				Location:	SE 20-07-03W5
10	1 of 4	WNW/0.0	1,315.9 / 35.64	Municipality of Crowsnest Pass 5;4;8;9;SW AB	AUTH
Legal Land Location:		SW 09-008-04-W5			
Document Title:		Document 00070729-00-00 COLEMAN/EROSION CONTROL/CROWSNEST PASS, MUN - F40962 is held by Municipality of Crowsnest Pass, under the provisions of the Water Resources Act. This Permit is currently expired.			
Document Url:					
10	2 of 4	WNW/0.0	1,315.9 / 35.64	Ted Michalsky 5;4;8;9;SW AB	AUTH
Legal Land Location:		SW 09-008-04-W5			
Document Title:		Document 00070322-00-00 COLEMAN/EXCAVATION/TED MICHALSKY - F40235 is held by Ted Michalsky, under the provisions of the Water Resources Act. This Permit is currently expired.			
Document Url:					
10	3 of 4	WNW/0.0	1,315.9 / 35.64	Canadian Pacific Railway Company 5;4;8;9;SW AB	AUTH

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Legal Land Location:		SW 09-008-04-W5			
Document Title:		Document 00230858-00-00 COLEMAN/CAUSEWAY/CANADIAN PACIFIC RAILWAY LTD. - F. is held by Canadian Pacific Railway Company, under the provisions of the Water Act. This Approval is currently expired.			
Document Url:		https://avw.alberta.ca/pdf/00230858-00-00.pdf			
10	4 of 4	WNW/0.0	1,315.9 / 35.64	Municipality of Crowsnest Pass 5;4;8;9;SW AB	AUTH
Legal Land Location:		SW 09-008-04-W5			
Document Title:		Document 00248447-00-00 CROWSNEST PASS/EROSION CONTROL/MUNICIPALITY OF CROWSNEST PASS - F00248447 is held by Municipality of Crowsnest Pass, under the provisions of the Water Act. This Approval is currently expired.			
Document Url:		https://avw.alberta.ca/pdf/00248447-00-00.pdf			
11	1 of 1	WNW/7.6	1,347.7 / 67.48	Livingstone River 5;4;8;4;NE AB	AUTH
Legal Land Location:		NE 04-008-04-W5			
Document Title:		Notice 00250101-00-00 under the provisions of the Water Act, Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body at NE 4-8-4-W5 affecting the Livingstone River was received from DEVON CANADA CORPORATION on Aug. 15, 2008.			
Document Url:					
12	1 of 1	SE/212.4	1,283.3 / 3.00	Municipal District of Crowsnest Pass AB	PITS
Certificate NO:					
Status:		Inactive		Approval Type:	
Status Date:		23-Feb-95		DLS: 15-17-7-3-5	
Effective Date:				Lot:	
Expiry Date:				Block:	
Facility Name:		STRANDQUIST PIT		Plan:	
Description:					
Operator:					
Mailing Address:					
13	1 of 3	WNW/300.0	1,324.6 / 44.33	NATAL FOREST PRODUCTS 8801 16 AVE COLEMAN AB	GEN
Approval No:					
Record ID:		1165		DLS:	
Approval Year:		2001		Phone:	
		Contact:			
--Details--					
Material Code:		9.3			
Material Description:		Unclassified Dangerous Waste			
13	2 of 3	WNW/300.0	1,324.6 / 44.33	NATAL FOREST PRODUCTS 8801 16 AVE COLEMAN AB	GEN
Approval No:					
Record ID:		1147		DLS:	
		Phone:			

<i>Map Key</i>	<i>Number of Records</i>	<i>Direction/ Distance (m)</i>	<i>Elev/Diff (m)</i>	<i>Site</i>	<i>DB</i>
<i>Approval Year:</i> 2003		<i>Contact:</i>			
--Details--					
<i>Material Code:</i>		9.00			
<i>Material Description:</i>		Miscellaneous Dangerous Goods			
<u>13</u>	3 of 3	WNW/300.0	1,324.6 / 44.33	NATAL FOREST PRODUCTS 8801 16 AVE AB	GEN
<i>Approval No:</i>		<i>DLS:</i>			
<i>Record ID:</i> 2083		<i>Phone:</i>			
<i>Approval Year:</i> 2005		<i>Contact:</i>			
--Details--					
<i>Material Code:</i>		9.30			
<i>Material Description:</i>		Unclassified Dangerous Waste			

Unplottable Summary

Total: 2 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CONV	Natal Forest Products Ltd.		Crowsnest Pass AB	
ORD	Canadian Pacific Railway Company		AB	

Unplottable Report

Site: *Natal Forest Products Ltd.*
Crowsnest Pass AB

Database:
CONV

Action: Warning Letters

Penalty:

Code:

Data Source:

Date: 09-Jan-07

Act and Regulation: AEPEA(R), 227(e)

Location: SE-9-8-4-W5

Disposition: The Company operates the Coleman wood treatment facility pursuant to an Approval. It contravened its Approval by submitting the Decommissioning and Reclamation Plan late.

Site: *Canadian Pacific Railway Company*
AB

Database:
ORD

Enforcement Name: Environmental Protection Order no. EPO-EPEA-35819

Description: Environmental protection order issued to Canadian Pacific Railway Company.

Updated: April 13, 2021

Spatial Coverage: Crowsnest Pass

Spatial Coverage2:

Spatial Coverage3:

Enforcement Name URL: <https://open.alberta.ca/publications/environmental-protection-order-no-epo-epea-35819>

Appendix: Database Descriptions

*Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. **Note:** Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Well Licenses:

Provincial [AERW](#)

Locations of Well Licenses made available by the Alberta Energy Regulator (AER) as ST37. Includes Active, Suspended, Abandoned, Drilled and Cased Oil, Gas, Crude Bitumen well licenses, as well as Observation, Injection, Disposal, and Undefined well licences.

Government Publication Date: Jul 31, 2021

Agriculture and Fisheries - Certificates of Approval:

Provincial [AGR](#)

This database contains approvals for processes pertaining to drying of alfalfa/forage/peat, feedlots, fish farms and feed/seed mills. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Alberta Oil and Gas Wells:

Provincial [AOGW](#)

The Alberta Energy Utilities Board - now the Alberta Energy Regulator (AER) - maintained a database of oil and gas wells drilled in the province of Alberta. The database contains information on well name, licensee name, license number, location, status, total well depth and date of final drilling. Please note that this database will not be updated, information on wells drilled after September 2003 can be found in the Oil and Gas Wells (OGW) database under the 'Private Source Database' section.

Government Publication Date: 1883-Sept 2003*

Authorizations:

Provincial [AUTH](#)

Locations associated with Water Act and Environmental Protection and Enhancement Act (EPEA) documents issued by Alberta Environment and Parks (AEP). Includes approvals, licences, registrations, authorizations, permits, and certificates. This list is made available by the Alberta Environment and Parks (AEP).

Government Publication Date: Mar 2021

Automobile Wrecking & Supplies:

Private [AUWR](#)

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Sep 30, 2021

Waste Management Facilities - Certificates of Approval:

Provincial [CAWD](#)

This database contains approvals for processes pertaining to waste management facilities (hazardous waste manifesting, waste disposal/incineration/open burning/processing/storage/treatment). Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993 - Jan 2020

Commercial Activity Risk - City of Calgary Business Licenses:

Provincial [CBL](#)

List of locations with Business Licences for the follow commercial activities: apartment building with 4 or more stories, auto-body shop, fabric cleaning, manufacturing, motor vehicle dealerships and service/repair, and salvage yard/auto wrecking. Data made available by the City of Calgary.

Government Publication Date: Dec 31, 2021

Dry Cleaning Facilities:

Federal [CDRY](#)

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2019

Confined Feeding Operations:

Provincial CFO

In 1991, the Natural Resources Conservation Board (NRCB) was created to review applications for approval of major natural resource development projects in Alberta. In January 2002, the NRCB was given the responsibility to regulate the Confined Feeding Operation industry. The Agricultural Operation Practices Act defines a confined feeding operation to be: "an activity on land that is fenced or enclosed or within buildings where livestock are confined for the purpose of growing, sustaining, finishing or breeding by means other than grazing, but does not include seasonal feeding and bedding sites." Under the AOPA regulations, all new or expanding confined feeding operations (CFOs) or manure storage facilities are required to make an application for Approval, Registration or Authorization to the NRCB before construction or expansion commences. Geographic coordinates were provided in DLS (Dominion Land Survey) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the Quarter section only.

Government Publication Date: 2002-Mar 2022

Chemical Processing Operations - Certificates of Approval:

Provincial CHEM

This database contains approvals for processes pertaining to the manufacturing and use of chemical products and pesticides. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Chemical Register:

Private CHM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Government Publication Date: 1999-Sep 30, 2021

Compost Facilities:

Provincial CMPS

A list of compost facility registrations made available by Alberta Environment and Parks (AEP). Composting facilities operating under a registration are required to follow the requirements in the Code of Practice for Compost Facilities, which outlines the minimum requirements for the design, construction, operation, and reclamation of compost facilities that accept up to 20,000 tonnes of feedstock per year.

Government Publication Date: Dec 31, 2019

Compressed Natural Gas Stations:

Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 -Apr 2022

Compliance and Convictions:

Provincial CONV

This database summarizes the penalties and convictions handed down by the Alberta courts. This database identifies companies and/or individuals that have been found guilty of environmental offenses under Alberta's Environmental Protection Legislation. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Unfortunately, from state of the data, the location that the address pertains to cannot be confirmed.

Government Publication Date: 1993-Mar 2022

Fuel Sales and Storage:

Provincial CTNK

List of locations with Business Licences for fuel sales and storage. Data made available by the City of Calgary.

Government Publication Date: Dec 31, 2021

Approved Oilfield Waste Management Facilities:

Provincial DRWD

A list of approved first and third party oilfield waste management facilities. First-party receivers can only accept upstream oilfield waste generated by one oil and gas company, but can come from various sites. Third-party receivers can accept upstream oilfield waste from various sites and various generators. This data is made available by the Alberta Energy Regulator (AER).

Government Publication Date: May 20201

Enforcement Action Summary:

Provincial EAS

This database maintained by the Alberta Energy Regulator (AER) - formerly the Energy Resources Conservation Board (ERCB) - summarizes high risk enforcement action 1, high risk enforcement action 2 (persistent noncompliance), high risk enforcement action 3 (failure to comply or demonstrated disregard), low risk enforcement action - global REFER and legislative/regulatory enforcement action. Fields will include licensee/company name, non-compliance event, date of enforcement, location, etc.

Government Publication Date: 2007-Feb 2022

Commercial Activity Risk - City of Edmonton Business Licenses:

Provincial [EBL](#)

List of locations with Business Licenses for the follow commercial activities: cannabis processing or cultivation, construction vehicle and equipment sales/rentals, livestock operation, general industrial, and vehicle repair. Data made available by the City of Edmonton.

Government Publication Date: Dec 31, 2021

Environmental Compliance Prosecutions:

Provincial [ECMP](#)

A list of concluded prosecutions made under environmental legislation. Listing made available by the Government of Alberta. This is not a complete and comprehensive list of environmental compliance outcomes: in Alberta, enforcement tools include warning letters, violation tickets, administrative penalties and orders, in addition to prosecutions.

Government Publication Date: Apr 30, 2021

Environmental Effects Monitoring:

Federal [EEM](#)

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches:

Private [EHS](#)

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Mar 31, 2022

Environmental Issues Inventory System:

Federal [EIS](#)

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Alberta Environment & Parks Storage Tanks:

Provincial [EPST](#)

List of storage tanks under the purview of Alberta Environment and Parks.

Government Publication Date: Jul 31, 2016

Environment Protection & Enhancement Act and Water Act Public Notices:

Provincial [EPWN](#)

A list of Public Notices of Applications, Decisions, and Revisions pertaining to applications made to Alberta Environment and Parks under the Water Act (WA) and Alberta Environment Protection and Enhancement Act (EPEA). Dominion Land Survey (DLS) locations provided by the source are subject to accuracy limitations inherent to the DLS system.

Government Publication Date: Mar 31, 2022

Environmental Site Assessment Repository:

Provincial [ESAR](#)

Environmental site assessments determine the quality of soil and groundwater of a site, particularly at retail gas stations and other commercial and industrial sites. A site assessment does not necessarily mean a site is, or ever was, contaminated. Alberta's Environmental Site Assessment Repository (ESAR) is an online, searchable database that provides scientific and technical information about assessed and/or reclaimed sites throughout Alberta. Search Alberta's ESAR using meridian, range, township, and section values at <http://www.esar.alberta.ca/esarmain.aspx> to gain access to reclamation certificates and/or associated files (applications, reports).

Government Publication Date: 1960-Mar 2021

Edmonton Vehicle Fueling Stations:

Provincial [ETNK](#)

A list of sites that have a City of Edmonton business license for Vehicle Fueling Stations. Listing made available by the City of Edmonton.

Government Publication Date: Dec 31, 2021

Facility List:

Provincial [FAC](#)

This database contains a complete list of new, active and suspended facilities in Alberta including batteries, gas plants, meter stations, and other facilities. Information provided includes: facility id, facility name, operator name, sub type description, location, facility I license no, and operational status; now includes EDCT (Energy Development Category Type) type and description. Made available by the Alberta Energy Regulator (AER) - formerly the Energy Resources Conservation Board (ERCB).

Government Publication Date: Up to Jun 30, 2022

Federal Convictions:

Federal

FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land:

Federal

FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

Government Publication Date: Jun 2000-Apr 2022

AER Incidents & Spills:

Provincial

FIS

Received from the Alberta Energy Regulator (AER) - formerly the ERCB (Energy Resources Conservation Board) and EUB (Energy Utilities Board) - this database, which used to be called EISL (Environmental Information System Listing), contains reported environmental incidents beginning in 1975. Descriptions include noise infractions, air quality emissions, oil spills and failures for pipelines, wells, plants, and batteries. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1975 - Apr 2022

Food Processing Operations - Certificates of Approval:

Provincial

FOOD

This database contains approvals for processes pertaining to the manufacturing of food products. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Federal Identification Registry for Storage Tank Systems (FIRSTS):

Federal

FRST

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: May 31, 2018

Fuel Storage Tanks:

Provincial

FST

List tank sites in unaccredited areas of the Province. Includes active tank sites, sites with tanks temporarily out of service, and sites at which tanks have been removed from the ground. Information in this database was collected according to Alberta Regulation AR 291/95 Storage Tank System Management and to AR 52/98 Fire Code which was formerly the Alberta Fire Code Regulation, 1992 (AR 204/92). The Petroleum Tank Management Association of Alberta (PTMAA) regulated Storage Tanks in unaccredited areas of Alberta from 1994 until June 2020, at which point the Safety Codes Council assumed responsibility for services related to storage tank management.

Government Publication Date: 1985-May 2022

Waste Generators Summary:

Provincial

GEN

Under Alberta's Waste Control Regulation, Alta. Reg. 192/96, a generator is a person who consigns hazardous waste for storage, transport, treatment or disposal. As of 2007, Alberta Environment no longer provides detailed information on each waste generator, such as approval number, class, and class description.

Government Publication Date: 1993-Aug 2018

Greenhouse Gas Emissions from Large Facilities:

Federal

GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2019

Gas Processing Plants:

Provincial

GPP

The Alberta Energy Regulator (AER) - formerly the ERCB (Energy Resources Conservation Board) - has an inventory of all Gas Processing Plants in Alberta, with information such as location, names of plant, facility type, operator name, facility license, design capacities, etc.

Government Publication Date: Oct 2016-Oct 31, 2021

Alberta Environment's H.E.L.P. (Help End Landfill Pollution) Program Database:

Provincial

[HELP](#)

The H.E.L.P. Data Tracking and Management Control System was created to provide tracking and management capabilities of industrial landfills in Alberta for the Department of Environment. Detailed information including company name, location, type of landfill, priority, score, status, use and much more is included in this database.

Government Publication Date: June 1988*

Horizontal Wells:

Provincial

[HORW](#)

Defined as drilling directionally at a wellbore inclination angle exceeding 85 degrees, horizontal drilling can help increase resource recovery while minimizing surface impact. Recent improvements in the technology have made it possible to combine horizontal drilling with hydraulic fracturing to help coax oil and natural gas out of tight rock. Today, more than half of western Canada's wells are being drilled horizontally. Data includes: well locations (LE,LS,SE,TWP,RG,M,E), licence numbers, well names, Business Associate (BA) codes, licensee abbreviations, spud dates, final drilling dates, total depth, true vertical depth, and last updated dates. Made available by the Alberta Energy Regulator (AER) - formerly the Energy Resources Conservation Board (ERCB).

Government Publication Date: Mar 2015-Mar 31, 2022

Indian & Northern Affairs Fuel Tanks:

Federal

[IAFT](#)

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Identification and Verification of Active and Inactive Land Disposal Sites:

Provincial

[LDS](#)

In late 1981, Environment Canada and Alberta Environment initiated a project to identify and verify land disposal sites in the province of Alberta. A point scoring system was used to classify the sites into potential priority 1, priority 2 or priority 3 groups on the basis of the type of waste received at the sites and the site environment. Sites that, according to available information, may pose a hazard to public health and safety or the environment are classified as potential priority 1 sites.

Government Publication Date: Oct 1982*

Land Disposal Sites on Indian Reserves:

Provincial

[LDSI](#)

In late 1981, Environment Canada and Alberta Environment initiated a project to identify and verify land disposal sites in the province of Alberta. This database specifically identifies land disposal sites on Indian Reserves. Information on each site is limited to: location, band, size and general comments.

Government Publication Date: Oct 1982*

Landfill Registrations:

Provincial

[LNDF](#)

A list of landfill registrations made available by Alberta Environment and Parks (AEP). Landfills operating under a registration are required to follow the requirements in the Code of Practice for Landfills, which outlines the minimum requirements for the construction, operation and reclamation of landfills that accept 10,000 tonnes or less per year of non-hazardous and inert waste.

Government Publication Date: Mar 31, 2020

Lumber Related Operations - Certificates of Approval:

Provincial

[LUM](#)

This database contains approvals for processes pertaining to the manufacturing of wood products, pulp and paper including the associated water treatment processes. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Canadian Mine Locations:

Private

[MINE](#)

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Metals, Minerals and Building Materials Operations - Certificates of Approval:

Provincial

[MMB](#)

This database contains approvals for processes pertaining to the manufacturing of building materials, metals, and mineral products. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Mineral Occurrences:

Provincial [MNR](#)

The AMDO (Alberta Mineral Deposits and Occurrences) application was created by the Minerals and Coal Geoscience Section of the Alberta Geological Survey as a database for mineral deposits in Alberta in the early 1990s. This is a one time inventory and will not be updated.

Government Publication Date: 1993-2003*

National Analysis of Trends in Emergencies System (NATES):

Federal [NATE](#)

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

PTMAA Non-Compliant Storage Tanks:

Provincial [NCST](#)

The Alberta Fire Code requires that storage tanks be registered. Tanks may not be registered because they do not meet minimum equipment standards or the owners have not made the annual registration application or paid the necessary registration fees. Some tank owners have installed tanks without a permit. This source contains information on facilities which have tanks that have ceased to be registered or have never been registered. It is maintained and updated by the Petroleum Tank Management Association of Alberta (PTMAA).

Government Publication Date: Sep 2016-May 31, 2020

National Defense & Canadian Forces Fuel Tanks:

Federal [NDFT](#)

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills:

Federal [NDSP](#)

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Apr 2018

National Defence & Canadian Forces Waste Disposal Sites:

Federal [NDWD](#)

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents:

Federal [NEBI](#)

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Jun 30, 2021

National Energy Board Wells:

Federal [NEBP](#)

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES):

Federal [NEES](#)

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory:

Federal

NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008***National Pollutant Release Inventory:**

Federal

NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017**Operating and Abandoned Mines:**

Provincial

OAM

This data is based on the 2001 edition (revised in 2003), published by the Alberta Energy and Utilities Board (EUB) now the Alberta Energy Regulator (AER). It was a one time inventory of Operating and Abandoned Coal Mines in Alberta. In 1905, Alberta began to catalogue coal mines by assigning a unique number to each operation. This database will provide information on location, mine #, mine name, mine company, life span, amount of coal produced, depth, thickness and other important information concerning the mine.

Government Publication Date: 2001, 2003***Oil and Gas Facilities - ST102 & ST50:**

Provincial

OGF

This list of batteries, gas plants, meter stations, and other facilities in the province of Alberta, made available as Reports ST102 (Parts A and B) and ST50 (A and B), is provided by the Alberta Energy Regulator (AER).

Government Publication Date: May 31, 2022**Oil and Gas Wells:**

Private

OGWW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-May 31, 2022**Enforcement Orders:**

Provincial

ORD

List of enforcement orders issued by Alberta Environment and Parks (AEP). Alberta Environment and Parks encourages compliance with environmental legislation. When individuals, companies, or municipalities fail to comply with legislation, the department has several options to ensure compliance. This listing, made available by the Alberta Government, includes Compliance Orders, Enforcement Orders, Environmental Protection Orders, Orders to Vacate, and Water Management Orders.

Government Publication Date: Aug 31, 2021**Alberta Orphan Wells:**

Provincial

ORP

The Orphan Well Association (OWA) maintains lists of properties designated as orphan by the Alberta Energy Regulator (AER). Includes the location, well ID, licensee name and license number of orphan wells, sites, and facilities that have been identified for the purpose of abandonment, suspension, decommission, and reclamation. Legacy wells under long term care and custody are excluded. Please note that the OWA Orphan List also includes properties with production information from the AER. The OWA makes no representation, warranties, or guarantees, expressed or implied, for the fitness of the data with respect to its use.

Government Publication Date: Jan 2007-Aug 31, 2021**Canadian Pulp and Paper:**

Private

PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014**Parks Canada Fuel Storage Tanks:**

Federal

PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Petrochemical, Coal and Gas Operations - Certificates of Approval:

Provincial

PCG

This database contains approvals for processes pertaining to petroleum, coal, and oil and gas processing. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Pesticide Register:

Provincial

PES

This is a list of Registered Pesticide Vendors in Alberta (retail and wholesale). The pesticide vendor list is comprised of vendors who have both audited AWSA pesticide storage facilities as part of their operation, and those vendors that do not have an audited AWSA pesticide storage facilities. Non-audited retail and wholesale vendors may be selling products that are not covered by the AWSA program, or may be utilizing external AWSA pesticide warehouses. Registration numbers and expiry dates are identified for each operation. If a registration number is not present, the operation's vendor registration is in the process of renewal.

Government Publication Date: 1998-Aug 2015

Conglomerate and Waste Management Facilities:

Provincial

PITS

This database contains approvals for processes pertaining to the use of gravel pits, sand pits, and clay pits. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Alberta Private Sewage Disposal Permits:

Provincial

PSP

These permits are private sewage disposal permits that have been issued to owners and contractors. They would include various types of installations including holding tanks, septic tanks, packaged treatment plants, sand filters, fields, mounds, lagoons and open discharges. In 2003 Alberta Municipal Affairs started collecting information and issuing permits using an electronic permitting system. These records include all private sewage disposal permits within the jurisdiction of Alberta Municipal Affairs.

Government Publication Date: 2003-2013

PTMAA Approved (Open) Permits:

Provincial

PTAP

The Petroleum Tank Management Association of Alberta maintains a list of open permits it has issued within its jurisdiction. Prior to installing, removing, or altering tanks, storage tanks owners must receive approval in the form of a permit from the Authority Having Jurisdiction (in this case, PTMAA).

Government Publication Date: Apr 2016-Apr 30, 2020

Hazardous Waste Receivers Summary:

Provincial

REC

A waste receiving location is any site or facility to which waste is transferred through a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents receivers of regulated wastes under Alberta's Waste Control Regulation, Alta. Reg. 192/96. As of 2007, Alberta Environment no longer provides detailed information on each waste receiver, such as approval number, class, and class description.

Government Publication Date: 1993-Aug 2018

Retail Fuel Storage Tanks:

Private

RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Sep 30, 2021

Scott's Manufacturing Directory:

Private

SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Special Operation Classifications - Certificates of Approval:

Provincial

SPEC

This database contains approvals for processes pertaining to classifications listed as special operations (i.e. locations owned/operated by municipalities, operations that involve the presence of pesticides). Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Inventory of Waste Disposal Sites:

Private

[WDS](#)

This one time inventory is a compilation of information collected from each region and pertains to active, regulated waste disposal sites within the province of Alberta. In the past, waste disposal sites were registered with both regional and health offices. That process was dissolved and regional landfills were developed. There is no central source of this information. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1998*

Wastewater Operations:

Provincial

[WSTE](#)

This database contains approvals for processes pertaining to wastewater treatment systems. Please note that, as per the source of this database, some of the geographic information may pertain to a head office or mailing address and not necessarily the site of operations to which the certificate applies. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location. Therefore, locations will be accurate to the quarter section only.

Government Publication Date: 1993-2012

Alberta Water Well Information Database:

Provincial

[WWIS](#)

List of wells in the Alberta Water Well Information Database made available by Alberta Environment and Parks, containing approximately 500,000 records with nearly 5,000 drilling reports added annually. Some geographic coordinates have been provided in ATS (Alberta Township Survey system) format but do not contain offsets that are necessary to pinpoint a specific location; some locations will be accurate to the quarter section only. The Province of Alberta advises that the data may not be fully checked, and disclaims all responsibility for its accuracy. This data was previously collected from the Groundwater Information Center of the Natural Resource Service.

Government Publication Date: 1880-Mar 31, 2022

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

APPENDIX I - ALBERTA HEALTH SERVICES SEARCH RESULTS





Environmental Public Health
88 Valleyview Drive SW, Medicine Hat, Alberta
1-833-476-4743
403-502-8256
SHE.SouthZoneEPH@albertahealthservices.ca

August 29, 2022

OUR FILE: ST-2022-0014

Danielle Loiselle
500, 9888 Jasper Avenue
Edmonton, AB
T5J 5C6

Dear Danielle,

Re: Your request for records search

On July 15, 2022, our office received your request for information regarding the following properties:

- SW-09-08-04 W5M - South of Coleman, at the south end of 83 street
- 08-35-07-04 W5M – South of Blairmore, approx. 100 m south of 15 Avenue and approx. 200m east of 131 Street
- SW-20-07-03 W5M – In Hillcrest Mines along 4 Avenue
- SW-20-07-03 W5M – In Bellevue, North of 21 Avenue
- SE-36-07-04 W5M; SW- 31-07-03- W5M; NW- 30-07-03 W5M – In the Town of Frank between Crowsnest River and Crowsnest Highway along 153 Street
- SE-20-07-03 W5M; NE-17-07-03 W5M – In Hillcrest Mines, east of 11 Ave and 12 Ave
- NE-29-07-03 W5M; SE-32-07-03 W5M – In Bellevue, North of 205 Street, East of 24 Ave

We have conducted a search for records created in accordance with public health legislation, including records relating to hazardous waste sites, abandoned landfills and contamination sources constituting a public health nuisance.

No records responsive to your request have been located. However, it should be noted that the fact that records do not exist does not necessarily mean that the property complies with all applicable legislation.

Please be advised that records relevant to your search may be held by other Federal, Provincial and/or Municipal departments. You should contact these agencies directly for further information.

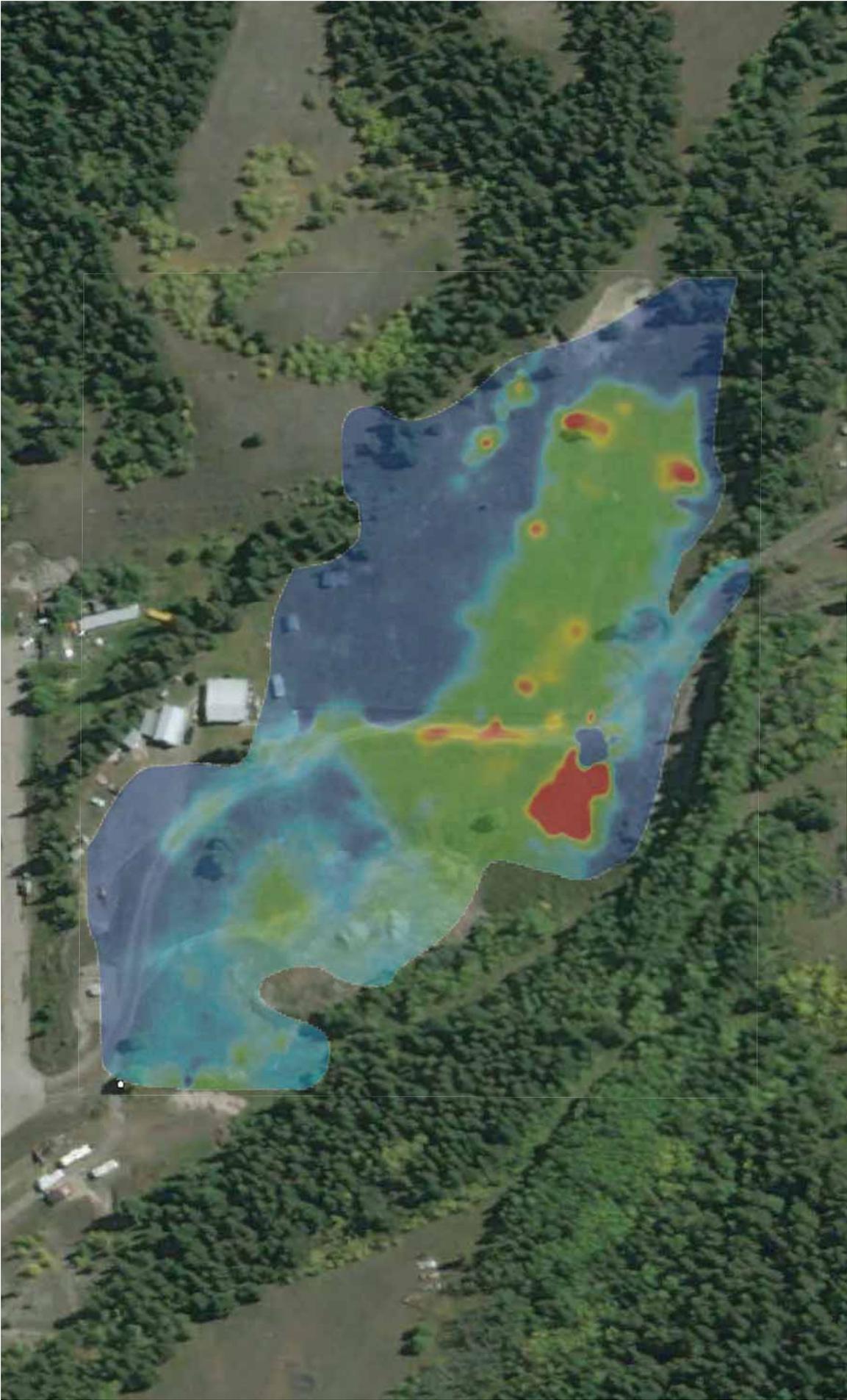
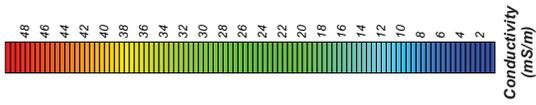
Should you have any questions, please contact us at SHE.SouthZoneEPH@ahs.ca.

Sincerely,
Alberta Health Services

Meghan McConnell
Zone Administrative Coordinator

APPENDIX J - GEOPHYSICAL SURVEY RESULTS





Client:



Job No. 3087

Scale: 1:1250

Dwg No. 14

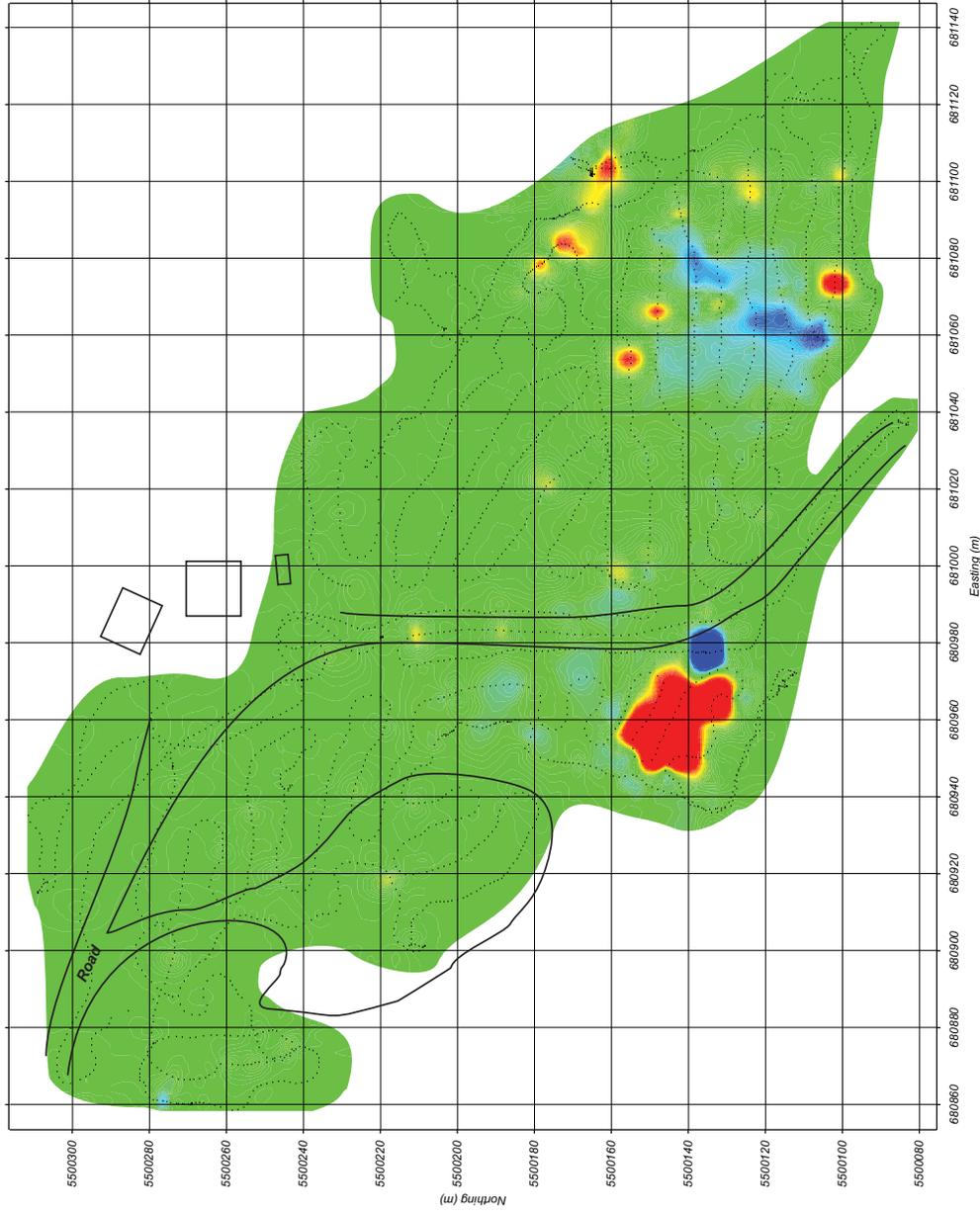
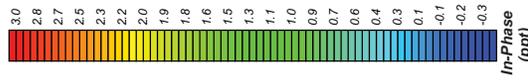
Date: Sept. 1 - 2, 2022

Prepared by:



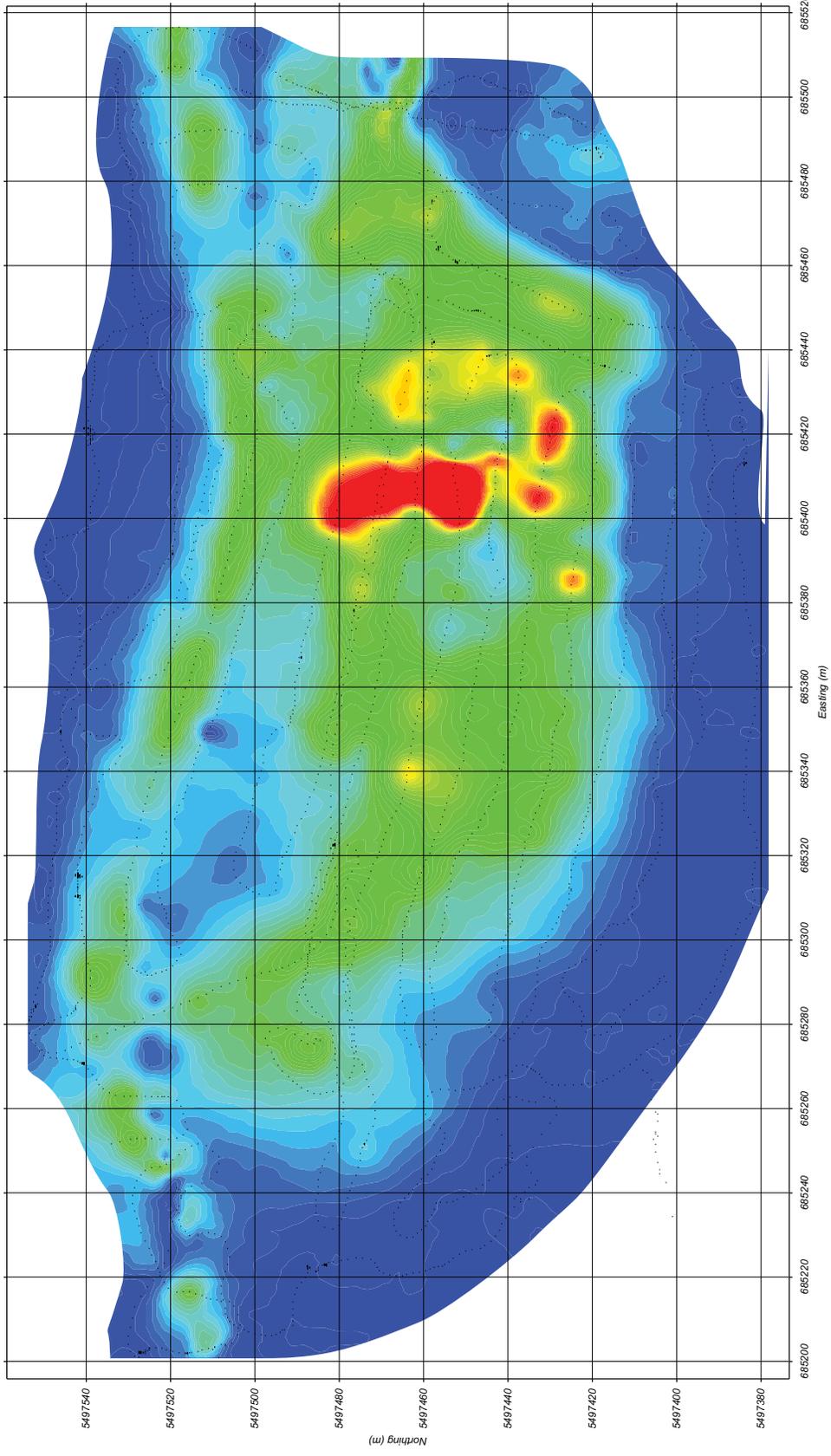
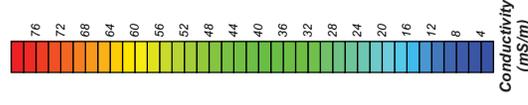
EM31 CONDUCTIVITY DATA
BUSHTOWN
CROWSNEST PASS, ALBERTA





Note: Grid Coordinates are in UTM, MAD 83, Zone 11

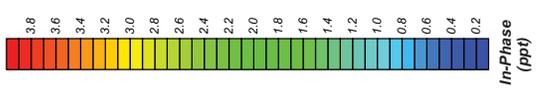
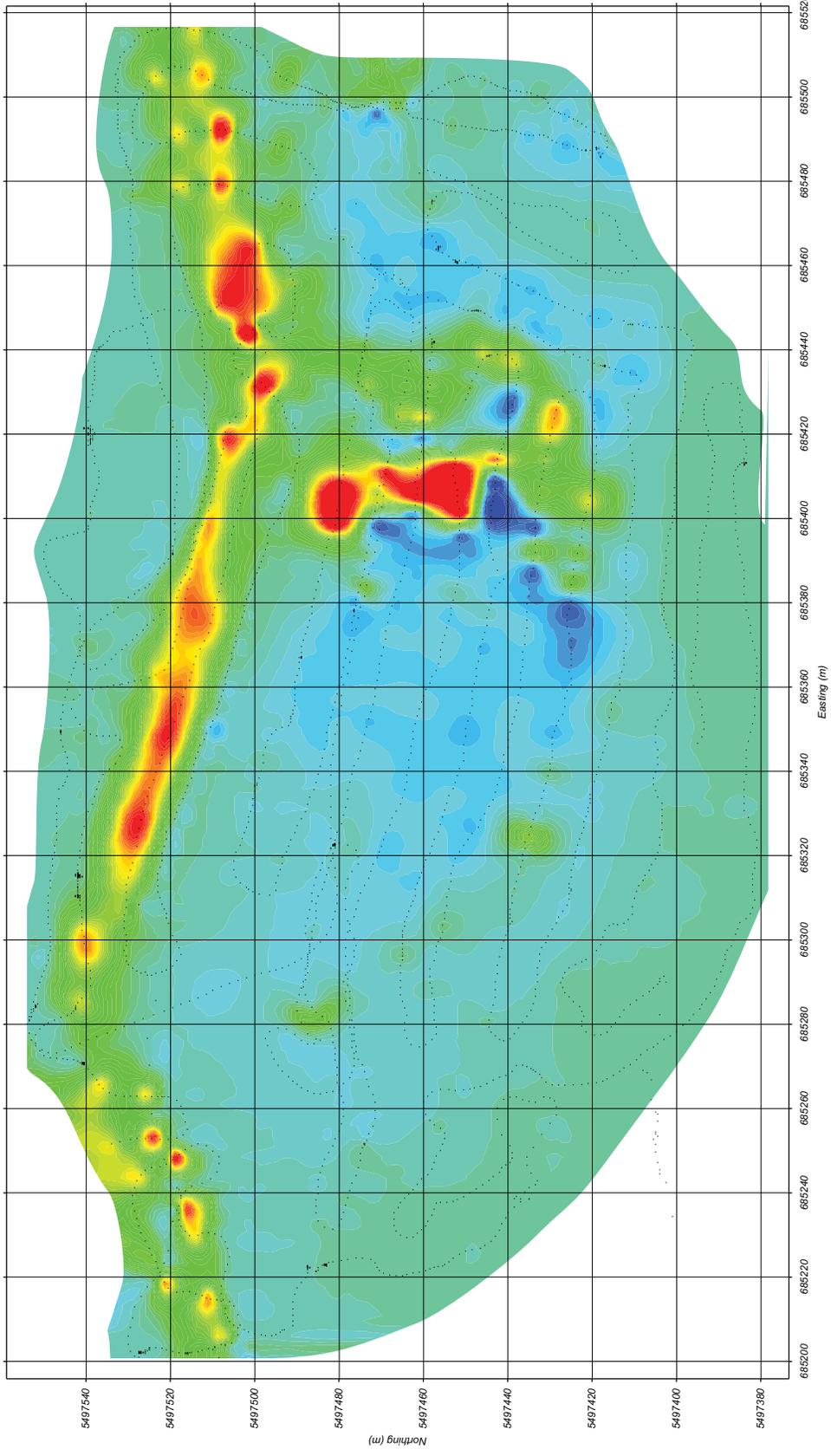
Client:		EM31 IN-PHASE DATA BUSHTOWN CROWSNEST PASS, ALBERTA	
		Job No. 3087	Scale: 1:1250
		Dwg No. 15	Date: Sept. 1 - 2, 2022



Note: Grid Coordinates are in UTM, NAD 83, Zone 11

Client:		Prepared by:		EM31 CONDUCTIVITY DATA	
				SARTORIS	
Job No. 3087				CROWSNEST PASS, ALBERTA	
Dwg No. 8					

Scale: 1:1000
Date: Sept. 1 - 2, 2022

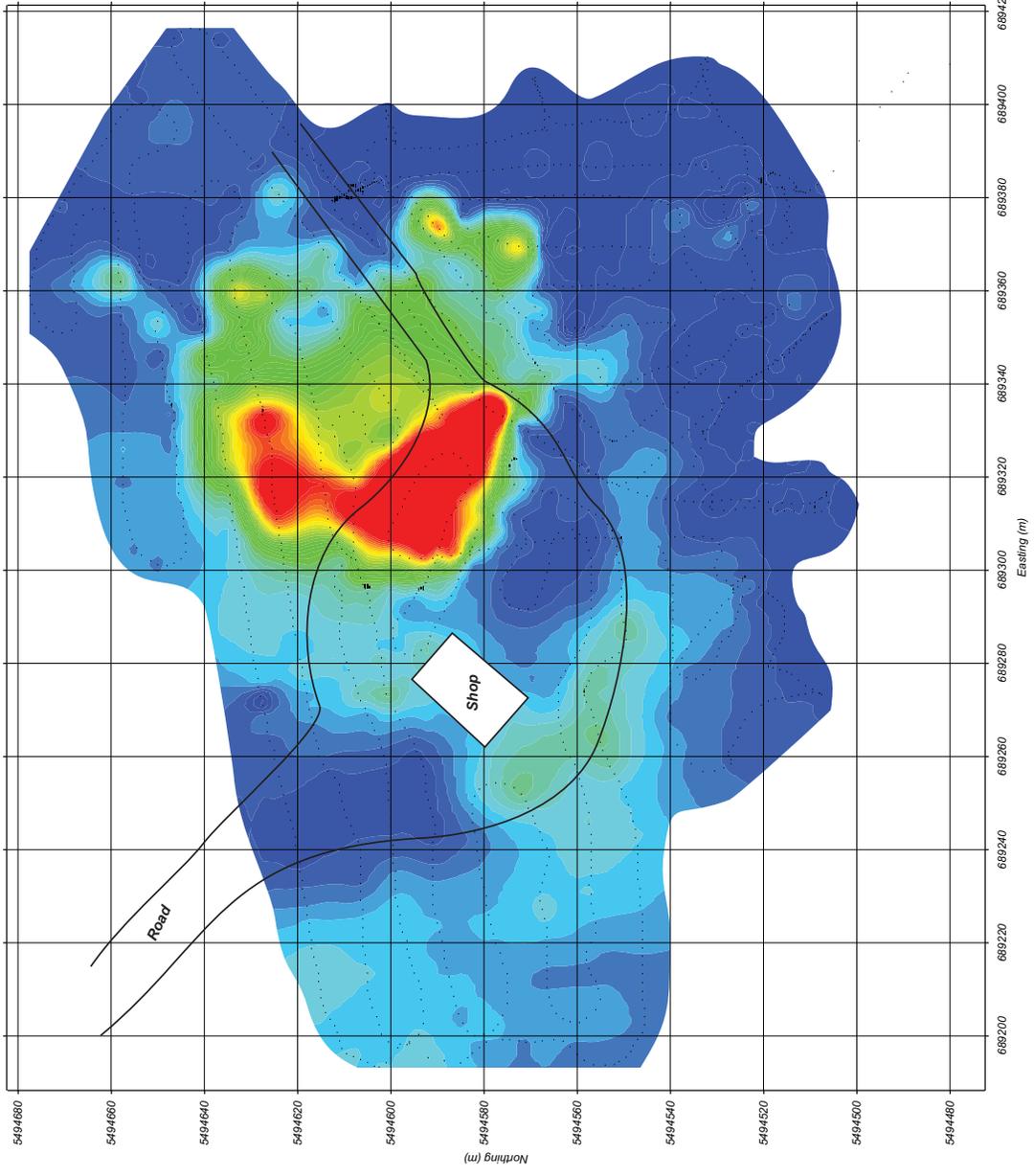


Note: Grid Coordinates are in UTM, NAD 83, Zone 11

Client:		Job No. 3087	Scale: 1:1000
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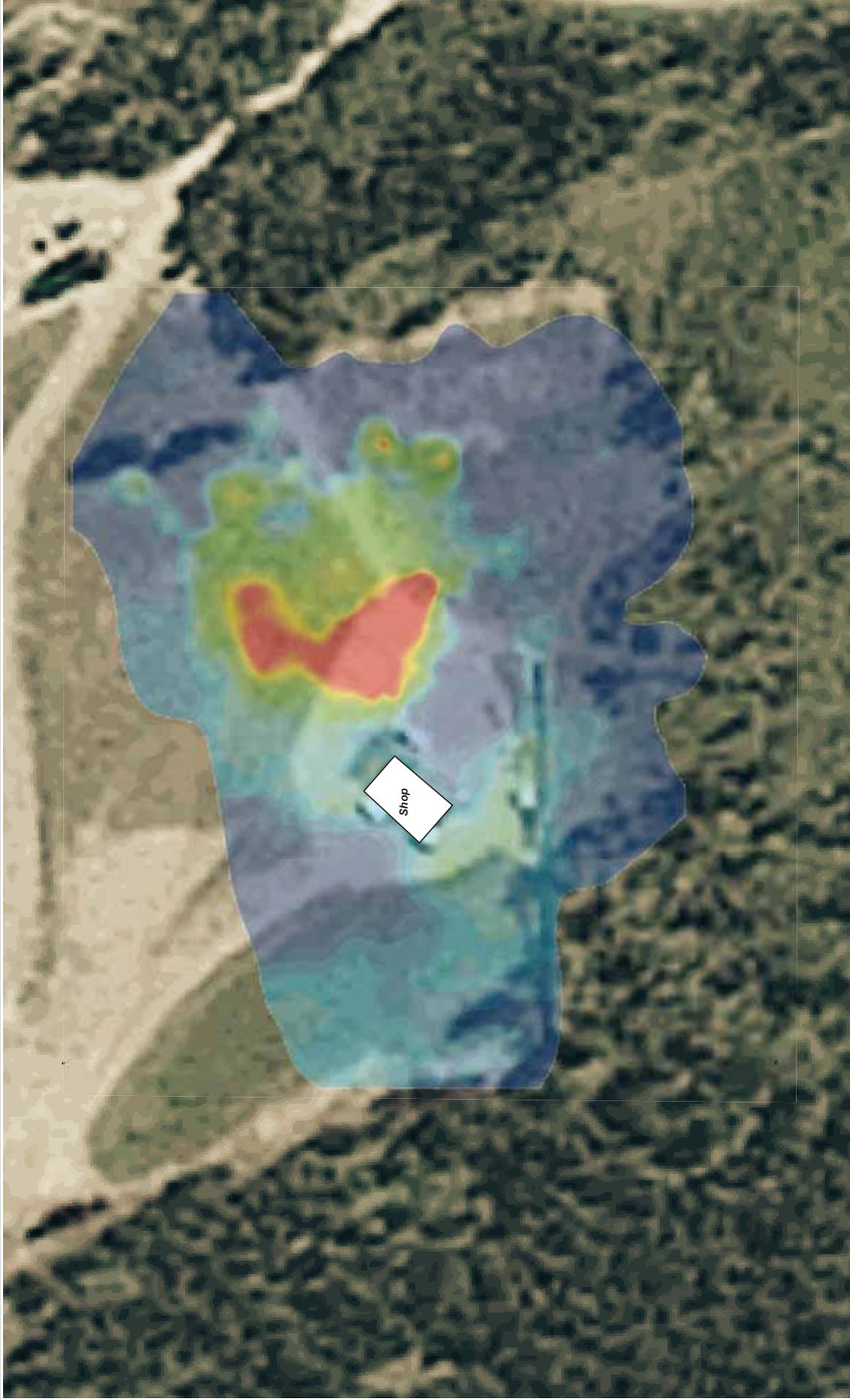
Prepared by:

**EM31 IN-PHASE DATA
SARTORIS
CROWSNEST PASS, ALBERTA**



Note: Grid Coordinates are in UTM, MAD 83, Zone 11

	Client:
	Prepared by:
EM31 CONDUCTIVITY DATA HILLCREST BALL DIAMOND CROWSNEST PASS, ALBERTA	Job No. 3087 Dwg No. 17
	Scale: 1:1000 Date: Sept. 1 - 2, 2022



Prepared by: **EKS** GEOSCIENCE



Client:

Job No. 3087

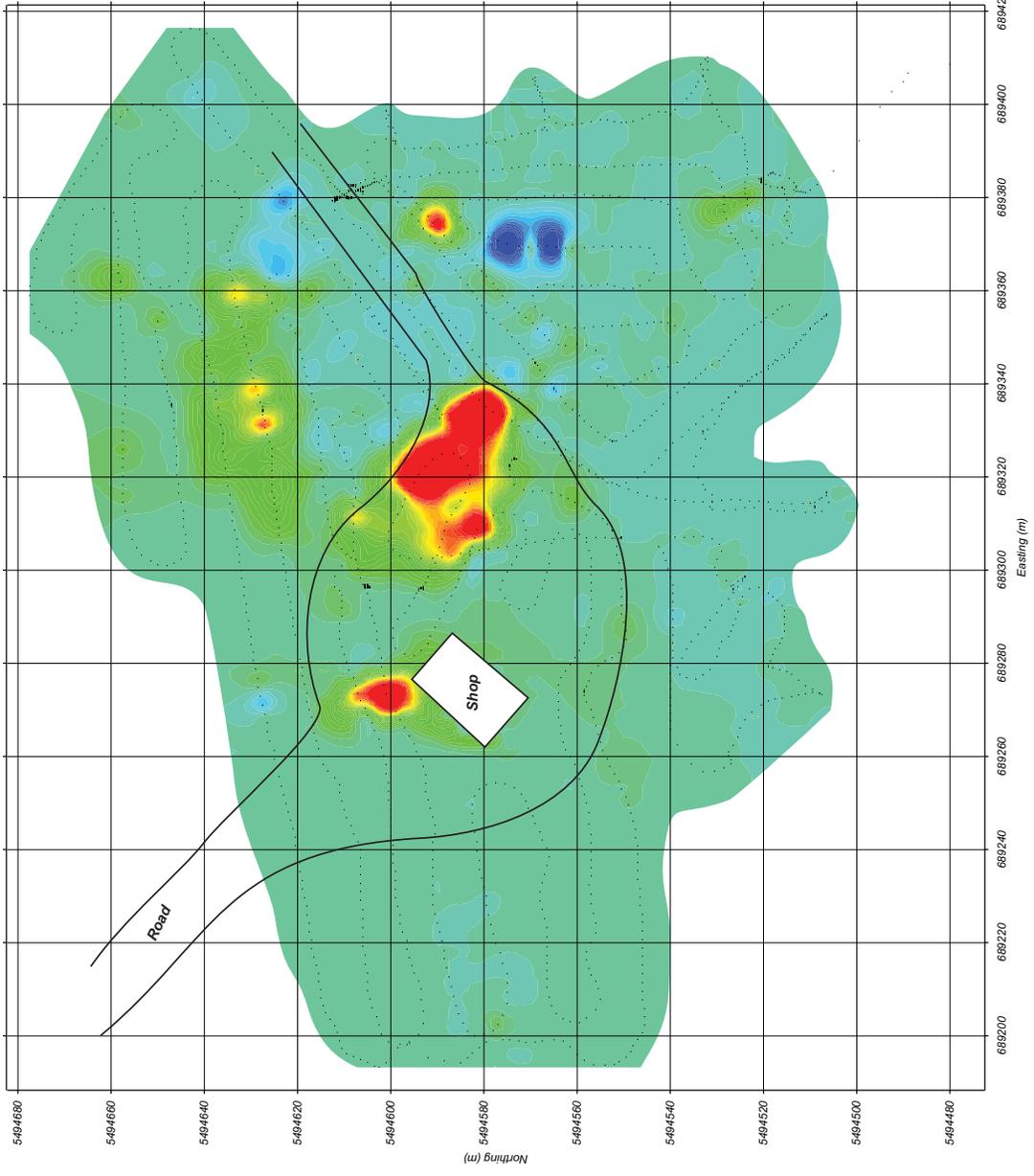
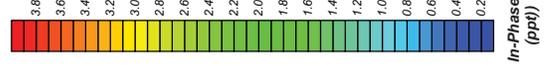
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Dwg No. 19

Date: Sept. 1 - 2, 2022

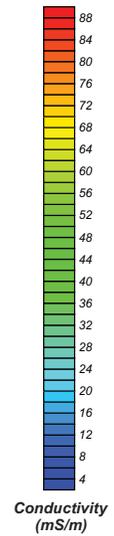
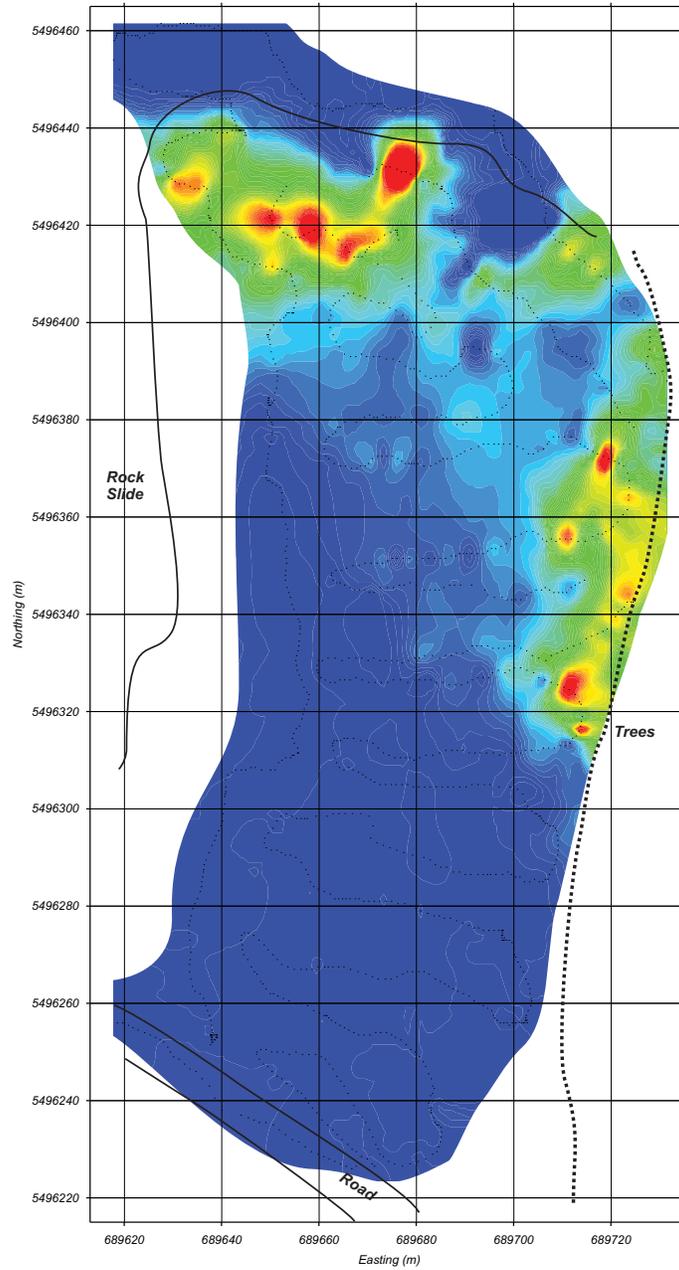
**EM31 CONDUCTIVITY DATA
OVERLAID ON AIRPHOTO
HILLCREST BALL DIAMOND
CROWSNEST PASS, ALBERTA**





Note: Grid Coordinates are in UTM, MAD 83, Zone 11

	Client:
	Job No. 3087 Dwg No. 18
Prepared by:	Scale: 1:1000 Date: Sept. 1 - 2, 2022
EM31 IN-PHASE DATA HILLCREST BALL DIAMOND CROWSNEST PASS, ALBERTA	



Note: Grid Coordinates are in UTM, NAD 83, Zone 11

EM31 CONDUCTIVITY DATA
BELLEVUE OLD HIGHWAY
CROWNEST PASS, ALBERTA

Prepared by:



Client:

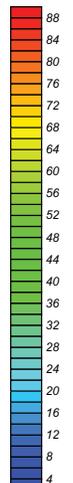
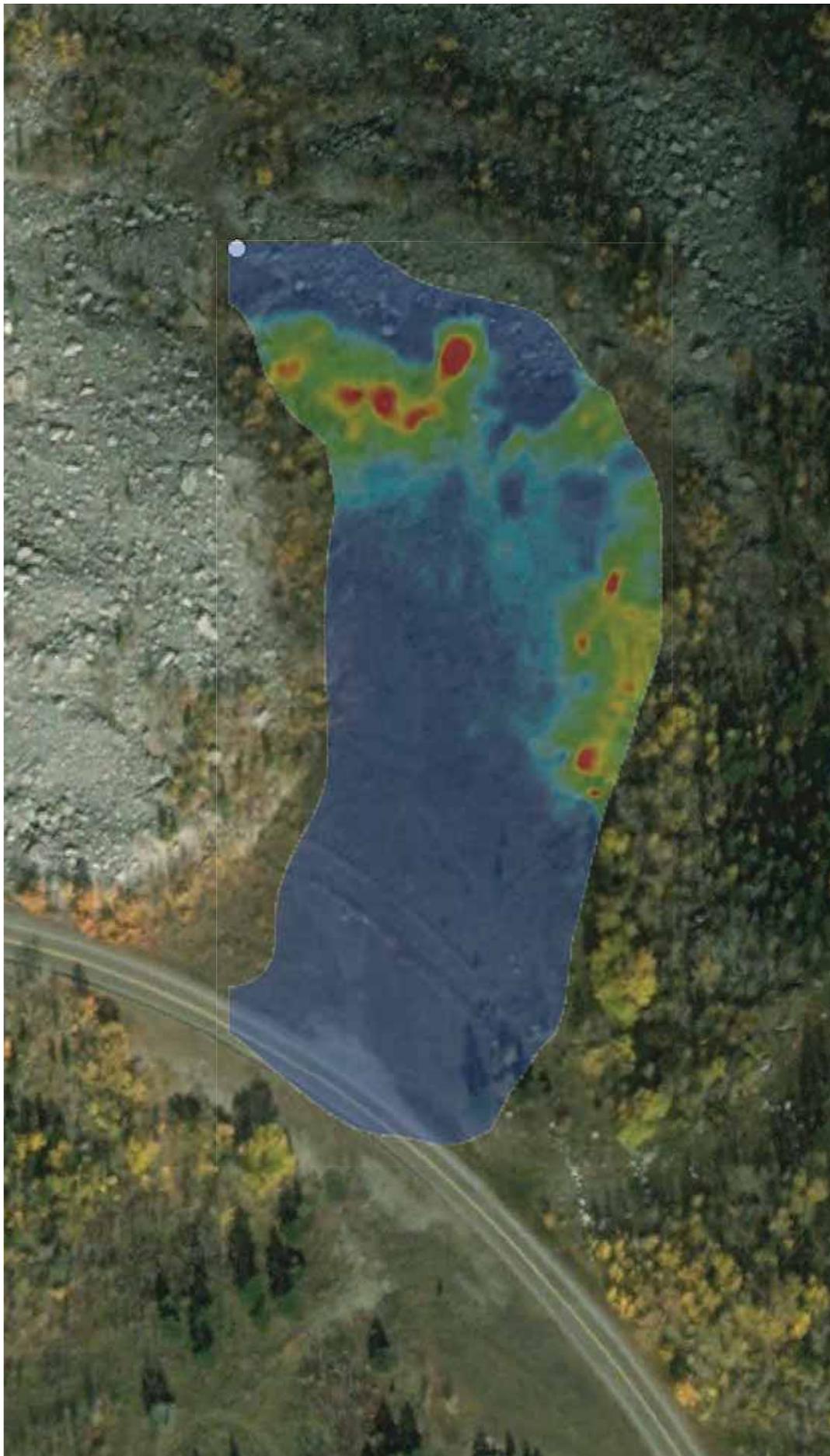


Job No. 3087

Scale: 1:1000

Dwg No. 20

Date: Sept. 1 - 2, 2022



Conductivity (mS/m)



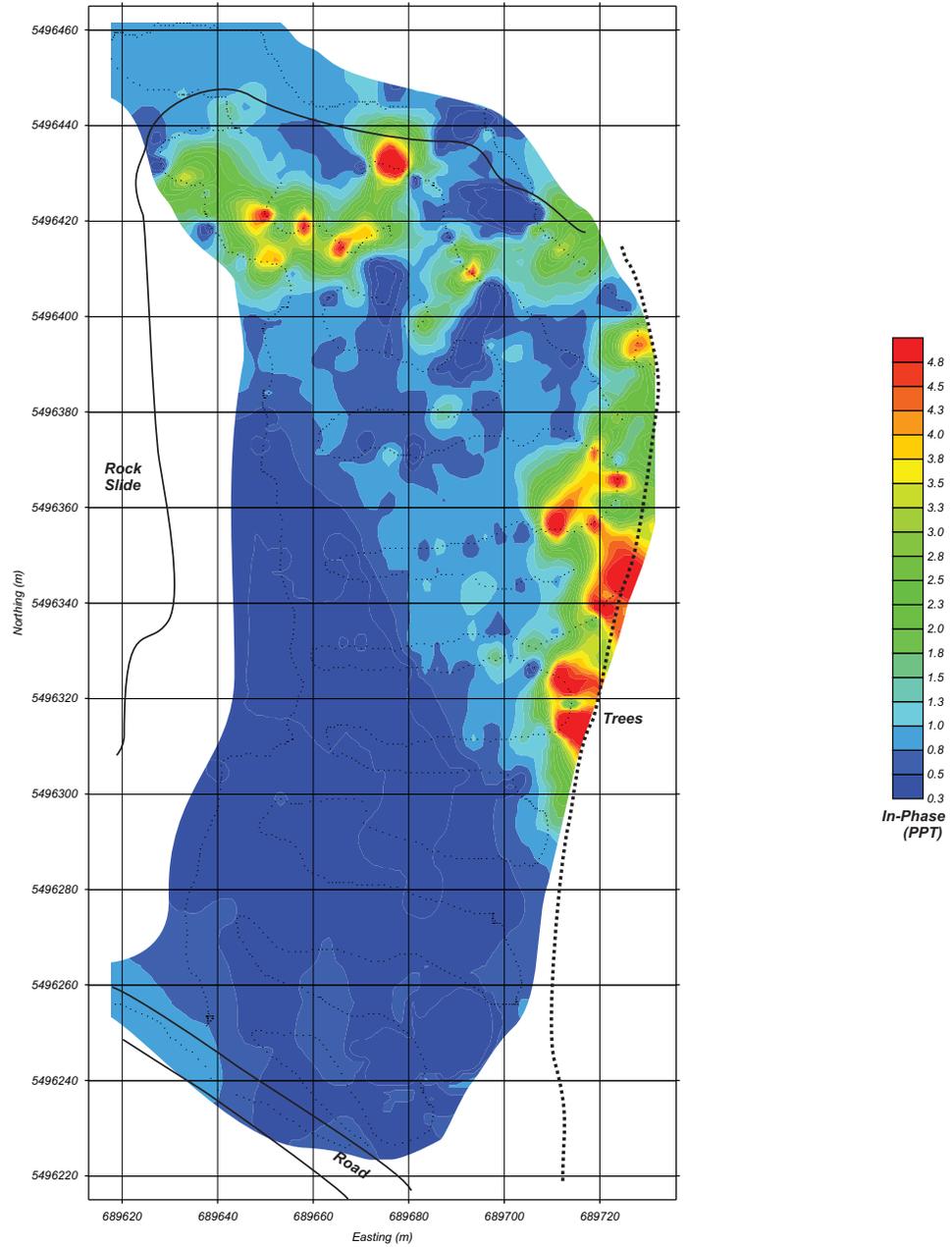
EM31 CONDUCTIVITY DATA
BELLEVUE OLD HIGHWAY
CROWNEST PASS, ALBERTA

Prepared by:


Client:


Job No. 3087
Dwg No. 20

Scale: 1:1000
Date: Sept. 1 - 2, 2022



Note: Grid Coordinates are in UTM, NAD 83, Zone 11

EM31 IN-PHASE DATA
BELLEVUE OLD HIGHWAY
CROWNEST PASS, ALBERTA

Prepared by:



Client:

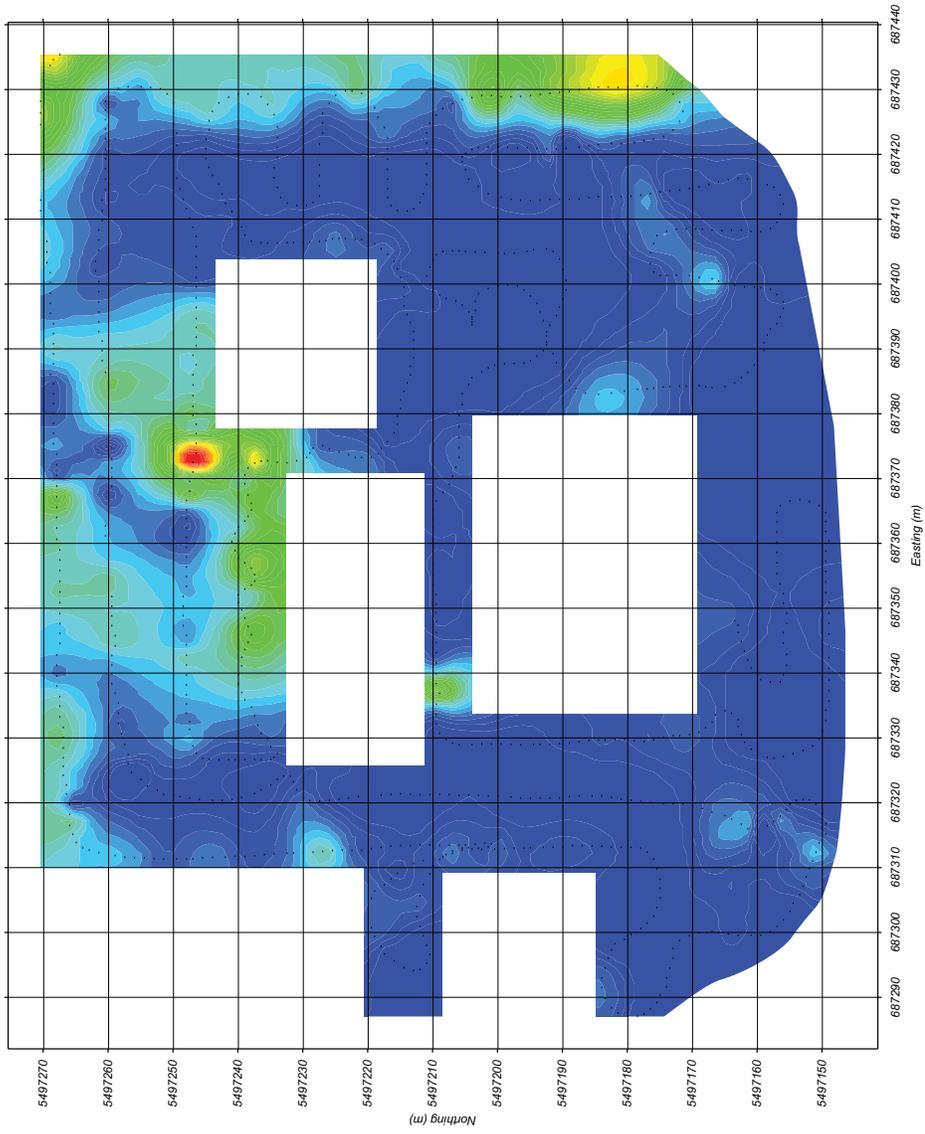
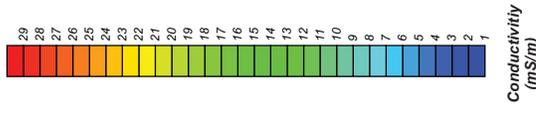


Job No. 3087

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Date: Sept. 1 - 2, 2022

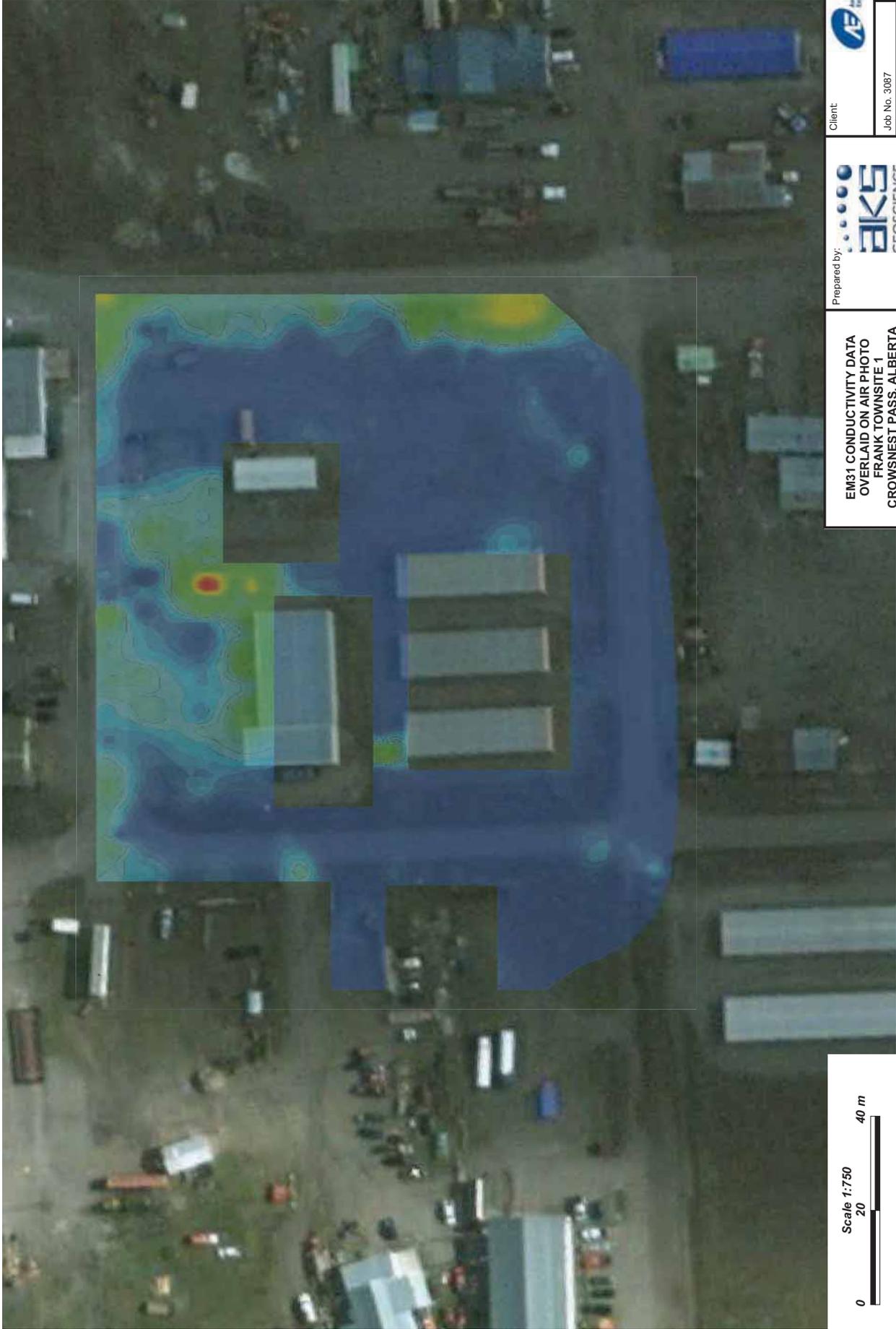


Note: Grid Coordinates are in UTM, NAD 83, Zone 11

Client:		Job No. 3087	Scale: 1:750
		Dwg No. 2	Date: Sept. 1 - 2, 2022

Prepared by:

**EM31 CONDUCTIVITY DATA
FRANK TOWNSITE 1
CROWSNEST PASS, ALBERTA**



Client:  AE Environmental

Job No. 3087

Dwg No. 1

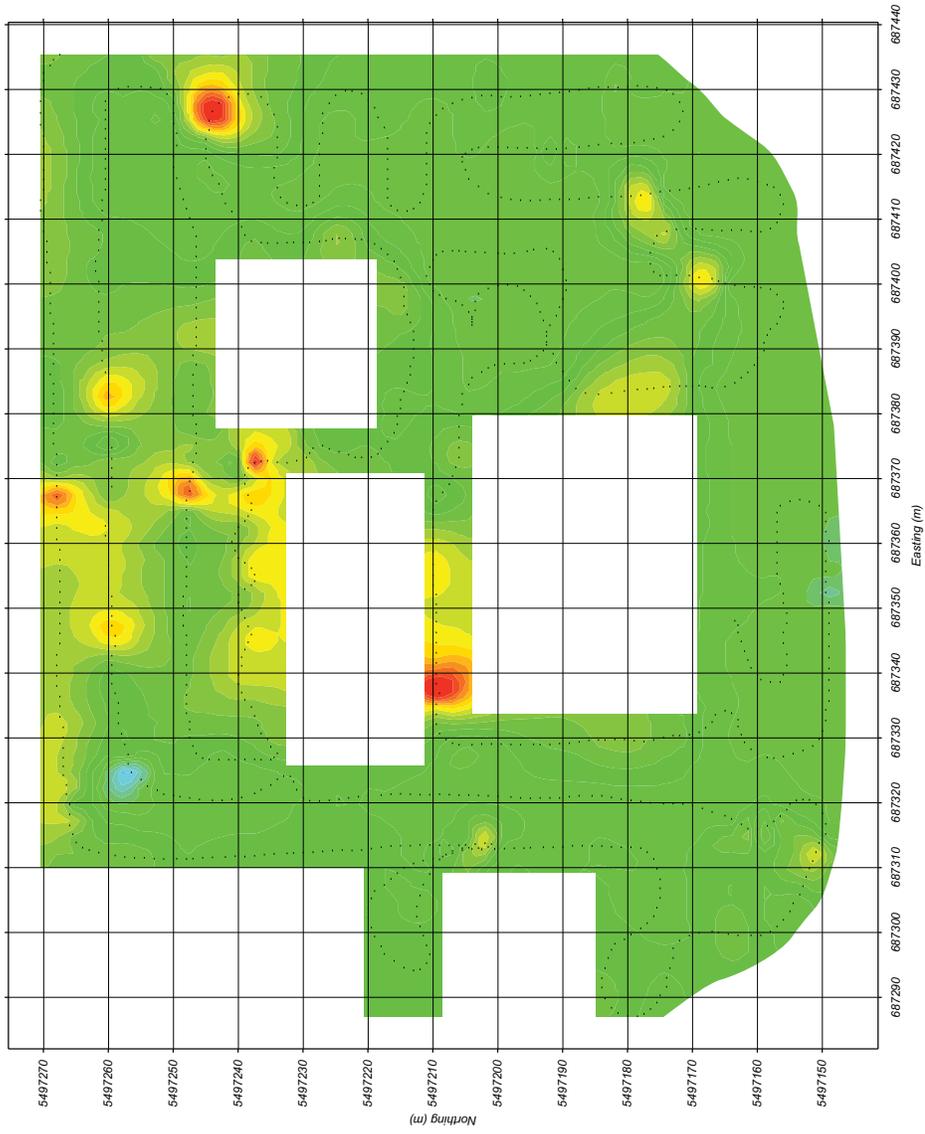
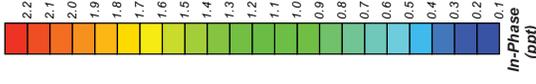
Scale: 1:750

Date: Sept. 1 - 2, 2022

Prepared by:  AKS GEOSCIENCE

**EM31 CONDUCTIVITY DATA
OVERLAID ON AIR PHOTO
FRANK TOWNSITE 1
CROWSNEST PASS, ALBERTA**



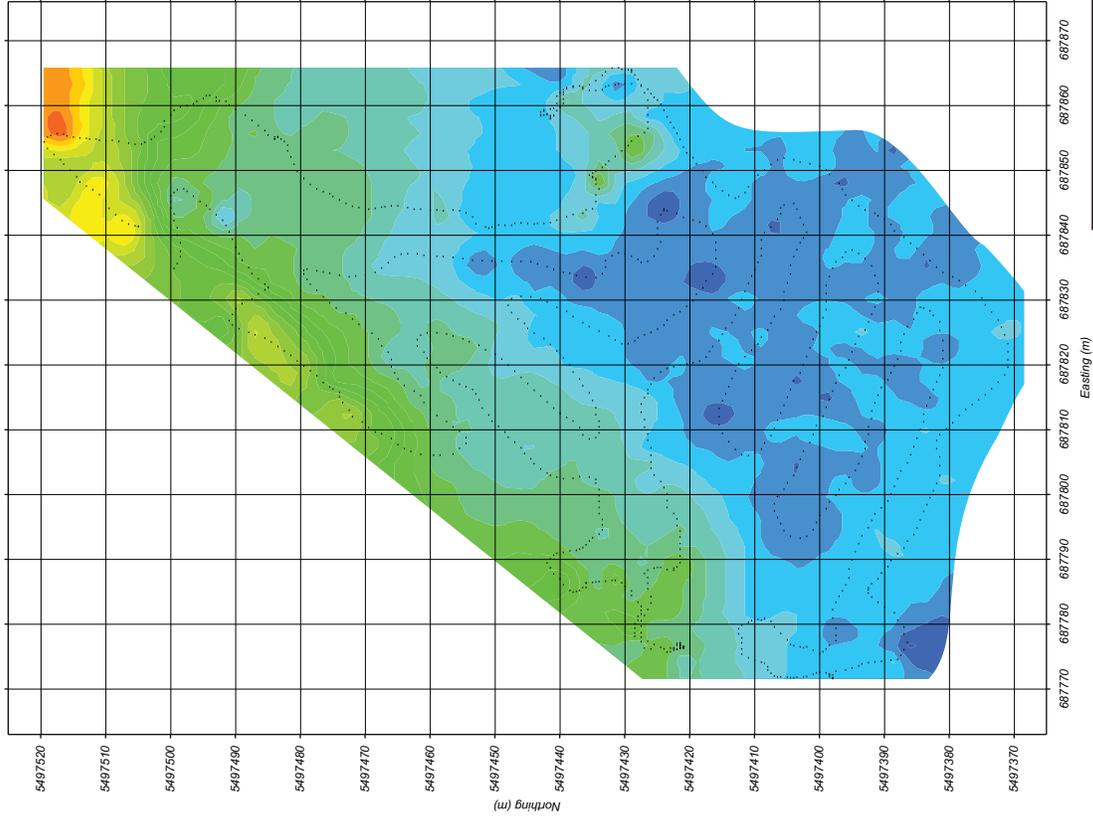
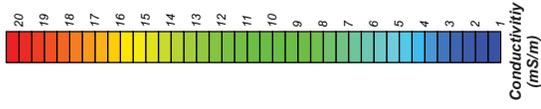


Note: Grid Coordinates are in UTM, NAD 83, Zone 11

Client:		Job No. 3087	Scale: 1:750
		Dwg No. 3	Date: Sept. 1 - 2, 2022

Prepared by:

**EM31 IN-PHASE DATA
FRANK TOWNSITE 1
CROWSNEST PASS, ALBERTA**



Note: Grid Coordinates are in UTM, NAD 83, Zone 11

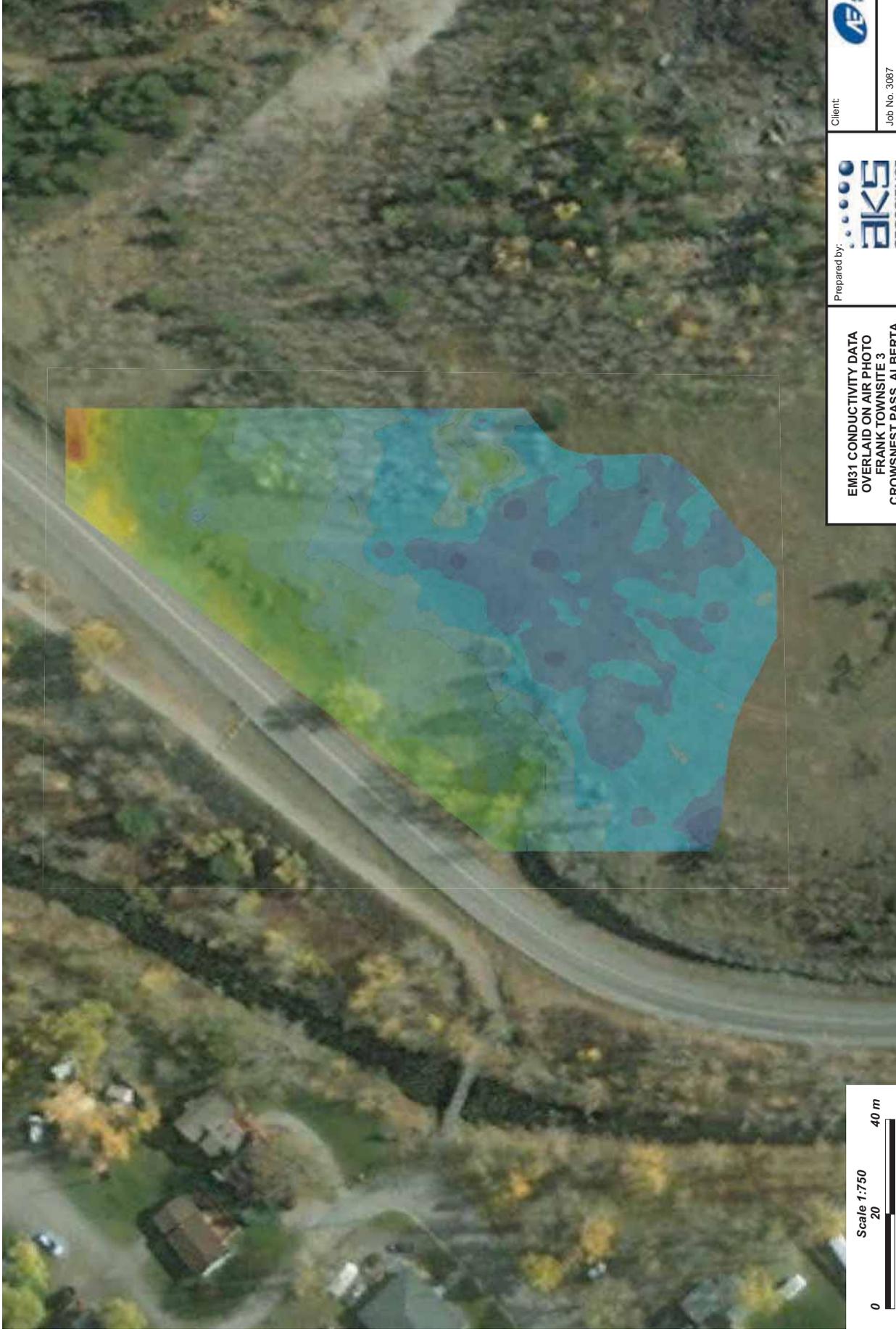
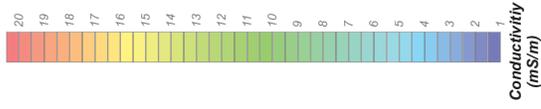
Client: 

Prepared by: 

**EM31 CONDUCTIVITY DATA
FRANK TOWNSITE 3
CROWSNEST PASS, ALBERTA**

Job No. 3087 Scale: 1:750

Dwg No. 5 Date: Sept. 1 - 2, 2022



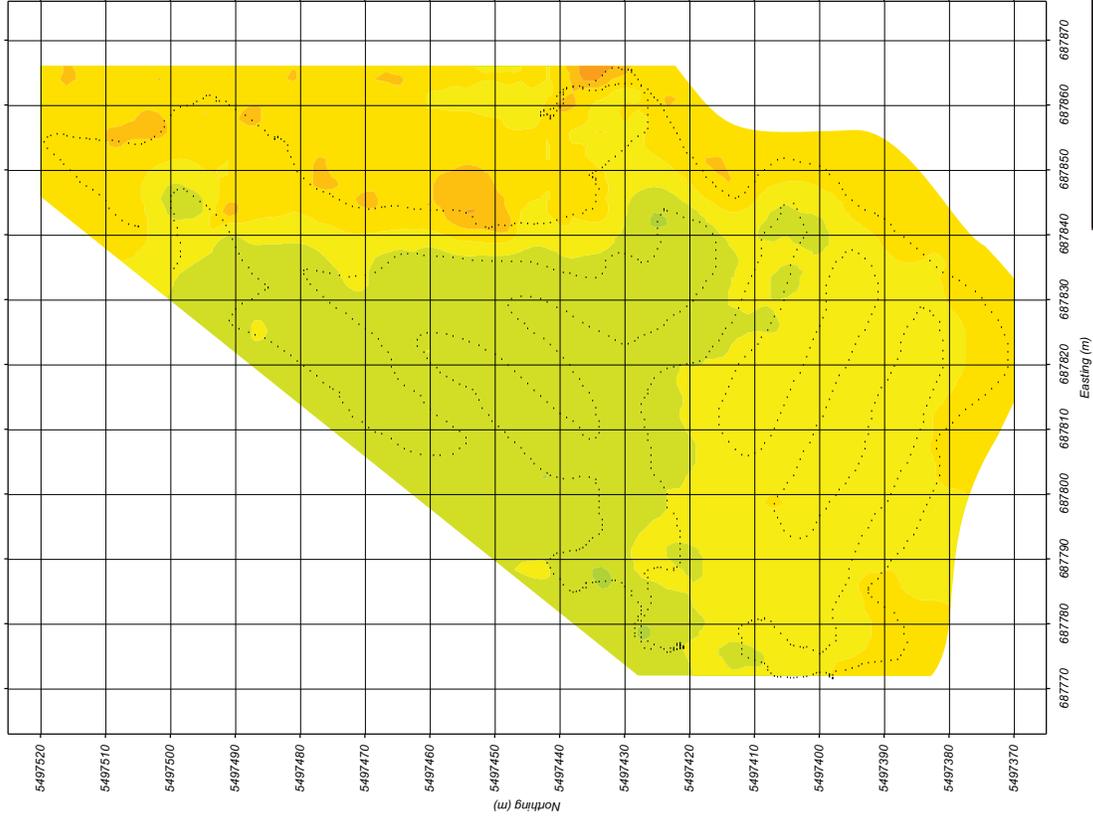
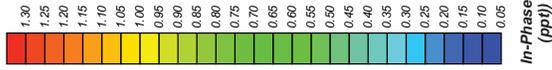
Prepared by:

Client:

Job No. 3087	Scale: 1:1000
Dwg No. 4	Date: Sept. 1 - 2, 2022

**EM31 CONDUCTIVITY DATA
OVERLAID ON AIR PHOTO
FRANK TOWNSITE 3
CROWNSNEST PASS, ALBERTA**



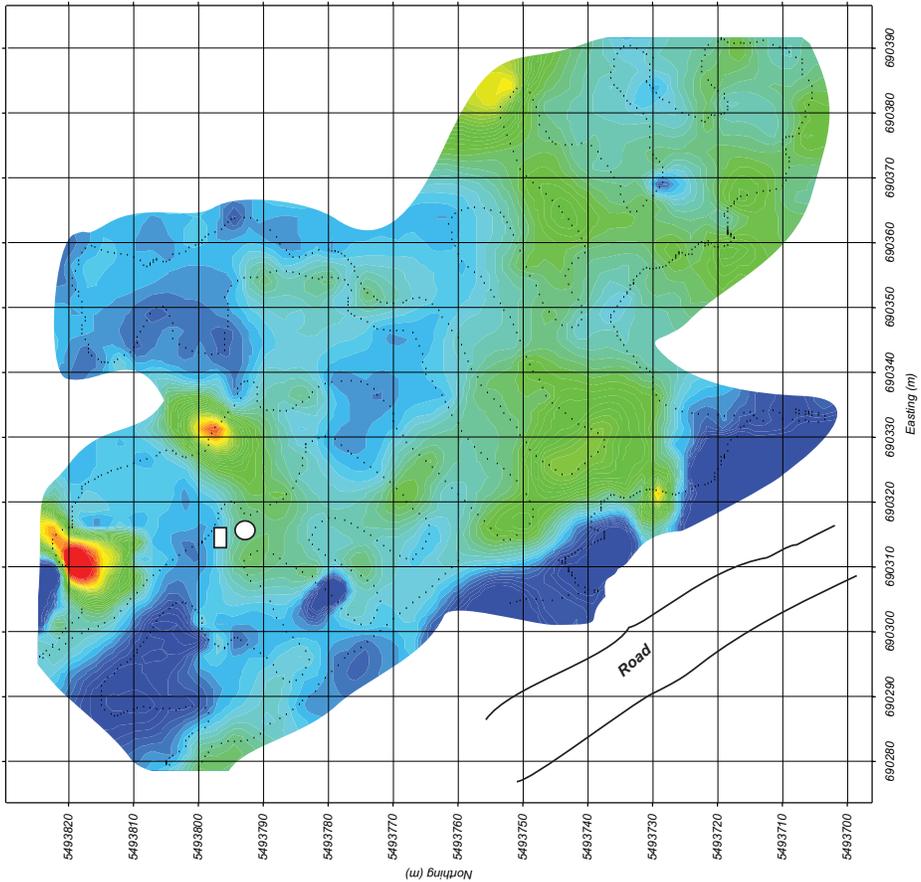
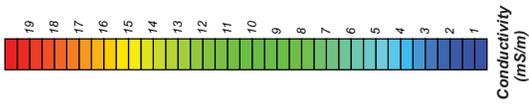


Note: Grid Coordinates are in UTM, NAD 83, Zone 11

Client:	
Job No. 3087	Scale: 1:1000
Dwg No. 5	Date: Sept. 1 - 2, 2022

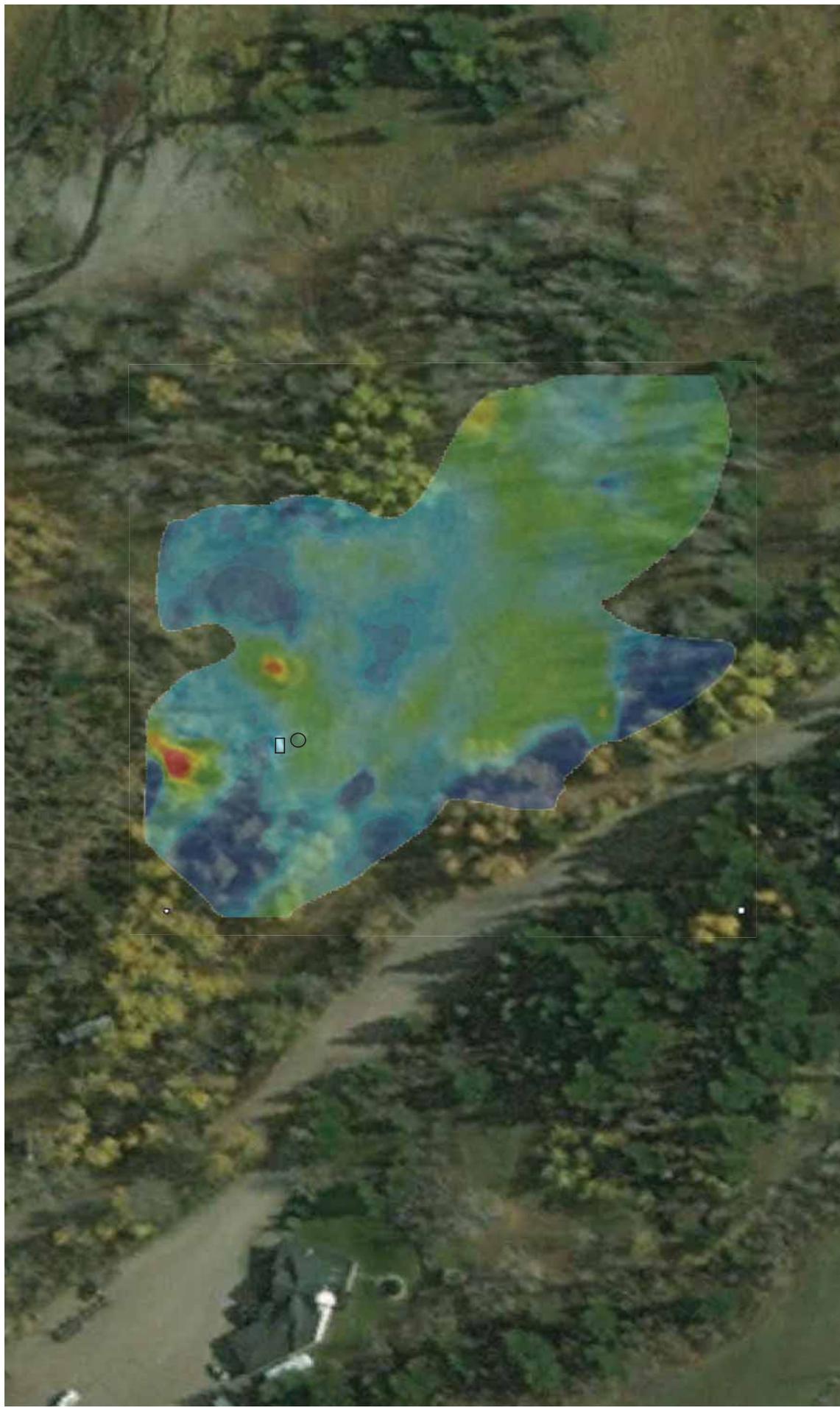
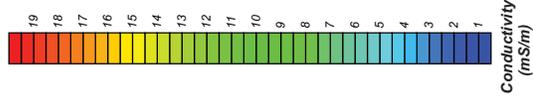


**EM31 IN-PHASE DATA
FRANK TOWNSITE 3
CROWNSNEST PASS, ALBERTA**



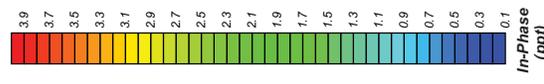
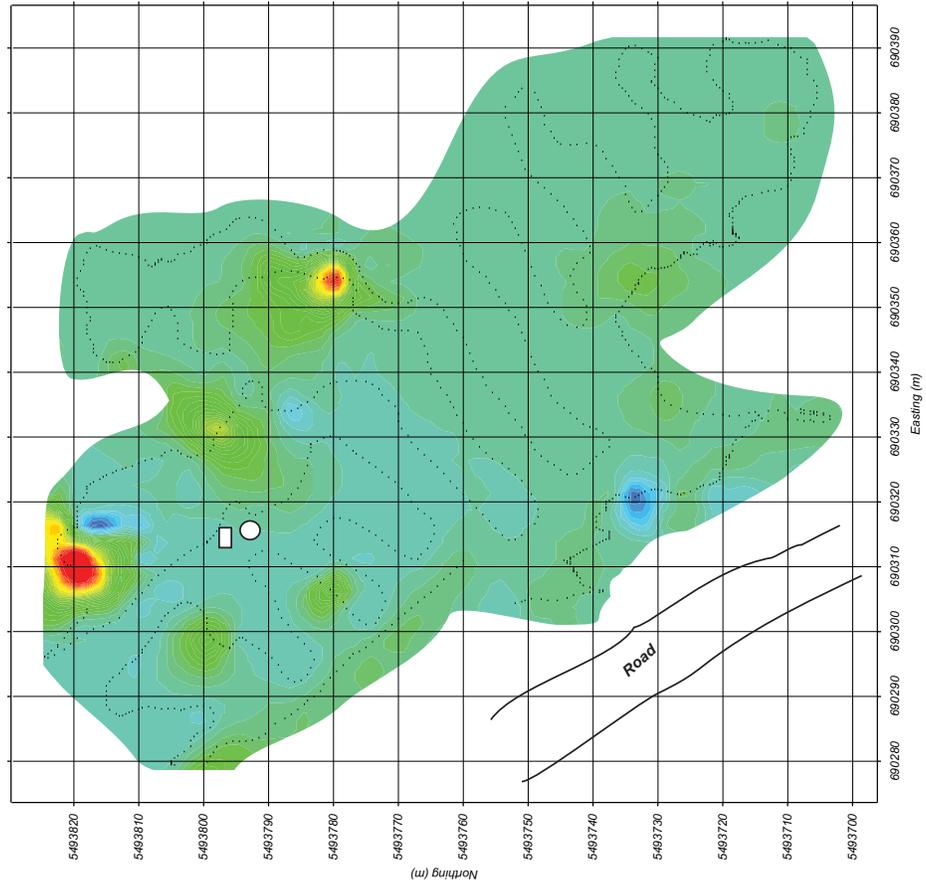
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Client:		Scale: 1:750
		Date: Sept. 1 - 2, 2022
Prepared by:		Job No. 3087
		Dwg No. 10
EM31 CONDUCTIVITY DATA HILLCREST LAGOON 2 CROWSNEST PASS, ALBERTA		



Client:		
	Job No. 3087	Scale: 1:750
Prepared by:		
EM31 CONDUCTIVITY DATA OVERLAID ON AIRPHOTO HILLCREST LAGOON 2 CROWSNEST PASS, ALBERTA		
Client:	Dwg No. 13	Date: Sept. 1 - 2, 2022





Note: Grid Coordinates are in UTM, MAD 83, Zone 11

Client:		Prepared by:	
			
Job No. 3087		EM31 IN-PHASE HILLCREST LAGOON 2 CROWSNEST PASS, ALBERTA	
Dwg No. 12			
		Scale: 1:750	Date: Sept. 1 - 2, 2022

APPENDIX K - SITE PHOTOGRAPHS





Associated
Environmental

1 BUSHTOWN PHOTOGRAPHS



Photograph 1 – Bushtown - Facing northwest. 83 Street with fence on either side, grey house and shop (right), soil piles and hydrovac dumping area (left). Approximate test pit locations shown. Town of Coleman in background. September 19, 2022.



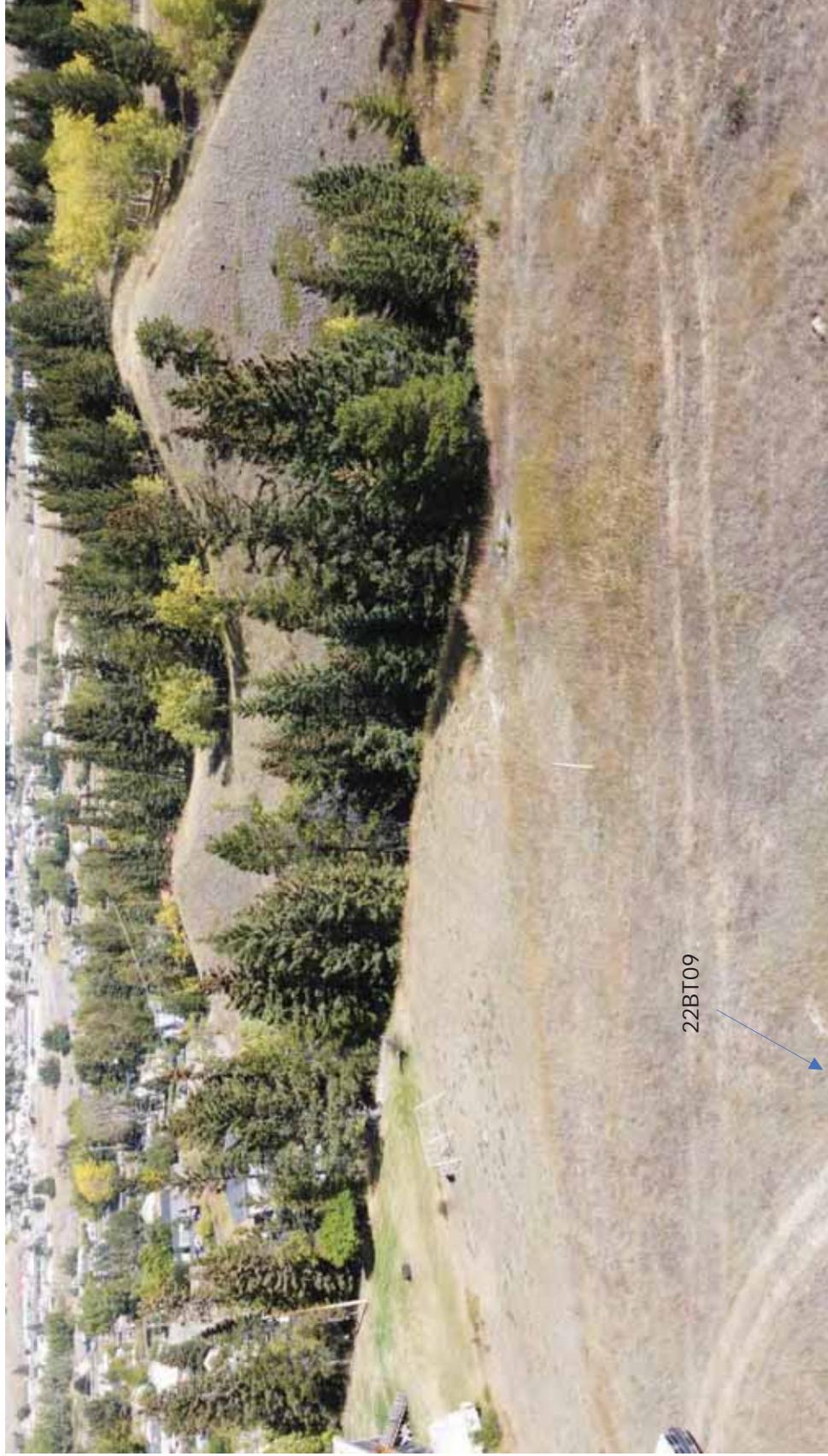
Photograph 2 – Bushtown - Facing southwest. 83 Street crosses clearing. Approximate test pit locations shown. September 19, 2022.



Photograph 3 – Bushtown - Facing southeast. 83 Street connects to house on hill (right), powerlines cut across site. Approximate test pit locations shown. September 19, 2022.



Photograph 4 – Bushtown - Facing east. Ridge and trees along site boundary, powerlines cut across site. September 19, 2022.



Photograph 5 – Bushtown - Facing northeast. Hills behind trees along northeast site boundary, yard and grey house (right). Town of Coleman in background. September 19, 2022.



Associated
Environmental



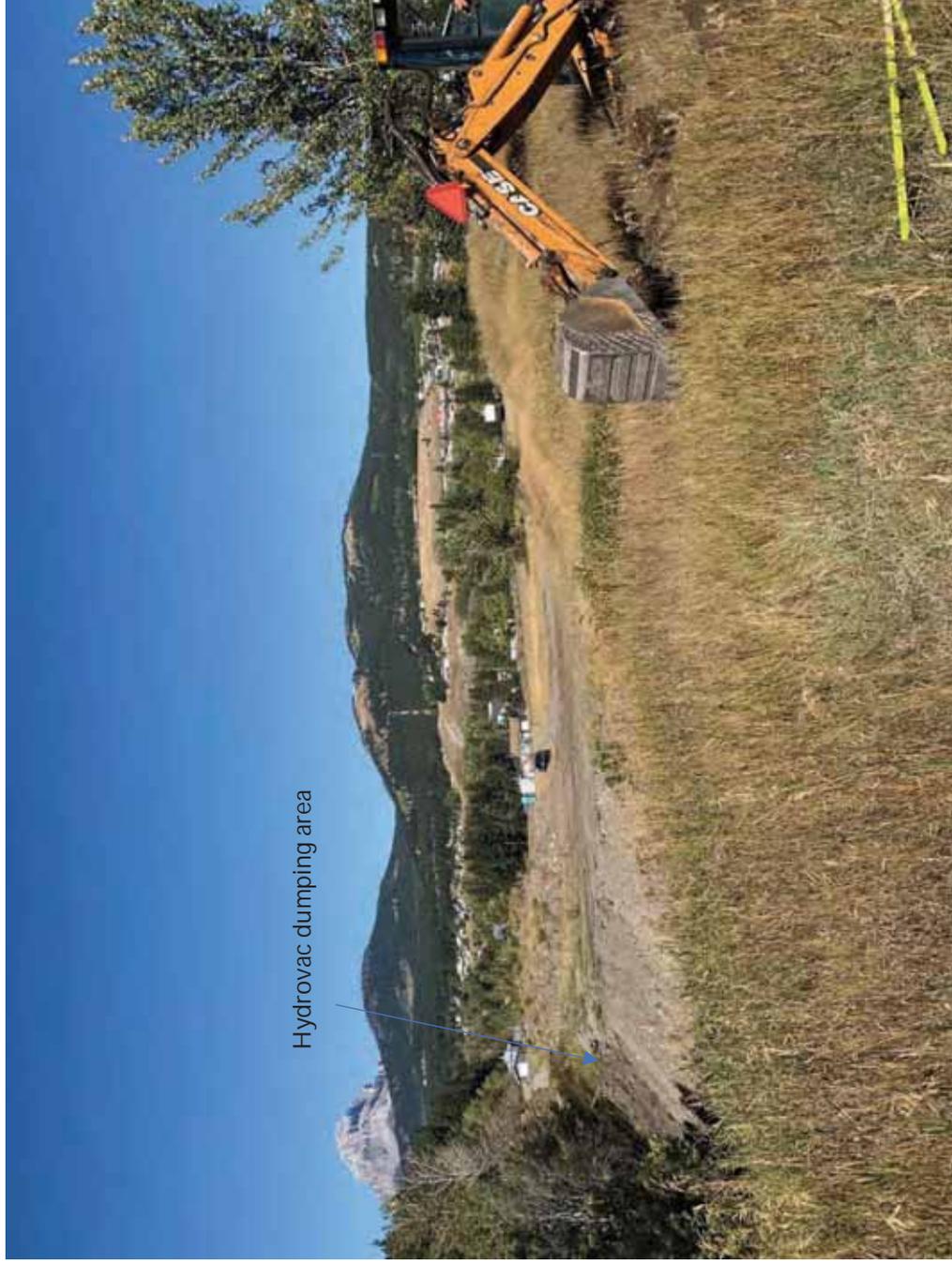
Photograph 6 – Bushtown - Facing west to north. September 19, 2022.



Photograph 7 – Bushtown – 22BT01 . September 21, 2022.



Photograph 8 – Bushtown – 22BT01, scarce metal waste.
September 21, 2022.



Photograph 9 – Bushtown - Facing north toward 22BT02. Soil piles and hydrovac dumping area visible in the background (right). September 21, 2022.



Associated
Environmental



Photograph 10 – Bushtown - Facing south toward 22BT03. Scarce waste (tires, metal). September 23, 2022.



Associated
Environmental



Photograph 11 – Bushtown - 22BT04. Scarce waste (metal). September 23, 2022.



Photograph 12 – Bushtown – Facing south-west-north toward 22BT05. September 23, 2022



Associated
Environmental



Photograph 13 – Bushtown –22BT05. September 23, 2022



Photograph 14 – Bushtown –22BT06, facing west.Sep-
tember 23, 2022.



Photograph 15 – Bushtown –22BT06, metal, metals waste, ash.
September 23, 2022.



Photograph 16 – Bushtown –22BT07. Tires and waste (left), south boundary of waste pit. Brownundis-
turbed sand, gravel and cobbles. September 23, 2022



Photograph 17 – Bushtown –22BT08, burn/rust layer.Sep-
tember 23, 2022.



Photograph 18 – Bushtown –22BT08, facing northwest.Mixed
waste (bricks, bottles, metals) . September 23, 2022.



Photograph 19 – Bushtown –22BT09, facing north toward house. September 23, 2022.



Photograph 20 – Bushtown –22BT10, north edge of buriedwaste pit, metals. September 23, 2022.

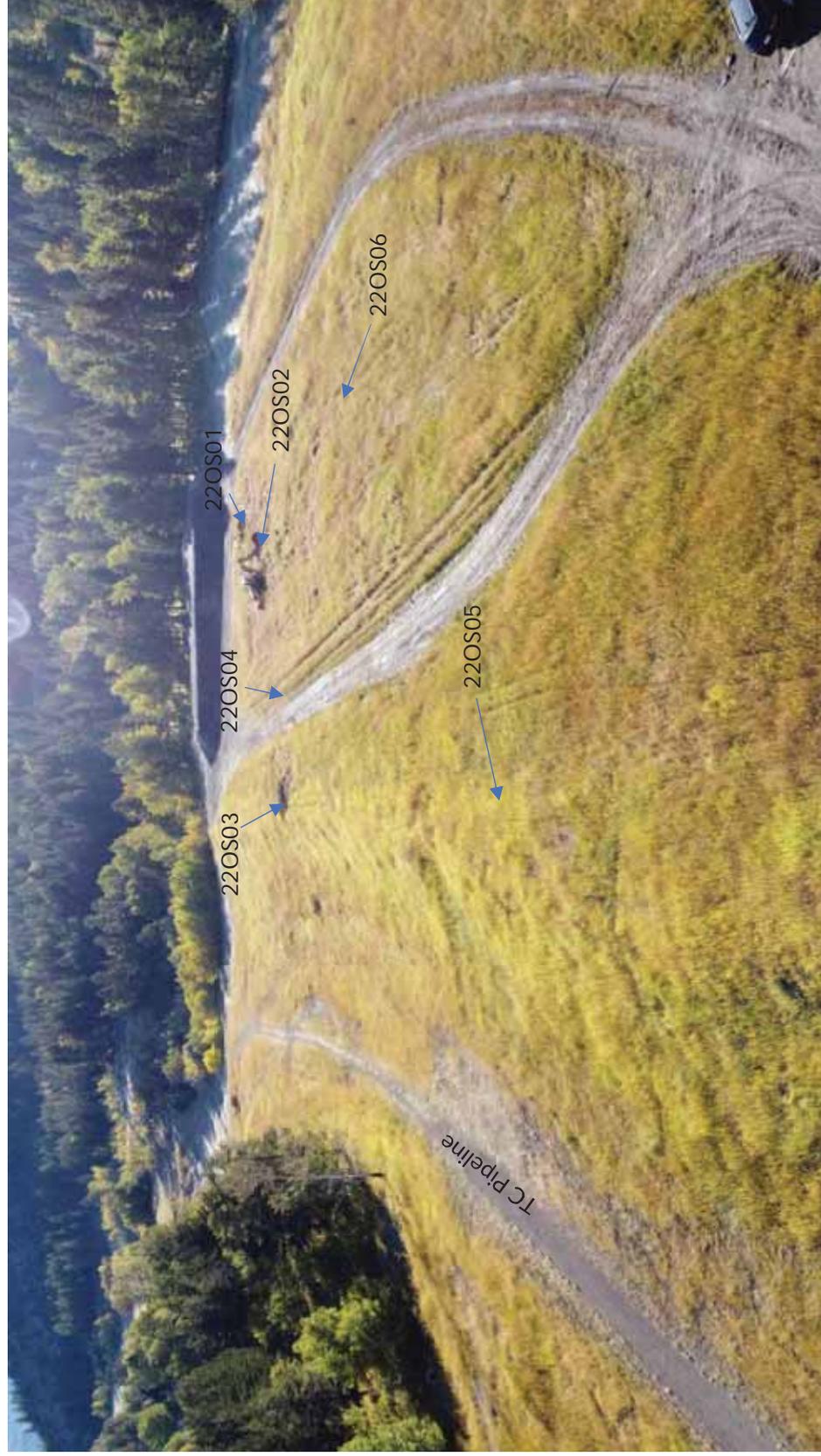


Photograph 21 – Bushtown –22BT10, facing southeast. September 23, 2022.



Associated
Environmental

2 OLD SARTORIS STAGING AREA PHOTOGRAPHS



Photograph 22 – Old Sartoris Staging Area – facing east. TC pipeline right-of-way (left). Landfill area south (right) of slope on levelled area. Soil and rock pile on far end of clearing. Approximate test pit locations shown. September 21, 2022.



Photograph 23 – Old Sartoris Staging Area – facing southeast. Landfill area north (right) of slope, backhoe at 22OS02, soil and rock pile on east end of clearing. Approximate test pit locations shown. September 21, 2022.



Photograph 24 – Old Sartoris Staging Area – facing southwest. Access road behind (right) of vehicle. TC pipeline right-of-way south(right) of slope, landfill area north (left) of slope. Approximate test pit locations shown. September 21, 2022.



Photograph 25 – Old Sartoris Staging Area – facing west. Access road behind (right) of vehicle, landfill area not visible. September 21, 2022.



Photograph 26 – Old Sartoris Staging Area – 22OS01, facing northeast. Waste (car parts, metals). September 21, 2022.



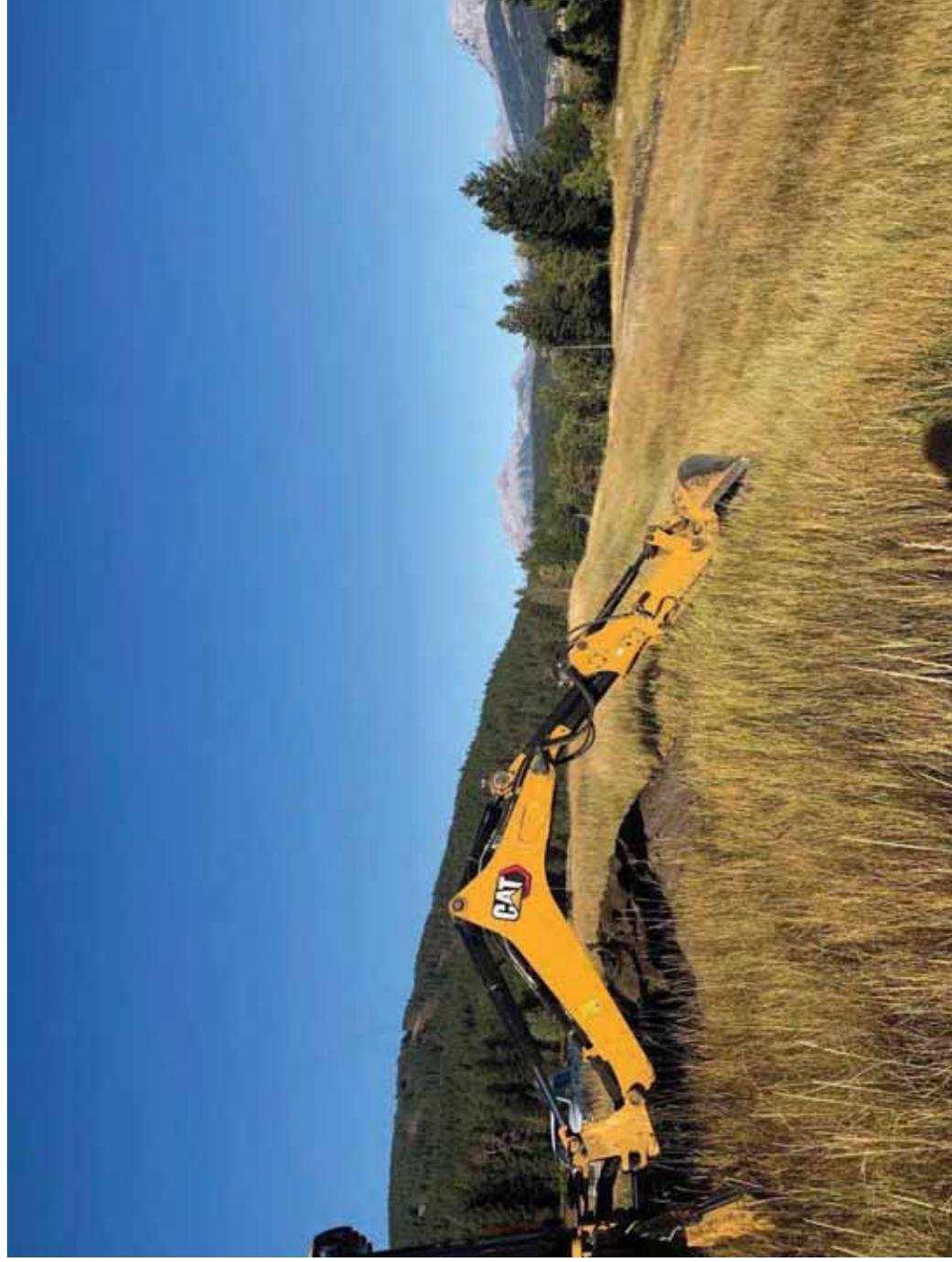
Photograph 27 – Old Sartoris Staging Area – 22OS01 buried tank, burn/ash layer. September 21, 2022.



Photograph 28 – Old Sartoris Staging Area – 22OS02 buried car part, tires, burn/ashlayers.
September 21, 2022.



Associated
Environmental



Photograph 29 – Old Sartoris Staging Area – 22OS03, along TC pipeline right-of-way (slope), facing west.
September 21, 2022.



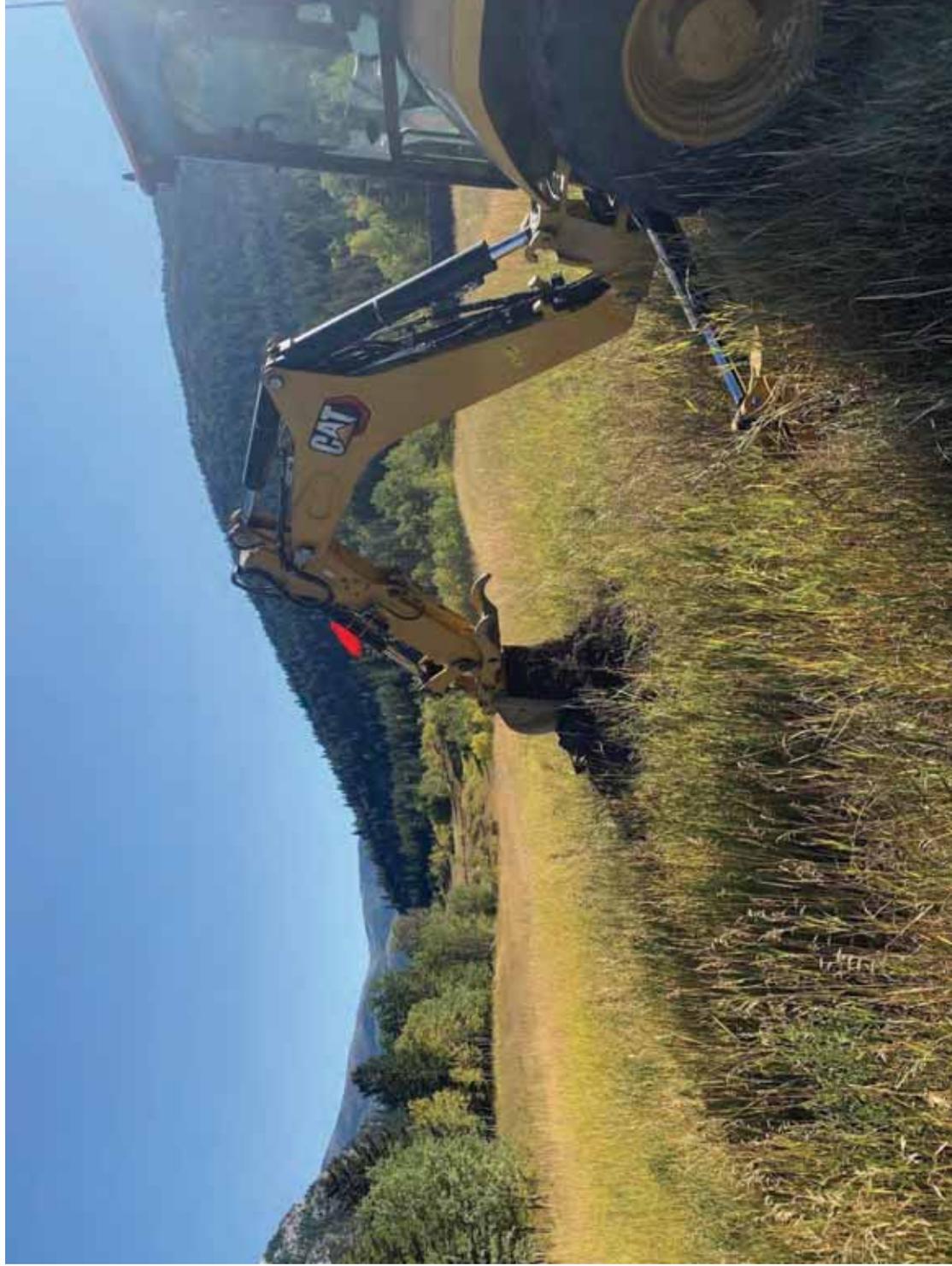
Photograph 30 – Old Sartoris Staging Area – 22OS04, facing west. Waste (car parts, plastics) September 21, 2022.



Photograph 31 – Old Sartoris Staging Area – 22OS04, burn layers and rust. September 21, 2022.



Associated
Environmental



Photograph 32 – Old Sartoris Staging Area – 22OS05, facing east. September 21, 2022.



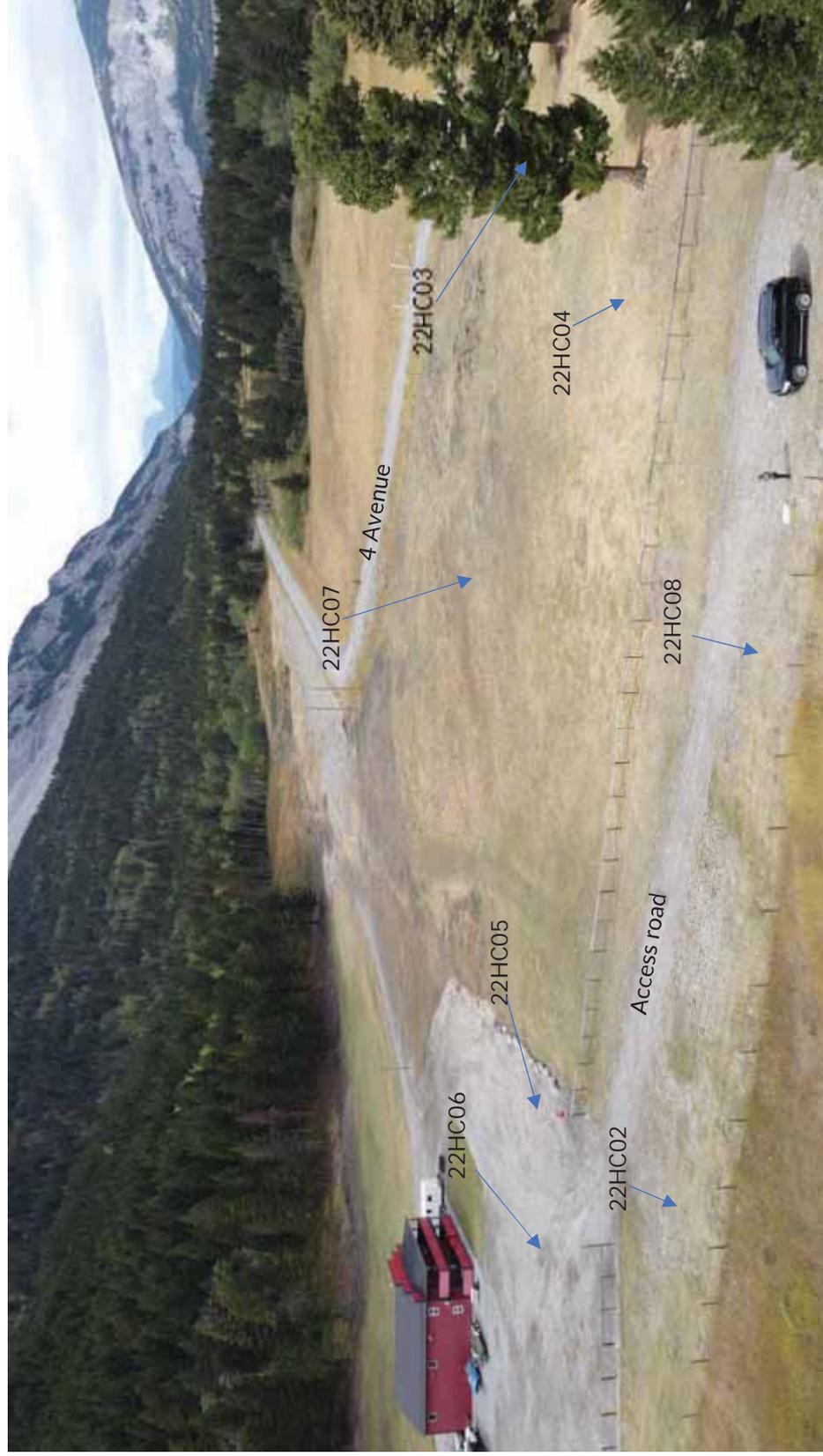
Photograph 33 – Old Sartoris Staging Area – 22OS06, burn layers and scarce waste. September 21, 2022.



Photograph 34 – Old Sartoris Staging Area – 22OS06, unidentifiable burned/melted metal object. September 21, 2022.

HILLCREST BALL DIAMOND ROAD PHOTOGRAPHS

3



Photograph 35 – Hillcrest Ball Diamond Road – Facing northwest. Shop (left), access road (bottom of photograph), 4 Avenue in distance. Approximate test pit locations shown. September 20, 2022.



Photograph 36 – Hillcrest Ball Diamond Road – Facing northwest. Gravel pad (left), access road (bottom of photograph), 4 Avenue in distance, Hillcrest Mine Disaster Cemetery visible in the distance (right). Approximate test pit locations shown. September 20, 2022.



Photograph 37 – Hillcrest Ball Diamond Road – Facing west. Shop, vehicles and shed (left), access road (left), 4 Avenue (right), two mature spruce trees adjacent (east) of area. approximate test pit locations shown. September 20, 2022.



Photograph 38 – Hillcrest Ball Diamond Road – Facing northeast-southeast. Fenced in area south of access road, south portion of site – test pit 22HC01. September 19, 2022.



Associated
Environmental



Photograph 39 – Hillcrest Ball Diamond Road – Facing northeast, two mature spruce trees on east end of site, access road (right). Approximate test pit locations shown. September 19, 2022.



Photograph 40 – Hillcrest Ball Diamond Road – 22HC01, south site boundary, facing northwest. September 22, 2022.



Photograph 41 – Hillcrest Ball Diamond Road – 22HC01, waste (bricks, car parts, plastic). September 22, 2022.



Associated
Environmental



Photograph 42 – Hillcrest Ball Diamond Road – 22HC02, facing northeast along access road. September 22, 2022.



Photograph 43 – Hillcrest Ball Diamond Road – 22HC02, waste (pipe, plastic, metals), burn layer. September 22, 2022.



Photograph 44 – Hillcrest Ball Diamond Road – 22HC03, facing east toward mature spruce trees. September 22, 2022.



Associated
Environmental



Photograph 45 – Hillcrest Ball Diamond Road – 22HC03, low-grade coal disposal in upper part of test pit.
September 22, 2022.



Associated
Environmental



Photograph 46 – Hillcrest Ball Diamond Road – 22HC04, near east waste boundary, facing northeast. Test pit 22HC03 visible in the distance. September 22, 2022.



Associated
Environmental



Photograph 47 – Hillcrest Ball Diamond Road – 22HC05, facing northwest, near edge of gravel pad.
September 22, 2022.



Photograph 48 – Hillcrest Ball Diamond Road – 22HC05, ash, rust-coloured water – 2.9 mbgs. September 22, 2022.



Photograph 49 – Hillcrest Ball Diamond Road – 22HC05, rust-coloured soil and metal waste. September 22, 2022.



Photograph 50 – Hillcrest Ball Diamond Road – 22HC06, facing east. Car door.
September 22, 2022.



Photograph 51 – Hillcrest Ball Diamond Road – 22HC07, near property boundary facing northwest. September 22, 2022.



Photograph 52 – Hillcrest Ball Diamond Road – 22HC07, buried waste pit, primarily metal. September 22, 2022.



Photograph 53 – Hillcrest Ball Diamond Road – 22HC08, facing southwest. September 22, 2022.

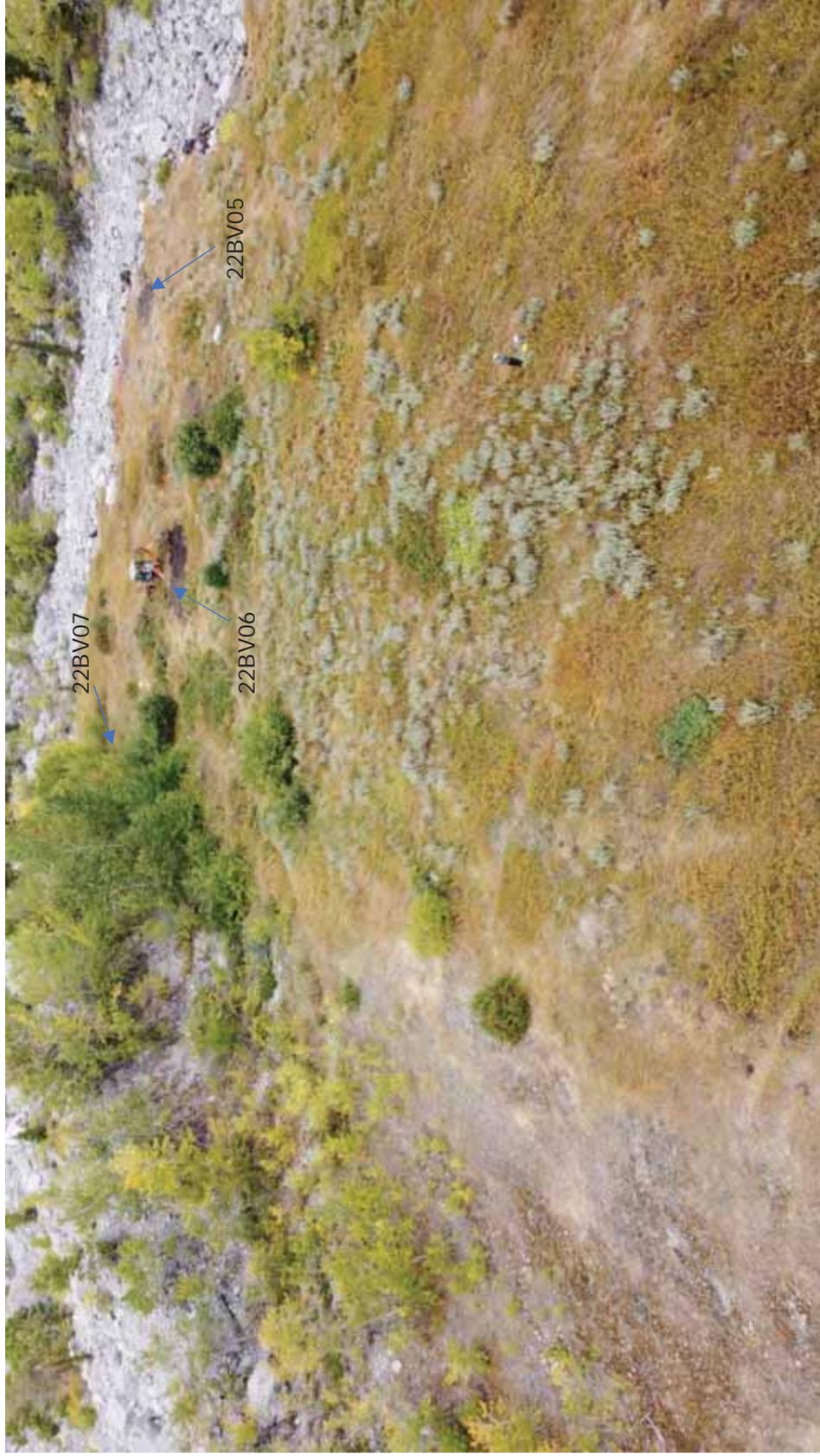
4 BELLEVUE OLD HIGHWAY 3 PHOTOGRAPHS



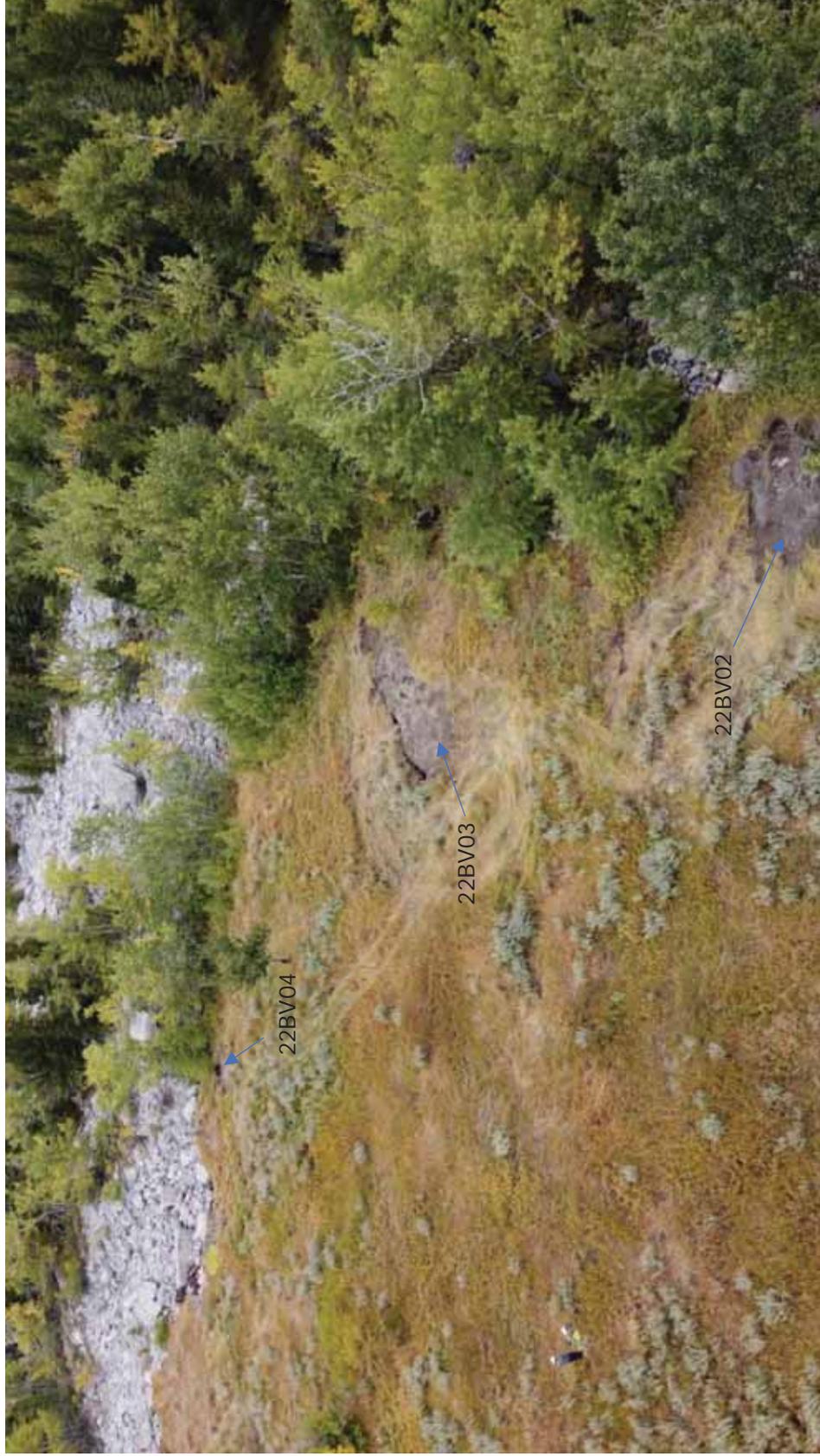
Photograph 54 – Bellevue Old Highway 3 – Facing northwest, Frank Slide colluvium north and west of site. approximate testpit locations shown. September 20, 2022.



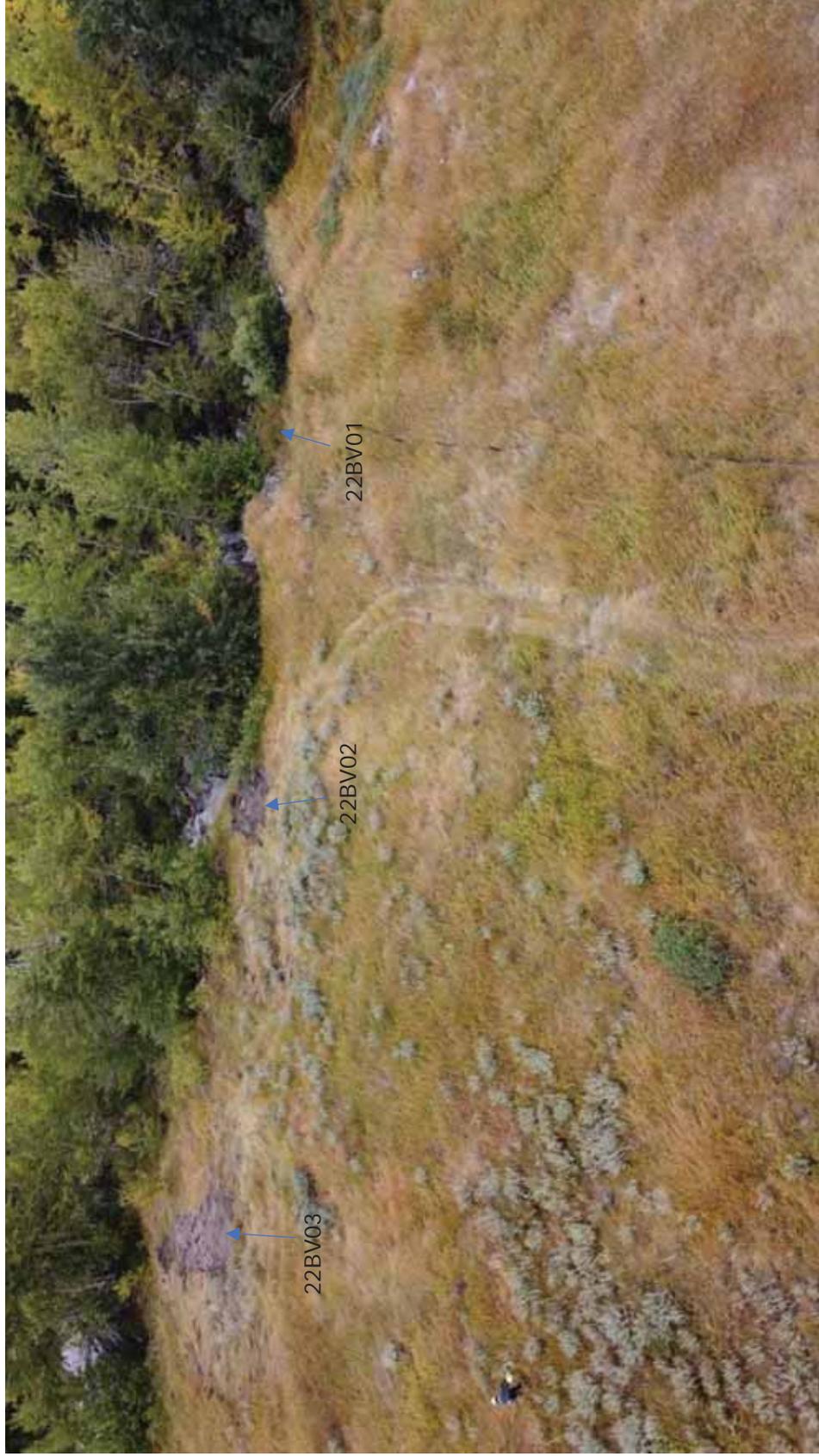
Photograph 55 – Bellevue Old Highway 3 – Facing west, Frank Slide colluvium extends west of site. Approximate test pit locations shown. September 20, 2022.



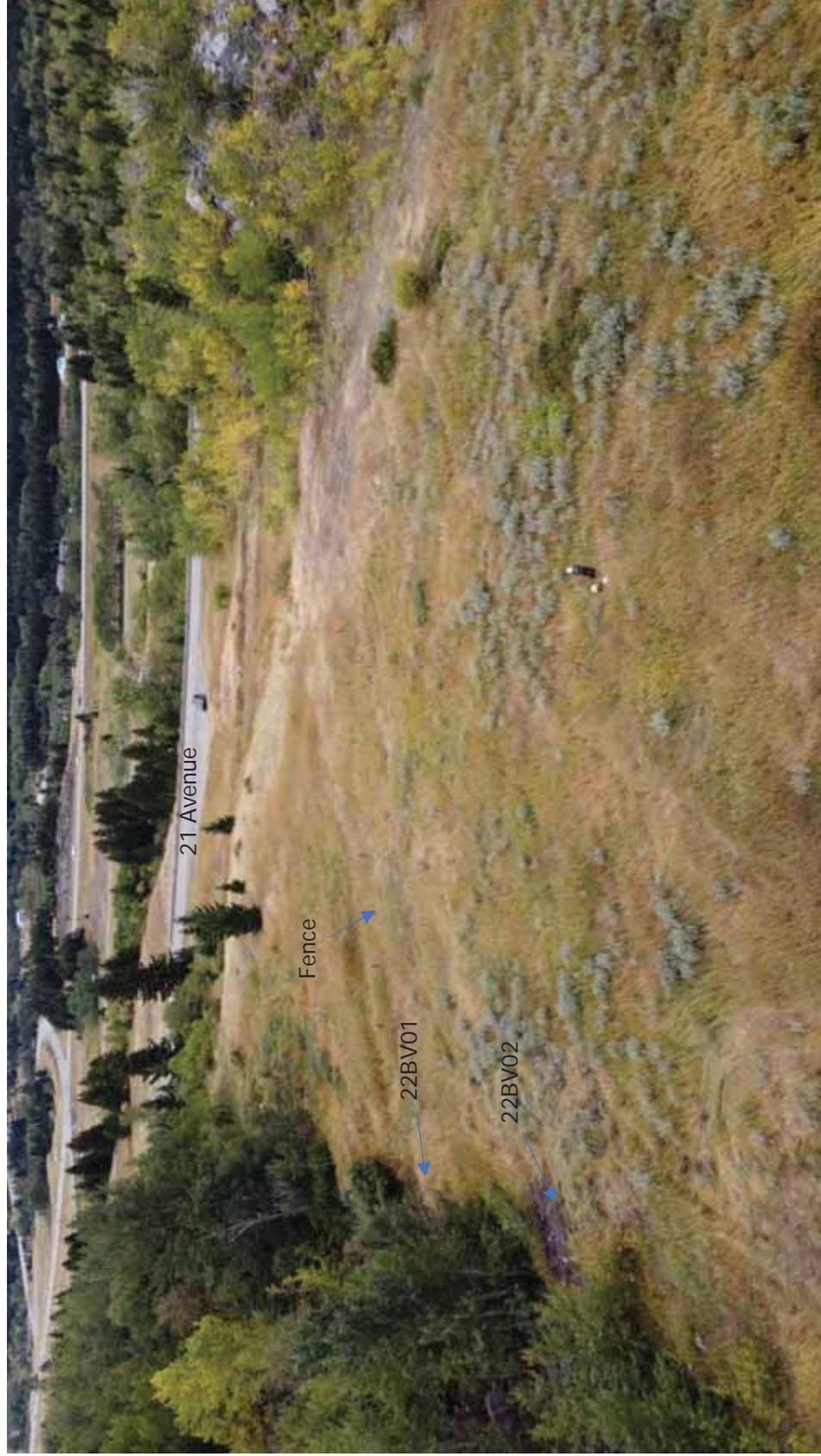
Photograph 56 – Bellevue Old Highway 3 – Facing north, Frank Slide colluvium west and north of site. Approximate test pit locations shown. September 20, 2022.



Photograph 57 – Bellevue Old Highway 3 – Facing northeast, Frank Slide colluvium north of site. Approximate test pit locations shown.
September 20, 2022.



Photograph 58 – Bellevue Old Highway 3 – Facing east, area to the north (left) of fence. Approximate test pit locations shown.
September 20, 2022.



Photograph 59 – Bellevue Old Highway 3 – Facing south toward 21 Avenue, area to the north of fence. Approximate test pit locations shown. September 20, 2022.



Associated
Environmental



Photograph 60 – Bellevue Old Highway 3 – Old car along north treeline. September 19, 2022.



Associated
Environmental



Photograph 61 – Bellevue Old Highway 3 – scrap metal along north boundary. September 19, 2022.



Associated
Environmental



Photograph 62 – Bellevue Old Highway 3 – 22BV01, facing north near east tree boundary. September 20, 2022.



Associated
Environmental



Photograph 63 – Bellevue Old Highway 3 – 22BV01, facing south. Waste (scrap metal, cloth, plastic).
September 20, 2022.



Associated
Environmental



Photograph 64 – Bellevue Old Highway 3 – 22BV02, facing south. Metal waste and boulders excavated from test pit. September 20, 2022.



Photograph 65 – Bellevue Old Highway 3 – 22BV03, facing east toward treeline. September 20, 2022.



Photograph 66 – Bellevue Old Highway 3 – 22BV03, crushed brick, ash layer. September 20, 2022.



Photograph 67 – Bellevue Old Highway 3 – 22BV04, crushed brick, ash, glass, scrap metal. September 20, 2022.



Associated
Environmental



Photograph 68 – Bellevue Old Highway 3 – 22BV05, facing northeast. Abundant metal waste (car parts, sheet metal). September 20, 2022.



Associated
Environmental



Photograph 69 – Bellevue Old Highway 3 – 22BV05, facing west. Oil drum and metal waste, faint hydrocarbon odour. September 20, 2022.



Photograph 70 – Bellevue Old Highway 3 – 22BV06, facing west.
September 20, 2022.



Photograph 71 – Bellevue Old Highway 3 – 22BV06. Scrap metal,
cobbles, gravel. September 20, 2022.



Photograph 72 – Bellevue Old Highway 3 – 22BV07, facing west. 2022.



Associated
Environmental



Photograph 73 – Frank, 152 Street facing southeast. September 19, 2022.



Photograph 74 – Frank, view of Crowsnest River from 152 Street, facing west. September 19, 2022.



Photograph 75 – Community Yard Waste Disposal Site in Frank Townsite, facing west. September 19, 2022.



Associated
Environmental



Photograph 76 – Frank townsite, facing north on 148 Street. September 19, 2022.



Associated
Environmental



Photograph 77 – Frank townsite, T&S Self Storage, facing northeast. September 19, 2022.



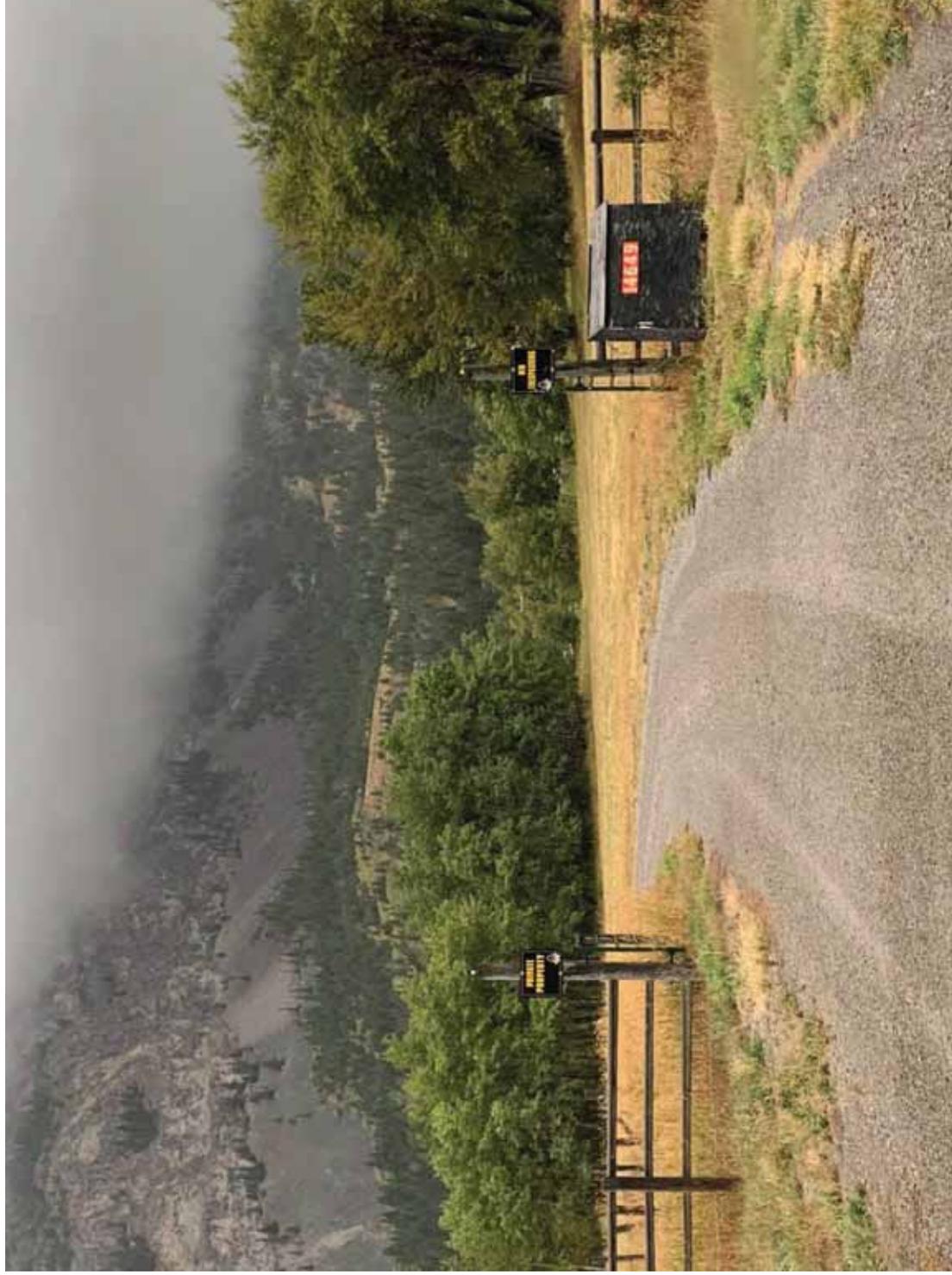
Associated
Environmental



Photograph 78 – Frank townsite, T&S Self Storage, facing west. September 19, 2022.



Associated
Environmental



Photograph 79 – Gate to farm on north side of Frank townsite, facing north. September 19, 2022.



Associated
Environmental

6

HILLCREST SOUTH OF LAGOONS PHOTOGRAPHS



Photograph 80 – Hillcrest South of Lagoons 1, facing northeast from driveway to animal enclosure. September 19, 2022.



Associated
Environmental



Photograph 81 – Hillcrest South of Lagoons 2, culverts, metal pipes and farming equipment. September 19, 2022.



Photograph 82 – Hillcrest South of Lagoons 2, trucks, tires and farming equipment. September 19, 2022.



Associated
Environmental



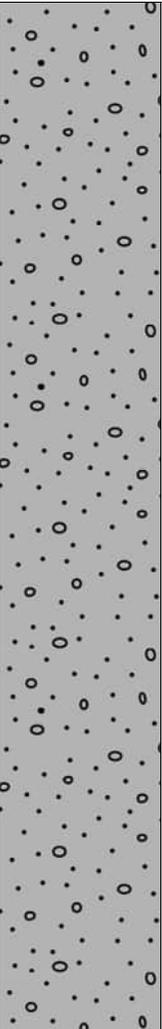
Photograph 83 – Hillcrest South of Lagoons 2, facing north to extended clearing – Quonset and mechanical equipment.
September 19, 2022.

APPENDIX L - TESTPIT LOGS



Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT01	Northing (m): 5500137.01
Client:	Municipality of Crowsnest Pass		Easting (m): 680973.07
Location:	Bushtown		Elevation (masl): 1332

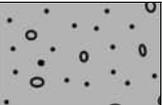
Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel and abundant cobbles up to 40 cm, dry, some brown silty clay at 1.5 m
1.2		1.2 m - Scarce mixed waste from 1.2 m to 3.0 m - Sheet metal, brick, rope, water bottle, glass bottles
1.5		1.5 m - Brown silty clay
3.00	3.00 m	3.0 m - End of Hole
3.8		Southwest corner of site – dark blue anomaly in EM31 survey, east of red hotspot in EM31 survey. Soil is disturbed to 3.0 m. Few debris are mixed in with soil, but a buried waste pit was not encountered.

	Lithology Legend 	Contractor: MCNP Public Works SL Date of construction: 21-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT02	Northing (m): 5500148.50
Client:	Municipality of Crowsnest Pass		Easting (m): 680945.91
Location:	Bushtown		Elevation (masl): 1329

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel and cobbles, dry
0.2		
0.4		
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
2.4		
2.6		
2.8		
3		
3.2		
3.4		
3.6		
3.8		
		Southwest corner of site – west side of red hotspot in EM31 survey. Steep slope to the west from test pit location, near hydrovac dumping area. West waste boundary identified, maximum depth of pit unknown.

	<p style="text-align: center;">Lithology Legend</p> <p style="text-align: center;">  SG  MW </p>	Contractor: MCNP Public Works
		Date of construction: 21-Sept-22
		Drilling method: Backhoe
		Logged by: DL
		Drawn by: DL
		Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT03	Northing (m): 5500217.53
Client:	Municipality of Crowsnest Pass		Easting (m): 680966.39
Location:	Bushtown		Elevation (masl): 1323

Subsurface Profile

Depth (m)	Graphic Log	Description	
0		SAND, dark grey, silty, gravel, cobbles, dry, boulders up to 30 cm	
0.2		0.3 m - Scarce waste mixed with soil from near surface to 2.3 m – metals, tire, glass bottles, ash (evidence of burning)	
0.4			
0.6			
0.8			
1			
1.2			
1.4			
1.6			
1.8			
2			
2.2		2.30 m	
2.4			2.3 m - End of Hole
2.6			
2.8			
3			
3.2			
3.4			
3.6			
3.8			West of road and fence, possible north boundary or waste pit. Soil is disturbed to 2.3 m. Debris are mixed in with soil, but a buried waste pit was not encountered.

	Lithology Legend 	Contractor: MCNP Public Works
		Date of construction: 23-Sept-22
		Drilling method: Backhoe
		Logged by: DL
		Drawn by: DL
		Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT04	Northing (m): 5500244.84
Client:	Municipality of Crowsnest Pass		Easting (m): 680924.60
Location:	Bushtown		Elevation (masl): 1321

Subsurface Profile

Depth (m)	Graphic Log	Description
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0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.2 2.4 2.6 2.8 3 3.2 3.4 3.6 3.8		<p>SAND, fine, grey, silty, trace gravel and cobbles, dry, packed</p> <p>0.3 m - Scarce waste at 0.3 m – wood scraps, metals, pipe</p> <p>2.0 m - End of Hole</p> <p>Near access road and gate in the northwest part of the site.</p>
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	Lithology Legend 	Contractor: MCNP Public Works SL Date of construction: 23-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT05	Northing (m): 5500161.52
Client:	Municipality of Crowsnest Pass		Easting (m): 681104.17
Location:	Bushtown		Elevation (masl): 1329

Subsurface Profile

Depth (m)	Graphic Log	Description
0		COBBLES, grey, sand, boulders up to 70 cm, dry
0.2		
0.4		MIXED WASTE, sheet metal, tires, car parts, plastic bags
0.6		
0.8		
1		
1.2		1.5 m - End of Hole
1.4		
1.6		
1.8		
2		
2.2		
2.4		
2.6		
2.8		
3		
3.2		
3.4		
3.6		
3.8		East treeline, edge of hotspot in EM31 survey. Ground is sloped to the north. Test pit walls of cobbles, sand and boulders continue to collapse. Maximum waste depth not determined.



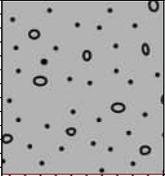
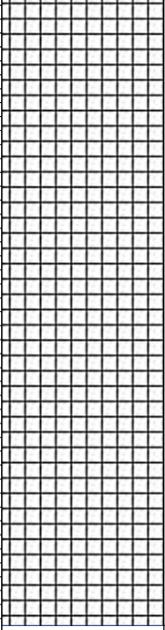
Lithology Legend



Contractor: MCNP Public Works
 SL
 Date of construction: 23-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT06	Northing (m): 5500144.19
Client:	Municipality of Crowsnest Pass		Easting (m): 681094.73
Location:	Bushtown		Elevation (masl): 1330

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel, cobbles, dry
0.2		
0.4		
0.50 m		
0.6		MIXED WASTE, cable, scrap metal, burnt/melted items, ash, crushed brick.
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
2.30 m		
2.4		
2.6		
2.8		
3		
3.2		
3.4		
3.6		
3.8		
		2.3 m - End of Hole
		On high ground, edge of hill and east edge of EM31 survey hotspot. Waste pit extends and gets deeper to the southwest, maximum depth of waste in centre of pit is unknown. Mature aspen tree is growing approximately in the centre of the red EM31 survey hots



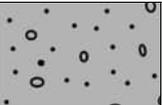
Lithology Legend



Contractor: MCNP Public Works
 SL
 Date of construction: 23-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

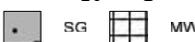
Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT07	Northing (m): 5500099.63
Client:	Municipality of Crowsnest Pass		Easting (m): 681073.37
Location:	Bushtown		Elevation (masl): 1337

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel, cobbles, dry, undisturbed brown sand gravel and cobbles beneath waste
0.2		
0.4		MIXED WASTE, plastic bags, many tires, glass bottles, animal vertebrae, bricks, washing machine, metals
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		2.2 m - End of Hole
2.4		
2.6		
2.8		
3		
3.2		
3.4		
3.6		
3.8		

South treeline on hillside. Waste pit extends and gets deeper to the north, maximum depth of waste in centre of pit is unknown.

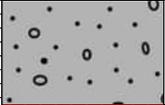
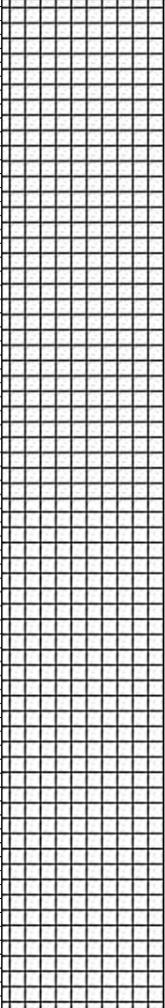


Lithology Legend


Contractor: MCNP Public Works
 SL
 Date of construction: 23-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT08	Northing (m): 5500158.06
Client:	Municipality of Crowsnest Pass		Easting (m): 681001.36
Location:	Bushtown		Elevation (masl): 1330

Subsurface Profile

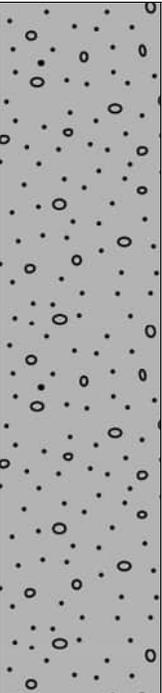
Depth (m)	Graphic Log	Description
0		SAND, grey, gravel, cobbles, dry
0.2		
0.4		MIXED WASTE, wheel, sheet metal, brick, burn/ash layers, pepsi bottle from 1941
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
3.2		3.2 m - End of Hole
3.4		
3.6		
3.8		East of road and fence, centre of EM31 survey hotspot.

	<p style="text-align: center;">Lithology Legend</p> <p style="text-align: center;">  SG  MW </p>	Contractor: MCNP Public Works
		Date of construction: 23-Sept-22
		Drilling method: Backhoe
		Logged by: DL
		Drawn by: DL
		Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT09	Northing (m): 5500176.44
Client:	Municipality of Crowsnest Pass		Easting (m): 681009.31
Location:	Bushtown		Elevation (masl): 1329

Subsurface Profile

Depth (m)	Graphic Log	Description
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<p>0</p> <p>0.2</p> <p>0.4</p> <p>0.6</p> <p>0.8</p> <p>1</p> <p>1.2</p> <p>1.4</p> <p>1.6</p> <p>1.8</p> <p>2</p> <p>2.2</p> <p>2.4</p> <p>2.6</p> <p>2.8</p> <p>3</p> <p>3.2</p> <p>3.4</p> <p>3.6</p> <p>3.8</p>		<p>SAND, grey, some gravel and cobbles</p> <p>Scarce debris mixed in soil from surface to 2.0 mbgs – glass bottles, cloth, metals, bricks.</p> <p>2.0 m - End of Hole</p> <p>Maximum extent of backhoe – waste depth not delineated.</p>
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	<p><u>Lithology Legend</u></p> <p> SG</p>	<p>Contractor: MCNP Public Works SL</p> <p>Date of construction: 23-Sept-22</p> <p>Drilling method: Backhoe</p> <p>Logged by: DL</p> <p>Drawn by: DL</p> <p>Reviewed by: KM</p>	<p>Page 1 of 1</p>
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Project Details		Testpit ID	Location
Project Number:	2022-8246	22BT10	Northing (m): 5500156.94
Client:	Municipality of Crowsnest Pass		Easting (m): 681055.44
Location:	Crowsnest Pass		Elevation (masl): 1331

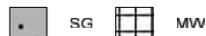
Subsurface Profile

Depth (m)	Graphic Log	Description	
0		SAND, grey, gravel, cobbles, dry, undisturbed brown sand, gravel and cobbles beneath waste	
0.2			
0.4	0.50 m	MIXED WASTE, glass bottles, coke bottle from 1962, plastic bags, dishes, sheet metal	
0.6			
0.8			
1			
1.2			
1.4			
1.6			
1.8			
2		2.10 m	2.1 m - End of Hole
2.2			
2.4			
2.6			
2.8			
3			
3.2			
3.4			
3.6			
3.8			

West of powerlines, north boundary of EM31 survey hot spot. Waste pit extends and gets deeper to the south, maximum depth of waste in centre of pit is unknown.



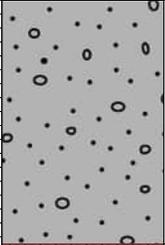
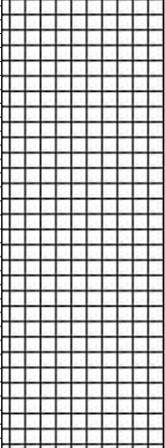
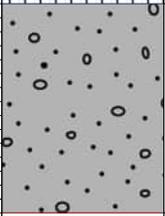
Lithology Legend



Contractor: MCNP Public Works
 SL
 Date of construction: 23-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22OS01	Northing (m): 5497429.80
Client:	Municipality of Crowsnest Pass		Easting (m): 685426.60
Location:	Old Sartoris Staging Area		Elevation (masl): 1333

Subsurface Profile

Depth (m)	Graphic Log	Description
0 0.2 0.4 0.6		SAND, brown, gravel, dry
0.8 1 1.2 1.4 1.6 1.8		MIXED WASTE, car parts, sheet metal, wood, glass, burn/ash layer
2 2.2 2.4		SAND, brown, gravel, dry
2.6 2.8 3 3.2 3.4 3.6 3.8		2.6 m - End of Hole Southeast part of site – east boundary of EM31 survey hotspot. East buried waste boundary identified, maximum depth of pit unknown.

	Lithology Legend 	Contractor: MCNP Public Works SL Date of construction: 21-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22OS02	Northing (m): 5497444.31
Client:	Municipality of Crowsnest Pass		Easting (m): 685412.82
Location:	Old Sartoris Staging Area		Elevation (masl): 1331

Subsurface Profile

Depth (m)	Graphic Log	Description
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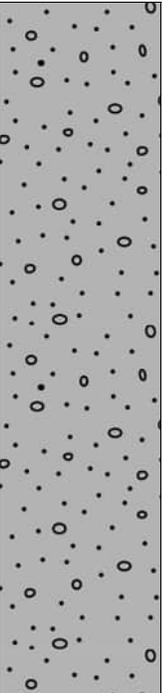
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.2 2.4 2.6 2.8 3 3.2 3.4 3.6 3.8		<p>MIXED WASTE, car parts, tire, plastic, cloth, metals, crushed brick, burn/ash layer</p> <hr/> <p>2.00 m SAND, grey, gravel and cobbles, dry</p> <hr/> <p>2.50 m 2.5 m - End of Hole</p> <p>In centre of EM31 survey hotspot, near 22OS01. Maximum depth of waste is 2.0 m.</p>
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	Lithology Legend 	Contractor: MCNP Public Works SL Date of construction: 21-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22OS03	Northing (m): 5497479.61
Client:	Municipality of Crowsnest Pass		Easting (m): 685410.03
Location:	Old Sartoris Staging Area		Elevation (masl): 1328

Subsurface Profile

Depth (m)	Graphic Log	Description
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<p>0</p> <p>0.2</p> <p>0.4</p> <p>0.6</p> <p>0.8</p> <p>1</p> <p>1.2</p> <p>1.4</p> <p>1.6</p> <p>1.8</p> <p>2</p> <p>2.2</p> <p>2.4</p> <p>2.6</p> <p>2.8</p> <p>3</p> <p>3.2</p> <p>3.4</p> <p>3.6</p> <p>3.8</p>		<p>SAND, greyish brown, trace gravel and cobbles, dry</p> <p>0.5 m - Scarce waste to 1.5 m – cloth, plastic, car parts, sheet metal.</p> <p>2.0 m - End of Hole</p> <p>Edge of slope and TC pipeline right-of-way. Test pit cutting north into hillside. Maximum waste depth was 1.5 m, but buried waste may be deeper to the south.</p>
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	<p><u>Lithology Legend</u></p> <p> SG</p>	<p>Contractor: MCNP Public Works SL</p> <p>Date of construction: 21-Sept-22</p> <p>Drilling method: Backhoe</p> <p>Logged by: DL</p> <p>Drawn by: DL</p> <p>Reviewed by: KM</p>	<p>Page 1 of 1</p>
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Project Details		Testpit ID	Location
Project Number:	2022-8246	22OS04	Northing (m): 5497462.29
Client:	Municipality of Crowsnest Pass		Easting (m): 685427.44
Location:	Old Sartoris Staging Area		Elevation (masl): 1329

Subsurface Profile

Depth (m)	Graphic Log	Description	
0		MIXED WASTE from near surface– glass bottles, metals, car parts., culvert, wood, plastic bags, rust-coloured sand, burn/ash layers	
0.2			
0.4			
0.6			Dark grey sand with trace gravel and cobbles, dry, disturbed
0.8			
1			
1.2			
1.4			
1.6			1.5 m - Moist
1.8			
2			
2.2			
2.4			
2.6			
2.8			
3			
3.2			
3.4			3.3 m - End of Hole
3.6			
3.8			North edge of EM31 survey hotspot, adjacent to loop road. Maximum extent of backhoe is 3.3 m - depth of garbage at 3.0 m

	<p>Lithology Legend</p>	Contractor: MCNP Public Works
		SL
		Date of construction: 21-Sept-22
		Drilling method: Backhoe
		Logged by: DL
		Drawn by: DL
		Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22OS05	Northing (m): 5497485.83
Client:	Municipality of Crowsnest Pass		Easting (m): 685365.36
Location:	Old Sartoris Staging Area		Elevation (masl): 1328

Subsurface Profile

Depth (m)	Graphic Log	Description
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0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.2 2.4 2.6 2.8 3 3.2 3.4 3.6 3.8		<p>SAND, dark grey, trace silt, dry</p> <p>0.5 m - Scarce waste near surface – plastic bags, broken glass</p> <p>2.5 m - End of Hole</p> <p>West of 22OS03. No buried waste pit encountered – scarce waste is likely present throughout the level portion of the site.</p>
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	Lithology Legend 	Contractor: MCNP Public Works SL Date of construction: 21-Sept-22 Drilling method: Backhoe Logged by: DL Drawn by: DL Reviewed by: KM
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Project Details		Testpit ID	Location
Project Number:	2022-8246	22OS06	Northing (m): 5497452.48
Client:	Municipality of Crowsnest Pass		Easting (m): 685361.88
Location:	Old Sartoris Staging Area		Elevation (masl): 1332

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, dark grey, trace silty, some gravel and cobbles, dry, boulder up to 30 cm
0.2		MIXED WASTE, white layer from burning, metal wire, glass, wood fragments, rust-coloured sand, burn/ash layer
0.4		
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
2.4		
2.6		
2.8		
3		
3.2		3.1 m - End of Hole
3.4		
3.6		
3.8		

South of 22OS05. Maximum extent of backhoe reached, maximum waste depth unknown.

	<p style="text-align: center;">Lithology Legend</p> <p style="text-align: center;"> SG MW </p>	Contractor: MCNP Public Works
		Date of construction: 21-Sept-22
		Drilling method: Backhoe
		Logged by: DL
		Drawn by: DL
		Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC01	Northing (m): 5494572.14
Client:	Municipality of Crowsnest Pass		Easting (m): 689372.36
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1289

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, dark grey, gravel, cobbles up to 30 cm, dry
0.2		
0.4		MIXED WASTE, plastic bags, bricks, car parts, sheet metal, cloth, wire, layer of white ash, evidence of burning.
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		SAND, dark grey, gravel, cobbles
2.4		2.3 m - End of Hole
2.6		
2.8		
3		
3.2		
3.4		
3.6		
3.8		

South of fence line, east edge of EM31 survey boundary between blue and green. The test pit was advanced to the northwest until buried waste encountered. South waste boundary identified. Maximum waste depth may be deeper in other parts of the buried waste



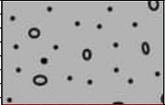
Lithology Legend

SG
 MW

Contractor: MCNP Public Works
 LS
 Date of construction: 22-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC02	Northing (m): 5494578.17
Client:	Municipality of Crowsnest Pass		Easting (m): 689339.79
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1287

Subsurface Profile

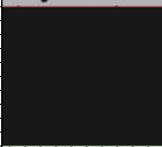
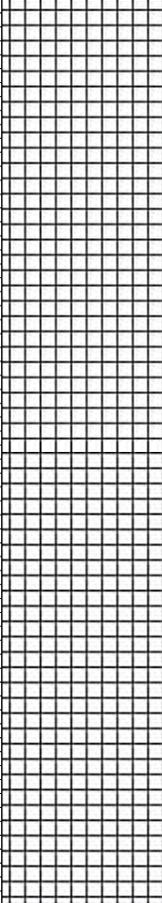
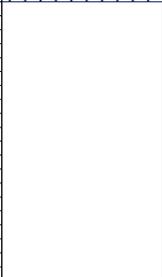
Depth (m)	Graphic Log	Description
0		SAND, dark grey, silty, gravel, cobbles, dry
0.2		
0.4		MIXED WASTE, wood plastic, car parts, pipe, scrap metal, wire, cloth, tires, burn/ash layer.
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
2.4		
2.6		
2.7		2.7 m - End of Hole
2.8		
3		
3.2		
3.4		
3.6		
3.8		

Between fence lines, southeast edge of EM31 survey hotspot. No buried waste boundary was identified, but waste appears less abundant to the east.

	Lithology Legend  SG  MW	Contractor: MCNP Public Works Date of construction: 22-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC03	Northing (m): 5494658.94
Client:	Municipality of Crowsnest Pass		Easting (m): 689361.89
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1284

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, brown, fine, silty, gravel, dry, roots
0.2		COAL, black, dry, low-grade
0.6		MIXED WASTE on west wall, scrap metal, car parts, wood, washer drum, plastic bags.
3.2		3.2 m - End of Hole
3.8		Northeast corner of site, adjacent to large spruce tree 60-70 cm in diameter. Northeast waste boundary identified. The large tree was likely present prior to and throughout the lifespan of the landfill.



Lithology Legend

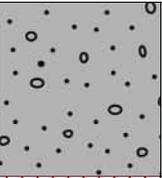
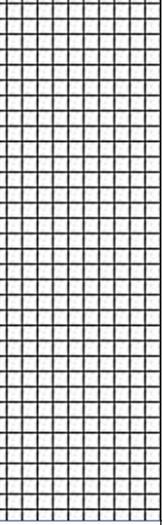
	SG		MW		CO
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Contractor: MCNP Public Works
 LS
 Date of construction: 22-Sept-22
 Drilling method: Backhoe

Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC04	Northing (m): 5494632.63
Client:	Municipality of Crowsnest Pass		Easting (m): 689368.12
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1285

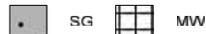
Subsurface Profile

Depth (m)	Graphic Log	Description	
0		SAND, grey, silty, many cobbles and gravel, dry, roots near surface	
0.2			
0.4			
0.6		MIXED WASTE on west wall, sheet metal, car parts, cloth, wood	
0.8			
1			
1.2			
1.4			
1.6			
1.8			
2			
2.2			2.0 m - End of Hole
2.4			
2.6			
2.8			
3			
3.2			
3.4			
3.6			
3.8			

South of 22HC03, adjacent to second large spruce tree 60-70 cm in diameter. East waste boundary identified. The large tree was likely present prior to and throughout the lifespan of the landfill.



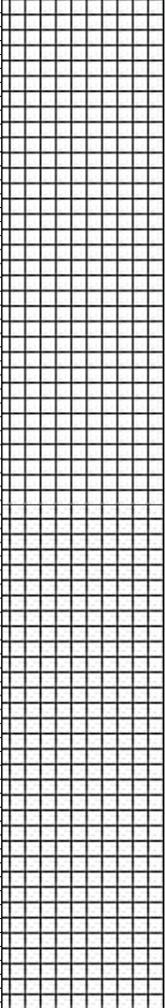
Lithology Legend

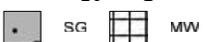


Contractor: MCNP Public Works
 LS
 Date of construction: 22-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC05	Northing (m): 5494596.55
Client:	Municipality of Crowsnest Pass		Easting (m): 689315.10
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1285

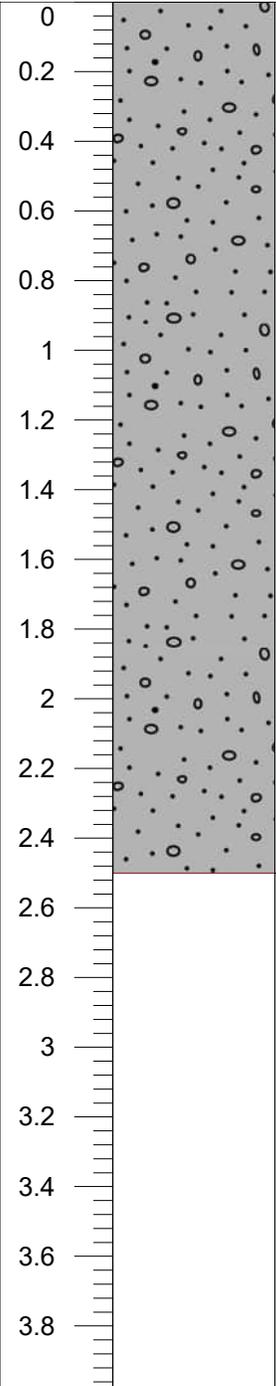
Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel and trace cobbles, dry
0.2		MIXED WASTE, sheet metal, wood, car parts, burn layer, wire.
2.9		2.9 m - Wet - rust-coloured water
3.1		3.1 m - End of Hole
3.8		East edge of gravel pad, centre of EM31 survey hotspot. Maximum extent of backhoe reached – maximum waste depth unknown.

	Lithology Legend 	Contractor: MCNP Public Works Date of construction: 22-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC06	Northing (m): 5494584.08
Client:	Municipality of Crowsnest Pass		Easting (m): 689311.31
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1286

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel and trace cobbles, dry
1.3		1.3 m - Scarce waste – car door, metals
2.5		2.5 m - End of Hole
3.8		Gravel pad, south of centre of EM31 survey hotspot. South boundary of waste pit located.

	Lithology Legend 	Contractor: MCNP Public Works LS Date of construction: 22-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

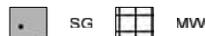
Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC07	Northing (m): 5494630.26
Client:	Municipality of Crowsnest Pass		Easting (m): 689324.65
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1283

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, grey, gravel and trace cobbles, dry
1.20		MIXED WASTE, scrap metal, car parts, bricks, occasional plastic bags, garbage odour.
3.5		3.5 m - Wet - rust-coloured water
3.60		3.6 m - End of Hole Property boundary, north side of EM31 survey hotspot. Maximum extent of backhoe reached – maximum waste depth unknown. Waste pit extends northwest onto neighbouring lot.



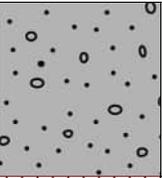
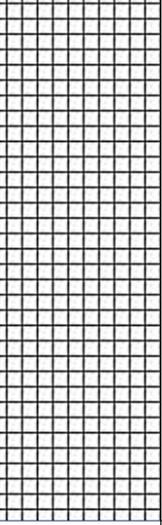
Lithology Legend



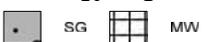
Contractor: MCNP Public Works
 LS
 Date of construction: 22-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22HC08	Northing (m): 5494600.40
Client:	Municipality of Crowsnest Pass		Easting (m): 689365.04
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1287

Subsurface Profile

Depth (m)	Graphic Log	Description	
0		SAND, brown, cobbles and gravel, dry	
0.2			
0.4			
0.50	0.50 m		
0.6		MIXED WASTE, burn layer, scrap metal.	
0.8			
1.0			
1.2			
1.4			
1.6			
1.8			
2.00		2.00 m	
2.2			2.2 m - End of Hole
2.4			
2.6			
2.8			
3.0			
3.2			
3.4			
3.6			
3.8			

Along fence line, south of access road. East waste boundary located. Waste may reach higher depth to the west.

	Lithology Legend 	Contractor: MCNP Public Works Date of construction: 22-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BV01	Northing (m): 5496324.51
Client:	Municipality of Crowsnest Pass		Easting (m): 689715.57
Location:	Hillcrest Ball Diamond Road		Elevation (masl): 1305

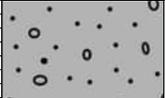
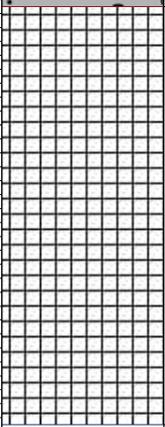
Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, dark grey, silt and gravel, cobbles and boulders, dry
0.2		MIXED WASTE, scrap metal, cloth, plastic
2.00		2.0 m - End of Hole
3.8		Waste boundary – central part of east treeline, east of EM31 hotspot. Soil with waste appears bulldozed to the east treeline as there is a sharp slope toward the trees. Boulders prevent further advancement - lower waste boundary not delineated.

	<p style="text-align: center;">Lithology Legend</p> <p style="text-align: center;"> SG MW </p>	Contractor: MCNP Public Works
		Date of construction: 20-Sept-22 Drilling method: Backhoe Logged by: DL Drawn by: DL Reviewed by: KM
		Page 1 of 1

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BV02	Northing (m): 5496344.23
Client:	Municipality of Crowsnest Pass		Easting (m): 689723.88
Location:	Bellevue Old Highway 3		Elevation (masl): 1306

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, dark grey, silt and gravel, cobbles and boulders, dry
0.2		
0.4		MIXED WASTE, faint garbage odour, glass bottles, plastic bags, cloth, small metal debris.
0.6		
0.8		
1		
1.2		
1.4		
1.6		1.5 m - End of Hole
1.8		
2		
2.2		
2.4		
2.6		
2.8		
3		
3.2		
3.4		
3.6		
3.8		
		Waste boundary - east treeline (north of 22BV01), east of EM31 hotspot. Boulders prevent further advancement - lower waste boundary not delineated.

	<p style="text-align: center;">Lithology Legend</p> <p style="text-align: center;">  SG  MW </p>	Contractor: MCNP Public Works
		Date of construction: 20-Sept-22 Drilling method: Backhoe Logged by: DL Drawn by: DL Reviewed by: KM
		Page 1 of 1

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BV03	Northing (m): 5496372.87
Client:	Municipality of Crowsnest Pass		Easting (m): 689726.58
Location:	Bellevue Old Highway 3		Elevation (masl): 1308

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, dark grey, silt and gravel, cobbles and boulders, rust-coloured sand layer at 0.5 m, dry
0.2		MIXED WASTE, faint garbage odour, glass, crushed brick, plastic, car parts, scrap metal, carpet, culverts, wood, ash
0.4		
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
2.4		
2.6		
2.8		2.8 m - End of Hole
3		
3.2		
3.4		
3.6		
3.8		Waste boundary - east treeline (north of 22BV02), east of EM31 hotspot. Maximum extent of backhoe – lower waste boundary not delineated.



Lithology Legend

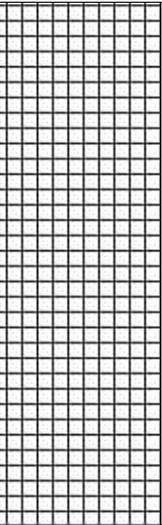


Contractor: MCNP Public Works
 LS
 Date of construction: 20-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BV05	Northing (m): 5496436.58
Client:	Municipality of Crowsnest Pass		Easting (m): 689680.48
Location:	Bellevue Old Highway 3		Elevation (masl): 1312

Subsurface Profile

Depth (m)	Graphic Log	Description
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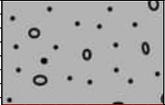
0 0.2 0.4 0.6 0.8 1 1.2 1.4 1.6 1.8 2 2.2 2.4 2.6 2.8 3 3.2 3.4 3.6 3.8		<p>MIXED WASTE from near surface, faint garbage/hydrocarbon odour, more waste than soil, cars, car parts, scrap metal, oil drum</p> <p>Silt and sand, black, trace cobbles, boulders, dry</p>
		<p>1.5 m - End of Hole</p> <p>Waste boundary - boulders to the north, north of EM31 hotspot. Metal waste on boulders adjacent to test pit. Boulders and large metal pieces prevent further advancement - lower waste boundary not delineated.</p>

	Lithology Legend 	Contractor: MCNP Public Works LS Date of construction: 20-Sept-22 Drilling method: Backhoe Logged by: DL Drawn by: DL Reviewed by: KM
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Page 1 of 1

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BV06	Northing (m): 5496413.38
Client:	Municipality of Crowsnest Pass		Easting (m): 689664.08
Location:	Bellevue Old Highway 3		Elevation (masl): 1311

Subsurface Profile

Depth (m)	Graphic Log	Description
0		SAND, black, silt and gravel, cobbles, dry
0.2		
0.4		MIXED WASTE, scrap metal, wood, car parts, tire, cloth, occasional plastic, concrete, brick
0.6		
0.8		
1		
1.2		
1.4		
1.6		
1.8		
2		
2.2		
2.4		
2.6		
2.8		
3		
3.2		3.2 m - End of Hole
3.4		
3.6		
3.8		Waste boundary - west treeline, south of EM31 hotspot. Maximum extent of backhoe – lower waste boundary not delineated.



Lithology Legend



Contractor: MCNP Public Works
 LS
 Date of construction: 20-Sept-22
 Drilling method: Backhoe
 Logged by: DL
 Drawn by: DL
 Reviewed by: KM

Project Details		Testpit ID	Location
Project Number:	2022-8246	22BV07	Northing (m): 5496427.72
Client:	Municipality of Crowsnest Pass		Easting (m): 689630.72
Location:	Bellevue Old Highway 3		Elevation (masl): 1312

Subsurface Profile

Depth (m)	Graphic Log	Description
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0		MIXED WASTE from near-surface, scrap metal, culvert, wires, cables, brick, plastic, cloth, cans	
0.2			Sand, dark grey, silt and gravel, cobbles, dry
0.4			
0.6			
0.8			
1			
1.2			
1.4			
1.6			
1.8			
2			
2.2			
2.4			
2.6			
2.8			
3	3.00 m	3.0 m - End of Hole	
3.2		Waste boundary- northwest treeline/boulders. Maximum extent of backhoe – lower waste boundary not delineated.	
3.4			
3.6			
3.8			

	Lithology Legend 	Contractor: MCNP Public Works LS Date of construction: 20-Sept-22 Drilling method: Backhoe
		Logged by: DL Drawn by: DL Reviewed by: KM

APPENDIX M - ALBERTA ENVIRONMENT LETTER FOR HILLCREST LANDFILL



Regional Services
Southern Region

2nd Flr, 200 - 5th Ave S
Lethbridge AB T1J 4L1

Phone 403-382-5322
Fax 403-382-4428



February 12, 2003

Bev Cole
Development Officer
Municipality of Crowsnest Pass
P.O. Box 600
Crowsnest Pass, AB T0K 0E0

RECEIVED

FEB 18 2003

MUNICIPALITY OF
CROWSNEST PASS

Dear Ms. Cole,

I have reviewed your February 4, 2003 request for consent to reduce the 300 metre set-back from the old Hillcrest Landfill for the purpose of constructing a residence. Before considering this request further, Alberta Environment requires the following information:

1. a scale drawing that shows the location of the waste disposal trenches or pits, the exact distances of the proposed residence from the buried waste, and location of any other residences or structures within the 300 metre set-back
2. options for locating the residence at a maximum distance from the waste disposal trenches
3. building construction methods to prevent landfill gas from entering the structures, i.e. concrete pads with synthetic membrane barriers, location of heating appliances within structures
4. camp site or cabin occupancy i.e. will any of the sites be used for long term residency
5. the water source for the campground and if it is from wells, any analytical results
6. history of the landfill i.e. when did the landfill begin operations and when did it close, what type of cover system was placed over the landfill to close it (landfill cap thickness, material used to cap the landfill), any groundwater monitoring and gas monitoring results, what was the size of the landfill, and what waste was accepted
7. plans for monitoring for the presence of landfill gas near the landfill site and at the residence and cabins

I have enclosed a diagram of the landfill showing that groundwater wells were installed in 1974. The well logs are also included. These may be of assistance to you in determining the presence of landfill gas or groundwater contaminants off-site.

Alberta Environment and the Municipality of Crowsnest Pass must be certain that people who might occupy residences within the 300 metre set-back limit will not be at risk as a result of landfill gas accumulation or groundwater contamination. The information I am asking for is needed to help determine these risks.

If you require any further information at this time, please call me at 403-382-4015.

Yours truly,

Robert Burland, P. Biol.
Industrial Approvals



Office of the
Deputy Minister

10th floor
Petroleum Plaza South Tower
9915 - 108 Street
Edmonton, Alberta
Canada T5K 2G8

Telephone 780/427-6236
Fax 780/427-0923

August 5, 2003

Mr. Ron McCullough
Chief Administrative Officer
Municipality of Crowsnest Pass
P.O. Box 600
Crowsnest Pass, AB T0K 0E0



Dear Mr. McCullough:

Alberta Environment (AENV) has considered your request for a waiver of the three hundred (300) meters setback requirement between the former Hillcrest landfill and the proposed Box Seven Enterprises Ltd. RV Campground development consisting of an office/residence and six rental cabins along with RV camping pads.

On the basis of your request, the department has determined that the proposed setback relaxation from the proposed RV Campground development to the reclaimed Hillcrest landfill site presents little or no risk. In accordance with Section 13(5) of the Subdivision and Development Regulation, I hereby consent to reduce the setback distance from three hundred (300) meters, and recommend that the Municipality of Crowsnest Pass implement a minimum setback distance of eighty-eight (88) meters between the reclaimed Hillcrest landfill site and the proposed RV Campground development, pursuant to the following conditions:

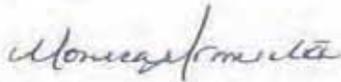
1. The waiver only applies to the development of the parcel located at Lot 1, Block 1, Plan 811 0799;
2. Household water will be supplied from an existing approved municipal system;
3. Residences will:
 - a. be constructed above ground level;
 - b. have no basements;
 - c. be constructed to prevent infiltration of landfill gas into the structures from the ground and from underground utility extensions;
 - d. have no ignition source in any crawl space; and
 - e. be monitored for the presence of methane gas.
4. The Municipality of Crowsnest Pass places a caveat or restrictive covenant on the land title stating that the lot is located within the three hundred (300) metres setback of the former Hillcrest landfill site; and

.../2

5. Any lease within the three hundred (300) metres shall have a note in the lease agreement indicating that the lease is located within the normal landfill site setback.

If you have any additional questions, please contact Mr. Robert Burland, Municipal Team Leader, Southern Region, AENV, at (403) 382-4015.

Sincerely,



(for) Ron Hicks

cc: Robert Burland
Environment

APPENDIX N - ALBERTA ENVIRONMENT COMMUNICATIONS

Brent Schmidt

From: Clara Bartha <clara.bartha@gov.ab.ca>
Sent: Thursday, January 19, 2023 8:20 AM
To: Brent Schmidt
Cc: Danielle Loiselle
Subject: RE: Setback distances for residences and landfills

Hi Brent, I provide my comments below in **blue** within the correspondence stream and we can further conclude this collaborative advisory review between AEPA and ourselves with a phone call. I am supplying a strictly advisory type reply blended with opinions on best practice, what has helped frame the problem is your team's helpful explanation of background, my involvement in previous advisory service on this around a year ago, the updated reference material you and Carol have supplied, and taking into account the recent updates to our regulation. Also, being that this is not legal level advice, the municipality may wish to seek that out if needed regarding drafting bylaws that may be contemplated on issues having a risk component, or drawing up specific development agreements that may flow from conditional approvals.

Thanks very much for working with me on this,
Clara

[Clara Bartha](#) - Municipal Planning Advisor - Tel: 780-644-3399
Advisory & Capacity Building Unit - Municipal Services Division



Classification: Protected A

From: Brent Schmidt <schmidt@ae.ca>
Sent: December 20, 2022 2:05 PM
To: Clara Bartha <clara.bartha@gov.ab.ca>
Cc: Danielle Loiselle <loiselled@ae.ca>
Subject: RE: Setback distances for residences and landfills

CAUTION: This email has been sent from an external source. Treat hyperlinks and attachments in this email with care.

Hi Clara,

I received responses from Carol Nelson from Alberta Environment. See her responses below in **red**. For question 2a. Carol referred it to Municipal Affairs. Can you please confirm if the approach and EPA's response aligns with MA's opinion?

Thanks and happy holidays!

Brent Schmidt, P.Geol.
Geoscientist

Associated Environmental Consultants Inc.
500, 9888 Jasper Avenue, Edmonton, AB T5J 5C6
Tel: 780.451.7666 | Cel: 587.987.2268 | Dir: 587.772.0699

From: Brent Schmidt
Sent: Monday, December 5, 2022 10:23 AM

To: 'clara.bartha@gov.ab.ca' <clara.bartha@gov.ab.ca>
Cc: Danielle Loiselle <loiselled@ae.ca>
Subject: RE: Setback distances for residences and landfills

Hi Clara,

I am the technical lead of the environmental assessment we are conducting for the Municipality of Crowsnest Pass regarding their former dumping areas. I have some questions from your previous email.

- 1) "AEP needs to grant any appropriately setback distances between landfill area and private property boundary and structures."
 - a. The May 2022 Guideline for Setback Reviews [Waste Facility] removed the requirements of the subdivision authorities and development authorities to receive consent from Alberta Environment. Similarly, the October 24, 2022, updated Alberta Regulation 84/2022, Matters Related to Subdivision and Development Regulation, Part 3, Section 17, "Distance from wastewater treatment, landfill, waste sites" removed the requirement that a subdivision authority or development authority requires written consent of the Deputy Minister of AEP. Based on these regulation updates, subdivision authorities and development authorities (the Municipality in this case) do not require to submit a request for consent to vary a setback distance to Alberta Environment. They should however follow the Guidelines and obtain the information listed to make an informed decision about approving a new development and varying the setback distance to less than 300 m. Can you please confirm that this is correct?

CB: Given the *very* recently amended and in force as of June 1st, 2022 'Matters Related to Subdivision and Development' Regulation 84/2022, I see that you are absolutely correct in AEPA no longer being required to provide a written consent to vary the (300 m distance in this case), *prior* to enabling the SA or DA to approve an application, but instead now requiring that as part of the application consideration, a professional engineer's report satisfying the *Guideline for Setback Reviews* be provided - per the above AR. 84/2022, S.17(6) and where ss.6 & 7 are relevant.

To your question about following APEA's Guidelines and obtaining the required information to make an informed decision, it would seem that the province defers to the local authority for upholding technical requirements from an relevant considerations analysis based partially on meeting the Guidelines. I do observe here that in this new approach to variances, the local authority is playing a more active role of accountability in mitigating risk to future development. As such, the municipality's SA or DA should acquire – or have the developer acquire - whatever technical expertise is needed to follow those Guidelines to make their decision within risk tolerances and this could mean more reliance on consultancy work of firms like yours to, in part, interpret what is to be followed in the Guidelines should there be no such expertise on municipal staff. In short, yes, municipalities can follow APEA's *Guideline for Setback Reviews* requirements to satisfy themselves of appropriately assessing the planning considerations a decision is based on. Often, the subsequent "Development Agreement" drawn up post-approval can tend to the particulars of seeing the implementation of approval conditions through, caveating that agreement and any other documents on title, for the time needed, as a best practice.

N.B.: A quick note to the Transitional component of the regulation if it applies to any applications in play in the impacted area that may have been submitted on/before May 31st, 2022, as those would follow the previously regulated method of having APEA be referred out for a variance. There could have been a pause on receiving applications though to enable the revised variance approach to be followed or the municipality may want to, if it is relevant, to enable consistent processing of applications in the affected area by cancelling and restarting any affected applications in order to follow new method of using the Guideline.

- **Response:** Both the applicant and the municipality (subdivision authority or development authority) would follow the Guidelines for any new development application proposed within the setback distance and that may be 300 meters or 450 depending on the type of waste facility. For non-operational landfills the distance is 300 meters.

- 2) The Municipality is wanting a definitive answer from the AB Government if they are allowed to approve building and renovation permits such as house renovations, garages, demolition and new builds, and decks/patios for existing properties within 300 m of these sites. Currently we are recommending the Municipality to do the following and to implement bylaws as to when a development permit process is triggered for existing properties and new subdivisions or developments:

- a. For existing residential properties the Municipality can allow building permits for any structures that people don't live in (e.g. outdoor spaces, uncovered decks, sheds, garages, etc.)

CB: The Land-use Bylaw (LUB) is the key document which the municipality would use to regulate land development including all permit processing requirements and permitted and discretionary uses in specific loci and any required or suggested conditions of any of those approvals based on risk mitigation methods. Zoning overlay method is an option to employ a meaningful direction to managing land use approvals, once enough technical information is obtained as informed by Environmental Site Assessments, etcetera and the establishment of 'risk' or some other named zone(s)/areas. The municipality will need to view this exercise as a risk management one and address it distinctively in the LUB and any other planning documents which could be used to flag the area in question and how it is to be managed, the most detailed being articulated in the LUB, the local regulatory document. They want no harm to come to property owners and users for the unencumbered enjoyment of their property or its safe use of structures and buildings and therefore would want to employ satisfactory methods of reducing risk of potential harm by way of: physical buffers, continued regular (municipal or private) soil testing, extra technical safety measures in the building or design of structure, or whatever other means.

Re: "a." (Seems logical and appropriate and could follow similarly to other areas in the municipality; these type of development permits are regulated similarly as they would be anywhere in the municipality.)

I do think that the municipality should employ caution and do some research prior considering subdivisions in the affected area. This will enable an informed Area Structure Plan or concept plan (existing? future?) if there is ever one. Having this sort of document will set the expectations of developers and landowners in the area, always a good thing for future planning. This may help set some conditions of potential approvals or set planning restrictions on new subdivisions based on risk related unknowns in the area. In thinking about future land subdivision, the municipality might benefit from knowing the future residential property insurance implications in zones like this (implications for limited residential insurance/no insurance?) and checking with the New Home Warranty Program with our ministry and if any expectations of coverage may be impacted are some ideas worth inquiring about so that the municipality itself is informed about setting a special planning policy or regulated zone for area approvals before approving something more difficult or costly for a future landowner to develop or own: (see: <https://www.alberta.ca/new-home-warranty.aspx>) To some degree there could also be challenges to lot/neighbourhood subdivision servicing and this should be looked at to ensure landfill impact issues do not adversely affect the ability to service each parcel with water, sewer, drainage, etcetera, for example if any of them rely on privately supplied servicing affecting underground infrastructure such as storage tanks/cisterns/fuel tanks.

- Response: I think this question is better suited to MA.
- If a municipality can create bylaws for exempt activities that do not trigger a development permit I would only focus on a narrow scope such as interior only house renovations, garages, decks or patios as I don't think new build would be suitable exemption.
 - In the case for residences, you can also look at the term residence and pursue a legal opinion on if the setback is triggered for non-residential uses. A setback is not intended to be triggered for buildings that are not for residential use; this can be explained more through bylaw or policy to determine if the setback first applies.
 - A word of caution to include a change of use (such as a garage conversion). It would be best to include the detail in a municipal bylaw or policy so the terms are clear to all applicants.
- b. For new residential developments the Municipality should thoroughly review plans for house renovations/additions and new residential structures that have basements within 300 m of these sites

until Phase II ESAs are completed at the sites to determine if there are human or environmental health concerns.

- Response: The setback guidance does provide advice on this manner (see page 5). If the landfill is producing methane there is a risk to the residential structure, if there is a basement. There are two ways to reduce risk, remove the pathway or continuously monitor for the presence of gas.
 - Before taking this approach, I suggest using an abundance of caution to understand how continuous monitoring or pathways mitigations can be evaluated on an ongoing basis to ensure they remain effective for the life of the development.
 - An ESA is a snapshot in time and does not reduce risk but it does inform on the level of risk.

CB: Agreed and appreciate Carol's wisdom on this.

- c. The Municipality not allow construction of any new schools, hospitals, or food establishments within 300 m of these sites until further ESAs are completed.

- Response: Food establishments have been removed from the regulation otherwise this seems to align, however the ESA assessment should reflect the Guideline for Setback Reviews provided.

CB: Agreed.

Would these recommendations be acceptable with Municipal Affairs?

CB: There could also be additional treatment within the Land-use Bylaw or other ancillary policies that could speak to prohibitions to drainage works, excavation or digging, burial of tanks or other facilities and similar disturbance activities without written authorization from the municipality or testing done and mitigation measures employed before the works are undertaken. These activities are usually regulated by the LUB as defined by "development" but it could get extra treatment in the zoning overlay or existing zoning provisions to ensure that any disturbance in the affected area is safe and that any changes to soils, subsurface areas, trenching or significant drainage works or re-grading for the building of homes, etc. are regulated by the municipality to be undertaken safely and by local government oversight to ensure nothing is done in a vacuum. Basically, you want to limit the disturbance of subsurface conditions and you need to flag that somehow – my comments above offer ideas on how.

The locations we are assessing were former unregulated dump sites that were present between the early 1940s to late 1970s. They were never designed, regulated, or operated as engineered landfills. In the 1970s the nuisance areas were covered with soil when the Municipality and AB Gov. shifted to a regionally-based landfilling system in the area. Based on the age of these sites we are considering these identified locations as former nuisance grounds and treating them as Areas of Potential Environment Concern (APECs). We are recommending that as the landowner of these locations (locations are owned by the Municipality and/or AB. Gov.), Phase II ESAs be conducted to characterize the sites, waste type and extents, and collect quantifiable data to confirm or refute the presence of potential contaminants of concern.

I have sent the same questions to Carol Nelson at Environment and Protected Areas to get confirmation from EPA's side.

Thanks,

Brent Schmidt, P. Geo.

Geoscientist

Associated Environmental Consultants Inc.

500, 9888 Jasper Avenue, Edmonton, AB T5J 5C6

Tel: 780.451.7666 | Cel: 587.987.2268 | Dir: 587.772.0699

From: Clara Bartha <clara.bartha@gov.ab.ca>
Sent: Friday, November 18, 2022 12:41:47 PM
To: Danielle Loiselle <loiselled@ae.ca>
Subject: RE: Setback distances for residences and landfills

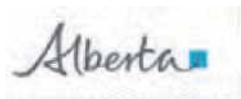
Hi Danielle, I apologize for any delay in getting back to you. I would like to ensure there is clarity in what I was trying to get across in conversation. Thanks for the reminder of the land development history. On what you are saying in your email: yes, AEP needs to grant any appropriately setback distances between landfill area and private property boundary and structures. If new development is proposed closer to the already approved variance or if compliant setback of 300 metres, they need to re-visit the setback approvals from the ministry of (now) Environment and Protected Areas. Variances could be needed. The municipality's bylaw notwithstanding, provincial sanction is needed for development permits but, if the bylaw specifically addresses a blanket approval for the area to within certain technical parameters, you are good to seek municipal development permit approval within the parameters of the provincial approval which the land-use bylaw may reflect. If the provincial approval does not cover new issues like revised distances, then a re-visit of that approval, should it exist, may be needed.

“At a minimum we know that a Phase II environmental site assessment would be required to determine if groundwater or landfill gas is an issue, along with other requirements listed in the Guideline for Setback Reviews [Waste Facility].” Yes, that is understood in order to help with obtaining enough technical information to support a provincial setback variance approval. Be curious to note what any decommissioning documents would say about this former landfill to manage just those effects, they may not exist (yet) for this one.

Just an fyi, I have talked extensively with the municipal development officer at the Specialized Municipality of Crowsnest Pass in past so she knows the local planning and provincial approvals systems and how they interplay. Also, I have done similar inquiries with a Oldman River Regional Services Commission staff planner worked on this issue.

Kindly call me again just to review anything as you go along, as a third ear on process. I work Tuesdays, Thursdays and Fridays presently.
Clara

Ms. Clara Bartha
Municipal Planning Advisor, Municipal Affairs
Municipal Capacity and Sustainability Branch
Government of Alberta
Telephone: 780-644-3399
clara.bartha@gov.ab.ca



Classification: Protected A

From: Danielle Loiselle <loiselled@ae.ca>
Sent: October 20, 2022 11:09 AM
To: Clara Bartha <clara.bartha@gov.ab.ca>
Cc: Brent Schmidt <schmidt@ae.ca>; Kyla Melnyk <melnyk@ae.ca>
Subject: Re: Setback distances for residences and landfills

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Hi Clara,

Thank you for speaking with me today. In the Municipality of Crownsnest Pass there are non-operating landfills within 300 m of residences. The landfills were covered in the 1970s-80s. Some of the landfills and residences were present in the 1940s or earlier.

If I understand correctly from our conversation, AEP does need to be involved in granting a setback variance for pre-existing developments unless the municipality already has a bylaw in place to allow these developments near the landfill? At a minimum we know that a Phase II environmental site assessment would be required to determine if groundwater or landfill gas is an issue, along with other requirements listed in the Guideline for Setback Reviews [Waste Facility].

Thank you,

Danielle

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Brent Schmidt

From: Carol Nelson <carol.nelson@gov.ab.ca>
Sent: Monday, December 12, 2022 9:21 AM
To: Brent Schmidt
Cc: Tara McKenna; Danielle Loiselle
Subject: RE: Inquiry about Guideline for Setback Reviews

Hi Brent,
Thanks for reaching out; please see my responses below (in blue).
Carol

Classification: Protected A

From: Brent Schmidt <schmidt@ae.ca>
Sent: Monday, December 05, 2022 10:23 AM
To: Carol Nelson <carol.nelson@gov.ab.ca>
Cc: Tara McKenna <tara.mckenna@gov.ab.ca>; Danielle Loiselle <loiselled@ae.ca>
Subject: RE: Inquiry about Guideline for Setback Reviews

CAUTION: This email has been sent from an external source. Treat hyperlinks and attachments in this email with care.

Hi Carol,

I am the technical lead of the environmental assessment we are conducting for the Municipality of Crowsnest Pass regarding their former dumping areas. I have some questions from your previous email.

- 1) The May 2022 Guideline for Setback Reviews [Waste Facility] removed the requirements of the subdivision authorities and development authorities to receive consent from Alberta Environment. Similarly, the October 24, 2022, updated Alberta Regulation 84/2022, Matters Related to Subdivision and Development Regulation, Part 3, Section 17, "Distance from wastewater treatment, landfill, waste sites" removed the requirement that a subdivision authority or development authority requires written consent of the Deputy Minister of AEP. Based on these regulation updates, subdivision authorities and development authorities (the Municipality in this case) do not require to submit a request for consent to vary a setback distance to Alberta Environment. They should however follow the Guidelines and obtain the information listed to make an informed decision about approving a new development and varying the setback distance to less than 300 m. Can you please confirm that this is correct?
 - **Response:** Both the applicant and the municipality (subdivision authority or development authority) would follow the Guidelines for any new development application proposed within the setback distance and that may be 300 meters or 450 depending on the type of waste facility. For non-operational landfills the distance is 300 meters.
- 2) The Municipality is wanting a definitive answer from the AB Government if they are allowed to approve building and renovation permits such as house renovations, garages, demolition and new builds, and decks/patios for existing properties within 300 m of these sites. Currently we are recommending the Municipality to do the following and to implement bylaws as to when a development permit process is triggered for existing properties and new subdivisions or developments:

- a. For existing residential properties the Municipality can allow building permits for any structures that people don't live in (e.g. outdoor spaces, uncovered decks, sheds, garages, etc.)
- Response: I think this question is better suited to MA.
- If a municipality can create bylaws for exempt activities that do not trigger a development permit I would only focus on a narrow scope such as interior only house renovations, garages, decks or patios as I don't think new build would be suitable exemption.
 - In the case for residences, you can also look at the term residence and pursue a legal opinion on if the setback is triggered for non-residential uses. A setback is not intended to be triggered for buildings that are not for residential use; this can be explained more through bylaw or policy to determine if the setback first applies.
 - A word of caution to include a change of use (such as a garage conversion). It would be best to include the detail in a municipal bylaw or policy so the terms are clear to all applicants.
- b. For new residential developments the Municipality should thoroughly review plans for house renovations/additions and new residential structures that have basements within 300 m of these sites until Phase II ESAs are completed at the sites to determine if there are human or environmental health concerns.
- Response: The setback guidance does provide advice on this manner (see page 5). If the landfill is producing methane there is a risk to the residential structure, if there is a basement. There are two ways to reduce risk, remove the pathway or continuously monitor for the presence of gas.
 - Before taking this approach, I suggest using an abundance of caution to understand how continuous monitoring or pathways mitigations can be evaluated on an ongoing basis to ensure they remain effective for the life of the development.
 - An ESA is a snapshot in time and does not reduce risk but it does inform on the level of risk.

The Municipality not allow construction of any new schools, hospitals, or food establishments within 300 m of these sites until further ESAs are completed.

- Response: Food establishments have been removed from the regulation otherwise this seems to align, however the ESA assessment should reflect the Guideline for Setback Reviews provided.

Would these recommendations be acceptable with EPA?

The locations we are assessing were former unregulated dump sites that were present between the early 1940s to late 1970s. They were never designed, regulated, or operated as engineered landfills. In the 1970s the nuisance areas were covered with soil when the Municipality and AB Gov. shifted to a regionally-based landfilling system in the area. Based on the age of these sites we are considering these identified locations as former nuisance grounds and treating them as Areas of Potential Environment Concern (APECs). We are recommending that as the landowner of these locations (locations are owned by the Municipality and/or AB. Gov.), Phase II ESAs be conducted to characterize the sites, waste type and extents, and collect quantifiable data to confirm or refute the presence of potential contaminants of concern.

I have sent the same questions to Clara Bartha at Municipal Affairs to get confirmation from their side as well.

Thanks,

Brent Schmidt, P.Geo.
Geoscientist

Associated Environmental Consultants Inc.
500, 9888 Jasper Avenue, Edmonton, AB T5J 5C6
Tel: 780.451.7666 | Cel: 587.987.2268 | Dir: 587.772.0699

From: Danielle Loiselle
Sent: Monday, October 17, 2022 6:41 PM
To: Carol Nelson <carol.nelson@gov.ab.ca>
Cc: Brent Schmidt <schmidt@ae.ca>; Tara McKenna <tara.mckenna@gov.ab.ca>
Subject: RE: Inquiry about Guideline for Setback Reviews

Hi Carol,

Thank you for getting back to me. That clarifies things and I will let you know if there are further questions.

Cheers,

Danielle

From: Carol Nelson <carol.nelson@gov.ab.ca>
Sent: October 17, 2022 10:16 AM
To: Danielle Loiselle <loiselled@ae.ca>
Cc: Brent Schmidt <schmidt@ae.ca>; Tara McKenna <tara.mckenna@gov.ab.ca>
Subject: RE: Inquiry about Guideline for Setback Reviews

Danielle,

1. AEP does not have a definition under this context. Residential use means as it is used within the context of the *Municipal Government Act* and subsequent regulations. It is a house, apartment, or other dwelling in which somebody lives.
 - Here are some other definitions that may apply to your question:
 - “building” includes a manufactured home, mobile home, modular home or travel trailer but does not include a tent.
 - “school” means a structured learning environment through which an education program is offered to a student by
 - (i) a board,
 - (ii) an operator of a private school,
 - (iii) an early childhood services program private operator,
 - (iv) a parent giving a home education program, or
 - (v) the Minister.
 - “hospital” means an institution operated for the care of diseased, injured, sick or mentally disordered people.
 - “residence” house, apartment, or other dwelling in which somebody lives.
2. Setbacks distances are not retroactive but are applied reciprocally to new residential development just as they would apply to new waste facilities. The setback distance is applied at the time of the development application whether the application is for a waste facility or a development, which has a minimum setback distance (residence, hospitals and schools). I would also note two important points under section 17 of the [Matters of the Subdivision and Development Regulation](#).
 - For new waste facilities, the setback applies to the property line of a school, hospital or residential use or building site proposed for a school, hospital or residence.
 - The setback applies to the property line for new subdivision applications.

3. I think this question would be better suited to Municipal Affairs. I believe that a municipality could create a local bylaw or direct control district which may give the municipality the ability to increase a developmental setback beyond what is specified in regulation, if desired. The City Charters also give this power to the City of Edmonton and the City of Calgary to develop setback bylaws but I am not aware of any such bylaws.
4. My answer depends partly on if a development permit process is triggered and I would advise that you get this input from your local municipality as it may change from one municipality to the next.
 - However, I do not believe that an outdoor spaces such as uncovered decks or sheds are considered residences and therefore should not trigger the setback, but a home expansion or home replacements should trigger the DP process and therefore the setback review.
 - The guidelines apply when there is a development application or subdivision application to the municipality, which includes a proposed reduction to a regulatory setback distance as listed in section 17 of the [Matters of the Subdivision and Development Regulation](#).
5. Setback variances apply to new development application, as described in my response #2.

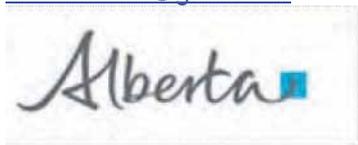
I am free today (except at 11 and 2) if you wanted to set up a teams call to discuss my response(s) more detail.

Regards,

Carol Nelson, P.Eng. (she/her)
Team Lead Waste Management
Water & Waste Policy Branch
Alberta Environment and Parks
Government of Alberta

10th floor, Oxbridge Place
9820 – 106 Street NW
Edmonton, AB T5K 2J6

Tel 780-427-5445
carol.nelson@gov.ab.ca



Classification: Protected A

From: Danielle Loiselle <loiselled@ae.ca>
Sent: Friday, October 14, 2022 7:30 AM
To: Carol Nelson <carol.nelson@gov.ab.ca>
Cc: Brent Schmidt <schmidtb@ae.ca>
Subject: Re: Inquiry about Guideline for Setback Reviews

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Hi Carol,

Hopefully all is well! I left you a voicemail on Wednesday October 12 and thought I would follow up with an email. I was told by Tara McKenna that you are the person to ask questions regarding the Guideline for Setback Reviews [Waste Facility].

I am currently working with the Municipality of Crownsnest Pass to identify existing landfill boundaries that will require setback variances for existing and future developments. Could you please clarify some of the questions below?

1. What is AEP's definition of a residence? I.e., do trailer homes or vacation/seasonal homes qualify as residences?
2. I understand that pre-existing developments are out of scope for the document. Does AEP have authority for setback reviews (waste facility) for residences that were present before the landfill/nuisance ground? Is there another guidance document that would apply in this case?
3. Does the Municipality have authority to extend setback variances to existing developments?
4. How do the guidelines apply to new residential buildings VS additions to existing residential structures? Additions may consist of decks, sheds, home expansions, or repairs.
5. How do setback variances apply to existing developments VS new developments?

It might be easier to discuss this on the phone. Please feel free to reach me on my cell 587.987.8420 or direct line 587.686.6687.

Thank you very much,

Danielle Loiselle, Geoscientist-in-Training (G.I.T.) (she/her)

Environmental Scientist

Associated Environmental Consultants Inc.

500, 9888 Jasper Avenue, Edmonton, AB T5J 5C6

Tel: 780.451.7666 | Dir: 587.686.6687 | Cel: 587.987.8420



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